12. ENGINEERING & SUPPORT BRANCH (K55)
BRANCH HEAD OFFICE

Space Characteristics

Function/adjacencies: LOCATE ADJACENT TO K55 BRANCH SECRETARY, FIRST FLOOR

Special Dimensions:
Ideal Plan Dimensions: 150 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 45 RATED

Access: PRIVATE

Number of Occupants: 1

Other/Special Requirements: Located within a CAA using an ACS per IA PUB Module 5239-22.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C101002	DEMOUNTABLE PARTITIONS AND DOORS			See RFP Part 6 CID Package.
C1020 07	INTERIOR DOOR HARDWARE	1 set		BHMA 626/630, lever with lockset, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include room name and number, name of occupant or function.
C103090	FLAT SCREEN TV	1		Appropriately sized for room, provide power, data and cable connection. Reinforce wall for mounting.
C103003	MARKERBOARD	1		Whiteboard with stainless steel frame and tool ledge, appropriately sized for room.
C103003	TACKBOARD	1		Tackbaord with stainless steel frame and tackable fabric covering.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		2’ x 2’ squares	Carpet tile.
C302007	WALL BASE FINISHES		4” H	Continuous resilient base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	Acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.

Uniformat Section	Description	Qty	Size	Specific Requirements
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE	2		Provide one line per workstation and separate for conference calling.
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate (2) classified and (2) unclassified runs per drop per User requirements.
E202002 1.2	MODULAR FREESTANDING WD. DESK	1		See RFP Part 6 CID Package. 150 SF Office.
E202003 1.1.1	TASK CHAIR	1		Ergonomic executive task chair; see RFP Part 6 CID Package; photos and guidelines.
E202003 1.1.2	GUEST CHAIR	2		Select style and size appropriate to room layout and design.
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	1		Desk sized.

12. ENGINEERING & SUPPORT BRANCH (K55) TECHNICAL/SCIENTIFIC SPECIALISTS OFFICE (QTY. 2)

Space Characteristics

Function/adjacencies: LOCATE ADJACNENT TO K55 BRANCH SECRETARY AND BRANCH HEAD, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 120 SF NET EACH / 240 SF NET TOTAL
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 45 RATED

Access: PRIVATE

Number of Occupants: 1 PER OFFICE / 2 TOTAL

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C101002	DEMOUNTABLE PARTITIONS & DOORS			See RFP Part 6 CID Package.
C1020 07	INTERIOR DOOR HARDWARE	Ea. Door		BHMA 626/630, lever with lockset, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	1 Ea.		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8"	Painted gypsum wall board.
C302005	FLOOR FINISHES		2' x 2' squares	Carpet tile.
C302007	WALL BASE FINISHES		4" H	Continuous resilient base.
C303001	CEILING FINISHES		2' x 2' x 5/8"	Acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.

Uniformat Section	Description	Qty	Size	Specific Requirements
D503001	TELEPHONE			Provide one line per workstation.
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202002 1.2	MODULAR FREESTANDING WD. WORKSTATION	2		See RFP Part 6 CID Package; Technical Scientific Specialist 120 SF.
E202003 1.1.1	TASK CHAIR	2		Executive chair with swivel base, see RFP Part 6 CID Package photos ergonomic chair.
E202003 1.1.2	GUEST CHAIR	4	2 per office	Select size and style appropriate to space.
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	2		Desk sized.

12. ENGINEERING & SUPPORT BRANCH (K55)
BRANCH SECRETARY

Space Characteristics

Function/adjacencies: LOCATE ADJACENT TO K55 BRANCH HEAD, FIRST FLOOR

Special Dimensions:
Ideal Plan Dimensions: 48 - 70 SF NET RANGE
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: OPEN

Number of Occupants: 1

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22, workstation with transitional shelf area for conducting business.

Systems furniture must meet all NAVFAC Performance Specifications.

Note: All data entry is to be by wall box or floor box. Limited use of power poles is requested. Cables shall be accessible behind removable covers. Cables management shall be integral to the systems furniture.

See RFP Part 6 CID Package guideline specifications and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include room name and number, name of occupant or function.
C302005	FLOOR FINISH		2' X 2' squares	Carpet tile.
C303001	CEILING FINISHES		2' x 2' x 5/8"	Acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line per workstation.
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.

Uniformat Section	Description	Qty	Size	Specific Requirements
E202002 1.1	MODULAR PREFABRICATED FURNITURE SYSTEMS	1		See RFP Part 6 CID Package; reception station.
E202003 1.1.1	TASK CHAIR	1		See RFP Part 6 CID Package; photos.
E202003 1.1.2	GUEST CHAIR	1		Select size and style appropriate to space.
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	1		Desk sized.

12. ENGINEERING & SUPPORT BRANCH (K55)
BRANCH EQUIPMENT (SHARED)

Space Characteristics

Function/adjacencies: SHARED EQUIPMENT WITHIN K55 BRANCHES, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 150 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: OPEN

Number of Occupants: 0

Other/Special Requirements: Shared equipment located within a CAA using an automated ACS per IA PUB Module 5239-22. Shared equipment (Shredder, Copier, Unclass. Printer). Must support area for Fax Machine & shared equipment, file safe, bookcase, file cabinets, plotter, stand alone PC workstation (NMCI seat), and plotter.

Systems furniture must meet all NAVFAC Performance Specifications.

Note: All data entry is to be by wall box or floor box. Limited use of power poles is requested. Cables shall be accessible behind removable covers. Cables management shall be integral to the systems furniture.

See RFP Part 6 CID Package guideline specifications and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C302005	FLOOR FINISHES		2' x 2' squares	Carpet tile.
C303001	CEILING FINISHES		2' x 2' x 5/8"	Acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line per outlet.
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each outlet. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.

Uniformat Section	Description	Qty	Size	Specific Requirements
E202003 1.2	FILE SAFE	1		5 high
E202002 1.1	STAND-ALONE PC WORKSTATION	1		Refer to NAVFAC Seating Guidelines and RFP Part 6 CID Package; photos.
E202002 1.1.1	TASK CHAIR	1		See RFP Part 6 CID Package photos.
E202003 1.2	BOOKCASE	1		5 high
E202003 1.2	FILE CABINET	2		5 high with lock.
E202090 1.1.4	EQUIPMENT TABLE	1		Sized appropriately for space.

12. ENGINEERING & SUPPORT BRANCH (K55)
BRANCH CONFERENCE ROOM

Space Characteristics

Function/adjacencies: CLOSE PROXIMITY TO K55 ENGINEERING & SUPPORT BRANCH, INTERNAL LOCATION, FIRST FLOOR

Special Dimensions:
Ideal Plan Dimensions: 150 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 50 RATED

Access: PRIVATE

Number of Occupants: 8 CAPACITY

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101002	DEMOUNTABLE PARTITIONS & DOORS			See performance specifications, STC 50.
C1020 07	INTERIOR DOOR HARDWARE	1 set		BHMA 626/630, lever with lockset, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include room name and number, name of occupant or function.
C103090	FLAT SCREEN TV	1		Appropriately sized for room, provide power, data, and cable connection.
C302005	FLOOR FINISHES		2'x 2' squares	Carpet tile.
C303001	CEILING FINISHES		2' x 2' x 5/8"	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01. Provide dedicated zone control and CO2 sensors.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line for conference calling.

Uniformat Section	Description	Qty	Size	Specific Requirements
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each outlet. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202003 1.4.1	CONFERENCE TABLE	1	Seat 8	Range of sizes, 12” x 42” appropriate to room.
E202003 1.1.1	CONFERENCE CHAIR	8		Swivel chair, five prong base; see RFP Part 6 CID Package photos and guidelines.
E202003 1.4.2	MARKER BOARD	1		White board appropriate size for room with stainless steel frame and tool ledge.
E202003 1.4.2	TACKBOARD	1		Tack board, appropriate size for room with stainless steel frame and tackable fabric covering.
E202090 1.1.1	WASTE / RECYCLE CONTAINER	1		Desk sized.

12. ENGINEERING & SUPPORT BRANCH (K55)
cNMCI OMNI/STE SECURE AREA (SHARED)

Space Characteristics

Function/adjacencies: SHARED EQUIPMENT WITH "3. STRATEGIC SYSTEMS DESIGN & IMPLEMENTATION DIVISION (K50)", SHARED SPACE WITHIN "12. E & s BRANCH, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 80 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: OPEN

Number of Occupants: 0

Other/Special Requirements: Shared equipment located within CAA space using an automated ACS per IA PUB Module 5239-22. Removable HD removed and stored in secured area when not in use. Printers attached to system will be located in secured spaces meeting SECNAV M5510.36 requirements.

Systems furniture must meet all NAVFAC Performance Specifications.

Note: All data entry is to be by wall box or floor box. Limited use of power poles is requested. Cables shall be accessible behind removable covers. Cables management shall be integral to the systems furniture.

See RFP Part 6 CID Package guideline specifications and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C3010	WALL FINISHES	A/R	5/8"	Painted gypsum wall board.
C302005	FLOOR FINISHES	A/R	2' X 2' squares	Carpet tile.
C302007	WALL BASE FINISHES	A/R	4" H	Continuous resilient base.
C303001	CEILING FINISHES	A/R	2' x 2' x 5/8"	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC	A/R		Provide system per UFC 3-401-01.
D40	FIRE PROTECTION	A/R		Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING	A/R		Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line per workstation.

Uniformat Section	Description	Qty	Size	Specific Requirements
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202002 1.1	STAND-ALONE PC WORKSTATION	1		60” X 24” deep computer table with keyboard tray.
E202003 1.1.1	TASK CHAIR	1		See NAVFAC Seating Guidelines and RFP Part 6 CID Package, photos.
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	1		Desk sized.

13. FIRE CONTROL & AUXILIARY SYSTEMS GROUP (K55) GROUP LEAD (QTY. 1)

Space Characteristics

Function/adjacencies: LOCATE ADJACENT TO K54 BRANCH SECRETARY AND BRANCH HEAD, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 80 - 110 SF NET RANGE
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 40 RATED

Access: OPEN

Number of Occupants: 1 PER OFF / 4 TOTAL

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22.

Systems furniture must meet all NAVFAC Performance Specifications.

Note: All data entry is to be by wall box or floor box. Limited use of power poles is requested. Cables shall be accessible behind removable covers. Cables management shall be integral to the systems furniture.

See RFP Part 6 CID Package guideline specifications and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C103004	ARCHITECTURAL SIGNAGE	1 Ea.		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		2’ x 2’ squares	Carpet tile.
C302007	WALL BASE FINISHES		4”	Continuous vinyl base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line per workstation.

D503001	DATA			Provide 2 category 6e & 1 six strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E201002	WINDOW TREATMENT	Ea. Window		Provide at all windows with horizontal blinds.
E202002 1.1	MODULAR PREFABRICATED FURNITURE SYSTEMS	1	80 - 110 SF range	See RFP Part 6 CID Package.
E202003 1.1.1	TASK CHAIR	1		Refer to NAVFAC Seating Guidelines and RFP Part 6 CID Package photos.
E202003 1.1.2	GUEST CHAIR	1		Size and style appropriate to space.
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	1		Desk sized.

13. FIRE CONTROL & AUXILIARY SYSTEMS GROUP (K55) TECHNICAL PROFESSIONALS (QTY. 5)

Space Characteristics

Function/adjacencies: LOCATE ADJACNENT TO K55 BRANCH GROUP LEAD, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 64 -80 SF NET RANGE EACH / 320 - 400 SF NET RANGE TOTAL
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: OPEN

Number of Occupants: 1 PER OFFICE / 5 TOTAL

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB 5239-22.

Systems furniture must meet all NAVFAC Performance Specifications.

Note: All data entry is to be by wall box or floor box. Limited use of power poles is requested. Cables shall be accessible behind removable covers. Cables management shall be integral to the systems furniture.

See RFP Part 6 CID Package guideline specifications and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C103004	ARCHITECTURAL SIGNAGE	1 Ea.		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		2’ x 2’ squares	Carpet tile.
C302007	WALL BASE FINISHES		4” H	Continuous resilient base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	Hp acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line per workstation.

Uniformat Section	Description	Qty	Size	Specific Requirements
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202002 1.2	MODULAR FREESTANDING WD. WORKSTATION	5		See RFP Part 6 CID Package.
E202003 1.1.1	TASK CHAIR	5		Refer to NAVFAC Seating Guidelines and RFP Part 6 CID Package photos.
E202003 1.1.2	GUEST CHAIR	5		Select size and style appropriate to space.
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	5		Desk sized.

13. FIRE CONTROL & AUXILIARY SYSTEMS GROUP (K55) BRANCH EQUIPMENT

Space Characteristics

Function/adjacencies: LOCATE ADJACNET TO K55 BRANCH, FIRST FLOOR

Special Dimensions:
Ideal Plan Dimensions: 15 SF

Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: OPEN

Number of Occupants: 0

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22. Shared equipment (copier, Fax machine, printer, plotter). Must support area for shared equipment, and file safe.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C302005	FLOOR FINISHES		2' X 2' squares	Carpet tile.
C303001	CEILING FINISHES		2' x 2' x 5/8"	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computrrzied equipment.
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User Requirements.
E202003 1.2	BOOKCASE	2		5 high
E202003 1.2	FILE SAFE	1		

13. FIRE CONTROL & AUXILIARY SYSTEMS GROUP (K55) SPECIAL AREA SPACE

Space Characteristics

Function/adjacencies: LOCATE WITHIN "13. FIRE CONTROL & AUXILIARY SYSTEMS GROUP K55", FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 100 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: OPEN

Number of Occupants: 0

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22. Area designated as a certified secure room, (Secured Program Support Equipment Stowage), with intrusion detection system (IDS) and automatic ACS per SECNAV M5510.36.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include room name and number, name of occupant or function.
C302005	FLOOR FINISHES		2' x 2' squares	Carpet tile.
C303001	CEILING FINISHES		2' x 2' x 5/8"	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line.
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202003 1.2	EQUIPMENT STORAGE CABINETS	1		Sized appropriately to hold equipment.

14. COMPUTER & INFORMATION SECURITY GROUP (K55) GROUP LEAD (QTY. 1)

Space Characteristics

Function/adjacencies: LOCATE FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 80 - 110 SF NET RANGE
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 40 RATED

Access: OPEN

Number of Occupants: 1

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22.

Systems furniture must meet all NAVFAC Performance Specifications

Note: All data entry is to be by wall box or floor box. Limited use of power poles is requested. Cables shall be accessible behind removable covers. Cables management shall be integral to the systems furniture.

See RFP Part 6 CID Package guideline specifications and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		2’ x 2’ squares	Carpet tile.
C302007	WALL BASE FINISHES		4”	Continuous vinyl base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line per workstation.

Uniformat Section	Description	Qty	Size	Specific Requirements
D503001	DATA			Provide 3 category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202002 1.1	MODULAR PREFABRICATED FURNITURE SYSTEMS	1	80 - 110 SF range	See RFP Part 6 CID Package.
E202003 1.1.1	TASK CHAIR	1		Refer to NAVFAC Seating Guidelines and RFP Part 6 CID Package photos.
E202003 1.1.2	GUEST CHAIR	1		Size and style appropriate to space.
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	1		Desk sized.

14. COMPUTER & INFORMATION SECURITY GROUP (K55) TECHNICAL PROFESSIONALS (QTY. 6)

Space Characteristics

Function/adjacencies: LOCATE ADJACNENT TO K55 C & IS GROUP LEAD, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 64 -80 SF NET RANGE EACH / 384 - 480 SF NET RANGE TOTAL
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: OPEN

Number of Occupants: 1 PER OFFICE / 6 TOTAL

Other/Special Requirements: Located within a CAA using an ACS per IA PUB Module 5239-22.

Systems furniture must meet all NAVFAC Performance Specifications.

Note: All data entry is to be by wall box or floor box. Limited use of power poles is requested. Cables shall be accessible behind removable covers. Cables management shall be integral to the systems furniture.

See RFP Part 6 CID Package guideline specifications and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C103004	ARCHITECTURAL SIGNAGE	1 Ea.		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		2’ x 2’ squares	Carpet tile.
C302007	WALL BASE FINISHES		4” H	Continuous resilient base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	Hp acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line per workstation.

Uniformat Section	Description	Qty	Size	Specific Requirements
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202002 1.2	MODULAR FREESTANDING WD. WORKSTATION	6	64-80 SF range	See RFP Part 6 CID Package.
E202003 1.1.1	TASK CHAIR	6		Refer to NAVFAC Seating Guidelines and RFP Part 6 CID Package photos.
E202003 1.1.2	GUEST CHAIR	6		Select size and style appropriate to space.
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	6		Desk sized.

14. COMPUTER & INFORMATION SECURITY GROUP (K55) BRANCH EQUIPMENT

Space Characteristics

Function/adjacencies: LOCATE ADJACNET TO K55 BRANCH, FIRST FLOOR

Special Dimensions:
Ideal Plan Dimensions: 15 SF

Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: OPEN

Number of Occupants: 0

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C302005	FLOOR FINISHES		2' X 2' squares	Carpet tile.
C303001	CEILING FINISHES		2' x 2' x 5/8"	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User Requirements.
E202003 1.2	FILE SAFE	1		5 high

15. NETWORK ENGINEERING & FACILITY SUPPORT GROUP (K55) GROUP LEAD (QTY. 1)

Space Characteristics

Function/adjacencies: LOCATE FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 80 - 110 SF NET RANGE
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: OPEN

Number of Occupants: 1

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22.

Systems furniture must meet all NAVFAC Performance Specifications.

Note: All data entry is to be by wall box or floor box. Limited use of power poles is requested. Cables shall be accessible behind removable covers. Cables management shall be integral to the systems furniture.

See RFP Part 6 CID Package guideline specifications and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C103004	ARCHITECTURAL SIGNAGE	1 Ea.		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		2’ x 2’ squares	Carpet tile.
C302007	WALL BASE FINISHES		4”	Continuous vinyl base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line per workstation.

Uniformat Section	Description	Qty	Size	Specific Requirements
D503001	DATA			Provide 3 category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202002 1.1	MODULAR PREFABRICATED FURNITURE SYSTEMS	1	80 - 110 SF range	See RFP Part 6 CID Package.
E202003 1.1.1	TASK CHAIR	1		Refer to NAVFAC Seating Guidelines and RFP Part 6 CID Package photos.
E202003 1.1.2	GUEST CHAIR	1		Size and style appropriate to space.
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	1		Desk sized.

15. NETWORK ENGINEERING & FACILITY SUPPORT GROUP (K55) TECHNICAL PROFESSIONALS (QTY. 11)

Space Characteristics

Function/adjacencies: LOCATE ADJACNENT TO K55 NE & FS & GROUP LEAD, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: FIVE AT 64 -80 SF NET RANG AND SIX AT 48 - 64 SF EACH / 704 - 784 SF NET RANGE TOTAL
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: OPEN

Number of Occupants: 11

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22.

Systems furniture must meet all NAVFAC Performance Specifications.

Note: All data entry is to be by wall box or floor box. Limited use of power poles is requested. Cables shall be accessible behind removable covers. Cables management shall be integral to the systems furniture.

See RFP Part 6 CID Package guideline specifications and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C103004	ARCHITECTURAL SIGNAGE	1 Ea.		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		2’ x 2’ squares	Carpet tile.
C302007	WALL BASE FINISHES		4” H	Continuous resilient base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	Hp acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line per workstation.

Uniformat Section	Description	Qty	Size	Specific Requirements
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202002 1.2	MODULAR PREFABRICATED FUNITURE SYSTEM	7	7 at 64 – 80 SF range	See RFP Part 6 CID Package. See RFP Part 6 Drawings for specific locations.
E202003 1.1.1	TASK CHAIR	7		Refer to NAVFAC Seating Guidelines and RFP Part 6 CID Package photos.
E202003 1.1.2	GUEST CHAIR	7		Select size and style appropriate to space.
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	7		Desk sized.

15. NETWORK ENGINEERING & FACILITY SUPPORT GROUP (K55) BRANCH EQUIPMENT

Space Characteristics

Function/adjacencies: LOCATE ADJACNET TO NE & FS GRPUP K55, FIRST FLOOR

Special Dimensions:
Ideal Plan Dimensions: 211 SF

Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: OPEN

Number of Occupants: 0

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C302005	FLOOR FINISHES		2' X 2' squares	Vinyl tile.
C303001	CEILING FINISHES		2' x 2' x 5/8"	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line per in area.
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User Requirements.
E202002 1.2	WORK TABLE	3		36" x 72" x 30" H
E202003 1.2	FILE CABINET	3		5 high with lock.

Uniformat Section	Description	Qty	Size	Specific Requirements
E202003 1.2	BOOKCASE	3		5 high
E202002 1.2	WORK BENCH	4		36” x 72” x height per required from department.

15. NETWORK ENGINEERING & FACILITY SUPPORT GROUP (K55)

SPECIAL AREA SPACE

Space Characteristics

Function/adjacencies: LOCATE ADJACNET TO NE & FS GRPUP K55, FIRST FLOOR

Special Dimensions:
Ideal Plan Dimensions: 2,705 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: OPEN

Number of Occupants: 0

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22. Configure space to support secured stowage designated secure room with IDS per SECNAV M5510.36. Space includes receiving area, secured program support equipment stowage, secured facility & network support stowage, operating supply stowage and IM&S secured equipment/part stowage.

Systems furniture must meet all NAVFAC Performance Specifications.

Note: All data entry is to be by wall box or floor box. Limited use of power poles is requested. Cables shall be accessible behind removable covers. Cables management shall be integral to the systems furniture.

See RFP Part 6 CID Package guideline specifications and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C101002	DEMOUNTABLE PARTITIONS AND DOORS			See RFP Part 6 CID specification and photos.
C1020	INTERIOR DOORS	1 single 1 pair	3' x 8' single 3'-8" x 8' pair	Solid core wood door, STC 40.
C1020	INTERIOR DOOR FRAMES	2	1 single 1 double	Hollow metal, welded, painted, with silencers.
C102007	INTERIOR DOOR HARDWARE	3 sets	1 single 2 double	BHMA 626/630, panic device, closer, hinges, kickplate and stop at single door. BHMA 626/630, lever with card reader (badge reader) lockset, closers, hinges, removable mullion, kickplate, and stops at double doors.
C103004	ARCHITECTURAL SIGNAGE	2		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8"	Painted gypsum wall board.

Uniformat Section	Description	Qty	Size	Specific Requirements
C302005	FLOOR FINISHES		2' x 2' squares	Vinyl static dissipative tile.
C302007	WALL BASE FINISHES		4" h	Continuous resilient base.
C303001	CEILING FINISHES		2' x 2' x 5/8"	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line in secured space.
D503001	DATA			Provide 3 Category 6e & 1 eight strand Om4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements. Lab Racks shall be served by two 24 strand OM4 MM fiber cables. Refer to notional space layouts and topology configuration shown in RFP Part 6 BFR Figure 2-1 and 2-2a through 2-2c for network layout.
E202002 1.2	MODULAR PRERFABRICATED FUNITURE SYSTEM	4	2 at 64-80 SF range and 2 at 48 – 64 SF range	See RFP Part 6 CID Package. Two reception stations.
E202003 1.1.1	TASK CHAIR	4		See RFP Part 6 CID Package; photos.
E202090 1.1.1	WASTE /RECYCLING REPETACLE	4		Desk sized.

16. SLBM COMPUTING SYSTEMS GROUP (K55) GROUP LEAD (QTY. 1)

Space Characteristics

Function/adjacencies: LOCATE FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 80 - 110 SF NET RANGE
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: OPEN

Number of Occupants: 1

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22.

Systems furniture must meet all NAVFAC Performance Specifications.

Note: All data entry is to be by wall box or floor box. Limited use of power poles is requested. Cables shall be accessible behind removable covers. Cables management shall be integral to the systems furniture.

See RFP Part 6 CID Package guideline specifications and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C103004	ARCHITECTURAL SIGNAGE	1 Ea.		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		2’ x 2’ squares	Carpet tile.
C302007	WALL BASE FINISHES		4”	Continuous vinyl base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line per workstation.

Uniformat Section	Description	Qty	Size	Specific Requirements
D503001	DATA			Provide 3 category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202002 1.1	MODULAR PREFABRICATED FURNITURE SYSTEMS	1	80 - 110 SF range	See RFP Part 6 CID Package.
E202003 1.1.1	TASK CHAIR	1		Refer to NAVFAC Seating Guidelines and RFP Part 6 CID Package photos.
E202003 1.1.2	GUEST CHAIR	1		Size and style appropriate to space.
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	1		Desk sized.

16. SLBM COMPUTING SYSTEMS GROUP (K55) TECHNICAL PROFESSIONALS (QTY. 16)

Space Characteristics

Function/adjacencies: LOCATE ADJACNENT TO K55 SLBM COMPUTING SYSTEMS GROUP LEAD, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: TEN AT 64 - 80 SF NET RANG AND SIX AT 48 - 64 SF EACH / 928 – 1,184 SF NET RANGE TOTAL
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: OPEN

Number of Occupants: 16

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22.

Systems furniture must meet all NAVFAC Performance Specifications.

Note: All data entry is to be by wall box or floor box. Limited use of power poles is requested. Cables shall be accessible behind removable covers. Cables management shall be integral to the systems furniture.

See RFP Part 6 CID Package guideline specifications and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C103004	ARCHITECTURAL SIGNAGE	1 Ea.		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		2’ x 2’ squares	Carpet tile.
C302007	WALL BASE FINISHES		4” H	Continuous resilient base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	Hp acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line per workstation.

Uniformat Section	Description	Qty	Size	Specific Requirements
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202002 1.2	MODULAR FREESTANDING WD. WORKSTATION	16	10 at 64 – 80 SF range & 6 at 48 – 64 SF range	See RFP Part 6 CID Package. See RFP Part 6 Drawings for specific locations.
E202003 1.1.1	TASK CHAIR	16		Refer to NAVFAC Seating Guidelines and RFP Part 6 CID Package photos.
E202003 1.1.2	GUEST CHAIR	16		Select size and style appropriate to space.
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	16		Desk sized.

16. SLBM COMPUTING SYSTEMS GROUP (K55) BRANCH EQUIPMENT

Space Characteristics

Function/adjacencies: LOCATE ADJACNET TO SLBM COMPUTING SYSTEMS GORUP LEAD K55, FIRST FLOOR

Special Dimensions:
Ideal Plan Dimensions: 42 SF

Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: OPEN

Number of Occupants: 0

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22. Must support area for shared equipment, 2 bookcases and 2 file cabinet.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C302005	FLOOR FINISHES		2' X 2' squares	Carpet tile.
C303001	CEILING FINISHES		2' x 2' x 5/8"	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User Requirements.
E202003 1.2	BOOKCASE	2		5 high
E202003 1.2	FILE	2		5 high with lock.

16. SLBM COMPUTING SYSTEMS GROUP (K55) SPECIAL AREA SPACE

Space Characteristics

Function/adjacencies: LOCATE ADJACNET TO NE & FS GRPUP K55, FIRST FLOOR

Special Dimensions:
Ideal Plan Dimensions: 780 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 45 RATED

Access: PRIVATE

Number of Occupants: 4 / VARIES

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22. Configure space to support secured stowage designated secure room with IDS per SECNAV M5510.36. Space includes secured stowage and backups (Space Saver 12' x 20'), trouble desk and systems operations, and remote secured system access (eNMC seat), and staging Build Area.

Systems furniture must meet all NAVFAC Performance Specifications.

Note: All data entry is to be by wall box or floor box. Limited use of power poles is requested. Cables shall be accessible behind removable covers. Cables management shall be integral to the systems furniture.

See RFP Part 6 CID Package guideline specifications and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C101002	DEMOUNTABLE PARTITIONS AND DOORS			See RFP Part 6 CID specification and photos.
C1020	INTERIOR DOORS	1 single 1 pair	3' x 8' single 3'-8" x 8' pair	Solid core wood door, STC 45.
C1020	INTERIOR DOOR FRAMES	2	1 single 1 double	Hollow metal, welded, painted, with silencers.
C102007	INTERIOR DOOR HARDWARE	3 sets	1 single 2 double	BHMA 626/630, panic device, closer, hinges, kickplate and stop at single door. BHMA 626/630, lever with card reader (badge reader lockset, closers, hinges, removable mullion, kickplate, and stops at double doors.
C103004	ARCHITECTURAL SIGNAGE	4		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8"	Painted gypsum wall board.
C302005	FLOOR FINISHES		2' x 2' squares	Special raised flooring with static dissipative tiles (12" deep recess).

Uniformat Section	Description	Qty	Size	Specific Requirements
C302007	WALL BASE FINISHES		4” H	Continuous resilient base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE	7		Provide two lines in the remote system access space, 1 line in system network area and 1 line at each workstation.
D503001	DATA			Provide 3 Category 6e & 1 eight strand Om4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202002 1.2	MODULAR PRERFABRICATED FUNITURE SYSTEM	4	4 at 36 - 48 SF range	See RFP Part 6 CID Package. Two reception stations.
E202003 1.1.1	TASK CHAIR	4		See RFP Part 6 CID Package; photos.
E202003 1.1.2	GUEST CHAIR	4		Select style and size appropriate to space.
E202090 1.1.1	WASTE /RECYCLING REPETACLE	4		Desk sized.
E202003 1.2	SPACE SAVER STORAGE SYSTEM	1	12’ X 20’	As required by users requirements. Verify with Customer.

16. SLBM COMPUTING SYSTEMS GROUP (K55) NETWORK SYSTEMS & SPECIALIZED EQUIPMENT

Space Characteristics

Function/adjacencies: LOCATE ADJACNET TO SLBM SPECIAL AREA SPACE, FIRST FLOOR

Special Dimensions:
Ideal Plan Dimensions: 1,056 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 45 RATED

Access: PRIVATE

Number of Occupants: VARIES

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22. Configure space to support secured stowage designated secure room with IDS per SECNAV M5510.36.

Systems furniture must meet all NAVFAC Performance Specifications.

Note: All data entry is to be by wall box or floor box. Limited use of power poles is requested. Cables shall be accessible behind removable covers. Cables management shall be integral to the systems furniture.

See RFP Part 6 CID Package guideline specifications and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C101002	DEMOUNTABLE PARTITIONS& DOORS			See performance specifications
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C3020	FLOOR FINISHES		2’ x2’ squares	Special raised flooring with static dissipative vinyl tiles (12” deep recess).
C302007	WALL BASE FINISHES		4” H	Continuous resilient base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers, Audio / Visual notification devices, and permanent fire suppression equipment.

Uniformat Section	Description	Qty	Size	Specific Requirements
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements. Lab Racks shall be served by two 24 strand OM4 MM fiber cables. Refer to notional space layouts and topology configurations shown in RFP Part 6 BFR Figures 2-1 and 2-2a through 2-2c for network layout.

17. TOP SECRET CONTROL OFFICE (TSCO) (K55) SPECIAL AREA SPACE w/ EQUIPMENT

Space Characteristics

Function/adjacencies: LOCATE ADJACENT TO FBM LIBRARY, FIRST FLOOR

Special Dimensions:
Ideal Plan Dimensions: 255 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 50 RATED

Access: PRIVATE

Number of Occupants: 1

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22, space designated as a certified secure room with Intrusion Detection System (IDS) per SECNAV M5510.36.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C1020	INTERIOR DOORS	1	3' x 8'	Solid core wood, STC 50.
C1020	INTERIOR DOOR FRAMES	1		Hollow metal, welded, painted, silencers.
C1020 07	INTERIOR DOOR HARDWARE	1 set		BHMA 626/630, lever with card reader (badge reader) lockset closer, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8"	Painted gypsum wall board.
C302005	FLOOR FINISHES		2' x 2' squares	Vinyl tile.
C302007	WALL BASE FINISHES		4" H	Continuous resilient base.
C303001	CEILING FINISHES		2' x 2' x 5/8"	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.

Uniformat Section	Description	Qty	Size	Specific Requirements
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line supporting Fax.
D503001	DATA			Provide 3 Category 6e & eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202003 1.2	FILE SAFE	1		
E202002 1.1	STAND-ALONE PC WORKSTATION AND	2		60” x 30” x 28” H.
E202003 1.1.1	TASK CHAIR	2		See RFP Part 6 CID Package; photos.
E202003 1.2	BOOKCASE	1		5 high
E202003 1.2	FILE CABINET	2		5 high with lock
E202090 1.1.4	EQUIPMENT TABLE	1		36” x 72” x 30” H
E202090 1.1.4	WORK BENCH	1		36” x 72” x 30” H

18. FLEET BALLISTIC MISSILE (FBM) LIBRARY
SPECIAL AREA SPACE FOR FBM LIBRARY w/ EQUIPMENT

Space Characteristics

Function/adjacencies: LOCATE ADJACNET TO “17. TSCO (K55)”, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 669 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 50 RATED

Access: PRIVATE

Number of Occupants: 1

Other/Special Requirements: Located within a CAA using an automated ACS per IA PUB Module 5239-22, space designated as a certified secure room with Intrusion Detection System (IDS) per SECNAV M5510.36.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C1020	INTERIOR DOORS	1	3’-8” x 8’	Solid core wood door, STC 50.
C1020	INTERIOR DOOR FRAMES	1		Hollow metal, welded, painted, silencers.
C1020 07	INTERIOR DOOR HARDWARE	1 set		BHMA 626/630, lever with card reader (card reader) lockset, closer, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		2’ x 2’ squares	Carpet tile.
C302007	WALL BASE FINISHES		4”H	Continuous resilient base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.

Uniformat Section	Description	Qty	Size	Specific Requirements
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE	3		Provide one line per workstation and Fax.
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202002 1.2	MODULAR FREESTANDING FURNITURE	2	60” x 30” with 18” x 48” return	L-shaped desk top with storage.
E202003 1.1.1	TASK CHAIR	6		See RFP Part 6 CID Package photos ergonomic task chair.
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	2		Desk sized
E202003 1.2	FILE SAFE	2		5 high with lock.
E202002 1.1	STAND-ALONE PC WORKSTATION	4	30” w x 20” d x 30Z” h	To hold table top PC equipment.
E202003 1.2	BOOKCASE	1		5 high
E202003 1.2	FILE CABINET	2		5 high with lock.
E202090 1.1.4	EQUIPMENT TABLE	2		24” x 36” x 30” H
E202003 1.2	CLASSIFIED STORAGE CABINET	3		Sized to storage requirements.
E202003 1.2	SPACE SAVER STORAGE SYSTEM	1	20' x 12'	As required by users requirements. Verify with Customer.

19. SPECIAL PROGRAM ACCESS AREA
TECHNICAL SUPPORT SWING SPACES - PRIVATE OFFICES (QTY. 3)

Space Characteristics

Function/adjacencies: LOCATE FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 240 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 45 RATED

Access: PROVATE

Number of Occupants: 3

Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB Module 5239-22 and ICD/ICS 705.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C101002	DEMOUNTABLE PARTITIONS AND DOORS			Demountable partitions and doors, see RFP Part 6 CID Package specification and photos.
C1020 07	INTERIOR DOOR HARDWARE	3 sets		BHMA 626/630, lever with card reader (badge reader) lockset, closer, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	1/Room		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		2’ x 2’ squares	Carpet tile.
C302007	WALL BASE FINISHES		4” H	Continuous resilient base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers, Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line per workstation.

Uniformat Section	Description	Qty	Size	Specific Requirements
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202002 1.1	MODULAR FREESTANDING WD. WORKSTATION	3		See RFP Part 6 CID Package.
E202003 1.1.1	TASK CHAIR	3		See RFP Part 6 CID Package; photos
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	3		Desk sized.

19. SPECIAL PROGRAM ACCESS AREA
SPECIAL AREA SPACE w/ EQUIPMENT

Space Characteristics

Function/adjacencies: LOCATE ADJACENT TO “19. SPAA OFFICES (K50)”, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 554 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 45 RATED

Access: PRIVATE

Number of Occupants: 15 TRANSIENT PERSONNEL

Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB Module 5239-22 and ICD/ICS 705.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C101002	DEMOUNTABLE PARTITIONS	1		See RFP Part 6 CID Package specifications and photos, entry vestibule.
C1020	INTERIOR DOORS	1	3’ x 8’	Solid core wood door STC 45.
C1020	INTERIOR DOOR FRAMES	1		Hollow metal, welded, painted, silencers.
C1020 07	INTERIOR DOOR HARDWARE	1 set		BHMA 626/630, lever with card reader (badge reader) lockset, closer, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		2’ x 2’ squares	Carpet tile.
C302007	WALL BASE FINISHES		4”H	Continuous resilient base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers, Audio / Visual notification devices.

Uniformat Section	Description	Qty	Size	Specific Requirements
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide two lines throughout area.
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202002 1.1	OMNI/STE	1	15 SF	
E202002 1.1	STAND-ALONE PC WORKSTATIONS	16		
E202002 1.1.1	TASK CHAIRS	16		See RFP Part 6 CID Package, photos.
E202002 1.1	PRINTERS W/ STAND	3	18 SF Ea.	
E202002 1.2	L-SHAPED DESKS	6		Desk with storage-provide cable management for wiring.
E202003 1.1.1	TASK CHAIR	6		See RFP Part 6 CID Package; photos.
E202003 1.2	FILE SAFE	4		5 high with lock.
E202003 1.2	BOOKCASE	2		5 high
E202003 1.2	SUPPLY CABINET	1		5 high
E202090 1.1.4	EQUIPMENT TABLE	2	60” x 24”	
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	6		Desk sized.

19. SPECIAL PROGRAM ACCESS AREA COMPUTER ROOM & CMS STOWAGE

Space Characteristics

Function/adjacencies: LOCATE ADJACENT TO “19. SPAA OFFICES (K50)”, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 90 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 45 RATED

Access: PRIVATE

Number of Occupants: 0

Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB Module 5239-22 and certified as a secured room per ICD/ICS 705.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C101002	DEMOUNTABLE PARTITIONS AND DOORS		,	See RFP Part 6 CID Package specifications and photos.
C1020 07	INTERIOR DOOR HARDWARE	1 set		BHMA 626/630, lever with card reader (badge reader) lockset, closer, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		1 X 1 FT	Resilient tile.
C302007	WALL BASE FINISHES		4” H	Continuous resilient base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01. Temperature: 67-75 degrees F. Humidity: 40-60%, no condensation.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers, Audio / Visual notification devices.

Uniformat Section	Description	Qty	Size	Specific Requirements
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements. Lab Racks shall be served by two 24 strand OM4 fiber cables. Refer to notional space layouts and topology configurations shown in RFP Part 6 BFR Figures 2-1 and 2-2a through 2-2c for network layout.

19. SPECIAL PROGRAM ACCESS AREA CONFERENCE ROOM

Space Characteristics

Function/adjacencies: LOCATE ADJACENT TO “19. SPAA OFFICES (K50)”, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 249 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 50 RATED

Access: PRIVATE

Number of Occupants: 20 CAPACITY

Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB Module 5239-22 and ICD/ICS 705.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C101002	DEMOUNTABLE PARTITIONS AND DOORS			Demountable partitions and doors, see RFP Part 6 CID Package specifications and photos.
C1020 07	INTERIOR DOOR HARDWARE	1 set		BHMA 626/630, lever with card reader (badge reader) lockset, closer, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include room name and number, name of occupant or function.
C103090	FLAT SCREEN TV	2		Appropriately sized for room, provide power, data, and cable connection. Reinforce wall for mounting TV.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		2’ x 2’ squares	Carpet tile.
C302007	WALL BASE FINISHES		4”H	Continuous resilient base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01. Provide dedicated control and CO2 sensors.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers, Audio / Visual notification devices.

Uniformat Section	Description	Qty	Size	Specific Requirements
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line per outlet.
D503001	DATA			Provide 3 Category 6e & 1 eight strand OM4 fiber cables to each outlet. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202003 1.4.1	CONFERENCE TABLE	1	Seats 8	12’ x 42” with connectivity for network and electrical.
E202003 1.1.1	CONFERENCE CHAIR	20		Swivel base, five prong; see RFP Part 6 CID Package photos and guidelines.
E202003 1.4.2	MARKER BOARD	1		White board appropriate size for room with stainless steel frame and tool ledge.
E202003 1.4.2	TACKBOARD	1		Tack board, appropriate size for room with stainless steel frame and tackable covering.
E202090 1.1.1	WASTE / RECYCLE CONTAINER	1		
E202090 1.1.2	WALL CLOCK	1		

20. RDT&E AND NMCI NETWORK CLOSETS EQUIPMENT (QTY 2)

Space Characteristics

Function/adjacencies: ONE PER FLOOR (20.A FIRST FLOOR/20.B SECOND FLOOR).

Special Dimensions:
Ideal Plan Dimensions: 230 SF NET EACH / 460 SF NET TOTAL
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: PRIVATE

Number of Occupants: 0

Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB Module 5239-22 and constructed with an intrusion detection system (IDS) and an automated Access Control System (ACS) per SECNAV M5510.36.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C1020	INTERIOR DOORS	1 Ea.	3' x 8'	Solid core wood door, STC 36.
C1020	INTERIOR DOOR FRAMES	Ea. Door		Hollow metal, welded, painted, silencers.
C1020 07	INTERIOR DOOR HARDWARE	Ea. Door		BHMA 626/630, lever with card reader (badge reader) lockset, closer, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	1 Ea.		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8"	Painted gypsum wall board.
C302005	FLOOR FINISHES		2' x 2' squares	Non-static resilient vinyl sheet.
C302007	WALL BASE FINISHES		4" H	Continuous resilient base.
C303001	CEILING FINISHES			Exposed structure painted.
D30	HVAC			Provide system per UFC 3-401-01. Temperature: 67-75F. Humidity; 40-60%, no condensation.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers, Audio / Visual notification devices, and permanent fire suppression equipment.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide pendant mounted industrial lighting fixtures with reflectors. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide dedicated power panel. Provide UPS backup.

Uniformat Section	Description	Qty	Size	Specific Requirements
D503001	TELEPHONE			Provide one line per room.
D503001	DATA			Refer to notional space layouts and topology configuration shown in RFP Part 6 BFR Figures 2-1 and 2-2a through 2-2c for network layout.

21. UNITED KINGDOM (UK) REPRESENTATIVE TECHNICAL & RESEARCH SUPPORT AREA

Space Characteristics

Function/adjacencies: LOCATE FIRST FLOOR

Special Dimensions:
Ideal Plan Dimensions: 120 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 45 RATED

Access: PRIVATE

Number of Occupants: 1

Other/Special Requirements: Confined within a CAA using an automated Access Control System (ACS) per IA PUB Module 5239-22 . Provide space for file cabinets, bookcases, and file safe.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C1020	INTERIOR DOORS	1	3' x 8'	Solid core wood door, STC 45.
C1020	INTERIOR DOOR FRAMES	1		Hollow metal, welded, painted, silencers.
C1020 07	INTERIOR DOOR HARDWARE	1 set		BHMA 626/630, lever with card reader (badge reader) lockset, closer, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8"	Painted gypsum wall board.
C302005	FLOOR FINISHES		2' x 2' squares	Carpet tile.
C302007	WALL BASE FINISHES		4" H	Continuous resilient base.
C303001	CEILING FINISHES		2' x 2' x 5/8"	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.

Uniformat Section	Description	Qty	Size	Specific Requirements
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELECOM SYSTEM			Provide one line per workstation.
5503001	DATA			Provide 2 Category 6e & 1 six strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202002 1.2	MODULAR FREESTANDING WD. WORKSTATION	1		See RFP Part 6 CID Package.
E202003 1.1.1	TASK CHAIR	1		See Executive chair with swivel base, see RFP Part 6 CID Package photos and ergonomic task chair.
E202003 1..1.2	GUEST CHAIR	1		Select size and style appropriate to space.
E202003 1.2	BOOKCASE	1		5 high with lock.
E202003 1.2	FILE CABINET	1		2 high with lock.
E202003 1.2	FILE SAFE	1		2 high with lock.
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	1		Desk sized.

22 A. SSP EMERGENCY RELOCATION SITE / OFF-SITE SUPPORT AREA CONFERENCE ROOM

Space Characteristics

Function/adjacencies: LOCATE ADJACENT TO “23 CONFERENCE FACILITY”, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 363 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 50 RATED

Access: PRIVATE

Number of Occupants: 20 CAPACITY

Other/Special Requirements: Confined within a CAA using an automated ACS per per IA PUB Module 5239-22 and certified as a secured area per SECNAV M5510.36

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C1020	INTERIOR DOORS	1	3’ x 8’	Solid core wood door, STC 50.
C1020	INTERIOR DOOR FRAMES	1		Hollow metal, welded, painted, silencers.
C1020 07	INTERIOR DOOR HARDWARE	1 set		BHMA 626/630, lever with card reader (badge reader) lockset, closer, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	2		Wall mounted; include room name and number, name of occupant or function.
C103090	FLAT SCREEN TV	1		Appropriately sized for room, provide power, data, and cable connection. Reinforce wall for mounting TV.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		2’ x 2’ squares	Carpet tile.
C302007	WALL BASE FINISHES		4” H	Continuous resilient base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01. Provide dedicated zone control and CO2 sensors.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers, Audio / Visual notification devices.

Uniformat Section	Description	Qty	Size	Specific Requirements
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE	2		Provide one line in room and separate for conference calling.
D503001	DATA			Provide 2 Category 6e & 1 six strand OM4 fiber cables to each outlet. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202003 1.4.1	CONFERENCE TABLE	1	Seat 14	Range of size 16' x42", appropriate to room.
E202003 1.1.1	CONFERENCE CHAIRS	20		Swivel base; see RFP Part 6 CID Package photos and guidelines. See Seating Guidelines
E202003 1.4.2	MARKER BOARD	1		White board appropriate size for room with stainless steel frame and tool ledge.
E202003 1.4.2	TACKBOARD	1		Tack board, appropriate size for room with stainless steel frame and tackable covering.
E202090 1.1.1	WASTE / RECYCLE CONTAINER	1		
E202090 1.1.2	WALL CLOCK	1		
E202090 1.1.2	COAT RACK	1		

22 B & 22 C. SSP EMERGENCY RELOCATION SITE / OFF-SITE SUPPORT AREA SPECIAL AREA SPACE w/ EQUIPMENT

Space Characteristics

Function/adjacencies: LOCATE ADJACENT TO "23 CONFERENCE FACILITY", FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 455 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 45 RATED

Access: PRIVATE

Number of Occupants: 5

Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB Module 5239-22 and certified as a secured area per SECNAV M5510.36. Configure space 22 B to include copiers, Fax Machine, printers, file safe, file cabinet, bookcases and 5 Touch Down Stations. Configure space 22C to include SWSNET network system and laptop stowage.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C1020	INTERIOR DOORS	2	3' x 8'	Solid core wood door.
C1020	INTERIOR DOOR FRAMES	2		Hollow metal, welded, painted, silencers.
C1020 07	INTERIOR DOOR HARDWARE	2 sets		BHMA 626/630, lever with card reader (badge reader) lockset, closer, hinges, kick plate and stop at corridor/ 22 B. BHMA 626/630, lever with card reader (badge reader) lockset, closer, hinges, kick plate and stop at Room 22 C.
C103004	ARCHITECTURAL SIGNAGE	2		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8"	Painted gypsum wall board.
C302005	FLOOR FINISHES		2' x 2' squares	Carpet tile.
C302007	WALL BASE FINISHES		4" H	Continuous resilient base.
C303001	CEILING FINISHES		2' x 2' x 5/8"	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.

Uniformat Section	Description	Qty	Size	Specific Requirements
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE	2		Provide two lines.
D503001	DATA			Provide 2 Category 6e & 1 six strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements. Lab Racks shall be served by two 24 strand OM4 fiber cables. Refer to notional space layouts and topology configurations shown in RFP Part 6 BFR Figures 2-1 and 2-2a through 2-2c for network layout.
E202002 1.1	TOUCH-DOWN STATIONS	5		Use counters 24” deep with desk top dividers.
E202003 1.1.1	TASK CHAIR	5		See RFP Part 6 CID Package, photos.
E202003 1.2	FILE SAFE	1		5 high with lock.
E202003 1.2	BOOKCASE	1		5 high
E202003 1.2	FILE CABINET	1		5 high with lock.
E202003 1.2	LAPTOP STORAGE CABINET	1		Hold and charge minimum 20 laptops.
E202090 1.1.1	WASTE / RECYCLE CONTAINER	5		Desk sized.

23. CONFERENCE FACILITY
CONFERENCE ROOMS (QTY. 2)

Space Characteristics

Function/adjacencies: LOCATE AT FIRST FLOOR ADJACNET TO ENTRANCE THROUGH OHIO CLASS ADDITION, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 700 SF NET EACH / 1400 SF NET TOTAL
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 50 RATED

Access: PRIVATE

Number of Occupants: 50 CAPACITY MIN.

Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB Module 5239-22 and certified as a secured space per SECNAV M5510.36.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C101003	RETRACTABLE PARTITIONS	1		Per retractable partition manufacturer, STC 50.
C1020	INTERIOR DOORS	4	3’ x 8’	Solid core wood door, STC 50.
C1020	INTERIOR DOOR FRAMES	Ea. Door		Hollow metal, welded, painted, silencers.
C1020 07	INTERIOR DOOR HARDWARE	Ea. Door		BHMA 626/630, lever with card reader (badge reader) lockset, closer, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	2		Wall mounted; include room name and number, name of occupant or function.
C103090	FLAT SCREEN TV	2		Appropriately sized for room, provide power, data, and cable connection. Reinforce wall for mounting TV.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board with acoustic tackable surface wall covering on two walls. Consider acoustic wall panels for extra sound attenuation..
C302005	FLOOR FINISHES		2’ x 2’ squares	Carpet tile.
C302007	WALL BASE FINISHES		4” H	Continuous resilient base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01. Provide dedicated control and CO2 sensors.

Uniformat Section	Description	Qty	Size	Specific Requirements
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers, Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system pr UFC 3-520-01. Provide recessed direct/indirect fluorescent light fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE	2/room		Provide one line for conference calling and one line at room entrance.
D503001	DATA	Per room		Provide 2 Category 6e & 1 six strand OM4 fiber cables to each outlet. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements. (7 ea.; 6 around room & 1 for conference table).
E202003 1.4.1	CONFERENCE TABLE	1/room		12' X 42" in two parts with connectivity to power and data.
E202003 1.4.1	NESTING CONFERENCE TABLE	32		24" x 60", verify storage space. Consider connectivity to power and data.
E202003 1.1.1	CONFERENCE CHAIRS	24		Swivel base five prong; see RFP Part 6 CID Package photos and guidelines.
E202003 1.1.3	STACKING CHAIR	100		Metal frame with flexback.
E202003 1.4.2	MARKER BOARD	1/room		White board appropriate size for room with stainless steel frame and tool ledge.
E202090 1.1.1	TACKBOARD	1/room		Tack board, appropriate size for room with stainless steel frame and tackable fabric covering.
E202090 1.1.2	WALL CLOCK	1/room		
E202090 1.1.2	COAT RACK	1/room		
E202090 1.1.1	WASTE / RECYCLING CONTAINERS	1/room		Desk sized.

25 A & 25 B CONTRACTOR TERMINAL ROOM
CONTRACTOR TERMINAL SPACE w/ EQUIPMENT (QTY. 2)

Space Characteristics

Function/adjacencies: LOCATE IN TWO AREAS, ONE ON EACH FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 2751 NET SF EACH / 5502 NET SF TOTAL
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 40 RATED

Access: OPEN

Number of Occupants: 40 PER AREA / 80 TOTAL IDEAL

Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB Module 5239-22

Systems furniture must meet all NAVFAC Performance Specifications.

Note: All data entry is to be by wall box or floor box. Limited use of power poles is requested. Cables shall be accessible behind removable covers. Cables management shall be integral to the systems furniture.

See RFP Part 6 CID Package guideline specifications and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
B202001	WINDOWS SECOND FLOOR			Aluminum, Non-operable; comply with AT/FP requirements per UFC 4-010-01. Windows shall meet distance and opaqueness requirements established in IA PUB 5239-22.
B202004	EXTERIOR GLAZING SECOND FLOOR		¼" MIN.	Blast resistant; comply with AT/FP requirements per UFC 4-010-01.
C103004	ARCHITECTURAL SIGNAGE	1 Ea. Floor		Wall mounted; include room name and number, name of occupant or function.
C302005	FLOOR FINISHES		2' x 2' squares	Carpet tile.
C3010	WALL FINISHS		5/8"	Painted gypsum wall board.
C302007	WALL BASE FINISHES		4" H	Continuous resilient base.
C303001	CEILING FINISHES		2' x 2' x 5/8"	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01. Provide multiple HVAC thermal zone controls.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.

Uniformat Section	Description	Qty	Size	Specific Requirements
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE	3/space		Provide lines appropriate throughout space..
D503001	DATA	A/R		Provide 2 Category 6e & 1 six strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop (workstations and printers) per User requirements.
E201002	WINDOW TREATMENT			Provide at all windows with horizontal blinds.
E202002 1.1	MODULAR PREFABRICATED FURNITURE SYSTEMS	80	36 -64 SF	See RFP Part 6 CID Package.
E202003 1.1.1	TASK CHAIR	80		Refer to NAVFAC Seating Guidelines and RFP Part 6 CID Package photos.
E202003 1.2	FILE SAFE	8		5 high with locks.
E202003 1.2	BOOKCASE	10		5 high
E202003 1.2	FILE CABINET	10		5 high with locks.
E202090 1.1.4	WORK TABLE	2		60” x 30” x 30” H.
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	4		3 cubic feet capacity.

26. SW / PLATFORM DEVELOPMENT LABS SPECIAL AREA SPACE

Space Characteristics

Function/adjacencies: FIRST FLOOR

Special Dimensions:
Ideal Plan Dimensions: 1,898 NET SF; two SW/Platform Development Labs at 200 Net SF each.; four SW/Platform Development Labs at 350 SF each; SW Development System Network platform (Sand Box) at 32 SF Net, two Operator Stations at 32 SF each, and Local UPS at 2 SF Net.
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 50 RATED

Access: PRIVATE

Number of Occupants: VARIES

Other/Special Requirements: Confined within a CAA with an automated ACS per IA PUB Module 5239-22 and constructed as a Certified Secure Room with Intrusion Detection System (IDS) per SECNAV M5510.36

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C101002	DEMOUNTABLE PARTITIONS AND DOORS	6	3’ x 8’	Sub-Divided Interior Space. See RFP Part 6 CID Package.
C1020	INTERIOR DOORS	2	3’ x 8’	Solid core wood door, STC 50.
C1020	INTERIOR DOOR FRAMES	2		Hollow metal, welded, painted, silencers.
C1020 07	INTERIOR DOOR HARDWARE	Ea. Door		BHMA 626/630, lever with card reader (badge reader lockset, closer, hinges, kick plate and stop at corridors. BHMA 626/630, lever with card reader (badge reader) lockset, closer, hinges, kick plate and stop at demountable partitions (5 sets).
C103004	ARCHITECTURAL SIGNAGE	8		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		2’ x 2’	Resilient tile floor.
C302007	WALL BASE FINISHES		4” H	Continuous resilient base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.

Uniformat Section	Description	Qty	Size	Specific Requirements
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers, Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line per workstation.
D503001	DATA			Provide 2 Category 6e and 1 six strand OM4 fiber cables to each workstation. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements. Racks shall be served by two 24 strand OM4 MM fiber cables. Refer to notional space layouts and topology configuration shown in the RFP Part 6 BFR Figures 2-1 and 2/2a through 2-2c for network layout.
E202090 1.1.1	WASTE / RECYCLING RECEPTACLE	6		Desk sized.

27. SECURE AREA TELECONFERENCE FACILITY CONFERENCE ROOM

Space Characteristics

Function/adjacencies: FIRST FLOOR

Special Dimensions:
Ideal Plan Dimensions: 725 NET SF
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 50 RATED

Access: PRIVATE

Number of Occupants: 25

Other/Special Requirements: Confined within a CAA , with enhance security standards per Intelligence Community Directive (ICD) 705.2. Design space for certified secure room with Intrusion Detection System (IDS) and an automated Access Control System (ACS) per ICD/ICS 705.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C1020	INTERIOR DOORS	1	3' x 8'	Solid core wood door, STC 50.
C1020	INTERIOR DOOR FRAMES	1		Hollow metal, welded, painted, silencers.
C1020 07	INTERIOR DOOR HARDWARE	1 set		BHMA 626/630, lever with card reader (badge reader) lockset, closer, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include room name and number, name of occupant or function.
C103090	FLAT SCREEN TV	2		Appropriately sized for room, provide power, data, and cable connection.
C3010	WALL FINISHES		5/8"	Painted gypsum wall board.
C302005	FLOOR FINISHES		2' x 2' squares	Carpet tile.
C302007	WALL BASE FINISHES		4"	Continuous vinyl base.
C303001	CEILING FINISHES		2' x 2' x 5/8"	HP acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D30	HVAC			Provide system per UFC 3-401-01. Provide dedicated control and CO2 sensors.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers, Audio / Visual notification devices.

Uniformat Section	Description	Qty	Size	Specific Requirements
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Provide UPS circuit feeds for all computerized equipment.
D503001	TELEPHONE			Provide one line per outlet.
D503001	DATA			Provide 2 Category 6e & 1 six strand OM4 fiber cables to each outlet. This will accommodate the (2) classified and (2) unclassified runs per drop per User requirements.
E202003 1.4.1	CONFERENCE TABLE	1		Special configuration for 25; 12' x 42" with power and data connectivity. Provide clear line of site to visual communication boards and screens.
E202003 1.1.1	CONFERENCE CHAIR	25		See NAVFAC Seating Guidelines. Swivel chair, five prong base; see RFP Part 6 CID Package photos and guidelines.
E202003 1.4.2	MARKER BOARD	1		White board appropriate size for room with stainless steel frame and tool ledge.
E202003 1.4.2	TACKBOARD	1		Tack board, appropriate size for room with stainless steel frame and tackable fabric covering.
E202090 1.1.1	WASTE / RECYCLE CONTAINER	1		Desk sized.
E202090 1.1.2	WALL CLOCK	1		

28A & 28B. SHARED SPACE
KITCHEN AREA / BREAK ROOMS (QTY. 2)

Space Characteristics

Function/adjacencies: LOCATE ONE PER FLOOR. LOCATE FIRST FLOOR AREA ADJACENT TO ACCESS HALLWAY AND CONFERENCE FACILITY. LOCATE SECNOND FLOOR FOR CONVIEINCE OF STAFF.

Special Dimensions:
Ideal Plan Dimensions: 375 SF NET EACH / 750 NET SF TOTAL
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: OPEN

Number of Occupants: VARIES

Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB Module 5239-22. Provide wet bar with double sinks, counter and cabinets, above counter electrical outlets for equipment and convenience. Provide vending machines at First Floor location.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C103008	COUNTER TOPS			Counter top of solid surface or quartz, back splash to be integral with top
C103009	CABINETRY			Commercial grade solid wood cabinets with stainless steel hardware.
C103004	ARCHITECTURAL SIGNAGE	1 Ea. Total 2		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		4”	Painted gypsum wall board.
C302005	FLOOR FINISHES		2’ x 2’	Terrazzo Floor
C302007	WALL BASE FINISHES		4”H	Continuous Terrazzo base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	Acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D20	PLUMBING	2 systems		Provide countertop kitchen sink with two compartments. Provide waste disposer. Provide ice machine drain and water supply.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.

Uniformat Section	Description	Qty	Size	Specific Requirements
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors.
D503001	TELEPHONE			Provide one line per outlet.
E1090	AUTOMATIC ICE MAKER	2		65lb. daily capacity, 20lb storage capacity, with automatic operation, free standing.
E202003 1.5.1	CAFÉ TABLE	4	48” R x 29”H	Laminate or solid surface top
E202003 1.5.1	STACKING CAFÉ CHAIR	16		No fabric on seat,- chairs should be cleanable
E202090 1.1.1	WASTE / RECYCLE CONTAINER	2	30” high approx.	Large size with liners
E202090 1.1.2	WALL CLOCK	2		
E202090 1.1.3	REFRIGERATOR	4	21 Cu. ft.	Full size refrigerator 14.9 cf with freezer 6.13 cf
E202090 1.1.3	MICROWAVE	4		1200 watt capacity microwave mounted into wall cabinetry
E202090 1.1.3	COFFEE MAKER	4		Plug in style with large capacity and easy maintenance.

29. SHARED SPACE
LOCKER ROOMS (QTY. 10 LOCKERS, SPLIT 5 MALE, 5 FEMALE)

Space Characteristics

Function/adjacencies: ADA COMPLIANT FACILITIES, LOCATE ADJACENT TO FIRST FLOOR TOILETS.

Special Dimensions:
Ideal Plan Dimensions: (LOCKERS) 115 NET SF EACH / 230 SF NET TOTAL
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: PRIVATE

Number of Occupants: 5 CAPACITY EACH / 10 CAPACITY TOTAL

Other/Special Requirements: Confined within a CAA using an automated ACS IA PUB Module 5239-22. Comply with UFC 4-610-01 Administrative Facilities design requirements, Provide male and female locker rooms with 5 lockers each, spaces must be functional 24/7 basis.

See RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C1020	INTERIOR DOORS	2	3' x 8'	Solid core wood door, STC 36.
C1020	INTERIOR DOOR FRAMES	2		Hollow metal, welded, painted, silencers.
C1020 07	INTERIOR DOOR HARDWARE	Ea. Door		BHMA 626/630, push/pull access, closer, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	2		Wall mounted; include room name and number, name of occupant or function.
C103005	LOCKERS	10		Base mounted, full height lockers, minimum 12" wide x 24" deep, with shelf, robe hooks, latch with padlock, and integral benches. Provide 5 at men's and 5 at women's locker rooms.
C3010	WALL FINISHES		5/8"	Painted gypsum wall board above 48 " high ceramic tile wainscot, and ceramic tile throughout shower.
C103002	BATH ACCESSORIES	2		Robe hook at shower enclosure, 1 at Women's and 1 at Men's shower. Provide handicap accessible seat, 1 at Women's and 1 at Men's shower area.
C302005	FLOOR FINISHES			Porcelain or ceramic tile.
C302007	WALL BASE FINISHES		4"	Porcelain or ceramic tile.
C303001	CEILING FINISHES			Painted gyp wallboard ceiling

Uniformat Section	Description	Qty	Size	Specific Requirements
D20	PLUMBING			Provide per UFC 3-420-01. Provide 1 shower in each Women's and Men's locker rooms, first floor, TOTAL OF 2).
D30	HVAC			Provide system per UFC 3-401-01. Provide dedicated exhaust system.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors.

30. SHARED SPACE TOILETS (QTY.4)

Space Characteristics

Function/adjacencies: ADA COMPLIANT FACILITIES, LOCATE FIRST FLOOR TOILETS ADJANCENT TO THE CONFERENCE FACILITY CORRIDOR, LOCATE SECOND FLOOR TOILETS OFF CORRIDOR AT A CENTRAL LOCATION.

Special Dimensions:
Ideal Plan Dimensions: 220 SF NET EACH / 400 SF NET TOTAL
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: PRIVATE

Number of Occupants: 3 Men/3 Women each floor.

Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB Module 5239-22.

SEE RFP Part 6 CID Package guideline specification and photos.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C1020	INTERIOR DOORS	2	3' x 8'	Solid core wood door, STC 36.
C1020	INTERIOR DOOR FRAMES	2		Hollow metal, welded, painted, silencers.
C1020 07	INTERIOR DOOR HARDWARE	Ea. Door		BHMA 626/630, push-pull devices, closer, hinges, kick plate and stop.
C103001	COMPARTMENTS, CUBICLES, & TOILET PARTITIONS	10		Floor mounted. Reinforce panels to receive partition-mounted accessories.
C103002	TOILET ACCESSORIES			Toilet accessories: toilet paper dispensers, paper towel dispenser with integral trash receptacle, robe hooks, grab bars, sanitary napkin disposal, seat cover dispensers, mirrors and soap dispensers. Coordinate with Base Facilities Staff.
C103004	ARCHITECTURAL SIGNAGE	4		Wall mounted; include room name and number.
C301004	TILE WALL FINISHES		4" x 4"	Ceramic tile wainscot at 1.2 m (4') A.F.F. Provide full height ceramic tile finish at wet-wall. Use a dark-colored epoxy grout. Use a dark-colored epoxy grout. Paint gypsum wall board above wainscot with epoxy paint.

Uniformat Section	Description	Qty	Size	Specific Requirements
C3010	WALL FINISHES		5/8”	Painted gypsum wall board. above 48” high ceramic tile wainscoat
C302005	FLOOR FINISHES			Porcelain or ceramic tile.
C302007	WALL BASE FINISHES		4”	Tile Base
C303001	CEILING FINISHES			Gyp board ceiling painted semi- gloss
D20	PLUMBING			Provide per UFC 3-420-01. Provide 2 lavatories and 3 toilets in Women’s each floor, and 2 lavatories, 2 toilets, and 1 urinal in Men’s each floor.
D30	HVAC			Provide system per UFC 3-401-01. Provide exhaust per code.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors.

31. SHARED SPACE
COVERED LOADING DOCK

Space Characteristics

Function/adjacencies: LOCATE EXTERIOR TO BUILDING AT LOADING AREA/INTERIOR RECEIVING AREA, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 18' LONG X 10' DEEP, 180 SF NET
Minimum Ceiling Height: 11'-4"

Acoustics: NA

Access: CONTROLLED

Number of Occupants: 0

Other/Special Requirements: Provide space for access steps and ADA compliant ramp to grade. Provide dock bumpers and metal soffit system.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
A 1030	SLAB ON GRADE			Provide dampproofing and perimeter insulation, and liquid chemical floor hardener.
B1020	FLOOR CONSTRUCTION			Provide concrete sealer on exterior stairs, ramp, and steps.
B2010	WALL FINISH			Split-faced masonry.
B201007	EXTERIOR SOFFITS			Metal soffit system.
C103004	ARCHTECTURAL SIGNAGE	1		Wall mounted, include name.
C201002	EXTERIOR STAIRS			Concrete steps with cast aluminum treads and abrasive surface.
C201090	HANDRAILS, GUARDRAILS, AND ACCESSORIES			Provide painted steel handrails and guardrails.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct fluorescent lighting fixtures.

32. ELEVATOR /ELEVATOR MACHINE ROOM

Space Characteristics

Function/adjacencies: HOUSE ELEVATOR EQUIPMENT FOR ELEVATOR OPERATION; LOCATE ELEVATOR MACHINE ROOM AT FIRST FLOOR WITH EXTERIOR ACCESS FROM LOADING DOCK AREA, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 200 NET SF
Minimum Ceiling Height: OPEN TO STRUCTURE ABOVE

Acoustics: MIN. STC 36 RATED

Access: PRIVATE

Number of Occupants: 0

Other/Special Requirements: Elevator only is physically located within a CAA using an automated ACS per IA PUB Module 5239-22. Comply with applicable UFC 4-610-01, Administration Facilities design requirements. Walls adjoining secure areas (Elevator Machine Room) shall meet requirements of IA PUB 5229.22.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
A1030	SLAB ON GRADE			Provide damproofing, perimeter insulation, and liquid chemical floor hardener.
B 1010	FLOOR CONSTRUCTION			Exposed concrete with clear sealer.
B2030	EXTERIOR DOORS	1	3’ x 8’	Insulated hollow metal, painted, comply with AT/FP requirements per UFC 4-010-01.
B2030	EXTERIOR DOOR FRAMES	1		Hollow metal, welded, painted, with silencers.
B203008	EXTERIOR DOOR HARDWARE	1 set		BHMA 626/630, lever with combination lockset, closer with hold open device, hinges, kick plate, weatherstripping, and stop. Provide balanced magnetic switch (BMS) as part of Access Control System (ACS).
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C103004	ARCHITECTURAL SIGNAGE			Wall mounted; include room name and number, name of occupant or function.
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302007	WALL BASE FINISHES		4” H	Continuous resilient base.
C303001	CEILING FINISHES			Exposed structure, painted.

Uniformat Section	Description	Qty	Size	Specific Requirements
D10	CONVEYING	1		Provide elevator in accordance with ASME/ANSI A 17.1 and NAVFAC ITG FY 2013, elevator design guide.
D30	HVAC			Provide system per UFC 3-401-01. Provide dedicated DX cooling 24/7..
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors.

33. MECHANICAL / ELECTRICAL / FIRE PUMP ROOM

Space Characteristics

Function/adjacencies: AREA/SPACE TO HOUSE MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: 1,516 NET SF
Minimum Ceiling Height: OPEN TO STRUCTURE ABOVE

Acoustics: MIN. STC 50 RATED

Access: PRIVATE

Number of Occupants: 0

Other/Special Requirements: Comply with applicable UFC 4-610-01, Administration Facilities design requirements. Walls adjoining secure areas shall meet requirements of IA PUB 5229.22.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
A1030	SLAB ON GRADE			Provide damproofing, perimeter insulation, and liquid chemical floor hardener.
B201005	EXTERIOR LOUVERS		Coordinate w/ Mech.	Aluminum louvers with aluminum insect screens. Provide aluminum flashing.
B2030	EXTERIOR DOUBLE DOOR AND FRAME	2	Pair 3’ x 8’	Hollow metal insulated door and frame. Comply with AT/FP requirements per UFC 4-010-01.
B2030	EXTERIOR SINGLE DOOR AND FRAME	1	3’ X 8’	Hollow metal insulated door and frame, painted. Comply with AT/FP requirements per UFC 4-010-01.
B203008	Exterior Door Hardware	2 sets		BHMA 626/630, lever with combination lockset, closer, hinges with hold open device, hinges, kick plate, weatherstripping, stops, and removable mullion at double doors. Provide balance magnetic switch (BMS) as part of the access control system (ACS).
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C1020	INTERIOR DOORS	1	3’ x 8’	Hollow metal door, painted.
C1020	INTERIOR DOOR FRAMES	1		Hollow metal, welded, painted, and silencers.
C1020 07	INTERIOR DOOR HARDWARE	1 set		BHMA 626/630, lever with combination lockset, closer, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	4		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		.	Concrete

Uniformat Section	Description	Qty	Size	Specific Requirements
C302007	WALL BASE FINISHES		4” H	Continuous resilient base.
C303001	CEILING FINISHES			Exposed structure painted.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide direct/indirect fluorescent lighting fixtures.
D503001	TELEPHONE SYSTEM			Provide one line per outlet.
D503001	DATA			Provide NMCI network access.

34. SHARED SPACE
PERSONAL CARE ROOM

Space Characteristics

Function/adjacencies: CLOSE PROXIMITY TO WOMEN'S RESTROOMS, FIRST FLOOR

Special Dimensions:
Ideal Plan Dimensions: 90 SF NET
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED

Access: PRIVATE

Number of Occupants: 1

Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB Module 5239-22.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C1020	INTERIOR DOORS	1	3' x 8'	Solid core wood door.
C1020	INTERIOR DOOR FRAMES	1		Hollow metal, welded, painted, silencers.
C1020 07	INTERIOR DOOR HARDWARE	1 set		BHMA 626/630, lever with lockset, closer, hinges, kick plate and stop.
C103002	TOILET ACCESSORIES			Toilet accessories: Paper towel dispensers, with integral trash receptacle, robe hooks, mirrors and soap dispensers.
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include room name and number. Include "Private Use" and operable panel to identify "Occupied or Unoccupied".
C103008	COUNTERTOPS	1		Solid acrylic countertop and backsplash.
C 103009	CABINETS	1		Base cabinet under lavatory and counter.
C301004	TILE WALL FINISHES		(4" x 4")	Ceramic tile wainscot at 1.2 m (4') A.F.F. Provide full height ceramic tile finish at wet-wall. Use a dark-colored epoxy grout. Paint gypsum wall board above wainscot with epoxy paint.
C3010	WALL FINISHES		5/8"	Painted gypsum wall board. above 48" high ceramic tile wainscoat.
C302005	FLOOR FINISHES			Resilient tile.

Uniformat Section	Description	Qty	Size	Specific Requirements
C302007	WALL BASE FINISHES		4”	Tile Base
C303001	CEILING FINISHES			Gyp board ceiling painted semi- gloss
D20	PLUMBING			Provide per UFC 3-420-01, provide countertop single bowl sink.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors.
D503001	TELEPHONE SYSTEM			Provide one line per outlet.
E202090 1.1.3	Refrigerator	1		5.6 cu. ft with glass shelves
E202003 1.1.2	Mothers Nursing Chair	1		Comfortable seating with cleanable upholstery
E202003	Side Table	1	24 “ square x 30 “H	Laminate top

35. JANITOR CLOSETS (QTY. 2)

Space Characteristics

Function/adjacencies: HOUSE CLEANING SUPPLIES/LOCATE IN CLOSE PROXIMITY TO RESTROOMS AND CORRIDORS, ONE PER FLOOR.

Special Dimensions: 64 SF EACH; 128 SF TOTAL
Ideal Plan Dimensions:
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36

Access: PROVATE

Number of Occupants: 0
Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB Module 5239-22. Comply with applicable UFC 4-610-01 Administration Facilities design requirements.
A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C1020	INTERIOR DOORS	1 per floor	3’ x 8’	Solid core wood door.
C1020	INTERIOR DOOR FRAMES	1 per floor		Hollow metal, welded, painted, silencers.
C1020 07	INTERIOR DOOR HARDWARE	1 set Ea. Door		BHMA 626/630, lever with lockset, closer with hold open device, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	2		Wall mounted; include room name and number, name of occupant or function.
C103006	SHELVING	1		Provide shelving suitable for mop and supplies.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board.
C302005	FLOOR FINISHES		1 x 1 FT	Resilient tile.
C302007	WALL BASE FINISHES		4” H	Continuous resilient base.
C303001	CEILING FINISHES		2’ x 2’ x 5/8”	Acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D20	PLUMBING			Provide per UFC 3-420-01. Provide mop sink.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures.

36. LOADING DOCK RECIEVING ALCOVE

Space Characteristics

Function/adjacencies: MOVEMENT OF EQUIPMENT / LOADING DOCK, FIRST FLOOR

Special Dimensions:
Ideal Plan Dimensions: 8' x 8'; 64 SF
Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36

Access: OPEN

Number of Occupants: 0

Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB 5239-22. Comply with applicable UFC 4-610-01 Administration Facilities design requirements.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
B203002	Exterior Door and Frame	1	Pair 3'-8" x 8'	Hollow metal insulated, reinforced ribbed door and frame. Comply with AT/FP requirements per UFC 4-010-01.
B203008	Exterior Door Hardware	1 Set		Provide panic hardware with pull at exterior. Door is always locked. Provide balance magnetic switch (BMS) as part of the access control system (ACS).
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8"	Painted gypsum wall board.
C302005	FLOOR FINISHES			Resilient tile.
C303001	CEILING FINISHES	A/R	2' x 2' x 5/8"	Acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
C103014	ENTRANCE FLOOR GRILLES/MAT	1	Entire alcove	Removable recessed floor mat.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors.
D503001	TELEPHONE			Provide 2 phone (exterior and interior) of door.

37. EXIT ACCESS STAIR (QTY. 2)

Space Characteristics

Function/adjacencies: FACILITATE VERTICAL CIRCULATION/EGRESS, LOCATE PER BUILDING CODE REQUIREMENTS.

Special Dimensions:
Ideal Plan Dimensions: 632 NET SF
Minimum Ceiling Height:

Acoustics: MIN. STC 36

Access: OPEN

Number of Occupants: 0

Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB Module 5239-22. Comply with applicable UFC 4-610-01 Administration Facilities design requirements. Provide rubber floor, treads, risers, and landings.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
B2030	EXTERIOR DOOR AND FRAMES	3	3' X 8'	Insulated solid steel door and frames painted, two at grade and one at roof.
B203008	EXTERIOR DOOR HARDWARE	2 sets		BHMA 626/630, panic device, closer, hinges, kick plate, weather stripping, and stops. Note: No exposed door hardware at exterior. Provide balance magnetic switch (BMS) as part of Access Control System (ACS). Comply with AT/FP requirements per UFC 4-010-01.
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish, 2-hour fire rated.
C1020	INTERIOR DOORS	4	3' x 8'	Solid core wood door, 1-1/2 hour fire rated.
C1020	INTERIOR DOOR FRAMES	4		Hollow metal, welded, painted with silencers.
C1020 07	INTERIOR DOOR HARDWARE	Ea. Door		BHMA 626/630, panic device with door pull, closer, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	4		Wall mounted; include room name and number, name of occupant or function.
C 20	STAIRS	2		UFC 1-200-01 General Building Requirements.
C3010	WALL FINISHES		5/8"	Painted gypsum wall board.
C302005	FLOOR FINISHES		1 x 1FT	Resilient rubber floor, stair treads, and risers.
C302007	WALL BASE FINISHES		4" H	Continuous resilient base.
C303001	CEILING FINISHES		2' x 2' x 5/8"	Acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.

Uniformat Section	Description	Qty	Size	Specific Requirements
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices. Provide mass notification/public address speakers.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors.

38. CORRIDORS (BOTH FLOORS)

Space Characteristics

Function/adjacencies: FACILITATE EASY WAY FINDING THROUGH THE BUILDING / PROGRAMED SPACES

Special Dimensions:
Ideal Plan Dimensions: 5' CLEAR WIDTH TYPICL, 10' CLEAR WIDTH AT CONNECTING CORRIDOR ADJACENT TO CONFERENCE FACILITY 29.

Minimum Ceiling Height: 9'-0"

Acoustics: MIN. STC 36 RATED, MIN STC 50 RATED WHEN LOCATED AROUND SPACES WITH SPECIAL SECURITY REQUIREMENTS.

Access: OPEN

Number of Occupants: VARIES

Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB Module 5239-22. Comply with applicable UFC 4-610-01 Administration Facilities design requirements.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C1020	INTERIOR DOORS	1	3' x 8'	Solid core wood door.
C1020	INTERIOR DOOR FRAMES	1		Hollow metal, welded, painted with silencers.
C1020 07	INTERIOR DOOR HARDWARE	Ea. Door		BHMA 626/630, lever with passage set, closer, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include area name and numbers, or function. Locate at passage door first floor.
C103090	FLAT SCREEN TV	6		21" x 27" screens mounted 66" above finished floor to serve as white noise. Provide power, data, and cable hook up for each in a concealed manner.
C3010	WALL FINISHES		5/8"	Painted gypsum wall board.
C302005	FLOOR FINISHES			Resilient floor tile.
C302007	WALL BASE FINISHES		4" H	Continuous resilient base.
C303001	CEILING FINISHES		2' x 2' x 5/8"	Acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid.
D20	PLUMBING	2 sets		Provide dual electric water cooler drinking fountains, one each floor.
D30	HVAC			Provide system per UFC 3-401-01.

Uniformat Section	Description	Qty	Size	Specific Requirements
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices. Provide mass notification / public address speakers. Provide fire extinguishers and built-in cabinets per building code requirements.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures.

39. ELECTRICAL ROOM SECOND FLOOR

Space Characteristics

Function/adjacencies:

Special Dimensions:
Ideal Plan Dimensions: 126 SF

Minimum Ceiling Height: EXPOSED STRUCTURE

Acoustics: MIN. STC 36 RATED, MIN STC 50 RATED WHEN LOCATED AROUND SPACES WITH SPECIAL SECURITY REQUIREMENTS.

Access: PRIVATE

Number of Occupants: 0

Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB Module 5239-22. Comply with applicable UFC 4-610-01 Administration Facilities design requirements.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wallboard finish.
C1020	INTERIOR DOORS	1	3' x 8'	Solid core wood door.
C1020	INTERIOR DOOR FRAMES	1		Hollow metal, welded, painted with silencers.
C1020 07	INTERIOR DOOR HARDWARE	Ea. Door		BHMA 626/630, lever with lockset, closer, hinges, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include area name and numbers, or function. Locate at passage door first floor.
C3010	WALL FINISHES		5/8"	Painted gypsum wall board.
C302005	FLOOR FINISHES			Resilient floor tile.
C302007	WALL BASE FINISHES		4" H	Continuous resilient base.
C303001	CEILING FINISHES			Exposed structure.
D30	HVAC			Provide system per UFC 3-401-01.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices. Provide mass notification / public address speakers. Provide fire extinguishers and built-in cabinets per building code requirements.
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures.

RENOVATED AREA
FIRST FLOOR ROOM 116

Space Characteristics

Function/adjacencies: OCCURS WITHIN EXISTING IN BUILDING 1560, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: EXISTING
Minimum Ceiling Height: MATCH EXISTING.

Acoustics: MIN. STC 45 RATED

Access: PRIVATE

Number of Occupants: VARIES

Other/Special Requirements: Located within an existing CAA with automated Access Control System (ACS) per IA PUB Module 5239-22 and SECNAV M5510.36. Refer to BFR for detailed renovation requirements.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wall board finish. Repair existing wall and repaint.
C1020	INTERIOR DOORS	1	Pair 3’ x 8’	Solid core wood door.
C1020	INTERIOR DOOR FRAMES	1		Hollow metal, welded, painted, silencers.
C1020 07	INTERIOR DOOR HARDWARE	1 set		BHMA 626/630, lever with combination lockset, closer with hold open device, hinges, removable mullion, kick plate and stop.
C103004	ARCHITECTURAL SIGNAGE	1		Wall mounted; include room name and number, name of occupant or function.
C3010	WALL FINISHES		5/8”	Painted gypsum wall board, match existing. Repair walls and repaint entire space.
C302005	FLOOR FINISHES			Reinstall stored raised floor system; see F20 Demolition and RFP Part 6 BFR Section 3.
C302007	WALL BASE FINISHES			Repair/replace damaged and match existing.
C303001	CEILING FINISHES			Repair/replace damaged and match existing.
D30	HVAC			Provide system per UFC 3-401-01. Temperature: 67-75F. Humidity; 40-60%, no condensation. Refer to RFP Part 6 BFR Section 3 for complete requirements.
D40	FIRE PROTECTION			Provide system per UFC 3-600-01. Provide automatic wet pipe sprinklers and Audio / Visual notification devices. Refer to RFP Part 6 BFR Section 3 for complete renovation requirements.

Uniformat Section	Description	Qty	Size	Specific Requirements
D50	ELECTRICAL-POWER/LIGHTING			Provide system per UFC 3-520-01. Provide recessed direct/indirect fluorescent lighting fixtures. Provide ceiling and/or wall mounted lighting control occupancy sensors. Refer to RFP Part 6 for complete renovation requirements.
D503001	TELEPHONE SYSTEM			Provide one line per staff.
D503001	DATA			Network connectivity by user. Refer to RFP Part 6 BFR Section 3.
F20	DEMOLITION			Carefully remove existing “Nello” demountable partitions and store for possible reuse. Carefully remove raised floor system, stringers and floor stanchions; store for reinstallation. Refer to RFP Part 6 BRF Section 3.

RENOVATED AREA
FIRST FLOOR EXISTING OHIO CLASS ADDITION (DOOR INTO P-287)

Space Characteristics

Function/adjacencies: OCCURS WITHIN EXISTING BUILDING 1560/EXISTING OHIO CLASS ADDITION, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: MATCH EXISTING
Minimum Ceiling Height: MATCH EXISTING

Acoustics: MIN. STC 50 WHEN LOCATED AROUND SPACES WITH SPECIAL SECURITY REQUIREMENTS.

Access: PRIVATE

Number of Occupants:

Other/Special Requirements: Confined within a CAA using an automated ACS per IA PUB Module 5239-22.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C1020	INTERIOR DOORS	1	Pair 3’ x 8’	Solid core wood doors, 1-1/2 hour fire rated.
C1020	INTERIOR DOOR FRAME	1		Hollow metal, welded, painted, silencer, 1-1/2 hour fire rated.
C102007	INTERIOR DOOR HARDWARE	1 set		BHMA 626/630, electronic strike with magnetic hold open device, panic device with pulls, closers, hinges, kick plates, and stops.
C3010	WALL FINISHES			Existing to remain, patch existing and paint.
C302005	FLOOR FINISHES			Existing to remain, patch existing.
C302007	WALL BASE FINISHES			Existing to remain, patch existing.
C303001	CEILING FINISHES			Existing to remain.

RENOVATED AREA
FIRST FLOOR ROOM 121

Space Characteristics

Function/adjacencies: OCCURS WITHIN EXISTING BUILDING 1560, FIRST FLOOR.

Special Dimensions:
Ideal Plan Dimensions: EXISTING
Minimum Ceiling Height: MATCH EXISTING.

Acoustics: MIN. STC 50 RATED

Access: PRIVATE

Number of Occupants:

Other/Special Requirements: Contractor to facilitate unimpeded User Staff access to Room 116,117 and 121 during renovation efforts. Refer to BFR for detailed renovation requirements.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	FIXED PARTITIONS			Existing to remain, repair and repaint.
C3010	WALL FINISHES			Existing to remain, repair and repaint, match existing.
C302005	FLOOR FINISHES			Existing to remain, repair/replace carpet tiles, Room 121.
C302007	WALL BASE FINISHES			Existing to remain, repair/replace to match.
C303001	CEILING FINISHES			Existing to remain, repair/replace to match.
D30	HVAC			Refer to RFP Part 6 BFR Section 3 for complete renovation requirements.
D40	FIRE PROTECTION			Refer to RFP Part 6 BFR Section 3 for complete renovation requirements.
D50	ELECTRICAL-PWER/LIGHTING			Refer to RFP Part 6 BFR Section 3 for complete renovation requirements.

RENOVATED AREA
SECOND FLOOR OFFICES (QTY 5) ROOMS 243, 256, 258, 259, & 260

Space Characteristics

Function/adjacencies: OCCURS WITHIN EXISTING BUILDING 1560, SECOND FLOOR

Special Dimensions:
Ideal Plan Dimensions:
Minimum Ceiling Height: MATCH EXISTING

Acoustics: MIN. STC RATED WHEN LOCATED AROUND SPACES WITH SPECIAL SECURITY REQUIREMENTS

Access: OPEN

Number of Occupants: VARIES

Other/Special Requirements: Subject to modification per coordination / programming effort with User agencies. Egress access requirements are to be identified and presented for review and approval. Construction shall adhere to SECNAV 5510.36 requirements.

A/R: AS REQUIRED

Uniformat Section	Description	Qty	Size	Specific Requirements
C1020	INTERIOR DOORS	2	3' X 8'	Solid core wood door, STC 45, 1-1/2 hour fire rated at two transition into P-287.
C1020	INTERIOR DOOR FRAMES	2		Hollow metal, welded, painted, silencers.
C102007	INTERIOR DOOR HARDWARE	2 sets		BHMA 626/630, lever with lockset, hinges, kick plate and stop at office 242 BHMA 626/630, electronic strike with magnetic hold open device, panic device with pull, closer, hinges, kick plates, stops at two doors - transition into P-287.
C101001	FIXED PARTITIONS			Provide a low maintenance, durable painted metal stud gypsum wall board finish at new partition locations. Patch to match existing walls and paint.
C103004	ARCHITECTURAL SIGNAGE	2		Wall mounted; include room or space name, and number, name of occupant or function.
C3010	WALL FINISHES		5/8"	Painted gypsum board.
C302005	FLOOR FINISHES			Match existing building material.
C302007	WALL BASE FINISHES		4" H	Continuous resilient base.
C303001	CEILING FINISHES		2' x 2' x 5/8"	Acoustical ceiling panels with exposed white baked enamel finish suspended acoustical ceiling grid, match existing.
D30	HVAC			Refer to RFP Part 6 BFR Section 3 for complete renovation requirements.
D40	FIRE PROTECTION			Refer to RFP Part 6 BFR Section 3 for complete renovation requirements.

Uniformat Section	Description	Qty	Size	Specific Requirements
D50	ELECTRICAL-PWER/LIGHTING			Refer to RFP Part 6 BFR Section 3 for complete renovation requirements.

6.0 ENGINEERING SYSTEM REQUIREMENTS

6. ENGINEERING SYSTEMS REQUIREMENTS

A10 FOUNDATIONS

SYSTEM DESCRIPTION

Provide the building foundation system in accordance with UFC 3-301-01, *Structural Engineering*. Foundation shall be designed to suit subsurface conditions, and shall be capable of transmitting all building loads to the ground.

See Section B10, *Superstructure*, for additional loading criteria.

In addition, design the structure in accordance with the following loading criteria:

Live Loads

Floor Live loads for occupancies or uses not provided in IBC and UFC 3-301-01 shall be as follows:

Occupancy or Use: Assembly, Laboratories, Libraries and Mechanical spaces

Uniform Live load: 150 psf

Concentrated Live Load: 1000 lbs.

Roof Live loads for occupancies or uses not provided in IBC and UFC 3-301-01 shall be as follows:

Minimum Uniform Roof Live load: 20 psf

Snow load (Pg): 25 psf

All other floor and roof live load criteria is provided in IBC or UFC 301.

Equipment Loads

Satisfy all new and existing equipment-specific load and serviceability requirements.

Importance Factors

Use Risk Category IV in Table 2-2 of UFC 3-301-01 for determining Importance Factors for seismic, snow, and wind design.

Earthquake Loads

Earthquake loads shall be in accordance with IBC, UFC 3-301-01 and UFC 3-310-04. The Site Class shall be as defined in the Geotechnical Engineering Report and confirmed by the Designer of Record.

Wind Loads

Wind loads shall be in accordance with IBC and UFC 3-301-01. The wind design pressures shall be based on Exposure C.

A10 GENERAL

GOVERNMENT PROVIDED GEOTECHNICAL INFORMATION

Subsurface soil information, including a geotechnical report are included in other portions of this RFP.

Any included subsurface information is only for the Contractor's information and is not guaranteed to fully represent all subsurface conditions. The Government shall not be responsible for any interpretation or conclusion by the Contractor drawn from the data or information.

Any geotechnical report accompanying the subsurface information is provided only to better convey data (boring logs, testing, etc.) or to document observed site conditions. The assumptions, analysis, and recommendations of any accompanying report were developed for preliminary planning purposes only and may not reflect present project requirements. The Contractor is required to retain a Geotechnical Engineer experienced and licensed in the geographic region of the project to interpret the Government provided information as related to his design concept and develop geotechnical requirements to support design and construction.

Minor variations in subsurface conditions between borings should be anticipated. The Contractor shall bear all costs associated with the site preparation, ground improvement and foundations except as allowed by Contract Clause FAR 52.236-2, "Differing Site Conditions". The Contractor's Geotechnical Engineer shall perform additional subsurface investigation/testing as required to adequately determine all applicable geotechnical factors including the type and capacity of the project foundations. The Contractor's Geotechnical Engineer shall consider the provided information and any additional information obtained and prepare a report as described in other portions of this RFP. The minimum requirements for the subsurface investigation and report are as required by UFC 1-300-09N with associated references.

SEISMIC DESIGN

A site-specific seismic ground motion study is not required. Seismic Site Classification shall be determined in accordance with UFC 3-301-01, *Structural Engineering*, and the 2008 USGS Ground Acceleration Maps and a geotechnical evaluation of the site.

The geotechnical study included in this RFP has determined a seismic site classification for the project site and that the site has a moderate to high risk of liquefaction. The Contractor and Designer of Record are responsible for confirming this information.

A1010 STANDARD FOUNDATIONS

As determined by the Designer of Record to be applicable, provide a Standard foundation. "Standard Foundations" are shallow or deep foundations as specifically addressed in IBC Chapter 18. Do not use masonry unit footings, steel grillage footings, timber footings or wood foundations. Treated timber piles may be used if determined acceptable by the Designer of Record. Provide standard foundations for 2 hour rated that meet the fire protection requirements.

A1020 SPECIAL FOUNDATIONS

As determined by the Designer of Record to be applicable, provide a Special foundation. "Special Foundations" are any foundations that are not specifically "Standard Foundations", or a combination of Standard Foundations and a site improvement/ground modification system. Examples of site

improvement/ground modification systems include surcharging, stone columns, rammed aggregate piers, impact densification, compaction grouting, vibroflotation, etc. As "Special Foundation" techniques or systems typically require the use of specialty contractors, a Professional Engineer shall establish installation and acceptance criteria and supervise the installation. The Designer of Record shall submit justification for use, including acceptable evidence of previous successful installation in similar conditions, methods and equipment used in their installation, proposed testing and inspection to be used, supporting test data, calculations and any other information related to the structural properties and load capacity of such system. The allowable stresses for piles/piers shall not exceed those limitations specified in UFC 1-200-01.

A1030 SLAB ON GRADE

As determined by the Designer of Record to be applicable, provide a standard concrete slab on grade. Where slab on grade is below the existing adjacent exterior grade, provide water/ dampproofing and a perimeter drainage system to remove ground water from the area immediately adjacent to the buildings. Provide perimeter insulation.

A1040 STRUCTURALLY SUPPORTED SLAB

As determined by the Designer of Record to be applicable, provide a structurally supported slab. Provide for support of all utilities that may be adversely affected by soil consolidation or expansive soils. Provide stainless steel supports sized adequately to support the in-service utility. Where the structurally supported slab is below the existing adjacent exterior grade, provide water/dampproofing and a perimeter drainage system to remove ground water from the area immediately adjacent to the buildings. Provide perimeter insulation.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

B10 SUPERSTRUCTURE

SYSTEM DESCRIPTION

Provide the building framing system in accordance with UFC 3-301-01, *Structural Engineering*.

In addition, design the structure in accordance with the following loading criteria:

Live Loads

Floor Live loads for occupancies or uses not provided in IBC or UFC 3-301-01 shall be as follows:

Occupancy or Use: Assembly, Laboratories, Libraries and Mechanical spaces

Uniform Live load: 150 psf

Concentrated Live Load: 1000 lbs.

Roof Live loads for occupancies or uses not provided in IBC and UFC 3-301-01 shall be as follows:

Minimum Uniform Roof Live load: 20 psf

Snow load (Pg): 25 psf

All other floor and roof live load criteria is provided in IBC or UFC 301.

Equipment Loads

Satisfy all new and existing equipment-specific load and serviceability requirements. Design roof for the following future load criteria as follows:

Photovoltaic Equipment Array: 15 psf

Importance Factors

Use Risk Category IV Table 2-2 of UFC 3-301-01 for determining Importance Factors for seismic, snow, and wind design.

Earthquake Loads

Earthquake loads shall be in accordance with IBC, UFC 3-301-01 and UFC 3-310-04. The Site Class shall be as defined in the Geotechnical Engineering Report and confirmed by the Designer of Record.

Wind Loads

Wind loads shall be in accordance with IBC and UFC 3-301-01. The wind design pressures shall be based on Exposure C.

B1010 FLOOR CONSTRUCTION

New floor system: composite light-weight concrete slab on composite steel deck, reinforced with welded wire fabric. Light weight concrete is recommended to reduce the superstructure self-weight for the design of the foundations. Floor deck: supported on steel beams, girders and columns.

B1020 ROOF CONSTRUCTION

New roof system: composite light-weight concrete slab on composite steel deck, reinforced with welded wire fabric. Light weight concrete is recommended to reduce the superstructure self-weight for the design of the foundations. Roof deck: supported on steel beams, girders and columns.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

B20 EXTERIOR ENCLOSURE

SYSTEM DESCRIPTION

This system consists of the exterior shell of the facility, which includes all vertical and horizontal exterior closure such as exterior walls, exterior windows, and exterior doors. This system excludes roofing (See System B30, *Roofing*). Load bearing exterior walls shall be included here, and not in System B10, *Superstructure*. Structural frame elements at exterior such as columns, beams, and spandrels are included in Superstructure, with only the applied exterior finishes being included here. Finishes to the inside face of walls which are not an integral part of the wall construction shall be included in System C30, *Interior finishes*.

GENERAL SYSTEMS REQUIREMENTS

B2010 EXTERIOR WALLS

The primary exterior material of the building addition shall be split-faced concrete masonry to match existing Building 1560.

A dark grey split-faced concrete masonry accent band near second level windows shall be provided to match existing Building 1560.

The entire P-287 must be constructed to meet the requirements of a controlled access area (CAA).

B201001 EXTERIOR CLOSURE

Provide concrete masonry unit exterior wall closure.

B201002 EXTERIOR WALL BACKUP CONSTRUCTION

Provide Exterior Wall Construction System (back-up systems for wall veneer) including unit masonry with insulation as described below:

Exterior bearing walls consisting of metal studs as the primary floor or roof supporting structural element are not permitted.

