HAITI EARTHQUAKE RELIEF

INTERIM EMERGENCY ENGINEERING SUPPORT UNIT (EESU)

PROGRESS REPORT

01/27/2010
OVERVIEW

- EESU Mission
- Interim EESU Team
- Rapid Evaluation Procedure
- Conventional Posting System
- Facilities Assessed
- Final Comments/Observations
EESU MISSION

• Provide preliminary structural assessment for remaining standing buildings in Port-au-Prince
• Inform responsible parties of recommendations regarding building occupancy
• Report findings to UNDP coordinator and provide supporting documentation
INTERIM EESU TEAM

• Ten team members of various backgrounds (Engineering, Architecture)
• Team members from various institutions and corporations
• Three earthquake specialists
• Coordination by Multidisciplinary Center for Earthquake Engineering Research (MCEER) based at the University at Buffalo
RAPID EVALUATION PROCEDURE (ATC – 20)

• Focuses on potential collapse of building, Falling hazards, and other hazards (e.g. geotechnical).
• Uses the standard ATC-20 Form showed thereafter
**ATC-20 Rapid Evaluation Safety Assessment Form**

### Inspection
- **Inspector ID:**
- **Affiliation:**
- **Inspection date and time:**
  - □ AM □ PM
- **Areas inspected:**
  - □ Exterior only
  - □ Exterior and interior

### Building Description
- **Building name:**
- **Address:**
- **Building contact/phone:**
- **Number of stories above ground:** ___
- **Number of stories below ground:** ___
- **Approx. “Footprint area” (square feet):**
- **Number of residential units:**
- **Number of residential units not habitable:**

### Type of Construction
- □ Wood frame
- □ Steel frame
- □ Tilt-up concrete
- □ Concrete frame
- □ Concrete shear wall
- □ Unreinforced masonry
- □ Reinforced masonry
- □ Other: ____________________________

### Primary Occupancy
- □ Dwelling
- □ Other residential
- □ Public assembly
- □ Emergency services
- □ Commercial
- □ Offices
- □ Industrial
- □ Historic
- □ Government
- □ School
- □ Other: ____________________________

### Evaluation
- Investigate the building for the conditions below and check the appropriate column.

#### Observed Conditions:
- Collapse, partial collapse, or building off foundation
- Building or story leaning
- Racking damage to walls, other structural damage
- Chimney, parapet, or other falling hazard
- Ground slope movement or cracking
- Other (specify): ____________________________

#### Estimated Building Damage (excluding contents)
- □ None
- □ 0–1%
- □ 1–10%
- □ 10–30%
- □ 30–60%
- □ 60–100%
- □ 100%

### Comments:
________________________________________________________________________
________________________________________________________________________
**Posting**

Choose a posting based on the evaluation and team judgment. *Severe* conditions endangering the overall building are grounds for an Unsafe posting. Localized *Severe* and overall *Moderate* conditions may allow a Restricted Use posting. Post INSPECTED placard at main entrance. Post RESTRICTED USE and UNSAFE placards at all entrances.

- [ ] INSPECTED (Green placard)
- [ ] RESTRICTED USE (Yellow placard)
- [ ] UNSAFE (Red placard)

Record any use and entry restrictions exactly as written on placard:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

**Further Actions**  Check the boxes below only if further actions are needed.

- [ ] Barricades needed in the following areas: ________________________________

________________________________________________________________________

- [ ] Detailed Evaluation recommended:  
  - [ ] Structural  
  - [ ] Geotechnical  
  - [ ] Other: ________________________________

- [ ] Other recommendations: _____________________________________________

Comments: ____________________________________________________________

________________________________________________________________________
CONVENTIONAL POSTING SYSTEM

- **INSPECTED (Green)**: Appears safe for lawful occupancy
- **LIMITED ENTRY/RESTRICTED USE (Yellow)**: Limited entry/use, controlled by building owner/manager
- **UNSAFE (Red)**: No entry unless controlled by jurisdiction
BUILDING EVALUATION REQUESTS

• Interim EESU Team created an e-mail account to receive and prioritize building evaluation requests

• ees-haiti@hotmail.com

• Password: Structures

• E-mail account will remain operational after departure of Interim EESU team from Haiti
FACILITY ASSESSMENT SUMMARY

- Hospitals/Medical Facilities: 34
- UN Office Buildings/Residences: 35
- Other private dwellings: 9
- Schools/Colleges: 7
- Warehouses: 6
- Commercial buildings: 5
- Orphanages: 2
- Government Buildings: 3
- Others: 6
- Total: 107
FACILITY ASSESSMENT SUMMARY

• Green Buildings: 58
• Yellow Buildings: 23
• Red Buildings: 26
• Total: 107
EXAMPLE OF GREEN POSTING: UN RESIDENCE – LOYAL SUITE
EXAMPLE OF YELLOW POSTING: WFP SHODESOCA WAREHOUSE
EXAMPLE OF RED POSTING: PORT-AU-PRINCE COURTHOUSE
BUILDING ASSESSMENT DATABASE

- Excel database
- Hyperlinks to assessments forms and damage photos
FINAL
COMMENTS/OBSERVATIONS

• High unawareness of **ACTUAL** seismic hazards

Undamaged DASH Delmas 48 hospital unused

People walking under unstable roof slab on St-Louis de Gonzague Catholic School Campus
FINAL COMMENTS/OBSERVATIONS (CONTINUED)

• Suspicious activities regarding salvageable materials needs to be addressed
  – Several observations of retrieving of reinforcing bars from collapse buildings for resale
  – Cosmetic repairs of structural damage

• ESSENTIAL to discuss the establishment AND enforcement of Haitian Building Construction Standards with local Agencies
Left to right: Dan Gregory, Green Energy Corporation; Eddy Germain, New Jersey Department of Transportation; Vladimir Charles, Second Floor Studios; Wassim Ghannoum, University of Texas; Gabrielle Rigaud; Tufts University, Scott DeHollander, MRB Group; Reginald DesRoches, Georgia Institute of Technology; Caroline Zennie, Parsons Corporation; Andre Filiatrault, University at Buffalo; and Jean-Philippe Simon, US Department of Defense

THANK YOU