



"THE STANDARD CODES"

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# SBCCI

REPORT OF THE COMMITTEE  
ON COMPLIANCE  
ON

## FLOOR, WALL AND ROOF SYSTEMS

SUBMITTED BY:

SOLARCRETE CORPORATION  
P.O. BOX 976  
NORFOLK, NEBRASKA 68701

REPORT NO.

84207

EFFECTIVE DATE

1-1-84

The Committee on Compliance in review of the data submitted finds that, in their opinion, the product, material, system or method of construction specifically identified in this report conforms with or are suitable alternates to that specified in the Standard Codes, SUBJECT TO THE LIMITATIONS IN THIS REPORT.

SOUTHERN BUILDING CODE CONGRESS INTERNATIONAL, INC.  
900 Montclair Road  
Birmingham, Alabama 35213

THE COMMITTEE ON COMPLIANCE HAS REVIEWED THE DATA SUBMITTED FOR COMPLIANCE WITH THE STANDARD BUILDING CODE AND SUBMITS TO THE BUILDING OFFICIAL OR OTHER AUTHORITY HAVING JURISDICTION THE FOLLOWING REPORT. PORTIONS OF THIS REPORT WERE PREVIOUSLY INCLUDED IN COMPLIANCE REPORTS #7965, 8130, 8249 AND 8407.

I. PRODUCT TRADE NAME

Solarcrete Standard and Fire-Rated Walls

II. PERFORMANCE OF PRODUCT FOR WHICH EVALUATION IS REQUESTED

Structural and Fire Resistance

III. USES

To be used as structural internally insulated walls

IV. DESCRIPTION

Concrete, steel reinforcing bars and mesh (optional), and rigid insulation are constructed in place to form a composite structural and insulated wall system which is fire-resistant or fire-rated.

V. INSTALLATION

MATERIALS

A. Reinforcing Steel, Ties and Clips

1. Reinforcing steel consists of reinforcing bars and mesh (optional). Reinforcing bars shall be #3 deformed bars conforming to the "Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement" (ASTM A 615) Grade 60. Reinforcing mesh supplied by Solarcrete is Keydeck Style No. 2160-2-1619 or equivalent. Mesh and/or fiber reinforcement are required in each concrete skin.
2. Solarcrete web and base ties.
3. Solarcrete transverse bar clips (optional).

B. Solarcrete control joints are fabricated from galvanized steel or plastic.

C. Insulation authorized by Solarcrete is expanded polystyrene board.

D. Concrete

1. Cement shall conform to the "Standard Specification for Portland Cement" (ASTM C 150).
2. Aggregate shall conform to the "Standard Specification for Concrete Aggregates" (ASTM C 33).
3. Water shall be clean and potable.

## CONCRETE MIX

- A. Solarcrete shall be consulted for design mix specifications, including type and quantity of fiber reinforcement, if used. Shotcreting shall be performed in accordance with the "Recommended Practice for Shotcreting" (ACI 506-66).
- B. 28-day compressive strength shall be 4,000 psi minimum.

## CONSTRUCTION

## A. Wall Panel Assembly (Figure 1)

This assembly consists of vertical trusses, horizontal (transverse) bars and insulation trapped between bars. Trusses shall be constructed with two (2) chords of #3 deformed bars joined together by web ties 2' o.c., the ends of which shall be tightly crimped 285° around the chords. The trusses shall be spaced 2' o.c. Transverse reinforcing bars shall be #3 deformed bars and located on both sides of the wall at the top and bottom, and at 4' o.c. each side, staggered (i.e. not opposite each other). Transverse bars shall be attached on one side of the panel using transverse bar clips or tie wires. Clips shall be tightly crimped 285° around the transverse bars 2' o.c. and inserted over the web ties for effective positioning of the wall trusses. The 2' wide insulation boards shall be placed between the trusses. Transverse bars on the other side of the panel shall be wire-tied to trap insulation in place. The entire assembly is then fastened to the footing or slab with two (2) 1-1/4" long by 0.145" diameter powder fasteners per base tie. Assembly shall be adequately braced.

