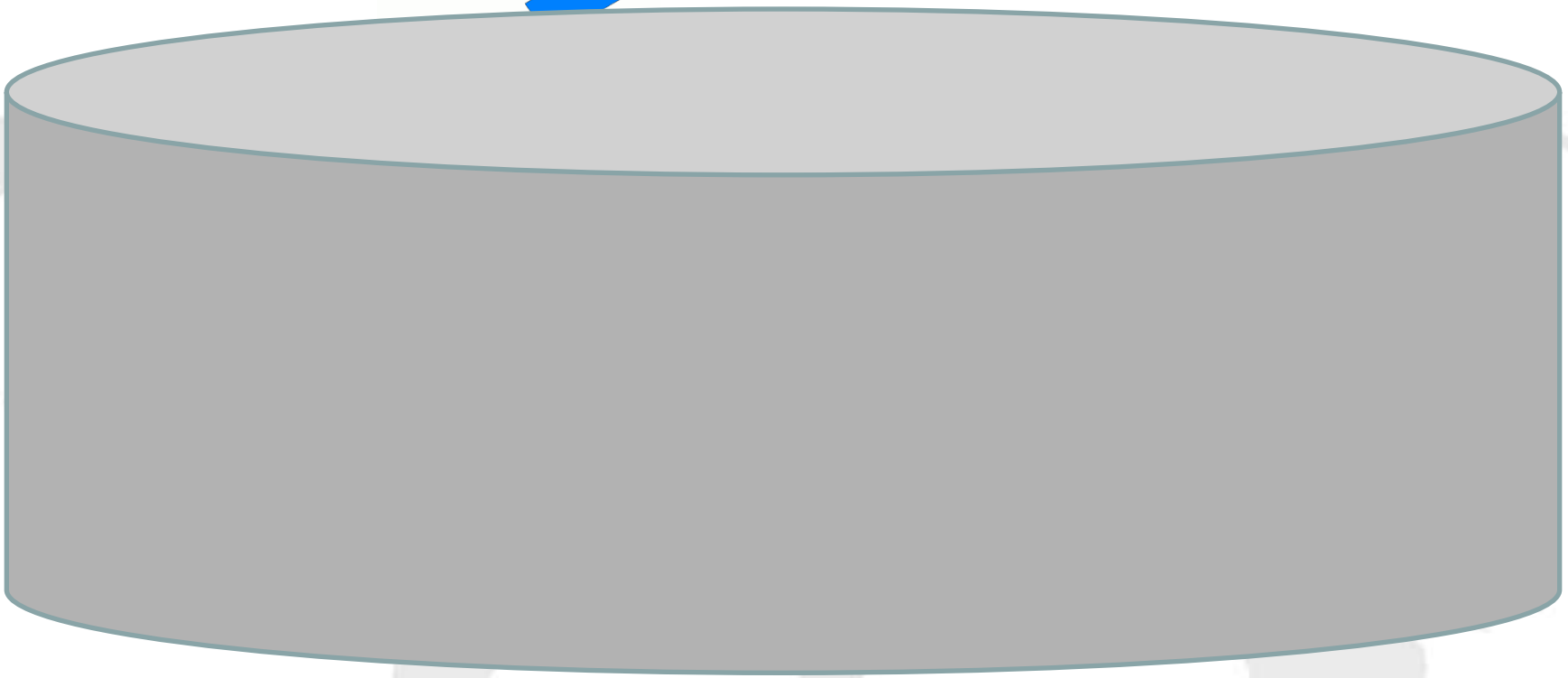
GADRI and AGORA
– *is there a fit?*

Charles Scawthorn
Professor (ret.), Kyoto University

GADRI



AGORA

ALLIANCE FOR GLOBAL OPEN RISK ANALYSIS

Allied, what more can DRIs (GADRI) do?

- Foster scientific exchange
- Collaborative research
- Support creation of global databases
- Create/support global disaster analysis tools (~ GEM)
- Create global standards for disaster risk / reduction
  - Rating systems (buildings, tools, programs…)
  - What is the benefit/cost of DRR?
- Endorse Member DRI research proposals
- Speak globally, at the UN and other world bodies
  ~ IPCC

AGORA
ALLIANCE FOR GLOBAL OPEN RISK ANALYSIS

Open Source software movement

Natural hazards mitigation

- Earthquake
- Wind
- Flood…

Cost justification → loss estimation

AGORA

*Greek → means a "**open place where people meet**"*
(often, a marketplace)

In this case, an international forum contributing to reducing natural hazards death and destruction through open risk modeling.

Fostering: Open Methods
Open Tools (esp. software)
Open Data (ie, generic hazard and vulnerability data; generally does not mean asset-specific data)

