NBSIR 73-278 (4 Volumes)

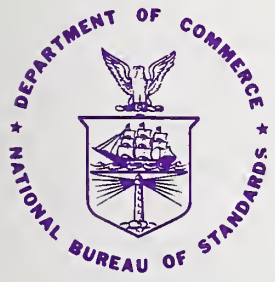
Model Documents for the Evaluation, Approval, and Inspection of Manufactured Buildings

VOLUME III – EVALUATION AND APPROVAL DOCUMENTS

CES Project
Office of Building Standards and Codes Services
Center for Building Technology, IAT
National Bureau of Standards
Washington, D. C. 20234

September 1973

Preliminary Report



U.S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS

NBSIR 73-278 (4 Volumes)

MODEL DOCUMENTS FOR THE EVALUATION, APPROVAL, AND INSPECTION OF MANUFACTURED BUILDINGS

VOLUME III – EVALUATION AND APPROVAL DOCUMENTS

R. D. Dikkers, H. R. Trechsel, P. W. Cooke, H. K. Tejuja, L. P. Zelenka

CES Project
Office of Building Standards and Codes Services
Center for Building Technology, IAT
National Bureau of Standards
Washington, D. C. 20234

September 1973

Preliminary Report

This is a preliminary report issued with the express intent to solicit comments and suggestions. Accordingly, results and conclusions contained herein are not necessarily those that will be included in the final report.

U. S. DEPARTMENT OF COMMERCE, Frederick B. Dent, Secretary
NATIONAL BUREAU OF STANDARDS, Richard W. Roberts, Director

PREFACE

In response to requests from the Executive Office of the President and the National Conference of States on Building Codes and Standards (NCSBCS), the National Bureau of Standards has undertaken specific research programs to remove or reduce barriers created by the building regulatory process, so as to improve productivity and innovation in building construction. One of these programs is to establish a Coordinated Evaluation System (CES) by developing, in conjunction with the state governments, model informational documentation for use in the building regulatory process.

This four-volume report outlines the results of an initial study of documentation needs, sample forms and checklists pertaining to manufactured buildings and components. It is a preliminary report issued with the expressed intent to solicit comments and suggestions so that more comprehensive and more generally applicable model documentation can be developed.

A first draft of this report was reviewed during a 2 1/2 day meeting in April, 1973, by a group of consultants composed of representatives of state and local building officials, design professionals, third party evaluation and inspection agencies, and industrialized building manufacturers. The review meeting was organized and chaired by Mr. John Dunlap, Consulting Engineer of Sacramento, California. The other consultants were:

Joseph Bartell, City of St. Petersburg
Jack Bono, Underwriters Laboratories, Inc.
Kern E. Church, State of North Carolina
Jasper Hawkins, Hawkins and Lindsey, Architects
James M. Hicks, State of California
Glendon R. Mayo, Consulting Engineer
J. Dillard Powell, Continental Homes
Ed Starostovic, Product Fabrication Service
Joseph Stein, City of New York
Steve Wilson, National Homes Corporation

The comments of the consultants were most helpful in developing the model documents contained in this report, and their valuable assistance is greatly appreciated and herewith acknowledged.

CONTENTS - VOLUME I

CONTENTS - VOLUME I (Continued)

CONTENTS - VOLUMES II, III AND IV

CONTENTS - VOLUMES II, III AND IV (Continued)

MODEL DOCUMENTS FOR THE EVALUATION, APPROVAL, AND INSPECTION OF MANUFACTURED BUILDINGS

R. D. Dikkers, H. R. Trechsel, P. W. Cooke,
H. K. Tejuja, L. P. Zelenka

To assist the states in developing their building regulatory activities and functions, the Coordinated Evaluation System (CES) Project has defined and developed model informational documentation pertaining to the functional areas of data submission, evaluation, approval, compliance assurance, installation data, and owner information.

This is a preliminary report which gives the results of the investigation to date, and presents discussions of informational needs and sample model documents pertaining to manufactured buildings and building components. The model documentation is based on the Model Rules and Regulations for manufactured buildings developed by a Department of Commerce sponsored working task group, and the results of a comprehensive state-of-the-art study of most of the existing state building regulatory programs. The documentation presented in this report covers all functional areas except owner information which is not usually subject to regulation and will be covered by a separate report. Emphasis was placed on developing documentation applicable primarily to one and two family detached dwellings.

Based on the comments received on this preliminary report, the documentation presented herein will be revised and a final report issued.

Key words: Building codes; certification; compliance assurance; evaluation; industrialized building; inspection; model documents; NCSBCS; standards; state regulation.

STATE OF _____

[*Name and Address of Administrative Agency*]

PROCESSING RECORD

Name of Manufacturer _____

Address _____

Type of Application: ☐ New System or Program ☐ Major Modification

☐ Building System: Appl. No._____ Date____ ☐ C.A.Program: Appl. No._____ Date_____

DESCRIPTION:

A. Occupancy: ☐ One and Two Family Detached ☐ Other (Specify)_____

B. Type of System: ☐ Unitized Modular ☐ Core Unit ☐ Component

☐ Architectural ☐ Structural ☐ Mechanical ☐ Plumbing ☐ Electrical

☐ Other (Specify) _____

ACTIONS	Building System			C.A. Program			REMARKS
	Date	Hrs	Initials	Date	Hrs	Initials	
Application Received							
Forwarded for Preliminary Review							
Preliminary Review Disapproved							
Notice of Unsuitability Sent							
Preliminary Review Approved							
Forwarded for Evaluation							
Evaluation Completed							
1. Architectural							
2. Structural							
3. Mechanical							
4. Plumbing							
5. Electrical							
6. Manufacturing Facility							
Completed Eval. Notice Sent							
Approval Report (B.S.) Completed							
Other Actions:							

FEE COMPUTATIONS AND RECORD	Man-Hrs	Rate	Total	Deposit Recd	Date	Fee Due	Overpayment
Building System Evaluation							
C.A. Program Evaluation							
Other							

Fee Received $_____ Date_____ Overpayment Returned $_____ Date_____

Building System Approval Report No._____ Date_____ Date Sent _____

C.A. Program Approval No. _____ Date_____ Date Sent _____

PRELIMINARY REVIEW CHECKLIST

INSPECTION AGENCY: _____ STATE: _____

MANUFACTURER: MODEL : APPLICATION NO:

SUBJECT	DESCRIPTION	SUITABLE FOR PROCESSING		REMARKS
		YES	NO	
A. GENERAL REQUIREMENTS				
Application Form	(a) form submitted; (b) completely filled out; (c) signed as required.			
Deposit and Fees	Deposit and/or fees submitted.			
Drawings	(a) correct number of copies; (b) index of drawings; (c) drawing number and number of sheets in set: (d) identification of content of each drawing; (e) date of drawing; (f) space for revisions (with date); (g) numerical and graphic scale on all drawings; (h) architect or engineers signatures and stamp as required; (i) space for approval stamp.			
Supporting Data	(a) correct number of copies; (b) index; (c) identification of all data; (d) identification of manufacturer; (e) identification of architect, engineer, and/or testing laboratory; (f) all signatures as required; (g) space for approval stamp.			
Scope	Application meets scope as manufactured building or manufactured building component as defined by the applicable laws, rules, and regulations.			
B. BUILDING SYSTEMS REQUIREMENTS				
Architectural	(a) floor plans; (b) sections; (c) elevations; (d) wall and partition details; (e) flashing details; (f) eave and soffit details; (g) window and door details; (h) access and ventilation of attic and under floor spaces; (i) identification of all exterior and interior materials and finishes; (j) location and details of fire separation provisions (if required); (k) identification of major building elements and components, fire spread ratings, toxicity, etc.			

