DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT Housing - Federal Housing Commissioner	STRUCTURAL ENGINEERING BULLETIN NO. 1117 Rev. 5 (Supersedes issue dated October 26, 2004)
TO: DIRECTORS, SINGLE FAMILY HOCs DIRECTORS, MULTIFAMILY HUBs	ISSUE DATE November 1, 2005
	REVIEW DATE November 1, 2008

SUBJECT: 1. **Item Description** Precast Concrete Insulated Foundation Wall Panels

2. **Name and address of Manufacturer** Superior Walls of America, Ltd.
937 East Earl Road
New Holland, PA 17557

This Structural Engineering Bulletin (SEB) should be filed with other SEBs and related Bulletins on materials or products as required by prescribed procedures.

The technical description, requirements and limitations expressed herein do not constitute an endorsement or approval by the Department of housing and Urban Development (HUD) of the subject matter, and any statement or representation, however made, indicating approval or endorsement by HUD is unauthorized and false, and will be considered a violation of the United States Criminal Code, 18 U.S.C. 709.

NOTICE: THIS BULLETIN APPLIES TO DWELLING UNITS BUILT UNDER HUD HOUSING PROGRAMS. NON-HUD-INSURED UNITS MAY OR MAY NOT BE IN CONFORMINTY WITH THE REQUIREMENTS OF THE HUD MINIMUM PROPERTY STANDARDS.

Any reproduction of this Bulletin must be in its entirety and any use of all or any part of this Bulletin in sales promotion or advertising is prohibited.

1. General:

This Bulletin sets forth specific requirements under the Technical Suitability of Products Program for determining the eligibility of housing to be constructed under HUD mortgage insurance, or other HUD housing programs.

2. Scope:

This Bulletin applies only to the structural features of this method of construction. Final determination of eligibility is made by the appropriate HUD Field Office. Other factors considered by the Field Office will be valuation, location, architectural planning and appeal, mechanical equipment, thermal characteristics, and market acceptance. Consideration is also necessary to determine whether a specific property will qualify under the specific HUD program, when constructed according to the method outlined in this Bulletin, and where the structure is to be located.

In geographical areas subject to hurricanes, earthquakes, or other severe conditions affecting dwelling structures, the HUD Field Office shall require additional safeguards in proposed designs, when necessary.

3. Minimum Property Standards (MPS):

Compliance with HUD MPS will be determined by the HUD Field Office or Homeownership Center on the same basis as submissions involving conventional construction, except for the special features described in this Bulletin.

4. Inspection:

Field compliance inspections covering conventional items of construction and any special features covered in this Bulletin shall be made in accordance with prescribed procedures.

The appropriate HUD Field Office or Homeownership Center shall furnish a copy of a HUD field inspection report to Headquarters, FHA Standards, Office of Manufactured Housing Programs, when there is:

a. Evidence of noncompliance with any portion of the system of construction described in this Bulletin.

b. Faulty shop fabrication, including significant surface defects.

c. Damage to shop fabricated items or materials due to improper transportation, storage, handling, or assembly.

d. Unsatisfactory field workmanship, or performance of the product or system.

e. Any significant degradation or deterioration of the product or evidence of lack of durability or performance.

Periodic plant inspections will be made by HUD Field Office, or Homeownership Center, State Agency personnel, or a HUD designated representative, in accordance with their prescribed procedures. Factory inspection reports shall be submitted to HUD Headquarters, upon request.

5. Certification:

The manufacturer named in this Bulletin shall furnish the builder with written certification stating that the product has been manufactured in compliance with HUD Minimum Property Standards (MPS), except as modified by this Bulletin. The Builder shall endorse the certification with a statement that the product has been erected in compliance with HUD MPS except as modified by this Bulletin, and that the manufacturer's certification does not relieve the builder, in any way, of responsibility under the terms of the Builder's Warranty required by the National Housing Act, or under any provisions applicable to any other housing program. This certification shall be furnished to the HUD Field Office upon completion of the property.

OUTLINE DESCRIPTION, CATEGORY II CONSTRUCTION

GENERAL:

Precast reinforced concrete insulated foundation basement wall panels for one and two family dwellings up to three (3) stories plus basement are furnished in this method of construction.

Wall panels may include various types of field applied interior and exterior finishes. All materials and methods of installation shall be in accordance with HUD Minimum Property Standards (MPS), Use of Materials Bulletins (UM), and Materials Releases (MR), except as may be specifically noted herein.

