

KM THOMAS CO LTD ARCHITECTURAL SPECIFICATIONS
DETEX AUTOMATICALLY OPERATED DOORS EASY KIT

SECTION 08 71 00 – DOOR HARDWARE

PART I – GENERAL

1.01 SUMMARY

A. SECTION INCLUDES

1. Automatic Heavy Duty Low Energy Operators, and associated hardware as specified.

B. RELATED DOCUMENTS

1. Related documents, drawings and general provisions of contract, including General and Supplementary Conditions and Division 1 specification sections apply to this section.

C. RELATED SECTIONS

1. 06 20 00 – Finish Carpentry
2. 06 48 16 – Interior Wood Door Frames
3. 08 01 00 – Operations and Maintenance
4. 08 06 71 – Door Hardware Schedule
5. 08 11 13 – Metal Doors and Frames
6. 08 14 13 – Flush Wood Doors
7. 08 14 23 – Clad Wood Doors
8. 08 41 00 – Entrances and Storefronts
9. 08 71 13 – Automatic Door Operators
10. 08 74 00 – Access Control Hardware
11. 26 20 00 – Low Voltage Electrical Transmission [Low Voltage Distribution [16400]
12. 28 13 00 – Access Control

1.02 REFERENCES

A. STANDARDS

1. AIA A201 1997 – General Conditions of the Contract
2. ANSI-A250.4 – Steel Doors and Frames Physical Endurance
3. ANSI A156.3 – Exit Devices
4. ANSI A156.4 – Door Controls – Door Closers
5. ANSI A156.6 – Architectural Door Trim
6. ANSI A156.15 – Closer Holder Release Devices
7. ANSI A156.18 – Material and Finishes
8. BHMA – Builder’s Hardware Manufacturers Association
9. U.L. and U.L.C. – Underwriters Laboratories

B. CODES

1. NFPA 101 – Life Safety Code
2. NFPA 80 – Standard for Fire Doors and Other Openings
3. OBC 2012 - Ontario Building Code
4. ANSI A117.1 – Accessible and Usable Buildings and Facilities
5. Local Accessibility Code (Specify)

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1.03 SUBMITTALS

A. GENERAL REQUIREMENTS

1. Submit copies of finish hardware schedule in accordance with Division 1, General Requirements.

B. PRODUCT DATA

1. Submit manufacturer's complete product and installation documents.
2. Submit catalog cuts and/or product data sheets for all scheduled finish hardware.
3. Submit Shop drawings showing layout, profiles, elevations and product components including anchorage, accessories, and electrical access locations.
4. Manufacturer's Operation and Maintenance documents.
5. Warranty document as specified herein.
6. Inspection compliance certification. Include certification that installation conforms to the requirements of ANSI/BHMA A156.19 unless specifically shown otherwise. Certification shall be completed and signed by an individual knowledgeable about the requirements of the standard and its application to the installation. Include a statement showing the qualifications of the inspector.

C. TEMPLATES

1. Furnish a complete list and suitable templates, together with finish hardware schedule to contractor, for distribution to necessary trades supplying materials to be prepped for finish hardware.

D. ELECTRONIC HARDWARE SYSTEMS

1. Provide complete point-to-point wiring diagrams prepared by an authorized factory employee, for each opening requiring electronic hardware. Provide a copy with each hardware schedule submitted after approval.
2. Provide complete operational descriptions of electronic components listed by opening in the hardware submittals. Operational descriptions to detail how each electrical component functions within the opening incorporating all conditions of ingress and egress. Provide a copy with each hardware schedule submitted for approval.
3. Provide elevation drawings of electronic hardware and systems identifying locations of the system components with respect to their placement in the door opening. Provide a copy with each hardware schedule submitted for approval.
4. Prior to installation of electronic hardware, arrange conference between supplier, installers and related trades to review materials, procedures and coordinating related work.
5. The electrical products contained within this specification represent a complete engineered system. If alternate electrical products are submitted, it is the responsibility of the distributor to bear the cost of providing a complete and working system including re-engineering of electrical diagrams and system layout, as well as power supplies, power transfers and all required electrical components. Coordinate with electrical engineer and electrician to ensure that line voltage and low voltage wiring is coordinated to provide a complete and working system.

