Fort Rucker Customer Specific Criteria
Revised Draft - 29 Jul 02

DOCUMENT REVISION HISTORY

Revised Draft - 29 Jul 02
Revised Draft - 24 Oct 01
Revised Draft - 19 Sep 01
Revised Draft - 13 Oct 99
Initial Draft - 14 Jun 99

DESIGN MANAGMENT

1. Design taskings will be provided from the Directorate of Engineering and Logistics (DEL) to the Mobile District Project Manager.

2. Coordination on design matters to and from users will occur through the DEL Business Practices points of contact, or other designated point of contacts (POC's) in DEL.

DESIGN CRITERIA

1. New facilities shall be designed to be visually compatible with existing adjacent facilities through the use of similar exterior materials and massing of the facility. The intended architectural style will be approved by the DEL to blend with the surroundings and newest facilities on post at the time of construction. The existing architecture at Fort Rucker is a mixture of various types and materials. Refer to the Fort Rucker Installation Design Guide dated June 1998.

2. Contract documents shall be prepared in accordance with the standards established in the U.S. Army Corps of Engineers, Mobile District, Design Manual (current version) except as modified in this Customer Specific Criteria.

3. The latest editions of the following codes and regulations shall apply to all construction at Fort Rucker. Where conflicts between codes and/or regulations occur, the most stringent shall apply.

Uniform Building Code (UBC)(or International Building Code (IBC)?).

Council of American Building Officials (CABO), One and Two Family Dwelling Code.

Military Handbook (MILHDBK) 1008C as modified by Engineer Circular (EC) 1110-1-92.

National Fire Protection Association (NFPA), applicable portions.

Life Safety Code, NFPA 101.

Department of Army Technical Manuals as applicable.

Architectural and Engineering Instructions (AEI).

Requirements established by the DEL.

Requirements of state and local governmental agencies (health department, environmental agency, etc.) that are applicable.

User specific technical requirements.

4. Types of Construction. EC 1110-1-92 modifies MILHDB 1008C in that any type construction may be used as determined by the UBC (IBC?). This is applicable to Military Construction (MILCON) and Operations and Maintenance, Army (OMA) projects.

5. Life Safety. Required means of egress shall be sized and enclosed as required by NFPA codes. All hazardous areas within the building shall be enclosed as required by NFPA and UBC (IBC?). NFPA codes shall be used to determine life safety with MILHDBK 1008C. The most stringent portions of each shall apply. The UBC (IBC?) code shall be used to determine building construction type, allowable floor area, building height, fire rating of structural components, and other building construction requirements.

5-1. Fire extinguisher cabinets and fire extinguishers shall be furnished as part of the construction. The cabinets shall be installed such that the top of the cabinet is 54 inches above the finished floor. Recessed or semi-recessed (when limited by partition thickness) fire extinguisher cabinets will be provided with, and sized for, 10 pound ABC fire extinguishers. Fire extinguisher cabinets shall be spaced throughout the facility in accordance with NFPA standards.

6. Metric Design. The contract documents shall be prepared using the English (foot-pound) system of units.

7. Floor plans and functional layouts shall be provided to the users and DEL for written approval. Written approval may occur with comments during any project submittal review. It is recommended that the user and DEL complete a back-check of advertised bid documents prior to amendment date.

7-1. Assure physical and classified document security requirements are defined by the user and installation specialists, and coordinated between design disciplines.

7-2. The designer will determine from both the user and DEL whether Government furnished equipment is to be provided to the contractor. The designer will determine: delivery date, location of the equipment, who will store it, who will assemble it, and who will install, test and operate it.

7-3. Exterior requirements:

a. Gutters are generally not desired on facilities due to

maintenance requirements after installation. (However, if gutters and downspouts are to be exposed. All gutters and downspouts will be located on the outside of the building envelope. Provide screens and strainers on all gutters. Downspouts shall not empty onto sidewalks.)

b. Avoid unsightly placement of mechanical and other items on roofs. Roof mounted equipment shall match the roof color.

c. Mechanical and electrical items at ground level on the outside of facilities shall be concrete pad mounted and screened from view of the public. Screening shall be compatible with the exterior of the new facility. Electric meters, water meters, gas vents, etc., should be screened and not in the front or sides of the building. Landscape screening shall not be used. Screening shall be taller than the equipment.

d. Backflow prevention valves, post indicator valves, transformers, electric switches, telephone/cable boxes, manholes, irrigation pump and controller, etc., shall be located in locations not immediately apparent to the facility users or personnel passing by the site. New utility lines shall not be located within 15 feet of the footprint of any future building as shown on the installation master plan.

e. Assure that finishes of windows, louvers, exhaust fans, handrails, etc. are all the same color on any particular building. Items such as exhaust fans, vent stacks, louvers, etc., shall match the color of the surface on which they are installed. The color shall be factory installed not field painted.

7-4. Interior Requirements.

a. Mechanical Rooms.

(1) Walls for these rooms shall be constructed from reinforced concrete masonry units extending to the structural roof deck. Walls of these rooms facing public areas shall be furred out with metal furring and 12.7 mm (1/2 inch) gypsum wallboard. Fill and paint exposed concrete masonry unit walls.

(2) Recess mechanical room slabs 2 inches below adjacent finish floors when possible to control potential equipment and piping leaks. This will ensure that leaks do not extend to adjacent rooms.

b. Sound Attenuation. Partitions, ceilings, and doors enclosing mechanical areas, restrooms, and break rooms shall provide an STC rating of 45 or greater. Partitions shall extend to the roof deck. Floor slabs and interior partitions surrounding mechanical rooms shall have isolation joints to restrict the passage of vibration to adjacent public use spaces.

c. Partition and Wall Intersections. Where partitions or walls of different types intersect or are in line with other partitions, the wall faces exposed to public areas shall present a continuous, flat appearance.

d. Gypsum Wallboard Partition and Wall Expansion Joints. Vertical expansion joints 9.5 mm in width shall be installed in gypsum wallboard partitions at intervals required by the wallboard manufacturer. Where back-up for gypsum wallboard changes, vertical 9.5 mm (3/8 inch) joints shall also be installed.

e. Building Expansion Joints. Joints shall extend continuously through the building. Commercially manufactured clear anodized aluminum expansion joints and covers shall be used on floors, walls, and ceilings.

f. Install flexible liner pans in all showers even in construction at grade. Install a curb at the shower entrance. Install a recessed slab with built-up grout bed to provide a vertical face at handicap shower entries for the liner.

8. Floor plans shall be provided electronically to the Directorate of Information Management (DOIM) during design on a schedule coordinated between the designer and DOIM project manager.

9. The designers shall determine with the user and DEL whether outside independent reviews are required – for instance through USACE for construction related to air field operations.

10. The designers shall verify with the DEL the status of ongoing projects in design or construction for interface coordination.

11. Sole source items may be specified in Government contracts. Use of proprietary or sole source items must be justified by the user and approved by USACE higher authority.

12. Design Loads.

12-1. Design loads and load combinations shall be in accordance with the requirements of ASCE 7-1995, “Minimum Design Loads for Buildings and Other Structures”, unless otherwise specified herein.

12-2. Wind loads shall be based on a 100 mph basic wind speed, building classification category IV, exposure category C, and an importance factor of 1.15. Wind loads shall be computed and applied in accordance with ASCE 7-1995.

12-3. Seismic loads shall be in accordance with the guidance given in TI 809-04 Seismic Design For Buildings.

13. Designs will incorporate current Lessons Learned requirements maintained by the Mobile District.

DIVISION 1 - GENERAL REQUIREMENTS

1-1. Coordinate and include Section 01000, Additional Special Contract Requirements (see Appendix A) in the contract documents.

1-2. Environmental.

1-2.1. A Stormwater Pollution Prevention Plan (Best Management Plan) shall be included in the contract documents. The approved plan shall be on site at all times for inspection by EPA, ADEM and Fort Rucker environmental personnel. All activities in the approved plan shall be implemented. The Contractor shall control erosion and sedimentation during construction. Sedimentation of adjacent sites or downstream ditches will not be permitted.

1-2.2. The new project grading and storm water system shall not impact surrounding facilities.

1-2.3. Waste Disposal. The following shall be incorporated in Section 01410, Environmental Protection:

The following SD-18 submittal requirements shall be listed requiring Government Approval: specific disposal sites, documentation (i.e., weight tickets, etc.), and compliance of disposal by resale.

1-2.4. Wetlands Adjacent to Project Site. The location of wetlands adjacent to or near a project site shall be shown on the contract documents. Wetlands shall be identified so that Contractor personnel do not inadvertently drive equipment into these wetland areas. A note shall be shown on the drawing requiring the Contractor to flag the wetlands with continuous, yellow survey flagging.

1-2.5. Required environmental permits shall be identified and responsibilities for preparation and submittal of the permits shall be as outlined in the Mobile District Design Manual.

1-3.1. Water and electricity will be provided to the construction contractor at no cost. Construction contractor shall provide meter to meter his use of electricity.

1-4.1. Provide cost estimates for review with design submittals, not after the regular design submittal/later date. Cost Estimates shall be reasonably accurate and reflect prices, etc. common to the local area.

DIVISION 2 - SITE WORK

2-1. Work on a flight line may require a construction fence to prevent flying debris from getting on flight line.

