

ICC-ES Evaluation Report

ESR-1642

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DIVISION: 03—CONCRETE
Section: 03130—Permanent Forms

REPORT HOLDER:

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EVALUATION SUBJECT
LOGIX INSULATING CONCRETE FORMS
1.0 EVALUATION SCOPE
Compliance with the following codes:

- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)
- Other Codes (see Section 8.0)

Properties evaluated

- Structural
- Surface burning characteristics
- Crawl space fire evaluation
- Fire resistance
- Noncombustible construction

2.0 USES

The Logix Insulating Concrete Forms (ICFs) are used as stay-in-place formwork for structural concrete, load-bearing and nonload-bearing, below-grade and above-grade walls. The forms are used in construction of plain and reinforced concrete beams, lintels, exterior and interior walls, and foundation and retaining walls. The forms remain in place after placement and curing of concrete and must be covered with approved interior and exterior finish material. The forms may be used in Type V construction; for use in buildings of Type I, II, III and IV construction, installation must be in accordance with Section 4.4.

3.0 DESCRIPTION
3.1 General:

The Logix ICFs are classified as a flat ICF wall system in accordance with Section R611.3 of the IRC.

3.2 Materials:

3.2.1 Logix Insulating Concrete Forms: The Logix ICFs consist of two expanded polystyrene (EPS) foam plastic boards separated by injection molded polypropylene cross ties, which are partially embedded into the EPS boards. The polypropylene cross ties, which are spaced 8 inches (203 mm) on center horizontally, maintain the EPS board facings at a fixed clear distance of 4 inches (102 mm), 6¹/₄ inches (158 mm), 8 inches (203 mm), 10 inches (254 mm) or 12 inches (305 mm). For the standard forms, the EPS boards are 16 inches (406 mm) high by 48 inches (1219 mm) long. The EPS boards have a maximum thickness of 2³/₄ inches (70 mm). When stacked in a running bond pattern, the Logix ICFs create a cavity where steel reinforcement bars and concrete are placed. In addition to the standard forms, 45-degree angle forms, 90-degree angle corner forms, taper top blocks, brick ledge blocks and transition blocks are also available. See Figure 1 for illustration of the forms.

The 45-degree-angle forms and 90-degree-angle corner forms are used to construct wall intersections. The taper top block is used to construct corbels in the wall at the desired locations. The brick ledge blocks are used to construct corbels that serve as ledges, for supporting exterior brick veneers. The EPS foam boards are molded from beads specified in the approved quality control manuals. The foam plastic has a nominal density of 1.45 pcf (23.2 kg/m³), and has a flame-spread index of 25 or less and a smoke-density index of 450 or less when tested in accordance with ASTM E 84. The foam plastic insulation complies with ASTM C 578 as Type II.

3.2.2 Cross Ties: The cross ties are 8.5 inches (216 mm), 10.75 inches (273 mm), 12.5 inches (318 mm) or 14.5 inches (368 mm) in length and have a 1.25-inch-wide-by-14.25-inch-high (32 mm by 362 mm), 0.1875-inch-thick (4.8 mm) flange. The plastic flanges, embedded ¹/₂ inch (13 mm) below the outside surface of the EPS foam boards, provide supports for attaching interior and exterior wall coverings. Refer to Figure 1 for details.

3.2.3 Concrete: Concrete must be normal-weight concrete complying with the applicable code, having a maximum aggregate size of ³/₄ inch (19 mm) and a maximum slump of 6 inches (152 mm). The maximum water-cementitious materials ratio must be 0.5, unless otherwise approved by the code official. Concrete must have a 28-day minimum compressive strength of 3,000 psi (20.7 MPa). Under the IRC, concrete must comply with IRC Sections R404.4 and R611.6.1.

3.2.4 Reinforcement: Walls must be reinforced with deformed steel bars, having a minimum yield stress of 40 ksi (275 MPa). The deformed steel bars must comply with Section 3.5.3.1 of ACI 318-05. If construction is based on the IRC, reinforcement must comply with IRC Sections R404.4.6 and R611.6.2.

3.2.5 Other Components: Wood members in contact with concrete for plates of window and door framing must be treated with an approved wood preservative or be a naturally durable species, and must be attached with corrosion-resistant fasteners complying with IBC Section 2304.9.5 or IRC Section R319.3, as applicable. Materials other than wood, such as vinyl, are permitted for window and door framing if approved by the code official.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 IBC Design: Concrete walls formed by Logix ICFs must be designed and constructed in accordance with IBC Chapters 16 and 19, as applicable. Footings and foundations must be designed and constructed in accordance with IBC Chapter 18.

4.1.2 IRC Design: Walls constructed with the Logix ICFs comply with IRC Figure R611.3 as flat ICFs. Wall design, construction and materials must comply with IRC Sections R404.4 and R611, for flat ICF wall systems.

4.1.3 Alternate IRC Design Method: When Logix ICFs are used to construct buildings that do not conform to the applicability limits of the IRC sections R404.4.1 and R611.2, the structural analysis and design of the concrete must be in accordance with ACI 318 and IBC Chapter 19. Use of the empirical design approach specified in Section 14.5 of ACI 318 is permitted for the design of concrete walls formed by the Logix ICFs.

