PART SIX – ATTACHMENTS

Attachments

P707 Embassy Security Guard, BEQ and Ops Facility

Marine Corps Base, Quantico, Virginia

FY16

eProject #: N40080-16-1354717
PWB#: 2014150
Category Codes: 72125, 61010, 14345, 17125

RFP, 5 May 2016

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PART SIX TABLE OF CONTENTS

Part 3 contains the project description, functional and performance requirements, scope items, and expected quality levels that exceed Part 4. Part 4 identifies design criteria, verification requirements, and performance and quality requirements of products. See "Order of Precedence" paragraph in Part 2 for relationships between all parts of this RFP.

MCB QUANTICO EXCAVATION PERMIT REQUIREMENTS AND SAMPLE PERMIT

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Standard Operating Procedures (SOP)
For the
MCB-Quantico Excavation Permit

1. All organizations, units, occupants or contractors who plan to excavate aboard MCB Quantico are required to obtain an approved excavation permit from Requirements Section, Public Works Branch, G-5, Building 3252 prior to commencement of digging. These can also be processed electronically for contractors not located near MCB Quantico (to maria.self@usmc.mil). The excavation permit process normally takes 10-14 calendar days from date of submission to obtain an approved permit which will allow excavating to begin. There are occasions when permit workload or other utility workload does not allow Base utilities to be marked within this timeframe, but it is met at least 90% of the time.

2. The occupant or contractor/unit representative will initiate the excavation permit by bringing a scale drawing (or other acceptable drawing) of the area to be excavated to Building 3252, Requirements Section. The drawing shall be no larger than 11”x17” in size and shall show excavation area in relation to existing facilities, roads or other permanent structures. The requester will fill out items 1 thru 3 on the permit form and sign the excavation permit form after reading the information in item 4 (all on page one).

3. Requirements Section will assign a permit number in sequence. The number will consist of the current FY number, a dash and then a sequential number (i.e. 0-001 would be the first permit issued in FY00) by using the Excavation Log notebook. Requirements will also sign the Requirements line on page 2, required action (a) of the permit form. This indicates by whom and when the permit was first received.

4. If the application is made electronically, Requirements Section will provide an email to the requester with all instructions for coordination. If the application is submitted in person, Requirements Section will make up to six copies of the permit and provide up to four of them to the requester (all dependent upon what area of base is being excavated). The requestor will ALWAYS be given an “Applicant copy” to be used to annotate the Miss Utility number (see paragraph 5). The contractor will also ALWAYS be given a copy for G-6 (Telecom Branch) and possibly a copy for Ameresco (formerly Select Energy) (if excavation location is Mainside), HMX-1 Security (if within MCAF boundaries). The requester is required to drop off those copies and return to pick them up once those offices have completed the locate (Those offices will contact the contractor when the locate is completed). **Those offices will sign the permit only after they have marked their utilities on-site. If none of their utilities exist, they will check the block “no conflict” and sign the form in their designated location.**

5. Requirements will also email copies of the permit to NREA (heather.a.mcduff@usmc.mil and christa.nye@usmc.mil) and Planning Office (joseph.winterer@usmc.mil and linda.murawski@usmc.mil) for their review, approval and signature. They will return signed copies to Requirements by fax or email. If the excavation area is within the PPV Housing boundaries, Requirements will email a copy to Lincoln Housing POC Jeff Stafford at jstafford@lpsi.com and copy Oscar Almond at oscar.almond@usmc.mil . They will return the signed copy to Requirements by email.

6. The requestor will contact Miss Utility of Virginia for the marking of any other non-Government utility (Dial 811). Miss Utility will provide the requester with a Work Order Number which the requester will write on the “Contractor copy” of the permit. Miss Utility normally takes 48 hours to locate commercial utilities. Each prime contractor and each subcontractor **MUST** have their own Miss Utility Ticket Number, regardless of who holds this Quantico permit. Miss Utility clearance must be updated every 15 days.

7. Once NREA and Planning have approved, Requirements will make two copies of the permit request and forward them to the FMS Utilities Shop with an appropriate service ticket issued in Maximo. Requirements will indicate ticket number on original and the two copies and will highlight pipefitter on one copy and electrician on the other copy to be sent to the Utilities Shop. The Utilities Shop will sign the permits when they have completed the on-site marking of utilities. Shop will return signed permits to Requirements.

8. The requester will deliver to Requirements the copy/copies with signatures from G-6, Ameresco (when required), HMX-1 Security (when required) and a Miss Utility Work Order Number.

9. When Requirements has been provided all required signatures and the Miss Utility number, the permit will be reviewed by Requirements and approved. The approval block at the bottom of the 2nd page of the permit will be checked and signed and dated. If any shop or office reviewing the permit has made a precautionary note on the permit, it will be identified to the requester. An approved permit will be good for 30 days from the date of approval (unless otherwise noted). Many times permits are authorized for longer periods when the contractor knows extended period of excavation will occur. The expiration date is annotated at the top left of the front page. **NOTE: Miss Utility does require a notification every 15 days and G-6 requires notification every 10 days as indicated on the permit form.** If the expiration date occurs before the excavation work is completed, the requester must request and obtain an extension approval from the Requirements Section. Extensions are granted if requester has maintained all markings made by all parties. Requester must verify and sign in writing that markings are maintained. If remarks are required, Requirements will make appropriate copies and the process for all locates will begin again.

10. If the permit is disapproved for any reason, the reason for disapproval will be discussed with the requester. Some cases may require a slight change to the area of excavation due to interference of existing utilities.

11. When the permit is approved, **the requester will be given the original and will be required to have the original on-site at all times during excavation.** Requirements **will maintain a copy of the approved permit.** The requestor is also required to maintain all on-site utility markings during the entire excavation process.

12. If a utility is damaged during the excavation process, the requester must notify FMS Work Reception immediately at (703) 784-2072. It may be determined that the requester is liable for the damaged utilities and may be required to reimburse the Government or Miss Utility.

13. For any questions concerning excavation permits, contact Requirements Supervisor, Maria Self at (703) 784-1405.

14. **NOTE:** A **Water Distribution System Permit** is required in addition to an excavation permit for **ANY** and **ALL** connections to the MCB potable water distribution system. Contact the Water/Wastewater Commodity Engineer at Bldg 2004 (Barnett Ave), 2nd Deck, South end of Building.

EXCAVATION PERMIT REQUEST FORM – Updated Sept 2011

PERMIT EXPIRES: _____ PERMIT#:_____ DATE APPROVED: _____**

****Note: G-6 must be renewed every 10 days after signature; Miss Utility every 15 days**

1. REQUESTER:

NAME: _____
COMPANY: _____
PHONE: _____
CONTRACT #_____

Estimated Depth of Excavation ___ Ft

Planned Mobilization Date _____

Planned Completion Date _____

2. LOCATION OF AREA TO BE EXCAVATED:

_____

(NOTE: A to-scale drawing of the excavation site must be submitted along with this form. Excavation route must be staked or flagged by the requester every 10 feet.)

3. TYPE OF WORK TO BE PERFORMED: _____

_____

4. MISC INFORMATION:

a. This excavation permit is used for any work that may disrupt underground utilities, communications, right of ways or any routine activities. Processing of this permit will take approximately **10-14 days**. Requester must have an approved excavation permit prior to commencement of work & permit must be kept on-site.

b. If utilities or communications have been located in the area to be excavated, hand digging will be used within a 10-foot radius until the exact location of all lines have been determined. It is the responsibility of the requester to maintain the markings after utilities have been located and marked.

c. The Government reserves the rights to have on-site personnel present during excavation & will specify on this permit precautionary measures if needed.

d. The requester shall take reasonable precautions to protect from damage all existing improvements, utilities, communications, & vegetation at or near the work site. The requester shall be liable for all damages to persons or property that occurs as a result of the requester's fault or negligence.

***** e. Emergency requests are delivered directly to Public Works Work Reception Office and/or FMS Utilities Shop for expeditious action. Requester is still required to contact Miss Utility, G-6, Ameresco, & HMX-1 Security (If applicable).

f. Any questions regarding this excavation permit may be directed to the PWB Requirements Section at (703) 784-1405. **Any utility emergency encountered during excavation must be reported to the Base Trouble Desk (24/7) at 703-784-2072.**

g. A **Water Distribution System Permit** is required in addition to this excavation permit for any and all connections to the MCB potable water distribution system. Contact Patty Greek, Commodities Engineer, at (703) 432-2466, or in person at 2004 Barnett Avenue in the 2nd deck Engineering/Planning Suite.

h. Approval of this excavation permit does not constitute Government approval of any underlying development project that it supports

"I HAVE FULLY READ AND UNDERSTAND THE ADVISORIES AND REQUIREMENTS NOTED ABOVE".

_____ _____
Signature of requester/POC Date

Public Works Branch, Requirements Section **MCBO 11000.3**
MCB Quantico, VA
EXCAVATION PERMIT REQUEST FORM – Updated Sept 2011

5. REQUIRED ACTION: PLANNED MOBILIZATION DATE: _____ PERMIT#:_____
ESTIMATED DEPTH OF EXCAVATION: _____ Ft

a. Requirements Office _____
Work Order # _____

b. FMS M&R Utilities Shop
Pipefitters _____Date:_____
☐ Marked ☐ No Conflict

Linemen _____Date:_____
☐ Marked ☐ No Conflict

c. Ameresco (Mainside, MCAF, OCS) _____
☐ Marked ☐ No Conflict

d. G-6 _____Expires:_____
☐ Marked ☐ No Conflict

e. HMX-1 Physical Security (MCAF) ____
☐ Marked ☐ No Conflict

f. Miss Utility Work Order #_____

g. NREAB (NEPA Action)
☐ Approved _____
☐ Disapproved _____

h. PWB Planning Office
☐ Approved _____
☐ Disapproved _____

i. PPV – Lincoln Property Company _____
☐ Marked ☐ No Conflict

DIRECTIONS FOR REQUESTER ACTION:

1. **Requirements** (703) 784-1405 — 3252 Barnett Ave.; Submit excavation permit applications to Requirements Section for processing at least **14 days prior** to commencement of work. Requester **MUST** obtain an **APPROVED** permit prior to commencing work.

2. **FMS** (703) 784-1405 — 3252 Barnett Ave.; contact Maria Self if there are concerns or questions about Base-owned utilities prior to excavation.

3. **Ameresco** (703) 630-0363 — 7 Zeilin Rd (south end). POC: Alix Hidalgo or Jim McCoy. Emergency contact (571) 221-0149

4. **G-6** (703) 784-2500 — 1999 Elliot Rd.; obtain signature from Assistant Chief of Staff, G-6, Telephone Branch. G-6 clearance must be updated every 10 days.

5. **HMX-1** (571) 494-4959 (703) 432-1783 — MCAF, Hangar 2134, Room W-136; obtain signature @ Physical Security Office

6. **Miss Utility** Call 811 — Call Miss Utility at least **3 WORKING DAYS IN ADVANCE** of excavation. Provide them an address of the area to be excavated; they will issue a ticket number to the requestor. Each prime contractor and each subcontractor **MUST** have their own Miss Utility Ticket Number, regardless of who holds this Quantico permit. Miss Utility clearance must be updated every 15 days.

7. **NREAB/PWB Planning/PPV** — Requirements will forward all excavation permit applications to the Natural Resources & Environmental Affairs Branch (NREAB) for National Environmental Policy Act (NEPA) review, to the Public Works Branch (PWB) Planning Office for site approval and/or architectural review, and to Lincoln Property Company for approval in Public Private Venture (PPV) military housing areas, as applicable.

APPROVED:____ DISAPPROVED:____ AUTHORIZING OFFICIAL:_____

_____ _____
HEAD, PWB Requirements Section DATE

MCB QUANTICO FIRE AND EMERGENCY SERVICES FACILITY DESIGN AND CONSTRUCTION REQUIREMENTS (MAY 2013)

PART SIX – ATTACHMENTS

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Quantico Fire & Emergency Services
Facility Design & Construction Requirements

GENERAL ENGINEERING SPECIFICATION REQUIREMENTS

1. References

   The following latest additional references must be used for all projects and all modifications to existing Fire Alarm and Fire Protection Systems:
   a. UFC 3-600-10N
   b. UFC 3-600-01
   c. UFC 4-021-01

2. Scope

   a. This document and the associated references apply to all new construction and to modifications of existing buildings aboard base; including self-help, JOC, FLSS, and modular space projects.

3. Authority Having Jurisdiction (AHJ)

   a. The AHJ for this document is the Chief, Quantico Fire and Emergency Services or his/her designated representative.

   b. The AHJ for all fire protection submittal review approval is the Fire Protection Engineer, NAVFAC.

4. Building Number

   a. Provide the building number for the project at the draft stage and include the building number on all drawings and specifications submitted.

   b. Display the building number on the exterior of the building. Number shall be white reflective background with 4" black numbers on exterior walls which face public access ways (minimum of 2 sides). Placement will be approved by the AHJ.

5. Renovation Projects

   a. Buildings that have alteration, modernization, modification, rehabilitation, and renovation projects that affect 50% of the total area of the building will be required to

bring the building into compliance with new construction requirements contained herein and in UFC 3-600-01.

b. Buildings being renovated for a new occupancy class will be required to bring the entire building in compliance with new construction requirements contained herein and in UFC 3-600-01.

6. Fire Extinguishers:

a. Provide fire extinguishers only where required by UFC 3-600-01. Fire extinguishers are not supplied by Quantico Fire & Emergency Services. Provide cabinets for all fire extinguishers. Cabinets shall be recessed or semi-recessed wherever possible and shall not be break-glass type. Include extinguishers and cabinets in fire protection submittals for AHJ review and approval.

7. Existing Fire Alarm and Fire Protection Systems

a. Existing systems may be degraded or disconnected only with the permission of the Assistant Chief of Prevention, Quantico Fire & Emergency Services or his/her designate.

b. Existing systems that are required to remain operational must remain free of alarm, trouble, or supervisory conditions except for temporary outages approved in advance.

c. A Fire Watch will be required and provided by the contractor if the existing system is not operational, during all outages, and whenever the system or any portion of the system is called out-of-service with the Emergency Services Dispatcher. If the building is occupied one person will stay at the panel to monitor the system.

d. A Fire Watch is always required in an occupied building when any active portion of the fire alarm system is disconnected, disabled, or otherwise out of service.

e. For approved outages, call the Emergency Services Dispatcher at 703-784-2636. The Building Number or Box Number, Caller's Name, Company, and Contact Phone Number must be provided. The system must be called back in service at the end of the workday, or when construction that may affect the fire alarm system is finished. Only authorized personal conducting the work onsite at the facility are permitted to call a system in/out of service.

f. Where new devices are being added to an existing fire alarm system, perform the installation of devices, conduit, and wiring first; then connect to the existing fire alarm system so as not to cause the system to be in a trouble or degraded status for any longer than is absolutely necessary.

8. Qualifications of Fire Alarm System Technician:

a. The System Technician must hold a NICET Level III or IV certification. All work should be done under his/her supervision. A written installation certification similar to Figure 4.5.2.1 in the 2007 edition of NFPA 72 is required and shall be provided prior to the Final Acceptance Test request.

b. The Radio Transmitter & Antenna must be installed under the supervision of a factory trained technician. A written installation certification per current NFPA 72 is required and shall be provided prior with the Final Acceptance Test request.

c. Any adjustments to the Radio Transmitter that may affect the entire base-wide fire reporting system can only be maintained by a King Fisher Tech.

9. Repair Services, Parts and Adjustments

a. All equipment supplied shall be new, the manufacturer's current product line, and with the latest version of the operating program installed.

b. Parts and service are required to be available for a period of 10 years from the date of final acceptance.

c. Provide necessary subsequent custom reprogramming to modify and adjust operations and individual device identification to the Assistant Chief of Prevention, Quantico Fire & Emergency Services' satisfaction six months after final acceptance.

d. Reprogramming is to be done at the job site and witnessed by the Assistant Chief of Prevention, Quantico Fire & Emergency Services or his/her representative. At the Governments option, the operating software will be updated to the latest version (if applicable). An updated device list shall be furnished at this time.

SPECIFICATIONS TO INCLUDE IN CONTRACTS

00 FIRE ALARM EQUIPMENT ROOM

00.1. The Fire Alarm Control Panel (FACP), Voice Evacuation Control Panel (VECP), Transmitter, and Battery Cabinet must be installed within 20 feet of the Fire Department Entrance. (Exact location must be coordinated with and approved by the contracting officer and the Assistant Chief of Prevention, Quantico Fire & Emergency Services).

00.2. The FACP equipment in paragraph 01.1 may be installed within a closet or alcove behind closed doors or decorative hinged panels. The distance from the entranceway to the door of the closet or alcove shall not exceed 20 feet. This area must be of sufficient size to

house the FACP equipment, leaving room to fully open all panel doors and access all equipment for operation and maintenance.

00.3. A standard duplex electrical outlet must be installed no further than 5 feet from the FACP. These outlets are for use by fire department and maintenance personnel.

00.4. If an Emergency HVAC Cutoff Switch is required, it shall be installed in the vicinity of the FACP.

01. INTERIOR FIRE ALARM SYSTEM

01.1. Fire Alarm Control Panel (FACP)

a. The FACP shall be housed in a locked enclosure with a glass door designed for easy viewing of the alphanumeric display.

b. Other than the FACP enclosure door key, no additional key will be required to utilize system Acknowledge, Silence, Bypass, and Reset Functions. Programming functions shall be protected from accidental activation by the use of a password system.

c. A Voice Evacuation type of Fire Alarm System with speakers is required. Exceptions to this requirement may be granted for small buildings with less than 11 occupants by the contracting officer in consultation with the AHJ and physical security office.

d. Annunciator (to include graphic) maybe required per the AHJ for multi story or large buildings.

e. Multi building complexes / facilities or large buildings may be required to be networked together at the discretion of the AHJ.

f. The FACP shall have permanent disconnect buttons located inside the locked FACP enclosure for testing and maintenance purposes. There shall be an individual button for each of the following functions:

1. Disabling the audio/visual devices
2. Bypassing HVAC Shutdown
3. Bypassing elevator recall
4. Bypassing security door unlocking
5. Bypassing Fire Door closing
6. Bypassing Fire Suppression activation (hood systems, FM200 ect)

g. The buttons in paragraph 02.1.e shall be specifically designed by the FACP manufacturer for such a purpose, and shall not be an aftermarket or improvised solution.

h. Activation of any of the buttons in paragraph 02.1.e shall cause a trouble signal on the FACP and associated King-Fisher Alarm Transmitter.

i. Resetting the FACP shall not change the state of these switches.

j. Bypass switches shall not require the use of a Key or tool to operate.

01.2. Power Extender Panels

a. Power Extenders may be used to power notification appliances, providing they meet the same requirements as FACP internal notification appliance circuits. Each Power Extender must be individually addressed and supervised by the FACP. No extender panels will be mounted above the ceiling.

01.3. Batteries

a. Fire alarm equipment batteries over 12AH shall have "bolt-on" type terminals; "fast tab" terminals may only be used for batteries 12AH and under.

b. The ACU/VECP shall have battery back-up capable of 48 hours of standby followed by 10 minutes of activation time.

01.4. Keys

a. All locked enclosures except the Radio Transmitter enclosure shall be keyed alike to match the FACP key. This includes the manual pull station keys. The Radio Transmitter Enclosures shall have its own separate distinct key.

b. Manual pull stations shall be enabled to be reset through the use of a key only. Use of a wrench or other device to reset a manual pull station shall not be permitted.

01.5. Mass Notification Systems (MNS)

a. Follow UFC 4-021-01 except as modified herein.

b. Provide one of the following

1. A Cooper/Wheelock Safe Path SP-40 Series Autonomous Control Unit(ACU) or contracting officer's approved substitute with alarm, strobe, display and voice alerts to run the notification appliance circuits.
2. A Voice Evacuation Control Panel (VECP) that is equipped with the appropriate hardware and software to accept an exterior digital audio input (RS232/ Line level audio) from the SPAWAR Transceiver unit.

c. Provide wall mounting space for the Transmittal unit, the Uninterrupted Power Supply(UPS) and a 20"x 20" x 20" NEMA enclosure adjacent to the FACP within 10 feet and provide a dedicated 120 volt 20-amp breaker for power.

d. Provide a 1.5" conduit run from the equipment mounting location to the roof with a weather head attachment for the antenna. The antenna mast shall exceed the roofline by minimum of 1 meter.

e. Provide a control signal allowing the ACU/VECP or TRX to de-activate the fire audible notification during MNS announcements. MNS voice announcements shall not place the FACP or its Transmitter in a trouble status.

f. The MNS and Fire Alarm Systems will share the same evacuation speakers and strobe lights. Strobe Lights throughout the building will activate during the MNS announcements and/or fire alarm conditions.

g. Weatherproof outside speakers shall be installed at all exterior doors

h. The ACU/VECP shall have battery back-up capable of 48 hours of standby followed by 60 minutes of activation time.

i. All installation of Mass Notification Systems (MNS) in buildings with existing Fire Alarm Systems must be approved in advance by the contracting officer or the contracting officer's designated representative.

j. When installing a new MNS in an existing building, the existing fire alarm system shall be modified or replaced as needed for proper operation with the MNS.

k. Provide a Local Operations Console (LOC) as required by the AHJ at the main FACP.

01.6. Fire Evacuation Signals

a. Strobe Lights shall be white with a clear lens with the word "Alert" visible.

b. For fire alarm activations, the Strobe Lights must continue to flash until reset at the FACP.

c. Speakers will be used (vice horns) unless otherwise approved by the contracting officer or AHJ. Speakers shall be white.

d. All Strobes, Speakers, and Speaker/Strobes used within the same facility shall be from the manufacturer's same equipment line so that they match to the maximum extent possible. Obtain contracting officer's approval prior to any deviations.

e. Speakers, Strobes, and Speaker/Strobes shall be mounted (ceiling/ wall) per the AHJ.

01.7. Duct Smoke Detectors

a. Duct smoke detectors shall be installed per NFPA 72 and NFPA 90A.

b. Duct smoke detectors shall be installed in a location that is accessible for service.

c. Duct smoke detectors shall be installed in conditioned spaces only.

01.8. Sleeping Room Smoke Detectors:

a. Smoke detectors installed in sleeping rooms shall be equipped with a sounder base to annunciate the activation of that smoke detector.

b. Activation of one sleeping room smoke detector shall send a unique signal to the base fire dept but not initiate a building evacuation. Activation of a second sleeping room smoke detector shall initiate building evacuation.

c. Install permanently attached red signage with 3/8" white engraved letters near each room detector with the following: "This smoke detector is monitored by the Fire Dept. For emergencies dial 911".

01.9. System Circuit Design

a. All wiring must be Class A. Signaling Line Circuits shall be Style 7 with Line Isolators. Initiating circuits shall be Style D and Notification Circuits shall be style Z. Adhere to NFPA 72 for requirements for each style of wiring.

b. Each initiating device must be individually addressed.

01.10. Line Isolators

a. If the FACP has Line Isolators built-in, then a minimum of one in the middle of the loop, or a least 1 every 25 devices, is required.

b. If they are not built-in, then Line Isolators must also be the first and last devices installed on the "Class A" SLC Loop.

c. A single short anywhere on the field wiring shall not cause loop shutdown.

d. Install Line Isolators per the Manufacturer's instructions.

e. When the radio transmitter is triggered by addressable relays on an SLC Loop, they shall be protected from short circuits on that loop by Line Isolators. This may require installation of Line Isolators on the SLC Loop before and after the relays.

01.11. Addressable Devices

a. Addressable devices shall have a visible LED status indicator. Monitor and Control Modules shall be installed in locations where the status LED is visible.

b. All addressable devices shall be neatly and clearly marked with their address using a printed label. Markings should be a minimum of 3/8"" in height and visible from the floor whenever possible.

c. Smoke detector labels shall be installed on detector base.

d. Control Modules/Relays must be marked with their purpose and (if applicable) address.

e. Addressable modules shall be installed in a visible location (i.e. wall or ceiling versus above a drop ceiling).

f. Install permanently attached red signage with 3/8" white engraved letters on the ceiling above under floor detectors with the detector address. For drop ceilings the signs (red reflective with the device number on it) shall be installed on the ceiling grid.

g. Control Modules/Relays and other field devices containing line voltage shall be marked with the nominal voltage and location of power origination.

01.12. Sustainability

a. Fire Alarm devices that are in danger of being damaged due to normal activities for the area in which they are installed must be protected by guards. Any special tools needed to remove the guards shall be provided to the contracting officer.

b. Electronic Devices installed in areas subject to moisture or corrosion shall be properly protected from the elements.

c. Electronic Devices shall only be installed in areas that can reasonably be expected to stay within the Devices' UL Listed operating temperatures.

01.13. Smoke Detection Protection During Construction

a. Smoke detectors shall be protected against contamination from dirt and dust during construction.

b. All areas that contain smoke detectors to include Ductwork, Underfloor Areas, and Elevator Pit & Machine Rooms shall be cleaned prior to the installation of smoke detector heads.

c. All under floor areas with smoke detectors shall be sealed to help prevent dust buildup. If construction, painting, or cleanup continues after the Formal Fire Alarm Acceptance Test the contracting officer may require a new detector sensitivity report and require any affected devices to be cleaned or replaced.

02. RADIO FREQUENCY TRANSMITTER

02.1. A minimum 8-zone Radio Frequency (RF) transmitter will be required to report alarm, supervisory, and trouble signals to the Marine Corps Base Quantico Fire & Emergency Services. The RF transmitter shall be FM (factory mutual) listed and compatible for use with the existing Quantico Fire & Emergency RF Receiver/Console manufactured by King-Fisher Company.

02.2. For large buildings and facilities with a fire pump or with additional suppression/detection systems, more than 8 zones may be required. Submit zone configuration to the contracting officer for approval.

02.3. A unique signal must be provided for at each of the following:

a. Area Smoke Detectors
b. Duct Smoke Detectors
c. Sleeping Room Smoke Detectors
d. Sprinkler Flow
e. Sprinkler Tamper
f. Dry System Hi/Lo Air Pressure
g. Manual Stations
h. CO Detectors
i. Shunt Trip Power Monitors
j. Suppression Systems (FM-200, Kitchen Hood, etc., must each have a separate zone)
k. Trouble

Note: Trouble should normally be the last (highest number) zone. In the event that all zones are being used for alarm and supervisory notification, configure Trouble as a secondary input on the last zone.

02.4 Install the transmitter, antenna, ground, and accessories as per the manufacturer's written installation instructions.

02.5 A factory trained and certified technician is required onsite to provide quality control during the installation, supervise the final connections, and power-up of the radio transmitter.

03. SPRINKLER SYSTEMS

03.1. Sprinkler Valves

a. A supervised Wall Indication Valve (WIV) is required; a PIV is not acceptable unless approved by the contracting officer.

b. All indication valves (WIV & PIV) shall be monitored by the fire alarm system per approved exception to UFC 3-600-01, have locking ability to secure, and have a window to read "open" or "shut".

c. WIV tamper switches shall be mounted "right-side up" to help prevent water from entering the device.

032. Additional Sprinkler System Requirements

a. Provide signage below the ceiling where sprinkler components are concealed above the ceiling. This is in addition to other signage required on the valves and other components as required by NFPA 13.

b. Provide a listed mechanically operated outside water alarm gong. Water motor gong shall be installed no lower than nine feet (9') off grade.

c. Sprinkler room will be located with an outside ground entrance and clearly marked on outside of the door (SPRINKLER ROOM FIRE DEPT). Sprinkler rooms for multi-story buildings or single story buildings greater than 15,000 sq. ft. shall also have an inside entrance from the sprinkler room to the building.

d. Install concealed sprinkler heads in computer rooms, sleeping areas, and offices whenever possible.

e. Sprinkler Heads that are in danger of being damaged due to normal activities for the area in which they are installed shall either be concealed type or protected by guards. Any special tools needed to remove the guards must be provided to the contracting officer.

f. All multi-story buildings or single story buildings greater than 15,000 sq. ft. requiring sprinkler systems per UFC 3-600-01 or NFPA 101 must be equipped with 2.5-inch FD hose connections attached to the Wet-pipe sprinkler risers on entrances, stairway landings, and in corridors with spacing between hose valves not to exceed 150'. Installation requirements shall be in accordance with NFPA 13.

g. Fire department connections may be either 2.5 inch national standard thread or 4 inch Storz.

03.3. Fire Hydrants

a. Shall use the established color code standard for hydrants and painting; red for non-potable water, yellow for potable water, and purple for reclaimed/reuse water. All hydrants shall also be marked based on the fire flow capacity. In the absence of an installation established marking standard the hydrant bonnet shall be painted in accordance with NFPA 291, Fire Flow and Marking of Hydrants.

04. FIRE DEPARTMENT ACCESS

04.1. Knox Box or contracting officer's approved equivalent

a. Provide a "Knox" Box type key vault keyed to the "Quantico" key containing access cards/keys for the building. Mount the Knox Box at a height of 48".

b. "Knox" box size and mounting location to be determined by the contracting officer in coordination with the Assistant Chief of Prevention, Quantico Fire & Emergency Services.

c. Where limited access gates are installed, provide a Knox Box mounted securely at or near the gate. This is in addition to the Knox box required to be mounted on the building. If the gate is power operated, provide a remote Knox keyed bypass switch.

d. Provide "Knox" locking caps for all FD connections.

e. Contact the contracting officer's representative or Assistant Chief of Prevention, Quantico Fire & Emergency Services for the required Knox Company ordering forms.

f. Where removable bollards block fire department access to the facility, the bollards shall be #1BR-3000 manufactured by Cal Pipe Company or contracting officer's approved equivalent and keyed to match the "Quantico Key". Must be installed with drains.

04.2. Emergency Vehicle Access

a. Fire department vehicle all weather ground access shall be provided for a minimum of 2 sides for all buildings, unless additional sides are required per UFC 3-600-01.

b. A 20' wide access capable of supporting a minimum vehicle weight of 35 tons, with a minimum of 12' of this access being load bearing concrete is required.

c. When a powered vehicle access gate is installed it must be installed with a Knox lock bypass/override switch or equivalent keyed for the Quantico Fire Department.

d. All fire lanes shall run parallel to the building, and must extend at least 100% of the building length. All fire lanes shall be designed to accommodate the Quantico Emergency vehicle turning radius, which is available from the Fire Prevention Office.

e. The Fire Prevention Branch shall be notified prior to cover of all Fire Lanes. A geotechnical report may be required to verify that the access road has been installed in accordance with applicable specifications.

f. Dead-end fire department fire lanes/access roads in excess of 150 feet in length shall be provided with approved provisions for the turning around of all fire apparatus.

g. All curbs designated as Fire Lanes shall be painted with reflective **YELLOW** for the entire length of the designation. On the paved road surface along the curb area for the entire length of the designated Fire Lane, **NO PARKING - FIRE LANE** shall be painted **YELLOW** with letters 12" (twelve) inches in height. **FIRE LANE - NO PARKING** markings shall be staggered with intervals between markings not exceeding 50' (fifty) linear feet.

04.3. Remote Fire Department Connection

a. Where fencing, limited access, or ATFP standoff surrounds the building site, provide a remote free standing fire department connection (FDC) outside of the Perimeter, but no more than 10' from the road. This FDC is in addition to the building mounted FDC. Both FDC's shall be located within 150' of an accessible fire hydrant, giving consideration to fences, buildings, parking and terrain features. Locate the hydrant within 20ft of the remote FDC whenever possible. Only install remote FDC's with the approval of the AHJ.

b. The remote FDC shall have an all-weather metal plate permanently attached with white reflective background displaying 4" black building numbers.

c. A remote freestanding FDC shall be placed in concrete and protected with (4) yellow non-removable bollards.

05. DOCUMENTATION AND ACCEPTANCE TEST CONDITIONS

05.1. Maintenance Plan

a. Prior to acceptance, the Contractor must furnish a recommended maintenance procedure specifically tailored to the system installed that meets present NFPA requirements to the contracting officer.

b. The maintenance procedure shall include detail on what testing is required and how to perform the required testing and maintenance on the Fire Alarm System as well as auxiliary systems that are interfaced with the fire alarm; to include Smoke Control, HVAC Control, Fire Doors, and Emergency Power.

05.2. Manufacturer's Installation Instructions:

a. Manufacturer's written installation instructions shall be followed. A copy of all installation instructions provided by the equipment manufacturers shall be available on-

site during testing and submitted to the Government as a section in the Operation and Maintenance (O&M) manuals.

b. Provide one electronic O&M copy in a searchable PDF format, in addition to required hard copies.

c. The fire alarm, fire protection systems, and all other systems connected to the fire alarm system (ex hood systems, elevators, ect) shall be completed, in-service, and in a normal status at least 14 calendar days prior to the Final Acceptance Test.
(14 day burn in).

d. All devices shall be field tested prior to the Final Acceptance Test

e. The following items must be submitted for review by the Government at least 14 calendar days prior to the Final Acceptance Test:

- A printout from the FACP showing the results of the field test.
- System Technician's certificate.
- One set of as-built drawings.
- One copy of the O&M, to include a copy of all installation instructions provided by the equipment manufacturers.
- RF Transmitter/Antenna Installation Certification.
- An updated printout of fire alarm devices, device status, and location of devices.
- A smoke detector sensitivity report.
- A Maintenance Plan.

f. The facility shall be clean and free of excessive debris, dirt, and dust. All fire alarm equipment and enclosures must be clean and free of dirt, dust, paint overspray, and unused parts and wiring.

g. All systems interconnected to the fire alarm system (i.e. elevator and HVAC) must be operational for the Final Acceptance Test.

h. If construction, painting, or cleanup continues after the Final Fire Alarm Acceptance Test the contracting officer may require a current detector sensitivity report and require any affected devices to be cleaned or replaced

06. TRAINING

06.1. Fire Alarm

a. Fire Alarm system training shall consist of two times slots on two separate days operator training onsite and a separate five-day factory technical training class for at least two Government personnel.

The technical training shall include classroom instruction as well as hands-on programming, troubleshooting, and diagnostics exercises. All expenses including transportation and room and board shall be included.

b. Operator training shall consist of two times slots on two separate days of on-site training provided by a certified installer. Hands-on training will include first responder operation and basic troubleshooting. The contractors that installed the fire alarm system, sprinkler system, elevators, special suppression systems (hood systems, FM 200 ect) and any others deemed important by the AHJ need to be present at all training sessions.

c. Operator training sessions shall be scheduled within two weeks of the final acceptance with the contracting officer in coordination with the Assistant Chief of Prevention Quantico Fire & Emergency Services, to accommodate the two fire department shifts.

MCB QUANTICO FIRE AND EMERGENCY SERVICES TURNING PERFORMANCE ANALYSIS

PART SIX – ATTACHMENTS

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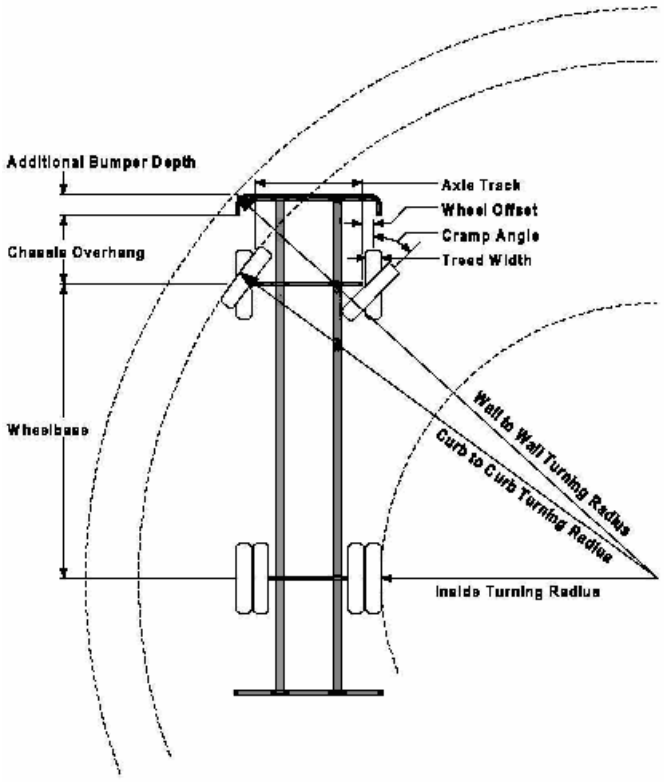
Quantico Fire & Emergency Services

Turning Performance Analysis



PARAMETERS:

INSIDE CRAMP ANGLE	33.00
AXEL TRACK	83.11IN.
WHEEL OFFSET	3.12IN.
TREAD WIDTH	12.40IN.
CHASSIS OVERHANG	65.80IN.
ADDITIONAL BUMPER DEPTH	10.00IN.
FRONT OVERHANG	75.80IN.
WHEELBASE	240.00IN.

CALCULATED TURNING RADII:

INSIDE TURN	30 FT 0 IN
CURB TO CURB	43 FT 6 IN
WALL TO WALL	46 FT 8 IN

COMMENTS

AREAL APPLICATION
TRUCK # B6841-02

Outriggers Extended

Truck 531 16 Feet

Truck 533 16 Feet

Weight/Length/Width

Truck 531 34 Tons/41 Feet/8 Feet

Truck 533 34 Tons/37.6 Feet/8 Feet

Quantico Fire & Emergency Services

Turning Performance Analysis

Definitions:

Inside Cramp Angle	Maximum turning angle of the front inside tire.
Axle Track	King-pin to king-pin distance of the front axle.
Wheel Offset	Offset from the center-line of the wheel to the king-pin.
Tread Width	Width of the tire tread
.	
Chassis Overhang	Distance from the center-line of the front axle to the front edge of the cab. This does not include the bumper depth.
Additional Bumper	Depth Depth that the bumper assembly adds to the front overhang.
Wheelbase	Distance between the center lines of the vehicle's front and rear axles.
Inside Turning Radius	Radius of the smallest circle around which the vehicle can turn.
Curb to Curb	Turning Radius Radius of the smallest circle inside of which the vehicle's tires can turn. This measurement assumes a curb height of 9 inches
Wall to Wall Turning Radius	Radius of the smallest circle inside of which the entire vehicle can turn. This . measurement takes into account any front overhang due to the chassis, bumper extensions and/or aerial devices.

MCB QUANTICO CONSTRUCTION WASTE MANAGEMENT REPORT

PART SIX – ATTACHMENTS

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NREA Rcvd:_____
FY Reporting Period:_____

Construction Waste Management Report
Quantico Marine Corps Base

Report Date: _____
Project Number: _____Project Name: _____
Contract Number: _____Contract Task Order/Delivery Order: _____
Reporting Period: _____ to _____

RETURN THIS FORM TO FAX (703) 784-4953 ATTN: _____

Comments: _____
_____

Waste Stream	Disposal (Tons)	Disposal Cost	Recycled (Tons)	Recycled Cost	Recycled Revenues
C&D		$		$	$

CONSTRUCTION & DEMOLITION DEBRIS (C&D).

- Record hazardous and non-hazardous C&D waste as one entry. Enter total tons of C&D disposed of in a landfill, by incineration, and/or by hazardous waste contract.
- Enter total disposal cost for C&D.
- Enter the recycled hazardous and non-hazardous C&D tons as one entry under the recycling column. You can also claim C&D diversion conducted by a construction contractor or MILCON project. If you have recycled C&D, it is likely that some was disposed of as well. Therefore, if there are recycled tons of C&D there should be some disposed tons of C&D.
- Enter the cost associated with recycling. Recycling costs include handling, processing, transportation, and other costs associated with recycling C&D. Soils that are used at another location or that are reclaimed count toward recycling.
- Enter Recycling Revenues. Enter only actual revenues received from recycling. Do not enter cost avoidance for recycling revenues.

Reported by:
Company: _____Contact: _____
Address: _____Title: _____
_____E-mail address: _____
Telephone: _____
Fax: _____

Definitions:

Construction and Demolition (C&D) Debris. Waste derived from the construction, renovation, demolition or deconstruction of residential and commercial buildings and their infrastructure. C&D waste typically includes concrete, wood, metals, gypsum wallboard, asphalt, and roofing material.

Other Select Waste (OSW). Construction and demolition debris are the "Other Select Waste" categories for purposes of DoD metric reporting via SW module. If the Other Select Wastes are hazardous they must also be reported in the calendar year HW module.

NAVFAC SUSTAINABILITY AND ENERGY DATA CARD

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NAVFAC SUSTAINABILITY AND ENERGY DATA --- *NEW CONSTRUCTION & MAJOR RENOVATION*

PROJECT INFORMATION

Work Order No.: _____ FY _____ MILCON P No. / Customer Reference No.: _____
Project Title: _____
Location/UIC: _____
NAVFAC Project Manager: _____ Project Dollar Amount $: _____
Project Type: _____ Project Design Level: _____
Facility Area: _____ U/M: _____ Category Code: _____ Facility #: _____
AE Contract # & T.O. _____ AE Firm Sustainability Coordinator: _____
AE Firm Name: _____
Project Phase: ☐ Solicitation Documents Complete (Draft) ☐ Construction Complete (Final)
Construction Contract & T.O. _____ Award Date (P/A): _____ BOD (P/A): _____
Construction Contractor: _____
Contractor's Sustainability Coordinator: _____

SUSTAINABILITY DATA - GUIDING PRINCIPLES for SUSTAINABLE NEW CONSTRUCTION and MAJOR RENOVATION

Use this form to collect design and as-constructed project information to be recorded on the Sustainable and Energy Tab in eProjects

Provide justification for each target missed:

Sustainability Third Party Rating System: ☐ USGBC LEED ☐ GBI Green Globes ☐ Not Applicable ☐ Other

A Sustainability Certification Level - Target
☐ LEED Silver ☐ 2 Globes ☐ Other

Identify "Other" certification system and target level

B Sustainability Certification Level - Achieved
☐ LEED Certified ☐ LEED Silver ☐ LEED Gold ☐ LEED Platinum ☐ Not Met
☐ 1 Globe ☐ 2 Globes ☐ 3 Globes ☐ 4 Globes ☐ Other

Identify "Other" certification system and level achieved

I. Employ Integrated Design Principles
I.a Integrated Assessment, Operation, and Management ☐ Included ☐ Not Included
I.b Commissioning (Select one)
☐ Commissioning ☐ No Commissioning

Systems Commissioned:

II. Optimize Energy Performance
II.a Energy Efficiency
i Energy Reduction 30% target _____
ii Efficiency Standard
☐ 90.1 - 2004 ☐ 90.1 - 2007 ☐ 90.1 - 2010
a. Total Design Energy Use Intensity (EUI): kBTU/Sq Ft/Year
iii New Technology: Provide description

II.b On-Site Renewable Energy
i. Solar Hot Water 30% target _____
ii. Renewable energy technology types (select all that apply)
☐ Daylighting ☐ Ground Source Heat Pumps ☐ Solar Photovoltaic
☐ Geothermal ☐ Mechanical (i.e., direct water pumping) ☐ Solar Thermal -domestic hot water
☐ Wind ☐ Solar Thermal -space conditioning
iii. Sustainable Roof Attribute (Select all that apply)
☐ Cool - white ☐ Cool - reflective ☐ Solar PV ☐ Solar Thermal ☐ Vegetated
II.c Building-level Metering (Measurement) ☐ Included ☐ Not Included

III. Protect and Conserve Water
III.a Indoor Water
i Reduce potable water _____
ii Building-level Metering (Measurement) ☐ Included ☐ Not Included
a. Total Design Indoor Water Use Intensity (WUI): Gallons/Sq Ft/Year _____

III.b Outdoor Water
i Reduce landscape water ☐ 50% below conventional ☐ 100% ☐ Not Met

IV. Enhance Indoor Environmental Quality
IV.a Ventilation and Thermal Comfort
i Thermal Environmental Conditions ☐ Met ☐ Not Met
ii Ventilation ☐ Met ☐ Not Met
IV.b Moisture Control Plan ☐ Included ☐ Not Included
IV.c Daylighting
i Minimum Daylight ☐ Met ☐ Not Met
ii Automatic dimming controls ☐ Included ☐ Not Included
IV.d Low-Emitting Materials ☐ Met ☐ Not Met

NAVFAC SUSTAINABILITY AND ENERGY DATA --- *NEW CONSTRUCTION & MAJOR RENOVATION*

IV.e Protect Indoor Air Quality during Construction ☐ Met ☐ Not Met

V. Reduce Environmental Impact of Materials

V.a Recycled Content: www.epa/gov/cpg ☐ Met ☐ Not Met

V.b Biobased Products ☐ Met ☐ Not Met

V.c Waste and Materials Management

i. Waste Diversion (50% targett) 0%

ii. Waste Management ☐ Included ☐ Not Included

V.d Ozone Depleting Compounds ☐ Met ☐ Not Met

To maintain prior project sustainability information, print and upload a copy of the completed worksheet to the Notes tab as Design & Criteria note BEFORE updating the tab.

GUIDANCE ON CALCULATION FOR EUI & WUI

1 The EUI must be calculated as the total Design Energy Consumption per year (including savings from renewables) divided by the total Building Area (including unconditioned indoor space).

a. The total Design Energy Consumption can be found in the Energy Cost Budget (ECB) Compliance Report. The Design Energy Consumption is in the Energy Summary by End Use Table at the bottom of page 2 of the ECB Report. The value is listed as Total Including Solar for the Proposed Building. It is the first field on the bottom row. (Units in the ECB Report are 10^6 Btu/yr, so multiply by 1000 to yield kBtu/yr

b. The total Building Area (including unconditioned indoor spaces) can be found in the Energy Cost Budget (ECB) Compliance Report in the Space Summary Table on page 1 of the ECB Report. The value is listed as Total (area) including Conditioned area and Unconditioned area. Insure the units are in square feet

2 The WUI must be calculated as the total Design Indoor Potable Water Consumption per year divided by the total Building Area (including unconditioned space).

a. The total Design Water Consumption can be found in the LEED WE P1 water consumption calculation *or* Green Globes 3.4.1.1 Water Consumption calculation. The value is the Design Case – Annual Potable Water Consumption. It is listed in units of Gallons/year

b. The total Building Area (including unconditioned spaces) can be found in the Energy Cost Budget (ECB) Compliance Report in the Space Summary Table on page 1 of the ECB Report. The value is listed as Total (area) including Conditioned area and Unconditioned area. Insure the units are in square feet

NAVFAC SUSTAINABILITY AND ENERGY DATA -- *RENOVATIONS >$2.5M &<50% PRV; OR ENERGY*

PROJECT INFORMATION

Work Order No.: _____ Budget FY _____ Customer Reference No.: _____
Project Title: _____
Location/UIC: _____
NAVFAC Project Manager: _____ Estimated Cost/PA: _____
Project Type: _____ Project Design Level: _____
Facility Area: _____ U/M: _____ Category Code: _____ Facility #: _____
AE Contract # & T.O. _____ AE Firm Sustainability Coordinator: _____
AE Firm Name: _____
Project Phase: ☐ Solicitation Documents Complete (Draft) ☐ Construction Complete (Final)
Construction Contract & T.O. _____ Award Date (P/A): _____ BOD (P/A): _____
Construction Contractor: _____
Contractor's Sustainability Coordinator: _____

SUSTAINABILITY DATA - GUIDING PRINCIPLES for SUSTAINABLE EXISTING BUILDINGS

Use this form to collect design and as-constructed project information to be recorded on the Sustainable and Energy Tab in eProjects.

Provide justification for each target missed:

I. Employ Integrated Assessment, Operation, and Management Principles
- I.a Integrated Assessment, Operation, and Management ☐ Included ☐ Not Included
- I.b Commissioning (Select one)
  - ☐ Commissioning ☐ No Commissioning
  - ☐ Re-Commissioning ☐ Retro-Commissioning

Systems Commissioned

II. Optimize Energy Performance
- II.a Energy Efficiency
  - i Energy Reduction Below Baseline (20% target) _____ %
  - ii Efficiency Standard (Select one)
    - ☐ Energy Star 75 or higher ☐ Building Baseline 2003
    - ☐ ASHRAE 90.1-2007 ☐ ASHRAE 90.1-2010
  - a. Total Design Energy Use Intensity (**EUI**): kBTU/Sq Ft/Year
  - iii New Technology: Provide description
- II.b On-Site Renewable Energy
  - i. Solar Hot Water Demand (30% target)
  - ii. Renewable energy technology types (Select all that apply)
    - ☐ Daylighting ☐ Ground Source Heat Pumps ☐ Solar Photovoltaic
    - ☐ Geothermal ☐ Mechanical (i.e., direct water pumping) ☐ Solar Thermal -domestic hot water
    - ☐ Wind ☐ Solar Thermal -space conditioning
  - iii. Sustainable Roof Attribute (Select all that apply)
    - ☐ Cool - white ☐ Cool - reflective ☐ Solar PV ☐ Solar Thermal ☐ Vegetated
- II.c Building-level Metering (Measurement) ☐ Included ☐ Not Included

III. Protect and Conserve Water
- III.a Reduce Indoor Water
  - i Choose Option (Select one)
    - ☐ 20% below IPC or IBC ☐ 20% below bldg baseline 2003
  - ii Reduce potable water (percent) _____ %
  - ii Building-level Metering (Measurement) ☐ Included ☐ Not Included
  - a. Total Design Indoor Water Use Intensity (**WUI**): Gallons/Sq Ft/Year
- III.b Reduce landscape water (Select one) ☐ 50% below conventional ☐ 50% below building baseline 2003 ☐ 100%

IV. Enhance Indoor Environmental Quality
- IV.a Ventilation and Thermal Comfort
  - i Thermal Environmental Conditions ☐ Met ☐ Not Met
  - ii Ventilation ☐ Met ☐ Not Met
- IV.b Moisture Control Plan ☐ Included ☐ Not Included
- IV.c Daylighting and Lighting Controls
  - i Daylighting and lighting controls (Select one) ☐ 2% in 50% of occupied spaces ☐ Not Met
    ☐ 50% occupant control
  - ii Automatic lighting controls ☐ Included ☐ Not Included
- IV.d Low-Emitting Materials ☐ Met ☐ Not Met
- IV.e Protect Indoor Air Quality during Construction ☐ Met ☐ Not Met

V. Reduce Environmental Impact of Materials
- V.a Recycled Content: www.epa/gov/cpg ☐ Met ☐ Not Met
- V.b Biobased Products ☐ Met ☐ Not Met
- V.c Waste and Materials Management
  - i Waste Diversion - 50% target 0% %
  - ii Waste Management ☐ Included ☐ Not Included
- V.d Ozone Depleting Compounds ☐ Met ☐ Not Met

To maintain prior project sustainability information, print and upload a copy of the completed worksheet to the Notes tab as Design & Criteria note BEFORE updating the tab.

GUIDANCE ON CALCULATION FOR EUI & WUI

1 The **EUI** must be calculated as the total Design Energy Consumption per year (including savings from renewables) divided by the total Building Area (including unconditioned indoor space).

a. The total Design Energy Consumption can be found in the Energy Cost Budget (ECB) Compliance Report. The Design Energy Consumption is in the Energy Summary by End Use Table at the bottom of page 2 of the ECB Report. The value is listed as Total Including Solar for the Proposed Building. It is the first field on the bottom row. (Units in the ECB Report are 10^6 Btu/yr, so multiply by 1000 to yield kBtu/yr

b. The total Building Area (including unconditioned indoor spaces) can be found in the Energy Cost Budget (ECB) Compliance Report in the Space Summary Table on page 1 of the ECB Report. The value is listed as Total (area) including Conditioned area and Unconditioned area. Insure the units are in square feet

2 The **WUI** must be calculated as the total Design Indoor Potable Water Consumption per year divided by the total Building Area (including unconditioned space).

a. The total Design Water Consumption can be found in the LEED WE P1 water consumption calculation *or* Green Globes 3.4.1.1 Water Consumption calculation. The value is the Design Case – Annual Potable Water Consumption. It is listed in units of Gallons/year

b. The total Building Area (including unconditioned spaces) can be found in the Energy Cost Budget (ECB) Compliance Report in the Space Summary Table on page 1 of the ECB Report. The value is listed as Total (area) including Conditioned area and Unconditioned area. Insure the units are in square feet

PERMITS RECORD OF DECISION (PROD_Form.doc)

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PERMITS RECORD OF DECISION (PROD*)*

PERMIT REQUIRED (Check Box)	PROJECT TITLE:		WORK ORDER NUMBER:
	LOCATION:		
	GOVERNMENT PROJECT MANAGER:		
**Use referenced notes where additional space required.			
Air Quality	**PERMIT: Construction**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Air Quality	**PERMIT: Operating**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Air Quality	**PERMIT: Asbestos Demolition & Removal**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Air Quality	**PERMIT: Other**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		

PERMITS RECORD OF DECISION (PROD*)*

PERMIT REQUIRED (Check Box)	PROJECT TITLE:		WORK ORDER NUMBER:
	LOCATION:		
	GOVERNMENT PROJECT MANAGER:		
Water Pollution	**PERMIT: Wastewater Collection System**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Water Pollution	**PERMIT: Wastewater Pump Station**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency		
	Special Provisions and Requirements:		
Water Pollution	**PERMIT: Wastewater Treatment Plant**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Water Pollution	**PERMIT: Pretreatment, i.e. Oil/Water Separator**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		

PERMITS RECORD OF DECISION (PROD*)*

PERMIT REQUIRED (Check Box)	PROJECT TITLE:	WORK ORDER NUMBER:
	LOCATION:	
	GOVERNMENT PROJECT MANAGER:	
Water Pollution	**PERMIT: Septic System** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	
Water Pollution	**PERMIT: Erosion & Sediment Control** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	
Water Pollution	**PERMIT: Stormwater Management** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	
Water Pollution	**PERMIT: Other** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	

PERMITS RECORD OF DECISION (PROD*)*

PERMIT REQUIRED (Check Box)	PROJECT TITLE:	WORK ORDER NUMBER:
	LOCATION:	
	GOVERNMENT PROJECT MANAGER:	
Discharge Permit	**PERMIT: New or Increased Capacity NPDES** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	
Discharge Permit	**PERMIT: General NPDES (≥1 Acre Land Disturbance)** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	
Discharge Permit	**PERMIT: Other** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	
Drinking Water	**PERMIT: Water Distribution System** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	

PERMITS RECORD OF DECISION (PROD*)*

PERMIT REQUIRED (Check Box)	PROJECT TITLE:		WORK ORDER NUMBER:
	LOCATION:		
	GOVERNMENT PROJECT MANAGER:		
Drinking Water	**PERMIT: Water Treatment Plant**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Drinking Water	**PERMIT: Well Construction**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Drinking Water	**PERMIT: Underground Injection**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Drinking Water	**PERMIT: Other**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		

PERMITS RECORD OF DECISION (PROD*)*

PERMIT REQUIRED (Check Box)	PROJECT TITLE:	WORK ORDER NUMBER:
	LOCATION:	
	GOVERNMENT PROJECT MANAGER:	
Fuel Tanks	**PERMIT: Underground Storage Tank Construction** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	
Fuel Tanks	**PERMIT: Underground Storage Tank Operating**	
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	
Fuel Tanks	**PERMIT: Other** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions, and Requirements:	
Solid and Hazardous Waste	**PERMIT: Hazardous Waste Treatment, Storage, Disposal, Handling** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	

PERMITS RECORD OF DECISION (PROD*)*

PERMIT REQUIRED (Check Box)	PROJECT TITLE:	WORK ORDER NUMBER:
	LOCATION:	
	GOVERNMENT PROJECT MANAGER:	
Solid and Hazardous Waste	**PERMIT: Landfill** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	
Solid and Hazardous Waste	**PERMIT: Used Oil Collection Center, Aggregation Point, Transporter & Transfer Facility** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	
Solid and Hazardous Waste	**PERMIT: Other** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	
Coastal Management Permit	**PERMIT: Coastal Consistency Determination Authorization** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	

PERMITS RECORD OF DECISION (PROD*)*

PERMIT REQUIRED (Check Box)			
	PROJECT TITLE:		**WORK ORDER NUMBER:**
	LOCATION:		
	GOVERNMENT PROJECT MANAGER:		
Coastal Management Permit	**PERMIT: Coastal Barrier**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Coastal Management Permit	**PERMIT: Floodplain Management**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Coastal Management Permit	**PERMIT: Other**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Other Permits	**PERMIT: Work in Navigable Waters**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		

PERMITS RECORD OF DECISION (PROD*)*

PERMIT REQUIRED (Check Box)	PROJECT TITLE:		WORK ORDER NUMBER:
	LOCATION:		
	GOVERNMENT PROJECT MANAGER:		
Other Permits	**PERMIT: Dredging**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Other Permits	**PERMIT: Clearing**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Other Permits	**PERMIT: Essential Fish Habitat Assessment Consultation**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Other Permits	**PERMIT: Marine Mammal Protection Act**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		

PERMITS RECORD OF DECISION (PROD*)*

PERMIT REQUIRED (Check Box)	PROJECT TITLE:	WORK ORDER NUMBER:
	LOCATION:	
	GOVERNMENT PROJECT MANAGER:	
Other Permits	**PERMIT: Take Permits** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	
Other Permits	**PERMIT: Work in Wetlands** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	
Other Permits	**PERMIT: Digging Permit** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	
Other Permits	**PERMIT: Traffic** Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**	
	Issuing Agency:	
	Special Provisions and Requirements:**	

PERMITS RECORD OF DECISION (PROD*)*

PERMIT REQUIRED (Check Box)	PROJECT TITLE:		WORK ORDER NUMBER:
	LOCATION:		
	GOVERNMENT PROJECT MANAGER:		
Other Permits	**PERMIT: Airport Hazard/Airfield Safety Clearances**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Other Permits	**PERMIT: Railroad Crossing**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Other Permits	**PERMIT: Historic Preservation**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Other Permits	**PERMIT: Noise Abatement**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		

PERMITS RECORD OF DECISION (PROD*)*

PERMIT REQUIRED (Check Box)			
	PROJECT TITLE:		**WORK ORDER NUMBER:**
	LOCATION:		
	GOVERNMENT PROJECT MANAGER:		
Other Permits	**PERMIT: Endangered/Species/Critical Habitat**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		
Other Permits	**PERMIT: Other**	Date Obtained:	Date Closed:
☐	Basis of Decision (Yes/No):**		
	Issuing Agency:		
	Special Provisions and Requirements:**		

_____ _____

Prepared by: *Date*

CUT SHEET: WASHER/DRYER

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Speed Queen®

Commercial Homestyle

Stack Washer/Dryers

LTSA7 Stainless Steel Washtub and Galvanized Cylinder Electric Dryer

LTSA9 Stainless Steel Washtub and Galvanized Cylinder Gas Dryer

Commercial Built to Last Longer

Commercial Quality

Built tough to stay that way. The No. 1 supplier of commercial coin-operated laundry equipment, Speed Queen continues to lead in customer satisfaction. Speed Queen homestyle washers and dryers feature many of the same rugged, reliable parts found in the coin-operated machines, so they're built to last.

Ultra, High-Efficient Automatic Washer

- ENERGY STAR® qualified.
- U.S. Department of Energy compliant to 2007 commercial washer standards for energy savings.

Horizon Quality Features

- The "Big Load Door" opening of 188.6 square inches.

- See-through door convenience with 180° swing for easy loading and unloading. The hinge is a robust 10" steel piano style to maintain door alignment.
- Frontmount supply dispenser automatically adds detergent, bleach and softener.
- The stainless steel washtub has 4,912 perforated holes with three full length baffles to maximize mechanical wash action for cleaner clothes.
- High speed extract of 1,000 RPM exerts 305 G-Force to maximize moisture removal from clothes.
- All drive components (pulley, trunion, tub shaft and bearings) are manufactured with rugged steel construction.
- Heavy-duty 3/4 HP drive motor with reversing wash action.
- Freestanding design features four large automotive size shocks so the washer can be installed on most floor types or levels.

Superior Drying Convenience

- A wide door opening of 2.06 sq. ft. is the industry's largest, offering residents the convenience of easy loading and unloading.

Drying and Energy Dynamics

- Durable galvanized steel cylinder with extra-large 18 lb capacity. The gentle tumble action minimizes wrinkles.
- Quiet, efficient blower system with superior airflow of 220 cu. ft. per minute for fast drying and lower operating costs.
- Efficient dryer heating with 22,500 Btu (gas models) and 5,350 Watts (electric models).

Washer/Dryer Specifications

	Electric: LTSA7 Gas: LTSA9
Basket/Cylinder Volume - cu. ft. (liters)	2.84 (80)/7.0 (198)
Width - in (mm)	26 7/8" (683)
Depth - in (mm)	28" (711)
Height* - in (mm)	75" (1911)
Weight - lb (kg)	Electric: 360 (163) Gas: 365 (166)
Shipping Weight - lb (kg)	Electric: 390 (177) Gas: 395 (179)
Cycle Time - minutes	28-31/45
Motor HP	3/4 HP, 750 W 1/3 HP, 5.5 amps
Water Consumption - gal. per cycle	13.9
Water Factor - gal. per cu. ft.	4.9
Modified Energy Factor	2.04
Hot Water Usage - gal. per cycle	1.74
Water Pressure - psi (bar)	Pressure fill - 20 to 120 (1.4/8.3)
Spin Speed - RPM	500, 650, 1000
Wash Cycles	Regular Permanent Press Delicate Rinse and Spin Spin Only
Dryer Temperatures	Regular/Permanent Press Delicate No Heat
Electrical Specifications	Electric: 120/240/60/1-30 amp 120/208/60/1-30 amp Gas: 120/60/1-15 amp
Motor - RPM	60 Hz: 1725
Btu per Hour	22,500 (5760 kcal)
Heating Element	5350 W, 240 V 4750 W, 208 V
Type of Gas (Gas Models Only)	Factory-equipped natural/mixed gas. Convertible to LP gas. **
Utility Connections - in (mm)	Gas: 3/8" NPT (9.5)
Air Outlet Diameter - in (mm)	4" (102)
Exhaust Airflow* ** - cfm (liters/sec.)	220 (105)
Maximum Exhaust Static Back Pressure	0.6" W.C.
Agency Approval	Washer: UL Electric Dryer: UL Gas Dryer: CSA Star
Activation	Push-to-Start
Colors	White
Door Type	Window

* Heights may vary slightly depending on leveling adjustments.

** IMPORTANT: Any product revisions or conversions must be made by the Manufacturer's Authorized Dealers, Distributors, or local service personnel.

*** Measured at point of exit from dryer.

Also available in 50 Hz. Features and certifications may vary by model.

Motor: 3/4 HP reversing, permanently lubricated. Electrical Requirements: Grounded 3-wire, 120V, 60 Hz AC, 15 amp circuit separately fused.

Due to continuous product improvements, design and specifications subject to change without notice. The quality management systems at Alliance Laundry Systems manufacturing facilities are registered as ISO 9001:2000 compliant. Features and certifications may vary by model.

Speed Queen® Alliance Laundry Systems

Speed Queen®

Multi-Housing

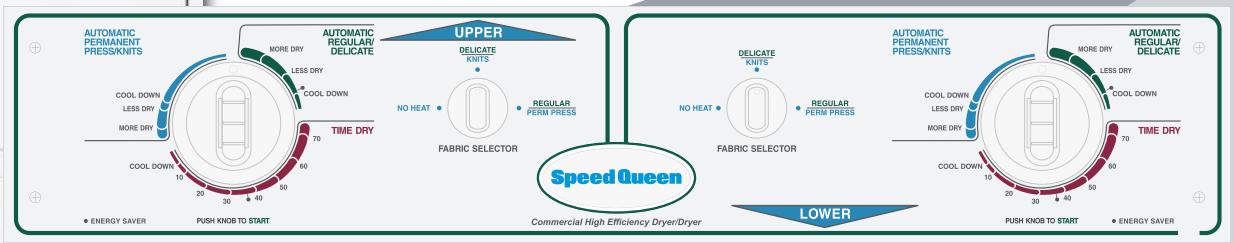
Manual Control

KES17 (elec)
KGS17 (gas)

Commercial Heavy Duty Stack Dryer

Description

- Multi-cycle timer with push-to-start activation
- Five cycles
  - Automatic Regular / Delicate
  - Automatic Permanent Press
  - Time
- Three temperatures
  Delicate / Knits
  No Heat
  Regular/Perm Press
- 1/3 HP motor; 120/60/1 - 15 amp
- Two separate controls allow two dryers in the space of one to operate independently
- Control graphic arrows indicate upper and lower dryer



Features & Benefits

- Extra large 7.0 cu. ft., 18 lb. capacity galvanized steel cylinder.
- Wide door opening of 2.06 sq. ft. is the industry largest, offering residents easy loading and unloading.
- 100% serviceable from the front.
- Door is reversible for installation flexibility.

- Efficient dryer heating.
  - 22,500 BTU (gas) 6,300 kcal/hr
  - 5,350 W 240 V (elec)
    Also 4,750 W 208 V
- High efficiency exhaust blower with superior airflow of 220 cfm.
- Up-front lint filter is easy to clean and secured.
- Space-saving narrow cabinet (26-7/8 wide).

Commercial Built to Last Longer

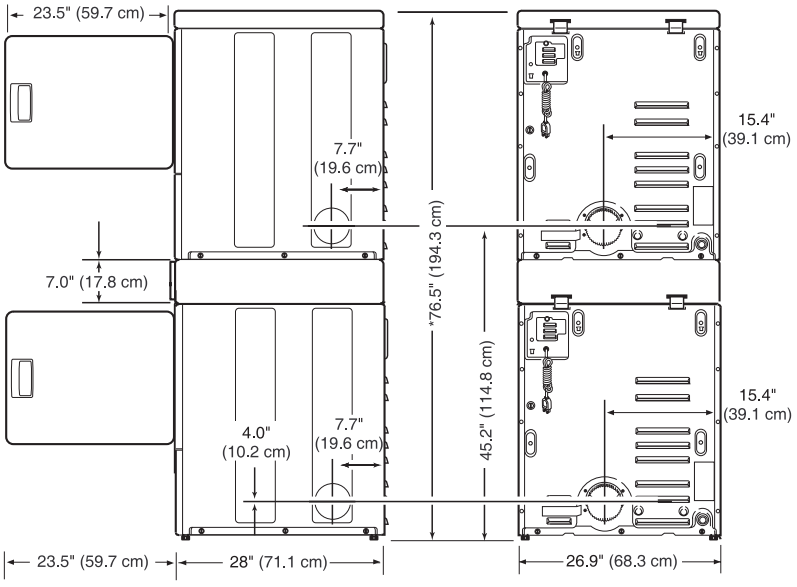
Specifications

Model	KES17 (elec) KGS17 (gas)
Width - in. (mm)	26 7/8" (683)
Depth - in. (mm)	28" (711)
Height - in. (mm)	76 5/8" (1,946)
Cylinder Volume (capacity) - cu. ft. (liters)	7.0 (198)
BTU	Gas: 22,500; 5,760 kcal
Heating Element	5,350 W 240 V (also 4,750 W 208 V)
Type of Gas (gas models only)	Factory-equipped Natural / Mixed Gas Convertible To LP Gas+
Utility Connections - in. (mm)	3/8" NPT (9.5)
Air Outlet Diameter - in. (mm)	4" (102)
Exhaust Airflow - (liters/sec)	220 (105 liters/sec)
Maximum Exhaust Static Back Pressure	0.6" W.C.
Electrical Specifications Circuit Requirements	Gas 120/60/1 - 15 amp Elec 120/240/60/1 - 30 amp 120/208/60/1 - 30 amp
Colors	White
Net Weight - lbs. (kg)	Gas 250 (113) Elec 240 (109)
Shipping Weight - lbs. (kg)	Gas 265 (120) Elec 255 (115)
Approvals	Gas CSA Star Elec Underwriters Laboratories

Due to continuous product improvements, design and specifications subject to change without notice. The quality management systems at all Alliance Laundry Systems facilities have been awarded ISO 9001 certification. Features and certifications may vary by model.

At Speed Queen, we're confident that our heavy duty commercial washers and dryers are built better to last longer, that we're offering the following limited warranty to prove it. (+Parts only. Labor not included. See Speed Queen Warranty Bond for specifics.)

- **Through three years+**
  a. Any part of the washer, single and stack dryer or stack washer/dryer.
- **Through five years+**
  a. Top load washer transmission assembly.
  b. Base and cabinet assembly including top, lid and door, against rust from inside out.
- **Life of product+**
  a. Stainless steel wash tub (top load washer) or stainless steel inner cylinder (front load washer).



Speed Queen®
Alliance Laundry Systems

DEPARTMENT OF STATE POST 1, 2, AND DOOR STANDARDS

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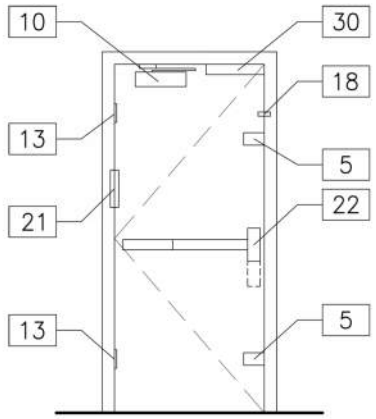
SHW-1—Forced Entry Remote Access Control Door

Old: SHW-1

Application	This hardware set is used at hardlines where there is a guard or an MSG to control the door. Sometimes this door is used for remote access in a hardline. For use in exterior main entrance door applications where the latch may be unlocked during normal operating hours, see SHW-5A.
Additional Information	Entry doors should incorporate forced entry glazings to facilitate access control to the building, as well as prevent pedestrian accidents. Forced entry glazings are not fire rated so carefully review fire egress requirements before specifying this door.
Functions	Remote Access, Lobby, Fire, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
22	1 ea.	Panic Exit Device	Von Duprin	EL98NL x 990NL-R x 299 strike-32D	
22	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
30	1 ea.	Electromagnetic Locking Device	Dynalock	2268-10 x DYNST x 24V	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	1

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany

Approved Substitutions

Use:	Item 39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS
Note:	Use item 39 in lieu of item 30 when there is not enough room at the head for the closer and item 30 electromagnetic lock.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

Use-specific Modifications

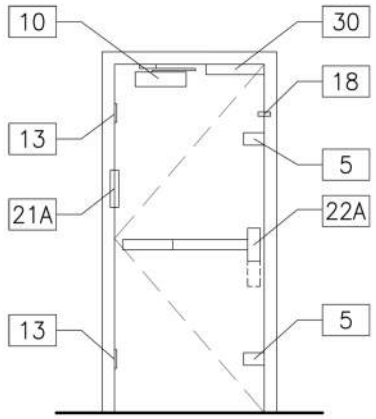
A.) For labeled fire doors:

Delete:	Item 22	1 ea.	Panic Exit Device	Von Duprin	EL98NL x 990NL-R x 299 strike-32D
Add:	Item 37	1 ea.	Panic Exit Device	Von Duprin	EL98NL-F x 990NL-R x 299F strike-32D

SHW-1A—Forced Entry Automated Access Control Door

Old: SHW-1A

Application	This Hardware set is most often used at building exterior and hardline entrances where direct guard supervision is not present. Use of this hardware is not permitted as a general application, and is usually only specified for annexes or large facilities where direct control by a guard is not feasible.
Additional Information	The Electromagnetic Locking Device is always on until disengaged by a remote guard, a local DOS approved access control device, or the fire alarm system. This also requires a DOS approved Automated Access Control device.
Functions	Remote Access, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
22A	1 ea.	Panic Exit Device	Von Duprin	RXEL98NL-F x 990NL-R x 299F strike-32D	
22A	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
30	1 ea.	Electromagnetic Locking Device	Dynalock	2268-10 x DYNST x 24V	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
21A	1 ea.	Electric Power Transfer	Von Duprin	EPT-10 x SP28	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	1
a	1 set	Weather Stripping	Pemko	332CR	2
b	1 ea.	Sill Sweep	Pemko	315CN	2

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 2: At exterior door.

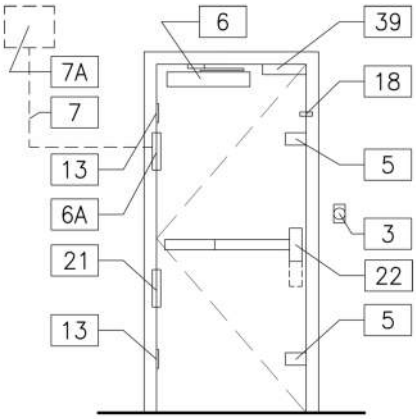
Approved Substitutions

Use:	Item 39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS
Note:	Use item 39 in lieu of item 30 when there is not enough room at the head for the closer and item 30 electromagnetic lock.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-1B—Forced Entry Remote Access Control Door / ADA Accessible

Old: SHW-1 ufas

Application	This hardware set is used at hardline where there is a guard or an MSG to control the door. Sometimes this door is used for remote access in a hardline. For use in exterior main entrance door applications where the latch may be unlocked during normal operating hours, see SHW-5A.
Additional Information	This hardware complies with the ADA and ABA Accessibility Guidelines for Buildings and Facilities, Parts II and III, the Access Board, July 23, 2004. Entry doors should incorporate forced entry glazings to facilitate access control to the building, as well as prevent pedestrian accidents. Forced entry glazings are not fire rated so carefully review fire egress requirements before specifying this door. The accessibility wall switches act as a call button on the attack side of the door and also allows exiting from the protected side but can be overridden by the guard or an MSG.
Functions	Accessible, Lobby, Remote Access, Forced Entry, Exterior



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
22	1 ea.	Panic Exit Device	Von Duprin	EL98NL x 990NL-R x 299 strike-32D	
22	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS	
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
6	1 ea.	Pneumatic Auto-Equalizer	LCN	4840	
6	1 ea.	Cover	LCN	4840-72MC	
6	1 ea.	Stop	LCN	4840-3077CNS Cush-N-Stop	
6A	1 ea.	Pneumatic Transfer Hinge	LCN	4840-460	
7		Pneumatic Tubing	LCN	7910-925	2
7A	1 ea.	Door Control Package	LCN	7981 ES	1
3	2 ea.	Wall Mounted Switches	Locknetics	625-BL-H-DP-626	3
18	1 ea.	Magnetic Switch	GE Security	1076D-G	4
a	1 set	Weather Stripping	Pemko	332CR	5
b	1 ea.	Sill Sweep	Pemko	315CN	5

Note 1: The LCN door control package with compressor and pneumatic tubing from the transfer hinge to the control box, compressor, and actuator buttons will be by provided by the government on government installations. The general contractor is to provide them on non-government installations. General contractor to provide a step down transformer for the LCN compressor in all cases. The 7981 ES door control package includes the following: 293G exhaust muffler, 900 power supply, 903 timer module, 3299A solenoid valve assembly, 3390A ES relay assembly, 3960 compressor assembly plus an AES 941-R relay module per the TSS installation manual.

Note 2: Connect tubing between auto-equalizer and transfer hinge. Leave 300 mm of tubing attached to the double ended barbed fitting in the frame for future connection by the technical security installation team.

Note 3: The accessibility wall switches are to be wired to operate only after access is granted by the guard on the ingress or attack side.

Note 4: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 5: At exterior doors.

Approved Substitutions

Use:	Item 3A	2 ea.	Pole/Bollard Mounted Switches	MS Sedco	608
Note:	Use item 3A in lieu of item 3 where conditions require.				

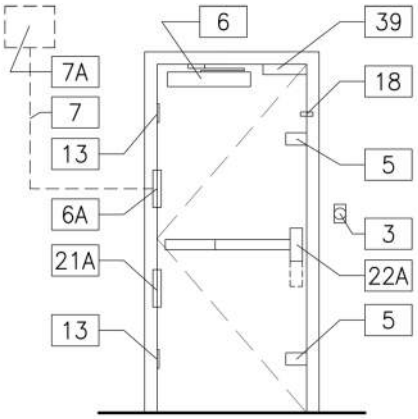
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D

Note: Item d may be substituted for item a at exterior doors.

SHW-1C—Forced Entry Automated Access Control Door / ADA Accessible

Old: SHW-1A ufas

Application	This hardware set is used at hardline where there is a guard or an MSG to control the door. Sometimes this door is used for remote access in a hardline. For use in exterior main entrance door applications where the latch may be unlocked during normal operating hours, see SHW-5A.
Additional Information	This hardware complies with the ADA and ABA Accessibility Guidelines for Buildings and Facilities, Parts II and III, the Access Board, July 23, 2004. Entry doors should incorporate forced entry glazings to facilitate access control to the building, as well as prevent pedestrian accidents. Forced entry glazings are not fire rated so carefully review fire egress requirements before specifying this door. The accessibility wall switches act as a call button on the attack side of the door and also allows exiting from the protected side but can be overridden by the guard or an MSG. This also requires a DOS approved Automated Access Control device.
Functions	Accessible, Lobby, Remote Access, Fire, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
22A	1 ea.	Panic Exit Device	Von Duprin	RXEL98NL-F x 990NL-R x 299F strike-32D	
22A	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS	
21A	1 ea.	Electric Power Transfer	Von Duprin	EPT-10 x SP28	
6	1 ea.	Pneumatic Auto-Equalizer	LCN	4840	
6	1 ea.	Cover	LCN	4840-72MC	
6	1 ea.	Stop	LCN	4840-3077CNS Cush-N-Stop	
6A	1 ea.	Pneumatic Transfer Hinge	LCN	4840-460	
7		Pneumatic Tubing	LCN	7910-925	2
7A	1 ea.	Door Control Package	LCN	7981 ES	1
3	2 ea.	Wall Mounted Switches	Locknetics	625-BL-H-DP-626	3
18	1 ea.	Magnetic Switch	GE Security	1076D-G	4
a	1 set	Weather Stripping	Pemko	332CR	5
b	1 ea.	Sill Sweep	Pemko	315CN	5

Note 1: The LCN door control package with compressor and pneumatic tubing from the transfer hinge to the control box, compressor, and actuator buttons will be by provided by the government on government installations. The general contractor is to provide them on non-government installations. General contractor to provide a step down transformer for the LCN compressor in all cases. The 7981 ES door control package includes the following: 293G exhaust muffler, 900 power supply, 903 timer module, 3299A solenoid valve assembly, 3390A ES relay assembly, 3960 compressor assembly plus an AES 941-R relay module per the TSS installation manual.

Note 2: Connect tubing between auto-equalizer and transfer hinge. Leave 300 mm of tubing attached to the double ended barbed fitting in the frame for future connection by the technical security installation team.

Note 3: The accessibility wall switches are to be wired to operate only after access is granted by the guard on the ingress or attack side.

Note 4: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 5: At exterior doors.

Approved Substitutions

Use:	Item 3A	2 ea.	Pole/Bollard Mounted Switches	MS Sedco	608
Note:	Use item 3A in lieu of item 3 where conditions require.				

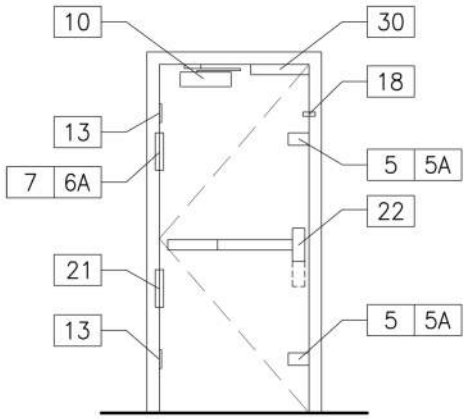
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D

Note: Item d may be substituted for item a at exterior doors.