- B. If Keydeck or equivalent mesh is used, it shall be installed tightly in the transverse direction with at least 6" overlap of edges or lap of ends at splices. Mesh shall be ringed or wire-tied to truss bars at 2' o.c. and to transverse bars at midpoint between trusses.
- C. Solarcrete control joints shall be installed vertically and opposite each other on both sides of the wall at not more than 8' o.c., but not closer to truss bars than 3" nor within lintel spans. Joints shall be ringed or wire-tied to mesh and/or transverse bars such that the mesh is pulled back against the transverse bars at the joint to provide concrete skin and cover thicknesses as follows:

Wall Type	Concrete Skin Thickness (in.)	Concrete Cover (in.)
A and Fire Rated	2-3/8*	1-1/2*
B	1-5/8*	3/4

\*Each side of the Fire-Rated Wall is stipple finished an additional 1/8" producing a total wall thickness of 9".

Recommend that transverse bars be cut behind at least every other control joint on the weather side only of the wall to provide an added measure of crack control. Joints shall be cleared after shotcreting.

#### VI. SUBSTANTIATING DATA

1. Engineering calculations, load tables and drawings sealed by Dana P. Connolly, P.E.
2. Fire Endurance Test Report No. 6684 prepared by the Ohio State University Building Research Laboratory, dated May 27, 1980.
3. Test report on Solarcrete Wall in accordance with ASTM E 72-77, prepared by Construction Technology Laboratories, dated November 17, 1978.
4. Test report and memorandum on the Effect of Substituting Polypropylene Fiber for Mesh Reinforcement in 8-3/4 inch Solarcrete Wall Panels in accordance with ASTM E 72-77, prepared by Solarcrete, dated February 4, 1983, sealed by Dana P. Connolly, P.E.

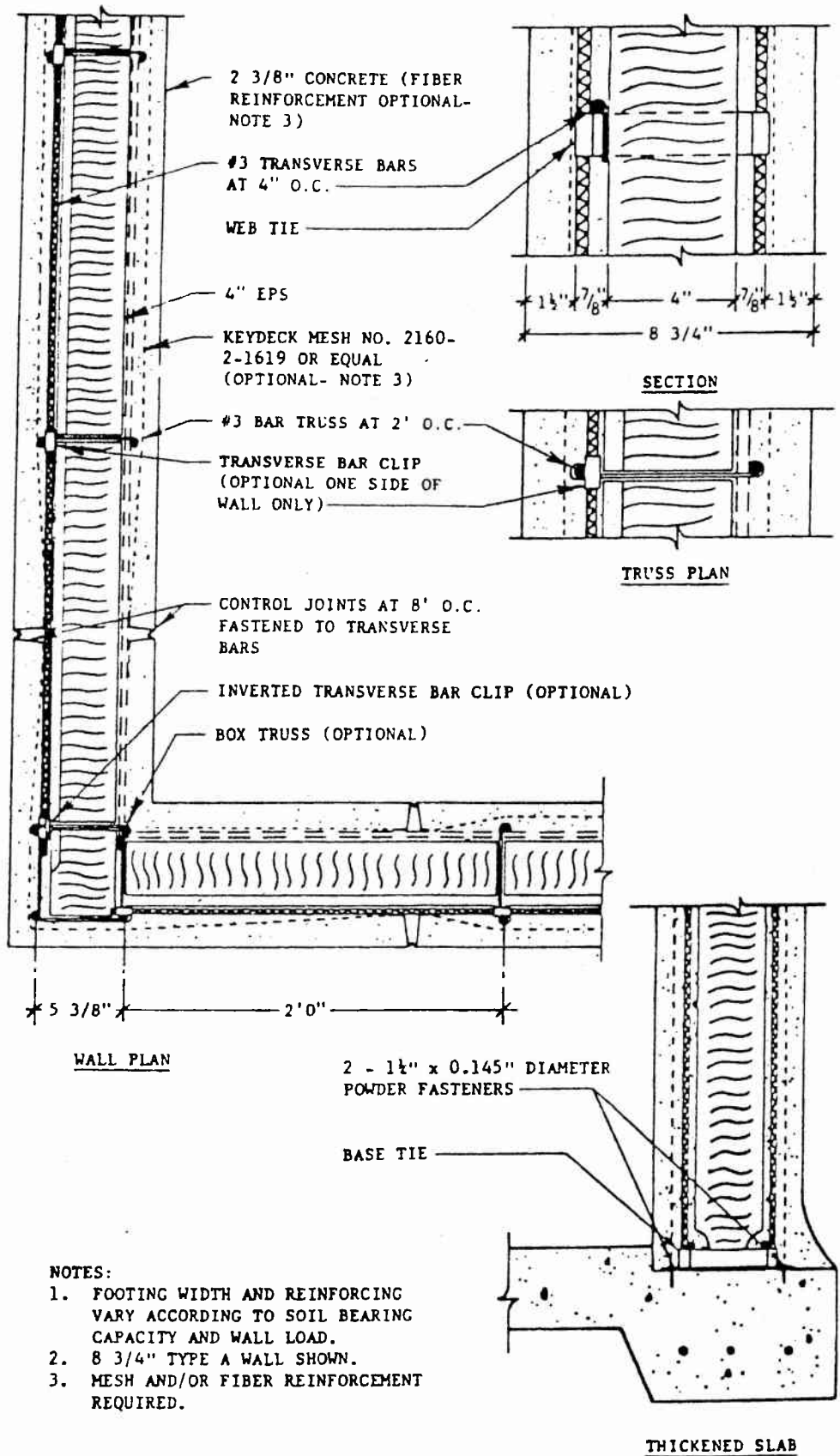
#### VII. REFERENCES TO THE STANDARD CODES

