



Mechanical Integrity of Evaporator Coils

Presented by:

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Major issues to watch for:

- i. Excessive ice or material build up
- ii. Corrosion of tubes, fins, or connections
- iii. Exceeding MAWP – hydraulic shock or trapped liquid
- iv. Fan vibration and integrity
- v. Refrigerant distribution tubes rubbing
- vi. Integrity of housing, unit supports and piping supports
- vii. Protection against traffic hazards
- viii. Electrical issues with motors and wiring
- ix. Missing fan guards
- x. Suitable for operating conditions

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Excessive ice or material build up



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Excessive ice or material build up



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Corrosion of tubes, fins, or connections



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Corrosion of tubes, fins, or connections

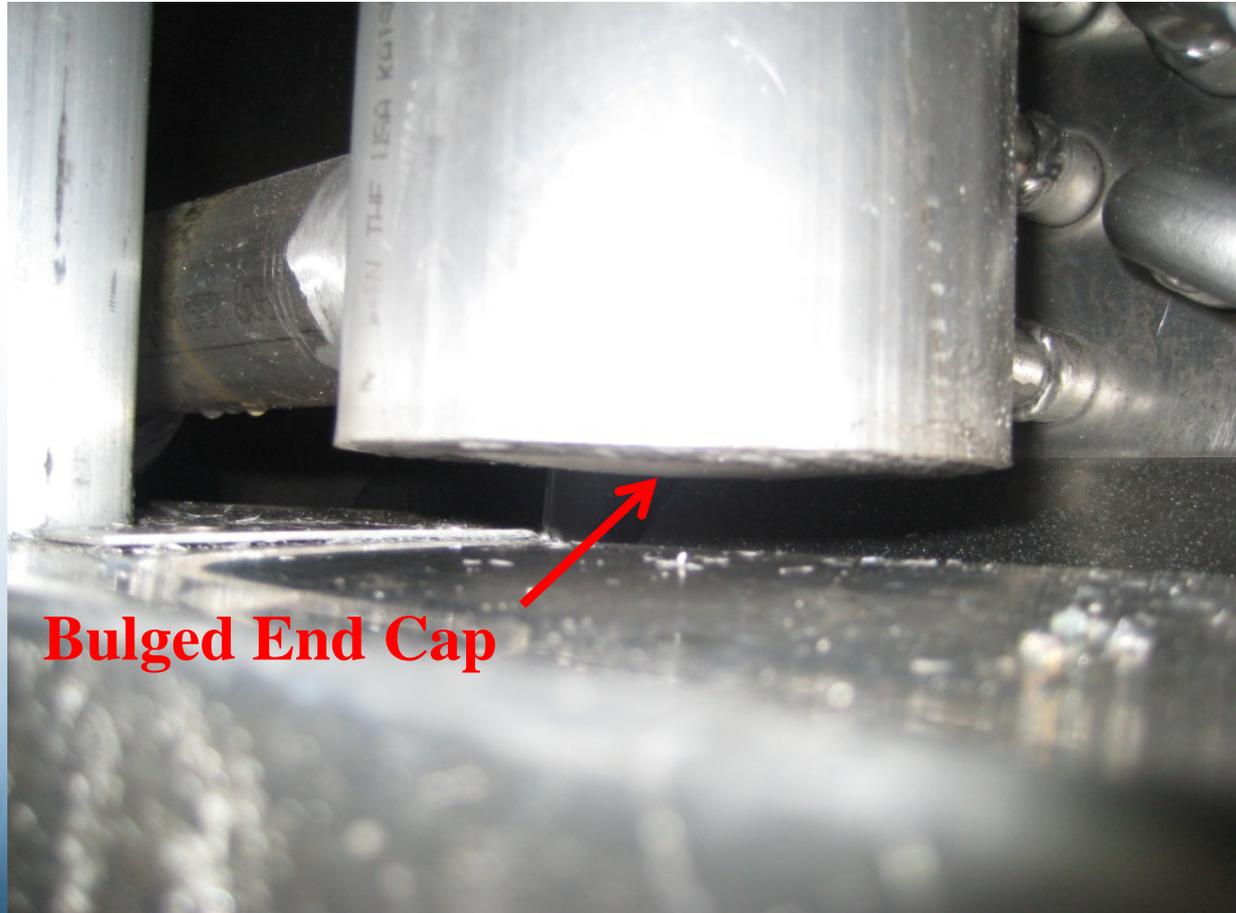


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Exceeding coil MAWP- hydraulic shock or trapped liquid



