CHAPTER 5

ARCHITECTURE

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# 5.1 GENERAL

This chapter gives general guidance for the preparation of Design Analysis, Design Drawings and Specifications as related to architectural aspects of military construction projects for each required submittal phase.

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# 5.2 CONCEPT/PROJECT DEFINITION DESIGN (30%) SUBMITTAL REQUIREMENTS

## 5.2.1 Design Analysis

### 5.2.1.1 Design Criteria

Include a list of architectural design criteria not already generally referenced, including regulations, UFCs, handbooks, manuals, codes, standards etc. that are applicable to the project.

### 5.2.1.2 Narratives

#### 5.2.1.2.1 Architectural Compatibility Narrative

Describe scale, massing, and style of buildings in the immediate vicinity of the site and other installation buildings. Discuss the approach to achieve architectural compatibility with nearby facilities. Describe installation/customer preferences and how these will be addressed. Describe historical requirements impacting appearance and material selections.

#### 5.2.1.2.2 Space Organization and Programming Narrative

Describe the building’s space organization including major use areas and circulation.

#### 5.2.1.2.3 Construction Materials and Finishes Narrative

Describe materials for all major items of construction including exterior wall system, interior wall/partition systems, roof system including membrane and configuration (slope and structural system), floor systems/finishes, ceiling systems/finishes, and air barrier system/components. List advantages and disadvantages for each system and identify system chosen with reason for selection, considering life-cycle cost comparison. Identify R-values for all insulation materials. Identify roof and wall systems components used as vapor, moisture and/or air barrier control. Describe means for controlling water penetration and moisture migration through exterior roof and walls.

#### 5.2.1.2.4 Sustainability Narrative

Describe energy reduction strategies, LEED strategies and goals, daylighting strategies and energy conservation features. Refer to the appropriate Appendix containing the LEED Checklist indicating total project goals as completed by the design team.

#### 5.2.1.2.5 ATFP Requirements Narrative

Indicate applicability of ATFP requirements to the project. Describe architectural features related to ATFP requirements and guidance. Refer to the appropriate Appendix containing the ATFP Checklist as completed by the design team.

#### 5.2.1.2.6 Accessibility Requirements for the Disabled Narrative

Describe whether part or the entire project is required to be accessible or is to be manned by able-bodied personnel only.

### 5.2.1.3 Calculations

#### 5.2.1.3.1 Functional Space Requirements

Include a functional space requirements table comparing to programmed floor areas to the actual floor areas provided in the submittal. Include room names, net square footages, occupancy values, and general room notes for each space. Also include net floor areas for circulation, utilities, and structure. Provide comparison of overall gross floor area with allowable overall programmed or required floor area.

## 5.2.2 Design Drawings

The following are minimum drawing requirements for this submittal to illustrate design objectives for architectural intentions and functional features.

### 5.2.2.1 Architectural Floor Plans

Provide composite architectural floor plans for each building showing exterior walls, exterior window and door locations, interior partitions, interior window and door locations, plumbing fixtures, circulation elements, and room names and numbers. Scale shall be at ⅛” = 1’-0” or ¼” = 1’-0”. Provide composite plans to show the overall building, and enlarged floor plans, as required, to show areas of the floor plan if it must be shown in segments to achieve the appropriate scale. Floor plans shall cross reference to building elevations and enlarged floor plans. Include overall dimensions, a graphic scale, north arrow, and key plan indicating the area of the building represented on enlarged plan sheets.

### 5.2.2.2 Demolition Plans (as required)

Provide composite demolition plans showing modification work required on exterior walls, interior partitions, circulation elements, etc. Provide composite demolition plans to show the overall building, and enlarged demolition plans, as required, to show enlarged areas of the floor plan if it must be shown in segments to achieve the appropriate scale. Scale shall match the scale of the composite floor plan and enlarged floor plans. Demolition plans shall cross reference to enlarged demolition plans. Include overall dimensions, a graphic scale, north arrow and key plan indicating the area of the building represented on enlarged demolition plan sheets.

