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LISTING INFORMATION OF

Acts Construction Crown ICF 7-inch

SPEC ID: 62284

Acts Construction, LLC
7816 113th Ave
Pleasant Prairie, WI 53158
United States

LISTING INFORMATION

Crown ICFs are stay-in-place, foam plastic insulating concrete forms (ICFs) for solid (flat) concrete walls. The Crown ICFs consist of two foam plastic panels that are connected by plastic cross-ties, which are embedded in the foam plastic panels. The factory-manufactured forms are for jobsite-constructed solid concrete walls, where the Crown ICFs remain in place after concrete placement. The cross-ties have flanges at the interior and exterior wall surfaces that are used to fasten various wall coverings.

The Crown ICF products allow a 7-inch concrete thick concrete wall with overall ICF thickness of 11.25 inches. Each Straight ICF form is 48 inches long and 16 inches tall. Each Straight ICF contains two EPS foam panels 16" × 48" × 2.125" thick and six plastic cross-ties placed 4 inches from each end and 8 inches on center.

Product / Assembly	Standard	Rating
Acts Construction Crown ICF 7-inch	ASTM E2634 (ICF)	ICF with EPS Panels
	ASTM C578 (EPS)	Type II EPS
	ASTM D635 (cross-tie)	CC2 as defined in IBC Sec. 2606.4
	ASTM D638 (cross-tie)	Min. tensile strength: 675 lb/ft^2 (32.3 Kn/m^2)
	ASTM D732 (cross-tie)	Complies with ASTM E2634 Sec. 6.2.6. with tested mean of 3130 psi (21.6 MPa)
	ASTM D1761 (cross-tie)	Refer to CCRR 0424 Table 2 for Fastener Ratings
	ASTM D1929 (cross-tie)	Min. Ignition Temp. 662°F (350°C)
	ASTM E84 (EPS)	FSI ≤ 25, SDI ≤ 450

CODE COMPLIANCE RESEARCH REPORT

Evaluation method	Building Code	CCRR Number
ASTM E2634 ICC-ES AC353	2018, 2015 International Building Code 2018, 2015 International Residential Code	CCRR-0424

Attribute	Value
Code Reports	Yes
Criteria	ASTM E2634 (2011, R2015)
Criteria	ICC-ES AC353 (2018)
CSI Code	03 11 19 Insulating Concrete Forming
Intertek Services	Certification
Intertek Services	Code Compliance Research Report
Listed or Inspected	LISTED
Listing Section	CONCRETE FORMS
Spec ID	62284
Test Original Issue Date	2021-07-21

Code Compliance Research Report
CCRR-0424

Issue Date: 08-30-2021
Renewal Date: 08-31-2022

DIVISION: 03 00 00 - CONCRETE
Section: 03 11 19 – Insulating Concrete Forming

REPORT HOLDER:
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REPORT SUBJECT:
Crown ICF 7-Inch Insulating Concrete Forms

1.0 SCOPE OF EVALUATION

This Research Report addresses compliance with the following Codes:

- 2018 and 2015 *International Building Code®* (IBC)
- 2018 and 2015 *International Residential Code®* (IRC)

NOTE: This report references the most recent edition of the Codes noted. Code section in earlier versions of the codes may differ.

The Crown ICF 7-Inch ICFs have been evaluated for the following properties:

- Physical properties
- Surface-burning characteristics
- Exterior walls in Types I through IV, and V construction
- Attic and crawl space fire evaluation

See Table 1 for applicable Code sections related to these properties

2.0 USES

The Crown ICF 7-inch ICFs have been evaluated for use as stay-in-place formwork for loadbearing and non-loadbearing concrete. The forms are used in construction of exterior and interior walls, foundations and retaining walls. The forms may be installed in attic and crawl space applications without a covering on the interior side in accordance with Section 4.3.2. The forms may be used in Types I, II, III, and IV (noncombustible) construction when installed in accordance Section 4.8

3.0 DESCRIPTION

3.1 Crown ICF 7-Inch ICFs: The ICFs are stay-in-place, foam plastic insulating concrete foams (ICFs) for solid (flat) concrete walls. The Crown ICFs consist of two foam plastic panels that are connected by plastic cross-ties, which are embedded in the foam plastic panels. Cross-ties are located 4 inches from each end and 8 inches on center. The factory-manufactured forms are for jobsite-constructed 7-inch-thick solid concrete walls, where the Crown ISFs remain in place after concrete placement. The cross-ties have flanges at the interior and exterior wall surfaces that are used to fasten various wall coverings.