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E. OPERATIONS AND MAINTENANCE MANUALS

1. Upon completion of construction and building turnover, furnish two (2) complete maintenance manuals to the owner. Manuals to include the following items:
 - a. Approved hardware schedule, catalog cuts and keying schedule.
 - b. Hardware installation and adjustment instructions.
 - c. Manufacturer's written warranty information.
 - d. Wiring diagrams, elevation drawings and operational descriptions for all electronic openings.

1.04 QUALITY ASSURANCE

A. SUBSTITUTIONS

1. Substitutions will not be allowed, as this is a complete engineered system.

B. SUPPLIER QUALIFICATIONS

1. A recognized architectural door hardware supplier who has maintained an office and has been furnishing hardware in the project's vicinity for a period of at least five (5) years.
2. Hardware supplier shall have office and warehouse facilities to accommodate this project.
3. Hardware supplier must be an authorized factory distributor of all products specified herein.
4. Hardware supplier shall have in his employment at least one (1) Architectural Hardware Consultant (AHC) accredited in the Continuing Education Program (CEP) administered by The Door and Hardware Institute, Chantilly, VA.
5. It shall be clearly understood that within the terms of this Subcontract, the Hardware Supplier is bound not just as a supplier but also is responsible for the supply of hardware services relative to the project co-ordination, supervision and inspection.
6. Hardware Subcontractor shall meet with the Owner, Architect, Electrical Subcontractor, Security Consultant, and Access Control Subcontractor to review, coordinate and implement all details relating to the proper operation of all electronic hardware including locations of power supplies, back boxes, junction boxes and conduit details prior to start of construction.
7. Hardware supplier shall provide all-inclusive consultation and solutions to the Architect and related trades and shall be fully responsible for coordinating, managing, and assisting in the design of full system integration of security access control (i.e. proximity card reader, CCTV, and other electrified security hardware components not specified in the hardware schedule) and electronic hardware.

1.05 FIRE-RATED OPENINGS

1. Provide door hardware for fire-rated openings that comply with NFPA 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed by Underwriter's Laboratories (UL) or Warnock Hersey (WH) for use on types and sizes of doors indicated.

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1.06 DELIVERY, STORAGE AND HANDLING

A. DELIVERY

1. The supplier shall deliver all hardware to the project site; direct factory shipments are not allowed unless agreed upon beforehand. Hardware supplier shall coordinate delivery times and schedules with the contractor. Inventory door hardware jointly with representatives of hardware supplier and hardware installer/contractor until each is satisfied that count is correct.
2. No keys, other than construction master keys and/or temporary keys are to be packed in boxes with the locks.
3. At time of hardware delivery, the hardware supplier in conjunction with the contractor shall check in all hardware and set up a hardware storage room.

B. STORAGE

1. The Contractor shall set up a clean, dry & secure hardware storage room with adequate shelving to layout each item of hardware by door number and hardware schedule item number. It is the responsibility of the hardware supplier/installer to coordinate the room size with the Contractor to ensure proper layout of products. Hardware is to be shipped to site floor specific, if required.

1.07 WARRANTY

- A. All items, except as noted below, shall be warranted in writing by the manufacturer against failure due to defective materials and workmanship for a minimum period of one (1) year commencing on the date of final completion and acceptance. In the event of product failure, promptly repair or replace item with no additional cost to the owner.
1. Detex Advantex Exit Devices – Ten (10) years mechanical / Three (3) years electrical
 2. Detex Auto Operators - Three (3) years mechanical / One (1) year electrical
 3. Detex Electrified Hardware – One (1) year

PART II – PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers as listed below have been determined as the acceptable standard. Obtain each type of finish hardware (hinges, latch and locksets, exit devices, door closers, etc.) from a single manufacturer.