4.2 Installation:

4.2.1 General: The Logix ICFs must be installed in accordance with the Logix published installation instructions, this report and the applicable code. The published installation instructions and this report must be strictly adhered to, and a copy of these instructions must be available at all times on the jobsite during installation. The Logix ICFs must be supported on concrete footings complying with Chapter 18 of the IBC, or Chapter 4 of the IRC.

Vertical reinforcement bars, embedded in the footing, must extend a minimum of 24 inches (610 mm) into the block wall system. The Logix ICFs must be stacked in a running bond pattern such that the cross ties align vertically. Vertical and horizontal reinforcement bars must be placed as required by the design and the applicable code. All horizontal and vertical reinforcement bars must have minimum concrete protection in accordance with the applicable code.

Concrete quality, mixing, and placing must comply with the applicable code. Refer to Figure 2 for typical installation details.

When regulation is under the IRC, reinforcing steel for the Logix ICFs used above grade must comply with Section R611 of the IRC.

Pressure-preservative-treated wood ledgers must be attached to the concrete wall by removing the face shell of the EPS units, with the height of the removed portion equal to the depth of the wood ledger. The minimum ambient temperature during placement must be in accordance with ACI 306. When concrete is placed into the wall system, the concrete-filled volume, provided for the anchor bolts, forms

solid corbels that serve as ledges for supporting loads such as brick veneer and heavier floor loads. The transition blocks serve the same function as brick ledge blocks but provide larger bearing lengths to support heavier loads. The spacing and embedment depth of the anchor bolts must comply with the structural design and code requirements. Anchor bolts used to connect the wood ledgers or plates to the concrete must be cast-in-place, with the bolts sized and spaced as required by the design using values as indicated in Section 1912 or Section 1913 of the IBC.

4.2.2 Interior Finish:

4.2.2.1 General: Logix ICFs exposed to the interior of the building must be finished with minimum $\frac{1}{2}$ -inch-thick (13 mm) regular gypsum wallboard complying with ASTM C 36 or C 1396, attached to the flanges of the cross ties. The wallboard must be installed vertically and attached to the flanges of the cross ties with minimum 2-inch-long (51 mm), No. 6, Type W, coarse thread, gypsum wallboard screws spaced 16 inches (406 mm) on center horizontally, and 12 inches (305 mm) vertically. Gypsum wallboard joints must be taped and filled with joint compound in accordance with GA-216 or ASTM C 840. See Section 4.2.2.2 for installation details when use is as walls of crawl spaces without a covering on the interior face.

4.2.2.2 Crawl Space Installation: Logix ICFs located in under-floor crawl spaces are permitted to be exposed to the crawl space, subject to all of the following conditions:

- Entry to the crawl space is only to service utilities, and heat-producing appliances are not permitted.
- There are no interconnected basement areas.
- Air in the crawl space is not circulated to other parts of the building.
- Under-floor ventilation of the crawl space is provided in accordance with IBC Section 1203.3 or IRC Section R408, as applicable.

4.2.3 Exterior Finish:

4.2.3.1 Above Grade: The Logix ICFs must be covered on the exterior with an approved wall covering in accordance with the applicable code. Under the IRC, the walls must be flashed in accordance with IRC Section R703.8. The approved wall covering must be attached to the flanges of the cross ties with the fasteners described in Table 1. The fasteners must be corrosion-resistant and have sufficient length to protrude through the flanges of the cross ties a minimum of $\frac{1}{4}$ inch (6.4 mm). The fasteners have the allowable withdrawal and lateral capacities shown in Table 1. The maximum fastener spacing must be designed to support the gravity loads of the wall covering and resist the negative wind pressures. Negative wind pressure capacity of the exterior finish material must be the same as that recognized in the code for generic materials, or in a current ICC-ES evaluation report for proprietary materials.

4.2.3.2 Below-grade: Materials used to dampproof basement walls must be specified by Logix Insulated Concrete Forms, and must comply with the applicable code or a current evaluation report, and must be compatible with foam plastic forms. Applicable dampproofing and waterproofing requirements are in IBC Section 1807 and IRC Section R406. Compliance is required with the drainage requirements in IBC Section 1807.4 or IRC Section R405.1. No backfill is permitted to be applied against the wall until the complete floor system is in place, unless the wall is designed as a freestanding wall that does not rely on the floor system for structural support.

4.2.4 Foundation Walls: The Logix ICFs are permitted to be used as a foundation stem wall when supporting wood-framed or concrete construction and when the structure is supported on concrete footings complying with the applicable code. Design and installation of the Logix ICF system as foundation stem walls must comply with IBC Section 1805.5 or IRC Section R404.4, as applicable.

4.2.5 Retaining Walls: The Logix ICFs used to form concrete retaining walls are to be reinforced with reinforcement designed in accordance with accepted engineering principles and Section 4.1 of this report.