### 5.2.2.3 Building Elevations

Provide building elevations for all sides of the building showing grading, building profile, window and door openings, exterior finish materials and exterior specialties. Scale shall match the scale of the composite floor plan. Building elevations shall back reference to architectural floor plans. Include a graphic scale, floor elevations, and note the amount of roof slope.

### 5.2.2.4 Building Sections

Provide a typical building section through major features of the building to show exterior wall construction and unique building features. Scale shall match the scale of the composite floor plan. Building sections shall cross reference to wall sections and back reference to architectural floor plans. Include keynotes, a graphic scale, floor elevations, and wall section callouts.

### 5.2.2.5 Wall Sections

Provide a typical exterior wall section that shows exterior finish materials, exterior wall construction, and interior wall construction, as applicable. Scale shall be at ½” = 1’-0” minimum and shall be unbroken where practical. Wall section shall back reference to building sections. Include wall section notations, a graphic scale, floor elevations, exterior finish feature elevations, bearing elevations, and detail callouts.

# 5.3 INTERIM (60%) DESIGN SUBMITTAL REQUIREMENTS

## 5.3.1 Design Analysis

The Interim (60%) Design Analysis shall be updated from the 30% submittal to permit verification that the design complies with the criteria furnished, describing all design revisions and developments, and incorporating comments from the Concept/Project Definition Design (30%) review.

### 5.3.1.1 Narratives

Update all previously required narratives to reflect design changes from the Concept/Project Definition Design (30%) phase to the Interim Design (60%) phase, ensuring that all comments from the Concept/Project Definition Design (30%) phase are incorporated.

### 5.3.1.2 Calculations

#### 5.3.1.2.1 Functional Space Requirements

Update the functional space requirements calculations to reflect design changes from the Concept/Project Definition Design (30%) phase to the Interim Design (60%) phase.

#### 5.3.1.2.2 Plumbing Fixture Calculations

Provide calculations indicating the required number of plumbing fixtures for the facility for men and women, including electric water coolers in accordance with UFC 3-420-01 Plumbing Systems. Unless otherwise indicated, number of fixtures shall be based on occupancy type and number of building occupants as calculated for NFPA 101.

#### 5.3.1.2.3 Gutter and Downspout Sizing Calculations

Provide calculations indicating the size, type, and number of gutters and downspouts for roof drainage in accordance with UFC 3-110-03 Roofing.

### 5.3.1.3 Life Safety/Fire Protection Code Review

Provide life safety/fire protection code review as an Appendix to the Design Analysis. Refer to the appropriate appendix for the code review form and requirements. Also include fire team review signatures indicating review of the Interim (60%) Fire Protection/Life Safety Code Review and floor plans.

### 5.3.1.4 Listing of Specifications

Provide an updated listing of architectural specifications of those submitted in the specification listing in the Concept/Project Definition Design (30%) phase Design Analysis, adding specifications as appropriate for the construction of the building. Where no UFGS sections or standard specification sections are available, include additional sections from available criteria to cover all pertinent materials and requirements. Coordinate with specifications included for Division 01 General Requirements and with those by other disciplines in the same listing.

## 5.3.2 Drawings

The Interim (60%) Drawings shall be further refined and developed to reflect design changes from the Concept/Project Definition Design (30%) phase to the Interim Design (60%) phase, ensuring that all comments from the Concept/Project Definition Design (30%) phase are incorporated.

### 5.3.2.1 General Architectural Information

Provide general information including, but not limited to, architectural abbreviations, annotation symbols, symbol and material legends, and ADA mounting heights for toilet accessories.

### 5.3.2.2 Architectural Floor Plans

Provide composite architectural floor plans for each building showing exterior walls, exterior and interior windows, exterior and interior door locations and labels, interior partitions, plumbing fixtures, circulation elements, room names and numbers, and fire extinguishers, fire/smoke partitions, brick expansion joint and downspout locations. Scale shall be at ⅛” = 1’-0” or ¼” = 1’-0”. Provide composite plans to show the overall building, and enlarged floor plans, as required, to show areas of the floor plan if it must be shown in segments to achieve the appropriate scale. Floor plans shall cross reference to building elevations, sections and enlarged floor plans. Include overall dimensions, interior dimensions, door tags, structural grid, keynotes, a graphic scale, north arrow, and key plan indicating the area of the building represented on enlarged plan sheets.

