

Where are the 60-Minute Requirements in the Codes?

1. UBC

– ICBO code Interpretations, Building Standards, January 1991, attached, and updated November 2, 2000 interpretation referencing UBC 1997, quoted below.

The 1991 interpretation states clearly that 60-minute glazing must be rated as a fire *resistive* assembly:

UBC section 4306 (g)

“Section 43.301 of Uniform Building Code Standard No.43-4 limits the rating of light transmitting (or window) assemblies to 45 minutes.

For a window to be rated as a separate one-hour fire resistive assembly it would have to be tested as a wall assembly in accordance with UBC standard No.43-1, which would include the requirements for heat transmission. It would be extremely difficult for transparent glazing to comply with these heat transmission requirements, although some systems have been tested to this standard.”

(References UBC 1991; UBC Chapter 43 has been renumbered as Chapter 7, and UBC Standards 43-1 and 43-4 have been renumbered as 7-1 and 7-4).

ICBO reconfirmed that interpretation in November 2000, in the following response by Staff Engineer, Mr. Bob Ayers, to the question:

Q: For a window to be rated for 60 minutes, should it be tested in accordance with UBC Standard 7-1 which is the Fire Test of Building Construction and Materials?

A: Yes. UBC Standard 7-4 specifies the requirements for the fire tests of window assemblies which are intended to evaluate the ability of a window or other light-transmitting assembly to remain in place during a predetermined test exposure of 45 minute durations. For a window to be rated for a greater test exposure time period, such as one hour, it would have to be tested as a wall assembly (or part of one) in accordance with UBC Standard 7-1 which would include the requirements for heat transmission and hose stream.

2. IBC – The IBC doesn't specify any window, sidelight or transom applications over 45-minutes. Section 714.3 limits glazing in opening protectives tested to NFPA 257 to 45-minutes, and references NFPA 80, which does not recognize windows rated over 45-minutes per section 13-2.2. NFPA 80 makes it very clear in section 2-3.2.2, that glazing in sidelights and transoms is permitted in frames *rated 45-minutes or less*.

3. UL correspondence with TGP dated 2/1/89, acknowledging confusion over rating, clarifying testing went up to 60-minutes, but classified only for use in doors up to 1-1/2 hour, and frames rated up to 3/4, hour. (Attached).

The letter states:

As you advised me; there seems to be some confusion about your glazing material by some of the end users. As I confirmed: although your material was subjected to the fire exposure test longer than prescribed in the Test Standards UL 9 and UL 10B... their Classification is only for use in doors up to 1-1/2 hour, and frames rated up to 3/4, hour. Although your glazing was tested in a door assembly exposed to 3 hour of fire exposure and the frame was exposed to 1 hour fire exposure; the use of the material is limited by various code restrictions.

An additional point of confusion seems to revolve around your material's ability to withstand fire exposure up to 1 hour. Even though it can withstand the fire exposure, it should not be considered interchangeable with various rated walls The testing and rating of walls is substantially different than the testing and rating of doors and frames. Each item is designed to have different installations, usages, and limitations.

4. Degenkolb, John D. "Gus", former NFPA 80 Technical Committee Chairman, May 7, 1993 correspondence to UL criticizing rating of ceramic FireLite for 60-minutes without regard to radiant heat protection.

A problem involving the UL listing of fire-rated glass has been brought to my attention as Chairman of NFPA 80 It seems that UL is listing a glass-probably a ceramic material- as having a 60-minute listing

by UL. The problem is, no building code with which I am familiar, has a requirement for 1-hour glass but rather for 45-minutes based on the capability of wired glass...

Apparently a glass (other than Contraflam [SuperLite II]) has been tested successfully by UL for 60-minutes. As you are fully aware, neither the door or window test standard addresses temperature rise or radiant heat over the fire duration period. Enforcement officials and architects are being advised that, with 1-hour glass available for installation in a 1-hour wall, why settle for 3/4 -hour glass? Further, where Uniform Building Code limits the amount of glazing in a wall to 25% of the area involved, why not accept 40-50-or 60 percent since it is 1-hour glass. There are obvious answers as to why not but all building and fire officials are not that knowledgeable...

To me, it borders on the ridiculous to require that a 1-hour corridor wall be limited to a temperature rise of 250 degrees F above the ambient and then permit 25% of the wall area to have glazing with no limitation on the amount of heat coming through it. Some years ago, I conducted tests to determine what temperature the heat transmitted through a stairway door would cause the use of a unit of exit width (22 inches) to be lost. It was determined that when there was a temperature rise of 450 degrees F above ambient, that unit of exit width adjacent the door could no longer be used. On that basis, plus the danger of transmitted heat igniting the materials on the other side of the wall, it seems to me that allowing an additional 15-minutes of heat transference is improper.

I think that UL should re-examine its listing and add some additional wording on the label or some other method to avoid misuse of the product.