

A major goal of our industry is to keep electric hardware in Section 8700 of the General Construction Specifications. Midwest Wholesale Hardware is making this manual available to you as an aid toward that goal. This electric hardware information was gathered and assembled to help guide you through basic electric hardware applications. We have outlined the most commonly specified access control situations from the many electric hardware items and applications available.

This manual will provide a clear, concise reference and educational tool for electric hardware applications. There is a glossary of terms in the back of the manual to help you become familiar with the correct electrical terminology. Each of the system explanations are accompanied with a riser diagram to further explain each particular situation or system. Each system is indexed at the beginning of the manual and a wiring diagram can be furnished upon request.

In using this manual, Midwest Wholesale hopes you can improve profits through additional sales. Most of the products presented are in stock at Midwest Wholesale. Stock shipments are shipped within 24 hours with most shipments being made the same day the order is placed.

Midwest Wholesale's major concern is the proper selection and application of products that follow *life safety* requirements. The products outlined in this manual will provide safe and reliable service if properly applied, installed and maintained. The intent of the information included in this manual is to provide a clear and reliable guideline for proper selection and application of electric hardware. Because of external influences, the scope of this information is necessarily limited. Unusual operating conditions and environments can affect the proper selection and application of products herein represented. Modification of these products may affect life safety, operational safety, UL listings, or manufacturer's warranty.

Please review your application with a Midwest Wholesale Hardware sales technician. Please visit midwestwholesale.com for updates and revisions to this manual.

Introduction	1
Acknowledgments	4

SECTION I - ELECTRIC LOCKS, STRIKES, ETC.

Electric Locks	6
Electric Strikes	8
Stand-Alone Alarmed Exit Devices	10
Stand-Alone Locks	12
Request to Exit Switch Exit Devices	14

SECTION II - LOW ENERGY OPERATORS

Basic Application	16
Bidirectional Vestibule Application Operation	18
Electric Latch Retraction Exit Device	20
Electric Latch Retraction Exit Devices	22
Electric Dogging Exit Device	24
Electric Dogging Exit Devices	26
Automatic Operator w/ Electric Strike	28
Doors w/ Magnetic Locks, w/o Additional Mechanical Locking	30

SECTION III - ELECTROMAGNETIC LOCKS

Basic Application	32
Electromagnetic Lock w/Sensor Bar	34
Delayed Egress Electromagnetic Lock	36
Delayed Egress Electromagnetic Lock w/exterior switch	38

SECTION IV - CHEXIT® CONTROLLED EXIT DEVICE

Basic Application	40
Chexit® w/remote Horn #1	42
Chexit® w/remote Horn #2	44
Chexit® w/Access Control	46

SECTION V - ELECTRIC LATCH EXIT DEVICE

Controlled Entry w/o Alarm #1	48
Controlled Entry w/o Alarm #2	50
Controlled Entry w/o Alarm (day mode) #3	52
Controlled Entry w/Alarm #1	54
Controlled Entry w/Alarm (remote release) #2	56
Controlled Entry & exit w/Combined Access Control	58

SECTION VI - GLOSSARY

Glossary	61
Handing Chart	(Inside Front Cover) & 73
Wire Gauge Selection Table	(Inside Front Cover) & 74

Information for this manual was gathered from the following manufacturers and individuals. This information, whether written or spoken, was instrumental in producing this manual.

Architectural Control Systems, Inc
www.acsi-inc.com

Adams Rite Manufacturing Co.
www.adamsrite.com

Alarm Lock
www.alarmlock.com

Corbin Russwin
www.corbin-russwin.com

Detex
www.detex.com

Dorma
www.dorma-usa.com

HES
www.hesinnovations.com

LCN
www.lcnclosers.com

Norton
www.nortondoорcontrols.com

SARGENT
www.sargentlock.com

Schlage
www.schlage.com

Securitron
www.securitron.com

Von Duprin
www.vonduprin.com

Yale Security, Inc.
www.yalecommercial.com

Gene Kimball, Bob Ryder, Tom Vinck, Bob Fisher, Mike Venneman, Steve Larson, Jeffrey Greashaber.

Electronic Locking Devices, by John L. Schum, from the series,
Tool Box Guides for Security Technicians, edited by John Sanger.

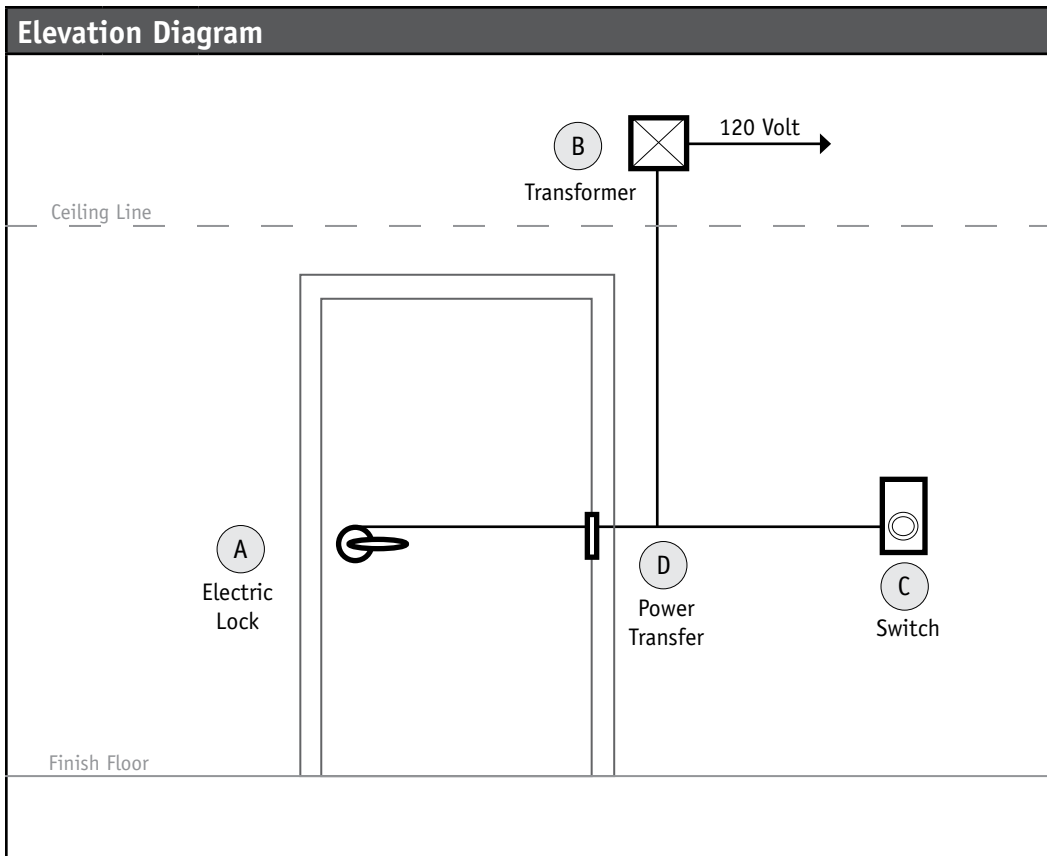
Along with saying thanks to the above companies and individuals, a special thanks needs to be extended to a few of Midwest Wholesale's associates for their support and efforts towards successfully completing this manual.

Thank you,

Midwest Wholesale Hardware, Inc.

NOTES:

ELECTRIC LOCKS



System Operation

Electrically Locked: (Fail Safe-FS)

- Outside lever continuously electrically locked until unlocked by key, switch or power failure.
- Inside lever always free for immediate egress.

Electrically Unlocked: (Fail Secure-FSE)

- Outside lever continuously locked until unlocked by key or electric current.
- Inside lever always free for immediate egress.

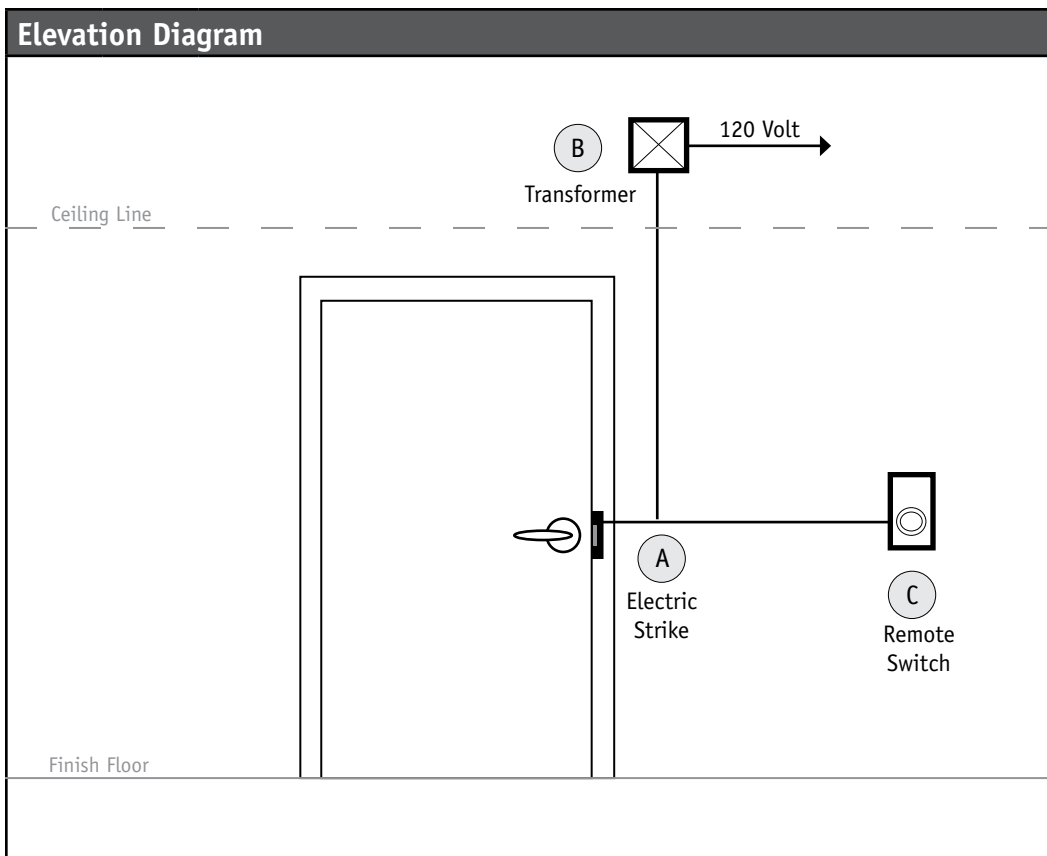
Schedule

ITEM	QTY	Select one of each item from table on opposite page.
A	1	Electric Lock (Cylindrical or Mortise Lock, AC or DC, voltage)
B	1	Transformer x Rectifier (rectifier may not be required)
C	1	Switch (pushbutton, key switch, key pad)
D	1	Power Transfer (electric hinge, electric pivot, power transfer)

NOTE: Some door and frame modifications will be required.

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	CL33903	Cylindrical Electric Locked	CORBIN
	1	CL33905	Cylindrical Electric Unlocked	RUSSWIN / ACSI
	1	ND80PDEL	Cylindrical Electric Locked	SCHLAGE / ACSI
	1	ND80PDEU	Cylindrical Electric Unlocked	SCHLAGE / ACSI
	1	10G70	Cylindrical Electric Locked	SARGENT
	1	10G71	Cylindrical Electric Unlocked	SARGENT
	1	ML22901	Mortise Electric Locked	CORBIN
	1	ML22904	Mortise Electric Unlocked	RUSSWIN / ACSI
	1	L9080EL	Mortise Electric Locked	SCHLAGE / ACSI
	1	L9080EU	Mortise Electric Unlocked	SCHLAGE / ACSI
	1	8270	Mortise Electric Locked	SARGENT
	1	8271	Mortise Electric Unlocked	SARGENT
	1	8890	Mortise Electric Locked	YALE / ACSI
	1	8891	Mortise Electric Unlocked	YALE / ACSI
B	1	4605 & 4603	Transformer & Rectifier	ADAMS RITE
	1	PP-5152	Transformer	DETEX
	1	2002 & 2001	Transformer & Rectifier	HES
	1	7930-164 & RC1	Transformer & Rectifier	LCN
	1	PS902	Power Supply	SCHLAGE
	1	PSP & BR-7	Transformer & Rectifier	SECURITRON
	1	AQD3	Power Supply	
	1	BPS-12-1	Power Supply	
C	1	PDK3000	Card Reader/Keypad	ALARM LOCK
	1	KS700/KS800 Series	Keyswitch	DORMA
	1	212/232/2000 Series	Keypad	IEI
	1	ProPad Series	Card Reader/Keypad	IEI
	1	660 SERIES	Switch	NORTON
	1	600, 700 Series	Pushbutton	SCHLAGE
	1	DK SERIES	Digital Keypad System	SECURITRON
	1	MK SERIES	Mortise Keyswitch	
D	1	PB SERIES	Push Buttons	SECURITRON
	1	BB1279 1104	Electric Hinge	ACSI
	1	FBB179 1104	Electric Hinge	
	1	4612	Wire Transfer	ADAMS RITE
	1	EM19	Electric Pivot	RIXSON
	1	788	Flexible Door Cord	SCHLAGE
	1	TSB-C	Door Cord	SECURITRON
	1	EPT	Electric Power Transfer	VON DUPRIN

ELECTRIC STRIKES



System Operation

Electric strikes provide remote release of a locked door. They allow the door to be opened without retracting the latchbolt. This occurs by the releasing of the electric strike lip/keeper.

FAIL SECURE - FSE: Requires power to be applied to unlock the strike. On loss of power, the strike is locked. (It is also notated as non-fail-safe NFS)

FAIL SAFE - FS: Requires power to be applied to lock the strike. On loss of power, the strike is unlocked. Most building codes prohibit the use of fail-safe strikes on labeled openings.

Schedule

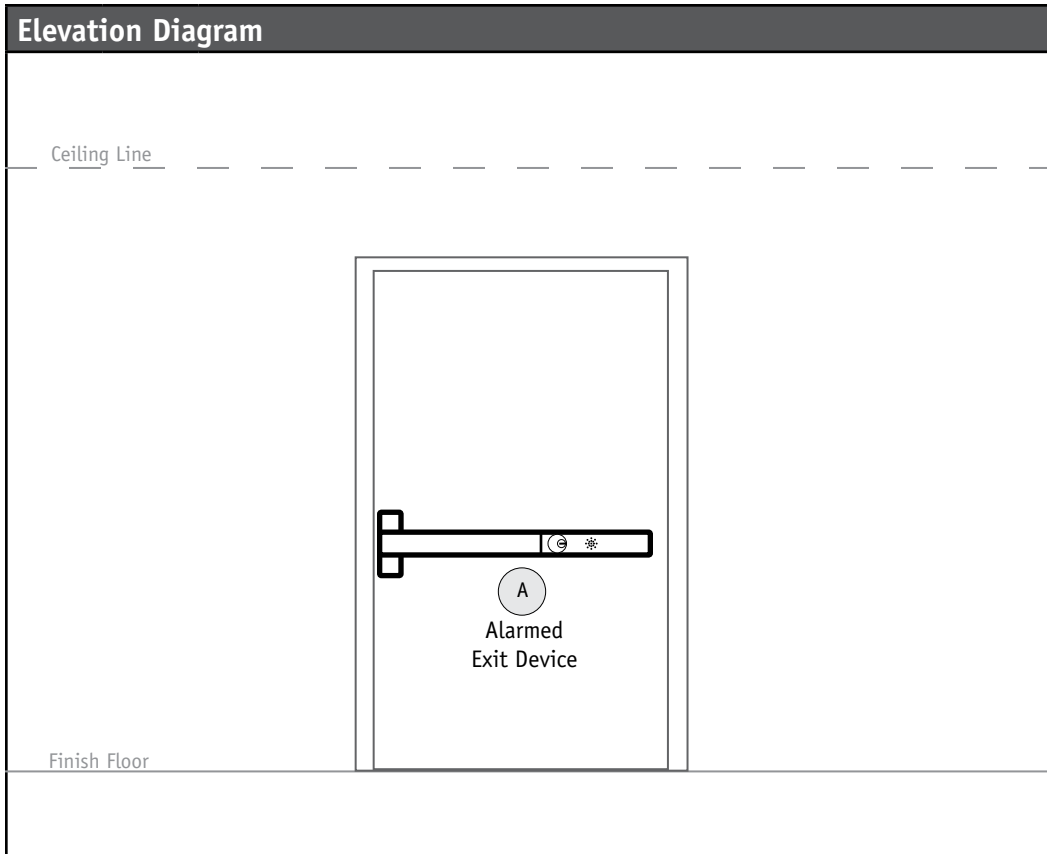
ITEM	QTY	Select one of each item from table on opposite page.
A	1	Electric Strike, FSE or FS, 12 or 24 volt, AC or DC
B	1	Transformer x Rectifier (rectifier may not be required)
C	1	Remote Switch (pushbutton, key switch, key pad)

NOTE: Some door and frame modifications will be required.

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	7100 SERIES	Electric Strike	ADAMS RITE
	1	74R SERIES	Electric Strike	
	1	300 SERIES	Electric Strike	FOLGER ADAM
	1	700 SERIES	Electric Strike	
	1	1000 SERIES	Electric Strike	HES
	1	4500 SERIES	Electric Strike	
	1	5000 SERIES	Electric Strike	
	1	7000 SERIES	Electric Strike	
	1	9000 SERIES	Electric Strike	SECURITRON
	1	MUNL	Mortise Unlatch®	
	1	UNL	Unlatch®	VON DUPRIN
	1	6000 SERIES	Electric Strike	
B	1	4605 & 4603	Transformer & Rectifier	ADAMS RITE
	1	PP-5152 SERIES	Transformer	DETEX
	1	2002 & 2001	Transformer & Rectifier	HES
	1	7930-164 & RC1	Transformer & Rectifier	LCN
	1	PS902	Power Supply	SCHLAGE
	1	PSP & BR-7	Transformer & Rectifier	SECURITRON
	1	AQD3	Power Supply	
	1	BPS	Power Supply	
C	1	PDK3000	Card Reader/Keypad	ALARM LOCK
	1	KS700/KS800 Series	Keyswitch	DORMA
	1	212/232/2000 Series	Keypad	IEI
	1	ProPad Series	Card Reader/Keypad	
	1	660 SERIES	Switch	NORTON
	1	600, 700 Series	Pushbutton	SCHLAGE
	1	DK SERIES	Digital Keypad System	SECURITRON
	1	MK SERIES	Mortise Keyswitch	
	1	PB SERIES	Push Buttons	

ELECTRIC STRIKES

STAND-ALONE ALARMED EXIT



System Operation

The exit alarm kit is a simple way to monitor the use of an exit. While still a means of egress, the unit contains an internal horn. When the touchbar is depressed, the horn sounds, thus providing an audible means of signaling that the opening has been violated.

The cylinder/key switch serves three functions:

- Silences the alarm.
- Provides a 20-second delay in the alarm activation, allowing authorized personnel to use the exit.
- Deactivates the alarm, allowing free use of the opening.

The unit operates on one standard 9-volt transistor battery. When the battery is weak the horn will emit an intermittent signal.

Schedule

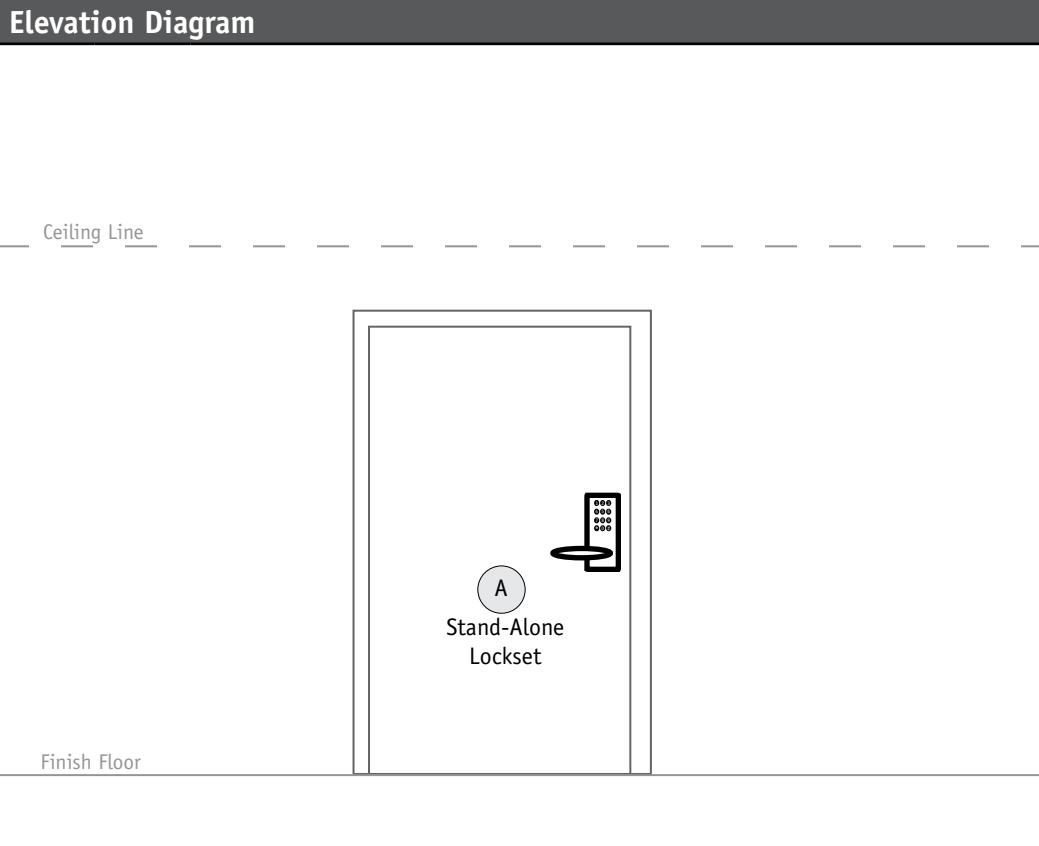
ITEM	QTY	Select one of each item from table on opposite page.
A	1	Rim or Mortise Exit Device x Alarm Kit

NOTE: Not recommended for use on surface vertical rod devices.

