

SITE MAP

PROJECT SUMMARY & GENERAL CONSTRUCTION NOTES:

THE GOAL OF THIS PROJECT IS THE INSTALLATION OF A BIOMASS BOILER SYSTEM THAT WOULD HEAT THE EXISTING BRIDGEPORT ROAD SHOP BUILDING AND THE EXISTING PARKS & FACILITIES BUILDING. THIS INCLUDES THE CONSTRUCTION OF A NEW BIOMASS FUEL STORAGE SHED, THE REMOVAL OF THE EXISTING BOILER SYSTEM, RELOCATION OF A BOILER UNIT FROM THE BRIDGEPORT GENERAL HOSPITAL BUILDING FOR SYSTEM BACK-UP, AND DEMOLITION OF WALLS WITHIN THE PARKS AND FACILITIES BUILDING.

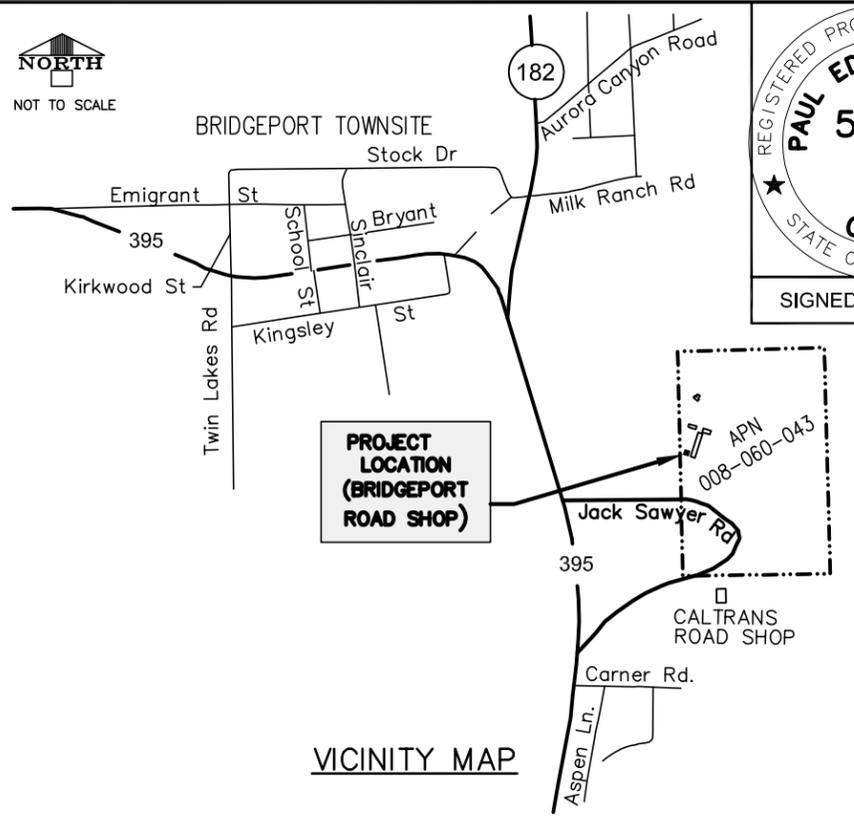
1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE 2013 EDITION OF THE CALIFORNIA BUILDING CODE (TITLE 24), THE 2013 CMC, 2013 CEC, AND THE 2103 CPC, AS WELL AS ALL APPLICABLE COUNTY OF MONO CODES AND ORDINANCES.
2. INFORMATION REGARDING THE SITE WAS OBTAINED FROM AVAILABLE MONO COUNTY PLANS AND RECORDS. THE PLAN DRAFTER HAS NOT VERIFIED ALL EXISTING FIELD CONDITIONS. WORKERS SHALL VERIFY ALL DIMENSIONS; REPORT ALL DISCREPANCIES TO THE PLAN PREPARER AND PROCEED ACCORDING TO THE PROJECT MANAGER.
3. WORKERS SHALL PROVIDE ALL SHORING AND BRACING REQUIRED TO PROTECT AND ENSURE SAFETY OF PROJECT WORK.
4. UNLESS OTHERWISE NOTED, DIMENSIONS ARE TO THE FACE OF FINISH. SPACING OF STUDS SHALL BE 16" ON CENTER, U.O.N.. ALL LUMBER IN CONTACT WITH CONCRETE OR MASONRY SHALL BE FOUNDATION GRADE REDWOOD OR PRESSURE-TREATED DOUGLAS FIR. ALL LUMBER SHALL BE SURFACED FOUR SIDES. (S4S)
5. EXCEPT IN AREAS SCHEDULED AS EXPOSED STRUCTURE, THERE SHALL BE NO EXPOSED PIPE, CONDUITS, DUCTS, VENTS, ETC.; ALL SUCH LINES SHALL BE FURRED AND FINISHED. PROVIDE FIRE DAMPERS AT PENETRATIONS OF ALL 1-HOUR FIRE RATED PARTITIONS AND FLOOR CEILING ASSEMBLIES.
6. BEFORE STARTING ANY WORK ON OR OVER UNDERGROUND UTILITY EXTENSIONS, CONTACT THE BRIDGEPORT P.U.D. AT 760-932-7251, AND U.S.A. (UNDERGROUND SERVICE ALERT) AT 1-800-642-2444.
7. RECYCLE AND/OR SALVAGE FOR REUSE A MINIMUM OF 50% OF THE NONHAZARDOUS CONSTRUCTION AND DEMOLITION WASTE IN ACCORDANCE WITH A CONSTRUCTION WASTE MANAGEMENT PLAN PER SECTION 4.408.2.
8. WORK SHALL BE DONE IN CONFORMANCE WITH 2013 CalGreen

SITE AND FACILITY NOTES:

1. APN: 008-060-043-000 (±61.9 Acres), PARCEL OWNER: B.L.M. (BLM TO MONO CO. LAND PATENT PENDING) CALTRANS MAINTENANCE STATION SITE APPROVED BY BLM OCT. 2, 1961
2. PARCEL BOUNDARY ESTIMATED PER B.L.M. DEPENDENT RESURVEY AND SUBDIVISION OF SECTION 28, TOWNSHIP 5 NORTH, RANGE 25 EAST, MDB&M (JULY 26, 2002), HIGHWAY MAP BOOK 2, PG. 18 (OCT. 16, 1961), RSMB 1/82, RSMB 2/51, RSMB 4/35, AND RSMB 4/98. NEW RECORD OF SURVEY PENDING.
3. LATITUDE: 38°15'05"N, LONGITUDE: 119°13'02"W, ELEVATION: ±6500' (GOOGLE EARTH)
4. TOPOGRAPHY AND BUILDING LAYOUT PER AERIAL PHOTOGRAPHY FLOWN SEPT. 20, 2001. INTERIOR WALL LOCATIONS ARE APPROXIMATE AND ARE NOT BASED UPON AS-BUILT PLANS.
5. PARKS & FACILITIES BUILDING TOTAL AREA = 4620 s.f. (42'x110' exterior walls)
BP ROAD SHOP BUILDING TOTAL AREA = 9080 s.f. (40'x227' exterior walls)
6. JACK SAWYER ROAD UNDERGROUND UTILITIES ARE PER BRIDGEPORT MAINTENANCE STATION PROJECT PLANS PREPARED BY STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION (CALTRANS), CONTRACT NO. 09-266904, APPROVAL DATE AUGUST 26, 1996.

BUILDINGS:	PARKS & FACILITY	BOILER & HOPPER	BIOMASS STORAGE
	Not including Boiler & Hopper Area	Inside Existing Parks & Facility	New Building
Existing SF	4240	380	0
New SF	3720	900	900
Occupancy Group	S-1	S-1	S-1*
Construction Type	V - B	V - B	III-B
Occupant Load	23 (mixed use)	3	2
Number of Exits	10	3	1

Note: * Existing Road Shop Occupancy Group = S-1



VICINITY MAP

- LEGEND**
- OHP — OHP — EXISTING OVERHEAD POWER LINE
 - G — G — EXISTING PROPANE LINE
 - W — W — EXISTING WATER LINE
 - S — S — EXISTING SEWER LINE
 - × 6470.7 SPOT ELEVATION (IN FEET)
 - FIRE HYDRANT
 - ⊗ SEWER MANHOLE
 - ⊙ POWER POLE

- SHEET & PLAN SET INDEX**
- MONO COUNTY DEPT. OF PUBLIC WORKS PLAN SET
 C-0.1 : SITE UTILITIES & VICINITY MAPS, GENERAL CONSTRUCTION NOTES
 C-0.2 : SITE MAP, CONSTRUCTION CALL-OUTS
 A-1.0 : DEMOLITION & IMPROVEMENT FLOOR PLANS
 A-2.0 : DETAILS AND BUILDING SECTIONS
 A-3.0 : HOPPER DETAILS
 A-4.0 : HOPPER DOOR DETAILS
- BIOMASS METAL STORAGE BUILDING 18-SHEET PLAN SET FOR CONSTRUCTION PERMIT (PREPARED BY EMPIRE STEEL BUILDINGS, DATED 1-21-16)
 C1 : BUILDER CONTRACTOR RESPONSIBILITIES, PROJECT NOTES
 F1 : ANCHOR BOLT PLAN
 F2 : ANCHOR BOLT SUMMARY, ENDWALL COLUMNS & RIGID FRAME REACTIONS
 F3 : FRAMED OPENING AIR LAYOUT
 E1 : ROOF FRAMING PLAN
 E2 : SIDEWALL FRAMING, SHEETING AND TRIM, LINE "A"
 E3 : SIDEWALL FRAMING, SHEETING AND TRIM, LINE "E"
 E4 : ENDWALL FRAMING, SHEETING AND TRIM, LINE "1"
 E5 : ENDWALL FRAMING, SHEETING AND TRIM, LINE "3"
 E6 : RIGID FRAME ELEVATION, "LINE 2"
 DET1 THROUGH DET8 : DETAILS
- STORAGE BUILDING FOUNDATION 4-SHEET PLAN SET FOR CONSTRUCTION PERMIT (PREPARED BY ALEXANDER A. TOUNIAN, DATED 02-15-16)
 S-1 : FOUNDATION SPECIFICATIONS
 S-2 : FOUNDATION PLAN
 S-3 : FOOTING DETAILS
 S-4 : ANCHOR BOLT & PERIMETER FOOTING DETAILS
- MONO COUNTY BIOMASS KRT220 (PREPARED BY VIESSMANN MANUFACTURING, DATED 03-30-15)

REGISTERED PROFESSIONAL ENGINEER
PAUL EDWARD ROTEN
 56891
 CIVIL
 STATE OF CALIFORNIA
 SIGNED: 2016 APRIL 04

MONO COUNTY PUBLIC WORKS DEPARTMENT

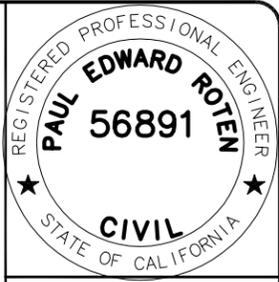
Drawing Date:	2016 MAR 09
Prepared By:	WL / PER
Checked By:	PER

Rev.# Date Code Updates

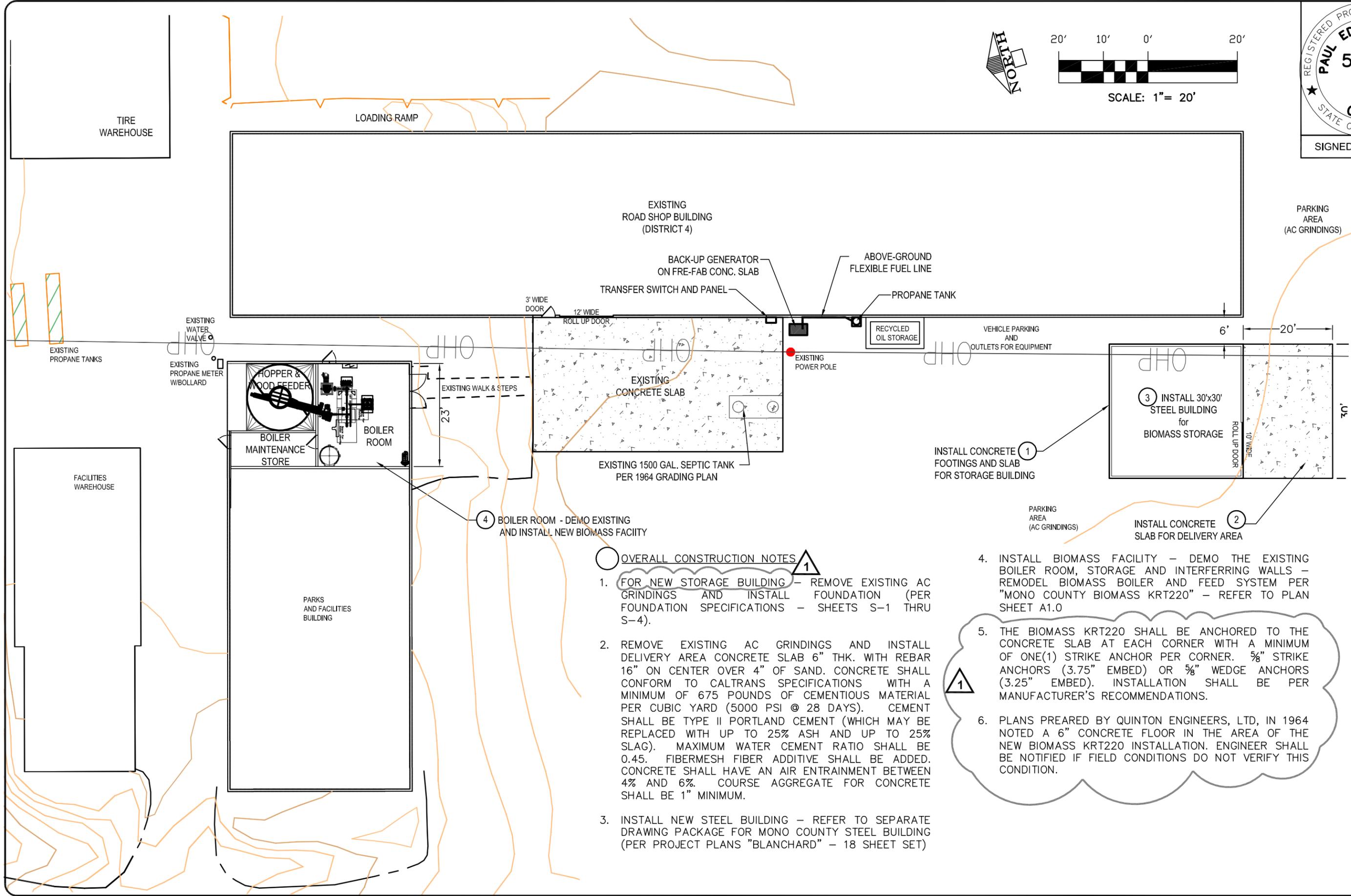
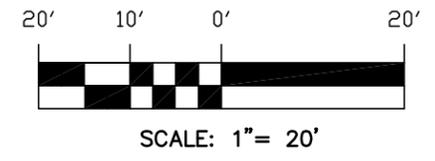
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MONO COUNTY PUBLIC WORKS DEPARTMENT
 PARKS & FACILITIES BLDG. - 201 JACK SAWYER RD.
 BRIDGEPORT RD. SHOP - 207 JACK SAWYER RD.
 COVER SHEET - BIOMASSBOILER INSTALLATION

SHEET
C0.1



SIGNED: 2016 APRIL 07



OVERALL CONSTRUCTION NOTES

1. FOR NEW STORAGE BUILDING - REMOVE EXISTING AC GRINDINGS AND INSTALL FOUNDATION (PER FOUNDATION SPECIFICATIONS - SHEETS S-1 THRU S-4).
2. REMOVE EXISTING AC GRINDINGS AND INSTALL DELIVERY AREA CONCRETE SLAB 6" THK. WITH REBAR 16" ON CENTER OVER 4" OF SAND. CONCRETE SHALL CONFORM TO CALTRANS SPECIFICATIONS WITH A MINIMUM OF 675 POUNDS OF CEMENTIOUS MATERIAL PER CUBIC YARD (5000 PSI @ 28 DAYS). CEMENT SHALL BE TYPE II PORTLAND CEMENT (WHICH MAY BE REPLACED WITH UP TO 25% ASH AND UP TO 25% SLAG). MAXIMUM WATER CEMENT RATIO SHALL BE 0.45. FIBERMESH FIBER ADDITIVE SHALL BE ADDED. CONCRETE SHALL HAVE AN AIR ENTRAINMENT BETWEEN 4% AND 6%. COURSE AGGREGATE FOR CONCRETE SHALL BE 1" MINIMUM.
3. INSTALL NEW STEEL BUILDING - REFER TO SEPARATE DRAWING PACKAGE FOR MONO COUNTY STEEL BUILDING (PER PROJECT PLANS "BLANCHARD" - 18 SHEET SET)

4. INSTALL BIOMASS FACILITY - DEMO THE EXISTING BOILER ROOM, STORAGE AND INTERFERRING WALLS - REMODEL BIOMASS BOILER AND FEED SYSTEM PER "MONO COUNTY BIOMASS KRT220" - REFER TO PLAN SHEET A1.0
5. THE BIOMASS KRT220 SHALL BE ANCHORED TO THE CONCRETE SLAB AT EACH CORNER WITH A MINIMUM OF ONE(1) STRIKE ANCHOR PER CORNER. 5/8" STRIKE ANCHORS (3.75" EMBED) OR 5/8" WEDGE ANCHORS (3.25" EMBED). INSTALLATION SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.
6. PLANS PREARED BY QUINTON ENGINEERS, LTD, IN 1964 NOTED A 6" CONCRETE FLOOR IN THE AREA OF THE NEW BIOMASS KRT220 INSTALLATION. ENGINEER SHALL BE NOTIFIED IF FIELD CONDITIONS DO NOT VERIFY THIS CONDITION.

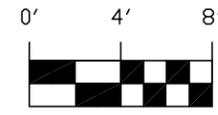
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Rev.#	Date	Revision	Revised Notes
1	04.04.16	WL / PER	
Drawing Date: 2016 MAR 09		Prepared By:	Checked By:
		WL / PER	PER

PARKS & FACILITIES BLDG. - 201 JACK SAWYER RD.
 BRIDGEPORT RD. SHOP - 207 JACK SAWYER RD.
 OVERVIEW -BIOMASSBOILER INSTALLATION

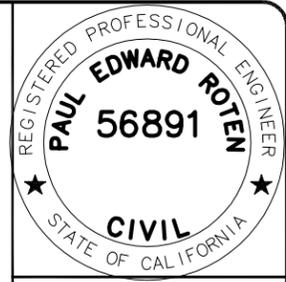
SHEET
C0.2

NOTES:

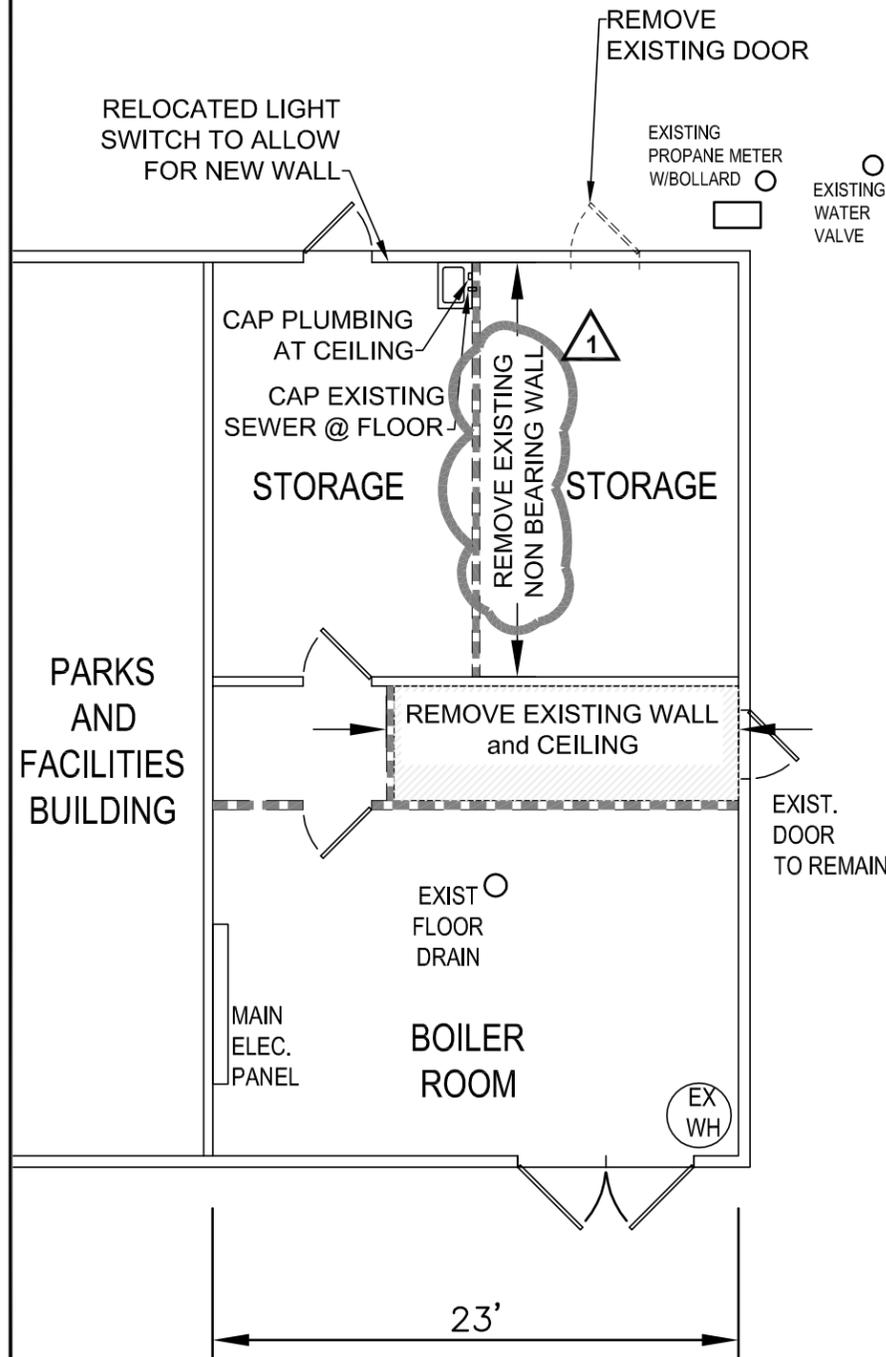
1. WALLS TO BE CONSTRUCTED OF 2X6 WOOD STUDS WITH 5/8" PLYWOOD FACING ON HOPPER SIDE AND SHEET ROCK ON HALL SIDE.,
- 2.



