

DIVISION 8 - DOORS, HARDWARE, WINDOWS, AND GLAZING

A. WOOD DOORS

1. All interior non-rated wood doors shall be 1-3/4" thick, solid core construction with rails and stiles bonded to the core. Width & Height shall be 3'0" x 7'0" unless otherwise noted on door schedule. Doors shall be 5-ply construction conforming to AWI Section 1300 with cross banding and solid particle board core (PC-5ME). Manufacture doors with 3/4" undercut to preserve full bottom rail. Doors shall be factory pre-machined for specified hardware including drilled pilot holes when possible. Acceptable manufacturers include:
 - a. Algoma Hardwoods, Inc.
 - b. Marchfield Door Systems, Inc.
 - c. Eggers Industries
 - d. Buell Door Company
 - e. V.T. Industries, Inc.
 - f. Or approved substitute
2. For additions and renovations, interior door species and finish should match those in existing building. For new construction, clear coat finish on rotary cut birch veneer shall be provided. Veneers and edge strips shall be custom grade, book-matched face veneers of rotary cut birch with running match assembly both sides and matching vertical hardwood edges.
3. For new construction and additions, factory-finished doors are to be provided and manufacturer's warranties must be provided with closeout documents. Site finished doors are acceptable for minor renovations.
4. Transoms over doors are to be avoided in design unless attempting to match existing conditions.
5. Doors shall be warranted for the life of the installation against warping (bow, cup, or twist more than 1/4" across door). Signed copies of manufacturer's warranties shall be provided with closeout documents.
6. Paired doors should be designed to latch against a center removable mullion.
7. Doors should swing so as not to interfere with traffic flow.
8. Louvered doors, where permitted by Code, may be used to improve ventilation in toilet rooms, offices, storage spaces, etc.
9. Fire rated doors are to be provided where required by code. Fire rated doors shall be supplied with appropriate factory-applied labels indicating compliance with rating authorities. Fire rated doors shall not be cut, sanded, painted or modified in any way.
10. Doors to Music Rooms should be sound sealed and filled, and have a sound transmission rating approximately equal to that of adjacent wall construction. Special hardware may also be required at music rooms.
11. Door installation shall be performed by skilled finish carpenters or factory-authorized installers in accordance with AWI quality standards and NFPA 80 standards. Tolerances shall meet requirements of AWI Section 1300. Installation of wood doors should not occur until just prior to substantial completion to avoid damage to door panels during construction operations. Any damage to doors must be repaired including proper restoration of finishes prior to acceptance by Owner.

B. WINDOWS

1. Exterior windows may be aluminum-clad wood, thermal break aluminum, commercial grade extruded vinyl, or hollow metal framed depending on available budget and exterior shell construction. For most projects, thermal break aluminum is preferred.

2. Fixed-glass windows are preferred to operable windows. Operable windows prevent the effective and efficient operation of HVAC systems and pose security concerns. In general, all exterior windows in air conditioned buildings shall be fixed glass unless otherwise requested and approved by COTR. Operable windows will be considered for replacement windows in buildings that do not have air conditioning and/or to match existing construction and building standards.
3. Where permitted, multiple vent types will be considered based on vent size requirements, aesthetics, existing building conditions, ease of maintenance, and public safety. In all cases, vented windows shall be weather-stripped and should not project into traffic areas.
4. Interior borrowed lights should be constructed with hollow metal frames unless otherwise requested.
5. Provide vandal resistant screens on all vented windows.
6. All windows shall be minimum 7/8" double-glazed with snap-on beads and vinyl gasketing.
7. Follow requirements of ASHRAE 90-75 and IBC for thermal design of exterior walls. This will affect the number and size of windows used.
8. All windows shall be furnished and installed in accordance with AAMA (American Architectural Manufacturers Association) standards.

C. GLASS AND GLAZING

1. Exterior Glazing. Specify type and thickness as required by location to meet code requirements. Use laminated insulating glass. If high performance, follow manufacturers recommendation for heat treating and setting to avoid breakage from shade induced thermal stress. Utilize "Low E" glass where applicable.

Maximum tolerance of 1" gap shall be required for the rough openings to minimize break metal trim size.

2. Interior Glazing:
 - a. Use 1/4" thick clear tempered or laminated safety glass for all interior glass unless noted otherwise.
 - b. Use double (acoustical) glazing in music areas.
 - c. Polycarbonate (Lexan or equal) at gym office interior window and as approved by Owner and Fire Department.
 - d. Thickness of material should be as recommended by manufacturer for size of opening. Uniform thickness throughout building is desirable, if possible.
3. Code Requirements. All glass shall comply with all code requirements concerning the use of safety glazing materials in hazardous locations.