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	ED5000 SERIES	Exit Device	CORBIN RUSSWIN
	1	ED50AK	Alarm Kit	
	1	22 SERIES	Exit Device	VON DUPRIN
	1	22ALK	Alarm Kit	
	1	98/99, 33A/35A SERIES	Exit Device	
	1	98ALK/ 99ALK	35/98, 33/99 Alarm Kit	
	1	7100 SERIES	Exit Device	YALE
	1	7116	Alarm Kit	
	1	V40xE SERIES	Value Series® w/built in alarm	DETEX

STAND-ALONE ALARMED EXIT

STAND-ALONE LOCK



System Operation

- Door normally closed and secured by the latchbolt.
- Door released on exterior side by pushbutton lockset.
- Door released on interior side by lever.

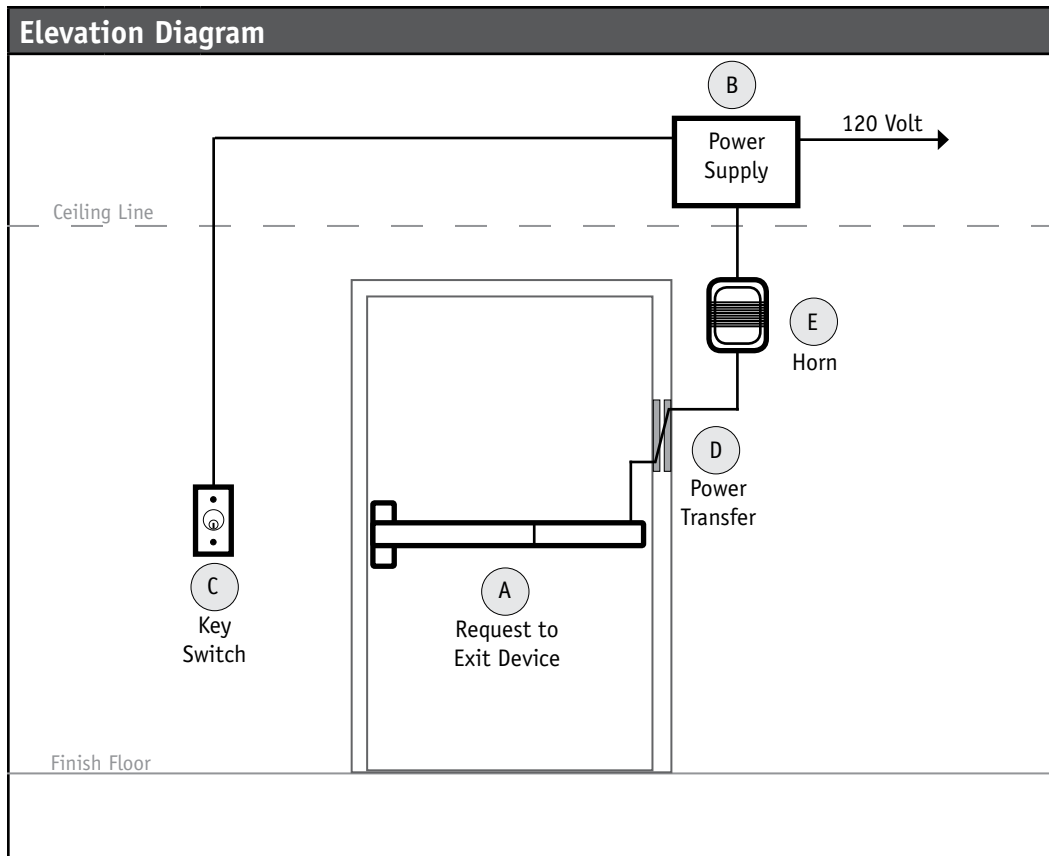
Schedule

ITEM	QTY	Select one of each item from table on opposite page.
A	1	Stand-Alone Lockset

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	DL2700 SERIES	Trilogy®	ALARM LOCK
	1	DL2800 SERIES	T-2 Trilogy®	
	1	DL3000 SERIES	T-3 Trilogy®	
	1	PDL3000	Trilogy® Proximity	
	1	1500 Series	E-Plex™	KABA
	1	2000 Series	E-Plex™	
	1	4000 Series	E-Plex™	
	1	5000 Series	E-Plex™	
	1	C0100 Series	Electronic Lock	SCHLAGE
	1	C0200 Series	Electronic Lock	

STAND-ALONE LOCK

REQUEST TO EXIT SWITCH



System Operation

- Door normally closed and locked by exit device.
- Door released on exterior side by keyswitch.
- Door released on interior side by exit device.
- The request to exit switch feature is used to signal the unauthorized egress of an opening. These devices are equipped with an internal SPDT switch that monitors the touch bar. The switch can also be connected to a security console.

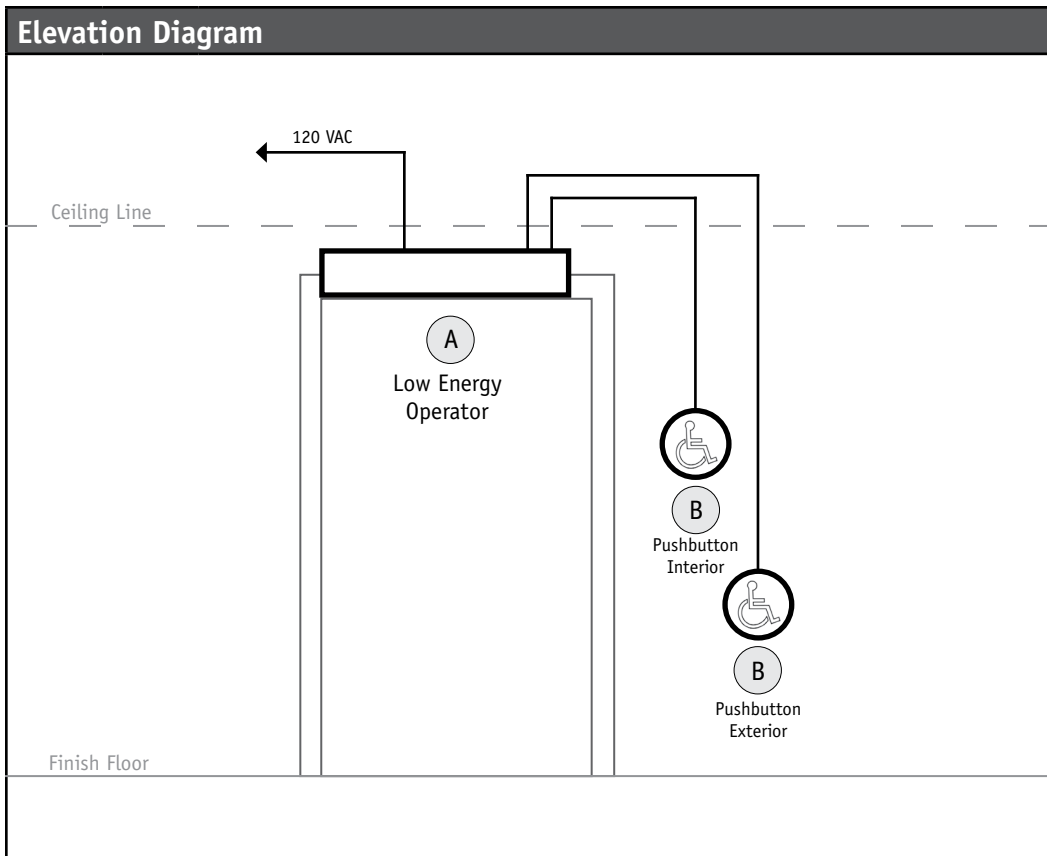
Schedule

ITEM	QTY	Select one of each item from table on opposite page.
A	1	Request to Exit Device (rim, mortise or vertical rod)
B	1	Power Supply
C	1	Exterior Switch (key switch, card reader, etc.)
D	1	Power Transfer (electric hinge, electric pivot, power transfer)
E	1	Horn

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	8600, 8800	Exit Device w/REX Switch	ADAMS RITE
	1	ED5000-M92 SERIES	Exit Device w/REX Switch	CORBIN RUSSWIN
	1	8000 Series	Exit Device w/REX Switch	SARGENT
	1	33/35, 98/99 SERIES xRX	Exit Device w/REX Switch	VON DUPRIN
	1	7000-B SERIES	Exit Device w/REX Switch	YALE
B	1	4605 & 4603	Transformer & Rectifier	ADAMS RITE
	1	PP-5152 SERIES	Transformer	DETEX
	1	2002 & 2001	Transformer & Rectifier	HES
	1	7930-164 & RC1	Transformer & Rectifier	LCN
	1	PS902	Power Supply	SCHLAGE
	1	PSP & BR-7	Transformer & Rectifier	SECURITRON
	1	AQD3	Power Supply	
	1	BPS	Power Supply	
C	1	PDK3000	Card Reader/Keypad	ALARM LOCK
	1	KS700/KS800 Series	Keyswitch	DORMA
	1	ProxPad Series	Card Reader/Keypad	IEI
	1	212/232/2000 Series	Keypad	
	1	600/700 Series	Pushbutton	SCHLAGE
	1	DK SERIES	Digital Keypad System	SECURITRON
	1	MK SERIES	Mortise Keyswitch	
	1	PB Series	Pushbutton	
D	1	BB1279 1104	Electric Hinge	ACSI
	1	FBB179 1104	Elec Hinge	
	1	4612	Wire Transfer	ADAMS RITE
	1	788	Flexible Door Cord	SCHLAGE
	1	EM19	Electric Pivot	RIXSON
	1	TSB-C	Door Cord	SECURITRON
	1	EPT	Electric Power Transfer	VON DUPRIN
E	1	1910-1	12/24VDC Horn	SCHLAGE
	1	800A	Audible Sounder	

REQUEST TO EXIT SWITCH

LOW ENERGY OPERATOR



System Operation

- Door is normally closed and not locked.
- Door is always operable manually from either side, the Low Energy Operator acts as a standard door closer.
- Actuation of operator for either side by pushbutton.

Schedule

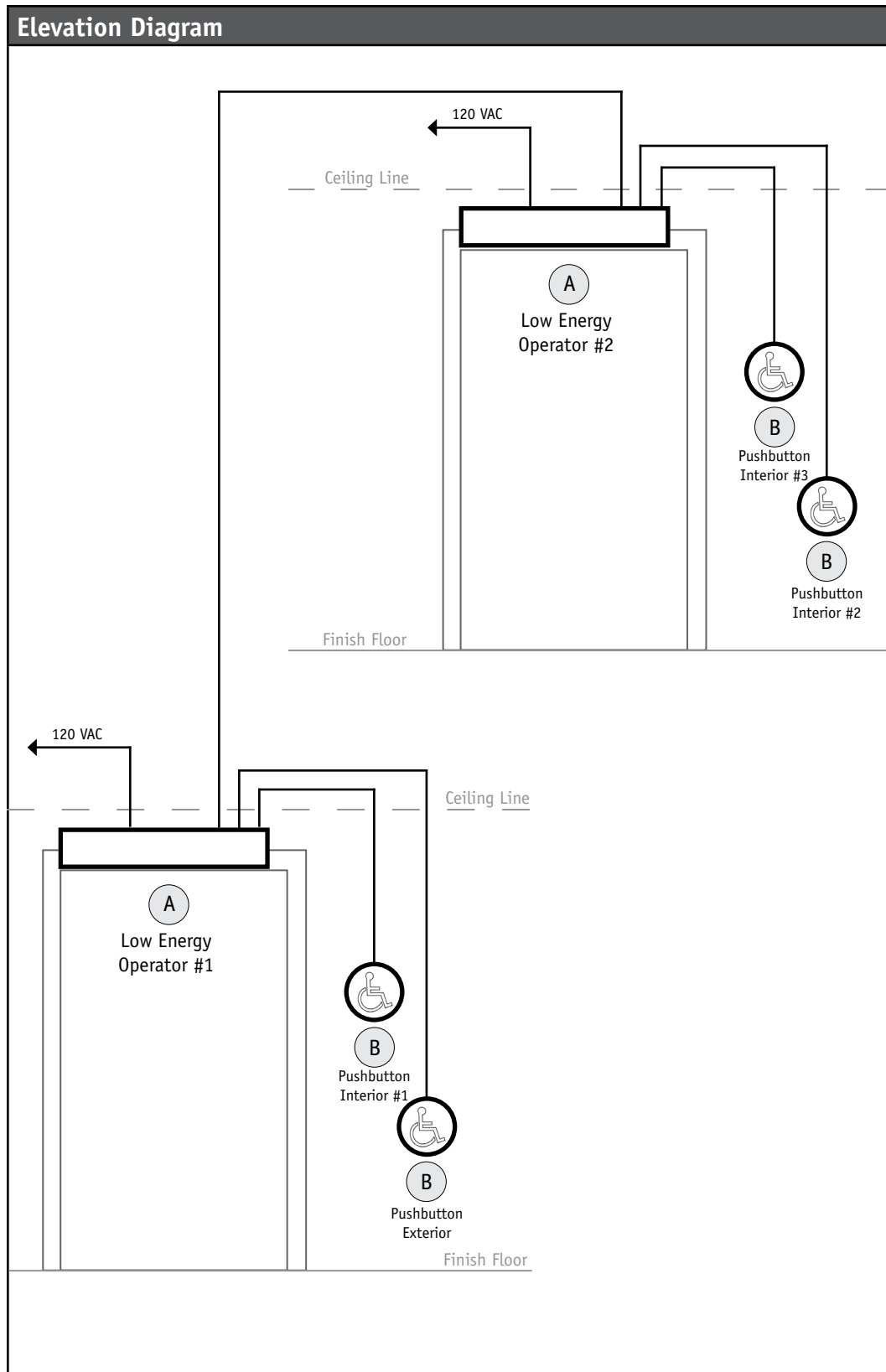
ITEM	QTY	Select one of each item from table on opposite page.
A	1	Low Energy Operator
B	1	Interior Switch (pushbutton, motion detector)
	1	Exterior Switch (pushbutton, motion detector)

NOTE: Some door and frame modifications will be required.

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	ED8000	Low Energy Operator	DORMA
	1	8200 Series	Auto Operator	FALCON
	1	9193	Auto Operator	LCN
	1	4600 SERIES	Auto Operator	
	1	4390	MPower	SARGENT
	1	6900	Powermatic®	NORTON
B	2	10PN	Actuator	BEA
	2	800 SERIES	Switch	DORMA
	2	8310 SERIES	Actuator	LCN
	2	500 Series	Actuator	NORTON
	2	600 Series	Actuator	
	2	4390	Push Buttons	SARGENT

LOW ENERGY OPERATOR

LOW ENERGY OPERATOR



System Operation

- Doors within a vestibule/exterior application normally closed and unlocked.
- Manually depressing inside pushbutton will activate vestibule door operator.
- Exterior door operator will remain inactive for a predetermined time.
- Upon expiration of time delay, the exterior door operator will activate as the vestibule door begins to close.
- The reverse sequence of the above operation occurs upon manual depression of the exterior pushbutton.
- Additional pushbuttons are mounted within the vestibule for the activation of each operator.
- Doors are always operable manually from either side, the Low Energy Operator acts as a standard door closer.

Schedule

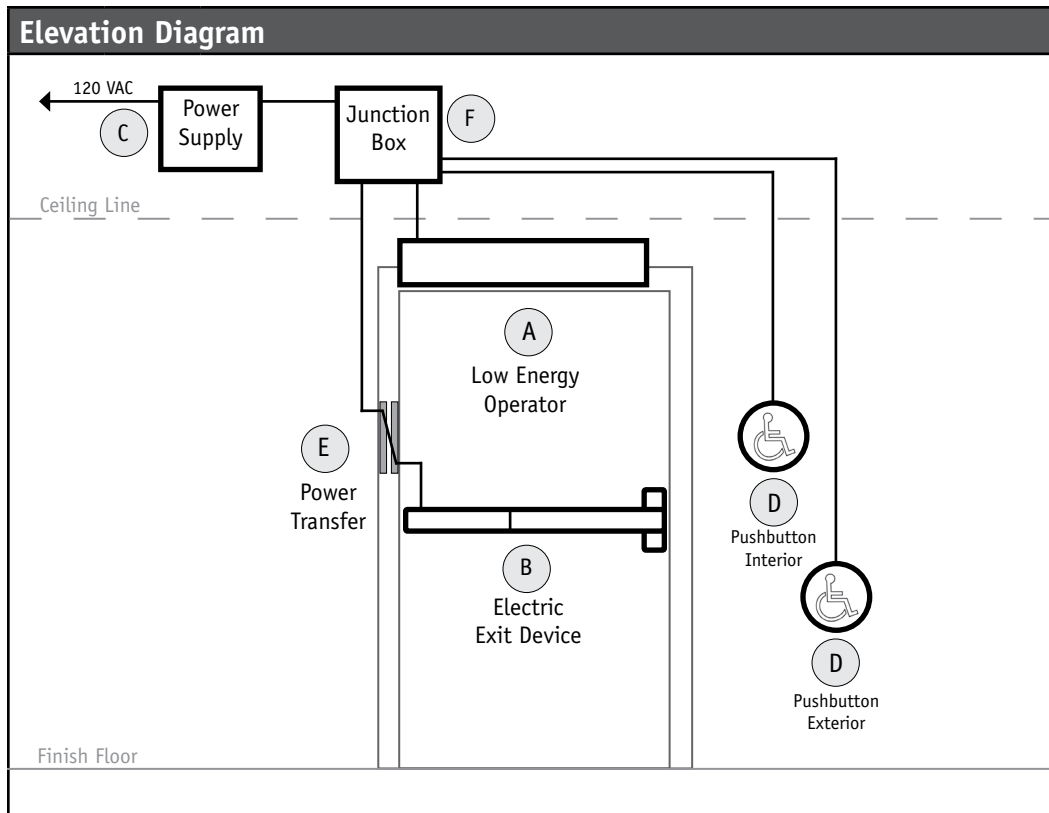
ITEM	QTY	Select one of each item from hardware list.
A	2	Low Energy Operator
B	2	Interior Switch (pushbutton, motion detector, etc.)
	2	Exterior Switch (pushbutton, motion detector, etc.)

NOTE: Some door and frame modifications will be required.

Hardware List

ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	2	ED8000	Low Energy Operator	DORMA
	2	9193	Auto Operator	LCN
	2	4600 SERIES	Auto Equalizer	
	2	8200 SERIES	Auto Operator	FALCON
	2	6900	Powermatic®	NORTON
B	4	10PN	Actuator	BEA
	4	800 SERIES	Switch	DORMA
	4	8310	Actuator	LCN
	4	500 Series	Actuator	NORTON
	4	600 Series	Actuator	
	4	4390	Push Buttons	SARGENT

LOW ENERGY OPERATOR



System Operation

- Doors with electric latch retraction exit devices are normally in a closed and latched position.
- Manually depressing interior or exterior pushbutton or depressing touch pad exit will activate the exit devices, retracting the latchbolt.
- Operators will remain inactive for a predetermined time.
- Upon expiration of the time delay, the door operator will activate.
- The latchbolt of the exit device will return to its normally thrown position.

