PART 1 - GENERAL

1.1 SUMMARY

A. Includes But Not Limited To:
   1. Furnish and install wood framing and blocking as described in Contract Documents.

B. Products Installed But Not Supplied Under This Section:
   1. Miscellaneous structural steel elements.
   2. Wood trusses.
   3. Glue-laminated structural units.
   4. Structural composite lumber.
   5. Wood 'I' joists.

C. Related Sections:
   1. Section 05 1223: Furnishing of miscellaneous structural steel.
   2. Section 06 0573: Quality of Preservative Wood Treatment.
   3. Section 06 1712: Furnishing of structural composite lumber.
   4. Section 06 1733: Furnishing of wood 'I' joists.
   5. Section 06 1753: Furnishing of wood trusses.
   6. Section 06 1800: Furnishing of glue-laminated structural units.
   7. Section 06 4313: Wood stair treads and risers.

1.2 REFERENCES

A. Truss Plate Institute:
   1. TPI Pamphlet 'HIB-91 Handling, Installing, Erecting, & Bracing Wood Trusses.'
   2. TPI Pamphlet 'DSB-89 Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses.'

B. U. S. Department of Commerce:

1.3 SUBMITTALS

A. Quality Assurance / Control:
   1. Technical and engineering data on nails to be set by nailing guns for Architect's approval of types proposed to be used as equivalents to specified hand set nails and adjusted number and spacing of pneumatically-driven nails to provide equivalent connection capacity.
   2. Copies of pamphlets specified in REFERENCE Article. After Architect's examination, keep pamphlets on Project site with approved shop drawings. Pamphlets may be obtained from Truss Plate Institute or from Truss Fabricator.

1.4 QUALITY ASSURANCE

A. Pre-Installation Conference:
   1. Schedule pre-installation conference immediately before beginning framing work.
   2. Review items such as:
      a. Equipment and gypsum board blocking in wood framed walls.
      b. Operable partition headers.
c. Rough opening requirements  
d. Shear walls and struts.  
e. Nails and nailing requirements.  
f. Truss installation.  
g. Connections.  

1.5 DELIVERY, STORAGE, AND HANDLING  
A. Protect lumber and plywood and keep under cover in transit and at job site.  
B. Do not deliver material unduly long before it is required.  
C. Store lumber and plywood on level racks and keep free of ground to avoid warping. Stack to insure proper ventilation and drainage.  
D. Handle and store wood trusses in accordance with 'HIB-91' except trusses may be unloaded by dumping if trusses are shipped horizontally, are rolled off low profile roller bed trailer, and no part of any truss is required to drop more than 18 inches 450 mm.  

PART 2 - PRODUCTS  
2.1 MATERIALS  
A. Dimension Lumber:  
1. Meet requirements of PS 20 and National Grading Rules for softwood dimension lumber.  
2. Bear grade stamp of WWPA, SPIB, or other association recognized by American Lumber Standards Committee identifying species of lumber by grade mark or by Certificate of Inspection.  
3. Lumber 2 inches 50 mm or less in nominal thickness shall not exceed 19 percent in moisture content at time of fabrication and installation and be stamped 'S-DRY', 'K-D', or 'MC15.'  
4. Lumber shall be S4S.  
5. Preservative Treated Plates / Sills:  
   a. 2x4 38 mm by 64 mm: Standard and better Douglas Fir, Southern Pine, or HemFir, or StrandGuard by Trus Joist, Boise, ID  www.tjm.com.  
   b. 2x6 38 mm by 140 mm And Wider: No. 2 or or MSR 1650f - 1.5e Douglas Fir, Southern Pine, HemFir, or StrandGuard by Trus Joist, Boise, ID  www.trusjoist.com.  
B. Posts, Beams, And Timbers 5 Inches by 5 Inches 125 mm by 125 mm And Larger: No. 1 or better Douglas Fir or Southern Pine.  
C. Lumber Ledgers: No. 1 Douglas Fir, Larch, or Southern Pine.  
D. Folding Partition Headers: New, unused plywood conforming to plywood specification requirements of Section 06165.  
E. Blocking: Sound lumber without splits, warps, wane, loose knots, or knots larger than 1/2 inch 13 mm.  
F. Furring Strips: Utility or better.  
G. Sill Sealer: Closed-cell polyethylene foam, 1/4 inch 6 mm thick by width of plate.
PART 3 - EXECUTION

3.1 ERECTION

A. General: Use preservative treated wood for wood members in contact with concrete or masonry, including wall, sill, and ledger plates, door and window subframes and bucks, etc.

