

APPENDIX G
EXAMPLE MILITARY CHECKLIST

This checklist is intended to serve only as a guide in checking or reviewing design documents for errors and omissions. It cannot substitute for the exercise of sound engineering judgement by reviewers. Professionals must maintain control of their decisions, understand the technical basis for those decisions, and independently evaluate significant data upon which the design decisions are based. The main usefulness of a checklist such as this is to provide a "minimum" check of consistency between disciplines, and compatibility of drawings to specifications. It is expected that it will be modified by each USACE command to fit specific requirements. Each item in the checklist must be checked off to indicate that the item has been reviewed, or marked "NA" to indicate it is not applicable.

Verify:

A. GENERAL:

1. That all documents have been logically ordered and a table of contents provided. _____
2. That all documents have been signed and dated. _____
3. That the scale and orientation of the drawings are consistent throughout the complete set of drawings. _____
4. That SOW shown in the design submission has been checked against the official 1391 and current design directive. _____
5. That all real estate planning reports have been reviewed to identify real estate constraints. _____
6. That appropriate elements have been notified of any additional real estate requirements. _____
7. Schedules and budgets are in accordance with the PMP. _____

B. CIVIL:

1. Existing and proposed grades. _____
2. That haul routes, disposal/borrow sites, construction contractor's storage area, construction limits, and construction staging area are shown. _____
3. Existing utilities. _____
4. That new underground utilities have been checked for conflicts against the site plans. _____

5. That utility tie-in locations agree with mechanical stub out plan. _____

6. That profile sheets show underground utilities and avoid conflicts _____

7. That property lines and limits of clearing, grading, turfing, or mulch have been shown and are consistent with architectural and/or landscaping plans. _____

8. That fire hydrant and power/telephone pole locations correspond with electrical and architectural drawings. _____

9. That basis of horizontal and vertical control is given and the control points are located properly with pertinent data shown: i.e., elevations, coordinates, stationing, and/or start of construction. _____

10. That valve boxes and manholes match final finished grades or pavement, swales or sidewalks. _____

11. That boring locations, soil classifications, water table, and depth of rock are shown on the plans. _____

12. That rigid pavement joint plans are shown with reasonable spacing. _____

13. That foundation coordinates are shown on the foundation plan and coordinated with architectural drawings. _____

14. That finished floor elevations match on architectural and structural drawings. _____

15. That civil specifications are coordinated with plans. _____

16. That storm and sewage drains from the facility have adequate capacity. _____

17. That directions to contractors are not duplicated in plan notes and in the specifications. _____

C. LANDSCAPE:

1. That the sprinklers, lighting, hardscape, etc., correspond with the site limits, including the building and civil plans. _____

2. That maintenance of landscape has been provided for in the design documents. _____

D. STRUCTURAL:

1. That the design load conditions meet or exceed the Building codes and the Design Standards. _____

2. That the column orientation and grid lines on the structural and the architectural drawings match. _____
3. That the load-bearing walls and the column locations match with architectural drawings. _____
4. That the slab elevations match the architectural drawings. _____
5. That the depressed or raised slabs are indicated and match the architectural drawings. _____
6. That the limits of slabs on the structural drawings match the architectural drawings. _____
7. That the expansion joints through the structural drawings match the architectural drawings. _____
8. The footing depths and coverage with the existing and final grades. _____
9. That the foundation piers, footings, grade beams are coordinated with schedules. _____
10. The footing and pier locations with the new and existing utilities, trenches and tanks. _____
11. That the foundation wall elevations are the same as on the architectural drawings. _____
12. That the location of floor and roof framing column lines and column orientation match the foundation plan column lines and column orientation. _____
13. That the structural perimeter floor and roof lines match the architectural drawings. _____
14. That the section and detail call outs are proper and cross-referenced. _____
15. That the columns, beams, and slabs are listed in schedules and are coordinated. _____
16. That the column length, beam, and joist depths match with the architectural drawings. _____
17. That the structural dimensions match the architectural drawings. _____
18. That the drawing notes do not conflict with specifications. _____
19. That the architectural construction and rustication joints are correct. _____
20. The structural openings with the architectural, mechanical, electrical, and plumbing drawings. _____

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21. The structural joist and beam location with water closets, floor urinals, floor drains and chases. _____

22. The structural design roof and floors for the superimposed loads, including the HVAC equipment, boilers, glass walls, etc. _____

23. 'Cambers, drifts, and deflections with the architectural drawings. _____

24. That the concentrated load points on joists do not conflict with design by other disciplines; i.e., large water lines or fire main lines. _____

25. That horizontal and vertical bracing, ladders, stairs and framing do not interfere with doorways, piping, duct work, electrical, equipment, etc. _____

