Part 1 General

1.1 Summary

1. Unless otherwise indicated, follow the standards below when specifying hardware work. These standards are not intended to restrict or replace professional judgment.

1.2 Design Requirements

.1 All existing locksets that are removed shall be taken back by McGill. Project manager shall coordinate.

.2 Keying needs have to be elaborated by McGill University. Contact the Project Manager for questions concerning keying and key sections. McGill has its own master keyway.

.3 For projects involving more than 20 doors, the Project Manager shall supply the Contractor with an authorization letter, from McGill's Security Department, authorizing the Contractor to order the Medeco keys and cylinders. After receiving this official authorization letter from McGill's Security Department, Medeco shall supply the required number of cylinders directly to the contractor and shall send the required number of keys directly to McGill's Security Department for sign out. Contractors must wait for confirmation, from McGill's Security Department, that the keys have been distributed before changing any locks.

.4 For less than 20 doors, Medeco keys and cylinders shall be supplied by McGill and installed by McGill.

.5 For each project, the Project Manager and a representative from McGill's Security Department will meet with the client to determine the required master keying system. Once this is done, McGill's Security Department will supply Medeco with the required codes, for a project of more than 20 doors. Medeco will provide the cylinders to the sub-contractor. For a project with less than 20 doors, the codes will be given to McGill locksmith for fabrication.

.7 All hardware for doors in fire separations and exit doors shall be certified by the Canadian Certification Organization accredited by Standards Council of Canada. (ex.: ULC and CSA)

.8 Interior electromagnetic locks are restricted in use. It is accepted in limited circumstances through consultation with Security and Fire Prevention Services.

.9 When renovating a selected area and changing locks, migrate to Medeco keyway. If the change is to a lock with a numeric keypad or a card reader, the override lock must be on the Medeco keyway. Exceptions must be approved by Building Operations and Security Services.

.10 The installation of new locks not supported or approved by McGill Building Operations or Security Services is forbidden. Users of Amherst and Lister Locks may continue to use their services to cut new keys for existing locks only. Users who violate this policy will be obliged to conform to it at their own or their department's expense.

.11 Where a door, or series of doors, restricts movement along a principal circulation artery, electromagnetic hold-open devices shall be used to maintain the continuity of the path of travel, where permitted by the Quebec Construction Code.

.12 In addition to providing power door operators for entrance doors as prescribed by the Quebec Building Code, power door operators are also required:

.1 If an existing door is not readily operable, i.e. more than 38N is required to open an exterior door and more than 22N is required to open an interior door

.2 When the minimum door width cannot be provided

.3 When the minimum clear space required beyond the latch side of the door cannot be provided

.4 When the minimum clear floor area required on the push and pull sides of the door cannot be provided

.13 Finishes:

.1 McGill must approve finishes and models.

.2 In the case of hardware replacement, refer to the existing hardware and finishes as much as possible.

.14 The installation of electric strikes in fire rated doors is not permitted.

.15 Where card readers are required on fire rated doors, electrified cylindrical locks shall be used instead of electric strikes, providing the model is acceptable with McGill's locksmith.

.16 Whenever an existing door, with any type of security equipment (i.e.: card reader, contacts, siren, etc.), has to be modified or removed, McGill's Security Department must be advised. The Contractor shall not be removing or modifying this type of equipment. This is the responsibility of McGill's NCS Department.

.17 Panic bars shall be installed on doors in

.1 Fire exits in buildings or rooms with an occupant load greater than 100 people.

.2 Rooms with two (2) points of access that may be used for occupancies other than what the normal design is for, such as Special Events (lounges, conference rooms, recording studios, etc.) used occasionally for large gatherings.

1.3 Guarantee

.1 Guarantee is required for all work under this section for a period of one (1) year from the date of Substantial completion of the work, exception for the door closers that is guaranteed for 10 years, mortise locks and exit devices for a period of three (3) years.

Part 2 Products

2.1 Preferred Products

.1 Refer to MAT website (www.materialanalysis.ca) for selection of products for this section, except for prescribed items. Products selected on MAT should have score of 5 or above.

2.2 Door Hardware

.1 Locksets:

.1 Specify mortise type, lever handle locksets equipped with Medeco type lock cylinders, in a master key system to be designed by McGill. With each lockset, furnish companion strike as indicated, for installation on doorjambs.

