DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT Housing - Federal Housing Commissioner	STRUCTURAL ENGINEERING BULLETIN NO. 416 Rev. 9 (Supersedes issue dated February 26, 2001)
TO: DIRECTORS, SINGLE FAMILY HOCs DIRECTORS, MULTIFAMILY HUBs	ISSUE DATE February 23, 2004
	REVIEW DATE February 23, 2007

SUBJECT: 1. **Item Description** Shop Fabricated Wood Frame Modular Dwelling Units

2. **Name and address of Manufacturer** Deluxe Homes of Pennsylvania, Inc.
499 W. Third Street
Berwick, PA 18603

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 or Homeownership Center 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, 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 a written certification stating that the product has been manufactured in compliance with the 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 I CONSTRUCTION:

GENERAL:

Completely shop fabricated wood frame modular dwelling units, 16 feet wide and up to 64 feet in length, are furnished in this method of construction. Units are factory finished on both the interior and the exterior. Units are transported to the building site, where they are set on conventional foundations and joined together.

Construction is basically of conventional wood framing which may include various types of interior and exterior finish materials. All materials and methods of installation shall be in accordance with HUD Minimum Property Standards, Use of Materials Bulletins (UM) and Materials Releases (MR), except as may be specifically noted herein. Plumbing, heating and electrical systems are shop installed and field connected.

This Bulletin is based on a structural review of the One Story Split Level model of Deluxe Homes of Pennsylvania, Inc. (The Manufacturer), but may be considered applicable to all struc-turally similar units of this company. Foundation 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 technical suitability determination, describes the materials that shall be used in construction of housing units under this system of construction. Form HUD-92005, furnished with each application for use under HUD housing programs, shall include as a minimum the same structural materials.

DRAWINGS:

The following drawings by Deluxe Homes of Pennsylvania, Inc. shall be considered an integral part of this Bulletin:

Drawing No.	Date	Description
1	4/2/90	Cover Sheet
2	4/12/90	Specification Sheet
3	4/19/90	Typical Elevations
4	2/7/90	Typical Elevations
5	4/19/90	Elevations (Typical)
6	4/2/90	Floor Plan (Typical)
10	2/7/90	Typical Foundations
11	4/5/90	Typical Details & Cross Section (Bi-Levels)
12	4/5/90	Typical Details & Cross Section: Splits & Two Story
14	1/31/90	Typical Anchorage Details
15	4/5/90	Typical Details
16	4/5/90	Typical Details
17	1/31/90	Typical Details
20	2/1/90	Typical Truss Roof Systems
21	1/2/90	Transverse Roof Systems Details

Drawing No.	Date	Description
22	2/2/90	Vaulted Rafter Details
35	4/5/90	Typical Window Box Dormer
36	2/6/90	Typical Stair Details
37	2/6/90	Typical Roof & Ceiling Construction Details
38	4//5/90	Typical Floor & Wall Construction Details Ranch, Splits, etc.
40	4/5/90	Typical Mansard Roof & Window Box (Details)
41	2/6/90	Typical Floor & Roof Framing Plan
42	2/5/90	Typical Outside Fireplace Details
G1	2/5/90	Typical Exterior Elevations (Garages)
G2	2//5/90	Typical Garage Floor, Electrical & Foundation Plan
G3	2/5/90	Typical Garage Building Sections

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 on the drawings listed above. Copies of these listed drawings shall also be furnished to the HUD Field Office or Homeownership Center by the Builder, upon request.

DESIGN AND CONSTRUCTION REQUIREMENTS:

Design Loads: The method described in this Bulletin is based on maximum design loads of 40 psf for snow, Seismic Zone 2 and a Basic Wind Speed of 80 mph and Exposure C (American Society of Civil Engineers Standard 7-88). The Builder shall submit structural calculations to the local HUD Office if housing units are to be located in geographical areas where these conditions are exceeded.

Framing of Loadbearing Walls: Wood-to-wood connections shall be provided between bearing walls and roof/ceiling or floor construction. Floor covering, including carpeting and vinyl tile, shall not be continued under loadbearing walls.

Roof Construction: Trussed rafters shall be designed and constructed in accordance with ANSI/TPI 1-1995 Standard (American National Standards Institute and Truss Plate Institute), "Design Specification for Metal Plate Connected Wood Construction."

MANUFACTURING PLANT:

Housing units covered under this Bulletin will be produced in the following plant:

Deluxe Homes of Pennsylvania, Inc.
499 W. Third Street
Berwick, PA 18603
(717) 752-5914

The State of Pennsylvania will inspect this plant 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. The quality control program shall include field erection and supervision by Deluxe Homes of Pennsylvania, Inc.

RECORD OF PROPERTIES:

The manufacturer shall provide a list of the first ten 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 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 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 shall be 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 7th Street, SW, 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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