BEAVERTON SCHOOL DISTRICT

BSD Technical Standard
Division 6: Carpentry & Casework

1. PURPOSE

This technical standard is a narrative describing Beaverton School District's (BSD's) Basis of Design for structural wood products, carpentry, casework, and other finish-work in BSD facilities. The information contained herein shall be used by the Project Design Team to develop a sustainable, durable, and economical structure that enhances learning by providing a suitable work environment for staff and students. This technical standard shall be used as part of BSD's General Design Standards (comprised of the BSD Educational Specifications and the BSD Technical Standards).

2. GENERAL

2.1. SAFETY

2.1.1. Sharp edges have proven to be a safety hazard in our schools and shall be avoided whenever possible. Casework, millwork, and corner trim shall have a radius or be finished in a way that eliminates sharp edges.

2.2. COMMON WORK RESULTS (for Wood, Plastics, and Composites)

2.2.1. Use pressure treated lumber for all wood in contact with ground or concrete. The end cuts of all pressure treated wood shall have a preservative applied.

2.2.2. The use of pine is not allowed for any finish carpentry.

2.2.3. Hot-dipped galvanized nails shall be used with preservative and fire-retardant wood per the Oregon Structural Specialty Code (2304.9.5).

2.2.4. Any and all insects shall be eradicated from existing wood materials. Consult with the BSD Representative regarding BSD's Integrated Pest Management (IPM) procedures. Dry rotted or insect damaged wood greater than 1/8" shall be replaced with new wood of the same type that was infected. For damage less than 1/8", scrape affected area and apply preservative.

2.3. SCHEDULES (for Wood, Plastics, and Composites)

2.3.1. Schedules for wood, plastics, and composites shall meet, or exceed, the requirements of the International Building Code, Oregon Structural Specialty Code, and any applicable local codes or regulations. BSD may require construction that exceeds code.

2.3.2. Minimum acceptable spacing between trusses is 24" on center to allow access to equipment.

2.4. SHOP-FABRICATED STRUCTURAL WOOD

2.4.1. Structural beams shall be glulam or equivalent engineered member.

2.5. SALVAGE

2.5.1. Beaverton School District has first right of salvage on all projects. Coordinate project-specific details with the BSD Representative.

3. INTERIOR/EXTERIOR FRAMING

3.1. WOOD FRAMING

3.1.1. Wood framing shall be limited to Douglas fir of standard or better quality per Western Wood Products Association (WWPA) or other approved agency.

3.1.2. Wood stud spacing shall be 16” on center unless approved otherwise by the BSD Representative.

3.1.3. Interior doors framed in wood shall be constructed with two king studs and a trimmer on each side.

3.2. METAL FRAMING

3.2.1. Metal studs are preferred for wall construction. Metal studs are required to be a minimum of 18-gauge.

3.2.2. Interior doors shall have continuous welded hollow metal frame.

3.3. EXTERIOR BEAMS

3.3.1. Tube steel or structural shape steel are preferred for exposed exterior structural installations. Consult the BSD Representative for glulam applications. In all cases consider thermal bridging.

3.3.2. All exterior metal shall be primed and painted for protection from oxidation and corrosion.

3.4. SHEATHING

3.4.1. Structural sheathing shall be Structural I, CDX (42/20, 5-ply), minimum 1/2” Species #1 material. Oriented strand board (OSB) is not allowed for structural sheathing.

3.4.2. Moisture resistant sheathing board shall be of marine grade.

3.4.3. Plywood should have the species, grade, glue type, and stamp of the American Plywood Association.

3.5. WOOD DECKING

3.5.1. The use of structural plastic lumber or decking is not allowed.

3.5.2. Roof decking shall be plywood and meet the following minimums:

JOIST, TRUSS, OR RAFTER SPACING	ROOF DECKING MATERIAL
24” ON CENTER	3/4” PLYWOOD
32” ON CENTER	7/8” PLYWOOD
48” ON CENTER	1-1/8” PLYWOOD

3.6. BLOCKING

3.6.1. All wall and/or ceiling mounted fixtures shall have adequate backing to be able to withstand the force and/or abuse that may occur in a school environment. Blocking shall be wood with a minimum thickness of 1-1/2” and provide adequate support for any fixture that hangs on walls or ceilings. Fixtures requiring blocking include, but are not limited to:

