What to Look for Series Insulation

Where is it required?

What are the requirements?

How should it be shown on the plans?

How should it be installed in the field?

What grade should I be looking for?

What are the requirements? Insulation

C103.2 & R103.2

- R-values and insulation materials must be placed on construction documents

C103.2.1 & R103.2.1

- Thermal envelope must be depicted on construction documents

C303.1.1 & R303.1.1

- Insulation shall have an R-value mark on insulation—or
- Certificate listing the type, manufacturer, and R-value
- Certificate for blown-in or sprayed fiberglass the certificate must list initial installed thickness, settled thickness, settled R-value, installed density, coverage area, and number of bags
- Certificate for spray foam must list installed thickness and R-value
- This certificate must be signed, dated, posted in a conspicuous location and left immediately after installation for inspection.

C303.1.1.1 & R303.1.1.1

Blown-in or sprayed insulation in attic/roof

- Markers installed every 300 feet
- Markers must face attic opening
- Marker show 1 inch increments

C303.1.2 & R303.1.2

- R-value mark must be observable at inspection

C303.2 & R303.2

- Material must be installed per manufacturer's instructions and IBC & IRC

Plan Review
Insulation

This section provides lots of information.

The Good:

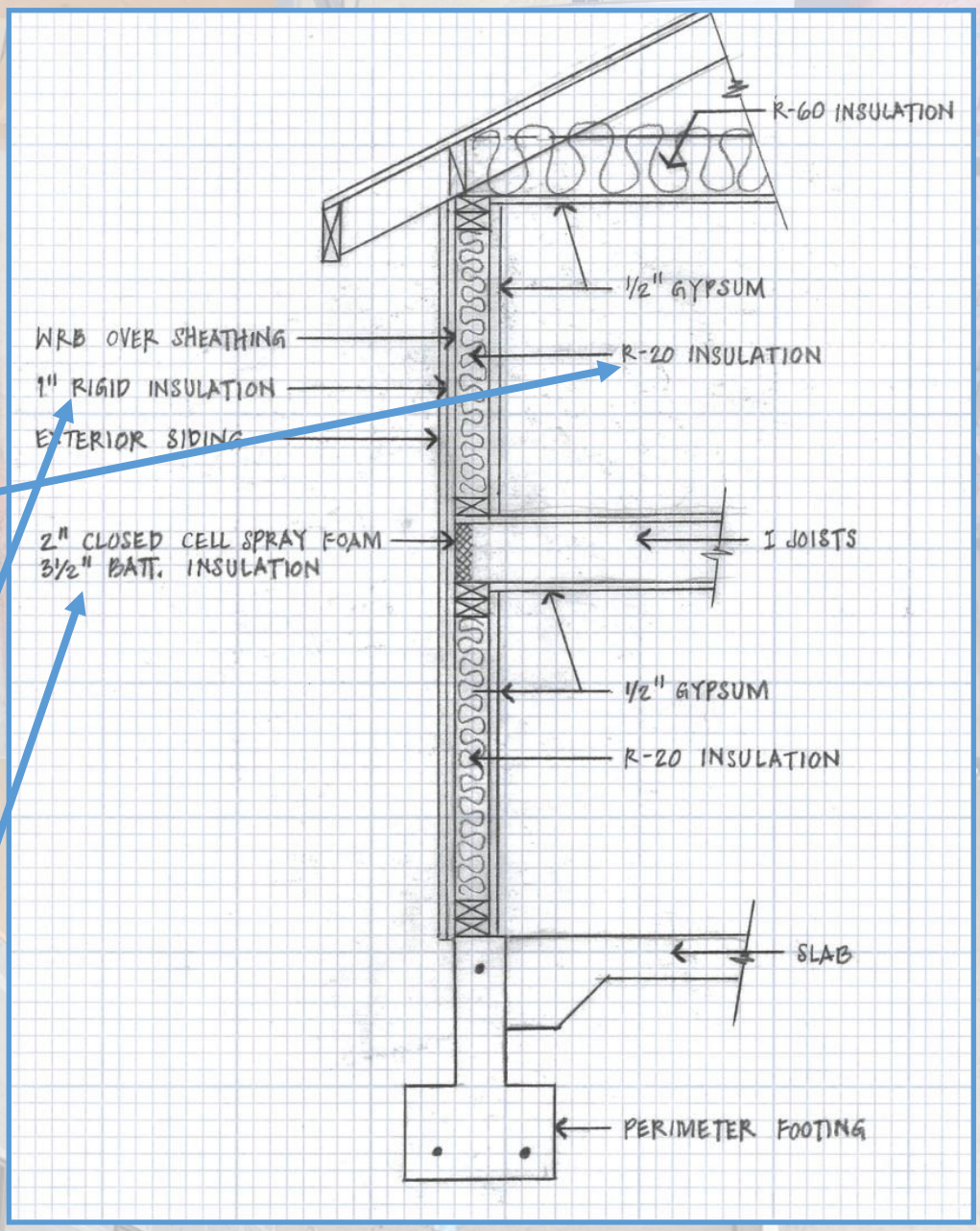
- **Thermal envelope is defined**

Partially Good:

- **Some R-values of the insulation have been provided**
- **Some materials types have been provided**