SHW-1D—Forced Entry Remote Access Control Door

Old: SHW-1 SED Consular Lobby Mod

Application	This hardware set is used for SED applications between the consular lobby and the main chancery lobby. This door can also serve as a second egress from the consular lobby when tied into the fire alarm panel in the EC room. Consular lobby door is normally magnetic held shut during Consular operating hours.
Additional Information	This door allows access by the guard to the consular area in case of a disturbance and allows access by the staff after hours without exiting the building. A pneumatic transfer hinge is included to facilitate any future changes to operations that could require a handicap operator. This hardware can also be modified for a labeled fire exit door.
Functions	Remote Access, Lobby, Fire, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
22	1 ea.	Panic Exit Device	Von Duprin	EL98NL x 990NL-R x 299 strike-32D	
22	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
5A		Certified Forced Entry Lock with Exterior Keyed Cylinders	Medeco		
30	1 ea.	Electromagnetic Locking Device	Dynalock	2268-10 x DYNST x 24V	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
6A	1 ea.	Pneumatic Transfer Hinge	LCN	4840-460	1
7	1 ea.	Pneumatic Tubing	LCN	7910-925	2
18	1 ea.	Magnetic Switch	GE Security	1076D-G	3

Note 1: For future addition of accessibility operation.

Note 2: For future addition of accessibility operation. Install tubing between future auto-equalizer location and transfer hinge. Leave 300 mm of tubing attached to the double ended barbed fitting in the frame for future connection.

Note 3: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Approved Substitutions

Use:	Item 39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS
Note:	Use item 39 in lieu of item 30 when there is not enough room at the head for the closer and item 30 electromagnetic lock.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				

Use-specific Modifications

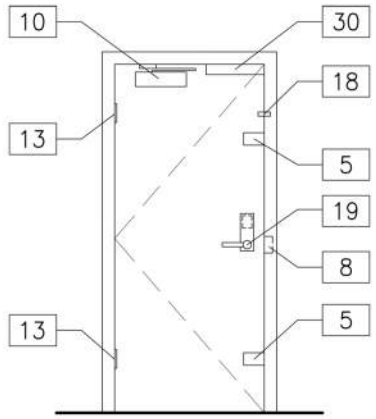
A.) For labeled fire doors:

Delete:	Item 22	1 ea.	Panic Exit Device	Von Duprin	EL98NL x 990NL-R x 299 strike-32D
Add:	Item 37	1 ea.	Panic Exit Device	Von Duprin	EL98NL-F x 990NL-R x 299F strike-32D

SHW-2—Forced Entry Local Manual and Remote Access Control Door

Old: SHW-2

Application	This hardware set is specified for hardline entrance doors at locations where there is not direct visual control by a guard or an MSG. Typically this hardware is used in applications where pedestrian access is low and the security of a Hirsch system is not required.
Additional Information	Entrance doors should have glazing, to facilitate access control over access to the building, as well as prevent pedestrian accidents. Forced entry glazings do not have a fire rating. Carefully review the fire egress requirements and options when using this door.
Functions	Remote Access, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41	
19	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
30	1 ea.	Electromagnetic Locking Device	Dynalock	2268-10 x DYNST x 24V	
8	1 ea.	Electric Strike	Folger Adam	310-2-3/4 x 24DC	1
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	2
a	1 set	Weather Stripping	Pemko	332CR	3
b	1 ea.	Sill Sweep	Pemko	315CN	3
g	3 ea.	Silencers	Ives	SR 64	4

Note 1: Strikes are non-fail safe (fail secure).

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 3: At exterior doors.

Note 4: At interior doors.

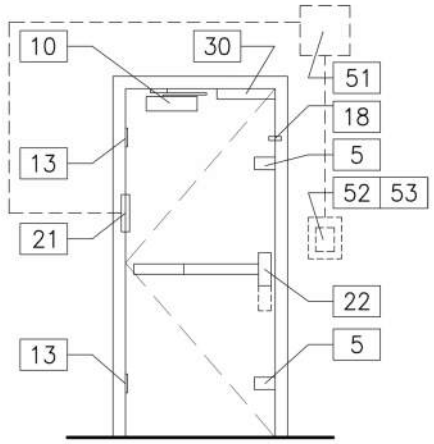
Approved Substitutions

Use:	Item 39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS
Note:	Use item 39 in lieu of item 30 when there is not enough room at the head for the closer and item 30 electromagnetic lock.				
Use:	Item 9	1 ea.	Electric Strike	Trine	EN 960 x 24DC
Note:	Use item 9 when item 8 Folger Adams does not fit.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-2A—Forced Entry Local Electric and Remote Access Control Door

Old: SHW-2A

Application	This hardware set is specified for hardline entrance doors at locations where there is not direct visual control by a guard or an MSG. This door may also be specified for exterior forced entry doors in annexes without local entrance control or for remote employee entrances to include the entry from the Multipurpose Room (MPR) to the General Work Area (GWA), and in "lock and leave" applications between the lobby and primary hardline. For ADA/ABA access, see SHW-2D.
Additional Information	Entrance doors should have glazing, to facilitate access control over access to the building, as well as prevent pedestrian accidents. Forced entry glazings do not have a fire rating. Carefully review the fire egress requirements and options when using this door. The Hirsch lock adds "exterior rated" electronic access control. Individual PIN's can be used to control access by time/date/employee status and is auditable.
Functions	Remote Access, Fire, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
22	1 ea.	Panic Exit Device	Von Duprin	EL98NL x 990NL-R x 299 strike-32D	
22	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
51	1 ea.	Digi*Trac Scramble Pad Controller	Hirsch	M1N or M1N 230	
52	1 ea.	Scramble Pad	Hirsch	DS-47L	
53	1 ea.	Mounting Box	Hirsch	MB-8	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
30	1 ea.	Electromagnetic Locking Device	Dynalock	2268-10 x DYNST x 24V	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	1
a	1 set	Weather Stripping	Pemko	332CR	2
b	1 ea.	Sill Sweep	Pemko	315CN	2
g	3 ea.	Silencers	Ives	SR 64	3

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 2: At exterior doors.

Note 3: At interior doors.

Approved Substitutions

Use:	Item 39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS
Note:	Use item 39 in lieu of item 30 when there is not enough room at the head for the closer and item 30 electromagnetic lock.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				

Use-specific Modifications

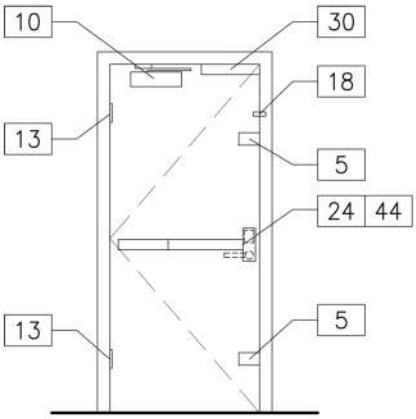
A.) For labeled fire doors:

Delete:	Item 22	1 ea.	Panic Exit Device	Von Duprin	EL98NL x 990NL-R x 299 strike-32D
Add:	Item 37	1 ea.	Panic Exit Device	Von Duprin	EL98NL-F x 990NL-R x 299F strike-32D
Add:	Item d	1 set	Smoke Gasket	Pemko	S88D

SHW-2B—Forced Entry Local Manual Access Control Door with Panic Bar

Old: SHW-2B

Application	This hardware set is specified for hardline entrance doors at locations where there is not direct visual control by a guard or an MSG and remote access is not required. Typically this hardware is used in applications where pedestrian access is low and the security of a Hirsch system and remote access is not required.
Additional Information	Entrance doors should have glazing, to facilitate access control over access to the building, as well as prevent pedestrian accidents. Forced entry glazings do not have a fire rating. Carefully review the fire egress requirements and options when using this door.
Functions	Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
24	1 ea.	Panic Exit Device	Von Duprin	98EO x 299 strike-32D	
44	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)P1021M-26D-41	
44	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
30	1 ea.	Electromagnetic Locking Device	Dynalock	2268-10 x DYNST x 24V	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	1
a	1 set	Weather Stripping	Pemko	332CR	2
b	1 ea.	Sill Sweep	Pemko	315CN	2
g	3 ea.	Silencers	Ives	SR 64	3

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 2: At exterior doors.

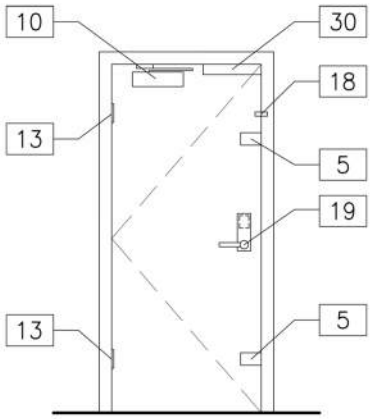
Note 3: At interior doors.

Approved Substitutions

Use:	Item 39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS
Note:	Use item 39 in lieu of item 30 when there is not enough room at the head for the closer and item 30 electromagnetic lock.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-2C—Forced Entry Local Manual Access Control Door without Panic Bar

Old: SHW-2 Mod 1



Application	This hardware set is specified for hardline entrance doors where there is not direct visual control by a guard or an MSG and manual local control by an authorized employee is allowed. Typical applications include the hardline entry in existing compounds or in very small annex. It is also used for drivers lounges and visa passback when exterior keyed FEL's are added.
Functions	Forced Entry

Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41	
19	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
30	1 ea.	Electromagnetic Locking Device	Dynalock	2268-10 x DYNST x 24V	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	1
a	1 set	Weather Stripping	Pemko	332CR	2
b	1 ea.	Sill Sweep	Pemko	315CN	2
g	3 ea.	Silencers	Ives	SR 64	3

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 2: At exterior doors.

Note 3: At interior doors.

Approved Substitutions

Use:	Item 39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS
Note:	Use item 39 in lieu of item 30 when there is not enough room at the head for the closer and item 30 electromagnetic lock.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

Use-specific Modifications

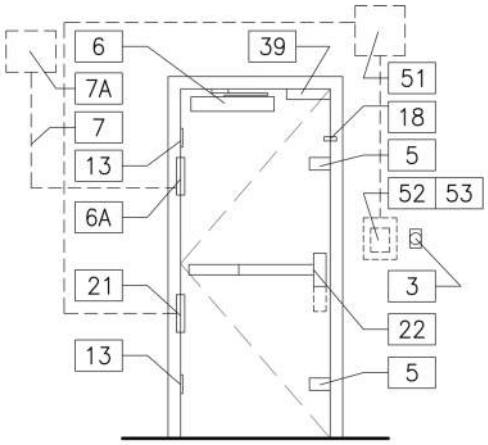
A.) For Visa Passback and Driver's Lounges:

Add:	Item 5A	Certified Forced Entry Lock with Exterior Keyed Cylinders	Medeco

SHW-2D—Forced Entry Local Electric and Remote Access Control Door / ADA Accessible

Old: SHW-2A ufas

Application	This hardware set is specified for hardline entrance doors at locations where there is not direct visual control by a guard or an MSG. This door may also be specified for exterior forced entry doors in annexes without local entrance control or for remote employee entrances to include the entry from the Multipurpose Room (MPR) to General Work Area (GWA). This hardware is the same as SHW-2A, with the addition of ADA accessible hardware.
Additional Information	This hardware complies with the ADA and ABA Accessibility Guidelines for Buildings and Facilities, Parts II and III, the Access Board, July 23, 2004. Entrance doors should have glazing, to facilitate access control over access to the building, as well as prevent pedestrian accidents. Forced entry glazings are not fire rated so carefully review fire egress requirements before specifying this door. The Hirsch lock adds "exterior rated" electronic access control. Individual PIN's can be used to control access by time/date/employee status and is auditable. The accessibility wall switches act as a call button on the attack side of the door and also allow exiting from the protected side but can be overridden by the guard or an MSG.
Functions	Accessible, Remote Access, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
22	1 ea.	Panic Exit Device	Von Duprin	EL98NL x 990NL-R x 299 strike-32D	
22	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
51	1 ea.	Digi*Trac Scramble Pad Controller	Hirsch	M1N or M1N 230	
52	1 ea.	Scramble Pad	Hirsch	DS-47L	
53	1 ea.	Mounting Box	Hirsch	MB-8	
39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS	
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
6	1 ea.	Pneumatic Auto-Equalizer	LCN	4840	
6	1 ea.	Cover	LCN	4840-72MC	
6	1 ea.	Stop	LCN	4840-3077CNS Cush-N-Stop	
6A	1 ea.	Pneumatic Transfer Hinge	LCN	4840-460	
7		Pneumatic Tubing	LCN	7910-925	2
7A	1 ea.	Door Control Package	LCN	7981 ES	1
3	2 ea.	Wall Mounted Switches	Locknetics	625-BL-H-DP-626	3
18	1 ea.	Magnetic Switch	GE Security	1076D-G	4
a	1 set	Weather Stripping	Pemko	332CR	5
b	1 ea.	Sill Sweep	Pemko	315CN	5
g	3 ea.	Silencers	Ives	SR 64	6

Note 1: The LCN door control package with compressor and pneumatic tubing from the transfer hinge to the control box, compressor, and actuator buttons will be by provided by the government on government installations. The general contractor is to provide them on non-government installations. General contractor to provide a step down transformer for the LCN compressor in all cases. The 7981 ES door control package includes the following: 293G exhaust muffler, 900 power supply, 903 timer module, 3299A solenoid valve assembly, 3390A ES relay assembly, 3960 compressor assembly plus an AES 941-R relay module per the TSS installation manual.

Note 2: Connect tubing between auto-equalizer and transfer hinge. Leave 300 mm of tubing attached to the double ended barbed fitting in the frame for future connection by the technical security installation team.

Note 3: The accessibility wall switches are to be wired to operate only after access is granted by the Hirsch controller or guard on the ingress or attack side.

Note 4: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 5: At exterior door.

Note 6: At interior door.

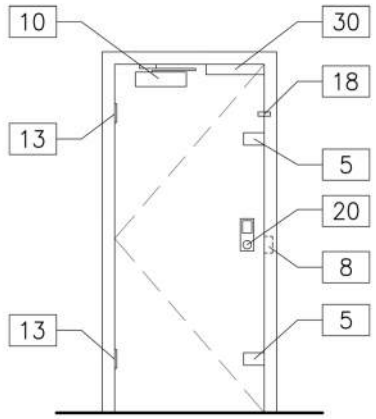
Approved Substitutions

Use:	Item 3A	2 ea.	Pole/Bollard Mounted Switches	MS Sedco	608
Note:	Use item 3A in lieu of item 3 where conditions require.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-2E—Forced Entry Local Access Control Door on Both Sides

Old: SHW-2B Mod 1

Application	This hardware set is specified for hardline entrance doors at locations where there is not direct visual control by a guard or an MSG and is used in special applications where access control is required from both the attack and protected sides. Typical applications include interview rooms.
Additional Information	Entrance doors should have glazing, to facilitate an MSG control over access to the building, as well as prevent pedestrian accidents. Forced entry glazings do not have a fire rating. Carefully review the fire egress requirements and options when using this door. This door always swings toward the attack side of the door.
Functions	Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
20	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	EE1021M/EE1021M-26D-41	
20	2 ea.	Interchangeable Core	Medeco	32-0201-26D	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
30	1 ea.	Electromagnetic Locking Device	Dynalock	2268-10 x DYNST x 24V	
8	1 ea.	Electric Strike	Folger Adam	310-2-3/4 x 24DC	1
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	2
a	1 set	Weather Stripping	Pemko	332CR	3
b	1 ea.	Sill Sweep	Pemko	315CN	3
g	3 ea.	Silencers	Ives	SR 64	4

Note 1: Strikes are non-fail safe (fail secure).

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 3: At exterior doors.

Note 4: At interior doors.

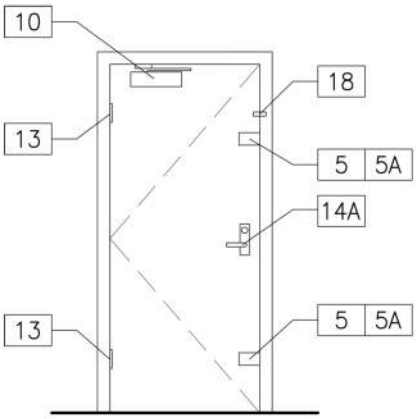
Approved Substitutions

Use:	Item 39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS
Note:	Use item 39 in lieu of item 30 when there is not enough room at the head for the closer and item 30 electromagnetic lock.				
Use:	Item 9	1 ea.	Electric Strike	Trine	EN 960 x 24DC
Note:	Use item 9 when item 8 Folger Adams does not fit.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-3—Forced Entry General Purpose Door

Old: SHW-3

Application	This hardware set is used on general purpose doors most often for an MSG and guard booths as well as for exterior forced entry doors that enter into an isolated room that does not lead further into the office building.
Additional Information	This door always includes a top window light when used on an MSG booths, and a deal tray if a teller window is not provided in the booth on the GWA side of the hardline.
Functions	Forced Entry, Exterior



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
14A	1 ea.	Lock Set	Corbin Russwin	ML2067 x NSM x 32D	
14A	1 ea.	Scalp Plate	Corbin Russwin	402F30	
14A	1 ea.	Interchangeable Core and Mortise Cylinder	Medeco	32-0200-26D x CT-Z00	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
5A		Certified Forced Entry Lock with Exterior Keyed Cylinders	Medeco		
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	1
a	1 set	Weather Stripping	Pemko	332CR	2
b	1 ea.	Sill Sweep	Pemko	315CN	2

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 2: At exterior doors.

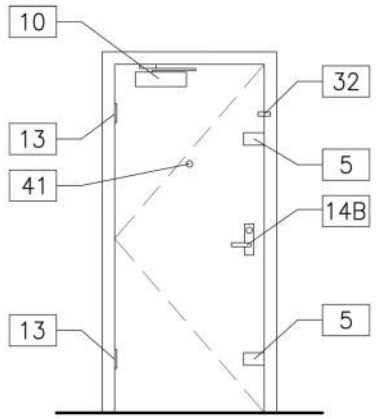
Approved Substitutions

Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-4—Forced Entry Safe Haven / Safe Area / General Purpose Door

Old: SHW-4

Application	This hardware set is used primarily for Safe Havens / Safe Areas. It is also used in balcony and rooftop access applications when entry is required.
Additional Information	Use this door at the perimeter of a Safe Haven. For 60 minute FE/BR (Safe Haven) applications, glazing is not permitted except a ballistic rated door viewer (peep). For 15 minute FE/BR (Safe Area) applications, glazing is limited to a ballistic rated door viewer (peep) or a 100mm x 500mm glazing.
Functions	Forced Entry, Residential



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
14B	1 ea.	Lock Set	Corbin Russwin	ML2067 x NSM x 32D	
14B	1 ea.	Interchangeable Core and Mortise Cylinder	Medeco	32-0200-26D x CT-Z00	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
32	1 ea.	Magnetic Switch	GE Security	1076H-G	1
41	1 ea.	Door Viewer	Various Manufacturers		2
a	1 set	Weather Stripping	Pemko	332CR	3
b	1 ea.	Sill Sweep	Pemko	315CN	3

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 2: At safe haven/safe areas only.

Note 3: At exterior doors.

Approved Substitutions

Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

Use-specific Modifications

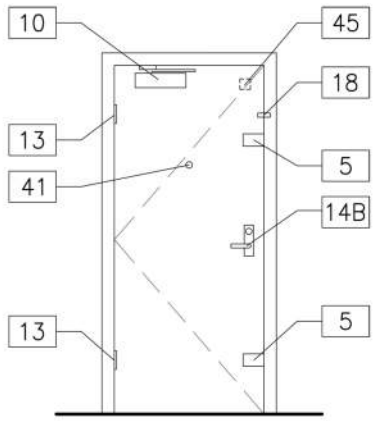
A.) For residential security safe room:

Delete:	Item 10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL

SHW-4A—Forced Entry Safe Haven / Safe Area Door with Hold Open

Old: SHW-4A

Application	This hardware set is used at doors exclusively for Safe Havens / Safe Areas. Features minimize the daily use of the door while allowing coordination with fire egress and accessibility requirements.
Additional Information	Use this door at the perimeter of a Safe Haven and may be used in conjunction with a second (in-swinging) door that has appropriate hardware for daily use. Allows for Safe Haven door to be open except for drills or during emergencies. For 60 minute FE/BR (Safe Haven) applications, glazing is not permitted except a ballistic rated door viewer (peep). For 15 minute FE/BR (Safe Area) applications, glazing is limited to a ballistic rated door viewer (peep) or a 100mm x 500mm glazing.
Functions	Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
14B	1 ea.	Lock Set	Corbin Russwin	ML2067 x NSM x 32D	
14B	1 ea.	Interchangeable Core and Mortise Cylinder	Medeco	32-0200-26D x CT-Z00	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
45	1 ea.	Electromagnetic Door Release	Rixson	999	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	1
41	1 ea.	Door Viewer	Various Manufacturers		
a	1 set	Weather Stripping	Pemko	332CR	2
b	1 ea.	Sill Sweep	Pemko	315CN	2

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 2: At exterior doors.

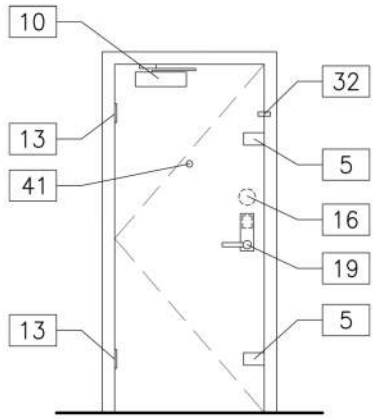
Approved Substitutions

Use:	Item 11	1 ea.	Closer	LCN	4413ME x 24VDC - AL
Note:	Use on doors with no adjacent wall.				
Use:	Item 11	1 ea.	Closer	LCN	4414ME x 24VDC - AL
Note:	Use on doors over 36" (915mm) with no adjacent wall.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-4B—Forced Entry Safe Haven / Safe Area / CAA Suite Entrance Door

Old: SHW-4 with Mod item C

Application	This hardware set door is used for Safe Haven / Safe Area and CAA suite entrances. The door provides for after hours protection via the 3 position deadbolt. For local access on single suite or low traffic common areas, access is controlled via the Simplex and when remote access is required, an electric strike is added.
Additional Information	This door is similar to SHW-12C, but for forced entry applications.
Functions	CAA Suite, Lock and Leave, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41	
19	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
16	1 ea.	Electromechanical Combination Lock	Kaba Mas	CDX-09 (GSA Specification FF-L-2890)	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
32	1 ea.	Magnetic Switch	GE Security	1076H-G	1
41	1 ea.	Door Viewer	Various Manufacturers		
a	1 set	Weather Stripping	Pemko	332CR	2
b	1 ea.	Sill Sweep	Pemko	315CN	2

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 2: At exterior doors.

Approved Substitutions

Use:	Item 9	1 ea.	Electric Strike	Trine	EN 960 x 24DC
Note:	Use item 9 when item 8 Folger Adams does not fit. (See use-specific modifications)				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

Use-specific Modifications

A.) For low traffic areas when remote access is required:

Add:	Item 8	1 ea.	Electric Strike	Folger Adam	310-2-3/4 x 24DC

B.) For high traffic or Lock and Leave common areas:

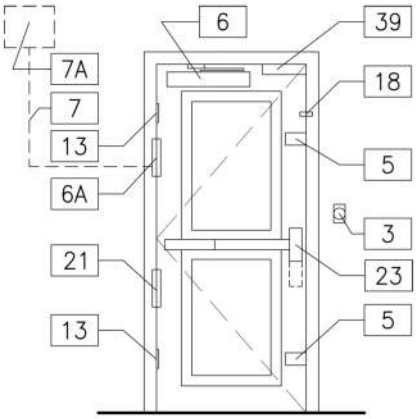
Delete:	Item 19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41

Delete:	Item 19	1 ea.	Interchangeable Core	Medeco	32-0201-26D
Add:	Item 14C	1 ea.	Lock Set	Corbin Russwin	ML2057 x NSM x 32D
Add:	Item 14C	1 ea.	Interchangeable Core and Mortise Cylinder	Medeco	32-0200-26D x CT-Z00
Add:	Item 51	1 ea.	Digi*Trac Scramble Pad Controller	Hirsch	M1N or M1N 230
Add:	Item 52	1 ea.	Scramble Pad	Hirsch	DS-47L
Add:	Item 53	1 ea.	Mounting Box	Hirsch	MB-8
Add:	Item 8	1 ea.	Electric Strike	Folger Adam	310-2-3/4 x 24DC

SHW-5A—Forced Entry Remote Access Entrance Control Pair Door / ADA Accessible

Old: SHW-5A ufas

Application	This hardware set is most often specified for lobby exterior entrance doors at Posts where there is an MSG or local guard to control the lobby. It is also commonly used at the CAC's. This hardware is the same as SHW-5C with the addition of ADA/ABA accessible hardware.
Additional Information	This hardware complies with the ADA and ABA Accessibility Guidelines for Buildings and Facilities, Parts II and III, the Access Board, July 23, 2004. The doors in this set function as two single doors. 5A is designated as the entry door and 5B as the exit door only. Doors require separation by a fixed mullion or other means in order to achieve a forced entry rating. The entry door 5A utilizes a Von Duprin EL98TP where the "TP" allows the door to be unlocked during working hours while providing a positive latch for emergency lock-up. Entry doors should incorporate forced entry glazing to facilitate access control to the building, as well as prevent pedestrian accidents. Forced entry glazing are not fire rated so carefully review fire egress requirements before specifying this door.
Functions	Accessible, Lobby, Remote Access, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
23	1 ea.	Panic Exit Device	Von Duprin	EL98TP x 990TP-R x 299 strike-32D	
23	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS	
6	1 ea.	Pneumatic Auto-Equalizer	LCN	4840	
6	1 ea.	Cover	LCN	4840-72MC	
6	1 ea.	Stop	LCN	4840-3077CNS Cush-N-Stop	
6A	1 ea.	Pneumatic Transfer Hinge	LCN	4840-460	
7		Pneumatic Tubing	LCN	7910-925	2
7A	1 ea.	Door Control Package	LCN	7981 ES	1
3	2 ea.	Wall Mounted Switches	Locknetics	625-BL-H-DP-626	5
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	3
a	1 set	Weather Stripping	Pemko	332CR	4
b	1 ea.	Sill Sweep	Pemko	315CN	4

Note 1: The LCN door control package with compressor and pneumatic tubing from the transfer hinge to the control box, compressor, and actuator buttons will be by provided by the government on government installations. The general contractor is to provide them on non-government installations. General contractor to provide a step down transformer for LCN compressor in all cases. The 7981 ES door control package includes the following: 293G exhaust muffler, 900 power supply, 903 timer module, 3299A solenoid valve assembly, 3390A ES relay assembly, 3960 compressor assembly plus an AES 941-R relay module per the TSS installation manual. One door control package can control both doors in SHW-5A and SHW-5B.

Note 2: Connect tubing between auto-equalizer and transfer hinge. Leave 300 mm of tubing attached to the double ended barbed fitting in the frame for future connection by the technical security installation team.

Note 3: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 4: At exterior doors.

Note 5: Specify either (1) switch when we have dedicated "in and out" doors or (2) switches when a single door functions as both.

Approved Substitutions

Use:	Item 3A	2 ea.	Pole/Bollard Mounted Switches	MS Sedco	608
Note:	Use item 3A in lieu of item 3 where conditions require.				

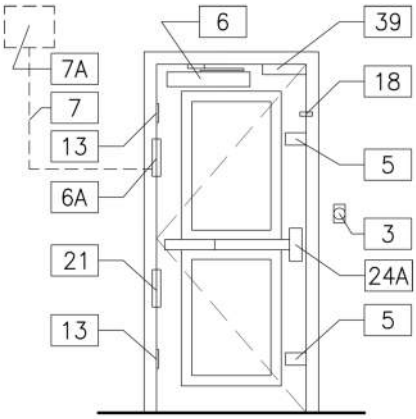
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D

Note: Item d may be substituted for item a at exterior doors.

SHW-5B—Forced Entry Remote Access Entrance Control Pair Door / ADA Accessible

Old: SHW-5B ufas

Application	This hardware set is most often specified for lobby exterior entrance doors at Posts where there is an MSG or local guard to control the lobby. It is also commonly used at the CAC's. This hardware is the same as SHW-5D with the addition of ADA accessible hardware.
Additional Information	This hardware complies with the ADA and ABA Accessibility Guidelines for Buildings and Facilities, Parts II and III, the Access Board, July 23, 2004. The doors in this set function as two single doors. 5A is designated as the entry door and 5B as the exit door only. 5B does not have any exterior hardware.
Functions	Accessible, Lobby, Remote Access, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
24A	1 ea.	Panic Exit Device	Von Duprin	EL98EO x 299 strike-32D	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS	
6	1 ea.	Pneumatic Auto-Equalizer	LCN	4840	
6	1 ea.	Cover	LCN	4840-72MC	
6	1 ea.	Stop	LCN	4840-3077CNS Cush-N-Stop	
6A	1 ea.	Pneumatic Transfer Hinge	LCN	4840-460	
7	1 ea.	Pneumatic Tubing	LCN	7910-925	2
7A	1 ea.	Door Control Package	LCN	7981 ES	1
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	3
a	1 set	Weather Stripping	Pemko	332CR	4
b	1 ea.	Sill Sweep	Pemko	315CN	4

Note 1: The LCN door control package with compressor and pneumatic tubing from the transfer hinge to the control box, compressor, and actuator buttons will be by provided by the government on government installations. The general contractor is to provide them on non-government installations. General contractor to provide a step down transformer for LCN compressor in all cases. The 7981 ES door control package includes the following: 293G exhaust muffler, 900 power supply, 903 timer module, 3299A solenoid valve assembly, 3390A ES relay assembly, 3960 compressor assembly plus an AES 941-R relay module per the TSS installation manual. One door control package can control both doors in SHW-5A and SHW-5B.

Note 2: Connect tubing between auto-equalizer and transfer hinge. Leave 300 mm of tubing attached to the double ended barbed fitting in the frame for future connection by the technical security installation team.

Note 3: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 4: At exterior doors.

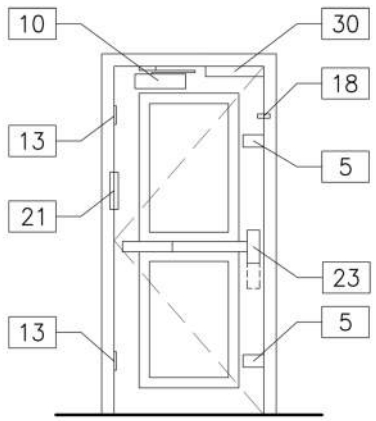
Approved Substitutions

Use:	Item 3A	2 ea.	Pole/Bollard Mounted Switches	MS Sedco	608
Note:	Use item 3A in lieu of item 3 where conditions require.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-5C—Forced Entry Remote Access Entrance Control Pair Door

Old: SHW-5A

Application	This hardware set is most often specified for lobby exterior entrance doors at Posts where there is an MSG or local guard to control the lobby. It is also commonly used at the CAC's. This hardware is the same hardware as SHW-5A, but does not provide the accessible hardware.
Additional Information	The doors in this set function as two single doors. 5C is designated as the entry door and 5D as the exit door only. Doors require separation by a fixed mullion or other means in order to achieve a forced entry rating. The entry door 5C utilizes a Von Duprin EL98TP where the "TP" allows the door to be unlocked during working hours while providing a positive latch for emergency lock-up. Entry doors should incorporate forced entry glazing to facilitate access control to the building, as well as prevent pedestrian accidents. Forced entry glazing are not fire rated so carefully review fire egress requirements before specifying this door.
Functions	Lobby, Remote Access, Forced Entry, Exterior



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
23	1 ea.	Panic Exit Device	Von Duprin	EL98TP x 990TP-R x 299 strike-32D	
23	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
30	1 ea.	Electromagnetic Locking Device	Dynalock	2268-10 x DYNST x 24V	
10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL	
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	1
a	1 set	Weather Stripping	Pemko	332CR	2
b	1 ea.	Sill Sweep	Pemko	315CN	2

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 2: At exterior doors.

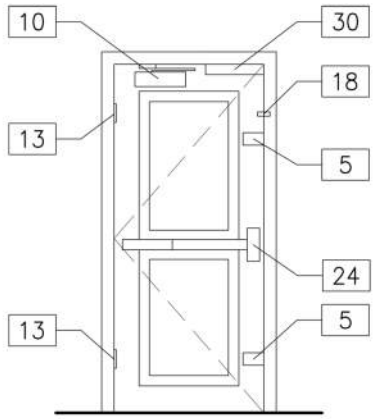
Approved Substitutions

Use:	Item 39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS
Note:	Use item 39 in lieu of item 30 when there is not enough room at the head for the closer and item 30 electromagnetic lock.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-5D—Forced Entry Remote Access Entrance Control Pair Door

Old: SHW-5B

Application	This hardware set is most often specified for lobby exterior entrance doors at Posts where there is an MSG or local guard to control the lobby. It is also commonly used at the CAC's. This hardware is the same hardware as SHW-5B, but does not provide the accessible hardware.
Additional Information	The doors in this set function as two single doors. 5C is designated as the entry door and 5D as the exit door only. 5D does not have exterior hardware.
Functions	Lobby, Remote Access, Forced Entry, Exterior



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
24	1 ea.	Panic Exit Device	Von Duprin	98EO x 299 strike-32D	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
30	1 ea.	Electromagnetic Locking Device	Dynalock	2268-10 x DYNST x 24V	
10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	1
a	1 set	Weather Stripping	Pemko	332CR	2
b	1 ea.	Sill Sweep	Pemko	315CN	2

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 2: At exterior doors.

Approved Substitutions

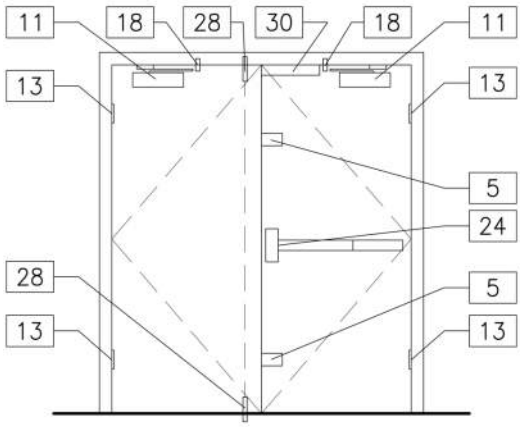
Use: Item 39 1 ea. Electromagnetic Locking Device Locknetics 390+ DSM/MBS
Note: Use item 39 in lieu of item 30 when there is not enough room at the head for the closer and item 30 electromagnetic lock.

Use: Item d 1 set Smoke Gasket Pemko S88D
Note: Item d may be substituted for item a at exterior doors.

SHW-6—Forced Entry Service Entrance Door Pair

Old: SHW-6

Application	This hardware set is used at the service entrance and other areas where a larger opening or true function is required. One leaf is normally inactive, but can be operated by releasing the head and foot bolts. This door is sometimes modified for an employee service entrance function, see SHW-6A.
Additional Information	When used as a service entrance, the door is often secured by activating the electromagnetic lock. This creates a potential conflict if it is part of the fire egress path. The lock would need to be tied into the fire alarm system. It is preferable that the door not be part of the fire egress route. When this door is used as a service door only, it normally does not have glazing.
Functions	Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
28		Certified Head and Foot Bolts	Various Manufacturers	Model and quantity to match certified / rated door	
24	1 ea.	Panic Exit Device	Von Duprin	98EO x 299 strike-32D	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
30	1 ea.	Electromagnetic Locking Device	Dynalock	2268-10 x DYNST x 24V	1
11	2 ea.	Closer	LCN	4413ME x 24VDC - AL	
18	2 ea.	Magnetic Switch	GE Security	1076D-G	2
a	1 set	Weather Stripping	Pemko	332CR	3
b	1 ea.	Sill Sweep	Pemko	315CN	3
c	1 set	Stile Gasket	Pemko	375CR	3

Note 1: At active leaf.

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 3: At exterior doors.

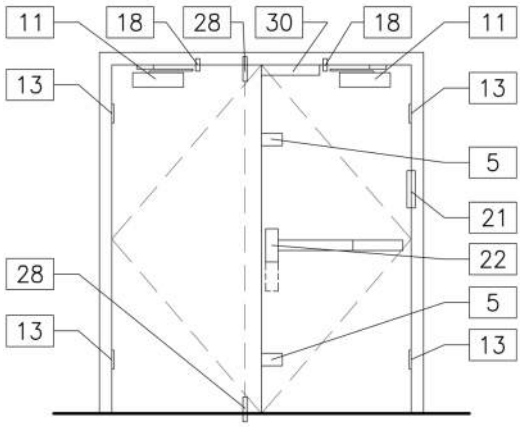
Approved Substitutions

Use:	Item 39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS
Note:	Use item 39 in lieu of item 30 when there is not enough room at the head for the closer and item 30 electromagnetic lock.				
Use:	Item 10	2 ea.	Closer	LCN	4041 x Cush-N-Stop - AL
Note:	Use item 10 in lieu of 11 on doors when adjacent walls are present. For use at exterior doors, specify SRI arm. Include item 45.				
Use:	Item 45	2 ea.	Electromagnetic Door Release	Rixson	999
Note:	Use with item 10.				
Use:	Item 11	2 ea.	Closer	LCN	4414ME x 24VDC - AL
Note:	Use on doors over 36" (915mm) when no adjacent wall.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-6A—Forced Entry Service and Employee Entrance Door Pair

Old: SHW-6 Mod 1

Application	This hardware set is used at the service entrance and other areas where a larger opening or true function is required. One leaf is normally inactive, but can be operated by releasing the head and foot bolts. This door is a modified SHW-6 to allow it to also function as an employee service entrance.
Additional Information	When used as a service or part-time employee entrance, the door is often secured by activating the electromagnetic lock. This creates a potential conflict if it is part of the egress path. The lock would need to be tied into the fire alarm system. It is preferable that the door not be part of the fire egress route. When this door is used as a service door only, it normally does not have glazing. When it is modified to function also as an employee entrance, then provide a top window light.
Functions	Forced Entry, Exterior



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
28		Certified Head and Foot Bolts	Various Manufacturers	Model and quantity to match certified / rated door	
22	1 ea.	Panic Exit Device	Von Duprin	EL98NL x 990NL-R x 299 strike-32D	
22	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
30	1 ea.	Electromagnetic Locking Device	Dynalock	2268-10 x DYNST x 24V	1
11	2 ea.	Closer	LCN	4413ME x 24VDC - AL	
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
18	2 ea.	Magnetic Switch	GE Security	1076D-G	2
a	1 set	Weather Stripping	Pemko	332CR	3
b	1 ea.	Sill Sweep	Pemko	315CN	3
c	1 set	Stile Gasket	Pemko	375CR	3

Note 1: At active leaf.

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

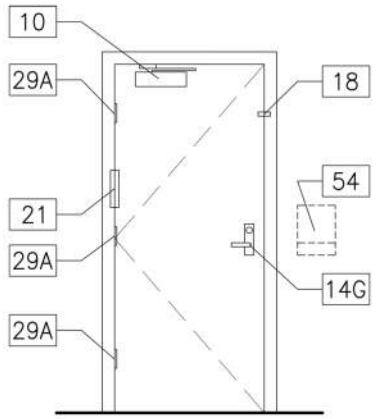
Note 3: At exterior doors.

Approved Substitutions

Use:	Item 39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS
Note:	Use item 39 in lieu of item 30 when there is not enough room at the head for the closer and item 30 electromagnetic lock.				
Use:	Item 10	2 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	Use item 10 in lieu of 11 on doors when adjacent walls are present. For use at exterior doors. Include item 45.				
Use:	Item 45	2 ea.	Electromagnetic Door Release	Rixson	999
Note:	Use with item 10.				
Use:	Item 11	2 set	Closer	LCN	4414ME x 24VDC - AL
Note:	Use on doors over 36" (915mm) when no adjacent wall.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-7—Non-Forced Entry / Non-CAA Local Access Control Door

Old: SHW-7



Application	This hardware set is used for doors that control access to corridors, stairwells or other restricted area where a panic device is not required and is typically tied into the building fire alarm system to release in a fire.
Functions	CAA Buffer

Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
14G	1 ea.	Lock Set	Corbin Russwin	ML20905 x NSM x 32D	
14G	1 ea.	Interchangeable Core and Mortise Cylinder	Medeco	32-0200-26D x CT-Z00	
54	1 ea.	Cypher Lock / Keypad	Moniteq Research	CC-8521B	
54	2 ea.	Rechargeable Batteries	Moniteq Research	CC-BATT x 12 VDC x 7AH	
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	1
g	3 ea.	Silencers	Ives	SR 64	

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

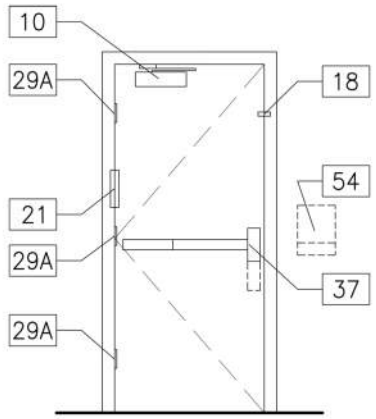
Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item 10A	1 ea.	Closer	LCN	4041 x reg arm - AL
Note:	For regular bevel doors. May use Item 10A and h in lieu of Item 10.				
Use:	Item h	1 ea.	Wall Stop	Ives	407CVX
Note:	May use Item 10A and h in lieu of Item 10.				

SHW-7A—Non-Forced Entry / Non-CAA Local Access Control Door

Old: SHW-7A

Application	This hardware set is used for doors that control access to corridors, stairwells or other restricted areas where a panic exit device is required and where a fire release may be required to be tied into the building fire alarm system.
Additional Information	This door maybe wired to the fire alarm system so it automatically unlocks in a fire event. This hardware is functionally the same as SHW-7 but utilizes an emergency exit device in lieu of an electrified lock set.
Functions	CAA Buffer, Fire



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
37	1 ea.	Panic Exit Device	Von Duprin	EL98NL-F x 990NL-R x 299F strike-32D	
37	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
54	1 ea.	Cypher Lock / Keypad	Moniteq Research	CC-8521B	
54	2 ea.	Rechargeable Batteries	Moniteq Research	CC-BATT x 12 VDC x 7AH	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	1
d	1 set	Smoke Gasket	Pemko	S88D	

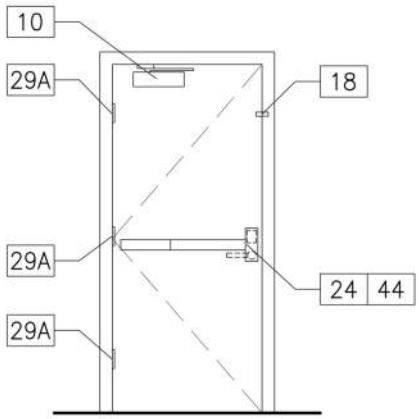
Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item g	3 ea.	Silencers	Ives	SR 64
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors				

SHW-7B—Non-Forced Entry / Non-CAA Local Access Control Door

Old: SHW-7B



Application	This hardware set is used for local control when a panic device is required with manual access. This is typically specified for control access in stairwells, when the security and/or operation requirement of a SHW-7A or a SHW-7D is not required.
Functions	CAA Buffer

Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
24	1 ea.	Panic Exit Device	Von Duprin	98EO x 299 strike-32D	
44	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)P1021M-26D-41	1
44	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	2
g	3 ea.	Silencers	Ives	SR 64	

Note 1: Not used for visual control additions.

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

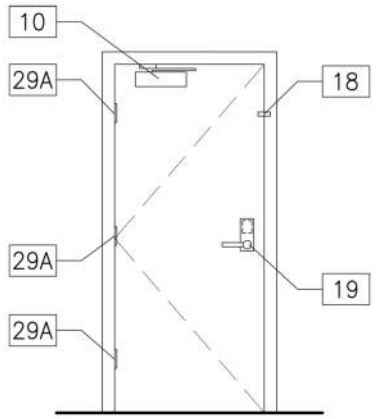
Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				

SHW-7C—Non-Forced Entry / Non-CAA Local Access Control Door

Old: SHW-7C

Application	This hardware set is used for doors that control access to corridors, stairwells, or other restricted areas. Typically this hardware is used for the Consular section employee entry door and as a privacy door to limit access to a corridor that provides CAA access.
Additional Information	This door cannot be used where night-time CAA locking is required. This door utilizes the same hardware as a SHW-15, except it includes a closer.
Functions	CAA Buffer



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41	1
19	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	2
18	1 ea.	Magnetic Switch	GE Security	1076D-G	3
g	3 ea.	Silencers	Ives	SR 64	

Note 1: Not used for visual control additions.

Note 2: For reverse bevel doors.

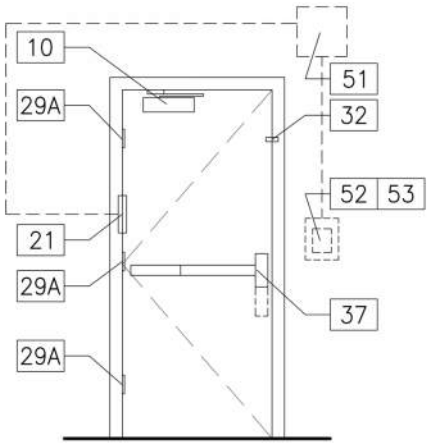
Note 3: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item 10A	1 ea.	Closer	LCN	4041 x reg arm - AL
Note:	For regular bevel doors. May use Item 10A and h in lieu of Item 10.				
Use:	Item h	1 ea.	Wall Stop	Ives	407CVX
Note:	May use Item 10A and h in lieu of Item 10.				

SHW-7D—Non-Forced Entry / Non-CAA Local Access Control Door

Old: SHW-7A Mod 1



Application	This hardware set is used for doors that control access to corridors, stairwells or other restricted areas where a panic exit device is required and where a fire release may be required to be tied into the building fire alarm system. This hardware is typically used in larger projects, such as SED or NOB to restrict access to floors that contain CAA.
Additional Information	This door may be wired to the fire alarm system so it automatically unlocks in a fire event.
Functions	CAA Buffer, Fire

Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
37	1 ea.	Panic Exit Device	Von Duprin	EL98NL-F x 990NL-R x 299F strike-32D	
37	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
51	1 ea.	Digi*Trac Scramble Pad Controller	Hirsch	M1N or M1N 230	1
52	1 ea.	Scramble Pad	Hirsch	DS-47L	1
53	1 ea.	Mounting Box	Hirsch	MB-8	1
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	2
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
32	1 ea.	Magnetic Switch	GE Security	1076H-G	3
d	1 set	Smoke Gasket	Pemko	S88D	

Note 1: The Hirsch controller allows up to eight doors to be controlled and allow individual personal identification numbers (pins) to be assigned which can limit access by date, time and provides an auditable record. The remaining hardware associated with completing the Hirsch setup will be provided by OBO/PE/SM/TSB as part of the Technical Security Design and installation or by the General Contractor when technical security installation is included in their scope.

Note 2: For reverse bevel doors.

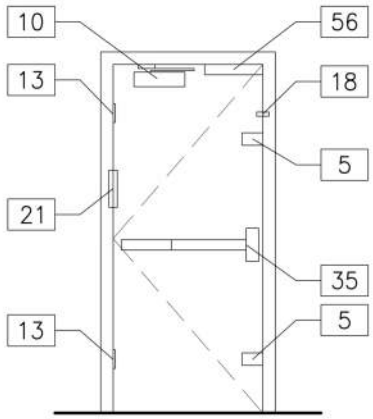
Note 3: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item g	3 ea.	Silencers	Ives	SR 64
Use:	Item 10		Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				

SHW-8—Forced Entry Fire Exit Only Door

Old: SHW-8



Application	This hardware set is used at emergency routes, usually at the building exterior. The Moniteq and AES Fire Door Control Package allows this door to meet fire egress requirements.
Additional Information	The time delay on the Fire Door Control Package can be set from 0 to 90 seconds, typical is 15 seconds. This door requires CCTV monitoring of its exterior, to assist an MSG or local guard in determining whether or not to secure the electromagnetic lock.
Functions	Exterior, Fire, Forced Entry

Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
35	1 ea.	Panic Exit Device	Von Duprin	RX98EO-F x 299F strike-32D	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
56	1 ea.	Fire Door Magnetic Lock / Display Panel	Moniteq Research	8946	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	1
38A	1 ea.	Fire Door Control Package	AES	AES-945	2
a	1 set	Weather Stripping	Pemko	332CR	3
b	1 ea.	Sill Sweep	Pemko	315CN	3

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany. certified/rated door.

Note 2: Installed at Post 1 control console.

Note 3: At exterior doors.

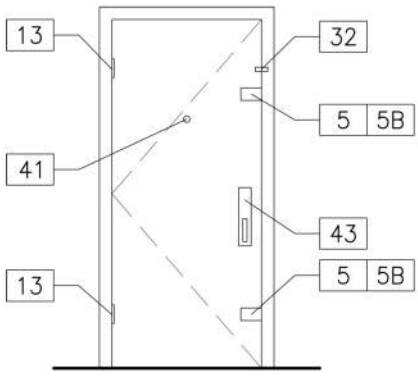
Approved Substitutions

Use:	Item 39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS
Note:	Use Item 39 in lieu of Item 30 on doors when there is not enough room at the head for the closer and magnetic lock.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item 38	1 ea.	Fire Door Control Package	AES	AES-944
Note:	When desired, use 945 Fire Door Control Module, 946 Fire Door Audio Visual Display, Back Mounting Box.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-8A—Forced Entry Exterior Door

Old: SHW-8A

Application	This hardware set is used at the building exterior, at exits infrequently used or applications like a rarely used service door, balcony or areaway . This door does not have exterior hardware.
Additional Information	This door needs interior keyed cylinders on the Forced Entry Locks and an interior door pull.
Functions	Exterior, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
5B		Certified Forced Entry Lock with Interior Keyed Cylinders	Medeco		
43	1 ea.	Door Pull	Von Duprin	98DT-26D	1
32	1 ea.	Magnetic Switch	GE Security	1076H-G	2
41	1 set	Door Viewer	Various Manufacturers		
a	1 set	Weather Stripping	Pemko	332CR	3
b	1 ea.	Sill Sweep	Pemko	315CN	3

Note 1: Install on protected side.

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 3: At exterior doors.

Approved Substitutions

Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

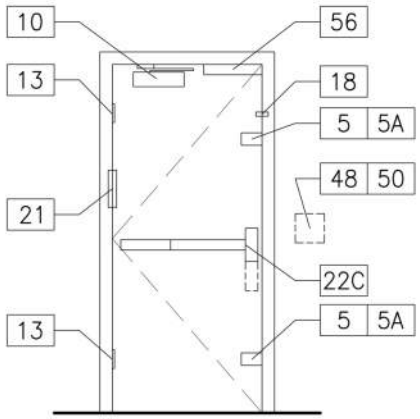
Use-specific Modifications

A.) If interior keyed FEL cylinders are deleted:

Delete:	Item 5B		Certified Forced Entry Lock with Interior Keyed Cylinders	Medeco	
Add:	Item 39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS

SHW-8B—Forced Entry Fire Exit / Lock and Leave Bypass Door

Old: SHW-8 Mod 1



Application	This hardware set is used at emergency routes, usually at the building exterior. The Moniteq and AES Fire Door Control Package allows this door to meet fire egress requirements.
Additional Information	The time delay on the Fire Door Control Package can be set from 0 to 90 seconds, typical is 15 seconds. This door requires a CCTV looking at its exterior, to assist an MSG or local guard in determining whether or not to secure the electromagnetic lock.
Functions	Exterior, Fire, Lock and Leave, Forced Entry

Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
22C	1 ea.	Panic Exit Device	Von Duprin	RX98NL-F x 990NL-R trim less cylinder x 299F strike-32D	
22C	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
5A		Certified Forced Entry Lock with Exterior Keyed Cylinders	Medeco		
56	1 ea.	Fire Door Magnetic Lock / Display Panel	Moniteq Research	8946	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	1
38A	1 ea.	Fire Door Control Package	AES	AES-945	2
48	1 ea.	Recessed Mount Key Control Lockbox w/ Combination Lock	Knox	4440-GCI	
50	1 ea.	Double Pole Single Throw Toggle Switch	Various Manufacturers	Generic	3
a	1 set	Weather Stripping	Pemko	332CR	4
b	1 ea.	Sill Sweep	Pemko	315CN	4

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 2: Installed at Post 1 control console.

Note 3: Rating 1 amp @ 24VDC or greater, mounted inside the Lockbox

Note 4: At exterior doors.

Approved Substitutions

Use:	Item 39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS
Note:	Use Item 39 in lieu of Item 30 on doors when there is not enough room at the head for the closer and magnetic lock.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				

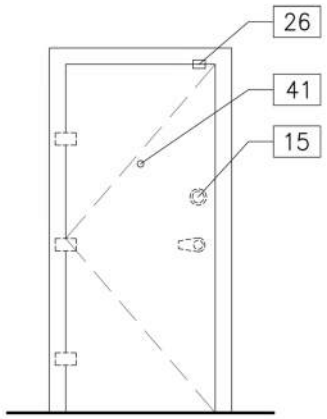
Use:	Item 38	1 ea.	Fire Door Control Package	AES	AES-944
Note:	Includes: 945 Fire Door Control Module, 946 Fire Door Audio Visual Display, Back Mounting Box.				

Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-9—Forced Entry Vault Door - Class 5

Old: SHW-9

Application	This hardware set is used at the entrance to vaults. See note 1.
Additional Information	This is a GSA Class 5 vault door, upgraded to meet DOS ballistic resistant criteria. The wall thickness must be scheduled with the requirement "flange to fit" in order to ensure a proper fit. Vault doors have special rough opening requirements and are not fire rated.
Functions	Forced Entry



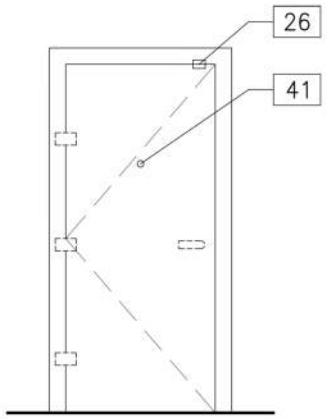
Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
15	1 ea.	Electromechanical Combination Lock	Kaba Mas	X-09 (GSA Specification FF-L-2740A)	
26	1 ea.	Balanced Magnetic Switch	ADT	SM-19 (Wells Fargo)	
41	1 ea.	Door Viewer	Ives	U696	

Note 1: Balance of hardware by vault door manufacturer. GSA Class 5 vault door upgraded to DOS Code 2133.

SHW-9A—Forced Entry Vault Exit Door - Class 5

Old: SHW-9A



Application	This hardware set is used when a second fire egress from a vault space is required. See note 1.
Additional Information	This is a GSA Class 5 vault door, upgraded to meet DOS ballistic resistant criteria. The wall thickness must be scheduled with the requirement "flange to fit" in order to ensure a proper fit.
Functions	Forced Entry

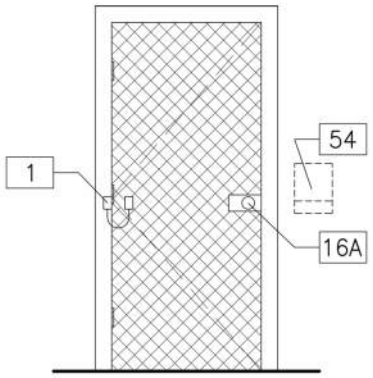
Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
26	1 ea.	Balanced Magnetic Switch	ADT	SM-19 (Wells Fargo)	
41	1 ea.	Door Viewer	Ives	U696	

Note 1: Balance of hardware by vault door manufacturer. GSA Class 5 vault door upgraded to DOS Code 2133.

SHW-10—Non-Forced Entry Vault Door Day Gate

Application	This hardware set is designed to work with the SHW-9 vault entrance door.
Additional Information	This door swings away from the attack side. It is usually hinged on the same side as the vault door. The daygate is normally of wire mesh construction in vaults constructed before 2002.



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
16A	1 ea.	Brut Electronic Door Latch	Sargent & Greenleaf	8497-102	1
16A	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
54	1 ea.	Cypher Lock / Keypad	Moniteq Research	CC-8521B	
54	2 ea.	Rechargeable Batteries	Moniteq Research	CC-BATT x 12 VDC x 7AH	
1	1 ea.	Armored Cable	Alarm Lock	271	
2	1 ea.	Day Gate Installation Kit	by Vault Supplier	Manufacturer specific	2

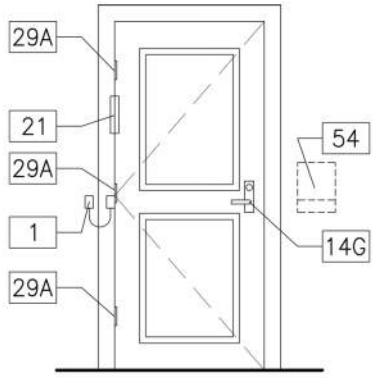
Note 1: Brut electronic door lock does not meet accessibility requirements.

Note 2: By vault door manufacturer.

SHW-10A—Non-Forced Entry Vault Solid Door Day Gate

Old: SHW-10

Application	This hardware set is designed to work with the SHW-9 vault entrance door and is typically specified in SED and NOB construction.
Additional Information	This door swings away from the attack side. It is usually hinged on the same side as the vault door. Used in New Office Buildings where separation between building pressurization zones is required. The door may include a vision light.



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
14G	1 ea.	Lock Set	Corbin Russwin	ML20905 x NSM x 32D	
14G	1 ea.	Interchangeable Core and Mortise Cylinder	Medeco	32-0200-26D x CT-Z00	
54	1 ea.	Cypher Lock / Keypad	Moniteq Research	CC-8521B	
54	2 ea.	Rechargeable Batteries	Moniteq Research	CC-BATT x 12 VDC x 7AH	
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	1
1	1 ea.	Armored Cable	Alarm Lock	271	1
2	1 ea.	Day Gate Installation Kit	by Vault Supplier	Manufacturer specific	

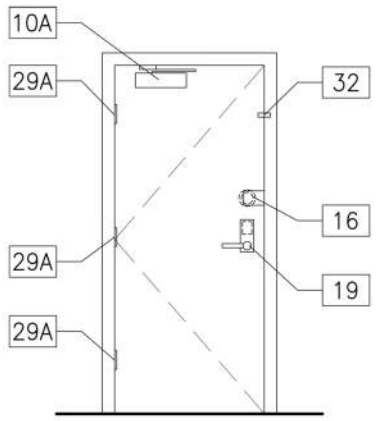
Note 1: Day door provided by vault door manufacturer. Glazing panels to be minimum 1/2" thick laminated glazing. Power transfer is from junction box in wall to door frame and EPT (item 21) to the interior of the door.

Approved Substitutions

Use: Item 29 3 ea. Hinge - NRP (non-removable pin) McKinney T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note: McKinney hinge is also acceptable.

SHW-11—Non-Forced Entry Local Manual Access Control Door

Application	This hardware set is used in areas where both daytime and night time access control is desired. This hardware is acceptable for all DOS CAA applications in a NOB.
Functions	CAA Suite



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41	
19	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
16	1 ea.	Electromechanical Combination Lock	Kaba Mas	CDX-09 (GSA Specification FF-L-2890)	
10A	1 ea.	Closer	LCN	4041 x reg arm - AL	1
32	1 ea.	Magnetic Switch	GE Security	1076H-G	2
g	3 ea.	Silencers	Ives	SR 64	
h	1 ea.	Wall Stop	Ives	407CVX	

Note 1: For regular bevel doors.

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

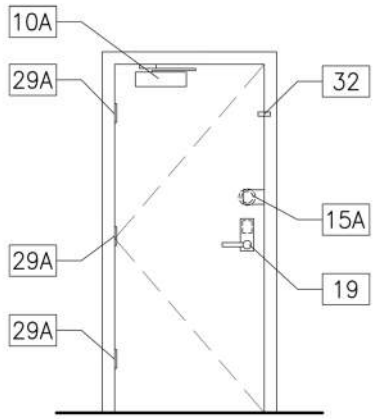
Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior outswing doors. May use Item 10 in lieu of Item 10A and Item h.				
Use:	Item 10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL
Note:	For interior outswing doors. May use Item 10 in lieu of Item 10A and Item h.				

SHW-11A—Non-Forced Entry Local Manual Access Control Door

Old: SHW-11

Application	This hardware set is used in areas where both daytime and night time access control is desired. While this hardware is acceptable for some DOS CAA applications, it is recommended that a door with an electromechanical spin dial (CDX-09) be specified for uniformity in NOB applications and to avoid a common misapplication of the S&G 3 position spin dial. See also hardware set SHW-11 and all SHW-12 sets for electromechanical spin dial lock applications.
Additional Information	This hardware is also used in existing office buildings for unclassified computer rooms, cashier offices, MSG recact rooms, pharmacies and mail rooms. Pharmacies and mail rooms may also use hardware set SHW-15A. MSG react rooms may also use SHW-15C.
Functions	CAA Suite



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41	
19	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
15A	1 ea.	Combination Lock with Deadbolt Extension	Sargent & Greenleaf	8555-101	
10A	1 ea.	Closer	LCN	4041 x reg arm - AL	1
32	1 ea.	Magnetic Switch	GE Security	1076H-G	2
g	3 ea.	Silencers	Ives	SR 64	
h	1 ea.	Wall Stop	Ives	407CVX	

Note 1: For regular bevel doors.

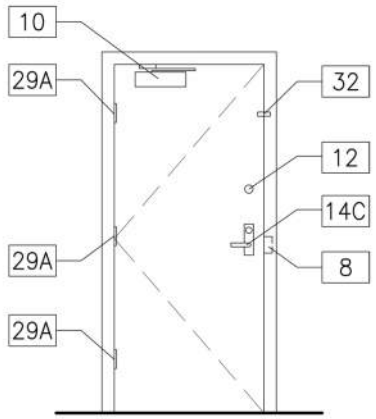
Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 15C	1 ea.	Combination Lock with Deadbolt Extension	Sargent & Greenleaf	8555-102
Note:	For out-swing doors.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior outswing doors. May use Item 10 in lieu of Item 10A and Item h.				
Use:	Item 10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL
Note:	For interior outswing doors. May use Item 10 in lieu of Item 10A and Item h.				

SHW-12—Non-Forced Entry Remote Access Control Door

Old: SHW-12A



Application	This hardware is used for areas where only remote access is needed.
Additional Information	The deadbolt cannot be used to secure areas where C-LAN is located.
Functions	Exterior, Remote Access

Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
14C	1 ea.	Lock Set	Corbin Russwin	ML2057 x NSM x 32D	
14C	1 ea.	Interchangeable Core and Mortise Cylinder	Medeco	32-0200-26D x CT-Z00	
12	1 ea.	Maxum Deadbolt	Medeco	11-C402 - 26D	
12	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
8	1 ea.	Electric Strike	Folger Adam	310-2-3/4 x 24DC	1
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	2
32	1 ea.	Magnetic Switch	GE Security	1076H-G	3
g	3 ea.	Silencers	Ives	SR 64	

Note 1: Strikes are non-fail safe (fail secure).

Note 2: For reverse bevel doors.

Note 3: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

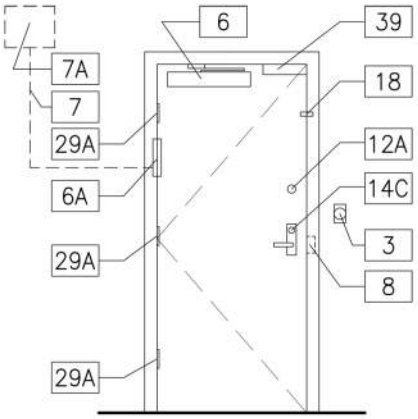
Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 9	1 ea.	Electric Strike	Trine	EN 960 x 24DC
Note:	Use Item 9 in lieu of Item 8 only when Folger Adams does not fit.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item 10A	1 ea.	Closer	LCN	4041 x reg arm - AL
Note:	For regular bevel doors. May use Item 10A and h in lieu of Item 10.				
Use:	Item h	1 ea.	Wall Stop	Ives	407CVX
Note:	May use Item 10A and h in lieu of Item 10.				

SHW-12A—Non-Forced Entry Remote Access Control Door / ADA Accessible

Old: SHW-12A Mod 2

Application	This hardware set is used for areas where only remote access is needed, and where night time and emergency access control is required. This hardware is typically specified for the compound side CAC entry door.
Additional Information	This hardware complies with the ADA and ABA Accessibility Guidelines for Buildings and Facilities, Parts II and III, the Access Board, July 23, 2004. This door may either be a reverse bevel door (preferred), but can be specified as a regular swing door. Correctly specifying the swing is critical to ordering and installing this hardware. The accessibility wall switches act as a call button on the attack side of the door and also allows exiting from the protected side but can be overridden by the guard or an MSG.
Functions	Accessible, Exterior, Remote Access



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
14C	1 ea.	Lock Set	Corbin Russwin	ML2057 x NSM x 32D	
14C	1 ea.	Interchangeable Core and Mortise Cylinder	Medeco	32-0200-26D x CT-Z00	
12A	1 ea.	Maxum Deadbolt	Medeco	11-C422 - 26D	1
12A	2 ea.	Interchangeable Core	Medeco	32-0201-26D	
39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS	
8	1 ea.	Electric Strike	Folger Adam	310-2-3/4 x 24DC	2
6	1 ea.	Pneumatic Auto-Equalizer	LCN	4840	
6	1 ea.	Cover	LCN	4840-72MC	
6	1 ea.	Stop	LCN	4840-3077CNS Cush-N-Stop	
6A	1 ea.	Pneumatic Transfer Hinge	LCN	4840-460	
7		Pneumatic Tubing	LCN	7910-925	4
7A	1 ea.	Door Control Package	LCN	7981 ES	3
3	2 ea.	Wall Mounted Switches	Locknetics	625-BL-H-DP-626	5
18	1 ea.	Magnetic Switch	GE Security	1076D-G	6
a	1 set	Weather Stripping	Pemko	332CR	7
b	1 ea.	Sill Sweep	Pemko	315CN	7
g	3 ea.	Silencers	Ives	SR 64	8

Note 1: In a CAC application, the attack side is from inside the CAC building to the Compound (door protects the compound). The double sided deadbolt and electromagnetic lock adds protection for disturbances both inside and outside of the CAC.

Note 2: Strikes are non-fail safe (fail secure).

Note 3: The LCN door control package with compressor and pneumatic tubing from the transfer hinge to the control box, compressor, and actuator buttons will be by provided by the government on government installations. The general contractor is to provide them on non-government installations. General contractor to provide a step down transformer for the LCN compressor in all cases. The 7981 ES door control package includes the following: 293G exhaust muffler, 900 power supply, 903 timer module, 3299A solenoid valve assembly, 3390A ES relay assembly, 3960 compressor assembly plus an AES 941-R relay module per the TSS installation manual.

Note 4: Connect tubing between auto-equalizer and transfer hinge. Leave 300 mm of tubing attached to the double ended barbed fitting in the frame for future connection by the technical security installation team.

Note 5: Specify either (1) switch when we have dedicated "in and out" doors or (2) switches when a single door functions as both.

Note 6: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 7: At exterior doors.

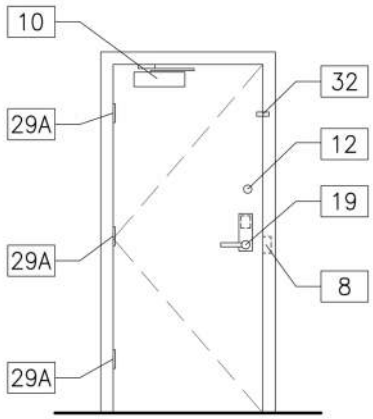
Note 8: At interior doors.

Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 9	1 ea.	Electric Strike	Trine	EN 960 x 24DC
Note:	Use Item 9 in lieu of Item 8 only when Folger Adams does not fit.				
Use:	Item 3A	2 ea.	Pole/Bollard Mounted Switches	MS Sedco	608
Note:	Use Item 3A in lieu of Item 3 when wall mounted switch locations not feasible.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Use item d when exterior weatherstripping is required.				

SHW-12B—Non-Forced Entry Local and Remote Access Control Door

Old: SHW-12B



Application	This hardware set is used as an entrance to a restricted access suite such as a health unit. For applications where remote access is not required, see SHW-15C. This hardware set may be used as a CAA entrance door, only when there is no C-LAN.
Additional Information	This door is rarely used in a CAA application since a "spin dial" combination lock is preferred over the deadbolt because of key control issues and because of the fore mentioned C-LAN requirement.
Functions	CAA Suite, Remote Access

Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41	
19	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
12	1 ea.	Maxum Deadbolt	Medeco	11-C402 - 26D	
12	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
8	1 ea.	Electric Strike	Folger Adam	310-2-3/4 x 24DC	1
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	2
32	1 ea.	Magnetic Switch	GE Security	1076H-G	3
g	3 ea.	Silencers	Ives	SR 64	

Note 1: Strikes are non-fail safe (fail secure).

Note 2: For reverse bevel doors.

Note 3: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

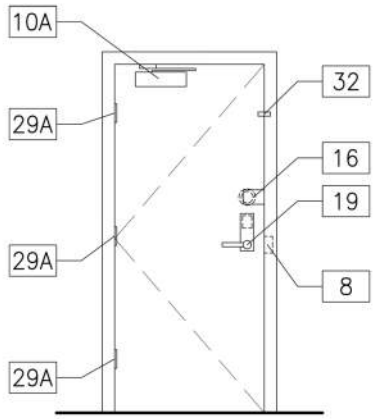
Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 9	1 ea.	Electric Strike	Trine	EN 960 x 24DC
Note:	Use Item 9 in lieu of Item 8 only when Folger Adams does not fit.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item 10A	1 ea.	Closer	LCN	4041 x reg arm - AL
Note:	For regular bevel doors. Use Item 10A and h in lieu of Item 10.				
Use:	Item h	1 ea.	Wall Stop	Ives	407CVX
Note:	Use Item 10A and h in lieu of Item 10.				

SHW-12C—Non-Forced Entry CAA Local and Remote Access Control Door

Old: SHW-12C Mod 1

Application	This hardware set is most commonly used for CAA suite entrance doors.
Additional Information	X-09 is required at DOD, Global Affairs, and FBI Suite entrance doors.
Functions	CAA Suite, Remote Access



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41	
19	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
16	1 ea.	Electromechanical Combination Lock	Kaba Mas	CDX-09 (GSA Specification FF-L-2890)	
8	1 ea.	Electric Strike	Folger Adam	310-2-3/4 x 24DC	1
10A	1 ea.	Closer	LCN	4041 x reg arm - AL	2
32	1 ea.	Magnetic Switch	GE Security	1076H-G	3
g	3 ea.	Silencers	Ives	SR 64	
h	1 ea.	Wall Stop	Ives	407CVX	

Note 1: Strikes are non-fail safe (fail secure).

Note 2: For regular bevel doors.

Note 3: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

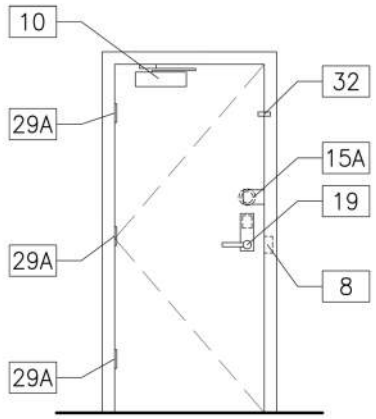
Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 9	1 ea.	Electric Strike	Trine	EN 960 x 24DC
Note:	Use Item 9 in lieu of Item 8 only when Folger Adams does not fit.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior outswing doors. May use Item 10 in lieu of Item 10A and Item h.				
Use:	Item 10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL
Note:	For interior outswing doors. May use Item 10 in lieu of Item 10A and Item h.				

SHW-12D—Non-Forced Entry CAA Local / Remote Access Control Door

Old: SHW-12C

Application	This hardware set is most commonly used for CAA suite entrance doors. Typically used in existing facilities when a CDX-09 is not required.
Functions	CAA Suite, Remote Access



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41	
19	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
15A	1 ea.	Combination Lock with Deadbolt Extension	Sargent & Greenleaf	8555-101	1
8	1 ea.	Electric Strike	Folger Adam	310-2-3/4 x 24DC	2
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	3
32	1 ea.	Magnetic Switch	GE Security	1076H-G	4
g	3 ea.	Silencers	Ives	SR 64	

Note 1: For in-swing doors.

Note 2: Strikes are non-fail safe (fail secure).

Note 3: Mount on secure side.

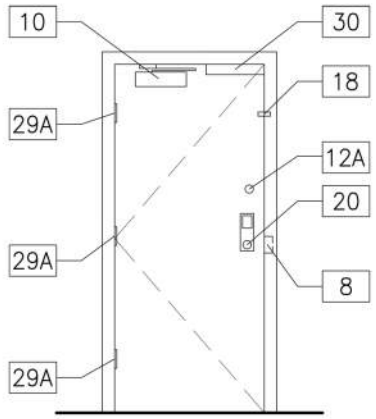
Note 4: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 9	1 ea.	Electric Strike	Trine	EN 960 x 24DC
Note:	Use Item 9 in lieu of Item 8 only when Folger Adams does not fit.				
Use:	Item 15C	1 ea.	Combination Lock with Deadbolt Extension	Sargent & Greenleaf	8555-102
Note:	Use Item 15C in lieu of Item 15A for outswing doors.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item 10A	1 ea.	Closer	LCN	4041 x reg arm - AL
Note:	For regular bevel doors. Use Item 10A and Item h in lieu of Item 10.				
Use:	Item h	1 ea.	Wall Stop	Ives	407CVX
Note:	Use Item 10A and Item h in lieu of Item 10.				

SHW-12E—Non-Forced Entry Local / Remote Access Control Door

Old: SHW-12B Mod 2



Application	This hardware set is used at the Sally Port of the CAC where local access control is desired on both sides of the door.
Functions	Exterior, Remote Access

Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
20	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	EE1021M/EE1021M-26D-41	
20	2 ea.	Interchangeable Core	Medeco	32-0201-26D	
12A	1 ea.	Maxum Deadbolt	Medeco	11-C422 - 26D	
12A	2 ea.	Interchangeable Core	Medeco	32-0201-26D	
30	1 ea.	Electromagnetic Locking Device	Dynalock	2268-10 x DYNST x 24V	
8	1 ea.	Electric Strike	Folger Adam	310-2-3/4 x 24DC	1
10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL	2
18	1 ea.	Magnetic Switch	GE Security	1076D-G	3
b	1 ea.	Sill Sweep	Pemko	315CN	4
g	3 ea.	Silencers	Ives	SR 64	5

Note 1: Strikes are non-fail safe (fail secure).

Note 2: Mount on interior side of door.

Note 3: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 4: At exterior doors.

Note 5: At interior doors.

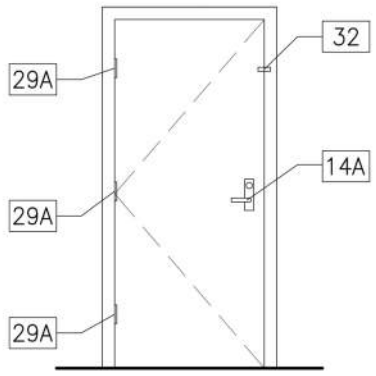
Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS
Note:	Use Item 39 in lieu of Item 30 on doors when there is not enough room at the head for the closer and magnetic lock.				
Use:	Item 9	1 ea.	Electric Strike	Trine	EN 960 x 24DC
Note:	Use Item 9 in lieu of Item 8 only when Folger Adam does not fit.				
Use:	Item 10A	1 ea.	Closer	LCN	4041 x reg arm - AL
Note:	For regular bevel doors. Use Item 10A and Item h in lieu of Item 10.				
Use:	Item h	1 ea.	Wall Stop	Ives	407CVX
Note:	Use Item 10A and Item h in lieu of Item 10.				

SHW-13—Non-Forced Entry Equipment Room Door

Old: SHW-13

Application	This hardware set is commonly used for all electrical, mechanical or equipment room doors in NOB construction. The 402F30 Scalp Plate blocks the "rocker switch" for the lockset, thus causing the handle to be always locked.
Additional Information	This hardware set is also used for secure storage areas, including Secure rooms, Technical Security EC rooms, Consular Personal Effects Storage, and Radio rooms. Rooms that contain equipment that generate heat, specify SHW-17 when no 24/7 AC is provided.
Functions	Mechanical/Electrical/Equipment, Exterior



Standard Hardware Set

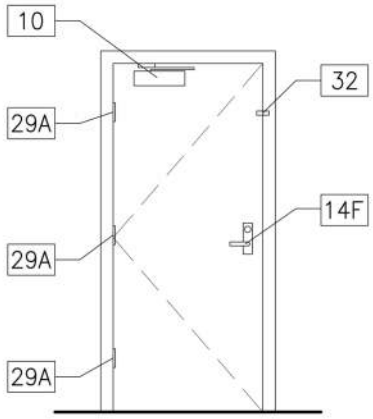
Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
14A	1 ea.	Lock Set	Corbin Russwin	ML2067 x NSM x 32D	
14A	1 ea.	Scalp Plate	Corbin Russwin	402F30	
14A	1 ea.	Interchangeable Core and Mortise Cylinder	Medeco	32-0200-26D x CT-Z00	
32	1 ea.	Magnetic Switch	GE Security	1076H-G	1
g	3 ea.	Silencers	Ives	SR 64	

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				

SHW-13A—Non-Forced Entry Equipment Room Door



Application	This door is used for roof access when FE/BR is not required and allows for regular access from both sides to prevent lock-out.
Functions	Mechanical/Electrical/Equipment

Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
14F	1 ea.	Lock Set	Corbin Russwin	ML2022 x NSM x 32D	
14F	2 ea.	Interchangeable Core and Mortise Cylinder	Medeco	32-0200-26D x CT-Z00	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	1
32	1 ea.	Magnetic Switch	GE Security	1076H-G	2
g	3 ea.	Silencers	Ives	SR 64	

Note 1: For reverse bevel doors

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

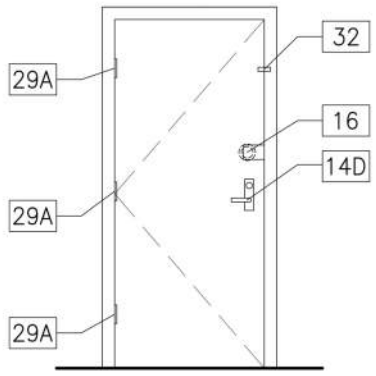
Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item 10A	1 ea.	Closer	LCN	4041 x reg arm - AL
Note:	For regular bevel doors. Use Item 10A and Item h in lieu of Item 10.				
Use:	Item h	1 ea.	Wall Stop	Ives	407CVX
Note:	Use Item 10A and Item h in lieu of Item 10.				

SHW-14—Non-Forced Entry Equipment Room and CAA Door

Old: SHW-14 Mod 2

Application	This hardware set is commonly used for CAA equipment rooms and remote storage for Defense Attache Officer and Global Affairs.
Additional Information	This set may also be used for other remote sensitive spaces or in an application where a deadbolt is required and a spin dial is preferred over keys.
Functions	Mechanical/Electrical/Equipment, CAA Suite



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
14D	1 ea.	Passage Set	Corbin Russwin	ML2010 x NSM x32D	
16	1 ea.	Electromechanical Combination Lock	Kaba Mas	CDX-09 (GSA Specification FF-L-2890)	
32	1 ea.	Magnetic Switch	GE Security	1076H-G	1
g	3 ea.	Silencers	Ives	SR 64	

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

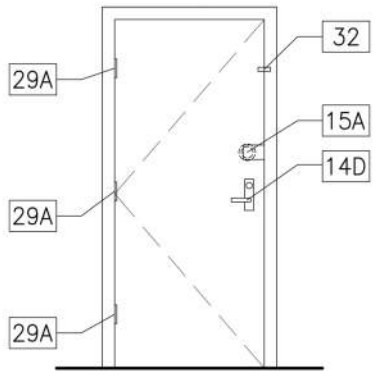
Approved Substitutions

Use: Item 29 3 ea. Hinge - NRP (non-removable pin) McKinney T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note: McKinney hinge is also acceptable.

