Helter Skelter Shelter

Scenario
Your team is challenged to design and build an earthquake-proof apartment block for the Gold Coast Commonwealth Games, using only a small amount of commonly available materials.

Aim
The aim of this half-day activity is to build two towers which are high (maximum 70cm), strong and resistant to shaking.

What to do
Your team must build two towers: the first tower undergoes static testing, whilst the second tower undergoes seismic testing (i.e. is shaken as in an earthquake).

Each tower needs to be firmly attached to the bolts on the base-board provided, and have the small polystyrene tray on the top of it to hold the test weights.

Your team will be given A4 paper, plastic drinking straws, masking tape and a small polystyrene tray to build the each tower.

Rules
The small polystyrene tray **must** be mounted, facing upward, at the top of the tower. It can only be used to hold the test weights, not to strengthen the tower.

The towers must be between 35cm and 70cm high. The height is measured from the top surface of the base-board to the bottom of the polystyrene tray.

The towers must be built on the mounting board, and not be filled with balls of paper.

One team member is responsible for placing the test weights onto the towers, and loading the second tower into the Earthquake simulator.

Keep clear of all tests as falling weights can be dangerous.

Materials from the first tower cannot be used in the construction of the second tower.

Scoring
The final result will be made up of the score for the height and the static load test on tower 1, plus the score for the height and the seismic load test on tower 2. The more weights the towers support, the more points they earn.

Tall towers attract substantially more points than short towers.

Tips
Lessons learned in building tower 1 should be incorporated into the design of tower 2.

Think about the different ways paper can be used as a construction material.

Don’t waste your materials! They won’t be replaced.