4.2.6 Protection Against Termites: Where the probability of termite infestation is defined as "very heavy" by the code official, the forms must be installed in accordance with IBC Section 2603.8 or IRC Section R320.5, as applicable. Areas of very heavy termite infestation must be determined in accordance with IBC Figure 2603.8 or IRC Figure R301.2(6), as applicable.

4.3 Fire-resistance-rated Construction:

Walls constructed with Logix ICFs have fire-resistance rating for bearing and nonbearing wall assemblies as shown in Table 2.

4.4 Installation in Buildings Required to Be of Type I, II, III and IV Construction:

4.4.1 General: Exterior walls constructed with Logix ICFs are permitted to be used in buildings required to be of Type I, II, III and IV construction, provided the applicable conditions cited below are met. The assemblies described in this section (Section 4.4) comply with IBC Section 1406.2.1.1.

4.4.2 Interior Finish: The forms must be finished on the interior with an approved 15-minute thermal barrier such as 1/2-inch-thick (13 mm) gypsum wallboard as required by the applicable code. The gypsum wallboard must be installed and attached as described in Section 4.2.2.1.

4.4.3 EIFS Exterior Finish: The following EIFS lamina may be installed over the exterior of the forms when applied using their respective reinforcing fabric or lath, base coat and finish coat materials described in their respective evaluation reports:

- Sto Corporation STOTerm Classic EIFS as described in [ESR-1720](#).
- Sto Corporation STOTerm Classic Next[®] EIFS as described in [ESR-1748](#).

4.4.4 Fireblocking: For applications on buildings of any height, floor-to-wall intersections must be fireblocked in accordance with the IBC to prevent the passage of flame, smoke and hot gases from one story to another. The foam plastic insulation on the interior side of the exterior walls and on both sides of interior walls must be discontinuous from one story to another. See Figure 3. Details of typical floor-to-wall intersections must be provided, to the code official, on approved drawings.

4.4.5 One-story Buildings: The following conditions apply:

4.4.5.1 Fire Sprinklers: The building must be equipped throughout with an automatic sprinkler system in accordance with the IBC.

4.4.5.2 Exterior Finish: The foam plastic on the exterior face of the foam wall must be covered with aluminum of a thickness of not less than 0.019 inch (0.48 mm), or corrosion-resistant steel having a base-metal thickness of 0.0160 inch (0.41 mm). Attachment of the metal wall covering must be designed by a registered design professional.

4.4.5.3 Interior Finish: The forms must be finished on the interior with an approved 15-minute thermal barrier such as 1/2-inch-thick (13 mm) gypsum wallboard as required by the applicable code. The gypsum wallboard must be installed and attached as described in Section 4.2.2.1.

4.5 Special Inspection:

4.5.1 IBC: Special inspection is required as noted in IBC Section 1704 for placement of reinforcing steel and concrete, and for concrete cylinder testing.

Special inspections in accordance with IBC Sections 1704.1 and 1704.12 are required when the EIFS wall covering system is applied. Duties of the special inspector include verifying field preparation of materials, expiration dates, installation of components, curing of components, installation of joints and sealants.

4.5.2 IRC: For walls designed and constructed in accordance with Section 4.1.2 of this report, special inspections are not required. For walls designed in accordance with the Section 4.1.3, special inspection in accordance with Section 4.5.1 is required.

5.0 CONDITIONS OF USE

The Logix Insulating Concrete Forms described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** Forms are manufactured, identified and installed in accordance with this report and Logix's published installation instructions. If there is a conflict between the manufacturer's published installation instructions and this report, this report governs.
- 5.2** The forms are separated from the building interior as described in Section 4.2.2.1, except for crawl space construction described in Section 4.2.2.2.
- 5.3** When use is as a part of a fire-resistance-rated assembly, Section 4.3 of this report applies.
- 5.4** Except as described in Section 4.4, concrete walls formed by the Logix ICFs are limited to combustible construction as defined in IBC Chapter 6 and to construction in accordance with the IRC.
- 5.5** When required by the code official, calculations showing compliance with the general design requirements of IBC Chapter 16 must be submitted to the code official for approval, except that calculations are not required when the building design is based on Sections 4.1.2 of this report. The calculations and details must be prepared by a registered design professional where required by the status of the jurisdiction in which the project is to be constructed.
- 5.6** Concrete quality, mixing and placement must comply with IBC Section 1905, or IRC Section R611.6.1, as applicable.
- 5.7** Special inspection must be provided in accordance with Section 4.5.
- 5.8** Logix Insulating Concrete Forms are manufactured by Beaver Plastics Ltd., located in Edmonton, Alberta, Canada, and Chilliwack, British Columbia, Canada; AMC Insulation Corporation, in Winnipeg, Manitoba, Canada; Form Systems Inc., in Hayesville, Kansas; Perma R Products Inc. in Johnson City, Tennessee; and PSC Moulding Corporation in Cobourg, Ontario, Canada. Logix Insulating Concrete Forms are produced under a quality control program with inspections conducted by Underwriters Laboratories Inc. (AA-668).

6.0 EVIDENCE SUBMITTED

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), dated October 2007 (editorially revised April 2008).