Schedule

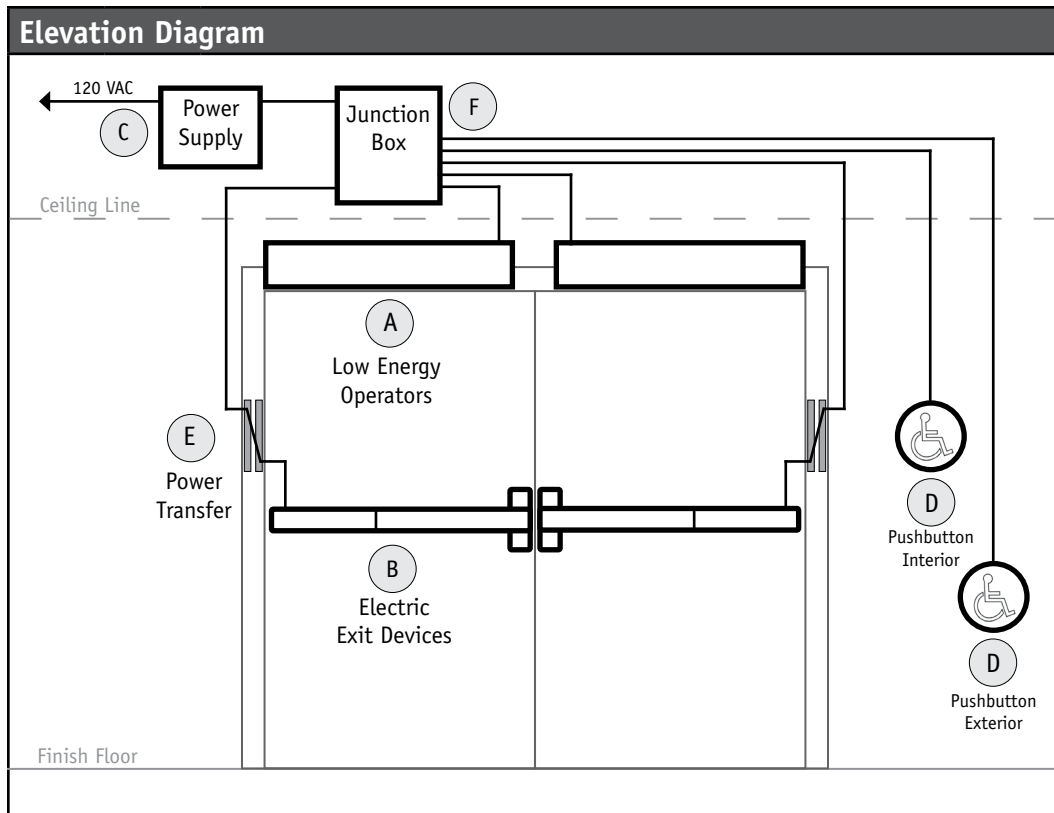
ITEM	QTY	Select one of each item from table on opposite page.
A	1	Low Energy Operator
B	1	Electric Latch Retraction Exit Device
C	1	Power Supply
D	2	Switch (key switch, card reader, etc.)
E	1	Power Transfer (electric hinge, electric pivot, power transfer)
F	1	Junction Box

NOTE: Some door and frame modifications will be required.

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	ED8000	Low Energy Operator	DORMA
	1	9193	Auto Operator	LCN
	1	4600 SERIES	Auto Equalizer	
	1	8200 Series	Auto Operator	FALCON
	1	6900	Powermatic®	NORTON
B	1	8600LR, 8800ER	Electric Latch Retraction	ADAMS RITE
	1	ED5000-M94 SERIES	Electric Latch Retraction	CORBIN RUSSWIN
	1	EL1000 SERIES	Electric Latch Retraction	DOR-O-MATIC
	1	56-8000 Series	Electric Latch Retraction	SARGENT
	1	EL33A/35A, EL98/99	Electric Latch Retraction	VON DUPRIN
	1	7000P SERIES	Electric Latch Retraction	YALE
C	1	PS-LR	Power Supply	ADAMS RITE
	1	781N	Controller	CORBIN RUSSWIN
	1	3540	Power Supply	SARGENT
	1	PS914-2	Power Supply	VON DUPRIN
	1	781N	Controller	YALE
D	2	PDK3000	Card Reader/Keypad	ALARM LOCK
	2	10PN Series	Actuator	BEA
	2	800 SERIES	Switch	DORMA
	2	212/232/2000 Series	Keypad	IEI
	2	ProxPad Series	Card Reader/Keypad	
	2	8310	Actuator	LCN
	2	600, 700 SERIES	Pushbutton	SCHLAGE
	2	660 SERIES	Switch	NORTON
	2	4390	Actuator	SARGENT
	2	DK SERIES	Digital Keypad System	SECURITRON
	2	MK SERIES	Mortise Keyswitch	
	2	PB SERIES	Push Buttons	
	2	500 / 600 Series	Actuator	NORTON
E	1	BB1279 1104	Electric Hinge	ACSI
	1	FBB1279 1104	Electric Hinge	
	1	4612	Wire Transfer	ADAMS RITE
	1	EM19	Electric Pivot	RIXSON
	1	788	Flexible Door Cord	SCHLAGE
	1	TSB-C	Door Cord	SECURITRON
	1	EPT	Electric Power Transfer	VON DUPRIN
F	1	JB7	Junction Box w/Terminal Strip	VON DUPRIN

LOW ENERGY OPERATOR

LOW ENERGY OPERATOR

**System Operation**

- Door with electric latch retraction exit device are normally in a closed and latched position.
- Manually depressing interior or exterior pushbutton or depressing touch pad exit will activate the exit device, retracting the latchbolt.
- Operator will remain inactive for a predetermined time.
- Upon expiration of the time delay, the door operator will activate.
- The latchbolt of the exit device will return to its normally thrown position.

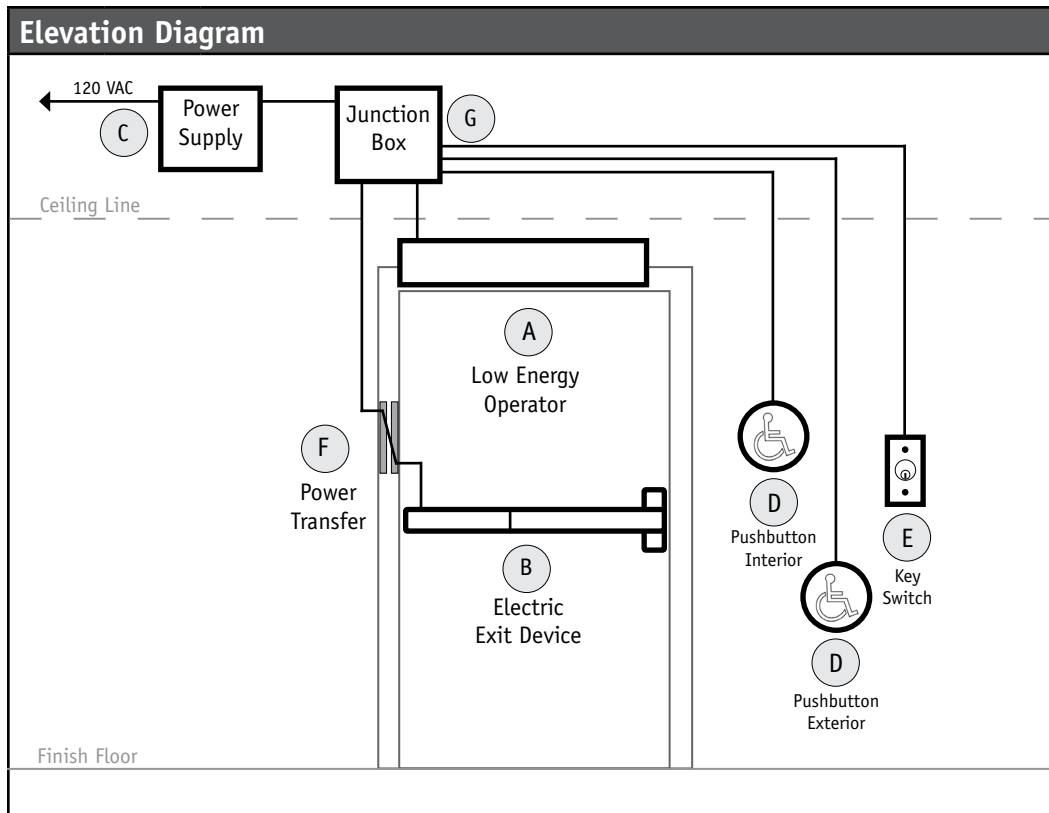
Schedule

ITEM	QTY	Select one of each item from table on opposite page.
A	2	Low Energy Operator
B	2	Electric Latch Retraction Exit Device
C	1	Power Supply
D	2	Switch (key switch, card reader, etc.)
E	2	Power Transfer (electric hinge, electric pivot, power transfer)
F	1	Junction Box

NOTE: Some door and frame modifications will be required.

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	2	ED8000	Low Energy Operator	DORMA
	2	8200 Series	Auto Operator	FALCON
	2	9193	Auto Operator	LCN
	2	4600 SERIES	Auto Equalizer	
	2	6900	Powermatic®	NORTON
B	2	8600LR, 8800ER	Electric Latch Retraction	ADAMS RITE
	2	ED5000-M94 SERIES	Electric Latch Retraction	CORBIN RUSSWIN
	2	EL1000 SERIES	Electric Latch Retraction	DOR-O-MATIC
	2	56-8000 Series	Electric Latch Retraction	SARGENT
	2	EL33A/35A, EL98/99	Electric Latch Retraction	VON DUPRIN
	2	7000P SERIES	Electric Latch Retraction	YALE
C	1	PS-LR	Power Supply	ADAMS RITE
	1	781N	Controller	CORBIN RUSSWIN
	1	3540	Power Supply	SARGENT
	1	PS914-2	Power Supply	VON DUPRIN
	1	781N	Controller	YALE
D	2	PDK3000	Card Reader/Keypad	ALARM LOCK
	2	10PN Series	Actuator	BEA
	2	KS700/KS800 Series	Keyswitch	DORMA
	2	212/232/2000 Series	Keypad	IEI
	2	ProxPad Series	Card Reader/Keypad	
	2	8310	Actuator	LCN
	2	500 / 600 Series	Switch	NORTON
	2	600 / 700 series	Actuator	SCHLAGE
	2	DK SERIES	Digital Keypad System	SECURITRON
	2	MK SERIES	Mortise Keyswitch	
	2	PB SERIES	Push Buttons	
E	2	BB1279 1104	Electric Hinge	ACSI
	2	FBB1279 1104	Electric Hinge	
	2	4612	Wire Transfer	ADAMS RITE
	2	788	Flexible Door Cord	LOCKNETICS
	2	EM19	Electric Pivot	RIXSON
	2	TSB-C	Door Cord	SECURITRON
	2	EPT	Electric Power Transfer	VON DUPRIN
F	1	JB7	Junction Box w/Terminal Strip	VON DUPRIN

LOW ENERGY OPERATOR



System Operation

- Door is normally closed and unlocked.
- Electrically dogged exit device to be activated by means of a key switch at remote location.
- Manually depressing interior or exterior pushbutton will activate the door operator.
- Door will act like a push/pull assembly when electrically dogged.
- Fire rated exit device must be interfaced with the fire alarm system.

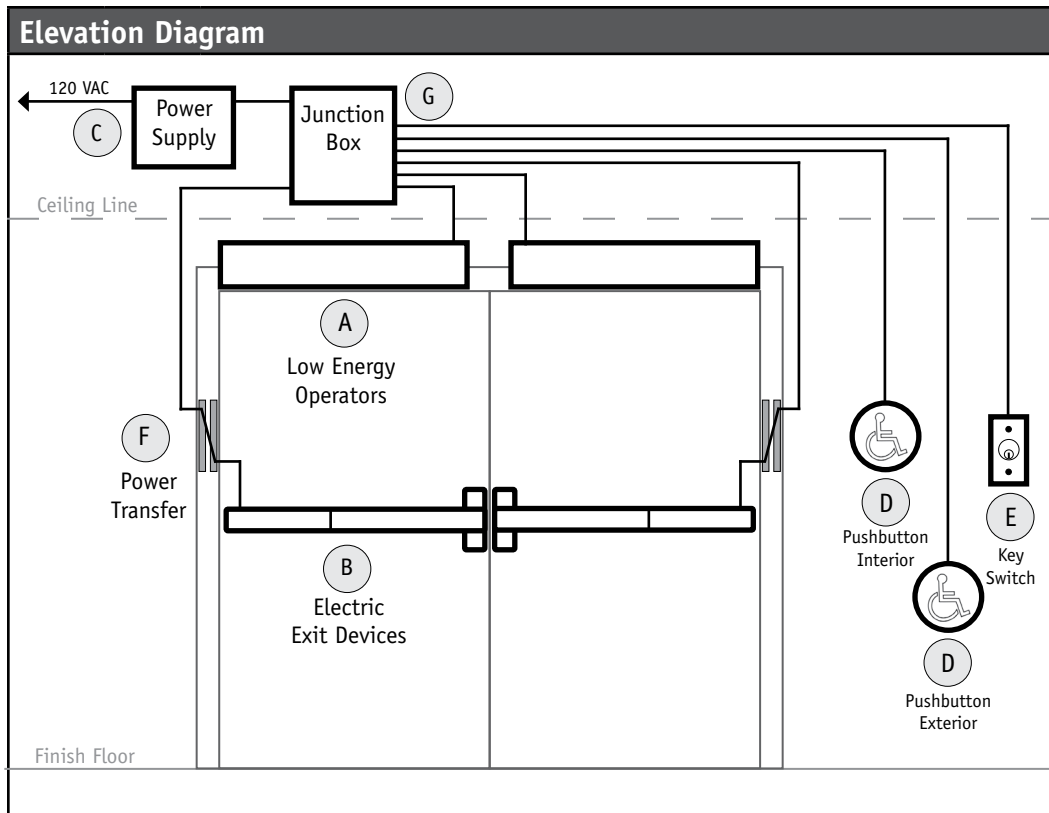
Schedule

ITEM	QTY	Select one of each item from table on opposite page.
A	1	Low Energy Operator
B	1	Electric Exit Device
C	1	Power Supply
D	2	Switch (pushbutton)
E	1	Switch (key switch, card reader, etc.)
F	1	Power Transfer (electric hinge, electric pivot, power transfer)
G	1	Junction Box

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	ED8000	Low Energy Operator	DORMA
	1	8200 Series	Auto Operator	FALCON
	1	9193	Auto Operator	LCN
	1	4600 SERIES	Auto Equalizer	
	1	6900	Powermatic®	NORTON
B	1	8600LR, 8800ER	Electric Latch Retraction	ADAMS RITE
	1	ED5000-M94 SERIES	Electric Latch Retraction	CORBIN RUSSWIN
	1	EL1000 SERIES	Electric Latch Retraction	DOR-O-MATIC
	1	56-8000 Series	Electric Latch Retraction	SARGENT
	1	EL33A/35A, EL98/99	Electric Latch Retraction	VON DUPRIN
	1	7000P SERIES	Electric Latch Retraction	YALE
C	1	PS-LR	Power Supply	ADAMS RITE
	1	781N	Controller	CORBIN RUSSWIN
	1	3540	Power Supply	SARGENT
	1	PS914-2	Power Supply	VON DUPRIN
	1	781N	Controller	YALE
D	2	10PN Series	Actuator	BEA
	2	8310	Actuator	LCN
	2	500 / 600 Series	Switch	NORTON
	2	600 / 700 Series	Actuator	SCHLAGE
	2	PB SERIES	Push Buttons	SECURITRON
E	1	PDK3000	Card Reader/Keypad	ALARM LOCK
	1	KS700/KS800 Series	Keyswitch	DORMA
	1	MK SERIES	Mortise Keyswitch	SECURITRON
F	1	BB1279 1104	Electric Hinge	ACSI
	1	FBB1279 1104	Elec Hinge	
	1	4612	Wire Transfer	ADAMS RITE
	1	788	Flexible Door Cord	LOCKNETICS
	1	EM19	Electric Pivot	RIXSON
	1	TSB-C	Door Cord	SECURITRON
	1	EPT	Electric Power Transfer	VON DUPRIN
G	1	JB7	Junction Box w/Terminal Strip	VON DUPRIN

LOW ENERGY OPERATOR

LOW ENERGY OPERATOR



System Operation

- Electrically dogged exit devices with door in the normally closed position.
- Electrically dogged exit devices to be activated by means of a key switch at remote location.
- Manually depressing interior or exterior pushbutton will activate the door operators.
- Doors will act like a push/pull assembly when electrically dogged.
- (ED) fire rated exit devices must be interfaced with the fire alarm system.

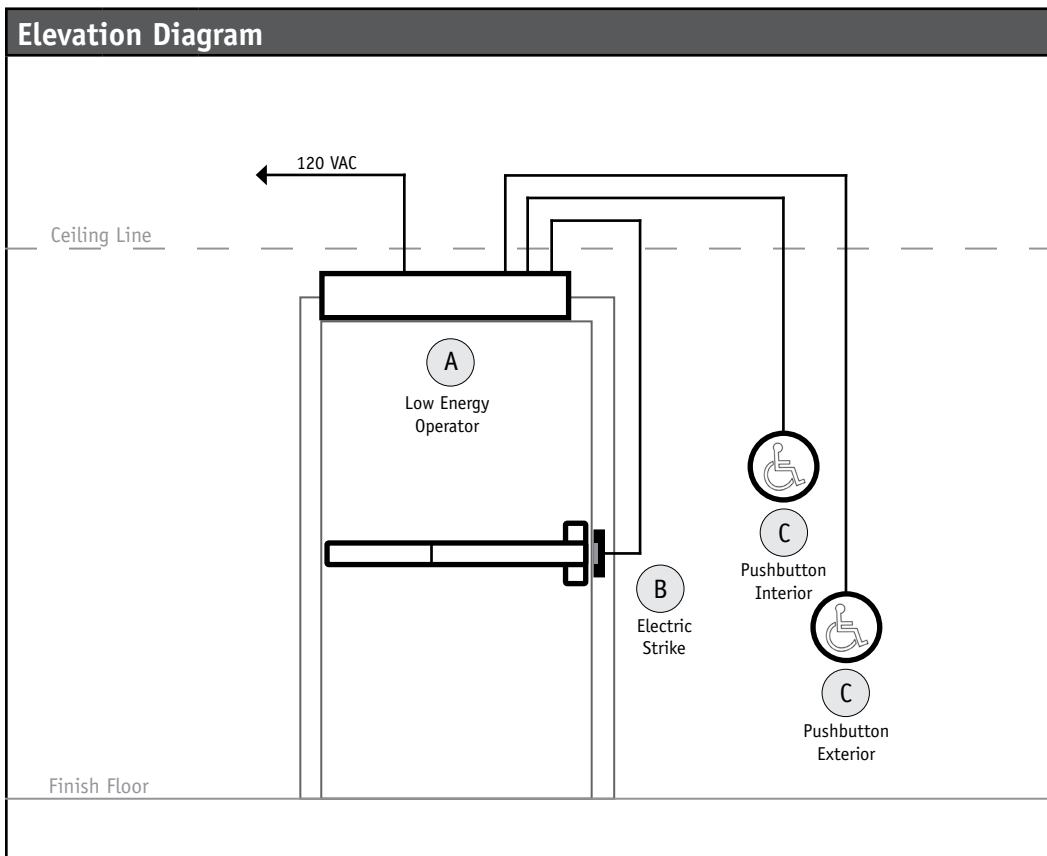
Schedule

ITEM	QTY	Select one of each item from table on opposite page.
A	2	Low Energy Operator
B	2	Electric Exit Device
C	1	Power Supply
D	2	Switch (pushbutton)
E	1	Switch (key switch, card reader, etc.)
F	2	Power Transfer (electric hinge, electric pivot, power transfer)
G	1	Junction Box

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	2	ED8000	Low Energy Operator	DORMA
	2	8200 Series	Auto Operator	FALCON
	2	9193	Auto Operator	LCN
	2	4600 SERIES	Auto Equalizer	
	2	6900	Powermatic®	NORTON
B	2	8600LR, 8800ER	Electric Latch Retraction	ADAMS RITE
	2	ED5000-M94 SERIES	Electric Latch Retraction	CORBIN RUSSWIN
	2	EL1000 SERIES	Electric Latch Retraction	DOR-O-MATIC
	2	56-8000 Series	Electric Latch Retraction	SARGENT
	2	EL33A/35A, EL98/99	Electric Latch Retraction	VON DUPRIN
	2	7000P SERIES	Electric Latch Retraction	YALE
C	1	PS-LR	Power Supply	ADAMS RITE
	1	781N	Controller	CORBIN RUSSWIN
	1	3540	Power Supply	SARGENT
	1	PS914-2	Power Supply	VON DUPRIN
	1	781N	Controller	YALE
D	2	10PN Series	Actuator	BEA
	2	8310	Actuator	LCN
	2	500 / 600 Series	Switch	NORTON
	2	600 / 700 Series	Actuator	SCHLAGE
	2	PB SERIES	Push Buttons	SECURITRON
E	1	PDK3000	Card Reader/Keypad	ALARM LOCK
	1	KS700/KS800 Series	Keyswitch	DORMA
	1	MK SERIES	Mortise Keyswitch	SECURITRON
F	2	BB1279 1104	Electric Hinge	ACSI
	2	FBB1279 1104	Elec Hinge	
	2	4612	Wire Transfer	ADAMS RITE
	2	788	Flexible Door Cord	LOCKNETICS
	2	EM19	Electric Pivot	RIXSON
	2	TSB-C	Door Cord	SECURITRON
	2	EPT	Electric Power Transfer	VON DUPRIN
G	1	JB7	Junction Box w/Terminal Strip	VON DUPRIN

LOW ENERGY OPERATOR

LOW ENERGY OPERATOR



System Operation

- Doors with electric strikes in the normally closed and locked position.
- Manually depressing interior or exterior pushbutton will activate the electric strike.
- Operators will remain inactive for a predetermined time.
- Upon expiration of time delay, the door operator will activate.
- Electric strike will relock after a predetermined time.