SHW-14A—Non-Forced Entry Telephone / Equipment Room CAA Door

Old: SHW-14

Application	This hardware set is commonly used for telephone rooms, CAA equipment rooms and secure storage. The same as SHW-14 except for the use of the Sargent & Greenleaf 8555 spin dial.
Additional Information	This set may also be used for other remote sensitive spaces or in an application where a deadbolt is required and a spin dial is preferred over keys.
Functions	Mechanical/Electrical/Equipment, CAA Suite



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
14D	1 ea.	Passage Set	Corbin Russwin	ML2010 x NSM x32D	
15A	1 ea.	Combination Lock with Deadbolt Extension	Sargent & Greenleaf	8555-101	1
32	1 ea.	Magnetic Switch	GE Security	1076H-G	2
g	3 ea.	Silencers	Ives	SR 64	

Note 1: For in-swing doors.

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

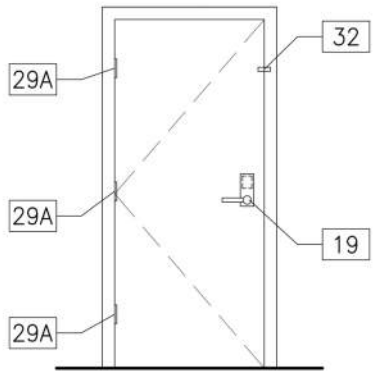
Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 15C	1 ea.	Combination Lock with Deadbolt Extension	Sargent & Greenleaf	8555-102
Note:	Use Item 15C in lieu of Item 15A for outswing doors.				

SHW-15—Non-Forced Entry Manual Access Control Door

Old: SHW-15

Application	This hardware set is commonly used to secure a space within a secure area.
Additional Information	This set may also be used as the entrance to non-CAA spaces where access control is required. This door utilizes the same hardware as a SHW-7C, except it does not include a closer.



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41	
19	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
32	1 ea.	Magnetic Switch	GE Security	1076H-G	1
g	3 ea.	Silencers	Ives	SR 64	
h	1 ea.	Wall Stop	Ives	407CVX	2

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

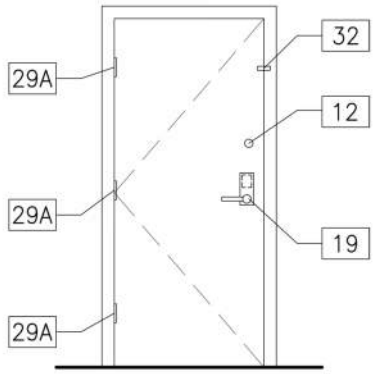
Note 2: At interior doors.

Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				

SHW-15A—Non-Forced Entry Manual Access Control Door

Old: SHW-15A



Application	This hardware set is commonly used in SED's for cashier booths or at entrance doors to the Mail room. See SHW-11 for same hardware with S&G spin dial.
Additional Information	When spin dial type lock is preferred, see the SHW-11sets.

Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41	
19	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
12	1 ea.	Maxum Deadbolt	Medeco	11-C402 - 26D	
12	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
32	1 ea.	Magnetic Switch	GE Security	1076H-G	1
g	3 ea.	Silencers	Ives	SR 64	
h	1 ea.	Wall Stop	Ives	407CVX	2

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 2: At interior doors.

Approved Substitutions

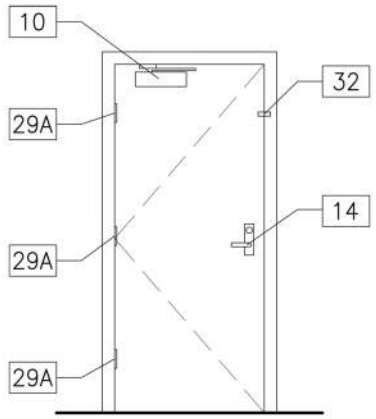
Use: Item 29 3 ea. Hinge - NRP (non-removable pin) McKinney T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch

Note: McKinney hinge is also acceptable.

SHW-15B—Non-Forced Entry Manual CAA Second Egress Door

Old: SHW-13 Mod 1

Application	This hardware set is commonly used for a second egress from a CAA suite.
Additional Information	No outside cylinder is specified to prevent the door from being unlocked from the outside after hours.
Functions	CAA Suite



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
14	1 ea.	Lock Set	Corbin Russwin	ML2067 x NSM x 32D x M30 less outside cylinder	
14	1 ea.	Interchangeable Core and Mortise Cylinder	Medeco	32-0200-26D x CT-Z00	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	1
32	1 ea.	Magnetic Switch	GE Security	1076H-G	2
g	3 ea.	Silencers	Ives	SR 64	

Note 1: For reverse bevel doors.

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

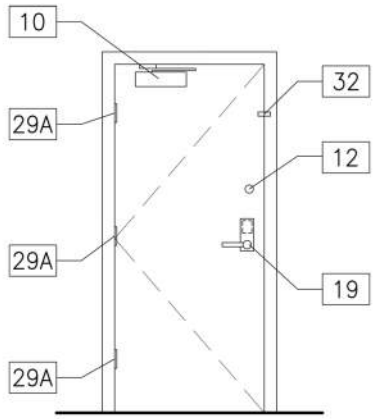
Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item 10A	1 ea.	Closer	LCN	4041 x reg arm - AL
Note:	May use Item 10A and h in lieu of Item 10 for regular bevel doors.				
Use:	Item h	1 ea.	Wall Stop	Ives	407CVX
Note:	May use Item 10A and h in lieu of Item 10 for regular bevel doors.				

SHW-15C—Non-Forced Entry Manual Access Control Door

Old: SHW-15A Mod 1

Application	This hardware set is commonly used for cashier booths or at entrance doors to the Mail room when a key is preferred over a three position spin dial. It also meets the requirements for the CAA, but is not allowed for C-LAN applications.
Additional Information	Identical to SHW 15A with added closer. To add remote access to this hardware, see SHW-12B. This hardware is also used for MSG react rooms at existing posts or for small MSG detachments.
Functions	CAA Suite



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41	
19	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
12	1 ea.	Maxum Deadbolt	Medeco	11-C402 - 26D	
12	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	1
32	1 ea.	Magnetic Switch	GE Security	1076H-G	2
g	3 ea.	Silencers	Ives	SR 64	

Note 1: For reverse bevel doors

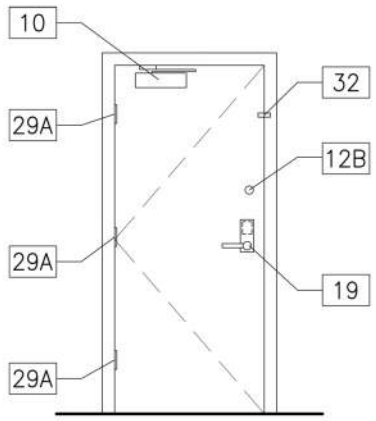
Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item 10A	1 ea.	Closer	LCN	4041 x reg arm - AL
Note:	May use Item 10A and h in lieu of Item 10 for regular bevel doors.				
Use:	Item h	1 ea.	Wall Stop	Ives	407CVX
Note:	May use Item 10A and h in lieu of Item 10 for regular bevel doors.				

SHW-15D—Non-Forced Entry Manual CAA Second Egress / Ingress Door

Application	This hardware set is used at CAA suites allowing for a second means of egress / ingress. Primarily used at Ambassador's office private entrance and for the Global Affairs suite.
Additional Information	Use of this hardware set is appropriate as a second means of egress out of a CAA suite where fire requirements indicated that a "one-handed egress" is necessary. This set includes a closer. No outside cylinder is specified on deadbolt to prevent the door from being unlocked from the outside after hours.
Functions	CAA Suite



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41	
19	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
12B	1 ea.	Maxum Deadbolt	Medeco	11-C282 - 26D	1
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	2
32	1 ea.	Magnetic Switch	GE Security	1076H-G	3
g	3 ea.	Silencers	Ives	SR 64	

Note 1: Interior thumbturn and blank plate on the exterior.

Note 2: For reverse bevel doors.

Note 3: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

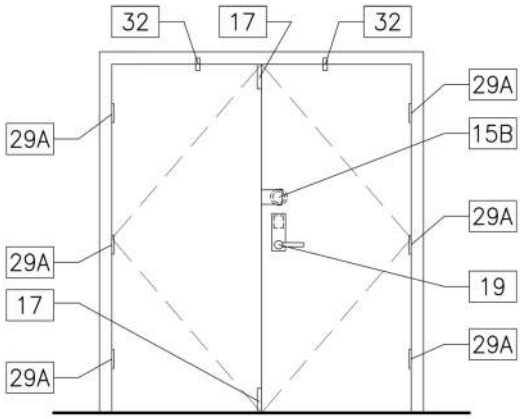
Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item 10A	1 ea.	Closer	LCN	4041 x reg arm - AL
Note:	May use Item 10A and h in lieu of Item 10 for regular bevel doors.				
Use:	Item h	1 ea.	Wall Stop	Ives	407CVX
Note:	May use Item 10A and h in lieu of Item 10 for regular bevel doors.				

SHW-16—Non-Forced Manual Entry Pair Door

Old: SHW-16

Application	This hardware set is principally used at disintegrator rooms located outside the PCC and at CAA entrances that require a pair of doors.
Functions	Mechanical/Electrical/Equipment, CAA Suite



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	6 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
17	2 ea.	Head and Foot Bolts	Hager	1413	1
19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41	
19	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
15B	1 ea.	Combination Lock with Deadbolt Extension	Sargent & Greenleaf	8555-104	2
32	2 ea.	Magnetic Switch	GE Security	1076H-G	3
a	1 set	Weather Stripping	Pemko	332CR	4
b	1 ea.	Sill Sweep	Pemko	315CN	4
c	1 set	Stile Gasket	Pemko	375CR	

Note 1: Use in metal doors.

Note 2: For reverse pair swing doors.

Note 3: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 4: At exterior doors.

Approved Substitutions

Use:	Item 29	6 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 17A	2 ea.	Head and Foot Bolts	Hager	1414
Note:	Use Item 17A in lieu of Item 17 for wood doors.				
Use:	Item 31A	2 ea.	Sliding Deadbolt	Sargent & Greenleaf	1881-003 (with #13 strike)
Note:	Use Item 31A in lieu of Item 17 for existing doors.				

Use-specific Modifications

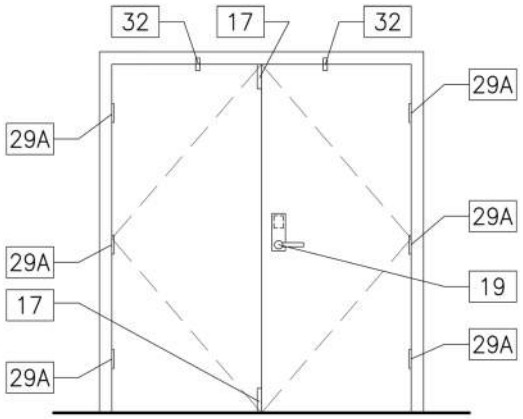
A.) For applications requiring CDX-09:

Delete:	Item 15B	1 ea.	Combination Lock with Deadbolt Extension	Sargent & Greenleaf	8555-104
Add:	Item 16	1 ea.	Electromechanical Combination Lock	Kaba Mas	CDX-09 (GSA Specification FF-L-2890)

SHW-16A—Non-Forced Entry Pair Door

Old: SHW-16 Mod 1

Application	This hardware set is principally used at disintegrator rooms located within the PCC or at other areas already secured by a spin-dial combination lock.
Additional Information	This hardware is commonly modified for use anywhere a non-forced entry door pair requires security hardware.
Functions	Mechanical/Electrical/Equipment



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	6 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
17	2 ea.	Head and Foot Bolts	Hager	1413	1
19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41	
19	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
32	2 ea.	Magnetic Switch	GE Security	1076H-G	2
a	1 set	Weather Stripping	Pemko	332CR	3
b	1 ea.	Sill Sweep	Pemko	315CN	3
c	1 set	Stile Gasket	Pemko	375CR	

Note 1: Use in metal doors.

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

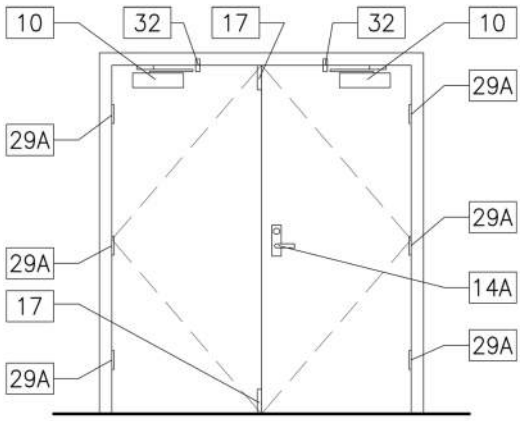
Note 3: At exterior doors.

Approved Substitutions

Use:	Item 29	6 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 17A	2 ea.	Head and Foot Bolts	Hager	1414
Note:	Use Item 17A in lieu of Item 17 for wood doors.				
Use:	Item 31A	2 ea.	Sliding Deadbolt	Sargent & Greenleaf	1881-003 (with #13 strike)
Note:	Use Item 31A in lieu of Item 17 for existing doors.				

SHW-16B—Non-Forced Entry Equipment Room Pair Door

Application	This hardware set is used for electrical, mechanical or equipment room pair of doors in NOB construction. The 402F30 Scalp Plate blocks the "rocker switch" for the lockset thus causing to knob to be always locked.
Functions	Mechanical/Electrical/Equipment, Exterior



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	6 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
17	2 ea.	Head and Foot Bolts	Hager	1413	1
14A	1 ea.	Lock Set	Corbin Russwin	ML2067 x NSM x 32D	
14A	1 ea.	Scalp Plate	Corbin Russwin	402F30	
14A	1 ea.	Interchangeable Core and Mortise Cylinder	Medeco	32-0200-26D x CT-Z00	
10	2 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
32	2 ea.	Magnetic Switch	GE Security	1076H-G	2
g	3 ea.	Silencers	Ives	SR 64	

Note 1: Use in metal doors.

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

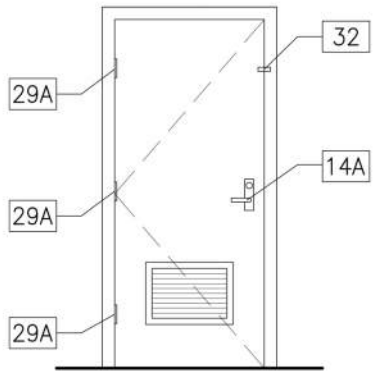
Approved Substitutions

Use:	Item 29	6 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 10	2 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item 17A	2 ea.	Head and Foot Bolts	Hager	1414
Note:	Use Item 17A in lieu of Item 17 when used for wood doors.				
Use:	Item 31A	2 ea.	Sliding Deadbolt	Sargent & Greenleaf	1881-003 (with #13 strike)
Note:	Use Item 31A in lieu of Item 17 for existing doors.				

SHW-17—Non-Forced Entry EC Room Door

Old: SHW-17

Application	This hardware set is principally used at the EC Room when there is a 24 hour American presence and 24/7 cooling is not provided. If cooling is provided, use SHW-13.
Functions	Mechanical/Electrical/Equipment



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
14A	1 ea.	Lock Set	Corbin Russwin	ML2067 x NSM x 32D	
14A	1 ea.	Scalp Plate	Corbin Russwin	402F30	
14A	1 ea.	Interchangeable Core and Mortise Cylinder	Medeco	32-0200-26D x CT-Z00	
32	1 ea.	Magnetic Switch	GE Security	1076H-G	1
g	3 ea.	Silencers	Ives	SR 64	
h	1 ea.	Wall Stop	Ives	407CVX	2

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

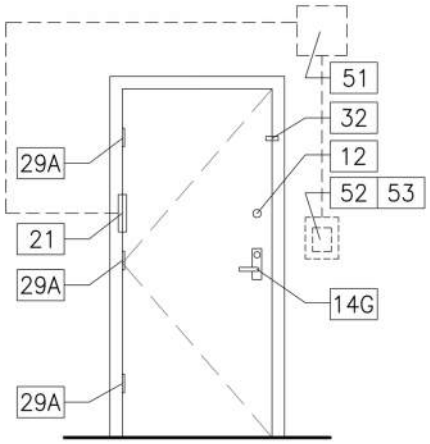
Note 2: At interior doors.

Approved Substitutions

Use: Item 29 3 ea. Hinge - NRP (non-removable pin) McKinney T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch

Note: McKinney hinge is also acceptable.

SHW-17A—Non-Forced Entry EC Room Lock and Leave Door



Application	This hardware set is typically used for the EC room in Lock and Leave facilities.
Additional Information	The equipment in the EC Room generates heat. Add louvers to this door for ventilation if 24 hour air conditioning is not provided.
Functions	Lock and Leave, Mechanical/Electrical/Equipment

Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
14G	1 ea.	Lock Set	Corbin Russwin	ML20905 x NSM x 32D	
14G	1 ea.	Interchangeable Core and Mortise Cylinder	Medeco	32-0200-26D x CT-Z00	
51	1 ea.	Digi*Trac Scramble Pad Controller	Hirsch	M1N or M1N 230	
52	1 ea.	Scramble Pad	Hirsch	DS-47L	
53	1 ea.	Mounting Box	Hirsch	MB-8	
12	1 ea.	Maxum Deadbolt	Medeco	11-C402 - 26D	
12	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
32	1 ea.	Magnetic Switch	GE Security	1076H-G	1
g	3 ea.	Silencers	Ives	SR 64	
h	1 ea.	Wall Stop	Ives	407CVX	2

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

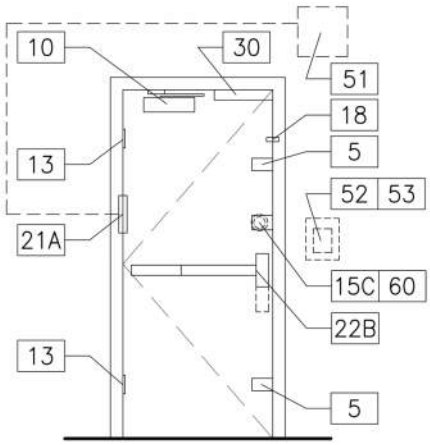
Note 2: At interior doors.

Approved Substitutions

Use: Item 29 3 ea. Hinge - NRP (non-removable pin) McKinney T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note: McKinney hinge is also acceptable.

SHW-18—Forced Entry Lock and Leave Opaque Door

Old: SHW-18



Application	This hardware set is used only for buildings at which there is not a 24-hour American presence. This is the last door to be used to secure the building for the night.
Additional Information	For an opaque door only. For glazed door conditions, use SHW 18A or 18B.
Functions	Lock and Leave, Forced Entry

Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
22B	1 ea.	Panic Exit Device	Von Duprin	RXEL98DT-F x 900DT x 299F strike-32D	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
15C	1 ea.	Combination Lock with Deadbolt Extension	Sargent & Greenleaf	8555-102	1
51	1 ea.	Digi*Trac Scramble Pad Controller	Hirsch	M1N or M1N 230	
52	1 ea.	Scramble Pad	Hirsch	DS-47L	
53	1 ea.	Mounting Box	Hirsch	MB-8	
30	1 ea.	Electromagnetic Locking Device	Dynalock	2268-10 x DYNST x 24V	
21A	1 ea.	Electric Power Transfer	Von Duprin	EPT-10 x SP28	
10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	2
60	1 ea.	Spin Dial Cover	Lockmasters Inc.	WPC1020D	
a	1 set	Weather Stripping	Pemko	332CR	3
b	1 ea.	Sill Sweep	Pemko	315CN	3

Note 1: For outswing doors.

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

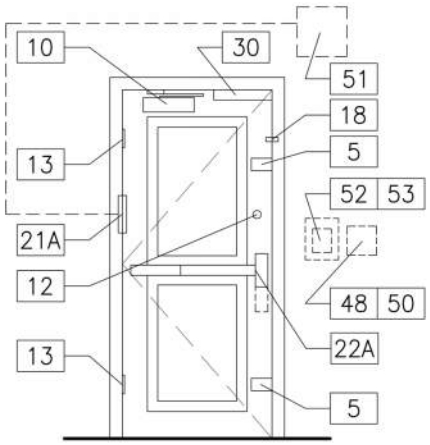
Note 3: At exterior doors.

Approved Substitutions

Use:	Item 39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS
Note:	Use item 39 in lieu of item 30 when there is not enough room at the head for the closer and item 30 electromagnetic lock.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-18A—Forced Entry Lock and Leave Transparent Door

Old: SHW-18A



Application	This hardware set is used only for buildings at which there is not a 24-hour American presence. This is the last door to be used to secure the building or CAA space for the night.
Functions	Lock and Leave, Fire, Forced Entry

Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
22A	1 ea.	Panic Exit Device	Von Duprin	RXEL98NL-F x 990NL-R x 299F strike-32D	
22A	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
12	1 ea.	Maxum Deadbolt	Medeco	11-C402 - 26D	
12	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
51	1 ea.	Digi*Trac Scramble Pad Controller	Hirsch	M1N or M1N 230	
52	1 ea.	Scramble Pad	Hirsch	DS-47L	
53	1 ea.	Mounting Box	Hirsch	MB-8	
30	1 ea.	Electromagnetic Locking Device	Dynalock	2268-10 x DYNST x 24V	
48	1 ea.	Recessed Mount Key Control Lockbox w/ Combination Lock	Knox	4440-GCI	
50	1 ea.	Double Pole Single Throw Toggle Switch	Various Manufacturers	Generic	1
21A	1 ea.	Electric Power Transfer	Von Duprin	EPT-10 x SP28	
10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	2
a	1 set	Weather Stripping	Pemko	332CR	3
b	1 ea.	Sill Sweep	Pemko	315CN	3

Note 1: Rating 1 amp @ 24VDC or greater

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 3: At exterior doors.

Approved Substitutions

Use: Item 39 1 ea. Electromagnetic Locking Device Locknetics 390+ DSM/MBS

Note: Use item 39 in lieu of item 30 when there is not enough room at the head for the closer and item 30 electromagnetic lock.

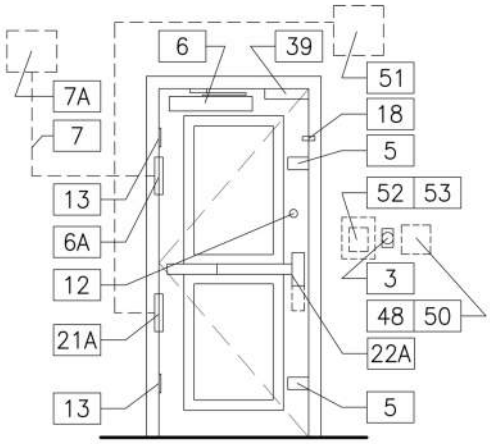
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D

Note: Item d may be substituted for item a at exterior doors.

SHW-18B—Forced Entry Lock and Leave Door / ADA Accessible

Old: SHW-18A ufas

Application	This hardware set is used only for buildings at which there is not a 24-hour American presence. This is the last door to be used to secure the building or CAA area for the night. This door is the same as SHW-18A but accessible compliant.
Additional Information	This hardware complies with the ADA and ABA Accessibility Guidelines for Buildings and Facilities, Parts II and III, the Access Board, July 23, 2004.
Functions	Accessible, Lock and Leave, Fire, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
22A	1 ea.	Panic Exit Device	Von Duprin	RXEL98NL-F x 990NL-R x 299F strike-32D	
22A	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
12	1 ea.	Maxum Deadbolt	Medeco	11-C402 - 26D	
12	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
51	1 ea.	Digi*Trac Scramble Pad Controller	Hirsch	M1N or M1N 230	
52	1 ea.	Scramble Pad	Hirsch	DS-47L	
53	1 ea.	Mounting Box	Hirsch	MB-8	
39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS	
48	1 ea.	Recessed Mount Key Control Lockbox w/ Combination Lock	Knox	4440-GCI	
50	1 ea.	Double Pole Single Throw Toggle Switch	Various Manufacturers	Generic	1
21A	1 ea.	Electric Power Transfer	Von Duprin	EPT-10 x SP28	
6	1 ea.	Pneumatic Auto-Equalizer	LCN	4840	
6	1 ea.	Cover	LCN	4840-72MC	
6	1 ea.	Stop	LCN	4840-3077CNS Cush-N-Stop	
6A	1 ea.	Pneumatic Transfer Hinge	LCN	4840-460	
7		Pneumatic Tubing	LCN	7910-925	3
7A	1 ea.	Door Control Package	LCN	7981 ES	2
3	2 ea.	Wall Mounted Switches	Locknetics	625-BL-H-DP-626	4
18	1 ea.	Magnetic Switch	GE Security	1076D-G	5
a	1 set	Weather Stripping	Pemko	332CR	6
b	1 ea.	Sill Sweep	Pemko	315CN	6

Note 1: Rating 1 amp @ 24VDC or greater.

Note 2: The LCN door control package with compressor and pneumatic tubing from the transfer hinge to the control box, compressor, and actuator buttons will be by provided by the government on government installations. The general contractor is to provide them on non-government installations. General contractor to provide a step down transformer for the LCN compressor in all cases. The 7981 ES door control package includes the following: 293G exhaust muffler, 900 power supply, 903 timer module, 3299A solenoid valve assembly, 3390A ES relay assembly, 3960 compressor assembly plus an AES 941-R relay module per the TSS installation manual.

Note 3: Connect tubing between auto-equalizer and transfer hinge. Leave 300 mm of tubing attached to the double ended barbed fitting in the frame for future connection by the technical security installation team.

Note 4: When specified for the main entrance/building exterior, the accessibility wall switch on the attack side, or ingress, is to be wired to operate only during operational/day access hours, similar in function to the SHW-5A hardware. In limited access area (LAA) applications, the accessibility wall switch on the attack side, or ingress side, operates only after the Hirsch controller or receptionist from within the LAA grants access.

Note 5: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

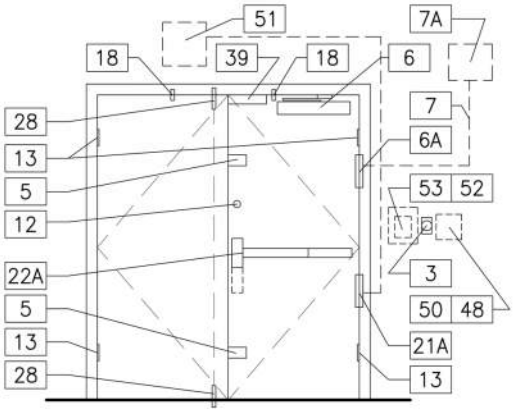
Note 6: At exterior doors.

Approved Substitutions

Use:	Item 3A	2 ea.	Pole/Bollard Mounted Switches	MS Sedco	608
Note:	Use Item 3A in lieu of Item 3 in place of wall mounted switches where conditions require.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-18C—Forced Entry Lock and Leave Pair Door / ADA Accessible

Application	This hardware set is used only for buildings at which there is not a 24-hour American presence. This is the last door to be used to secure the building or CAA area for the night.
Additional Information	This hardware complies with the ADA and ABA Accessibility Guidelines for Buildings and Facilities, Parts II and III, the Access Board, July 23, 2004.
Functions	Accessible, Lock and Leave, Fire, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
22A	1 ea.	Panic Exit Device	Von Duprin	RXEL98NL-F x 990NL-R x 299F strike-32D	
22A	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
28		Certified Head and Foot Bolts	Various Manufacturers	Model and quantity to match certified / rated door	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
12	1 ea.	Maxum Deadbolt	Medeco	11-C402 - 26D	
12	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
51	1 ea.	Digi*Trac Scramble Pad Controller	Hirsch	M1N or M1N 230	
52	1 ea.	Scramble Pad	Hirsch	DS-47L	
53	1 ea.	Mounting Box	Hirsch	MB-8	
39	1 ea.	Electromagnetic Locking Device	Locknetics	390+ DSM/MBS	1
48	1 ea.	Recessed Mount Key Control Lockbox w/ Combination Lock	Knox	4440-GCI	
50	1 ea.	Double Pole Single Throw Toggle Switch	Various Manufacturers	Generic	2
21A	1 ea.	Electric Power Transfer	Von Duprin	EPT-10 x SP28	
6	1 ea.	Pneumatic Auto-Equalizer	LCN	4840	
6	1 ea.	Cover	LCN	4840-72MC	
6	1 ea.	Stop	LCN	4840-3077CNS Cush-N-Stop	
6A	1 ea.	Pneumatic Transfer Hinge	LCN	4840-460	
7		Pneumatic Tubing	LCN	7910-925	4
7A	1 ea.	Door Control Package	LCN	7981 ES	3
3	2 ea.	Wall Mounted Switches	Locknetics	625-BL-H-DP-626	5
18	2 ea.	Magnetic Switch	GE Security	1076D-G	6
a	1 set	Weather Stripping	Pemko	332CR	7
b	2 ea.	Sill Sweep	Pemko	315CN	7

Note 1: At active leaf.

Note 2: Rating 1 amp @ 24VDC or greater.

Note 3: The LCN door control package with compressor and pneumatic tubing from the transfer hinge to the control box, compressor, and actuator buttons will be by provided by the government on government installations. The general contractor is to provide them on non-government installations. General contractor to provide a step down transformer for the LCN compressor in all cases. The 7981 ES door control package includes the following: 293G exhaust muffler, 900 power supply, 903 timer module, 3299A solenoid valve assembly, 3390A ES relay assembly, 3960 compressor assembly plus an AES 941-R relay module per the TSS installation manual.

Note 4: Connect tubing between auto-equalizer and transfer hinge. Leave 300 mm of tubing attached to the double ended barbed fitting in the frame for future connection by technical security installation team.

Note 5: When specified for the main entrance/building exterior, the accessibility wall switch on the attack side, or ingress, is to be wired to operate only during operational/day access hours, similar in function to the SHW-5A hardware. In limited access area (LAA) applications, the accessibility wall switch on the attack side, or ingress side, operates only after the Hirsch controller or receptionist from within the LAA grants access.

Note 6: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 7: At exterior doors.

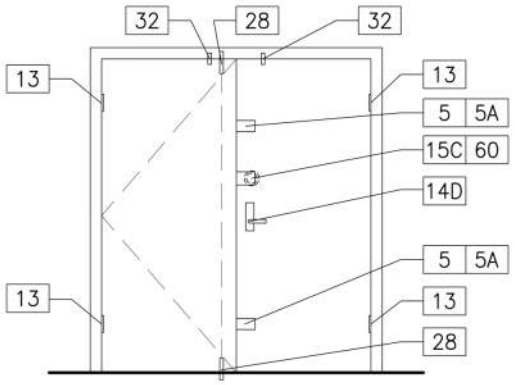
Approved Substitutions

Use:	Item 3A	2 ea.	Pole/Bollard Mounted Switches	MS Sedco	608
Note:	Use item 3A in lieu of item 3 where conditions require.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-19—Forced Entry Generator Room Pair Door

Old: SHW-19

Application	This hardware set is used at the PCC and protected generator room.
Additional Information	Verify the fire rating when used at an interior condition.
Functions	Mechanical/Electrical/Equipment, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
14D	1 ea.	Passage Set	Corbin Russwin	ML2010 x NSM x32D	
28		Certified Head and Foot Bolts	Various Manufacturers	Model and quantity to match certified / rated door	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
5A		Certified Forced Entry Lock with Exterior Keyed Cylinders	Medeco		
15C	1 ea.	Combination Lock with Deadbolt Extension	Sargent & Greenleaf	8555-102	
32	2 ea.	Magnetic Switch	GE Security	1076H-G	1
60	1 ea.	Spin Dial Cover	Lockmasters Inc.	WPC1020D	
a	1 set	Weather Stripping	Pemko	332CR	2
b	2 ea.	Sill Sweep	Pemko	315CN	2
c	1 set	Stile Gasket	Pemko	375CR	

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 2: At exterior doors.

Approved Substitutions

Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

Use-specific Modifications

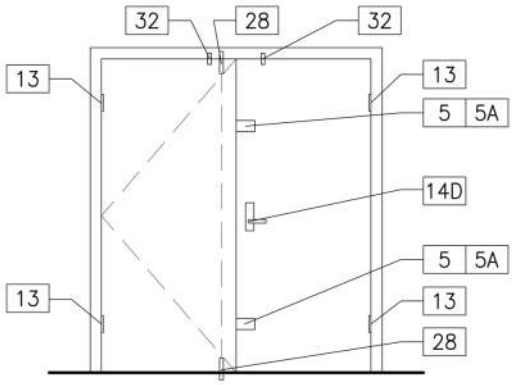
A.) For PCC generator, use based on alarm system type:

Delete:	Item 32	2 ea.	Magnetic Switch	GE Security	1076H-G
Add:	Item 26	2 ea.	Balanced Magnetic Switch	ADT	SM-19 (Wells Fargo)

SHW-19A—Forced Entry Generator Room Pair Door

Old: SHW-19 Mod 1

Application	This hardware set is used at conditions other than the PCC protected generator room where FE/BR protection is required.
Additional Information	Verify the fire rating when used at an interior condition. Same as SHW-19 minus the 3-position spin dial.
Functions	Mechanical/Electrical/Equipment, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
14D	1 ea.	Passage Set	Corbin Russwin	ML2010 x NSM x32D	
28		Certified Head and Foot Bolts	Various Manufacturers	Model and quantity to match certified / rated door	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
5A		Certified Forced Entry Lock with Exterior Keyed Cylinders	Medeco		
32	2 ea.	Magnetic Switch	GE Security	1076H-G	1
a	1 set	Weather Stripping	Pemko	332CR	2
b	2 ea.	Sill Sweep	Pemko	315CN	2
c	1 set	Stile Gasket	Pemko	375CR	

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 2: At exterior doors.

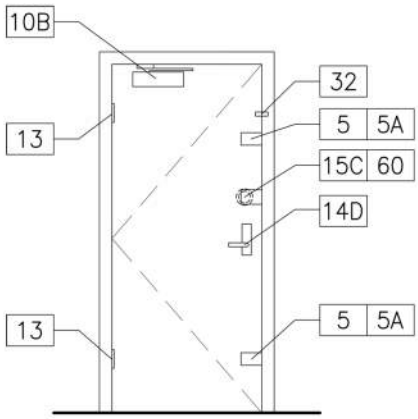
Approved Substitutions

Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

SHW-19B—Forced Entry Generator Room Door

Old: SHW-19 Mod 3

Application	This hardware set is used for single leaf PCC protected generator rooms or PCC switchgear when not located in the PCC generator suite.
Additional Information	Verify the fire rating when used at an interior condition.
Functions	Mechanical/Electrical/Equipment, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
14D	1 ea.	Passage Set	Corbin Russwin	ML2010 x NSM x32D	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
5A		Certified Forced Entry Lock with Exterior Keyed Cylinders	Medeco		
15C	1 ea.	Combination Lock with Deadbolt Extension	Sargent & Greenleaf	8555-102	
10B	1 ea.	Closer	LCN	4041-x S-H-CNS - AL	1
32	1 ea.	Magnetic Switch	GE Security	1076H-G	2
60	1 ea.	Spin Dial Cover	Lockmasters Inc.	WPC1020D	
a	1 set	Weather Stripping	Pemko	332CR	3
b	1 ea.	Sill Sweep	Pemko	315CN	3

Note 1: Spring cush-n-stop with hold open.

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 3: At exterior doors.

Approved Substitutions

Use:	Item 10B	1 ea.	Closer	LCN	4041-SRI x S-H-CNS - AL
Note:	For exterior door.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item a at exterior doors.				

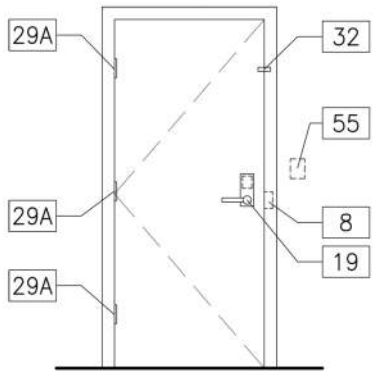
Use-specific Modifications

A.) For PCC generator, use based on alarm type:

Delete:	Item 32	1 ea.	Magnetic Switch	GE Security	1076H-G
Add:	Item 26	1 ea.	Balanced Magnetic Switch	ADT	SM-19 (Wells Fargo)

SHW-20—Non-Forced Entry Local and Emergency Access Door

Old: SHW-20



Application	This hardware set is used mostly for existing buildings where an emergency egress route leads into a secure area or between two restricted areas with a common access area.
Functions	CAA Suite

Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
19	1 ea.	Mechanical Pushbutton Combination Lock	Simplex	L(hand)1021M-26D-41	
19	1 ea.	Interchangeable Core	Medeco	32-0201-26D	
8	1 ea.	Electric Strike	Folger Adam	310-2-3/4 x 24DC	1
55	1 ea.	Emergency Switch	Rutherford Controls	RCI-904EB	
32	1 ea.	Magnetic Switch	GE Security	1076H-G	2
g	3 ea.	Silencers	Ives	SR 64	
h	1 ea.	Wall Stop	Ives	407CVX	3

Note 1: Strikes are non-fail safe (fail secure). Changed out for fire rated applications

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Note 3: At interior doors.

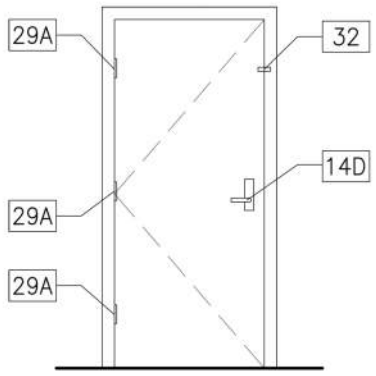
Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 9	1 ea.	Electric Strike	Trine	EN 960 x 24DC
Note:	Use only when Folger Adam does not fit.				

SHW-21—Non-Forced Entry General Purpose Door

Old: SHW-21

Application	This door is typically specified for offices and closets within a CAA suite that requires monitoring but no additional access control.
Functions	CAA Suite



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
14D	1 ea.	Passage Set	Corbin Russwin	ML2010 x NSM x32D	
32	1 ea.	Magnetic Switch	GE Security	1076H-G	1
g	3 ea.	Silencers	Ives	SR 64	
h	1 ea.	Wall Stop	Ives	407CVX	2

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

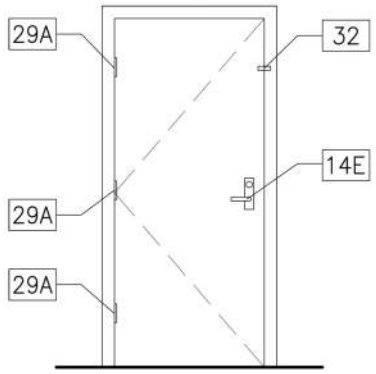
Note 2: At interior doors.

Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	May use Item 29 in lieu of Item 29A.				

SHW-21A—Non-Forced Entry General Purpose Door

Application	This hardware set is typically specified for the front office (Ambassador and Deputy Chief of Mission doors within the Executive suite), Section Chiefs or anywhere privacy and an alarm is required.
Functions	CAA Suite



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
14E	1 ea.	Lock Set	Corbin Russwin	ML2020 x NSM x 32D	
32	1 ea.	Magnetic Switch	GE Security	1076H-G	1
g	3 ea.	Silencers	Ives	SR 64	
h	1 ea.	Wall Stop	Ives	407CVX	2

Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

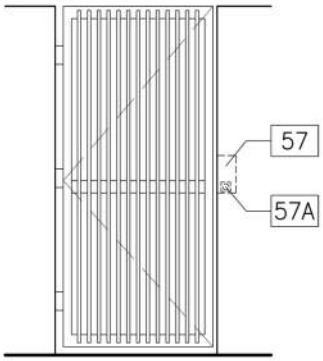
Note 2: At interior doors.

Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	May use Item 29 in lieu of Item 29A.				

SHW-22—Non-Forced Entry Gate Hardware with Closer

Application	This hardware set uses a mortise mounted lock for a sliding or swinging power operated gates. This gate includes a manual bypass on one side.
Additional Information	The BUL option allows for positive monitoring of the lock.

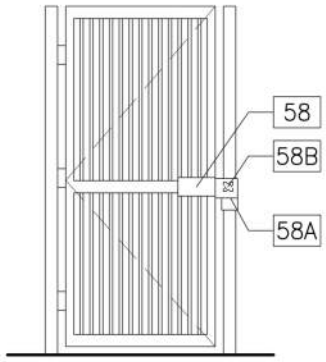


Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
57	1 ea.	Electric Deadbolt	Rixson	401R-24VDC-BUL-MR-626	
57A	1 ea.	Rim Cylinder Holder	Rixson	401-80 (hinge)	
57A	1 ea.	Rim Cylinder	Medeco		
	1 ea.	Closer	Various Manufacturers	As required by gate type	

SHW-22A—Non-Forced Entry Gate Hardware with Closer

Application	This hardware set uses a surface mounted lock for a sliding or swinging power operated gates. This gate includes a manual bypass on one side.
Additional Information	The BUL option allows for positive monitoring of the lock.

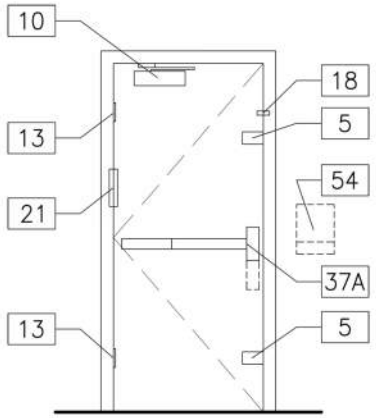


Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
58	1 ea.	Fence Gate Housing Deadbolt	Rixson	401-118-24VDC-BUL-MR-626	
58A	1 ea.	Locking Tongue	Rixson	401-110	
58B	1 ea.	Rim Cylinder Holder	Rixson	401-80 (rim)	
58B	1 ea.	Rim Cylinder	Medeco		
	1 ea.	Closer	Various Manufacturers	As required by gate type	

SHW-25—Forced Entry Residential / MSG Entry Local / Remote Door

Application	This hardware set is typically specified in residences such as an MSGQ when forced entry local and remote access is required.
Functions	Residential, Remote Access, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
37A	1 ea.	Panic Exit Device	Von Duprin	EL98L x 996L-R x 299 strike-32D	
37A	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
54	1 ea.	Cypher Lock / Keypad	Moniteq Research	CC-8521B	
54	2 ea.	Rechargeable Batteries	Moniteq Research	CC-BATT x 12 VDC x 7AH	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	1
c	1 set	Stile Gasket	Pemko	375CR	
e	1 ea.	Latching Panic Exit Saddle	Pemko	177AS	
f	1 ea.	Bottom Door Sweep	Pemko	345A	

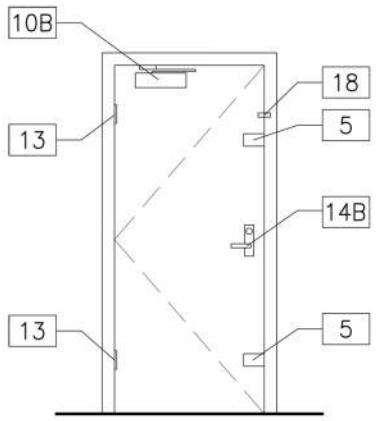
Note 1: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Approved Substitutions

Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior doors.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item c at exterior doors.				

SHW-25A—Forced Entry Residential / General Purpose Local Access Door

Application	This hardware set is typically specified in residences such as an MSGQ when forced entry protection is required.
Additional Information	Typical applications include, an MSGQ, patio doors, DCM and Chief of Missions Residence front doors.
Functions	Residential, Forced Entry



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
13		Certified Forced Entry Hinge	Various Manufacturers	Model and quantity to match certified / rated door	
14B	1 ea.	Lock Set	Corbin Russwin	ML2067 x NSM x 32D	
14B	1 ea.	Interchangeable Core and Mortise Cylinder	Medeco	32-0200-26D x CT-Z00	
5		Certified Forced Entry Lock	Various Manufacturers	Model and quantity to match certified / rated door	
10B	1 ea.	Closer	LCN	4041-x S-H-CNS - AL	1
18	1 ea.	Magnetic Switch	GE Security	1076D-G	2
c	1 set	Stile Gasket	Pemko	375CR	
e	1 ea.	Latching Panic Exit Saddle	Pemko	177AS	
f	1 ea.	Bottom Door Sweep	Pemko	345A	

Note 1: Spring cush-n-stop with hold open.

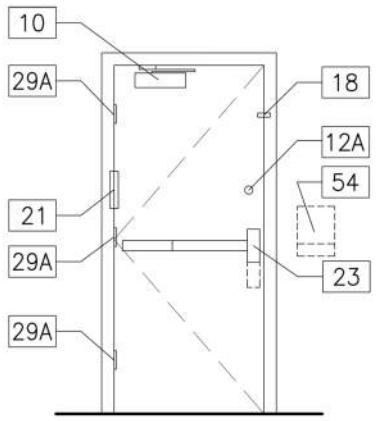
Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Approved Substitutions

Use:	Item 10B	1 ea.	Closer	LCN	4041-SRI x S-H-CNS - AL
Note:	For exterior door.				
Use:	Item d	1 set	Smoke Gasket	Pemko	S88D
Note:	Item d may be substituted for item c at exterior doors.				

SHW-26—Non-Forced Entry Residential / MSG Entry Local / Remote Door

Application	This hardware set is typically specified in residences such as an MSGQ when local and remote access is required.
Functions	Residential



Standard Hardware Set

Item #	*Qty.*	*Item Name*	*Manufacturer*	*Model Number*	*Notes*
29A	3 ea.	Hinge - NRP (non-removable pin)	Hager	BB1199-32D NRP 4-1/2 inch x 4-1/2 inch	
23	1 ea.	Panic Exit Device	Von Duprin	EL98TP x 990TP-R x 299 strike-32D	
23	1 ea.	Interchangeable Core and Rim Cylinder	Medeco	32-0400V-32D x CT-Y32 w/cylinder spacer ring	
12A	1 ea.	Maxum Deadbolt	Medeco	11-C422 - 26D	
12A	2 ea.	Interchangeable Core	Medeco	32-0201-26D	
54	1 ea.	Cypher Lock / Keypad	Moniteq Research	CC-8521B	
54	2 ea.	Rechargeable Batteries	Moniteq Research	CC-BATT x 12 VDC x 7AH	
10	1 ea.	Closer	LCN	4041 x Cush-N-Stop - AL	1
21	1 ea.	Electric Power Transfer	Von Duprin	EPT-2 x SP28	
18	1 ea.	Magnetic Switch	GE Security	1076D-G	2
c	1 ea.	Stile Gasket	Pemko	375CR	
e	1 ea.	Latching Panic Exit Saddle	Pemko	177AS	
f	1 ea.	Bottom Door Sweep	Pemko	345A	

Note 1: For reverse bevel doors.

Note 2: Verify jamb color, G-grey, standard color, N-neutral, M-mahogany.

Approved Substitutions

Use:	Item 29	3 ea.	Hinge - NRP (non-removable pin)	McKinney	T4A3386-32D NRP 4-1/2 inch x 4-1/2 inch
Note:	McKinney hinge is also acceptable.				
Use:	Item 10	1 ea.	Closer	LCN	4041-SRI x Cush-n-Stop - AL
Note:	For exterior door.				
Use:	Item 10A	1 ea.	Closer	LCN	4041 x reg arm - AL
Note:	For regular bevel door. Use Item 10A and Item h in lieu of Item 10.				
Use:	Item h	1 ea.	Wall Stop	Ives	407CVX
Note:	Use Item 10A and Item h in lieu of Item 10.				

EMERALD ASH BORER QUARANTINE

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July 12, 2010

COMMISSIONER OF AGRICULTURE EXPANDS EMERALD ASH BORER QUARANTINE IN NORTHERN VIRGINIA

Contact: Elaine J. Lidholm, 804.786.7686

Matthew J. Lohr, Commissioner of the Virginia Department of Agriculture and Consumer Services (VDACS), signed orders on July 7, 2010 that expanded the Emerald Ash Borer (EAB) quarantine to include Clarke and Frederick Counties and the City of Winchester. This action was taken because of the detection of EAB in or near these localities. These localities now join a quarantine area that includes Arlington, Fairfax, Fauquier, Loudoun and Prince William counties and the cities of Alexandria, Fairfax, Falls Church, Manassas and Manassas Park.

The quarantine restricts the movement of regulated articles from quarantined localities to non-quarantined localities. The regulated articles, which include ash trees, green (non-heat treated) ash lumber and ash wood products, as well as hardwood firewood, pose a significant risk of transporting EAB. These regulated articles may move freely within the quarantined areas.

EAB is a highly destructive, invasive beetle that has already killed millions of ash trees in the U.S. and Canada. The adult emerald ash borer is metallic green in color and about one-half inch long and one-eighth inch wide. The adult female deposits eggs on the bark of ash trees. The EAB eggs hatch into larvae which chew their way into the soft layer of wood beneath the bark, disrupting the trees' vascular system and cutting off the flow of water and nutrients. EAB in the larval stage are difficult to detect as they feed under the tree bark which enables EAB to hitch a ride to new areas when people transport firewood or other infested wood products.

"The Emerald Ash Borer is a serious threat to ash trees in Virginia," said Commissioner Lohr. "VDACS and our partners are doing everything we can to limit the spread within Virginia and to surrounding states. I urge Virginians to keep EAB from spreading by not moving firewood and other regulated articles out of the quarantined area."

If you suspect you may have EAB in your ash trees, call these numbers:

- Michigan — 1-866-325-0023
- Connecticut — The Connecticut Agricultural Experiment Station at 1-203-974-8440
- Illinois — Contact your county Extension office. The Illinois Department of Agriculture also will offer a toll-free hotline at 1-800-641-3934 for extension-confirmed infestations
- Indiana — 1-866-NO-EXOTIC
- Iowa — 1-515-294-5963
- Kansas — 1-785-862-2180
- Kentucky — 1-859-257-5838
- Maryland — University of Maryland Home and Garden Information Center — 1-800-342-2507 or the Maryland Department of Agriculture — 1-410-841-5920
- Minnesota — 1-888-545-6684 (Arrest-the-Pest Hotline)
- Missouri — 1-866-716-9974
- New York — 1-866-640-0652
- Ohio — 1-888-OHIO-EAB
- Pennsylvania — 1-866-253-7189
- Tennessee — 1-800-628-2631

- Virginia — The Forest Pest Branch of Fairfax County at 1-703-324-5304, the Arlington Office of Virginia Cooperative Extension at 1-703-228-6423 or 1-703-228-6400, or the Virginia Department of Agriculture and Consumer Services at 1-804-786-3515
- West Virginia — 1-304-254-2941
- Wisconsin — 1-800-462-2803
- USDA APHIS — 1-866-322-4512
- Canada — 1-866-463-6017

Scientists are studying methods of controlling EAB. The latest information on **insecticide evaluations** can help homeowners, arborists and landscapers decide if and how they can treat trees for EAB in certain areas in southeastern Michigan.

IMPORTANT NOTE: Since the emerald ash borer's discovery in 2002, research has been ongoing to develop tools to control and eliminate this pest. Currently, there are a number of treatments available for use by homeowners or tree care professionals that can provide a varying degree of beetle control. A review of all options is recommended, as well as knowing the regulations regarding EAB quarantines and eradication strategies for your area. Contact your state department of agriculture for more EAB regulatory information. As more methods of EAB control are developed, more information will be available. References to commercial products or trade names do not imply endorsement by the entities supplying the information, or bias against those not mentioned. Reprinting of any material on this site cannot be used to endorse or advertise a commercial product or company.

APHIS Factsheet

Plant Protection and Quarantine

November 2006

Questions and Answers: Emerald Ash Borer Quarantine

Q: Why has the U.S. Department of Agriculture (USDA) expanded its emerald ash borer (EAB) quarantine to encompass the entire states of Illinois, Indiana, and Ohio?
A: USDA took this action to prevent the artificial spread of the emerald ash borer (EAB) from infested areas into noninfested areas of the United States. As a result of this quarantine, the interstate movement of regulated articles from Illinois, Indiana, and Ohio is restricted. Three years of EAB survey data support the need to implement strict regulations for the movement of host material. Survey tools are not 100% effective for early detection of low density populations of the pest. Given this uncertainty, the possibility of spreading EAB in unprocessed host material presents a serious risk that requires immediate action.

Q: Why quarantine an entire state versus known infested counties?
A: EAB is an extremely destructive plant pest and it is responsible for the death and decline of over 25 million ash trees. Ash in both forested and urban settings constitute a significant portion of the canopy cover in the United States. Current tools to detect, control, suppress and eradicate this pest are not as robust as the USDA would desire. In order to stay ahead of this hard to detect beetle, the USDA is attempting to contain the beetle before it spreads beyond its known positions. These actions will help to mitigate the spread of the pest while the science community continues to investigate biological controls, attractants, traps and pesticides.

Q: What is a regulated article?
A: A regulated article under USDA's quarantine includes any of the following items:

- emerald ash borer
- firewood of all hardwood species, such as ash, oak, maple and hickory
- nursery stock and green lumber of ash
- any other ash material living, dead, cut or fallen including logs, stumps, roots, branches, as well as composted and uncomposted chips of the genus Fraxinus

In addition, any other article, product or means of conveyance not listed above may be designated as a regulated article if a USDA inspector determines that it presents a risk of spreading EAB.

Q: Why is all hardwood firewood regulated instead of only ash firewood?
A: Once a log has been cut and split, it is extremely difficult to differentiate between ash wood and other hardwood species. This is especially true for the casual firewood user and homeowners. Therefore, due to the potential risk associated with moving EAB-infested firewood, all hardwood firewood is regulated. There are no restrictions on the movement of coniferous species of firewood, such as pine, spruce and fir.

Q: Are coniferous wood products, including pine, spruce, and fir impacted by the EAB quarantine?
A: No, this species of wood is not impacted by USDA's EAB quarantine. However, there are USDA quarantines for gypsy moth and pine shoot beetle that do restrict the interstate movement of coniferous wood and wood products. For more information on these quarantines, please visit www.aphis.usda.gov/ppq.

Q: Does USDA's EAB quarantine affect the interstate movement of hardwood (non ash) nursery stock or hardwood (non ash) wood products?
A: There are no federal restrictions on the interstate movement of non ash hardwood products such as nursery stock, logs, branches, green lumber or chips. However, the interstate movement of all hardwood firewood is regulated under the Federal Quarantine.

Q: Who does this quarantine affect?
A: This quarantine affects any industry, business, individual that deals with or handles hardwood firewood, ash wood or ash nursery stock. This includes, but is not limited to, the general public, commercial firewood dealers, retail firewood sellers, nursery owners & growers and the timber industry including sawmills, wood haulers, wood brokers, etc.

Q: How can I continue to do business with other States?
A: There are opportunities for the timber, wood, and firewood industries to continue interstate commerce through the use of processing options associated with the issuance of a USDA compliance agreement, certificate, or limited permit. Contact the USDA's Cooperative Emerald Ash Borer Program in your State if you have questions or would like more information:

EAB Program	866-322-4512	(toll free)
Michigan	810-844-2705	
Ohio	614-387-1095	
Indiana	765-446-0267	
Illinois	847-299-6939	
Maryland	410-224-3452	

Q: Will the federal quarantine affect intrastate (within the State) commerce?
A: No, the federal quarantine will only restrict trade between States, or interstate movement. However, there are State quarantines in Ohio, Indiana, and Illinois that regulate the movement of firewood and ash wood products within those States. Please contact your State department of agriculture for additional information on their respective local quarantines:

Michigan	866-325-0023	(toll free)
Ohio	888-644-6322	(toll free)
Indiana	812-358-9034	
Illinois	815-787-5476	
Maryland	410-841-5920	

Q: Under the federal quarantine, does it make a difference if a regulated article originates in an area that is not quarantined by the State?
A: No, interstate movement of all regulated articles fall under federal restrictions. Any regulated article moving out of the states of Ohio, Indiana or Illinois must meet the requirements of the federal quarantine to mitigate risk through the issuance of a compliance agreement, certificate or limited permit.

There are opportunities for the timber, wood, and firewood industries to continue interstate commerce through the use of processing options associated with the issuance of a USDA compliance agreement, certificate, or limited permit. Effective treatment options for these regulated articles include removal of bark and one half inch of wood, kiln drying sterilization, and fumigation. Contact the USDA's Cooperative Emerald Ash Borer Program in your State if you have questions or would like more information about these options.

Q: Are there different conditions for movement of a regulated article that is moved from a quarantined area across state lines to another quarantined area, versus an article that is moved from a quarantined area across state lines to a non-quarantined area?
A: No, any regulated article moving out of the states of Ohio, Indiana or Illinois must meet the requirements of the federal quarantine to mitigate risk through the issuance of a compliance agreement and certificate or limited permit, regardless of destination.

Q: Who will enforce the quarantine?
A: USDA's Animal and Plant Health Inspection Services' (APHIS) Plant Protection and Quarantine (PPQ) program will enforce the Federal quarantine.

Q: Are there civil penalties for breaking the quarantine?
A: Yes. APHIS will assess civil penalties to individuals and businesses that violate restrictions for the movement of regulated articles. Under the Plant Protection Act of 2000, violations of a domestic quarantine may result in monetary fine up to $250,000 and/or imprisonment.

Q: Why has USDA issued a federal quarantine for the States of Ohio, Indiana and Illinois but not the entire State of Michigan?
A: Michigan is currently under a federal quarantine that prohibits the movement of regulated articles out of the lower peninsula. The reason the quarantine does not encompass the entire state is because Michigan's topography at the Mackinaw bridge creates a natural barrier between the upper and lower peninsula. This natural barrier, which is staffed 24 hrs/7 days a week by the Michigan Department of Agriculture, is a formidable roadblock to the artificial spread of EAB. None of the other States have this natural barrier.

Q: Why hasn't the USDA quarantined the entire state of Maryland?
A: Maryland's EAB infestation represents a single point of entry where infested ash nursery stock was shipped from Michigan to Maryland. Since the date and recipient of the infested nursery stock is known, proper detection, control and eradication activities have been initiated by the Maryland Department of Agriculture.

DORMS AND QUARTERS FURNITURE TECHNICAL SPECIFICATIONS (BEQ)

PART SIX – ATTACHMENTS

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BVD ANALYSIS: PERFORMANCE CRITERIA 03-26-2012
ENCLOSURE (1)

DORM and QUARTERS FURNITURE (BEQ)

General Features:

- Coordinated Suite of Room Module Furniture
- Lockable
- Heavy duty
- Combination of dry construction and acceptable adhesives
- Full range of available wood finishes and hardware
- Greenguard, MAS Green or SCS certified
- Products must be available on GSA Schedule and NAVSUP BPA

DORM AND QUARTERS FURNITURE TECHNICAL SPECIFICATIONS

This specification establishes the minimum requirements for the acquisition and installation of the complete and usable suite of dorm furniture composed of wood panels, supporting components, heavy duty hardware, locking features, special electrical features and accessories.

Requirements and configurations shall be in accordance with the furniture layout and typical types shown in drawings and specified herein. If dimension variations are not mentioned after the called out dimension within this specification, nominal dimensions are acceptable. Components and hardware shall be provided by a single manufacturer and shall be a standard product as shown in the most recent published price lists or amendments.

General Requirements

1. Design/Aesthetics: The design shall be age appropriate for men and women within the range of 18-28 years of age. Style shall be appropriate for small campus like spaces. All furnishings shall have simple lines and detailing that is durable and easily maintained. All furnishings specified herein shall be of a design, material and workmanship to withstand heavy daily usage over an extended life with a minimum of maintenance and repair. The style shall include a full range of dorm and quarters furniture pieces.
2. Manufacturer Requirements: Dorm and Quarters manufacturers must be able to manufacturer all coordinating products listed in this document. Offeror/Dealer must have in-house services including sales and installation. Offeror/Dealer must have warehousing capability.
3. Mockups: Room mockups may be required on a project by project basis. Evaluation of the mockup will be conducted by the Contractors Interior Designer and shall include the NAVFAC Interior Design POC, Bachelor Housing POC and an End User, if desired. Mockups may be required to remain on site at Base Property warehouse until project installations are complete.
4. All products must carry a 25 year warranty.
5. Finish samples shall be required for final approval prior to production of any orders.

Construction and Materials

1. Solid hardwood and environmentally farmed timber are acceptable in the following specifications based on AWI400 standard "A" grades. Veneer core plywood must be ¾" minimum, 7 ply with a minimum veneer layer of 1/50" for cherry and 1/32" for maple. Veneer core plywood will be accepted in specific locations, that each manufacturer deems appropriate, without sacrificing structural integrity or warranty. MDF (Medium Density Fiberboard) is only acceptable as a substrate for wardrobe and computer cabinet doors. Wood species shall be any of the following:
   - Solid Maple Hardwood
   - Solid Cherry Hardwood
   - Environmentally Farmed Timber Solid Wood

2. Cabinet Door and Drawer fronts to be in matching sets (if veneer, all fronts shall be from the same sheet in order top to bottom). Head board drawer fronts and side panels are to be matching sets top to bottom,
3. AWI400 premium grades on solid wood core (exception: doors)
4. Solid face frame or frameless
5. All exposed surfaces are solid wood and quarter sliced or rift cut lumber is preferred. Plain-sawn, rotary cut or other lumber cuts with erratic graining will not be acceptable. (exception: laminate tops)
6. Environmentally Farmed Timber meeting or exceeding 1290 lbs/force on the JANKA hardness scale and meeting or exceeding Oak in screw pull testing shall be an acceptable optional material.
7. Tops on certain pieces may be high pressure laminate for durability. All components shall be carefully machined, sanded, pre-finished, stained and top-coated prior to assembly. Moisture content at time of assembly shall be kept between 5% and 7%.
8. All components shall be **fully finished on all sides, bottom, and top** insuring a full barrier to prevent water wicking. All joints must fit accurately with no openings or splintering and be stronger than the substrate itself to resist racking and withstand loading. Joints shall have 100% adhesive coverage. Construction adhesives shall conform to ASTM D 905 average shear strength of not less than 19,300 kPa (2800 lbs per square inch) when tested. Excess glue shall be neatly and thoroughly cleaned from all surfaces exposed to view.
9. Spacing between all drawers shall be equal in appearance.
10. No MDF is permitted unless otherwise noted. MDF, where allowed, shall be a minimum Grade I-M-2 per ANSI A2081-2009 with a minimum density of 45 lbs. PCF (per cubic foot).
11. Internal construction should allow for easy parts replacement.
12. Provide a tool less adjustable system.

Side and Back Panels

1. Solid hardwood or EFT in ¾" panels required.
2. Side and Back panels to have ventilation slots to allow for free movement of air. All slots to have uniform configuration.
3. Thru bolted end panels are required.
4. Provide fully finished interior and exterior side and back panels.

Doors

1. Veneer over plywood or veneer over MDF is considered acceptable. Thru bolts must be used for MDF.
2. Floating Panel construction on doors is required.
3. Cabinet door and drawer fronts to be matching sets (if veneer, all fronts shall be from the same sheet in order top to bottom with contiguous vertical grain pattern).

Shelves

1. All shelving to be fully finished solid hardwood or EFT.

Drawers

1. Drawers shall have English dovetail construction and glued joints.
2. Drawer joint frame and bottom supports to be mortise and tenon construction.
3. Drawer fronts to be solid wood or EFT.
4. Drawer box to be four (4) sided, solid wood construction , with four bottom corner blocks nailed and glued for strength.
5. Pullout drawers to have 2 sets of 150 lb minimum, full extension, steel ball bearing drawer glides. Drawers should not "shimmy", wobble, or have excessive lateral movement when fully extended.

6. Drawer construction and materials, to include drawer bottoms, shall be able to withstand a load of 125% of the rated load of the drawer glides without sagging or failing. ½" thick minimum drawer sides and ¼" thick minimum solid wood drawer bottoms are required. **No melamine drawer bottoms will be found acceptable.**

Laminated Tops

1. Laminate color shall match the wood species finish and color.
2. Laminate shall be high pressure grade that meets or exceeds NEMA LD3-2005 for Grade VGS specification and performance of specified color with a nominal dimension of 0.031" thick face glued to ¾" thick MDF with a standard 0.02" phenolic backing sheet. Where wood grain plastic laminate is called for, laminate is to match the color and grain of natural (sealed, or stained and sealed) wood as closely as possible. If match is unachievable with laminate specified due to the inherent color of wood, manufacturer is to submit an alternate wood grain laminate, wood finish sample and edge banding sample for approval.
3. Edging for laminate shall be 3 mm PVC with matching grain pattern.

Hardware

1. Bearing glides, wherever required, to be high quality steel ball bearing drawer glides with full extension and epoxy or powder coated to match finish requirements
2. Single hasp locking system in matte black finish is required on lift top beds w/drawers, wardrobes and desk units. Please provide matching matte black scuff plates behind each hasp lock area where wood finish would be prone to scratching.
3. All shelf supports to be metal powder coated in matte black finish, to match color of hardware package.
4. Metal powder coated hooded drawer and door pulls in matte black finish is required, with a minimum of four (4) concealed screw attachment points required.
5. All handles to be steel powder coated to match hardware package with mounting hardware of heavy duty quality.
6. Levelers to be nylon based (with commercial grade felt pads to protect flooring), color: black.
7. Provide metal powder coated matte black hardware grommets where required for wire management.
8. Hardware made in the USA is preferred.

Task Lighting

Provide energy efficient 18" wide LED (or fluorescent for projects with fluorescent overhead lighting) task lighting. LED to have a 2700 K color temperature and a minimum of 1050 Lumen or 97 footcandles output. Cord is required to have a **45 degree flat plug**.

Finishes

1. All finishes shall be formaldehyde free and low or no VOC. Acrylated UV curable epoxy and polyester finish or water based acrylic are acceptable finishes- no catalyzed lacquer or other solvent based finishes are allowed.
2. Provide toner/stain to finish coat to obtain even wood tone to each furniture piece. The wood finish on all furniture pieces shall coordinate.
3. Provide scratch resistant finish coats on all furniture pieces.
4. Wood finish shall match laminate: TBD. Provide finish samples for approval prior to production.

Sustainability and Warranty

1. Greenguard, MAS Green or SCS certification is required.
2. FSC certified wood may be required. If the supplier is a certified member of the Forest Stewardship Council or subscribes to a similar program that promotes sustainable logging practices, a verifiable

certification number shall be provided. FSC certification may be considered an advantage over other certifications.

3. Finish coats should use low VOC materials.
4. Painted finishes must comply with Federal Regulation 16CRF 1303 for lead content.
5. Manufacturer must provide a 25 year warranty against defective materials or workmanship and repair or replace, without cost to the government, any defective product.
6. Providing proof of independent indoor air quality testing certification may be considered an advantage over those suppliers that are not providing certification.

Note: The line drawings provided below are for dimensions only and may or may not reflect any particular design aesthetic.

Two Drawer Lift Top Bed with Side Bookcase Headboard (Camp Lejeune) or Pull Out Storage Headboard (Cherry Point)

Overall including Headboard: 96 3/8"W x 41 1/8"D x 64"H
Bed Box Only: 82 5/8"W x 41 1/8"D x 26 ¼"H
Headboard Only: 13 ½"W x 41 1/8"D x 64"H
Document Holder: 16"W x 13"D x 3" H (minimum)

Requirements:

1. Reversible assembly required, with easily detachable head boards/foot boards, to allow beds to be set up on left or right side of room.
2. Tool less assembly mechanism required for all beds.
3. Provide bed deck/ mattress platform with box spring option or slatted mattress support system. Bed deck/mattress platform should be constructed of steel or wood with a steel framework to eliminate possibility of warping. Bed deck shall have a low mattress containment device so that an individual can sit comfortably on the side of the bed.
4. Document holder below bed surface to be constructed of cold rolled steel and powder coated to match hardware package finish. Minimum dimension to be 16" wide x 13" deep x 3" high.
5. Provide pneumatic rams with Lifetime Warranty.
6. Bed deck shall have an external zero clearance lift bed mechanism and a design that allows lower storage access without the removal of the mattress and bedding and without damage to bedding when the mattress is located within 1-2" of the adjacent wall. Lift mechanism shall incorporate an easy to grasp handle to allow easy lifting and closing of bed deck. Handle shall not protrude above bed deck, if at all possible, so that backs of legs will not be bruised when sitting on the edge of the bed. Bed deck shall remain closed when lowered without the weight of the mattress.
7. Inside corners of under-bed storage box to be reinforced with steel powder-coated brackets. Inside surfaces of under-bed storage area shall be smooth to the touch and be completely finished and sealed.
8. Bed locking system to be a single point secured system with a positive stop open/close. Single locking system shall lock lift bed and both drawers. Position of bed locking system shall allow no access to the open area beneath the bed when it is closed and locked. Bed locking system shall be recessed/flush with side of bed to eliminate safety concerns.
9. Bottom panel of storage area in lift top bed to be a minimum of ¾" thick, solid hardwood or EFT with ¾" x 4-5/8" dia. ventilation holes.
10. Solid hardwood or EFT is required on all exposed surfaces to include bed ends tops and sides.
11. Provide two stacking drawers on side of lift bed with high quality, full extension steel ball bearing drawer glides epoxy or powder coated to match finish requirements. A minimum

of two inches must be maintained beneath bottom drawer and floor to allow for drawer clearance above room area rug.

12. Provide a minimum of twelve (12) 1-1/2" diameter height-adjustable leveling nylon glides with commercial-grade felt pads to protect flooring on underside of bed for ease of moving on hard surface flooring.
13. Provide hasp-lockable pullout unit on one side of storage headboard (for BEQ's at Cherry Point) with two fixed shelves inside. Pull-out unit to be mounted on 150 lb. ball bearing glides (dynamic load) to ensure a fluid smooth movement when loaded.
14. Provide side bookcase headboard base units (for BEQ's at Camp Lejeune), consisting of three (3) stationary 12" deep shelves recessed into right or left side of head board, depending on room layout. One recessed shelf shall be a minimum of 12" high for binder storage, and the other two shelves shall be equal height.
15. Provide headboard overhead units with a shelf, tack board, light and surge protector. Shelf to have full back panel to prevent items from falling behind bed and a black grommet in the back panel. Provide a valance/fascia on underside of shelf to conceal task light and surge protector from view.
16. Provide energy efficient LED (or fluorescent for projects with fluorescent overhead lighting) task light under headboard shelf with minimum 18" wide light, an on/off switch and a minimum cord length of 9 feet. Cord is required to have a **45 degree flat plug**.
17. Provide a power strip/surge protector with three (3) grounded outlets, a 9 foot minimum cord with a **45 degree flat plug** beneath storage head board.
18. Provide commercial-grade fabric covered tack board under shelf on headboard unit with a black grommet in the tack board surface. Fabric to be Maharam Tek-Wall, or equal. Tack board shall be easily field-replaceable/recoverable and should require no finish strips or trim strips that could become loose or misplaced.

ADA Three Drawer Lift Top Bed with Pull Out Storage Headboard (used in Accessible rooms at Cherry Point)

Overall including Headboard: 96 3/8"W x 42"D x 51 5/8"H
Headboard Only: 13 ½"W x 42"D x 51 5/8"H
Footboard Only: 42"W x 23"H
Document Holder: 16"W x 13"D x 3" H (minimum)
Mattress platform height to be 15"
Profiles to be removed from headboard and footboard

Requirements:

1. Reversible assembly required, with easily detachable head boards/foot boards, to allow beds to be set up on left or right side of room.
2. Tool less assembly mechanism required for all beds.
3. Provide bed deck/ mattress platform with box spring option or slatted mattress support system. Bed deck/mattress platform should be constructed of steel or wood with a steel framework to eliminate possibility of warping. Bed deck shall have a low mattress containment device so that an individual can sit comfortably on the side of the bed.
4. Document holder below bed surface to be constructed of cold rolled steel and powder coated to match hardware package finish. Minimum dimension to be 16" wide x 13" deep x 3" high
5. Provide pneumatic rams with Lifetime Warranty and weight rating of 75 lbs. lift per cylinder.
6. Bed deck shall have an external zero clearance lift bed mechanism and a design that allows lower storage access without the removal of the mattress and bedding and without damage to bedding when the mattress is located within 1-2" of the adjacent wall. Lift mechanism shall incorporate an ABA compliant, easy to grasp handle to allow easy lifting and closing of bed deck. Handle shall not protrude above bed deck if at all possible, so that backs of legs will not

be bruised when sitting on the edge of the bed. Bed deck shall remain closed when lowered without the weight of the mattress.

7. Inside corners of under-bed storage box to be reinforced with steel powder-coated brackets. Inside surfaces of under-bed storage area shall be smooth to the touch and be completely finished and sealed.
8. Bed locking system to be a single point secured system with a positive stop open/close. Single locking system shall lock lift bed and both drawers. Position of bed locking system shall allow no access to the open area beneath the bed when it is closed and locked. Bed locking system shall be recessed/flush with side of bed to eliminate safety concerns and shall be easy to turn and operate with one hand.
9. Bottom panel of storage area in lift top bed to be a minimum of ¾" thick, solid hardwood or EFT with ¾" x 4-5/8" dia. ventilation holes.
10. Solid hardwood or EFT required on all exposed surfaces to include bed ends tops and sides.
11. Provide three side by side drawers on side of lift bed with high quality, full-extension steel ball bearing drawer glides epoxy or powder coated to match finish requirements. A minimum of two inches must be maintained beneath bottom of drawers and floor for clearance above room area rug.

12. Provide a minimum of twelve (12)1-1/2" diameter nylon height adjustable leveling glides (commercial-grade felt covered to protect flooring) on underside of bed for ease of moving on hard surface flooring.
13. Provide hasp-lockable pullout unit on one side of storage headboard with two shelves inside. Pull-out unit to be mounted on 150 lb. ball bearing glides (dynamic load) to ensure a fluid smooth movement when loaded.

14. Provide headboard overhead units with a shelf, tack board, light and surge protector. Shelf to have full back panel to prevent items from falling behind bed and a grommet in the back panel. Provide a valance/fascia on underside of shelf to conceal task light and surge protector from view.
15. Provide energy efficient LED or fluorescent task light under headboard shelf with minimum 18" wide light, an on/off switch and a minimum cord length of 10 feet. Cord is required to have a **45 degree flat plug**.
16. Provide a power strip/surge protector with three (3) grounded outlets, a 10 foot minimum cord with a **45 degree flat plug** beneath storage head board.
17. Provide commercial-grade fabric covered tack board under shelf on headboard unit with a grommet in the tack board surface. Fabric to be Maharam Tek-Wall, or equal. Tack board shall be easily field-replaceable/recoverable and should require no finish strips or trim strips that could become loose or misplaced.

Three Drawer Computer Desk / Wall Unit / Entertainment Stand with Pocket Doors 36"W x 24"D x 64"H

Requirements:

1. Provide computer/entertainment unit with pocket doors, interior shelf, exterior posting shelf and three locking drawers.
2. Provide a single hasp locking system for pocket doors and drawers finished to match hardware package. Locking mechanism shall not catch fingers when turned, or be in conflict with pocket door operation.
3. Pocket door hinges shall have two double ball bearing glides and a locking mechanism to allow doors to completely slide into case.

4. Provide solid wood keyboard tray/posting shelf, utilizing 20" 150 lb minimum ball bearing full extension drawer glides with positive out-stop. Tray shall have a recessed finger pull for ease of use and shall be located below locking pocket doors so that it can be used when cabinet doors are locked.
5. Power strip/surge protector inside the unit, with four (4) grounded outlets, on/off switch to have a 10 foot minimum length cord with a **45 degree flat plug** so that unit can be pushed as close as possible to adjacent wall.
6. Provide LED or fluorescent task light inside the unit with on/off switch and a single duplex outlet strip under shelf.
7. Provide a minimum of 6-nylon leveling glides (commercial-grade felt covered to protect flooring) on underside of unit.

Wardrobe with Full Doors and Drawer Option

24" w, 30"W or 36"W x 25"D x 72"H
2 Drawer Insert Cabinet: 22"W x 22"D x 19"H
3 Drawer Insert Cabinet: 22"W x 22"D x 26"H

Requirements:

1. Provide a single hasp locking system for doors finished to match hardware package.
2. Provide heavy duty metal hanging bar with adjustability options for standard and ADA height.
3. Provide one fixed shelf and one adjustable shelf.
4. Provide full depth drawer unit permanently affixed to interior of cabinet.
5. Provide a minimum of 6 leveling nylon glides (commercial-grade felt covered to protect flooring) on underside of unit.

Bunk-able Bed

Mattress Size: 36" x 80" Overall Bed Size: 38" x 85"
Mattress Size: 38" x 80" Overall Bed Size: 40" x 85"

Requirements:

1. Provide 2-high bunk-able bed with tool-less height adjustability and internal steel pin hardware connections (similar to EZ Lock Spring Attachment).
2. Provide solid wood bed horizontal members and posts and with concealed steel connection pins. Head board and foot board slat configuration should support "ladder" function.
3. Provide mattress platform with 9-gauge minimum metal springs and center support bar or slatted wood mattress support option for adequate mattress support.
4. Provide nylon glides (commercial-grade felt covered to protect flooring) on underside of unit as required.

Two Drawer Chest

36"W x 24"D x 30"H

Requirements:

1. Provide high pressure laminate on top surface to match wood finish.
2. Separate hasp locking system is required for each drawer. Hasp locking system shall be recessed/flush with face of drawers to eliminate safety concerns.
3. Drawers shall utilize 20" 150 lb minimum ball bearing full extension drawer glides with positive stops.
4. Provide full depth drawers with a full depth security panel/dust cover between drawers to prevent access when upper drawer is fully open.

5. Provide a minimum of 6 nylon leveling glides (commercial-grade felt covered to protect flooring) on underside of unit.
6. Chest height shall match height of Table Desk.

Three Drawer Chest with Posting Shelf

36"W x 24"D x 30"H
Also Available: 30"W x 24"D x 30"H

Requirements:

1. Provide high pressure laminate or solid wood option on top surface to match wood finish.
2. Provide keyboard tray/posting shelf below top surface utilizing 20" 150 lb minimum ball bearing full extension drawer glides with positive out-stop.
3. Hasp locking system shall be recessed/flush with face of drawers to eliminate safety concerns. One hasp locking system shall provide locking for all three drawers.
4. Drawers shall utilize 20" 150 lb minimum ball bearing full extension drawer glides with positive stops.
5. Provide full depth drawers.
6. Solid wood keyboard/posting shelf required.
7. Provide a minimum of 6 nylon leveling glides (commercial-grade felt covered to protect flooring) on underside of unit.

Four Drawer Chest

36"W x 24"D

Requirements:

1. Provide high pressure laminate on top surface to match wood finish.
2. Two separate hasp locking systems are required so that two drawers on locked by each hasp system. Hasp locking system shall be recessed/flush with face of drawers to eliminate safety concerns.
3. Drawers shall utilize 20" 150 lb minimum ball bearing full extension drawer glides with positive stops.
4. Provide full depth drawers with a full depth security panel/dust cover between drawers to prevent access when upper drawer is fully open.
5. Provide a minimum of 6 nylon leveling glides (commercial-grade felt covered to protect flooring) on underside of unit.
6. Coordinate height of chest with window sill height, if possible.

ADA Desk/ Student Desk

42"W x 24"D x 30"H

Requirements:

1. Drawers shall utilize 20" 150 lb minimum ball bearing full extension drawer glides with positive stops.
2. Single hasp locking system required.
3. Provide solid wood, pull-out keyboard tray.
4. Provide full depth drawers.
5. Provide leveling nylon glides (commercial-grade felt covered) on underside of unit as required.
6. Provide high pressure laminate for top.
7. Provide half-height modesty panel for stability and structural integrity.