D. VISION PANELS

Vision panels or sidelights are required in or adjacent to all doors for occupied spaces. Vision panels shall typically be 8" wide x 36" high for non-rated applications or 4" wide x 26" high for fire rated applications unless otherwise specified. Vision panels may be factory cut or field fabricated and may be set in aluminum frames or may be set with matching hardwood door stop material. Glazing for vision panels shall be of wire or tempered glass. Where vision panels are used for classroom doors, a sliding security panel must be provided on the interior surface of the door so that vision panel can easily be covered for room darkening or "shelter-in-place" requirements (see detail at end of Division 8).

For any sidelight that is wider than three feet, a mullion will be required.

E. HOLLOW METAL DOORS

1. Interior hollow metal doors shall be minimum 18 gauge.
2. Exterior hollow metal doors shall be minimum 16 gauge.
3. Hollow metal doors shall conform the following:
 - a. SDI-112: Steel Door Institute recommended minimum values
 - b. SDI-117: Steel Door Institute minimum tolerance
 - c. ANSI-A115: Preparation for hardware
 - d. ASTM A366-72: Steel
4. Acceptable manufacturers for hollow metal doors include:
 - a. Gateway Metal Products
 - b. Steelcraft Manufacturing Co.
 - c. Curries Company
 - d. North Central Supply
 - e. Elco Manufacturing
 - f. Southwestern Hollow Metal
 - g. or approved substitute
5. Where labeled openings are shown on the drawings or required by code, both doors and frames must carry the required UL labels.
6. Door thickness shall be 1-3/4" unless otherwise noted.
7. Welded seams are preferred for all interior applications and required at exterior and interior wet locations.
8. Provide foamed thermal insulation at all exterior doors.
9. All doors fire-rated at greater than 90 minutes shall be hollow metal.
10. Doors shall be properly cut, mortised, reinforced, drilled and tapped for hinges, locks, flush-bolts, door stops and holders, and door closers where required. (Do not drill and tap for surface mounted closers and brackets.) Provide solid door tops.
11. Provide vision panel in doors for all occupied spaces.
12. Before assembly, all inaccessible surfaces should be thoroughly cleaned and then sprayed with a rust-inhibiting paint or special primer.

F. HOLLOW METAL FRAMES

1. Hollow metal frames shall be minimum 16 gauge for interior and exterior applications. Frames shall have a 2" face dimension and 5-3/4" jamb depth unless otherwise noted.
2. Fully welded frames shall be provided for all exterior applications.
3. Fully welded frames are required for interior applications in masonry walls and are preferred for all applications. Knockdown frames shall be permitted for remodeling or where installation of welded frames is not possible.
4. All hollow metal frames shall be fabricated with reinforcement for hinges, closers, and all other specified hardware.
5. Furnish frame anchors of type and number applicable to wall condition. At a minimum, provide:
 - a. 3 jamb anchors plus one floor anchor for jambs up to and including 7'0" high
 - b. 4 jamb anchors plus one floor anchor for jambs exceeding 7'0" high
 - c. 1 floor anchor on each jamb at metal stud partition walls
6. Before shipment, install a temporary spreader at bottom of frames; do not remove spreader until frames are secured in place.

7. After fabrication, frames shall be cleaned and given a shop coat of red oxide primer, baked on or bonderized and given a coat of gray zinc chromate rust inhibitive flow-coat primer baked on. Coordinate color of primer with final coating.
8. For door openings wider than 42" and for multiple openings, head members should be reinforced full-length.
9. Provide at least 2" jamb depth for doors with articulating hinges. Coordinate with Design Team.

G. EXECUTION

1. Doors and frames shall be installed plumb and true, with all hardware left in proper working order. Installation shall be accomplished by experienced installers. Door frames should be secured to floor slab with a countersunk expansion device or other approved method at each jamb. Use wall anchors specifically designed for wall type.
2. Doors and frames should be protected from damage during construction and Contractor shall be responsible for repairing any damage that may occur.

H. FINISH HARDWARE

Colorado Springs School District 11 has selected specific finish hardware for use in all District facilities. All new hardware shall meet the requirements of the Americans with Disabilities Act (ADA) and shall be specified, furnished, and installed in strict accordance with District specifications unless otherwise approved by District Project Manager (COTR).

