Technical Bulletin

Foamular®
Extruded Polystyrene Insulation

Continuous Insulation ("ci") Requirements

March, 2007

Continuous Insulation

Continuous insulation (ci) is required by ASHRAE 90.1-2004, the energy standard for all commercial buildings and for residential buildings greater than 3 stories in height. ASHRAE 90.1 is referenced in the International Energy Conservation Code and is in effect over most of the USA.

Continuous insulation is defined in ASHRAE 90.1-2004 as "insulation that is continuous across all structural members without thermal bridges other than fasteners and service openings. It is installed on the interior, exterior, or is integral to any opaque surface of the building envelope."

The mandatory installation of "ci" over steel stud framing was first incorporated in the ASHRAE 90.1-1999 edition. Table 1 shows, by climate zone, the current minimum prescriptive R value needed to comply with the standard for batt insulation in the steel stud cavity + the minimum R value for ci.

Table 1

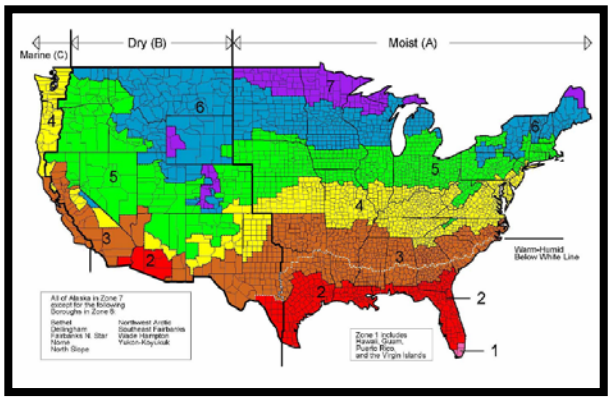
Steel Frame Wall
Prescriptive Insulation Requirements
ASHRAE 90.1-2004

Climate Zone	Non-Residential	Residential
1	13	13
2	13	13
3	13	13 + 3.8
4	13	13 + 7.5
5	13 + 3.8	13 + 7.5
6	13 + 3.8	13 + 7.5
7	13 + 7.5	13 + 7.5
8	13 + 7.5	13 + 10

Climate Zones for the continental USA are shown in Figure 1. Most of Alaska is Zone 7, except the most northern boroughs that are Zone 8. Hawaii is Zone 1.

Figure 1

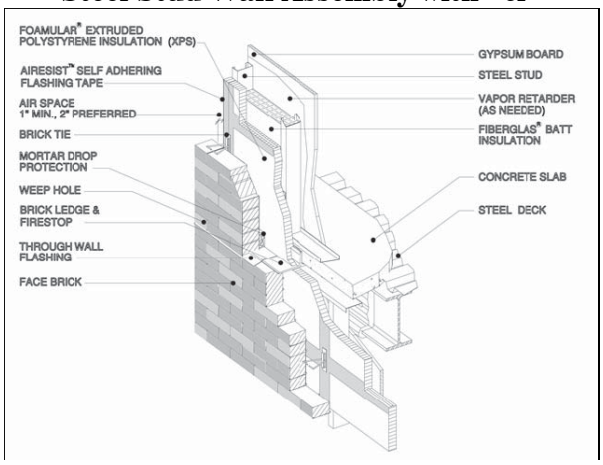
USA Climate Zones



Continuous insulation such as Foamular Extruded Polystyrene (XPS) over steel stud framing, as shown in Figure 2, improves energy efficiency by diminishing the negative effect of thermal bridging. The excellent moisture resistance of XPS coupled with sealed joints also serves as an air and moisture barrier.

Figure 2

Steel Stud Wall Assembly with "ci"



Reference:

ASHRAE Standard 90.1-2004, Energy Standard for Buildings Except Low-Rise Residential Buildings; American Society of Heating, Refrigerating and Air-Conditioning Engineers; Atlanta, Ga.