8. Provide power strip/surge protector, with four (4) grounded outlets, a minimum of 10 foot cord and a **45 degree flat plug** for space saving. Surge protector shall be surface-mounted on modesty panel or underside of desk. Provide desktop grommet and modesty panel grommet, near surge protector, finished to match hardware.
9. Table desk height shall match height of chest height.
10. Table Desk to accommodate task light mounting bracket, if no student desk hutch is to be used.

Table Desk Hutch
42"W x 9"D x 28"H

Requirements:

1. Provide a hutch with two overhead shelves to be securely mounted to top of table desk.
2. Provide fluorescent or LED task light and power strip under bottom shelf with grommets as required. Please coordinate color temperature of bulb with overhead lighting.
3. Provide a 19" shelf clearance to allow for computer monitors and TV's.
4. Provide commercial-grade fabric covered tack board under shelf. Tack board fabric to be Maharam Tek-Wall, or equal. Tack board shall be easily field-replaceable/recoverable and should require no finish strips or trim strips that could become loose or misplaced.

Table Desk
42"W x 24"D x 30"H

Requirements:

1. Drawer shall utilize 20" 150 lb. minimum ball bearing full extension drawer glides with positive stops.
2. Single hasp locking system required.
3. Provide high pressure laminate for top.
4. Provide partial-height modesty panel for stability and structural integrity.
5. Provide pull-out lockable drawer, 3" minimum depth for laptop storage.
6. Provide power strip/surge protector, with four (4) grounded outlets, a minimum of 10 foot cord and a **45 degree flat plug** for space saving. Surge protector shall be surface-mounted on modesty panel or underside of desk. Provide desktop grommet and modesty panel grommet, near surge protector, finished to match hardware.
7. Provide nylon leveling glides (commercial-grade felt covered) on underside of unit as required.
8. Table desk height shall match height of chest height.
9. Table Desk to accommodate task light mounting bracket, if applicable.

Nightstand
21-1/2"W x 16-1/4"D x 23"H

Requirements:

1. Provide high pressure laminate on top surface. Wood Stain shall match Plastic Laminate finish.
2. Separate hasp locking system is required for each drawer. Hasp locking system shall be recessed/flush with face of drawers to eliminate safety concerns.

3. Drawers shall utilize 20” 150 lb minimum ball bearing full extension drawer glides with positive stops.
4. Provide full depth drawers with a full depth security panel/dust cover between drawers to prevent access when upper drawer is fully open.
5. Provide a minimum of 6 nylon leveling glides (commercial-grade felt covered to protect flooring) on underside of unit.

CUT SHEET: BEQ LOCK SET

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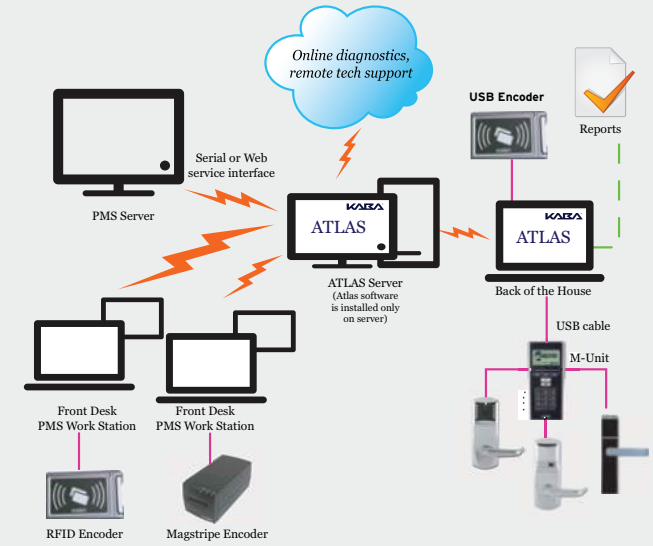
BEYOND SECURITY

ILCO ATLAS™ *(Advanced Technology Lodging Access System)*



Overview

ATLAS is an intuitive web-based access management system that offers comprehensive centralized auditing & enhanced reporting features. ATLAS integrates into any hotel IT infrastructure and provides hotels with a user friendly and efficient method of managing & controlling access and collecting both system and lock data

Compatibility

Compatible with Confidant RFID, Q90, 790, 770, Generation E-760 and Solitaire 710/710-II locks

Applications

- Suitable for small to very large scale hotels
- Mag Stripe and RFID systems
- PMS/POS/Self check-in kiosk interfacing

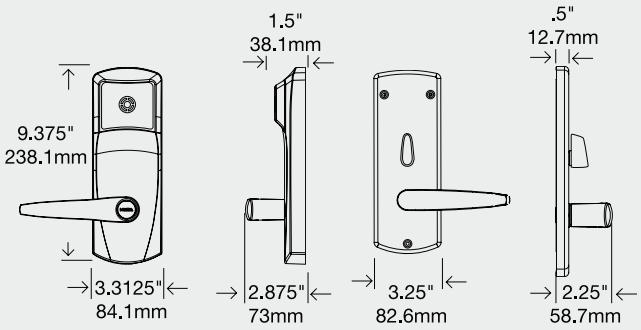
Security Features

- Time-based access control system with user selectable keycard expiry
- Keycard encryption: proprietary and unique to each installation
- Encrypted keycards using a proprietary encryption algorithm (the data on the card does not reveal the room number)
- Operator password required for any system operation
- Operator levels: 8
- Audit trail: unlimited keycard-making transactions, sorted by room, operator, or key type

System Features	
Property Size	Maximum 16,000 rooms and 1,000 suites (maximum of 8 inner doors per suite)
Common Areas	8 guest and 16 staff common areas plus 64 additional common areas (V.3.1 with 790 V.2)
Restricted Areas	200
Staff Access Levels	5 Sub-Master levels per lock: 255 sections, 255 floors, 255 areas, 255 groups, 255 zones
Room# Description	64 characters (alphanumeric digits)
Keycards Validity	Selectable from one hour to 7 years
Pre-registered Guest	Keycards can be made up to 10 days in advance
Time Zone	Predefined time zones available for staff keycards in locks 8 customer defined time zones available for guest, staff & passage option in RAC card reader & 790-II
Keycards	Low/high coercivity track 1, 2 or 3 magnetic stripe cards or Mifare Mini, 1K or 4K RFID cards
Keycard Handling	Motorized or RFID encoder
Compatibility	POS and PMS
Server Operating System	See minimum requirements on NEXT page
Number of Workstations	50 maximum LAN/WAN
Workstation Browser	IE 6.0 and higher
Communication with Locks	Through the Kaba M-Unit
Minimum Requirements (Server)	
OS	Windows XP PRO, Vista Business (32 or 64 bits), Windows 2003 Server, Windows 2008 Server 7 Professional (32 or 64 bits)
Software	NET Framework 2.0 Web Server - IIS (Internet Information Services) Message queuing
Hardware	CPU – Dual core or above RAM – 2GB Serial port (for serial PMS only) The server must be on the hotel network with a static IP address.
Minimum Requirements (Workstation Minimum)	
OS	Windows XP Pro, Vista Business, Windows 7 Professional
Software	Internet Explorer NET Framework 2.0
Hardware	CPU - P4 or above RAM -1GB (recommended) Serial port (For serial PMS only) USB ports (for encoders) IMPORTANT NOTICE: Windows Home is not suited for network applications.
Network	Windows with name resolution: e.g. DNS Server
ATLAS Characteristics	
Database	SQL-SERVER 2005 Express
Reports (view and print)	System activities Lock audits Lock operations Database – Employee list Database – Access point list Database – Operators list Operator login / logout
PMS Interface Connection	Kaba serial interface Option: web service (XML/SOAP)
POS Interface	ISO Standard for track 2 or specific RFID sector
Employee ID	ISO Standard for track 2 or specific RFID sector
Remote Management / Diagnostics	Downloadable App from client
Encoders	Motorized encoder ILCO format Motorized encoder THRIFT format Contactless encoder (Mifare, ISO 14443)
Maintenance Unit	Kaba M-Unit
Warranty	
Standard Factory	Two years
Extended Warranty	Kaba Service Plans (Platinum, Gold, Silver)

BEYOND SECURITY

ILCO
790 Series



Overview

The ILCO 790 Series door lock offers contactless RFID technology to enhance guest convenience and improve operational efficiency. This RFID solution offers keycard auditing capabilities for enhanced staff monitoring & user accountability. The ILCO 790 works with both the web-based ATLASTM and the stand-alone portable Front Desk Unit (FDU). The lock is able to operate using the Kaba Mobile Key System and can be offered with one of the following options: Bluetooth Low Energy (BLE) ready or enabled

Applications

- Suitable for small to very large scale hotels
- Easily replaces existing mechanical or electronic door locks
- Access control for guest rooms, common areas, and back-of-house

Security Features

- High security and tamperproof design
- 1" solid deadbolt (optional auto deadbolt)
- Emergency access: Emergency keycard, mechanical key and electronic override

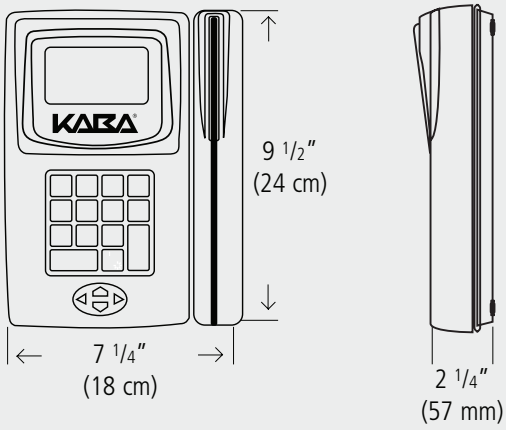
Low Maintenance

- Operates with a completely sealed contactless reader
- Batteries last up to 3 years
- Low battery indicator alerts staff
- Lock programming and audit are not erased during battery replacement
- Wear resistant construction and finish
- Upgradeable lock firmware

Mechanical Features	
Description	Heavy duty electronic lockset with clutch mechanism and built-in contactless RFID reader (mortise or cylindrical)
Handing	Left or right factory handed mortise, field reversible handing (lever and mortise)
Lever	ADA compliant, outside lever free to rotate upward and downward in locked mode. Lever clearance (space from end of lever to door): Long Lever: 3/8" (9.5mm) Short Lever: 2" (51mm) Elevon & Gala Lever: 2" (58mm)
Concealed Key Override (optional)	ILCO KIK Core (keyed-alike, master keyed, recodable) Best small IC adaptor
Deadbolt	1" (25 mm) (for ASM mortise) or 2 1.4 mm (for ESM mortise) solid metal, projected by inside thumbturn and retracted with the latch by the interior handle, emergency override or specific staff keycards. Optional auto deadbolt available
Door Thickness	From 1 ⅜" to 2 ½" (35mm to 66mm)
Shipping Weight	8.5 lbs (3.8 kg)
Housing Construction	Cast zinc alloy (outside housing levers and thumbturn), stainless steel inside housing
Standard Finishes	Satin chrome, satin brass and ultra finish for ocean front applications
Standard Backset	2 ¾" (70mm) backset, 2 ⅜" (60mm) backset also available for cylindrical lock
Locking Options	ANSI lock case with 1 ¼" or 1" lock front mortise. Optional automatic deadbolt Cylindrical latch (2 ⅜" or 2 ¾" backset) European lock case mortise [20 x 165 mm] with round (20 or 23 x 235 mm) or square (20 x 235 mm) lock front mortise
Mobile Key Options (BLE)	BLE ready: Upgradable to BLE by BLE module BLE enabled: End cap with BLE module included, no further upgrades needed (soon available)
Batteries	
Alkaline	3 AA batteries for up to 120,000 openings or up to 3 years (based on 10 openings per day). Low battery indicator: alerts staff that batteries need to be changed soon
Lock Operation	
Date/Time Stamp	Real time: date and hours/minutes
Programming and Audit Trail Downloading	Can be done using a 4K audit keycard or by using Kaba M-Unit or FDU
Pre-registered Keycards	Up to 10 days in advance
Keycard Expiry	From 1 hour to 7 years, depending on type and setup
Passage Mode	Set by authorized keycard
Lockout Mode	Set by authorized keycard
Keycards Accepted	RFID cards or tags (ISO 14443, Mifare Classic (4 Byte NUID))
Feedback	"Dual sensory" audible and visible indicators
Diagnostics	Built-in battery voltage meter and lock version display
Audit Memory	Last 2000 transactions stored in lock (lock audit can be retrieved using M-unit or FDU or using lock audit keycard)
Disability Feature	Extended unlock time (4 seconds standard, 15 seconds for disability)
Privacy Override	Default emergency keycard only (user selectable)
Certification and Testing	
Accessibility Standard	ADA compliant levers (Code of Federal Regulations 28 CFR Part 36 – 1994 "ADA Standards for Accessible Design")
BHMA/ANSI	Certified to be compliant with Grade One performance tests for "ANSI/BHMA A156.13-2005 Standard for Mortise Locks and Latches," and "ANSI/BHMA A156.25-2007 Standard for Electrified Locking Devices." (Only locks tested and approved by non-biased third-party test lab are allowed in the "BHMA Certified Products Directory" found at www.buildershardware.com)
Fire Rating	Listed for pre-prepared manufactured doors and certified for retrofitting on existing doors by Underwriters Laboratories for use on fire doors having up to a three-hour rating. U.L. Certification: "Accessories for Single-point Locks and Latches and Fire Exit Hardware." Evaluated in accordance with UL 10B and UL 10C. U.L. Listing: "Electrically Controlled Single-point Locks and Latches." Evaluated in accordance with UL 10B and UL 10C. Also classified in accordance with Uniform Building Code Standard 7-2, "Fire Test of Door Assemblies" (1997)
Electronics	FCC Part 15 Class A and CE directive 89/336/EEC compliant
Environmental Operating Conditions	-31°F to 151°F (-35°C to 66°C) 0% to 85% non-condensing humidity at 86°F (30°C)
Florida Building Code	Approved in the exterior door category (exterior door components). Code of approval is FL13061
Warranty	
Standard Factory	Two years
Extended Warranty	Kaba Service Plans (Platinum, Gold, Silver)

BEYOND SECURITY

ILCO
Front Desk Unit (FDU)



Overview

The FDU is an all-in-one portable device that encodes keycards and programs & audits electronic locks without the need for a separate computer or any IT infrastructure. With an 8 hour battery backup, the FDU can continue to manage the system even during a power failure. The FDU is ideal for small to mid-scale hotels seeking a simple and cost effective solution for managing their door locking system.

Compatibility

Compatible with 700-II, Solitaire 710/710-II, Generation E-760, 770 and 790 locks

Security Features

- Time-based access control system with user selectable keycard expiry
- Keycard encryption: proprietary and unique to each installation
- Security: authorization keycard or PIN required for any FDU operation
- Different authorization levels, ranging from front desk staff to upper management users
- Setup and audit memory: internal real time clock with non-volatile memory

System Features	
Property Size	16,000 rooms and 1,000 common door suites (maximum of 8 inner doors per suite)
Common Areas	8 guest and 16 staff areas
Restricted Areas	200
Staff Access Levels	3 Master levels and 5 Sub-Master levels per lock: 255 sections, floors, areas, groups, zones
Room Number Format	5 digits numeric
Keycards Validity Selectable	From one hour to 7 years
Pre-registered Guest	Keycards can be made up to 10 days in advance
Time Zone	Predefined time zones available for staff keycards in locks 8 customer defined time zones available for guest, staff & passage option in RAC card readers
Keycards Read and Encoded	Low or high coercivity, track 1, 2 or 3 magnetic stripe cards and Mifare credentials
Keycard Handling	Manual swipe with wide acceptable speed range for magnetic stripe keycard
Communication Ports	Serial and USB, for Flash drive and Kaba USB printer
Communication with Locks	Programming module
Communication with Other FDUs, PMS Interface	Serial cable
Firmware	Upgradeable, via USB

FDU Characteristics	
Mode of Operation	Encoder for Front Desk or back-of-house (optionally interfaced to PMS), portable Lock Maintenance Unit
Power Supply	9V plug-in power supply available for North America, European, U.K. and Australia
Battery Backup	Internal, minimum 8-hour duration (unit fully operable) with low battery alarm
Languages	English, French, Spanish, Portuguese, German
Audits	Last 4000 keycard-making transactions, sorted by room, authorization, or key type The FDU can store up to 10 lock audits in memory Either type of audit (lock and FDU log) can be reviewed on screen, shared on a PC or printed for record keeping on any standard printer

Physical Characteristics	
Weight	2 Lbs (0.9Kg)
Dimensions	7.2 (W) X 9.5 (L) X 2.2 (H) inches (180 X 240 X 57 mm)
Housing Construction	Impact resistant plastic (black), with rubber feet and carrying handles

Environmental Operating Conditions	
Certifications, Approvals and Testing	1,000,000 swipe life expectancy Complies with FCC part 15 class A Complies with the EMC directives 89/336/EEC, CE certified

Warranty	
Standard Factory	Two years
Extended Warranty	Kaba Service Plans (Platinum, Gold, Silver)

CUT SHEET: AMI METERING SYSTEM

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Nexus® 1262/1272

- 0.06% Watt/Hr Revenue Meter
- 20 Year Time of Use
- Loss Compensation
- CT & PT Compensation
- Advanced Power Quality Recording
- EN50160 Flicker Compliance Monitoring
- Totalizing Registers
- Data Logging & Event Recording
- Programmable Display
- Circuit Diagnostics
- Multiple Communication Paths
- Combination Modem & Ethernet

High Performance Utility Billing Meters with Communication & Advanced Power Quality

Accu-Measure™
Auto-Calibrating Metrology

Nexus® 1272
Performance Meter with Advanced Power Quality & Communication

Nexus® 1262
Economical Meter with Advanced Communication

Featuring —
Modbus & DNP 3.0 Level 2 Plus Protocols
Onboard Ethernet
Dial-Out on Outage or Alarm!

MV90 COMPATIBLE
Designed and Manufactured in the **U.S.A**

Electro Industries/GaugeTech
The Leader in Power Monitoring and Control

www.electroind.com

Accu-Measure™ Digital Sensing Auto-Calibrating Technology

The Nexus® 1262/1272 meter provides one of the most profound analyses of electricity available in a socket meter. The unit offers extensive advanced monitoring features to meet the most critical power monitoring requirements. Using advanced DSP technology, the Nexus® meter measures immediate and stored revenue power data, as well as providing superior power quality and communication.

Designed specifically to meet the sophisticated standards required by utility companies and de-regulated power providers, the Nexus® meter's basic package starts where most other meters end. Standard features in the Nexus® units provide the ability to meet advanced metering needs for the future.

Accu-Measure™ Digital Sensing Technology

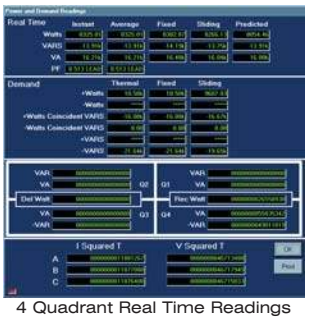
EIG's Accu-Measure™ Digital Sensing Technology provides unmatched accuracy.

- Energy & Power Accuracy to within 0.06%
- Autocalibration
- Temperature Compensation

4 Quadrant Measurement

The unit is a full four-quadrant meter, and gathers hour data information in every quadrant.

- kWh Delivered
- kWh Received
- kVAh in Each Quadrant
- kVARh in Each Quadrant
- Q Hours
- Demand Measurements



4 Quadrant Real Time Readings

Time of Use

The 1262/1272 offers robust time of use functionality. Standard capabilities include:

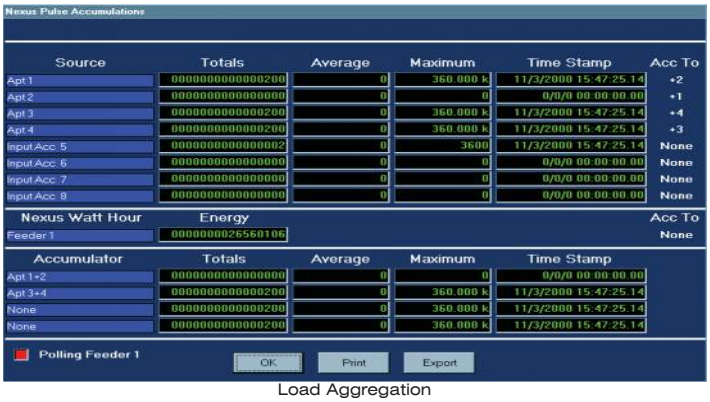
- 8 TOU Schedules
- Bidirectional Consumption & Demand
- 4 Seasons/Year
- 20 Year Calendar
- Prior Month & Prior Season Readings for Each Schedule
- Present Month & Present Season Readings for Each Schedule
- Total to Date Readings for Each Schedule
- Programmable Freeze Registers

20 Year TOU Calendar

Load Aggregation/ Universal Metering

Using standard pulse inputs, the Nexus® 1262/1272 meter can count pulses from external meters and accumulate usage. The pulse inputs can be used to totalize electrical usage and utility values, such as water or gas use data.

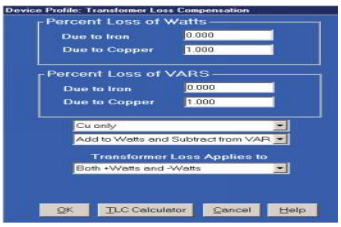
- 8 Pulse Inputs
- Individual Accumulating Registers
- 4 Totalizing Registers (Add or Subtract)
- Totalize with Nexus® meter's kWh Readings



Load Aggregation

Transformer or Line Loss Compensation

Loss Compensation adjusts for both copper and iron losses with a simple user setup.



TLL Compensation

CT & PT Compensation

The Nexus® unit compensates for errors in current transformer and potential transfers.

- Voltage Compensation
- Multipoint Current Compensation
- Multipoint Phase Angle Compensation
- Better than 0.01% Resolution

Field Test Mode

- Test all Energy Readings
- Enable/Disable in Test Mode
- Pre-Setable Accumulators
- Freezable Accumulators

Multiple Demand Windows

The Nexus® 1262/1272 meter simultaneously monitors five demand structures.

- Block Window Demand/Rolling Window Demand/Predictive Demand/thermal Demand/ Cumulative Demand
- Interval Length: 1sec to many hours
- Up to 255 Subintervals
- End of Interval Pulse Output
- End of Interval Pulse Input
- Cold Load Pickup

Time Stamped Max.Demands

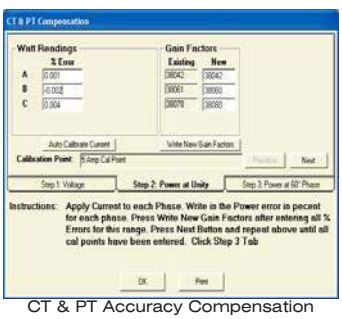
The unit gathers demand information for all power values. Each value is date/time stamped.

- kW Demand, Delivered & Received, Max/Min
- kVAR Demand, Delivered & Received, Max/Min
- kVAR Coincident with kW Demand
- kVA Demand, Max/Min
- Amps Demand, Max/Min
- Voltage, Max/Min

Accuracy

Parameter	Accuracy
Voltage	0.02%
Current	0.05%
Frequency	0.001Hz
kW	0.06%
kWh@1.0PF	0.06%
kWh@0.5PF	0.10%
kVAR	0.10%
kVA	0.10%
PF	0.10%

Form	Rated Voltage	Hookup
9S	0 to 277V L-N	3E, 4W, Wye
36S	0 to 277V L-N with Neutral	2½E, 4W, Wye
45S	0 to 480V L-L	2E, 3W, Delta
SWB2	0 to 277V	Programmable *(Universal Forms)*
9A	0 to 277V L-N	A Base Form



CT & PT Accuracy Compensation

Display Features

Programmable, Graphical LCD Display

The Nexus® 1262/1272 meter is equipped with a programmable, graphical back-lit LCD display that is comprised of over 400 screens. This allows you to display the specific required utility screens. The display allows you not only to view energy data, but also to gather circuit diagnostic data such as voltage, current, harmonics and phasor information. Advanced capability makes the meter easy to install and useful in field applications.

Normal Mode

- kWh Delivered & Received
- kVARh Delivered & Received
- kVAh Delivered & Received
- Peak Rolling Window Demands
- Peak Block Window Demands

Time of Use Mode

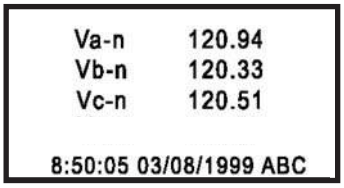
- kWh & kW Demand Delivered & Received Total
- kVARh & kVAR Demand Delivered & Received for Each Register
- kVAh Delivered & Received for Each Register
- kVAh Delivered & Received Total

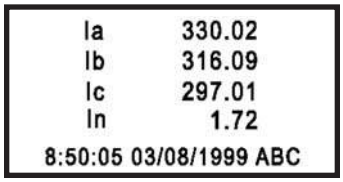
Diagnostic Mode

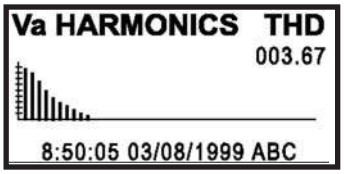
- Voltage (all phases)
- Currents (all phases)
- Phasor Diagram
- Harmonic Spectrums to 63rd Order
- KW, KVA, KVAR and PF
- Frequency
- Demands

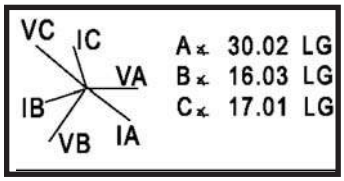
Lockable Reset Switch

The unit provides a lockable demand reset switch that prevents tampering.









Infrared Test Pulse

The meter provides an infrared test pulse that selects to pulse for +Watt-Hour, -Watt-Hour, +VAR-Hour, -VAR-Hour and VA-Hour. This pulse uses a time modulated pulse integration allowing the pulse to be accurate during short duration pulse tests using industry accepted reference standards.

Dial-Out on Alarm *(INP2)*

Dial-Out on Outage

The INP2 modem has a dial-out circuit with a battery that detects when voltage is lost and dials out to provide outage notification. Additionally, the meter's circuit configures to dial-out when many other circumstances occur. The Nexus® 1262/1272 unit dials to the EIG Dial-In Server which allows users to be paged or emailed with notifications of events.

Dial-Out for Other Events

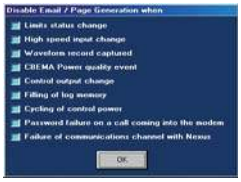
The meter will dial out for the following circumstances:

- Limits/Status Change
- High Speed Input Change
- Waveform Record Capture
- **CBEMA/ITIC Power Quality Event**
- Control Output Change
- Filling of Meter Memory
- Cycling of Control Power
- Password Failure on a Call Coming into the Modem
- Meter Communication Failure

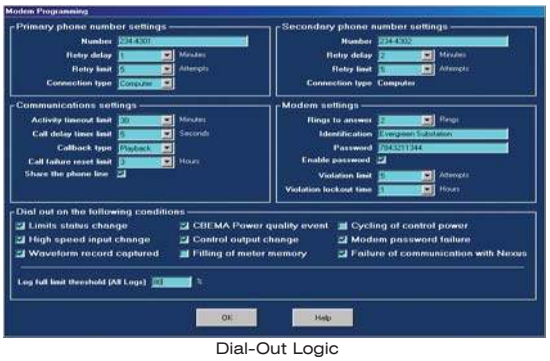
Dial-In Server Capabilities

The EIG Dial-In Server will record all notifications, accept downloads from the meter and allows users to be notified by e-mail and paging automatically. Features of the Dial-In Server include:

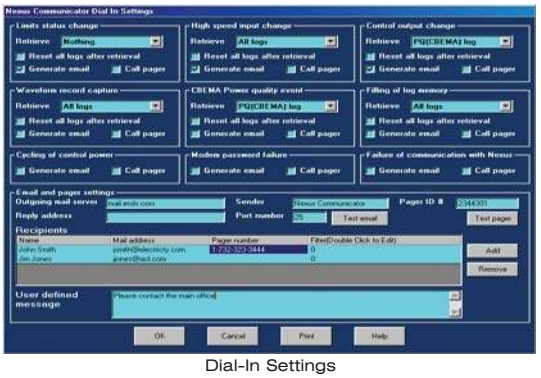
- Unlimited Meters
- Scalable Multiserver Architecture
- EMail Notification
- Paging Notification
- Audible System Alarm



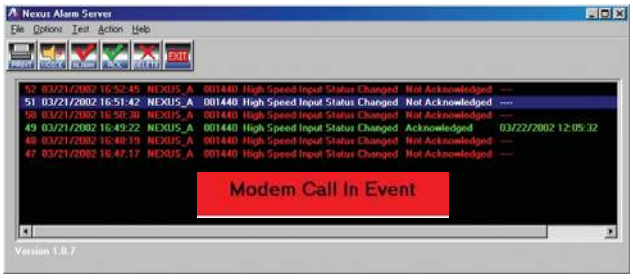
Dial Out on any Event



Dial-Out Logic



Dial-In Settings

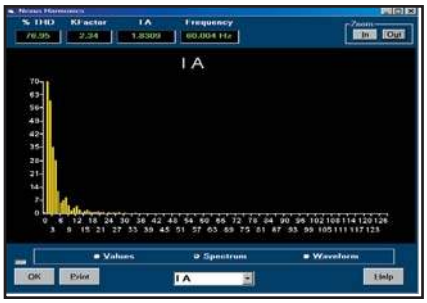


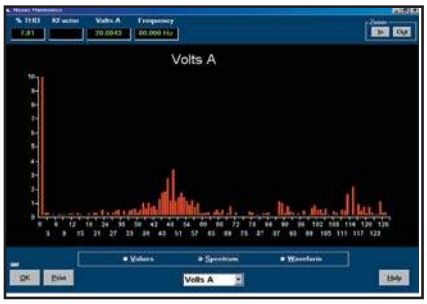
Visual Alarm Server

Nexus 1272® Meter Advanced Power Quality Analysis

The extraordinary speed and accuracy of the Nexus® 1272 meter makes it possible to gather power quality information with unmatched precision. The Nexus® 1272 meter is ideally suited for application on all critical loads. From health care to micro-electronics, the 1272 has what it takes to capture every anomaly. This ensures that when there is a power problem, you have the information required to act. All Power Quality Logs are time stamped to the nearest millisecond to ensure accurate recording. The meter's Advanced Download Logic collects only new data to minimize download times.

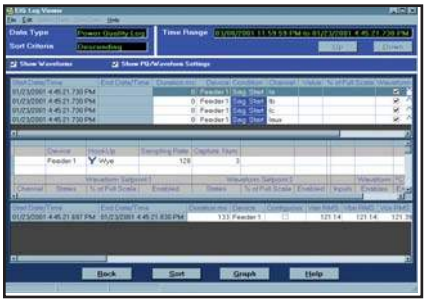
Harmonic Distortion Analysis





- Log Harmonics into Historical Log for Later Analysis
- Log Harmonics into Historical Log for Later Analysis
- Recorded Waveforms Provide Harmonics to the 255th Order
- View Waveform Records

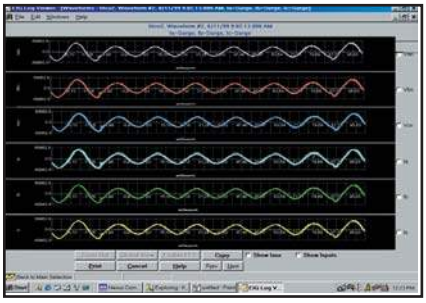
Event/Out of Limit Log

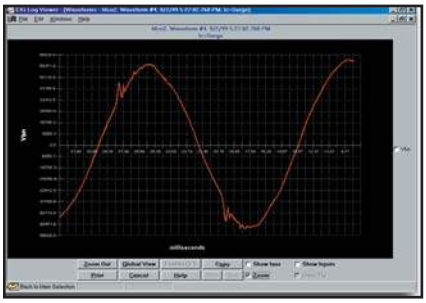


- Records 1024 Events
- Out of Limit Recording
- High-Speed Input Event Recording
- Outage Detection
- Extensive Limit Setting Capabilities with Multiple Limits per Selected Quantity

Waveform Log

The waveform recording capability of the 1272 is unparalleled by any other meter. Waveform records of this quality have historically been reserved only for transmission lines. The power of the Nexus® 1272 meter now makes this quality available to your critical customers.

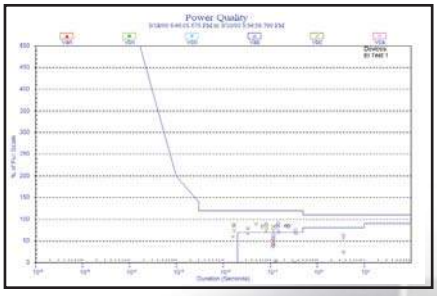




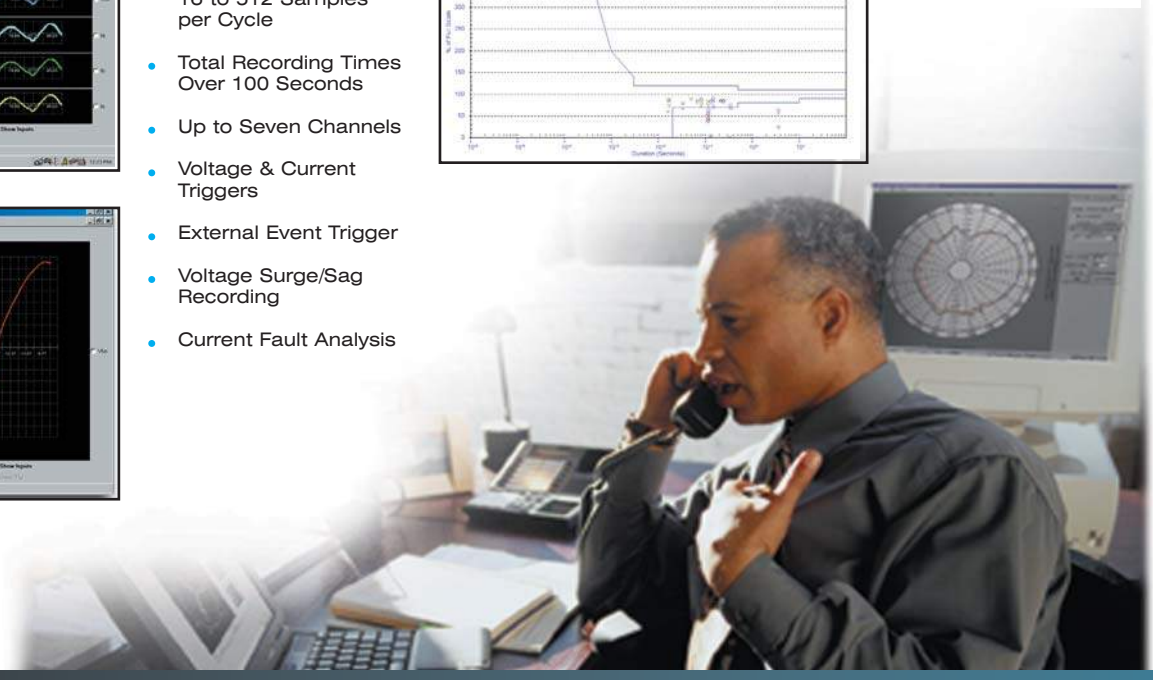
- Extraordinary Resolution through 16 bit A/D Input
- Sample Rates from 16 to 512 Samples per Cycle
- Total Recording Times Over 100 Seconds
- Up to Seven Channels
- Voltage & Current Triggers
- External Event Trigger
- Voltage Surge/Sag Recording
- Current Fault Analysis

CBEMA / ITIC Log

The separate CBEMA/ITIC Log captures all voltage transients that fall outside these standards. The onboard log holds 1024 events. The data is downloaded to a separate log in the meter database for easy analysis. See all voltage disturbances on one screen through the Communicator EXT software.

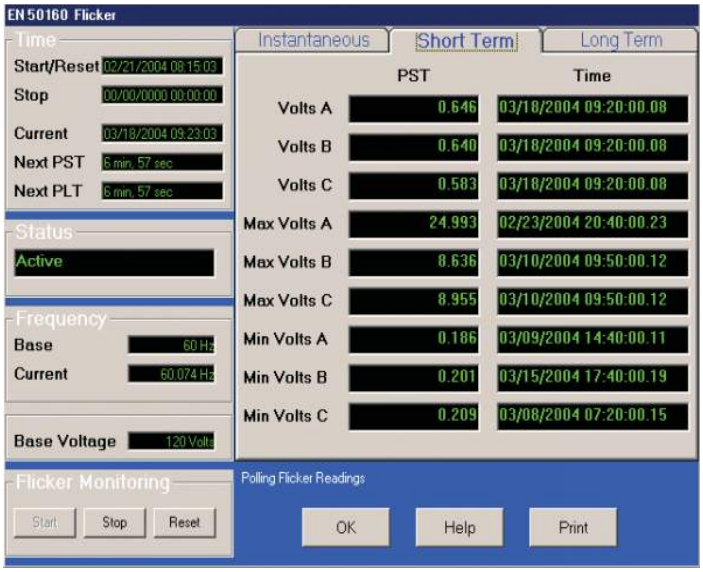


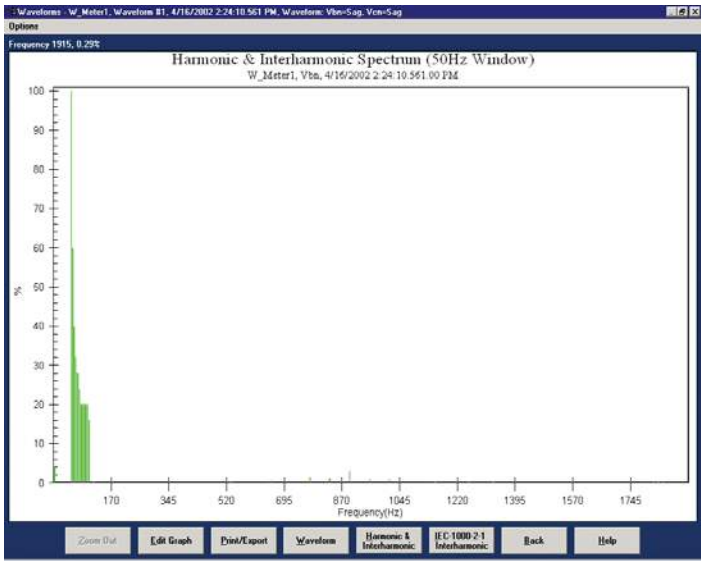
- Sag/Swell Analysis
- Transient Recording



Provides Detailed Power Quality Analysis

EN50160 Power Quality Compliance Monitoring





EN50160 Flicker & Compliance Monitoring

It is important to maintain a source of high quality power to ensure efficient operations. One particular source of disturbance that can have very negative effects is Flicker. This consists of low frequency (less than 24 Hz) to intermittent line disturbances on the power line. Aside from effects on equipment, disturbances of this type can have negative effects on people. One particular example is the flickering of light sources that can effect humans in different ways depending on the severity.

The Nexus® 1272 meter complies fully with the Flicker requirements of EN50160 and includes:

- Short Term Readings: PST-10 Min/Logging & Monitoring
- Long Term Readings: PLT - 4 Hr/Logging & Monitoring
- Log Viewer:–*View Graphed Values* Pst and Plt for Va, Vb and Vc or displayed values, including Max & Min.
- Polling: Pinst, Pst, Pst Max, Pst Min, Plt, Plt Max, Plt Min values

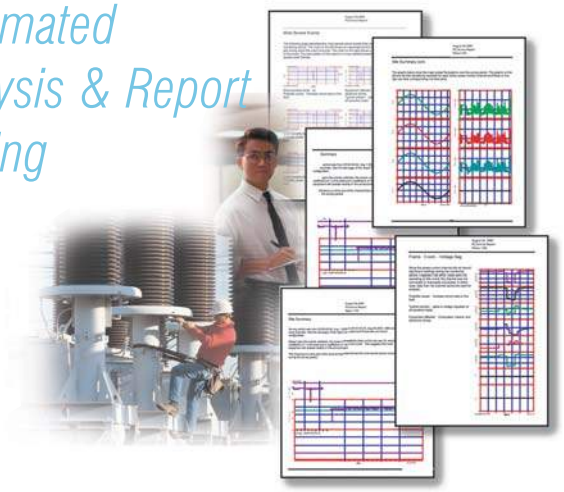
Interharmonic Analysis

The Nexus® 1272 meter provides users with the ability to view the magnitudes of Interharmonics, the discrete frequencies that lie between the harmonics of the power frequency, voltage and current. By analyzing a waveform capture, magnitudes of harmonics can now be observed which are not an integer multiple of the fundamental and can appear as discrete frequencies or as a wide-band spectrum.

The user can set a starting point anywhere in the waveform, assuming that there will be enough sample points available after the starting point. If there are not enough points in this waveform capture, the software will check the next waveform record(s) stored in the database. If it is contiguous, additional points up to 200ms will be retrieved for analysis.

Use Artificial Intelligence to Investigate PQ Problems

Automated Analysis & Report Writing



AiReports EXT - PQ Analysis

AiReports EXT provides automated analysis and reports (1272 Only) for abnormal events.

- Uses Artificial Intelligence
- Evaluates All Data from Nexus Monitor
- Rates Events for Severity
- Identifies Probable Causes
- Identifies Possible Impacts
- Recommends Corrective Actions or Solutions
- Prepares & Formats Report of All Power Quality Events
- PQDIF File Format Converter allows Nexus data to be read by standard EPRI Power Quality Viewing Software.
- COMTRADE File Converter changes fault records to standard fault analysis file formats.

Communicator EXT Fault Analysis

- Compares Multiple Fault Records
- Measures Waveform Traces
- Inserts Timing Marks to Analyze Waveform Transients
- Views CBEMA Logs

Cutting-Edge Technology Monitors Your Power Quality

Data & Event Monitoring/Recording

Multiple Memory Logs

The Nexus® 1262/1272 meter provides multiple logs for recording historical, alarm and system event data. These logs can be used for profiling, recording events and logging electrical power parameters over time. Additionally, using the advanced I/O available on the product, you can log process measurements including temperature, pressure, flow, etc.

Two Historical Trend Logs

The Historical logs allow you to trend virtually any electrical parameter over time, including I/O parameters.

- Up to 64 values per log
- Programmable trend times
- Provides magnitude and duration of events
- 2 separately programmable logs
- Millisecond resolution

Out of Limits Log

This log records all out of limit alarms

- Records alarms for electrical and I/O channels

System Events Log

The unit records system events for security and anti-tampering:

- Power up
- Power down
- Password access
- Password modification
- Change of the programmable settings
- Change of a run time
- Change of Clock Time by communication (Modbus or DNP)
- Test Mode usage
- Meter Resets (Logs, Max/Min, Energy)

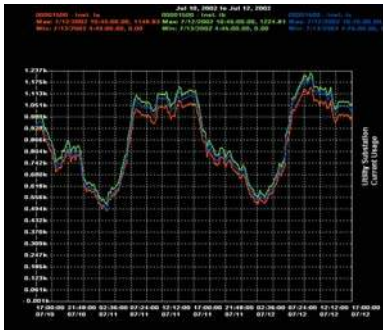
Input Status Log

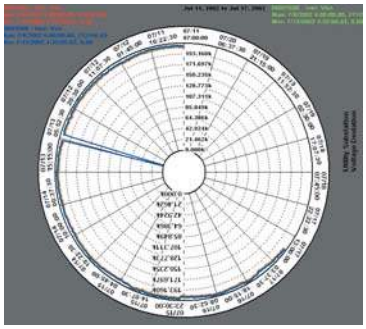
This log records when a digital status change occurs in the internal Inputs. Internally labeled to define events.

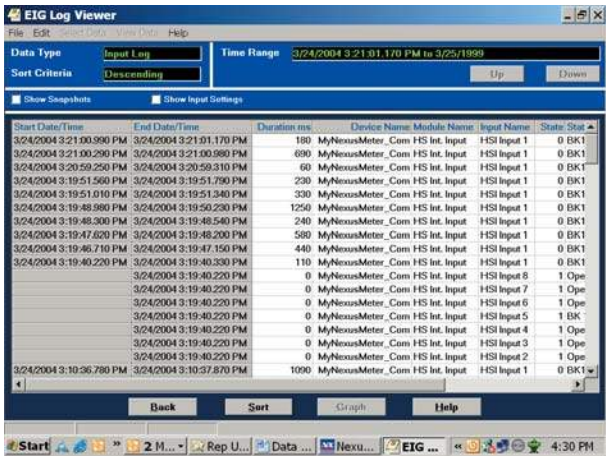
- Logs are time stamped utilizing millisecond resolution

Control Output Log

This log records the logic and state that triggered a control Output. The graphical log shows all of the steps that lead up to the event, providing detailed analysis of the event and pre-and post-event data. Internally labeled to define events.







Communications Capabilities

Multiple Communication Ports using Open Protocols

The Nexus® meter's multiport design allows multiple communication connections simultaneously. Standard Modbus and DNP 3.0 Level 2 protocols are available.

Standard Communications

- Optical Port
- 2 RS-485 Serial Ports
- Modbus RTU/ASCII
- DNP 3.0
- Speeds up to 115k bps

Optional Communications

- Dial-Out Modem
- Ethernet 100BaseT

Combination Modem & Ethernet Solution

This option gives you the ability to access the meter through the Ethernet or a modem for dial-in communication.

- 56k Modem
- 10/100BaseT Ethernet
- Does not Support Battery for Outage Reporting or Dial-Out

Standard I/O

- IRIG-B Time Synchronizing to GPS to 1 msec resolution
- 4 Internal KYZ Pulse Outputs
- 8 KYZ Pulse/Status Inputs

Optional External Outputs

Connect multiple external Output Modules for enhanced capability.

- Analog Outputs
- KYZ Outputs
- Relay/Alarm Outputs

Industry leading DNP 3.0 Level 2 Plus

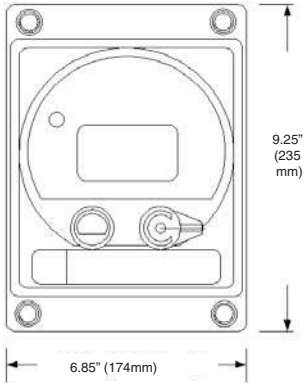
The Nexus® 1262/1272 meter provides the industry's most advanced DNP 3.0 protocol implementations. The 1262/1272 complies with all DNP Level 1 and Level 2 certificationrequirements PLUS a host of additional features including:

- Up to 136 Measurements: 64 Binary Inputs, 8 Binary Counters, 64 Analog Inputs mapped to DNP Static points in the customizable DNP Point map
- Up to 16 Relays and 8 Resets can be Controlled through DNP
- Report-By-Exception Processing (DNP Events) Deadbands can be set on a per-point basis
- 250 Events of Combinations of Four Events: Binary Input Change, Frozen Counter, Counter Change, Analog Change
- Freeze Commands: Freeze, Freeze/No-Ack, Freeze with Time, Freeze with Time/No-Ack, scheduled Freeze Command
- Freeze with Time Command: Enables the Nexus meter to have internal time-driven Frozen Counter and Frozen Counter Event data. When the Nexus meter receives the Time and Interval, the data will be created
- Third Party Certification is Available

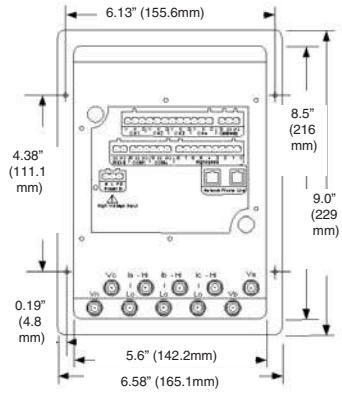
Monitor Critical Loads, Important Users or Substations

Dimensions & Mounting

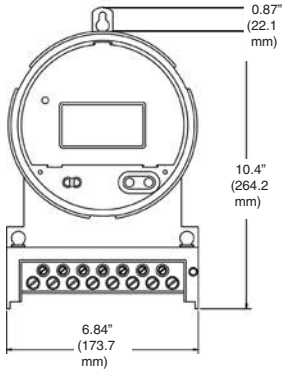
Nexus® 1262/1272 Meter Switchboard Case Front View



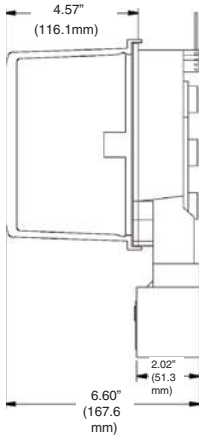
Nexus® 1262/1272 Meter Switchboard Case Back View



Nexus® 1262/1272 Meter A Base Front View

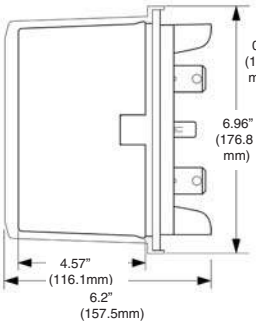


Nexus® 1262/1272 Meter A Base Side View

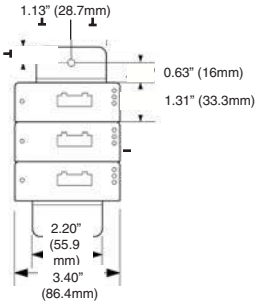


Nexus® 1262/1272 Meter Front View

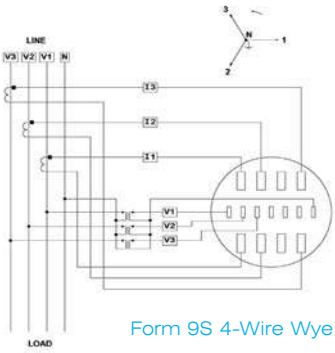
Nexus® 1262/1272 Meter Side View



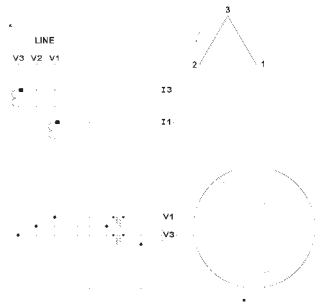
Nexus® Output Modules Front View



Wiring Diagrams

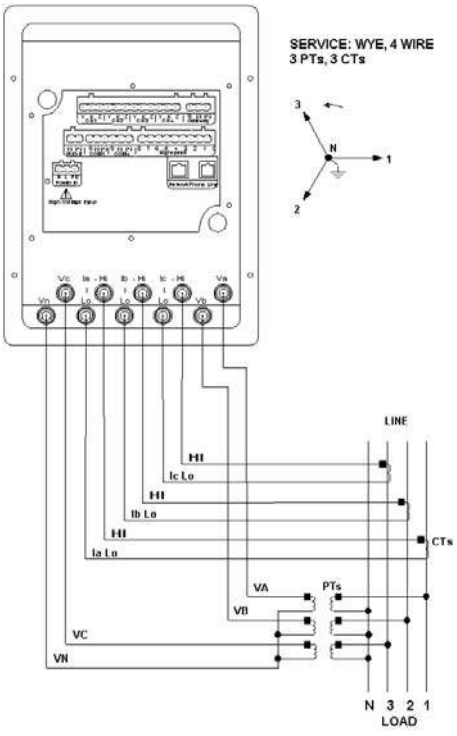


Form 9S 4-Wire Wye

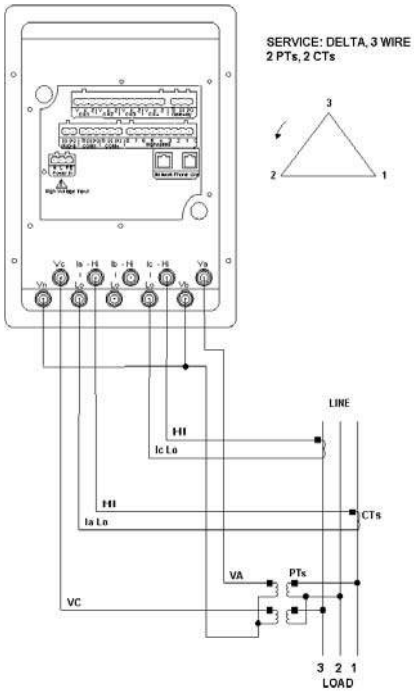


Form 45S 3-Wire Delta

Switchboard Mount



Switchboard Mount



Specifications

INPUT CURRENT
- 3 or 4 Current Inputs Depending on Form (IA, IB, IC, and IN)
- CT Rated 0-20 Amps Class 20
- CT Rated 0-2 Amps Class 2
- Nominal Current Rating: 5A for Class 20 and 10 Meters; 1A for Class 2 Meters
- Transformer Rated
- Continuous 120% of Meter Class
- Overload 500% for 1 Second, Non Recurring

INPUT VOLTAGE
- 0 - 360V Line to Neutral
- 0 - 660V Line to Line

BURDEN *(Sense Inputs)*
- Voltage Inputs: 0.33VA@576V
- Current Inputs: 0.0125VA@25A

ISOLATION
- All Inputs and Outputs Isolated to 2500 Volts
- Com Ports Isolated From Each Other to 1000 Volts

SENSING
- Accu-Measure® Technology
- 16 bit A/D Inputs
- True RMS
- 8 Channel Sample & Hold

MEMORY
- All Meter Setup Parameters, Measurements & Logs Contained in Nonvolatile RAM

STANDARD COMMUNICATIONS
- LCD Display
- IR Port
- Two RS485 Serial Ports
- Modbus RTU, Modbus ASCII, DNP 3.0
- Data Speeds of up to 115k bps
- Eight High-Speed Input Channels

OPTIONAL COMMUNICATIONS
- 56K Modem with Dial-Out Capabilities
- Internal 10/100BaseT Rapid Response™ Ethernet
- Modem/Ethernet Combo Card
- Modbus TCP and DNP LAN/WAN

INTERNAL 8CH DIGITAL INPUTS
- Type: Self Excited, for Dry Contacts Only
- Internal Wetting Voltage: 12V DC Typical

INTERNAL 4CH SOLID STATE OUTPUTS *(kyz)*
- Type: Form A or C
- On Resistance: 23-35Ω
- Peak Voltage: 350V DC
- Continuous Load Current: 120mA
- Peak Load Current: 350mA *(10ms)*
- Off State Leakage Current @350V DC: 1: μA
- Opto Isolation: 3750V rms *(60Hz, 1 min.)*

CLOCK TIMING
- Internal Clock Crystal - Accuracy Better than 1 Minute per Month
- IRIG-B Input for Synchronizing to External GPS Clock Signal - Accuracy Better than 1 msec per Month
- Line Sync -Accuracy Better than 1 Second per Month

ENVIRONMENTAL
- Operating Temperature: (-40 to +85)°C
- Display Temperature: (-20 to +60)°C
- Raintight Lexan Cover *(Socket)*

AUX POWER SUPPLY OPTION
- Standard **(OPTION S)**
  102 to 550 Volts AC 50/60Hz. Auto-Ranging 3 Phase. 12VA Worst Case Total Burden. Meter Power Provided by any of the 3 Phase Voltage Sources Being Monitored. Blade Powered.
- Standard External **(OPTION SE)**
  102 to 275 Volts AC/DC 50/60 Hz. Max Power Consumption: 16 VA@276VAC. Separate Power Cord.
- Low Voltage **(OPTION LV)**
  69V AC 20%± – Low Voltage Supply for 69 Volt L-N Applications
- Low Voltage External **(OPTION DE)**
  18 to 60 Volts DC – External Low Voltage Supply for DC Powered Applications

NOTE: Switchboard Meter is always separately powered.

SECURITY
- Hardware Lock Secures Meter Settings
- Two 10-Character Passwords
- One Password Controls Access to Read Meter Digitally
- Separate Password Controls Access to Program Meter

SHIPPING
Weight:
Socket: 8 Lbs Switchboard: 14 Lbs

Dimensions:
Socket: 10" x 11" x13" Switchboard: 16" x14" x 11"

COMPLIANCE
Compliance Standards:
ANSI C12.20 ANSI-Certified
IEC 60687 — Certified

Approvals:
Europe: IIEC 60687 — KEMA Certified
- ANSI/IEEE C37.90.1 Surge Withstand
- ANSI C62.41 Surge Immunity
- IEC 1000-4-2 ESD
- IEC 1000-4-3 Radiated Immunity
- IEC 1000-4-4 Fast Transient
- IEC 1000-4-5 Surge Immunity
- IEC 1000-4-6 Conducted Immunity
- IEC 60068-2-6 Vibration *(Sinusodial)*
- IEC 60068-2-27 Shock Test
- IEC 695-2-1 Resistance to Heat & Fire
- IEC 529 Dust & Water
- IEC 68-2-1 Cold Test
- IEC 68-2-2 Dry Heat
- IEC 68-2-30 Damp Heat

Ordering Information

	Model	Memory	Form	Class (Amps)	Frequency	Power [1] Supply	Optional Communication
Option Numbers:	-	-	-	-	-	-	
Example:	1272	S	9S	20	60Hz	S	INP200
	1272	S Std	9S	2 Amps	60 Hz	S Std Blade Powered	X No Optional Com
	1262	A Adv	36S	10 Amps	50 Hz	SE Std Ext 102-270V AC/DC	INP2 Modem with Dial-Out
			45S	20 Amps		DE DC Ext 18-60VDC	INP200 10/100BaseT Rapid Response™ Ethernet
			SWB2 *(Switchboard)*			LV 69VAC Blade Powered	INP202 Modem & Ethernet Combo *(No Dial-Out)*
			9A *(A Base)*				

[1] Switchboard Meter Only Supports SE or DE Options.

Accessory Options

OPTIONAL OUTPUT MODULES

1mAON4	4 Analog Outputs, 0-1mA
1mAON8	8 Analog Outputs, 0-1mA
20mAON4	4 Analog Outputs, 4-20mA
20mAON8	8 Analog Outputs, 4-20mA
4RO1	4 Relay Outputs
4PO1	4 Solid State Pulse Outputs

POWER OPTIONS

PSIO	Output Power Supply (Required with Output Module)
BAT1	External Replaceable Battery for Dial Out on Outage

MOUNTING OPTIONS

MBIO	Output Mounting Bracket *Power Supply and Mounting Bracket Required with any Output Option*

SOFTWARE OPTIONS

COMEXT3.1C	Communicator EXT 3.0 for Windows ® Single-Computer License (One Site)
COMEXT3.MC	Communicator EXT 3.0 for Windows ® Multiple-Computer License (One Site)
AIEXT.1C	AiReports EXT Power Analysis Software for Windows ® Single-Computer License (One Site)
AIEXT.MC	Multiple-Computer License (One Site)
DISEXT.1C	Dial-In Server Single-Computer License (One Site)
DISEXT.MC	Dial-In Server Multi-Computer License (One Site)

Electro Industries/GaugeTech
1800 Shames Drive • Westbury, NY 11590
1-877-EIMETER (1-877-346-3837) • **E-Mail:** sales@electroind.com
Tel: 516-334-0870 • **Web Site:** www.electroind.com • **Fax:** 516-338-4741

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NAVFAC CAPITAL IMPROVEMENTS GOV ENERGY BASELINE & OFFERORS MODEL PERFORMANCE RATING ASSUMPTIONS (PRA)

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NAVFAC CAPITAL IMPROVEMENTS PRELIMINARY ENERGY BASELINE & OFFERORS MODEL PERFORMANCE RATING ASSUMPTIONS (PRA)

The preliminary energy baseline and offeror's model performance rating assumptions shall be utilized for technical evaluation factor six, Energy & Sustainable Design. This summary shall serve no other purpose. The assumptions listed here shall not be considered as RFP requirements.

BASELINE BUILDING PERFORMANCE RATING ASSUMPTIONS

The preliminary Energy Baseline Report provides a rough order of measure estimate of the "Baseline" (Code Minimum) energy consumption for this project, based on ASHRAE Std 90.1-2010 Appendix G. The proposer is advised that the goal for this project is to reduce estimated annual energy consumption by at least 30% from the ASHRAE 90.1-2010 baseline value.

The Baseline building is assumed to be a typical facility of the type indicated, of the same size and in the same ASHRAE Climate Zone as the project location. The Baseline is a parametric model based on these simplified parameters. While the baseline uses the same occupancy, setpoints and operating schedules as the proposed building, the baseline does not reflect all of the specific requirements of the RFP.

OFFERORS PERFORMANCE RATING ASSUMPTIONS

The following assumptions and clarifications should be considered before proceeding with a Proposed Building simulation:

The offeror's Proposed Building energy model shall reflect the offeror's proposed building, meeting or exceeding all requirements of the RFP. The model shall use the modeling rules of ASHRAE 90.1-2010 Appendix G. The model shall use the following assumptions within the model as appropriate:

Weather Data:

- Weather location shall be based on full-year TMY Weather Data for Quantico MCAS, VA

Default System:

- Default HVAC system type and heating and cooling sources per ASHRAE 90.1-2010 table G3.1.1.A

Space Occupancy:

- ASHRAE default occupant densities if not included in interior furniture layout

Operating Schedules for MCESG Annex:

- Lighting Schedule: ASHRAE 90.1-2010, Space Usage Classification: Lighting – Office (ASHRAE 90.1-2007 User Guide)

- People occupancy Schedule: ASHRAE 90.1-2010 People - Office. Table G-I (ASHRAE 90.1-2010 User Guide)
- Miscellaneous Schedule: ASHRAE 90.1-2010 Miscellaneous - Office. Table G-I (ASHRAE 90.1-2010 User Guide)
- Elevator schedule modeled as Space Usage Classification: People – Low Rise Office. (ASHRAE 90.1-2010 User Guide)

Operating Schedules for MSAU HQ-BEQ:

- Lighting Schedule: ASHRAE 90.1-2007, Space Usage Classification: Lighting – Hotel/Motel (ASHRAE 90.1-2007 User Guide)
- People occupancy Schedule: ASHRAE 90.1-2007 People - Hotel/Motel. Table G-I (ASHRAE 90.1-2007 User Guide)
- Miscellaneous Schedule: ASHRAE 90.1-2007 Miscellaneous - Hotel/Motel. Table G-I (ASHRAE 90.1-2007 User Guide)
- Elevator schedule modeled as Space Usage Classification: People – Hotel/Motel. (ASHRAE 90.1-2007 User Guide)

Infiltration Assumptions:

- Infiltration shall be included on perimeter zones only. If the offeror proposes to air barrier testing to a 0.25 cfm/ft_2 (envelope) goal at 0.3" w.g., the offeror may simulate tight building construction. If the offeror proposes to use air barriers with testing to 0.15 (or lower) cfm/ft_2 (envelope) goal at 0.3" w.g., zero building infiltration may be modeled.

Additional Space Loads:

- Plug loads to be modeled as follows:
    - 300 watts per workstation for office spaces
    - 400 watts per sleeping unit
- Estimate miscellaneous loads based on ASHRAE Fundamentals recommended heat gains where not specified above.

Domestic Water Heating:

- Service Hot Water modeled as Space Usage Classification: Hot water – low rise office (ASHRAE 90.1-2010 User Guide) (80% efficiency natural gas non-condensing water heaters)
- Domestic Water peak hourly demand in gallons per minute: Use 2011 ASHRAE Handbook-HVAC Applications, CH 50
- Meet domestic water heating efficiency requirements in ASHRAE 90.1-2010

ANSI/ASHRAE/IESS STANDARD 90.1 BUILDING ENVELOPE COMPLIANCE DOCUMENTATION

PART SIX – ATTACHMENTS

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Building Envelope Compliance Documentation

Project Name:		
Project Address:		Date:
Designer of Record:	Email:	Telephone:
Contact Person:	Email:	Telephone:
City:	Climate Zone:	Criteria Table:

Mandatory Provisions Checklist

Insulation (5.4.1)

❑ Insulation Materials are installed in accordance with manufacturer's recommendations and in such a manner as to achieve rated R-value of insulation

() Exception: for metal building roofs or metal building walls.

❑ Loose-fill insulation is not used in attic roof spaces when the slope of the ceiling is more than three in twelve.

❑ Attic eave vents have baffling to deflect the incoming air above the surface of the insulation.

❑ Insulation is installed in a permanent manner in substantial contact with the inside surface.

❑ Batt insulation installed in floor cavities is supported in a permanent manner by supports no greater than 24 in. o.c.

❑ Lighting fixtures, HVAC, and other equipment are not be recessed in ceilings in such a manner to affect the insulation thickness unless.

Exceptions:

() The recessed area is less than 1%.

() The entire roof, wall, or floor is covered with insulation to the full depth required.

() The effects of reduced insulation are included in calculations using an area weighted averages.

❑ Roof insulation is not installed over suspended ceiling with removable ceiling panels.

❑ Exterior insulation is covered with a protective material to prevent damage. Insulation is protected in attics and mechanical rooms where access is needed.

❑ Foundation vents do not interfere with the insulation.

❑ Insulation materials in ground contact have a water absorption rate no greater than 0.3%.

Fenestration and Doors (5.4.2)

❑ U-factors are determined in accordance with NFRC 100. U-factors for skylights shall be determined for a slope of 20□above the horizontal.

Exceptions:

() U-factors are taken from A.8.1 for skylights.

() U-factors are taken from A.8.2 other fenestration products.

() U-factors are taken from A.7 for opaque doors.

() U-factors are derived from DASMA 105 for garage doors.

❑ Solar heat gain coefficient (SHGC) is determined in accordance with NFRC 200.

Exceptions:

() SHGC is determined by multiplying the shading coefficient (SC) by 0.86. Shading coefficient is determined using a spectral data file determined in accordance with NFRC 300.

() SHGC for the center of glass is used. SHGC is determined using a spectral data file determined in accordance with NFRC 300.

() SHGC is taken from Section A8.1 for skylights.

() SHGC is taken from Section A8.2 for vertical fenestration.

❑ Visible light transmittance is determined in accordance with NFRC 200.

Air Leakage (5.4.3)

❑ The *building envelope* has a continuous air barrier meeting the requirements of 5.4.3.1.

❑ Air leakage through fenestration and doors meets the requirements of 5.4.3.2.

Exceptions:

- ❍ Field fabricated fenestration and doors.
- ❍ Metal coiling doors in semiheated spaces in climate zones 1 through 6.

❑ Cargo doors and loading dock doors are equipped with weatherseals in climates zones 4 through 8 (5.4.3.3).

❑ Entrance doors have vestibules (5.4.3.4).

Exceptions:

- ❍ Building has revolving doors
- ❍ Doors not intended as building entrance
- ❍ Doors open from dwelling unit(s)
- ❍ Climate zone 1 or 2
- ❍ Building in climate zone 3 less than four stories and smaller than 10,000 ft² (930 m²)
- ❍ Buildings entrances in buildings less than 1,000 ft² (90 m²) in climate zones 4, 5, 6, 7, and 8
- ❍ Doors opening from spaces smaller than 3,000 ft² (280 m²) that is separate from a building entrance

Building Envelope Compliance Documentation

Project Name:		
Contact Person:	Email:	Telephone:

Space Category	5.5.4.4.1 Exceptions	Window-Wall Ratio		Skylight-Roof Ratio	
☐ Nonresidential	☐ Permanent Projections	Gross Wall Area (ft^2 or m^2):		Gross Roof Area (ft^2):	
☐ Residential	☐ Street Level Windows	Window Area (ft^2 or m^2):		Skylight Area:	
☐ Semiheated		Window-Wall Ratio:		Skylight-Roof Ratio	
		South Fenestration Area (ft^2)		Space require minimum skylight area?	
		East Fenestration Area (ft^2)			
		West Fenestration Area (ft^2)			

Opaque Surfaces

Description/ Name	Class (Pick one)												Pick one	Pick one	High Reflectance/Emittance Roof	Proposed Insulation R-Value, U-Factor, C-Factor or F-Factor	Criteria Insulation R-Value, U-Factor, C-Factor or F-Factor	Surface Area (ft^2 or m^2) (optional)
	Roof			Wall					Floor				Slab	Door				
	Insulation Above	Metal Building	Attic and Other	Mass	Metal Building	Steel-Framed	Wood-Framed / Other	Below-Grade Wall	Mass	Steel Joist	Wood-Framed / Other	Unheated	Heated	Swinging	Non-Swinging	R-value Option	U-factor Option	Appendix A Defaults Calculations				
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Building Envelope Compliance Documentation

Project Name:		
Contact Person:	Email:	Telephone:

Fenestration

Description/ Name	Frame Class (Pick one)									Proposed Fenestration							Criteria	
	Nonmetal (all)	Metal (curtain/storefront)	Metal (entrance door)	Metal (all other	Skylight, Curb, Glass	Skylight, Curb, Plastic	Skylight, No Curb	NFRC Rating	Appendix A Defaults	Area	U-Factor	Solar Heat Gain Coefficient (SHGC)	Overhang	Projection Factor	Overhang Multiplier	Adjusted Solar Heat Gain Coefficient (SHGC)	U-Factor	Solar Heat Gain Coefficient (SHGC)
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Mandatory Equipment Efficiency Worksheet (6.4.1.1)

System Tag	Equipment Type (Tables 6.8.1A through K)	Size Category (Tables 6.8.1A through K)	Sub-Category or Rating Condition (Tables 6.8.1A through K)	Units of Efficiency (Tables 6.8.1A through K)	Minimum Efficiency (Tables 6.8.1A through K)		
					Rated	≥	Required
						≥	
						≥	
						≥	
						≥	
						≥	
						≥	
						≥	

Mandatory Non-Standard Centrifugal Chiller Worksheet (6.4.1.1)

Chiller Tag	Leaving Evaporator Temperature (°F)	Leaving Condenser Temperature (°F)	Factors for Adjusted Efficiency from 6.4.1.2 A/B	Type and Size Category (Table 6.8.1C)	Path (A or B)	Table 6.8.1C Minimum Efficiency & Adjusted Efficiency Table 6.8.1C Value/Adjusted value	Minimum Efficiency (Tables 6.8.1H through J)		
							Rated	≥	Required
			/			/		≥	
			/			/		≥	
			/			/		≥	
			/			/		≥	

General Mandatory Requirements

- ☐ All heating and cooling equipment meet minimum efficiencies as required in Tables 6.8.1 (A through K) (6.4.1).
- ☐ Load calculations are provided for selection of all equipment and systems (6.4.2.1).
- ☐ Pump head calculations are provided for selection of all pumps (6.4.2.2).
- ☐ Zone control complies with the requirements of 6.4.3.1.1
- ☐ Stair and elevator shaft vents provided with motorized dampers (6.4.3.4.1)
- ☐ Ventilation fans with motors greater than 0.75 hp (1.0 kW) have automatic controls complying with Section 6.4.3.4.4.
- ☐ Enclosed parking garage ventilation systems meet the requirements of (6.4.3.4.5).
- ☐ Freeze protection or snow-melting systems meet the requirements of 6.4.3.8
- ☐ Piping insulation meets or exceeds the requirements of section 6.4.4.1.3.
- ☐ Construction documents require record drawings (6.7.2.1), manuals (6.7.2.2), system balancing (6.7.2.3) and system commissioning (6.7.2.4).

Special Mandatory Requirements

- ☐ Freeze protection or snow/ice melting systems (if any) have controls to prevent operation in warm weather (6.4.3.8).
- ☐ Independent perimeter heating systems (if any) comply with the control requirements of 6.4.3.1.1.
- ☐ Independent heating and cooling thermostatic controls (if any) are interlocked to prevent crossover of set points (6.4.3.2).
- ☐ Sensible heating panels are insulated per 6.4.4.1.3
- ☐ Radiant floor heating is insulated per 6.4.4.1.5

Project Name:	
Contact Person:	Telephone:

Systems Worksheet (6.4)

System Tag						
Supply CFM						
DX Cooling Capacity						
Supply Motor HP						
OA CFM (i.e. Outdoor Air CFM)						
Deadband (6.4.3.1.2)						
Automatic Shutdown (6.4.3.3.1)						
Setback Controls (6.4.3.3.2)						
Setup Controls (6.4.3.3.2)						
Optimum Start (6.4.3.3.3)						
Zone Isolation (6.4.3.3.4)						
OSA Shutoff Dampers (6.4.3.4.2)						
Exhaust/Relief Shutoff Dampers (6.4.3.4.2)						
Damper Leakage (6.4.3.4.3)						
Heat Pump Aux Heat (6.4.3.5)						
Humidifier Preheat (6.4.3.6)						
Humidification/Dehumidification Deadband (6.4.3.7)						
Ventilation Control for High Occupancy Areas (6.4.3.9)						
Single Zone Fan Control (6.4.3.10)						
Duct/Plenum Insulation (6.4.4.1.2)						
Duct Sealing Levels (6.4.4.2.1) Supply/Return						
Duct Leakage Test (6.4.4.2.2)						

In the table above, enter the appropriate codes from this list:

Dead Band (6.4.3.1.2)
- *C1 Dual setpoint control*
- *C2 Manual change over control*
- *N1 N/A special occupancy (requires approval)*
- *N2 N/A heating or cooling only*

Automatic Shutdown (6.4.3.3.1)
- *C1 Complying 7-day timeclock with override*
- *C2 Complying Occupant sensor*
- *C3 Complying manually operated timeswitch*
- *C4 Complying security system interlock*
- *C5 Complying residential system with 2-day timeclock*
- *N1 N/A continuous operation*
- *N2 N/A heatung and cooling ≤15 kbtu/h (4.4 kW) and manual on/off*

Setback Controls (6.4.3.3.2)
- *C1 Setback provided (down to 55F (13C)*
- *N1 N/A continuous operation*
- *N2 N/A heatung and cooling ≤15 kbtu/h (4.4 kW) and manual on/off*
- *N3 N/A not in climate zone 2 to 8*
- *N4 N/A radiant heating*
- *N5 N/A no heating*

Setup Controls (6.4.3.3.2)
- *C1 Setup provided (up to 90F (32C))*
- *N1 N/A continuous operation*
- *N2 N/A heatung and cooling ≤15 kbtu/h (4.4 kW) and manual on/off*
- *N3 N/A not in climate zone 1b, 2b or 3b*
- *N4 N/A no cooling*

Optimum Start (6.4.3.3.3)
- *C1 Optimum start provided*
- *N1 N/A continuous operation*
- *N2 N/A heatung and cooling ≤15 kbtu/h (4.4 kW) and manual on/off*
- *N3 N/A supply<=10,000 cfm (4,700 l/s)*

OSA Shutoff Dampers (6.4.3.4.2)
- *C1 Motorized shutoff dampers*
- *C2 Gravity shutoff dampers on OA and building in climate zone 1, 2 or 3*
- *N1 N/A OA <=300 cfm (142 l/s)*

Exhaust/Relief Shutoff Dampers (6.4.3.4.2)
- *C1 Motorized shutoff dampers on exhaust and relief*
- *C2 Gravity shutoff dampers on exhaust and relief and the building is less than three stories in height*

Damper Leakage (6.4.3.4.3)
- *C1 OSA, exhaust and relief dampers comply with Table 6.4.3.4.3*

Zone Isolation (6.4.3.3.4)
- *C1 Isolation areas provided*
- *N1 N/A continuous operation*
- *N2 N/A ≤15 kBtu/h (4.4 kW) or ≤3/4 hp (0.56 kW)*
- *N3 N/A all zones on same schedule*
- *N4 N/A OA/EA <=5,000 cfm (2,360 l/s)*

Heat Pump Aux Heat (6.4.3.5)
- *C1 Complying controls provided*
- *N1 N/A system is not a heat pump*
- *N2 N/A auxiliary is not electric or is not provided*
- *N3 N/A heat pump covered by NAECA*

Humidifier Preheat (6.4.3.6)
- *C1 Complying controls provided*
- *N1 N/A no humidifier*

Humidification/Dehumidification Dead Band (6.4.3.7)
- *C1 Complying controls provided*
- *N1 N/A no humidification and/or dehumidification*

Ventilation Control for High Occupancy Areas (6.4.3.9)
- *C1 All zones comply with 6.4.3.9*
- *N1 N/A exhaust air energy recovery complies with 6.5.6.1*
- *N2 N/A system is multiple zone and has pneumatic controls*
- *N3 N/A design OSA<1,200 cfm (570 l/s)*
- *N4 N/A design OSA minus transfer (or make up air) <1,200 cfm (570 l/s)*

Single Zone Fan Control (6.4.3.10)
- *C1 Complies with 6.4.3.10*
- *N1 N/A CHW unit with supply motor hp <5hp (3.7 kW)*
- *N2 N/A DX unit with cooling capacity < 110 kBtu/h (32 kW)*
- *N3 N/A multiple Zone Unit*

Duct/Plenum Insulation (6.4.4.1.2)
- *C1 Complying insulation provided*
- *N1 N/A all ducts located in conditioned space*

Duct Sealing (6.4.4.2.1)
- *Enter highest seal level (A, B or C) for supply and return*

Duct Leakage Test (6.4.4.2.2)
- *Y Ducts will be tested for leakage*
- *N Ducts will not be tested for leakage*

HVAC Prescriptive Requirements

Project Name:	
Contact Person:	Telephone:

Prescriptive Checklist

Prescriptive Air-System Requirements

- ☐ All systems comply with simultaneous heating and cooling limitations (6.5.2).

Prescriptive Hydronic System Requirements

- ☐ Hydronic systems meet the variable flow requirements of 6.5.4.1
- ☐ Chillers and boilers in parallel have isolation controls per 6.5.4.2
- ☐ Chilled and hot water systems meet the temperature reset requirements of 6.5.4.3
- ☐ Hydronic heat pump systems and water cooled AC units comply with the requirements of 6.5.4.4.
- ☐ Chilled and condenser water piping systems are sized in compliance with 6.5.4.5

Prescriptive Special System Requirements

- ☐ Heat rejection systems comply with section 6.5.5
- ☐ Kitchen exhaust systems comply with 6.5.7.1
- ☐ Laboratory exhaust systems comply with 6.5.7.2
- ☐ Radiant heating systems comply with 6.5.8
- ☐ Heat recovery for service water heating is provided for facilities that operate continuously, have a total water-cooled heat rejection capacity exceeding 6,000,000 Btu/h (1,758 kW), and have a design service water heating load exceeding 1,000,000 Btu/h (293 kW). The heat recovery system (if any) complies with 6.5.6.2.
- ☐ The cooling equipment with hot-gas bypass controls (if any) meets the unloading requirements of 6.5.9.