PRELIMINARY REVIEW CHECKLIST (CONTINUED)

SUBJECT	DESCRIPTION	SUITABLE FOR PROCESSING		REMARKS
		YES	NO	
Structural	(a) framing plans for roofs, floors, and walls; (b) details of connections; (c) vertical and lateral load calculations; (d) specifications and schedules for all structural materials and components.			
Mechanical	(a) location of all equipment, appliances, and installations; (b) appliances, units, or equipment listed or labeled by an approved listing agency; (c) manufacturer's name, make, model number, input and output ratings of all appliances and equipment; (d) heat loss calculations; (e) duct and register locations, sizes, and materials; (e) clearances from combustible materials for all appliances and equipment, ducts, flues, vent, chimneys; (f) clearances for air intakes; (g) details for dampers in ducts penetrating fire separations in walls, floors, and ceilings; (h) methods of testing; (i) attachment and method of anchoring for all appliances, equipment, ducts, etc.			
Plumbing	(a) plan and riser diagram; (b) specifications for all materials and for fixed appliances and equipment; (c) make and model for safety controls and their location; (d) support of piping and interval of support; (e) location of flues and vents, clearances, and their supports; (f) method of testing.			
Electrical	(a) plan and detail of service equipment, service entrance, conductors, raceways, and clearances above ground and other structures; (b) method and details for grounding service equipment; (c) single line diagram of the entire electrical installation; (d) load calculations for service, feeders, and panel layouts; (e) sizes of all feeders and branch circuits; (f) size, rating, and location of main disconnect/ overcurrent protective devices; (g) location of all outlet and junction boxes; (h) protection of non-metallic sheathed cables; (i) method of attachment, mounting, and support of wiring and fixtures; (j) listing or labeling of all wiring, fixtures, and equipment; (k) method of testing.			

PRELIMINARY REVIEW CHECKLIST (CONTINUED)

SUBJECT	DESCRIPTION	SUITABLE FOR PROCESSING		REMARKS
		YES	NO	
Transportation and Site Installation	(a) transportation and handling requirements; (b) site preparation, including foundation requirements; (c) details for and method of field connection of units, modules, or components to each other and to foundations; (d) method of interconnecting mechanical, plumbing, and electrical services between units, modules, or components and to on-site service lines; (e) method of testing for all on-site connections.			
C. COMPLIANCE ASSURANCE MANUAL				
General Requirements	(a) correct number of copies; (b) Inspection Agency approval of manual; (c) index to manual; (d) space for approval stamp; (e) contractual agreement between manufacturer and Inspection Agency.			
Organization Requirements	(a) procedure for revision of compliance assurance manual; (b) organizational structure chart; (c) train- and qualifications of compliance personnel; (d) checklists for a uniform system of audits; (e) procedure for maintenance of compliance records; (f) procedure for control of changes; (g) procedure for control of working drawings; (h) description of serial numbering system; (i) procedure for control of labels.			
Materials Control	(a) procedure for control of procurement; (b) receiving inspection checklists; (c) instructions for protection of materials; (d) procedure for disposition of rejected materials.			
Production Control	(a) procedure for corrective action; (b) procedure for control of testing and inspection equipment; (c) description of frequency of inspection; (d) provision for authority for compliance assurance; (e) production flow diagrams of plant; (f) in-plant inspection checklists for each station; (g) code compliance workmanship standards; (h) procedure for disposition of noncompliant construction.			

PRELIMINARY REVIEW CHECKLIST (CONTINUED)

SUBJECT	DESCRIPTION	SUITABLE FOR PROCESSING		REMARKS
		YES	NO	
Finished Product Control	(a) procedure for final inspection and certification; (b) procedure for handling and storage; (c) provisions for packing, packaging and shipping controls; (d) procedure for transportation controls.			
Installation Control	(a) procedure for installation control; (b) procedure for handling field repairs.			
Permission for Inspection	(a) signed and notarized statement granting Administrative Agency permission for inspection.			

STATE OF _____

[*Name and Address of Administrative Agency*]

[*Name of Manufacturer* / *Address*]

Date _____

RE: SUBMITTAL UNSUITABLE FOR PROCESSING

Dear Sir:

Our preliminary review of your submission of the following application(s) for the approval of

☐ Building System - Application No. _____

☐ C.A. Program - Application No. _____

indicates that your submittals are unsuitable for processing due to following reasons:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Attachments:

☐ Preliminary Review Checklist

☐ Documents Returned ☐ plans ☐ specs ☐ calculations ☐ test data ☐ C.A. Manual

☐ other _____

Sincerely,

_____

Signature of Agency Official

_____

Name and Title

EVALUATION CHECKLIST — ARCHITECTURAL

STATE: _____

MANUFACTURER: MODEL: APPLICATION NO:

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE		REMARKS
			YES	NO	
Ch. 2	BUILDING PLANNING				
R-204	Light and Ventilation	(a) glazing area; (b) area of openable glazing; (c) mechanical ventilation; (d) bathroom glazing.			
R-205	Room Sizes	Floor areas - Horizontal Dimensions: (a) largest habitable room; (b) smallest habitable room; (c) kitchen.			
R-206	Ceiling Height	(a) average ceiling height; (b) minimum ceiling height; (c) projections (beams-girders).			
R-207	Sanitation	(a) water closet; (b) lavatory; (c) bathtub or shower; (d) kitchen area; (e) kitchen sink; (f) hot and cold running water; (g) connection to sewer/disposal.			
R-208	Toilet, Bath, Shower Compartments	(a) privacy of occupant; (b) compartment size and clearances; (c) floor and wall finishes; (d) bathtub/shower enclosures, panels, doors; (e) glazing.			
R-209	Glazing	Minimum thickness and type of glass.			
R-210	Private Garages	Requirements between garage and residence - (a) openings; (b) doors; (c) separations; (d) floor surface.			
R-211	Exits	(a) number of exits; (b) openable window in sleeping room; (c) sill height; (d) free openable area; (e) minimum dimension.			
R-212	Doors	Width and height.			
R-213	Landing	(a) width and depth; (b) door swing; (c) threshhold.			

EVALUATION CHECKLIST — ARCHITECTURAL (CONTINUED)

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE		REMARKS
			YES	NO	
R-214	Stair-ways	(a) clear width; (b) headroom; (c) rise, run; (d) handrail and projection clearance.			
R-215	Hand-rails and Guard-rails	(a) heights of handrails; (b) spiral stairways; (c) guardrails for porches, balconies, etc.; (d) intermediate rails.			
Ch. 3	FOUNDATIONS				
R-303	Footings	(a) foundation walls height above grade (b) stepped foundations.			
R-304	Basement Walls	(a) minimum thickness; (b) allowable depth; (c) backfill.			
R-305	Water-proofing	(a) foundation drains below grade; (b) gravity or mechanical system; (c) drain tile.			
R-306	Damp-proofing	(a) cement parging; (b) bituminous coatings; (c) membrane protections; (d) habitable rooms below grade.			
R-308	Decay and Termite Protec-tion	(a) pressure treated lumber; (b) approved preservatives; (c) decay-resistant lumber; (d) lumber in areas subject to decay and termites; (e) embedded lumber; (f) clearances from ground level.			
R-309	Under-floor Space	(a) area and location of ventilating openings; (b) screening; (c) vapor barrier; (d) access crawl space opening and access door.			
Ch. 4	WALL CONSTRUCTION				
R-402	Wood	(a) grade of lumber; (b) construction method; (c) fastening method; (d) exterior wall; (e) interior load bearing partitions; (f) cutting and notching; (g) spacing of studs and joists; (h) headers; (i) firestopping.			

EVALUATION CHECKLIST — ARCHITECTURAL (CONTINUED)

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE YES	COMPLIANCE NO	REMARKS
Ch. 5	WALL COVERING				
R-501	General	(a) wall covering materials; (b) finishes.			
R-502	Interior Covering	(a) installation; (b) vertical assemblies; (c) lath; (d) plaster; (e) gypsum wallboard; (f) shower and bath compartments; (g) other finishes.			
R-503	Exterior Covering	(a) installation; (b) lath; (c) plaster; (d) masonry veneer; (e) weather protection; (f) weather-resistant siding; (g) weather-resistant membrane; (h) flashing; (i) plywood; (j) covering attachment.			
Ch. 6	FLOORS				
R-602	Wood	(a) identification; (b) grade; (c) allowable spans/joist spacing; (d) bearing; (e) lateral support; (f) notching; (g) sheathing.			
R-603	Concrete	(a) contraction joints; (b) site preparation/ sand/gravel sub-course; (c) vapor barrier.			
Ch. 7	ROOF-CEILING CONSTRUCTION				
R-701	General	Construction method.			
R-702	Wood	(a) identification; (b) grade; (c) allowable span/spacing; (d) sheathing.			
R-704	Ceiling Finishes	(a) installation; (b) furring; (c) lath; (d) plaster; (e) gypsum wallboard; (f) other finishes and coverings.			

