horizontal slab section 216 of a second U-shape module 220, wherein the second U-shape 220 is stacked on top of the first U-shape module 208. In various embodiments, a horizontal recess 218 is formed at a top portion and along an edge of the horizontal slab section 214 of the N-shape module 206 so as to allow in-filled concrete to form a horizontal sandwiched slab or beam between a step-edge of the horizontal recess 218 and an outer bottom edge of the second U-shape module 220. Similarly, the horizontal recess 218 and the outer bottom edge of the second U-shape module 220 may also be considered to be coupling portions which serves to connect the N-shape module 206 with the second U-shape module. Consequently, the T1 joint 202 with the first and second parts has a substantially L-shaped cross-section comprising of the sandwiched concrete column or wall and the sandwiched concrete slab or beam. Therefore, the T1 joint 202 reinforces the structural integrity of the building in both the vertical and lateral or shearing directions.

Referring to Fig. 2 at section B-B, a type-2 (T2) in-filled concrete joint 204 may be formed to connect three 3D precast modules at an intersection comprising: 1) a horizontal slab section 228 of a N-shape module 224, 2) a vertical wall or column section 238 of a first U-shape module 226 and 3) a horizontal slab section 232 of a second U-shape module 236. In various embodiments, the first coupling portion 230 along an edge of the N-shape module 224 and the second coupling portion 234 along an edge of the first U-shape module 226 are shaped such that a groove or pocket of space is formed at the intersection to allow concrete to be filled to form the T2 joint. In this case, the coupling portion along an edge of the N-shape module 224 comprises a beam that is Z-shape beam or Z-shape protrusion 230 extending laterally from the horizontal slab 228 and the coupling portion along an edge of the first U-shape module 226 comprises a projection 234 extending laterally outwards from the vertical wall or column section 238 of the first U-shape module 226 towards the N-shape module. When the N-shape module is arranged or placed next to the U-shape module during the modular assembling of the building, the Z-shape beam 230 couples with projection 234 and a bottom edge of the second U-shape module 236 to define a pocket of space or groove. Concrete may then be in-filled into the groove to form the T2 joint at the intersection, connecting the three modules together. In various embodiments, the first coupling portion 230 and second coupling portion 234 may be a first half-beam protruding laterally from the horizontal slab 228 and a