

*The most often heard contractor phrase:
No one else makes me do that, so why do I have to ...*

Violation : Garage to dwelling door in separation wall – door does not meet the “not less than 1 3/8 inches thick” requirement for opening protection when not labeled as a 20-minute fire-rated door

Code Section : 2010 FBC-R R302.5.1 Opening protection and 2010 FBC-B 406.1.4 Separation

Comments : Contractor to address door such that the door meets the requirements of the code

A door in the separation wall between a private garage and the dwelling is permitted to be one of the following:

- 1) solid wood doors not less than 1 3/8 inches (35 mm) in thickness
- 2) solid or honeycomb core steel doors not less than 1 3/8 inches (35 mm) thick
- 3) 20-minute fire-rated doors

I frequently find doors with 4, 6 or more recessed raised panels and are not labeled as 20-minute fire-rated doors – i.e., do not meet 3) above. These doors must now meet the “not less than 1 3/8 inches thick” in 1) and 2) above.

If the door is a 1 3/8 inch thick door ... any recessed raised panels means the door does not meet the “not less than 1 3/8 inch thick” in 1) and 2) above.

When contractors install a 1 3/4 inch thick solid core door with recessed raised panels, there seems to be an assumption that the door meets the requirements of the code – even with the recessed raised panels. I have found that the typical 1 3/4 inch thick solid core door with recessed raised panels has recesses which are 7/16 inch deep ... on both sides of the door. By “solid core door” I am referring to doors which have the molded in recessed raised panels and typically have hardboard (HDF) door faces – I’m not referring to “real wood” raised panel doors. I am also not referring to fiberglass faced molded recessed raised panel doors.

Let us presume the door is a “solid core door” with hardboard – HDF – door faces has recesses which are 7/16 inch deep around the raised panels ... in both door faces. The actual thickness of the door is:

$$1 \frac{3}{4} \text{ inch thick door} - \frac{7}{16} \text{ inch recess} - \frac{7}{16} \text{ inch recess} = \frac{7}{8} \text{ inch thick door at the recesses}$$

These doors do not meet the “not less than 1 3/8 inch thick” required for a nonrated door.



1 3/4 inch door between garage and dwelling
This door is a “solid core door” with hardwood face skins.



1 3/4 inch door has 7/16 inch recesses into both faces
The door thickness is only 7/8 inch at the recesses.

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I have found many homes constructed in the 1970s and 1980s which have 1 3/8 inch thick doors made from real solid wood (real wood stiles and rails, not fiberglass, not hardboard, not molded, not solid core – real wood through and through) which have raised panels in the doors. These 1 3/8 inch doors have recesses which are 1/2 inch deep. The actual thickness of these doors is:

1 3/8 inch thick door - 1/2 inch recess - 1/2 inch recess = 3/8 inch thick door at the recesses

These doors do not meet the “not less than 1 3/8 inch thick” required for a nonrated door.

Example of 1-3/8 inch solid wood door with raised panels and 1/2 inch deep recesses



1 3/8 inch door between garage and dwelling
This door is a real solid wood door.



1 3/8 inch door has 1/2 inch recesses into both faces
The door thickness is only 3/8 inch at the recesses.

Many upper end houses from the 1990s to the present have these same real solid wood raised panel doors, except that the doors are 1 3/4 inch thick door instead of 1 3/8 inch thick doors as in previous years. Nonetheless, though, the recesses in these 1 3/4 inch thick real solid wood raised panel doors are still 1/2 inch deep. The actual thickness of these doors is:

1 3/4 inch thick door - 1/2 inch recess - 1/2 inch recess = 3/4 inch thick door at the recesses

Many houses being constructed today have 1 3/4 inch thick “solid core doors” with hardboard faces and molded recessed raised panels – these doors are being installed between the garage and the dwelling as opening protection in the separation wall.

The 1 3/4 inch thick “solid core doors” with hardboard faces and molded recessed raised panels have recesses which are 7/16 inch deep (see example photos one page 1). The actual door thickness of these doors is only 7/8 inch at the recesses. These doors do not meet the “not less than 1 3/8 inch thick” required for a nonrated door.

Is a solid core door ...

... with hardboard faces equivalent to a “solid wood door” as prescribed in the code if “not less than 1 3/8 inch thick”?

... with fiberglass faces even suitable for use as a substitute for a “solid wood door” between the garage and the dwelling ... even if “not less than 1 3/8 inch thick”?

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While recessed raised panel doors are not prohibited between a private garage and a dwelling; the recessed raised panel doors must meet the code requirements, which, for unrated doors, is being “not less than 1 3/8 inch thick”.

The typical corrections I’ve seen were:

- a) Replacing noncompliant recessed raised panel doors with plain slab doors, then installing raised panels on the plain slab doors – this gives the desired raised panel look and meets the “not less than 1 3/8 inch thick” in the code.
- b) Replacing the noncompliant recessed raised panel door with a 20-minute fire-rated recessed raised panel door. A 20-minute fire-rated recessed raised panel door no longer has to be “not less than 1 3/8 inch thick” as the only requirement is that the door be a 20-minute fire-rated door – the 20-minute fire-rated door may be of whatever thickness and material it was when tested. The 20-minute fire-rated label is the only thing we see.