3.2 Foam Plastic Panels:

The EPS foam plastic panels are 16 inches high, 48 inches long and 2-1/8 inches thick. The panels have a nominal density of 1.7 pcf, a flame-spread index of 25 or less and a smoke developed index of 450 or less when tested in accordance with ASTM E84, and comply with ASTM C578 as Type II.

3.3 Cross-Ties:

Polypropylene plastic cross-ties are spaced 8 inches on center horizontally and connect the EPS Panels at a 7-inch clear distance. Each one-piece plastic cross-tie has two 1-1/2- inch flanges that are embedded into the plastic panels and a webbing that connects the two flanges. See Figure 1.

3.4 Concrete:

Concrete must be normal-weight concrete complying with applicable code and must have a maximum aggregate size of 3/4 inch. Concrete must have a minimum compressive strength of 3,000 psi at 28 days. Under the IRC, concrete must comply with IRC Sections R404.1 (foundation walls and retaining walls) and R608.5.1 (walls), as applicable.

3.5 Reinforcement:

Under the IBC, the deformed steel bars must comply with Section 3.5.3.1 of ACI 318 and IBC Section 1903. If construction is based on the IRC, reinforcement must comply with IRC Sections R404.1.3.3 (foundation walls and retaining walls) and R608.5.2 (walls).

4.0 INSTALLATION

4.1 General:

Design and installation of the Crown ICF 7-inch ICFs must comply with this report, the applicable Code, and the manufacturer's published installation instructions, which must be available on the jobsite during installation.

4.2 Design:

4.2.1 IBC Method: Solid concrete walls must be designed and constructed in accordance with IBC Chapter 16 and 19, as applicable. Footings and foundations must be designed in accordance with IBC Chapter 18.

4.2.2 Alternative IBC Wind Design Method: Solid concrete walls may be designed and constructed in accordance with the provisions of Section 209 of ICC 600, subject to the limitations found in Exception 1 of IBC Section 1609.1.1 and 16091.1.1. Design and construction under the provisions of ICC 600 are limited to resisting wind forces.

4.2.3 IRC Method: Solid concrete walls and foundations must be designed in accordance with IRC Section R608 and R404.1.3, as applicable for flat wall systems.

4.2.4 Alternative IRC Methods: When used to construct buildings that do not conform to the applicability limits of IRC Sections R404.1.3 and R608.2, construction must be in accordance with the prescriptive provisions of the 2007 Prescriptive Design of Exterior Concrete Walls (PCA 100), or the structural analysis and design of the concrete must be in accordance with ACI318 and IBC Chapters 16,18,19

4.3 Interior Finish:

4.3.1 General: Except as permitted in Section 4.3.2, ICF units exposed to the building interior must be finished with an approved 15-minute thermal barrier, such as minimum ½-inch-thick regular gypsum wallboard complying with ASTM C1396, installed vertically or horizontally. The thermal barrier must be attached to the cross-tie flanges with minimum 1-5/8-inch-long, by 0.136-in diameter, Type W, coarse-thread gypsum wallboard screws spaced 12 inches on center vertically and 16 inches on center horizontally. The screws must penetrate a minimum of 1/4 inch through the flange. Gypsum board joints and screw heads must be taped and finished with joint compound in accordance with ASTM C840 or GA216.

4.3.2 Attic and Crawl Space Installations: When used for wall of attics or crawl spaces without a covering applied to that attic or crawl-space side, an ignition barrier complying with IBC Section 2603.4.1.6 or IRC Section R36.5.3 or R316.5.4, is required, except when all of the following conditions are met:

- Entry to the attic or crawl space is only to service utilities, and no storage is allowed.
- There are no interconnected attic or basement areas
- Air in the attic or crawl space is not circulated to other parts of the building.
- Under-floor crawl space ventilation is provided that complies with IBC Sections 1203.4 or IRC Section R408.1, as applicable
- Attic ventilation is provided when required by IBC Section 1202 or IRC Section R806, as applicable.
- Combustion air is provided in accordance with the International Mechanical Code Section 701
- The ICFs must have at least one label as described in section 7.0 of this report in every 160 square feet of wall area.

