

Nonstructural Mitigation Assessment for the City of Annapolis Historic District - Annapolis, MD

Evaluation of Flood Proofing Measures

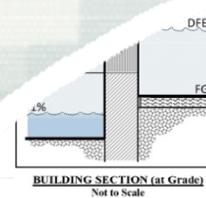
Stephen D. O'Leary AIA, CFM
USACE – Nonstructural Flood Proofing Committee
Architect/ Planner/ Project Manager



9 July 2015



US Army Corps of Engineers
BUILDING STRONG®



PROJECT SCOPE

What did we do?

- Visual Reconnaissance Level Assessment of Prototypes Structures
 - Various building Types
 - Exterior
 - Interior (some structures)

What were our goals?

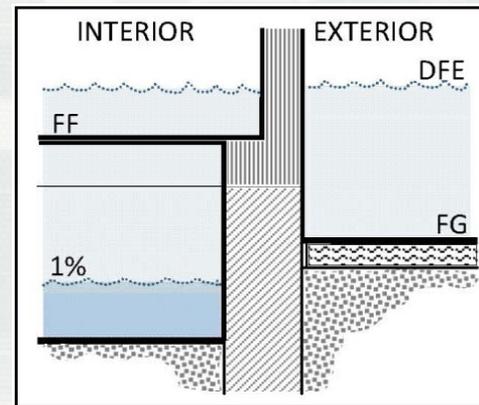
- Assess structures and determine viable measures to reduce flood damages for:
 - Flood event/level
 - Or maximum height flood event/level
- Recommend multiple measures and/or combination of measures
- Different flood levels 1% (100 yr), .2% (500 yr) Design Flood Elevation
- Basic / Fundamental → → → → Best / Optimum
- Identify Pros & Cons
- Costs – Provide a cost magnitude



Document Structure

Visualize Risk

Assess & Recommend



BUILDING SECTION (at Grade)
Not to Scale



COMMON NONSTRUCTURAL MEASURES



Elevation



Acquisition (buyout / demolition)



Relocation

- Individual Structures
- Multiple Structures / Communities



Dry Flood Proofing



Wet Flood Proofing



Berms and Walls



Flood Warning & Emergency Evacuation Plans / Systems



Other

- National Flood Insurance Program (NFIP)
- Floodplain Management
- Land Use Regulation (Zoning / Building Codes / Green Construction)



ASSESSING THE SITUATION



Flood Characteristics

Flood depth, Flood velocity, Flood duration, Rate of rise, Debris/Ice flows, Wave action, Floodway, Other(?)