Bulged End Cap

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Exceeding coil MAWP- hydraulic shock or trapped liquid

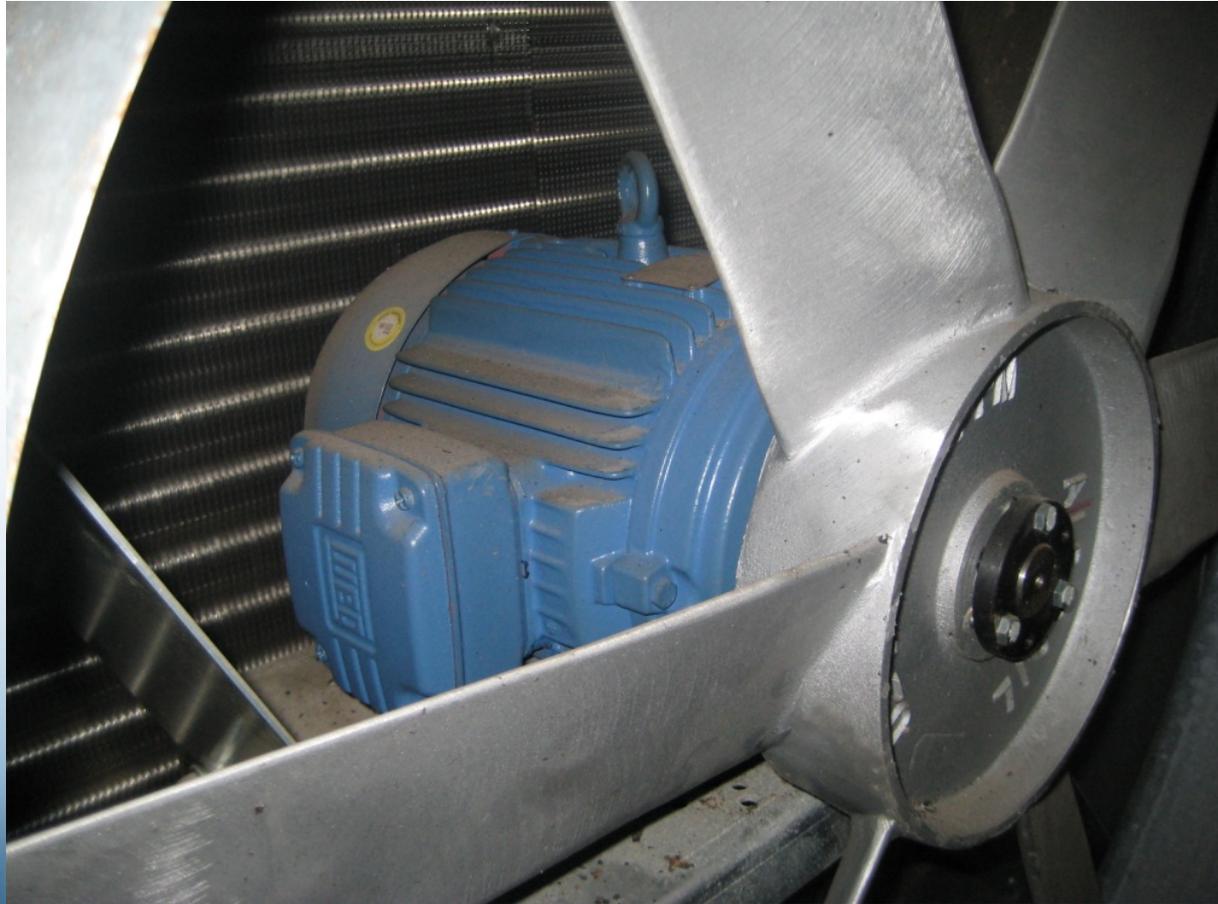


Ruptured End Cap

