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RESEARCH REPORT: RR 25963
(CSI #13030)

Expires: September 1, 2024
Issued Date: September 1, 2022
Code: 2020 LABC

GENERAL APPROVAL – Renewal and Clerical Modification - Custom Cooler 600 Series CLP Panels.

DETAILS

Custom Cooler Inc., 600 Series CLP panels consist of 26 and 24 gauge galvanized steel skins meeting ASTM A653, and a core of a minimum Type I Expanded Polystyrene meeting ASTM C578. Dow Chemical Voracor CK481 two-component polyurethane adhesive is used to bond the CFS skin to both sides of the EPS foam core.

The CFS skin is manufactured with a tongue and groove (male and female) profile along the vertical edges of the panels to facilitate panel-to-panel connections. The CFS skin of the female edge extends beyond the EPS foam core. The CFS skin of the male edge is flush with the foam core. Panels are joined by mating the male and female edges without the use of fasteners or an interlocking feature. The sheet metal screws used for the connections are Porteous Fastener Company (PFC) Proffered Drillerz Pro Self Drill screws. The PFC No. 8-18x3/4" SMS @ 4" O.C. (max) are used to fasten the bottom edge of panels to L2x2x 16 gauge continuous angle, which in turn, is attached to structure below in accordance with 2020 Los Angeles Building Code. The roof to wall panel connection is shown on Figure 1 of the attachment.

The panels are 4" to 10" in thickness and have a maximum width of 45". Flame spread and smoke density ratings per ASTM E84 are 0 and 55, respectively. Minimum foam core flash ignition and self-ignition temperatures are 610 °F and 850 °F, respectively.

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The panels are approved as structural wall and ceiling panels for use in interior and exterior non-fire-rated walk-in cooler and freezers as load bearing walls, roof panels, shear walls and diaphragms.

The approval is subject to the following conditions:

1. The panels are approved for use in accordance with Section 2603 of the 2020 Los Angeles City Building Code and shall comply with all of the requirements therein.
2. The foam plastic shall be separated from the interior of the freezer or cooler and from the room in which it is placed by use of ½-inch plaster or other approved thermal barrier meeting the requirements specified in section 2603.4 of the 2020 Los Angeles City Building Code.

EXCEPTION: The thermal barrier is not required if:

- a. The cooler or freezer floor area does not exceed 400-square feet and the foam plastic does not exceed a thickness of 4-inches, or
 - b. The cooler or freezer and that part of the building in which it is located is protected by an automatic sprinkler system.
3. The panels shall be manufactured in the shop of a City of Los Angeles licensed fabricator. Fabrication in unlicensed shops will invalidate the approval.
 4. The panel core material shall be a minimum Type I EPS and have a nominal density of at least 1.0 pcf per ASTM C578.
 5. The panels shall be used only in areas where combustible materials are permitted by code.
 6. Walk-in coolers installed in exterior locations shall be covered with roof covering in accordance with Section 2603.6 of the 2020 Los Angeles Building Code.
 7. Tests of the physical properties of the core material shall be performed and records of such tests shall be maintained and provided to the department upon request.
 8. Fasteners used for the various connections and fastening to the floor shall be approved by the City of Los Angeles.
 9. Complete design calculations shall be submitted to Structural Plan Check Section for each job. Plans and calculations shall bear the stamp and signature of a California registered civil or structural engineer or architect.

10. Maximum wall panel heights shall be limited as follows:

Table 1: MAXIMUM WALL PANEL HEIGHT (feet) ^a

PANEL THICKNESS (inches)	AXIAL LOADS [PLF] WITH 5 PSF LATERAL		
	200	150	100
4	19	20	21
5	22	23	24
6	24	25	27
7	26	28	29
8	28	30	31
9	30	32	34
10	31	34	36

a) Panel heights for other axial loads and wall pressures shall be evaluated on specific site conditions.

11. Shear wall and diaphragm shear values shall be limited as follows:

Table 2: ALLOWABLE SHEAR WALL VALUES

h/w	V (plf) ¹
.9 : 1	109
1.3 : 1	97
2 : 1	69

¹ The allowable shear capacities are based upon fasteners spaced at 4 inches on center used to connect the top and base angles to the panels.

12. The maximum allowable imposed roof or ceiling load (psf) are as follows:

Table 3-A

ALLOWABLE IMPOSED CEILING LOADS

24-GAUGE / 24-GAUGE FACINGS							
Panel Span (ft.)	Panel Thickness (in.)						
	4	5	6	7	8	9	10
8	54	61	75	87	101	113	126
10	34	44	56	68	82	90	111
12	22	30	38	47	56	66	76
14	16	21	27	33	41	48	55
16	11	15	20	25	30	36	41
18	6	11	17	19	23	28	32
20	6	9	12	15	18	22	25
22	5	7	9	12	15	18	20
24	3	5	7	9	12	14	18
26	-	4	6	7	10	12	14
28	-	3	5	6	8	10	11
30	-	2	4	5	6	8	10
32	-	-	2	4	5	7	8
34	-	-	-	3	4	6	7

Table 3-B

ALLOWABLE IMPOSED CEILING LOADS

26-GAUGE / 26-GAUGE FACINGS							
Panel Span (ft.)	Panel Thickness (in.)						
	4	5	6	7	8	9	10
8	42	55	72	84	99	113	126
10	25	34	45	52	62	73	83
12	17	23	30	35	42	49	57
14	12	16	21	25	30	35	41
16	8	11	16	19	22	26	31
18	6	8	12	14	17	20	24
20	4	6	9	11	13	16	19
22	3	4	7	8	10	13	15
24	2	3	5	7	8	10	13
26	1	2	4	5	7	8	10
28	-	1	3	4	5	7	8
30	-	-	2	3	4	5	6
32	-	-	-	2	3	4	5
34	-	-	-	2	3	3	4

13. Panels shall be provided with a permanent label specifying the fabricator and surface burning characteristics of the product.

DISCUSSION

The clerical modification is to capture a new contact and telephone number for the general approval.

The report is in compliance with the 2020 Los Angeles City Building Code.

The approval is based on tests in accordance with ICC-ES Acceptance Criteria for Sandwich panels (AC04), tests on the foam per requirements of Sec. 2603 of the 2020 Los Angeles City Building Code, tests conducted in accordance with ASTM E-84 on the finished panels, and load tests conducted in accordance with ASTM E-72, and tests of the PFC sheet metal screws.

Addressee to whom this Research Report is issued is responsible for providing copies of it, complete with any attachments indicated, to architects, engineers and builders using items approved herein in design or construction which must be approved by Department of Building and Safety Engineers and Inspectors.

This general approval of an equivalent alternate to the Code is only valid where an engineer and/or inspector of this Department has determined that all conditions of this Approval have been met in the project in which it is to be used.

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Attachment: Connection Details (2-Pages)