B201003 INSULATION and VAPOR BARRIER

Provide insulation to meet the energy savings requirements. Minimum U-value of exterior walls: U-0.055 (R-10 continuous insulation plus R-13 between metal studs. Provide insulation to meet the energy savings requirements per ASHRAE 189.1. Provide insulation to meet the energy savings target for EPACT 2005, LEED.

Provide a continuous air barrier to control air leakage into, or out of, conditioned spaces. The building envelope shall including all elements of the facility that are exposed to the outside environment or outside environmental conditions such as roof, walls, floors, and compartmentalized unconditioned portions of the facility and negatively pressurized spaces. Permanently seal penetrations through the air barrier, joints in the air barrier, adjoining construction, and transitions to different air barrier materials. Confirm air barrier compliance with air barrier performance tests in RFP Part 4.

B201004 PARAPETS

Provide parapets for exterior wall construction, where required for low-slope roofs.

B201005 EXTERIOR LOUVERS

Provide exterior louvers, where required, that match the finish of the existing windows and detailed to integrate with the architecture of the building, as appropriate to the design of the building.

B201006 BALCONY WALLS & HANDRAILS

Not used

B201007 EXTERIOR SOFFITS

Provide metal exterior soffit system at loading dock area canopy.

B201009 EXTERIOR PAINTING AND COATINGS

Provide field applied exterior coatings for all items that are not prefinished, and to prefinished items when required to provide a color other than a standard prefinished color.

B201010 EXTERIOR JOINT SEALANTS

Provide exterior application of joint sealants to seal joints and prepare for finish material installation.

B201011 SUN CONTROL DEVICES (EXTERIOR)

Not used.

B201012 SCREEN WALL

Provide screen walls where required to screen trash receptacles. Screen walls shall be compatible with the building architecture. Rooftop mechanical screens shall be designed to minimize roofing penetrations.

B2020 EXTERIOR WINDOWS

As much as practical, windows shall be provided in each area of the building that is regularly occupied, to enhance the working environment, without compromising visual acuity and comfort. Natural daylighting is preferred. Exterior windows shall be prefinished aluminum. Windows shall meet Antiterrorism requirements and shall adhere to IA PUB 5239.22. Minimum U-value of double pane insulated glass and frame assembly U-0.40 with a SHGCO 0.350 assembly.

For masonry walls, the sample window shall be installed in the masonry sample panel.

B202001 WINDOWS

Determine the construction of security windows by evaluating the project program security requirements, using the Mil Hdbk 1013/1A, *Design Guidance for Physical Security of Facilities*, to define window requirements and Unified Facilities Criteria (UFC) 4-010-01 Change 1, 2013; DoD

Minimum Antiterrorism Standards for Buildings.

Windows shall be aluminum fixed.

Provide a mockup of one combination window unit for the project to be used for a field mockup test of compliance with AAMA 502 Method A and Method B.

B202002 STOREFRONTS

Not used.

B202003 CURTAIN WALLS

Not used.

B202004 EXTERIOR GLAZING

Glazing color shall match existing adjacent Building 1560.

Glazing shall be insulating glass units laminated glass, tempered glass at code compliant loctions. as well as having fragment retention capabilities. All glazing shall incorporate an opaque film to limit visibility from the exterior as required by IA PUB 5239-22. Determine glazing system design including glass and framing system by evaluating Unified Facilities Criteria (UFC) 4-010-01 Change 1, 2013; DoD Minimum Antiterrorism Standards for Buildings.

B202090 OTHER EXTERIOR WINDOWS

Not used.

B2030 EXTERIOR DOORS &FRAMES

Provide insulated solid door assemblies other than at the main entrance. Exterior doors and frames shall be non-corroding galvanized steel.

Doors shall be Heavy Duty Doors - ANSI/SDI A250.8, Level 2, physical performance Level B, Model 1. Construction shall be evaluated per Unified Facilities Criteria (UFC) 4-010-01 Change 1, 2013; DoD Minimum Antiterrorism Standards for Buildings and IA PUB 5229.22.

B203001 SOLID DOORS

Provide solid steel door assemblies other than at main storefront entrance including painted galvanized heavy-duty, non-corroding, insulated doors with frames and hardware. Also provide louvers and accessories and wall opening elements such as lintels, sills, and flashings. Construction shall be evaluated per Unified Facilities Criteria (UFC) 4-010-01 Change 1, 2013; DoD Minimum Antiterrorism Standards for Buildings.

B203002 GLAZED DOORS

Not used.

B203004 OVERHEAD AND ROLL-UP DOORS

Not used.

B203006 BLAST RESISTANT DOORS

Provide special doors used for blast resistance.

Determine construction per Unified Facilities Criteria (UFC) 4-010-01 Change 1, 2013; DoD Minimum Antiterrorism Standards for Buildings.

B203008 EXTERIOR DOOR HARDWARE

Provide the services of a certified door hardware consultant to prepare the door hardware schedule.

Provide hardware keying compatible with existing Building 1560 keying system. Replacement interchangeable cores shall be compatible with the Best Lock system.

Existing locks were manufactured by Schlage and have BEST interchangeable cores.

Door hardware finish shall be stainless steel.

Loading dock exterior doors shall have external door levers; all other exterior doors shall not have external hardware. Exception: doors to Mechanical, Electrical, Elevator Machine, and Fire Pump Rooms shall be accessible to maintenance staff, provide cipher locksets.

B203090 OTHER EXTERIOR SPECIALTY DOORS

Not used.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

B30 ROOFING

B30 GENERAL SYSTEM DESCRIPTION

Roof systems shall be watertight and compatible with facility function, construction, and service conditions. Provide complete roof system design and construction services for the entire new facility roof system, including all ancillary and incidental work necessary for a complete, new, watertight roof system installation.

Submittal Requirements: Components of a minimum roof submittal shall include the roof plan, method of drainage, standard details and details unique to the project, wind load calculations and requirements.

Provide a Pre-Design Roofing Conference to assure roof design and construction is properly coordinated before construction begins.

Built-in gutter systems where drainage passes through an interior space or is concealed in the exterior cavity wall shall be limited. Where necessary provide alternative solutions for government review and approval.

The contractor shall present to the government creative plan to avoid internal roof drains.

Refer to UFC 3-110-03, *Roofing*, and UFC 3-101-01, *Architecture*, for additional roofing requirements.

The project is an expansion to an existing building which has a membrane system with stone ballast. New roof at P287 shall be:

Modified Bitumen Three-Ply Fully Adhered Roof System

Contractor shall advise of energy modeling performance, life cycle cost analysis, and impact to LEED requirement to achieve USGBC LEED-NC SILVER certification.

Note: Installation does not desire the use of vegetative roof due to intensive maintenance requirements.

B3010 ROOF COVERINGS

B301001 STEEP SLOPE ROOFING SYSTEMS

Not used.

B301002 LOW SLOPE ROOFING SYSTEMS

Wind Uplift - The complete roof covering assembly shall be rated Class 1- 60,75,90,105,120,135 or appropriate in accordance with FM P7825, capable of withstanding an uplift pressure of 1050 pounds per square foot (with a safety factor of 2) and FM I-49 for perimeter and flashing attachment.

Fire Safety - Complete roof covering assembly shall:

1. Be Class A rated in accordance with ASTM E 108, FM 4470 or UL 790; and

2. Be listed as part of Fire-Classified roof deck construction in UL RMSD or Class I roof deck construction in FM P7825c.

A three ply modified system consisting of modified base sheet, modified bitumen interply sheet, and modified bitumen cap sheet is the system of choice for new low sloped roofing.

Low slope roofing systems that is acceptable include three-ply built-up roofing systems with modified bitumen cap sheet surfacing.

Cool Roof - Meet the ASHRAE 90.1 Chapter 5 values for cool roofing. If a cool roof is not selected in zones 1-3, meet one of the exception requirements listed in ASHRAE 90.1 Chapter 5 or provide thermal insulation above the deck with an R value of 33 or greater.

B301003 ROOF INSULATION AND FILL

For fastening roof insulation on low-slope membrane roofs, fasteners shall be place to withstand and obtain an uplift pressure of 105 pounds per square foot (with a safety factor of 2) in the field of the roof and FM LPDS 1-49 for perimeter component and flashing attachment.

B301004 FLASHINGS AND TRIM

Flashing and sheet metal work shall include coping, scuppers, conductor boxes and splash pans. Flashings shall be Aluminum Alloy Sheet and Plate - ASTM B 209 Pre-Finished Aluminum. Finish shall be baked-on factory applied color coating of polyvinylidene fluoride (PVF2) or other equivalent fluorocarbon coating with a minimum thickness of 0.8 to 1.3 mils.

B301005 DOWNSPOUTS

Provide conductor boxes and downspouts compatible with roofing material and finish.

B301006 ROOF OPENINGS AND SUPPORTS

Not used.

B301090 OTHER ROOFING

Provide lightning protection, without penetrating the roof membrane or flashing components.

Provide new roof drains and accessories at any area where roof is inaccessible to perimeter scuppers.

Parapets and guardrails shall be a minimum of 42” above the roof surface at any location necessary to prevent fall hazards. Guardrails shall be painted steel and shall present a smooth, unbroken surface. Guardrails shall be finished to withstand extreme wear conditions. Comply with OSHA and IBC requirements.

Provide building integrated or mounted photovoltaic (BIMPV) system on roof.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

C10 INTERIOR CONSTRUCTION

SYSTEM DESCRIPTION

Interior construction includes interior partitions, interior doors, and fittings.

Provide durable construction appropriate for the building function. Acoustic properties of materials, as well as durability, shall be considered during material selection.

GENERAL SYSTEM REQUIREMENTS

Areas of the Project subject to abuse require that "impact Resistant" systems be provided. See "Room Requirements" for specific requirements on "Partitions", "Interior Doors", and "Fittings".

C1010 PARTITIONS

All interior partitions shall be constructed of metal studs with gypsum board on each side. See RFP Part 3 – Chapter 5 Room Requirements for additional partition requirements.

C101001 FIXED PARTITIONS

Provide fixed interior partitions, except where demountable or retractable partitions are specifically required by the "Room Requirements." Sound-rated partition assemblies shall have a minimum Sound Transmission Coefficient (STC) as noted in RFP Part 3 – Chapter 5 Room Requirements in accordance with ASTM E 90 or ASTM E 413 for frequency data.

Special designated area partitions shall be constructed per ICD/ICS 705; Technical Specifications for Construction and Management of Sensitive Compartmented Information Facilities.

C101002 DEMOUNTABLE PARTITIONS

Demountable partitions include sound rated, full height (floor to structural deck above) solid partitions. Sound-rated partition assemblies shall have a minimum Sound Transmission Coefficient (STC) of 45 in accordance with ASTM E 90 or ASTM E 413 for frequency data. Extend wire mesh partitions meant for security purposes to the structural ceiling, or provide a wire mesh ceiling. Demountable partitions shall be funded as part of the construction contract. Coordinate finishes with Section C30 Interior Finishes.

C101003 RETRACTABLE PARTITIONS

Provide retractable partitions to include operable panel partitions. Sound-rated partition assemblies shall have a minimum Sound Transmission Coefficient (STC) of 50 in accordance with ASTM E 90 or ASTM E 413 for frequency data. Coordinate finishes with Section C30 Interior Finishes.

C101004 INTERIOR GUARDRAILS AND SCREENS

Provide balustrades where required by code.

C101005 INTERIOR WINDOWS

Provide interior windows of hollow metal, fixed.

C101006 GLAZED PARTITIONS & STOREFRONTS

Not used.

C101007 INTERIOR GLAZING

Interior glazing shall be clear tempered glass,

C1020 INTERIOR DOORS

C102001 STANDARD INTERIOR DOORS

All interior doors shall be wood, except where hollow metal doors are required to meet fire rating. All interior door frames shall be hollow metal.

Building standard doors to comply with WDMA I.S.1A-04, premium grade, heavy duty - extra heavy duty for stairways, corridors, and other high use interior doors. Flush wood doors shall be WDMA I.S. -97 SCLC-5 5-ply structural composite lumber core.

Doors shall have Factory Finish of AWI Quality Standards Section 1500, specification for catalyzed polyurethane or acrylated uv curable epoxy, field finish.

Provide minimum 45 STC sound rated door assemblies for doors leading into Room(s), minimum 50 STC sound rated door assemblies at doors leading into Secured Area(s). See RFP Part 3 Chapter 5 “Room Requirements” for location and STC ratings. The premanufactured door assembly must be a insulated fabrication and include all hardware and seals necessary to achieve the required rating. Install in accordance with manufacturer's instructions.

C102002 GLAZED INTERIOR DOORS

Provide vision glazing in doors where it is required by the “Room Requirements” portion of this RFP, or it is deemed advantageous to be able to see through the door, either for safety of pedestrian traffic, or other functional reason. Interior doors that are part of a secured area cannot have glazing.

C102003 FIRE DOORS

Provide interior fire doors.

C102004 SLIDING AND FOLDING DOORS

Not used.

C102005 INTERIOR OVERHEAD DOORS

Not used.

C102006 INTERIOR GATES

Not used.

C102007 INTERIOR DOOR HARDWARE

Provide the services of a certified door hardware consultant and develop entire hardware package.

Coordinate with Customer and provide combination lock type access units for specialized entries.

Coordinate with Customer and provide card key type access units for specialized entries into secure spaces. Provide Lenel Access System, coordinate requirements with User Agency.

Door hardware finish shall be stainless steel.

Cores of all locksets shall be “BEST” cores.

C102090 OTHER INTERIOR SPECIALTY DOORS

Not used.

C102091 OTHER INTERIOR PERSONNEL DOORS

Not used.

C1030 SPECIALTIES

C103001 COMPARTMENTS, CUBICLES, & TOILET PARTITIONS

Provide solid plastic toilet partitions in all toilet rooms with more than one water closet or urinal. Provide toilet accessories as indicated in Chapter 5, “Room Requirements” portion of this RFP.

C103002 TOILET AND BATH ACCESSORIES

Provide toilet and bath accessories as required and as indicated in Chapter 5 “Room Requirements” potion of the RFP.

C103003 MARKER BOARDS AND TACK BOARDS

Provide marker boards and tack boards as indicated in Chapter 5 "Room Requirements" portion of this RFP. Marker boards and tack boards are funded as part of the construction contract.

C103004 IDENTIFYING DEVICES

All necessary interior signage shall be incorporated as part of the architectural drawings. Interior signage is not collateral equipment. Interior signage shall demonstrate complete coordination with the facility design, SID and FF&E submittals. Provide interior directional signage as required for facility wayfinding. Provide an identifying device at each interior door. Signs must meet ADA requirements.

C103005 LOCKERS

Provide lockers with special bases of metal construction as indicated in Chapter 5 Room Requirements. Lockers shall be metal construction and enamel finish. Lockers are funded as part of

the construction contract.

C103006 SHELVING

Assemblies include all types of shelving with brackets and all supporting materials and finish.

C103007 FIRE EXTINGUISHER CABINETS

Provide fire extinguisher cabinets. Cabinet shall be semi-recessed in new construction and surface-mounted in new mechanical/electrical spaces and existing wall construction. Cabinets shall be coordinated with interior finishes.

C103008 COUNTERS

Provide solid acrylic counter tops and back splashes.

C103009 CABINETS

Provide cabinetry and millwork items with associated accessories. Cabinetry shall be AWI custom grade and have concealed hinges with adjustable standards for shelves. All exposed surfaces shall be covered with high pressure plastic laminate clad or hardwood veneer with exposed edges of solid hardwood.

Provide specific cabinetry as shown on the Room Requirements Sheets.

C103010 CASEWORK

Not used.

C103011 CLOSETS

Not used.

C103012 FIRESTOPPING PENETRATIONS

Provide all sleeves, caulking, and flashing for firestopping penetrations.

C103013 SPRAYED FIRE-RESISTIVE MATERIALS

Provide sprayed fire-resistive materials to the building’s framework to prevent structural failure.

C103014 ENTRANCE FLOOR GRILLES AND MATS

Provide recessed pan floor mats at all building entrances.

C103015 ORNAMENTAL METAL WORK

Not used.

C103090 OTHER INTERIOR SPECIALTIES

Provide wall mounted flat screen TV as approved by client.

Provide in-wall reinforcing to support TV monitors, as approved by client.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

C20 STAIRS

SYSTEM DESCRIPTION

Stairs, including stair construction and stair finishes, shall be provided as required by the building code to provide egress from the building from above or below grade level floors. Stairs shall be in accordance with UFC 1-200-01, *General Building Requirements*.

GENERAL SYSTEMS REQUIREMENTS

C2010 STAIR CONSTRUCTION

C201001 INTERIOR AND EXTERIOR STAIRS

Interior stairs shall be constructed of steel with concrete filled pans.

Exterior stairs shall be constructed of cast-in-place reinforced concrete.

Concrete is an acceptable finish for exterior stairs. Exterior concrete stairs shall have cast aluminum treads with abrasive surface.

Steel stairs shall be primed and painted.

C201002 FIRE ESCAPE STAIRS

Not used.

C201090 HANDRAILS, GUARDRAILS, AND ACCESSORIES

Handrails and guardrails shall be painted steel. Handrails and guardrails shall present a smooth, unbroken surface throughout the length of the stair.

Handrails and guardrails shall be finished to withstand extreme wear conditions.

Metal ladders and railings complying with OSHA requirements shall be provided for access and protection to any mechanical mezzanines, lofts or other similar spaces.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

C30 INTERIOR FINISHES

SYSTEM DESCRIPTION

Interior finishes include wall finishes, floor finishes, wall base finishes, and ceiling finishes.

Provide aesthetically pleasing, functional, durable finishes appropriate to the buildings function. Acoustic properties of materials, as well as durability and ease of maintenance, shall be considered during material selection. Maximize the use of sustainable materials.

Color selections require the use of wall and floor finish material accents to enhance the color and appearance of the interior design. Provide a wall and floor color design that includes a minimum of two different accents colors throughout the facility. Submit pattern drawings of the accents design with the interior design submittal.

GENERAL SYSTEMS REQUIREMENTS

See "Room Requirements" for specific requirements on "Interior Finishes."

C30 SSPC QP 1 CERTIFICATION

All contractors and subcontractors that perform surface preparation or coating application shall be certified by the Society for Protective Coatings (formerly Steel Structures Painting Council - SSPC) to the requirements of SSPC QP 1 prior to contract award, and shall remain certified while accomplishing any surface preparation or coating application.

C3010 WALL FINISHES

All interior wall finish materials shall be gypsum board. Provide ceramic tile wainscot in all toilet rooms to a height of 4 feet.

Solid surfacing or ceramic wall finishes shall extend from top of shower pan to ceiling and shall surround the shower enclosure. Wall finish shall extend from top of kitchen countertop to underside of wall cabinet.

All interior wall finishes are indicated in the “Room Requirements” portion of this RFP.

C3020 FLOOR FINISHES

Provide floor finish materials to meet the following requirements;

a. Carpet Requirements

CARPET CHARACTERISTIC	MINIMUM CARPET REQUIREMENTS
Surface Color	Multi-colored and Patterned
Surface Texture	Loop,Cut/Loop, Tip-shear,Textured Loop

Yarn Weight	24 oz. minimum for Type 6 Nylon; 18 oz. minimum for Type 6.6 Nylon
Density	7000 oz./cubic yard minimum for Type 6 Nylon; 6000 oz./cubic yard minimum for Type 6.6 Nylon
Dye Method	Solution Dyed
Backing	Attached Cushion
Fiber	Branded nylon

b. Concrete Floor Requirements

Finish concrete surface smooth enough to meet the minimum requirements of this RFP or the floor finish manufacturer's smoothness requirements, whichever is the most restrictive. Exposed concrete floors that are not required to have an applied floor finish, shall receive a minimum of 3 coats of the manufacturer's approved sealer.

c. Raised Floor Requirements

Raised Flooring shall be interchangeable 24"x24" square module panels capable of supporting design loads. Finish to vinyl tile- factory attached static dissipative flooring. Raised flooring shall accommodate data, electrical, and mechanical systems. Majority of Raised Flooring components to be available on GSA Schedule.

d. Resilient Floor Finishes

Provide resilient floor finishes as identified in the Project Program, Room Requirements or as directed below. Include manufacturer's full line of color, texture and pattern selections, including multi-colored materials.

1) Resilient Tile Flooring

Provide resilient solid vinyl tile, in areas as indicated for floors with high durability, low maintenance, high slip-resistance requirements. Solid vinyl tile shall be planks or square tiles with protective urethane finish for ease of maintenance a manufacturer's 10 year warranty is required.

Provide resilient rubber tile in areas as indicated for floors with high durability, low maintenance, high slip-resistance requirements. Rubber tile shall be 100% synthetic rubber with through color and slip resistant formulation and surface texture. Include all manufacturer's standard surface textures and patterns. The product shall require no-wax maintenance

Provide resilient static dissipative VCT (SDT) flooring in areas as indicated, computer areas or areas with sensitive electronics for floors with high durability, low maintenance, high slip-resistance requirements to control static in the room. SDT shall be of commercial grade with through pattern and an antistatic additive, and shall be installed according to manufacturer's instructions.

e. Tile Floor Finishes

Provide epoxy grout for all tile finishes

Glazed Ceramic Tile

f. Base

Wall base shall be top set or cove rubber, flat throughout.

All interior wall finishes are indicated in the "Room Requirements" portion of this RFP.

C3030 CEILING FINISHES

Finished surface of ceiling tiles shall be selected to address acoustical, maintenance, moisture or impact resistance requirements of the room.

Primary ceiling finish shall be 24 inch by 24 inch by 3/8” – 1”Acoustic Performance –Open Plan ceiling tiles with Highest NRC rating available for suspended acoustical panel ceiling system, except provide a suspended gypsum board ceiling in showers. Acoustical panels shall have a square edge. Provide fine fissured panel surface. Provide sustainable panels.

Exposed structural systems shall be painted according to PTS Section C3040 INTERIOR COATINGS AND SPECIAL FINISHES.

Ceiling finishes shall be as indicated in the “Room Requirements” portion of this RFP.

C3040 INTERIOR COATINGS AND SPECIAL FINISHES

Paint all interior exposed surfaces including metal items, such as interior grilles, registers, diffusers, access panels, and panel boxes.

All finish coatings shall be as indicated in the "Room Requirements" portion of this RFP.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

D10 CONVEYING

SYSTEM DESCRIPTION

Conveying System shall include elevator.

D1010 ELEVATORS

Design assembly and arrangement of elevator, accessories, and supporting systems in accordance with ASME/ANSI A17.1 and NAVFAC ITG FY 2013, *Elevator Design Guide*. Provide all materials and equipment, including but not limited to elevator cab and hoist equipment, operating and signal fixtures, doors, door and car frames, car enclosure, controllers, motors, guide rails, brackets, and testing.

D101001 GENERAL CONSTRUCTION ITEMS

Provide a traffic analysis.

D101002 PASSENGER ELEVATORS

Provide a minimum of one passenger elevator designed to carry furniture/ equipment items. Locate elevator adjacent to the Loading/ Receiving Area.

Provide a minimum of one elevator sized to comply with the IBC medical stretcher requirement and also designed to vertically transport the largest movable equipment or furniture used on the project. Design the elevator to allow entrance and conveying of the following equipment items; demountable partitions, systems furniture.

Derive finishes and fixtures from Manufacturer's selections. Coordinate finishes with the interior architectural design, and meet the User's needs and functions. Utilize stainless steel wall panels and hard finish ceiling. Coordinate the design of the elevator machine room with applicable codes and the elevator manufacturer's requirements.

Provide hydraulic elevator for elevator travel distances of 15 feet or less. Provide minimum hydraulic elevator car speed of 125 feet per minute for elevator travel distances of 15 feet or less.

D101003 PASSENGER/FREIGHT ELEVATORS

Not used.

D101004 WHEELCHAIR LIFT

Not used.

D101005 DUMBWAITERS

Not used.

D101090 OTHER VERTICAL TRANSPORTATION EQUIPMENT

D1020 WEIGHT HANDLING EQUIPMENT

D102001 OVERHEAD CRANES

Not used

D102002 MONORAIL SYSTEMS

Not used.

D1030 ESCALATORS AND MOVING WALKS

Not used.

D103001 ESCALATORS

Not used.

D103002 MOVING WALKS

Not used.

D103003 OTHER MOVING STAIRS & WALKS

Not used.

D1090 OTHER CONVEYING SYSTEMS

Not used.

D109001 PNEUMATIC TUBE SYSTEMS

Not used.

D109002 CONVEYORS

Not used.

D109003 LINEN, TRASH, AND MAIL CHUTES

Not used.

D109004 TURNTABLES

Not used.

D109005 OPERABLE SCAFFOLDING

Not used.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

D20 PLUMBING

Refer to Part 4 Section D20 for performance requirements of the building elements included in the plumbing system that are not explicitly described in Part 3 of this RFP. Provide the plumbing system in accordance with the most recent version of the following. The advisory provisions of all UFC's, codes, and standards shall be mandatory. The following are listed for convenience, all UFC's and Federal Standards are applicable, whether listed or not:

UFC 1-200-02 - High Performance and Sustainable Building Requirements, with Change 1

UFC-3-401-01 – Mechanical Engineering

UFC 3-410-01 – Heating, Ventilating, and Air Conditioning Systems

UFC-3-420-01 – Plumbing Systems

UFC 3-440-04N - Solar Heating of Buildings and Domestic Hot Water

UFC 3-450-01 - Noise and Vibration Control

UFC-4-010-01 – DOD Minimum Anti-terrorism Standards for Buildings

Energy Policy Act of 2005 (EPAct 2005)

Energy Independence and Security Act of 2007 (EISA 2007)

ASHRAE 90.1 - 2010 - Energy Standard for Buildings Except Low-Rise Residential Buildings

ASHRAE 189.1 - 2009 Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings

Intelligence Community Directive (ICD) 705-TS Guidelines

International Plumbing Code (IPC)

Whole Building Design Guide (WBDG)

Guiding Principles for Sustainable New Construction and Major Renovations

Leadership in Energy and Environmental Design (LEED) NC 2009

SYSTEM DESCRIPTION

The plumbing system for the building consists of all fixtures, potable cold and hot water piping and equipment, piping insulation, water heating equipment, sanitary waste and vent piping systems, and other specialty piping and equipment within 5 foot (1.5 meter) of the building. Refer to Building Requirements, Space Tabulations Section of the Project Program for building occupancy levels.

Provide plumbing systems for the project that attain the following objectives: Occupant comfort,

Indoor air quality, Acceptable noise levels, Reliable operation, and Ease of maintenance and use. The plumbing systems shall be in accordance with UFCs and all adopted codes, standards, and criteria. Water conserving water closets and lavatories shall be utilized. Provide barrier free fixtures for handicapped use as required by Architectural Barriers Act (ABA). Include water conserving fixtures and features, as required, which contribute to LEED accreditation.

GENERAL SYSTEM REQUIREMENTS

Provide working space around all equipment. Provide concrete pads with chamfered edges under all floor mounted equipment and tanks. Concrete pads shall be a minimum 4” thick with a minimum dimension of 3” from end of pad to equipment edges. Provide all required fittings, connections and accessories required for a complete and usable system. All equipment shall be installed per the criteria of PTS section D20 and the manufacturer’s recommendations. Design and installation shall be in accordance with the IPC, all UFCs, and Federal Standards. Where the word "should" is used in the manufacturer’s recommendations, substitute the word "shall".

Materials shall comply with applicable Underwriters Laboratory (UL) Inc., American National Standards Institute, Inc. (ANSI), and National Electrical Manufacturer's Association standards or applicable standards of a similar independent testing organization. All materials shall be new and shall bear the UL label whenever standards have been established and label service is normally and regularly furnished by the agency. All material provided shall be listed and labeled suitable for the specified purpose, environment, and application and provided in accordance with manufacturer's recommendations. All insulation shall be asbestos free. Include the domestic hot water system in the list of systems to be commissioned in accordance with Project Program Section 2.3.4. Refer to section 01 45 00.05 20 Design and Construction Quality Control for commissioning requirements. Conceal plumbing systems from view within finished spaces to the greatest extent possible. Above ceiling plumbing cleanouts shall be readily accessible via removable ceiling tiles or access panels.

The building shall be designed to meet the requirements of EPAct 2005 and EISA 2007.

The plumbing system shall be designed to achieve a minimum 30% water use reduction under LEED-NC version 3.0 Water Efficiency Credit 3. It is desirable to have the plumbing system designed to achieve a 40%+ water use reduction under LEED-NC version 3.0 Water Efficiency Credit 3.

In the event of any discrepancy between the referenced UFCs, codes, standards, and the contents of this RFP, the more demanding criteria shall govern. Equipment shall be provided in accordance with instructions included in the listing or labeling and in accordance with manufacturer’s recommendations.

D2010 PLUMBING FIXTURES

Provide quantity and type of plumbing fixtures required for the occupancy, use, and functions described for this facility. Refer to Room Requirements Section for additional specific requirements for spaces with plumbing fixtures. Provide handicapped fixtures in accordance with the referenced criteria in the Project Program.

D201001 WATER CLOSETS

Refer to Room Requirement Section for the number of water closets required.

In all restrooms, provide UFAS (Uniform Facilities Accessibility Standard) and ADAAG (Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities) accessible low flow, wall mounted, open front seat, vitreous china water closets with hands-free dual flush type hardwired electronic flush valves (1.6/1.1 gpf).

D201002 URINALS

Refer to Room Requirement Section for the number of urinals required.

Provide UFAS (Uniform Facilities Accessibility Standard) floor mounted, vitreous china urinals with hands-free flush type hardwired electronic flush valves with maximum flow rate of 0.5 gpf.

D201003 LAVATORIES

Refer to Room Requirement Section for the number of lavatories required.

Lavatory faucets shall have a maximum flow rate of 0.5 gpm when tested in accordance with ASME A112.18.1/CSA B125.1. Provide stainless steel deck mount faucets with aerator, supplies and stops, p-trap and p-trap insulation kit, and grid strainer. Unless noted otherwise in room data sheets, provide UFAS (Uniform Facilities Accessibility Standard) and ADAAG (Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities) accessible vitreous china, wall mounted lavatories with hands-free type hardwired electronic faucets in all restrooms.

D201004 SINKS

Refer to Room Requirement Section for the number of sinks required.

In the Break Room, provide stainless steel countertop sink with stainless steel gooseneck hands-free type hardwired electronic faucets, maximum 1.5 GPM aerator, supplies and stops, p-trap and p-trap insulation kit, and minimum 0.5 HP waste disposer unit and removable drain plug.

In Janitor Closet, provide floor mounted, composite mop sink with service faucet (including vacuum breaker, wall brace, pail hook and hose thread), hose and bracket, backsplash/wall guard, and mop hanger in all janitor's closets (see Part 4 Section D201004 1.3 for additional details).

D201005 SHOWERS/TUBS

Refer to Room Requirement Section for the number of showers required.

Provide a fixed or handheld stainless steel anti-scald pressure balancing type valve with internal temperature stop, shower head, and shower supply fittings (single lever faucets with flow restricting shower head, 2.2 gpm). Hand-held shower heads, grab bars, fold-up shower seat, and roll-in threshold are required at accessible shower stalls.

Provide polished chrome finish for the shower head, shower head stem, escutcheons, etc.

D201006 DRINKING FOUNTAINS AND COOLERS

Refer to Room Requirement Section for the number of interior electric water coolers required.

Provide drinking fountains with integral coolers in the public corridors as required by the UFC 4-470-02 Final Draft and to satisfy the Room Requirements Section, whichever is more demanding. Drinking fountain shall be stainless steel, refrigerated, bi-level ADA type. Units shall be certified lead-free. Provide two-stage filters in water coolers. The first stage of filtration shall remove sediment, and the second stage shall filter particles one micron in diameter and shall remove lead to a level at or below that required by the EPA, cysts, and chlorine.

D2020 DOMESTIC WATER DISTRIBUTION

A flow test was performed with the following results:

Date: April 30, 2014
Time: 10:15 AM
Location: Hydrant along avenue D near Bronson Road
Static pressure: 56 psi
Residual pressure: 51 psi
Flow: 752 GPM

D202001 PIPES AND FITTINGS

Provide copper tubing, PVC piping, and fittings for above ground piping where required. Condensate drain piping shall be ASTM B 88, Type M or L, hard drawn copper.

D202002 VALVES & HYDRANTS

Provide isolation valves at supply to each floor, take-offs from domestic water mains, and as required for proper maintenance, repair, and replacement of equipment, fixtures, and major piping components.

Provide hose bibs in mechanical rooms.

Provide anti-syphon, freeze-proof, key operated wall hydrants along the building exterior such that all points along the perimeter can be reached with a 100 foot (30 meter) long hose.

D202003 DOMESTIC WATER EQUIPMENT

Provide backflow preventers of types and at points within domestic water systems as specified by IPC. Locate inside the mechanical room on service entrance lines where not provided exterior to the building. Provide a valved bypass with BFP around the main domestic water BFP to allow for service, maintenance, and/or replacement of either BFP during occupied hours.

Provide water meter. Coordinate with local utility company and base utilities for specific water meter requirements. Meters must be compatible with current AMI system and NAVFAC requirements to interface with the building automation system. If contractor is required to provide secondary water meter to achieve BAS communication, it shall be located downstream of the utility company's water meter.

Provide a readily accessible shut-off valve at the domestic water entry to the building

Provide strainers upstream of all meters and thermostatic mixing valves

Provide an integrated domestic hot water system consisting of a solar domestic hot water system sized at 100% of the daily demand for domestic hot water, a water-to-water plate and frame heat exchanger fed from the HVAC heating water system, a hot water recirculation pump, a central water tempering valve to provide 110°F water to all fixtures, and all accessories required for a complete system. Hot water recirculation pump shall be monitored by the BAS.

The solar system shall include heating panels, roof supports, piping, pumps, hot water storage tank, heat exchangers, accessories and controls. The solar DHW storage tank shall maintain a minimum temperature of 140°F with assistance from a booster coil fed from the HVAC heating water system heat exchanger. The total combined domestic water heating system (energy consuming and solar) shall provide 140°F water to the central water tempering valve.

Provide a coordinated design of the roof elements including the implementation solar PV and/or other sustainable systems roof mounted equipment. Organize the roof space necessary to accomplish the functions the roof has to provide, minimize roofing penetrations, and plan the roof to facilitate future reroofing of the facility. The roof type selection and detailing of roof mounted equipment shall be made to compliment the implementation of the functions that have to take place on the roof and minimize the need for routine maintenance.

Refer to RFP Part 3 - Project Program, Chapter 2, paragraph 2.3.4, Building Commissioning Part 5, section 01 45 00.05 20, *Design and Construction Quality Control* for Building Commissioning requirements. Plumbing systems to be commissioned include solar and domestic hot water systems.

D202004 INSULATION & IDENTIFICATION

Provide mineral fiber insulation with vapor barrier on domestic hot water supply and recirculation piping. Provide cellular glass insulation with vapor barrier on domestic cold water supply piping, indoor air conditioning condensate piping, sanitary piping conveying air conditioning condensate, and other piping subject to condensation. Provide insulation for heat exchanger. Provide identification for above ground piping (with the type of service and direction of flow), above ground equipment, and service valves. Letter size, lengths, and colors shall be per ANSI/ASME A13.1.

All equipment and pipe insulation shall meet the energy savings requirements of ASHRAE 189.1, EPACT 2005, and LEED.

D202005 SPECIALTIES

Provide domestic water, drain piping, and connections to all ice makers. Domestic water piping shall be provided with shut-off valves and backflow preventers.

A water analysis shall be conducted to determine the hardness of the water supply. If the results conclude that water hardness levels will have an adverse effect on the life expectancy of the system and/or fixtures, appropriate water filtration/conditioning equipment shall be provided.

D202090 OTHER DOMESTIC WATER SUPPLY

Provide piping supports in accordance with the IPC. Provide inspections, disinfection, and testing in accordance with the IPC.

D2030 SANITARY WASTE

D203001 WASTE PIPE & FITTINGS

Provide PVC pipe and fittings, for below ground installation.

Provide PVC piping and fittings, for above ground installation.

Piping shall drain by gravity to site connections without the aid of pumps wherever possible.

D203002 VENT PIPE & FITTINGS

Provide plastic PVC piping, fittings, and solvent cement.

D203003 FLOOR DRAINS

Provide floor drains in mechanical rooms, janitor closets, restrooms, plumbing chase areas, and in areas to receive condensate from air handling equipment.

Condensate from air handling equipment shall be discharged to storm water system via open end drain with an air gap.

Provide trap primers where traps are subject to drying and other locations as required by the IPC.

D203004 SANITARY & VENT EQUIPMENT

Provide oil-minder type sump pump in the elevator pit. Pump shall be indirectly discharged to sanitary system. Pump status and alarm shall be monitored and received at the BAS.

D2040 RAIN WATER DRAINAGE

D204001 PIPE & FITTINGS

Provide Cast iron hub-less pipe and fittings above ground.

D204002 ROOF DRAINS

Where required by building design, roof drains shall be provided with debris screen, dome and integral flange, and shall have a device for making a watertight connection between roofing and flashing.

D204004 INSULATION & IDENTIFICATION

Insulate horizontal storm water piping, roof drain pans, and above grade storm water piping receiving air conditioning condensate. Provide a vapor retarder. Identify above ground pipe with the type of service and direction of flow. Letter size, lengths, and colors shall be per ANSI A13.1.

D2090 OTHER PLUMBING SYSTEMS

Not used.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

D30 HVAC

Refer to Part 4 Section D30 for performance requirements of the building elements included in the HVAC system. Provide the mechanical system in accordance with the most recent version of the following. The advisory provisions of all UFCs, codes, and standards shall be mandatory. The following are listed for convenience, all UFCs and Federal Standards are applicable, whether listed or not:

UFC 1-200-02 - High Performance and Sustainable Building Requirements, with Change 1

UFC-3-401-01 - Mechanical Engineering

UFC-3-410-01 - Heating, Ventilating, and Air Conditioning Systems

UFC-4-010-01 – DOD Minimum Anti-terrorism Standards for Buildings

UFC 3-400-02 Design: Engineering Weather Data

FY05-02 NAVFAC Humid Area HVAC Design Criteria

UFC 3-410-02N Heating, Ventilating, Air Conditioning and Dehumidifying Systems

UFC 3-410-05N Heating Systems Operation and Maintenance

UFC 3-430-09N Exterior Mechanical Utility Distribution

UFC 3-450-01 Noise and Vibration Control

UFC 3-440-04N Solar Heating of Buildings and Domestic Hot Water

NFPA 90A

NFPA 96

Guiding Principles for Sustainable New Construction and Major Renovations

Whole Building Design Guide

International Mechanical Code, 2009

U.S. Green Building Council's LEED 2009 Reference Guide for Green Building Design and Construction.

International Mechanical Code, 2009

Leadership in Energy and Environmental Design (LEED) New Construction 2009

SMACNA

Energy Policy Act of 2005

ASHRAE 90.1 - 2010 - Energy Standard for Buildings Except Low-Rise Residential Buildings

ASHRAE 62.1 - 2007 - Ventilation for Acceptable Indoor Air Quality

ASHRAE 55 - 2010 - Thermal Environmental Conditions for Human Occupancy

ASHRAE 189.1 - 2009 Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings

ASHRAE 135 - 2012 – BACnet

Intelligence Community Directive (ICD) 705-TS Guidelines

In the event of any discrepancy between the referenced UFC's, codes, standards, and the contents of this RFP, the more demanding criteria shall govern. Equipment shall be provided in accordance with instructions included in the listing or labeling and in accordance with manufacturer's recommendations.

Materials shall comply with applicable Underwriters Laboratory (UL) Inc., American National Standards Institute, Inc. (ANSI), and National Electrical Manufacturer's Association standards or applicable standards of a similar independent testing organization. All materials shall be new and shall bear the UL label whenever standards have been established and label service is normally and regularly furnished by the agency. All material provided shall be listed and labeled suitable for the specified purpose, environment, and application and provided in accordance with manufacturer's recommendations. All insulation shall be asbestos free.

The project shall be evaluated by the designer of record in view of meeting the Energy Independence and Security Act (EISA) 2007, Energy Policy Act (EPACT) 2005, Guiding Principles for New Construction and Major Renovation, UFC 1-200-02, and LEED requirements for the project. At each submission, the designer shall submit calculations and energy modeling that demonstrates that the proposed facility energy cost savings (LEED EAc1 performance) and energy consumption savings (EPACT 2005 Compliance and UFC 1-200-02 Compliance). NAVFAC capital improvements engineering and construction and acceptance testing of critical systems bulletin 2008-03 is required for this project**.**

SYSTEM DESCRIPTION

Provide a chilled and heating water variable air volume heating, ventilating and air conditioning (HVAC) system for the building that attains the following objectives: Occupant comfort, Indoor air quality, Acceptable noise levels, Energy efficiency, Reliable operation, and Ease of maintenance. Design and installation shall be in accordance with IMC, UFC 1-200-02, UFC 3-401-01, UFC 3-410-01, and all other applicable codes, UFCs, Federal Mandates, and ASHRAE standards. Refer to Part 3 Project Program, Chapter 4, Space Tabulations for building occupancy levels.

Cooling shall be provided by (2) chillers each sized at 50% of the building demand with a variable primary pumping scheme. Each chiller shall have a VFD driven oil free centrifugal compressor with magnetic bearings and a minimum COP of 5.51 at full-load. Water shall be distributed to the building via (2) base mounted variable flow pumps piped in parallel to allow either pump to be the duty pump with premium efficiency (92% minimum) motors and VFDs, each sized per chiller. Pumps shall be controlled by differential pressure sensors located in the piping system remotely located from the pumps.

Heat rejection shall be provided by (2) induced draft cross-flow cooling towers each sized per chiller. The cooling tower fans shall be equipped with premium efficient/inverter duty type motors and shall modulate with variable frequency drives to maintain the cooling tower water setpoint. The cooling tower water shall be circulated via (2) constant volume base mounted pumps piped in parallel so that either pump can serve either tower, with premium efficiency motors, each sized per cooling tower. The cooling tower system shall be equipped with basin heaters, heat tracing, and a chemical treatment system to prevent any water from freezing or fouling.

Heating water shall be generated via (2) fuel oil fired cast iron boilers (84.2% efficiency minimum) with dedicated circulating pumps each sized at 65% of the total heating load. Water shall be distributed to the building via (2) vertical in-line or base mounted variable flow pumps piped in parallel to allow either pump to be the duty pump with premium efficiency motors (86% minimum) and VFDs, each sized for 100% of the building load and operated in a main / standby configuration. Pumps shall be controlled by differential pressure sensors located in the piping system remotely located from the pumps. The heating water shall serve air handling unit heating coils, CRAC reheat coils, VAV reheat coils, and miscellaneous space unit heaters.

All VFDs shall be readily accessible from the floor/ground and shall not be mounted in locations that limit, discourage, or prevent maintenance, repair, and/or replacement.

The new chilled and heating water loops shall also be connected to the existing building's loops via normally closed valves and shall have the ability to provide cooling and heating to the existing building in an emergency situation only.

Rooftop variable air volume (VAV) air handling units shall be provided to serve each floor of the building. The VAV rooftop units shall have chilled and heating water coils, supply and return fans with premium efficiency motors and VFDs, UV disinfection systems, filters, and outside air monitoring stations. Total energy recovery wheels shall also be considered based on the Energy Analysis. Supply air reset and discharge static pressure reset control routines shall be included in the unit programming as standard.

Fan powered VAV terminal units shall be equipped with ECM fan motors and heating water reheat coils to temper the exterior spaces. Shut-off type VAV terminal units with heating water reheat coils shall be provided for the interior portion of the second floor and all conference rooms. Shut-off type VAV terminal units shall be provided for any first floor interior open office space. Shut-off type VAV units shall also be used to introduce ventilation air to areas being served by computer room air conditioning (CRAC) units. Demand control ventilation shall be used in all high occupancy spaces.

CRAC units with infrared humidifiers and heating water reheat for precise temperature and humidity control shall be provided for the Data Center spaces and shall provide air via EC plug fans to an underfloor pressurized plenum.

GENERAL SYSTEM REQUIREMENTS

The building shall be designed to meet the requirements of EPAct 2005 and EISA 2007.

Locate equipment inside the building unless it is specifically indicated in the RFP as allowed or its function (exchanging energy with the environment) requires that it be located outside of the building. Note that any equipment located outside of the building at grade must meet AT/FP requirements for secure facilities, including a secure enclosure.

Provide working space around all equipment. Provide all required fittings, connections and accessories required for a complete and usable system. All equipment shall be installed per the criteria in PTS Section D30 and the manufacturer's recommendations. Where the word "should" is used in manufacturer's instructions, substitute the word "shall".

Equipment located above ceilings shall be easily accessible to perform all required maintenance. Access aisles through mechanical equipment rooms shall have at least seven feet clearance above the floor. Provide not less than clearances recommended by equipment manufacturers and as mandated by applicable UFCs and all adopted codes, standards, and criteria. Ductwork, piping, wiring, terminal units, etc., associated with mechanical HVAC systems shall be provided concealed above ceilings and as high as possible. Above ceiling valves, dampers, sensors, controllers, etc. shall be readily accessible via removable ceiling tiles or access panels. Provide access doors in walls for HVAC system devices that require manual operation, maintenance, or adjustment.

All mechanical equipment shall have painted finishes that pass a salt-spray test conducted per ASTM B117 for duration of at least 500 hours.

All equipment, duct, and pipe insulation shall meet the energy savings requirements of ASHRAE 189.1, EPACT 2005, and LEED.

Perform pressure drop calculations including allowances for dampers, grilles, balance dampers, coils, circuit setters, heat exchangers, safety factors, etc. Perform pressure drop calculation to support piping design and pump selections. Provide heat transfer equipment with allowances for fouling factors.

Provide vibration isolation for all equipment per requirements of UFCs and all adopted codes, standards, and criteria including UFC 3-450-01 and ASHRAE Handbook of Applications. Provide proper type of vibration isolation, proper deflection, and proper base. Provide reinforced concrete housekeeping pads and vibration isolators under all floor mounted equipment. Pad height shall accommodate equipment configuration or servicing requirements, 4 in. minimum height and the pad edges shall be chamfered. Provide pipe anchors and guides where needed to control pipe movement. Provide factory-fabricated flashing devices for pipe penetrations through the roof. Devices shall be compatible with the roofing system.

Provide identification for all equipment, piping, and ductwork. Piping service identification and flow direction shall be secured to the insulation by banding. Comply with ANSI A13.1 for piping. Equipment identification shall correspond to drawing identification. Provide valve tags for all valves and provide valve schedules framed in mechanical room. Provide brass tags with stainless steel clinched braided cord, provided so as not to impede valve operation or lockout.

Provide pipeline thermometers to measure supply and return water temperatures for the heating and cooling water systems. Provide thermometer wells on the supply and return side of air handling units. Provide a pressure gauge at the entering and leaving sides of automatic fill assemblies and at the suction and discharge of each pump and across the pump's strainer. Provide pressure/temperature gauge cocks as close as possible to the entering and leaving connections to heating and cooling equipment, coils and heating elements.

Provide freeze protection for all piping and equipment containing fluids subject to freezing and exposed to outdoor conditions. Provide standby power for freeze protection systems. Conceal HVAC systems within conditioned space wherever possible.

Provide air conditioning and heating for spaces as indicated and for the following Design conditions:

Outside Conditions

Summer:	92.0	Degrees F dry bulb	Winter	20.0	Degrees F
	31.7	Degrees C dry bulb		-6.7	Degrees C
	76.0	Degrees F wet bulb			
	25.6	Degrees C wet bulb			

Inside Conditions

Summer	75.0	Degrees F dry bulb	Winter		70.0	Degrees F
	23.8	Degrees C dry bulb			20.0	Degrees C
	50.0	%RH				

Inside Conditions (Data Centers)

Summer	70.0	Degrees F dry bulb	Winter	70.0	Degrees F
	21.1	Degrees C dry bulb		21.1	Degrees C
	50.0	%RH			

Inside Conditions (Telecom Closets)

Summer	75.0	Degrees F dry bulb	Winter	75.0	Degrees F
	23.9	Degrees C dry bulb		23.9	Degrees C
	50.0	%RH			

Inside Conditions (Mechanical, Electrical, Fire Pump Rooms)

Summer	80.0	Degrees F dry bulb	Winter	55.0	Degrees F
	26.7	Degrees C dry bulb		12.8	Degrees C

Ventilation Requirements
Provide Ventilation rates and systems per the requirements of UFCs and all adopted codes, standards, and criteria including the International Mechanical Code and the latest edition of ASHRAE Standard 62.1, *Ventilation for Acceptable Indoor Air Quality*. The building shall be maintained at net positive pressure with respect to the outdoors during all occupied hours. Buildings pressurization shall be maintained by air flow differential between supply and exhaust air flows. Air flow differential shall be sufficient to maintain net positive pressure, but not less than 10% of design supply air flow.

DOAS units shall be sized for Maximum Humidity condition.

Zoning Requirements
The HVAC system shall provide each zone/space with the choice of heating or cooling year round unless otherwise indicated. Each zone shall have its own limited range of control, as allowed by the control system central workstation. The range of control shall, itself, be able to be adjusted from the central workstation. Corner offices, data centers, and conference rooms shall be standalone zones. Offices on the same exposure can be grouped 3-4 offices per zone.

Noise Level Requirements
Noise levels shall comply with the requirements for each type of space in the ASHRAE Applications Handbook and the UFC, the more stringent criteria shall apply. The design drawings shall provide noise level control by specifying maximum noise levels for the mechanical rooms, utility rooms, electrical rooms, etc. The drawings shall specify the maximum equipment noise level. Design the HVAC and mechanical system to minimize vibration and noise to the facility. The design and installation of the mechanical system shall support the sound transmission classes (STC) required for the facility. Provide vibration isolation of mechanical equipment so as to limit vibration transmission to the building to acceptable industry standard levels.

Outdoor Air Intake Location Requirements
Provide outdoor air intake locations a minimum of 10 feet above grade that satisfy UFCs and all adopted codes, standards, and criteria including ATFP requirements, and to limit the quantity of contaminants that enter the P-287 building. Perform dispersion analysis to determine appropriate locations for boiler stacks, cooling tower(s), and other sources of contaminants to determine appropriate locations relative to outdoor air intakes to avoid contamination of ventilation air.

Emergency Switch Requirements
Provide an emergency shutoff switch, connected to the BAS, to shutdown HVAC air systems in compliance with UFC 4-010-01 including emergency isolation of low leakage shut off dampers in outdoor air, exhaust air, and relief air paths. The shutoff switch(s) must be easily accessible by building occupants by locating them similarly to mass notification system local operating consoles so that the travel distance to the nearest shutoff switch is not in excess of 200 feet. Ensure that the shutoff switches are well labeled, and of a different color than fire alarm pull stations.

Energy Modeling Requirements
The contractor shall develop a detailed energy model of the P-287 facility to substantiate energy performance of the proposed design. The energy model shall be performed on software satisfying minimum requirements of Section G3 of ASHRAE 90.1-2010 Appendix G. The energy simulation software shall be documented to satisfy requirements of ASHRAE 140-2007-Standard Method of Test for Evaluation of Building Energy Analysis Computer Programs. The contractor shall substantiate energy performance for the proposed design for UFC 1-200-02 compliance, EPACT2005 compliance, and LEED performance metrics. The calculation methodology to demonstrate the level of performance for EPACT2005 purposes shall be the ASHRAE 90.1-2010 Appendix G methodology, as modified by 10 CFR Part 433. For the purpose of reporting this energy performance, the percentage shall be reported on a consumption basis (Btu's) rather than a cost basis ($ utility cost), and unregulated and receptacle loads shall be excluded from both the baseline and proposed systems. The calculation methodology to demonstrate the level of performance for LEED purposes shall be in accordance with LEED NC 2009 procedures. Refer to Part 6 Attachment "Factor 6 Performance Rating Assumptions" for additional information on energy modeling requirements.

Analysis Requirements
Heating and cooling system design loads must be determined in accordance with the calculation procedures described in the ANSI/ASHRAE/ACCA Standard 183 unless otherwise specified herein. Provide no more than a \1\ 1.15 /1/ safety factor for heating equipment and distribution sizing to account for morning warm-up. Perform HVAC load calculations with computer software capable of calculating each zone's peak heating and cooling load as well as the whole-building "block" loads. The software shall at a minimum calculate the solar gains through fenestration, internal gains from occupants including latent heat for cooling purposes, internal gains from lighting and equipment, outside air loads (sensible and latent) from ventilation and infiltration, and heat gains or losses through the building envelope. The heating load calculations must be performed without credit for occupants and internal gains.

Internal Loads
Sensible and latent personnel loads shall be estimated based on published ASHRAE guidelines derived from anticipated occupancy during normal operations and expected activity level in each space. Office equipment loads shall be estimated based on space use and published ASHRAE load estimates for typical office equipment. Electrical room and other specialty space equipment loads shall be based on the specific equipment cut-sheets. Electrical lighting load values shall be based on the maximum allowable design wattage densities per the ASHRAE 90.1-2010 energy standard.

Seismic Design Criteria
Mechanical and plumbing systems shall be seismically braced in accordance with Chapter 13 of ASCE-7-2005 based on the Seismic Design Category defined in the Structural sections of this document. Anti-Terrorism/Force Protection requirements may require bracing of equipment for horizontal and vertical accelerations that exceed seismic accelerations.

Anti-Terrorism/Force Protection
UFC 4-010-01 DoD Minimum Anti-Terrorism Standards for Buildings is applicable for the project. In addition to any seismic bracing required for the project, equipment mounted overhead and exceeding 31 pounds in weight to be braced to resist 0.5 g lateral force and 1.5 g vertical force. Grade-mounted mechanical equipment near the building must be secure-able, and designed to prohibit concealment of packages. Outdoor intakes distributing ventilation air through the building must be located at least 10 feet above grade. The building shall be equipped with emergency air distribution shutoff switches, to allow building occupants to shut down the building air distribution system to minimize spread of airborne contaminants within the building.

Security Criteria

Certain spaces within the building may require special measures to provide acoustical privacy in accordance with the standards listed in the Security section of this report. Where ductwork, refrigerant, or hydronic or plumbing piping enters or passes through secure boundaries, penetrations require inspectable non-conductive pipe breaks. Ductwork penetrations across walls with acoustic boundary requirements shall be acoustically treated with sound attenuators to maintain the required STC rating across the secure boundary. Where an access port for visual inspection of security measures is required, it shall be installed inside the secure perimeter. The use of sound masking devices in lieu of sound attenuators is not acceptable. Walls surrounding duct penetrations shall be finished to eliminate any opening between the duct and the wall. Where bars or grilles are required at duct penetration(s) thru secure boundaries, an access port shall be installed inside the secure perimeter of the secure area to allow visual inspection of the bars or grill. In general, the number of penetrations for utilities or engineering services to spaces with special security requirements shall be minimized. Engineering services such as water, refrigerant or supply or exhaust air shall not pass through the secure area unless they do so to serve that space.

Mold or Mildew
Provide a warranty for No Mold and Mildew. Each facility shall have no evidence of mold or mildew due to condensate or other moisture on any indoor or interior surfaces after two years of service or facility operation. The contractor shall provide a two year warranty for no mold or mildew after the facility has been accepted. In the event that mold or mildew is found, the Contractor shall, at his cost, investigate and provide reports, remove the mold and mildew, repair damage, and replace as necessary where repair does not resolve the mold and mildew.

Material and Equipment Qualifications
All materials and equipment shall have been in satisfactory commercial or industrial use for two (2) years prior to the bid opening. The 2-year use shall include applications of equipment and materials under similar circumstances and of similar size. The product shall have been for sale on the commercial market through advertisements, manufacturer's catalogs, or brochures during the 2-year period. Provide factory representative for start-up of major equipment (chillers, pumps, and air handling units).

Motors
Single-phase fractional-horsepower alternating-current motors shall be high efficiency types corresponding to the applications listed in NEMA MG 11. Select polyphase motors based on high efficiency characteristics relative to the applications as listed in NEMA MG 10. Additionally, all polyphase squirrel-cage medium induction motors with continuous ratings shall meet or exceed energy efficient ratings in accordance with Table 12-10 of NEMA MG 1 Premium Efficiency. Provide controllers for 3-phase motors rated 0.75 kW (1 HP) and above with phase voltage monitors designed to protect motors from phase loss and over/under-voltage. Provide means to prevent automatic restart by a time adjustable restart relay. For packaged equipment, the manufacturer shall provide controllers including the required monitors and timed restart. Provide reduced voltage starters for all motors 18.6 kW (25 HP) and larger

D3010 ENERGY SUPPLY

D301001 OIL SUPPLY SYSTEM

Provide a complete oil system to meet the requirements of NFPA 31 including above ground double wall storage tank, duplex transfer pumps, piping, valves, gauges, controls, and other appurtenance required for delivery of oil to the oil fired equipment.

Oil supply system controls shall be interfaced with the Building Automation System. Provide at a minimum the following controls and alarm points: the tank level, tank interstitial leak detection alarm, underground containment piping transition sump leak detection alarm, tank low level alarm (adj), tank high level alarm (adj), pump control on/off, and pump status/alarm.

The BAS shall monitor and trend the tank level to provide fuel consumption data on a gallons per day basis.

D301002 GAS SUPPLY SYSTEM

Not used.

D301003 STEAM SUPPLY SYSTEM (FROM CENTRAL PLANT)

Not used.

D301004 HOT WATER SUPPLY SYSTEM (FROM CENTRAL PLANT)

Not used.

D301005 SOLAR ENERGY SUPPLY SYSTEMS

See Plumbing ESR D202003 for Solar Domestic Hot Water System.

D3020 HEAT GENERATING SYSTEMS

The Design/Builder is responsible for acquiring state of Virginia Air Quality Permit for the construction and operation of any equipment that has a potential to exhaust pollutants to the air. The permit process may take up to six months. Please contact the Air Quality Program Manager of NSA South Potomac, Dahlgren, VA to coordinate the permit application process. Contractor is responsible for all fees, not limited to review and design associated with this permit.

D302001 BOILERS

Provide two packaged hi-efficiency multi-pass type oil fired hot water boilers to provide heating water for the HVAC system. Boilers shall have a minimum efficiency of 84.2%. Provide venting in accordance with manufacturers written recommendations. Boilers shall be designed to operate in the full modulating range. Boilers shall be piped in parallel with a common header such that failure or maintenance of a component does not reduce plant capacity below 65% of the design capacity. Direct ducting of combustion air and flue to the boilers is preferred, if not available provide pre-manufactured, multi-wall boiler stack. Provide constant volume primary and variable secondary hot water pumping system, see section D304003 for details.

Provide vibration isolation for boilers and heating hot water pumps. Based on vibration analysis provide vibration isolation for vent stacks and heating hot water piping within the first 25 feet of heating hot water pump discharge.

Provide boiler controls in compliance with ASHRAE 135 *BACnet - A Data Communication Protocol for Building Automation and Control Networks*. Boiler controls are also required to comply with ASME CSD-1 requiring shut-down switches at the exit doors from the boiler room.

Provide complete factory start-up and operational testing of boiler equipment.

After boiler startup, there shall be a certification test performed by the NAVFAC Washington boiler inspector. The Dahlgren OICC should contact the OICC advocate at the Washington Navy Yard to arrange this test. The Contractor must schedule this certification test a minimum of 30 days in advance with the OICC office (the building cannot be occupied until the boiler has been certified).

D302002 FURNACES

Not used.

D302003 FUEL-FIRED UNIT HEATERS

Not used.

D302004 AUXILIARY EQUIPMENT

Not used.

D302005 EQUIPMENT THERMAL INSULATION

Provide insulation for equipment as required by ASHRAE 189.1. Provide insulation for hot water pumps, specialties, and other associated heating equipment including air separators and expansion tanks.

D3030 COOLING GENERATING SYSTEMS

D303001 CHILLED WATER SYSTEMS

Provide centrifugal water-cooled chillers using a variable primary pumping system and cooling tower. Provide chillers with oil-free compressors including magnetic non-contact compressor shaft bearings and integral electronic compressor speed control for matching dynamic load conditions. The chiller design shall be such that failure or maintenance of a component does not reduce plant capacity below 50% of the design capacity.

Chiller(s) shall have minimum efficiency ratings of 18.8 EER and 0.370 IPLV. There shall be a minimum of 2 refrigerant circuits per chiller.

Provide manufacturer’s chiller control panel with multiple chillers.

Provide insulation and vapor barrier on all chilled water equipment.

Provide chiller controls in compliance with ASHRAE 135 *BACnet - A Data Communication Protocol for Building Automation and Control Networks.*

Provide vibration isolation for chillers and pumps within the chilled water system. Based on vibration analysis provide vibration isolation for first 25 feet of chilled water piping from pump discharge as required.

Provide complete factory start-up and operational testing of chiller equipment.

D303002 CONDENSER WATER SYSTEMS

Provide factory assembled galvanized sheet steel (complying with ASTM A 635M and having G-235 designation) with stainless steel basin cooling tower(s) to serve the chillers. The cooling tower shall be sized such that a tower / cell matches the size of an individual chiller (and that failure or maintenance of a cell/component does not reduce plant capacity below 50% of the design capacity).

Provide with basin heater(s) with alarm to BAS if basin water temperature is below 37 F.

Provide variable frequency driven low sound cooling tower fan. Provide constant volume condenser water pumping system (with VFD for soft start). Cooling tower(s) may be configured as a single tower with multiple cells or as individual cooling towers. Where the contractor elects to utilize a single tower with multiple cells the cooling tower shall be piped, valved, controlled, and electrically circuited such that the individual cells may be operated, maintained, and repaired independently. Maintenance and repair of one cell shall not interfere with the operation of the other cell(s).

Provide cooling tower and condenser water system controls in compliant with ASHRAE 135 BACnet, A Data Communication Protocol for Building Automation and Control Networks. Provide cooling tower control panel in stainless steel NEMA 250 Type 3R enclosure. Provide cooling tower interface with the BAS for monitoring and alarm capabilities of all control points within the cooling tower control panel.

Provide vibration isolation for cooling tower and pumps within the condenser water system. Based on vibration analysis provide vibration isolation for first 25 feet of condenser water piping from pump discharge as required.

Provide complete factory start-up and operational testing of cooling tower and condenser water equipment.

D303003 DIRECT EXPANSION SYSTEMS

Provide dedicated air-cooled direct expansion (DX) ductless split system cooling only units for the Telecom Rooms and the Elevator Machine Room.

Evaporator and condensate piping shall not be located over electrical panels, transformers, IT racks or other such equipment. All direct expansion systems shall be provided with R410A or R407C refrigerant. All outside mechanical equipment HVAC cooling/heating and condenser coils shall be provided with a manufacturer’s approved coating system for water/marine environment. The heat transfer rating shall be as installed.

Provide BAS temperature sensor in all rooms served by the ductless split systems for space temperature monitoring and hi/lo temp alarm.

D3040 DISTRIBUTION SYSTEMS

All openings shall adhere to IA PUB 5229.22.

D304001 AIR DISTRIBUTION, HEATING & COOLING

Provide insulated, galvanized steel ductwork constructed, braced, reinforced, installed, supported, and sealed per the IMC and SMACNA standards. Utility openings such as ducts and vents shall be less than 96 square inches. Openings larger than 96 square inches shall be hardened per the Military Handbook 1013/1A.

Provide aluminum ductwork sloped towards aluminum exhaust grilles in spaces with potential for high humidity conditions including toilet rooms, shower rooms, and janitor closets. Conceal all ductwork in occupied areas. Provide a Variable Air Volume system using ducted returns. Terminal units shall be located above ceilings and allow for maintenance and removal of units through lockable access panels.

Provide pressure independent type series fan powered (FPVAV) and shut-off type (VAV) variable air volume terminal units with integral primary air flow measuring device. Primary air damper shall not be allowed to fully shut-off during occupied operation. Provide terminal units with reheat water coil (where required by design), BACnet compatible DDC controls, and ECM motor (FPVAVs). Provide return air duct connection for ducted extension to return air filter return grilles (FPVAVs). Return air filters for the FPVAVs shall be MERV-8 minimum. The maximum capacity of one terminal unit shall not exceed 1500 CFM.

Provide round or flat oval medium pressure supply ductwork from the VAV air handling units (AHUs) to FPVAV and VAV boxes. Provide low pressure supply ductwork downstream of FPVAV and VAV boxes to supply diffusers. Flexible duct used in the low pressure supply air system shall not exceed 5 feet in length. The radius at the centerline of flexible low pressure supply duct at duct bends shall be greater than one duct diameter.

All return and exhaust air ductwork shall be low pressure. Flexible return ducts and flexible exhaust ducts are not permitted. Return and exhaust air ductwork shall be acoustically lined as necessary to comply with the requirements of UFC 3-410-01.

Provide manual volume dampers to control air quantity in low pressure ductwork. Provide manual volume dampers in each low pressure branch take-off to or from each air device.

Ductwork located outside the building envelope shall be double wall, pre-insulated ductwork constructed, braced, reinforced, installed, supported, and sealed per the IMC and SMACNA standards. Outdoor duct supports shall be aluminum or stainless steel.

Provide grilles, registers, and diffusers. Provide linear slot diffusers including manufacturer supplied insulated boot at windows.

Provide flexible connectors between fans and ducts.

Provide Louvers with AMCA rating seal for air performance and water penetration in accordance with AMCA 500 and AMCA 511. Louvers shall be constructed of anodized aluminum alloy or stainless steel. Provide bird screens.

D304002 STEAM DISTRIBUTION SYSTEMS

Not used.

D304003 HOT WATER DISTRIBUTION SYSTEMS

Provide constant volume primary heating water pumps dedicated to circulating heating water through individual boilers if recommended by the boiler manufacturer. If the boiler manufacturer does not recommend dedicated primary pumps, a variable primary only distribution system may be used in which the distribution pumps also circulate heating water through the boilers. The heating water distribution pumps shall be in-line or base mounted VFD driven pumps of identical capacity piped in parallel to a common header to distribute heating hot water to equipment throughout the building. Control pumps to permit main/standby/rotate operation.

Provide insulated copper and steel heating water supply and return piping to serve the HVAC equipment throughout the building. Provide dielectric connections where dissimilar metals are joined.

Provide air separator and other required specialties for air management within the system.

Provide an expansion tank for the heating water piping system. Provide bypass filter system for the heating water system.

Provide chemical treatment equipment for hot water piping system. Develop and implement a water treatment system that protects the closed loop heating water system from corrosion, scale buildup, and biological growth, and maintains the system at optimum efficiency without creating hazards to operating personnel or the environment. Obtain samples of the domestic water from the installation, and develop a chemical water treatment program for the facility to address pH, Boron, Chemical Oxygen Demand, Soluble Copper, Total Dissolved Solids, Ammonia, Free Caustic Alkalinity and Microbiological growth within acceptable limits. The contractor shall submit the proposed chemical water treatment program to the government for approval.

Provide system flushing, pressure testing of piping and pump start-up.

Heating piping shall not be exposed outdoors.

Hose kits (flexible hoses) are permitted at terminal and package units coil connections but, if utilized, shall not exceed 6” in length. Additionally, hose kits are permitted to be utilized only to control vibration and noise. Do not provide hose kits to accommodate misalignment, change of direction, or offsets. Do not provide valve-packs or triple-duty-valves at terminal and package units. Provide independent isolation valves, strainers, and balancing valves at terminal and package units. In accordance with UFC 3-410-01 paragraph 3-6.1.13 provide calibrated (manual) balancing valves (automatic/auto-flow style balancing valves are not permitted).

D304004 CHANGEOVER DISTRIBUTION SYSTEMS

Not used.

D304005 GLYCOL DISTRIBUTION SYSTEMS

Not used.

D304006 CHILLED WATER DISTRIBUTION SYSTEMS

Provide a variable primary pumping system to serve the HVAC chilled water equipment throughout the facility.

Provide steel chilled water supply and return piping to serve the HVAC equipment throughout the facility. Insulate piping with cellular glass insulation.

Provide air separator and other required specialties for air management within the chilled water piping system.

Provide chemical treatment equipment for chilled water piping system. Develop and implement a water treatment system that protects the closed loop chilled water system from corrosion, scale buildup, and biological growth, and maintains the system at optimum efficiency without creating hazards to operating personnel or the environment. Obtain samples of the domestic water from the installation, and develop a chemical water treatment program for the facility to address pH, Boron, Chemical Oxygen Demand, Soluble Copper, Total Dissolved Solids, Ammonia, Free Caustic Alkalinity and Microbiological growth within acceptable limits. The contractor shall submit the proposed chemical water treatment program to the government for approval.

Provide an expansion tank for the chilled water piping system.

Provide system flushing, pressure testing of piping and pump start-up for the chilled water piping system.

D304007 CONDENSER WATER DISTRIBUTION SYSTEMS

Provide two base mounted primary condenser water distribution VFD driven pumps of identical capacity in parallel and on common header to distribute condenser water to the cooling towers. Control pumps to permit lead/lag/rotate operation.

Provide insulated black steel condenser water supply and return piping to serve the cooling towers.

Provide chemical treatment, filtration and side stream solids separator with sediment removal piping in cooling tower basin. Provide basket strainer upstream of each of the condenser water pump inlets.

Develop and implement a water treatment system that protect the open loop condenser water system from corrosion, scale buildup, and biological growth, and maintains the systems at optimum efficiency without creating hazards to operating personnel or the environment. Obtain samples of the domestic water from the installation, and develop chemical water treatment programs for the facility to address pH, Boron, Chemical Oxygen Demand, Soluble Copper, Total Dissolved Solids, Ammonia, Free Caustic Alkalinity and Microbiological growth within acceptable limits. The contractor shall submit the proposed chemical water treatment programs to the government for approval.

Provide system flushing, pressure testing of piping and pump start-up for the condenser water piping system.

D304008 EXHAUST SYSTEMS

Provide ductwork constructed, braced, reinforced, installed, supported, and sealed per the IMC and SMACNA standards.

Provide exhaust for public toilet rooms, janitor’s closets, and other areas with potentially irritating odors at rate of 2.0 CFM per square foot or in compliance with UFCs and all adopted codes, standards, and criteria including the International Mechanical Code, whichever is greater. Keep these spaces at a negative pressure with respect to adjacent spaces.

Provide ventilation systems for mechanical rooms, electrical rooms, and other similar utility type rooms in compliance with UFCs and all adopted codes, standards, and criteria. Where a combination of exhaust air and transfer air is sufficient to maintain temperature/humidity requirements, provide in-line or roof mounted centrifugal exhaust fan(s) and outside air intake louver(s) in compliance with UFCs and all adopted codes, standards, and criteria including the International Mechanical Code.

The ventilation systems shall be thermostatically and manually controlled. Provide a motorized damper to close the exhaust air and makeup air path when the fan is de-energized. The fan shall be energized and the dampers shall be opened when the setpoint of a temperature sensor is exceeded or when a manual switch is actuated.

The ventilation system shall have adequate capacity to maintain the required rooms dry bulb temperature and shall also have a minimum flow rate capable of providing 6 air changes per hour.

Where “non-condensing” requirements cannot meet by ventilation system, dedicated air-cooled direct expansion (DX) ductless split system cooling only unit shall be provided.

Where code required provide a refrigerant exhaust system in compliance with UFCs and all adopted codes, standards, and criteria including ASHRAE Standard 15 and the International Mechanical Code.

D304009 AIR HANDLING UNITS

Provide central station variable air volume rooftop air handling units with heating water preheat coils, chilled water cooling coils, a mixing box, access sections, MERV 8 and MERV 13 filters.
Provide double-wall casing construction with minimum 4” insulation. Provide a weather resistant sloped roof. Provide closed cell foam gaskets between sections, providing thermal and acoustical break. Size unit casing for maximum coil face velocity of 500 FPM.

Provide freeze protection circulation pumps for all water coils.

Roof curb height shall be a minimum of 14”.

All outside AHU casings and condenser coils shall be provided with a manufacturer approved coating system. The heat transfer rating shall be as installed.

Provide double-sloped IAQ stainless steel drain pan.

Provide access sections prior to and following coils. Provide double wall, insulated, access doors with neoprene gaskets. Provide labels indicating door swing direction or air pressure force during unit operation at access doors. Fan sections may be used in lieu of an access section where fan sections are next to coil sections and where sufficient space is provided within the fan section to access, clean, and repair coils without moving the fan. Provide a vapor tight marine lighting system in each access section of the air handling units with switch outside of each access door.

Provide rain-hood, bird-screen, insect-screen, and motorized damper at outside air intake and exhaust/relief air discharge(s).

Provide emergency shutdown sequences, switches and dampers in accordance with UFC 4-010-01.

Air handling units shall be provided with UV light disinfection systems.

Air handling units shall have dry-bulb temperature actuated airside economizer capability.

Air handling units shall have variable speed supply and return fans in a draw through configuration. Fans shall have integral vibration isolation. The units shall control supply fan speed to maintain supply static pressure. Supply static pressure shall be reset based on the most demanding VAV terminal unit. Return fan speed shall be reset to maintain a differential between supply and return air quantities.

Outside air volume shall be controlled to satisfy the ventilation standard. Provide motorized dampers to close off paths to the outdoors when not in use. Provide control interlock with associated exhaust fans.

D304010 OTHER DISTRIBUTION SYSTEMS

Not used.

D3050 TERMINAL & PACKAGE UNITS

D305002 UNIT HEATERS

Provide thermostatically controlled heating water cabinet unit heaters to serve the heating requirements of entrance vestibules of the building and spaces conditioned by transfer air during occupied hours that have no other means of space conditioning, but which have a heating load.

Provide thermostatically controlled heating water propeller unit heaters to serve the heating requirements of the mechanical equipment rooms, sprinkler rooms, electrical rooms, and similar utility spaces subject to freezing conditions. Provide multiple heaters as necessary to provide full coverage of the equipment rooms.

Provide BAS temperature sensor in all rooms served by unit heaters for space temperature monitoring and hi/lo temp alarm.

D305003 FAN COIL UNITS

Not used.

D305004 FIN TUBE RADIATORS

Not used.

D305005 ELECTRIC HEATING

Not used.

D305006 PACKAGE UNITS

Not used.

D3060 CONTROLS AND INSTRUMENTATION

D306001 HVAC CONTROLS

D306001 1.1 DIRECT DIGITAL CONTROLS (DDC)

Provide a complete Direct Digital Control (DDC) system to comply with UFGS 23 09 23.13 20 *BACnet Direct Digital Control Systems for* HVAC.

The building DDC system shall control the building mechanical systems to maximize energy performance. Occupancy schedules and profiles shall be accounted for in the optimization of building DDC system schedules and reset sequences.

Provide mechanical flow schematic control diagrams for each system and subsystem with DDC controls (e.g. heating water system, air handling units, condenser water system, etc.). The diagrams shall include all input (temperature sensors, humidity sensors, smoke detectors, pressure sensors, flow meters, utility meters, override switches, etc.) and output (valves, dampers, etc.) control components. The diagrams shall indicate a unique designation for each item and show the relative position of each component within the control system.

Provide a written sequence of operations for each system and subsystem with DDC controls. Indicate within the sequence how each component shall operate from full load to part load, in heating season and in cooling season, at all possible environmental conditions, in all possible modes of operation (e.g. occupied, unoccupied, morning warm-up, start-up, night setback, etc.), and during all possible alarm modes (e.g. component failure, smoke detection, etc.). Indicate all control interlocks. Describe how the system accomplishes temperature control.

Provide an input/output (I/O) points list for each system and subsystem with DDC controls. The point lists shall include all inputs (temperature, humidity, pressure, actuator positions, flow rate, equipment proofs, etc.) to the DDC controller, outputs (actuators, valves, damper, etc.) from the DDC controller and hardwired safeties (smoke detectors, freeze stats, etc.). The points list shall describe each point (supply fan status, chilled water supply temperature, etc.) and the point type (digital input-DI, analog output-AO, etc.). The points lists shall indicate each point that is to generate an alarm when operating outside defined parameters.

All of the information indicated above (edited specification, flow schematic control diagrams, sequence of operations, and points lists) is required for the design to be approved. It is not acceptable to submit only the control contractor's shop drawings after design approval. Provide the same information in construction submittals, indicating understanding of the information on the design drawings.

Provide notebook computer and complete application software with all licenses. Workstation software shall allow monitoring and troubleshooting of the DDC system and adjustment of set points, operation schedules, control graphics, and control programs. DDC software shall allow for modification to dead band limits and spans, time, timed local override time, alarm points, trend points, runtime accumulation, calculated energy consumption or input, and passwords. Provide editing capacity for creating, deleting, and modifying graphics and text. Provide three levels of password protection to limit access to authorized personnel.

Provide color graphics for the building's mechanical systems. The current value, set point, and point name of every input and output point shall be shown on at least one graphic in its appropriate physical location relative to the mechanical system. Graphics shall have an associated identifying title. Point data shall be updated dynamically on the graphic images. Provide hierarchal-graphic-based navigation of the system. Provide graphic representations of the floor plans that allow the operator to see heating or cooling zone temperatures, set points, and locations where temperature and/or other alarms/problems have occurred. Provide visual indication of each point in alarm. Provide appropriate rates of actuation, hardware, and software to avoid hunting and nuisance trips for freeze safety devices.

Provide software to produce trend reports for any variable controlled or measured by the system including but not limited to alarm status, measured temperature, set points, actuator positions, etc. Provide easy startup with user adjustable duration and frequency for variable trending. Trend reports shall include data automatically saved into a Microsoft Excel spreadsheet file format as well as automatically generated trend graphs.

The controls shall be configured to minimize the number of DDC panels required. The DDC panels shall be located within the mechanical room. Provide 20-percent spare memory, input connection, and output connection capacity for future expansion within each DDC control panel. Provide panels capable of standalone operation, digital and analog input and output, custom control, trending, manual override, with communication ports and keypad interface and digital display, adjacent to the equipment they control.

Provide hardwire critical alarms such as low temperature limits, smoke dampers, smoke detectors, and refrigerant leak detectors. Also, provide an individual alarm point for each critical alarm in the DDC system. Provide current sensing transducers to monitor all constant speed pump, fan, and air handling unit motors. Provide an input to the DDC control system from each transducer. Provide inputs from each variable speed drive to the DDC control system to monitor the status, alarm status, and speed of each variable speed motor.

Provide airflow measurement for outdoor air flow to the AHUs. Airflow measurement shall consist of an array of pairs of temperature compensating bead in glass thermistors and a microprocessor based transmitter. The transmitter shall be factory calibrated to weight the input of each temperature compensating thermistor pair. Error of the thermistor array and transmitter shall not exceed 5-percent

of the reading at any point in the airflow measurement range. Provide linear output from each transmitter as an input to the direct digital control system.

Provide manual shut-off valves at each port of control valves. Provide unions for piping NPS 2 or smaller and flanges for piping NPS 2-1/2 and larger to facilitate removal of control valves without disassembling piping. Provide control valves with equal percentage characteristics and tight shutoff. Provide valve pressure drop at a design flow rate equal to that of the device controlled subject to a high limit of 5 psi.

Provide low leakage control dampers with airfoil blades and edge seals. Provide end switches for each smoke damper (and other dampers capable of isolating air handling units) to ensure that the dampers are proven fully open before the associated fan starts.

Temperature sensors shall be mounted 54 in. above the floor. Setpoints will be input from the BAS, but occupants shall have a 4 degree (2 degree up, 2 degree down) local adjustment capability.

Weekend, night setback / setup and unoccupied dehumidification programing shall be included in the design. Morning warm-up and morning cool-down shall also be included in the design. Setback temperatures in unoccupied mode are -10 deg below inside design temperature in winter but not less than 45 deg, +5 deg above design in summer.

Existing controls provider for the base is “TAC” the only approved interface to the base is a “3ETI” product. Server and workstations are located in Bldg. 182. Provide workstation computer at the building site and a second workstation capable of performing the same functions at building 182. The contractor's Basis of Design shall include a thorough explanation of how a seamless, successful interface will occur between the new building DDC system and the existing base system.

Provide smart meters compliant with EPACT 2005 Advanced Metering Requirements, monitored by DDC, on all of the building's incoming utilities (fuel oil, water and electric). Set up trend reports to record data daily and store values in the operator workstation DDC computer. Provide interface with water meters in makeup water stations. Provide pulse type water meters in makeup water stations. Provide the ability to read total and instantaneous water flows. Provide venturi flow meters for heating water system water flow measurement. Provide items necessary to translate differential pressure across flow meter to electronic signal for digital control system. Provide input from flow meters to digital control system.

Provide a DDC option for automatic operation of building circulating pumps whenever outdoor air temperature is below 35 degrees F or when there is a high potential for freeze damage. Provide control to automatically start back-up pumps (or other HVAC equipment) if the primary device fails. Primary and back-up pump starter circuits shall be wired to prevent both pumps from operating at the same time. Rotate primary and back-up HVAC equipment monthly (adjustable) with a lead/lag control routine.

As part of construction, Contractor shall demonstrate, via guarantees (prior to installation) from the new DDC product vendor and via commissioning, that the DDC system operates properly and as required by the RFP, in all modes of operation.

A 2" empty conduit with pull string shall be provided from the nearest cable tray in the hallway to the exterior generator enclosure for DDC communication.

Other Requirements
(1) After successful completion of other commissioning activities, provide a final commissioning at the existing server located in Building 182; commissioning shall include the existing base “Automated Logic Controls” DDC system.
(2) The building DDC shall use Ethernet at the floor, building and management levels.

(3) The DDC shall collect the data from utility grade advanced metering devices for water and electric. This data shall be transferred via the building system to the base system for daily and monthly collections reports. The software that shall be used shall be open so the customer can make future adjustments as needed for collection schedules.
(4) The DDC software at the building level and base level shall allow the customer, base O&M personnel, to view the program code and make edits, create and edit the graphics, command points on the graphics, add or remove points, edit accounts, audit accounts, provide dynamic plotting, allow backup and restore of the data base.

D306001 1.2 ELECTRONIC CONTROLS

Provide manufacturer's integral controls on all unit heaters and packaged ductless split systems. Provide DDC temperature sensor to monitor the room temperature and alarm extreme temperature conditions in each zone served by unit heaters or packaged ductless split systems.

D3070 SYSTEMS TESTING AND BALANCING

Provide complete Testing and Balancing (TAB) of all air and water distribution systems and HVAC equipment in the new P-287 Building and the renovation portion of existing Building 1560.

Provide duct air leakage testing for the duct system in the new P-287 Building and the renovation portion of existing Building 1560.

Provide HVAC piping system installation testing for all new and modified HVAC piping systems in accordance with UFGS 23 05 15 Common Piping for HVAC.

TAB and DALT contractor(s) shall be first-tier subcontractor to the Design Build Contractor who is not affiliated with any other company participating in work on this contract, including design, furnishing equipment, or construction.

TAB and DALT activities shall adhere to all requirements set forth in UFGS 23 05 93.

D307003 HVAC COMMISSIONING

Refer to RFP Part 3 - Project Program, Chapter 2, paragraph 2.3.4, Building Commissioning Part 5, section 01 45 00.05 20, *Design and Construction Quality Control* for Building Commissioning requirements. Mechanical systems to be commissioned include HVAC systems and controls, and advanced utility meters.

Acceptance testing shall be per the NAVFAC Capital Improvements Engineering & Construction Bulletin. Acceptance Testing of Critical Systems (ECB 2008-03) is also required for this project.

D3090 OTHER HVAC SYSTEMS AND EQUIPMENT

D309001 GENERAL CONSTRUCTION ITEMS

Provide seismic bracing as required by code. Provide equipment bracing for AT/FP as required in UFC 4-010-01. The most stringent requirement shall be met.

D309090 OTHER SPECIAL MECHANICAL SYSTEMS

Provide computer room air conditioning units (CRACs) for Data Centers in the P-287 Building. CRACs shall be under floor discharge type with EC fans, chilled water coils, infrared humidifiers,

heating water reheat coil, MERV 8 filters, stainless steel drain pan, condensate pump, and underfloor water leak detection system.

CRACs shall maintain specific temperature and humidity requirements via microprocessor control.

Units shall be pedestal mounted and connected to a short section of supply ductwork to promote better underfloor air distribution

Provide smoke detectors with units as required by code.

BAS shall monitor temperature and humidity and receive alarm for hi/lo temp and hi/lo humidity alarm via BAS sensors or dry-contacts to the CRAC units.

Building 1560 Renovation (Refer to BRF document attachment for complete requirements):

Rooms 243, 256, 258, 259, and 260 shall require minor modifications to the building's VAV air system to accommodate space plan changes.

Room 116 (ETS) Mechanical:

a. Contractor shall remove and/or relocate any underflow sensors and piping to avoid equipment test bed foundations, ventilation duct and cable tray locations identified in BFR Figures 3-5, 3-8 and 3-10. This shall include:

   i. Removal of all deactivated HALON distribution piping
   ii. Removal of under floor fire sprinkler piping
   iii. Removal of all deactivated under floor chilled water piping

b. Relocate ceiling sprinkler heads as required to support the installation of the ETS and its Closed Loop duct returns.

c. Currently rooms 116 and 121 are occupied and contains specialized equipment that shall be removed by sponsor's assigned contractor personnel.

d. All ETS support foundations (bed plates & pedestals, structural frames, etc.) shall be obtained by sponsor and provided to MILCON General Contractor for installation during building renovations.

e. Pedestals shall be aligned in their xyz axis per drawings provided by the sponsor's contractor personnel. Sample photos of current ETS support foundation installation are included in the RFP Part 6D Photos.

f. Sponsor's contractor shall provide oversight of the MILCON General Contractor in the support foundation installations.

g. Reinstallation of recessed flooring shall not occur until sponsor approves completion of below floor modifications and ETS support foundation installations.

h. Contractor shall install new "closed loop" computer room air conditioning unit. Placement consideration shall be taken to minimize bends to truck lines shown in BFR Figure 3-8 which results in increased back pressures.

Table 3-2 Conditioned Air Distribution Requirements

Equipment	Min Flow (SCFM)	Flow Resistance / Pressure Drop at Min Flow (Inch H20)
405 Console	300	1.0
Power Control Group	1,620	2.0
440 Island	3,150	1.0
450 Island	2,850	1.0
Power Distribution (PDE)	600	1.0
270 Island	875	1.0

i. Closed Loop air conditioning shall be:

i. Capable of supplying a nominal total flow of 9,400 SCFM minimum with a 50% back-up capacity.
ii. Capable of removing 24KW of heat dissipated by equipment.
iii. Designed to allow adjustment in air flow to within + 20% of design air flow.
iv. Capable of overcoming pressure drops across the equipment as indicated in Table 3-2.
v. Supplied with chilled and heating water from the existing central plant. Existing chilled water supply temperature is 44°F with a 10° delta T, and existing heating water supply temperature is 180 °F with a 20° delta T.
vi. Made to automatically make up any air lost through leakage through duct joints and equipment connections.

j. Closed Loop air cooling system shall include, as a minimum, a controller with the following capabilities:

i. ON / OFF switch
ii. Air Temperature Warning Indicator
iii. Air Temperature Alarm Indicator
iv. Air Humidity Warning Indicator
v. Air Humidity Alarm Indicator
vi. Airflow Alarm Indicator
vii. Audible Alarm for all alarm conditions
viii. Alarm Silencing Pushbutton

k. Closed Loop air cooling:

i. Temperature sensor warning set point shall be 70°F.
ii. Temperature sensor alarm set point shall be 80°F.
iii. Air flow sensor shall be able to shut down power to the FCS equipment in a no-flow or loss-of-flow condition after a five minute delay.
iv. Air temperature sensor shall shut down power to the FCS equipment at the alarm temperature set point.

l. The closed loop conditioned air shall be able to distribute conditioned air to the inlet to the equipment shown in BFR Figure 3-8 as specified below:

i. Temperature: 63°F + 2°F
ii. Absolute Humidity: 75 grains per pound of dry air maximum.

iii. Air Quality: Air at inlet to the equipment shall be equivalent or better to air filtered through a 0.3 Micron filter with an efficiency of 95%.

m. Contractor shall install a true floor to ceiling wall as shown in BFR Figure 3-5.

n. As required, Contractor shall relocate badge readers and controls around vault doors upon wall installation.

-- End of Section --

6. ENGINEERING SYSTEMS REQUIREMENTS

D40 FIRE PROTECTION

Refer to Part 4 Section D40 for performance requirements of the building elements included in the fire protection systems.

SYSTEM DESCRIPTION

Provide an integrated fire alarm/mass notification system and suppression system capable of notifying building occupants and controlling any fire that may start inside the facility. Existing building suppression system shall be reused, and modified as required to provide a complete system in the renovated areas. A new sprinkler system shall be provided to protect the new P-287 Facility.

GENERAL SYSTEM REQUIREMENTS

Provide working space around all equipment. Provide concrete pads under all equipment. Provide all required fittings, connections and accessories required for a complete and usable system. All equipment shall be installed per the criteria of PTS section D40 and the manufacturer’s recommendations. Where the word "should" is used in the manufacturer's recommendations, substitute the word "shall".

All Design Documents, (i.e. Building Code/Life Safety Analysis, plans, specifications, and calculations) developed for Section D40 shall be prepared by, or under the supervision of the design/build contractor's Qualified Fire Protection Engineer, the Fire Protection Designer of Record (FPDOR).

Installation drawings, shop drawings or working plans, calculations, other required pre-construction documentation and as-built drawings shall be prepared by, or under the direct supervision of a NICET engineering technician as specified below. NICET engineering technicians shall hold a current certification as an engineering technician in the field of Fire Protection Engineering Technology with minimum Level III certification in the appropriate subfield. Individuals responsible for work specified in D4090 shall hold a Level IV certification in the Special Hazards Suppression Systems subfield.

Provide training for the active systems consisting of three (3) eight (8)-hour sessions to accommodate all] shifts of the base fire department and allow for rescheduling for unforeseen fire department responses.

All new fire extinguishers shall be 10 lb ABC fire extinguishers.

D4010 FIRE ALARM AND DETECTION SYSTEMS

Provide an integrated fire alarm and mass notification system capable of notifying building occupants inside the new P-287 facility. Provide a complete, electrically supervised, addressable intelligent, manual and automatic, annunciated fire alarm and detection system throughout the new P-287 facility. The system shall be a voice evacuation type system and shall also serve as a mass notification and public address system. Exterior mass notification speakers shall be provided and connected to the voice fire alarm system inside the building. These integrated systems shall be capable of notifying building occupants by means of tones, strobes, pre-recorded, and live voice announcements. The fire reporting portion of the system shall be compatible with the existing King Fisher base fire reporting system. The fire alarm system shall include manual stations, system smoke detectors, duct smoke detectors, heat detectors, audio/visual alarms, fire alarm radio transmitter or comparable supervising station interface, electrical supervision of all sprinkler system alarm and supervisory devices, and electrical supervision of fire pump controllers.

The fire alarm control panel shall be capable of handling a minimum of 500 individually identified sensors within the main control panel. Provide Class A Notification Appliance Circuits, Class A Signaling Line Circuits, and Class A Initiation Device Circuits. Provide back-up amplifiers for combination fire alarm/mass notification systems.

Manual pull stations shall be flush in the public and occupied areas. Surface mounted devices in mechanical rooms and like areas are acceptable.

Provide smoke detectors powered from the building fire alarm system in all code required areas.

Provide the new fire alarm panel in the P-287 Electrical Room. Provide a remote annunciator located at in the P-287 Loading Dock Vestibule. Provide the fire alarm voice panel in the Lobby of existing Building 1560.

Provide fire alarm and mass notification system upgrades as required in this project's renovation portion Building 1560 (See BFR Section 3). These upgrades shall be tied into the existing system in Building 1560.

Bid Option No. 1

Remove existing fire alarm system in Building 1560 in its entirety. Provide a new, complete addressable voice fire alarm system throughout Building 1560. The system shall be designed in accordance with the requirements of the UFC. The system provided for Building 1560 shall be the same manufacturer and basis of design as the system provided for P-287. See attached Building 1560 Fire Alarm Drawings for reference.

D4020 FIRE SUPPRESSION WATER SUPPLY AND EQUIPMENT

Base hydraulic calculations on a static pressure of 56 psig (gauge) with 752 gpm available at a residual pressure of 51 psig (gauge) at the front of the building. This data is from a flow test conducted on April 30, 2014. The building has an existing fire pump rated at 500 gpm with 40 psi of head.

Provide a new underground fire water supply to the new fire pump located in a dedicated fire pump room in the new P-287 Facility. Provide a new backflow preventer and alarm check valve. Extend a bulk feed main to through the fire wall to Building 1560 for future connection.

Maintain the existing fire pump and fire water service in Building 1560.

D4040 SPRINKLER SYSTEMS

Building 1560's existing sprinkler system shall be tested, inspected, and reused, including modifications to the existing wet pipe sprinkler protecting the renovation areas, to meet the new floor plan requirements providing complete coverage throughout. Underfloor sprinklers in Room 116 shall be removed.as necessary.

Provide a complete, hydraulically calculated wet pipe sprinkler system to protect the new P-287 Facility. System requirements for the new building shall be in accordance with UFC 3-600-01 (March of 2013) and FM Global Data Sheet 3-26.

Provide quick-response concealed sprinklers with ordinary temperature rating in areas with finished ceilings. Provide sprinklers cover plates to match ceiling color. Areas with exposed ceilings shall use brass upright or pendant heads. Provide upright sprinkler heads with wire guards in Telecom Rooms.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

D50 ELECTRICAL

Refer to Part 4 Section D50 for performance requirements of the building elements included in the electrical system. The following standards and guidelines are to be incorporated:

UFC 1-200-02 - High Performance and Sustainable Building Requirements, with Change 1

UFC-3-501-01 – Electrical Engineering

UFC-3-520-01 – Interior Electrical Systems

UFC-3-580-01 - Telecommunications Building Cabling Systems Planning and Design

UFC-3-580-10 - Navy and Marine Corp Intranet (NMCI) Standard Construction Practices

UFC-4-010-01 – DOD Minimum Anti-terrorism Standards for Buildings

UFC 4-020-04A - Security Engineering: Electronic Security Systems

Energy Policy Act of 2005

ASHRAE 90.1 - 2007 - Energy Standard for Buildings Except Low-Rise Residential Buildings

ASHRAE 189.1 - 2009 Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings

Intelligence Community Directive (ICD) 705-TS Guidelines

DOD 5200.1R - DOD Security Program Regulations

National Security Telecommunications and Information Systems Security Advisory Memorandum (NSTISSAM) TEMPEST/2-95

TIA/EIA-568-C, TIA/EIA-569-B, EIA/TIA-526, EIA/TIA-606-A

ANSI/TIA/EIA 758-B

ANSI-J-STD-607-B

MIL-HDBK-419A

NFPA 70 (National Electric Code)

NFPA 75, Protection of Electronic Computer and Data Processing Equipment, 2013.

NFPA 101, Life Safety Code 2009.

BICSI - Building Industries Consulting Services International (TDMM), 12th Ed., 2009, Telecommunications Distribution Methods Manual 12th Edition.

UL 497, Protectors for Paired-Conductor Communications Circuits.

TIA TSB-184

SYSTEM DESCRIPTION

Provide an interior electrical system consisting of Distribution and Lighting Panelboards, Dry Type Transformers, Conduits, Feeder and Branch Circuits, Motor Control Equipment, Lighting and Branch Wiring, Communications, Security and Alarm Systems, Emergency Lighting, Grounding, Lightning Protection, Building Photovoltaic System (if approved), including accessories and devices as necessary and required for a complete and usable system. This section covers installations out to the building 5 foot line.

The interior distribution system shall consist of insulated conductors in conduit.

GENERAL SYSTEM REQUIREMENTS

Provide an Electrical System complete in place, tested and approved, as specified throughout this RFP, as needed for a complete, usable and proper installation. All equipment shall be installed per the criteria of PTS Section D50 and the manufacturer's recommendations. Where the word "should" is used in the manufacturer's recommendations, substitute the word "shall".

D5010 ELECTRICAL SERVICE AND DISTRIBUTION

The existing exterior power distribution system for Building 1560 contains (2) 2000 kVA, 13.8kV-480Y/277V pad-mounted transformers which are currently loaded to no more than 350 kVA. The P287 building shall be powered by tapping the existing Building 1560 service. There is adequate panel space available in the existing switchboard to accommodate the new building. New distribution panelboards shall be fed directly from the existing main switchboard.

