

## ORIENTED STRAND BOARD

### PART I. - GENERAL

#### 1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

This Section includes the following:

- A. Oriented Strand Board
  - a. Underlayment.
  - b. Sheathing.
  - c. Subflooring.
  
- B. Related categories: The following categories contain requirements that relate to this section:
  - 1. Heavy Timber Construction.
  - 2. Prefabricated Metal-Plate-Connected Wood Trusses.
  - 3. Finish Carpentry for nonstructural carpentry items exposed to view.
  - 4. Exterior Architectural Woodwork
  - 5. Interior Architectural Woodwork

#### 1.3 DEFINITIONS

A. ROUGH CARPENTRY - carpentry work not specified as part of other Sections and generally not exposed, unless otherwise specified.

B. CERTIFICATION AGENCY - an organization accredited by an independent authority to certify performance to an appropriate standard. APA - The Engineered Wood Association, TECO, PFS and PSI are accredited certification agencies.

C. DEFLECTION - the amount a panel deflects between two supports when carrying an impact, point or uniform load. Maximum deflection for roof panels is L/240 for live load or L/180 for live load plus dead load. Maximum deflection of floor panels is L/360 for live plus dead load. L is the unsupported distance between supports.

D. EXPOSURE 1 - designation of glue bond classification. Products with this designation are intended to resist the effects of moisture on their structural performance due to construction delays, or other conditions of similar severity. The bond classification is related to the moisture resistance of the glue bond under intended use, but is not related to the physical (i.e. erosion, U.V. light) or biological (i.e. mold, decay, insects) resistance of the panel.

E. HUD - the Department of Housing and Urban Development. HUD sets standards for government financed construction and manufactured homes.

F SBA - an abbreviation for Structural Board Association; an industry association representing OSB and waferboard panel manufacturers.

G. OSB - an abbreviation for Oriented Strand Board; a type of mat-formed panel with oriented or aligned strands, resulting in directional properties. OSB conforms to standards such as PS 2, CSA O325 or other national standards.

H. PERFORMANCE BASED - for panels having been tested to meet specific loading and deflection conditions from impact, point loads and uniform loads when panels span two or more supports.

I. STRAND - a specialized knife cut wood flake of controlled thickness and a length along the grain direction of at least twice and usually many times its width.

J. TOUCH SANDED - a process that removes material from the panel surface to provide a uniform thickness. T and G panels are usually touch sanded.

L. WAFER - a specialized knife cut wood flake having a controlled length of at least 1-1/4" (32 mm) along the grain direction, a controlled thickness and a variable width.

M. STRUCTURAL PANELS - OSB, waferboard, softwood plywood and composite panels. (Composite panels have a veneer face and a waferboard core.) These panels are made from whole logs. The phenolic or isocyanate resin binder is waterproof. Use in construction or engineered industrial applications. Panels are weather resistant.

N. INDUSTRIAL OR DECORATIVE PANELS - hardwood plywood, mahogany plywood, etc., these panels are made from logs. The urea formaldehyde resin binder is partially water soluble and not boil proof. Not suitable for construction as not weather resistant. Used in cabinets, furniture, paneling.

O. PARTICLEBOARD - particleboard, medium density fibreboard (MDF) and hardboard, these panels are made from sawmill residue or low grade logs. Particleboard is made by converting sawmill residue into small particles. Hardboard and MDF is made by converting sawmill waste into fibre like coarse pulp. The urea formaldehyde binder is partially water soluble and not boil proof. Not suitable for construction. Used in cabinets, furniture, paneling (hardboard), ceiling tile.

P. INSULATION BOARD - softboard or fibre board, these panels are made from sawmill residues or low grade logs converted into coarse fibre. The binder is urea formaldehyde and is partially water soluble and not boil proof. Not used in construction other than as insulated sheathing. Used for ceiling tile, sound absorbent partitions, sound proofing.

