



Advantage ICF System™

Insulating Concrete Forming System

Specification

DISCLAIMER: The information in this specification is organized and presented to assist the designer/specifier working on a Canadian construction project in selecting the appropriate product and to save time in writing the project specific specification section. The designer/specifier is responsible for product selection as well as the use and application of this information, and should contact the manufacturer to ensure that models, types, finishes, etc are available in Canada and that the associated specification information is valid and correct.

1 GENERAL

1.1 SECTION INCLUDES

SPEC NOTE: List significant generic types of products, work or requirements specified.

- .1 This Section specifies permanent forms, including moulded expanded polystyrene (EPS) insulation, for stay-in-place insulating concrete forming (ICF) system and accessories.

1.2 RELATED SECTIONS

SPEC NOTE: List statements that draw the reader's attention to other specification sections dealing with work directly related to this Section.

- .1 Section 02315 - Excavation and Fill.
- .2 Section 03200 - Concrete Reinforcement.
- .3 Section 03300 - Cast-in-Place Concrete
- .4 Section 04070 - Masonry Grout.
- .5 Section 07100 - Dampproofing and Waterproofing.
- .6 Section 07210 - Thermal Protection.

1.3 REFERENCES

SPEC NOTE: List standards referenced in this Section, complete with full designations, titles and dates. Edit the following lists and delete standards not required for the specific project.

- .1 ASTM International (ASTM)
 - .1 ASTM C 578-01, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.

- .2 Underwriters' Laboratories of Canada (ULC).

- .1 CAN/ULC-S701, Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.

1.4 SYSTEM DESCRIPTION

- .1 Performance requirements: Provide EPS insulation manufactured and installed to maintain Advantage ICF System stated performance criteria without defects, damage or failure

1.5 SUBMITTALS

SPEC NOTE: Include requests for relevant data to be furnished by the Contractor, before, during or after construction.

- .1 Product data: Submit Plasti-Fab printed product literature, installation instructions, specifications in accordance with Section 01330 - Submittal Procedures.
 - .1 Submit [two] copies of Material Safety Data Sheets (MSDS) in accordance with Section [01330 - Submittal Procedures].
- .2 Shop drawings: Submit shop drawings to indicate assembly details in accordance with Section 01330 - Submittal Procedures.
 - .1 Indicate method, layout and schedule of construction, shoring procedures, materials, arrangement of joints, special architectural exposed finishes, ties, corner, intersection and connector ties, braces and locations of temporary embedded parts.
 - .2 Indicate sequence of erection of formwork.

SPEC NOTE: Use the following Article only when structural design of formwork is required.
 - .3 Have each shop drawing submission stamped and signed by qualified professional engineer registered or licensed in Province[s] of [____], Canada.
- .3 Samples: Submit samples for verification in accordance with Section 01330 - Submittal Procedures.
 - .1 Submit one representative sample of Advantage ICF System.

- .4 Quality assurance submittals: Submit following in accordance with Section 01330 - Submittal Procedures.

SPEC NOTE: Specify which test reports are required and identify material to which they are to apply.

- .1 Test reports: Submit certified test reports for permanent forms from approved independent testing laboratories indicating compliance with specifications for specified performance characteristics and physical properties.

SPEC NOTE: Co-ordinate with Field Quality Control in Part 3. When manufacturer's services are specified during construction operations to verify the installation, include the following Article for the submittal of the instructions and reports. If no field inspections are required, delete the following Article.

- .3 Instructions: Submit Plasti-Fab's installation instructions.

SPEC NOTE: Include standards, limitations and criteria that establish an overall level of quality for products and workmanship for this Section.

Co-ordinate with Section 01430 - Quality Assurance.

1.6 QUALITY ASSURANCE

- .1 Company or person specializing in building insulation installations [with [5]-years [documented] experience approved by Plasti-Fab Ltd.

SPEC NOTE: Describe requirements for meetings to co-ordinate materials and techniques, and to sequence related work.

1.7 PRE-INSTALLATION MEETINGS

- .1 Pre-installation meetings: Conduct pre-installation meeting [one week] prior to commencing [work of this Section] [and] [on-site installations] to verify project requirements, substrate conditions and co-ordination with other building subtrades, and to review Advantage ICF System installation instructions and warranty requirements. Comply with Section 01310 - Project Management and Co-ordination, Project Meetings.