Site Characteristics

Location, Soil type, Topography, Site size, Urban/Rural

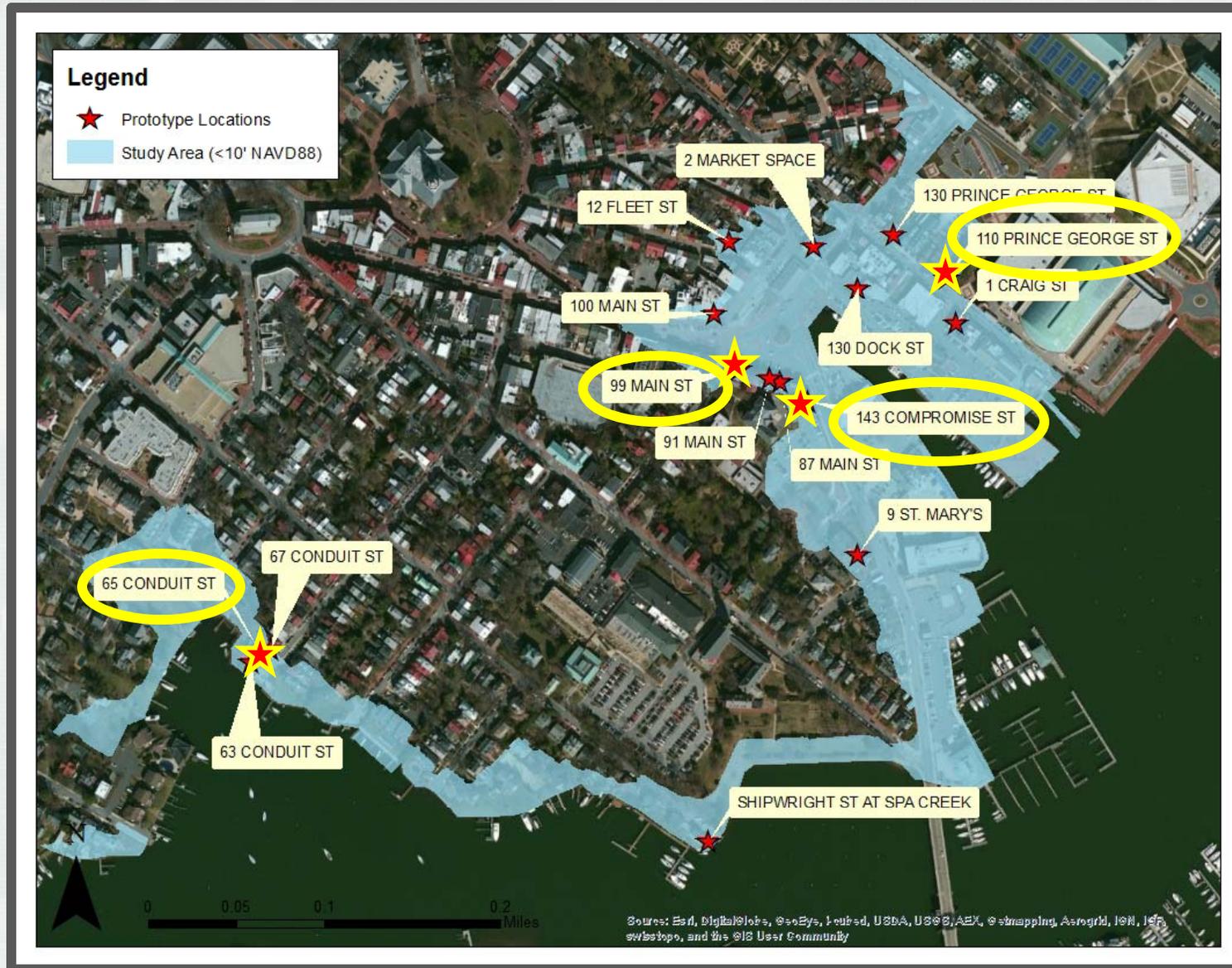
Building/Structure Characteristics

Type of construction, Foundation, **Condition of the building**, Lower levels (Basement), **Historical Significance**, Building modifications

