To: Prospective Bidders

From:

WBRC ARCHITECTS ENGINEERS
44 Central Street
Bangor, ME 04401-5116
(207) 947-4511
www.wbrcae.com

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated March 29, 2019, as noted below. Acknowledge receipt of the Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of the following:
- Specification Changes
- Drawing Changes
- Non-Mandatory Pre-Bid Attendance Sheet
- Section 00 73 46
- Section 21 05 00
- Section 21 13 13
- Sheet G1001
- Sheet C-001
- Sheet CL101
- Sheet CD101
- Sheet CP101
- Sheet CG101
- Sheet CU101
- Sheet C501
- Sheet C502
- Sheet C503
- Sheet C601
- Sheet S-101
- Sheet S-102
- Sheet S-200
- Sheet S-401
- Sheet AE101
- Sheet AE201
- Sheet AE202
- Sheet AF101
- Sheet PL110
- Sheet PL601
- Sheet E-001
- Sheet EL101
- Sheet EP101

SPECIFICATION CHANGES:

1. Section 00 73 46, Wage Determination Schedule, DELETE in its entirety and REPLACE with attached Section 00 73 46.

2. Section 01 10 00, Summary, Par. 1.9.B, ADD Subpar. 5 as follows: “Work is prohibited on August 29-30, 2019. Expect clean up to be required prior to these dates. Plan on temporary fence being relocated to allow pedestrian circulation through the Gannett parking lot between the construction project and the IMRC to Hilltop Rd. Project site should be secured during this time. Coordinate final logistics with Owner.”
Addendum Number 01
Project: 4212.01 New Machine Tool Lab Building
April 12, 2019

3. Section 07 46 33, Phenolic Wall Siding:
   • Par. 2.1.A.1, ADD “(646) 248-2336”
   • Par. 2.2.B.1, DELETE “Denver Classic Oak” and REPLACE with “Classic Oak”

4. Section 07 54 19, Polyvinyl-Chloride (PVC) Roofing, Par. 3.2.F, DELETE in its entirety and REPLACE with the following: “Mechanically Fastened Insulation and Coverboard: Install all layers of insulation then secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type. Adhere coverboard.”

5. Section 21 05 00, Common Work Results for Fire Suppression, ADD Section.

6. Section 21 13 13, Wet-Pipe Sprinkler Systems, ADD Section.

7. Section 32 39 00, Site Accessories:
   • Par. 2.1.C.1, DELETE 1/4” and REPLACE with 1/8”
   • Par. 2.1.C.4, DELETE in its entirety and REPLACE with the following: “4. Basis of Design: 1/8” thick recyclable yellow plastic LDPE sleeve, Ideal Shield or equivalent.”

DRAWING CHANGES:

8. Sheet GI001, Cover Sheet, DELETE and REPLACE with attached sheet.

9. Sheet C-001, Site General Notes & Abbreviations, DELETE and REPLACE with attached sheet.

10. Sheet CL101, Site Logistics Plan, ADD attached Sheet.

11. Sheet CD101, Site Removals Plan, DELETE and REPLACE with attached sheet.

12. Sheet CP101, Site Layout Plan, DELETE and REPLACE with attached sheet.


15. Sheet C501, Site Details, DELETE and REPLACE with attached sheet.

16. Sheet C502, Site Details, DELETE and REPLACE with attached sheet.

17. Sheet C503, Site Details, ADD attached sheet.

18. Sheet C601, Site Boring Logs, DELETE and REPLACE with attached sheet.


20. Sheet S-102, Roof Framing Plan, DELETE and REPLACE with attached sheet.

21. Sheet S-200, Joist and Deck Details, DELETE and REPLACE with attached sheet.

22. Sheet S-401, Masonry Wall Elevations, DELETE and REPLACE with attached sheet.

23. Sheet AE101 First Floor Plan, DELETE and REPLACE with attached sheet.

24. Sheet AE102, First Floor Reflected Ceiling Plan, detail marker overlaps with lighting symbol on 1 line. Detail reads M14/AE504.

26. Sheet AE201, Building Elevations, DELETE and REPLACE with attached sheet.

27. Sheet AE202, Interior Elevations, DELETE and REPLACE with attached sheet.

28. Sheet AE301, Building Sections, building sections are provided for general building geometry reference. Refer to details for additional information related to generically shown elements such as parapets, haunches, etc. A1/AE301 shows insulation at 1 line on interior. Provide at exterior.

29. Sheet AE601, Door and Window Schedule and Types, Door 101 to be Type A not C.

30. Sheet AF101, Floor Finish Plan, Schedule and Details, DELETE and REPLACE with attached sheet.

31. Sheet PL110, First Floor Plumbing Domestic Water Plan, DELETE and REPLACE with attached sheet.

32. Sheet PL601, Plumbing Details & Schedules, DELETE and REPLACE with attached sheet.

33. Sheet E-001, Electrical Legend and Light Fixture Schedule, DELETE and REPLACE with attached sheet.

34. Sheet EL101, First Floor Lighting Plan, DELETE and REPLACE with attached sheet.

35. Sheet EP101, First Floor Power Plan, DELETE and REPLACE with attached sheet.

GENERAL:

36. April 9, 2019, Non-Mandatory Pre-Bid Meeting Attendee Sheet attached for your information.

END OF ADDENDUM 01
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<th>C</th>
<th>D</th>
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<td>DMCnoss @ King construcrion services.com</td>
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<td>Dunk &amp; Bray</td>
<td>Scott Priest</td>
<td>ScottP @ Bray and Bray.com</td>
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<td>Nicholas Construction</td>
<td>Gary Nicholas</td>
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<td>BUCK</td>
<td>Aaron Clemente</td>
<td>Tina @ BUCK Construction.com</td>
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<td>J. P. Porter</td>
<td>Jason Stith</td>
<td>Jason @ Jpporter.com</td>
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<td>Sean &amp; Tim Coleman/Porter</td>
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<td>Jeremy Gifford</td>
<td>Jeremy @ gifford electric.com</td>
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<td>B. R. Newhouse</td>
<td>Brent Newhouse</td>
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<td>S. I. Wood Const</td>
<td>Phil St. Pierre</td>
<td>Phil @ siwood.net</td>
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<td>Johnson Contrels</td>
<td>Troy Sheehan</td>
<td>Troy.sheehan @ gu.com</td>
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<td>Chad Chandler</td>
<td>chandler @ benchmarkconstruction.com</td>
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<td>Ted</td>
<td>Ted @ benchmarkconstruction.com</td>
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SECTION 00 73 46

WAGE DETERMINATION SCHEDULE

THIS DOCUMENT MUST BE CLEARLY POSTED AT THE PERTAINING STATE FUNDED PREVAILING WAGE CONSTRUCTION SITE

State of Maine
Department of Labor
Bureau of Labor Standards
Augusta, Maine 04333-0045
Telephone (207) 623-7906

Wage Determination - In accordance with 26 MRS §1301 et. seq., this is a determination by the Bureau of Labor Standards, of the fair minimum wage rate to be paid laborers and workers employed on the below title project.