2.02 MATERIALS

A. SCREWS AND FASTENERS

1. All required screws shall be supplied as necessary for securing finish hardware in the appropriate manner. Thru-bolts shall be supplied for Hardware where required by code and the appropriate blocking or reinforcing is not present in the door to preclude their use.

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B. CYLINDERS AND KEYING

1. CYLINDERS

- 1) Provide cylinders and keys in 11 available keyways, including SFIC and LFIC. The key design and tolerances shall permit the cutting of keys with standard code or duplicating machines. The requirement for a single-purpose or keyway-specific cutting or duplicating machine shall not be allowed. The key design and tolerances shall permit the use of keys and cylinders in existing key systems having similar keyways and sections.

- 1) Specified Manufacturer: Detex MC65 (mortise) / RC65 (rim)

2. KEYING

- 1) Furnish the following:

- 1) Two (2) change keys per lock.

C. EXIT DEVICES

1. CONVENTIONAL DEVICES – PUSH RAIL

- 1) All Exit Devices shall be ANSI 156.3, Grade 1 Certified, and shall be listed by Underwriters Laboratories and bear the UL label for life safety in full compliance with NFPA 80 and NFPA 101. All exposed surfaces are finished over stainless steel with environmentally friendly PVD. Exit Devices shall be non-handed, and employ a mounting plate and strike locator system for simple, accurate, and fast installation without paper templates. Rim and Mortise exit devices shall have stainless steel latch bolts, and Surface Vertical Rods shall have stainless steel rod covers (standard). Devices shall be available for 30", 36" or 48" door widths (standard), and be field sizable for other widths. Exit devices shall have a heavy duty angled end cap, and 1/8 turn hex key dogging (standard). Exit devices shall be available in the following BHMA finishes: 605, 606, 611, 612, 613, 629, and 630. Functions contained in outside trim shall allow changing function without removing device from the door, and include disengaging clutch mechanism to prevent damage when excess force is applied.

- 1) Specified Manufacturer: Detex Advantex Series Heavy Duty 10/40 Rim, 30 Mortise, 20/21/50/51 Surface Vertical Rod, and 60/61/62/63/70/71/80/81/82/83 Concealed Vertical Rod.

2. ELECTRIFIED DEVICES

- 1) Electrified Exit Devices shall conform to all traditional exit device standards as specified above. Electric Latch Retraction devices shall employ a continuous duty motor for quiet operation, with low voltage requirements and no high current in-rush. Devices shall have simultaneous, momentary or maintained, pushpad and latch bolt retraction, with long term dogging capability. Optional Delayed Egress and access control functions shall be implemented in the exit device, with no external magnets, electric strikes, or electric trims needed. Delayed egress equipped devices shall have a 15 second delay, with 100dB alarm. Delayed egress devices shall have a fire alarm input to provide immediate exit during a fire emergency. Delayed egress devices shall allow authorized entry/exit by any access control system, in conjunction with latch retraction. Delayed egress devices shall automatically rearm after authorized entry or exit, and shall be able to be reset key and/or Access Control.

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- 1) Specified Manufacturer: Detex Advantex Series Heavy Duty 10/40 Rim, 30 Mortise, 20/21/50/51 Surface Vertical Rod, and 60/61/62/63/70/71/80/81/82/83 Concealed Vertical Rod with ER x EX Latch Retraction, or EE x ER Delayed Egress with Latch Retraction.

D. DOOR CLOSERS

1. AUTOMATIC DOOR OPERATORS – HEAVY DUTY

- 1) Operators shall be certified to ANSI 156.19, Grade 1. Units shall be available in single, and pair (twin) for independent and simultaneous and dual egress openings. Operators shall have Power Close, Adjustable Delayed Activation, Reverse On Obstruction, Adjustable Closing Speed, Push And Go, and Sequencing (for vestibule doors) functions. Automatic Operators shall be pre-wired with the latch retraction power supply. Units shall have an electric lock relay that provides adjustable delay to prevent binding. Operators shall have a 115V power plug-in mounted in the header, and a hanger plate that allows quick installation. Units must be self-contained in an extruded case, and have a 3-way low-voltage ON/OFF/HOLD switch for ease of service and setup.