Schedule

ITEM	QTY	Select one of each item from table on opposite page.
A	1	Low Energy Operator
B	1	Electric Strike
C	2	Switch (pushbutton, key switch, key pad)

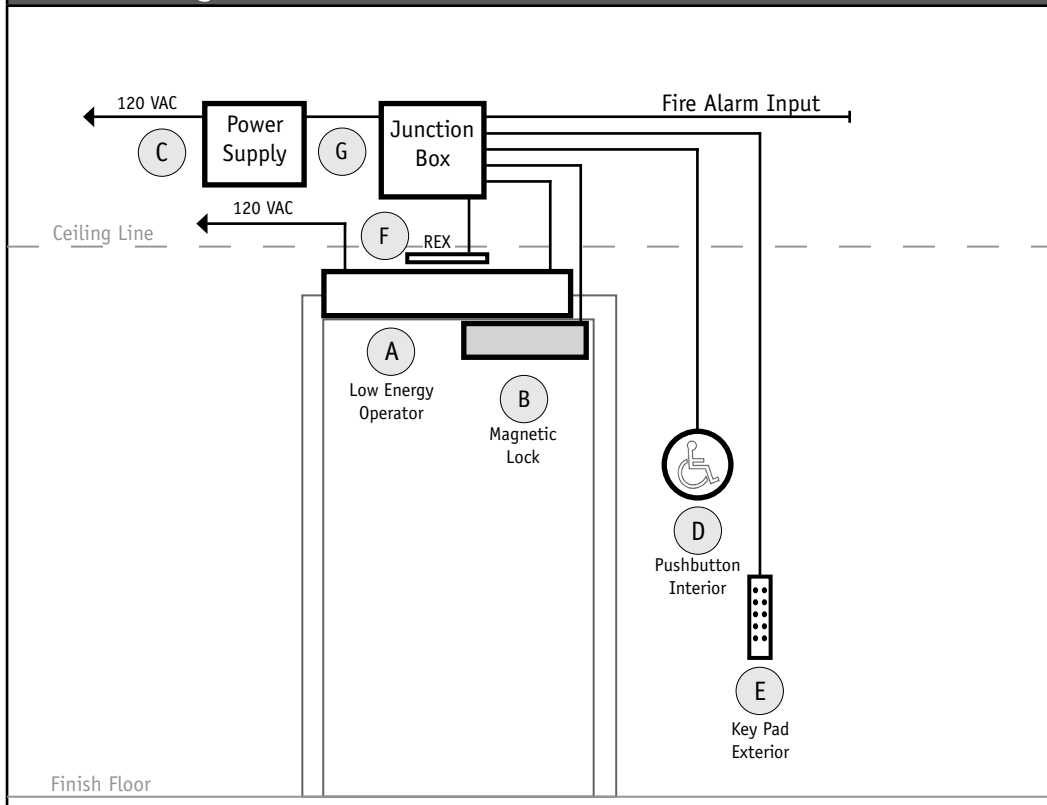
NOTE: Some door and frame modifications will be required.

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	ED8000	Low Energy Operator	DORMA
	1	8200 Series	Auto Operator	FALCON
	1	9193	Auto Operator	LCN
	1	4600 SERIES	Auto Equalizer	
	1	6900	Powermatic®	NORTON
B	1	7100 SERIES	Electric Strike	ADAMS RITE
	1	71R SERIES	Electric Strike	
	1	310 SERIES	Electric Strike	FOLGER ADAM
	1	700 SERIES	Electric Strike	
	1	1000 SERIES	Electric Strike	HES
	1	4500 SERIES	Electric Strike	
	1	5000 SERIES	Electric Strike	
	1	7000 SERIES	Electric Strike	
	1	9000 SERIES	Electric Strike	SECURITRON
	1	MUNL	Mortise Unlatch®	
	1	UNL	Unlatch®	VON DUPRIN
	1	6000 SERIES	Electric Strike	
C	2	PDK3000	Card Reader/Keypad	ALARM LOCK
	2	10PN Series	Actuator	BEA
	2	KS700/KS800 Series	Switch	DORMA
	2	212/232/2000 Series	Keypads	IEI
	2	ProxPad Series	Card Reader/Keypad	
	2	8310	Actuator	LCN
	2	500 / 600 Series	Actuator	NORTON
	2	600 / 700 Series	Actuator	SCHLAGE
	2	DK SERIES	Digital Keypad System	SECURITRON
	2	MK SERIES	Mortise Keyswitch	
	2	PB SERIES	Push Buttons	

LOW ENERGY OPERATOR

LOW ENERGY OPERATOR

Elevation Diagram



System Operation

- Doors with magnetic locks in the normally closed and locked position.
- Manually depressing interior or exterior pushbutton will deactivate the magnetic lock.
- Operators will remain inactive for a predetermined time.
- Upon expiration of time delay, the door operator will activate.
- Magnetic lock will relock upon closing of door.
- System must be interfaced with fire alarm system in building.

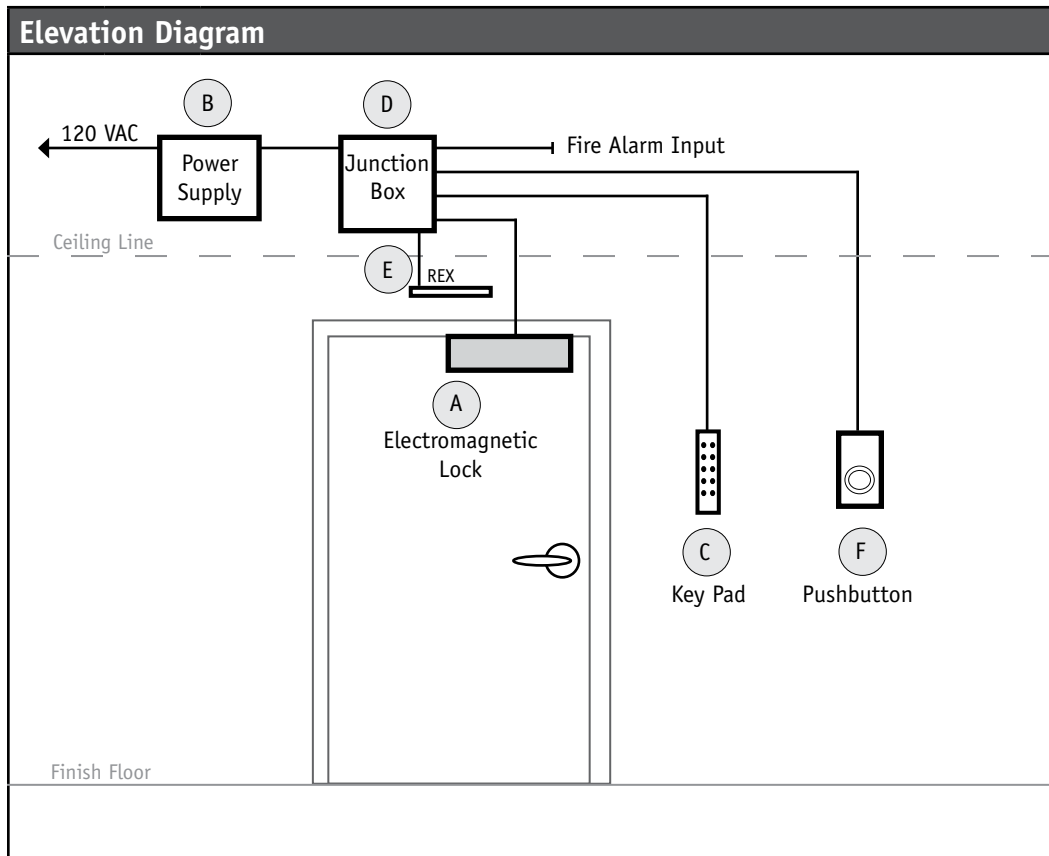
Schedule

ITEM	QTY	Select one of each item from table on opposite page.
A	1	Low Energy Operator
B	1	Magnetic Lock
C	1	Power Supply
D	1	Switch (pushbutton)
E	1	Switch (keypad, keyswitch)
F	1	Exit Motion
G	1	Junction Box

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	ED8000	Low Energy Operator	DORMA
	1	8200	Auto Operator	FALCON
	1	9193	Benchmark	LCN
	1	4600 SERIES	Auto Equalizer	
	1	6900	Powermatic®	NORTON
B	1	10MAGUL1	Magnetic Lock	BEA
	1	10MAGUL3	Magnetic Lock	
	1	M420	Magnetic Lock	SCHLAGE
	1	M450	Magnetic Lock	
	1	M490	Magnetic Lock	SECURITRON
	1	M32	Magnalock®	
	1	M62	Magnalock®	
C	1	M82	Magnalock®	
	1	PS902	Power Supply	SCHLAGE
	1	AQD3	Power Supply	SECURITRON
	1	BPS	Power Supply	
D	1	10PN Series	Actuator	BEA
	1	8310	Actuator	LCN
	1	500 / 600 SERIES	Actuator	NORTON
	1	600 / 700 SERIES	Actuator	SCHLAGE
	1	PB SERIES	Push Buttons	SECURITRON
E	1	PDK3000	Card Reader/Keypad	ALARM LOCK
	1	212/232/2000 Series	Actuator	IEI
	1	ProxPad Series	Card Reader/Keypad	
	1	DK SERIES	Digital Keypad System	SECURITRON
F	1	Fly	Exit Motion	BEA
	1	Scan II	Exit Motion	SCHLAGE
	1	XMS	Exit Motion	SECURITRON
G	1	JB7	Junction Box w/Terminal Strip	VON DUPRIN

LOW ENERGY OPERATOR

ELECTROMAGNETIC LOCKS



System Operation

- Door normally closed and locked by electromagnetic lock.
- Door released on interior side by passive infrared detector.
- A delayed action pushbutton shall be provided for redundant egress release.
- Door released on exterior side by keypad.
- Door released remotely by fire alarm or by loss of power.

Schedule

ITEM	QTY	Select one of each item from table on opposite page.
A	1	Electromagnetic Lock
B	1	Power Supply
C	1	Exterior Switch (keypad, keyswitch)
D	1	Junction Box
E	1	Exit Motion
F	1	Interior Switch (pushbutton)

CAUTION

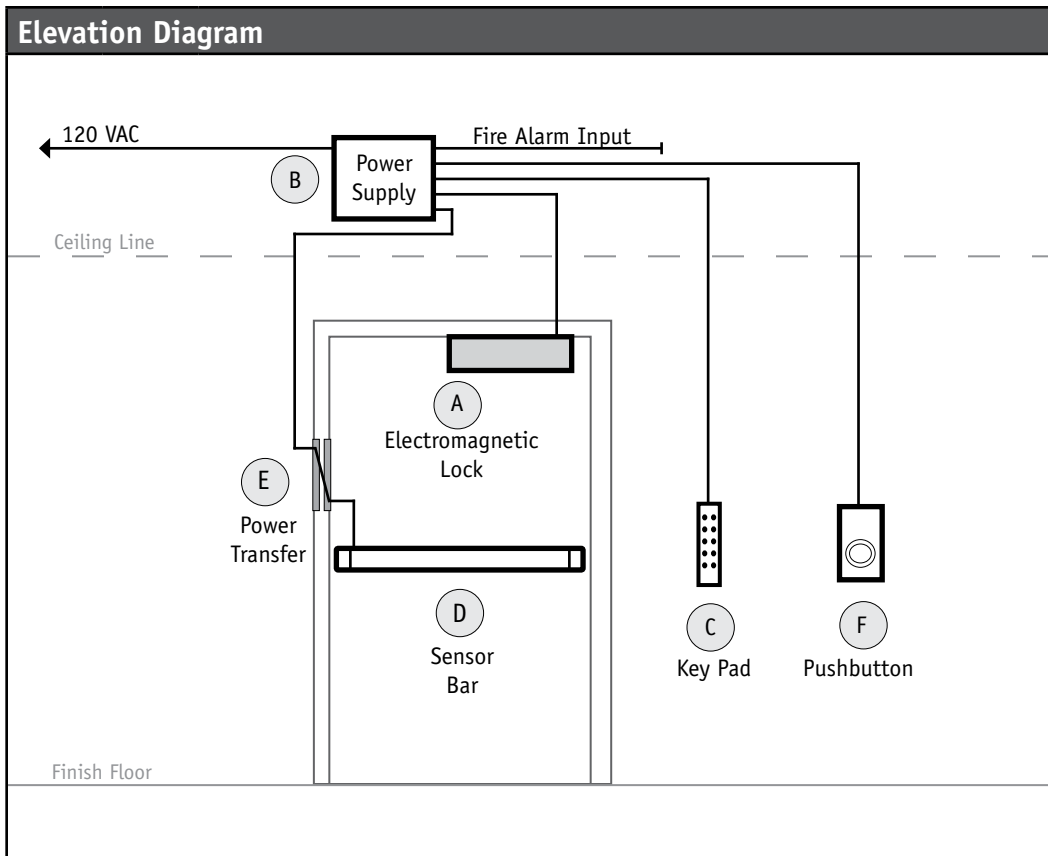
Applying auxiliary locks to doors designated as a path of egress can create a hazardous condition if not applied and installed properly.
Electromagnetic locks should always be installed "fail safe" and be tied into the building's fire alarm system or other hazard-sensing system which causes the release of the lock upon activation of the emergency system.

ELECTROMAGNETIC LOCKS

Hardware List

ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	10MAGUL1	Magnetic Lock	BEA
	1	10MAGUL3	Magnetic Lock	
	1	M420	Magnetic Lock	SCHLAGE
	1	M450	Magnetic Lock	
	1	M490	Magnetic Lock	SECURITRON
	1	M32	Magnalock®	
	1	M62	Magnalock®	
B	1	M82	Magnalock®	
	1	PS902	Power Supply	SCHLAGE
	1	AQD3	Power Supply	SECURITRON
C	1	BPS Series	Power Supply	
	1	PDK3000	Card Reader/Keypad	ALARM LOCK
	1	KS700/KS800 Series	Keyswitch	DORMA
	1	212/232/2000 Series	Keypad	IEI
	1	ProxPad Series	Card Reader/Keypad	
	1	660 SERIES	Switch	NORTON
	1	600 / 700 SERIES	Pushbutton	SCHLAGE
	1	DK SERIES	Digital Keypad System	SECURITRON
	1	MK SERIES	Mortise Keyswitch	
	1	PB SERIES	Push Buttons	
D	1	JB7	Junction Box w/Terminal Strip	VON DUPRIN
E	1	Fly	Exit Motion	BEA
	1	Scan II	Exit Motion	SCHLAGE
	1	XMS	Exit Motion	SECURITRON
F	1	600/700 DA Series	Pushbutton w/30 second timer	SCHLAGE
	1	EE Series	Pushbutton w/30 second timer	SECURITRON

ELECTROMAGNETIC LOCKS



System Operation

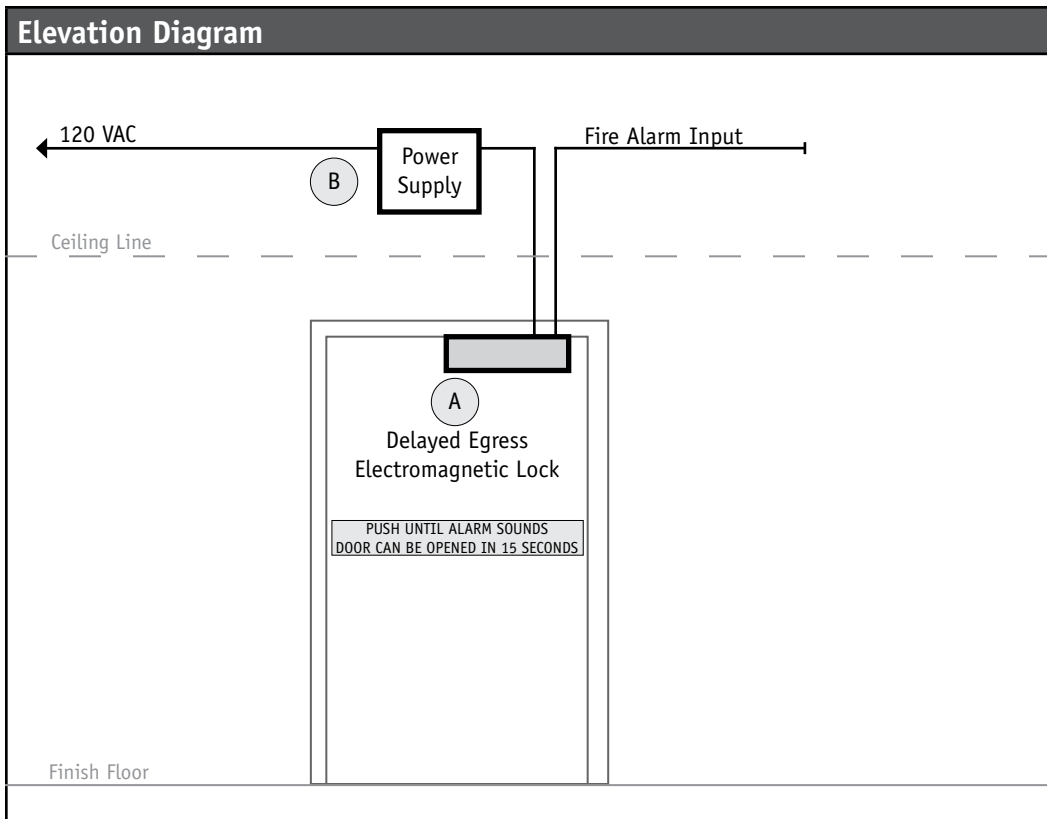
- Door normally closed and locked by electromagnetic lock.
- Door released on interior side by sensor bar.
- Door released on exterior side by keypad.
- Door released remotely by fire alarm.

Schedule

ITEM	QTY	Select one of each item from table on opposite page.
A	1	Electromagnetic Lock
B	1	Power Supply
C	1	Switch (key switch, key pad)
D	1	Sensor Bar
E	1	Power Transfer
F	1	Pushbutton

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	10MAGUL1	Magnetic Lock	BEA
	1	10MAGUL3	Magnetic Lock	
	1	M420	Magnetic Lock	SCHLAGE
	1	M450	Magnetic Lock	
	1	M490	Magnetic Lock	
	1	M32	Magnalock®	SECURITRON
	1	M62	Magnalock®	
	1	M82	Magnalock®	
B	1	PS902	Power Supply	SCHLAGE
	1	AQD3	Power Supply	SECURITRON
	1	BPS Series	Power Supply	
C	1	PDK3000	Card Reader/Keypad	ALARM LOCK
	1	212/232/2000 Series	Keypad	IEI
	1	ProxPad Series	Card Reader/Keypad	
	1	DK SERIES	Digital Keypad System	SECURITRON
D	1	8099	Request to Exit Bar	ADAMS RITE
	1	672, 692	Request to Exit Bar	SCHLAGE
	1	TSB Series	Touch Sense Bar	SECURITRON
E	1	BB1279 1104	Electric Hinge	ACSI
	1	FBB1279 1104	Electric Hinge	
	1	4612	Power Transfer	ADAMS RITE
	1	EM19	Electric Pivot	RIXSON
	1	788	Door Cord	SCHLAGE
	1	TSB-C	Door Cord	SECURITRON
	1	EPT	Power Transfer	VON DUPRIN
F	1	600/700 DA Series	Pushbutton w/30 second timer	SCHLAGE
	1	EE Series	Pushbutton w/30 second timer	SECURITRON

ELECTROMAGNETIC LOCKS

**System Operation**

- The door shall be normally closed and secured by an delayed egress electromagnetic lock.
- The locking device shall be designed so that any attempt to egress during non-emergency situations shall initiate an irreversible 15-second delay before allowing the locking device to release.
- The irreversible delay shall be initiated by no more than 15 lb force continuously applied to the release hardware for a period not to exceed three seconds.
- Initiation of the delayed egress cycle shall activate a signal that the system is functional.
- Authorized egress and system reset shall be allowed by a TouchEntry reader integral to the lock.
- The system shall include a mandatory self-adhering sign for application to the egress side surface of the door.
- The lock shall interface with an approved supervised fire system for immediate release upon fire emergency activation.

