



NAVFAC MID-ATLANTIC

RM13-1762 Hangar 111 Fire Protection & Structural Repairs

Naval Air Station (NAS) Oceana, Virginia Beach, Virginia

Phasing Plan

Final Submittal

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1. Introduction

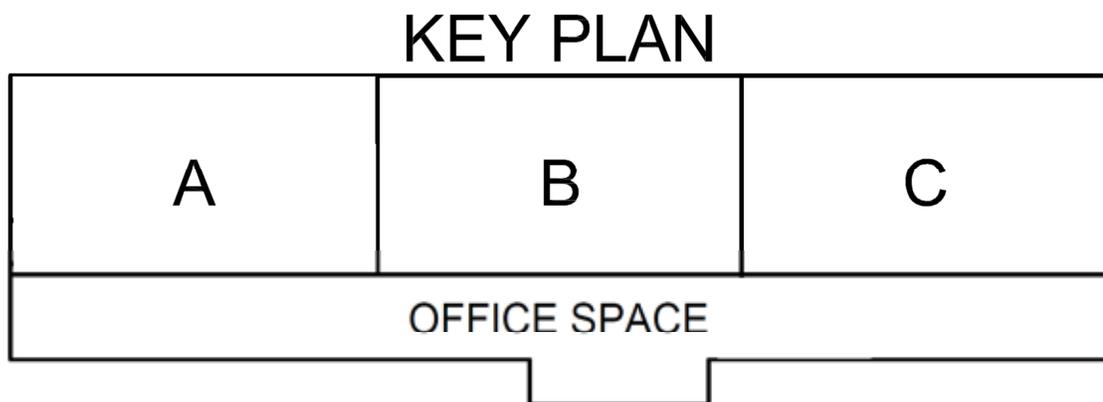
1.1 Disclaimer

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1.2 Scope

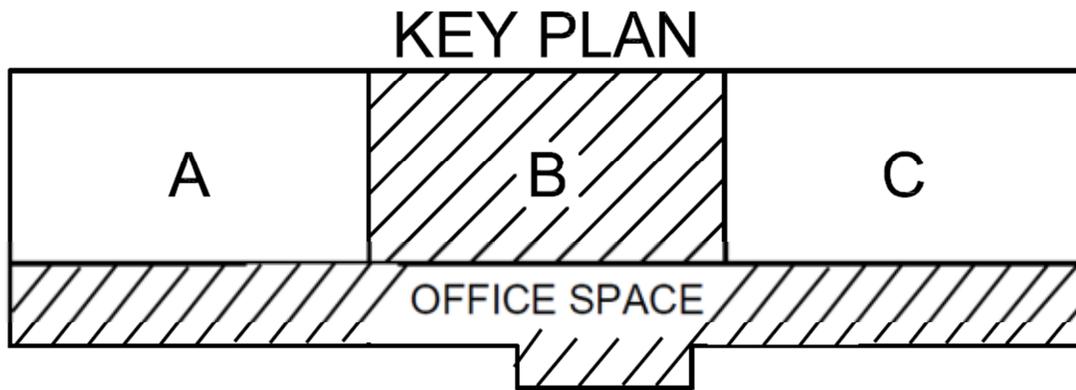
As part of the Statement of Architect-Engineering Services (SAES) dated 23 July 2015, construction phasing is required. This phasing plan is GHD’s recommendation of how phasing should be incorporated into the construction due to the operational requirements of the hangar end users.

GHD proposes the construction project to be completed in 4 separate phases. The first 3 phases coincide with the 3 hangar bays so that at any point in time the hangar remains 2/3 operational. Phase 4 will require the contractor to have full access of the hangar bay for testing/commissioning/demolishing.



2. Phase 1

The first phase will include the work associated with the exterior of the building, the interior office spaces (1st floor, 2nd floor, and mechanical penthouse/3rd floor), and the center hangar bay (bay “B”). At the beginning of Phase 1, provide temporary partitions between areas A-B and B-C. Prior to any work within the hangar, provide air monitoring for heavy metal dust.



2.1 Environmental

After the partitions are installed and area “B” is separated from the other areas and prior to any other work within the hangar is conducted, begin abatement of heavy metal dust as required. This will include the hangar bay wall, the mechanical rooms, foam room and compressor room.

2.2 Civil

- Fire Water line.
- Exterior Drainage from hangar. Existing drains from hangar bay will be capped. Hangar bays will no longer have wash down capability.
- Oil Water Separator.
- AFFF Containment Tank
- Diverter for AFFF containment

2.3 Structural

- Structural Steel above center bay to be cleaned and painted.
- Trenches in Bay “B” will be conducted.
- Work in office space will be conducted.
- The work associated with the roof stays over Bay “B” will be conducted. This will include the stays at column line 9, 10, 18 and 19.

