CLAIMS

Claim 1: A shipping container (100) comprising:

a container frame (50) having a rectangular box shape, the container frame (50) including edge posts (60, 62) with horizontal rails (60) and vertical posts (62);

at least one side wall panel (10) made of a composite structure arranged within a rectangular area formed by four edge posts (60, 62), the at least one side wall panel(10) including an insulating center frame panel (12) and a bonding flange (14) along the edges of the side wall panel (10); and

an attachment element (63, 65) arranged between the four edge posts (60, 62) of the container frame (50) and the at least one side wall panel (10), the bonding flange (14) of the at least one side panel (10, 12) attached to the attachment element (63, 65).

Claim 2: The shipping container (100) of claim 1, wherein the at least one side wall panel (10) further includes a mechanical reinforcement layer (15) that covers at least a part of the bonding flange (14) and the insulating center frame (12), the mechanical reinforcement layer (15) tapered towards a center of the insulating center frame (12).

Claim 3: The shipping container (100) of claim 1, wherein an outer surface of an edge post (60, 62), the attachment element (65), and the at least one side wall panel (10) are formed to be substantially flat.

~~Claim 4: The shipping container (100) of claim 1, wherein the attachment element (65, 63) includes an L-shaped bracket (65), an outer surface of one side of the L-shaped bracket (65) adhesively bonded to the edge post (60, 62), and an inner surface of other side of the L-shaped bracket adhesively bonded to the bonding flange (14).~~

~~Claim 5: The shipping container (100) of claim 1, wherein a gap between the attachment element (65) and the edge post (60, 62) is filled with a structural adhesive (69) such that an outer surface of a side of the shipping container (100) formed by the edge posts and the attachment element forms a smooth surface.~~

~~Claim 6: The shipping container (100) of claim 1, wherein the attachment element (65, 63) includes a metal bonding plate (63), an inner surface of the metal bonding plate (63) attached to an outer surface of the edge post (60, 62) and an outer surface of the bonding flange (14).~~

~~Claim 7: The shipping container (100) of claim 6, wherein the metal bonding plate (63) is welded to the outer surface of the edge post (60, 62), and is adhesively bonded to the outer surface of the edge post (60, 62).~~

~~Claim 8: The shipping container (100) of claim 6, wherein a gap is formed between an outer edge of the bonding flange (14) and a surface of the edge post facing the bonding flange (14), the gap filled by a structural adhesive (69).~~

~~Claim 9: The shipping container (100) of claim 1, wherein an outer surface of the edge post (60, 62), the attachment element (63, 65), and the at least one side wall panel is covered by a closing tape laminate (15) to form a flush outer surface.~~

~~Claim 10: The shipping container (100) of claim 1, wherein the at least one side wall panel (10) is configured to be fitted within the rectangular area formed by two horizontal rails (60) and two vertical posts (62), via attachment to an L-shaped bracket (65) that is welded to the two horizontal rails (60) and two vertical posts (62).~~

~~Claim 11: The shipping container (100) of claim 1, wherein the container frame (50), the at least one side wall panel (10), and the attachment element (63, 65) are arranged to comply with the ISO 1496-1:2013 test certifications.~~

~~Claim 12: The shipping container (100) of claim 1, further comprising:~~

~~a computer unit (ES) having a communication device;~~

~~a plurality of sensors (30) measuring environmental parameters of the shipping container (100) arranged at the side wall panels, the plurality of sensors (30) operatively connected to the computer unit (ES) by the communication device, and~~

~~a wireless communication interface operatively connected to the computer unit.~~

~~Claim 13: The shipping container (100) of claim 12, wherein the computer unit is integrated into at least one of the side panels (10) or in a door panel (20).~~

Claim 14: The shipping container (100) of claim 12, wherein the computer unit is configured (ES) to gather data from the plurality of sensors (30) of values measured inside the container (100) during a measurement period, detect a trigger signal from an abnormal condition based on the data of the plurality of sensors (30), and generate a report (RR) that is sent to an external server (RS), the report (RR) including data on the integrity of transported goods inside the shipping container (100).

Claim 15: The shipping container (100) of claim 14, wherein the report (RR) includes an inventory of the transported goods.