Schedule

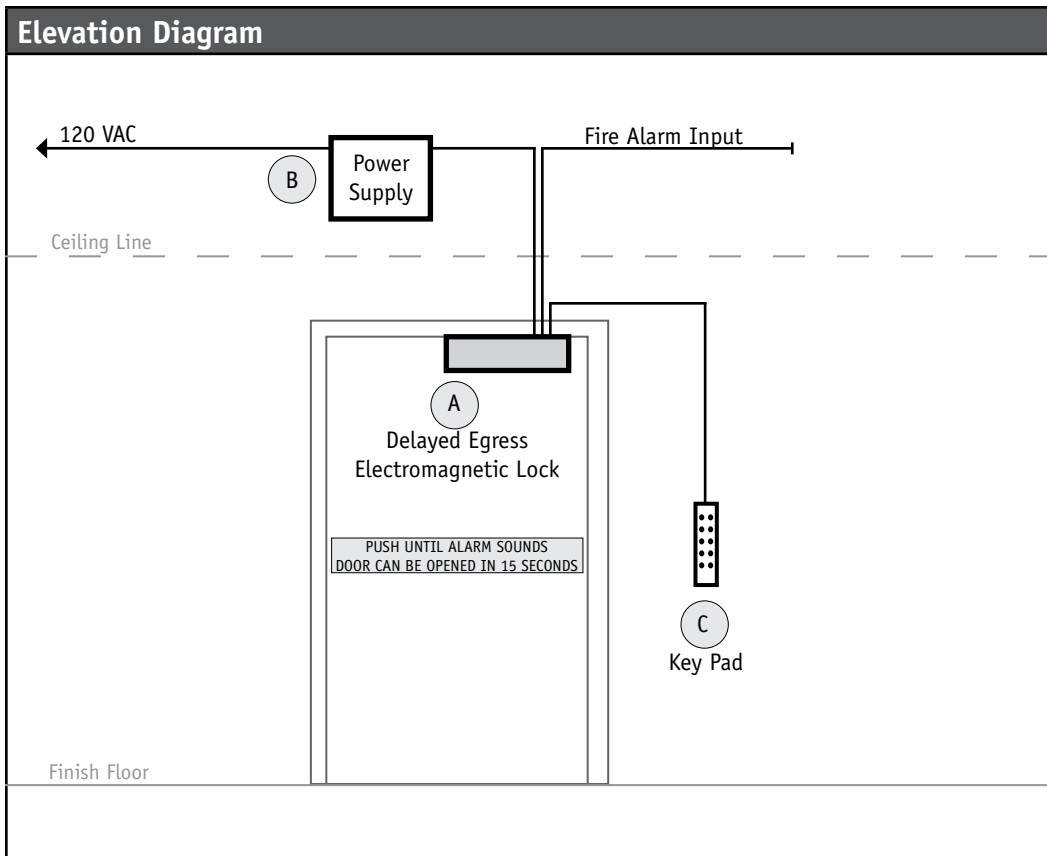
ITEM	QTY	Select one of each item from hardware list.
A	1	Delayed Egress Electromagnetic Lock
B	1	Power Supply

Hardware List

ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	10MAGDE1	Delayed Egress Maglock	BEA
	1	M490DE	Delayed Egress Maglock	SCHLAGE
B	1	PS902	Power Supply	SCHLAGE
	1	AQD3	Power Supply	SECURITRON
	1	BPS	Power Supply	

ELECTROMAGNETIC LOCKS

ELECTROMAGNETIC LOCKS

**System Operation**

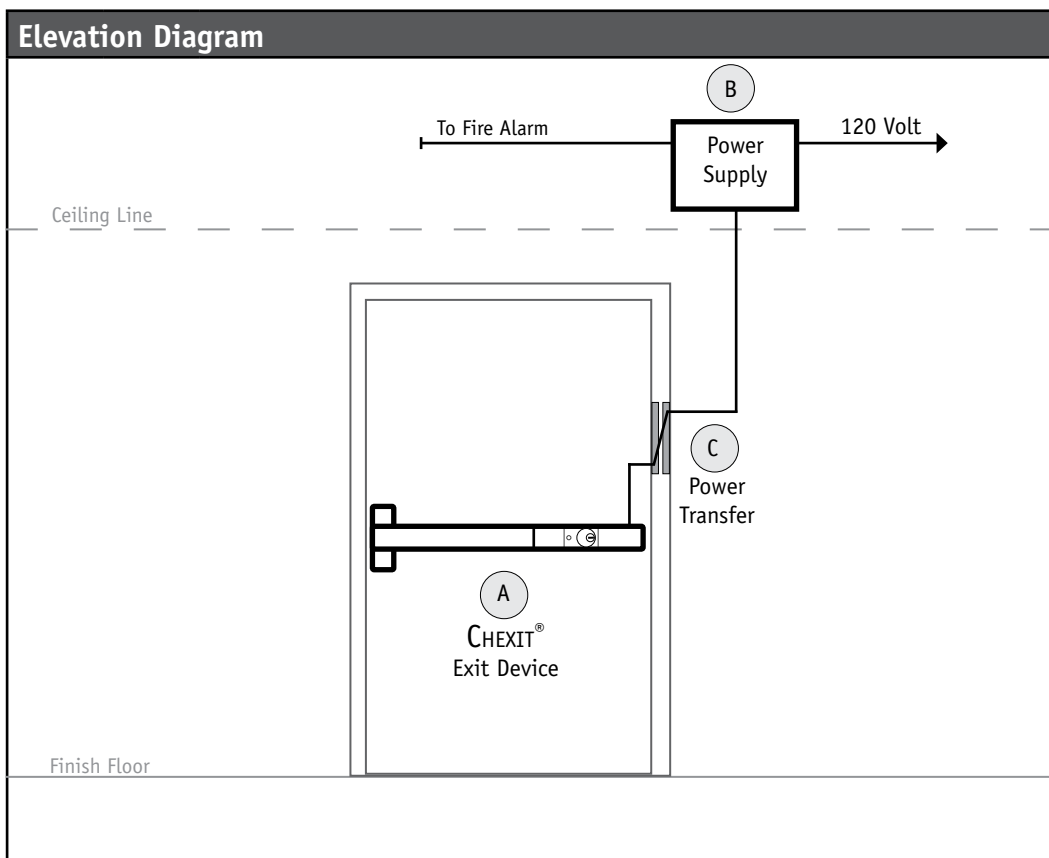
- The door shall be normally closed and secured by an delayed egress electromagnetic lock.
- The locking device shall be designed so that any attempt to egress during non-emergency situations shall initiate an irreversible 15-second delay before allowing the locking device to release.
- The irreversible delay shall be initiated by no more than 15 lb force continuously applied to the release hardware for a period not to exceed three seconds.
- Initiation of the delayed egress cycle shall activate a signal that the system is functional.
- Authorized egress and system reset shall be allowed by a TouchEntry reader integral to the lock.
- Ingress shall be allowed by exterior switch.
- The system shall include a mandatory self-adhering sign for application to the egress side surface of the door.
- The lock shall interface with an approved supervised fire system for immediate release upon fire emergency activation.

Schedule		
ITEM	QTY	Select one of each item from hardware list.
A	1	Delayed Egress Electromagnetic Lock
B	1	Power Supply
C	1	Switch (key pad, keyswitch, etc.)

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	10MAGDE1	Delayed Egress Maglock	BEA
	1	M490DE	Delayed Egress Maglock	SCHLAGE
B	1	PS902	Power Supply	SCHLAGE
	1	AQD3	Power Supply	SECURITRON
	1	BPS	Power Supply	
C	1	PDK3000	Keypad/Card Reader	ALARM LOCK
	1	212/232/2000 Series	Keypad	IEI
	1	ProxPad Series	Keypad/Card Reader	
	1	DK Series	Keypad	SECURITRON

EXIT DEVICE

CHEXIT®



System Operation

- Door normally closed and locked by CHEXIT® exit device.
 - There is no valid ingress from exterior side.
 - Door released on interior side by delay egress exit device.
 - Door released remotely by fire alarm or by loss of power.
- (see following page for details)

Schedule

ITEM	QTY	Select one of each item from table on opposite page.
A	1	CHEXIT® Controlled Exit CX99 or CX99-F
B	1	Power Supply
C	1	Power Transfer (electric hinge, electric pivot, power transfer)

NOTE: Some door and frame modifications will be required.

The system has three modes of operation command.

- Emergency Safe Exit Mode
- Secure Mode with Alarm and Conditional Release
- Authorized Exit Mode

Emergency Safe Exit Mode: Whenever the safety detector (smoke, fire, water flow, etc.) signals that an emergency condition is present to the CHEXIT®, the device will unlock instantaneously, sound the horn and flash the lamp rapidly. The door(s) may be opened immediately in the usual manner by depressing the push pad.

Secure Mode with Alarm & Conditional Release: The secure mode will operate whenever the doors are latched and the CHEXIT® is activated to the armed state. This is identifiable by the slow flashing of the indicator lamp and the device push pad will appear to be locked. When the exit device pad is depressed, the horn will sound along with a rapid flashing indicator lamp at the device. The push pad will remain in a locked state for the predetermined period of delay of 15 (or 30) seconds. This will allow time to intercept an unauthorized person who may be trying to exit. After the delay period, the push pad will retract the latchbolt, permitting egress from the area.

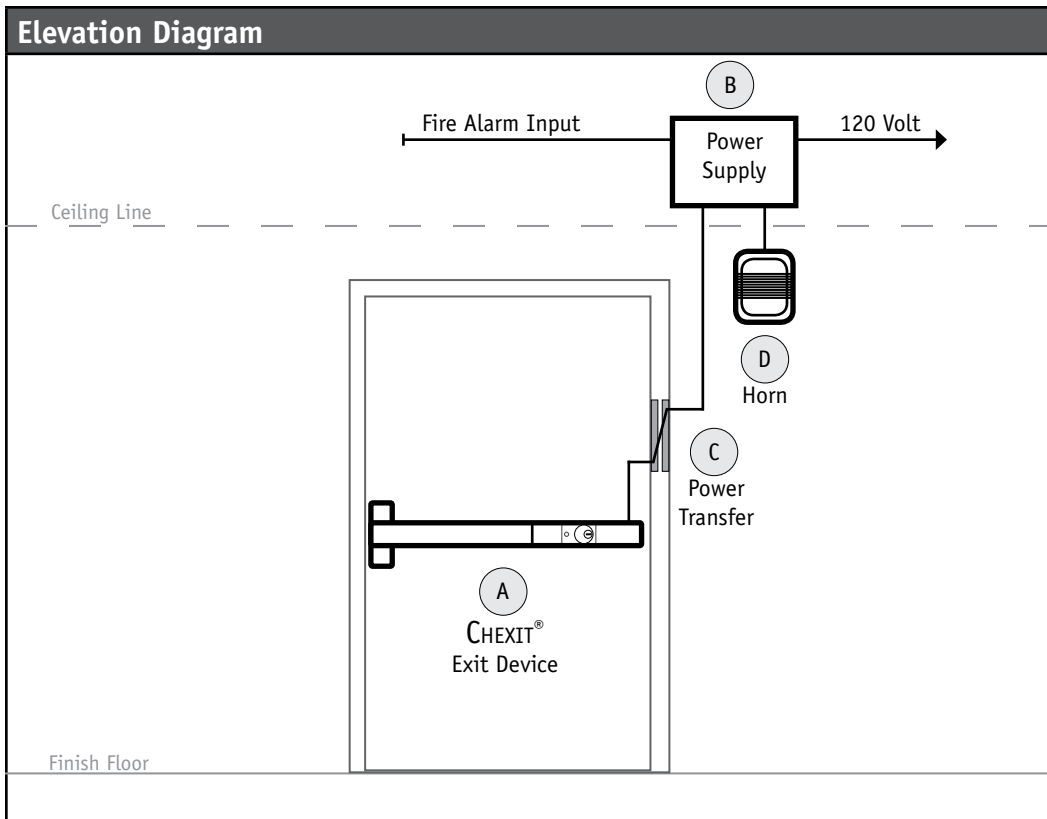
Authorized Exit Mode: For authorized exit while the CHEXIT® is armed, the door(s) may be released for a period of time -- from 2 to 28 seconds -- without activating the alarm by turning the key cylinder in counter clockwise or "off" position and resetting in clockwise position. System can remain disarmed in counter clockwise position.

In the event of a power loss, the electronics become completely inactive, allowing the CHEXIT® to operate as a normal exit device providing a means of egress from the building.

Hardware List

ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	CX99, CX99E0-F	Chexit® Exit Device	VON DUPRIN
B	1	PS914-2	Power Supply	VON DUPRIN
C	1	BB1279 1104	Electric Hinge	ACSI
	1	FBB1279 1104	Electric Hinge	
	1	4612	Wire Transfer	ADAMS RITE
	1	788	Flexible Door Cord	SCHLAGE
	1	EM19	Electric Pivot	RIXSON
	1	TSB-C	Door Cord	SECURITRON
	1	EPT	Electric Power Transfer	VON DUPRIN

CHEXIT® EXIT DEVICE



System Operation

- The door is normally closed and latched.
- Authorized egress allowed with a key, unauthorized exit through a door is delayed for 15 seconds and will cause the local horn to sound. At the end of 15 seconds the user may exit, though the alarm will continue to sound.
- There is no exterior trim or access control; entry is not allowed.
- When the unit is disarmed the opening functions as a normal exit device.
- If the fire alarm is triggered, the local horn sounds and immediate egress is available. To rearm the device, the fire alarm must first be cleared, then the key can be used.
- In the event of a power loss, the electronics become completely inactive, allowing the CHEXIT® to operate as a normal exit device providing a means of egress from the building.

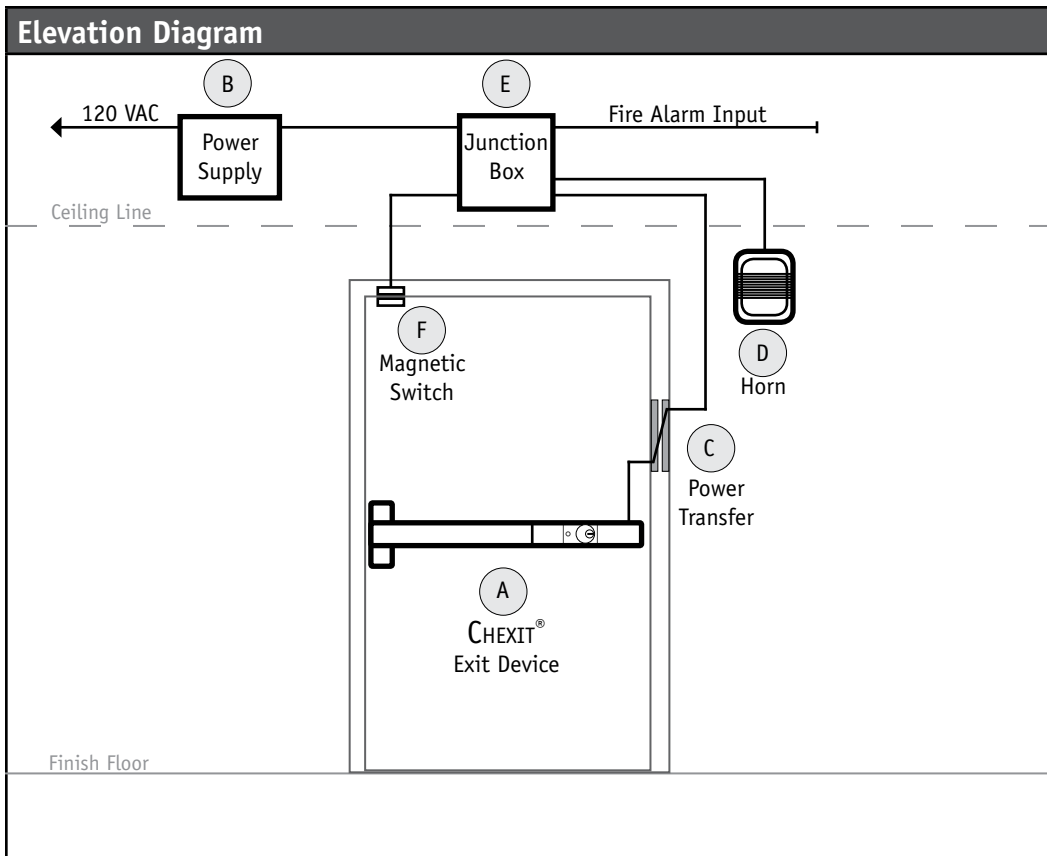
Schedule		
ITEM	QTY	Select one of each item from hardware list.
A	1	CX99 or CX99-F Exit Device
B	1	Power Supply
C	1	Power Transfer (electric hinge, electric pivot, power transfer)
D	1	Horn

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	CX99	Chexit® Exit Device	VON DUPRIN
B	1	PS-LR	Power Supply	ADAMS RITE
	1	781N	Controller	CORBIN RUSSWIN
	1	PS SERIES	Power Supply	VON DUPRIN
	1	781N	Controller	YALE
C	1	BB1279 1104	Electric Hinge	ACSI
	1	FBB179 1104	Electric Hinge	
	1	4612	Wire Transfer	ADAMS RITE
	1	788	Flexible Door Cord	LOCKNETICS
	1	EM19	Electric Pivot	RIXSON
	1	TSB-C	Door Cord	SECURITRON
	1	EPT	Electric Power Transfer	VON DUPRIN
D	1	1910-1	12/24VDC Horn	SCHLAGE
	1	800A	Audible Sounder	

CHEXIT® EXIT DEVICE

EXIT DEVICE

CHEXIT®



System Operation

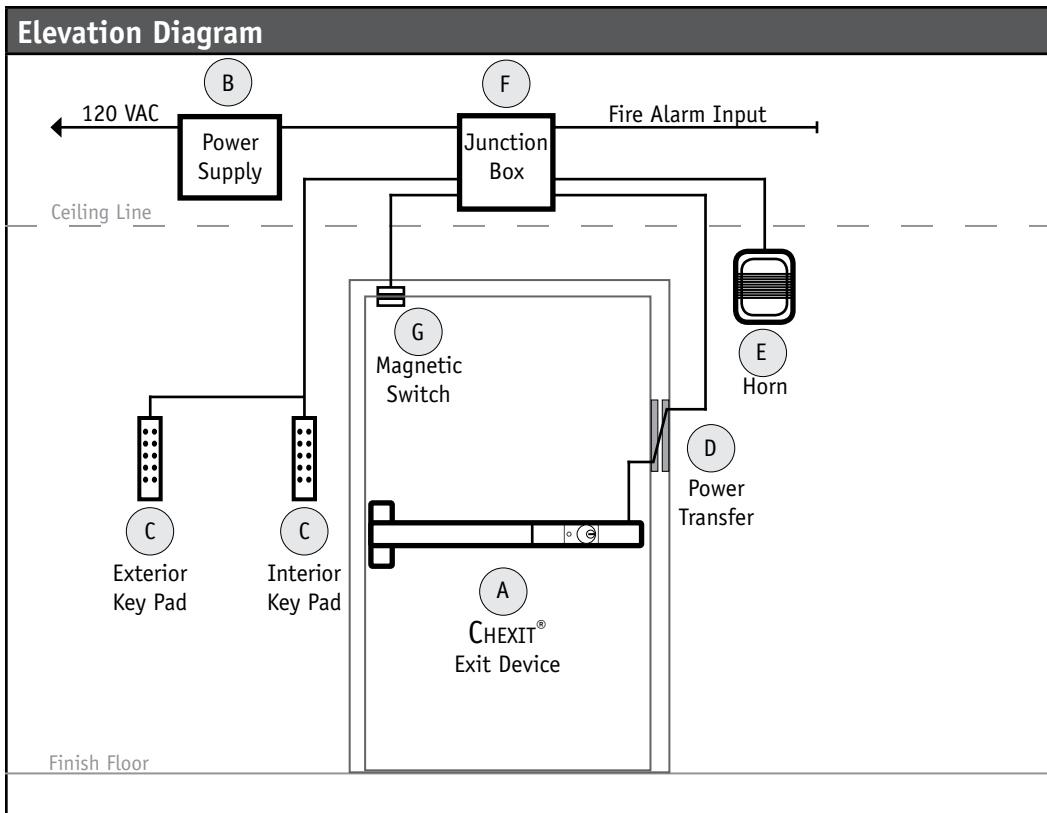
- The door is normally closed and latched.
- Authorized egress allowed with a key, unauthorized exit through a door is delayed for 15 seconds and will cause the local horn to sound. At the end of 15 seconds the user may exit, though the alarm will continue to sound.
- There is no exterior trim or access control; entry is not allowed.
- When the unit is disarmed the opening functions as a normal exit device.
- If the fire alarm is triggered, the local horn sounds and immediate egress is available. To rearm the device, the fire alarm must first be cleared, then the key can be used.
- The magnetic door position switch will cause the alarm to sound (when the device is armed) if the door is not closed or the door is forced open.
- In the event of a power loss, the electronics become completely inactive, allowing the CHEXIT® to operate as a normal exit device providing a means of egress from the building.

Schedule		
ITEM	QTY	Select one of each item from hardware list.
A	1	CX99L or CX99L-F Exit Device
B	1	Power Supply
C	1	Power Transfer (electric hinge, electric pivot, power transfer)
D	1	Horn
E	1	Junction Box
F	1	Magnetic Switch
NOTE: Some door and frame modifications will be required.		

