



Substantial Improvement/ Substantial Damage Desk Reference

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FEMA

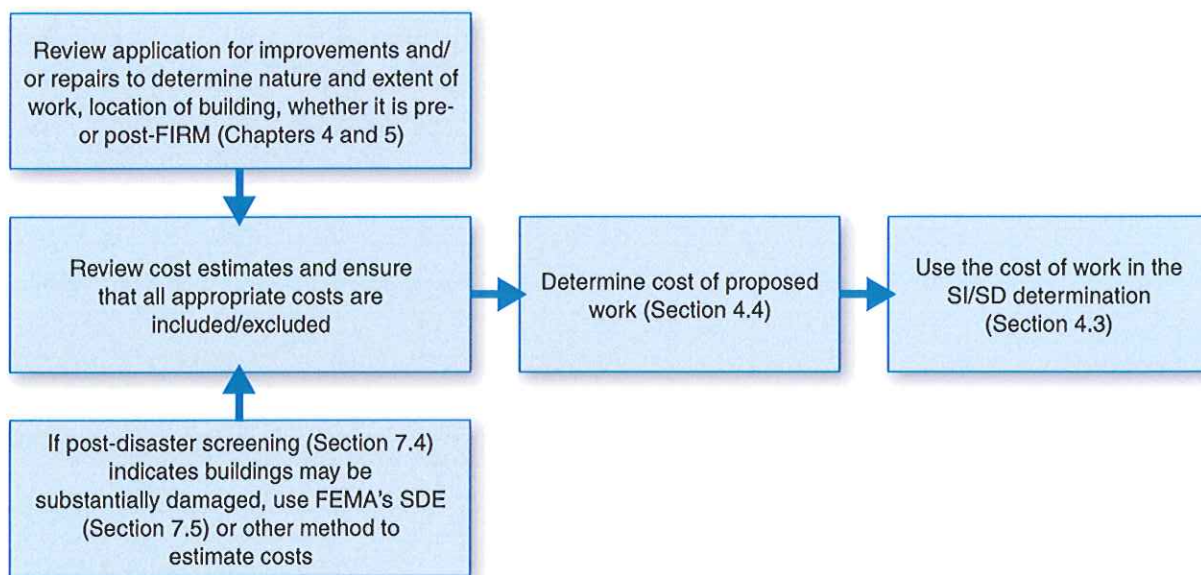


Figure 4-2. Determine the cost of work (overview)

The following topics related to determining costs will be covered in this section:

- Costs that must be included
- Costs that may be excluded
- Acceptable sources of cost information
- Estimates of donated or discounted materials
- Estimates of owner and volunteer labor
- Demolition, debris, and disposal
- Clean-up and trash removal
- Cost exclusions to correct existing health, safety, and sanitary code violations

Local officials will need to determine the necessary level of detail for the costs of improvements and costs of repairs from permit applicants or contractors in order to make a SI/SD determination.

4.4.1 Costs That Must be Included in SI/SD Determinations

Items that must be included in the costs of improvement and the costs to repair are those that are directly associated with the building. The following list of costs that must be included is not intended to be exhaustive, but characterizes the types of costs that must be included:

- Materials and labor, including the estimated value of donated or discounted materials (Section 4.4.4) and owner or volunteer labor (Section 4.4.5)
- Site preparation related to the improvement or repair (e.g., foundation excavation or filling in basements)
- Demolition and construction debris disposal (Section 4.4.6)

- Labor and other costs associated with demolishing, moving, or altering building components to accommodate improvements, additions, and making repairs
- Costs associated with complying with any other regulations or code requirement that is triggered by the work, including costs to comply with the requirements of the Americans with Disabilities Act (ADA)
- Costs associated with elevating a structure when the proposed elevation is lower than the BFE
- Construction management and supervision
- Contractor's overhead and profit
- Sales taxes on materials
- Structural elements and exterior finishes, including:
 - Foundations (e.g., spread or continuous foundation footings, perimeter walls, chain-walls, pilings, columns, posts, etc.)
 - Monolithic or other types of concrete slabs
 - Bearing walls, tie beams, trusses
 - Joists, beams, subflooring, framing, ceilings
 - Interior non-bearing walls
 - Exterior finishes (e.g., brick, stucco, siding, painting, and trim)
 - Windows and exterior doors
 - Roofing, gutters, and downspouts
 - Hardware
 - Attached decks and porches
- Interior finish elements, including:
 - Floor finishes (e.g., hardwood, ceramic, vinyl, linoleum, stone, and wall-to-wall carpet over subflooring)
 - Bathroom tiling and fixtures
 - Wall finishes (e.g., drywall, paint, stucco, plaster, paneling, and marble)
 - Built-in cabinets (e.g., kitchen, utility, entertainment, storage, and bathroom)
 - Interior doors
 - Interior finish carpentry
 - Built-in bookcases and furniture
 - Hardware
 - Insulation