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Fan Vibration

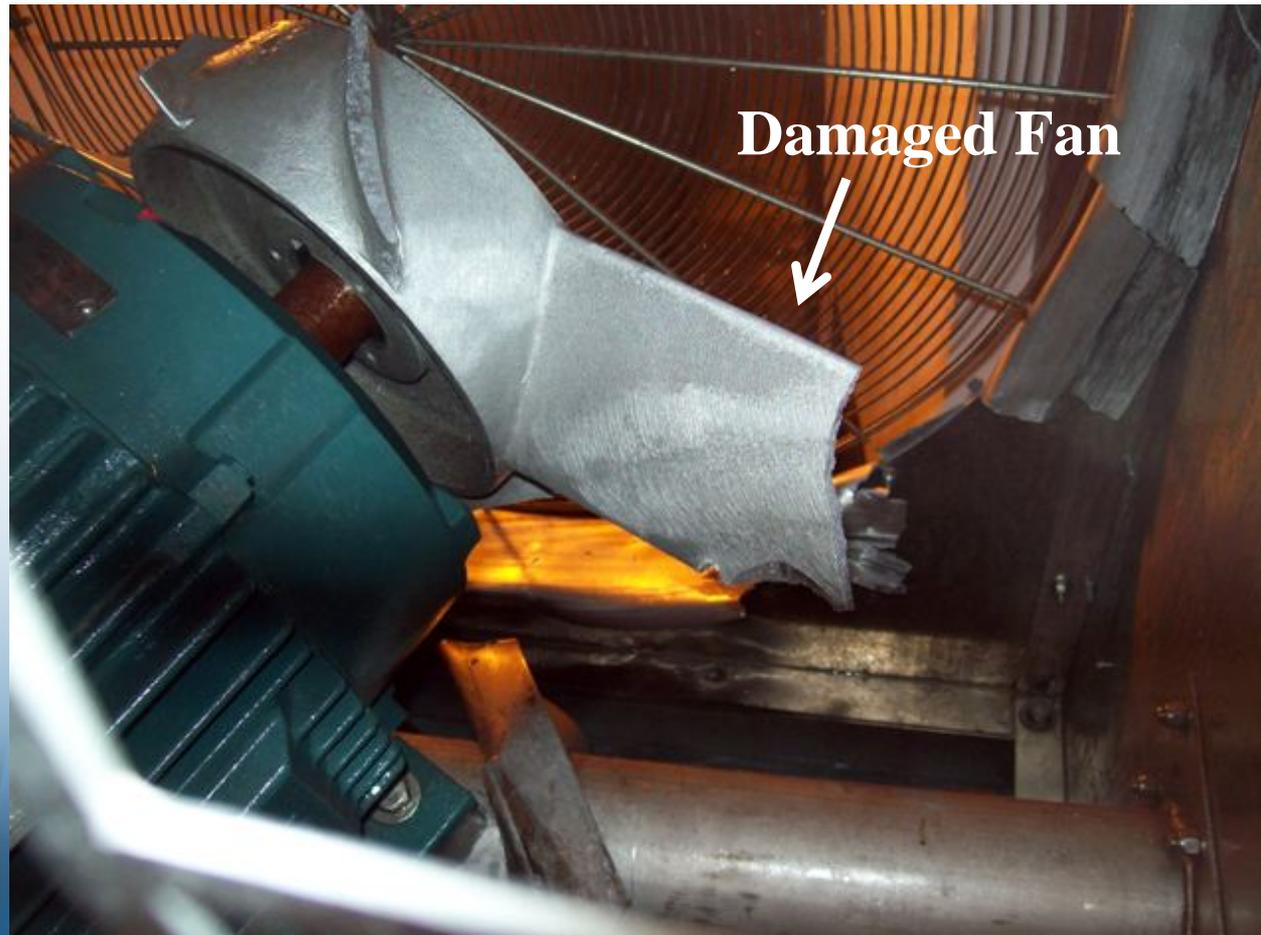


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Fan Vibration



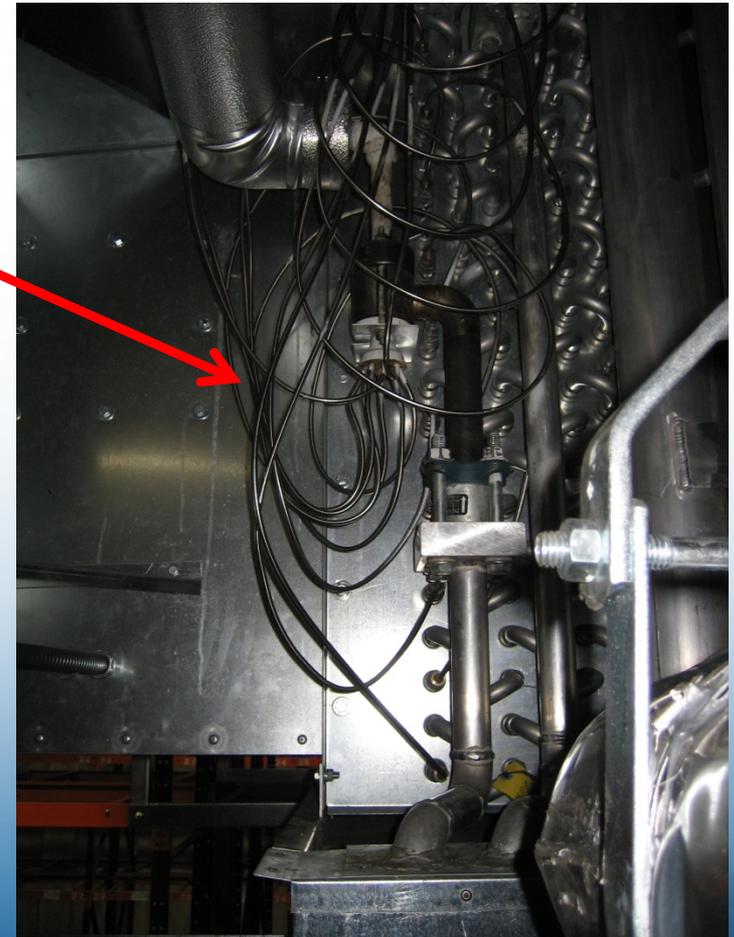
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Refrigerant Distributor Tubes Rubbing

Distributor tubes



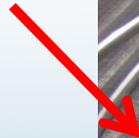
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Refrigerant Distributor Tubes Rubbing