Other Considerations

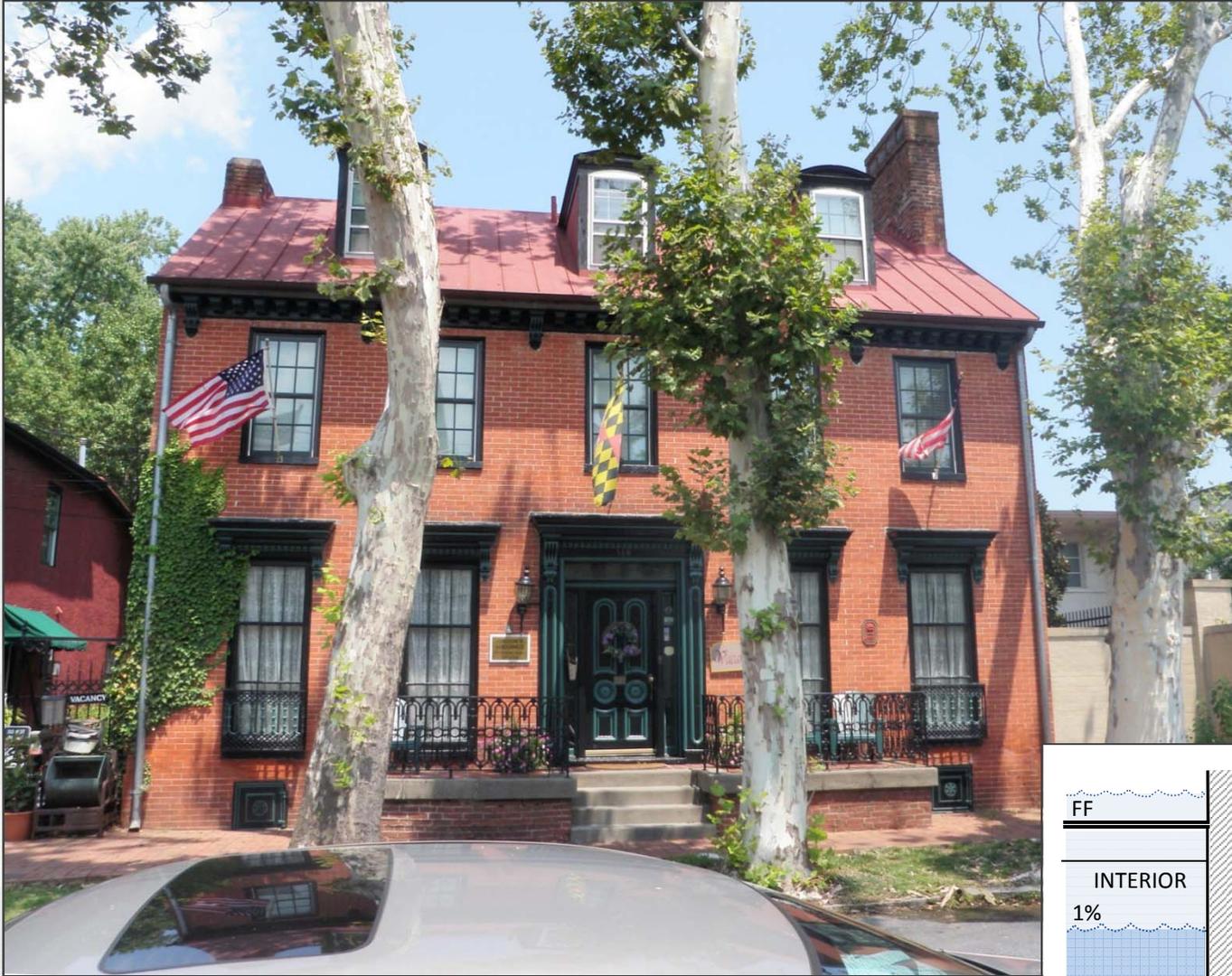
Building Occupancy, Building Codes, Zoning **Ordinances and Local Restrictions**, Other Agencies (Local / State / Federal), **Aesthetics**, Public Health/Safety/Welfare, **Future Conditions**, Other(?)





Annapolis, Maryland





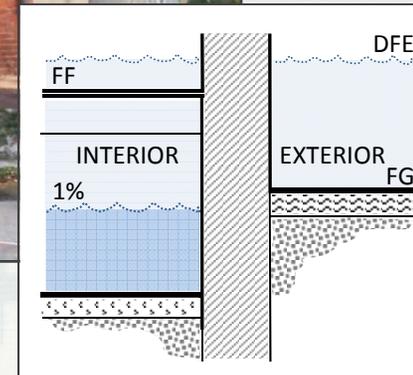
Gibsons Lodgings
110 Prince George Street



Basement – Rear Entry



Basement



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Basement Storage



Basement Storage /
Electric Panel



Basement-
Storage/Appliances/Utilities



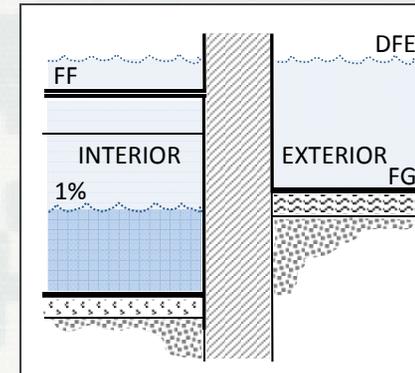
Basement- Water Heater



Basement – Sump



Elevate / Relocate Utilities & Appliances



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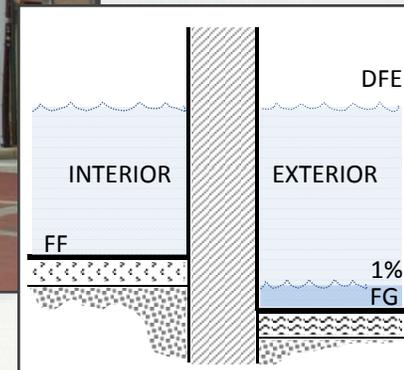
Historic Annapolis Museum
99 Main Street



