

the corner member 250 is applied not only to the corner part in which the side surface of the storage tank is inclined at an angle of 135° with respect to the bottom (ceiling) surface thereof, but also to the corner part in which a front wall or rear wall of the storage tank is inclined at an angle of 90° with respect to the bottom (ceiling) surface thereof.

[30] In FIG. 5, (a) and (b) shows corner pieces 251; 251' and angle pieces 252; 252' provided to the 135° corner part and the 90° corner part of the storage tank, respectively. For the typical corner members 250 applied to the 90° corner part of the storage tank, the corner piece 251 and the angle piece 252 are provided in a 90° bent shape.

【Disclosure】

【Technical Problem】

[31] It is an aspect of the present invention to provide a panel type insulation system having an improved structure, in which an insulation wall is constituted of insulation panels formed of polyurethane foam and a secondary sealing wall is constituted of flat Invar membranes, and a membrane connection structure of a corner part of an LNG storage tank suitably designed for the insulation system.

【Technical Solution】

[32] In accordance with one aspect of the present invention, there is provided a heat insulation structure for corner parts of an LNG storage tank, the LNG storage tank including a secondary insulation wall constituted of multiple secondary insulation panels arranged on an inner wall of a hull, a secondary sealing wall disposed on the secondary insulation wall, a primary insulation wall constituted of multiple primary insulation panels arranged on the secondary sealing wall, and a primary sealing wall disposed on the primary insulation wall, the heat insulation structure including a corner assembly finishing an edge of the primary sealing wall at a corner part of the storage tank to complete sealing of the storage tank, a transverse connector extending along an edge of each of front and rear walls of the storage tank in the transverse direction and supporting the primary and secondary sealing walls; and an

Invar beam extending along an edge of a chamfer surface in the storage tank in the longitudinal direction and supporting the primary sealing wall, wherein the corner assembly includes an endcap sheet finishing each of four corners of the primary sealing wall provided to each surface of the storage tank to seal the four corners; and a corner finishing sheet finishing and sealing each of the four corners of the primary sealing wall provided to each surface of the storage tank, the

endcap sheet being formed with: an endcap corrugation having an endcap shape and finishing a corrugation formed on the primary sealing wall; and an elongated corrugation extending in a direction perpendicular to a direction in which the endcap corrugation extends, the corner finishing sheet being formed with a corner finishing corrugation finishing the elongated corrugation formed on the endcap sheet, and the endcap sheet being welded at one end thereof to the transverse connector or the Invar beam and at the other end thereof to the primary sealing wall by lap welding.

[33] The elongated corrugation may extend while maintaining a constant height on the endcap sheet so as to have an open structure at opposite ends of the endcap sheet in a width direction thereof, and the endcap sheet may be provided in plural to be continuously arranged in longitudinal and transverse directions of the storage tank such that the elongated corrugations formed on the endcap sheets are continuously connected to each other and extend in the longitudinal and transverse directions of the storage tank.

[34] The corner assembly may further include a corner finishing sheet finishing and sealing each of the four corners of the primary sealing wall provided to each surface of the storage tank, the corner finishing sheet being formed with a corner finishing corrugation finishing the elongated corrugation formed on the endcap sheet.

[35] The primary sealing walls disposed on adjacent surfaces in the storage tank may be independently finished.

[36] The heat insulation structure may further include: a transverse connector extending along an edge of each of front and rear walls of the storage tank in the transverse direction and supporting the primary and secondary sealing walls; and an Invar beam extending along an edge of a chamfer surface in the storage tank in the longitudinal direction and supporting the primary sealing wall, wherein the endcap sheet is welded at one end thereof to the transverse connector or the Invar beam and at the other end thereof to the primary sealing wall by lap welding.

[37] The primary sealing wall may be constituted of a stainless steel (SUS) membrane, and the endcap sheet and the corner finishing sheet may be formed of an Invar material.

[38] The transverse connector and the Invar beam may be formed of an Invar material and may be supported on the inner wall of the hull by an insulation box constituted of a plywood box.

