2018 SAME NOVA Post

U. S. Coast Guard Civil Engineering

Managing by Disaster

4 January 2018

Chief of Civil Engineering | CAPT John Healy
Managing by Disaster

- Recent Coast Guard Hurricane History
- What’s the Design Strategy?
- Summer 2017
  - Harvey Response
  - Irma Damage
  - Maria Damage
- Is there money to rebuild?
- Is there money to rebuild for resiliency?
Historical CG Shore AC&I Funding

* Equivalent to DOD MILCON

Notional for Harvey, Irma, Maria?
HURRICANE IKE Devastation

STA Sabine:: Surveyed Hurricane Harvey CAT IV

STATION SABINE: Destroyed by Hurricane IK CAT IV

OPBAT GREAT INAGUA: Destroyed by Hurricane Ike CAT IV

OPBAT GREAT INAGUA:: Surveyed Hurricane Matthew (CAT III and Hurricane Irma Cat IV)
Superstorm Sandy Building Resiliency

Building 5 STA NY

BMF STA Atlantic City

Waterline

MMB Sandy Hook Rendering STA Sandy Hook MMB

Rendering STA NY MPB

Rendering STA Atlantic City BMF
After Hurricanes KATRINA, IKE, and SANDY, the USCG used one of three choices to establish siting plans for damaged facilities:

1. Defend against the weather elements
2. Abandon the current location and relocate to higher elevation
3. Adapt the facilities to be more resilient

Sandy Hook, NJ

Typical 500 & 100 Year Flood Plain Map
Primary Resiliency Features

- Flood Elevation
- Wind Resistance
- Material Selection
- Emergency Power
Wind Design Considerations

<table>
<thead>
<tr>
<th>All 15 USCG Facilities addressed Wind Design</th>
<th>Coast Guard Specified:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 projects</td>
<td>Design Wind Speeds</td>
</tr>
<tr>
<td>3 projects</td>
<td>Design Occupancy Categories</td>
</tr>
<tr>
<td>6 projects</td>
<td>Design Wind Speeds AND Occupancy Categories</td>
</tr>
<tr>
<td>3 Projects</td>
<td>Project to be Designed IAW ASCE 7 &amp; IBC</td>
</tr>
</tbody>
</table>

BEST PRACTICE: Reduces unnecessary costs and avoids confusion with minimum design requirements.
**Flood Elevation Design Considerations**

<table>
<thead>
<tr>
<th>Only 8 USCG Facilities addressed Flood Elevation</th>
<th>Coast Guard specified:</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 projects</td>
<td>Critical floors above 100 year flood plain</td>
</tr>
<tr>
<td>3 projects</td>
<td>1 to 2 ft above 500 year flood plain*</td>
</tr>
<tr>
<td>1 project</td>
<td>“Minimize damage”</td>
</tr>
</tbody>
</table>

*Due to anticipation of Executive Order 13690*
Construction Material Selection

- Standing Seam Metal Roofs
- Exterior weather barrier & sealants with flashing systems
- Roll down/ Bahama shutters
- Masonry/concrete exteriors

Roof Damage Cape May, NJ

New Standing Seam Roof Atlantic City, NJ
# Emergency (EM) Power Requirements

<table>
<thead>
<tr>
<th># of Facilities</th>
<th>Installed GENSET System Powers</th>
<th>Temporary GENSET connection Powers</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Vital Loads Only</td>
<td>n/a</td>
<td>Type 1</td>
</tr>
<tr>
<td>4</td>
<td>Vital Loads Only</td>
<td>All Loads</td>
<td>Type 2</td>
</tr>
<tr>
<td>5</td>
<td>All Loads</td>
<td>n/a</td>
<td>Type 3</td>
</tr>
</tbody>
</table>

- Relocate primary transformers, switch gear, emergency generators, fuel tank, HVAC and electronics to protected areas.

- Strategies include placement on elevated pads / platforms or installing on first elevated floor above the 500 yr floodplain.

