

York University Construction and Renovation Standards

Door Finishing Hardware

Section 08 71 00

Note to the Designer/Architect/Engineer: These standards are basic minimum criteria to be met in preparing the final project specifications for this section, which is the responsibility of the Designer

1.0 GENERAL

- 1.1 Conditions
- 1.2 Sustainable Design Requirements
- 1.3 Scope of Work
- 1.4 Related York University Standards
- 1.5 References
- 1.6 Submittals
- 1.7 Qualifications (P.Q.)
- 1.8 Delivery and Storage
- 1.9 Maintenance Tools (E.M.)
- 1.10 Standard Warranties and Extended Warranties (S.W. / E.W.)

2.0 PRODUCTS

- 2.1 Coordination
- 2.2 Hardware Items
- 2.3 Butt Hinges
- 2.4 Locks and Latch sets
- 2.5 Exit Devices
- 2.6 Alarmed Exit Devices
- 2.7 Continuous Hinges
- 2.8 Door Closers
- 2.9 Electric Strikes
- 2.10 Automatic Door Openers (ADO)
- 2.11 Electric Card Access locks and related hardware
- 2.12 Overhead Stops and Holders
- 2.13 Pulls and Plates
- 2.14 Door Stops and Holders
- 2.15 Door Seals
- 2.16 Kick plate Armour Plates
- 2.17 Patch lock
- 2.18 Door buttons
- 2.19 Magnetic Hold Opens
- 2.20 Legend of Finishes

- 2.21 Fastenings
- 2.22 Keying
- 2.23 Conduits for Electronic Hardware

3.0 EXECUTION

- 3.1 Coordination
- 3.2 Installation
- 3.3 Installation of Electronic Hardware
- 3.4 Verification and Adjustments

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1.0 GENERAL

1.1 Conditions

1.1.1 This section defines relevant York University standards related to Door Finishing Hardware

1. 1.2 Sustainable Design Requirements

1.1.1. .1 Follow University project procedures for compliance, documentation and certification of the project in accordance with the requirements of the desired certification (LEEDS, ASHRE or other) credits.

2. 1.3 Scope of Work

2.1.1. .1 This Section covers all materials, equipment, tools and labour required for the supply and installation of finish hardware for doors.

2.1.2. .2 All hardware for aluminium doors (except those by the door manufacturer) are supplied by this Section

2.1.3. .3 All electronic hardware mounted on doors and frames will be supplied and installed by this Section, unless otherwise indicated. All connections to these items shall be done by York University Maintenance Section or Electrical contractor responsible for this work.

2.1.4. .4 Please refer to York University Electrical Standard where a relationship to this Standard is noted or is relevant.

2.1.5. .5 See York University **Electrical Standard and York University Security Systems Standard** for all other electronic items related to alarms, security, controls, etc.

2.1.6. .6 Door and Door Finish hardware schedule, submit a final hardware schedule in the manner indicated as follows. Coordinate hardware with doors, frames and related work to ensure proper size, thickness, hand, function and finish hardware. Based on finish hardware indicated, organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Hardware schedule shall include at a minimum the following information:

1. Type, style, function, size and finish of each hardware item
2. Name and manufacturer of each item
3. Fastenings and other pertinent information
4. Location of hardware set cross-referenced to indications on drawings both on floor plans and door and frame schedule

5. Explanation of all abbreviations, symbols, codes, etc. contained in the schedule
6. Mounting locations for hardware
7. Door and frame sizes and materials
8. Keying information

1.4 **Related York University Standards**

- .1 Steel doors and frames Section 08 11 00
- .2 Wood doors and frames Section 08 14 00
- .3 Glazing for Interior space Section 8 81 00
- .4 Proximity Card Access Section 08 74 00
- .5 Metal Supports for Gypsum and Cement Board Section 09 21 00

1.5 **References**

- .1 Comply with all applicable municipal, provincial, federal and trade standards in this specification, unless more stringent requirements are given herein.

