Introduction of taster programme Earthquake Competition (抗震大激戰)

From here let's start to build your miniature building, using the 3D printed elements and precast slabs (representing the basic structural column, beams and concrete slabs). Then get it reinforced by your creativity and see how it go through a simulated earthquake!

Have fun!

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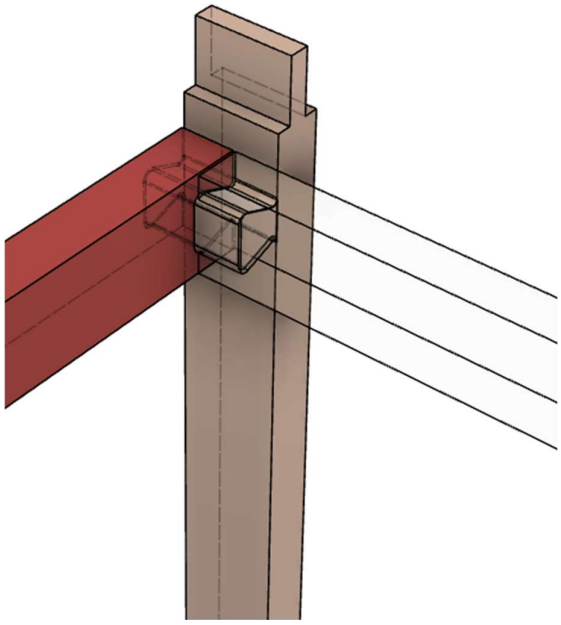
1 How to make a building

First, let's have an overview on how it looks like after the assembly by viewing the below CAD model (one floor). The major structural members (i.e., columns and beams) were designed to be connected in a mortise and tenon style (榫卯結構) from the ancient wisdom.

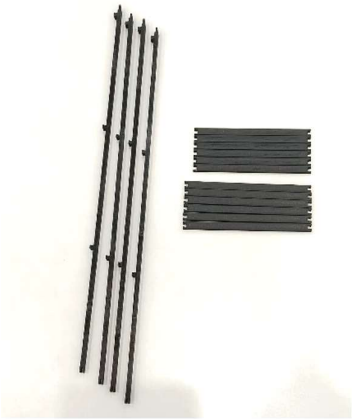


1.1 Material preparation

To make a three-floor building, we prepared 4 columns, 6 y beams and 6 x beams, as well as 3 precast concrete slabs for you.

CAUTION: Be gentle to the members of printed columns and beams. They are durable on certain direction but fragile if you try squashing them.

注意：塑料打印件雖具有特定方向的韌性，但用力擠壓將導致構件開裂。



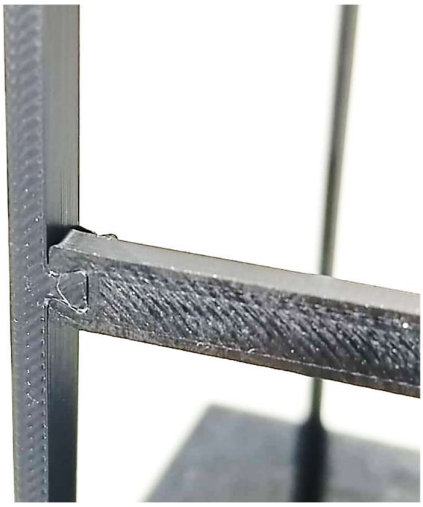
1.2 Assembly of columns to the build plate