SPEC NOTE: Specify special and unique packing, shipping or handling instructions, and special measures needed to prevent damage to products prior to application or installation. Co-ordinate with Section 01650 - Product Delivery Requirements or Section 01660 - Product Storage and Handling Requirements.

1.8 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle in accordance with Section 01610 - Basic Product Requirements.
- .2 Deliver, store and handle materials in accordance with Plasti-Fab's written instructions.
- .3 Deliver materials in Plasti-Fab's original, unopened, undamaged containers with identification labels intact.

- .4 Store materials:

- .1 Off ground, protected from direct sunlight with light-coloured opaque polyethylene film and ventilated to prevent excessive temperature.

- .2 Protected from exposure to harmful weather conditions, at temperature and humidity conditions recommended by Plasti-Fab.

- .5 Remove damaged or deteriorated materials from site.

1.9 WASTE MANAGEMENT AND DISPOSAL

SPEC NOTE: Include the following Articles to specify information that will provide direction to the contractor for the disposal of construction waste materials using environmentally responsible methodology other than landfill resources.

- .1 Deposit packaging materials in designated container on site for recycling or reuse.

SPEC NOTE: The disposal of packaging waste into landfill site demonstrates an inefficient use of natural resources and consumes valuable landfill space.

- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.

- .3 Dispose of corrugated cardboard, polystyrene, and plastic packaging material in appropriate on-site bin for recycling in accordance with site waste management program.

- .4 Fold up metal and plastic banding, flatten and place in designated area for recycling.

SPEC NOTE: Co-ordinate this Article with CCDC 2 and Section 01780 - Closeout Submittals, Product Warranties. Consult with Plasti-Fab representative for specific warranty requirements.

1.10 WARRANTY

- .1 Project warranty: Refer to CCDC 2 for project warranty provisions.

SPEC NOTE: It is the responsibility of the contractor to install Advantage ICF System in accordance with published recommendations. The presence of Plasti-Fab representative at the job site does not relieve the Contractor from the responsibility to follow these instructions. Plasti-Fab is not responsible for any liability resulting from a failure to follow these instructions. The manufacturer's liability is expressly limited to replacement of defective goods. Any claim shall be deemed waived unless made in writing to the manufacturer within 30 days from the date it was, or reasonably should have been, discovered. Further information on warranty conditions, duration and remedies may be obtained from Plasti-Fab Ltd.

- .2 Manufacturer's warranty: Submit, for Owner's acceptance, Plasti-Fab's standard warranty document executed by authorized company official. Plasti-Fab's warranty is in addition to and not a limitation of other rights Owner may have under Contract Conditions.

SPEC NOTE: Co-ordinate this Article with manufacturer's warranty requirements.

- .3 Warranty period: [_____] -years on material, commencing on Date of Substantial Completion. Warranty covers repair or replacement of defective insulation.

2 PRODUCTS

SPEC NOTE: For information on the fire and sound performance, physical properties and dimensions, refer to the Plasti-Fab design manual, or visit the Plasti-Fab Web site at www.plastifab.com where you can view information online or download it and read at your convenience.

2.1 MANUFACTURERS

- .1 Plasti-Fab Ltd., 270, 3015 - 5th Ave. NE, Calgary; AB T2A 6T8; Toll Free Phone: 1-888-446-5377; e-mail: mailbox@plastifab.com; Web: www.plastifab.com.

SPEC NOTE: Use the following Articles for proprietary specification method. Add product attributes performance characteristics, material standards and descriptions as applicable for project.

2.2 MATERIALS

SPEC NOTE: This concrete forming system includes EPS insulation, polypropylene ties, 90o corner ties, T-intersection ties, corner

braces and alignment braces. The Advantage ICF System offers wall sections, corner kits and fabricated T-intersections with appropriate connector ties.

- .1 Insulation: CFC and HCFC free EPS insulation conforming to [CAN/ULC-S701, Type 2] [ASTM C578, Type II] at.
 - .1 Acceptable material: Advantage ICF System as manufactured by Plasti-Fab Ltd.
- .2 Connector ties: Advantage ICF System standard, polypropylene, designed for intended function.

SPEC NOTE: Use the following Article to indicate manufacturer's name, address, product name, model number, style number or other product identifier, as well as means of contacting manufacturer, if not listed elsewhere.

- .1 Acceptable material: Advantage ICF System, as manufactured by Plasti-Fab Ltd.

