COMBATING RISING FLOOD INSURANCE COSTS

Flooding is increasing across the US, requiring communities to examine alternatives to the cycle of repetitive flooding. The cost of the flood recovery cycle is VERY EXPENSIVE, not only monetarily, but everyone involved has lifetime challenges as they navigate flood recovery. This is now compounded by rapidly rising flood insurance policy rates on all older buildings built before the first flood insurance rate map for the community. Elevation can help offset those rates dramatically.

FLOOD INSURANCE PREMIUMS:

<table>
<thead>
<tr>
<th>Level with</th>
<th>4 ft below Base Flood Elevation</th>
<th>Level with</th>
<th>3 ft above Base Flood Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$9,500/yr</td>
<td>$95,000/10 yrs</td>
<td>$1,410/yr</td>
<td>$4,270/10 yrs</td>
</tr>
</tbody>
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WHY ELEVATE?

- Engages multiple construction trades & labor
- Environmentally responsible: recycling and reuse of existing buildings results in a reduction of TONS of solid waste to landfills
- Saves natural resources: every 1,000 sq ft of wood frame building uses approximately 250 TREES
- Preserves historic buildings
- Stabilizes the real estate market & property values
- Reduces recovery expenditures: every $1 invested in elevation saves $7 in recovery expenditures
- Significantly reduces flood insurance policy rates
- Reverses the cycle of flooding
- Keeps the community together
- Preserves property tax revenues which support schools & government operations, infrastructure & public safety, & bonding for public projects
- Environmentally responsible: recycling and reuse of existing buildings results in a reduction of TONS of solid waste to landfills
- Engages multiple construction trades & labor

ELEVATE before it’s too late!

International Association of Structural Movers

The International Association of Structural Movers (IASM) is the 501c-4 professional organization comprised of member companies involved in projects to elevate and or relocate buildings for flood hazard mitigation.

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There are three main phases in these flood hazard mitigation elevation/relocation projects: FINANCING, PLANNING / DESIGN AND IMPLEMENTATION.

FINANCING

1. EVALUATE FINANCING OPTIONS
   - Are there elevation grants available? Local government will have information.
   - If the property has flood insurance, the Initial Cost of Compliance (ICC) is currently a $30,000 one-time payment to the policy holder if the home is over 50% damaged and there is a claim on the policy.
   - Small Business Administration (SBA) – if the building is 10% or more damaged by flooding, the SBA allows up to $200,000 in additional loan funding to elevate.
   - FHA203 K loan/mortgage – This is a financing package available from any bank. There is a construction loan followed by a conversion into a 30-year mortgage. The total funding available is $240,000.
   - As always, cash or equity financing is the easiest for the contractors and the customer.

2. PLANNING / DESIGN

   ELEVATION CERTIFICATE AND OR A LAND SURVEY (if required)
   The FEMA elevation certificate is the document that establishes the current elevation and final required elevation of the building and adjacent land. It is also the form that sets the National Flood Insurance Program flood policy rates. A current land survey is required by certain communities so they can evaluate the project designs in relation to the zoning requirements like set-backs and height.

   ENGINEERED FOUNDATION AND ARCHITECTURAL DESIGNS
   The new or additional foundation must be designed in compliance with the American Society of Civil Engineers (ASCE) flood zone construction requirements, ASCE 24 & 7 are the publication numbers. The foundation work on these projects is always more than half of the project costs. In addition to the foundation design requirements, we need to consider what the result of the project will look like. Remember these buildings are elevated off the original foundation.

3. IMPLEMENTATION

   UTILITY DISCONNECTS / PREPARE STRUCTURE FOR ELEVATION
   Once the permits are in place, portable toilets are on site and any fencing required by local government is in place. Portable toilets are on site and any fencing required by local government is in place. Any vegetation salvage needs to be accomplished. Then bracing of the building and or porches, in addition to stair removal, needs to be done. If the building is brick clad, many companies remove the brick and later install siding. If there is a brick edge incorporated in the slab, then the brick façade can be elevated with the building. Utilities preparation is different in every community. Make sure to check with the building department for their requirements. Some communities allow gas shut off and sewer/water disconnect, which is the easiest and least expensive. Other communities require complete capping of some or all utilities with a demolition permit and all new utilities installed. This is a very expensive alternative.

