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: (A digitally accessible version is pending; please email AEC-Digital Accessibility Support if assistance is needed)
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 an 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 an 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 the U-M Design Manager.