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE YES	COMPLIANCE NO	REMARKS
Ch. 8	ROOF COVERINGS				
R-801	General	(a) material; (b) tests and standards; (c) class.			
R-802	Base Sheet Application	(a) roof surface; (b) cementing method; (c) anchoring method; (d) manufacturer's specifications; (e) finish roofing material and fastening procedure.			
R-803	Composition Asphalt Organic Felt Shingles	(a) shingle application; (b) slope factor; (c) underlayment; (d) fasteners and penetration; (e) roof valley flashing (corrosion-resistant metal); (f) lap and extension dimensions of flashing.			
R-804	Slate Shingles	(a) application method; (b) corrosion-resistant nails, wire, flashing; (c) underlayment material and application; (d) flashing: gauge, material; (e) splash diverter; (f) laps and extensions.			
R-805	Asbestos Cement Shingles	(a) method of application; (b) underlayment; (c) slope or pitch of roof; (d) thickness of roofing material; (e) corrugated asbestos; (f) resistant nails and flashing material; (g) roof valley flashing.			
R-806	Metal Roofing	(a) flat sheets, shingles, corrugated; (b) solid sheathed roof; (c) application method; (d) slope; (e) underlayment.			
R-807	Tile, Clay, Concrete Shingles	(a) fastening method; (b) slope; (c) tile projection; (d) treated wood stripping size; (e) underlayment; (f) nailing and valley flashing materials.			

EVALUATION CHECKLIST — ARCHITECTURAL (CONTINUED)

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE YES	COMPLIANCE NO	REMARKS
R-808	Built-up Roofing	(a) composition and slope; (b) base surface; (c) base layer installation; (d) successive layer installation; (e) surfacing; (f) cap sheets; (g) application temperature of asphalt and pitch.			
R-809	Wood Shingles	(a) type of sheathing; (b) sidelap and nailing; (c) slope and/or underlayment; (d) valley flashing; (e) weather exposure/hip and ridge.			
R-810	Wood Shakes	(a) type of sheathing/spacing; (b) course, side lap, spacing; (c) fastening, size of shakes; (d) laying method; (e) slope/underlayment; (f) roof valley flashing; (g) weather exposure/ hip and ridge.			
Ch. 9	CHIMNEYS AND FIREPLACES				
R-901	General	(a) materials; (b) tests; (c) standards.			
R-902	Support	Construction.			
R-903	Addi-tional Load	Supports own/additional load.			
R-904	Termina-tion	(a) extended above the highest roof point; (b) highest point of building.			
R-905	Wall Thick-ness	(a) material; (b) minimum wall thickness.			
R-906	Flue Lining (mate-rial)	(a) clay material; (b) thickness; (c) other liner material.			

EVALUATION CHECKLIST — ARCHITECTURAL (CONTINUED)

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE		REMARKS
			YES	NO	
R-907	Flue Lining (Installation)	(a) location; (b) installation method.			
R-908	Multiple Flues	(a) masonry wythes; (b) wythe separation, thickness, bonding method; (c) staggered joints in linings.			
R-909	Flue Area (Appliances)	(a) chimney flue area; (b) appliance connections area.			
R-910	Flue Area (Fireplace)	Flue areas (openings): (a) round lined; (b) square or rectangle lined; (c) unlined openings; (d) firebrick lined; (e) opening areas.			
R-911	Inlet	(a) entry side; (b) connector control; (c) inlet materials (fire clay, refractory, metal).			
R-912	Cleanout Opening	(a) cleanout provisions; (b) ferrous metal doors and frames; (c) locking devices; (d) location (clearance between lowest inlet).			
R-913	Chimney Clearance	(a) clearance of adjacent combustible materials; (b) chimney inside, outside, or partially within dwelling.			
R-914	Chimney Fire Stopping	(a) material; (b) depth.			

EVALUATION CHECKLIST — ARCHITECTURAL (CONTINUED)

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE		REMARKS
			YES	NO	
R-915	Factory-built Chimneys	Approved type.			
R-916	Fireplace Walls	(a) construction materials (masonry, reinforced concrete, stone, fire brick); (b) lining and material thicknesses; (c) critical dimensions.			
R-917	Steel Fireplace Units	(a) steel fireplace; (b) firebox liner thickness; (c) air chamber; (d) installation clearances, total wall thickness; (e) air duct material.			
R-918	Lintel	(a) masonry supporting member over fireplace, material.			
R-919	Hearth Extension Material	(a) materials (brick, concrete, stone, tile); (b) other approved material; (c) reinforcing; (d) removal of combustible construction materials.			
R-920	Hearth Extension	(a) dimension; (b) clearances.			
R-921	Fireplace Clearance	Clearance from combustible framing material.			
R-922	Fireplace Firestopping	Stopping between fireplace masonry and combustible framing.			
R-923	Combustible Materials	Clearance from fireplace opening.			

EVALUATION CHECKLIST — ARCHITECTURAL (CONTINUED)

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE		REMARKS
			YES	NO	
R-924	Factory-built Fire-places	(a) fire chamber assembly; (b) chimney sections; (c) roof assembly, parts and accessories; (d) laboratory approved; (e) clearances to combustible materials; (f) chimney extensions through floors, ceilings, roof; (g) fire stops; (h) enclosure of extended portions; (i) hearth extension.			
R-925	Factory-built Fire-place Stoves	(a) laboratory approval; (b) clearance from combustible material; (c) protection of combustible floor, material, extend.			

EVALUATION CHECKLIST — STRUCTURAL

STATE: _____

MANUFACTURER: MODEL: APPLICATION NO:

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE		REMARKS
			YES	NO	
Ch. 2	BUILDING PLANNING				
R-202	Design Criteria	(a) roof live load; (b) floor live load; (c) wind load; (d) seismic zone; (e) frost line depth; (f) allowance for partitions; (g) concentrated loads.			
Ch. 3	FOUNDATIONS				
R-302	Materials	(a) lumber (timber); (b) concrete; (c) steel; (d) masonry; (e) others.			
R-303	Footings	(a) design soil bearing pressure; (b) design calculations; (c) depth of footings; (d) construction details; (e) recommended loading schedule.			
R-304	Basement Walls	(a) type of backfill; (b) minimum thickness; (c) maximum depth of unbalanced fill; (d) design calculations; (e) recommended loading schedule.			
R-307	Foundation Studs	(a) recommendations provided; (b) size, length, and spacing; (c) bracing; (d) protection of bases.			
Ch. 4	WALL CONSTRUCTION				
R-402	Wood	(a) identification; (b) grade; (c) bracing; (d) bearing and shear wall framing; (e) connection details; (f) cutting and notching; (g) header schedule.			

EVALUATION CHECKLIST — STRUCTURAL (CONTINUED)

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE		REMARKS
			YES	NO	
R-403	Metal	(a) materials: structural steel shapes and bars; aluminum structural elements; (b) allowable spans; (c) framing; (d) connections.			
R-404	General Masonry Construction	(a) materials: masonry units, mortar, grout, reinforcing steel; (b) corbel details; (c) combination of materials; (d) piers; (e) chases and recesses; (f) stack bond; (g) unsupported heights and lengths; (h) lintels; (i) anchorage at floors and roofs; (j) steel reinforcement - area and spacing; (k) beam and girder bearing.			
R-405	Hollow Unit Masonry	(a) mortar bedding; (b) bonding - masonry units or metal ties.			
R-406	Solid Masonry	(a) mortar bedding; (b) bonding (individual and adjacent wythes) - masonry units and metal ties.			
R-407	Cavity Wall Masonry	(a) thickness of backing and facing; (b) width of cavity; (c) metal ties - type, size and spacing.			
R-408	Grouted Masonry	(a) type of mortar and grout; (b) low-lift grouting - width of longitudinal vertical joints, height of lifts; (c) high-lift grouting - size and spacing of metal ties, provision for cleanouts, width of grout space, height of lifts.			
R-409	Reinforced Grouted Masonry	(a) grouted masonry requirements; (b) thickness of grout spaces and mortar joints.			

