CAL-ROYAL PRODUCTS, INC
6605 Flotilla Street
City of Commerce
CA 90040

DKS SERIES 1800
STEEL COMMERCIAL SINGLE DOOR
INSWING / OUTSWING
"IMPACT"

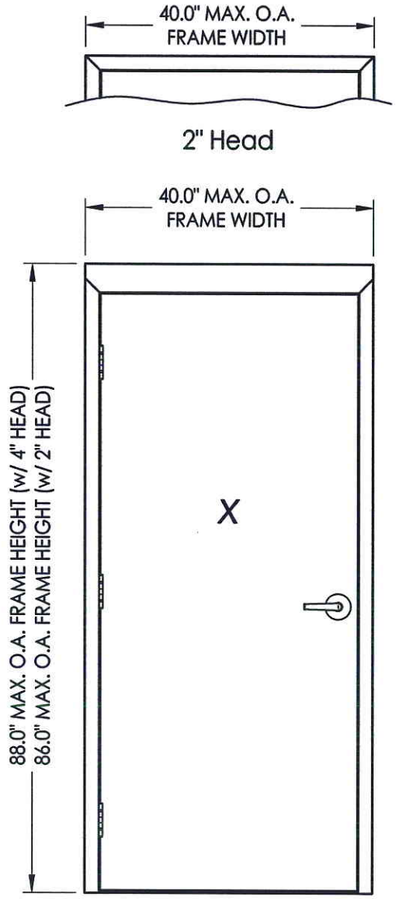
EVALUATED FOR USE IN THE STATE OF TEXAS

The Cal-Royal Door described herein complies with the 2006 International Residential Code (IRC), Sections R301 and the 2006 International Building Code (IBC), Sections 1405.12, 1609 & 1714.5 (including Texas revisions) subject to the following conditions:

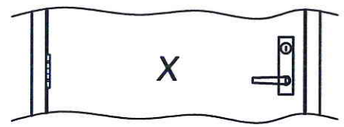
1. Anchors shall be as listed and spaced as shown in the details. Anchor embedment to base material shall be beyond wall dressing or stucco.
2. This system has been tested and evaluated as a large missile impact protective system for installation in the Seaward, Inland I and Inland II areas. This product meets missile level "D" and includes Wind Zone 4 as defined in ASTM E1996.
3. Allowable design pressure requirements must be equal to or less than the design pressure rating shown in the design pressure chart, sheet 1 of this drawing.
4. Conditions not covered by this drawing are subject to further engineering analysis.

TABLE OF CONTENTS

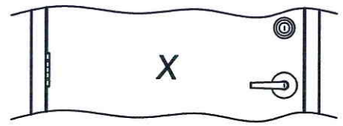
SHEET#	DESCRIPTION
1	Typical elevation, design pressures & general notes
2	Door panel details
3	Horizontal cross sections
4	Vertical cross sections
5	Frame anchoring
6	Frame anchoring details
7	Components
8	Bill of materials and components



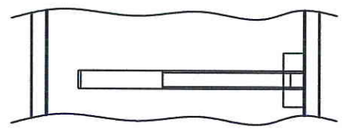
161 Latch
"Genesys & Pioneer SL/CSL Series"
4" Head



86E Mortise Lock
"M Series"



161 Latch & Deadbolt
"Pioneer SL/CSL Series" Latch
"T300 Series" Deadbolt



"5500 & 7700 Series"
Panic Bar Exit Device

MAX FRAME DIMENSION	LOCK TYPE	DESIGN PRESSURE (PSF) INSWING		DESIGN PRESSURE (PSF) OUTSWING	
		POSITIVE	NEGATIVE	POSITIVE	NEGATIVE
40.0" x 88.0"	161 LATCH "Pioneer SL/CSL Series"	+55.0	-55.0	+55.0	-55.0
40.0" x 88.0"	161 LATCH & DEADBOLT "Pioneer SL/CSL & T300 Series"	+55.0	-55.0	+55.0	-55.0
40.0" x 88.0"	161 LATCH "Genesys Series"	+70.0	-70.0	+70.0	-70.0
40.0" x 88.0"	PANIC BAR EXIT DEVICE "5500 Series"	N/A	N/A	+50.0	-50.0
40.0" x 88.0"	PANIC BAR EXIT DEVICE "7700 Series"	N/A	N/A	+70.0	-70.0
40.0" x 88.0"	86E Mortise Lock "M Series"	+80.0	-80.0	+80.0	-80.0

STATE OF TEXAS
LYNDON F. SCHMIDT
104123
LICENSED
PROFESSIONAL ENGINEER
10-1-14

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TEXAS BOARD OF PROFESSIONAL ENGINEERS
CERTIFICATE OF REGISTRATION # F-11852

PRODUCT: CAL-ROYAL STEEL COMMERCIAL DOOR

PART OR ASSEMBLY: TYPICAL ELEVATION, DESIGN PRESSURES & GENERAL NOTES

NO.	DATE	BY	REVISIONS

DATE: 10/1/14
SCALE: N.T.S.
DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: TX-4484
SHEET 1 OF 8

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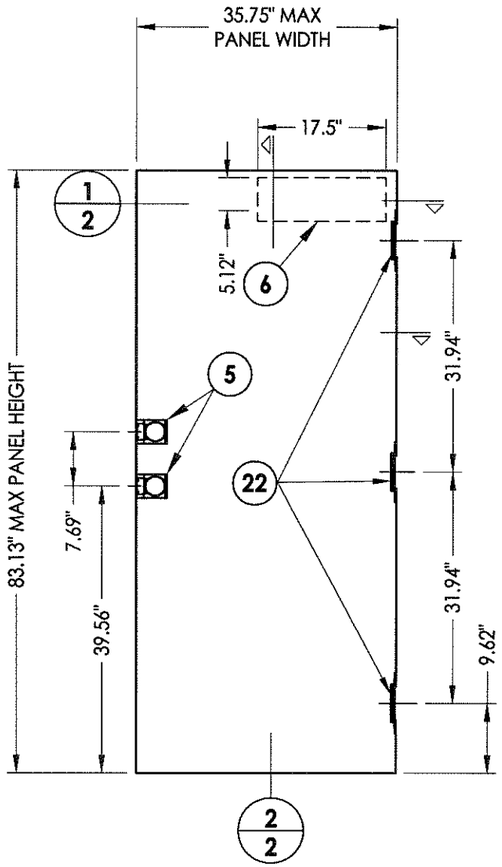
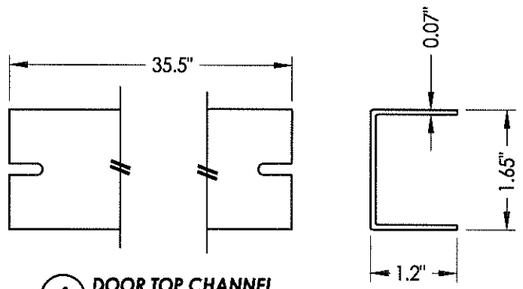
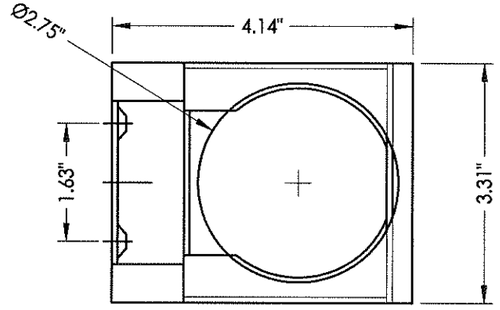


