Resiliency in Flood Hazard Areas

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Town of Old Saybrook

D.E.S.I.G.N and TRADES CONFERENCE
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CONNECTICUT DEPARTMENT OF ADMINISTRATIVE SERVICES

Construction Institute

FEMA

A Review of the Requirements of:

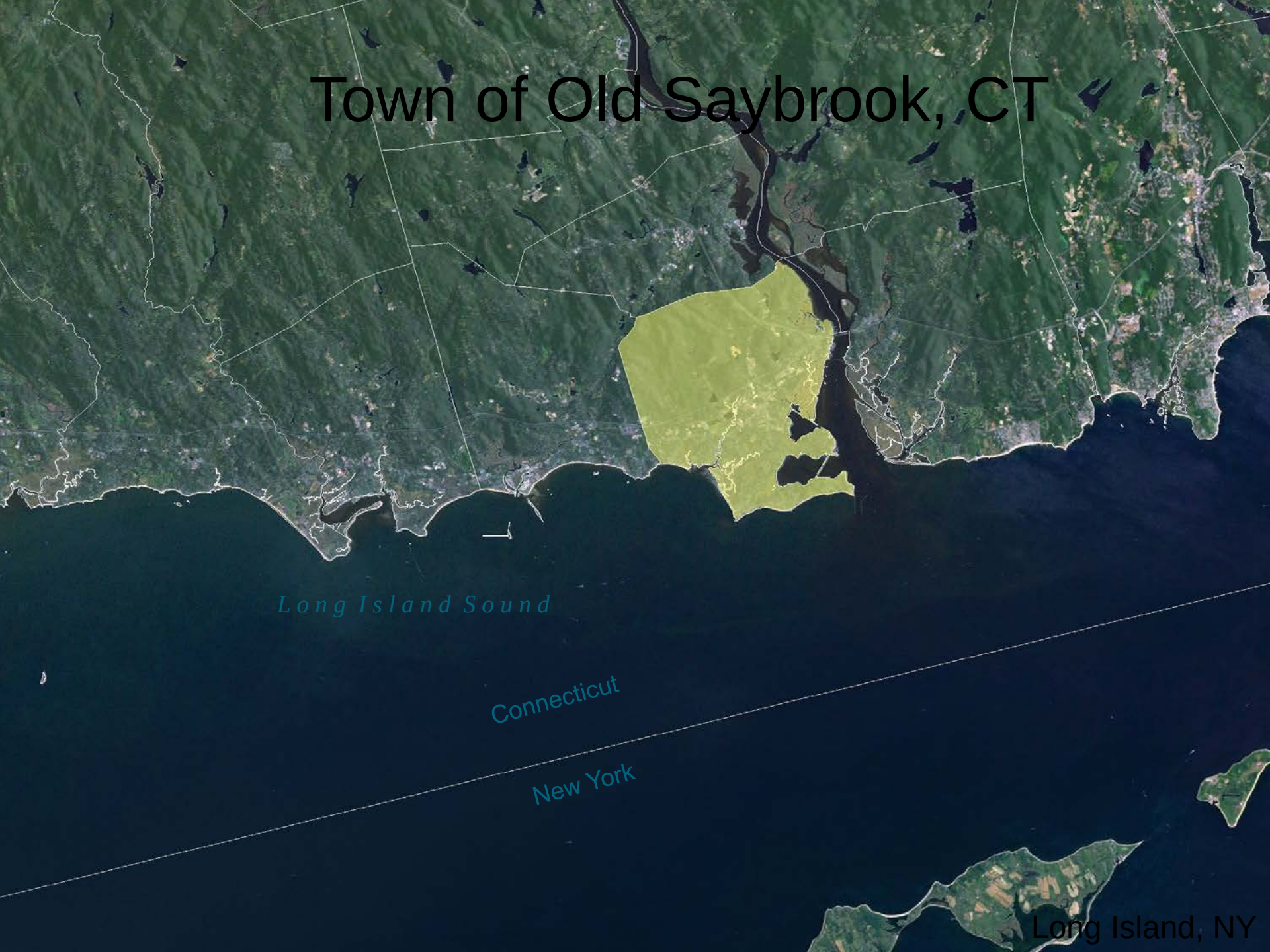
1) State of Connecticut
International Residential Building Code

2) Federal Emergency Management Agency
(FEMA) Regulations

3) Local Municipal Flood Regulations

A Bit of Background

- Old Saybrook has been actively participating in the National Flood Insurance Program (NFIP) since the early 1990's.
- The Town established protocols to address applications in flood zones. This started as a simple check box on the Certificate of Zoning Compliance.
- These protocols have evolved over the years into an in-depth comprehensive program which has been used by DEEP as a model for other towns.
- Our protocols have changed and grown to address the seemingly infinite attempts by owners and agents to circumvent the intention of the NFIP.