EVALUATION CHECKLIST — STRUCTURAL (CONTINUED)

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE YES	COMPLIANCE NO	REMARKS
R-410	Reinforced Hollow Unit Masonry	(a) mortar type and bedding; (b) minimum cell dimensions; (c) cleanout provisions; (d) maximum grout lifts.			
Ch. 5	WALL COVERING				
R-503	Exterior Covering	Masonry veneer: (a) maximum height where attached to wood; (b) lintel spans; (c) size and spacing of veneer ties.			
Ch. 6	FLOORS				
R-601	General	(a) materials; (b) design and construction standards.			
R-602	Wood	(a) identification; (b) grade; (c) allowable spans; (d) bearing; (e) lateral support; (f) notching.			
R-604	Metal Floors	(a) materials - steel, aluminum; (b) allowable spans for girders and beams; (c) columns.			
Ch. 7	ROOF-CEILING CONSTRUCTION				
R-701	General	(a) materials; (b) design and construction standards.			
R-702	Wood	(a) identification; (2) grade; (c) allowable spans for joists and rafters; (d) allowable spans for sheathing.			
R-703	Metal	(a) materials - steel, aluminum; (b) allowable spans for beams and girders.			

EVALUATION CHECKLIST — MECHANICAL

STATE: _____

MANUFACTURER: MODEL: APPLICATION NO:

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE		REMARKS
			YES	NO	
M-1102 Table 11A and 11B	Installation Clearances - Heat Producing Appliances	Clearances of appliances from combustible materials.			
M-1915 and 1916	Fuel Connections (Oil)	Installation of tank, piping and valves for oil burning appliances.			
M-1910 Table 19	Fuel Connections (Gas)	Gas appliance connectors sized for total demand of appliance load.			
M-1106	Access	Accessibility of appliance fire-box.			
M-1107	Automatic Control Devices	All heating appliances provided with listed automatic control devices.			
Ch. 12	Combustion Air	Requirements for (a) combustion air; (b) location of combustion air openings and ducts; (c) method of providing combustion air for appliances located in confined and unconfined spaces.			
Ch. 13	Warm-air Heating Systems	Warm air furnace - (a) location requirements; (b) access; (c) separation of combustion air and circulating air openings; (d) sizing of openings; (e) supply air and circulating air requirements; (f) requirements for furnaces located in underfloor spaces and roofs.			

EVALUATION CHECKLIST — MECHANICAL (CONTINUED)

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE		REMARKS
			YES	NO	
Ch. 14	Vented Appliances, Floor Furnaces and Unit Heaters	(a) Installation; (b) location; (c) access; (d) separation; and (e) combustion air requirements for vented decorative appliances, floor furnaces, vented wall furnaces, unit heaters and room heaters.			
Ch. 15	Venting of Appliances	(a) Type of venting system; (b) location and support; (c) vent termination; (d) length; (e) pitch; and (f) clearance of vents. Masonry and metal chimney requirements, chimney connector sizing and location.			
Ch. 16	Ducts	(a) Duct material and construction; (b) installation; (c) ventilating ceilings; (d) underfloor space as supply plenum; (e) duct insulation; (f) fire dampers; and (g) automatic shut-off.			
Ch. 17	Comfort Cooling Systems	Comfort cooling system requirements - (a) installation; (b) access; (c) supply and return air; and (d) limitations.			
Ch. 18	Absorption Units and Systems	Absorption units and system requirements - (a) location; (b) access; (c) installation; and (d) clearances.			
---	Evaporative Cooling Systems	Evaporative cooling system requirements - (a) location; (b) access; (c) installation; and (d) clearances.			
---	Refrigerating Equipment	(a) Type of refrigerant; (b) location of refrigeration equipment; (c) fire-resistance requirements, ventilation and allowable equipment in refrigeration machinery room; (d) refrigerant piping, containers and valves; (e) erection of refrigerant piping; (f) pressure relief devices for compressors; and (g) pressure vessels.			

EVALUATION CHECKLIST — MECHANICAL (CONTINUED)

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE		REMARKS
			YES	NO	
M-1108 to M-1111	Miscellaneous Heat-Producing Appliances	Requirements for miscellaneous heat producing appliances - (a) ranges; (b) open-type broiler units; (c) domestic clothes dryers; and (d) direct gas fired make-up heaters.			
---	Heat loss and Heat Gain Calculations	Heat loss and heat gain calculations.			

EVALUATION CHECKLIST — PLUMBING

STATE: _____

MANUFACTURER: MODEL: APPLICATION NO:

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE		REMARKS
			YES	NO	
Ch. 21	Materials	Listing of all plumbing material (pipes, fittings, fixtures, valves, appliances and equipment).			
Ch. 20	Prohibited Fittings and Practices	Check if any fitting, fixture and piping connection, appliance, device or method of installation obstructs flow of water, wastes, sewage or air in drainage or venting systems greater than normal frictional resistance to flow; connections between dissimilar metals.			
Ch. 20	Pipe Protection	Protection of pipes - provisions for expansion, contraction and structural settlement, corrosion, erosion or mechanical damage and freezing.			
Ch. 20	Hangers and Supports	Adequacy of support of piping fixtures and equipment; spacing of supports and use of approved clamps.			
Ch. 22	Cleanouts	Requirements for cleanouts, including location and sizing.			
Ch. 23	Indirect Waste Piping	Requirements for indirect waste connections.			
--	Interceptors and Drains	Requirements for interceptors and drains.			
Ch. 21 24	Valves	Requirements for pressure regulator and relief valves (including gate valves).			
Ch. 22	Drainage and Venting Systems	Size of vent and drainage piping according to given length, fixture units supplied and for given minimum trap sizes or sizing according to discharge capacity.			

EVALUATION CHECKLIST — PLUMBING (CONTINUED)

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE		REMARKS
			YES	NO	
Ch. 23	Fittings (Directional Change)	Appropriate use of approved fittings when changes in direction of drainage flow occur.			
--	Combination Waste and Vent System	Requirements for combination waste and vent system.			
Ch. 22	Wet Venting	Requirements for vertical wet venting.			
Ch. 22	Grade	Requirements for grading of horizontal piping.			
Ch. 23	Traps	Requirements for traps.			
Ch. 20	Joints and Connections	Requirements for pipe joints and connections.			
Ch. 24	Water Distribution	Requirements for (a) sizing of potable water piping; (b) backflow prevention devices; and (c) vacuum breakers.			
Ch. 19	Fuel Gas Piping	(a) Sizing of gas and liquified petroleum piping; (b) installation; (c) gas meter locations.			
Ch. 11 19 24	Water Heaters and Vents	Gas-fired or oil-fired water heaters (a) combustion air requirements; (b) installation; (c) enclosures; (d) venting; and (e) access of working space.			

EVALUATION CHECKLIST — ELECTRICAL

STATE: _____

MANUFACTURER: MODEL: APPLICATION NO:

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE		REMARKS
			YES	NO	
Art. 210	Branch Circuits	General requirements - (a) identification of color code for branch circuits, (b) voltage to ground, (c) voltage between conductors, (d) voltage drop, (e) protection of grounding type receptacles. Specific requirements - (a) ampacity and size of circuit conductors, (b) overcurrent device rating, (c) outlet devices rating, (d) installation of receptacle outlets, (e) maximum load, (f) permissible load, (g) requirements of circuits having two or more outlets in accordance with Table 210-25.			
Art. 215	Feeders	Installation requirements for and size of conductors in the feeders, supplying power to branch circuits and loads as per article 220. Protection of feeders.			
Art. 220	Branch Circuit & Feeder Calculations	Expected load calculations (for expected branch circuit and feeder loads and number of branch circuits required). (Tables 220-2(a), 220-4(b), and 220-5).			
Art. 230	Services	(a) size, (b) rating, (c) insulation, (d) location, (e) protection of service entrance conductors, and (f) control and protection equipment requirements.			
Art. 240	Overcurrent Protection	General requirement for (a) use of overcurrent protection devices, overcurrent protection of equipment, protection of conductors according to their ampacities (Tables 310-12 to 310-15), (b) location of overcurrent devices, (c) enclosure requirements, (d) conformance of plug fuses and fuse holders, (e) cartridge fuses and fuseholders, (f) circuit breakers and supplementary overcurrent protection.			

EVALUATION CHECKLIST — ELECTRICAL (CONTINUED)

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE YES	COMPLIANCE NO	REMARKS
Art. 250	Grounding	General requirements for grounding and bonding of electrical installations and specific requirements for the following: (a) systems, circuits, and equipment required, permitted, or not permitted to be grounded, (b) circuit conductor to be grounded on grounded systems, (c) location of grounding connections, (d) methods of grounding and bonding, (e) conditions under which guards, isolation or insulation may be substituted for grounding, (f) connections for lightning arrestors.			
Art. 300	Wiring Methods	(a) Common enclosure requirements for conductors of different systems, (b) protection against physical damage, corrosion, thermal expansion, (c) requirements for continuity, (d) provision for boxes at each splice point, (e) insertion and support of conductors in raceways, (f) wiring in ducts, plenums and other air handling spaces.			
Art. 310	Conductors for general wiring	Adequacy of conductors for (a) mechanical strength, (b) insulation and (c) ampacity for the particular conditions under which they are to be used. Provisions of Table 310-2(a) and 310-2(b) for particular conductor application and insulation conformance.			
Art. 334 336 338 339	Cable supports, open wiring, etc.	Requirements for cable support, open wiring, sheathed, metal-clad and non-metallic cable.			