The building power distribution system shall be designed to provide power to all non - redundant project and facility equipment and to at least half of the redundant project and facility equipment in the event of a single power distribution equipment failure (transformer, switchgear, etc.). Refer to BFR Section 4 for specific power distribution breakdown. In addition, each seat shall require building Uninterruptable Power Supply (UPS) connectivity for computer systems at the desktop.

The existing switchboard located in the existing building 1560 main electrical room shall distribute power to new branch circuit panels and equipment in the new P-287 Facility as follows:

1. The power distribution system shall provide 480/277 volt, three phase, four wire service to mechanical equipment loads and building lighting circuits.

2. Dry-type 480V primary, 208/120V secondary transformers shall feed 208Y/120 volt, three phase, four wire panelboards.

3. Interior and exterior lighting and power for exterior lighting provided under the site work shall be provided from 277 volt, 1 phase, 2 wire circuits. Controls for this lighting shall be mounted in the main electrical room.

4. Large HVAC equipment (3/4 HP and larger) shall be fed from 480/277V distribution.

5. Smaller HVAC equipment (small than 3/4 HP) shall be fed from 208/120V distribution.

Feeder wiring shall consist of copper conductors run in EMT or IMC conduit. Branch circuit wiring shall be copper conductors run in EMT conduit or flexible metal conduit. All panelboards shall have copper bus and contain full size neutral bar. The interior distribution system shall consist of insulated conductors in conduit.

Emergency shutdown buttons shall be provided at Lab egress points along with main shunt trip breakers for panels. Emergency shutdown button shall turn off all power to the room including normal lighting (emergency lighting will be activated), power for equipment and receptacles and power to heating and ventilation systems supplying this space.

D501001 MAIN TRANSFORMERS

Not used.

D501002 SERVICE ENTRANCE EQUIPMENT

Not used.

D501003 INTERIOR DISTRIBUTION TRANSFORMERS

Provide dry type transformers to step down secondary voltages for general purpose outlets and other low voltage equipment. Provide dry type transformers with a minimum of 25% spare capacity.

Do not wall mount dry type transformers nor place them above the reflected ceiling. Place all dry type transformers inside the electrical rooms.

D501004 PANELBOARDS

Provide distribution and branch circuit panelboards to serve loads as required. Distribution panelboards shall be within 10 feet of connected transformers and shall be main circuit breaker panels. Provide panelboards with a minimum of 10% spare breakers and 25% spare capacity. Panelboards shall have no more than 42 spaces. All panelboards shall be provided with a tumbler lock with keyed alike.

Panelboards shall be three-phase, four-wire, with a ground bus. The busses of the panelboards shall be made of copper. Panelboards for non-linear loads shall be UL listed, including heat rise tested, in accordance with UL 67, except with neutral assembly installed and carrying 200 percent of the phase bus current testing.

Do not mount panelboards in hallways, behind doors, or in public spaces. Do not flush mount panelboards in fire rated walls. Provide arc fault circuit breakers. The circuit breaker for the Fire alarm panels shall be red colored and shall be provided with a lock capable of being locked in the “ON” position.

Bathrooms, or other rooms requiring floor drains or plumbing in the floor shall not be located above electrical rooms or closets. No pipes, ducts, or equipment foreign to the electrical equipment shall be installed in, enter, or pass through electrical rooms or closets. All branch circuit panelboards shall be supplied through a breaker at the existing main distribution panel; panelboards shall be with bolt on type breakers, no feed through lug type panels are permitted. Panelboards with 400 amps and above shall be provided with a hinged trim feature with a full height piano hinge. The trim hinge opens with the removal of the trim screw.

Panelboards shall be labeled with the panel name and source panel or source location. The nameplate shall be phenolic laminate with engraved black letters on a white surround. Emergency

panels shall be white letters on red surround. The panel name shall have 0.5 inch high letters. The words “FED FROM PANEL XX” shall be 0.25 inch high on a line below the panel name. The panelboard directories shall be typed and shall reference the actual room numbers for the circuits, regardless of room numbers used on the drawing. The information supplied on the panelboard schedules shall be all data necessary to order the equipment and to completely identify the attached loads. Information shall be clearly shown and shall be included with: panel name, number and size of spare breakers, number of bussed spaces, the maximum ampere rating, total number of breakers positions in the panel, top feed or bottom feed, main circuit breaker (MCB) or main lugs only (MLO), surface or recessed mounting, trip rating, frame rating, number of poles of each breaker, AIC amperes (or KVA) per phase per circuit, panel total connected KVA and amperes, and panel total demand KVA and amperes.

D501005 ENCLOSED CIRCUIT BREAKERS

Provide enclosed circuit breakers for equipment disconnecting means as required.

D501006 MOTOR CONTROL CENTERS

Provide individual motor starters with disconnect switches, combination motor starters, variable speed drives, or manual motor starters for motor controls as required by mechanical equipment. Provide all circuits and connections for motor.

D501090 OTHER SERVICE AND DISTRIBUTION

Not used.

D5020 LIGHTING AND BRANCH WIRING

Provide recessed and surface mounted fluorescent fixtures for general purpose lighting. Fluorescent fixtures shall be provided with electronic ballasts and T-8 lamps. Recessed down lights with compact fluorescent lamps shall be used as applicable. Wall mounted lighting fixtures shall be provided as required. Separately switched, dimmable lighting design shall be provided in all conference rooms used for audio-visual presentations or video conferencing. Egress lighting and exit lights shall be provided with inverter type battery back-up.

Electrical connections for all systems requiring electrical service shall be provided. Lighting and general-purpose receptacles shall be provided throughout all spaces as required. Provide general-purpose convenience outlets that are specification grade, 20 amperes, 120V, and duplex.

Dedicated circuits and connections shall be provided for all larger equipment and appliances.

Additionally dedicated circuits shall be provided for any special equipment recommended by the equipment manufacturer to be on a dedicated circuit.

Special types of outlets and receptacles shall also be provided for certain equipment as required by equipment manufacturer.

In areas where office equipment such as computers, printers, copiers, scanners, fax machines, etc. will be located adequate power receptacles and data outlets shall be provided.

D502001 BRANCH WIRING

All branch wiring shall be insulated copper conductors in EMT, IMC, or RGS conduit.

Metal-clad cable Type "MC" with THHN insulation rated 600 volts & with an insulated grounding conductor shall be permitted for power and lighting branch circuits on the normal and standby systems where concealed above hung ceilings or in walls. Allow to the maximum of three 20A/1P circuit homeruns from the power and lighting branch circuits and ended in the junction box. Final circuit homeruns from the junction box to the panelboard have to be in EMT conduit. The insulated grounding conductors and the cable sheath shall be bonded to the supplying panelboard and each receptacle or lighting fixture connected to the circuit.

Ensure compliance with NEC 2014 voltage drop requirement. Provide increased conductor sizes and/or remote branch panelboards locations to reduce voltage drop. Include the 20% spare capacity required for the electrical system in the voltage drop calculations. All branch wiring shall be insulated conductors in conduit. Conductors shall be copper THHN/THWN-2 insulated. Rigid steel conduit (RGS), intermediate metal conduit (IMT), and electric metallic conduit (EMT) shall be used for interior dry applications. Conduits shall be concealed in finished walls and above dropped ceilings.

D502002 LIGHTING EQUIPMENT

Provide a complete lighting system consisting of exit and emergency lighting and area lighting consisting of fluorescent or LED lighting as required including switches and automatic controls including, occupancy sensors. Provide lighting in accordance with IES recommendations, and applicable codes and standards. Provide lighting controls in accordance with ASHRAE 90.1.

Refer to RFP Part 3 - Project Program, Chapter 2, paragraph 2.3.4, Building Commissioning Part 5, section 01 45 00.05 20, *Design and Construction Quality Control* for Building Commissioning requirements. Electrical systems to be commissioned are limited to lighting controls.

D503001 TELECOMMUNICATIONS SYSTEMS

Telecommunications Designers assigned to the design of the telecommunications system or any of its components shall be Building Industry Consulting Services International (BICSI) Registered Communications Distribution Designers (RCDDs). No Telecommunications Designers assigned to this project shall substitute years of experience for required RCDD certification.

Provide a complete building entrance facility for fiber from Comm Shed 15 in TR 20A and a fiber backbone system within the new & existing buildings. Provide backbone conduit to provide connectivity between new P-287 Telecom Rooms (20A & 20B) and existing Building 1560 Telecom Rooms (203 & 236). Telecommunication Rooms (TR) 20A, 20B, & 236 (Bldg. 1560) shall be connected together with one 96 strand OM4 MM fiber cable and one 48 strand OS2 SM fiber cable each.

The telephone system shall be extended from the existing TR 203 located in building 1560. There is an existing 300 pair OSP copper cable in TR 203. This cable provides telephone service to Building 1560. This OSP coper cable shall be supplemented (by others) with additional pairs. These additional pairs will need to be extended to the two new TRs, 20A and 20B. TRs 20B and TR 203 shall be connected together with one 300 and one 200 pair Category 3 CMP cable terminated onto 66M150 blocks. TR 20B and TR 20A shall be connected together with one 200 pair Category 3 CMP cable terminated onto 66M150 blocks.

A complete pre-wired interior structured cabling system shall be provided from modular outlets at workstations to termination points on the main distribution frame in new telecom rooms (TR) 20A and 20B. These areas are identified under the Room Requirements section of the RFP, Chapter 3.

The network infrastructure shall support 3 independent classified and unclassified networks [Navy/Marine Corps Intranet (NMCI), Research, Development, Test and Evaluation (RDT&E), and Integrated Process Environment (IPE)]. This will be accomplished by creating a common cable plant

to the desktop comprising of Unclassified Copper (TX) runs and Classified Fiber (FX) runs per drop. The local isolated (IPE) network shall be coordinated with the K55 Network Engineering team for setup and inner-connectivity.

Supporting infrastructure and systems for communications equipment is to be closely coordinated with user and government installers. Adequately sized cable trays shall be provided to support all required cabling systems. 1" EMT conduits shall serve outlets from cable trays. Standard desktop workstations shall be served by two green Category 6e cables and one red 6 strand OM4 MM fiber cable. K55 desktop workstations shall be served by three green Category 6e cables and one red 8 strand OM4 MM fiber cable. Outlets shall be installed on modular furniture systems via furniture system raceway knockouts or via surface mounted jacks installed with self-tapping screws.

All horizontal and riser cabling shall be rated CMP. Category 6e cables shall be terminated onto Category 6e jacks at the work station and onto Category 6e patch panels in respective TRs and/or Lab Racks. OM4 fiber cables shall be terminated onto LC connectors at the workstation and onto fiber optic patch panels (with LC connectors) in respective TRs and/or Lab Racks. Lab Racks shall be served by two 24 strand OM4 MM fiber cables from TR 20A. One red cable and the other green.

Telecommunications rooms (TR) shall be designed in accordance with EIA/TIA 569-B, ANSI J-STD-607-B, and other listed criteria within the UFC. A minimum of one TR per floor is required that will each house both classified and unclassified racks for the 3 network systems. Each TR shall be provided with an independently controlled means for cooling. Telecommunications rooms shall be provided with ¾" fire rated plywood backboards on all walls from floor level to 8 feet above finished floor. Each TR shall have controlled access.

Each telecommunications equipment rack shall have dedicated power and be provided with a dedicated 20 amp duplex receptacle. All racks shall be provided with both horizontal and vertical cable management panels. 12" ladder type cable tray shall be installed to accommodate the telecom rack arrangement with cable management system to all racks. Each classified rack shall be lockable.

TR lighting shall be mounted at 9'-0" above finished floor and shall provide a minimum of 50fc of illumination at the working surface three feet from finished floor. A single voice outlet shall be provided in each TR for utility and convenience purposes. A convenience quad receptacle shall be provided on each wall within TRs.

Refer to notional space layouts and topology configurations shown in BFR Figures 2-1 and 2-2a through 2-2c for network layout and TR configuration.

All labeling for telecommunications shall be per the IAW TIA/EIA-606-B standard requirements. Labeling shall be a minimum of .25 inches and shall be machine printed black on white background. All outlets and patch panel positions shall be labeled to list their function and be given a unique identifier code. Contractor shall provide floor plans with system labeling including all jack locations.

The telecommunications system for the P-287 building shall be completely grounded in accordance with ANSI J-STD 607-B, and MIL HDBK 419A. Each telecommunications room shall be provided with a telecommunications grounding bus bar (TGB). A grounding backbone shall be provided between grounding bus bars to reduce any differences in electrical potential between telecommunications rooms. All racks, conduits, cable trays, and applicable equipment shall be bonded to the nearest grounding bus bar. All cable trays shall be UL listed as a grounding conductor and each piece shall be bonded either by an approved bonding clamp or copper bonding jumper. The new P-287 telecommunications grounding system shall be tied to the existing Building 1560 telecommunications grounding system.

D503002 PUBLIC ADDRESS SYSTEMS

Provide a combination Mass Notification / Public Address system with speakers located per NFPA 72 and UFC 4-021-01. This system shall be capable of interfacing with the telephone system.

D503003 INTERCOMMUNICATIONS SYSTEMS

Not used.

D503004 TELEVISION SYSTEMS

Provide a complete CATV system with surge protection to be owned and maintained by the Government including all interior equipment required to provide high quality TV signals to all outlets. System shall include, but is not necessarily limited to amplifiers, splitters, combiners, line taps, cables, flushed mounted outlets, tilt compensators and all other parts, components, and equipment necessary to provide a complete and usable system.

Conduct CATV testing at each of the following points in the system:
At each outlet.
Head end and Distribution amplifier inputs and outputs.

D503005 SECURITY SYSTEMS

An Electronic Security System (ESS) is the integrated electronic system that encompasses one or more of the following subsystems; access control system (ACS), intrusion detection system (IDS), and closed circuit television (CCTV) systems for assessment of alarm conditions.

The ESS for this project shall meet requirements of UFC 4-021-02NF, *Security Engineering: Electronic Security Systems* and consist of an ACS and IDS system for alarm assessment.

Provide an ESS, extended from the existing building, consisting of empty raceways with pull strings, outlet boxes, cover plates, and associated power outlets to enable system installation by the ESS supplier. The actual installation of components and equipment will be provided by the NSF Dahlgren approved security contractor (Lenel) to match the current NSF Dahlgren system. Badge card readers and / or PIN pad systems shall be provided at all building and OSS / OSTS (refer to BFR for security classifications) space entrances as required by the customer.

Provide an IDS extended from the existing building. System shall annunciate at the Control Desk during normal business hours and at the base security/alarm monitoring center after hours.

Provide 2-20 Amp, 120vac dedicated circuits for security and label "for security only" in the data closet. These circuits shall terminate within 20' of the Panel board in a 4x4 junction box.

D503090 OTHER COMMUNICATIONS AND ALARM SYSTEMS

D5090 OTHER ELECTRICAL SERVICES

D509001 GENERAL CONSTRUCTION ITEMS (ELECTRICAL)

Provide General Construction Items (Electrical) including, but not necessarily limited to, all connections, fittings, boxes and associated equipment needed by this and other sections of this RFP as required for a complete and usable system.

Conduits, cable trays and busways that penetrate fire-rated walls, fire-rated partitions, or fire-rated floors shall be fire-stopped in accordance with Section C10, Interior Construction.

D509002 EMERGENCY LIGHTING AND POWER

The existing Building 1560 emergency generator has a standby rating of 2250 kVA and is anticipated to have adequate spare capacity to provide backup power for the entire expanded facility. The existing Building 1560 UPS has a rating of 400 kVA, expandable up to 800kVA and is anticipated to have adequate spare capacity to serve the entire expanded facility. New critical equipment panels shall be provided in the new P-287 building fed from the existing Building 1560 emergency power distribution system.

Emergency lighting shall be provided via battery backup source.

D509003 GROUNDING SYSTEMS

Provide a complete grounding system for the facility electrical and telecommunications systems.

D509004 LIGHTNING PROTECTION

Provide a complete lightning protection system with a UL Lightning Protection Inspection Certificate certified to UL 96A, including, but not necessarily limited to, strike termination devices, conductors, ground terminals, interconnecting conductors, surge suppression devices, and other connectors and fittings required for a complete and usable system.

New lightning protection system for the P-287 facility shall be connected to the existing lightning protection system serving Building 1560.

Work shall include installation of a complete lightning protection system such that the entire system meets the UL Lightning Protection Inspection Certificate certified to UL 96A.

Lightning Protection Systems shall not void the roof warranty.

D509005 ELECTRIC HEATING

Not used.

D509007 BUILDING PHOTOVOLTAIC SYSTEM

Not used.

D509090 OTHER SPECIAL SYSTEMS AND DEVICES

Building 1560 Renovation (Refer to BFR document for complete scope of work):

Rooms 243, 256, 258, 259, and 260 shall require minor electrical and lighting modifications to accommodate space plan changes.

Room 116 (ETS) Electrical:

a. Special power shall be dedicated to all ETS/Strategic Weapons Systems (SWS) and Auxiliary equipment.

b. Special power includes (see allocations in Table 3-1):

- 208Y/120VAC, 60Hz, 3 Phase, 4W

- 115VAC, 60Hz, Delta, 3 Phase, 3W
- 270VDC

Table 3-1: Summary of ETS Power Consumption

Power Type	Load Description	Allocation
208Y/120VAC, 60Hz, 3 Phase, 4W	WSSr5 and 015 SIM	14 KW
115VAC, 60Hz, Delta, 3 Phase, 3W	Fire Control	3 KW
270VDC	Fire Control	20 KW

c. Contractor shall remove various 440V unused and outdated electrical panels and cables. If not to be reused for routing additional power, also remove conduit from under recessed floor.

d. Contractor shall provide and install a new 270 VDC, 6 space load center panel supported by facility UPS.

i. Provide and install a 225 Amp 115VAC shunt trip circuit breaker. Feed to panel shall be provided from Room 125 (Converter Room).
ii. Shunt trip shall be tied into room automatic shut-down system.
iii. Perform power and ground checks.

e. Contractor shall provide and install two 208Y/120 VAC, 60Hz, 3Ph, 4W, 40 space load center panel supported by facility UPS.

i. These distribution panel(s) shall be provided with two separate isolated common busses, one to be used for "Neutral" connection, the other for "Dedicated" equipment ground
ii. Provide and install a 200 Amp, 115VAC shunt trip circuit breaker. Feed to panel shall be from Room 128 supported by facility UPS and Generator.
iii. Shunt trip shall be tied into room automatic shut-down system.
iv. Perform power and ground checks.

f. Contractor shall provide and install a 115VAC, 3 Phase 3W, 60Hz, Delta, 6 space load center panel supported by facility UPS.

i. Provide and install a 60 Amp, 115VAC shunt trip circuit breaker. Feed to panel shall be from Room 125 (Converter Room).
ii. Shunt trip shall be tied into room automatic shut-down system.
iii. Perform power and ground checks.

g. All distribution panels shall:

i. Be provided with a grounding bus electrically bonded to the chassis
ii. Have busses braced to withstand phase to phase fault currents
iii. Have a minimum panel bus rating of 100 amperes

h. Contractor shall provide a signal reference grid in Room 116 as described in the IEEE Emerald Book 9.10.13.1.1.

i. A ground bus shall be provided for equipment chassis grounding.

ii. A 2 AWG bare copper conductor shall be installed under the subfloor and bonded to building ground in at least one location. This bus shall be used for cabinet ground bonding.
iii. Resistance of the connection between the ground bus and building external ground shall not exceed 100 milliohms.

i. Contractor shall relocate “Johnson Control” panel from Room 121 to Room 116.

j. Contractors shall provide shunt trip circuit breakers for electrical services to the ETS equipment.

k. Contractor shall configure Johnson Control Panel for operation with AC units and temperature and humidity control devices. (See BFR Figure 3-1)

l. Contractor shall reestablish ceiling grid / lighting layout addressing new equipment layout using energy efficient lighting and dimmer control.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

E10 EQUIPMENT

GENERAL SYSTEMS REQUIREMENTS

E1010 COMMERCIAL EQUIPMENT

The contractor shall obtain the services of equipment specialists to specify audiovisual or other specialty equipment. Equipment specialists shall not have any affiliation with the product specified.

All specialty equipment shall be installed by qualified installers regularly engaged in installing the specialty equipment.

E101003 VENDING EQUIPMENT

Design the facility to provide space, utilities, and cooling to accommodate the following vending equipment;

a. Juice and soft drinks.

b. Candy and snacks.

E101005 SECURITY AND VAULT EQUIPMENT

Not Used **E1020 INSTITUTIONAL EQUIPMENT**

E102003 LABORATORY EQUIPMENT

The Customer shall relocate all laboratory equipment. Contractor shall provide electrical and communications services to disconnect existing laboratory equipment, coordinate temporary storage, and provide new electrical and communication services at the new addition to make equipment operational.

E102009 AUDIOVISUAL EQUIPMENT

Under the construction contract, the general contractor shall be responsible for coordinating design requirements with the end user/Command IT personnel, providing equipment specifications, and procurement and installation of the Audiovisual (AV) equipment. As required, the contractor shall obtain services of an audiovisual equipment specialist to design and specify the audiovisual equipment.

AV Equipment including electronics potentially connected to data/IT, shall be coordinated with design and construction but planned for and funded by the user or Budget Submitting Office sponsoring the user. AV equipment shall include, but is not limited to: intercom/sound systems, smartboards, flat screens, projectors, video teleconferencing, interactive wall systems and CCTVs. The GC shall hire

an AV consultant to design, specify, and Best Value a package to FF&E, and then funded as a MOD to the base contract.

AV equipment shall not be funded as part of the FF&E Package. The occasional flat screen for "TV" purposes can remain in FF&E funding.

Under the construction contract, the general contractor shall be responsible for coordinating design requirements with the end user/Command IT personnel, providing equipment specifications, and procurement and installation of the Audiovisual (AV) equipment. As required, the contractor shall obtain services of an audiovisual equipment specialist to design and specify the audiovisual equipment.

E1030 VEHICULAR EQUIPMENT

Not used

E1040 GOVERNMENT FURNISHED EQUIPMENT

Rough-in and provide connections for Government-furnished equipment such that equipment shall operate as intended, including providing miscellaneous items such as plugs, receptacles, wire, cable, conduit, flexible conduit and outlet boxes or fittings. Equipment shall remain in control of the Government until such time as the Contractor is ready to install. Contractor shall provide 30 days advance notice of expected installation date and pick up equipment at existing Building 1200 and transfer to site for installation. Testing requirements of Government Furnished equipment shall be the responsibility of the Contractor and shall follow the same guidelines as though the Contractor had provided the equipment. The following items shall be furnished by the Government and shall be installed and tested by the Contractor: CRAU units, specialized equipment, simulation equipment, consoles, and specialized workstations.

E1090 OTHER EQUIPMENT

E109002 FOOD SERVICE EQUIPMENT

Automatic Ice Maker; freestanding under counter stainless steel ice maker with 58 lb. daily ice production, 36 lb. storage capacity with automatic operation. Unit shall have air cooled condenser, complete automatic operations, LED control pane, 115V/60Hz.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

E20 FURNISHINGS

SYSTEM DESCRIPTION

Furnishings shall include fixed furnishings as part of the Structural Interior Design (SID) and the design and documentation of the movable furnishings, the Furniture, Fixtures, and Equipment (FF&E) Package.

The design and documentation of both shall be funded as part of the construction contract. The purchase and installation of the FF&E Package shall be funded separately as part of Collateral Equipment.

The movable furniture and furnishings (FF&E) for this facility may include, but are not limited to movable furniture systems, freestanding furniture, area/accent rugs, artwork, appliances, flat screen TVs (not connected to data), accessories, shop equipment, specialty equipment (specified by the Activity) and other miscellaneous items to support facility functions.

FF&E is estimated in the following amount: sum $3,661239.89. This estimate does not include the contractor's Handling and Administration Rate (HAR).

Fixed furnishings (items that are fixed to the structure), such as specialty equipment, lockers, security cameras, motorized projection screens, blinds/shades are part of the construction contract SID.

The Audio Visual (AV) Equipment will not be funded as part of the FF&E Package. The A/V Equipment Package will be identified as a separate line item, and priced separately from the FF&E. Refer to Part 3 Section E10 of this RFP.

GENERAL SYSTEMS REQUIREMENTS

Design and provide fixed and movable furnishings for all areas as developed during Activity programming and as indicated in the Room Requirements (refer to Part 3 Section 5 of this RFP). Design a complete FF&E package and prepare supporting plans and procurement data. FF&E items identified in this RFP are to be used as a guideline to assist in establishing the minimum facility requirements and do not relieve the Contractor's Interior Designer from developing a complete design package that incorporates ALL of the Activities FF&E requirements. Design per specific UFC (i.e. Youth center, BEQ, etc) and in conjunction with UFC 03-120-10, Interior Design.

The contractor shall have an Interior Designer with a minimum of one of the following credentials: National Council for Interior Design Qualification (NCIDQ) certification, or state and/or jurisdiction Interior Design Certification, Registration, or License. This Interior Designer must prepare both the SID and the FF&E Package and participate in all design charrettes and review meetings to develop the building design and floor plan. When Audio Visual (A/V), shop or specialty equipment is required in the project, the contractor shall obtain the services of equipment specialists to specify the A/V, shop, or specialty equipment. The Contractor's Interior Designer and any Specialists shall not have any affiliation with the products specified. The NAVFAC Interior Designer reserves the right to approve/disapprove the qualifications of the Contractor's Interior Designer.

All fixed and movable furnishings selections shall be closely coordinated with Parts 3 and 4 Sections C10, Interior Construction, and C30 and E10 of this RFP. The FF&E package shall be fully integrated with the building systems and finishes.

The Contractor's Interior Designer shall be responsible for designing and providing specifications for

procurement of all FF&E, to include delivery and installation, for the facilities built under this contract as directed by the NAVFAC Interior Designer. FF&E specifications shall be based on NAVSUP Blanket Purchase Agreements (BPA's), GSA schedules, and other Federal contracts and complying with priorities found in FAR Part 8.404. A list of current BPA contract holders will be provided at the FF&E Requirements Meeting.

The FF&E package shall be fully integrated into the design and construction schedule for the building.

INTERIOR DESIGN SUBMITTAL AND MEETING REQUIREMENTS

STRUCTURAL INTERIOR DESIGN (SID)

The SID submittal process shall begin following the award of the RFP. The SID submittal shall include Interior Design programming documents, FF&E Floor Plans, and exterior & interior finish/color and material sample boards. Refer to this RFP Part 4 Section Z10 General Performance Technical Specifications and Part 2 UFGS Section 01 33 10.05 20, Design Submittal Procedures.

Provide the following SID meetings and submittals;

a. Concept Design Workshop (CDW) (10%-15%) or Initial Design Meeting: The Contractor's Interior Designer shall meet with the Activity to develop the Interior Design SID programming documents, which will include a preliminary Furniture and Equipment Plan and the FF&E Summary List. The Contractor's Interior Designer shall provide in-depth room by room interviews to confirm Activity requirements for the new facility(s). These interviews shall occur at the Activity's current location, if possible, to include building walk-thru(s). Minutes of this meeting shall be submitted to the NAVFAC Interior Designer within 7 days

b. Design Development (35%-50%) Submittal: The Contractor's Interior Designer shall provide a conceptual Finish Schedule, proposing finish materials to be used in all spaces. The Furniture and Equipment Plan and FF&E Summary List should be further developed and included in this submittal.

c. SID "Over the Shoulder" Review: Prior to the Prefinal (100%) Submittal, the Contractor's Interior Designer shall meet with the NAVFAC Interior Designer for an "over-the-shoulder" review meeting to present a minimum of (2) options for the interior building finishes/colors/materials. Finishes shall display manufacturer's label/specifications and be presented in a "loose" format for preliminary approval prior to the presentation with the Activity. The over-the-shoulder review meeting is to be held at NAVFAC.

d. Prefinal (100%) Submittal: The Contractor's Interior Designer shall present a minimum of two (2) NAVFAC-approved interior building finishes/color/material options, to the Activity for approval. Each of these two finish options shall be documented and submitted in a 16"x20" presentation board format to the NAVFAC Project Manager. In addition, the submittal shall include an updated Furniture and Equipment Plan, Finish Schedule, Floor Finish Plan, and Finish Legend for review and approval.

e. Final Submittal: The Contractor's Interior Designer shall incorporate the final approved Furniture and Equipment Plan, Finish Schedule, Floor Finish Plan and Finish Legend into the Contractor's final drawing set. These drawings and all approved finishes shall be submitted in 8-1/2" x 11" binder format, using heavy duty plastic sheet protectors. Three (3) sets of the Final SID Submittal shall be distributed one each to the NAVFAC Project Manager, FEAD/ROICC, and the Activity.

SID CONSTRUCTION SUBMITTALS

No substitutions shall be made to the SID finishes once they have been approved by NAVFAC during the design phase. In the event that revisions may be required due to unforeseen conditions such as discontinued product, such revisions must be submitted via the FEAD/ROICC for approval by the NAVFAC Interior Designer before substitutions can be made.

FIXTURES, FURNISHINGS AND EQUIPMENT (FF&E)

The FF&E process shall begin approximately with the 50% design submittal. The submittals shall include fixtures, furnishings, and equipment specifications in accordance with the Activity requirements to produce an optimally functional facility. FF&E are all items that are not fixed to the structure, but are fully integrated with the building systems and finishes. Refer to RFP Part 4 Section Z10 General Performance Technical Specification and Part 2 UFGS Section 01 33 1-.05 20, Design Submittal Procedures.

Develop design as described and in accordance with the Activity requirements. Include in the design all loose furnishings required to produce an optimum functional facility, consistent with quality commercial design. This project also includes the preparation of specific detailed information for each selected item. Each submittal shall demonstrate interaction thoroughly with the Activity requirements and complete coordination with the facility design and the SID. Three (3) submittals will be required; (1) each for the NAVFAC Project Manager, FEAD/ROICC, and the Activity. For all projects, including fast track projects, the contractor shall be responsible for sufficiently scheduling all SID/FF&E submittals early enough to obtain the required government approvals, and meet all ordering and installation lead times to complete the project by the contract completion date.

These are minimum requirements and the Contractor shall be prepared to provide any/all additional meetings and submittals that may be necessary to support the Interior Design effort/FF&E coordination.

Provide the following FF&E meetings and submittals;

a. FF&E Requirements (Interior Design Orientation) Meeting: This meeting shall occur upon completion of Design Development (or approximately 50%), at NAVFAC prior to the development of the FF&E package. The NAVFAC Interior Designer will provide the Contractor's Interior Designer a sample format of the FF&E submittal, review the Best Value Determination (BVD) process, and discuss Blanket Purchase Agreement (BPAs), GSA or other mandatory sources to consider. The FF&E Summary List and a preliminary Cost Estimate shall be submitted within 21 days to the NAVFAC Interior Designer to review, Minutes of this meeting shall be submitted to the NAVFAC Interior Designer within 7 business days.

b. FF&E "Over the Shoulder" Review: Prior to the Preliminary FF&E Submittal the Contractor's Interior Designer shall meet with the NAVFAC Interior Designer for an "over-the-shoulder" review to present preliminary FF&E options. These can be presented in a "loose" format for preliminary approval prior to the Activity presentation. The "over-the-shoulder" review meeting is to be held at NAVFAC.

c. FF&E Concept Presentation: The Contractor's Interior Designer shall present the NAVFAC approved preliminary FF&E package to the Activity for approval. This presentation shall include loose format samples and catalog cuts. Sample boards are not required.

d. Best Value Analysis (BVA), "Over the Shoulder Review": Prior to issuing the BVA, the Contractor's Interior Designer shall meet with the NAVFAC Interior Designer for an "over-the-shoulder" review of the solicitation package. BVA Solicitation to include the following:

1. Copy of the BVA cover letter.

2. BVA Solicitation form & Questionnaire

3. Technical Specification to establish minimum acceptable FF&E requirements

4. Room and Typicals

5. Furniture Plans with Legends (PDF format)

e. Preliminary BVA Submittal - The Contractor's Interior Designer shall submit one (1) copy of the Preliminary BVA package to the NAVFAC Interior Designer. This submittal shall be in binder format and will include the following:

1. Cover Title Page (project name, project #, submittal date, submittal title)

2. Table of Contents

3. Point of Contact List

4. Narrative of Interior Designer Objectives

5. Copy of all information sent to bidders and documentation that all required sources were contacted.

6. BVA Spreadsheet

7. Solicitation Forms submitted by each bidder (cut sheets/highlighted pricing sheets/technical specifications, pricing, dealer and manufacturer qualification for each product showing that products meets all requirements.)

8. Response from UNICOR

f. Preliminary FF&E Submittal: The Preliminary FF&E submittal shall be due at pre-final (100%). It shall be presented to the Activity and NAVFAC Interior Designer. Submit the following in a 3-ring binder (with the exception of the 16x20 color boards) for both Activity and NAVFAC Interior Designer review and approval:

1. Cover Title Page (project name, project #, submittal date, submittal title)

2. FF&E list (Cost Summary)

3. Furniture placement plans coded to the FF& list and furnishings specifications

4. Specifications for furniture, furnishings, etc.

5. Catalog cuts and finish samples for all specified items

6. 16x20 inch color boards of furniture/furnishings and finishes specified for Activity presentation to indicate overall design intent

7. 8x10 color photographs of the color boards

g. Final FF&E Submittal: The Contractor's Interior Designer shall submit the Final FF&E Package within 30 calendar days following the receipt of review comments on the preliminary FF&E submittal. The Final submittal shall incorporate the following:

1. Cover Title Page (project name, project #, submittal date, submittal title)

2. Table of Contents.

3. Manufacturer Contact List.

4. Procurement Data Sheets for each product indicating final finish and fabric selections.

5. Copy of Final Quote on Letterhead from the vendor determined to be the Best Value.

6. Best Value Determination Guideline sheets (completed and signed by the Contactor's Interior Designer).

7. CD copy of the final FF&E binder.

8. Final Finish Selections and Memo Samples for the FF&E submitted in 8x10 binder format, using heavy-duty plastic sheet protectors.

FF&E CONSTRUCTION SUBMITTALS

Submit any revisions or deviations caused by discontinued items to the Contracting Officer for approval by the NAVFAC Interior Designer.

SD-10 Operation and Maintenance Data

List Operation and Maintenance Manuals for seating, systems furniture and keyboard trays.

E2010 FIXED FURNISHINGS (SID)

Fixed furnishings (SID) are funded as part of the construction project and are not funded as part of FF&E Each submittal must demonstrate complete coordination with the facility design and with the package for movable furnishings.

Develop design as described herein and provide storage shelving, equipment racks, and window treatments. Cross reference C10 Interior Construction, and C30 Interior Finishes, for performance requirements. Each submittal must demonstrate complete coordination with the facility design and with the package for movable furnishings.

E201001 FIXED ARTWORK

As required, provide wall mosaic, painted mural, graphics and/or logo of activity in appropriate locations.

E201002 WINDOW TREATMENTS

All windows and other glazed openings to the exterior of the building shall be provided with horizontal blinds and are considered SID and are funded as part of the construction project.

Soft window treatments, such as draperies, are considered FF&E and shall be included in the FF&E package, as required.

E201003 FIXED SEATING

As required, but not limited to, provide fixed locker room benches, and site furniture.

Provide locker room benches

E201004 INTERIOR LANDSCAPE (FIXED)

Not used

E2020 MOVABLE FURNISHINGS

The design of the FF&E package is funded as part of the construction contract base bid. The purchase and installation coordination of FF&E is a planned modification to the contract and funded separately as part of Collateral Equipment. The specific process is outlined in PTS E20 in Part 4 of this RFP. If a Collateral Equipment list is provided within this RFP, the costs associated with the purchase and installation of these items are NOT to be included in the base bid. The estimated Collateral Equipment cost is provided for information purposes only. The Contractor only needs to propose the Handling and Administrative Rate (HAR)

Design and provide a FF&E package in accordance with UFC 03-120-10, *Interior Design,* and other portions of this RFP for all areas as developed during Activity programming to provide a fully usable and complete facility. FF&E may also include specialty items specified by the Activity and the Contractor's Interior Designer is responsible for incorporating these into the FF&E package.

The FF&E Package must include shipping, freight, handling, and professional installation, project management, HAR and applicable sales tax. A Best Value Determination shall be performed on a minimum of three manufacturers for orders exceeding a total procurement of $3000 from an individual manufacturer. Documentation shall be provided to the Government with the final FF&E package. Specific Documentation is indicated in Part 4 of the RFP. The BVD Statement shall be completed and signed by the contractor's interior designer. A sample BVD form and instructions is provided in Part 6 of this RFP. The Contractor, as a planned modification, shall be authorized by the Government Contracting Officer to procure all furniture/furnishings in the approved final FF&E package using predominately negotiated Federal contracts as directed by the Contracting Officer and the NAVFAC Interior Designer. When the modification for turnkey furniture procurement is exercised, the Contractor's proposed Handling and Administrative Rate (HAR) shall not exceed 5% of the total cost of the FF&E, shipping, freight, handling, and installation. The HAR includes all of the prime contractor's effort related to the storage, coordination, handling and administration of subcontractors, and all other associated costs and profit for the procurement of FF&E. No other charges, fees, or markups will be authorized. The contractor shall establish and submit a fixed percentage figure, for the administration effort of this modification (HAR), with the initial project proposal as part of the contractor's Pricing Schedule.

E202001 MOVABLE ARTWORK

Provide movable artwork as required.

E202002 MODULAR PREFABRICATED FURNITURE

Provide Workstation systems product or modular freestanding workstations as required. Provide at a minimum, an articulating keyboard tray with left or right handed mouse extension for each computer location.

E202003 FREESTANDING FURNITURE AND FILES

Provide ergonomic task seating, lounge, reception and guest seating, storage and filing, tables, as required.

E202004 RUGS & ACCESSORIES

Provide lamps, soft window treatments (drapery and hardware, and other decorative items as required.

E202005 MULTIPLE SEATING (MOVABLE)

Not used

E202006 INTERIOR LANDSCAPING (MOVABLE)

Not used.

E202090 OTHER MOVABLE FURNISHINGS

Provide waste receptacles, recycling containers, fire extinguishers, clocks, literature racks, microwaves, refrigerators, non-plumbed coffee pots, and other appliances as required.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

F10 SPECIAL CONSTRUCTION

SYSTEM DESCRIPTION

Special Construction for the entire P-287 project shall include requirements for a Controlled Access Area (CAA) and secured areas within the facility. See Room Data Sheets in Part 3 - Chapter 5 for specific areas and IA PUB 5239-22; ICD/ICS 705; and SECNAV M-5510.36 Exhibit 10A for additional direction.

GENERAL SYSTEMS REQUIREMENTS

F1010 SPECIAL STRUCTURES

F101001 METAL BUILDING SYSTEMS (PRE-ENGINEERED)

Not used.

F1020 INTEGRATED CONSTRUCTION

F102001 SPECIAL PURPOSE ROOMS

Not used.

F1030 SPECIAL CONSTRUCTION SYSTEMS

Special Construction for the entire P-287 project shall include requirements for a Controlled Access Area (CAA) and secured areas within the facility. See Room Data Sheets in Part 3 - Chapter 5 for specific areas and IA PUB 5239-22; ICD/ICS 705; and SECNAV M-5510.36 Exhibit 10A for additional direction.

F1040 SPECIAL FACILITIES

F104001 INTERIOR SWIMMING POOLS

Not used.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

F20 SELECTIVE BUILDING DEMOLITION

GENERAL SYSTEMS REQUIREMENTS

Perform all off-site work necessary to meet the requirements of the project, local codes, reference standards, technical specifications and performance criteria.

Identify and obtain all permits to comply with all federal, state, and local regulatory requirements associated with this work. The contractor shall submit complete the "Permits Record of Decision" (PROD) form with the first design submittal package. A blank PROD form is in the UFC 3-201-01, *Civil Engineering*. Contractor shall determine correct permit fees and pay said fees. Copies of all permits, permit applications, and the completed PROD form shall be forwarded to the EFD Environmental Reviewer.

Coordinate and obtain approval from the Contracting Officer for proposed haul route(s), work site access point(s), employee parking location(s) and material laydown and storage area(s).

Local NMCI Site Operations for Dahlgren (DLGR) shall require advanced notification of abandonment and/or demolition of a building which has NMCI network connectivity deployed to it. Notification must occur no later than 60 calendar days prior to abandonment or demolition.

In addition to this notification, DLGR NMCI Site Operations requires a meeting be scheduled for the purpose of conducting a “walk through” of Building 1200 so that local NMCI Site Operations can identify any NMCI equipment to be recovered and/or reused in the new P-287 Facility. Contractor shall schedule this meeting with the ROICC and Local NMCI Site Operations.

F2010 BUILDING ELEMENTS DEMOLITION

This project includes the demolition of the following: Existing Building 1200 and site related items.

This project includes the complete demolition and removal of Building No. 1200, an 112,472 square foot, steel-framed composite masonry, metal panel, pre-engineered type structure.

Selective demolition shall occur within existing Building 1560.

F2010 1.1 GENERAL DEMOLITION

Remove indicated existing structure below existing grade, remove all existing foundations.

F2010 1.2 UTILITIES

At existing Building 1200, existing building utility connections, including water, storm drainage, sanitary sewer, power and communications shall be removed from the building back to the nearest supplying manholes or transformers and suitably plugged or capped at the removal limits. Existing perimeter roof drainage collection pipes shall be removed. Existing transformers, switch gears, utility manholes and exterior drainage swales and outfall systems shall remain in place and be protected from damage.

Existing building 1200 must remain in service and occupied until all new work at Building 1560 is complete and all equipment and personnel are moved out into the new facilities. Utility demolition

and removal must be coordinated with on-site personnel for planned outages.

F2010 1.3 DUST CONTROL

Prevent the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area.

F2010 1.4 TRAFFIC CONTROL

Maintain vehicular traffic ways open during construction operations. Coordinate partial closures needed for existing pavement removal operations with Public Works.

F2010 1.5 WEATHER PROTECTION

Protect occupied areas of Building 1560 from weather during all construction operations.

F2010 1.6 BURNING

Burning shall not be permitted.

F201001 SUBSTRUCTURE & SUPERSTRUCTURE

The existing building structural systems are summarized as follows:

Building 1200

1. Substructure

   The substructure consists of reinforced concrete spread footings and perimeter reinforced concrete grade beams and walls. Localized areas on the first floor have structural grade slabs that span to spread footings. The remaining areas are crawl spaces

2. Superstructure

   The typical floor framing consists of concrete on steel form or cellular deck spanning to steel beams and girders. The first floor also contains specialized areas with one-way reinforced concrete slabs spanning to concrete grade beams and walls. The floor framing is typically supported vertically by steel columns and CMU walls at some locations along the building perimeter. The roof framing consists of steel roof deck spanning to steel joists, wide-flange girders and steel trusses. Lateral loads are resisted by the steel framing and the CMU walls.

Building 1560

1. Substructure

   The substructure consists of reinforced concrete spread footings and perimeter reinforced concrete grade beams. The first floor structure is a reinforced concrete grade slab, with localized reinforced concrete foundation walls at slab depression locations.

2. Superstructure

The typical floor and roof framing consists of concrete on steel form or cellular deck spanning to steel beams and girders. The floor framing is typically supported vertically by steel columns, concrete walls and CMU walls at locations along the building perimeter. Lateral loads are resisted by CMU and concrete walls.

F201002 EXTERIOR CLOSURE

The existing structure is two stories in height, reflects a composite of masonry, insulated metal/glass panels, cementitious wall panels, and an aluminum storefront system at the main entrance. In addition the eastern portion of the building is one story in height and reflects a pre-engineered high bay metal building type structure.

Building 1560 shall involve masonry cutouts as indicated within the concept drawings and as noted within RFP Part 3 – Chapter 5 Room Requirements.

F201003 ROOFING

The original building 1200 contains an insulated built-up membrane roof, latter additions to the east are pre-engineered metal roof panels.

F201004 INTERIOR CONSTRUCTION & FINISHES

Interior construction and finishes at Building 1200 reflects metal stud gypsum board partitions painted finishes, CMU partitions, composite pre-engineered building panel partitions, cementitious wall panels, acoustical tile ceiling systems, areas of exposed structure. Floor finishes include exposed concrete, vinyl composition tile, terrazzo flooring, and raised access flooring.

Interior finishes within Building 1560 reflect metal stud gypsum board partitions painted with acoustical tile ceilings. Floor finishes include vinyl composition tile and carpet.

The contractor shall remove the remaining Halon gas distribution piping at the under floor areas in Building 1560 room 116.

F201005 CONVEYING SYSTEMS – Building 1200

Coordinate with NAVFAC Washington and the Station Contracting Officer to identify elevator and lift apparatus and equipment salvage. Document salvage items, schedule, and location to deliver salvage items.

F201006 MECHANICAL SYSTEMS – Building 1200

Remove all mechanical plumbing, and fire protection systems and equipment complete including but not limited to: cooling towers, boilers, pumps, water heaters, fuel storage tanks, air handling equipment, fire pumps, sprinkler system components, VAV boxes, ductwork and diffusers, mechanical piping, plumbing piping, valves, control components, panels, and wiring.

F201007 ELECTRICAL SYSTEMS – Building 1200

Remove all electrical systems and equipment complete including but not limited to: pad-mounted transformers, generators, UPSs, switchboards, motor control centers, transfer switches, panelboards,

transformers, lighting, receptacles, disconnects, electrical wiring and conduit, telecommunications devices, wiring, and backbone, security devices, wiring, and backbone, and fire alarm panels, devices and wiring.

F201008 EQUIPMENT & FURNISHINGS – Building 1200

The User Agency shall determine equipment and furnishings within Building 1200 to be saved, stored, and delivered to the new P278 project. Coordinate with the User Agency and Contracting Officer for items to be saved, stored, and transported. Submit plan and schedule for approval.

F201090 OTHER NON-HAZARDOUS SELECTIVE BUILDING DEMOLITION

Not used.

F2020 HAZARDOUS COMPONENT ABATEMENT

A report for each of the following: asbestos, lead based paint, mercury, PCBs, oil, underground storage tank, and above ground storage tank is provided to support this project and is attached in Part 6 of this RFP.

Perform oil storage tank related work in accordance with:

RFP Part 5 Section 02 65 00 Underground Storage Tank Removal.

Perform asbestos related work in accordance with:

RFP Part 5 Section 02 82 16.00 20 Engineering Control of Asbestos Containing Materials.

Perform lead based paint related work in accordance with:

RFP Part 5 Section 02 83 13.00 02 Lead in Construction.

Perform mercury and PCBs related work in accordance with:

RFP Part 5 Section 02 84 16 Handling of Lighting Ballast and Lamps Containing PCBs and Mercury.

F2020 1.1 PRIVATE QUALIFIED PERSON (PQP)

The General Contractor is required to hire as a first tier subcontractor a PQP to ensure compliance with the approved work plans and perform independent inspections, testing and verification of the hazardous components work including: asbestos, lead containing paint, mercury, PCBs, animal droppings and molds and spores.

F2020 1.2 FURNISHINGS

Not used.

F2020 1.3 ASBESTOS

The Contractor may elect to leave Category I & II Non-Friable Asbestos-Containing Materials in place during demolition and dispose of the entire waste contents as Category I & II ACM. If the Contractor elects to follow this method, all procedures, monitoring, waste disposal, dust control measures, and other work activities shall be addressed within the asbestos work plan. In addition, the Contractor shall not be allowed to segregate/salvage waste materials, or compact debris for transport. The Contractor shall also submit certification that the landfill to be used for disposal has been notified and is willing to accept Category I & II ACM.

F2020 1.4 LEAD BASED PAINT

Not used.

F2020 1.5 PAINT RELATED WORK

Not used.

F2020 1.6 MERCURY & LLR COMPONENTS

Remove all of the existing : fluorescent light tubes, thermostats and switches, smoke detectors, exit signs, as mercury vapor containing components.

F2020 1.7 PCB'S

Remove all of the existing: light ballasts, transformers, and capacitors as PCB containing.

F2020 1.8 OZONE DEPLETING SUBSTANCES (ODS)

Remove the following equipment which contains ODS: Chiller(s) and DX Air Conditioning Equipment.

F2020 1.9 ANIMAL DROPPINGS

Remove and dispose of all animal droppings.

F2020 1.10 MOLDS AND SPORES

Remove and dispose of the building materials affected by molds and spores:

F2020 1.11 DISPOSAL

All waste materials shall become the property of the Contractor and shall be transported, disposed of and recycled in accordance with RFP Part 5 hazardous material specification sections.

F202001 SUBSTRUCTURE & SUPERSTRUCTURE

The existing building structural systems are summarized as follows:

Building 1200

1. Substructure

   The substructure consists of reinforced concrete spread footings and perimeter reinforced concrete grade beams and walls. Localized areas on the first floor have structural grade slabs that span to spread footings. The remaining areas are crawl spaces

2. Superstructure

   The typical floor framing consists of concrete on steel form or cellular deck spanning to steel beams and girders. The first floor also contains specialized areas with one-way reinforced concrete slabs spanning to concrete grade beams and walls. The floor framing is typically supported vertically by steel columns and CMU walls at some locations along the building perimeter. The roof framing consists of steel roof deck spanning to steel joists, wide-flange girders and steel trusses. Lateral loads are resisted by the steel framing and the CMU walls.

Building 1560

3. Substructure

   The substructure consists of reinforced concrete spread footings and perimeter reinforced concrete grade beams. The first floor structure is a reinforced concrete grade slab, with localized reinforced concrete foundation walls at slab depression locations.

4. Superstructure

   The typical floor and roof framing consists of concrete on steel form or cellular deck spanning to steel beams and girders. The floor framing is typically supported vertically by steel columns, concrete walls and CMU walls at locations along the building perimeter. Lateral loads are resisted by CMU and concrete walls.

F202002 EXTERIOR CLOSURE

The existing structure is two stories in height, reflects a composite of masonry, insulated metal/glass panels, cementitious wall panels, and an aluminum storefront system at the main entrance. In addition the eastern portion of the building is one story in height and reflects a pre-engineered high bay metal building type structure.

Building 1560 shall involve masonry cutouts.

F202003 ROOFING

The original building 1200 contains a insulated built-up membrane roof, latter additions to the east are pre-engineered metal roof panels.

F202004 INTERIOR CONSTRUCTION & FINISHES

Interior construction and finishes reflects metal stud gypsum board partitions painted finishes, CMU partitions, composite pre-engineered building panel partitions, cementitious wall panels, acoustical tile ceiling systems, areas of exposed structure. Floor finishes include exposed concrete, vinyl

composition tile, terrazzo flooring, and raised access flooring.

F202005 CONVEYING SYSTEMS

Not used.

F202006 MECHANICAL SYSTEMS

Not used.

F202007 ELECTRICAL SYSTEMS

Not used.

F202008 EQUIPMENT & FURNISHINGS

Not used.

F202090 OTHER HAZARDOUS SELECTIVE BUILDING DEMOLITION

Remove and properly dispose of all underground fuel storage tanks.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

G10 SITE PREPARATION

SYSTEM DESCRIPTION

Provide site preparation that supports project sustainability and LEED goals.

The site preparation system consists of site clearing, demolition, salvage, relocation, earthwork, and hazardous waste remediation necessary to ready the site for other work associated with the project.

GENERAL SYSTEM REQUIREMENTS

Develop the project site and perform all off-site work necessary to meet the requirements of the project, antiterrorism criteria, Commonwealth of Virginia codes, reference standards, technical specifications and performance criteria.

Topographic and Underground Utility Location surveys of the existing sites have been performed and are included in Part 6. The topographic survey has been provided to show the location of existing facilities, areas of new work required by this RFP and the character of the sites. Prior to starting work, physically verify the location of all existing utilities and obtain all additional survey data required to provide a quality final design. The existence, size and/or location of the utilities are not guaranteed by the surveys provided. The Design-Build Contractor shall contact Miss Utility to schedule utility marking, and shall obtain a current Miss Utility Project Number. The Design-Build Contractor shall provide the Miss Utility Project Number to the Contracting Officer's representative. The Design-Build Contractor shall be responsible for keeping all markings current during the course of construction. Note that Miss Utility shall not identify all underground utilities. Base Public Works office and NSWCPP network office shall be contacted to mark other known underground utilities. Test pits and field-verification at known and approximate crossing and adjacent construction to existing utilities shall be necessary and must be coordinated at the site. Additional survey shall include test pit verification of all connection points and utilities to be capped. Electronic files of the RFP topographic surveys shall be provided to the Design-Build Contractor only after award of the contract. Electronic files of the topographic surveys shall be provided to the Contractor only after award of the contract.

Unless otherwise noted, provide new facilities at the locations indicated on the drawings in Part 6.

Minimize the impact of construction activity on operations and neighboring facilities. Contractor shall maintain access and operation of adjacent Building 1560 for the full construction duration of this project.

Identify and obtain all permits to comply with all Federal, State, and local regulatory requirements associated with this work. Submit a complete "Permits Record of Decision" (PROD) form with the first design submittal package. A blank PROD form can be obtained at the Download Tab of Part 6 of the NAVFAC Design-Build website at the following link http://ndbm.wbdg.org/system/html/6/. Determine correct permit fees and pay said fees. Forward copies of all permits, permit applications, and the completed PROD form to the Government's Civil Reviewer and Environmental Reviewer. Perform work in accordance with the obtained permits.

There are mapped wetlands surrounding the north and east sides of Building 1560 and along a portion of the west side of Building 1560. These wetlands were mapped and identified by NAVFAC and confirmed by the U.S.C.O.E., although the Jurisdictional Determination shall expire in 2014. NAVFAC shall be providing updated location surveys and shall renew the Jurisdictional Determination.

Although the current Jurisdictional Determination has identified the wetlands as non-jurisdictional, there is no guarantee that the new determination shall be the same. Therefore every effort must be made to limit disturbance of the wetland areas as much as possible during construction of the P-287 project.Obtain all required permits and perform all wetlands work in accordance with the permits obtained as required by UFC 3-201-01, *Civil Engineering*. Obtaining wetland permit will be submitted and lead by NAVFAC. Contractor shall be responsible for providing all supporting documents, applications, drawings, any additional documents as requested by NAVFAC, fees and charges as required to support required application, jurisdictional determination, review, approval and permit of wetland impact at no additional cost to the Government. Contractor shall be responsible for any required mitigation features and be in compliance with the wetland permit.

Coordinate and obtain the Resident Officer In Charge of Construction's (ROICC) approval for proposed haul route(s), work site access point(s), employee parking location(s) and material laydown and storage area(s). Laydown area and any areas damaged by construction activities shall be repaired and restored to existing condition at the end of the project or as required by Contracting Officer at the Contractor's expense.

Before any disturbance of existing facilities or any construction may begin, Erosion and Sediment Control Plans and Stormwater Management Plans must be prepared by the Contractor and submitted for review and approval by the Commonwealth of Virginia Department of Environmental Quality, and an official Approval letter for the project must be obtained from DEQ. The reviewing office responsible for the region containing NSFDL is the:

Tappahannock Regional Office
P.O. Box 1425
772 Richmond Beach Road
Tappahannock, VA 22560
Attention: Regional Manager, Tappahannock

At the same time, the Erosion and Sediment Control Plans and Stormwater Management Plans must be submitted for review and approval to the Environmental Office of NSFDL. The contact is Dahlgren Environmental Program Manager (phone x5071). The Contractor must be sure to allow enough time for the required submittals and approvals before scheduling the start of demolition and/or construction activities. NAVFAC approval of these plans and specifications are required prior to mobilization, including but not limited to temporary fencing and trailers.

In addition, an application for the VSMP–SWPPP Permit, and the accompanying SWPPP Plan, must be completed by the Contractor and provided to the NSFDL Environmental Office for review and approval. The Contractor shall prepare the Storm Water Pollution Prevention Plan (SWPPP) as presented in EPA 833-R-92-001, Storm Water Management for Construction Activities, and in accordance with the VSMP-SWPPP regulations. The SWPPP Plan must be approved by the Dahlgren Environmental Office before the Contractor can file the permit application with the Commonwealth of Virginia. A copy of the permit application, but not the SWPPP, must be included with the submission of Erosion and Sediment Control and Stormwater Management documents to DEQ, and is required as a part of obtaining DEQ and Dahlgren Environmental Office approval for Stormwater Management and Erosion and Sediment Controls. A copy of the current regulations and requirements, and instructions for preparation of the permit application documents, may be found at: http://www.deq.virginia.gov/Programs/Water/PermittingCompliance.aspx

All Site work must be done in strict accordance with the approved plans and SWPPP program. The approved SWPPP shall remain on-site at all times and shall be available for inspection by the Commonwealth of Virginia DEQ inspectors, and Dahlgren Environmental Office representatives throughout the entire construction period. The Contractor shall submit a duplicate copy of the approved SWPPP to the Contracting Officer. The Contractor shall implement and maintain the

measures specified in the SWPPP, and periodically review and update the SWPPP. The Contractor shall submit a duplicate copy of any revisions to the SWPPP to the Contracting Officer.

Once the VSMP-SWPPP is approved, the Contractor shall prepare a Notice of Intent (NOI) and a Transfer of Authority (TOA) for use of the Nationwide Phase II Permit to be filed with the Department of Conservation and Recreation, at least fourteen days prior to commencing any ground-disturbing activities. Within fourteen days after substantial completion and acceptance by the Contracting Officer, and not before approval for the removal of Erosion and Sediment Control measures, the Contractor shall complete and submit a Notice of Termination (NOT) to the DEQ.

Refer to Site Analysis and Building Requirements Sections for additional site preparation functional program information.

GOVERNMENT PROVIDED GEOTECHNICAL INFORMATION

Subsurface soil information, including a preliminary Geotechnical report,is included in Part 6.

Any included subsurface information is only for the Contractor's information and is not guaranteed to fully represent all subsurface conditions. The Government shall not be responsible for any interpretation or conclusion by the Contractor drawn from the data or information.

Any geotechnical report accompanying the subsurface information is provided only to better convey data (boring logs, testing, etc.) or to document observed site conditions. The assumptions, analysis, and recommendations of any accompanying report were developed for preliminary planning purposes only and may not reflect present project requirements. The Contractor is required to retain a Geotechnical Engineer experienced and licensed in the geographic region of the project to interpret the Government provided information as related to his design concept and develop geotechnical requirements to support design and construction.

Anticipate minor variations in subsurface conditions between borings. The Contractor is responsible for all costs associated with the site preparation, ground improvement and foundations except as allowed by Contract Clause FAR 52.236-2, "Differing Site Conditions". The Contractor's Geotechnical Engineer must perform additional subsurface investigation/testing as required to adequately determine all applicable geotechnical factors including the type and capacity of the project foundations. The Contractor's Geotechnical Engineer is required to evaluate the provided information and any additional information obtained and prepare a report as described in other portions of this RFP. The minimum requirements for the subsurface investigation and report are as required by UFC 1-300-09N with associated references.

Perform the soils investigation at the site for use in the design and construction of the new facilities. Perform, at Contractor's expense, such subsurface exploration, investigation, testing, and analysis as Contractor's Designer of Record deems necessary for the design and construction of the building foundations, pavement section(s), stormwater management facilities, utility structure foundations, etc. Prepare a report including laboratory analysis of samples and recommendations for foundation and pavement design by a professional engineer as specified and in accordance with UFC 3-201-01, *Civil Engineering.*

Provide personnel under the supervision of a registered Professional Engineer to inspect excavations and soil/groundwater conditions throughout construction. The Engineer is required to perform pre-construction and periodic site visits throughout construction to assess site conditions. The Engineer, with the concurrence of the Contractor and the Contracting Officer, is required to update the excavation, sheeting, shoring and dewatering plans as construction progresses to reflect actual site conditions and is required to submit the updated plan and a written report (with professional stamp) at least monthly informing the Contractor and Contracting Officer of the status of the plan and an accounting of Contractor adherence to the plan; specifically addressing any present or potential

problems. The Engineer must be available to meet with the Contracting Officer at any time throughout the contract duration. The Contractor is responsible for all costs of the Engineer.

G1010 SITE CLEARING

G101001 CLEARING

The required State and Federal approvals and permits must be obtained prior to beginning any demolition or construction work at the project sites. Preserve trees as much as possible and close to the limits of disturbance.

The project site does not have saleable timber.All timber removed from the project site shall become the property of the Contractor. Since all timber on the project site noted for clearing and grubbing shall become the property of the Contractor, remove it from the project site and dispose of it off station. Burning shall not be permitted.

G101002 TREE REMOVAL

Remove and dispose of all trees as required for project construction.

G101003 STUMP REMOVAL

Stumps shall be removed completely. Remove deep root mats encountered during construction and fill in any holes created with suitable fill.

G101004 GRUBBING

Completely remove stumps, roots and debris, within the limits of disturbance, to minimum 18 inch depth below the existing ground surface. Employ manual methods for grubbing around trees to be saved, or located beyond the limits of disturbance.

G101005 SELECTIVE THINNING

Not Used.

G101006 DEBRIS DISPOSAL

All grubbing and clearing residue, demolished material, rubbish and debris generated by this project shall be hauled off-site and off station by the Contractor.Obtain the Resident Officer In Charge of Construction's (ROICC) approval for proposed haul route(s).

G1020 SITE DEMOLITION & RELOCATIONS

The items to be reused or relocated include dumpsters, top soil and suitable earth. All other existing site features shall be demolished and removed.

G102001 BUILDING MASS DEMOLITION

Once all work is complete at Building 1560 and all personnel and program assets have been relocated from Building 1200, the complete demolition of Building 1200 can begin. Demolish existing Building

1200 and the associated building foundation. Refer to Section F2020, "Hazardous Component Abatement" for requirements regarding removal of hazardous components. Existing transformers, switch gears, utility manholes and exterior drainage swales and outfall systems shall remain in place and be protected from damage.

G102002 ABOVEGROUND SITE DEMOLITION

Preserve the following aboveground site elements: Existing concrete walks outside the limits of disturbance; as well as the sidewalks along Bronson Road by Building 1200 and the northern sidewalk along McVay Road adjacent to Building 1200.

Building 1200: Demolish existing concrete and asphalt pavement, steps, concrete and gravel walks, gravel road, curb and gutter, concrete pads, equipment fence, mechanical yard, fire hydrants, site and utility structures as required. Existing pavements to remain shall be saw cute at limits of demolition.

Building 1560: Demolish asphalt pavement, steps, ramps, electrical panels, fence and signs as required. Existing pavements to remain shall be saw cut at limits of demolition.

G102002 1.1 ABOVEGROUND STORAGE TANKS

Not used.

G102003 UNDERGROUND SITE DEMOLITION

Preserve the following underground site elements: All existing utilities required for proposed project and all existing utility systems beyond the disturbance limits for Building 1200.

Building 1200: Existing building utility connections shall be removed from the building back to the nearest supplying manholes or transformers and suitably plugged or capped at the removal limits. Existing perimeter roof drainage collection pipes shall be removed.

Unless otherwise noted, abandon utility systems in a manner that conforms to applicable codes and regulations, removes their presence from the ground surface and clearly indicates that they have been abandoned. Do not abandon in place utilities underneath or within 20 feet (6.0 m) of any new facility foundation. Unless otherwise noted by a more stringent requirement, remove and relocate existing utility piping, conduits, and utility structures under and within 20 feet of the P-287 facility foundation.

For all conduits to be abandoned, remove the wiring and fill with minimum 300 psi flowable grout or as required for under pavements subject to potential vehicle loadings.

Remove existing utility structures to 3 feet below existing or new adjacent grade, whichever is greater. Break up bases to permit drainage. Fill with clean sand.

G102003 1.1 UNDERGROUND STORAGE TANKS

An underground storage tank report is not provided to support this project. The 12,000 gallon underground fuel oil storage tank, located under the sidewalk along McVay Road near the front entrance of Building 1200 and installed in 1964, shall be carefully removed and disposed in accordance with all State and Federal regulations, including removal of all underground fuel and vent lines.

Prior to starting work, conduct any additional testing that may be needed to comply with all applicable federal, regional, state and local regulations. Refer to UFC 3-800-10N, *Environmental Engineering for*

Facility Construction, for additional requirements and criteria.

G102004 BUILDING RELOCATION

Not Used.

G102005 UTILITY RELOCATION

Not Used.

G102006 FENCING RELOCATION

Not Used.

G102007 SITE CLEANUP

This site shall be cleaned up daily.

G102090 OTHER SITE DEMOLITION & RELOCATIONS

Not Used.

G1030 SITE EARTHWORK

Contractor shall concurrently submit Erosion and Sediment Control Plans, specifications and calculations to NAVFAC Washington for review and approval. NAVFAC approval of these plans and specs are required prior to mobilization, including but not limited to temporary fencing and trailer.

G103001 GRADING

Provide grading, finish floor elevations for new facilities and elevations for mechanical/electrical equipment pads in accordance with UFC 1-200-01, *General Building Requirements* and UFC 3-201-01, *Civil Engineering*.

Except at door entrances, the finished floor elevations for the new P-287 facility shall match the existing floor elevations of Building 1560. Provide elevations for all entrances. The finished floor elevations for buildings and mechanical/electrical equipment pads shall be minimum one foot above the 100-year flood elevation. Finished grade around the building and mechanical/electrical equipment pads shall be 8-inches minimum below the finished floor elevation, except at door entrances.

Provide spot elevations at connections to existing building, all building entrances and landings, low points, high points, grade changes, corners of pavement and walkway, intersections of pavement and walkway, connections to existing pavement, centerline PCs and PTs, top of structures, top and bottom of curb, top and bottom of ponds, slope of grading between grade changes, and as directed by NAVFAC Civil Engineer. Note spot elevation with LP, HP, EP, TC, BC, for low point, highpoint, edge of pavement, top of curb, and bottom of curb respectively; as well as any additional notation for clarification as directed by NAVFAC Civil Engineer.

Provide minimum slopes of 1% for all paved areas, 2% for grassed areas, except as required for stormwater management and BMP facilities. Provide 5% minimum slope for 10 feet away from the

building for positive drainage. Provide positive grading away from pedestrian walkways.

G103002 COMMON EXCAVATION

Strip topsoil from all areas to be disturbed and stockpile for re-use for site stabilization and landscaping measures. Plan for application of a minimum of 4 inches of topsoil for all grassed or landscaped areas. If stripped topsoil is insufficient for site stabilization needs, provide additional topsoil from off-site sources. Excess materials shall be legally disposed of off Government property at an approved site. Provide suitable off-site borrow if onsite materials are insufficient to meet site grading needs.

Preliminary Geotechnical testing has been conducted at the project site and the results are included in Part 6, Attachments. Preliminary testing indicates the presence of fill materials, underlain in some areas by high plasticity and potentially expansive soils. Experience has indicated that it shall be necessary to undercut existing materials below the design subgrade levels of parking lot pavement and building slabs by a minimum of 6 inches, proof roll the exposed subgrade with 6 passes of a smooth drum roller, place a geotextile fabric and then place 6 inches of #57 aggregate, compacted into place. The Contractor shall provide the undercut and replacement at no increase to the base contract amount. The pavement and slab sections as indicated shall be built on the finished replacement.

The Contractor shall confirm site conditions with new geotechnical testing, and provide design for building slabs and foundations and pavements in accordance with his geotechnical testing results. Design that is more stringent than the above mentioned minimum based on experience shall be at no additional cost to the Government.

G103003 ROCK EXCAVATION

Not Used.

G103004 FILL & BORROW

Provide borrow and select fill fromoff-base sources.

G103005 COMPACTION

Compaction shall be as required in Performance Technical Specification section G10. Landscaped areas shall be compacted to a maximum of 75% density. Loosen the soil in landscaped areas as required which have been over-compacted.

G103006 SOIL STABILIZATION

The following methods of soil stabilization shall not be allowed: asphalt or pressure grouting.

G103007 SLOPE STABILIZATION

Provide slope stabilization through appropriate grading and site design for a minimum factor of safety of 1.5 or a maximum slope of 3:1, whichever is more stringent. The following techniques for slope stabilization shall not be allowed: concrete or asphalt cover.

G103008 SOIL TREATMENT

Treat the area around the entire foundation of each building for termite control in accordance with manufacturer's instructions.

G103009 SHORING

Not Used.

G103010 TEMPORARY DEWATERING

Perform earthwork and grading operations to prevent surface or subsurface water from flowing into excavations, surface or subsurface water from flooding project site or adjacent sites and water accumulations detrimental to the stability of subgrades. Provide, install, operate and maintain all required pumps, sumps, discharge lines and related equipment. All wetland areas shall be protected. Dewatering activities shall comply with specifications outlined in the VESCH. All dewatering activities must be approved by the Environmental Office of NSFDL.

G103011 TEMPORARY EROSION & SEDIMENT CONTROL

Erosion and Sediment Controls shall be as required in Performance Technical Specification section G10.

Before any disturbance of existing facilities or any construction may begin, Erosion and Sediment Control Plans and Stormwater Management Plans must be prepared by the Contractor and submitted for review and approval by the Commonwealth of Virginia Department of Environmental Quality, and an official Approval letter for the project must be obtained from DEQ. At the same time, the Erosion and Sediment Control Plans and Stormwater Management Plans must be submitted for review and approval to the Environmental Office of NSFDL. The contact is Dahlgren Environmental Program Manager (phone x5071). The project shall also require a Notice of Intent (NOI) for use of the Nationwide Phase II Permit and at Transfer of Authority (TOA) to be filed with DEQ. All required Phase I Erosion and Sediment Control measures shall be in place, inspected and approved by the DEQ and NSFDL inspectors prior to any site disturbance.

Erosion and Sediment Control measures shall be strictly enforced and maintained throughout the construction period, in accordance with DEQ regulations and as shown on the DEQ approved Erosion and Sediment Control plans.

The Contractor must be sure to allow enough time for the required submittals and approvals before scheduling the start of demolition and/or construction activities.

G103090 OTHER SITE EARTHWORK

Not Used.

G1040 HAZARDOUS WASTE REMEDIATION

A contaminated soil/groundwater report is not provided to support this project. If required, it shall be in accordance with all applicable Federal, regional, State and local regulations. Refer to UFC 3-800-10N, Environmental Engineering for Facility Construction, for additional requirements and criteria.

G1040 1.1 EXCAVATION

Not Used.

G1040 1.2 STOCKPILED SOILS

Not Used.

G1040 1.3 CLEAN FILL

Not Used.

G1040 1.4 SPILLS

In the event of a spill or release of hazardous substances, pollutant, contaminant, or oil; notify the Contracting Officer immediately. Containment/Control actions shall be taken immediately to minimize the effect of any spill or leak. Clean up shall be performed at the Contractor's expense in accordance with Federal, State, and local regulations.

G1040 1.5 DISPOSAL

All waste materials will become the property of the Contractor; transport, dispose of or recycle all waste materials in accordance with Federal, State, and local regulations.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

G20 SITE IMPROVEMENTS

SYSTEM DESCRIPTION

Provide site improvements that support project sustainability and LEED goals.

The site improvements system consists of pavements and pavement related features, landscaping and other exterior site development work related to this project. Provide all Civil design by a licensed Professional Engineer familiar with conditions local to the project site. Civil site design, including but not limited to design of parking and pedestrian circulation, will include coordination with the Civil Engineer and the Registered Landscape Architect.

GENERAL SYSTEMS REQUIREMENTS

Provide site improvements as required to make a useable facility that meets functional and operational requirements, incorporates all applicable anti-terrorism, force protection and physical security requirements and blends into the existing environment. Provide site layout revision as directed by Contracting Officer to meet customers, PWD and NAVFAC requirements. Where additional site layout information is provided on plans conflict with Part 3 requirements, the most stringent will govern. Revise conceptual design to meet all requirements as appropriate

Provide accessibility in conformance with applicable requirements of UFC 1-200-01 , *General Building Requirements*, State and local requirements, whichever is more stringent. Provide design criteria, capacity and materials on plan and specs as directed by NAVFAC.

Identify and obtain all permits to comply with all Federal, State, and local regulatory requirements associated with this work. Complete the "Permits Record of Decision" (PROD) form with the first design submittal package. A blank PROD form can be obtained at the Download Tab of Part 6 of the NAVFAC Design-Build website at the following link http://ndbm.wbdg.org/system/html/6/ . Contractor shall determine all correct permit fees, including temporary remediation cost and pay said fees and charges at no additional cost to the Government. Forward copies of all permits, permit applications, and the completed PROD form to the Government's Civil Reviewer. Perform work in accordance with the obtained permits.

Provide improvements as required to conform to all applicable anti-terrorism and physical security requirements.

Minimize the impact of construction activity on operations and neighboring facilities.

Locate new site improvements at locations necessary to develop appropriate and positive relationships with other facilities, conform to existing development patterns and meet functional requirements.

Refer to Site Analysis and Building Requirements Sections for additional site improvement functional program information.

G2010 ROADWAYS

Provide roadways, as required, to allow for safe, convenient and logical circulation, while discouraging through traffic. Unless otherwise noted, provide minimum 18-foot wide driveway to loading area or as directed by the Contracting Officer. Circulation shall provide for turnaround for delivery and emergency vehicles. Driveway leading to loading and mechanical equipment area shall be paved from the ramp to the existing building or existing chain link fence. Provide a minimum of 6 inches of reinforced concrete pavement at the new entrance to the service drive from Bronson Road, through the new dumpster area and to the concrete walkway connection; as well as at the new loading dock, service area and ramp.

The design of pavements must include the anticipated daily traffic (500 cars, 2 H20 loadings) over the life of the project (20 years) as well as the existing soil conditions at the site.

Provide roadways of bituminous pavement or Portland cement concrete (PCC) pavement at roadway locations. Permeable pavement must not be used. Compacted gravel must not be used.

Provide new roadway and other pavement sections as required by soil conditions and determined by the Designer of Record. Design pavement sections in accordance with UFC 3-201-01 *Civil Engineering*. Provide minimum 1.5 inches surface course and 2.5 inches base course over 6 inches of compacted sub base course for asphalt pavement.

Provide other roadway improvements including markings and signage. Signage and materials shall be per VDOT.

G201001 BASES & SUBBASES

Subbase for bituminous pavement and base for concrete pavement shall be placed on a prepared subgrade. The subgrade shall be prepared by undercutting existing materials below the design subgrade level of pavements by a minimum of 6 inches, proof rolling the exposed subgrade with 6 passes of a smooth drum roller, placement of a geotextile fabric and then placement of 6 inches of #57 aggregate, compacted into place. The Contractor shall provide the undercut and replacement at no increase to the base contract amount. The pavement sections shall be built on the finished replacement. The Contractor shall confirm the final pavement design sections based on the results of his geotechnical testing.

The following materials shall not be allowed for base or subbase courses: bituminous concrete, lean concrete, sand-clay, or shell.

G201002 CURBS & GUTTERS

Provide curb and gutter to tie into adjacent facilities.

G201003 PAVED SURFACES

Provide portland cement concrete with a minimum design flexural strength of 650 psi (4.48 MPA) in not more than 28 days.

Recycled asphalt pavement material may be used for bituminous concrete pavement as permitted by the VDOT specifications.

G201004 MARKING & SIGNAGE

Provide pavement markings including crosswalks to match existing.

Provide signage to match existing and shall be per VDOT requirement.

Provide temporary pavement markings and signage throughout construction to meet phasing requirements indicated in the project program. Provide temporary signage in accordance with the MUTCD.

G201005 GUARDRAILS & BARRIERS

Provide guardrails and bollards as required in accordance with the UFC 3-201-01, *Civil Engineering*.

G201006 RESURFACING

Not Used.

G201090 OTHER ROADWAYS

G2020 PARKING LOTS

Provide parking for 175 vehicles in the abandoned runway area north of Building 1560, with 6 ADA accessible parking spaces located in the existing parking along 4th Street. Provide parking for an additional 62 vehicles in a new parking lot to be constructed in the open space east of Building 1560, with 3 ADA accessible parking spaces. Provide the three ADA accessible parking spaces for this parking lot along 4th Street to be closer to the main entrance. Six motorcycle spaces must be provided. The design of pavements must include the anticipated daily traffic (500 cars, 2 H20 loadings) over the life of the project (20 years) as well as the existing soil conditions at the site.

Provide parking lots of bituminous pavement, Portland cement concrete (PCC) pavement or permeable pavement. Provide permeable pavement by porous concrete; porous asphalt must not be used. Compacted gravel shall not be considered permeable pavement.

Provide new parking and other pavement sections as required by soil conditions and determined by Designer of Record. Design pavement sections in accordance with UFC 3-201-01 *Civil Engineering*.

Construction of new full-depth asphalt pavement for parking and service drive pavement shall consist of a minimum of 1.5 inches of VDOT Superpave Asphalt, Type SM-9.5A, on 2.5 inches of VDOT Superpave Asphalt, Type BM-25, on 6 inches of VDOT 21-A Stone sub-base, on a prepared subgrade. The subgrade shall be prepared by undercutting existing materials below the design subgrade level of parking lot and service drive pavement by a minimum of 6 inches, proof rolling the exposed subgrade with 6 passes of a smooth drum roller, placement of a geotextile fabric and then placement of 6 inches of #57 aggregate, compacted into place. The Contractor shall provide the undercut and replacement at no increase to the base contract amount. The pavement section shall be built on the finished replacement. The Contractor shall confirm the final design section based on the results of his geotechnical testing.

Reinforced concrete pavement shall be provided at the new entrance to the service drive from Bronson Road, through the new dumpster area and to the concrete walkway connection; as well as at the new loading dock, service area and ramp. The entire area of new pavement from Bronson Road and the dumpster area to the lift arm gate shall be reinforced concrete pavement. The limits of reinforced pavement shall extend the entire width of the service drive from the lift arm gate for at least 30 more feet. At the loading dock, the limits of reinforced pavement shall extend the entire wide of the service drive from the building face at the loading dock for at least 40-feet. The concrete pavement shall consist of a minimum of 6 inches of VDOT Class A-4 4,000 psi reinforced concrete on 8 inches of VDOT 21-A or 21-B stone base, on a prepared subgrade. The subgrade shall be prepared by undercutting existing materials below the design subgrade level of the reinforced concrete pavement by a minimum of 6 inches, proof rolling the exposed subgrade with 6 passes of a smooth drum roller, placement of a geotextile fabric and then placement of 6 inches of #57

aggregate, compacted into place. The Contractor shall provide the undercut and replacement at no increase to the base contract amount. The pavement section shall be built on the finished replacement. The Contractor shall confirm the final design section based on the results of his geotechnical testing.

The new parking areas shall have parking lot lighting, equipped with LED lamps, provided in accordance with the requirements of the NSFDL Installation Appearance Plan (IAP), photo-sensor controlled, with an over-ride located inside the building to allow the lights to be turned off when desired. Bi-level lighting may be appropriate for parking lot lighting, and passive solar design techniques should be incorporated if possible. All site lot lights within the established LEED site boundary shall be coordinated with the requirements of LEED Sustainable Site Credit 8 for light pollution reduction.

Provide other parking improvements including pavement markings, signage and landscaping. See ESR G2050 for parking lot landscape requirements.

Provide handicapped parking in accordance with UFC 1-200-01 , *General Building Requirements*.

G202001 BASES & SUBBASES

Crushed concrete meeting specified gradation for aggregate base or subbase courses may be used.

G202002 CURBS & GUTTERS

Provide curb and gutter to tie into adjacent facilities.

G202003 PAVED SURFACES

Portland cement concrete shall have a minimum design flexural strength of 650 psi (4.48 MPa) in not more than 28 days.

Recycled asphalt pavement material may be used for bituminous concrete pavement as permitted by the VDOT specifications.

G202004 MARKING & SIGNAGE

Provide permanent and temporary markings (pavement, curb and object), signage (regulatory, warning and guidance) and other traffic control devices as required to facilitate proper utilization of the parking areas.

Provide pavement markings including crosswalks to match existing and shall be per VDOT.

Provide signage to match existing and shall be per VDOT.

Provide temporary pavement markings and signage throughout construction to meet phasing requirements indicated in the project program. Provide temporary signage in accordance with the MUTCD.

G202005 GUARDRAILS & BARRIERS

Provide wheelstops and bollards as required in accordance with the UFC 3-201-01, *Civil Engineering*.

G202006 RESURFACING

The portion of the existing abandoned runway north of Building 1560 to be repaved for new parking shall have the existing asphalt surface milled down between 1.5 inches and 2 inches depth, or to the underlying concrete runway surface, whichever is less. Resurfacing for new parking shall include placement of an overlay protective membrane to the prepared milled surface to bridge any cracking in the runway pavement below, and overlay with a minimum 2 inch thickness of VDOT Superpave Asphalt, Type SM-9.5A, over the prepared membrane. The overlay protective membrane shall be treated and installed in accordance with manufacturer's written instructions.

G202007 MISCELLANEOUS STRUCTURES AND EQUIPMENT

Not Used.

G202090 OTHER PARKING LOTS

Not Used.

G2030 PEDESTRIAN PAVING

Provide a network of Portland cement concrete (PCC) or porous concrete sidewalks, separated from, but connected to vehicular circulation systems, to allow for pedestrian circulation between various new and existing elements of the project. Interface new pedestrian circulation systems with existing pedestrian circulation systems and include input from the Civil Engineer, Architect, and Landscape Architect.

Pedestrian access concrete walks shall be provided between the new parking areas and the front entrance of Building 1560, as well as at emergency access doors associated with P-287. Pedestrian access concrete walks shall also be provided as required to maintain continuous access and repair broken or demolished sections of the existing walkways along McVay and Bronson Roads at the Building 1200 demolition site. Concrete walks shall be constructed and graded to meet all applicable ADA accessibility standards. Concrete walks shall be constructed of a minimum of 4 inches of VDOT Class A-4 4,000 psi reinforced concrete on 4 inches of VDOT 21-A or 21-B stone base. New concrete walkways shall be constructed to be elevated 6 inches above the adjacent finished grade. In compliance with the goals of UFC 3-210-10 Low Impact Development, and the goals of the Commonwealth of Virginia DEQ stormwater management regulations, the Contractor may consider that new walkways may be constructed using some sort of pervious paving system, such as pervious concrete, or pervious pavers. Whatever system is chosen must be designed to be pedestrian safe and low maintenance.

G203001 BASES & SUBBASES

Reinforced concrete on 4 inches of VDOT 21-A or 21-B stone base.

G203002 CURBS & GUTTERS

Not Used.

G203003 PAVED SURFACES

Concrete walks shall be 5 feet wide and shall be constructed of a minimum of 4 inches of VDOT Class A-4 4,000 psi reinforced concrete on 4 inches of VDOT 21-A or 21-B stone base.

G203004 GUARDRAILS & BARRIERS

Provide handrails at ramps, stairs, drops in elevation over 18 inches and as directing by the Contracting Officer in accordance with Federal, State and local requirements; whichever is more stringent.

G203005 RESURFACING

Not Used.

G203006 OTHER WALKS, STEPS & TERRACES

Not Used.

G2040 SITE DEVELOPMENT

G204001 FENCING & GATES

Provide chain link security fence with a minimum 7-foot height and gate around mechanical equipment area. Provide polyvinyl chloride (PVC) coated over zinc-coated steel fencing. Provide a PVC coating with color and a minimum thickness of 0.10 inch (2 mm). Provide top and bottom rails and tension wire as required for stable, secure installation. Provide manual gates for secure access to the mechanical equipment area to match the height, material and color of the fence.

Provide a manual lockable lift arm gate 36-feet minimum in length at the service drive entrance at Bronson Road and Avenue D.

G204002 RETAINING AND FREESTANDING WALLS

Not Used.

G204003 EXTERIOR FURNISHINGS

All site furnishings are required to conform to the Installation Appearance Plan (IAP). At a minimum, provide a trash and ash receptacle at the designated smoking area.

G204004 SECURITY STRUCTURES

Provide an active vehicle barrier at the entry points to the perimeter service leading to the service areas along the east side of Building 1560. Provide lockable, manual lift arm gate. The lift arm gate shall be designed to provide visual deterrence, and do not have to be designed to withstand crashes.

G204005 SIGNAGE

Provide signage in accordance with the Activity's BEAP and the Installation Appearance Plan.

G204006 FOUNTAINS & POOLS

Not Used.

G204007 PLAYING FIELDS

Not Used.

G204008 TERRACE AND PERIMETER WALLS

Not Used.

G204009 FLAGPOLES

Not Used.

G204090 OTHER SITE IMPROVEMENTS

The new dumpster enclosure shall be provided south of the asphalt service drive, outside of the gated area. The location is designed to be well outside the ATFP Conventional Standoff Distance. Provide a three-sided 6-foot minimum in height dumpster enclosure screening walls that are compatible with the existing Building 1560 architecture, and in accordance with the NSFDL Installation Appearance Plan (IAP) requirements. The dumpster enclosure shall be large enough to contain two full sized dumpsters. The dumpster enclosure screen walls shall be masonry construction. Locate and orient the pad for easy accessibility and minimum disruption of through traffic flows. Provide a reinforced concrete pavement pad and apron, constructed as specified above, to support two dumpsters and the wheels of the service trucks.

G2050 LANDSCAPING

All disturbed areas of the two sites not paved or built over, or part of mulched landscape beds, shall be permanently stabilized with seed. Seed shall be Virginia State Certified, of a mixture of types and species recommended for the area of the site by the Commonwealth of Virginia Erosion and Sediment Control Handbook (VESCH).

Plantings shall be provided that enhance the project, while still providing security for the occupants. Trees or shrubs shall be provided in carefully selected locations to compliment the exterior of the new facility, to provide plantings in islands and around the perimeter of new parking areas, and within stormwater management / L.I.D. facilities. Locations of new plantings must be coordinated with the requirements for ATFP, which state that site features within 30 feet of the building shall not allow concealment of an object more than 6 inches in height. Plantings shall be provided that enhance the project, while still providing security for the occupants. Shade trees and supplemental plantings shall be provided in accordance with the requirements of UFC 3-201-02 Landscape Architecture. Native and non-invasive species shall be provided, and species shall be chosen from recommended lists contained within the Virginia Stormwater Management Handbook and other references.

Prior to purchasing plants for landscaping, the Contractor shall present the proposed landscaping plans to NSFDL Public Works Department and the Dahlgren Environmental Office for approval. Plant species must be native to the geographic area and consistent with security requirements.

Provide complete landscaping consisting of lawn, trees, shrubs and organic mulches as required to provide a quality, cost-effective, functional and visually appealing landscape program that shall enhance the development, while complying with all applicable anti-terrorism, force protection and physical security requirements. The landscape design must reinforce the facility entry and compliment existing landscapes in the vicinity. Provide landscaping resistant to deer.

Guarantee all landscaping for a period of one year. Provide a one year Establishment and Maintenance period. Landscaping Guarantee and Establishment and Maintenance periods must commence on the date that the inspection by the Contracting Officer shows that all landscaping under this contract has been satisfactorily installed.

Provide complete landscaping maintenance, including but not limited to, routine lawn mowing, edging,

pruning, pest inspection/treatment, re-mulching of mulch products, watering, weeding, fertilizing, and restaking, throughout the guarantee period.

Provide shrubs or small growing trees for screening of mechanical equipment/walls, dumpster enclosures, and other obstructions that do not present an aesthetic view from the street.

G205001 FINE GRADING AND SOIL PREPARATION

Provide a minimum of 4" of topsoil for all lawn areas and fine grade. Provide minimum slopes of 1% for all paved areas, 2% for grassed areas, except as required for specialized design of vegetated filter areas and swales, and maximum slopes of 5% throughout the entire exterior area.

G205002 EROSION CONTROL MEASURES

Prevent erosion from occurring by providing erosion control measures as required by the Commonwealth of Virginia DEQ, NAVFAC and federal requirements as directed by the Contracting Officer. Assure that all work is performed in strict accordance with the approved Erosion and Sediment Control plans, and that the required environmental controls are strictly maintained.

G205003 TOPSOIL AND PLANTING BEDS

See G205005 Plantings.

G205004 SEEDING SPRIGGING AND SODDING

All disturbed areas of the site not paved or built over, or part of mulched landscape beds, shall be permanently stabilized with seed. Seed shall be Virginia State Certified, of a mixture of types and species recommended for the area of the site by the Commonwealth of Virginia Erosion and Sediment Control Handbook (VESCH). Provide seed and fertilize existing grass areas disturbed by Contractor operations.

G205005 PLANTINGS

Preserve existing trees to the greatest extent possible. Select plant material from Master Plant Lists found within the Installation Appearance Plan (IAP). Other plants not found on these lists may be used if approved by the reviewing Government Landscape Architect. Final approval of all new plant materials rests with the reviewing Government Landscape Architect.

New or existing vegetation shall be in accordance with Section B-1.2 of UFC 4-010-01. Provide a minimum of 2-inch caliper or 6-foot tall trees and 5-gallon containers for shrubs. Prune existing trees to meet UFC ATFP requirements.

Provide tree plantings throughout the site to lessen the visual impact of parking areas. Plant trees in parking lot islands. Plant trees in parking lots at the rate of 1 tree per 10 parking spaces.

If used for stormwater management; provide bioretention filters and/or constructed wetlands, plants, plant quantities, and soil mix in accordance with the State's Best Management Practices (BMP) Design Manual.

G205006 PLANTERS

Not Used.

G205007 IRRIGATION SYSTEMS

Not Used.

G205090 OTHER LANDSCAPING

Not Used.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

G30 SITE CIVIL/MECHANICAL UTILITIES

SYSTEM DESCRIPTION

The site civil/mechanical utility systems include water supply systems, sanitary sewer systems, storm drainage systems, fuel distribution systems and associated appurtenances which are more than 5 feet outside the building.

The site mechanical utility system consists of all piping and appurtenances for liquid fuel including all accessories and devices as necessary and required for a complete and usable system up to 5 feet outside buildings.

GENERAL SYSTEM REQUIREMENTS

Develop the site to provide water, fire protection, sanitary sewer, storm drainage and fuel distribution services that meet the requirements of each applicable regulatory agency that governs and issues permits for the construction and operation of these systems. Site design is required to comply with UFC 3-210-10, *Low Impact Development* as well as state or local stormwater management regulations and applicable LEED credits.

Provide each system complete and ready for operation.

Utility locations shown on Topographic Survey Drawings located in Part 6 of this RFP are approximate only. The Contractor shall physically verify the location of all existing above and below ground utilities prior to starting work. The Contractor shall perform, at his expense, any test pits necessary for the verification of existing below ground utility locations which his Designer of Record deems necessary for the design and construction of improvements required in this RFP. NSF Dahlgren Public works shall mark underground utility lines for all services except Verizon, which must be marked by Miss Utility. The Contractor shall contact Miss Utility to schedule utility marking, and shall obtain a current Miss Utility Project Number. The Contractor shall provide the Miss Utility Project Number to the Contracting Officer’s representative. The Contractor shall be responsible for keeping all markings current during the course of construction. Note that Miss Utility shall not identify all underground utilities. Base Public Works office and NSWCPP network office shall be contacted to mark other known underground utilities. Test pits and field-verification at known and approximate crossings and close construction shall be necessary and must be coordinated at the site. Test pits and field-verification at known and approximate crossing and adjacent construction to existing utilities shall be necessary and must be coordinated at the site.

Identify and obtain all permits to comply with all Federal, State, and local regulatory requirements associated with this work. The contractor shall complete the "Permits Record of Decision" (PROD) form with the first design submittal package. A blank PROD form can be obtained at the Download Tab of Part 6 of the NAVFAC Design-Build website at the following link http://ndbm.wbdg.org/system/html/6/. Contractor shall determine all correct permit fees, including temporary remediation cost and pay said fees and charges at no additional cost to the Government. Copies of all permits, permit applications, and the completed PROD form shall be forwarded to the Government's Civil/Mechanical Reviewer.

Minimize the impact of construction activity on facility operations and neighboring facilities.

Potential utility connection points are indicated on the drawings in Part 6 of this RFP. Obtain final approvals from the Government's Civil/Mechanical Reviewer and the Contracting Officer for all utility connection points associated with this work. Test pit at utility connection points at tie-in, as part of

Contractor's survey verification/ supplemental survey, prior to commencement of design. Adjust design as appropriate based on test pit findings. All design submissions (at 35% and beyond) shall include calculations, design assumptions and design capacity for water, storm and sanitary. Calculation and report is not limited to required capacity, design capacity, velocity, flow rate, water surface elevation, % of design to capacity, depth of flow, 100-year calculations for storm water, etc.

Contractor shall determine, coordinate as required and obtain all permits associated with utility connections and for all fees and charges at no additional to Government. Fees and charges are not limited to application, review fees, connection fees, development charges, and permit fees required by utility provider. Refer to Site Analysis and Building Requirements Sections for additional site civil/mechanical utilities information.

Provide all required fittings, connections and accessories required for a complete and usable system. All equipment shall be installed per the criteria of PTS Section G30 and the manufacturer's recommendations. Where the word "should" is used in the manufacturer's recommendations, substitute the word "shall".

Utility Plan shall identify all proposed utilities limited to electrical, telecom, fiber optic, invert at all connection points including downspouts, cleanouts, number and type of fittings, label each system with a unique name on both plan and profile view. Provide separation distance between utilities. Utility profiles shall identify pipe size, materials, length, slope, water surface elevation, outfall shall indicate both 10-year and 100-year water surface elevations, rim or grate elevation, station, coordinate of structures and invert of all utilities crossing, and station of low and highpoint for waterline. Provide utilities profiles for all water, storm, roof drain, sanitary sewer, force main and ductbanks. System name shall correspond to profile and calculations. Drainage area maps shall clearly note area, C value, Tc and Q for 10 and 100-year; as well as the path of Tc. Structure IDs and unique pipe name shall be the same and coordinate between plan, profile, report and calculations. Unclear, difficult to follow submission will result in rejection and resubmission. Final design submission package must include Stormwater Management Plans, drainage area maps, reports and calculations.

After installation of the equipment and systems, provide individual training courses for Government personnel for each of the items listed below, covering items contained in the Operations and Maintenance manuals. Provide one copy of the Operations and Maintenance manuals for each two course attendees. Provide one DVD disc of the training courses to be used as refresher courses and to train additional personnel. Training shall be conducted by the same factory trained engineer that supervised the installation of the system. Training shall include classroom discussion as well as hands on maintenance, replacement of typical components and repair type maintenance training for parts typically replaced or repaired in the field. Submit training plan 30 calendar days prior to training sessions. Training plan shall include scheduling, content, outline, and training material handouts. Provide training for Cathodic Protection System.

G3010 WATER SUPPLY

The new water system is an extension of the existing water system. The existing water system serving the project site is owned and operated by the federal government. Provide the new water system and connections to the existing water system in accordance with UFC 3-230-01, *Water Supply: Storage, Distribution, and Transmission*; the utility provider’s requirements; and the state waterworks' regulations; whichever is more stringent.

Notify the utility provider of the additional demand generated by the proposed facility. Provide a copy of all correspondence with the utility provider to the Government’s Civil/Mechanical Reviewer.

Provide connections to the existing water distribution system, such that water and fire service to the new building will be continuous. The new facility shall be provided with a full fire protection sprinkler

system. New looped water and fire distribution system and connections to existing distribution system shall meet both UFC and IBC codes.

The new water system shall be designed for water consumption for the new facility. The meter shall be easily accessible, but not obvious.

G301001 WELL SYSTEMS

Not Used.

G301002 POTABLE WATER DISTRIBUTION

The existing water system combines potable water distribution and fire protection water distribution. Connect the new potable water distribution system to the distribution system.

Provide exterior corrosion protection on metallic pipe lines.

A new water meter on the proposed service line is required to service the new facility. Provide type of meter and remote reading as required by the utility provider. The meter shall be easily accessible, but not obvious.

Provide meter box.

Fire hydrants shall match current NSFDL standards for color.

Backflow preventers are required on all service entrance lines. If not specified in ESR D20 and D40, provide reduced pressure backflow preventers aboveground inside the building.

G301003 POTABLE WATER STORAGE

Not Used.

