



*City of Flagstaff - Engineering Division
Stormwater Management Section
Public Information Series:*

Substantial Improvement Regulation (The 50% Rule)

The National Flood Insurance Program (NFIP) Regulations, Subpart A, 60.3 - *Flood plain management criteria for flood prone areas*, makes reference to the term "**Substantial Improvements**" when addressing federal construction requirements for structures built within Special Flood Hazard Areas (SFHA) shown on the Flood Insurance Rate Maps (FIRM's). Consequently, Substantial Improvement requirements are set forth within City of Flagstaff Floodplain Management Regulations, Ordinance No. 2001-06. The concept of substantial improvement encompasses additions or modifications made to an existing structure and/or repairs to a structure undertaken as a result of substantial damage. Federal policy guidelines regarding substantial improvement and substantial damage are commonly known as "**The 50% Rule**".

The following text, based on a Federal Emergency Management Agency (FEMA) policy paper and City of Flagstaff Floodplain Management Regulations, discusses the concepts of substantial improvement and substantial damage. These important concepts have implications for both City Officials administering local floodplain management regulations and for owners/lessees of property and structures located within regulatory floodplains.

Substantial Improvement is defined as any combination of repairs, reconstruction, rehabilitation, alteration, addition, or other improvements to a structure, *taking place during the life of the structure, the cumulative cost of which equals or exceeds 50% of the market value of the structure prior to the start of any improvements*. The term includes structures that have incurred substantial damage, regardless of the actual amount of repair work performed.

For the purposes of this definition, "**Substantial Improvement**" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the building. The term does not include either:

1. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been pre-identified by the Building & Safety Director, and not those modifications triggered solely by an improvement or repair project; or
2. Any alteration of a "historic structure", provided that the alteration will not preclude the structure's continued designation as a "historic structure".

When a Pre-FIRM non-conforming building (i.e., those structures built prior to 01/19/83) is proposed to be remodeled, renovated, rehabilitated, added to, or in any way improved, the proposed modifications must be evaluated for substantial improvement. If the cumulative total costs of improvement(s) over the life of the structure equal or exceed 50% the building's market value, the building must be elevated (if residential) or structurally dry-floodproofed (if non-residential) to a minimum elevation of one (1) foot above the 100-year flood elevation.

Substantial Damage is considered to be damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50% percent of the market value of the structure before the damage occurred. Substantially damaged Pre-FIRM residential buildings (built before 01/19/83) must be elevated a minimum of one (1) foot above the 100-year flood elevation. This requirement

applies regardless of the source of the damage (e.g. flooding, fire, earthquake, wind, or man) and applies to all buildings in the SFHA, regardless of whether the building is covered by flood insurance.

The costs to repair must be calculated for full repair to the "before damaged condition", even if the owner elects to do less. The total costs to repair include both structural and finish materials and labor (see Costs To Be Included section).

Building Value is equivalent to the market value of the structure only. Land and exterior improvements (e.g., a swimming pool, pool enclosure, landscaping, paving, etc.) are excluded. The market value of the structure is determined by either:

1. The current Coconino County Assessor Tax assessed value of the building prior to the initial repair or improvement;
2. The applicant may provide a determination of market value of the existing structure, prior to the initial repair or improvement, by a professional appraiser (See Ord. 2001-06 for appraisal methodology); or
3. In the case of substantial damage, the assessed or appraised value of the structure prior to the damage occurring.

Additions are considered an alteration to an existing structure that results in an increase in the structure's floor area (footprint or square footage). If an existing structure in a 100-year floodplain is physically enlarged and the cost of the enlargement (or addition) equals or exceeds 50% of the market value of the structure before the addition, then the existing structure is considered to have been substantially improved and must then be brought into conformance with floodplain regulations (e.g., elevated). The lowest floor of any addition on a residential structure must be elevated a minimum of one (1) foot above the 100-year flood elevation, even if it does not constitute a substantial improvement. Additions to existing structures located within the floodway are not permitted.

Second Story Additions are considered as rehabilitation since this normally involves tearing off the existing roof. If the cost of construction the second story, including removal of the existing roof, is equal to or exceeds 50% of the market value of the existing structure before construction, the entire existing structure must be brought into conformance with floodplain regulations.

Map Revisions can also affect Post-FIRM structures due to substantial improvement/damage requirements. If a community FIRM is revised and the base flood elevations have increased, Post-FIRM buildings constructed prior to the map revision may be affected. The substantial improvement requirement would apply to them as well. So, check the FIRM to determine what flood elevation was in effect when the building was constructed and the current flood elevation. All additions to Pre and Post-FIRM residential structures must be elevated to a minimum of one (1) foot above the effective 100-year flood elevation, whether they are substantial improvements or not.

Costs To Be Included for the calculation of substantial improvement or substantial damage mean the "total costs", including labor and materials, for both structural and finish work, profit, and overhead. The cost to demolish undamaged building components must be established and included as well. A detailed list of items to be included and excluded is given on Pages 4 and 5. All material and labor associated with the construction or demolition of a structure are applied towards the substantial improvement cumulative cost regardless of whether the material and labor are donated or performed by an owner-builder.

Many of these costs are not normally calculated for purposes of a building permit, nor are they regulated as part of the Uniform Building Code, but they must be calculated for compliance with the substantial improvement requirement. Remember, substantial damage and substantial improvements are cumulative for the life of the

structure from the initial start of repair or improvement. The homeowner or buyer needs to be cognizant of the potential hidden expense represented by the substantial improvement requirement.

SUBSTANTIAL IMPROVEMENT/DAMAGE ITEMS:

ITEMS TO BE INCLUDED:

All structural elements, including:

- Spread or continuous foundation footings and pilings
- Monolithic or other type of concrete slabs
- Bearing walls, tie beams and trusses
- Wood or reinforced concrete decking or roofing
- Floors and ceilings
- Attached decks and porches
- Interior wall finishes (e.g., brick, stucco, or siding) including painting and decorative moldings
- Windows and doors
- Reshingling or retiling a roof
- Hardware

All interior finish elements, including:

- Tiling, linoleum, stone, or carpet over subflooring
- Bathroom tiling and fixtures
- Wall finishes (e.g., drywall, painting, stucco, plaster, paneling, marble or other decorative features)
- Kitchen, utility and bathroom cabinets
- Built-in bookcases, cabinets, and furniture
- Hardware

All utility and service equipment, including:

- HVAC equipment
- Repair or reconstruction of plumbing and electrical services
- Light fixtures and ceiling fans
- Security systems
- Built-in kitchen appliances
- Central vacuum systems
- Water filtration, conditioning or recirculation systems

Also:

- Labor and other costs associated with demolishing, removing or altering building components
- Overhead and profit

ITEMS NOT INCLUDED:

- Plans and specifications

- Survey costs
- Permit fees
- Demolition costs associated with clean-up, debris removal, and preparation of the site
- Debris removal (e.g., removal of debris from building or lot, dumpster rental, transport fees to landfill and landfill tipping fees), and clean up (e.g., dirt and mud removal, building dry out, etc.)
- Structural fill for elevating a structure
- Carpeting and re-carpeting installed over finished flooring such as finished wood or tiling
- Items not considered real property such as throw rugs, plug in type appliances, window air-conditioning units, dehumidifiers, furniture, refrigerators, stoves (not built-in), etc.

Outside improvements, including:

- Landscaping
- Sidewalks
- Fences
- Yard lights
- Swimming pools
- Screened pool enclosures
- Sheds
- Gazebos
- Detached structures (including garages)
- Landscape irrigation systems