26. That the structural fire proofing requirements are coordinated with the architectural requirements. _____

27. That the rock excavation is a base bid or a unit price. _____

E. ARCHITECTURAL:

1. That site property lines and existing conditions match with survey or civil drawings. _____

2. That building location meets all setback requirements, zoning codes, and deed restrictions. _____

3. That building limits match with civil, plumbing, and electrical on-site plans. _____

4. That locations of columns, bearing walls, grid lines and overall building dimensions match structural. _____

5. That locations of expansion joints, all floors, match with structural drawings. _____

6. That demolition instructions are clear on what to remove and what is to remain, and are coordinated with design documents. _____

7. That building elevations match floor plans and have the same scale. _____

8. That building sections match elevations, plans, and structural drawings. _____

9. Building plan match lines are consistent on structural, mechanical, plumbing, and electrical drawings. _____

10. Structural member locations are commensurate architecturally. _____

11. That elevation points match with structural drawings. _____

12. That chases match on structural, mechanical, plumbing, and electrical drawings _____
13. That section and detail call outs are proper and cross-referenced. _____
14. That large-scale plans and sections match small scale plans and sections. _____
15. Reflected architectural ceiling plans with mechanical, and electrical plans. _____
16. That columns, beams, and slabs are listed on elevations and sections. _____
17. That door schedule information matches plans, elevations, fire rating, and project manual. _____
18. That cabinets or millwork will fit in available space. _____
19. That flashing through the wall and weep holes are provided where moisture may penetrate the outer material. _____
20. Flashing materials and gauges. _____
21. Fire ratings of walls, ceilings, fire and smoke dampers. _____
22. That miscellaneous metals are detailed, noted, and coordinated with the Project Manual. _____
23. That equipment room or areas are commensurate with mechanical, electrical, and plumbing. _____
24. The limits, types, and details of waterproofing and coordination with design documents. _____
25. The limits, types, and details of insulation and coordination with design documents. _____
26. The limits, types, and details of roofing and coordination with design documents. _____
27. Skylight structures compatibility with structural design. _____
28. That piping loads hang from the roof or floors, are coordinated with the mechanical — and structural drawings, and proper inserts are called for on the drawings. _____
29. That all mechanical and electrical equipment is properly supported and that all architectural features are adequately framed and connected. _____
30. That all drawings showing monorails, hoists, and similar items have support details, notes, and that the locations are coordinated with the architectural, structural, mechanical, and electrical drawings. _____

- 31. That walls, partitions, and window walls are not inadvertently loaded through deflection. _____
 - 32. That all window walls, expansions, and weeps are provided. _____
 - 33. That all handicapped requirements are coordinated with plumbing and electrical. _____
 - 34. That architectural space requirements are commensurate with duct work conduit, — piping, light fixtures, and other recesses. _____
 - 35. That architectural space requirements are commensurate with elevators, escalators, and other equipment. _____
 - 36. Dew point in walls, roof, and terraces; and that vapor barrier has been provided as required. _____
 - 37. That concealed gutters are properly detailed, drained, waterproofed, and expansion provided for. _____
 - 38. Compatibility of grading around perimeter of building with civil drawings. _____
 - 39. That color finish schedules are on drawings. _____
 - 40. That interior valleys for buildings having large flat roofs are provided with saddles or crickets to eliminate formation of bird baths. _____
- F. MECHANICAL:
- 1. That mechanical plans match architectural and reflected ceiling plans. _____
 - 2. That HVAC ducts are commensurate with architectural space and are not in conflict with conduit, piping, etc. _____
 - 3. That mechanical equipment fits architectural space with room for access, safety, and maintenance. _____
 - 4. That mechanical openings match architectural and structural drawings. _____
 - 5. That mechanical motor sizes match electrical schedules. _____
 - 6. That thermostat locations are not placed over dimmer controls. _____
 - 7. That equipment schedules correspond to manufacturer's specifications and design documents. _____

8. Mechanical requirements for special equipment; i.e., kitchen, elevator, telephone, transformers, etc. _____

9. Fire damper location in ceiling and fire walls. _____

10. That all structural supports required for mechanical equipment are indicated on structural drawings. _____

11. That all roof penetrations are shown on roof plans. _____

12. That seismic bracing details are provided for all platforms which support overhead equipment and that seismic flexible coupling locations and details are shown. _____

G. FIRE PROTECTION:

1. Conduct waterflow testing for all new sprinkler systems. Indicate waterflow test data on drawings or in specifications. _____

2. Provide detailed hydraulic calculations that verifies that the water supply is sufficient to meet the fire protection system demand. _____

3. Ensure that a complete riser diagram is shown. _____

4. Ensure that all piping from the point of connection to the existing, to the top of the sprinkler riser(s) is shown on the drawings. _____

5. Ensure that all valves, fire department connections, and inspector's test connections are indicated on drawings. _____

6. Ensure that sprinkler main drain piping and discharge point are shown and detailed. Main drains should discharge directly to the outside. _____

7. Ensure that the extent or limit of each type of sprinkler system, each design density, each type and temperature rating of sprinkler heads, and location of concealed piping is clearly specified or shown. _____

