MECHANICAL SPECIFICATIONS

Section
Number Title

15010
BASIC MECHANICAL REQUIREMENTS
GENERAL
All work shall conform to mandated version of IBC, SMACNA, UPC, IMC, NFPA, IFC, IFGC, IECC and all other applicable codes enforced by the authorities having jurisdiction.
The scope of the work shall include mechanical systems as shown on the plans. The Contractor shall provide all supervision, labor, material, equipment, machinery, plant and any and all other items as indicated on the drawings as required for complete systems.
Contractor shall give all necessary notices, obtain and pay for all permits and pay all government sales taxes, fees and other costs incurred in connection with the work, file all necessary plans, prepare all documents and obtain all required certificates of inspections for his work and deliver same to the Engineer before request for acceptance and final payment for the work.
All materials installed shall bear the UL label and shall be new and of the best quality.
The Contractor shall follow drawings in laying out work, check drawings of other trades and verify on-site conditions in which work will be installed.
The Contractor shall protect all work, material and existing furnishings from damage by his work or workmen and shall be liable for all damage thus caused.
Provide two sets of operations and maintenance manual and two sets of as built record drawings within 60 days of substantial completion of project.
All work shall be guaranteed in writing to be free of defective work, materials or parts for a period of one year after substantial completion of work.

15060
HANGERS AND SUPPORTS
GENERAL
Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
Design seismic restraint system per IBC in accordance with SMACNA Seismic Design Guide for service zones as identified by current IBC.
PRODUCTS
Manufactured Units Hangers, Supports and Components: Factory fabricated according to MSS SP-58.
EXECUTION
Hanger and Support applications to comply with MSS SP-69 for pipe hanger selections and applications.
Hanger and Support Installation to comply with MSS SP-69 and SP-89. Install hangers, supports, clamps and attachments as required to properly support piping from building structure.

15083
PIPE INSULATION
GENERAL
Insulation installed indoors shall have a flame spread rating of 25 or less and a smoke developed rating of 50 or less.
INSULATION MATERIALS
Mineral fiber insulation shall have glass fibers bonded with a thermosetting resin complying with ASTM C 547, type 1, with factory-applied all-purpose vapor retarder jacket.
FIELD APPLIED JACKETS
Provide standard PVC fitting covers.
GENERAL APPLICATION REQUIREMENTS
Apply insulation continuously through hangers, walls and floors in accordance with manufacturers written instructions.
INSULATION APPLICATION SCHEDULE
Domestic cold water.
None.
Rainwater Conductors.
Provide 1/2" thick, mineral fiber insulation with PVC fitting covers and vapor retarder.
Roof Drain Bodies
Provide 1" thick, mineral fiber insulation with foil and paper jacket and vapor retarder.

15326
STANDPIPE AND WET-PIPE SPRINKLER SYSTEMS
GENERAL
QUALITY ASSURANCE:
Comply with requirements of authority having jurisdiction.
Comply with requirements of Owner's insurance underwriter.
Licensed Designer: Submit design drawings, design calculations and installation inspection reports.
Include seal and signature of registered NICET Level III designer licensed in jurisdiction.
Installer's Qualifications: Firms licensed by State Fire Marshal qualified to install and alter fire protection in compliance with the requirements of the authority having jurisdiction.
PIPE AND TUBES:
Steel Pipe: ASTM A 53, Schedule 40 with threaded or roll grooved fittings
Steel Pipe: ASTM A 135, Schedule 10 with roll grooved fittings.
SPRINKLER APPLICATIONS
Rooms without Ceilings: Upright sprinklers, chrome plated.
Rooms with Suspended Ceilings: Semi-recessed sprinklers, chrome plated.
Wall Mounting: Sidewall sprinklers.
Spaces Subject to Freezing: Upright, pendent dry-type and sidewall dry-type sprinklers.

15411
WATER DISTRIBUTION PIPING
PIPES AND TUBES
Hard Copper Tube: ASTM B 88, Type L, water tube, drawn temper with wrought copper solder fittings.
JOINT MATERIALS
Solder: ASTM B 32, Alloy Sn95, Sn94 or E; lead free.
UNDERGROUND PIPING
3-1/2" NPS and Smaller: Hard copper tube, Type K, copper solder-joint pressure fittings and solder joints. Provide with two layers of Scotch wrap.
CLEANING
Use purging and disinfecting procedures prescribed by authorities having jurisdiction or, in method is not prescribed, procedure described in either AWWA C651 or AWWA C652.

15420
DRAINAGE AND VENT PIPING - SANITARY AND STORM
PIPE AND TUBES
Hubless cast-iron Soil Pipe: ASTM A888 or CISPI 301 with no hub compact banded fittings and couplings.
ABS Pipe: Cellular core schedule 40, ASTM D2661 pipe with solvent cement welded socket fittings.
PVC Pipe: Cellular core schedule 40, ASTM D2665 pipe with solvent cement welded socket fittings.

