PART 1 - GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI B18.2.1	(1996) Square and Hex Bolts and Screws Inch Series including Hex Cap screws and Lag Screws
ANSI B18.2.2	1972 (Rev. 1987) Square and Hex Nuts
ANSI B18.5	1978 Round Head Bolts (Inch Series)
ANSI B18.6.1	(1981; R 1997) Wood Screws (Inch Series)

APA - THE ENGINEERED WOOD ASSOCIATION (APA)

APA E30	(1996) Design/ Construction Guide, Residential and Commercial

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 687	(1993) High- Strength Nonheaded Steel Bolts and Studs

AMERICAN WOOD- PRESERVERS' ASSOCIATION (AWPA)

AWPA C1	(1996) All Timber Products – Preservative Treatment by Pressure Processes
AWPA C2	(1996) Lumber, Timber, Bridge Ties and Mine Ties - Preservative Treatment by Pressure Processes
AWPA C9	(1996) Plywood - Preservative Treatment by Pressure Processes
AWPA M2	(1996) Inspection of Treated Wood Products
AWPA M6	(1996) Brands Used on Forest Products

FEDERAL SPECIFICATIONS (FS)

FS FF- B- 588	(Rev. E) Bolt, Toggle: and Expansion Sleeve, Screw
FS FF-N-105	(Rev. B) (Int Amd. 4) Nails, Brads, Staples and Spikes: Wire, Cut and Wrought
FS FF-S-325	(Int Amd. 3) Shield, Expansion, Nail Expansion, and Nail, Drive Screw (Devices, Anchoring, Masonry)

INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS (ICBO)

ICBO UBC (1997) Uniform Building Code

NORTHEASTERN LUMBER MANUFACTURERS ASSOCIATION (NELMA)

NELMA SGRNL (1997) Standard Grading Rules for Northeastern Lumber

NATIONAL HARDWOOD LUMBER ASSOCIATION (NHLA)

NHLA RMIHC (1994) Rules for the Measurement and Inspection of Hardwood and Cypress

U. S. DEPARTMENT OF COMMERCE PRODUCT STANDARDS (PS)

PS- 1 (1995) Construction and Industrial Plywood

PS- 20 (1970; R 1986) American Softwood Lumber Standard

SOUTHERN PINE INSPECTION BUREAU (SPIB)

SPIB SPIBGR (1994) Southern Pine Inspection Bureau Grading Rules

WEST COAST LUMBER INSPECTION BUREAU (WCLIB)

WCLIB 16

WCLIB 17 (1996; Supp. VII and VIII) Standard Grading and Dressing Rules for Douglas Fir, Western Hemlock, Western Red Cedar, White Fir, Sitka Spruce Lumber

WESTERN WOOD PRODUCTS ASSOCIATION (WWPA)

WWPA GRWL 1983 Western Woods Use Book - Chapter III – WWPA Grading Rules for Western Lumber

1.2 SUBMITTALS

Submit the following in accordance with Section 01330, "Submittal Procedures."

1.2.1 SD- 07, Certificates

a. Certificates of grade

1.2.2 SD- 11, Factory Test Reports

a. Preservative- treated lumber and plywood

1.3 DELIVERY AND STORAGE

Deliver materials to the site in an undamaged condition. Store materials off the ground to provide proper ventilation, with drainage to avoid standing water, and protection against ground moisture and dampness.

Store materials with a moisture barrier at both the ground level and as a cover forming a well ventilated enclosure. Remove defective and damaged materials and provide new materials.

1.4 GRADING AND MARKING

1.4.1 Lumber

Mark each piece of framing and board lumber or each bundle of small pieces of lumber with the grade mark of a recognized association or independent inspection agency. Such association or agency shall be certified by the Board of Review, American Lumber Standards Committee, to grade the species used.

1.4.2 Plywood

Mark each sheet with the mark of a recognized association or independent inspection agency that maintains continuing control over the quality of the plywood. The mark shall identify the plywood by species group or span rating, exposure durability classification, grade, and compliance with PS- 1.

1.4.3 Preservative- Treated Lumber and Plywood

The Contractor shall be responsible for the quality of treated wood products. Each treated piece shall be inspected in accordance with AWPA M2 and permanently marked or branded, by the producer, in accordance with AWPA M6. The Contractor shall provide Contracting Officer's Representative (COR) with the inspection report of an approved independent inspection agency, approved by the Contracting Officer, that offered products comply with applicable AWPA Standards. The AWPA LP22 Quality Mark “LP22” on each piece will be accepted, in lieu of inspection reports, as evidence of compliance with applicable AWPA treatment standards.