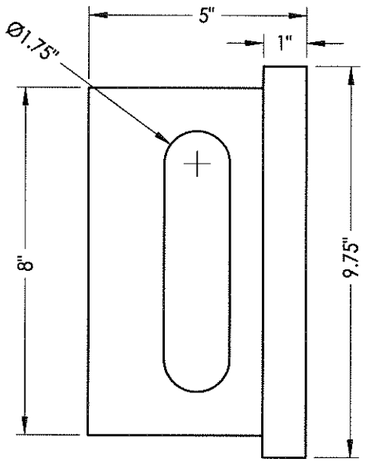
1 **CAL-ROYAL DOOR PANEL**



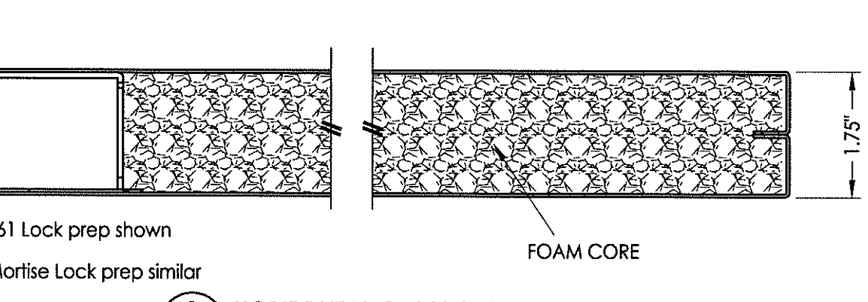
4 **DOOR TOP CHANNEL**



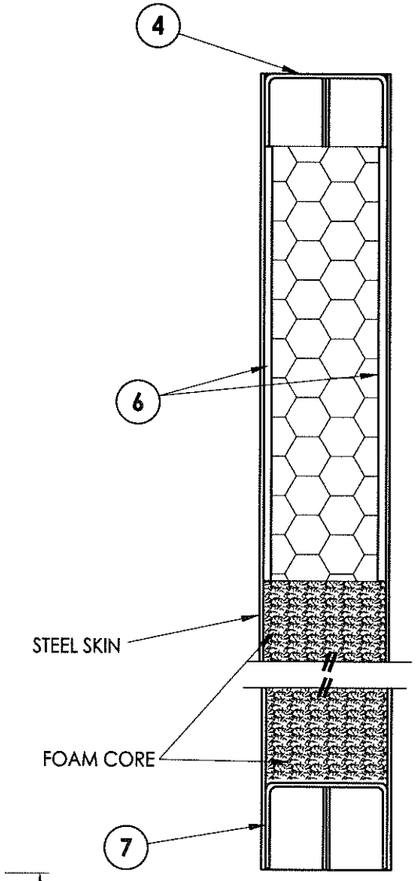
5 **STEEL LOCK BOX REINFORCEMENT**
161 Lock prep only



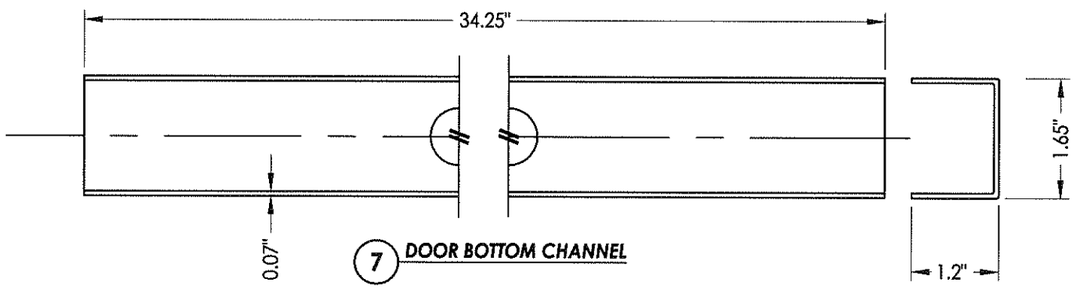
3 **STEEL LOCK BOX REINFORCEMENT**
Mortise Lock prep only



1 **HORIZONTAL CROSS SECTION**
2



2 **VERTICAL CROSS SECTION**
2



7 **DOOR BOTTOM CHANNEL**

STEEL DOOR SKIN (18 GA.): MIN. 0.045" THK.
STEEL GRADE: ASTM A1008 GALV. STEEL (Fy = 33,000 PSI MIN.)
CORE MATERIAL: EPS FOAM (POLYSTYRENE - 1.0 PCF MIN. DENSITY)

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TEXAS BOARD OF PROFESSIONAL ENGINEERS
CERTIFICATE OF REGISTRATION # F-11852

PRODUCT: CAL-ROYAL STEEL COMMERCIAL DOOR

PART OR ASSEMBLY: DOOR PANEL DETAILS

NO.	DATE	BY

REVISIONS

DATE: 10/1/14
SCALE: N.T.S.
DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: TX-4484
SHEET 2 OF 8