1. Building Security:
 - a. Certain parts of the building should be secured from use by unauthorized persons. Mechanical and electrical equipment rooms, office and storage rooms, kitchen areas, attic and crawl spaces, and roofs are to be locked to prevent access by students. Stairs and corridors serving such spaces should also be similarly secured.
 - b. Coordinate building security systems with Owner. Card access systems may be required on designated doorways, as specified by Owner. Cylinder dogging features should be installed at non-card reader controlled front doorway and other owner-designated exterior exiting devices.
 - c. Some areas of the building will be made available for community use during non-school hours. In order to confine traffic only to designated areas it might be necessary to provide locking corridor doorways (preferred) or folding metal gates (discouraged) at certain points or corridors. Where gates are utilized, gate locks shall have cylinders matching balance of building system. Since gates cannot be used at stairways to restrict access to upper floors, locking exit devices will be required at certain stair doors. The locations of both the corridor gates and exit devices must be carefully studied to meet the requirements of each building and the IBC.
2. Exterior Doors: All exterior doors shall have **storage room** function locksets, full width aluminum thresholds, neoprene weather stripping, and drip strip above the head of the door frame. Double exterior doors shall have an active leaf and an inactive leaf. The inactive leaf shall have concealed manual bolts. The active leaf shall have an astragal and a classroom function lockset except where panic hardware is required. If panic hardware is required, both leafs shall have panic hardware sets **and mullion as required**.
3. Public restroom doors shall have push plates, pulls, kick plates, and closers.
4. Faculty or other single-use restrooms shall be provided with push plates and pulls but shall also be provided with a Falcon D271 indicator deadbolt in 626 satin chrome finish.
5. Removable Mullions. Keyed removable mullions should be specified at the following locations:
 - a. One pair of exterior entrance doors. Coordinate all locations with Facilities Department.

- b. One pair of doors from corridor to auditorium near (or on) platform or stage, and any pairs of exterior doors at stage, gymnasium, media center, or multi-purpose room.
 - c. Keyed removable mullion hardware shall be Von Duprin KR54 with Von Duprin 16/49 BTM Mull Fitting kit in SP28 Finish when possible. Product variances for specific applications shall be reviewed and approved by District Project Manager (COTR).
 - d. Avoid use of mullions in abusive or high traffic areas when possible.
6. Door Stops and Holders:
- a. All doors should be allowed to swing as far as trim or closer will permit.
 - b. Stop locations in order of preference are as follows:
 - i. Wall
 - ii. Overhead
 - iii. Closer hold-open/stop on kitchens and delivery doors
 - iv. Bollard stop at exteriors
 - c. Exitways should be planned so that floor stops are not located in areas where they will obstruct traffic. Use of floor stops should be avoided if possible.
 - d. Provide jamb reveals at recessed doors to allow doors to open wider than 90. Provide a stop to prevent surface-mounted closers from striking walls or other obstructions.
 - e. Overhead door holders are to be used as required.
 - f. Consider use of stops at doors with exit devices without knob or pull.
 - g. Consider using magnetic hold open devices at office, gymnasium, and secured corridors if code and budget permits.
7. Closers:
- a. LCN 4040XP surface closers should be used on all doors where closers are scheduled excepting aluminum entrances and storefronts where concealed closers may be considered.
 - b. Closers are to be provided for all exterior doors, all interior doors on corridors and lobby areas, all public restroom doors, and any other location required by code.
 - c. Closers are not to be mounted where exposed to the weather.
8. Panic Devices: School District standard is Corbin/Ruswin Series ED 5202-A (fire rated) or a 5202 (non-fire rated) for single door applications or double door applications with mullion. For double doors without mullion, panic device shall be Corbin/Ruswin series ED 8400. Removable mullions shall be used when applicable. **District approval will be required, specifically for multi-use areas.**
9. Automatic Door Operators: Automatic door operators shall be provided and installed in accordance with ADA requirements at all main entrance doors and other designated handicap access entrances. Automatic operators shall be LCN 4840 series operators with EDA arm and 459 door loop unless otherwise approved.
10. Locks:
- a. Classroom function locksets shall be **Schlage ND92LD-RHO** Rhoads lever style with US26D (BHMA 626) satin chrome finish with Vandlgard. All classroom and office doors shall have classroom function locksets unless specifically approved by District Project Manager (COTR).
 - i. **District preference is to use cylindrical locks. If mortise locks are existing and door is not scheduled to be replaced. Install new mortise locks are required using Corbin/Ruswin ML2051-NS-M-626.**
 - b. Storeroom function locksets shall be Schlage ND96LD-RHO Rhoads lever style with US 26D (BHMA 626) satin chrome finish with Vandlgard. All storage room doors shall have storeroom function locksets.
 - c. General single use restrooms shall have privacy function locksets using Schlage ND40LD-RHO.