Title of Project ------New Machine Tool Lab Bldg-5100493

Location of Project --Orono, Penobscot County

2019 Fair Minimum Wage Rates
Building 2 Penobscot County
(Other than 1 or 2 family homes)

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<th>Minimum Benefit</th>
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The Laborer classifications include a wide range of work duties. Therefore, if any specific occupation to be employed on this project is not listed in this determination, call the Bureau of Labor Standards at the above number for further clarification.

Welders are classified in the trade to which the welding is incidental.

Apprentices - The minimum wage rate for registered apprentices are those set forth in the standards and policies of the Maine State Apprenticeship and Training Council for approved apprenticeship programs.

Posting of Schedule - Posting of this schedule is required in accordance with 26 MRS §1301 et. seq., by any contractor holding a State contract for construction valued at $50,000 or more and any subcontractors to such a contractor.

Appeal - Any person affected by the determination of these rates may appeal to the Commissioner of Labor by filing a written notice with the Commissioner stating the specific grounds of the objection within ten (10) days from the filing of these rates with the Secretary of State.

Determination No: B2-039-2019-REVISED

Filing Date: April 12, 2019
Expiration Date: 12-31-2019

BLS 4248U (R2019) (Building 2 Penobscot)

A true copy

Attest: Scott R. Colnoir
Wage and Hour Director
Bureau of Labor Standards

END OF SECTION 00 73 46

New Machine Tool Lab Bldg 00 73 46 – 1 Wage Determination Schedule Addendum 1
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. SUMMARY

C. This Section includes the following:
   1. Piping materials and installation instructions common to most piping systems.
   2. Sleeves.
   3. Escutcheons.
   4. Supports and anchorages.

D. Related Sections:
   1. Division 21 Section "Common Work results for Fire Suppression".
   2. Division 21 Section "Facility Fire Suppression Piping" for connection to and extension of facility water-distribution piping.
   3. Division 31 Section “Earth Moving” for excavating, trenching, and backfilling.

1.2 DEFINITIONS

A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe chases, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in chases.

E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.3 QUALITY ASSURANCE

A. Steel Support Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code--Steel."

B. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."
1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."
2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

C. Electrical Characteristics for Fire-Suppression Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

1.5 COORDINATION

A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for fire-suppression installations.

B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

PART 2 - PRODUCTS

2.1 PIPE, TUBE, AND FITTINGS

A. Refer to individual Division 21 piping Sections for pipe, tube, and fitting materials and joining methods.

B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.2 JOINING MATERIALS

A. Refer to individual Division 21 piping Sections for special joining materials not listed below.

B. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.

   1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch maximum thickness unless thickness or specific material is indicated.
      a. Full-Face Type: For flat-face, Class 125, cast-iron and cast-bronze flanges.
      b. Narrow-Face Type: For raised-face, Class 250, cast-iron and steel flanges.

   2. AWWA C110, rubber, flat face, 1/8 inch thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.

C. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

D. Welding Filler Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.
2.3 ESCUTCHEONS

A. Description: Manufactured wall and ceiling escutcheons, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.

B. One-Piece, Cast-Brass Type: With set screw.
   1. Finish: Polished chrome-plated.

C. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.
   1. Finish: Polished chrome-plated.

D. One-Piece, Stamped-Steel Type: With set screw or spring clips and chrome-plated finish.

E. Split-Plate, Stamped-Steel Type: With concealed hinge, set screw or spring clips, and chrome-plated finish.

PART 3 - EXECUTION

3.1 PIPING SYSTEMS - COMMON REQUIREMENTS

A. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.

B. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

C. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

D. Install piping to permit valve servicing.

E. Install piping at indicated slopes.

F. Install piping free of sags and bends.

G. Install fittings for changes in direction and branch connections.

H. Select system components with pressure rating equal to or greater than system operating pressure.

I. Install escutcheons for penetrations of walls, ceilings, and floors according to the following:
   1. New Piping:
      a. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, cast-brass type with polished chrome-plated finish.
      b. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, stamped-steel type.
      c. Bare Piping at Ceiling Penetrations in Finished Spaces: One-piece, cast-brass type with polished chrome-plated finish.
      d. Bare Piping in Unfinished Service Spaces: One-piece, cast-brass type with rough-brass finish.
      e. Bare Piping in Equipment Rooms: One-piece, cast-brass type.
      f. Bare Piping at Floor Penetrations in Equipment Rooms: One-piece, floor-plate type.
J. Sleeves are not required for core-drilled holes.

K. Install sleeves for pipes passing through concrete and masonry walls and concrete floors.

L. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Refer to Division 07 Section "Penetration Firestopping" for materials.

3.2 PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and Division 21 Sections specifying piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

E. Welded Joints: Construct joints according to AWS D10.12, using qualified processes and welding operators according to Part 1 "Quality Assurance" Article.

F. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

3.3 PAINTING

A. Painting of fire-suppression systems, equipment, and components is specified in Division 09 Sections "Interior Painting"

B. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.4 ERECTION OF METAL SUPPORTS AND ANCHORAGES

A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor fire-suppression materials and equipment.

B. Field Welding: Comply with AWS D1.1.

3.5 ERECTION OF WOOD SUPPORTS AND ANCHORAGES

A. Cut, fit, and place wood grounds, nailers, blocking, and anchorages to support, and anchor fire-suppression materials and equipment.
B. Select fastener sizes that will not penetrate members if opposite side will be exposed to view or will receive finish materials. Tighten connections between members. Install fasteners without splitting wood members.