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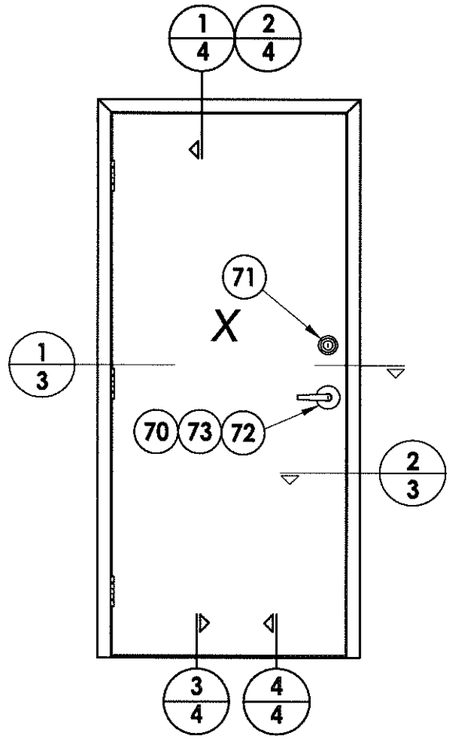
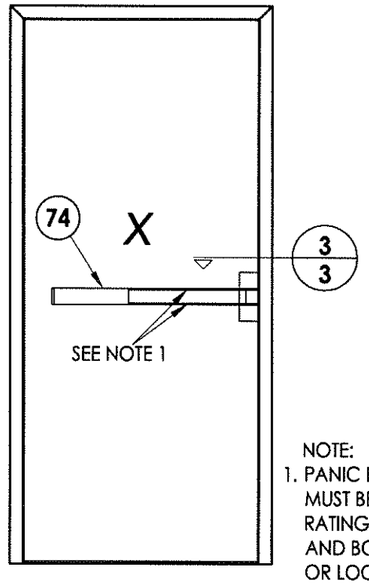
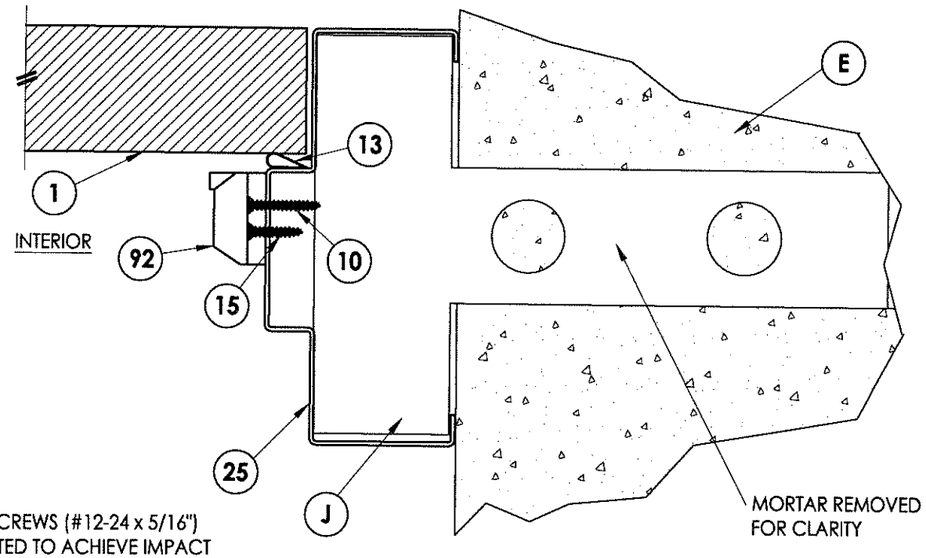
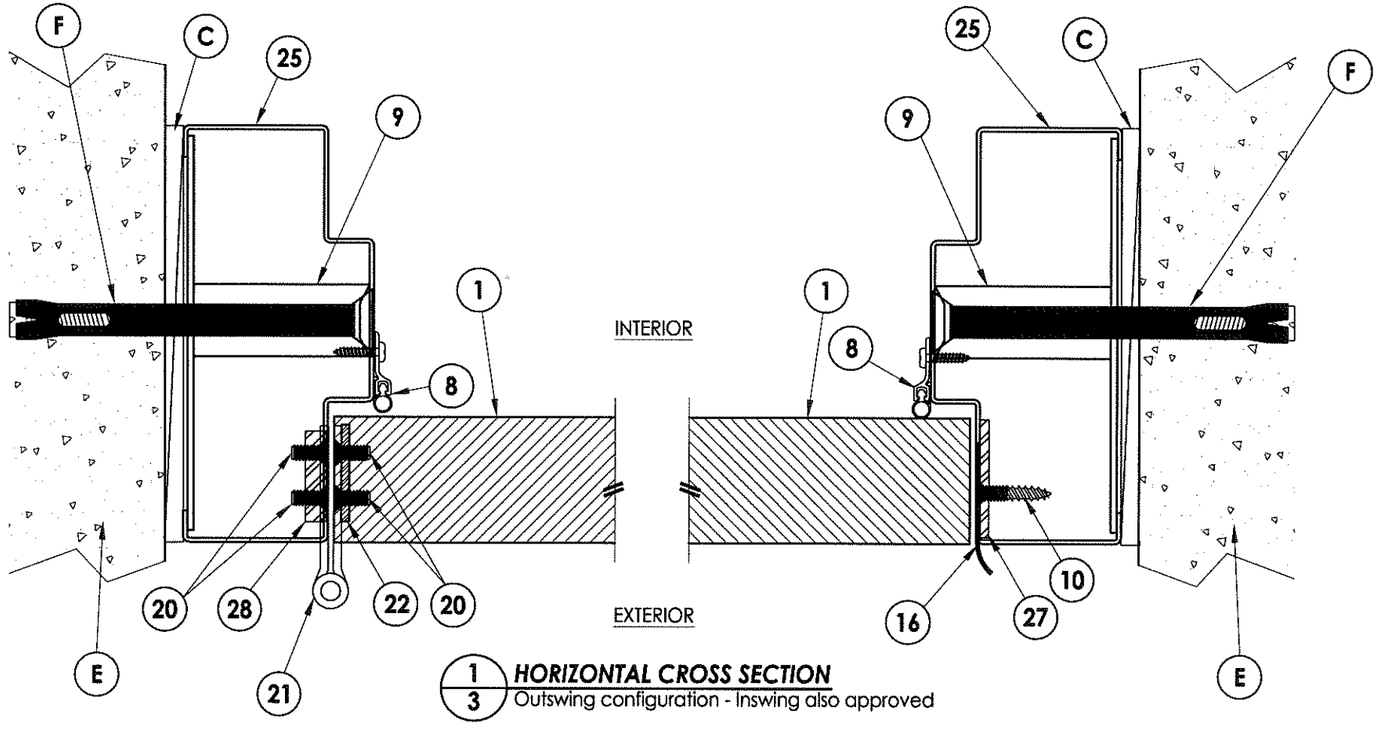




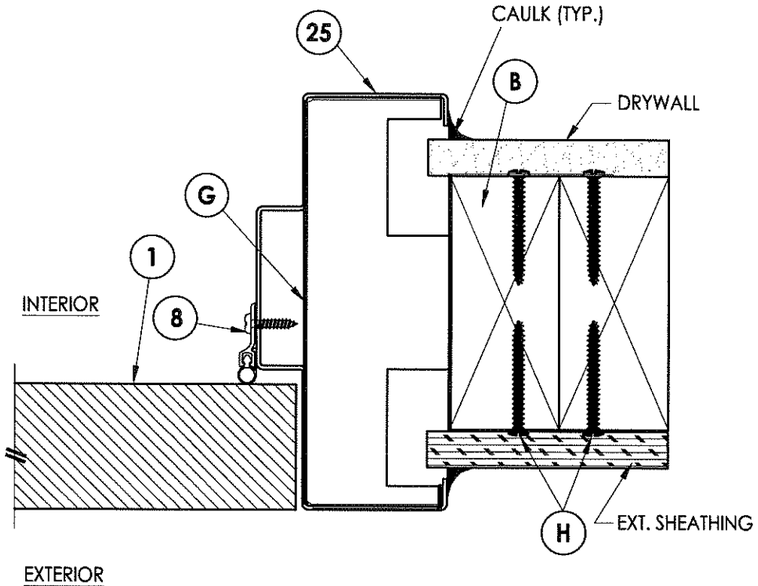
NOTE:
1. PANIC BAR SET SCREWS (#12-24 x 5/16") MUST BE ACTIVATED TO ACHIEVE IMPACT RATING. LOCATE ONE SCREW AT TOP AND BOTTOM AT CENTER OF PUSH RAIL OR LOCATE ONE SCREW AT EACH END OF BAR.