2-2. All contractors are required to comply with all aspects of the Federal Aviation Regulation (FAR), Part 77, Objects Affecting Navigable Airspace, for all work associated near or on the flight line. This includes, but is not limited to, the use of any and all equipment used to construct the facility and the facility itself. The contractor is required to obtain all necessary permits including FAA form 7460-1 (latest edition) and provide all necessary notices associated with this requirement. All work within the following areas must be coordinated in writing with the Contracting Officer 21 days in advance of commencement of the work:
a. LATERAL CLEARANCE AREA: A line 1000 feet from and parallel to the centerline of the runway.
b. TAXIWAY SETBACK: A line 200 feet from and parallel to the centerline of any taxiway.
c. APRON SETBACK: A line 125 feet from and parallel to the edge of the aircraft-parking apron.
d. CLEAR ZONE: A line 1500 feet from and parallel to the centerline of the runway beginning at the runway threshold and continuing for a distance of 3000 feet north and south of the ends of the runway.

A copy of FAR, Part 77, and permit applications may be obtained from:

ARP Division ASO-600
Federal Aviation Administration
P.O. Box 20636
Atlanta, GA 30320
Phone: (404) 305-6700

2-3. Landscaping. The landscaping shall be designed using the Fort Rucker Installation Design Guide as modified here. Graded and scarred areas shall be solid sodded. Existing sod not affected during construction shall be protected. Landscaping shall be absolutely minimum maintenance. Planting shall consist predominantly of tree species matching adjacent growth. Trees shall also be planted in islands designed in parking layout with the intent of breaking up the linear image of the parking lots. Mulch shall be shredded cyprus or pine bark.

2-4. Landscape Maintenance. Contractor shall be responsible for proper care and watering of grass from the beginning of the turfing operation and continuing for 3 months after completion of sod placement. New trees and shrubs shall be maintained for a 12 month period after installation. Proper care means watering, fertilizing, cutting and weeding. Trees and shrubs shall require a one year warranty and sod shall require a ninety day warranty. Turf preparation shall include eradication of unwanted vegetation with Roundup and the use of a pre-emergent granular herbicide. Provide for a soil test that includes pH, potassium, phosphorus, calcium, magnesium, nematode count, and soil amendment recommendations (N-P-K). Post planting fertilizer for the turf after the sod is rooted shall be applied based on the soil analysis. Grass shall be mowed initially after achieving a 75 mm (3 inch) growth and then twice monthly thereafter.

2-5. Building Setback Requirements

Building Setbacks	Minimum acceptable
Adjacent Buildings	(50 feet)
Building front to main street curb	(75 feet)

2-6. Building Connection to the Site.

2-6.1. The finish floor shall be a minimum of 6 inches above finished grade.

2-6.2. Finished grade shall slope a minimum of 4 percent away from the new building for a distance of 6 feet.

2-7. Exterior Signage. Two sets of 8 inch building numbers shall be installed. The building numbers shall be Helvetical Medium dark bronze anodized aluminum. Mounting location shall be verified with the DEL.

2-8. Parking.

2-8.1. The number of parking spaces shall be in accordance with AR 415-30. Handicap parking stalls shall be provided. Area lighting and landscaping shall reinforce the parking area in accordance with the Fort Rucker Installation Design Guide while meeting functional and safety requirements.

2-8.2. Parking areas shall be paint striped and adequately drained. Parking stalls shall be 8 feet 6 inches by 19 feet. Precast concrete bumper curbs shall be provided at each stall bordered by sidewalks. Paint markings shall be 4 inch in width. Traffic isles shall be 25 feet in width.

2-8.3. Parking areas design shall conform to TM 5-822-3. Parking stalls and access drives shall be asphalt pavement with graded crushed aggregate base course. Pavement structure thickness shall be in accordance with TM 5-822-5, Chapter 3. The pavement structure shall be designed for a twenty year pavement life.

2-9. Storm Drainage.

2-9.1. The site storm drainage system shall be designed for a 10-year return storm frequency. No ponding shall occur for the 10-year event. Storm drainage system design shall be checked for a 100-year return event to insure no flooding or adverse impacts down stream. Storm drainage design shall be in accordance with TM-5-820-4.

2-9.2. The storm drain collection system may consist of grassed swales, concrete inlet drop or curb inlets, concrete headwall and pipe systems. The proposed system shall tie to the existing grassed ditches or pipe systems.

Minimum pipe velocities shall be 2 feet per second and the maximum shall be 5 feet per second with outlet erosion protection. The minimum pipe size for an open pipe system shall be 18 inch and 15 inch for a closed system.

2-9.3. The allowable pipe types shall include concrete pipe, type III or IV, as required. Pipe joints shall be water tight with gaskets.

2-9.4. Concrete inlets/catch basins may be poured in-place precast concrete. Metal grates or manholes shall be galvanized. Basins shall have 3 inch weepholes cast into the walls. The exterior of the weep holes shall receive a ¼ inch wire mesh with a 12 inch width belt of crushed rock, ASTM #357. Precast manhole or inlet rings shall connect with industry standard gaskets. Storm drain pipes shall be grouted into the concrete structures to provide a watertight connection.

2-9.5. Building downspouts shall connect to an underground storm drain collection system.

2-10. Pipelines/Utility Doors/Manholes: Manholes shall be 48 inches in diameter. Manhole spacing shall not exceed 300 LF. All junctions shall be in manholes. Water and sewer lines shall be apart on paralleled lines with sewer lines below water lines. Line crossings shall be separated 6 inches with potable lines on top. Sleeves shall be used under roadways. Maximum/Minimum depths of cover: The minimum depth shall be 18 inches. Long force mains shall have air relief. Check valves shall be installed at the discharge of all lift station pumps.

2-11. Provide a tracer wire on top of all non-metallic piping buried 6 inches below finish grade or deeper. Tracer wire shall be magnetic detectable conductor, brightly colored plastic covering, imprinted with the type of service in large letters.

DIVISION 3 - CONCRETE

DIVISION 4 - MASONRY

4-1. Parapet walls shall be avoided unless approved by the DEL.

4-2. An efflorescence test from an approved independent testing laboratory shall be incorporated in the design and construction of new facilities. (Test reports on a previously tested material shall be certified as the same as that proposed for use in this project.) The test shall be on brick which will be exposed to weathering. Tests shall be scheduled far enough in advance of starting masonry work to permit retesting if necessary. Sampling and testing shall conform to the applicable provisions of ASTM C 67. Units meeting the definition of "effloresced" shall be rejected.

4-3. Masonry walls shall have vertical control joints as follows.

a. Exterior and Interior Walls: 24 feet maximum,

b. At changes in wall height or thickness,
c. Near wall intersections,
d. At points of stress concentration,
e. At control joints in foundation walls and in floors that support masonry walls.

4-3.1. Brick walls shall be provided with expansion joints. A 3/8 inch expansion joint shall be provided at 24 feet maximum. Brick expansion joints shall be provided near the corner of exterior walls within a distance of 10 feet.

4-3.2. Brick walls shall be of cavity-type construction. Dampproofing shall be used on the exterior face of CMU backup walls. Brick veneer/steel stud walls shall be designed and constructed in accordance with TI 809-07 "Design of Cold-Formed Loadbearing Steel Systems and Masonry Veneer/Steel".

DIVISION 5 - METALS: STRUCTURAL & MISC.

DIVISION 6 – CARPENTRY

6-1. Plywood is not allowed for wall sheathing, or exterior fascia/soffit construction.

DIVISION 7 - MOISTURE PROTECTION

7-1. Assure that a positive vapor barrier is coordinated with the Mechanical Engineer.

7-2. The minimum roof slope that will be approved for Fort Rucker is 2 in 12. A roof slope 3 in 12 is preferred and deviation from 3 in 12 requires approval from the DEL.

7-3. Provide soffits (vented and non-vented) from the same manufacturer of the metal roof so that color matches.

7-4. Unless specifically precluded, all standing seam metal roofs will be installed over roof decking.

7-5. For roofs over 10,000 square feet, require the contractor to hire an independent, roofing inspector to review and approve shop drawings prior to submittal to the Corps and to observe the roof installation. The roofing inspector will be certified by the roofing manufacturer and by the Standing Seam Metal Roof Association or Roofing Industry Educational Institute.

7-6. The manufacturer of the roof will provide a 20 year water tightness warranty

7-7. Specifications for standing seam metal roofs will specifically require:
a. all laps will be in the direction of flow

b. panel seams will be offset by at least one purlin or joist
c. roofs with a dimension in slope direction of 50 feet or less will be constructed without a joint
d. at panel lap joints, sealant will be allowed only between the panels and will be specifically prohibited between the panels and compression bar; and
e. sealant will only be used in compression and where shown by the manufacturer.

7-8. Penetrations should occur in the center of the roof sheet, not at the seam location. Combine stacks where possible into a common vent in the attic space before extending through roof. If possible, bring all roof penetrations to one common location and bring them up under a louvered dormer. Also, write the specifications in such a way that all roof penetrations, curbs, gutters and flashing will be provided by the roofing manufacturer as a complete roofing system. This will prevent each part from being brokered out to different trades thereby limiting the responsibility for roof leaks and problems.

7-9. The SSMR system shall be designed and constructed by the Contractor as a complete leak proof system. This unit is composed of the architectural metal roof panels, concealed attachment clips, rigid insulation (capable of supporting construction and live loads beneath the SSMR), structural metal deck, 40 mil flexible vapor barrier, and structural supports. The roofing system shall carry a UL Uplift Class 90 rating and shall be constructed in accordance with an approved UL construction number. Vapor barrier shall be skid resistant, polyethelene-backed adhesive membrane (ASTM D-1000).

7-10. The live, dead, and wind loads shall be applied to the complete unit. Careful attention must be given to the wind loads. The wind loading shall be applied as indicated in ASCE 7-1995, considering all edge and corner conditions. Design calculations and the UL construction number data shall be submitted for review.

