SECTION 084229.33
SWINGING AUTOMATIC ENTRANCES

IN-GROUND, AUTOMATIC SWING DOOR OPERATOR CONVERTER
ADAPTED TO BROOKFIELD NB-500 EXTREME DUTY OPERATOR

PART 1-GENERAL

1.01 DESCRIPTION

A. This section describes the requirements for furnishing and installing the in-ground converter for the following automatic swing door operators.

1. Barrier free, handicap speed, swing door operators meeting ANSI A156.19. Electro-mechanical and electro-hydraulic types.
2. Full speed, swing door operators meeting ANSI A156.10. Electro-mechanical and electro-hydraulic types requiring full safety systems.

B. RELATED SECTIONS

1. Automatic Door Operators as specified in Section 087113.
2. Exterior aluminum entrance doors as specified in Section 084113.
3. Hollow metal doors as specified in Section 081113.
4. Door hardware as specified in Section 087100.
5. Electrical connections (high and low volt) as specified in Section 260513, 260519, and 260523.

1.02 SUBMITTALS

A. Product Data: Furnish manufacturer's product data and standard details including fabrication, finishing, hardware, operators (specific to manufactured unit being converted), accessories, and other components of the work. Include rough-in diagrams, wiring diagrams, parts lists, and maintenance instructions.

B. Shop Drawings: Furnish shop drawings for fabrication and installation. Show anchors, cement casings, hardware, and other components not shown in manufacturer's instructions.

C. Templates and Diagrams: Furnish templates, diagrams, block-out dimensions, and other data to fabricators and installers of related work for coordination of operators with doors, frames, hardware, electrical, and other work.

## 1.03 REGULATORY

A. Compliant with UL 50 (USA) and CSA C22.2 No. 94.1 (Canada) complete with testing documentation and certification by Nationally Recognized Testing Laboratory (NRTL).

B. NRTL Listing #E113101 attached to each converter system at interior and exterior in method directed by NRTL.

C. Converter system protected by the following US Patents and patents pending:
   1. United States Patent #US6,176,044 B1
   2. United States Patent #US8,091,283 B2
   3. United States Patent #US8,375,636 B2
   4. United States Patent #US8,434,266 A2
   5. United States Patent #US8,434,268 A1
   6. Unites States Patent Pending #13/741,828

## 1.04 QUALITY ASSURANCE

A. Automatic Door Operator Converter shall not impede door operator compliance with ANSI A156.19 (low energy type) or ANSI A156.10 (full speed type).

B. Underground Converter Manufacturer's Qualifications: Provide NRTL listed underground converters produced by OPCON USA, LP.

C. Automatic Operator Manufacturer's Qualifications: Provide NRTL listed automatic operator and controls as produced by Brookfield Industries, Inc.

D. Installer's Qualifications: An authorized OPCON technician that is also authorized by Brookfield Industries, Inc. Installer shall have not less than 3 years automatic door installation experience.

## 2.01 APPROVED MANUFACTURER

A. OPCON USA, LP.
www.opconusa.com
PO Box 308
Carlsbad, CA 92018
Tel: 888-936=7266 Fax: 760-720-9653
Email: sales@opconusa.com

## 2.02 OPERATOR CONVERTER FOR AUTOMATIC SWING DOORS

A. Converter: Manufacturer's specialized unit to adapt Brookfield Model NB-500 automatic swing door operator to underground use. The converter shall be mounted beneath the door leaf and jamb area utilizing a standard 2 ¾" or 3 ¾" pivot setback on center hung doors; and ¾" or 1-1/2" setback on offset hung doors; or slide arm system on butt hung doors. Reference shop drawings and templates for specific pivot location. Heavy-duty spindle/pivot shall incorporate 3,000 pound rated, sealed tapered roller bearings in 1-1/4" thick bearing plate; and a bronze (SAE 841) "Oilite" sleeve bearing rated at 4,000 pounds lateral load. Drive transfer between converter and operator shall be manufacturer's extreme duty chain drive with tensioner. Direct shaft drive and belt drive available for some operator models.

1. Converter shall not impede manual operation of swing door.
2. Converter shall not impede ANSI compliance of operator.
3. Converter shall not impede operation of automatic door operator.

B. Converter Chassis (Sled) shall be ½" thick structural aluminum assembly using Grade 8 or stronger fasteners. Sled shall incorporate an adjustable spindle per Opcon Patent #8,091,283 and other patents pending. Operator assembly must be removable from Sled without removing door panel.

C. Converter Cement Case (lower section) shall be 16 gauge sheet steel (ASTM-A-570 Grade A) formed and riveted type with galvanized coating (A568/A568M). Cement case shall incorporate a vinyl gasket at the perimeter of the cement case cover, and a dual shaft seal as a water and moisture seal. Cement case end plates and connecting conduit shall be silicone sealed with RTV type silicone (formulated for galvanized metal) and underground rated, rubber pipe tape. Unit accommodates threshold floors, stone floors, and other floor conditions.