3/3 **HORIZONTAL CROSS SECTION**
Masonry Construction
Masonry "Tee" Anchor



1/3 **HORIZONTAL CROSS SECTION**
Outswing configuration - Inswing also approved



2/3 **HORIZONTAL CROSS SECTION**
2X Stud Construction
Wood Stud Anchor

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TEXAS BOARD OF PROFESSIONAL ENGINEERS
CERTIFICATE OF REGISTRATION # F-11852

PRODUCT: CAL-ROYAL STEEL COMMERCIAL DOOR

PART OR ASSEMBLY: HORIZONTAL CROSS SECTIONS

NO.	DATE	REVISIONS	BY

DATE: 10/1/14
SCALE: N.T.S.
DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: TX-4484
SHEET 3 OF 8

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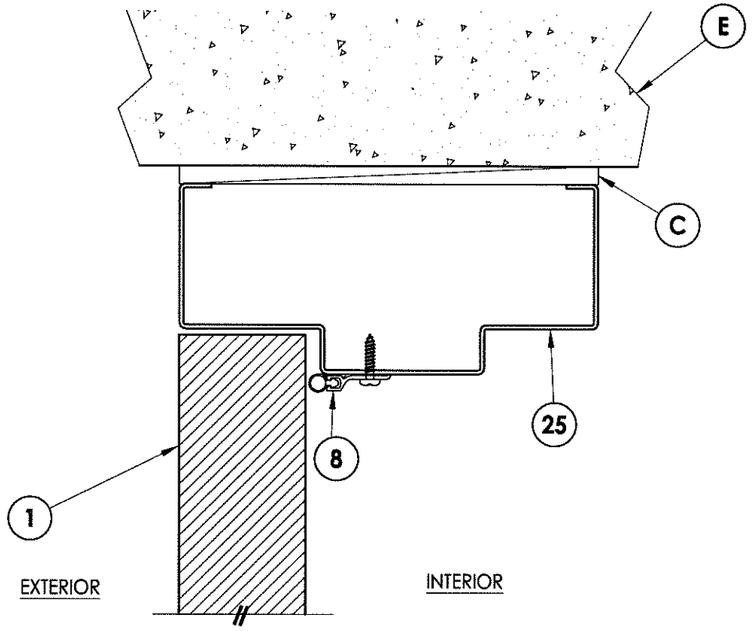
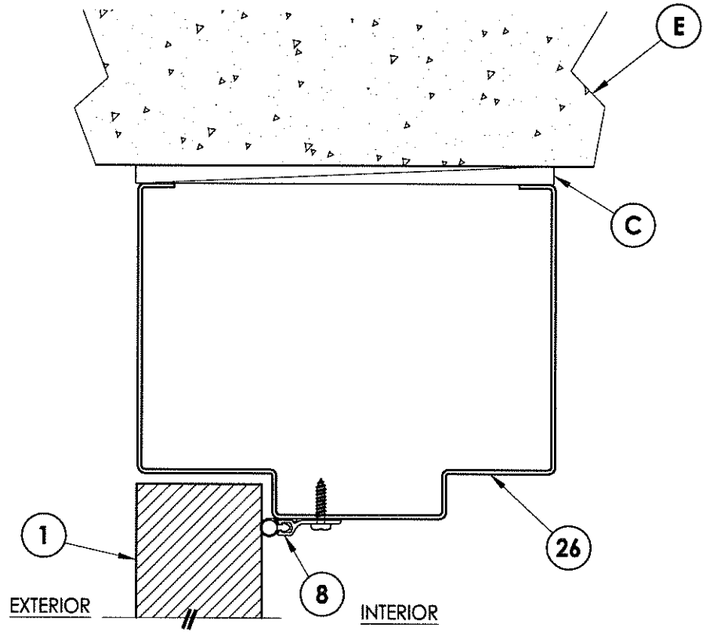
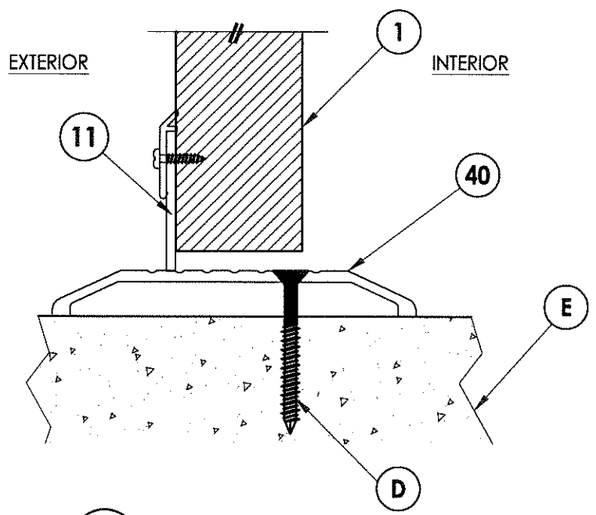


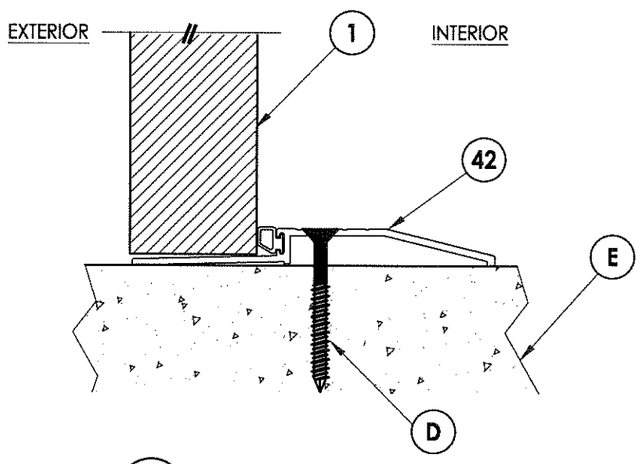
1/4 **VERTICAL CROSS SECTION**
Outswing configuration - Inswing also approved



2/4 **VERTICAL CROSS SECTION**
Outswing configuration - Inswing also approved



3/4 **VERTICAL CROSS SECTION**
Inswing configuration



4/4 **VERTICAL CROSS SECTION**
Outswing configuration

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TEXAS BOARD OF PROFESSIONAL ENGINEERS
CERTIFICATE OF REGISTRATION # F-11852

