

Issue DS 2021-007: The petitioner “Chris Casagrande” is seeking a declaratory statement on whether work on non-damaged roof components would still be omitted from the repair area calculation when determining if a roof repair exceeds the 25% Threshold.

Petitioner seeks clarification of the following question:

Question:

When determining if a roof repair exceeds the 25 percent threshold specified in Section 706.1.1 of the 7th Edition of the FBC - Existing Building, should work on non-damaged components still be omitted from the repair area calculation?

Background:

Sdii Global Corporation (SDII) is a forensic engineering firm that specializes in investigating the cause and origin of property damage, including the cause and origin of roofing system failures in the State of Florida. As part of these roof investigations, SDII is often asked to comment on whether the Florida Building Code (FBC) permits the repair of the damaged portions of the roofing system or if it requires the replacement of the entire roof section to conform with the current edition of the FBC.

To address this question, SDII would cite Section 706 Existing Roofing of the FBC - Existing Building, 6th Edition, which governed the requirements for repair, recovering, or replacement of existing roofs until the 7th Edition of the FBC was adopted. Regarding roof coverings, Section 706.1.1 of the FBC - Existing Building, 6th Edition read:

Not more than 25 percent of the total roof area or roof section of any existing building or structure shall be repaired, replaced, or recovered in any 12-month period unless the entire existing roofing system or roof section is replaced to conform to requirements of this code.

With the adoption of the FBC - Existing Building, 7th Edition, SDII understands that the language of Section 706.1.1 remains unchanged.

SDII would also cite Section 502.3 Related Work of the FBC - Existing Building, 6th Edition, which read:

Work on non-damaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the provisions of Chapter 7, 8, 9, 10 or 11.

According to this section, non-damaged roof components removed and reinstalled as part of the repair of damaged roof components were not counted toward the 25 percent threshold stated in Section 706.1.1.

Section 502.3 Related Work was omitted from the FBC - Existing Building, 7th Edition.

Situation:

SDII completed an evaluation of a roofing system where it was determined that damaged roof cladding along the rake edge of the roof required repair. **The area requiring repair equated to 5 percent of the roof section area. The repair method selected** involved removal and **reinstallation** of non-damaged components upslope of the damaged components, which added an additional **25 percent** of the roof section area to the repair area. The area of damaged components plus non-damaged components **made the repair area 30 percent** of the roof section area, which exceeds the 25 percent threshold stated in Section 706.1.1. Refer to Figure 1 as included in the petition.

7th Edition (2020) Florida Building Code, Existing Building Chapter 2 Definitions –

[BS] ROOF RECOVER. The process of installing an **additional roof covering over a prepared existing** roof covering without removing the existing roof covering.

[BS] ROOF REPAIR. Reconstruction or renewal of any part of an existing roof for the purposes of its maintenance.

REPAIR. The reconstruction, replacement or renewal of any part of an *existing building* for the purpose of its maintenance or to correct damage.

[BS] ROOF REPLACEMENT. The process of removing the existing roof covering, repairing any damaged substrate and installing a new roof covering.

ROOF SECTION. A separating or division of a roof area by existing expansion joints, parapet walls, flashing (excluding valley), difference of elevation (excluding hips and ridges), roof type or legal description; **not including the roof area required for a proper tie-off with an existing system.**

SUBSTANTIAL STRUCTURAL DAMAGE. A condition where one or both of the following apply:

1. The vertical elements of the lateral force-resisting system have suffered damage such that the lateral load carrying capacity of any story in any horizontal direction has been reduced by more than 33 percent from its predamage condition.
2. The capacity of any vertical component carrying gravity load, or any group of such components, that supports more than 30 percent of the total area of the structure's floor(s) and roof(s) has been reduced more than 20 percent from its predamage condition and the remaining capacity of such affected elements, with respect to all dead and live loads, is less than 75 percent of that required by the *Florida Building Code, Building* for new buildings of similar structure, purpose and location.

7th Edition (2020) Florida Building Code, Existing Building Chapter 4

401.1 Scope. Repairs shall comply with the requirements of this chapter and with the provisions of Section 706. Repairs to *historic buildings* need only comply with Chapter 12.

401.2 Conformance. The work shall not make the building less conforming than it was before the *repair* was undertaken.

402.1 New and replacement materials. Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for repairs provided no dangerous or unsafe condition, as defined in Chapter 2, is created. Hazardous materials, such as asbestos and lead-based paint, shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

401.2 Conformance. The work shall not make the building less conforming than it was before the repair was undertaken.

[BS] 406.1 General. Structural repairs shall be in compliance with this section and Section 401.2. Regardless of the extent of structural or nonstructural damage, *dangerous* conditions shall be eliminated. **Regardless of the scope of repair, new structural members and connections used for repair or rehabilitation shall comply with the detailing provisions of the Florida Building Code, Building for new buildings of similar structure, purpose and location.**

[BS]406.2 Repairs to damaged buildings. Repairs to damaged buildings **shall comply with this section and Section 706, Reroofing.**

[BS]406.2.1 Repairs for less than substantial structural damage. For damage less than substantial structural damage, the damaged elements shall be permitted to be restored to their predamage condition.