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	CX99	Chexit® Exit Device	VON DUPRIN
B	1	PS914-2	Power Supply	VON DUPRIN
C	1	BB1279 1104	Electric Hinge	ACSI
	1	FBB179 1104	Electric Hinge	
	1	4612	Wire Transfer	ADAMS RITE
	1	788	Flexible Door Cord	LOCKNETICS
	1	EM19	Electric Pivot	RIXSON
	1	TSB-C	Door Cord	SECURITRON
	1	EPT	Electric Power Transfer	VON DUPRIN
D	1	1910-1	12/24VDC Horn	SCHLAGE
	1	800A	Audible Sounder	
E	1	JB7	Junction Box w/Terminal Strip	VON DUPRIN
F	1	MS-2049 SERIES	Magnetic Switch	DETEX
	1	180	Door Contact	GRI
	1	29	Door Contact	
	1	400	Door Contact	
	1	4400	Door Contact	
	1	229	Door Contact	
	1	7700 Series	Door Contact	SCHLAGE

CHEXIT® EXIT DEVICE

CHEXIT® EXIT DEVICE



System Operation

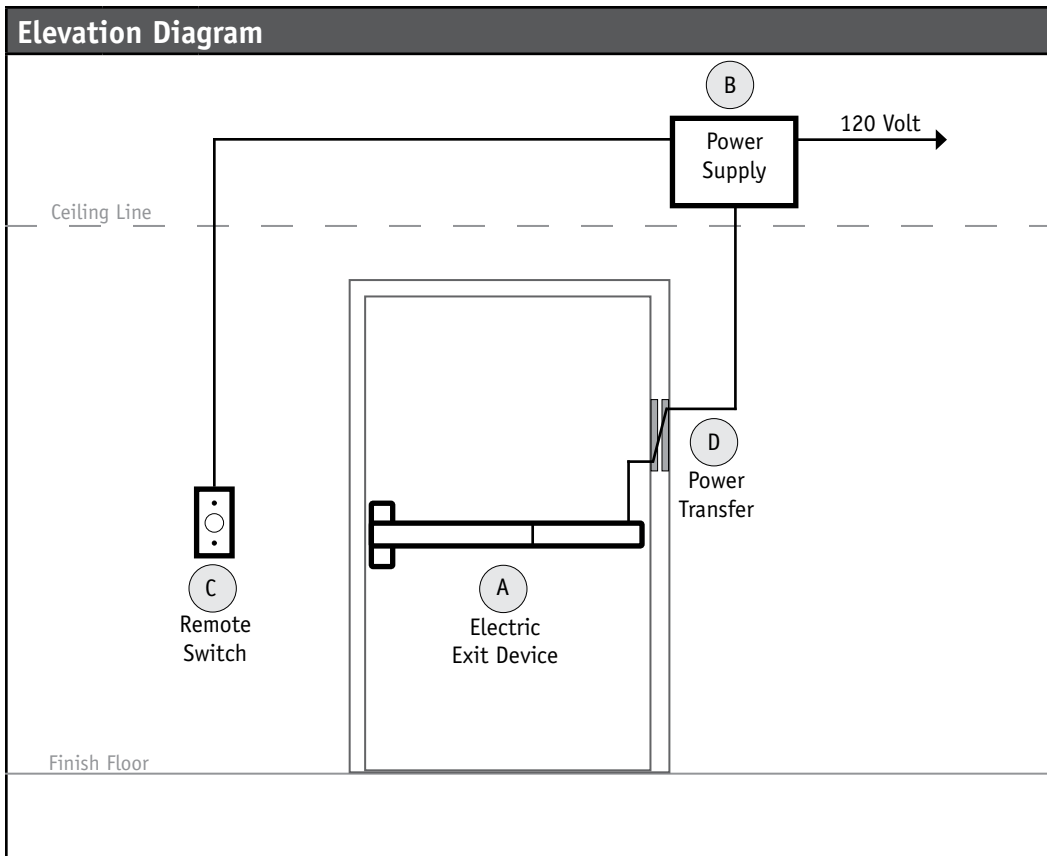
- The door is normally closed and latched.
- Authorized egress allowed with a key or access control key pad, unauthorized exit through a door is delayed for 15 seconds and will cause the local horn to sound. At the end of 15 seconds the user may exit, though the alarm will continue to sound.
- The door can be opened from exterior by access control key pad followed by the cylinder in lever trim.
- When the unit is disarmed the opening functions as a normal exit device.
- If the fire alarm is triggered, the local horn sounds and immediate egress is available. To rearm the device, the fire alarm must first be cleared, then the key can be used.
- The magnetic door position switch will cause the alarm to sound (when the device is armed) if the door is not closed or the door is forced open.
- In the event of a power loss, the electronics become completely inactive, allowing the CHEXIT® to operate as a normal exit device providing a means of egress from the building.

Schedule		
ITEM	QTY	Select one of each item from hardware list.
A	1	CX99L or CX99L-F Exit Device
B	1	Power Supply
C	1	Switch (key pad, keyswitch, etc.)
D	1	Power Transfer (electric hinge, electric pivot, power transfer)
E	1	Horn
F	1	Junction Box
G	1	Magnetic Switch
NOTE: Some door and frame modifications will be required.		

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	CX99	Chexit® Exit Device	VON DUPRIN
B	1	PS914-2	Power Supply	VON DUPRIN
C	1	PDK3000	Keypad/Card Reader	ALARM LOCK
	1	212/232/2000 Series	Keypad	IEI
	1	ProxPad Series	Keypad/Card Reader	
	1	DK SERIES	Digital Keypad System	SECURITRON
D	1	BB1279 1104	Electric Hinge	ACSI
	1	FBB179 1104	Electric Hinge	
	1	4612	Wire Transfer	ADAMS RITE
	1	788	Flexible Door Cord	SCHLAGE
	1	EM19	Electric Pivot	RIXSON
	1	TSB-C	Door Cord	SECURITRON
	1	EPT	Electric Power Transfer	VON DUPRIN
E	1	1910-1	12/24VDC Horn	SCHLAGE
	1	800A	Audible Sounder	
F	1	JB7	Junction Box w/Terminal Strip	VON DUPRIN
G	1	MS-2049 SERIES	Magnetic Switch (Flush Mount)	DETEX
	1	180	Door Contact	GRI
	1	29	Door Contact	
	1	400	Door Contact	
	1	4400	Door Contact	
	1	229	Door Contact	
	1	7700 SERIES	Door Position Switch - Flush	SCHLAGE

CHEXIT®
EXIT DEVICE

ELECTRIC LATCH EXIT DEVICE



System Operation

Electric Latch Retraction:

- Door normally closed and locked by electric latch retraction exit device.
- Door released on exterior side by remote switch.
- Door released on interior side by exit device.
- The electric latch retraction provides remote latchbolt retracting ability.

Schedule

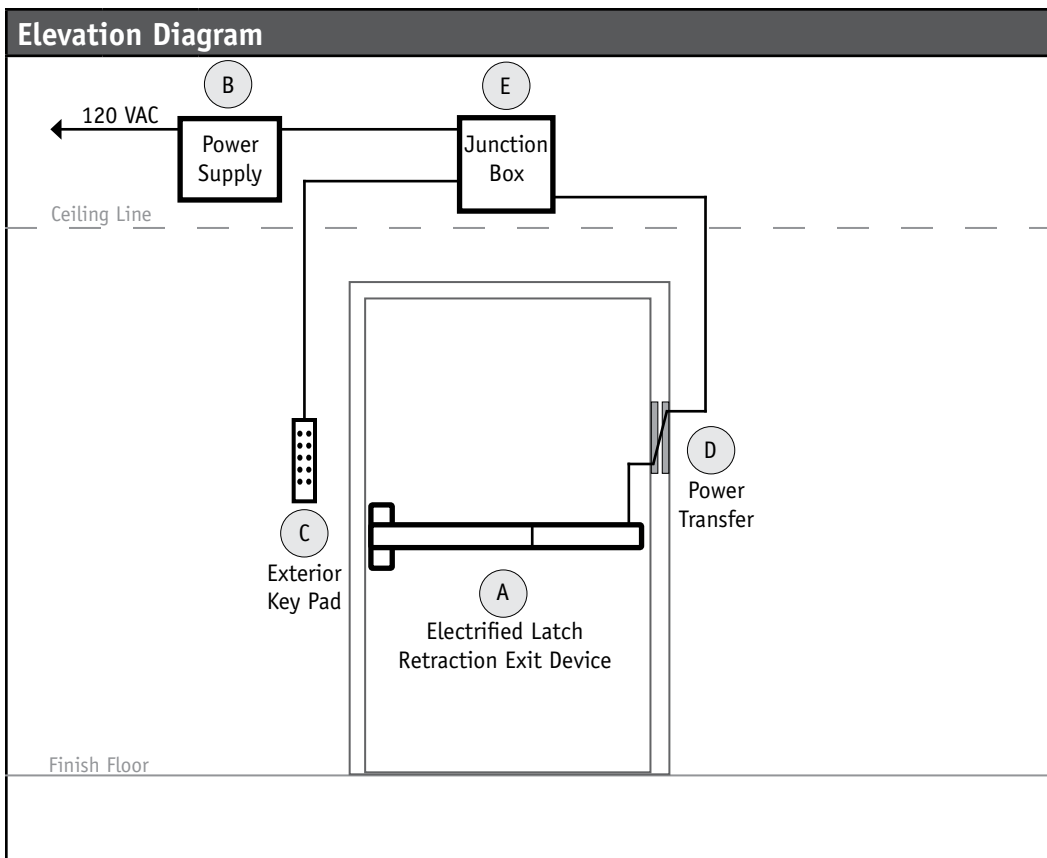
ITEM	QTY	Select one of each item from table on opposite page.
A	1	Electric Latch Retraction Exit Device
B	1	Power Supply
C	1	Remote Switch (pushbutton, key switch, key pad)
D	1	Power Transfer (electric hinge, electric pivot, power transfer)

NOTE: Some door and frame modifications will be required.

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	8600LR, 8800ER	Electric Latch Retraction	ADAMS RITE
	1	ED5000-M94 SERIES	Electric Latch Retraction	CORBIN RUSSWIN
	1	EL1000 SERIES	Electric Latch Retraction	FALCON
	1	56-8000 SERIES	Electric Latch Retraction	SARGENT
	1	EL33A/35A, EL98/99	Electric Latch Retraction	VON DUPRIN
	1	7000P SERIES	Electric Latch Retraction	YALE
B	1	PS-LR	Power Supply	ADAMS RITE
	1	781N	Controller	CORBIN RUSSWIN
	1	3540	Power Supply	SARGENT
	1	PS914-2	Power Supply	VON DUPRIN
	1	781N	Controller	YALE
C	1	PDK3000	Card Reader/Keypad	ALARM LOCK
	1	800 SERIES	Switch	DORMA
	1	7900 SERIES	Actuator	LCN
	1	212/232/2000 Series	Keypad	IEI
	1	ProxPad Series	Card Reader/Keypad	
	1	600, 700 SERIES	Pushbutton	SCHLAGE
	1	660 SERIES	Switch	NORTON
	1	DK SERIES	Digital Keypad System	SECURITRON
	1	MK SERIES	Mortise Keyswitch	
	1	PB SERIES	Push Buttons	
D	1	BB1279 1104	Electric Hinge	ACSI
	1	FBB179 1104	Elec Hinge	
	1	4612	Wire Transfer	ADAMS RITE
	1	788	Flexible Door Cord	SCHLAGE
	1	EM19	Electric Pivot	RIXSON
	1	TSB-C	Door Cord	SECURITRON
	1	EPT	Electric Power Transfer	VON DUPRIN

ELECTRIC LATCH EXIT DEVICE

ELECTRIC LATCH EXIT DEVICE



System Operation

- The door is normally closed and latched.
- Free egress is permitted at all times.
- The door can be opened from exterior by access control key pad.
- Upon power loss, a key is required to mechanically open the door.

Schedule

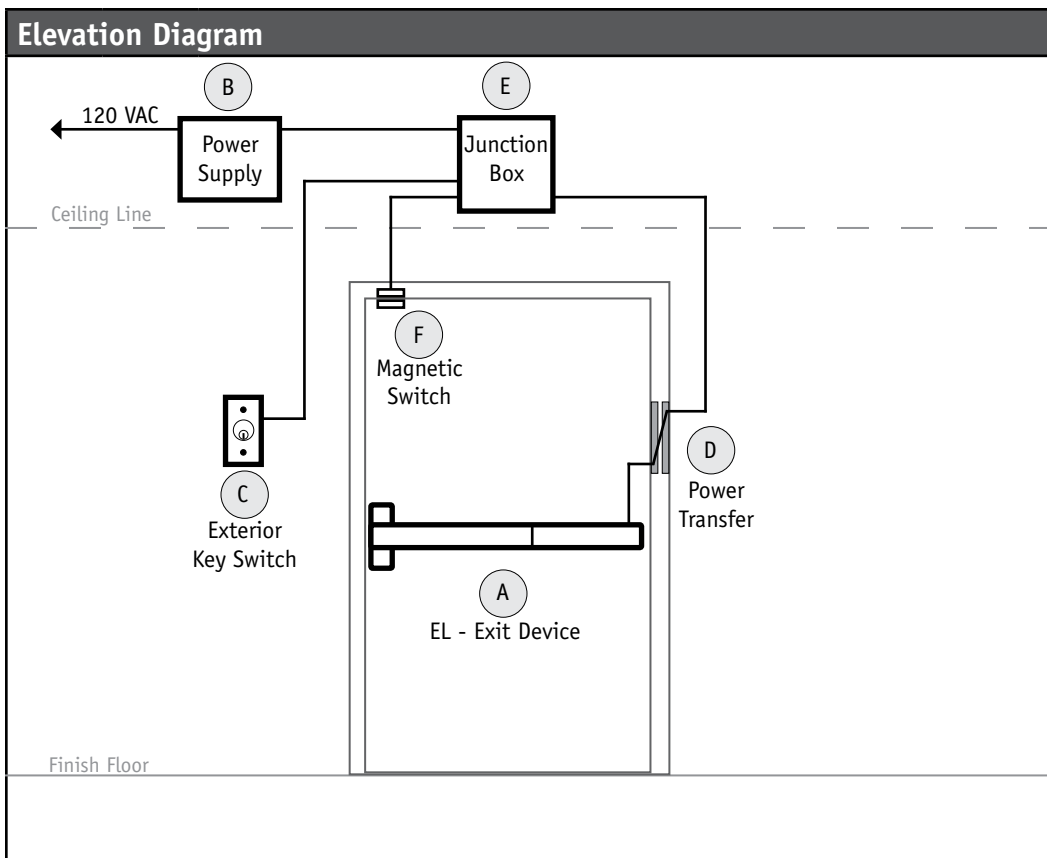
ITEM	QTY	Select one of each item from table on opposite page.
A	1	Electrified Latch Retraction Exit Device
B	1	Power Supply
C	1	Switch (key pad)
D	1	Power Transfer (electric hinge, electric pivot, power transfer)
E	1	Junction Box

NOTE: Some door and frame modifications will be required.

ELECTRIC LATCH EXIT DEVICE

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	8600LR, 8800ER	Electric Latch Retraction	ADAMS RITE
	1	ED5000-M94 SERIES	Electric Latch Retraction	CORBIN RUSSWIN
	1	EL1000 SERIES	Electric Latch Retraction	FALCON
	1	56-8000 Series	Electric Latch Retraction	SARGENT
	1	EL33A/35A, EL98/99	Electric Latch Retraction	VON DUPRIN
	1	7000P SERIES	Electric Latch Retraction	YALE
B	1	PS-LR	Power Supply	ADAMS RITE
	1	781N	Controller	CORBIN RUSSWIN
	1	3540	Power Supply	SARGENT
	1	PS SERIES	Power Supply	VON DUPRIN
	1	781N	Controller	YALE
C	1	PDK3000	Card Reader/Keypad	ALARM LOCK
	1	212/232/2000 Series	Keypad	IEI
	1	ProxPad Series	Card Reader/Keypad	
	1	DK SERIES	Digital Keypad System	SECURITRON
D	1	BB1279 1104	Electric Hinge	ACSI
	1	FBB179 1104	Electric Hinge	
	1	4612	Wire Transfer	ADAMS RITE
	1	788	Flexible Door Cord	LOCKNETICS
	1	EM19	Electric Pivot	RIXSON
	1	TSB-C	Door Cord	SECURITRON
	1	EPT	Electric Power Transfer	VON DUPRIN
E	1	JB7	Junction Box w/Terminal Strip	VON DUPRIN

ELECTRIC LATCH EXIT DEVICE



System Operation

- The door is normally closed and latched.
- Free egress is permitted at all times.
- Door opened from exterior by key switch that activates latch retraction.
- Door can be electronically dogged by key switch for "day mode" free entry.

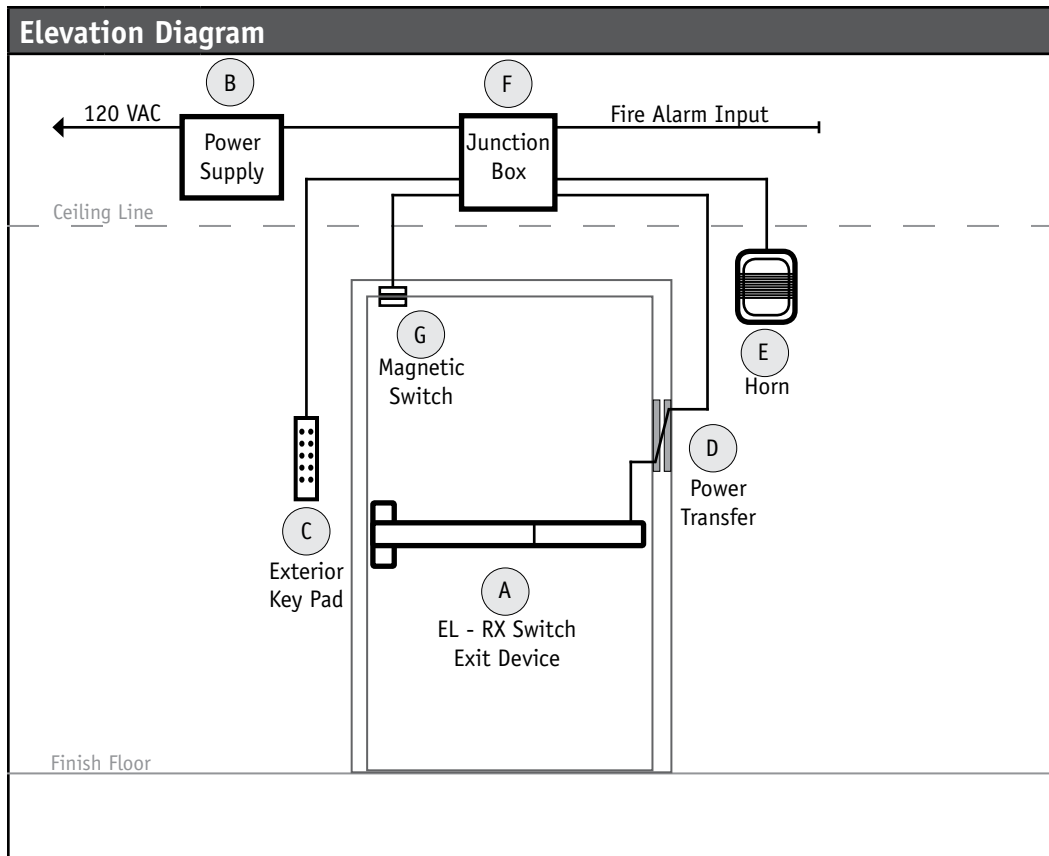
Schedule

ITEM	QTY	Select one of each item from table on opposite page.
A	1	Electric Latch Retraction Exit Device
B	1	Power Supply
C	1	Switch (key switch)
D	1	Power Transfer (electric hinge, electric pivot, power transfer)
E	1	Junction Box
F	1	Magnetic Switch

NOTE: Some door and frame modifications will be required.