C. Attach to substrates as required to support applied loads.

END OF SECTION 21 05 00
PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Pipes, fittings, and specialties.
   2. Fire-protection valves.
   3. Fire-department connection.
   4. Sprinklers.
   5. Alarm devices.
   6. Pressure gages.

B. Related Sections:
   1. Division 21 Section "Common Work results for Fire Suppression".
   2. Division 21 Section "Facility Fire Suppression Piping" for connection to and extension of facility water-distribution piping.
   3. Division 31 Section “Earth Moving” for excavating, trenching, and backfilling.

1.3 DEFINITIONS

A. Standard-Pressure Sprinkler Piping: Wet-pipe sprinkler system piping designed to operate at working pressure of 175 psig maximum.

1.4 SYSTEM DESCRIPTIONS

A. Water Supply: The existing campus is served by an existing municipal water supply. Refer to site utility plans for extension and connection to existing and sprinkler service to building.

B. Wet-Pipe Sprinkler System: Automatic sprinklers are attached to piping containing water and that is connected to water supply through alarm valve. Water discharges immediately from sprinklers when they are opened. Sprinklers open when heat melts fusible link or destroys frangible device. Hose connections are included if indicated.

1.5 PERFORMANCE REQUIREMENTS

A. Standard-Pressure Piping System Component: Listed for 175-psig minimum working pressure.

B. Delegated Design: Design sprinkler system(s), including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
C. Sprinkler system design shall be approved by authorities having jurisdiction.

1. Hydrant Flow Test Data: To be provided by UM Facilities for bidding purposes. Contractor to coordinate and provide a flow test prior to submitting shop drawings.

2. Margin of Safety for Available Water Flow and Pressure: 20 percent, including losses through water-service piping and valves.

3. Sprinkler Occupancy Hazard Classifications:
   a. Building Service Areas: Ordinary Hazard, Group 1.
   b. Electrical Equipment Rooms: Ordinary Hazard, Group 1.
   c. General Storage Areas: Ordinary Hazard, Group 1.
   d. Mechanical Equipment Rooms: Ordinary Hazard, Group 1.
   e. Office and Public Areas: Light Hazard.

4. Minimum Density for Automatic-Sprinkler Piping Design:
   a. Light-Hazard Occupancy: 0.10 gpm over 1500-sq. ft. area.
   b. Ordinary-Hazard, Group 1 Occupancy: 0.15 gpm over 1500-sq. ft. area.
   c. Ordinary-Hazard, Group 2 Occupancy: 0.20 gpm over 1500-sq. ft. area.

5. Maximum Protection Area per Sprinkler: Per UL listing.


1.6 SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

B. Shop Drawings: For wet-pipe sprinkler systems. Include plans, elevations, sections, details, and attachments to other work.

   1. Wiring Diagrams: For power, signal, and control wiring.

C. Approved Sprinkler Piping Drawings: Working plans, prepared according to NFPA 13, that have been approved by authorities having jurisdiction, including hydraulic calculations if applicable.

D. State of Maine, Fire Marshal’s permit of approval.

E. Welding certificates.

F. Operation and Maintenance Data: For sprinkler specialties to include in emergency, operation, and maintenance manuals.

1.7 QUALITY ASSURANCE

A. Installer Qualifications:

   1. Installer’s responsibilities include designing, fabricating, and installing sprinkler systems and providing professional engineering services needed to assume engineering responsibility. Base calculations on the requirements of NFPA 13, and State of Maine Fire Marshal’s Office.
a. Engineering Responsibility: Preparation of working plans, calculations, and field test reports by a qualified NICET Level III or State of Maine Licensed Professional Engineer.

B. Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

D. NFPA Standards: Sprinkler system equipment, specialties, accessories, installation, and testing shall comply with the following:

1. NFPA 13, "Installation of Sprinkler Systems."

1.8 COORDINATION

A. Coordinate layout and installation of piping and sprinklers with all existing construction. Coordinate with all systems and equipment including but not limited to ceilings, light fixtures, HVAC ducts and equipment.

B. Coordinate and provide penetrations of piping through floors, interior and exterior walls, partition assemblies, and ceilings. Refer to Architectural Reflected Ceiling Plans and sections.

1.9 EXTRA MATERIALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Sprinkler Cabinets: Finished, wall-mounted, steel cabinet with hinged cover, and with space for minimum of six spare sprinklers plus sprinkler wrench. Include number of sprinklers required by NFPA 13 and sprinkler wrench. Include separate cabinet with sprinklers and wrench for each type of sprinkler used on Project.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, and fitting materials, and for joining methods for specific services, service locations, and pipe sizes.

2.2 STEEL PIPE AND FITTINGS

A. Standard Weight, Black-Steel Pipe: ASTM A 53/A 53M. Pipe ends may be factory or field formed to match joining method.

B. Thinwall Black-Steel Pipe: ASTM A 135 or ASTM A 795/A 795M, threadable, with wall thickness less than Schedule 30 and equal to or greater than Schedule 10. Pipe ends may be factory or field formed to match joining method.

C. Schedule 10, Black-Steel Pipe: ASTM A 135 or ASTM A 795/A 795M, Schedule 10 in NPS 5 and smaller; and NFPA 13-specified wall thickness in NPS 6 to NPS 10, plain end.

E. Uncoated, Steel Couplings: ASTM A 865, threaded.

F. Uncoated, Gray-Iron Threaded Fittings: ASME B16.4, Class 125, standard pattern.

G. Malleable- or Ductile-Iron Unions: UL 860.


I. Steel Flanges and Flanged Fittings: ASME B16.5, Class 150.


K. Grooved-Joint, Steel-Pipe Appurtenances:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   a. Anvil International, Inc.
   b. Corcoran Piping System Co.
   c. National Fittings, Inc.
   d. Shurjoint Piping Products.
   e. Tyco Fire & Building Products LP.
   f. Victaulic Company.

2. Pressure Rating: 175 psig minimum.
3. Uncoated, Grooved-End Fittings for Steel Piping: ASTM A 47/A 47M, malleable-iron casting or ASTM A 536, ductile-iron casting; with dimensions matching steel pipe.
4. Grooved-End-Pipe Couplings for Steel Piping: AWWA C606 and UL 213, rigid pattern, unless otherwise indicated, for steel-pipe dimensions. Include ferrous housing sections, EPDM-rubber gasket, and bolts and nuts.