7-11. The SSMR system shall be the product of a single manufacturer, and not a collection of component parts from various spaces. The Manufacturer supplying the system shall be responsible for it's design, fabrication, erection, and quality control. The manufacturer shall have it's representative inspect the installation of the SSMR system at appropriate intervals during construction and shall furnish a warranty assuring the structural integrity and weather tightness of the system for a period twenty years.

DIVISION 8 - DOORS, WINDOWS AND GLASS

8-1. All locks shall have key removable type of cores with construction keying capability. All lock cylinders for all lock sets shall be compatible with 7 pin "BEST" locking system currently in use at Fort Rucker. Four keys shall be provided for each lock. All keys shall be

serial numbered. A key cabinet shall be provided where designated by the user.

8-2. All exterior and interior hollow metal frames shall be welded type construction. Knock-down frames shall not be used. Frames shall be field painted. To the maximum extent possible, frames shall wrap around partitions. Frames at masonry walls shall be grout filled.

8-3. Door hardware shall be provided for all doors. Hardware components shall meet ADAAG and UFAS requirements for accessibility, and NFPA requirements for life safety. Hardware type, quantity and finish shall be required for each application outlined as follows:

8-4. Exterior Doors. Hinges with non-removable pins shall be provided for all doors if hinges are exposed at the building exterior. Lock sets shall meet the requirements of AR 190-51, Appendix B, Risk Level I. Locksets shall include deadbolts with 25.4 mm throws. Laminated steel hook latches are acceptable at aluminum glazed entrances.

8-5. Interior Doors. Locksets shall include deadbolts with 25.4 mm throws.

8-6. Storage. Hinges with non-removable pins if hinges are exposed to the corridor.

8-7. Locksets shall be mortise type with lever handles. The function shall be determined based on use and BHMA standards.

8-8. Thresholds shall be anodized aluminum with a clear finish.

8-9. Frame weatherstripping at each exterior door shall be prefinished aluminum or painted to match door frame color.

8-10. Wall mounted door bumpers shall be installed and adequately blocked to protect adjacent walls.

8-11. Window glazing shall be medium bronze tinted.

DIVISION 9 - FINISHES

DIVISION 10 - SPECIALTIES

10-1. Signage Requirements. All signs are to be from one manufacture and shall match in color and style. All room sign copy is to be Helvetica medium with a ratio of height and width to meet American with Disabilities Act. Signs are to be provided for all interior doors. Installation shall be wall mounted, on the latch side of the door with the center of the sign installed 1500mm (60 inches) above the finish floor and 150 (6 inches) from the outside edge of the metal door frame. Where conditions do not allow signs to be mounted directly adjacent to the door, install signs on the

wall at the nearest point to the latch side. Signage for General Office areas shall be a modular plaque format with a minimum of three insert slides. All signs are to have a changeable room number sign. All signs are to be a minimum overall dimension of 200mm (8 inches) wide and 150mm (6 inches) high. Copy for the first slide is to have a changeable integral, tactile, raised room number with corresponding, Grade 2 Braille indicating the room number. The second two slides are to be window insert slides to accommodate personnel changes or room name changes. Mechanical rooms and other building system room and service support rooms including restrooms are to have permanent room signs with copy that has raised room numbers and permanent room names. Copy is to be raised, tactile, letters and Grade 2 Braille indicating the room number and room name. All signs are to be permanently and mechanically attached to the building. Double-sided tape will not be accepted. Provide Emergency Egress signs plaques that indicate "YOU ARE HERE" and the path of egress. These signs are to be fully coordinated with the Ft. Rucker Fire Marshall at the 100% Unreviewed Submittal design phase and before fabrication and installation. The Fire Marshall is to review the correct placement of these signs within the building and also review the proposed path of egress that will be graphically illustrated on the sign. Suggested placements for these signs are to be determined before installation.

DIVISION 11 - EQUIPMENT

DIVISION 12 - FURNISHINGS

12-1. Address systems furniture and furniture prewiring, including connectors/ plugs. All systems furniture shall be prewired for telephone, computer, LAN (Local Area Network), and electrical.

12-2. Systems Furniture: Insure wall panels do not cover up light switches, fire alarm pull boxes, etc.

DIVISION 13 - SPECIAL CONSTRUCTION

Aircraft hangar doors need mechanical steel stops to prevent the doors from traveling past center.

DIVISION 14 - CONVEYING SYSTEMS

DIVISION 15 - MECHANICAL

15-1. Design shall be based on the weather data shown in Table I below. Cooling equipment shall be selected to meet the calculated load operating at 95° F ambient.

TABLE I - WEATHER DATA

Heating	
Indoor Design Temperature	74 degrees F DB

Outdoor Design Temperature	27 degrees F WB (97.5%)
Annual Heating Degree Days	1968
Cooling	
Indoor Design Temperature	76 degrees F DB, 50% RH
Outdoor Design Dry Bulb Temperature	92 degrees F (2.5%)
Outdoor Design Wet Bulb Temperature	80 degrees F (1%)

15-2. The following table indicates the minimum thermal value for building composite sections.

Wall U Value	0.15 BTUH/$FT^2 \cdot °F$
Roof U Value	0.05 BTUH/$FT^2 \cdot °F$

15-3. Mechanical Equipment. Equipment shall be arranged to provide adequate service and operational clearances and for proper venting if required. Each piece of equipment with potential drain requirement shall be provided with a sanitary drain within 5 feet of the unit. Mechanical rooms shall not be used as return air plenums. All vibrating equipment shall be provided with vibration isolators and shall be installed on 6 inch concrete pads. Mechanical rooms shall be provided with electric heating. A separate mechanical room shall be provided for all gas-fired equipment whether serving the domestic water system or the HVAC systems. Make-up or relief air for mechanical room ventilation shall be via wall louver. Ventilation shall be adequate to allow not more than a rise of 10° F DB above ambient. All exterior mechanical equipment shall be screened (see architectural). Wall screens around equipment requiring ventilation clearance shall be provided with louvers unless the screen clearance is sufficient. Coordinate equipment location and screening with Force Protection requirements. All mechanical equipment schedules and control sequences of operation shall be shown on the design drawings.

15-4. Provide chain and locks on all outside valves and backflow preventors that support a fire sprinkler system. Locks shall be keyed with Best’s cylinders.

15-5. Backflow prevention. Backflow preventors shall be installed on all domestic and fire suppression systems tied into the Base water supply. The preferred location of backflow preventors is in mechanical room or below grade if located outside. If approval is given to place above ground, screen and protect from freezing and place backflow preventors where not visible from the street. Install backflow preventors in the required position specified by the manufacturer with accessibility for testing and maintenance. Accessibility is defined as having adequate clearance from walls and obstructions. Backflow preventor should be installed at least 6 feet from ceiling, have 12” to 30” diameter clearance around and have adequate space below the device to use a ladder (minimum of 5' open floor space).

15-6. Cleanouts. Do not install cleanouts in the middle of corridors or doorways. Prefer wall cleanouts.

15-7. HVAC.

15-7.1. Assure temperature and humidity control requirements are identified in writing before starting design of the HVAC system. At the minimum, the system specified should be capable of being modified to provide humidity control either by some control component or alteration of sequence of operation.

15-7.2. Design facility for connection to the base wide Honeywell XL5000 DDC system. Insure that there is a telephone outlet shown in the mechanical room. Coordinate requirement with communications engineer. Specify that only Honeywell (the manufacturer) can do the base EMCS programming. Authorized Honeywell contractors are permitted to do EMCS controls and programming in newly constructed buildings but not the base EMCS management building system. Systems must incorporate a 'Panic Button' that will de-energize all HVAC systems in accordance with Force Protection Criteria.

15-7.3. All requirements for redundant equipment shall be identified and approved by the DEL in writing before starting design of the HVAC system.

15-7.4. All requests for dedicated independent HVAC equipment shall be identified and approved by the DEL in writing before starting design of the HVAC system.

15-7.5. When systems are required to control space relative humidity, the design shall provide this control independent of the space load. In other words, reheat capacity shall be capable of maintaining the space temperature at the set point with no space internal load present.

15-7.6. Do not use fan coil air conditioning units.

15-7-7. Outside air intakes must be located a minimum of 10' above grade in accordance with the Force Protection Criteria.

15-7.8. Maintenance Considerations:

a. In order to have a maintainable chiller system; the chiller shall have semi-hermetic compressors and be the air-cooled type.

b. Hot and chilled water systems shall utilize end suction, base mounted, flexible coupled, pumps for circulating water.

c. Corrosion Control/Cathodic Protection: All dissimilar metals and exposed metal systems shall be protected from corrosion. Corrosion prevention to include isolation of dissimilar metals, painting and any other electrolytic corrosion prevention shall be installed.

d. Water treatment: Chemical feed system shall be installed on all close loop hot and chilled water systems.

e. Maintainability shall be designed into the project. Outside double doors with louvers shall be provided on equipment rooms. Space for maintenance shall be provided around all equipment.

f. Heating and domestic water piping may be insulated with fiberglass insulation. All chilled water piping shall be insulated with cellular glass insulation. Specifications shall be prepared to eliminate the options for flexible cellular and fiberglass insulation for chill water piping.

g. Provide at least the minimum space that the equipment manufacturer requires for proper maintenance and operation of his equipment.

h. All new equipment shall be compatible with existing equipment.

i. Extended warranties should be specified for all mechanical equipment with attention to coverage of all labor and parts. A minimum of 5 year warranties are preferred.