.2 Manufacturer/Model of Lock/Latch Sets: Specify the following units, or equivalent products of Corbin ML2000 series for renovations in existing buildings.

.1 Office Lockset: ML2051-NSB-626

.2 Classroom Lockset: ML2055-NSB-626

.3 Free Passage Lockset: ML2010-NSB-626

.4 Service/Storage Room Lockset: ML2057-NSB-626

.5 Privacy lockset: ML2020-NSB-626

.6 Mechanical Room/ Telecom Room/ Elev.+Service Room: ML2057-NSB-626

.7 Stairways, corridors and high traffic spaces: Mortise ML 2010-NSB-626.

.3 All locksets shall be ordered with temporary cylinders for use as construction lock for the duration of the construction (with one master key).

.2 Strike Plates:

.1 Specify handed-type strike plates with curved lip; flat (non-handed) strikes are not permitted.

.1 Specify strike plates with extended lips where required to protect doorframe and trim from being marred by latch bolt. Specify strike plates that project not more than 1/8 inch beyond doorframe trim at single doors; and flush with face of doors at double (pair) door applications.

.2 Specify custom-fabricated strike plates at existing doorframes if required for compatibility with new lockset or latch set units. Fabricate units of base metal and finish specified. Specify units manufactured by CBH or equivalent.

.3 Hinges:

.1 Interior Hinges:

.1 For all light and medium traffic doors such as classrooms, offices, storage rooms, utility rooms, doors that require door closers such as fire rated classrooms and office doors, reasonable traffic washrooms and stairway doors, etc., shall be Medium-Duty (2 ball bearings per hinge) type TA2714 by "McKinney" or BB1279 (41/2 x 4) C15 by Hagar.

.2 For all heavy traffic doors that require door closers, such as exterior doors, student washrooms, high traffic stairways (those in buildings with no elevators), etc., shall be Heavy-Duty (4 ball bearings per hinge) type TA3786 by "McKinney" or BB1168 (41/2 x 4) C15 by Hagar.

.3 High security rooms: N.R.P. (non removable pin) for doors that open on corridor side.

.2 Exterior Hinges:

.1 Hinges: shall be type T4A3386 by "McKinney", N.R.P. (non removable pin).

.2 Specify 5-knuckle, 4 ball-bearing hinges; swaged; inner leaf bevelled; with square corners; non removable pin, complete with set screw (knurled pin not acceptable); and as follows:

.3 Size and Weight: Specify hinges sized and quantity as follows:

.1 Doors not wider than 3 feet nor taller than 7 feet 6 inches:

.1 3 hinges Size: 4-1/2 inches by 4 inches.

.2 Doors not wider than 3 feet nor taller than 7feet 6 inches for heavy traffic

.1 4 hinges Size: 4-1/2 inches by 4 inches.

.3 Doors wider than 3 feet or taller than 7 feet 6 inches:

.1 4 hinges Size: 5 inches by 4 inches.

.4 Doors wider than 3 feet or taller than 7 feet 6 inches for heavy traffic

.1 4 hinges Size: 5 inches by 4 inches.

.5 Doors 1-3/8 inches thick and not wider than 3 feet nor taller than 7 feet:

.1 4-1/2 inches by 4 inches.

.4 McGill will not accept alternative manufacturers of hinges.

.4 Exit Devices (Panic Bars):

.1 Non-Fire-Rated concealed Mounted Vertical Rod Type Exit Device:

.1 For use on pairs of doors Concealed mounted, vertical rod type units activated by a partial-width touch-bar, complete with accessories including strike. Equip units with Cylinder key operated dogging device mounted on mechanism housing to hold the touch-bar depressed and the latch bolt in the retracted position.

.2 Exit Devices with Night latch: Von Duprin model CD9848NL, 996NL-V trim.

.3 Exit Devices with Dummy trim : Von Duprin model CD9848DT, 996DT trim.

.4 Exit Devices with Exit only: Von Duprin model 9848EO.

.5 Exit Devices with lever: Von Duprin model CD9848L-17, 996L-R/V trim.

.6 LBR, less bottom rod Exit device option to be considered on openings with non-security applications; Example: Corridor egress doors.

