[0009] (2). Position two - - a vertical side wall test - - a test of load applied directly downward onto the vertical side wall.

[0010] (3). Position three - - a cover test - - a test showing how an enclosure responds to a load applied directly to the center of the cover.

[0011] The present invention provides an enhanced strength grade level utilities enclosure that can be made from lighter weight polymeric materials. In one embodiment, the enclosure's design provides enhanced structural loading capacity in excess of ANSI Tier 15 vertical side wall load and center cover vertical load requirements.

[0012] The ANSI Tier 15 test standards are one example of various industry test standards for grade level enclosures for which the present invention provides enhanced load capacities. Structural improvements, in particular, are demonstrated for enclosures' vertical side wall load capacities; and these improvements would result for different types of enclosures each having their own separate vertical side wall load capacity requirements.

SUMMARY OF THE INVENTION

[0012a] According to a first aspect of the present invention, there is provided an enhanced strength grade level utility enclosure for underground utilities connections, comprising: a substantially vertical wall structure extending continuously around an open interior region within the wall structure, the wall structure made of a molded polymeric material; the vertical wall structure having an upper edge extending around an opening to the interior of the enclosure and a bottom edge on which the enclosure is supported; a removable cover plate adapted for mounting to ~~an~~ the opening in the grade level enclosure to close off at least a portion of the interior region from the environment, the cover plate adapted to engage at least a portion of the enclosure's upper edge structure; the vertical wall structure including an upright inner wall panel extending from the upper edge to the bottom edge of the vertical wall structure, the inner wall panel having an upright inside face spanning the interior of the enclosure; the inside face of the inner wall panel having left and right sides opposing one another; one or more narrow, vertical~~ly extending~~ slotted regions recessed in the inside face of the inner wall panel on the left side and on the right side of the enclosure extending from the upper edge to the bottom edge of the inner wall panel; and an upright rigid support bar ~~optionally~~ adapted for use as a cable rack positioned in at least one slotted region on each side of the wall structure's inside face; the support bars having a flat continuous face flush with the inside face of the inner wall panel defining a cavity within the slotted region behind the flat continuous face, the support bars providing substantially continuous rigid vertical support extending from the upper edge to the bottom edge of the enclosure's vertical wall structure.

[0012b] According to a second aspect of the present invention, there is provided an enhanced strength grade level utility enclosure for underground utilities connections, comprising: a substantially vertical wall structure extending continuously around an open interior region within the wall structure, the wall structure having an open bottom and made of a molded polymeric material; the vertical wall structure having an upper edge extending around an opening to the interior of the enclosure and a bottom edge on which the enclosure is supported; the vertical wall structure including an upright inner wall panel extending from the upper edge to the bottom edge of the vertical wall structure, the inner wall panel having an upright inside face spanning the interior of the enclosure; the inside face of the inner wall panel having left and right sides opposing one another; longitudinally spaced apart, vertical~~ly extending~~ slotted regions recessed in the inside face of the inner wall panel on the left side and on the right side of the enclosure extending from the upper edge to the bottom edge of the inner wall; and an upright rigid support bar adapted for positioning in separate vertical slotted regions on each side of the wall structure's inside face; in which positioning of the support bars in the ~~recessed~~ vertical slotted regions having a flat continuous face flush with the inside face of the inner wall panel defining a cavity within the vertical slotted regions behind the flat continuous face, the support bars provide ~~provides~~ substantially continuous rigid vertical support extending from the upper edge to the bottom edge of the enclosure's vertical wall structure.

[0013] The recessed support bars in combination with the vertical wall structure may provide enhanced wall load strength sufficient for exceeding vertical side wall load test standards, among other test standards, for grade level enclosures.

[0014] These and other aspects of the invention will be more fully understood by referring to the following detailed description and the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] Fig. 1 is a perspective view showing one embodiment of an enhanced strength grade level utilities enclosure according to principles of this invention.

[0016] Fig. 1A is a perspective view showing another embodiment of the utilities enclosure.

[0017] Fig. 2 is an enlarged fragmentary perspective view showing the construction of a prior art grade level utilities enclosure.

WHAT IS CLAIMED IS:

1. An enhanced strength grade level utility enclosure for underground utilities connections, comprising:

a substantially vertical wall structure extending continuously around an open interior region within the wall structure, the wall structure made of a molded polymeric material;

the vertical wall structure having an upper edge extending around an opening to the interior of the enclosure and a bottom edge on which the enclosure is supported;

a removable cover plate adapted for mounting to ~~an~~ the opening in the grade level enclosure to close off at least a portion of the interior region from the environment, the cover plate adapted to engage at least a portion of the enclosure's upper edge structure;

the vertical wall structure including an upright inner wall panel extending from the upper edge to the bottom edge of the vertical wall structure, the inner wall panel having an upright inside face spanning the interior of the enclosure;

the inside face of the inner wall panel having left and right sides opposing one another;

one or more narrow, vertical~~ly extending~~ slotted regions recessed in the inside face of the inner wall panel on the left side and on the right side of the enclosure extending from the upper edge to the bottom edge of the inner wall panel; and

an upright rigid support bar ~~optionally~~ adapted for use as a cable rack positioned in at least one slotted region on each side of the wall structure's inside face;

the support bars having a flat continuous face flush with the inside face of the inner wall panel defining a cavity within the slotted region behind the flat continuous face, the support bars providing substantially continuous rigid vertical support extending from the upper edge to the bottom edge of the enclosure's vertical wall structure.

