FORM PANEL FOR CONSTRUCTION

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ABSTRACT

Provided is a form panel for construction which is foldable so as to be used in a planar section and a corner of a concrete building. The form panel includes a front plate supporting cast concrete, a folded portion formed at the center of a rearward surface of the front plate in a lengthwise direction to be thinner than portions positioned at its opposite sides, side connecting sections and upper and lower connecting sections, which are formed at edges of the front plate excluding the folded portion, and one or more reinforcing members installed at the side connecting sections and the rearward surface of the front plate. The form panel is formed of a synthetic resin material by an injection-molding technique. Since the form panel is foldable at a predetermined angle, it can be easily used as a form panel for a wall forming a predetermined angle. In particular, it is possible to prevent inconvenience and difficulty in fabricating form panels for use in corners for construction. In addition, since deformation and damage can be minimized during disassembly, the form panel can be recycled.
[Fig. 5]
FORM PANEL FOR CONSTRUCTION

TECHNICAL FIELD

[0001] The present invention relates to a form panel for construction, and more particularly, to a form panel for construction, which is foldable so as to be used in a planar section and a corner of a concrete building.

BACKGROUND ART

[0002] In general, standard form panels are used in constructing walls or floors of structures such as buildings.

[0003] Such standard form panels are typically made in types of forms fabricated using metallic or wooden plates by welding. Since forms used to form corners (inward corners or outward corners) of a building usually have dimensions beyond standards, appropriate form panels adapted for the dimension should be separately fabricated by construction workers prior to use.

[0004] The known standard form panel, which is fabricated using multiple plate pieces by welding, is quite difficult and complicated to fabricate and its fabrication cost is high. A form panel used in a corner section for construction, as disclosed in Korean Utility Model Registration No. 0257253, is constructed such that first and second frameworks fabricated using plates are hinged to be folded, making it difficult to fabricate, lowering constructional efficiency and workability because the first and second frameworks, which are very heavy, and ultimately increasing the risk of safety accidents. In addition, since the conventional standard form panels are fabricated using metallic or wooden materials, a large number of construction workers may be required to disassemble the form panel. Further, when the disassembly is not facilitated, the form panel may be deformed and damaged.

DISCLOSURE OF INVENTION

Technical Problem

[0005] To solve the above problems, it is an object of the present invention to provide a form panel for construction, which is foldable so as to be installed on a planar section, a corner section folded at right angle, and a sloping section, of a concrete building, and which can be prevented from being deformed and damaged during disassembly.

Technical Solution

[0006] It is another object of the present invention to provide a form panel for construction, which is adjustable width-wise when it is installed on a corner section of a constructional structure.

[0007] According to an aspect of the present invention, there is provided a form panel for construction comprising a front plate supporting cast concrete, a folded portion formed at the center of a rearward surface of the front plate in a lengthwise direction so as to be thinner than portions positioned at its opposite sides, side connecting sections and upper and lower connecting sections, which are formed at edges of the front plate excluding the folding portion, and one or more reinforcing members installed at the side connecting sections and the rearward surface of the front plate, wherein the form panel is formed of a synthetic resin material by an injection-molding technique.

[0008] Preferably, edges of the upper and lower connecting sections and edges of the one or more reinforcing members are installed so as to be inclined with respect to the folded portion to prevent mutual interference during folding of the folded portion.

[0009] The folded portion may include two or more grooves formed in a lengthwise direction of the form panel.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is a perspective view of a form panel for construction according to an embodiment of the present invention;

[0011] FIG. 2 is a cross-sectional view along line A-A of FIG. 1;

[0012] FIG. 3 is a cross-sectional view of a form panel for construction according to another embodiment of the present invention;

[0013] FIG. 4 is a cross-sectional view along line B-B of FIG. 3;

[0014] FIG. 5 is a perspective view of a form panel for construction according to still another embodiment of the present invention;

[0015] FIG. 6 is a perspective view illustrating a state in which the form panel shown in FIG. 5 is used;

[0016] FIG. 7 is an enlarged perspective view illustrating a state in which the length of a folded portion shown in FIG. 6 is adjusted;

[0017] FIGS. 8 through 11 are perspective views illustrating application examples of form panels according to embodiments of the present invention; and

[0018] FIGS. 12 and 13 are cross-sectional views of form panels for construction according to other embodiment of the present invention.

BEST MODE FOR CARRYING OUT THE INVENTION

[0019] Hereinafter, embodiments of the present invention will be described in detail with reference to the attached drawings.

[0020] A form panel 10 for construction according to the present invention can be used for both a corner section and a planar section when fabricating a framework for concrete casting, and an exemplary example thereof is illustrated in FIGS. 1 and 2.

[0021] Referring to FIGS. 1 and 2, the form panel 10 for construction according to the present invention includes a front plate 11 supporting cast concrete and having at least one folded portion 20 formed in a lengthwise direction, side connecting sections 12, and 13 and upper and lower connecting sections 14 and 15, which are formed at edges of the front plate 11 excluding the folded portion 20, and one or more reinforcing members 17 installed at the side connecting sections 14 and 15 and the rearward surface of the front plate 11.

[0022] The front plate 11 has a standard dimension. The plurality of engaging holes 12a, 13a, 14a, 15a are formed on the side connecting sections 12, and 13 and the upper and lower connecting sections 14 and 15, respectively. One or more reinforcing ribs (not shown) may also be formed on the side connecting sections 12, and 13 and the upper and lower connecting sections 14 and 15.