G301004 FIRE PROTECTION WATER DISTRIBUTION

In accordance with the requirements of UFC 3-600-01, Fire Protection Engineering for Facilities, minimum spacing criteria requires that every portion of a building must be within 350 feet of a fire hydrant, with at least one fire hydrant located between 50 feet and 150 feet from the building Fire Department Connection (Siamese Connection). Construction of P-287 shall enlarge the Building to over 50,000 square feet, and in accordance with the requirements of UFC 3-600-01 the expanded building shall require two separate Fire Department Connections. The closest existing fire hydrant near the building is located near the existing service drive entrance at the southeast corner of Building 1560. There are two other existing fire hydrants located along the west side of 4th Street. In accordance with UFC regulations, the water distribution system shall be designed and constructed so that each fire hydrant can deliver a minimum of 500 GPM flow at a minimum residual pressure of 20 PSI, and so that the UFC required hose stream demand can be met without taking more than 1,250 GPM from any single hydrant. Based on these requirements and conditions, a new fire hydrant shall be constructed to provide adequate exterior coverage per UFC and IBC codes.

G301005 FIRE PROTECTION WATER STORAGE

Not Used.

G301006 NON-POTABLE WATER DISTRIBUTION

Not Used.

G301007 PUMPING STATIONS

Not Used.

G301008 PACKAGED WATER TREATMENT PLANTS

Not Used.

G301090 OTHER WATER SUPPLY

Not Used.

G3020 SANITARY SEWER

The new sanitary sewer system is an extension of the existing sanitary sewer collection system. The existing sanitary sewer collection system serving the project site is owned and operated by the federal government. Provide the new sanitary sewer system and connections to the existing sanitary sewer collection system in accordance with UFC 3-240-01, *Wastewater Collection*; the utility provider's requirements; and the state sewerage regulations; whichever is more stringent.

The existing sanitary sewer pump station serving Building 1560 does not have sufficient capacity to serve the P-287 expansion. A new sanitary sewer pump station shall be provided. The pump station shall be sized and designed for the new plumbing fixtures in the new P-287 facility. The new pump station shall discharge to a 4-inch HDPE or PVC sanitary sewer force main.

Notify the utility provider of the additional wastewater flow generated by the proposed facility. Provide a copy of all correspondence with the utility provider to the Government Civil Reviewer.

Provide connection to the existing sanitary sewer collection system. In identifying a suitable point of connection, evaluate the capacity of the existing collection system.

G302001 SANITARY SEWER PIPING

The new pump station shall discharge to a 4-inch pressure rated PVC sanitary sewer force main.

G302002 SANITARY SEWER MANHOLES & CLEANOUTS

Existing sanitary sewer manholes and cleanouts within the paved areas surrounding Building 1200 shall have their tops adjusted to meet the new finished grades when demolition is complete and all disturbed areas have been returned to turf cover.

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G302003 LIFT STATIONS AND PUMPING STATIONS

A wastewater pump station shall be required. Provide a ~~duplex~~ submersible pump station in accordance with NSFDL Public Works requirements. Provide pump station wet well of precast concrete or fiberglass construction. Provide adjacent valve vault of precast concrete construction.

Provide automatic controls to start and stop the pump system. Provide automatic level control by

floats or pressure transducer in accordance with the preferences of the system owner to fill and prevent overflow of the wet well. Provide an emergency pump connection.

Provide a telemetering system and recording equipment to a location manned 24 hours a day for the transmission and recording of pump operation. Alarms shall be transmitted to a location manned 24 hours a day.

Provide electrical connections to the existing emergency generator system at Building 1560, sized to start up and maintain the total rated running capacity of the station, including the pumps, controls, lighting, ventilation and other auxiliary equipment.

G302004 PACKAGED SANITARY SEWER TREATMENT PLANTS

Not Used.

G302005 SEPTIC TANKS

Not Used.

G302006 DRAIN FIELDS

Not Used.

G302090 OTHER SANITARY SEWER

Not Used.

G3030 STORM SEWER

The new storm sewer system is an extension of the existing storm sewer system. The existing storm sewer system serving the project site is owned by the federal government. Provide the new storm sewer system and connections to the existing storm sewer system in accordance with UFC 3-201-01, *Civil Engineering*; the utility provider's requirements; UFC 3-210-10, *Low Impact Development*; the state stormwater management laws and regulations; and applicable LEED credits; whichever is more stringent.

Provide connections to the existing storm sewer collection system. Confirm that the existing outfall has adequate capacity to receive the additional stormwater flow generated by the project.

G303001 STORM SEWER PIPING

The following materials for storm sewer piping shall not be allowed: corrugated steel.

Due to corrosive soil conditions, storm sewer piping materials shall be polyvinyl chloride (PVC, SDR-35) for diameters less than 12 inches and high density polyethylene (HDPE) for diameters 12 to 30 inches.

Refer to PTS Section G30.

G303002 STORM SEWER STRUCTURES

Provide storm structures at a low points in accordance with UFC 3-201-01, *Civil Engineering.*

Structures shall be designed for H20 vehicle loading when at paved surfaces or where vehicular traffic is expected. 100-year event stormwater runoff shall not be permitted across pedestrian walkways. Provide stormwater surface ponding at structures for 10-year and 100-year storm event.

Adjust existing structures to meet finished grade as required.

G303003 LIFT STATIONS

Not Used.

G303004 CULVERTS

The following materials for culvert piping shall not be allowed: PVC, ductile iron, corrugated steel or HDPE. Provide culvert construction at the entrance to the new parking area to span over the existing wetlands between the abandoned runway and the new parking area, to minimize disturbance of the wetlands.

As a Bid Option 2, provide culvert construction at the sidewalk crossing the wetlands north of P-287 to span over the existing wetlands.

Provide materials and construction in accordance with manufacturer's requirements. All culverts shall be sized to maintain existing wetland conditions.

Extend the existing culvert to accommodate proposed improvements or as directed by NAVFAC Civil Engineer. Minimize wetlands impact by providing maximum 3:1 slope from the edge of the proposed impervious surface base course to wetland.

G303005 HEADWALLS

Provide headwalls at culverts in accordance with UFC and VDOT requirements. Refer also to PTS Section G30.

G303006 EROSION & SEDIMENT CONTROL MEASURES

Provide wash racks for construction entrances. Refer to ESR and PTS Sections G10 and G20.

G303007 STORM WATER MANAGEMENT

Comply with UFC 3-210-10, *Low Impact Development*. Consider the following LID features: bioretention, dry wells, filter/buffer strips, grassed swales, bioretention swales, wet swales, permeable pavement/pavers, and tree box filters. Stormwater management facilities may include practices for slow infiltration of water held in small basins with bottom elevations below the available outfall points, and incorporating wetlands-type vegetation (allowable by UFC 4-010-01) within the permanent (wet) portions of the facilities. The Customer has stated that Base Maintenance has the ability to treat the water held in the permanent (wet) portions of the wetland-type basins to prevent mosquitoes, and so provision of wetlands-style facilities is in keeping with Base preferences. Care shall be taken to assure that all provided stormwater management facilities are connected with drainage facilities to hydraulically balance the system and assure adequate overflow capacity to the available outfall points for over 10-year rainfall events.

Evaluate the drainage conditions and submit calculations to the Government for civil and environmental review documenting how design meets UFC 3-210-10, state or local stormwater regulations, and applicable LEED credits. Calculation and stormwater report shall be submitted for all

designs from 35% and beyond. Provide a narrative indicating which criteria governs the design and all assumptions. Technical constraints that limit compliance with UFC 3-210-10 must be documented, reviewed and approved by the Government's civil reviewer.

Per Department on Navy policy, new projects greater than $750,000 and major renovation projects greater than $5,000,000 with a storm water component are required to obtain a waiver if LID is not used. The Contractor shall not submit a NAVFAC Washington LID Waiver Request unless this action is approved by the Contracting Officer. Refer to UFC 3-210-10, DoD Low Impact Development Manual for additional criteria. Detention/retention ponds shall ONLY be considered when conditions of the construction site preclude the use of LID, and if NSFDL and DEQ approve the measures.
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The contractor must obtain all required regulatory permits required for the proposed work. Coordinate all reports, submittals, and permit applications through the Contracting Officer. All Stormwater Management Plans, Erosion and Sediment Control Plans, calculations, reports, and specifications shall be included in the Final Design submission as one comprehensive package.

G303090 OTHER STORM SEWER

Not Used.

G3040 HEATING DISTRIBUTION

Not Used.

G304001 OVERHEAD HOT WATER SYSTEMS

Not Used.

G304002 OVERHEAD STEAM SYSTEMS

Not Used.

G304003 UNDERGROUND HOT WATER SYSTEMS

Not Used.

G304004 UNDERGROUND STEAM SYSTEMS

Not Used.

G304005 REINFORCED CONCRETE MANHOLES & VALVE BOXES

Not Used.

G304090 OTHER HEATING DISTRIBUTION

Not Used.

G3050 COOLING DISTRIBUTION

G305001 OVERHEAD COOLING SYSTEMS

Not Used.

G305002 UNDERGROUND COOLING SYSTEMS

Not Used.

G305090 OTHER COOLING DISTRIBUTION

Not Used.

G3060 FUEL DISTRIBUTION

G306001 LIQUID FUEL DISTRIBUTION PIPING

Not Used.

G306003 LIQUID FUEL STORAGE TANKS

Not Used.

G306004 LIQUID FUEL DISPENSING EQUIPMENT

Not Used.

G306006 GAS DISTRIBUTION PIPING

Not Used.

G306007 GAS STORAGE TANKS

Not Used.

G306009 OTHER GAS DISTRIBUTION

Not Used.

G306090 OTHER FUEL DISTRIBUTION

Not Used.

G3090 OTHER SITE MECHANICAL UTILITIES

Not Used.

-- End of Section --

6. ENGINEERING SYSTEMS REQUIREMENTS

G40 SITE ELECTRICAL UTILITIES

SYSTEM DESCRIPTION

The site electrical utility system consists of site lighting and telecommunications conduit and wiring including all pathways, connections, accessories and devices as necessary and required for a complete and usable system. This section covers installations up to within 5 feet of new (or existing) building location.

GENERAL SYSTEM REQUIREMENTS

Provide electrical and telecommunications systems complete in place, tested and approved, as specified throughout this RFP, as needed for a complete, usable and proper installation. All equipment shall be installed per the criteria of PTS Section G40 and the manufacturer's recommendations. Where the word "should" is used in the manufacturer's recommendations, substitute the word "shall".

G4010 ELECTRICAL DISTRIBUTION

Not used.

G401001 SUBSTATIONS

Not used.

G401002 TRANSFORMERS

Not used.

G401003 SWITCHES, CONTROLS AND DEVICES

Not used.

G401004 OVERHEAD ELECTRIC CONDUCTORS

Not used.

G401005 TOWERS, POLES, CROSSARMS AND INSULATORS

Not used.

G401006 UNDERGROUND ELECTRIC CONDUCTORS

Not used.

G401007 DUCTBANKS, MANHOLES, HANDHOLES AND RACEWAYS

Not used.

G401008 GROUNDING SYSTEMS

Not used.

G401009 METERING

Not used.

G401010 CATHODIC PROTECTION SYSTEMS

Not used.

G4020 SITE LIGHTING

Provide exterior site lighting including underground distribution, handholes, grounding, poles, fixtures and controls as required for a complete and usable system.

G402001 EXTERIOR LIGHTING FIXTURES AND CONTROLS

Provide LED type exterior lighting fixtures wall mounted on the building, pole mounted in the parking lot, and bollard mounted in walkways for safety and security. Provide fixtures complete with lamps. Utilize solar lighting technology where possible.

Provide an automatic lighting control system for exterior lighting fixtures utilizing lighting contactors, time switches, and photocell switches such that lighting shall automatically turn "ON" and “OFF” at user specified times where allowable by code.

G402002 SPECIAL SECURITY LIGHTING SYSTEMS

Not used.

G402003 OTHER AREA LIGHTING

Not used.

G402004 LIGHTING POLES

Provide aluminum poles complete with foundations for site lighting.

G402005 UNDERGROUND ELECTRIC CONDUCTORS

Provide a complete underground distribution system for all site lighting systems.

G402006 DUCTBANKS, MANHOLES AND HANDHOLES

Provide an underground system including conduits and handholes to meet the connection requirements indicated in paragraph G4020 "Site Lighting".

G402007 GROUNDING SYSTEMS

Provide a complete grounding system for all site lighting systems.

G4030 SITE COMMUNICATION AND SECURITY

Provide a site communication system including, but not necessarily limited to, Voice, Data, and Telecommunications Systems including all conduit and wiring, underground structures, termination equipment, poles and structures, and grounding systems as required for a complete and usable system.

G403001 TELECOMMUNICATIONS SYSTEMS

The NMCI and RDT&E cabling shall come from Communications Shed 15. There are currently (2) existing spare 4" conduits running from Comm Shed 15 to Building 1560. (2) new concrete encased 4" conduits with Maxcell or equivalent fabric inner duct shall be provided from the new TR 20A to a point intercepting these existing conduits to provide the new connectivity required. This conduit point of connection location is indicated in the attachments on a drawing titled “MOD Conduit”, and the connection shall be made at a new handhole south of the intersection of Marple Road and Branson Road. All incoming copper and fiber optic cables shall be grounded and protected by appropriate entrance facility equipment (IAW ANSI J-STD-607B). Fiber shall only be grounded if there is a metallic sheath or armor provided with it. Cabling requirements connecting TR 20A to Comm Shed 15 shall be one 96 strand OM4 MM fiber cable and one 48 strand OS2 SM fiber cable. Cabling in Comm Shed 15 shall terminate on a fiber optic patch panel. All telecommunication cabling outside of the building is unclassified.

Existing network cable within 20 feet of the new facility foundation shall be relocated prior to encasement. Disruption of the network cable shall be coordinated with NSFDL. Once encasement has cured sufficiently, the trenches can be backfilled and construction of the site improvements can begin.

G403002 CABLE TV SYSTEMS (CATV)

Not used.

G403003 CABLES AND WIRING

Cables and wiring for site telecommunications shall be as indicated in their respective categories.

G403004 DUCTBANKS, MANHOLES AND HANDHOLES

See G403001.

G403005 TOWERS, POLES AND STANDS

Not used.

G403006 TV CAMERAS AND MONITORS

Not used.

G403007 ELECTRONIC SECURITY SYSTEMS (ESS)

Not used.

G403008 OTHER COMMUNICATION AND ALARM

Not used.

G403009 GROUNDING SYSTEMS

Provide a complete grounding system for all site communications systems.

G4090 OTHER SITE ELECTRICAL UTILITIES

Not used.

-- End of Section --

PART FOUR - PERFORMANCE TECHNICAL SPECIFICATIONS

SECTION A10

FOUNDATIONS
02/11

A10 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

A10 1.1 DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

A10 1.1.1 Government Standards

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-101-01, Architecture UFC 3-220-01N, Geotechnical Engineering Procedures for Foundation Design of Buildings and Structures UFC 3-301-01, Structural Engineering)

UNIFIED FACILITIES GUIDE SPECIFICATIONS (UFGS)

UFGS Section 31 23 00.00Excavation and Fill
20

A10 1.2 GENERAL REQUIREMENTS

A10 1.2.1 Earthwork

The Designer of Record shall prepare the following UFGS Specification as part of the project specification and shall include the prepared specification section in the design submittal for the project:

Section 31 23 00.00 20 *Excavation and Fill*

A10 1.2.2 Geotechnical Report

A10 1.2.2.1 Subsurface Soils Information

Any provided subsurface soil information is included for the contractor's information only, and is not guaranteed to fully represent all subsurface conditions. The data included in this RFP is to assist in proposal preparation. Contractor shall perform, at his expense, such subsurface exploration, investigation, testing, and analysis as his Designer of Record deems necessary for the design and construction of the foundation system.

A10 1.2.2.2 Contractor-provided Geotechnical Engineer

The Contractor is required to retain a Geotechnical Engineer experienced and licensed in the geographic region of the project to interpret any provided data as related to his design concept and develop requirements for bidding. Requirements stated in Parts 3 and 4 of the RFP take precedence over any content of any included geotechnical report. Additional requirements for the geotechnical design of this project are provided elsewhere in this RFP.

All work by the Contractor-provided Geotechnical Engineer at the project location shall be coordinated with the Contracting Officer and shall not interfere with normal base operations. When providing the Foundation Work Design submittal, provide the Contractor's Geotechnical Report (an Adobe Acrobat PDF version on CD and two printed copies) for review and record keeping purposes. The report shall become the property of the Government. Provide the Geotechnical reports generated during construction, such as pile load tests or PDA results, pile driving results and analysis, to the Contracting Officer (an Adobe Acrobat PDF version and two printed copies) for record keeping purposes.

A10 1.2.2.3 Contractor-Provided Geotechnical Report

Submit a written Geotechnical report based upon Government-provided subsurface investigation data and all additional field and laboratory testing accomplished at the discretion of the Contractor's Geotechnical Engineer. The Geotechnical Report shall include the following:

a. The project site description, vicinity map and site map indicating the location of borings and any other sampling locations. Provide 24 hour groundwater observations for at least 20% of the borings, minimum one boring. Provide notes explaining any abbreviations or symbols used and describing any special site preparation requirements.
b. Results of all applicable field and laboratory testing, whether Government or Contractor-provided. Address existing subsurface conditions, selection and his design of the foundation and floor slab, all underground construction including utility installation and all other site-specific requirements (such as soil stabilization and slope stability).
c. Engineering analysis, discussion and recommendations addressing:

   1) Settlement analysis. Settlement shall be limited as required in EM 1110-1-1904, *Settlement Analysis*

   2) Bearing Capacity Analysis.

3) Foundation selection and construction considerations (shallow, deep, special); dimensions, and installation procedures.

4) Site preparation (earthwork procedures and equipment), compaction requirements, building slab preparation (as applicable), soil sensitivity to weather and equipment, groundwater influence on construction, mitigation of expansive soils or liquefaction potential, dewatering requirements, slope stability, and other necessary instructions.

5) Sheeting and shoring considerations, as applicable

6) Pavement design calculations with parameters defined, actual or assumed, and recommended thicknesses and materials, whether for design or for proposed modifications to the RFP provided pavement design

7) Haul routes and stockpile locations for earthwork, as applicable.

8) Calculations to support conclusions and recommendations.

9) Recommendations shall be presented on a structure-by-structure Basis.

The Geotechnical Report shall be signed by the Contractor-provided Geotechnical Engineer.

The submitted report shall be accompanied by a cover letter identifying any report recommendations of the report proposed to be adopted into the design which are interpreted by the Contractor as a change condition to the Geotechnical or Pavement related requirements of the RFP.

A10 1.2.2.4 Geotechnical Site Data required in Design Drawings

The Contractor's final design drawings shall include the Government-provided subsurface data presented in the RFP as noted below, as well as all additional borings and laboratory test data results performed by the Contractor. The data provided shall include:

a. Logs of Borings and related summary of laboratory test results and groundwater observations. Provide 24-hour groundwater observations for at least 20% of the borings, minimum one boring. Provide notes explaining any abbreviations or symbols used and describing any special site preparation requirements.
b. The locations of all borings shall be indicated on the drawings. The applicable design drawings shall be revised to reference the Contractor’s Geotechnical Report as being a basis for design.

A10 1.3 PERFORMANCE VERIFICATION AND ACCEPTANCE TESTING

Verification of satisfactory construction and system performance of the foundations shall be via Performance Verification Testing, and by field inspection, as detailed in this section of the RFP and in UFGS Section 01 45 00.05 20. Provide special tests and special inspections in accordance

with UFGS Section 01 45 00.05 20, *Design and Construction Quality Control*.

A10 1.3.1 Earthwork

Perform quality assurance for earthwork in accordance with IBC Chapter 17 and UFGS Section 31 23 00.00 20. A competent person, as defined by COE EM 385-1-1, under supervision of a registered Professional Engineer is required to provide inspection of excavations and soil/groundwater conditions throughout construction. The Engineer shall be responsible for performing periodic site visits throughout construction to assess site conditions. The Engineer, with the concurrence of the contractor and the Contracting Officer, shall update the excavation, sheeting, shoring, and dewatering plans as construction progresses to reflect actual site conditions and shall submit the updated plan and a written report (with professional stamp) at least monthly informing the Contractor and the Contracting Officer of the status of the plan and an accounting of Contractor adherence to the plan; specifically addressing any present or potential problems. The Engineer shall be available to meet with the Contracting Officer at any time throughout the contract duration.

A10 1.4 DESIGN SUBMITTALS

Design submittals shall be in accordance with Z10, *General Performance Technical Specifications*, UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures,*UFC 3-220-01N, *Geotechnical Engineering Procedures for Foundation Design of Buildings and Structures, and UFC 1-200-01, General Building Requirements*.

UFGS sections listed below or in the body of the PTS text are to be used by the Designer of Record (DOR) as a part of the design submittal. The DOR shall edit these referenced UFGS sections and submit them as a part of the design submittal specification. Edit the specification sections in accordance with the limitations stated in PTS section Z10, *General Performance Technical Specifications*.

UFGS Section 31 23 00.00 20 *Excavation and Fill*

A10 1.5 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) shall approve the following submittals as a minimum:

All structural elements necessary for construction

Contractor-provided geotechnical report

Controlled fill or backfill material tests

As-Built drawings - Include a statement on the drawings indicating the method used to verify the allowable design capacity of the piles (load tests or PDA).

A1010 STANDARD FOUNDATIONS

A1010 1.1 SHEETING AND SHORING

Provide sheeting and shoring as required. Sheeting and shoring plans shall be signed by the Contractor's Geotechnical Engineer.

A1010 1.2 TERMITE CONTROL

A1010 1.2.1 Termite Control Barrier System

Formulate and apply termiticide in accordance with the manufacturer's label directions. The termiticide label shall bear evidence of registration by the U.S. Environmental Protection Agency or appropriate requirements of the host country.

Apply termiticide to the soil that shall be covered by or lie immediately adjacent to the building(s) and structure(s), providing a protective barrier against subterranean termites.

Maintain the Pest Management Maintenance Record, DD Form 1532-1 and submit the Pest Management Report, DD Form 1532 as required.

Applicator(s) shall be licensed or certified by the Federal government or the state or the host country, as applicable.

A1010 1.2.2 Warranty

Furnish a 3 year written warranty against infestations or reinfestation by subterranean termites of the buildings or building additions constructed under this contract. Perform annual inspections of the building(s) or building addition(s). If live subterranean termite infestation or subterranean termite damage is discovered during the warranty period, and building conditions have not been altered in the interim, the Contractor shall:

a. Perform treatment as necessary for elimination of subterranean termite infestation;
b. Repair damage caused by termite infestation;
c. Reinspect the building approximately 180 calendar days after the repair.

A1010 1.2.3 Visual Inspection Guide

To maintain resistance to termites, complete the system and do not disturb, penetrate or damage during the remaining contract time period. Provide Manufacturer’s Guidance for performing a visual assessment of the installed system to ensure the system provides the designed termite physical barrier.

A101001 WALL FOUNDATIONS

Provide foundation walls as required in accordance with the requirements of this section and other portions of this RFP.

A101002 FIRE WALL FOUNDATIONS

Provide fire wall foundations as required in accordance with the requirements of this section and other portions of this RFP.

A101003 COLUMN FOUNDATIONS AND PILE CAPS

Provide column foundations and grade beams as required in accordance with the requirements of this section and other portions of this RFP.

A1020 SPECIAL FOUNDATIONS

A102001 CAISSONS

If required, provide caissons as required in accordance with the requirements of this section and other portions of this RFP.

A102002 UNDERPINNING

If required, underpin existing construction as required in accordance with the requirements of this section and other portions of this RFP.

A102003 DEWATERING

Dewater site for foundation construction as required by soil conditions and local subsurface and surface water, including rainfall, and considering any potential adverse impact on adjacent facilities, including settlement. Dewatering requirements and methods shall be established by the Contractor's Geotechnical Engineer, based on his subsurface exploration and investigation.

A102004 PRESSURE INJECTED GROUTING

If required, pressure inject grout as required in accordance with the requirements of this section and other portions of this RFP.

A1030 SLAB ON GRADE

A103001 STANDARD SLAB ON GRADE

If allowed by site conditions and recommended by the Contractor-provided Geotechnical Engineer, provide standard concrete slab on grade to meet the required loading requirement in accordance with the requirements of this section and other portions of this RFP.

Floor slab on grade shall be designed and constructed in accordance with EM 1110-1-1904, Settlement Analysis and so that any settlement of the floor slab shall not result in harmful distortion of the floor, nor vertical misalignment of the floor with other building components (such as doorways and trenches), building utilities or with pile-supported building elements. If these above conditions cannot be met, provide a pile supported slab.

A103003 TRENCHES

Trenches shall be constructed of reinforced concrete with water proof joints and seals to prevent ground water infiltration.

A103004 PITS AND BASES

Pits and bases shall be constructed of reinforced concrete with water proof joints and seals to prevent ground water infiltration.

A103005 FOUNDATION DRAINAGE

A103005 1.1 PERIMETER FOUNDATION DRAINAGE

Perimeter drainage system shall be provided to remove water away from the foundation of the facility and to be deposited in the storm sewerage system of the site. Pipe for the foundation drainage system shall be of the type specified, shall be perforated, and shall be of a size sufficient to remove water from the foundation successfully. Provide one, or a combination of more than one, of the following types of pipe:

a. Corrugated Polyethylene (PE) Drainage Pipe: ASTM F 405, heavy duty, for pipe 3 to 6 inches in diameter inclusive; ASTM F 667 for pipe 8 to 24 inches in diameter. Fittings shall be manufacturer's standard type and shall conform to the indicated specification.
b. Acrylonitrile-Butadiene-Styrene (ABS) Pipe: ASTM D 2751, with a maximum SDR of 35.
c. Polyvinyl Chloride (PVC) Pipe: ASTM F 758, Type PS 46, ASTM D 3034, or ASTM F 949 with a minimum pipe stiffness of 46 psi.

Installation shall include wrapping the pipe with filter fabric sock and careful bedding of the pipe with appropriate fill material to ensure that the pipe does not become obstructed with the bedding material.

A103090 OTHER SLAB ON GRADE

A103090 1.1 BLOCK OR BOARD PERIMETER INSULATION

Provide only thermal insulating materials recommended by manufacturer for perimeter insulation. Provide one of the board or block thermal insulations listed below conforming to the following standards:

a. Cellular Glass: ASTM C 552
b. Extruded Preformed Cellular Polystyrene: ASTM C 578

The thickness of insulation and thermal resistance value shall be sufficient to meet the applicable building code and energy budget for the facility.

-- End of Section --

SECTION B10

SUPERSTRUCTURE
11/10

B10 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

B10 1.1 DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

B10 1.1.1 Government Standards

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-101-01, Architecture UFC 3-301-01, Structural Engineering)
UFC 4-010-01	DoD Minimum Antiterrorism Standards for Buildings
UFC 4-023-03	Design of Buildings to Resist Progressive Collapse

B10 1.2 PERFORMANCE VERIFICATION AND ACCEPTANCE TESTING

Verification of satisfactory construction and system performance shall be via Performance Verification Testing, as detailed in this section of the RFP. Provide special tests and special inspections in accordance with UFGS Section 01 45 00.05 20, *Design and Construction Quality Control*.

B10 1.3 DESIGN SUBMITTALS

Design submittals shall be in accordance with Z10, General Performance Technical Specifications, UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures*, UFC 3-101-01, *Architecture*, and UFC 3-301-01, *Structural Engineering*.

B10 1.4 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) shall approve the following submittals as a minimum:

All structural elements necessary for construction of the

superstructure.

B1010 FLOOR CONSTRUCTION

B101001 STRUCTURAL FRAME

Structural frame elements may include columns, girders, beams, trusses, joists, moment frames, shear walls, and bracing. See Section B20, *Exterior Enclosure*, for additional requirements for exterior walls used as load-bearing walls or shear walls.

B101002 STRUCTURAL INTERIOR WALLS

Provide structural interior walls as required in accordance with the requirements of this section and other portions of this RFP. See Section C10, *Interior Construction*, for additional requirements.

B101003 FLOOR DECKS AND SLABS

If required, provide floor decks as required in accordance with the requirements of this section and other portions of this RFP.

B101005 RAMPS

Provide ramps as required in accordance with the requirements of this section and other portions of this RFP.

B101006 FLOOR RACEWAY SYSTEMS

See Section D50, Electrical, for floor raceway systems.

B1020 ROOF CONSTRUCTION

B102001 STRUCTURAL FRAME

Structural frame elements may include columns, girders, beams, trusses, joists, moment frames, shear walls, and bracing. See Section B20, *Exterior Enclosure*, for additional requirements for exterior walls used as load-bearing walls or shear walls.

B102002 STRUCTURAL INTERIOR WALLS

Provide structural interior walls as required in accordance with the requirements of this section and other portions of this RFP. See Section C10, *Interior Construction*, for additional requirements.

B102003 ROOF DECKS AND SLABS

Provide roof deck as required in accordance with the requirements of this section and other portions of this RFP.

B102004 CANOPIES

Provide canopies as required in accordance with the requirements of this section and other portions of this RFP.

-- End of Section --

SECTION B20

EXTERIOR ENCLOSURE
04/13

B20 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

B20 1.1 DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

Industry standards, codes, and Government standards referenced in the section text that are not found in the Unified Master Reference List (UMRL) in the Construction Criteria Base (CCB) at the Whole Building Design Guide Website , are listed below for basic designation identification. Comply with the required and advisory portions of the current edition of the referenced standard at the time of contract award.

B20 1.1.1 Industry Standards and Codes

NATIONAL LUMBER GRADES AUTHORITY (NLGA)

B20 1.1.2 Government Standards

Military Handbook 1013/1A, Design Guidance for Physical Security of Facilities

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-101-01, Architecture)
UFC 4-010-01	DoD Minimum Antiterrorism Standards for Buildings.

B20 1.2 PERFORMANCE VERIFICATION AND ACCEPTANCE TESTING

Verification of satisfactory exterior enclosure system performance shall be via Performance Verification Testing, and by field inspection as detailed in this section of the RFP. Provide special tests and special inspections in accordance with UFGS Section 01 45 00.05 20, *Design and Construction Quality Control*. The Contractor shall pay the cost of all testing.

B20 1.2.1 Required Masonry Testing and Field Samples

a. Where field testing is required, masonry strength shall be determined in accordance with ACI 530.1.

b. Field Samples: Masonry Panel Requirements - At the job site submit for approval by the Designer of Record, a sample masonry panel minimum 8 feet (2.4 meters) long by a minimum of 4 feet (1.2 meters) high. Actual Sample size shall be determined by number of components in the sample wall but provide a span of at least 4 feet (1.2 meters) of uninterrupted masonry work and 2 feet (.6 meters) above wall openings. The approved sample shall exhibit the standard for workmanship and materials for the project. The sample panel shall include masonry coursing, bond, weep holes, flashing, thickness, anchors, joint reinforcing, wall ties, rigid-board insulation, intersection of walls, bond beams, expansion and control joints, and tooling of joints, range of color, texture of masonry, and mortar color; or cold-formed steel framing, insulation, fiberglass-faced gypsum sheathing, air barrier, air barrier connections to adjoining construction, sealing of air barrier penetrations vapor barrier, sealant, masonry ties and anchors, and tooling of joints, the range of color and texture of brick veneer, and the color of mortar. The sample panel shall be protected from damage and shall remain at the site until masonry work is complete and approved, at which time the panel shall be removed from the site. If there are windows or curtain walls in the project which interface with the masonry, a cut-away sample window or curtain wall mock-up shall be installed in the masonry field panel, with all accessories, finishes, and trim (see B20 1.2.4 and 1.2.5). Masonry work shall match the approved sample.

B20 1.2.2 Air Barrier Field Sample

Designate a portion of the project that reveals the various edge, seam, transition, and penetration conditions that the air barrier is exposed to. Determine this location with the Contracting Officer and obtain approval of the sealing methods employed on the project from the air barrier Manufacturer. Leave sample area exposed to view as long as practical to serve as a construction standard and comparison of future air barrier construction on the project. Before construction covers the sample area, provide detailed photographs of the air barrier details for future reference.

B20 1.2.3 Air Barrier Performance Testing

Provide air barrier testing and repair as follows:

a. Provide a testing plan as a part of the Commissioning Plan and notify the Contracting Officer 7 working days before the testing shall take place. Do not test the building until verifying that the continuous air barrier is in place and installed without failures in accordance with installation instructions so that repairs to the continuous air barrier, if needed to comply with the required air leakage rate, can be done in a timely manner.

Also coordinate building access during the test with the Contracting Officer. Perform pretest inspection with all parties involved in the test and possible repairs of the building envelope. Record pretest conditions and utilize pictures to assist in the documentation.

b. Air leakage test shall be performed in accordance with ASTM E-779 (2003) or E-1827-96 (2002), with the following additions and exceptions using either Method 1 or Method 2. The flow rate must not exceed 0.25 CFM at 75 Pa per square foot of building envelope area including roof or ceiling, walls and floor as provided by the DOR.

Method 1: This test consists of measuring the flow rates required to establish 12 positive and 12 negative building pressures from at least 25 Pa to at least 50 Pa. At least 12 bias pressure readings must be taken across the envelope and averaged over 5 seconds each before and after the test. None of these readings must exceed 30% of the minimum test pressure.

Method 2: this test consists of measuring the flow rates required to establish 12 positive building pressures from at least 50 Pa to at least 75 Pa. At least 12 bias pressure readings must be taken across the envelope and averaged over 5 seconds each before and after the test. None of these readings must exceed 20% of the minimum test pressure.

The test results must be either pass or fail. Provide the theoretical size of the opening that leaks the same amount as the building envelope at 75 Pa, to facilitate the search for leaks and repair of the exterior enclosure.

c. Provide infrared thermography to determine air leakage paths if facility fails to retain the required air pressure in the test above. Utilize infrared cameras with a resolution of 0.1 degree C or better.

Perform infrared thermography in accordance with ISO 6781:1983 and ASTM C1060-90(1997). Determine air leakage pathways in accordance with ASTM E1186-03 *Standard Practices for Air Leakage Site Detection in Building Envelopes and Air Barrier Systems*, and perform corrective work as necessary to achieve the whole building air leakage rate specified.

Modify construction to stop identified air leakage until target 0.25 cfm/ft2 is reached. Correct air path leaks at the source of the leak, do not use sealant to close air leakage paths that are required to be opened for maintenance of the facility such as fixtures, switches covers, receptacle covers, access doors,...etc.

d. Air leaks shall be sealed in the following order of priority:

1) Top of the building. These include roof/wall intersections, penthouse doors and walls, HVAC equipment.

2) Bottom of the building. These include ground floor access doors and inspection hatches, exhaust and air intake vents, service penetrations of enclosure, crawl spaces.

3) Vertical shafts. These include gasket stairwell fire doors, fire hose cabinets and recessed toilet accessories connected to vertical shaft, vertical and horizontal utility penetrations in service rooms, elevator rooms and shafts.

4) Exterior walls. These include weather strip doors and windows, exhaust fans and ducts, service penetrations, electrical receptacles, wall base.

B20 1.2.4 Required Records for Concrete Wall Panels

Not used.

B20 1.2.5 Precast Concrete Wall Panel Surface Finish Sample

Not used.

B20 1.2.6 Window Sample Mock-Up

a. Provide mock up of one (1) typical combination window unit to be used within the project and conduct a field mock-up test in strict compliance with AAMA 502 method A and method B. Each opening shall be tested to achieve performance of ASCE 7-02 calculated requirements (PSF or Kg/m2) for water resistance, which shall not exceed .667 % of the products capable water based on AAMA 101/I.S. 2. Allowable rates of air leakage for field testing shall be 1.5 times applicable AAMA 101/I.S.2 rate for the Product Type and Performance Class.

b. Opening is to be tested under "Quality Control" testing by a designated independent testing agency.

1) Schedule mock up installation sufficiently in advance of need to allow adequate time for cure of sealants, testing and reconstruction, if needed, without delaying the project.

2) Build mock up in building envelope wall in location selected by Owner and Architect.

3) Modify mock up construction and perform additional tests as required to achieve specified minimum acceptable results. If corrections are not adequate, construct new mock up, at written direction of Owner and Architect. Co-ordinate construction of mock up with other involved trades.

4) Approved mock ups may become part of completed Work if undisturbed at time of Substantial Completion.

5) Flood test Mockup window subsill and obtain approval of DOR prior to installing window unit.

B20 1.2.7 Curtain Wall Systems Field Sample and Testing

Not used.

B20 1.3 DESIGN SUBMITTALS

Design submittals shall be in accordance with Z10, *General Performance Technical Specifications*, UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures*, UFC 3-101-01, *Architecture*and UFC 3-301-01, *Structural Engineering*.

In addition, UFGS sections listed below or in the body of the PTS text are to be used by the Designer of Record (DOR) as a part of the design submittal. If the UFGS products or systems are applicable to the project, the DOR shall edit these referenced UFGS sections and submit them as a part of the design submittal specification. Edit the specification sections in accordance with the limitations stated in PTS section Z10, *General Performance Technical Specifications*.

B20 1.4 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record(DOR) shall approve the following submittals as a minimum;

Shop drawings for reinforcing steel in masonry walls, doors, door hardware, windows, storefront, glazing, paint, air barrier system, and visible exterior materials.

All structural elements necessary for construction.

B20 1.4.1 Manufacturer's Verification Inspection Documentation for Galvanized Steel

Manufacturer's verification inspection documentation shall be submitted for all galvanized steel in accordance with ASTM A123, ASTM A 153, and ASTM A 653.

B20 1.4.2 Field Inspection of Field-erected Concrete Panels

Not used

B2010 EXTERIOR WALLS

Exterior wall construction shall consist of exterior skin system of non-structural outside face elements with CMU back-up wall systems including; flashing (embedded, exposed, and thru-wall), vapor barriers, air barriers, and insulation systems with interior skin system materials to provide a protective finish on the inside face of exterior walls. Provide all components necessary to direct water that would leak through faulty caulk joints to the outside of wall. Provide flashing, window subsill, caulking, and water barriers around wall openings to direct any water that gets behind the outside surface of the exterior door, window or louver to the exterior of the wall.

All work shall be designed to comply with UFC 3-101-01, *Architecture*, and UFC 3-301-01, *Structural Engineering*, and the following requirements:

a. Vapor Transmission Analysis - Perform a job specific vapor transmission analysis in accordance with UFC 3-101-01, Architecture. The conclusion of the analysis shall indicate the appropriate locations of needed vapor retarders, air barriers, and anticipated dew-point locations in the exterior enclosure during different critical times of the year.
b. Wind Loads - Provide wind load calculations for exterior cladding in accordance with UFC 1-200-01 and UFC 3-301-01 with comparative analysis of the cladding system to be provided.
c. Water Penetration - No water penetration shall occur at a pressure of 8 psf (39 Kg/m2) of fixed area when tested in accordance with ASTM E 331.
d. Insulating Value – The complete wall system shall have a minimum insulating value as required by the building code and as required to meet ASHRAE Standard 90.1 as modified by the Energy Policy Act of 2005.

B201001 EXTERIOR CLOSURE

B201001 1.1 MASONRY VENEER EXTERIOR WALL CLOSURE COMPONENTS

B201001 1.1.1 General Requirements

a. Masonry veneer shall include load bearing exterior walls of the structure, and shall include colored mortar, special shapes such as sills, headers, trim units and copings of masonry, concrete masonry units, or other approved material. The veneer shall be tied to the backup wall system with a system that allows the veneer to move independently of the backup wall system, while being structurally supported. The masonry veneer shall allow for expansion and contraction of the veneer without cracking the exterior material.
b. Use running bond, tooled concave joints and full head joint weeps at 24 inches (610 mm) o.k. in the course immediately above the base flashing. Where required, provide colored mortar conforming to ASTM C270. Provide special shapes where

required.

c. Locate expansion/control joints and seal with proper backing material and ASTM C 920 polyurethane sealant, or preformed foam or rubberized expansion joint closure. Conform to UFC 3-101-01 and BIA Technotes 18, 18A. Joint shall match color of the brick, unless DOR directs otherwise.

d. Conform to ACI 530.1 for masonry veneer installation, including cold weather construction. Antifreeze admixtures are not to be used.

e. Clean the masonry in accordance with manufacturer's instructions and BIA Technote 20.

f. Utilize BIA Technical Notes to design, detail, and construct brick masonry walls. This PTS section amends the BIA documents and takes precedence over similar BIA requirements. Substitute directive language in the place of BIA suggestive language as required in PTS Section Z10, *General Performance Technical Specifications*. The results of these wording substitutions change this document to required procedures.

B201001 1.1.2 Face Brick

Not used.

B201001 1.1.3 Split Faced or Ground Faced Masonry (Match Building 1560).

ASTM C 90. Provide split faced or ground faced units, or split-ribbed units or scored-faced units.

B201001 1.1.4 Cast Stone Trim Units

Not used

B201001 1.1.5 The Wall Cavity

Comply with UFC 3-101-01 and BIA Technical Notes 21A, 21B, 21C, 28B.

B201001 1.1.6 Through-Wall Flashing Components

a. Through-wall flashing with weep holes shall be incorporated in cavity wall construction as required by UFC 3-101-01 and BIA Technotes. Install flashing according to BIA Technotes 7, 7A, 7B, 21A, 21B, 21C, 28B, and SMACNA figures 4-1A and 4-1B. Extend metal drip edge flashing beyond the wall plane using a 1/4 inch (6 mm) preformed 45 degree angle turn down.

b. Flashing material shall be as required by UFC 3-101-01 and the following: Flashing shall be 7 ounce copper flashing with a 3 ounce bituminous coating on each side or a fiberglass fabric bonded on each side of the copper sheet. Sixteen (16) ounce uncoated copper, 28 gauge Type 302 or 304 stainless steel is also acceptable. 'Flexible membrane flashing, plastic or PVC-based membrane flashing is prohibited. Lap and seal turndown solid metal drip edge flashing to through- wall flashing. Refer to "Flashing" in this section to find requirements for non-through-wall flashing.

B201001 1.1.7 Reinforcing in Veneer Layer

Reinforcing in the veneer layer shall be galvanized in accordance with ASTM A 123/A123M, ASTM A153/A153M, or ASTM A653/A653M, Z275 (G90) coating, and be of sufficient size to eliminate damage to the veneer layer from wind and other live and dead loads imposed on the veneer layer.

B201001 1.2 METAL WALL PANEL EXTERIOR CLOSURE

B201001 1.2.1 General Wall Panel Requirements

Not used.

B201001 1.2.2 Steel Wall Panels

Not used.

B201001 1.2.3 Aluminum Wall Panels

Not used.

B201001 1.2.4 Insulated Aluminum or Steel Wall Panels

Not used.

B201001 1.3 STUCCO EXTERIOR WALL CLOSURE

B201001 1.3.1 Portland Cement Plaster

Not used.

B201001 1.4 EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)

Not used.

B201001 1.5 CONCRETE EXTERIOR WALL CLOSURE

B201001 1.5.1 Precast Concrete Wall Panels:

Not used.

B201001 1.6 CONCRETE WALL PANEL RESTORATION

Not used.

B201001 1.7 WOOD SIDING SYSTEM

B201001 1.7.1 Horizontal Wood Siding

Not used.

B201001 1.8 VINYL SIDING SYSTEM

Not used.

B201001 1.9 MANUFACTURED FACED PANELS SYSTEMS EXTERIOR WALL SIDING

B201001 1.9.1 Glass Fiber Reinforced Cementitious Panels System

Not used.

B201001 1.10 OTHER EXTERIOR WALL CLOSURE

B201001 1.10.1 Glass Block

Not used

B201001 1.10.2 Concrete Unit Masonry

Masonry walls shall comply with ACI 530.1. Load-bearing units: ASTM C90, Non-load bearing- units: ASTM C129, Type I or II. Provide ground face units, split-faced units, ground-faced units, or split-ribbed units for exposed exterior walls. Provide water repellent admixture to masonry units where the exterior face of the units shall not receive a waterproof coating such as paint. Mortar shall conform to ASTM C 270, Type S. Test mortar in accordance with ASTM C 780. Provide water repellent admixture and color additive in mortar for masonry walls that shall not receive a waterproof coating such as paint. Do not use admixtures containing chlorides. Provide air entrainment, not to exceed 12 percent, in mortar.

a. Adjustable Anchors for Structural Members - Use adjustable anchors to anchor masonry structural steel columns or beams. Weld the fixed portion of the anchors (steel anchor rods) to the structural steel member. Provide adjustable anchors 3/16 inch (5 mm) diameter steel wire, triangular-shaped. Anchors attached to steel shall be 5/16 inch (8 mm) diameter steel bars placed to provide 1/16 inch (1.6 mm) play between flexible anchors and structural steel members.
b. Deformed Bars - ASTM A 615/A 615M, ASTM A 616/A 616M, ASTM A 617/A 617M, or ASTM A 706/A 706M.

B201002 EXTERIOR WALL BACKUP CONSTRUCTION

B201002 1.1 CONCRETE UNIT MASONRY

Provide concrete unit masonry as described in B201001 1.10.2

Dampproofing – Dampproof the cavity-facing wythe of the backup masonry using asphaltic primer according to ASTM D 41, if dampproofing is not provided by a sprayed on foam or other DOR-approved membrane insulation system. Coordinate dampproofing materials and methods to provide vapor transmission control for the lifetime of the structure. Repair any dampproofing damaged by other construction operations.

B201002 1.2 LOAD-BEARING METAL FRAMING SYSTEM

Not used.

B201002 1.3 WOOD FRAMING SYSTEM

Not used.

B201002 1.4 CAST-IN-PLACE CONCRETE SYSTEM

Not used.

B201003 INSULATION & VAPOR RETARDER

Insulation, Vapor Retarders, and Air Barrier Systems in or on Exterior Enclosure shall include: insulation, liquid, sheet or continuous film materials installed separately in or on wall assemblies to provide resistance to heat loss/gain, and vapor penetration.

B201003 1.1 VAPOR RETARDER

Comply with ASTM C755. Incorporate in the exterior wall system where required by vapor transmission calculations or dew point analysis indicates

the need or in conditions of high moisture exposure.

B201003 1.1.1 Bituminous Dampproofing

Bituminous Dampproofing shall be ASTM D449, Type I or Type II bituminous dampproofing on the exterior surface of the interior wythe of masonry in a cavity wall (back-up wall for masonry veneer).

B201003 1.1.2 Building Paper

Not used.

B201003 1.1.3 Polyethylene sheeting

Not used.

B201003 1.2 AIR BARRIER

Provide continuous air barrier that is durable to last the life of the facility. Seal all holes and seams in the air barrier. Support air barrier to withstand maximum positive and negative air pressure to be placed on the building without displacement, or damage, and transfer the load to the structure. Do not install electrical boxes or fixtures with holes through the air barrier.

Air barrier materials shall have an air permeance not to exceed 0.004 cfm/sf at 0.3"wg (0.02L/s. m2 at 75 Pa) when tested in accordance with ASTM E 2178. Provide installation, seal edges, seal transitions, and seal penetrations as recommended by the air barrier manufacturer. Seal the air barrier in a flexible manner to allow for relative movement of adjacent building envelope components. Air barrier installation at windows shall be in accordance with ASTM E 2112.

Provide building envelope drawings indicating and locating each material that makes up the continuous air barrier. Details of the air barrier shall clarify edges, transitions, and penetrations sealing methods. In addition, identify the boundary limits of the air barrier and of the zone or zones to be tested for building air tightness.

Provide minimum 40 mil DFT elastomeric spray or 36 mil elastomeric sheet barrier when air barriers are used as water barriers.

B201003 1.3 INSULATION SYSTEMS

Vertical and horizontal polystyrene insulation conforming to ASTM C578 or rigid polyisocyanurate board wall insulating products conforming to ASTM C591 or mineral-fiber blanket insulation conforming to ASTM C 665 shall be provided. Wall insulating product shall have a minimum R-value to meet the code and the energy design of the facility. Seal the joints in rigid insulation within cavity/veneer walls for additional moisture and air infiltration protection.

B201004 PARAPETS

Provide parapets with the same materials as the exterior wall construction, including framing members, anchors, flashings, cants, and accessories. Parapets shall be designed to withstand the lateral loads prevailing at the project site and be provided with thru wall flashing below the parapet cap, at structural members, at penetrations, and at the roof level. Provide flashing and scuppers in accordance with SMACNA.

B201005 EXTERIOR LOUVERS & SCREENS

If required, provide louvers, which are not an integral part of the mechanical equipment, exterior closures, grilles and screens, storm shutters, and other materials used for a variety of purposes including screening of equipment or as louvers for exterior doors.

Louvers, screens, grilles in shall be selected in a color and design that is compatible with the fabric of the exterior architectural character as described below. For frame construction, install in accordance with ASTM E 2112.

B201005 1.1 WALL LOUVERS

Wall louvers shall be drainable blade type louver with blade slopes of 45 degrees minimum, but provide wind driven rain rated louvers for wall louvered rooms without a floor drain within the room. Louvers shall be made to withstand a wind load of not less than 30 psf (146 Kg/m2), .08 inch (2 mm) thick 6063-T5 or T52 extruded aluminum in a factory-finished color in accordance with AAMA 2605 with a minimum coating thickness of 1.2 mil to match the building facade. Wall louvers shall bear the AMCA certified ratings program seal for air performance and water penetration in accordance with AMCA 500 , 500L (wind driven rain), and AMCA 511. Provide sill flashing with sloped drain pan at base of louver to collect moisture that migrates down the interior face of the louver. This sill flashing shall drain water to the outside of the building. Louvers shall have bird screens.

B201005 1.2 SCREENED ENCLOSURE

Design and fabricate support frames to withstand wind loads. Anchor frames securely in place. Provide secondary horizontal steel or aluminum framing for attachment of screen materials. Screen material shall be factory finished coating in accordance with AAMA 2605 with a minimum coating thickness of 1.2 mils. Formed metal panels from galvanized steel sheet per ASTM A 653 or aluminum sheet per ASTM B 209.

B201005 1.3 STORM SHUTTERS

B201005 1.3.1 Roll Shutters

Not used.

B201005 1.3.2 Accordion Shutters

Not used.

B201005 1.3.3 Hinged Louvered Shutters

Not used.

B201005 1.3.4 Removable Shutters

Not used.

B201005 1.3.5 Exterior Door Louvers

If allowed by UFC 4-010-01, louvers for exterior doors shall be inverted "Y" type with minimum of 30 percent net-free opening. Weld or tenon louver blades to continuous channel frame and weld assembly to door to form watertight assembly. Form louvers of hot-dip galvanized steel of same gage as door facings. Louvers shall have steel-framed insect screens secured to room side and readily

removable. Louvers shall have aluminum wire cloth, 18 by 18 or 18 by 16 inch mesh, for insect screens. Net-free louver area to be before screening.

B201006 BALCONY WALLS & HANDRAILS

B201006 1.1 PRECAST CONCRETE BALCONY WALLS

Not used.

B201006 1.2 UNIT MASONRY BALCONY WALLS

B201006 1.2.1 Clay Masonry Units

Not used.

B201006 1.2.2 Concrete Masonry Units

Not used. Concrete

B201006 1.3 METAL FRAMED ASSEMBLY BALCONY WALLS

Not used.

B201006 1.4 WOOD FRAMED ASSEMBLY BALCONY

Not used.

B201006 1.5 HANDRAILS

Design handrails and anchorage connections to resist loads in accordance with IBC. Provide materials in accordance with NAAMM PR, with the same size handrail and vertical post. Provide series 300 stainless steel pipe collars. Factory coat all metal railings, except ornamental metals such as brass, bronze, and nickel-silver, with a high performance coating in accordance with AAMA 2605 with a minimum coating thickness of 1.2 mils unless otherwise noted.

B201006 1.5.1 Steel Handrails

Steel handrails, including inserts in concrete, steel pipe conforming to ASTM A 53 or structural tubing conforming to ASTM A 500, Grade A or B of equivalent strength shall be provided. Steel railings shall be of 1 1/2 inches (38 mm) nominal size. Railings shall be hot-dip galvanized, shop primed shop painted for exterior applications.

B201006 1.5.2 Aluminum Handrails

Not used.

B201006 1.5.3 Wood Handrails

Not used.

B201007 EXTERIOR SOFFITS

Exterior soffit system assemblies shall include trim and necessary accessories including high performance coatings, if required. Installation shall be crisp, fit and trim with tight joinery to back-up framing. Soffits shall be designed to be field assembled by lapping side edges of adjacent panels and mechanically attaching through panels to galvanized, non-load bearing framing conforming to ASTM

A 653 (G60) and ASTM C 645, using concealed fasteners. Provide trim accessories of the same material and finish as the soffit material where soffit abuts other materials.

Use adequate backing material to assure snug joints and even face planes. Where soffits ventilate an attic space, or an otherwise unventilated space, provide a soffit/ridge/louver/ventilator ventilation system with air quantities complying to the IBC. For spaces intentionally not vented, provide sealed soffits to maintain the integrity of the air barrier and insulating envelope.

B201007 1.1 METAL SOFFIT PANELS

Metal soffit panels shall be factory-formed and factory-finished. Use factory-applied sealant in side laps

B201007 1.2 VINYL SOFFIT SYSTEM

Not used.

B201007 1.3 EXTERIOR GYPSUM BOARD SYSTEM

Not used.

B201008 WALL FLASHING

Flashing shall be aluminum or stainless steel or copper. Aluminum shall conform to ASTM B 209/B 209M, 0.040 inches (1.27 mm) thick and shall be coated to match the item flashed. Stainless steel shall conform to ASTM A 167, type 302 or 304, 2D finish, fully annealed, dead soft temper. Thickness shall be a minimum of 0.018 inches (0.4572 mm). Copper shall conform to ASTM B 370, cold rolled temper. Thickness of copper shall be 20 ounces per square foot (6.125 Kg/m2).

B201009 EXTERIOR PAINTING AND SPECIAL COATINGS

Not used.

B201009 1.2 ADDITIONAL EXTERIOR PAINT AND COATING SYSTEM REQUIREMENTS

In addition to the MPI Decision Tree, comply with the following paint system requirements:

B201009 1.2.1 Pavement Coatings

a. EXT 3.2 Concrete Horizontal Surfaces

Normal/ Aggressive Condition; Pigmented;

Provide road and parking lot pavement marking in accordance with UFGS 32 17 23.00 20, *Pavement Markings.*

b. EXT 10.2 Bituminous Coated Surfaces

Normal/ Aggressive Condition; Pigmented;

Provide road and parking lot pavement marking in accordance with UFGS 32 17 23.00 20, *Pavement Markings.*

B201009 1.2.2 Hot Metal Surfaces (including smokestacks),

Not used.

B201010 EXTERIOR JOINT SEALANT

Sealant joint design, priming, tooling, masking, cleaning and application shall be in accordance with the general requirements of *Sealants: A Professionals' Guide*from the Sealant, Waterproofing & Restoration Institute (SWRI). All sealant shall conform to ASTM C 920.

Joints shall include proper backing material for sealant support during application, control of sealant depth, and to act as a bond breaker. Use filler boards, backer rods and bond breaker tapes. Provide priming unless specifically not recommended by the sealant manufacturer. Applied sealant shall be tooled. Tooling shall not compact sealant too less than the minimum sealant thickness required. Mask adjacent surfaces to control sealant boundaries during sealant application.

B201011 SUN CONTROL DEVICES (EXTERIOR)

Not used.

B201012 SCREEN WALL

Screen walls include attached or unattached walls adjacent to the main building. Screen walls shall conform to the applicable portions of Section B201001 EXTERIOR CLOSURE.

B201090 OTHER EXTERIOR WALLS

B2020 EXTERIOR WINDOWS

Standard windows shall be in compliance with ANSI/AAMA/WDMA 101, SWI SWS, UFC 4-010-01, and the design criteria of ASCE 7 for glazed windows to meet the Building Code.

Provide windows that meet the requirements of AAMA/WDMA 101/I.S.2. Commercial (non-residential) construction shall utilize windows that comply with AAMA designation HC-40 (60 psf - 293 Kg/m2) for windows that do not have to meet anti-terrorism requirements, and HC-60 (90 psf - 439 Kg/m2) for commercial windows that are required to meet anti-terrorism requirements, unless the wind pressure or blast pressure on the building exceeds the design pressure for these minimum windows. Determine the wind pressure on the building by converting the ASCE-7 basic wind speed to wind pressure and find the corresponding structural test pressure in the AAMA specific requirements or optional performance tables. If the residential window wind pressure exceeds of 38 psf (185 Kg/m2) or the commercial (non-residential) window wind pressure exceeds 60 psf (293 Kg/m2) or exceeds 90 psf (439 Kg/m2), utilize a higher AAMA designated window complying with the calculated wind pressure. Anti- Terrorism window systems (including connections) shall meet the testing requirements of UFC 4-010-01 when tested in accordance with ASTM F1642.

Comply with ASTM E 2112 and with flashing and weather-resistive barrier manufacturers' recommendations to install windows in framed wall construction. Comply with window flashing details from BIA for masonry back-up and veneer walls. Engineer and install window cleaning access and anchorage to the exterior wall for facilities over three stories tall without interior window cleaning access from pivoting or tilting sash. Provide anchors in accordance with OSHA standard 29 CFR Section 1910.66.

Windows shall be provided with sills on the exterior and stools on the interior of the opening. Sills shall be special shape or cut unit masonry or precast concrete in masonry exterior construction and extruded aluminum or aluminum-wrapped wood framing or formed metal in other construction. Positively slope sills away from windows. Window stools shall be slate or solid polymer for commercial construction and painted wood for residential construction.

Comply with UFC 4-010-01 Change 1, 2013 DoD Minimum Antiterrorism Standards for Buildings and Mil Hdbk 1013/1A Design Guidance for Physical Security of Facilities.

B202001 WINDOWS

Exterior windows shall consist of fixed sash used singly and in multiples. Provide jamb support for larger windows where recommended by manufacturer. Metal windows with insulating glass shall have thermally broken frames and sash.

Provide glazing in exterior windows in accordance with section B202004 EXTERIOR GLAZING.

The entire floor/building is a CAA and shall require treatment (opaque and drapes) to cover day/night operations. All windows within the facility shall be made opaque and equipped with blinds, drapes, or other coverings. Windows that are less than 18 feet above finished grade measured from the bottom of the window, or are easily accessible by means of objects directly beneath the windows, shall be locked at all times. The locking mechanism and window construction shall be such as to provide indications of any attempt of forced entry.

B202001 1.1 STANDARD WINDOW SYSTEMS

B202001 1.1.1 Steel Windows

Not used.

B202001 1.1.2 Aluminum Windows

Conform to ANSI/AAMA/WDMA 101. Factory finish aluminum windows and provide with aluminum frame screens with aluminum mesh at operable sash, hardware and locks, and tinted glazing. Aluminum screens shall comply with ANSI/SMA 1004.

Exposed aluminum surfaces shall be factory finished with an AA 45 anodic coating or an AAMA organic coating. Provide a minimum of architectural Class II anodized coating or a baked enamel finish conforming to AAMA 2604 for residential construction. Provide a minimum of architectural Class I anodized coating or a high-performance organic coating conforming to AAMA 2605 for non-residential (commercial) construction. AAMA coatings shall have a total dry film thickness of 1.2 mils.

B202001 1.1.3 Security Windows

Security windows delay forced entry into the building through the windows. In addition to meeting the requirements of AAMA 101, windows designated "resistance to forced entry" shall conform to the requirements of AAMA 1302.

B202001 1.1.4 Plastic Windows, Factory Finish

Not used.

B202001 1.1.5 Wood Windows

Not used.

B202002 STOREFRONTS

Not used.

B202003 CURTAIN WALLS

B202003 1.1 GLAZED CURTAIN WALL SYSTEM REQUIREMENTS

Not used.

B202004 EXTERIOR GLAZING

Provide setting and sealing materials, stops and gaskets as recommended by the glass or acrylic sheet manufacturer.

Provide warranty for insulating glass units for a period of 10 years against development of material obstruction to vision (such as dust or film formation on the inner glass surfaces) caused by failure of the hermetic seal, other than through glass breakage.

Glazing thickness indicated in the following paragraphs is the minimum acceptable thickness. Provide thicker glazing if required by the manufacturer for the given application.

Comply with UFC 4-010-01 Change 1, 2013 DoD Minimum Antiterrorism Standards for Buildings

B202004 1.1 GLASS

B202004 1.1.1 Clear Glass

Type I, Class 1 (clear), Quality q4 (A).

B202004 1.1.2 Heat-Absorbing Glass

ASTM 1036, Type I, Class 2 (heat absorbing and light reducing), Quality q3 (select), 1/4 inch (6 mm) thick, with a light transmittance of approximately 45 percent and total solar transmittance of not more than 50 percent for 1/4 inch (6 mm) thickness. Use warm color tint for warm color frames and cool color tints for white and gray frames.

B202004 1.1.3 Wire Glass

Not used.

B202004 1.1.4 Laminated Glass

ASTM 1172, fabricated from two pieces of Type I, Class 1, Quality q3 glass laminated together with a clear 0.030 inch (0.75 mm) thick polyvinyl butyral interlayer. The total thickness shall be nominally 1/4 inch (6 mm). Laminated glass used for anti-terrorism window assemblies must be a minimum of 1/4 inch (6 mm) thickness.

B202004 1.1.5 Insulating Glass Units

Provide insulated glass using a combination of the interior and exterior glazing materials listed below filled with a thermal resistive gas. The air space shall be sized to meet the thermal requirements below but not less than one half inch(12 mm) for non-residential construction and one quarter inch(6 mm) minimum for residential construction.

Provide active solar control glazing by using tinting, maximum thermal resistance, special coatings to meet Energy Star climate zone and window type requirements(including frames), and comply with the performance characteristics below. Provide an active low-emissivity coating on glass surface number 2 (the inside surface of the exterior glass pane).

If the building is located in a heat dominated climate zone, the facility is designed to utilize solar heat gain to augment the HVAC system, and the window overhang design prohibits excessive solar gain; a passive low-emissivity coating may be used to accommodate the design. Occupied spaces adjoining passive low-emissivity coated glass must be designed for comfortable use of the space.

Provide two panes of glass separated by a dehydrated airspace and hermetically sealed. Dimensional tolerances shall be as specified in IGMA TR-1200. The units shall conform to ASTM E 773 and ASTM E 774, Class A. Provide primary seal, secondary seal, and spacers to eliminate moisture and hydrocarbon vapor transmission into airspace. Warranty insulating glass units against development of material obstruction to vision (such as dust, fogging, or film formation on the inner glass surfaces) caused by failure of the hermetic seal for a 10-year period following acceptance of the work.

The interior glass pane shall be one of the following:

1. Typically ASTM C 1036, Type I, Class 1, Quality q4, minimum 1/4 inch (6 mm) thick;
2. ASTM C 1048, Grade B (fully tempered), Style I (uncoated), Type I, Class 1 (transparent), Quality q4, minimum 1/4 inch (6 mm) thick when required by ANSI Z97.1 or possible human impact is anticipated;
3. ASTM C 1172, laminated glass as specified above, when required by antiterrorism requirements.

The exterior glass pane shall be one of the following:

1. Typically ASTM C 1036, Type I, Class 2 (tinted heat absorbing or reflective), Quality q4, minimum 1/4 inch (6 mm) thick;
2. ASTM C 1048, Grade B (fully tempered), Style I (uncoated), Type I, Class 2 (tinted heat absorbing or reflective), Quality q4, minimum 1/4 inch (6 mm) thick when required by ANSI Z97.1 or possible human impact is anticipated.

Insulating glass performance for active solar control using low-emissivity coatings:

1. Visible Light Transmission, 66% or lower

2. Outdoor Light Reflectance, 11% or greater

3. Solar Heat Gain Coefficient, .36 or lower

4. Winter U-Value, .35 Btu/square foot x hr x degree F or lower for residential construction and .29 Btu/square foot x hr x degree F or

lower for all other types of construction.

B202004 1.1.6 Tempered Glass

ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated), Type I, Class 1 (transparent) or 2 (tinted heat absorbing, Quality q3, 1/4 inch (6 mm) thick.

B202004 1.1.7 Bullet-Resisting Glass

Not used.

B202004 1.1.8 Patterned Glass

Not used.

B202004 1.1.9 Spandrel Glass

Not used.

B202004 1.1.10 Spandrel Glass with Adhered Backing

Not used.

B202004 1.2 PLASTIC GLAZING

Not used

B202004 1.3 FRAGMENT RETENTION FILM FOR GLAZING

Not used.

B202090 OTHER EXTERIOR WINDOWS

B202090 1.1 OPERABLE TRAY PASS WINDOWS

Not used.

B2030 EXTERIOR DOORS

Exterior doors shall be heavy duty insulated steel doors and frames for service access. Door frames shall be welded. Corner knockdown door frames are not permitted.

Use heavy-duty overhead holder and closer to protect doors from wind damage. Provide kickplates on the inside face of all exterior doors.

Weather-protect all exterior doors and related construction with low infiltration weatherstripping and sealants. Provide threshold with offset to stop water penetration while maintaining accessibility compliance.

Conform to the design criteria of ASCE 7.

See section B203008, EXTERIOR DOOR HARDWARE, for door hardware requirements.

B203001 SOLID DOORS

B203001 1.1 STEEL DOORS

Hardware preparation shall be in accordance with ANSI A250.6. Doors shall

be hung in accordance with ANSI A115.16.

B203001 1.1.1 Steel Doors

Steel doors shall be ANSI A250.8, Level 4, exterior, main entry doors, with a physical performance level of, Model 1 or 2.

Doors may be specified to be insulated. Door selection shall be specified in the project program according to the following:

a. Heavy Duty Doors - physical performance Level B, Model 2

B203001 1.1.2 Residential Insulated Steel Entry Door Systems

Not used.

B203001 1.1.3 Insulation Cores

Insulated cores shall be of type specified, and provide an apparent U-factor of .48 in accordance with SDI 113 and shall conform to:

a. Rigid Polyurethane Foam: ASTM C591, Type 1 or 2, foamed-in-place or in board form, with oxygen index of not less than 22 percent when tested in accordance with ASTM D2863; or
b. Rigid Polystyrene Foam Board: ASTM C578, Type I or II; or
c. Mineral board: ASTM C612, Type I.

B203001 1.1.4 Accessories

a. Louvers shall comply with SDI 111-C, shall be stationary, sight-proof type. Use lightproof louvers if function of room requires darkness. Louver frames shall be 20-gage steel with louver blades minimum 24 gage.
b. Astragals: For pairs of exterior steel doors that shall not have aluminum astragals or removable mullions, provide overlapping steel astragals with the doors.
c. Moldings: Provide moldings around glass of exterior doors and louvers. Provide non-removable moldings on outside of exterior doors. Secure inside moldings to stationary moldings, or provide snap-on moldings. Muntins shall interlock at intersections and shall be fitted and welded to stationary moldings.

B203001 1.1.5 Standard Steel Frames

ANSI A 250.8. Form frames with welded corners for installation in exterior walls. Form stops and beads of 20 gage steel. Frames shall be set in accordance with ASTM A250.11.

B203001 1.1.6 Anchors

Anchor all frames with a minimum of three jamb anchors and base steel anchors per frame, zinc-coated or painted with rust-inhibitive paint, not lighter than 18 gage. Mortar infill frames in masonry walls, and infill with gypsum board compound at each jamb anchor in metal frame walls. Only use surface exposed bolted anchors in concrete walls.

B203001 1.1.7 Finishes

a. Exterior Doors, Factory-Primed and Field Painted Finish – Doors

and frames shall be factory primed with a rust inhibitive coating as specified in ANSI A250.8. Factory prime doors on six sides of the door. Manufacturer's primer and field painting shall be compatible with finish system in the paragraph "EXTERIOR PAINTING AND SPECIAL COATINGS".

b. Exterior Doors Galvanized Finish - Shall be Commercial Quality, Coating Class A, zinc coating in accordance with ASTM A 591 when facility is located further than 300 feet (91 meters) from the ocean. When facility is located within 300 feet (91 meters) of the ocean, provide G60 galvanized coating in accordance with ASTM A 924/A 924M and ASTM A 653/A 653M.

B203001 1.2 WOOD DOORS

Not used.

B203002 GLAZED DOORS

B203002 1.1 ALUMINUM GLAZED DOORS

Not used.

B203004 OVERHEAD AND ROLL-UP DOORS

Not used.

B203004 1.1 ROLLING SERVICE DOORS AND GRILLES

Not used.

B203004 1.2 SECTIONAL OVERHEAD DOORS

Not used.

B203005 HANGAR DOORS

Not used.

B203008 EXTERIOR DOOR HARDWARE

Provide the services of an Architectural Hardware Consultant(AHC), Certified Door Consultant(CDC), or an Electrified Hardware Consultant(EHC) to assist the Designer of Record in preparation of the door hardware schedule and product selection. The hardware consultant shall sign and seal the door hardware construction submittal. Provide, as far as possible, door hardware of one manufacturer’s make. All hardware shall be clearly and permanently marked by the manufacturer where it shall be visible after installation. Doors must meet the security requirements of IAS Publication for the CAA boundaries.

B203008 1.1 HINGES

BHMA A156.1, size to match door size, but in no case less than 4-1/2 x 4-1/2 inches (114 mm x 114 mm), with non-removable pin and anti-friction bearing hinges. Use two hinges for doors 60 inches (1500 mm) or less in height and one additional hinge for each additional 30 inches (750 mm), or fraction thereof, in door height.

B203008 1.2 PIVOTS

Not used.

B203008 1.3 LOCKS AND LATCHES

Commercial (all construction except family housing) buildings locks and latches shall be BHMA A 156.13, Series 1000, Operational Grade 1, Security Grade 2 for exterior building entrances and other high-use doors not requiring exit devices. Use BHMA A 156.2, Series 4000, Grade 1 for all Commercial buildings locks and latches not using Series 1000 hardware.

B203008 1.3.1 Combination Locks for Sensitive Areas and Vault Doors

If required for exterior use, see C102007 1.1.6 "Combination Locks" for the specification. This installation may require special weather protection.

B203008 1.3.2 Pushbutton Combination Locks

Where required, provide a heavy-duty, mechanical combination lockset with 5 pushbuttons, standard-sized knob or lever, 3/4 inch (19 mm) deadlocking latch with 2-3/4 inch (70 mm) back-set. Provide deadbolt key override option. Safelock, Simplex, and Venn are acceptable manufacturers. Provide a hardware grade equivalent to Grade 1, series 4000. Include a 5-year parts and labor warranty.

B203008 1.4 CARD KEY SYSTEM

Not used.

B203008 1.5 EXIT DEVICES

BHMA A 156.3, Grade 1. Provide on exit doors if it is anticipated that more than 50 people may use a particular door in an emergency exit situation. Touch bars shall be provided in lieu of conventional crossbars and arms. Use manufacturer's integral touch bars in aluminum storefront doors.

B203008 1.6 EXIT LOCKS WITH ALARM

BHMA A 156.5.

B203008 1.7 CYLINDERS AND CORES

If required, provide cylinders and cores for new locks, including locks provided under other sections of this specification. Cylinders and cores shall have seven pin tumblers. Cylinders shall be products of one manufacturer, and cores shall be the products of one manufacturer. Rim cylinders, mortise cylinders, and knobs of bored locksets shall have interchangeable cores, which are removable by special control keys. Stamp each interchangeable core with a key control symbol in a concealed place on the core.

B203008 1.8 KEYING SYSTEM

Keying system shall be a master key system for the facility, unless more than one tenant/tenant command shall reside in a facility, or a grand master keying system, or great, grand master keying system if multiple tenants or buildings are required. The keying system shall be an extension of the existing keying system for additions to existing facilities. The keying system shall allow for construction interchangeable cores when subcontractors require keys during construction. If required, provide a key cabinet.

The Contractor shall coordinate a keying system meeting. The Contractor's Project Manager, Superintendent, Hardware Subcontractor, Electrical Subcontractor (if keying hardware is electric), Designer of Record,

Contracting Officer, Public Works Base Hardware Specialist, and the Using Activity shall attend this meeting to establish the keying system for the project. This meeting is intended to identify base limitations, the necessary security, and access control within the facility. The meeting shall produce a marked up copy of the floor plan indicating the doors to receive locks and the doors to be keyed together, and any master keying or grand master keying.

B203008 1.9 KEYS

Furnish one file key, one duplicate key and one working key for each key exchange and for each master and grand master keying system.

B203008 1.10 LOCK TRIM

Cast forged or heavy wrought construction and commercial plain in design.

B203008 1.10.1 Knobs and Roses

Not used.

B203008 1.10.2 Lever Handles

Provide lever handles in lieu of knobs as required by DoD ABAAS. Lever handles shall meet the test requirements of BHMA A 156.13 for mortise locks. All lever handles (mortise or cylinder) shall be the freewheeling type.

B203008 1.11 DOOR BOLTS

BHMA A 156.16, Grade 1. Provide two flush bolts for each inactive leaf of a pair of doors.

B203008 1.12 CLOSERS

BHMA A 156.4, Series C02000, Grade 1, with PT 4C, 1-1/2 inch piston, heavy duty forged arm, full size case. Provide closers for all exterior doors, fire-rated doors, corridor doors, stairway doors, and secure area doors, for non-residential (commercial) construction, as a minimum.

B203008 1.13 OVERHEAD HOLDERS

BHMA A 156.8, Grade 1. Provide for exterior doors for non-residential (commercial) construction.

B203008 1.14 DOOR PROTECTION PLATES

Kick plates shall conform to BHMA A 156.6. Provide kick plates on all doors with closers and all doors leading to corridors or circulation spaces. Provide armor plates on all doors to receive cart traffic. Provide mop plates on all doors in rooms with a mopable floor finish that do not have kick plates.

B203008 1.15 DOOR STOPS AND SILENCERS

BHMA A 156.16. Provide silencers, Type L03011, three per single door and four per double door, for doors in hollow metal frames.

B203008 1.16 THRESHOLDS

BHMA A 156.21. Provide thresholds with offset to stop water infiltration,

while maintaining accessibility requirements.

B203008 1.17 WEATHERSTRIPPING

BHMA A 156.22. Air leakage of weatherstripped doors shall not exceed 0.5 CFM of air per square foot of door for residential doors, and 1.25 CFM for non-residential doors (unless a more restrictive infiltration level is specified).

B203008 1.18 RAIN DRIPS

For all exterior doors that open to the outside, where the door swing area is not covered by an overhang, provide top and bottom rain drips complying with ANSI R3Y535 as a minimum. Greater weathersealing may be required by the geographic location of the project.

B203008 1.19 FINISHES

One of the following hardware finish systems shall be provided, and match the interior door hardware:

a. BHMA A156.18. Hardware shall have BHMA 630 finish (satin stainless steel), unless specified otherwise. Provide items not manufactured in stainless steel in BHMA 626 finish (satin chromium plated) over brass or bronze, except surface door closers which shall have aluminum paint finish, and except steel hinges which shall have BHMA 652 finish (satin chromium plated). Hinges for exterior doors shall be stainless steel with BHMA 630 finish or chromium plated brass or bronze with BHMA 626 finish. Exit devices may be provided in BHMA 626 finish in lieu of BHMA 630 finish. Exposed parts of concealed closers shall have finish to match lock and door trim. Hardware for aluminum doors shall be finished to match the doors.
b. BHMA A156.18. Hardware shall have BHMA 612 finish (satin bronze), unless specified otherwise. Surface door closers shall have bronze paint finish. Steel hinges shall have BHMA 639 finish (satin bronze plated). Exposed parts of concealed closers shall have finish to match lock and door trim. Hardware for aluminum doors shall be finished to match the doors. Hardware showing on interior of bathrooms, shower rooms, toilet rooms, washrooms, laundry rooms, and kitchens shall have BHMA 629 finish (bright stainless steel) or BHMA 625 finish (bright chromium plated).

B203090 OTHER EXTERIOR SPECIALTY DOORS

Where required, provide special function exterior doors and gates and assemblies required for the proper operation and functioning of the facility. Exterior doors system may include factory-finished or painted doors and frames.

B203090 1.1 AUTOMATIC ENTRANCE DOORS

B203090 1.1.1 Automatic Swinging Entrance Door Controller

Not used.

B203090 1.1.2 Automatic Sliding Entrance Door Controller

Not used.

-- End of Section --

SECTION B30
ROOFING

B30 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

B30 1.1 DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

Industry standards, codes, and Government standards that are referenced in the section text that are not found in the Unified Master Reference List (UMRL) in the Construction Criteria Base (CCB) at the Whole Building Design Guide Website are listed below for basic designation identification. Comply with the required and advisory portions of the current edition of the standard at the time of contract award.

B30 1.1.1 Government Standards

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-101-01 Architecture UFC 3-110-03 Roofing)

B30 1.2 PERFORMANCE VERIFICATION AND ACCEPTANCE TESTING

Verification of satisfactory roofing system performance shall be via Performance Verification Testing, and by field inspection as detailed in this section of the RFP. All performance and acceptance testing including final/warranty inspections shall be witnessed by the Contracting Officer on all significant roof projects.

A significant roof is defined as a single or group of buildings with greater than 15,000 square feet (1,400 m2) of roof area; or a roof with area that is allocated to energy generating equipment such as solar hot water panels or photovoltaic panels; or where building equipment (excluding HVAC), use, or safety causes multiple roof penetrations.

B30 1.2.1 Pre-Roofing Design Conference

Project roof meets the definition of a significant roof above, provide a Pre-Roofing Design Conference. Schedule this conference prior to the roof design and roof layout of the facility. Attendee's shall include the DOR, DQC Manager, Roof Design Assurance Consultant (if applicable), Commissioning Authority, and Subcontractors directly responsible for installing the roof and equipment that shall be mounted on the roof. Discuss and coordinate the following as a minimum:

a. Sustainable systems to be mounted on the roof and interface with building systems and utilities,
b. Allocation of space on the roof for different functions,
c. Impact of sustainable systems and building orientation to the suns path,
d. Waterproofing, flashing, and future reroofing considerations of the facility resulting from sustainable systems inclusion on the roof,
e. Measures taken to eliminate penetration of the roof membrane. NRCA roof details proposed for each necessary penetration,
f. Structural requirements to support roof mounted equipment,
g. Aesthetic impact of roof mounted equipment on the facility and measures taken to mitigate negative appearances of equipment.
h. Maintenance and Commissioning requirements of the roof and roof mounted equipment to facilitate final testing and provide proper access and roof membrane protection.

B30 1.2.2 Pre-Roofing Conference

Prior to beginning roofing work, the Contractor shall hold a Pre-Roofing Conference with the Contracting Officer. Attendees' shall include personnel directly responsible for the roofing systems design and construction, DQC Manager, Commissioning Authority, as well as the roofing manufacturer's technical representative, and Roof Design Consultant (if applicable). At this time the Contractor shall address any conflicts between the proposed roofing system, the design documents, and the scheduling of work / workers (trades) to assure a watertight roofing installation. Resolutions shall be obtained and documented in writing prior to the start of roofing work. A quality assurance/quality control plan shall also be established at this time, inclusive of the roofing manufacturer's recommended testing and inspections procedures, and in accordance with industry standard guidelines.

Contractor shall provide the following additional information at the pre-roofing conference: Procedure for the roof manufacturer’s technical representative's onsite inspection and acceptance of the roofing substrate, roof insulation, and installation of the roofing in accordance with the roof system warranty, the name of the manufacturer's technical representatives, the frequency of the onsite visits, copies of the roof status reports from the technical representatives to the roof manufacturer, and pertinent structural details to the roofing system.

B30 1.2.3 Roof Design Assurance

If the project roof meets the definition of a significant roof above, the Contractor must utilize the services of a Registered Roof Consultant (RRC) certified by the Roof Consultant Institute, or a Registered Professional Architect or Engineer who specializes in roofing, to approve the roof design. The roof consultant must derives his or her principal income from roofing design on the quality control staff of the Design or Design-Build team. The roof consultant must verify in writing that the design for the project is in accordance with

the current edition of NRCA *Roofing and Waterproofing Manual*, UFC 3-110-03, the RFP, and standard industry practices and building codes.

B30 1.2.4 Low Slope Roof Drain Test

Plug roof drains and fill with water to the edge of the drain sump for 24 hours. Not all drains shall be tested at one time. Measure water at the beginning and end of the 24 hour time period to ensure there is no leakage. Repeat testing until all leaks have been located, corrected, and no leaks found.

B30 1.2.5 Tests for Surface Dryness

Prior to application of roofing materials, perform surface dryness tests in presence of DOR. Asphalt of 350 to 400 degrees F (177 to 204 degrees C) shall not foam upon contact with substrate. After foaming test is performed, test for strippability (adherence).

B30 1.2.6 Quality Control Program

Contractor shall establish a quality control program to assure adherence to NRCA recommended Quality Control Guidelines for the Application of Roofing Systems and other specified application requirements. Compliance with UFGS Section 01 45 00.05 20, *Design and Construction Quality Control*, is required.

B30 1.3 DESIGN SUBMITTALS

Design submittals shall be in accordance with Z10, *General Performance Technical Specifications*, UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures* and UFC 3-101-01, *Architecture*.

B30 1.4 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) shall approve the following submittals as a minimum:

Test reports, color samples, certificates of conformance, warranties, close out documentation, and manufacturer's instructions for application and installation on all products used on the roof. Products used on the roof consist of but are not limited to structural deck, insulation, membrane or panels, Standing Seam Metal Roofing (SSMR), flashing, fasteners, nailers, accessories and equipment support curbs or equipment support stands for solar equipment, equipment roof plan, maintenance access and paths.

B3010 ROOF COVERINGS

Roof coverings shall comply with the requirements of UFC 3-110-03, *Roofing*, and NRCA, *Roofing and Waterproofing Manual* found at http://www.nrca.net/rp/technical/manual/manual.aspx as the primary NAVFAC roofing criteria. Roof selection shall comply with UFC 3-330-02A, *Design: Commentary on Roof Systems*. Determine wind uplift using wind speed in accordance with ASCE-7.

Submit the INFORMATION CARD (see "Form 1" at the end of this section) Provide a typewritten card, laminated in plastic and framed in a weather-tight frame, or a photoengraved 0.032-inch (0.81 mm) thick aluminum card for the roof. This card shall be a minimum size of 8 1/2 x 11 inch (216 x 280 mm) and contain information listed in the attached Form 1. Install the card where directed. Furnish framed card and a duplicate card to the Designer of Record.

B301001 STEEP SLOPE ROOF SYSTEMS

Not used.

B301002 LOW SLOPE ROOF SYSTEMS

B301002 1.1 GENERAL REQUIREMENTS

a. Warranty (Except SSSMRS) - Furnish the roofing system manufacturer's materials and workmanship warranty for the roofing system. The warranty period shall not be less than 20 years from the date the Government acceptance of the work. The warranty shall be issued directly to the Government and shall not be limited in dollar value. The system warranty shall include roofing membrane, insulation, flashings, accessories and attachments.
b. Wind Uplift - The complete roof covering assembly shall be rated in accordance with FM P7825, capable of withstanding an uplift pressure as determined by ASCE-7, and FM I-49 for perimeter and flashing attachment.
c. Fire Safety - The complete roof covering assembly shall meet ASTM E 108, Class 1A or UL 790, Class A; and be listed as Fire-Classified roof deck construction in the UL RMSD, or Class I roof deck construction in FM P7825. All components of the system shall be UL labeled. Complete roof covering assembly shall:1) Be Class A or B rated in accordance with ASTM E 108 , FM 4470, or UL 790; and2) Be listed as part of Fire-Classified roof deck construction in UL RMSD, or Class I roof deck construction in FM P7825c.
d. Traffic Pads - Provide on roof system to protect roof from foot traffic. Provide traffic pads from roof access to and around roof mounted mechanical equipment and underneath removable mechanical equipment access panels. Traffic pads shall be of compatible material to roof.
e. Cool Roof - If required in RFP Part 3 comply with UFC 3-110-03, Roofing Chapter 1, Cool Roofs. Cool roof design must follow the requirements in UFC 3-110-03 "Roofing" Chapter 1, Cool Roofs.

B301002 1.2 BUILT-UP ASPHALT ROOFING

Not used.

B301002 1.3 ETHYLENE PROPYLENE DIENE MONOMER (EPDM)

Not used.

B301002 1.4 MODIFIED BITUMINOUS MEMBRANE ROOFING

This paragraph covers the requirements for modified bituminous membrane sheet roofing, SBS modified for hot mopping or cold applied, with a minimum slope of 1/2 inch per foot. Contractor shall provide a complete modified bitumen roofing system, to include insulation, flashings, felts, primers and adhesives as recommended for the installation either on a nailable (plywood or metal deck) or non-nailable (concrete) substrate, from the materials below. All work must follow the NRCA RoofMan guidelines and standards stated within this Section.

B301002 1.4.1 Materials

a. Asphalt - ASTM D 312, Type III or IV.
b. Ply Materials -

1) Ventilating Base Sheet (VB) – ASTM D 4897, Type II

2) Base Sheet (GB) – ASTM D 4601, Type II without perforations

3) SBS Modified Base Sheet (MB) – ASTM D 6162 (with combined polyester and glass fiber reinforcing), Type II, Grade S weighing 58 lbs./100sf and a thickness of 85 mils), ASTM D 6163 with glass fiber reinforcing), Type II, Grade S (weighing 58 lbs./100sf and a thickness of 85 mils), ASTM D 6164 (with polyester reinforcing), Type II, Grade S (weighing 70 lbs./100sf and a thickness of 115 mils).

4) SBS Interply Sheet: ASTM D 6162, ASTM D 6164, ASTM D 6163, Type I or II, Grade S, minimum 80 mils (2.0 mm) thick.

5) SBS Bitumen Cap Sheet (RSS) – ASTM D 6162 (with combined polyester and glass fiber reinforcing), Type II, Grade G (weighing 90 lbs./100sf, and a thickness of 130 mils), ASTM D 6163 (with glass fiber reinforcing), Type II, Grade G (weighing 90 lbs./100sf, and a thickness of 130 mils), ASTM D 6164 (with polyester reinforcing), Type II, Grade G (weighing 90 lbs./100sf, and a thickness of 130 mils). Provide polyester reinforced cap sheet on roofs expected to experience high levels of traffic, on roofs with congested equipment, where equipment is expected to receive regular service or high maintenance, and where other service conditions warrant.

c. Mineral Roofing Granules - Factory applied, requiring no further coating.
d. Primer - ASTM D 41
e. Asphalt Roof Cement - ASTM D 4586, Type II for vertical surfaces, Type I for horizontal surfaces.
f. Fasteners - Provide non-corrosive fasteners meeting the requirements of FM A/S4470.
g. Asphalt Adhesive - ASTM D 4479, Type III.
h. Reflective Coating - 100% Acrylic Elastomeric with Energy Star Rating exceeding the requirements of ASTM D-6083. Coating shall be intended for use as a roof topcoat.

B301002 1.5 STRUCTURAL STANDING SEAM METAL ROOFING

Not used.

B301003 ROOF INSULATION & FILL

The insulation system shall be coordinated with the mechanical design to suit the energy requirements of the facility.

B301003 1.1 MINERAL FIBER BLANKET INSULATION

Not used.

B301003 1.2 ROOF AND DECK INSULATION

This paragraph covers the requirements for insulation materials used below the roofing systems.

B301003 1.2.1 Insulation Types

Roof insulation shall have an R-value determined per ASHRAE Standard 90.1 (latest edition) and be one or an assembly of a maximum of three of the following materials and compatible with attachment methods for the specified insulation and roof system:

a. Expanded Perlite Board – ASTM C 728, minimum thickness of 3/4" boards, and 4' by 4' board size.
b. Polyisocyanurate Board – ASTM C 1289, with a minimum compressive strength of 138 kPa (20 psi), unless overlaid with another board with a comparable or greater compressive strength. Use insulation facer as recommended by the roofing material manufacturer. Board size shall be restricted to 4' by 4' when applied in direct contact with concrete deck.
c. Composite Boards – ASTM C 984 (Polyisocyanurate-perlite) or ASTM C 1050 (Polystyrene-wood fiberboard), Type III, Grade 1, Class A, or ASTM C 1289, Type V, oriented strand board or waferboard on one side and fibrous felt or glass fiber mat membrane or aluminum foil on the other.
d. Wood Fiber (high density) - ASTM C 208

B301003 1.2.2 Tapered Roof Insulation

On portions of the roof where the sloping of structure does not allow the minimum slopes, provide a factory tapered roof insulation system to provide positive drainage of roof system, and to include drainage around curbs, penetrations, and projections through the roof plane. For new construction, provide one layer of the tapered roof insulation assembly factory tapered to a slope not less than 1/2" per foot (13 mm per 300 mm). For re-roofing applications where slopes of 1/2" per foot (13 mm per 300 mm) cannot be achieved, provide a minimum of 1/4" per foot (6.35 mm per 300 mm) slope.

B301003 1.2.3 Protection Board

Provide for use as a thermal barrier (underlayment) or protection board for hot-mopped applications.

B301003 1.2.4 Glass Mat Gypsum Roof Board

ASTM C 1177, with a 0 Flame Spread and 0 Smoke Developed when tested in accordance with ASTM E 84.

B301003 1.2.5 Bitumens

a. Asphalt Primer - ASTM D 41
b. Asphalt - ASTM D 312, Type III or IV
c. Asphalt Roof Cement - ASTM D 4586, Type I for horizontal surfaces, Type II for vertical and sloped surfaces. Roof cement shall be compatible with membrane materials.

B301003 1.2.6 Underlayment

a. Asphalt-Saturated Felt Base Sheet for Single Layer Application - ASTM D 4869, Type II or ASTM D 226, Type II (30 pounds).
b. Polymer-Modified Self-Adhering Bitumen Sheet, 40 mil (1.1 mm) minimum thickness. Provide at roof perimeter, valley and roof penetration locations as a minimum.

B301003 1.2.7 Seal at Penetrations

Provide pre-manufactured flashing components for use in single-ply roofing applications. Seal laps and penetrations to prevent moisture vapor penetration. Adhesives, sealants, prefabricated components and spray foam products may be required.

B301003 1.2.8 Fasteners

Fasteners shall be flat, round or hexagonal steel (not less than 1-3/8"(35 mm) diameter) and 28 gage, or plastic plates (not less than 3 inches (75 mm) in diameter).

Fasteners in lightweight cellular concrete decks shall penetrate at least 1 inch (25 mm) but not more than 1-1/2 inches (32 mm) into the deck. Withdrawal resistance from lightweight cellular concrete deck shall be not less than 40 lbs.(18 kg) each, or 120 lbs. (54 kg) each in metal deck.

Fasteners in steel decks shall be hardened fasteners or screws conforming to FM A/S4470 and listed in FM P7825 for Class I roof deck construction.

Fasteners shall be place to withstand an uplift pressure required by the project program in the field of the roof and FM LPDS 1-49 for perimeter component and flashing attachment.

Roofing Nails - Provide corrosion resistant ring shank nails of sufficient length to penetrate a minimum of 1 inch (25 mm) into wood nailers or so as to provide appropriate embedment in substrate below. Fasteners shall conform to FM A/S4470, and be placed to withstand an uplift pressure of 90 psf (4.3 kPa) conforming to FM P7825, and FM 1-49 for perimeter fasteners.

B301003 1.2.9 Wood Nailers

Wood nailers shall be pressure-preservative-treated in accordance with AWPA M2 Standards, permanently marked or branded, and installed flush with the top of the adjacent insulation board. Separate treated wood nailers from roofing metals with underlayment.

B301003 1.2.9.1 Fasteners

Provide stainless steel, double hot-dipped galvanized or other corrosion resistant fasteners recommended by the treatment manufacturer for use with treated wood.

B301004 FLASHINGS & TRIM

B301004 1.1 FLASHING AND SHEET METAL

This paragraph covers the requirements for flashing and sheet metal work including scuppers, splash pans, and sheet metal roofing. Flashing and sheet metal shall be provided in accordance with roof manufacturer's printed installation instructions and in compliance with NRCA and SMACNA recommendations.

B301004 1.1.1 Materials

Furnish sheet metal items in minimum 8 to 10 foot (2.44 to 3.05 meter) lengths. Sheet metal items include the following: gutters, including hangers; downspouts; counter-flashings; gravel stops and fascias; cap, valley, stepped, base and eave flashings and related accessories.

a. Lead Sheet - Minimum weight 4 pounds per square foot (.19 kPa).
b. Steel Sheet, Zinc-Coated (Galvanized) - ASTM A 653/ A 653M. Galvanized steel items shall have a baked-on, factory applied finish of polyvinylidene fluoride or an equivalent fluorocarbon coating with a minimum thickness of 0.8 to 1.3 mils.

c. Stainless Steel - ASTM A 167, Type 302 or 304, 2D finish, fully annealed, dead-soft temper.
d. Aluminum Alloy Sheet and Plate - ASTM B 209
e. Pre-Finished Aluminum - Provide trim, gravel stops and fascias of Pre-finished aluminum. Finish shall be baked-on factory applied color coating of polyvinylidene fluoride (PVF2) or other equivalent fluorocarbon coating with a minimum thickness of 0.8 to 1.3 mils.
f. Aluminum alloy, Extruded Bars, Rods, Shapes, and Tubes - ASTM B 221
g. Solder - ASTM B 32
h. Polyvinyl Chloride Reglet - ASTM D 1784, Type II
i. Asphalt Primer - ASTM D 41
j. Fasteners - Fasteners shall be of the same or compatible metal with the item being fastened. Stainless steel fasteners shall be used to fasten dissimilar materials.

B301004 1.1.2 Field Quality Control

Fabrication and installation of sheet metal items shall be as follows:

a. Install work with watertight and hairline joints, without waves, warps, buckles, fastening stresses, or distortion, allowing for expansion and contraction.
b. Make surfaces to receive sheet metal plumb and true, clean, even, smooth, dry and free of defects and projections that could affect the application.
c. Provide sheet metal flashing in angles formed where roof decks abut walls, curbs, ventilators, pipes, or other vertical surfaces and wherever indicated and necessary to make the work watertight.
d. Provide prefabricated inside and outside corners at all sheet metal intersection pieces. Minimum leg length shall be 12 inches (300 mm), maximum length shall be 18 inches (450 mm).
e. Sheet metal shall be fabricated to conform to the contours of surfaces to which applied.
f. All sheet metal cap flashings shall have waterproof membrane underlayment installed behind or below the metal components.
g. Provide conforming sheet metal closures at all flashing termination conditions.
h. Provide fastenings and accessories as required to provide a securely attached, watertight construction. Cleats shall be a minimum of one gage heavier than the component to be attached.
i. Where sheet metal components are to be embedded in the roofing system, prime both sides of all metal flanges prior to installation.

B301005 SCUPPERS,CONDUCTOR BOXES AND DOWNSPOUTS

Provide scuppers, conductor boxes,and downspouts compatible with roofing material and finish. Concealed (interior) gutters and downspouts are prohibited. The primary and secondary drainage systems shall be sized per applicable Plumbing and Building Codes. Finish shall be baked-on factory applied color coating of polyvinylidene fluoride (PVF2) or other equivalent fluorocarbon coating with a minimum thickness of 0.8 to 1.3 mils.

B301006 ROOF OPENINGS AND SUPPORTS

B301006 1.1 GENERAL REQUIREMENTS

Provide flashings for roof openings and supports as recommended by the NRCA and as specified below:

When existing pitch pans cannot be avoided and must be utilized, insure pitch pan is a preformed pan with minimum 4-inch (100 mm) height and 2-inch (50 mm) flange with 2-inch (50 mm) clearance on all sides of the penetration. Fill bottom 1/3 with non-shrink grout. Fill remainder with pourable elastomeric sealer sloped to drain. For round penetrations, provide a metal umbrella cap clamped to the penetration.

Assure all penetration flashings extend minimum 8 inches (200 mm) above the finished roof surface. Use round shapes to construct equipment supports. Equipment supports should be raised on a continuous curb a minimum of 14 inches (350 mm), but not less than as required by the NRCA.

B301006 1.2 ROOF HATCHES

Not used.

B301006 1.3 GLAZED ROOF OPENINGS

Not used.

B301006 1.4 GUARDS

Provide rails or guards as required by the OSHA, the International Building Code or other applicable safety standards.

B301090 OTHER ROOFING

B301090 1.1 LIGHTNING PROTECTION

Lightning protection component penetrations and attachments shall be sealed and flashed and anchored in a permanent manner and in a manner to avoid the degradation of the watertight integrity of the roof system. Do not cut or otherwise disturb the roof membrane. Mastic seals in the plane of the roof are unacceptable. Anchor plates set in mastic shall be set on roof surface cleaned of aggregate and loose material prior to mastic application.

B301090 1.2 ROOF DRAINS

Provide new drains with dome guards, flashing materials, a new drain clamping ring, and new bolts for anchors.