15496
NATURAL GAS SYSTEMS
PIPING AND TUBING MATERIALS
Steel Pipe: ASTM A 120, Schedule 40, seamless, black steel pipe, beveled ends.
FITTINGS
Malleable-Iron Threaded Fittings: ANSI B16.3, Class 150, standard pattern.
Steel Flanges and Flanged Fittings: ANSI B16.5.
PIPE APPLICATIONS
Install steel pipe with threaded joints and fittings for 2" and smaller and with welded joints for 2-1/2" and larger.
PIPING INSTALLATIONS
Conform to the requirements of NFPA 54 - National Fuel Gas Code.
PIPE FINISH
Prime and paint or provide other approved protective coating for gas pipe where exposed to the exterior per IFGC 404.11.

15620
FUEL-FIRED HEATERS
GAS-FIRED UNIT HEATERS, SEPARATED COMBUSTION
Comply with ANSI Z83.8 "Gas Unit Heaters."
Housing: Steel with integral draft hood and inserts for suspension mounting rods.
Fan: Blower or propeller as scheduled.
Venting Provision: Vertical two-pipe system with power assist blower and concentric vent termination kit.
Burners: Aluminized steel with stainless steel inserts.
Automatic Gas control: Single-stage, 24 V a.c. valve.
Ignition: Electronically-controlled spark with flame sensor.
Discharge Louvers: 4-way, independently-adjustable horizontal and vertical blades and 30° discharge nozzle as scheduled.
Thermostat: Single-stage, 24 V a.c., wall-mounting type with 50-90˚F operating range and "fan-only" switch.

15835
UNIT HEATERS
ELECTRICAL UNIT HEATERS
Heating Elements: Nickel-chromium heating wire elements. Finish surface temperature does not exceed 550°F at any point during normal operation.
Heating Circuit Protection: One-time fuses in terminal box for over current protection and limit controls.
Fan and Motor: Direct-drive propeller fan and manufacturer's standard motor.
Discharge Configuration: Vertical discharge with radial louver diffuser.
Optional Accessories: Include the following:
1. Time switch
2. Integral thermostat.
3. Safety-switch disconnect on cover of terminal box.
4. Mercury contactors.
5. Fan-delay relay.

15990
TESTING, ADJUSTING AND BALANCING
GENERAL
The requirements and procedures total mechanical systems testing, adjusting and balancing requirements include measurement and establishment of the fluid quantities of the mechanical systems as required to meet design specifications and recording and reporting the results.
Test, adjust and balance the following mechanical systems:
1. Supply air systems, all pressure ranges.
2. Return air systems.
3. Exhaust air systems.
4. Hydronic systems.
5. Verify temperature control system operation.
QUALITY ASSURANCE
Test and Balance Engineer's Qualifications: An independent consultant registered in the state in which the services are to be performed and having at least 3 years of successful testing, adjusting and balancing experience on projects with testing and balancing requirements similar to those required for this project.
Codes and Standards:
1. NEBB: "Procedural Standards for Whole Building Systems Commissioning of New Construction." Current edition at the time of the contract.
PERFORMING TESTING, ADJUSTING AND BALANCING.
Perform testing and balancing procedures on each system identified in accordance with the detailed procedures outlined in the referenced standards.
RECORD AND REPORT DATA
Record all data obtained during testing, adjusting and balancing in accordance with, and on the forms recommended by the referenced standards, and as approved on the sample report forms.
DEMONSTRATION
Training: Train the owner's maintenance personnel on trouble-shooting procedures and testing, adjusting and balancing procedures.

COMcheck Software Version COMcheckWeb
Mechanical Compliance Certificate

Project Information

Energy Code:	2018 IECC
Project Title:	MIDDLETON INDUSTRIAL PARK - LOT 100
Location:	Middleton, Idaho
Climate Zone:	5b
Project Type:	New Construction

Construction Site:
Middleton Industrial Park
Middleton, Idaho 83644

Owner/Agent:

Designer/Contractor:

Additional Efficiency Package(s)
Credits: 1.0 Required 0.0 Proposed

Mechanical Systems List

Quantity	System Type & Description
1	HVAC System (Unknown w/ PerimeterSystem): Heating: 1 each - Unit Heater, Gas, Capacity = 150 kBtu/h Proposed Efficiency = 83.00% Ec, Required Efficiency: 80.00 % Ec

Mechanical Compliance Statement
Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2018 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Chase Berlin — Name - Title
Signature
1-19-2026 — Date

ENERGY CODE COMPLIANCE NOTES:

1. MECHANICAL SYSTEMS HAVE BEEN DESIGNED UNDER THE 2018 IECC.
2. LOAD CALCULATIONS HAVE BEEN PERFORMED IN ACCORDANCE WITH ASHRAE FUNDAMENTALS HANDBOOK (IECC C403.1.1).
3. DOMESTIC HOT WATER AND HOT WATER RETURN PIPING WITH OPERATING TEMPERATURE BETWEEN 105 °F AND 140 °F SHALL BE INSULATED PER TABLE C403.11.3:

PIPE SIZE	INSULATION THICKNESS	INSULATION VALUE
1/2" THRU 1 1/4"	1"	R = 4.0
1-1/2" THRU 2"	1-1/2"	R = 6.0

4. REFERENCE DUCT INSULATION SCHEDULE FOR R-VALUES OF DUCTWORK REQUIRED (IECC C403.11.1).
5. DUCT SEALING SHALL BE PERFORMED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE. DUCTS SHALL BE LISTED AND LABELED IN ACCORDANCE WITH ALL UL181 STANDARDS WITH ALL TRANSVERSE JOINTS AND LONGITUDINAL SEAMS SEALED (IECC C403.11.2.1).
6. ALL THERMOSTATS CONTROLLING HVAC SYSTEMS SHALL BE 7-DAY, SOLID STATE, PROGRAMMABLE THERMOSTATS WITH NIGHT SETBACK CAPABILITIES, HAVE AN OUTPUT TO ENABLE THE ECONOMIZER, HAVE AN INPUT FOR THE FDD ALARM FROM THE ECONOMIZER CONTROLLER, AND A DEADBAND OF 5°F OR LESS UNLESS DDC CONTROLS ARE SPECIFIED. IF DDC CONTROLS ARE SPECIFIED, FOLLOW NOTES SHOWN IN PLANS AND SPECIFICATIONS.
7. CONTRACTOR SHALL PROVIDE A COMPLETE SET OF AS BUILT RECORD DRAWINGS, OPERATION AND MAINTENANCE MANUALS, AND HVAC SYSTEM BALANCE REPORTS TO OWNER AFTER SUBSTANTIAL COMPLETION OF PROJECT (IECC C408.2.5).

DUCT INSULATION SCHEDULE

AREA	INSULATION
EXTERIOR	R-12
VENTILATED ATTIC	R-6
UNVENTED ATTIC ABOVE INSULATED CEILING	R-6
UNVENTED ATTIC WITH ROOF INSULATION	R-6
CRAWL SPACES	R-6
UNCONDITIONED SPACES	R-6
RETURN AIR PLENUM SPACES	NONE
INDIRECTLY CONDITIONED SPACE *	NONE
EXPOSED LOCATIONS	NONE
BURIED	R-6
UNTEMPERED OUTSIDE AIR-MINIMUM	R-6

* INDIRECTLY CONDITIONED SPACES INCLUDE AREAS ABOVE GRID CEILINGS WITH HARD DUCTED RETURNS AND INSULATION ON ROOF ABOVE.

TYPICAL DUCT WRAP R VALUES

THICKNESS	DENSITY	INSTALLED R VALUE (AT 25% COMPRESSION)
1-1/2"	.75 PCF	4.2
2"	.75 PCF	5.6
2-1/5"	.75 PCF	6.0
3"	.75 PCF	8.3

LOAD CALCULATION SUMMARY FORM

ZONE	EQUIPMENT	SF	COOLING LOAD W/ FRESH AIR (MBH)	HEATING LOAD W/ FRESH AIR (MBH)
1	UH 1–2	7338	---	249
2	UH–3	3709	---	123
3	UH 4–8	18468	---	582

LOAD CALCULATIONS HAVE BEEN DETERMINED IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN 2007 ASHRAE/ACCA STANDARD 183

CLIMATIC DESIGN INFORMATION

CITY	MIDDLETON, ID
ELEVATION (FT)	2867
LATITUDE	43.57N
LONGITUDE	116.22W
HEATING DB (99%)	10.5°
COOLING DB / MCWB (1%)	95.0° / 63.1°
DESIGN RAINFALL (IN/HR)	1"

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NO.	REVISIONS	DATE
1	ISSUE FOR PERMIT	

PROFESSIONAL SEAL
PROFESSIONAL ENGINEER 18187 EXPIRES 7009 1-19-26 STATE OF IDAHO ROBERT D. TIKKER

PROJECT NAME:
NEW FACILITY FOR:
MIDDLETON INDUSTRIAL PARK
LOT 100
MIDDLETON, IDAHO 83644

SPECIFICATIONS AND COMPLIANCE

JOB NO:	24116
DATE:	1-19-26
DRAWN BY:	CB

SHEET NUMBER
MP4.0

PLOT DATE:
Jan 19, 2026 - 5:26 pm