

AMERICAN POLYSTEEL – CSI SPECIFICATION

SECTION 03130

PERMANENT FORMS - INSULATING CONCRETE FORMS (ICF)

PART 1 GENERAL

1.01 SUMMARY

- A. Comply with the requirements for Division 1 – General Requirements.
- B. Supply & installation of insulating concrete forms, installation of reinforcing steel and placement of concrete within formwork.
- C. Adequate bracing and falsework shall be provided by the Installing Contractor to comply with all applicable Codes.

1.02 SCOPE OF WORK

- A. Furnish all labor, materials, tools and equipment to perform the installation of PolySteel® or PolyPro® Insulating Concrete Forms as manufactured by American PolySteel, LLC, 6808 Academy Parkway East, NE., Building C-2, Albuquerque, New Mexico 87109. 800-977-3676.
- B. Furnish all labor to include placement of reinforcing steel within forms, placement of concrete into forms, and final cleanup.

1.03 PRODUCTS INSTALLED BUT NOT SPECIFIED OR SUPPLIED UNDER THIS SECTION

- A. Reinforcing steel
- B. Concrete
- C. Anchor bolts, sleeves, and inserts
- D. Window and door opening bucks
- E. Penetrations

1.04 RELATED SECTIONS

- A. Section 01400 – Quality Control – Field Inspection and Testing
- B. Section 03050 – Basic Concrete Materials and Methods
- C. Section 03100 – Concrete Forms and Accessories
- D. Section 03200 – Concrete Reinforcement
- E. Section 03300 – Cast-In-Place Concrete
- F. Section 03400 – Precast Concrete
- G. Section 04000 – Masonry
- H. Section 05000 – Metals
- I. Section 06000 – Wood & Plastics
- J. Section 07100 – Dampproofing and Waterproofing
- K. Section 07130 – Exterior Bituminous Sheet Waterproofing
- L. Section 07240 – Exterior Insulation Finishing Systems
- M. Section 07460 – Siding

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- N. Section 07600 – Flashing and Sheet Metal
- O. Section 08000 – Doors & Windows
- P. Section 09200 – Plaster (Stucco) & Gypsum Board
- Q. Section 09700 – Wall Finishes

1.05 REFERENCES

- A. ACI 301 Standard Specification for Structural Concrete
- B. ACI 318 Building Code Requirements for Reinforced Concrete
- C. ACI 332 Guide to Residential Cast-in-Place Concrete Construction
- D. ACI 347 Guide for Formwork for Concrete
- E. ASTM E84 Surface Burning Characteristics of Building Materials
- F. Manufacturer's Installation Manual or Guide

1.06 SYSTEM DESCRIPTION

- A. Insulating concrete wall form system shall consist of two opposing panels of expanded polystyrene (EPS) having a uniform minimum density of 1.5 pounds per cubic foot (pcf) connected by steel or composite cross ties.
- B. Wall system to provide minimum concrete wall section thickness where specified on the project drawings.
- C. Wall system cross ties to provide minimum 1-1/2" wide furring strips at 12" maximum on center spacing, recessed 1/2" below the surface of the form face, to facilitate finish fastening both interior and exterior.
- D. Wall system to provide accurate positioning of steel reinforcement within form cavity to conform to the placement requirements of ACI 318.

1.07 SUBMITTALS

- A. Conform to requirements of Section 01300 – Submittals: Procedures for submittals.
- B. Material Testing and Code Approval Reports: Submit relevant laboratory tests or data that validate product compliance with performance criteria specified prior to commencement of work under this Section. Submit code approval report as required by the local building code department.
- C. Product Data: Submit copy of manufacturer's product data and installation manual or guide.
- D. Shop Drawings: Submit drawings indicating layout dimensions and form types and details.
- E. Design Calculations: Submit calculations signed and sealed by a licensed design professional registered in the state of this project. Or, indicate conformance with code approved prescriptive methods.

1.08 QUALITY ASSURANCE

- A. Contractor shall engage a trained Installer for the duration of the work under this Section.
- B. Installer's Qualifications: Must show proof of three years of experience in installing this product and meet Manufacturer's qualifying criteria. Installer shall furnish proof of training documentation to Contractor prior to commencement of work under this Section.