- d. Faculty single-use restroom facilities shall have Falcon D271 indicator deadbolts in 626 satin chrome finish.
 - e. Passage function locksets shall be Schlage ND10S-RHO Rhoads lever style with US 26D (BHMA 626) satin chrome finish.
 - f. Deadbolts shall be **Lori Bolt TBD series** Grade 1 heavy duty deadbolts with US 26D (BHMA 626) satin chrome finish. Deadbolts shall be provided as scheduled for the project.
 - g. **Hardware should be ordered and prepared to accept D11 cylinders as defined in the hardware section of this specification.**
11. Hinges:
- a. Continuous hinges shall be furnished for all exterior doors and shall also be used for interior “high-traffic” or abusive areas including but not limited to vestibule doors, gymnasium doors, and any doors greater than 36" in width. Continuous hinges shall be Pemko CFS83 full surface heavy duty continuous hinges with clear anodized aluminum finish.
 - b. Hinges for interior doors shall be Stanley F179 NRP 4-1/2" x 4-1/2" plain bearing full mortise hinges.
12. Weather-stripping: All exterior doors shall have continuous commercial-grade weather-stripping. Weather stripping shall be Pemko 303AV. Weather stripping shall further be provided for doors between auditoriums and common spaces to help prevent audible noise bleed.
13. Astragals shall be Pemko 357C.
14. Drip Strips shall be furnished for all exterior doors and shall be Pemko 346C. Drip strips should be 4" wider than door opening.
15. Door sweeps shall be Pemko 368CN clear anodized aluminum.
16. Threshold: All exterior doors shall have weather-resistant thresholds similar to Pemko 171A. Pemko thresholds are to be specified, provided, and installed as required for job-specific transition details.
17. Kick Plates are to be provided on push side of doors in all high traffic doorways including kitchens, restrooms, gymnasiums, cafeterias, media centers, mechanical/electrical rooms, and custodial areas. Kick plates shall be 1/16" x 16" x “door width” 304 stainless steel with rounded corners
18. Wall stops shall be Trimco 1270CV cast aluminum with concave rubber
19. Floor stops (if required) shall be Trimco 1200. Use of floor stops is discouraged. Floor stops shall not be utilized in any traffic areas.
20. Push plates shall be Trimco 1001-11 with 630 satin stainless steel finish
21. Door pulls shall be Trimco 1013-2 pulls with 630 satin stainless steel finish. **Exterior aluminum storefronts should have an offset pull handle Kawneer or similar to allow for key cylinder access.**
22. Flush Bolts: Use flush bolts on active leaf of pairs of storage rooms and other secure areas.
23. Coordinators: Specify coordinators as required by code.
24. Extended Warranty:
- a. **Provide for 1 year door hardware adjustment or replacement.**
 - b. Consult with Owner regarding extended warranty periods for finish hardware.

I. HARDWARE SCHEDULE

The Contractor shall provide the Owner and/or Architect with a complete detailed hardware schedule within 60 days after Notice of Award. The Contractor shall consult with a certified architectural hardware consultant in the preparation of this schedule. Architect shall provide detailed submittal review to assure complete compliance and compatibility with ADA requirements, door/frame/hardware schedules on plans, and the CSSD #11 specifications noted in this section. The hardware submittal shall include the following information:

1. Name and description of each opening.

2. Complete description of hardware provided, including manufacturer's name, catalog number, and quantities.
3. Any other information pertinent to proper installation.
4. Hardware required for window screens, steel windows, metal lockers, metal toilet compartments, metal-clad fire doors, rolling grilles, steel plate access doors, roof hatches, etc. is also to be noted in the hardware schedule.

J. MARKING OF HARDWARE

Each package of hardware should be carefully marked for its intended opening and use upon delivery to jobsite.

K. SCREWS AND BOLTS

All necessary screws and bolts for proper installation shall be furnished by the hardware supplier. All shall be of suitable size, type and finish to harmonize with the hardware.

L. METAL DOOR HARDWARE

1. Hardware attached to metal shall be templated and shall be fastened with machine screws long enough to penetrate 1/4" thick reinforcing.
2. Hardware templates for hollow metal doors and frames shall be delivered to the General Contractor immediately on receipt of the approval schedule of finish hardware.
3. Rubber silencers shall be provided for all doors (except exterior and at smoke seals) installed in metal frames. There should be three silencers for each door.