[39] In accordance with another aspect of the present invention, there is provided

【CLAIMS】

【Claim 1】

A heat insulation structure for corner parts of an LNG storage tank, the LNG storage tank including a secondary insulation wall constituted of multiple secondary insulation panels arranged on an inner wall of a hull, a secondary sealing wall disposed on the secondary insulation wall, a primary insulation wall constituted of multiple primary insulation panels arranged on the secondary sealing wall, and a primary sealing wall disposed on the primary insulation wall, the heat insulation structure comprising:

a corner assembly finishing an edge of the primary sealing wall at a corner part of the storage tank to complete sealing of the storage tank,

a transverse connector extending along an edge of each of front and rear walls of the storage tank in the transverse direction and supporting the primary and secondary sealing walls; and

an Invar beam extending along an edge of a chamfer surface in the storage tank in the longitudinal direction and supporting the primary sealing wall,

wherein the corner assembly comprises:

an endcap sheet finishing each of four corners of the primary sealing wall provided to each surface of the storage tank to seal the four corners;
and

a corner finishing sheet finishing and sealing each of the four corners of the primary sealing wall provided to each surface of the storage tank,

wherein the endcap sheet being formed with: an endcap corrugation having an endcap shape and finishing a corrugation formed on the primary sealing wall; and an elongated corrugation extending in a direction perpendicular to a direction in which the endcap corrugation extends,

the corner finishing sheet being formed with a corner finishing corrugation finishing the elongated corrugation formed on the endcap sheet, and

the endcap sheet being welded at one end thereof to the transverse connector

or the Invar beam and at the other end thereof to the primary sealing wall by lap welding.

【Claim 2】

The heat insulation structure according to claim 1, wherein:

the elongated corrugation extends while maintaining a constant height on the endcap sheet so as to have an open structure at opposite ends of the endcap sheet in a width direction thereof; and

the endcap sheet is provided in plural to be continuously arranged in longitudinal and transverse directions of the storage tank such that the elongated corrugations formed on the endcap sheets are continuously connected to each other and extend in the longitudinal and transverse directions of the storage tank.

~~**【Claim 3】**~~

~~The heat insulation structure according to claim 2, wherein the corner assembly further comprises:~~

~~a corner finishing sheet finishing and sealing each of the four corners of the primary sealing wall provided to each surface of the storage tank;~~

~~the corner finishing sheet being formed with a corner finishing corrugation finishing the elongated corrugation formed on the endcap sheet.~~

【Claim 4】

The heat insulation structure according to claim 3, wherein the primary sealing walls disposed on adjacent surfaces in the storage tank are independently finished.

~~**【Claim 5】**~~

~~The heat insulation structure according to claim 4, further comprising:~~

~~a transverse connector extending along an edge of each of front and rear walls of the storage tank in the transverse direction and supporting the primary and~~

secondary sealing walls; and

~~an Invar beam extending along an edge of a chamfer surface in the storage tank in the longitudinal direction and supporting the primary sealing wall,~~

~~wherein the endcap sheet is welded at one end thereof to the transverse connector or the Invar beam and at the other end thereof to the primary sealing wall by lap welding.~~

【Claim ~~64~~】

The heat insulation structure according to claim ~~53~~, wherein the primary sealing wall is constituted of a stainless steel (SUS) membrane, and the endcap sheet and the corner finishing sheet are formed of an Invar material.

【Claim ~~75~~】

The heat insulation structure according to claim ~~64~~, wherein the transverse connector and the Invar beam are formed of an Invar material and are supported on the inner wall of the hull by an insulation box constituted of a plywood box.

~~【Claim 8】~~

~~A heat insulation structure for corner parts of an LNG storage tank, the LNG storage tank including a secondary insulation wall constituted of multiple secondary insulation panels arranged on an inner wall of a hull, a secondary sealing wall disposed on the secondary insulation wall, a primary insulation wall constituted of multiple primary insulation panels arranged on the secondary sealing wall, and a primary sealing wall disposed on the primary insulation wall, the heat insulation structure comprising:~~

~~endcap sheets each comprising an endcap corrugation formed on a flat metal sheet and sealing a corrugation formed on the primary sealing wall such that the storage tank can be sealed without bending the corrugation at a corner part of the storage tank, as members for sealing each of four corners of the primary sealing wall,~~

~~wherein each of the endcap sheets is formed with an elongated corrugation extending in a direction perpendicular to the endcap corrugation such that the~~

~~elongated corrugations formed on the endcap sheets are continuously connected to each other and extend in longitudinal and transverse directions of the storage tank, as the endcap sheets are continuously arranged in the longitudinal and transverse directions of the storage tank.~~

~~—[Claim 9]—~~

~~The heat insulation structure according to claim 8, wherein the primary sealing wall disposed on each surface of the storage tank is independently finished.~~

~~—[Claim 10]—~~

~~The heat insulation structure according to claim 9, further comprising:~~

~~a corner finishing sheet finishing an endcap sheet disposed at a distal end of the storage tank among the endcap sheets continuously arranged in the longitudinal and transverse directions of the storage tank,~~

~~the corner finishing sheet being formed with a corner finishing corrugation finishing the elongated corrugation formed on the endcap sheet.~~