EVALUATION CHECKLIST — ELECTRICAL (CONTINUED)

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE		REMARKS
			YES	NO	
Art. 370	Outlet, switch and junction boxes and fittings	Requirements for installation of outlet, switch and junction boxes and fittings. Maximum number of conductors in outlet and junction boxes per Table 370-6(a) and volume per conductor per Table 370-6(b).			
Art. 373	Cabinets and cut-out boxes	Requirements for installation of cabinets and cut-out boxes.			
Art. 380	Switches	Requirements for switches - (a) enclosures, (b) connection to grounded conductors, (c) wiring, (d) types, and (e) mounting requirements.			
Art. 384	Switchboards and Panelboards	Requirements for switchboards, panelboards and distribution boards - (a) location, (b) construction specs, (c) overcurrent protection, etc., (d) spacing between bare metal parts per Table 384-26.			
Art. 400	Flexible Cords and Cables	Requirements for flexible cords and cables - Description, size of conductors per Table 400-11; ampacity per Table 400-9(b).			
---	Fixture Wires	Requirements for fixture wires - Insulation, ampacity and size per Tables 402-4 to 402-6.			
Art. 410	Lamps, Fixtures and Lighting Installations	Requirements for lighting fixtures, lampholders, lamps, receptacles and rosettes - provisions for (a) fixture location, (b) support, (c) wiring of fixtures, (d) conductor protection, (e) construction requirements, (f) grounding, etc.			

EVALUATION CHECKLIST — ELECTRICAL (CONTINUED)

CODE NUMBER	SUBJECT	DESCRIPTION	COMPLIANCE		REMARKS
			YES	NO	
Art. 422	Appliances	(a) Branch circuit requirements, (b) installation, (c) grounding, (d) control and protection, (e) overcurrent protection, and (f) marking, etc. Appliances include room air conditioners, household refrigerators and freezers, drinking water coolers and beverage dispensers.			
Art. 424	Fixed Electric Space Heating Equipment	Fixed electric space heating equipment requirements. (Heating equipment may include heating cable, unit heaters, boilers, central systems, or other approved fixed electric space heating equipment. This article does not cover process heating and room air-conditioning.)			
---	Air Conditioner and Refrigeration Equipment	Air conditioning equipment - (a) marking, (b) ampacity, (c) rating, (d) short-circuit and ground fault protection, (e) conductors, (f) controllers, (g) overload protection.			

CERTIFICATION OF PRODUCTS AND TEST REPORTS

a. Certification

Some form of certification exists today for many building products. The purpose of such certification is to assure the compliance of the product to some code or standard of safety and performance. The certification programs are either: (1) established and administered by independent organizations such as Underwriters' Laboratories; (2) established by a trade association but administered by an independent organization such as the window certification program of the Architectural Aluminum Manufacturer's Association, administered by Electrical Testing Laboratories, Inc.; (3) both established and administered by a trade association such as the program sponsored and administered by the American Plywood Association; or (4) administered and enforced by a single manufacturer (self-certification). Some certification programs are based on a single test or evaluation of a prototype, some are based on periodic retesting or re-evaluation of the product, and some finally are based on tests and on a continuing surveillance of the manufacturing process to assure not only that the design of the product complies to a prescribed code or standard, but also that actual production units meet such code or standard.

From the above discussion it is evident that the degree of confidence that the evaluator can place in the certification of a specific product depends on the type of certification process associated with the product. Accordingly, the certification information to be submitted to the evaluator for the determination of the product's compliance with a specific code or standard should include the following data:

1. Identification of product
2. Name of agency or organization that has established the certification program.
3. Name of agency or organization that administers the program.
4. Code or standard that forms the technical basis for the certification.
5. Type of evaluation method used (testing, analysis).
6. Number of specimens tested or evaluated.
7. Sampling techniques and identification of person conducting the sampling.
8. Frequency of follow-up tests.
9. Brief description of surveillance activity to assure uniformity of production quality.
10. Limitations, if any, of the certification.

Although all the above factors can influence the confidence to be placed in any particular certification program, it is recognized that some programs have been found so reliable that they are nationally recognized. In such instances Administrative Agencies do not normally require the submission of all the above information. It should also be recognized that the certification programs themselves depend largely on the characteristics of the product, particularly its complexity. Accordingly, both the evaluation of and the submission requirements for certification documents will depend on the individual product. It would serve both the Administrative Agency

and the manufacturer if the agency would prepare a list of those products and certification programs for which not all the above information need to be submitted.

b. Test Reports

Tests on products, as used in this context, mean the testing of an individual product independent of any certification program. The purpose of such tests is the demonstration of the performance capabilities of a product related to specific or implied code or standards requirements. If the method of test is not given in the code or standard,the evaluation of the test report submission will have to include a determination of whether or not the test conditions simulate accurately the conditions to which the product will be subjected in service. Only after such a determination is an evaluation of the product's performance during the test meaningful. Where test methods are used that are promulgated by nationally accepted consensus standards organizations, such as ASTM, ANSI, etc., it need in general only be determined that such method truly applies to the specific product and intended use.

In recognition of the above, the test report submission requirements should include the following:

1. Identification of the specimen tested (manufacture, type, model number, source of supply, etc.).
2. A detailed description or drawing of the physical characteristics of the specimen, including condition (age, repair, etc.).
3. Number of tests and sampling technique used in selection of specimens.
4. Identification of test method used (if a standard test method) or a detailed description of the test procedure, equipment, and instrumentation used.
5. Tabulation of numerical values associated with test, such loadings, voltage, etc., and corresponding result readings (e.g. deflections), giving the time scale involved.
6. Listing or identification of any significant test conditions not indicated above (such as ambiant air temperature, humidity, etc.).
7. Date of test.
8. Name and address of testing organization or laboratory.
9. Signature of the laboratory's officer or authorized representative (generally a test engineer in charge who is a professional engineer), and date of signature.

EVALUATION CHECKLIST — COMPLIANCE ASSURANCE MANUAL

INSPECTION AGENCY: _____ STATE: _____

MANUFACTURER: MODEL: APPLICATION NO.

REFERENCE	DESCRIPTION	COMPLIANCE YES	COMPLIANCE NO	REMARKS
	GENERAL REQUIREMENTS			
	1. Inspection Agency identified. (NOTE: If not submitted separately, detailed qualifications of the Inspection Agency should also be presented). 2. Manual approved by Inspection Agency. 3. Manual is properly indexed (including appropriate justification to omit any compliance assurance requirements which may not apply to manufacturer's system). 4. Individual plant name and location identified. 5. Manual contains specimens of all inspection forms, records, checklists, labels, tags, stamps, insignia, etc. for both manufacturer and Inspection Agency along with their intended usage for compliance assurance activities. 6. Manual contains a brief introduction to describe the type of manufactured buildings or components to be fabricated along with the purpose for the compliance assurance manual to control construction compliance. 7. Manual contains copy of contract between manufacturer and Inspection Agency or an officially signed statement by a responsible officer of the manufacturer that such an agreement is in force.			
	A. ORGANIZATION REQUIREMENTS			
V,2(A)(1)	1. The procedure for "Revision of Compliance Assurance Manual" provides for: a. Changes to be submitted to the Administrative Agency within ten (10) days of the change.			