.2 Fire-Rated Concealed Mounted Vertical Rod Type Exit Device:

.1 Fire-rated, ULC listed, concealed mounted, vertical rod type units activated by a partial-width touch-bar, complete with accessories including strike.

.2 Exit Devices with night latch: Von Duprin model 9848NL-F, 990NL-V trim.

.3 Exit Devices with exit only: Von Duprin model 9848EO-F.

.4 Exit Devices with lever: Von Duprin model 9848L-F-17, 996L-R/V trim with optional no. 17 lever.

.5 LBR, less bottom rod Exit device option to be used on openings with non-security applications; Example: double-egress corridor fire-rated doors.

.3 Non-Fire-Rated Mortise Type Exit Device: for high traffic doors.

.1 Surface mounted, vertical rod type units activated by a partial-width touch-bar, complete with accessories including strike. Equip units with Cylinder key operated dogging device mounted on mechanism housing to hold the touch-bar depressed and the latch bolt in the retracted position.

.2 Exit Devices: Von Duprin model 9875L, 996L-M trim, and with optional no. 17 lever.

.4 Fire-Rated Mortise Type Exit Device:

.1 Fire-rated, ULC listed; mortise type units activated by a partial-width touch-bar, complete with accessories including strike.

.2 Manufacturer/Model of Exit Devices: Von Duprin model 9875L-F, 996L-M trims, and with optional no. 17 lever.

5. Door Closers:

.1 Specify closers with field-adjustable, full-range sizing feature capable of complying with manufacturer's size recommendations for application indicated; and complying with applicable portions of the Americans with Disabilities Act (ADA).

.2 Unless otherwise indicated, mount closer bodies on room side (not corridor side) of doors. Refer doubtful conditions to Architect for decision.

.3 Interior Closers:

.1 For regular access doors shall be Heavy-Duty type LCN P4041 689 finish.

.4 Exterior Closers:

.1 For regular interior swing doors up to 915 mm (36") wide shall be type LCN 4014 689 finish.

.2 For regular exterior swing doors up to 915 mm (36") wide shall be type LCN 4114 689 finish.

.3 For regular interior swing doors up to 1066 mm (42") wide shall be type LCN 4015 689 finish.

.4 For regular exterior swing doors up to 1066 mm (42") wide shall be type LCN 4115 Spring-Cush 689 finish.

.5 For handicap interior swing doors up to 915 mm (3'-0") wide shall be type LCN 4014 DA 689 finish.

.6 For handicap exterior swing doors up to 915 mm (3'-0) wide shall be type LCN 4114 Spring-Cush DA 689 finish.

.7 For handicap doors over 915 mm (3'-0) wide shall be type LCN P4041 DA 689 finish.

.6 Door Operators:

.1 Power assist and low energy power operated doors: to CAN/CGSB-69.35.

.2 General: Of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for long-term, maintenance-free operation under normal traffic load for type of occupancy indicated.

.1 Type: Low-energy power operated, complying with ANSI/BHMA A156.19.

.2 Connections: For power and control wiring.

.3 Adjustment Features: Fully adjustable without removing entrance doors, including

.4 On/Off Feature: On/off/hold-open switch controls electric power to operator.

.3 Power door operators: Self-contained overhead units, with closing speed controlled by gear train and dynamic braking action of electric motor and with manual operation and spring closing when power is off.

.1 Closing Mechanism: Power-assisted spring operated.

.2 Mounting: Surface, otherwise specified.

.3 Manual Operation: Requires less than 9 lbf to set door in motion when power is off, according to ANSI/BHMA A156.10.

.4 Manufacturer/Model No. of Door Operator: Stanley Magic Force, finish 689. Including all necessary accessories Ex: Wall mounted plate actuators, motion sensors and/or presence detectors.

.7 Architectural Door Trim:

.1 Push plates shall be 100 mm x 405 mm (4" x 16") stainless steel type 30S by "Hager" or approved equivalent. Pulls shall be H34J by Hager.

.2 Push /Pull Set:

.1 Specify pull handles and push plates with concealed mounting fasteners wherever possible, and as follows:

.2 Material: Solid stainless steel.

.3 Finish: Satin.

.4 Manufacturer/Model of Push/Pull Set: Subject to compliance with requirements, specify the following, or equivalent products of Ives, CBH, and Hager in 630 finishes.

Push Plates: Example Ives; No. 8200 (4 inches by 16 inches).