4.4 Exterior Finish:

4.4.1 Above Grade: The exterior surface of the ICF must be covered with an approved wall covering in accordance with the applicable Code or a current evaluation report.

When the wall covering is mechanically attached to structural members, the wall covering must be attached to the flanges of the embedded cross-ties with fasteners, described in Table 2, having sufficient length to penetrate through the flange a minimum of 1/4 inch. The fasteners have an allowable withdrawal and lateral shear strength as noted in Table 2.

The fastener spacing must be designed to support the gravity loads of the wall covering and to resist the negative wind

pressures. The negative wind pressure capacity of the exterior finish material must be the same as that recognized in the applicable Code for generic materials, or that recognized in a current evaluation report for proprietary materials and must not exceed the maximum withdrawal capacity of the fasteners listed in Table 2.

4.4.2 Below Grade: Materials used to dampproof or waterproof basement walls must be acceptable to Acts Construction LLC, the designed, or the contractor, and must comply with the applicable Code or a current evaluation report. The material must be compatible with the ICF foam plastic units, and free of solvents that will adversely affect the EPS foam plastic panels. Dampproofing, waterproofing, and drainage requirements must comply with the applicable Code. No backfill may be applied against the wall until the complete floor system is in place unless the wall is designed as a freestanding cantilever wall that does not rely on the floor system for structural support.

4.5 Foundation Walls: The ICF system may be used as a foundation stem wall when supporting wood-framed or steel-framed construction, provided the structure is supported on concrete footings complying with the applicable Code. For jurisdictions adopting the IRC, compliance with Section R404 is required.

4.6 Retaining Walls: The ICF system may be used to construct retaining walls, provided reinforcement is designed in accordance with accepted engineering principles, Section 4.2 of this report and the applicable Code.

4.7 Protection Against Termites: Where the probability of termite infestation is defined by the Code official as "very heavy", the foam plastic must be installed in accordance with IBC Section 2603.8 or IRC Section R318.4 as applicable. Areas of very heavy termite infestation must be determined in accordance with IBC Figure 2603.8 or IRC Figure R301.2(6).

4.8 Use in Buildings Required to be of Types I, II, III, and IV Construction:

4.8.1 General: Exterior walls constructed with the ICFs for use in buildings required to be of Type I, II, III, or IV construction must comply with the applicable conditions cited in sections 4.8.2 through 4.8.4.

4.8.2 Interior Finish:

4.8.2.1 Buildings of any Height: The ICFs must be finished on the interior with an approved 15-minute thermal barrier, such as ½-inch-thick gypsum wallboard, as required by the IBC. The gypsum wallboard must be installed and attached as described in Section 4.3.1.

4.8.2.2 Alternate Interior Finish for One-story Buildings: For one-story buildings, the interior finish may be in accordance with IBC Section 2603.4.1.4, provided all the conditions in that section are met.

4.8.3 Exterior Finish:

4.8.3.1 Buildings of Any Height: The ICFs must be finished on the exterior with materials described in Sections 4.8.3.1.1 and 4.8.3.1.2. The ICF must have at least one label as described in Section 7.0 visible in every 160 square feet of wall area prior to applying the wall covering.

4.8.3.1.1 Exterior Plaster: Exterior plaster must comply with the applicable Code, and the exterior plaster must be a minimum of 7/8 inch thick. The lath must be attached to the flanges of the cross-ties with fasteners described in section 4.4.1.

4.8.3.1.2 Exterior Finish -Brick Veneer: Anchored brick veneer must be attached to the flanges of the cross-ties with fasteners as described in Section 4.4.1. The 4-inch-thick brick veneer must comply with the IBC and must be installed with a 1-inch air gap between the face of the exterior EPS panel and the brick. The brick must be installed with a steel shelf angle attached to the concrete and installed at each floor line and at the top of each window and door opening.

4.8.4 Fireblocking: Foam plastic on the interior side of exterior walls and on both sides of interior walls must be discontinuous at floor lines. The intersections must be constructed to prevent the passage of flame, smoke, and hot gases from one floor to another.