### 5.3.2.3 Demolition Floor Plans (as required)

Provide composite demolition floor plans showing modification work required on exterior walls, interior partitions, circulation elements, etc. Provide composite demolition plans to show the overall building, and enlarged demolition floor plans, as required, to show enlarged areas of the floor plan if it must be shown in segments to achieve the appropriate scale. Scale shall match the scale of the composite floor plan and enlarged floor plans. Include overall dimensions, interior dimensions, keynotes, a graphic scale, north arrow and key plan indicating the area of the building represented on enlarged demolition plan sheets.

### 5.3.2.4 Reflected Ceiling Plans

Provide a reflected ceiling plan that includes ceiling materials, open ceilings and ceiling heights. Scale shall match the scale of the composite and enlarged floor plans, as applicable, to show areas of the floor plan if it must be shown in segments to achieve the appropriate scale. Include a graphic scale, north arrow, and detail callouts.

### 5.3.2.5 Roof Plan

Provide a roof plan showing the roof configuration and features including parapet walls, ridge caps, crickets, scuppers, roof drains, roof access locations, snow guards, safety tie-off system, roof mounted equipment, splash pans, walk mats, gutters and downspouts. Scale shall match the scale of the composite and enlarged floor plans, as applicable, to show areas of the floor plan if it must be shown in segments to achieve the appropriate scale. Include keynotes, a graphic scale, detail callouts, and note the direction and amount of roof slope.

### *5.3.2.5.1 Building Elevations*

Provide building elevations for all sides of the building showing grading, building profile, window and door openings, exterior finish materials, elevation features and exterior specialties. Scale shall match the scale of the composite floor plan. Building elevations shall back reference to architectural floor plans. Include keynotes, exterior finish schedule, a graphic scale, floor elevations, exterior finish feature elevations, and note the amount of roof slope.

### 5.3.2.6 Building Sections

Provide building sections through major features of the building to show exterior wall construction and unique building features. Scale shall match the scale of the composite floor plan. Building sections shall cross reference to wall sections and details, and back reference to architectural floor plans. Include keynotes, a graphic scale, floor elevations, and wall section and details callouts.

### 5.3.2.7 Wall Sections

Provide typical exterior wall sections that show exterior finish materials, exterior wall construction, and interior wall construction, as applicable. Scale shall be at ½” = 1’-0” minimum and shall be unbroken where practical. Wall sections shall back reference to building sections. Include wall section notations, a graphic scale, floor elevations, exterior finish feature elevations, bearing elevations, and detail callouts.

### *5.3.2.7.1 Enlarged Plans*

Provide enlarged plans for vertical circulations elements (stairs, elevators, etc.), restrooms/shower and locker rooms, and other significant project details. Scale shall be at ¼” = 1’-0” or ½” = 1’-0”. Enlarged plans shall back reference to architectural floor plans. Include keynotes, a graphic scale, and detail callouts.

### 5.3.2.8 Door Schedule

Provide door schedules indicating the door number, door size and type, frame type, fire rating, type of glazing, and general notes regarding specific requirements of doors. Door tags on architectural floor plans shall correspond to door numbers found in the door schedule.

### 5.3.2.9 Fire Protection/Life Safety Code Review & Plan (For Reference Only)

Provide multi-disciplinary (Architectural, Mechanical and Electrical) Fire Protection/Life Safety Floor Plan that indicates fire suppression information including identification of fire/smoke partitions, locations of fire extinguishers, exit signs, pull stations, exit devices, emergency lights, smoke detectors, strobe and speaker locations and fire panel. Drawings shall indicate life safety code egress distances, including dead end corridor, common path of travel and distance to exit lengths. Scale shall match the scale of the composite floor plan and enlarged floor plans. Include a legend of symbols, a graphic scale, north arrow, and key plan indicating the area of the building represented on enlarged plan sheets. Also include the Fire Protection/Life Safety Code Review pasted on a sheet in the design drawing package.