2.3 PIPING JOINING MATERIALS

A. Pipe-Flange Gasket Materials: AWWA C110, rubber, flat face, 1/8 inch thick or ASME B 16.21, nonmetallic and asbestos free.

1. Class 125, Cast-Iron Flanges and Class 150, Bronze Flat-Face Flanges: Full-face gaskets.
2. Class 250, Cast-Iron Flanges and Class 300, Steel Raised-Face Flanges: Ring-type gaskets.

B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, carbon steel unless otherwise indicated.

C. Welding Filler Metals: Comply with AWS D10.12M/D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

2.4 LISTED FIRE-PROTECTION VALVES

A. General Requirements:

1. Valves shall be UL listed or FM approved.
B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

a. Anvil International, Inc.
b. Crane Co.; Crane Valve Group; Crane Valves.
c. Crane Co.; Crane Valve Group; Stockham Division.
d. Global Safety Products, Inc.
e. Milwaukee Valve Company.
f. NIBCO INC.
g. Shurjoint Piping Products.
h. Tyco Fire & Building Products LP.
i. Victaulic Company.
j. Watts Water Technologies, Inc.

C. Ball Valves:
2. Valves NPS 1-1/2 and Smaller: Bronze body with threaded ends.
3. Valves NPS 2 and NPS 2-1/2: Bronze body with threaded ends or ductile-iron body with grooved ends.
4. Valves NPS 3: Ductile-iron body with grooved ends.

D. Bronze Butterfly Valves:
4. End Connections: Threaded.

E. Iron Butterfly Valves:
3. Body Material: Cast or ductile iron.
4. Style: Lug or wafer.
5. End Connections: Grooved.

F. Check Valves:
2. Pressure Rating: 250 psig minimum.
3. Type: Swing check.
5. End Connections: Flanged or grooved.

G. Bronze OS&Y Gate Valves:
4. End Connections: Threaded.

H. Iron OS&Y Gate Valves:
2. Pressure Rating: 250 psig minimum.
3. Body Material: Cast or ductile iron.
4. End Connections: Flanged or grooved.

I. Indicating-Type Butterfly Valves:

2. Pressure Rating: 175 psig minimum.
3. Valves NPS 2 and Smaller:
   a. Valve Type: Ball or butterfly.
   b. Body Material: Bronze.
   c. End Connections: Threaded.

4. Valves NPS 2-1/2 and Larger:
   a. Valve Type: Butterfly.
   b. Body Material: Cast or ductile iron.
   c. End Connections: Flanged, grooved, or wafer.

5. Valve Operation: Integral electrical, 115-V ac, prewired, two-circuit, supervisory switch visual indicating device.

J. NRS Gate Valves:

2. Pressure Rating: 250 psig minimum.
5. End Connections: Flanged or grooved.

2.5 TRIM AND DRAIN VALVES

A. General Requirements:

2. Pressure Rating: 175 psig minimum.

B. Angle Valves:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   a. Fire Protection Products, Inc.
   b. United Brass Works, Inc.

C. Ball Valves:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   b. Milwaukee Valve Company.
   c. NIBCO INC.
   d. Potter Roemer.
   e. Red-White Valve Corporation.
   f. Tyco Fire & Building Products LP.
   g. Victaulic Company.
   h. Watts Water Technologies, Inc.
D. Globe Valves:
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
      a. Fire Protection Products, Inc.
      b. United Brass Works, Inc.

E. Plug Valves:
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
      a. Southern Manufacturing Group.

2.6 SPECIALTY VALVES

A. General Requirements:
   2. Pressure Rating:
      a. Standard-Pressure Piping Specialty Valves: 175 psig minimum.
   3. Body Material: Cast or ductile iron.
   4. Size: Same as connected piping.
   5. End Connections: Flanged or grooved.

B. Alarm Valves:
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
      a. AFAC Inc.
      c. Reliable Automatic Sprinkler Co., Inc.
      d. Tyco Fire & Building Products LP.
      e. Venus Fire Protection Ltd.
      f. Victaulic Company.
      g. Viking Corporation.
   3. Design: For horizontal or vertical installation.
   4. Include trim sets for bypass, drain, electrical sprinkler alarm switch, pressure gages, retarding chamber, and fill-line attachment with strainer.
   5. Drip Cup Assembly: Pipe drain without valves and separate from main drain piping.
   6. Drip Cup Assembly: Pipe drain with check valve to main drain piping.

C. Automatic (Ball Drip) Drain Valves:
   2. Pressure Rating: 175 psig minimum.
   3. Type: Automatic draining, ball check.
   5. End Connections: Threaded.
2.7 FIRE-DEPARTMENT CONNECTIONS

A. Flush-Type, Fire-Department Connection:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   a. AFAC Inc.
   c. GMR International Equipment Corporation.
   d. Guardian Fire Equipment, Inc.
   e. Potter Roemer.

3. Type: Flush, for wall mounting.
6. Inlets: Brass with threads according to NFPA 1963 and matching local fire-department sizes and threads. Include extension pipe nipples, brass lugged swivel connections, and check devices or clappers.
7. Caps: Brass, lugged type, with gasket and chain.
8. Escutcheon Plate: Rectangular, brass, wall type.
11. Escutcheon Plate Marking: Similar to "AUTO SPKR."
12. Finish: Rough brass or bronze.

2.8 SPRINKLER SPECIALTY PIPE FITTINGS

A. Branch Outlet Fittings:

2. Pressure Rating: 175 psig minimum.
4. Type: Mechanical-T and -cross fittings.
5. Configurations: Snap-on and strapless, ductile-iron housing with branch outlets.
6. Size: Of dimension to fit onto sprinkler main and with outlet connections as required to match connected branch piping.
7. Branch Outlets: Grooved, plain-end pipe, or threaded.

B. Flow Detection and Test Assemblies:

2. Pressure Rating: 175 psig minimum.
3. Body Material: Cast- or ductile-iron housing with orifice, sight glass, and integral test valve.
4. Size: Same as connected piping.
5. Inlet and Outlet: Threaded.

C. Branch Line Testers:

4. Size: Same as connected piping.
5. Inlet: Threaded.
6. Drain Outlet: Threaded and capped.
7. Branch Outlet: Threaded, for sprinkler.

D. Sprinkler Inspector's Test Fittings:
   2. Pressure Rating: 175 psig minimum.
   3. Body Material: Cast- or ductile-iron housing with sight glass.
   4. Size: Same as connected piping.
   5. Inlet and Outlet: Threaded.