Standard Building Code - 1982 Edition - 1983 Amendments

Section 103.6	Alternate Materials and Alternate Methods of Construction
Table 700	Minimum Fire Resistance of Walls, Partitions and Opening Protectives
Section 719.2	Concealed Installation
Chapter XII	Minimum Design Loads
Chapter XVI	Concrete Construction

#### VIII. COMMITTEE FINDINGS

The Committee on Compliance in review of the data submitted finds that, in their opinion, Solarcrete Corporation's Standard and Fire-Rated Walls conform with or are suitable alternates to that specified in the Standard Building Code or Supplements thereto.



NOTES:

1. FOOTING WIDTH AND REINFORCING VARY ACCORDING TO SOIL BEARING CAPACITY AND WALL LOAD.
2. 8 3/4" TYPE A WALL SHOWN.
3. MESH AND/OR FIBER REINFORCEMENT REQUIRED.

FIGURE 1  
WALL DETAILS

## IX. LIMITATIONS

1. The Solarcrete Fire-Rated Wall may be used as an integral part of a two (2) hour or less fire-rated assembly.
2. The insulated reinforced concrete building system shall only be installed by builders holding a Solarcrete Contractor Certificate.
3. Loading shall not be greater than Solarcrete Corporation's published allowable load values.
4. The system shall be designated by a registered architect or engineer and the drawings must bear their registered stamp or seal. Prior to commencement of construction, the builder shall obtain from Solarcrete Corporation a Solarcrete Authorization Certificate for the particular project which attests that the builder holds a Solarcrete Contractor Certificate, that he has forwarded to Solarcrete Corporation all appropriate project drawings and specifications and that he has agreed to use only authorized Solarcrete Building System components in the project.

## X. IDENTIFICATION


All projects utilizing Solarcrete Corporation's Standard and Fire-Rated Walls covered by this report shall have posted conspicuously at the project site the Solarcrete Authorization Certificate which bears the Southern Building Code Congress International Seal and the number of this report.

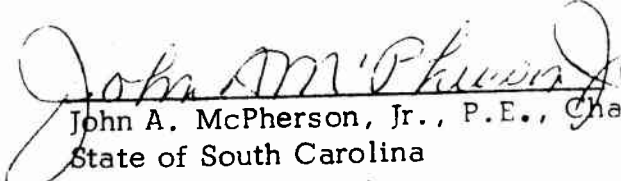
## XI. PERIOD OF ISSUANCE

SEE CURRENT SBCCI COMPLIANCE REPORT LISTING FOR STATUS OF THIS COMPLIANCE REPORT.

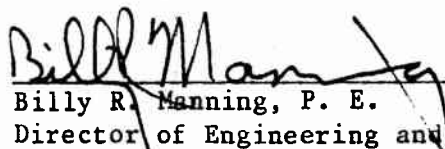
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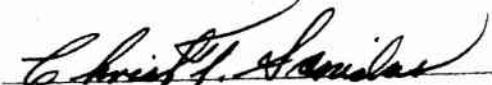
COMMITTEE ON RESEARCH AND COMPLIANCE  
Southern Building Code Congress International

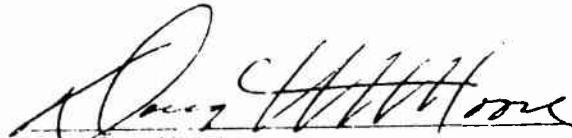
  
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