All Fire Protection/Life Safety Code drawings are for project record only and shall include a disclaimer: “This drawing is for reference only. It is not part of the construction contract and all information contained here is located on the construction documents.” The intent for including these drawings with the contract drawings is to assure that upon archiving, the fire protection/life safety code intentions are not lost. Typically, Installations keep as-built drawings, but not the design analysis.

## 5.3.3 Specifications

The designers may choose to provide a full set of edited specifications through Specsintact showing the mark-ups (deletions and additions) for review.

# 5.4 FINAL (90%) DESIGN SUBMITTAL REQUIREMENTS

## 5.4.1 Design Analysis

The Final (90%) Design Analysis shall be an updated to permit verification that the design complies with the criteria furnished, describe all design revisions and developments, and incorporate comments from the Interim Design (60%) phase. The following additional items shall be included in the Final (90%) Design Analysis.

### 5.1.1.1 Narratives

Update all previously required narratives to reflect design changes from the Interim Design (60%) phase to the Final Design (90%) Phase, ensuring that all comments from the Interim Design (60%) phase are incorporated.

### 5.4.1.2 Calculations

Update all previously required calculations to reflect design changes from the Interim Design (60%) phase to the Final Design (90%) phase.

### 5.4.1.3 Life Safety/Fire Protection Code Review

Provide an updated life safety/fire protection code review as an Appendix to the Design Analysis. Refer to the appropriate appendix for the code review form and requirements. Also include fire team review signatures indicating review of the Final (90%) Fire Protection/Life Safety Code Review and floor plans.

### 5.4.1.4 Engineering Considerations

Provide Engineering Considerations for field personnel concerning architectural concerns, coordinating with other disciplines, as an Appendix to Design Analysis.

## 5.4.2 Design Drawings

The Final (90%) Design Drawings shall be further refined and developed to reflect design changes from the Interim Design (60%) phase to the Final Design (90%) phase, ensuring that all comments from the Interim Design (60%) phase are incorporated. Ensure all design drawings have been coordinated with the specifications.

### 5.4.2.1 General Architectural Information

Provide general information including, but not limited to, architectural abbreviations, annotation symbols, symbol and material legends, and ADA mounting heights for toilet accessories.

### 5.4.2.2 Architectural Floor Plans

Provide composite architectural floor plans for each building showing exterior walls, exterior window and door locations, interior partitions, interior window and door locations and labels, plumbing fixtures, circulation elements, room names and numbers, and fire extinguishers, fire/smoke partitions, brick expansion joint and downspout locations. Scale shall be at ⅛” = 1’-0” or ¼” = 1’-0”. Provide composite plans to show the overall building, and enlarged floor plans, as required, to show areas of the floor plan if it must be shown in segments to achieve the appropriate scale. Floor plans shall cross reference to building elevations, sections, enlarged floor plans, and interior elevations. Include overall dimensions, interior dimensions, door tags, window tags, partition tags, structural grid, keynotes, a graphic scale, north arrow, and key plan indicating the area of the building represented on enlarged plan sheets.

### 5.4.2.3 Demolition Floor Plans (as required)

Provide composite demolition floor plans showing modification work required on exterior walls, interior partitions, circulation elements, etc. Provide composite demolition plans to show the overall building, and enlarged demolition floor plans, as required, to show enlarged areas of the floor plan if it must be shown in segments to achieve the appropriate scale. Scale shall match the scale of the composite floor plan and enlarged floor plans. Include overall dimensions, interior dimensions, keynotes, a graphic scale, north arrow and key plan indicating the area of the building represented on enlarged demolition plan sheets.

