International HFBB Comparison - Building A Summary results

Coordinate system:

Notes:

a) x and y reversed for Groups a and e – corrected to above coordinate system.

b) Symmetry used for Group e, f and g.

c) Group f provides results for wind speed of 30m/s and 40m/s and damping of 2.5% only.

d) Groups b, c, d, e, f and h data corrected to 1.20 Kg/m³ air density

e) Combined accelerations not provided by Group e
Base Moments - Mean $M_x$

**Building A - Mean $M_x$ - 20 m/s**

**Building A - Mean $M_x$ - 30 m/s**

**Building A - Mean $M_x$ - 40 m/s**
Base Moments - Mean $M_y$

Building A - Mean $M_y$ - 20 m/s

Building A - Mean $M_y$ - 30 m/s

Building A - Mean $M_y$ - 40 m/s
Base Moments - Mean $M_z$

**Building A - Mean $M_z$ - 20 m/s**

- $M_z$ (MN.m)
- Wind direction (deg)

**Building A - Mean $M_z$ - 30 m/s**

- $M_z$ (MN.m)
- Wind direction (deg)

**Building A - Mean $M_z$ - 40 m/s**

- $M_z$ (MN.m)
- Wind direction (deg)
Base Moments - Maximum $M_x$ (1% damping)

### Building A - Max $M_x$ - 20 m/s - 1% damping

![Graph showing $M_x$ vs. wind direction for Building A at 20 m/s wind speed](image1)

### Building A - Max $M_x$ - 30 m/s - 1% damping

![Graph showing $M_x$ vs. wind direction for Building A at 30 m/s wind speed](image2)

### Building A - Max $M_x$ - 40 m/s - 1% damping

![Graph showing $M_x$ vs. wind direction for Building A at 40 m/s wind speed](image3)
Base Moments - Maximum Mx (2½ % damping)

Building A - Max Mx - 20 m/s - 2.5% damping

Building A - Max Mx - 30 m/s - 2.5% damping

Building A - Max Mx - 40 m/s - 2.5% damping
Base Moments - Minimum $M_y$ (1% damping)

Building A - Min $M_y$ - 20 m/s - 1% damping

Building A - Min $M_y$ - 30 m/s - 1% damping

Building A - Min $M_y$ - 40 m/s - 1% damping
Base Moments - Minimum M_y (2½ % damping)

Building A - Max M_y - 20 m/s - 2.5% damping

Building A - Max M_y - 30 m/s - 2.5% damping

Building A - Max M_y - 40 m/s - 2.5% damping
Base Moments - Maximum $M_z$ (1% damping)

### Building A - Max $M_z$ - 20 m/s - 1% damping

- **Group a**
- **Group b**
- **Group c**
- **Group d**
- **Group e**
- **Group f**
- **Group g**
- **Group h**

### Building A - Max $M_z$ - 30 m/s - 1% damping

- **Group a**
- **Group b**
- **Group c**
- **Group d**
- **Group e**
- **Group f**
- **Group g**
- **Group h**

### Building A - Max $M_z$ - 40 m/s - 1% damping

- **Group a**
- **Group b**
- **Group c**
- **Group d**
- **Group e**
- **Group f**
- **Group g**
- **Group h**
Base Moments - Maximum $M_z (2 \frac{1}{2} \% \text{ damping})$

**Building A - Max Mz - 20 m/s - 2.5% damping**

**Building A - Max Mz - 30 m/s - 2.5% damping**

**Building A - Max Mz - 40 m/s - 2.5% damping**
Peak resultant accelerations at centre of roof (1% damping)

**Building A - Centre max. acceleration - 20 m/s - 1% damping**

- Wind direction (deg)
- Accn (mg)

**Building A - Centre max. acceleration - 30 m/s - 1% damping**

- Wind direction (deg)
- Accn (mg)

**Building A - Centre max. acceleration - 40 m/s - 1% damping**

- Wind direction (deg)
- Accn (mg)
Peak resultant accelerations at centre of roof (2½ % damping)

Building A - Centre max. acceleration - 20 m/s - 2.5% damping

Building A - Centre max. acceleration - 30 m/s - 2.5% damping

Building A - Centre max. acceleration - 40 m/s - 2.5% damping
Peak resultant accelerations at corner of roof (1% damping)

**Building A - Corner max. acceleration - 20 m/s - 1% damping**

- Wind direction (deg)
- Accn (mg)

**Building A - Corner max. acceleration - 30 m/s - 1% damping**

- Wind direction (deg)
- Accn (mg)

**Building A - Corner max. acceleration - 40 m/s - 1% damping**

- Wind direction (deg)
- Accn (mg)
Peak resultant accelerations at corner of roof (2½ % damping)

Building A - Corner max. acceleration - 20 m/s - 2.5% damping

Building A - Corner max. acceleration - 30 m/s - 2.5% damping

Building A - Corner max. acceleration - 40 m/s - 2.5% damping
Participating Groups
(alphabetical order – not in order of group numbers)

CPP (USA)
RWDI Inc. (Canada)
TE Solutions Co. Ltd. (Korea)
Tokyo Polytechnic University – Shimizu Corporation (Japan)
University of Hong Kong (HK-China)
University of Western Ontario (Canada)
Windtech Consultants (Australia)
Zhejiang University (China)