Claims

[Claim 1] A wall joint comprising

a pair of walls, each wall comprises a first surface and at least one stud protruding from the first surface, wherein the first surfaces face each other with a gap in between;

a mechanical connector having a pair of vertical plates attached together by a connecting element, each vertical plate having at least one slot to form at least one pair of slots, wherein the at least one pair of slots are engaged with the at least one stud of each wall, at least one edge of each slot forms an angle at an opening of the slot with a vertical edge of one of the vertical plates; and

cured grout in the gap, wherein the first surfaces are front faces and the wall joint joins the pair of walls to form a composite structural wall.

[Claim 2] The wall joint according to claim 1, wherein the at least one pair of slots physically and directly contact the at least one stud of each wall in the engagement.

[Claim 3] The wall joint according to any one of claims 1 to 2, wherein a groove is arranged on the first surface of each wall, and the at least one stud protrudes from the groove.

[Claim 4] The wall joint according to any one of claims 1 to 3 further comprising a support structure in each wall, wherein a first end of the at least one stud is attached to the support structure and a second opposing end of the at least one stud is a head.

[Claim 5] The wall joint according to claim 4, wherein the support structure includes at least a rod or a plate.

[Claim 6] The wall joint according to any one of claims 1 to 5, wherein each slot is linear or bent.

[Claim 7] The wall joint according to any one of claims 1 to 6 wherein the angle is between 30º and 60º.

[Claim 8] The wall joint according to any one of claims 1 to 7 wherein each wall comprises a plurality of studs and each vertical plate has a plurality of slots to form a plurality of pair of slots.

[Claim 9] The wall joint according to any one of claims 1 to 8, wherein the connecting element is any one selected from the group consisting of a connecting plate, a bolt and nut system, and a cable system.

[Claim 10] The wall joint according to any one of claims 1 to 9, wherein the connecting element is attached to the pair of vertical plates at the middle of each vertical plate, an edge of the pair of plates, or opposites edges of the pair of plates.

[Claim 11] The wall joint according to any one of claims 1 to 10, wherein a length of each vertical plate is substantially the same as a height of the first surface.

[Claim 12] The wall joint according to any one of claims 1 to 11, wherein the mechanical connector comprises a first plate attached substantially perpendicularly to the pair of vertical plates, the first plate having a pair of silts, each slit is configured to receive a rod extending out of a top surface of one of the walls.

[Claim 13] The wall joint according to any one of claims 1 to 12, further comprises at least one gap rod in the gap.

[Claim 14] The wall joint according to any one of claims 1 to 13, wherein each wall is part of a prefabricated construction module.

[Claim 15] A building structure comprises at least one wall joint according to any one of claims 1 to 14.

[Claim 16] A method of assembling a wall joint, the method comprises
providing a pair of walls, each wall comprises a first surface and at least one stud protruding from the first surface;
arranging the first surfaces to face each other with a gap in between;
inserting a mechanical connector into the gap, the mechanical connector comprises a pair of vertical plates attached together by a connecting element, each vertical plate having at least one slot to form at least one pair of slots, wherein at least one edge of each slot forms an angle at an opening of the slot with a vertical edge of one of the vertical plates;
engaging the studs with the at least one pair of slots, wherein engaging the studs with the at least one pair of slots comprises aligning the opening of the slots to the studs and receiving the studs into the slots;
dispensing grout into the gap; and
curing the grout to join the walls to form the wall joint, wherein the first surfaces are front faces and the wall joint joins the pair of walls to form a composite structural wall.