1.6 **Submittals**

- .1 Technical data (T.D.):
- .2 Submit to the York University project representative complete technical data sheet for each type of hardware, with installation Instructions.
- .3 Submit the Hardware Schedule to the York University project representative at the earliest possible time, where acceptance of the hardware schedule must precede fabrication of other work which is critical in the project's schedule.
- .4 Include with the hardware schedule the project data, samples, shop drawings of other work affected by finish hardware and other information essential to the coordinated review of hardware schedule. Submit initial draft of schedule after samples, product data, coordination with shop drawings of other work, delivery, schedules, and similar information has been completed and accepted.

.3 Product samples (P.S.):

.4 Templates (T):

- .1 Provide hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware. Upon request, check shop drawings of such other work, to confirm that adequate provisions are made for proper location and installation hardware.

.5 Installation instructions and templates (S.D.):

- .1 Supply all required instructions and templates to the door and frame manufacturers in time to allow preparation of doors and

frames.

- .2 Supply manufacturer's instructions for proper installation of each hardware item.

.6 Maintenance instructions (M.I.):

- .1 Provide maintenance instructions, parts list, and manufacturer's instructions for each type of door hardware
- .2 Brief York University maintenance staff regarding proper care, cleaning, and general maintenance.

1.7 Qualifications (P.Q.):

- .1 The supplier must be a member in good standing of DHI and have a certified AHC on staff.
- .2 The installer of electronic hardware must be a firm with at least 5 years experience with these types of products, have manufacturers' references and a good knowledge of the products specified.
- .3 The installer of electronic hardware must select a qualified labour force of established competence.

1.8 Delivery and Storage

- .1 Package and deliver each item of hardware including fastenings, separately and regroup and label door by door.
- .2 Store finish hardware in secured locked, clean and dry area.
- .3 Maintain inventory list with hardware schedule.
- .4 Deliver keys directly to York University project representative, in properly identified envelopes.
- .5 Provide secure locked area for storage of hardware that is delivered to the project, but cannot be installed yet. Control handling and installation of hardware items that are not immediately replaceable, so that completion of the work will not be delayed by hardware losses. Both before and after installation.

1.9 Maintenance Tools (E.M)

- .1 Supply a complete set of specialized tools (i.e., two sets of wrenches for door closers and fire exit hardware) and maintenance instructions as needed for York University's continued adjustment, maintenance and removal and replacement of finishing hardware.

1.10 Standard Warranties and Extended Warranties (S.W. / E.W.)

- .1 All warranties to be effective from the date of Substantial Performance of the Work.
- .2 All door closers except electrified door closers, to carry a ten (10) year warranty.
- .3 All locksets to carry a five (5) year warranty.

- .4 All exit devices to carry a three (3) year warranty.
- .5 All electrified products to carry a two (2) year warranty.
- .6 All continuous hinges to carry "Life of Opening" warranty.
- .7 All other items to carry a one (1) year warranty.

2.0 PRODUCTS

2.1 Coordination

- .1 Coordinate with related York University Building Standards and or Guidelines before supplying hardware
- .2 Check air pressure differentials to ensure door closers are properly adjusted.

2.2 Hardware items

- .1 Only hardware items that satisfy standards CAN/CGSB-69 series and ANSI/BHMA A156 series are acceptable for use for any new construction or renovation project.
- .2 Use hardware that is recognized by ULC for fire doors and exit doors.
- .3 All hardware to match make of existing unless specified otherwise by the York University project representative
- .4 The electronic hardware shall meet CAN/ULC-S533 standard, and will carry a ULC or WHI Fire label
- .5 Use only one manufacturer's products for all similar items unless otherwise indicated.

2.3 Butt Hinges

2.3.1 For Interior Doors:

- .1 All butt type hinges will be five knuckle concealed bearing type. Use concealed bearing hinges for all doors with door closers.
- .2 use full mortise 4 ½ X 4 ½ hinges Stanley FBB179 with five hinges per door up to 90" high – add one (1) hinge for each additional 30" of height
- .3 Where the door exceeds 3'0" (914 mm) use full mortise 4 ½ X 5" (127 mm) high hinges
- .4 use 26D/652 Satin chrome finish
- .5 Hinges must have template screw hole location for use on either wood or hollow metal doors and frames
- .6 for doors swinging in to public corridors use hinges with non-removable pins (NRP)
- .7 Applicable standard ANSI/BHMA A 156.1