[0023] Edges of the upper and lower connecting sections 14 and 15 and edges of the one or more reinforcing members 17 are installed so as to be inclined with respect to the folded portion 20 to prevent mutual interference during folding of the folded portion 20.
In order to ensure the foldability of the front plate 11 at a predetermined angle, the folded portion 20 is made to be thinner than portions positioned at its opposite sides. The folded portion 20 can be thinned by forming a groove 21, as shown in FIG. 2, at the folded portion 20 in the lengthwise direction. As shown in FIG. 12, an arc-shaped groove 21a having a predetermined curvature may be formed at the folded portion 20. Alternatively, as shown in FIG. 13, a U-shaped groove 21b may be formed at the folded portion 20. The form panel 10 for construction according to the present invention is integrally formed using a GMT (Glass-fiber Mat reinforced Thermoplastic) or SMC (Sheet Molding Compound) material, a synthetic resin material, a recyclable synthetic resin material, or the like, in a batch type by an injection-molding technique.

In a form panel 10a for construction according to another embodiment of the present invention, as shown in FIGS. 3 and 4, two or more grooves 20a are formed at the folded portion 20 in a lengthwise direction. That is to say, the plurality of grooves 20a are formed at the folded portion 20 in the lengthwise direction, which advantageously allows the folded portion 20 to be foldable with a predetermined curvature.

FIGS. 5 through 7 illustrate a form panel 10b for construction according to still another embodiment of the present invention, in which the same or corresponding functional element as that in the previous embodiment is denoted by the reference numeral.

Referring to the drawings, the form panel 10b includes a folded portion 30 formed on a front plate 11, and a thin film portion 31 which is relatively thinner than the front plate 11. A plurality of ribs 32 spaced apart from one another are formed on a rearward surface of the thin film portion 31. Each of the plurality of ribs 32 has a plate-shaped projection projecting out. A fixing member 35 for securely fixing a folded state is provided to adjust an overall length of the form panel 10b. The fixing member 35 has a tubular member having a cut portion 36 cut in its lengthwise direction.

The plurality of ribs 32 and the fixing member 35 are not limited to the illustrated examples and may take any other types so long as they are capable of supporting the folded portion 30 folded to adjust the length of the form panel according to the present invention.

Hereinafter, use examples of the form panels having the aforementioned configurations will be described.

As shown in FIG. 8, in order to construct a form panel for constructing a wall 200 having a predetermined length X1, a general form panel 100 having a standard dimension and a plurality of form panels 10 according to the present invention may be used. In some cases, the length X1 of the wall 200 may not be an integer multiple of a width X2 of the standard form panel 100, giving a dimension error. In such a case, the dimensional error can be compensated for by a folded portion 20, which is provided at each of the plurality of form panels 10 so as to be adjustably extended or contracted.

As shown in FIGS. 9 and 10, a form panel 10 for construction according to another embodiment of the present invention may be applied to an inward corner or outward corner of a building. In this case, a front plate is folded at a portion 20 forming a predetermined angle. Hence, the folded portion 20 has a relatively small thickness due to a groove 21 formed in a lengthwise direction, thereby ensuring folding linearity and efficient foldability even by a small external force.

Meanwhile, in the form panel 10b having the folded portion 30, as shown in FIGS. 5 through 7, in which the folded portion 30 includes a thin film portion 31 and the plurality of ribs 32 are provided on the rearward surface of the thin film portion 31, the length of the form panel 10b can be adaptably varied. That is to say, as shown in FIG. 11, in a state in which the thin film portion 31 of the form panel 10b is folded, the fixing member 35 is inserted into the cut portion 36 as shown in FIG. 7, thereby securely ensuring the folded position to adjust the width of the form panel 10b. In particular, the use of the form panel 10b facilitates construction of manholes or the like.

Since the form panel for construction according to the present invention is formed using a synthetic resin material, a recyclable synthetic resin material, or the like, a lightweight product can be produced compared to a case where it is formed of a metal or plywood. In addition, the form panel for construction according to the present invention exhibits excellent striping capability with respect to concrete, high workability at corner portions, and improved constructional efficiency. In particular, since disassembly is facilitated without a stripping agent, a clean surface of a concrete-formed structure can be obtained. The form panel for construction according to the present invention is integrally formed in a batch type by an injection-molding technique, providing for a high dimensional accuracy without deformation and enabling use for an extended duration and recyclability, ultimately protecting wood resources and environments.

**INDUSTRIAL APPLICABILITY**

As described above, since the form panel for construction according to the present invention is foldable at a predetermined angle, it can be easily used as a form panel for a wall forming a predetermined angle. In particular, it is possible to prevent inconvenience and difficulty in fabricating form panels for use in corners for construction. In addition, since deformation and damage can be minimized during disassembly, the form panel according to the present invention can be recycled.

1. A form panel for construction comprising:
   - a front plate supporting cast concrete;
   - a folded portion formed at the center of a rearward surface of the front plate in a lengthwise direction so as to be thinner than portions positioned at its opposite sides;
   - side connecting sections and upper and lower connecting sections, which are formed at edges of the front plate excluding the folded portion; and
   - one or more reinforcing members installed at the side connecting sections and the rearward surface of the front plate,
   wherein the form panel is formed of a synthetic resin material by an injection-molding technique.

2. The form panel of claim 1, wherein edges of the upper and lower connecting sections and edges of the reinforcing members are installed so as to be inclined with respect to the folded portion to prevent mutual interference during folding of the folded portion.

3. The form panel of claim 1, wherein the folded portion includes two or more grooves formed at the in a lengthwise direction.

4. The form panel of claim 1, wherein the folded portion includes a thin film portion which is relatively thinner than the front plate, a plurality of ribs spaced apart from one another and formed in the lengthwise direction of the form panel, and a fixing member for securely fixing a folded state of the folded portion.

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