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USACE / NAVFAC / AFCEC	**UFGS-23 03 00 (November 2025)**

Preparing Activity: NAVFAC	**Superseding**
	UFGS-23 03 00.00 20 (August 2010)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated October 2025

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DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

SECTION 23 03 00

BASIC MECHANICAL MATERIALS AND METHODS

11/25

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SECTION 23 03 00

BASIC MECHANICAL MATERIALS AND METHODS
11/25

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NOTE: This guide specification covers the requirements for the mechanical general requirements for all sections of Divisions: 21, FIRE SUPPRESSION; 22, PLUMBING; and 23, HEATING, VENTILATING AND AIR CONDITIONING.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).

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NOTE: This guide specification can be applied to other divisions of the project specification.

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PART 1 GENERAL

1.1 SUBMITTALS

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NOTE: Review Submittal Description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list, and corresponding submittal items in the text, to reflect only the submittals required for the project. The Guide Specification

technical editors have classified those items that require Government approval, due to their complexity or criticality, with a "G." Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a "G" to an item if the submittal is sufficiently important or complex in context of the project.

For Army projects, fill in the empty brackets following the "G" classification with a code of up to three characters to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy and Air Force projects.

The "S" classification indicates submittals required as proof of compliance for sustainability Guiding Principles Validation or Third Party Certification and as described in Section 01 33 00 SUBMITTAL PROCEDURES.

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for Contractor Quality Control approval. Submittals not having a "G" or "S" classification are for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

[SD-07 Certificates

Request for Permission to Operate HVAC Equipment During Construction; G, [_____]

] SD-10 Operation and Maintenance Data

Certified List Of Qualified Permanent Service Organizations

1.2 RELATED REQUIREMENTS

This section applies to all sections of Divisions: 21, FIRE SUPPRESSION; 22, PLUMBING; and 23, HEATING, VENTILATING, AND AIR CONDITIONING of this project specification, unless specified otherwise in the individual section.

1.3 QUALITY ASSURANCE

1.3.1 Material and Equipment Qualifications

Provide materials and equipment that are standard products of manufacturers regularly engaged in the manufacture of such products, which are of a similar material, design and workmanship. Standard products must have been in satisfactory commercial or industrial use for 2 years prior to bid opening. The 2-year use must include applications of equipment and

materials under similar circumstances and of similar size. The product must have been for sale on the commercial market through advertisements, manufacturers' catalogs, or brochures during the 2 year period.

1.3.2 Alternative Qualifications

Products having less than a two-year field service record will be acceptable if a certified record of satisfactory field operation for not less than 6000 hours, exclusive of the manufacturer's factory or laboratory tests, can be shown.

1.3.3 Service Support

The equipment items must be supported by service organizations. Submit a certified list of qualified permanent service organizations for support of the equipment which includes their addresses and qualifications. These service organizations must be reasonably convenient to the equipment installation and able to render satisfactory service to the equipment on a regular and emergency basis during the warranty period of the contract.

1.3.4 Manufacturer's Nameplate

For each item of equipment, provide a nameplate bearing the manufacturer's name, address, model number, and serial number securely affixed in a conspicuous place; the nameplate of the distributing agent will not be acceptable.

1.3.5 Modification of References

In each of the publications referred to herein, consider the advisory provisions to be mandatory, as though the word, "must" had been substituted for "should" wherever it appears. Interpret references in these publications to the "authority having jurisdiction", or words of similar meaning, to mean the Contracting Officer.

1.3.5.1 Definitions

For the International Code Council (ICC) Codes referenced in the contract documents, advisory provisions must be considered mandatory, the word "should" is interpreted as "must." Reference to the "code official" must be interpreted to mean the "Contracting Officer." References to the "owner" must be interpreted to mean the "Contracting Officer." For leased facilities, references to the "owner" must be interpreted to mean the "lessor." References to the "permit holder" must be interpreted to mean the "Contractor."

1.3.5.2 Administrative Interpretations

For ICC Codes referenced in the contract documents, the provisions of Chapter 1, "Administrator," do not apply. These administrative requirements are covered by the applicable Federal Acquisition Regulations (FAR) included in this contract and by the authority granted to the Officer in Charge of Construction to administer the construction of this project. References in the ICC Codes to sections of Chapter 1, must be applied appropriately by the Contracting Officer as authorized by his administrative cognizance and the FAR.

1.4 DELIVERY, STORAGE, AND HANDLING

Handle, store, and protect equipment and materials to prevent damage before and during installation in accordance with the manufacturer's recommendations, and as approved by the Contracting Officer. Replace damaged or defective items.

[1.5 ELECTRICAL REQUIREMENTS

Furnish motors, controllers, disconnects and contactors with their respective pieces of equipment. Motors, controllers, disconnects and contactors must comply with and have electrical connections provided under Section 26 20 00 INTERIOR DISTRIBUTION SYSTEM. Furnish internal wiring for components of packaged equipment as an integral part of the equipment. Extended voltage range motors will not be permitted. Controllers and contactors must have a maximum of 120 volt control circuits, and must have auxiliary contacts for use with the controls furnished. When motors and equipment furnished are larger than sizes indicated, the cost of additional electrical service and related work must be included under the section that specified that motor or equipment. Power wiring and conduit for field installed equipment must be provided under and comply with the requirements of Section 26 20 00 INTERIOR DISTRIBUTION SYSTEM.

