Innovative Humanitarian Shelter: Assessing existing solutions & proposing new ideas
Berlin, 3 and 4 May 2016

SEISMIC BANDING

LESSONS FROM LOCAL BUILDING CULTURE
SEISMIC BAND A GREAT VARIETY OF ENGINEERING AND NON ENGINEERING SOLUTIONS

(Crédits : Hofmann)
How does earthquake move a building?

Plus eventually....
How does this affect a building structure?
WHAT TO DO, HOW TO DEAL WITH THESE ISSUES?
The Oak’s Style

For a good seismic behavior and avoid the collapse, make a monolith building as a gift package.

The +
- The structure can be sized according to the expected resistance
- If realized according to the expected good practice, will resist up to a given solicitation

The -
- If the solicitation exceed the structure capacity, due to the embodied energy, the structure may collapse... “FAST and FURIOUS”

The challenges
- Easy to calculate do not mean easy to implement according to the standard regulation – Need skills and supervision.
- Costly and technically “complex”. So difficult to duplicate without external support
**The Reed’s style**

**The +**
- Time tested
- If no dramatic change in the local environment, local resources (material and human) are locally available.
- Collapse of the houses doesn’t mean the house is fully destroyed. People will save their life!!!

**The -**
- Not really easy to prove scientifically its efficacy !!!! So how to ensure accountability?
- The idea is to save people life, not necessary to save the building. Difficult for many people to understand that a building that will “move” will be safe!!!

**The challenges**
- Not linked to the idea of “modernity”
- Need to have a formal scientific recognition (better understood and better described)
THE REED’S LESSON FOR A “OAK” APPLICATION!!!
THE REED’S STYLE

(Pakistan, Crédits Moles)
Seismic Band; how to stop the diagonal cracks?
SEISMIC BAND; HOW TO STOP THE DIAGONAL CRACKS?
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SEISMIC BAND; HOW TO STOP THE DIAGONAL CRACKS?
SEISMIC BAND; HOW TO REDUCE THE WALLS SEPARATION?
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SEISMIC BAND; HOW TO REDUCE THE BUILDING MOVEMENT?
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SEISMIC BAND; HOW TO REDUCE THE BUILDING MOVEMENT?
SEISMIC BAND; HOW TO CONTROL THE DAMAGE / MOVEMENT?

Earthen vernacular building in seismic areas

Turkey

Close bond beams horizontally and vertically distributed

Lateral connections between the two members of bond beams

After the Gediz earthquake (1970)

Crédits : Aytun

In « Earthen building in seismic areas of Turkey BUILDING RESEARCH INSTITUTE - AUXUT AYTUN »

Crédits : Hofmann
SEISMIC BAND; HOW TO CONTROL THE DAMAGE / MOVEMENT?
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Crédit: Schacher
SEISMIC BAND; HOW TO CONTROL THE DAMAGE / MOVEMENT? CAUTION !!!
Local Building Culture;
A result of Local Sustainable Development

environmental

Cultural

social

Economical / technical
Post disaster response may interfere in sustainable development

environmental

social

Cultural

Economical / technical
Challenge, negative or positive, to help local communities to go back to a natural equilibrium.