Q. UNDERLAYMENT (UL) - a generic term for thin (1/4" or 7.5 mm or less) panels of plywood, OSB, waferboard, particleboard or hardboard which have sanded surface suitable for applying vinyl tile or thin carpet. The binder can be phenolic, isocyanate or urea formaldehyde.

R. CHIPBOARD - a European product not made in Canada. OSB and waferboard are sometimes referred to as chipboard. Chipboard is made from logs, slabs or lumber residue. The binder is usually urea formaldehyde but can be

melamine or phenolic. Used in construction in Europe primarily for walls and floors.

#### 1.4 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product data for the following products:

1. Sheathing.
2. Subflooring.
3. Underlayment.

C. Research reports or evaluation reports of the model code organization acceptable to authorities having jurisdiction evidencing compliance of the following wood products with specified requirements and building code in effect for Project.

1. Sheathing.
2. Subflooring.
3. Underlayment.

#### 1.5 QUALITY ASSURANCE

A. Single-Source Responsibility for Engineered Wood Products: Obtain each type of engineered wood products from one source from a single manufacturer.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack OSB; provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials. As roof sheathing may be slippery when wet, covered with frost, snow, ice or sawdust, installers should wear rubber soled footwear, use appropriate safety equipment, and use extreme caution when working on sloped roofs.

### PART II. - PRODUCTS

#### 2.1 CONSTRUCTION PANELS, GENERAL

A. Construction Panel Standards: Comply with PS 2 and CSA-0325 for OSB construction panels.

B. Trademark: Furnish construction panels that are each factory-marked with a certification mark evidencing compliance with grade requirements.

#### 2.2 CONCEALED PERFORMANCE-RATED CONSTRUCTION PANELS

A. General: Where construction panels are indicated for the following concealed types of applications, provide APA, TECO, PFS, or PSI performance based panels complying with requirements designated under each application for grade designation, span rating, glue bond classification, edge detail (where applicable), and thickness.

B. Subflooring: PS 2 or CSA-0325 PERFORMANCE BASED SHEATHING.

1. Exposure Durability Classification: EXPOSURE 1.
2. Span Rating: As required to suit joist spacing indicated.
3. Span Rating: 24/16.
4. Span Rating: 32/16.
5. Span Rating: 40/20.
6. Span Rating: 48/24.

C. Single Floor: PS 2 or CSA-0325 PERFORMANCE BASED SHEATHING.

1. Exposure Durability Classification: EXPOSURE 1.
2. Span Rating: As required to suit joist spacing indicated.
3. Span Rating: 16 OC.
4. Span Rating: 20 OC.
5. Span Rating: 24 OC.
6. Span Rating: 32 OC.

D. Wall Sheathing: PS 2 or CSA-0325 PERFORMANCE BASED SHEATHING.

1. Exposure Durability Classification: EXPOSURE 1.
2. Span Rating: As required to suit stud spacing indicated.
3. Span Rating: 12/0, 16/0, 20/0 or Wall-16 for stud spacing of 16 inches or less.
4. Span Rating: 24/0, 24/16, 32/16 or Wall-24 for stud spacing of 24 inches or less.

E. Roof Sheathing: PS 2 or CSA-0325 PERFORMANCE BASED SHEATHING.

1. Exposure Durability Classification: EXPOSURE 1.
2. Span Rating: As required to suit rafter spacing indicated.
3. Span Rating: 12/0.
4. Span Rating: 16/0.
5. Span Rating: 20/0.
6. Span Rating: 24/0.
7. Span Rating: 24/16.
8. Span Rating: 32/16.
9. Span Rating: 40/20.
10. Span Rating: 48/24.

### 2.3 CONSTRUCTION PANELS FOR BACKING

A. OSB Backing Panels: For mounting electrical or telephone equipment, provide OSB panels in thickness indicated, or, if not otherwise indicated, not less than 1/2 inch (12.5mm).