ALARMS	ARTWORK	BLINDS, SHADES	CASEWORK
DISPENSERS	DOOR HOLD OPEN DEVICES	DOOR STOPS	ELECTRICAL FRAMING
FIRE EXTINGUISHERS	GRAB BARS	GYM EQUIPMENT	HAND RAILS
HOSE BIBS	KITCHEN/RESTROOM SINKS	MAGNETIC/MANUAL DOOR STOPS	MARKER AND TACK BOARDS
MIRRORS	PROJECTION EQUIPMENT	SHELVING	SIGNAGE
SPEAKERS	TOILET PARTITIONS	VIDEO MONITORS	WHITEBOARDS

4. CASEWORK/ARCHITECTURAL WOODWORK

4.1. EXTERIOR TRIM

4.1.1.General

4.1.1.1. Trim on exterior wood fasciae and soffits shall be cedar #1 grade.

4.1.1.2. Pre-prime all exterior finish carpentry. Use of laminated finish board is not allowed. All rim boards must be pre-primed before installation.

4.1.1.3. Engineered rim board products are not accepted.

4.2. INTERIOR TRIM

4.2.1.Millwork

4.2.1.1. Wood trim profiles must have BSD Representative approval during design. The use of finger-jointed material is prohibited.

4.2.1.2. All interior wood trim shall be suitable for a transparent finish.

4.2.1.3. The preference is for a full wood casing for wood framed doors, windows, and trim. Medium-density fiberboard (MDF) and laminate materials are not acceptable for use on windowsills.

4.2.2.Pre-Finished Paneling

4.2.2.1. Use abrasion- and impact-resistant Masonite, hardboard, or fiberglass reinforced plastic (FRP) panels for wainscot.

4.2.2.2. Panels shall be installed to a minimum height of 4’-0” in hallways. Service corridors shall have panels installed to a minimum of 5’-0”.

4.2.2.3. Laminated veneer lumber (plywood) shall not be used as wainscot in District buildings. Plastic laminated (Formica) panels may be used if fabricated off-site and installed with edges butted and mechanically fastened to the wall with screws.

4.2.2.4. Provide metal corner protectors on all “outside” corners in traffic areas. Corner protectors shall be stainless steel, or aluminum, to a minimum height of 4’-0”. In kitchens and service/delivery areas, minimum height of 6’ (maximum 8’-0”). Plastic is unacceptable.

4.2.2.5. Corner protectors must be mechanically fastened using counter-sunk screws to all pre-finished paneling and sheet rock corners. Provide eased edge to avoid injury to students.

4.3. CASEWORK

4.3.1.General

4.3.1.1. The use of “T” mold is required on all exposed edges on cabinets, cubbies, and/or other casework. ABS edge banding may also be accepted with prior approval by BSD Representative.

4.3.2.Countertops and Backsplashes

4.3.2.1. Approved countertop substrates are MDO, HDO or MDF. For installation at sinks and other wet conditions use only MDO or HDO, no MDF.

4.3.2.2. Countertop edges and backsplashes shall be sealed. Countertops are required to be made of a durable, stain-, abrasion-, and vandal-resistant material with a beveled hardwood edge.

4.3.2.3. Science classroom countertops and edge trims are required to be made of a chemical-resistant material in addition to being durable, stain-, abrasion-, and vandal-resistant.

4.3.3.Shelves

4.3.3.1. Adjustable shelves greater than 24” in width shall be a minimum thickness of 1”.

4.3.4.Cubbies

4.3.4.1. The shell and horizontal members of cubbies shall be constructed of finish grade plywood or MDO with a laminate finish, and shall be a minimum of 3/4" in thickness.

4.3.4.2. Vertical dividers shall also be constructed of MDO with a laminate finish and shall be a minimum thickness of 1/2".

4.3.5.Base Cabinet

4.3.5.1. For strength and durability, base cabinets shall be constructed of finish grade plywood, Armor Core, or MDO. For finishing purposes, exposed surfaces should be made with ACX plywood or MDO.

4.3.5.2. Particle board and MDF are not acceptable materials for cabinet construction.

4.3.6.Cabinet Doors

4.3.6.1. Use MDO, HDO, or Armor Core for cabinet doors.

4.3.6.2. The width of any cabinet door shall never exceed its height. Doors between 4' and 6' in height will require three hinges per door. Doors above 6' in height will be required to have a minimum of four hinges per door.

4.3.7.Cabinet Drawers

4.3.7.1. Drawer boxes shall be constructed of finish grade plywood, Armor Core, or MDO. All cabinet drawers must have a drawer front that is secured to the drawer box. For finishing purposes, drawer fronts are to be made of ACX plywood, Armor Core, or MDO.

4.3.7.2. Particle board and MDF are not acceptable materials for cabinet drawer construction.

4.3.8.Casework Hardware

4.3.8.1. Door/Drawer Pulls shall be made of a curved plastic, chrome, or stainless steel. The pulls shall be surface mounted and have attachment holes at 4" on center. Recessed handles are not allowed.