7.0 IDENTIFICATION

Each pallet of Logix ICFs must bear a label specifying the company name (Logix Insulated Concrete Forms Ltd.), the evaluation report number (ESR-1642), the manufacturing location, the date of production, and the name and logo of the inspection agency (Underwriters Laboratories Inc.)

When used in buildings required to be of Type I, II, III, or IV construction, as described in Section 4.4, the forms must have at least one label visible in every 160 square feet (14.9 m²) of wall area.

8.0 OTHER CODES

8.1 Evaluation Scope:

In addition to the codes referenced in Section 1.0, the products in this report were evaluated for compliance with the requirements of the BOCA[®] *National Building Code/1999* (NBNC), the 1999 *Standard Building Code*[®] (SBC) and the 1997 *Uniform Building Code*[™] (UBC).

8.2 Uses:

See Section 2.0.

8.3 Description:

See Section 3.0, except that under the UBC reinforcement must comply with Section 1903 of the UBC, and fastening of wood members in contact with concrete must be in accordance with UBC 2304.3.

8.3.1 Concrete: Under the SBC, concrete must comply with SBC Section 1916.6.1; and under the NBNC, concrete must comply with Section 1906.

8.3.2 Reinforcement: The deformed steel bars must comply with Section 3.5.3.1 of ACI 318-05 and UBC Section 1903.5 (UBC), Section 3.5.3.1 of ACI 318-95 (NBNC), or SBC Section 1916.6.2, as applicable.

8.3.3 Other Components: Wood members in contact with concrete for plates of window and door framing must be treated with an approved wood preservative or be a naturally durable species, and must be attached with corrosion-resistant fasteners complying with the UBC Section 2304.3, NBNC Section 2311.3.3, or SBC Section 2306.3, as applicable.

8.4 Design and Installation:

8.4.1 UBC or NBNC: Concrete walls formed by Logix ICFs must be designed and constructed in accordance with UBC or NBNC Chapters 16 and 19, as applicable. Footings and foundations must be designed and constructed in accordance with UBC or NBNC Chapter 18, as applicable.

8.4.2 Alternate UBC Design Method: Walls limited to a maximum of two stories plus a basement, and a maximum unsupported wall span of 10 feet (3048 mm), may be designed in accordance with Publication No. EB118, *Prescriptive Method for Insulating Concrete Forms in Residential Construction*, dated May 1998, published by the Portland Cement Association, subject to all applicability limits in Table 1.1 of that document.

8.4.3 Design in accordance with SBC: Walls constructed with the Logix Insulating Concrete Forms comply with SBC Figure 1916.3 as flat insulating concrete forms. Wall design, construction and materials must

comply with SBC Sections 1804.6.2 and 1916, as applicable, for flat insulating concrete form wall systems.

8.4.4 Alternative SBC design Method: When Logix forms are used to construct buildings that do not conform to the applicability limits of the SBC Sections 1916.2 and 1804.6.2.1, the structural analysis and design of the concrete must be in accordance with ACI 318 and SBC Chapter 19.

8.4.5 Installation: The Logix Insulating Concrete Forms must be supported on concrete footings complying with Chapter 18 of the UBC.

Vertical reinforcement bars, embedded in the footing, must extend a minimum of 24 inches (610 mm) into the block wall system. The Logix Insulating Concrete Form blocks must be stacked in a running bond pattern such that the polypropylene webs align vertically. Vertical and horizontal reinforcement bars must be placed as required by the design and the applicable code. All horizontal and vertical reinforcement bars must have minimum concrete protection in accordance with the applicable code. Concrete quality, mixing, and placing must comply with the applicable code. Refer to Figure 2 for typical installation details.

Pressure-preservative-treated wood ledgers must be attached to the concrete wall by removing the face shell of the EPS units, with the height of the removed portion equal to the depth of the wood ledger. The minimum ambient temperature during placement must be in accordance with ACI 306. When concrete is placed into the wall system, the concrete-filled volume, provided for the anchor bolts, forms solid corbels that serve as ledges for supporting loads such as brick veneer and heavier floor loads. The transition blocks serve the same function as brick ledge blocks but provide larger bearing lengths to support heavier loads. The spacing and embedment depth of the anchor bolts must comply with the structural design and code requirements. Anchor bolts used to connect the wood ledgers or plates to the concrete must be cast-in-place, with the bolts sized and spaced as required by the design using values as indicated in Section 1923 of the UBC.

Anchor bolts used to connect the wood ledgers or plates to the concrete must be cast-in-place, with the bolts sized and spaced as required by the design using values as indicated in Section 1923 of the UBC.

8.4.5.1 Below Grade: Materials used to dampproof basement walls must be specified by Logix Insulating Concrete Forms, and must comply with the applicable code or a current evaluation report, and must be compatible with foam plastic forms. Applicable dampproofing and waterproofing requirements are in UBC Appendix Chapter 18, NBNC Section 1813 and SBC Section 1814. Compliance is required with the drainage requirements in UBC Section 1804.7, NBNC Section 1813.5 or SBC Section 1814. No backfill is permitted to be applied against the wall until the complete floor system is in place, unless the wall is designed as a freestanding wall that does not rely on the floor system for structural support.