This Bulletin is based on a structural review of the Foundation Wall Panels of Superior Walls of America, Ltd. Dwelling design and nonstructural items (such as architectural, plumbing, heating and electrical features) are not covered by this Bulletin.

SPECIFICATIONS:

Form HUD-92005, "Description of Materials" specifying only the structurally related items (Nos. 1 to 12, 14, 26 and 27), as originally submitted for determination of technical suitability, describes the materials that shall be used in construction of housing units under this system of construction.

DRAWINGS:

The following documents by Superior Walls of America, Ltd. shall be considered an integral part of this Bulletin:

Document No.	Date	Description
Document 1	January, 2005	Builder Guideline Booklet

The Builder shall submit construction drawings to the HUD Field Office or Homeownership Center with each application under HUD housing programs, which shall include the same or similar structural features as shown in the documents listed above. Copies of these listed documents shall also be furnished to the HUD Field Office or Homeownership Center by the Builder upon request.

SPECIAL CONSTRUCTION FEATURES :

Precast reinforced concrete insulated basement wall panels, nominal 4, 8, 9 and 10 feet high and up to 20 feet wide are furnished in this method of construction. Panels consist of: (1) reinforced concrete exterior skins, (2) reinforced concrete interior studs, and (3) interior insulation. Panels shall conform to ACI 318 except as noted herein. Minimum concrete strength shall be 5,000 psi.

1. Concrete exterior skins are 1 3/4" thick, monolithic with 10 1/4" top ledger and bottom footing reinforced with 2 #3 horizontal bars.

2. Reinforced concrete interior studs are 2 1/4" x 6 3/4" with a #4 vertical bar. Studs are spaced @ 24" on center and are EITHER:

A: R5 WALL mechanically anchored to the concrete skin, to ledger and bottom footing in accordance with the referenced drawings. Treated wood nailers are attached to the interior face of the studs, or

B: Xi WALL - .monolithically intergrated to the concrete skin, ledger and bottom footing in accordance with the referenced drawings, wrapped with 1" expanded polystyrene insulation. Galvanized steel channel nailers are attached to the interior face of the studs.

3. Interior insulation shall be 1" or 2 ½" extruded polystyrene by Dow Chemical, bonded in the factory to concrete skins.

Field installation of panels (gravel base, subdrainage, subgrade, bracing, caulking, panel joints, etc.) shall be in accordance with the manufacturer's Builder Guideline Booklet and HUD MPS requirements.

DESIGN AND CONSTRUCTION REQUIREMENTS

Design Loads : Basement wall panels have a maximum allowable lateral load (earth pressure) of 60 pcf equivalent fluid pressure for 4'-0", 8'-2", and 9'-0" high walls; 45 pcf for 10'-0" high R5 walls; 60 pef for 10' high Xi Walls; and a maximum allowable vertical load (building structure plus live loads) of 4360 plf. Actual lateral and vertical loads and the allowable soil bearing pressure shall be determined for specific sites on the same basis as for site-built basement walls and foundations.

Panels are suitable for Seismic Design Category A. The Builder shall submit structural calculations to the local HUD Office or Homeownership Center for higher Seismic Zones.

MANUFACTURING PLANTS:

Components covered under this Bulletin will be produced in the following plants:

Advanced Concrete Systems, Inc.
55 Advanced Lane
Middleburg, PA 17842
Ph. 570-837-3955

Collier Foundation Systems, Inc.
1500 Ellsworth Ave.
Heidelberg, PA 15106
Ph. 412-279-5352

Guyer's Superior Walls
580 Schommer Drive
Hudson, WI 54016
Ph. 715-381-2500

Great Lakes Superior Walls
4555 134th Avenue
Hamilton, MI 49419
Ph. 269-751-4101

Superior Walls by Jointa Lime
301 Nott Street, Bldg. 346
Schenectedy, NY 12308
Ph. 518-688-9250

Precast Systems, LLC
5877 Bullitt Road
Greencastle, PA 17225
Ph: 717-369-3773

Superior Walls of S.Jersey
92 Reese Road
Millville, NJ 08332

Superior Walls of Upstate NY
7574 E. Main Road
Lima, NY 14485
Ph: 585-624-9390

Superior Walls of the Rockies
1114 Sixteen Road
Fruita, CO 81521
Ph: 970-858-9030

