



## **DESIGN GUIDELINE 220719** **MECHANICAL INSULATION**

### **Scope**

Scope: Mechanical insulation systems including outdoor piping, underground piping, acoustical insulation, outdoor ductwork and underground ductwork.

### **Related Sections**

#### **U-M Design Guideline Sections:**

1.0 Codes and Regulatory Agencies

#### **U-M Master Specification Sections:**

Section 220553 - Mechanical Identification

Section 220719 - Mechanical Insulation

Section 221113 - Piping Materials and Methods

### **Design and Installation Requirements**

#### **General**

U-M Master Specification Section 220719 shall be used as the basis for mechanical insulation specifications on projects because it expresses normal U-M requirements

#### **Outdoor Piping**

Exterior piping containing liquids and that are not drained in the winter should be heat traced and insulated. Exterior piping containing gases with a pressure dew point above minus 20F should similarly be heat traced and insulated. Compressed air originating from the central power plant tunnel system: the pressure dew point is currently under review. May require an additional air dryer or heat trace/ insulation. Consult with U-M Design Manager.

#### **Underground Piping**

Any hot or cold piping underground shall use closed cell foam insulation with a protective jacketing. Note: Chilled water piping is typically run as uninsulated ductile iron pipe.

#### **Acoustical Insulation**

Acoustic duct lining should not be used unless part of a double wall duct system with perforated inner wall with a mylar barrier between the inner duct wall and liner face.

## **Outdoor Ductwork**

Normally exhaust duct that is outdoors will require insulation to avoid internal condensation. The U-M master specification requires insulation. Drainage piping connected to such exhaust duct which is exposed to freezing conditions requires heat trace and insulation

## **Underground Ductwork**

Requirements should be reviewed on a case by case basis with U-M Design Manager.