-- End of Section --

FORMS

ROOFING SYSTEM COMPONENTS

1. Contract Number: _____

2. Building Number and Location: _____

3. NAVFAC Specification Number: _____

4. Deck Type: _____

5. Slope of Deck: _____

6. Insulation Type and Thickness:_____

7. Insulation Manufacturer: _____

8. Vapor Retarder (_____) Yes (_____) No

9. Vapor Retarder Type: _____

10. Roofing Description: _____

    Manufacturer (Name, address, and phone no.): _____

    _____

    Type: _____

    Method of attachment: _____

11. Statement of Compliance or Exception: _____

    _____

    _____

12. Date Roof Completed: _____

13. Warranty Period: _____

14. Roofing Contractor (Name and Address):

    _____

    _____

    _____

15. Prime Contractor (Name and Address):

    _____

    _____

    _____

Contractor's Signature _____ Date: _____

Inspector's Signature _____ Date: _____

Form page 1

CONTRACTOR'S FIVE (5) YEAR NO PENAL SUM WARRANTY FOR STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM

FACILITY DESCRIPTION_____

BUILDING NUMBER:_____

CONTRACT NUMBER:_____

CONTRACTOR

CONTRACTOR:_____

ADDRESS:_____

POINT OF CONTACT:_____

TELEPHONE NUMBER:_____

OWNER

OWNER:_____

ADDRESS:_____

POINT OF CONTACT:_____

TELEPHONE NUMBER:_____

CONSTRUCTION AGENT

CONSTRUCTION AGENT:_____

ADDRESS:_____

POINT OF CONTACT:_____

TELEPHONE NUMBER:_____

Warranty page 1

CONTRACTOR'S FIVE (5) YEAR NO PENAL SUM WARRANTY FOR STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM (continued)

THE SSSMR SYSTEM INSTALLED ON THE ABOVE NAMED BUILDING IS WARRANTED BY _____ FOR A PERIOD OF FIVE (5) YEARS AGAINST WORKMANSHIP AND MATERIAL DEFICIENCES, WIND DAMAGE, STRUCTURAL FAILURE, AND LEAKAGE. THE SSSMR SYSTEM COVERED UNDER THIS WARRANTY SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO, THE

FOLLOWING: THE ENTIRE ROOFING SYSTEM, MANUFACTURER SUPPLIED FRAMING AND STRUCTURAL MEMBERS, METAL ROOF PANELS, FASTENERS, CONNECTORS, ROOF SECUREMENT COMPONENTS, AND ASSEMBLIES TESTED AND APPROVED IN ACCORDANCE WITH ASTM E 1592. IN ADDITION, THE SYSTEM PANEL FINISHES, SLIP SHEET, INSULATION, VAPOR RETARDER, ALL ACCESSORIES, COMPONENTS, AND TRIM AND ALL CONNECTIONS ARE INCLUDED. THIS INCLUDES ROOF PENETRATION ITEMS SUCH AS VENTS, CURBS, SKYLIGHTS; INTERIOR OR EXTERIOR GUTTERS AND DOWNSPOUTS; EAVES, RIDGE, HIP, VALLEY, RAKE, GABLE, WALL, OR OTHER ROOF SYSTEM FLASHINGS INSTALLED AND ANY OTHER COMPONENTS SPECIFIED WITHIN THIS CONTRACT TO PROVIDE A WEATHERTIGHT ROOF SYSTEM; AND ITEMS SPECIFIED IN OTHER SECTIONS OF THE SPECIFICATIONS THAT ARE PART OF THE SSSMR SYSTEM.

ALL MATERIAL DEFICIENCIES, WIND DAMAGE, STRUCTURAL FAILURE, AND LEAKAGE ASSOCIATED WITH THE SSSMR SYSTEM COVERED UNDER THIS WARRANTY SHALL BE REPAIRED AS APPROVED BY THE CONTRACTING OFFICER. THIS WARRANTY SHALL COVER THE ENTIRE COST OF REPAIR OR REPLACEMENT, INCLUDING ALL MATERIAL, LABOR, AND RELATED MARKUPS. THE ABOVE REFERENCED WARRANTY COMMENCED ON THE DATE OF FINAL ACCEPTANCE ON _____ AND WILL REMAIN IN EFFECT FOR STATED DURATION FROM THIS DATE.

SIGNED, DATED, AND NOTARIZED (BY COMPANY PRESIDENT)

_____

(Company President) (Date)

Warranty page 2

CONTRACTOR'S FIVE (5) YEAR NO PENAL SUM WARRANTY FOR STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM (continued)

THE CONTRACTOR SHALL SUPPLEMENT THIS WARRANTY WITH WRITTEN WARRANTIES FROM THE MANUFACTURER AND INSTALLER OF THE SSSMR SYSTEM, WHICH SHALL BE SUBMITTED ALONG WITH THE CONTRACTOR'S WARRANTY. HOWEVER, THE CONTRACTOR WILL BE ULTIMATELY RESPONSIBLE FOR THIS WARRANTY AS OUTLINED IN THE SPECIFICATIONS AND AS INDICATED IN THIS WARRANTY EXAMPLE.

EXCLUSIONS FROM COVERAGE

1. NATURAL DISASTERS, ACTS OF GOD (LIGHTNING, FIRE, EXPLOSIONS, SUSTAINED WIND FORCES IN EXCESS OF THE DESIGN CRITERIA, EARTHQUAKES, AND HAIL).

2. ACTS OF NEGLIGENCE OR ABUSE OR MISUSE BY GOVERNMENT OR OTHER PERSONNEL, INCLUDING ACCIDENTS, VANDALISM, CIVIL DISOBEDIENCE, WAR, OR DAMAGE CAUSED BY FALLING OBJECTS.

3. DAMAGE BY STRUCTURAL FAILURE, SETTLEMENT, MOVEMENT, DISTORTION, WARPAGE, OR DISPLACEMENT OF THE BUILDING STRUCTURE OR ALTERATIONS MADE TO THE BUILDING.

4. CORROSION CAUSED BY EXPOSURE TO CORROSIVE CHEMICALS, ASH OR FUMES GENERATED OR RELEASED INSIDE OR OUTSIDE THE BUILDING FROM CHEMICAL PLANTS, FOUNDRIES, PLATING WORKS, KILNS, FERTILIZER FACTORIES, PAPER PLANTS, AND THE LIKE.

5. FAILURE OF ANY PART OF THE SSSMR SYSTEM DUE TO ACTIONS BY THE OWNER TO INHIBIT FREE DRAINAGE OF WATER FROM THE ROOF AND GUTTERS AND DOWNSPOUTS OR ALLOW PONDING WATER TO COLLECT ON THE ROOF SURFACE. CONTRACTOR'S DESIGN SHALL INSURE FREE DRAINAGE FROM THE ROOF AND NOT ALLOW PONDING WATER.

6. THIS WARRANTY APPLIES TO THE SSSMR SYSTEM. IT DOES NOT INCLUDE ANY CONSEQUENTIAL DAMAGE TO THE BUILDING INTERIOR OR CONTENTS THAT IS COVERED BY THE WARRANTY OF CONSTRUCTION CLAUSE INCLUDED IN THIS CONTRACT.

7. THIS WARRANTY CANNOT BE TRANSFERRED TO ANOTHER OWNER WITHOUT WRITTEN CONSENT OF THE CONTRACTOR; AND THIS WARRANTY AND THE CONTRACT PROVISIONS WILL TAKE PRECEDENCE OVER ANY CONFLICTS WITH STATE STATUTES.

**

Warranty page 3

CONTRACTOR'S FIVE (5) YEAR NO PENAL SUM WARRANTY FOR STRUCTURAL STANDING SEAM METAL ROOF (SSSMR) SYSTEM (continued)

**REPORTS OF LEAKS AND SSSMR SYSTEM DEFICIENCIES SHALL BE RESPONDED TO WITHIN 48 HOURS OF RECEIPT OF NOTICE, BY TELEPHONE OR IN WRITING, FROM EITHER THE OWNER OR CONTRACTING OFFICER. EMERGENCY REPAIRS TO PREVENT FURTHER ROOF LEAKS SHALL BE INITIATED IMMEDIATELY; A WRITTEN PLAN SHALL BE SUBMITTED FOR APPROVAL TO REPAIR OR REPLACE THIS SSSMR SYSTEM WITHIN SEVEN (7) CALENDAR DAYS. ACTUAL WORK FOR PERMANENT REPAIRS OR REPLACEMENT SHALL BE STARTED WITHIN 30 DAYS AFTER RECEIPT OF NOTICE, AND COMPLETED WITHIN A REASONABLE TIME FRAME. IF THE CONTRACTOR FAILS TO ADEQUATELY RESPOND TO THE WARRANTY PROVISIONS, AS STATED IN THE CONTRACT AND AS CONTAINED HEREIN, THE CONTRACTING OFFICER MAY HAVE THE SSSMR SYSTEM REPAIRED OR REPLACED BY OTHERS AND CHARGE THE COST TO THE CONTRACTOR.

IN THE EVENT THE CONTRACTOR DISPUTES THE EXISTENCE OF A WARRANTABLE DEFECT, THE CONTRACTOR MAY CHALLENGE THE OWNER'S DEMAND FOR REPAIRS OR REPLACEMENT DIRECTED

BY THE OWNER OR CONTRACTING OFFICER EITHER BY REQUESTING A CONTRACTING OFFICER'S DECISION UNDER THE CONTRACT DISPUTES ACT, OR BY REQUESTING THAT AN ARBITRATOR RESOLVE THE ISSUE. THE REQUEST FOR AN ARBITRATOR MUST BE MADE WITHIN 48 HOURS OF BEING NOTIFIED OF THE DISPUTED DEFECTS. UPON BEING INVOKED, THE PARTIES SHALL, WITHIN TEN (10) DAYS, JOINTLY REQUEST A LIST OF FIVE (5) ARBITRATORS FROM THE FEDERAL MEDIATION AND CONCILIATION SERVICE. THE PARTIES SHALL CONFER WITHIN TEN (10) DAYS AFTER RECEIPT OF THE LIST TO SEEK AGREEMENT ON AN ARBITRATOR. IF THE PARTIES CANNOT AGREE ON AN ARBITRATOR, THE CONTRACTING OFFICER AND THE PRESIDENT OF THE CONTRACTOR'S COMPANY WILL STRIKE ONE (1) NAME FROM THE LIST ALTERNATIVELY UNTIL ONE (1) NAME REMAINS. THE REMAINING PERSON SHALL BE THE DULY SELECTED ARBITRATOR. THE COSTS OF THE ARBITRATION, INCLUDING THE ARBITRATOR'S FEE AND EXPENSES, COURT REPORTER, COURTROOM OR SITE SELECTED, ETC., SHALL BE BORNE EQUALLY BETWEEN THE PARTIES. EITHER PARTY DESIRING A COPY OF THE TRANSCRIPT SHALL PAY FOR THE TRANSCRIPT. A HEARING WILL BE HELD AS SOON AS THE PARTIES CAN MUTUALLY AGREE. A WRITTEN ARBITRATOR'S DECISION WILL BE REQUESTED NOT LATER THAN 30 DAYS FOLLOWING THE HEARING. THE DECISION OF THE ARBITRATOR WILL NOT BE BINDING; HOWEVER, IT WILL BE ADMISSIBLE IN ANY SUBSEQUENT APPEAL UNDER THE CONTRACT DISPUTES ACT.

A FRAMED COPY OF THIS WARRANTY SHALL BE POSTED IN THE MECHANICAL ROOM OR OTHER APPROVED LOCATION DURING THE ENTIRE WARRANTY PERIOD.

SECTION C10

INTERIOR CONSTRUCTION

C10 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

C10 1.1 DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

Industry standards, codes, and Government standards that are referenced in the section text that are not found in the Unified Master Reference List (UMRL) in the Construction Criteria Base (CCB) at the Whole Building Design Guide Website , are listed below for basic designation identification. Comply with the required and advisory portions of the current edition of the standard at the time of contract award.

C10 1.1.1 Industry Standards and Codes

Sealant, Waterproofing & Restoration Institute

C10 1.1.2 Government Standards

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-101-01, Architecture UFC 3-120-10, Interior Design)
UFC 4-010-01	DoD Minimum Antiterrorism Standards for Buildings.

C10 1.2 PERFORMANCE VERIFICATION AND ACCEPTANCE TESTING

Verification of satisfactory interior construction assemblies' performance shall be via Performance Verification Testing, as detailed in this section of the RFP. Provide special tests and special inspections in accordance with UFGS Section 01 45 00.05 20, *Design and Construction Quality Control*. The Contractor shall pay the cost of all testing.

C10 1.2.1 Slump and Compressive Strength Tests for Grout

Slump between 8 and 11 inches (200 and 275 mm). Provide minimum grout strength of 2000 PSI in 28 days, as tested per ASTM C 1019.

C10 1.2.2 Door Closure Field Test for Demountable Partitions, Retractable Partitions, and Operable Panels Partitions

Perform a flashlight test of all joints in partitions and partition to wall, floor, and ceiling. No light from a flashlight shall be visible from the opposite side of the partition. Adjust partition at locations where light is visible, and re-test.

C10 1.2.3 Field Test for Sprayed Fire-Resistive Materials

A qualified testing and inspection agency shall be engaged to prepare testing and adhesion reports to test for bond strength. Bond strength shall be tested per ASTM E 736 and be found to meet the requirements in UL's *Fire Resistance Directory* for coating materials.

C10 1.3 DESIGN SUBMITTALS

Design submittals shall be in accordance with Z10, *General Performance Technical Specifications*, UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures*, UFC 3-101-01, *Architecture*, and UFC 3-301-01, *Structural Engineering*.

C10 1.4 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) shall approve the following submittals as a minimum:

Doors, door hardware, windows and glazing, cabinets and countertops, casework, and fireproofing/firestopping.

All structural elements necessary for construction.

C1010 PARTITIONS

For general use, metal studs and standard grade GWB, are acceptable unless shown otherwise in the Project Program. Reinforce points where doorknobs can strike a wall and anchorage points for wall mounted equipment.

Provide control joints and installation techniques as recommended by the manufacturer. See PTS Section C30, *Interior Finishes*, for additional information.

Provide painted GWB with access panels at surfaces furred for HVAC, plumbing and other utility services and controls behind wall surfaces.

Acceptable systems where "IMPACT RESISTANCE" (areas subject to physical abuse or wear) is designated in the project program requirements for impact resistance systems include:

a. GWB/metal stud system reinforced for impact resistance with a double layer of gypsum board using at least one layer of impact resistant gypsum board to resist denting and puncturing on the impact surface. If wall is subjected to impact on both sides, both sides of the stud require a double layer of gypsum board. Structural, mechanical, and acoustical design requirements effect the metal stud/gypsum support configuration.

C101001 FIXED PARTITIONS

Provide fixed partitions, except where demountable or retractable partitions are

specifically required by the "Room Requirements", to include metal studs and GWB walls. Sound-rated partition assemblies shall have a minimum Sound Transmission Coefficient (STC) as required by the project program. Construct sound-rated bulkheads above partition assemblies for continuity to the deck above.

C101001 1.1 CAST-IN-PLACE INTERIOR CONCRETE WALLS

Not used.

C101001 1.2 MASONRY PARTITIONS

Not used.

C101001 1.3 COLD-FORMED METAL FRAMING

Cold-Formed Metal Framing shall be designed and constructed in accordance with the provisions of UFC 1-200-01 and the International Building Code.

C101001 1.3.1 Studs

Galvanized steel, ASTM A 653 / A 653M, SS Grade 50, G60

C101001 1.3.2 Framing Accessories

Fabricate steel-framing accessories of the same material and finish used for framing members, with minimum yield strength of 33,000 psi (230 Mpa). Accessories include, but are not limited to, the following: bracing, bridging, blocking, web stiffeners, end and foundation clips, gusset plates, stud kickers, knee braces, girts, joist hangers, reinforcing and backer plates.

Provide permanent metal-to-metal contact separation from stud to electrical conduits, plumbing pipes, and other internal wall system components, such as electrical wires.

C101001 1.4 METAL SUPPORT ASSEMBLIES

Provide steel materials for metal support systems with galvanized coating per ASTM A 653/ A 653M, G60; aluminum coating ASTM A 463/ A 463M, T1-25; or a 55% aluminum-zinc coating ASTM A 792.

C101001 1.4.1 Suspended and Furred Ceiling Systems, and Wall Furring

ASTM C 841(for lath); ASTM C 645 (for GWB).

C101001 1.4.2 Non-load-Bearing Wall Framing / Furring

ML/SFA MLF (for lath); ASTM C 645, but not thinner than 0.0179 inch (0.4547 mm) thickness. Provide 0.0329 inch (0.8357 mm) minimum thickness for supporting wall hung items such as cabinetwork, equipment and fixtures and for GWB.

C101001 1.5 ROUGH CARPENTRY

Unless otherwise noted, all rough carpentry shall be concealed from view. All framing and board lumber shall be graded and marked by a recognized association or independent inspection agency. Certification of grade is acceptable in lieu of grade markings. Framing lumber such as studs, plates, caps, bucks and nailers shall be of the minimum grade for the application in accordance with the grading rules for the local species of framing and

board lumber.

C101001 1.5.1 Moisture Content

Air-dry or kiln dry lumber as follows:

a. Framing lumber and boards - 19% maximum
b. Timbers 5" and thicker - 25% maximum

C101001 1.5.2 Fire-retardant Treatment

Comply with AWPA C20 or AWPA C27.

C101001 1.5.3 Preservative Treated Lumber

Preservative treated lumber shall be in accordance with AWPA Standards.

C101001 1.5.4 Structural Lumber

Provide of species and grade as listed in AF&PA 101 that have the following minimum allowable unit stresses: 1050 Fb, 700 Fc with 1,200,000 E (for engineered uses) but not less than required by structural calculations.

C101001 1.5.5 Plywood, Structural

PS-1, PS-2.

a. Plywood (Concealed) - C-D grade, exposure 1 durability classification, span rating of 24/16 or greater.
b. Plywood Shear Walls - Structural I, C-C or C-D grade, and a minimum thickness of 1/2 inch (12.5 mm), but not less than required by structural calculations.

C101002 DEMOUNTABLE PARTITIONS

This paragraph covers unitized/component based demountable walls/partitions and associated work, including tracks and anchoring systems. Requirements and configurations shall be in accordance with the project requirements. Majority of the components and hardware shall be provided by a single manufacturer and on the manufacturer's current GSA pricelist.

C101002 1.1 PERFORMANCE REQUIREMENTS

C101002 1.1.1 Product Construction

Panels and framework shall be unitized/component based(not stick built), and non-progressive. All panel components including frames, glass frames, door frames, base trim, ceiling trim, and tracks shall be cold-formed steel or extruded aluminum and powder coated. Panels shall be a minimum of 2-1/4" thick, and shall have panels available between 6"-48" with 1/16" minimum with nominal widths and filler panels available. Panels shall have no more than a Â¼" reveal between adjacent panels or the use of connectors in the same finish of the skin. Panels shall have integrated leveling devices and have a minimum of Â½" adjustability at the ceiling and 1" of adjustability at the floor. Walls shall be capable of hanging any manufacturer's systems furniture. Walls must meet seismic requirements when applicable.

C101002 1.1.2 Surface Skin

Wall surfaces to be available including fabric, painted MDF, glass, resin, dry erase board, metal, and custom paint, with the option of being be segmented or monolithic. Surfaces all be interchangeable with the ability to apply a new skin/finish.

C101002 1.1.3 Door Assemblies

Doors shall be a minimum of 1-3/4" thick and available as a hinged or pivot door with the option of being a single or double doors, and with or without glass. All hardware to be included. Door and Frame assemblies shall be aligned and fitted, and securely anchored to partitions.

C101002 1.1.4 Glazing

Comply with the Federal Safety Standard for Architectural Glazing Materials and shall be factory installed. Options shall include clear, frosted, patterned, custom etched, back painted, and available for use on panels and doors.

C101002 1.1.5 Burning Characteristics and Fire Endurance

The system shall have a Class 'A' (under 25) flame spread rating in conformance with ASTM E 84.

Provide fabric and lining with a flame spread rating of 25 or less, fuel contribution rating of 15 or less, and a smoke generation of 50 or less when tested in accordance with ASTM E 84.

C101002 1.1.6 Acoustical Performance

Sound-rated partition assemblies shall have a minimum Sound Transmission Coefficient (STC) as required by the RFP Part 3, Project Program. STC ratings must be laboratory test and documentation must be provided.

C101002 1.1.7 Structural Performance

Panel deflection shall not exceed 1/120th of the vertical span when tested in accordance with ASTM E 72.

C101002 1.1.8 Electrical Requirements

Modular power options shall be available within solid wall cavities, base areas and frames and shall have open accessibility before, during and after installation. Power shall be accessible to power and data cabling, disconnection, and reconnection to accommodate wall disassembly and relocation. Power Supply to consist of an 8-wire system with 3,3,2 circuits and 2+1 grounding or a 10-wire system with 4-4-2 circuits and 2+2 grounding with isolated grounding available. UL Listed manufactured wiring system rated for 20amp 120V/208V or 120V/240V. The components shall have a permanent label listing manufacturer, catalog number, CSA/UL listing. Component's wiring shall not be "de populated" to impede future configurations. Electrical system must be capable of working with other manufacturer's products. Light switch and outlet devices shall be provided by the mfr and be fully pre-wired and pre-installed at the factory. Cables shall have a J-Box option for hardwiring any manufacturer's furniture power feed cable. Receptacles to indicate which circuit within the modular wiring zone to which they are connected. Receptacles

may/may-not be pre-dedicated but must be able to easily be switched to suit the user circuit requirements. Additional power and/or data modules & hardwired outlets (fire, safety, thermostats etc) shall have the option of being installed on any panel.

C101002 1.1.9 Sustainability

The system is desired to be Green Guard certified, Cradle to Cradle Certified, SCS, or SMaRT certified. Finish coats must use low VOC Adhesives and materials. FSC certified wood must be available.

C101002 1.1.10 Installation

To include all materials, labor, equipment, and additional seismic bracing as necessary, needed for a turn-key installation. Existing Walls, ceilings, ceiling suspension systems, or floors shall not be altered or damaged to accomodate function of partitions. Manufacturer or manufacturer's representative must take field measurements prior to fabrication.

C101002 1.1.11 Field Test

Perform field tests as required in Paragraph C30 1.2 PERFORMANCE VERIFICATION AND FIELD TESTING.

C101002 1.2 WIRE MESH PARTITIONS

Not used.

C101003 RETRACTABLE PARTITIONS

This paragraph covers all retractable partitions and associated work, including tracks and anchoring systems. Wall assemblies above retractable partitions shall provide a sound barrier equal to, or greater than, the sound rating of the partition.

C101003 1.1 PERFORMANCE REQUIREMENTS

The retractable partitions below shall meet the following performance requirements.

C101003 1.1.1 Burning Characteristics

The system shall have a Class 'A' (under 25) flame spread rating in conformance with ASTM E 84.

C101003 1.1.2 Fire Endurance

Provide fabric and lining with a flame spread rating of 25 or less, fuel contribution rating of 15 or less, and a smoke generation of 50 or less when tested in accordance with ASTM E 84.

C101003 1.1.3 Acoustical Performance

Sound-rated partition assemblies shall have a minimum Sound Transmission Coefficient (STC) as required by the project program-STC 50. Construct sound-rated bulkheads above partition assemblies for continuity to the deck above.

C101003 1.1.4 Electrical Requirements

Electrically powered partitions shall be controlled by electrical switches located in the room where the partitions are stored. Electrical outlets shall be tied to the building electrical power system through over-head or end-mount base feeds.

C101003 1.1.5 Door Closure Field Test

Perform field tests as required in Paragraph C30 1.2 PERFORMANCE VERIFICATION AND FIELD TESTING.

C101003 1.2 PARTITION MATERIALS

a. Aluminum Extrusions - ASTM B221, Alloy 3003
b. Steel Sheets - ASTM A 653 / A653M
c. Fabric Coating - CFFA-W-101-B, Type II

C101003 1.2.1 OPERABLE PANEL PARTITIONS

Operable panel partitions shall be factory finished, supported from an overhead track without floor guides, and complete with hardware, track, and accessories necessary for operation.

a. Suspension System - shall consist of steel or heavy duty extruded aluminum track connected to the structural system by threaded rods, and trolleys designed to support the weight of the partition. Provide steel track of 16 gage minimum, phosphate treated and finished, or zinc or cadmium coated, or provide extruded aluminum track with minimum thickness of 1/8 inch (3.2 mm). Tracks shall have an integral ceiling guard. Trolleys shall have at least two ball bearing nylon or steel tired wheels spaced according to manufacturer's design criteria and four at an end post.

C101003 1.2.2 ACCORDION PARTITIONS

Not used.

C101003 1.2.3 CUBICLE TRACK AND HARDWARE

Provide heavy-duty ceiling surface mounted tracks except in ceiling heights over nine feet, hanger mounted tracks may be used, with stainless steel fasteners. Track bends shall be a minimum of 18 inches radius.

C101003 1.2.3.1 Materials

a. Extruded Aluminum Track - ASTM B 221 and ASTM B 456; alloy 6063-TS, channel shape minimum 1-1/4 inch (32 mm) wide by 1-1/8 inch (29 mm) deep, 0.050 inch (1.27 mm) minimum wall thickness.
b. Carrier Unit - Provide silent type with double canted wheel carrier. Wheels shall have nylon on stainless steel hooks with swivel to support curtain. Provide 2.2 carriers for every foot of track length plus one additional carrier.

C101004 INTERIOR GUARDRAILS & SCREENS

This paragraph covers assemblies to include interior guardrails associated with

open sides of floors, but not stairs' handrails. Also included are screens and associated work to include tracks and anchoring systems.

C101004 1.1 MATERIALS

a. Structural Carbon Steel - ASTM A 36/ A 36M
b. Structural Tubing - ASTM A 500
c. Steel Pipe - ASTM A 53, Type E or S, Grade B
d. Aluminum Alloy products - Products shall conform to ASTM B 209 for sheet plate, and ASTM B 221 for extrusions, and ASTM B 26/B 26M or ASTM B 108 for castings, as applicable.

C101004 1.2 FABRICATION FINISHES

C101004 1.2.1 Galvanizing

Hot-dip galvanize steel items to be exposed to water contact. Zinc-coat steel in the largest unit possible. Galvanize per ASTM A 123/ A 123M, ASTM A 153/ A 153M or ASTM A 653/ A 653M, G90, as applicable.

C101004 1.2.2 Non-Ferrous Metal Surfaces

Protect by plating, Class I anodic coatings, or 70% polyvinylidene fluoride organic coatings. See Section C30 for additional coatings/finish information.

C101004 1.3 GUARDRAILS

Design guardrails in accordance with the IBC, except delete the handrail design load reduction for code exceptions for residential, prisons, industrial, high hazard, and storage facilities. Provide materials in accordance with NAAMM PR, and provide the same size rail and post. Provide pipe collars of the same material and finish as the handrail and posts.

C101005 INTERIOR WINDOWS

For fixed interior windows, assemblies include frames, glazing, caulking, and other associated work. For other window types, see PTS Section B20, *Exterior Enclosure*. Glazing for windows specified under this section is located in C101007, "Interior Glazing."

C101005 1.1 ALUMINUM WINDOWS

Each window unit shall be a complete factory assembled unit with or without glass installed. Fabrication of window units shall comply with AAMA 101.

a. Fixed Windows - Type F, LC25 for residential, or HC40 for non-residential (commercial).
b. Sliding Glass Pass Windows - Frames and glass channels shall be of heavy type 6063-TS aluminum extrusions. Provide 1/4-inch (6.35 mm) clear tempered glass.
c. Bullet-Resistant Pass Windows - Conform to UL classification (1 through 8) as required by the installation. Provide fixed, bullet-resistant glazing with pass tray for installations requiring high levels of security.

C101005 1.2 VISION PANELS

c. Hollow Metal Vision Panels – shall meet the requirements of hollow metal frames, paragraph C102001.

C101005 1.3 BULLET RESISTANT WINDOWS

Not used.

C101005 1.4 FINISHES

Finish steel window surfaces as follows:

a. Organic Coating

Provide a high-performance coating in accordance with AAMA 2605 with a total dry film thickness not less than 1.2 mils (0.03 mm).

C101006 GLAZED PARTITIONS & STOREFRONTS

This paragraph covers fixed interior glazed partitions, including interior storefronts with doors. Assemblies include frames, glazing, caulking, and other associated work. See Section B20, *Exterior Enclosure*, for aluminum storefront framing components and performance requirements.

C101006 1.1 GLASS

Refer to "Interior Glazing".

C101006 1.2 SETTING AND SEALING MATERIALS

Provide as specified in the *GANA Glazing Manual*, SIGMA TM-3000 and SIGMA TB-3001, and per manufacturers recommendations.

C101007 INTERIOR GLAZING

ASTM C 1036, unless specified otherwise.

Provide setting and sealing materials, stops and gaskets as recommended by the glass or acrylic sheet manufacturer.

Glazing thickness indicated in the following paragraphs is the minimum acceptable thickness. Provide thicker glazing if required by the code or the manufacturer for the given application.

Minimize hazards from flying debris per ASTM F2248, ASTM F1642, and ASTM F2912. Conform to UFC 4-010-01 Standard 10, Standard 11, and Standard 12.

C101007 1.1 GLASS

C101007 1.1.1 Clear Glass

Type I, class I (clear), quality q4.

C101007 1.1.2 Wire Glass

Not used.

C101007 1.1.3 Patterned Glass

Not used.

C101007 1.1.4 Laminated Glass

Fabricate from two pieces of Type I, Class 1, quality q3 glass laminated together with a clear, 0.030 inch (0.75 mm) thick polyvinyl butyral interlayer. Total thickness shall be nominally 1/4 inch (6.35 mm).

C101007 1.1.5 Bullet-Resistant Glass

Not used.

C101007 1.1.6 Tempered Glass

ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated), Type I, Class 1 (clear), quality q3.

C101007 1.2 PLASTIC GLAZING

C101007 1.2.1 Bullet-Resistant Plastic Sheet

Not used.

C101007 1.2.2 Polycarbonate Sheet

ANSI Z97.1, Mar-resistant, Clear and smooth both sides when used for vision glazing; Translucent, textured both sides when used for obscure glazing. Mar-resistant sheet shall have a change in haze of between 5 and 8 percent under silica carbide test, 1600 grams, ASTM D 673.

Provide warranty for polycarbonate sheet glazing for a period of 5-years that includes the following:

a. Warranty Type I, Class A (UV Stabilized) sheets against breakage;
b. Warranty Type III (coated and mar-resistant) sheets against breakage and coating delamination.
c. Warranty Type IV (coated sheet) against breakage and yellowing

C101008 INTERIOR JOINT SEALANT

Sealant joint design and application shall be in accordance with the general requirements of *Sealants: A Professionals' Guide* from the Sealant, Waterproofing & Restoration Institute. Refer to manufacturers' recommendations for chemical resistance.

C101008 1.1 JOINT SEALANT TYPES FOR INTERIOR WORK

Sealants shall be paintable, and shall match the color of adjacent surfaces.

a. Vertical Surfaces - ASTM C 920, Type M, Grade NS, Class 25, Use NT.
b. Horizontal Surfaces - ASTM C 920, ASTM D 1190 for traffic surfaces, Type M, Class 25, Use T.
c. Pools and pool decks – for vertical joints, Gun grade: ASTM C 920, Type M, Grade NS, Class 25, NT; for horizontal deck traffic joints pourable: ASTM C 920, Type M, Grade P, Class 25, T
d. Food Service – Use a Vinyl Acetate Homopolymer, or other low VOC, non-toxic sealant approved for use in food preparation areas.
e. Chemical Resistance - Ensure that all sealants are chemically compatible or resistant to adjacent materials, or materials that may come into contact with the sealants in the course of the building life.

C1020 INTERIOR DOORS

Door hardware shall be as specified in "Interior Door Hardware" in this section.

C102001 STANDARD INTERIOR DOORS

This paragraph covers all standard interior wood or hollow metal doors with frames, hardware, locks, and finish.

C102001 1.1 STEEL DOORS

Hardware preparation shall be in accordance with SDI 17, ANSI/DHI A115 and ANSI/SDI 100. Doors shall be hung in accordance with ANSI/SDI 100.

C102001 1.1.1 Standard Steel Doors

ANSI A 250.8, Level 1, (occasional use, low abuse types such as closet doors without locks); Level 2, (low use, moderate abuse types such as office/storeroom doors); Level 3, (moderate use, high abuse types such as BEQ sleeping room doors); Level 4, (high use, high abuse types such as corridors, stairways, assembly spaces, and main entry doors), with a physical performance level of 'A'. Maximum door undercut shall not exceed 3/4 inch (19 mm).

C102001 1.1.2 Sound Insulated Doors and Frames

Provide sound insulated door and frame assemblies into rooms requiring wall assemblies to be sound insulated with a Sound Transmission Class (STC) rating as required.

C102001 1.1.3 Accessories

a. Shelves for Dutch doors shall comply with SDI 111-B, and be of steel not lighter than 16 gage.
b. Louver shall comply with SDI 111-C, shall be stationary, sight-proof type. Use lightproof louvers if function of room requires darkness. Louver frames shall be 20-gage steel with louver blades minimum 24 gage.

C102001 1.2 STANDARD STEEL FRAMES

ANSI A 250.8. Form frames with welded corners for installation in masonry partitions and knock-down field assembled corners for installation in metal stud and GWB partitions. Frames shall be set in accordance with SDI 105. Form stops and beads with 20 gauge steel.

Provide a minimum of three jamb anchors and base steel anchors per frame, zinc-coated or painted with rust-inhibitive paint, not lighter the 18 gauge. Secure frames to previously installed concrete or masonry with expansion bolts in accordance with SDI 11-F. Provide mortar infill of frames in masonry walls, and gypsum board compound infill at each jamb anchor in metal frame walls.

C102001 1.3 FINISHES

a. Factory-Primed Finish. Doors and frames in non-humid, non-corrosive environments shall be factory primed with a rust inhibitive coating as specified in ANSI A 250.8. Factory prime doors on six sides of the door.
b. Zinc-Iron Alloy Coating (Galvanized) and Factory Primed Finish
c. Fabricate interior doors and frames (for installation in such rooms

as kitchens, laboratories, battery charging, utility rooms and humid areas such as shower/drying areas, areas with frequent floor mopping, or corrosive chemical atmospheres) from zinc coated steel, alloyed type, complying with ASTM A 653/ A 653M. Factory prime doors and frames as specified in ANSI A 250.8.

d. Manufacturer's primer shall be compatible with door finish system in C30, Interior Coatings.

C102001 1.4 WOOD DOORS

C102001 1.4.1 Wood Doors

Install wood doors according to workmanship requirements of the Architectural Woodwork Institute Quality Standard 900-T-4 Custom Grade. Wood door frames may only be used in residential construction.

For non-residential buildings provide extra-heavy doors for stairways, building entrances, corridors, assembly spaces, and other high use interior doors. Provide heavy duty doors for other non-residential locations and for residential buildings.

Wood doors shall be solid wood doors with wood core and solid wood edge bands. Vertical edge bands shall be one piece or laminated two-piece solid lumber to match face veneer species for natural finish wood doors. Reinforce door at all hardware attachments to door with sound grade hardwood. Horizontal edge bands shall be solid wood or structural composite lumber.

a. Stile and Rail Doors Provide premium or select grade Ponderosa pine, Douglas Fir, White Pine, or Yellow Poplar stile and rail doors conforming to WDMA I.S.6A-01. Doors shall be premium grade, heavy duty or as required by the project program.
b. Interior Flush Doors - Flush doors shall conform to WDMA I.S.6A-01. Doors shall be premium grade, heavy duty, or otherwise as required by the project program. Provide WDMA I.S. 1A-04 SCLC-5 structural composite lumber core, or staved lumber core, or PC-5 particleboard core construction. Do not use particleboard cores where it is anticipated that hardware may be screw mounted to the doors. Provide hardwood or softwood veneers cut for the best presentation for natural finishing of doors. Set match veneers of all components of a door opening. Face veneers shall be 1/20" thick before sanding.
c. Closet Doors – Provide flush, paneled, or louvered doors of premium or custom grade, conforming to WDMA I.S.1A-01, premium or custom grade, heavy duty. Doors shall be hinged or sliding.
d. Acoustical Doors and Frames - WDMA I.S 1-A-2004 WDMA I.S.6A-01. Doors shall be premium or custom grade, heavy duty as required by the project program. Provide acoustical doors in solid core, constructed for door, hardware, and frame to provide a Sound Transmission Class (STC) rating of 39 (minimum) when tested in accordance with ASTM E 90.

C102001 1.4.2 Wood Door Accessories

a. Door Louvers - Louver shall comply with SDI 111-C. Louver frames shall be 20-gage steel with louver blades minimum 24 gage.
b. Door Light Openings - Provide glazed openings with the manufacturer's standard wood moldings. Moldings for doors to receive a natural finish shall be of the same species and color of the face veneer.

C102001 1.4.3 Fabrication

a. Marking - Each door shall bear a stamp, brand or other identifying mark indicating quality and construction of the door.
b. Adhesives and Bonds - WDMA I.S. 1-A. Use Type I (water-proof) adhesive for assembly of interior doors and for the fabrication of stiles, rails, crossbands, and veneers. Adhesive for doors to receive a natural finish shall be non-staining. Type II (water resistant) is allowed for fabrication of core parts.

C102001 1.4.4 Finishes

Unless required otherwise by the project program, typically provide natural finish wood doors. Factory prime and or seal on all six sides of doors.

a. Factory Finish - Provide doors finished at the factory as follows: AWI Quality Standards Section 1500, specification for Conversion varnish, alkyd urea catalyzed polyurethane, or acrylated UV curable epoxy. The coating shall be AWI Quality Standards premium, medium rubbed sheen, with an open or closed grain effect. Poly-wrap prefinished wood doors at factory for shipping.
b. Field Finish - Prepare doors in accordance with WDMA I.S.1-A-2004. Factory prime or seal doors. Manufacturer's primer or sealer shall be compatible with door finish system in Section C30, *Interior Finishes*.
c. Plastic Laminate Finish - Factory applied, NEMA LD 3, 0.050 inch (1.27 mm) minimum thickness.

C102002 GLAZED INTERIOR DOORS

This paragraph covers all glazed interior doors with glass, frames, hardware and locking devices. See paragraph entitled "Interior Glazing" in this section for glazing options.

C102002 1.1 ALUMINUM DOORS, FRAMES AND STOREFRONT

Not used.

C102002 1.2 FABRICATION

C102002 1.2.1 Aluminum Frames

Not used.

C102002 1.2.2 Aluminum Doors

Not used

C102003 FIRE DOORS

This paragraph covers all interior fire doors, including all necessary frames, hardware, closing devices, and alarms associated with the door.

C102003 1.1 FIRE AND SMOKE DOORS AND FRAMES

Provide in conformance with NFPA 80 an NFPA 105. Fire doors and frames shall bear the label of UL, FM or WHI attesting to the rating required. Door and frame assemblies shall be tested for conformance per NFPA 252 or UL 10C (for positive pressure). Wood fire doors shall also comply with ASTM E 152.

Provide stainless steel astragals complying with NFPA 80 for fire-rated assemblies and NFPA 105 for smoke control assemblies.

C102004 SLIDING AND FOLDING DOORS

Not used.

C102005 INTERIOR OVERHEAD DOORS

Not used.

C102006 INTERIOR GATES

Not used.

C102007 INTERIOR DOOR HARDWARE

C102007 1.1 DOOR HARDWARE

Provide the services of an Architectural Hardware Consultant (AHC), Certified Door Consultant (CDC), or an Electrified Hardware Consultant (EHC) to assist the Designer of Record in preparation of the door hardware schedule and product selection. The hardware consultant shall sign and seal the door hardware construction submittal. Provide, as far as feasible, locks, hinges, pivots, and closers from one lock, hinge, pivot, or closer manufacturer's make. All door hardware shall be clearly and permanently marked by the manufacturer, on a location to be visible after installation. Modify hardware as necessary to provide features indicated or specified. For necessary hardware items not indicated in these specification sections, provide ANSI/BHMA grade 1 rated hardware.

C102007 1.1.1 Hardware for Fire Doors

All hardware provided shall meet the requirements of NFPA 80 for Fire Doors and NFPA 101 for exit doors. Hardware shall bear the label of Underwriter's Laboratories, Inc., and be listed in UL BMD or labeled and listed by another testing laboratory acceptable to the contracting officer. Comply with NFPA 105 for smoke control assemblies.

C102007 1.1.2 Hinges

BHMA A156.1, Grade 1, 4-1/2 x 4-1/2 inches (108 x 108 mm) with non-removable pin or anti-friction bearing hinges.

C102007 1.1.3 Locks and Latches

For non-residential buildings use Series 1000, Operational Grade 1, Security Grade 2 for stairways, building entrances, corridors, assembly spaces, and other high use interior doors. Use Series 4000, Grade 1 for non-residential locations not using Series 1000 hardware.

a. Mortise Locks and Latches - BHMA A 156.13, Series 1000, Operation Grade 1, Security Grade 2.
b. Bored Locks and Latches - BHMA A 156.2, Series 4000, Grade 1, or Grade 2.

C102007 1.1.4 Combination Locks

BHMA A 156.2. Heavy-duty, mechanical combination lockset with 5 pushbuttons, standard-sized knob or lever, 3/4-inch (19 mm) deadlocking latch, 2-3/4 inch (70 mm) back-set. Provide deadbolt key override option. Safelock, Simplex, and Venn are acceptable manufacturers. Provide a hardware grade equivalent to Grade 1, series 4000. Provide a 5-year parts and labor warranty.

A door into a sensitive area shall be CDX-10 or most current with a drill resistant dial ring mounting plate, 2-3/4 inch (70 mm) back-set, with Automatic Lock Reset, High-Security combination scramble, and resistant to all forms of external manipulation and environmental attack. KABA-MAS is the acceptable manufacturer. Three Modes of Operation: 1) The Single Combination Mode allows access by dialing a six-digit combination. 2) The Dual Combination Mode allows access only when two separate codes are entered within 10 seconds of one another. 3) The Supervisory/Subordinate Mode allows access by a subordinate only after a supervisor code has been entered. Audit Feature: Lock shall have a full compliment of auditing features, including non-resettable openings log, and unsuccessful attempts log (audits after 3 unsuccessful attempts) that resets once the proper access code is entered. Lock shall generate its own electrical energy with each turn of the dial, with no batteries or wires required. Lock shall be designed to fit industry standard door mounting pattern.

C102007 1.1.5 Card Key System

Provide card key type access units for specialized entries as required by the program. Provide Lenel Access System, coordinate requirements with User Agency. Locks with mechanical override lock cylinders are not acceptable. Locks shall be operated only by a correctly encoded keycard. Use of a newly issued keycard automatically re-keys the lock and voids the previous keycard. The lock shall re-lock immediately after outside lever is turned and latch retracted. Locks shall have memory that is capable of recording up to 140 entries into each room, identification of the keycard used to access the room, the date and time of entry. Entry information of the lock shall be retrievable by a data key that can be inserted into the lock and then taken to the front desk printer to display information. Other components that are required for this system at the front desk are a personal or laptop computer, printer and encoder to program each key.

For exit device locks with card key access, provide mortise type, narrow stile exit devices with 24 volt DC, solenoid option for card key exterior access at aluminum storefront doors. Provide mortise type exit devices with 24 volt DC, solenoid option with alarm and remote exterior access for card key access at insulated hollow metal doors. The alarmed exit device shall sound when exiting only.

System shall be capable of accepting a minimum of 12 keycard access levels, security auditing and computer interfacing with the existing or new management system. Provide a single point of contact customer service representative accessible by telephone with a 10-digit telephone number without additional dialing hierarchies except that a maximum 4-digit extension is permissible. On-site service shall be provided within 3 hours from request within the first 12 months of occupancy. Provide a 5-year parts and labor warranty.

C102007 1.1.6 Exit Devices

BHMA A 156.3, Grade 1. Touch bars shall be provided in lieu of conventional crossbars and arms. Use manufacturer's integral touch bars in aluminum storefront doors.

C102007 1.1.7 Cylinders and Cores

Provide cylinders and cores for new locks, including locks provided under other sections of this specification. Cylinders and cores shall have seven pin tumblers. Cylinders shall be products BEST manufacturer, and cores shall be the products of one manufacturer. Rim cylinders, mortise cylinders, and knobs of bored locksets shall have interchangeable cores, which are removable by special control keys. Stamp each interchangeable core with a key control symbol in a concealed place on the core.

C102007 1.1.8 Keying System

Provide a master key system for the facility unless more than one tenant/tenant command shall reside in a facility. Provide a grand master keying system, or great, grand master keying system if multiple tenants or multiple buildings are required. Provide an extension of the existing keying system for existing facility additions. Name the manufacturer of the existing locks, and indicate if they have interchangeable cores. Provide construction interchangeable cores when subcontractors require keys during construction.

The Contractor shall coordinate a keying system meeting. The Contractor's Project Manager, Superintendent, Hardware Subcontractor, Electrical Subcontractor (if keying hardware is electric), Designer of Record, Contracting Officer, Public Works Base Hardware Specialist, and the Using Activity shall attend this meeting to establish the keying system for the project. This meeting is intended to identify base limitations, the necessary security, and access control within the facility. The meeting shall produce a marked up copy of the floor plan indicating the doors to receive locks and the doors to be keyed together, and any master keying or grand master keying

C102007 1.1.9 Keys

Furnish one file key, one duplicate key and one working key for each key exchange and for each master and grand master keying system.

C102007 1.1.10 Key Cabinet and Control System

BHMA A 156.5 Provide key cabinet with 25% more key hooks than required for interior and exterior doors.

C102007 1.1.11 Lock Trim

Cast, forged or heavy wrought construction and commercial plain in design.

a. Knobs and Roses - Knobs and roses shall meet test requirements of BHMA A 156.2 and BHMA A 156.13.
b. Lever Handles - Provide lever handles in lieu of knobs, as required by DoD ABAAS. All lever handles shall have the freewheeling feature.

C102007 1.1.12 Door Bolts

BHMA A 156.16. Provide automatic latching flush bolts for double doors

with both door leafs active, BHMA A 156.3, Type 25.

C102007 1.1.13 Closers

BHMA A 156.4, Series C02000, Grade 1, with PT 4C, 1-1/2 inch piston, heavy duty forged arm, with full size cover.

C102007 1.1.14 Overhead Holders

BHMA A 156.8, Grade 1.

C102007 1.1.15 Closer Holder-Release Devices

BHMA A 156.15, Grade 1.

C102007 1.1.16 Door Protection Plates

Provide armor, mop, and kick plates conforming to BHMA A 156.6. Provide door kick plates on all doors with closers and doors leading to corridors or circulation spaces. Provide armor plates on all doors that receive cart traffic. Provide mop plates on all doors in rooms that have a mop-able floor finish.

C102007 1.1.17 Door Stops and Silencers

BHMA A 156.16, Type L03011, three per single door and four per double door.

C102007 1.1.18 Thresholds

BHMA A 156.21.

C102007 1.1.19 Door Gasketing

BHMA A 156.22. Use light-proof gasketing for room functions that require darkness and integral sound-proof gasketing on acoustically rated doors.

C102007 1.1.20 Finishes

Provide one of the following hardware finish systems, matching the exterior hardware finish system.

a. BHMA A156.18. Hardware shall have BHMA 630 finish (satin stainless steel), unless specified otherwise. Provide items not manufactured in stainless steel in BHMA 626 finish (satin chromium plated) over brass or bronze, except surface door closers which shall have aluminum paint finish, and except steel hinges which shall have BHMA 652 finish (satin chromium plated). Hinges for exterior doors shall be stainless steel with BHMA 630 finish or chromium plated brass or bronze with BHMA 626 finish. Exit devices may be provided in BHMA 626 finish in lieu of BHMA 630 finish except where BHMA 630 is specified under paragraph entitled "Hardware Sets". Exposed parts of concealed closers shall have finish to match lock and door trim. Hardware for aluminum doors shall be finished to match the doors.
b. BHMA A156.18. Hardware shall have BHMA 612 finish (satin bronze), unless specified otherwise. Surface door closers shall have bronze paint finish. Steel hinges shall have BHMA 639 finish (satin bronze plated). Exposed parts of concealed closers shall have finish to match lock and door trim. Hardware

for aluminum doors shall be finished to match the doors. Hardware showing on interior of bathrooms, shower rooms, toilet rooms, washrooms, laundry rooms, and kitchens shall have BHMA 629 finish (bright stainless steel) or BHMA 625 finish (bright chromium plated).

C102090 OTHER INTERIOR SPECIALTY DOORS

C102090 1.1 ACCESS DOORS

Provide manufactured access doors and frames of 16-gage steel minimum with concealed pivots or a continuous piano hinge and flush stainless steel cam latch. Finish with manufacturer's standard primer coat finish and paint to match the wall or ceiling unless a stainless steel finish is required in the Project Program. Provide UL Rated access doors in fire rated assemblies. Access panels located in furred wall spaces shall have an inserted material to match adjacent wall surface. Size access doors large enough to allow convenient hand and tool access and operation of controls and equipment beyond the door. If maintenance of controls or equipment beyond the door requires removal, size access door to allow removal and reinstallation of new equipment through the access door. Provide access panels capable of receiving finish material inserts in visible wall locations of habitable spaces.

C102091 OTHER INTERIOR PERSONNEL DOORS

Not used.

C1030 SPECIALTIES

C103001 COMPARTMENTS, CUBICLES AND TOILET PARTITIONS

This paragraph covers assemblies for individual compartments, cubicles, toilet partitions and urinal screens.

C103001 1.1 TOILET PARTITIONS

FS A-A-60003. Provide toilet compartments at multi-fixture toilet rooms of Type I, C-Overhead Braced, or F-Overhead braced-alcove. Reinforce panels to receive partition-mounted accessories. Plastic toilet partitions shall have a recovered materials content of 20 to 30 percent.

C103001 1.2 URINAL SCREENS

FS A-A-60003. Type III, Style A, floor supported and wall hung or Style D, wall hung. Wall hung urinal screens shall be secured with continuous flanges to urinal screen and wall.

C103001 1.3 HARDWARE AND FITTINGS

Chrome-plated or stainless steel door latches and coat hooks. Provide one coat hook per compartment door. Latches and hinges for handicapped compartments shall comply with DoD ABAAS.

C103001 1.4 FINISHES

Finishes shall comply with FS A-A-60003. Use only one type of partition per building.

a. Solid plastic partitions shall be fabricated of polymer resins (polyethylene) formed under high pressure forming a single component section one inch thick. Color shall extend throughout the panel thickness.
b. Phenolic core panels.

C103002 TOILET AND BATH ACCESSORIES

This paragraph covers toilet and bath accessories including, but not limited to, soap dispensers, paper holders, towel receptacles, grab bars, and bathroom mirrors.

C103002 1.1 TOILET AND BATH ACCESSORIES

C103002 1.1.1 Toilet Tissue Dispensers

Provide surface or recessed mounted dispensers fabricated of stainless steel. Provide one horizontally or vertically mounted double-roll dispenser per toilet compartment, unless otherwise indicated.

C103002 1.1.2 Paper Towel Dispensers

Provide one per pair of sinks in toilet rooms without electric hand dryers, and one per room with electric hand dryers, unless otherwise indicated. Provide surface or recessed mounted towel dispenser constructed of a minimum 0.7mm 0.03 inch Type 304 stainless steel.

C103002 1.1.3 Combination Paper Towel Dispenser / Waste Receptacle

Provide a recessed or semi-recessed type with a capacity of 400 sheets of C-fold, single-fold, or quarter-fold towel and be constructed of 22-gage stainless steel. Provide one per pair of sinks, unless otherwise indicated. Provide the towel compartment door with a tumbler key lock locking mechanism.

C103002 1.1.4 Sanitary Napkin Disposal Units

Units shall be toilet partition or wall mounted of not less than 22 gage stainless steel, with top and bottom hinged access doors. Provide one in each Woman's toilet stall, unless otherwise indicated. Each unit shall have leak-proof receptacle for disposable liners. Provide fifty disposable liners of the type standard with the manufacturer.

C103002 1.1.5 Medicine Cabinets

Not used.

C103002 1.1.6 Towel Bars

Not used.

C103002 1.1.7 Grab Bars

Provide stainless steel grab bars per DoD ABAAS.

C103002 1.1.8 Robe Hooks

Provide stainless steel two-hook shape with integral wall flange, with a projection not less than 1-5/8 inches (41 mm).

C103002 1.1.9 Mirrors

Provide one manufactured framed electro-copper plated mirror per sink, or one full-size mirror for all sinks, unless otherwise indicated.

C103002 1.1.10 Soap Dispensers

Provide one soap dispenser per two sinks, with mechanical action dispensing valve. Do not mount soap dispenser on mirror. Surface mounted liquid type shall consist of a vertical Type 304 stainless steel tank with holding capacity of 1.2L (40 fluid ounces) with a corrosion-resistant all-purpose valve.

C103002 1.1.11 Electric Hand Dryer

Provide wall mount and electric hand dryer designed to operate at 110/125 volts, 60 cycles, single phase alternating current with a heating element core rating of a maximum 2100 watts. Provide dryer housing of single piece construction and of chrome plated steel. Provide one unit per three sinks, unless otherwise indicated.

C103003 MARKER BOARDS AND TACK BOARDS

This paragraph covers all marker boards, tack boards and fastening devices.

C103003 1.1 MATERIALS

a. Porcelain Enamel - Marker board writing surface shall be composed of porcelain enamel fused to a nominal 28 gage thick steel sheet, laminated to a 1/4-inch (6.35 mm) thick core material with a steel or foil backing sheet.
b. Cork shall be a continuous resilient sheet made from soft, clean, granulated cork, relatively free from hardback and dust and bonded with a binder suitable for the intended purpose. The cork sheet shall have a tensile strength of not less than 40 PSI (275.8 kPa) when tested in accordance with ASTM F 152.
c. Tack-board Covers - Provide woven fabric or vinyl wall covering over cork tack surface.
d. Aluminum - Aluminum frame extrusions shall be alloy 6063-T5 or 6063-T6, conform to ASTM B 221, and be a minimum of 0.06 inches (1.5 mm) thick.
e. Hardwood - Exposed hardwood for frames, cabinets and cases shall be oak, walnut or mahogany, with a factory applied stain and lacquer finish.
f. Glass - Provide tempered glass in accordance with ANSI Z97.1 and in conformance with ASTM C 1048.

C103003 1.2 PRESENTATION BOARD

The presentation board shall be a laminate covered wall-hung cabinet with lockable doors. Doors are to be attached to the cabinet with continuous piano hinges, and have a catch or closure to keep doors closed when not in use. The interior of the cabinet shall contain a porcelain enamel marker board writing surface with chalk-tray, a flip chart that can be hung on an interior door panel, and fabric covered tack surface on the interior door panels.

a. Marker Board - Marker board shall be a factory assembled, one-piece unit, and have a 28 gauge nominal steel porcelain enamel writing surface and a chalk-tray with end closure. Frame shall be aluminum, powder-coated steel, oak, walnut or mahogany.
b. Tack Board - Tack boards shall consist of a minimum 1/4-inch (6.35

mm) thick natural cork laminated to a minimum 1/4-inch (6.35 mm) thick hardboard, shall have an oak or aluminum frame, and be vinyl or fabric covered. Covers shall have a Class 'A' flame spread rating of 0-50, and a smoke developed rating of 0-450 in accordance with ASTM E 84.

C103004 IDENTIFYING DEVICES

This paragraph covers all signs, plaques, and traffic markers.

C103004 1.1 ASSEMBLIES

The signage system assemblies shall consist of three primary elements; a structural rail (with coordinating rail joiners to increase sign height in the field), removable copy inserts, and interlocking end caps or frame, and trim.

C103004 1.1.1 Inserts

The signage rails shall be designed as to accept ABS plastic signage inserts.

C103004 1.1.1.1 Insert Fabrication

The insert is the signage member to which message signage copy in the form of letters, numbers, and symbols shall be applied, and shall be interchangeable with similar sized rails of any other sign of equal or greater width and height. The ends of the rail and insert assembly shall be enclosed by end caps of prefinished 6064T5 extruded aluminum. Inserts shall be fabricated from 0.090 minimum ultra-violet resistant thickness extruded ABS Acrylic sheet core with 20.003 polycarbonate non-glare clear cap bonded to the core during the extrusion texturing process.

C103004 1.1.2 End Caps

End caps shall be injection-molded ABS plastic with integral color. The end caps shall be interchangeable to either end of each sign type, and any other similar sign of equal height. The end caps shall be interlocking mechanically with the inserts, and rail, requiring no tools for assembly. End caps shall utilize straight corners (instead of radius corners). Spring clips shall be steel. Plastic spring clips are not acceptable.

C103004 1.1.3 Trim

Optional accessory top and bottom trim frames of prefinished (color as indicated 6063T5 extruded aluminum shall be provided to the signage types indicated.

C103004 1.1.4 Mounting

Mounting of the modular signage system shall include surface mounting with screw-on applications for interior and exterior walls and on selected doors as indicated, at the locations indicated, and other mounting devices as indicated.

C103004 1.1.5 Graphics Application

a. Tactile Letters and Symbols

Chemically weld tactile letters and symbols to front surface of signage inserts where indicated and where required by DoD ABAAS. Tactile letters and symbols shall be sized as indicated.

b. Braille

Grade II Braille. Provide Grad II Braille inlaid strip as indicated to match sign color.

C103004 1.2 ALUMINUM ALLOY PRODUCTS

Provide ASTM B 209 for aluminum sheet or plate, ASTM B 221 for aluminum extrusions and ASTM B 26/B 26M or ASTM B 108 for aluminum castings. Provide aluminum extrusions at least 1/8-inch (3.2 mm) thick and aluminum plate or sheet at least 16 gage thick. Provide aluminum castings of solid aluminum cast certified by AA 46 alloy designation B443.0. Where anodic coatings are specified, alloy shall conform to Aluminum Association's alloy designation 514.0 or A514.0.

C103004 1.2.1 Aluminum Finishes

Provide exposed aluminum finishes with either mill finish, factory finished with anodic coating or organic coating. Anodized finishes shall conform to AA 45, Architectural Class I or II, with a coating thickness 0.7 mil or thicker. Organic coatings shall be a baked enamel finish with a dry film thickness not less than 1.2 mils, conforming to AAMA 605.2.

C103004 1.3 STEEL PRODUCTS

Provide ASTM A 36/A 36M for structural steel, ASTM A 167 for sheet and plates.

C103004 1.4 CAST METAL

a. Cast Aluminum, ASTM B 108
b. Cast Bronze, ASTM B 62

C103004 1.5 GLASS

ASTM C 1036, Type 1, Class 1, Quality q3

C103004 1.6 FIBER-REINFORCED POLYESTER (FRP)

ASTM D 3841, Type II, Grade 1

C103004 1.7 ACRYLIC SHEET

ASTM D 4802, Type III

C103004 1.8 POLYCARBONATE SHEET

SAE AMS 3611

C103004 1.9 EXTERIOR POST AND PANEL SIGNS

Not used.

C103005 LOCKERS

C103005 1.1 STEEL CLOTHING LOCKERS

C103005 1.1.1 FS AA-L-00486 (Rev J), enameled steel.

Provide ventilated, Single Tier Units (unless multi-tier permitted by Project Program), fully framed. Provide galvanized or galvaneal shelves and bottoms for all lockers, and fully galvanized or galvaneal lockers in locker spaces adjoining shower rooms. Provide full height door stiffeners.

C103006 SHELVING

Assemblies include all types of shelving with brackets and all supporting materials and finish, if required.

C103007 FIRE EXTINGUISHER CABINETS

Cabinet shall be constructed of 16 gauge cold-rolled steel door panel / front, and a 22 gauge cold-rolled steel tub. Cabinet shall be fire-rated if located in a fire rated wall assembly, and have a full-length piano hinge, and baked enamel finish. Provide a stainless steel cabinet door if cabinet is exposed to the environment. Size and locate fire extinguisher cabinets to encase extinguisher as required by NFPA 10 & 101.

C103008 COUNTERS

C103008 1.1 LAMINATE COVERED COUNTER TOPS

Not used.

C103008 1.2 ACRYLIC COUNTER TOPS

Provide 100% acrylic counter tops for use in non-residential construction.

Solid surfacing material shall consist of 100% pure acrylic polymer, mineral fillers, and pigments. The material shall be homogenous, not coated or laminated. Superficial damage to a depth of 0.010 inch (.254 mm) shall be repairable by sanding or polishing. Install with factory recommended fasteners/adhesives/sealant. Provide the following performance characteristics:

a. Tensile strength, ASTM D 638: 5800 psi minimum
b. Hardness, ASTM D 2583: Barcol Impressor 55 minimum
c. Flammability, ASTM E 84: Class I/A, flame spread 25 maximum; smoke developed 30 maximum
d. Thermal Expansion, ASTM D 696:.00002 in/in/F maximum
e. Boiling water resistance, NEMA LD 3: No effect
f. High temperature resistance, NEMA LD 3: No effect
g. Liquid absorption, ASTM D 570 (24 hours): 0.10 percent maximum
h. Mold and mildew growth, ASTM G 21: No growth, no effect
i. Bacteria growth, ASTM G 22: No growth, no effect
j. Sanitation, NSF 51: "Food Contact" approval for food area applications
k. Impact resistance, NEMA LD 3 (1/2 lb. ball drop): 1/4 inch material, 36 inch drop, no failure 1/2 inch material, 120 inch drop, no failure

C103009 CABINETS

This paragraph includes casework items that are permanently fixed in-place. Included are all cabinetry and millwork items with their associated accessories and anchoring devices.

C103009 1.1 WALL AND BASE CABINETS

Wall and base cabinets shall be of the same construction and appearance, with solid ends and frame fronts, or with frames all around. Frames shall be not less than 3/4 inch by 1 1/2 inches (19 mm by 38 mm) hardwood. All ends, bottoms, backs, and partitions shall be hardwood plywood. Cabinet doors and drawer fronts shall be a minimum 3/4 inch (19 mm) of either plywood or medium density fiberboard cores with solid edge bands.

C103009 1.1.1 Quality Standards

Wall and base cabinets shall be constructed to meet "Custom" quality grade as defined in AWI Quality Standards, except where this specification exceeds AWI Custom.

C103009 1.1.2 Hardware

Provide cabinet hardware including two self-closing hinges for each door and two side-mounted metal drawer slides for each drawer and pulls for all doors and drawers as follows. All cabinet hardware exposed to view shall be ANSI/BHMA 156.9, Grade 1, and comply with the following requirements:

a. Concealed Euro-Style, back mounted hinges with opening to 165 degrees and a self-closing feature at less than 90 degrees.
b. Drawer slides shall have a static rating capacity of 100 lbs. (444 N).
c. Provide adjustable shelving standards with shelf support hardware for wall cabinets.
d. Provide heavy-duty magnetic latch and door and drawer catch

C103009 1.1.3 Finish

Provide plastic laminate (NEMA LD3) or transparent finish with sealer and varnish as selected by Designer of Record.

C103010 CASEWORK

This paragraph includes all built-in premanufactured cabinetry for specialized functions such as lab facilities. At a minimum, all casework shall conform to the following chart:

Laminate Overhead Storage Cabinets

Hanger bracket	14 ga. (.075") CQCR Steel
Solid door pull	Steel, aluminum or zinc
Glass door pull	Steel
Glass door track	Aluminum
Reinforcing hat channel for shelf	11 ga. (.118") HRPO Steel

Laminate Storage and Sink Cabinets

Drawer glides	Steel rails with ball bearings
Door hinges	Steel

Door and Drawer pulls	Steel, aluminum or zinc
Leveler bracket	11 ga. (.118") HRPO Steel
Leveler	Threaded steel with plastic foot and rubber boot
Reinforcing hat channel for shelf	11 ga. (.118") HRPO Steel

Laminate Worksurfaces

Worksurface core	1.12" X 45 lb/cu ft medium density particle board
Top and bottom laminate (standard)	.012" thick laminate
Front edge banding	3mm thick rigid plastic
Side and back edge banding	1mm thick, flat profile rigid plastic

Laminate Overhead Storage Cabinets

Panel core (Top, Bottom, Ends, Back, Door, Shelf)	.75" X 45 lb/cu ft industrial grade particle board
Laminate	.012" thick laminate
Cabinet edge banding	1mm thick, flat profile rigid plastic
Door edge banding	2mm thick, flat profile rigid plastic
Glass door	.25" thick tempered safety glass

Laminate Storage and Sink Cabinets

Panel core (Top, Bottom, Base, Ends, Back, Door, and Shelf)	.75" X 45 lb/cu ft industrial grade particle board
Laminate	.012" thick laminate
Cabinet edge banding	1mm thick, flat profile rigid plastic
Drawer/Door edge banding	2mm thick, flat profile rigid plastic

Drawer/Door stop	Rubber

C103011 CLOSETS

Not used.

C103012 FIRESTOPPING PENETRATIONS

This paragraph covers fire-stopping assemblies to include sleeves, caulking and flashing. See PTS Section D40, *Fire Protection*, for additional requirements.

C103012 1.1 FIRESTOPPING

Provide asbestos-free firestopping material capable of maintaining an effective barrier against flame, gases and temperature. Provide non-combustible firestopping that is non-toxic to human beings during installation or during fire conditions. Devices and equipment for firestopping service shall be UL FRD listed or FM P7825 approved for use with applicable construction, and penetrating items.

C103012 1.1.1 Fire Hazard Classification

Material shall have a flame-spread of 25 or less, a smoke developed rating of 50 or less when tested in accordance with UL 723 or UL listed and accepted.

C103012 1.1.2 Firestopping Rating

Firestopping materials shall be UL FRD listed or FM P7825 approved for "F" and "T" ratings at least equal to the fire-rating of the fire wall in which penetrated openings are to be protected.

C103013 SPRAYED FIRE-RESISTIVE MATERIALS

See PTS Section D40, *Fire Protection*, for additional requirements.

C103013 1.1 SPRAYED FIRE-RESISTIVE MATERIALS

C103013 1.1.1 Quality Assurance

A pre-installation conference shall be held with the manufacturer’s approved installer prior to the application of the sprayed fire-resistive materials. See Paragraph C10 1.2 for field testing requirements for the fire-resistive material. Products provided shall not contain asbestos per 40 CFR 763.

C103013 1.1.2 Warranty

Contractor shall provide manufacturer's standard materials and workmanship warranty stating that the manufacturer agrees to repair or replace materials that fail within 2 years, or as required by the project program, from date of Substantial Completion.

C103013 1.1.3 Material Composition

Provide sprayed fire-resistive material consisting of factory-mixed, dry formulation of gypsum or Portland cement binders and light-weight mineral or synthetic aggregates mixed with water at the Project site, or provide sprayed-fiber fire-resistive material consisting of factory-mixed, dry formulation of inorganic binders, mineral fibers, fillers, and additives conveyed in a dry state by pneumatic equipment and mixed with water at a spray nozzle to form a damp, as-applied product.

C103013 1.1.4 Physical Properties

a. Dry Density: 15 lb/cubic foot (240 kg/cubic meter) for referenced fire-resistance design to attain the ratings indicated, per ASTM E 605.
b. Thickness: Provide minimum average thickness required for fire-resistance design indicated according to the following criteria, but not less than 0.375 inch (9 mm), per ASTM E 605:

   1) Where the referenced fire-resistance design lists a thickness of 1 inch (25 mm) or greater, the minimum allowable individual thickness of sprayed fire-restive material is the design thickness minus 0.25 inch (6 mm).

   2) Where the referenced fire-resistance design lists a thickness of less than 1 inch (25 mm) but more than 0.375 inch (9 mm), the minimum allowable individual thickness of sprayed fire-resistive material is the greater of 0.375 inch (9 mm) or 75 percent of the design thickness.

   3) No reduction in design thickness is permitted for those fire-resistance designs whose fire-resistance ratings were established at densities of less than 15 lb/cubic foot (240 kg/cubic meter).
c. Bond Strength: 150 lb/sq. ft. (7.2 kPa) minimum per ASTM E 736.
d. Compressive Strength: 5.21 lb/sq. in. (35.9 kPa) as determined per ASTM E 761. Minimum thickness of sprayed fire-resistive material tested shall be 0.75 inch (19 mm) and minimum dry density shall be as specified, but not less than 15 lb/cubic foot (240 kg/cubic meter).
e. Corrosion Resistance: No evidence of corrosion per ASTM E 937.
f. Deflection: No cracking, spalling, or delaminating per ASTM E 759.
g. Effect of Impact on Bonding: No cracking, spalling, or delaminating per ASTM E 759.
h. Air Erosion: Maximum weight loss of 0.025 g/sq. foot (0.270 g/sq. meter) in 24 hours per ASTM E 859.
i. Fire-Test-Response Characteristics: Provide sprayed fire-resistive materials with the following surface-burning characteristics per ASTM E 84 by United Laboratories: flame-spread index of 10 or less and a smoke developed index of 0.
j. Fungal Resistance: No observed growth on specimens per ASTM G 21.

C103014 ENTRANCE FLOOR GRILLES AND MATS

Provide entrance mats at all entrances to the facility. Provide recessed entrance mats at building entrances with enclosed vestibule and or surface applied entranceway mats or entranceway floor tiles at all other entrances. Entranceway mats and entranceway floor tile require the use of a transition edge where he mat adjoins other floor materials. Mat system shall meet ASTM D-2047 coefficient of friction requirements for dry and wet surfaces. All portions of mat system shall

comply with ASTM E 648, Class I for flammability and ASTM E 662 for smoke development of â‰¤ 450. Fasteners shall be non-corrosive screws and anchors for securing frames together to floors. Provide continuous vinyl bottom cushion to quiet clatter at recessed entrance mat systems. Hinges shall be flexible aluminum or thermoplastic hinge retained in aluminum tread port, and allow debris and moisture to flow through recessed mat. Provide ball and socket hinge for easy roll-up of recessed mat inserts for cleaning. Recessed entrance mat systems shall use either an aluminum or thermoplastic framework and shall have replaceable wearing surface inserts. Provide inserts as follows:

a. Carpet Inserts - Carpet insert fiber shall be colorfast, solution dyed, anti-static, anti-microbial, and waterproof. Fiber shall be 100% nylon or polypropylene. Each carpet fiber shall be bonded to rigid ply backing to prevent fraying and supplied in continuous splice-free lengths. Carpet shall be minimum of 30-oz./ydÂ².
b. Vinyl or Rubber Inserts - Vinyl or rubber inserts shall be removable and be made from recycled materials wherever possible. Inserts shall have serrated edges for scraping purposed or flexible abrasive grit tape, bonded to a rigid vinyl tread insert.

C103014 1.1 RECESSED MAT THERMOPLASTIC FRAME PROPERTIES

Not used.

C103014 1.2 RECESSED MAT ALUMINUM FRAME REQUIREMENTS

Aluminum frame and rail shall comply with ASTM B 221, alloy 6063-T5. Frame shall have butted corners and be factory coated with zinc chromate or manufacturer's standard protective finish where surfaces are in contact with concrete. Provide standard mill finish, color anodized finish complying with AAMA 606.1, clear anodized finish complying with AAMA 607.1, or bronze complying with ASTM B455, alloy 385.

C103014 1.3 SURFACE MOUNTED/LOOSE-LAY ENTRANCE MATS

Not used.

C103014 1.4 SURFACE APPLIED ENTRANCEWAY FLOOR TILE

Not used.

C103015 ORNAMENTAL METALWORK

Not used.

C103090 OTHER INTERIOR SPECIALTIES

This paragraph covers other interior specialties not described by other assembly categories listed previously.

C103090 1.1 FLAT SCREEN TV MONITORS

Flat screen TV monitors shall be wall mounted. Screen shall be sized for the intended spaces. Controls, power, data, and cable connections shall be wall mounted with wiring concealed within the wall construction.

C103090 1.2 OTHER INTERIOR SPECIALTIES

Also see PTS Sections C20 and C30 for additional interior specialties not specified here.

-- End of Section --

SECTION C20

STAIRS

C20 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

C20 1.1 DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

Industry standards, codes, and government standards that are referenced in the section text that are not found in the Unified Master Reference List (UMRL) in the Construction Criteria Base (CCB) at the Whole Building Design Guide Website , are listed below for basic designation identification. Comply with the required and advisory portions of the current edition of the standard at the time of contract award.

C20 1.1.1 Industry Standards and Codes

AISC American Institute of Steel Construction

C20 1.1.2 Government Standards

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-101-01, Architecture)

C20 1.2 PERFORMANCE VERIFICATION AND ACCEPTANCE TESTING

Verification of satisfactory stair performance shall be via Performance Verification Testing, as detailed in this section of the RFP.

C20 1.2.1 Field Testing for Concrete

Field Quality Control Test Reports to be submitted to DOR shall comply with ACI 301. If concrete is found to be below the strength required in the tests, Contractor shall remove and replace that concrete and all associated building components at his own expense.

C20 1.3 DESIGN SUBMITTALS

Design Submittals shall be in accordance with Z10, *General Performance Technical Specifications*, UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures* and UFC 3-101-01, *Architecture*.

C20 1.4 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specification*. In addition to the Z10 requirements the Designer of Record (DOR) shall approve the following construction submittals as a minimum:

Stairs, handrails.

C2010 STAIR CONSTRUCTION

C201001 INTERIOR AND EXTERIOR STAIRS

Provide primed and painted steel stairs with concrete filled pans or cast-in-place concrete stairs for industrial and commercial construction. Design load shall not be less than 100 PSF (4.8 kPa) for live load, and 300 pounds (136 kg) for concentrated loads. Required means of egress stairs shall conform to NFPA 101. Provide steel guard and handrails.

C201001 1.1 STEEL STAIRS

Design shall conform to AISC S335 or AISC S342L.

C201001 1.1.1 Materials

a. Structural Carbon Steel - ASTM A 36/A 36M
b. Structural Tubing - ASTM A 500
c. Steel Pipe - ASTM A 47
d. Gratings - Gray cast iron ASTM A 48, Class 40
e. Metal plank grating, non-slip requirement, FS RR-G-1602 aluminum ASTM B 209, 6061-T6; steel ASTM A 653/ A 653M, G90.
f. Floor Plates, Patterned - ASTM A 786/A 786M, 14 gage.
g. Anchor Bolts - ASTM A 307
h. Galvanized Structural Steel - All steel exposed to the environment or direct water contact shall be galvanized in accordance with ASTM A 123 /A123M, ASTM A153/A153M, and ASTM A653/A653M, Z275 (G90) coating. Galvanize all components after fabrication in accordance with ASTM A385. Fabricate all steel components in the largest units practical using bolted connections for field assembly. Repair damage to, or voids in, galvanizing in accordance with ASTM A780, Annex A1 or Annex A3.

C201001 1.2 ALUMINUM ALLOY PRODUCTS

Not used.

C201001 1.3 FINISHES

C201001 1.3.1 Galvanizing

Hot-dip galvanizing: ASTM A 123/A123M, ASTM A 153/A 153M or ASTM A 653/A 653M, G90, as applicable.

C201001 1.3.2 Aluminum Finishes

Not used.

C201001 1.3.3 Safety Treads

NAAMM BG steel, Type W (welded).

C201001 1.3.4 Other Coatings

See PTS Section C30, *Interior Finishes*, for painted finishes.

C201001 1.4 CONCRETE STAIRS / STEPS

Provide interior or exterior concrete steps and stair with non-slip finish. For interior stairs, provide rubber or other finish treads. For exterior stairs, provide cast-in-place abrasive nosing. Provide steel guard and handrails as necessary. Fire stairs shall comply to NFPA 101.

C201001 1.4.1 Materials

a. Concrete - ACI 211.1, ACI 301/301M, and ACI 318/318M, with a compressive strength of 3,000 psi (20,680 kPa) or greater. Concrete Mix Design shall be suitable for the job conditions.
b. Reinforcements - Bars, fabrics, connectors, and chairs shall be galvanized.
c. Reinforcing Bars - ACI 301/301M
d. Welded Wire Fabric - ASTM A 185 or ASTM A 497
e. Cast Aluminum Safety Nosings – For exterior concrete stairs, provide safety nosings of cast aluminum with abrasive surfaces or with abrasive inserts.

C201001 1.5 WOOD STAIRS

Not used.

C201002 FIRE ESCAPE STAIRS

Not used.

C201090 STAIR HANDRAILS, GUARDRAILS, AND ACCESSORIES

C201090 1.1 HANDRAILS

Design handrails in accordance with the IBC, except delete the handrail design load reduction code exceptions for residential, prisons, industrial, high hazard, and storage facilities. NAAMM PR, provide the same size rail and post. Provide series 300 stainless steel pipe collars. Factory coat all metal railings (except for ornamental metals such as brass, bronze, stainless steel, and nickel-silver) with a high performance coating in accordance with AAMA 2605, with a minimum coating thickness of 1.2 mils unless otherwise noted.

C201090 1.1.1 Steel Handrails

Provide steel handrails, including inserts in concrete, steel pipe conforming to ASTM A 53 or structural tubing conforming to ASTM A 500, Grade A or B of equivalent strength. Railings shall be hot-dip galvanized and shop painted for exterior applications and primed and shop painted for interior applications. Railing may be unpainted hot-dip galvanized in industrial areas.

C201090 1.1.2 Aluminum Handrails

Not used.

C201090 1.1.3 Ornamental Handrails

Not used.

C201090 1.1.4 Glass Handrails

Not used.

C201090 1.1.5 Wood Handrails

Not used.

C201090 1.2 METAL LADDERS

C201090 1.2.1 Metal Ladders

Not used.

C201090 1.2.2 Installation

Offset distance from the rungs to the finished wall surface not less than 7 inches (175 mm). Provide heavy clip angles riveted or bolted to the stringer and drilled for not less than two 1/2-inch (12 mm) diameter expansion bolts as indicated. Provide intermediate clip angles not over 48 inches (1200 mm) on center.

C201090 1.2.3 Ladder Cages

Not used.

-- End of Section --

SECTION C30

INTERIOR FINISHES
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C30 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

C30 1.1 DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

Industry standards, codes, and Government standards referenced in the section text that are not found in the Unified Master Reference List (UMRL) in the Construction Criteria Base (CCB) at the Whole Building Design Guide Website , are listed below for basic designation identification. Comply with the required and advisory portions of the current edition of the referenced standard at the time of contract award.

C30 1.1.1 Industry Standards And Codes

FLOOR COVERING INSTALLATION CONTRACTOR'S ASSOCIATION (FCICA)

FLOOR COVERING INSTALLATION BOARD (FCIB)

C30 1.1.2 Government Standards

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-101-01, Architecture UFC 3-120-10, Interior Design)

C30 1.2 QUALITY ASSURANCE

C30 1.2.1 Paint Applicator's Qualifications

C30 1.2.1.1 SSPC QP 1 Certification

For the application of industrial coatings identified in the Project Program, all contractors and subcontractors that perform surface preparation or coating application shall be certified by the Society for Protective Coatings (formerly Steel

Structures Painting Council) (SSPC) to the requirements of SSPC QP 1 prior to contract award, and shall remain certified while accomplishing any surface preparation or coating application. The painting contractors and painting subcontractors must remain so certified for the duration of the project. If a contractor's or subcontractor's certification expires, the firm shall not be allowed to perform any work until the certification is reissued. Requests for extension of time for any delay to the completion of the project due to an inactive certification shall not be considered and liquidated damages shall apply. Notify the Contracting Officer of any change in contractor certification status.

C30 1.2.2 Aircraft Maintenance Hangar and Vehicle Maintenance Flooring Installer Qualifications Not used

C30 1.3 PERFORMANCE VERIFICATION AND ACCEPTANCE TESTING

Verification of satisfactory interior finish assemblies' performance shall be via Performance Verification Testing, as detailed in this section of the RFP.

C30 1.3.1

Provide sample of textured ceiling application for DOR approval before resuming work. Sample shall be used as a reference for remaining application.

C30 1.3.2

Provide sample of multicolor paint application for DOR approval before resuming work. Sample shall be used as a reference for remaining application.

C30 1.3.3

Provide sample of terrazzo floor application for DOR approval before resuming work. Sample shall be used as a reference for remaining application.

C30 1.4 DESIGN SUBMITTALS

Design Submittals shall be in accordance with Z10, *General Performance Technical Specifications*, UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures* and UFC 3-101-01, *Architecture*.

In addition, UFGS sections listed below or in the body of the PTS text are to be used by the Designer of Record (DOR) as a part of the design submittal. If the UFGS products or systems are applicable to the project, the DOR shall edit these referenced UFGS sections and submit them as a part of the design submittal specification. Edit the specification sections in accordance with the limitations stated in PTS section Z10, General Performance Technical Specifications.

C30 1.5 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) shall approve the following construction submittals as a minimum:

Paint, Finish materials, Finish colors

Installation drawings for floors with carpet, tile, architectural cast-in-place concrete or terrazzo to include locations and details of seams, color and material transitions, details of divider strips, control joints, and crack control solutions.

Changes shall not be made to the finishes that are submitted and approved by the Government during the design phase. In the event that revisions may be required because of unforeseen conditions such as discontinued product, the revisions must be approved by the DOR and then submitted to the Government Interior Designer for approval before substitutions can be made.

C3010 WALL FINISHES

Interior wall finishes shall be moisture and mildew resistant, easily maintained, and suitable in accordance with industry standards for the architectural surface being finished. For painted wall finishes, refer to C3040 "INTERIOR PAINTING AND SPECIAL COATINGS".

C301001 CONCRETE WALL FINISHES

C301001 1.1 SPECIAL OR ARCHITECTURAL FINISHES ON INTERIOR CONCRETE WALLS

Not used.

C301002 PLASTER WALL FINISHES

Not used.

C301002 1.2 CEMENT PLASTER

Not used.

C301002 1.3 ACRYLIC PLASTER COATING

Not used.

C301003 GYPSUM WALLBOARD FINISHES

Conform to specifications, standards and requirements in accordance with Gypsum Association GA 214, GA 216 and GA 224. Provide asbestos free materials only. Provide Type X gypsum board in fire rated assemblies. Provide a foil back gypsum board when a vapor retarder is required.

C301003 1.1 REGULAR GYPSUM BOARD

ASTM C36/C36M and ASTM C1396/C1396M 1/2 or 5/8 inch (12.7 mm or 15.9 mm) thick in residential construction, and 5/8 inch (15.9 mm) thick in non-residential construction, tapered edges for exposed layers, square edges for concealed backer layers.

C301003 1.2 MOISTURE RESISTANT GYPSUM BOARD

ASTM C630/C630M, 1/2 or 5/8 inch (12.7 mm or 15.9 mm) thick in residential construction, and 5/8 inch (15.9 mm) thick in non-residential construction. Use in humid areas or spaces but not as a substrate in tiled areas where wall tile is exposed to direct moisture contact or condensation accumulation.

C301003 1.3 FOIL BACKED GYPSUM BOARD

ASTM C1396/C1396M 1/2 or 5/8 inch (12.7 mm or 15.9 mm) thick in residential

construction, and 5/8 inch (15.9 mm) thick in non-residential construction, tapered edges for layers exposed to view, square edges for concealed layers. Seal joints in foil backing to other panels and adjoining materials as recommended by the panel manufacturer.

Alternative to foil backed gypsum board in Secured Areas: Field applied foil faced barrier material is an acceptable alternative for pre manufactured foil backed gypsum board. Provide a continuous composite multilayer barrier with a woven polyethylene sheet sandwiched between two sheets of solid reflective aluminum surfaces. Shielding effectiveness tested in accordance with IEEE 229/ ASTM D4935. Install barrier in accordance with manufactures instructions.

C301003 1.4 CEMENTITIOUS BACKING UNITS

ANSI A108.11 and ANSI A118.9, 5/8 inch (15.9 mm) thick; use as a substrate for ceramic tile in wet areas that are exposed to direct moisture contact or condensation accumulation for areas including, but not limited to, tubs, shower enclosures, saunas, steam rooms, gang shower rooms, and shower drying rooms. Provide screws specifically designed for use with cement panels.

C301003 1.5 IMPACT RESISTANT GYPSUM BOARD

Reinforced gypsum panel with imbedded fiber mesh or polycarbonate resin thermoplastic backing, 5/8 inch (15.9 mm) thick, tapered edges, in accordance with Structural Failure Test; ASTM E695 or ASTM D2394 and Indentation Test; ASTM D5420 or ASTM D1037. Provide metal framing of 20-gauge minimum. Provide fasteners that meet manufacturer requirements and specifications. Impact resistant gypsum board shall have a flame spread rating of 25 or less and a smoke developed rating of 50 or less, ASTM E84. Finish with a high strength plaster veneer. Refer to PTS C10 for further requirements on impact resistant wall construction.

C301003 1.6 JOINT TREATMENT

ASTM C475, Joint compound shall be specifically formulated and manufactured for use with and compatible with tape, substrate and fasteners as recommended by the manufacturer. Tape and finish gypsum board in accordance with ASTM C840, GA 214 and GA 216. Provide premanufactured joints at all structural expansion joints, crack control joints, and change of materials as recommended by the manufacturer and in accordance with GA 216.

C301003 1.7 FASTENERS

ASTM C514. Fasteners shall be compatible with each type of gypsum board material as recommended by the gypsum board manufacturer and in accordance with GA 216 and GA 224.

C301003 1.8 ACCESSORIES

ASTM C1047. Fabricate from corrosion protected steel or plastic designed for intended use. Accessories manufactured with paper flanges are not acceptable. Flanges shall be free of dirt, grease, and other materials that may adversely affect bond of joint treatment. Provide prefinished or job decorated materials. For predecorated gypsum board provide prefinished metal or plastic trim to match predecorated gypsum board. Install as recommended by GA 214, GA 216 and GA 224.

C301003 1.9 LEVEL OF FINISH

C301003 1.9.1

Tape and finish gypsum board in accordance with ASTM C840, GA 214 and GA 216. Plenum areas above ceilings shall be finished to GA 214, Level 1. Water resistant gypsum backing board, ASTM C630/C630M, to receive ceramic tile shall be finished to GA 214, Level 2. Walls to receive a heavy-grade wall covering or have textured finish before painting shall be finished to GA 214 Level 3. Walls without wall wash lighting to receive paint (MPI Gloss Level 2), light textures, or wall coverings shall be finished to GA 214 Level 4. Unless otherwise specified, all gypsum board walls, partitions shall be finished to GA 214 Level 5. Provide joint, fastener depression, and corner treatment. Do not use fiberglass mesh tape with conventional drying type joint compounds; use setting or hardening type compounds only. Provide treatment for water-resistant gypsum board as recommended by the gypsum board manufacturer.

C301003 1.9.2

Wherever gypsum board is to receive eggshell (MPI Gloss Level 3), semigloss (MPI Gloss Level 5), or gloss (MPI Gloss Level 6) paint finish, finish gypsum wall surface to GA 214 Level 5.

C301003 1.9.3

Where wall wash lighting shall accent the flatness of the wall and surface irregularities in gypsum board joints, provide feature edge gypsum board and two coat joint compound fillers. Provide this special joint treatment at up lighting, down lighting and horizontal lighting at the end of a passageway wall.

C301004 TILE AND TERRAZZO WALL FINISHES

C301004 1.1 CERAMIC TILE WALL SYSTEM FINISHES

Provide ceramic tile wall systems as defined in the Tile Council of America (TCA) handbook for ceramic tile installations suitable for the service requirements listed. Install systems in accordance with ANSI A108/A118 series standards. Colored grout with sealer shall be provided. Coordinate with ceramic bath accessories for modularity. Include all trim pieces, caps, stops, and returns to complete installation.

C301004 1.1.1

Ceramic Mosaic Wall Tile shall be a minimum of 1/4 inch (6 mm) thick and installed from floor to ceiling, unless otherwise noted.

C301004 1.1.2

Wall tile shall be glazed, matte glazed or unglazed finish. Refer to project program for tile type, pattern, and surface texture.

C301004 1.1.3

Porcelain wall tile shall be through color, polished or unpolished. Refer to project program for tile type, pattern, and surface texture.

C301004 1.1.4

Provide wall tile color and style selections a minimum of one grade above base grade.

C301004 1.1.5

Provide Designer accent tile, accent strips and accessory ceramic tile shapes as an integral part of the ceramic wall tile system.

C301005 WALL COVERINGS

C301005 1.1 VINYL WALL COVERING

C301005 1.1.1

Not used.

C301005 1.1.2

Not used.

C301005 1.2 FABRIC WALL COVERING

C301005 1.2.1

Not used.

C301005 1.2.2

Acoustical wall covering shall be textured, woven or non-woven material of polyester or polyolefin, or a combination of the two fibers with an acrylic backing. The material must be a minimum of 48 inches (1219 mm) wide and a minimum of 16 ounces (454 g) per square yard. The material shall have an NRC rating of .15 on gypsum board in accordance with ASTM C423.

C301005 1.3 WALLCOVERING BORDER

Not used.

C301005 1.4 SURFACE PREPARATION FOR UNEVEN WALLS

C301005 1.4.1

Wall liner shall be a non-woven polyester cellulose blend having a minimum weight of 3.7 ounces (105 g) per square yard and a total minimum thickness of 0.013 inches (0.33 mm). Wall liner shall have a Class A flame spread rating of 0-25 and smoke development rating of 0-50 when tested in accordance with ASTM E84. Use for masonry walls or walls with uneven surfaces.

C301005 1.4.2

For masonry or rough textured walls, use a veneer plaster finish to smooth the walls prior to wall covering installation.

C301005 1.5 CORNER GUARDS

C301005 1.5.1

Corner guards shall be 3/32 inch (2.4 mm) thick and shall cover 1 inch (25 mm) each side of corner at right angles. Corner guards shall be clear polycarbonate. Use in executive areas, office areas, and wall-covered areas subject to cart traffic as a minimum.

C301005 1.5.2

Corner guards shall be 3/32 inch thick and shall cover 2-1/2 inches (64 mm) each side of corner at right angles. Corner guards shall be through color polycarbonate or rubber. Use in corridors or other high traffic areas.

If protective wall components from paragraphs C301090 - 1.5 and 1.6 are provided, corner guards shall be from the same lot and color as protective wall components.

C301005 1.6 WAINSCOT CAP

C301005 1.6.1

Wainscot cap shall be satin-finished extruded aluminum approximately 3/4 inch (19 mm) high, feathered at bottom edge, with an approximate 3/16 inch (5 mm) exposed face on top edge, and grooved to receive the covering. Adhesive to install wainscot cap shall be of a type recommended by the manufacturer of the cap.

C301005 1.6.2

Wood wainscot cap shall be 3-1/2 by 3/4 inch (89 mm by 19 mm) solid hardwood, AWI Custom grade, with painted or stained finish. Profile shall be a molded shape.

C301006 ACOUSTICAL PANELS ADHERED TO WALLS

Acoustical wall treatment shall be acoustical panels, sound absorbing wall units, or acoustical wall systems. Acoustical panel system shall include manufacturer's standard concealed fasteners, splines, tracks, and other components necessary to complete the installation. Fire rating for the complete composite system shall be Class A, 200 or less smoke density and flame spread less than 25, when tested in accordance with ASTM E84.

- **C301006 1.1 ACOUSTICAL FABRIC COVERED WALL PANELS**

C301006 1.1.1

Prefinished factory assembled wall panels shall consist of, seamless fabric covered fiberglass or mineral fiber core system. Perimeter edges shall be reinforced by an aluminum frame or a formulated resin edge hardener. Fabric covering shall be stretched free of wrinkles and then bonded to the edges and back or bonded directly to the panel face, edges, and back of panel a minimum distance standard with the manufacturer. Mounting shall be by manufacturer's standard concealed spline, mechanical fasteners, magnetic fasteners, hook and loop or adhesive mounting.

C301006 1.1.2

Stretched fabric wall panel system shall consist of continuous perimeter and butt seam mounting extrusions, site-fabricated and applied directly to the substrate. Facing fabric shall be stretched over core materials and attached without adhesives, nails, tacks, screws or tapes so that fabric may be removed and replaced with framework in place.

C301006 1.1.3

Fabric shall be seamless, 100% polyester or olefin or a blend of the two. Light fastness (fadeometer) shall be approximately 40 hours in accordance with AATCC 16.

C301006 1.1.3.1

Not used

C301090 OTHER WALL FINISHES

C301090 1.1 SOLID SURFACING WALL FINISHES

Solid surfacing material shall consist of 100% pure acrylic polymer, mineral fillers, and pigments. The material shall be homogenous, not coated or laminated, meeting ANSI Z124.3 and ANSI Z124.6 requirements. Superficial damage to a depth of 0.010 inch (.254 mm) shall be repairable by sanding or polishing. Provide manufacturer's full range of colors and patterns. Flammability, ASTM E84: Class I/A, flame spread 25 maximum; smoke developed 30 maximum.

C301090 1.1.1

If used in a shower, solid surfacing wall finishes shall extend from top of shower pan to a minimum of 84 inches (2130 mm) or to underside of ceiling and shall surround the shower enclosure. Wall finish shall extend from top of tub to 84 inches (2130 mm) and shall surround tub shower. If used in a kitchen, solid surfacing wall finish shall extend from top of kitchen countertop to underside of wall cabinet.

C301090 1.1.2

Provide solid surfacing with factory recommended fasteners/adhesives/caulk to complete the installation.

C301090 1.2 PLASTIC LAMINATE WALL FINISHES

Plastic laminate used for wall applications shall be commercial grade, high-pressure laminate with a #60 finish, approved for vertical applications. NEMA LD 3.

C301090 1.2.1

The kitchen wall area between the counter top backsplash and the bottom of the wall cabinet shall be plastic laminate. Laminate wall finish shall include factory recommended fasteners/adhesives/caulk to complete the installation.

C301090 1.3 DECORATIVE PANELING SYSTEM

Not used.

C301090 1.4 WOOD TRIM AND DETAILING FINISHES

Not used.

C301090 1.5 IMPACT RESISTANT PANEL OR WAINSCOT WALL FINISHES

The wall covering panel system, or wainscot, shall be an impact-resistant acrylic PVC sheet of a minimum 0.060 inch (1.5 mm) thickness in 4 foot by

8 foot (1219 mm by 2438 mm) sheets. The system shall be Class A (ASTM E84), UL listed, and chemical and stain resistant. It shall include all accessories, such as top caps, joint covers, and inside and outside corners, necessary for a complete installation. A full range of colors and textures shall be included. The wall panel system shall have coordinating color and pattern options for all components within the system. The wall panel system shall offer a 21 ounce (595 g) fabric backed vinyl wall covering laminated to a 0.020 inch (.51 mm) rigid acrylic/PVC backing capped with 1 mil of protective film.

C301090 1.5.1

Impact Resistant Trim Finishes - Impact resistant chair or handrail system shall be a formed rigid PVC product. Chair or handrail shall be a minimum of 3 inches (76 mm) high and be mounted with concealed hardware. Chair or handrail system shall be chemical, stain, and bacteria resistant. Chair rail shall be UL classified, conforming to NFPA Class A fire rating and ASTM D256-90b for impact strength of 30.2 ft-lbs/inch thick.

C301090 1.6 CORNER AND WALL GUARDS

Corner and wall guards shall be high-impact formed polyvinyl chloride a minimum of 0.078 inch (2 mm) with concealed mounting hardware and end closure. If used with an impact resistant panels system, the guards shall be from the same manufacturer as the impact resistant wall panel system, chair or hand rail system and shall include all accessories necessary for a complete installation. A full range of styles, colors and textures shall be included.

C3020 FLOOR FINISHES

Refer to C3040 "INTERIOR PAINTING AND SPECIAL FINISHES" for painted floor coatings.

C302001 TILE FLOOR FINISHES

Provide ceramic tile floor systems as defined in the Tile Council of America (TCA) handbook for ceramic tile installation and materials for the service requirements listed. Provide installation and materials in accordance with ANSI A108/A118 series standards, except do not use organic adhesives. Provide manufacturer's full range of colors and styles. Tile shall be a minimum of one grade above base grade.

Mortar shall be Portland cement, ANSI A108.1A/1B/1C/ A118.1, Latex-portland cement, ANSI A108.5/A118.4 or Epoxy ANSI A108.6/A118.3.