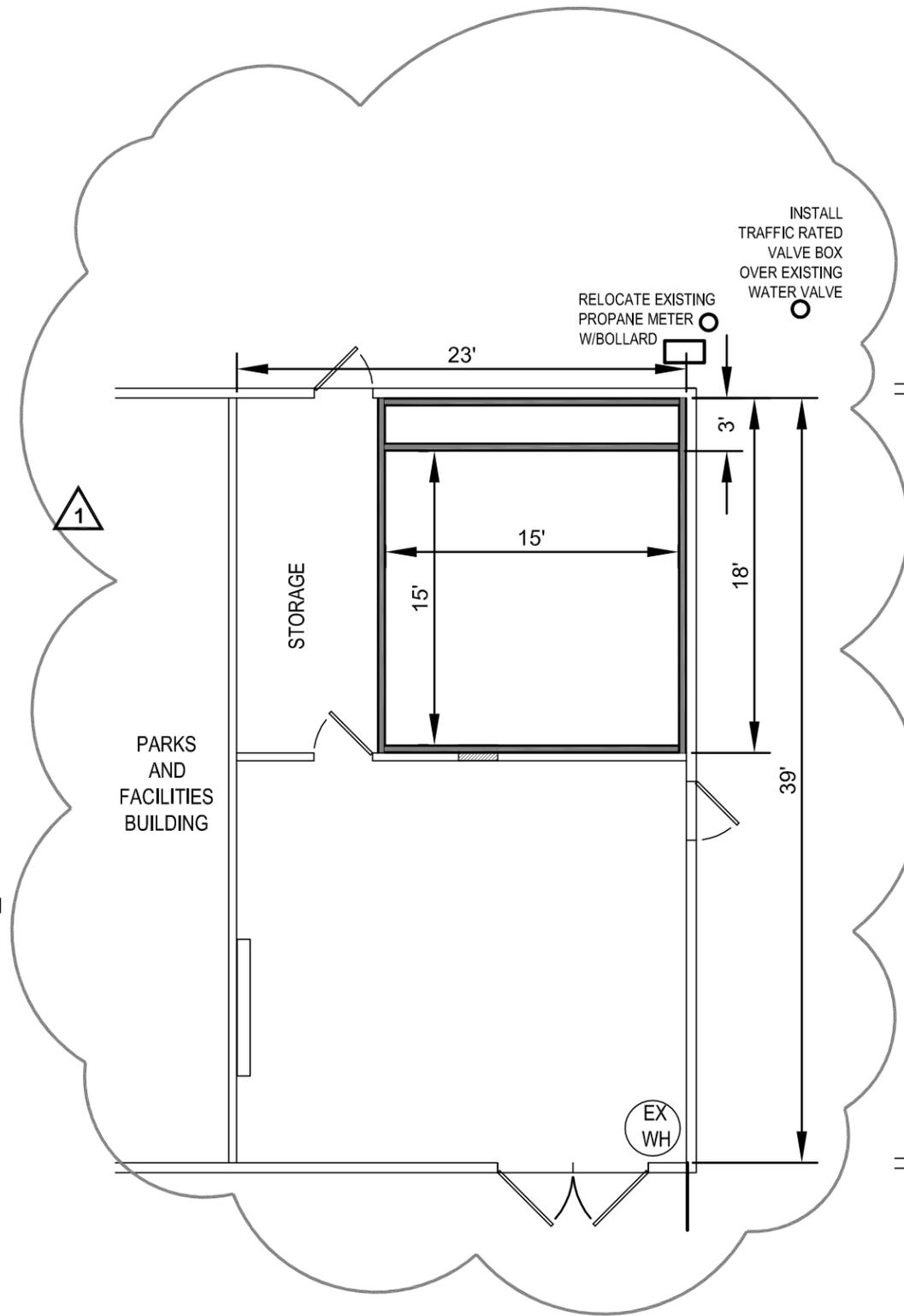
SCALE: 1" = 8'



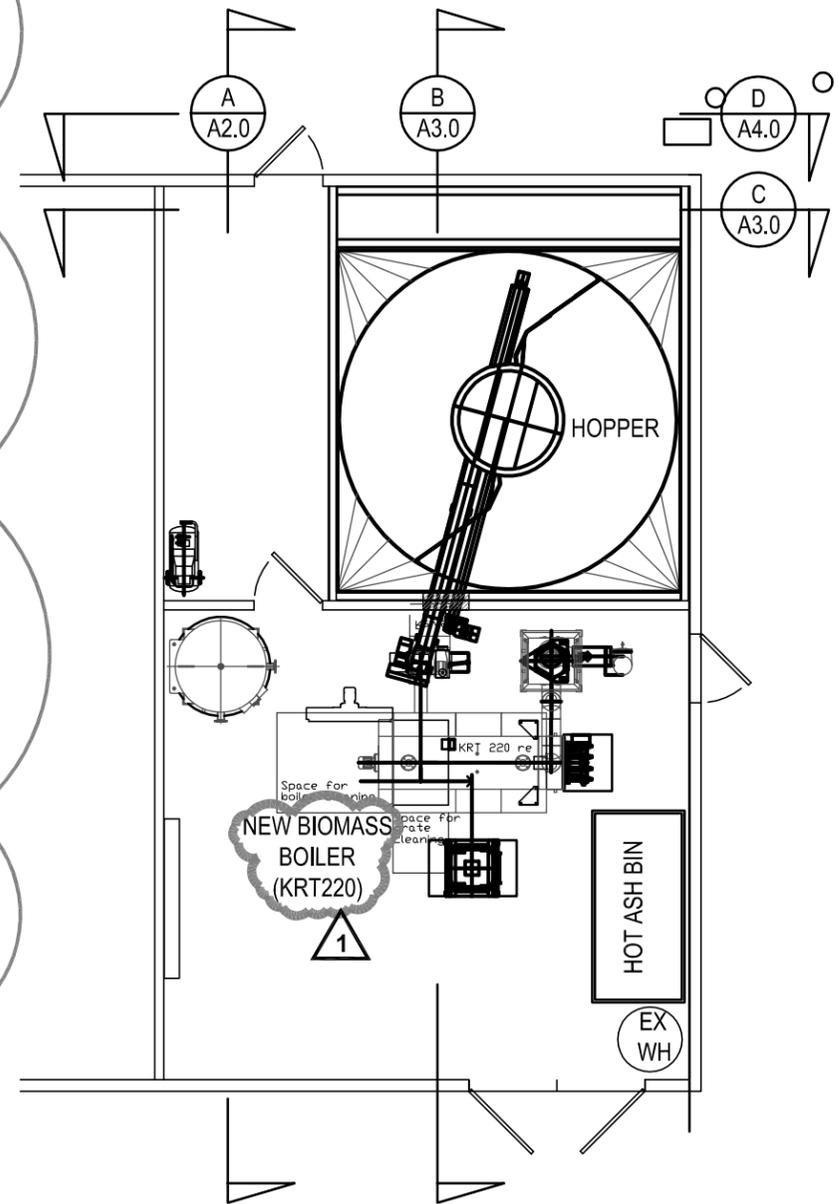
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EXISTING AND DEMOLITION PLAN
PARKS AND FACILITIES BUILDING



ROOM IMPROVEMENT PLAN
PARKS AND FACILITIES BUILDING



BIOMASS INSTALLATION PLAN
PARKS AND FACILITIES BUILDING

Rev.#	Date	Revision
1	04.04.16	Added Dimensions

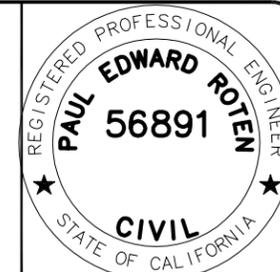
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MONO COUNTY PUBLIC WORKS DEPARTMENT
PARKS & FACILITIES BLDG. - 201 JACK SAWYER RD.
BRIDGEPORT RD. SHOP - 207 JACK SAWYER RD.
DEMOLITION PLAN - BIOMASS BOILER INSTALLATION

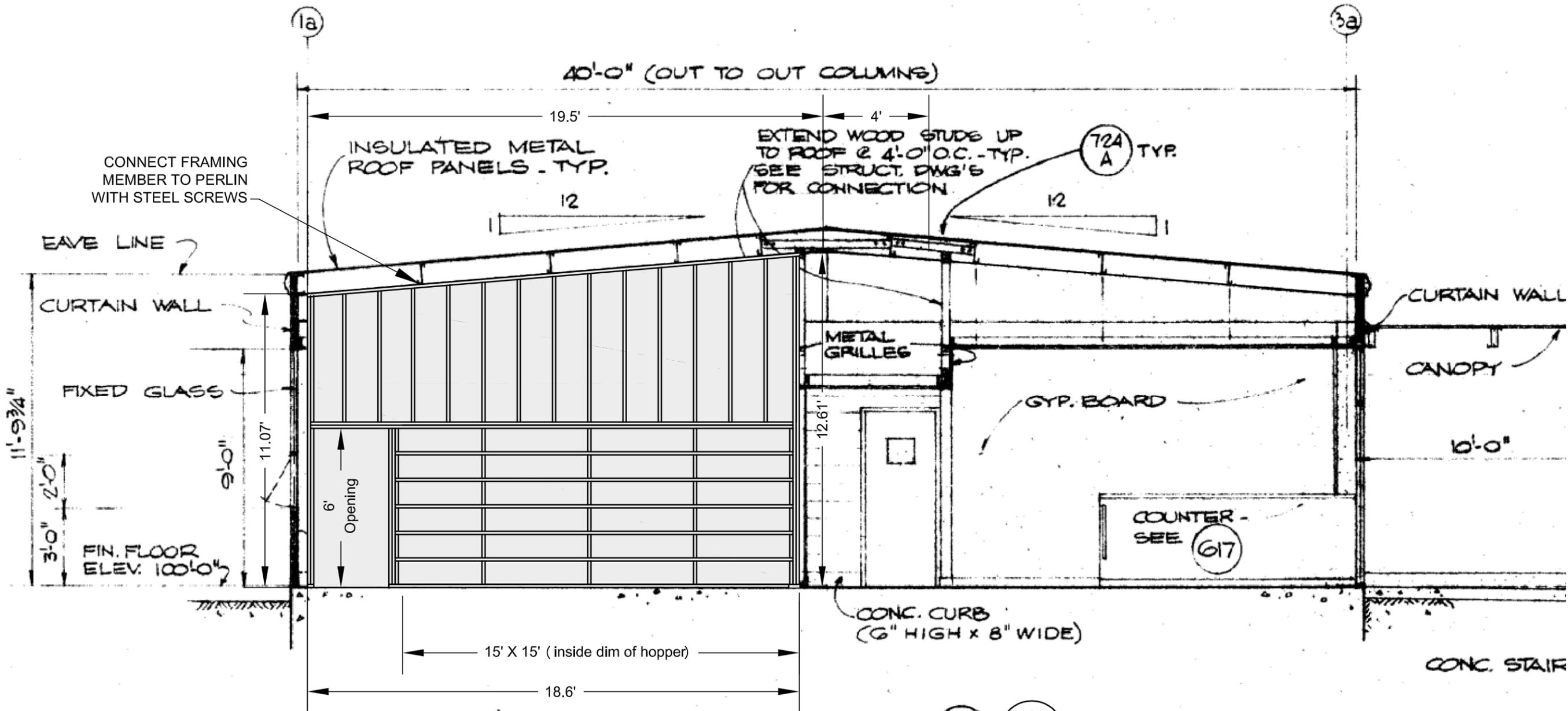
SHEET
A1.0

DETAIL NOTES: 1 -DETAIL

- 1. XXXXX.
- 2. YYYYY.
- 3. ZZZZZ



SIGNED: 2016 APRIL 04



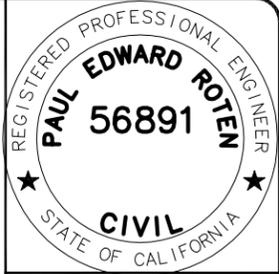
BUILDING SECTION A A1.0
SCALE: 1/4" = 1'-0"

MONO COUNTY PUBLIC WORKS DEPARTMENT	
Rev.#	Date
1	04.04.16
Prepared By:	Updated Signature
WL / PER	PER
Checked By:	PER
Drawing Date:	2016 MAR.09

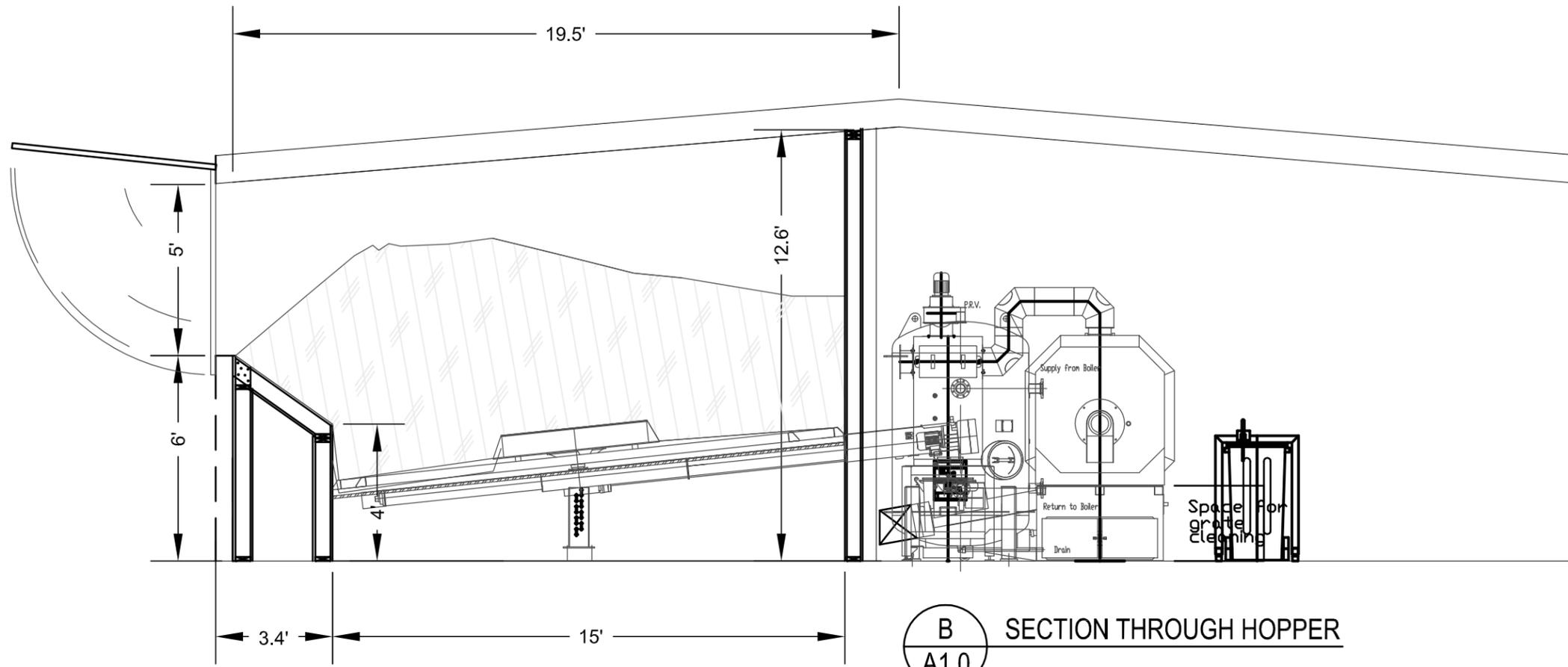
PARKS & FACILITIES BLDG. - 201 JACK SAWYER RD.
BRIDGEPORT RD. SHOP - 207 JACK SAWYER RD.

DETAILS - BIOMASS BOILER INSTALLATION

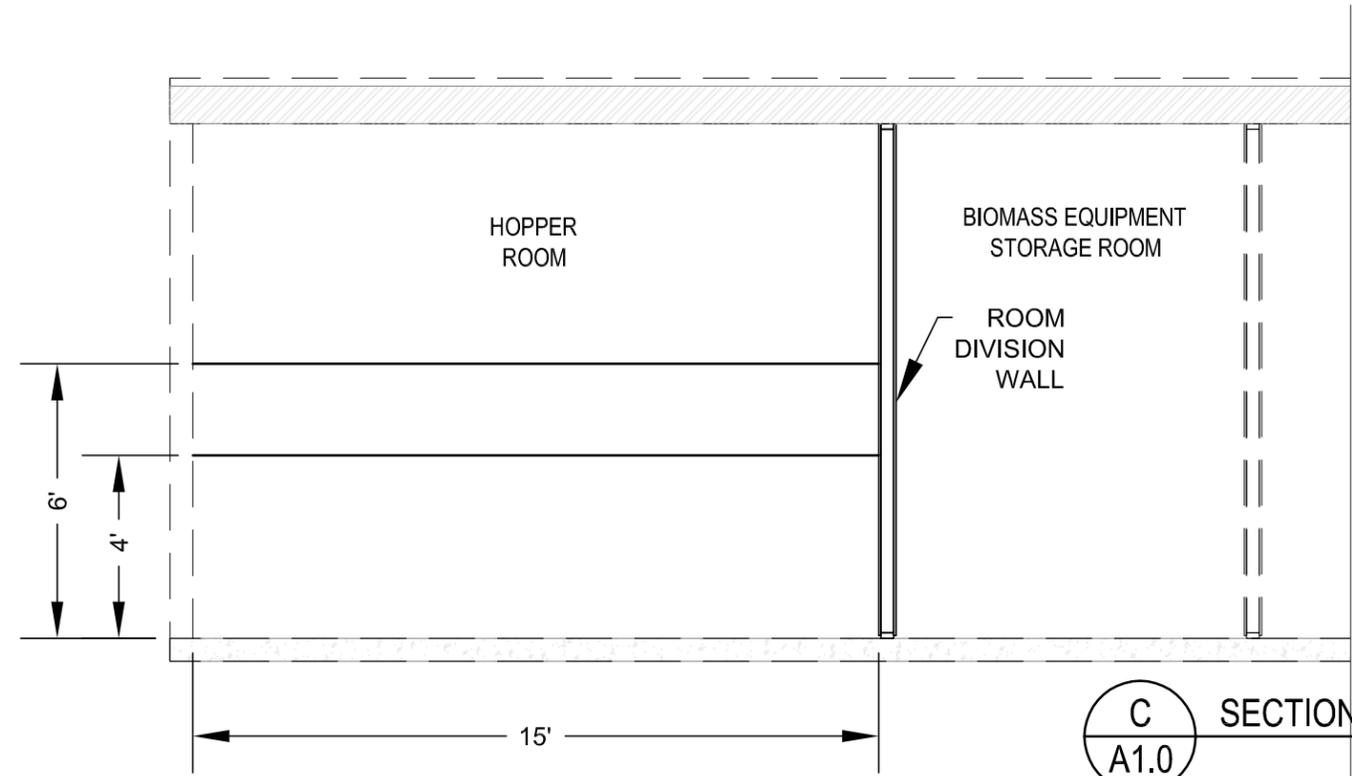
SHEET A2.0



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B SECTION THROUGH HOPPER
A1.0