PRODUCT: CAL-ROYAL STEEL COMMERCIAL DOOR

PART OR ASSEMBLY: VERTICAL CROSS SECTIONS

NO.	DATE	BY
REVISIONS		

DATE: 10/1/14
SCALE: N.T.S.
DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: TX-4484
SHEET 4 OF 8

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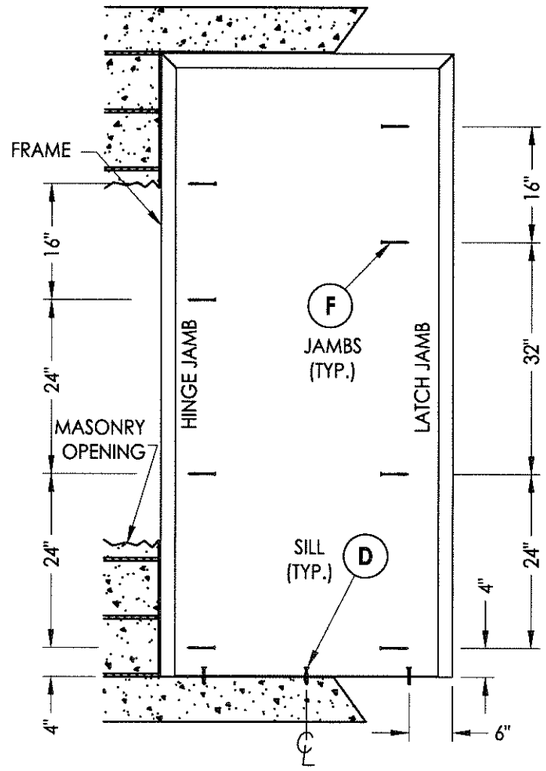
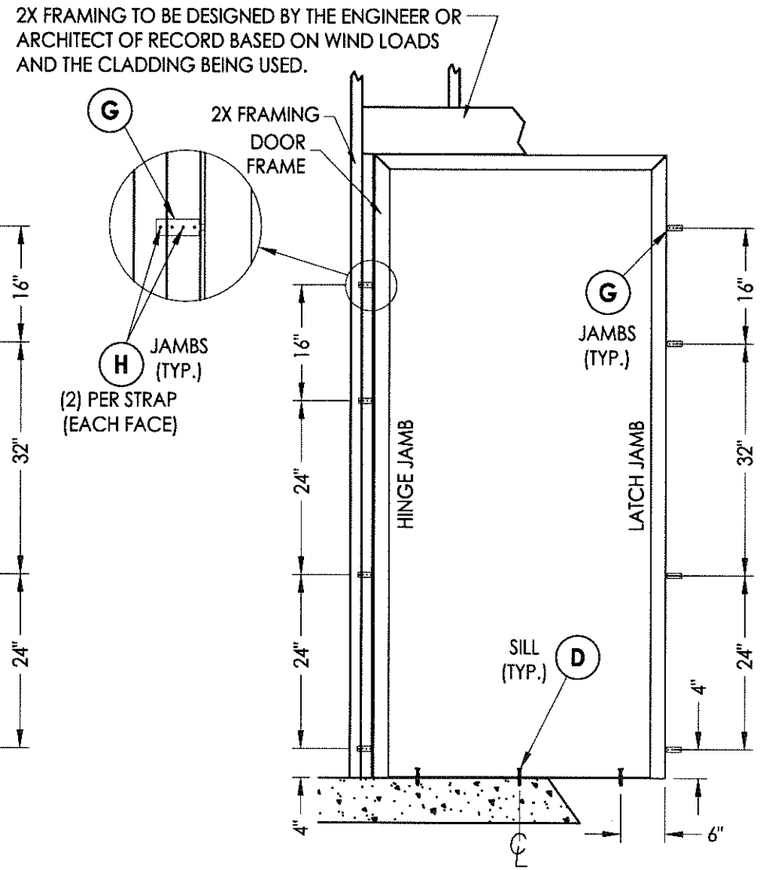


FRAME ANCHORING
Masonry Construction
Concrete Anchors



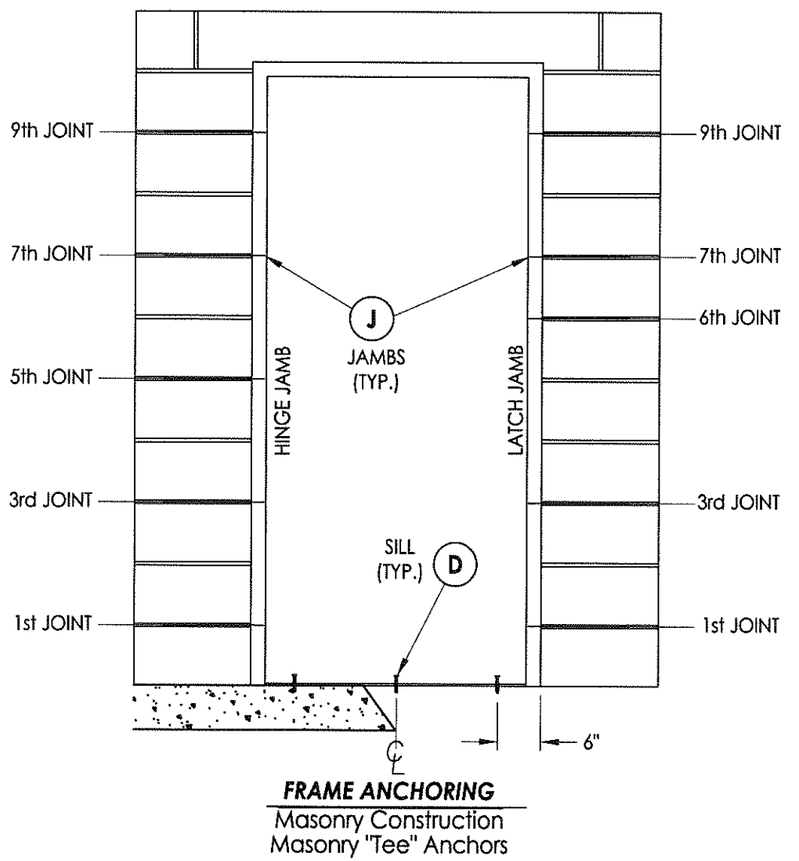
FRAME ANCHORING
2X Stud Construction
Strap Anchors

CONCRETE ANCHOR NOTES:

1. *Substitution of equal concrete screws from a different supplier may have different edge distance and center distance requirements.*
2. *Concrete screw locations at the corners may be adjusted to maintain the minimum edge distance to mortar joints. If concrete screw locations noted as "MAX. ON CENTER" must be adjusted to maintain the minimum edge distance to mortar joints, additional concrete screws may be required to ensure the maximum on center dimension is not exceeded.*
3. *Concrete anchor table:*