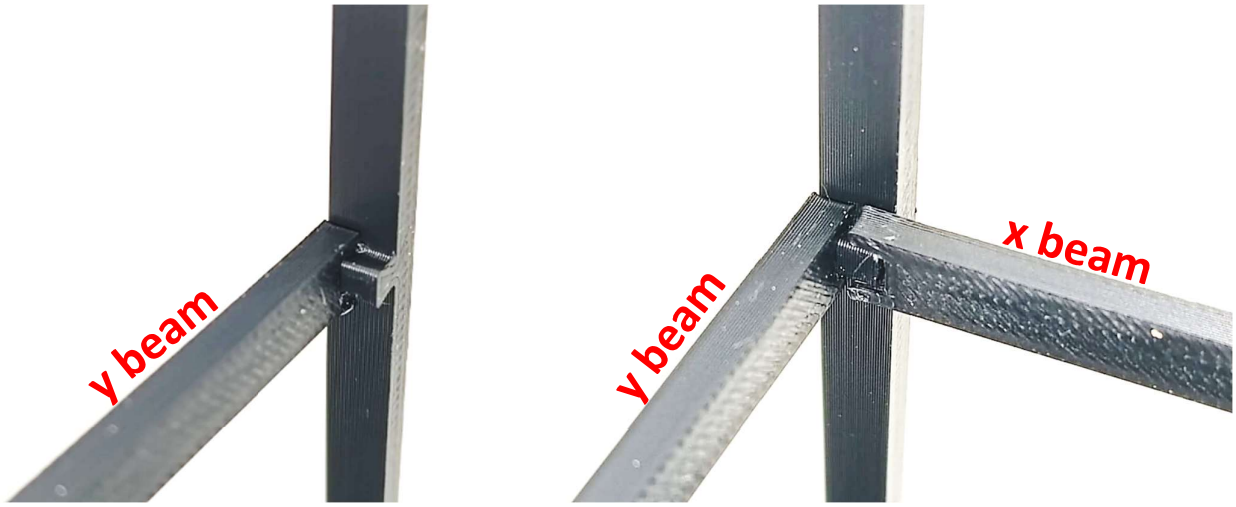
Insert the columns directly into the rectangle holes on the build plate. Note all members should be built inside the “CONSTRUCTION ZONE” boundary.

Note that the direction of ground motion is marked on the build plate. Corresponding design to reinforce the structure is recommended.

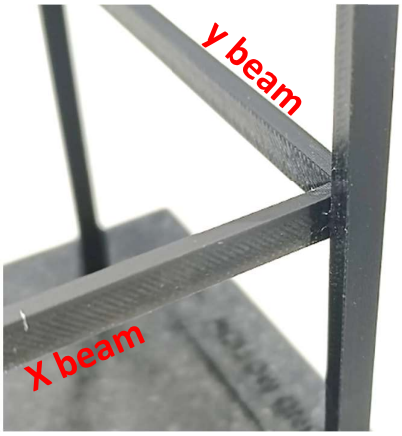
1.3 Assembly of beams

First, the y beams can be directly inserted into the tenon on the columns.





Then the x beams can be assembled in the similar way.



Front the outer perspective, the assembled beams look like the above picture.

1.4 Concrete slabs

The 100x100 mm square concrete slab can be slid into the building as shown in the below picture. The slab is designed to fit in with a loose tolerance for easy installation.

1.5 Assembly finish up

Check out the connections, the whole would look like the below picture before and after the slab placement.

1.6 Hot melt glue

Apply hot melt glue to reinforce all the joints between columns and building plate, between columns and beams and/or between beams and slabs.

CAUTION: Be careful using a hot melt gun. The tip of the hot melt gun has a high temperature and may burn you or melt the printed members.

注意：小心使用熱熔膠槍。膠槍頭部高溫，用手觸碰可能燙傷。直接使用膠槍頭部接觸打印件亦有機會導致打印件融化。

Clean up the excessive hot melt glue to make it look better.

Congrats! Now you have finished the basic build and ready to use your creativity to do the reinforcement and make this building stand strong in an earthquake!

*1.7 (Optional) Building the fourth floor

If you want to challenge the sky, we provide extra materials for you to build the forth floor! Make it and get higher score!

2 Earthquake competition basic rules

All game has rules to make it fair and more interesting!

Here are the basic rules of our game:

a) Game over if any of your slabs drop during the earthquake test.
b) Game over if your building has torsion too large to hit the adjacent building(s). Therefore, try your best to make your building symmetric.
c) Of course, any tools including ruler, scissors, etc., cannot be put in the building as supports.