2.4 Fire Protection

- All work in the fire protection room, piping leading from fire protection room to hangar bay, and all fire protection work in hangar bay “B”.
- Sprinkler pipe installed shall be capped at phasing limits, tested and put into service.
- Conduct hydrostatic test on AFFF piping installed. AFFF system installed will be commissioned at the end of the project.
- Fire Alarm/Mass Notification work in the office area/mechanical rooms and exterior will be conducted. Speakers on the exterior walls outside of Bay “A” and “C” will be done during Phase 2 and Phase 3.

- Demolition of AFFF overhead fire suppression system, AFFF nozzles and fire alarm appliances in hangar bay “B” will be provided at the onset of construction activities in hangar bay “B”. Temporary re-routing of fire alarm circuits will be provided to ensure IR detectors in hangar bay “A” and “C” are maintained.
- The office area fire alarm system and sprinkler system will not be out of service. Transfer from existing main building FACP to new building FACP will occur in Phase 1.
- Conduct testing/commissioning of fire alarm/mass notification system related to Bay “B”.

2.5 HVAC

- Air Handling Units will be replaced. Modifications to duct work for AFTP will be conducted.
- Unit Heater in Foam room will be provided.
- HVAC TAB and commissioning will be done.

2.6 Compressed Air

- All work associated with the air compressor room will be conducted.

2.7 Architectural

- Construct temporary partitions between areas A-B and B-C.
- Paint all of the exterior walls.
- Clean and paint Hangar bay “B” area as indicated on the contract drawings.
- Install draft curtains in bay “B” and curtains that are at the dividing lines of bay “B”.
- Install insulation above hangar bay door in bay “B”.
- Repair the hangar bay doors in bay “B” and paint.
- Complete work in office space, fire protection room, electrical room, compressor room, and mechanical rooms.

2.8 Electrical

- Install 400Hz equipment in Bay “B”. The Government will provide temporary 400Hz power for aircraft maintenance during the construction.
- Install door motors, control panels, and safety sensors on hangar bay doors in Bay “B”.
- Conduct work in mechanical rooms.
- Conduct work in foam room, electrical room, and compressor room.
- Conduct exterior work as needed.

2.9 Plumbing

- Demolish drains in Bay “B”. Cap and abandon in place. Provide temporary measures within new trench so that any fluid spilled into the new trenches cannot flow into adjacent hangar bays.

Demolish drains in Fire Protection Room. Cap and abandon in place.

2.10 Impacts

2.10.1 Impacted Areas

- Office 306, 308, 309, 307.
- Bathroom(Head) 304
- Closet 305
- Stair S-2, S-3, and S-4
- Corridor C-3A
- Hangar Bay "B"
- Fire Protection Room M-1
- Elec Room M-2
- Tele Equip Room M-4
- Mechanical Room M-3
- (3) Mechanical Rooms 3rd floor
- Compressor Room

2.10.2 Life safety Requirements

Construction within the office areas above the ceiling of room 307, 309 306, 308 and the adjacent corridor will impact the life safety requirements of the building. Corridor C-2B will have to maintain an open and clear egress path at all times. During times of construction when the corridor will be required to be closed off due to overhead work in the corridor, temporary measures will have to be put into place to maintain egress capacity.

Recommendation for this work would be during non-business hours when the hangar is not in full use.

2.10.3 Hangar Operational Impacts

After the completion of Phase 1 none of the hangar bays will have drainage to the exterior. The drains in Bay "A" and "C" will have been capped at the exterior of building. Bay "A", "B", "C" will not have the capability to wash down aircraft or hangar bay floors.

Only bay "B" will have sprinkler protection. None of the AFFF system will be active. Sprinkler systems in "A" and "C" will be nonoperational.

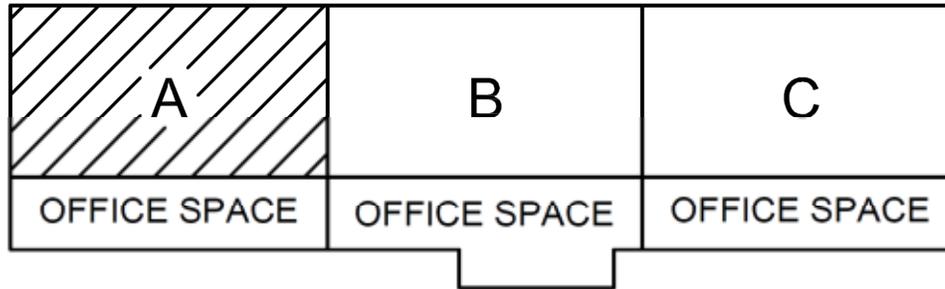
Only bay "B" will have complete fire alarm system (notification and detection). The only fire alarm system active in hangar bay "A" and "C" will be IR detectors.

Only bay "B" will have compressed air.