15-7.9. Energy Conservation: High efficiency chillers and boilers shall be specified. Heat recovery/desuperheater units should be considered when domestic hot water demands are significant.

15-7.10. Provide all equipment schedules and sequence of operations on the drawings.

DIVISION 16 - ELECTRICAL

16-1. The electrical distribution system at Ft Rucker is an overhead 12.47kV, 3-phase, 4-wire, multi grounded system. Except as further detailed in the paragraphs below, primary electrical distribution systems installed on Ft. Rucker shall be designed to meet the requirements of the National Electrical Safety Code (ANSI-C2), Army TM 5-811-1 (Electric Power Supply and Distribution), and to a lesser degree the National Electrical Code (NFPA 70). Guide specifications 16370 (Electrical Distribution System, Aerial) and 16375 (Electrical Distribution System, Underground) shall be used to specify material and installation requirements. The Mobile District Design Manual shall be used as a reference to establish the design requirements associated with each design review package submitted.

16-2. Design of primary distribution systems should follow utility company and rural electric association standards, specifically those standards applicable to 15kV class distribution. Ft. Rucker DEL owns and operates the electrical distribution systems throughout Ft. Rucker. DEL will provide no

contractor support, material, etc. other than making the final connection to the system, which will consist ONLY of closing the contractor installed fused cut-outs. All primary distribution work shall be the responsibility of the construction contractor and shall be fully detailed, designed, and made a part of the contract documents.

16-3. The design of exterior lighting and associated lighting levels shall be in accordance with Army TM 5-811-1 (applicable chapters) and IES guidelines. Where there is a conflict between the two guides, the more stringent requirement shall be used. When using the ranges of illuminances outlined in the IES guidelines, the mid-value shall be used in determining the required lux values. Exterior lighting shall include the parking lots, walkways, facility entrances/exits, and service areas. All exterior lighting shall utilize high pressure sodium (HPS) lamps unless color rendition is required for CCTV security applications. Parking areas shall utilize high cut-off type fixtures mounted on aluminum poles. Where poles are located in areas capable of being struck by a vehicle, the aluminum poles shall be mounted on concrete pedestals one meter in height above parking surface. Facility entrances/exits shall be illuminated with wall mounted fixtures or recessed fixtures mounted in the soffit. The facility primary entrance shall utilize recessed, metal halide or HPS fixtures if a “covered canopy” type entrance is proposed, otherwise wall mounted luminaries shall be installed. All exterior fixtures shall be dark bronze anodized aluminum.

16-3. Exterior surface mounted conduits, electrical boxes, etc. are not allowed. All conduits, electrical boxes, etc. shall be concealed on the interior of all facilities (exception will be industrial type facilities such as maintenance areas).

16-4. All new electrical distribution should be underground except as identified in writing on specific projects.

16-4.1. Ft. Rucker specifically uses the following aerial construction methods:

a. 60" steel crossarms.

b. Polymer insulators and lightning arrestors in lieu of porcelain.

c. Non-load break fused cutouts

16-4-2. Ft. Rucker specifically uses the following underground construction methods:

a. Pad mount transformers shall utilize bayonet style, oil immersed fusing in lieu of dry-well canisters.

b. Pad mount transformers shall be loop-feed type if installed where future construction is possible such that loop feed bushings will be used

to feed downstream devices. Radial feed is acceptable if transformer is end-of-line device.

c. Use rotatable feed-thru inserts on transformer primary to be used to connect "elbow" lightning arrestors.

d. All 15kV class, pad mount equipment shall utilize dead-front construction in the high voltage compartments.

e. Underground cable shall be #2 AWG copper, 15kV URD, 133% EPR insulation, 33% concentric neutral with overall PVC cover. MV-90 or MV-105 cable is unacceptable for primary distribution.

f. Primary cable shall be installed in 4" EB conduit, concrete encased with one spare conduit per ductbank. Stub-up and cap spare conduit at riser pole and in transformer primary compartment.

g. Service transformer shall be sized in accordance with TM 5-811-1 and/or other engineering guidelines. Service transformer does not necessarily need to be sized for 100% of service size, but should be sized based on facility estimated demand load allowing for 20% growth (verify this with TM 5-811-1).

h. Pad mount transformers shall be equipped with insulated parking stands.

16-5. Document all user power and grounding requirements. 24 volts DC and 400 HZ power are not unusual in facilities associated with aircraft electronics. Identify any 220-volt or 440 volt requirements.

16-6. Check for nonlinear electrical loads if electronic/computer equipment will be used in the facility.

16-7. Identify limits of explosion proof electrical requirements.

16-8. The DEL will determine emergency (back-up) power requirements. If emergency power is required, the user will identify equipment to be on emergency power.

16-9. Separate circuits shall be provided for computers within facilities. This practice is to keep noise and/or harmonics produced by other equipment off the computer circuits.

16-10. Telephone requirement and computer cable requirements must be coordinated with user. For MILCON projects, all design and construction of all necessary communications ducts and manholes needed to bring communications to a new facility from the existing utility system will be included. The construction cost estimate will include the cost to procure communications cable necessary to connect new facility to existing system.

16-11. Transformers shall be located in an area that provides easy access to all components inside unit. Transformers shall be dead front, loop feed type. Locate transformer at rear of building in screened "mechanical" yard.

16-12. All underground ducts shall include spare conduits or capacity for future use.

16-13. Provide access to components for maintenance purposes at all electrical equipment locations.

16-14. Switches and controls shall have a permanent label indicating it purpose and be located within easy access to maintenance personnel.

16-15. Provide a lighting protection system if required.

16-16. Cathodic protections. Buried pipelines. Cathodic protection should be considered for all buried pipelines except PVC. Specifications for cathodic protection should be performance type.

16-17. Underground utilities shall be jacked and bored under heavily traveled roads or runways unless approved by the DEL.

16-18. Provide louvers or conditioned electrical room.

16-19. Provide separate Electrical Room. Do not use Mechanical Room for Electrical Room.

16-20. Telephone equipment room shall be conditioned space.

16-21. Interior lighting shall use fluorescent (T-8) fixtures with energy saving ballast in admin areas and HID fixtures in industrial type areas. Where fixtures are installed without a lens, a wire basket protection screen shall be installed. Where new fixtures are installed without lenses, install wire basket protection.

16-22. Fire Protection/Detection.

16-22.1. Assure local authority having jurisdiction concurs with fire detection/protection design concept and approves design. Performance requirements must comply with Military Handbook 1008C and NFPA (whichever requirement is stricter shall govern).

16-22.1.1 Aboveground piping and fittings shall be steel. All aboveground piping shall be Schedule 40 as a minimum. Piping 50mm (2-inches) and below shall be threaded. Rolled connections will not be allowed. Piping larger than 50mm (2-inches) shall utilize either flanged, threaded, or cut groove connections. Except as modified herein, pipe shall be black carbon steel as permitted by NFPA 13 and shall conform to applicable provisions of ASTM A 795, ASTM A 53/A 53M, or ASTM A 135. Pipe in which threads or grooves

are cut shall be Schedule 40 or shall be listed by Underwriters' Laboratories to have a corrosion resistance ratio (CRR) of 1.0 or greater after threads or grooves are cut. Pipe shall be marked with the name of the manufacturer, kind of pipe, and ASTM designation.

16-22.2. Where performance spec is used for fire suppression, do not show fire sprinkler system past the supply distribution point unless Facility is a hangar. Provide sprinkler system design as support to cost estimate only. When contract specifications require contractor to design fire sprinkler system and contract drawings also show a detailed design, if this design does not meet contract requirements we must pay the difference between his approved design and that shown on drawings. Do not provide any detailed design on the drawings when a performance spec is used, unless it is a hangar. See MIL-HDBK 1008A.

16-22.3. Provide an addressable fire detection system in projects of sufficient size to justify cost, i.e. dormitories, multi-story buildings, etc.

16-22.4. Fire flow test data is often inadequate or incorrect by the time a contract is awarded and contractor design is initialed. Confirm fire flow test data just prior to advertisement. Also, if we upgrade water supply lines in project, perform Hardy Class Analysis with new supply.

16-22.5. Exposure protection is limited due to the location.

16-22.6. Emergency lighting shall be provided at all means of egress.

16-22.7. Existing post fire alarm receiving system is a radio transmission type Building Transceivers Model BT2-3 manufactured by Monaco Enterprises, Inc, East 14820 Sprague Ave, Spokane Washington 99216, 509-926-6277 (Monaco D500-2). Operating frequency for system is 173.8875 MHz.

16-22.8. Fire Detection - The design shall include a fire detection system for all areas of the facility. System designed shall utilize multiplexing technology, i.e. addressable detectors. Fire alarm panel shall contain an addressable detector. Fire alarm panel shall contain a liquid crystal display (LCD) to provide information on the location and armature of alarm and/or trouble conditions.

16-22.9. Assure suppression system meets needs--foam, dry chemical, wet chemical, steam. Provide backflow preventors for fire suppression systems. If backflow preventor is located outside, protect from freezing and screen it.

16-22.10. Assure all HVAC equipment shuts down.

16-22.11. Provide fireman’s service on elevators.

16-22.12. Specify lamp test switch in lieu of suitable means of testing lamps.

16-22.13. Duct mounted smoke detectors in supply and return if over 15,000 CFM and between 2000-15000 CFM, one detector in supply.

16-22.14. Smoke detectors below computer floor.

16-22.15. Always tie fire pumps into fire alarm panel.

16-22.16. Use electrical driven fire pumps.

16-22.17. Paint all fire alarm junction boxes red.