### 2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of AISI Type 304 stainless steel.

B. Nails, Wire, Brads, and Staples: FS FF-N-105.

C. Power Driven Fasteners: National Evaluation Report NER-272, for power driven nails or staples used in all types of building construction, issued by ICC-ES to ISANTA.

D. Wood Screws: ANSI B18.6.1.

E. Lag Bolts: ANSI B18.2.1.

F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and where indicated, flat washers.

## 2.5 MISCELLANEOUS MATERIALS

A. Adhesives for Field Gluing Panels to Framing: Formulation complying with APA AFG-01 that is approved for use with type of construction panel indicated by both adhesive and panel manufacturer.

## PART III. - EXECUTION

### 3.1 INSTALLATION, GENERAL

A. Discard units of material with defects that impair quality of rough carpentry construction and that are too small to use in fabricating rough carpentry with minimum joints or optimum joint arrangement.

### 3.2 INSTALLATION OF CONSTRUCTION PANELS

A. General: Comply with applicable recommendations contained in this document and applicable SBA publications for types of construction panels and applications indicated.

B. Fastening Methods: Fasten panels as indicated below:

1. Combination Subflooring-Underlayment: Glue and nail to framing throughout.\*
2. Combination Subflooring-Underlayment: Nail to framing.\*
3. Subflooring: Glue and nail to framing throughout.\*
4. Subflooring: Nail to framing\*
5. Subflooring: Staple to framing.\*
6. Subflooring: Staple or nail to framing.\*
7. Sheathing: Nail to framing.
8. Sheathing: Staple to framing.
9. Sheathing: Nail or staple to framing.
10. Underlayment: Nail to subflooring.
11. Underlayment: Staple to subflooring.
12. Underlayment: Nail or staple to subflooring.
  - a. Fill and sand edge joints of underlayment receiving resilient flooring.
13. OSB Backing Panels: Nail to supports.

\* SBA recommends screws for flooring

C. Fastening: For subfloors or single floors (combination subfloor/underlayment) use 6d common or deformed shank nails (8d nails for panels over 19/32" (15 mm) thickness) at 6" (152 mm) on center along panel edges and 3/8" (9.5 mm) minimum from panel edge. Space nails at 12" (305 mm) o.c. into intermediate supports. For glued nailed floors nail spacing may be 12" (305mm)

o.c. along all supports. Joist sizes and spans for glued nailed floors are available from SBA. Other equivalent fastening schedules may be used. Also larger nail sizes and closer spacing may be necessary in high wind areas. Check with local building officials.

D. Fastening: For wall sheathing use 6d common nail fasteners at 6" (152 mm) o.c. on panel edges, at 12" (305 mm) o.c. along intermediate supports, and 3/8" (9.5 mm) minimum from panel edge. Use 8d common nail fasteners for panels over 19/32" (15 mm) thickness. For roof sheathing use 8d common or deformed shank nail for all thicknesses up to 1". Increased panel thicknesses, longer nails and closer spacing are necessary in high wind areas. Check with local building officials.

E. Laying finished floor over single floor (combination subfloor underlayment): After the building is closed in and heated and just before laying the finished floors, sweep and vacuum the panels. Carefully check the floor surface for protruding nail heads and make sure all panels are fully nailed. Little filling should be necessary. Adverse moisture conditions may have caused some panel edge swelling. Sand panel edges flush and ensure panels are dry before installing finished floor. Carpet, wood strip flooring and parquet flooring may be installed on top of the panels following good practice and the flooring manufacturer's directions.

F. For adhesive applied resilient flooring use panel underlayment applied per manufacturer's requirements. Other resilient finish floor coverings recommended for application over wood floor systems may be laid directly over combination subfloor underlayment panels. (In addition to the procedures previously outlined it may be necessary to level the entire surface with a light sanding, if the floor was subjected to severe moisture conditions during construction.)

G. Use an adhesive recommended by the flooring manufacturer that is not rigid setting sulfite liquor or alcohol resin-based.

H. When using power driven fasteners, avoid overdriving the fastener into the panel by assuring proper power tool settings.