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	8600LR, 8800ER	Electric Latch Retraction	ADAMS RITE
	1	ED5000-M94 SERIES	Electric Latch Retraction	CORBIN RUSSWIN
	1	EL1000 SERIES	Electric Latch Retraction	FALCON
	1	56-8000 SERIES	Electric Latch Retraction	SARGENT
	1	EL33A/35A, EL98/99	Electric Latch Retraction	VON DUPRIN
	1	7000P SERIES	Electric Latch Retraction	YALE
B	1	PS-LR	Power Supply	ADAMS RITE
	1	781N	Controller	CORBIN RUSSWIN
	1	3540	Power Supply	SARGENT
	1	PS SERIES	Power Supply	VON DUPRIN
	1	781N	Controller	YALE
C	1	KS700/KS800 Series	Keyswitch	DORMA
	1	650 SERIES	Keyswitch	SCHLAGE
	1	MK SERIES	Mortise Keyswitch	SECURITRON
D	1	BB1279 1104	Electric Hinge	ACSI
	1	FBB179 1104	Electric Hinge	
	1	4612	Wire Transfer	ADAMS RITE
	1	788	Flexible Door Cord	LOCKNETICS
	1	EM19	Electric Pivot	RIXSON
	1	TSB-C	Door Cord	SECURITRON
	1	EPT	Electric Power Transfer	VON DUPRIN
E	1	JB7	Junction Box w/Terminal Strip	VON DUPRIN
F	1	MS-2049 SERIES	Magnetic Switch	DETEX
	1	180	Door Contact	GRI
	1	29	Door Contact	
	1	400	Door Contact	
	1	4400	Door Contact	
	1	229	Door Contact	
	1	7700 SERIES	Door Position Switch	SCHLAGE

ELECTRIC LATCH EXIT DEVICE



System Operation

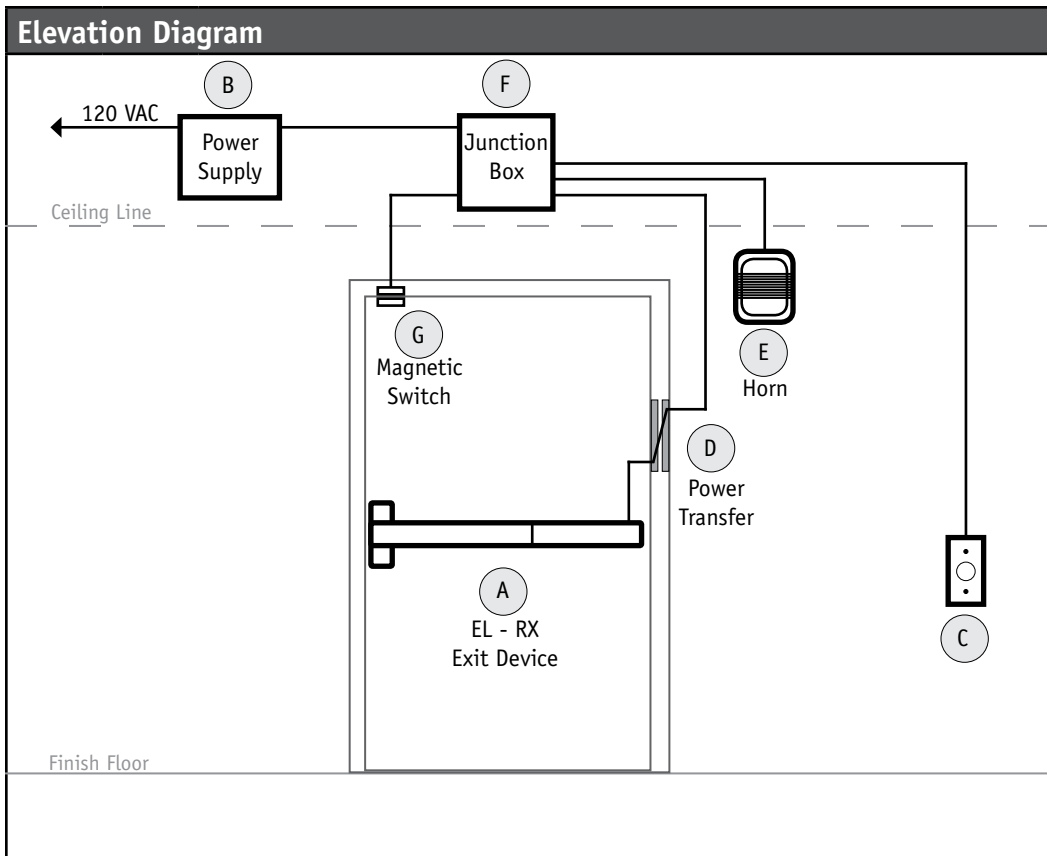
- The door is normally closed and latched.
- Free egress is permitted at all times.
- The door can be opened from exterior by access control key pad.
- If the door is held or forced open, the alarm will sound and can be deactivated by key pad or push pad.
- Upon power loss, a key is required to mechanically open the door.

Schedule

ITEM	QTY	Select one of each item from table on opposite page.
A	1	Electric Latch Retraction Exit Device x Request to Exit switch
B	1	Power Supply
C	1	Switch (key pad, key switch)
D	1	Power Transfer (electric hinge, electric pivot, power transfer)
E	1	Horn
F	1	Junction Box
G	1	Magnetic Switch

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	8600LR, 8800ER	EL-RX Exit Device	ADAMS RITE
	1	ED5000-M94 SERIES	EL-RX Exit Device	CORBIN RUSSWIN
	1	EL1000 SERIES	EL-RX Exit Device	FALCON
	1	56-8000 SERIES	EL-RX Exit Device	SARGENT
	1	EL33A/35A, EL98/99	EL-RX Exit Device	VON DUPRIN
	1	7000P SERIES	EL-RX Exit Device	YALE
B	1	PS-LR	Power Supply	ADAMS RITE
	1	781N	Controller	CORBIN RUSSWIN
	1	3540	Power Supply	SARGENT
	1	PS SERIES	Power Supply	VON DUPRIN
	1	781N	Controller	YALE
C	1	PDK3000	Keypad/Card Reader	ALARM LOCK
	1	212/232/2000 Series	Keypad	IEI
	1	ProxPad Series	Keypad/Card Reader	
	1	DK Series	Keypad	SECURITRON
D	1	BB1279 1104	Electric Hinge	ACSI
	1	FBB179 1104	Electric Hinge	
	1	4612	Wire Transfer	ADAMS RITE
	1	788	Flexible Door Cord	LOCKNETICS
	1	EM19	Electric Pivot	RIXSON
	1	TSB-C	Door Cord	SECURITRON
	1	EPT	Electric Power Transfer	VON DUPRIN
E	1	1910-1	12/24VDC Horn	SCHLAGE
	1	800A	Audible Sounder	
F	1	JB7	Junction Box w/Terminal Strip	VON DUPRIN
G	1	MS-2049 SERIES	Magnetic Switch	DETEX
	1	180	Door Contact	GRI
	1	29	Door Contact	
	1	400	Door Contact	
	1	4400	Door Contact	
	1	229	Door Contact	
	1	7700 SERIES	Door Position Switch	SCHLAGE

ELECTRIC LATCH EXIT DEVICE



System Operation

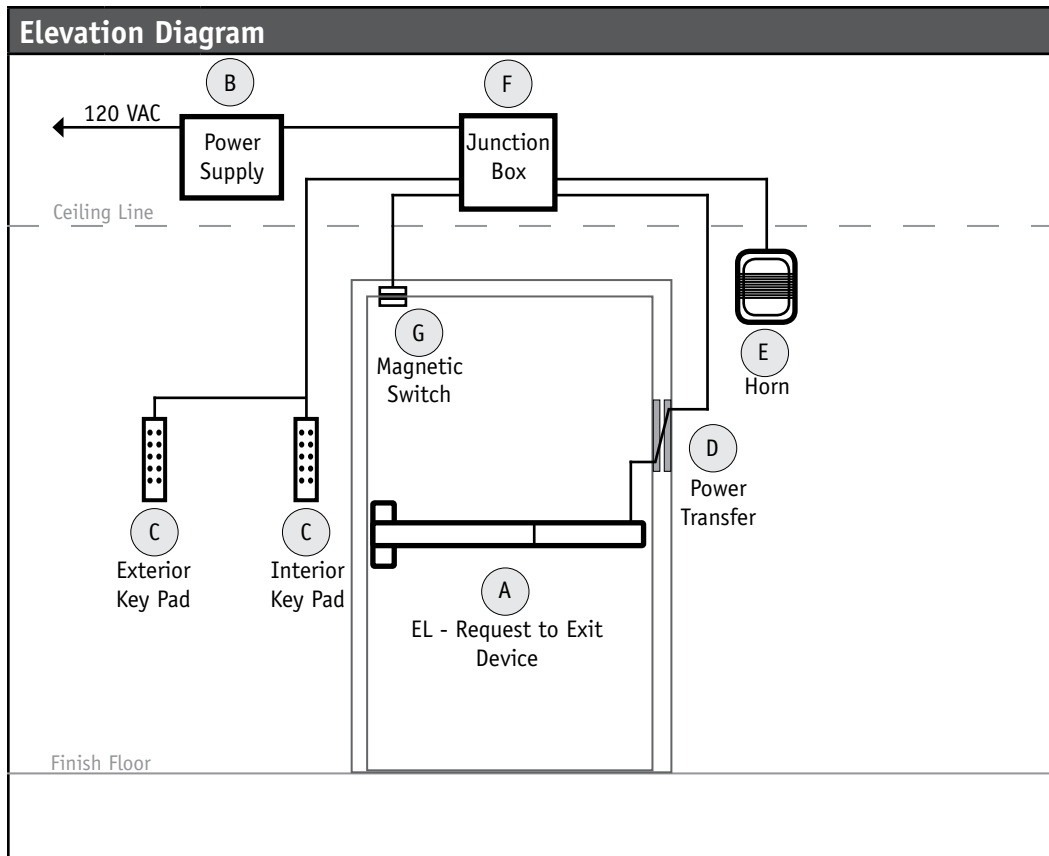
- The door is normally closed and latched.
- Free egress is permitted at all times.
- Door opened from exterior by authorized person on interior depressing the remote switch that activates latch retraction.
- Door can be opened manually from exterior by key entry in device trim.

Schedule

ITEM	QTY	Select one of each item from table on opposite page.
A	1	Electric Latch Retraction Exit Device x Request to Exit switch
B	1	Power Supply
C	1	Switch (key switch, card reader, etc.)
D	1	Power Transfer (electric hinge, electric pivot, power transfer)
E	1	Horn
F	1	Junction Box
G	1	Magnetic Switch

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	8600LR, 8800ER	EL-RX Exit Device	ADAMS RITE
	1	ED5000-M94 SERIES	EL-RX Exit Device	CORBIN RUSSWIN
	1	EL1000 SERIES	EL-RX Exit Device	FALCON
	1	56-8000 SERIES	EL-RX Exit Device	SARGENT
	1	EL33A/35A, EL98/99	EL-RX Exit Device	VON DUPRIN
	1	7000P SERIES	EL-RX Exit Device	YALE
B	1	PS-LR	Power Supply	ADAMS RITE
	1	781N	Controller	CORBIN RUSSWIN
	1	3540	Power Supply	SARGENT
	1	PS SERIES	Power Supply	VON DUPRIN
	1	781N	Controller	YALE
C	1	KS700/KS800 Series	Keyswitch	DORMA
	1	660 Series	Pushbutton	NORTON
	1	600/700 Series	Keyswitch	SCHLAGE
	1	MK Series	Keyswitch	SECURITRON
	1	PB Series	Pushbutton	
D	1	BB1279 1104	Electric Hinge	ACSI
	1	FBB179 1104	Electric Hinge	
	1	4612	Wire Transfer	ADAMS RITE
	1	788	Flexible Door Cord	LOCKNETICS
	1	EM19	Electric Pivot	RIXSON
	1	TSB-C	Door Cord	SECURITRON
	1	EPT	Electric Power Transfer	VON DUPRIN
E	1	1910-1	12/24VDC Horn	SCHLAGE
	1	800A	Audible Sounder	
F	1	JB7	Junction Box w/Terminal Strip	VON DUPRIN
G	1	MS-2049 SERIES	Magnetic Switch	DETEX
	1	180	Door Contact	GRI
	1	29	Door Contact	
	1	400	Door Contact	
	1	4400	Door Contact	
	1	229	Door Contact	
	1	7700 SERIES	Door Position Switch	SCHLAGE

ELECTRIC LATCH EXIT DEVICE



System Operation

- The door is normally closed and latched.
- Egress is permitted by key pad deactivating alarm, just passing thru the door will cause the alarm to sound.
- The door can be opened from exterior by access control key pad.
- If the door is not reclosed and relatched, the alarm will sound.
- If the door is held or forced open the alarm will sound.

Schedule

ITEM	QTY	Select one of each item from table on opposite page.
A	1	Electric Latch Retraction x Request to Exit switch
B	1	Power Supply
C	2	Switch (key switch, card reader, etc.)
D	1	Power Transfer (electric hinge, electric pivot, etc.)
E	1	Horn
F	1	Junction Box
G	1	Magnetic Switch

Hardware List				
ITEM	QTY	PART NUMBER	DESCRIPTION	MANUFACTURE
A	1	8600LR, 8800ER	EL-RX Exit Device	ADAMS RITE
	1	ED5000-M94 SERIES	EL-RX Exit Device	CORBIN RUSSWIN
	1	EL1000 SERIES	EL-RX Exit Device	FALCON
	1	56-8000 SERIES	EL-RX Exit Device	SARGENT
	1	EL33A/35A, EL98/99	EL-RX Exit Device	VON DUPRIN
	1	7000P SERIES	EL-RX Exit Device	YALE
B	1	PS-LR	Power Supply	ADAMS RITE
	1	781N	Controller	CORBIN RUSSWIN
	1	3540	Power Supply	SARGENT
	1	PS SERIES	Power Supply	VON DUPRIN
	1	781N	Controller	YALE
C	2	PDK3000	Keypad/Card Reader	ALARM LOCK
	2	212/232/2000 Series	Keypad	IEI
	2	ProxPad Series	Keypad/Card Reader	
	2	DK Series	Keypad	SECURITRON
D	1	BB1279 1104	Electric Hinge	ACSI
	1	FBB179 1104	Electric Hinge	
	1	4612	Wire Transfer	ADAMS RITE
	1	788	Flexible Door Cord	LOCKNETICS
	1	EM19	Electric Pivot	RIXSON
	1	TSB-C	Door Cord	SECURITRON
	1	EPT	Electric Power Transfer	VON DUPRIN
E	1	1910-1	12/24VDC Horn	SCHLAGE
	1	800A	Audible Sounder	
F	1	JB7	Junction Box w/Terminal Strip	VON DUPRIN
G	1	MS-2049 SERIES	Magnetic Switch	DETEX
	1	180	Door Contact	GRI
	1	29	Door Contact	
	1	400	Door Contact	
	1	4400	Door Contact	
	1	229	Door Contact	
	1	7700 SERIES	Door Position Switch	SCHLAGE

NOTES:

GLOSSARY

A	An abbreviation of ampere .
AC	Alternating current
access	The ability or right to approach, enter, or exit.
access card	A card containing coded information which can be read by a device.
access code	Data or instructions contained in a card or entered on a keypad which, grants access to a protected area if the data or instructions is deemed valid by the controlling electronics.
access control	The means of influencing and regulating the flow of persons through a door (entry and/or exit).
actuator	The mechanism of the switch or switch enclosure that operates the contacts.
adjustable	The ability to change or alter the parameters by means of an adjustment such as a potentiometer, a resistor or a switch.
alarm	A device used to indicate an emergency or other specific condition.
alternating current (AC)	An electric current that reverses its direction regularly and continually. The voltage alternates its polarity and direction of current flow negative to positive. AC current increases to a peak, decreases through zero and peaks in the opposite direction. AC current flows back and forth in the conductor and is expressed in cycles per second or Hertz (Hz).
ambient temperature	The temperature of the air in the immediately surrounding environment.
ampere (A, amp)	The unit of measurement for the rate of electrical current flow, characterized by the symbols 'I' (in Ohm's law formulas) or 'A.' One ampere is the current flowing through one ohm of resistance at one volt potential.
ampere/hour (AH)	A measurement of a battery's capacity. One ampere of current flowing for one hour equals one ampere/hour.
annunciator	An audible and/or visual signaling device.
ANSI	The American National Standards Institute (ANSI) is a private, non-profit organization that administers and coordinates the U.S. voluntary standardization and conformity assessment system.
arc	An electrical current through air or across the surface of an insulator associated with high voltage. An arc usually occurs when a contact is opened, de energizing an inductive load. Arcing of a contact will limit its life.
armor	A metal jacket surrounding wires for mechanical protection.
audit trail	A record of transactions that can be used by an interested party to trace an access control activities during a specific time period.
authorized release device	A device that, when activated, allows authorized persons to enter or exit monitored and controlled openings without triggering an alarm. The authorized passage release may be a keyed switch, a card reader, a digital code reader and so forth.
battery standby	A means of automatically switching over to stored battery power during local primary power failure.

GLOSSARY

GLOSSARY

GLOSSARY	
biometric identification	Assessment of a unique body feature such as fingerprint, hand geometry, or voice analysis.
block diagram	A drawing that shows the relationship of equipment in a system. Blocks used to represent each piece of equipment are arranged into a system diagram that shows their physical or operational relation to each other.
bolt	The projectable member of a lock or latch mechanism that engages the door frame and the strike.
bolt position switch	A miniature switch used on or in a locking device to monitor whether the locking bolt is in the locked (projected) or unlocked (retracted) position.
break	To open an electrical circuit.
breakdown voltage	The voltage at which the insulation between two conductors is destroyed.
brownout	Low line voltage which can cause misoperation of and possible damage to equipment. For example, a motor that tries to start at low voltage can actually be in a lock-rotor condition and can over-heat.
cable	A group of insulated conductors in a common jacket.
cable clamp	A device used to give mechanical support to a wire handle or cable.
cable tie	A belt-like plastic strip that loops around bundles of cables or insulated wires to hold them together.
chip	A microminiature electronic circuit on a tiny silicon wafer or other conductive material.
circuit	The path through which electrical energy flows.
circuit, closed	(1) An electrical circuit in which current normally flows until interrupted by the opening of a switch or a switch-type electronic component. (2) A circuit or switch in which the contacts are closed during normal operation.
circuit, open	(1) An electrical circuit in which current does not flow until permitted by the closing of a switch or a switch-type electronic component. (2) A circuit or switch in which the contacts are open during normal operation.
closure	The point at which two contacts meet to complete a circuit.
code bypass	A means of opening a door from inside the protected area (usually by pressing a button) without entering a key or code in the key reader.
coded card	A plastic card (usually polyvinyl chloride) that has a combination (three to six digits) secreted in its design, either in a series of small magnets or on magnetic tape (mag strip).
coil, electric	Successive turns of insulated wire that create a magnetic field when an electric current is passed through them.
conductivity	The capability of a material to carry electrical current - usually expressed as a percentage of copper conductivity (copper being 100 percent).

GLOSSARY

GLOSSARY	
conductor	Material with the ability to carry electric current. The term is also used for an electric wire.
conduit	A tube or trough for protecting electrical wires or cables. It may be a solid or flexible tube in which insulated electrical wires are run.
connector	Generally, any device used to provide rapid connect/disconnect service for electrical cable and wire terminations.
contacts	Electrically conductive points, or sets of points, used to make or break an electrical circuit mechanically.
contact ratings	Maximum load rating of a switch, stated in voltage or current.
continuity	The state of being complete and uninterrupted, like a normally closed circuit.
continuity check	A test performed on a length of wire or cable to determine whether the electrical current flows continuously throughout the length.
continuous duty	Refers to a device or a control that can operate continuously with no off or rest periods.
continuous duty locking unit	An electric lock equipped with a heavy-duty solenoid that can be energized indefinitely.
control box	A sheetmetal enclosure that contains electronic and electromechanical controls and circuitry.
crimp	To compress (deform) a connector barrel around a cable in order to make an electrical connection. Proper crimping is suitable for all wire types.
current	The flow of electrons through an electrical conductor. Current is measured in amperes.
current carrying capacity	The maximum current an insulated conductor can safely carry without exceeding its insulation and jacket temperature limitations.
cycle (frequency)	The number of times per second the current in an alternating current system reverses its direction of flow. The standard commercial current in the United States is 60-cycle (60Hz).
DC	direct current
deadbolt	A bolt operated manually and not actuated by springs. When blocked, the bolt cannot be forced back. A deadbolt is operated (projected and retracted) by a key cylinder or lever handle.
deadlatch	A latch in which the latchbolt is positively held in the projected position by an auxiliary mechanism
decibel (dB)	An increment of measurement used to compare measured levels of sound energy (intensity) to the apparent level detected by the human ear. A sound that has 10 times the energy of another sound is said to be 10 decibels louder; 100 times the energy is 20 decibels louder; 1,000 times the energy is 30 decibels louder and so on. Decibel levels are correctly expressed as the number of decibels at a measured distance from the source of sound (for example, 125 dB at 10 feet).

GLOSSARY

GLOSSARY

GLOSSARY	
de-energize	To remove power.
delay	A period of time before or during an event.
delay on break	A term used to describe a mode of operation relative to timing devices. The delay begins when the initiate switch is opened (delay on break of initiate switch).
delayed egress	An irreversible time delay built in the locking device of an opening preventing immediate egress.
dielectric	Any insulating material between two conductors that permits electrostatic attraction and repulsion to take place across it.
DIP switch	A miniature switch used to program, set, or change circuit functions. DIP is an abbreviation for the dual-in-line package which houses the switch.
direct current (DC)	Electrical current that travels in only one direction and has negative (-) and positive (+) polarity. It may or may not have an AC ripple component. The DC sources that are unfiltered should be referred to as full-wave or half-wave rectified AC.
door status switch	A door status switch is a switch used to monitor whether a door is in an opened or closed position. Also called Door Position Switch.
double pole, double throw (DPDT)	A term used to describe a switch or relay output contact form (2 form C) in which two separate switches are operating simultaneously, each with a normally open and normally closed contact and a common connection. This form is used to make and break two separate circuits.
dry contact	Metallic points making (shorting) or breaking (opening) a circuit. The switched circuit must have its own source of power and is merely routed through the dry contacts.
duty cycle	The percentage of on time or operating time of a device. For example, a device that is on for one minute and off for nine minutes, is operating at a 10 percent duty cycle.
egress	The act of going out.
electric strike	An electric door locking device (usually solenoid-operated) that will unlock the door when electrical power is applied to it. A fail-safe configuration will operate in the reverse condition (i.e., normally locked when power is applied and unlocked when power is interrupted.)
electromagnet	A coil of wire, usually wound on an iron core, that produces a strong magnetic field when current is sent through the coil.
electromagnetic	Pertaining to combined electric and magnetic fields associated with movements of electrons through conductors.
electromagnetic lock	A locking device that uses magnetism to hold the door securely closed.
electromotive force (EMF)	Pressure or voltage; the force that causes current to flow in a circuit.
emergency release	An optional feature of a lock that provides a means of overriding the lock and retracting the bolt in an emergency. It can be operated either mechanically or electrically.