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- C. Manufacturer's Qualifications: Must show continuous manufacturing of this product for a minimum of three years.
- D. Pre-installation meeting: Prior to starting ICF work, convene meeting at project site. Include trades responsible for installing forms, concrete, reinforcement and trades responsible for installing work that requires form modification.
- E. Site mock-up: If required, construct sample wall mock-up panel to include full wall system and details, located where directed by Owner's representative. Panel may form part of finished work if approved by Owner's representative.
- F. Installer to meet with Contractor prior to material delivery on site to co-ordinate access, storage area, and protection of ICF product and accessories.
- G. Installation to comply with project drawings, specifications, governing building codes and regulations, and Manufacturer's installation manual or guide.
- H. Material in contact with the ICF form must be compatible with expanded polystyrene.

1.12 DELIVERY STORAGE & HANDLING

- A. Deliver products in original factory packaging, bearing identification of product and manufacturer, and product listing label.
- B. Handle and store products in original factory packaging in a location to prevent physical damage and soiling.
- C. Ensure that ultra violet protection is provided for material, should on-site storage extend beyond 30 days.

1.13 PROJECT CONDITIONS

- A. Use appropriate measures for protection and supplementary heating when required for curing conditions in accordance with manufacturer's recommendations if installation is carried out during periods of weather where temperatures are below minimum specified by the governing building code for concrete.

1.14 COORDINATION

- A. Ensure those materials listed under Sub-Section 1.03 are provided to Installer prior to commencement of work under this Section.
- B. Coordinate this Section with other Sections of work which require attachment of components to formwork.

1.15 WARRANTY

- A. Contact the Manufacturer for a written copy of product warranty.

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PART 2 PRODUCTS

2.01 MANUFACTURER

- A. American PolySteel, LLC
6808 Academy Parkway East, NE, Building C-2
Albuquerque, New Mexico, USA 87109
Phone: (800) 977-3676 Fax: (505) 345-8154
E-Mail: info@polysteel.com
Web Page: www.polysteel.com
- B. Substitutions: Only as allowed by meeting all requirements of this Section.

2.02 MATERIALS

- A. Insulating concrete forms shall be PolySteel® or PolyPro® forms as manufactured by American PolySteel, LLC, Albuquerque, New Mexico, USA.
- B. Form units to be supplied through an authorized American PolySteel Distributor.
- C. Substitutes and alternates will not be accepted.

2.03 MANUFACTURED ICF UNITS

- A. Provide American PolySteel forms as listed below as may be required for proper execution of the work:

1. PolySteel® PS-3000 Series Waffle Grid Wall Forms

PS-3600, 6" Straight
PS-3645, 6" 45° Corner
PS-3690, 6" 90° Corner
PS-3800, 8" Straight
PS-3845, 8" 45° Corner
PS-3890, 8" 90° Corner
PS-3100, 10" Straight
PS-3190, 10" 90° Corner

2. PolySteel® PS-4000 Series Flat Wall Forms

PS-4600-1, 6" Straight, 12"H
PS-4600-2, 6" Straight, 24"H
PS-4645-1, 6" 45° Corner, 12"H
PS-4645-2, 6" 45° Corner, 24"H
PS-4690-1, 6" 90° Corner, 12"H
PS-4690-2, 6" 90° Corner, 24"H
PS-4800-1, 8" Straight, 12"H
PS-4800-2, 8" Straight, 24"H
PS-4845-1, 8" 45° Corner, 12"H
PS-4845-2, 8" 45° Corner, 24"H
PS-4890-1, 8" 90° Corner, 12"H
PS-4890-2, 8" 90° Corner, 24"H

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3. PolyPro® 4000 KD (Knock Down) Flat Wall Forms

Pro-4000 Panel, 48"L x 24"H x 2-1/2"T
Pro-4645, 6" 45° Corner
Pro-4690, 6" 90° Corner
Pro-4845, 8" 45° Corner
Pro-4890, 8" 90° Corner
PolyPro 4, 4" Insert
PolyPro 6, 6" Insert
PolyPro 8, 8" Insert
PolyPro X, 6" Extender

2.04 CONCRETE

- A. Concrete supplied under Section 03300 shall have a compressive strength as specified by the architect or engineer (measured at 28 days).
- B. Recommended maximum aggregate size is 3/4" except for the 6" PS-3600 and 8" PS-3800 forms which shall have a maximum aggregate size of 1/2".
- C. Recommended concrete slump range is 5" to 6".