8.4.5.2 Foundation Walls: The Logix ICFs are permitted to be used as a foundation stem wall when supporting wood-framed or concrete construction and when the structure is supported on concrete footings complying with the applicable code. Design and installation of the Logix ICF system as foundation stem walls must comply with NBNC Section 1812 or SBC Section 1804.6.2, as applicable. In jurisdictions adopting the UBC, compliance with Table 18-1-C is required.

8.4.6 Protection Against Termites: For applications governed by the SBC, Logix Insulating Concrete Forms must be installed in accordance with SBC Sections 1916.7.5 and 2603.3, as applicable. Areas of very heavy termite infestation must be determined in accordance with SBC Figure 2304.1.4.

8.4.7 Installation in Buildings Required to be of Noncombustible Construction (UBC, BNBC and SBC): Exterior walls constructed with Logix ICFs are permitted to be used in noncombustible construction (UBC, BNBC and SBC), provided the applicable conditions cited below are met:

8.4.7.1 General: Exterior walls constructed with Logix ICFs are permitted to be used in non-combustible construction (UBC, BNBC and SBC), provided the applicable conditions cited below are met:

8.4.7.1.1 Interior Finish: The forms must be finished on the interior with an approved 15-minute thermal barrier such as 1/2-inch-thick (13 mm) gypsum board as required by the applicable code. The gypsum board must be installed and attached as described in Section 4.2.2.1.

8.4.7.1.2 EIFS Exterior Finish: The following EIFS lamina may be installed over the exterior of the forms when applied using their respective reinforcing fabric or lath, base coat and finish coat materials described in their respective evaluation reports:

- Sto Corporation STOTerm Classic EIFS as described in [ESR-1720](#).
- Sto Corporation STOTerm Classic NextT® EIFS as described in [ESR-1748](#).

8.4.7.1.3 Fireblocking: For applications on buildings of any height, floor-to-wall intersections must be fireblocked in accordance with the applicable code to prevent the passage of flame, smoke and hot gases from one story to another. The foam plastic insulation on the interior side of the exterior walls and on both sides of interior walls must be discontinuous from one story to another. See Figure 3. Details of typical floor-to-wall intersections must be provided, to the code official, on approved drawings.

8.4.7.2 One-story Buildings: The following conditions apply:

8.4.7.2.1 Fire Sprinklers: The building must be equipped throughout with an automatic sprinkler system in accordance with the applicable code.

8.4.7.2.2 Exterior Finish: The foam plastic on the exterior face of the foam wall must be covered with aluminum of a thickness of not less than 0.019 inch (0.48 mm), or corrosion-resistant steel having a base-metal thickness of 0.0160 inch (0.41 mm). Attachment of the metal wall covering must be designed by a registered design professional.

8.4.7.2.3 Interior Finish: The forms must be finished on the interior with an approved 15-minute thermal barrier such as 1/2-inch-thick (13 mm) gypsum wallboard as required by the applicable code. The gypsum wallboard must be installed and attached as described in Section 4.2.2.1.

8.4.8 Special Inspection (UBC):

8.4.8.1 UBC: Special inspection is required as noted in UBC Section 1701 for placement of reinforcing steel and concrete, and for concrete cylinder testing. When approved by the code official, special inspection may be waived when all of the following conditions are met:

1. Wall systems are a maximum of 8 feet high (2.4 m) and are limited to use in single-story construction of Group R, Division 3, or Group U Occupancies.
2. Maximum height of a concrete lift is 48 inches (1219 mm). Succeeding lifts must be placed in accordance with Section 1905.10.5 of the UBC.
3. Installation is by properly trained installers approved by Logix Insulated Concrete Forms Ltd.
4. The installation instructions indicate methods used to verify proper placement of concrete.
5. Half the allowable stresses or loads permitted by the UBC are used for the design of the walls.

8.4.8.2 BNBC: Special inspections is required as noted in BNBC Section 1704.5, and is to include, but not be limited to, concrete, reinforcing steel and formwork materials, installation of reinforcing steel, formwork installation, bracing and concreting operations.

8.4.8.3 SBC: Special inspection is required as noted in SBC Section 1707.1, and is to include, but not be limited to, concrete, reinforcing steel and formwork materials, installation of reinforcing steel, formwork installation, bracing and concreting operations.

8.5 Conditions of Use:

8.5.1 Logix ICFs are manufactured, identified, designed and installed in accordance with this report and the manufacturer's published installation instructions.

8.5.2 Except as described in Section 8.4.7, concrete walls formed by the Logix ICFs are limited to combustible construction as defined in Chapter 6 of the BNBC, SBC or UBC, as applicable.

8.5.3 When required by the code official, calculations showing compliance with the general design requirements of Chapter 16 of the BNBC or UBC must be submitted to the code official for approval, except calculations are not required when the building design is based on Sections 8.4.2 or 8.4.3 of this report. The calculations and details must be prepared by a registered design professional where required by the status of the jurisdiction in which the project is to be constructed.