C SECTION THROUGH HOPPER
A1.0

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1	04.04.16		
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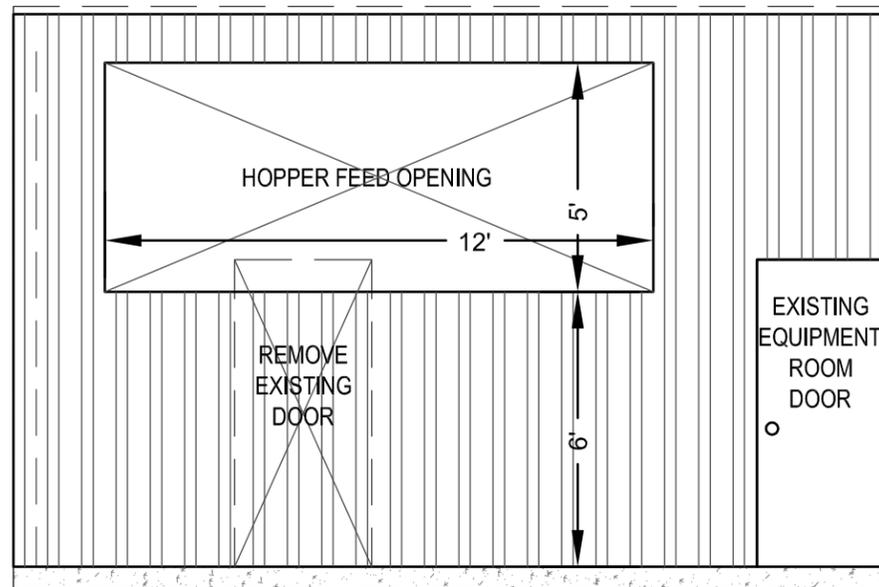
PARKS & FACILITIES BLDG. - 201 JACK SAWYER RD.
 BRIDGEPORT RD. SHOP - 207 JACK SAWYER RD.
 DETAILS - BIOMASS BOILER INSTALLATION

SHEET
A3.0

DETAIL NOTES:

1. XXXXX.
2. YYYYY.
3. ZZZZZ

1 -DETAIL



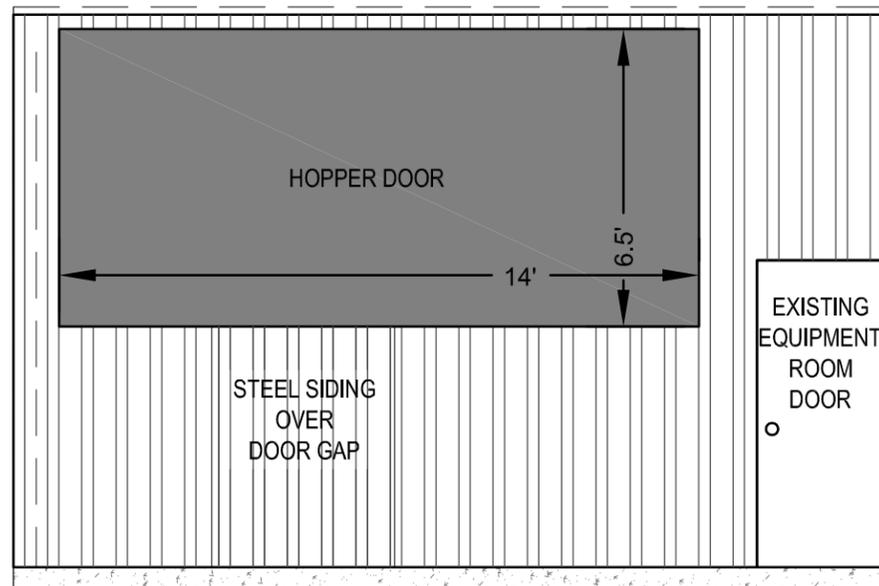
D.1 HOPPER OPENING WITH DOOR OPEN
A1.0

HOPPER DOOR CONSTRUCTION NOTES

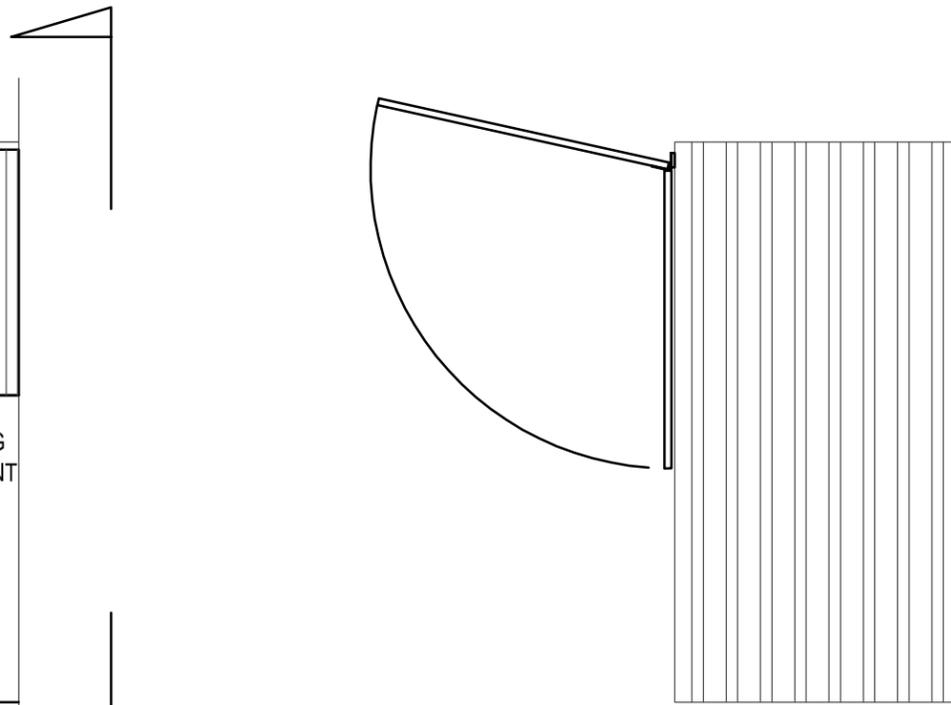
THE HOPPER DOOR CONSTRUCTION SHALL BE FIELD DESIGNED AND FIT. CONTRACTOR SHALL PROVIDE DESIGN SUBMITTAL PRIOR TO DOOR AND OPENING CONSTRUCTION FOR APPROVAL BY COUNTY ENGINEER. THE FOLLOWING IS THE GENERAL REQUIREMENTS OF THE HOPPER DOOR CONSTRUCTION:

1. REMOVE EXISTING MANDOOR. SEE D.1
2. CUT OPENING IN EXISTING INTERIOR FRAMED WALL AND EXTERIOR STEEL SIDING.
3. RECONSTRUCT INTERIOR FRAMED WALL, FRAMING IN DOOR OPENING AND CREATING OPENING FOR HOPPER FEED.
4. INSTALL HEADER AS REQUIRED OVER OPENING, ALONG WITH SIDE SUPPORTS AS REQUIRED.
5. INSTALL STEEL SIDING TO COVER GAP LEFT BY REMOVAL OF THE EXISTING MANDOOR. SEE D.2
6. PROVIDE AND INSTALL STEEL FLASHING AROUND HOPPER OPENING.

7. FIELD FABRICATE HOPPER DOOR WITH SEAL SYSTEM TO PROTECT HOPPER FEED AREA FROM RAIN OR SNOW.
8. PROVIDE CABLE SUPPORT TO HOLD DOOR OPEN FOR HOPPER LOADING OPERATIONS.

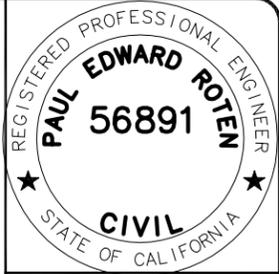


D.2 HOPPER DOOR SHUT
A1.0



E
A1.0

E HOPPER DOOR - SIDE VIEW
A1.0



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MONO COUNTY PUBLIC WORKS DEPARTMENT

Rev.#	Date	Revision
1	04.04.16	Updated Signature

Drawing Date: 2016 MAR.09

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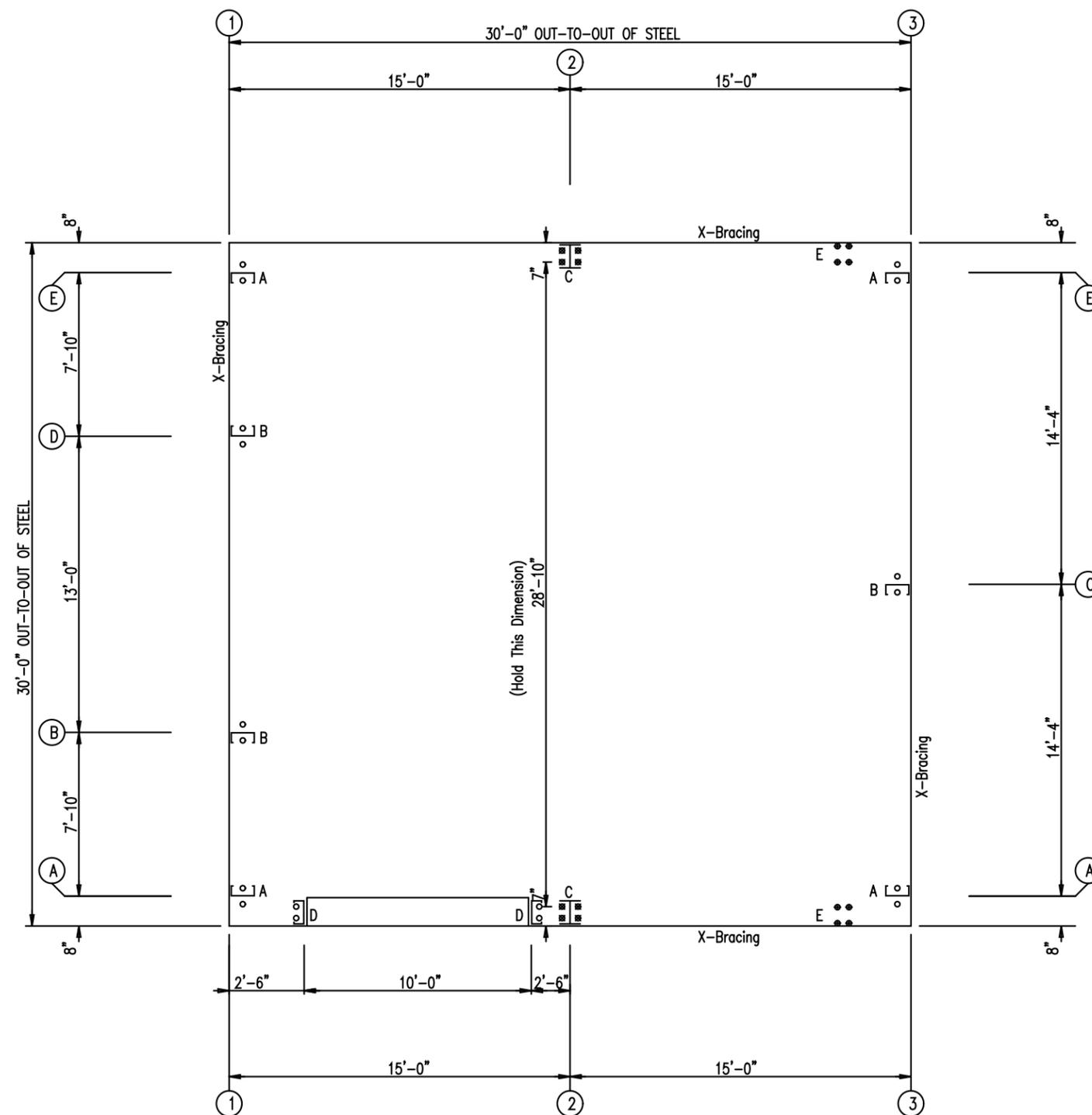
PARKS & FACILITIES BLDG. - 201 JACK SAWYER RD.
BRIDGEPORT RD. SHOP - 207 JACK SAWYER RD.

DETAILS - BIOMASS BOILER INSTALLATION

SHEET

A4.0

- Dia= 5/8"
- ⊗ Dia= 3/4"
- ⊕ Dia=1"



ANCHOR BOLT PLAN

ISSUE	DATE	DESCRIPTION	BY	CK'D	DSN
A	1/21/16	FOR CONSTRUCTION PERMIT	PNR	PNR	ASK

Empire Steel Buildings
 5230 Carroll Canyon Road
 San Diego, California 92121,

PROJECT: BLANCHARD							
CUSTOMER: Mono County Dept.of Public Works	OWNER: Mono County Dept.of Public Works						
LOCATION: Bridgeport,CA 93517							
CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	1/21/16	N.T.S.	1	A	15-B-22650	F1	A

ANCHOR BOLT SUMMARY

Qty	Locate	Dia (in)	Type	Proj (in)
4	Jamb	5/8"	F1554	2.00
14	Endwall	5/8"	F1554	2.00
8	Frame	3/4"	F1554	2.50
8	WindBent	1"	F1554	3.00

GENERAL NOTES

- THE REACTIONS PROVIDED ARE BASED ON THE ORDER DOCUMENTS AT THE TIME OF MAILING. ANY CHANGES TO BUILDING LOADS OR DIMENSIONS MAY CHANGE THE REACTIONS. THE REACTIONS WILL BE SUPERSEDED AND VOIDED BY ANY FUTURE MAILING.
- REACTIONS ARE PROVIDED AS UN-FACTORED FOR EACH LOAD GROUP APPLIED TO THE COLUMN. THE FOUNDATION ENGINEER WILL APPLY THE APPROPRIATE LOAD FACTORS AND COMBINE THE REACTIONS IN ACCORDANCE WITH THE BUILDING CODE AND DESIGN SPECIFICATIONS TO DETERMINE BEARING PRESSURES AND CONCRETE DESIGN. THE FACTORS APPLIED TO LOAD GROUPS FOR THE STEEL COLUMN DESIGN MAY BE DIFFERENT THAN THE FACTORS USED IN THE FOUNDATION DESIGN.
- THE MANUFACTURER DOES NOT PROVIDE "MAXIMUM" LOAD COMBINATION REACTIONS. HOWEVER, THE INDIVIDUAL LOAD REACTIONS PROVIDED MAY BE USED BY THE FOUNDATION ENGINEER TO DETERMINE THE APPLICABLE LOAD COMBINATIONS FOR HIS/HER DESIGN PROCEDURES AND ALLOW FOR AN ECONOMICAL FOUNDATION DESIGN.
- THE METAL BUILDING MANUFACTURER IS RESPONSIBLE FOR THE DESIGN OF THE ANCHOR BOLT DIAMETER ONLY TO PERMIT THE TRANSFER OF FORCES BETWEEN THE BASE PLATE AND THE ANCHOR BOLT IN SHEAR, BEARING AND TENSION, BUT IS NOT RESPONSIBLE FOR THE ANCHOR BOLT EMBEDMENT FOR TRANSFER OF FORCES TO THE FOUNDATION. THE METAL BUILDING MANUFACTURER DOES NOT DESIGN AND IS NOT RESPONSIBLE FOR THE DESIGN, MATERIAL AND CONSTRUCTION OF THE FOUNDATION EMBEDMENTS. THE END USE CUSTOMER SHOULD ASSURE HIMSELF THAT ADEQUATE PROVISIONS ARE MADE IN THE FOUNDATION DESIGN FOR LOADS IMPOSED BY COLUMN REACTIONS OF THE BUILDING, OTHER IMPOSED LOADS, AND BEARING CAPACITY OF THE SOIL AND OTHER CONDITIONS OF THE BUILDING SITE. IT IS RECOMMENDED THAT THE ANCHORAGE AND FOUNDATION OF THE BUILDING BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER EXPERIENCED IN THE DESIGN OF SUCH STRUCTURES, (SECTION A3 MBMA 2006 METAL BUILDING SYSTEMS MANUAL).
- BOTTOM OF ALL BASE PLATES ARE AT THE SAME ELEVATION. (UNLESS NOTED)
- ANCHOR RODS ARE ASTM F1554 GRADE 36 MATERIAL UNLESS NOTED OTHERWISE.

BUILDING BRACING REACTIONS

Wall Loc	Line	Col Line	Reactions in plane of wall ± Reactions (k)				Panel Shear (lb/ft) Seis
			Wind Horz	Wind Vert	Seismic Horz	Seismic Vert	
L_SW	1	E,D	Bracing, see EW reactions				
F_SW	A	2,3	1.9	*	2.3	*	
R_SW	3	A,C	Bracing, see EW reactions				
B_SW	E	3,2	1.9	*	2.3	*	

*See RF reactions table for vertical and horizontal reactions in plane of the rigid frame.

ENDWALL COLUMN: BASIC COLUMN REACTIONS (k)

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind_Left1 Horz	Wind_Left1 Vert	Wind_Right1 Horz	Wind_Right1 Vert	Wind_Left2 Horz	Wind_Left2 Vert	Wind_Right2 Horz	Wind_Right2 Vert	Wind Press Horz
1	E	0.1	0.0	0.4	1.1	0.9	-2.1	0.0	1.2	1.0	-2.2	0.0	1.3	0.0
1	D	0.3	0.1	1.9	4.7	0.0	-0.7	0.9	-3.2	0.0	-0.6	1.0	-3.2	-1.4
1	B	0.3	0.1	1.9	4.7	0.0	-1.4	0.0	-2.3	0.0	-1.3	0.0	-2.3	-1.4
1	A	0.1	0.0	0.4	1.1	0.0	-0.6	0.0	-0.5	0.0	-0.6	0.0	-0.5	0.0

Frm Line	Col Line	Wind Suct Horz	Wind_Long1 Horz	Wind_Long1 Vert	Wind_Long2 Horz	Wind_Long2 Vert	Seis_Left Horz	Seis_Left Vert	Seis_Right Horz	Seis_Right Vert	-MIN_SNOW-- Horz	-MIN_SNOW-- Vert	E1UNB_SL_L-- Horz	E1UNB_SL_L-- Vert
1	E	0.0	0.0	-0.1	0.3	-0.8	1.6	-2.7	0.0	3.1	0.0	0.4	0.0	1.1
1	D	1.5	0.3	-2.7	0.0	-0.9	0.0	2.6	1.6	-3.0	0.0	1.9	0.0	5.4
1	B	1.5	0.0	-1.4	0.0	-2.1	0.0	0.1	0.0	-0.1	0.0	1.9	0.0	2.1
1	A	0.0	0.0	-0.3	0.0	-0.7	0.0	-0.1	0.0	0.1	0.0	0.4	0.0	0.2

Frm Line	Col Line	E1UNB_SL_R-- Horz	E1UNB_SL_R-- Vert
1	E	0.0	0.2
1	D	0.0	2.1
1	B	0.0	5.4
1	A	0.0	1.1

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind_Left1 Horz	Wind_Left1 Vert	Wind_Right1 Horz	Wind_Right1 Vert	Wind_Left2 Horz	Wind_Left2 Vert	Wind_Right2 Horz	Wind_Right2 Vert	Wind Press Horz
3	A	0.2	0.0	0.9	2.3	0.9	-2.1	0.0	0.2	1.0	-2.1	0.0	0.3	0.0
3	C	0.5	0.1	2.7	6.9	0.0	-1.7	0.9	-3.8	0.0	-1.7	1.0	-3.9	-2.2
3	E	0.2	0.0	0.9	2.3	0.0	-0.9	0.0	-1.1	0.0	-0.9	0.0	-1.1	0.0

Frm Line	Col Line	Wind Suct Horz	Wind_Long1 Horz	Wind_Long1 Vert	Wind_Long2 Horz	Wind_Long2 Vert	Seis_Left Horz	Seis_Left Vert	Seis_Right Horz	Seis_Right Vert	-MIN_SNOW-- Horz	-MIN_SNOW-- Vert	E2UNB_SL_L-- Horz	E2UNB_SL_L-- Vert
3	A	0.0	0.0	-0.9	0.3	-0.9	1.6	-1.5	0.0	1.9	0.0	0.9	0.0	2.8
3	C	2.4	0.3	-3.0	0.0	-2.3	0.0	1.6	1.6	-2.0	0.0	2.7	0.0	5.5
3	E	0.0	0.0	-0.6	0.0	-1.3	0.0	-0.1	0.0	0.1	0.0	0.9	0.0	0.3

Frm Line	Col Line	E2UNB_SL_R-- Horz	E2UNB_SL_R-- Vert
3	A	0.0	0.3
3	C	0.0	5.5
3	E	0.0	2.8