[BS] 406.2.2 Substantial structural damage to vertical elements of the lateral force-resisting system. A building that has sustained *substantial structural damage* to the vertical elements of its lateral force-resisting system shall be evaluated in accordance with Section 406.2.2.1, and either repaired in accordance with Section 406.2.2.2 or repaired and rehabilitated in accordance with Section 406.2.2.3, depending on the results of the evaluation.

406.2.2.1 Evaluation. The building shall be evaluated by a registered design professional, and the evaluation findings shall be submitted to the *code official*. The evaluation shall establish whether the damaged building, if repaired to its predamage state, would comply with the provisions of the *Florida Building Code, Building* for load combinations that include wind or earthquake effects, except that the seismic forces shall be the reduced level seismic forces.

[BS]706.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15 of the Florida Building Code, Building, or Chapter 9 of the Florida Building Code, Residential. **Roof repairs to existing roofs and roof coverings shall comply with the provisions of this code.**

Exception: Reroofing shall not be required to meet the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2-percent slope) in Section 1507 of the Florida Building Code, Building for roofs that provide positive roof drainage (High-Velocity Hurricane Zones shall comply with Sections 1515.2.2.1 and 1516.2.4 of the Florida Building Code, Building).

706.1.1 Not more than **25 percent** of the total roof area or **roof section** of any existing building or structure shall be **repaired, replaced** or **recovered** in any 12-month period unless the entire existing roofing system or roof section is replaced to conform to requirements of this code.

[BS]706.5 Reinstallation/reuse of materials. Existing or salvaged slate, clay or concrete tile shall be permitted **for reinstallation or reuse, to repair an existing slate or tile roof, except that salvaged slate or tile shall be of like kind in both material and profile.** Damaged, cracked or broken slate or tile shall not be reinstalled. The building official may permit salvaged slate, clay and concrete tile to be installed on additions and new construction, when the tile is tested in compliance with the provisions of Section 1507 or 1523 of the Florida Building Code, Building (HVHZ shall comply with Section 1523) and installed in accordance with Section 1507 or 1518 of the Florida Building Code, Building (HVHZ shall comply with Section 1518). Existing vent flashing, metal edgings, drain outlets, collars and metal counterflashings shall not be reinstalled where rusted, damaged or deteriorated. Aggregate surfacing materials shall not be reinstalled (High-Velocity Hurricane Zones shall comply with Sections 1512 through 1525 of the Florida Building Code, Building).

Staff Analysis

Question:

When determining if a roof repair exceeds the 25 percent threshold specified in Section 706.1.1 of the 7th Edition of the FBC - Existing Building, should work on non-damaged components still be omitted from the repair area calculation?

Answer:

Option #1/Petitioner:

SDII has reviewed pertinent sections of the FBC and respectfully believes that the answer **to the question is "YES."** We do not believe that the intention of the FBC is to burden the property owner with unnecessary costs for repair. If the removal and reinstallation of non-damaged components are counted toward the 25 percent threshold stated in Section 706.1.1, a relatively small roof repair could trigger a complete roof section replacement,

depending on the area of non-damaged roofing components removed and reinstalled as part of the repair.

If the answer is "NO" and work on non-damaged components is intended to be counted toward the 25 percent threshold, then the area of the roof that requires repair becomes subjective and is not necessarily quantifiable. The result is that the repair of a roof that sustained a relatively small area of damage can necessitate removal and reinstallation of non-damaged components, triggering the 25 percent threshold stated in Section 706.1.1, and thereby requiring full replacement of an otherwise competent roofing system.

It is the opinion of SDII that the intention of the FBC is not to require unnecessary work and costs and that the omission of Section 502.3 Related Work from the FBC - Existing Building, 7th Edition presents the potential for unintended consequences to the property owner

Option #2/Staff:

The answer to the Petitioner's question is yes. As per the definition of the terms "Roof Repair", "Repair" and "Roof Section" of Chapter 2 Definitions and Section 706.1.1 of the 7th Edition (2020) Florida Building Code (FBC), Existing Building, the level of repair as it relates to the project in question is limited in scope to the repair work on the damaged roof components that involves reconstruction and/or the removal and replacement of the damaged roof components. Related work which involves the removal and reinstallation of non-damaged components for the purpose of connecting repaired areas to unrepaired areas (roof areas required for a proper tie-off) shall not be considered part of the roof repair in question and therefore such related work shall not be counted toward the 25 percent threshold stated in Section 706.1.1 of the 7th Edition (2020) FBC, Existing Building.