**BEST PRACTICE**: Minimizes size of installed GENSET & reduces onsite fuel storage while allowing support for vital loads with the option of full power generation.
Summary

- When impractical to build above flood zone, ground floor designed to survive flood effects.
- Storage for first floor equipment integrated into 2nd floor layout.
- Resilient features incorporated to expedite post-storm recovery.
- Future command & control facilities be built to the ASCE/IBC Risk Category IV standards.
Hurricane Harvey brought devastating flooding, strong winds, and substantial storm surge to the coast of Texas from August 25th through the early afternoon hours of August 29th, 2017. The storm washed out major roads, destroyed waterfront properties, knocked out power for 3.4 million people and resulted in 63 reported deaths.
Hurricane Harvey Pre-Deployment (Day 1)
Hurricane Harvey DAT Team Locations

DAT 1, 2, 3, & 4 from Miami, FL
DAT 5 from Providence, RI
Hurricane Harvey Repair Team Response

RT 1 from St. Louis
RT 2 from Detroit
RT 3 from New Orleans
Harvey Damage

Corpus Christi - Roof membrane peeled back numerous locations.
Harvey Damage

Port Aransas – Boat House Destroyed
Harvey Damage

Port O’Connor – Roof Lifted off and loose columns
Harvey Damage

STAT Houston ...Fared well; minor roof damage

STA Houston Boathouse – High water levels and intrusion into the boat house.
Hurricane Irma brought devastating flooding, strong winds, and substantial storm surge to the Eastern Caribbean and Florida from Sept 6th through the early morning hours of September 11th, 2017. The storm washed out major roads, destroyed waterfront properties, knocked out power for 7 million people and resulted in 37 reported deaths.
Irma Damage

Key West – High water level and wind damage
Key West – Pier washed out from storm surge
Marathon – Interior water damage to housing from the roof
Hurricane Maria brought devastating flooding, strong winds, and substantial storm surge to Puerto Rico and the Eastern Caribbean from September 19th through September 22nd, 2017. The storm resulted in 68 reported deaths and Puerto Rico was left entirely without electric power, its electrical grid having been effectively totally destroyed.

Coast Guard personnel survey the damage to an oil dock after Hurricane Maria passed through the area in San Juan.

Maria Storm Track
Sector San Juan

Assistant Commandant for Engineering and Logistics (CG-4)
Bayamon Housing – Roof vent damage causing mold growth from water intrusion
25 – 29 Aug: Hurricane Harvey
06-11 Sep: Hurricane Irma
19- 22 Sep: Hurricane Maria

04 Oct: OMB asks Agencies (including DHS) to provide Hurricane Supplemental costs estimates by 25 Oct. Guidance says “directly related to damage”.

16 Oct: CG Supplemental due to DHS. For shore projects, asks for ~$300M in repairs and ~$475M for resilient projects.

25 Oct: DHS Supplement Request to OMB. Supports repairs and some resiliency

16 Nov: OMB passes $44B supplement requests to Speaker Ryan. Supports no CG resiliency projects

18 Dec: House Bill H.R. 4667: Supports $81B package, including ~$300M of repairs and some resiliency projects.

XX Jan: Senate……

XX Jan: President signs…..
REPROCUREMENT: HSCG47-16-R-3EFK01

- Using FAR 36.6 Design-Build Two Phase Source Selection Procedures; Unrestricted.

- Original Solicitation, HSCG47-16-R-3EFK01 was issued 21 July 2016.

- Phase II proposals received 22 August 2017.

- Anticipated award first quarter of calendar year 2018.

- Previous contracts expired May 2017. Spend on previous contracts thru January 2017 $675.21M.
• **Reprocurement: HSCG50-16-R-CGRMAC**
  – Using FAR 36.6 Design-Build Two Phase Source Selection Procedures.
  – Solicitation HSCG50-16-R-CGRMAC was issued 20 July 2016.
  – Phase Two proceeding for six of nine regions. Remaining three regions Phase One evaluation is ongoing.
  – Site visit for the seed project will take place during Phase Two.
  – Anticipate awards 1st quarter of calendar year 2018.
Contract Renewal - RMACC (DHS-Wide)

- Region 17: HUBZONE; 8(a) - $150M
- Region 9: 8(a) - $150M
- Region 13: HUBZONE - $125M
- Region 17: HUBZONE - $125M
- Region 1: 8(a) - $150M
- Region 5: SDVOSB - $150M
- Region 7: 8(a) - $125M
- Region 7.5: Puerto Rico 8(a) - $50M
- Region 11/13: SDVOSB - $275M
- Region 14: 8(a) - $75M

Assistant Commandant for Engineering and Logistics (CG-4)
Advice for Hurricane Recovery Work

- Keep information accurate in SBA
- Monitor afps.dhs.gov
USCG Shore Footprint

Assistant Commandant for Engineering and Logistics (CG-4)
Questions?

Harvey

Irma

Maria

San Antonio
Port Lavaca
Rockport
Port Mansfield

Naples
Key West
Miami

San Juan
Ponce