Project Name:	
Contact Person:	Telephone:

Systems Worksheet (6.5)

System Tag						
Supply CFM						
Cooling Capacity						
Heating Capacity						
OA CFM (i.e. Outdoor Air CFM)						
Economizer (6.5.1)						
Dehumidification (6.5.2.3)						
Humidification (6.5.2.4)						
VAV Fan Control (6.5.3.2.1)						
VAV Fan Static Pressure Control (6.5.3.2.2 and 6.5.3.2.3)						
Multiple Zone VAV System Ventilation Control (6.5.3.3)						
Supply air temperature reset control (6.5.3.4)						
Exhaust air energy recovery (6.5.6.1)						

In the table above, enter the appropriate codes from this list:

Economizer (6.5.1)
- *C1 System employs air-economizer complying with 6.5.1.1, 6.5.1.3 and 6.5.1.4*
- *C2 System employs water economizer complying with 6.5.1.2, 6.5.1.3 and 6.5.1.4*
- *N1 N/A size exception from Table 6.5.1A or 6.5.1B*
- *N2 N/A non-particulate air treatment per 6.2.1 of Standard 62.1*
- *N3 N/A per exception c to 6.5.1*
- *N4 N/A system employs heat recovery complying with 6.5.6.2*
- *N5 N/A system serves residential spaces with a system capacity less than 5 times that in Table 6.5.1A*
- *N6 N/A per exception f to 6.5.1*
- *N7 N/A system expected to operate < 20 hrs/wk*
- *N8 N/A system serves space with open refrigerated casework systems*
- *N9 N/A cooling efficiency exceeds the requirements of Table 6.3.2*
- *N10 N/A serves computer rooms and meets exception j to 6.5.1*
- *N11 N/A serves computer rooms and meets exception k to 6.5.1*

Dehumidification (6.5.2.3)
- *C1 System dehumidifies without employing reheating or recooling*
- *N1 N/A system does not have humidistatic controls*
- *N2 N/A system meets exception a to 6.5.2.3*
- *N3 N/A system meets exception b to 6.5.2.3*
- *N4 N/A system meets exception c to 6.5.2.3*
- *N5 N/A system meets exception d to 6.5.2.3*
- *N6 N/A system meets exception e to 6.5.2.3*
- *N7 N/A system meets exception f to 6.5.2.3*

Humidification (6.5.2.4)
- *C1 System humidifies to a dew point < 35F*
- *C2 System humidifies and does not have an economizer*
- *C3 System humidifies has a water-side economizer*
- *N1 N/A system does not have a humidifier controls*

VAV Fan Control (6.5.3.2.1)
- *C1 System has a variable speed drive*
- *C2 System has a vane-axial fan with variable pitch blades*
- *C3 System uses a control that complies with 6.5.3.2.1 c.*
- *N1 N/A system is constant volume*
- *N2 N/A system serves a single zone and complies with 6.4.3.10*

VAV Fan Static Pressure Control (6.5.3.2.2 and 6.5.3.2.3)
- *C1 Static pressure setpoint is < 1/3 of the fan design static*
- *C2 Static pressure setpoint is reset by zone demand per 6.5.3.2.3.*
- *N1 N/A system is constant volume*
- *N2 N/A system serves a single zone and complies with 6.4.3.10*

Multiple Zone VAV System Ventilation Control (6.5.3.3)
- *C1 System complies with 6.5.3.3*
- *N1 N/A system is constant volume*
- *N2 N/A system serves a single zone and complies with 6.4.3.10*
- *N3 N/A system is does not have DDC to the zone*

Supply air temperature reset control (6.5.3.4)
- *C1 System employs supply air temperature reset per 6.5.3.4*
- *N1 N/A system serves a single zone and complies with 6.4.3.10*
- *N2 N/A system is located in climate zone 1a, 2a or 3a*
- *N3 N/A system has no re-heating, re-cooling or mixing of heated and cooled supply air*
- *N4 N/A system has >75% of the energy for reheat from site recovered or site solar energy sources*

Exhaust air energy recovery (6.5.6.1)
- *C1 System employs an exhaust air energy recovery device that exceeds 50% energy recover effectiveness*
- *N1 N/A system is exempt per Table 6.5.6.1*
- *N2 N/A system serves a laboratory meeting 6.5.7.2*
- *N3 N/A system is heating only and the spaces are heated to <60F*
- *N4 N/A exhaust is toxic, flammable or corrosive*
- *N5 N/A system serves an area with commercial kitchen hoods*
- *N6 N/A >60% of the heating energy is from site-recovered or site-solar energy*
- *N7 N/A system meets exception f to 6.5.6.1*
- *N8 N/A system meets exception g to 6.5.6.1*
- *N9 N/A system meets exception h to 6.5.6.1*
- *N10 N/A system meets exception i to 6.5.6.1*
- *N11 N/A system meets exception j to 6.5.6.1*

Option 1 – Nameplate Horsepower

Installed Nameplate Horsepower

Tag	Description	Supply	Return	Exhaust	Series FPB	Other	Nameplate Horsepower
		❍	❍	❍	❍	❍	
		❍	❍	❍	❍	❍	
		❍	❍	❍	❍	❍	
		❍	❍	❍	❍	❍	
		❍	❍	❍	❍	❍	

Allowed Nameplate Horsepower

Design Supply Airflow Rate (CFM_S)	
Fan Nameplate Horsepower Allowance from Table 6.5.3.1.1A	
Total Allowed Nameplate Horsepower	

Option 2 – Brake Horsepower

Allowed Fan Brake Horsepower

Design Supply Airflow Rate (CFM_S)	
Fan Brake Horsepower Allowance from Table 6.5.3.1.1A	
Base Allowance (Line1 x Line 2)	
Additional Brake Horsepower Allowance	
Total Allowed Brake Horsepower	

Pressure Drop Adjustments for Qualifying Devices

Tag	Device Description	Pressure Drop from Table 6.5.3.1.1B	CFM through Device	Additional Brake Horsepower Allowance

Installed Brake Horsepower

Tag	Description	Supply	Return	Exhaust	Series FPB	Other	CFM	Pressure Drop (PD)	η_{Fan}	η_{Drive}	η_{Motor}	Brake Horsepower
		❍	❍	❍	❍	❍						
		❍	❍	❍	❍	❍						
		❍	❍	❍	❍	❍						
		❍	❍	❍	❍	❍						
		❍	❍	❍	❍	❍						

Service Water Heating Compliance Documentation

Project Name:		
Project Address:		Date:
Designer of Record:	Email:	Telephone:
Contact Person:	Email:	Telephone:
City:		

Mandatory Provisions Checklist

- ❑ Load calculations have been provided for sizing of systems and equipment (7.4.1).
- ❑ Equipment efficiencies meet or exceed the requirements of Table 7.8 (7.4.2).
- ❑ Circulating systems are fully insulated (per Table 6.8.3) and have automatic pump controls (7.4.3 and 7.4.4.2).
- ❑ Non-circulating systems have insulated heat traps and outlet piping insulated (per Table 6.8.3) for 8 ft (2.44 m) from the storage tank (7.4.6).
- ❑ Tanks with remote heaters have circulation pump controls (7.4.4.4).
- ❑ All water heating systems have temperature controls that are adjustable down to 120°F (48.9°C) or lower (7.4.4.1).
- ❑ Systems designed with pipe heating systems such as heat trace have temperature or time controls (7.4.4.2).
- ❑ Public lavatories have outlet temperature controls that limit the discharge temperature to 110°F (43.3°C) (7.4.4.3).
- ❑ Pool heaters have readily accessible controls and gas-fired heaters do not have standing pilot lights (7.4.5.1).
- ❑ Heated swimming pools have vapor retardant covers (7.4.5.2).
- ❑ Pool heaters and circulation pumps have time switches (7.4.5.3)

Equipment Efficiency Worksheet (7.4.1)

System Tag	Equipment Type (From Table 7.8)	Sub-Category or Rating Condition (From Table 7.8)	Input Rating (Btu/h or kW)	Volume (gal or l)	Energy Factor or Et Rated ≥ Required	Standby Loss Specified ≤ Nameplate
					≥	≤
					≥	≤
					≥	≤
					≥	≤

Combination Space and Water Heating Worksheet (7.5.1)

	Standby Loss Method	or Energy Use Exception (attach calculations)	or Size Exception
System Tag	Equipment ≤ Requirement	Equipment < Requirement	Equipment < Requirement
	≤	<	< 150,000 Btu/h (44 kW)
	≤	<	< 150,000 Btu/h (44 kW)
	≤	<	< 150,000 Btu/h (44 kW)
	≤	<	< 150,000 Btu/h (44 kW)

Lighting Compliance Documentation

Project Name:		
Project Address:		Date:
Designer of Record:	Email:	Telephone:
Contact Person:	Email:	Telephone:
City:		Exterior Lighting Zone:

Mandatory Provisions Checklist

- ❑ Lighting Control (9.4.1)
  - ❑ Automatic lighting shutoff controls are provided based on either a scheduling device or an occupant sensor (9.4.1.1)
  - ❑ Each enclosed space has its own control including bilevel or occupancy based where required (9.4.1.2)
  - ❑ Controls for parking garages, including bilevel, transition and perimeter control as required (9.4.1.3)
  - ❑ Automatic daylighting controls for primary sidelighted areas (9.4.1.4)
  - ❑ Automatic daylighting controls for toplighting (9.4.1.5)
  - ❑ Additional controls for display/accent, case, guest room, task, nonvisual and demonstration lighting applications (9.4.1.6)
  - ❑ Exterior lighting controls including automatic shutoff and bilevel as required (9.4.1.7)
- ❑ Exit signs do not exceed 5 W per face (9.4.2)
- ❑ Exterior lighting power (9.4.3) — See worksheet
- ❑ Functional testing completed on specified controls (9.4.4)

Interior Lighting Power Allowance (Building Area Method – 9.5)

Building ID	Building Type (9.5.1)	Lighting Power Density, W/ft² (W/m²)	Building Area, ft² (m²)	Lighting Power Allowance (W)
			Total	

Interior Lighting Power Allowance (Space-by-Space Method – 9.6)

Space ID	Building Type/Space Type (9.6.1)	Lighting Power Density, W/ft² (W/m²)	Room Cavity Ratio	Space Area, ft² (m²)	Lighting Power Allowance (W)
				Subtotal	
				Controls Allowance (9.6.2c)	
				Total	

Lighting Compliance Documentation

Project Name:		
Contact Person:	Email:	Telephone:

Interior Connected Lighting Power

ID	Luminaire Description (including number of lamps per fixture, watts per lamp, type of ballast, type of fixture)	Type						Number of Luminaires	Watts/ Luminaire	Total Watts
		Incandescent	Fluorescent	HID	Line-Voltage Track	Low-Voltage Track	Other			
		❍	❍	❍	❍	❍	❍			
		❍	❍	❍	❍	❍	❍			
		❍	❍	❍	❍	❍	❍			
		❍	❍	❍	❍	❍	❍			
		❍	❍	❍	❍	❍	❍			
		❍	❍	❍	❍	❍	❍			
		❍	❍	❍	❍	❍	❍			
		❍	❍	❍	❍	❍	❍			
		❍	❍	❍	❍	❍	❍			
									Total	

Additional Interior Lighting Power Allowance—Control Credits

Space ID	Space Name	Control Type (Table 9.6.2)	Control Factor (Table 9.6.2)	Installed Watts (W)	Additional Allowance (W)
				Total	

Additional Interior Lighting Power Allowance – Decorative and Display

Space ID	Space Name	Type		Area, ft² (m²)	Unit Allowance, W/ft² (W/m²)	Allowance (W)	Luminaire ID's	Installed Power (W)
		Decorative	Display Lighting					
		❍	❍					
		❍	❍					
		❍	❍					
		❍	❍					
		❍	❍					
		❍	❍					
		❍	❍					
		❍	❍					
		❍	❍					

Lighting Compliance Documentation

Project Name:		
Contact Person:	Email:	Telephone:

Additional Interior Connected Lighting Power

Space ID	Luminaire ID	Luminaire Description (including number of lamps per fixture, watts per lamp, type of ballast, type of fixture)	Type						Number of Luminaires	Watts/ Luminaire	Total Watts
			Incandescent	Fluorescent	HID	Line-Voltage Track	Low-Voltage Track	Other			
			❍	❍	❍	❍	❍	❍			
			❍	❍	❍	❍	❍	❍			
			❍	❍	❍	❍	❍	❍			
			❍	❍	❍	❍	❍	❍			
			❍	❍	❍	❍	❍	❍			
			❍	❍	❍	❍	❍	❍			
			❍	❍	❍	❍	❍	❍			
			❍	❍	❍	❍	❍	❍			
			❍	❍	❍	❍	❍	❍			

Lighting Compliance Documentation

Exterior Building Lighting Power Allowance (Tradable Lighting Applications)

Application	Allowance	Area or Length, ft^2 or ft (m^2 or m)	Tradable Power Allowance
		Tradable Power Allowance	

Exterior Building Lighting Power Allowance (Non-Tradable Lighting Applications)

ID	Application	Allowance per Unit	Area or Length or Quantity	Non-Tradable Power Allowance
			Non-Tradable Power Allowance	

Exterior Connected Lighting Power (Tradable Applications)

ID	Luminaire Description (including number of lamps per fixture, watts per lamp, type of ballast, type of fixture)	Number of Luminaires	Watts/ Luminaire	Total Watts
			Total	

Exterior Connected Lighting Power (Non-Tradable Applications)

ID	Non-Tradable Application	Luminaire Description (including number of lamps per fixture, watts per lamp, type of ballast, type of fixture)	Number of Luminaires	Watts/ Luminaire	Total Watts
				Total	

Exterior Lighting Compliance Test

Tradable Power Allowance (Watts)		Base site allowance		Tradable Connected Lighting Power (Watts)
	+		≥	

Non-Tradable Application	Non-Tradable Power Allowance (Watts)			Non-Tradable Connected Lighting Power (Watts)
		+	≥	
		+	≥	
		+	≥	

Allocated base site allowance		Unallocated base site allowance
	≤	

Energy Cost Budget (ECB) Compliance Report

Project Name:		
Project Address:		Date:
Designer of Record:	Email:	Telephone:
Contact Person:	Email:	Telephone:
City:		Principal Heating Source:
Weather Data:		☐ Fossil Fuel ☐ Electricity ☐ Solar/Site Recovered ☐ Other

Space Summary

Building Use	Conditioned Area ft^2 (m^2)	Unconditioned Area ft^2 (m^2)	Total
Total			

Advisory Messages

	Proposed Building Design	Budget Building	Difference Proposed/Budget
Number of hours heating loads not met (system/plant)			
Number of hours cooling loads not met (system/plant)			
Number of warnings			
Number of errors			
Number of defaults overridden			

Compliance Result

The design detailed in the above referenced plans complies with the Mandatory Provisions of the ANSI/ASHRAE/IES 90.1-2010 Standard and the Design Energy Cost does not exceed the Energy Cost Budget. Therefore this design **DOES COMPLY** with the ANSI/ASHRAE/IES 90.1-2010 ECB Compliance Methodology.

Individual certifying authenticity of the data provided in this analysis:

Signature	Title:

Energy Cost Budget (ECB) Compliance

Project Name:		
Contact Person:	Email:	Telephone:

Energy Summary by End Use

End Use	Energy Type	Proposed Building		Budget Building		Proposed / Budget Energy (%)
		Energy 10^6 Btu/yr (GJ/yr)	Peak 10^3 Btu/h (kW)	Energy 10^6 Btu/yr (GJ/yr)	Peak 10^3 Btu/h (kW)	
Lighting (conditioned)						
Lighting (unconditioned)						
Space heating (1)						
Space heating (2)						
Space cooling						
Pumps						
Heat rejection						
Fans (interior ventilation)						
Fans (interior exhaust)						
Fans (parking garage)						
Service water heating						
Office equipment						
Elevators & escalators						
Refrigeration (food, etc.)						
Cooking (commercial)						
Total Building Consumption						

Energy and Cost Summary by Fuel Type

	Proposed Building		Budget Building		Proposed / Budget	
	Energy (10^6 Btu/yr or GJ/yr)	Cost ($/yr)	Energy (10^6 Btu/yr or GJ/yr)	Cost ($/yr)	Energy (%)	Cost (%)
Electricity						
Natural gas						
Other fossil fuel						
District steam						
Total Nonsolar						
Solar or site recovered						
Total Including Solar						

*These results use assumptions for showing compliance during a typical year; actual energy costs may be substantially different.

Performance Rating Report

Project Name:		
Project Address:		Date:
Designer of Record:	Email:	Telephone:
Contact Person:	Email	Telephone:
City:		Principal Heating Source: ☐ Fossil Fuel ☐ Electricity ☐ Fossil/Electric Hybrid & Purchased Heat ☐ Other

Space Summary

Building Use	Conditioned Area (ft^2 or m^2)	Unconditioned Area (ft^2 or m^2)	Total Area (ft^2 or m^2)
Total			

Advisory Messages

	Proposed Building Design	Baseline Building	Difference Proposed – Baseline
Number of hours heating loads not met (system/plant)			
Number of hours cooling loads not met (system/plant)			
Number of warnings			
Number of errors			
Number of defaults overridden			

Simulation General

	Proposed Building Design	Baseline Building	Baseline same as Proposed?
Simulation program			
Weather data			
Utility rates			

Performance Rating Result

The proposed and baseline buildings comply with the mandatory requirements of the ANSI/ASHRAE/IES 90.1-2010 Standard and meet the Performance Rating Method requirement. Individual certifying authenticity of the data provided in this analysis:

Signature:	Title:

Performance Rating Report

Project Name:		
Contact Person:	Email:	Telephone:

Energy Summary by End Use

End Use	Energy Type	Proposed Building		Baseline Building		Proposed / Baseline Energy (%)
		Energy 10^6 Btu/yr (MJ/yr)	Peak 10^3 Btu/h (kW)	Energy 10^6 Btu/yr (MJ/yr)	Peak 10^3 Btu/h (kW)	
Lighting - conditioned						
Lighting - unconditioned						
Space heating (1)						
Space heating (2)						
Space cooling						
Pumps						
Heat rejection						
Fans - interior ventilation						
Fans - interior exhaust						
Fans - parking garage						
Service water heating						
Office equipment						
Elevators & escalators						
Refrigeration (food, etc.)						
Cooking (commercial)						
Total Building Consumption						

Energy and Cost Summary by Fuel Type

	Proposed Building		Baseline Building		Percentage Improvement
	Energy Use 10^6 Btu/yr (MJ/yr)	Energy Cost ($/yr)	Energy Use 10^6 Btu/yr (MJ/yr)	Energy Cost ($/yr)	100 × (1 – Proposed Energy Cost/ Baseline Energy Cost) %
Electricity					
Natural gas					
Other fossil fuel					
District steam					
Total Nonsolar					
Solar or site recovered					
Total Including Solar					

*These results use assumptions for showing compliance during a typical year; actual energy costs may be substantially different.

P621 POST ONE EQUIPMENT LAYOUT PLAN AND ELEVATION

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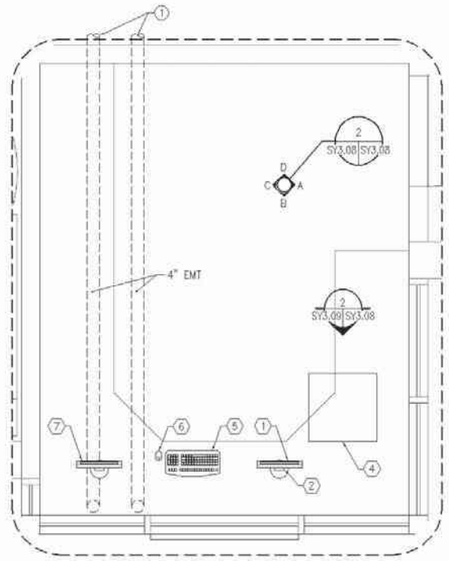


1 SY3.01 SY3.08 POST ONE EQUIPMENT LAYOUT – PLAN SCALE: 1:20

EQUIPMENT LIST – NEW WORK

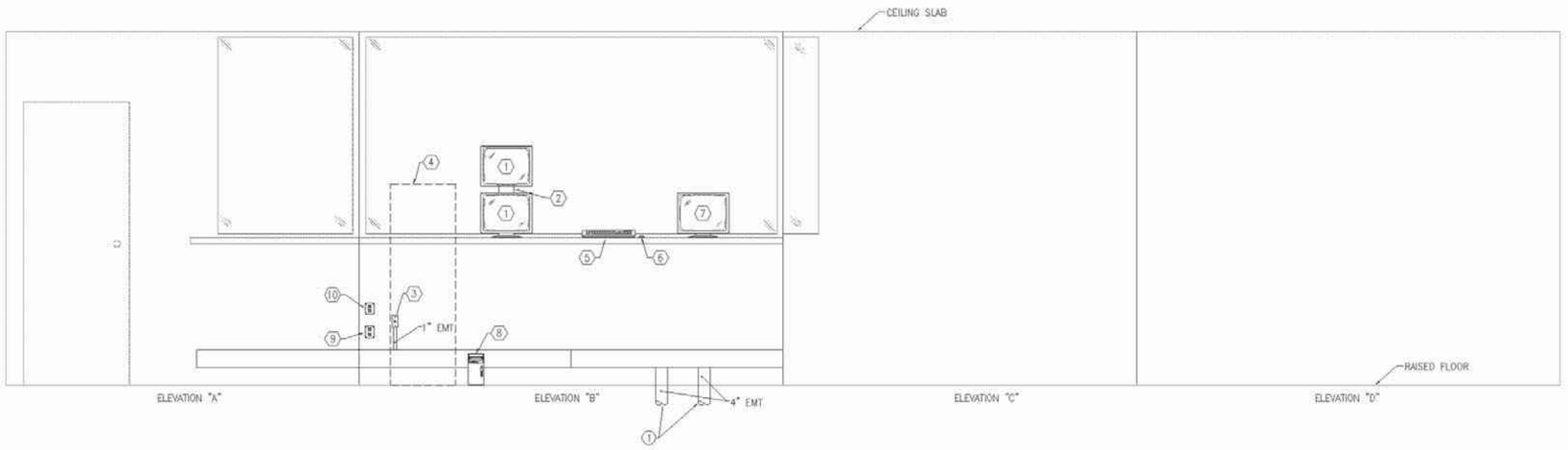
1. 21-1/2" LCD MONITORS (2 PLACES)
2. DUAL MONITOR STAND
3. CAT-6 JACK
4. 42U EQUIPMENT RACK
5. KEYBOARD
6. MOUSE
7. 19" LCD MONITOR
8. POST ONE WORKSTATION
9. ER OUTLET
10. EU OUTLET

DRAWING NOTES

1. REFER TO DRAWING SY1.03 FOR SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWING SECTION 4 FOR THE EQUIPMENT WIRING DIAGRAMS.
3. ALL RACEWAY IS 6" x 6" x 4" UNLESS NOTED OTHERWISE.

DRAWING KEY NOTES

1. 4" EMT CONDUIT CONTINUES TO THE EC ROOM. REFER TO DRAWING SY3.07, KEY NOTE 1 FOR CONTINUATION. (2 PLACES)



2 SY3.08 SY3.08 POST ONE EQUIPMENT LAYOUT – ELEVATION SCALE: 1:20

U.S. DEPARTMENT OF STATE
OFFICE OF FACILITIES MANAGEMENT SERVICES
2201 C STREET, N.W. WASHINGTON, D.C. 20520-0103
TEL: (703)302-6000
FAX: (703)302-6002

TECHNICAL SECURITY UPGRADE for QUANTICO, VIRGINIA

KEEPLAN

GRAPHICAL SCALES
1:20
0 200 400 600 800 1000 2000mm
0 1" 2" 3" 6 ft

DRAWING TITLE
POST ONE EQUIPMENT LAYOUT
PLAN AND ELEVATION
NEW WORK

PHASE
☐ 30% ☐ 60% ■ 90% ☐ 100% ☐ AS-BUILT

CAD FILE NAME
QUAD308.dwg

DRAWING SCALE
AS NOTED

PROJECT NUMBER
QUANTICO-PME-12000

DRAWN BY
SW

DESIGNED BY
HH

DATE
08/15/11

DRAWING NUMBER
SY3.08
SHEET 13 OF 26

CLASSIFICATION
SENSITIVE BUT UNCLASSIFIED

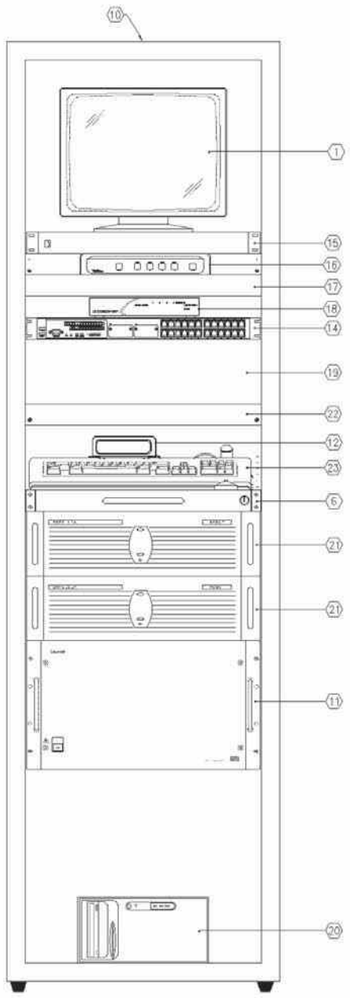
REV.

DRAWING NOTES

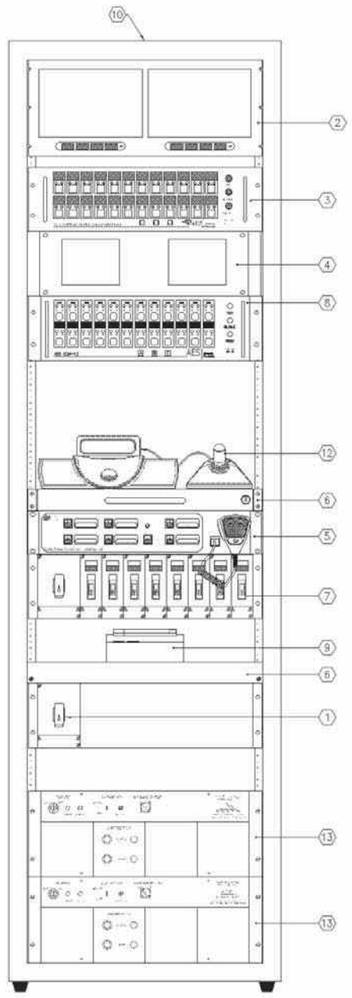
1. REFER TO DRAWING SY1.03 FOR SYMBOLS AND ABBREVIATIONS.
2. REFER TO DRAWING SECTION 4 FOR THE EQUIPMENT WIRING DIAGRAM.

EQUIPMENT LIST – NEW WORK

1. CAC DOORS OVERRIDE SWITCH
2. DUAL 10" LCD MONITOR
3. AES 6500-24
4. CELAN ENCRYPTED RECEIVER
5. 300 VSC-1 SELECTONE COMMAND UNIT
6. SLIDEABLE SHELF
7. DOOR CONTROL RACK
8. ECM-12
9. CELAN PRINTER
10. 42U EQUIPMENT RACK
11. 650 MATRIX SWITCHER
12. 650 MATRIX CONTROLLER
13. DELTA BARRIER
14. 24-PORT NETWORK SWITCH
15. CDU WITH TEMPERATURE SENSOR
16. 4 CHANNEL RARITAN SWITCH
17. CAT-6 PATCH PANEL
18. JUNIPER ENCRYPTOR/ROUTER
19. FIBER MODULE RACK MOUNT CABINET
20. EC ROOM WORKSTATION
21. DVR
22. 1U BLANK PANEL
23. KEYBOARD/MOUSE
24. 52" SLOPED FACE EQUIPMENT RACK
25. 2U BLANK PANEL
26. SELECTONE REMOTE STATION
27. 910 DOOR MODULE
28. 940 DOOR CONTROL MODULE



1 SY3.07 SY3.09 EC ROOM EQUIPMENT RACK LAYOUT – ELEVATION
SCALE: 1:5



2 SY3.08 SY3.09 POST ONE EQUIPMENT RACK LAYOUT – ELEVATION
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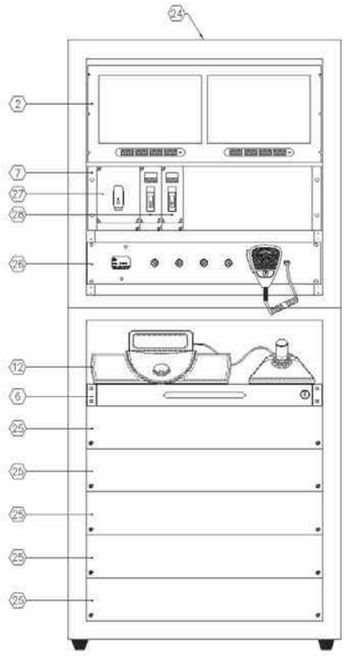

3 SY3.01 SY3.09 POST TWO EQUIPMENT RACK LAYOUT – ELEVATION
SCALE: 1:5

ARMOR ASSESSMENT & ENGINEERING SECURITY PROJECT MANAGEMENT DIPLOMATIC
DEPARTMENT OF STATE
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TECHNICAL SECURITY UPGRADE for QUANTICO, VIRGINIA

KEYPLAN

GRAPHICAL SCALES 1:5
500mm 200 100 0
18 in 9" 6" 3" 0

EQUIPMENT RACK LAYOUTS
ELEVATION
NEW WORK

DRAWING TITLE

PHASE: ☐ 30% ☐ 60% ■ 90% ☐ 100% ☐ AS-BUILT

CAD FILE NAME: QUAD309.dwg
DRAWING SCALE: AS NOTED
PROJECT NUMBER: QUANTICO-PME-12000
DRAWN BY: SW
DESIGNED BY: RR
DATE: 08/15/11
DRAWING NUMBER: SY3.09
SHEET 14 OF 26
CLASSIFICATION: SENSITIVE BUT UNCLASSIFIED
REV.

MCB QUANTICO BASE EXTERIOR ARCHITECTURE PLAN (BEAP)

(PROVIDED DIGITALLY)

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BASE EXTERIOR ARCHITECTURE PLAN

Marine Corps Base
Quantico, Virginia

Executive Summary

The Base Exterior Architecture Plan (BEAP) for the Marine Corps Base (MCB) Quantico is being developed in conjunction with the revision of the Master Plan. The BEAP provides guidance to improve the visual environment of the Base by coordinating the design and development of all manmade and natural elements. Design guidelines established in the BEAP are intended to direct and control the style and quality of all renovations and new construction. Existing development and elements that detract from the visual character may be replaced or improved to conform to the guidelines.

The visual environment is a critical part of the identity of the Base. Improving the visual quality of the Base benefits military and civilian employees, residents and visitors. A cohesive, well-planned visual character presents a positive image to visitors and the surrounding community. It enhances pride and professionalism on the Base, boosts recruiting and retention and improves community relationships.

The BEAP was begun by establishing existing conditions on the Base. A "Visual Survey and Functional Analysis" of the various discrete areas or development districts was undertaken. The general character of the development was recorded along with specific deficiencies noticed. Each district is described under the following areas:

- Architecture and Landscape
- Parking and Circulation
- Site Elements

The existing conditions were taken into account to create the overall "Design Guidelines" for the Base. The design guidelines include:

- Architecture - General rules and concepts for massing and facade composition;
- Landscape Architecture - A plant palette and guidelines for selection, installation and maintenance of plant material;
- Circulation and Parking - Concepts and considerations for planning and improving vehicular and pedestrian circulation; guidelines for planning parking lots;
- Outdoor lighting - Guidelines for selecting and locating lighting fixtures;
- Signage - Materials and style of various types of signage;
- Site Elements - Guidelines for selecting and locating site elements including benches, trash receptacles, bicycle racks and bus shelters with examples of appropriate styles and designs;
- Utilities - Considerations for siting and installing of equipment;
- Security - Considerations for protection of assets and appropriate style of elements such as fences, gates and gatehouses;

Since the predominant architectural style on Mainside is Georgian, the design guidelines are tailored to match this style. Certain development districts have distinctly different characters, such as the Chopawamsic Annex, the Family Housing District and the Guadalcanal side of the Base. The architectural guidelines for these districts are defined in separate sections.

Four areas that needed more attention in planning and design were selected as "Priority Projects". Additionally, a number of projects were identified in high visibility areas that need improvement of the visual environment. These are listed for future consideration as priority projects. The priority project areas have been studied in greater detail and conceptual plans with detail designs for selected areas have been developed. The four priority projects are:

- Barnett Avenue - Barnett Avenue functions as the main street of Mainside. The streetscape was originally designed as a boulevard with street trees, sidewalks and lampposts. Over the years, the street has been widened and extended without a long range plan. The conceptual design developed for Barnett Avenue unifies the streetscape of the two parts of the street - the boulevard and the addition. It also emphasizes key intersections and establishes the character of open spaces along the street.
- South Gate - The South Gate is the primary access to the Exchange and other commercial facilities located along Russell Road. The commercial facilities and their parking lots need to be buffered from Russell Road. Enhancement of the building facade of the Marine Corps Exchange (MCX) is also proposed. An option to relocate the South Gate to segregate traffic entering the Base from that accessing the MCX Center was also explored.
- Camp Barrett - Camp Barrett mainly consists of training and related facilities for The Basic School (TBS). The goal of the proposed improvements is to establish a campus setting and enhance the visual character of Camp Barrett to portray its academic function.
- Weapons Training Battalion/ C. A. Lloyd Range - The main goals of the improvements proposed at the Weapons Training Battalion area are to establish a campus green in place of the large central parking lot, to relocate the main parking lot closer to the entrance and to emphasize the entrance area and route to the headquarters building using trees and vegetation.

To help implement the BEAP, the creation of a Facilities Review Board within MCB Quantico Public Works is recommended. The BEAP guidelines will apply to all new construction and major renovation projects, including those generated in conjunction with other Base planning documents. The standards set by the BEAP will help to ensure that the existing visual character is preserved and enhanced.

List of Figures

List of Tables

1.0 Introduction

This report presents the Base Exterior Architecture Plan (BEAP) for the Marine Corps Base (MCB) Quantico, Virginia. This section describes the background, purpose and scope of the plan.

1.1 Background and Purpose

According to the NAVFAC E1, a Base Exterior Architecture Plan (BEAP) is an element of a shore facility's Comprehensive Master Plan. It provides a set of standards and criteria for the design and development of all natural and manmade exterior elements. The BEAP is normally updated in conjunction with the Master Plan. However, it is a stand alone document so that it may be updated at any time that the facility has a need. [1]

The visual environment is a critical part of the identity of the Base. Improving the visual quality of the Base benefits military and civilian employees, residents and visitors. A cohesive, well-planned visual character presents a positive image to visitors and the surrounding community. It enhances pride and professionalism on the Base, boosts recruiting and retention and improves community relationships.

To help guide the long-term development of the Base, MCB Quantico has undertaken the task of revising its Master Plan. The plan was previously revised in 1994. Since that time, significant development has occurred on the Base, mostly as discrete or individual projects. The lack of an overall plan to coordinate the architectural and landscape development has resulted in many different styles, colors and materials being used within a single area.

The BEAP is being developed to provide guidance to improve the visual environment of the Base. Design guidelines are established for architecture, landscape and site elements. These guidelines can help to direct and control the style and quality of new construction and renovation. Existing development and elements that detract from the visual character may be replaced or improved to conform to the guidelines. The standards set by the BEAP will help to ensure that the existing visual character is preserved and enhanced.

1.2 Scope

The BEAP was begun by establishing existing conditions on the Base by carrying out a visual survey and functional analysis of the various discrete

[1] NAVFAC E1

areas or development districts. The general character of the development was recorded along with specific deficiencies noticed. The existing conditions helped to create the overall design guidelines for the Base. The guidelines for architecture, landscape architecture, outdoor lighting and signage are based on those established in previous versions of the MCB Quantico Master Plan. New guidelines were developed for parking and circulation, site elements, utilities and security. Four areas that needed more attention in planning and design were selected as priority projects. The priority project areas have been studied in greater detail and conceptual plans with detail designs for selected areas have been developed.

The BEAP is organized as follows:

- **Section 2.0** - **Visual Survey and Functional Analysis** : describes the site characteristics, history of development, boundaries, access points and circulation system of the entire Base, followed by a description of each development district.

- **Section 3.0 - Design Guidelines** : describes guidelines for architecture, landscape architecture, parking and circulation, outdoor lighting, signage, site elements, utilities and security.

- **Section 4.0 - Priority Projects** : identifies a number of areas of the Base that need improvement of the visual environment and describes existing conditions, proposed concept and improvements for four of these areas.

- **Section 5.0 - Implementation** : describes the recommended process for implementing the BEAP and the relationship of the BEAP with other current planning documents of the Base.

2.0 Visual Survey and Functional Analysis

This chapter describes the existing visual environment and analyzes the functional and perceived relationships between various site elements and conditions. This information was gathered by a visual survey consisting of a facility reconnaissance, review of current planning documents including master plans for various areas of the Base, and interviews with Base personnel from Public Works, Facilities Maintenance and other departments.

2.1 Site Characteristics

MCB Quantico lies on the west bank of the Potomac River, 35 miles south of Washington, D.C. and 20 miles north of Fredericksburg, Virginia *(Figure 2-1)*. The Base is bound on the east by the Potomac River and on the northeast by Prince William Forest Park, a unit of the National Park Service. Various transactions over the years have resulted in a current net land area of 55,620.76 acres. In addition to the land owned by MCB Quantico, another 4,862 acres is located in the vicinity of Breckinridge Reservoir and owned by the Department of the Interior. This property is currently utilized by the Base through a Special Use Permit.

MCB Quantico is located within three counties: Prince William County, Stafford County and Fauquier County. The Base landholdings are divided between these counties with 40% in Prince William County, 55% in Stafford County and 5% in Fauquier County. The majority of the land surrounding the Base is rural residential or suburban in nature, with relatively small urban centers. Each county has experienced significant growth over the past decade, and the suburbanization of each of these counties is expected to continue.

The Base is bisected by U.S. Route 1 and Interstate 95 (I-95), with the area to the east known as Mainside and the areas to the west collectively known as Guadalcanal *(Figure 2-2)*. Nearby communities include Triangle, Dumfries, Woodbridge, Dale City, Garrisonville, Stafford and the Town of Quantico. Except for a short stretch of river frontage, the Town of Quantico is entirely surrounded by the Base. CSX/Amtrak train tracks traverse Mainside. Amtrak and the Virginia Railway Express (VRE) both stop in the Town of Quantico.

The Base population consists of MCB Quantico personnel and a multitude of tenants, both military and non-military. On Mainside the major functions include: administrative; academic training; research, development, test and evaluation; housing and community support; storage and public works. Guadalcanal is primarily used for operational

training and ordnance storage, and is also home to the Federal Bureau of Investigation (FBI) Academy and The Department of Justice's Drug Enforcement Agency (DEA) Office of Training.

The physical environment, development pattern and functional relationships differ considerably between the Mainside and Guadalcanal side of the Base. Mainside is more urban in character and is densely developed and populated. Roads are wider and some intersections are signalized. There is a small volume of pedestrian and bicycle traffic. Most of Guadalcanal is forested with pockets of development. Roads are rural in character and no sidewalks are provided outside the development centers.

2.2 History of Development

MCB Quantico's military history began in 1917 when 5,300 acres adjacent to the Town of Quantico were leased by the federal government from The Quantico Company. The intent was to provide an area to train Marines for World War I. In July of 1918, Congress authorized the purchase of the land at a cost of $475,000.

In 1921, the Marine Corps Schools were formally established and provided both vocational and technical training to Marines at various stages of their careers. During the same period, the Schools developed a particular expertise in amphibious warfare techniques that soon became the basis for many of the amphibious operations and techniques executed during WWII.

With the outbreak of WWII, Quantico's mission changed to the training of Marine personnel in addition to amphibious warfare training. Prior to the War, there were only 2,000 active duty Marines at MCB Quantico. By the War's end, that number increased to 37,000.

To accommodate the tremendous increase in required manpower, additional land and facilities were needed at Quantico. In 1943, approximately 51,000 acres of land were acquired west of U.S. Route 1 to provide live-fire-training opportunities. Further development of Guadalcanal occurred during the Korean Conflict when Camps Goettge, Upshur and Barrett were built. Camp Upshur and Barrett still exist. Camp Goettge was dismantled and the site is currently used for training by the Marine Corps Assault Breachers School.

On January 01, 1968, the Marine Corps Base at Quantico officially became the Marine Corps Development and Education Command (MCDEC). On November 10, 1987, the name was changed to the Marine Corps Combat Development Command (MCCDC). These designations reflect the Base's combined mission of training, research and development.

MCB
QUANTICO

LOCATION MAP

- Interstate Highway
- Limited Access Highway
- Other Highway
- Interstate Highway
- U.S. Highway
- State Highway
- County Highway
- International Airport

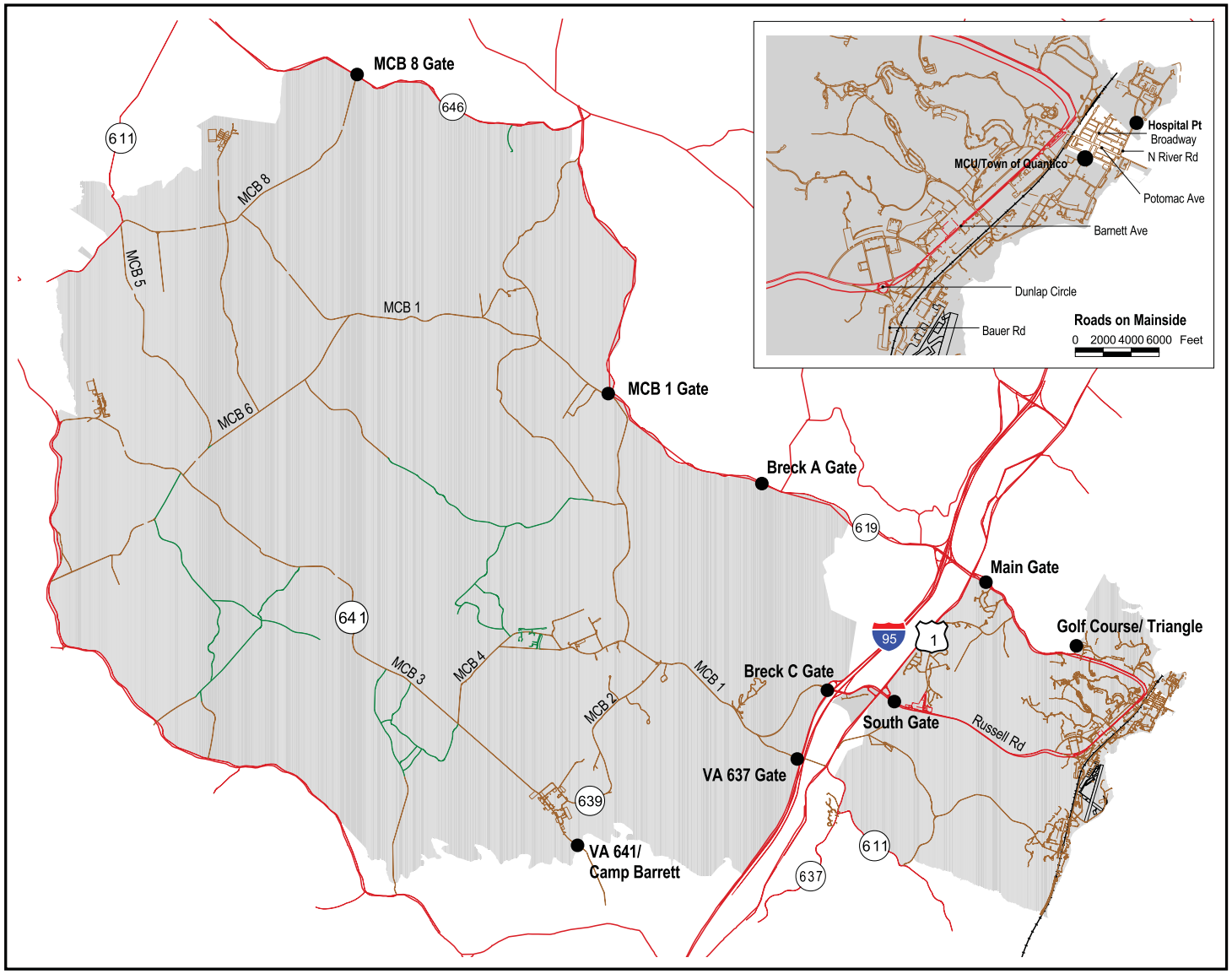
FIGURE 2 - 1

REGIONAL LOCATION

Source of Map Data : Microsoft MapPoint 2000 & The Onyx Group

0 20000 40000 60000 Feet

BASE EXTERIOR ARCHITECTURE PLAN



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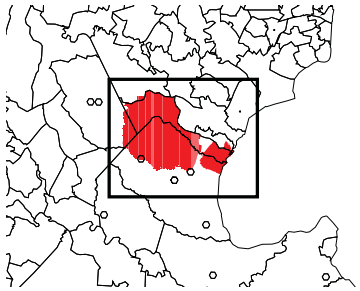


LOCATION MAP

- Access Points
- Primary Road
- Secondary Road
- Tertiary Road

FIGURE 2 - 2

ROADS & ACCESS POINTS

Source of Map Data : MCB Quantico, NREA & The Onyx Group

0 3000 6000 9000 12000 Feet

BASE EXTERIOR ARCHITECTURE PLAN

As part of the MCCDC organization, the MCB Quantico command is tasked with providing functional support for the execution of the overall MCCDC mission including the provision of personnel administration, facilities, logistics, financial, security, safety, public information, legal, base operations, training, administration, morale, welfare and recreation support for organic and tenant organizations.

2.3 Circulation

The primary mode of transportation on the Base is by private vehicles. There is a small volume of pedestrian and bicycle traffic, but most of it is for exercise or recreation.

The primary vehicular circulation route on Mainside is formed by Fuller Road, Barnett Avenue and Russell Road *(Figure 2-2)*. Fuller Road and Russell Road are two-lane roads and carry fast moving traffic. The shoulders are used for running/ bicycle lanes. No sidewalks or medians are provided. Barnett Avenue forms the backbone of Mainside. It passes through the administrative core of Mainside and cross streets lead to outlying areas. Some of these streets carry considerable traffic, including Bauer Road leading to the Marine Corps Air Facility (MCAF), Larson's Gym and Officer Candidates School (OCS); Martin Street leading to the Marine Corps University (MCU); Potomac Avenue and North River Road leading to Hospital Point. Purvis Road connects Fuller Road and Russell Road and passes through the residential neighborhoods on Mainside.

Most streets on Mainside are provided with sidewalks and crosswalks facilitating pedestrian and bicycle circulation. Key intersections along Barnett Ave. are signalized and a median is provided for part of the street. Dunlap Circle is another key intersection along Barnett Avenue. It is a node and a monumental landscape feature. Although the circulation pattern here is somewhat confusing, it is valuable as a significant landscape feature.

On Guadalcanal, the various discrete areas of development are too scattered to be easily accessible on foot. Individual areas, including Camp Barrett, Camp Upshur and Weapons Training Battalion (WTBN), have local street systems with sidewalks and street trees. Outside these areas, the road network generally consists of two-lane roads carrying low traffic volumes and running through tracts of forests. Major roads include MCB 1, MCB 2, MCB 3, MCB 4 and MCB 8.

2.4 Boundaries and Access Points

Much of the perimeter of Mainside is delineated by chainlink fencing. The community edges are close to the boundaries and often visible through the fence. The boundary between the Town of Quantico and the Base runs along streets or between buildings and is secured by chainlink fencing. Signs are posted to indicate that the area is U.S. Marine Corps property.

Mainside Boundaries and Gates

The most important access points to Mainside are the Main or North Gate on Fuller Road and the South Gate on Russell Road *(Figure 2-2)*. These gates are manned and provide access to I-95 and U.S. Route 1.

The Main Gate encompasses a series of discrete areas that extend along Fuller Road, beginning with the Iwo Jima Memorial at the intersection with U.S. Route 1 followed by an arch and then a manned sentry post (as depicted in adjacent photos). Individually, these elements do not make an appropriate impact to signify the main entrance to the Base. They would create a powerful first impression if designed as a single area. A proposal exists to renovate the sentry post structure and to make connections between the various parts of the Main Gate using plantings. The proposed building style is closer to the Georgian style used on Mainside and is more appropriate than the existing building *(Figure 2-3)*. Restriping and realigning the vehicular travel lanes is also proposed.

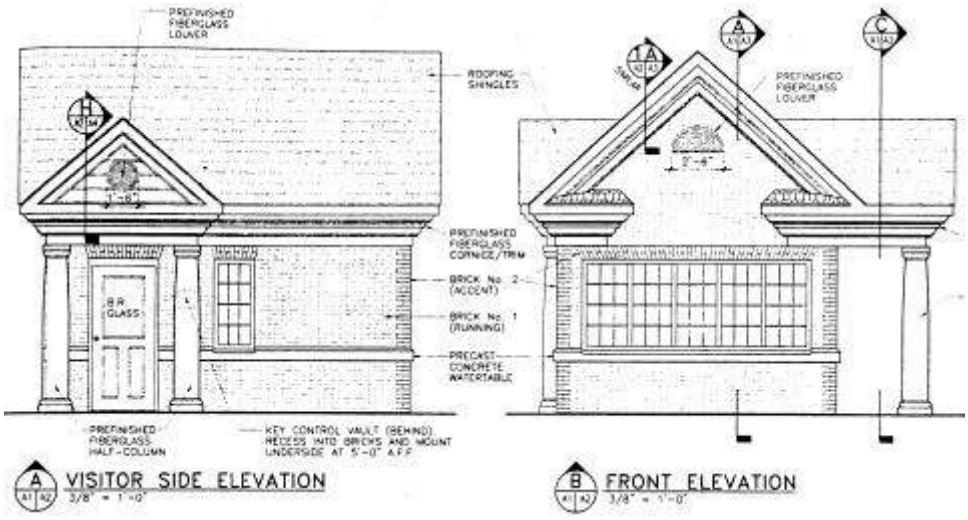


Figure 2-3 : Proposed Sentry Post Design

Iwo Jima Memorial

Entrance Arch

Main Gate

Sentry Post

South Gate

Golf Course / Cardinal Heights Gate

Hospital Point Gate

MCU / Town of Quantico Gate

VA 641 Gate (Guadalcanal)

Other Gates

The South Gate is less elaborate with only a manned sentry post and a signpost area (refer photo). This gate can also be enhanced to give the area an identifiable character. A proposal exists for the South Gate to renovate the sentry post building and add plantings in the area.

A gated entrance between the Base and the Cardinal Heights neighborhood in the adjacent community of Triangle is located off Fuller Road near the golf course (refer photo).

Entrances between the Town of Quantico and the Base are located at Hospital Point and on Broadway leading to the Marine Corps University (MCU). The Hospital Point gateway is an appealing structure in brick with a concrete coping (refer photo). No gate or hinged panels are provided. A chainlink gate serves the entrance to MCU (refer photo). The entrance on Potomac Ave. leads to the on-grade railroad crossing. Gates between the Town of Quantico and the Base are not manned. With the VRE/Amtrak station located in the Town of Quantico, access to the Base by train is through these gates.

Guadalcanal Boundaries and Gates

The fencing along the perimeter of the Guadalcanal area consists of barbed wire and signs are posted indicating it is U.S. Marine Corps (USMC) property or U.S. property. The area is densely forested and the boundary between the Base and other forested areas is often unclear. The fencing is not always well-maintained well and has gaps in some locations.

Main access points to Guadalcanal include gates on Russell Road, Marine Corps Base Road No. 1 (MCB 1), Virginia Route (VA) 637, VA 641, VA 646 and VA 619 (refer photo). These gates are not manned and are generally kept open. Signs indicate the end of State maintenance and identify restrictions on entering USMC property. There are a number of other entrances to Guadalcanal which are operated by Range Control and are generally secured due to range activities and proximity to live fire impact areas. Gates on Guadalcanal are less conspicuous than the ones on Mainside and easy to overlook.

Access is also restricted to ordnance storage areas and the FBI and DEA compounds. Although the principal entrances to the Guadalcanal side of the Base are not gated, the use of the roadways by the general public is not encouraged except for official business. This is enforced by periodic road closures at unmanned gates that restrict through access and military police spot checks whereby violators are charged with trespassing.

2.5 Development Districts

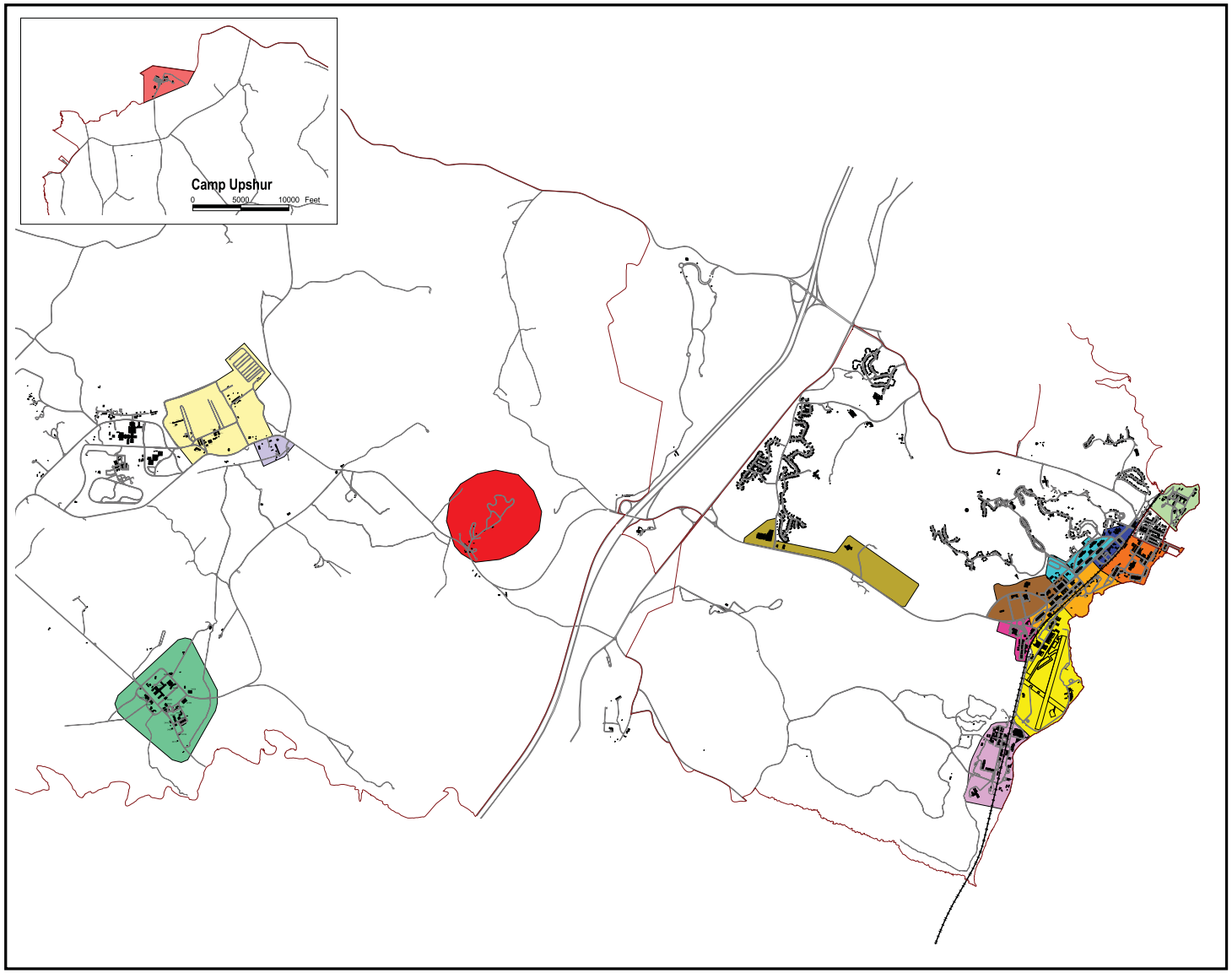
The Base development can be divided into discrete areas of significantly different character and function. A large proportion of MCB Quantico is forested, especially on Guadalcanal. The rest of the Base is defined into districts depending on the general pattern of development, physical environment and function *(Figure 2-4)*.

2.5.1 Hospital Point

Hospital Point is a peninsula at the northeast tip of Mainside. The Potomac River borders the area to the north and the east. Hospital Point was the site of the Navy Hospital and Clinic from 1939 until the new Medical Clinic was constructed on Barnett Avenue in 1999. The buildings here were constructed to support the medical function, including a mental health facility and staff housing. The area has a unique identity and an appealing physical environment.

Architecture and Landscape

- Seven buildings at Hospital Point, including the medical clinic, have been determined to be eligible for inclusion in the National Register of Historic Places as part of the MCB Quantico Historic District. According to the National Register nomination, Buildings 2200, 2202, 2203 and 2204 are reflective of the Colonial Revival style. "Colonial Revival examples at Quantico are based on the hip-roofed type of the Georgian style, most commonly found in the southern colonies." In addition, Building 2201 (a heating plant built in 1940), Building 2201A (an administration building built in 1942, currently used as a warehouse), and Building 2205 (an incinerator built in 1942) are considered contributing resources. These buildings are considered contributing because they retain integrity of function, design, setting, and location, and in most instances, historic materials (refer photo).
- The area is in a stage of transition both functionally and aesthetically. Functionally, the buildings are being converted from a medical clinic to administrative offices for MARCORSYSCOM. Aesthetically, renovations are being done in anticipation of the change. According to the Section 106 process, *any alterations to the exterior of these structures, either directly or through visual impacts, must be achieved through consultation with the Virginia State Historic Preservation Officer (SHPO)*. Hence the renovations will have to be approved as appropriate to the historical design.
- The front of the clinic faces the Potomac River over a sweeping vista, now somewhat marred by the view of a power plant in the distance.



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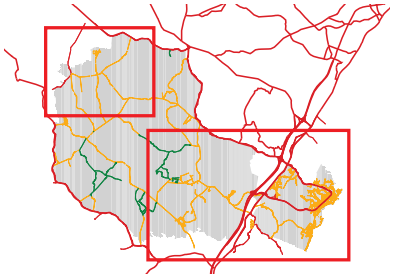


LOCATION MAP

Development Districts

- Ammunition Supply Point
- Barnett Ave. North
- Barnett Ave. South
- Barracks Area
- Camp Barrett
- Camp Upshur
- Guadalcanal Maintenance Area
- Headquarters North
- Headquarters South
- Hospital Point
- MCAF
- MCU
- Russell Road
- South Mainside
- Weapons Training Battalion

FIGURE 2 - 4

DEVELOPMENT DISTRICTS

Source of Map Data : MCB Quantico, NREA & The Onyx Group

0 2000 4000 6000 Feet

BASE EXTERIOR ARCHITECTURE PLAN

Historic Structure : Bldg. 2200

Parking in the foreground of the structure

Site Furniture : A Gazebo

Boundary between pedestrian and vehicular areas

There are a number of good specimens of mature trees. There is a good variety in the planting and a positive relationship between the landscape and the architecture.

- Two garage structures on the north lawn are incongruous and may be considered for demolition.

Parking and Circulation

- Hospital Point is isolated from the rest of the Base. Automobile circulation to Hospital Point is constrained by railroad tracks to the west and wetland areas to the south. Direct traffic enters through the Town of Quantico over an at-grade railroad crossing, and then turns north on River Road to reach Hospital Point. North River Road is a narrow, two-lane street that is owned by the Town of Quantico.
- There is a well-defined gate and entrance driveway that culminates at the main structure. Some modifications will be made to accommodate MARCORSYSCOM but the basic ciculation pattern will remain the same.
- On-street parking currently clutters the foreground of these historical structures (refer photo). This is expected to change with the change in function because parking between the building wings and within 80 feet of the structure will not be allowed by Force Protection criteria. As a result, over half of the current on-street parking will get eliminated.
- Sidewalks, crosswalks and pedestrian paths are provided here.

Site Elements

- Site furniture includes two gazebos located beside the building (refer photo) and benches and trash receptacles near the front lawn.
- Bollards and chains are used to indicate boundaries for pedestrian and vehicular areas and to preserve the lawn areas (refer photo).
- Outdoor light fixtures are of incompatible style and material.
- Amenities in this area include a children's play area, tennis and basketball courts and a boat dock.

2.5.2 Marine Corps University

The MCU district is situated on the eastern edge of Mainside along the Potomac River, extending from the Hostess House (Bldg. 3072) to Hospital Point. Existing land use patterns here include training, administration, troop and family housing, community support, maintenance and storage. Vehicular circulation around and through the site is limited to the west by the railroad tracks which separates the site from the rest of the Base.

Architecture and Landscape

- The predominant architectural style is Georgian consisting of red brick, white trim, formal entrances, dormers, double sash paned windows, three- to four-storey heights and simple rectangular building masses. Buildings that best embody this style are Breckinridge, Dunlap, Ellis and Barrett Halls (refer photo).
- A part of this district has historical significance for the Marine Corps. Before women were allowed into the Marine Corps, Bldgs. 3091, 3079 and 3078 were used as barracks, administrative functions and classrooms for women Marines. Bldg. 3080 was a dining facility. The area currently does not signify its historical significance.
- A large, well-designed open space creates a campus center and focal point (refer photo).
- The river views and waterfront are valuable assets.
- The Quantico Marina is located at the east end of Potomac Avenue, on the north end of the district. The area consists of the boat dock and related support buildings. It is isolated from the rest of the Base and access is through the Town of Quantico.

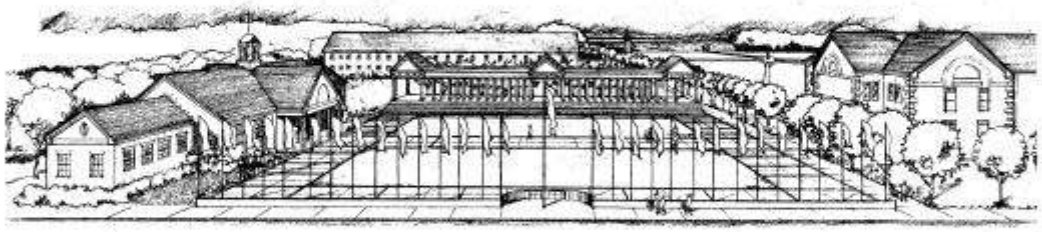
Parking and Circulation

- The main access points to the MCU area are through a tunnel under railroad tracks on Martin Street, through a chainlink gate between the Town of Quantico and MCU on Broadway and past the sewage treatment plant on Epperson Avenue. The entrances are not marked well but conspicuous due to the physical barriers and change in architectural style and landscape environment.
- An unscreened gravel parking lot is located at the terminus of the entry sequence through the tunnel. This incompatible use is proposed to be replaced with a flag court and a parade field *(Figure 2-5)*.
- The large parking lot near the Research Center (Bldg. 2040) is located at the edge of the campus. Screening and landscaping makes the parking lot less noticeable.

Dunlap Hall - Georgian architecture

The campus green - central open space and focal point

Breckinridge Site Flag Court



Breckinridge Site Parade Field

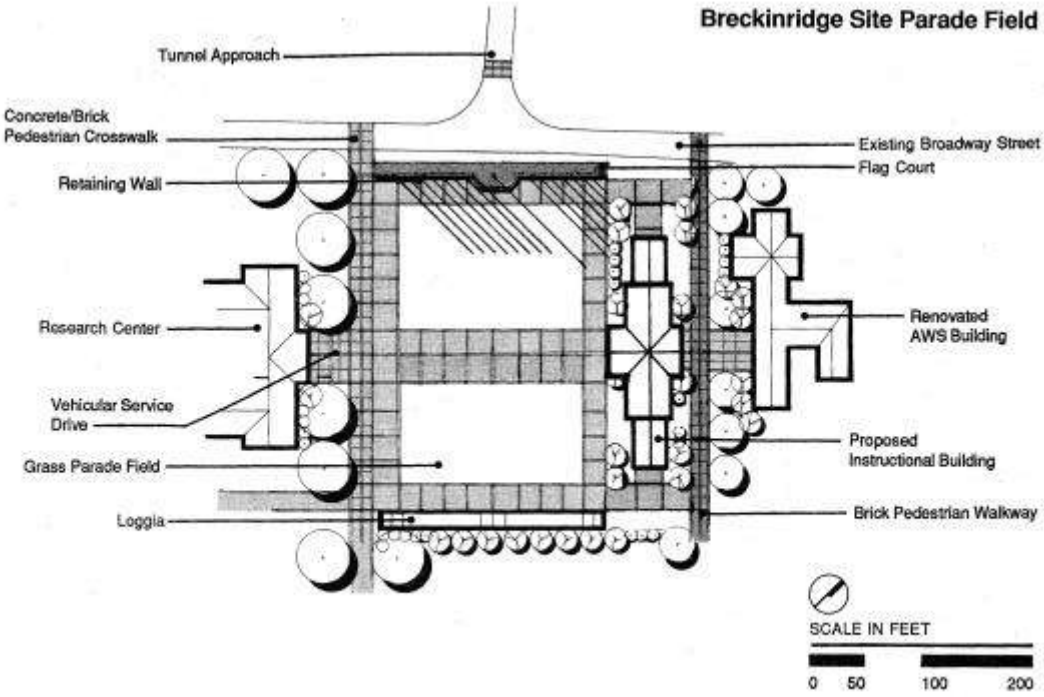


Figure 2-5 : MCU Flag Court and Parade Field

Site Elements

- The central open space or campus green is provided with appropriate outdoor lighting and paved pedestrian paths.
- Sensitive signage and a vegetated traffic island emphasizes the entrance to the Research Center.

2.5.3 Barnett Avenue North

This district is the first part of the administrative core of Mainside a visitor would experience when entering the Base through the Main Gate. Hence the visual environment here is of some importance for the Base identity. The boundaries for this district are defined by railroad tracks to the east and Barnett Avenue to the west, with the exception of Little Hall (Bldg. 2034) which is on the west side of Barnett Avenue. Existing land uses include administration and community support, with a large proportion of area being used for parking.

Architecture and Landscape

- There is no consistent architectural style and the area does not have a cohesive identity.
- Little Hall (Bldg. 2034) and Daly Hall (Bldg. 2079) create a precinct of densely populated administrative offices within easy walking distance of the Town of Quantico (refer photo).
- Bldg. 1001, is one of the oldest buildings on the Base, dating back to 1919 (refer photo).
- Community support services include the Fire Station, an ATM, car wash, food service, a convenience store, the Base theater, bowling center and Family Services Center (refer photo). These buildings have varied architectural styles ranging from compatible (e.g. Fire Station) to highly unsuitable (7 Day Store).
- Barnett Avenue is a historical street and a heavily trafficked route.
- Sidewalks, crosswalks and street trees facilitate pedestrian and bicycle circulation
- Clear zone restrictions associated with air operations at MCAF create open space in the southern section of this district.

Parking and Circulation

- The main access is from Fuller Road to the north and Barnett Avenue to the south. Fuller Road takes a sharp curve near the intersection with Barnett Avenue. The blind curve with a bare retaining wall on one side do not form a suitable entrance to the area.
- Some parking lots are screened from Barnett Avenue with the help of plants and fences.
- This area provides access from the Main Gate to the Town of Quantico, Hospital Point and MCU.

Site Elements

- Street lighting and other light fixtures are incompatible with the architecture and the prominent and historical location.
- Site furnishings such as benches, drinking fountains, bus shelters, information kiosks, phone booths and outdoor art exhibits in this area of considerable pedestrian activity are conspicuous in their absence.
- Signage does not follow a uniform style or size. Signs indicating the direction to other parts of the Base are inconspicuous or missing.

Little Hall and Daly Hall precinct

Bldg. No. 1001

Community support facilities

Barrack buildings - Barnett Avenue facade

The Dining Hall - Bldg. 2000

2.5.4 Barracks Area

The Barracks Area is one of the oldest parts of the Base. The first major permanent buildings on the Base were three barracks - Bldgs. 2001, 2002 and 2005 - facing Barnett Avenue. Construction was completed in 1929. Construction of barracks continued until the end of 1932. The predominant land use of the area remains troop housing. Some barrack buildings have been converted into administrative offices. The dining hall, a more recent addition, was built to consolidate the dining functions housed by each barracks building into one facility. Butler Stadium and the proposed Fitness Center are located at the southern end of this area.

Architecture and Landscape

- The area has a consistent architectural style due to the replication of barrack units. The buildings have a large footprint, but due to the facade being broken up into five sections with two projecting wings, they are less imposing and monolithic (refer photo).
- Each barrack building has a main entrance and two secondary entrances. The open space in front of these entrances are not designed to relate to them. The dining hall (Bldg. 2000) is built in brick, metal and glass, designed to blend with the Georgian style buildings (refer photo).
- The existing and proposed fitness and recreation facilities have a positive relationship with the Barracks Area.
- The community services located across Barnett Avenue do not have a strong visual connection due to lack of continuity in architectural style, site organization, landscape features and plantings.
- A double row of street trees along Barnett Avenue creates a boulevard character.
- Public open space between the buildings is used for passive and active recreation.

Parking and Circulation

- Sidewalks, crosswalks and pedestrian paths connect the barracks, parking lots, recreation space and dining facility, facilitating pedestrian and bicycle circulation.
- The demand for parking exceeds the parking spaces provided. On-street parking clutters the foreground of buildings.
- Service vehicles access the barrack buildings from front courts or paved areas.

Site Elements

- A barbeque area is provided adjacent to the barracks with a volleyball court, picnic benches and trash receptacles.
- Outdoor lighting fixtures are of incompatible style, material and color.
- Signage does not follow a uniform style or size. Signs indicating directions to other parts of the Base are inconspicuous or missing.

2 . 5 . 5 Barnett Avenue South

The Barnett Avenue South district extends along the south side of Barnett Avenue from the Power Plant (Bldg. 2012) to Dunlap Circle, and to the river's edge between MCU and MCAF . A large proportion of buildings and open space is of industrial character and/or function. Warehouse storage and Base maintenance shops are the major land uses. Administrative office functions are present in various buildings throughout the district.

Architecture and Landscape

- Industrial buildings are built in brick or metal with large windows and metal roll-up doors. Administrative buildings are made of brick or wood with siding. There is a varied mix of flat and sloping roofs, red brick walls, white siding and aluminium facades, all creating a chaotic physical environment (refer photo).
- There are few sidewalks, crosswalks or street trees. The pedestrian realm lacks definition (refer photo).
- The MCB and Virginia Power electrical substations near Butler Stadium are a non-compatible land use and a visual intrusion.
- The south-east part of this area between Barnett Ave and the river is completely paved with asphalt. It is a result of the complex circulation requirements here involving trucks and other commercial vehicles that need access to loading bays / docks and the need for parking lots for vehicles of employees who work in this area. The area is further constrained by railroad tracks that pass between the river and the warehouse buildings.
- The extensive area of black-top in close proximity to the river has a potential to adversely affect the quantity and quality of stormwater runoff. The proportion of impervious surfaces directly affects the volume of runoff flowing into the Potomac River. There is a lack of shade trees and riparian vegetation.

Industrial buildings are constructed in metal

Few sidewalks, crosswalks or street trees exist. The pedestrian realm lacks definition.

Dunlap Circle

The architectural style of the Chopawamsic Annex area is unique to this part of the Base

- A number of buildings are slated or recommended for demolition due to poor condition or Clear Zone/AICUZ violations. Proposals for renovation and/or conversion of some buildings exist. This is a period of change for the area and can be an opportunity for developing a new identity for this area. The future visual character or function of this area is not clear at this time.
- Towards the north, a part of the district houses the sewage treatment plant. This area is bounded by MCU, the railroad tracks and the river. Overhead steam pipes contribute to the distinctly industrial character. Pedestrian amenities are lacking.

Parking and Circulation

- There is a proliferation of parking on all sides of buildings as well as along minor and major streets. Consolidation of parking into lots can provide opportunities for new buildings and public greens.
- The road network does not efficiently access all parts of the area and most traffic moves parallel to Barnett Ave. This movement can be facilitated with the parallel route being designed to take some load off Barnett Ave and to serve as a secondary or emergency route.

Site Elements

- Outdoor lighting is provided in selected areas and fixtures and lampposts are utilitarian and lacking in aesthetic appeal.
- No benches, telephone booths, drinking fountains, planters or information kiosks are provided.
- Signage is not uniform and of no particular style, size or color. Road signs indicating direction to other parts of the Base are non-existent.

2.5.6 Headquarters Area

The Headquarters (HQ) area is focused around Dunlap Circle and accommodates a mix of administrative and community support functions. The development in the HQ North area is fairly sparse and consists of Lejeune and Newlin Halls, the Chapel, the Medical Clinic and the adjacent open areas. It also includes an area along Barnett Avenue consisting of a cluster of buildings and parking lots. To the south of Dunlap Circle is HQ South. It includes the clubs, swimming pool and the Crossroads Inn bringing in a commercial tone to the area. Beyond these buildings, is a dense cluster of administrative buildings often referred to as the Chopawamsic (or Chop) Annex. The Chop Annex housed African-American troops prior to desegregation of the Marine Corps.

Architecture and Landscape

- Lejeune and Newlin Halls set up an axial relationship with Dunlap Circle and the Parade Ground. The buildings and open space have a monumental quality. The roofline against the hilly backdrop adds to this quality (refer photo on previous page).
- Headquarters South does not have a defined spatial organization.
- The architectural style in the Chop Annex is unique to this part of the Base (refer photo on previous page). The administrative buildings are one story clay tile structures with sloping roofs and aluminium chimneys, and rear entrances are accessed over a bridge across open stormwater drains. Diamond Hall (Bldg. 3095) was the club associated with the barracks. It has a portico with brick piers.
- Additions such as awnings and window grills are incompatible with the facade and architectural style (refer photo).
- Open space between the arms of the HQ South administrative buildings are used for recreation and as seating areas.
- The open space is not designed in any particular pattern or to take advantage of the river view in the distance. Few landscaped areas or street trees are evident.

Parking and Circulation

- The access to and circulation within HQ South is awkward. Entrances are inconspicuous and there is a lack of proper signage to direct traffic (refer photo).
- Although the community support facilities encourage pedestrian circulation, few pedestrian amenities exist, such as sidewalks and crosswalks. Within HQ South, road and parking lot are not differentiated due to an absence of curbs.
- The traffic pattern around Dunlap Circle is confusing.
- The north-east part of this area is at a higher elevation with good views of the adjacent development and the river beyond. This creates a natural connection between both sides of Barnett Avenue and the river. This condition may be embellished by creating pedestrian circulation and visual axes along certain corridors. Changes in ground level will need to be negotiated appropriately. They are currently treated as grassed embankments.

Awnings and window grills are incompatible additions

The entrance to the Chopawamsic Annex is inconspicuous

Headquarters Building

A remarkable river birch specimen

Central avenue - OCS campus.

Pedestrian bridge across railroad tracks

Site Elements

- The flagpole and outdoor exhibits in HQ North enhances the monumental character of the area.
- In HQ South, utilities are not screened or buried. Overhead power lines and elevated steam pipes are part of the character here.
- Outdoor seating (a picnic table under a gazebo or semi-covered area) and recreational areas are provided in HQ South.
- Chainlink fencing is used around the Motor-T parking lot. Chainlink with aluminium lattice is used to fence and screen an industrial storage area between MCAF and Dunlap Circle. Chainlink fencing is inappropriate in this district due to its location in a prominent part of the Base, surrounded by administrative and barrack areas.

2.5.7 South Mainside

This district is the southern-most developed area on Mainside. Railroad tracks running through the area split it in half. The Officer Candidates School (OCS) œampus is located on the west side of the tracks. An at-grade railroad crossing and a pedestrian bridge connect the OCS campus to other areas. The east side houses a wide range of functions including Larson's Gymnasium, Morale, Welfare and Recreation (MWR) Division maintenance shops, HMX-1 Ground Equipment Maintenance Shop, an HMX-1 Warehouse, the Fire Station, the Auto Hobby Shop, a Command Control Systems School (CCSS) communications equipment shop, MARCORSYSCOM research and development facilities, Marine Corps Air-Ground Museum facilities and the Quantico Brig.

Architecture and Landscape

- The OCS campus lacks a distinct identity and clear demarcation. Museum buildings, storage, Public Works structures and the Brig are in close proximity to OCS functions.
- Permanent OCS structures are well designed and landscaped, especially the headquarters building and the new barracks (Bldg 5000, 5001). The barracks are more recent construction and designed in the style of existing buildings, in red and brown brick with metal sloping roofs (refer photo).
- Temporary structures, warehouses and museum buildings are architecturally incompatible and located along the edge of the OCS campus. Some of these are substandard or inadequate and slated for demolition.

- Although of appropriate style and size, the blue and white awning of the Navy Medical Clinic is not compatible with the more muted tones of the surrounding structures.
- The central avenue in the northern part of the OCS campus has full-grown street trees on one side and overhead power lines on the other. Some structures along the avenue are slated for demolition (refer photo).
- Obstacle courses and training areas create an interesting and appropriate landscape environment.
- The parade ground, the site of the first airfield on the Base, is a sea of asphalt in the center of the campus. Surrounding structures, landscaping and trees do not have a relationship with the parade ground and do not provide any relief to the eye.
- The residential area of the OCS campus lacks designed domestic or individual scale open spaces.
- Large underutilized areas and fenced in storage yards create a drab landscape in the south-west part of the OCS campus.
- Other significant structures : Larson's Gymnasium is a former aircraft hangar that has been adapted for its current functions. The hangar doors form a distinctive front facade to this historically significant building. The dining hall (Bldg. 2000) is recent construction in brick, metal and glass and designed to take in the views across the Potomac river. A boathouse was converted to house the Auto Hobby Shop (Bldg. 4)
- The view of Chopawamsic Creek from the north side of the campus is not highlighted to its best advantage.
- There are some remarkable mature river birch (*Betula nigra*) specimens near the creek in the OCS area (refer photo).
- The Brig, CCSS Communications Equipment Shop and MARCORSYSCOM facilities form individual enclaves or compounds separated from other functions by site location and security fencing. There is no cohesiveness in architectural style, landscaping or circulation system to link the various functions in the South Mainside district together.

Parking and Circulation

- The OCS Campus has no defined entrance point or boundary.
- Railroad tracks cut the district into two and restrict circulation to the at-grade crossing and pedestrian bridge (refer photo).
- Sidewalks, crosswalks and pedestrian paths are provided on the OCS campus and near Larson's Gym. Outside the OCS campus, the pedestrian environment is not appealing.

- A landscaped parking lot is provided near the Barrack buildings (Bldg. 5001, 5002).
- Larson's Gymnasium will change in function when the new Fitness Center opens on Barnett Avenue. A number of buildings, including Larson's Gym are AICUZ violations and are proposed for future demolition. Depending on the new functions of the area, vehicular, pedestrian and bicycle traffic volumes may change.

Site Elements

- Timber curbs are used for lawns and tree protection along the central avenue in the northern part of the OCS campus. These curbs are not durable and inappropriate due to their prominent location.
- The headquarters building has a flagpole and a brick sign, giving the building more prominence.
- Telephone stalls are provided in the northern part of the OCS campus.
- Outdoor lighting fixtures provided in the OCS Barracks area are of suitable style, height and material. Utilities and services are screened.
- Outdoor museum exhibits are not placed in appropriate settings.
- Chainlink fencing runs along both sides of the railroad tracks and is used to fence off museum areas and storage areas.

2 . 5 . 8 Family Housing District

A detailed study of this area was carried out in the Comprehensive Neighborhood Plan[1] (CNP), 1998. The plan provides a comprehensive view of the Military Family Housing (MFH) areas of the Base, including identifying specific deficiencies and proposing necessary improvements to bring the entire housing area up to Whole House and contemporary Department of Defense (DOD) standards, subject to Congressional limits.

The Community Analysis section includes a description of the existing community character and identity, streetscapes, open space development, utility systems and surrounding development. Specific recommendations are made for each neighborhood in the Community Development Plans which include illustrations and cost estimates.

For additional information regarding recommended improvements for family housing areas on Base, the reader is referred to that study.

NOTE :

[1] Greenhorne & O'Mara, Inc., *Marine Corps Base Quantico Comprehensive Neighborhood Plan*, April 1998.

2.5.9 Russell Road District

The Marine Corps Exchange/ Commissary (MCX Center) located along Russell Road serves as the retail center and community support area providing services such as food, gas and banking. The Marsh Center, Combat Development Center and the Marine Federal Credit Union (MFCU) located at short intervals along Russell Road form their own precincts.

Architecture and Landscape

- The MCX Center has large structures and vast parking lots. The Commissary is a white and dark brick structure. The entrance is denoted by a sign and a barrel vault. The Exchange building is a metal and textured CMU structure and is less aesthetically pleasing. Indiscriminate signage on the building and vast, blank walls further detract from the aesthetic appeal of the facade (refer photo).
- Trees planted along the Commissary structure will provide relief from stark walls when they are established.
- Few street trees are planted in the buffer strips along Russell Road and hence parking lots and buildings are not screened. Shrubbery screens are planted between the parking lots and the residential area.

