

EXHAUST FAN INFORMATION – Job#3104807

FAN UNIT NO.	TAG	FAN UNIT MODEL #	CFM	ESP.	RPM	H.P.	B.H.P.	ø	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS.)	SONES
1	EF-EX	DU180HFA	3262	1.300	1332	2.000	1.2060	3	208	6.1	753 FPM	161	21
2	Dish	DU12HFA	600	0.400	1667	0.250	0.1930	1	115	3.8	426 FPM	53	10.7

MUA FAN INFORMATION – Job#3104807

FAN UNIT NO.	TAG	FAN UNIT MODEL #	BLOWER	HOUSING	DESIGN CFM	ESP.	RPM	H.P.	B.H.P.	ø	VOLT	FLA	EVAP COOLER ENTERING DB TEMP.	EVAP COOLER ENTERING WB TEMP.	EVAP COOLER LEAVING DB TEMP.	EVAP COOLER LEAVING WB TEMP.	WEIGHT (LBS.)	SONES
3	MUA	A1-G10	G10	A1	2577	0.400	995	1.000	0.9420	3	208	3.1	108.0°F	70.0°F	86.0°F	70.0°F	456	23

FAN OPTIONS

FAN UNIT NO.	TAG	OPTION (Qty. - Descr.)
1	EF-EX	1 - Grease Box 1 - Fan Base Ceramic Seal - Installed At Plant - For Grease Ducts
2	Dish	1 - ECM Wiring Package-Exhaust - Manual or 0-10VDC Reference Speed Control (NIDEC Motor) 1 - SCR-12 Bird Screen 1 - 1 12-BDD Damper
3	MUA	1 - Evaporative Cooler Wiring Harness 1 - Separate 120V Wiring Package (Required and used only for DCV or Prewire with VFD) - Three Phase Only

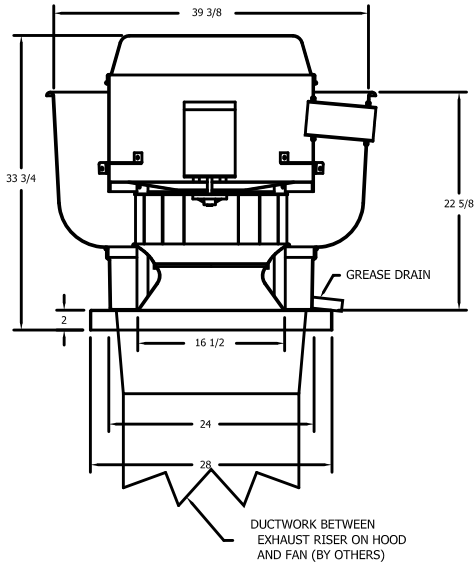
FAN ACCESSORIES

FAN UNIT NO.	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	EF-EX	YES						
2	Dish		YES					
3	MUA							

CURB ASSEMBLIES

NO.	ON FAN	WEIGHT	ITEM	SIZE
1	# 1	41 LBS	Curb	26.500"W x 26.500"L x 20.000"H Vented Hinged
2	# 2	25 LBS	Curb	17.500"W x 17.500"L x 20.000"H
3	# 3	29 LBS	Curb	21.000"W x 21.000"L x 15.000"H
	# 3		Rail	4.000"W x 4.000"L x 36.000"H

FAN #1 DU180HFA - EXHAUST FAN (EF-EX)



FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS)
- ROOF MOUNTED FANS
- RESTAURANT MODEL
- UL705 AND UL762
- VARIABLE SPEED CONTROL
- INTERNAL WIRING
- WEATHERPROOF DISCONNECT
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE)
- HIGH HEAT OPERATION 300°F (149°C)
- GREASE CLASSIFICATION TESTING

NORMAL TEMPERATURE TEST

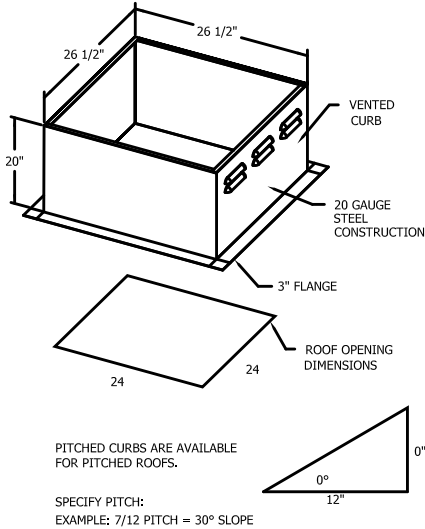
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST

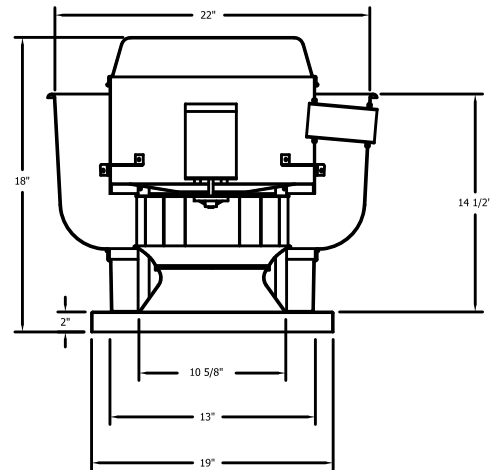
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

- GREASE BOX
- FAN BASE CERAMIC SEAL - INSTALLED AT PLANT - FOR GREASE DUCTS



FAN #2 DU12HFA - EXHAUST FAN (DISH)

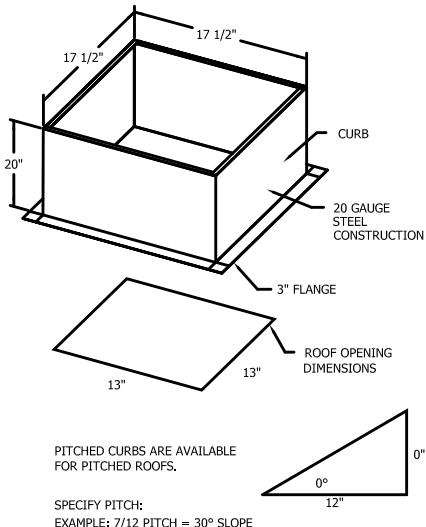


FEATURES:

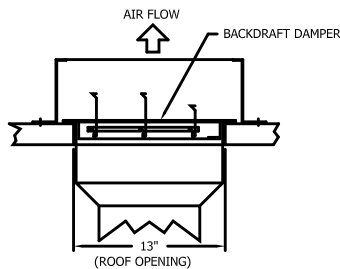
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS)
- ROOF MOUNTED FANS
- UL705
- VARIABLE SPEED CONTROL
- INTERNAL WIRING
- WEATHERPROOF DISCONNECT
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE)

OPTIONS

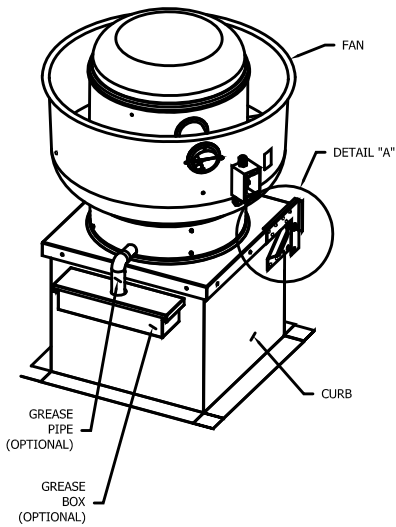
- ECM WIRING PACKAGE-EXHAUST - MANUAL OR 0-10VDC REFERENCE SPEED CONTROL (NIDEC MOTOR)
- SCR-12 BIRD SCREEN
- 1 12-BDD DAMPER



BACKDRAFT DAMPER INSTALLATION



Hinge Kit



VERIFY PITCH CURB

Curb Pitch Required in order to manufacture the curb to specification.

REVISIONS

NO.	DESCRIPTION	DATE
1		
2		
3		
4		

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REG OFFICE

ADDRESS

DWG NAME

LOCATION

LOCATION2

DATE: DATE

DWG.#: DWG#

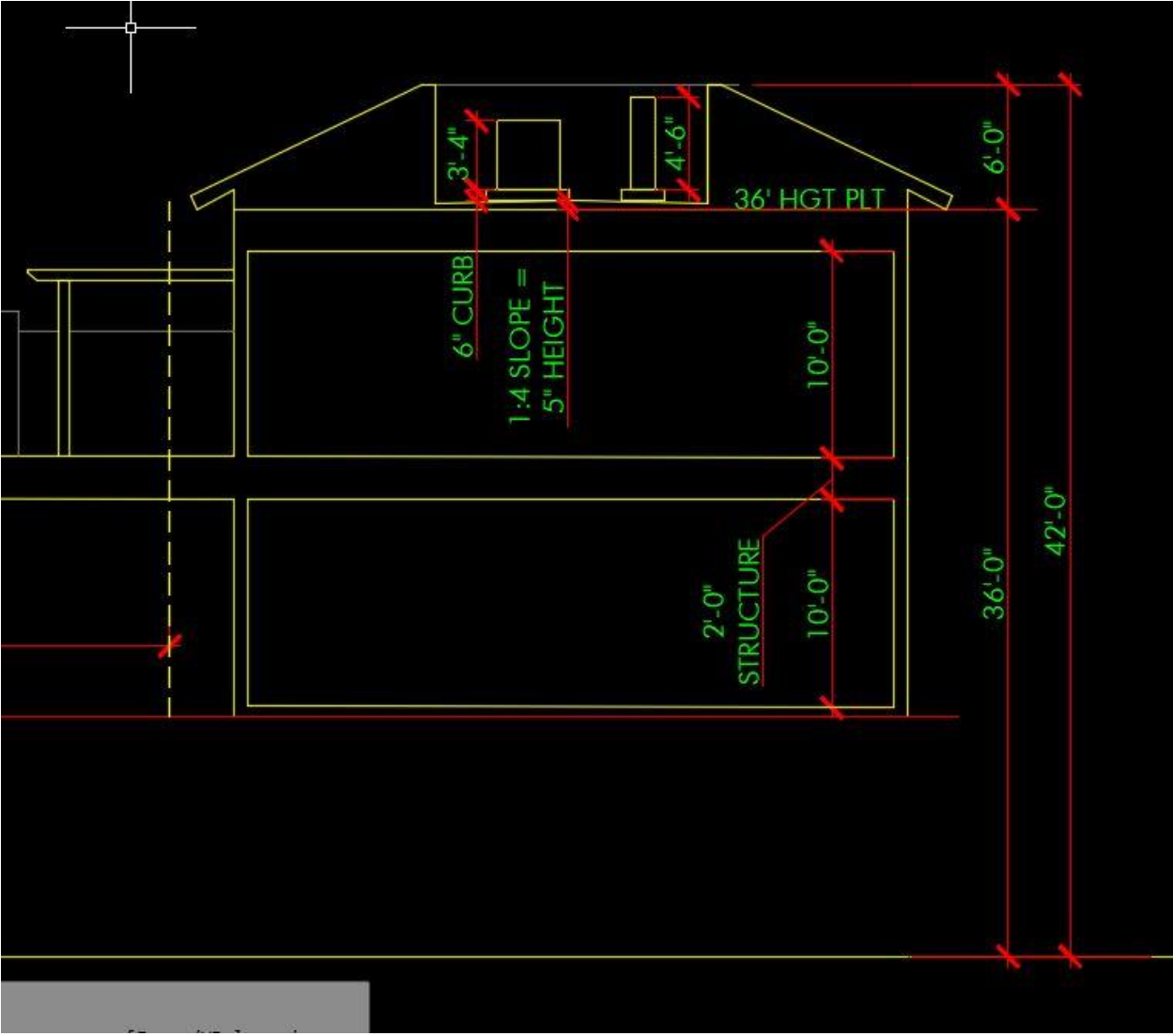
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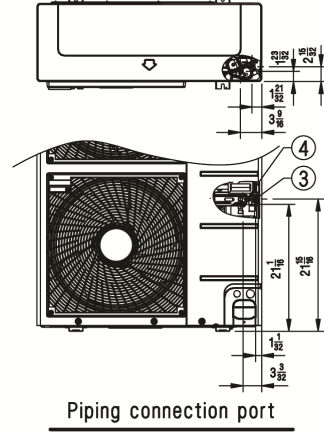
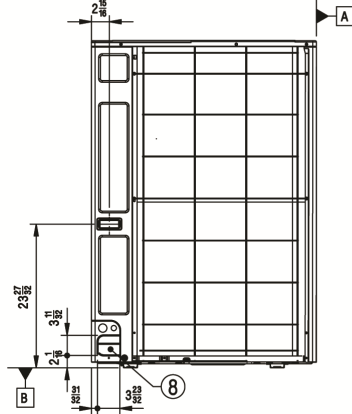
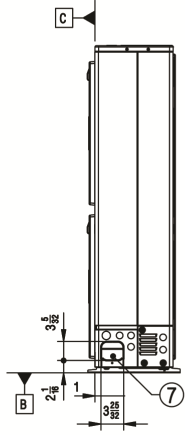
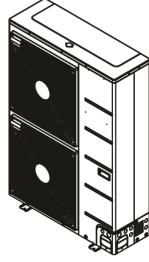
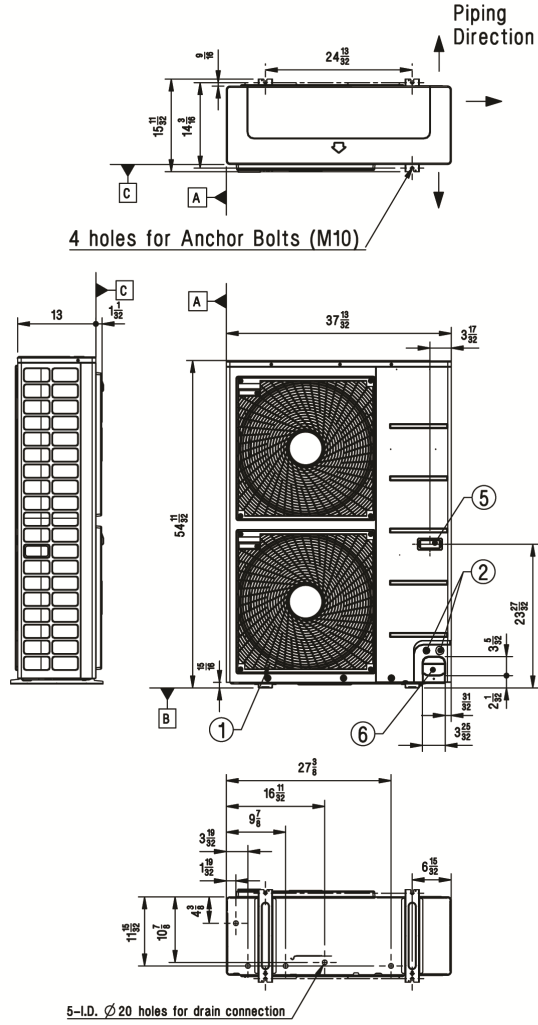
SHEETTYPE

SHEET NO.

SHEET#







8	Pipe routing hole (back)	–
7	Pipe routing hole (side)	–
6	Pipe routing hole (front)	–
5	Handle	–
4	Liquid Pipe Connection	Flare joint
3	Gas Pipe Connection	Flare joint
2	Power and communication cable Hole	–
1	Air Outlet	–
No.	Part Name	Description

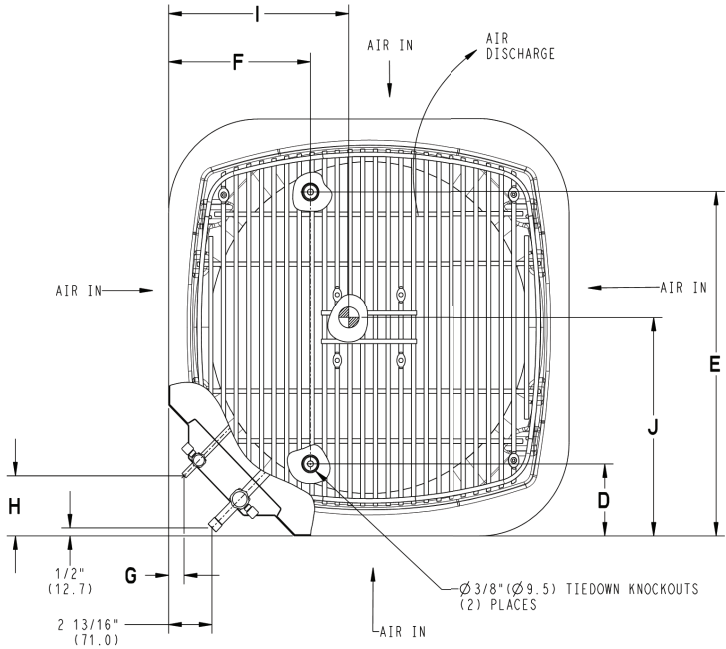
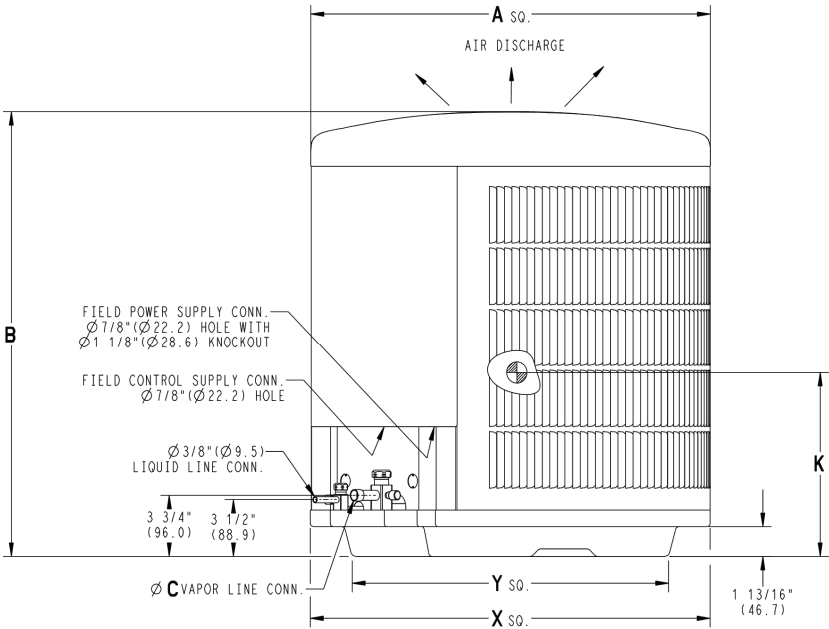
DIMENSIONS

UNIT	SERIES	ELECTRICAL CHARACTERISTICS					A		B		C		D		E		F		G		H		I		J		K		OPERATING WEIGHT		SHIPPING WEIGHT		SHIPPING LENGTH / WIDTH (Sq.)		SHIPPING HEIGHT													
							INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	Lbs	Kgs	Lbs	Kgs	INCH	MM	INCH	MM										
25VNA813A0030050	0	Y	N	N	N	N	23	1/8	587.3	32	1/8	815.6	3/4	19.1	4	7/16	113.0	18	1/16	459.0	7	13/16	197.9	1	1/8	28.2	3	13/16	97.4	11	1/4	285.8	11	1/4	285.8	14	1/2	368.3	139	63.0	162	73.5	25	1/4	641.5	36	9/16	929.5
25VNA824B0030050	0	Y	N	N	N	N	23	1/8	587.3	32	1/8	815.6	3/4	19.1	4	7/16	113.0	18	1/16	459.0	7	13/16	197.9	1	1/8	28.2	3	13/16	97.4	11	1/4	285.8	11	1/4	285.8	14	1/2	368.3	139	63.0	162	73.5	25	1/4	641.5	36	9/16	929.5
25VNA825A0030050	0	Y	N	N	N	N	23	1/8	587.3	38	15/16	988.4	3/4	19.1	4	7/16	113.0	18	1/16	459.0	7	13/16	197.9	1	1/8	28.2	3	13/16	97.4	10	3/4	273.1	10	3/4	273.1	18	1/4	463.6	164	74.4	190	86.2	25	1/4	641.5	43	3/8	1102.2
25VNA836A0030050	0	Y	N	N	N	N	23	1/8	587.3	38	15/16	988.4	3/4	19.1	4	7/16	113.0	18	1/16	459.0	7	13/16	197.9	1	1/8	28.2	3	13/16	97.4	10	3/4	273.1	10	3/4	273.1	18	1/4	463.6	164	74.4	190	86.2	25	1/4	641.5	43	3/8	1102.2
25VNA837A0030050	0	Y	N	N	N	N	31	3/16	792.5	39	3/8	1000.5	7/8	22.2	6	9/16	166.1	24	11/16	626.3	9	1/8	231.3	1	1/8	28.2	3	13/16	97.4	14	1/2	368.3	14	5/8	371.5	18	3/4	476.3	218	98.9	257	116.6	33	5/16	846.6	45	1/4	1149.1
25VNA848A0030050	0	Y	N	N	N	N	31	3/16	792.5	39	3/8	1000.5	7/8	22.2	6	9/16	166.1	24	11/16	626.3	9	1/8	231.3	1	1/8	28.2	3	13/16	97.4	14	1/2	368.3	14	5/8	371.5	18	3/4	476.3	218	98.9	257	116.6	33	5/16	846.6	45	1/4	1149.1
25VNA860A0030050	0	Y	N	N	N	N	31	3/16	792.5	42	13/16	1086.9	7/8	22.2	6	9/16	166.1	24	11/16	626.3	9	1/8	231.3	1	1/8	28.2	3	13/16	97.4	16	1/2	419.1	15		381.0	20		508.0	245	111.1	286	129.7	33	5/16	846.6	48	1/4	1224.8

208-230-1-60
208/230-3-60
460-3-60
575-3-60

Y=YES
N=NO

NOTES:
1. CENTER OF GRAVITY





UNIT SIZE	"X"		"Y"	
	MINIMUM GROUND MOUNTING PAD APPLICATION DIMENSIONS		MINIMUM ROOF-TOP MOUNTING PAD APPLICATION DIMENSIONS	
13,24,25,36	23	1/8	587.3	17 7/8 454.6
-	25	3/4	654.0	20 7/16 518.5
37,48,60	31	3/16	792.5	22 15/16 583.2
-	35		889.0	26 3/4 679.7


NOTE: ALL DIMENSIONS IN INCH (MM) U.S. ECCN: Not Subject to Regulation (N.S.R.)

