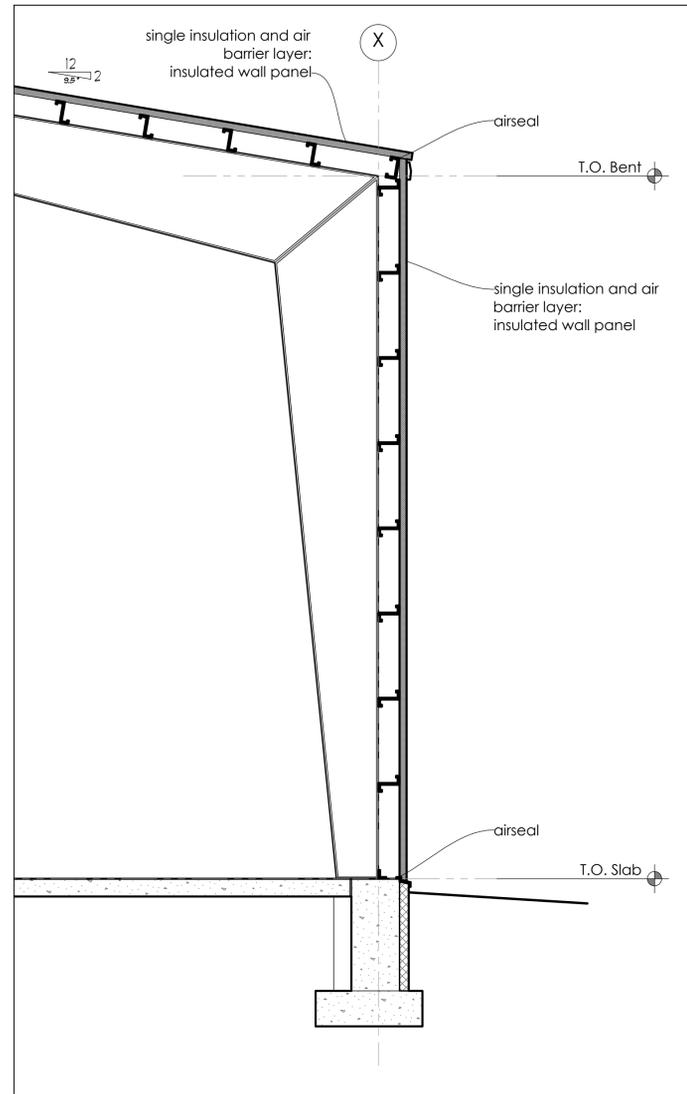


Insulation strategy (Option A)

Insulation notes:

1. Install R-3.5 (minimum) thermal blocks. NAIMA recommends a 1" thick XPS or polyisocyanurate foam thermal block.
2. Use roof clips with the appropriate height to allow for the thickness of the thermal block. Verify with the metal building manufacturer that the clip is appropriate for the intended insulation.
3. Install laminated blanket insulation in a manner to allow expansion to the full thickness at the center point between the purlins. Compression of the insulation should be minimized.
4. Ensure the upper insulation blanket is of sufficient width to fill the space between the thermal blocks and minimize gaps between the insulation and the thermal blocks. For example, a 60" purlin spacing using 3" wide thermal blocks would utilize a 57" wide blanket for the upper layer.
5. Insulation should be installed around bracing, penetrations and other obstructions to minimize in a manner to allow expansion to the full gaps and compression.



Insulation strategy (Option B)

Insulation notes:

Insulated wall and roof panels

2009 IECC requirements

501	Assuming this building is "heated", defined as having a heating system capable of supplying more than 15 Btu/hour/square foot. (7200 sf x 15 Btu/sf = 108,000 Btu/hour/ft)				
502.1	This application follows the prescriptive path to compliance. This building is not Group R.				
502	Roof assembly	maximum U-factor	.055	minimum R-value	R13+R13
	Wall above grade	maximum U-factor	.069	minimum R-value	R13+R5.6 CI
	Wall below grade	maximum C-factor	.119	minimum R-value	R7.5
	Unheated slab on grade	no requirement (recommended slab edge insulation)			
	Doors, swinging	maximum U-factor	.055	minimum R-value	R13
	Door, roll-up	maximum U-factor	.055	minimum R-value	R13
	Windows	maximum U-factor	.050		
		maximum SHGC	no requirement		
		maximum air leakage	.3 CFM/square foot		

- 502.4.3 Sealing of the building envelope. Openings and penetrations in the building envelope shall be sealed with caulking materials or closed with gasketing systems compatible with the construction materials and location. Joints and seams shall be sealed in the same manner or taped or covered with a moisture vapor-permeable wrapping material sealing materials spanning joints between construction materials shall allow for expansion and contraction of the construction materials.
- 503.2.1 Heating design loads calculations. Heating system design by others. Heating system concept: radiant tube heaters hung from ceiling.
- 503.2.4.1 Provide a thermostat for every zone.
- 503.2.4.3 Provide thermostats and controls that comply with setback and shutdown requirements. Setpoint by others.
- 503.2.9 Provide Operation and Maintenance manual to Owner.
- 505.2.2.1 Provide light reduction controls
- 505.2.2.2 Provide automatic lighting shutoff
- 505.2.4 Provide exterior lighting controls
- 505.4 Internally illuminated exit signs shall not exceed 5 watts per side.
- 505.5 Lighting design by others. Maximum allowable connected interior lighting power budget .8 Watts/square foot = 5760 Watts.
- 505.6 Lighting design by others. Lighting power densities for building exterior applications

Uncovered Parking Areas	
Parking Lots and drives	0.15 W/ft
Building Grounds	
Walkways less than 10 feet wide	1.0 watts/linear foot
Walkways 10 feet wide or greater	0.2 W/ft
Building Entrances and Exits	
Main entries	30 watts/linear foot of door width
Other doors	20 watts/linear foot of door width
Building facades	0.2 W/ft for each illuminated wall or surface or 5.0 Watts/linear foot for each illuminated wall or surface length

Waste Water Treatment Facility Storage
Glenwood Springs, CO 81601

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#	Date	Revision
1	12-23-2016	Progress Print
1	3.10.2017	slab edge insul