

**CSU HOUSING & DINING SERVICES TECHNICAL STANDARDS  
DIVISION 08 – OPENINGS**

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**08 08 00 - OPENINGS**

A. General Requirements:

1. All window types shall be approved by the University Representative. Exterior window frames shall be aluminum. Steel-framed windows are prohibited for exterior use.

**08 10 00 - METAL DOORS AND FRAMES**

B. Door Requirements:

1. Interior doors may be thermal fused wood composite or hollow metal. Exterior doors shall be hollow metal or aluminum and glass. Wood is prohibited for exterior doors.
2. Typical door size shall be 3'-0" x 7'-0". Wider doors should be used if required by function.
3. All door hardware shall be installed according to industry standards. Door frames shall conform to profiles shown in the Drawing Appendix unless the door is a special purpose door.
4. All high traffic doors shall have heavy duty continuous geared hinges (Hagar/Roton or equal).

C. Fire door requirements:

1. All doors and frames shall conform to International Building Code requirements for fire-rating. All fire-rated doors and frames shall have an approved Fire Door label.
2. Fire doors may only be modified by a certified fire door milling facility.
3. No fire door shall be modified or removed without the expressed knowledge and permission of the University Representative.
4. All fire doors must have gaskets for smoke and draft control.
5. Standard wire glass is prohibited in fire-rated doors and sidelites.

D. Types of doors and frames:

1. Use only wide stile design for high traffic aluminum doors.
2. Hollow metal doors shall be 16 gauge metal. Exterior HM doors shall be insulated.
3. Door frames shall be metal, 16 gauge for interior application and 14 gauge for exterior application.
4. Doors larger than 3 foot x 7 foot inch require continuous geared hinges instead of three.

**08 14 00 – THERMAL FUSED DOORS**

A. Acceptable Manufacturers: Maiman or Marshfield.

B. Minimum Grade: ANSI / WDMA I.S.1A Custom Grade, Extra Heavy Duty. Low usage doors may be specified Heavy Duty with review and approval of Facilities Management – Design and Construction.

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C. Types of Doors and Frames:

1. Interior wood doors shall be 1-3/4 inch thermal fused doors – cap sheet color selected by architect/CSU.
2. All doors shall have aluminum or hollow metal frames. Wood frames shall not be used.
3. Top, bottom and edges of wood doors shall be sealed immediately after fitting.

**08 41 00 – ALUMINUM ENTRANCES AND STOREFRONTS**

A. Sole Source Products:

1. Hagar/Roton heavy duty continuous geared hinges.

B. Materials, systems and hardware

1. Entrances and storefront systems shall be aluminum, equal to Kawneer Trifab Versaglaze 451T System or Manko Windows Product 2450 Thermally-broken Storefront Framing. [www.mankowindows.com](http://www.mankowindows.com). and approved by the University Representative.
2. Other Acceptable Manufacturers:
  - a. Kawneer North America: [www.kawneer.com](http://www.kawneer.com).
  - b. United States Aluminum Corp: [www.usalum.com](http://www.usalum.com).
  - c. Vistawall Architectural Products: [www.oldcastlebe.com](http://www.oldcastlebe.com).
  - d. Tubelite, Inc.: [www.tubeliteinc.com](http://www.tubeliteinc.com).
3. Finish: Class I color anodized. AAMA 611 AA-M12C22A42 Integrally colored anodic coating or AAMA 612 electrolytically deposited colored anodic coating with electrolytically deposited organic seal; not less than 0.7 mils (0.018 mm) thick.
4. Color: To be selected by Architect.
5. Doors shall be wide stile. Stile shall be wide enough to accommodate rim metal exit hardware. Narrow stile is not allowed. Verify dimensions with Housing Facilities Access Control Shop prior to specification.
6. All closers shall be surface mounted. LCN.
7. Use Heavy Duty continuous geared hinges (Hagar/Roton). Flush of ½ surface to meet clearance requirements.
8. Pivot hinges are not allowed.

**08 51 13 - ALUMINUM WINDOWS**

A. Construction:

1. Windows and glazing shall be thermally efficient. When glazed, total window energy performance shall have a total U value of 0.41 BTU / hr / sf-°F or better. In general, this means aluminum frames have thermal break design, glazing is insulated double pane with low-e coating and operable sections are gasketed.
2. Sealed Insulating Glass Units: Vision glazing, low-E.
  - a. Basis of Design: Cardinal Glass Industries: [www.cardinalcorp.com](http://www.cardinalcorp.com)

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- b. Outboard Lite: Annealed float glass, 1/4 inch (6 mm) thick, minimum.
    - i. Tint: Clear.
    - ii. Between-lite space filled with air.
  - c. Inboard Lite: Annealed float glass, 1/4 inch (6 mm) thick, minimum.
    - i. Tint: Clear.
    - ii. Coating: Low-E 366, on #3 surface.
  - d. Total Thickness: 1 inch (25 mm).
3. Whenever possible, provide ventilating windows operated with a pivoting cam handle to facilitate cleaning and allow means for emergency ventilation. Window cam handle or crank location shall not interfere with window coverings. Sliding windows are acceptable when equipped with stainless steel security screens is used. Screen material shall be black.
  4. Screens shall accompany all windows as an integrated unit. Frame and screen shall be aluminum; fiberglass, vinyl and plastic are not acceptable. Wickets required for cam handle operation shall be integral to the screen frame.
  5. High theft areas or residential windows shall have stainless steel screens when operable opening is greater than 6".