ENDWALL COLUMN: ANCHOR BOLTS & BASE PLATES

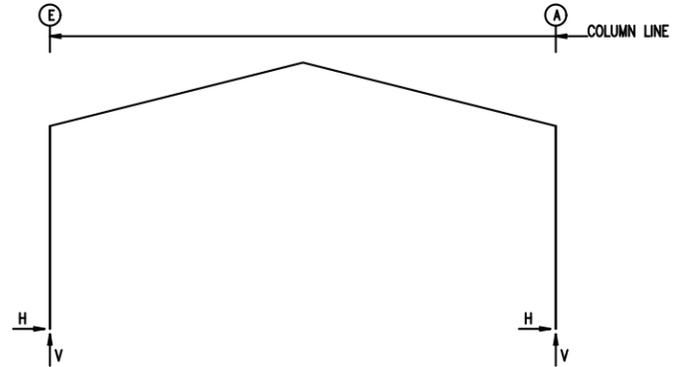
Frm Line	Col Line	Anc_Bolt Qty	Anc_Bolt Dia	Base_Plate (in) Width	Base_Plate (in) Length	Thick	Grout (in)
1	E	2	0.625	7.000	8.000	0.250	0.0
1	D	2	0.625	7.000	8.000	0.250	0.0
1	B	2	0.625	7.000	8.000	0.250	0.0
1	A	2	0.625	7.000	8.000	0.250	0.0
3	A	2	0.625	7.000	8.000	0.250	0.0
3	C	2	0.625	7.000	8.000	0.250	0.0
3	E	2	0.625	7.000	8.000	0.250	0.0

NOTES FOR REACTIONS

BUILDING REACTIONS ARE BASED ON THE FOLLOWING BUILDING DATA:

WIDTH (FT)	= 30
LENGTH (FT)	= 30
EAVE HEIGHT (FT)	= 12 / 12
ROOF SLOPE (rise/12)	= 3.0:12 / 3.0:12
DEAD LOAD (psf)	= 2,000
COLLATERAL LOAD (psf)	= 1
ROOF LIVE LOAD (psf)	= 20.00
FRAME LIVE LOAD (psf)	= 20
ROOF SNOW LOAD (psf)	= 50
GROUND SNOW LOAD (psf)	= 50.0000
WIND SPEED (MPH)	= 110
WIND CODE	= CBC 13
EXPOSURE	= C
CLOSED/OPEN	= Closed
IMPORTANCE - WIND	= 1.00
IMPORTANCE - SEISMIC	= 1.00
SEISMIC ZONE	= D

FRAME LINES: 2



RIGID FRAME: ANCHOR BOLTS & BASE PLATES

Frm Line	Col Line	Anc_Bolt Qty	Anc_Bolt Dia	Base_Plate (in) Width	Base_Plate (in) Length	Thick	Grout (in)
2	E	4	0.750	6.000	14.00	0.375	0.0
2	A	4	0.750	6.000	14.00	0.375	0.0

RIGID FRAME: BASIC COLUMN REACTIONS (k)

Frame Line	Column Line	Dead Horz	Dead Vert	Collateral Horz	Collateral Vert	Live Horz	Live Vert	Snow Horz	Snow Vert	Wind_Left1 Horz	Wind_Left1 Vert	Wind_Right1 Horz	Wind_Right1 Vert
2	E	0.3	1.0	0.1	0.3	1.9	5.6	4.9	14.1	-3.3	-5.8	0.9	-3.4
2	A	-0.3	1.0	-0.1	0.3	-1.9	5.6	-4.9	14.1	-0.9	-3.4	3.3	-5.8

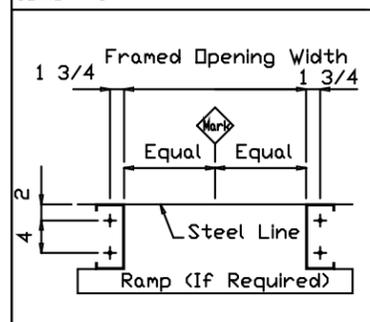
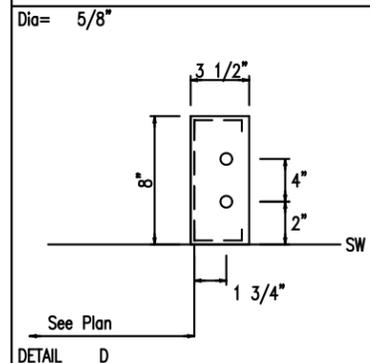
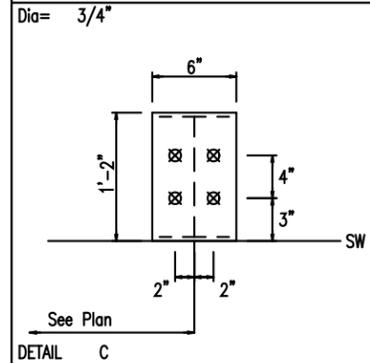
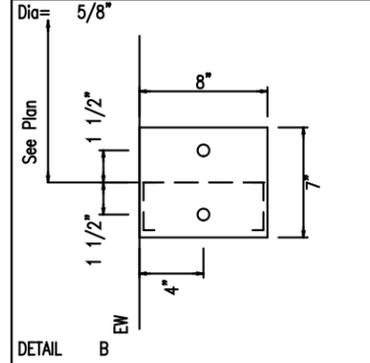
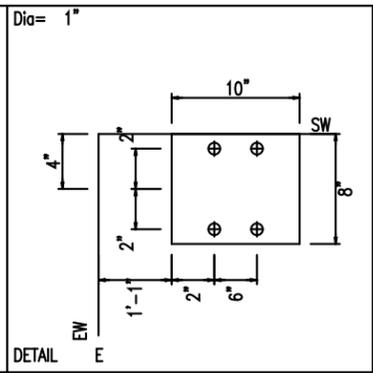
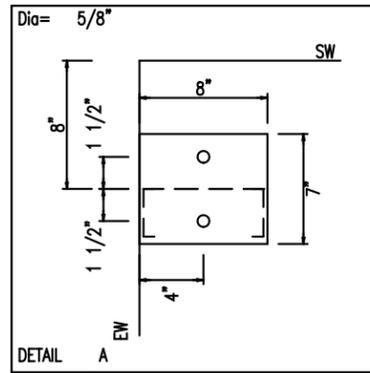
Frame Line	Column Line	Wind_Left2 Horz	Wind_Left2 Vert	Wind_Right2 Horz	Wind_Right2 Vert	Wind_Long1 Horz	Wind_Long1 Vert	Wind_Long2 Horz	Wind_Long2 Vert	Seismic_Left Horz	Seismic_Left Vert	Seismic_Right Horz	Seismic_Right Vert
2	E	-3.5	-3.6	0.7	-1.2	0.4	-6.1	-0.1	-5.5	-1.8	-1.3	1.8	1.3
2	A	-0.7	-1.2	3.5	-3.6	0.1	-5.5	-0.4	-6.1	-1.8	1.3	1.8	-1.3

Frame Line	Column Line	Seismic_Long Horz	Seismic_Long Vert	-MIN_SNOW-- Horz	-MIN_SNOW-- Vert	F1UNB_SL_L-- Horz	F1UNB_SL_L-- Vert	F1UNB_SL_R-- Horz	F1UNB_SL_R-- Vert
2	E	0.0	-2.0	1.9	5.6	3.9	13.6	3.9	7.8
2	A	0.0	-2.0	-1.9	5.6	-3.9	7.8	-3.9	13.6

ISSUE	DATE	DESCRIPTION	BY	CK'D	DSN
A	1/21/16	FOR CONSTRUCTION PERMIT	PNR	PNR	ASK

Empire Steel Buildings
5230 Carroll Canyon Road
San Diego, California 92121,

PROJECT:	BLANCHARD						
CUSTOMER:	Mono County Dept.of Public Works						
OWNER:	Mono County Dept.of Public Works						
LOCATION:	Bridgeport,CA 93517						
CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	1/21/16	N.T.S.	1	A	15-B-22650	F2	A



AR Dia 5/8"

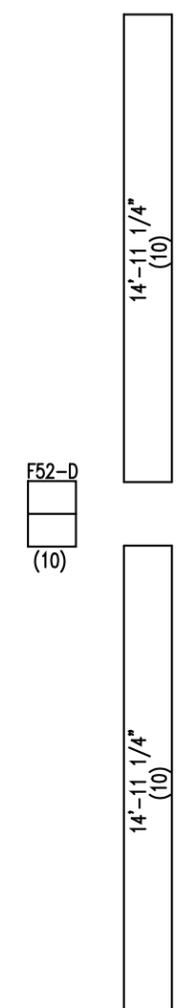
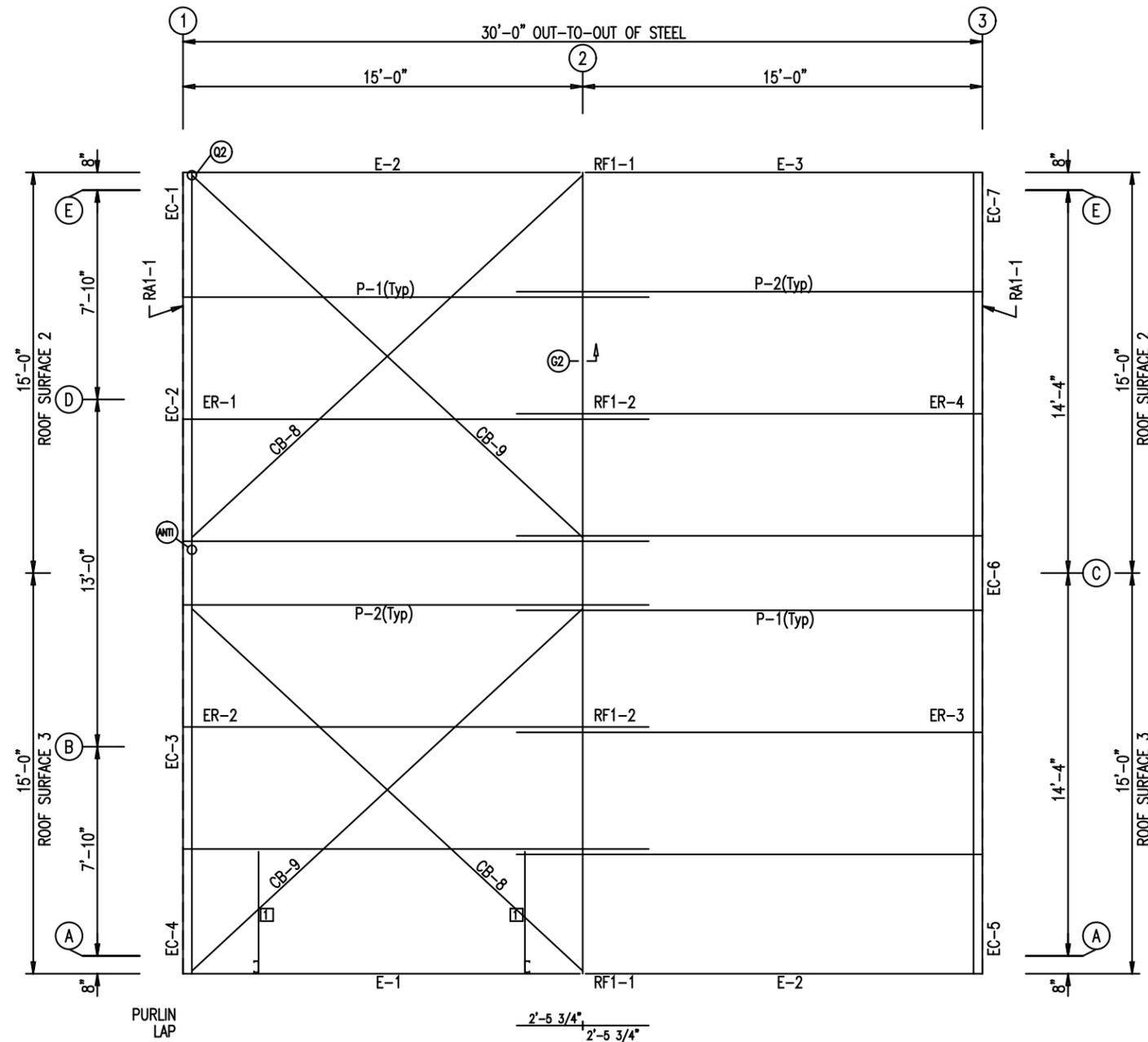
ISSUE	DATE	DESCRIPTION	BY	CK'D	DSN
A	1/21/16	FOR CONSTRUCTION PERMIT	PNR	PNR	ASK

Empire Steel Buildings
 5230 Carroll Canyon Road
 San Diego, California 92121,

PROJECT: BLANCHARD							
CUSTOMER: Mono County Dept.of Public Works	OWNER: Mono County Dept.of Public Works						
LOCATION: Bridgeport,CA 93517							
CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	1/21/16	N.T.S.	1	A	15-B-22650	F3	A

MEMBER TABLE		
ROOF PLAN		
MARK	PART	LENGTH
P-1	8X25Z14	17'-5 1/2"
P-2	8X25Z14	17'-5 1/2"
E-1	8ES3L14	14'-11 1/2"
E-2	8ES3L14	14'-11 1/2"
E-3	8ES3L14	14'-11 1/2"
CB-8	1/4" CABLE	20'-7"
CB-9	1/4" CABLE	20'-1"

CONNECTION PLATES	
ROOF PLAN	
ID	MARK/PART
1	DB1



ROOF SHEETING
PANELS: 26 Ga. PR
TBD

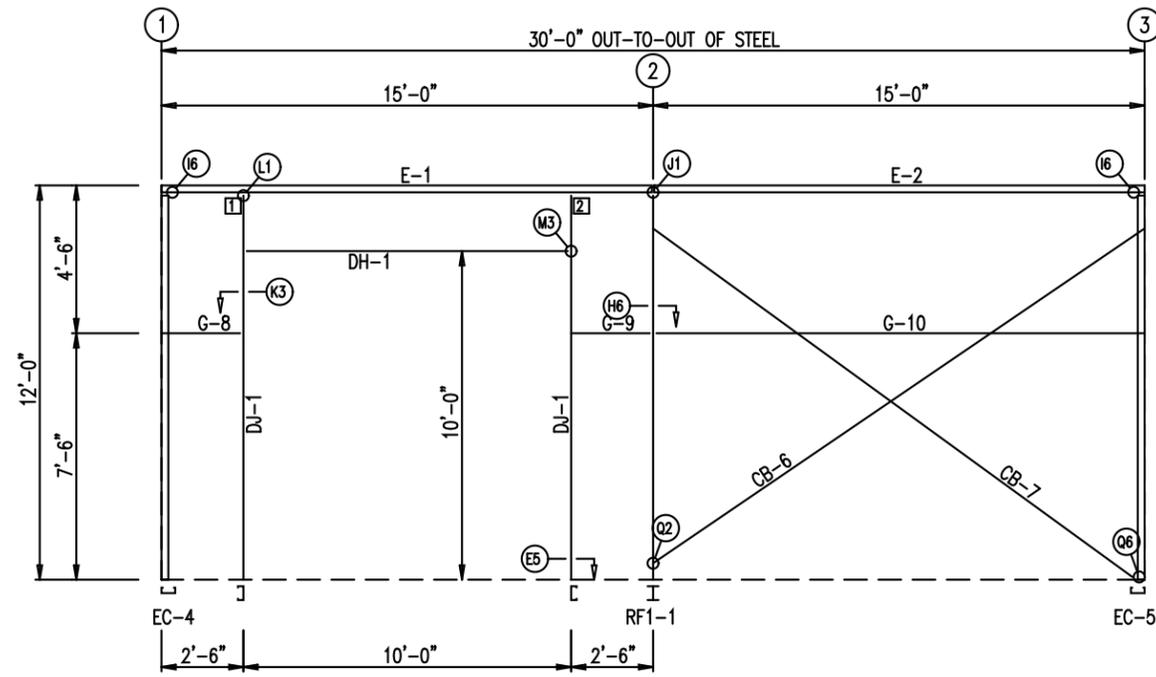
ROOF FRAMING PLAN

- GENERAL NOTES:
1. INSTALL ALL PURLIN AND FLANGE BRACES (FB) AS SHOWN.
 2. ROOF PANEL PROVIDES STRUCTURAL STABILITY TO THE BUILDING.
 3. STRUT PURLINS, IF PROVIDED, MUST BE INSTALLED AND FASTENED TO ROOF SHEETING PER "PBR" PANEL ROOF DETAIL.
 4. DO NOT ADD ANY ADDITIONAL ROOF OPENINGS WITHOUT BUILDING MANUFACTURER APPROVAL OR PROFESSIONAL ENGINEER APPROVAL.
 5. DO NOT STACK SHEET BUNDLES ON ROOF. ONLY RAISE INDIVIDUAL SHEETS AS NEEDED.
 6. AFTER INSTALLATION, WIPE ALL PANELS CLEAN OF METAL SHAVINGS CAUSED BY DRILLING.

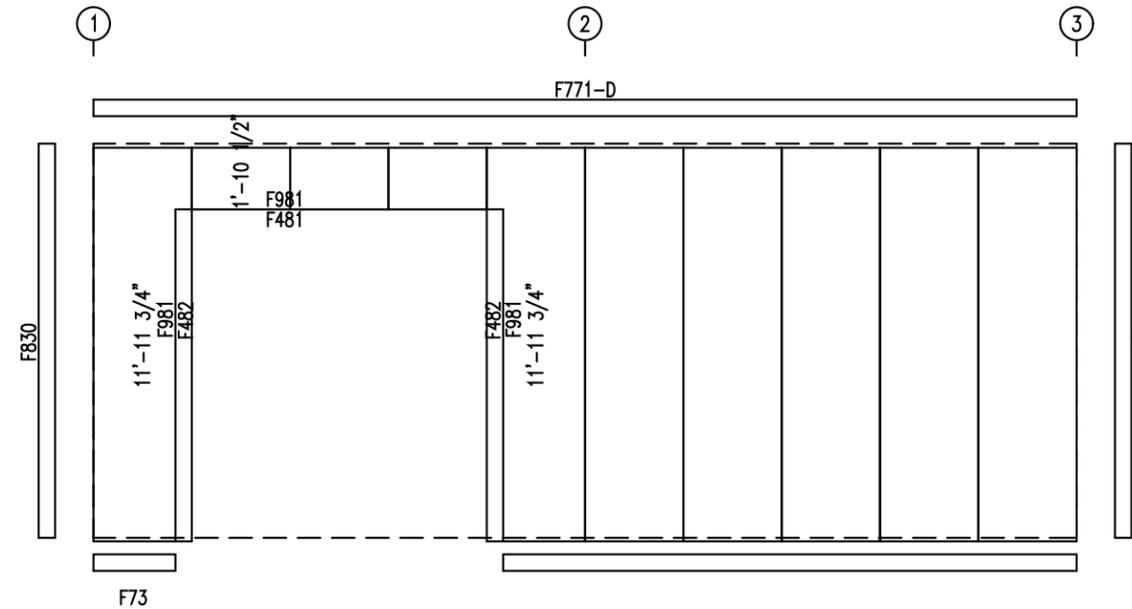
ISSUE	DATE	DESCRIPTION	BY	CK'D	DSN
A	1/21/16	FOR CONSTRUCTION PERMIT	PNR	PNR	ASK

Empire Steel Buildings
5230 Carroll Canyon Road
San Diego, California 92121,

PROJECT: BLANCHARD							
CUSTOMER: Mono County Dept.of Public Works	OWNER: Mono County Dept.of Public Works						
LOCATION: Bridgeport,CA 93517							
CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	1/21/16	N.T.S.	1	A	15-B-22650	E1	A



SIDEWALL FRAMING: FRAME LINE A



SIDEWALL SHEETING & TRIM: FRAME LINE A

PANELS: 26 Ga. PR - Polar White

MEMBER TABLE		
FRAME LINE A		
MARK	PART	LENGTH
DJ-1	8F25C16	11'-3 1/4"
DH-1	8F25C16	10'-0"
E-1	8ES3L14	14'-11 1/2"
E-2	8ES3L14	14'-11 1/2"
G-8	8X25Z16	2'-3"
G-9	8X25Z16	1'-11 1/4"
G-10	8X25Z16	14'-7 3/4"
CB-6	5/16" CABLE	18'-10"
CB-7	5/16" CABLE	17'-6"

CONNECTION PLATES	
FRAME LINE A	
ID	MARK/PART
1	SC586_L
2	SC586_R

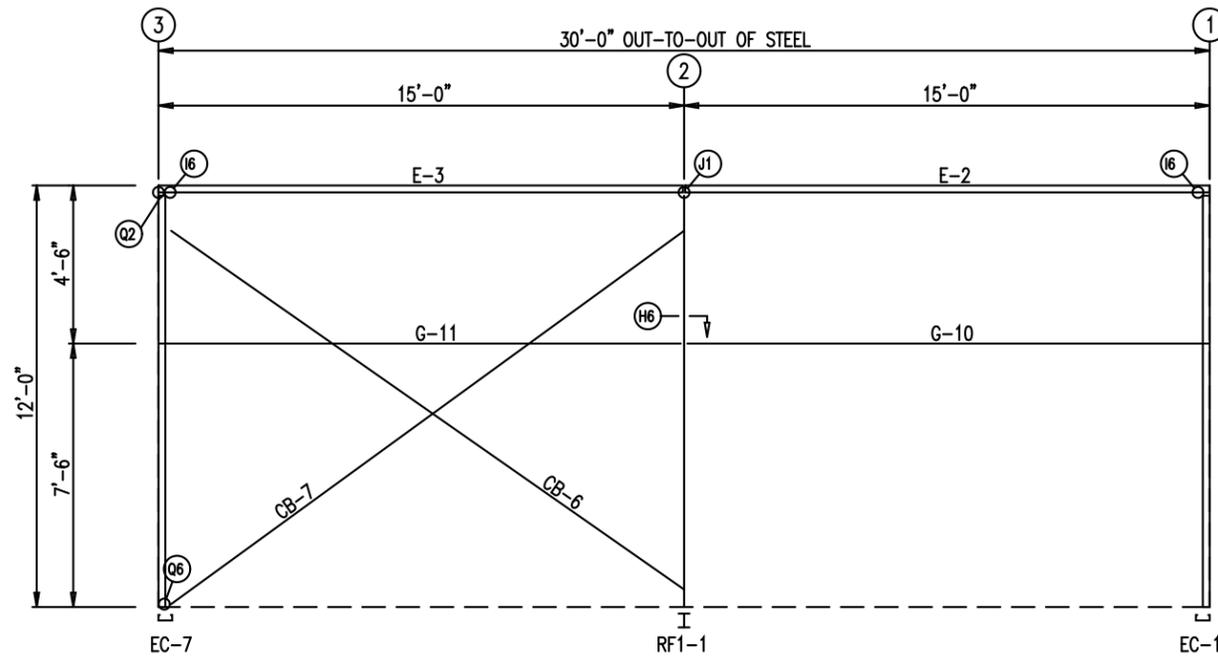
- GENERAL NOTES:
1. INSTALL ALL GIRTS AND FLANGE BRACES (FB) AS SHOWN.
 2. WALL PANEL PROVIDES STRUCTURAL STABILITY TO THE BUILDING.
 3. OTHER THAN FOR WALK DOORS AND WINDOWS SHOWN ON THE CONTRACT, DO NOT ADD ADDITIONAL WALL OPENINGS WITHOUT APPROVAL OF BUILDING MANUFACTURER OR PROFESSIONAL ENGINEER.
 4. AFTER INSTALLATION, WIPE ALL PANELS CLEAN OF METAL SHAVINGS CAUSED BY DRILLING.