2.3.2 For Exterior doors, or heavy doors, or doors where high frequency is expected:

- .1 Use full mortise 4 ½ X 4 ½ heavy weight ball bearing hinges Stanley FBB199
- .2 Exterior out swinging door hinges must be non-ferrous and have non-removable pins (NRP).
- .4 26D/626 Satin chrome or 32D/630 finish
- .5 Hinges must have template screw hole location for use on either wood or hollow metal doors and frames
- .6 NRP for out-swinging doors
- .7 Applicable standard ANSI/BHMA A 156.1

2.3.3 For doors where high frequency use is expected, and for doors over 36" wide:

- .1 Full mortise five knuckle hinges Stanley FBB 168
- .2 use 3 hinges per door up to 90" high – and add 1 hinge for each additional 30"
- .3 use 4 ½ X 4 ½ full mortise
- .4 26D/652 Satin chrome finish
- .5 use 5 knuckle
- .6 NRP for out-swinging doors
- .7 Hinges must have template screw hole location for use on either wood or hollow metal doors and frames
- .8 Applicable standard ANSI/BHMA A 156.1

2.3.4 Acceptable products:

Exterior Doors Hinges:
Stanley FBB179
Stanley FBB199

Interior Doors Hinges:
Stanley FBB179
Stanley FBB168

2.4 Locks and Latches

- .1 Locks and latch sets are to be mortise lever sets. Latch bolts will be anti friction with separate latch guard, ULC labels for all fire rated doors and 3/4" throw. Auxiliary dead bolts are to have hardened steel pin inserts.
- .2 Where lever trim is required, trim must have concealed through bolt mounting and the lever is to be solid cast or forged material with a return to the door face.
- .3 Applicable standard: ANSI/BHMA A156.13 – Grade 1.
- .4 Acceptable products: **No Substitutes Allowed**
Sargent 8200 Series mortise locks with LNL trim
Sargent 8205 to be used for office doors
Sargent 8204 to be used for storage rooms doors
Sargent 8237 to be used for privacy set
- .5 "L" lever in all cases LNL trim is to be used
- .6 26D/626 satin chrome finish

- .7 Locksets shall be ordered without cylinder (LC less cylinder)
- .8 Cylinders will be by York University Maintenance Section Key Control

2.5 Exit Devices

- .1 All exit devices will be low profile push pad style devices. Outside trim will have the same trim design as the locksets. Exit hardware must have the correct life safety or fire rated labels attached to the active case. Ensure that the actuating push pad covers 1/2 of the door opening.
- .2 Interior doors requiring exit devices are to be equipped with standard Pullman dead latching latch bolts, accident hazard or fire labeled as necessary.
- .3 Equip exterior aluminum door exit devices with necessary fasteners and features included where thermally broken doors are specified.
- .4 ANSI/BHMA A156.3 – Grade 1
- .5 lock from inside
- .6 specify with or without centre mullion
- .7 specify surface vertical rods for pairs with out centre mullion
- .8 prefix “NB” when no bottom rod is used with vertical rod devices, use only “NB” when security is not a factor
- .10 specify lever trim ETL to match mortise lock trim
- .11 include prefix 12 for fire rated doors
- .12 specify with or without dogging (location specific)
- .13 rim type for single doors with Allen key dogging
- .14 Acceptable products:
Sargent – 80 series flat bar design, configuration is site specific i.e., 12-8810F fire exit device exit suite, no hardware on corridor side
32D/630 Satin stainless steel finish ET trim

2.6 Alarmed Exit Devices

- .1 Alarmed exit devices shall be installed with either DC power supply or as stand- alone using 9-volt battery power
- .2 32D/630 Satin stainless steel finish
- .3 Acceptable products: Sargent 5800 and 12-5800 Alarmed Exit devices

2.7 Continuous Hinges

- .1 Edge Hung Flush Door continuous gear hinges shall be the full height of the door
- .2 Continuous hinges must be full mortise
- .3 628 clear anodized aluminum finish