Fig. 1 – Dimensions 50HCQ 04-06 (Sheet 1 of 2)

NOTES:

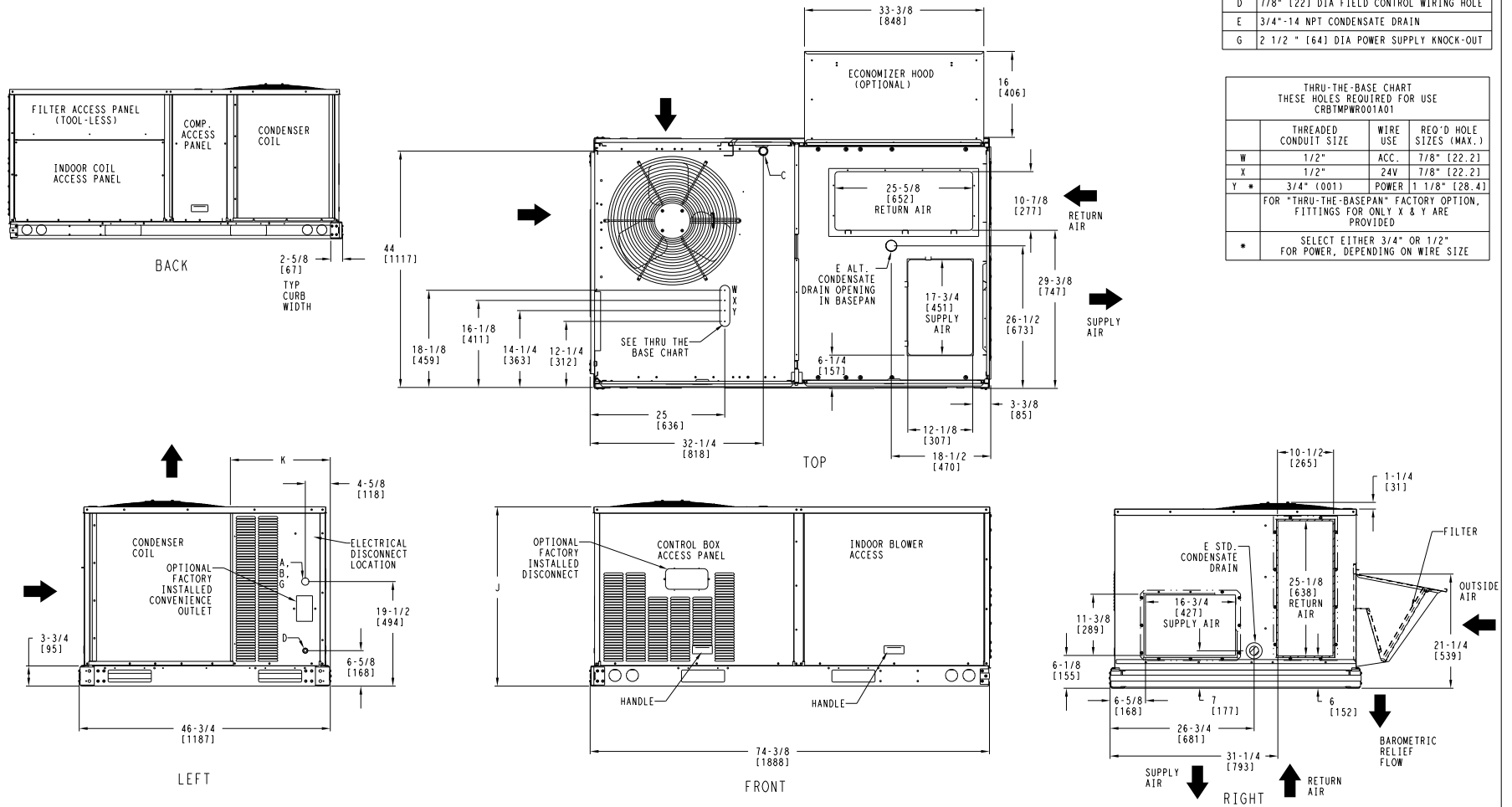
1. DIMENSIONS ARE IN INCHES, DIMENSIONS IN [] ARE IN MILLIMETERS.
2.  CENTER OF GRAVITY
3.  DIRECTION OF AIR FLOW

UNIT	J	K
50HCOA04	33 3/8 [847]	18 5/8 [472]
50HCOA05	41 3/8 [1051]	14 7/8 [377]
50HCOA06	41 3/8 [1051]	14 7/8 [377]

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	CARRIER	SYRACUSE, NY 13221		

CONNECTION SIZES		
A	1 3/8" [35]	DIA FIELD POWER SUPPLY HOLE
B	2" [51]	DIA POWER SUPPLY KNOCKOUT
C	1 3/4" [44]	DIA GAUGE ACCESS PLUG
D	7/8" [22]	DIA FIELD CONTROL WIRING HOLE
E	3/4"-14 NPT	CONDENSATE DRAIN
G	2 1/2" [64]	DIA POWER SUPPLY KNOCK-OUT

THRU-THE-BASE CHART THESE HOLES REQUIRED FOR USE CRBTMPWR001A01		
THREADED CONDUIT SIZE	WIRE USE	REQ'D HOLE SIZES (MAX.)
W	1/2"	ACC. 7/8" [22.2]
X	1/2"	24V 7/8" [22.2]
Y *	3/4" (001)	POWER 1 1/8" [28.4]
FOR "THRU-THE-BASEPAN" FACTORY OPTION, FITTINGS FOR ONLY X & Y ARE PROVIDED		
* SELECT EITHER 3/4" OR 1/2" FOR POWER, DEPENDING ON WIRE SIZE		



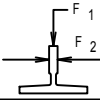

SHEET	DATE	SUPERCEDES	50HCQ 04-06 SINGLE ZONE ELECTRIC HEAT PUMP	48TM502800	REV
1 OF 2	02-22-10	-			-

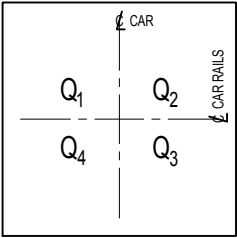
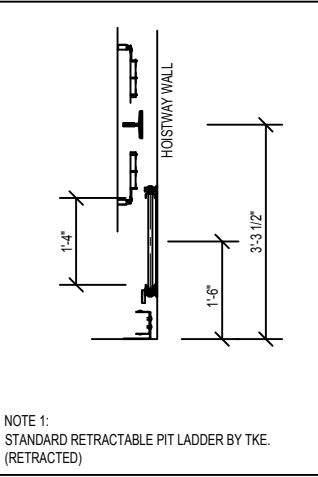
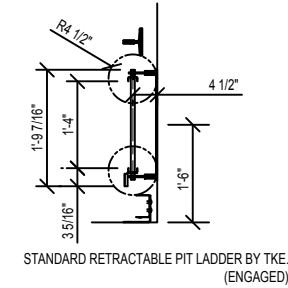
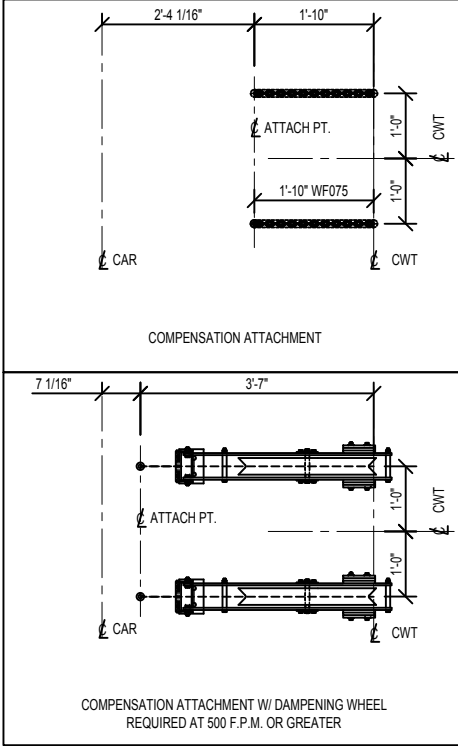
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ELEVATOR DESIGNATION	DRIVE HP	DRIVE AMPS	CONTROLLER AMPS	TOTAL AMPS (RUNNING)	MAX UP ACC. AMPS (FULL LOAD)	SHORT CIRCUIT CURRENT RATING AMPS (AT 600V OR LESS)	REGEN KW-HI SPEED	REGEN KW-DECEL
X	60R	16.7	3.0	20	29.1	25,000	6.8	9.6

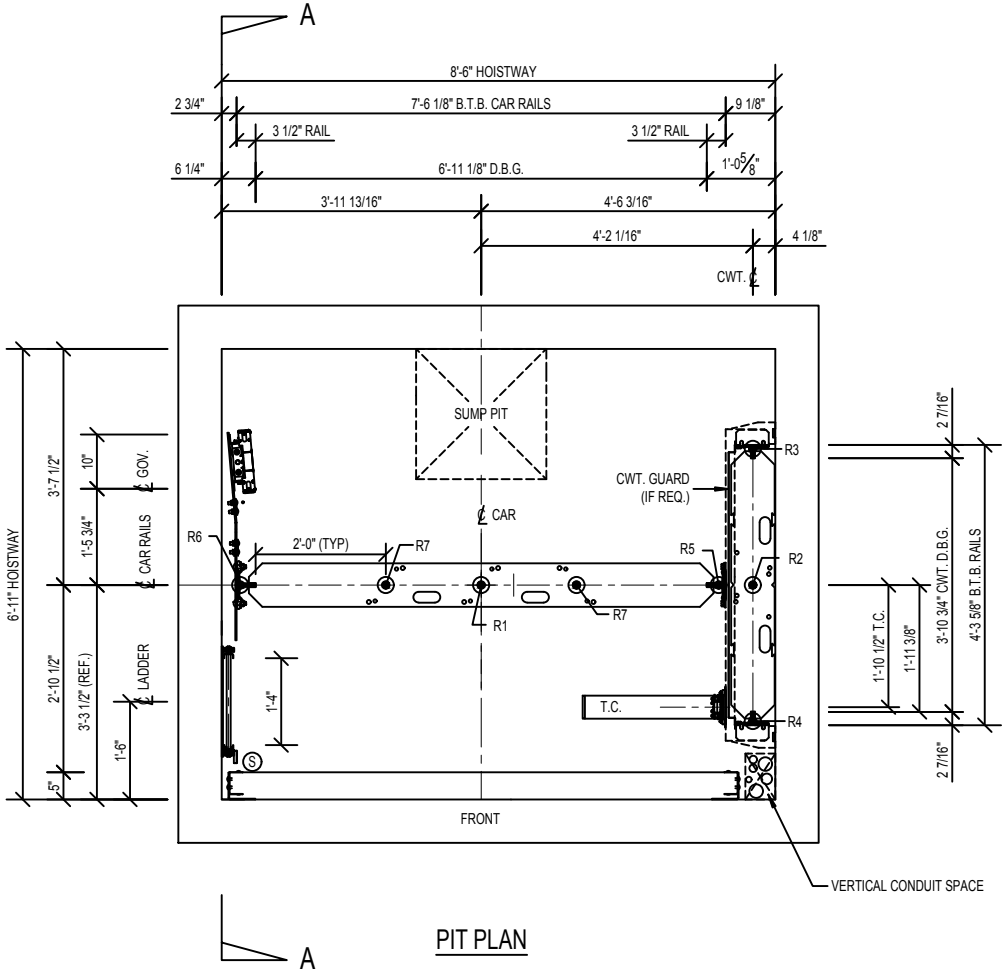
NOTE : THE ELECTRICAL PARAMETERS ABOVE ARE BASED ON 480 V. WITHOUT A TRANSFORMER.

CONSTRUCTION WEIGHTS	
FACTORY PLATFORM WEIGHT	262 LBS.
SLING WEIGHT <small>(X-HD, STILE, SAFETY DEVICE, SAFETY CHANNELS & GUIDES)</small>	1,103 LBS.
CONSTRUCTION CAR TOP WEIGHT <small>(CAR TOP + 500)</small>	662 LBS.
TOTAL TEMPORARY CWT. WT. REQUIRED	1,365 LBS.
CWT. FRAME WEIGHT <small>(FRAME, SHOES, SHEAVE, SAFETY, ETC.)</small>	583 LBS.
TEMPORARY FILLER WEIGHT	782 LBS.
TEMPORARY FILLER HEIGHT (STEEL)	13 IN

TRACTION ELEVATOR CONTRACT DATA									
ELEVATOR NUMBER		X		<div>THE FOLLOWING CONDITIONS MUST BE MET BEFORE INSTALLATION IS COMPLETED, AND ARE NOT INCLUDED IN THE ELEVATOR CONTRACT:</div> <div><div>1. A PLUMB, PROPERLY-VENTILATED HOISTWAY (ACCORDING TO CODE AND SIZES SHOWN).</div><div>2. ADEQUATE SUPPORT FOR MACHINE BEAMS, GUIDE RAIL BRACKETS, AND BUFFERS (FOR REACTIONS SHOWN).</div><div>3. HOISTWAY BARRICADES (ALL CUTTING AND PATCHING TO INSTALL HOISTWAY ENTRANCES, SILLS, AND HALL FIXTURES).</div><div>4. PIT LIGHTS AND SWITCH, CONVENIENCE OUTLETS OF THE GFCI TYPE PER NEC, PIT LADDER PER CAR (ACCORDING TO CODE). NOTE: MUST BE CLEAR OF ALL ELEVATOR EQUIPMENT.</div><div>5. SEPARATE 120 VOLT, 15 AMP. BRANCH CIRCUITS, ALONG WITH TELEPHONE CIRCUIT WHEN REQUIRED, TO TERMINALS OF EACH REQUIRED CONTROLLER (AS LOCATED ON PLAN VIEW) FOR THE FOLLOWING: - CAR LIGHT AND ALARM CIRCUIT WITH RECEPTACLES OF THE GFCI TYPE PER NEC - GROUP CONTROL WHEN REQUIRED NOTE: IF STANDBY POWER IS SUPPLIED TO THE ELEVATOR, GROUP CONTROL CIRCUIT MUST BE STANDBY POWER BACKED.</div><div>6. BRANCH CIRCUIT CONDUCTOR SIZING, MATERIALS, AND INSULATION (INCLUDING BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE) TO COMPLY WITH ALL LOCAL ELECTRICAL CODES (SEE "ELECTRICAL POWER REQUIREMENTS"). NOTE: ALSO, A FOURTH WIRE OF SAME SIZE AS THREE PHASE WIRES IS REQUIRED FOR GROUNDING PURPOSES TO MINIMIZE ELECTRICAL NOISE INTERFERENCE. THE GROUNDING WIRE MUST BE CONNECTED TO THE BUILDINGS ELECTRICAL SYSTEMS GROUND. NOTE: IF STANDBY POWER IS REQUIRED, SEE "ELEVATOR STANDBY POWER OPERATION".</div><div>7. AN ENCLOSED CONTROLLER ROOM AREA (ACCORDING TO CODE), WITH ADEQUATE LIGHT, HEAT, VENTILATION (MIN. 32° F., MAX. 122° F. WITH NON-CONDENSING HUMIDITY OF 20%-90%), AND SEALED CONCRETE FLOOR SLAB SURFACE. NOTE: MUST PROVIDE ADEQUATE DOOR SIZE TO ALLOW INSTALLATION OF EQUIPMENT - OR LEAVE WALL OUT UNTIL EQUIPMENT IS IN PLACE.</div><div>8. A PROPERLY VENTED HOISTWAY AND MAINTAINED BET. 32° F. AND 122° F. 20% - 90% HUMIDITY</div><div>9. ENTRANCE WALLS WITH LINTELS. NOTE: MUST BE PROVIDED AFTER ENTRANCE FRAMES ARE SET - OR LEAVE A ROUGH OPENING 1'-3" WIDER AND 1'-3" HIGHER THAN THE FRAME OPENING; FOLLOW INSTALLATION PROCEDURES FOR FRAME TO WALL INTERFACE TO MAINTAIN LABELED CONSTRUCTION. FILL IN AROUND FRAMES AFTER THE FRAMES ARE SET. POCKETS IN CORRIDOR WALL (PER FIXTURE DRAWINGS) FOR HALL FIXTURES.</div><div>10. NOTE: MUST BE LOCATED AS DIRECTED BY ELEVATOR CONTRACTOR.</div><div>11. SMOKE SENSORS (AS REQUIRED). 12. CONDUIT AND WIRING FROM HOISTWAY TO ELEVATOR MONITORING PANELS (FOR SECURITY, LIFE SAFETY, OR FIRE REQUIREMENTS).</div></div>					
TYPE		PASSENGER							
CLASS		DESIGNED FOR CLASS "A" FREIGHT LOADING							
CAPACITY		3,500 LBS.							
MAX. UNIT LOAD		875 LBS.							
MAX. AXLE LOAD		875 LBS.							
MAX. SUSTAINING LOAD		3,500 LBS.							
SPEED		200 FPM							
OPERATION		TAC32T							
STOPS		X							
HOISTWAY ENTRANCES		LH/RH/CO							
CAR DOORS		SINGLE SPEED (PWD)							
STILE		F6.75 X 5.47							
CROSSHEAD		F7 X 6.26							
SAFETY PLANK		F8.75 X 11.48							
CAR GUIDE TYPE		SLIDE							
BALANCE WEIGHTS		N/A LBS.							
CAR SAFETY		FLEX-CLAMP							
GOVERNOR		CAR							
MACHINE		5001CJ002							
DRIVE SHEAVE DIA.		4.41 IN. [112 mm]							
ISOLATION		STANDARD							
FULL LOAD MASS		15,718 LBS.							
CONTROL		VVVF							
POWER SUPPLY		480 V. 3 PH. 60 CYC.							
HOIST BELTS		(4) 42.5 x 3.1 mm							
GOVERNOR ROPE (PREFORMED)		(1) 1/4 IN. 8 X 19 [6.5mm]							
		WARRINGTON-IWRC							
COMPENSATION CHAIN (WHISPER-FLEX)		(2) WF075							
		(0.75 LBS./FT.) PER CHAIN							
CAR BUFFER TYPE		(2) OIL							
CAR BUFFER STROKE		2 3/4 IN.							
CWT. BUFFER TYPE		(1) OIL							
CWT. BUFFER STROKE		2 3/4 IN.							
CWT. STILE LENGTH		11'-1 1/2"							
CWT. GUIDE TYPES		SLIDE							
CWT. FILLER TYPE-SOLID		(89)	165CPV002						
CWT. FILLER TYPE-SPLIT		(0)	165CPV008						
CAVITY FILLERS		(5)	165CPV005						
CWT. FILLER STACK HEIGHT		94 IN.							
CWT. PERCENTAGE		45.00%							
TOTAL FILLER WEIGHT		5,527 LBS.							
TOTAL CWT. WEIGHT		6,091 LBS.							
TOTAL CAR WEIGHT W/ FLOORING		4,341 LBS.							
FLOORING WT. BY OTHERS		0							
EST. CAB WEIGHT W/ FINISHES & DOOR OPERATOR		2,476 LBS.							
CAB TYPE		TKAP							
CAB FINISHES BY OTHERS		N/A							
MACHINE WEIGHT & FRAME		1,110 LBS.							
CAR GUIDE RAILS		15 LBS./FT.							
CWT. GUIDE RAILS		8 LBS./FT.							
RAIL FORCES		F ₁		F ₂					
		LOADING OR UNLOADING		595 LB.		343 LB.			
MAXIMUM VERTICAL FORCE ON EACH GUIDE RAIL DUE TO SAFETY APPLICATION.		CAR							
		8,154 LBS.							
NOTE A: ALL REACTIONS INCLUDE ALLOWANCE FOR IMPACT.									
NOTE B: thyssenkrupp ELEVATOR TO BE NOTIFIED OF ANY CHANGE TO ELEVATOR HOISTWAY OR MACHINE ROOM DESIGN PRIOR TO FABRICATION OF ELEVATOR EQUIPMENT.									
NOTE C: ELEVATOR DESIGN AND FABRICATION BASED ON ESTIMATED CAB WEIGHT SHOWN. LAYOUT APPROVAL WILL BE CONSTRUED AS FINAL CAB WEIGHT, UNLESS OTHERWISE NOTIFIED.									
DATE	SYM.	REVISION				BY	CHKD		
DO NOT SCALE THIS DRAWING									
ELEVATOR CONTRACTOR									
thyssenkrupp ELEVATOR									
FOR:		XXX							
ADDRESS:		XXX							
CITY:		XXX							
ARCHITECT:		XXX							
GENERAL CONTRACTOR:		XXX							
						EBN1039			
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<div>thyssenkrupp Elevator Corporation</div> <div> thyssenkrupp</div>									
DRAWN	DATE	CHKD.	JOB NUMBER			REV.	SHEET NO.		
XX	X/XX/XX	XX	XXX				X OF X		



- [Symbol] = DUCT RISER ABV. LADDER
- [Symbol] = PIT LIGHT SWITCH
- [Symbol] = TRAVELING CABLE
- [Symbol] = RAIL BRACKET MOUNTING SURFACE
- H.S. = HALL STATION
- D.B.G. = DIST. BET. GUIDES
- B.T.B. = BACK TO BACK RAILS
- P.U. = PICK UP
- F.O.R. = FACE OF RAIL
- C.R.L. = CAR RIDING LANTERN
- H.A. = HOISTWAY ACCESS



PIT FLOOR REACTIONS

REACTION	STATIC WT. OF RAILS FOR 150'-0" TRAVEL	STATIC WT. OF MACHINE, BEDPLATE & DOUBLE THE TENSION IN THE BELTS	TOTAL PIT FLOOR REACTIONS
R3	1,363 LBS.	7,497 LBS.	8,860 LBS.
R4	1,363 LBS.	7,228 LBS.	8,591 LBS.
R5	2,556 LBS.	9,185 LBS.	11,741 LBS.
R6	2,556 LBS.	9,191 LBS.	11,747 LBS.