Town of Old Saybrook, CT
Long Island Sound
Connecticut
New York
Long Island, NY

Town of Old Saybrook 2013
Aerial Photograph
Connecticut
River
Long Island Sound

Town of Old Saybrook , CT
2013 Flood Insurance Rate Map
Connecticut River
Long Island Sound

CAUTION
CAUTION

The Intent of the NFIP

"The NFIP is a program to mitigate future flood losses nationwide through sound, community-enforced building and zoning ordinances and to provide access to affordable, federally backed flood insurance protection for property owners.

The NFIP is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods.

Participation in the NFIP is based upon an agreement between local communities and the Federal Government dependent upon the community adopting and enforcing floodplain management ordinances."

FEMA F-084

What does all that mean?

- "Federally backed flood insurance protection" – The Federal Government subsidizes the insurance policies in order to maintain lower insurance premiums for property owners.

- "Alternative to disaster assistance" – Without the NFIP coverage, property owners who sustained damage would exert pressure to declare a "disaster" in order to receive assistance in recovery. The program is primarily attempting to minimize future losses ("disasters").

- "Local participation" – Each community must adopt and maintain an acceptable program in order for property owners to qualify for the subsidized insurance.

Why should this concern you?

YOU and I are the funding source for the "Federally backed flood insurance protection" program.

WE are assisting our neighbors who sustain losses from flood events who are covered by this program – an admirable thing to do.

HOWEVER, we are also subsidizing insurance rates for owners who have their "summer homes" located in flood zones and, in some cases, have a history of repetitive flood losses.

Resiliency

The ability to recover from or adjust easily to misfortune or change.

This is the goal of the entire FEMA Flood Insurance Rate Map program.

Turn off the power, evacuate, return after the storm, and turn the power back on!

So we now know the intention
is to vacate the house,
take shelter,
wait out the storm,
and then
return to our home
with nothing more to do
than sweep the sand off
the deck.

How do we do that?

Getting Started –

1) Determine your Flood Zone from FEMA NFIP Maps
(National Floor Insurance Program)

Check with your local municipality to determine if the maps are in a review/revision cycle (CRITICALLY IMPORTANT)

This establishes you BASE FLOOD ELEVATION (BFE)

2) Understand Zone Designations

V Zone – Velocity Zone -
subject to direct impact from waves

LiMWA – subject to limited wave action – waves 1.5 to 3 feet high

A Zone – subject to flood hazard

AE-LIMWA
(EL 12)
AE
(EL 12)
VE
(EL 14)
BEACH ROAD EAST
BEL-AIRE DRIVE
COTTAGE AVENUE
BUSS STREET
CHANDLER
CRANTON
BEACH ROAD
CHALWER STREET
AVENUE
NEPHANTIC

3) Understand Local Regulations

A) Most likely vary between municipalities

B) May require additional freeboard (elevation) – This could change your Base Flood Elevation (BFE)

C) "Lookback" period is set by individual towns

D) May have additional restrictions

Bottom Line – Communicate with local officials

4) Determine "Fair Market Value" of the structure under consideration

A) Municipalities usually use Tax Assessor's appraisal as basis of value

B) Value does NOT include the value of the land, just the structure

C) Can appeal the value – however, this could result in increased taxes!

5) Determine Scope of Proposed Work

A) If project is a "blank sheet" – empty lot – proceed to design phase

B) If project is a "substantial improvement" or if structure is "substantially damaged", the entire structure must be elevated

DEFINITION: "Substantially damaged" –
NOTE: The Building Code does not provide a definition for this term.