Rear Equipment/Exit Stair

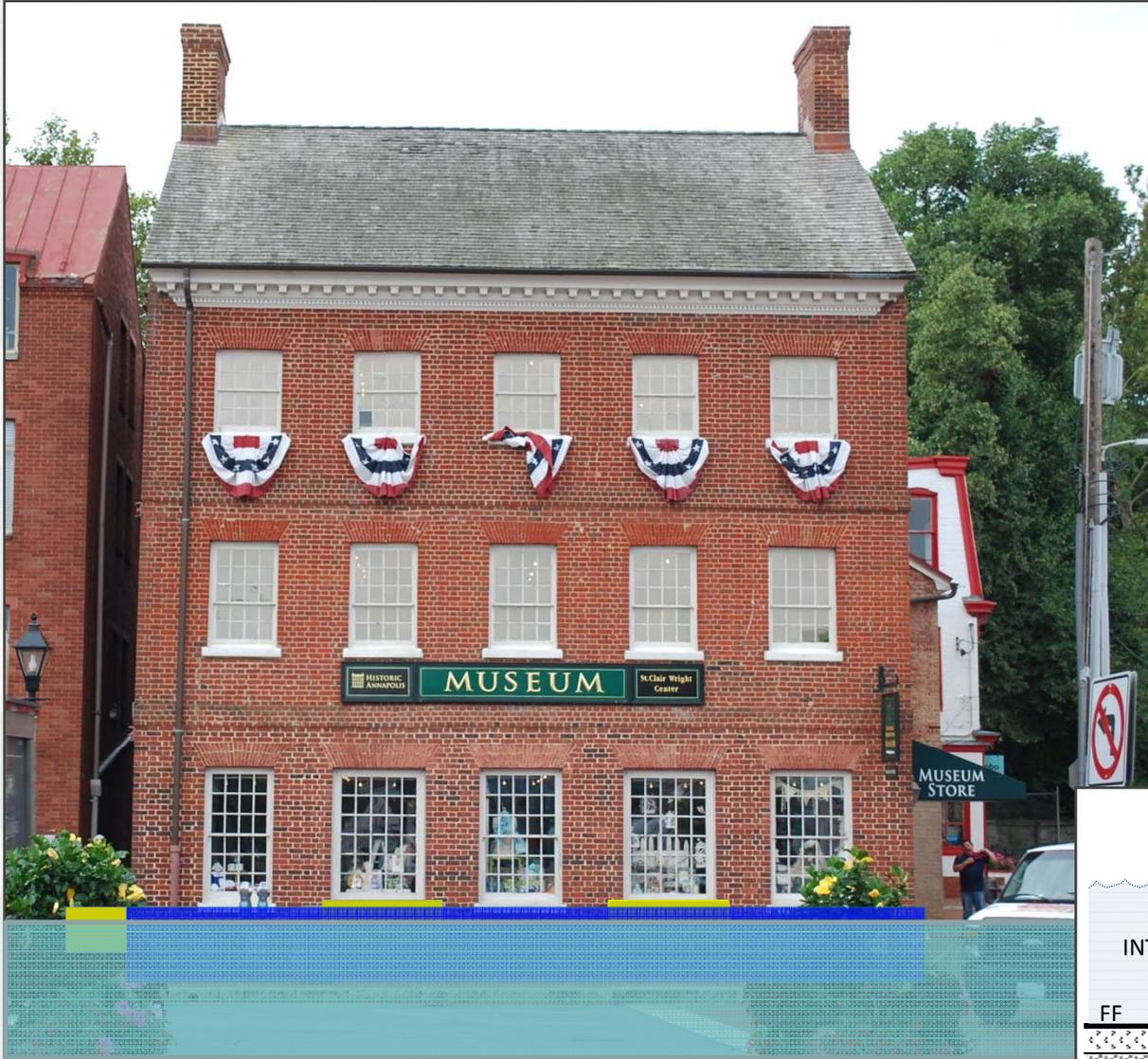


Alley



BUILDING SECTION (at Grade)
Not to Scale

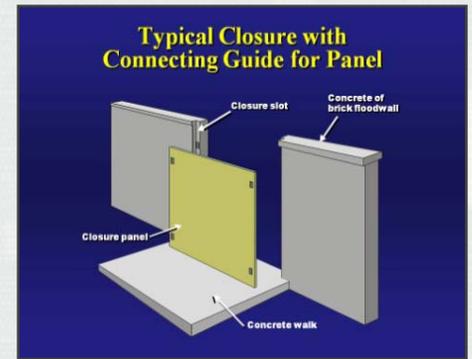




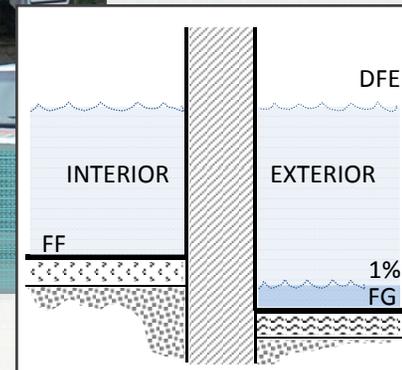
Historic Annapolis Museum
99 Main Street



Temporary Barrier



Closure/Shield



BUILDING SECTION (at Grade)
Not to Scale

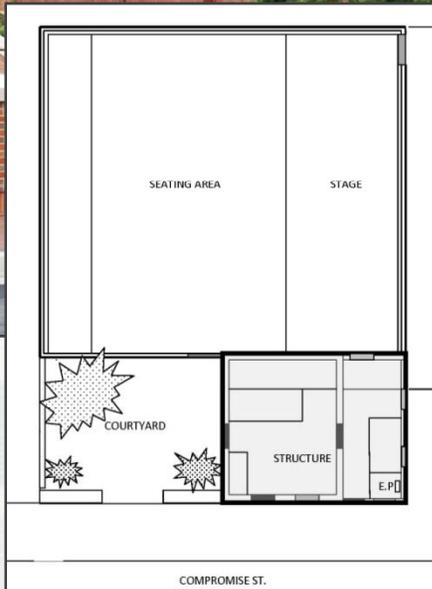


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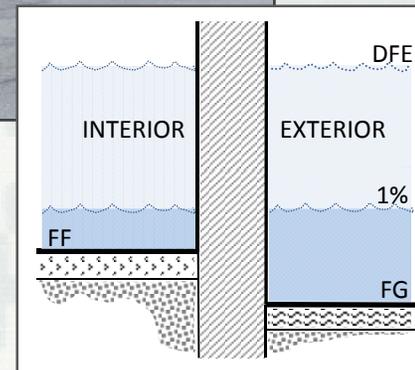