SPEC NOTE: This concrete forming system includes Plasti-Fab EPS insulation, polypropylene ties, 90° corner ties, corner braces and alignment braces. The Advantage ICF forming system offers one-piece standard wall sections, corner sections and fabricated T-intersections with appropriate connector ties. Fabricated T-intersections are engineered to integrate with pre-assembled wall sections.

- .3 Corner, and connector ties: Advantage ICF System's includes standard one-piece straight wall ties and 90° corner ties.
- .4 Bracing: Advantage ICF System standard alignment brace system.
- .5 Connectors/ties: Advantage ICF System standard, connector ties designed to provide required wall section thickness.

2.3 WALL SECTIONS

- .1 Wall sections: The Advantage ICF System interlocking blocks that are 419 mm (16-1/2") high by 1219 mm (48") long by 286 mm (11-1/4") wide consisting of 64 mm (2-1/2") thick EPS insulation panels connected with standard web connectors.
- .2 Insulation: EPS insulation unit complete with connectors/ties.
- .3 Corner kits: Advantage ICF System standard 90° corner kits.
- .4 Special shapes: Curved: Radius [_____] [as indicated]] [45°] [_____] angles.

3 EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: Comply with Plasti-Fab Ltd. written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions.

3.2 PREPARATION

- .1 Verify lines, levels and centres before proceeding with formwork and ensure dimensions agree with drawings.
- .2 Align form joints and make watertight. Keep form joints to minimum.
- .3 Form chases, slots, openings, drips, recesses, expansion and control joints as indicated.
- .4 Build in anchors, sleeves, and other inserts required to accommodate Work specified in other sections. Assure that anchors and inserts will not protrude beyond surfaces designated to receive applied finishes, including painting.

3.3 WORKMANSHIP

- .1 Dry lay and stack in running configuration ICF system units on site.
- .2 Install forms to lines and levels, widths and sizes indicated in accordance with shop drawings, including special shapes.
- .3 Place forms on standard footing or concrete pad as indicated and install temporary cleats or use approved adhesive to keep forms aligned during final assembly and pouring of concrete.
- .4 Install regular and hinged connectors, T-intersections, bracing and corner kits to provide rigid form with precise fitting components.

SPEC NOTE: The internal strength of the Advantage ICF System design offers the ability to construct forms with a minimum of external bracing. Vertical braces are placed every 2.4 m to 3.0 m (8' to 10') along one side of the form and anchored with dimensional lumber and hand tools. Diagonal bracing is used to align the form and provide final support. Complete installation recommendations are available from Plasti-Fab Ltd.
- .5 Provide external bracing as indicated on shop drawings for concrete forming system. Provide vertical braces placed every [2.4 m to 3.0 m (8' to 10')] along one side of form and anchored with dimensional lumber.
- .6 Install diagonal bracing to align and support form as required and in accordance with shop drawings.
- .7 Install reinforcing in accordance with Section 03200 - Concrete Reinforcement.
- .8 Apply adhesive or tape to panel intersections in accordance with Plasti-Fab written instructions.
- .9 Apply protective coating to panel forms in accordance with Plasti-Fab's instructions.
- .10 Pour concrete in accordance with Section 03300 - Cast-in-Place Concrete.

SPEC NOTE: Forms are left in place to contribute to RSI value of foundation wall.

3.4 FIELD QUALITY CONTROL

SPEC NOTE: Use the following Articles only when the manufacturer's field services are desired to verify the quality of installed components. Establish the number and duration of periodic site visits required by Plasti-Fab and specify below. Consult with Plasti-Fab representative for services required. Delete if field services are not required.

- .1 Have Plasti-Fab review work involved in handling, installation/application, protection and cleaning of its product, and submit written reports in acceptable format to verify compliance of work with Contract.
- .2 Manufacturer's field services: Provide Plasti-Fab's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with Plasti-Fab's instructions.
- .3 Schedule site visits to review work at stages listed:
 - .1 After delivery and storage of products, and when preparatory work on which work of this Section depends is complete, but before installation begins.
 - .2 [Twice] during progress of work at [25%] and [60%] complete.
 - .3 Upon completion of work, after cleaning is carried out.
- .4 Obtain reports within [three] days of review and submit immediately to Consultant.

3.5 CLEANING

- .1 Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products.
- .2 Clean installed products in accordance with Plasti-Fab instructions prior to Owner's acceptance.
- .3 Remove construction debris from project site and legally dispose of debris.

END OF SECTION CONCRETE FORMWORK - ADVANTAGE ICF SYSTEM SECTION 03100