2.05 REINFORCING STEEL

- A. Reinforcing steel grade shall be as specified in Section 03210 and shall be supplied under that Section for placement by the Installer.
- B. Reinforcing steel grade, size, placement and spacing shall be as specified by the design professional or prescriptive reinforcement tables applicable to the specific project.

2.06 ACCESSORIES

- A. Bracing, wall alignment, and scaffolding: Nominal size lumber or metal framing.
- B. Anchor bolts, anchor straps or inserts.
- C. Door and window bucks: Nominal size lumber or specialty composite (vinyl) bucks.
- D. Water proofing and damp proofing.
- E. Sleeves for wall penetrations.
- F. Exterior and interior finishes.

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PART 3 EXECUTION

3.01 EXAMINATION

- A. Inspect all areas included in Scope of Work to establish extent of work and verify site access conditions.

3.02 SITE VERIFICATION OF CONDITIONS

- A. Verify that site conditions are as set out in Part 1- General Conditions.
- B. Examine footings installed under Section 03300 are within +/- 1/4" of level and that stepped footings are: in 16" height increments for the PolySteel® PS-3000 series forms; in 12" or 24" height increments for the PolySteel® PS-4000 series forms; in 24" height increments for the PolyPro® series forms; or as agreed to between the Design Professional, Contractor, and Installer.
- C. If specified, verify reinforcing steel dowels are in place at specified locations along footing lengths

3.03 PREPARATION

- A. Clean all debris from top of footings prior to commencing work.

3.04 INSTALLATION - FORMWORK

- A. Installation of forms to be in strict accordance with Manufacturer's installation manual or guide.
- B. Install formwork, shoring, and bracing to achieve project design requirements.
- C. Provide sufficient bracing to ensure stability, alignment, and plumbness of formwork. Provide additional reinforcement and bracing of cut forms.
- D. Erect forms in running or stack bond. Align embedded furring strips to facilitate wall finish attachment.
- E. Coordinate this Section with other sections of work which require attachment of components to formwork.

3.05 INSTALLATION – INSERTS, EMBEDDMENTS, AND OPENINGS

- A. Locate and set in place items which will be cast directly into concrete.
- B. Provide formed or sleeved openings where required for items to be embedded in or to pass through concrete work.
- C. Openings exceeding 24" x 24" in area shall be reinforced.
- D. Coordinate with work of other sections in forming and placing openings, slots, recesses, sleeves, bolts, anchors, and other components of other work.

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- E. Install accessories in accordance with manufacturer's instructions; straight, level, and plumb. Ensure items are not disturbed during concrete placement.

3.06 FORM CLEANING

- A. Clean forms as installation proceeds, to remove foreign matter within forms.
- B. Clean formed cavities of debris prior to placing concrete.
- C. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.
- D. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms unless formwork and concrete construction proceed within a heated enclosure. Use compressed air or other means to remove foreign matter.
- E. Adhesive applied wall finishes: Remove oxides formed on the exterior surfaces due to ultra violet rays with mild detergent and stiff brush. Rinse thoroughly with water.

3.07 FORMWORK TOLERANCES

- A. Construct formwork to maintain tolerances required by ACI 301.

3.08 FIELD QUALITY CONTROL

- A. Comply with Section 01400.
- B. Ensure that the cast-in-place concrete walls are level, plumb, square, and straight and that all dimensions conform to the project design drawings.
- C. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with design, and that supports, fastenings, ties, and other items are secure.
- D. Refer to Manufacturer's Final Checklist provided in the Installation Manual or Guide.
- E. Site Tests or Samples: To be specified as required.

3.09 CLEANUP

- A. Clean up and properly dispose of all debris remaining on job site related to the installation of the insulating concrete forms.

3.10 PROTECTION

- A. Provide temporary coverage of installation to reduce exposure to ultra violet light should final finish application be delayed longer than 60 days.
- B. Provide temporary bracing of installation as specified by the Project Design Professional.

END OF SECTION

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