BUFFER REACTIONS [SEE NOTE 4]

	200 F.P.M.	350 F.P.M.	500 F.P.M.	600 F.P.M.
R1	0 LBS.	48,350 LBS.	56,500 LBS.	45,350 LBS.
R7	17,100 LBS.	0 LBS.	0 LBS.	0 LBS.
R2	26,700 LBS.	38,150 LBS.	44,950 LBS.	36,100 LBS.

NOTE 1: THE 4 1/2" RETRACTABLE LADDER IS STANDARD WITH 3500 LB. CAPACITY. A NOTCH IN THE HOISTWAY WALL WILL BE REQUIRED WITH THE 4 1/2" NON-RETRACTABLE LADDER.
NOTE 2: ADD 1" TO HOISTWAY WIDTH WHEN TRAVEL EXCEEDS 100'.
NOTE 3: IF DRYWALL CONSTRUCTION, INSTALL WALL AFTER ENTRANCE FRAMES ARE SET. IF CONCRETE OR MASONRY CONSTRUCTION, LEAVE ROUGH OPENING AS SPECIFIED.
NOTE 4: R1 IS FOR 1 CAR BUFFER, R7 IS FOR 2 CAR BUFFERS.

EBN1051

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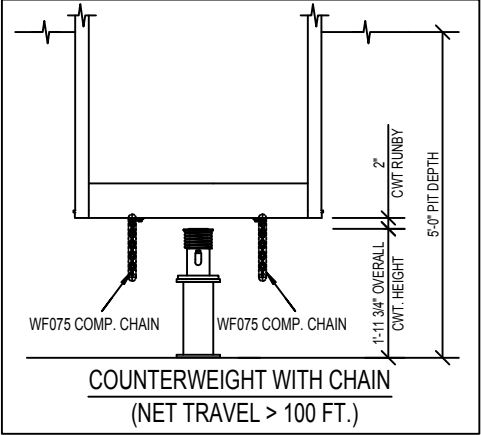


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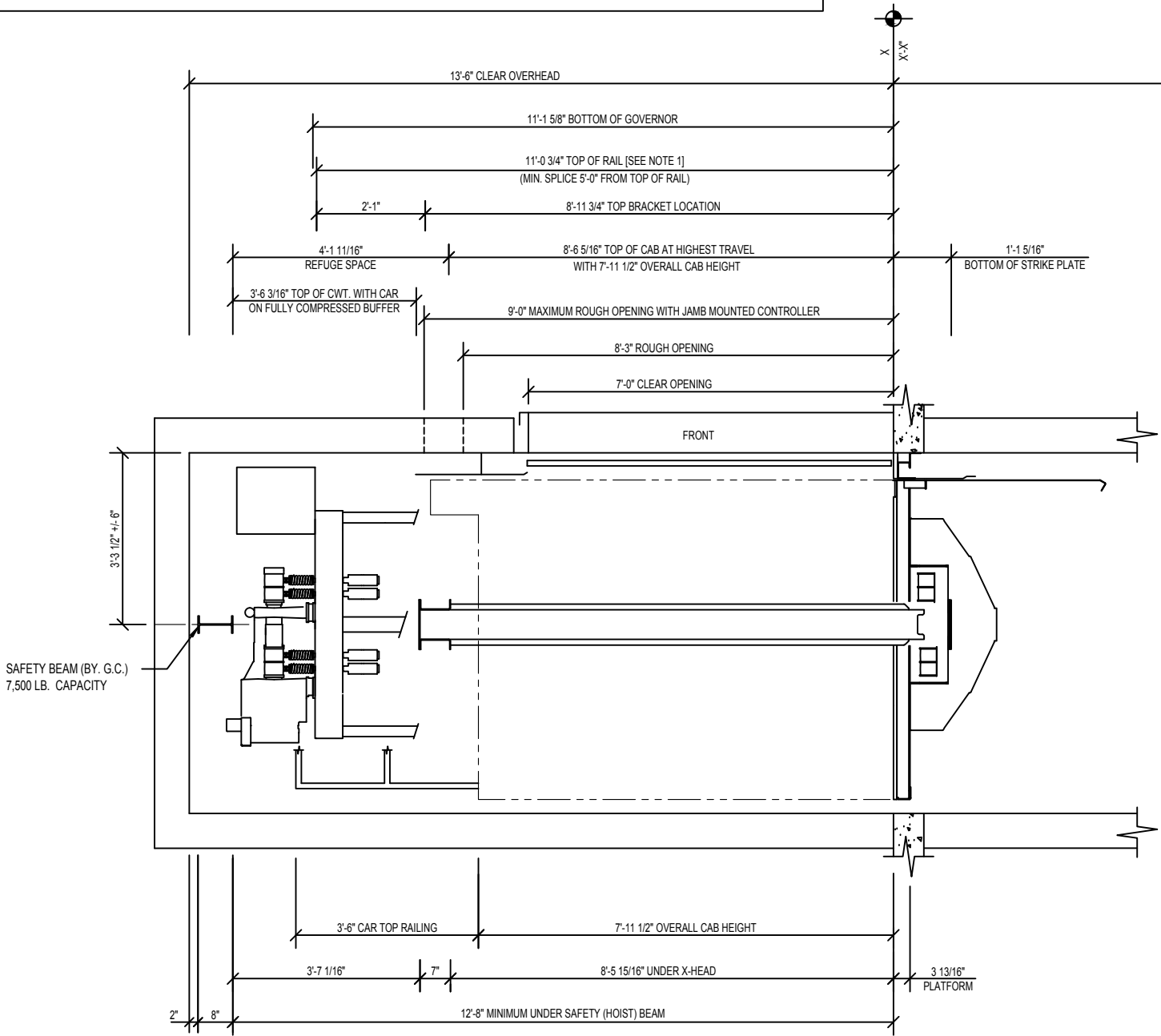
NOTE 1: THE TOP OF RAILS SHOULD ALWAYS HAVE A FLAT SURFACE FOR LOCATING THE RAIL CAPS AND THE BOTTOM STARTER RAIL SHOULD ALSO HAVE A FLAT SURFACE AT THE PIT FLOOR.
NOTE 2: LEAVE FRONT WALL ON 1ST AND TOP FLOORS OPEN FOR EASE OF INSTALLATION. SEE NOTE 8.
NOTE 3: IF DRYWALL CONSTRUCTION, INSTALL WALL AFTER ENTRANCE FRAMES ARE SET. IF CONCRETE OR MASONRY CONSTRUCTION, LEAVE ROUGH OPENING AS SPECIFIED.
NOTE 4: PLACE (5) CAVITY FILLERS, 165CPV005, INTO THE BOTTOM OF CWT. FRAME PRIOR TO STACKING FILLERS.
NOTE 5: IF THE CONTROLLER IS JAMB MOUNTED AT TOP LANDING, THE TOTAL HEAT LOAD IN THE HOISTWAY IS THE SUM OF THE HEAT LOAD CAUSED BY THE MACHINE AND THE CONTROLLER.
NOTE 6: HEAT LOAD SHOWN IS BASED ON THE ASSUMPTION THAT THE REGENERATIVE DRIVE IS USED AND ISOLATION TRANSFORMER IS NOT USED.
NOTE 7: MAXIMUM DESIGNED FINISHED FLOORING IS 3/4".
NOTE 8: IF THE CONTROLLER IS JAMB MOUNTED, A SUPPORT WILL BE REQUIRED AT THE ROUGH OPENING ELEVATION TO MOUNT THE ENTRANCE HEADER. THIS SUPPORT WILL NEED TO BE ABLE TO WITHSTAND A LOAD OF 500 LB.

HEAT LOAD CAUSED BY ELEVATOR MACHINE ONLY:	3,620 B.T.U./HR.
HEAT LOAD CAUSED BY CONTROLLER ONLY :	1,085 B.T.U./HR.

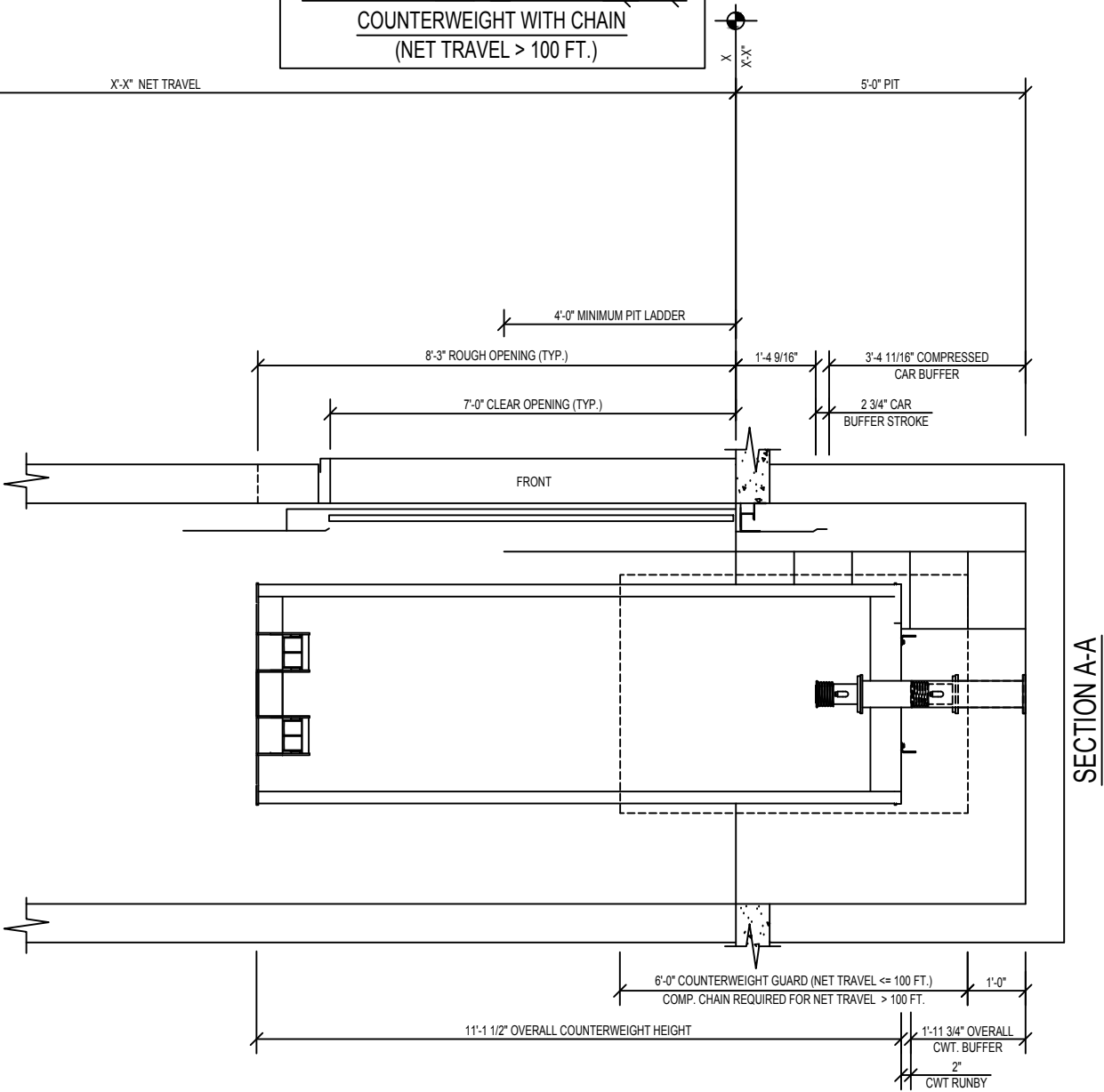
MAXIMUM DESIGNED COUNTERWEIGHT RUNBY OF 4 1/2"



MAXIMUM BRACKET SPACING	
CAR & CWT.	12'-2"



SECTION VIEW



SECTION A-A

DATE	SYM.	REVISION	BY	CHKD.	

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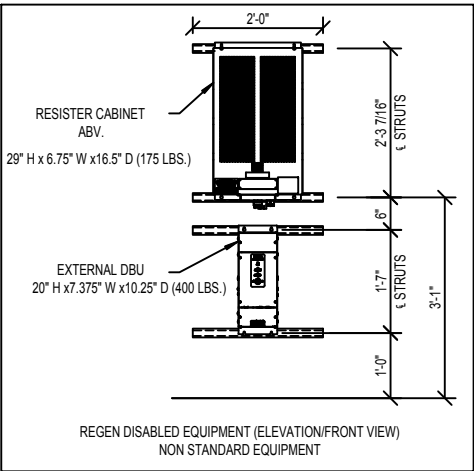
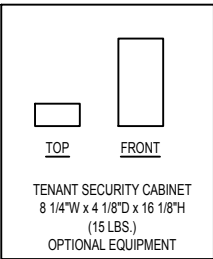


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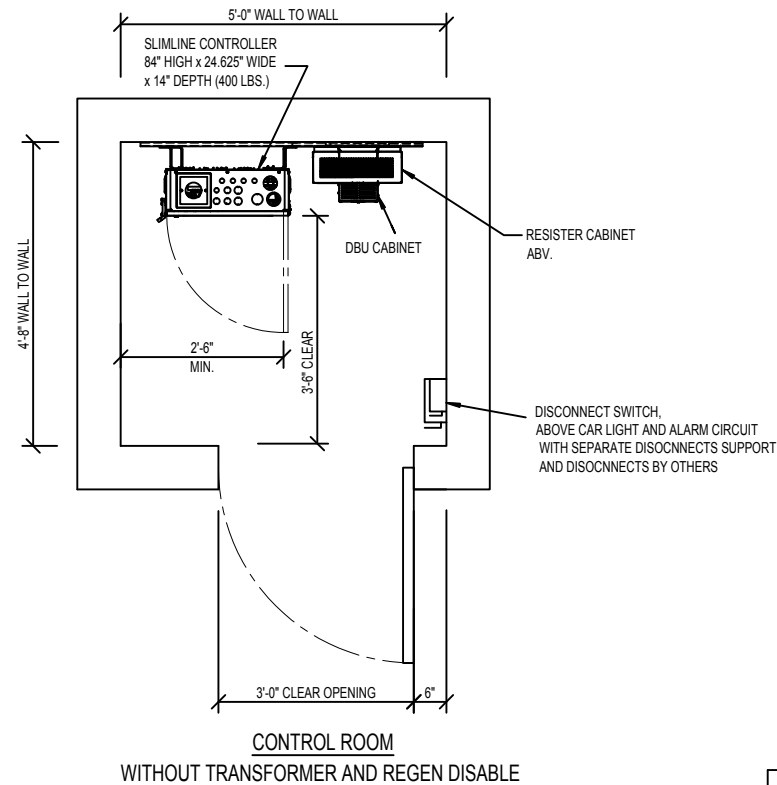
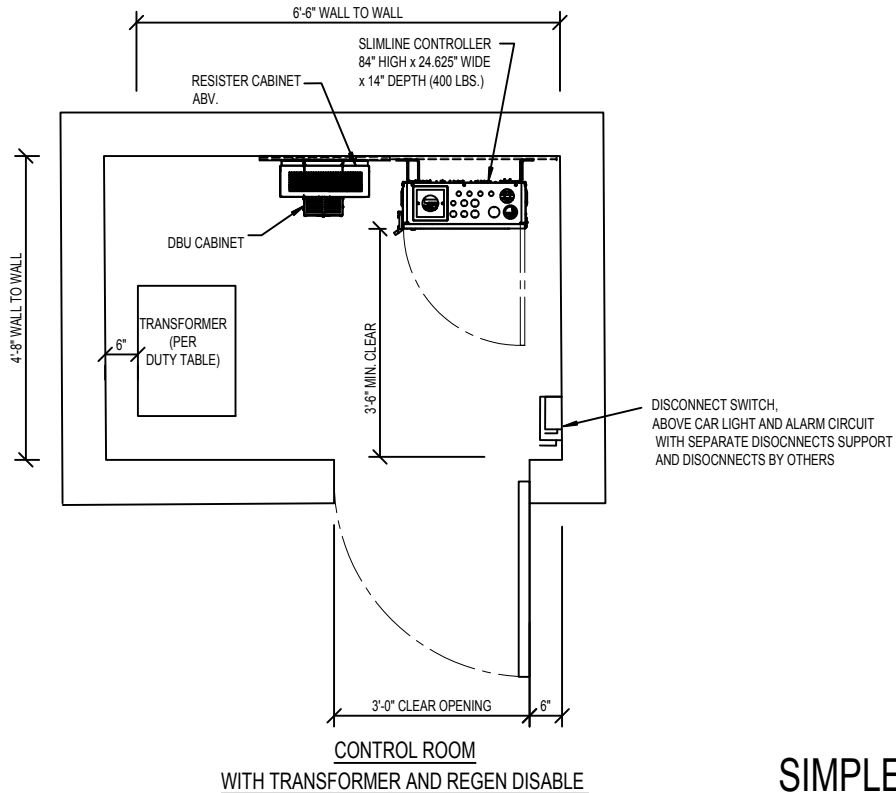
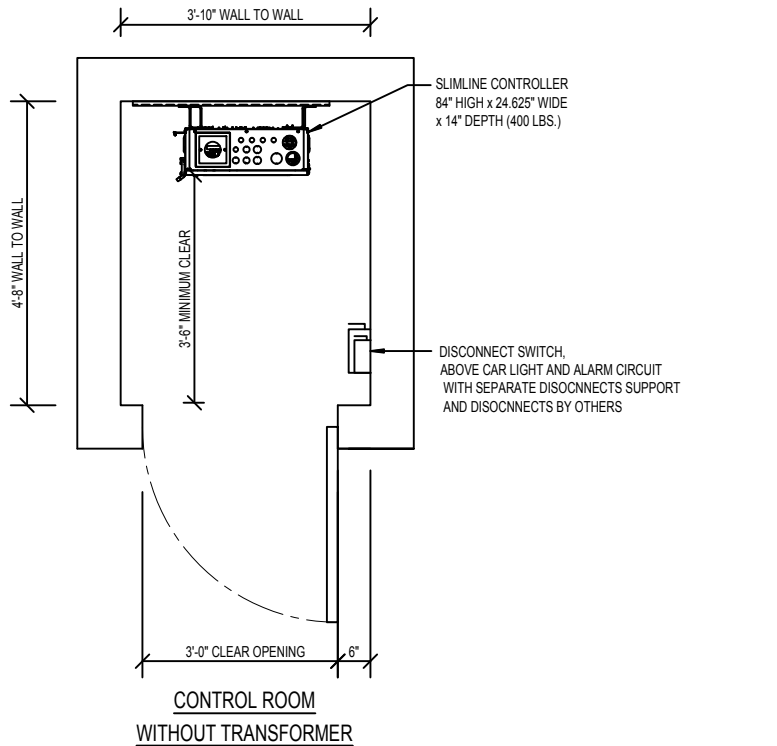
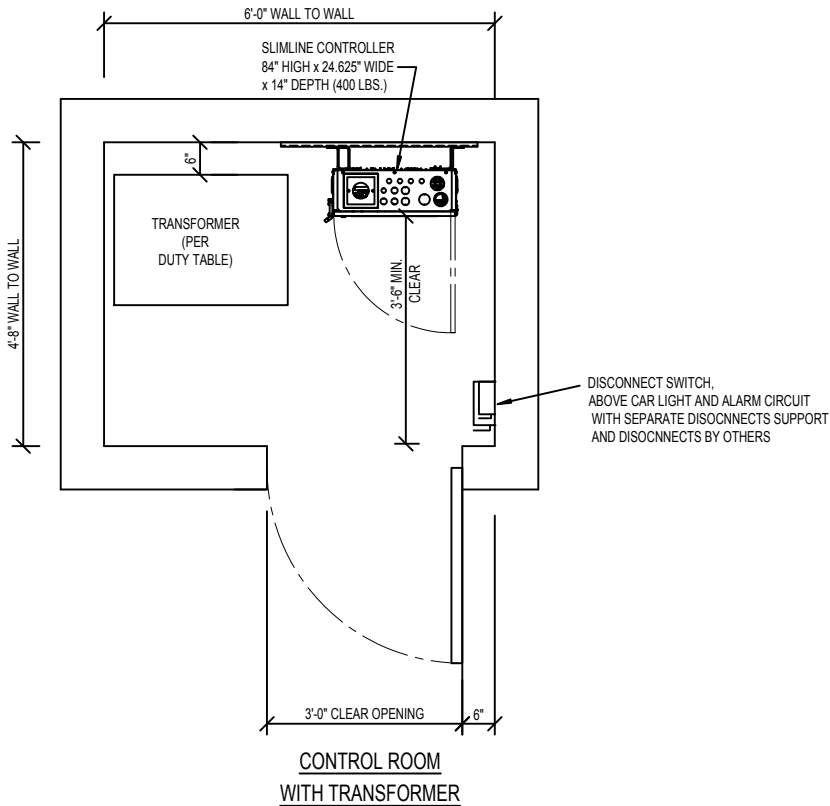
DRAWN	DATE	CHKD.	JOB NUMBER	REV.	SHEET NO.
	X/X/XX				OF

