

Anatomy of ANSI A117.1 and ICC Codes:

ANSI ADA requirement is very clear in its statement that:

"A117.1: Water supplies and drainpipes shall be insulated ...".

Once you identify the key word "insulation" and define it:

Insulation: the action of separating a conductor from conducting bodies by means of nonconductors so as to prevent transfer of electricity, heat, or sound; also : the state resulting from such action (Source: Merriam-Webster's Medical Dictionary)

By referring to basic heat transfer books (i.e. JP Holman, Heat Transfer, McGraw Hill, 1986), insulation can further be defined scientifically:

Insulation Material, R value = $(T_e - T_i) / q / A$, Deg F. ft sq. hr/Btu

where

$T_e - T_i$ = Temperature difference between Exterior to Interior, Deg F

q/A = Rate of heat loss/ Cross Sectional Area, Btu/hr/ft sq

International Code Council in IBC Chapter 7: Section 719 addresses the presence of insulation as a component within a building. The summary of related sections are as follows:

THERMAL- AND SOUND-INSULATING MATERIALS

719.1 General. Insulating materials, ... Where flame spread index... with ASTM E84.

Exceptions:

1. Fiberboard insulation ... Chapter 23
2. Foam Plastic insulation ... Chapter 26
3. Duct and pipe insulation and duct and pipe covering and lining in plenums ... IMC

719.3 Exposed installation. Insulating materials ... flame spread index no more than 25 and a smoke-developed index of not more than 450.

719.7 Insulation and covering on pipe and tubing. ... flame spread index no more than 25 and a smoke-developed index of not more than 450.

Chapter 8

INTERIOR FINISHES

803.8 Insulation. Thermal and acoustical insulation shall comply with section 719.

Chapter 26

Plastics

2602.1 DEFINITIONS. FOAM PLASTIC INSULATION. ... density less than 20 pcf.

2604.1 General. Plastic materials installed as interior finish or trim shall comply with Chapter 8. ... shall also meet the flame spread index requirements for interior finish in accordance with Chapter 8.

2604.2 Interior trim. ...

2604.2.4. Flame spread. The flame spread index shall not exceed 75 where tested in accordance with ASTM E 84. ...

Chapter 8

INTERIOR FINISHES

806.5 Interior trim. Interior trim is not and does not include the definition of the insulation.

Clearly when one observe the interrelationships of all sections, from definition of insulation in section 719, acoustical thermal/insulation in chapter 8, plastics in Chapter 26, and interior finishes section 805.6, the clear definition of the tern insulation and scientific definitions become major safety element of the building. Especially this fact is amplified when nearly all barrier protection devices are plastic in industry and exposed to any unwanted or deliberate fire situations.

This Engineer, Dr. K. Nour "Saum",PE authored this brief and was retained by Plumberex Specialty Products, Inc..

...