Grout shall be factory sanded Portland cement, ANSI A108.10/A118.6, Latex-portland cement, ANSI A108.10/A118.7 or Epoxy ANSI A108.6/A118.3. Provide tile joint grout sealer on white, light colored areas that are routinely exposed to water and liquid cleaning materials, entrance areas, and areas that require a high degree of stain resistance, and as required by the manufacturer. Provide chemical resistant epoxy resin for kitchens and other areas where high resistance to staining and absorption are required, ANSI A118.3.

Slip resistant tile shall have a minimum Coefficient of Friction (wet and dry) of 0.6, ASTM C1028. Tile shall have smooth, non-slip or textured surface and a glazed or unglazed finish. Non-slip or textured surface required for tile in areas where there is excessive water or grease and oils such as kitchens, dining facilities, toilets, and in industrial and maintenance facilities.

C302001 1.1 CERAMIC GLAZED FLOOR TILES

Ceramic glazed floor tiles shall be a minimum of 5/16 inch (8 mm) thick with a minimum of 1/8 inch (3 mm) grout width with cushioned edge. Tile shall

have a 0.5 to 3.0 percent water absorption rate, ASTM C373. Do not use in areas where there is excessive water or grease and oils such as kitchens, dining facilities, toilets, showers, shower drying rooms, building entrance areas, and in industrial and maintenance facilities.

C302001 1.2 CERAMIC MOSAIC UNGLAZED FLOOR TILES

Ceramic Mosaic unglazed floor tiles shall be a minimum of 1/4 inch (6 mm) thick with a maximum of 1/16 inch (1.6 mm) grout width with cushioned edge. Tile shall have less than a 0.5 percent water absorption rate, ASTM C373. Use in toilets, showers and shower drying rooms and locker rooms.

C302001 1.3 PORCELAIN FLOOR TILE

Porcelain floor tiles shall be a minimum of 5/16 inch (8 mm) thick with a maximum of 1/4 inch (6 mm) grout width with cushioned edge. Tile shall have a minimum breaking strength of 300 pounds (202 kg), ASTM C648 and a maximum absorption rate of 0.5%, ASTM C373. Use in lobbies, corridors, toilets, kitchens, dining facilities, and other areas with minimal maintenance requirements, high resistance to staining, absorption and high durability requirements. Tile shall be color through, impervious, unglazed or glazed finish with an unpolished, semi-polished, polished, or textured surface.

C302001 1.4 QUARRY FLOOR TILE

Quarry floor tiles shall be a minimum of 1/2 inch (12.7 mm) thick tiles with a maximum of 1/4 inch (6 mm) grout width. Tile shall have a minimum breaking strength of 350 pounds (158 kg), ASTM C648 and a maximum absorption rate of 3%, ASTM C373. Use in lobbies, corridors, kitchens, dining facilities, and other areas with high durability requirements. Use grout release for darker pigmented grout colors. Tile shall have a maximum of 3.0 percent water absorption rate when tested in accordance with ASTM C373. Non-slip, abrasive grain or textured surface required for tile in areas where there is excessive water or grease and oils. Tile shall consist of semi-vitreous, vitreous or clay material with smooth or textured surface and unglazed finish.

C302002 TERRAZZO FLOOR FINISHES

Refer to Project Program for special design requirements.

C302002 1.1 BONDED TERRAZZO

Provide terrazzo, bonded to concrete, consisting of a terrazzo topping over an underbed. Use in all general areas requiring terrazzo. Where structural movement is anticipated which may injure the terrazzo, use the sand cushion (floating) method. Provide cementitious terrazzo in accordance with the NTMA bonded terrazzo specification. Patterns to have three (3) colors with (18 gauge) minimum zinc "L" divider strips.

Applicator shall be approved by the NTMA and shall have a minimum of 5 years experience in the application of the materials to be used and shall have a completed 8 successful installations within the past 2 years.

C302002 1.2 RESINOUS TERRAZZO

The resinous terrazzo flooring shall be an epoxy terrazzo. All terrazzo, auxiliary products and materials and application techniques used must be approved by National Terrazzo and Mosaic Association (NTMA) and epoxy terrazzo manufacturer, whichever is more stringent, prior to use. These requirements shall include, but are not limited to the following;

Epoxy Terrazzo Minimum Requirements:

The contractor must be a member of NTMA and shall have a minimum 10 years application experience and have completed a minimum 5 successful installations over the past five years of similar scope, complexity and minimum of 75 percent of the square footage.

No products shall contain VOC's or formaldehydes. Thickness 3/8" cast in place. Hardness: 60-85 per ASTM D-2240. Tensile Strength: 3,000 psi (min) per ASTM D-638. Compressive Strength: 10,000 psi (min) per ASTM D-695. Chemical Resistance: No deleterious effects per ASTM D-1308

Divider strips/control joints in the terrazzo shall be aluminum or brass shall occur directly above control joints in the subfloor and be a minimum 18 gauge "L" shape. A flexible crack suppression membrane (elastomeric) installed over entire floor slab surfaces, including all cracks in the subfloor. Flatness tolerance of the slab must be less than 0.25-in flatness variation over 10ft span. Fill areas with 100% epoxy solids with fine aggregates per manufacturer's recommendations for areas which do not meet the flatness tolerance mentioned above. The concrete surface shall use shot blasting only (no alternate method to be used). The concrete slab is to be tested for moisture transmission using ASTM F2170 Probe Test. Concrete slabs shall be shot-blasted and cleaned to receive epoxy terrazzo moisture vapor primer system as specified by manufacturer and NTMA, whichever is more stringent.

Five colors for various patterns and accents throughout the flooring area Marble chips shall not exceed #1 size. Provide a minimum of three 6"x6" samples for each color and type of terrazzo for review prior to purchase two, 6" lengths of each type and kind of divider strip. Use of post-industrial recycled marble or granite terrazzo chips. When completed the terrazzo shall show a minimum of 70% decorative aggregate chips on the surface.

The finished floor shall be rinsed clean, allowed to dry and non-yellowing, slip-resistant & durable water based acrylic sealer. Confirm with user if high polish finish may be used in lieu of sealer. Coordinate with user sheen of polished finish. Use 100% epoxy solids flexible resin, tinted to match adjoining terrazzo matrix per manufacturer's specification.

For concrete slab requirements; See PTS A10-50 Slab on Grade, 1.1.1 Slab on Grade where Resinous Terrazzo Floor Finish is scheduled.

C302003 WOOD FLOORING

Not used.

C302003 1.1 WOOD FLOORING SYSTEM

Not used.

C302003 1.1.1

Not used.

C302003 1.1.2

Not used.

C302003 1.1.3

Not used.

C302003 1.1.4

Not used.

C302004 RESILIENT FLOOR FINISHES

All resilient flooring shall meet or exceed applicable ADA horizontal requirements. Each type of flooring shall be installed with recommended adhesive in accordance with the manufacturers' written instructions. Installers shall be approved by the manufacturer in writing and shall have a minimum of 3 yrs experience for each type of flooring to be installed. A minimum of 2% total quantity for each type flooring, color and pattern shall be provided and stored within each building for future replacement and patching. Provide manufacturers full line of color and pattern selections, including multi-color patterns. Use the resilient floor finishes as identified in the Project Program or as directed below.

C302004 1.1 RESILIENT SHEET FLOORING SYSTEMS

Not used.

C302004 1.1.1

Not used.

C302004 1.1.2

Not used

C302004 1.1.3

Not used

C302004 1.1.4

Not used

C302004 1.2 RESILIENT TILE FLOORING SYSTEM

C302004 1.2.1

Resilient vinyl composition tile (VCT) shall be commercial grade, asbestos free, with a nominal overall gauge of 1/8 inch (3 mm) and a wear layer thickness of 1/8 inch (3 mm) nominal. The tile shall be manufactured in accordance with Federal Specification SS-T-312B (1), Type IV, Comp. 1, Class 2, through pattern. Tile shall be finished in accordance with manufacturer’s written instructions.

C302004 1.2.2

Resilient static dissipative vinyl composition tile (SDT) shall be of commercial grade, asbestos free, with a nominal overall gauge of 1/8-inch (3 mm) and a wear layer thickness of 1/8-inch (3 mm) nominal; with an antistatic additive. The SDT tile shall conform to ASTM F1066, Class 2 through pattern. The flooring shall be installed with recommended adhesive and accessories; and finished in accordance with the manufacturer's written instructions. Use SDT floors in computer areas or areas with sensitive electronic where the Project Program requires tile.

C302004 1.2.3

Resilient solid vinyl tile/plank shall be 0.1 inch (2.5 mm) thick, with

a vinyl wear layer of 0.040 inches (1.mm) and shall be planks or square tiles. It shall include a protective urethane finish for ease of maintenance and conform to ASTM E648, Type III, Class 1 and ASTM F1700, Class III. Provide vinyl flooring that are easily cleaned with off-the-shelf products. Surface finishes requiring manufacturer supplied or special order cleaning solutions are not acceptable. Vinyl flooring shall have a marble, granite, stone, terrazzo or wood grain pattern. A manufacturer's 25-year min warranty is required. Products must meet the Buy American Act and be manufactured in ISO 9001 and ISO 14001 compliant factories.

C302004 1.2.4

Resilient rubber tile shall be 100% synthetic rubber with color through, slip resistance formulation, with a minimum base thickness of 0.125 inch (3.2 mm) and a minimum stud height of 0.024 inch (0.6 mm). Rubber tile shall conform to ASTM F1344, Class I and ASTM E648, Class 1. The product shall require no wax maintenance. A manufacturer's 10-year warranty is required for a raised round or square surface profile. A manufacturer's 5-year warranty is required for other surface textures with slip resistant formulation.

C302004 1.2.5

Not used.

C302004 1.2.6

Resilient linoleum tile shall be made with natural raw materials including linseed oil, flour, and rosin or resin binders double calendared onto synthetic jute backing, ASTM F2034, Type I. Pattern and color shall extend throughout thickness of material. Gage shall be 0.10 inch (2.5 mm). Static load limit shall be 250 psi per ASTM F970. Seal linoleum using manufacturer's recommended sealer for commercial application. The manufacturer's technical representative shall review and approve each typical sample application on-site prior to resuming the installation and shall spot check each 1,196 square yards (1000 square meters) for quality control. Work shall not commence on any portion of work until the manufacturer's technical representative renders approval on site. A manufacturer's 5-year warranty is required.

C302005 CARPETING

C302005 1.1 GENERAL

Installer(s) shall be approved by the manufacturer in writing. Carpet manufacturer shall be established and in good standing with the industry. A minimum of 5% total quantity for each color and pattern shall be provided and stored within the building for future replacement patching.

C302005 1.2 CARPET CONSTRUCTION

Provide carpet types based on Table I, "Carpet Construction Type by Facility."

TABLE I - CARPET CONSTRUCTION TYPE BY FACILITY

Facility Type	Tufted Cut Pile	Tufted Loop Pile	Tufted Cut and Loop	Tufted Tip Shear	Tufted Frieze	Woven Loop or Cut & Loop	Carpet Tile

Administrative	-	X	X	X	X	X	X
Open Plan Offices	-	X	X	X	-	X	X
Private Offices	X	X	X	X	X	X	X
Corridors Second Floor (see note a. below)	-	X	X	X	-	X	X
Conference Rooms	X	X	X	X	X	X	X

Note: a. Vinyl tile shall be installed at main corridor from Building 1560 to north stair, east corridor leading to east stair, and Kitchen/Break Area corridor to Building 1560.

C302005 1.3 CARPET SEVERE WEAR SPECIFICATIONS

Provide carpet that complies with Table II, "Carpet Specifications for Severe Wear Classification."

TABLE II - CARPET SPECIFICATIONS FOR SEVERE WEAR CLASSIFICATION

Carpet Construction	Pile Fiber	Weight oz/SY (kg/m2) min. x.037	Pile Height in.(mm) min.	Gauge min.	Pile Density oz/cuyd (kg/m3) min.
Tufted Cut Pile	CF NYLON	32(1.18)	.175(4.45)	1/10	6600 (270)
Tufted Loop Pile	CF NYLON	26(0.82)	.120(3.05)	1/10	6600 (270)
Tufted Cut and Loop	CF NYLON	28(1.04)	.135(3.43)	1/10	7400 (303)
Tufted Tip Shear	CF NYLON	28(1.04)	.135(3.43)	1/10	7400 (303)
Tufted Frieze	CF NYLON	32(1.18)	.175(4.45)	1/10	6600 (270)
Woven Loop	CF NYLON	26(1.04)	.135(3.43)	1/8	7400 (303)
Woven Cut and Loop	CF NYLON	26(1.04)	.135(3.43)	1/8	7400 (303)

C302005 1.4 CARPET PILE FIBER

Provide one of the following:

a.100% premium branded, yarn-dyed, Type 6.6 continuous hollow filament nylon

b.100% premium branded, solution-dyed, Type 6 or Type 6.6 continuous hollow filament nylon

c. 100% premium branded, combination yarn died and solution-dyed, Type 6 or Type 6.6 continuous hollow filament nylon

C302005 1.5 CARPET BACKING REQUIREMENTS

a. Provide manufacturer's standard high performance carpet backing.
b. Moisture resistant carpet backing shall pass the 24 hour British Spill Test.
c. Moisture proof carpet backing shall pass the 10,000 Impacts Test.
d. Provide moisture resistant carpet backing with an attached urethane cushion, minimum 18 lb. density.
e. Provide moisture proof carpet backing with integral high density cushion of thermoplastic, urethane, or PVC.

C302005 1.6 CARPET PERFORMANCE CHARACTERISTICS

a. Flammability: Carpet shall meet the Critical Radiant Flux Classification of not less than 0.45 W/sq. cm. when tested in accordance with ASTM E648. Carpet shall generate less than 450 rating when tested in accordance with ASTM E662
b. Static Control: Carpet shall include a permanent static control system to control static build-up to less than 3.0 KV in accordance with AATCC-134.
c. Dimensional Stability: Carpet shall be permanently dimensionally stable with no delamination of components or any edge raveling or zippering.
d. Colorfastness to Crocking: Not less than 4, wet and dry, per AATCC-165.
e. Colorfastness to Light: Not less than 4 after 40 AFU (AATCC fading units) per AATCC-16.
f. Antimicrobial Activity: Not less than 0.08-inch (2-mm) halo of inhibition for gram-positive bacteria; not less than 0.04-inch (1-mm) halo of inhibition for gram-negative bacteria; no fungal growth, per AATCC-174.
g. Sustainability; Provide carpets with recycled fiber content, and renewable material content in the attached cushion or backing materials certified by an independent testing agency.
h. Written Warranty: Lifetime commercial warranty for texture retention and edge raveling, zippering, delamination is required. Seam preparation and adhesives shall be recommended by the carpet manufacturer in accordance with the warranty.
i. Appearance Retention: Provide carpet with a multi-color pattern for excellent appearance retention and soil hiding characteristics.
j. Indoor Air Quality: Provide carpets that meet the criteria of the CRI "Green Label" Indoor Air Quality Testing Program. Carpet adhesive VOC's shall be less than 50 g/L.

C302005 1.7 CARPET INSTALLATION

Install carpet by one of the following methods in accordance the

manufacturer's recommendations and in accordance with the Carpet and Rug Institute, CRI-104, Standard for Installation Specification of Commercial Carpet, compatible with the construction, backing, and pattern characteristics of each carpet provided.

a. Direct Glue Down Carpet Installation
b. Double Glue Down Carpet and Pad Installation
c. Carpet with Attached-Cushion Installation
d. Preapplied releasable "dry" adhesive system installation.
e. Stretch-In Carpet Installation with tack strips and pad

C302006 MASONRY AND STONE FLOORING

C302006 1.1 UNIT MASONRY FLOORING SYSTEM

.

Not used.

C302006 1.2 STONE FLOOR AND BASE FINISHES

C302006 1.2.1

Not used

C302006 1.2.2

Not used.

C302006 1.2.3

Not used.

C302007 WALL BASE FINISHES

Provide a wall base for transition between floor and wall finish. If no other type of base is required, provide rubber or vinyl straight base at carpet installations, rubber or vinyl cove base at exposed concrete or resilient tile floors, and a base to match the floor material at hard surface tile floors, or as required in the project program.

C302007 1.1 RESILIENT WALL BASE FINISHES

C302007 1.1.1

All rubber wall base shall be 4 inch (100 mm) high and 1/8 inch (3.2 mm) thick as required unless indicated otherwise. The wall base shall include inside and outside corners and shall conform to ASTM F1861-98, Type TS. Provide wall base in rolls and not 4 foot lengths.

C302007 1.1.2

Flash-coved integral resilient sheet wall bases shall be installed in accordance with the manufacturers' printed instructions to include a cove stick having a minimum radius of 3/4 inch (19 mm) and finished with an approved cap strip.

C302007 1.2 CARPET WALL BASE FINISHES

Not used.

C302007 1.3 WOOD BASE FINISHES

Not used.

C302007 1.4 STONE AND MARBLE BASE FINISHES

Not used.

C302007 1.5 TILE BASE FINISHES

Coordinate tile base with ceramic wall and floor tile for color, material match and modularity. Include all pre-manufactured trim pieces, special shapes, caps, stops, and returns to provide a complete installation. Provide coordinating wall, base and floor tile for curb construction at showers.

C302008 STAIR FINISHES

C302008 1.1 RESILIENT STAIR TREADS, RISERS AND LANDINGS

Refer to C302004 for resilient landing finishes. Provide rubber risers to match treads or one piece tread/risers. Provide treads with raised patterns and visually impaired nosing inserts as required.

C302008 1.2 PORCELAIN AND STONE STAIR TREADS, RISERS AND LANDINGS

Not used

C302008 1.3 CARPETED STAIR TREADS, RISERS AND LANDINGS

Not used

C302009 FLOOR TOPPINGS AND TRAFFIC MEMBRANES

Assemblies include floor toppings and membrane systems.

C302009 1.1 REFLECTIVE, CHEMICAL AND SLIP RESISTANT FLOOR SYSTEMS

C302009 1.1.1 Thin Film Floor Coating

Not used.

C302009 1.1.2 Dry Shake Floor Topping

Not used.

C302010 HARDENERS AND SEALERS

C302010 1.1 HARDENED AND SEALED CURE CONCRETE FLOORS

Harden and seal concrete floors in accordance with the finished floor manufacture requirements. Utilize other methods of concrete curing if the floor finish manufacturer does not recommend a chemical hardener or sealer. Concrete floors that can utilize a hardener-sealer and shall be exposed to traffic shall receive a minimum of two coats of hardener-sealer curing agent for dust protection. These hardener-sealer-cured floors shall be finished with a curing agent that shall penetrate the concrete to permanently seal the floor against moisture and the penetration of contaminants. The curing agent shall be non-toxic, non-flammable, and non-combustible and shall be installed in accordance with the manufacturer’s printed instructions. The finished floor shall be dust-free.

C302010 1.2 COLORED CONCRETE FLOORS

Not used.

C302011 RAISED ACCESS FLOORING

C302011 1.1 FLOORING SUPPORT SYSTEM

Design support system to allow for 360 degree clearance in laying out cable and cutouts for service to machines and so that panel and stringer together take up maximum of 2 inches (50 mm).

C302011 1.1.1 Pedestals, Shafts, and Caps

Provide pedestals of steel or aluminum, each capable of carrying 4,960 pounds (2250 kg) axial load without permanent deformation. Provide permanent factory applied corrosion resistant finish for pedestals made of ferrous materials. Provide base plate not less than 4 inch by 4 inch by 1/8 inches (100 mm by 100 mm by 3 mm) thick, welded to shaft of pedestal. Approved die-formed bases of equivalent load spreading capacity and bearing area may be provided in lieu of flat base plates. Provide shafts to support design loads. Provide Pedestal Caps designed to fit precisely over pedestal shafts and to interlock with panels and stringers to prevent tilting, rocking, or vibrating of panels when live load is applied. Provide pedestals with adjusting threads or other devices that shall permit leveling of floor system with adjustment range of approximately 2 inches (50 mm). Provide lock nuts, set screws, or other locking devices to positively lock final pedestal vertical adjustments in place, independent of floor panels. Do not use self-tapping screws, snap type connections, or spring-action lock-nuts. All adhesives used shall be as recommended by the manufacturer.

C302011 1.1.2 Stringers

Fabricate from rolled or formed galvanized steel conforming to ASTM A591/A592M. Incorporate interlocking pedestal and stringers in pedestal stringer system, providing positive seating of panels to prevent tilting, rocking, or vibrating of panels when live load is applied. Provide stringers that can be added or removed after floor is in place. Fasten end of each stringer and mid-point of each four foot stringer positively to pedestal heads, using manufacturer's standard screws. Provide screws that are removable from top.

C302011 1.2 FLOOR PANELS

Provide interchangeable 24 inch by 24 inch (610 mm by 610 mm) square module panels capable of supporting design loads. Panels shall be of weight that can readily be removed and handled by one person using lifting tool furnished by access floor manufacturer. Panel finish surface to be Grade HW 120 high pressure plastic laminate conforming to NEMA LD. Use static dissipative vinyl tile.

a. Aluminum Panels - ASTM B85, SC84A, die-cast or extruded construction for rooms with MRI equipment.

b. Steel Panels - Die-formed construction. Weld flat steel top sheet to one or more formed steel stiffener sheets. Provide zinc-coating conforming to ASTM A591/A591M, Class C, with manufacturer's standard corrosive resistant electrically conductive epoxy paint finish . Wood, plastic and other combustible products are prohibited.

c. Cementitious or Concrete Filled Formed Steel Panels Entirely non-combustible steel shell and cementitious or concrete fill, corrosive resistant inside and out. Seal cut edges in accordance with manufacturer's recommendations.

d. All panels to be manufactured in USA and individually labeled "Made in USA"

C302011 1.2.1 Gravity Held Factory Finished Panels with Bolted Stringer Understructure

Fasten end of each stringer and mid-point of each four foot stringer positively to pedestal heads, using manufacturer's standard screws. Provide corner lock system for all general office (bare for carpet tile) applications with screws that are removable from top.

C302011 1.3 GROUNDING

Ground access floor system for safety hazard and static suppression. Connection of access floor support system to building grounding electrodes is specified in another section of this RFP. Provide positive contact between components for safe, continuous electrical grounding of entire floor system. Total system resistance from wearing surface of floor to building grounding electrode shall be within the range of 0.5 megohms to 20,000 megohms for computer rooms, electronics offices, data centers and control rooms, 0.2 megohms to 2.0 megohms for clean rooms and laboratories.

C302011 1.4 THRESHOLD(S)

Provide interior thresholds of nonferrous materials where flooring materials or floor levels change.

C302011 1.5 RAMPS

Provide ramps of required slip resistance and slope conforming to ATBCB ADA Title III.

C302011 1.6 INSTALLATION

Install access floor system and accessories under supervision of the access flooring manufacturers authorized representative to insure rigid, firm installation free of vibration, rocking, rattle, squeaks, and other unacceptable performance. Install in accordance with the following;

a. Set pedestal in adhesive as recommended by the access flooring manufacturer to provide full bearing of the pedestal base on the sub floor.
b. Layout floor panel installation to keep the number of cut panels at the floor perimeter at a minimum. Scribe panel assemblies at the perimeter to provide a clase fir with no voids greater than 1/18" where panels abut vertical surfaces. At spaces where access floor connects to the walls provide connection detail that seals the access floor to the wall to reduce air leakage.
c. Secure grid member to pedestal heads in accordance with access floor manufacturer's instructions.
d. Thoroughly clean up dust, dirt and construction debris caused by floor installation.
e. Level installed access floor to within 0.060" of true level over the entire area and within 0.10" in any 10" distance.

C3030 CEILING FINISHES

Refer to C3040 "INTERIOR PAINTING AND SPECIAL COATINGS" for painted ceiling finishes.

C303001 ACOUSTICAL CEILING TILES AND PANELS

C303001 1.1 ACOUSTICAL CEILING PANELS

All acoustical ceiling panels shall be 24 inch by 24 inch (610 mm by 610 mm), with a minimum light reflectance of .75 (except as noted), Class A, flame spread 25 or less and smoke development of 50 or less, ASTM E84. All acoustical ceiling panels shall have minimum 60% recycled content except as noted. Acoustical ceiling panels shall conform to ASTM E1264. Provide square edge except as noted.

C303001 1.1.1

For typical open office areas, conference rooms, executive offices, provide non-asbestos mineral composition acoustical ceiling panels of Type III with factory-applied standard washable painted finish or Type IV with factory-applied plastic membrane-faced vinyl, Form: 1, 2, or 3. Provide reveal edge in lobbies, conference rooms and command suites; otherwise, provide square edge in all other locations to receive acoustical panels.

C303001 1.1.2

For typical humid areas such as toilets, kitchens, fitness and locker rooms, provide non-asbestos mineral or glass composition acoustical ceiling panels bonded with ceramic, moisture resistant thermo-setting resin, or other moisture resistant material with factory-applied standard washable painted finish; and recycled content: minimum of 40%.

C303001 1.1.3

For areas with very high humidity, heavy soiling, staining, impact abrasion, or limited security concerns, such as bachelor's quarters, laundry rooms, or maintenance shops, provide Type V, Steel or Type VII, aluminum faces with white baked on enamel finish, and non-asbestos mineral composition absorbent backing.

C303001 1.1.4

For areas requiring a concealed grid system, provide non-asbestos mineral composition acoustical ceiling panels of Type III with factory-applied standard washable painted finish or Type IV with factory-applied plastic membrane-faced vinyl, Form: 1, 2, or 3; Size: 12 inch by 12 inch by 5/8 inch (305 mm by 305 mm by 19 mm), Edge: for concealed grid installation.

C303001 1.1.5

Provide NRC and CAC ratings as follows:

Type of space	Minimum NRC	Minimum CAC
Open Office Areas	.75	40-44
Conference Rooms,	.60	35-39

Classrooms		
Activity spaces, Lobbies, Corridors	.60	35-39
Executive offices	.60	35-39
Toilets	.50	35-39
Kitchens	.50	35-39
Fitness/Locker Rms	.50	35-39
All other spaces	.50	35-39

Base the tested NRC value on Mounting Type E-400 of ASTM E795.

C303002 GYPSUM WALLBOARD CEILING FINISHES

Conform to specifications, standards and requirements in accordance with Gypsum Association GA 214, GA 216 and GA 224. Provide asbestos free materials only. Provide featured edge gypsum board on all gypsum surfaces that flatness of joints shall be visible, such as uplighted ceilings, window lighted ceilings, and as recommended by the manufacturer. Provide Type X gypsum board in fire rated assemblies.

C303002 1.1 REGULAR GYPSUM BOARD

ASTM C36/C36M and ASTM C1396/C1396M, 1/2 or 5/8 inch(12.7 mm or 15.9 mm) thick, tapered edge. Provide 5/8 inch (15.9 mm) for all projects except for single family residential, which may utilize 1/2 inch (12.7 mm) if other requirements, such as sound control, are met.

C303002 1.2 MOISTURE RESISTANT GYPSUM BOARD

ASTM C630/C630M, 1/2 or 5/8 inch (12.7 mm or 15.9 mm) thick, tapered edges. Use for ceilings in humid areas. Do not use as a substrate in tiled areas where tile shall be exposed to direct moisture contact or condensation accumulation. Support moisture resistant gypsum board at 12 inches (305 mm) on center. Provide 1/2 inch (12.7 mm) for single-family residential projects only. Provide 5/8 inch (15.9 mm) for all other projects.

C303002 1.3 FOIL BACKED GYPSUM BOARD

ASTM C1396/C1396M 1/2 or 5/8 inch (12.7 mm or 15.9 mm) thick in residential construction, and 5/8 inch (15.9 mm) thick in non-residential construction, tapered edges for layers exposed to view, square edges for concealed layers. Seal joints in foil backing to other panels and adjoining materials as recommended by the panel manufacturer.

Alternative to foil backed gypsum board in Secured Areas: Field applied foil faced barrier material is an acceptable alternative for pre manufactured foil backed gypsum board. Provide a continuous composite multilayer barrier with a woven polyethylene sheet sandwiched between two sheets of solid reflective

aluminum surfaces. Shielding effectiveness tested in accordance with IEEE 229/ ASTM D4935. Install barrier in accordance with manufactures instructions

C303002 1.4 CEMENTITIOUS BACKING UNITS

ANSI A108.11 and ANSI A118.9, 1/2 or 5/8 inch (12.7 mm or 15.9 mm) thick; use for adhesive applied ceramic tile in wet areas (tubs, shower enclosures, saunas, steam rooms, gang shower rooms, or for shower areas with a veneer plaster finish. Support cementitious backing units at 12 inches (305 mm) on center. Provide screws specifically designed for use with cement panels.

C303002 1.5 IMPACT RESISTANT GYPSUM BOARD

Reinforced gypsum panel with imbedded fiber mesh or polycarbonate resin thermoplastic backing, 5/8 inch (15.9mm) thick, tapered edges, in accordance with Structural Failure Test; ASTM E695 or ASTM D2394 and Indentation Test; ASTM D5420 or ASTM D1037. For use whenever gypsum board partitions are allowed for barracks, training facilities, and industrial facilities. Provide metal framing of 20-gauge minimum. Provide fasteners that meet manufacturer requirements and specifications. Impact resistant gypsum board shall have a flame spread rating of 25 or less and a smoke developed rating of 50 or less, ASTM E84. Finish with a high strength veneer plaster.

C303002 1.6 TEXTURED CEILING FINISH SYSTEM

Applied textured ceiling finish shall be plaster based. Refer to paragraph "C301002 - 1.1 GYPSUM PLASTER" for finish requirements.

C303002 1.7 JOINT TREATMENT

ASTM C475, Joint compound shall be specifically formulated and manufactured for use with and compatible with tape, substrate and fasteners as recommended by the manufacturer. Tape and finish gypsum board in accordance with ASTM C840, GA 214 and GA 216. Provide premanufactured joints at all structural expansion joints, crack control joints, and change of materials as recommended by the manufacturer and in accordance with GA 216.

C303002 1.8 FASTENERS

ASTM C514, Fasteners shall be compatible with each type of gypsum board material as recommended by the gypsum board manufacturer and in accordance with GA 216 and GA 224.

C303002 1.9 ACCESSORIES

ASTM C1047, Fabricate from corrosion protected steel or plastic designed for intended use. Accessories manufactured with paper flanges are not acceptable. Flanges shall be free of dirt, grease, and other materials that may adversely affect bond of joint treatment. Provide prefinished or job decorated materials. Install as recommended by GA 214, GA 216 and GA 224.

C303002 1.10 LEVEL OF FINISH

C303002 1.10.1

Tape and finish gypsum board in accordance with ASTM C840, GA 214 and GA 216. Ceilings to receive a heavy-grade wall covering or heavy textured finish before painting shall be finished to GA 214, Level 3. Ceilings without critical lighting to receive flat paints, light textures, or wall coverings shall be finished to GA 214, Level 4. Unless otherwise specified, all gypsum board walls, partitions and

ceilings shall be finished to GA 214, Level 5. Provide joint, fastener depression, and corner treatment. Do not use fiberglass mesh tape with conventional drying type joint compounds; use setting or hardening type compounds only. Provide treatment for water-resistant gypsum board as recommended by the gypsum board manufacturer.

C303002 1.10.2

Wherever gypsum board is to receive eggshell, semigloss or gloss paint finish, or where severe, up or down lighting conditions occur, finish gypsum wall surface to GA 214 Level 5. In accordance with GA 214 Level 5, apply a thin skim coat of joint compound to the entire gypsum board surface, after the two-coat joint and fastener treatment is complete and dry.

C303003 PLASTER CEILING FINISHES

C303003 1.1 VENEER PLASTER CEILING FINISHES SYSTEM

Veneer plaster ceilings shall be gypsum plaster veneer finish to gypsum base finishes. Refer to Section C3040 for paint system and gloss level. Provide gypsum neat plaster, gypsum ready-mixed plaster, or high strength gypsum plaster base coat conforming to ASTM C28. High strength gypsum plaster shall have a compressive strength of not less than 2,500 psi, when tested dry in accordance with ASTM C472.

C303004 WOOD CEILINGS

Not Used.

C303005 SUSPENSION SYSTEMS

C303005 1.1 EXPOSED SUSPENDED ACOUSTICAL CEILING GRID

Provide 24 inch by 24 inch (610 mm by 610 mm) aluminum or steel non-corroding intermediate-duty standard grid system for lay-in acoustical panels (ASTM C635). Finish shall be factory applied white baked enamel. Provide manufacturer's hold down clips for fire rated assemblies and wall or edge molding. Hang grid system as recommended by manufacturer but with no less than 0.106 inch (2.7 mm) diameter wires (ASTM A641A, A641M, Class 1), or with one by 3/16 inch (4.76 mm) galvanized steel straps conforming to ASTM A653A, A653M (for light commercial zinc coating) or ASTM A366A, A366M (with an electrodeposited zinc coating, Type RS). Use ASTM A580/A580M, composition 302 or 304, condition annealed stainless steel, 0.106 inches (2.7 mm) in diameter over high humidity areas such as commercial kitchens and pools. Install suspended grid system with acoustical sealant (ASTM C843, nonstaining and ASTM C636). Recycled content shall be a minimum of 25%.

C303005 1.2 CONCEALED SUSPENDED ACOUSTICAL CEILING GRID

Provide 12 inch by 12 inch (305 mm by 305 mm) aluminum or steel non-corroding intermediate-duty concealed grid system for lay-in acoustical panels (ASTM C635). Finish shall be factory applied white baked enamel. Provide manufacturer’s wall or edge molding. Hang grid system as recommended by manufacturer but no less than with 0.106 inch (2.7 mm) diameter wires (ASTM A641A, A641M, Class 1), or with one by 3/16 inch (4.76mm) galvanized steel straps conforming to ASTM A653A, A653M (for light commercial zinc coating) or ASTM A366A, A366M (with an electrodeposited zinc coating, Type RS). Install suspended grid system with acoustical sealant (ASTM C843, nonstaining) and in accordance with ASTM C636. Recycled content shall be a minimum of 25%.

C303005 1.3 SUSPENDED AND FURRED CEILING SYSTEMS

ASTM C841 (for lath); ASTM C645 (for GWB).

Provide steel materials for metal support systems with galvanized coating per ASTM A653/A653M, G60; aluminum coating ASTM A463/A463M, T1-25; or a 55% aluminum-zinc coating. Provide suspended ceiling framing in accordance with ASTM C754, except framing members shall be 16 inches (400mm) unless otherwise noted.

C303006 METAL STRIP CEILINGS

Not Used.

C303090 OTHER CEILING AND CEILING FINISHES

C3040 INTERIOR COATINGS AND SPECIAL FINISHES

Apply coatings directly to all non-prefinished surfaces of the interior construction. Comply with Master Painters Institute requirements for surface degradation analysis, surface preparation, paint and coating selection, paint application restrictions for substrate materials, and paint application.

C304001 GENERAL REQUIREMENTS

All paint shall be suitable in accordance with the Master Painter Institute (MPI) standards for the interior architectural surface being finished. The current MPI, "Approved Product List" as of the date of contract award, shall be used to determine compliance with the submittal requirements of this specification. The Contractor may choose to use a more current MPI "Approved Product List"; however, only one list may be used for the entire contract. All coats on a particular substrate, or a paint system, must be from a single manufacturer. No variation from the MPI Approved Products List is acceptable.

Select paint systems for the project in accordance with the MPI Architectural Painting Decision Tree available on the Whole Building Design Guide. Use this interactive MPI Decision Tree website to identify applicable paint system(s) for the project. The MPI Decision Tree identifies paint systems for each interior or exterior coated surface in "Normal" or "Aggressive" environmental conditions and generally lists the applicable paint systems in descending order of performance. The paint system at the top of each substrate list generally indicates the highest performing acceptable coating system.

Choose the "Aggressive" environmental conditions in the MPI Decision Tree for exterior systems that are used in moist humid conditions, abrasive conditions, chemical exposure conditions, or within five miles proximity of the ocean or a body of water. Also use "Aggressive " environmental conditions in interior spaces that are exposed to in moist humid conditions, abrasive conditions, chemical exposure conditions, such as bathrooms, shower rooms, kitchens, chemical storage area, swimming pools, laundry, sanitary areas, commercial kitchens, industrial production areas, and hospital operating rooms provide paint systems that comply with the MPI Decision Tree "Aggressive" environmental conditions.

Comply with the following rules when determining the appropriate paint or coating system from the MPI Decision Tree:

a. Some of these paint systems are identified with a "NAVFAC Anchor". This "NAVFAC Anchor" indicates the minimum performing system that NAVFAC shall accept for that substrate and environmental conditions.

b. When multiple "NAVFAC Anchors" are indicated on a certain substrate and environmental condition, provide the "NAVFAC Anchor" paint or coating system that

is most appropriate for the facility use.

c. If only one MPI Decision Tree choice is available for a certain substrate and environmental condition with no indicated NAVFAC preference, provide that sole option for NAVFAC projects.

d. If the MPI Decision Tree provides multiple choices and no NAVFAC preference is denoted, refer to the Additional RFP Requirements below to determine level of performance.

e. If the MPI Decision Tree does not identify all paint system applicable to the facility, utilize the *MPI Architectural Painting, Exterior Systems Manual* to identify other appropriate paint systems for the project. Utilize the "Premium Grade" systems and comply with all limitations stated in the MPI "Approved Product List" for each paint product. Products having an MPI VOC Range E3 shall be given preferential consideration over lower VOC Ranges. Use higher performing paint systems unless the lower performing paint system can be justified based on a lifecycle cost to include surface preparation, application, disposal, environmental impact, and required recoating cycles. Only use paint products that have been tested for MPI'S "DETAILED PERFORMANCE" or "EVALUATED PERFORMANCE ". Do not use products that have only been tested for "INTENDED USE".

f. If an "Aggressive" environmental condition option is not available in the MPI Decision Tree for a certain substrate, use the "Normal" environmental condition option.

g. Refer to the Additional Exterior Paint and Coating System Requirements below for further system requirements.

Paints and coatings shall comply with Master Painters Institute Green Performance Standard GPS-1-12 which is available at the following website; http://www.specifygreen.com/EvrPerf/EnvironmentalPerformance.html . Provide Interior flat intermediate and topcoats of a maximum of 50 g/L VOC and interior non-flat intermediate and topcoats of a maximum 150 g/L VOC. Choose paints that provide performance and are environmentally friendly by using LEED VOC Budgeting to analyze the total impact of all flat, non-flat and special purpose coatings on the project.

C304001 1.1 MPI GLOSS LEVELS

Gloss levels shall comply with the MPI system of determining gloss as defined in the Evaluation sections of the MPI Manuals. Utilize the performance characteristics of the paint gloss and sheen to categorize paint rather than manufactures' description of his product. The MPI Gloss Levels are indicated by the notation G1, G2, G3, G4, G5, G6, or G7. G1 is not used by Navy.

The MPI Decision Tree indicates a default gloss level for each paint system, however consider the appearance, anticipated conditions, and need for cleaning when choosing the correct gloss level for each coated surface of the project. Comply with the following guidance in choosing the appropriate gloss level.

a. Use G2 "Velvet-like" Flat for ceilings, residential walls away from human contact and low traffic areas.

b. Use G3 "Eggshell-like" in high traffic areas for ceilings and walls, when human contact with the wall is expected but limited, and for dark accent colors.

c. Use G5 Semigloss for walls, doors and trim for high durability and clean ability and when a surface is expected to have routine human contact.

d. Use G6 Gloss only in special situations such as piping identification or special effects.

The MPI Gloss and Sheen Standard values are measured per ASTM D523, and are as follows:

Gloss Level Number	Gloss@ 60 Degrees	Sheen@85 Degrees
Gloss Level 1(G1) - Matte or Flat	Max.5 units	Max.10 units
Gloss Level 2(G2) - "Velvet-like" Flat	Max. 10 units	10-35 units
Gloss Level 3(G3) - "Eggshell-like"	Max. 10-25 units	10-35 units
Gloss Level 4(G4) - "Satin-like"	Max. 20-35 units	Min. 35 units
Gloss Level 5(G5) - Semi-Gloss	35-70 units	
Gloss Level 6(G6) - Gloss	70-85 units	
Gloss Level 7(G7) - High Gloss	More than 85 units	

C304001 1.2 MPI SYSTEM DESIGNATIONS AND ABBREVIATIONS

The MPI coating system number in each Division is found in either the *MPI Architectural Painting Specification Manual* or the *Maintenance Repainting Manual* and defined as an interior system (INT/RIN).

a. INT designates an interior coating system for new surfaces.
b. RIN designates an interior coating system used in repainting projects or over existing coating systems.
c. DSD – the MPI short-term designation for Degree of Surface Degradation as defined in the Assessment sections in the *MPI Maintenance Repainting Manual*. Degree of Surface Degradation designates the MPI Standard for description and appearance of existing condition of surfaces to be painted. This DSD classification is used to determine the proper surface preparation necessary for painting.

C304001 1.3 SURFACE PREPARATION

Comply with the "Interior Surface Preparation" section of the *MPI Architectural Painting Specification Manual* or the "Interior Surface Preparation" section of the *MPI Maintenance Repainting Manual*. All suggestive language such as "may" or "should" are deleted from the standard and "must" or "shall" inserted in its place. Suggestive language such as "recommended" or "advisable" is deleted from the standard and "require" or 'required" inserted in its place. The results of these wording substitutions change this document to required procedures. For surface preparation, determine a MPI DSD Assessment of each surface and comply with the MPI Surface Preparation Requirements relating to the assessments. Notwithstanding MPI requirements, clean interior ferrous metal to a SSPC SP 10 level (near white) that have aggressive chemical environments (SSPC Zones 3A, 3B, 3C, 3D, and 3E) or waterfront exposure to open structures (SSPC Zones 2A or 2B). Examples of these types of facilities are indoor water training facilities, indoor swimming pools, and open or mostly open waterfront maintenance buildings/ waterfront warehouses/ canopies.

Remove dirt, splinters, loose particles, grease, oil, and other foreign matter and substances deleterious to coating performance as specified for each substrate before application of paint or surface treatments. For existing buildings, use MPI *Maintenance Repainting Manual* to determine the coatings that need to be removed. Remove deteriorated or loose coatings before repainting begins. Oil and grease shall be removed prior to mechanical cleaning. Cleaning shall be programmed so that dust and other contaminants will not fall on wet, newly painted surfaces. Exposed ferrous metals such as nail heads on or in contact with surfaces to be painted with water-thinned paints, shall be spot-primed with a suitable corrosion-inhibitive primer capable of preventing flash rusting and compatible with the coating specified for the adjacent areas.

C304001 1.4 ADDITIONAL INTERIOR PAINT AND COATING SYSTEMS

In addition to the MPI Decision Tree, comply with the following paint system requirements:

C304001 1.4.1 PAVEMENT COATINGS

(1) INT 3.2 Concrete Horizontal Surfaces

Normal Environmental Conditions; Pigmented

Provide road and parking lot pavement marking in accordance with UFGS 32 17 23.00 20, *Pavement Markings.*

C304001 1.4.2 DRESSED LUMBER

Provide Pigmented systems for Composite Wood Doors (Fiberboard) and trim. Do not use Normal/ Aggressive; Clear and Normal/ Aggressive Stain finishes.

C304007 SPECIAL COATINGS TO WALLS

C304007 1.1 HIGH PERFORMANCE ARCHITECTURAL COATING (HIPAC)

HIPAC shall be a durable, organic system applied to a continuous (seamless) high-build film and cure to a hard glaze finish. They shall be resistant to continuous heat and humidity, abrasion, staining, chemicals, and biological growth. Coating shall be installed as a complete system, and as recommended by the manufacturer and have a flame spread index of not more than 25 and a smoke developed index of not more than 50 when tested in accordance with ASTM E84.

C304007 1.1.1

Two-component, epoxy-polyamide shall be chemical and corrosion-resistant, adhesive, alkali-resistant, and water-tolerant for metal, wood, concrete, masonry surfaces, and painted surfaces where high gloss or glaze type finish, extreme workability and resistance to abrasion and stains is required. Minimum dry film thickness is 3 mils for each of two coats. Furnish Gloss or Semigloss finish. Maximum volatile organic compounds (VOC) shall be 340 grams/liter.

C304007 1.1.2

Single Component, Moisture-Curing Urethane shall be a flexible, abrasion- and impact-resistant, use for floors, walls, machinery, equipment and other surfaces where good abrasion resistance, color retention, gloss retention, graffiti resistance and good resistance to acids, alkalis, solvents, strong cleaners and sanitizers, fuel and chemicals are necessary. Can also be used on concrete floors, brick and masonry surfaces (properly conditioned), metals (properly primed), and wood (properly prepared and sealed.) Minimum dry film thickness is 3 mils for each of 3 coats. Use Type I, Aliphatic, for exterior use except for oily or resinous exterior wood surfaces. Use Type II, Aromatic, for interior use.

C304007 1.2 IMPACT RESISTANT WALL FINISHES

Provide textured acrylic architectural coating system: a seamless textured acrylic water-based coating system, having a thickness of at least 20 mils, on surfaces scheduled to receive it. System shall be composed of pure

acrylic polymers, silica dioxide, ethylene dioxide and pigments. System shall have a Barcoll Hardness Index of 35.0 or greater, a flame spread of 8.5 or less as determined by ASTM E84, smoke contribution of 7.0 or less, and have water vapor permeability of 27.5 English Perms or greater when tested in accordance with ASTM E96. (MPI 42)

Finish may only be installed by factory-qualified applicators in accordance with the manufacturer's printed instructions and recommendations, to fulfill warranty requirements. All coating system components shall be products of the same manufacturer. A minimum of one sample wall application shall be provided. Upon approval of the sample wall by the project manager, the application shall serve as a standard for the remaining work. The manufacturer's certified representative shall provide an on-site training demonstration of the application and care of the finish for the end-user's facility manager or other representative.

-- End of Section --

CONVEYING

D10 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

Comply with the requirements of UFC 1-200-01, *General Building Requirements*.

D10 1.1 DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

Industry standards, codes, and Government standards referenced in the section text that are **not** found in the Unified Master Reference List (UMRL) in the Construction Criteria Base (CCB) at the Whole Building Design Guide Website , are listed below for basic designation identification. Refer to the UMRL for full reference standard title and current document date. Comply with the required and advisory portions of the current edition of the referenced standard at the time of contract award.

D10 1.1.1 Industry Standards and Codes

Although some the following references are listed in the UMRL, they are repeated here for emphasis.

References publications in this RFP that refer to the "authority having jurisdiction" shall be interpreted to mean the "Contracting Officer."

AMERICAN GEAR MANUFACTURERS' ASSOCIATION (ANSI/AGMA)

ANSI/AGMA 6035	Design, Rating and Application of Industrial Globoidal Wormgearing

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI B4.1	Preferred Limits and Fits for Cylindrical Parts

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

ASCE 7	Minimum Design Load for Buildings and

Other Structures

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME A17.1	Safety Code for Elevators and Escalators
ASME A17.2	Guide for Inspection of Elevators, Escalators and Moving Walks
ASME A18.1	Safety Standard for Platform Lifts and Stairway Chairlifts
ASME B20.1,	Safety Standards for Conveyors and Related Equipment
ASME B30.10,	Hooks
ASME B30.2,	Safety Standard for Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A27,	Mild to Medium Strength Carbon Steel Castings for General Application
ASTM A36,	Structural Steel
ASTM A434,	Standard Specification for Steel Bars, Alloy, Hot-Wrought or Cold-finished, Quenched and Tempered
ASTM A521,	Standard Specification for Steel, Closed Impression Die Forgings for General Industrial Use.

ASTM A563,	Standard Specification for Carbon and Alloy Steel Nuts (NOT in Spec TEXT)
ASTM A1023/A,	Standard Specification for Stranded Carbon Steel Wire Ropes for General Purposes (NOT in Spec TEXT)
ASTM E1417,	Standard Practice for Liquid Penetrant Examination (NOT in Spec TEXT)

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1,	Structural Welding Code Steel (NOT in Spec TEXT)

NATIONAL FIRE PROTECTION ASSOCIATION

NFPA 70,	National Electric Code

RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RCSC)

RSCS	Specification for Structural Joints Using High-Strength Bolts

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

SAE J995,	Mechanical and Material Requirements for Steel Nuts
SAE J123,	Surface Discontinuities on Bolts, Screws, and Studs in Fatigue Applications

D10 1.1.2 Government Standards

NAVAL FACILITIES ENGINEERING COMMAND (NAVFAC)

ITG NAVFAC Elevator Design Guide(2013) – This guide can be found at the following web address:

http://www.wbdg.org/ccb/NAVFAC/INTCRIT/fy01_01.pdf

NAVFAC P-307,	Management of Weight Handling Equipment

NAVAL SEA SYSTEMS COMMAND (NAVSEA)

T9074-AS-GIB-010/271,	Requirements for Nondestructive Testing Methods.

US NATIONAL ARCHIVES AND RECORDS - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (NARA/ OSHA)

29 CFR, Part 1910.23,	Guarding Floor and Wall Openings and Holes
29 CFR, Part 1910.27,	Fixed Ladders
29 CFR, Part 1910.179,	Overhead and Gantry Cranes
29 CFR, Part 1910.306,	Specific Purpose Equipment and Installations

U.S. DEPARTMENT OF DEFENSE (DOD) UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01,	General Building Requirements(UFC 1-200-01 is a hub document that provides general building requirements and references other critical UFCs. A reference to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs listed in the document.)

D10 1.2 PERFORMANCE VERIFICATION AND ACCEPTANCE TESTING

Verification of satisfactory Conveying systems performance shall be via Performance Verification Testing, as detailed in this section of the RFP.

D10 1.2.1 Testing and Inspections for Elevators

a. Conduct all testing and inspections in the presence of both the Elevator Specialist and a NAVFAC Certified Elevator Inspector. The Elevator Inspector must complete, sign and post the results of all tests and inspection results after successful completion of inspection and testing. The Contractor is responsible for all costs involved with reinspection and retesting required to correct discrepancies discovered during testing and the subsequent retesting required, including all costs and expenses incurred by the Government Furnished Inspector.

b. Testing Materials and Instruments
Provide testing materials and instruments required for final inspection, including a current equipment calibration certification.

c. Field Tests for Elevators

In addition to the tests required by AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) A17.1 AND ASME A17.2, perform the following:

(1) Endurance Tests - Test each elevator for a period of one hour continuous run, with specified rated load in the car. Restart the one hour test period from beginning, following any shutdown or failure. During the test run, stop car at each floor in both directions of travel for standing period of 10 seconds per floor. Meet the requirements for Rated Speed, Leveling, Temperature Rise, and Motor Amperes testing specified herein throughout the duration of the Endurance test.

(2) Speed Tests - Determine actual speed of each elevator in both directions of travel with rated load and with no load in elevator car. Minimum acceptable elevator speed is the Rated speed specified. Maximum acceptable elevator speed is 110 percent of Rated speed.

(3) Leveling Tests - Test elevator car leveling devices for landing accuracy of plus or minus 1/4-inch (6 mm) at each floor with no load in car, symmetrical load in car, and with rated load in car in both directions of travel. Car sill must be level with landing sills.

(4) Temperature Rise Tests - Determine temperature rise of elevator hoisting motor, motor-generator, exciter, and booster during full-load test run for one hour minimum. Under these conditions, maximum acceptable temperature rise shall not exceed acceptable temperature rise indicated on manufacturer's data plate. Start test only when equipment is within 9 degrees F (5 degrees C) of ambient temperature.

(5) Motor Ampere Tests - Measure and record motor amperage when motor is running and elevator is lifting at rated load and speed. Measure and record motor amperage at beginning and end of Endurance test. Test results must not exceed nameplate amperage when motor is running and elevator is lifting at rated load speed.

(6) Balance Load for Electric Elevators Tests - Perform electrical and mechanical balance load tests of car and counterweight.

(7) Automatic Shutoff Valve Tests - For hydraulic elevators, test the automatic shutoff valve twice. Once at beginning of acceptance test and again at conclusion of one-hour Endurance test to ensure consistent performance of shutoff valve, regardless of temperature of equipment and oil.

(8) Perform miscellaneous tests called for in this Section.

D10 1.2.2 Crane System and Monorail with Hoist/TrolleySystem Installation and Certification

Not used.

D10 1.3 DESIGN SUBMITTALS

Provide Design Submittals in accordance with Z10, *General Performance Technical Specifications*, UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures*, UFC 3-101-01, *Architecture* and UFC 3-301-01, *Structural Engineering*. Provide design submittals that include the following items:

a. Elevators and Weight Handling Equipment (WHE):

(1) Drawings. Show the design of the track beam system, including weight handling equipment curves and switches, principal dimensions, details of structural connections, all component details, and electrical one-line diagrams. Show clearances between elevator and/ or crane structure and building and identify interferences. Provide weight handling equipment wheel load diagrams and hook configuration.

(2) Specification. Provide edited version(s) of the UFGS elevator and weight handling equipment specification(s) that are applicable to this project. Edit this UFGS in accordance with restrictions of RFP Part 4 - PTS Section Z-10 and refer to UFGS 01 33 10.05 20, *Design Submittal Procedures* for format and further specification requirements. Do not add or delete requirements to the UFGS for weight handling equipment unless specifically approved by Navy Crane Center. Edit UFGS for weight handling equipment only to add project specific information such as capacity and hook height. Submit the applicable UFGS as a part of the Contractor originated design submittal, DO NOT submit RFP Part 4 - D10 as part of the design submittal.

If this RFP includes a type of elevator and weight handling equipment that is not covered in this D10 PTS Section and is specified in a Prescriptive Specification located RFP Part 5, include this Prescriptive Specification in the Contractor's design submittal without modification.

(3) Catalog Cuts. Include catalog cuts in addition to the UFGS sections for all major components. Mark and highlight all catalog cuts to identify all the specific components that are applicable to the project.

D10 1.4 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) shall approve the following construction submittals as a minimum:

a. Construction Submittals for Vertical Transportation Equipment (VTE)

(1) Elevator Construction Submittals

In addition to the submittal requirements of ASME A17.1, provide the following submittals:

Detail drawings must include dimensioned layouts in plan and elevation showing the arrangement of elevator equipment, accessories, supporting systems, anchorage of equipment and anchorage forces from seismic, gravity, impact, etc. loads, clearances for maintenance and operation; and details on hoistway, doors and frames, operation and signal stations, controllers, motors, guide rails and brackets, and points of interface with normal power, fire alarm system, HVAC or exhaust systems, and interface with emergency power systems. Drawings shall show any revised building electrical system required to make supplied elevator system function as specified. Drawings shall contain complete wiring diagrams showing electrical connections and other details required to demonstrate sequence of operations and functions of system devices. Drawings shall include the appropriate sizing of electrical protective devices, which are frequently different from National Electrical Code standard sizes.

Submit one set of wiring diagrams in plastic or glass cover, framed and mounted in elevator machine room. Deliver other sets to Contracting Officer. Coded diagrams are not acceptable unless adequately identified.

(2) Construction Submittals for Facility Electronic Operation and Maintenance Support Information (eOMSI):

Submit final submittals for eOMSI Submittal. After approval by the DOR and sign-offs by the elevator inspector, assimilate construction submittals into the OMSI manuals required under Section 01 78 24.00 20, *Facility Electronic Operation and Maintenance Support Information*.

b. Construction Submittals for Weight Handling Equipment (WHE):

(1) Drawings. Submit to DOR for approval, the construction submittal and drawings described below. After DOR approval submit to the Government for approval or surveillance as required in UFGS section 00 33 00.05 20, *Construction Submittal Procedures.* Manufacturer's catalog data shall suffice for standard commercial products. Each assembly and subassembly drawing shall include an integral Bill of Materials or shall be followed by a consecutively numbered drawing with the applicable Bill of Materials.

(a) General Arrangement Drawings. Show in plan, elevation and end view the crane or monorail system assembly and each major component, including runways for underrunning cranes to demonstrate proper interface with the facility building. Show all major features including: clearances, lifts, speeds, hook approaches (on all sides), maximum wheel loads (without impact), electrical or pneumatic power supply, and general locations of components such as: hoists, trolleys, brakes, motors, speed reducers, and control panels (including size). Indicate torque value or tightening method (e.g. turn of the nut) for bolts on the drawing. In addition, show estimated weights for major components (girders, trolleys, runway beams, control panels and end trucks) and the completely assembled crane. Provide approximate locations of center of gravity and location of lifting points for completely assembled crane and for each major component with the design drawings.

(b) Structural Drawings. Show fabrication details including all weldments, fastener joints, structural components, and list of materials for fabricated crane girders (including end stops), fabricated trolleys and fabricated end trucks on these drawings. Specify the type of structural bolted connection (i.e. slip critical, snug-tightened, or pretensioned) on

the drawing.

(c) Mechanical Drawings. Show the layout of mechanical equipment on cranes and monorail systems on the drawings, in particular drive arrangements (including assembled components). On pneumatically powered cranes, show the layout of pneumatic equipment, including control panel enclosures, motors, brakes, limit switches, piping and valves on the drawings. The drawings must also include:

1. Complete schematic diagram of pneumatic systems with narrative of any special description of operation. All components shown on schematics shall have labels that correspond to the nameplates that shall be on the crane. Pipe material and size shall be included.

2. Rating and types of over-pressure protective devices.

3. Complete assembly diagrams including a component material list. Show on the drawings the layout of pneumatic equipment on the crane including: motors, brakes, limit switches, conduits, and piping systems.

(d) Electrical Drawings. Show the layout of electrical equipment on cranes and monorail systems, including control panel enclosures, motors, brakes, limit switches, conduits, disconnects, and conductor systems on the drawings. The drawings must also include:

1. Complete schematic diagram with narrative of any special description of operation. All components shown on schematics must have labels that correspond to the nameplates that shall be on the crane. Wiring type, size, and temperature ratings must be included on schematic diagrams. Remove all optional equipment not included in this project from the schematic diagrams.

2. Motor nameplate data (including all information called for in NATIONAL FIRE PROTECTION ASSOCIATION(NFPA) 70, Section 430.7 (A) items 1 through 7)

3. Rating and types of over-current protective devices.

4. Complete assembly (wiring) diagrams including a component material list. Show on the drawings, the layout of electrical equipment on the crane, including control panel enclosures, motors, brakes, limit switches, conduits, and conductor systems.

5. Layout diagrams showing component placement in control panel enclosures.

(2) Product Data. Provide manufacturer's catalog data for all major components of cranes and monorail systems. Mark-up or supplement the catalog cuts with additional sheets to clearly identify the model or size, selected options, features, and/or modifications to demonstrate compliance with specification requirements. Catalog cuts which show modifications beyond the standard options and all supplemental pages must bear original signatures and dates of the equipment manufacturer's authorized representative. Clearly identify the item on the catalog cuts and each supplemental sheet to which it applies.

(a) Structural Product Data. Submit product data for Bridge End Trucks, Trolley Frame, Patented Track, Runway and Bridge Rails and Support System, and End Stops.

(b) Mechanical Product Data. Submit product data for Speed Reducers, Brakes (including electrical information), Bearings, Couplings, Load Blocks, Hoist/Trolley (if procured as a packaged unit), Hose Reels, Oilers, Pressure Regulators and Bumpers.

(c) Electrical Product Data. Submit product data for Variable Frequency Drives, Motors, Electrical Enclosures, Runway Electrification and Collectors, Limit Switches, Bridge to Trolley Electrification, Pendant or Radio Control Station, Warning and Pilot Devices, Disconnect Switches, and Fuses and Circuit breakers.

(3) Design Data. Provide calculations that demonstrate compliance with all design requirements. Design data shall not be approved if their evaluation/review is dependent on data or information not previously approved. List and define all variables at the beginning of each calculation section; variables must be in accordance with required references. Include sufficient information in the design data, so that they may be approved without reference to detail (shop) drawings.

When there is one hoist on one monorail system, the monorail system rated capacity and the hoist rated capacity shall be equal. When there is more than one hoist on the monorail system, the rated capacity of the monorail track beam system shall be designed equal to the sum of the two hoists rated capacities. An exception to this is that if the two hoists are separated by positive track beam stops and distance so that the track beam is strength-wise essentially two independent track beam systems.

(a) Structural Calculations. Submit calculations verifying the sizing of any track, track suspension device and additional supports, which are not the runway or monorail system manufacturer's standard cataloged product. Include support reactions and recommended method of connecting/attaching the support. Provide calculations verifying compliance with Section 3 of CMAA No.70 or No. 74 or Section 6 of MH 27.1. In addition to Load Cases 1 and 2 of CMAA No. 70 and 74, the following load combinations are also required in the crane design calculations:

1. CMAA Case 3: Test Loads. The crane shall be periodically tested up to 131.25% of rated capacity. Combined stresses for the following load combinations must be calculated to ensure structural adequacy during testing:

DL (DLFB) + TL (DLFT) + LL (1 + HLF) + IFD + SK

Test Loads (Stress Level 3). In this calculation use LL = 1.3125 x rated capacity. Do not consider the test and extraordinary loads in the fatigue analysis. Formula abbreviations correspond to principal loads as defined in CMAA #70 and 74, Section 3.3. The subscripts T and B refer to trolley and bridge, respectively.

2. CMAA Case 4: Seismic Load. Provide seismic analysis in accordance with AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) 7-05. Consider loading condition in an event while the crane is operating at rated capacity without lowering or dropping the load.

3. Calculations verifying design of runway and bridge rail stops and bumpers in accordance with the dynamic requirements of Association for Iron and Steel Technology (AIST) TR-06.

(b) Mechanical Calculations. Calculations verifying compliance with Section 4 of CMAA #70, regardless of crane type, for any non-commercial items.

(c) Electrical Calculations

1. Minimum required horsepower for each drive motor - Motor power rating must be based upon the formulae given in CMAA#70 regardless of crane type. For hoist motor sizing calculations, the factor "Kc" shall not be less than 1.0 .For bridge and trolley drive motor sizing calculations, the factor "E" shall

be the published gear reducer efficiency ratings. For the bridge drive the minimum acceleration rate must be 4 seconds and 2 seconds for simulated plugging (deceleration). For the trolley drive the minimum acceleration rate must be 3 seconds and 1.5 seconds for simulated plugging. Calculations are not required for packaged hoists, but packaged hoists must still meet acceleration and deceleration requirements.

2. Overcurrent protection.

3. Conductor sizing and Conduit fill calculations (using tables from NFPA 70, Chapter 9 or manufacturer's data sheets).

4. Protective device coordination study showing proper coordination for any overcurrent devices that have the same rating as another overcurrent device upstream

5. Transformer sizing.

6. Drive controller sizing for hoist motors.

(4) Facility Electronic Operation and Maintenance Data, Documents, and Training Information. Submit the WHE's operation and maintenance data, document, and training information to be incorporated in the UFGS 01 78 24.00 20, *Electronic Facility Operation and Maintenance Support Information* (eOMSI) submittal. Make a copy of the eOMSI submittal available at the acceptance test. Include in the eOMSI submittal a table of contents, operation instructions, preventive maintenance instructions including maintenance, training materials, and programming instructions for the adjustable frequency drives, parts information, a drawing list, design drawings, lubrication drawing supply list, catalog cuts, photographs as needed to explain maintenance or repair procedures, and calculations. Provide maintenance instructions to include recommended maintenance procedures and component manufacturer's installation and maintenance manuals and lubrication instructions. Include detailed crane operating and safety instructions in the operating instructions. Parts information must include information on purchased sub-assemblies and components, including manufacturer's original part number, and detailed drawings of contractor-designed parts. Break-out the parts information into the smallest replacement part.

(5) Provide onsite training for unique critical job skills associated with the crane or attachments

(6) Field Test Reports. Submit a copy of all Field Reports.

D1010 ELEVATORS AND LIFTS

Comply with the *ITG FY 2013 Elevator Design Guide* for the design and construction of elevators.

D1010 1.1 QUALIFICATION OF MANUFACTURER AND INSTALLER

Provide elevator by manufacturer regularly engaged in the manufacture of elevator systems. Manufacturer must either install elevator system or provide letter of endorsement certifying that installer is acceptable to manufacturer. Installer is required to be regularly engaged in installation and maintenance of elevator systems.

If the project is located in the State of Hawaii, perform work involving the installation or repair of elevator equipment under the supervision of a person who is licensed in elevator repair in the State of Hawaii or who

possesses the equivalent experience. Furnish data to the Contracting Officer for verification that the person exercising direct supervision of the work possesses such experience.

D101001 GENERAL CONSTRUCTION ITEMS

Comply with ASME A17.1 AND ASME A17.2 in their entirety, and additional requirements specified herein. Install in accordance with manufacturer's instructions, ASME A17.1, DoD ABA and DEPSECDEF Memorandum (dated October 31, 2011), and NFPA 70. Do not cut or alter Structural Members. Restore damaged or defaced work to original condition. Include recesses, cutouts, slots, holes, patching, grouting, and refinishing to accommodate installation. Use core drilling to drill new holes in concrete ensuring that no existing reinforcing is cut. Finish work to be straight, level, and plumb. During installation, protect machinery and equipment from dirt, water, or mechanical damage. At completion, clean all work, and repair any prefinished items that have been damaged during the performance of the work.

Elevators that are intended to carry personnel other than one (1) operator must be classified as a passenger elevator. Passenger elevators that are intended to carry furniture or equipment, must have an oversized cab. Refer to the Project Program for the type of elevator required.

D101001 1.1 TRAFFIC ANALYSIS

Provide a traffic analysis in accordance with criteria established by a nationally recognized elevator manufacturer's association and conduct interviews with the U ser to determine the following:

a. Passenger or Freight
b. Rated load
c. Rated speed
d. Travel length
e. Number of stops
f. Number of hoistway openings
g. Car platform, car inside, and hoistway door opening dimensions
h. Hoistway Door Types
i. Car Door type
j. For Freight Elevators, identify Class Loading Type - Class A, B, or C, to handle loads as indicated on the project program.

D101001 1.2 ELEVATOR MACHINE ROOM

Provide a machine room for every elevator. Locate the elevator machine and controller in the Elevator Machine Room.

D101002 FREIGHT PASSENGER ELEVATORS

D101002 1.1 HOISTWAY AND CAR EQUIPMENT

D101002 1.1.1 Car and Counterweight Guide Rails and Fastenings

Paint rail shanks with one coat of black enamel. Only T-section type guide rail is acceptable.

D101002 1.1.2 Pit Channel

Provide pit channel for anchorage of main guide rail brackets and also for anchorage of counterweight guide rail brackets and buffer for electric elevators. Each channel must span distance between guides. Fully grout both pit channels on completion of guide rail and buffer installation.

D101002 1.1.3 Pit "STOP" Switch

Provide push/pull type pit "STOP".

D101002 1.1.4 Wiring and Traveling Cables

Suspend cables by means of self-tightening webbed devices.

D101002 1.2 CAR AND LANDING DOOR EQUIPMENT

D101002 1.2.1 Infrared Curtain Unit

Provide Infrared Curtain Unit (ICU) with multiple infrared beams that protect to the full height of the door opening. Extend minimum coverage from 2 inches (50 mm) off the floor to 70 inches (1778 mm) above floor level.

D101002 1.2.2 Hoistway Entrance Frames

Provide 14 gage (1.8 mm) thick #4 brushed stainless steel door frame unless directed otherwise by Contracting Officer. Solidly grout uprights of entrance ways to height of 5 feet (1500 mm).

D101002 1.2.3 Car and Hoistway Landing Sills

Car and Hoistway Landing Sill - Provide one piece cast solid white bronze or nickel silver entrance sill. Use same material for hoistway and car entrance sills. Solidly grout under full length of sill.

D101002 1.3 IN-CAR AND LANDING FIXTURES

D101002 1.3.1 Car and Hall Buttons

Provide recessed vandal-resistant push buttons of minimum 3/4-inch (19 mm) size satin-finish stainless steel with illuminating jewel center.

D101002 1.3.2 Position and Direction Indicators

Provide position and direction indicators in car and at each landing.

D101002 1.3.3 Direction Audible Signals

Provide audible signals in car and at each landing.

D101002 1.4 CAR AND CAB EQUIPMENT

D101002 1.4.1 Roller Guides

Provide coil-spring loaded roller guide assemblies in adjustable mountings on each side of car and counterweight frames in accurate alignment at top and bottom of frames.

D101002 1.4.2 Certificate Window

Provide 4 inch (100 mm) high by 6 inch (150 mm) wide certificate window in car operating panel for elevator inspection certificate.

D101002 1.4.3 Cab Ventilation

Provide natural and forced ventilation with two-speed fan.

D101002 1.4.4 Protection Pads and Mounting Hooks

Provide stainless-steel hooks and fire retardant protective pads for one elevator in a set.

D101002 1.4.5 Car Enclosure

Car Shell Return Panels, Entrance Columns, Cove Base, and Transom: Provide 14 gage (1.9 mm) minimum non perforated steel. Apply sound-deadening mastic on all exterior components.

Provide finishes for the elevator cab interior that are appropriate for the type of facility. Finishes shall not exceed the flame spread rates mandated by ASME A17.1.

D101002 1.4.6 Car Size

Provide at least one elevator of a size and arrangement to accomidate an ambulance stretcher in the open, horizontal position. The minimum size of the ambulance stretcher used to design the elevator must be 24 inch by 84 inch (609.6 mm by 2133.6 mm) with not less than 5 inch (127 mm) radius corners. Identify all stretcher accessable elevators with the international symbol for emergency medical services (Star of Life).

D101002 1.5 ELEVATOR CONTROLLER

D101002 1.5.1 Non-proprietary Controller

Provide micro-processor controllers from controller manufacturers who provide generic controllers that are designed to function with all or most manufacturers elevator equipment. The manufacturer of the controller shall engage solely in the manufacture and sale of controllers to the elevator industry and not engage in the elevator installation, service, or maintenance. The follow controller manufactures comply with this requirement:

a. Elevator Controls Corporation, 3525 La Grande Boulevard, Sacramento, CA 95823

b. G.A.L. Manufacturing Corporation, 50 East 153th Street, Bronx, New York 10451

c. Motion Control Engineering, Inc., 11354 Whiterock Road, Rancho Cordova, CA 95742-6522

d. Virginia Controls, Inc., 2513 Mechanicsville Turnpike, Richmond, VA 23223

e. Computerized Elevator Control Corporation (Swift), 24 Empire Blvd., Moonachie, NJ 07074-1303

The following are required features of the generic micro-processor controllers and manufacturers training:

f. On-Board Diagnostic Panel

(1) Provide a non-proprietary micro-processor controller for each individual elevator and group controller. Provide an on-board diagnostic control and LCD display panel that allows unrestricted access to the comprehensive range of adjustable parameters necessary

to perform installation, adjusting, service, maintenance, and testing of the elevator.

(2) Provide LCD displays with the capability to display, monitor, and diagnose any and all fault logs, fault history, trouble calls, and diagnostics. Provide three (3) copies of the complete manufacturer's software program, with complete software documentation, that must enable the same level of unrestricted access to all controllers of the same make and model, regardless of the installation date or location.

g. External Port - For each individual elevator and group controller, provide a USB port or an RS 232 port that allows connection to an on-site portable laptop computer. Provide the same level of unrestricted access as the on-board diagnostic panel.

h. Repair Requirements - For repair of the microprocessor control system(s), provide maintenance tools, supporting computer software, and software documentation required for complete maintenance of elevator system including diagnostics and adjustments. On-board diagnostic panels must not require recharging to maintain their memory or authorization for use. Software must not require periodic reprogramming, or reauthorization. Store programs in non-volatile memory.

i. Training - The elevator controller manufacturer must offer and conduct technical support and factory training that is available to all state licensed elevator service providers qualified to bid on navy elevator maintenance service contracts. Include in the factory training all aspects of the installation, service, and maintenance of the elevator controller.

D101002 1.6 OPERATIONAL CONTROLS

D101002 1.6.1 Independent Service

Provide exposed key-operated switch in car operating panel to enable independent service.

D101002 1.6.2 Hoistway Access Switches

Provide key-operated hoistway access switch to permit limited movement of car at terminal floors for car positioning, operative only when "INSPECTION" switch in car operating panel is in the "INSPECTION" position. Locate switch 6 feet (1800 mm) above floor level, within 12 inches (300 mm) of hoistway entrance frame or with only ferrule exposed when located in entrance frame.

D101002 1.6.3 Emergency Commandeering Service

Provide momentary pressure "ON-OFF" key switch and indicator light at all landings. Provide indicator lights that automatically illuminate during emergency service. Key must be removable only when key is in "OFF" position. Provide in accordance with ASME A17.1.

D101002 1.6.4 Keys for Elevator Key Switches

Provide minimum of twelve keys per unique cylinder used on all key switches for single elevator.

D101002 1.7 MAINTENANCE AND DIAGNOSTIC COMPONENTS

D101002 1.7.1 Maintenance and Diagnostic Tools

Provide all special tools and software necessary to service and maintain each elevator; deliver at time of final acceptance. Provide one of each tool for each elevator machine room.

D101002 1.8 ADDITIONAL REQUIREMENTS FOR HYDRAULIC ELEVATORS

D101002 1.8.1 Hydraulic System

Provide hydraulic system which operates at a maximum working pressure of less than 500 psig.

a. Scavenger Pump Unit - Provide a scavenge oil reservoir, with strainer and transfer pump. Provide a manual-reset pit flood switch to prevent pump operation if pit is flooded. Anchor pump and oil reservoir to the pit floor.
b. Pressure Piping and Accessories - Provide ASTM A 53/A 53M or ASTM A 106/A 106M, Schedule 80, black steel piping with ASME B16.9 or ASME B16.11 fittings for supply piping. Provide welded or threaded forged pipe fittings that are located between the pump control valve body and the cylinder inlet. Extend Schedule 80 piping from the pump control valve body, inside the pump unit, to the hydraulic cylinder in the hoistway. Provide dielectric union at each end of the "pump to cylinder" oil supply line. Provide hangers or supports for all piping.
c. Oil Temperature Device - Provide means to maintain oil temperature between 80 and 120 degrees F (27 and 49 degrees C) regardless of ambient temperature.

D101002 1.8.2 Cylinder-Plunger Unit

Provide a plunger of single-piece seamless steel construction. Provide threaded 1/4-inch (6 mm) bleeder valve at top of cylinder just below packing gland. Telescopic or inverted cylinder-plunger units are not acceptable. Provide cylinder with self-stabilizing mount that will support and hold cylinder plumb without the need for stabilization means at the bottom of the cylinder.

D101002 1.8.3 Automatic Shutoff Valve

Provide automatic shut-off valve in oil supply line as close to cylinder inlet as possible. Provide threaded pipe connections to the valve. Provide manual lowering feature on valve. Provide exposed adjustments of automatic shut-off valve with means of adjustment sealed by certified elevator inspector after being set to correct position and tested.

D101002 1.8.4 Well Casing

Line well with steel casing, minimum 1/4-inch (6 mm) wall with welded 1/2-inch(10 mm) steel bottom, set plumb. Install cylinder well casing plumb using spider bob method.

a. PVC Liner - Provide Schedule 80 PVC pipe liner with bottom cap and couplings; joints sealed watertight using PVC pipe manufacturer's recommended adhesive or heat welding methods. Provide liner inside diameter not less than 3-inch (76 mm) larger than elevator cylinder maximum outside diameter. Set PVC liner into well casing, centered and plumb. PVC liner may be provided as a manufacture’s applied liner or as a separate component.
b. Cylinder Installation - Install Cylinder plumb into PVC.
c. Cylinder Evacuation Tube - Provide a 3/4-inch (19 mm) PVC

evacuation tube with strainer located within 6 inch (152 mm) of bottom of liner. Provide top of test tube with removable cap to exclude foreign matter.

d. Pressure Test - Test liner-cylinder assembly as a sealed unit. Provide safety relief valve set to relieve at 10 psig (69 kPag); 4.5 inch (114 mm) diameter dial pressure gage scaled for 0 to 50 psig (0 to 175 kPag) and calibrated to 0.5 percent accuracy; and an air pressure admission throttling and shutoff valve. Perform air pressure test in the presence of the Elevator Inspector. For safety, pressure test shall only be performed when liner and cylinder are fully inserted and assembled in the well casing. Perform the test from remote location outside of the elevator pit.

e. Secure cylinder/PVC liner assembly as recommended by cylinder manufacturer.

f. Seal - Seal gap between steel well casing and PVC liner with foam insert strong enough to retain and support final grouting. Provide 3000 psi (21 MPa) grout to a minimum of 4 inch (102 mm) thickness and level top of final grouting with pit floor.

g. Containment - Protect exposed portions of hydraulic elevator oil supply line that are installed below ground, including portions encapsulated in concrete, or covered by construction, with continuous Schedule 80 PVC containment.

h. Provide layout diagram, foundation support details, and foundation loads.

D101003 FREIGHT/PASSENGER ELEVATORS

D101003 1.1 FREIGHT/PASSENGER ELEVATOR REQUIRMENTS

Code compliance and all other general compliance items for freight elevators must be as for passenger elevators, except for such items deleted, altered or added to by the Project Program.

D101003 1.2 ADDITIONAL REQUIREMENTS FOR FREIGHT ELEVATORS

a. Guides - In addition to ASME A17.1, for freight elevators with greater than 10,000 pound (4545 Kg) capacity, slide guides are permitted in lieu of roller guides.

b. Horizontal Buck Board Wall Protection – Provide 2-1/2 inch (63 mm) thick (minimum) x 12 inch (304 mm) high (minimum) #2 oak protection boards on all side walls of the elevator at a height to prevent damage from fork lift traffic.

D101004 WHEELCHAIR LIFT

Not used.

D101005 DUMBWAITERS

Not used.

D1020 WEIGHT HANDLING EQUIPMENT

Not used.

D102001 BASIC REQUIREMENTS FOR CRANES OR MONORAILS WITH HOISTS/TROLLEYS

Not used.

D1030 ESCALATORS AND MOVING WALKS

Not used.

D103001 ESCALATORS

Not used.

D103002 MOVING WALKS

Not used.

D109002 CONVEYORS

Not used.

--End of Section--

SECTION D20

PLUMBING
11/10

D20 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4 Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to this project. Therefore RFP Part 4 requirements that correspond and further define the RFP Part 3 requirements are specific to this project, other RFP Part 4 requirements are not required.

D20 1.1 NARRATIVE

This section must be used in conjunction with all parts of the Design Build (D/B) Request for Proposal (RFP) to determine the full requirements of this solicitation.

This section includes the construction of interior plumbing systems. This section covers installations inside the facility and out to the five foot line. See Section G30, *Site Mechanical Utilities*, for continuation of systems beyond the five foot line.

D20 1.2 PLUMBING DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

D20 1.2.1 Government Standards

Federal Energy Management Program (FEMP)

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-401-01, Mechanical Engineering UFC 3-420-01, Design: Plumbing Systems)

D20 1.3 DESIGN SUBMITTALS

Design Submittals shall be in accordance with Z10, *General Performance Technical Specifications*, UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures* and UFC 3-401-01, *Mechanical Engineering*.

D20 1.4 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) shall approve the following construction submittals as a minimum:

Fixtures, equipment, and OMSI information for all equipment and fixtures.

D2010 PLUMBING FIXTURES

Plumbing fixtures shall be provided in accordance with the IBC, IPC, and as specified.

D201001 WATER CLOSETS

D201001 1.1 FLUSH VALVE WATER CLOSETS

Not used.

D201001 1.2 DUAL FUNCTION FLUSH VALVE WATER CLOSETS

ASME A112.19.2, white vitreous china, siphon jet. Provide ASME A112.19.5 trim. Electronic flush control shall conform to UL 1951 and ASSE 1037. Flush valve shall not exceed 1.6 GPF. Handicapped fixture mounting height and appurtenances shall be in accordance with UFAS and ADAAG.

D201001 1.3 FLUSH TANK WATER CLOSETS

Not used.

D201001 1.4 DUAL FUNCTION FLUSH TANK WATER CLOSETS

Not used.

D201002 URINALS

D201002 1.1 FLUSH VALVE URINALS

ASME A112.19.2, white vitreous china, wall-mounted, wall outlet, siphon jet, integral trap, extended side shields. Provide large diaphragm (not less than 2.625 inches (66 mm) upper chamber inside diameter at the point where the diaphragm is sealed between the upper and lower chambers) flush valve of chrome plated cast brass conforming to ASTM B 584, including vacuum breaker and angle (control-stop) valve. Maximum flush valve volume per flush shall not exceed 0.5 gallons per flush. Provide ASME A112.19.5 trim and ASME 112.6.1M concealed chair carriers. Electronic flush control shall conform to UL 1951 and ASSE 1037. Handicapped fixture mounting height and appurtenances shall be in accordance with UFAS and ADAAG.

D201002 1.2 NON WATER USE URINALS

Not used.

D201003 LAVATORIES

D201003 1.1 COUNTERTOP LAVATORIES

Unless integral bowl is specified elsewhere, lavatories shall be white,

ASME A112.19.2 vitreous china lavatories with minimum dimensions of 20 inches (508 mm) wide x 18 inches (457 mm) front to rear, and self-rimming type. Provide ASME 112.18.1 copper alloy centerset faucets unless self closing metering or electronic control is specified in ESR section D20. Provide with aerator, adjustable P-traps, and perforated grid strainers, unless pop-up drain fittings are specified in ESR section D20.

D201003 1.2 WALL-MOUNTED LAVATORIES

ASME A112.19.1, white enameled cast-iron or ASME A112.19.2 white vitreous china with ASME A112.6.1M concealed arm carrier support, with minimum dimensions of 20 inches wide by 18 inches front to rear. Provide with aerator, adjustable P-traps, and perforated grid strainers.

D201003 1.3 HANDICAPPED LAVATORIES

Same as Paragraphs 1.1 or 1.2, except height and appurtenances shall be in accordance with UFAS and ADAAG.

D201004 SINKS

D201004 1.1 COUNTERTOP SINKS

ASME A112.19.3 sink, 20 gage stainless steel with integral mounting rim, minimum dimensions of 33 inches (840 mm) wide for two compartment or 21 inches (560 mm) wide for one compartment by 21 inches (560 mm) front to rear, with ledge back and undersides coated with sound dampening material. Provide stainless steel gooseneck hands-free type hardwired electronic faucet, swing spout with aerator, and stainless steel drain outlets with cup strainers. Provide adjustable P-trap with drain piping to vertical vent stack. If specified in ESR section D20, provide UL 430 waste disposer unit in right compartment.

D201004 1.2 SERVICE SINKS

Not used.

D201004 1.3 MOP SINKS

Pre-cast terrazzo floor-mounted mop sink, 36 inches x 36 inches x 12 inches (914 mm x 914 mm x 305 mm) shall be made of marble chips cast in white Portland cement to a compressive strength of not less than 3625 PSI (25 mPa) 7 days after casting. Provide brass body drains with nickel bronze strainers cast integral with terrazzo. Provide stainless steel rim guard for mop sink. Provide chrome-plated exposed hot and cold water faucets ASME A112.18.1 wall-mounted copper alloy faucets swing spout with 3/4 inch (20 mm) hose connection, vacuum breaker, and pail hook. Provide mop hanger on wall above sink suitable for four mops.

D201004 1.4 LAUNDRY SINKS

Not used.

D201005 SHOWERS/TUBS

D201005 1.1 SHOWER FLOORS

Precast terrazzo or Acrylic Shower Floors: Terrazzo shall be made of marble chips cast in white Portland cement to produce a compressive

strength of not less than 3625 psi (25 MPa) 7 days after casting. Provide brass body drains with nickel bronze strainers cast integral with terrazzo.

D201005 1.2 SHOWER SUPPLY FITTINGS

ASME A112.18.1, ball joint, self-cleaning, adjustable spray pattern shower heads, connected to concealed pipe connected to stainless steel pressure balance single control type mixing valves with front access integral screwdriver stops. Anchor the mixing valves and the pipe to each showerhead in wall to prevent movement.

D201005 1.3 HANDHELD SHOWER HEAD

ASSE 1014, adjustable spray hand-held shower head with swivel fitting, 60 inch (1524 mm) minimum flexible chrome plated copper alloy hose and in-line vacuum breaker. Provide push button flow control if specified in ESR section D20. Provide 25 inch (635 mm) grab bar with sliding spray holder that locks at any height.

D201005 1.4 HOT TUB

Not used.

D201006 DRINKING FOUNTAINS AND COOLERS

D201006 1.1 ELECTRIC WATER COOLERS

AHRI 1010, wall-mounted, bubbler style, air-cooled condensing unit, 4.0 gph (4.20 mL per second) minimum capacity, stainless steel splash receptor, double wall heat exchanger, and all stainless steel cabinet. Provide ASME A112.6.1M concealed wall hangers with thru-bolts and back plates. Handicapped fixture mounting height and appurtenances shall be in accordance with UFAS and ADAAG.

D201006 1.2 DRINKING FOUNTAINS (MULTIPURPOSE FIELDS SUPPORT BUILDING)

Not used.

D2020 DOMESTIC WATER DISTRIBUTION

D202001 PIPES & FITTINGS

D202001 1.1 COPPER

Use copper tubing and fittings for pipe sizes 4 inches (100 mm) or smaller. Use type L tubing above ground with either solder fittings, or press-on copper fittings. For buried piping, use type K tubing with either solder fittings, or press-on copper fittings.

D202001 1.2 CHLORINATED POLYVINYL CHLORIDE (CPVC)

Not used.

D202002 VALVES & HYDRANTS

D202002 1.1 VALVES

Provide valves at water supplies to fixtures and to provide ease of maintenance as required in the IPC.

D202002 1.2 HOSE BIBBS & HYDRANTS

Use non-freeze wall hydrants where the winter design temperature is at or below freezing. Hose bibbs are acceptable for use elsewhere.

D202002 1.2.1 Hose bibbs

Angle type, copper alloy hose bibbs with vacuum breaker.

D202002 1.2.2 Wall Hydrants

Non-freeze, ASSE 1019, cast bronze, with vacuum breaker, locking shield and tee-handle.

D202003 DOMESTIC WATER EQUIPMENT

D202003 1.1 BACKFLOW PREVENTERS

Furnish proof that each make, model/design, and size of backflow preventer being furnished for the project is approved by and has a current "Certificate of Approval" from the Foundation for Cross-Connection Control and Hydraulic Research (FCCCHR)-USC. Listing of the particular make, model/design, and size in the current FCCCHR-USC will be acceptable as the required proof. Provide freeze protection for aboveground exterior applications in areas where the winter design temperature is at or below freezing.

D202003 1.2 WATER HEATERS

D202003 1.2.1 Electric Water Heaters

Not used.

D202003 1.2.2 Gas-Fired Water Heaters

Not used.

D202003 1.2.3 Oil-Fired Water Heaters

Not used.

D202003 1.2.4 Instantaneous Water Heater (Electric)

Not used.

D202003 1.2.5 Steam Heat Exchangers

Not used.

D202003 1.2.6 Storage Tanks

Not used.

D202003 1.3 SOLAR DOMESTIC HOT WATER SYSTEM

Design and build each solar domestic hot water heating system meeting the requirements of UFC 3-440-04N *Solar Heating of Buildings and Domestic Hot Water*. Each system shall be fully integrated with the building DDC controls system.

Provide complete solar domestic hot water system designed and built by a single contractor who specializes in solar heated water systems. System shall be designed, built, and tested by this contractor who shall be responsible for the provided system to operate as proposed. This design-build contractor must be endorsed in writing, prior to system design, by the manufacturer of the solar plate collectors provided for this solicitation.

The solar domestic hot water system designer shall work with the building designers to optimize the roof area, slope and orientation available for solar domestic hot water. Coordinate with other solar systems utilizing the roof area such as photovoltaic systems.

Provide solar liquid flat plate collector systems to comply with the requirements specified in UFGS Section 48 14 13.00 20, *Solar Liquid Flat Plate Collectors.*

D202003 1.4 PUMPS

D202003 1.4.1 Inline Pumps

In-line circulator for service water distribution system. Factory assembled and tested pumps constructed of materials suitable for hot domestic water service.

D202003 1.4.2 Base Mounted Pumps

Not used.

D202003 1.5 DOMESTIC WATER PRESSURE BOOSTER SYSTEM

Not used.

D202003 1.6 EXPANSION TANKS

Steel expansion tank with potable water rated polypropylene or butyl lined diaphragm at water heater.

D202003 1.7 WATER METERS

AWWA C701 turbine type, with register reading in liters and U.S. gallons.

D202004 INSULATION & IDENTIFICATION

D202004 1.1 PIPING INSULATION

Mineral fiber insulation on domestic hot water supply and recirculation piping. Insulate domestic cold water piping with cellular glass insulation (ASTM C 552, Type II, and Type III).

D202004 1.2 PIPING & EQUIPMENT IDENTIFICATION

In addition to the requirements in Section Z10, *General Performance Technical Specification*, provide laminated plastic nameplates for valves. Stop valves in supplies to fixtures will not require nameplates. Identify above ground pipe with the type of service and direction of flow. Letter size, lengths and colors shall be per ANSI A13.1.

D202005 SPECIALTIES

D202005 1.1 VALVE BOXES

Not used.

D202005 1.2 WATER HAMMER ARRESTORS

PDI WH 201, water hammer arrestors in lieu of air chambers.

D202005 1.3 ICEMAKER CONNECTOR BOX

Recessed wall box fabricated of PVC plastic. Provide bronze shut-off valve.

D202090 OTHER DOMESTIC WATER SUPPLY

D202090 1.1 SUPPORTS

Provide piping supports in accordance with the IPC.

D202090 1.2 INSPECTIONS

Prior to initial operation, inspect piping system for compliance with drawings, specifications, and manufacturer's submittals.

D202090 1.3 DISINFECTION

Upon completion of the installation, disinfect all systems per the IPC.

D202090 1.4 PLUMBING SYSTEMS TESTING

Upon completion of the installation test all systems per the IPC.

D2030 SANITARY WASTE

D203001 WASTE PIPE & FITTINGS

D203001 1.1 PIPING AND FITTINGS

Cast iron hub and spigot pipe and fittings, rubber compression gasket joints, CISPI 301 with CISPI 310 couplings.

D203001 1.2 CLEANOUTS

Provide cleanouts as required by the IPC. Material shall be consistent with the piping system materials.

D203002 VENT PIPE & FITTINGS

Where indicated in ESR Section D20, plastic PVC or ABS piping, fittings, and solvent cement per ASTM D 2665 or ASTM D 2661. PVC piping shall be equipped with approved firestopping devices as required by code. Single drainage/vent stack systems (such as Philadelphia system) and mechanical air admittance valves are not acceptable.

D203003 FLOOR DRAINS

Floor drains shall be flush strainer or extended rim type as required by the IPC. Provide in mechanical rooms, restrooms, fire pump room, and plumbing chase areas.

D203004 SANITARY & VENT EQUIPMENT

D203004 1.1 PUMPS

D203004 1.1.1 Submersible Sump Pumps

Factory assembled and tested submersible type pumps for operation under water.

D203004 1.1.2 Sewage Pumps

Not used.

D2040 RAIN WATER DRAINAGE

D204001 PIPE & FITTINGS

Cast iron hubless pipe and fittings, CISPI 301 with CISPI 310 couplings.

D204002 ROOF DRAINS

Roof drains shall conform to ASME A112.6.4, with dome and integral flange, and shall have a device for making a watertight connection between roofing and flashing.

D204003 RAIN WATER DRAINAGE EQUIPMENT

Where required by building design, provide expansion joint(s) of proper size to receive the conductor pipe. The expansion joint shall consist of a heavy cast-iron housing, brass or bronze sleeve.

D204004 INSULATION & IDENTIFICATION

Mineral fiber insulation on all drainage piping that may be subject to condensation. Provide a vapor retarder.

D2090 OTHER PLUMBING SYSTEMS

D209003 INTERCEPTORS

D209003 1.1 OIL/WATER SEPARATOR

Not used.

D209003 1.2 GREASE INTERCEPTORS

Not used.

-- End of Section --

SECTION D30

HVAC
11/10

D30 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

D30 1.1 NARRATIVE

This section includes the construction of interior mechanical systems. This section covers installations inside the facility and out to the five foot line. See Section G30, *Site Civil/Mechanical Utilities*, for continuation of systems beyond the five-foot line.

D30 1.2 MECHANICAL DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

D30 1.2.1 Government Standards

Federal Energy Management Program (FEMP)

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-401-01, Mechanical EngineeringUFC 3-420-01, Plumbing Systems)
UFC 3-440-04N	Solar Heating of Buildings and Domestic Hot Water

UNIFIED FACILITIES GUIDE SPECIFICATIONS (UFGS)

UFGS 01 78 24.00 20	Electronic Facility Operation and Maintenance Support Information
UFGS 23 05 93	Testing, Adjusting, and Balancing for HVAC
UFGS 23 09 23.13 20	BACNET Direct Digital Control Systems

for HVAC

UFGS 23 81 23.00 20 Computer Room Air Conditioning Units

D30 1.3 PERFORMANCE VERIFICATION AND ACCEPTANCE TESTING

a. Verification of satisfactory HVAC system performance shall be via Performance Verification Testing, as detailed in this section.
b. The Government reserves the right to witness all Acceptance Tests and Inspections, review data, and request other such additional inspections and repeat tests as necessary to ensure that the system and provided services conform to the stated requirements.
c. The Qualified Testing Organization shall provide the Acceptance Tests and Inspections test plan and perform the acceptance tests and inspections. Test methods, procedures, and test values shall be performed and evaluated in accordance with appropriate standards, and the manufacturer's recommendations. Equipment shall be placed in service only after completion of required tests and evaluation of the test results have been completed. Contractor shall supply to the testing organization complete sets of shop drawings, settings of adjustable devices, and other information necessary for an accurate test and inspection of the system prior to the performance of any final testing. Perform acceptance tests and inspections on Computer Room Air Conditioning Units, Direct Digital Control System, and HVAC Testing/Adjusting/Balancing.

D30 1.4 HVAC COMMISSIONING

Commission the HVAC systems per the Commissioning Plan as required by UFGS Specification Section 01 45 00.05 20, *Design & Construction Quality Control*. HVAC system commissioning shall coordinate with and incorporate the testing, reporting, training & O&M documentation requirements of UFGS 23 05 93, *Testing, Adjusting, and Balancing for HVAC* and UFGS 23 09 23.13 20, *BACnet Direct Digital Control Systems for HVAC*.

D30 1.5 DESIGN SUBMITTALS

Design Submittals shall be in accordance with Z10, *General Performance Technical Specifications*, UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures*, and UFC 3-401-01, *Mechanical Engineering*.

In addition, UFGS sections listed below or in the body of the PTS text are to be used by the Designer of Record (DOR) as a part of the design submittal. If the UFGS products or systems are applicable to the project, the DOR shall edit these referenced UFGS sections and submit them as a part of the design submittal specification. Edit the specification sections in accordance with the limitations stated in PTS section Z10, *General Performance Technical Specifications*.

UFGS 01 78 24.00 20, *Electronic Facility Operation and Maintenance Support Information*

UFGS 23 09 23.13 20, *BACnet Direct Digital Control Systems for HVAC*

UFGS 23 05 93, *Testing, Adjusting, and Balancing for HVAC*

UFGS 48 14 13.00 20, *Solar Liquid Flat Plate Collectors*

D30 1.6 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) shall approve the following construction submittals as a minimum:

OMSI information for all equipment and fixtures.

D30 1.7 MOTORS

Single-phase fractional-horsepower alternating-current motors shall be high efficiency types corresponding to the applications listed in NEMA MG 11. Select polyphase motors based on high efficiency characteristics relative to the applications as listed in NEMA MG 10. Additionally, all polyphase squirrel-cage medium induction motors with continuous ratings shall meet or exceed energy efficient ratings per Table 12-10 of NEMA MG 1. Provide controllers for 3-phase motors rated 1 hp (0.75 kW) and above with phase voltage monitors designed to protect motors from phase loss and over/under-voltage. Provide means to prevent automatic restart by a time adjustable restart relay. For packaged equipment, the manufacturer shall provide controllers including the required monitors and timed restart. Provide reduced voltage starters for all motors 25 hp and larger.

D3010 ENERGY SUPPLY

D301001 OIL SUPPLY SYSTEM

Conform to requirements of International Mechanical Code for piping. Conform to requirements of NFPA 31 for testing. Contractor is responsible for providing the complete oil supply system to the facility, including any applications and permits.