SUBSTANTIAL IMPROVEMENT (SUBSTANTIAL DAMAGE)

FEMA: *"Substantial Improvement" means any rehabilitation, addition, or other improvement of a building when the cost of the improvement equals or exceeds 50 % of the market value of the building before start of construction of the improvement. The term includes buildings that have incurred "substantial damage" which means damage of any origin sustained by a building when the cost of restoring the building to its pre-damaged condition would equal or exceed 50% of the market value of the building before the damage occurred.*

Substantial damage is determined regardless of the actual repair work performed.

Substantial improvement or damage does NOT include any work for the improvement of a building to *correct existing violations* of state or local health, sanitary or safety code specifications identified by local code enforcement officials as the minimum necessary to ensure safe living conditions *before the casualty*.

NOTE: Historic buildings exempted.

SUBSTANTIAL IMPROVEMENT

For projects under the 50% threshold,
we include a statement such as:

"The cost of the current proposed improvement, plus improvements since 2012, as a % of the current market value of the structure is 41.45%. Should the cumulative % exceed 50% at any time through June 2022 (this date began with the first improvement project in June 2012), then the entire structure must be made to conform to all applicable Special Flood Hazard Area requirements".

This example uses a previous improvement date of June 2012.

NOTE:

If the estimated cost of a project falls below the 50% threshold (including the lookback period), the project does not need to meet the design flood elevation. However, flood insurance premiums could be very costly. Lenders may not issue a mortgage without flood insurance.