E. Adjustable Drop Nipples:
   2. Pressure Rating: 250 psig minimum.
   4. Size: Same as connected piping.
   5. Length: Adjustable.
   6. Inlet and Outlet: Threaded.

F. Flexible, Sprinkler Hose Fittings:
   2. Type: Flexible hose for connection to sprinkler, and with bracket for connection to ceiling grid.
   4. Size: Same as connected piping, for sprinkler.

2.9 SPRINKLERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   2. Reliable Automatic Sprinkler Co., Inc.
   3. Tyco Fire & Building Products LP.
   4. Victaulic Company.
   5. Viking Corporation.

B. General Requirements:

C. Automatic Sprinklers with Heat-Responsive Element:
   2. Nonresidential Applications: UL 199.
   3. Characteristics: Nominal 1/2-inch orifice with Discharge Coefficient K of 5.6, and for "Ordinary" temperature classification rating unless otherwise indicated or required by application.

D. Sprinkler types, features, and options as follows:
   1. Concealed ceiling sprinklers, including cover plate.
   2. Extended-coverage sprinklers.
   3. Pendent sprinklers.
4. Pendent, dry-type sprinklers.
5. Quick-response sprinklers.
6. Recessed sprinklers, including escutcheon.
7. Upright sprinklers.

E. Sprinkler Finishes:
1. Brass.
2. Bronze.
3. Painted.

F. Special Coatings:
1. Wax.
2. Lead.
3. Corrosion-resistant paint.

G. Sprinkler Escutcheons: Materials, types, and finishes for sprinklers head escutcheons are specified with sprinklers.

2.10 ALARM DEVICES

A. Alarm-device types shall match piping and equipment connections.

B. Electrically Operated Alarm Bell:
2. Type: Vibrating, metal alarm bell.
3. Size: 8-inch minimum diameter.
5. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Water-Flow Indicators:
3. Components: Two single-pole, double-throw circuit switches for isolated alarm and auxiliary contacts, 7 A, 125-V ac and 0.25 A, 24-V dc; complete with factory-set, field-adjustable retard element to prevent false signals and tamperproof cover that sends signal if removed.
4. Type: Paddle operated.
6. Design Installation: Horizontal or vertical.

D. Valve Supervisory Switches:
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   a. Fire-Lite Alarms, Inc.; a Honeywell company.
   b. Kennedy Valve; a division of McWane, Inc.
   c. Potter Electric Signal Company.
   d. System Sensor; a Honeywell company.
3. Type: Electrically supervised.
5. Design: Signals that controlled valve is in other than fully open position.
2.11 PRESSURE GAGES

A. Standard: UL 393.
B. Dial Size: 3-1/2- to 4-1/2-inch diameter.
C. Pressure Gage Range: 0 to 250 psig minimum.
D. Water System Piping Gage: Include "WATER" label on dial face.

2.12 ESCUTCHEONS

A. General: Manufactured ceiling, floor, and wall escutcheons and floor plates.
B. One-Piece, Cast-Brass Escutcheons: Polished chrome-plated or rough-brass finish with set-screws.
C. One-Piece, Stamped-Steel Escutcheons: Chrome-plated finish with set-screw or spring clips.
D. Split-Casting, Cast-Brass Escutcheons: Polished chrome-plated or rough-brass finish with concealed hinge and set-screw.
E. Split-Plate, Stamped-Steel Escutcheons: Chrome-plated finish with concealed hinge, set-screw or spring clips.

2.13 SLEEVES

A. Cast-Iron Wall Pipe Sleeves: Cast or fabricated of cast iron and equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.
B. Galvanized-Steel-Sheet Sleeves: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.
C. Galvanized-Steel-Pipe Sleeves: ASTM A 53/A 53M, Type E, standard weight, zinc coated, plain ends.

1. Underdeck Clamp: Clamping ring with set-screws.

2.14 SLEEVE SEALS

A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.

1. Sealing Elements: EPDM-rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
2. Pressure Plates: Stainless steel.
3. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements.

PART 3 - EXECUTION

3.1 PREPARATION
A. Refer to Division 31 Earthwork, for excavating, trenching, and backfilling.

3.2 WATER-SUPPLY CONNECTIONS

A. Connect sprinkler piping to exterior underground water-distribution piping. Comply with requirements for exterior piping in Division 21 Section "Facility Fire Suppression Piping."

B. Install shutoff valve, backflow preventer, pressure gage, drain, and other accessories indicated at connection to water-distribution piping. Comply with local water department requirements.

3.3 PIPING INSTALLATION

A. Locations and Arrangements: Drawing plans, schematics, and diagrams indicate general design intent and general arrangement of piping. Refer to paragraph 1.7 of this Section for Delegated Design and submittal requirements.

1. Deviations from approved working plans for piping require written approval from authorities having jurisdiction. File written approval with Architect before deviating from approved working plans.

B. Piping Standard: Comply with requirements for installation of sprinkler piping in NFPA 13.

C. Use listed fittings to make changes in direction, branch takeoffs from mains, and reductions in pipe sizes.

D. Install unions adjacent to each valve in pipes NPS 2 and smaller.

E. Install flanges, flange adapters, or couplings for grooved-end piping on valves, apparatus, and equipment having NPS 2-1/2 and larger end connections.

F. Install "Inspector's Test Connections" in sprinkler system piping, complete with shutoff valve, and sized and located according to NFPA 13.

G. Install sprinkler piping with drains for complete system drainage.

H. Install sprinkler control valves, test assemblies, and drain risers adjacent to standpipes when sprinkler piping is connected to standpipes.

I. Install automatic (ball drip) drain valve at each check valve for fire-department connection, to drain piping between fire-department connection and check valve. Install drain piping to and spill over floor drain or to outside building.

J. Install alarm devices in piping systems.

K. Install hangers and supports for sprinkler system piping according to NFPA 13. Comply with requirements for hanger materials in NFPA 13.

L. Install pressure gages on riser or feed main, at each sprinkler test connection, and at top of each standpipe. Include pressure gages with connection not less than NPS 1/4 and with soft metal seated globe valve, arranged for draining pipe between gage and valve. Install gages to permit removal, and install where they will not be subject to freezing.