ANCHOR TYPE	ANCHOR SIZE	MIN. EMBEDMENT	MIN. CLEARANCE TO MASONRY EDGE	MIN. CLEARANCE TO ADJACENT ANCHOR
ITW TAPCON®	1/4"	1-3/4"	2-1/2"	4"
ELCO ULTRACON®	1/4"	1-3/4"	1"	4"
DYNABOLT SLEEVE ANCHOR	3/8"	1-1/2"	2-1/4"	4-1/2"

4. *Embedment may be through 1-1/4" face shell of hollow block.*



FRAME ANCHORING
Masonry Construction
Masonry "Tee" Anchors

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PROFESSIONAL ENGINEER
10-1-14

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TEXAS BOARD OF PROFESSIONAL ENGINEERS
CERTIFICATE OF REGISTRATION # F-11852

PRODUCT: *CAL-ROYAL STEEL COMMERCIAL DOOR*

PART OR ASSEMBLY: *FRAME ANCHORING*

NO.	DATE	BY
REVISIONS		

DATE: 10/1/14
SCALE: N.T.S.
DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: TX-4484
SHEET 5 OF 8

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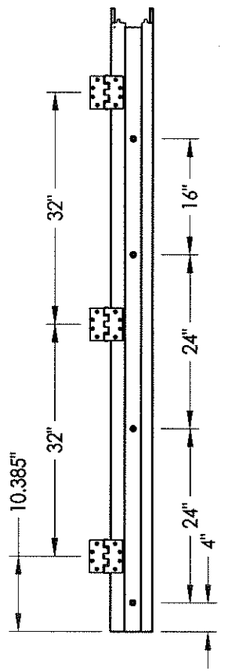
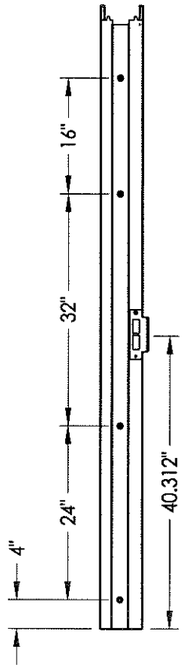
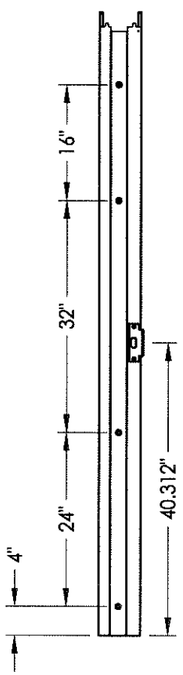


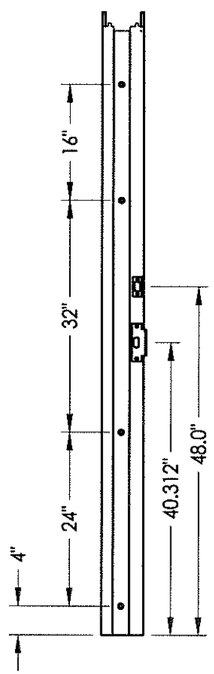
HINGE JAMB



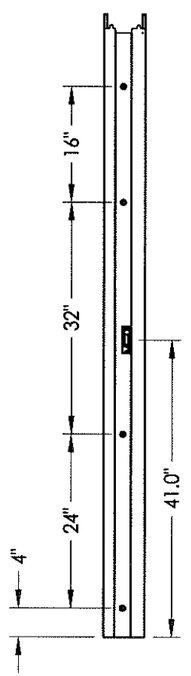
STRIKE JAMB
Mortise Lock



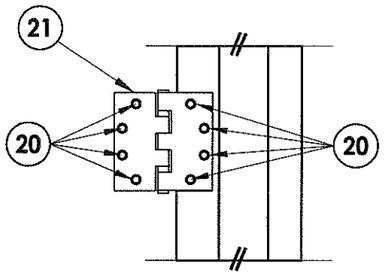
STRIKE JAMB
161 Latch



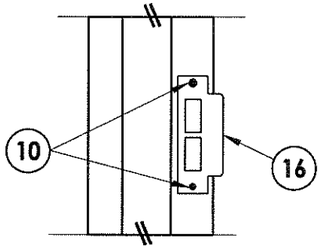
STRIKE JAMB
161 Latch & Deadbolt



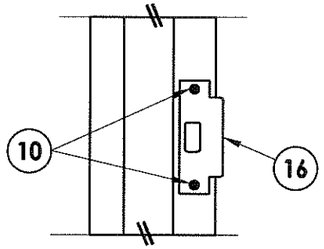
STRIKE JAMB
Panic Bar



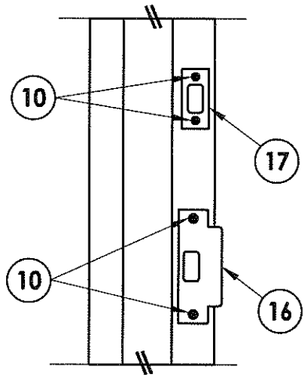
HINGE DETAIL



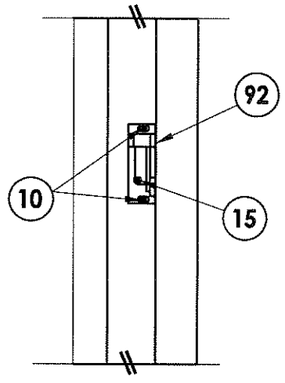
LATCH DETAIL
Mortise Lock



LATCH DETAIL
161 Latch



LATCH & DEADBOLT DETAIL
161 Latch & Deadbolt



LATCH DETAIL
Panic Bar

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10-1-14

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TEXAS BOARD OF PROFESSIONAL ENGINEERS
CERTIFICATE OF REGISTRATION # F-11852

PRODUCT: CAL-ROYAL STEEL COMMERCIAL DOOR

PART OR ASSEMBLY: FRAME ANCHORING DETAILS

NO.	DATE	BY
	REVISIONS	

DATE: 10/1/14
SCALE: N.T.S.
DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: TX-4484
SHEET 6 OF 8