globally

AGORA
ALLIANCE FOR GLOBAL OPEN RISK ANALYSIS

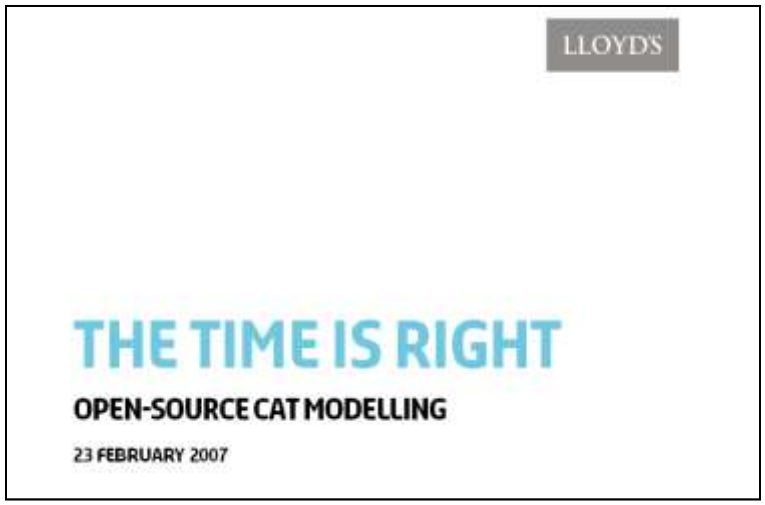
www.risk-agora.org

1st International Workshop on Open-Source Risk Sofware

California Institute of Technology
27-28 February 2007

- California Institute of Technology
- Cambridge University (UK)
- Extreme Situations Research Center (Moscow)
- Imperial College (London)
- Kandili Observatory (Bogazici University, Istanbul)
- Kyoto University (Japan)
- Lloyd's of London
- Mid-America Earthquake Center – MAE
- NEES - Network for Earthquake Engineering Simulation
- Old Dominion University (USA)
- Russian Academy of Sciences
- Southern California Earthquake Center
- SPA Risk LLC
- University of California, Berkeley
- University of Pavia (Italy)
- US Geological Survey
- Virginia Tech (USA)

AGORA
ALLIANCE FOR GLOBAL OPEN RISK ANALYSIS



Lloyd's Franchise Performance

In general the existing CAT modelling applications have the following issues:

- ***Limited resource, individual opinion***
- ***Time Delay***
- ***No option to mix and match…"***

"We wish to raise the idea of an open source catastrophe model framework...

- ***The framework should be fully open source under GNU General Public Licence***
- ***We believe that the time is right to develop the concept of open-source catastrophe modelling."***

AGORA
ALLIANCE FOR GLOBAL OPEN RISK ANALYSIS

Risk-related Open Software

HAZARD

$P(H \mid E)$

VULNERABILITY

$P(D \mid H)$

RISK ENGINE

$E \int P(D \mid H)\, P(H \mid E)$

AGORA
ALLIANCE FOR GLOBAL OPEN RISK ANALYSIS

Key Workshop Points

- Loss estimation (risk software) is a key step in loss reduction
- Current software: slow adoption, low impact
- Open Source movement shows the way
- Current Open Riskware projects here and there
- AGORA:
  - channel for communications, sharing, tech exchange
  - synergy, mutual support (proposal letters of support…)
  - OpenRisk development underway

AGORA
ALLIANCE FOR GLOBAL OPEN RISK ANALYSIS

AGORA Activities

International Conference on Open Ris

About GEM What we do Resources Get involved

BUILDING T

Home > What

About GEM What we do Resou

PUBLIC

Home > Resources > Publications > Te

GEM BUILDING TA

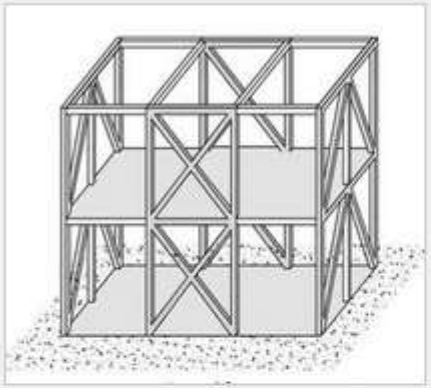
This report documents the develop

The purpose of the GEM Building Ta
manner as a key step towards asse
GEM Building Taxonomy were that
different construction types; be cor
principles that are familiar to the ra
non-buildings and other hazards. T
GEM researchers and builds on the
EERI and IAEE World Housing Ency

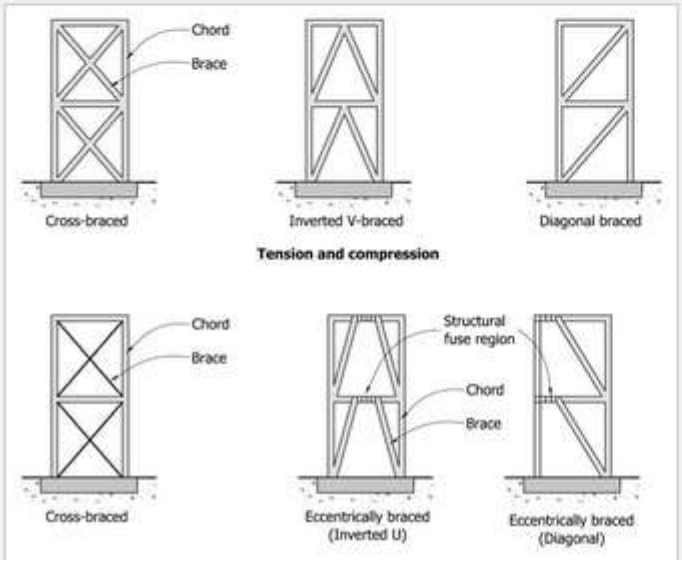
The Taxonomy is organized as a ser
pertaining to various building attrib
an individual building or a class of b
performance.

Braced frame [LFBR]

A framework of beams and columns in which inclined, often diagonal, structural members brace the building and provide strength and rigidity. The bracing can take a variety of forms. If diagonal members are stocky they resist both tension and compression forces. However if slender, they resist tension forces only. Usually, braced frame members are triangulated and meet at joints (similar to a vertical truss). Eccentrically Braced Frames are the exception - their inclined members are deliberately offset at joints in order to create ductile fuse regions in the steel beams. Braced Frames may or may not be infilled.



A simplified drawing of a typical cross-braced frame structure (A. Charleson, *Seismic Design for Architects*, Architectural Press 2008, p. 64, Fig. 5.2).



AGORA
ALLIANCE FOR GLOBAL OPEN RISK ANALYSIS

Is there a fit?

Thank You

www.risk-agora.org