- .4 Acceptable products: McKinney Hinge MCK 12HD

2.8 Door Closers

- .1 Door closers to be installed on all storage rooms, fire rated doors, doors with keypad, doors with proximity card access systems, glass doors, and doors with push/pull hardware
- .2 Door closers will all have full adjustment features including back check, general speed, and latch speed control.
- .3 All interior door closers will have reduced opening force spring power to meet the barrier free codes of 22N (5 lbs.)
- .4 Surface mounted door closers are to be located on the room side of the door whenever possible.
- .5 Door closers shall be fully hydraulic, full rack and pinion action with high strength cast iron cylinders. Hydraulic regulation shall be tamper proof, non-critical screw valves adjustable by hex wrench. Use parallel arm wherever possible
Provide hold open arms
Closers shall have separate adjustments for latching speed, closing speed and hydraulic back check.
All closers shall be of one manufacturer and shall have a minimum of five (5) year warranty
- .6 For exit doors, cylinder to be mounted on the stair side
- .7 For exit doors, install closers on the stair side, for storage rooms, suites and all other doors install closer on the inside of the room
- .8 Slide Track closers shall be large body compliant with ANSI Grade 1, barrier free design. Only metal slide tracks are to be used.
- .9 Where listed, door closers are to have full body covers to match the project finishes. Installation instructions must be inside all door closer covers.
- .10 Template closers to permit full shock absorber action.
- .11 Applicable standards: ANSI/BHMA A156.4 – Grade 1
- .12 Acceptable products, LCN Series 4041

2.9 Electric Strikes

- .1 Doors with mortise locks use Hes model 1006 with appropriate KM faceplate
- .2 Non-fire rated doors with rim exit devices use Hes model 9600 – 24 VDC
- .3 Fire rated doors with rim exit devices use Hes model 9500 – 24VDC

- .4 Stainless steel 32D/630 finish
- .5 Applicable standards: ANSI/BHMA A156.31 – Grade 1,
- .6 Acceptable products: Hes 1006, Hes 9600, Hes 9500

2.10 Automatic Door Operators (ADO), Activators and Sequencers

- .1 Surface mounted ADO – Hunter Ditec HA-8 Low energy handicap operators (HA8-SP for standard Profile – Low Energy Operator)
- .2 Surface mounted ADO – Hunter Ditec FA-8 High frequent use – fully automatic
- .3 Applicable standards: ANSI/BHMA A 156-19
- .4 ADO Activators – Acceptable products: Camden Door Controls CM-330, 324 and 325 SureWave Touchless Switches with stainless steel faceplate for both interior and exterior applications.
Vertical Actuation Bars (interior and exterior applications)

<https://www.autodoorandhardware.com/36-Vertical-Actuation-Bar-Low-Profile-Push-Plate-p/10lpr36hw.htm>

- .5 Acceptable products: Hunter Ditec HA and Hunter Ditec FA
- .6 ADO and Card Reader Interface: Where the ADO Operator and Activators (switch) is integrated with a YUcard (Blackboard NFC EV1 Desfire card reader) an interface between the installed card reader and the ADO operator and switch must be installed. A sequencer board is required to act as the interface between the two systems. This board sequences the operation of two automatic doors in both directions, controlling time delays upon door activation) Acceptable Products: Camden CX-12 Switching Network
- .7 Provide at least one leaf of the main entrance to a primary facility with an automatic door opener (ADO). ADOs for other doors may be warranted based on building size and entrance proximity to existing accessible routes. Consult with York University Office of Persons with Disability, and applicable municipal, provincial and federal standards
- .8 ADO shall have the ability to operate the doors via a proximity or NFC card reader.
- .9 ADO activators shall be separate in the case of pairs of doors in a series
- .10 Install an ADO activator on a standalone aluminum bollard to activate a set pair of doors
- .11 When installing ADO activators on a bollard the installation must comply with AODA (Accessibility for Ontarians with Disability Act 2005) requirements for mounting height
- .12 Acceptable Products: Camden Mounting Posts Aluminum Post with Clear Finish
- .13 If installing an ADO switch shall be either square or round, with a

minimum 6" diameter or dimension, blue in colour, with the international symbol of accessibility displayed unless otherwise specifically approved.