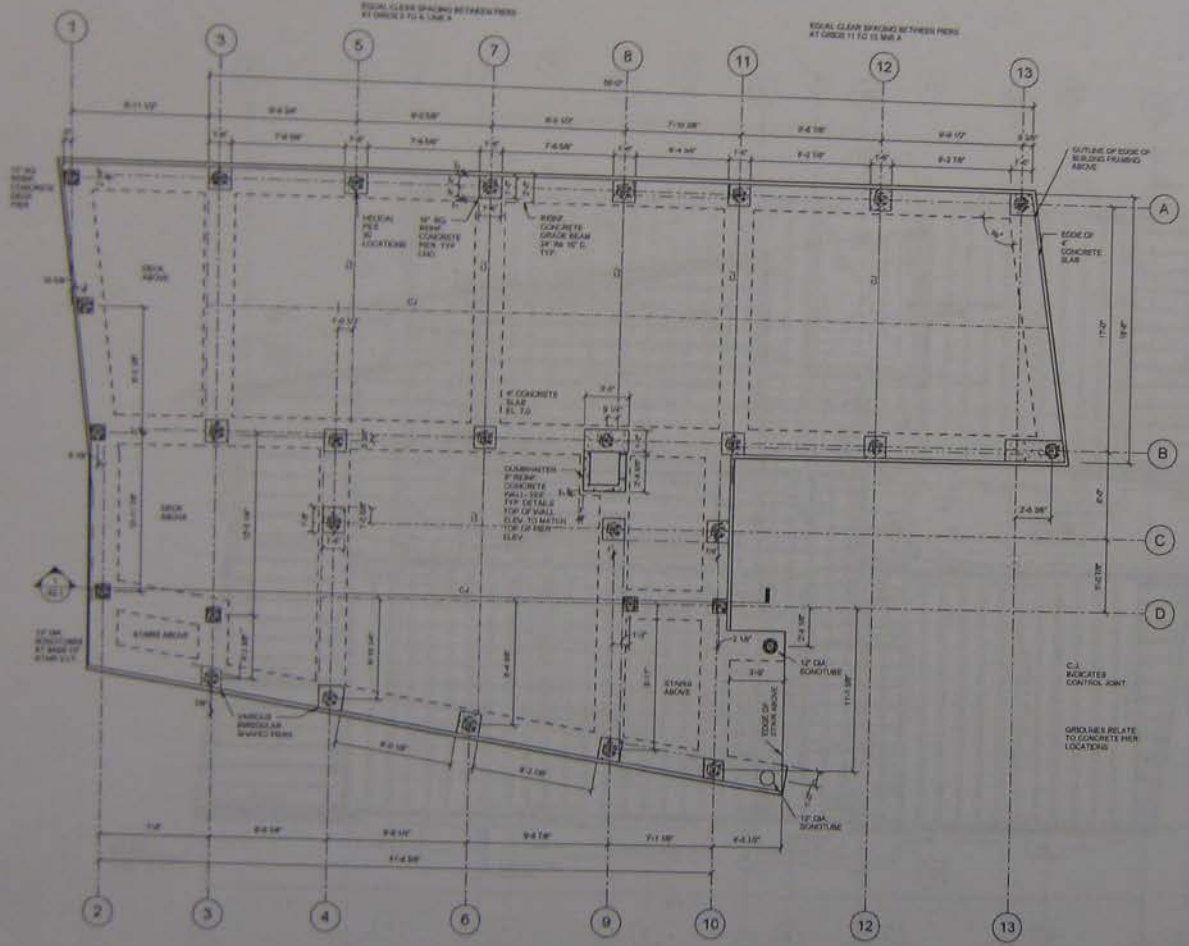
6) Prepare Design Drawings – V Zones

A) If project is in a "V" zone, the foundation MUST be designed by an Engineer

B) Engineered design must consider wave action and scour effects

C) Can have enclosed area under house IF walls are designed as "breakaway"

D) Towns can require written statement from wall designer stating walls meet specified design



NOTE:

DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE OBTAINED FROM THE ARCHITECTURAL DRAWINGS AND ARE INCLUDED AS INFORMATION COMPLEMENTARY TO THE ARCHITECTURAL DRAWINGS.

LAYOUT OF THE BUILDING FOUNDATION OR OTHER ITEMS MAY BE MADE USING THE DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS ONLY IF THE CONTRACTOR HAS COMPARED THESE DRAWINGS WITH THE ARCHITECTURAL DRAWINGS AND HAS RECEIVED CLARIFICATION FROM THE ARCHITECT REGARDING ANY ERRORS, INCONSISTENCIES OR OMISSIONS.

THE CONTRACTOR SHALL CHECK ALL DIMENSIONS AND DETAILS AGAINST THE ARCHITECTURAL DRAWINGS.

SHEAR WALL NOTES

1. SHEAR WALL LOCATIONS ARE NOTED ON PLANS AS SW.
2. SIMPSON HOLDDOWNS OR STRAPS AT EACH END OF SHEAR WALL PANEL POST PER PLAN.
3. UNO, DOUBLE UP WOOD FRAMING AT SHEAR WALL CHORDS OR USE SOLID WOOD POST AT EACH SHEAR WALL PANEL END.
4. PLYWOOD SHEATHING 15/32" NAILED WITH 10d (COMMON WIRE NAIL SIZE) AT 4"o.c. AT PANEL EDGES AND 12"o.c AT FIELD.
5. NO HORIZONTAL JOINT IN SHEATHING FOR A MINIMUM OF 1 FT ABOVE AND BELOW RIM BOARD.
6. SOLID BLOCK AT ALL PANEL EDGES WITH DIMENSIONAL SIZE TO MATCH FRAMING.
7. SIMPSON SET EPOXY TIE ADHESIVE FOR HOLDOWN ANCHORS WHERE EMBEDDED INTO FOUNDATION, IF APPLICABLE.

REV.3
12SEP2015
ELIMINATION AREA
4 TYP. DETAILS

REV. 1
12DEC2014
DIMENSIONS ADDED AT
GRID 4.8 & 10 TO D

GNCB
Consulting Engineers, P.C.
130 ELM STREET
POST OFFICE BOX 802
OLD SAYBROOK
CONNECTICUT 06475
PHONE: 860 388 1224
FAX: 860 388 4613
GNCBENGINEERS.COM

115 PLUM BANK ROAD
OLD SAYBROOK, CT

FOUNDATION PLAN

CONSTRUCTION PHASE

S1.1

7) Determine Soil Characteristics

A) Soil borings may be required if soil conditions are unknown

B) In "A" zones, simple frost protected foundations with spread footings may be adequate.

C) CAUTION – some beach areas have been created by past storms or dredging operations – underlying soils may not be suitable

.

Options for Foundations

A) Spread footings

B) Driven Pilings

1) Timber

2) Steel pipe

3) Helical Disc

Options for Foundations

A) Spread footings

Traditional spread footing may suffice or wider footing required by soil conditions.

Following are examples of spread footings.