Parking and Circulation

- The MCX Center is located with easy access to the South Gate to reduce traffic impacts to the rest of the Base.
- The MCX Center parking lot has few trees and greenery. Islands provide little relief from the vast asphalted area.

Site Elements

- Outdoor light fixtures in the MCX Center parking lot are not appealing.
- The manicured landscape at the foot of the MCX and McDonald's signposts along Russell Road contrast sharply with the dense forest all around the area (refer photo).
- Placement and style of advertisements and signs can be designed more sensitively.
- Outdoor seating outside the Exchange has benches, picnic tables, shade trees and trash receptacles.

The MCX Center - the Exchange and the Commissary

McDonald's at the Purvis Road/ Russell Road intersection

O'Bannon Hall facade

Landscaped recreation area

The rear of the campus is visually unappelaing

Swales used for storm water drainage

A water storage tank, chain link fencing and cobra-headed llights

2 . 5 . 10 Camp Barrett

Camp Barrett consists largely of The Basic School (TBS). It is a discrete campus located in the Guadalcanal area. The campus houses training and related facilities including barracks, administration and an armory.

Architecture and Landscape

- Most permanent structures are in the modern style. Building materials include poured-in-place concrete, CMU blocks, red or dark brick and metal on both good, well-maintained and unattractive, incongruous buildings. Most permanent buildings are low and sprawling.
- The textured CMU blocks used are brittle and construction is of low quality.
- O'Bannon Hall (Bldg. 24165) is a large sprawling building. The surrounding areas have been designed to break up the facade and make the building less imposing (refer photo).
- A gathering space is designed in one of the interstitial spaces between the arms of Bldg. 24165 (refer photo).
- Large mature trees help to break up the immense facade.
- Window frames of Bldg. 24165 are painted in Marine colors of red and yellow and some window bays are arched. These elements are incongruous with the facades of this and other buildings around.
- Landscaping schemes are simple but well-designed for most areas, especially near the barracks. Many mature trees have been preserved. A good combination of evergreens and deciduous trees provides year-round cover with splashes of color and texture.

Parking and Circulation

- The entrance on MCB 2 leads to the central open space or campus green which is a focal point for the campus. The campus green doubles as a landing zone as well as a suitable foreground for the buildings around it.
- MCB 3 leads into the rear of the campus into a visually unappealing area with an abundance of parking and temporary metal structures (refer photo).
- Some parking areas are screened from view from the building and sidewalks.

Site Elements

- The existing practice of building a grassed swale for stormwater drainage along the streets should be encouraged (refer photo).

- Inappropriate elements located at the rear of the campus include cobra-headed outdoor lights and chainlink and barbed wire fencing for service and military vehicle parking lots.
- A water storage tank with aviation obstruction markings in checkerboard pattern towers over the campus (refer photo).
- The area near Bldg. 24165 has outdoor lights with appealing lampposts and fixtures.
- CMU blocks have been used as a screen to break up open areas and also to screen services and utilities. These architectural screens blend in well with the surrounding structures.
- An ATM booth is tucked away along one of the arms of Bldg. 24165.

2.5.11 Weapons Training Battalion

The Weapons Training Battalion (WTBN) is consolidated in a pocket of development in the Guadalcanal area. All buildings and facilities in this area support WTBN functions. WTBN runs the rifle ranges and associated schools located in this complex.

Architecture and Landscape

- A varied range of building materials including red brick, metal and wood framed structures, CMU blocks and Butler buildings are seen here. Finishes include stucco, paint and exposed brickwork or metal. Sloping roofs and flat roofs are evident. There is no coherent style or character throughout the campus (refer photo).
- The street alongside the rifle ranges is designed as a boulevard and has mature street trees.
- Rifle ranges create interesting landscapes and backdrops. Trees planted as buffers between ranges create vistas.
- Sidewalks and crosswalks are provided in most parts of the campus.

Parking and Circulation

- The campus circulation system is awkward, with the headquarters building located on the opposite end of campus from the entrance. The entrance is not well-defined with inadequate signs and directions.
- An ATM structure is placed at a conspicuous point at the entrance to the campus, remote from other structures.
- Parking adjacent to individual buildings may be consolidated into the central lot.

Barrack building in red brick

Main Street - a boulevard

Rifle ranges in the background

A pheasant roams the campus

Well-maintained quonset huts

A maintenance bay in disrepair

Site Elements

- A wood trellis is used for screening utilities adjacent to buildings.
- An outdoor messing area is provided under a semi-covered area.

2.5.12 Camp Upshur

Camp Upshur is the most remote district and is located in the north-west corner of the Base. The main vehicular access is a two-lane road off MCB 8 that passes through the Upshur Gate and a bridge over the Cedar Run water course. Existing land uses include administration, reserve troop housing, maintenance shops and storage. The FBI and DEA lease some space here, but are expected to leave when their lease expires in a couple of years. The area does not see much traffic and its population fluctuates from day to day. The surrounding area is forested and rife with wildlife and natural scenic beauty.

Architecture and Landscape

- There are a number of poorly maintained sections, giving the place an unkempt and scruffy look.
- Most structures at Camp Upshur are quonset huts. Some of these are well-maintained but others are in a shabby state of dilapidation. They are designed to be used as temporary storage and reserve billeting facilities but some have been converted into offices or other permanent functions.
- A large paved parade ground seems unused and is in a state of disrepair.
- Landscape and open areas in between structures is well-kept for areas currently in use and overgrown in others.
- Cedars are used as screen plantings and to line streets or axes.

Parking and Circulation

- There is only one major vehicular entrance. The gate or entry point lacks character.
- With very few permanent structures here, the area has a cohesive architectural style. The repetition of units sets up a regular street system and landscape, making it easy to orient oneself.
- There are no major parking lots due to low demand.

Site Elements

- A semi-covered outdoor maintenance bay at the entrance to Camp Upshur is in serious disrepair.
- A water storage tank with aviation obstruction markings in checkerboard pattern towers over the campus.

2 . 5 . 13 Guadalcanal Maintenance Area

The Guadalcanal Maintenance Area houses the maintenance and repair functions for the west side of the Base. Most structures are used for storage of materials and equipment.

Architecture and Landscape

- Metal buildings house administrative functions and maintenance equipment. A building materials storage dome is located near the entrance gate.
- No clear site planning scheme is evident.
- Outdoor recreation areas include a picnic bench, volleyball court and basketball hoops.

Parking and Circulation

- A parking lot is located between the entrance gate and the road.
- The buffer strip between the parking lot and road has no vegetative screens.

Site Elements

- Chainlink fencing runs along the boundaries of the area.
- The sign along the road is not easily visible and lettering is too small to read from a reasonable distance to make the turn.

2 . 5 . 14 Ammunition Supply Point

Architecture and Landscape

- The structures visible from the entrance and MCB 1 are brick building with metal sloping roofs.
- Magazines are covered over with grass which makes them less conspicuous in the landscape.

Parking and Circulation

- The area has restricted access. Few private vehicles travel through the area and no formal parking or circulation system exists.
- Truck access and loading areas are provided to transport ammunition and other ordnance items.

Site Elements

- Chainlink fencing encloses the area. No buffer area or screening is provided between the road and the fencing for security reasons.

2.6 Range and Training Areas

Range boundaries are established based on the safety-danger zones related to the weaponry used at the ranges and the locations of the firing points and target areas. Some ranges have temporary and permanent structures to accommodate their needs. Most buildings on the ranges are strictly utilitarian. There is little permanent construction and common building materials are metal and wood. The buildings on the ranges are occupied intermittently and many are used for field classrooms, storage of equipment, ammunition or as ammunition control points. Restrooms, control towers and other support buildings are often primitive because few ranges are provided with electric, water or sewer lines.

Range No. 9A is an exception because it is provided with electricity, lights, water, and phone lines. The recent permanent construction, including a tower, an ammunition breakdown area, sheds, classrooms and male/female restrooms, were designed to be both functional and aesthetically appealing. The buildings have a consistent theme in design and building materials. This range can serve as a model for range facilities.

The range and training areas are controlled using swing-arm gates at all access points. These gates are actively operated by Range Control when there is movement through the ranges. Vehicular traffic accessing the ranges includes both combatant and non-combatant vehicles. Gates are secured when the range is not in use. Gates providing access to the active or "hot" ranges are required to be manned and denoted by a red flag and a flashing light. Most ranges are available for use 24 hours of the day.

Some ranges are clearings in the forested area where the firing points and impact areas are visually linked. In other cases, impact areas may be some distance away from the firing points. Impact areas are required to be fenced, but the fencing is sometimes missing or is in serious disrepair

with gaps in it. Existing fencing consists of three strands of barbed wire on metal posts. Warning signs are posted at frequent intervals. The fencing is not visually prominent but acts as a physical barrier and boundary marker. Most of the fencing runs through thickly forested area and cannot be easily accessed for maintenance.

3 . 0 Design Guidelines

This section outlines design guidelines for various elements that contribute to the visual environemnt of the Base. The objective of the guidelines is to coordinate each element with others in the vicinity and achieve a unified appearance of each development district and of the Base as a whole. The design guidelines build on the positive elements documented in the previous chapter and indicate the nature of improvements to be carried out for elements that detract from the visual environment.

3 . 1 Architecture

The architectural design of new facilities should present a consistent and unified appearance. Buildings should not compete with each other for attention. Although they should be designed to work together visually within their setting, buildings should not be designed to look identical to each other; this would create visual monotony. Each structure should be designed to have a unique character, yet employ qualities in common with the others.

Since the general architectural style used in most of Mainside is Georgian, common architectural design guidelines are outlined for new construction and renovation projects here. Architectural design guidelines for districts that have a distinctly different character are defined in separate sections. These include Headquarters South (Chopawamsic Annex), the Family Housing area, and the Guadalcanal side of the Base.

3 . 1 . 1 Mainside

The new architecture should be harmonious with the best of the existing Quantico architecture, the Georgian style buildings such as Breckinridge and Singleton Halls (and similar barracks) and the hospital (Bldg. 2200). This will ensure the integration of the new architecture with that of the existing campus buildings.

Building Massing, Height, and Bulk

Buildings should have simple forms and shapes, typically rectangular or circular forms, compatible with the Georgian style. The massing, height, and bulk of individual buildings should be compatible with that of adjacent structures *(Figure 3-1)*. The height of individual buildings should be determined by their location within the district. Variations in height should be used to emphasize important buildings and significant elements of individual buildings and/or public spaces.

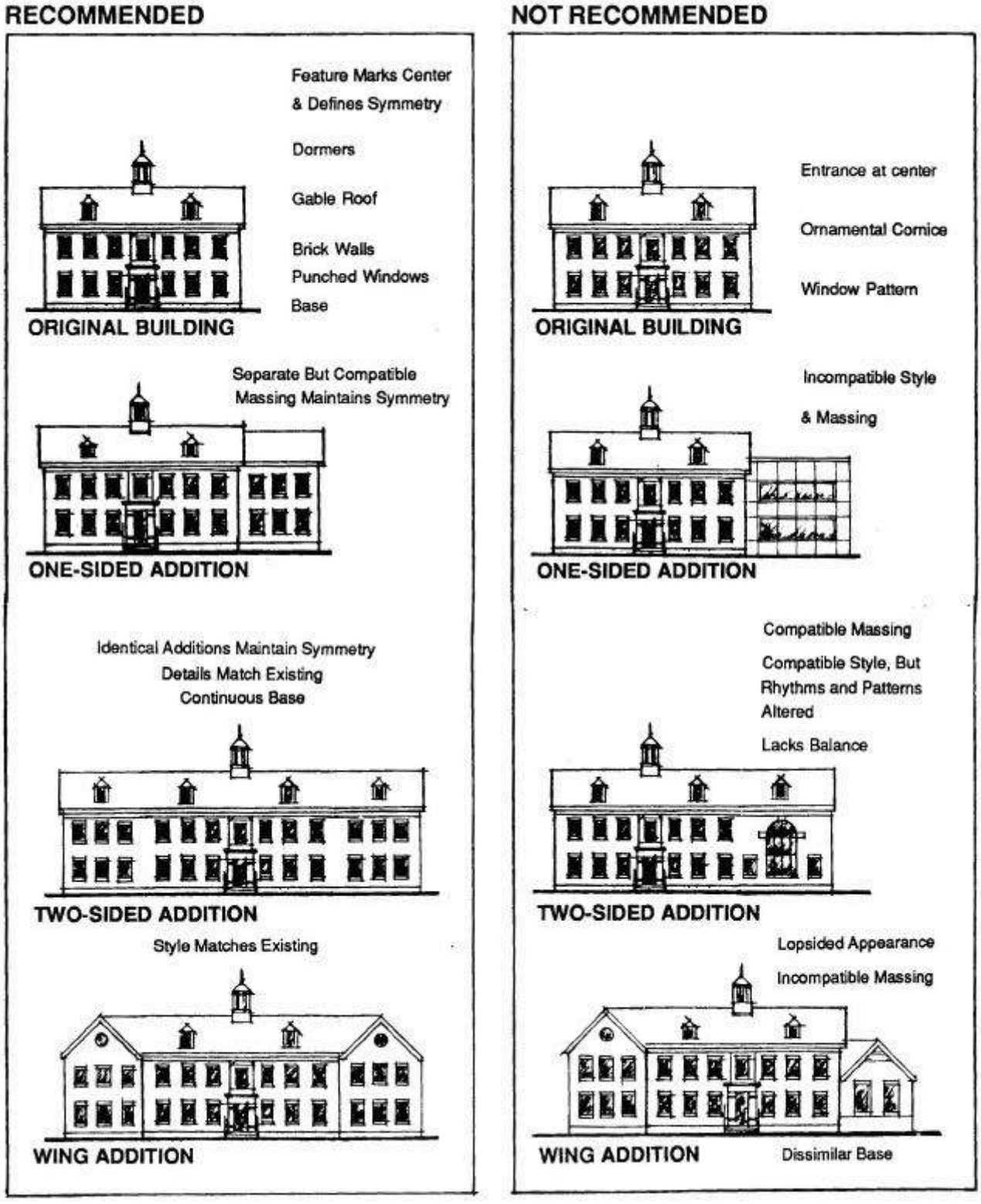


Figure 3-1 : Additions to Existing Buildings

Buildings should have projections and recesses to break up large, monotonous surfaces; to define important parts of the building such as entrances; and to contribute to the definition of public spaces.

Facade Composition

The facades of buildings define exterior spaces and give them character. They contribute to creating a sense of place. Building facades can communicate much useful information to the user, such as the location of entrances, the importance of the building, and the building's purpose or function. The rules of composition for new facades should be compatible with the existing Georgian architecture *(Figure 3-2)*. For this reason, all building facades should be composed of a base (pedestrian level), a middle (wall), and a top (skyline). Composing facades in this manner will create buildings which, while different from each other, will properly define the public spaces and exterior environment.

- **The Base (Pedestrian Level)** : All buildings should have a base at ground level. Pedestrian oriented details should be concentrated at the base and first two above grade floors. The use of colonnades, porticos, and other street level elements is encouraged.

  Bases should possess the following characteristics :

  Physical qualities - Monolithic, durable, strong, heavy.

  Colors - In contrast with wall, uniform appearance.

  Recommended materials - Cast stone in warm grey tones, precast concrete, limestone.

- **The Middle (Wall)** : The middle, or wall, surfaces of buildings should be designed with a consistent architectural vocabulary. Walls are composed of windows, entrances, signage, and other architectural elements. Accent bands, constructed of contrasting materials, should be used to define and clarify composition and proportion of wall surfaces. The use of quoining or other details to define corners is also encouraged.

  Wall surfaces should possess the following characteristics :

  Physical qualities - Durable, strong, compatible with existing Georgian structures, easily available.

  Colors - Old Virginia brick reds, integral to material, compatible with existing Georgian structures or dominant adjacent structures.

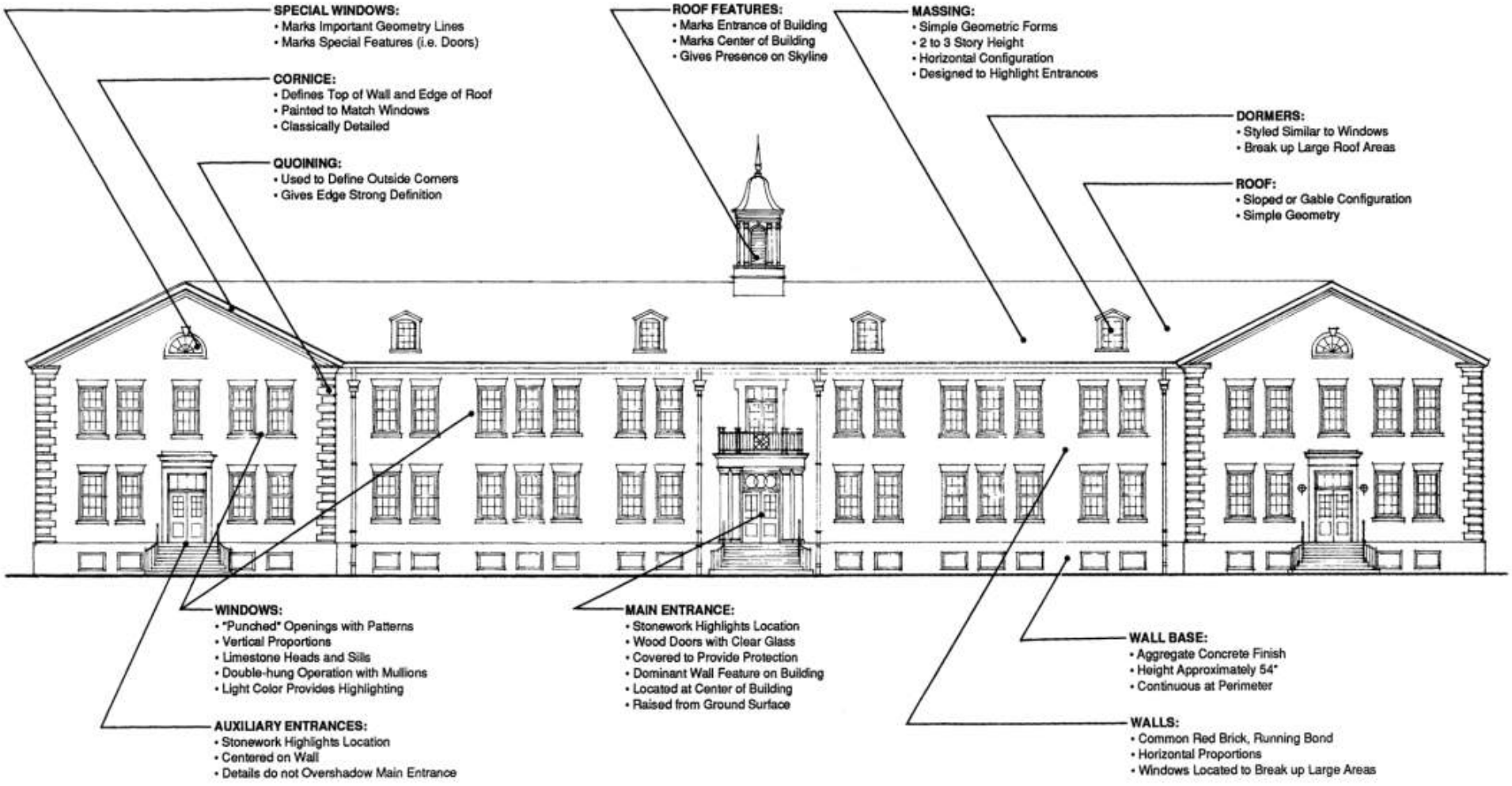
  Recommended material - Brick.

- **The Top (Skyline)** : Each building should have a well defined top. Building tops define the skyline. They give a group of buildings a character that can be recognized from afar. The use of gables, domes, or hips is encouraged. Large, monotonous roof surfaces should be accented with elements such as dormers or skylights *(Figure 3-3)*. The composition and massing of the roof should be designed to emphasize the important buildings and the entrance to the building and the adjacent public spaces. The use of special roof elements to achieve these goals, such as cupolas and domes, is recommended *(Figure 3-4)*. Every building should have some type of cornice line, whose materials are distinct from those of the wall. The cornice should be detailed to be visually interesting.
  Building tops, roofs, and roof elements should possess the following characteristics :

  Physical qualities - Durable, strong, easily available, compatible with Georgian detailing.

  Colors - Integral to the material, in contrast with wall and cornice, compatible with existing structures.

  Recommended materials - Slate, slate look alike materials, finished metals and copper in earth colors.


SPECIAL WINDOWS:
• Marks Important Geometry Lines
• Marks Special Features (i.e. Doors)
CORNICE:
• Defines Top of Wall and Edge of Roof
• Painted to Match Windows
• Classically Detailed
QUOINING:
• Used to Define Outside Corners
• Gives Edge Strong Definition
ROOF FEATURES:
• Marks Entrance of Building
• Marks Center of Building
• Gives Presence on Skyline
MASSING:
• Simple Geometric Forms
• 2 to 3 Story Height
• Horizontal Configuration
• Designed to Highlight Entrances
DORMERS:
• Styled Similar to Windows
• Break up Large Roof Areas
ROOF:
• Sloped or Gable Configuration
• Simple Geometry
WINDOWS:
• "Punched" Openings with Patterns
• Vertical Proportions
• Limestone Heads and Sills
• Double-hung Operation with Mullions
• Light Color Provides Highlighting
AUXILIARY ENTRANCES:
• Stonework Highlights Location
• Centered on Wall
• Details do not Overshadow Main Entrance
MAIN ENTRANCE:
• Stonework Highlights Location
• Wood Doors with Clear Glass
• Covered to Provide Protection
• Dominant Wall Feature on Building
• Located at Center of Building
• Raised from Ground Surface
WALL BASE:
• Aggregate Concrete Finish
• Height Approximately 54"
• Continuous at Perimeter
WALLS:
• Common Red Brick, Running Bond
• Horizontal Proportions
• Windows Located to Break up Large Areas

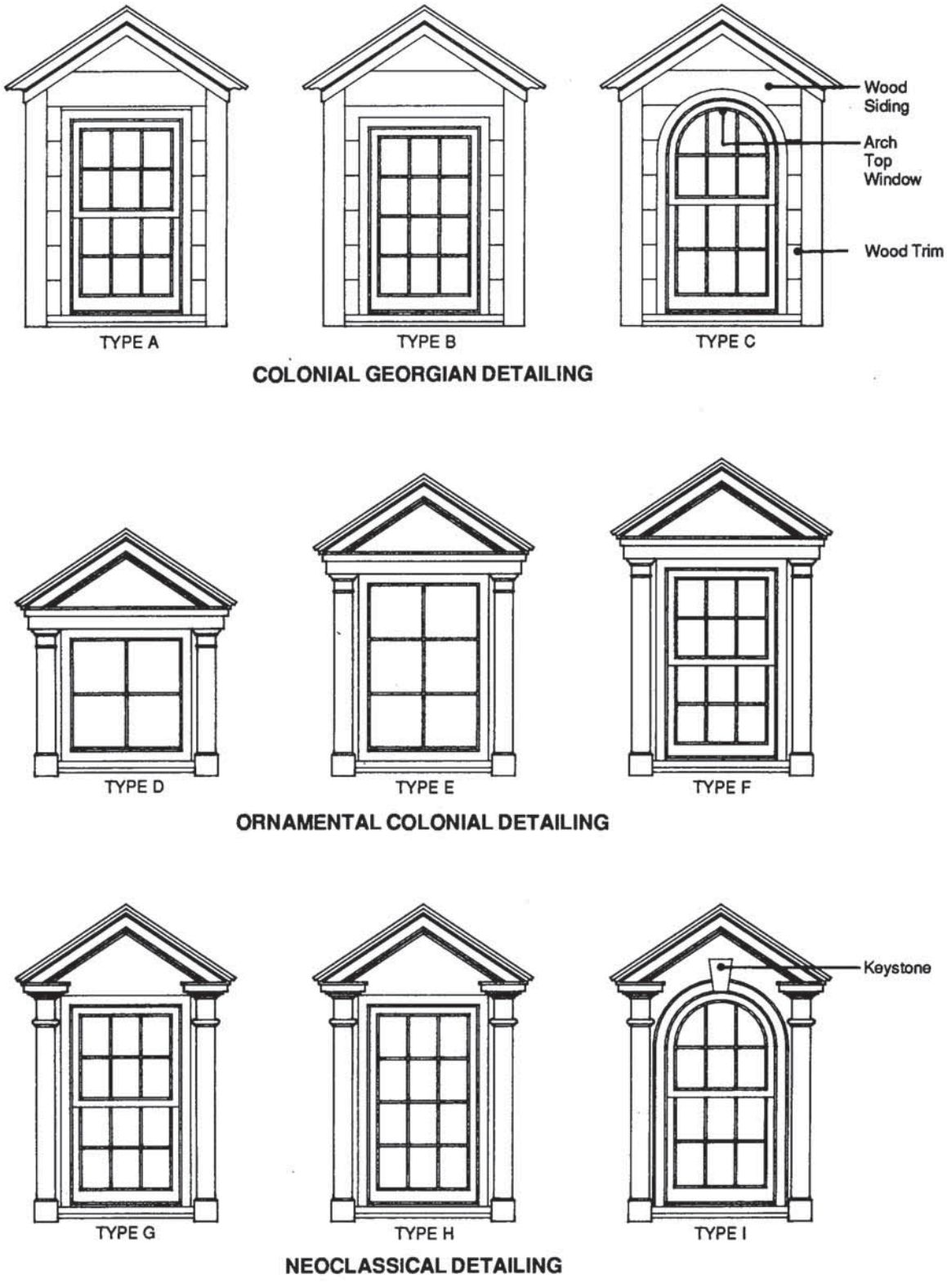


Figure 3-3 : Dormers

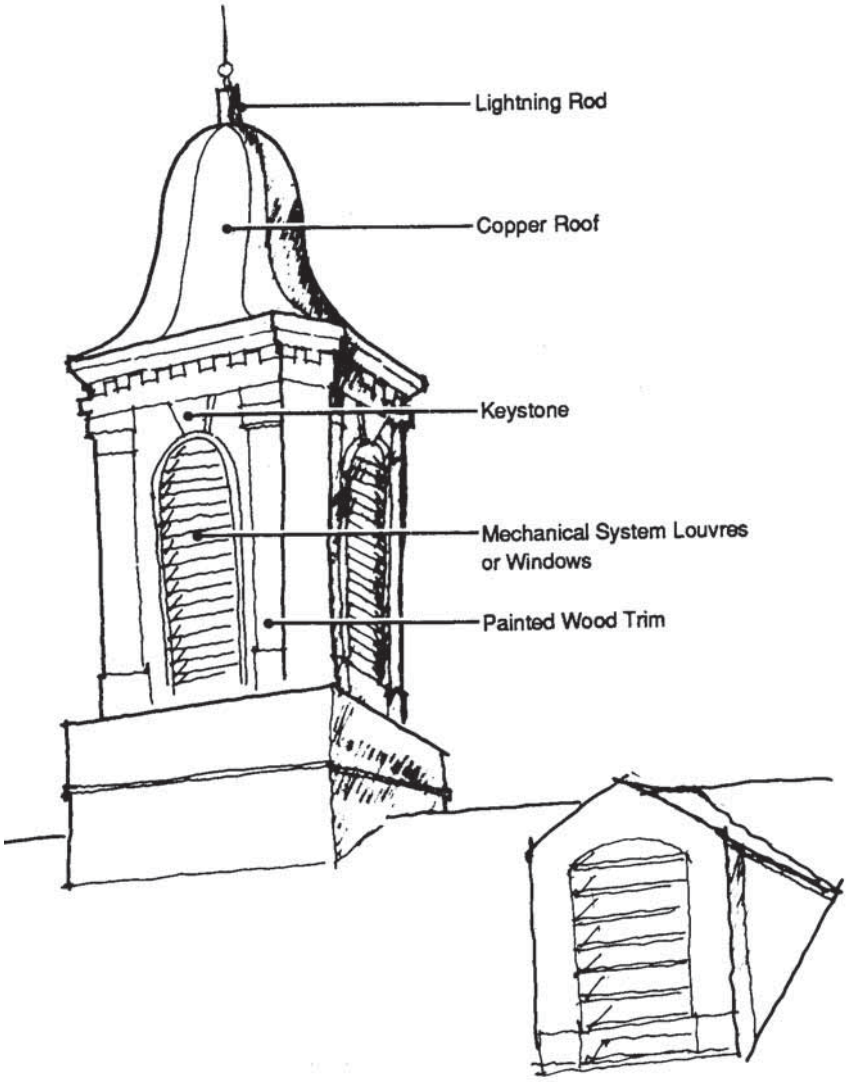


Figure 3-4 : A Cupola

Architectural Elements

The architectural style of a building will dictate the placement and detailing of building elements. Building elements help to reinforce the architectural style and complement the overall massing and facade composition.

- **Entrances** : Each building should have a well defined and easily locatable entrance. The entrance should convey the feeling that the building is a special place. It should be covered to provide protection from the elements upon entering or exiting *(Figure 3-5)*. Entrances should be detailed to be distinctive with respect to the wall,

symbolizing their importance *(Figure 3-6)*. Entrances should be located to reinforce and define the adjacent public spaces. The name and/or building number of the building should be incorporated into the entrance composition.

Building entrances should possess the following characteristics :

Physical qualities - Well defined, distinct from adjacent walls, strong, durable, well detailed to pedestrian scale.

Colors - Distinct from adjacent walls, compatible with Georgian structures.

Recommended materials - Cut stone or cast stone in warm greys, wood, concrete.

Door materials - Natural or painted wood, well detailed metal, clear glass.

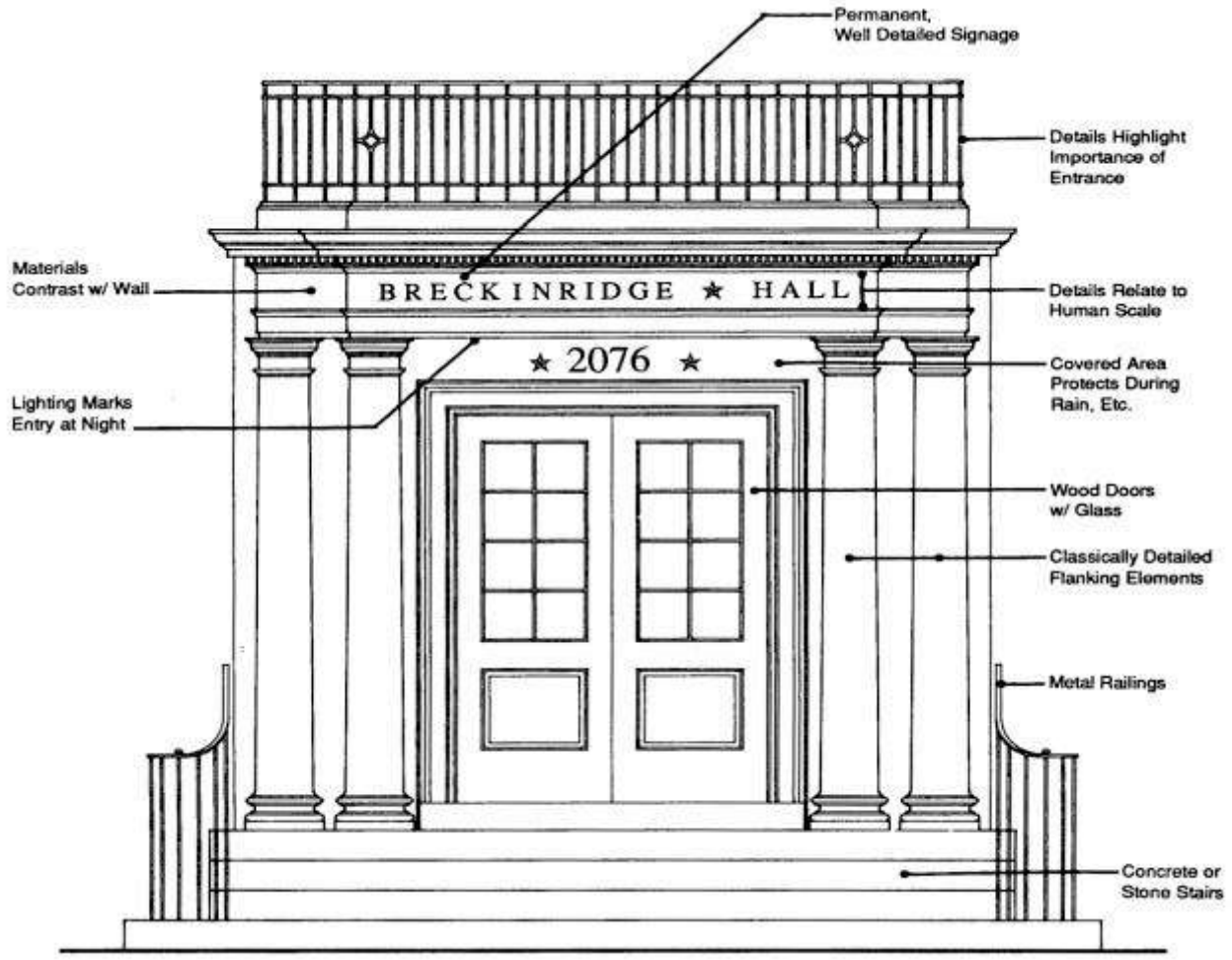


Figure 3-5: Primary Entrance

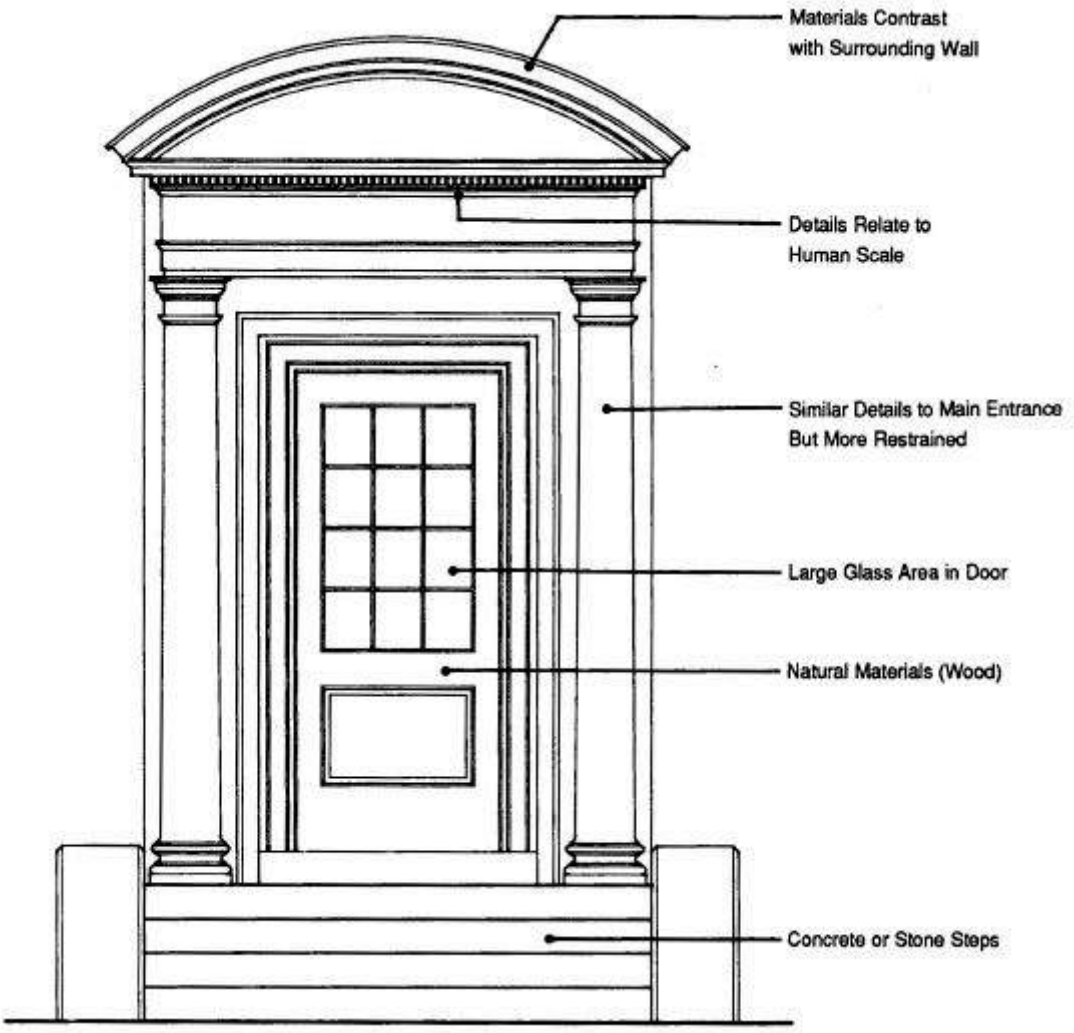


Figure 3-6: Secondary Entrance

- **Windows** : Windows should be of the punched variety with a vertical proportion. Sizes and shapes should be varied. Windows should have distinct heads and sills, preferably of materials that contrast with the dominant facade materials. The use of keystones, authentic muntins and mullions, clear glass, and other quality details are encouraged, especially at the pedestrian level. The percentage of window area to wall area should be carefully studied to be compatible with the existing Georgian structures *(Figure 3-7)*. Special shapes and sizes should be used to emphasize special or important characteristics of the building.

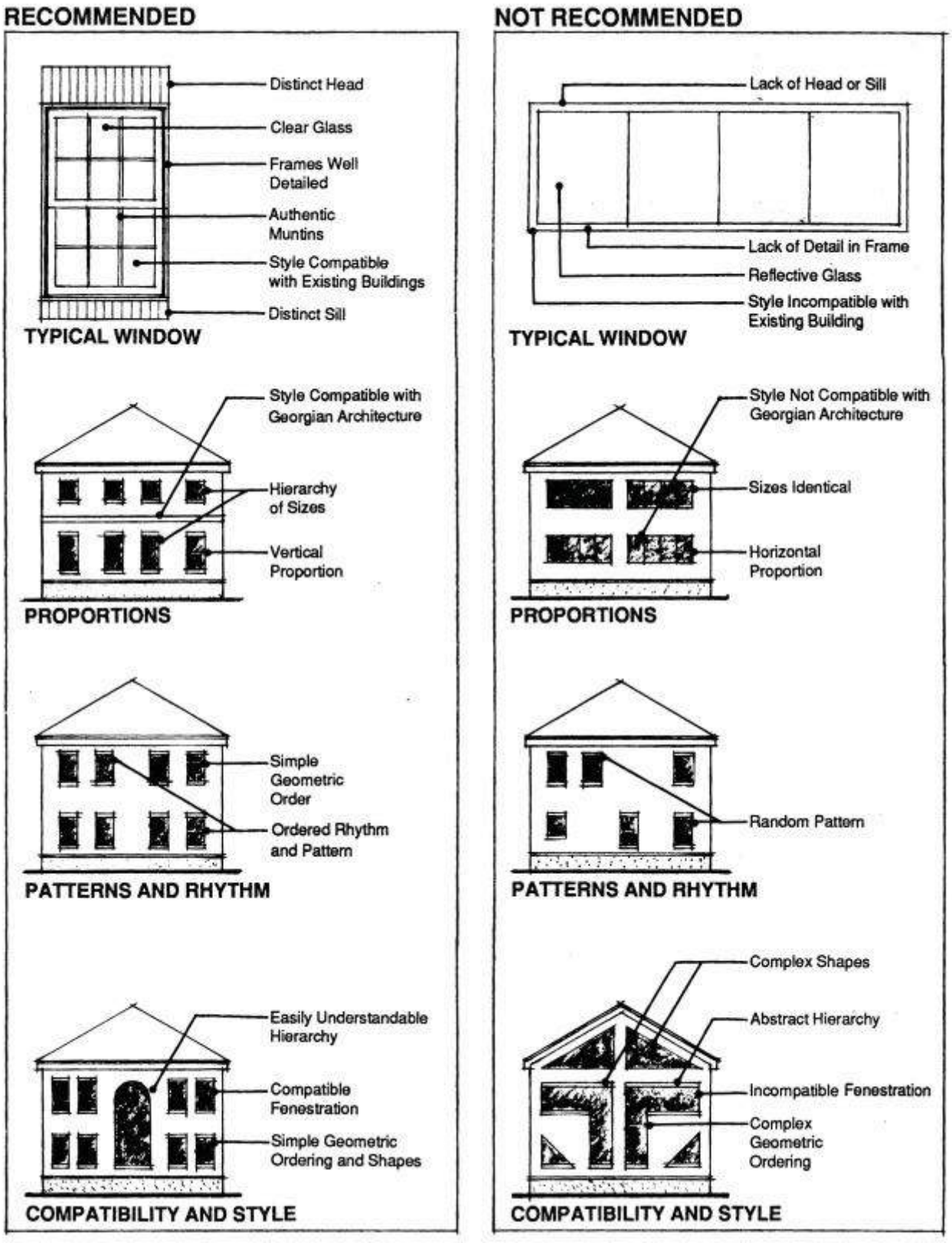


Figure 3-7 : Facade Composition using Windows

Physical qualities - Human scale detailing, quality materials and workmanship, clear glass, durable, distinct from wall, style compatible with Georgian structures or other dominant structures *(Figure 3-8 and 3-9)*.

Colors - In contrast with wall color, compatible with adjacent structures.

Recommended types - Double hung, awning, casement, or fixed varieties as appropriate; operable wherever feasible.

Recommended materials - Painted wood, metal, metal clad wood, or manmade materials.

- **Ornamentation and Decoration** : Ornamentation plays an important role in Georgian architecture. The purpose of ornamentation is to clarify proportion and organize the various elements of a facade. Ornamentation adds a level of detailing compatible with the pedestrian scale. Details should be simple, geometric and linear. The use of ornamentation on buildings is encouraged.

  Ornamental decoration should possess the following characteristics :

  Physical qualities - Durable, well detailed, contrast with surrounding wall.

  Colors - In contrast with surrounding wall.

  Recommended materials - Painted wood or metal, concrete, stone or stone like materials, molded brick shapes.

- **Architectural Lighting** : Lighting plays an important role in architecture because it defines a building's nighttime character. Skillful lighting can strengthen an already excellent piece of architecture and add drama to public spaces. Exterior lighting should be carefully designed for all buildings. All entrances should have a lighting component *(Figure 3-10)*. Every effort should be made to conceal building lighting. Exposed fixtures, such as those that may be used as an aesthetic detail, should be constructed of quality materials and have careful detailing which is harmonious with the architecture. Exterior lighting of important buildings and places is encouraged.

- **Architectural Signage** : Signs will be required to tell people where to go. Signage should be of high quality in a style that is harmonious with the architecture. Signage should not be backlit, but surface lit. It should be informative and discreet. All signage should conform to a set standard. Each building should have a name and a number designation. All buildings should have cast or carved names incorporated into their entrance designs.

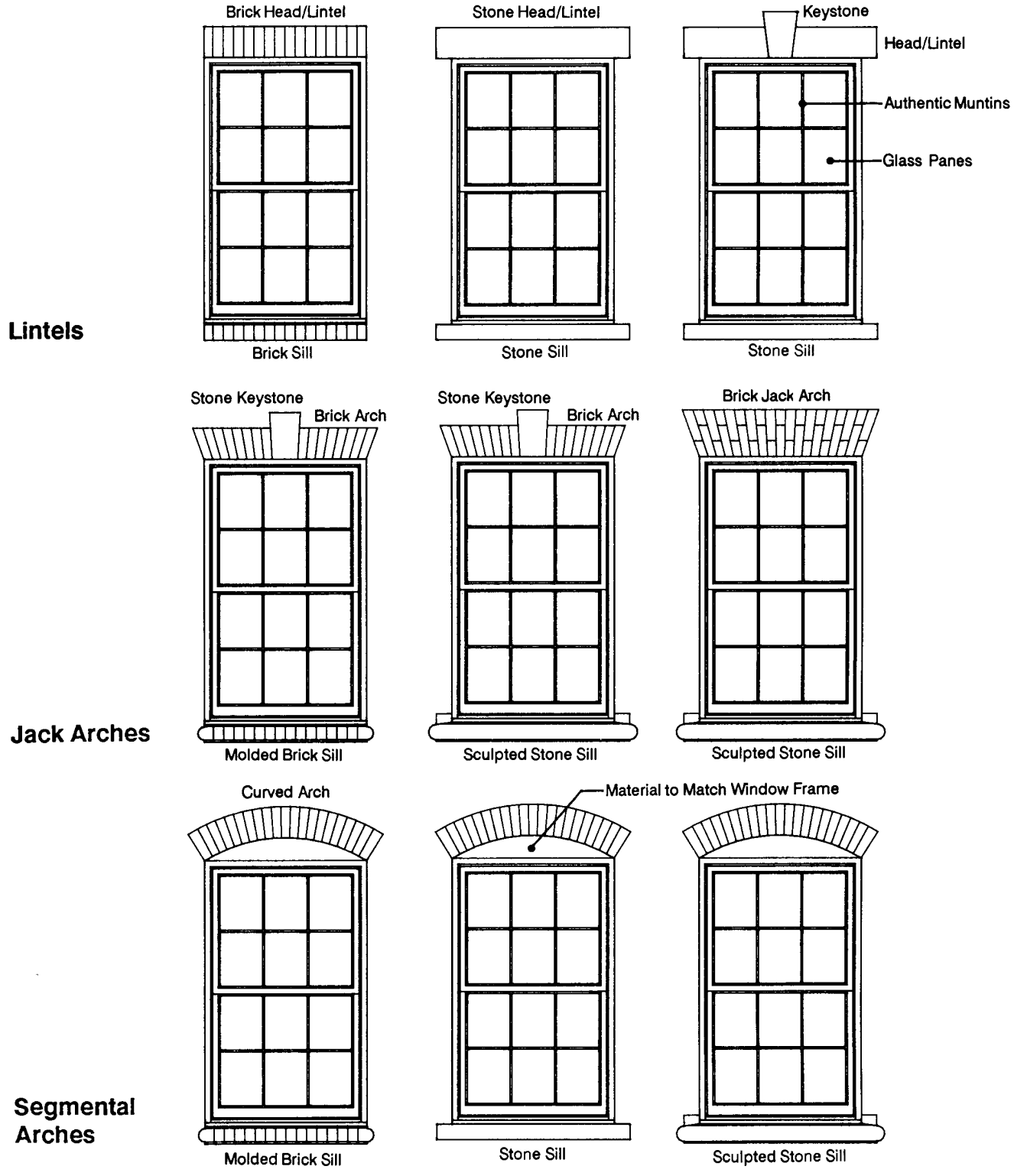
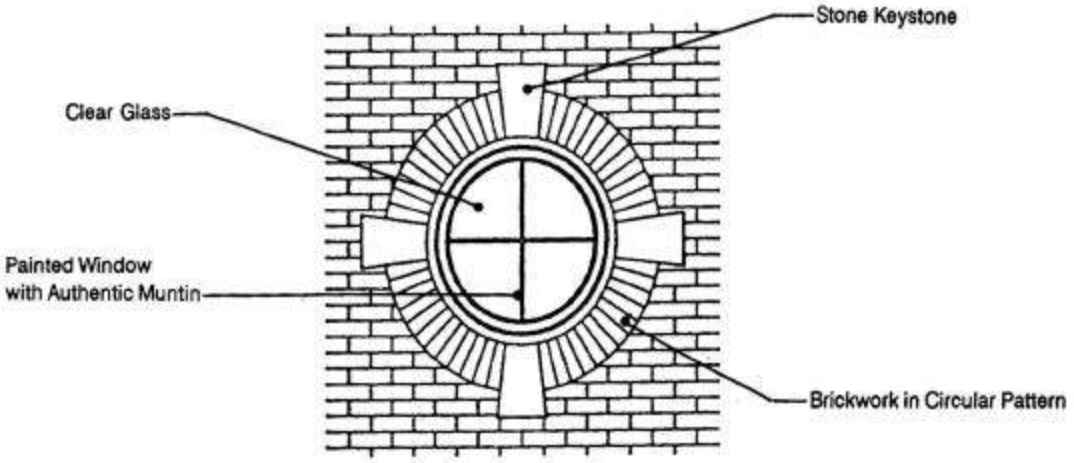
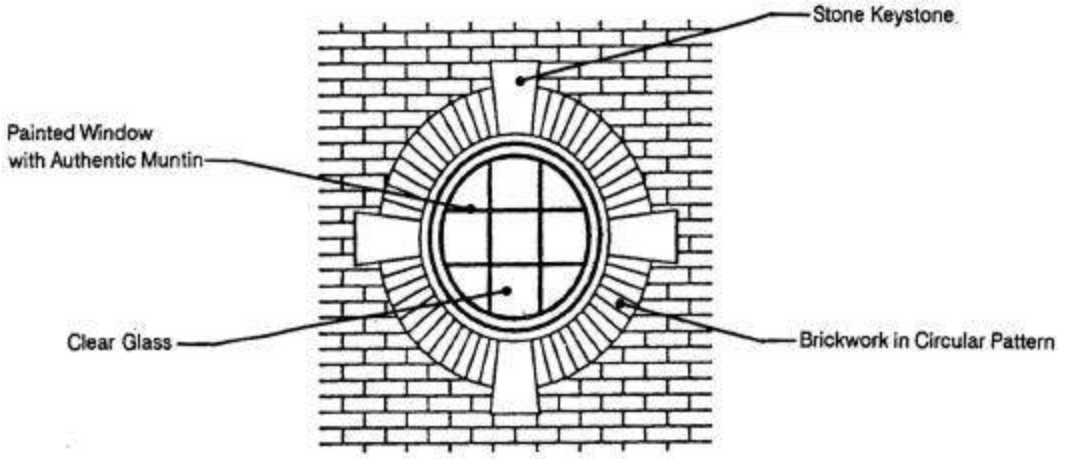


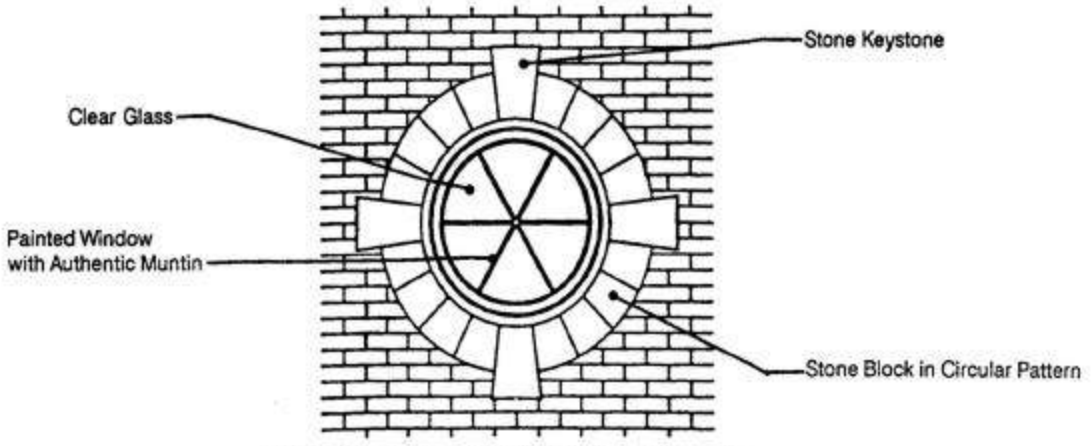
Figure 3-8: Arched Windows



Circular Accent Window – Type 1



Circular Accent Window – Type 2



Circular Accent Window – Type 3

Figure 3-9: Circular Windows

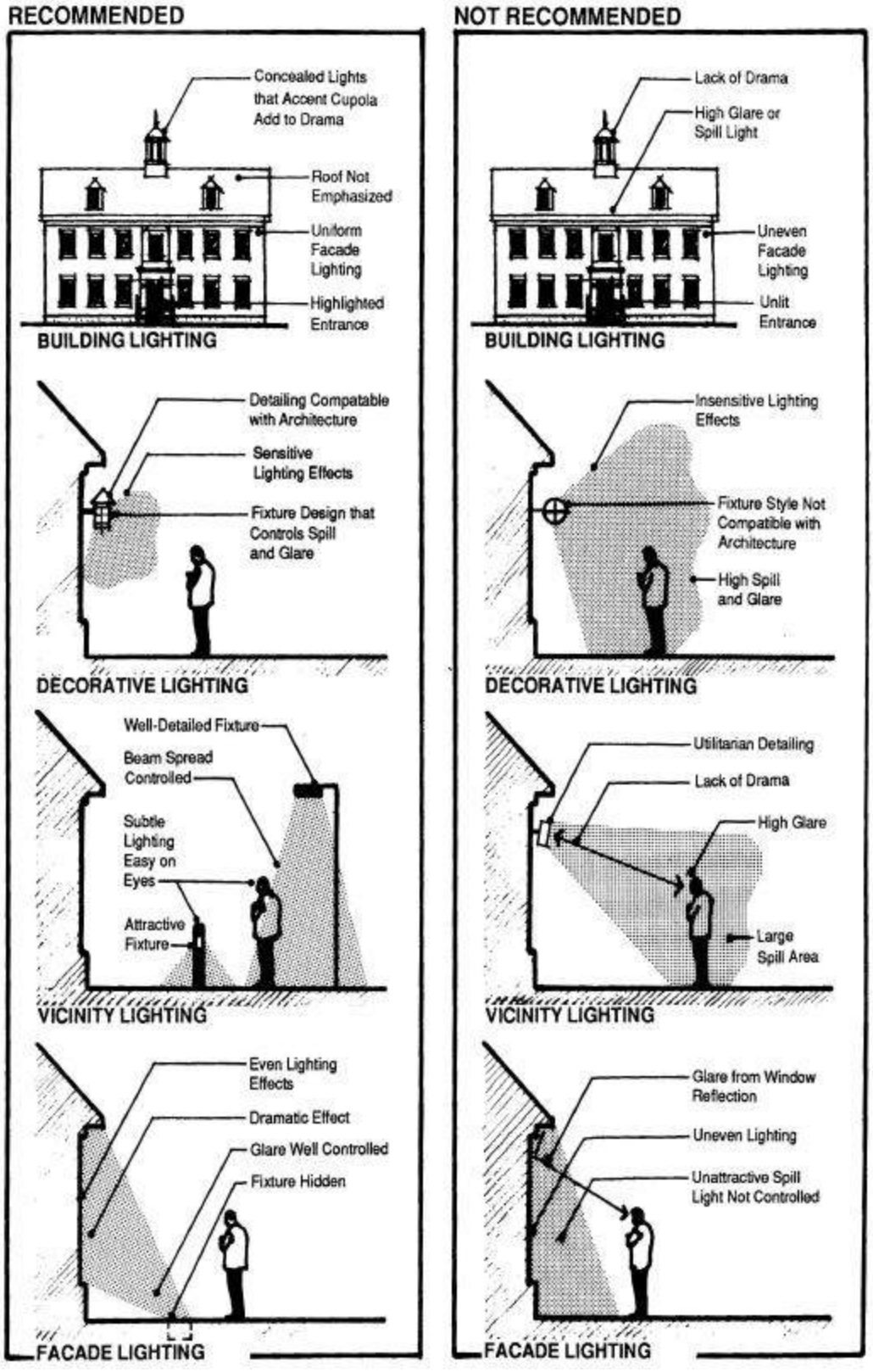


Figure 3-10 : Architectural Lighting

3.1.2 Other Districts

Some development districts of the Base have unique architectural styles, generally due to their period of development and the original function they were designed for. New construction and renovation projects in these districts should be in keeping with and try to emphasize the special character of the district to highlight its uniqueness.

The Chopawamsic Annex

This complex of buildings originated in the time of a segregated Marine Corps. The barracks and support facilities, originally built to house African-American troops, have been converted into administrative and other functions. The buildings have been renovated with inappropriate additions including the awnings and windows. The buildings in this district could potentially be included in the National Register of Historic Places. If included, any alterations to the exterior of these structures, either directly or through visual impacts, must be achieved through consultation with the Virginia State Historic Preservation Officer (SHPO).

Since the existing style and quality of construction is not appropriate for new construction projects, new buildings can be designed in a contemporary style but must resonate the style of the existing structures. Buildings should be more durable and sturdy than the barrack buildings. Selected building elements or qualities can be incorporated to achieve a positive visual relationship between new and existing structures.

A dominant feature of these buildings is the brick red color on the exterior. A unique feature is the sharp contrast between the front and rear faces of the buildings. Buildings are built to the human-scale and though they have large footprints, they look deceivingly small due to the numerous wings or projecting arms and the low height. The relationship between the built and unbuilt (open) space between the buildings helps to provide a number of windows for natural light and ventilation. One of the buildings is provided with a veranda (semi-covered porch area) with a colonnade. This transitional relationship between the covered, semi-covered and open areas can be maintained in future construction.

Camp Barrett

Permanent development on Camp Barrett is a varied mix of contemporary styles and materials. Visually appealing buildings are generally masonary structures with a balanced massing and facade composition. New construction or renovation projects must take cues from visually appealing buildings in the vicinity, while minimizing the negative effect of buildings that detract from the visual quality of the area.

- Large, monotonous facades must be avoided. Buildings with large footprints can be divided into wings. Elements such as windows and entrances can be composed to make facades more interesting.
- Each building should have horizontal demarkations e.g. on every floor, and vertical sections e.g. columns, balcony walls or wings of the building.
- Building materials chosen should be durable as well as aestheticially appealing.
- Existing buildings of contrasting styles and materials within each area must be unified by similar colors and building elements.
- The CMU screen and the CMU colonnade have been successfully used here and can provide a precedent for future construction.
- Landscape and hardscape elements including special paving, flagpoles and planter boxes can be used to tie buildings together and highlight important buildings.
- Temporary buildings should be maintained in good condition and, where feasible, painted to follow the designated color scheme of the area. This will render them less conspicuous and help to blend in with permanent structures.

Weapons Training Battalion or Lloyd Range

WTBN of Lloyd Range is another area which has a wide range of architectural styles and materials used in the same vicinity. Common traits between the various buildings must be reinforced by future construction.

- The flat-roofed, two-storey, red brick barrack building (Bldg. no. 27266) is unique in this district. Barracks and related buildings must follow the example set by this building so that they may be visually related. Administration and training facilities are low in height with flat or sloping roofs. They are finished in white or light colors. Future construction should fit in with these buildings. In this way, the function of the buildings can be indicated by visual clues.
- Both temporary and permanent construction should be durable, functional and aesthetically appealing.
- Building elements should be well-articulated. e.g. windows should have a frame and sill of adequate thickness to contribute to the facade composition, large window panes should be subdivided using muntins similar to the windows of Georgian style buildings.
- Trelliswork should be used to screen utilities adjacent to buildings. Wood has been used for the existing treeliswork, but other materials may be explored as appropriate to the buildings in the vicinity. Vines and climbers may be grown on the trellis.

Camp Upshur

The architectural style on Camp Upshur is unique to this area due to the large number of quonset huts built here. The repetition of units is an integral part of the character. But the quality of the construction is not acceptable for future buildings and permanently occupied structures. Deteriorating structures should be demolished. New construction should be in keeping with the street layout and scale of structures existing here. Colors used here range from dark to light greys and white. CMU structures would blend in with existing colors while red brick could be used to highlight a building and give it prominence.

Family Housing District

The CNP[1] identifies specific deficiencies and proposes necessary improvements to bring the entire housing area up to Whole House and contemporary Department of Defense (DOD) standards, subject to Congressional limits. The CNP includes recommendations and guidelines for the architecture and exterior design of new or replacement units and also for improvements that will help to enhance the community character and identity, streetscapes, open space development, utility systems and surrounding development.

The reader is referred to that report for additional information.

NOTE :
[1] Greenhorne & O'Mara, Inc., ibid

3.2 Landscape Architecture

The design process for landscape architectural projects involves a series of steps, including site inventory and analysis, program development, and conceptual design, which culminate in the final plan. All future projects at MCB Quantico should utilize this process, which is summarized as follows.

First, a complete inventory of existing conditions, including environmental and physical factors, should be conducted. Existing site factors affect the preservation of existing plant materials and the introduction of new plant materials. Factors to be documented include:

- Visual factors: Desirable and undesirable views of the site from outside as well as from within the site.
- Climatic data: Climatic conditions including temperature, wind, and rainfall that affect the site.
- Existing vegetation: Location of existing trees, shrubs, and grass areas.
- Soils: Physical characteristics and chemical properties of soils on the site.
- Hydrology: Distribution of surface drainage and flow of water on the site.
- Topography and slope analysis: Elevation differences on the site, showing high points, low points, and percent of slope.
- Spatial analysis: Existing architectural and natural features in relation to the human scale.
- Program analysis: All facilities and activities and how they relate or function individually and with each other.
- Circulation: Patterns of vehicular and pedestrian movement on and around the site.
- Noise factors: Areas on or around the site where noise can affect the design.
- Security requirements: Areas where security factors should be considered.
- Maintenance requirements: The degree of maintenance required or which can feasibly be provided.

A program should be developed before a design is started. Goals and design objectives, as well as the users' requirements, will direct the program's development.

After the site analysis and program have been completed, a conceptual design can begin. This involves the arrangement and massing of plant material in a design according to the site analysis and program. The objective of the conceptual design is to provide solutions for the site requirements, from which planting and preliminary costs can be determined. At this stage, plant materials are indicated according to the particular design objective or function (form, color, texture, and size) rather than by a particular species.

Once a satisfactory conceptual design has been developed, a final planting plan is prepared. This involves specifying the plant specie, size, and form. A thorough knowledge of native or adapted plant materials and their functional characteristics is required.

3.2.1 Plant Palette

Plant survival is dependent upon the natural ability of a plant to withstand environmental variations in temperature, rainfall and soil quality. The following plant palette was selected based on its suitability to conditions in the Quantico Area, which is in the Arnold Arboretum Hardiness Zone 6/7. All plants included in the plant palette are hardy within at least the minimum temperature range, 10 to 5 degrees F, of this zone. A large number of native plants have been included. The plant palette complies with the Presidential Memorandum on Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds, April 26, 1994. It is also in compliance with Executive Order 13112 of February 3, 1999, which directs Federal Agencies to prevent the introduction and spread of invasive species. Plants should be selected after studying the microclimate of the specific site on which they will be planted. A wide variety of plants are provided encompassing a diverse range of plant uses and characteristics. Plants of different sizes, shapes, foliage colors, flowers and fruits provide visual changes year round. The use of plant materials from this palette will contribute to the visual unity of the landscape throughout the campus.

(Refer Table 3-1 : Plant Palette)

Grasses

Mixture: 60 percent Bluegrass (mix of three improved varieties, 20:20:20):40 percent Perennial Ryegrass (mix of two improved varieties, 20:20)

TABLE 3-1
PLANT PALLETTE

Species		*Outstanding characteristics*					*Special Uses*						*Applications*				
Botanical Name (Common Name)	Height Range	Winter Form	Foliage	Bark	Fruit/ Flowers	Fall Color	Wet-Soil Tolerant	Poor-Soil Tolerant	Drought Tolerant	Pollution Tolerant	Full-Sun Tolerant	Shade Tolerant	Screen	Foundation	Street/Parking Lot	Large Openings	Native
Large Deciduous Trees (over 50 feet)																	
Acer rubrum "October Glory" (Red Maple)	40-60'					•					•				**S**	•	•
Acer saccharum (Sugar Maple)	60-75'					•					•					•	
Betula nigra (River birch)	40-70'			•			•										•
Cercidiphyllum japonicum (Katsuratree)	40-60'		•			•					•				**S**	•	
Quercus palustris (Pin Oak)	60-80"					•				•	•					•	•
Quercus phellos (Willow Oak)	60-90'					•	•			•	•					•	•
Quercus rubra maxima (Eastern Red Oak)	60-85'					•				•	•					•	•
Taxodium distichum (Bald Cypress)	50-70'		•	•			•				•						
Tilia cordata "Green Spire" (Green Spire Linden)	60-70'		•			•				•	•				**S**	•	
Zelkova serrata (Village Green Zelkova)	50-80'	•		•		•			•						**S**	•	
Medium Deciduous Trees (30 to 40 feet)																	
Carpinus betulus "Fastigata" (Upright European Hornbeam)	40-60'					•							•			•	
Gleditsia triacanthos inermis "Shademaster" (Thornless Honeylocust)	30-70'					•			•		•					•	
Ulmus parvifolia (Chinese Elm)	40-50'	•		•		•										•	
Small Deciduous/Ornamental Trees (15 to 25 feet)																	
Acer palmatum (Japanese Maple)	15-25'	•	•			•						•					
Cercis canadensis (Eastern Redbud)	20-30'				•						•				**SP**		•
Cornus kousa (Kousa Dogwood)	20-30'			•	•	•			•					•	**SP**		
Chionanthus virginicus (White Fringetree)	12-20'		•		•						•			•	**SP**		•
Lagerstroemia indica (Common Crapemyrtle)	15-25"	•	•	•				•	•		•			•	**SP**		
Magnolia x soulangiana (Japanese Magnolia)	20-30'	•			•						•	•					
Magnolia stellata (Star Magnolia)	15-20'				•												
Prunus cerasifera "Thundercloud" (Purple leaf Plum)	15-30'		•		•									•	**SP**		

TABLE 3-1 (contd)
PLANT PALETTE

Species		*Outstanding characteristics*					*Special Uses*						*Applications*				
Botanical Name (Common Name)	Height Range	Winter Form	Foliage	Bark	Fruit/ Flowers	Fall Color	Wet-Soil Tolerant	Poor-Soil Tolerant	Drought Tolerant	Pollution Tolerant	Full-Sun Tolerant	Shade Tolerant	Screen	Foundation	Street/Parking Lot	Large Openings	Native
Evergreen Trees																	
Cedrus deodara (Deodar Cedar)	40-70'	•	•						•		•					•	
Ilex cornuta "Burfordii" (Burford Holly)	10-15'	•	•		•						•	•	•				
Ilex x fosteri (Foster's Holly #2 or #3)	15-20'	•	•		•						•	•	•				
*Ilex x "*John Morris" (John Morris Holly)	12-20'	•	•		•						•	•	•				
*Ilex x "*Lydia Morris" (Lydia Morris Holly)	12-20'	•	•		•						•	•	•				
Ilex opaca (American Holly)	15-30'	•			•					•	•		•				•
Magnolia grandiflora (Southern Magnolia)	30-50'	•	•		•					•	•	•	•			•	
Picea abies (Norway Spruce)	40-50'	•	•										•			•	
Pinus bungeana (Lace Bark Pine)	30-50'	•	•	•							•					•	
Pinus nigra (Austrian Pine)	50-60'	•	•	•									•			•	
Deciduous Shrubs																	
Cornus racemosa (Gray Dogwood)	10-15'	•			•	•		•					•				
Cornus sericea (Redosier Dogwood)	7-9'				•		•				•		•				
Cotoneaster apiculata (Cranberry Cotoneaster)	3'				•	•		•			•			•			
Forsythia intermedia (Border Forsythia)	8-10'				•												
Myrica pennsylvanica (Northern Bayberry)	5-12'	•	•		•			•					•				
Rhododendron calendulaceum (Flame Azalea)	4-6'		•		•							•		•			
Rhododendron roseum (Roseshell Azalea)	2-8'				•	•						•		•			
Viburnum plicatum tomentosum 'Mariesii' (Marie's Doublefile Viburnum)	8-10'				•	•											

TABLE 3-1 (contd)
PLANT PALETTE

Species		*Outstanding characteristics*					*Special Uses*						*Applications*				
Botanical Name (Common Name)	Height Range	Winter Form	Foliage	Bark	Fruit/ Flowers	Fall Color	Wet-Soil Tolerant	Poor-Soil Tolerant	Drought Tolerant	Pollution Tolerant	Full-Sun Tolerant	Shade Tolerant	Screen	Foundation	Street/Parking Lot	Large Openings	Native
Broadleaf Evergreen Shrubs																	
Azalea hybrida "Glen Dale" (Glen Dale Azalea)	4-6'				•							•		•			
Azalea hybrida "Satsuki" (Satsuki Azalea)	2-4'				•							•		•			
Ilex cornuta "Burfordii Nana" (Dwarf Burford Holly)	3-8'	•	•		•						•	•		•			
Ilex cornuta "Carissa" (Carissa Holly)	3'	•	•											•			
Ilex crenata "Helleri" (Helleri Japanese Holly)	3-5'		•											•			
Ilex glabra "Compacta" (Compact Inkberry)	3-5'		•											•			
Itea virginica (Virginia Sweetspire)	3-5'				•	•	•		•	•	•	•					•
Prunus laurocerasus "Zabeliana" (Cherry Laurel)	10-18'												•	•			
Rhododendron catawbiense (Catawba Rhododendron)	6-10'		•									•					
Narrowleaf Evergreen Shrubs																	
Juniperus chinensis sargentii "Glauca" (Glauca Sargent Chinese Juniper)	3-6'	•	•								•	•		•			
Juniperus chinensis "Sea Green" (Sea Green Juniper)	3-6'	•	•								•	•		•			
Pinus mugo (Mugo Pine)	4-8'	•	•								•	•		•			
Taxus cuspidata "Nana" (Dwarf Japanese Yew)	5-10'	•	•							•	•	•	•	•			
Taxus media "Densiformis" (Dense Yew)	4-8'	•	•								•	•	•	•			
Groundcovers and Vines																	
Juniperus horizontalis 'Plumosa' (Plumosa Creeping Juniper)	12-24"	•	•					•			•	•		•	**P**		
Juniperus horizontalis 'Wiltoni' (Blue Rug Juniper)	4-6"	•	•					•			•	•		•	**P**		
Juniperus horizontalis 'Bar Harbor' (Bar Harbor Juniper)	8-18"	•	•					•			•	•		•	**P**		
Pachysandra terminalis (Pachysandra)	6-12"		•		•							•			**P**		
Parthenocissus quinquefolia (Virginia Creeper)	vine		•			•	•	•		•	•	•					•
Parthenocissus tricuspidata (Boston Ivy)	vine		•			•				•	•	•					

TABLE 3-1 (contd)
PLANT PALETTE

Species		*Outstanding characteristics*					*Special Uses*						*Applications*				
Botanical Name (Common Name)	Height Range	Winter Form	Foliage	Bark	Fruit/ Flowers	Fall Color	Wet-Soil Tolerant	Poor-Soil Tolerant	Drought Tolerant	Pollution Tolerant	Full-Sun Tolerant	Shade Tolerant	Screen	Foundation	Street/Parking Lot	Large Openings	Native
Additional Native Alternatives																	
Trees																	
Amelanchier arborea (Shad Bush or Downey Serviceberry)	15-25'				•	•	•		•		•	•			**P**		•
Amelanchier canadensis (Thicket Serviceberry)	6-20'				•	•	•		•		•	•			**P**		•
Cornus florida " (Flowering Dogwood)	20-30'				•	•					•	•		•	**P**		•
Diospyros virginiana (Common Persimmon)	50-75'				•	•		•			•					•	•
Malus coronaria (Sweet Crabapple)	20-30'				•	•					•			•	**P**		•
Ostrya virginiana (American Hophornbeam) "Ironwood"	25-40'							•			•	•			**SP**		•
Prunus americana (Wild Plum)	15-25'				•			•			•				**P**		•
Viburnum prunifolium (Blackhaw)	12-15'				•				•		•	•			**P**		•
Shrubs																	
Aronia melanocarpa (Black Chokeberry)	3-5'				•	•	•	•	•		•	•			**P**		•
Lindera benzoin (Spice Bush)	6-12'					•	•				•	•					•
Symphoriacarpus orbiculatus (Coralberry)	2-5'				•							•					•
Vaccinium corymbosum (Highbush Blueberry)	6-12'				•	•					•						•
Groundcovers and Vines																	
Asarum canadense (Canadian Wild Ginger)	6-12"	•			•							•					•
Campsis radicans (Trumpet Creeper)	vine				•		•	•	•	•	•	•		•			•
Carex pensylvanica (Pennsylvania Sedge)	4-18"		•		•				•		•	•					•
Schizachyrium scoparium (Little Bluestem)	6-12"						•	•									•

TABLE 3-1 (contd)
PLANT PALETTE

Species		*Outstanding characteristics*					*Special Uses*						*Applications*				
Botanical Name (Common Name)	Height Range	Winter Form	Foliage	Bark	Fruit/ Flowers	Fall Color	Wet-Soil Tolerant	Poor-Soil Tolerant	Drought Tolerant	Pollution Tolerant	Full-Sun Tolerant	Shade Tolerant	Screen	Foundation	Street/Parking Lot	Large Openings	Native
Invasives (Do Not Plant)																	
Trees																	
Acer ginnata (Amur Maple)	15-18'																
Acer platanoides (Crimson King Maple)	40-50'																
Shubs																	
Berberis thunbergii atropurpurea "Crimson Pigmy" (Crimson Pigmy Barberry)	2'																
Berberis thunbergii atropurpurea (Japanese Barberry)	3-6'																
Euonymus alatus (Winged Euonymus)	10-20'																
Euonymus alatus "Compactus" (Dwarf Winged Euonymus)	7-10'																
Groundcovers and Vines																	
Euonymus fortunei "Coloratus" (Wintercreeper Euonymus)	4-6'																
Vinca minor (Common Periwinkle)	3-6"																
Grasses and Seed Mix (Do not Plant)																	
Sericea lespedeza (Chinese Bush Clover)	2-5'																
Festuca arundinacea (Tall fescue)	3-4'																
Miscanthus sinensis (Chinese Silver Grass)	10-12'																
Eragrostis curvula (Weeping Lovegrass)	12-24"																

Plant Materials

Trees, shrubs, and groundcovers shall be in compliance with American Standard for Nursery Stock (ANSI Z60.1 publication). All plants shall be sound, healthy, and free from disease and insect pests or their eggs, and shall have normal, healthy root systems. Plants shall be dug with firm, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root systems necessary for full recovery. Balls shall be securely wrapped with burlap and bound with cord. No balled and burlapped plant shall be planted if the ball is cracked or broken. Bareroot plants shall be handled in a manner that protects the roots at all times. No plant shall be bound with rope or wire in a way that will damage the bark or break the branches.

To assure the quality of landscape materials, plants shall be provided with certificates of inspection required by the local jurisdiction. Submittals shall be made by the contractor to the Base's designated representative for all materials to be furnished. This may include such items as a certificate of inspection for plant materials; submittals of manufacturer's data or literature for tree wrap, antidesiccant, and steel edging; topsoil analysis report; planting schedule; soil amendments; fertilizers; and maintenance instructions. MCB Quantico shall reserve the right to inspect and reject plants prior to planting.

3.2.2 Planting Guidelines

Guidelines for planting operations are outlined below. Once a planting scheme is selected, the installation of plant material should be carried out in keeping with these planting guidelines.

Planting Seasons

Generally, the planting seasons in the Quantico area extend from September 1 to July 1. Most trees, shrubs, groundcovers, and vines should be planted between these times. Lawn grasses should be seeded between mid March and mid June or between September 1 and November 1. No planting shall be performed while the soil is excessively wet or frozen.

Preparation For Planting

- **Topsoil** : Provide good quality topsoil that has been selectively excavated; is representative of soils in the vicinity that produce heavy crops, grass, or other vegetation; and is free from stones, underlying subsoil, clay lumps, objectionable weeds, litter, brush, matted roots, toxic substances, or any material that would be a hindrance to grading, planting, or maintenance operations.

Test all topsoil prior to use for organic content, percent of silt, sand, clay, and other foreign materials, such as rocks, roots, and vegetation.

Additional soil testing (agricultural soil test) should be performed to determine soil pH and phosphate and potash content. The landscape contractor is responsible for furnishing these tests in report form. The report should also indicate the amount and type of soil amendments necessary to bring the topsoil to specified levels. All laboratory tests are to be submitted to the Base's representative for review.

- **Soil Preparation and Soil Mixes** : Soil preparation and mixes should be provided in accordance with the results of soil test data. The landscape contractor is to furnish the specified soil amendments, fertilizers, and conditioners as required by the agricultural soil test. Guidance as to the type of the above mentioned elements to be used are identified below.

- **Amendments**
  Lime: Provide raw ground limestone.
  Bonemeal: Provide commercial, finely ground, raw bonemeal.
  Gypsum: Furnish U.S. Grade Fine Gypsum.
  Superphosphate: Provide soluble mixture of treated minerals.

- **Fertilizers**
  Commercial mixed fertilizer: Provide a commercial fertilizer that is uniform in composition and free flowing.

- **Soil Conditioners**
  Peat: Provide a natural product.
  Sand: Provide clean sand that is free of toxic materials.

Planting Operations

- **Planting Procedures :** If the plant is balled, cut burlap away from the top of the ball and roll back into the top of the backfill. If the plant is in a container, cut the container away and discard. Set plant upright on a compacted cushion of topsoil mixture so that the top of the roots or ball will bear the same relation to grade as before transplanting. No filling will be permitted around the trunk or stems. Roots of bare root plants shall not be allowed to mat together, but shall be spread and arranged in their natural position and have the planting mixture worked in among them. All broken or frayed roots shall be cut off.

  When the plant has been properly set, the pit shall be backfilled with planting mixture, and gradually filled, tamped, and settled with water. Complete the backfill, wetting lightly and tamping to remove all air pockets so that the plant is firmly and completely bedded. Construct

a shallow rim of earth (watering saucer) around the outer edge of the hole. Build the rim up so that the saucer will retain water.

- **Mulching :** Mulch within 48 hours after planting operations are complete. Fill plant saucer with shredded hardwood bark mulch, peat moss, bark chips, or other approved material to a depth of 2 to 3 inches. In groundcover areas, mulch bed to a uniform depth of 2 inches.

- **Fertilizing :** Newly transplanted plant materials generally do not require fertilizing.

- **Watering :** All plants shall be thoroughly soaked after planting. Newly planted areas should be watered, depending on the weather, at least once a week to provide necessary moisture for development of the new root system. After each watering, all beds should be raked and left in a finished manner.

- **Pruning and Repair :** The following standard pruning procedures should be followed. When planting has been completed, all dead and broken branches shall be removed by pruning and the injuries repaired. The amount of pruning should be limited to the minimum necessary to remove dead or injured twigs and branches and to compensate for the loss of roots from transplanting. Pruning shall be done in a manner that will not change the natural habit or shape of the plant. All cuts should be made flush, leaving no stubs.

- **Clean Up :** After planting operations have been completed, remove all excess soil, debris, and waste materials, and leave the planted area in an orderly fashion.

3.2.3 Maintenance

Maintenance is a primary concern for any landscaped environment. The quality of maintenance determines the ultimate success or failure a design. The landscaped environment is not static and requires ongoing maintenance to both the plant materials and structural components to fulfill its desired goal. The following maintenance schedule has been formulated to assist in planning the Base landscape maintenance program.

Winter

- Flowers: Plan seasonal flower areas for the upcoming season. Ensure that perennial beds are properly protected with mulch.
- Lawn: Plan lawn program for the upcoming year. Repair tools and equipment.

- Groundcovers and vines: Prune dead, woody vines during dormant season. Protect plants with mulch during freezing weather if no snow cover is present.
- Trees and shrubs: Protect easily damaged plants from the weight of snow. Water plants if the season has been dry and the ground is not frozen. The best watering practice is a slow soak. Prune summer and fall blooming plants while they are still dormant.