M. Fill sprinkler system piping with water.
3.4  JOINT CONSTRUCTION

A. Install couplings, flanges, flanged fittings, unions, nipples, and transition and special fittings that have finish and pressure ratings same as or higher than system's pressure rating for aboveground applications unless otherwise indicated.

B. Install unions adjacent to each valve in pipes NPS 2 and smaller.

C. Install flanges, flange adapters, or couplings for grooved-end piping on valves, apparatus, and equipment having NPS 2-1/2 and larger end connections.

D. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

E. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.

F. Flanged Joints: Select appropriate gasket material in size, type, and thickness suitable for water service. Join flanges with gasket and bolts according to ASME B31.9.

G. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
   1. Apply appropriate tape or thread compound to external pipe threads.
   2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.

H. Welded Joints: Construct joints according to AWS D10.12M/D10.12, using qualified processes and welding operators according to “Quality Assurance” Article.
   1. Shop weld pipe joints where welded piping is indicated. Do not use welded joints for galvanized-steel pipe.

I. Steel-Piping, Cut-Grooved Joints: Cut square-edge groove in end of pipe according to AWWA C606. Assemble coupling with housing, gasket, lubricant, and bolts. Join steel pipe and grooved-end fittings according to AWWA C606 for steel-pipe joints.

J. Steel-Piping, Roll-Grooved Joints: Roll rounded-edge groove in end of pipe according to AWWA C606. Assemble coupling with housing, gasket, lubricant, and bolts. Join steel pipe and grooved-end fittings according to AWWA C606 for steel-pipe grooved joints.

K. Dissimilar-Material Piping Joints: Make joints using adapters compatible with materials of both piping systems.

3.5  VALVE AND SPECIALTIES INSTALLATION

A. Install listed fire-protection valves, trim and drain valves, specialty valves and trim, controls, and specialties according to NFPA 13 and authorities having jurisdiction.

B. Install listed fire-protection shutoff valves supervised open, located to control sources of water supply except from fire-department connections. Install permanent identification signs indicating portion of system controlled by each valve.

C. Install check valve in each water-supply connection. Install backflow preventers instead of check valves in potable-water-supply sources.
D. Specialty Valves:
   1. General Requirements: Install in vertical position for proper direction of flow, in main supply to system.

3.6 SPRINKLER INSTALLATION

A. Install sprinklers in suspended ceilings in center of acoustical ceiling panels.
B. Install dry-type sprinklers with water supply from heated space. Do not install pendent or sidewall, wet-type sprinklers in areas subject to freezing.
C. Install sprinklers into flexible, sprinkler hose fittings and install hose into bracket on ceiling grid.

3.7 FIRE-DEPARTMENT CONNECTION INSTALLATION

A. Install wall-type, fire-department connections.
B. Install automatic (ball drip) drain valve at each check valve for fire-department connection.

3.8 ESCUTCHEON INSTALLATION

A. Install escutcheons for penetrations of walls, ceilings, and floors.
B. Escutcheons for New Piping:
   1. Piping with Fitting or Sleeve Protruding from Wall: One piece, deep pattern.
   2. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One piece, cast brass with polished chrome-plated finish stamped steel with set-screw or spring clips.
   3. Bare Piping at Ceiling Penetrations in Finished Spaces: One piece or split casting, cast brass with polished chrome-plated finish.
   4. Bare Piping in Unfinished Service Spaces: One piece, stamped steel with set-screw or spring clips.
   5. Bare Piping in Equipment Rooms: One piece, stamped steel with set-screw or spring clips.

3.9 SLEEVE INSTALLATION

A. General Requirements: Install sleeves for pipes and tubes passing through penetrations in floors, partitions, roofs, and walls.
B. Sleeves are not required for core-drilled holes, except in Mechanical Mezzanines.
C. Cut sleeves to length for mounting flush with both surfaces, except in Mechanical Mezzanines.
D. Install sleeves in new partitions, slabs, and walls as they are built.
E. For interior wall penetrations, seal annular space between sleeve and pipe or pipe insulation using joint sealants appropriate for size, depth, and location of joint. Comply with requirements for joint sealants in Division 07 Section "Joint Sealants."

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F. For exterior wall penetrations above grade, seal annular space between sleeve and pipe using joint sealants appropriate for size, depth, and location of joint. Comply with requirements for joint sealants in Division 07 Section "Joint Sealants."

G. For exterior wall penetrations below grade, seal annular space between sleeve and pipe using sleeve seals.

H. Seal space outside of sleeves in concrete slabs and walls with grout.

I. Install sleeves that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation unless otherwise indicated.

J. Install sleeve materials according to the following applications:

1. Sleeves for Piping Passing through Concrete Floor Slabs: Galvanized-steel pipe.
2. Sleeves for Piping Passing through Concrete Floor Slabs of Mechanical Equipment Areas or Other Wet Areas: Galvanized-steel pipe.
   a. Extend sleeves 2 inches above finished floor level.
3. Sleeves for Piping Passing through Gypsum-Board Partitions:
   b. Galvanized-steel-sheet sleeves for pipes NPS 6 and larger.
   c. Exception: Sleeves are not required for water-supply tubes and waste pipes for individual plumbing fixtures if escutcheons will cover openings.
4. Sleeves for Piping Passing through Exterior Concrete Walls:
   b. Cast-iron wall-pipe sleeves for pipes NPS 6 and larger.
   c. Install sleeves that are large enough to provide 1-inch annular clear space between sleeve and pipe or pipe insulation when sleeve seals are used.

K. Fire-Barrier Penetrations: Maintain existing fire rating of existing walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements for firestop materials and installations in Division 07 Section "Penetration Firestopping."

3.10 SLEEVE SEAL INSTALLATION

A. Install sleeve seals in sleeves in exterior concrete walls at water-service piping entries into building.

B. Select type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble sleeve seal components and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.11 IDENTIFICATION

A. Install labeling and pipe markers on equipment and piping according to requirements in NFPA 13.

3.12 FIELD QUALITY CONTROL
A. Perform tests and inspections.

B. Tests and Inspections:
   1. Leak Test: After installation, charge systems and test for leaks. Repair leaks and retest until no leaks exist.
   2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
   3. Flush, test, and inspect sprinkler systems according to NFPA 13, "Systems Acceptance" Chapter.
   4. Energize circuits to electrical equipment and devices.
   5. Coordinate with fire-alarm tests. Operate as required.
   6. Verify that equipment hose threads are same as local fire-department equipment.