**Check for signs
of rubbing**



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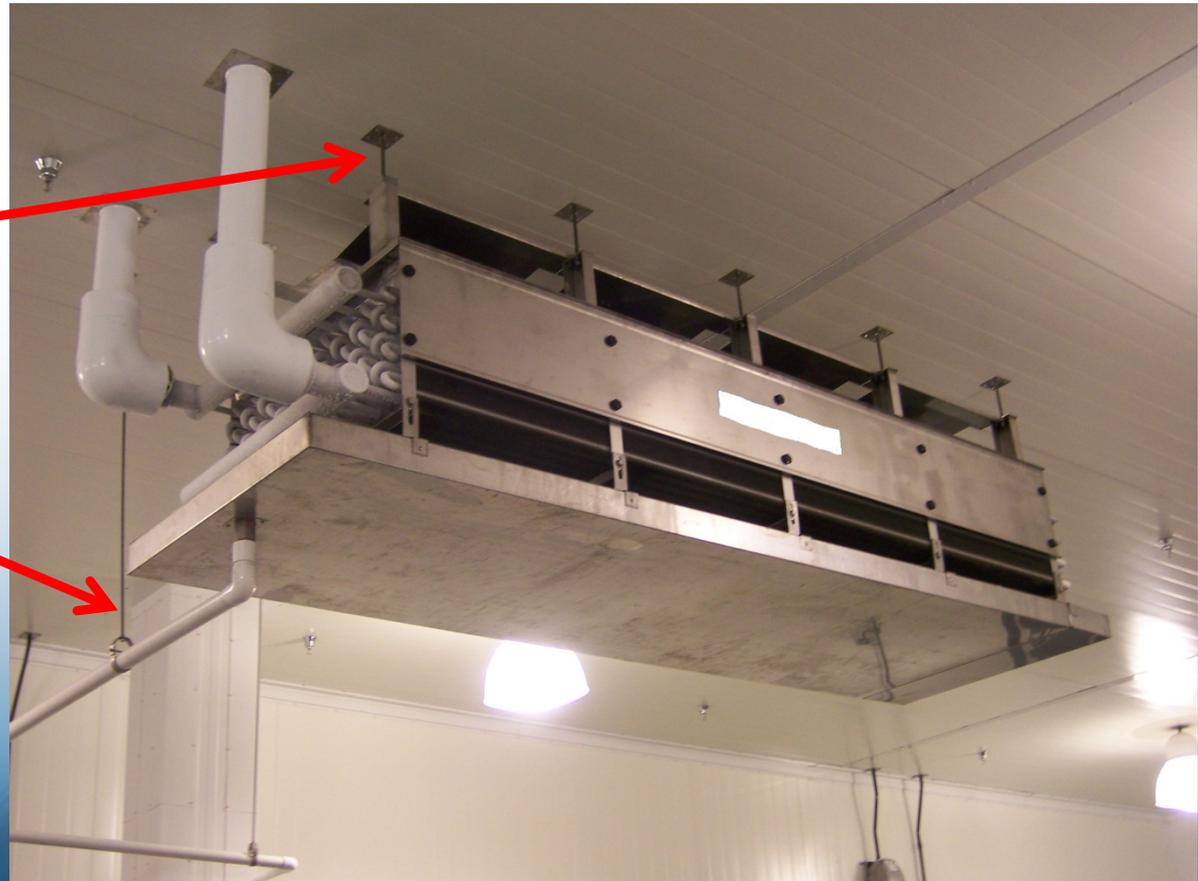


Integrity of Unit and Piping Supports

Unit Supports



Piping Supports



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Integrity of Unit and Piping Supports



**Improper
Supports**

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Protection Against Traffic Hazards



Barrier on Floor

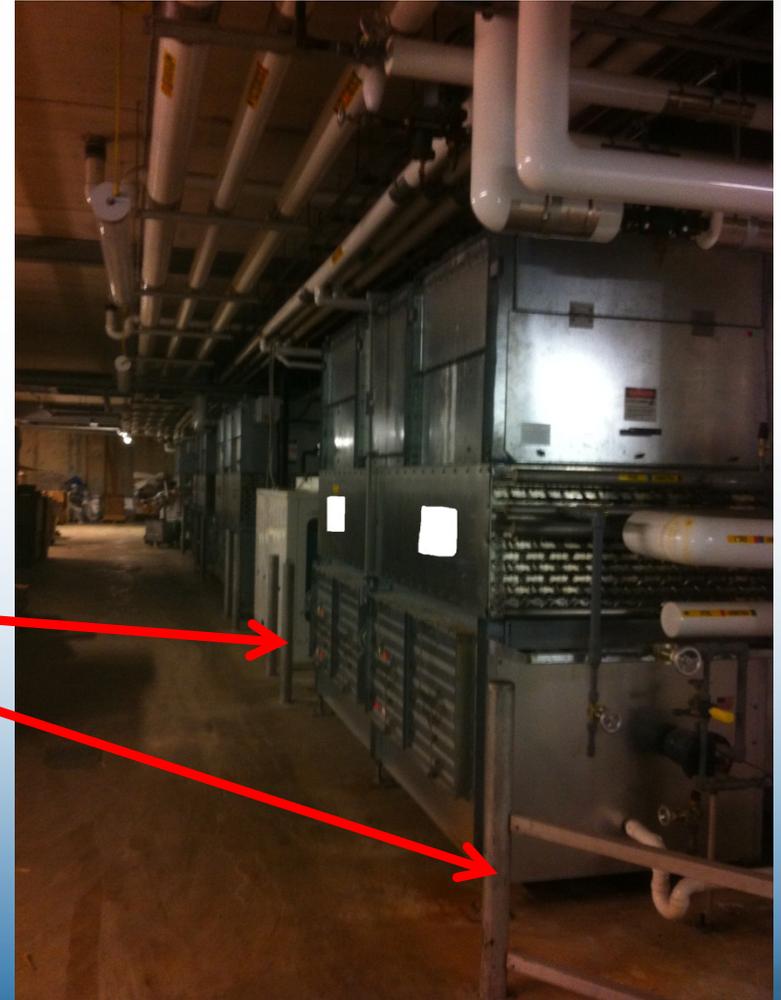
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Protection Against Traffic Hazards