3. Phase 2

The second phase will include the work associated with the work associated with hangar bay "A".

KEY PLAN



3.1 Environmental

Prior to any work being done as part of phase 2, abatement for heavy metal dust must occur.

3.2 Civil

- Upon completion of trenching work in phase 2 remove temporary measures from bay “B” which will flow through the trench in bay “A” and continue to the OWS.

3.3 Structural

- Trenches in Bay “A” will be conducted.
- Trench running adjacent to the hangar bay doors will be connected from Bay “B” and to the exterior drainage.
- The work associated with the roof stays over Bay “A” will be conducted.

3.4 Fire Protection

- All fire protection work in hangar bay “A”.
- Sprinkler pipe installed shall be capped at phasing limits and then tested. Once the sprinkler pipe passes the hydrostatic test it will be connected to the sprinkler pipe in Bay “B” and hydrostatic tested again. It will then be in service and remain in service.
- Conduct hydrostatic test on AFFF piping installed. AFFF system installed will be commissioned at the end of the project.
- Fire Alarm/Mass Notification work will be conducted in Bay “A”. The speaker on the exterior of the building with shared walls to Bay “A” will be installed.
- Conduct testing/commissioning of fire alarm/mass notification system related to Bay “A”.
- Demolition of AFFF overhead fire suppression system, AFFF nozzles and fire alarm appliances in hangar bay “A” will be provided at the onset of construction activities in hangar bay “A”.

3.5 Architectural

- Clean and paint Hangar bay “A” area as indicated on the contract drawings.
- Install draft curtains in bay “A”.
- Install insulation above hangar bay door in bay “A”.

- Repair the hangar bay doors in bay “A” and paint.
- At the conclusion of Phase 2 remove temporary partition between areas A-B.

3.6 Electrical

- Install 400Hz equipment in Bay “A”. The Government will provide temporary 400Hz power for aircraft maintenance during the construction.
- Install door motors, control panels, and safety sensors on hangar bay doors in Bay “A”.
- Install diverter panel and containment tank panel in Bay “A”. Commission diverter panel, containment tank panel and put into service.

3.7 Plumbing

- Demolish drains in Bay “A”. Cap and abandon in place.

3.8 Impacts

3.8.1 Impacted Areas

- Hangar Bay “A”
- Fire Protection Room M-1
- Elec Room M-2
- Tele Equip Room M-4
- Mechanical Room M-3
- (3) Mechanical Rooms 3rd floor
- Compressor Room

3.8.2 Life safety Requirements

The construction efforts in Phase 2 will not affect the office areas. Access will still be required to mechanical rooms for coordination work, but there won't be any active construction which will impact the office space life safety requirements.

3.8.3 Hangar Operational Impacts

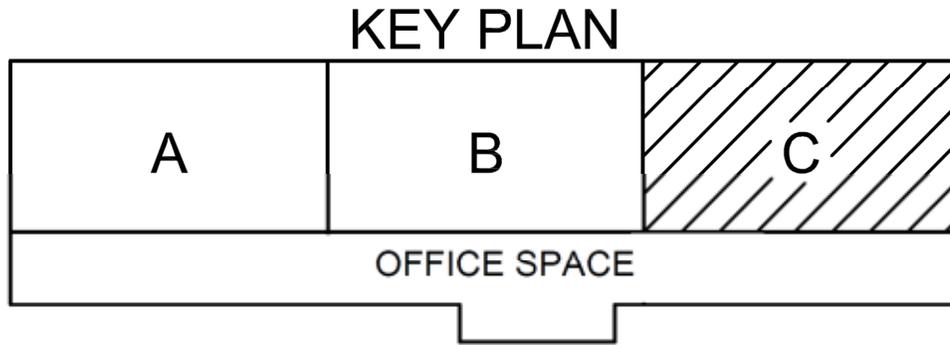
After the completion of Phase 2, bay “A” will have the ability to perform wash down of the hangar bay floor. Trenching, OWS, and diverters will have been installed and commissioned so Bay “A” will be operational. Bay “B” will still require the trenching required in Phase 3 to be install before it can be fully operational for wash down capability.

Bay “A” and “B” will have active sprinkler protection at this point. The AFFF system will still not be active as it will not be commissioned until a later phase.

Bay “A” and “B” will have complete fire alarm system (notification and detection).

4. Phase 3

The third phase will include the work associated with the work associated with hangar bay “C”.



4.1 Environmental

Prior to any work being done as part of phase 3, abatement for heavy metal dust must occur.

4.2 Civil

- Upon completion of trenching work in phase 3 remove temporary measures from bay “B” which will flow through the trench in bay “C” and continue to the OWS.

4.3 Structural

- Trenches in Bay “C” will be conducted.
- Trench running adjacent to the hangar bay doors will be connected from Bay “B” and to the exterior drainage.
- The work associated with the roof stays over Bay “C” will be conducted.