2. Apparatus according to claim 1 in which the recessed support bars provide enhanced wall strength for the vertical wall structure sufficient for meeting ANSI/SCTE 77-2010 Tier 15 vertical side wall load test standards.

3. Apparatus according to claim 1 including a vertically and horizontally extending exterior supporting grid structure made of a molded polymeric material integrally molded to the inside face of the vertical wall structure, the grid structure comprising horizontally spaced apart vertical ribs extending continuously from a lower to an upper portion of the vertical wall structure, and vertically spaced apart horizontal ribs extending continuously around the vertical wall structure; and in which the inner wall panel is molded to the grid structure.

4. Apparatus according to claim 1 in which the recessed support bars provide enhanced wall strength sufficient for meeting the ANSI Tier 15 vertical side wall load and center cover load test standards.

5. Apparatus according to claim 1 in which the vertical wall structure is made from at least one of (a)-(c): (a) high density polyethylene; (b) a thermoplastic material; (c) a polyolefin material.

6. Apparatus according to claim 1 in which the cover plate is made from a polymer/concrete material.

7. Apparatus according to claim 1 in which the rigid support bar has a U-shaped cross sectional configuration with ~~a~~ the flat continuous face of the bar facing toward the interior of the enclosure, including spaced apart fasteners rigidly affixing each support bar through the cavity to the recessed slotted region, and in which the support bars include stepped connectors extending through the flat continuous face for attachment to equipment disposed within the interior of the enclosure.

8. Apparatus according to claim 1 including underground telecommunications equipment attached to vertically spaced apart connectors on the support bar.

9. Apparatus according to claim 1 in which the vertical side wall load capacity is in excess of 25,000 lbs.

10. Apparatus according to claim 1 in which the wall structure of the enclosure body comprises a substantially non-metal, non-concrete, non-fiberglass thermoplastic material.

11. An enhanced strength grade level utility enclosure for underground utilities connections, comprising:

a substantially vertical wall structure extending continuously around an open interior region within the wall structure, the wall structure having an open bottom and made of a molded polymeric material;

the vertical wall structure having an upper edge extending around an opening to the interior of the enclosure and a bottom edge on which the enclosure is supported;

the vertical wall structure including an upright inner wall panel extending from the upper edge to the bottom edge of the vertical wall structure, the inner wall panel having an upright inside face spanning the interior of the enclosure;

the inside face of the inner wall panel having left and right sides opposing one another;

longitudinally spaced apart, vertical~~ly extending~~ slotted regions recessed in the inside face of the inner wall panel on the left side and on the right side of the enclosure extending from the upper edge to the bottom edge of the inner wall; and

an upright rigid support bar adapted for positioning in separate vertical slotted regions on each side of the wall structure's inside face;

in which positioning of the support bars in the ~~recessed~~ vertical slotted regions having a flat continuous face flush with the inside face of the inner wall panel defining a cavity within the vertical slotted regions behind the flat continuous face, the support bars provide ~~provides~~ substantially continuous rigid vertical support extending from the upper edge to the bottom edge of the enclosure's vertical wall structure.

12. Apparatus according to claim 11 in which the recessed support bars provide enhanced wall strength for the vertical wall structure sufficient for meeting ANSI/SCTE 77-2010 Tier 15 vertical side wall load test standards.

13. Apparatus according to claim 11 including a vertically and horizontally extending exterior supporting grid structure made of a molded polymeric material integrally molded to the inside face of the vertical wall structure, the grid structure comprising horizontally spaced apart vertical ribs extending continuously from a lower to an upper portion of the vertical wall structure, and vertically spaced apart horizontal ribs extending continuously around the vertical wall structure; and in which the inner wall panel is molded to the grid structure.

14. Apparatus according to claim 11 in which the recessed support bars provide enhanced wall strength with a side load stiffness in excess of 100,000 lbs/in.

15. Apparatus according to claim 11 in which the enclosure includes at least two of the rigid support bars on each side of the enclosure.

16. Apparatus according to claim 12 in which the vertical wall structure of the enclosure is made from at least one of (a)-(c): (a) high density polyethylene; (b) a thermoplastic material; (c) a polyolefin material.

17. Apparatus according to claim 12 in which the rigid support bar has a U-shaped cross sectional configuration with ~~a~~ the flat cotinuous face of the bar facing toward the interior of the enclosure, including fasteners adapted for rigidly affixing the support bars through the cavity to the recessed slotted regions.

18. Apparatus according to claim 17 in which the support bars comprise cable racks having stepped connectors extending through the flat continuous face for attachment to equipment disposed within the interior of the enclosure.