EVALUATION CHECKLIST — COMPLIANCE ASSURANCE MANUAL (CONTINUED)

REFERENCE	DESCRIPTION	COMPLIANCE YES	COMPLIANCE NO	REMARKS
	b. Manufacturer changes to manual to be coordinated with the Inspection Agency.			
	c. Three (3) month periodic review of manual by manufacturer and Inspection Agency.			
V,2(A)(2)	2. The "Organizational Structure" chart indicates:			
	a. The respective manufacturer and Inspection Agency organizational elements responsible for compliance assurance.			
	b. That the manufacturer's compliance control activity is functionally independent from the production department.			
	c. In addition to the chart, the manual defines the responsibility and authority of the compliance assurance program.			
V,2(A)(2)(a)	3. Under "Training and Qualifications" of compliance personnel, the manual provides:			
	a. The identification of the person responsible for directing construction compliance activities along with his background qualifications and training.			
	b. Job descriptions and resume's for compliance control personnel.			
	c. Inspection training programs, if any.			
V,2(A)(3)	4. A "Uniform System of Audits" is included in the manual which provides:			
	a. Audit inspection checklists for manufacturer and Inspection Agency monitoring of program performance.			
	b. That summary audit reports will be prepared by the Inspection Agency and submitted to the Administrative Agency on at least a quarterly basis.			

EVALUATION CHECKLIST — COMPLIANCE ASSURANCE MANUAL (CONTINUED)

REFERENCE	DESCRIPTION	COMPLIANCE YES	COMPLIANCE NO	REMARKS
V,2(A)(4)	5. The procedure for maintenance of "Compliance Records" provides for: a. Records to be maintained of all essential construction compliance inspections and/or production tests on a production unit basis. b. Inspection Agency and manufacturer records of compliance to be available for Administrative Agency review for a minimum period of time as may be required by the Administrative Agency. c. Records to be maintained current, complete and accurate.			
V,2(A)(5)	6. The procedure for "Control of Changes" includes: a. Changing of all applicable compliance documentation (e.g., checklists) when approved building system changes are made. b. Control of plant distribution of all documents and changes thereto affecting construction compliance.			
V,2(A)(6)	7. The procedure for "Control of Working Drawings" includes: a. The method by which shop level or working drawings, if used, are controlled and reviewed for compliance. b. A system to control subsequent changes to working drawings.			
V,2(A)(7)	8. The manual contains a description for the unit "Serial Numbering System" or similar identification technique which will be utilized in the plant.			

REFERENCE	DESCRIPTION	COMPLIANCE YES	COMPLIANCE NO	REMARKS
	a. The description indicates the point in the production flow at which such identification will be initiated. b. Identification will be in a uniform and accessible location on production units.			
V,2(A)(8)	9. The procedure for "Control of Labels": a. Identifies Inspection Agency and manufacturer personnel who will have responsibility for release and/or control of labels. b. Contains administrative procedures for the issuance, handling, possession, safekeeping and procurement of labels. c. Contains provision for using a "Label Control Record".			
	B. MATERIALS CONTROL			
V,2(B)(1)	1. The "Control of Procurement" procedure in the manual provides for: a. Objective evidence of compliance (e.g., grade marks, labels, product listings, etc.) to be provided by suppliers, where applicable. b. Incorporation of all design and compliance requirements in purchase orders and subcontracts.			
V,2(B)(2)	2. "Receiving Inspection" checklists are provided in the manual which: a. Provide instructions for evaluating raw materials and supplies upon receipt. b. Contain appropriate accept/reject criteria for each inspection characteristic.			

EVALUATION CHECKLIST — COMPLIANCE ASSURANCE MANUAL (CONTINUED)

REFERENCE	DESCRIPTION	COMPLIANCE YES	COMPLIANCE NO	REMARKS
V,2(B)(3)	3. The manual contains instructions for "Protection of Materials" which: a. Provide that materials will be adequately stored and protected from weather, corrosion, deterioration, mechanical damage and other adverse conditions.			
V,2(B)(4)	4. The manual describes a system for the "Disposition of Rejected Materials" which: a. Contains a procedure for the positive identification and segregation of nonconforming materials. b. Requires that any repair or rework operations will be in accordance with approved manufacturer procedures.			
	C. PRODUCTION CONTROL			
V,2(C)(1)	1. There is a procedure defining "Corrective Action" which: a. Provides for prompt detection of noncompliances and for correction of assignable causes adverse to construction compliance.			
V,2(C)(2)	2. The procedure for control of "Testing and Inspection Equipment" provides: a. Identification of each item of required equipment and the station at which each will be used. b. For equipment maintenance and, as necessary, periodic calibration. c. That equipment calibration records will be maintained current.			

EVALUATION CHECKLIST — COMPLIANCE ASSURANCE MANUAL (CONTINUED)

REFERENCE	DESCRIPTION	COMPLIANCE YES	COMPLIANCE NO	REMARKS
V,2(C)(3)	3. The manual contains a procedure outlining details for "Frequency of Inspection" for surveillance inspections of production units by personnel of the Inspection Agency.			
V,2(C)(4)	4. The manual includes a provision for "Authority for Compliance Assurance" which: a. Provides that the manufacturer's compliance control activity or the Inspection Agency have authority to reject noncompliant construction. b. Allows inspectors to refuse to attach labels to noncompliant units until such time as they have been brought into compliance. c. Gives authority to the Inspection Agency to inspect all units produced prior to a unit being found deficient and subsequent to the last unit previously inspected.			
V,2(C)(5)	5. "Production Flow Diagrams" of the plant are provided which: a. Depict the sequence, type, and frequency of inspections by the manufacturer and Inspection Agency. b. Reference applicable In-plant Inspection Checklists for each station. c. Designate specific "hold" points beyond which units cannot pass without inspection. d. Indicate storage areas both in and outside plant buildings.			
V,2(C)(6)	6. In-plant "Inspection Checklists" for each production station are contained in the manual which:			

REFERENCE	DESCRIPTION	COMPLIANCE YES	COMPLIANCE NO	REMARKS
	a. Depict the production sequence (as represented by the "Production Flow Diagrams").			
	b. Provide for objective inspection of all regulated aspects of the construction by inspection personnel (manufacturer or Inspection Agency).			
	c. Have been concurred in by the Inspection Agency.			
	d. Contain an "actual design requirement" entry for each of the "essential characteristics of inspection" for each station.			
V,2(C)(7)	7. The manual contains any applicable "Code Compliance Workmanship Standards" to supplement or clarify acceptance standards set by codes, drawings or inspection checklists.			
V,2(C)(8)	8. The procedure for "Disposition of Noncompliant Construction"			
	a. Provides for positive identification of units with noncompliant construction and any other suspect units produced prior to a unit being found deficient and subsequent to the last unit previously inspected.			
	D. FINISHED PRODUCT CONTROL			
V,2(D)(1)	1. The manual contains a procedure for "Final Inspection and Certification" which:			
	a. Provides for an overall compliance check of units prior to being labeled.			
	b. Requires checklist verification that the approved certification label and manufacturer's data plate, as applicable, have been properly affixed and bear correct information.			

REFERENCE	DESCRIPTION	COMPLIANCE YES	COMPLIANCE NO	REMARKS
	c. Requires that label control records be maintained.			
V,2(D)(2)	2. The "Handling and Storage" inspection procedure:			
	a. Provides for periodic inspection of stored units to prevent deterioration or damage.			
	b. Contains procedures for handling of units.			
V,2(D)(3)	3. The procedure for "Packing, Packaging and Shipping" include			
	a. Inspection characteristics to verify protection of plumbing, mechanical or electrical subsystems and any included appliances and fixtures from subsequent damage in shipment.			
V,2(D)(4)	4. The procedure for "Transportation" controls provides:			
	a. For in-transit and on-site verification checks for damage.			
	b. That site receiving inspection reports or other documentary evidence will be available to local enforcement agencies.			
	E. INSTALLATION CONTROL			
V,2(E)(1)	1. The manual contains "Installation Control" procedures which:			
	a. Indicates the frequency and type of compliance inspection checks for			
	(1) site work (2) foundations and substructure (3) utilities (4) installation (5) functional testing			

EVALUATION CHECKLIST — COMPLIANCE ASSURANCE MANUAL (CONTINUED)

REFERENCE	DESCRIPTION	COMPLIANCE YES	COMPLIANCE NO	REMARKS
V,2(E)(2)	2. The procedure for handling "Field Repairs": a. Contains criteria for the builder/erector outlining limits for field repairs. b. Provides for reporting to the manufacturer and Inspection Agency of all field noncompliances attributable to inadequate plant inspection. c. Provides for withdrawing labels from units found not in compliance in the field.			
	F. PERMISSION FOR INSPECTION			
V,2(F)	The manufacturer has provided written permission, signed and notarized, for the Administrative Agency to inspect the manufacturing facilities, products, and building sites under his control at any reasonable time without prior announcement.			

