SECTION 22 07 16 - PLUMBING EQUIPMENT INSULATION

PART I - GENERAL

1.1 SECTION INCLUDES
   A. Plumbing Equipment Insulation.
   B. Plumbing Equipment Insulation Jackets.
   C. Plumbing Equipment Insulation Finishes.

PART 2 - PRODUCTS

2.1 INSULATION
   A. Type R: Rigid Fiberglass Board, 3.0 lb./cu. ft., ASTM C612 Type IA.
   B. Type E: Cellular Flexible Elastomeric Foam Sheet; ASTM C534 Grade 1.

2.2 JACKETS, FACTORY APPLIED
   A. FSK: Aluminum-foil vapor barrier, fiberglass-reinforced scrim with kraft-paper backing.

2.3 FINISHES, FIELD APPLIED
   A. FM: Woven glass fabric with two coats of mastic approved for insulation type.

2.4 TAPES, ADHESIVES, COATINGS, FASTENERS
   A. Provide in accordance with insulation manufacturer's specifications and requirements.

2.5 MATERIAL PROPERTIES
   A. Insulation material shall satisfy material property requirements of referenced ASTM standard. For convenient summary of referenced ASTM standards, see Insulation Specification Materials Guide as presented by National Commercial and Industrial Insulation Association (NIA).
   B. All insulation materials, including jackets, tapes, adhesives and coatings, shall meet ASTM E84 25/50 Flame Spread/Smoke Development requirements.

PART 3 - EXECUTION

3.1 INSTALLATION
   A. General Requirements.
      1. Install insulation in accordance with manufacturer's instructions and applicable codes.
      2. Install insulation in accordance with National Commercial and Industrial Insulation (NIA) Standard. [Note to AE: Any experienced insulation contractor will be familiar with this standard. It provides proper installation procedures for all types of insulation. By referencing this standard it becomes unnecessary to identify exhaustive installation procedures. NIA is to insulation what SMACNA is to ductwork.]
      3. Install insulation after equipment has been inspected and tested unless otherwise authorized by the AE.
      4. Do not insulate factory-insulated equipment.
      5. Provide insulation with vapor barrier on equipment and supports when temperature of fluid or medium may be below ambient temperature.
      6. Insulate all equipment surfaces that are not factory insulated and are intended to operate below 60 deg. F and/or above 105 deg. F.
7. Fit and secure insulation tightly to equipment.
8. Do not insulate over nameplates or ASME stamps. Bevel and seal insulation around such, unless omitting insulation would cause condensation problem. When such is the case, appropriate tagging shall be provided to identify the presence of these items.
9. Provide removable/reusable insulation covers on equipment as indicated in schedule. In such cases, covers shall be installed in a manner that provides ready access to components requiring periodic maintenance or repair.
10. Provide sheet metal corner protection angles where insulation extends to floor or is similarly vulnerable to damage.

B. Specific Requirements for Insulation Type.

1. Type R - Rigid Fiberglass Board.
   a. Mechanically fasten to equipment.

2. Type E - Cellular Flexible Elastomeric Foam.
   a. Form fit insulation tightly to equipment.
   b. Fully adhere insulation to non-cylindrical equipment (e.g. pumps).
   c. Generously adhere insulation to cylindrical equipment (e.g. expansion tanks).

3.2 INSULATION SCHEDULE

<table>
<thead>
<tr>
<th>SERVICE</th>
<th>INSUL. TYPE</th>
<th>JACKET TYPE</th>
<th>FINISH</th>
<th>THICKNESS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Water Meter</td>
<td>E</td>
<td></td>
<td></td>
<td>Same as adjacent piping</td>
</tr>
<tr>
<td>Domestic Booster Pump</td>
<td>E</td>
<td></td>
<td></td>
<td>1&quot;</td>
</tr>
<tr>
<td>Domestic Water Heater</td>
<td>R</td>
<td>FSK</td>
<td>FM</td>
<td>3” (or as clearance allows)</td>
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<tr>
<td>- Insulate All Bare Surfaces</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Provide Removable Covers as Required for Periodic Lime Removal</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Domestic Hot Water Circulation Pump</td>
<td>R</td>
<td>FSK</td>
<td>FM</td>
<td>1&quot;</td>
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<tr>
<td>- Provide Removable Cover</td>
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<td></td>
<td></td>
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<tr>
<td>Domestic Hot Water Expansion Tank</td>
<td>R</td>
<td>FSK</td>
<td>FM</td>
<td>2&quot;</td>
</tr>
<tr>
<td>Domestic Hot Water Storage Tank</td>
<td>R</td>
<td>FSK</td>
<td>FM</td>
<td>2&quot;</td>
</tr>
</tbody>
</table>

*Insulation thickness shall satisfy ASHRAE Standard 90.1 at a minimum.

END OF SECTION 22 07 16

This section of the *U of I Facilities Standards* establishes minimum requirements only. It should not be used as a complete specification.