Over the years I have talked with various manufacturers of hardboard molded recessed raised panel doors – all but one manufacturer said that their recessed raised panel doors were all made on the same assembly line ... that the difference between a nonrated door and a labeled 20-minute fire-rated door is that the customer did – or did not – pay the extra cost for the 20-minute fire-rated label. The other manufacturer said they made their 20-minute fire-rated doors, but imported their nonrated doors, and there likely was a difference in manufacture of the doors.

All of the manufacturers I talked with over the years said that without the 20-minute fire-rated label ... they would consider the doors to be nonrated doors (made on the same assembly line or not). I go with what the manufacturers said – that the doors must be labeled as a 20-minute fire-rated door to be considered a rated door.

From the 2010 Florida Building Code, Residential

- Chapter 3 - Building and Planning
 - SECTION R302 FIRE-RESISTANT CONSTRUCTION
 - R302.5 Dwelling/garage opening/penetration protection.
 - ◆ Openings and penetrations through the walls or ceilings separating the dwelling from the garage shall be in accordance with Sections R302.5.1 through R302.5.3.
 - R302.5.1 Opening protection.
 - Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 1 3/8 inches (35 mm) in thickness, solid or honeycomb core steel doors not less than 1 3/8 inches (35 mm) thick, or 20-minute fire-rated doors.
 - R302.6 Dwelling/garage fire separation.
 - ◆ The garage shall be separated as required by Table R302.6. Openings in garage walls shall comply with Section R302.5. This provision does not apply to garage walls that are perpendicular to the adjacent dwelling unit wall.
 - ◆ TABLE R302.6 DWELLING/GARAGE SEPARATION

SEPARATION	MATERIAL
From the residence and attics	Not less than 1/2-inch gypsum board or equivalent applied to the garage side
From all habitable rooms above the garage	Not less than 5/8-inch Type X gypsum board or equivalent
Structure(s) supporting floor/ceiling assemblies used for separation required by this section	Not less than 1/2-inch gypsum board or equivalent
Garages located less than 3 feet from a dwelling unit on the same lot	Not less than 1/2-inch gypsum board or equivalent applied to the interior side of exterior walls that are within this area

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

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From the 2010 Florida Building Code, Building

- Chapter 4 - Special Detailed Requirements Based on Use and Occupancy
 - SECTION 406 MOTOR-VEHICLE-RELATED OCCUPANCIES
 - 406.1 Private garages and carports.
 - ◆ 406.1.4 Separation.
 - Separations shall comply with the following:
 - 1. The private garage shall be separated from the dwelling unit and its attic area by means of a minimum 1/2-inch (12.7 mm) gypsum board applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than a 5/8-inch (15.9 mm) Type X gypsum board or equivalent. Door openings between a private garage and the dwelling unit shall be equipped with either solid wood doors or solid or honeycomb core steel doors not less than 1 3/8 inches (34.9 mm) thick, or doors in compliance with Section 715.4.3. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Doors shall be self-closing and self-latching.
 - 2. Ducts in a private garage and ducts penetrating the walls or ceilings separating the dwelling unit from the garage shall be constructed of a minimum 0.019-inch (0.48 mm) sheet steel and shall have no openings into the garage.
 - 3. A separation is not required between a Group R-3 and U carport, provided the carport is entirely open on two or more sides and there are not enclosed areas above.
- Chapter 7 - Fire and Smoke Protection Features
 - SECTION 715 OPENING PROTECTIVES
 - 715.4.3 Door assemblies in corridors and smoke barriers.
 - ◆ Fire door assemblies required to have a minimum fire protection rating of 20 minutes where located in corridor walls or smoke barrier walls having a fire-resistance rating in accordance with Table 715.4 shall be tested in accordance with NFPA 252 or UL 10C without the hose stream test.
 - Exceptions:
 - 1. Viewports that require a hole not larger than 1 inch (25 mm) in diameter through the door, have at least a 0.25-inch-thick (6.4 mm) glass disc and the holder is of metal that will not melt out where subject to temperatures of 1,700°F (927°C).
 - 2. Corridor door assemblies in occupancies of Group I-2 shall be in accordance with Section 407.3.1.
 - 3. Unprotected openings shall be permitted for corridors in multitheater complexes where each motion picture auditorium has at least one-half of its required exit or exit access doorways opening directly to the exterior or into an exit passageway.
 - 4. Horizontal sliding doors in smoke barriers that comply with Sections 408.3 and 408.8.4 in occupancies in Group I-3.

Regarding the code permitted “solid or honeycomb core steel door”:

- 1) Are wood doors (wood stiles, rails, and blocking) which have steel door faces suitable for use where the code specifies “solid or honeycomb core steel doors”?
- 2) Do you take “solid or honeycomb core steel doors” as meaning the rails and stiles are required to be steel along with steel door faces, i.e., the doors are not “wood doors with steel door faces”?

I occasionally find these “wood doors with steel door faces” installed between the garage and the dwelling in the separation wall. These doors have the recessed raised panels, and these “wood doors with metal door faces” have the same issue with the recessed raised panels and actual door thickness at those recesses.

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I look forward to all contributions.

Respectfully submitted,



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