D. Converter Cement Case Cover (upper section) shall be ¼" thick structural aluminum (ASTM…) in 2-piece configuration to permit access to internal operator components without removing door panel. Cover shall be attached to lower cement case using brass, stainless steel, or other non-corrosive sheet metal screws.

E. Cement Case Assembly (lower section plus upper section/cover) shall be sized at 8.25" (209.55 mm) wide x 29" (736.6 mm) long x 8.375" (212.73 mm) tall.

1. Cement case shall be encased below grade as detailed on shop drawings, utilizing (quick-set or pour-stone or equal) setting cement. A minimum 3/8" of setting cement shall be placed at all exterior vertical surfaces and ¼" at the entire bottom surface. Allow setting cement to cure as required by cement product manufacturer prior to installing door leaf.
2. Cement case shall be field bored to accept liquid-tight conduit connections for electric power service and signal/controller wires. Conduit, conduit connections, electric power service and signal wire to unit is furnished and installed by others as specified in electrical specification section.
3. Brookfield NB-500 controller shall be remotely mounted within 20 feet of the door opening.

F. Operator Manufacturer shall be:

Brookfield Industries, Inc.
99 West Hillside Ave. Thomaston, CT 06787
www.brookfieldindustries.com
Phone: 860-283-6211 Fax: 860-283-6123

Brookfield Model NB-500 Swing Door Operator

1. Considering the size and weight of these doors, no substitution will be accepted.

G. Local Converter and Operator Representative:

Contact Opcon or Brookfield for local authorized dealer

## 2.03 HARDWARE REQUIREMENTS

A. Door hanging hardware shall be furnished and installed by the door supplier or hardware supplier. The hardware must be pre-installed on the door panels. The Opcon drive spindle profile shall match the selected bottom arm hardware. Bottom door arm (push or pull type) shall mount within bottom rail of swing door or may be surface mounted (optional) at bottom rail. The following hardware (detailed in related sections) is compatible with the Opcon Converter:

1. Offset Hung Bottom Pivot: Rixson #H27 (bottom arm only) for offset hung doors (for heavy duty application) located per Rixson template and Opcon assembly details.
2. Offset Hung Top Pivot: Rixson #H180 for offset hung doors (heavy duty application) located per Rixson template and instructions.
3. Offset Hung Intermediate Pivots: Rixson #M190 for offset hung doors (heavy duty application) located per Rixson template and Opcon assembly instructions. Note: intermediate pivots are recommended placed not more than 30” apart. See Rixson specifications relative to door weight.
4. Center Hung Bottom Pivot: Rixson #H28 (bottom arm only for center hung doors (for heavy duty application) located per Rixson Template and Opcon assembly details.
5. Center Hung Top Pivot: Rixson #H340 or #H345 for center hung doors (heavy duty application) located per Rixson template and Opcon assembly details.
6. Butt Hung or Continuous Hinge: Rixson #327 slide arm for butt hung doors located per Rixson template and Opcon assembly instructions.
7. Other door hanging hardware by Dorma, CR Laurence, or custom manufactured hardware for special doors (radiation, explosion types, etc.) may be used. Please consult Opcon for integration requirements.

B. Threshold shall be 10” wide across entire width of door. Threshold fasteners must not penetrate cement case or cement case cover. Thresholds are to be removable and have a silicone seal at the entire perimeter after placement. Opcon furnished spindle gasket to be installed over threshold per drawings.

1. Pre-fabricated thresholds are available from Opcon in various styles & finishes, or if by others, must be fabricated to Opcon specifications.
2. Pre-fabricated terrazzo/stone/tile pans are available from Opcon for many stone or tile thicknesses by custom order.

C. Safety sensors are compatible with all automatic door operators converted to underground use. Opcon recommends safety sensors be installed on all swinging doors and especially on oversized/overweight doors.

## PART 3 – EXECUTION

### 3.01 INSTALLATION

A. Install operator converter using factory authorized technicians. Technicians shall also be authorized to install and tune automatic door operator. Install converter in accordance with manufacturer's instructions and reviewed shop drawings.

B. Adjust converter drive transfer system (chain tensioner, direct shaft, or belt) to achieve smooth operation including back-check, latch, and proper limit stops.

C. Water-test electrical conduit penetrations (high volt and low volt connections) in cement case to assure leak-free system.

D. Certify that door operation complies with ANSI A156.19 (ADA, Low Energy) or A156.10 (Full Speed, Full Power) as specified.

### 3.02 CLEANING AND PROTECTION

A. Clean exposed operating components as recommended by manufacturer.

B. Protect converter and automatic door operator equipment from damage and deterioration during construction.

C. Protect converter, spindle/pivot system and all converter related components from direct contact with pressure washing.