Spring

- Flowers: Conduct soil tests on all flower beds. Divide crowded perennials after the end of flowering. Plant annuals in late spring, fertilize with a water soluble fertilizer (5 10 5), and begin weed control after planting.
- Lawn: Begin major lawn care program - mow to remove excess old growth; test soil, adjust pH to 6.5, rake, top dress, and seed bare spots. Overseed if this was not done the previous fall; dethatch and aerate lawn areas at 3 to 4 year intervals. Mowing schedule is as follows. Improved grounds: minimum height 2 inches, maximum height 4 inches. Semi improved grounds: minimum height 3 to 4 inches, maximum height 6 to 8 inches. Mow on an average of once every 2 to 4 weeks during rapid growth periods or when a height of 6 to 8 inches has been reached; never remove more than one fourth of the height at one time, since this will damage the leaf blade. Unimproved grounds: mow a minimum of twice a year. Weed and pest control - Apply pre-emergent control for knotweed and crabgrass; check for chickweed growth; control wild garlic, onion, plantains, and dandelion; apply chemicals for grub control.
- Groundcover and vines: Remove winter damaged foliage. Fertilize plants. Apply new 3 to 4 inch layer of mulch.
- Trees and shrubs: Finish pruning plants that bloom after June 30. Fertilize after the ground thaws. Apply new 3 to 4 inch layer of mulch. Prune evergreens before new growth spurt so that cuts will be quickly covered. Prune early spring flowering plants after the end of their flowering season.

Summer

- Flowers: Check flowers closely for insects. Continue fertilizer and weed control schedule. Water as needed. Remulch beds to conserve moisture and control weeds.
- Lawn: Water lawns as needed. Raise mower height to 3 inches for improved areas.
- Groundcovers and vines: Water as needed.

- Trees and shrubs: Finish pruning spring flowering shrubs. Water as needed. Remulch as needed to conserve moisture and lower soil temperature. Fertilize broadleaf evergreens after blooming with a 5 10 5 fertilizer for acid loving plants.

Fall

- Flowers: Continue to water as needed. Clean up annual beds and plow under at the end of the season. Beds may be mulched or planted with winter rye grass to add nutrients. Plant spring flowering bulbs.
- Lawns: Test soil pH, fertilize based on soil test, dethatch, aerate, top dress, and reseed. Set mower height for 2 inches in improved lawn areas. Remove leaves from grass. Water so that the turf begins the dormant season in a moist condition.
- Groundcovers and vines: Continue to water as needed until the ground freezes. Remove dead leaves, twigs, branches, and other debris. Remulch.
- Trees and shrubs: Rake fallen leaves and make a compost pile. Continue to water as needed until the ground freezes. Fertilize trees and shrubs that are not receiving fertilizer from application to other areas.

Tree Protection during Excavation and Construction

Extreme care should be taken to protect trees from damage when excavation and construction work is planned in the vicinity of trees. Compaction of earth can take place when the earth within the crown of the tree is used for storage or driven over with vehicles or machinery. Compaction can cause severe root damage and reduce the air and water holding capacity of the soil.

A surrounding barrier should be used to cordon off the crown spread of the tree *(Figure 3-11)*. If this area should get compacted during the construction work, the soil shuld be aerated thoroughly after the work is over. When minor work is planned in the vicinity of a tree or the tree is further away from the construction site, tree trunk barriers must be used for protection from impact or abrasion.

Trees and other vegetation should also be protected from damage caused by vehicles or machinery being driven over or parked in the vicinity of their crowns or root zones. Where vehicular access is necessary, the route or parking should be clearly defined and separated from planting areas via bollards, fences or other permanent barriers.

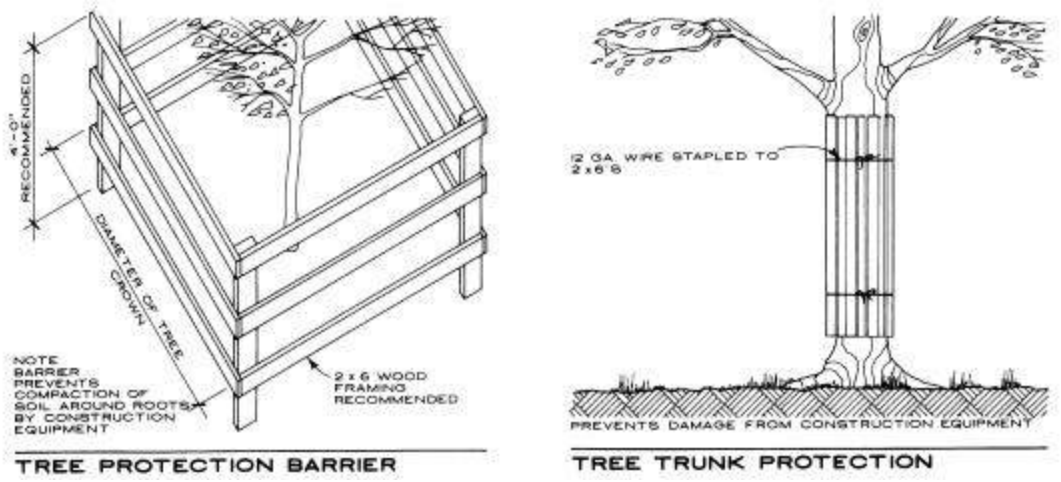


Figure 3-11 : Tree Protection [2]

3 . 2 . 4 Landscape Considerations and Restrictions

All the mechanics for introducing plant materials into the environment are too numerous to list for purposes of this document. A professional, such as a landscape architect, landscape contractor, horticulturist or nurseryman, should be consulted prior to any landscape planting. The plant pallette and planting guidelines described in the previous section are general instructions and may need to be tailored for specific plants, sites and designs. However, there are some basic considerations concerning placement, choice, and maintenance that should be observed by the designer. In addition, all Marine Corps security and safety criteria must be taken into account since they will impact all planting designs. The following is a list of fundamental considerations for the use of plant materials at MCB Quantico.

- Avoid the use of potentially dangerous plants, such as those having large thorns or poisonous fruit.
- Overhead materials should be selected for their particular characteristics. Avoid materials that have tendencies toward dropping excessive debris or are susceptible to drooping or breaking under heavy snow or wind loads.

NOTE :
[2] Ramsey, C.G. and Sleeper, H.R., *Ramsey/Sleeper Architectural Graphic Standards*, John Wiley & Sons, New York, 1994.

- Plant materials may affect snow and ice melt from walkways and stairs. Consider plants' mature shadow patterns during winter months prior to deciding on final locations. Snow removal and storage must also be considered since snow stored in planting areas can damage plant materials.
- Along roadways, avoid the use of species that are sensitive to salt damage.
- Maintain a minimum of 8' 6" vertical clearance between low tree branches and walls, sitting areas, pedestrian paths, etc.
- Note that improper location or poor maintenance of plant materials can quickly lead to a reduction in the efficiency of lighting systems.
- Many trees with shallow or surface root systems will heave up or break walkway surfaces. Use caution when choosing these varieties and their locations.
- Avoid placing plant materials over or near underground utilities to avoid root interference. Avoid plants with root systems that characteristically cause damage to pipelines, cables, or sewers. In all cases, prior to initiating a landscape plan, the designer should verify the location of existing facilities.
- Trees must be placed according to mature height and spread to avoid interference with power lines, etc. Where there are numerous utilities, a utility easement should be established, free of all plantings other than lawn.
- Creeping groundcovers, vines, and other invasive materials can be troublesome if not contained. Keep them from buildings, walkways, steps, ramps, signs, and lighting fixtures.
- Plantings should be located to avoid interference with public rights of ways, utilities, or streets, particularly at intersections where visual obstructions may occur. As a rule of thumb, plantings should be contained within property boundaries, and should not intrude on the adjacent rights of way. Federal, state, and local sight line criteria should be observed as a minimum at intersections and points of entry.

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3.3 Circulation and Parking

A large area of open space on the Base is dedicated to parking and circulation. Enhancing the functional and aesthetic value of parking and circulation infrastructure can have a significant base-wide effect.

3.3.1 Vehicular Circulation

The vehicular circulation system, i.e. the road system, provides the primary means of on-site access to the Base. It is also the primary vantage point along which the Base is experienced.

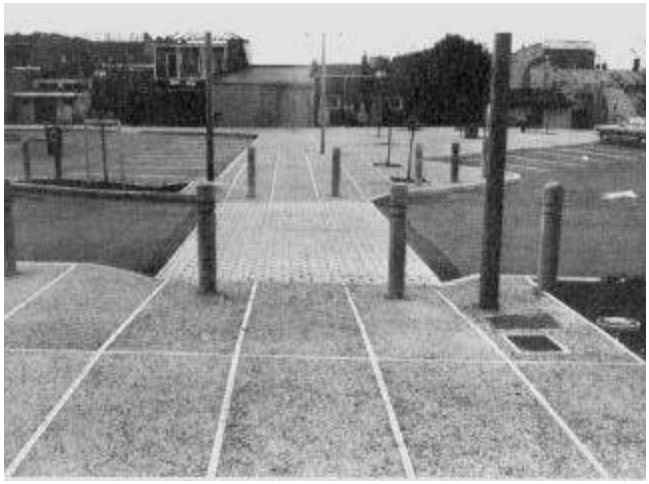
- The hierarchy of the road network must separate incompatible kinds of traffic.
- Primary roads carrying high speed traffic should have a minimum of curb-cuts, providing entry to major facilities or groups of buildings.
- Medians or median barriers should be provided for roads carrying traffic at high speed or in large volume.
- Sidewalks, running or bicycle paths along major roads should be separated from the road by a planting strip.
- Sidewalks should be provided on both sides of primary and secondary roads, and on one side for tertiary roads, cul-de-sacs or roads with low pedestrian traffic.
- For primary roads, a minimum of 10 feet of buffer planting between the road and adjacent parcel or building should be provided. Street tree planting can be used to create an "avenue" effect to emphasize the importance of a major street.
- New roads should be constructed to match natural grades and site conditions as closely as possible.
- Use retaining walls or tree wells to preserve noteworthy specimens of trees where cut and fill slopes threaten the root system and the survival of the tree.
- Promote revegetation of areas disturbed due to road construction. Use serrated slope edges on steep slopes to facilitate revegetation and moisture retention, and control soil erosion.
- Coordinate streetscape elements to minimize clutter and follow a uniform style and organization.
- Provide curbs and gutters to channel storm drainage in densely developed areas. In rural areas, the use of swales or ditches is recommended.
- Cross streets should be designed to meet at 90 degrees where possible. Intersections should allow for appropriate sight distances to ensure safety of motorists.

3 . 3 . 3 Pedestrian Circulation

Pedestrian circulation is an important component in expressing the environmental theme within special areas and base wide. Improvements to the pedestrian atmosphere should be incorporated into new construction and major renovation projects to ensure that it contributes to the positive image of the Base.

- The basic walkway system should provide a continuous, unbroken circulation network linking major points of destination and following existing or logical desire lines of travel.
- Walkways will be designed as a hierarchical network depending on level of use. Walkways with higher level of use (primary walkways) will have hard surface paving, high level of lighting, pedestrian amenities and landscape features. With lower levels of use, softer paving materials can be used and little or no lighting and pedestrian amenities will be needed.

Figure 3-12 : An efficient pedestrian system with paved and patterned crosswalk, handicapped ramps and bollards. [3]



- Minimum width for sidewalks shall be 6 feet. All walks shall intersect with a minimum of a 4-foot radius.
- Walkways should follow the natural topography where possible to avoid providing steps and ramps. Where necessary, steps and ramps must be clearly marked and the area well-lit to avoid accidents.
- It is important to minimize vehicular and pedestrian conflicts when designing new walkways and connecting existing walkways. Walkways should be channelized to designated crosswalks.

NOTE :
[3] Untermann, R. K., *Principles and Practices of Grading, Drainage and Road Alignment: An Ecological Approach*, Reston Publishing Company, Reston, VA, 1978, p. 228

- Crosswalks should be provided when pedestrian circulation crosses roadways or vehicular circulation routes. Depending on the importance of intersection and volume of pedestrian traffic, crosswalks may be emphasized by changing the paving material *(Figure 3-13)*.

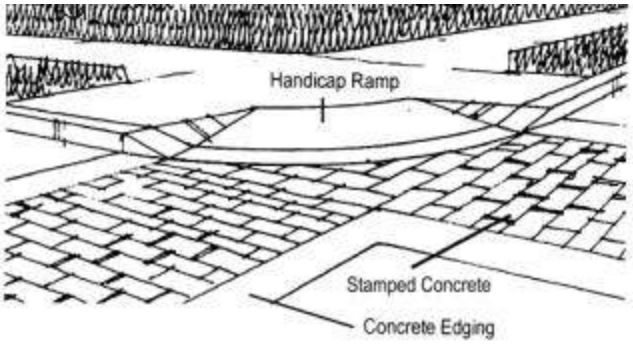


Figure 3-13 : Typical crosswalk design at a street intersection

- Wheelchair accessible ramps from the sidewalk to the street must be provided at intersections.
- Troopways, paved paths lined with shade trees, should be provided for marching in formation between classrooms, barracks, mess halls and parade grounds, where required.
- Pedestrian facilities should be sited to take maximum advantage of the areas of visual enjoyment and be separated from the inhospitable influences created by automobiles and trucks.

3.3.3 Parking

- Parking for adjacent buildings or facilities should be consolidated into parking lots of no less than 10 spaces that are adequately screened from view and provided with shade trees. Large lots (of more than 50 spaces) are difficult to screen and should be avoided where possible.
- Screening can be achieved by : planting evergreens along the perimeter; providing berms or earth mounds where there is adequate space and no pedestrian connection is desired; providing a fence or wall when space is limited.
- Avoid parking directly adjacent to buildings, leaving space for planting and/or walks.
- In lots with multiple rows of parking spaces, each row shall be terminated with a landscape island. There shall be no more than 18 parking spaces in a row without a landscape island. The island shall have a minimum outside radius of not less than 15 feet. Each side of the terminal island adjacent to a travel lane or parking space shall have a continuous 6-inch curb of concrete or other appropriate material.

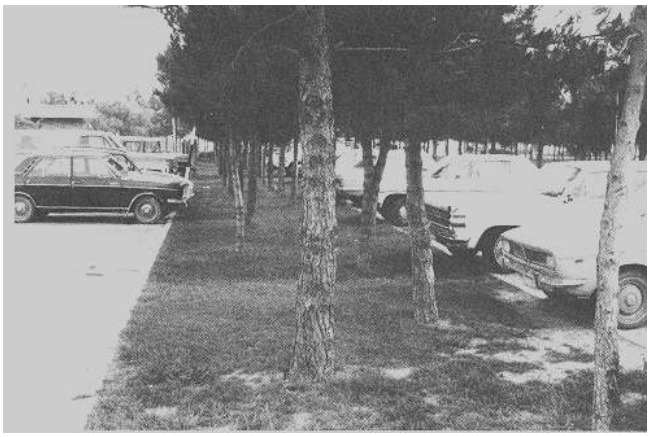


Figure 3-14 : This planter strip serves to shade and screen the cars [4]

- Shade trees should be provided between rows of cars and along the perimeter *(Figure 3-14)*. Shrubs should be avoided where they block drivers' views. The parking lot layout should be designed to preserve as many existing trees as possible.
- Temporary parking or lots with low usage should be treated with porous materials, such as porous concrete, gravel or grasscrete. These lots can usually support more landscape plantings than permanent lots.
- Each road must have a single point of entry (or minimum necessary for peak-hour requirements) to the parking lot. Where a number of options for locating an entry point are available, the entry point should be located on the road with lower traffic volume and a minimum of 50 feet away from intersections to reduce traffic circulation problems. A buffer strip of a minimum of 20 feet should separate the parking lot from the street.

Figure 3-15 : A parking arrangement with the walkway in front of the cars. Note that the cars overhang about 15 to 18 inches, so the walk must be at least 4.5 feet wide. The berm to the left of the walkway shields the cars visually from the park beyond. [5]

NOTE :
[4] ibid, p. 228
[5] ibid, p. 230

- Parking lots should be distinctly separated from vehicular roadways through the use of curbing, pedestrian paths, planter strips or a combination of these elements *(Figure 3-15)*.
- Pedestrian routes, such as paved walkways or informal paths, should be designed from parked cars to points of destination adjacent to the parking lot.
- Aisles should be perpendicular to building entrances where possible.
- Perpendicular parking is most efficient in terms of land utilization and traffic flow.
- On-street parking should be avoided on roadways with high traffic volumes and high visibility. Perpendicular or diagonal on-street parking should not be provided.

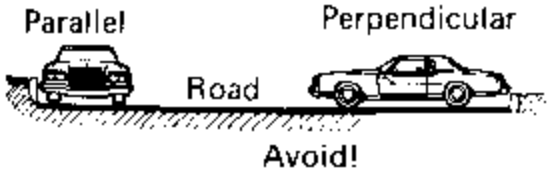


Figure 3-16 : Avoid perpendicular parking opposite parallel parking. [6]

**** Materials for roads, paths and parking lots are described in Appendix 2 - Materials Palette**

NOTE :
[6] ibid, p. 229

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3.4 Outdoor Lighting

Lighting contributes to the security and aesthetic character of a district. Areas that need to be well lit include roads, walkways, plazas, parking lots, building entrances and security control points. Amount of lighting can be prioritized for certain areas depending on use and importance. Areas with low usage should be in low ambient luminance that satisfies security requirements while contributing to the desired visual character. The glare of intensive light sources should be eliminated by selection of an appropriate fixture and placement, or by an architectural or landscape architectural solution.

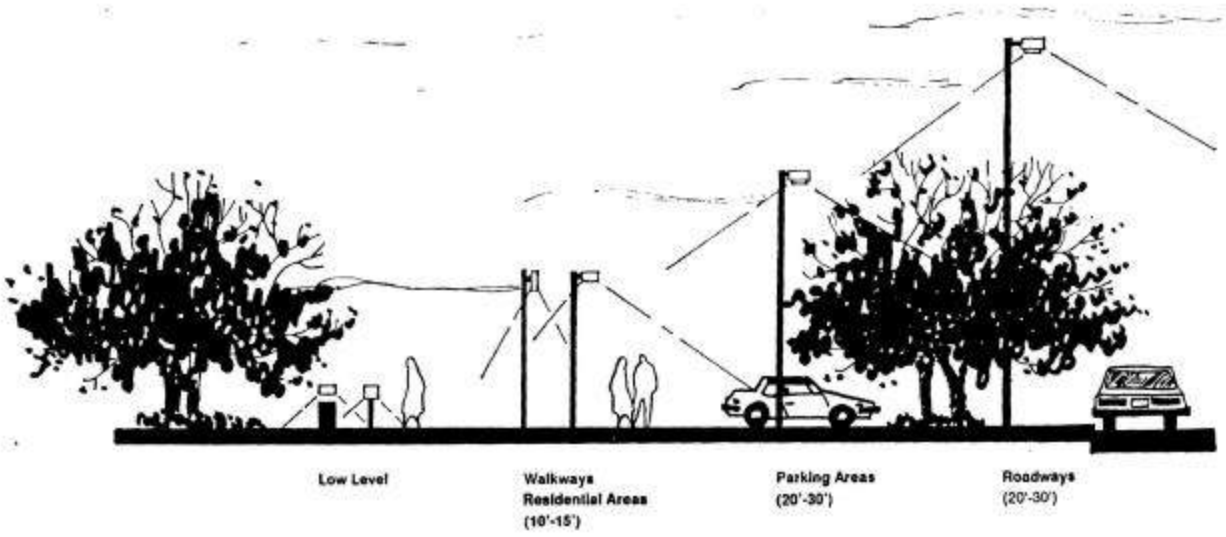

Figure 3-17: Types of light fixtures

Light fixtures are needed in a wide range of instances. The scale and size of the fixture should be appropriate to its setting *(Figure 3-17)*. The lighting fixture should complement the color, materials, and style of the surrounding buildings or area.

3.4.1 Roadway Lighting

Although functional, the design of roadway lighting has a significant effect on the overall appearance of the Base. Style of light fixtures and poles should reflect the road hierarchy. Roadway lighting style for major roads must be consistent basewide across the various districts. Since the general architectural style on Mainside is Georgian, appropriate light fixtures and poles for major roads should be of the same or matching style. The poles should be ornamental with a flared base and a capital, and poles and light fixtures should be well-detailed, made of cast iron and glass or similar materials.

Figure 3-18: Precedents for selecting style of light fixture - Barnett Avenue lighting (mid 1940s) [7]; OCS parking lot;

NOTE :
[7] USMC Photo 31487 in Fleming, Lt. Col. C. A., et.al., *Quantico: Crossroads of the Corps*, History and Museums Division, U.S. Marine Corps, Washington, D.C., 1978, p.74.

3.4.2 Parking and Walkway Lighting

Lighting for parking lots and walkways should match the architectural style and landscape elements in the vicinity. These fixtures may be unique to a district or local area. Style may be dictated by importance or visibility of the area, level of use and budgetary constriants.

Walkway lighting is appropriate for pedestrian paths, plazas, outdoor seating and other domestic scale public open space. Lighting is to be designed for promoting a sense of security and avoiding accidents. Walkway lights should have enough peripheral distribution to illuminate the usable area, such as the walkway or seating area, as well as the immediate surroundings.

3.4.3 Low Level and Wall Lights

Low level lighting and wall lights are provided to complement the ambient lighting and as accent lighting to highlight significant landscape features or groups of plantings *(Figure 3-19)*. Style of fixtures should match other light fixtures and architectural and landscape elements in the area.

Figure 3-19: Types of Complementary lighting [8]

NOTE :
[8] Harris, C.W. and Dines, N. T., *Time-Saver Standards for Landscape Architecture*, McGraw-Hill Book Company, New York, USA, 1988, p. 540-10.

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3.5 Signage

Some principles that should be followed in the design and location of all signage on the Base :

- Signs should be consolidated into a unified system to avoid landscape clutter.
- Combine signs with lighting fixtures to reduce unnecessary posts and to enhance illumination of signs.
- Information signs should be placed at natural gathering points and should be included in the design of site furnishings (such as kiosks).
- Avoid placement of signs where they may conflict with vehicular or pedestrian traffic, door openings or vehicular operation.
- Sign location should not be visually obstructed by parked vehicles, site furnishings, or other objects.
- Information contained on a sign should be as concise and clear as possible.
- Lettering and graphic symbols should be bold and simple.
- Contrasting color schemes (light images on dark backgrounds) that make signs easier to read should be used.

3.5.1 Identification Signs

This set of guidelines will provide continuity in the exterior signage used at MCB Quantico. The identification signs introduce the Base to the surrounding community and to those who work at and visit the site. Functionally, they are important to quickly identify districts and buildings which help in orientation and circulation around the Base.

Entrance Gate Signs

Entrance gate signs must create a lasting first impression that will set the tone for the visitor's recollection and mental image of the campus.

The supporting structure will be of brick and poured Portland cement with a smooth, floated finish to match the existing architecture of the Base. Technical drawings for the sign and supporting structure must be approved by the Base prior to construction.

The proposed entrance sign for the MCU campus is a good example of an appropriate entrance sign *(Figure 3-20)*.

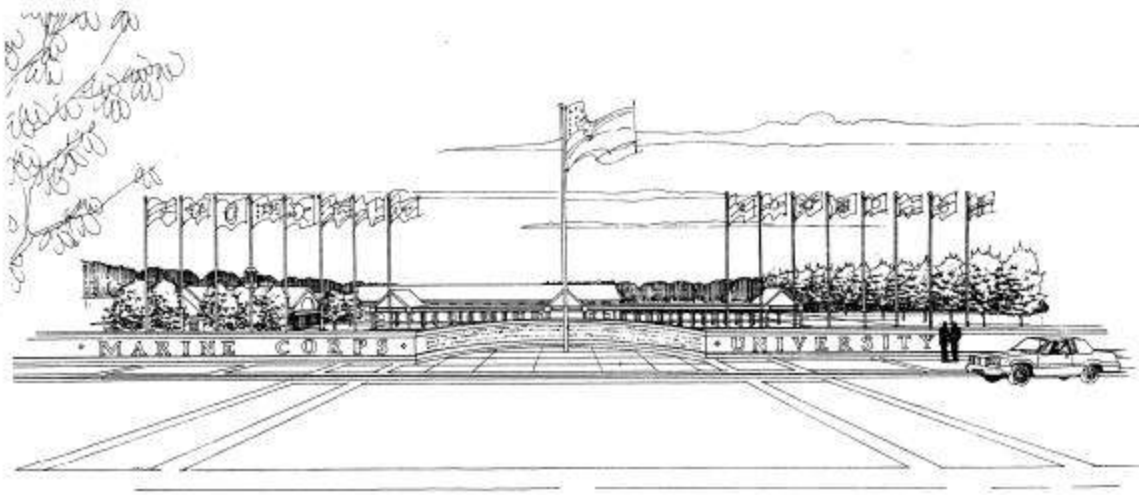

Figure 3-20: Flag Court at Entrance of MCU

Type C 1, Building Identification Signs

The major function of building identification signs is to identify buildings by the organizations using them. They will serve to introduce visitors to the buildings and should be placed adjacent to main entrances as required for proper exposure.

Color : Colors will be standardized on all signs. Background will be dark bronze color approved by the Base as the standard. All lettering will be reflective or illuminated white. For reflective signs, 3M Scotchlite, engineering grade, white letters are recommended.

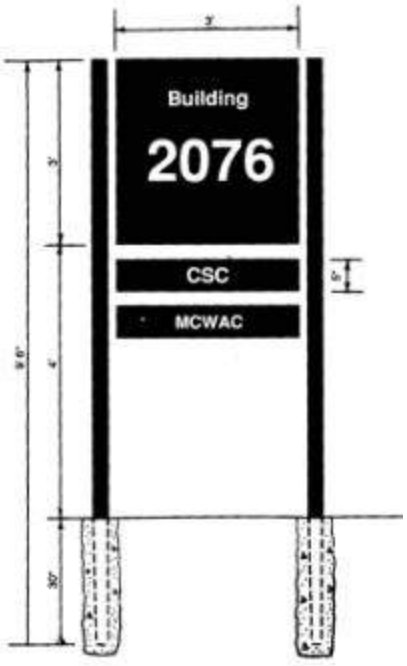

Figure 3-21: Building Identification Sign

Copy : It is recommended that the top panel be a standard size of 30" x 30" with 4" Helvetica Medium, upper and lower case lettering on the top line and a 12" numeral in the same type below. All lettering on supplemental panels will be 3" Helvetica Medium, centered. Standard abbreviations may be used as required. Messages on supplemental panels will be limited to major occupants of the buildings needing the most exposure. All wording on signs must be approved by the Base prior to ordering signs.

Post Design : All posts and framing for signs will be standardized for uniformity. All posts will be constructed of 1 3/4" x 4" x 0.125" extruded aluminum with a dark bronze anodized or painted finish to match existing directional and building identification signage. The standard post length for signs will be 9' 0", considering 30" below grade, and 6' 6" between grade and the top of the sign. All posts for signs will be buried 30" in the ground and surrounded by concrete for stability.

Framing for sign panels will be dark bronze in color and constructed of 2" hardened 0.125" aluminum channels, or two 1" angles connected to the posts with sheet metal screws from the inside of the signpost, or welded. Sign faces will be constructed of 0.125" aluminum extrusions, 2" thick, cut to fit frames, and will be fastened to frames with theftproof screws countersunk flush with channel surface for good appearance. Standard prefabricated architectural units, rather than fabricated raw material, are recommended in most cases for sign framing and posts.

Type C 2, Building Number Signs

Color : Colors will be standardized on all signs. Background will be a dark bronze color approved by the MCU as the standard. All numerals will be 3M Scotchlite, engineering grade white.

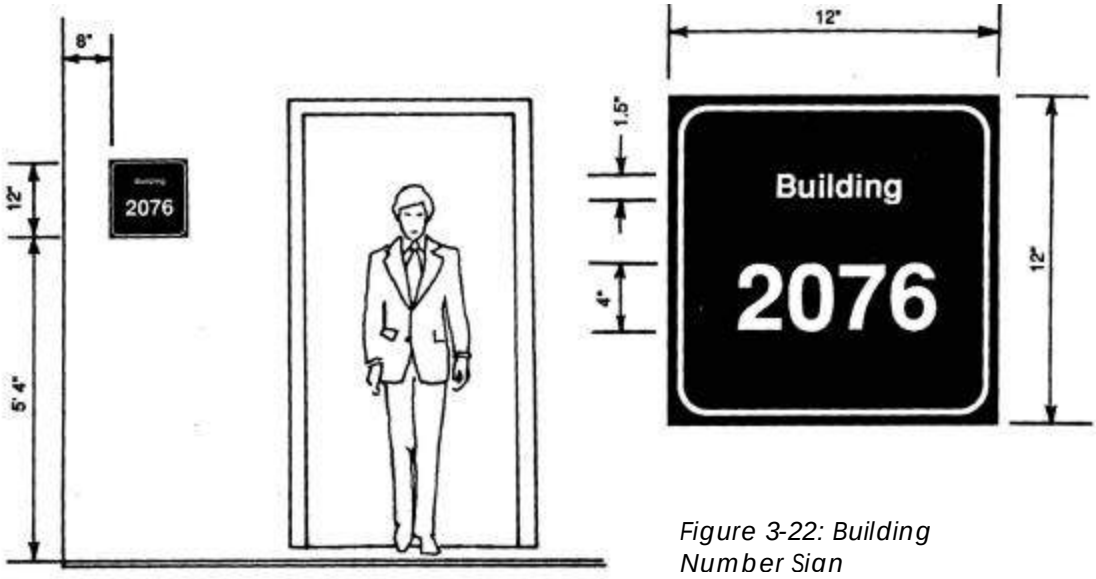

Figure 3-22: Building Number Sign

Copy : It is recommended that the numerals be of Helvetica Medium to match other architectural signage. Signs will match Type C 1, building identification signs in layout, except they will display only building numbers. All letters will be Helvetica Medium, 1.5" in height. All numerals will be 5" in height and will be optically centered under the word BUILDING170.

Signs will be 1/8" x 12" x 12" tempered aluminum. All signs will be placed 5' 4" from the ground level to the bottom of the sign on exterior walls near the visible corners of buildings. Signs will not be placed closer than 8" from the edges of buildings.

3.5.2 Directional Signs

Directional signs should be located along major roads and at key intersections to indicate the direction towards key points on the Base. They play a significant role in visitors' orientation, circulation and access around the Base.

Type A, Vehicular Directional Signs

Effective direction signs can help make the road system easier to use and can help avoid confusion and frustration. Used in conjunction with adequate street identification and site orientation signs, they form the key to visitor orientation. The major function of vehicular directional signs will be to direct motorists to key points on the Base. These key points include: the Main Gate, MCU, Hospital Point, the Town of Quantico, MCAF, the Medical Clinic, the Exchange and the Back Gate.

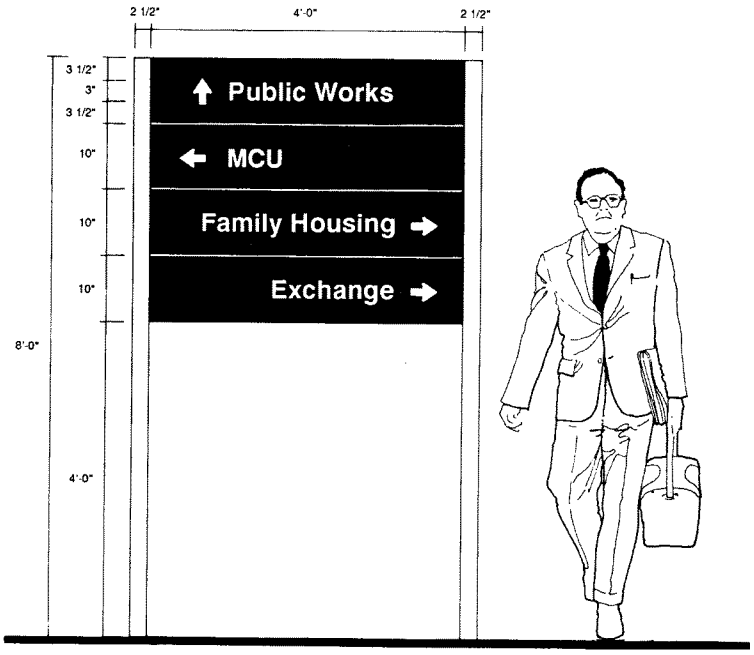

Figure 3-23: Vehicular Directional Sign

Color : Colors will be standardized on all signs. Background will be a bronze color approved by the Base as the standard. All lettering symbols will be reflective or illuminated white. For reflective signs, 3M Scotchlite, engineering grade white letters are recommended.

Copy : The Type A directional sign is designated for use on roadways with a posted speed of 25 miles per hour or less. A separate slat (10" x 4' 0") for each destination should be used so that destinations can be easily changed without remaking the entire sign face. All lettering will be 3" high, Helvetica Medium, upper and lower case. No other letter style will be used for directional signs. Copy may be on one side of the sign or both. Standardized abbreviations for certain areas may be used if approved by Base.

Post Design : All posts and framing for directional signs will be standardized for uniformity. All posts will be 1.75" by 4" by .125" extruded aluminum with a durondonic bronze anodized or epoxy finish to match existing directional signage. The maximum total post length for directional signs will be 11' 0", considering 36" below grade, 30" between grade and bottom of sign, and 48" maximum for sign. It is recommended that a standard height of 8' 0" from ground level to the top of the sign be used for all directional signs. All posts for directional signs will be buried 30" in the ground and surrounded by concrete for stability. Standard prefabricated architectural units, rather than fabricated raw material, are recommended in most cases for sign framing and posts.

Sign panel units will be easily interchangeable and all units will be installed flush to appear as one unit. Framing for the sign panel will be constructed of 2" (inside dimension), hardened, .125" aluminum channel, or two 1" angles connected to the posts with steel metal screws from the inside of the sign post, or welds. Sign faces will be constructed of .125" aluminum extrusions 2" in depth and 5" side cut to fit lettering requirements. Panels will be fastened to frames with theftproof screws countersunk flush with channel or angle surface for good appearance.

Type B, Pedestrian Directional Signs

This type of sign will provide directional guidance for pedestrians on the Base. It will provide direction from both sides and will be used only in heavily travelled pedestrian areas where vehicular direction signs cannot be seen.

Color : Colors will be standardized on all signs. Background will be a durodonic bronze color approved by the Base as the standard. All lettering and symbols will be reflective. 3M Scotchlite engineering grade, white, pressure or heat sensitive graphics are recommended.

Copy : Allowance for 2" of margin space should be planned for top and bottom, and a 1" space between lines of copy is recommended. Lettering will be 2", left justified, Helvetica Medium, upper and lower case. Maximum characters per line will be eight, considering minimum 1" left/right margins. Because of limited space, standardized abbreviations should be used whenever possible. Use standard arrows.

Post Design : All posts for pedestrian direction signs will be standardized for uniformity. They will be fabricated from 2" x 3" x .125" aluminum extrusions and finished a durodonic bronze to match existing directional signage. Posts will have the capability to hold one or two sign panels as shown, but no more than two panels per post will be allowed. 18" x 18" sign panels will be either the framed type as shown or single, .125" thick panels. All panels will be finished to match posts. A standard height of 4' 0" from ground level to the top of the sign will be used for installation.

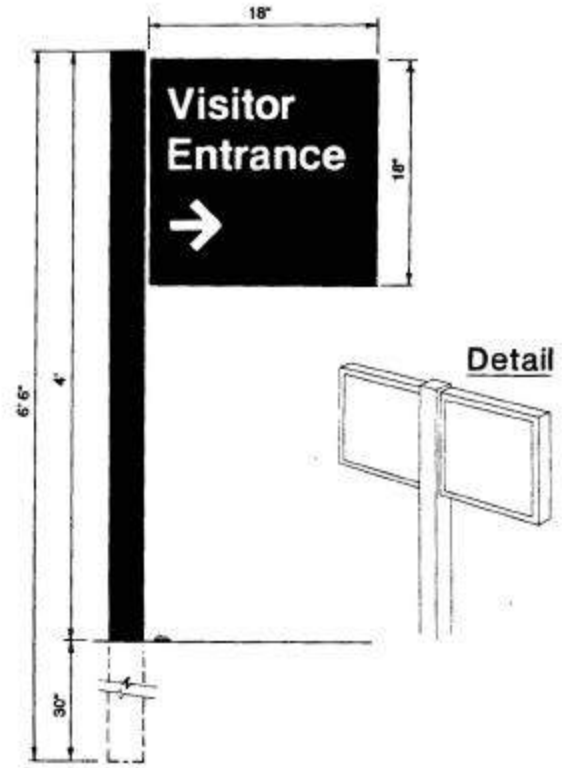

Figure 3-24: Pedestrian Directional Sign

3 . 5 . 3 Type R, Regulatory Signs

A systematic approach to regulatory signage is important. Without a master plan for signage, the installation can become cluttered with too many types of regulatory signs. There are three main types (classes) of regulatory signs: highway standards, base warning, and parking regulation signs.

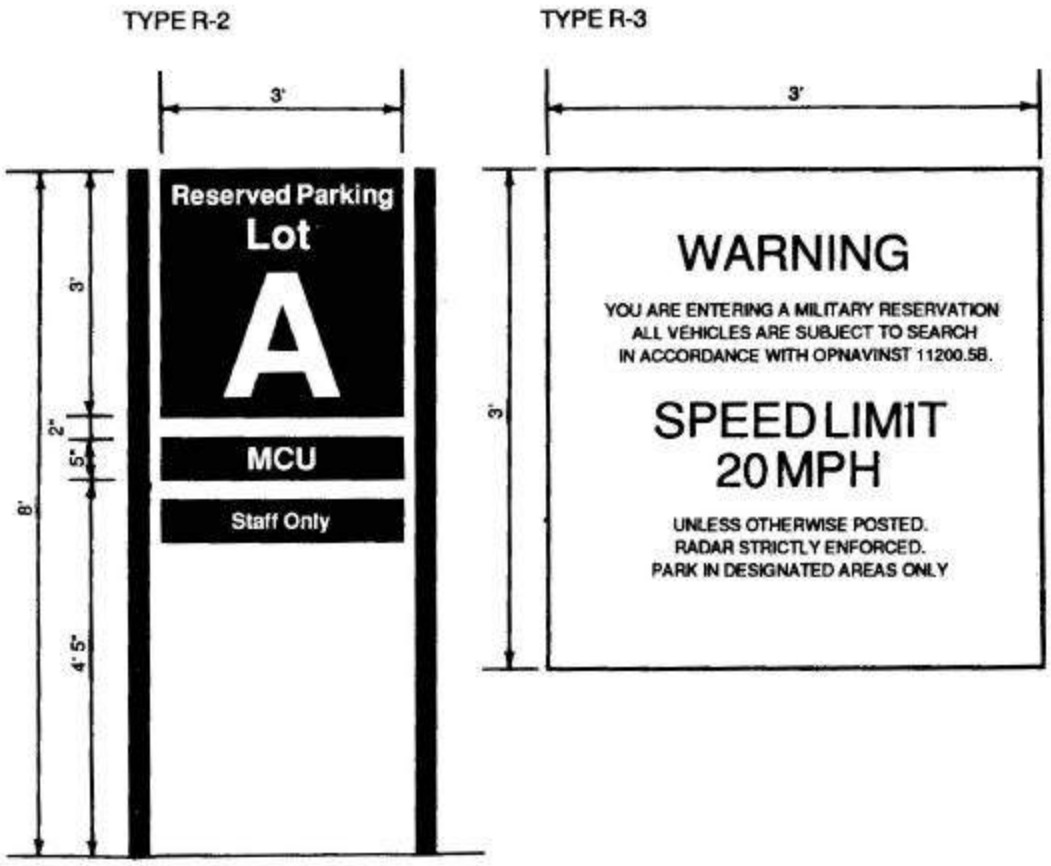

Figure 3-25: Regulatory Signs

Type R 1: Highway Standard Signage

Highway/Street standards are used for signs that regulate vehicular traffic on the Base. In the United States, the standards are described in the Manual of Uniform Traffic Control Devices published by the Federal Highway Administration. Any deviation from these commonly accepted standards for highway safety signs could create serious safety hazards. Signs should adhere to designs that are familiar to motorists and used on roads outside the Base.

Type R 2 and R 3: Warning Signs

Warning signs are used to maintain security on the Base perimeter and other specific areas in the area. The MCU installation warning sign, controlled area sign, and restricted area sign should be used at all personnel and vehicle entry points. Other additional notices, such as a solicitation warning or photography prohibition, may be required. These notices may be placed directly below the installation warning sign or on a separate sign structure.

Color : Sign lettering for Type R 2 and R 3 signs will be reflective white. Sign background will be dark bronze. Posts and supporting angles will be dark bronze. Lettering for R 2 signs will be bright red and dark blue. Lettering for R 3 signs will be reflective white. All lettering is Helvetica Medium, upper case, height, centered.

Post Design : Post will be constructed of .125" x 1 3/4" x 4" extruded aluminum with a dark bronze anodized or painted finish to match existing directional signage.

3.6 Site Elements

Site elements on MCB Quantico include utilitarian items such as benches, bus shelters, trash receptacles and fences as well as more symbolic ones such as flagpoles and outdoor exhibits. Examples of recommended styles for common site elements are illustrated in Figures 3-26 through 3-33. With proper coordination of style and location, site elements can not only fulfil their functions but also contribute to the overall visual quality and identity of the Base.

3.6.1 Benches, Seats and Tables

- Benches, seats and tables should serve waiting and resting needs at locations such as waiting areas, plazas, along walkways and near recreational areas.
- Benches and seats should be set back 2 feet from adjacent sidewalks to provide ample legroom and not impede pedestrian traffic.
- A space of 4 feet should be provided at the end of benches and seats to enable strollers and wheelchairs to be parked.
- A space of 5 feet should be provided between the front edge of the seat and any stationary obstacle including trash receptacles or sign posts.
- Seat surfaces should be pitted or slotted to shed water.
- For informal seating, seating walls can be incorporated with planters and landscaping. Seating walls should be 18”-22” high and 12”-18” wide.

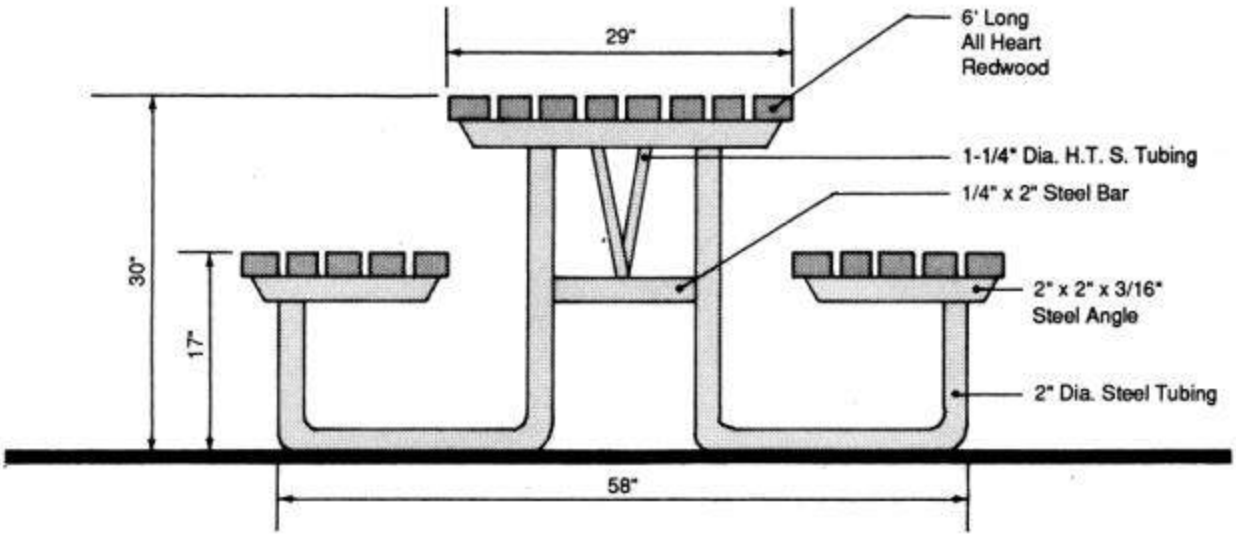

Figure 3-26 : Appropriate picnic table style

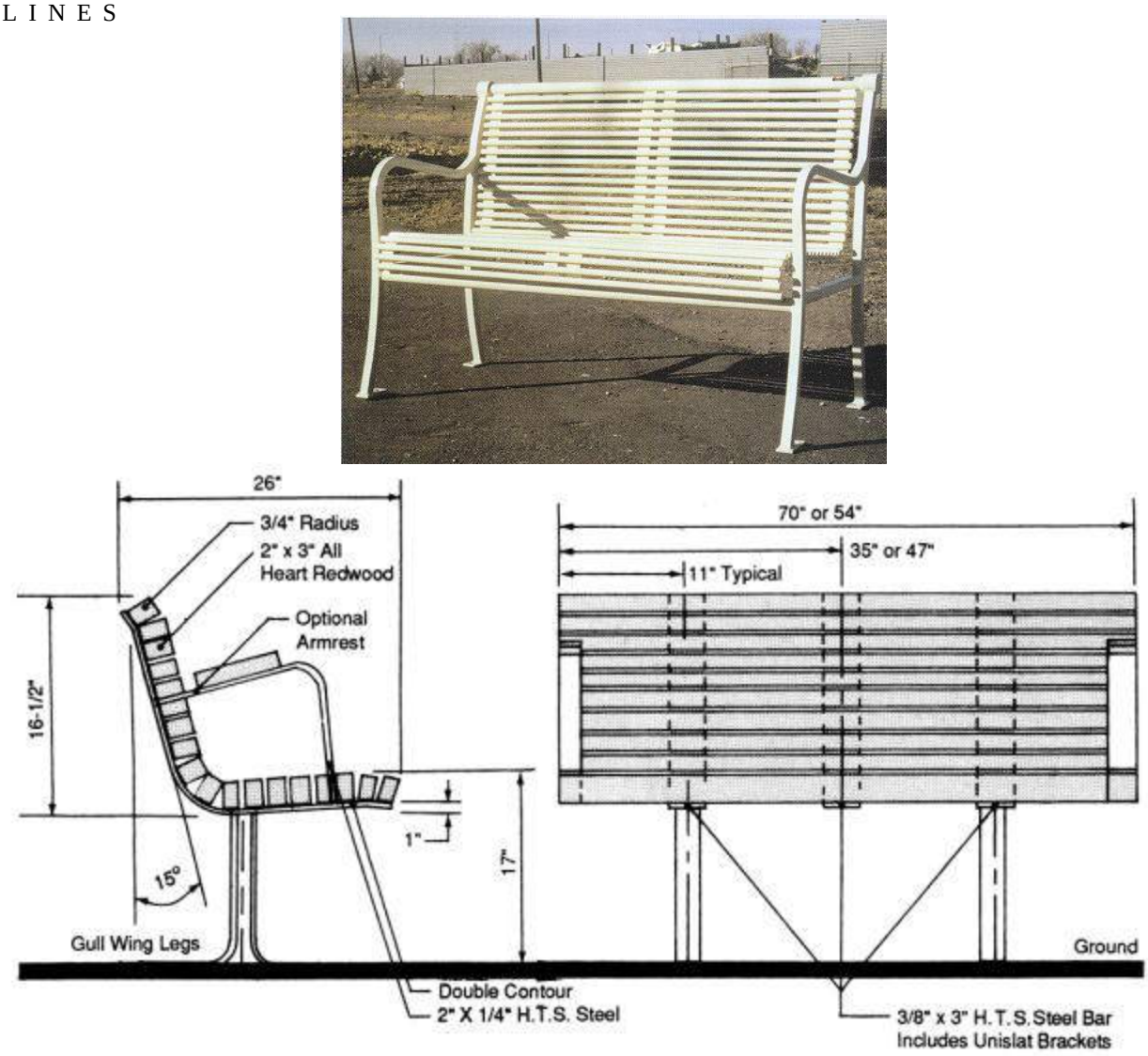

Figure 3-27: Some appropriate benches [9]

3.6.2 Trash Receptacles

- Trash receptacles should be located conveniently and strategically to collect litter. Good locations are along walkways, near bus stops, recreation areas and plazas.
- Size and style of trash receptacle should be appropriate to surrounding elements and level of use.
- Trash deposit openings should be about 3 feet above ground level.

NOTE :
[9] McGraw-Hill Construction Information Group, *Sweet's General Building and Renovation Catalog File*, 1999

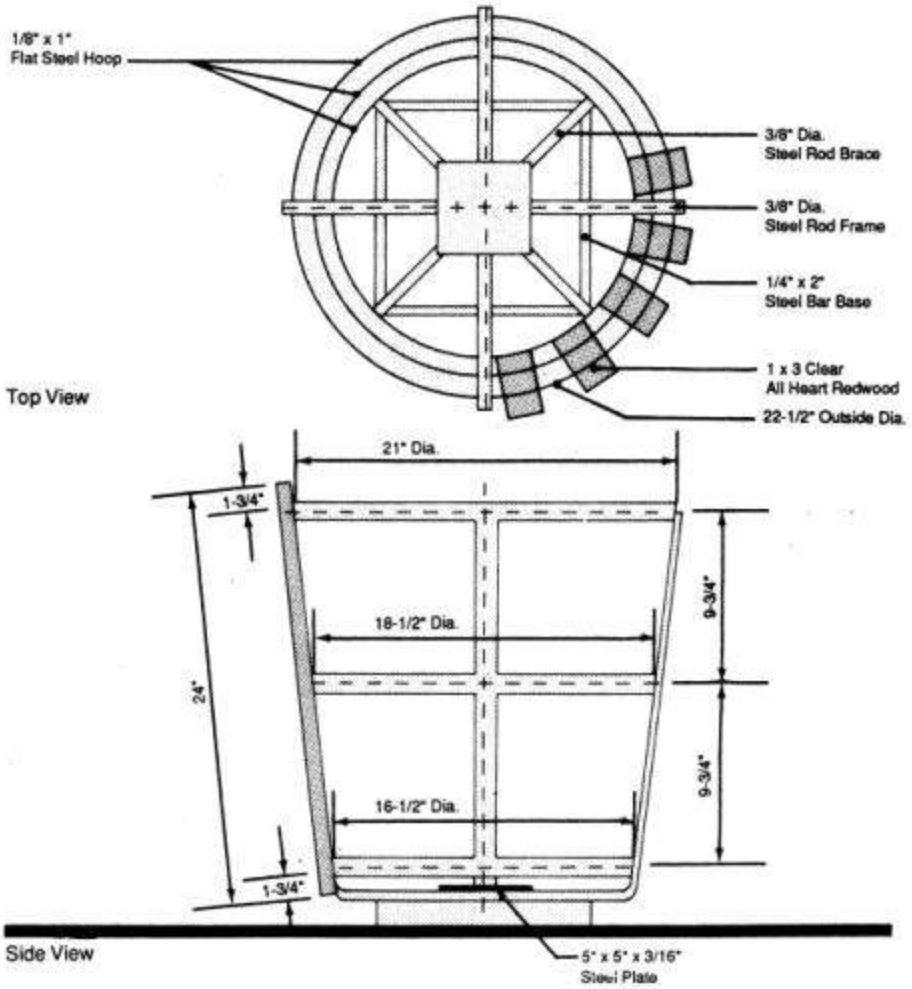

Figure 3-28 : Some appropriate trash receptacle design styles [10]

NOTE :
[10] ibid

3.6.3 Bicycle Racks

- Bicycle racks and other amenities for bicyclists facilitate the use of bicycles and encourage an alternate mode of transport other than the automobile. Bicycle racks should be provided at all reasonable points of destination including BEQs, fitness centers, administrative buildings and community service facilities.
- Bicycle racks must allow a wheel and the frame to be anchored to prevent detachment and theft of a portion of the bicycle.

Figure 3-29 : Recommended style of Bicycle Rack

3.6.4 Bus Shelters

- Bus shelters should be provided at Base-shuttle bus stops with a high level of use or long waiting periods.
- Shelters should be located with sight lines to approaching buses.
- Bus shelters should have a minimum size of 5 feet by 8 feet (40 sq.ft.)
- A minimum setback of 3'-6" should be provided.
- All waiting areas should have hard-surface paving that drains adequately to prevent puddles.

Figure 3-30 : This MCB Quantico gatehouse from the 1940s can be used as a precedent for Bus Shelters and similar structures in Historic Districts [11]

3.6.5 Fencing and Screening

- Fencing and screening elements are to be used to mark boundaries, provide security, visual and wind screening.
- Fencing material, type and size must be selected as appropriate for particular locations and functions. e.g. Fencing near the Main Gate and other high visibility areas should be ornamental and designed to enhance the visual character of the area.
- All dangerous projections, such as fastening devices and edges, should be rounded off, knuckled or capped.

Figure 3-31 : Ornamental Fencing appropriate for high visibility areas [12]

NOTE :
[11] USMC Photo 31487, ibid
[12] McGraw-Hill Construction Information Group, ibid

- Acceptable types of fencing and screening include chainlink fences for security or industrial areas, ornamental steel picket fences, brick walls, earth berms and vegetative screening.
  (Also refer to section 3.8.2 : Security Fences)

3.6.6 Bollards

- Bollards are used to control and direct vehicular traffic by providing visual deterrents and physical barriers.
- Bollards can be installed as permanent fixtures or they may be removable for allowing limited vehicular access.
- Bollards are most commonly used to restrict vehicular access to paved areas that are for pedestrian use or to areas that are exclusively for emergency and/or service access. Bollards are also used as vehicle barriers against forcible entry into controlled access areas.
- All bollards should be aligned along desire lines of pedestrian and bicycle travel, so that they do not form obstacles for pedestrians and bicyclists.
- Chains attached to bollards are not recommended because they present a hazard to pedestrians and bicyclists, especially because they are difficult to see from a distance or in dim light.
- Simple designs with smooth surfaces, minimal projections and rounded edges are the most suitable styles.
- Bollards should be installed with adequate space between them (min. 8 feet) to allow pedestrian, bicycles, strollers and wheelchairs to pass through the openings.

Figure 3-32 : Some examples of appropriate bollards [13]

NOTE :
[13] ibid

3.6.7 Retaining Walls

- Retaining walls are to be used only when graded and landscaped slopes or embankments are not feasible. Retaining walls are a more costly and visually harsher solution for negotiating changes in surface levels.
- Terracing can be used for retaining walls of more than 5 feet height, to avoid large blank facades.
- The wall surface should be softened by using overhanging plants or materials with textured surfaces.
- Materials selected should have an intrinsic aesthetic quality and should require minimal maintenance and additional treatment to blend with the surrounding architecture and landscape elements.

Figure 3-33 : A terraced retaining wall, with matching steps, built from concrete blocks is durable and visually appealing [14]

NOTE :
[14] ibid

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3.7 Utilities

Mechanical, heating, air conditioning, plumbing, and electrical equipment and utilities have a major impact on the visual environment of a site. While it may not be feasible to relocate or place all these utilities underground, consideration should be given to the following guidelines for new construction, replacement and long-term planning.

- All mechanical, heating, air conditioning, plumbing, and electrical equipment should be screened or hidden from view, especially from public spaces.
- Power and steam lines should be located underground where possible. Where overhead power lines and pipes cannot be avoided, they should be located away from primary vehicular circulation routes. Existing creosote poles supporting overhead lines should be replaced with concrete poles.
- Placing existing lines underground should be included as part of any adjacent or nearby construction, renovation, or demolition projects, and during replacement or repair work of pipes, especially in more visible areas.

Figure 3-34 : The existing stormwater detention pond near the Marsh Center is functional as well as visually appealing

- Manmade retention/detention ponds should be made more visually appealing by emulating natural water bodies, providing appropriate landscape plantings and using organic shapes *(Figure 3-34)*.
- Vents and louvers should be carefully detailed and integrated into the design of the facade *(Figure 3-35)*.
- Dumpsters should be screened using constructed or vegetative screening. Adequate area should be provided for truck access and service activity.
- Service areas and access should be screened using planted earth berms.

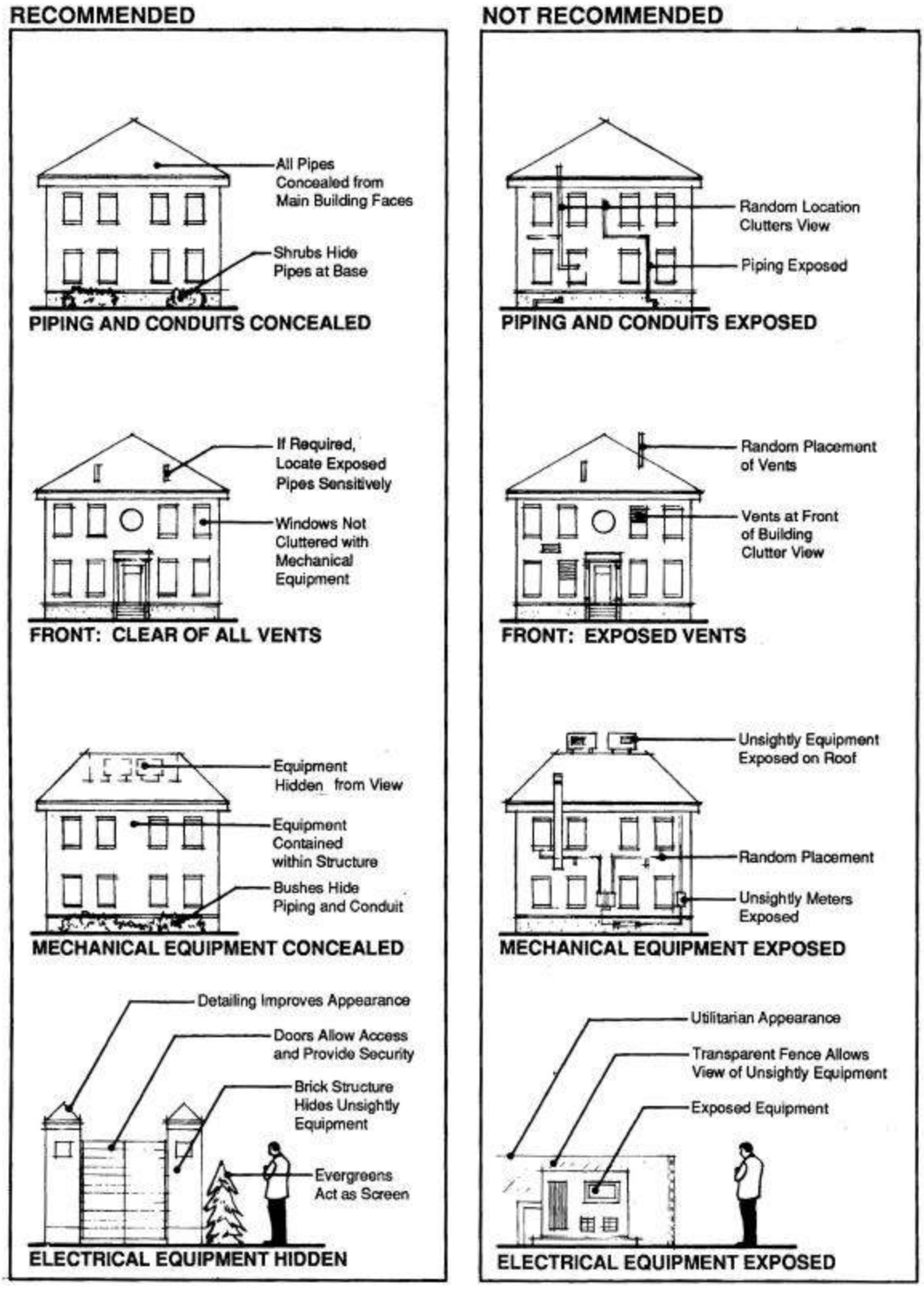


Figure 3-35 : Screening and Concealing Utilities

3.8 Security

It is important to plan for appropriate physical security of all Department of Defense (DOD) personnel, installations and assets to minimize damage, to reduce loss or theft of assets and to ensure that war-fighting capabilities are maintained. In addition to installing a security system to mitigate assessed threat, precautionary measures can be implemented for all construction and landscape projects.

Minimum Site Work Protective Consideration :

- Eliminate potential hiding places near the facility.
- Provide unobstructed view around the facility.
- Provide adequate facility separation from installation boundary.
- Eliminate lines of approach perpendicular to building.
- Minimize vehicle access points.
- Eliminate parking beneath facilities.
- Locate the facility away from natural or manmade vantage points.

The security guidelines that follow are applicable basewide. Certain areas may need more stringent measures due to restricted access or if they are assessed as vulnerable to a greater level of threat. An integrated security system must be designed for these areas and facilities. Security measures must be focussed on assets to be protected.

3.8.1 Force Protection

Due to the heightened awareness of the terrorist threat to DOD facilities, the DOD and the Department of the Navy have developed antiterrorism/force protection (AT/FP) planning and construction standards. DOD AT/FP Minimum Construction Standards (Draft, 12 May 2000) apply to new construction and major renovations undertaken by all services. OPNAV 3300.55 outlines the Navy Combating Terrorism Program Standards. Additional Navy-specific guidance is provided in NAVFAC Interim Technical Guidance AT/FP (19 January 2000). It is NAVFAC policy to include cost effective AT/FP as part of military construction (MILCON) project scopes.

General areas of consideration for AT/FP relative to exterior architectural and site features include:

- Establishment of stand-off zones between inhabited structures, including bachelor quarters (BQ) and primary gathering structures, and the potential location for an explosives detonation
- Perimeter surveillance, fencing and barriers
- Controlled perimeter access, vehicle inspection and control points
- Land forms
- Building orientation and form
- Road location
- Design and location of facility entrances, windows and doors

- Site access/egress/signage
- Parking lot location and lighting
- Design and location of utilities
- Incorporation of surveillance closed circuit television (CCTV)

Minimum Construction Standards relating to sitework, facility separation, stand-off, parking and roadways for the construction of new or the renovation of existing inhabited structures are summarized below.

Sitework, Facility Separation and Stand-off Guidelines

- Eliminate, minimize or mitigate lines of approach perpendicular to inhabited structures.
- Minimize vehicle access points for new construction.
- Coordinate with the installation master plan with respect to siting new facilities with large non-DOD visitor populations away from inhabited structures where possible. Relocate existing BQ and primary gathering structures away from facilities with large non-DOD visitor populations where possible.
- Avoid conditions within 10 meters of inhabited structures for new construction or within 10 meters of existing BQ and primary gathering structures that permit concealment of aggressors or would obscure the view of objects or packages from the view of security personnel.
- Minimize exposure to surveillance and observation of assets within inhabited structures from uncontrolled natural or man-made vantage points for new construction.
- Facility stand-off distances are intended to limit the progressive collapse of structures. Minimum standoff distances from inhabited structures (including BQ and primary gathering structures) to the installation perimeter, roads, parking and adjacent structures are identified in the Minimum Construction Standards for new construction. For renovation of existing facilities, the minimum facility stand-off only applies to BQ and primary gathering structures.
- Locate trash containers 10 meters from inhabited structures (new construction only) and 25 meters from BQ and primary gathering structures (new construction and existing structures).
- Maintain a minimum building separation of 10 meters for new BQ and primary gathering structures. When the separation distance between an existing inhabited building and existing BQ, primary gathering or combinations of those occupancies is less than 10 meters, ensure the building cladding can sustain an equivalent degree of damage for 1 kilogram TNT at one-half the available separation distance.

Parking and Roadways Guidelines

- Parking beneath new inhabited structures is discouraged. If unavoidable, mitigate by designing columns assuming the loss of lateral support at any floor level to limit progressive collapse of the

building. Control access to the parking structure with vehicle arms, etc.

- Parking beneath existing BQ and primary gathering structures is strongly discouraged. If unavoidable, mitigate by designing frame retrofits to survive a 25 kilogram TNT explosive placed adjacent to a single column. Allow access to the parking structure to authorized personnel only.
- Parking and roadways shall be located 10 meters from inhabited structures.
- Parking and roadways shall be located 25 meters from primary gathering and BQ structures for new construction and at the distances indicated in the Minimum Construction Standards for major renovations of BQ and primary gathering structures. When the standoff distance is not available, it should be mitigated as outlined in the standards.
- Where operational requirements require a drive-up or drop off area or a drive through lane of traffic near a building, ensure that the lane is clearly defined through the use of physical barriers and that its intended use is clear. Additional specific criteria for drive-up or drop off areas or a drive through lane are identified in the Minimum Construction Standards.

Separate standards have been developed for new and existing family housing. For structures containing up to 12 family units per building the following standards apply:

- For new construction, maintain a minimum stand-off distance of 25 meters from installation perimeters and roads, streets or highways external to housing areas. Compliance with minimum stand-off distances is not required for existing family housing, but where existing stand-off distances for housing are 25 meters or less, those distances will not be encroached.
- For new and existing family housing, screen housing areas from roads, streets, highways external to housing areas and other vantage points where possible using privacy fencing, vegetation, trees, etc.

For structures with more than 12 family units per building, the minimum standards associated with new construction or the renovation of existing BQ and primary gathering structures shall be used.

It should be noted DOD and Navy AT/FP planning and construction standards are still under development. The reader is referred to the current version of the publications referenced above for a discussion of the specific standards and guidelines relative to new construction and the major renovation of existing facilities.

3.8.2 Security Fences

Security fences alone are not likely to stop a determined intruder. They must be augmented by security force personnel and other means of protection, detection, delay and assessment.

Security fences are useful to:

- define the perimeter of the Base or a restricted area on the Base
- prevent accidental entry
- provide a physical and psychological deterrent to entry while serving notice that entry is not freely permitted
- optimize security force operations
- facilitate detection and apprehension of intruders
- channel and control the flow of personnel and vehicles through designated portals or gates

Chain link fences are the most common type of fencing used to enclose restricted areas. They require minimal maintenance and provide little concealment for intruders. In areas of high visibility or where aesthetics are a concern, alternatives to standard chain link fencing are appropriate and fulfil the same functions. Perimeter security fences should be posted with signs indicating the restricted area. Additional active and passive vehicle barriers may include pop-up barriers, across-the-road bar-type barriers, bollards, concrete planter boxes and concrete median barriers.

Chain link Fence Materials

Taut wire or standard chain link metal fabric with various enhancements are appropriate for perimeter fencing of the Base.

Gauge/Material	9-gauge (3.8mm) steel wire mesh
Mesh	Less than 2 inches (50mm) per side
Coating	Zinc coated, aluminium coated or polyvinyl chloride (PVC) over zinc or aluminium coating
Tension Wires	Wire, rail, cable (attached at top or bottom)
Support Posts	Steel pipe-formed sections, H-sections, square
Height w/ Outriggers	8 feet (2.4 m)
Fabric Tie-Downs	Buried, 2-inch (50 mm) minimum encased in concrete or staked
Pole Reinforcement	Buried, encased in concrete
Gate Opening	Single or double swing, cantilevered, wheel-or overhead-supported

Alternate Fence Materials

When fencing is located in a prominent place, aesthetics must be considered while choosing a design. In highly visible areas, ornamental fencing is appropriate. Alternative materials for fencing include:

- Galvanized and powder coated steel
- Polyester color coated aluminium
- P.V.C.
- Vinyl coated chain link
- Wrought Iron

3.8.3 Gates

Gates must be as effective as their associated fence to provide an equivalent deterrent. Gates are useful to :

- facilitate control of authorized traffic and its flow
- establish specific points of entrance and exit to an area defined by fences
- limit or prohibit free flow of pedestrian or vehicular traffic, while establishing a traffic pattern for restricted areas

3.8.4 Sentry Booths and Gatehouses

- Sentry booths and gatehouses are the points where personnel and vehicle control and badge exchange operations are conducted.
- Site layout should allow for vehicle inspections or search without causing undue traffic backups. A turnaround should be provided just inside the entry control point (ECP).
- A sentry booth or gatehouse should be provided at all entrance gates that are manned by security personnel on a full or part-time basis. They should be located as close to the entry gate to permit the personnel inside the structure to maintain constant surveillance over the entrance and approaches.
- Sentry booths should be designed to house the maximum number of personnel required to effect security requirements, as well as required electronic and gate control equipment (*Figure 3-36*). Ballistics and penetration resistance should be considered while selecting location and materials.

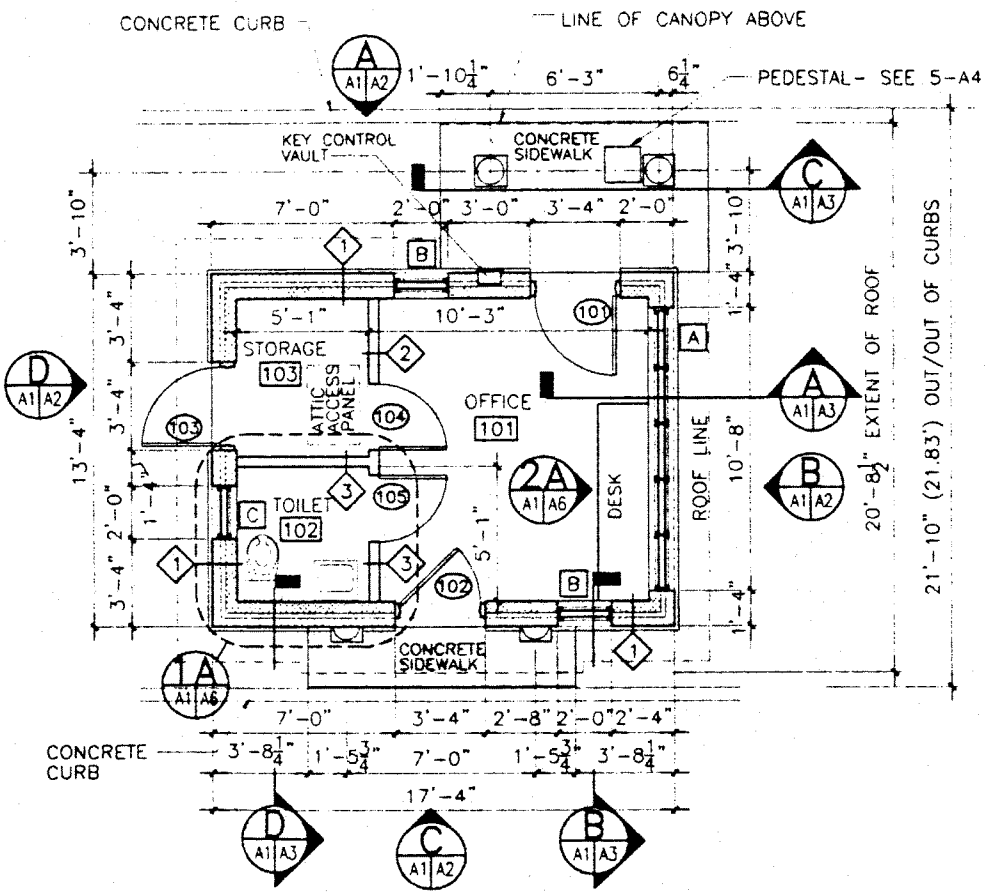


Figure 3-36 : Proposed Gatehouse plan for the Main Gate

3.8.5 Security Lighting

- Security lighting aids threat detection, assessment and interdiction.
- Lighting may also have value as a deterrent.
- Lighting increases the effectiveness of guards and CCTV by increasing the visual range during periods of darkness or by illuminating an area where natural light is insufficient. Lighting requirements for CCTV are considerably higher than those required for direct visual surveillance.
- Exterior security lighting is typically located along exterior perimeters and entry points of the site and buildings.

4.0 Priority Projects

This section describes the existing conditions and proposed improvements for four priority projects for MCB Quantico. The priority projects are areas that have been identified as high visibility spots on the Base that lack an appropriate visual environment. The proposed improvements elaborate on the design guidelines outlined in the earlier section and indicate specific designs and actions that can enhance the aesthetic appeal of the area.

Selection Process

Priority projects are specific improvements or concept designs for upgrading an area through the application of the BEAP. Typically priority projects focus on areas with high levels of public exposure that are critical to the Base image.

During the BEAP development, a number of high-visibility areas were targeted as requiring improvements. Potential projects to introduce additional outdoor amenities were also identified *(Figure 4-1)*. They include :

1) Pedestrian and Running Path (South) : A pedestrian (non-vehicular) corridor could be established parallel to Barnett Avenue along the railroad tracks between Range Road and Henderson Road. The path could serve runners or joggers, especially those starting from Larson's Gymnasium or the new fitness center, pedestrians and bicyclists. The path would be provided with shade trees, rest areas and amenities for pedestrians and bicyclists.

2) Pedestrian and Running Path (North) : A pedestrian corridor could also be established between Henderson Road and Potomac Avenue, along the railroad tracks and through parking lot PL-6. The trail could also connect to the proposed trail in the Town of Quantico and to the Fuller Road bike lane.

3) Improvements near the Proposed Fitness Center : The proposed Fitness Center has been sited well and will create a positive relationship between the barracks and fitness/ recreation. The pedestrian and bicycle circulation here can be facilitated by providing paths with shade trees and amenities including benches, drinking fountains, kiosks and trash receptacles. The paths should follow the existing and anticipated routes and connect logical destinations. Siting and screening of the proposed parking lots and retention pond can help to make them less conspicuous. Outdoor recreation and fitness areas such as exercise circuits, horseshoe pits and running paths can be sited to make optimum use of the open space in the vicinity.

4) Improvements near the Proposed BEQ : The proposed BEQ is located near the proposed Fitness Center and the existing Barracks Area. Pedestrian and bicycle connections between these areas can be provided for with a planned network of shaded paths and landscaped rest or activity areas. Outdoor gathering space may also be provided for the BEQ.

5) Open space around Bldg. 2005 : The open space around the barrack buildings can be designed as outdoor extensions of the barracks, providing appropriately designed areas for community gatherings as well as individual scale leisure. This area should provide a pedestrian connection to the fitness and recreation areas. The shuttle bus stop will serve all the facilities in the area and can become a major pedestrian amenity.

6) Open Space adjacent to Bldg. 2000 : The open space adjacent to the Dining Hall can be designed for community gatherings and outdoor events. Outdoor seating, art exhibits, and bicycle and pedestrian amenities such as an information kiosk, bicycle racks and drinking fountains can be provided to create an outdoor extension of the Dining Hall.

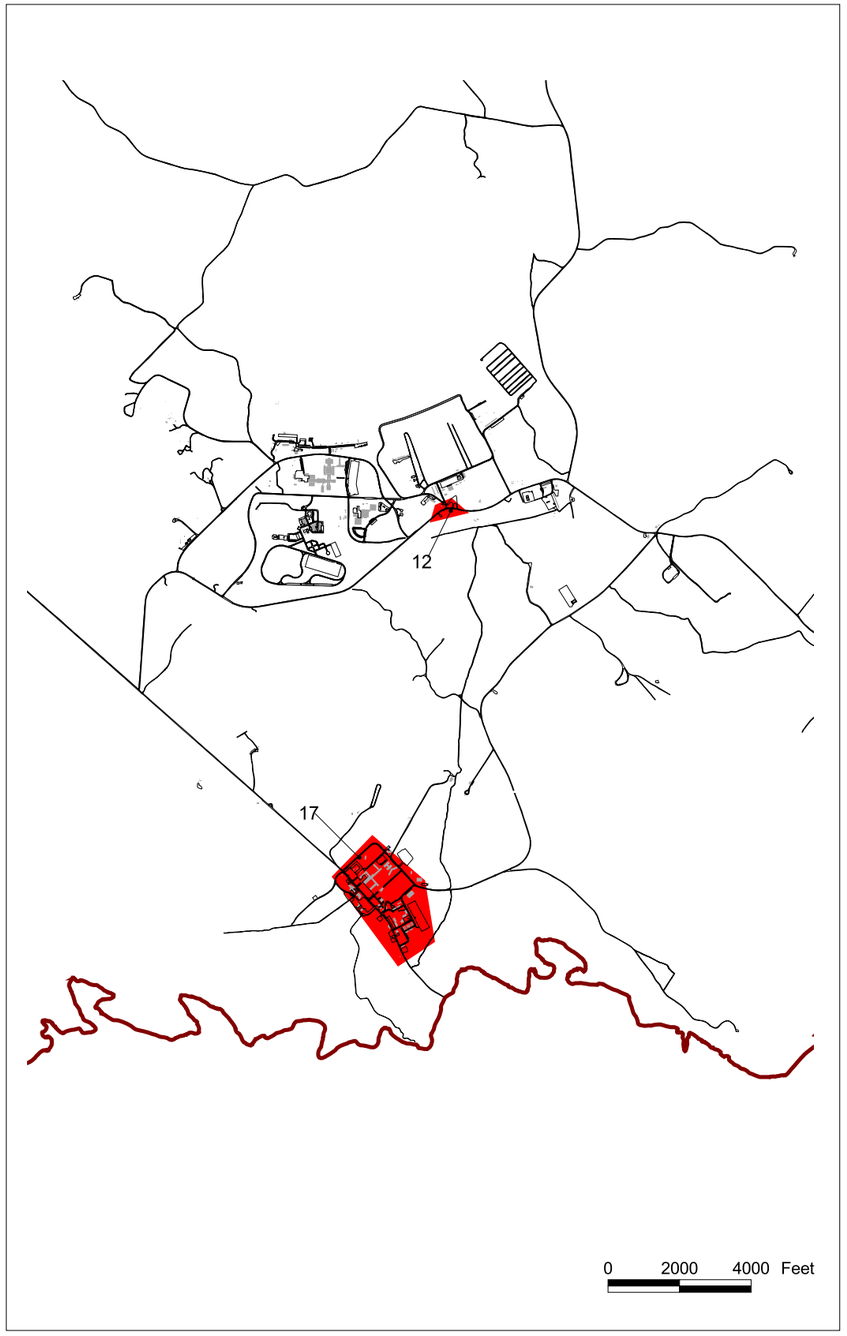
7) Open Space behind Bldg. 2000 : Similar to (6)

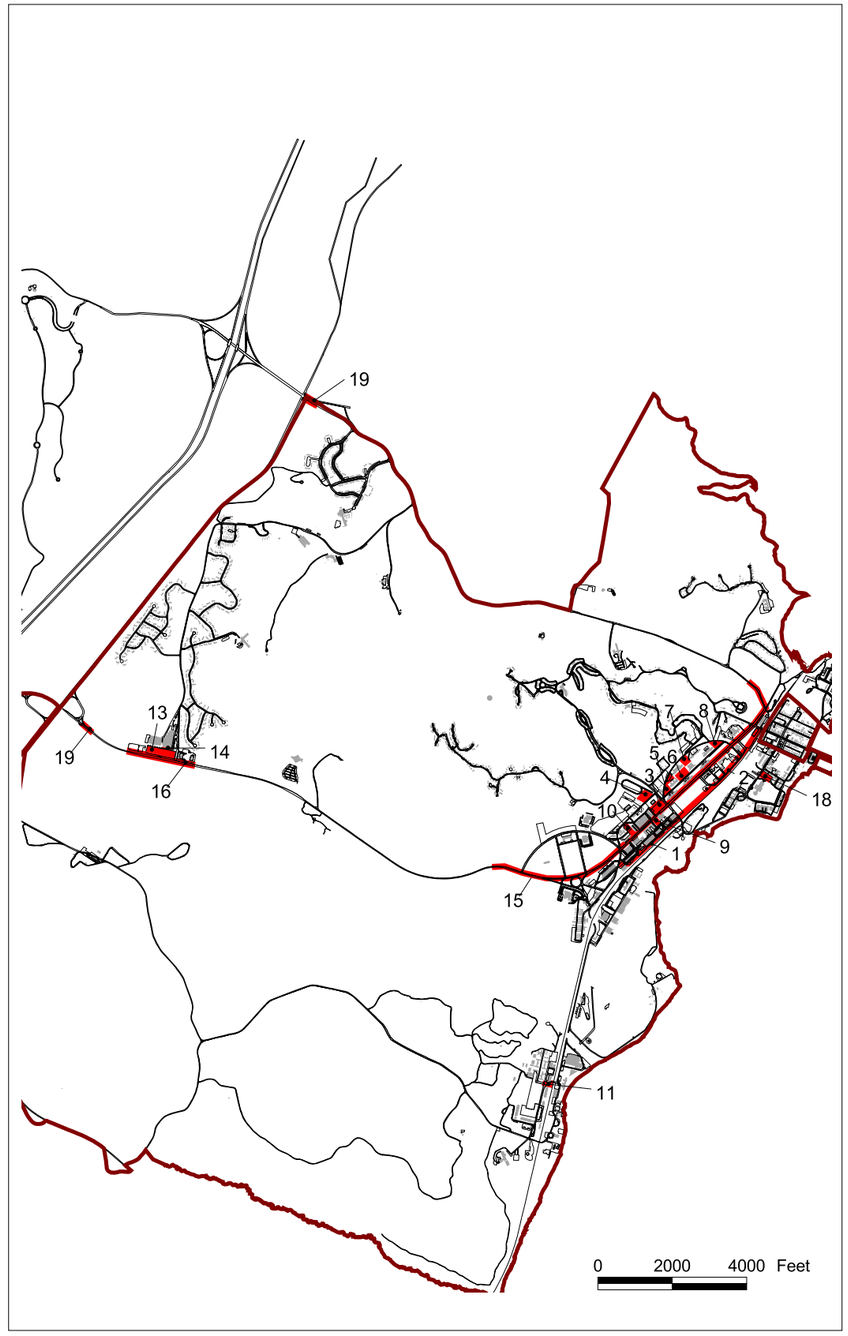
8) Open Space around Bldg. 2006 : Similar to (5)

9) Open Space near Power Plant : The development district of Barnett Avenue South lacks a planned network of open spaces. The open area adjacent to the power plant can be designed to provide a pedestrian plaza with amenities and a connection between the fitness center area and parking lots and/or the potential pedestrian trail near the railroad tracks.