D301001 1.1 OIL SUPPLY SYSTEM PIPING & EQUIPMENT

ASTM A 53/A 53M or ASTM A 106/A 106M piping with associated ASME fittings or ASTM B 88, type L or M copper tubing with ASME B16.26 flared fittings or compression type fittings. Provide welded fittings on piping below grade. Pumps that are not part of the burner assembly shall be positive displacement type. Provide oil filter prior to oil entering appliance or pump.

Storage tank shall above ground double wall type and shall meet the requirements of NFPA 31. Provide spill box with quick connect and leak detection for filling the storage tank.

D301002 GAS SUPPLY SYSTEM

D301002 1.1 NATURAL GAS PIPING

Not used.

D301002 1.2 MATERIALS AND EQUIPMENT

D301002 1.2.1 Aboveground Within Buildings

Not used.

D301002 1.3 PRESSURE TESTS

Not used.

D301002 1.4 PROPANE PIPING

Not used.

D301002 1.4.1 Underground

Not used.

D301002 1.5 PROPANE TANKS

Not used.

D301003 STEAM SUPPLY SYSTEM (FROM CENTRAL PLANT)

Not used.

D301004 HOT WATER SUPPLY SYSTEM (FROM CENTRAL PLANT)

Not used.

D3020 HEAT GENERATING SYSTEMS

D302001 BOILERS

Provide Boiler(s) type for the load capacity of the building as indicated in ESR Section D30.

D302001 1.1 REQUIREMENTS

Boiler shall be designed, tested, and installed per ASME CSD-1 (Controls and Safety Devices) and ASME BPVC (Boiler and Pressure Vessel Code). The boiler shall meet the requirements of the UL 795, ANSI Z83.3, and ASME CSD. Oil-fired boiler system design shall be in accordance with NFPA 31.

D302001 1.2 BOILER BURNER

Burners provided shall be the make, model and type certified and approved by the manufacturer of the boiler being provided. Burner controls and flame safety equipment shall conform to either ASME CSD-1 or NFPA 58 as dictated by the input.

D302001 1.3 BOILER TRIM AND CONTROL EQUIPMENT

D302001 1.3.1 Boiler Controls

Mount controls, including operating switches, indicating lights, gages, alarms, motor starters, fuses, and circuit elements of the control systems, on a single control panel mounted on the burner or separate from the burner. Location of the separate panel shall be at the side of the boiler or in a freestanding control cabinet away from the front of the boiler. When using BACnet communication protocol, use the ASHRAE 135 protocol without gateways to interface with the BACnet Direct Digital Control System in specification UFGS 23 09 23.13 20.

D302001 1.3.2 Boiler Trim

Comply with ASME BPVC SEC IV, ASME CSD-1, and additional appurtenances as specified herein.

D302001 1.3.3 Pressure Gages

Provide pressure gages with a scale equivalent to 1.5 times the outlet water pressure on supply water piping and return water piping.

D302001 1.3.4 Thermometers

Provide thermometers with a scale equivalent to 1.5 times the outlet water temperature on supply water piping and return water piping.

D302001 1.3.5 Drain Trapping

Provide drain valve and piping to a floor drain.

D302001 1.3.6 Air Vent Valve

Provide with screwed connection, stainless steel disk, and stainless steel seats to vent entrapped air.

D302001 1.4 STEAM BOILERS

Not used.

D302001 1.4.1 Pressure Gages

Not used.

D302001 1.4.2 Thermometers

Not used.

D302001 1.5 BOILER STACK AND ACCESSORIES

Provide flue gas thermometer and mount in flue gas outlet.

D302001 1.6 BOILER STARTUP AND OPERATIONAL TESTS

D302001 1.6.1 Boiler Cleaning

Prior to startup, clean boiler(s) in accordance with ASME *Boiler and Pressure Vessel Code* and manufacturer's recommendations.

D302001 1.6.2 Operational Tests

Furnish the services of an engineer or technician approved by the boiler manufacturer for installation, startup, operational and safety testing. Demonstrate proper operability of combustion control, flame safeguard control, and safety interlocks.

D302003 FUEL-FIRED UNIT HEATERS

D302003 1.1 GAS-FIRED UNIT HEATERS

Not used.

D302003 1.2 INFRARED HEATERS

Not used.

D302004 AUXILIARY EQUIPMENT

D302004 1.1 HEAT EXCHANGERS

Not used.

D302004 1.2 CONDENSATE RETURN UNITS

Not used.

D302005 EQUIPMENT THERMAL INSULATION

Insulate hot water pumps and equipment as suitable for the temperature and service in rigid block, semi-rigid board, or flexible unicellular insulation to fit as closely as possible to equipment.

D3030 COOLING GENERATING SYSTEMS

If coatings are indicated in ESR Section D30, provide with copper tube/copper fin construction or immersion applied, baked phenolic or other approved coating that passes the 3000 hour salt spray resistance test using the ASTM B117 procedure. Field applied coatings are not acceptable.

D303001 CHILLED WATER SYSTEMS

D303001 1.1 AIR-COOLED CHILLERS

Not used.

D303001 1.1.1 Stages

Not used.

D303001 1.1.2 Pressure Control

Not used.

D303001 1.1.3 Coil Construction

Not used.

D303001 1.2 WATER-COOLED CHILLERS

Self-contained chiller meeting the requirements of AHRI 550/590. Provide control panel with the manufacturers' standard controls and protection circuits. If DDC system is required in project, provide a control interface for remote monitoring of the chiller's operating parameters, functions and alarms from the DDC control system central workstation. Provide automatic capacity-reduction system for stable operation from 100 to 10 percent of full load capacity. When using BACnet protocol, use the ASHRAE 135 protocol without gateways to interface with the BACnet DDC system in specification 23 09 23.13 20.

D303001 1.3 COOLING TOWERS

Factory assembled, conforming to NFPA 214. Fire hazard rating for plastic impregnated materials shall not exceed 25. Provide Cooling Technology

Institute 201 certification of tower capability and performance. Cooling Tower performance shall meet or exceed that listed in ASHRAE 90.1. Construct as indicated in ESR Section D30 with fill material of PVC formed sheets. Provide stainless steel hardware. Provide vibration cutout switch interlocked with the fan motor. Provide 2-speed or adjustable frequency drive fan motors. Provide work platforms at all locations in the tower that require periodic maintenance. For multi-cell installations, provide isolation valves on inlets and outlets of each cell.

D303001 1.4 CLOSED CIRCUIT COOLERS

Not used.

D303002 DIRECT EXPANSION SYSTEMS

Not used.

D303002 1.1 HEAT PUMPS

D303002 1.1.1 Air to Air

Not used.

D303002 1.1.2 Water Source

Not used.

D303002 1.1.3 Ground-Coupled

Not used.

D303002 1.2 CONDENSING UNITS

Not used.

D303002 1.3 DX VARIABLE AIR VOLUME (VAV) UNITS

Not used.

D303002 1.4 DUCTLESS SPLIT SYSTEM

Air-cooled, ductless split system. Provide units factory assembled, designed, tested, and rated in accordance with ARI 210/240. Provide manufacturer's minimum recommended clearance around heat pump or condensing units. Refrigerant piping size shall be per the manufacturer's recommendations. Insulate refrigerant piping suction lines and condensate drain.

D3040 DISTRIBUTION SYSTEMS

D304001 AIR DISTRIBUTION, HEATING & COOLING

D304001 1.1 DUCTWORK

Except as specified herein, provide ductwork constructed, braced, reinforced, installed, supported, and sealed per SMACNA standards.

D304001 1.1.1 Flexible Ducts

Use insulated flexible duct only for connections to air distribution

devices to adapt to minor offsets. Flexible duct shall be UL 181 listed and per SMACNA 1966 duct construction standards with a minimum R value of 4. Maximum length of flexible ductwork shall be 6 feet (2 meters).

D304001 1.1.2 Flexible Connections

Provide flexible connectors between fans and ducts.

D304001 1.1.3 Volume Dampers

Provide manual volume dampers in each branch take-off from the main duct to control air quantity except for primary supply ductwork on VAV systems. Dampers shall conform to SMACNA 1966 duct construction standards and shall be seal class "A" construction.

D304001 1.1.4 Fire Dampers

Fire dampers shall be rated per UL 555. Fire dampers shall be dynamic type rated for closure against a moving airstream. Provide fire dampers that do not intrude into the air stream when in the open position.

D304001 1.1.5 Smoke Dampers

Smoke dampers shall be rated per UL 555S.

D304001 1.1.6 Sound Attenuators

Fabricated attenuators that will reduce the rated sound pressure level of the fan down to at least 65 decibels in the 250 Hz (third octave band) center frequency by using a reference sound source calibrated in decibels of sound power at 10 to 12 watts. Maximum permissible pressure drop shall not exceed 0.63 inch of water.

D304001 1.2 LOUVERS & HOODS

D304001 1.2.1 Louvers

Louvers shall bear AMCA ratings seal for air performance and water penetration in accordance with AMCA 500L and AMCA 511. Louvers shall be constructed of anodized aluminum alloy or stainless steel. Provide birdscreens.

D304001 1.2.2 Hoods

Hoods shall be constructed of anodized aluminum alloy or stainless steel. Provide with birdscreens.

D304001 1.3 GRILLES, REGISTERS, & DIFFUSERS

Factory-finished grilles, registers, and diffusers. Exterior and exposed edges shall be rolled, or otherwise stiffened and rounded.

D304001 1.4 INSULATION

Provide external thermal insulation for all ductwork. Insulate ductwork in concealed spaces with blanket flexible mineral fiber. Insulate ductwork in Mechanical Rooms and exposed locations with rigid mineral fiber insulation.

Provide insulation with factory applied all-purpose jacket with integral vapor retarder. In exposed locations, provide a jacket with white surface suitable for painting. Flame spread/smoke developed rating for all insulation shall not exceed 25/50. Minimum insulation thickness shall be the minimum thickness required by ASHRAE 90.1. Insulate the backs of all supply air diffusers with blanket flexible mineral fiber insulation.

D304001 1.5 VAV BOXES

Pressure-independent type variable air volume units rated per AHRI 880. Boxes shall not be allowed to fully shut-off. Provide each box with a heating coil unless not required by space reheat or heating. Provide electronic controls.

D304001 1.6 VARIABLE AIR VOLUME VAV FAN-POWERED UNITS

Pressure-independent, fan powered, VAV units rated per AHRI 880 and UL listed. Provide each box with a heating coil. Provide electronic controls with speed controller, discharge volume control damper(s), and return/recirculation air frame and filter. If discharge dampers are not provided with the unit, coordinate installation with the sheet metal contractor. Insulate in accordance with ASHRAE 90.1.

D304002 STEAM DISTRIBUTION SYSTEMS

D304002 1.1 STEAM PIPING

Not used.

D304002 1.2 CONDENSATE RETURN PIPING

Not used.

D304002 1.3 STEEL PIPE FITTINGS

Not used.

D304002 1.4 INSULATION

Not used.

D304002 1.5 STEAM PRESSURE REDUCING STATION

Not used.

D304002 1.6 STEAM TRAPS

Not used.

D304003 HOT WATER DISTRIBUTION SYSTEMS

D304003 1.1 HOT WATER PIPING

Hot water piping shall be electric resistance welded or seamless Schedule 40 black steel pipe conforming to ASTM A 53/A 53M. Piping 4 inch (100 mm) and smaller may be ASTM B 88 Type K or L copper.

D304003 1.2 STEEL PIPE FITTINGS

For piping 2 inch (50 mm) and smaller, provide ASME B16.3 malleable iron

screwed fittings or ASME B16.11 socket welding (Class 3000) or threaded type (Class 2000). Provide ASME B16.9 butt-welding fittings or ASME B16.5 flanged type for piping 2-1/2 inch (63 mm) and larger.

D304003 1.3 COPPER FITTINGS

ASME B16.18 cast bronze solder joint type or ASME B16.22 wrought copper solder joint type.

D304003 1.4 ISOLATION VALVES

Provide isolation valves on supply and return lines at take-offs for service to each building(s). Valves shall be located in valve boxes.

D304003 1.5 INSULATION

Insulate hot water piping with mineral fiber insulation with factory-applied all-purpose jacket. Provide aluminum metal wrap over insulation for all exterior piping.

D304003 1.6 VALVES

Provide shut off valves, appropriately sized relief valves, and appropriately sized balancing valves as necessary to balance water flows, protect components and isolate equipment for service and repairs.

D304003 1.7 APPURTENANCES

Provide appurtenances such as air separators, expansion tanks, suction diffusers, strainers, and other required features to allow for proper operation of hot water systems.

D304003 1.8 TEST PORTS

Provide test ports in piping at inlet and outlet of all major system components including boilers, pumps, and other equipment as required.

D304004 CHANGEOVER DISTRIBUTION SYSTEMS

Not used.

D304005 GLYCOL DISTRIBUTION SYSTEMS

Not used.

D304006 CHILLED / CONDENSER WATER DISTRIBUTION SYSTEMS

D304006 1.1 ABOVEGROUND CHILLED AND CONDENSER WATER PIPING

Aboveground chilled water piping shall be electric resistance welded or seamless Schedule 40 black steel pipe conforming to ASTM A 53/A 53M. Piping 4 inch (100 mm) and smaller may be ASTM B 88 Type K or L copper.

D304006 1.2 STEEL PIPE FITTINGS

For piping 2 inch (50 mm) and smaller, provide ASME B16.3 malleable iron screwed fittings or ASME B16.11 socket welding (Class 3000) or threaded type (Class 2000). Provide ASME B16.9 butt-welding fittings or ASME B16.5 flanged type for piping 2-1/2 inch (63 mm) and larger.

D304006 1.3 COPPER FITTINGS

ASME B16.18 cast bronze solder joint type or ASME B16.22 wrought copper solder joint type.

D304006 1.4 ISOLATION VALVES

Provide isolation valves on supply and return lines at take-offs for service to each building(s). Valves shall be located in valve boxes.

D304006 1.5 INSULATION

Insulate chilled water pumps and accessories for the temperature and service in rigid block, semi-rigid board, or flexible unicellular insulation to fit as closely as possible to equipment. Insulate above ground chilled water piping with cellular glass insulation (ASTM C 552, Type II, and Type III). Flexible unicellular insulation may be used on small piping runouts. Insulate condenser water piping with mineral fiber insulation. Provide all-purpose jacket with vapor retarder. Provide aluminum metal wrap over insulation for all exterior piping.

D304006 1.6 VALVES

Provide shut off valves, appropriately sized relief valves, and appropriately sized balancing valves as necessary to balance water flows, protect components and isolate equipment for service and repairs.

D304006 1.7 TEST PORTS

Provide test ports in piping at inlet and outlet of all major system components including chillers, pumps, and other equipment as required.

D304007 EXHAUST SYSTEMS

D304007 1.1 FANS

Fans shall be AMCA 210 certified, with AMCA seal. Fan bearings shall have a minimum average life of 200,000 hours at design operating conditions. Provide bird screens for outdoor inlets and outlets. Provide direct-drive type fans with means for verifying operation via the building DDC system or with speed controllers

D304007 1.2 IN-LINE FANS

UL-Listed centrifugal fans.

D304007 1.3 WALL FANS

Propeller fans with fan guards. Provide centrifugal fans with backdraft dampers and wall bracket.

D304007 1.4 ROOFTOP FANS

UL-Listed centrifugal fans with roof curb.

D304007 1.5 UTILITY SETS

Not used.

D304007 1.6 BATHROOM FANS

UL 507 and UL-listed, Home Ventilating Institute (HVI) certified and with AMCA seal for ceiling installation.

D304007 1.7 RANGE HOODS

Not used.

D304008 AIR HANDLING UNITS

AMCA 210 certified fans with AMCA seal. Fan bearings shall have a minimum average life of 200,000 hours at design operating conditions. Provide bird screens for outdoor inlets and outlets.

D304008 1.1 CENTRAL STATION AIR HANDLERS

Modular construction, double wall air handling units with minimum of 1 inch (25 mm) casing insulation. Provide AHRI 430 certified fans and AHRI certified coils. Provide stainless steel, positive draining condensate drain pan.

D304008 1.1.1 Ultraviolet Disinfection System

For central station air handling units provide an ultra violet c-band (UVC) disinfection system for mold, bacteria and odor control in each air handler that has a chilled water or DX cooling coil. Irradiation-emitters and fixtures are to be installed in sufficient quantity and in such an arrangement so as to provide an equal distribution of UVC energy on the coil and in the drain pan. To maintain energy efficiency, the UVC energy produced shall be of the lowest possible reflected and shadowed losses. Energy Efficiency - Power supplies shall be of the high efficiency electronic type and matched to the emitter. Intensity - The minimal UVC energy striking the leading edge (if installed upstream) or trailing edge (if installed downstream) of all the coil fins shall not be less than 820 ÂµW/cm2 at the closest point and through placement, not less than 60% of that value at the farthest point. Equal amounts are to strike the drain pan, either directly or indirectly through reflection. The foregoing sets the placement and minimum quantity of fixtures to be installed. Installation - emitters and fixtures shall be installed at right angles to the conforming lines of the coil fins, such that through incident angle reflection, UVC energy bathes all surfaces of the coil and drain pan as well as all of the available line of sight airstream. One complete set of spare bulbs will be supplied.

D304090 OTHER DISTRIBUTION SYSTEMS

D304090 1.1 PUMPS

Centrifugal circulating pumps with motor and motor enclosure conforming to the appropriate NEMA standards. Provide suction diffusers on base-mounted pumps. Insulate pumps used for hot service and chilled water service.

D304090 1.1.1 In-Line Pumps

Pumps constructed of manufacturer's standard materials suitable for chilled, condenser, and hot water heating systems.

D304090 1.1.2 Base Mounted Pumps

Single stage end suction pumps suitable for chilled, condenser, and

hot water heating systems.

D304090 1.2 VARIABLE FREQUENCY DRIVES (VFD)

Factory-assembled variable frequency drive control systems for variable speed control. All air handling unit and pump VFD's shall be from the same manufacturer. Each VFD shall include motor starter, motor disconnects and controls as required for a complete system. Units shall be UL-listed and comply with the National Electric Code.

Provide the following accessories:

Disconnect switch

Control circuit transformer, with primary and secondary fuses

Manual bypass

System hand-off-auto switch with provisions for remote start/stop of the system.

System initialized light

Run light

Failure alarm

LCD digital display with numeric keypad

Provide a control interface for remote monitoring of VFD functions and alarms from the DDC control system computer.

D304090 1.3 AIR SEPARATORS

ASME rated air separators with tangential inlet and outlet connections and automatic air vent.

D304090 1.4 SOLIDS SEPARATORS

Provide centrifugal solids separator with automatic drain in open systems.

D304090 1.5 EXPANSION TANKS

ASME rated expansion tanks with polypropylene or butyl diaphragm or compression tanks as indicated in UFC 3-401-01.

D304090 1.6 MAKE-UP WATER STATION

Station shall consist of a water pressure-reducing valve and a relief valve in the make-up water line to the chilled and hot water systems to maintain the operating pressure. Provide a 3/4 inch (20 mm) globe valve by-pass around this pressure reducing station. Provide reduced pressure backflow preventer upstream of the by-pass.

D304090 1.7 GLYCOL MAKE-UP STATION

Not used.

D304090 1.8 CONDENSATE DRAIN PIPING

ASTM B 88, Type M or L, hard drawn copper.

D304090 1.9 CONDENSATE DRAIN INSULATION

Insulate condensate drain piping with flexible cellular insulation.

D304090 1.10 CHEMICAL TREATMENT

If required, provide chilled and hot water systems with automatic chemical treatment system for the control of pH, scale formation, and corrosion inhibition. Provide shot-type feeders for manual chemical feed. Feeders shall be rated for use with pressures up to 130 PSI (900 kPa) (gage). Provide condenser water systems with automatic chemical treatment systems that monitor conductivity, and pH, and provide for water metering and bleed-off. Provide chemicals in accordance with EPA and equipment manufacturer's recommendations.

D304090 1.11 PIPING IDENTIFICATION

Provide piping identification labels or Stencil names or code letters for piping systems in clearly visible letters and symbols. Provide arrow-shaped markings to indicate direction of flow.

D304090 1.12 PIPE SLEEVES

Provide pipe sleeves at each wall and floor penetration. The sleeve shall be of a material suitable to protect the carrier pipe (two pipe sizes larger) and sealed with an appropriate flexible material. Provide fire stopping in fire rated walls in accordance with IBC.

D304090 1.13 SYSTEM FLUSHING

Thoroughly flush hydronic systems prior to system startup. Isolate coils during initial flushing until water is clear.

D304090 1.14 HEAT TAPE

UL-Listed, self-regulating, heat tape on piping subject to freezing.

D3050 TERMINAL & PACKAGE UNITS

D305002 UNIT HEATERS

D305002 1.1 STEAM

Not used.

D305002 1.2 HOT WATER

UL-Listed, factory assembled, unit heaters.

D305002 1.3 CABINET UNIT HEATER

UL-Listed, factory assembled, heaters.

D305003 FAN COIL UNITS

Not used.

D305004 FIN TUBE RADIATION

D305004 1.1 FIN TUBE RADIATORS AND CONVECTORS

Fin tube radiators and Convectors shall be provided with copper tubes and aluminum fins. Provide normally open, spring return control valves.

D305005 ELECTRIC HEATING

D305005 1.1 UNIT HEATERS

Not used.

D305005 1.2 BASEBOARD HEATERS

Not used.

D305005 1.3 WALL HEATERS

Not used.

D305005 1.4 INFRARED HEATERS

Not used.

D305006 PACKAGE UNITS

D305006 1.1 ROOFTOP AIR HANDLERS

Not used.

D305006 1.2 DUCT HEATER

Not used.

D3060 CONTROLS AND INSTRUMENTATION

D306001 HVAC CONTROLS

D306001 1.1 DIRECT DIGITAL CONTROLS

Provide one of the following as directed in ESR Section D30.

a. Provide Direct Digital Controls (DDC) to comply with the requirements specified in UFGS Section 23 09 23.13 20, *BACNET Direct Digital Control Systems for HVAC*.
b. Not used.

The Designer of Record shall use UFGS Section 23 09 23.13 20 if using BACnet protocol, and submit the edited specification section as a part of the project design submittal.

Design requirements shall be in accordance with all specification notes and the BAS Owner shall be identified and designated early in the design documentation.

The system shall have stand alone digital controllers, a communication network, and a workstation computer with control software. Provide stand-alone control routines that operate without connection to the network

during a loss of communication. Provide trending, scheduling and alarm tables (may be included with the sequence of operation). Provide reset routines (based on outdoor air temperature or zone demand) for hot water loop temperature setpoints and supply air static pressure control. Use alarming and trending services during performance testing or commissioning. Alarm every sequence routine when out-of-limits or control/response failure occurs. Display all graphic floor plans, equipment graphics, DDC ladder diagrams, and sequence of operations graphic pages.

All 120-volt wiring shall comply with NFPA 70. All 24-volt wiring shall comply with the IMC and terminal device manufacturer's recommendations.

Provide training on the installed system according to the maximum training days in UFGS 23 09 23.13 20. All operator workstation functions requiring BACnet services, i.e., navigating through the graphic displays, trending, alarming and monitoring of the new controls system must be demonstrated from the existing operator workstation using only the existing application software and without the need to launch other applications or logon to other vendor applications.

D306001 1.2 ELECTRONIC CONTROLS

If required, provide programmable thermostats with built in keypads for scheduling of day and night temperatures with two setback periods per day. Provide independent summer and winter programs. Thermostats shall have temporary and manual override of schedule and battery backup.

D3070 SYSTEMS TESTING AND BALANCING

D3070 1.1 HVAC SYSTEM

Provide HVAC systems testing and balancing that complies with the requirements specified in UFGS Specification Section 23 05 93, *Testing, Adjusting, and Balancing for HVAC*. The Designer of Record shall prepare UFGS Specification Section 23 05 93, as a part of the project specification and shall include the prepared specification section in the design submittal for the project.

D3090 OTHER HVAC SYSTEMS AND EQUIPMENT

D309001 GENERAL CONSTRUCTION ITEMS

D309001 1.1 SEISMIC DESIGN

Provide in accordance with UFC 3-401-01, *Mechanical Engineering*.

D309002 REFRIGERATION SYSTEMS

D309090 OTHER SPECIAL MECHANICAL SYSTEMS

D309090 1.1 ENERGY RECOVERY WHEELS

Total energy (enthalpy) type energy recovery wheels (heat wheels). Media shall be aluminum or a lightweight polymer coated with a corrosion-resistant finish. Etched or oxidized surfaces are not acceptable. Heat transfer surfaces shall be coated with a non-migrating (permanently bonded) absorbent specifically developed for the selective transfer of water vapor. Equal sensible and latent recovery efficiencies shall be documented through a certification program conducted per ASHRAE 84 and AHRI 1060. The energy recovery wheel shall have an insulated housing of double wall construction,

rotor seals that are specifically designed to limit cross-contamination, and a rotation detector. Should rotation stop, the rotation detector shall alarm the HVAC control system. Filter sections shall be readily accessible for maintenance.

D309090 1.2 HEAT PIPES

Not used.

-- End of Section --

SECTION D40
FIRE PROTECTION
11/10

D40 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4 Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to this project. Therefore RFP Part 4 requirements that correspond and further define the RFP Part 3 requirements are specific to this project, other RFP Part 4 requirements are not required.

D40 1.1 DESIGN GUIDANCE

Provide the design and installation of fire protection systems in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification.*

D40 1.1.1 Government Standards

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-600-01, Fire Protection Engineering for Facilities)
UFC 3-600-10N	Fire Protection Engineering

D40 1.2 QUALITY ASSURANCE

Materials and assemblies installed in the work shall be inspected and found to be in compliance with industry standards and these specifications prior to acceptance of the work. Items found not to be in compliance shall be removed, or corrective measures taken, to assure compliance with the referenced standard.

Qualifications, Training Plans, and Test Plans and Procedures indicated herein, shall be submitted 45 calendar days prior to the expected date of execution. Notify the Contracting Officer 14 calendar days prior to all testing. Submit test results within 7 calendar days of completion of testing.

D40 1.2.1 Qualified Workers

D40 1.2.1.1 Fire Protection Designer of Record

Services and qualifications of the FPDOR shall be as

specified in UFC 3-600-01 and UFC 3-600-10N. The FPDOR shall review and approve all fire protection engineering submittals.

D40 1.2.1.2 Fire Protection Engineering Technicians

Workers required herein to be certified by the National Institute for Certification in Engineering Technologies (NICET) as an engineering technician in the Fire Protection Engineering Technology program shall be thoroughly trained and experienced, and completely familiar with the specified requirements and the methods needed for proper performance of the work in this section. All documentation required to be submitted for record and/or approval shall include the NICET engineering technician's signature, along with the technician's current NICET certification number, certification subfield, and level.

Installation drawings, shop drawings or working plans, calculations, other required pre-construction documentation and as-built drawings shall be prepared by, or under the direct supervision of a NICET engineering technician as specified in Section 6 D40 of Part 3.

D40 1.2.1.3 Qualified System Installers

Fire Suppression System and Fire Alarm System installers shall be regularly engaged in the installation of the type and complexity of system specified in the Contract documents, and shall have served in a similar capacity for at least three systems that have performed in the manner intended for a period of not less than 6 months.

Installers of Chlorinated Poly Vinyl Chloride (CPVC) sprinkler systems shall be certified by the manufacturer and maintain a copy of their certification on hand at all times.

D40 1.2.1.4 Fire Protection QC Specialist

The Fire Protection (FP) QC Specialist shall be a U.S. Registered Fire Protection Engineer (FPE) and shall be an integral part of the Prime Contractor's Quality Control Organization. This FPE shall have no business relationships (owner, partner, operating officer, distributor, salesman, or technical representative) with any fire protection equipment device manufacturers, suppliers or installers for any such equipment provided as part of this project. The Fire Protection Designer of Record (FPDOR) may serve as the FPQC Specialist provided the following qualifications are met.

a. Qualifications/Experience: The FPQC Specialist shall have obtained their professional registration by successfully completing the Fire Protection Engineering discipline examination. This FPE shall have a minimum of 5 years full time and exclusive experience in every aspect of facility design and construction as it relates to fire protection, which includes, but is not limited to, building code analysis, life safety code analysis, design of automatic detection and suppression systems, passive fire protection design, water supply analysis, and a multi-discipline coordination reviews, and

construction surveillance.

b. Area of Responsibility: The FPQC Specialist is responsible for assuring the proper construction and installation of life safety and fire protection features across all disciplines and trades. The FPQC Specialist shall be responsible for assuring that life safety and fire protection features are provided in accordance with the design documents, approved construction submittals, and manufacturer's requirements. Examples include, but are not limited to, water distribution systems including fire pumps and fire hydrants, fire resistive assemblies such as spray-applied fire proofing of structural components and fire rated walls/partitions, fire alarm and detection systems, fire suppression and standpipe systems, and emergency and exit lighting fixtures.

c. Construction Surveillance: The FPQC Specialist shall visit the construction site as necessary to ensure life safety and fire protection systems are being constructed, applied, and installed in accordance with the approved design documents, approved construction submittals, and manufacturer's requirements. Frequency and duration of the field visits are dependent upon particular system components, system complexity, and phase of construction. At a minimum, field visits shall occur just prior to installation of suspended ceiling system to inspect the integrity of passive fire protection features and fire suppression system piping, preliminary inspections of fire alarm/detection and suppression systems, and final acceptance testing of fire alarm/detection and suppression systems. The FPQC Specialist shall prepare a written report detailing compliance of any outstanding submittal review comments, summarizing the results of all tests, detailing all discrepancies discovered, corrective action taken, all forms as required by the respective NFPA codes, and recommendations/certifications for acceptance. Forward one copy of the report with attachments to the Naval Facilities Engineering Command Fire Protection Engineer.

D40 1.2.2 Performance Verification Testing

All systems shall have operational tests to demonstrate compliance with contract requirements and respective NFPA codes, International Building Code and as noted below. Test procedures shall be in full compliance with the respective NFPA codes, the equipment manufacturer recommendations, and UFC 3-600-10N. Provide all personnel, equipment, and materials for tests. Return trips to witness repeat acceptance tests due to failure of previous tests shall be at the Contractor’s expense.

D40 1.2.2.1 Preliminary Inspections and Final Acceptance Testing

The FPQC Specialist shall personally witness all preliminary inspections of fire alarm/detection and suppression systems. Once preliminary inspections have been successfully completed, the FPQC Specialist shall submit a signed certificate to the QC Manager that systems are ready for final inspection and testing. The Naval Facilities Engineering Command Fire Protection Engineer shall witness formal tests and approve all systems before they are accepted. The QC Manager shall submit the request for

formal inspection at least 15 days prior to the date the inspection is to take place. The QC manager shall provide 10 days advance notice to the Contracting Officer and the activity Fire Inspection Office of scheduled final inspections.

D40 1.2.2.2 Final Life Safety/Fire Protection Certification

The FPQC Specialist shall provide certification that all life safety and fire protection systems have been installed in accordance with the contract documents, approved submittals, and manufacturer's requirements. This certification shall summarize all life safety and fire protection features, and shall bear the professional seal of the FPQC Specialist.

D40 1.2.2.3 System Manufacturers Representatives

The systems manufacturer technical representative shall be present for the final inspection and test for the following systems: fire alarm and detection, fire pump, carbon dioxide, foam generating and clean agent extinguishing.

D40 1.2.2.4 Fire Suppression Water Supply and Equipment

The fire hydrants shall be inspected prior to backfilling the trench surrounding the fire hydrants. A report, including pictures, shall be provided to the Contracting Officer.

Fire pump tests shall be conducted in the presence of the pump, controller, and engine manufacturer technical representatives. The fire pump manufacturer shall also be present for the preliminary test of the fire pump system.

D40 1.2.2.5 Kitchen Hood Fire Extinguishing Systems

Not used.

D40 1.2.2.6 Spray-Applied Fire Proofing and Fire Stopping

See Section C1030 for requirements.

D40 1.2.3 Training

The contractor shall provide training for the active systems within 6 weeks of final acceptance of the systems. The training shall be scheduled at least 2 weeks in advance.

D40 1.3 DESIGN SUBMITTALS

Design Submittals shall be in accordance with Z10, *General Performance Technical Specifications*, UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures* and UFC 3-600-10N, *Fire Protection Engineering*.

D40 1.4 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) shall approve the following

construction submittals as a minimum:

All fire protection engineering submittals including:

a. Shop Drawings. Provide shop drawings for all systems.
b. Product Data. Provide product data for all equipment.
c. Design Data. Provide design data for all system calculations.
d. Test Reports
e. Certificates

D4010 FIRE ALARM AND DETECTION SYSTEMS

D401001 FIRE ALARM DISTRIBUTION

D401001 1.1 REMOTE ANNUNCIATORS

Remote annunciators shall have a minimum 80 character alphanumeric display with alarm acknowledge, alarm silence, and reset functions.

D401001 1.2 TRANSMITTED SIGNALS

Provide the following signals to be sent to the fire alarm receiving station:

a. Sprinkler Water Flow
b. Smoke Detector
c. Manual Pull Station
d. Supervisory (i.e., valve tamper switch, fire pump loss of power, fire pump phase reversal)
e. Duct Smoke Detector
f. Fire Pump Running

D4020 FIRE SUPPRESSION WATER SUPPLY AND EQUIPMENT

D402001 FIRE PROTECTION WATER PIPING AND EQUIPMENT

The design point of connection to the existing water supply shall require the approval of the Contracting Officer. The FP DOR shall conduct additional flow tests after contract award prior to any design submissions. Tests shall be conducted under the supervision of the Contracting Officer.

D4040 SPRINKLERS

D404001 SPRINKLERS & RELEASING DEVICES

D404001 1.1 DESCRIPTION

Areas subject to freezing shall be provided with a dry pipe system. Loading docks may be protected with dry-type sidewall sprinklers supplied by the wet-pipe system.

D404001 1.2 REQUIREMENTS

Utilize upright sprinklers with ordinary temperature rating and color to match finish in normally occupied rooms without a finished ceiling (i.e., laboratories, and other spaces with exposed ceilings).

-- End of Section --

SECTION D50

ELECTRICAL
11/10

D50 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4 Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to this project. Therefore RFP Part 4 requirements that correspond and further define the RFP Part 3 requirements are specific to this project, other RFP Part 4 requirements are not required.

D50 1.1 NARRATIVE

This section covers installations inside the facility and out to the five foot line. See PTS Section G40, *Site Electrical*, for continuation of systems beyond the five foot line.

D50 1.2 ELECTRICAL DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

When all product Quality Control information is included in the Unified Facility Criteria (UFC) and there are requirement options identified in the ESR, then the Uniformat Level 4 titles (and possible subtitles) are included without additional verbiage. One example of this is D501090, OTHER SERVICE AND DISTRIBUTION.

D50 1.2.1 Government Publications

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-501-01, Electrical Engineering)
UFC 3-580-01	Telecommunications Building Cabling Systems Planning Design
UFC 3-580-10	Navy and Marine Corps Intranet (NMCI) Standard Construction Practices

UNIFIED FACILITIES GUIDE SPECIFICATIONS (UFGS)

UFGS 26 23 00	Switchboards and Switchgear

UFGS 26 29 23	Variable Frequency Drive Systems Under 600 Volts
UFGS 27 05 28.36 40	Cable Trays for Communications Systems
UFGS 27 10 00	Building Telecommunications Cabling System
UFGS 27 13 23.00 40	Communications Optical Backbone Cabling
UFGS 27 21 10.00 40	Fiber Optic Data Transmission System
UFGS 27 51 16	Radio and Public Address System
UFGS 28 20 00.00 20	Electronic Security System (ESS), Commercial

D50 1.3 QUALITY ASSURANCE

Qualifications, certifications, and Test Plans indicated herein shall be submitted 45 calendar days prior to the expected date of execution. Notify the Contracting Officer 14 calendar days prior to all testing. Submit test results within 7 calendar days of completion of testing.

The Designer of Record is responsible for approving the submittals listed below.

D50 1.3.1 Qualified Testing Organization

Contractor shall engage the services of a qualified testing organization to provide inspection, testing, calibration, and adjustment of the electrical distribution system and equipment listed in paragraph entitled "Acceptance Tests and Inspections" herein. Organization shall be independent of the supplier, manufacturer, and installer of the equipment. The organization shall be a first tier subcontractor.

Submit name and qualifications of organization. Organization shall have been regularly engaged in the testing of electrical materials, devices, installations, and systems for a minimum of 5 years. The organization shall have a calibration program, and test instruments used shall be calibrated in accordance with NETA ATS.

Submit name and qualifications of the lead engineering technician performing the required testing services. Include a list of three comparable jobs performed by the technician with specific names and telephone numbers for reference. Testing, inspection, calibration, and adjustments shall be performed by an engineering technician, certified by NETA or the National Institute for Certification in Engineering Technologies (NICET) with a minimum of 5 years' experience inspecting, testing, and calibrating electrical distribution and generation equipment, systems, and devices.

D50 1.3.2 NEC Qualified Worker

Provide in accordance with NFPA 70. Qualified Workers shall be allowed to be assisted by helpers on a 1 to 1 ratio, provided such helpers are registered in recognized apprenticeship programs. Submit a certification confirming NEC Qualified Worker requirements.

D50 1.3.3 Qualified Telecommunications Worker

All installers assigned to the installation of telecommunications systems or any of its components shall be Building Industry Consulting

Services International (BICSI) Registered Cabling Installation Technicians or have a minimum of 3 years experience in the installation of the specified copper and fiber optic cable and components. Include names and locations of two projects successfully completed using optical fiber and copper communications cabling systems. Include written certification from users that systems have performed satisfactorily for not less than 18 months. Include specific experience in installing and testing structured telecommunications distribution systems using optical fiber and Category 6 cabling systems.

D50 1.3.4 Material Standards

Ensure service support and provide manufacturer's nameplate in accordance with PTS Section Z10, *General Performance Technical Specification*.

D50 1.3.4.1 Warning Labels

Provide arc flash warning labels.

D50 1.3.4.2 Field-Required Nameplates

Provide laminated plastic nameplates for each switchboard, switchgear, panelboard, equipment enclosure, motor controller, relay, and switch. Each nameplate must identify the function and, when applicable, the position. Provide melamine plastic nameplates, 0.125 inch (3 mm) thick, white with black center core. Surface shall be matte finish. Corners shall be square. Accurately align lettering and engrave into the core. Minimum size of nameplates shall be 1-inch by 2-1/2 inches (25 mm by 65 mm). Lettering shall be a minimum of 0.25 inch (6.35 mm) high normal block style.

D50 1.3.5 Factory Testing

The Government reserves the right to witness all factory testing. The manufacturer shall have a calibration program that assures that all applicable test instruments are maintained within rated accuracy.

D50 1.3.6 Electrical System Startup and Testing

Submit test plans for approval. The test plans shall be tailored to the systems provided.

The test plan shall list make and model and provide functional description of the test instruments and accessories and shall describe the setup of the tests to be conducted. Test instruments shall be capable of measuring and recording or displaying test data at a higher resolution and greater accuracy than specified for the equipment's performance.

D50 1.3.6.1 Factory Trained Engineer

Provide a factory trained engineer to supervise start-up and testing as required in referenced specifications.

D50 1.3.6.2 Performance Verification Testing

The Contractor shall show by demonstration in service that all circuits and devices are in operating condition. Tests shall be such that each item of control equipment shall function not less than five times. The Contractor shall provide all necessary test equipment, tools, fuel, load banks, labor, and materials for testing. As a minimum, all systems shall

be tested in accordance with manufacturer's recommendations. Additional testing requirements for the various systems are described with those systems, hereinafter. The Contractor shall assure that all applicable test instruments are maintained within rated accuracy. Dated calibration labels shall be visible on all test equipment.

Submit a separate electrical field test plan in accordance with manufacturer's recommendations and that conforms to NETA ATS for each piece of Electrical Distribution Equipment and System requiring Performance Verification Testing.

The following items identify specific test requirements. Additional test requirements are contained in the applicable UFGS.

a. Panelboards - Field test each GFI and AFI circuit breaker with a UL 1436-certified outlet circuit tester to verify correct operation.
b. Motor control centers – Test motor control centers and motor starters in accordance with NETA ATS.
c. Transient voltage surge suppressors(TVSS) –

   1) Inspect for physical damage and compare nameplate data with the drawings and specifications, if applicable. Verify from the nameplate data that the TVSS equipment is appropriate for the system voltage.

   2) Verify lead length between the TVSS equipment and the circuit connection is less than one foot.

   3) Verify wiring between the TVSS equipment and the circuit connection does not include high-inductance coils or sharp bends.

   4) Confirm circuit breaker used for TVSS circuit connection is sized in accordance with TVSS manufacturer's requirements.

   5) Ensure TVSS equipment is grounded in accordance with TVSS manufacturer's requirements. Check the ground lead on each device for individual attachment to the ground bus or electrode.

   6) Check tightness of connections in accordance with NETA ATS.

   7) For TVSS equipment with visual indications of proper operation, verify that it displays normal operating characteristics.
d. Receptacles – Test GFI receptacles with a UL 1436-certified outlet circuit tester to verify correct operation.
e. Lighting - Aim photocell switches and locate light level sensors in accordance with the manufacturer's recommendations. Verify that equipment operates in accordance with user's requirements and in accordance with manufacturer’s recommendations. Fluorescent lamps on electronic dimming ballast control shall be burned in at full light output for 100 hours before dimming.
f. Telecommunication - Test telecommunications systems in accordance with applicable EIA/TIA requirements.
g. Public address and intercommunications systems - Tests shall include originating and accepting messages at each station, at proper volume levels, without cross-talk or noise from other links or non-designated units. Test shall utilize the phonetically balanced monosyllabic work intelligibility test in accordance with ANSI S3.2 (ASA 85). In order to be acceptable, a score of at least 75 percent must be obtained for each system test.
h. Community Antenna Television Systems - Confirm design and installation is in compliance with NCTA-02, 47 CFR 76.605 and in accordance with FCC proof of performance requirements. Test plan

shall define tests required to ensure that the system meets technical, operational, and performance specifications. Test plan shall include plan for testing for signal leakage.

i. Electronic security systems (ESS) - Test ESS in accordance with UFGS requirements.

j. Grounding systems - Test the grounding system in accordance with NETA ATS.

k. Lightning protection - Upon completion of the installation, Contractor shall furnish the UL Lightning Protection Inspection Certificate certified to UL 96A for the system.

l. Emergency lighting - Test emergency lighting that is intended for means of egress in accordance with NFPA 101, Section 5-9. Confirm the emergency lighting system operates for a minimum of 90 minutes and emergency illumination satisfies NFPA 101, Section 5-9, specified levels.

m. Building Integrated or Mounted Photovoltaic(BIMPV) System - Start up report including system performance. System performance shall be compared to expected performance and shall include at a minimum solar irradiance, DC energy, AC energy, ambient air temperature and PV cell temperature. System performance shall be measured and reported for at least one full day. If the performance monitoring of the installed array indicates the array is not meeting its required performance predictions it shall be corrected by the Contractor at the Contractor's expense. Following correction, performance monitoring shall again be performed until the array meets required performance predictions. Measurements made under actual installation and temperature shall be normalized to Standard Test Conditions(STC).

D50 1.3.6.3 Acceptance Tests and Inspections

The Government reserves the right to witness all Acceptance Tests and Inspections, review data, and request other such additional inspections and repeat tests as necessary to ensure that the system and provided services conform to the stated requirements.

The Qualified Testing Organization shall provide the Acceptance Tests and Inspections test plan and perform the acceptance tests and inspections. Test methods, procedures, and test values shall be performed and evaluated in accordance with NETA ATS, the manufacturer's recommendations, and paragraph entitled "Field Quality Control" of each applicable specification section. Tests identified as optional in NETA ATS are not required unless otherwise specified. Equipment shall be placed in service only after completion of required tests and evaluations of the test results have been completed. Contractor shall supply to the testing organization complete sets of shop drawings, settings of adjustable devices, and other information necessary for an accurate test and inspection of the system prior to the performance of any final testing. Perform acceptance tests and inspections on Diesel-Electric Generators, Automatic Transfer Switches, and Switchboards and Switchgear.

D50 1.4 DESIGN SUBMITTALS

Design Submittals shall be in accordance with PTS Section Z10, *General Performance Technical Specifications*, UFGS Section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures*, and UFC 3-501-01, *Electrical Engineering*.

In addition, UFGS sections listed below or in the body of the PTS text are to be used by the Designer of Record (DOR) as a part of the design submittal. If the UFGS products or systems are applicable to the project, the DOR shall edit these referenced UFGS sections and submit

them as a part of the design submittal specification. Edit the specification sections in accordance with the limitations stated in PTS Section Z10, *General Performance Technical Specifications*.

UFGS 26 23 00, *Switchboards and Switchgear*

UFGS 26 29 23, *Variable Frequency Drives System Under 600 Volts*

UFGS 28 20 00.00 20, *Electronic Security System (ESS), Commercial*

D50 1.5 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the PTS Section Z10 requirements, the Designer of Record (DOR) shall approve the following construction submittals as a minimum:

Electrical Equipment, OMSI information for equipment, and Quality Assurance Submittals listed above.

Provide certification that all adjustable protective device settings have been set in accordance with the coordination study for the as-built equipment and configuration.

D5010 ELECTRICAL SERVICE AND DISTRIBUTION

D501001 MAIN TRANSFORMERS

Not used.

D501002 SERVICE ENTRANCE EQUIPMENT

Not used.

D501003 INTERIOR DISTRIBUTION TRANSFORMERS

D501004 PANELBOARDS

Panelboards shall comply with UL 67 and UL 50. UL 869A shall apply if used as service entrance equipment. Panelboards for non-linear loads shall be UL listed, including heat rise tested, in accordance with UL 67, except with the neutral assembly installed and carrying 200 percent of the phase bus current during testing.

Provide molded case circuit breakers in accordance with UL 489. Ground fault circuit interrupting circuit breakers shall comply with UL 943. Arc fault circuit breakers shall comply with UL 489 and UL 1699.

D501005 ENCLOSED CIRCUIT BREAKERS

Provide molded case circuit breakers in accordance with UL 489. UL 869A shall apply if used as service entrance equipment. Provide with solid neutral when grounded conductor is present.

D501006 MOTOR CONTROL CENTERS

Not used.

D501006 1.1 VARIABLE FREQUENCY DRIVES (VFD)

When Variable Frequency Drives are required, the Designer of Record shall utilize UFGS Section 26 29 23 for the project specification, and shall submit the edited specification section as a part of the design submittal for the project.

D501090 OTHER SERVICE AND DISTRIBUTION

D501090 1.1 TRANSIENT VOLTAGE SURGE SUPRESSORS (TVSS)

Not used.

D5020 LIGHTING AND BRANCH WIRING

D502001 BRANCH WIRING

Provide wiring and connections for special outlets where required.

All homerun circuits must contain no more than 3 phase conductors.

Switches shall comply with NEMA WD-1 and UL 20.

D502002 LIGHTING EQUIPMENT

Installation shall meet requirements of manufacturer's recommendations and the additional requirements for "Severe Seismic Disturbance" contained in ASTM E 580. Fixture support wires shall conform with ASTM A 641/A 641M, galvanized regular coating, soft temper.

D502002 1.1 BALLASTS

Electronic ballasts shall include a 5-year warranty.

D5030 COMMUNICATIONS AND SECURITY

D503001 TELECOMMUNICATIONS SYSTEMS

Design to UFC and UFGS design guidelines.

D503002 PUBLIC ADDRESS SYSTEMS

Provide combined Mass Notification/Public Address System. Design to UFC and UFGS design guidelines.

D503003 INTERCOMMUNICATIONS SYSTEMS

Not used.

D503004 TELEVISION SYSTEMS

Design to UFC and UFGS design guidelines.

D503004 1.1 CLOSED CIRCUIT TELEVISION (CCTV) FOR VIDEO TRAINING

Not used.

D503004 1.2 COMMUNITY ANTENNA SYSTEM (CATV)

Not used.

D503005 SECURITY SYSTEMS

D503005 1.1 ELECTRONIC SECURITY SYSTEMS (ESS)

When an ESS system is required, the Designer of Record shall utilize UFGS Section 28 20 00.00 20 for the project specification and shall submit the edited specification section as a part of the design submittal for the project.

D503090 OTHER COMMUNICATIONS AND ALARM SYSTEMS

Not used.

D5090 OTHER ELECTRICAL SERVICES

D509001 GENERAL CONSTRUCTION ITEMS (ELECTRICAL)

Not used.

D509002 EMERGENCY LIGHTING AND POWER

D509002 1.1 EMERGENCY LIGHTING

Emergency egress lighting shall be supplied by battery back-up.

D509002 1.2 EMERGENCY GENERATORS

Not used.

D509002 1.3 AUTOMATIC TRANSFER AND BYPASS/ISOLATION SWITCHES

Not used.

D509003 GROUNDING SYSTEMS

Provide a complete grounding system for the facility electrical and telecommunications systems.

D509004 LIGHTNING PROTECTION

The entire system shall meet the UL Lightning Protection Inspection Certificate certified to UL 96A.

D509005 ELECTRIC HEATING

Not used.

D509006 ENERGY MANAGEMENT CONTROL SYSTEM

Not used.

D509007 BUILDING PHOTOVOLTAIC SYSTEM

Not used.

D509090 OTHER SPECIAL SYSTEMS AND DEVICES

-- End of Section --

SECTION E10

EQUIPMENT

E10 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

E10 1.1 GENERAL REQUIREMENTS

Where required by the project program, the contractor shall obtain the services of equipment specialists to specify any audiovisual, shop, fitness equipment, or other specialty equipment. Equipment specialists shall not have any affiliation with the product specified. All specialty equipment shall be installed by qualified installers regularly engaged in installing the specialty equipment. Systems furnishings installers must be the systems furniture manufacturer's dealer of record.

E10 1.2 DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

Industry standards, codes, and Government standards that are referenced in the section text that are not found in the Unified Master Reference List (UMRL) in the Construction Criteria Base (CCB) at the Whole Building Design Guide Website , are listed below for basic designation identification. Comply with the required and advisory portions of the current edition of the standard at the time of contract award.

E10 1.2.1 Industry Standards and Codes

Not used.

E10 1.2.2 Government Standards

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-101-01, ArchitectureUFC 3-120-10, Interior Design)

E10 1.3 PERFORMANCE VERIFICATION AND COMPLIANCE TESTING

Verification of satisfactory special equipment and furnishing systems performance shall be via Performance Verification Testing, as detailed in this section of the RFP.

E10 1.3.1 Field Tests for Dock Leveling Equipment

Not used.

E10 1.4 DESIGN SUBMITTALS

Design Submittals shall be in accordance with UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures*, UFC 3-101-01, *Architecture*, UFC 3-120-10, *Interior Design*.

E10 1.5 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) shall approve the following construction submittals as a minimum:

Field tests of equipment, vault door, loading dock equipment, kitchen equipment and unit kitchens.

E1010 COMMERCIAL EQUIPMENT

E101005 SECURITY & VAULT EQUIPMENT

E101005 1.1 VAULT AND DOORS

Not used.

E101005 1.2 SECURITY VAULT DOOR

Not Used.

E101005 1.3 DAY GATE

Not used.

E1020 INSTITUTIONAL EQUIPMENT

Not used.

E102001 MISCELLANEOUS COMMON FIXED & MOVABLE EQUIPMENT

Not used.

E102009 AUDIO-VISUAL EQUIPMENT

E102009 1.1 CEILING MOUNT FOR PROJECTOR

Not used.

E1030 VEHICULAR EQUIPMENT

E103002 LOADING DOCK EQUIPMENT

This paragraph covers the requirements for dock bumpers and truck-trailer restraining devices. All loading dock equipment shall be Navy certified.

Provide a Loading Dock Equipment System for the protection of service docks and for the loading and unloading of service vehicles.

E103002 1.1 DOCK LEVELERS

Not used.

E103002 1.1.5 Electro-Hydraulic Lift System

Not used.

E103002 1.1.6 Electrical Requirements

Not used.

E103002 1.1.7 Structural Warranty

Not used.

E103002 1.1.8 Accessories

Not used.

E103003 WAREHOUSE EQUIPMENT

Not used.

E103004 AUTOMOTIVE SHOP EQUIPMENT

Not used.

E1040 GOVERNMENT FURNISHED EQUIPMENT

Refer to the project program.

E1090 OTHER EQUIPMENT

E109002 FOOD SERVICE EQUIPMENT

Automatic Ice Maker; freestanding under counter stainless steel ice maker with 58 lb. daily ice production, 36 lb. storage capacity with automatic operation. Unit shall have air cooled condenser, complete automatic operations, LED control pane, 115V/60Hz.

E109002 1.2 RESIDENTIAL OR LIGHT COMMERCIAL ELECTRIC KITCHEN EQUIPMENT

Not used.

E109005 1.2 UNIT KITCHEN COMPONENTS

a. Cabinets - ANSI/FCMA A161.1 wood and plywood cabinetry with drainers and cabinet doors.

1) Provide 3/4-inch (19 mm) solid wood for face framing, drawer fronts, and shelves up to 36 inch (91.44 cm) wide. Cabinet body members require spline, biscuit, dowel or dado joining.
2) Provide 1/2-inch (12.8 mm) solid wood for drawer boxes with dovetail or dowelled joints.

3) Provide 3/8-inch (9 mm) plywood for cabinet box and toe board.
4) Provide cabinet doors of High Pressure Laminate covered medium density fiberboard or stile and rail doors.

b. Countertop - Provide ASTM 2124.3 and ASTM 2124.6, solid polymer countertop and 3-1/2 inch (89 mm) backsplash.

c. Sink and Faucet - Provide ANSI A112.18.1M, NSF International Standard 61 sink and faucet. Section 9 for sink and faucet. Provide large 22 gauge stainless steel sink with basket strainer in w with water stopper. Faucet shall be a washerless cartridge system

d. Accessories

1) Back wall shield and end wall shields when against an end wall.

2) Countertop fluorescent lighting.

3) Drawer slides rated for 100 pound capacity.

4) Door hinges to be adjustable, self-closing, and configured to allow screw application to cabinet door from two directions.

E109090 OTHER SPECIALIZED FIXED AND MOVABLE EQUIPMENT

Specialized fixed and moveable equipment not described by the other assembly categories.

E109090 1.1 WEAPONS RACKS

Not used.

E109090 1.2 GEAR DRYING CAGES

Not used.

-- End of Section --

SECTION E20

FURNISHINGS
09/12

E20 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

E20 1.1 DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

Industry standards, codes, and Government standards referenced in the section text that are not found in the Unified Master Reference List (UMRL) in the Construction Criteria Base (CCB) at the Whole Building Design Guide Website , are listed below for basic designation identification. Comply with the required and advisory portions of the current edition of the standard at the time of contract award:

E20 1.1.1 Industry Standards and Codes

E20 1.1.2 Government Standards

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-10i-01, Architecture UFC 03-120-10, Interior Design)

E20 1.2 GENERAL REQUIREMENTS

The Contractor shall have an Interior Designer, certified by the National Council for Interior Design Qualification (NCIDQ), or a state and/or jurisdiction Certified, Registered, or Licensed Interior Designer prepare both the FF&E and the SID Package and participate in any design charettes to develop the building floor plan. As required, the Contractor shall obtain services of equipment specialists to specify the audiovisual, shop, or specialty equipment. The Interior Designer and any specialists shall not be affiliated with any furniture dealership/vendor or manufacturer. The Government Interior Designer reserves the right to approve/disapprove the qualifications of the Contractor's Interior Designer.

Systems furnishings installers must be the systems furniture manufacturer's approved dealer of record. In addition, installation dealers must be

located within a 100 mile radius of the project site unless approved by the government Interior Designer.

Contractor to re-purpose/ recycle existing furniture if not relocated by the government. Contractor to provide verification that the existing furniture was not disposed of at the landfill.

E20 1.3 DESIGN SUBMITTALS

Design Submittals shall be in accordance with Z10, *General Performance Technical Specifications*, UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures*, and UFC 03-120-10, *Interior Design*.

E20 1.4 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) shall approve the following construction submittals as a minimum:

Art work and FF&E Package

E2010 FIXED FURNISHINGS

E201001 FIXED ARTWORK

E201002 WINDOW TREATMENTS

Provide interior window coverings, associated hardware and controls at each exterior window and at any interior view window where privacy may be required. Refer to the Project Program for size, pattern and style of window treatments. At a minimum, functional window coverings such as blinds or solar shades are required on all projects.

E201002 1.1 BLINDS

Venetian blinds shall be one-inch horizontal room-darkening commercial grade aluminum at a minimum thickness of 0.2mm (.008") (after coating) with a minimum of 45.72 slats per meter (15 slats per foot). Blinds shall be provided at each exterior window and at any interior window where privacy may be required. One full size sample shall be provided and installed for review and approval.

E201002 1.2 SHADES

Provide energy efficient solar shading systems for exterior windows. The system shall maintain visibility while reducing glare, solar heat gain during the summer and heat loss during the winter. Openness configuration shall be no more than 5% for most areas. The system fabrics and components shall be dimensionally stable and shall be manufactured to withstand fading, fire, mildew, and soiling.

E201002 1.3 DRAPERIES AND HARDWARE

Draperies shall be manufactured under GSA contract as part of FF&E. Drapery can be accordion-fold, ripple-fold, or pinch-pleat with associated hardware suitable for the project requirements. All draperies shall meet the NFPA Code 701 California Fire Marshall’s flame retardant requirements.

E201003 SEATING (FIXED)

E201003 1.1AUDITORIUM, LECTURE AND CLASSROOM SEATING

Not Used

E201003 1.2 FIXED TABLES FOR AUDITORIUM, LECTURE AND CLASSROOMS

Not used.

E2020 MOVABLE FURNISHINGS

Furnishings, Fixtures, and Equipment (FF&E) shall include furniture, shop equipment, audiovisual equipment, and specialty equipment. Lockers are not considered FF&E. FF&E shall be fully integrated with the building systems and finishes. FF&E may also include specialty items for which the customer activity shall be responsible for specifying.

Design and provide as required FF&E for all areas as developed during client programming. Design an FF&E package and prepare supporting plans and procurement data in accordance with the general interior design requirements in UFC 3-120-10.

E2020 1.1 FF&E PACKAGE

FF&E Package: Design and provide a fully usable and complete facility to include a FF&E movable furnishings package from Government supply sources according to Federal Acquisition Regulations. The FF&E shall include, but not limited to, systems and modular furniture, training and conference furniture, seating, tables, artwork, decorative window covering, specialty furniture and equipment, , and accessories. NAVSUP Blanket Purchase Agreements (BPA) must be used whenever possible. The government shall provide separate funding for the FF&E package. Construction funds shall not be used. The FF&E Package must include shipping, freight, handling, installation and the HAR percentage as applied to the final FF&E total cost.

E2020 1.1.1 Authorization

The government shall provide separate funding for procurement of the FF&E package. Upon receipt of required funding, the Contractor shall be authorized by the Contracting Officer as a planned line item modification to the contract/task order to procure all FF&E using predominately negotiated Federal contracts. The amount of the modification shall be the actual cost of these items from the Federal price schedules or NAVSUP BPAs, including any freight and installation charges from the furniture supplier as well as the contractor's FF&E Handling and Administration Rate (HAR). The HAR includes all of the prime contractor's effort related to storage, coordination, handling, administration of subcontractors, and all other associated costs and profit for the procurement of FF&E. The prime contractor shall propose in the contract/task order solicitation the FF&E HAR. The contractor's proposed HAR may not exceed 5% of the total FF&E costs, as noted on the bid schedule. No other charges, expenses, fees, markups, etc.shall be authorized.

The government Interior Designer will approve the final FF&E submittal. The FF&E package will be presented to the Contracting Officer and the Contractor shall provide the FF&E exactly as specified and approved.

The Contractor shall receive a letter of authorization from the Contracting Officer citing the name of the furniture dealer and other information to use when accessing the government supply sources. FF&E

items are subject to the Buy American Act.

E2020 1.2 PURCHASE AND INSTALLATION

The Contractor shall coordinate the building completion date with the installation dealer specified in the FF&E Package. The Contractor or contractor's representative is responsible for the following: issuing purchase orders, receiving acknowledgements, sending copies of purchase orders to the installation dealer(s) specified in the FF&E package, and providing necessary deposits to furniture manufacturers.

The FF&E installation dealer(s) is responsible for the following: Receiving and installing all FF&E specified in the FF&E package, coordinating delivery and installation with the Contractor, inspecting for damage, providing delivery receipts to the Contractor, filing necessary freight claims, hanging artwork, bulletin boards, etc., removing packaging material, cleaning up the site upon completion, and adhering to Contractor's safety requirements.

E2020 1.2.1 Use of GSA Schedules and Blanket Purchase Agreements (BPAs)

The prime contractor or FF&E dealer shall be authorized to purchase supplies or services from the Navy Furniture BPAs for FF&E requirements, under the terms of the contract. The Contractor shall receive a letter of authorization from the Contracting Officer citing the name of the furniture dealer and other information to use when accessing the government supply sources or BPAs.

E2020 1.2.2 Deposits

The Contractor should anticipate providing a deposit of between 30% to 50% of the furniture costs when placing their order.

The Contractor shall also anticipate possible manufacturer price increases. Recommend ordering FF&E product once funds are received to avoid incurring additional costs. Delayed production and delivery dates can be noted at the time of order placement to coincide with building completion dates. Any costs incurred due to manufacturer price increases shall be the burden of the contractor.

E2020 1.2.3 Davis Bacon Wages

Davis Bacon wages do not apply to the FF&E installer from the government supply sources. The workforce for the FF&E installation and delivery shall be separate and distinct from the labor workforce performing under the construction contract.

E2020 1.2.4 Sales Tax

Exemptions for certain State or Local taxes may be available to the contractor and/or its subcontractors. The contractor shall take maximum advantage of all exemptions, including obtaining a resale permit, from State and Local taxation authorities whether available to it directly or available to the contractor based on an exemption afforded the government. The responsibility for paying applicable taxes rests with the contractor. State and local taxes applicable to the FF&E line shall be included with the subcontractor's quote, if applicable. Any items purchased as building materials such as carpet are taxable.

E2020 1.2.5 Bonds

FF&E line item is not considered construction and the prime contractor shall not be required to secure any additional bond for the award of the FF&E line item unless otherwise indicated in the RFP. If any additional bond is required for the FF&E line item it is to be included in the prime contactor's FF&E HAR.

E2020 1.2.6 Unique Item Identification (IUID) and Validation

Unique item identification and valuation is a system of marking and valuing items delivered to DoD that enhances logistics, contracting, and financial business transactions. The IUID policy is mandatory for all DoD contracts that require the delivery of items. An item is a single article or a single unit formed by a grouping of subassemblies, components or constituent parts. The contractor shall provide DoD Unique item identification, valuation and delivery of data for all required FF&E items for which the government's unit acquisition cost is $5,000 or more.

E2020 1.2.7 Buy American Act and Trade Agreement Act

All supplies under the FF&E line item are subject to the Buy American Act and Trade Agreement Act (TAA). The GSA contracts and NAVSUP Blanket Purchase Agreements are required to comply with the Buy American Act and TAA.

E2020 1.2.8 Small Business Requirements

The FF&E is subject to the Contractor's Small Business Goals however the government requires the furniture be purchased from NAVSUP Blanket Purchase Agreements (BPA). Most manufacturers on the Office Furniture BPA are large business and most manufacturers on the Dorm and Quarters BPA are small business. Installation dealers are small business. Under the terms of the BPA, the FF&E must be ordered directly through the GSA manufacturer. Using pass-through companies to achieve Small Business Goals shall not provide the Contractor credit unless they manufacturer 20% or provide 50% of the service purchased. The government shall not incur additional costs to use small business.

E2020 1.2.9 Installation

The FF&E package includes the installation of all furniture and furnishings as specified in the FF&E package. The installation dealer specified in the FF&E package shall receive, store, if required, transport to the project site, off load, inside deliver, unpack, assemble, place/install, clean, if required, and dispose of all the trash for all furniture and furnishings. The Contractor's Interior Designer shall be responsible for specifying installation services and warehousing, as required, for all collateral equipment. It is the Contractor's responsibility to coordinate the building completion, occupancy, and furniture installation dates with the installation dealer specified in the FF&E package. Any costs associated with storing or delaying furniture shipments is the responsibility of the construction contractor.

E2020 1.2.10 Installation Warranty

All movable furnishings shall be installed in accordance with the manufacturer's instructions and warranty requirements. All movable furnishings shall be level and aligned and all doors, drawers and accessories shall be level and aligned to open, close and otherwise operate smoothly and securely. All systems furniture shall be installed by the systems furniture manufacturer's dealer of record and not the General Contractor. The Contractor shall repair, to the

customer’s satisfaction, any/all damage to any facility finish that is a result of the furniture installation and correct all punch list items for the furniture/furnishings.

E2020 1.2.11 Ordering Documentation

Two copies of all ordering documentation shall be provided to the Contracting Officer including Factory Order number (FO) and warranty information.

E2020 1.2.12 Post Award Changes

After award of the FF&E line item modification, any request to change the FF&E items must be submitted on the Contracting Officer. The FF&E modification has been accepted, priced, and negotiated based on specific line items as detailed in the final package. Those items have been agreed to considering color, specific type and quality of material, price, sustainability, life cycle, and dealership service. The Government shall expect and require the contractor to provide exactly those items. Should changes become necessary, careful consideration is required to ensure that equivalent quality, price and other aspects of the item is maintained. Otherwise, price adjustments must be negotiated. The Contracting Officer shall obtain approval from the Government Interior Designer/Collateral Equipment Manager in consultation with the client for any changes to the FF&E.

Post award FF&E manufacturer's price increases are the responsibility of the Contractor and shall not be transferred to the government. Recommend ordering FF&E product once funds are received to avoid incurring additional costs. Delayed production and delivery dates can be noted at the time of order placement to coincide with building completion dates.

E2020 1.3 BEST VALUE DETERMINATION

A best value determination is required by FAR 8.404 when placing orders against Federal Supply Schedules for the selection of furniture and furnishings. A BVD must also be provided for FF&E installation services. Best Value is defined in FAR 2.101 as ensuring that the order to be placed under a Federal Supply Schedule results in the lowest overall cost alternative (considering price, special features, administrative costs and client's needs) to meet the government's needs.

The Contractor's Interior Designer is responsible for the following written BVD justifications:

$3,000 or less: For any procurement in the FF&E package with a value of $3,000 or less, the interior designer may utilize any BPA holder. If the BPA holders cannot supply the item, then any other manufacturer may be utilized.

Greater than $3,000 and $150,000 or less: for any procurement in the FF&E package with a value greater than $3,000 and $150,000 or less, the contractor's interior designer shall always review pricing from at least three manufacturers as well as UNICOR. In addition to the review of published list prices, the contractor's interior designer must confirm the pricing with the vendor. Manufacturer's quotes are NOT required. The BVD form must be completed and submitted for all FF&E procurements greater than $3,000 and $150,000 or less.

Greater than $150,000: The contractor's interior designer shall solicit proposals from all BPA holders under the applicable group for FF&E

procurements greater than $150,000. UNICOR must always be solicited. The contractor's interior designer shall develop performance criteria and project requirements based on a generic design for the BPA holders and UNICOR to develop a price and performance proposal. The BVD form must be completed and submitted for all FF&E procurements greater than $150,000 and manufacturer's quotes and a summary of all proposals must be attached.

Federal Prison Industries (UNICOR) must be considered as part of all BVDs. This must be done by sending an email with the requirements and evaluation criteria If they are not comparable in one or more areas of price, quality, and time of delivery, the designer can specify product under NAVSUP BPA or GSA schedule.

The best value determination shall address issues such as space planning; human factors data related to anthropometrics (reach, clearance, adjustability), space, and acoustics; ergonomics; product quality (including construction and materials); sustainability features, product warranties; history of the product and/or manufacturer; ability to service products through dealers or others within a certain geographical range of the project; price (including freight); aesthetics; appropriateness; and lighting, power and telecommunications systems management and/or coordination as related to the facility (when applicable); and other project specific factors as identified and/or required. Emphasis shall be to create a fully integrated design solution by providing quality products to meet the functional needs of the customer. Customer preferences shall be considered. The focus shall be on the best overall value. Use the GSA Best Value Determination forms provided in Part 6 of this RFP as guidelines for information to be provided.

E202001 MOVABLE ART WORK

The Contractor shall provide artwork for wall installation as part of the FF&E Submittal according to the project program. Installation of artwork to be completed by installation dealer specified in the approved FF&E package. Type of artwork to be determined by client requirements and budget as described in the Project Program for the project. Install framed artwork 63 inches (1600 mm) on center above finished floor. Include security mounting hardware as required.

E202002 MODULAR PREFABRICATED FURNITURE

E202002 1.1 FURNITURE SYSTEMS

Provide products that meet the NAVFAC performance specifications for systems furniture. The Government Interior Designer must approve any other systems furniture manufacturer. The typical workstation shall maximize each allocated space with work surfaces and overhead closed storage with a surface to accommodate a Government provided computer. An attached articulated keyboard/mouse tray shall be selected or provided. Provide a monitor lift if required by the project program.

Powered raceways that shall accommodate data and voice wire management shall be completely coordinated with all facility systems. The Contractor's Interior Designer shall ensure the coordination of all electrical/data and furniture locations. Use of power poles shall not be permitted to power FF&E unless approved by the Contracting Officer. The Contractor shall provide and coordinate all telecommunication receptacles and outlet requirements (i.e. RJ 11/45 receptacles and cover plates) with the Contractor's Interior Designer and the systems furniture installer. The Contractor shall hardwire all pre-wired furniture with the building systems, and coordinate all IT and telephone connections.

E202002 1.2 MODULAR FREESTANDING FURNITURE AND WORKSTATIONS

Provide products that meet the NAVFAC performance specifications for modular freestanding furniture including wood. Provide modular furniture with electrical/data cable trays and grommet holes for private offices and smaller work areas. An attached articulated keyboard/mouse tray (and monitor lift if required by the project program) shall be selected. Wood surfaces shall be provided as appropriate. Include accommodation for a Government provided computer and printer.

E202003 FREESTANDING FURNITURE

E202003 1.1 SEATING

E202003 1.1.1 Task Seating

Provide task seating that is fully ergonomic and coordinated by finish and scale to the workstation. Seating specifications to include: adjustable arms, back, height, and seat pan; 5 star base, appropriate castors for floor surface, lumbar support and availability in a minimum of two (2) sizes. Task seating can be from the same manufacturer as the systems or major furniture supplier or other seating manufacturer as approved by the government Interior Designer, provided it is determined to be a BPA "Best Value".

E202003 1.1.2 Lounge, Reception and Guest Seating

Provide lounge, reception and guest seating with upholsteries consistent with the Project Program. Seating shall be easily reupholstered or have removable covers.

E202003 1.1.3 Training Room Seating

Provide seating with passive ergonomic features in that the seat and back offers some synchronized movement to allow the person seated to change positions. The support can be legs, sled base or single pedestal with 5 star base and casters as determined by user requirements. Provide high density stack chairs or nesting chairs as required. Provide attached, storable tablet arm as required.

E202003 1.2 STORAGE AND FILING

Provide freestanding storage units, file cabinets and file safes to accommodate the specific and unique storage requirements of the user. Coordinate closely with storage provided in PTS Section E10, Equipment, for high density filing.

E202003 1.3 CHILD DEVELOPMENT CENTERS

Not used

E202003 1.4 TRAINING/CONFERENCE ROOM FURNISHINGS

E202003 1.4.1 Tables

Provide single or multi-person work surfaces or tables as determined from user requirements. Where computers are used, provide tables with wire management capability or pre-wired tables to accommodate data/telecommunications requirements. Powered raceways that shall accommodate data and voice wire management shall be completely coordinated with all facility systems. The Contractor's Interior Designer shall ensure the coordination of all electrical/data and furniture locations. The Contractor shall provide and coordinate all telecommunication receptacles and outlet requirements, hardwire all

pre-wired furniture with the building systems and coordinate all IT and telephone connections.

E202003 1.4.2 Fixed Presentation Furnishings

Provide marker boards with porcelain on steel writing surfaces. Coordinate with building construction to include appropriate blocking or structural support for the installation of marker boards and tack boards.

E202003 1.4.3 Movable Presentation Furnishings

Provide audio-visual carts, lecterns, multi-media presentation cabinets to accommodate power/data requirements.

E202003 1.5 DINING ROOM FURNISHINGS

E202003 1.5.1 Cafeteria, Dining Hall Furnishings, Break Room

Provide stackable seating , tables and trash and recycling containers.

E202003 1.5.2 Executive Dining Furnishings

Not used.

E202004 RUGS & ACCESSORIES

E202004 1.1 RUGS

Not used.

E202004 1.2 LAMPS

Not used.

E202004 1.3 INTERIOR LANDSCAPING

Not used

E202004 1.4 OTHER DECORATIVE ITEMS

Refer to the Project Program for requirements.

E202090 OTHER MOVABLE FURNISHINGS

E202090 1.1 MISCELLANEOUS ITEMS

E202090 1.1.1 Containers

Provide waste receptacles, recycling containers, and ash urns as required.

E202090 1.1.2 Accessories

Provide clocks, wall mounted or freestanding literature and coat racks, and mirrors as required.

E202090 1.1.3 Small Equipment

Provide small appliances such as coffee pots, microwaves, refrigerators, washers, dryers, and icemakers, as required.

E202090 1.1.4 Special Equipment

Provide mailroom work and storage tables, mail sorter units, carts and equipment tables as required.

-- End of Section --

SECTION F10

SPECIAL CONSTRUCTION

F10 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

F10 1.1 DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

Industry standards, codes, and Government standards referenced in the section text that are not found in the Unified Master Reference List (UMRL) in the Construction Criteria Base (CCB) at the Whole Building Design Guide Website , are listed below for basic designation identification. Comply with the required and advisory portions of the current edition of the standard at the time of contract award.

F10 1.1.1 Government Standards

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-101-01, ArchitectureUFC 03-301-01, Structural Engineering)

F10 1.2 PERFORMANCE VERTIFICATION AND ACCEPTANCE TESTING

Verification of satisfactory special construction system performance shall be via Performance Verification Testing, as detailed in this section of the RFP. Provide special tests and special inspections in accordance with UFGS Section 01 45 00.05 20, *Design and Construction Quality Control*.

F10 1.3 DESIGN SUBMITTALS

Design submittals shall be in accordance with Z10, *General Performance Technical Specifications*, UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures*, and UFC 3-101-01, *Architecture*, and UFC 3-301-01, *Structural Engineering*.

F10 1.4 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) shall approve the following submittals as a minimum:

F1010 SPECIAL STRUCTURES

F101001 METAL BUILDING SYSTEMS

Not used.

F1030 SPECIAL CONSTRUCTION SYSTEMS

F103001 VAULTS

Not used.

-- End of Section --

SECTION F20

SELECTIVE BUILDING DEMOLITION

F20 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

F20 1.1 DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

Industry standards, codes, and government standards that are referenced in the section text that are not found in the Unified Master Reference List (UMRL) in the Construction Criteria Base (CCB) at the Whole Building Design Guide Website , are listed below for basic designation identification. Comply with the required and advisory portions of the current edition of the standard at the time of contract award.

F20 1.1.1 Industry Standards

Refer to UMRL for reference designation identification.

F20 1.1.2 Government Standards

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-101-01, Architecture)
UFC 3-800-10N	Environmental Engineering for Facility Construction

UNIFIED FACILITIES GUIDE SPECIFICATIONS (UFGS)

UFGS 01 57 19.00 20	Temporary Environmental Controls
UFGS 01 57 19.01 20	Supplementary Temporary Environmental Controls
UFGS 02 82 14.00 10	Asbestos Hazard Control Activities
UFGS 02 83 19.00 10	Lead Based Paint Hazard Abatement,

	Target Housing and Child Occupied Facilities
U.S. ARMY CORPS of ENGINEERS (USACE)	
EM 385 -1-1	(2008) Safety -- Safety and Health Requirements or latest edition including changes

F20 1.2 QUALITY ASSURANCE

Materials and assemblies installed in the work shall be inspected and found to be in compliance with industry standards prior to acceptance of the work. Items found not to be in compliance shall be removed, or corrective measures taken, to assure compliance with the referenced standard. Disposal of materials shall be as specified and performed in a manner to protect workers and existing structures to remain.

F20 1.3 PERFORMANCE VERIFICATION AND ACCEPTANCE CRITERIA

Compliance with the requirements shall be determined by a review of the design and construction submittals and by field inspection. See UFGS Section 01 33 10.05 20, *Design Submittal Procedures*, and UFGS Section 01 33 00.05 20, *Construction Submittal Procedures*, for additional requirements.

F20 1.4 DESIGN SUBMITTALS

Design Submittals shall be in accordance with Z10, *General Performance Technical Specifications*, UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures*, and UFC 3-800-10N, *Environmental Engineering for Facility Construction*.

F20 1.5 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements and if applicable to this project, the Designer of Record (DOR) shall obtain governing body approval for the construction submittals contained in the following UFGS sections and USACE Safety Manual as a minimum:

UFGS 01 57 19.05 20, *Temporary Environmental Controls for Design-Build*

UFGS 01 57 19.01 20, *Supplementary Temporary Environmental Controls*

UFGS 02 82 14.00 10, *Asbestos Hazard Control Activities*

EM 385-1-1, *Safety and Health Requirements*, latest edition including changes

a. Engineering Safety Survey

b. Demolition Plan/ Deconstruction Plan

F2010 BUILDING ELEMENTS DEMOLITION

All demolition materials and appurtenances shall be properly disposed and in accordance with all applicable regulations. Maximize the use of deconstruction and recycling services. Before demolition can commence, any hazardous materials shall be abated in accordance with the requirements of the ESR and other parts of the RFP. Provide a Demolition Plan/ Deconstruction Plan that is based on a Registered Engineers Survey in accordance with EM 385-1-1 and has been approved by the DOR. The Contractor shall obtain approval from the Contracting Officer for the proposed demolition plan and work/outage schedule prior to demolition activities.

F2010 1.1 GENERAL DEMOLITION

The work includes demolition, salvage of identified items and materials and removal of resulting rubbish and debris. Rubbish and debris shall be removed from Government property daily, unless otherwise directed. Materials that cannot be removed daily shall be stored in areas specified in the approved Demolition Plan as described in UFGS 01 57 19.00 20.

F2010 1.2 UTILITIES

Remove existing utilities and terminate in a manner conforming to the nationally recognized code covering the specific utility. Disturbance to utilities can not cause a failure to utilities to remain operational, unless a planned outage is approved by the FEAD/ROICC and coordinated with on-site personnel.

F2010 1.3 DUST CONTROL

Perform dust control activities in accordance with approved Dirt and Dust Control Plan as described in UFGS 01 57 19.00 20.

F2010 1.4 TRAFFIC CONTROL

Where pedestrian, vehicle, aircraft safety is endangered, use traffic barricades.

F2010 1.5 WEATHER PROTECTION

For portions of the building to remain, protect building interior, materials, and equipment from weather at all times.

F2010 1.6 BURNING

Burning is not permitted.

F201001 SUBSTRUCTURE & SUPERSTRUCTURE

Perform substructure or superstructure demolition work in accordance with the ESR.

F201002 EXTERIOR CLOSURE

Perform exterior closure demolition work in accordance with the ESR.

For occupied buildings ensure openings to the exterior are secured by the end of the work shift.

F201003 ROOFING

Perform roofing demolition work in accordance with the ESR.

F201004 INTERIOR CONSTRUCTION & FINISHES

Perform interior construction & finishes demolition in accordance with the ESR.

F201005 CONVEYING SYSTEMS

Perform conveying systems demolition in accordance with the ESR.

F201006 MECHANICAL SYSTEMS

Perform mechanical systems demolition in accordance with the ESR.

F201007 ELECTRICAL SYSTEMS

Perform electrical systems demolition in accordance with the ESR.

F201008 EQUIPMENT & FURNISHINGS

Perform special equipment and furnishing demolition in accordance with the ESR.

F201009 OTHER NON-HAZARDOUS SELECTIVE BUILDING DEMOLITION

Perform non-hazardous selective building demolition in accordance with the ESR.

F2020 HAZARDOUS COMPONENTS ABATEMENT

Prior to starting work, conduct any additional testing that may be needed to provide a final design and comply with all applicable Federal, regional, state and local regulations. Refer to UFC 3-800-10N, *Environmental Engineering for Facility Construction*, for restrictions and for additional requirements and criteria.

F2020 1.1 PRIVATE QUALIFIED PERSON (PQP)

The PQP must perform independent inspections, testing and verification of the hazardous components work as indicated in the ESR and the approved work plans as described in UFGS 01 57 19.00 20. The PQP shall be appropriately licensed in the state in which the work shall be performed.

F2020 1.2 FURNISHINGS

The government shall remove all uncontaminated furnishings and equipment from the work area prior to the start of the work.

F2020 1.3 ASBESTOS

Perform asbestos related work as indicated in the RFP, in accordance with the ESR, and the approved asbestos removal work plan as described in UFGS 01 57 19.00 20.

For asbestos work in DoD schools the Designer of Record shall edit UFGS 02 82 14.00 10, *Asbestos Hazard Control Activities*, as described in UFGS 01 57 19.00 20. The Designer of Record must be an EPA accredited Asbestos Project Designer. Perform asbestos related work in DoD schools in accordance with the approved edited UFGS 02 82 14.00 10.

F2020 1.4 LEAD BASED PAINT

Perform lead based paint related work as indicated in the RFP, in accordance with the ESR and the approved lead based paint removal work plan as described in UFGS 01 57 19.00 20.

All federal, state and local regulations regarding lead based paint within a child occupied facility must be followed. For lead based paint work performed in child occupied facilities the Designer of Record shall edit UFGS 02 83 19.00 10, *Lead Based Paint Hazard Abatement, Target Housing and Child Occupied Facilities*, as described in UFGS 01 57 19.00 20. The Designer of Record must be an EPA accredited Lead Project Designer. Perform lead based paint related work in child occupied facilities in accordance with the approved edited UFGS 02 82 14.00 10.

F2020 1.5 PAINT RELATED WORK

Perform paint related work as indicated in the RFP, in accordance with the ESR and the approved paint removal work plan as described in UFGS 01 57 19.00 20.

F2020 1.6 MERCURY & LLR COMPONENTS

Perform work as indicated in the RFP, in accordance with the ESR and the approved mercury & LLR components removal work plan as described in UFGS 01 57 19.00 20.

F2020 1.7 PCB'S

Perform PCB related work as indicated in the RFP, in accordance with the ESR and the approved PCB removal work plan as described in UFGS 01 57 19.00 20. Notify the contracting officer immediately on discovery of any equipment leaking PCB containing fluid. Take reasonable preventative measures to contain the leak and prevent movement of the PCB containing fluids.

F2020 1.8 ODS

Perform ODS related work as indicated in the RFP, in accordance with the ESR and the approved ODS removal work plan as described in UFGS 01 57 19.00 20.

F2020 1.9 ANIMAL DROPPINGS

Perform animal droppings related work as indicated in the RFP, in accordance with the ESR and the approved animal droppings removal work plan as described in UFGS 01 57 19.00 20.

F2020 1.10 MOLDS AND SPORES

Perform mold and spore related work as indicated in the RFP, in accordance with the ESR and the approved mold and spore work plan.

F2020 1.11 DISPOSAL

All waste materials shall become the property of the Contractor and shall be transported, disposed of and recycled in accordance with the approved disposal plan as described in UFGS 01 57 19.00 20.

F202001 *SUBSTRUCTURE & SUPERSTRUCTURE*

F202002 *EXTERIOR CLOSURE*

F202003 *ROOFING*

F202004 *INTERIOR CONSTRUCTION & FINISHES*

F202005 *CONVEYING SYSTEMS*

F202006 *MECHANICAL SYSTEMS*

F202007 *ELECTRICAL SYSTEMS*

F202008 *EQUIPMENT & FURNISHINGS*

F202009 *OTHER HAZARDOUS SELECTIVE BUILDING DEMOLITION*

Perform all other building components abatement work in accordance with the ESR.

-- End of Section --

SECTION G10

SITE PREPARATION
11/10

G10 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

G10 1.1 DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

Industry standards, codes, and Government standards referenced in the section text that are not found in the Unified Master Reference List (UMRL) in the Construction Criteria Base (CCB) at the Whole Building Design Guide Website, are listed below for basic designation identification. Comply with the required and advisory portions of the current edition of the referenced standard at the time of contract award.

G10 1.1.1 Industry Standards and Codes

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

Refer to UMRL for reference designation identification.

G10 1.1.2 Government Standards

CORPS OF ENGINEERS (COE)

COE EM 385-1-1	Safety and Health Requirements Manual

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-201-01, Civil EngineeringUFC 3-220-01N, Geotechnical Engineering)
UFC 3-800-10N	Environmental Engineering for Facility Construction

UNIFIED FACILITIES GUIDE SPECIFICATIONS (UFGS)

G10 1.2 PERFORMANCE VERIFICATION AND ACCEPTABLE TESTING

Compliance with the requirements shall be determined by a review of the design and construction submittals and by field inspection. See Section 01 33 10.05 20, *Design Submittal Procedures*, and Section 01 33 00.05 20, *Construction Submittal Procedures*, for additional requirements.
Verify satisfactory earthwork performance via testing detailed in the paragraph, "Field Quality Control", in UFGS Specification Section 31 23 00.00 20, *Excavation and Fill*.

G10 1.3 DESIGN SUBMITTALS

Design Submittals must be in accordance with UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures*, UFC 3-201-01, *Civil Engineering*, and UFC 3-220-01N, *Geotechnical Engineering Procedures for Foundation Design of Buildings and Structures*.

In addition, UFGS sections listed below or in the body of the PTS text are to be used by the Designer of Record (DOR) as a part of the design submittal. If the UFGS products or systems are applicable to the project, the DOR is required to edit these referenced UFGS sections and submit them as a part of the design submittal specification. Edit the specification sections in accordance with the limitations stated in PTS section Z10, *General Performance Technical Specifications*.

UFGS 31 23 00.00 20, *Excavation and Fill*

G10 1.3.1 LEED

LEED Design submittals must be in accordance with the LEED NC rating system v 2009 and associated LEED reference guide.

G10 1.4 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) is required to approve the following construction submittals as a minimum:

Submittals in UFGS 01 57 19.00 20, Temporary Environmental Controls.

Submittals in UFGS Specification Section 31 23 00.00 20, Excavation and Fill.

Demolition plan in accordance with Section 01 74 19.05 20, Construction and Demolition Waste Management for Design-Build.

G10 1.4.1 LEED

LEED Construction submittals must be in accordance with the LEED NC rating system v 2009 and associated LEED reference guide.

G10 1.5 GEOTECHNICAL REPORT

G10 1.5.1 Subsurface Soils Information

Any provided subsurface soil information is included for the Contractor's information only, and is not guaranteed to fully

represent all subsurface conditions. The data included in this RFP are intended for proposal preparation and preliminary design only. Perform, at the Contractor's expense, such subsurface exploration, investigation, testing, and analysis as the Designer of Record deems necessary for the design and construction of the site improvements.

G10 1.5.2 Contractor-provided Geotechnical Engineer

The Contractor-provided Geotechnical Engineer is required to be experienced with soil conditions in the region where the project site is located. The Geotechnical Engineer is required to evaluate the RFP data, obtain and evaluate all additional data as required to support the design and construction, and prepare a Geotechnical Report.

Coordinate all work, if required, by the Contractor-provided Geotechnical Engineer at the project location with the Contracting Officer so as not to interfere with normal base operations. A minimum of two weeks prior to the Foundation Work Design submittal, provide the Contractor's Geotechnical Report (an editable Adobe Acrobat PDF version on CD and two printed copies) for review and record keeping purposes. The report shall become the property of the Government. Provide the geotechnical reports generated during construction, such as pile driving results and analysis, to the Contracting Officer. In addition, provide an editable Adobe Acrobat PDF version and two printed copies for record keeping purposes.

G10 1.5.3 Contractor-Provided Geotechnical Report

Submit a written Geotechnical report based upon Government-provided subsurface investigation data and all additional field and laboratory testing accomplished at the discretion of the Contractor's Geotechnical Engineer. Include the following in the Geotechnical Report:

a. The project site description, vicinity map and site map indicating the location of borings and any other sampling locations. Provide 24 hour groundwater observations for at least 20% of the borings, minimum one boring. Provide notes explaining any abbreviations or symbols used and describing any special site preparation requirements.

b. Results of all applicable field and laboratory testing, whether Government or Contractor-provided. Address existing subsurface conditions, selection and design of the foundation and floor slab, all underground construction including utility installation and all other site specific requirements (such as soil stabilization and slope stability).

c. Engineering analysis, discussion and recommendations Addressing:

1) Settlement analysis - Limit settlement as required in EM 1110-1-1904 "Settlement Analysis".

2) Bearing Capacity analysis

3) Foundation selection (shallow, deep, special) and construction considerations; dimensions, and installation procedures.

4) Site preparation (earthwork procedures and equipment, compaction requirements, building slab preparation (as applicable), soil sensitivity to weather and equipment, groundwater influence on construction, mitigation of expansive soils or liquefaction

potential, and dewatering requirements).

5) Sheeting and shoring considerations, as applicable.

6) Pavement design calculations with parameters defined, actual or assumed, and recommended thicknesses and materials.

7) Stormwater management facility(ies) and permitting requirements, as applicable.

8) Haul routes and stockpile locations for earthwork, as applicable.

9) Calculations to support conclusions and recommendations.

10) Present recommendations on a structure-by-structure basis.

A registered Geotechnical Engineer is required to sign the Geotechnical Report.

Accompany the submitted report with a cover letter identifying any report recommendations proposed to be adopted into the design which are interpreted by the Contractor as a changed condition to the Geotechnical or Pavement related requirements of the RFP.

G10 1.5.4 Geotechnical Site Data required in Design Drawings

The Contractor's final design drawings must include the Government-provided subsurface data presented in the RFP, as well as any additional borings and laboratory test result data performed by the Contractor. The data provided is required to include:

a. Logs of Borings and related summary of laboratory test results and groundwater observations. Provide 24 hour groundwater observations for at least 20% of the borings, minimum one boring. Provide notes explaining any abbreviations or symbols used and describing any special site preparation requirements.

b. Indicate the locations of all borings on the drawings. Revise the applicable design drawings to reference the Contractor's Geotechnical Report as being a basis for design.

G1010 SITE CLEARING

G1010 1.1 GENERAL

Clear and grub project site as required for project construction.

G1010 1.2 BURNING

Where burning is permitted, adhere to the applicable federal, state, and local regulations.

G101001 CLEARING

G101001 1.1 CLEARING

Clear all trees, shrubs, brush and vegetation necessary for construction of the project. Clearing includes the felling, trimming, and cutting of trees into sections and the satisfactory disposal of the trees and other vegetation designated for removal, including downed timber, snags, brush, and rubbish occurring within the areas to be cleared.

G101001 1.2 PRESERVATION

Preserve and protect trees, shrubs and vegetation not directly impacted by the construction in accordance with Section 01 57 19.00 20, *Temporary Environmental Controls*, and PTS Section G205005, paragraph 1.1 *Existing Plant Material to Remain or be Transplanted*.

G101002 TREE REMOVAL

Remove and dispose of trees to a depth of at least 18 inches below ground surface. Fill depressions with satisfactory material and compact. Mound fill 2 inches above adjacent surface to allow for settling when not part of a subbase.

G101003 STUMP REMOVAL

Remove stumps to a depth of at least 18 inches below ground surface and grind stumps 18 to 30 inches below ground surface. Fill depressions with satisfactory material and compact. Mound fill 2 inches above adjacent surface to allow for settling when not part of a subbase.

G101004 GRUBBING

Within the clearing limits, remove and dispose of all logs, shrubs, brush, matted roots, roots larger than 2 inches in diameter, and other debris to a depth of at least 18 inches below ground surface. Fill depressions made by grubbing with satisfactory material and compact to make the new surface conform to the adjacent surface of the ground.

G101005 SELECTIVE THINNING

Trim trees to remain of dead branches 1-1/2 inches (38mm) or more in diameter. Neatly cut limbs and branches to be trimmed close to the bole of the tree or main branches.

G101006 DEBRIS DISPOSAL

Prevent spillage on pavements, streets, or adjacent areas. Dispose of all surplus and unsuitable material off of Government property.

G1020 SITE DEMOLITION & RELOCATIONS

G1020 1.1 GENERAL

Demolition work includes the demolition, removal and legal disposal of existing construction debris as required to accommodate the new construction. Take necessary precautions to prevent damages to existing utilities, construction and materials not scheduled for demolition, repair or replacement; repair damages to the construction and materials to the satisfaction of the Contracting Officer and at no additional cost to the Government.

G1020 1.2 AUTHORIZATION

Do not begin demolition until the Demolition Plan has been approved by and authorization is received from the Contracting Officer.

G1020 1.3 TITLE TO MATERIALS

Whenever possible, salvage or recycle all features demolished in lieu of being disposed of as waste in a landfill. Since existing features to be demolished which are not salvageable or reused shall become the property of

the Contractor, remove them from the project site. The Government shall not be responsible for the condition, loss of, or damage to, such property after contract award. Materials and equipment cannot be viewed by prospective purchasers or sold on the site.

G1020 1.4 REUSE OF MATERIALS AND EQUIPMENT

Remove and store materials and equipment to be reused or relocated to prevent damage, and reinstall as the work progresses.

G1020 1.5 SALVAGED MATERIALS AND EQUIPMENT

Salvage materials and equipment that are to be removed by the Contractor and that are to remain the property of the Government, and deliver to a storage site on the station in accordance with instructions of the Contracting Officer.

G102001 BUILDING MASS DEMOLITION

Refer to Section F20 for additional information.

G102002 ABOVEGROUND SITE DEMOLITION

G102002 1.1 DUST AND DEBRIS CONTROL

Prevent the spread of dust and debris to occupied portions of a building or on pavements and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water for dust control if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution. Sweep pavements as often as necessary to control the spread of debris that may result in foreign object damage potential to aircraft.

G102002 1.2 PROTECTION

G102002 1.2.1 Traffic Control

Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights.

G102002 1.2.2 Foreign Object Damage (FOD)

Not Used.

G102002 1.2.3 Existing Work

Protect existing work that is to remain in place, be reused, or remain the property of the Government. At no additional expense to the Government, repair all items that are damaged during performance of the work to their original condition, or replace with new. Do not overload pavements to remain.

G102002 1.2.4 Noise Pollution

Not Used.

G102002 1.3 PAVING AND SLABS

Remove concrete and asphaltic concrete paving and slabs as required for construction of project. Remove the existing aggregate base in areas to receive new pavement to the depth of the proposed pavement section below new

finish grade. Remove the existing aggregate base in areas not to receive new pavement to a depth of 8 inches below existing adjacent grade and break remaining pavement (if any) to allow drainage. Provide neat sawcuts at limits of pavement removal; protect sawcuts so that new pavement shall butt against the existing without feathering.

G102002 1.4 ABOVEGROUND STORAGE TANKS

Not Used.

G102003 UNDERGROUND SITE DEMOLITION

G102003 1.1 UTILITY TERMINATION

Terminate utilities in accordance with state and local rules and regulations; the nationally recognized code; and the requirements of the utility provider covering the specific utility; UFC 3-201-01, *Civil Engineering*; and approved by the Contracting Officer.

G102003 1.2 PROTECTION OF EXISTING UTILITIES

Protect existing utilities to remain. Where removal of existing utilities and pavement is required, provide approved barricades, temporary covering of exposed areas, and temporary services or connections. Repair damage to existing utilities to remain at no additional expense to the government.

G102003 1.3 UNDERGROUND STORAGE TANKS

Perform underground storage tank removal work as indicated in the RFP, in accordance with the ESR and the approved underground storage tank removal work plan as described in Section 01 57 19.00 20, *Temporary Environmental Controls*.

G102004 BUILDING RELOCATION

Not Used.

G102005 UTILITY RELOCATION

Repair relocated items that are damaged or replace damaged items with new undamaged items as approved by the Contracting Officer and at no additional expense to the government.

G102006 FENCING RELOCATION

Not Used.

G102007 SITE CLEANUP

Remove rubbish and debris from the station daily; do not allow accumulations inside or outside the building(s) or on pavements. Store materials that cannot be removed daily in areas specified by the Contracting Officer.