### 5.4.2.4 Reflected Ceiling Plans

Provide a reflected ceiling plan that includes ceiling materials, open ceilings and ceiling heights. Reflected ceiling plan shall reference Mechanical air diffusers and return air vents, and Electrical lights, strobe and speaker locations. Scale shall match the scale of the composite and enlarged floor plans, as applicable, to show areas of the floor plan if it must be shown in segments to achieve the appropriate scale. Reflected Ceiling Plans shall cross reference to soffit details. Include a graphic scale, north arrow, and detail callouts.

### 5.4.2.5 Roof Plan

Provide a roof plan showing the roof configuration and features including parapet walls, ridge caps, crickets, scuppers, roof drains, roof access locations, snow guards, safety tie-off system, roof mounted equipment, splash pans, walk mats, gutters and downspouts. Scale shall match the scale of the composite and enlarged floor plans, as applicable, to show areas of the floor plan if it must be shown in segments to achieve the appropriate scale. Include keynotes, a graphic scale, detail callouts, and note the direction and amount of roof slope.

### *5.4.2.5.1 Building Elevations*

Provide building elevations for all sides of the building showing grading, building profile, window and door openings, exterior finish materials, elevation features and exterior specialties. Scale shall match the scale of the composite floor plan. Building elevations shall back reference to architectural floor plans. Include keynotes, exterior finish schedule, a graphic scale, floor elevations, exterior finish feature elevations, and note the amount of roof slope. Where manufacturers are used to establish specific finishes, include disclaimer: “Manufacturers referenced are intended to establish design intent only and are not intended to limit selections from other manufacturers.” Assure that manufacturers listed can meet the specification for the product.

### 5.4.2.6 Building Sections

Provide building sections through major features of the building to show exterior wall construction and unique building features. Scale shall match the scale of the composite floor plan. Building sections shall cross reference to wall sections and details, and back reference to architectural floor plans. Include keynotes, a graphic scale, floor elevations, and wall section and details callouts.

### 5.4.2.7 Wall Sections

Provide typical exterior wall sections that show exterior finish materials, exterior wall construction, and interior wall construction, as applicable. Scale shall be at ½” = 1’-0” minimum and shall be unbroken where practical. Wall sections shall cross reference to miscellaneous details, and back reference to building sections. Include wall section notations, a graphic scale, floor elevations, exterior finish feature elevations, bearing elevations, and detail callouts.

### 5.4.2.8 Enlarged Plans

Provide enlarged plans for vertical circulations elements (stairs, elevators, etc.), restrooms/shower and locker rooms, and other significant project details. Scale shall be at ¼” = 1’-0” or ½” = 1’-0”. Enlarged plans shall back reference to architectural floor plans. Include toilet accessory schedule, keynotes, a graphic scale, and detail callouts.

### 5.4.2.9 Partition Types

Provide sections of interior partition types indicating wall materials, finishes, base anchorage, termination at of top of wall, firestopping, fire rating including UL listing and STC rating. Partition types shall correspond to partition tags found on the architectural floor plans.

### 5.4.2.10 Door Schedule

Provide door schedules indicating the door number, door size and type, frame type, hardware set, fire rating, type of glazing, and general notes regarding specific requirements of doors. Door tags on architectural floor plans shall correspond to door numbers found in the door schedule. Hardware sets shall be coordinated with the door hardware specifications.

### 5.4.2.11 Door and Window Elevations and Details

Provide door and window elevations for all types of exterior and interior doors and windows including head, jamb and sill details for each type. Include details for astragals, weather-stripping, thresholds, floor transitions, mullions, and physical security details. Define and indicate glazing types used in the various doors and windows.

### 5.4.2.12 Miscellaneous Details

Provide miscellaneous details for unique building features including, but not limited to roof eave, roof ridge, equipment mounting, column framing, soffits, roof access, vertical circulation elements (elevator, stairs, etc.), and guard and hand rails. Details shall be back referenced to architectural floor plans, building sections, and wall sections. Include drawing notations, dimensions as required, a graphic scale, and detail callouts.