EBN1043

NOTE 1: PREFERABLY THE CONTROL ROOM SHOULD BE LOCATED AT THE TOP LANDING AND THE MAX DIST. OF CONDUIT RUN FROM CONTROLLER TO MACHINE IS 150'.
NOTE 2: 6" WIDE X 6" HIGH ELECTRICAL RACEWAYS REQUIRED. LOCATION IS DETERMINED BY RELATIONSHIP BETWEEN CONTROLLER CLOSET AND HOISTWAY. FINAL LOCATION TO BE VERIFIED WITH THYSSENKRUPP FIELD SUPERINTENDENT.
NOTE 3: DISCONNECT SWITCH ARE BY OTHERS.
NOTE 4: TEMPERATURE RANGE (32° F MIN., 104° F MAX.). 10% - 95% NON-CONDENSING RELATIVE HUMIDITY.
NOTE 5: 7'-6" MIN. CEILING HEIGHT.
NOTE 6: HEAT LOAD IS BASED ON CAR LOAD AT 40% CAPACITY RUNNING AT AN AVERAGE 30% DUTY CYCLE.
NOTE 7: HEAT LOAD ARE SUBJECT TO CHANGE DEPENDING ON CAPACITY, SPEED, DRIVE HP, TRANSFORMER, REGEN TYPE.
NOTE 8: THE STANDARD CONFIGURATION IS WITHOUT A TRANSFORMER. A TRANSFORMER IS OPTIONAL IF THE BUILDING VOLTAGE IS 208, 240, OR 480VAC. HOWEVER, PLEASE NOTE THAT THERE ARE 3 SPECIAL CONDITIONS WHERE A TRANSFORMER IS ALWAYS REQUIRED FOR THIS SYSTEM:
1.) IF THE BUILDING VOLTAGE IS 575VAC
2.) IF THE JOB SPECIFICATION CALLS FOR A TRANSFORMER
3.) IF THE BATTERY AUTOMATIC RESCUE OPTION IS REQUIRED, AND THE BUILDING VOLTAGE IS NOT 480VAC.
AN ISOLATION TRANSFORMER WILL BE REQUIRED EXCEPT FOR THE FOLLOWING CONDITIONS:
A.) 460/480 BUILDING SUPPLY VOLTAGE
B.) 208/240 BUILDING SUPPLY VOLTAGE AND WITH A CAPACITY NOT EXCEEDING 3500 LBS; AND SPEED NOT EXCEEDING 200 FPM.
IN THE CASE OF ANY CAPACITY GREATER THAN 3500 LBS. WITH A SPEED OF 200 FPM., THERE IS NO LOW VOLTAGE OPTION AVAILABLE.



TRANSFORMER	TRANSFORMER	TRANSFORMER
32" W x 24" D x 36" HIGH (525 LBS.)	25 1/4" W x 18 5/16" D x 33 3/4" H (580 LBS.)	24" W x 18" D x 33" HIGH (400 LBS.)
63 Kva	75 Kva	27, 34, 40 & 51 Kva
ISOLATION TRANSFORMER SPECIFICATION		



SIMPLEX CONTROL ROOMS

DATE	SYM.	REVISION	BY	CHKD.

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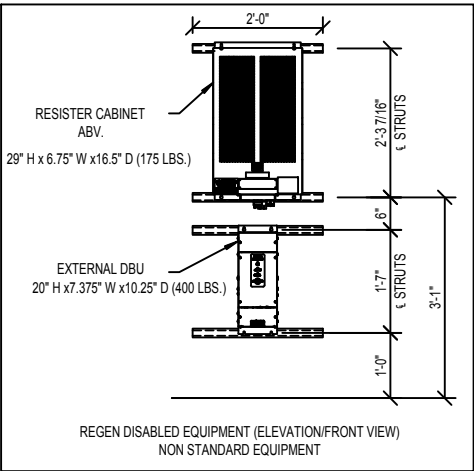
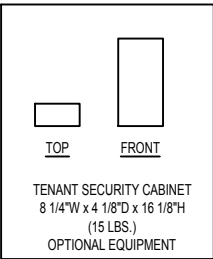
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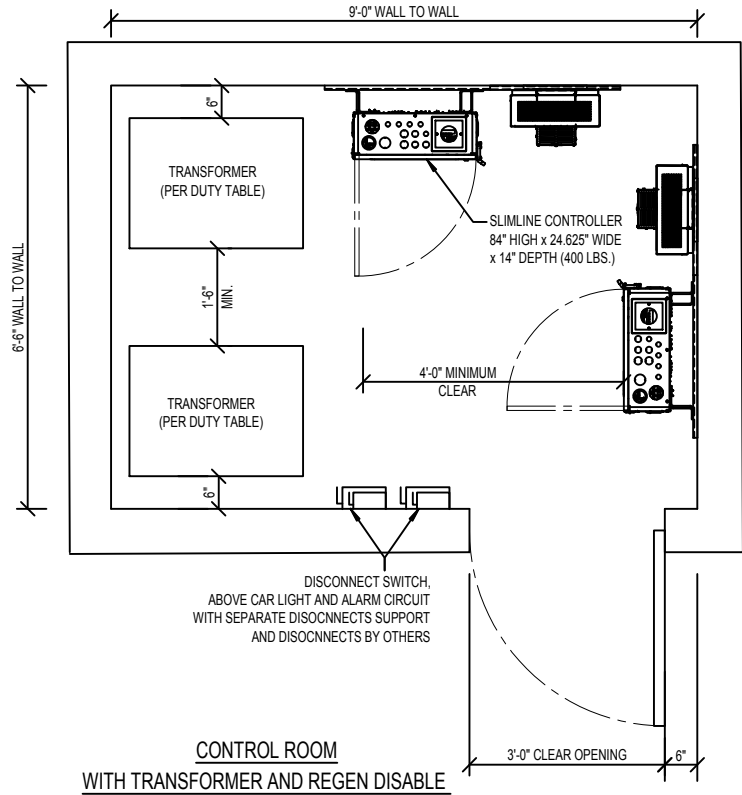
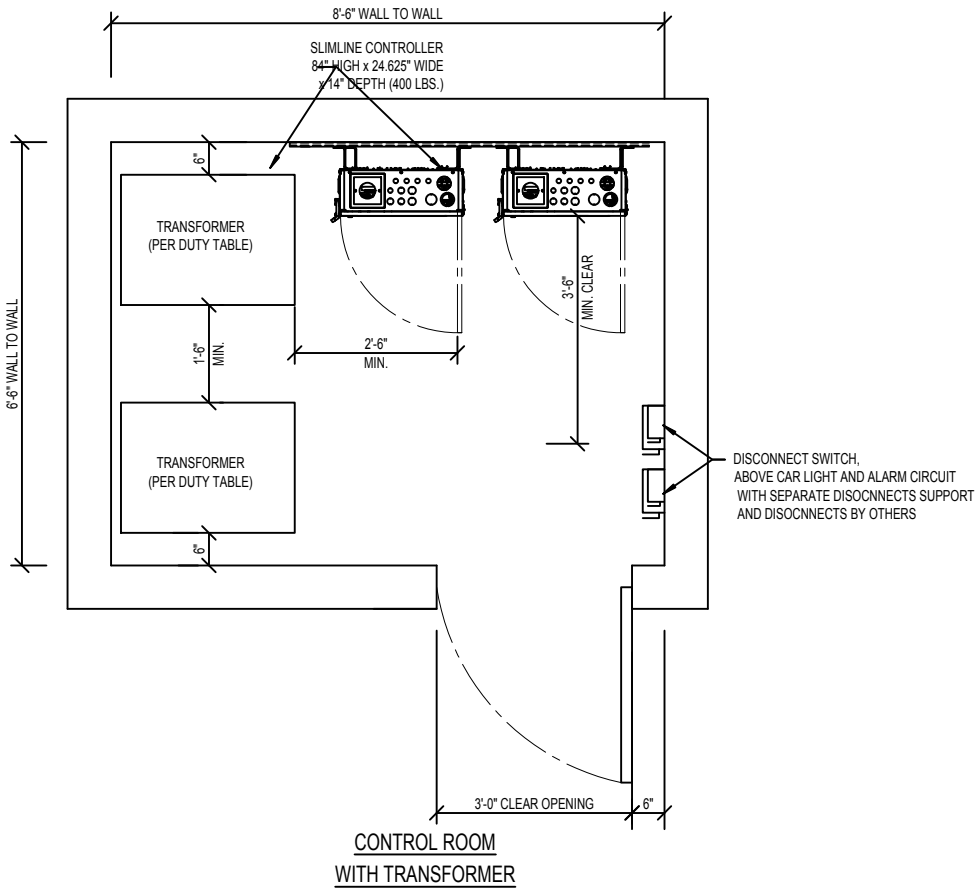
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EBN1113

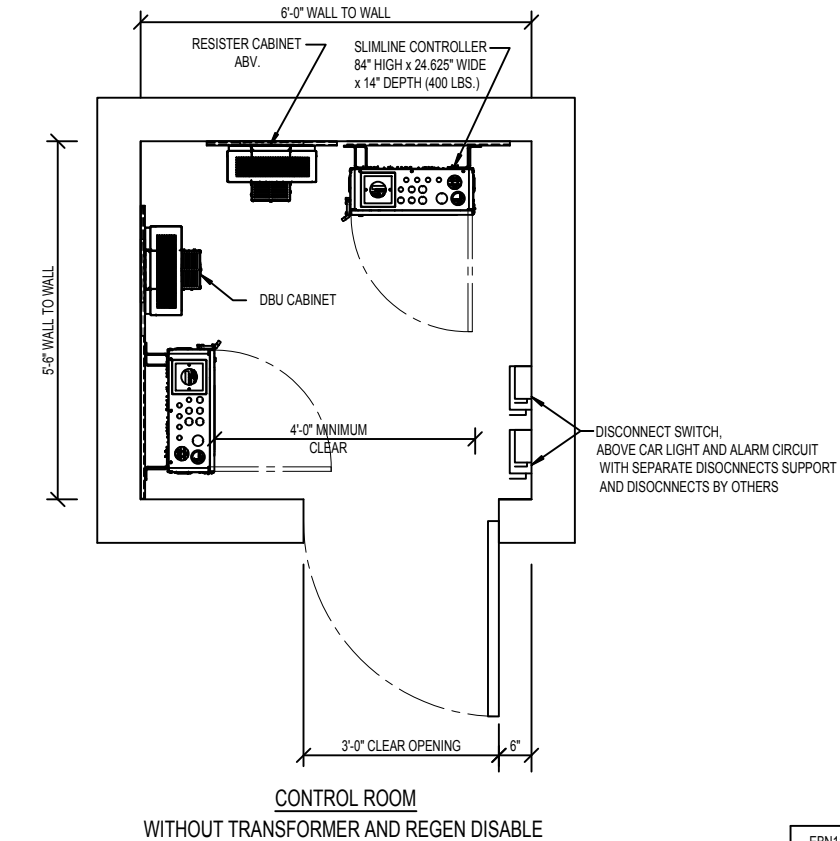
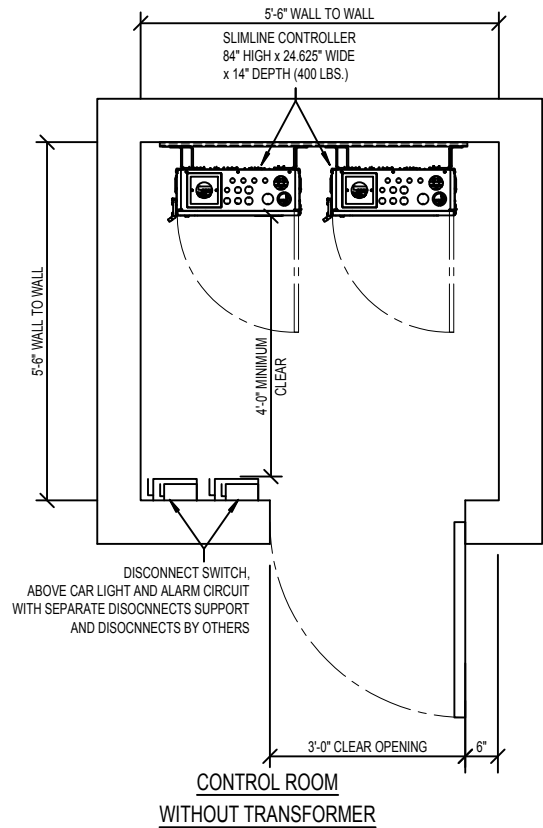
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NOTE 2: 6" WIDE X 6" HIGH ELECTRICAL RACEWAYS REQUIRED. LOCATION IS DETERMINED BY RELATIONSHIP BETWEEN CONTROLLER CLOSET AND HOISTWAY. FINAL LOCATION TO BE VERIFIED WITH THYSSENKRUPP FIELD SUPERINTENDENT.
NOTE 3: DISCONNECT SWITCH ARE BY OTHERS.
NOTE 4: TEMPERATURE RANGE (32° F MIN., 104° F MAX.). 10% - 95% NON-CONDENSING RELATIVE HUMIDITY.
NOTE 5: 7'-6" MIN. CEILING HEIGHT.
NOTE 6: HEAT LOAD IS BASED ON CAR LOAD AT 40% CAPACITY RUNNING AT AN AVERAGE 30% DUTY CYCLE.
NOTE 7: HEAT LOAD ARE SUBJECT TO CHANGE DEPENDING ON CAPACITY, SPEED, DRIVE HP, TRANSFORMER, REGEN TYPE.
NOTE 8: THE STANDARD CONFIGURATION IS WITHOUT A TRANSFORMER. A TRANSFORMER IS OPTIONAL IF THE BUILDING VOLTAGE IS 208, 240, OR 480VAC. HOWEVER, PLEASE NOTE THAT THERE ARE 3 SPECIAL CONDITIONS WHERE A TRANSFORMER IS ALWAYS REQUIRED FOR THIS SYSTEM:
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2.) IF THE JOB SPECIFICATION CALLS FOR A TRANSFORMER
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AN ISOLATION TRANSFORMER WILL BE REQUIRED EXCEPT FOR THE FOLLOWING CONDITIONS:
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63 Kva	75 Kva	27, 34, 40 & 51 Kva
ISOLATION TRANSFORMER SPECIFICATION		



DUPLEX CONTROL ROOMS



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						DRAWN	DATE	CHKD.	JOB NUMBER		REV.	SHEET NO.
												OF
DATE	SYM.	REVISION		BY	CHKD.	DO NOT SCALE THIS DRAWING						

The following items must be performed or provided at no cost to Otis Elevator Company ("OTIS") by the Owner or General Contractor or their agents in accordance with governing codes. The price and installation schedule of Otis is based on these job-site conditions existing at the beginning and during the installation of the elevator equipment. Failure to provide the items specified in this list will result in additional work performed by Otis Elevator beyond the scope of our contract causing installation delays. A change order will be submitted by Otis for materials and/or labor expended. All work must be performed per the applicable national and or local codes.

General Prep/Work

1. Provide on-site storage area for elevator equipment as follows: dry and enclosed, provides roll-able access to the elevator hoistway at the ground level, located within 100 feet (30480mm) of the hoistway and is larger than 25 x 20 feet (7620mm x 6096mm) per elevator. Any warranties provided by Otis for elevator equipment are null and void if equipment is stored in a manner other than a dry enclosed building structure.
2. Provide sufficient on-site refuse containers for the proper disposal of elevator packaging material. Should sufficient refuse containers not be provided, disposal of packaging material shall become the responsibility of the owner.
3. Provide any cutouts to accommodate elevator equipment (troughing, venting, and hall fixtures), along with the patching/painting of walls, floors, or partitions together with finish painting of entrance doors and frames, if required.

Hoistway & Pit Prep/Work

4. Provide and install a steel, I-beam shaped safety beam with a maximum flange width of 8 11/16" (220mm), from side wall to side wall at the top of the hoistway, capable of withstanding a minimumnet live load of 7500 lb (3402kg) per elevator. Reference Otis Layout for location. A 4" minimum clearance is required from top of beam to top of hoistway.

If your jobsite voltage = 600VAC three phase or 240VAC single phase, and your controller is to be located in the hoistway entrance, one of the two option below must be done.

Option 1: An additional steel I-beam needs to be provided and installed. It is to be located per the Otis layout & sized the same as the safety beam for the purpose of mounting the transformer provided by Otis (See overhead requirements).

Option 2: No second beam needed. Place a transformer in an electrical room. The transformer must be mounted and wired as per the National Electrical Code (ANSI/NFPA 70). See Otis layout and fact sheets for details.

5. Provide a clear plumb hoistway with variations from the size shown on the Otis layout not to exceed -0/7+1"(25mm) and not less than the clear dimensions shown on the Otis layout
6. Provide adequate rail bracket supports, bracket spacing as required by governing code, from pit floor to top of hoistway to comply with the rail reaction forces detailed on the Otis Contract Layout. Provide adequate support for the top rail brackets at locations above the top landing as specified on the Otis Layout. Provide separator beams where required. Unless approved by Otis, rail-bracket attachment supports must be exposed and flush with the clear hoistway line.