16-22.18. Show flow and tamper switches on different zones.

16-22.19. Fire Alarm Systems should meet the following specifications for nonaddressable and addressable systems:

16-22.20. Control unit shall be exclusively solid state, modular in design with plug-in capability. Operating voltage of system shall be 24 volts D.C.

16-22.21. Audible-Visual Alarms shall be utilized throughout a facility. Visual alarms shall be installed in restrooms only. For a renovation to a facility, the audible device shall be of the same type as those currently installed in the existing facility.

16-22.22. Mechanical type gas shut-off valves for the fire protection systems in kitchen exhaust hoods shall be used in lieu of electric type valves. Using this type of valve will prevent us from having to reset valves whenever we loose power.

Appendix A: SECTION 01000, ADDITIONAL SPECIAL CONTRACT REQUIREMENTS

3. PHYSICAL DATA

a. Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

(1) The indications of physical conditions on the drawings and in the specifications are the result of site investigations by surveys.

(2) Weather Conditions. The location is subject to atmospheric temperature ranging from plus 8 degrees F., to plus 109 degrees F. as determined from the U. S. Weather Bureau Station at Ozark, Alabama. The mean annual precipitation at Ozark, Alabama, is 53.81 inches and the mean monthly precipitation varies from a low of 2.77 inches in October to a high of 6.14 inches in July.

(3) Transportation facilities.

(a) Railroads. Fort Rucker is served by a spur line of the CSX Transportation Railway System. The Contractor shall investigate the availability of the sidings and shall make all arrangements with the latter for use of any sidings for the delivery of any material and equipment to be used in the work. The rail system and sidings on the Fort Rucker installation will not be available to the Contractor.

(b) Highways. Ft. Rucker is located on Alabama State Highways Nos. 85 and 134, which are readily accessible from U. S. Highways Nos. 84 and 231 respectively. The Contractor shall make his own investigation of available roads for transportation, load limits for bridges and roads, and other road conditions affecting the transportation of materials and equipment to the site of the work.

4. HAZARD ANALYSIS

A hazard analysis plan, as described in Section 1, Article 01.A.05 of the Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, dated September 1996, is required for this contract and shall be submitted as indicated below.

SD-18 Records

Hazard Analysis; GA; SO.

5. COORDINATION CONFERENCES

Routine coordination conference will be scheduled by the Contracting Officer throughout the life of this contract. Coordination conferences will

be held to discuss contract administration, Contractor quality control, phasing, scheduling, and other aspects relating to this construction. The Using Agency, Corps of Engineers and the Contractor will be represented at each of these meetings. Similar information concerning replacement personnel shall be forwarded to the Contracting Officer, should any replacement be required at any time during the life of this contract. Coordination conferences will be scheduled to occur on a weekly basis.

6. PRIVATELY OWNED VEHICLE REGISTRATION

All vehicles requiring access to the installation are now required to be registered with local authorities as directed by the Authorized Representative of the Contracting Officer. This requirement applies to contractors, subcontractors, suppliers, and any other vehicles requiring access by the Contractor to the Fort Rucker installation. This requirement applies to all vehicles, both company and privately owned or leased. Proof of required insurance and car tag receipts are required to obtain registration. Vehicles to be used by the Contractor during the life of the contract will receive decals to indicate registration. These shall be mounted where directed by the issuing authority. The decal is required to be removed upon expiration. Unexpired decals shall be removed and turned in to the appropriate authorities once access is no longer required, such as upon completion of work on this contract, termination of this contract, or termination of employment with those performing work on this contract. Vehicles requiring one-time or non-routine access to the Ft. Rucker installation will be issued temporary permits which will be displayed as directed by the issuing authority. These temporary permits shall be turned in as directed by the issuing authority.

7. IDENTIFICATION OF GOVERNMENT FURNISHED PROPERTY

The Government will furnish to the Contractor the property identified below in paragraph (b) to be incorporated or installed into the work or used in performing the contract. The Contractor is required to accept delivery, pay any demurrage or detention charges, and unload and transport the property to the job site at its own expense. When the property is delivered, the Contractor shall verify its quantity and condition and acknowledge receipt in writing to the Contracting Officer. The Contractor shall also report in writing to the Contracting Officer within 24 hours of delivery any damage to or shortage of the property as received. All such property shall be installed or incorporated into the work at the expense of the Contractor, unless otherwise indicated in this contract.

Quantity	Item	Description

SD-08 Data

Government Equipment Damage or Shortage; GA; CD.

8. TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER

a. This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance with the contract clause entitled "Default: (Fixed Price Construction)". In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

(1) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

(2) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.

b. The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY
WORK DAYS BASED ON (5) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
5	5	5	4	4	5	7	5	5	3	4	5

c. Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the Contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally schedule work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled work day.

d. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph 2, above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the Contract Clause entitled "Default (Fixed Price Construction)".

9. TRAFFIC CONTROL

a. Unless otherwise directed, the Contractor shall keep the existing roads and parking lots open to all traffic while performing the required work. The Contractor shall keep the portion of the project being used by traffic in such condition that traffic will be adequately accommodated. Construction work that requires disruption of traffic will be accomplished during other than normal duty hours as directed and approved by the Contracting Officer.

b. The Contractor shall furnish, erect and maintain barricades, cones, warning signs, delineators, and flag persons in accordance with Section "G" of the "Alabama Manual on Uniform Traffic Control Devices for Streets and Highways".

c. Flag persons shall wear either an approved uniform or vest of fluorescent orange color and an orange hard hat and be equipped with a red flap of fluorescent material or a reflective stop/slow paddle.

d. The above traffic control devices shall be supplemented as necessary with warning lights of the kind and type specified by the Contracting Officer’s representative.

10. SERVICE INTERRUPTIONS.

a. The Contractor shall notify the Contracting Officer's Representative before a street closing/restriction or utility interruption is required. The request for interruption of services shall be a minimum of 30 calendar days prior to the intended service interruption. Utility tie-ins will only be allowed on weekends and Federal Holidays for non-housing areas and will not be allowed on weekends and Federal Holidays for housing areas. All service interruptions shall be coordinated through the Contracting Officer's Representative.

b. The Contractor shall furnish all labor, materials and equipment for utility taps. No live line work will be allowed. Work shall only be performed on de-energized and grounded lines. Actual connection and switching operations to Ft. Rucker water, gas and electrical utility systems will be performed by the Government Operating Contractor.

SD-18

Requests to Interrupt Utility Services; GA; CD.

11. SCHEDULED OUTAGES

a. All outages, including but not limited to communication, water, electricity, natural gas, sewage and road closures, shall be of as short in duration as possible and shall be scheduled by the Contractor in writing, as far in advance as possible with the Contracting Officer. In no case shall scheduling occur less than ten (10) days prior to the required outage.

b. The Contractor's outage request shall include the following:

(1) Type of utility, access or service to be disrupted.

(2) Areas and/or facilities affected.

(3) Expected duration of outage.

(4) Date of proposed outage.

(5) Names of authorized personnel.

(6) Point of contact and telephone numbers.

c. The Contractor shall obtain in writing from the Contracting Officer a statement of schedule, giving the permissible times of outages for particular installations or activities and the maximum time allowed for each outage. Any utility outage expected to exceed one (1) hour in duration shall be scheduled for the weekend (Saturday/Sunday) and shall not exceed six (6) hours in duration. Any utility outage scheduled during the week (Monday through Friday) shall not exceed one (1) hour in duration. Scheduled outages during the week may be required to occur before or after normal business hours. No outage shall occur until written approval is received from the Contracting Officer. The Contractor shall strictly observe such schedules and will be held responsible for any violations. The Contractor shall include with each outage request a list or bill of materials and equipment that will be used during said outage. The Contractor will be solely responsible for ensuring that all materials and equipment will be on hand and ready for use during any scheduled outage.

SD-08 Statement

Request for Interruption of Utility Services; GA; CD.

12. CONTRACTOR'S AREA USE PLAN

The Contractor shall submit an Area Use Plan to the Contracting Officer, for approval, within thirty (30) days after receipt of Notice to Proceed. The Area Use Plan shall show the following

a. Location of Contractor, sheds and trailers.

b. Location of all Contractor storage areas.

c. Location of Contractor staging areas.

d. Temporary utility tie-ins.

e. Location of Contractor security fencing.

f. Location of project sign.

g. Required telephone service and locations.

SD-01 Data

Area use Plan; GA; CD.

