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No. 14-02
Safety Glazing in and around Tub/Shower Enclosures

2014 Oregon Structural Specialty Code (OSSC)

Code section: ORSC Section R308.4.5
OSSC Section 2406.5

Date: Oct. 1, 2017 (Updated)
Nov. 3, 2014 (Issued)

Subject: Safety Glazing in and around Tub/Shower Enclosures

Question:
What constitutes a hazardous location for enclosures and walls facing hot tubs, whirlpools, saunas, steam rooms, bathtubs, and showers?

Answer:
Where the locations in question have glazing with bottom exposed edges at 60 inches or less measured vertically above any standing or walking surfaces of the tubs or showers, then the base requirement for safety glazing applies. With this established, safety glazing provisions are determined by the exception to the code section. The key to interpreting the exception is applying the intent of the code when identifying the hazardous location with regard to “enclosures for or walls facing” the “water’s edge” of the related wet feature. Where saunas, steam rooms, and showers typically do not have a defined water’s edge, the 60 inches of projection shall be taken directly in front of the enclosure and at 180 degrees from the front edges of the enclosure. To that end, this interpretation includes graphic representations, Figures 1, 2, 3, 4 and 5, that define the hazardous location(s) for several common examples:

Figure 1. (Below) The enclosure for a tub or shower is defined by the walls that surround the tub/shower and how the tub/shower can be accessed or exited from within the enclosure. Here a tub/shower combination is open into the room on two sides therefore the walls that make up the entire bathroom would be considered the enclosure for the tub/shower due to the accessibility from the two sides. The hatched area indicates the area considered the hazardous location, and windows within this area that are within 60 inches of the water’s edge, or more simply stated the typical water line of the tub/shower, would have to be protected with safety glazing.
HATCHING DENOTES THE HAZARDOUS LOCATION AREA TO BE CONSIDERED AS WITHIN THE WALLS OF THE TUB/SHOWER ENCLOSURE & WITHIN 5 FEET OF THE WATER'S EDGE

WINDOWS A, B AND C MUST BE SAFETY GLAZED IF LESS THAN 60" HORIZONTAL FROM THE WATER'S EDGE, IN THIS CASE ALL WINDOWS MUST BE SAFETY GLAZED

NOTE:
ALL WINDOWS SHOWN HAVE GLAZING WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES MEASURED VERTICALLY ABOVE ANY STANDING OR WALKING SURFACE

HATCHING DENOTES THE HAZARDOUS LOCATION AREA TO BE CONSIDERED AS WITHIN THE WALLS OF THE TUB/SHOWER ENCLOSURE & WITHIN 5 FEET OF THE WATER'S EDGE

WINDOW C MUST BE SAFETY GLAZED IF LESS THAN 60" HORIZONTAL FROM THE WATER'S EDGE, IN THIS CASE WINDOWS A AND B ARE OUTSIDE THE HAZARD AREA BUT WINDOW C MUST BE SAFETY GLAZED

NOTE:
ALL WINDOWS SHOWN HAVE GLAZING WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES MEASURED VERTICALLY ABOVE ANY STANDING OR WALKING SURFACE
Figure 2. (Above) The room is identical to the previous example with the exception that there is now a wall or barrier installed at the end of the tub/shower combination that prohibits access or exiting from the end of the tub. The enclosure is now defined by the three walls surrounding the tub/shower combo as shown by the hatched area and window C clearly falls within the 60-inch dimension from the typical water line of the tub/shower so it would have to be protected by safety glazing.

Figure 3. (Above) Here a much larger bathroom compartment has a corner tub that can be accessed or exited from several locations but is bounded by walls on two sides. The enclosure for this tub would be defined by the two walls and then by the 60 inches projection from the tub's typical water line. The hatched area depicts the affected area where safety glazing would be required if any walls with windows were present that were facing the tub's typical water line. In this case, window A is facing the typical water line due to the curvature of the tub and would require safety glazing. In addition, the glazing in the walls behind the tub fall within the defined enclosure and would require safety glazing. This bathroom also contains a shower or sauna enclosure which is bounded on three sides by solid walls which define the enclosure. Walls with glazing closer than 60 inches out in front, and at 180 degrees from either edge of the shower and to the sides of the enclosure as shown within the dashed area, would require safety glazing.
Figure 4. The configuration depicts an oval shaped tub bounded on two sides by full height walls and on the end near the water closet with a half wall. This type of installation will require judgment by the inspector/building official to discern the capabilities of the user to access or exit the tub over the half wall. Typically, if this wall is over 36 inches tall it could be considered part of the tub enclosure due to the difficulty of traversing the low wall. Assuming the low wall does define the enclosure then the hatched area as shown would be considered the enclosure and any glazing falling within the area would need to be protected. Therefore, windows A, B and C would require safety glazing. The shower is enclosed by walls on two sides with a half wall on the side adjacent to the water closet. Above the half wall is a safety glazed enclosure that completes a glass enclosed shower stall including the shower door at the front of the shower. The half wall with the safety glazing above defines the shower enclosure as having walls on three sides therefore the hatched area shows the area considered to be within the walls of the enclosure and within 60 inches of the typical water line of the shower. Glazing within the area, such as window E, will require safety glazing. Due to having enclosure walls from the tub and shower adjacent to the water closet, window D behind the water closet would not fall within the required safety glazing parameters.
Figure 5. (Above) The configuration depicts an oval shaped tub bounded on two sides by full height walls and open at the front. The 60" radius plus the two back walls define the enclosure then the hatched area as shown would be considered the enclosure and any glazing falling within the area would need to be protected. Therefore, windows A, B and C would require safety glazing. The recessed shower is enclosed by walls on three sides and window D is at 180 degrees from the line of the front face of the wetted surface of the shower. The recessed configuration of the shower defines the enclosure and therefore windows within 60 inches of the typical water line of the shower would be subject to safety glazing provisions. Due to window D being at 180 degrees from the face of the shower the window does not require safety glazing.
Analysis:

The requirement for safety glazing in proximity to the water’s edge is based on the user’s potential to slip and fall due to moisture from the bathing or showering/sauna activity. Safety glazing is required because when it is subject to impact the glass will break into small pieces that typically will not cause significant harm to the user. Normal unprotected glazing when impacted has a tendency to break into elongated shards that can act like a knife and can cause significant bodily harm. The safety glazing is required to within 60 inches of the water’s edge, typically considered the normal water level of the tub/shower. Safety glazing is required based on the concept that the users will likely be wet coming out of the tub/shower and the potential for moisture on the floor that could cause someone to slip and fall within this area.

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