ISSUE	DATE	DESCRIPTION	BY	CK'D	DSN
A	1/21/16	FOR CONSTRUCTION PERMIT	PNR	PNR	ASK

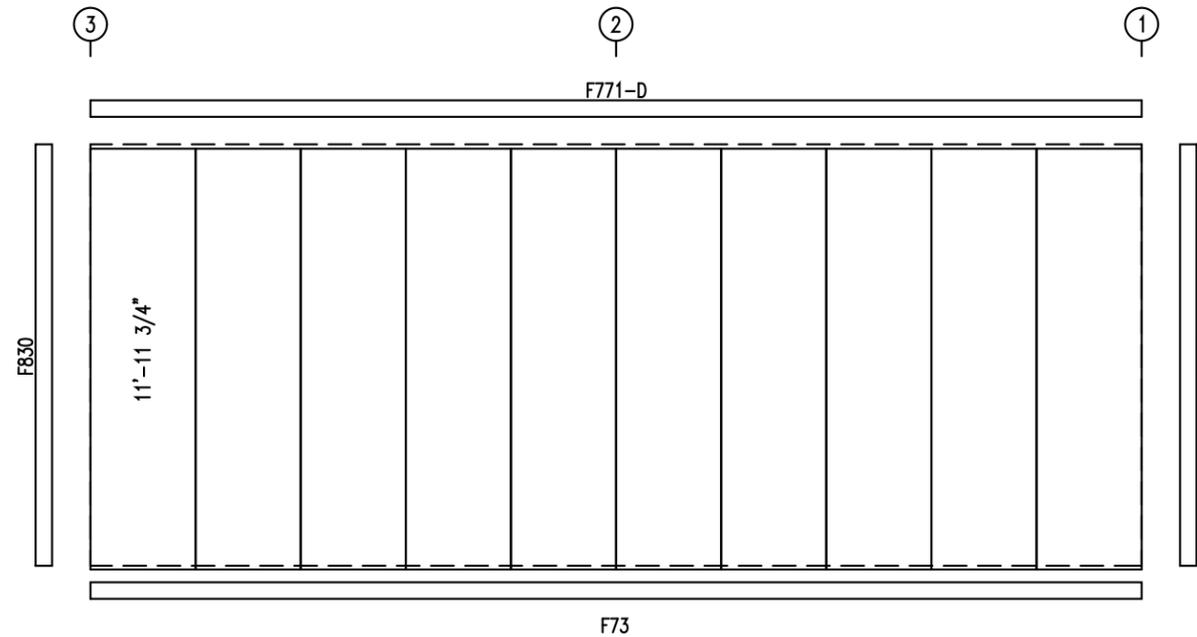
Empire Steel Buildings
 5230 Carroll Canyon Road
 San Diego, California 92121,

PROJECT: BLANCHARD							
CUSTOMER: Mono County Dept.of Public Works	OWNER: Mono County Dept.of Public Works						
LOCATION: Bridgeport,CA 93517							
CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	1/21/16	N.T.S.	1	A	15-B-22650	E2	A

MEMBER TABLE		
FRAME LINE E		
MARK	PART	LENGTH
E-2	8ES3L14	14'-11 1/2"
E-3	8ES3L14	14'-11 1/2"
G-10	8X25Z16	14'-7 3/4"
G-11	8X25Z16	14'-7 3/4"
CB-6	5/16" CABLE	18'-10"
CB-7	5/16" CABLE	17'-6"



SIDEWALL FRAMING: FRAME LINE E



SIDEWALL SHEETING & TRIM: FRAME LINE E

PANELS: 26 Ga. PR - Polar White

ISSUE	DATE	DESCRIPTION	BY	CK'D	DSN
A	1/21/16	FOR CONSTRUCTION PERMIT	PNR	PNR	ASK

Empire Steel Buildings
5230 Carroll Canyon Road
San Diego, California 92121,

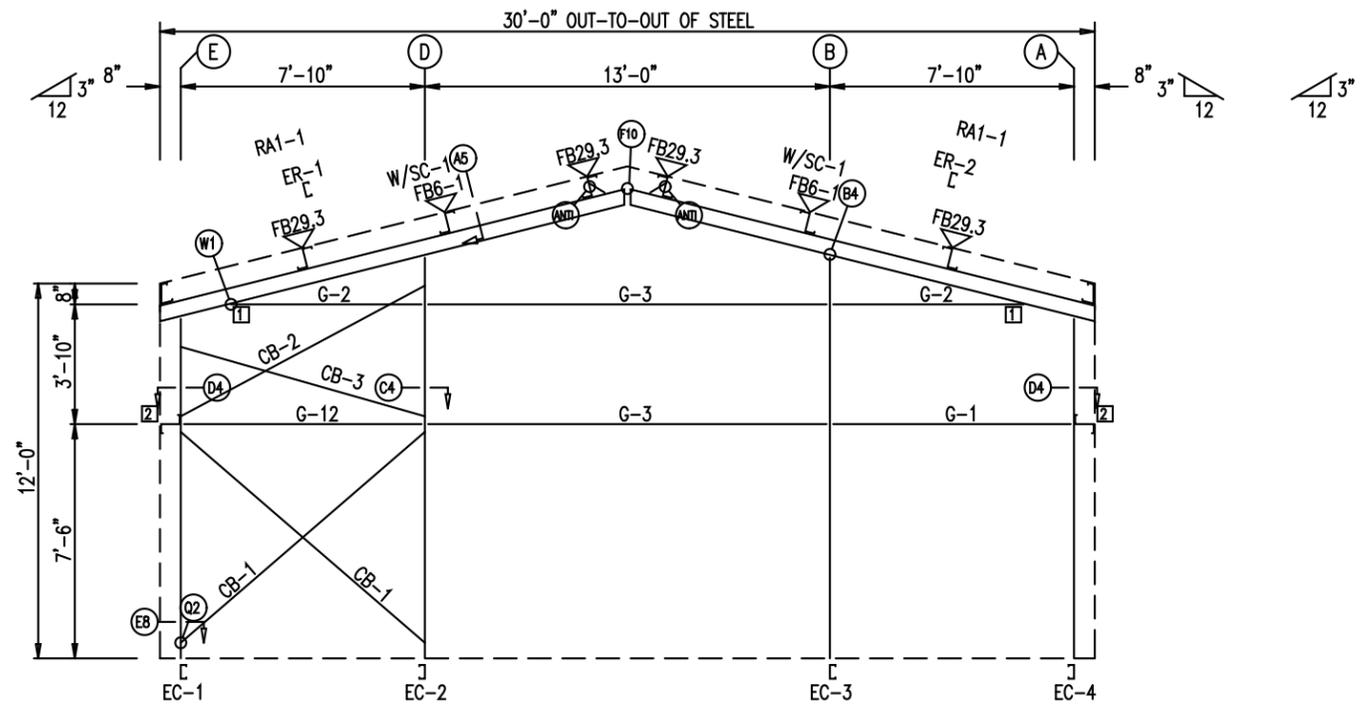
PROJECT: BLANCHARD							
CUSTOMER: Mono County Dept.of Public Works	OWNER: Mono County Dept.of Public Works						
LOCATION: Bridgeport,CA 93517							
CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	1/21/16	N.T.S.	1	A	15-B-22650	E3	A

GENERAL NOTES:
1. INSTALL ALL GIRTS AND FLANGE BRACES (FB) AS SHOWN.
2. WALL PANEL PROVIDES STRUCTURAL STABILITY TO THE BUILDING.
3. OTHER THAN FOR WALK DOORS AND WINDOWS SHOWN ON THE CONTRACT, DO NOT ADD ADDITIONAL WALL OPENINGS WITHOUT APPROVAL OF BUILDING MANUFACTURER OR PROFESSIONAL ENGINEER.
4. AFTER INSTALLATION, WIPE ALL PANELS CLEAN OF METAL SHAVINGS CAUSED BY DRILLING.

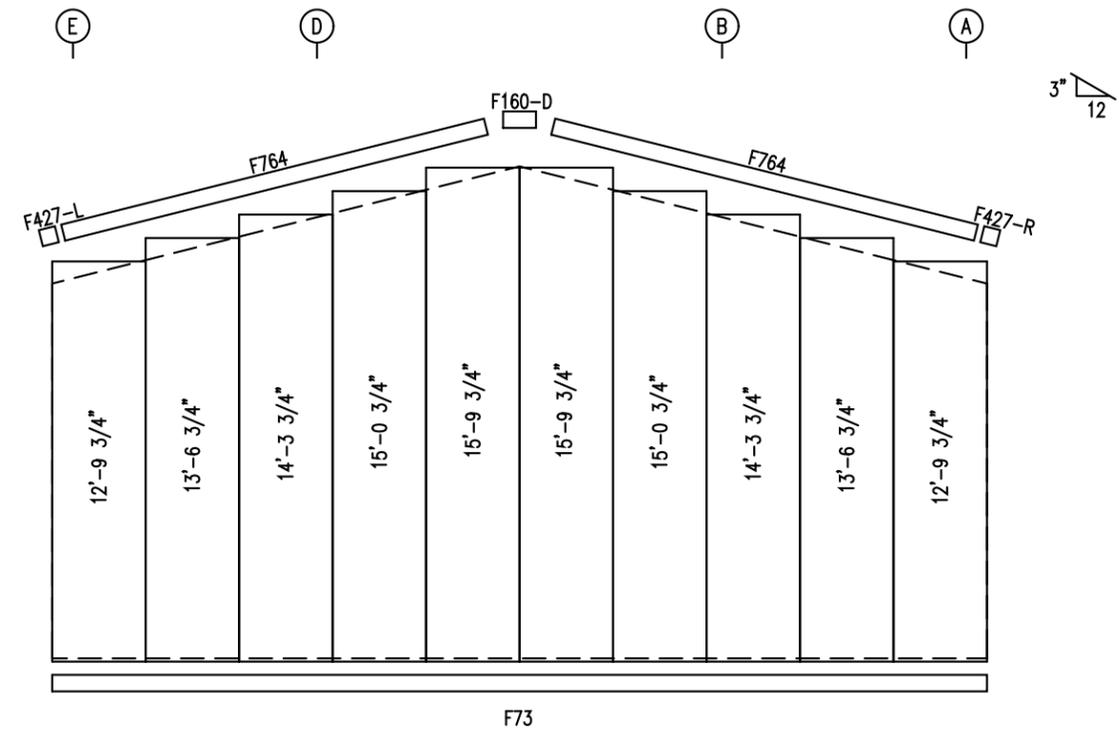
BEARING FRAME ONLY!
 WASHER TO BE USED AT ENDWALL COLUMN TO ENDWALL RAFTER CONNECTION. USE ONE WASHER ON COLUMN SIDE. WASHER NOT NEEDED ON CLIP SIDE.

BOLT TABLE				
FRAME LINE 1				
LOCATION	QUAN	TYPE	DIA	LENGTH
ER-1/ER-2	8	A325	5/8"	1 3/4"
Columns/Raf	4	A325	1/2"	1 1/4"

MEMBER TABLE		
FRAME LINE 1		
MARK	PART	LENGTH
EC-1	8F25C12	10'-8 1/4"
EC-2	8F35C13	12'-7 3/4"
EC-3	8F25C16	12'-7 3/4"
EC-4	8F25C14	10'-8 1/4"
ER-1	8F25C13	15'-5 5/16"
ER-2	8F25C13	15'-5 5/16"
G-1	8X25Z16	7'-2"
G-2	8X25Z16	5'-3"
G-3	8X25Z16	12'-11 1/2"
G-12	8X25Z12	7'-2"
CB-1	5/16" CABLE	10'-10"
CB-2	1/4" CABLE	9'-5"
CB-3	1/4" CABLE	8'-9"



ENDWALL FRAMING: FRAME LINE 1

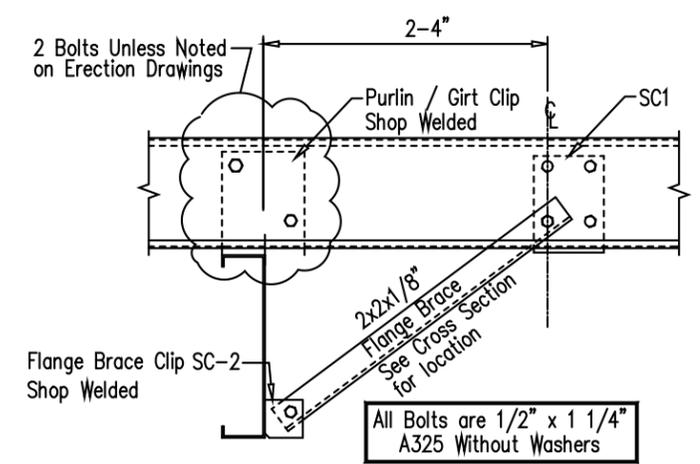


ENDWALL SHEETING & TRIM: FRAME LINE 1

PANELS: 26 Ga. PR - Polar White

FLANGE BRACE TABLE		
FRAME LINE 1		
ID	MARK	LENGTH
1	FB29.3	2'-5 1/4"
2	FB6-1	2'-5 1/4"

CONNECTION PLATES		
FRAME LINE 1		
ID	MARK/PART	
1	SC512	
2	SC-5	



FB6-1 Flange Brace Detail

GENERAL NOTES:
 1. INSTALL ALL GIRTS AND FLANGE BRACES (FB) AS SHOWN.
 2. WALL PANEL PROVIDES STRUCTURAL STABILITY TO THE BUILDING.
 3. OTHER THAN FOR WALK DOORS AND WINDOWS SHOWN ON THE CONTRACT, DO NOT ADD ADDITIONAL WALL OPENINGS WITHOUT APPROVAL OF BUILDING MANUFACTURER OR PROFESSIONAL ENGINEER.
 4. AFTER INSTALLATION, WIPE ALL PANELS CLEAN OF METAL SHAVINGS CAUSED BY DRILLING.

ISSUE	DATE	DESCRIPTION	BY	CK'D	DSN
A	1/21/16	FOR CONSTRUCTION PERMIT	PNR	PNR	ASK

Empire Steel Buildings
 5230 Carroll Canyon Road
 San Diego, California 92121,

PROJECT: BLANCHARD
 CUSTOMER: Mono County Dept.of Public Works OWNER: Mono County Dept.of Public Works
 LOCATION: Bridgeport,CA 93517

CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	1/21/16	N.T.S.	1	A	15-B-22650	E4	A

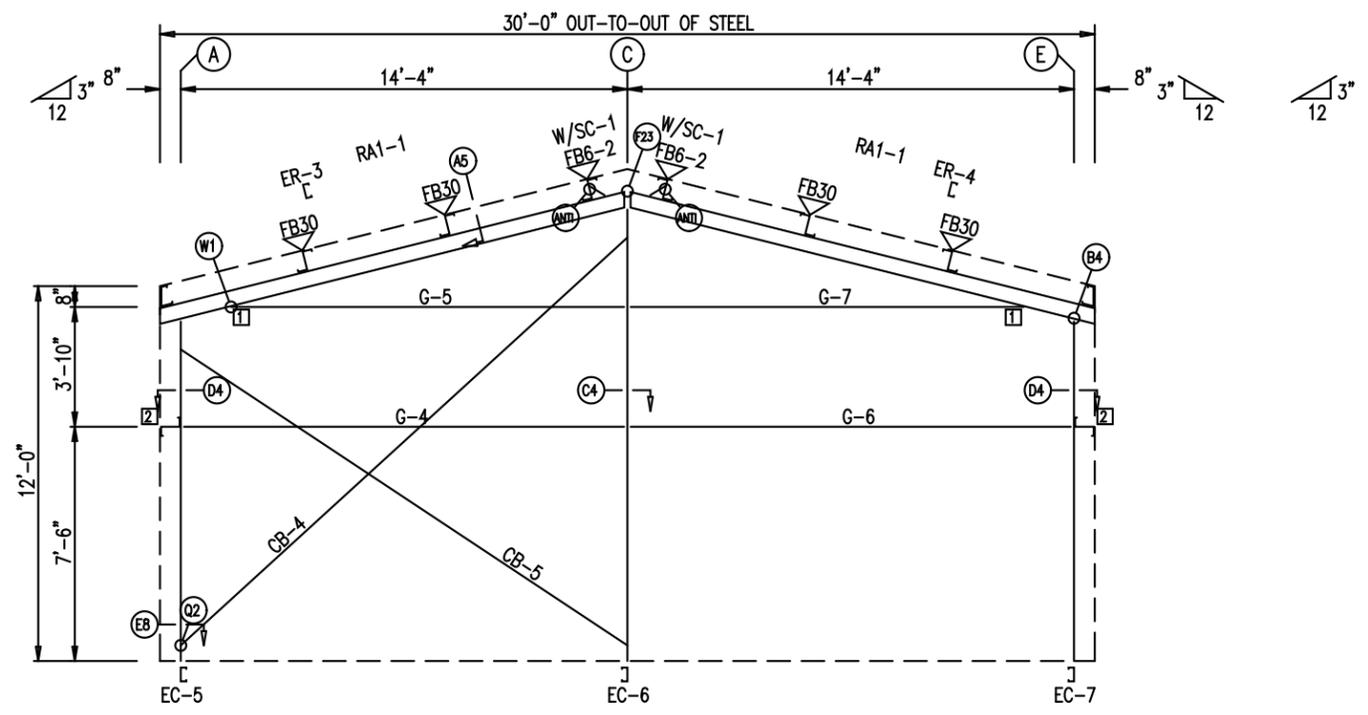
BEARING FRAME ONLY!
 WASHER TO BE USED AT ENDWALL COLUMN TO ENDWALL RAFTER CONNECTION. USE ONE WASHER ON COLUMN SIDE. WASHER NOT NEEDED ON CLIP SIDE.

