

DIVISION 08 – OPENINGS**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 wood 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.

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 four hinges instead of three.

08 14 00 - WOOD DOORS

A. Acceptable Manufacturers: Marshfield, Lynden, Eggers, Algoma

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.

C. Types of Doors and Frames:

1. Interior wood doors shall be 1-3/4 inch thick solid core birch veneer wood.
2. All doors shall have aluminum or hollow metal frames. Wood frames shall not be used without approval of Facilities Management – Design and Construction.
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. Pivot Hinges - See Sole Source Appendix.

B. Materials, systems and hardware

1. Entrances and storefront systems shall be aluminum, equal to Kawneer Trifab 450 System and approved by the University Representative.
2. Doors shall be wide stile. Stile shall be wide enough to accommodate rim metal exit hardware. Narrow stile is not allowed. Verify dimensions with Facilities Management Locksmith prior to specification.
3. All closers shall be surface mounted.
4. Use pivot hinges on new installations. Existing installations shall have pivot hinges replaced with specified manufacturer.

08 51 13 - ALUMINUM WINDOWS

A. Construction:

1. Windows and glazing shall be thermally efficient and when glazed, meet or exceed the following total window energy performance parameters:

Total U value	0.41 BTU / hr / sf - °F
Solar Heat Gain Coefficient	
Visible Transmittance	
Air Leakage	cfm / sf

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. 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.
3. 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.

08 71 00 – DOOR HARDWARE

A. Required Products: No substitutions

Locksets	Sargent 11 Line
Exit Devices	Von Duprin 98 / 99 EO (interior), 990 NL / DT (exterior)
Closers	LCN 4041 Reg / PA
Hinges	Hagar #BB1279 or Stanley #FBB179
Lock Cylinders	Medeco
Combination Locksets	Trilogy T2 with key override DL2700
Removeable Mullions, Keyed	Von Duprin KR 4954 with MT54 / KR 9954 with MT 54
Automatic door openers:	Stanley Magic Force

Always verify products with Facilities Management Locksmith through the University Representative.

A. General Information:

1. For remodels and additions, Architect shall consult with Locksmith through University 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.
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 key-in-lever. Knobs shall be used in certain locations where levers are not required as determined by the Locksmith.
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. Combination locks may be installed where there are 50 or more individual users upon request, subject to needs assessment and approval by the Locksmith through the University Representative.
5. Finish shall be US26D, US10 or US10B. Other finishes shall be submitted to the University Representative for approval by Facilities Management-Design and Construction.

6. 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.
- F. Automatic Door Opener:
1. Door openers shall use push plate switches. Remote control is acceptable if necessary.
 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

A. Sole Source Products:

Panels:	iStar
Power Supply:	Altronic Maxim 33
Card Readers	SWH 4100
Motion Detectors	Detection Systems DS160
Door Contacts	GE Security Products #1076D-M / 1" diameter

B. Required Products:

1. Junction Boxes above Doors Hoffman 8x8 or Softwarehouse RM

C. Code references:

- a. IBC / IFC 1008.1.3.4 - 'Access Controlled Egress Doors'

- b. NFPA 101 7.2.1.6.2 - Access-Controlled Egress Doors'

D. Coordination

1. Architect, Electrical Engineer and Contractor shall coordinate with the Facilities Management – Access Control during design and construction phases to locate devices and assure access control work meets CSU Standards.
2. Finishes of access control hardware, including painted and plastic items shall be coordinated with project finishes for door frames, door hardware and other entry elements. Submit complete product finish information and proposed device finish schedule to the University Representative for review and approval.
3. Contractor shall complete system start-up and adjustment before submitting its notice of substantial completion. Inspection and approval by Facilities Management – Access Control is required before any access control item will be permitted on the Pre-Acceptance Punchlist.

E. Submittals:

1. Manufacturer's technical product data for each hardware item.
2. Shop drawings, showing system design, layout, and wiring diagrams.
3. Hardware schedules.
4. Hardware templates to fabricators of other work receiving electro-mechanical hardware.
5. Record drawings – electronic set (CAD, PDF) of complete as-built drawings identifying each component, system operation, and wiring diagram.

F. Panel Locations

1. Panels and power supplies shall be located in the MDF or IDF rooms on a dedicated 4' x 8' plywood wall backboard. Rack space may be used with written approval of CSU Telecommunications obtained through the University Representative. All high voltage wiring for power supplies or control units shall be in metal conduit. Pigtailed are prohibited

G. Wiring Requirements:

1. Access control wiring for new construction shall be enclosed in metal conduit of minimum 3/4" diameter or cable trays approved for the project. For retrofit projects where conduit or cable tray installation is not feasible, access control wiring shall be suspended every 4 feet above drop ceiling by J-hooks. Whenever cable trays are used, wiring must be enclosed in enclosed in metal conduit of minimum 3/4" diameter from the point it exits the tray to its final destination.

H. Card Readers:

1. All readers shall be mounted at 36" AFF to center on the latching side of the door. Readers at doors with automatic operators shall be located a minimum 24" clear of the door swing to provide safe clearance for persons with limited mobility. Readers shall be hard-wired to the panel with composite cable unless otherwise approved by Facilities Management - Access Control. All doors shall have an 8x8 Hoffman junction box or a Softwarehouse RM box above the ceiling over the door to serve as a node for all door device conduits. Access to the junction box via suspended ceiling or ceiling hatch is required and shall be within the secure area. No junction boxes shall be installed outside the secure area without prior written approval by CSU Access Control through the University Representative.

I. Electrified Door Hardware: (new construction)

Single doors with cylindrical locks

Hes 4500 24 VDC

Single doors with panic hardware	Hes 9600 24 VDC
Double doors with panic hardware	Hes 9600 24 VDC

1. Double doors with panic hardware shall have two (2) Hes units mounted on a Von Duprin KR4954 Keyed Removable Mullion.
2. At fire-rated doors, provide UL or WHI label.
3. Electric hinges are prohibited.

J. Electro-Magnetic Locks:

1. Magnetic Locks are prohibited without a written exception from the University Representative. Magnetic locks shall be installed with a fire relay according to code. Minimum holding force shall be 1,500 pounds. Shear locks are prohibited.

K. Key Switches:

1. Where an automatic door operator is coordinated with an electric strike, system design must provide mortise cylinder type key switch for two-position (on/off) operation to enable security personnel to electrically unlock or lock the door latching mechanism. A power cutoff switch (110V) shall be provided near control panel.

L. REX PIR or Switch Kit:

1. Use only if RX switch is not an option kit for specified lock or cannot be installed in electric lock mechanism.

M. Motion Detectors (see sole source products)

N. Door Contacts (see sole source products)

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.