B. Interface With Other Work:
1. Coordinate with other Sections for location of blocking required for installation of equipment and building specialties. Do not allow installation of gypsum board until required blocking is in place.
2. Where manufactured items are to be installed in framing, provide rough openings of dimensions within tolerances required by manufacturers of such items. Confirm dimensions where not shown on Drawings.

C. Floors:
1. Place with crown side up.
2. Provide accurately fitted header and trimmer joists of same size as regular joists around floor openings, unless detailed otherwise, and support by steel joist hangers.
3. Double joists under partitions that parallel run of joists.

D. Walls:
1. Tolerances:
   a. 1/4 inch 6 mm in 20 feet 6 meters, non-cumulative in length of wall.
   b. 1/8 inch 3 mm in 10 feet 3 meters with 1/4 inch 6 mm maximum in height of wall.
   c. Distances between parallel walls shall be 1/4 inch 6 mm maximum along length and height of wall.
2. Openings: Single, bearing stud supporting header and one adjacent stud continuous between plates, unless shown otherwise.
4. Top Plates In Bearing Partitions: Doubled or tripled and lapped. Stagger joints at least 48 inches 1 200 mm.
5. Firestops:
   a. Horizontal or vertical concealed spaces in walls, light coves, soffits, drop ceilings, and other features over 10 feet 3 000 mm in length or height, and at stairs, ceiling levels, floor levels, and other junctures of horizontal to vertical concealed spaces.
   b. Within concealed spaces of exterior wall finishes and exterior architectural elements, such as trims, cornices or projections, at maximum intervals of 20 feet 6 000 mm, length or height.
6. Sill Plates:
   a. Shear Walls And Bearing Walls:
      1) Provide specified anchor 12 inches 300 mm maximum and 4 inches 100 mm minimum from each end of each plate.
      2) Shear Walls: Fasten only with anchor bolts embedded in foundation wall.
      3) Bearing Walls: Fasten with anchor bolts embedded in slab, or with screw anchors or expansion bolts in drilled holes.
   b. Non-Bearing Walls: Fasten with powder actuated fasteners.
   c. In addition to requirements of paragraphs 'a' and 'b' above, set sill plates of interior walls measuring less than 36 inches 900 mm in length in solid bed of specified construction adhesive, except where sill sealer is used.
   d. Install specified seal sealer under sill plates of exterior walls of main building and of acoustically insulated interior walls.
7. Posts And Columns: Unless shown otherwise, nail members of multiple member columns together with 16d at 6 inches 150 mm on center from each side.
8. Beams And Girders:
   a. Built-Up Members:
      1) Stagger individual members of multiple span beams and girders so, over any one support, no more than half the members will have a joint. In all cases, however, joints shall occur over supports.
2) Unless shown otherwise on Drawings, nail two-ply built-up members with 10d nails 12 inches 300 mm on center top and bottom, staggered on opposite sides. Nail three-ply built-up members with 16d nails at 12 inches 300 mm on center, top and bottom, staggered, on opposite sides. Set with crown edge up with full bearing at ends and intermediate supports.

b. Pre-Fabricated Members:
   1) Solid glu-lam, LVL or PSL members may be used in place of built-up 2x 38 mm framing members. Size shall be same as built-up member.
   2) Solid LVL or PSL members may be used in place of built-up LVL members. Size shall be same as sum of built-up members.

c. Wood shims are not acceptable under ends.

d. Do not notch framing members unless specifically shown in Drawing detail.

9. Nailing:
   a. Stud to plate:

<table>
<thead>
<tr>
<th>Stud Size</th>
<th>LVL Size</th>
<th>Nailing Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 by 4 inch nominal</td>
<td>38 by 89 mm</td>
<td>2 nails, two 16d OR 4 nails, four 8d</td>
</tr>
<tr>
<td>2 by 6 inch nominal</td>
<td>38 by 140 mm</td>
<td>3 nails, three 16d OR 5 nails, six 8d</td>
</tr>
<tr>
<td>2 by 8 inch nominal</td>
<td>38 by 184 mm</td>
<td>4 nails, four 16d OR 6 nails, six 8d</td>
</tr>
<tr>
<td>2 by 10 inch nominal</td>
<td>38 by 235 mm</td>
<td>5 nails, five 16d OR 7 nails, eight 8d</td>
</tr>
<tr>
<td>1-3/4 by 5-1/2 inch LVL</td>
<td>44 by 140 mm LVL</td>
<td>6 nails, six 16d OR 9 nails, eleven 8d</td>
</tr>
<tr>
<td>1-3/4 by 7-1/4 inch LVL</td>
<td>44 by 184 mm LVL</td>
<td>7 nails, seven 16d OR 10 nails, twelve 8d</td>
</tr>
<tr>
<td>1-3/4 by 9-1/4 inch LVL</td>
<td>44 by 235 mm LVL</td>
<td>8 nails, eight 16d OR 12 nails, fourteen 8d</td>
</tr>
<tr>
<td>1-3/4 by 11-1/4 inch LVL</td>
<td>44 by 286 mm LVL</td>
<td>9 nails, nine 16d OR 14 nails, sixteen 8d</td>
</tr>
</tbody>
</table>