Pulls: Examples Ives; No. 8303-0 (10 inches by 1 inch diameter; (4 inches by 16 inches) base plate.

.8 Pick proof plate:

.1 Manufacturer/Model: Ives, KG13.

.9 Coded Locks (to be avoided):

.1 Interior Coded Locks:

.1 Shall be “Offline Electronic Lock”, model AD-200, with lever with Medeco key plug and distributed by Schlage (supplied and installed by the Contractor & keyed by McGill).

.2 Exterior Coded Locks: Non Acceptable

.10 Card Access:

.1 Shall be supplied and installed by McGill.

.2 Consultants shall provide the wiring schema.

.3 It is the responsibility of the Project Manager to verify, all requests for card readers, with McGill's Security Department. The design to install these card readers, along with the electric strikes, shall not take place without the written approval from McGill's Security Department.

.11 Electric Strikes:

.1 Shall be supplied and installed by the contractor. The 12 V power shall be supplied by McGill.

.2 For metal non fire rated frames; shall be series Type S/L6514 by Rutherford controls INT'L or approved equivalent, voltage 12V.

.3 For wood frames; shall be series Type S/L6508 by Rutherford controls INT'L or approved equivalent, voltage 12V.

.4 For fire rated surface mounted conditions; shall be series Type 9500-12 by Hes or approved equivalent, voltage 12V.

.5 For fire rated mortise conditions; shall be series Type 1006 by Hes or approved equivalent, voltage 12V.

.12 Automatic Door Bottom/ Door Bottom Seal:

.1 Specify manufacturer's standard units of type, size and profile indicated, continuous at bottom of indicated door opening. Specify non-corrosive fasteners.

.2 Manufacturer/Model Automatic Door Bottoms:

.1 For existing and new doors, shall be surface mounted type Pemko 430RL or Hagar 747 SX or equivalent products of Unique, Zero.

.2 For new doors where aesthetic consideration is required, shall be mortise type, Pemko 434 RL or Hagar 743SA;

.13 Electromagnetic Hold-Open Device:

.1 Specify units consisting of a silently operating wall-mounted electromagnet in electrical box with cover plate and door-mounted contact plate. Specify contact plate with swivel adjustment that adjusts to door contact angle indicated on drawings. Specify units that ULC listed.

.2 Minimum holding force: 25 lbs.

.3 Operating Voltage: 24 V. DC or 120V.

.4 If the above is required to be activated/deactivated by LENEL, the Voltage need to be confirmed. LENEL usually takes 12V

.5 Finish: Brushed zinc on all visible components.

.6 Manufacturer/Model: LCN model 7830 (surface-mounted).

.7 Manufacturer/Model: LCN model 7840 (recessed).

.14 Door Silencers (bumper):

.1 Specify manufacturer's standard profile silencers of 1/8-inch thick hard rubber for metal door frames as follows, 3 per door:

.2 Manufacturer: Ives-SR 64.

.15 Door Stop: Reinforce the substrate as recommended.

.1 Colour of resilient parts: Grey

.2 Manufacturer / model of stops: Ives model indicated or equivalent products of CBH, Stanley, and Ives.

Model no: FS438 (floor mounted for wood doors)

Model no: FS444 (floor mounted, limited door bottom clearance)

Model no: WS406 (wall mounted, with applicable anchors)

Model no: WS407: (wall mounted, with applicable anchors)

Model no: FS1153 Plunger type door holder

Model no: FS452 Kick down holder

Specify concealed overhead doorstops that attach to top of the door and to the doorframe.

Provide a nailing board for drywall installations

Manufacturer/Model of Overhead Door Stops/Holders: Glynn-Johnson model no. 100S or H.

.16 Manual/Automatic Flush Bolts:

.1 Manual Flush Bolts: Mortise units, ULC listed and rated for indicated application, with spring loaded snap action levers for manual operation.

.1 Manufacturer/Model of Manual Flush Bolts: Specify Ives or equivalent products as follows:

.1 Metal Doors: FB458, both top and bottom bolts.

.2 Wood Doors: FB358, both top and bottom bolts.

.2 Constant Latching Flush Bolts: Mortise units, ULC listed and rated for indicated application, with automatically retracting bottom bolt, and manually released top bolt when active leaf is opened.