- .14 The maximum total open time for a door shall be 13 seconds of which a maximum of 10 seconds being held in the fully open position in accordance with ANSI/BHMA A-156.19

2.11 Electric Card Access locks and related hardware

- .1 Please refer to York University Access Control Building Standard Section 28 13 00

2.12 Overhead Stops and Holders (OH)

- .1 Concealed heavy-duty low profile – Rixson Checkmate 6 Series
- .2 Concealed standard duty – Rixson Checkmate 2 Series
- .3 Surface heavy duty – Rixson Checkmate 9 Series
- .4 Surface standard duty – Rixson Checkmate 10 Series
- .5 32D/630 finish
- .6 Applicable standards: ANSI/BHMA A 156.8 – Grade 1
- .7 Acceptable products: Rixson and Glynn-Johnson

2.13 Pulls and Plates

- .1 Supply door trim as listed in the hardware schedule. Pulls are supplied with back to back (BTB) or through bolt mounting as required. When push plates are listed with door pulls, install the push plate to conceal the through bolt. Verify all heights of full-length door pulls prior to ordering. Co-ordinate heights with related door hardware products.
- .2 All kick plates, push plates, and bumper plates must have beveled sides and corners rounded to ensure there are no sharp edges. Supply plates with counter sunk screw holes. The plates will be .050 gauge. Size to suit door width. Supply stainless steel type 304
- .3 Acceptable products: Standard Metal Canadian Builders Hardware Gallery Specialty Hardware Rockwood

2.14 Door Stops and Holders

- 2.14.1 Wall stops are only to be used on proper wall conditions such as block or masonry or properly blocked gypsum board walls (shall have a minimum ¾" X 12" high plywood backing installed between studs)
- 2.14.2 Doorstops shall be installed at handle height
- 2.14.3 Acceptable products: Gallery Specialty Hardware, Standard Metal, Canadian Builders Hardware, Rockwood

2.15 Door Seals

2.15.1 Perimeter seals must be supplied to fully cover all gaps between the door, frame, and floor condition to seal against weather, sound, or smoke.

1. Frame gasketing must be closed Silicon. Extruded housing must have a rib to prevent distortion during installation.
2. Door bottoms will be stainless steel heavy duty and have an adjustment screw to ensure proper contact with the floor.
3. Acceptable Products: Pemko Canada
4. smoke seals: PK 55,
5. for exterior doors or for interior doors where security is an issue use Astragal 355CS with "T" overlapping astragal
6. for interior doors use Astragal 18061CNB with split brush astragal
7. Door sweeps 315CN (neoprene)
8. Perimeter weather-strip 296CR (neoprene)
9. Acceptable substitute to Pemko products KN Crowder

2.16 Kick plate Armour Plates

- .1 Install kick plate armour plate in corridors: circulation doors to receive kick plates on both sides of door
- .2 When installing kick plates armour plates on doors in corridors plates shall be installed on the corridor side of door regardless of direction of door travel
- .3 Doors that swing into corridor for storage rooms, mechanical and electrical rooms shall receive kick plate on both sides.
- .4 Washrooms to receive plates on both sides of door
- .5 Specifications shall include:
 - ¼" from bottom of door
 - 1 ½ " narrower than door width for single doors and 1" narrower than door width for double doors
 - height 8"
 - Kick plates armour plates shall be 0.050" gauge
 - Satin stainless steel 32D
 - Countersunk screws
 - Armour plates – GSH 80A – 30" high
 - Fire Rated Armour plates GSH 90F – 30" high
- .6 Acceptable Products: GSH 80A

2.17 Patch lock

- .1 Patch fitting – 6" X 10" with mortise lock use CRL DL610LBS – 32D/630 finish
- .2 Patch fitting – 6" X 10" with electric strike use CRL DLEL610LBS – 32D/630 finish
- .3 Corner rails – 9" corner for use with patch fittings – 32D/630 finish
- .4 Door rails – 4" tapered x full width of door – 32D/630 finish

- .5 Sidelite rails – 4” tapered x full width of door – 32D/630 finish
- .6 Glass door handles – CRL CM 12 X 12 -12” offset pull back-to-back mount
- .7 Overhead concealed door closer – CRL 9162
- .8 Acceptable Products: C.R. Lawrence Company