C. Sprinkler piping system will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

3.13 CLEANING

A. Clean dirt and debris from sprinklers.

B. Remove and replace sprinklers with paint other than factory finish.

3.14 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain specialty valves.

3.15 PIPING SCHEDULE

A. Piping between Fire-Department Connections and Check Valves: Galvanized, standard-weight steel pipe with threaded ends; cast-iron threaded fittings; and threaded or grooved ends; grooved-end pipe couplings; and grooved joints.

B. Sprinkler specialty fittings may be used, downstream of control valves, instead of specified fittings.

C. Standard-pressure, wet-pipe sprinkler system, NPS 2 and smaller, shall be one of the following:
   1. Standard-weight, black-steel pipe with threaded ends; uncoated, gray-iron threaded fittings; and threaded joints.
   2. Schedule 10 black-steel pipe with rolled grooved ends; uncoated, grooved-end fittings for steel piping, grooved-end-pipe couplings for steel piping; and grooved joints, (minimum grooved size NPS 1-1/4).

D. Standard-pressure, wet-pipe sprinkler system, NPS 2-1/2 to NPS 6, shall be one of the following:
   1. Standard-weight, black-steel pipe with threaded ends; uncoated, gray-iron threaded fittings; and threaded joints.
   2. Standard-weight, black-steel pipe with cut- or roll-grooved ends; uncoated, grooved-end fittings for steel piping; grooved-end-pipe couplings for steel piping; and grooved joints.
   3. Standard-weight, black-steel pipe with plain ends; steel welding fittings; and welded joints.
   4. Thinwall black-steel pipe with roll-grooved ends; uncoated, grooved-end fittings for steel piping; grooved-end-pipe couplings for steel piping; and grooved joints.
3.16 SPRINKLER SCHEDULE

A. Use sprinkler types in subparagraphs below for the following applications:

1. Rooms without Ceilings: Upright sprinklers.
2. Rooms with Suspended Ceilings: Recessed sprinklers.
4. Spaces Subject to Freezing: Pendent, dry sprinklers.

B. Provide sprinkler types in subparagraphs below with finishes indicated.

1. Interior Exposed Piping: Plain brass finished sprinkler heads.

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TEMPORARY CHAIN LINK SECURITY FENCING

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<td>SITE BORING LOGS</td>
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**NOTE:**
1. THIS INFORMATION IS NOT PART OF THE CONTRACT DOCUMENTS AND IS FOR INFORMATIONAL PURPOSES ONLY.

**CONSTRUCTION DOCUMENTS**
- **DATE:** 03.29.19
- **REV.:**

**NEW MACHINE TOOL LAB BUILDING**
- **LAB BUILDING**
- **UNIV. OF MAINE, ORONO, ME 04473**

**ADDENDUM 1**
- **DATE:** 04.10.19
FOUNDATION PLAN NOTES:

2. SLAB-ON-GRADE CONSTRUCTION SEE PLAN FOR EXTENTS

5" THICK CAST-IN-PLACE 3,500 PSI CONCRETE w/ #4@ 24" EACH WAY. 6" THICK CAST-IN-PLACE 3,500 PSI CONCRETE w/ #4@ 16" EACH WAY.

SEE SECTIONS AND TYPICAL DETAILS FOR REINFORCEMENT AT SLAB EDGES.

CAST SLAB ON VAPOR BARRIER ON 12" LAYER OF COMPACTED COARSE AGGREGATE SUBBASE ON COMPACTED STRUCTURAL FILL DOWN TO NATIVE UNDISTURBED SOILS, SEE SECTIONS AND DETAILS

3. PROVIDE 1" DEEP SAWCUT CONTROL JOINTS AT 12'-0" o/c MAXIMUM EACH WAY WITHIN 4 HOURS OF FINISHING CONCRETE SLAB.

4. [ELEV.] INDICATES TOP OF FOOTING ELEVATION.

COORDINATE REQUIRED TOP OF EXCAVATION WITH FOOTING THICKNESS PER SCHEDULE AND SECTIONS.

6. FOUNDATION WALL PENETRATIONS NOT SHOWN.

COORD. w/ OTHER TRADES AND PROVIDE SLEEVES AND/OR CORES THROUGH WALLS AS REQUIRED.

7. SEE S-300 SERIES OF DRAWINGS FOR ALL TYPICAL CONCRETE SECTIONS AND DETAILS.

1. TOP OF EXTERIOR WALL = TOP OF SLAB = ELEVATION 119'-8" = 0'-0" TYPICAL U.N.O., SUCH AS AT DOORS AND SHOWN SHADED.

5. PROVIDE FOOTING DOWELS FOR ALL VERTICAL BARS IN ALL WALLS AND PIERS, WITH MINIMUM SPLICE LENGTH OF 40 BAR DIAMETERS.

NEW MACHINE TOOL LAB BUILDING

FOUNDATION AND SLAB PLAN

FOUNDATION AND SLAB PLAN

REV. DESCRIPTION DATE

ADDENDUM #1 04.10.19

CONSTRUCTION DOCUMENTS 03.29.19
**Roof Deck**

- **Type**: "BCA"
- **Material**: 20/20 Gage 1 1/2" deep cellular acoustic metal roof deck with flat bottom plate

**Reinforcement**

- Indicates 8" reinforced CMU wall, see S-400 series drawings for reinforcement
- Indicates masonry lintel, see S-400 series drawings for reinforcement

**Uplift Pressure W (PSF)**

<table>
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<tr>
<th>Zone</th>
<th>Area &lt;10SQFT</th>
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<td>-25.8</td>
<td>-25.8</td>
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**Structural Details**

- All roof deck openings may not be shown.
- Provide, size, and space all joist bridging (including uplift, cross, and horizontal bridging) as required per specifications, steel joist institute, and OSHA requirements, as well as all typical details on the S-200 series of drawings.