13. DISPOSAL OF WASTE MATERIALS.

a. All waste materials generated by the Contractor's activities on the installation, including but not limited to demolition debris and waste, shall be disposed of at a location off of Ft. Rucker, including federally owned and leased installations and facilities under the jurisdiction of Ft. Rucker. Such disposal shall be in compliance with all local, county, State and Federal laws and regulations which govern or affect the disposal of such materials. All waste material of any nature shall be disposed of in a landfill approved and permitted by the Alabama Department of Environmental Management (ADEM) for disposal of such material.

b. The Contractor shall identify, as a part of his submittals required by this contract, the specific disposal site or sites for any waste materials generated by the contractors operations at Ft. Rucker.

c. The Contractor shall provide to the Contracting Officer, or his/her authorized representative, documentation (i.e., weight tickets, etc.) which will verify the amount of the final destination of all waste material generated by the contractor's operations at the installation.

d. If salvaged materials are disposed of by resale or other method, such disposal or resale shall comply with all local, County, State and Federal rules and regulations which control or affect such disposal. This shall include, but not be limited to, informing the receiver of the material or items of the presence of any substance which is regulated, i.e., lead, asbestos, etc. Construction debris which includes material painted with lead-based paint (LBP) or which includes any other substance, the disposal of which is controlled by Federal or State law, regulation, or executive order, shall be disposed of at a facility which has been approved by the Alabama Department of Environmental Management (ADEM) for disposal of such material. Construction debris which does not contain regulated substances will be recycled or disposed of at a site off of Ft. Rucker which has been approved by ADEM for the disposal of such material. The Contractor shall certify in writing to the Contracting Officer that such disposal complied with all applicable local, County, State, or Federal laws and regulations.

e. Improper Disposal of Waste Material and/or Construction Debris. If at any time during or after the performance of this contract, it is

determined by the Contracting Officer's authorized representative that the Contractor has not complied with the requirements of the contract pertaining to the disposal of salvage, waste material and/or construction debris, the Contractor shall be required to take any corrective action directed by the Contracting Officer or other competent authority at no additional cost to the government. Any fine, fee, or penalty assessed by the regulating authority as a result of the contractor's failure to comply with this provision shall be paid by the contractor. If any part of the performance of this contract is subcontracted, a provision substantially similar to the above shall be included in all such subcontracts. Such provision does not, however, relieve the prime contractor from ultimate responsibility under the contract.

SD-18 Records

Specific Disposal Sites: GA; CD.

Documentation (i.e., weight tickets, etc.): GA; CD.

Compliance of Disposal by Resale: GA; CD.

14. CONTRACTOR PREPARED AS-BUILT DRAWINGS.

a. GENERAL. In accordance with SPECIAL CONTRACT REQUIREMENT paragraph: CONTRACT DRAWINGS, MAPS AND SPECIFICATIONS, the Government will furnish the Contractor on CD ROM one electronic set of solicitation drawing files and any amendments for use in preparation of as-built drawings by the Contractor. Copies of the drawings will be the responsibility of the Contractor. The as-built drawings shall be a record of the construction as installed and completed by the Contractor. They shall include all the information shown on the contract set of drawings and a record of all deviations, modifications, or changes from those drawings, however minor, which were incorporated in the work, all additional work not appearing on the contract drawings, and all changes which are made after final inspection of the contract work. In the event the Contractor accomplishes additional work which changes the as-built conditions of the facility after submission of the as-built drawings, the Contractor shall furnish revised and/or additional drawings as required to depict as-built conditions. The requirements for these additional drawings will be the same as for the as-built drawings included in the original submittal.

b. Red line as-built drawings. The Contractor shall have on his staff, personnel to mark up a set of paper copy construction drawings to show the as-built conditions. These as-built marked copies shall be kept current and available on the job site at all times. All changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded, as the events occur, by means of details and notes. The Contractor shall call attention to entries by redlining areas affected. The red line as-built will be jointly inspected for accuracy and

completeness by the Contracting Officer's representative and a responsible representative of the Contractor prior to submittal of each request for payment. The Contracting Officer's approval of the current status of the as-built drawings shall be a prerequisite to the Contracting Officer's approval of request for progress payment and request for final payment under the contract. The drawings shall show the following information, but not be limited thereto:

(1) The location and description of any utility lines or other installations of any kind or description known to exist within the construction area. The location includes dimensions to permanent features.

(2) The location and dimensions of any changes within the building or structures.

(3) Correct grade or alignment of roads, structures or utilities if any changes were made from contract plans.

(4) Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor including but not limited to fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment foundations, etc.

(5) All changes or modifications which result from the final inspection.

(6) Options. Where contract drawings or specifications allow options, only the option selected for construction shall be shown on the as-built drawings.

(7) Extensions of Design. Shop Drawings such as structural fabrication and erection drawings, fire alarm systems, and sprinkler systems that will require extensive redrafting effort in order to create a electronic set will not be required to be incorporated into the electronic set. They will be included as an Appendix to the paper copy set.

c. Submittal of as-built drawings for review and approval. The Contractor shall participate in monthly review meetings with the Contracting Officer's Representative to show the progress made the preceding month and make all required changes. At time of final construction inspection, the Contractor shall submit one copy of the red lined as-built drawings to the Contracting Officer's Representative for review and approval. The as-built drawings shall be certified as to their correctness by the signature of an authorized representative of the Contractor. Upon Government approval of the Contractor’s redlined copy of the as-built drawings, the Contractor shall prepare and provide two electronic sets of as-built drawings by incorporating the red line marked up notations on the construction drawings into the electronic set of solicitation drawings and amendments. In addition to the electronic sets

of as-built drawings which shall be submitted on a CD-ROM, the Contractor shall also submit a full size set of as-built paper drawings. Submittals are to be to the Contracting Officer's Representative not later than ten (10) calendar days after project completion date. The as-built drawings shall be prepared in soft metric format.

d. Final Drawing Format.

(1) The solicitation drawing files and any amendments thereto will be furnished to the Contractor in electronic format. The solicitation drawing files have been prepared in AutoCad and Microstation formats. The drawing file indicates the format which the drawing was developed. The Contractor shall utilize AutoCad to revise/redraft each solicitation drawing and/or amendment drawing to reflect all changes made during construction as indicated by the red line marked up notations on the construction drawings. However, the final as built drawings shall be submitted in AutoCad format. Revisions/ redrafting shall match the font styles, sizes, and formats; line weights/thickness' and styles/types; and all other drafting elements used on the solicitation drawing/amendments. All elements must be incorporated into each as-built drawing file; the use of reference files shall not be permitted. As-built drawings shall be completed in English format.

(2) All revisions made to the solicitation drawings and/or amendment drawings to reflect changes made during construction shall be flagged and shall have the revision block completed as follows. The entry in the description column of the revision block shall read "AS-BUILT". The date of the revision and one approving initial from a responsible person within the Contractor's Firm shall also be included in the revision block. Above the drawing title block the drawing will be labeled in bold letters "AS-BUILT". The flagged changes and revision block format shall be in accordance with the examples shown in the Mobile District Design Manual located on the Internet at http://www.sam.usace.army.mil/sam/en/guides/DesMan/desman.htm. The Contractor shall also furnish a revised index of drawings to match the actual design drawings. The drawing title blocks shall be in a uniform format to match the requirements as specified in the Design Manual.

(3) The two electronic sets of as-built drawing files shall be submitted in AutoCad format.

(4) The hard copy reproducible set of as-built drawings shall be submitted unbound on paper. The drawings shall be the full size.

e. Payment: No separate payment will be made for the as-built drawings required under this contract, and all costs in connection there-with will be considered a subsidiary obligation of the Contract.

SD-04 Drawings

As-Built Drawings: GA; CD.

15. PROJECT SIGN.

The Contractor shall furnish and install a project sign and a safety performance sign at the location designated by the Contracting Officer within 30 calendar days after notice to proceed. The signs shall be constructed as indicated on the figures bound herein. Size, lettering, color, and paint shall conform to the details shown in Figure 5b "Construction Sign," Figure 5c "Fabrication and Mounting Guidelines," and Figure 5d "Safety Performance Sign," bound herein. All parts of frames and signs shall be given a primer coat of oil paint and a minimum of two finish coats of white semi-gloss paint. The Contractor shall maintain the signs in a "like new" condition throughout the life of the project, repainting and replacing members as necessary to accomplish this requirement. No direct payment will be made for the signs nor maintenance of the signs.

16. ENVIRONMENTAL PERMITS.

The Contractor shall submit all applications and fees for environmental permits for the project through the Contracting Officer's Representative to the Directorate of Public Works who will forward them to the appropriate government organizations. The approved permit application must be provided to the Contacting Officer’s Representative prior to starting construction on any of these activities. The Contractor shall submit the Construction Completion Certificate on all permit applications received by the Contractor from Local, State and Federal Agencies within 30 days of completion of the permitted activity. The Construction Completion Certificates shall be provided to the Contracting Officer's Representative.

SD-18 Records

Environmental Permit Applications: GA; CD.

17. STAGING AREA.

Potential contractor staging areas will be identified during the pre-construction conference.

18. PROJECT SITE ACCESS.

Multiple points of access to the site are available to the construction site. Construction routes will be identified during the pre-construction conference.

19. BORROW AND SPOIL AREAS.

No borrow or spoil areas are available to the Contractor within the confines of Ft. Rucker. All fill material will be brought in from offsite

and all materials to be disposed will be removed entirely from Ft. Rucker and disposed of in a legal and regulated manner.

20. ELECTRONIC MAIL SYSTEM.

The Contractor shall provide and maintain for the life of this contract an electronic mail system which shall interface, connect to and be compatible with the existing electronic mail system in the Corps of Engineers Resident Office. The Contractor's electronic mail system shall transfer and receive correspondence between the Resident Office without loss or modification of formatting codes or special characters.

The Resident Office is currently utilizing Exchange/MS Outlook for Windows and is Internet accessible. The Corps Internet E-mail gateway accepts binary files in uuencoded format, with a limit of 6Mb per E-mail message. Internet messages may be sent to any Mobile District Corps of Engineers Employee using the form <First Name>.<Middle Initial>.<Last Name>@sam.usace.army.mil without the brackets surrounding the names.

During construction, all Requests For Information (RFIs) including field sketched drawings shall be transmitted to the Corps of Engineers Resident Office in an electronic format. The RFIs shall be saved into a ".pdf" format using Adobe Acrobat 4.0 software.

The Contractor's electronic mail system shall have the capability of sending and receiving text, graphic, and drawing files developed on the following software:

1) Microsoft Word, Version 6.0
2) WordPerfect, Version 6.0
3) AutoCad, Version 13 or 14
4) Adobe Acrobat, Version 4.0

The Contractor shall bear the responsibility to ensure total hardware and software compatibility with the Government's system when transferring and receiving information.