.1 Manufacturer/Model of Constant Latching Flush Bolts: Specify Glynn-Johnson, or equivalent products of H.B., Ives.

.1 Metal Doors: FB51P set, (FB51T top and FB31B bottom bolt).

.2 Wood Doors: FB61P set, (FB61T top and FB41B bottom bolt).

.3 Automatic Flush Bolts: Mortise units, ULC listed and rated for indicated application, automatically retracting when active leaf is opened.

.1 Manufacturer/Model of Automatic Flush Bolts: Specify Glynn-Johnson, or equivalent products of H.B., Ives.

.1 Metal Doors: FB31P, both top and bottom bolts.

.2 Wood Doors: FB41P, both top and bottom bolts.

.17 Coordinator:

.1 A coordinator is a device coordinating pair of doors with astragals ensuring proper closing sequence. Specify coordinators complete with carry-bar and UL listed and rated for indicated application.

.1 Manufacturer / model of Automatic Flush Bolts: specify Glynn-Johnson, or equivalent products of H.B., Ives.

.1 Model: COR-7G, 7 inch projection or COR-65 as manufactured by “Glynn-Johnson”

.2 Model: COR-9G, 9 inch projection or COR-85 as manufactured by “Glynn-Johnson”

.3 Carry bar as per Ives, model CB1

.2 A four (4) inch clearance must be preserved above the frame to allow sufficient space for the installation of the coordinator.

.18 Thresholds:

.1 Specify manufacturer's standard, extruded, anodized aluminium units of type, size, and profile indicated. Specify units continuous across bottom of door openings.

.1 Specify noncorrosive fasteners.

.1 Manufacturer/Model: Pemko No. 277AS, or equivalent products of Hager, Zero or Unique.

.2 With thermal break for exterior doors

.19 Weather-Stripping:

.1 Weather stripping: Shall be installed continuously at both jambs and at the head with heavy-duty strips consisting of cellular neoprene bars set into extruded aluminium bumpers, surface-mounted to frames.

.2 Head and jamb seal:

.1 Specify manufacturer's standard weather-stripping of type, size and profile indicated, continuous at head and jamb edges of each indicated door opening. Specify non-corrosive fasteners.

.2 "CR" suffix below is for clear anodized aluminium finish. Change to "DR" suffix for dark bronze anodized aluminium finish.

.3 Manufacturer/Model Jamb Seals: Example Pemko; No. 315CR, or equivalent products of Zero or Unique.

.4 Specify manufacturer's standard sound attenuating jamb and head seals of type, size, and profile indicated, continuous at head and jamb edges of scheduled door openings. Specify units with noncorrosive fasteners.

.5 Manufacturer/Model: Pemko No. 350 CSR, or equivalent products of Hager Zero or Unique.

.3 Door bottom seal:

.1 Specify manufacturer's standard weather-stripping of type, size and profile indicated, continuous at bottom edges of each indicated door. Specify non-corrosive fasteners.

.2 Suffix below is for clear anodized aluminium finish. Change suffix to "d" for dark bronze anodized aluminium.

.3 Manufacturer/Model door bottom seals: Example Pemko; No. 18062C, or equivalent products of Hager, Unique or Zero.

.20 Astragal

.1 Manufacturer/Model of Astragals: Example Pemko; No. 357SP, or equivalent products of Hager, Unique or Zero.

.21 Fastenings:

.1 Supply screws, bolts, expansion shields and other fastening devices required for satisfactory installation and operation of hardware.

.2 Exposed fastening devices to match finish of hardware.

.3 Use fasteners compatible with material through which they pass.

.22 Kick Plates

.1 Specify solid metal units as follows:

.1 Material: Stainless steel.

.2 Finish: Satin.

.3 Size: 1 1/2 inches less than door width on push side, 1/2 inch less than door width on pull side, by 0.050-inch thick or otherwise.

.4 Manufacturer/Model of Kick plates: Example Ives, Series 8400 x B3E x double-sided adhesive-backed high-bond tapes x 254MM high. S32D finish.

Part 3 Execution

3.1 Installation-General

.1 General: Install each hardware item to comply with manufacturer's printed installation instructions and recommendations for application indicated, unless otherwise indicated by referenced standard or by provisions of this Section.

.2 All dead locks shall be installed at 1 220 mm from floor.