BOLT TABLE FRAME LINE 3				
LOCATION	QUAN	TYPE	DIA	LENGTH
ER-3/ER-4	8	A325	5/8"	1 3/4"
Cor_Column/Raf	4	A325	1/2"	1 1/4"
EC-6/ER-4	4	A325	5/8"	1 1/4"

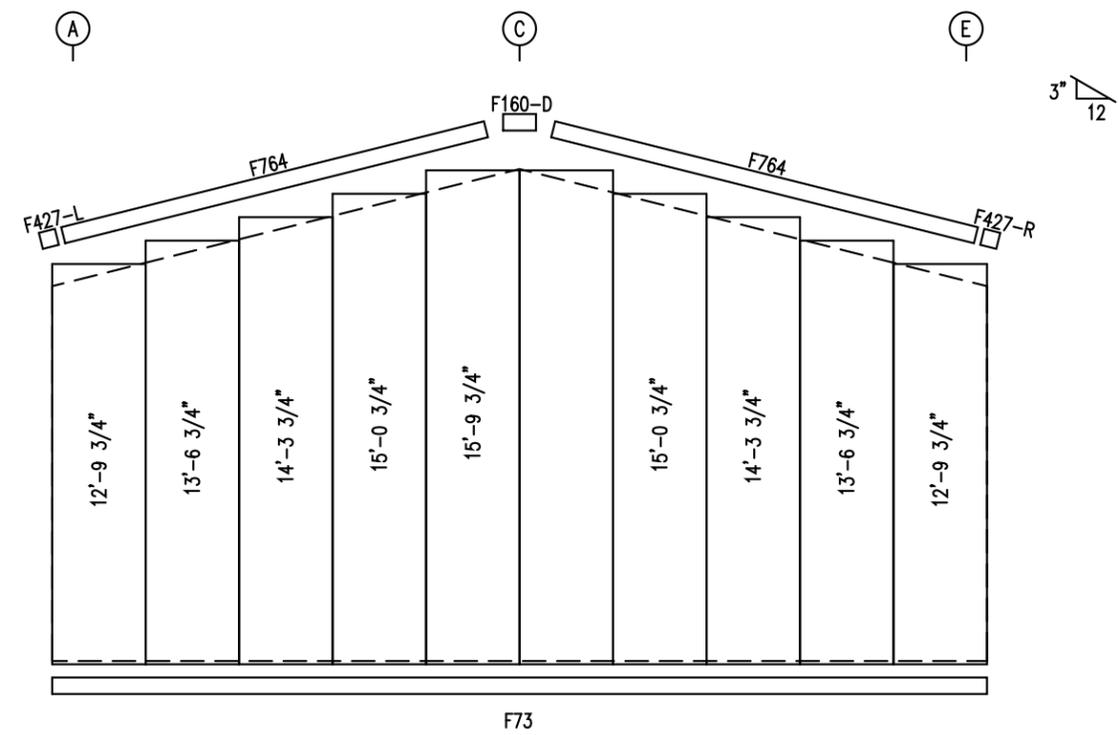
MEMBER TABLE FRAME LINE 3		
MARK	PART	LENGTH
EC-5	8F35C13	10'-6 3/16"
EC-6	8F35C12	13'-10 5/8"
EC-7	8F25C14	10'-6 3/16"
ER-3	10F25C12	15'-5 5/16"
ER-4	10F25C12	15'-5 5/16"
G-4	8X25Z16	13'-8"
G-5	8X25Z16	11'-0 3/4"
G-6	8X25Z16	13'-11 3/4"
G-7	8X25Z16	11'-4 1/2"
CB-4	5/16" CABLE	19'-8"
CB-5	5/16" CABLE	17'-8"

FLANGE BRACE TABLE FRAME LINE 3		
ID	MARK	LENGTH
1	FB30	2'-6"
2	FB6-2	2'-6"

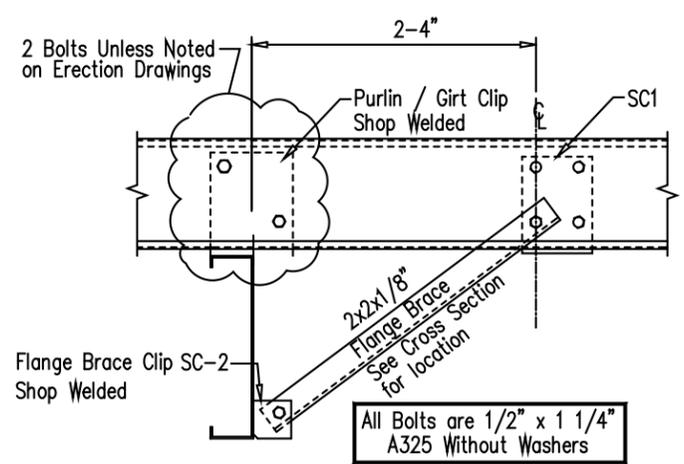
CONNECTION PLATES FRAME LINE 3		
ID	MARK/PART	
1	SC512	
2	SC-5	



ENDWALL FRAMING: FRAME LINE 3



ENDWALL SHEETING & TRIM: FRAME LINE 3
 PANELS: 26 Ga. PR - Polar White



FB6-2 Flange Brace Detail

GENERAL NOTES:
 1. INSTALL ALL GIRTS AND FLANGE BRACES (FB) AS SHOWN.
 2. WALL PANEL PROVIDES STRUCTURAL STABILITY TO THE BUILDING.
 3. OTHER THAN FOR WALK DOORS AND WINDOWS SHOWN ON THE CONTRACT, DO NOT ADD ADDITIONAL WALL OPENINGS WITHOUT APPROVAL OF BUILDING MANUFACTURER OR PROFESSIONAL ENGINEER.
 4. AFTER INSTALLATION, WIPE ALL PANELS CLEAN OF METAL SHAVINGS CAUSED BY DRILLING.

ISSUE	DATE	DESCRIPTION	BY	CK'D	DSN
A	1/21/16	FOR CONSTRUCTION PERMIT	PNR	PNR	ASK

Empire Steel Buildings
 5230 Carroll Canyon Road
 San Diego, California 92121,

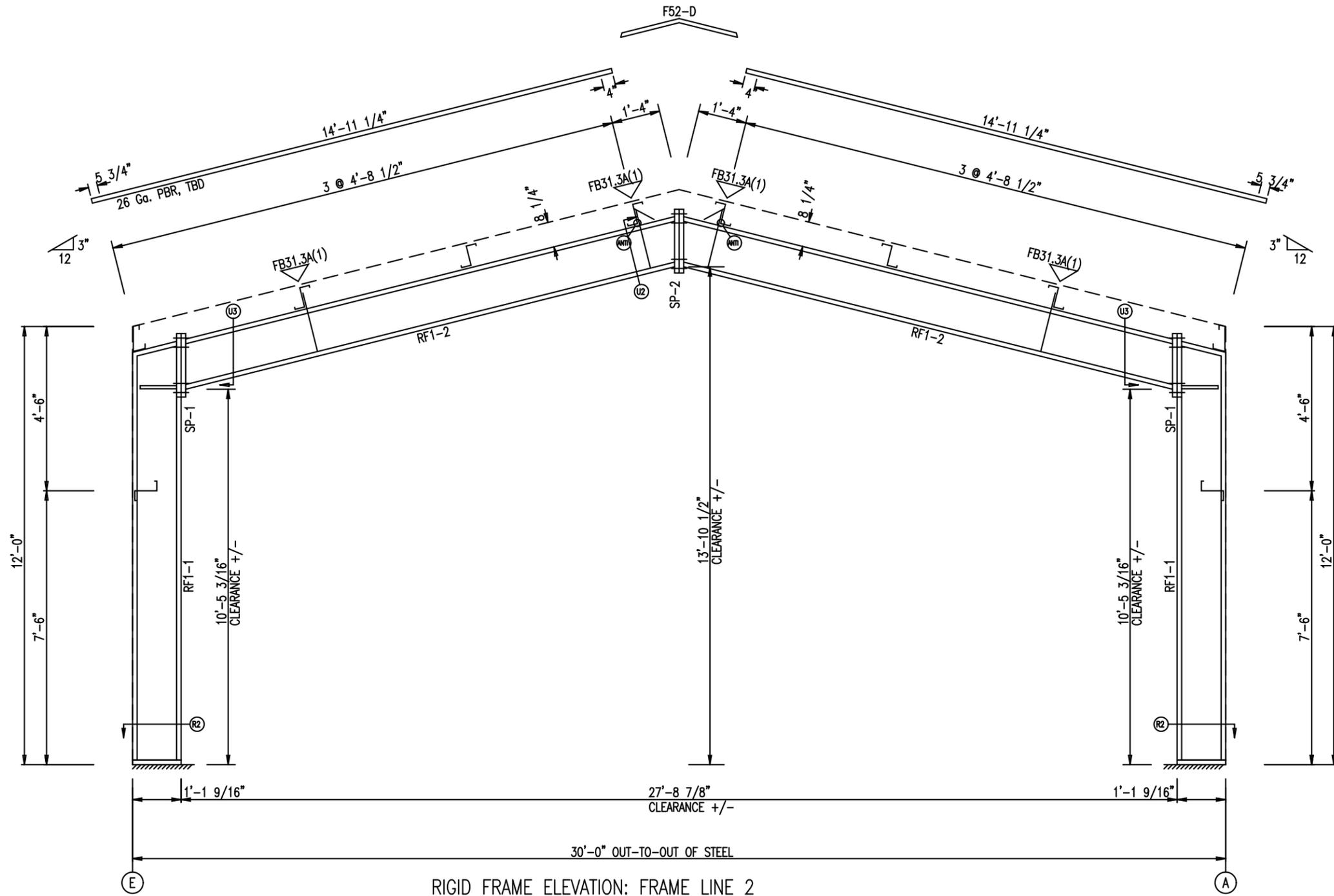
PROJECT: BLANCHARD
 CUSTOMER: Mono County Dept.of Public Works OWNER: Mono County Dept.of Public Works
 LOCATION: Bridgeport,CA 93517

CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	1/21/16	N.T.S.	1	A	15-B-22650	E5	A

SPLICE BOLT TABLE						
Mark	Qty		Int	Type	Dia	Length
	Top	Bot				
SP-1	4	4	0	A325	3/4"	2"
SP-2	4	4	0	A325	3/4"	1 3/4"

MEMBER TABLE						
Mark	Web Depth		Web Plate		Outside Flange W x Thk x Length	Inside Flange W x Thk x Length
	Start	End	Thick	Length		
RF1-1	13.0	13.0	0.134	121.1	6 x 1/4" x 134.9	6 x 5/16" x 121.1
RF1-2	13.0	13.0	0.185	17.1	6 x 1/4" x 13.6	
RF1-2	13.0	13.0	0.134	173.7	5 x 1/4" x 170.4	5 x 1/4" x 170.4

FLANGE BRACES: BOTH SIDES (UNLESS NOTED)
 FBxxA(1): xx=length(in)
 A - L2X2X14G



RIGID FRAME ELEVATION: FRAME LINE 2

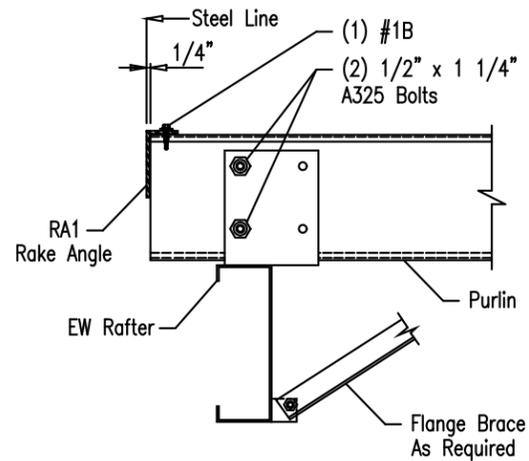
GENERAL NOTES:

- ALL BOLTED JOINTS WITH A325M-09 TYPE 1 BOLTS GREATER THAN 1/2" DIAMETER ARE SPECIFIED AS PRETENSIONED JOINTS IN ACCORDANCE WITH THE "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS, JUNE 30, 2004". PRETENSIONING CAN BE ACCOMPLISHED BY USING THE TURN-OF-NUT METHOD OF TIGHTENING, CALIBRATED WRENCH, TWIST OFF TYPE TENSION CONTROL BOLTS OR DIRECT TENSION INDICATOR AS ACCEPTABLE TO THE INSPECTING AGENCY AND BUILDING OFFICIAL. INSTALLATION INSPECTION REQUIREMENTS FOR PRE-TENSIONED JOINTS (SPECIFICATION FOR STRUCTURAL JOINTS SECTION 9.2) USING TURN-OF-NUT METHOD IS SUGGESTED. THE CONNECTIONS ON THIS PROJECT ARE NOT SLIP CRITICAL.
- ALL FIELD CONNECTIONS OF SECONDARY FRAMING SHALL BE BOLTED WITH A325 BOLTS.
- INSTALL ALL FLANGE BRACES ON COLUMN AND RAFTER AS SHOWN

ISSUE	DATE	DESCRIPTION	BY	CK'D	DSN
A	1/21/16	FOR CONSTRUCTION PERMIT	PNR	PNR	ASK

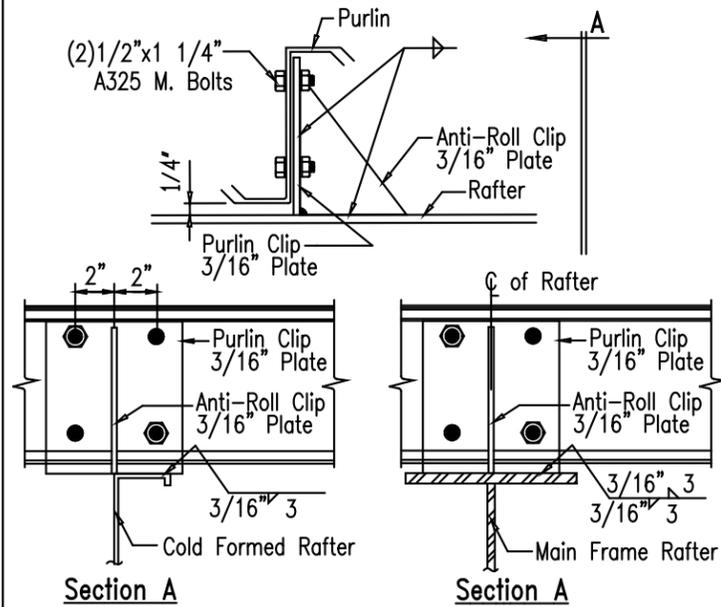
Empire Steel Buildings
 5230 Carroll Canyon Road
 San Diego, California 92121,

PROJECT: BLANCHARD							
CUSTOMER: Mono County Dept.of Public Works	OWNER: Mono County Dept.of Public Works						
LOCATION: Bridgeport, CA 93517							
CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	1/21/16	N.T.S.	1	A	15-B-22650	E6	A

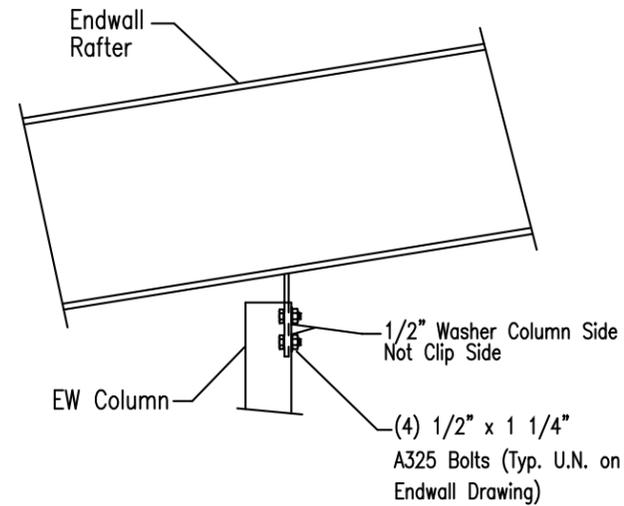


1/2" x 1 1/4" A325 Bolts
(Typ.) (U.N.)

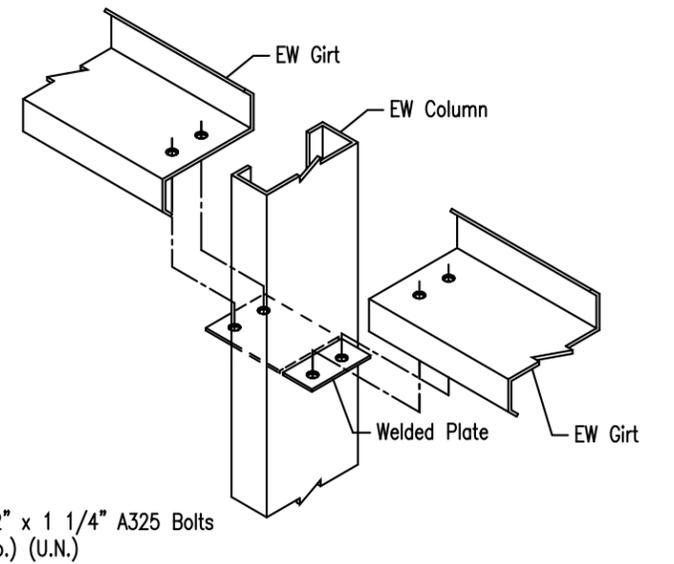
A5 SECTION THRU COLD FORMED RAFTER



ANTI PURLIN ANTI-ROLL CLIP

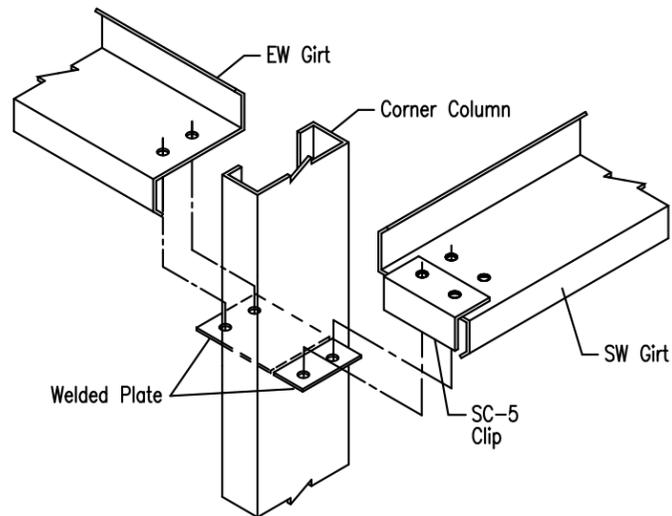


B4 ENDWALL COLUMN TO RAFTER



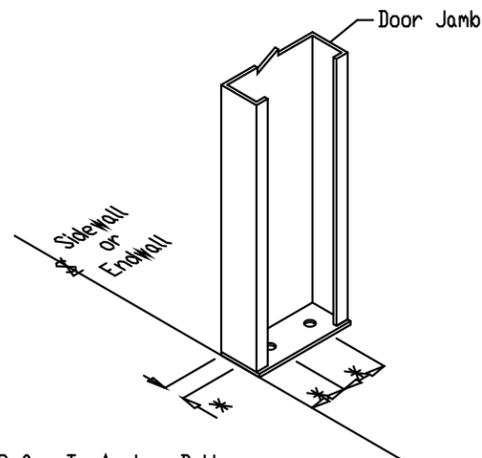
1/2" x 1 1/4" A325 Bolts
(Typ.) (U.N.)

C4 CEE ENDWALL COLUMN TO WALL GIRT



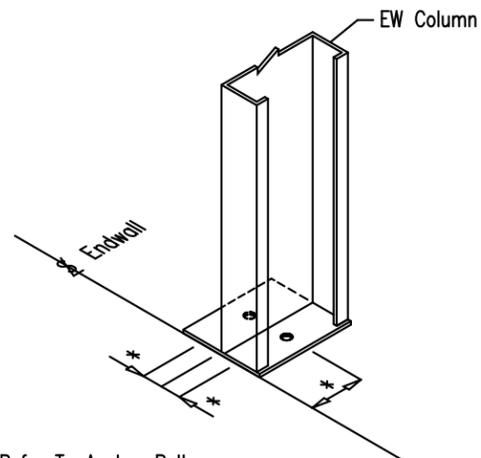
1/2" x 1 1/4" A325 Bolts
(Typ.) (U.N.)