If the floor-to-floor height exceeds the maximum bracket spacing allowed by the elevator code, Otis requires some form of steel support to properly attach our guide rail brackets. The maximum allowed bracket spacing is indicated in the rail force and bracket detail table on the Otis layout. Any rail bracket mounting surfaces that are not in line with the finished hoistway dimension (i.e. the clear hoistway line) may need to be extended to meet the required distance. Otis agrees to provide guidance on this matter at the appropriate time.

If rail bracket embedded plates or inserts are provided by Otis they shall be installed by others in accordance with Otis documentation and instructions.

If vertical tube steel is utilized as rail support, see the Otis layout for any specific requirements.

7. Provide adequate support at all fastening points of each entrance. Provide plumb vertical surfaces for entrances and sill supports, one above the other, and square with the hoistway. Finish floor and grout, if required, between entrances and building sill line. For MRL installations, a horizontal support member is to be provided 20" (508mm) above the clear opening at the controller landing to support the entrance and controller components. If any other floor height exceeds 12'-0" (3657mm), a horizontal support member is to be provided 12" (305mm) above the clear opening. For MRL installations, if entrance finish protection is installed, a section of such protection must be removable to allow safe and convenient access to the Inspection & Test panel of the elevator.

8. Prior to the start of installation, provide a dry, properly framed, enclosed and vented hoistway in accordance with all applicable codes.

9. A.) Protection from Falls:

As required by the Occupational Safety and Health Administration (OSHA) 1926.502 B) (1-3) a freestanding removable barricade at each hoistway opening at each floor. Barricades shall be 42" (1067mm) high, with mid-rail and kick board, and withstand 200 lbs. (90.7kg) of vertical and horizontal pressure.

- B.) Protection from Falling Objects:

As required by the Occupational Safety and Health Administration (OSHA) 1926.502(j) hoistway protection from falling debris and other trades materials by either:

- 1.) Full entrance screening/mesh in front of all elevator entrances
- 2.) Secured/controlled access to all elevator lobbies (lock and key) with posted Notice "only elevator personnel beyond this protection."

Notes:

Items A.) and B.) can be integrated systems.

Hoistway barricades and screening shall be constructed, maintained and removed by others.

10. Provide a pit floor designed to sustain vertical forces (based on safety impact) on car and counterweight rails and impact loads on car and counterweight buffers as shown on the Otis layout. The pit must be dry and clean. The elevator pit must have a floor drain or sump pump to prevent the accumulation of water. Location to be coordinated with Otis to avoid all elevator components and access areas. In areas requiring fire fighters emergency operation (FEO) a sump pump/drain shall be provided that shall have the capacity to remove a minimum of 11.4m³/h (3,000 gal/h) per elevator (ASME A17.1/CSA B44 latest applicable code year section 2.2.2.5). Otis recommends that the owner verify the drain or sump pump system is in compliance with all applicable codes and laws.

11. The front entrance wall at the main landing and top landing, is not to be constructed until after all elevator equipment is installed in the hoistway (the entire front wall - CLEAR HOISTWAY WIDTH - must be open for installation). Remaining front entrance walls are not to be constructed until after door frames and sills are in place.

The rough openings, per sizes shown on the Otis layout, are required. Prior to the completion and turnover of the elevator(s), all entrance walls must be installed and rough openings filled in complete to maintain fire rated hoistway requirements.

12. Provide and install a fixed vertical iron ladder in each pit as required by governing code and located per Otis layout or as coordinated with Otis personnel. Ladder width and pit wall pocket requirements are shown in the pit plan view on the Otis layout.
13. Install permanent light fixture in each elevator pit with illumination of not less than 100 lx (10 fc) as measured at the pit floor. The light bulb(s) shall be externally guarded to prevent contact and accidental breakage. The light switch shall be so located as to be accessible from the pit ladder.
14. Glass used in hoistway construction must block 98% or more of incident full-spectrum ultraviolet radiation for the full height of the hoistway.
15. Provide and install guarding of counterweight in a multiple-elevator hoistway as required, when a counterweight is located between elevators, the counterweight runway shall be guarded on the side next to the adjacent elevator. The guarding must meet or exceed the requirements of ASME A17.1/CSA B44 latest applicable code year, section 2.3.2.3.

If an emergency door in a blind hoistway is required, provide an outward swinging single section type door with door closer and a self closing barrier per ASME A17.1/CSA B44 latest applicable code year, section 2.11.1.2. Contact your local Otis personnel for a detailed drawing (AAA26900D_FMI) showing Otis specific requirements.

MRL Machine Space Prep/Work

16. Maintain the temperature at the top of the hoistway (machine space) between 32° F (0° C) and 104° F (40° C). This space also includes the car controller which is mounted at the top landing. Relative humidity shall not to exceed 95% non-condensing. Provide ventilation to suit Otis heat release amounts as shown in Otis Confirmation of Power Supply form. Local codes may require tighter temperature ranges and higher ventilation levels. Please check with your local code authority for the exact requirements in your area. If your machinery space temperature exceeds this requirement, contact your local Otis sales representative for assistance.
17. Install a permanent light fixture at the top of the hoistway (machine space) of not less than 200-lux (19 fc) as measured at the level of the standing surface on the car when the elevator is at the top landing. Light switch is to be located in the hoistway per the Otis layout.
18. Install a permanent light fixture at the top landing entrance (control space), in the hall, of not less than 200-lux (19 fc) as measured at the floor level. Light switch is to be located close to the elevator entrance.

Control Room/Space and Machine Space Prep/Work

19. Provide a suitable control room/space(s) with access and ventilation in accordance with all applicable codes and regulations. The control room/space(s) shall be maintained at a temperature between 32F (0C) and 104F (40C) to be measured 6 feet (1830 mm) above the floor and 1 foot (305 mm) out from the front center of the car controller(s). Relative humidity is not to exceed 95% non-condensing. Provide ventilation to suit Otis heat release amounts as shown on the Otis Confirmation of Power Supply form. Local codes may require tighter temperature ranges and higher ventilation levels. Please check with your local code authority for the exact requirements in your area. If your control room/space(s) temperatures exceed these requirements, contact your local Otis sales representative for assistance.

20. Provide illumination of control room/space(s) of not less than 200 LUX (19 FC) as measured at floor level. Light switch is to be located within 18" (157 mm) to the lock-jamb side of the access door to the control room/space(s).
21. Provide control room/space(s) with self-closing and self-locking doors with a group 2 locking device. In addition, ensure that all air gaps around the doors are sealed (i.e. threshold, weather stripping, etc.).
22. Maintain the temperature at the top of the hoistway (machine space) between 32° F (0° C) and 104° F (45° C). Relative humidity shall not to exceed 95% non-condensing. Provide ventilation to suit Otis heat release amounts as shown in Otis Confirmation of Power Supply form. If your machinery space temperature exceeds this requirement, contact your local Otis sales representative for assistance.
23. Install a permanent light fixture at the top of the hoistway (machine space) of not less than 200-lux (19 fc) as measured at the level of the standing surface on the car when the elevator is at the top landing. Light switch is to be located in the hoistway per the Otis layout.

Fire Prevention Prep/Work

24. Provide hoistway walls designed and constructed in accordance with the required fire rating (including those places where elevator fixture boxes, rail bracket fastenings, and any other penetration into the hoistway walls).
25. In the United States provide smoke detectors, located as required, with wiring from the sensing devices to the controller(s) designated by Otis.
 - A. For each group of elevators, provide a normally closed contact representing the smoke detector at the designated return landing.
 - B. For each group of elevators, provide a normally closed contact representing all smoke detectors located in lobbies, hoistways, or control rooms/spaces but not the smoke detector at the designated return landing (see above) or the smoke detectors as described below:
 - 1) If a smoke detector is located in the hoistway at or below the lower of the two recall landings, it shall be wired to activate the same normally closed contact as the smoke detector located in the lobby at the lower of the two recall landings.
 - 2) If the control room/space(s) are located at the designated return landing, the smoke detectors located therein shall be wired to activate the same normally closed contact as the smoke detector at the designated landing.
 - C. Requirements for intermittently illuminating the fire hat visual signal in the car operating panel, either 1) or 2) must be selected.
 - 1) For a single unit, or group of elevators having control room/space(s) and one common hoistway, provide one additional normally closed contact representing the control room/space(s) and hoistway smoke detectors.
 - 2) If the group contains more than one hoistway, and hoistway smoke detectors are installed, provide one normally closed contact for each elevator. The contact is to represent the smoke detectors in the control room/space(s) or hoistway containing that particular elevator.
26. In Canada provide smoke detectors, located as required, with wiring from the sensing devices to the controller(s) designated by Otis.
 - A. For each group of elevators, provide a normally closed contact representing the smoke detector at the designated return landing and if provided, from the sensing device in the pit.
 - B. For each group of elevators, provide a normally closed contact representing all smoke detectors located in elevator lobbies, but not the smoke detector at the designated return landing (see above), and if provided, from the sensing device in the top of the hoistway.
 - C. For each group of elevators, provide a normally closed contact representing the smoke detector in the elevator machine space.
 - D. If the control space is located at the designated return landing, the smoke detectors located therein shall be wired to activate the same normally closed contact as the smoke detector at the designated landing. For each group of elevators, provide in addition to the above, a normally closed contact representing the sensing devices in the pit or at the top of the hoistway (For the Fire Hat in the Elevator).
27. In the United States, if sprinklers are installed in the hoistway(s), or machine space(s), a means to automatically disconnect the main line power supply of the affected elevator and any other power supply used to move the elevator upon or prior to the application of water is required (unless prohibited by local code). Smoke detectors shall not be used to activate sprinklers in hoistway(s), or machinery spaces or to disconnect the mainline power supply.

In addition, when the Automatic Recovery Operation (ARO) is specified, the means provided to automatically disconnect power to the elevator shall be equipped with an additional auxiliary contact that is positively opened when power is removed from the elevator system. This automatically controlled mainline disconnect must be provided with all associated wiring and conduit to the controller.

28. Provide an "ABC" fire extinguisher, minimum 10 lbs for machine space, and located convenient to the top landing elevator entrance.
29. Provide control room/space(s) and door to code compliant fire-resistive construction.

Electrical Requirements

30. 3 Phase Power MRL - Provide a permanent three (3) phase electrical-feeder system with a separate equipment-grounding conductor terminating in the elevator controller located at the top landing or transformer located at the top of the hoistway. Permanent three (3) phase electrical-feeder to be terminated at the elevator controller or transformer at the start of installation of the top landing elevator entrance and the timing of connection to Otis controller shall be coordinated with the elevator installer. Feeder conductors and grounding conductor sized according to elevator current characteristics as shown on the Otis Confirmation of Power Supply form. Feeder conductors and grounding conductor must be copper. Provide a fused disconnect switch or circuit breaker capable of being locked in the open position, for each elevator per the National Electrical Code (ANSI/NFPA 70) or Canadian Electrical Code (C22.1) with feeder or branch wiring to elevator controller [NEC 620-51, 620-61(D), and 620-62] or [CEC Rule 38-013 (2) (a)] located at the point of power distribution in the building. The disconnecting means required by the National Electrical Code or Canadian Electrical Code CEC [Rule 38-051] shall be provided with all associated wiring and conduit to the elevator controller. Size of main contacts to suit elevator power characteristics. Fuses, if provided, are to be current limiting class J or equivalent. Circuit breakers, if provided, are to have current limiting characteristics equivalent to class J fuses. Fuses or circuit breakers are to be time delay to cover the full load up accelerating current. Accelerating current typically is the peak as indicated on the Otis Confirmation of Power Supply Form, and lasts for duration not to exceed 7 seconds. Feeder conductors and associated wiring to the controller to be sized to limit wiring voltage drop to 5% maximum when delivering elevator full load up accelerating current. The building power system used to operate the elevator(s) shall be capable of supplying non linear loads and be capable of absorbing the regenerated power listed on the Otis Confirmation of Power Supply form.

Single Phase Power MRL - Provide a permanent single phase electrical-feeder system with a separate equipment-grounding conductor terminating to the transformer located at the top of the hoistway. Permanent single phase electrical-feeder to be terminated at the transformer at the start of installation of the top landing elevator entrance and the timing of connection to Otis controller shall be coordinated with the elevator installer. Feeder conductors and grounding conductor sized according to elevator current characteristics shown on the Otis Confirmation of Power Supply form. Feeder conductors and grounding conductor must be copper. Provide a fused disconnect switch or circuit breaker capable of being locked in the open position, for each elevator per the National Electrical Code (ANSI/NFPA 70) or Canadian Electrical Code (C22.1) with feeder or branch wiring to elevator controller [NEC 620-51, 620-61(D), and 620-62] or [CEC Rule 38-013 (2) (a)] located at the point of power distribution in the building. The disconnecting means required by the National Electrical Code or Canadian Electrical Code CEC [Rule 38-051] shall be provided with all associated wiring and conduit to the elevator controller. Size of main contacts to suit elevator power characteristics. Fuses, if provided, are to be current limiting class J or equivalent. Circuit breakers, if provided, are to have current limiting characteristics equivalent to class J fuses. Fuses or circuit breakers are to be time delay to cover the full load up accelerating current. Accelerating current typically is the peak as indicated on the Otis Confirmation of Power Supply Form, and lasts for duration not to exceed 7 seconds. Feeder conductors and associated wiring to the controller to be sized to limit wiring voltage drop to 5% maximum when delivering elevator full load up accelerating current. The building power system used to operate the elevator(s) shall be capable of supplying non linear loads and be capable of absorbing the regenerated power listed on the Otis Confirmation of Power Supply form.

31. 3 Phase Power Control Room/Space - Provide a permanent three (3) phase electrical-feeder system with a separate equipment-grounding conductor terminating in the control room/space(s), located per Otis layout. Feeder conductors and grounding conductor sized according to elevator current characteristics as shown on the Otis Confirmation of Power Supply form. Feeder conductors and grounding conductor must be copper. A fused disconnect switch or circuit breaker capable of being locked in the open position, for each elevator per the National Electrical Code (ANSI/NFPA 70) or Canadian Electrical Code (C22.1) with feeder or branch wiring to controller [NEC 620-51, 620-61(D), and 620-62] or [CEC Rule 38-013(2)(a)]. The disconnecting means required by the National Electrical Code or Canadian Electrical Code CEC [Rule 38-051] shall be provided with all associated wiring and conduit to the controller. Size of main contacts to suit elevator power characteristics. Fuses are to be current limiting class RK1 or equivalent. Circuit breakers are to have current limiting characteristics equivalent to class RK1 fuses. Fuses or circuit breakers are to be time delay to cover the full load up accelerating current. Accelerating current typically is the peak as indicated on the Otis Confirmation of Power Supply Form, and lasts for duration not to exceed 7 seconds. Feeder conductors and associated wiring to the controller to be sized to limit wiring voltage drop to 5% maximum when delivering elevator full load up accelerating current. The building power system used to operate the elevator(s) shall be capable of supplying non linear loads and be capable of absorbing the regenerated power listed on the Otis Confirmation of Power Supply form.

Single Phase Power Control Room/Space - Provide a permanent single phase electrical-feeder system with a separate equipment-grounding conductor terminating in the control room/space(s), located per Otis layout. Feeder conductors and grounding conductor sized according to elevator current characteristics as shown on the Otis Confirmation of Power Supply form. Feeder conductors and grounding conductor must be copper. A fused disconnect switch or circuit breaker capable of being locked in the open position, for each elevator per the National Electrical Code (ANSI/NFPA 70) or Canadian Electrical Code (C22.1) with feeder or branch wiring to controller [NEC 620-51, 620-61(D), and 620-62] or [CEC Rule 38-013(2)(a)]. The disconnecting means required by the National Electrical Code or Canadian Electrical Code CEC [Rule 38-051] shall be provided with all associated wiring and conduit to the controller. Size of main contacts to suit elevator power characteristics. Fuses are to be current limiting class RK1 or equivalent. Circuit breakers are to have current limiting characteristics equivalent to class RK1 fuses. Fuses or circuit breakers are to be time delay to cover the full load up accelerating current. Accelerating current typically is the peak as indicated on the Otis Confirmation of Power Supply Form, and lasts for duration not to exceed 7 seconds. Feeder conductors and associated wiring to the controller to be sized to limit wiring voltage drop to 5% maximum when delivering elevator full load up accelerating current. The building power system used to operate the elevator(s) shall be capable of supplying non linear loads and be capable of absorbing the regenerated power listed on the Otis Confirmation of Power Supply form.

32. Provide a dedicated 125 volt, 15 ampere single-phase branch circuit with a fused disconnect switch or circuit breaker located at the point of power distribution in the building. The fused disconnect or circuit breaker shall be capable of being locked in the open position. This branch circuit supplies the car lights, car top receptacle, auxiliary lighting power source and ventilation on each car in compliance with the National Electrical Code [NEC620-53] or Canadian Electrical Code [CEC Rule 38-053]. Termination of this branch circuit shall be in the elevator controller located at the top landing and shall be connected at the same time as the permanent three (3) phase power referenced in the previous paragraph.
33. All 125 volt, 15 or 20 ampere single-phase receptacles installed in pits, machine spaces, control rooms/space(s) shall be of the ground-fault circuit-interrupter type (GFCI). A dedicated single-phase receptacle supplying a permanently installed pit sump pump shall not require GFCI protection.
34. Provide electric power for lights, tools, welding, hoisting, etc. during installation with sufficient power for starting, testing and adjusting the elevator. Provide a 220 volt, 30 ampere single-phase 4 wire electrical supply for platform operation during construction, available at the start of elevator installation.
35. Provide one (1) dedicated outside telephone line, per elevator, and terminated at the controller designated by the Otis construction superintendent. Reference the A17.1 code and the Otis power of confirmation letter for specific requirements.
36. In areas under the jurisdiction of AMSE A17.1-2004/CSA B44 or later where the elevator travel is greater than or equal to 60 feet /18 meters, provide two-way voice communications means that shall enable emergency personnel within the building to establish communications to each car individually without intervention by a person within the car. The communication means shall override communications to the outside of the building and once established shall only be terminated by emergency personnel outside the car. Refer to ASME A17.1/CSA B44 latest applicable code year, section 2.27.1.1.4 for exact requirements.

37. [Optional] For elevators having an intra building intercom, provide a separate 120 volt, 15 ampere, single phase power supply with fused SPST disconnect switch or circuit breaker, located as required for inter-communicating system power supply. Circuit to be arranged for feeding from the building emergency lighting supply if provided. Conduit and wiring for remotely located inter-communicating stations.

38. [Optional] For installations having emergency (standby) power, provide the standby power unit and means for starting it. The emergency (standby) power unit shall deliver to the elevator via disconnect switches in the building power distribution location or disconnect switches in the control room/space(s), sufficient power to operate one or more elevators at a time at full rated speed, and rated load.

An automatic power transfer switch for each power feeder to monitor both normal and emergency (standby) power conditions and to perform the transfer from one to the other. Switch to have two sets of normally closed dry contacts, one to be open when the switch is in the emergency (standby) power position, the other to open upon initiation of power transfer and to close when transfer is complete. Switch to have an inhibit function which will delay transfer to normal and/or emergency (standby) power by an adjustable period of 0 - 300 seconds. Switch shall have a phase monitor feature, which prohibits the transfer of power between "live" sources unless the sources are in phase with each other. If a shunt trip device is provided, an additional normally closed contact, with all associated wiring and conduit to the controller, is required from the emergency (standby) power source. The emergency (standby) power system provided shall comply with ANSI/NFPA 70 requirements 620.91. The table in section "ELEVATOR REGENERATIVE POWER REQUIREMENTS", on the Otis Confirmation of Power Supply form, contains the elevator system power regenerated under an overhauling load. The information contained in the form is to be used to determine regenerative power absorption capability for the emergency (standby) power distribution system.

Note: The building Emergency (Standby Power) Generator system used to operate the elevator(s) shall be capable of supplying non-linear loads.

39. [Optional] Compass™ Dispatching System - a dedicated 125 volt 20 ampere single-phase power supply with SPST fused disconnect switch or circuit breaker. The fused disconnect or circuit breaker shall be capable of being locked in the open position and located upstream of the elevator equipment. This disconnect or circuit breaker must be in sight of the Compass™ Dispatching System equipment.

MRL Configuration (controller located in hoistway entrance) with Compass™ - If Compass is required and the controller is to be located in the hoistway entrance, an electrical room must be provided for the Compass Dispatching System equipment within sight of the entrance controller. Contact your local Otis representative for details.