4.4 Fire Protection

- All fire protection work in hangar bay “C”.
- Sprinkler pipe installed shall be capped at phasing limits and then tested. Once the sprinkler pipe passes the hydrostatic test it will be connected to the sprinkler pipe in Bay “B” and hydrostatic tested again. It will then be in service and remain in service.
- Conduct hydrostatic test on AFFF piping installed. AFFF system installed will be commissioned at the end of the project.
- Fire Alarm/Mass Notification work will be conducted in Bay “C”. The speaker on the exterior of the building with shared walls to Bay “C” will be installed.
- Conduct testing/commissioning of fire alarm/mass notification system related to Bay “C”.
- Demolition of AFFF overhead fire suppression system, AFFF nozzles and fire alarm appliances in hangar bay “C” will be provided at the onset of construction activities in hangar bay “C”.

4.5 Architectural

- Clean and paint Hangar bay “C” area as indicated on the contract drawings.
- Install draft curtains in bay “C”.

- Install insulation above hangar bay door in bay “C”.
- Repair the hangar bay doors in bay “C” and paint.
- At the conclusion of Phase 3 remove temporary partition between areas B-C.

4.6 Electrical

- Install 400Hz equipment in Bay “C”. The Government will provide temporary 400Hz power for aircraft maintenance during the construction.
- Install door motors, control panels, and safety sensors on hangar bay doors in Bay “C”.

4.7 Plumbing

- Demolish drains in Bay “C”. Cap and abandon in place.

4.8 Impacts

4.8.1 Impacted Areas

- Hangar Bay “C”
- Fire Protection Room M-1
- Elec Room M-2
- Tele Equip Room M-4
- Mechanical Room M-3
- (3) Mechanical Rooms 3rd floor
- Compressor Room

4.8.2 Life safety Requirements

The construction efforts in Phase 3 will not affect the office areas. Access will still be required to mechanical rooms for coordination work, but there won't be any active construction which will impact the office space life safety requirements.

4.8.3 Hangar Operational Impacts

After the completion of Phase 3, the three hangar bays will have full drainage capability and wash down capability.

All three hangar bays will have active wet-pipe sprinkler protection. The AFFF system will still not be active as it will not be commissioned until a later phase.

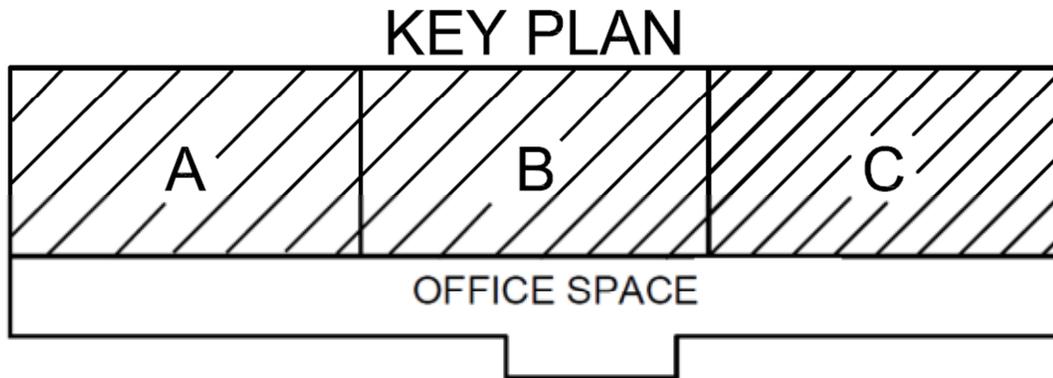
All three hangar bays will have complete fire alarm system (notification and detection).

5. Phase 4

The fourth phase will include the full commissioning of hangar bay systems.

Given the full flow test of the AFFF system it is recommended that the entire hangar bay area be emptied during testing.

One month should be made available for testing. This includes the preparation, preliminary testing, review of the preliminary testing, and the final testing.



5.1 Fire Protection

- Commission the AFFF system.

5.2 Environmental

- Dispose of the AFFF test liquid.

5.3 Impacts

5.3.1 Impacted Areas

- Hangar Bay “A”, “B”, and “C”
- Fire Protection Room M-1
- Elec Room M-2
- Tele Equip Room M-4
- Mechanical Room M-3
- (3) Mechanical Rooms 3rd floor
- Compressor Room

5.3.2 Life safety Requirements

The construction efforts in Phase 4 will not affect the office areas. Access will still be required to mechanical rooms for coordination work, but there won't be any active construction which will impact the office space life safety requirements.

5.3.3 Hangar Operational Impacts

During phase 4 there will be no operations within the hangar bay area. Coordination between the contractor and NAVFAC will be critical to expedite phase 4. Upon completion of phase 4 the hangar bay will have a fully functional fire protection system.



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