10) Open Space near Hochmuth Hall : This open space can be designed to accommodate a parking lot and a pedestrian plaza with amenities. A cross axis can be created to make visual and pedestrian connections across Barnett Avenue and continue down to the river.

11) OCS Entrance : The OCS campus does not have a distinct entrance gate or sign. The railroad tracks act as a barrier or gate to the campus. Once within the campus there is no distinct character or site layout, making orientation within the campus difficult. A well-designed gate and entrance area can announce the campus and direct the visitor to its various parts.





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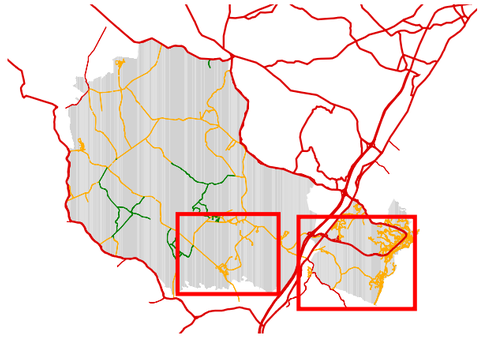


LOCATION MAP

FIGURE 4 - 1

POTENTIAL PRIORITY PROJECTS

Source of Map Data : MCB Quantico, NREA & The Onyx Group

BASE EXTERIOR ARCHITECTURE PLAN

12) Weapons Training Battalion Entrance : The WTBN campus does not have a well-designed entrance point or gate. Orientation is difficult due to lack of signage or visual clues. The Marine Federal Credit Union ATM is located inappropriately at the gate. The area also needs more vegetation and greenery.

13) MCX Parking Lot : The Marine Corps Exchange requires a large parking lot to serve its parking demands. Located along Russell Road, it is in sharp contrast with the surrounding forest and vegetation. The visual environment can be enhanced by introducing additional shade trees and landscaping in the islands and entry areas and creating a pedestrian circulation network. The parking lot and buildings can be screened from Russell Road with a vegetative buffer.

14) MCX Facade and Foundation Plantings : The MCX building facade requires visual and aesthetic improvements. The color scheme can be redesigned and foundation plantings can be added to enhance the large facade facing the parking lot.

15) Barnett Avenue : The Barnett Avenue corridor can be designed in keeping with its historical design and yet accommodate current functions and needs. The complete stretch of Barnett Avenue can be coordinated to have a cohesive identity.

16) South Gate / Russell Road corridor : is a highly visible area to visitors and the surrounding community. The commercial development can be screened and the streetscape and open space can be enhanced to blend in with the surrounding forested area.

17) Camp Barrett : An appropriate campus design can be planned for Camp Barrett to reflect the training and academic functions it houses.

18) MCU Flag Court and Site Improvements : A military construction (MILCON) project, P-434, exists to create a flag court and parade field as an appropriate entrance to the MCU. Other site improvements including sidewalks and a lawn area are also proposed.

19) North and South Gate Improvements : The redesign of the two major gates on Mainside has been funded and awaits approval for construction to begin. The improvements proposed include renovation of the gatehouses, plantings in the vicinity of the gates and restriping and realignment of the vehicular travel lanes.

In consultation with the Base Public Works Branch staff, four areas were selected as priority projects. Each priority project site was reviewed in detail to document existing visual assets and deficiencies. A conceptual design plan delineating a series of improvements for each site was then developed. Each priority project is described in the following sections.

4.1 Barnett Avenue

Barnett Avenue is part of the primary route of vehicular circulation on Mainside. It is a very high visibility area and is densely populated with a variety of land uses and functions. The street was originally designed as a boulevard provided with street trees, lighting and sidewalks. Over the years, the street has been widened and extended without a long range or overall plan. This section documents the existing conditions, identifies a conceptual or visionary plan for the street and outlines key improvements to put this plan into action.

4.1.1 Existing Conditions

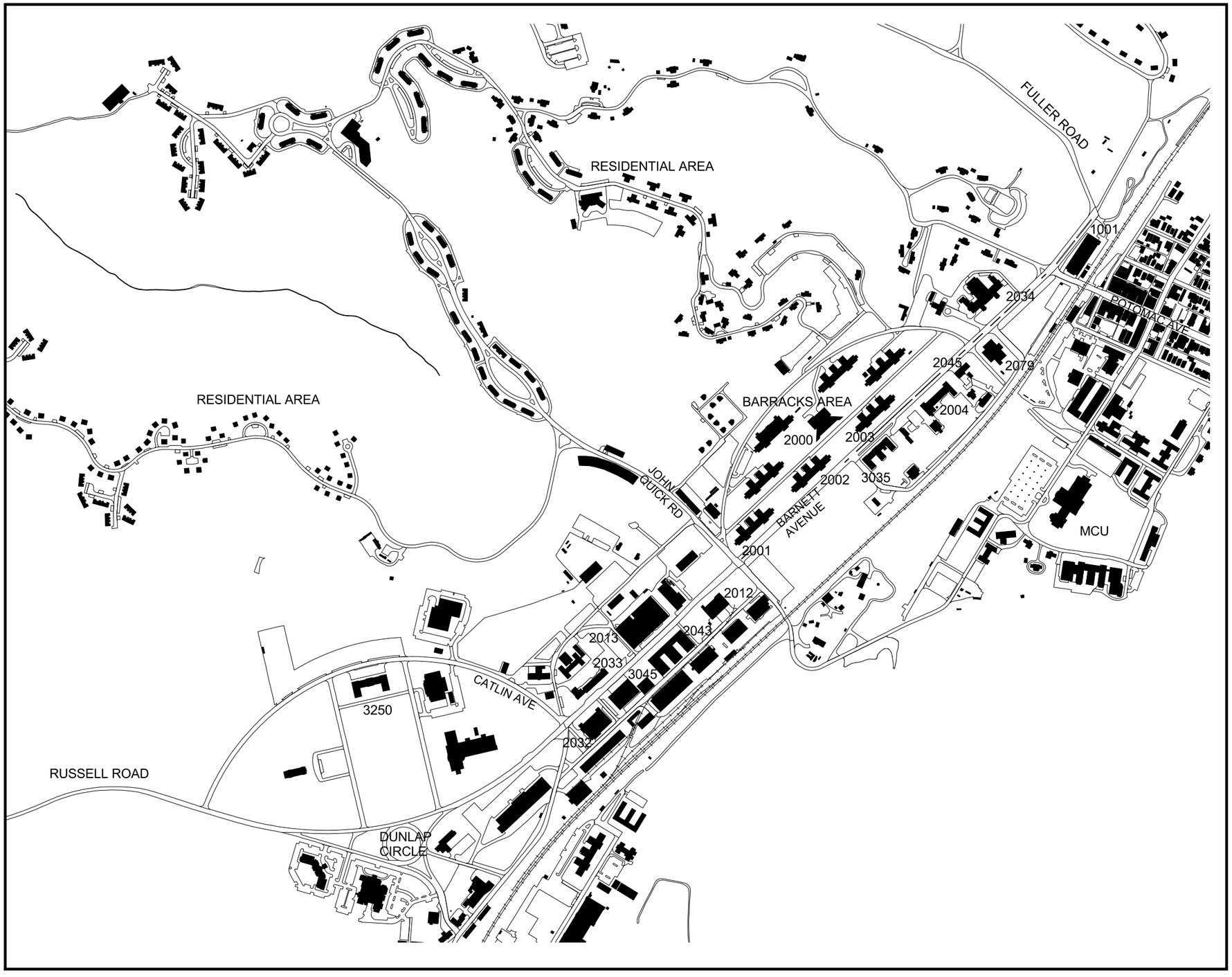
Barnett Avenue functions as the "Main Street" of Mainside. It runs through the densest development at Mainside and is a much travelled route. Many significant buildings are sited along it such as the Barracks, the Fire Station, Daly Hall, Little Hall, the new Medical Clinic and the proposed Fitness Center *(Figure 4-2)*. It also forms an anchor to the lateral streets that access various parts of the Base, such as MCU, the Town of Quantico, Hospital Point, the residential areas, the Medical Clinic and MCAF.

Intersections

Barnett Avenue ends abruptly on both sides without designed or well-defined transition points. Barnett Avenue is accessed from Fuller Road to the north and from Russell Road to the south. For the most part, the character of Fuller and Russell Roads is that of a tree-lined country road running through sparsely developed areas. Views of the golf course greet the visitor driving along Fuller Road and those of the Chopawamsic Creek along Russell Road. Along Barnett Avenue, the development is more dense and an urban campus setting can be visualized. The Fuller Road / Barnett Avenue intersection has a blind curve with an embankment on one side. The Russell Road / Barnett Avenue intersection is at Dunlap Circle, a location that presents immense potential for redesign as a focal point and a key intersection of the campus. Currently the landscape here is virtually devoid of any feature or vegetation. Other key nodes along Barnett Avenue are the intersections with Potomac Avenue (entrance to the Town of Quantico and access to Hospital Point), Martin Street (entrance to MCU), Henderson Road (interface between the Barracks and the proposed Fitness Center) and Catlin Avenue (entrance to the Medical Clinic).

Barnett Avenue (North) - The Boulevard

The Northern part of Barnett Ave. has a pedestrian friendly environment with street trees planted at approximately 40 ft. on center. For a short stretch in the Barracks area there is a double row of street trees, which creates a boulevard-like character (refer photo). This condition may



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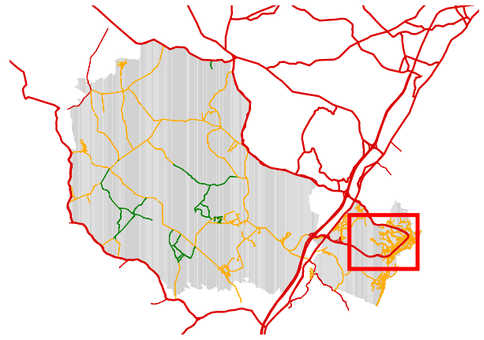


LOCATION MAP

FIGURE 4 - 2

BARNETT AVENUE - EXISTING CONDITIONS

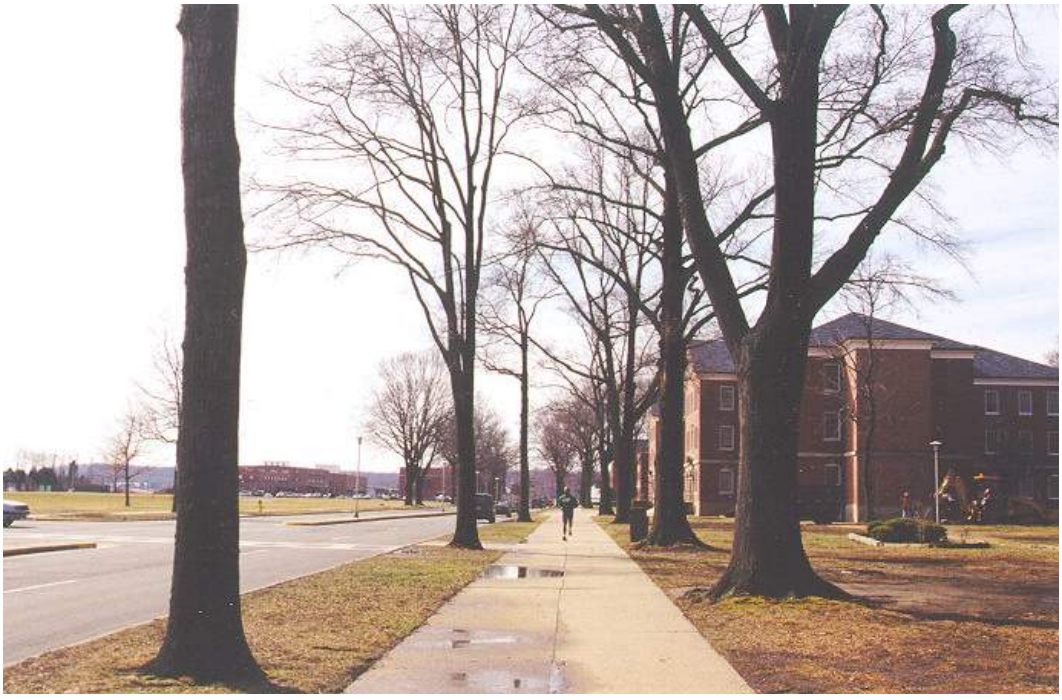
Source of Map Data : MCB Quantico, NREA & The Onyx Group

0 300 600 900 1200 Feet

N

BASE EXTERIOR ARCHITECTURE PLAN

provide a model for future plantings. The sidewalks are wide enough for use by both pedestrians and bicyclists. In the Barracks area, however, some buildings have an excess of paving near the entrance, providing an opportunity for redesign to create a sense of arrival at the entry points to buildings. Crosswalks are too frequent and not aligned to connect key buildings or parking lots. The lighting fixtures along the street are incompatible with the architecture and boulevard character because of their style and placement on the median. Some attempt has been made to screen parking lots from view from Barnett Ave, but most lots need attention to their interface with the street. Pedestrian access across the lots and landscaping within and around the lots are in poor condition. Open space between buildings in the Barracks area is underutilized. In keeping with a campus setting, public open space may be located in these spots. The new Fitness Center is located to have a direct relationship with Butler Stadium and the Barracks area. Pedestrian circulation and amenities will be required there.



Barnett Avenue North - the Boulevard

Barnett Avenue (South) - The Addition

South of Henderson Road, sidewalks along Barnett Ave. are discontinuous, few crosswalks exist and street tree plantings are intermittent. Where they exist, the trees are planted too far from the street to provide any shade or vertical dimension to the street. There is no median in the street and the travel lanes are blocked by on-street parking spaces. A large amount of frontage is taken up by parking lots that could be consolidated and screened from view (refer photo). Though the relationship of the buildings to the street is roughly the same as that in the Northern part, the character of the street is less pedestrian-friendly and more industrial. The power plant is an eyesore because of the scale, lack of relationship with the street and the industrial character of the building and its surroundings. An effort has been made to plant evergreens along the streets as a screen, but they still need a few years to grow into place.

Barnett Avenue South - the Addition

General Concerns

- On the whole, Barnett Avenue lacks cohesion and a unified character.
- Sidewalks in most areas are in serious disrepair. This provides an opportunity for creative use of materials and textures to define the pedestrian realm.
- Crosswalks need to be realigned and new ones added to connect specific building entrances and related parking lots.
- Utilities and service installations are often placed in prominent locations. Unsightly installations can be relocated or screened.
- Traffic lights are hung on cables and do not conform to standards used off the Base for fixtures or placements.
- Street tree plantings are intermittent and plant varieties are not suitably chosen or placed. Maintenance of plants is often ignored or improperly done.
- Few pedestrian amenities are provided. The absence of site furnishings such as benches and seats, drinking fountains, bus shelters, information kiosks, phone booths, planters and outdoor art exhibits is felt due to the lack of definition in the nature and function of public open spaces.
- Lamps and lighting fixtures are not uniformly distributed and can be relocated and redesigned to enhance the character of the street.
- Signs indicating directions to various parts of the Base are not standardized and difficult to locate.

4.1.2 Proposed Concept

The conceptual plan for Barnett Avenue addresses both short term and long term improvements. The short term improvements are in response to specific problems observed on the site. The long term improvements are key projects that will help to develop the identity and visual character of Barnett Avenue.

The two parts of Barnett Avenue (North and South) have distinctly different characters, mainly due to their history of development. This distinction between the two parts of Barnett Avenue is to be maintained. The streetscape, however, is to be designed to unify the two parts and continuity is to be maintained between sidewalks, street plantings and travel lanes *(Figure 4-3)* .

Barnett Avenue North

The existing buildings on Barnett Avenue include some of the oldest permanent construction on the Base, as well as more recent construction projects. The visual environment of Barnett Avenue North has a strong character that was established when the street was initially constructed. All new construction and renovations should be in keeping with the

historical character of the streetscape (refer photo). Improvements required here are mainly rectification of inappropriate additions or functionally deficient areas.

Historical character of Barnett Avenue - the streetscape at the beginning of World War II [1]

Barnett Avenue South

Barnett Avenue South is visually confusing and is in a state of transition and development. The proposed identity for this area is quite different from the chronologically older section - Barnett Avenue North. A network of open spaces and connecting axes is to be established here to bring balance into the urban fabric between built and unbuilt spaces. These open spaces can provide areas for outdoor recreation and leisure while creating a pedestrian circulation system that bridges Barnett Avenue and connects buildings, parking lots, bus stops and other logical destinations.

NOTE :
[1] USMC Photo 31487 in Fleming, Lt. Col. C. A., et.al., *Quantico: Crossroads of the Corps*, History and Museums Division, U.S. Marine Corps, Washington, D.C., 1978, p.74.

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EXISTING BUILDING IN STUDY AREA
PROPOSED / FUTURE BUILDING
PROPOSED SPECIAL PAVING
PROPOSED PARKING LOT OR CONCRETE PATH
PROPOSED OPEN SPACE
PROPOSED STORMWATER DETENTION POND
PROPOSED TREE
EXISITNG TREE
PROPOSED VEGETATION

FIGURE 4 - 3

CONCEPTUAL PLAN FOR BARNETT AVENUE

0 100 200 Feet

N

BASE EXTERIOR ARCHITECTURE PLAN

4.1.3 Proposed Improvements

Define the beginning and end points of Barnett Avenue at the Potomac Ave. / Barnett Ave. intersection and Dunlap Circle

1A. Fuller Road end :

- Trees are to be planted in forest fashion (a mixed variety of trees in non-geometrical or random formation) on both sides of Fuller Road to bring the forest edge closer to the end point of Barnett Avenue at the intersection of Potomac Ave.
- Overhanging creepers or spreading shrubs are to be planted alongside retaining wall to soften the edges of the blank concrete wall. A long-term solution is to replace the retaining wall with a stepped or terraced wall built in a visually appealing material, with flower beds or planting areas on each level.

1B. Russell Road end :

- Trees are to be planted in forest fashion along Russell Road, extending the Russell Road character to Dunlap Circle.

Design the approach from Fuller Rd. including the Potomac Ave. / Barnett Ave. intersection, the entrance plaza of Little Hall and the parking lot adjacent to Daly Hall (Figure 4-4)

2 a. Intersection Improvements :

- Key intersections along Barnett Avenue are to be defined by changing the paving material. Stamped concrete paving is to be used for delineating the crosswalks and the designated area of the intersection. The location will be highlighted using color and texture.
- The existing traffic island is to be landscaped with ornamental grass and/or ground cover. The plantings will give the location more definition while staying below the line of sight of motorists.
- A tiered planter is to be cut into the natural slope on the north corner. This is also a suitable location for a directional sign for north-bound traffic.
- Directional Signs indicating the directions towards the Town of Quantico, MCU, Medical Clinic, etc. should be incorporated into the intersection improvement.

2 b. Little Hall Plaza :

- Stamped concrete paving is to be provided for the crosswalk across Barnett Avenue and the plaza near Little Hall *(Figure 4-5)*.

- Ornamental trees are to be planted in cutouts in the paved area. A low brick wall with a coping to match the architectural style can be built around the cutouts to protect the trees and provide informal seating.
- The existing sign post is to be redesigned to provide the necessary information in a neater, less cluttered format.
- Lampposts and fixtures of inappropriate style are to be replaced. The new style must be in keeping with the architectural style and historical significance of Barnett Avenue.

2 c. Parking Lot :

- The parking lot must be reconfigured to incorporate pedestrian paths connecting Little Hall and Daly Hall to Potomac Ave.
- Planting strips with shade trees are to be provided between the parking rows.

Design the Martin St./ Barnett Ave intersection as a node

3. Intersection Improvements :

- Stamped concrete paving is to be used for delineating the crosswalks and the designated area of the intersection.
- Road signs are to be provided on the east and south corners.

Restore the historical character of the Barracks section of Barnett Ave.

4 a. Barracks Area :

- The street trees, mainly oaks, are an integral part of the identity of Barnett Avenue. But a number of trees are deteriorating and dying. To preserve the unique character of the streetscape, a phased replacement of the street trees is to be undertaken.
- Lampposts and fixtures of inappropriate style are to be replaced. (For design guidelines refer to earlier section.)
- Foundation planting is to be designed for the Barrack buildings closest to Barnett Avenue *(Figure 4-6)*. Large evergreen shrubs are to be used to emphasize entrance doors, and low shrubs and ornamental grasses are to be planted between entrances. Stamped concrete or brick paving is to be provided in front of the buildings. The paving pattern is to be designed to bring variation and interest to the front court of the buildings.

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TIERED PLANTER

STAMPED CONCRETE PAVING

LOW SHRUBS OR ORNAMENTAL GRASS

LITTLE HALL
BLDG. NO. 2034

ORNAMENTAL
TREES
IN PLANTERS

PEDESTRIAN PATHS

DALY HALL
BLDG. NO. 2079

LABELLE STREET

WHARTON ROAD

ELLIOT ROAD

HAWKINS AVENUE

BARNETT AVENUE

CONC. BOARDING PLATFORM

R.F. & P. RAILROAD

EXISTING BUILDING IN STUDY AREA

PROPOSED PEDESTRIAN PATHS / PAVING

PROPOSED PARKING LOT

PROPOSED TREE

EXISITNG TREE

PROPOSED VEGETATION

FIGURE 4 - 4

APPROACH FROM FULLER ROAD

DETAIL PLAN

0 75 150 Feet

N

BASE EXTERIOR ARCHITECTURE PLAN

Existing Conditions

Proposed Conditions

Figure 4-5: Little Hall Plaza

Existing Conditions

Proposed Conditions

Figure 4-6A: Prototype for Foundation Planting for Barrack Buildings

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EXISTING BUILDING IN STUDY AREA
PROPOSED / FUTURE BUILDING
PROPOSED PATH OR SPECIAL PAVING
PROPOSED PARKING LOT OR ROAD
PROPOSED OPEN SPACE
PROPOSED TREE
EXISTING TREE
PROPOSED VEGETATION

FIGURE 4 - 6

PROTOTYPE FOR FOUNDATION PLANTING FOR BARRACK BUILDINGS

DETAIL PLAN

0 30 60 Feet

BASE EXTERIOR ARCHITECTURE PLAN

Existing Conditions

Proposed Conditions

Figure 4-6A: Prototype for Foundation Planting for Barrack Buildings

- Open areas in between barrack buildings are to be designed to preserve the park-like character *(Figure 4-7)*. These landscaped spaces must be passive to low activity areas and can include rustic seats and outdoor art / exhibits. Trees and lawn are to be provided, leaving the understory clear of shrubs. Pedestrian paths, paved with a porous material, are to follow the existing circulation pattern.

4 b. Between the fire station and Bldg. 3035 :

- The parking lots and commercial development along Barnett Avenue should be screened from view. The existing screening comprising of a wood fence and shrubbery is to be extended and supplemented with evergreen plantings.
- The on-street parking from the front of Bldg. 3035 is to be consolidated into the parking lot to the rear of the building and out of sight from Barnett Avenue.
- Landscape improvements including shrubs and trees are to be provided to embellish entrances and building facades.

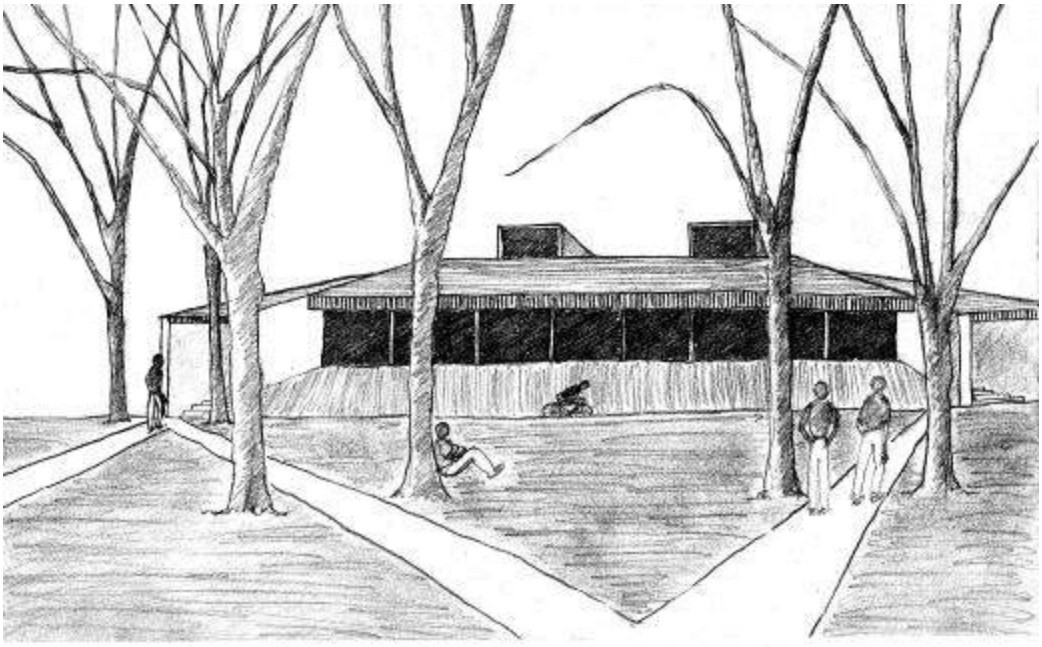


Figure 4-7 : Sketch of Open Space near Dining Hall

Design the John Quick Rd./ Barnett Ave. intersection as a node and transition point

5 a. North of John Quick Rd :

- A bus shelter and outdoor seating is to be provided at the bus stop near the parking lot (PL-18). The bus shelter must be of a style in keeping with the surrounding architectural style and historical character of the street. Pedestrian access must be provided to the waiting area from Barnett Avenue and from the bus pull-in area in the parking lot *(Figure 4-7)*. This parking lot can be used as a precedent for the proposed parking lot near Bldg. 3035.
- Screen plantings are to be provided between the parking lot (PL-18) and Barnett Ave and Henderson Road.
- Planter strips with shade trees are to be provided between the rows in the parking lot.

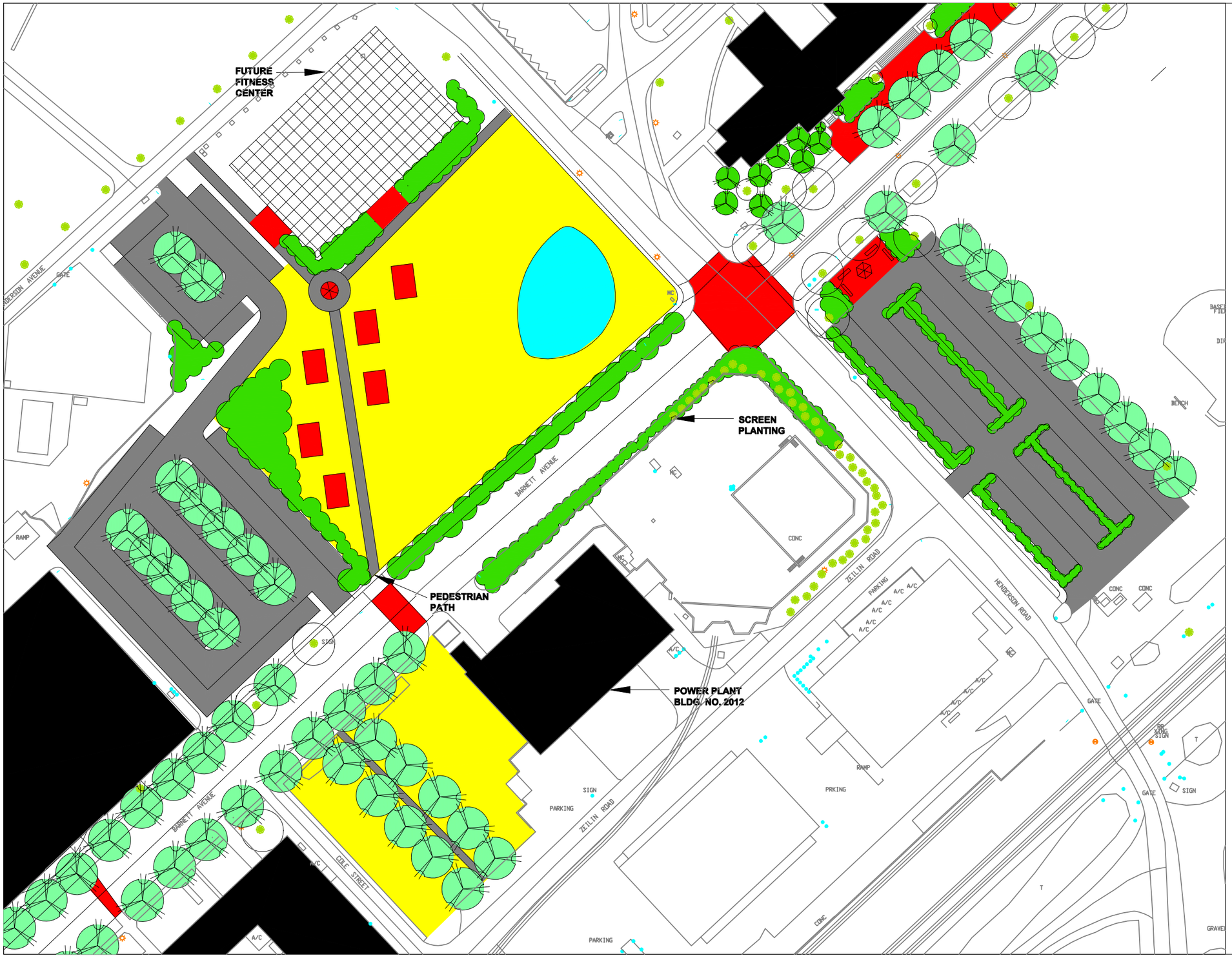
5 b. South of John Quick Rd :

- A vegetative screen is to be provided between the Power Plant yard and Barnett Ave. The screen is to consist of medium to large evergreens, with a layer of flowering or colorful shrubs along Barnett Ave.
- The parking for the proposed Fitness Center is to be consolidated into a parking lot, with shade trees planted between the rows and adequate screening from Barnett Ave.
- The open space around the Fitness Center is to be used to provide outdoor open space, recreation and exercise areas (e.g. exercise circuit, running trail, horseshoe pit). The landscape will reflect the function of the building.
- The required detention pond is to be incorporated into the design of the open space to make it as inconspicuous as possible. The area is to be planted with species native to meadow and wetland areas.

Redesign Barnett Ave. south of John Quick Rd.

6. Streetscape Improvements :

- Barnett Ave. must be widened to 4 lanes to maintain continuity with the northern section. Additional turn lanes are to be provided where needed.
- On-street parking in this area must be relocated and consolidated into screened parking lots.



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- EXISTING BUILDING IN STUDY AREA
- PROPOSED DEVELOPMENT
- PROPOSED PEDESTRIAN PATHS / PAVING
- PROPOSED PARKING LOT / PATHS
- PROPOSED OPEN SPACE
- PROPOSED DETENTION POND
- PROPOSED TREE
- EXISTING TREE
- PROPOSED VEGETATION

FIGURE 4 - 8

JOHN QUICK ROAD/ BARNETT AVENUE INTERSECTION

DETAIL PLAN

0 75 150 Feet

BASE EXTERIOR ARCHITECTURE PLAN

- Street trees, sidewalks and crosswalks are to be provided, maintaining a green strip between the road and the sidewalk. The buildings are to be setback from the road to maintain a consistent street width.
- Barnett Avenue is to be bridged both visually using tree-lined axes, and physically with pedestrian paths connecting buildings, parking lots and public greens on either side of the street *(Figure 4-8)*

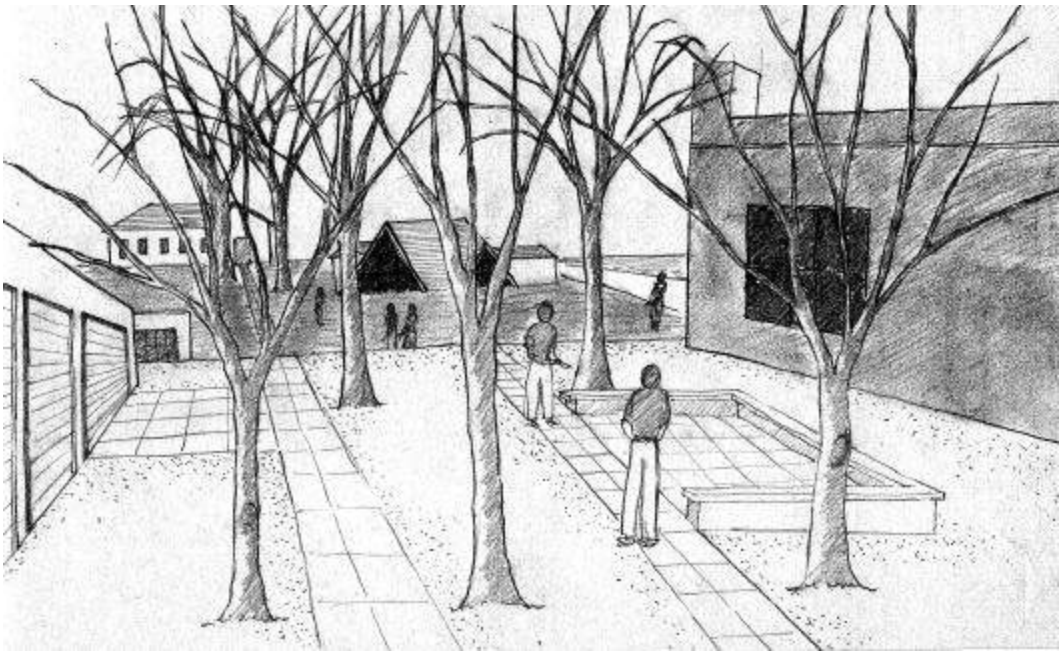

Figure 4-8: Sketch of Pedestrian and Visual Axes

Design the Catlin Ave./ Range Rd./ Barnett Ave. intersection as a node

This intersection has been redesigned and signalized to improve vehicular traffic operations. Additional improvements not included in the redesign are listed below.

7. Intersection Improvements :

- Stamped concrete paving is to be used for delineating the crosswalks and the designated area of the intersection *(Figure 4-9)*.
- A traffic island is to be provided and landscaped with ornamental grass and/or ground cover.
- Parking lots are to be screened using evergreens and by sinking the lots below road level.
- Screening is to be located to conceal utilities visible from the street.
- Sidewalk is to be extended along Barnett Avenue to the bus stop near the Medical Clinic .

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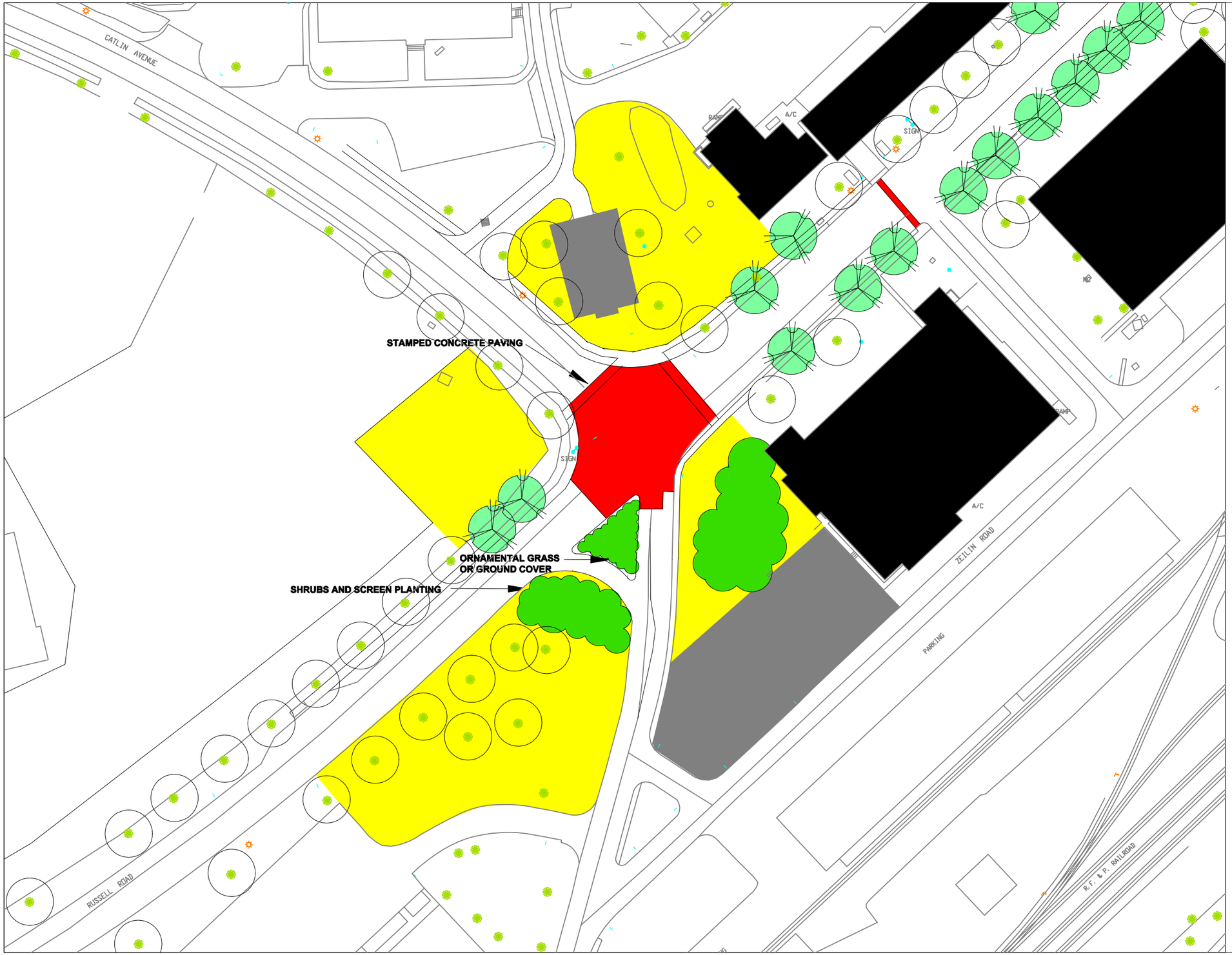

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EXISTING BUILDING IN STUDY AREA
PROPOSED PEDESTRIAN PATHS / PAVING
PROPOSED PARKING LOT
PROPOSED OPEN SPACE
PROPOSED TREE
EXISITNG TREE
PROPOSED VEGETATION

FIGURE 4 - 10

CATLIN AVENUE/ BARNETT AVENUE INTERSECTION

DETAIL PLAN

0 65 130 Feet

BASE EXTERIOR ARCHITECTURE PLAN

Existing Conditions

Proposed Conditions

Figure 4-10A: Catlin Avenue / Barnett Avenue Intersection

4.2 South Gate

The South Gate is located on Russell Road and allows easy access to I-95 and Route 1. It functions as the primary access to the Exchange and other commercial facilities located along Russell Road. Being a highly visible area to visitors and the surrounding community, the visual environment at the South Gate and Russell Road corridor needs to be enhanced.

4.2.1 Existing Conditions

The South Gate consists of a cluster of sign boards and a sentry house with a pull-up area *(Figure 4-10)*. Once through the gate, the drive along Russell Road is through a forested area to the intersection with Purvis Road. Purvis Road is the main access to the residential area but passes through the commercial district. The Marine Corps Exchange and the Commissary are located at this intersection. Other commercial organizations located along Russell Road include Mc Donald's, Auto Pride and the Marine Federal Credit Union. Due to the location of the facilities, commercial and residential traffic is not segregated and there is no check or control between the two.

The commercial area requires a large parking lot to meet its needs. The existing parking lot lacks adequate shade and screening from Russell Road. The light fixtures used here are functional and not very appealing. The Commissary building has an attractive two-tone facade. The entrance is highlighted using a barrel vault within the roof. The Exchange building is comparatively drab with a metal and textured CMU facade. A picnic area shaded by trees is located between the two buildings. Signboards for the various MWR facilities are in a number of sizes, styles and locations. This creates clutter and detracts from the visual character of the area.

4.2.2 Proposed Concept

The main goal of the proposed improvements is to create a better driving experience along Russell Road when entering the Base through the South Gate. The Russell Road character at the Purvis Road intersection is in sharp contrast with the other sections, mainly due to the commercial facilities located here and a lack of control and planning of the visual environment. The improvements proposed focus on screening these areas from Russell Road, facilitating pedestrian traffic within the MCX Center and aesthetically enhancing the existing facilities and landscape features *(Figure 4-11)*.

Another goal of the improvements in this area is to be able to segregate traffic accessing the MCX Center and other commercial facilities from that accessing the residential area and the rest of Mainside. To achieve this goal, the proposal of relocating the South Gate between the MCX Center entrance and Purvis Road was explored. This proposal has a number of pros and cons that need to be weighed carefully to determine its feasibility. Existing and new traffic patterns will have to be analyzed, construction costs will need to be determined and noise and disturbance to the residential community in the vicinity will have to be gauged.

The redesign of the South Gate area and sentry post has been funded and approval to begin construction is pending. In conjunction with the proposed construction, the feasibility of relocation of the South Gate may be investigated. A MILCON project, P-479, for the widening of Russell Road also exists. The proposed improvements listed below may be coordinated with the proposed construction in this area.

The proposal also includes an additional project involving the realignment of the Purvis Road/ Russell Road intersection beyond Mc Donald's to allow more room for the gate activities and to include Mc Donald's into the MCX Center. A separate decision can be taken on this part of the proposal.

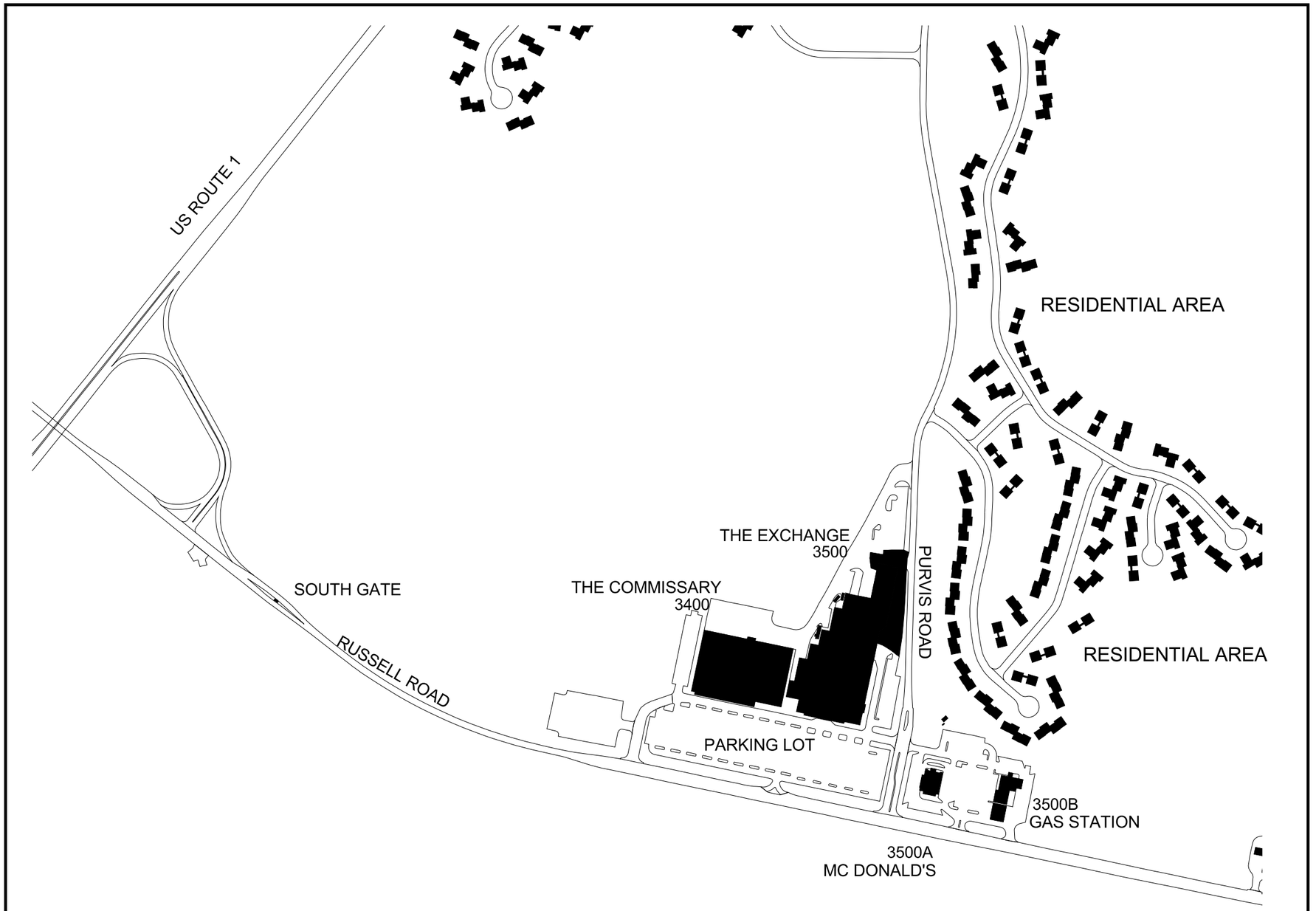
A proposal exists to site an auto mall in the commercial district on Russell Road. This project is not recommended to be located in the MCX Center due to lack of space. The auto mall can be sited near the gas station, on the other side of Purvis Road. This site should also be adequately buffered and screened from Russell Road in keeping with the above concept.

4.2.3 Proposed Improvements

1. Buffer strip : The buffer strip between Russell Road and the commercial activities and parking lots can be planted with two or three rows of shade trees to help screen these areas from the road. The existing difference in elevation between Russell Road and the adjacent development also acts as a visual barrier.

2. Islands within the parking lot : The islands at the ends of parking rows need to be planted with trees to provide shade to parked cars and pedestrians as well as to break up the visual monotony of cars and asphalt. An additional row of islands along the center of the large parking lot can be provided to provide more space for planting trees.

3. MCX Facade : The facade of the Exchange building has a very functional look which is not very appealing. The facade may be enhanced by creating depth using colors and detailing *(Figure 4-12)*.



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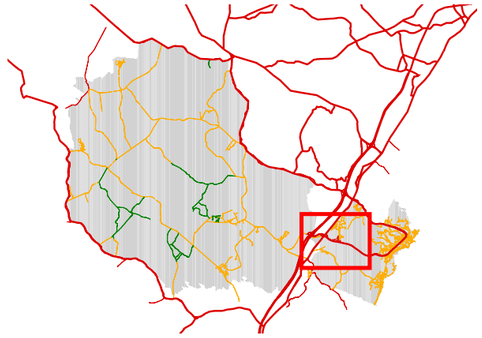


LOCATION MAP

FIGURE 4 - 11

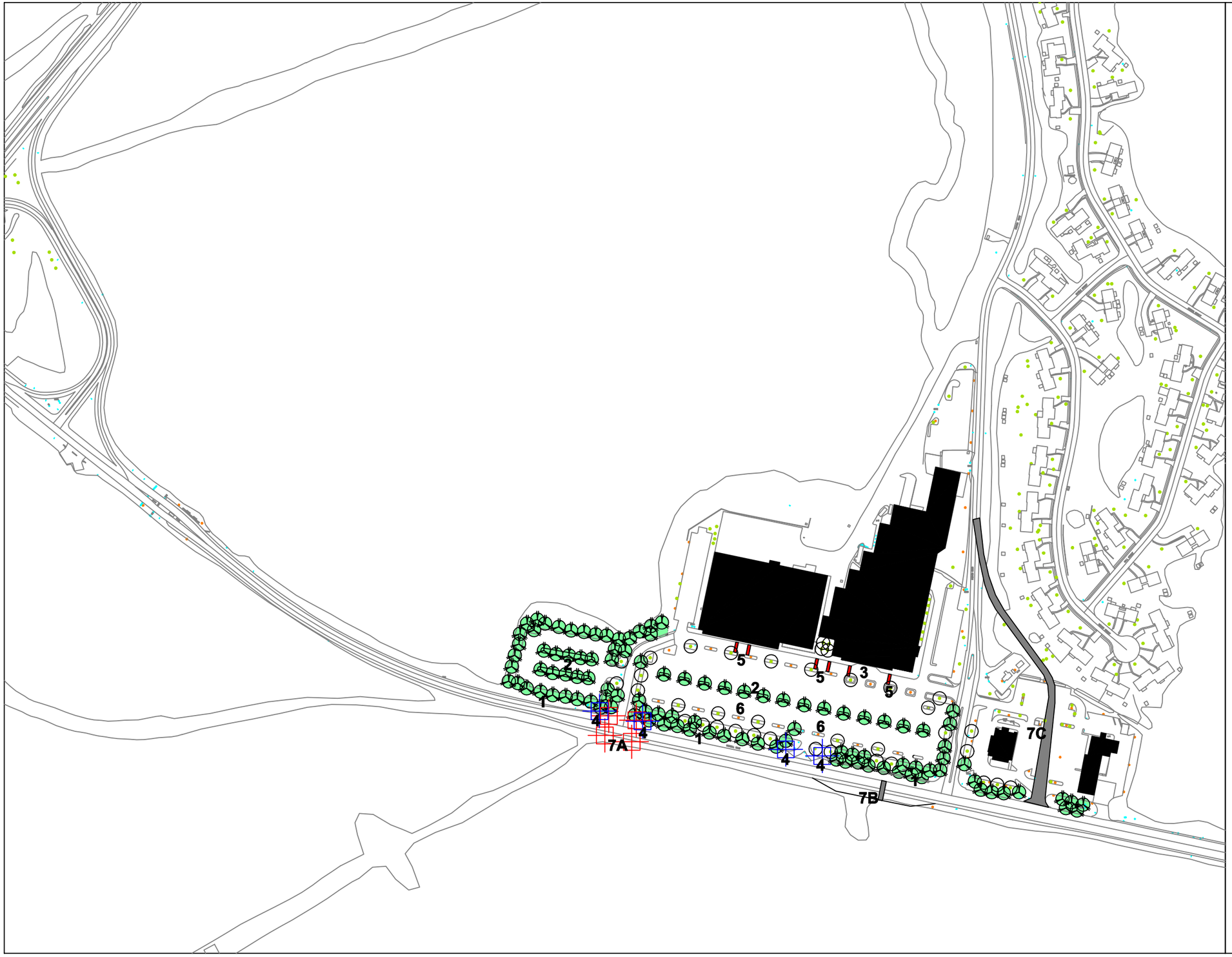
SOUTH GATE - EXISTING CONDITIONS

Source of Map Data : MCB Quantico, NREA & The Onyx Group

0 200 400 600 Feet

N

BASE EXTERIOR ARCHITECTURE PLAN



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EXISTING BUILDING IN STUDY AREA
PROPOSED SPECIAL PAVING
PROPOSED ROAD REALIGNMENT
PROPOSED OPEN SPACE
PROPOSED TREE
EXISTING TREE
PROPOSED TRAFFIC LIGHT
PROPOSED SIGN

FIGURE 4 - 12

CONCEPTUAL PLAN FOR THE SOUTH GATE

0 400 800 Feet

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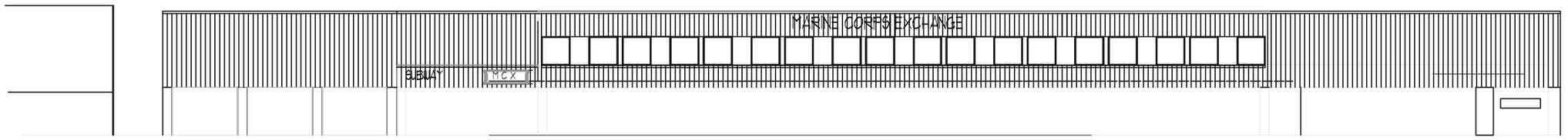
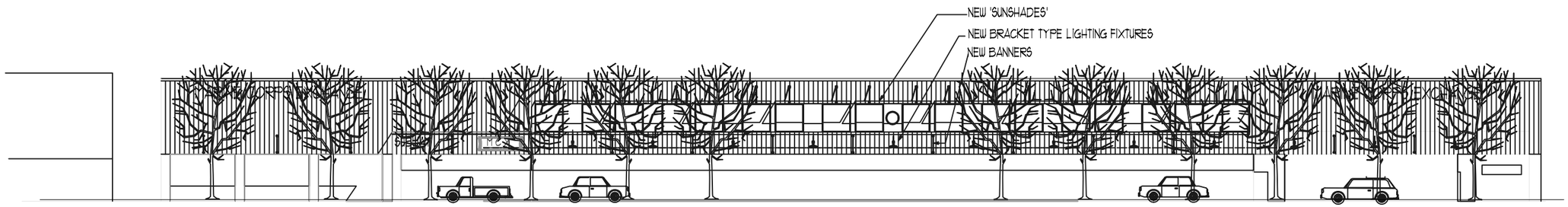
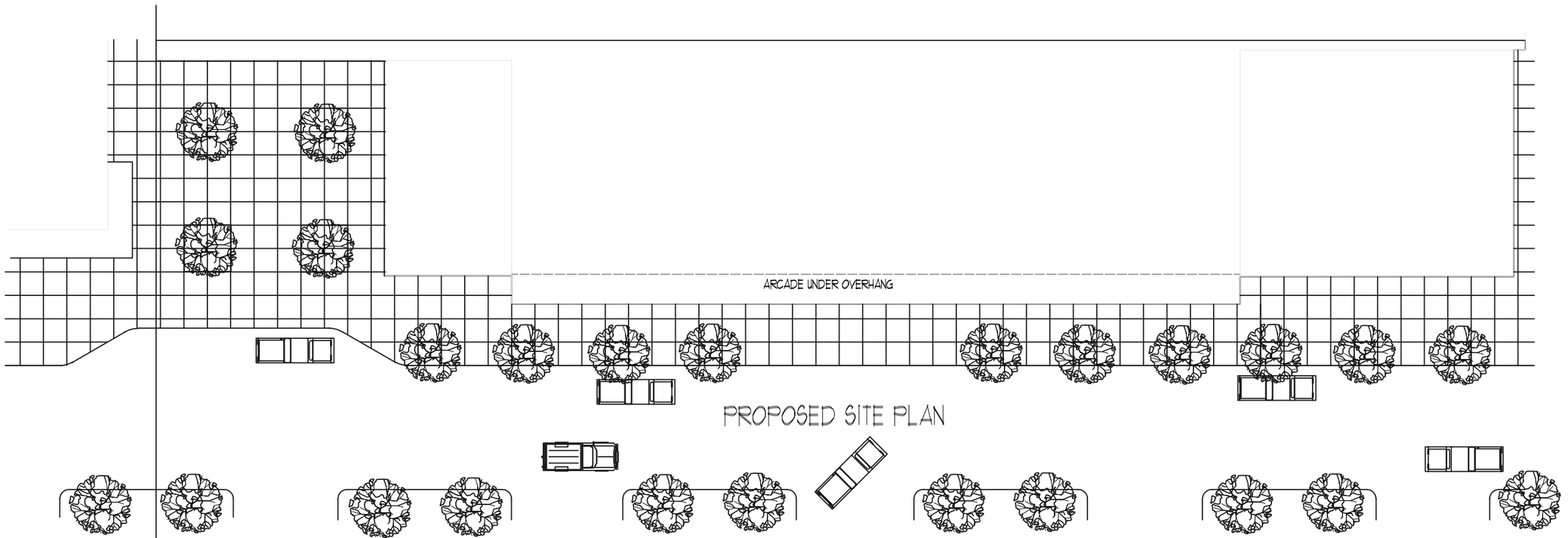
BASE EXTERIOR ARCHITECTURE PLAN



EXISTING FRONT ELEVATION



PROPOSED FRONT ELEVATION



PROPOSED SITE PLAN

Figure 4-13: MCX Facade Improvement

Figure 4-15: MCX Facade Improvement

** * * TO BE PROVIDED IN FUTURE SUBMISSION * * **

4. Signage : Consolidate the signage of all Morale Welfare and Recreation facilities within the same area into a into a well designed signpost located near the entry point. Avoid excessive signage that detracts from the visual environment.

5. Pedestrian Paths : Provide pedestrian paths of a different material and texture to slow traffic down and highlight crosswalks.

6. Light fixtures : may be replaced with those of a more appropriate style, material and color.

To segregate traffic accessing the commercial area and the rest of Mainside

7A. Additional traffic light : Provide a new traffic light at the west entrance to the MCX Center. This entrance should function as the main access to the commercial area. The other gate along Russell Road should function as a secondary entrance. No access should be provided off Purvis Road because it will be difficult to monitor.

7B. Relocate the South Gate and sentry post : from the current location to the proposed position between the entrances of commercial and residential areas. This will allow free access to the commercial area without entering the gate, while restricting access to the residential area and the rest of Mainside.

7C. Reroute Purvis Road : to meet Russell Road beyond Mc Donald's to allow more length of road for vehicles to queue on either side of the Gate during peak hours.

4.3 Camp Barrett

Camp Barrett is the largest development district on the west side of the Base. The points of entry into the area are located on MCB 2 and MCB 3 *(Figure 4-13)*. While MCB 2 terminates at Camp Barrett, MCB 3 carries some through traffic, including trucks and heavy vehicles. Camp Barrett mainly consists of training and related facilities for TBS. The visual character of Camp Barrett can be enhanced to portray its academic functions and create a campus environment.

4.3.1 Existing Conditions

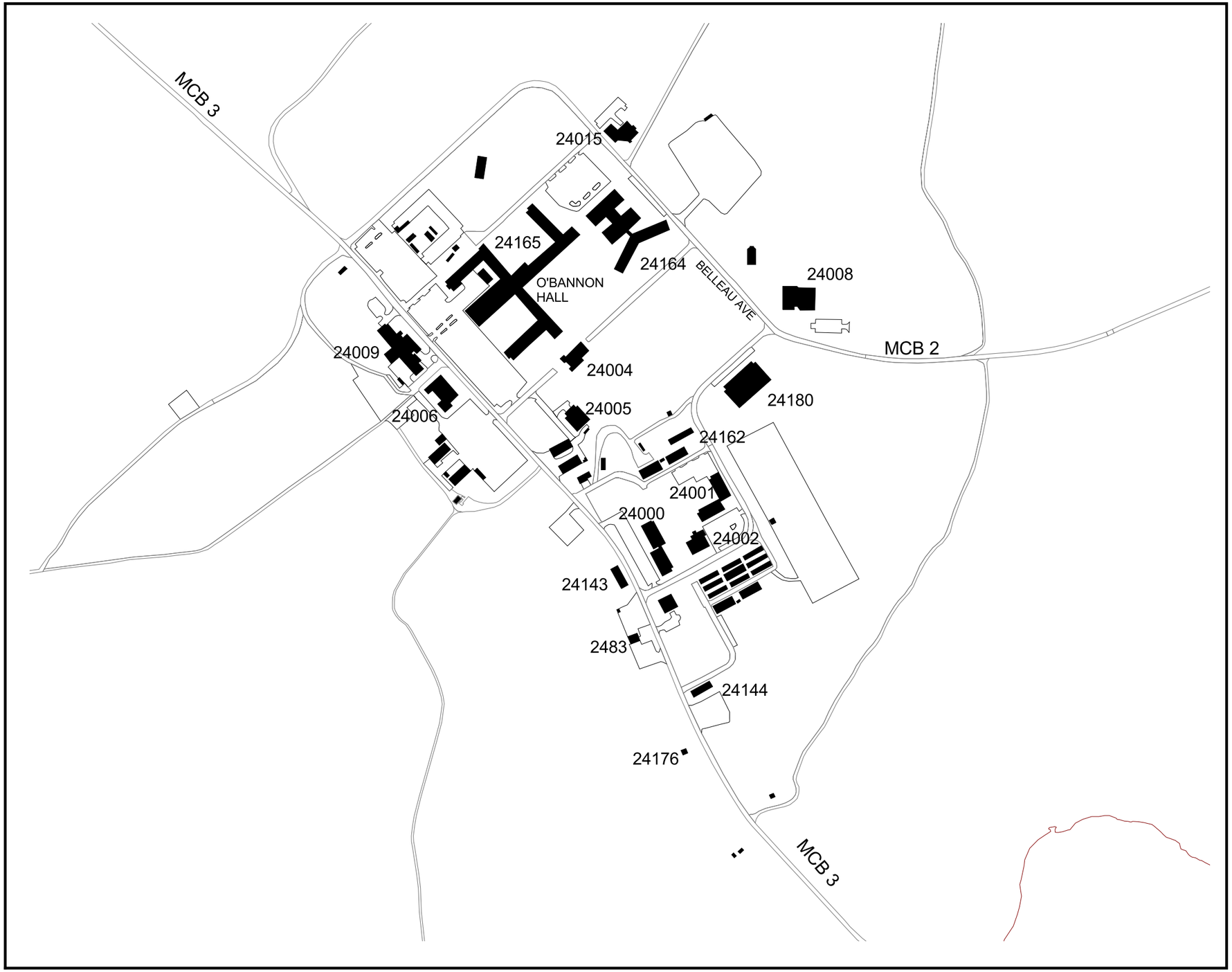
Entering Camp Barrett through the gate on MCB 2 leads the visitor to the most striking landscape feature of Camp Barrett - the central open space for the campus consisting of the landing zone and adjacent open areas. The buildings arranged around this large open area are given a prominent site on the campus. The buildings include a barrack, the gymnasium, the clinic and the main academic building. Though these buildings are fairly large and sprawling, they are not very imposing due to the large space and plantings in the foreground.

MCB 3 forms the rear entrance to Camp Barrett. The section of MCB 3 that passes through Camp Barrett is flanked mainly by large parking lots and storage and maintenance facilities. This is a more functional and less visually appealing area. There is a lack of shade trees and sidewalks here. Recreational areas are provided along MCB 3 and near barrack buildings. A cluster of maintenance and industrial facilities is located between the two housing areas. This cluster includes some poorly maintained and/or temporary metal structures. It also includes community services such as a barber, a dry cleaner and a convenience store. While the community services are functionally related to the housing, the rest of the buildings here are in sharp contrast both functionally and visually.

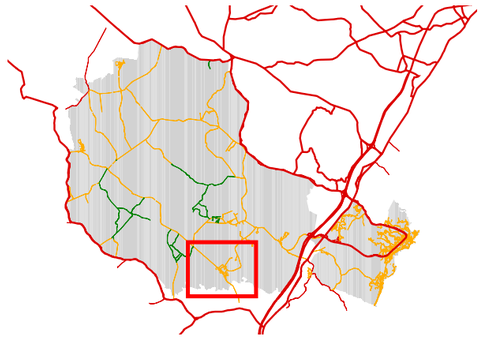
Within the campus, the road network is haphazardly organized. Steep slopes and abrupt changes in elevation are characteristic of Camp Barrett making it difficult to plan a gridiron network. Lack of definition between various areas and functions results in a mix of light and heavy vehicles using the same roads. There is a need for directional signs and maps at key intersections.

4.3.2 Proposed Concept

The academic functions at TBS demand an appropriate campus setting. An excellent precedent has been provided by the central open space surrounded by buildings of similar or related functions. This can be translated into a planned network of open spaces based on function or surrounding land use *(Figure 4-14)*. The open spaces or courts can be of



MCB
QUANTICO



LOCATION MAP

FIGURE 4 - 14

CAMP BARRETT - EXISTING CONDITIONS

Source of Map Data : MCB Quantico, NREA & The Onyx Group

0 200 400 600 800 Feet

BASE EXTERIOR ARCHITECTURE PLAN

MCB
QUANTICO

- EXISTING BUILDING IN STUDY AREA
- PROPOSED DEVELOPMENT
- PROPOSED PEDESTRIAN PATHS
- PROPOSED PARKING LOT
- EXISTING OPEN SPACE
- PROPOSED OPEN SPACE
- PROPOSED TREE
- PROPOSED VEGETATION

FIGURE 4 - 15

CONCEPTUAL PLAN FOR CAMP BARRETT

0 100' 200 Feet

N

BASE EXTERIOR ARCHITECTURE PLAN

various sizes and scales, accommodating a range of outdoor and indoor activities and functions. They should be connected together by a pedestrian circulation system. Parking can be sited along the periphery of the development, providing easy access to buildings, yet banishing vehicles from the green core of the campus. Industrial, service and storage functions can be assigned to the MCB 3 side of the campus. The arrangement of open spaces and buildings maintains a balance between built and unbuilt area. It also provides guidelines for siting future development according to function and the architectural style, scale, massing and materials to be used.

4.3.3 Proposed Improvements

1. Gate on MCB 2 : Provide a gate at the MCB 2 entrance to Camp Barrett consisting of brick gateposts and wall with a concrete coping and gates in cast iron or similar material. A sign indicating the name of the area, directions to major buildings on the campus and a map of the district should be incorporated into the entrance area.

2. Streetscape improvement of MCB 3 within Camp Barrett : Plant shade trees on either side of the section of MCB 3 within Camp Barrett (i.e. between Building 24176 to the Belleau Ave. intersection). Provide adequate screening for parking lots and other areas from the road. Provide lamp posts and light fixtures of an appropriate style and material.

3. Parking lots along MCB 3 : Consolidate major existing and proposed parking lots for the barracks along MCB 3. Provide adequately spaced islands along parking rows and plant shade trees to provide shade.

4. Pedestrian paths : are to be provided connecting logical destinations in the various open areas, such as barracks, academic facilities and community services. Shade trees are to be planted along the paths and paving material should be distinctly different from vehicular areas to delineate the pedestrian realm (e.g. stamped concrete or exposed aggregate concrete).

5. Open spaces : are to be established between existing and proposed barrack buildings or wings and near the MCX building. The open areas are to be designed for recreation and leisure on an individual scale as well as for community gatherings. Open spaces are to provide a view from inside the building and a landscaped foreground from the exterior. Pedestrian amenities and outdoor seating can be incorporated into the areas.

6. Power plant and industrial area : Most buildings in the cluster near the power plant are proposed to be relocated or demolished. The power plant and other buildings that will remain are to be screened from view from the surrounding housing and academic areas.

7. Signage : Road names and signs indicating the direction to major buildings on the campus are to be placed at key intersections or locations along MCB 3.

8. Expansion and new development : Areas along MCB 3 have been proposed for siting new development.

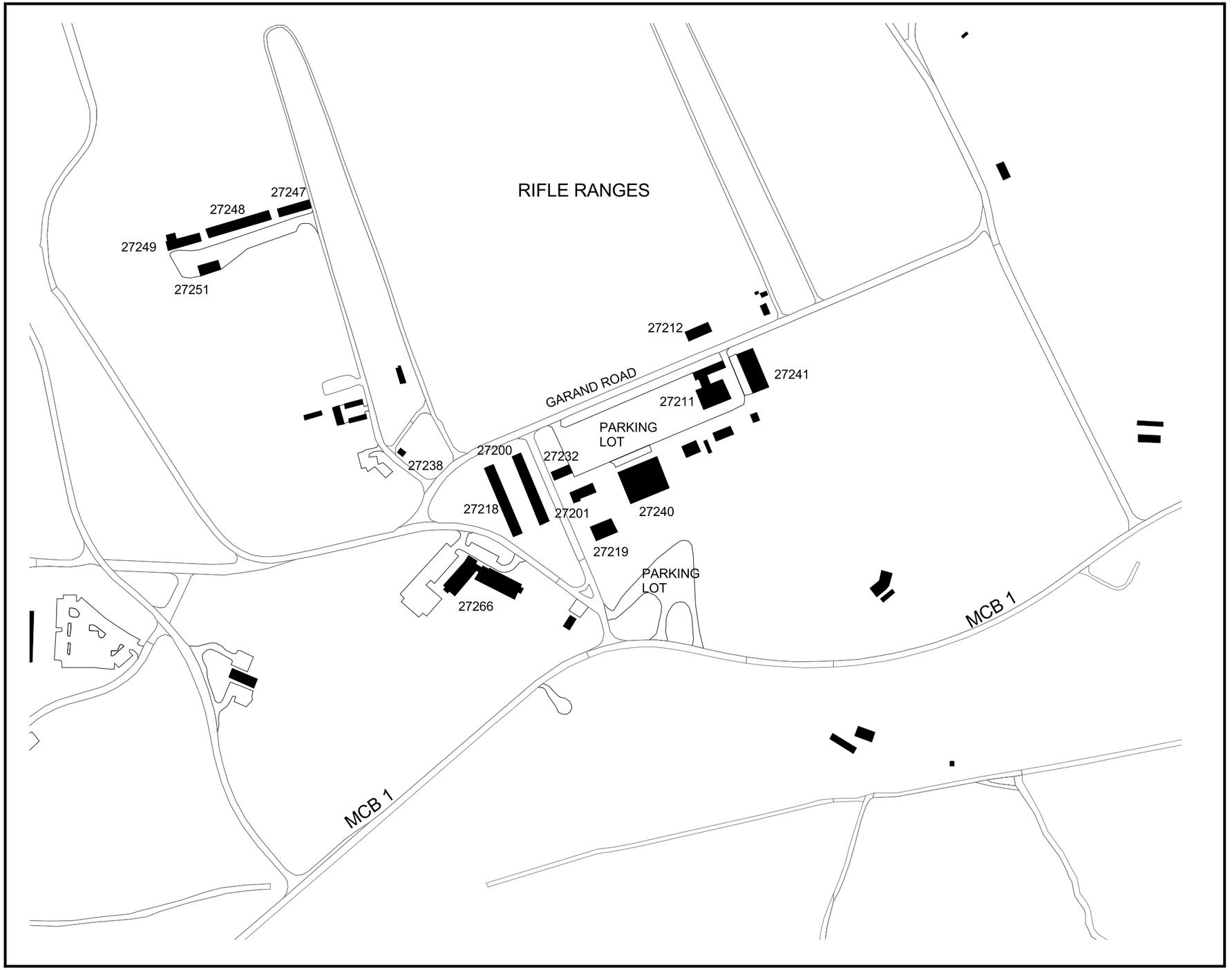
4.4 Weapons Training Battalion / C.A. Lloyd Range

The Weapons Training Battalion (WTBN) at the C.A. Lloyd Range is located on the western side of the Base. The main entrance to the district is located on MCB 4 *(Figure 4-15)*. The campus consists of a cluster of permanent and temporary buildings as well as the rifle ranges beyond. WTBN has great potential for improving the visual character and circulation system. These improvements will help to increase efficiency and project a positive image of the campus. They will be especially appreciated during special events when a large number of visitors are at the campus.

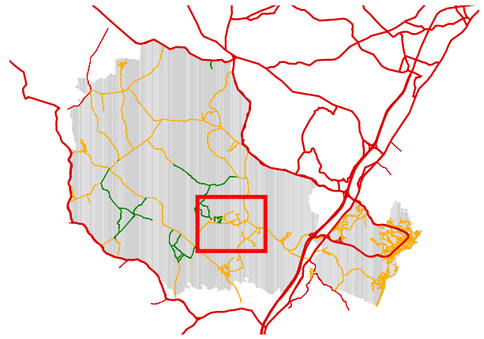
4.4.1 Existing Conditions

The entrance to the WTBN area is not well-defined. MCB 4 is a two lane road with a design speed of 45 mph which is reduced to 25 mph in the WTBN area. The entrance gate to the area is located along a curve in the road, making it difficult to anticipate and make the turn. At the entrance, one is confronted with a fork in the road without adequate signage or other visual clues to indicate the correct route to the headquarters building. Also, the visual character at the entrance lacks an aesthetic appeal. The MFCU ATM, the red brick barracks and the white wood framed buildings are in a variety of colors, textures and alignments. The headquarters building also does not stand out in the crowd. Visual clues and landscape improvements are required to direct visitors to this building.

The existing arrangement of the buildings and their relationship with the rifle ranges and other open space can be transformed into a traditional campus with a sound circulation system. The built part of the campus is closer to MCB 4 allowing easy vehicular access. It overlooks the rifle ranges which form an appropriate backdrop and can be accessed through the built part of the campus. The main parking lot for WTBN is situated in the central open space between the buildings. Although this



MCB
QUANTICO



LOCATION MAP

FIGURE 4 - 16

WTBN - EXISTING CONDITIONS

Source of Map Data : MCB Quantico, NREA & The Onyx Group

0 100 200 300 400 500 600 Feet

BASE EXTERIOR ARCHITECTURE PLAN

location allows consolidation of parking for a number of buildings, better use of this prime spot can be planned. A number of buildings are slated for demolition at WTBN. This allows some room for reconfiguring the campus orientation and planning for expansion and relocation of facilities. Pedestrian amenities and outdoor recreation areas are not provided.

4.4.2 Proposed Concept

An important goal of the campus master plan is to provide a central open space or campus green in place of the existing parking lot *(Figure 4-16)*. This will enhance the buildings around it, giving them an appropriate foreground and create a relationship with each other.

Another goal is to organize the road network and establish a hierarchy. This can be achieved by enhancing and highlighting the main route from the gate to the headquarters building and adding a road to complete the loop around the campus.

The main parking lot is to be relocated closer to the entrance gate to reduce the volume of traffic entering the campus. Pedestrian access between the parking lot and various buildings is to be provided to facilitate and encourage pedestrian circulation.

4.4.3 Proposed Improvements

1. Entry gate : The entrance area is to be enhanced by a formal gateway or arch with a sign incorporated into it. The area on either side of the road is to be planted with colorful shrubs and evergreens. Signs are also to be placed along MCB 4 approximately 100-200 feet on either side of the entry gate indicating the approaching turn-off.

2. Parking lot at entrance : The existing gravel lot near the entrance is to be enlarged to serve as the main parking lot for the campus. The existing ATM is to be accessed through this parking lot. This lot must be adequately screened from MCB 4.

3. Tree-lined boulevard : The existing street trees along Garand Road are to be added to and replaced if necessary and the boulevard is to be extended along the main route used between the gate and the headquarters building.

4. Campus Green : Provide a common open space to replace the central parking lot. This space is to accommodate recreation and leisure activities with space for community gatherings or small group events.

5. Pedestrian paths : Add pedestrian paths between the various buildings and the parking lots and provide shade trees and other amenities including trash cans, benches and walkway lighting along the paths.

MCB
QUANTICO

- EXISTING BUILDING IN STUDY AREA
- PROPOSED / FUTURE BUILDING
- PROPOSED PATH OR SPECIAL PAVING
- PROPOSED PARKING LOT OR ROAD
- PROPOSED OPEN SPACE
- PROPOSED TREE
- EXISTING TREE
- PROPOSED VEGETATION

FIGURE 4 - 17

CONCEPTUAL PLAN FOR WTBN

0 65 130 195 Feet

BASE EXTERIOR ARCHITECTURE PLAN

5.0 Implementation

The primary goal of the design guidelines and proposals for priority project areas outlined in this BEAP is to help improve the existing visual environment of the Base. The implementation of the BEAP guidelines and concepts will also help to ensure that future construction and renovations are designed in keeping with the existing style and aesthetic values.

5.1 Facilities Review Board

To enforce the recommendations of this BEAP, a Facilities Review Board should be formed within the Facilities Division of Public Works at MCB Quantico. The BEAP would be the formal document used by the board to enforce and ensure continuity throughout the base.

All new construction and major renovation projects on MCB Quantico would be submitted and approved by the board before construction activities begin. The board would review these projects to ensure they are in compliance with the design guidelines and aesthetic standards recommended by the BEAP. Review shall also be necessary for semi-permanent structures and other exterior improvements initiated by the Base or tenant organizations.

5.2 Relationship with other Planning Documents

The BEAP is being developed in conjunction with the Base Master Plan Update and takes into account the recommendations and proposals made in the Master Plan[1]. The BEAP also takes into account other current MCB Quantico planning documents including the Transportation Management Plan[2], the Bicycle Master Plan[3], the Marine Corps University Master Plan[4] and the Comprehensive Neighborhood Plan[5]. The Facility Review Board and other decision makers must be conversant with the concepts and proposals developed in these documents.

NOTE :

[1] The Onyx Group, *Draft Master Plan Update for the Marine Corps Base Quantico, Virginia,* 1999

[2] The Onyx Group, *Transportation Management Plan, MCB Quantico, Virginia,* 2000

[3] Facilities Planning Division, MCB Quantico, *Bicycle Master Plan*, 1999

[4] The Onyx Group, *Marine Corps University Master Plan, MCB Quantico, Virginia*

[5] Greenhorne & O'Mara, Inc., ibid

5.2.1 MCB Quantico Master Plan Update

The design guidelines and recommendations made in this BEAP apply to all projects developed through the planning process and included in the Master Plan.

5.2.2 MCB Quantico Transportation Master Plan

A Base-wide Transportation Management Plan (TMP) was developed along with the Master Plan Update. The BEAP guidelines and recommendations were developed in conjunction with the TMP proposals and recommendations.

5.2.3 Comprehensive Neighborhood Plan

The CNP takes a close look at the existing conditions at the MFH areas of the Base. It identifies specific deficiencies and proposes necessary improvements to bring the entire housing area up to Whole House and contemporary DOD standards, subject to Congressional limits.

The BEAP defers to the CNP for improvements and recommendations in the MFH areas. Projects generated by the CNP should be examined for compliance with the BEAP and modified if deemed appropriate.

5.3 Additional Actions

During the development of the BEAP, several issues were brought out in discussions with Base staff. While it is beyond the scope of the BEAP to resolve the manner in which the Base addresses these issues, those listed below impact the visual and aesthetic environment at MCB Quantico.

- Comprehensive Signage - The signage across the Base is not adequate to orient visitors and direct them to various parts of the Base. The style of the signage is not coordinated or consistent. A Comprehensive Signage Study should be undertaken to document locations and styles of existing signage and make recommendations for a cohesive Base signage program.
- Landscape Maintenance - Maintenance of existing and proposed landscape areas is another concern. The BEAP outlines general guidelines for landscape maintenance, but maintenance practices will need to be tailored to specific situations. Qualified staff or consultants, such as horticulturists, landscape architects or urban foresters, should be identified for implementing the landscape design guidelines and proposals, as well as to plan and oversee the day-to-day maintenance of all Base landscapes. In addition, a Base-wide landscape maintenance plan should be developed to outline site and organization specific requirements and responsibility.

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