MANUFACTURING FACILITY EVALUATION REPORT

The Manufacturing Facility Evaluation Report has been developed as a suggested aid and report format for conducting the inspection survey of the manufacturer's plant facilities as required by Part IV, Section 4(A) of the Rules and Regulations. The purpose of this plant inspection by the Evaluation Agency or Administrative Agency is to determine that the provisions of the compliance assurance manual as submitted for evaluation are in fact implemented, or can be readily implemented, as soon as actual production starts (after approval of both the building system and the compliance assurance program). Where a plant is already in operation, the survey or inspection of the facility may also include the evaluation of production unit compliance.

Pages 3 and 4 of this document give a suggested checklist to be used in the plant evaluation. A suggested format to be used by the plant evaluation inspection team for reporting the results of its evaluation is given on page 2. Page 5 is a suggested evaluation work sheet to be used when evaluating a plant in operation and where the compliance of units under production is to be included in the evaluation, and page 6 gives a suggested format for reporting the results of such unit compliance inspections. This form is to be used in conjunction with the report form given on page 2.

The Manufacturing Facility Evaluation Report could also be utilized by the Administrative Agency in the conduct of its monitoring responsibilities of Inspection Agencies as required by Part IV, Section 4(D) of the Rules and Regulations.

STATE OF _____

[*Name and address of Administrative Agency or Evaluation Agency*]

MANUFACTURING FACILITY EVALUATION REPORT

NAME OF MANUFACTURER: _____

PLANT LOCATION: _____

_____

APPLICATION NO: _____

BUILDING SYSTEM APPROVAL NO. (IF AVAILABLE): _____

NAME OF INSPECTION AGENCY: _____

ADDRESS: _____

_____

DESCRIPTION OF BUILDING SYSTEM: _____

_____

_____

_____

_____

PERSONS CONTACTED (NAMES, TITLES, AFFILIATIONS):

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

EVALUATION TEAM SUMMARY COMMENTS - (SEE FOLLOWING PAGES OF THIS REPORT FOR DETAILS):

_____

_____

_____

_____

_____

_____

_____

_____

RECOMMENDATION:

- [ ] ACCEPTABLE MANUFACTURING FACILITY EVALUATION
- [ ] UNACCEPTABLE - DISAPPROVE COMPLIANCE ASSURANCE MANUAL
- [ ] UNACCEPTABLE - DISAPPROVE PLANT
- [ ] UNACCEPTABLE - DISAPPROVE INSPECTION AGENCY
- [ ] OTHER RECOMMENDATION: _____

_____

NAME, SIGNATURE AND DATE OF EVALUATION TEAM MEMBERS:

_____ _____ _____

_____ _____ _____

Page ____ of ____

MANUFACTURING FACILITY EVALUATION REPORT

Evaluation worksheet for determining adequacy of compliance assurance program

AREA FOR EVALUATION	SATISFACTORY YES	SATISFACTORY NO	EXPLANATION OF ITEMS CHECKED "NO"
Manufacturer's compliance organization has independence from production department.			
Compliance control personnel are adequately trained and qualified.			
Checklists for a "uniform system of audits" are maintained by mfgr. or Inspection Agency.			
Compliance records are maintained by manufacturer and Inspection Agency.			
Building system and compliance assurance manual changes are adequately controlled.			
"Working drawings", if used, are adequately controlled.			
A unit identification or serial numbering system is utilized.			
Certification labels are adequately controlled by Inspection Agency and/or manufacturer.			
Receiving inspection checklists are utilized.			
Storage and handling of materials is adequate.			
Rejected raw materials are identified and dispositioned.			
Corrective action is implemented and documented, as necessary.			

Evaluation by: _____ Date: _____ Page ____ of ____

MANUFACTURING FACILITY EVALUATION REPORT

Compliance assurance program evaluation worksheet - continued.

AREA FOR EVALUATION	SATISFACTORY YES	SATISFACTORY NO	EXPLANATION OF ITEMS CHECKED "NO"
Control of testing and inspection equipment, if any, is adequate.			
Manufacturer frequency of inspection is satisfactory.			
Inspection Agency frequency of inspection is satisfactory.			
Plant or factory layout of stations is satisfactory for all inspections.			
In-plant inspection checklists are utilized at each station in the production sequence.			
In-plant inspection checklists adequately list all essential characteristics of inspection.			
Code compliance workmanship standards are satisfactory.			
Noncompliant construction identified and corrected.			
Compliant units properly labeled and records of labels maintained.			
Certified units properly handled and stored prior to shipment.			
Compliance assurance manual being followed by manufacturer.			
Compliance assurance manual being followed by Inspection Agency.			

Evaluation by: _____ Date: _____ Page ____ of ____

MANUFACTURING FACILITY EVALUATION REPORT

Evaluation worksheet for production unit compliance inspections by station

STATION NO. AND NAME	SYS-TEM*	COMPLIANCE OF MATERIALS	COMPLIANCE OF FABRICATION	REMARKS - include unit serial numbers, where appropriate
	S			
	P			
	M			
	E			
	S			
	P			
	M			
	E			
	S			
	P			
	M			
	E			
	S			
	P			
	M			
	E			
	S			
	P			
	M			
	E			
	S			
	P			
	M			
	E			
	S			
	P			
	M			
	E			
	S			
	P			
	M			
	E			
	S			
	P			
	M			
	E			

* S - Structural; P - Plumbing; M - Mechanical; E - Electrical

Use additional evaluation worksheets for remainder of stations

Evaluation by: _____ Date: _____ Page ____ of ____

MANUFACTURING FACILITY EVALUATION REPORT

Summary findings for production unit compliance inspections by station. Describe any building system noncompliances and code violations from Production Station Evaluation Worksheets.

STRUCTURAL ELEMENTS:

FIRE PROTECTION CONSIDERATIONS:

PLUMBING SYSTEM:

MECHANICAL SYSTEM:

ELECTRICAL SYSTEM:

Use additional sheets as necessary

Evaluated by:_____ Date:_____ Page ____ of ____

NOTICE OF COMPLETED EVALUATION

The purpose of the Notice of Completed Evaluation is: (1) the notification of the manufacturer of the action taken by the Evaluation Agency; (2) the statement of additional fees due to the agency or refunds due to the manufacturer (in case the sum of the deposit collected was greater than the total of fees required); and (3) if the application is disapproved, the transmittal of the reasons for such disapproval, that is, a list of deficiencies found.

Based on the above purposes, the following information should be contained in the Notice of Completed Evaluation:

1. Name and address of manufacturer;
2. Application number(s);
3. Results of evaluation (approved, disapproved);
4. Fees due by manufacturer to the Administrative or Evaluation Agency; or refund due the manufacturer;
5. In case of disapproval, a list of deficiencies found. A copy of the Evaluation Checklists (CES Documents No. E-04 to E-08 and E-10) may be used for this purpose.
6. In case of approval, a statement that after receipt of the additional fee due (if any), a copy of the approved (stamped) documents will be returned to the manufacturer (together with an approval report if application was for a building systems approval).

Page 2 of this document shows a sample form for the "Notice of Completed Evaluation".

STATE OF _____

[*Name and Address of Administrative Agency*]

[*Name of Manufacturer* / *Address*]

Date _____

RE: NOTICE OF COMPLETED EVALUATION

☐ Building System - Appl. No. _____

☐ C.A. Program - Appl. No. _____

Dear Sir:

☐ Evaluation of your submission for the above application(s) has been completed. This office will issue approval documents upon remittance of evaluation fees payable to _____

☐ Evaluation of your submission for the above application(s) has been completed. Your application is disapproved for the following reasons:

_____

_____

_____

_____

_____

Attachments:

☐ Evaluation Checklists

☐ Documents Returned ☐ plans ☐ specs ☐ calculations ☐ test data ☐ C.A. Manual

☐ other _____

☐ Fee Due $ _____

☐ Refund $ _____

Sincerely,

_____

Signature of Agency Official

_____

Name and Title

STAMPS OF APPROVAL

According to the Rules and Regulations [Part IV, Section 2], the approval of building systems and compliance assurance programs is to be signified by a stamp of approval on each sheet of the submission, "or by other effective means of identification". In Part V, Section 1(A)(7) a space of 3 inches by 4 inches is required on all drawings of a building submission application, and a 3 by 4 inch stamp is used for signifying approval on such drawings. This is in conformance with current practice in many states, and provides sufficient space for the information required on the stamp. Although a similar space is not mandatory on compliance assurance program submissions, the same stamp should be used on the first page or on the cover of the compliance assurance manual, as well as on specifications which may be submitted with a building system. However, the single pages of a compliance assurance manual or of a set of specifications can not conveniently be stamped with a 3 inch by 4 inch stamp. Accordingly, an "other means of identification" of such pages should be used which is smaller and need not contain all the information required on the larger approval stamp. Accordingly, it is suggested that a smaller and simpler stamp be used for such pages. The contents of both stamps are discussed in this document.