- Utility and service equipment, including:
 - Heating, ventilation, and air conditioning (HVAC) equipment
 - Plumbing fixtures and piping
 - Electrical wiring, outlets, and switches
 - Light fixtures and ceiling fans
 - Security systems
 - Built-in appliances
 - Central vacuum systems
 - Water filtration, conditioning, and recirculation systems

4.4.2 Costs That May be Excluded from SI/SD Determinations

Items that can be excluded are those that are not directly associated with the building. The following list characterizes the types of costs that may be excluded:

- Clean-up and trash removal (Section 4.4.7)
- Costs to temporarily stabilize a building so that it is safe to enter to evaluate and identify required repairs
- Costs to obtain or prepare plans and specifications
- Land survey costs
- Permit fees and inspection fees
- Carpeting and recarpeting installed over finished flooring such as wood or tiling
- Outside improvements, including landscaping, irrigation, sidewalks, driveways, fences, yard lights, swimming pools, pool enclosures, and detached accessory structures (e.g., garages, sheds, and gazebos)
- Costs required for the minimum necessary work to correct existing violations of health, safety, and sanitary codes (Section 4.4.8)
- Plug-in appliances such as washing machines, dryers, and stoves

4.4.3 Acceptable Sources of Cost Information

The costs of improvements and the costs to repair are necessary to make the SI/SD determination. The following are acceptable methods to determine the costs:

- Itemized costs of materials and labor, or estimates of materials and labor that are prepared by licensed contractors or professional construction cost estimators.
- Building valuation tables published by building code organizations and cost-estimating manuals and tools available from professional building cost-estimating services. These sources can be used as long as some limitations are recognized, notably that there are local

Table 6-1a. Compliance Matrix (A Zones)

Types of Work	Building is Pre-FIRM	Building is Post-FIRM
Rehabilitation (renovate or remodel), <u>not SI</u>	Compliance not required	Work shall comply and shall not be allowed to make the building non-compliant with any aspect of the building that was required for compliance
Rehabilitation (renovate or remodel), SI	Building required to comply	Work shall comply and shall not be allowed to make the building non-compliant with any aspect of the building that was required for compliance (see Note below table)
Lateral addition and Rehabilitation, SI	Addition required to comply; building required to comply	Addition required to comply; building required to comply (see Note below table)
Lateral addition, <u>not SI</u>	Addition not required to comply	Addition required to be elevated to at least the elevation of the existing lowest floor
Lateral addition, SI, <u>not</u> structurally connected	Addition required to comply; building not required to comply	Addition required to comply
Lateral addition, SI, structurally connected	Addition required to comply; building required to comply	Addition required to comply; building required to comply (see Note below table)
Vertical addition above building, <u>not SI</u>	Compliance not required	Work shall comply and shall not be allowed to make the building non-compliant with any aspect of the building that was required for compliance
Vertical addition above building, SI	Building required to comply	Work shall comply and shall not be allowed to make the building non-compliant with any aspect of the building that was required for compliance (see Note below table)
Repair foundation, <u>not SI</u>	Compliance not required	Repairs shall comply and shall not be allowed to make the building non-compliant with any aspect of the building that was required for compliance
Repair foundation, SI	Building required to comply	Building required to comply (see Note below table)
Replace/extend foundation, SI (including "elevate-in-place")	Building required to comply	Building required to comply (see Note below table)
Repair damage, SD	Building required to comply	Work shall comply and shall not be allowed to make the building non-compliant with any aspect of the building that was required for compliance (see Note below table)
Reconstruct new building on existing or new foundation, SI	Reconstructed building required to comply	Reconstructed building required to comply (see Note below table)

Note: If a map revision has resulted in a higher BFE, a post-FIRM building must comply based on the new BFE.