Include the following information on the project drawings. See DCSM sections 2.4 and 2.7 for additional details on drawings.

**Instructions**:

Indicate your response to each item in the checklist. Select ‘Yes’ if the checklist item has been completed in full. Select ‘No’ or ‘N/A’ if that item is not included or not required for the specific project. Explain why that item has not been included in the submittal.

| **RESPONSE** | **REQUIREMENTS** |
| --- | --- |
|  | General |
| Choose an item. | Show a north arrow and drawing scale. Use 1/8" scale minimum for floor plans. |
| Choose an item. | Provide plans of each floor (with room numbers) and roof indicating double-line duct layouts and mechanical equipment. Indicate ceiling-mounted lighting fixtures. |
| Choose an item. | Indicate locations and sizes of fans, pumps, compressors, air handling equipment, dampers, etc. |
| Choose an item. | Show equipment layout, ventilation, and condensate disposal. |
| Choose an item. | Show routes of duct and exhaust systems. |
| Choose an item. | Identify combustion air. |
| Choose an item. | Show appliance vents. |
| Choose an item. | Show locations of fire and smoke dampers. |
| Choose an item. | Provide a description of the required smoke control systems. Include airflow schematic and sequence of operations. |
| Choose an item. | Identify any special equipment (e.g., pressure vessels or refrigeration equipment). Show piping layouts. |
| Choose an item. | Provide schematic layout and elevation of equipment room and central system, showing configuration, tie-ins, and relevant details. |
| Choose an item. | Provide diagrams of chilled and heating water, steam, and condensate piping. |
| Choose an item. | Identify central heating and cooling plants, distribution piping, equipment, anchors, and expansion joints. |
| Choose an item. | Indicate items to be demolished as part of renovation projects. |
| Choose an item. | Provide plans for each floor indicating chilled water, heating hot water, steam and condensate piping, and piping sizes. Show provisions for expansion. This information may be shown on ductwork plans when legible. |
| Choose an item. | Provide layouts of mechanical equipment and fan rooms at a scale not less than twice that of the floor plans. Show equipment, ducts, and piping to coordinate the installation in tight areas. Show access and service space requirements such as those required for tube, coil, and fan removal. |
| Choose an item. | Provide schedules for all mechanical equipment, steam traps, and air devices. Show sizes, capacities, horsepower, CFM, electrical characteristics, locations, and features. |
| Choose an item. | Provide drawings showing control schematics and automation points. |
| Choose an item. | Provide sections as required to clearly show the work in three dimensions. |
| Choose an item. | Indicate the building heating loads (in Btu or pounds of steam per hour) to include transmission plus infiltration, outside air, hot water (domestic, kitchen, laundry, hospital, etc.), and outside air loads. |
| Choose an item. | Indicate the sensible and total air conditioning cooling load of the building in tons. Show the outside air portion of the cooling load in tons. |
| Choose an item. | Indicate fitting types for ducts. |
|  | Mechanical Insulation |
| Choose an item. | Show areas where pipe insulation differs from the typical. |
| Choose an item. | Show areas where ductwork is to be internally insulated. |
| Choose an item. | Show areas where metal jackets are to be used on interior piping. |
| Choose an item. | Show pumps to be insulated and encased in 20-gauge boxes, if required. |
| Choose an item. | Provide heat exchanger temperatures. |
|  | Central Refrigeration Equipment for Air Conditioning |
| Choose an item. | Indicate size and locations of cooling tower supports. |
| Choose an item. | Show locations of water treatment tanks and control panels. |
| Choose an item. | Indicate size and routing of refrigerant safety relief discharge piping. Consult ANSI/ASHRAE 15 Safety Code for Mechanical Refrigeration. |
| Choose an item. | Indicate a cooling tower basin heating system for cooling towers that will be required to operate when outside temperatures are below freezing and the heat generated through the refrigeration process (with head pressures maintained) will be insufficient to preclude freeze-ups. Indicate if electric immersion heaters or steam or hot water coils will be used for supplemental heating. |
| Choose an item. | Indicate vibration isolation requirements. |
|  | Air Handling Equipment |
| Choose an item. | Provide arrangement plan and details for air handling equipment and accessories. |
| Choose an item. | Provide equipment schedules with sound ratings (loudness level), electrical characteristics, and capacities. |
| Choose an item. | Show equipment pads, foundations, supports, and vibration isolators. |
|  | Temperature Control Systems |
| Choose an item. | Provide sequences of operations and system schematic. Include a narrative description detailing how the controls are to operate in the specification. |
| Choose an item. | Provide direct digital controller (DDC) architecture schematic. Show general architecture of DDC system including controllers, communication LANs, workstation terminal, etc. |
| Choose an item. | Show type of damper (opposed or parallel blade). |
| Choose an item. | Show control valve nominal size, flow capacities, type of fluid, inlet pressure, maximum and minimum pressure drop at design flow, and calculated valve flow coefficient (Cv). Confirm that control valves have been selected for smallest Cv within available pressure constraints, pipe velocities, economy of design, and noise criteria. |
| Choose an item. | Indicate pressure and temperature indicator’s scale ranges and location. Show location of temperature wells and pressure taps. |
| Choose an item. | Provide location of smoke detectors and key-operated override switches, when required, along with the zoning arrangements for these systems. |
| Choose an item. | Indicate location of meters provided in this and other sections. |
| Choose an item. | Show location of room sensors, pressure sensors, and outdoor sensors. |
| Choose an item. | Provide input/output summary. |
| Choose an item. | Show location and horsepower of air compressors and refrigerated air dryers when required. |
| Choose an item. | Show elementary wiring diagrams. |
| Choose an item. | Show location and types of automatic dampers, including smoke dampers (e.g., opposed or parallel blade). |
| Choose an item. | Provide a mechanical flow drawing. Show relative position of all individual HVAC components, input sensors (temperature sensors, pressure sensors, equipment proofs, override buttons, etc.), output components (actuators, valves, dampers, etc.), and hardwired safeties (smoke detectors and freeze stats). |
|  | Testing, Adjusting, and Balancing:  Heating, Ventilating, and Cooling Systems |
| Choose an item. | Show a unique number or mark for each piece of equipment or terminal. |
| Choose an item. | Provide air quantities at air terminals in CFM and with direction of air flow (2-way, 4-way, etc.). |
| Choose an item. | Provide air quantities and temperatures in air handling unit schedules. |
| Choose an item. | Provide water quantities and temperatures in thermal energy transfer equipment schedules. |
| Choose an item. | Provide water quantities and heads in pump schedules. |
| Choose an item. | Provide water flow measurement fittings and balancing fittings. |
| Choose an item. | Show ducts for special locations (wet, corrosive, etc.). |