Contents of Stamp of Approval

A 2-7/8 inch by 3-7/8 inch stamp of approval should be used. Such stamp should contain as a minimum the following information:

1. Identification of State
2. Identification of Administrative Agency or of Evaluation Agency (if different from the former).
3. A statement that the plans and/or compliance assurance manual have been approved pursuant to the applicable legislation (identify enabling legislation and regulations).
4. A statement that this approval does not authorize any deviation or omissions from valid state or local laws.
5. A statement that the approval of either a building system or a compliance assurance program alone does not authorize the certification of units built according to such system or manual, but that approval for both must be obtained.
6. Approval number.
7. Space for signature of authorized person (including title) and the approval date.

In some states additional information is given on the approval stamp, such as design loads, occupancy class, etc. However, if such information is contained in the Building System Approval Report (CES Document No. A-03) it appears that it need not be repeated on each stamp.

Contents of Alternate Stamp

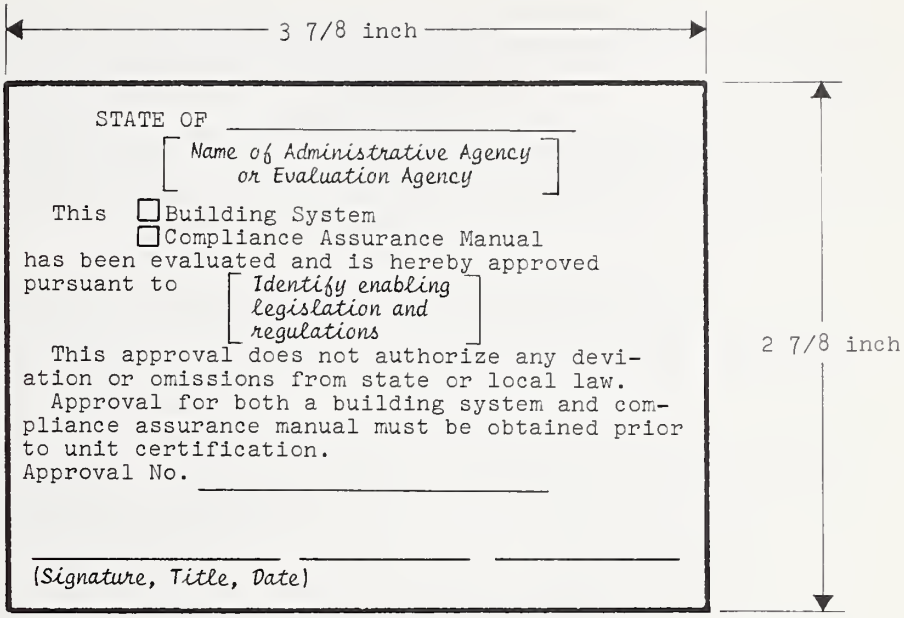
For identifying typewritten pages, such as in a compliance assurance manual, it is suggested that an alternate stamp be used. Such stamp should not be used singly, but only in conjunction with an approval stamp as described above.

The content of such an alternate stamp should be as simple as possible while still performing the function of "identifying" the pages. Accordingly, it is suggested that only the following items be shown.

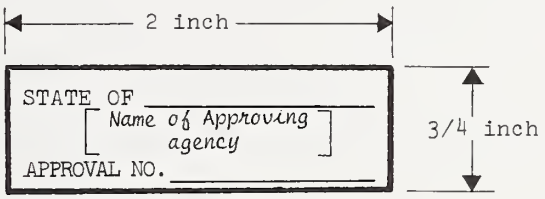
1. Identification of state;
2. Identification of approving agency;
3. Approval number.

It is suggested that such stamp be not greater than 3/4 inch by 2 inch so that it can be placed conveniently on the margin of typewritten pages.

On Page 3 of this document samples for both the Approval Stamp and for the Alternate Stamp are shown.



Approval Stamp for signifying approval of drawings and front page of typed or printed documents.



Alternate Approval Stamp for signifying approval of typed or printed pages.

BUILDING SYSTEM APPROVAL REPORT

The main purposes of the building system approval report are: (1) to notify the manufacturer of the approval of his submission, and (2) indicate the conditions of such approval, particularly a limitation imposed on the use of the building system. In addition, the report serves to transmit such information to the local enforcement agency in whose jurisdiction the manufactured building or building component is to be installed, or to other states in which the manufacturer applies for approval based on reciprocity.

The approval report should contain the following information:

I. Type of Approval: This indicates whether a new system is being approved or a modification, and gives all pertinent approval and application numbers, dates, etc.

II. Identification: In this section the manufacturer, the location of his plant, and any Inspection Agency and/or architect/engineer involved in the design are identified.

III. Documents Submitted: All documents which formed the basis for the approval are to be listed.

IV. Description of Manufactured Building or Component: This section gives pertinent information regarding the approved building or component, including items such as type of occupancy, type of construction, principal construction materials and design parameters (loads and temperatures).

V. Details of Construction: This is a brief description of all major construction systems which form part of the building or component.

VI. Applicable Codes or Standards: The codes and standards used as a basis for the technical evaluation are to be noted in this section.

VII. Installation Instructions: A discussion or list of critical items or provisions that must be observed in the preparation for and installation of certified units on the site.

VIII. Limitations of Approval: Any use limitations of the approved building system, other than those inherent in the information given in IV above, should be clearly stated.

In addition, the name, title, and signature of the person preparing the approval report and of the agency official also must appear on the document.

A sample approval form is given on the following two pages.

Page 1

STATE OF _____

[*Name and Address of Administrative Agency*]

BUILDING SYSTEM APPROVAL REPORT

I. TYPE OF APPROVAL ☐ New System ☐ Modification | APPROVAL REPORT NO.

Date of Approval _____ Expiration Date _____

Previous Approval Nos: ☐ Building System _____ ☐ C.A. Program _____

Building System Application No. _____ Date _____

II. IDENTIFICATION

Name of Manufacturer _____

Address _____

Location of Manufacturing Plant _____

Name of Inspection Agency _____

Address _____

Name of Reg. Architect/Prof. Engineer _____ Reg.No. _____

Address _____ State _____

III. DOCUMENTS SUBMITTED ☐ Plans ☐ Specs ☐ Test Data ☐ Shop Dwgs. ☐ C.A.Manual ☐ Sample

☐ Calculations (Type) _____ ☐ Other (Specify) _____

☐ Other State or Agency Approvals/Listings _____

IV. DESCRIPTION OF MANUFACTURED BUILDING OR COMPONENT

A. Occupancy: ☐ One and Two Family Detached ☐ Other (Specify) _____

B. Type of Construction (classification) _____

C. Type of System: ☐ Unitized Modular ☐ Core Unit ☐ Component

☐ Architectural ☐ Structural ☐ Mechanical ☐ Plumbing ☐ Electrical

☐ Other (Specify) _____

D. Principal Construction Material: ☐ Wood ☐ Concrete ☐ Steel ☐ Masonry

☐ Other (Specify) _____

E. Energy Source: Heating _____ Cooling _____

F. Design Parameters: Live Load ___ Wind Load ___ Snow Load ___ Seismic Load ___

G. Design Temperatures: Summer _____ Winter _____

V. DETAILS OF CONSTRUCTION

Structure: _____

Walls and Partitions: _____

Floor - Ceiling: _____

Roof - Ceiling: _____

BUILDING SYSTEM APPROVAL REPORT (continued) Page 2

DETAILS OF CONSTRUCTION (continued)

Mechanical: _____

Electrical: _____

Plumbing: _____

Other: _____

VI. APPLICABLE CODES OR STANDARDS _____

VII. INSTALLATION INSTRUCTIONS _____

VIII. LIMITATIONS OF APPROVAL (IF ANY) _____

This is a Building System approval only. For manufactured buildings and/or building components to be certified, an approved concurrent C.A. Program is also required.

Prepared by (Name) _____ Signature _____ Date _____

Signature of Agency Official _____ Date _____

Name and Title _____

(Space for Stamp or Seal)