5.0 CONDITIONS OF USE

The Crown 7-inch Insulating Concrete Forms described in this Research Report comply with, or are suitable alternatives to, what is specified in the Codes listing in Sections 1.0 and 2.0 of this report, subject to the following conditions:

5.1 The ICFs must be manufactured, identified, and installed in accordance with this Research Report, the manufacturer's published installation instructions, and the applicable Code. The provisions in this report take precedence over the provisions in the manufacturer's instructions.

5.2 When required by the Code official, calculations showing compliance with the general design requirements of the applicable Code must be submitted to the building official for approval, except where calculations are not required under IRC Section R608.1. The calculations and details must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

5.3 When required by the Code official, calculations and details showing compliance with IRC Sections R608.5.3 and R404.1.3.3.6 must be submitted, establishing that the ICFs provide sufficient strength to contain concrete during placement and the cross-ties are capable of resisting the forces created by fluid pressure of fresh concrete. The calculations and details must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

5.4 The ICFs must be separated from the building interior with an approved 15-minute thermal barrier except for attic and crawl space construction as detailed in Section 4.3.2

5.5 Use of the ICF system in Types I, II, III, IV construction must be as described in Section 4.8

5.6 The plastic cross-ties must be stored indoors away from direct sunlight.

5.7 The Crown ICF 7-inch is manufactured under a quality control program with inspections by Intertek Testing Services NA, Inc.

6.0 SUPPORTING EVIDENCE

6.1 Reports of tests in accordance with ASTM E2634-15,

6.2 Data in accordance with the ICC-ES Acceptance Criteria for Stay-in-place, Foam Plastic Insulating Concrete Form (ICF) Systems for Solid Concrete walls (AC353), editorially revised October 2015.

6.3 Intertek Listing Report Spec ID 62284 "Acts Construction Crown ICF 7-inch", on the Intertek Directory of Building Products.

7.0 IDENTIFICATION

Crown ICF 7-inch ICFs are identified with the report holder's name (Acts Construction, LLC), telephone number, the product name (Crown ICF 7-Inch), The Manufacturing location, manufacturing date, lot number, the Intertek Mark as shown below, the Intertek Control Number and the Code Compliance Research Report number (CCRR-0424).

When used in buildings to be of Type I, II, III, or IV construction, one label must be visible in every 160 square feet of wall area.

When the forms are used in attics or crawl spaces without an ignition barrier, the exposed inside face of the ICF must be labeled with the phrase "Suitable for use in attics and crawl spaces." The label must e visible in every 160 square feet of wall area.

8.0 OTHER CODES

This section is not applicable.

9.0 CODE COMPLIANCE RESEARCH REPORT USE

9.1 Approval of building products and/or materials can only be granted by a building official having legal authority in the specific jurisdiction where approval is sought.

9.2 Code Compliance Research Reports shall not be used in any manner that implies an endorsement of the product by Intertek.

9.3 Reference to the https://bpdirectory.intertek.com is recommended to ascertain the current version and status of this report.