D4 CORNER COLUMN TO WALL GIRT



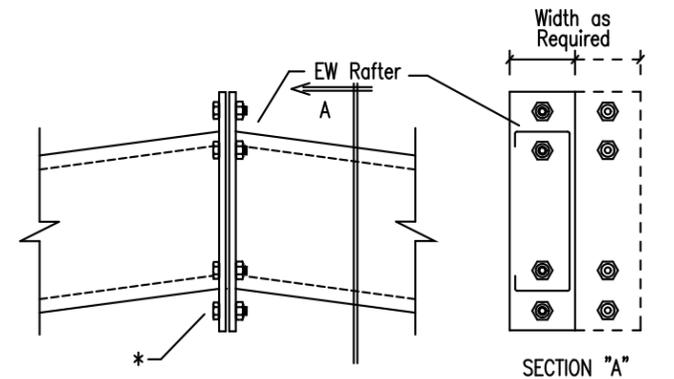
(*) = Refer To Anchor Bolt
Plan

E5 BASE PLATE FOR DOOR JAMB



(*) = Refer To Anchor Bolt
Plan

E8 BASE PLATE FOR ENDWALL COLUMN



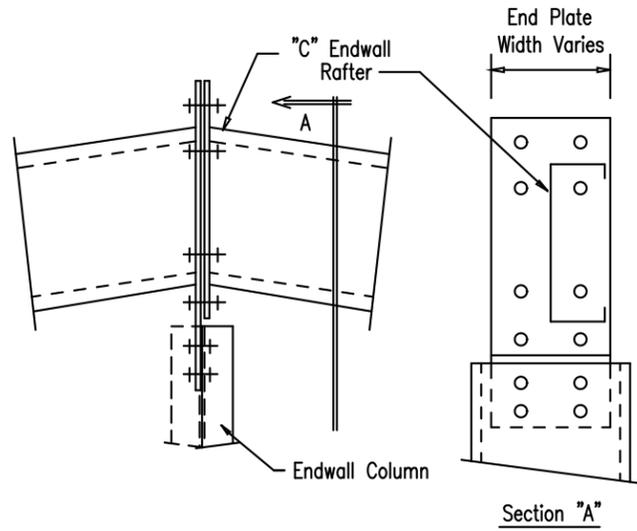
(*) = Refer To Endwall Drawing
For Bolt Quantity, Dia. & Type

F10 RAFTER SPLICE AT SURFACE CHANGE

ISSUE	DATE	DESCRIPTION	BY	CK'D	DSN
A	1/21/16	FOR CONSTRUCTION PERMIT	PNR	PNR	ASK

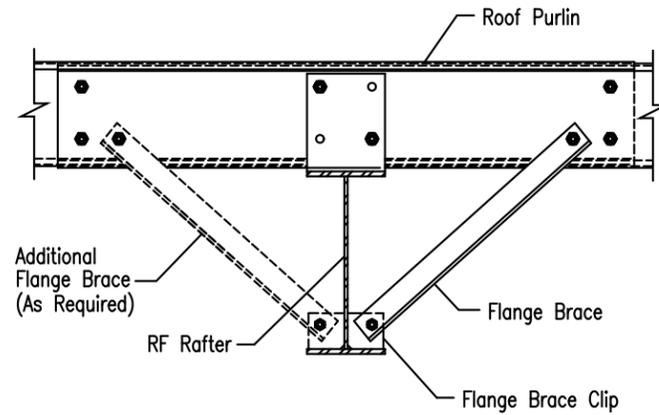
Empire Steel Buildings
5230 Carroll Canyon Road
San Diego, California 92121,

PROJECT:	BLANCHARD						
CUSTOMER:	Mono County Dept.of Public Works						
OWNER:	Mono County Dept.of Public Works						
LOCATION:	Bridgeport,CA 93517						
CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	1/21/16	N.T.S.	1	A	15-B-22650	DET1	A



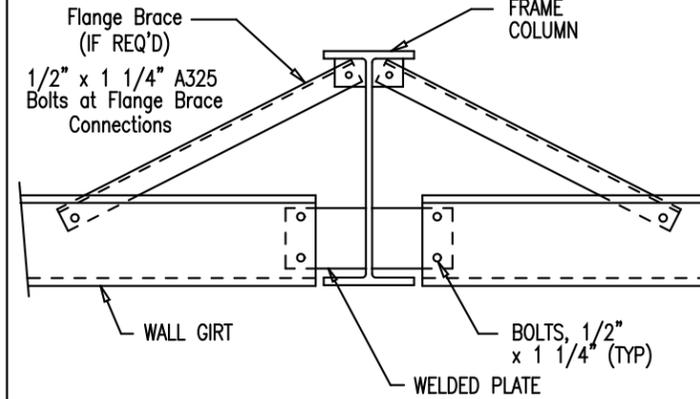
See Endwall Drawing For Bolt Dia. And Type.

F23 RAFTER SPLICE AT SURFACE CHANGE

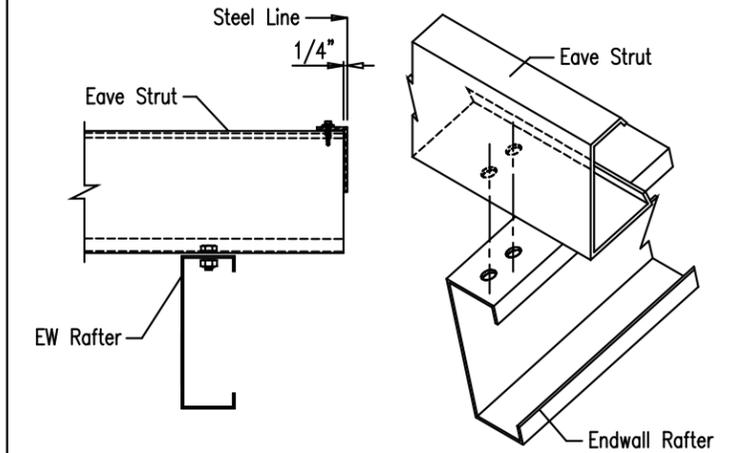


1/2" x 1 1/4" A325 Bolts (Typ.) (U.N.)

G2 ROOF PURLIN TO INTERIOR FRAME RAFTER

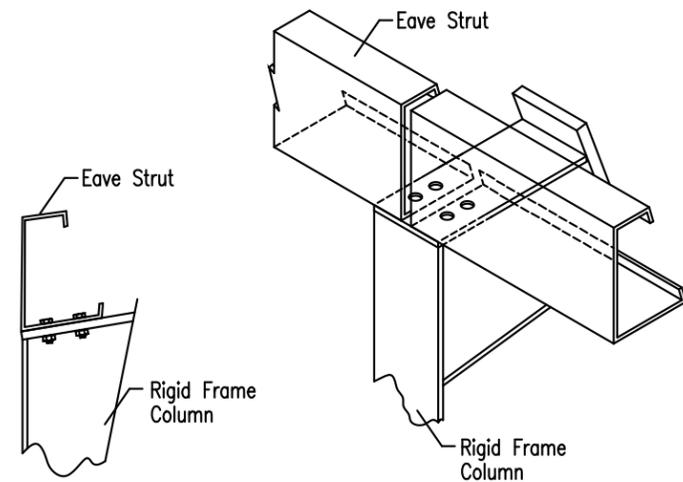


H6 WALL GIRT TO FRAME COLUMN



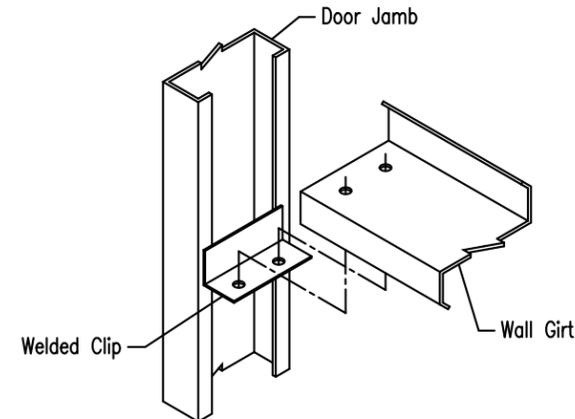
1/2" x 1 1/4" A325 Bolts (Typ.) (U.N.)

I6 LOW SIDE EAVE STRUT TO COLD FORMED RAFTER



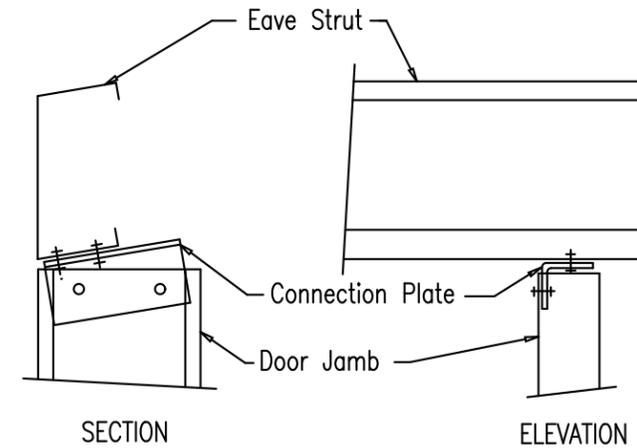
1/2" x 1 1/4" A325 Bolts (Typ.) (U.N.)

J1 EAVE STRUT TO RIGID FRAME



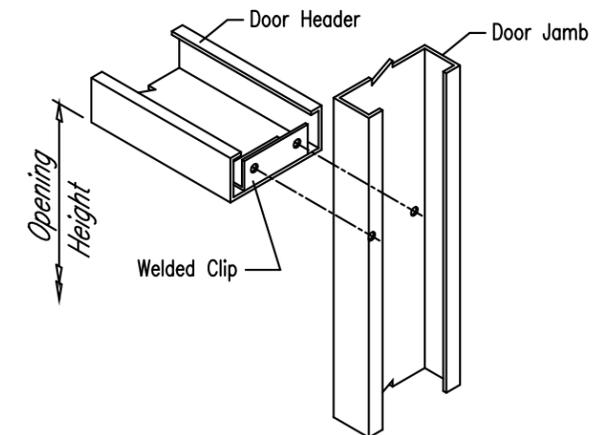
1/2" x 1 1/4" A325 Bolts (Typ.) (U.N.)

K3 WALL GIRT TO DOOR JAMB



1/2" x 1 1/4" A325 Bolts

L1 DOOR JAMB TO EAVE STRUT



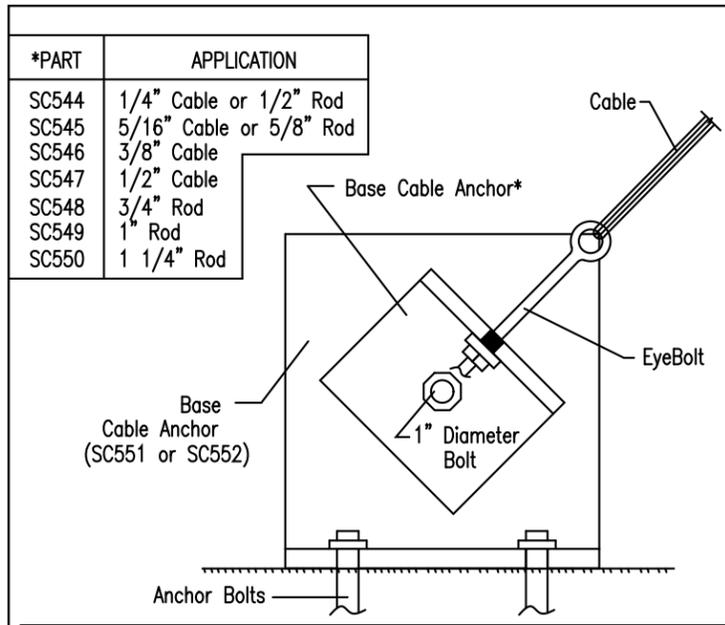
1/2" x 1 1/4" A325 Bolts (Typ.) (U.N.)

M3 DOOR HEADER TO DOOR JAMB

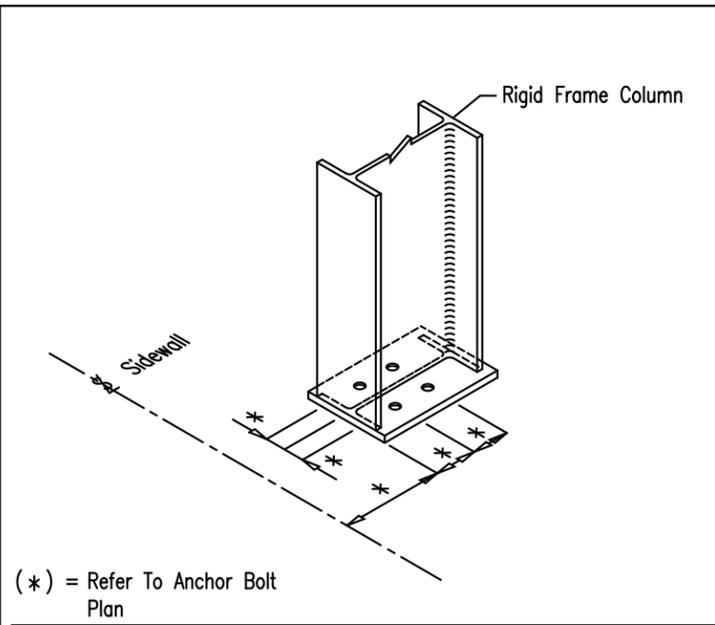
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A	1/21/16	FOR CONSTRUCTION PERMIT	PNR	PNR	ASK

Empire Steel Buildings
5230 Carroll Canyon Road
San Diego, California 92121,

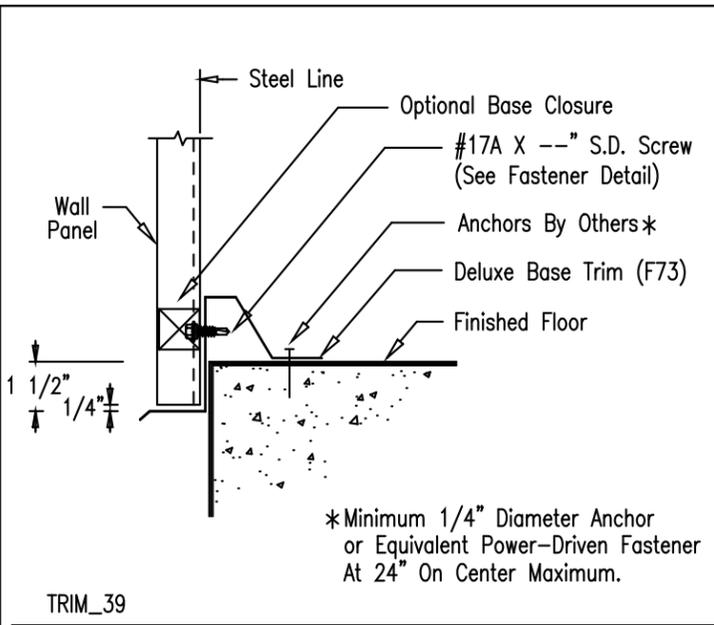
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CUSTOMER:	Mono County Dept.of Public Works						
OWNER:	Mono County Dept.of Public Works						
LOCATION:	Bridgeport,CA 93517						
CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	1/21/16	N.T.S.	1	A	15-B-22650	DET2	A



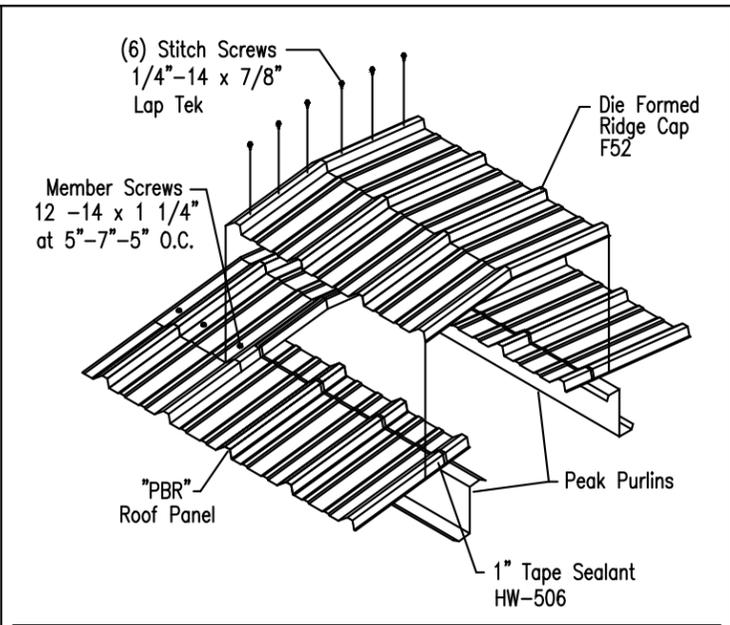
Q6 DIAGONAL BRACE CLIP TO FLOOR DETAIL



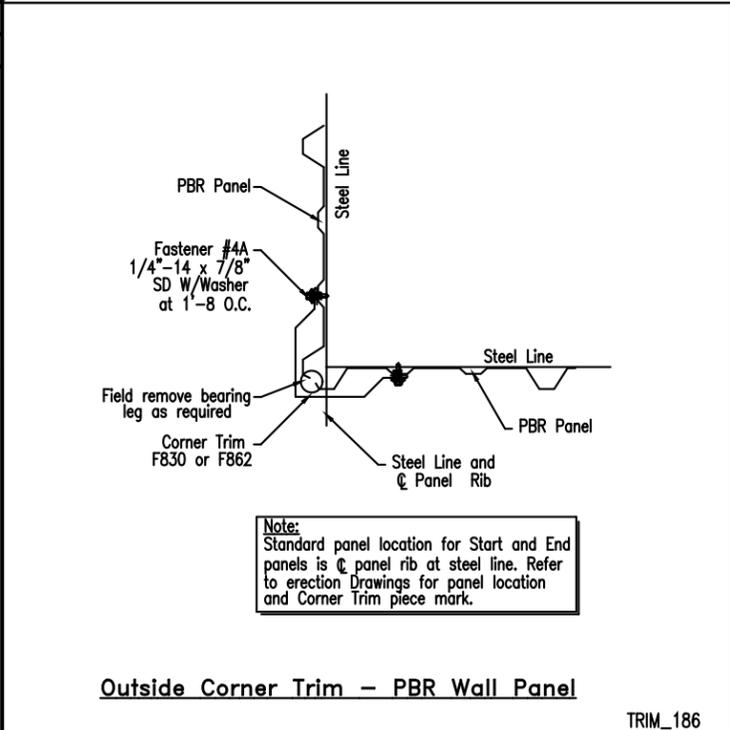
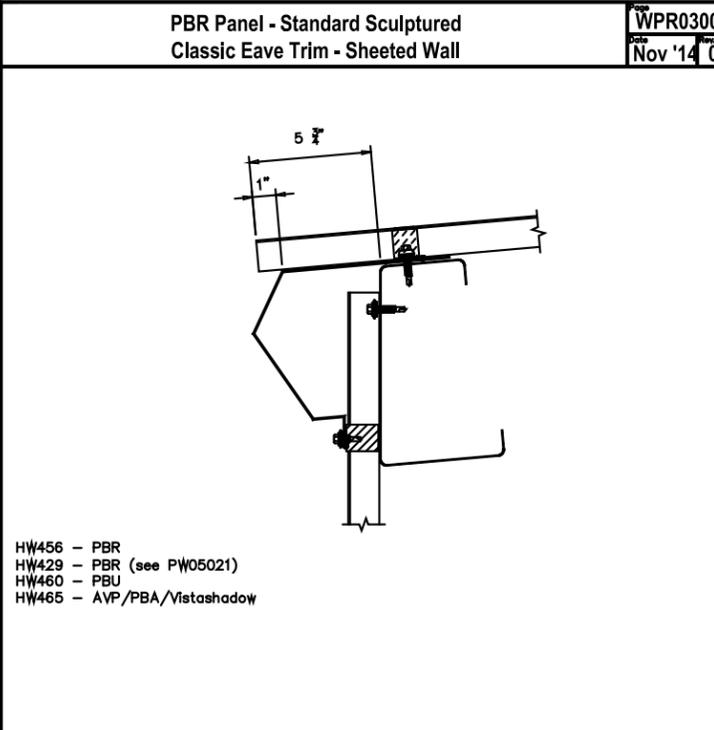
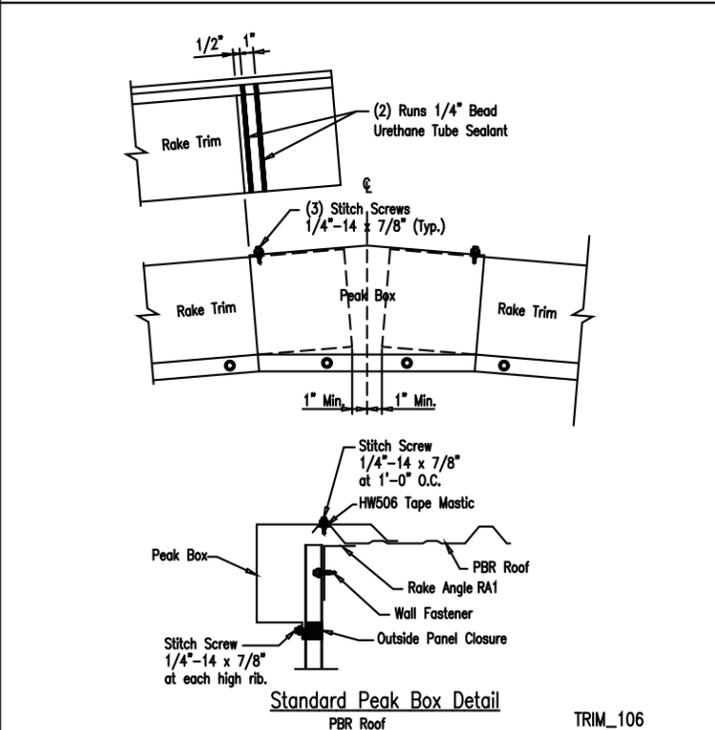
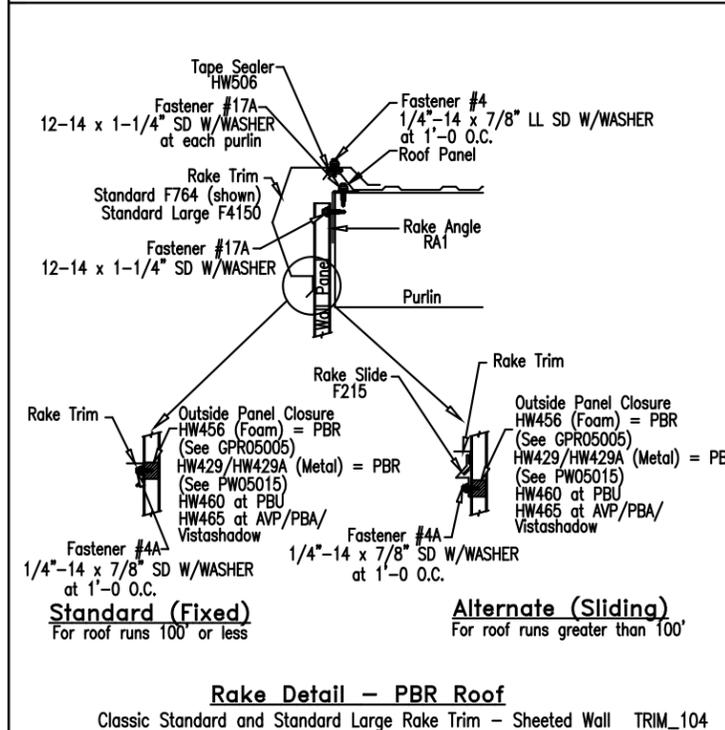
R2 ANCHOR BOLTS AT SIDEWALL COLUMNS