G1030 SITE EARTHWORK

G1030 1.1 GENERAL

This section includes the design and construction requirements for earthwork and grading related to construction of the roadways, parking, paved areas and other related sitework. Refer to Section A10 for earthwork related to construction of structures, including building, footings, foundations,

retaining walls, slabs, tanks, and utility appurtenances.

The Designer of Record is required to utilize UFGS Specification Section 31 23 00.00 20, *Excavation and Fill*, for the project specification, and to submit the edited specification section as a part of the design submittal for the project.

G103001 GRADING

G103001 1.1 ELEVATIONS

Establish finish floor elevations as required by UFC 3-201-01, *Civil Engineering*.

G103001 1.2 SITE GRADING

Preserve natural topographic features to minimize the impact on the existing drainage patterns at and adjacent to the site. Provide site grading in accordance with the requirements of the UFC 3-201-01, *Civil Engineering*.

G103001 1.3 FINISHED SURFACES

Provide finish grading with drainage towards new and existing drainage features and with no resulting low spots that hold water or that direct runoff towards new or existing facilities or site amenities. Provide finish grading in accordance with the requirements of the UFC 3-201-01, *Civil Engineering*.

G103002 COMMON EXCAVATION

Preserve natural topographic features to minimize cut and fill requirements. Since all unsuitable material and surplus excavation shall become the property of the Contractor, dispose of it as indicated in the Project Program.

G103003 ROCK EXCAVATION

Not Used.

G103004 FILL & BORROW

G103004 1.1 SOURCES

Where sufficient topsoil and satisfactory materials are not available on the project site, provide suitable borrow materials.

G103004 1.2 UNSATISFACTORY SOIL MATERIALS

Remove unsatisfactory soil materials from the site in accordance with the Project Program and replace with satisfactory soil materials in accordance with UFGS Specification Section 31 23 00.00 20, *Excavation and Fill*.

G103004 1.3 TOPSOIL

Refer to Section G2050, "Landscaping". Remove unsatisfactory, existing topsoil from the site in accordance with the Project Program.

G103005 COMPACTION

Provide compaction in accordance with UFGS Specification Section 31 23 00.00 20, *Excavation and Fill*, and the recommendations of the Contractor's Geotechnical Engineer, whichever is greater.

G103006 SOIL STABILIZATION

Provide soil stabilization designed to function as required by site conditions in accordance with the State Highway specifications and standards in the state where the project is located. Apply and install geosynthetics in accordance with the manufacturer's written instructions.

G103007 SLOPE STABILIZATION

Provide slope stabilization methods in accordance with the State Highway specifications and standards in the state where the project is located. Design and install manufactured products, gabions, geogrids, rock anchors in accordance with the manufacturer's written instructions.

G103008 SOIL TREATMENT

G103008 1.1 TERMITE CONTROL

Refer to Section A1010 1.2, "Termite Control".

G103008 1.2 RODENT AND VEGETATION CONTROL

Prevent and eliminate standing water.

G103009 SHORING

Provide sheeting, shoring, bracing, cribbing and underpinning in accordance with the Army Corps of Engineer's Safety and Health Requirements Manual (COE EM 385-1-1), UFC 3-220-01N, *Geotechnical Engineering*, UFC 3-301-01N, *Structural Engineering*, and all other applicable Federal, State and local codes and requirements

Provide protection of existing structures.

G103010 TEMPORARY DEWATERING

The design of the temporary dewatering system is required to account for soil conditions, rainfall, fluctuations in the groundwater elevations and the potential settlement impact on adjacent facilities due to dewatering. Provide dewatering in accordance with UFGS Specification Section 31 23 00.00 20. While the excavation is open, maintain the water level continuously, at least 1.0 foot below the working level.

French drains, sumps, ditches or trenches shall not be permitted within 3 feet of the foundation of any structure without written approval of the Government's Civil/Geotechnical Reviewer.

G103011 TEMPORARY EROSION & SEDIMENT CONTROL

G103011 1.1 TEMPORARY EROSION & SEDIMENT CONTROL

Develop and implement temporary erosion and sediment control measures and other Best Management Practices (BMPs) prior to or in conjunction with commencement of earthwork in accordance with the state Erosion and Sediment Control Laws and Regulations. Remove all non-permanent erosion control measures after vegetation is fully established.

G103011 1.2 MAINTENANCE

Maintain temporary erosion control measures in accordance with state Erosion and Sediment Control Laws and Regulations throughout the project until areas are fully stabilized.

G103090 OTHER SITE EARTHWORK

G103090 1.1 HISTORIC AND ARCHAEOLOGIC ARTIFACTS

Not Used.

G103090 1.2 PIPELINE CASING UNDER RAILROADS OR PAVEMENTS

Not Used.

G103090 1.3 TOPSOIL AND SEED

Provide topsoil and seed according to UFGS Specification Section 31 23 00.00 20, *Excavation and Fill*, except when landscaping is required.

G1040 HAZARDOUS WASTE REMEDIATION

G1040 1.1 EXCAVATION

Not Used.

G1040 1.2 STOCKPILED SOILS

Not Used.

G1040 1.3 CLEAN FILL

Not Used.

G1040 1.4 SPILLS

Not Used.

G1040 1.5 DISPOSAL

Since all waste materials shall become the property of the Contractor, transport and dispose of it in accordance with the criteria listed in the ESR and the approved disposal plan as described in Section 01 57 19.00 20, *Temporary Environmental Controls*.

-- End of Section --

SECTION G20

SITE IMPROVEMENTS
06/13

G20 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

G20 1.1 DESIGN GUIDANCE

Industry standards, codes, and Government standards referenced in the section text that are not found in the Unified Master Reference List (UMRL) in the Construction Criteria Base (CCB) at the Whole Building Design Guide Website, are listed below for basic designation identification. Comply with the required and advisory portions of the current edition of the referenced standard at the time of contract award.

G20 1.1.1 Industry Standards and Codes

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

AMERICAN SOD PRODUCERS ASSOCIATION (ASPA)

NATIONAL FEDERATION OF STATE HIGH SCHOOL ASSOCIATIONS (NF)

U.S CONSUMER PRODUCT SAFETY COMMISSION, PUBLICATION NO. 325

Refer to UMRL for reference designation identification.

G20 1.1.2 Government Standards

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

FS RR-F-191	Fencing and Wire and Post Metal (and Gates, Chain-link Fence Fabric, and Accessories)

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-201-01, Civil Engineering; UFC 3-201-02, Landscape Architecture; UFC 3-220-01N, Geotechnical Engineering))
UFC 3-250-01FA	Pavement Design for Roads, Streets, Walks, and Open Storage Areas
UFC 3-270-01	Asphalt Maintenance and Repair
UFC 3-270-02	Asphalt Crack Repair
UFC 3-270-03	Concrete Crack and Partial Depth Spall Repair
UFC 3-270-04	Concrete Crack Repair
UFC 3-800-10N	Environmental Engineering for Facility Construction
UFC 4-022-02	Selection and Application of Vehicle Barriers

G20 1.2 QUALITY ASSURANCE

G20 1.2.1 Qualifications of Tree Location Contractor

Contractor is required to be a professional tree moving company holding landscape contractor's license in the state where the work is to be performed and have a minimum ten years of tree relocation experience. Contractor must be a Certified Arborist certified by the International Society of Arboriculture. Arborist shall oversee all tree moving operations during construction.

G20 1.2.2 Qualifications of New Landscape Contractor

Construction company must hold a landscape contractor's license in the state where the work is to be performed and have a minimum five years of landscape construction experience.

G20 1.3 PERFORMANCE VERIFICATION AND ACCEPTANCE TESTING

Compliance with the requirements shall be determined by a review of the design and construction submittals and by field inspection. See Section 01 33 10.05 20, *Design Submittal Procedures*, and Section 01 33 00.05 20, *Construction Submittal Procedures*, for additional requirements.

Verify satisfactory performance via Performance Verification, as detailed in this section of the RFP. Verify satisfactory performance also via testing as detailed in the paragraph, Field Quality Control, in applicable UFGS Specification Sections utilized.

G20 1.3.1 Subgrade Preparation Performance Verification

Perform subgrade preparation in accordance with PTS Section G10. If required by the Designer of Record, perform proof rolling. Perform proof rolling in the presence of the Contracting Officer. Rutting or pumping of material is required to be undercut as directed by the Contracting Officer and replaced with satisfactory soil materials as defined in Section G10, *Site Preparation*.

G20 1.3.2 Base Course Performance Verification

G20 1.3.2.1 Aggregate Base Course

a. Sampling: ASTM D75/D75M.
b. Gradation: ASTM C136.
c. Thickness: Confirm in-place compacted thickness. Acceptable tolerances are plus or minus 0.5 inches. One test for every 500 square yards; minimum 2 tests.
d. Density: ASTM D1556 or ASTM D6938. One field test for every 1000 square yards; minimum 2 tests. ASTM D1557, Method A, B or C; one laboratory test for the project.
e. Visual: Surface must be smooth with no ruts.

G20 1.3.2.2 Other Types of Base Courses

For other types of base courses, provide field testing in accordance with the SHS.

G20 1.3.3 Bituminous Concrete Pavement Performance Verification

a. Visual: Finished surface must be uniform in texture and appearance and free of cracks and creases.

b. Sampling: ASTM D979.

c. Job Mix: Determine gradation and bitumen content. One sample for every 400 tons; minimum 1 test.

d. Thickness: ASTM D3549. Confirm in-place compacted thickness. Acceptable tolerances are plus or minus 0.5 inches for bituminous base course and plus or minus 0.25 inches for bituminous surface course. One test for every 500 square yards; minimum 2 tests.

e. Surface Smoothness: Test surface smoothness by using a 10 foot straightedge in transverse and longitudinal directions to pavement. Acceptable tolerances are plus or minus 0.25 inches for bituminous base and surface courses.

f. Density: Conduct field density of in-place compacted pavement in accordance with ASTM D2950 and correlated with ASTM D1188 or ASTM D2726. One field test for every 1000 square yards; minimum 2 tests. One laboratory test for the project.

G20 1.3.4 Portland Cement Concrete Pavement Performance Verification

a. Visual: Finished surface must be uniform in texture and appearance and free of cracks.

b. Sampling: ASTM C31/C31M.

c. Thickness: Acceptable tolerances are plus or minus 0.5 inches.

One test for every 500 square feet; minimum 2 tests.

d. Surface Smoothness: Test surface smoothness by using a 10 foot straightedge in transverse and longitudinal directions to pavement. The finished surfaces of the pavements must have no abrupt change of 0.12 inch or more.

e. Strength: Samples for strength tests of each mix design of concrete placed each day are required to be taken not less than once a day, nor less than once for each 100 cubic yards of concrete, nor less than once for each 5000 square feet.

1) Compressive Strength: ASTM C39/C39M. Make five test cylinders for each set of tests. Test two cylinders at 7 days, two cylinders at 28 days, and hold one cylinder in reserve. Determine each strength test result by the average of two cylinders from the same concrete sample tested at 28 days. If the average of any three consecutive strength test results is less than f'c or if any strength test result falls below f'c by more than 500 psi, take a minimum of three ASTM C42/C42M core samples from the in-place work represented by the low test cylinder results and test. Consider the concrete represented by core test structurally adequate if the average of three cores is equal to at least 85 percent of f'c and if no single core is less than 75 percent of f'c. Retest locations represented by erratic core strengths.

2) Flexural Strength: ASTM C78/C78M. Make four test specimens for each set of tests. Test two specimens at 28 days, and the other two at 90 days. Concrete strength shall be considered satisfactory when the minimum of the 90-day test results equals or exceeds the specified 90-day flexural strength, and no individual strength test is less than the design strength. If the ratio of the 28-day strength test to the specified 90-day strength is less than 65 percent, make necessary adjustments for conformance.

f. Remove concrete not meeting strength criteria and provide new acceptable concrete at no expense to the government. Repair core holes with nonshrink grout. Match color and finish of adjacent concrete.

G20 1.3.5 Concrete Joint Performance Verification

Install a test section of 500 linear feet at start of sealing operation for each type sealant to be used. Obtain approval of test section by Contracting Officer prior to installing additional joint seal. Reject joint sealer that fails to cure properly, or fails to bond to joint walls, or reverts to uncured state or fails in cohesion, or shows excessive air voids, blisters, or has surface defects, swells, or other deficiencies, or is not recessed within indicated tolerances. Remove rejected sealer and reclean and reseal joints.

G20 1.3.6 Topsoil Performance Verification

Prior to planting design, provide a commercial soil analysis. Amend planting areas based on the soil test's interpretation, amendment type, and quantity recommendations (including soil nutrients and texture, with percentages shown). Use additional topsoil only in areas where soil analysis shows that the existing soil is inadequate for growth of plant materials.

G20 1.3.7 Final Inspection for Planting and Irrigation

Request the final inspection in writing at least 10 days prior to the

last day of the planting and irrigation Establishment Period. The Landscape Contractor must attend the inspection with the Contracting Officer and document the inspection. The Landscape Architect-of-Record must also attend the inspection and provide the Contracting Officer with a letter certifying that the planting and irrigation is installed per the plans and irrigation coverage is correct and appropriate for optimum plant survival. At the end of the Establishment Period, remove all stakes and guy cables.

G20 1.3.8 Landscape and Irrigation Establishment Period and Guarantee

Guarantee all transplanted trees, newly planted vegetation and irrigation systems for a period of one year after the Contracting Officer's final acceptance. This acceptance, and the submittal of irrigation as-builts and controller charts, begins the Establishment Period. Replace all trees, shrubs, and ground covers that die or have 20 percent or more of their crowns that die during planting operations or the guarantee period with healthy plants of the same species or variety during the appropriate planting season. The Landscape Architect-of-Record must, along with the Contracting Officer, attend, approve and document the start of the Establishment Period and document quarterly and final inspections. The Landscape Architect of Record must document quarterly and final inspections by submitting written reports with photographs to the Contracting Officer. During this period, perform tasks including, but not limited to: watering, mowing, overseeding, fertilizing, mulching, pruning, weeding, eradicating pests (rodents, rabbits, insects, mammals and fungus), restaking, adjusting guy wires, adjusting irrigation systems, maintaining erosion control materials, removing dead or broken branches by pruning in accordance with ANSI A300 Part 1, maintaining edging of planter beds, checking for girdling of trees, removal of trash and debris, and replenishing mulch to assure all plant material is in a healthy and thriving condition or replace plant material at Contractor's expense. Reseed broadcast seeded or hydro-seeded areas that do not achieve the 95-percent coverage by the end of the Establishment Period by the same method and maintain an additional 120 days to ensure coverage requirements are met. Maintain turf in a manner that promotes proper health, growth, rich natural green color, and a neat, uniform, manicured appearance, free of bare areas, ruts, holes, weeds, pests, dead vegetation, debris, and unwanted vegetation that present an unsightly appearance. Mow weekly during the growing season and remove excess clippings.

G20 1.4 DESIGN SUBMITTALS

Design Submittals must be in accordance with UFC 1-200-01, General Building Requirements, UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures*, and UFC 3-201-01, *Civil Engineering*.

In addition, UFGS sections listed below or in the body of the PTS text are to be used by the Designer of Record (DOR) as a part of the design submittal. If the UFGS products or systems are applicable to the project, the DOR is required to edit these referenced UFGS sections and submit them as a part of the design submittal specification. Edit the specification sections in accordance with the limitations stated in PTS section Z10, *General Performance Technical Specifications*.

32 11 16.13, *Sand-Clay Base and Subbase Course*

32 11 16.16, *Base Course for Rigid and Subbase Course for Flexible Paving*

32 11 24, *Graded Crushed Aggregate Base Course for Flexible Pavement*

32 11 26.16, Bituminous Concrete Base Course

32 11 33, *Cement Stabilized Base and Subbase Course at Airfields and Roads*

32 11 36.13, *Lean Concrete Base Course*

32 12 17, *Hot Mix Bituminous Pavement*

32 13 13.16, *Portland Cement Concrete Pavement for Roads and Site Facilities*

32 13 43, *Pervious Concrete Paving*

32 16 15, *Concrete Block Pavements*

G20 1.5 CONSTRUCTION SUBMITTALS

Submit a transplanting plan for all projects which include transplanting trees. Submit the plan showing existing and proposed locations of transplanted trees. Include in the plan delineate methods and times for root pruning, digging, balling, removing, storing, transporting, planting, watering, and maintenance to ensure survivability. Include also in the plan equipment, anti-desiccant, and pesticides to be used. Provide a listing of the plant material to be transplanted by common name and botanical name as listed under "Nomenclature" in ANSI Z60.1; classification; caliper; and height.

G20 1.5.1 Transplanting Plan

Submit a transplanting plan for all projects which include transplanting trees. Submit the plan showing existing and proposed locations of transplanted trees. Include in the plan delineate methods and times for root pruning, digging, balling, removing, storing, transporting, planting, watering, and maintenance to ensure survivability. Include also in the plan equipment, anti-desiccant, and pesticides to be used. Provide a listing of the plant material to be transplanted by common name and botanical name as listed under "Nomenclature" in ANSI Z60.1; classification; caliper; and height.

G20 1.5.2 As-Builts

Submit a complete set of irrigation as-builts to the Contracting Officer, to include the recording of measurements onto a record set of full-size project irrigation plans. Indicate measurements for locating water meters, pressure supply lines at 100 foot (30 m) intervals, backflow prevention devices, rain/freeze sensors, valves (including quick couplers and hose bibbs), controllers (and control wire, if routed separately from pressure supply line); all dimensioned from two permanent points of reference, such as building corners, sidewalks, and other permanent features.

G20 1.6 ANTITERRORISM (AT) STANDARDS

INCORPORATE THE MINIMUM AT STANDARDS INDICATED IN UFC 4-010-01, *DOD MINIMUM ANTITERRORISM STANDARD FOR BUILDINGS*.

G20 1.7 PROJECT LIMITATIONS

Prior to the start of design, determine the exact limit-of-work line for the project periphery, considering items such as, but not limited to, utility work, landscape areas, and laydown areas. See PTS G2050 for limits of landscape areas.

G2010 ROADWAYS

G2010 1.1 PAVEMENT DESIGN

Provide geometric and pavement design, including minimum pavement sections, in accordance with UFC 3-201-01, *Civil Engineering*, and the State Department of Transportation. Provide pavement calculations in accordance with UFC 1-300-09N, *Design Procedures*. Provide any required additional pavement design to provide a complete and useable facility.

For pavements subject to aircraft traffic or aircraft ground support equipment traffic consult Government Civil Reviewer for design criteria and requirements. State Department of Transportation standards are not acceptable for airfield pavements.

G2010 1.2 PAVEMENT AESTHETICS

Provide surfaces consistent in color and finish.

G2010 1.3 LANDSCAPING

Include adequate space for trees and other landscape material in the design for streets, roads, and parking lots in accordance with PTS G2050.

G2010 1.4 TRAFFIC CONTROL DEVICES

Provide and install new traffic control devices (i.e., signs and markings) in accordance with the United States Department of Transportation Federal Highway Administration's *Manual on Uniform Traffic Control Devices* and their standard, "Rigid Sign Supports". Also provide new traffic control devices along/in the existing streets adjacent to the project site as necessary to provide complete traffic control to the new facilities.

G2010 1.5 EXISTING UTILITY STRUCTURES

Adjust existing utility structures to meet the new finished pavement grades as required.

G201001 BASES & SUBBASES

Prepare subgrade in accordance with Section G10, *Site Preparation*. Geotextiles may be used for separation or reinforcement in accordance with manufacturer's instructions. Provide base course under paved areas in accordance with the State Highway specifications (SHS) in the state where the project is located.

Place base course in accordance with the SHS for that particular base course and in layers of equal thickness with no compacted layer more than 6 inches (150 mm) thick. Compact base course at optimum moisture content to 100 percent ASTM D 1557 maximum dry density.

Where SHS are not available or applicable, the Designer of Record must utilize the applicable UFGS Specification Sections referenced under paragraph 1.1.2 entitled "Government Standards" for the project specification. Submit these specifications in edited form as a part of the design submittal for the project.

G201002 CURBS & GUTTERS

Provide concrete curbs and gutters in accordance with the SHS and standards or as specified in UFC 3-201-01, Civil Engineering, whichever is more stringent. Where the SHS do not include concrete materials for curbs and gutters, provide concrete in accordance with the applicable standard mix of the SHS for a minimum compressive

strength at 28 days of 3500 psi (25 MPa) concrete.

G201003 PAVED SURFACES

Where SHS are not available or applicable, the Designer of Record must utilize the applicable UFGS Specification Sections referenced under paragraph 1.1.2 entitled "Government Standards" for the project specification. Submit these specifications in edited form as a part of the design submittal for the project.

G201003 1.1 PAVEMENT MIX

G201003 1.1.1 Bituminous Concrete Pavement

Provide bituminous concrete pavement in accordance with the applicable standard mix of the SHS based on the pavement design and vehicle loading indicated in this RFP.

G201003 1.1.1.1 Bituminous Concrete Placement

Provide bituminous concrete placement, including minimum temperature during placement, joints, and maximum lift thickness in accordance with the SHS. Compact bituminous concrete in accordance with the SHS, modified to 96 percent of maximum laboratory density.

G201003 1.1.2 Portland Cement Concrete Pavement

If reinforced, the welded wire fabric shall conform to ASTM A 185. Bar reinforcement shall conform to ASTM A 615/A 615M, Grade 400 (Grade 60).

Provide concrete in accordance with the applicable standard mix of the SHS for the design strength plus any allowable deviations.

G201003 1.1.3 Portland Cement Concrete Pavement

If reinforced, provide the welded wire fabric in conformance to ASTM A185. Provide bar reinforcement in conformance to ASTM A615/A615M, Grade 400 (Grade 60).

Provide concrete in accordance with the applicable standard mix of the SHS for the design strength required by UFC 3-201-01, *Civil Engineering*, plus any allowable deviations. Provide a minimum compressive strength at 28 days of 3500 psi (25 MPa) concrete.

If required for applicable LEED credit, provide Portland cement concrete pavement with a Solar Reflectance Index (SRI) greater than or equal to 29.

G201003 1.2 JOINTS FOR PORTLAND CEMENT CONCRETE PAVEMENT

Provide joints in accordance with SHS and the applicable portions of UFC 3-250-01FA, *Pavement Design for Roads, Streets, Walks, and Open Storage Areas*. Install joints in a manner and at such time to prevent random or uncontrolled cracking. Joints must form a regular rectangular pattern. Wherever curved pavement edges occur, make joints to intersect tangents to curve at right angles.

G201003 1.2.1 Expansion Joints

Provide thickened edge expansion joints at the intersection of two rigid pavements. Use preformed joint filler, ASTM D1751. Filler

must be compatible with joint sealer material. Securely hold preformed joint filler in position during concreting operations.

G201003 1.2.2 Isolation Joints

Provide thickened edge isolation joints by placing a 1/2-inch (12 mm) preformed joint filler (ASTM D 1751) around each structure that extends into or through the pavement before concrete is placed at that location.

G201003 1.2.3 Contraction Joints

Saw joint lines within specified tolerance, straight, and extend for width of transverse joint, and for entire length of longitudinal joint.

G201003 1.2.4 Construction Joints

If an emergency stop occurs remove the concrete back to location of transverse joint and install a construction joint.

G201003 1.2.5 Joint Sealants

ASTM D5893/D5893M; Provide single component cold-applied silicone. Silicone sealant must be self-leveling and non-acid curing.

G201003 1.2.6 Preformed Compression Seals

Use performed compression seals in areas where silicone joint sealant does not perform, such as areas subject to water inundation, blasts, or constant/repeated fuel spillage.

ASTM D 2628. ASTM D 2835, for lubricant.

G201003 1.3 PRIME COAT

Use prime coat in accordance with the SHS. Prime coat must be emulsified asphalt materials.

G201003 1.4 TACK COAT

Tack coat is required for bituminous pavement overlays and on vertical cut faces of pavement patches. Provide tack coat in accordance with the SHS.

G201003 1.5 PAVEMENT PATCHES

Provide pavement patches for existing pavements where required for installation of utility trenches. Sawcut 12 inches beyond edge of trench. Provide thicknesses of pavement materials equal to or greater than the existing pavement section.

For spalls or repairs of existing concrete pavement, perform repairs in conformance with UFC 3-270-03, *Concrete Crack and Partial Depth Spall Repair*, and UFC 3-270-04, *Concrete Repair*. Spall repair materials must be either Rapid Setting Cementitious Concrete (RSCC), epoxy concrete, or polymer-modified Portland Cement (non-sag mortar) products specially formulated for spall repairs, with a proven record (in service at least three years) of satisfactory use under loading and environmental conditions similar to those at the location of intended use. Provide a manufacturer's data sheet and certificate supporting the satisfactory use to the Contracting Officer with the design. A product manufacturer's representative is required to be present during the initial two days of product application

to verify that manufacturer's instructions for use are adhered to. Give the Contracting Officer 7 days notice prior to the initial application in order to be present.

G201004 MARKING & SIGNAGE

G201004 1.1 MARKING

Provide pavement markings in accordance with the SHS. Design materials for life expectancy of at least 3 years under an average daily traffic count per lane of approximately 9000 vehicles. Water based paints must have durability rating of at least 4 when determined in the wheel path area.

Provide a half-rate initial marking application on bituminous pavements. Provide the remaining application at the end of the normal curing period.

G201004 1.2 SIGNAGE

Provide signage in accordance with the MUTCD.

G201005 GUARDRAILS & BARRIERS

G201005 1.1 GUARDRAILS

Provide guard (guide) rails in accordance with the SHS. Where the SHS do not include materials for guardrails, provide guardrails in accordance with the applicable portions of the *AASHTO Roadside Design Guide*.

G201005 1.2 BOLLARDS

For bollards to prevent damage, provide minimum 4 feet height, 4 inch diameter steel pipe filled with concrete, painted, and embedded in a portland cement concrete foundation.

For bollards located at building entries or other high-visibility areas provide decorative bollards matching the design of the facility or consistent with the Base Exterior Architecture Plan (BEAP) and the Installation Appearance Plan.

Bollards for security are specified in Section G204004, "Security Structures".

G201006 RESURFACING

Adjust rims of existing utility structures to match proposed grades after resurfacing.

G201006 1.1 SLURRY SEAL

Not Used.

G201006 1.2 BITUMINOUS CONCRETE OVERLAY

Remove old pavement by cold milling to depths required to provide new surface and leave underlying materials intact. Clean the pavement of excessive dirt, clay or other foreign matter with power brooms and hand brooms immediately prior to the milling operation.

Repair or replace damaged utility structures, valve boxes, or pavement that is torn, cracked, gouged, rutted, broken or undercut at no addition expense to the government.

Provide bituminous concrete overlay produced from hot or cold recycling of the milled material or from virgin materials in accordance with the applicable provisions of UFC 3-201-01, *Civil Engineering*, and the standard mix of the SHS based on the pavement design and vehicle loading as indicated in this RFP.

G201006 1.3 CRACK SEALING

Use fiber reinforced crack sealer for sealing cracks in asphalt pavement after milling and prior to resurfacing. Provide crack sealing conforming to the following requirements in UFC 3-270-01, *Asphalt Maintenance and Repair*, and UFC 3-270-02, *Asphalt Crack Repair*.

G2020 PARKING LOTS

Refer to Section G2010.

G202001 BASES & SUBBASES

Refer to Section G201001.

G202002 CURBS & GUTTERS

Refer to Section G201002.

G202003 PAVED SURFACES

Refer to Section G201003.

G202004 MARKING & SIGNAGE

Refer to Section G201004. Provide water-based paints only.

Mark neatly to denote traffic lanes and parking spaces; mark in accordance with the requirements of UFC 3-201-01, *Civil Engineering*.

G202005 GUARDRAILS & BARRIERS

Refer to Section G201005.

G202005 1.1 WHEELSTOPS

Provide precast concrete wheelstops.

G202006 RESURFACING

Refer to Section G201006.

G2030 PEDESTRIAN PAVING

Locate new sidewalks such that they maintain continuity of pedestrian traffic to and from the existing sidewalks adjacent to the site(s).

G203001 BASES & SUBBASES

Provide as required by local standards or geotechnical report; refer to Section G201001.

G203003 PAVED SURFACES

G203003 1.1 SIDEWALKS

Provide sidewalks of Portland cement concrete pavement with 4 inches thick minimum or permeable pavement Provide concrete and permeable pavement in accordance with Section G201003. For PCC sidewalks, provide a broomed finish. Provide sidewalks of at least 5 feet wide.

Unless indicated otherwise, provide a transverse slope of 1/48. Limit variation in cross section to 0.25 inch in 5 feet.

New concrete walkways shall be constructed to be elevated 6 inches above the adjacent finished grade.

Submit samples boards per ESR G2050 and PTS G2050 and finish schedule on final plans.

G203003 1.1.1 Joints for PCC Pavement Sidewalks

Provide contraction joints spaced at intervals equivalent to the width of the sidewalk. Provide 0.5 inch thick transverse expansion joints at changes in direction where sidewalk abuts curb, steps, rigid pavement, or other similar structures; space expansion joints every 50 feet maximum. Provide isolation joints by placing a 1/2-inch preformed expansion joint filler around each structure that extends into or through the sidewalk before concrete is placed at that location.

G203003 1.2 HANDICAPPED RAMPS

Provide handicapped ramps of PCC pavement with an exposed aggregate finish, truncated domes, or as required by the SHS at roadway intersections.

G203004 GUARDRAILS & BARRIERS

Refer to Section G201005.

G2040 SITE DEVELOPMENT

G204001 FENCING & GATES

G204001 1.1 CHAIN LINK FENCE

Not Used.

G204001 1.2 ORNAMENTAL FENCE

Not Used.

G204001 1.3 SECURITY FENCE

Not Used.

G204001 1.4 OPENINGS IN PERIMETER AND SECURITY FENCING

Not Used.

G204001 1.5 FENCE GROUNDING

Not Used.

G204001 1.6 ENCLOSURES FOR UTILITY EQUIPMENT

Not Used.

G204002 RETAINING WALLS AND FREESTANDING WALLS

Not Used.

G204003 EXTERIOR FURNISHINGS

Refer to ESR G20 and other portions of the RFP for exterior furnishings required on this project. Permanently attach all site furnishings to concrete pads. Provide site furnishings in conformance with the Base Exterior Architecture Plan (BEAP) and or Installation Appearance Plan for each Activity. If no product guidance is given, coordinate material, finish and color with architecture (fiberglass and aluminum are not acceptable) and provide to the greatest extent possible, materials with industrial recycled content, preferably from regionally local manufacturers.

G204003 1.1 PICNIC AND PASSIVE RECREATION AREAS

Not Used.

G204003 1.2 TRASH RECEPTACLES

Not Used.

G204003 1.3 BENCH

Not Used.

G204003 1.4 RECYCLING RECEPTACLES

Not Used.

G204003 1.5 BARBEQUE

Not Used.

G204003 1.6 HOT ASH RECEPTACLE

Minimum 28 square inches x 42 inches high pre-cast reinforced concrete with drain hole with steel ash grate and cast in "Hot Coals Only" logos on each side with white letters on a red background.

G204004 SECURITY STRUCTURES

Where identified for project elsewhere in this RFP, provide active and passive vehicle barriers to effectively stop or detect penetration by explosive-laden vehicles through the perimeter of a protected area in accordance with UFC 4-022-02, *Selection and Application of Vehicle Barriers*.

G204005 SIGNAGE

Provide facility signage as required by local code, the Installation and Appearance Guide, the Base Exterior Architectural Plan (BEAP) and this RFP.

Size messages and graphics on signs according to the functional viewing distance. Typically, at least 1 inch of letter height per 25 feet of viewing distance is required for readability.

Refer to Section G201004, "Marking & Signage" for traffic signage.

G204007 PLAYING FIELDS

Not Used.

G204090 OTHER SITE IMPROVEMENTS

Provide other site improvements in conformance to the BEAP or Installation Appearance Plan and to the requirements of UFC 4-010-01.

G204090 1.1 DUMPSTER PADS AND ENCLOSURES

G2050 LANDSCAPING

Landscape area is defined as all permeable areas within the project boundaries not covered by buildings, roads, parking lots, sidewalks, and other non-permeable areas. All site areas disturbed by construction must receive landscape improvements.

G2050 1.1 DESIGN

The design of landscaped areas must be in accordance with Presidential Executive Order 13148 of April 2000, with a goal to reduce fertilizers, pesticides, and water use. The intent is to achieve a base-wide ratio of 20 percent maximum non-native plants and 80 percent minimum locally or regionally native plants. Do not use plants deemed invasive by the project state or region's Exotic Pest Plant Council, State Department of Agriculture or local chapter of the American Society of Landscape Architects as a threat to ecosystems or agriculture. Select only plant species which require little or no supplemental irrigation after the initial establishment period. Only nursery-grown plants are acceptable. Cover all non-paved site areas disturbed by construction operations with plant material or inorganic mulch. Stabilized soil, decomposed granite, and organic mulch are not acceptable as ground covers. Provide landscape architectural work in accordance with UFC 3-201-02, *Landscape Architecture*. For all projects with planting and or irrigation areas, utilize the design services of a Landscape Architect licensed in the state of the project. The Landscape Architect of Record must visit the site at least once prior to design, twice during construction, and quarterly during the Establishment Period, including the Establishment Period start and completion. The Landscape Architect of Record must attend the kickoff partnering meeting and CDWs. Courtyards and plazas are to be designed by the Landscape Architect. For the CDW, provide a Site Analysis Plan to demonstrate the design thought process. It is the Contractor's responsibility to coordinate between disciplines including architecture, civil engineering, electrical engineering, mechanical engineering, fire protection, and landscape architecture. Coordinate location of utilities, structures, and equipment. For projects in dry climates (arid and semi-arid), eliminate or minimize the use of turf, except when needed for active or passive recreation.

The Landscape Architect-of-Record is required to submit 5 sample boards of landscape materials. Sample boards to include but not limited to colors, finishes, textures of hardscape paving, walls, signs, monument piers, inorganic mulches, organic mulches, and other site improvements. Include cut sheets of all proposed plant material.

G205001 FINE GRADING AND SOIL PREPARATION

See Section G10, Site Preparation. Provide 4 inches of topsoil with appropriate soil amendments, as recommended by a current soil composition test, for all areas

to be planted with turf grass.

G205002 EROSION CONTROL MEASURES

See Section G10, Site Preparation.

G205003 TOP SOIL AND PLANTING BEDS

See paragraph titled, G205005 PLANTINGS.

G205004 SEEDING, SPRIGGING, AND SODDING

Hydroseed areas that are to be seeded and are larger than 1,000 square feet (92.90 square meters). Hydroseed mix composition must be appropriate for surrounding land use and compatible and consistent with local application rates, seed availability and established practice in the project area. If project dates are unknown, specify required planting dates or alternative species for different seasons. Apply seed at a time best suited for germination of the selected species. Seeded areas are required to achieve a 95-percent coverage of the selected species and be weed free at the end of the Establishment Period.

G205005 PLANTINGS

G205005 1.1 EXISTING PLANT MATERIAL TO REMAIN OR BE TRANSPLANTED

Preserve existing trees to the greatest extent possible. Identify preserved trees on the plans with tree species, caliper and dripline. Tag trees to be saved with plastic or vinyl tape tied to the tree caliper. Protect existing trees by fencing planting areas to remain from compaction and any other damage with a barrier of metal poles a maximum 8 feet (2.4 meter) on center with plastic netting to a minimum of 10 feet (3.0 meter) radius from outside of the tree's trunk. Where tree drip lines are greater than 10 feet (3.0 meter) from the tree's trunk, locate barrier fencing at the drip line of the tree. Install signs on each Tree Protection Zone fence indicating that the barrier must not be taken down or moved without the participation of a Certified Arborist. Ensure that the details and specifications clearly state that none of the following activities occur within the tree protection barricade: driving, parking, storing materials, dumping waste, concrete washout, adding fill soil, trenching, removing soil, grubbing, or any other disturbance to the tree or the associated roots. Do not allow debris from tree or stump removal operations to fall on or otherwise damage plants that are not scheduled for removal. Do not remove plastic tape and barrier fencing until planting operations are ready to begin and or instructed by the Contracting Officer. Replace existing trees to remain or to be transplanted that are unhealthy, that die, or have 20 percent or more of their crowns that die during the establishment period with healthy plants of the same species or variety during the appropriate planting season. During the landscape establishment period, replace trees, turf, shrubs, and ground cover that are damaged or destroyed during construction operations by the Contractor at no additional cost to the Government. At the direction of the Contracting Officer, remove the existing tree and stump and replace it with trees of the same genus and species equal to the total caliper of the existing tree. Minimum caliper of replacement trees must be 4 inch (100 mm). Replace shrubs with 5 gallon (18.9 liter) size container, ground cover with flat containers planted at 8 inches (200 mm) on center, and turf with sod, all of the same genus and species.

G205005 1.2 UTILITIES

Do not place trees within 10 feet of any above or below-grade utility line or structure. Within roadway sightlines, mature shrubs must not be greater than 3 feet in height and trees must be limbed up a minimum of 6 feet so their

mature growth shall not obstruct views from vehicle intersections or points of vehicle ingress or egress. Coordinate utilities between the Landscape Architect and appropriate disciplines.

G205005 1.3 RECYCLING

Green waste: Contact the Public Works Department for potential green waste collection and hauling by the Government. Separate green waste not collected by the Government from construction debris and deliver to the base's or local landfill's green waste recycling area. Quantify and report diverted waste to the Contracting Officer.

G205005 1.4 PLANTING

G205005 1.4.1 Plant Quantities

Provide trees at the minimum rate of one (1) tree per 1,000 square feet of Landscape Area. Parking areas must have a minimum of one (1) tree per every 5 parking spaces around the parking perimeter and one (1) tree per every 10 parking spaces within the parking area. Provide a minimum of one (1) tree in each end aisle planter. Total minimum quantities may be reduced only by the reviewing Government Landscape Architect. Tree quantities reduced by the Government Landscape Architect shall be included on the ADD/DEDUCT List by the Contracting Officer. For bioretention areas, minimum quantities of trees, shrubs, and ground covers must be as required by State regulations. Provide a minimum tree size of 24 inch box/2 inch caliper, or if within an anti-terrorism zone provide a minimum size of 36 inch box/3 inch caliper. For trees within concrete or other non-permeable paved areas, allow a minimum non-paved planting area of 4 feet by 8 feet per tree.

G205005 1.4.2 Plant Quality

All plants must comply with ANSI Z60.1 and ANSI A300, Part 1, current editions. All plants must be in a healthy, disease and pest free condition. All seed, sod, and sprigs must be State Certified.

G205005 1.4.3 Plant Selection

The reviewing Government Landscape Architect has final approval authority on all selected plant material. Species deemed unsuitable for planting by the Government Landscape Architect shall not be allowed.

G205005 1.4.4 Plant Installation

Planting operations, including but not limited to planting soil mixes and fertilization, must comply with local established practices and agricultural extension service recommendations. Stake or guy new or transplanted trees with three stakes, or three guy cables. Do not encircle tree root balls with root barriers.

G205005 1.4.5 Edging Materials and Mulching Materials

Mulch planted areas not mulched with inorganic mulch with a 3-inch depth of organic shredded hardwood mulch. All mulches must not be subject to sloughing off on sloped sites. Submit samples of mulches to the reviewing Government Landscape Architect for approval prior to installation. Decomposed granite must not be used. Provide a 3-inch depth of organic shredded hardwood mulch between plants used to form a mass. Install mulching materials prior to the start of the Establishment Period.

G205005 1.4.6 Fertilizer

Fertilize all transplanted trees, new trees, shrubs, ground covers, turf, perennials and ornamental grasses as recommended by local agricultural extension services.

G205005 1.4.7 Weed Fabric and Erosion Control Fabric

Not Used.

G205005 1.4.8 Drainage

Provide for proper grading and drainage of turf and planting areas. Provide sub-surface drainage where soil or other conditions do not allow surface drainage. Do not drain roof gutters into planter areas.

G205007 IRRIGATION SYSTEMS

Not Used.

-- End of Section --

SECTION G30

SITE CIVIL/MECHANICAL UTILITIES
11/10

G30 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

G30 1.1 DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

G30 1.1.1 Industry Standards and Codes

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

G30 1.1.2 Government Standards

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-201-01, Civil EngineeringUFC 3-401-01, Mechanical Engineering)
UFC 3-800-10N	Environmental Engineering for Facility Construction

G30 1.2 QUALITY ASSURANCE

Materials and assemblies installed in the work shall be inspected and found to be in compliance with industry standards and these specifications prior to acceptance of the work. Items found not to be in compliance shall be removed, or corrective measures taken, to assure compliance with the referenced standard. The Contractor shall perform field tests and provide labor, equipment and incidentals required for testing.

G30 1.2.1 Materials

All materials shall be new, and shall bear the label of standardizing agency whenever standards have been established and label service is normally and regularly furnished by the agency. All equipment provided shall be listed and labeled suitable for the specified purpose,

environment, and application and installed in accordance with manufacturer's recommendations.

G30 1.2.2 Additional Work

Provide such other labor and materials as are required for a complete and usable system in accordance with the requirements of the criteria listed, regardless of whether such materials and associated labor are called for elsewhere in this RFP.

G30 1.2.3 Qualifications of Well Drillers for Water Supply Wells

Not Used.

G30 1.2.4 Qualifications of Coating Contractors for Water Storage Tanks

Not Used.

G30 1.2.5 Qualifications of Oil/Water Separator Manufacturers

Not Used.

G30 1.3 PERFORMANCE VERIFICATION AND ACCEPTANCE TESTING

Compliance with the requirements shall be determined by a review of the design and construction submittals and by field inspection. See Section 01 33 10.05 20, *Design Submittal Procedures*, and Section 01 33 00.05 20, *Construction Submittal Procedures*, for additional requirements.

Verification of satisfactory utility system performance shall be via Performance Verification Testing, as detailed in this section of the RFP. Verification of satisfactory performance shall also be via testing as detailed in the paragraph, "Field Quality Control", in applicable UFGS Specification Sections utilized.

G30 1.3.1 Water Supply Well Performance Verification

Not Used.

G30 1.3.2 Water Distribution System Verification Testing

Provide testing on water mains and service lines in accordance with the state waterworks' regulations and the following:

a. Ductile Iron and other materials: AWWA C600.
b. PVC: AWWA C605.

Do not begin testing on any section of a pipeline where concrete thrust blocks have been provided until at least 5 days after placing of the concrete.

G30 1.3.3 Water Booster Pump Station Verification Testing

Not Used.

G30 1.3.4 Sanitary Sewer Distribution System Verification Testing

Provide testing on sewer mains and laterals in accordance with the state sewerage regulations.

G30 1.3.4.1 Deflection Test

Deflection of pipe in the installed pipeline under external loads shall not exceed 4.5 percent of the average inside diameter of pipe, in accordance with ASTM D 2412.

G30 1.3.4.2 Leakage Tests

G30 1.3.5 Sanitary Sewer Manholes Verification Testing

Provide testing on sanitary sewer manholes in accordance with the state sewerage regulations. At minimum, perform hydraulic testing in accordance with ASTM C 969.

G30 1.3.6 Wastewater Pump Station Verification Testing

Test the wastewater pump station in accordance with the state sewerage regulations. Conduct testing on discharge piping and force main in accordance with tests for water distribution mains; see G30, paragraph 1.3.2. Test pumps, controls, and alarms, in operation, under design conditions to ensure proper operation of all equipment.

G30 1.3.7 Storm Sewer System Verification Testing

G30 1.3.7.1 Deflection Test

Deflection of pipe in the installed pipeline under external loads shall not exceed 4.5 percent of the average inside diameter of pipe, in accordance with ASTM D 2412.

G30 1.3.7.2 Leakage Tests for Storm Sewer Under Pavements

Test lines for leakage by either infiltration tests or exfiltration tests, or by low-pressure air tests in accordance with the following:

a. Exfiltration Tests:

ASTM C 969 and perform calculations in accordance with its Appendix.

b. Low-pressure Air Tests:

1) Pipelines: ASTM C 924M (ASTM C 924) and perform calculations in accordance with its Appendix.

2) PVC plastic pipelines: UBPPA UNI-B-6 and perform calculations in accordance with its Appendix.

G30 1.4 DESIGN SUBMITTALS

Design Submittals shall be in accordance with UFGS section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures*, UFC 3-201-01, *Civil Engineering*, and UFC 3-401-01, *Mechanical Engineering*.

G30 1.5 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the Z10 requirements, the Designer of Record (DOR) shall approve the following construction submittals as a minimum:

All test reports.

G30 1.6 COORDINATION

To the extent that site work is indicated on the RFP drawings, the Contractor shall verify that the locations and inverts of all site utility lines are coordinated with building utility lines. If necessary, the Contractor shall make adjustments to the locations and inverts indicated on the RFP drawings in accordance with applicable codes and standards.

G30 1.7 ANTITERRORISM (AT) STANDARDS

Incorporate the minimum AT standards indicated in UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*.

G30 1.8 BACKFLOW PREVENTION

The Contractor shall submit backflow prevention training certificates and backflow preventer devices certification in accordance with Section 01 50 00.05 20 (01501N), *Temporary Facilities and Controls for Design-Build*.

G30 1.9 WATER STORAGE TANK

Not used.

G30 1.10 NACE CERTIFIED CATHODIC PROTECTION SPECIALIST QUALIFICATIONS

Submit prior to site welding. Certifications shall not be more than one year old. Submit documentation of NACE certification.

G30 1.11 EXCAVATION, BACKFILLING AND COMPACTION OF UTILITIES

Refer to Section G10, *Site Preparation*.

G30 1.12 DELIVERY, STORAGE AND HANDLING OF MATERIALS

Inspect materials delivered to site for damage. Unload and store with minimum handling. Store materials on site in enclosures or under protective covering. Store plastic piping, jointing materials and rubber gaskets under cover out of direct sunlight. Do not store materials directly on the ground. Keep inside of pipes, fittings, valves, and hydrants free of dirt and debris. Handle in a manner to ensure delivery to the trench in sound undamaged condition. Take special care to avoid injury to coatings and linings on pipe and fittings; make satisfactory repairs if coatings or linings are damaged. Carry, do not drag pipe to the trench.

G3010 WATER SUPPLY

G3010 1.1 WATER SYSTEM DESIGN

The Contractor shall determine domestic and fire demands for the facility and shall verify the design of all components of the domestic and fire protection supply systems. The water system design and construction shall be in accordance with UFC 3-230-01, *Water supply: Storage, Distribution, and Transmission;* the state waterworks' regulations, and the utility provider's requirements. Design the water supply systems to provide required flows and maintain residual pressures based upon peak demands.

If the new water system is an extension of an existing water system, the Contractor shall obtain all necessary static pressure, residual pressure and flow characteristics of the existing distribution system by actual field

tests. The Contractor shall conduct flow and pressure tests and provide design calculations that show the existing lines are capable of handling the additional flows. The new water system shall connect to the nearest existing fitting or water line.

The Contractor shall design the connections to the water system including the necessary meter assemblies and backflow-preventing devices in accordance with the requirements of the Activity or utility provider and the state waterworks regulations.

Wherever possible, valve boxes and all other utility access structures shall be located out of paved areas.

G301001 WELL SYSTEMS

Not used.

G301002 POTABLE WATER DISTRIBUTION

G301002 1.1 WATER SYSTEM DESIGN

Provide all materials, equipment, labor, testing, and miscellaneous related items for water distribution mains and service lines to the facility and connections to the existing water system in accordance with UFC 3-23-01, *Water Supply: Storage, Distribution, and Transmission*; the utility provider's requirements; and the state waterworks' regulations; whichever is more stringent.

Available flow at the residual pressure at each point of connection shall be determined by conducting flow tests in accordance with AWWA M17 and NFPA 291.

Water main piping, service lines, fittings, valves, accessories and all other materials shall meet the American Water Works Association (AWWA) standards for a minimum system working pressure of 150 psi.

G301002 1.2 WATER DISTRIBUTION MAINS

For underground applications, water mains 12 inches in diameter and less shall be ductile iron, PVC, or high density polyethylene (HDPE). Water mains deeper than 10 feet or larger than 12 inches in diameter shall be ductile iron.

For aboveground applications, water mains shall be flanged ductile iron pipe.

G301002 1.2.1 Materials

a. Ductile Iron Pressure Pipe

1) Pipe: AWWA C151, Pressure Class 350.
2) Fittings: AWWA C110 or AWWA C153.
3) Interior Lining: AWWA C104.
4) Exterior Protection (if required): AWWA C105, polyethylene encasement.

b. PVC Pressure Pipe

1) Pipe: AWWA C900, Pressure Class 150.
2) Fittings: Ductile Iron (AWWA C110 or AWWA C153).

c. HDPE Pressure Pipe: AWWA C906.
d. Flanged Ductile Iron Pipe

1) Pipe: AWWA C115 and its appendices.
2) Fittings: AWWA C110 or AWWA C153.
3) Lining: AWWA C104.

G301002 1.2.2 Installation

a. Ductile Iron: AWWA C600.
b. PVC: AWWA C605.
c. HDPE: applicable requirements of ASTM D 2774.

Provide a continuous length of tracer wire for the full length of each run of nonmetallic pipe.

G301002 1.2.3 Connections to Existing Water Lines

Make connections to existing water lines after approval from the system owner is obtained and with a minimum interruption of service on the existing line. Make connections to existing lines under pressure in accordance with the recommended procedures of the manufacturer of the pipe being tapped.

G301002 1.3 WATER SERVICE LINES

Water service lines less than 4 inches in diameter shall be copper tubing, PVC, or polyethylene (PEX) tubing. Water service lines 4 inches and 6 inches in diameter shall be ductile iron pipe and PVC pressure pipe; see G301002, paragraph 1.2, "Water Distribution Mains" for additional requirements for ductile iron and PVC piping.

G301002 1.3.1 Materials

a. Copper Tubing

1) Pipe: ASTM B 88M (ASTM B 88), Type K.
2) Fittings for Solder-Type Joint: ANSI B16.8 or ASME B16.22.
3) Fittings for Compression-Type Joint: ASME B16.26, flared tube type.

b. PVC Pressure Pipe

1) Pipe: ASTM D1785, Schedule 40 or ASTM D 2241, with SDR rating for 160 psi pressure rating.
2) Fittings: ASTM D 2466.
3) Joints: Elastomeric gaskets for pressure rating; solvent cement joints, ASTM D 2564.

c. Polyethylene Tubing: AWWA C901.

G301002 1.3.2 Service Connections

Connect service lines 2-inch diameter or less to the main by a corporation stop and install a gate valve on service line below the frostline.

a. Ductile-iron water mains: AWWA C600.
b. PVC water mains: UBPPA UNI-B-8 and the recommendations of AWWA M23, Chapter 9, "Service Connections."

G301002 1.3.3 Installation

Install pipe, fittings and accessories in accordance with manufacturer's instructions.

a. Metallic Piping: applicable requirements of AWWA C600.
b. PVC: applicable requirements of ASTM D 2774 and ASTM D 2855.
c. Polyethylene: applicable requirements of ASTM D 2774 and ASTM F 645.

G301002 1.4 CORROSION PROTECTION

G301002 1.4.1 Insulating Joints

Provide insulating joints to prevent contact between dissimilar metals at the joint between adjacent sections of piping in accordance with the pipe manufacturer's recommendations. Ensure that there is no metal-to-metal contact between dissimilar metals after the joint has been assembled.

To prevent the possibility of bi-metallic corrosion, service lines of dissimilar metal to the water mains and the attendant corporation stops shall be wrapped with polyethylene or suitable dielectric tape for a minimum clear distance of 3 feet (900 mm) from the main.

G301002 1.5 VALVES

Valves shall be the same diameter and have the same joint ends as the mains to which they are installed. Each type of valve shall be of one manufacturer.

G301002 1.5.1 Gate Valves

G301002 1.5.1.1 Location

Valves shall be installed at all new points of connection. At a minimum, valves shall be located to ensure that no more than two fire hydrants shall be out of service in the event of a single break in a water main. Valves shall be located outside of pavement and heavy traffic areas whenever possible.

G301002 1.5.1.2 Gate Valves 3-inch and Larger in Diameter

a. Valves (20-inch and smaller in diameter): AWWA C509 or AWWA C515, nonrising stem and of one manufacturer.
b. Valves (greater than 20-inch in diameter): AWWA C500.
c. Valves for Indicator Post: AWWA C500 with indicator post flange in accordance with applicable requirements of UL 262.
d. Interior Coating: AWWA C550.

G301002 1.5.1.3 Gate Valves Smaller than 3-inch in Diameter

MSS SP-80, Class 150, solid wedge. Valves shall have flanged or threaded end connections, with unions on both sides of the valve and a handwheel operator.

G301002 1.5.1.4 Valve Box

Provide a cast iron, adjustable, valve box for each gate valve on buried piping. Valve boxes shall be of a size suitable for the valve on which it is to be used with a minimum diameter of 5-1/4 inches (130 mm). Provide a round head and cast the word "WATER" on the lid.

G301002 1.5.2 Check Valves

Not Used.

G301002 1.5.3 Air Release, Air/Vacuum, and Combination Air Valves

Not Used.

G301002 1.5.4 Corporation Stops

If service lines 2—inch diameter or less are tapping water mains, provide corporation stops. The corporation stops shall be ground key type, bronze, ASTM B61 or ASTM B62.

G301002 1.5.5 Installation of Valves

Make and assemble joints to valves as specified for making and assembling the same type of joints between pipe and fittings.

G301002 1.6 WATER METERS

Not Used.

G301002 1.7 BACKFLOW PREVENTION

Provide backflow prevention and cross connection control in accordance with AWWA M-14 and governing local/state plumbing codes and waterworks' regulations.

G301002 1.8 FIRE HYDRANTS

Fire hydrants must be of one manufacturer and in accordance with UFC 3-600-01, *Fire Protection Engineering*. Coordinate with the project's fire protection designer of record. Provide protection for fire hydrants located in areas subject to vehicle damage. Fire hydrants must have National Standard threads on hose and pumper connections. Provide a 6 inch inlet, two 2.5 inch hose connections and one pumper connection sized to accommodate local fire department equipment requirements. Stencil hydrant number and main size on the hydrant barrel using black stencil paint.

a. Dry Barrel Fire Hydrants: AWWA C502 with frangible sections.
b. Installation: Install hydrants with the pumper connection facing the adjacent paved surface. If there are two, paved adjacent surfaces, contact the Contracting Officer for further direction.

G301002 1.9 THRUST RESTRAINT

Provide thrust restraint for all piping, valves, fittings, and other appurtenances of the water distribution system.

a. Concrete Thrust Blocks: AWWA C600.
b. Restrained Joints: Pipe manufacturer's recommendations and required length of pipe to be restrained calculated in accordance with UFC 3-201-01, *Civil Engineering*.

G301002 1.10 DISINFECTION

Disinfect new water piping and existing water piping affected by Contractor's operations in accordance with the state waterworks' regulations and AWWA C651.

G301003 POTABLE WATER STORAGE

Not used.

G301004 FIRE PROTECTION WATER DISTRIBUTION

G301004 1.1 GENERAL REQUIREMENTS

Refer to applicable portions of Section G301002 and Section D40, *Fire Protection Systems*. Water main piping, service lines, fittings, valves, accessories and all other materials shall meet the American Water Works Association (AWWA) standards for a minimum system working pressure of 200 psi.

G301004 1.2 DETECTOR CHECKS

Not Used.

G301004 1.3 FIRE DEPARTMENT CONNECTIONS

UL 405.

G301004 1.4 INDICATOR POSTS

UL 789.

G301005 FIRE PROTECTION WATER STORAGE

Not used.

G301006 NON-POTABLE WATER DISTRIBUTION

Not Used.

G301007 PUMPING STATIONS

Not Used.

G301008 PACKAGED WATER TREATMENT PLANTS

Not Used.

G3020 SANITARY SEWER

G3020 1.1 GENERAL REQUIREMENTS

The gravity sanitary sewage collection system shall be designed and constructed in accordance with UFC 3-240-01, *Wastewater Collection;*and the state sewer collection and treatment regulations. The new sanitary sewage collection system shall connect to the nearest existing sanitary manholes or sanitary line adjacent to the project site. The Contractor shall provide design calculations that show the existing system is capable of handling the additional flows.

In areas where chemicals and other substances may be stored (including mechanical and electrical rooms), the contractor shall eliminate floor drains or shall make provisions made to prevent spills from entering the sanitary sewer system. If there is process flow from equipment, discharge can be hard piped, with air gap, to the sanitary sewer.

Wherever possible, manholes and all other utility access structures shall be located out of paved areas.

G302001 SANITARY SEWER PIPING

G302001 1.1 GENERAL REQUIREMENTS

Provide all materials, equipment, labor, testing, and miscellaneous related items to provide sanitary sewage lines necessary for collection and services from the buildings.

G302001 1.2 GRAVITY SEWER PIPING

Gravity sewer mains and laterals shall be PVC sewer pipe and fittings, except under roadways or at depths greater than 10 feet where ductile iron pipe shall be provided.

G302001 1.2.1 Materials

a. PVC Gravity Sewer Pipe

1) Piping and Fittings: ASTM D 3034, SDR 35.
2) Joints: ASTM D 3212 and ASTM F 477.

b. Ductile Iron Gravity Sewer Pipe

1) Piping: ASTM A 746. Provide required Thickness Class based on design information and methods in ASTM A 746.
2) Fittings: AWWA C110 or AWWA C153.
3) Joints: AWWA C111.
4) Interior Coating: AWWA C104.
5) Exterior Protection (if required): AWWA C105, polyethylene encasement.

G302001 1.2.2 Connections to Existing Lines

Obtain approval from the Contracting Officer before making a connection to an existing line. Conduct work so that there is minimum interruption of service on existing line and provide a new manhole at the connection point.

G302001 1.2.3 Installation

Install pipe, fittings and accessories in accordance with manufacturer's instructions.

a. PVC: ASTM D 2321. Do not use ASTM D 2321 Class IV or V materials for bedding, haunching or initial backfill materials.
b. Ductile Iron: AWWA C600.

G302001 1.3 PIPING FOR CLEANOUTS

G302001 1.3.1 Materials

a. Cast-Iron Soil Pipe for Cleanouts

1) Pipe: ASTM A 74, service.
2) Joints: ASTM C 564 compression-type rubber gaskets.
3) Exterior Protection (if required): AWWA C105, polyethylene encasement.

G302001 1.3.2 Installation

Install cast iron pipe and fittings in accordance with the recommendations of the pipe manufacturer.

G302002 SANITARY SEWER MANHOLES & CLEANOUTS

G302002 1.1 GENERAL REQUIREMENTS

Provide all materials, equipment, labor, testing, and miscellaneous related items for the sanitary manholes in accordance with the following:

a. Manhole rim elevations shall be set flush with finished surface of paved areas or 1 inch above finished grade in unpaved areas.
b. Resilient connectors for making joints between manhole and pipes entering manhole shall conform to ASTM C 923M (ASTM C 923).
c. Provide drop manholes when a gravity sewer pipe enters a manhole at an elevation of 24 inches or more above the manhole invert.

G302002 1.2 PRECAST CONCRETE MANHOLES

ASTM C 478M (ASTM C 478); base and first riser shall be monolithic.

Precast manhole sections shall have:

a. ASTM C 990M (ASTM C 990) butyl gaskets;
b. ASTM C 443M (ASTM C 443) rubber O-ring joints; or
c. AASHTO M 198, Type B preformed plastic gaskets.

G302002 1.3 CAST-IN-PLACE CONCRETE MANHOLES

Reinforced concrete; designed according to ASTM C 890 for A-16 (AASHTO HS20-44), heavy-traffic, structural loading. Concrete work shall be in accordance with ACI 301M (ACI 301) and ACI 350-01; provide a minimum compressive strength of 4000 psi.

G302002 1.4 MANHOLE FRAMES AND COVERS

FS A-A-60005; cast iron or ductile iron; designed to accommodate the traffic loadings. The word "Sewer" shall be stamped or cast into covers so that it is plainly visible.

G302002 1.5 MANHOLE STEPS

a. Zinc-coated steel: 29 CFR 1910.27.
b. Plastic or rubber coating pressure molded to steel: ASTM D 4101, copolymer polypropylene; or ASTM C 443M (ASTM C 443), except shore A durometer hardness shall be 70 plus or minus 5.

Aluminum steps or rungs shall not be permitted.

Steps are not required in manholes less than 4 feet deep.

G302002 1.6 MANHOLE CONSTRUCTION

Where a new manhole is constructed on an existing line, remove existing pipe as necessary to construct the manhole. Cut existing pipe so that pipe ends are approximately flush with the interior face of manhole wall, but not protruding into the manhole. For changes in direction of the sewer and entering branches into the manhole, make a circular curve in the manhole invert of as large a radius as manhole size shall permit. For cast-in-place concrete, no parging shall be permitted on interior manhole walls.

G302002 1.7 CONNECTIONS TO EXISTING MANHOLES

Pipe connections to existing manholes shall be centered on the manhole.

Holes for the new pipe shall be of sufficient diameter to allow packing cement mortar around the entire periphery of the pipe but no larger than 1.5 times the diameter of the pipe. Cutting the manhole shall be done in a manner that shall cause the least damage to the walls.

G302002 1.8 CLEANOUTS

Construct cleanouts of cast iron soil pipe and fittings; see G302001, paragraph 1.3.

G302003 LIFT STATIONS AND PUMPING STATIONS

G302003 1.1 GENERAL REQUIREMENTS

If a pump station is allowed, provide all materials, equipment, labor, testing and miscellaneous related items for a packaged lift or pump station system for the facility in compliance with the UFC 3-240-01, *Wastewater Collection*; the state sewerage regulations; and the utility provider's requirements.

G302003 1.2 SUBMERSIBLE PUMPS

Pumps handling raw wastewater shall be capable of passing spheres of at least 3 inches in diameter. The pump's suction and discharge openings shall be at least 4 inches in diameter.

Provide submersible type sewage pumps, with guide rail system. Include ASTM A48M (ASTM A48), Class 25, nonclog, cast-iron impeller; and hermetically sealed motor with moisture-sensing probe, mechanical seals, and waterproof power cable. Guide rail system shall be constructed of stainless steel. Provide a stainless steel lifting chain for raising and lowering the pump in the basin.

G302003 1.3 GRINDER PUMPS

Provide grinder-type sewage pumps, with guide rail system. Include stainless steel or bronze impeller and hermetically sealed motor with moisture-sensing probe, mechanical seals, and waterproof power cable. Guide rail system shall be constructed of stainless steel. Provide a stainless steel lifting chain for raising and lowering the pump in the basin.

G302003 1.4 SUCTION LIFT PUMPS

Not Used.

G302003 1.5 PUMP MOTOR

Provide pump motor sized to accommodate pump operation along the entire impeller curve.

G302003 1.6 STATION PIPING WITHIN WET WELL AND VALVE VAULT

G302003 1.6.1 Piping Less than 4-Inch in Diameter

a. PVC Pressure Pipe

1) Pipe: ASTM D 1785, Schedule 80.
2) Fittings: Schedule 80 socket fittings, ASTM D 2467; Schedule 80 threaded fittings, ASTM D 2464.

G302003 1.6.2 Piping 4 inch Diameter and Larger

a. Flanged Ductile Iron Pipe

1) Pipe: AWWA C115 and its appendices.
2) Fittings: AWWA C110 or AWWA C153.
3) Lining: AWWA C104.

G302003 1.7 FORCE MAINS

G302003 1.7.1 Force Mains for Submersible and Suction Lift Pumps

Force mains shall be at least 4 inches in diameter and shall be either ductile iron or PVC pressure pipe.

a. Ductile Iron Pressure Pipe

1) Pipe: AWWA C151, Pressure Class 350.
2) Fittings: AWWA C110 or AWWA C153.
3) Interior Lining: AWWA C104.

4) Exterior Protection (if required): AWWA C105, polyethylene encasement.

b. PVC Pressure Pipe

1) Pipe: AWWA C900, Pressure Class 150.
2) Fittings: Ductile Iron (AWWA C110 or AWWA C153).

G302003 1.7.2 Force Mains for Grinder Pumps

Force mains less than 4 inches in diameter shall be PVC pressure pipe:

a. PVC Pressure Pipe

1) Pipe: ASTM D 1785, Schedule 40 or ASTM D 2241, with SDR rating for 160 psi pressure rating.
2) Fittings: ASTM D 2466.
3) Joints: Elastomeric gaskets for pressure rating; solvent cement joints, ASTM D 2564.

G302003 1.8 PIPING ACCESSORIES

G302003 1.8.1 Insulating Joints

Provide between pipes of dissimilar metals a rubber gasket or other approved type of insulating joint or dielectric coupling to effectively prevent metal-to-metal contact between adjacent sections of piping.

G302003 1.8.2 Accessories

Provide flanges, connecting pieces, transition glands, transition sleeves, and other adapters as required.

G302003 1.8.3 Flexible Flanged Coupling

Provide flexible flanged coupling applicable for sewage as indicated. Use flexible flanged coupling designed for a working pressure of 350 psi.

G302003 1.9 VALVES

Suitable shutoff and check valves shall be provided on the discharge line of each pump. Locate the check valve between the shutoff valve and the pump. Locate valves in accordance with state sewerage regulations. Check valves shall be suitable for the material being handled and placed on the horizontal portion of the discharge piping except for ball check valves, which may be placed in the vertical run. Valves shall be capable of withstanding normal pressure and water hammer. Use valves from one manufacturer.

G302003 1.9.1 Shut Off Valves

G302003 1.9.1.1 Shut Off Valves Less than 4 Inch in Diameter

PVC ball valves.

G302003 1.9.1.2 Shut Off Valves 4 Inch and Larger in Diameter

AWWA C509 or AWWA C515, nonrising stem, and flanged. Provide valves with handwheels that open by counterclockwise rotation of the valve stem. Provide epoxy coating in accordance with AWWA C550.

G302003 1.9.2 Check Valves

G302003 1.9.2.1 Check Valves Less than 4-Inch in Diameter

Neoprene ball check valve with integral hydraulic sealing flange, designed for a hydraulic working pressure of 175 psi.

G302003 1.9.2.2 Check Valves 4-Inch and Larger in Diameter

AWWA C508, flanged. Provide a nonclog, swing check valve rated for not less than 175 psig (working pressure capable of passing 3-inch diameter solids.

G302003 1.9.3 Air Relief Valves

Provide air relief valves at high points in the force main to prevent air locking in accordance with AWWA M51. Provide vacuum relief valves, where required, to relieve negative pressures on force mains.

G302003 1.10 IDENTIFICATION TAGS AND PLATES

Provide valves with tags or plates numbered and stamped for their usage. Use plates and tags of brass or nonferrous material and mounted or attached to the valve.

G302003 1.11 THRUST RESTRAINT

Provide thrust restraint for force mains, valves and other features of the wastewater distribution system.

a. Concrete Thrust Blocks: AWWA C600.
b. Restrained Joints: Pipe manufacturer's recommendations and required length of pipe to be restrained calculated in accordance with UFC 3-201-01, *Civil Engineering*.

G302003 1.12 STATION CONTROL SYSTEM

G302003 1.12.1 Operating Controls

G302003 1.12.2 Alarm Controls

Provide alarms for all pumping and lift stations; at minimum provide alarms for high level, power failure, pump failure, unauthorized entry or any cause of station malfunction. Provide alarms as required by the pump manufacturer to obtain warranty.

G302003 1.12.3 Telemetry

If required, provide a telemetry system in accordance with state sewer collection and treatment regulations and system owner's requirements to relay alarms to a facility that is manned 24 hours a day.

G302003 1.13 UNDERGROUND ENCLOSURES

G302003 1.14 STATION ACCESSORIES

G302003 1.14.1 Ventilation

Covered wet wells shall have provisions for air displacement venting to the outside. Galvanized ASTM A 53/A 53M pipe with insect screening.

Provide adequate ventilation for all pump stations.

G302003 1.14.2 Metering

Provide devices for measuring wastewater flow at all pumping stations. Provide indicating, totalizing and recording flow measurement at pumping stations with a 1200 gpm or greater design peak hourly flow. For smaller stations, provide elapsed time meters in conjunction with pumping rate tests.

G302003 1.14.3 Pipe and Valve Supports

Use schedule 40 galvanized steel piping conforming to ASTM A 53/A 53M for pipe and valve supports. Provide either ANSI B16.3 or ANSI B16.11 galvanized threaded fittings.

G302003 1.14.4 Miscellaneous Metals

Use stainless steel bolts, nuts, washers, anchors, and supports for installation of equipment.

G302004 PACKAGED SANITARY SEWER TREATMENT PLANTS

Not Used.

G302005 SEPTIC TANKS

Not Used.

G302006 DRAIN FIELDS

Not Used.

G302090 OTHER SANITARY SEWER

Not Used.

G3030 STORM SEWER

Provide all materials, equipment, labor, testing, and miscellaneous related items to provide storm drainage collection system necessary to drain the site. The storm sewer collection system shall be designed and constructed in accordance with UFC 3-201-01, *Civil Engineering*; the utility provider's requirements; and the state stormwater management laws and regulations. Design project site to prevent stormwater runoff in excess of the capacity of the existing utility system.

G303001 STORM SEWER PIPING

G303001 1.1 PIPING

Storm sewer piping less than 12 inches in diameter shall be PVC or ductile iron. Storm sewer piping 12 inches and larger in diameter shall be reinforced concrete or corrugated steel; corrugated aluminum and HDPE pipe may only be used when written approval is received by the Government's Civil Reviewer or indicated in another part of the RFP.

Subsurface drainage piping shall be perforated PVC or HDPE.

G303001 1.1.1 Materials

a. PVC Pipe

1) Piping and Fittings: ASTM D 3034, SDR 35.
2) Joints: ASTM D 3212 and ASTM F 477.

b. Ductile Iron Pipe

1) Piping: ASTM A 746. Provide required Thickness Class based on design information and methods in ASTM A 746.
2) Fittings: AWWA C110 or AWWA C153.
3) Joints: AWWA C111.
4) Interior Coating: AWWA C104.
5) Exterior Protection (if required): AWWA C105, polyethylene encasement.

c. Reinforced Concrete Pipe

1) Circular Pipe: ASTM C 76M (ASTM C 76). Provide required Class based on design information and methods in ASTM C 76M (ASTM C 76). Class III minimum.

2) Elliptical Pipe: ASTM C 507M (ASTM C 507). Provide required Class based on design information and methods in ASTM C 76M (ASTM C 76).

3) Joints:

a) ASTM C 990M (ASTM C 990) butyl gaskets;

b) ASTM C 443M (ASTM C 443) rubber O-ring joints; or

c) AASHTO M 198, Type B preformed plastic gaskets.

d. Corrugated Aluminum Pipe

1) Piping: ASTM B 745.
2) Joints: Coupling bands conforming to ASTM B 745.
3) Coating: Fully bituminous coated for all applications in accordance with ASTM A 849. For applications where piping is part of a piped storm sewer system (not a culvert), pipe shall be fully bituminous coated, invert (half) paved with concrete lining in

accordance with ASTM A 849.

e. HDPE

1) Piping: AASHTO M 294 Type S, corrugated.
2) Joints: Soiltight.

f. Perforated PVC Pipe: ASTM D 2729.
g. Perforated HDPE Pipe

1) Piping and Fittings: AASHTO M 252, Type S, corrugated.
2) Joints: Soiltight.

G303001 1.1.2 Installation

Install piping in accordance with manufacturer's recommendations.

a. PVC: ASTM D 2321. Do not use ASTM D 2321 Class IV or V materials for bedding, haunching or initial backfill materials.
b. Ductile Iron: AWWA C600.
c. Reinforced Concrete: ACPA 01-102 and 01-103.
d. Corrugated Aluminum: ASTM B 788.
e. HDPE: CPPA 100.
f. Perforated PVC and Perforated HDPE: ASTM D 2321. Do not use ASTM D 2321 Class IV or V materials for bedding, haunching or initial backfill materials.

G303001 1.2 PIPING FOR CLEANOUTS

G303001 1.2.1 Materials

a. Cast-Iron Soil Pipe for Cleanouts

1) Pipe: ASTM A 74, service.
2) Joints: ASTM C 564 compression-type rubber gaskets.
3) Exterior Protection (if required): AWWA C105, polyethylene encasement.

G303001 1.2.2 Installation

Install cast iron pipe and fittings in accordance with the recommendations of the pipe manufacturer.

G303002 STORM SEWER STRUCTURES

G303002 1.1 GENERAL REQUIREMENTS

Provide all materials, equipment, labor, testing, and miscellaneous related items for the drainage structures in accordance with the following:

a. Structure rim elevations shall be set flush with finished surface of paved areas or 1 inch above finished grade in unpaved areas.
b. Resilient connectors for making joints between manhole and pipes entering manhole shall conform to ASTM C 923M (ASTM C 923).
c. Provide precast or cast-in-place concrete drainage structures, except cast-in-place concrete is required for airfield drainage structures, headwalls and gutters.

G303002 1.2 PRECAST CONCRETE INLETS

Provide work and materials in accordance with applicable requirements of the State Highway Specifications (SHS) and standards where the project is

located.

G303002 1.3 CAST-IN-PLACE CONCRETE DRAINAGE STRUCTURES

Provide work and materials in accordance with drainage structures indicated in the State Highway Specifications (SHS) and standards where the project is located.

G303002 1.4 DRAINAGE STRUCTURE FRAMES AND COVERS

FS A-A-60005; cast iron or ductile iron; designed to accommodate the traffic loadings. The word "Storm" shall be stamped or cast into covers so that it is plainly visible.

G303002 1.5 DRAINAGE STRUCTURE STEPS

a. Zinc-coated steel: 29 CFR 1910.27.
b. Plastic or rubber coating pressure molded to steel: ASTM D 4101, copolymer polypropylene; or ASTM C 443M (ASTM C 443), except shore A durometer hardness shall be 70 plus or minus 5.

Aluminum steps or rungs shall not be permitted.

Steps are not required in structures less than 4 feet (1.2 m) deep.

G303002 1.6 DRAINAGE STRUCTURE CONSTRUCTION

Where a new structure is constructed on an existing line, remove existing pipe as necessary to construct the structure. Cut existing pipe so that pipe ends are approximately flush with the interior face of structure wall, but not protruding into the structure.

G303002 1.7 CONNECTIONS TO EXISTING STRUCTURES

Pipe connections to existing structures shall be centered on the structure. Holes for the new pipe shall be of sufficient diameter to allow packing cement mortar around the entire periphery of the pipe but no larger than 1.5 times the diameter of the pipe. Cutting the structure shall be done in a manner that shall cause the least damage to the walls.

G303002 1.8 CLEANOUTS

Construct cleanouts of cast iron soil pipe and fittings; see G303001, paragraph 1.2.

G303003 LIFT STATIONS

A stormwater pump station shall not be allowed.

G303004 CULVERTS

Culverts less than 12 inches in diameter shall be PVC or ductile iron. Culverts 12 inches and larger in diameter shall be reinforced concrete; corrugated aluminum and HDPE pipe may only be used when written approval is received by the Government's Civil Reviewer or indicated in another part of the RFP.

Flared end sections shall the same material as pipe material.

Provide erosion control riprap in accordance with the State Highway Specifications (SHS) and standards where the project is located.

See G303001, paragraphs 1.1.1 and 1.1.2 for material and installation requirements.

G303005 HEADWALLS

Provide cast-in-place concrete headwalls in accordance with the State Highway Specification (SHS) and standards where the project is located.

G303006 EROSION & SEDIMENT CONTROL MEASURES

Refer to Section G103011.

G303007 STORMWATER MANAGEMENT

G303007 1.1 STORMWATER COLLECTION AND STORAGE

Provide permanent detention/retention ponds and other drainage features to regulate stormwater runoff and to prevent damage to the site and off-site. Integrate permanent stormwater management ponds, swales, and other stormwater management features, into the total site design to provide an aesthetically pleasing and harmonious landscape. Develop and construct the ponds and other drainage features in accordance with UFC 3-201-01, *Civil Engineering*, and the state stormwater management Laws and Regulations.

G303090 OTHER STORM SEWER

G303090 1.1 OIL/WATER SEPARATOR

Not Used.

G3040 HEATING DISTRIBUTION

Not Used.

G3050 COOLING DISTRIBUTION

Not Used.

G3060 FUEL DISTRIBUTION

Not Used.

Not used.

-- End of Section --

SECTION G40

SITE ELECTRICAL UTILITIES
11/10

G40 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4 Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to this project. Therefore RFP Part 4 requirements that correspond and further define the RFP Part 3 requirements are specific to this project, other RFP Part 4 requirements are not required.

G40 1.1 NARRATIVE

This section covers installations exterior to the facility up to the five foot line. See PTS Section D50, *Electrical*, for continuation of systems into the building.

G40 1.2 ELECTRICAL DESIGN GUIDANCE

Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS section are located in PTS Section Z10, *General Performance Technical Specification*.

When all product Quality Control information is included in the Unified Facility Criteria (UFC) and there are requirement options identified in the ESR, then the Uniformat Level 4 titles (and possible subtitles) are included without additional verbiage. One example of this is G401008, GROUNDING SYSTEMS.

G40 1.2.1 Government Standards

UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(A reference in this PTS section to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs that are listed in UFGS Section 01 33 10.05 20, which includes the following significant UFC(s):UFC 3-501-01, Electrical Engineering)
UFC 3-570-02N	Electrical Engineering Cathodic Protection

UNIFIED FACILITIES GUIDE SPECIFICATIONS (UFGS)

UFC 3-580-01	Telecommunications Building Cabling System Planning
UFC 3-580-10	Navy and Marine Corps Intranet (NMCI) Standard Construction Practices, with Change 1-3

G40 1.3 QUALITY ASSURANCE

Qualifications, certifications, and Test Plans indicated herein shall be submitted 45 calendar days prior to the expected date of execution. Notify the Contracting Officer 14 calendar days prior to all testing. Submit test results within 7 calendar days of completion of testing.

The Designer of Record is responsible for approving the submittals listed below.

G40 1.3.1 Qualified Testing Organization

Contractor shall engage the services of a qualified testing organization to provide inspection, testing, calibration, and adjustment of the electrical distribution system and equipment listed in paragraph entitled "Acceptance Tests and Inspections" herein. Organization shall be independent of the supplier, manufacturer, and installer of the equipment. The organization shall be a first tier subcontractor.

a. Submit name and qualifications of organization. Organization shall have been regularly engaged in the testing of electrical materials, devices, installations, and systems for a minimum of 5 years. The organization shall have a calibration program, and test instruments used shall be calibrated in accordance with NETA ATS.
b. Submit name and qualifications of the lead engineering technician performing the required testing services. Include a list of three comparable jobs performed by the technician with specific names and telephone numbers for reference. Testing, inspection, calibration, and adjustments shall be performed by an engineering technician, certified by NETA or the National Institute for Certification in Engineering Technologies (NICET) with a minimum of 5 years' experience inspecting, testing, and calibrating electrical distribution and generation equipment, systems, and devices.

G40 1.3.2 NEC Qualified Worker

Provide in accordance with NFPA 70. Qualified Workers shall be allowed to be assisted by helpers on a 1 to 1 ratio, provided such helpers are registered in recognized apprenticeship programs. Submit a certification confirming NEC Qualified Worker requirements.

G40 1.3.3 Qualified Medium Voltage Electrician

All workers on medium voltage electrical crews shall have 5 years experience working medium voltage systems on similar projects involving the same or higher voltage.

G40 1.3.4 Qualified Cable Splicer (Medium Voltage Cable)

The cable splicer/terminator must have a certification from the National Cable Splicing Certification Board (NCSCB) in the field of splicing and terminating shielded medium voltage (5 kV to 35 kV) power cable using pre-manufactured kits (pre-molded, heat-shrink, cold-shrink). Proof of certification for the individuals

that shall be performing cable splicer and termination work shall be submitted 30 days before splices or terminations are to be made.

G40 1.3.5 Qualified Cable Splicer (Telecommunications)

Certification shall include the training, and experience of the individual on specific type and classification of telecommunications cable to be provided under this contract.

G40 1.3.6 Qualified Cable Installer and Splicer (Fiber Optic Cable)

Certification shall include the training, and experience of the individual on specific type and classification of Fiber Optic media to be provided under this contract.

G40 1.3.7 Qualified Fiber Optic (FO) Cable Manufacturer

The FO media manufacturer shall have a minimum of 3 years experience in the manufacturing, assembly, and factory testing of FO media that complies with RUS REA Bull 1753F-601 (PE-90). Manufacturer shall provide a list of customers with 3 years of maintenance logs documenting experience with government customers.

G40 1.3.8 Material Standards

Ensure service support and provide manufacturer's nameplate in accordance with PTS Section Z10, *General Performance Technical Specification*.

G40 1.3.8.1 Warning Labels

Each enclosure of electrical equipment, including substations, pad-mounted transformers, pad-mounted switches, pad-mounted sectionalizing termination cabinets, and switchgear, shall have a warning label identifying the enclosure as 1) containing energized electrical equipment and 2) an arc flash hazard.

G40 1.3.9 Factory Testing

The Government reserves the right to witness all factory testing. The manufacturer shall have a calibration program that assures that all applicable test instruments are maintained within rated accuracy.

G40 1.3.10 Electrical System Startup and Testing

Submit test plans for approval. The test plans shall be tailored to the systems provided.

The test plan shall list make and model and provide functional description of the test instruments and accessories and shall describe the setup of the tests to be conducted. Test instruments shall be capable of measuring and recording or displaying test data at a higher resolution and greater accuracy than specified for the equipment's performance.

G40 1.3.10.1 Factory Trained Engineer

Provide a factory trained engineer to supervise start-up and

testing as required in referenced specifications.

G40 1.3.10.2 Performance Verification Testing

The Contractor shall show by demonstration in service that all circuits and devices are in operating condition. Tests shall be such that each item of control equipment shall function not less than five times. The Contractor shall provide all necessary test equipment, tools, fuel, load banks, labor, and materials for testing. As a minimum, all systems shall be tested in accordance with manufacturer's recommendations. Additional testing requirements for the various systems are described with those systems, hereinafter. The Contractor shall assure that all applicable test instruments are maintained within rated accuracy. Dated calibration labels shall be visible on all test equipment.

Submit a separate electrical field test plan in accordance with manufacturer's recommendations and that conforms to NETA ATS for each piece of Electrical Distribution Equipment and System requiring Performance Verification Testing.

The following items identify specific test requirements. Additional test requirements are contained in the applicable UFGS.

a. Cable – Test cable in accordance with the manufacturer's recommendations and NETA ATS. Adhere to precautions and limits as specified in the applicable NEMA/ICEA Standard for the specific cable.
b. Grounding - Test ground systems in accordance with the manufacturer's recommendations and NETA ATS.
c. Site Lighting - Contractor's Quality Control (CQC) representative shall perform a field survey of site lighting systems in accordance with IESNA for acceptance. Show that the lighting system operates in accordance with the user’s requirements and is in accordance with designed levels. Provide certification that the measured lighting levels conform to the design requirements.
d. Telecommunications wiring - Test all cables in accordance with industry standards.

G40 1.3.10.3 Acceptance Tests and Inspections

The Qualified Testing Organization shall provide the Acceptance Tests and Inspections test plan and procedures and perform the acceptance tests and inspections. Test methods, procedures, and test values shall be performed and evaluated in accordance with NETA ATS, the manufacturer's recommendations, and paragraph entitled "Field Quality Control" of each applicable specification section. Tests identified as optional in NETA ATS are not required unless otherwise specified. Equipment shall be placed in service only after completion of required tests and evaluation of the test results have been completed. Contractor shall supply to the testing organization complete sets of shop drawings, settings of adjustable devices, and other information necessary for an accurate test and inspection of the system prior to the performance of any final testing.

Specific test requirements are contained in the UFGS for equipment.

G40 1.4 DESIGN SUBMITTALS

Design Submittals shall be in accordance with PTS Section Z10, *General Performance Technical Specifications*, UFGS Section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures*, and UFC 3-501-01, *Electrical Engineering*.

In addition, UFGS sections listed in the body of the PTS text are to be used by the Designer of Record (DOR) as a part of the design submittal. If the UFGS products or systems are applicable to the project, the DOR shall edit these referenced UFGS sections and submit them as a part of the design submittal specification. Edit the specification sections in accordance with the limitations stated in PTS Section Z10, *General Performance Technical Specifications*.

G40 1.5 CONSTRUCTION SUBMITTALS

Submit construction submittals in accordance with PTS Section Z10, *General Performance Technical Specifications*. In addition to the PTS Section Z10 requirements, the Designer of Record (DOR) shall approve the following construction submittals as a minimum:

OMSI Information for Electrical Equipment (if OMSI Manual for the entire project is not already required); all "G" item submittals listed in the submittals of the specifications sections identified in the Design Submittals paragraph above; and all "G" item submittals listed in Government Surveillance UFGS Section 01 33 00.05 20, *Construction Submittal Procedures*.

Provide certification that all adjustable protective device settings have been set in accordance with the coordination study for the as-built equipment and configuration.

G4010 ELECTRICAL DISTRIBUTION

G401001 SUBSTATIONS

Not used.

G401002 TRANSFORMERS

Not used.

G401003 SWITCHES, CONTROLS AND DEVICES

Not used.

G401004 OVERHEAD ELECTRIC CONDUCTORS

Not used.

G401005 TOWERS, POLES, CROSSARMS AND INSULATORS

Not used.

G401006 UNDERGROUND ELECTRIC CONDUCTORS

Not used.

G401007 DUCTBANKS, MANHOLES, HANDHOLES AND RACEWAYS

Not used.

G401008 GROUNDING SYSTEMS

Not used.

G401009 METERING

Not used.

G401010 CATHODIC PROTECTION SYSTEMS

Not used.

G401011 EQUIPMENT REQUIREMENTS FOR COASTAL AND HIGH HUMIDITY AREAS

Not used.

G4020 SITE LIGHTING

G402001 EXTERIOR LIGHTING FIXTURES AND CONTROLS

Maintained mean area lighting levels shall be 6 lux (0.5 fc). Lighting uniformity shall be maintained with the following average to minimum (avg/min) uniformity ratios:

Area And Parking Lighting, 6:1

G402002 SPECIAL SECURITY LIGHTING SYSTEM

Not used.

G402003 OTHER AREA LIGHTING

Not used.

G402004 LIGHTING POLES

Poles shall meet Uniform Building Code for street lighting poles, and AASHTO loadings for highway and sports lighting poles taking into account the effective projected areas of the luminaries provided. Poles shall be direct set or anchor-base type designed for use with underground supply conductors.

G402005 UNDERGROUND ELECTRIC CONDUCTORS

Route underground cables to minimize splices. Cable pulling tensions shall not exceed the maximum pulling tension recommended by the cable manufacturer. Medium voltage cable termination shall be suitable for the location installed and meet IEEE Std. 48 Class 1 requirements.

G402006 DUCTBANKS, MANHOLES AND HANDHOLES

Concrete manholes and handholes shall be standard type pre-cast concrete. Composite/Fiberglass handholes shall be polymer concrete reinforced with a heavy weave fiberglass reinforcing as indicated. Load ratings of manholes and handholes shall be suitable for the location installed.

G402007 GROUNDING SYSTEMS

Provide a complete grounding system for all site lighting systems.

G4030 SITE COMMUNICATION AND SECURITY

Provide in accordance with UFC 4-022-01.

G403001 TELECOMMUNICATIONS SYSTEMS

Provide in accordance with UFC 3-580-01.

G403002 CABLE TV SYSTEMS (CATV)

Not used.

G403003 CABLES AND WIRING

Not used.

G403004 DUCTBANKS, MANHOLES AND HANDHOLES

Not used.

G403005 TOWERS, POLES AND STANDS

Not used.

G403006 TV CAMERAS AND MONITORS

Not used.

G403007 ELECTRONIC SECURITY SYSTEM (ESS)

Not used.

G403008 OTHER COMMUNICATION AND ALARM

Not used.

G403009 GROUNDING SYSTEMS

Not used.

G4090 OTHER ELECTRICAL UTILITIES

Not used.

--End of Section--

SECTION Z10

GENERAL PERFORMANCE TECHNICAL SPECIFICATION

Z10 GENERAL

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

Z10 1.1 NARRATIVE

All Performance Technical Specification (PTS) sections must be used in conjunction with all parts of the Design Build (D/B) Request for Proposal (RFP) to determine the full requirements of this solicitation. This PTS section provides general requirements for the other PTS sections of this RFP and is used in conjunction with the other PTS sections.

Refer to UFGS section 01 33 10.05 20, *Design Submittal Procedures* fr the Order of Precedence of the RFP Parts. Requirements listed in the Project Program take precedence over the PTS sections requirements; therefore, requirements identified in the Project Program eliminate options related to that requirement in the PTS sections.

Z10 1.2 DESIGN GUIDANCE

Provide work in compliance with the following design standards and codes, as a minimum. Government standards listed in this RFP take precedence over industry standards.

The PTS Sections reference published standards, the titles of which can be found in the *Unified Master Reference List (UMRL)* on the Whole Building Design Guide at the Unified Facilities Guide Specification (UFGS) Website . The publications referenced form a part of this specification to the extent referenced. The publications are referred to in the section text by the basic designation only. Industry standards, codes, and Government standards referenced in the section text, and not found in the UMRL, are listed at the beginning of the PTS sections.

The advisory provisions of all referenced codes, standards, and specifications shall be mandatory; substitute words such as "shall", "must", or "required" for words such as "should", "may", or "recommended," wherever they appear. The results of these wording substitutions incorporate these code and standard statements as requirements. Reference to the "authority having jurisdiction" for variance from criteria shall be interpreted to mean the "Chief Engineer, NAVFAC" and for contractual obligations on this project shall be interpreted to mean the "Contracting Officer". Comply with the required and advisory portions of the current edition of the standard at the time of contract award.

The following list of codes and standards is not comprehensive and is augmented by other codes and standards referenced and cross-referenced in the RFP.

Z10 1.2.1 INDUSTRY CODES

INTERNATIONAL BUILDING CODE (IBC) as modified by UFC 1-200-01. UFC

1-200-01 applies the IBC to the project and references other commercial standards and UFC criteria that become part of the contract.

Z10 1.2.2 INDUSTRY REQUIREMENTS

WHOLE BUILDING DESIGN GUIDE (WBDG)

WHOLE BUILDING DESIGN GUIDE, Ensure Occupant Safety and Health (Systems Safety Engineering)
at http://www.wbdg.org/design/ensure_health.php

Z10 1.2.3 GOVERNMENT STANDARDS

Z10 1.2.3.1 UNIFIED FACILITIES CRITERIA (UFC)

UFC 1-200-01	General Building Requirements(UFC 1-200-01 is a hub document that provides general building requirements and references other critical UFCs. A reference to UFC 1-200-01 requires compliance with the Tri-Service Core UFCs. A complete list of these Tri-Service Core UFCs is located in UFGS section 01 33 10.05 20)
UFC 1-300-09N	Design Procedures
UFC 4-010-01	DoD Minimum Antiterrorism Standards for Buildings.

Z10 1.2.3.2 FEDERAL STANDARDS

DoD Architectural Barriers Act Accessibility Standard with DEPSECDEF Memorandum

Occupational Safety and Health Association (OSHA)

Z10 1.3 MATERIALS AND EQUIPMENT REQUIREMENTS IDENTIFICATION

Z10 1.3.1 MATERIALS STANDARD

Refer to the Project Program for identification of Government Furnished Equipment.

The equipment items shall be supported by service organizations that are convenient to the equipment installation in order to render satisfactory service to the equipment on a regular and emergency basis during the warranty period of the contract.

Materials, equipment, fixtures, and other appurtenances shall comply with applicable Underwriters Laboratories, (UL) Inc., American National Standards Institute, Inc., and National Electrical Manufacturer's Association standards or applicable standards of a similar independent testing organization. All materials shall be new, and shall bear the label of Underwriters Laboratories whenever standards have been established and label service is normally and regularly furnished by the agency. All equipment provided shall be listed and labeled suitable for the specified purpose, environment, and application and installed in accordance with manufacturer’s recommendations. Insulation shall be asbestos free.

Z10 1.3.2 EQUIPMENT NAMEPLATE IDENTIFICATION

Each item of equipment shall have a nameplate bearing the manufacturer's name, address, model number, and serial number securely affixed in a conspicuous place. The nameplate of the distributing agent shall not be acceptable.

Z10 1.3.3 FIELD-APPLIED NAMEPLATES

Provide laminated plastic nameplates for each piece of equipment. Each nameplate must identify the function and, when applicable, the number designation of that piece of equipment as used in the design documents. Provide melamine plastic nameplates, 0.125 inch (3 mm) thick, white with black center core.

Z10 1.4 COMMISSIONING

Commission the building systems identified in the Project Program paragraph 2.2.3. Refer to UFGS section 01 45 00.05 20, *Design and Construction Quality Control* for commissioning requirements. Test reports must be certified by the Commissioning Authority (CA), that work is in compliance with requirements of the RFP.

Z10 1.5 PERFORMANCE VERIFICATION AND ACCEPTANCE TESTS

Verification of satisfactory construction and system performance shall be via Performance Verification Testing, Acceptance Tests, and submittal of test reports certified by the Designer of Record (DOR), that work is in compliance with requirements of the RFP. The Government reserves the right to witness all Performance Verification and Acceptance Tests, review data, and request other such additional inspections and repeat tests as necessary to ensure that the work and provided services conform to the stated requirements. Contractor shall pay the cost of all testing.

Refer to each PTS section to identify Performance Verification and Acceptance Testing required by the work specified in that PTS section.

Z10 1.6 SUBMITTALS

Contractor's design submittals that combines design and construction submittals, must jointly comply with UFGS sections 01 33 00.05 20, *Construction Submittal Procedures* and 01 33 10.05 20, *Design Submittal Procedures*. Contractor's construction submittals that submitted separate from the design submittals must comply with UFGS 01 33 00.05 20, *Construction Submittal Procedures*.

Refer to “"Construction Quality Control" in UFGS 01 33 00.05 20, *Construction Submittal Procedures* and 01 45 00.05 20, *Design and Construction Quality Control* to define reviewing and approving Authority of design and construction submittals.

Utilize the same materials and equipment that are approved and provided for an initial facility design, on all follow-on facilities that use the same design with-in this contract. Once the initial facility design is approved by the Government, the Contractor must obtain Government approval to change materials and equipment when designing and constructing follow-on facilities utilizing the same design.

Z10 1.6.1 DESIGN SUBMITTALS

Design submittals shall be in accordance with Unified Facility Guide Specification (UFGS) section 01 33 10.05 20, *Design Submittal Procedures*, UFC 1-300-09N, *Design Procedures*, and other

discipline-specific guidelines listed in the applicable PTS sections.

UFGS Section 01 33 10.05 20, *Design Submittal Procedures* and some PTS sections requires the use of UFGS sections in the development on the contractor originated specification. The Designer of Record (DOR) shall edit the UFGS sections for the project and submit the edited specification as a part of the design submittal. The DOR shall edit the UFGS as follows:

(1) Prepare UFGS Specifications as part of the project specification,

(2) Delete only portions of the UFGS specification that are not applicable to the project,

(3) Edit only the bracketed choices that are within the UFGS specification text,

(4) Edit blank bracketed options to include requirements that exercise prudence and adherence to acceptable industry standards,

(5) Comply with the directions, directives, and requirements of all UFGS Criteria Notes. The UFGS Criteria Notes are typically bordered on the top and bottom by a line of asterisks to highlight their location.

(6) If proprietary information is provided or required to streamline the construction submittal process, include proprietary information in the edited UFGS sections and added to the end of each UFGS section. Confirm that the proprietary products, materials, and systems listed in the specifications are in compliance with the requirements of the RFP.

Z10 1.6.2 CONSTRUCTION SUBMITTALS

Submit for approval to the Designer of Record (DOR), construction submittals, product data, manufacturer's information, shop drawings, and test reports on all materials and systems installed in the project, unless the DOR designates submittal for QC approval. Refer to each PTS section for further construction submittal requirements relating to the work identified in that particular PTS section. Some PTS sections reference UFGS sections that shall require more construction submittals for DOR approval than is stated above. Refer to Section 01 33 00.05 20 for the list of construction submittals reserved for Government Approval and Government Surveillance.

--End of Section--