CLAIMS

Claim 1: A shipping container (100) comprising:
a container frame (50) having a rectangular box shape, the container frame (50) including edge posts with horizontal rails (60) and vertical posts (62);

at least one side wall panel (10) made of a composite structure arranged within a rectangular area formed by four edge posts, the at least one side wall panel (10) including an insulating center frame panel (12), two outer layers of laminated material (16) sandwiching the insulating center frame panel therebetween, and a bonding flange (14) along the edges of the side wall panel (10), the bonding flange formed by the two outer layers of laminated material that are bonded together; and

an attachment element arranged between the four edge posts of the container frame (50) and the at least one side wall panel (10), the bonding flange (14) of the at least one side wall panel attached to the attachment element,

wherein the attachment element includes an L-shaped bracket (65) adhesively bonded or welded or attached by other means to the edge post and adhesively bonded to the bonding flange (14); or the attachment element includes a metal bonding plate (63), an inner surface of the metal bonding plate (63) attached to an outer surface of the edge post and an outer surface of the bonding flange (14).

Claim 2: The shipping container (100) of claim 1, wherein the at least one side wall panel (10) further includes a mechanical reinforcement layer (15) that covers the bonding flange (14) and at least a part of the insulating center frame panel (12), the mechanical reinforcement layer (15) tapered towards a center of the insulating center frame panel (12).

Claim 3: The shipping container (100) of claim 1, wherein, when the attachment element includes an L-shaped bracket (65), an outer surface of an edge post, the L-shaped bracket, and the at least one side wall panel (10) are formed to be substantially flat.

Claim 4: The shipping container (100) of claim 1, wherein, when the attachment element includes an L-shaped bracket (65), a gap between the L-shaped bracket and the edge post is filled with a structural adhesive (69) such that an outer surface of a side of the shipping container (100) formed by the edge posts and the L-shaped bracket forms a smooth surface.

Claim 5: The shipping container (100) of claim 1, wherein, when the attachment element includes a metal bonding plate (63), the metal bonding plate is welded to the outer surface of the edge post, or is adhesively bonded to the outer surface of the edge post.

Claim 6: The shipping container (100) of claim 1, wherein, when the attachment element includes a metal bonding plate (63), a gap is formed between an outer edge of the bonding flange (14) and a surface of the edge post facing the bonding flange (14), the gap filled by a structural adhesive (69).

Claim 7: The shipping container (100) of claim 1, wherein, when the attachment element includes an L-shaped bracket (65) or metal bonding plate (63), an outer surface of the edge post, the L-shaped bracket or metal bonding plate, and the at least one side wall panel is covered by a tape laminate to form a flush outer surface.

Claim 8: The shipping container (100) of claim 1, wherein, when the attachment element includes an L-shaped bracket (65), the at least one side wall panel (10) is configured to be fitted within the rectangular area formed by two horizontal rails (60) and two vertical posts (62), via attachment to the L-shaped bracket that is welded to the two horizontal rails (60) and two vertical posts (62).

Claim 9: The shipping container (100) of claim 1, wherein the container frame (50), the at least one side wall panel (10), and the attachment element are arranged to comply with the ISO 1496-1:2013 test certifications.

Claim 10: The shipping container (100) of claim 1, further comprising:

a computer unit (ES) having a communication device;

a plurality of sensors (30) measuring environmental parameters of the shipping container (100) arranged at the side wall panels, the plurality of sensors (30) operatively connected to the computer unit (ES) by the communication device, and

a wireless communication interface operatively connected to the computer unit.

Claim 11: The shipping container (100) of claim 10, wherein the computer unit is integrated into at least one of the side panels (10) or in a door panel (20).

Claim 12: The shipping container (100) of claim 10, wherein the computer unit is configured (ES) to gather data from the plurality of sensors (30) of values measured inside the container (100) during a measurement period, detect a trigger signal from an abnormal condition based on the data of the plurality of sensors (30), and generate a report (RR) that is sent to an external server (RS), the report (RR) including data on the integrity of transported goods inside the shipping container (100).

Claim 13: The shipping container (100) of claim 12, wherein the report (RR) includes an inventory of the transported goods.