M. MOUNTING

1. Hardware mounted on wood doors such as panic devices shall be attached to the door with hex bolts. Through-bolts and grommet nuts shall be used for attachment of closers to wood doors. The same classes of hardware mounted on metal doors shall be attached with machine screws.
2. Attachment of hardware to brick or concrete shall be accomplished with expansion bolts or similar drilled anchors. Toggle bolts shall be used for attachment to masonry block walls. Solid backing shall be provided for hardware mounted to gypsum board walls. Wall mounted door stops shall be backed by wood blocking securely fastened between studs.
3. Mounting heights: Dimensions given are from floor to center line of hardware item.
 - a. Door levers and panic exit devices: 40"
 - b. Push/Pull Plates: 42"
 - c. Deadbolts: 48"

N. LABELED OPENINGS

Where code requires fire labeled doors, the labeling should control the hardware specification. Astragals and coordinators, where required on pairs of doors to meet labeling requirements, should be provided.

O. SMOKE SEALS

1. Where smoke seals are required, bulb-type silicone, such as Pemko S88 series shall be provided.

2. General Contractor shall comply with all current codes for smoke seals at rated openings. Integral seals with door/frame (rather than field applied seals) shall be considered. If this is not practical, specify bulb-type silicone (Pemko S88 series).

P. FINISHES

1. Unless otherwise noted, all hardware should be furnished in US 26D (BHMA 626) satin chrome finish.
2. If US26D (626) finish is not available for specified item, provide closest available finish (brushed stainless steel, brushed aluminum, or brushed nickel).

Q. KEYING

All lock cylinders and keyways will be provided, installed, and keyed by Owner. Contractors shall not install any temporary locks which restrict Owner access to any spaces within District property. Contractor may request installation of temporary keyways to secure construction areas. All keying during and following construction operations to be coordinated through Owner. **Contractors shall install hardware with temporary plastic cylinders to ensure proper operation of hardware.**

R. SPECIAL DOORS

1. Motor-driven rolling counter doors should be provided for cafeteria food service, attendance offices, and concession areas.
2. Steel insulated sectional overhead doors or coiling doors with electric operators should be provided for storage facilities.
3. Specific specifications will be project specific and must be approved by Owner prior to installation.

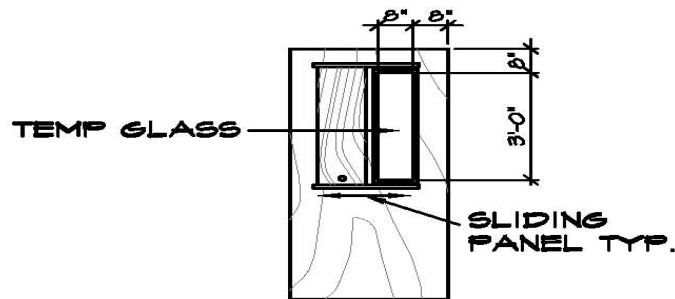
S. KNOX BOXES

Knox boxes shall be specified and provided for all new buildings, additions, or renovations in accordance with the requirements of the Colorado Springs Fire Department. Knox boxes shall be provided and installed by the Contractor.

T. ROOF HATCHES

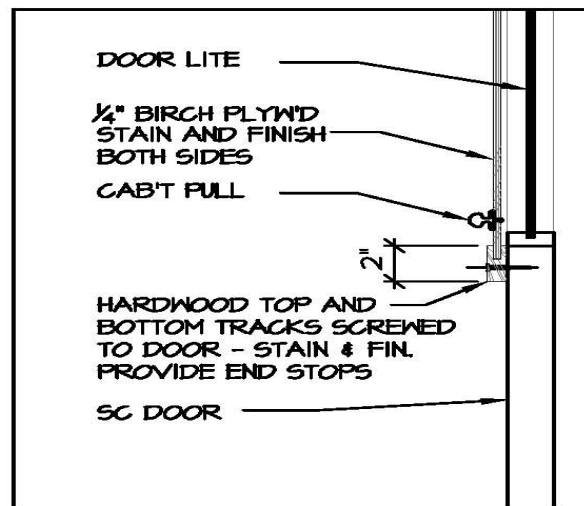
One roof hatch shall be provided for all new schools and shall also be provided for additions if there is no existing roof hatch or if addition area is not easily accessible from adjacent existing roof area. Roof hatches shall be minimum 30" x 36" size. Unless otherwise noted, roof hatches shall be Babcock-Davis B-RHG with integral curb.

SLIDING SECURITY PANEL DETAIL FOR CLASSROOMS



DOOR ELEVATION

$\frac{1}{4}'' = 1'-0''$



DOOR DETAIL

$\frac{1}{2}'' = 1'-0''$

<<<<END OF DIVISION 8>>>>