8. Ensure that water-filled sprinkler piping is not subject to freezing. _____

9. Provide detail of the sprinkler piping entry into the building, and include details of anchoring and restraints. _____

10. Ensure that aesthetics considerations are incorporated in the design of the sprinkler system, e.g. sprinkler piping is concealed in finished areas and recessed chrome-plated pendent sprinkler heads are used in finished area. _____

- 11. Ensure that paddle-type waterflow switches are only used in wet-pipe sprinkler systems. The other sprinkler systems shall use pressure-type flow switches. _____
- 12. Ensure that the main sprinkler control valves are accessible from the outside. _____
- 13. Ensure that fire rating of fire-rated walls, partitions, floors, shafts, and doors are indicated. _____
- 14. Ensure that if spray-applied fire proofing is specified that the fire rating of the steel structural members are indicated. _____
- 15. Ensure that the location of required fire dampers are shown. _____
- 16. Ensure that the location of all fire alarm indicating devices, pull stations, waterflow switches, detectors and other fire alarm and supervisory devices are indicated on the drawings. _____
- 17. Ensure that the connection of the fire alarm and detection system to the base-wide fire alarm system is clearly shown and detailed. _____

H. PLUMBING:

- 1. That plumbing plans match architectural, mechanical, and structural drawings. _____
- 2. That plumbing fixtures match plumbing schedules and architectural locations. _____
- 3. Compatibility of site piping limits interfaces with building piping. _____
- 4. Roof drain locations with roof plan. _____
- 5. That subsurface drains are located and detailed. _____
- 6. That roof drain overflows are provided. _____
- 7. That piping chase locations matches architectural and structural drawings. _____
- 8. That all hot and cold water piping is insulated in accordance with the contractor's approved piping insulation display sample. _____
- 9. That piping is commensurate with architectural space and not in conflict with conduit, duct, and structure. _____
- 10. That piping openings match architectural and structural drawings. _____
- 11. That structural design is compatible with plumbing equipment and piping requirements. _____

12. That plumbing equipment schedules correspond to manufacturers' specifications and design documents. _____

13. That floor drains match architectural and kitchen equipment plans. _____

14. That site utilities have been accurately verified, and that site water and gas service requirements are met by supply utilities. _____

15. That floor openings, i.e., drains, water closets, etc., do not conflict with structural beams, joists, or trusses. _____

16. Limits and confines where piping may be run. _____

17. That seismic bracing details are provided and that seismic flexible coupling locations are shown. _____

18. That roof drain details are coordinated with other trades to show the installation of sump pans in ribbed sheet metal decks, and the placement of roof insulation in and around the drainage fitting. _____

I. ELECTRICAL:

1. That electrical plans match architectural, mechanical, plumbing and structural. _____

2. That location of light fixtures, speakers, etc., match with reflected ceiling plans. _____

3. That electrical connections are shown for equipment, i.e., mechanical motors, heat strips, etc., architectural, overhead doors, stoves, dishwashers, etc. _____

4. That locations of panel boards, transformers, are shown on architectural, mechanical, and plumbing plans. _____

5. That conduit chase locations match with architectural and structural drawings. _____

6. Compatibility of conduit and light fixtures with architectural space and that no conflicts exist with duct, piping, or structure. _____

7. That electrical equipment structural requirements are met. _____

8. That electrical equipment room fits architectural space, with clearance for safety and maintenance. _____

9. That electrical horsepower, voltage, phasing for all motors match on mechanical and architectural designs. _____

10. That fixtures, speakers, clocks, etc., schedules correspond to a manufacturer's description and design documents. _____

11. Light fixture spacing and location to eliminate dark spots. _____

12., Location of duplex outlets, telephone, fire alarms clock outlets, etc., with architectural millwork and finishes. _____

13. The limits and confines where conduits may be run. _____

14. Site electrical and telephone service requirements with supply utility. _____

15. That seismic bracing details are provided and that seismic flexible coupling locations are shown. _____

J. SPECIFICATIONS:

1. That bid and additive items are coordinated with drawings. _____

2. That the measurement and payment section is present, when appropriate. _____

3. That construction phasing is clear. _____

4. That cross-referenced specifications and drawings are numbered correctly. _____

5. That all finish materials listed in architectural finish schedule are specified. _____

6. That thicknesses and quantities of materials shown on plans agree with specifications. _____

7. That all items of material or equipment are covered by adequate specifications, including those not covered by CEGS. _____

8. That all shop drawings and material certifications to be submitted are listed in the submittal register. _____

9. That provider of utilities during construction is indicated in specifications. _____

10. That asbestos abatement and quantities are included in specs and on bid schedule. _____

11. That Government-furnished materials are identified. _____

12. That security requirements for employees are included. _____

13. That references to test methods, material specs, or other manuals are consistent with civil or military designations, as applicable. _____

- 14. That traffic control during construction is indicated. _____
- 15. That temporary dust control measures are outlined. _____
- 16. That proper warranties are called for in the specifications. _____