**08 71 00 – DOOR HARDWARE**

A. Required Products: No substitutions

Locksets	BEST lever handle with R/C
Exit Devices	Von Duprin 98 / 99 EO (interior), 990 NL / DT (exterior)
Closers	LCN 4041 Reg / PA
Hinges	Hagar #BB1279 or Stanley #FBB179
Continuous Geared Hinges	Hagar/Roton- Heavy duty, flush or 1/2 surface, profile to meet clearances
Lock Cylinders	BEST quad-milled 7-pin to match existing
<del>Combination Locksets</del>	<del>Trilogy T2 with key override DL2700</del>
Removable Mullions, Keyed	Von Duprin KR 4954 with MT54 / KR 9954 with MT 54
Automatic door openers:	Stanley Access Technologies Magic Access

Always verify products with Housing Facilities Access Control through the University Project Manager/Representative.

A. General Information:

1. For remodels and additions, Architect shall consult with Locksmith through University Project manager/Representative to determine which hardware program(s) should be applied::
  - a. Match new hardware to existing hardware
  - b. Match new hardware to meet the current Construction Standards
  - c. Update existing hardware to meet the current Construction Standards
2. Specify heavy duty, US26D finish for stops, door holders and other accessories for new work. Match existing finishes for small projects within existing buildings.
3. Extension flush bolts shall be manual only. Automatic flush bolts are prohibited.
4. In general, use floor-mounted stops. Where safety or other considerations make floor stops undesirable, gypsum board partitions shall have blocking installed for wall-mounted stops.

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5. All exterior doors require high quality weather stripping.
  6. Sweeps shall be brush, felt or rubber. Automatic door bottoms are prohibited.
  7. When required for accessibility, existing knob locksets shall be replaced with lever locksets. Retrofit lever handles may be used for remodel only with approval of the Locksmith.
- B. Locksets:
1. Locksets for new buildings shall be heavy duty lever set with heavy duty R/C key-in-lever.
  2. On large projects of duration greater than 6 months, locksets shall be ordered with cylinders keyed to Colorado State University master system as directed by Locksmith through the University Representative.
  3. Lockset functions: Architect shall consult with Locksmith through the University Representative to determine which lockset functions should be applied.
  4. Finish shall be US26D, US10 or US10B. Other finishes shall be submitted to the University Project Manager/Representative for approval by Facilities Management-Design and Construction.
  5. Lever handles shall be used for all doors except doors with exit devices, mechanical / electrical / utility rooms.
- C. Exit Devices: Use only where required by code or safety considerations.
1. Required:
    - a. Rim type
    - b. Key dogging.
    - c. Exterior Door: Pull Trim (NL night latch or DT dummy trim)
    - d. Interior Classroom Door: Lever Trim 996L
  2. Prohibited
    - a. Vertical rod type.
    - b. Concealed type
    - c. Thumb latch
  3. Allowable only where unavoidable
    - a. Mortise type.
- D. Closers:
1. Aluminum painted finish with arm and shoe as appropriate for the application.
- E. Hinges:
1. All hinges on the same door must be of the same brand.
  2. Full mortise, 4-1/2 x 4-1/2 standard weight, 5 knuckle, US26D.
  3. Heavy Duty continuous geared hinges on all high frequency doors.
- F. Automatic Door Opener:
1. Door openers shall use push plate switches. Remote control is acceptable if necessary.

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2. Door openers shall be compatible with keyless access hardware and control sequences.
3. Door openers shall be capable of interfacing with electronic strike hardware for applications where doors must remain closed and latched (e.g. fire door application).

**08 74 00 – ACCESS CONTROL HARDWARE (Moved to Section 28 13 00 ACCESS CONTROL)**

**08 80 00 – GLAZING**

- A. All glazing in non-rated doors, sidelites and other non-rated assemblies subject to human impact loads shall be 1/4 inch tempered glass, laminated safety glass or polycarbonate. Standard wire glass is prohibited in these locations.
- B. All glazing in fire-rated doors, sidelites or other fire-rated assemblies subject to human impact loads shall be tempered ceramic glass or safety wire glass manufactured with a fire-rated safety film and bearing a label indicating compliance with impact safety standard CPSC 16CFR 1201 Cat. II.
- C. Standard wire glass is allowed for fire-rated assemblies only in locations where the glazing is not subject to human impact loads, such as transoms and windows. Wire glass is not acceptable for security; use laminated glass or polycarbonate.