   b. Top plates: Spiked together, 16d, 16 inches 400 mm on center.
   c. Top plates: Laps, lap members 48 inches 1200 mm minimum and nail with 16d nails 4 inches 100 mm on center.
   d. Top plates: Intersections, three 16d.
   e. Backing And Blocking: Three 8d, each end.
   f. Corner studs and angles: 16d, 16 inches 400 mm on center.

E. Roof And Ceiling Framing:
   1. Place with crown side up at 16 inches 400 mm on center unless noted otherwise.
   2. Install structural blocking and bridging as necessary and as described in Contract Documents.
   3. Special Requirements:
      a. Roof And Ceiling Joists: Lap joists 4 inches 100 mm minimum and secure with code approved framing anchors.
      b. Roof Rafters And Outlookers:
         1) Cut level at wall plate and provide at least 2-1/2 inches 64 mm bearing where applicable. Spike securely to plate with three 16d nails.
         2) Attach to trusses or other end supports with framing anchors described in Contract Documents.
      3) Provide for bracing at bearing partitions.
      c. Folding Partition Headers And Header Backing:
         1) Provide for double track as required by Folding Partition Manufacturer.
         2) Stagger joints in plywood.
         3) Glue plywood layers together with continuous bead 2 inches 50 mm in from each edge and every 4 inches 100 mm on center between. In addition, Screw layers together with 1-1/4 inch 32 mm screws one inch 25 mm in from each edge and 12 inches 300 mm on center for length of header.
         4) Secure headers and header backing to structure as described in Contract Documents.
   4. Installation of Wood Trusses:
      a. Handle, erect, and brace wood trusses in accordance with TPI HIB-91.
      b. Do not install damaged or broken wood trusses. Replace wood trusses that are broken, damaged, or have had members cut out during course of construction.
      c. Provide construction bracing for trusses in accordance with TPI DSB-89.
      d. Provide continuous 2x4 horizontal web bracing as shown on truss shop drawings.
         1) Secure bracing to each truss with two 10d or 16d nails.
         2) Lap splice bracing by placing bracing members side by side on common web member. Butt splices are not acceptable.
e. Unless directed or shown otherwise, provide diagonal 2x4 bracing between trusses at each line of horizontal web bracing.
   1) This diagonal bracing shall be continuous and extend from junction of web and top chord of one truss to junction of web and bottom chord of different truss.
   2) Install bracing at approximately 45 degree angle. Bracing will extend over three trusses minimum or more as determined by height of trusses and 45 degree installation angle.
   3) Install brace on side of web opposite horizontal web bracing and nail to each web with two 10d or 16d nails.
   4) Install one brace every 20 feet as measured from top of brace to top of next brace.

5. Installation of Glue-Laminated Structural Units:
   a. Install work in accordance with Fabricators instructions and Glue-Lam Erection Safety Practices.
   b. Adequately support and brace work until tied into building structure to insure against collapse due to wind or other forces.
   c. Maintain protection of beams until roofing has been installed.

6. Installation of Structural Composite Lumber:
   a. Install temporary horizontal and cross bracing to hold members plumb and in safe condition until permanent bracing is installed.
   b. Install permanent bracing and related components prior to application of loads to members.

7. Installation of Plywood Web Joists:
   a. Handle, erect, and brace plywood web joists in accordance with Manufacturer's instructions.
   b. Do not install damaged or broken plywood web joists.
   c. Install temporary horizontal and cross bracing to hold members plumb and in safe condition until permanent bracing is installed.
   d. Cut holes through webs at locations or of sizes shown on Drawings and as recommended by Manufacturer.

F. Accessory / Equipment Mounting And Gypsum Board Back Blocking (nailers):
   1. Furnish and install blocking in wood framing required for hardware, specialties, equipment, accessories, and mechanical and electrical items, etc.
   2. Furnish and install back blocking in wood framing required for joints in gypsum wallboard.
      a. Install back blocking between I-joist framing members with equivalent of Simpson Z2 clips attached with four 10d x 1-1/2 inch nails at each end, two into I-joist and two into blocking.
      b. Attach back blocking at trusses, stick framing, or walls with two 10d nails in each end of each piece of blocking.

G. Furring Strips:
   1. On Wood or Steel: Nail or screw as required to secure firmly.

END OF SECTION