Not So Good:

- **No R-values provided only inches of material**



The most important thing a plans examiner can do is make sure the thermal envelope is defined on the plans, and to have each portion of the thermal envelope contain the type of material and R -value listed on the plans.

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Inspection
Insulation

Insulation has a grading system.

- **Grade I, Grade II, & Grade III**

Manufacturers state to install to a grade I.

Grade I

- Batt insulation fits cavity side to side and top to bottom without compression
- Spray foam is bonded to substrate
- Rigid insulation is tightly fitted with joints and seams sealed
- No voids or gaps

Grade II

- Has some imperfections in the install, but overall not too bad

Grade III

- Has substantial gaps and voids
- Insulation is compressed

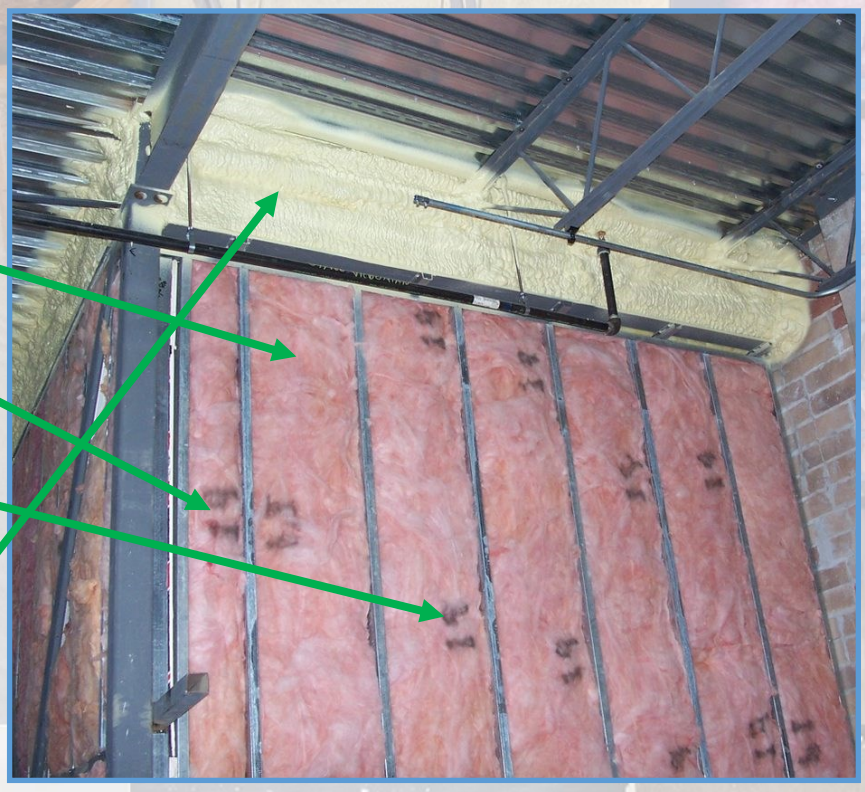
Inspection
Insulation

This is a good install

The batt insulation in not compressed it fills the cavities and was cut to fit the narrow cavity

R-value mark visible

The spray foam is the correct thickness and in contact with substrate



Grade I

This is a good install

The boards have been tightly fitted

Joints and seams are sealed per manufacturer's specifications.

Inspection
Insulation

The insulation for this install was compressed in the cavities

Insulation should have been split 1/2 behind the piping and 1/2 in front of piping

Grade III

Both of these images demonstrate insulation compressed (crammed into the cavity)

Both contain voids and gaps