TABLE 1 - PROPERTIES EVALUATED

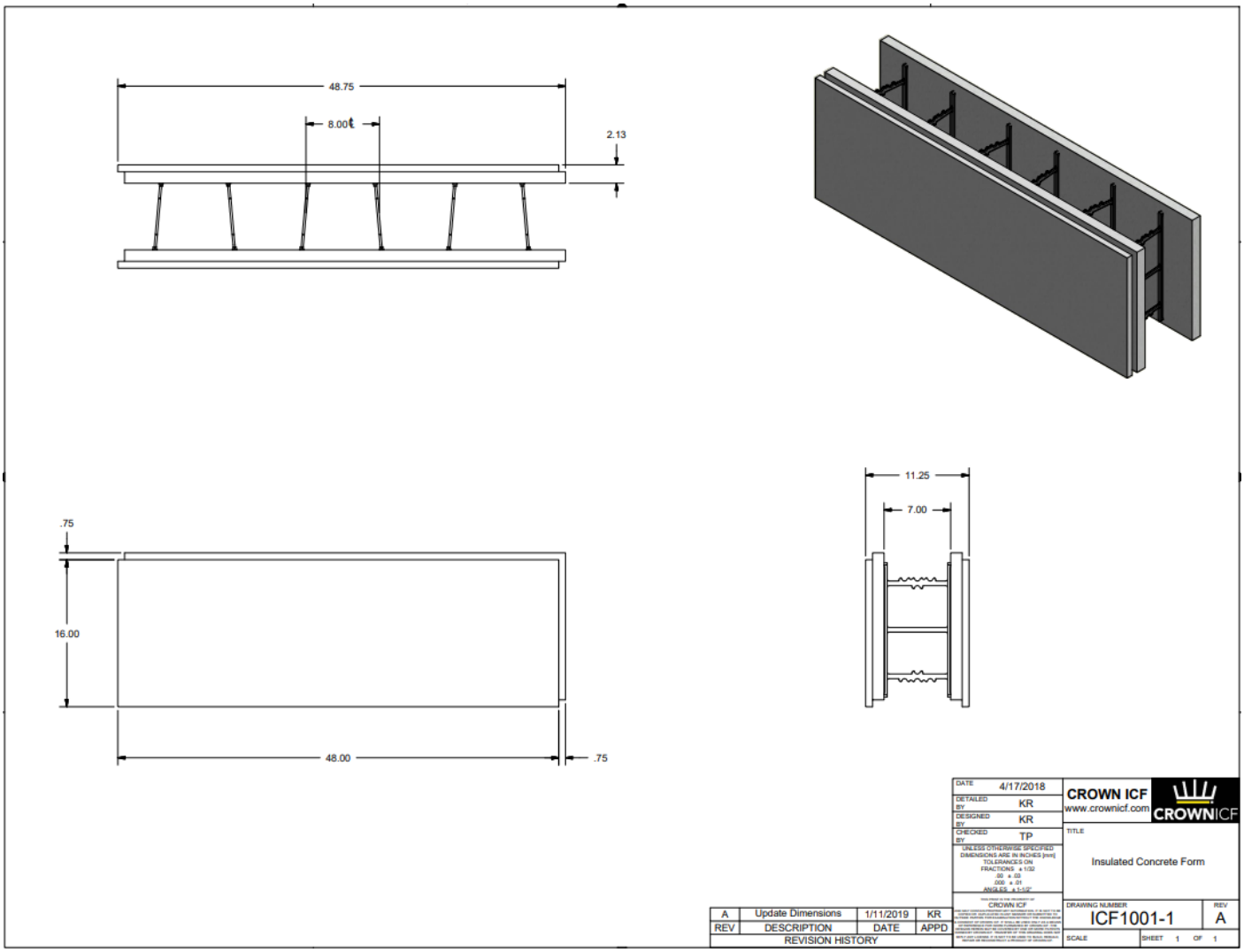
PROPERTY	2018 IBC SECTION[1]	2018 IRC SECTION[1]
Physical properties	1903.4	R404.1.3.3.6.1, R608.4.4
Surface-burning characteristics	2603.3	R316.3
Exterior walls in type I, II, III, and IV construction	2603.5	NA
Attic and crawl space applications	2603.4.1.6	R316.5.3, R316.5.4, R316.6

[1] Section numbers may be different for earlier versions of the International Building Codes.

TABLE 2 – ALLOWABLE WITHDRAWAL AND LATERAL CAPACITIES OF FASTENERS IN CROSS-TIE FLANGES

FASTENER	ALLOWABLE LOAD CAPACITY (lbf)	
	Lateral[1]	Withdrawal[2]
Grip Fast Pro Coated Cabinet Screw # 10 × 2-1/2", T20 Star drive head	151	61
Ring Shanked Framing Nail 2-3/8"× 0.113" (Clipped Head)	52	18
Coarse Thread Drywall Screw # 6 × 1-5/8" (#2 Phillips drive head)	40	48
Fine Thread Drywall Screws # 6 × 1-5/8" (#2 Phillips drive head)	75	48
Coated Deck Screw # 9 × 2" (combo-head #2 Phillips / #2 Square drive)	152	57

[1]Allowable lateral load capacity by methods of Section 4.1.3.2.2. of ICC-ES AC 353.
[2]Allowable withdrawal capacity established by dividing the ultimate load by a factor of 5.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DATE 4/17/2018
DETAILED BY KR
DESIGNED BY KR
CHECKED BY TP
CROWN ICF
www.crownicf.com
TITLE
Insulated Concrete Form
DRAWING NUMBER ICF1001-1
REV A
SCALE
SHEET 1 OF 1
A Update Dimensions 1/11/2019 KR
REV DESCRIPTION DATE APPD
REVISION HISTORY

Figure 1.0