]1.6 INSTRUCTION TO GOVERNMENT PERSONNEL

When instruction and training is specified in other sections, provide the services of competent instructors to give full instruction to the designated Government personnel in the adjustment, operation, and maintenance, emergency start-up and shut-down, including pertinent safety requirements, of the specified equipment or systems. Instructors must be thoroughly familiar with all parts of the installation and must be trained in operating theory as well as practical operation and maintenance work.

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NOTE: Choose the bracketed option below if total training time for specified equipment and systems specified in Division 22 and 23 sections consist of less than 8 hours of training.

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[Total training time for equipment and systems specified in Division 22 and 23 sections must consist of a minimum of [8][_____] hours of training.]Instruction must be given during the first regular work week after the equipment or system has been accepted and turned over to the Government for regular operation. The number of man-days (8 hours per day) of instruction furnished must be as specified in the individual section. When more than 4 man-days of instruction are specified, use approximately half of the time for classroom instruction. Use other time for instruction with the equipment or system. When significant changes or modifications in the equipment or system are made under the terms of the contract, provide additional instruction to acquaint the operating personnel with the changes or modifications.

1.7 ACCESSIBILITY

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NOTE: The following requirement is intended to solicit the installer's help in the prudent location of equipment when he has some control over

locations. However, designer's should not rely on it at all since enforcing this requirement in the field would be difficult. Therefore, the system designer needs to layout and indicate the locations of equipment, control devices, and access doors so that most of the accessibility questions are resolved inexpensively during design.

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Install all work so that parts requiring periodic inspection, operation, maintenance, and repair are readily accessible. Install concealed valves, expansion joints, controls, dampers, and equipment requiring access, in locations freely accessible through access doors and in accordance with the manufacturers' recommendations and instructions.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

[3.1 SELECTIVE DEMOLITION

Comply with SECTION 02 41 00 [DEMOLITION][AND][DECONSTRUCTION]. Do not abandon inactive pipe and duct in place.

]3.2 COORDINATION, SEQUENCING AND SCHEDULING

Examine the site and drawings for limitations of space available for installation of materials and equipment, as well as all conditions regarding service connections, grades, ground conditions, and all factors involved in the completion of work, prior to starting work. Coordinate mechanical equipment installation with other building components to avoid conflicts. Arrange for pipe spaces, chases, slots, and openings in building structure as construction progresses, and set sleeves and required supporting devices in poured-in-place concrete and other structural components as they are constructed.

Sequence, coordinate, and integrate installation of all mechanical materials and equipment to maintain efficient workflow and avoid delays. Coordinate installation of large equipment requiring positioning before closing in building. Coordinate connection of mechanical systems with exterior underground and overhead utilities and services. Provide and locate access doors and panels for mechanical items concealed behind finished surfaces. Access panels and doors are specified in SECTION 08 31 00 ACCESS DOORS AND PANELS. Coordinate installation of identification systems with SECTION 23 30 00 HVAC AIR DISTRIBUTION.

3.3 MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS

Install all materials and equipment in accordance with the recommendations and instructions of the manufacturer of the approved products, superseded only by the contract drawings and specifications.

3.4 PAINTING

Field paint piping and equipment in accordance with Section 09 90 00 PAINTS AND COATINGS and each individual Division 23 section.

3.5 INDOOR AIR QUALITY DURING CONSTRUCTION

Permanent HVAC systems must not be used during construction. Exception: Permanent HVAC systems may be used for HVAC unit startup, testing and balancing activities, commissioning activities, and building flush-out or air purge.[Provide temporary HVAC equipment to meet required thermal conditions and ventilation during construction.]

[At the sole discretion of the contracting officer, permanent HVAC equipment may be operated during construction. Submit request for permission to operate HVAC equipment during construction in writing no later than [90][____] calendar days prior to proposed start date and include an Equipment Startup and Operation plan. The plan must include:

a. Equipment desired to be placed in service indicated.

b. Reason indicated for the request for equipment to be run prior to acceptance of the building.

c. Plan for maintenance, monitoring, and cleaning of equipment to be performed prior to acceptance of the building.

d. Plan for maintenance of air filtering for space in which equipment is located.

e. Plan for cleaning and maintenance of duct which construction dust may pass into.

f. Verification of piping insulation installation throughout building.

g. Plan for maintenance and cleaning of condenser cooling coils.

h. Plan for removal of equipment from service when high dust activities occur or are planned to occur.

i. Details on filter media to be installed on buildings return air and outdoor air locations. Filter Minimum Efficiency Reporting Value (MERV) must be 8 for all such filters during construction.

j. Plan for monitoring, cleaning, and maintenance of heating and cooling coils.

k. Plan for maintenance of hydronic system, including how water treatment will be maintained to the manufacturer recommended levels.

l. Personnel assigned and qualified to perform oversight of the operating equipment.

m. Plan for equipment safety during operation.

n. Plan for management of unit operation to ensure no over or under pressure in ductwork. This includes operation during TAB activities prior to high or low pressure safety devices being enabled.

o. Confirmation of installation of fire and smoke detectors or plan for oversight to ensure air handling units are shut down upon smoke or fire detection.

p. Personnel assigned to fire watch.

q. Plan for equipment operation or shutdown during non-working times such as overnight unoccupied periods or weekend and holidays.

r. Plan for equipment operation during loss of power and other anticipated events.

s. Verification of post-construction equipment warranty validity if equipment is allowed to operate during construction.

t. Plan for cleanliness of mechanical rooms during operation of equipment.

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