Within 10 days after receipt of NTP, the Contractor shall submit for approval an electronic mail system plan which details the hardware, software, communication paths, processes and procedures for establishing and maintaining the Contractor's electronic mail system.

SD-01 Preconstruction Data

Electronic Mail System Plan; G|CD.

21. EQUIPMENT DATA

Major Equipment. The Contractor shall be required to make a list of all installed equipment furnished under this contract. This list shall include

but not be limited to each piece of equipment which has a serial number. This list shall include all information usually listed on manufacturer's name plate, so as to positively identify the piece of property. This list shall also include the cost of each piece of installed property (less installation costs) F.O.B. construction site. The above referenced list shall be furnished as soon as possible after equipment is purchased. The list shall be furnished as one (1) reproducible and three (3) copies and shall be furnished to Contracting Officer not later than thirty calendar days prior to completion of any segment of the contract work which has an incremental completion date. Listing will be on Government furnished MOB Form 897, available from the Contracting Officer.

22. EQUIPMENT OPERATING, MAINTENANCE, AND REPAIR MANUALS

(a) The manuals shall be submitted for approval within ninety (90) days after approval of the submittal for the items proposed for procurement unless stated otherwise in the technical specifications. Each manual shall include the following:

(1) Hard Cover Binders. The manuals shall be bound in a 3-ring binder with a hard cover. The following identification shall be inscribed on the cover: the words “EQUIPMENT OPERATING, MAINTENANCE, AND REPAIR MANUAL” and the building name and number, location, and indication of utility or system covered. Manuals shall be approximately 8 ½ by 11 inches with large sheets folded in, and capable of being easily pulled out for reference.

(2) Warning Page. A warning page shall be provided to warn of potential dangers (if they exist), such as high voltage, toxic chemicals, flammable liquids, explosive materials, carcinogens, or high pressures. The warning page shall be placed inside the front cover, in front of the title page.

(3) Title Page. The title page shall show the name, address and phone number of the Contractor, the contract number and the date of publication.

(4) Table of Contents. Provide in accordance with commercial standard practice.

(b) General: Manuals shall include, in separate sections, the following information for each item of equipment and system:

(1) Performance sheets and graphs showing capacity data, efficiencies, electrical characteristics, pressure drops, and flow rates. Marked-up catalogs, or catalog pages do not satisfy this requirement. Performance information shall be presented as concisely as possible and contain only data pertaining to equipment actually installed.

(2) Catalog cuts showing application information.

(3) Installation information showing minimum acceptable requirements.

(4) Operation and maintenance requirements. Include adequate illustrative material to identify and locate operating controls, indicating devices and locations of areas or items requiring maintenance.

(a) Describe, in detail, starting and stopping procedures for components, adjustments required to obtain optimum equipment performance, and corrective actions for malfunctions.

(b) Maintenance instructions describing the nature and frequency of routine maintenance and procedures to be followed. Indicate any special tools, materials, and test equipment that may be required.

(5) Repair information including diagrams and schematics, guidance for diagnosing problems, and detailed instructions for making the repairs. Provide troubleshooting information that includes a statement of the indication or symptom of trouble and the sequential instructions necessary. Include test hookups to determine the cause, special tools and test equipment, and methods for returning the equipment to operating conditions. Information may be in chart form or in tabular format with appropriate headings.

(6) Parts list and names and addresses of the two closest parts supply agencies.

(7) Names and addresses of the local manufacturers representatives and the parent company.

(c) Separate manuals shall be provided for each system required by this contract. The systems are defined as follows:

(1) Facility Heating Systems. Information shall be provided on the following equipment: boilers, water treatment, chemical feed pumps and tanks, converters, heat exchanger, pumps, unit heaters, fin-tube radiation, air handling units (both heating only and heating and cooling), and valves (associated with heating systems).

(2) Air-Conditioning Systems. Provide information on chillers, packaged air-conditioning equipment, towers, water treatment, pumps and tanks, air-cooled condensers, pumps, compressors, air handling units, and valves (associated with air-conditioning systems).

(3) Temperature Control and HVAC Distribution Systems.

(a) Provide the information described for the following equipment: valves, fans, air handling units, pumps, boilers, converters and heat exchangers, chillers, water cooled condensers, air-cooled

condensers, cooling towers, fin-tube radiation, and radiant heating systems.

(b) Provide all information described for the following equipment: control air compressors, control components (sensors, controllers, adapters, and actuators), and the water and air flow measuring equipment.

(4) Central Heating Plants. Provide the information described for the following equipment: boilers, converters, heat exchanger, pumps, fans, steam traps, pollution control equipment, chemical feed equipment, control systems, fuel handling equipment de-aerators, tanks (flash, expansion, return water, etc), water softeners, valves and fuel-oil storage tanks.

(5) District Heating Distribution Systems. Provide the information described for the following equipment: valves, fans, pumps, converters and heat exchanger, steam traps, tanks (expansion, flash, etc), and piping systems.

(6) Exterior Electrical Systems. Information shall be provided on the following equipment: power transformers, relays, closers, breakers, regulators, converters, meters and capacitor bank controls.

(7) Interior Electrical Systems. Information shall be provided on the following equipment: relays, motor control centers, switchgear, solid state circuit breakers, motor controller, regulators, converters, filters, meters and EPS lighting systems.

(a) Wiring diagrams and troubleshooting flow chart on control systems.

(b) Special grounding systems.

(8) Energy Management and Control System. The maintenance manual shall include descriptions of maintenance for all equipment, including inspection, periodic preventative maintenance, fault diagnosis, and repair or replacement of defective components.

(9) Potable Water Treatment Systems. The identified information shall be provided on the following equipment: tanks, unit process equipment, pumps, motors, control and monitoring instrumentation, laboratory test equipment, chemical feeders, valves, switching gear, and automatic controls.

(10) Wastewater Treatment Systems. The identified information shall be provided on the following equipment: tanks, unit process equipment, pumps, motors, control and monitoring instrumentation, laboratory test equipment, chemical feeders, valves, scrapers, skimmers, comminutors, blowers, switching gear, and automatic controls.

(11) Fire Protection Systems. Information shall be provided on the following equipment: alarm valves, manual valves, regulators, storage tanks, piping materials, sprinkler heads, nozzles, pumps, and pump drivers.

(12) Fire Detection Systems. The maintenance manual shall include description of maintenance for all detectors, control panels, batteries, transmitters, audible and visual alarm signaling devices and any other auxiliary detection or alarm equipment associated with fire detection and alarm system. The manual shall include inspection, test, periodic maintenance, fault diagnosis, and repair or replacement of defective components.

(13) Plumbing Systems. Information shall be provided on the following equipment: water heaters, valves, pressure regulators, backflow preventors, piping materials, and plumbing fixtures.

(14) Liquid Fuels Systems. Information shall be provided on the following equipment: tanks, automatic valves, manual valves, filter separators, pumps, mechanical loading arms, nozzles, meters, electronic controls, electrical switch gear, and fluidics controls.

(15) Cathodic Protection Systems. Information shall be provided on the following material and equipment: rectifiers, meters anodes, anode backfill, anode lead wire, insulation material and wire size, automatic controls (if any), rheostats, switches, fuses and circuit breakers, type and size of rectifying elements, type of oil in oil-immersed rectifiers, and rating of shunts.

(16) Generator Installations. Information shall be provided on the following equipment: generator sets, automatic transfer panels, governors, exciters, regulators, starting systems, switchgear, and protective devices.

(17) Miscellaneous systems. Information shall be provided on the following: communication and ADP systems, security and intrusion alarm, elevators, motorized doors, kitchen equipment, material handling, active solar, photovoltaic, and other similar type special systems not otherwise specified.

(d) Payment for the equipment or system will be limited to 80% of the cost of the equipment or system and installation until the operating and maintenance manuals are approved.

23. TEMPORARY ELECTRICAL SERVICE

All temporary electrical service on the project, and within all temporary and permanent structures shall be installed and maintained in compliance with the provisions of EM 385-1-1, dated September 1996, Corps of Engineers Safety and Health Requirements, and APPENDIX T of Mobile District Regulation 385-1-1, Electrical Service Requirements for Construction and

Maintenance Operations. Copies of these publications are available for inspection in the District Office by Prospective bidders, and will be furnished to the successful bidder.

24. SCHEDULE OF AVAILABLE UTILITIES

In accordance with Section 00700, paragraph entitled “Availability and Use of Utility Services”, the Government will make available at no cost to the Contractor, electricity and water from existing distribution lines, outlets and supplies. It shall be the Contractor’s responsibility to install and maintain all necessary temporary connections and distribution lines for his own use. Any other required utilities shall be furnished by the Contractor.

25. ACCESS TO AIRFIELDS

a. Contractors shall anticipate controlled and limited access onto airfields at Fort Rucker. Vehicle registration as required elsewhere does not grant approval to enter airfields at Fort Rucker. The names of contractors, subcontractors, suppliers, and others may be required to be provided in advance to obtaining access to the airfield and project site. In addition to company names, specific individual names may also be required to be identified in advance. Advance approvals can only be requested and provided on Monday through Friday during normal workhours, excluding federal holidays and approximately 4 safety stand down days per year. It should be anticipated that a minimum 3 working day advance notice may be required prior to being placed on the approved access list.

b. Anyone not a citizen of the United States of America will require longer approval times, prior to being granted access. These individuals are also required to be accompanied at all times by a Contractor furnished responsible supervisor who shall speak plain English as well as the appropriate foreign language if applicable. This designated responsible supervisor shall be a citizen of the United States of America, and may be required to undergo additional background checks prior to being approved.

c. In addition to the above advance notifications, access may require daily sign in and sign out at the Airfield Operations facility for all individuals, in person.

d. Company vehicles shall be clearly labeled with the company name. Photo identification of individuals is required. Any temporary passes issued to individuals or for vehicles shall be displayed as required. Vehicles shall travel only the approved routes directly to and from the project site.

e. Exact requirements may vary from airfield to airfield, and may change during the course of the project. Current limitations experienced during pre-bid visits will likely change to some combination of the more stringent requirements as noted above.