.3 All levers shall be installed at 915 mm from floor.

.4 Consultants shall verify all installations of doors and hardware to assure proper levelling and fitting.

3.2 Schematic Designs of Installation

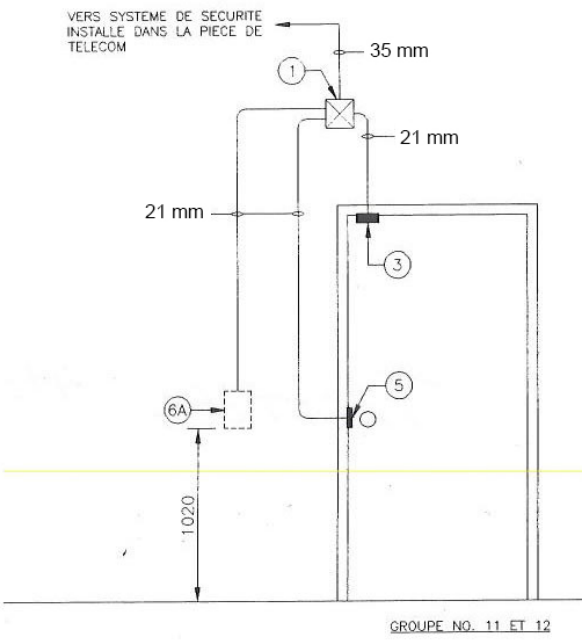
.1 Card access (simple installation):

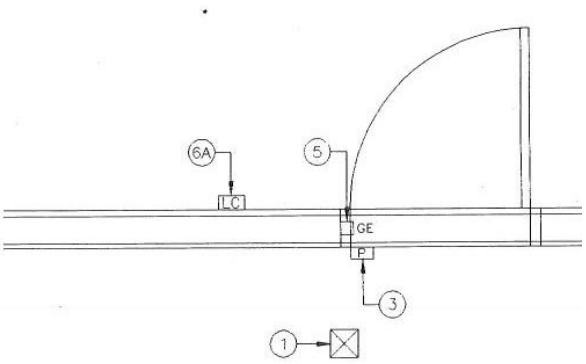
IDENTIFICATIONS DES EQUIPEMENTS:

1. BOÎTE DE JONCTION 150x150x100 COMPLET AVEC COUVERCLE SUR CHARNIERE MODELE: EUK0664 DE BEL PRODUCTS INC. (PAR DIVISION 16)
2. ELECTRO–AIMANT (PAR DIVISION 8)
3. CONTACT MAGNETIQUE (PAR DIVISION 8)
4. RETENUE MAGNETIQUE 24V (PAR DIVISION 8)
5. GACHE ELECTRIQUE (PAR DIVISION 8)
6. LECTEUR DE CARTE AVEC CLAVIER (PAR McGILL) BOITE UN GROUPE (PAR DIVISION 16)
6A. LECTEUR DE CARTE (PAR McGILL) BOITE UN GROUPE (PAR DIVISION 16)
7. ALARME SONORE (PAR DIVISION 8) BOITE UN GROUPE (PAR DIVISION 16)
8. BARRE PANIQUE (PAR DIVISION 8)
9. OUVRE–PORTE (PAR DIVISION 8)
10. BOITIER DE CONTROLE (PAR UNE AUTRE DIVISION)
11. BOUTON POUSSOIR (PAR DIVISION 8) BOITE UN GROUPE (PAR DIVISION 16)
12. BOUTON DE CONTOURNEMENT (PAR DIVISION 8) BOITE UN GROUPE (PAR DIVISION 16)
13. CHARNIERE DE TRANSFERT ELECTRIQUE (PAR DIVISION 8)