8.5.4 The ICF forms are separated from the building interior with and must be finished with minimum 1/2-inch-thick (13 mm) regular gypsum wallboard complying attached to the flanges of the cross ties.

8.5.5 When regulation is under the UBC, BNBC or SBC, special inspection is required in accordance with Section 8.4.8 of this report.

8.5.6 Concrete quality, mixing and placement must comply with UBC Section 1905, Chapter 5 of ACI 318-95 (BNBC) or SBC Section 1916.6.1, as applicable.

8.5.7 When use is in buildings required to be of noncombustible construction, as described in Section 8.4.7, the forms must have at least one label as described in Section 7.0 visible in every 160 square feet (14.9 m²) of wall area.

8.6 Evidence Submitted:

See Section 6.0.

8.7 Identification:

See Section 7.0.

TABLE 1—ALLOWABLE WITHDRAWAL AND LATERAL CAPACITIES OF SCREWS¹

SCREW TYPE	ALLOWABLE CAPACITY (pounds)	
	Withdrawal Capacity	Lateral Capacity
No. 6, Type W, coarse-thread, corrosion-resistant gypsum wallboard screw	31	68

For **SI**: 1 pound = 4.45 N.

¹Screws must be corrosion-resistant and have sufficient length to penetrate the flanges of the cross ties at least 1/4 inches (6 mm).

TABLE 2—LOGIX INSULATING CONCRETE FORMS IN FIRE-RESISTANCE-RATED ASSEMBLIES^{1,2}

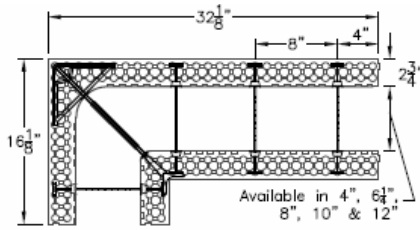
TYPE-RATING	CAVITY THICKNESS (inches)	INTERIOR WALL FINISH	EXTERIOR WALL FINISH	STEEL REINFORCEMENT
Bearing and nonbearing wall-3 hr. Allowable axial load 36600 pounds per foot ³ .	6 1/4	1/2-inch-thick gypsum wallboard, 48 inches wide, fastened to the flanges of cross ties with 2-inch-long gypsum wallboard screws as specified in Table 1. Joints covered with joint compound, covered with tape, and additional coat of joint compound in accordance with GA-216 or ASTM C840.	Not required	No. 4 steel rebars horizontally within cross ties. No. 4 rebars vertically in the center of ICF at 16 in. o.c.

For **SI**: 1 lbf/ft = 14.5935 N/m; 1 inch = 25.4 mm.

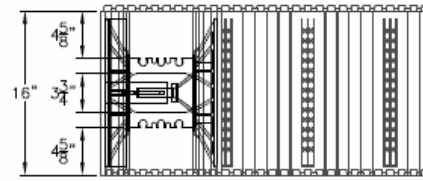
¹Concrete must be normal-weight concrete (145±5 psf) (2323-2404 kg/m³) with a minimum 3000 psi (20.7 MPa) compressive strength at 28 days.

²The wall assembly may be used as either interior or exterior wall. When used as interior wall, both sides of the form must be protected with the interior wallboard as noted in the table.

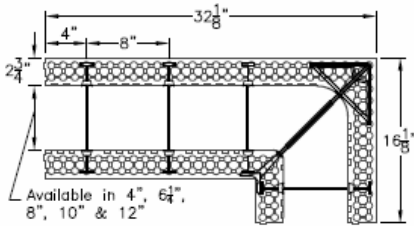
³Per 10-foot wall height.



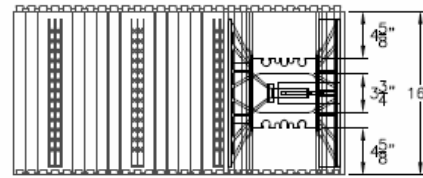
PLAN VIEW RIGHT HAND 90° STANDARD & HALF HEIGHT CORNER BLOCK



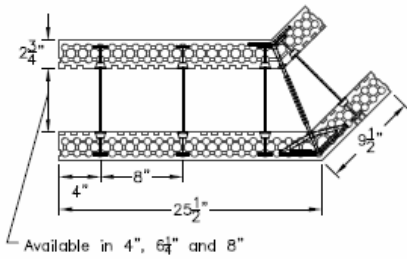
SIDE ELEVATION (full height block shown)



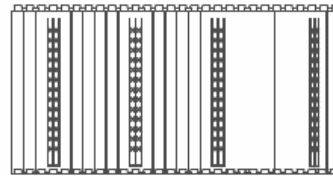
PLAN VIEW LEFT HAND 90° STANDARD & HALF HEIGHT CORNER BLOCK



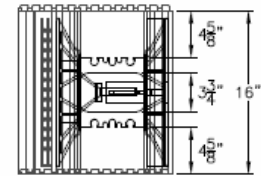
SIDE ELEVATION (full height block shown)