Interior Opening



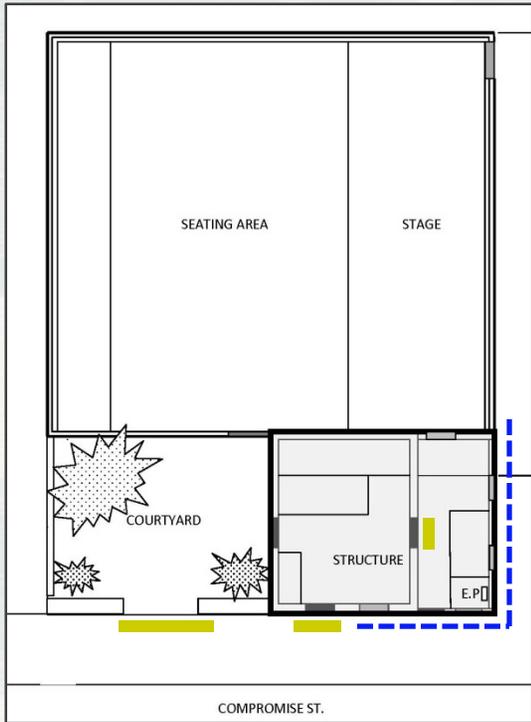
SITE PLAN
Not to Scale

Annapolis Summer Garden Theater
99 Main Street



BUILDING SECTION (at Grade)
Not to Scale

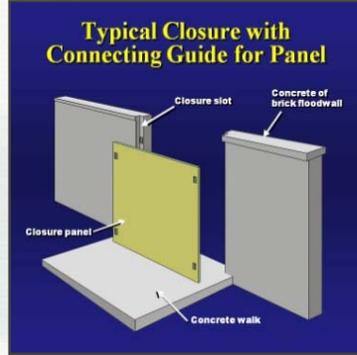




SITE PLAN
Not to Scale



Elevated Equipment



Closure/Shield



Temporary Barrier