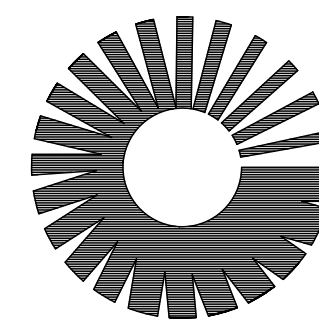
[OPTIONAL] FIRE SERVICE ACCESS ELEVATORS (FSAE)

- FSAE Hoistway & Pit Prep/Work
40. Provide all hoistways to meet structural code requirements for Fire Service Access Elevators as per IBC and NFPA
- FSAE Machine Room Prep/Work
41. Provide climate control and ventilation with monitoring equipment
- FSAE Fire Protection Prep/Work
42. Comply with NFPA requirements relative to hoistway pressurization and sprinkler prohibition.

You agree to indemnify and save Otis harmless against any and all liability and costs arising out of your failure to carry out any of the foregoing requirements.

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Otis

A United Technologies Company

DWG. NO.: G2S 3500-PWBO

BUILDING Town Project

LOCATION Arizona

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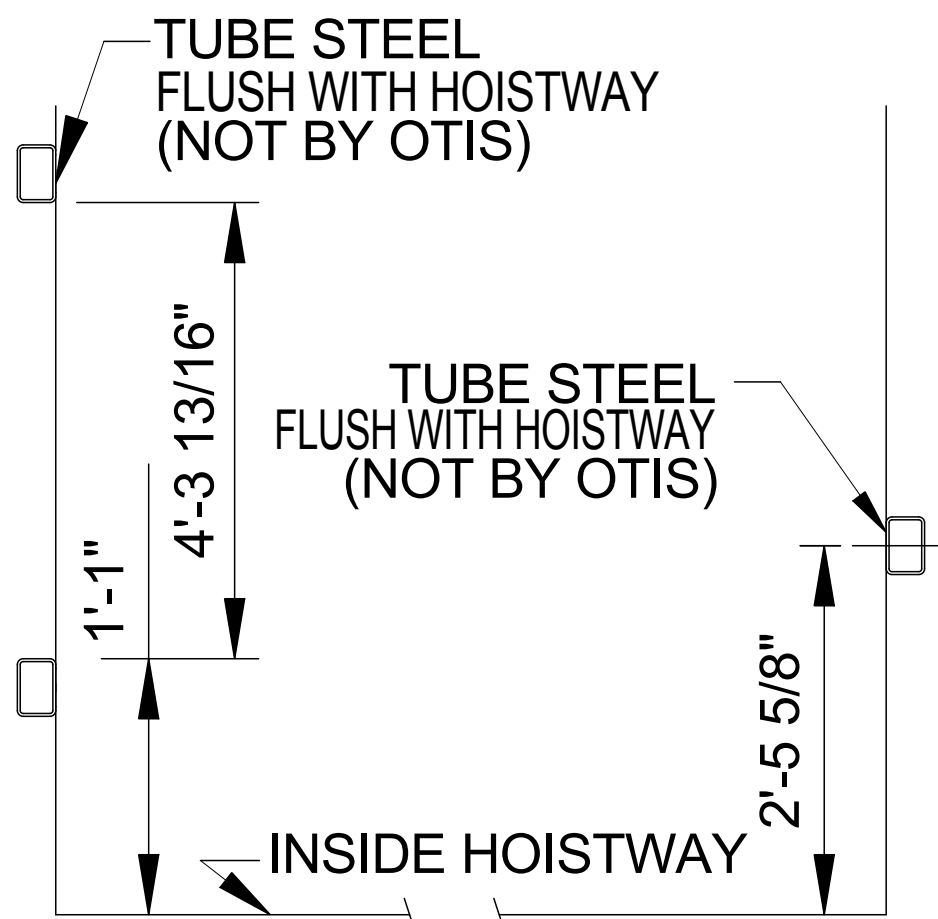
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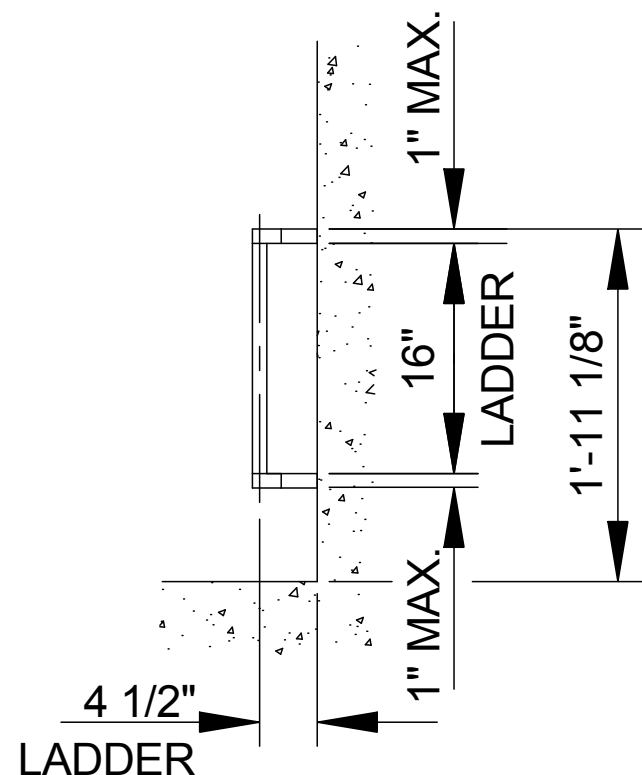
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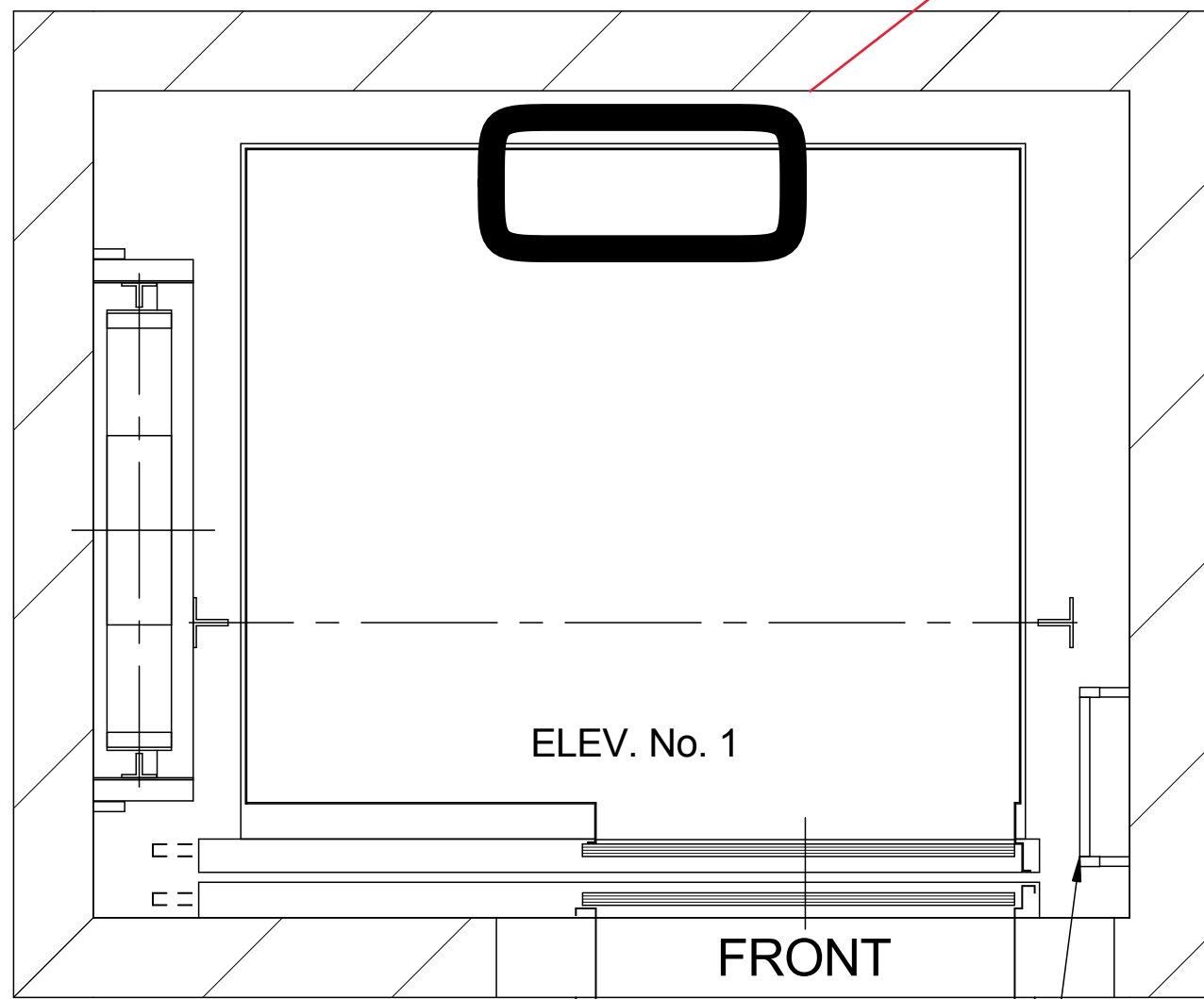


**TUBE STEEL RAIL
BRACKET SUPPORT**
ELEV. No. 1



LADDER DETAIL
ELEV. No. 1

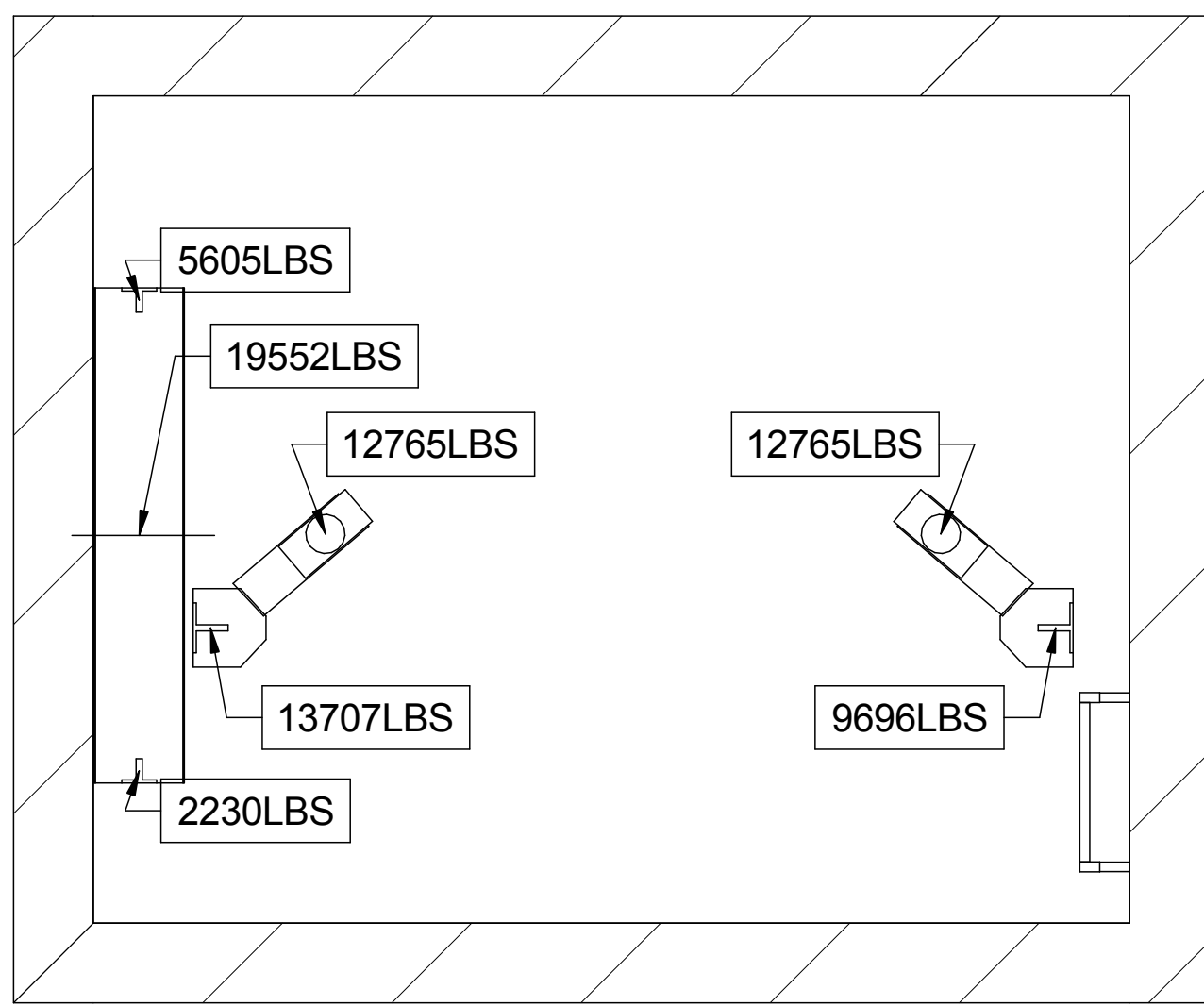
4 5/8"=A DIM
5 11/16"=A DIM



4'-2 7/16" 3'-6" CL. OPNG. 11 9/16"
8'-8" R.O. @ MAIN & TOP FLOOR
3'-4 7/16" 5'-2" R.O. 1 9/16"
6'-5 9/16" CAR INSIDE
8'-8" CLEAR HOISTWAY & PIT

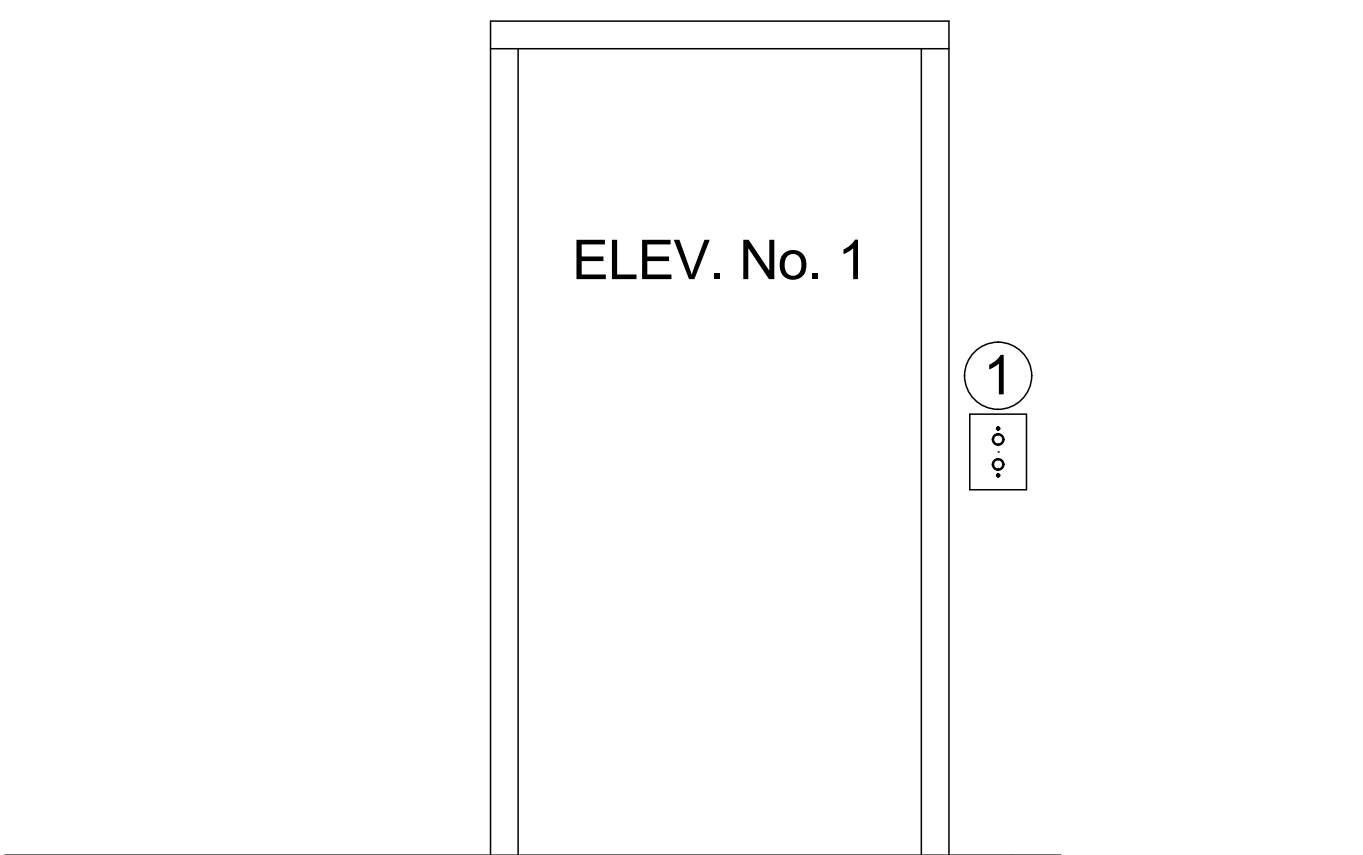
PLAN VIEW

SEE NOTE 5, PWBO SHEET



PIT PLAN VIEW

FORCE SHOWN INCLUDES DOUBLING
FOR IMPACT



HALL FIXTURE DETAIL

① HALL BUTTONS @ ALL FLOORS

Sump to discharge 50 gpm

NOTE A
THESE DIMENSIONS ARE BASED ON HOISTWAY SIZES SHOWN
& 30" INSERTS. IF EITHER OF THESE VARY, CONSULT THE
SALES REPRESENTATIVE.