### 5.4.2.13 Interior Elevations

Provide interior elevations for all unique architectural features of the building including, built in casework, lockers, restroom elevations, etc. Provide sectional details for various casework types. Interior Elevations shall back reference to architectural floor plans. Include drawing notations, dimensions as required, a graphic scale, and detail callouts.

### 5.4.2.14 Air Barrier Plans, Sections and Details

Provide composite floor plans and multiple building sections highlighting the location of the building air barrier system. Provide air barrier details for each juncture of walls/floor slabs, walls/roof, doors and window openings, noting each air barrier component and how each air barrier components transitions to the next air barrier component to create a system. Air Barrier sections shall be cross referenced to air barrier details; air barrier details shall be back referenced to air barrier sections. Include a graphic scale, north arrow, and section and detail callouts.

### 5.4.2.15 Sealant, Masonry Joint and Miscellaneous Standard Details

Provide standard details including, but not limited to, masonry expansion joints, crack control joints, joints between varying materials, sealant at STC rated partitions and ceilings, sealant at thresholds, sealant at door and window frames, and sealant at through wall and through floor piping.

### 5.4.2.16 Fire Protection/Life Safety Plan (For Reference Only)

Provide multi-disciplinary (Architectural, Mechanical and Electrical) Fire Protection/Life Safety Floor Plan that indicates fire suppression information including identification of fire/smoke partitions, locations of fire extinguishers, exit signs, pull stations, exit devices, emergency lights, smoke detectors, strobe and speaker locations and fire panel. Drawings shall indicate life safety code egress distances, including dead end corridor, common path of travel and distance to exit lengths. Scale shall match the scale of the composite floor plan and enlarged floor plans. Include a legend of symbols, a graphic scale, north arrow, and key plan indicating the area of the building represented on enlarged plan sheets. Also include the Fire Protection/Life Safety Code Review pasted on a sheet in the design drawing package.

All Fire Protection/Life Safety Code drawings are for project record only and shall include a disclaimer: “This drawing is for reference only. It is not part of the construction contract and all information contained here is located on the construction documents.” The intent for including these drawings with the contract drawings is to assure that upon archiving, the fire protection/life safety code intentions are not lost. Typically, Installations keep as-built drawings, but not the design analysis.

## 5.4.3 Specifications

Provide a complete set of fully edited specifications from the updated listing included in the Final Design (90%) Design Analysis. All requirements for the project shall be explicitly described in the specifications. Unified Facilities Criteria (UFC) or other requirement documents shall not be referenced that require the contractor to interpret design criteria except as related to extensions of design such as for metal building systems. Specifications take precedence over drawings for construction contracts.

### 5.4.3.1 Propriety

Specifications must not be restrictive or proprietary. Generally, the description will be such that at least three manufacturers can meet the specified requirements. Specifications shall be adequate to maintain quality of product and installation. Where trade names and model numbers are listed, provide at least three acceptable manufacturers.

### 5.4.3.2 Coordination with Drawings

Ensure that equipment and systems are fully specified through combination of drawings and specifications. Avoid duplicating requirements and conflicts. Where a specification references drawings, the drawings shall reflect the items indicated. Example: Specification states, “Access doors where shown.” Drawings shall show access door locations.

### 5.4.3.3 Submittal Registers

Provide submittal register for all specifications, typically after Section 00 80 00.00 06, indicating submittals requiring Government Approval and the appropriate agency providing review and approval.

## 5.4.4 Rendering

Provide a minimum of one digital color rending showing an exterior perspective view of the proposed building within the context of the site. Rendering shall be provided as an Appendix to the Design Analysis, and provided electronically in high resolution .jpeg format for reproduction and framing. The view selected for the rendering shall be approved by the USACE PE/A prior to finalizing.

# 5.5 CORRECTED FINAL (100%) DESIGN SUBMITTAL REQUIREMENTS.

Update Design Analysis, Design Drawings, and Specifications based on resolutions to Final (90%) Design review comments. Verify consistency between Design Drawings and Specifications.

----END OF SECTION----