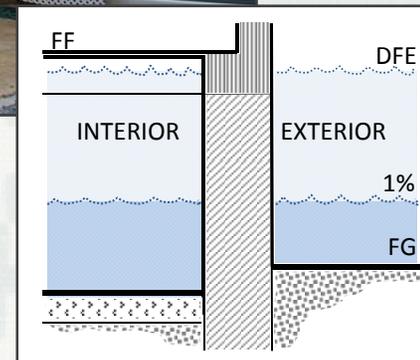


Annapolis Summer Garden Theater





Residence
65 Conduit Street



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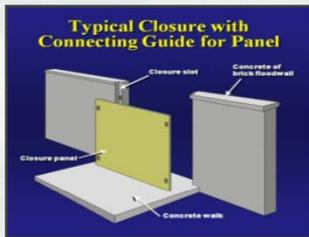


Basement Equipment/Utilities/Storage

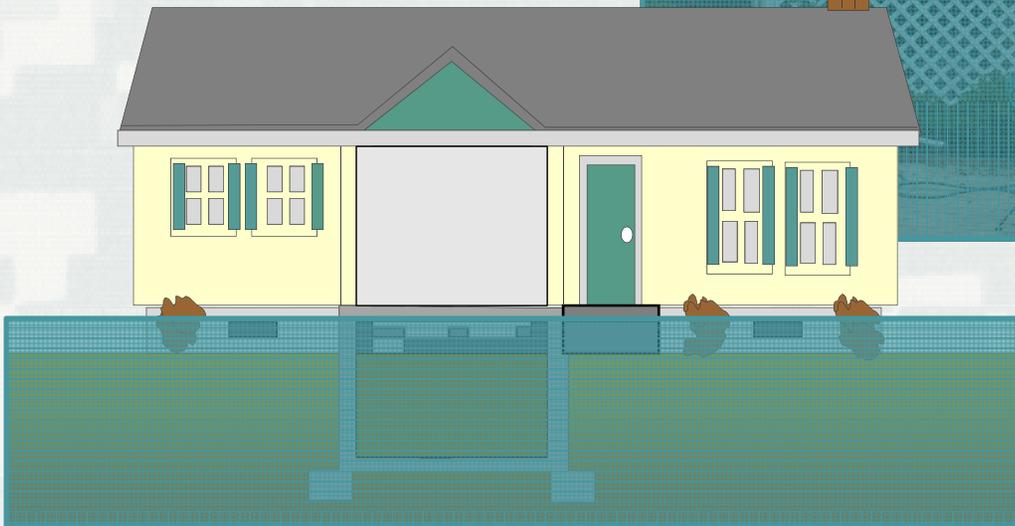
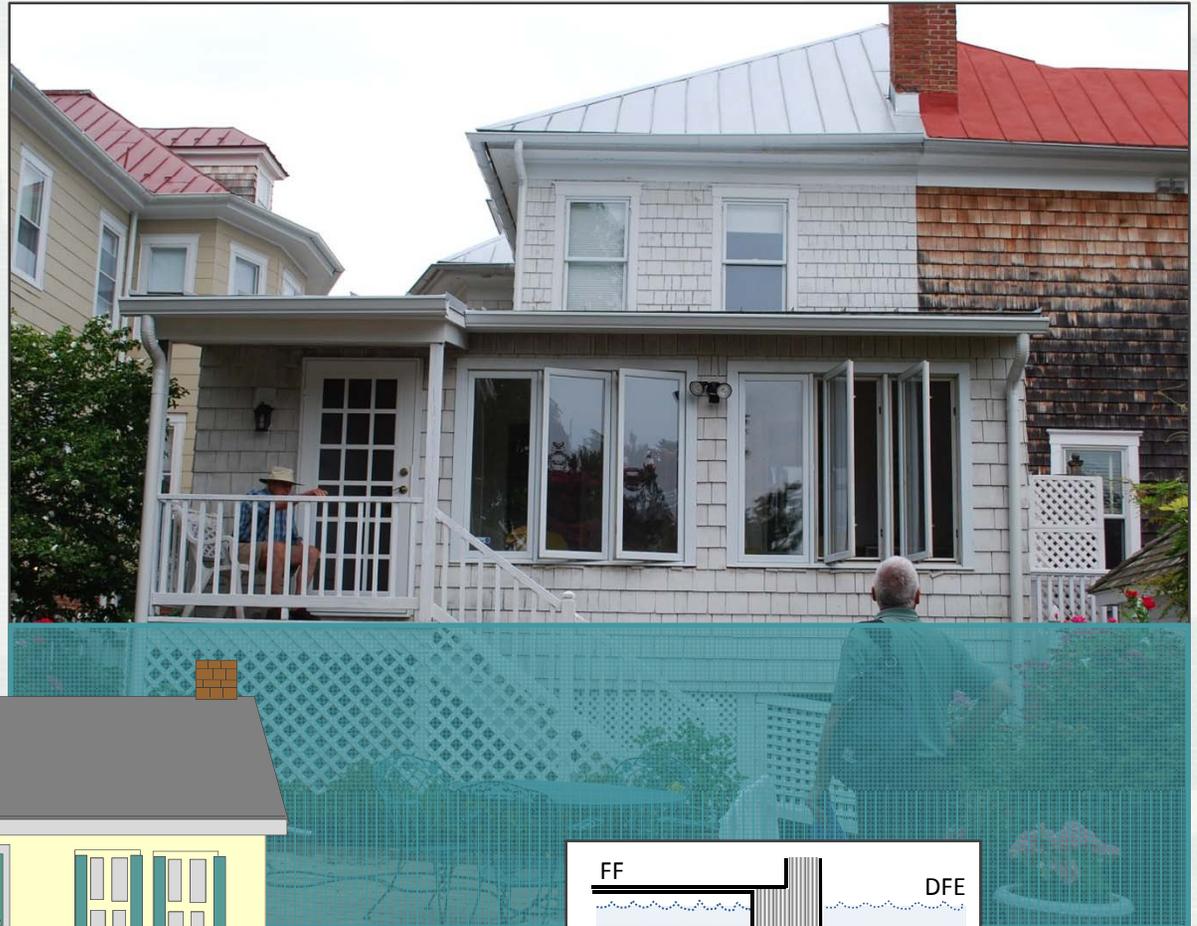




