



**ILLINOIS STATE UNIVERSITY
EXHIBIT FS-23.1: MECHANICAL INSULATION SCHEDULE**
Effective February 1, 2022

I. MECHANICAL INSULATION SCHEDULE

A. See the *Illinois State University Design Guidelines* and the *Illinois State University Facilities Standards* for additional information.

B. Following is the Mechanical Insulation Schedule.

DUCTWORK						
Usage	Material	Thickness / Density	Design Temp Deg F	Vapor Barrier Jacket	External Jacket / Thickness	Notes
Supply Air Duct - concealed	Fiberglass Wrap	2" / 1#	45 - 110	ASJ	None	
Supply Air Duct - exposed	Fiberglass Semi-Rigid Board	2" / 3#	45 - 110	ASJ	None	
Return Air Duct - in Unconditioned Space	Not required	1.5" / 3/4#	NA	ASJ	NA	
General Exhaust Air Duct	Not required	NA	NA	NA	NA	Wrap 3' to outdoor
AHU Exhaust Air Duct and Plenums	Fiberglass Semi-Rigid Board	2" / 3#	55 - 85	ASJ	None	
AHU Outside Air Duct and Plenums	Fiberglass Semi-Rigid Board	2" / 3"	-10 - 95	ASJ	None	
Grease Exhaust Air Duct	Per Manufacturer's Rating	2 - 1.5"	Per Manufacturer	ASJ	None	0" to combustible, 2-hour rating
Dishwasher Exhaust Air Duct	Fiberglass Wrap	1 1/2" / 3/4"	65 - 110	ASJ	None	
Transfer Air Ducts	Closed Cell Rubber or Fiber Free	1/2"	55 - 85	None	None	
Supply Air Plenums at Linear Diffusers	Fiberglass Wrap	2" / 1#	45 - 110	ASJ	None	
All Ductwork Exposed to Outdoors	Fiberglass Semi-Rigid Board	3" / 3#	45 - 110	ASJ	Aluminum .020 or venture clad	
ERV Ductwork						
- Supply air to space	Fiberglass Wrap	2" / 1#	45 - 110	ASJ	None	
- Return air from space	Not required	NA	NA	NA	NA	
- Outdoor air	Fiberglass Semi-Rigid Board	2" / 3"	-10 - 95	ASJ	None	
- Exhaust air	Not required	NA	NA	NA	NA	

EQUIPMENT						
Usage	Material	Thickness / Density	Design Temp Deg F	Vapor Barrier Jacket	External Jacket / Thickness	Notes
Shell and Tube Heat Exchangers (STM/HW)	Fiberglass Pipe and Tank	2" / 3#	55 - 200	Yes	None	
Plate to Plate Heat Exchangers (CHW)	Closed Cell Rubber	1"	40 - 85	Yes	None	
Duct Mounted Reheat Coils	Fiberglass Wrap	2" / 1#	55 - 200	Yes	None	
Pumps - Chilled Water	Closed Cell Rubber	1"	40 - 85	Yes	None	
Pumps - Hot water	Not Required	NA	NA	NA	NA	
Pumps - Cooling Towers	Not Required	NA	NA	NA	NA	
Tanks and Vessels	Fiberglass Pipe and Tank	2" / 3#	40 - 200	Yes	Aluminum .020 or venture clad	



PIPING						
Usage	Material	Thickness / Density	Design Temp Deg F	Vapor Barrier Jacket	External Jacket / Thickness	Notes
Hot Water Supply and Return	Preformed Fiberglass	1.5" <1.5", 2" > 1.5"	55 - 200	yes	Aluminum .020 / PVC when outdoors	
Chilled Water Supply and Return	Closed Cell Rubber	1" all sizes	40 - 85	yes	Aluminum .020 / PVC when outdoors	
Low Pressure Steam (<20 psi)	Preformed Fiberglass	4" all sizes	260	yes	Aluminum .020 / PVC when outdoors	
Medium Pressure Steam (>120 psi)	Preformed Fiberglass	4" all sizes	350	yes	Aluminum .020 / PVC when outdoors	
Steam Condensate	Preformed Fiberglass	2" all sizes	200	yes	Aluminum .020 / PVC when outdoors	
Make-Up Water	Preformed Fiberglass	2 1/2<4", 3">4"	45	yes	Aluminum .020 / PVC when outdoors	
Boiler Feedwater	Preformed Fiberglass	2 1/2<4", 3">4"	400	none	None	
Refrigeration Suction Lines	Closed Cell Rubber	1" all sizes	45		UV paint when outdoors	