Appendix B: HANGAR SPECIFIC REQUIREMENTS

1. Hangar/Office U-value of 0.15 Btu/hr/sq. ft./degree F. 1-5/8″ studs shall be used for wall furring to keep the interior surface of the hangar wall (an exterior wall) from “sweating” or condensing moisture during periods of warm/damp weather when the office cooling system is operational. A U-value in that wall of .12 - .15 will be adequate to prevent sweating of the hangar face masonry wall.

Based on the use of 1-1/2″ thick fiberglass curtainwall batt insulation (with a thermal resistance of 6.5) between the studs in that wall assembly, a U-value of .12 is achievable. The contractor must extend the assembly (gypsum board, studs and insulation) to the full height of the wall above the ceiling to insure that a uniform thermal envelope is achieved, however.

Outside Air Film	-	0.17
8″ Concrete Block	-	1.65
1-1/2″ Rigid Insulation	-	6.50
Gypsum Board	-	0.56
Inside Air Film	-	0.68
Total Resistance (SR)	=	9.56

$\Rightarrow$ ″U″ = 1/ (SR) = 1/9.56 = .10 which is acceptable.

2. Translucent Hangar Door Panels (Section 08342)

1.7 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURESS:

SD-01, Design Data; GA|CD

Submit design drawings and structural, mechanical, and "U" value calculations for complete hangar doors including translucent panels.

SD-04, Drawings

Hangar Door Drawings; GA|CD

Submit drawings showing details of construction, installation, and operation; sizes, shapes, and thicknesses of materials; joints and connections; reinforcing; hardware; mechanical devices; electrical devices; and design and detail data for work of other trades affected by hangar doors. Detailing shall include translucent panels.

2.6 Exterior Covering

2.6.2 Translucent Fiberglass Panels

Translucent fiberglass panels shall be manufacturer standard corrugated, white (65 percent light transmission) panels. Contractor shall coordinate installation of translucent panels with remainder of hangar door construction. Translucent panel thickness, profile connections, and attachment to the hangar doors shall meet wind loading requirements indicated on Drawing S-001. Translucent panels shall be installed using manufacturer recommended standard connections, flashing and sealant. Translucent panels shall conform to ASTM D-3841, Standard Specification for Glass Fiber Reinforced Plastic Panels.
3. Eye wash/shower stations shall include floor drains.

4. Striping requirements for hangar floors shall be verified with the user during design.

5. Exterior work on existing hangars shall be verified with the user – filling existing grassed areas, bumpers, etc.

6. Exterior metal siding gauge shall be a minimum of 24 ga. (Verify with Emmet).

7. Exposed fire protection sprinkler piping shall be painted red.

8. Transformers and electrical panels shall be wall mounted in hangar bays rather than in interior rooms.

9. Hangar door operators:

a. Exterior controls shall be mounted on side walls rather than at the center opening. Operation will be by key switch per the request of the installation fire marshal.

b. Emergency stop shall be pneumatic rather than electrical.

10. Hangar Floor Coatings

SECTION 09670

INDUSTRIAL RESINOUS FLOOR COATING
01/98

PART 1 GENERAL

REFERENCES

The publications listed below from a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIAL (ASTM)

ASTM D570 Flexural Properties of Un-reinforced and Reinforced Plastics and Electrical Insulating Materials

ASTM D2794 Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Resinous Flooring System; GA|CD.

Industrial resinous flooring manufacturer's descriptive data, mixing, proportioning, and installation instructions. Maintenance literature for resinous flooring shall be included.

SD-13 Certificates

Resinous Flooring System; GA|CD.

Certificates indicating conformance with specified requirements and flooring manufacturers approval of the flooring applicator. Certificate shall be accompanied by certified test reports from an approved laboratory showing that the resinous floor coating has been tested and meets the requirements specified.

SD-14 Samples

Resinous Flooring System; GA|CD.

Two 6 x 6 inches, (minimum) samples of each color of industrial resinous flooring.

1.3 QUALIFICATION OF APPLICATOR

Applicator shall be approved by the flooring manufacturer and shall have a minimum of 5 years experience in the application of the materials to be used.

1.4 DELIVERY AND STORAGE

Materials shall be delivered to the project site in manufacturer's original unopened containers. Materials shall be kept in a clean, dry, area with temperatures controlled between 50 to 90 degrees F.

1.5 ENVIRONMENTAL REQUIREMENTS

Areas to receive industrial resinous flooring shall have the slab and atmosphere maintained at a temperature above 50 degrees F for 2 days prior to installation and for 7 days following installation.

WARRANTY

The Manufacturer shall provide a five year warranty on the service of the coating.

PART 2 PRODUCTS

2.1 INDUSTRIAL RESINOUS FLOORING SYSTEM

The industrial resinous flooring shall be an ambient cured two-part (resin and catalyst) coating system for corrosion protection under severe service environments. The industrial resinous flooring system shall be a total coating system that consist of a base coat and top coat of the same product line. The top coat shall also include the application of a medium grit, alumina oxide aggregate that is broadcast by hand to provide a slip-resistant surface.

2.2 CHEMICAL RESISTANCE

Industrial resinous flooring shall be chemically resistant to jet fuel, gasoline, methylene chloride, hydraulic oil, hydrochloric acid 0-37%,and acetone.

2.3 CAULKING

Caulking and caulking installed shall be suitable for service with industrial resinous floor coating.

2.4 FILLERS

Fillers, if required, shall be inert silica, quartz or other hard aggregate material as recommended by the flooring manufacturer. Fillers shall be furnished in the quantity necessary to impart the required color and physical characteristics. The filler shall contain sufficient fines to provide an even-textured.

2.5 COLOR

Color shall be in accordance with Section 09915 COLOR SCHEDULE which is gray.

PHYSICAL PROPERTIES

Water Absorption (30 days @ 88 degrees F) (ASTM D570)
0.09%

Impact Resistance (ASTM D2794)	120 in/lbs
Elongation	8.2%
Hardness	70-75 Barcol

PART 3 EXECUTION

3.1 PREPARATION OF EXISTING AND NEW CONCRETE SUBFLOOR

Installation of the industrial resinous flooring system shall not commence until the concrete substrate has been prepared in accordance with the manufacturer's instructions. Expansion joints and cracks are to be properly filled. The existing concrete substrate shall be free from debris, loose concrete, surface sealers and foreign matter before the application of the coating system. If new concrete has been installed, it shall be firm, clean and well cured before applying the coating system. Newly poured concrete must aged at least 28 days at temperatures of 70 degrees F. New concrete must be free from salts, curing compounds, and other foreign matter that will interfere with adhesion of the resinous coating system. The concrete must be at least 60 degrees F during the coating application.

3.2 MIXING, PROPORTIONING, AND INSTALLING

Mixing of the resin and catalyst components shall be in accordance with the manufacturer’s instructions. The base and top coatings shall to applied with a roller application. The roller shall be a 3/8-inch nap roller pad with phenolic cores. The base coat shall be applied and allowed to reach a stage when the coating is firm, without tackiness. When the base coat has reached this sage, then the top coat and aggregate shall be applied. Do not allow the base coat to over-cure before applying the top coat. The overall dry film thickness of the base and top coats shall be a minimum of 16 mils thick.

3.3 PROTECTION

The resinous flooring shall be covered and protected from damage until completion of the work of all other trades. Full curing time to allow for the floor coating shall be a minimum of fourteen days.

-End of Section-

11. Hangar doors. (Add specification section.)

12. HANGAR DOOR HARDWARE (SECTION 08700)

1.6.1 SPECIAL WARRANTY. Locks and Latches. The Contractor shall provide a written warranty, executed by the lock and latch manufacturer, agreeing to repair or replace components of lock and latch hardware that fail in materials or workmanship within a warranty period of three years from date of substantial completion. Failures include, but are not limited to: structural failures including excessive deflection, cracking or breakage; and faulty operation of lock and latch hardware.

1.7 MAINTENANCE SERVICE. Beginning at substantial completion, perform two quarterly (at approximately 3 and 6 months) full preventive maintenance inspections by skilled employees of the door hardware installer. The quarterly preventive maintenance inspections shall include adjustment, repair, or replacement of worn or defective components, lubrication, and cleaning as required for proper door hardware operation. Provide parts and supplies as used in the manufacture and installation of the original products. At the six month preventive maintenance inspection, replace door hardware items that have deteriorated or failed due to faulty design, materials, or installation of hardware items.

2.4.2 Bored Lock and Latchsets. Bored lock, latchsets, and strikes shall be series 4000 and shall conform to BHMA A156.2, and shall exceed ANSI Grade 1 requirements. Bored type locks and latches for doors 1-3/8 inches thick and over shall have adjustable bevel fronts or otherwise conform to the shape of the door. Lever handles shall be installed on all locksets unless noted. Levers shall return to within 3/8"-1/2" of the door surface. Levers/trim shall be through-bolted.