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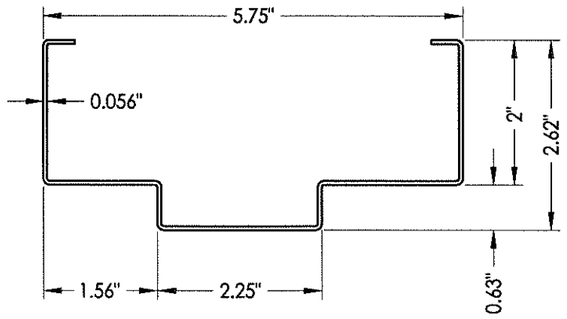
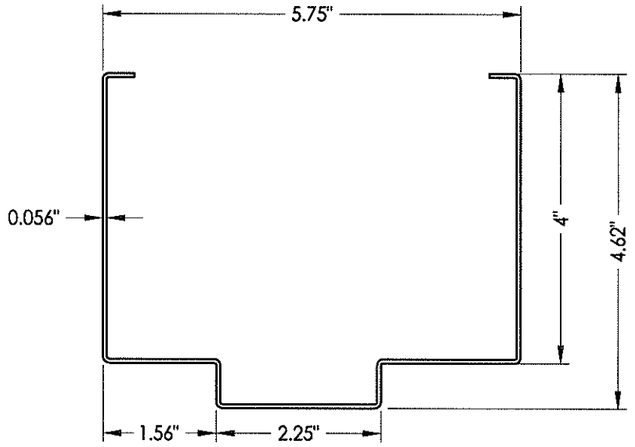
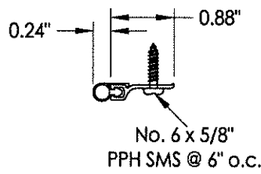


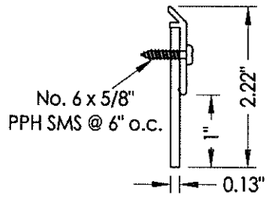
26 HOLLOW METAL FRAME
2" HEAD



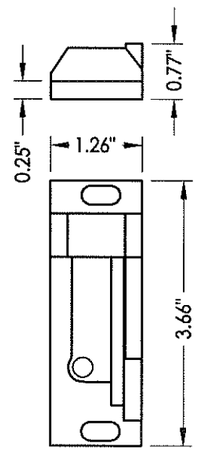
26 HOLLOW METAL FRAME
4" HEAD



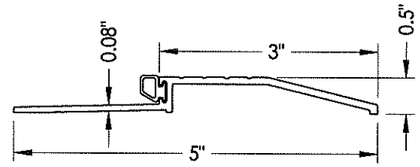
8 WEATHERSTRIP
Pemko 303A



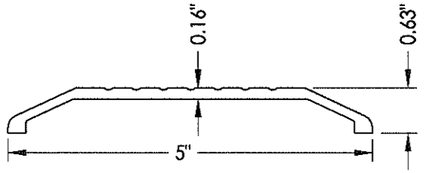
11 DOOR SWEEP
Pemko 3151



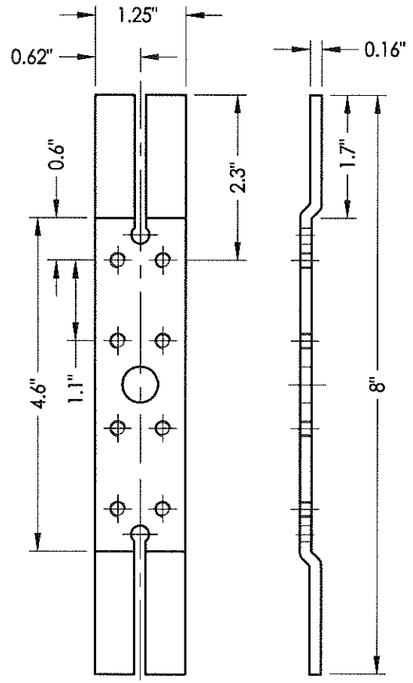
92 PANIC BAR LATCH STRIKE PLATE
@ Jamb



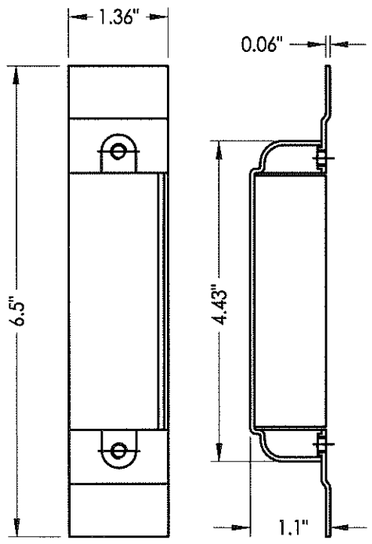
42 THRESHOLD
Pemko 2001P



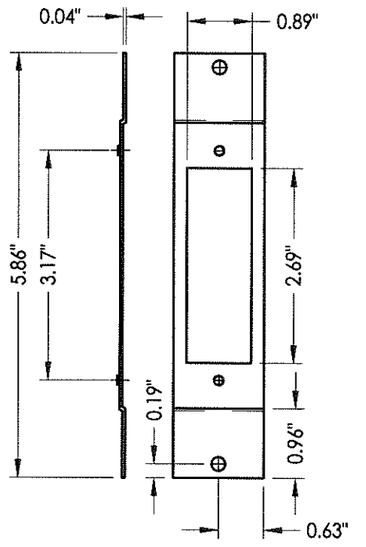
40 THRESHOLD
Pemko 156



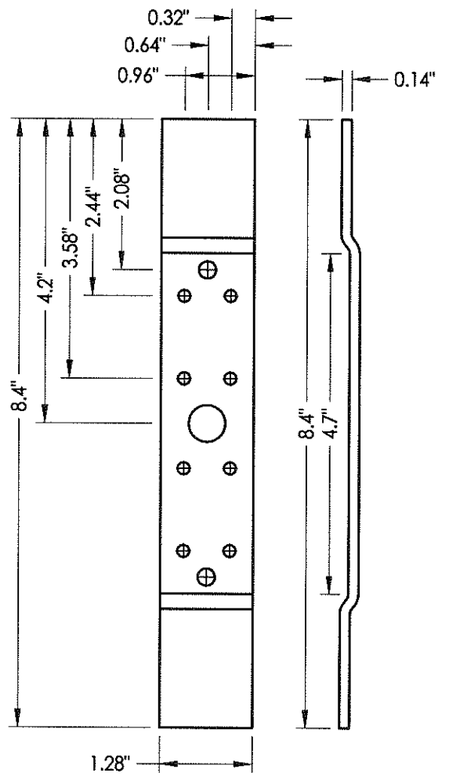
22 DOOR HINE REINFORCEMENT



30 DOOR LATCH REINFORCEMENT
Mortise Lock only



27 FRAME LATCH STRIKE REINFORCEMENT



28 FRAME HINGE REINFORCEMENT

Documents Prepared By: Lyndon F. Schmidt, P.E.
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RW BUILDING CONSULTANTS, INC.
P.O. Box 230 Valrico FL 33595
Phone No.: 813.659.9197
TEXAS BOARD OF PROFESSIONAL ENGINEERS
CERTIFICATE OF REGISTRATION # F-11852