   STRUCTURE ELEVATION / RELOCATION

   SLAB ON GRADE
   The slab on grade has two types of construction and therefore has two types of projects to elevate:
   - STRUCUTRAL SLAB ON PILES (slab and grade beam foundations powered on one time)
     These foundations typically have piles, usually wood, to support the foundation. Excavation exposes the piles under the foundation and helical or segmented block piles are driven next to the original piles. The grade beams are excavated at the site of lifting cribs. Crib jacks and slab support jacks are installed.
   - NON-STRUCTURAL SLAB (separate footing and slab)

Sometimes, structural engineers will certify the original foundation is strong enough to support additional vertical walls or piers to set the building back down on. To elevate the building off of the original foundation, all furnishings need to be removed and stored. Carpeted or wood floors need to be removed. The lower four feet of drywall needs to be removed, along with lower kitchen cabinets, bathroom fixtures and cabinets. The entire building must have horizontal boards furred to the vertical studs and steel lifting beams placed under the horizontal boards on cribs. Crib jacks and air or toe jacks are installed.

- PIER AND BEAM

   The cribs and structural steel are delivered to the site and the existing foundation, crawl space or basement is opened up to receive the steel. The cribbing is “bedded” into the ground in predetermined areas according to the new foundation design. Some communities require deeper crib bedding, so double check on their requirements. Next, the lifting steel is inserted under the building/wood frame and the lifting equipment is installed. Lift the building higher than the required height for foundation work. Lift off foundation and roll off to perform the foundation work.

4. CONTRACT ESTIMATES
   If it is a grant program job, most states/communities require two to three estimates using the plans generated in step two. If it is a “turn key” job where the GC manages the entire project, the estimate is generated after the design phase in step three. GC members need to carry workers’ compensation, liability and riggers/cargo/care and custody type insurance, because once the building is off its foundation the homeowner’s policy no longer covers the building and contents. The community and property owners should have a copy of your coverages.

5. CONTRACT SIGNING AND PERMITS
   If the project is grant funded, there is an additional contract documents the GC will need to sign that are approved by the community and, usually, the state. In addition, many communities are now requiring bonding to insure completion of the project. If the project is a private contract, then just your contract is sufficient. Some communities require a beam/crib design be submitted as part of the permitting processes. The permitting authority will review the plans, note any needed plans changes and issue a construction permit.

6. FOUNDATION
   a. Remove and rebuild the old foundation. Many older buildings have substandard foundation design and construction. These foundations need to be removed completely and a new foundation constructed to the plans design.
   b. Add to the old foundation. In some cases, the structural engineer design will allow the reuse of the existing foundation and the new elevated porting to be added.

7. LOWER HOME ONTO NEW / IMPROVED FOUNDATION
   The relocated or elevated building is placed onto the new foundation. The building always needs to be strapped down to the new foundation in order to meet the building codes. Some property owners may wish to strap several or all of the vertical studs to improve high wind survivability. An added wind measure is to strap the wall studs to the rafters at the top plate/rafters connection.

8. RECONNECT UTILITIES, BUILD STAIRS / RAMPS
   All of the utilities are reconnected and the final stairs, landings and any exterior porches are now built according to the construction plans.

9. FINISH CLEANING, CONCRETE WORK, SOD/GRASS
   A final cleaning and the final code inspection is completed to finish the job.

10. CONSTRUCTION AND IMPROVEMENTS
   After the building is raised, utilities are reconnected, and all exterior porches and steps are constructed, the exterior finishes are completed. Some communities require complete capping of some or all utilities with a demolition permit and all new utilities installed. This is a very expensive alternative.