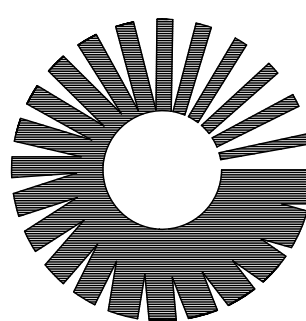
APPROVAL
THIS ARRANGEMENT AND
SUPPLEMENTARY NOTES APPROVED

SIGNED: _____ DATE: _____

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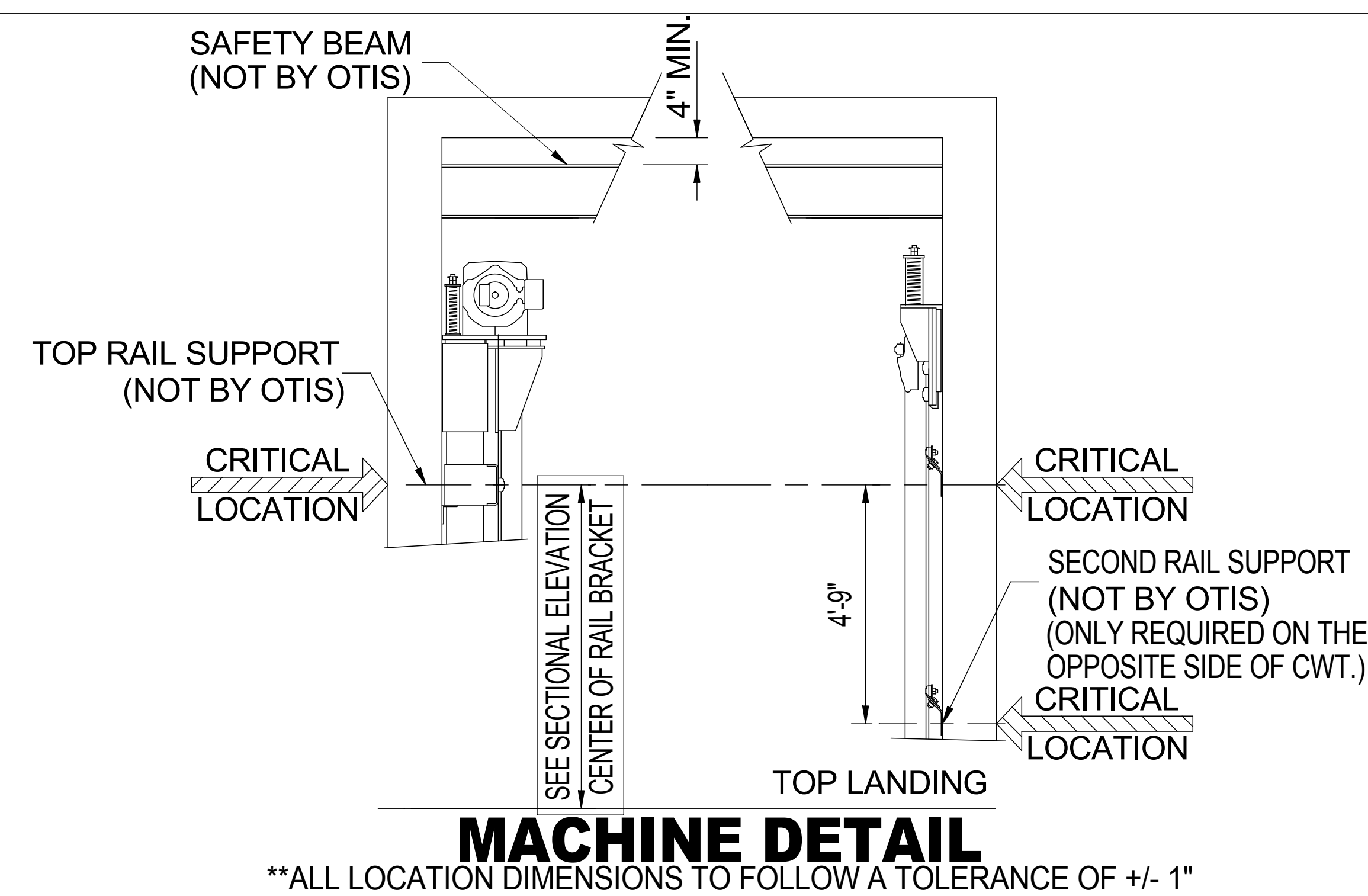
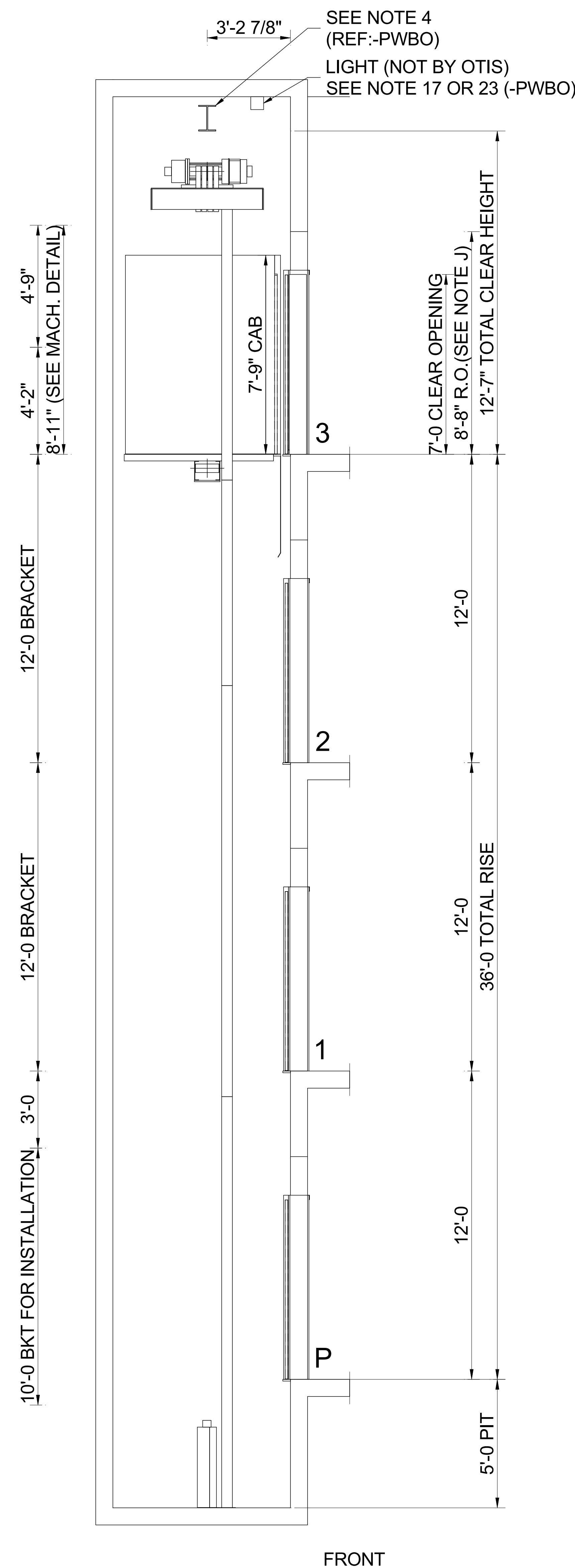
LOCATION Arizona

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RAIL FORCE & BRACKET SPACING DETAIL

SEE NOTES 6 & 7

CAR		
	R1	518 lbs
	R2	90 lbs
	VX	N/A
	VY	N/A
	MAXIMUM BRACKET SPACING	12' 0"
	RAIL SIZE	1-1/2
CWT		
	R1	265 lbs
	R2	19 lbs
	VX	N/A
	VY	N/A
	MAXIMUM BRACKET SPACING	12' 0"
	RAIL SIZE	2
DEH (DEAD END HITCH)		
	R1	660 lbs
	R2	1590 lbs

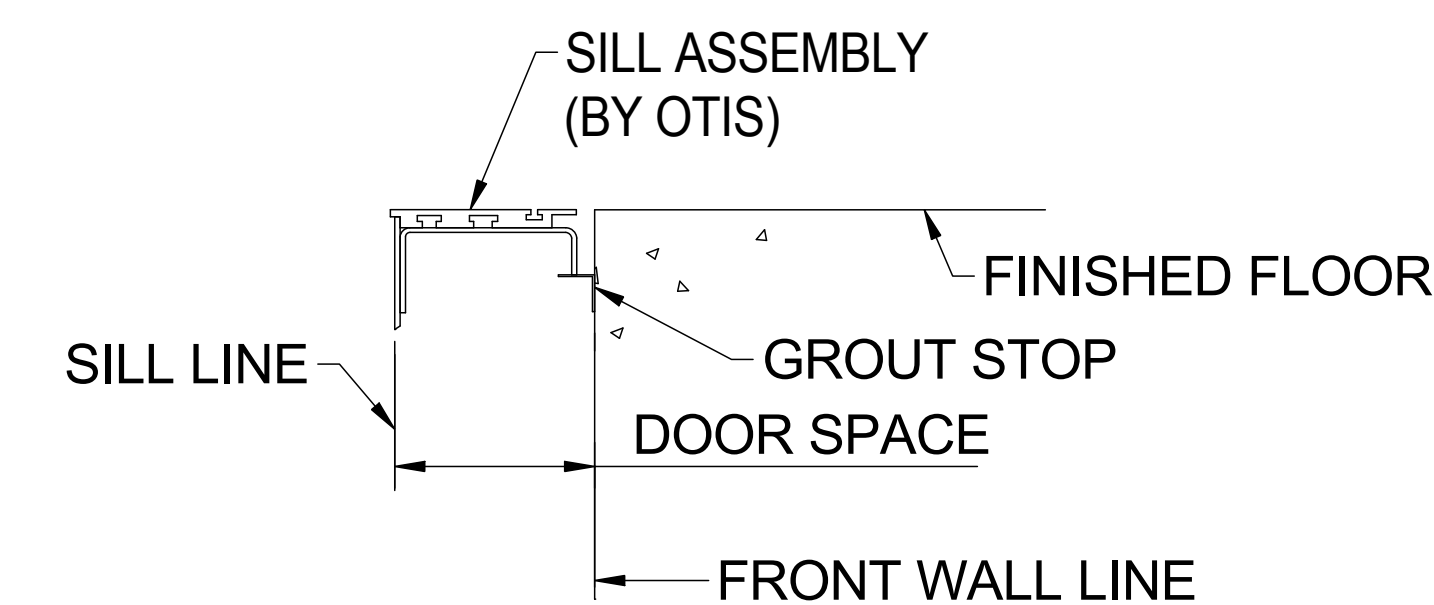
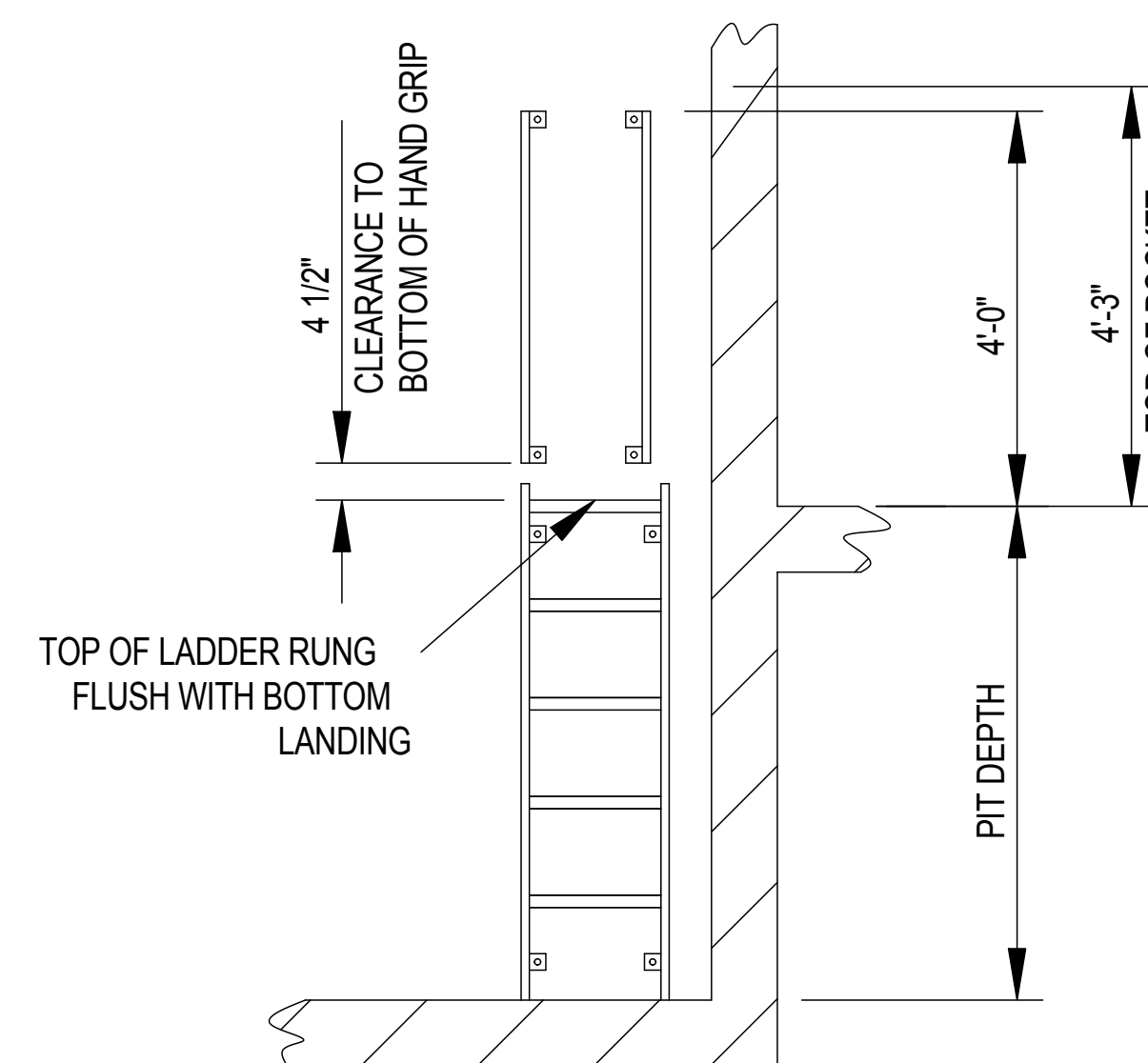
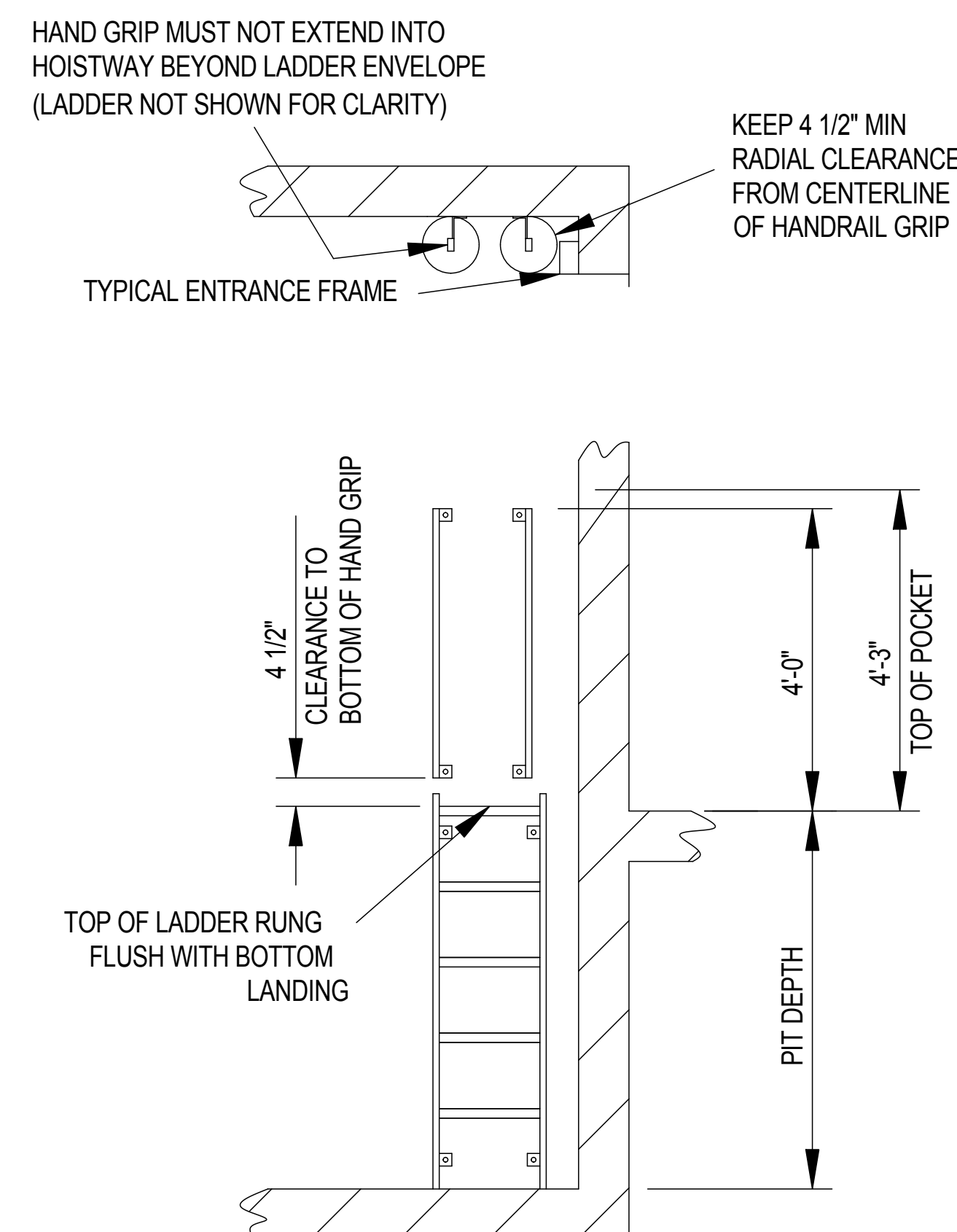
IN MULTICAR GROUPS THE VALUES ABOVE ARE THE LARGEST VALUES FOR THE ENTIRE GROUP

FIRST INTERMEDIATE RAIL SUPPORT LOCATION
TO BE LOCATED 14' 0" FROM PIT FLOOR. ALL
OTHER INTERMEDIATE SUPPORTS CANNOT
EXCEED THE MAXIMUM BRACKET SPACING IN
THE RAIL FORCE & BRACKET SPACING DETAIL

CAR R1 = SAFETY APPLICATION
CWT R1 = LOADING OR RUNNING
R2 = LOADING OR RUNNING

REQUIREMENTS FOR RAIL BRACKET
SUPPORT (NOT BY OTIS):
DEFLECTION NOT TO EXCEED 1/8"
BASED ON HORIZONTAL RAIL FORCES.

NOTE J
ROUGH OPENING AT ALL FLOORS, EXCEPT TOP LANDING, EQUALS 7'-10"
TOP LANDING EQUALS 8'-8".



DETAIL "A" SILL SUPPORT

ADEQUATE SUPPORT AT ALL FASTENING POINTS OF ENTRANCE ASSEMBLY REQUIRED. MUST WITHSTAND A HORIZONTAL PULL-OUT FORCE OF 140 LBS. @ EA. FASTENING POINT (8 @ EA. ENTRANCE) INCLUDING SUPPORT FOR CENTER SILL SUPPORT BRACKET (NOT BY OTIS).

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THIS ARRANGEMENT AND
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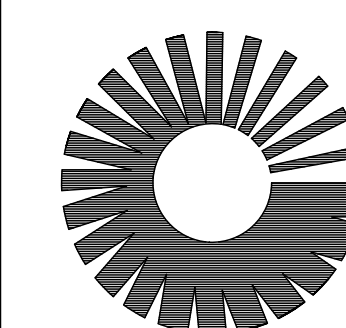
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BUILDING Town Project

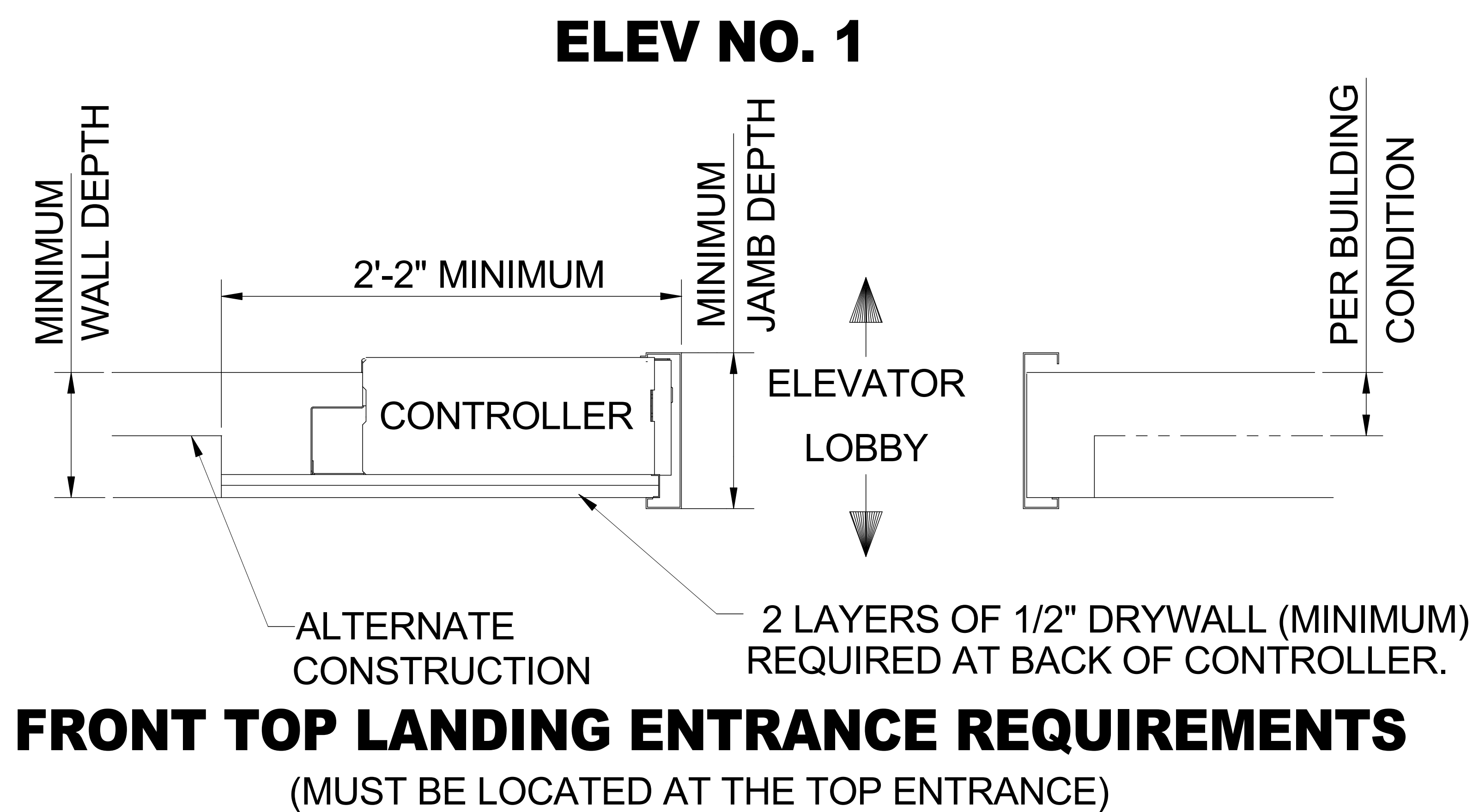
LOCATION	Arizona
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TOP LANDING ENTRANCE REQUIREMENTS
(MUST BE LOCATED AT THE TOP ENTRANCE)

MRL CONTROLLER MINIMUM DEPTH REQUIREMENTS		
OTIS WALL TYPE	MINIMUM WALL DEPTH	MINIMUM JAMB DEPTH
M1 (RECESSED FRAME IN MASONRY WALL)	-	8 5/8"
NOT M1	7"	-

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BUILDING Town Project

LOCATION Arizona

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Dedicated to People Flow™



MACHINE ROOM-LESS PERFORMANCE IN A HYDRAULIC ELEVATOR HOISTWAY

KONE EcoSpace™



The revolutionary machine room-less elevator concept

The secret behind the KONE EcoSpace™ elevator is the permanent-magnet, gearless KONE EcoDisc® motor. KONE's machine room-less (MRL) technology eliminates the need for a machine or control room by attaching the hoisting machine to the guide rail, and placing all control and logic components within the confines of the hoistway.