STATE OF TEXAS · LYNDON F. SCHMIDT · 104123 · LICENSED PROFESSIONAL ENGINEER

PRODUCT: CAL-ROYAL STEEL COMMERCIAL DOOR

PART OR ASSEMBLY: COMPONENTS

NO.	DATE	BY
REVISIONS		

DATE: 10/1/14
SCALE: N.T.S.
DWG. BY: JK
CHK. BY: LFS
DRAWING NO.: TX-4484
SHEET 7 OF 8

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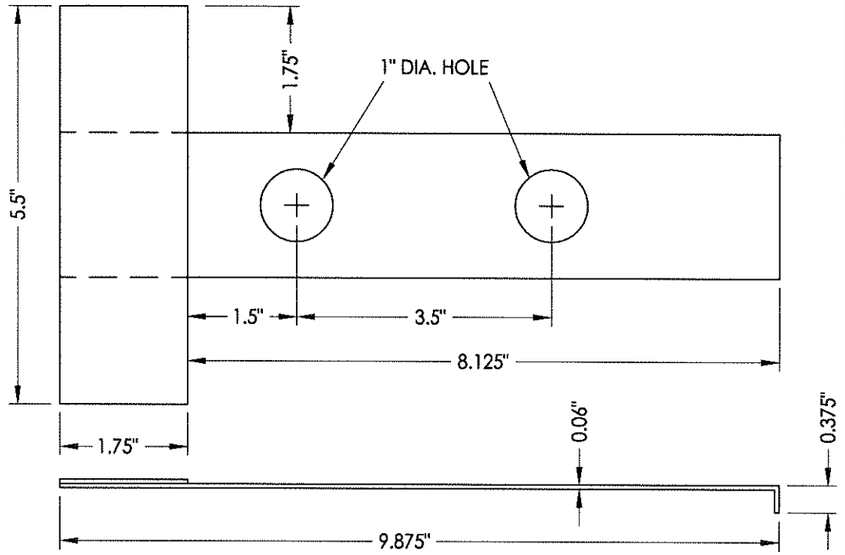
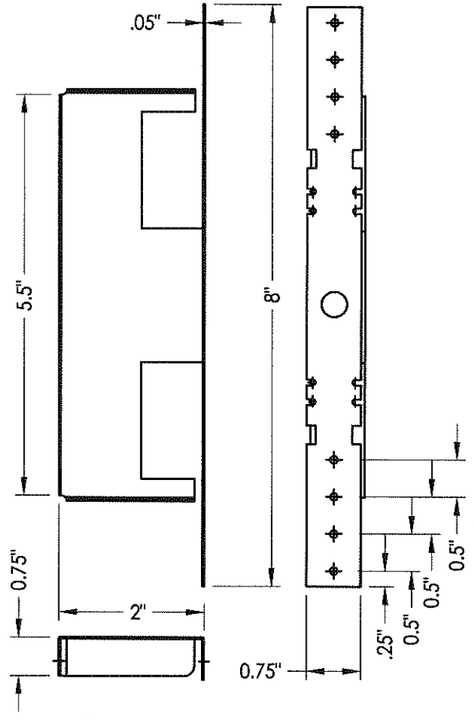
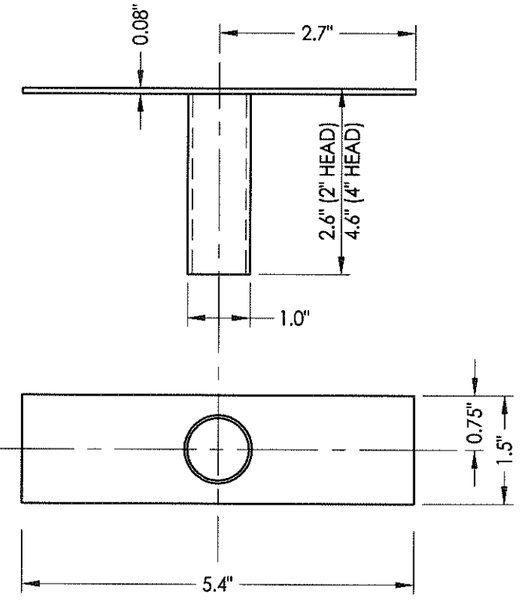
BILL OF MATERIALS		
ITEM #	DESCRIPTION	MATERIAL
B	2 X 4 FRAMING (SG >= 0.55)	WOOD
C	1/4" MAX. SHIM SPACE	-
D	1/4" X 2-3/4" PFH ELCO OR ITW CONCRETE SCREW	STEEL
E	MASONRY - 3,000 PSI MIN. CONCRETE CONFORMING TO ACI 301 OR HOLLOW BLOCK CONFORMING TO ASTM C90	CONCRETE
F	3/8" PFH ITW DYNABOLT SLEEVE ANCHOR	STEEL
G	WOOD STRAP ANCHOR	STEEL
H	#8 X 1-1/2" PH WOOD SCREW	STEEL
J	MASONRY "TEE" ANCHOR	STEEL
1	CAL-ROYAL DOOR PANEL	-
4	DOOR TOP CHANNEL	STEEL
5	LOCK BOX REINFORCEMENT	STEEL
6	CLOSER REINFORCEMENT (11 gauge)	STEEL
7	DOOR BOTTOM CHANNEL	STEEL
8	WEATHERSTRIP - PEMKO 303A	NEOPRENE
9	TUBE ANCHOR	STEEL
10	#12-24 X 1" COMBINATION MACHINE / WOOD SCREW	STEEL
11	DOOR SWEEP- PEMKO 3151	PVC
13	WEATHERSTRIP - COMPRESSION BULB 1/4" X 1/2" (PEMKO S88)	NEOPRENE
15	#8-24 X 3/4" COMBINATION MACHINE / WOOD SCREW	STEEL
16	ANSI LATCH STRIKE	STEEL
17	DEAD BOLT STRIKE	STEEL
20	#12-24 X 1/2" PFH MACHINE SCREW	STEEL
21	4-1/2" X 4-1/2" X 0.125" TEMPLATE HINGE	STEEL
22	DOOR HINGE REINFORCEMENT	STEEL
25	HOLLOW FRAME 2"	STEEL
26	HOLLOW FRAME 4" HEAD	STEEL
27	FRAME LATCH STRIKE REINFORCEMENT	STEEL
28	FRAME HINGE REINFORCEMENT	STEEL
30	FRAME LATCH STRIKE REINFORCEMENT (MORTISE LOCK)	STEEL
40	INSWING THRESHOLD - PEMKO 156	ALUM
42	OUTSWING THRESHOLD - PEMKO 2001P	ALUM
70	CAL-ROYAL M SERIES MORTISE LOCK	-
71	CAL-ROYAL T300 SERIES DEADBOLT	-
72	CAL-ROYAL PIONEER SL/CSL SERIES CYLINDRICAL LOCK	-
73	CAL-ROYAL GENESYS SERIES CYLINDRICAL LOCK	-
74	CAL-ROYAL 7700 SERIES PANIC BAR	-
92	PANIC BAR LATCH STRIKE PLATE	STEEL



J MASONRY 'TEE' ANCHOR



G WOOD STRAP ANCHOR



9 TUBE ANCHOR

Documents Prepared By: Lyndon F. Schmidt, P.E.
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SHEET 8 OF 8

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