1.4.4 Hardboard, Gypsum Board, and Fiberboard

Mark each sheet or bundle to identify the standard under which the material is produced and the producer.

1.5 SIZES AND SURFACING

Comply with PS- 20 for dressed sizes of yard lumber. Lumber shall be surfaced four sides. Size references, unless otherwise specified, are nominal sizes, and actual sizes shall be within manufacturing tolerances allowed by the standard under which the product is produced.

1.6 MOISTURE CONTENT

Air-dry or kiln-dry lumber. Kiln-dry treated lumber after treatment. Maximum moisture content of wood products shall be as follows at the time of delivery to the job site:

a. Framing lumber and boards - 19 percent maximum

b. Materials other than lumber - Moisture content shall be in accordance with standard under which the product is produced

1.7 PRESERVATIVE TREATMENT

Treat lumber and timber in accordance with AWPA C1 and AWPA C2, and plywood in accordance with AWPA C1 and AWPA C9. All wood shall be air or kiln dried after treatment. Specific treatments shall be verified by the report of an approved independent inspection agency, or the AWPA Quality Mark on

each piece. Do not incise surfaces of lumber that will be exposed. Brush coat areas that are cut or drilled after treatment with either the same preservative used in the treatment or with a 2 percent copper naphthenate solution. The following items shall be preservative treated:

a. Wood framing, blocking, and plywood

b. Wood sills, soles, plates, furring, and sleepers, furring and nailers that are set into or in contact with concrete or masonry.

c. Nailers, edge strips, crickets, curbs, and cants for roof decks.

1.8 QUALITY ASSURANCE

1.8.1 Certificates of Grade

Submit certificates attesting that products meet the grade requirements specified in lieu of grade markings where appearance is important and grade marks will deface material.

PART 2 - PRODUCTS

2.1 LUMBER

2.1.1 Framing Lumber

Framing lumber, cant strips, sleepers, furring, sub-fascias, nailing strips, and nailers and board lumber such as subflooring and wall and roof sheathing shall be one of the species listed in the table below. Minimum grade of species shall be as listed. Finger- jointed lumber may be used in the same applications as solid lumber of an equivalent species and grade, provided the finger- jointed lumber meets all the requirements of the certification and the quality control programs of the rules writing agency having jurisdiction and all applicable requirements of PS-56.

Table of Grades for Framing and Board Lumber

Grading Rules	Species	Framing	Board Lumber
WWPA WLGR standard grading rules	Douglas Fir- Larch Douglas Fir South Hem-Fir Ponderosa Pine -Sugar Pine Ponderosa Pine -Lodgepole Pine Subalpine Fir White Woods	All Species: Standard Light Framing or No. 3 Structural Light Framing 2x4 nominal size, (Stud Grade for 10ft and shorter)	All Species: No. 3 Common
WCLIB 17 standard grading rules	Douglas Fir- Larch Hem- Fir	All Species: Standard Light Framing or No. 3 Structural Light Framing (Stud Grade for	All Species: Standard

		2x4 nominal size, 10ft. and shorter)	
SPIB SPIBGR standard grading rules	Southern Pine	Standard Light Framing or No. 3 Structural Light Framing (Stud Grade for 2x4 nominal size, 10ft and shorter)	No. 2 Boards
SCMA SSGTRC standard specifications	Cypress	No. 2 Common	No. 2 Common
NELMA SGRNL standard grading rules	Balsam Fir Eastern White Pine Northern Pine	All Species: Standard Light Framing or No. 3 Structural Light Framing (Stud Grade for 2x4 nominal size, 10ft and shorter)	All Species: No 3 Common except Standard for Eastern White and Northern Pine
NHLA RMIHC rules for the measurement and inspection of hardwood and cypress lumber	Cypress	No. 2 Dimension	No. 2 Common

2.2 OTHER MATERIALS

2.2.1 Gypsum Wall Sheathing

ASTM C 79/C 79M, 1/2 inch thick; 4 feet wide with square edge for supports 16 inches o.c. with or without corner bracing of framing; 2 feet wide with V-tongue and groove (T&G) edge for supports 16 inches o.c. with corner bracing of framing.

2.2.2 Plywood

C- D Grade, Exposure 1, thickness as indicated on the drawings with an Identification Index of not less than 24/ 0.