Superior Wall Systems
3570 S. Main Street
Salisbury, NC 28147
Ph: 704-636-6200

Superior Wall Systems
317 Providence Road
Oxford, NC 27565
Ph: 877-896-9255

Superior Walls of the Hudson Valley
68 Violet Ave
Poughkeepsie, NY 12601
Ph. 914-485-4033

Superior Walls of Ohio
1401 South Pine Avenue
Warren, OH 44483
Ph. 330-393-4101

Tri State Superior Walls
3424 Grant Drive
Lebanon, OH 45036
Ph: 513-755-9738

Weaver Precast
824 E. Main Street
Ephrata, PA 17522
Ph. 717-733-4823

Superior Walls of Central Illinois
300 S. Martin Luther King Dr.
Springfield, IL 62703
Ph. 217-522-8565

Weaver Precast
14 Onion Blvd.
Shrewsberry, PA 17361
Ph: 717-235-6351

Weaver Precast of Florida
350 Thorpe Road
Orlando, FL 32824
Ph: 407-812-5552

Superior Walls of E. Tennessee
1226 Belmont Drive
McMinnville, TN 37110
Ph: 877-836-9255

Superior Walls by Carr-Mitchell
44 Industrial Drive
Cadiz, KY 42211
Ph: 877-522-9255

Superior Walls of Centra Virignia
15305 Patrick Henry
Amelia, VA 23002
Ph: 866-350-9255

The appropriate HUD Field Office or Homeownership Center in whose jurisdiction the manufacturing plant is located, or HUD designated representative, will inspect these plants in accordance with prescribed procedures.

QUALITY CONTROL:

The appropriate HUD Field Office or Homeownership Center, in whose jurisdiction the manufacturing plant is located, shall review and approve plant fabrication procedures and quality control program to ensure compliance with approved plans and specifications. The quality control program shall include field erection and supervision by the Superior Walls Plant.

RECORD OF PROPERTIES:

Upon request, the manufacturer shall provide HUD a list of properties in which the component or system described in this Bulletin is used. The list shall include the complete address, or description of location, and approximate date of installation or erection. Failure of the manufacturer to provide HUD with the above information may result in cancellation of this Bulletin.

NOTICE OF CHANGES

The manufacturer shall inform HUD in advance of changes in production facilities, transportation, field erection procedures, design, or of materials used in this product. Further, the manufacturer must inform HUD of any revision to corporate structure, change of address, or change in name or affiliation of the prime manufacturer. Failure of the manufacturer to notify HUD of any of the above changes may result in cancellation of this Bulletin.

EVALUATION

This SEB is valid for a period of three years from the date of initial issuance or most recent renewal or revision, whichever is later. The holder of this SEB shall apply for a renewal or revision 90 days prior to the Review Date printed on this SEB. Submittals for renewal or revision shall be sent to:

U. S. Department of Housing and Urban Development
FHA Standards, Office of Manufactured Housing Programs
451 Seventh Street, S.W., Room 9168
Washington, DC 20410-8000

Appropriate User Fee shall be sent to:

U. S. Department of Housing and Urban Development
Miscellaneous Income - Technical Suitability of Products Fees
Bank of America
P. O. Box 198762
Atlanta, GA 30384-8762

The holder of this SEB may apply for revision at any time prior to the Review Date. Minor revisions may be in the form of a supplement.

If the Department determines that a proposed renewal or supplement constitutes a revision, the appropriate User Fee for a revision will need to be submitted in accordance with Code of Federal Regulations 24 CFR 200.934, "User Fee System for the Technical Suitability of Products Program," and current User Fee Schedule.

CANCELLATION

Failure to apply for a renewal or revision shall constitute a basis for cancellation of the SEB. HUD will notify the manufacturer that the SEB may be canceled when:

1. conditions under which the document was issued have changed so as to affect production of, or to compromise the integrity of the accepted material, product or system,

2. the manufacturer has changed its organizational form without notifying HUD, or

3. the manufacturer has not complied with responsibilities it assumed as a condition of HUD's acceptance.

However, before cancellation, HUD will give the manufacturer a written notice of the specific reasons for cancellation, and the opportunity to present views on why the SEB should not be canceled. No refund of fees will be made on a canceled document.

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This Structural Engineering Bulletin is issued solely for the captioned firm, and is not transferable to any person or successor entity.

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