**Guarding for
Lift Truck
Traffic**



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Electrical Overloads, Wiring

**Loose
Connector**



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Electrical Overloads, Motors

**Overheating
Motor**



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Missing Fan Guards



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Suitable for Operating Conditions

**Check
nameplate data
for suitable
operating
conditions**

A black nameplate form with white text and input fields. The fields are arranged in a grid. A red circle highlights the REFRIGERANT, MAWP, and MDMT fields. A red arrow points from the text on the left to the REFRIGERANT field.

SPO #	<input type="text"/>	MFR DATE	<input type="text"/>
S/N:	<input type="text"/>	CRN #	<input type="text"/>
TAG	<input type="text"/>		
MODEL	<input type="text"/>		
REFRIGERANT	<input type="text"/>	MAWP	<input type="text"/>
		MDMT	<input type="text"/>
MOTOR CIRCUIT:			
MOTOR QTY	<input type="text"/>	HP EACH	<input type="text"/>
		RPM	<input type="text"/>
VOLTS	<input type="text"/>	PHASE	<input type="text"/>
FLA EACH	<input type="text"/>	INTERNALLY PROTECTED	<input type="text"/>
TYPE DEFROST:			
ELECTRIC	<input type="checkbox"/>	AIR	<input type="checkbox"/>
HOT GAS	<input type="checkbox"/>	WATER	<input type="checkbox"/>
GPM REQ'D	<input type="text"/>		
ELECTRIC DEFROST:			
VOLTS	<input type="text"/>	WATTS	<input type="text"/>
AMPS	<input type="text"/>	PHASE	<input type="text"/>
REPLACEMENT PARTS:			
MOTOR	<input type="text"/>	COIL HTR	<input type="text"/>
		PAN HTR	<input type="text"/>
FAN	<input type="text"/>	FAN GUARD	<input type="text"/>

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Typical manufacturer's recommendations, annually:

- Clean the coil surface.
- Inspect defrost drain pan. Clean if necessary. Check for proper drainage.
- For Water Defrost, inspect water defrost distribution pans. Clean if necessary.
- Inspect all insulated and uninsulated lines connected to the unit.
- Check all wiring & tighten all electrical connections.
- Check all motors and fans, tightening when necessary all motor mounting bolts and fan set screws.
- Check operation of control system and proper functioning control valves, drain line heaters, thermostats, etc.
- Check that all safety controls are operating appropriately.
- The units should be periodically checked for proper defrosting and defrost timing due to variations in the quantity and pattern of frost.

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Reference materials:

- Manufacturer's IOMs
- IIAR Bulletin No. 109
- IIAR 2
- ASME B31.5
- ASHRAE Standard 15
- ANSI / IIAR Standards

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