**Joist Substitutes**

- 5" deep joist substitutes shall be capable of supporting the following loads:
  - Gross Uplift Pressure W (PSF)
  - Zone
  - Area <10SQFT
  - Area =50SQFT
  - Area >100SQFT

**Drawings**

- WBRC: Architect-Engineers
- BANGOR, MAINE 207-947-4511
- WWW.WBRC.COM

**Project**

- Project: North
- Sheet Title: Roof Framing Plan
- Graphic Scale: 1/8" = 1'-0"
- Project No.
- Project Manager:
- Checked By:
- Date:
- NEW MACHINE TOOL LAB BUILDING

**Section**

- Sheet: A1
- Scale: 1/8" = 1'-0"
SPECIAL JOIST NOTES:

1. ALL LIVE LOAD DEFLECTION SHALL BE LIMITED TO L/360 OF THE SPAN.

2. **INDICATES LINE LOAD IN POUNDS PER LINEAL FOOT (PLF)**

3. **INDICATES POINT LOAD IN POUNDS (#S)**

**UPLIFT BRIDGING:**

4. **INDICATES DEAD LOAD LENGTH, UNLESS NOTED OTHERWISE.**

5. **INDICATES SNOW LOAD**

3. UNIFORM TOP CHORD OR BOTTOM CHORD LOAD SHALL BE AS MINIMUM:

- FIRST BOTTOM CHORD PANEL POINT ON EACH END OF JOIST AS SHOWN.
- TYPICAL AT ALL JOISTS, ALL BAY.
- IN ADDITION TO STANDARD BRIDGING INDICATED. SEE SPECIFICATION FOR BEND CHECK LOAD REQUIREMENTS.

**NOTE:** SEE FRAMING PLANS FOR JOIST UPLIFT LOADS

**BOILER/HEATER ROOM:**

- 16" DIA DUCTWORK, TYP.
- T.O. STEEL A LINE
- T.O. STEEL B LINE
- **NOT TO MAKE A RELIEF CUT IN BRIDGING, PROVIDE AND LAP SEPARATE PIECES**

- **Contractor to coordinate location of point loads with approved AHU equipment submittal**

**REINFORCING COVER PLATE SCHEDULE:***

- PLATE THICKNESS AS SCHEDULED BELOW

**FASTEN IN 24/4 CENTERLINE TO CENTERLINE (JOIST / JOIST, GIRDER / GIRDER)**

**NOTE:**

- PLATE SHALL EXTEND MINIMUM OF 8" BEYOND EDGE OF OPENING, TYPICAL EACH SIDE

**NOTE:**

- FRAME OPENING SIZES VARY, COORDINATE w/ MECHANICAL CONTRACTOR

- REFER TO SMALL ROOF DECK OPENING DETAIL FOR OPENINGS 13" AND SMALLER

**SMALL ROOF DECK OPENING**

- **FRAME OPENING AS SHOWN**
- **PLATE THICKNESS AS SHOWN**
- **NOTE:** PLATE EXTEND MINIMUM OF 8" BEYOND EDGE OF OPENING, TYPICAL EACH SIDE

**ROOF DECK FASTENER LAYOUT**

- **NOTE:** FRAME OPENING AS SHOWN
- **PLATE THICKNESS AS SHOWN**
- **NOTE:** FRAME OPENING AS SHOWN

**ROOF DECK OPENING**

- **NOTE:** FRAME OPENING AS SHOWN
- **PLATE THICKNESS AS SHOWN**
- **NOTE:** FRAME OPENING AS SHOWN

**REINFORCING COVER PLATE SCHEDULE:***

- **NOTE:** FRAME OPENING AS SHOWN
- **PLATE THICKNESS AS SHOWN**
- **NOTE:** FRAME OPENING AS SHOWN
1. REFER TO ARCHITECTURAL ABBREVIATIONS ON SHEET GI002 FOR ALL ABBREVIATIONS SHOWN.

2. SEE SPEC FOR DETAILED ABBREVIATION FINISH

100 VESTIBULE RTF CPT WB1 PT1 PT1 PT1 APC-1

CT: CERAMIC TILE
CTB: CERAMIC TILE BASE
CPT: WALK OFF CARPET TILE

3. REFER TO THE REFLECTED CEILING PLAN ON SHEET AE102 FOR MORE INFORMATION.

106 OFFICE RTF RTF WB1 PT1 PT3 PT1 PT1 APC-1

INFORMATION.

108 TEL/DATA SCONC WB1 PT1 PT1 PT1 PT1 OPEN TO STRUCTURE - PT4

OCUR ON INSIDE CORNERS UNO. VERIFY QUESTIONABLE FIELD CONDITIONS WITH ARCHITECT.

RESILIENT ADAPTOR LVT FLOORING
TRANSITION INFORMATION. INSTALL TRANSITION STRIPS SEALED CONCRETE TRIM PIECE WALK OFF SMOOTH SURFACE TRANSITION WHERE FLOORING MATERIAL,

11. ROLLER WINDOW SHADES AT ALL EXTERIOR
# LIGHT FIXTURE SCHEDULE

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<th>DESCRIPTION</th>
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<td>10' SUSPENDED STRIPLIGHT</td>
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<td>0-10V</td>
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<td>DIMMABLE TO 9'-8&quot; A.F.F.</td>
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**LEGEND:**

- **E** = EXISTING TO REMAIN
- **R** = REMOVE AND RELOCATE EXISTING
- **RR** = REMOVE AND RELOCATE EXISTING

- **DR** = DRIVER
- **PER** = PER

- **A** = LIGHT FIXTURE - UPPERCASE LETTER IS TYPE, LOWERCASE LETTER IS SWITCH CONTROL GROUP
- **Ceiling mounted fixture** - NOTES SAME AS ABOVE
- **Suspended striplight 4'L**
- **Suspended striplight 2'L**
- **Reflector LED 125 22 MVOLT**
- **Chain suspend to 9' A.F.F.**

**NOTE:**

- **A1** = SUSPENDED STRIPLIGHT 2'L
- **A2** = CEILING RECESSED ARCHITECTURAL 2'X4' LITHONIA LIGHTING
- **A3** = MOUNTED FIXTURE - NOTES SAME AS ABOVE

- **EB** = REFLECTOR LED 100 60 MVOLT
- **EB** = CHAIN SUSPEND TO 9'-8" A.F.F.
- **EB** = REFLECTOR LED 100 60 MVOLT
- **EB** = CHAIN SUSPEND TO 9'-8" A.F.F.

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**GENERAL NOTES:**

- All work shall be installed in a neat and workmanlike manner, rectilinear to building structure, and in accordance with all direction of authority having jurisdiction.

- Exact location of mechanical equipment that requires electrical wiring.

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