- 1) Specified Manufacturer: Detex AO19

E. ELECTRONIC PRODUCTS AND ACCESSORIES

1. PUSH BUTTONS

- 1) Push Buttons shall be 4-1/2" square, heavy gauge stainless steel, with aircraft quality rivets and screws. Push buttons shall have etched HC logo, and "PRESS TO OPERATE DOOR", with blue paint filled legends. Push buttons shall be provided with tamper-resistant screws and rubber bellows to increase weather protection. Push buttons shall have minimal actuation force for accessibility requirements. Push Buttons shall have a Single Pole Double Throw (SPDT) momentary switch, and 3/4" mounting depth. Push Buttons shall be compatible with single gang 4 x 4 boxes, and Wireless Remote Operation options.

- 1) Specified Manufacturer: Detex 104755 / 104792 (Wireless Button package)

2. POWER TRANSFER

- 1) Power Transfers shall be UL listed as fire door accessory. Power transfers shall be heavy duty steel, concealed mortise type, with dimensions 10-1/4" L x 1" W x 3/4" D.

- 1) Specified manufacturer: Detex PT-5

F. SIGNAGE

1. EMERGENCY SIGN

- 1) Emergency Signs shall be Code Compliant, and include the wording "IN THE EVENT OF EMERGENCY PUSH EMERGENCY BUTTON AND AUDIBLE AND VISUAL SIGNAL WILL ACTIVATE", Text Size 25mm High, 5mm Stroke. Emergency Signs shall be self-adhesive.

- 1) Specified Manufacturer: Thomas TA-EXS-PCFA

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PART III – EXECUTION

3.01 EXAMINATION

- A. Contractor shall ensure that the building is secured and free from weather elements prior to installing interior door hardware. Examine hardware before installation to ensure it is free of defects.
- B. It is the responsibility of the Hardware Supplier's AHC to provide a written inspection report to the Contractor, Architect and Hardware Consultant after door hardware installation has been completed. The report is to certify that the finishing hardware has been supplied as specified and has been installed and is functioning according to the manufacturer's instructions. Subsequently the deficiencies will be corrected by the Contractor and reported in writing to the Architect and Hardware Consultant.

3.02 INSTALLATION

- A. Mount hardware units at heights indicated in the following applicable publications, except as specifically indicated or required to comply with the governing regulations.
 - 1. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute (DHI.)
 - 2. NWWDA Industry Standard I.S.1.7, "Hardware Locations for Wood Flush Doors."
- B. The hardware supplier is responsible to brief all related trades of the installation requirements for both the electronic and mechanical hardware specified.
- C. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Do not install finishing hardware items until door and frame finishes have been completed by sub trades involved.
- D. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.
- E. Electronic Hardware Systems
 - 1. Install all electronic hardware as per elevation and point-to-point drawings furnished under Submittals.
 - 2. Prior to installation of the electronic hardware, arrange a meeting on site between suppliers, installers and related trades to review materials, procedures and coordination of related work.

3.03 FIELD QUALITY CONTROL

- A. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures for coordinating all portions of the work under the Contract, unless the contract Documents give other specific instructions concerning these matters.
- B. The hardware supplier shall attend site meetings to make certain of proper execution of the guidelines set in this document. The Contractor will do periodic inspection of door frames, prior to door and hardware installation to ensure frames have been installed plumb and true.
- C. The installer will verify all frames to be plumb and true, prior to hardware installation.

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3.04 ADJUSTING, CLEANING, AND DEMONSTRATING

- A. Prior to acceptance or occupancy, adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.
- B. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore to proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- C. Instruct owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes and usage of any electronic devices. Arrange for a qualified technician to inspect and adjust installation to assure compliance with ANSI A156.19.

3.05 PROTECTION

- A. Contractor shall protect all hardware, as it is stored on construction site in a covered, dry and secure place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

END OF SECTION 08 71 00

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