2.3 ROUGH HARDWARE

Unless otherwise indicated or specified, rough hardware shall be of the type and size necessary for the project requirements. Sizes, types, and spacing of fastenings of manufactured building materials shall be as recommended by the product manufacturer unless otherwise indicated or specified. Rough hardware exposed to the weather or embedded in or in contact with preservative treated wood, exterior masonry, or

concrete walls or slabs shall be zinc- coated.

2.3.1 Bolts, Nuts, Studs, and Rivets

ANSI B18.2.1, ANSI B18.5.2.1M, ANSI/ ASME B18.5.2.2M, ASME/ ANSI B18.2.2, and ASTM A 687.

2.3.2 Expansion Shields

FS FF-S-325, except as shown otherwise, maximum size of devices in Groups IV, V, VI, and VII shall be 3/ 8 inch.

2.3.3 Lag Screws and Lag Bolts

ANSI B18.2.1.

2.3.4 Toggle Bolts

FS FF- B- 588.

2.3.5 Wood Screws

ANSI B18.6.1.

2.3.6 Wire Nails

FS FF-N-105

2.3.7 Tacks

2.3.8 Power-Actuated Fasteners

FS AA-442, FS A-A-444 or FS A-A-445.

PART 3 - EXECUTION

3.1 INSTALLATION

Fit framing lumber and other rough carpentry, set accurately to the required lines and levels, and secure in place in a rigid manner. Reinforce all members damaged by cutting or boring by means of specially formed and approved sheet metal or bar steel shapes, or remove and provide new, as approved. Provide as necessary for the proper completion of the work all framing members not indicated or specified. Spiking and nailing not indicated or specified otherwise shall be in accordance with the Nailing Schedule contained in ICBO UBC; perform bolting in an approved manner. Spikes, nails, and bolts shall be drawn up tight.

3.1.1 Wall Sheathing

3.1.1.1 Gypsum Sheathing Board

Apply gypsum sheathing board either horizontally or vertically. Butt joints and locate over the centerlines of supports. Horizontally applied sheathing shall be T&G, applied with tongued edge up. Stagger vertical

joints and abut sheet closely to frames of openings. Screw sheathing with 1 1/2 inch long screws for 1/2 inch sheathing and 1 3/4 inch long for 5/8 inch sheathing, spaced 3/8 inch minimum from edges.

a. Gypsum Sheathing Board Used with Diagonal-Braced Framing: Sheathing shall be either 2 or 4 feet wide. Apply sheathing 2 feet wide horizontally. Nail 4 inches maximum o.c. at edges and over intermediate bearings. Apply sheathing 4 feet wide either horizontally or vertically. Nail 4 inches maximum o.c. at edges and 8 inches maximum o.c. at intermediate bearings.

b. Gypsum Sheathing Board Used with Unbraced Frames: Sheathing shall be 4 feet wide and applied vertically. Extend sheathing over and nail to both sill and top plates. Nail 4 inches maximum o.c. at edges and 8 inches maximum o.c. at intermediate bearings.

3.2 MISCELLANEOUS

3.2.1 Wood Roof Nailers, Edge Strips, Crickets, Curbs, and Cants

Provide sizes and configurations indicated or specified and anchored securely to continuous construction.

3.2.1.1 Roof Edge Strips and Nailers

Provide at perimeter of roof, around openings through roof, and where roofs abut walls, curbs, and other vertical surfaces. Except where indicated otherwise, nailers shall be 6 inches wide and the same thickness as indicated on the drawings. Anchor nailers securely to underlying construction. Anchor perimeter nailers in accordance with FM LPDS 1- 49. Strips shall be grooved for edge venting; install at walls, curbs, and other vertical surfaces with a 1/ 4 to 1/ 2 inch air space.

3.2.1.2 Cants, and Curbs

Provide wood cant strips and curbs for ventillators as indicated.

3.2.2 Wood Blocking

Provide proper sizes and shapes at proper locations for the installation and attachment of wood and other finish materials, fixtures, equipment, and items indicated or specified.

3.2.3 Temporary Closures

Provide with hinged doors and padlocks and install during construction at exterior doorways and other ground level openings that are not otherwise closed. Cover windows and other unprotected openings with polyethylene or other approved material, stretched on wood frames. Provide dustproof barrier partitions to isolate areas as directed.

3.2.4 Temporary Centering, Bracing, and Shoring

Forms and centering for cast- in- place concrete work are specified in Section 03300, "Cast- In- Place Concrete."

END OF SECTION