GLOSSARY

GLOSSARY	
encapsulant	A material, usually epoxy, used to encase and seal all components in an electronic circuit.
end-of-line resistor (EOL)	Resistance in a supervised circuit, usually at the farthest point from the alarm control unit, restricting the flow of current to a known value which is monitored. Shorting the circuit in an attempt to bypass protective devices in the loop (i.e., door contacts) will create increased flow of current and cause an alarm. Opening (breaking) the circuit also triggers an alarm if the system is armed, or a supervisory signal, if the system is disarmed.
energize	To apply power.
entrance delay	The time between actuation of a sensor on an entrance door and the sounding of a local alarm. This time allows ingress without causing a false alarm.
explosion-proof device	Any device, such as a contact switch, that is enclosed in an explosion-proof housing to help prevent possible sparking in potentially volatile environments.
external adjustment	A device, outside the control, that is used to alter or change the controlled parameter (e.g., an external potentiometer with a time-delay control).
factory calibration	Tuning or altering of a control circuitry by the manufacturer to bring the circuit into specification; normally stated as a percentage deviation.
factory fixed	Refers to adjustment made by the manufacturer and not accessible to the user.
fail-safe	An electric lock that automatically unlocks with any power interruption.
fail-secure	An electric lock that automatically locks with any power interruption.
fast-on terminal	A solderless, easy-to-use, female/male push-on terminal that comes in various sizes. It is a common termination for controls and is widely used in automotive, appliance and other OEM equipment.
fire door latch	A latch that has a 3/4-inch throw and an antifriction retractor.
flasher	A control in which the output to the load (normally a lamp) is turned on and off repeatedly as a given rate of operation or flashes per minute (FPM).
flux	(1) The lines of force that make up an electrostatic field. (2) The rate of flow of energy across or through a surface. (3) A substance used to promote or facilitate fusion, such as a material that removes oxides from surfaces to be joined by soldering or welding.
form C contact	A switch mechanism that contains three terminals (normally open, common and normally closed).
frequency	The number of complete operations or cycles that take place within a given period of time (normally one second), as in the AC line frequency of 60Hz (60 cycles per second).
full-wave	A term used for both AC and DC voltages, suggesting that both halves of the sine wave are utilized (e.g., full-wave AC and full-wave rectified AC or unfiltered full-wave DC).
fuse	A protective device placed in a circuit as a safeguard, containing a strip of easily melted metal. When the current flow becomes too great, the metal melts, thus breaking the circuit.

GLOSSARY

GLOSSARY

GLOSSARY	
ground	A conducting connection between an electrical circuit and the earth or other large conducting body to serve as an electrical ground, thus making a complete electrical circuit.
half-wave	Refers to the passing or the use of only one-half of the AC sine wave. The result is half-wave rectified AC, or unfiltered half-wave DC.
hand of door	The description of swinging door operation, always viewed from outside the room, building, and so forth. <i>Left hand</i> means that the door hinges on the left; <i>right hand</i> means the door hinges on the right. (See chart)
hard-wired	Refers to groups of connections that require the use of wire conductors.
Hertz (Hz)	The international unit of frequency equal to one cycle per second; named after the German physicist Heinrich Rudolph Hertz (1857-94).
hi-pot	A test designed to determine the highest potential that can be applied to a conductor without breaking through the insulation.
hookup wire	Insulated wire used for low-current, low-voltage (under 1,000V) applications internally within enclosed electronic equipment.
hot	Connected, alive, energized.
induction	An influence exerted by a charged body or by a magnetic field on neighboring bodies without apparent communication; electrifying, magnetizing, or inducing voltage by exposure to a field.
inductive load	An electric device made of wire, wound or coiled, to create a magnetic field to produce mechanical work when energized. Components such as motors, solenoids, and relay coils are all inductive loads by nature. An inductive load can exhibit an inrush or lock-rotor current of up to five times its normal running or steady state current when energized. When deenergized, the magnetic field collapses and a high-voltage transient is generated, which can cause arcing across contacts or a malfunction of and/or damage to electronic circuits. When transients are present, they should be suppressed. (See <i>transient</i> .)
input voltage	The designed power source requirement needed by equipment in order to operate properly.
inrush	The initial surge of current through a load when power is first applied. Lamp loads, inductive motors, solenoids and capacitive load types all have inrush or surge currents higher than the normal running or steady state currents. Resistive loads, such as heater elements, have no inrush.
insulation	A material that provides high electric resistance, making it suitable for covering components, terminals and wires to prevent possible future contact of adjacent conductors, resulting in a short circuit.
interlock	A system of multiple doors with controlled interaction. Interlocks are also known as lighttraps, airtraps, mantraps and sally-ports. (See <i>safety interlock</i> , <i>security interlock</i> .)
intermittent duty	A solenoid designed to be energized for short periods of time. Continuous operation may damage an intermittent duty solenoid.
interval	A period of time from one event to another. An interval timer controls the time for which a load is energized or de-energized.

GLOSSARY

GLOSSARY	
isolation	No electrical connection between two or more circuits.
jacket	Pertaining to wire and cable, the outer sheath that protects it against the environment and may also provide additional insulation.
jumper	A short length of conductor used to make a connection between terminals, around a break in a circuit or around an instrument. It is usually a temporary connection.
junction	A point in a circuit where two or more wires are connected.
junction box	A protective enclosure for connecting circuit wires.
kilohm	One thousand (10^3) ohms.
labeled	Refers to equipment or materials that have a label, symbol or other identifying mark of an organization that is approved by the authority having jurisdiction over product evaluation. The label indicates compliance by the manufacturer with appropriate equipment or performance standards.
latch	The locking in of a circuit by means of a holding contact; used in relay logic when a momentary initiation is required.
latchbolt	A device for automatically retaining a door in the closed position upon its closing; a beveled spring-loaded bolt that automatically seats in the strike on contact. Retracted by key cylinder or lever handle.
life	The number of performance hours, days, years or actual operations for which an item is designed.
light-emitting diode (LED)	A diode, a solid-state device, that gives off virtually heatless colored light when electric current is passed through it. LEDs are very efficient and long-lasting and are often used for digital readouts and annunciators. Common colors include red, green and amber.
lighttrap or airtrap	A room with two or more doors controlled to prevent more than one door being opened at one time.
line cord	A cord, terminating in a plug at one end, that is used to connect equipment or appliances to a power outlet.
line drop	A voltage loss occurring between any two points in a power or transmission line. Such loss, or drop, is due to the resistance, reactance or leakage of the line.
line supervision	The electrical supervision of a wire run to detect tampering (a cut or shorted wire). Line supervision usually requires a terminating element at the end of the monitored wire loop. (See <i>end-of-line resistor</i> .)
line voltage	The voltage existing in a main cable or circuit, such as at a wall outlet.
listed	Refers to equipment or materials included in a list published by an authorizing organization. The listing states that the equipment or material meets appropriate standards or has been tested for and is suited to a specific application.
load	Any device that consumes electrical power; the amount of power required for operation of a circuit or device.
load rating	A control specification outlining the type of load, the minimum (min.) and the maximum (max.) currents and the voltage.

GLOSSARY

GLOSSARY

GLOSSARY	
local alarm	A visual or audible signaling device located at a monitored door, window or other opening.
lock	A device for securing a door in the closed position against unauthorized or forced entry. It requires actuation to project or to retract the bolt.
maintained contact switch	A switch designed for applications requiring sustained contact, but with provision for resetting.
make	To close or establish an electrical circuit.
mantrap	See <i>Interlock</i> .
maximum rating	The absolute maximum condition in which a device is designed to operate. Voltage, frequency, current, temperature, humidity, shock and other parameters can be specified as maximum.
megohm	One million (10^6) ohms.
mil	One one-thousandth (0.001) of an inch; a unit used in measuring the diameter of wire and the thickness of insulation over a conductor.
milliampere	One one-thousandth (0.001) of an ampere.
millisecond	One one-thousandth (0.001) of a second.
mode of operation	The specified operational condition of a switch, lock, door system and so forth.
momentary duty lock	An electric lock equipped with a solenoid that is energized only momentarily.
momentary switch	A spring-loaded contact that, when pressed, closes two contacts. When pressure is removed, the contacts open.
monitoring loop	A continuous loop of wire starting at the control panel and running through switches in a system to indicate a breach of security through an open switch or a cut wire.
mother board	A master printed circuit board used to interface the activities of individual printed circuit boards and the devices being controlled or monitored. The mother board is usually located at the back of a control panel assembly; individual printed circuit boards plug into it.
multi-conductor cable	A cable consisting of two or more conductors, either cabled or laid in a flat parallel construction, with or without a common overall covering.
multiplex	Refers to a system of transmitting several messages simultaneously on the same circuit or channel. Multiplex equipment greatly reduces the number of wire cables needed in a system.
National Electrical Code (NEC)	A consensus standard published by the National Fire Protection Association (NFPA); commonly called "code".
noise	Unwanted and/or unintelligible signals picked up on a cable circuit.
normally closed (NC)	The condition or position of a contact prior to initiation or energization - in this case, a closed condition.

GLOSSARY

normally open (NO)	The conditioner position of a contact prior to initiation or energization in this case, an open condition.
octal plug	An eight-pin male connector with a locating key for proper orientation.
ohm	A unit of measurement for resistance (r) and impedance (Z).
Ohm's law	One of the most widely used principles of electricity. It expresses the relationship between voltage (E), current (I) and resistance (R) according to the following equations: $E = IR$; $I = E/R$; $R = E/I$.
operating temperature	A temperature range over which a device will perform within its specified design tolerances; may be stated in degrees Fahrenheit (°F) or degrees centigrade (°C).
operating voltage	The voltage by which a system operates; a nominal voltage with a specified tolerance applied; the design voltage range necessary to remain within the operating tolerances. For example, for a system specified 120 volts +/- 10 percent of nominal, 120 volts is the nominal voltage and the design voltage range is 108 to 132 volts AC.
output voltage	The designed power source produced by a power supply to operate equipment.
panic-proof locks	Locks that provide immediate exit from the inside at all times.
parallel	A method of connecting an electric circuit whereby each element is connected across the other. The addition of all currents through each element equals the total current of the circuit.
polarity	The positive or negative orientation of a signal or power source.
potentiometer (pot)	Variable resistor.
primary	The transformer winding that receives the energy from a supply circuit.
printed circuit board	A means of making electrical interconnections without using insulated wires. Printed circuit boards provide a supporting and insulating medium for components and conductors in a form that is readily adaptable to machine assembly.
rack-mounted	Refers to a method of housing many control and security panels. Nineteen-inch rack mounting is a standard for the electrical equipment trades. Rack mounting allows equipment of several different manufacturers, different types of communications, fire/smoke alarm and security equipment to be used in the same area without taking up a large amount of space. It also achieves a more uniform and organized appearance.
rated voltage	The maximum voltage at which an electric component can operate for extended periods without undue degradation or safety hazard.
reactance	Opposition offered to the flow of alternating current by inductance or capacitance of a component or circuit.
rectifier	A solid state electrical device that will allow current to flow in one direction only. It is designed to convert alternating current to direct current.

GLOSSARY

GLOSSARY

GLOSSARY	
recycle time	The time needed to reset and reinitiate the timing function and remain within the specified timing tolerances. Recycle time is generally specified "during timing" or "after timing".
regulated power supply	A power supply that provides a constant output regardless of input voltage variations.
relay	An electrically controlled device that opens and closes electrical contacts to effect the operation of other devices in the same or another electrical circuit.
remote alarm	A visual or audible signaling device used to signal violations at locations removed from the central control station or monitored openings. For example, a remote alarm may be placed on a roof, in a stair tower or at guard stations outside a building.
remote reset	A switch located at a monitored opening. If a violation occurs, the alarm at the main control console cannot be turned off until the door is secured and the remote reset is activated. Its purpose is to ensure the inspection of an opening that has been violated or left open.
reset time	The time required to return the output to its original condition.
resistance	The opposition to the flow of an electric current (measured in ohms); the reciprocal of conductance.
resistor	A circuit element whose chief purpose is to oppose the flow of current.
resolution	The degree of setability.
reverse polarity protected	Applies to DC controls where, if the polarity of the input were reversed, there would be no damage.
rigid conduit	A metal piping for housing the insulated wires of an electric circuit.
riser diagram	A document which explains wire type, size and the number of conductors to be run from a control panel to each control or monitor location.
safety interlock	A multidoor system in which all doors are normally closed and unlocked; opening any door locks all other doors.
sallyport	See <i>interlock</i> .
secondary	The transformer winding that receives energy by electromagnetic induction from the primary.
security interlock	A multidoor system in which all doors are normally closed and locked; releasing one door disables the releases for all other doors until the first door is closed and relocked.
semiconductor	A material that has a resistance between that of insulators and conductors.
series circuit	An electrical circuit in which all the receptive devices are arranged in succession as distinguished from a parallel circuit. The same current flows through each part of the circuit in sequence.
shield	Incables, a metallic layer placed around a conductor or group of conductors to prevent electrostatic interference between the enclosed wires and external fields.

GLOSSARY

short	An improper connection between "hot" current-carrying wire and neutral or ground.
single pole, double throw (SPDT)	A term used to describe a switch or relay contact form (1 form C) that has a normally open and a normally closed contact with a common connection.
single pole, single throw (SPST)	A switch with only one moving and one stationary contact, available either normally open (NO) or normally closed (NC).
solenoid	An electromechanical device that operates the lockbolt. When electricity is applied, a mechanical motion is obtained that moves the bolt.
soldering	A method of making an electrical connection. The two components to be connected are physically placed together and heated. Solder, a conductive metallic alloy with a low melting point, is then placed on the heated components. It melts and flows around the components to make a permanent connection.
spike	A momentary increase in electrical current. Spikes can damage electronic equipment.
splice	A connection of two or more conductors or cables to provide good mechanical strength as well as good conductivity.
standard duty locking unit	An electric lock equipped with a solenoid that is energized for short periods of time, not continuously.
steady state	A term used to specify the current through a load or electric circuit after the inrush current is complete; a stable run condition.
storage temperature	The maximum temperature that any one material in a system can withstand without sustaining damage; a nonworking condition.
stranded conductor	A conductor composed of several single solid wires twisted together.
strike	A plate mortised into or mounted on the door jamb to accept and restrain a bolt when the door is closed. In some metal installations of a deadlock, the strike may simply be an opening cut into the jamb. (Synonym: <i>keeper</i> .)
supervised circuit	A circuit that will indicate alarm and trouble conditions.
switches	Devices that make or break connections in an electrical or electronic circuit. In computing systems, they are also used to make selections (the toggle switch, for example, completes a conditional jump). Switches are usually manually operated but can also work by mechanical, thermal, electromechanical, barometric, hydraulic or gravitational means.
switch, momentary	A switch that, when activated, automatically returns to its original position afterwards.
switch, maintained	A switch that, when activated, maintains its activated position until it is unactivated.

GLOSSARY

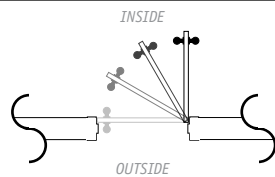
GLOSSARY	
switch, normally open	A switch that, when not energized, is open and does not let current flow.
switch, normally closed	A switch that, when not energized, is closed to form a path for current.
tap	A special lead brought out from an intermediate point of a coil or winding.
terminal block	A device that provides a place for safe and convenient interconnection of current-carrying conductors.
terminals	Metal wire termination devices designed to handle one or more conductors and to be attached to a board, bus or block with mechanical fasteners or clipped on. Common types are ring tongue, spade, flag, hook, blade, quick-connect, offset, flanged. Special types include taper pin, taper tab and others, either insulated or noninsulated.
terminating element	An electric device connected at the end of a pair of electrical conductors that provides the means of supervising those conductors. (See <i>line supervision</i> .)
time delay	An electronically controlled delay period designed into a component that will either send a prolonged signal or delay transmitting a signal.
time-delay relay	A relay for automatically locking or unlocking a locking unit after a short, fixed time interval.
tinned copper	Copper with a tin coating added to aid in soldering and to inhibit corrosion.
tolerance	Normally stated as a percentage, the maximum allowable deviation of electrical, environmental or dimensional parameters.
transformer	An electric device that changes voltage in direct proportion to currents and in inverse proportion to the ratio of the number of turns of its primary and secondary windings. The input side of a transformer is called the primary side; the output or low-voltage side is called the transformer secondary.
transient	Any increase or decrease in the excursion of voltage, current, power, heat and so forth, above or below a nominal value that is not normal to the source. (See <i>transient voltage</i> .)
transient voltage	Refers to several parameters of of a transient: (1) the peak or maximum voltage reached, (2) the rate of rise of the transient (dv/dt), and (3) the duration of the transient. Transient voltages are generated when inductive loads such as solenoids, contactors, motors, relays, and so forth, are deenergized. Although some devices have excellent protection against these sometimes damaging excursions, when a transient is known to be present, it should be suppressed at the source. Diodes and metal oxide varistors (MOVs) are commonly used as suppressors.
trickle charge	A low-powered electrical energy source provided to keep standby batteries fully charged.

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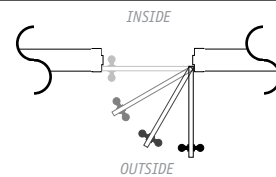
twisted pair	A cable composed of two small insulated conductors twisted together without a common covering. The two conductors of a twisted pair are usually substantially insulated, so the combination is a special case of a cord.
volt (V)	A unit of electromotive force. It is the difference of potential required to make a current of one ampere flow through a resistance of one ohm.
voltage	The term most often used (in place of <i>electromotive force</i> , <i>potential</i> , <i>potential difference</i> or <i>voltage drop</i>) to designate electrical pressure that exists between two points and is capable of producing a flow of current when a closed circuit is connected between the two points.
voltage drop	Voltage loss experienced by electrical circuits due to two principal factors: (1) wire size and, (2) length of wire runs.
volt/amp (VA) rating	The product of rated input voltage multiplied by the rated current. This establishes the "apparent energy" available to accomplish work.
watt	The common unit of electrical power. One watt is dissipated by a resistance of one ohm through which one ampere flows.
wire	A slender rod or filament of drawn metal.
wire nut	A connector used to make and insulate an electrical connection. Wire ends are stripped and placed into a caplike connector (wire nut) and the wire nut is then twisted to secure the wire ends together. The cap design serves to insulate the connection.
zone	A specific area of protection; a portion of a large protected area.

GLOSSARY

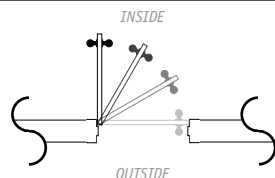
RH
Right Hand



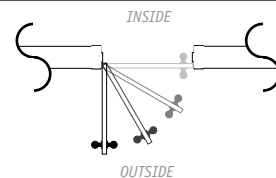
RHR
Right Hand Reverse



LH
Left Hand



LHR
Left Hand Reverse



WIRE GAUGE SELECTION

WIRE GAUGE SELECTION TABLE 24VDC

		Current Requirement @ 24VDC						
		0.25 Amp	0.5 Amp	0.75 Amp	1 Amp	1.5 Amp	2 Amp	3 Amp
Length of wire run (ft.)	0-100	24	20	18	18	16	14	12
	100-150	22	18	16	16	14	12	10
	150-200	20	18	16	14	12	12	10
	200-250	18	16	14	14	12	12	10
	250-300	18	16	14	12	12	10	-
	300-400	18	14	12	12	10	-	-
	400-500	16	14	12	10	-	-	-
	500-750	14	12	10	10	-	-	-
	750-1000	14	10	10	-	-	-	-
	1000-1500	12	10	-	-	-	-	-

WIRE GAUGE SELECTION TABLE 12VDC

		Current Requirement @ 12VDC						
		0.25 Amp	0.5 Amp	0.75 Amp	1 Amp	1.5 Amp	2 Amp	3 Amp
Length of wire run (ft.)	0-100	20	18	16	14	12	12	10
	100-150	18	16	14	12	12	10	-
	150-200	16	14	12	12	10	-	-
	200-250	16	14	12	10	10	-	-
	250-300	16	12	12	10	-	-	-
	300-400	14	12	10	-	-	-	-
	400-500	14	10	10	-	-	-	-
	500-750	12	10	-	-	-	-	-
	750-1000	10	-	-	-	-	-	-
	1000-1500	10	-	-	-	-	-	-

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