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FOUNTAINS

1. GENERAL

- A. Due to water conservation efforts and the high maintenance requirements of fountains, new interior and / or exterior fountains are not allowed.
- B. If a variance is granted for a fountain, it shall be connected to the sanitary sewer system and shall not connect to the storm sewer system.
- C. If a variance for a fountain is granted, funding source for the related infrastructure and fountain shall be private funds.



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PRE-FABRICATED ENVIRONMENTAL ROOMS

1. GENERAL

- A. Related sections:
 - i. 23 00 00 – General Mechanical Requirements (HVAC)
 - ii. 26 00 00 – General Electrical Requirements
- B. Intent:
 - i. The guide is for the purpose of assisting the design engineer with specifying environmental rooms, walk-in coolers and / or freezers used in research or for educational purposes. This guide specification is not intended for food storage walk-in coolers.
 - ii. The unit shall be provided by a single-source manufacturer and the manufacturer shall be ISO 9001 registered.

2. PRODUCTS

- A. Acceptable manufacturers are:
 - i. Nor-Lake, Inc.
 - ii. Harris Environmental
 - iii. Thermmax Scientific Products
- B. Insulated Panels / Walls / Roof
 - i. The environmental room shall be pre-fabricated and field assembled and shall consist of modular, interlocking, pre-insulated panels. The panel insulation shall be polyurethane rigid foam and the thickness shall be sized to prevent condensation on the exterior and shall be no less than 4 inches thick. Sufficient gasketing shall be provided to stop moisture migration.
 - ii. Floor panels shall be designed to withstand 600 pounds per square foot pressure minimum.
 - iii. Adjoining environmental rooms operating at different conditions shall not share panels, but shall be independent of one another. (No shared roof, floor or wall panels).
- C. Doors
 - i. The door shall have an anti-sweating heater wire around the perimeter to prevent sweating, an observation window and a kick-plate.
- D. Ramps
 - i. Discuss with UGA project manager whether a ramp is needed and if so should it be internal or external to the unit.
- E. Interior floors shall be provided with tread plate covering to reducing slipping.
- F. Condensing units shall not be mounted atop the cooler unless it is water-cooled. If mounted atop unit, a minimum of 36 inches clear from the top of the unit to structure is required. In addition, adequate clearances for access and maintenance shall be provided. Air-cooled units shall be installed remotely outdoors unless specifically approved by Project Manager.
- G. Electrical:
 - i. The environmental room shall have a single point of power connection in a NEMA 1 cabinet containing circuit breakers for lights, outlets and cooler located directly above the controls.



- ii. Lighting shall be designed to maintain to provide 70 foot candles. Lights shall be gasketed and all associated hardware designed to operate in a damp location without rusting. All wiring shall be concealed in conduit inside the panels.
 - iii. Provide 2 duplex receptacles per wall minimum unless otherwise instructed. Discuss locations with Project Manager.
- H. Controls:
- i. Discuss with Project Manager to ensure what design conditions are needed. Many environmental rooms are designed for 4 degrees Celsius, but others may vary depending upon the department. Others may require humidification and / or dehumidification. DP shall confirm any tolerance/dead band requirements for both temperature and humidity with UGA PM at the start of the project. *Revised Apr 30, 2020*
 - ii. Programmable microprocessor controls for temperature and humidity control shall be encased in a lockable panel with an acrylic cover. Temperature and humidity shall be displayed via a liquid crystal alphanumeric display.
 - iii. The controllers shall have sufficient outputs and inputs to interface with alarms or other devices as required.
 - iv. The controller shall be provided with the capability of generating e-mail or text messages to identified individuals via the internet in the case of the cold room operating outside set parameters.
 - a. Coordination with the FMD IT Department will be required for installation of associated software and for programming of individual text and e-mail addresses.
 - b. Coordination with campus EITS to provide data cable drop for transmission of alarm text or e-mail.
 - v. Provide low and high limit safeties to prevent over cooling or over-heating and shall generate audible and visual alarms. High and low safeties shall be provided with automatic resets rather than manual resets.
 - vi. Paper chart recorders are generally not desired. Requirements for reviewing temperature and humidity historical trend data shall be confirm with the UGA PM at the start of the project. *Revised Apr 30, 2020*
 - vii. Product sample temperature sensors shall be provided with protective cover.
- I. Alarms:
- i. Provide audible and visual alarms.
- J. Water-Cooled Condensing Units:
- i. The condensing unit shall be indoor type.
 - ii. The compressors shall be hermetic.
 - iii. Indoor water-cooled condensing unit accessories include:
 - iv. Water regulating valve for head pressure control
 - v. Coaxial or shell and tube condenser shall be selected for the proper EWT and condensing temperature. *Revised Apr 30, 2020*
- K. Outdoor Condensing Units:
- i. The condensing units shall include pre-painted galvanized cabinet, compressor, condenser, fan motors, liquid receiver with fusible plug, compressor service



valves and waterproof electrical control panel. The assembly shall be designed for outdoor use.

- ii. The compressors shall be serviceable semi-hermetic or scroll type
- iii. Outdoor condensing unit accessories shall include:
 - a. Head pressure control valve
 - b. Crankcase heater
 - c. Compressor contactor
 - d. Dual pressure switch
 - e. Liquid shut-off valve and charging port
 - f. Liquid line filter / drier & sight glass
 - g. Suction filter
 - h. Defrost timer
- iv. Condenser coil constructed of copper tube with plate type, die formed aluminum fins.
- v. Condenser fans to be propeller fans arranged for horizontal discharge, the fans shall be statically and dynamically balanced.
- vi. Accessories common to all evaporators:
 - a. Hot gas only for defrosting copper tubes and aluminum fins
 - b. heavy gauge textured aluminum casing
 - c. Sweat connection
 - d. Schrader valve for suction pressure measurement
 - e. Thermally protected PSC motors
 - f. Thermostatic expansion valve
 - g. Liquid line solenoid for automatic pump down.
- L. Accessories:
 - i. If the cold room is provided with a sink (not recommended), then all water lines and drain lines shall be heat traced and insulated.
- M. Acceptable manufacturers are:
 - i. Nor-Lake, Inc.
 - ii. Harris Environmental
 - iii. Thermmax Scientific Products

Revised Apr 30, 2020

3. EXECUTION:

- A. The installing technicians shall provide proof of experience in installing pre-fabricated environmental rooms. Provide proof of installation of at least 10 similar units.
- B. The installing Contractor shall verify that the floor upon which the environmental room shall sit is level before constructing the room and that all walls are plumb.
- C. The Contractor shall provide a minimum of 30 days of trend data indicating stable control of design parameters (temperature and humidity).
- D. A factory employee or factory designated individual shall be present at start-up.
- E. Warranties:
 - i. Warranty shall become effective following the acceptance date and cover the following items for the noted duration:
 - a. Five-year compressor warranty
 - b. One-year parts warranty
 - c. 18-month labor warranty



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METAL BUILDING SYSTEMS

1. GENERAL

- A. Introduction: Metal Building Systems are generally used in rural or agricultural settings, and the design intent is for the metal building form to emulate the shape of a barn.
- B. The roof shall be a gable form with a minimum 6 in 12 slope.
- C. Overhangs of at least 12 inches are required on all sides of the building.
- D. Vinyl soffits are not allowed.
- E. The roof color and material shall be equal to Galvalume (55 percent aluminum-zinc alloy coated sheet steel).
- F. The siding color shall be a medium gray and color samples shall be submitted to the Project Manager for approval.
- G. All roof penetrations shall utilize a pre-manufactured boot and / or sleeve that is specifically designed for a metal building roof system.