Greater efficiency

The revolutionary KONE EcoDisc weighs less than half of a conventional geared traction machine, and has only one moving part. Its efficiency is three times that of a hydraulic power unit and uses 70% less energy – a savings which can represent half or more of the annual cost of the elevator operation.

Space savings

KONE EcoSpace does not need a separate machine room thanks to the KONE EcoDisc hoisting motor, which is so compact that it can be located in the hoistway. There is no need for a control room as the KONE EcoSpace control and logic components fit inside the wall of the top elevator landing.

Simplified installation

The whole elevator fits inside the shaft, simplifying the building interface and saving space for more profitable use. This also speeds up the installation process, since no scaffolding or crane is needed.

Destination control

The KONE Polaris™ destination control system can significantly improve convenience in your building while enhancing the appearance of your lobby.

KONE EcoDisc – gearless energy saver

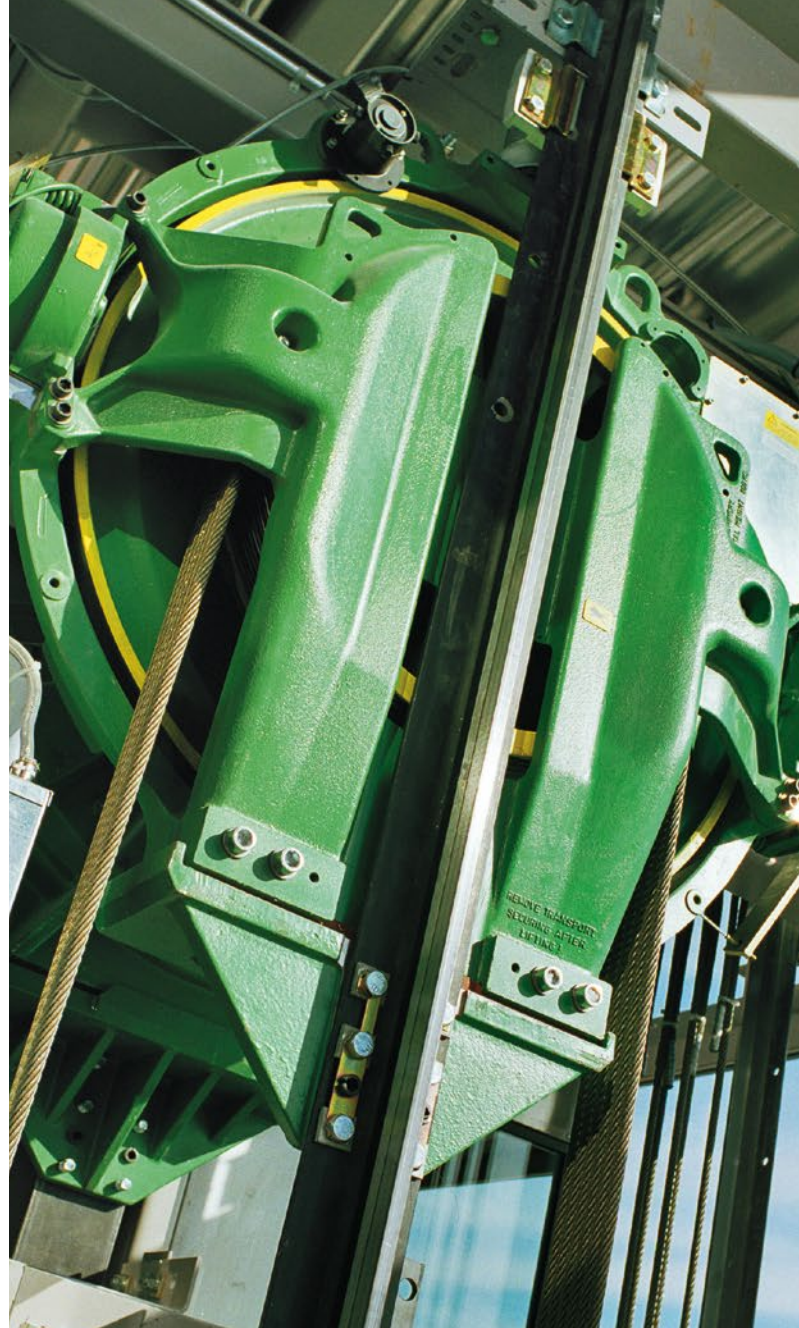
KONE took the technological lead in the elevator industry by developing the KONE EcoDisc hoisting machine. With over 440,000 installations worldwide, KONE continues to develop machine room-less technology while focusing on energy and space efficiency, reliability and excellent ride comfort. The KONE EcoDisc is the core technology for all KONE elevators. It employs a permanent-magnet synchronous motor, frequency control and low-friction gearless construction.

Regenerative System

The energy consumption of a KONE EcoSpace can be further reduced with the installation of a regenerative drive. KONE's regenerative drive solution:

- Recovers excess energy from the elevator when an empty car travels upward or a full car travels downward
- Can recover up to 25% of the total energy used by an elevator
- Produces clean and safe energy that does not damage the network

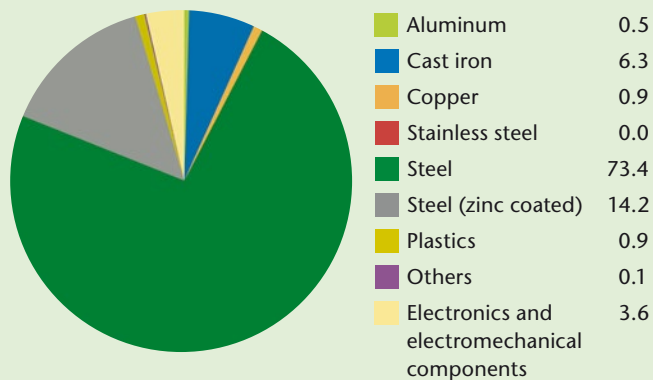
KONE's machine room-less technology has successfully helped projects earn LEED credits in the Energy & Atmosphere and Innovation & Design categories.



Product material content

KONE EcoSpace is mainly composed of steel and cast iron.

Material weight %



The metals, which are about 97% of the elevator material weight, are recyclable.

The product does not contain asbestos, paints containing lead or cadmium pigments, condensators containing PCBs or PCTs, ozone layer depleting chemicals such as CFCs, or chlorinated solvents. Mercury is not used in applications other than lighting and batteries. Cadmium stabilizers are not used in plastics.

Aesthetic options for your new elevator

The KONE EcoSpace™ elevator offers a wide selection of cabs, entrances and signalization to enhance the look of your building at an affordable price.

For KONE, the goal is to create the best possible user experience. A smooth ride and reliable performance ensure the ideal people flow, while the car interior design creates an aesthetically pleasing experience for each passenger.

For additional interior offerings, reference the KONE Design Collection Catalog or visit www.kone.us to create project-specific designs with the KONE Car Designer Tool.

Handrails



1.25" Round
in Brushed Aluminum,
Stainless Steel
with Satin finish



2" Round in
Stainless Steel
with Satin finish



1.5" Flat in
Stainless Steel
with Satin finish



2" Flat in
Stainless Steel
with Satin finish



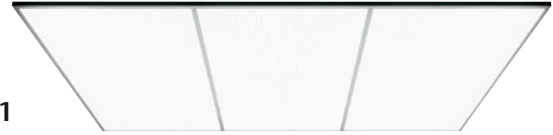
3" Flat in
Stainless Steel
with Satin finish



4" Flat in
Stainless Steel
with Satin finish

Ceilings

Several ceiling designs are available for KONE EcoSpace elevator cabs.



LF-1

Panels – Polygal Translucent **Frame** – Brushed Aluminum
Lighting – T-5 Fluorescent



LF-2

Panels – Stainless Steel with Satin Finish
Lighting – T-5 Fluorescent



LF-94

Panels – Stainless Steel with Satin Finish
Lighting – T-5 Fluorescent



LF-88

Panels – Stainless Steel with Satin Finish
Lighting – Round LED*



LF-97

Panels – Stainless Steel with Satin Finish
Lighting – Square LED*



LF-98

Panels – Stainless Steel with Satin Finish
Lighting – Rectangular LED*

*Six light fixtures for Passenger Shape and nine light fixtures for Service Shape.

Walls

Choose from a wide variety of high-quality interior materials. Multiple combinations of wall and ceiling materials are available, allowing you to match virtually any lobby design.



Additional aesthetic offerings now available.



To reduce our carbon footprint, KONE has begun using QR – or Quick Response – codes, which are an environmentally friendly alternative to printed materials.

Simply scan this QR code with your smartphone and you'll be taken to the KONE EcoSpace Toolbox where you can create project-specific CAD drawings, BIM models and CSI specifications quickly and easily online. Or just type in this shortened URL link – bit.ly/estool.

In addition, you can find our products with ARCAT at www.arcat.com.

Color Finishes

4757-60*
Mystique Moonlight

4638-60*
Monterey Sun

4798-60*
Burnished Ember

ES2002T**
Honeytone Essence

4813-60*
Nickel Ev

4744-60*
Karratha Brush

4746-60*
Woolamai

4669-60*
Natural Tigris

4623-60*
Graphite Nebula

WZ1001T**
Red Dragon Bamboo

Metal Finishes

6258*
Satin Brushed Gold

6312*
Mercury Stria^a

6313*
Bronze Stria^a

6261*
Satin Brushed Light Bronze

6262*
Satin Brushed Med. Bronze

6277*
Alumasteel

Scottish Quad Rigidized
Stainless Steel

^a Please note that Mercury Stria and Bronze Stria are only available for 8' tall cars.

Wood Finishes

7850-60*
Beigewood

10776-60*
Kensington Maple

7062-60*
Congo Spruce

7919-38*
Amber Cherry

7054-60*
Wild Cherry

7039-60*
Windsor Mahogany

7949-38*
Asian Night

7040A-60*
Figured Mahogany

Pearlescent Finishes

D487-07*
Pearl Silver LS

D485-07*
Pearl Bisque LS

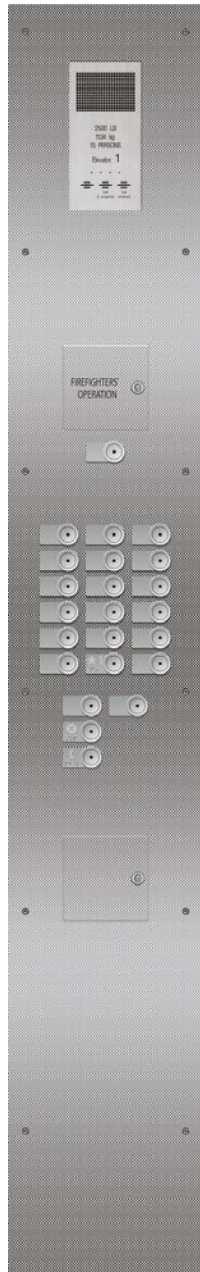
Laminate Brands

* Wilson Art

** Nevamar

Signalization

KSS 140 vandal resistant signalization is impact, scratch, burn and splash resistant.
KSS 570 signalization enhances the look of your elevator.



KSS 140

Hall Lanterns



Hall Stations



**KSS 570
Flush**

Hall Lanterns



Hall Stations



For additional aesthetic offerings, reference the KONE Design Collection Catalog or visit www.kone.us to create project-specific car designs, CAD drawings, BIM models and CSI specifications.

KONE EcoSpace™ Planning Guide

Max Travel⁽⁸⁾

150 ft. (45.7 m)

Max Landings⁽⁸⁾

15

Speed^(8,9,10)

150, 200, 350 fpm

(.75, 1.0, 1.78 m/s)

Car Height **F**

8, 9 or 10 ft.

(2438, 2743 or 3048 mm)

Entrance Height **G**

7, 8 or 9 ft.

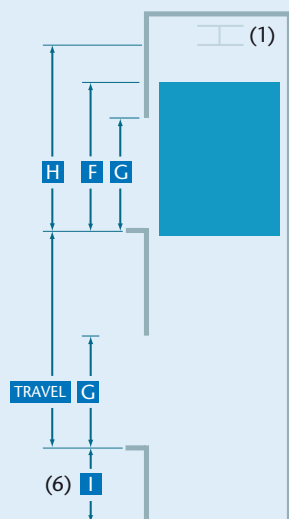
(2134, 2438 or 2743 mm)

		A		A SEISMIC		B	C	D	E
		CAPACITY LBS. (kg)	OPENING TYPE	HOISTWAY WIDTH (mm)	HOISTWAY WIDTH (mm)	HOISTWAY DEPTH (mm)	INTERIOR WIDTH (mm)	INTERIOR DEPTH (mm)	DOOR WIDTH (mm)
Front Opening	PASSENGER	2000 (907)	SSP	7'-4" (2235)	7'-8" (2337)	5'-9" (1753)	5'-8" (1727)	4'-3" (1295)	3'-0" (914)
		2500 (1134)	SSP-CO	8'-4" (2540)	8'-8" (2642)	5'-9" (1753)	6'-8" (2032)	4'-3" (1295)	3'-6" (1067)
		3000 (1361)	SSP-CO	8'-6" (2591)	8'-8" (2642)	6'-3" (1905)	6'-8" (2032)	5'-0" (1524)	3'-6" (1067)
		3500 (1588)	SSP-CO	8'-6" (2591)	8'-8" (2642)	6'-11" (2108)	6'-8" (2032)	5'-6 ³ / ₁₆ " (1681)	3'-6" (1067)
		4000 (1814)	CO	9'-4" (2845)	9'-4" (2845)	6'-11" (2108)	7'-5 ¹ / ₁₆ " (2281)	5'-6 ³ / ₁₆ " (1681)	4'-0" (1219)
Front & Reverse Opening	SERVICE	4000 (1814)	2SP	7'-4" (2235)	7'-4" (2235)	9'-2" (2794)	5'-6 ³ / ₁₆ " (1681)	7'-7 ⁷ / ₁₆ " (2323)	4'-0" (1219)
		4500 (2041)	2SP	7'-4" (2235)	7'-4" (2235)	9'-8" (2946)	5'-6 ³ / ₁₆ " (1681)	8'-1 ³ / ₈ " (2473)	4'-0" (1219)
		5000 (2268)	2SP	7'-4" (2235)	7'-4" (2235)	10'-2 ¹ / ₄ " (3105)	5'-6 ³ / ₁₆ " (1681)	8'-9 ³ / ₁₆ " (2672)	4'-0" (1219)
		2000 (907)	SSP	7'-4" (2235)	7'-8" (2337)	6'-3 ¹ / ₄ " (1911)	5'-8" (1727)	4'-3" (1295)	3'-0" (914)
		2500 (1134)	SSP-CO	8'-4" (2540)	8'-8" (2642)	6'-3 ¹ / ₄ " (1911)	6'-8" (2032)	4'-3" (1295)	3'-6" (1067)
Front & Reverse Opening	PASSENGER	3000 (1361)	SSP-CO	8'-6" (2591)	8'-8" (2642)	6'-11" (2108)	6'-8" (2032)	5'-0" (1524)	3'-6" (1067)
		3500 (1588)	SSP-CO	8'-6" (2591)	8'-8" (2642)	7'-5 ¹ / ₄ " (2267)	6'-8" (2032)	5'-6 ³ / ₁₆ " (1681)	3'-6" (1067)
		4000 (1814)	CO	9'-4" (2845)	9'-4" (2845)	7'-5 ¹ / ₄ " (2267)	7'-5 ¹ / ₁₆ " (2281)	5'-6 ³ / ₁₆ " (1681)	4'-0" (1219)
		4000 (1814)	2SP	7'-4" (2235)	7'-4" (2235)	10'-1 ¹ / ₂ " (3086)	5'-6 ³ / ₁₆ " (1681)	7'-7 ⁷ / ₁₆ " (2323)	4'-0" (1219)
		4500 (2041)	2SP	7'-4" (2235)	7'-4" (2235)	10'-7 ¹ / ₂ " (3238)	5'-6 ³ / ₁₆ " (1681)	8'-1 ³ / ₈ " (2473)	4'-0" (1219)
Front & Reverse Opening	SERVICE	5000 (2268)	2SP	7'-4" (2235)	7'-4" (2235)	11'-3 ¹ / ₄ " (3435)	5'-6 ³ / ₁₆ " (1681)	8'-9 ³ / ₁₆ " (2672)	4'-0" (1219)

CONTROL SPACE		J	K	L
CAPACITY LBS. (kg)	CONTROLLER SPACE	WIDTH (mm)	DEPTH (mm)	DOOR WIDTH (mm)
2000 to 5000 (907 to 2268)	integral or remote closet	4'-0" (1219)	1'-8" (508)	3'-6" (1067)
2000 to 5000 (907 to 2268)	adjacent room	5'-0" (1524)	dimension (B)	3'-0" (914)

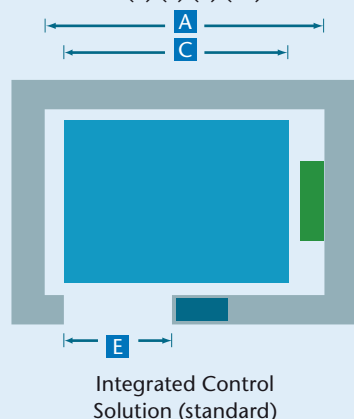
CLEAR OVERHEAD H AND PIT DEPTH I						
CAPACITY LBS. (kg)	150 FPM (.75 m/s)		200 FPM (1.00 m/s)		350 FPM (1.78 m/s)	
	Pit Depth (mm)	Clear Overhead (mm)	Pit Depth (mm)	Clear Overhead (mm)	Pit Depth (mm)	Clear Overhead (mm)
2000 to 3500 (907 to 1588)	5'-0" (1524)	13'-0" (3962)	5'-0" (1524)	13'-1" (3988)	5'-6" (1676)	13'-4" (4064)
4000 to 5000 (1814 to 2268)	5'-0" (1524)	13'-0" (3962)	-	-	-	-

Section View

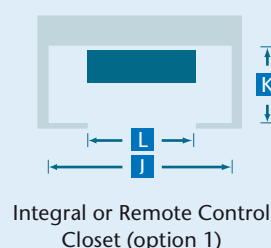


Plan Views

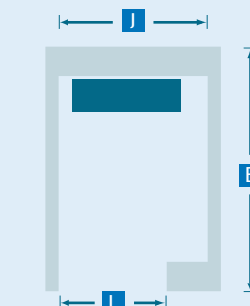
(3) (4) (5) (10)



Integrated Control Solution (standard)



Integral or Remote Control Closet (option 1)



Adjacent or Remote Control Room (option 2)

Notes

- (1) A hoist beam (by KONE) is required for installation (by others). Dimension **H** reflects clear under hoist beam.
- (2) If an EBD (Emergency Battery Device) is required please contact your KONE Sales Professional for further detail regarding dimensions **H**, **I** and **L**.
- (3) The published hoistway **A** dimensions represent the minimum clear inside requirements. Construction efficiencies can be realized by increasing these dimensions by up to 2" (51 mm).
- (4) For pit depths less than 5'-0" (1524 mm) please contact a KONE Sales Professional.
- (5) If occupied space exists below the hoistway, consult your KONE Sales Professional.
- (6) All dimensions are based on an 8'-0" (2438 mm) cab with a 7'-0" (2134 mm) door. Alternate car and door heights are available, but will affect dimension **H**.
- (7) Contact your local KONE Sales Representative regarding local code variations when utilizing the integrated, integral and remote closet options.
- (8) 150 fpm (.75 m/s) only available up to 85 ft. (25 m) of travel and 10 landings. 200 fpm (1.00 m/s) available up to 100 ft. (30.5 m) of travel and 12 landings.
- (9) 150 fpm (.75 m/s) is maximum speed available for capacities greater than 3500 lbs. (1588 kg).
- (10) 200 fpm (1.0 m/s) is maximum speed available for Integrated Control Solution.

Visit www.kone.us for the latest project-specific details, CAD drawings, CSI specifications, electrical data, reaction loads and building access requirements.



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