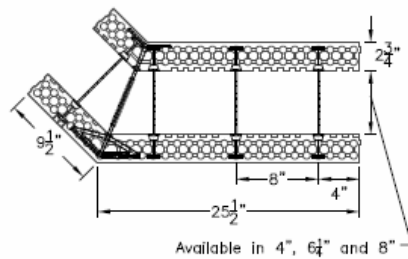
PLAN VIEW RIGHT HAND 45° STANDARD & HALF HEIGHT CORNER BLOCK



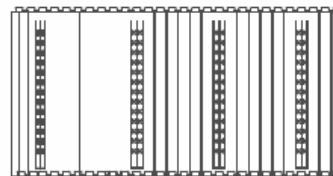
SIDE ELEVATION



END VIEW (full height block shown)



PLAN VIEW LEFT HAND 45° STANDARD & HALF HEIGHT CORNER BLOCK



SIDE ELEVATION

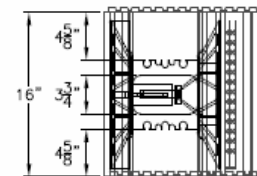


FIGURE 1—LOGIX INSULATING CONCRETE FORMS

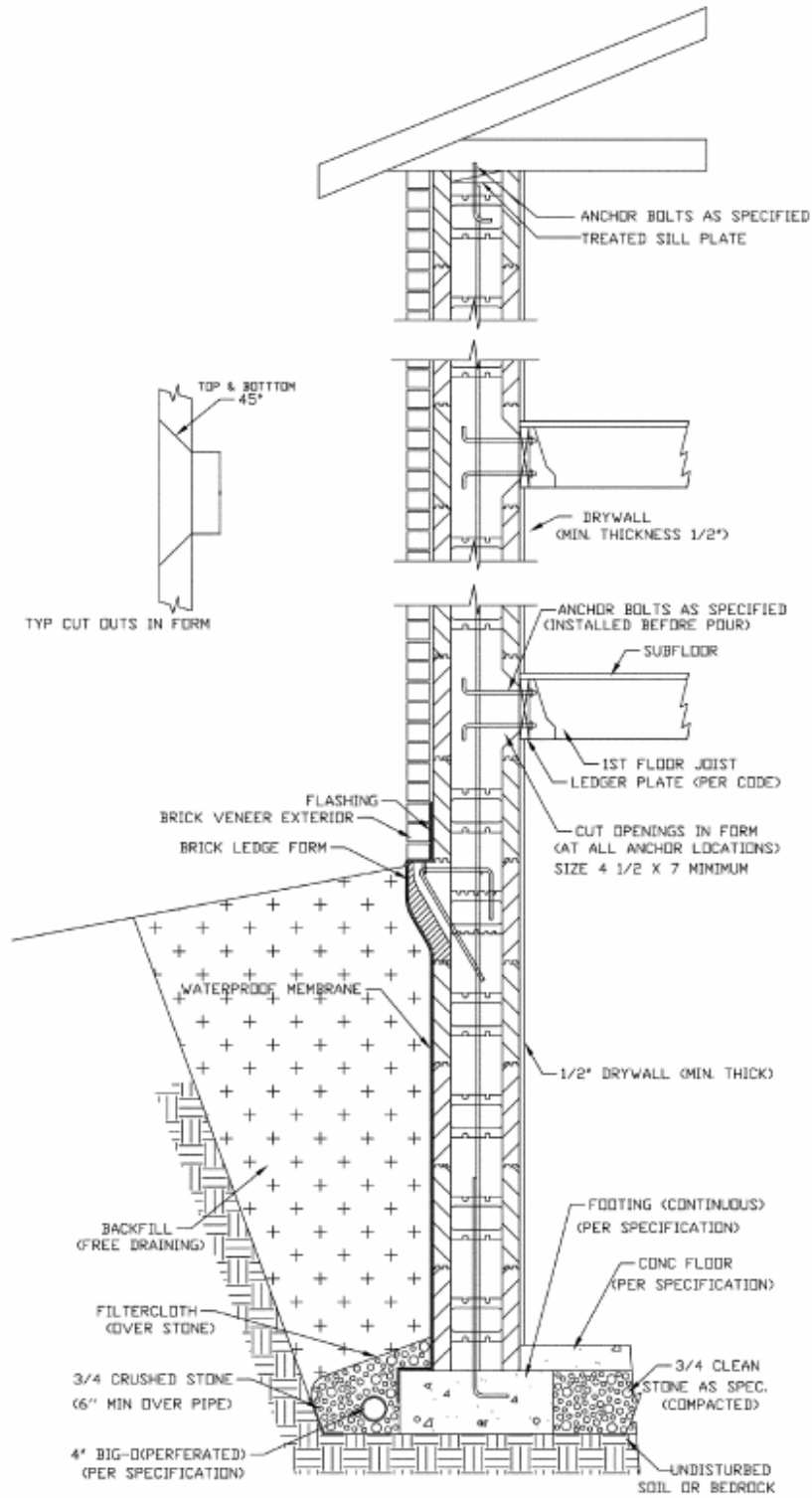


FIGURE 2—TYPICAL INSTALLATION DETAILS

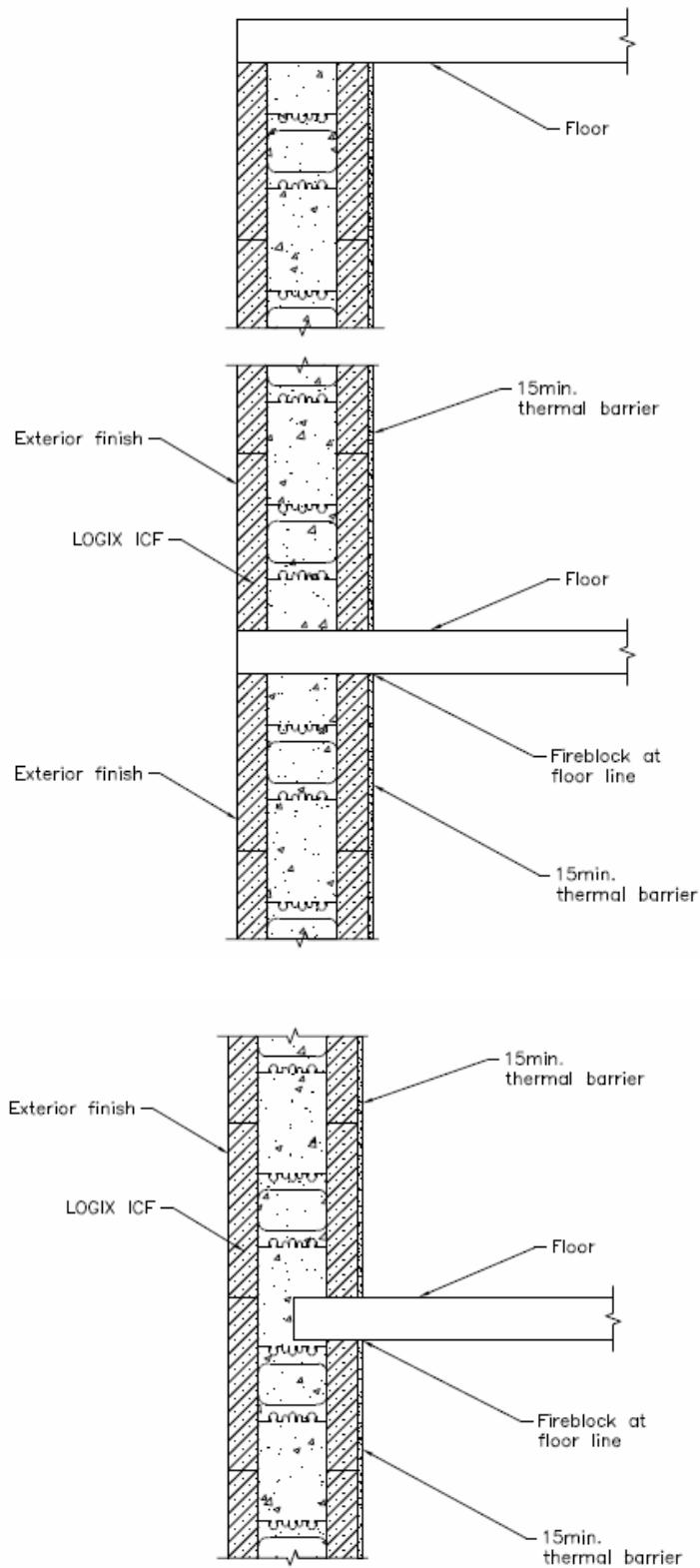


FIGURE 3—TYPICAL FLOOR-WALL DETAIL FOR NONCOMBUSTIBLE CONSTRUCTION

ICC-ES Evaluation Report**ESR-1642 Supplement**

Issued July 1, 2009

This report is subject to re-examination in one year.www.icc-es.org | (800) 423-6587 | (562) 699-0543

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DIVISION: 03—CONCRETE
Section: 03130—Permanent Forms**REPORT HOLDER:****LOGIX INSULATED CONCRETE FORMS LTD.**
1917 WEST 4TH AVENUE, SUITE 199
VANCOUVER, BRITISH COLUMBIA V6J 1M7
(866) 944-0153
www.logixicf.com
francis@logixicf.com**EVALUATION SUBJECT:****LOGIX INSULATING CONCRETE FORMS****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2007 Florida Building Code—Residential
- 2007 Florida Building Code—Building

Properties Evaluated:

- Structural
- Surface-burning Characteristics
- Crawl space fire evaluation
- Fire resistance

2.0 PURPOSE OF THIS SUPPLEMENT

This supplement is issued to indicate that the Logix insulating concrete forms (ICFs) described in Sections 2.0 through 7.0 of the master report comply with the 2007 Florida Building Code—Building and the 2007 Florida Building Code—Residential, when designed and installed in accordance with the master evaluation report.

Use of the Logix ICFs described in the master evaluation report for compliance with the High-Velocity Hurricane Zone provisions of the 2007 Florida Building Code—Building and the 2007 Florida Building Code—Residential has not been evaluated, and is outside the scope of this supplement.

For products falling under Florida Rule 9B-72, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the master report issued July 1, 2009.