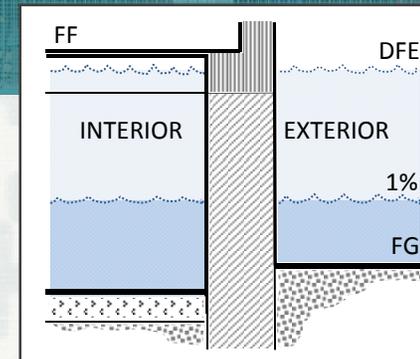
Elevated Equipment



Closure/Shield



Elevate / Relocate Utilities & Appliances

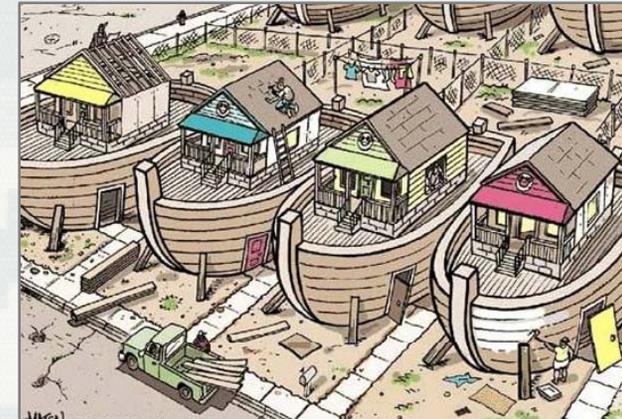


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QUESTION?



Stephen D. O'Leary, AIA, CFM
stephen.d.oleary@usace.army.mil
(304) 399-5841