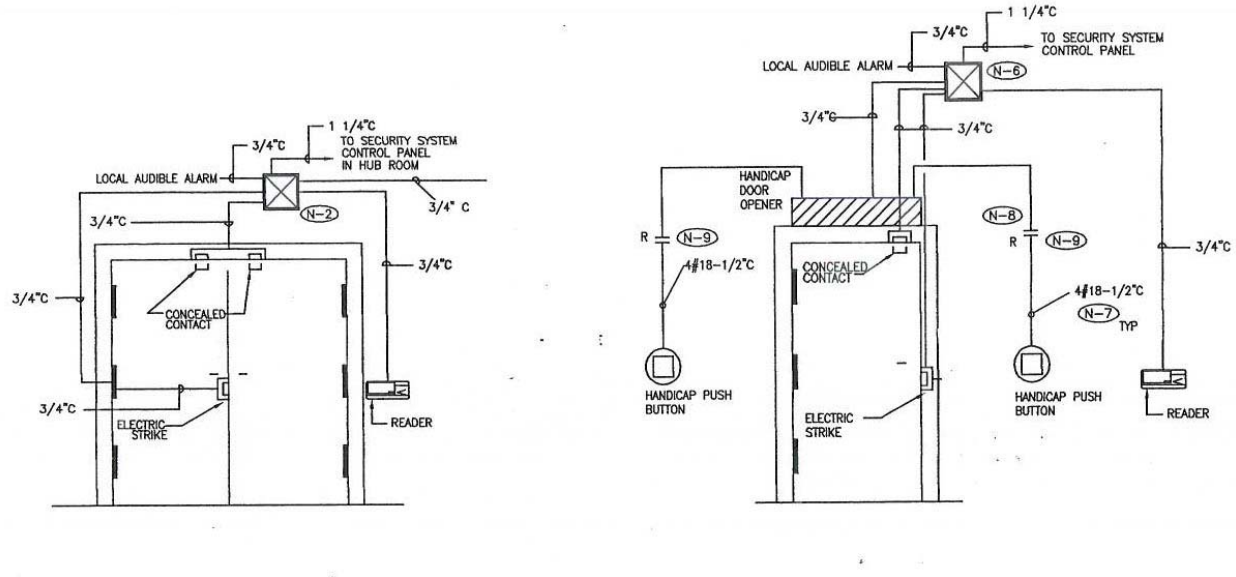
NOTES:

1– SAUF AUTREMENT NOTE, TOUTE LA QUINCAILLERIE DE SECURITE EST FOURNIE ET INSTALLEE PAR UNE AUTRE DIVISION. LA DIVISION 16 DOIT FOURNIR ET INSTALLER UN RESEAU DE CONDUITS VIDES (AVEC FIL DE TIRAGE) ET DE BOITES POUR PERMETTRE L'INSTALLATION DU SYSTEME DE SECURITE.





.2 Card access control system for non fire rated doors, rough-in details:



N-1 ROUGH-IN DETAILS ARE DIAGRAMMATIC. REFER TO DRAWING NO. E-2.1 FOR ADDITIONAL REQUIREMENTS, DEVICE QUANTITY AND LOCATION.

N-2 ALL POWER AND CONDUIT WORK REQUIRED AND/OR SHOWN ON DRAWINGS RELATED TO SECURITY SYSTEM SHALL BE INCLUDED IN ELECTRICAL CONTRACTOR'S PRICE. CONTACT SECURITY CONTRACTOR FOR SPECIFIC REQUIREMENTS.

N-3 ALL ZONE CONDUITS C/W PULL STRING

N-4 CONTACT SECURITY CONTRACTOR FOR EXACT LOCATION OF SECURITY SYSTEM CABINET, ADDITIONAL CONDUIT AND PULLBOX REQUIREMENTS AND FOR POWER REQUIREMENTS.

N-5 COORDINATE THE ROUGH-IN REQUIREMENT WITH DOOR MANUFACTURER AND SECURITY CONTRACTOR PRIOR TO CONSTRUCTION.

N-6 PULLBOX INDICATED MUST BE LOCATED AT THE SECURED SIDE OF THE DOOR. MINIMUM PULLBOX SIZE 12" X 12".

N-7 PROVIDE WIRE, CONDUIT AND BACKBOXES INDICATED.

N-8 EQUIP THE HANDICAP DOOR OPENER SYSTEM WITH A CONTROL CIRCUIT TO ALLOW FOR AUTOMATIC DOOR OPENING WHEN A CARD IS BADGED AT THE READER. DEPRESSING OF THE HANDICAP PUSH BUTTON WILL NOT BE REQUIRED.

N-9 DOOR OPENER TO BE EQUIPPED WITH A RELAY (PROVIDED BY ELECTRICAL CONTRACTOR) TO PREVENT AUTOMATIC DOOR OPERATION WHILE THE ELECTRIC STRIKE IS ENERGIZED.

END OF SECTION 08 71 10