4.3.8.2. Hinges: No concealed (European-style) hinges. Hospital grade overlay hinges required. RPC 374-26D or equal.

4.3.8.3. Drawer slides should be Knape & Vogt 8400, 4100, 6400; Fulterer FR 5000 or Accuride 3832C, 3834C, 3832CSC, 3834CSC, 2632.

4.3.8.4. Full extension slides must be rated for a minimum load of 75 lbs.

4.3.8.5. Drawer and Cabinet Locks: Locks shall be installed as needed and should be Olympus - 100DR, 200DW.

4.4. FLOORING

4.4.1.General

4.4.1.1. Sub-flooring shall require a minimum of 3/4" CDX or 5/4" OSB tongue and groove. Car decking shall be used in remodels when repairing or extending existing and as appropriate.

4.4.1.2. Underlayment installation shall be of a particle board or a 5-ply equivalent. Cement board is required behind all tile work.

4.4.1.3. Avoid curved carpet transitions.

4.4.1.4. Transition strips between carpeting and vinyl composition tile (VCT) shall be aluminum or stainless steel. Rubber transition strips shall be replaced with aluminum or stainless-steel during remodels or flooring replacement projects.

4.4.1.5. All transition strips shall be mechanically fastened (no glue).

Revision History

Rev 1: 12/23/16

Section	Section Title	Revision
III.A.	INTERIOR/EXTERIOR FRAMING; WOOD FRAMING	¶3 New text; Interior doors framed in wood shall be constructed with two king studs and a trimmer on each side.
III.B.	INTERIOR/EXTERIOR FRAMING; METAL FRAMING	¶2 Edit text; Interior doors shall have continuous welded hollow metal frame. ~~grouted in place, or must be framed in wood with two king studs and a trimmer on each side.~~

Rev 2: 04/14/17

Section	Section Title	Revision
III.F.	INTERIOR/EXTERIOR FRAMING; BLOCKING	F. Blocking: add "Video" monitors, "Whiteboards, Speakers, Tack boards"; remove extra "Casework"
IV.C.	CASEWORK/ ARCHITECTURAL WOODWORK; ~~CABINETS~~ CASEWORK	Change section C. Cabinets to "Casework" and add heading "General"; add "other" casework and "ABS edge banding may also be accepted with prior approval by BSD Representative." Add "HDO or MDF" to countertop options. Remove "Where sinks or wet conditions are planned, use marine plywood." Add "finish grade plywood or" to cubby construction. Moved Cubbies heading. Add heading "Base Cabinet" For strength and durability, base cabinets shall be constructed of finish grade plywood, Armor Core, or MDO. For finishing purposes, exposed surfaces should be made with ACX plywood or MDO. Particle board and MDF are not acceptable materials for cabinet construction." Add "Use MDO, HDO, or Armor Core for cabinet doors." Add heading "Cabinet Drawers" Drawer boxes shall be constructed of finish grade plywood, Armor Core, or MDO. All cabinet drawers must have a drawer front that is secured to the drawer box. For finishing purposes, drawer fronts are to be made of ACX plywood, Armor Core, or MDO. Particle board and MDF are not

		acceptable materials for cabinet drawer construction." Add heading "Casework Hardware" and move hardware under it.

Rev 3: 5/31/18

Section	Section Title	Revision
IV.C.	CASEWORK - Countertops & Backsplashes	Removed MDF as a counter top option at sinks.

Rev 4: 12/31/18

Section	Section Title	Revision
III.F.	INTERIOR/EXTERIOR FRAMING; BLOCKING	[combined lists from Division 09 and Division 06 into one alphabetized listing in this Division. In addition, Division 09 now makes reference to this listing] All wall and/or ceiling mounted fixtures shall have adequate backing to be able to withstand the force and/or abuse that may occur in a school environment. Blocking shall be wood with a minimum thickness of 1-1/2" and provide adequate support for any fixture that hangs on walls or ceilings. Fixtures requiring blocking include, but are not limited to: - Alarms - Artwork - Blinds, shades - Casework - Dispensers - Door hold open devices - Door stops - Electrical framing - Fire extinguishers - Grab bars - Gym equipment - Hand rails - Hose bibs - Kitchen/restroom sinks - Magnetic/manual door stops - Marker and tack boards - Mirrors - Projection equipment - Shelving - Signage - Speakers - Toilet partitions - Video monitors - Whiteboards

Rev 5: 12/2024

Section	Section Title	Revision
All	All	Renumbered all sections of the Technical Standard; included other minor formatting and edits for clarity.