2.18 Door Bottoms

- .1 For recessed wood doors use CT-51
- .2 For surface mounted, HM/wood doors use CT-50
- .3 for recessed, HM doors use CT-54
- .4 Acceptable Products: KN Crowder

2.19 Magnetic Hold Opens

- .1 For self-closing fire and smoke barrier doors use Overhead wall mount/surface applied wiring use Sargent 1560 finish AL
- .2 For self-closing fire and smoke barrier doors use overhead Wall mount/concealed wiring use Sargent 1561 finish AL
- .3 Floor mount/single door use Sargent 1562 finish AL
- .4 Floor mount/double door use Sargent 1563 finish AL
- .5 Acceptable Products: Sargent: 1560, 1562, 1562, 1563

2.20 Legend of Finishes

ANSI/BHMA A156.18 - 2006

626 (US26D) Satin chromium (brass or bronze)

627 Aluminium, natural (not anodized)

628 Aluminium anodized

630 (US32D) Satin stainless steel

652 Satin chromium plated (steel)

689 Aluminium painted (steel, plastic)

AL Aluminium, anodized (or natural)

BLACK Black

C.A. Clear Anodized

EN Aluminium enamel

M.F. Mill Finish

P Primed for paint

2.21 Fastenings

- .1 Provide screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware, as per each manufacturer’s recommendations.
- .2 Exposed fastening devices to match finish of hardware. Stainless steel hardware to be fastened with stainless steel fasteners.

- .3 Where pull is scheduled on one side of door and push plate on other side, supply fastening devices, and install so pull can be secured through door from reverse side. Install push plate to cover fasteners.
- .4 Use fasteners compatible with the materials they penetrate.
- .5 Use cross recessed countersunk flat mushroom head screws for attachment of kick plates, push plates, etc., unless otherwise indicated.

2.22 Keying

- .1 All cylinders to be master-keyed on the existing York University Sargent master key system.
- .2 It is the hardware distributor's responsibility to supply cylinders construction master keyed (keyed alike).
- .3 Supply the following:
 - .1 One Two-Tag Key Cabinet with the required capacity plus 10%, such as made by MMF.
 - .2 Construction keys as required.
 - .3 Five (5) change keys per lock.

2.23 Conduits for Electronic Hardware

- .1 Please reference **Electrical** standard

3.0 EXECUTION

3.1 Coordination

- .1 Coordinate with York University project representative, **door and frame manufacturers** as well as York University **Electrical Standard** for electric wiring requirements and for proper installation of electronic hardware, including the wiring conduits and connections.

3.2 Installation

- .1 Install hardware to standard hardware location dimensions in accordance with Canadian Metric Guide for Steel Doors and Frames (Modular Construction) prepared by CSDFMA, or with DHI Recommended Locations for Builder's Hardware, and with hardware manufacturer's instructions.
- .2 Where door bumper makes contact with door pulls, mount bumper to strike bottom of pull.
- .3 Keep construction cylinders in the exterior door locks until building is delivered to York University (Owner).

3.3 Installation of Electronic Hardware

- .1 Electronic hardware shall be installed by a specialized firm.
- .2 All wiring, conduits, electrical boxes from the junction box up to the electrical hardware elements, are supplied and installed by Electrical contractor.
- .3 Start up items and systems as per the operation and function planned by the Consultant.
- .4 Coordinate with the various door and frame manufacturers for the installation of conduits and connections.

3.4 Verification and Adjustments

- .1 Check and adjust every piece of finish hardware of each door to obtain a normal operation.
- .2 Check all keys and master keys, replace defective keys and cylinders.
- .3 Check door closers after the final pressurization and/or balancing of the building is completed by Mechanical Standard.
- .4 All installed hardware shall function smoothly, without abnormal noise and blocking, with the appropriate fasteners and accessories.
- .5 Lubricate mobile parts with a product as recommended by the hardware manufacturer.
- .6 Replace at no cost to York University all products, which cannot be adjusted and/or will not function adequately after lubrication.

End of Section 08 71 00