96

110

Options for Foundations

B) Driven Pilings

1) Timber

2) Steel pipe

3) Helical Disc

9

Framing Considerations

- ALL building materials below the Base Flood Elevation MUST be flood resistant materials.
- Foundation anchors to be stainless steel or heavy duty galvanized.
- Any wood below BFE must be flood resistant – framing, sheathing, stair stringers, door jambs, window frames, etc.
- Any electrical items must be waterproof (lights, switches, etc.)
- Insulation must be flood resistant.
- Stairway railings and guards must be flood resistant.

Cautionary Note

In the Town of Old Saybrook, our flood review engineer includes the following note in his letter of approval:

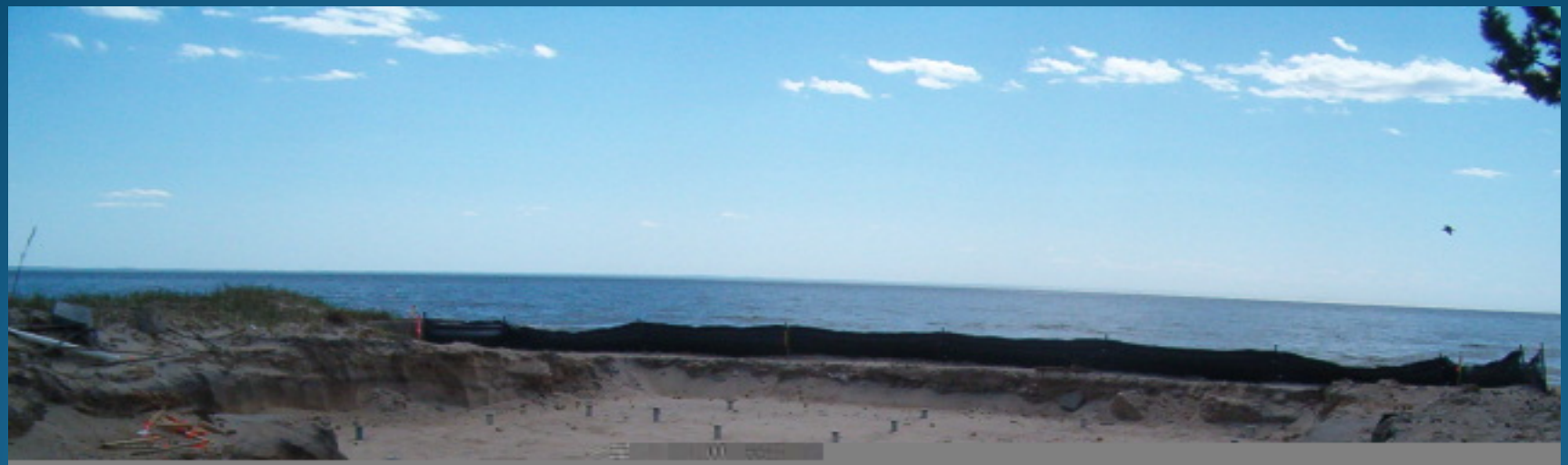
"No mechanical equipment or utilities of any kind shall be permitted below the design flood elevation of _____ NAVD 1988 (this includes, but is not necessarily limited to, water supply, heating, air conditioning, duct work, electric, telephone, cable TV systems, or other service facilities, and specifically includes all electrical panels, outlets and switches, lights, furnace, hot water heater, fuel tank, etc.). In this regard, we would recommend that the contractor pay particular attention to placement of the electric meter (which will require access for the meter reader), compressors and heat pumps (which will need to be placed on cantilevered platforms with all supporting elements above the design flood elevation), fuel tanks (which must be elevated or

Cautionary Note (continued)

anchored), heating/cooling ducts (the bottom of which must be above the design flood elevation), and exterior light switches (consider motion detectors). All of the aforementioned items have created issues on similar type projects. In addition, all utility risers shall be placed on the landward side of vertical foundation members with water tight risers and seals extending up to or above the design flood elevation of _____ NAVD 1988.

NOTE: Emphasis is on quick re-occupancy of structure – resilience!

Let's Start Construction



Saye Street
2 Homes Destroyed By Fire

A Close Call

Top Three Public Responses To Flood Permitting - Post Sandy

- "Just Tell Me How High I Have To Go And Give Me My Permit."
- "Do You Have Any Names Of House Jackers?"
- "I'm Outta Here – For Sale By Owner"