SECTION THRU WALL PANEL AND CONCRETE FOUNDATION WITH DELUXE BASE TRIM



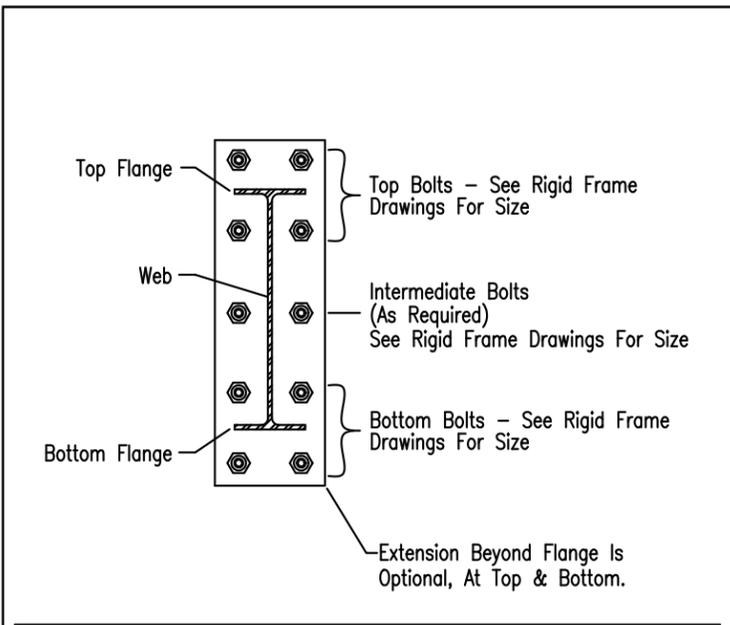
"PBR" ROOF FIXED RIDGE DETAIL
Trim_80



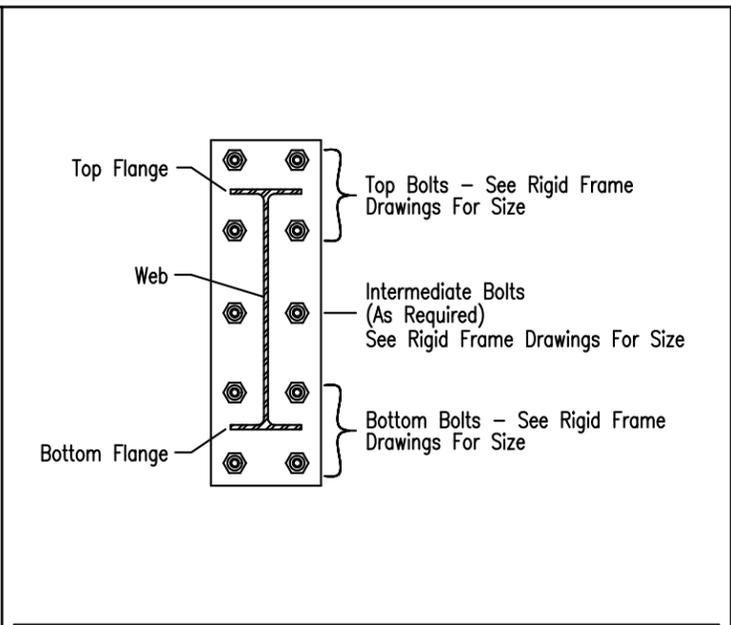
ISSUE	DATE	DESCRIPTION	BY	CK'D	DSN
A	1/21/16	FOR CONSTRUCTION PERMIT	PNR	PNR	ASK

Empire Steel Buildings
5230 Carroll Canyon Road
San Diego, California 92121,

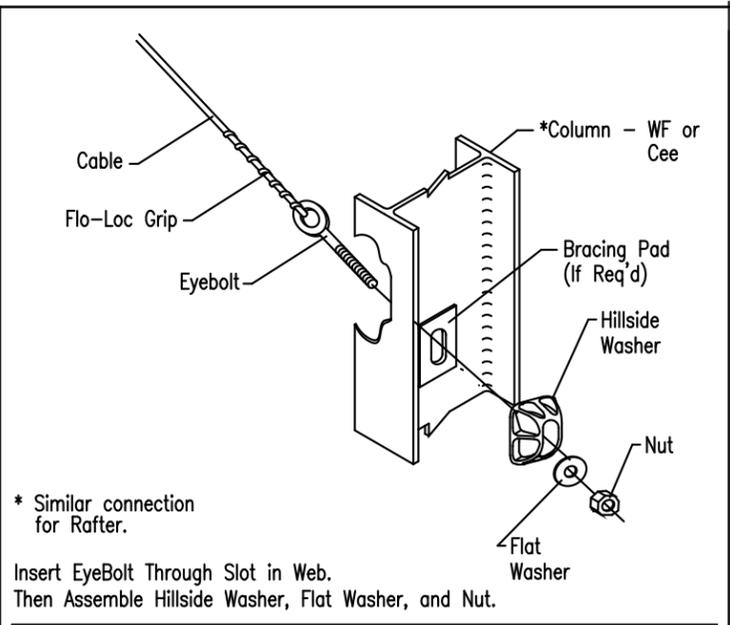
PROJECT:	BLANCHARD						
CUSTOMER:	Mono County Dept.of Public Works						
OWNER:	Mono County Dept.of Public Works						
LOCATION:	Bridgeport, CA 93517						
CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	1/21/16	N.T.S.	1	A	15-B-22650	DET3	A



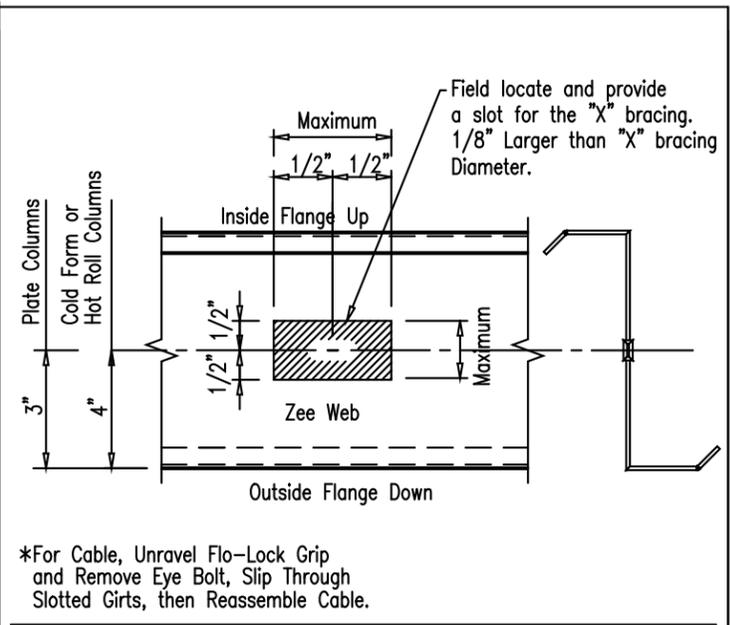
U2 BOLTS FOR RIGID FRAME RAFTER AT BUILDING PEAK



U3 BOLTS FOR RIGID FRAME RAFTER TO COLUMN CONNECTION



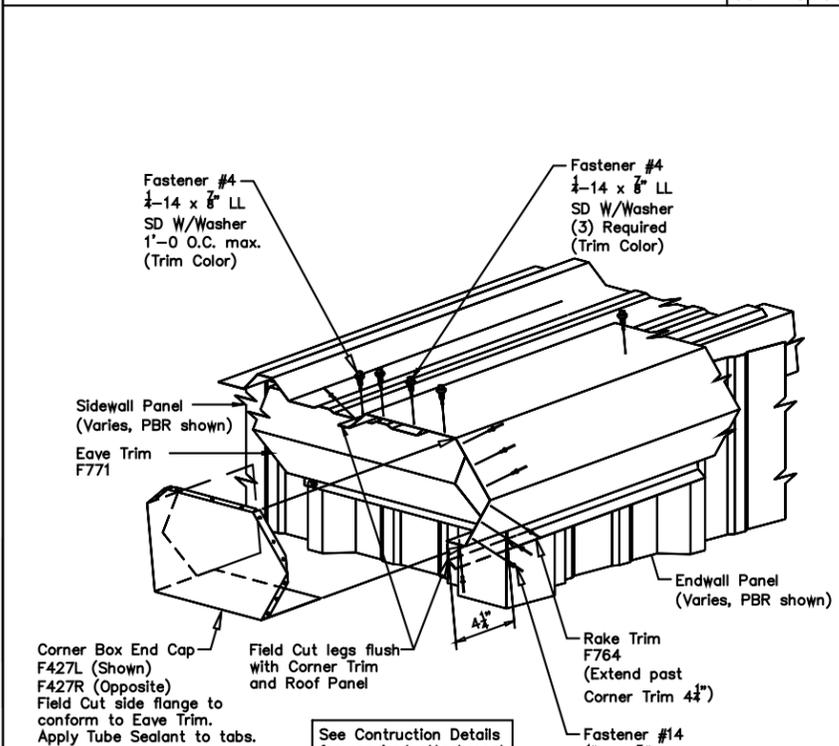
Q2 DIAGONAL CABLE, EYEBOLT END



CABLE AT FLUSH WALL GIRT

PBR Roof Panel - Standard
Low Eave Rake Corner with Sculptured Eave Trim

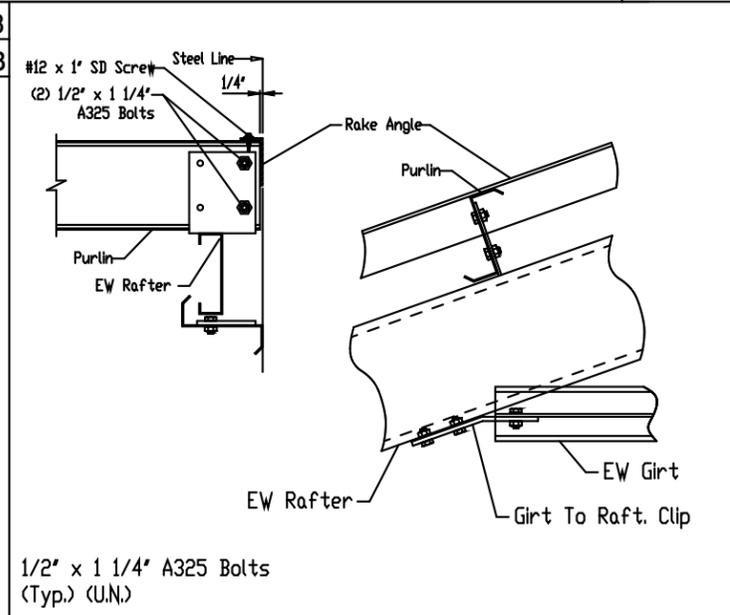
Page: **WPR04018**
Date: **Jun '15** Rev: **03**



Fastener #4
1/4-14 x 6 LL
SD W/Washer
1'-0" O.C. max.
(Trim Color)

Fastener #14
1/4-14 x 3/8
2" O.C. max.
(8) Required

See Construction Details for required attachment of Eave Trim and Rake Trim to Wall. Wall Panel Closures not shown for clarity.

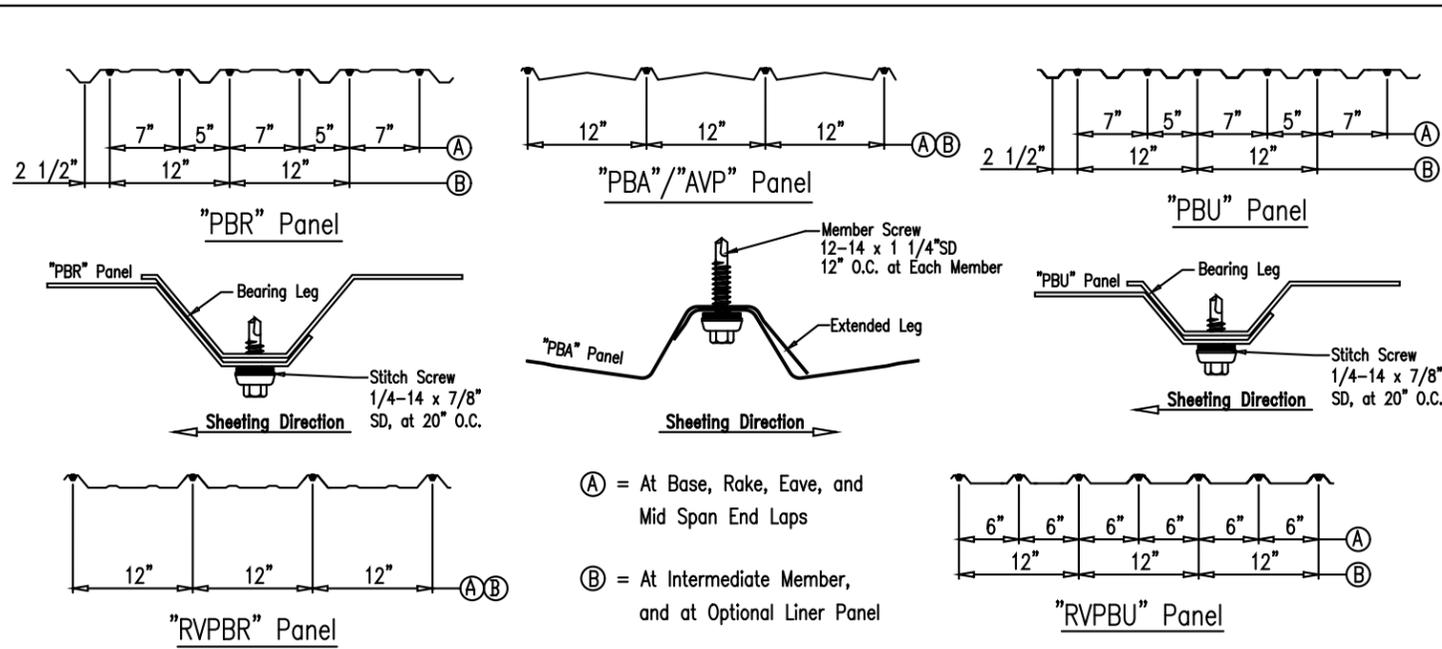


W1 ENDWALL GIRT TO ENDWALL RAFTER CONNECTION

ISSUE	DATE	DESCRIPTION	BY	CK'D	DSN
A	1/21/16	FOR CONSTRUCTION PERMIT	PNR	PNR	ASK

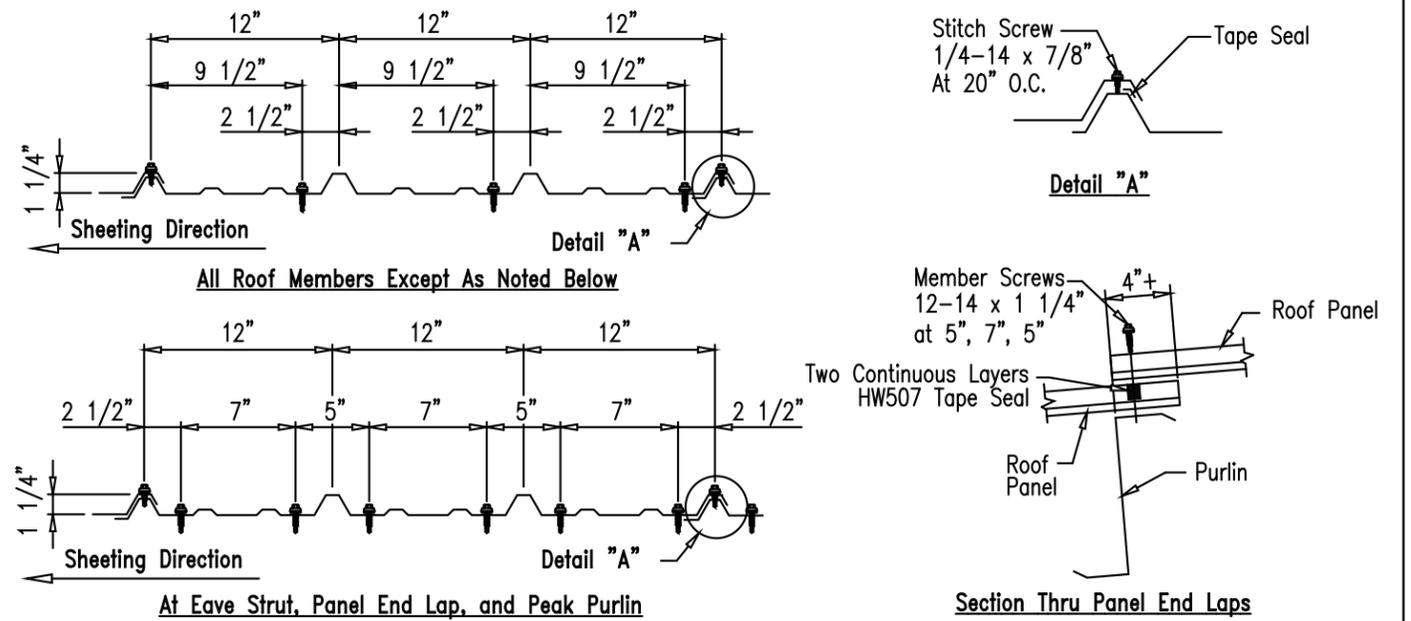
Empire Steel Buildings
5230 Carroll Canyon Road
San Diego, California 92121,

PROJECT: BLANCHARD							
CUSTOMER: Mono County Dept.of Public Works	OWNER: Mono County Dept.of Public Works						
LOCATION: Bridgeport,CA 93517							
CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	1/21/16	N.T.S.	1	A	15-B-22650	DET4	A



Fastener Location for Panel At Wall

TRIM_174



Fastener Location for "PBR" Roof Panel

TRIM_175

Standard Grade

Description	Fastener Number	Application
1/4"-14 x 7/8"	4A	Stitch & Trim Screw
12-14 x 1 1/4"	17A	Member Screw
12-14 x 1 1/2"	17B	Member Screw
12-14 x 2"	28	Member Screw

Note:
Standard details call for 1 1/4" fasteners as member screws by default.

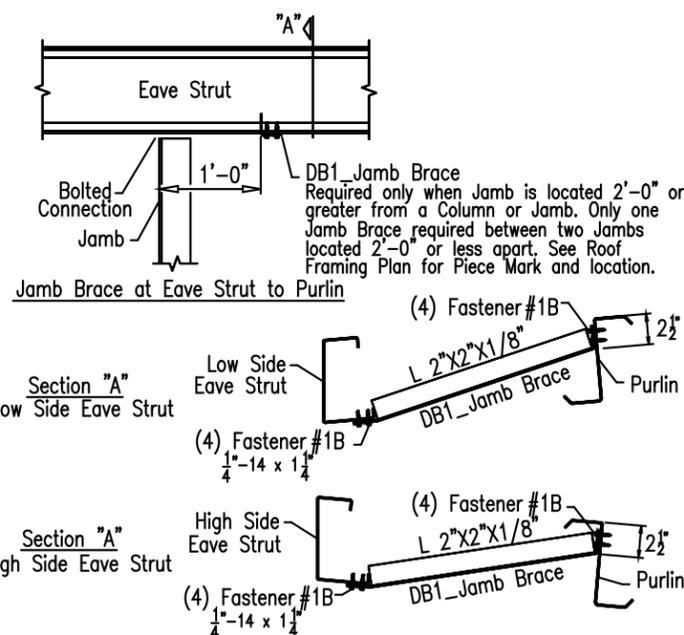
Long Life

Description	Fastener Number	Application
1/4"-14 x 7/8"	4	Stitch & Trim Screw
12-14 x 1 1/4"	3	Member Screw
12-14 x 1 1/2"	3A	Member Screw
12-14 x 2"	58	Member Screw

Member screws may be 1 1/4", 1 1/2", or 2" depending on insulation, application, or customer request.

Self-Drilling Screw Application

SCRW1



Sidewall Framed Opening Jamb Brace Detail

NS75

ISSUE	DATE	DESCRIPTION	BY	CK'D	DSN
A	1/21/16	FOR CONSTRUCTION PERMIT	PNR	PNR	ASK

Empire Steel Buildings

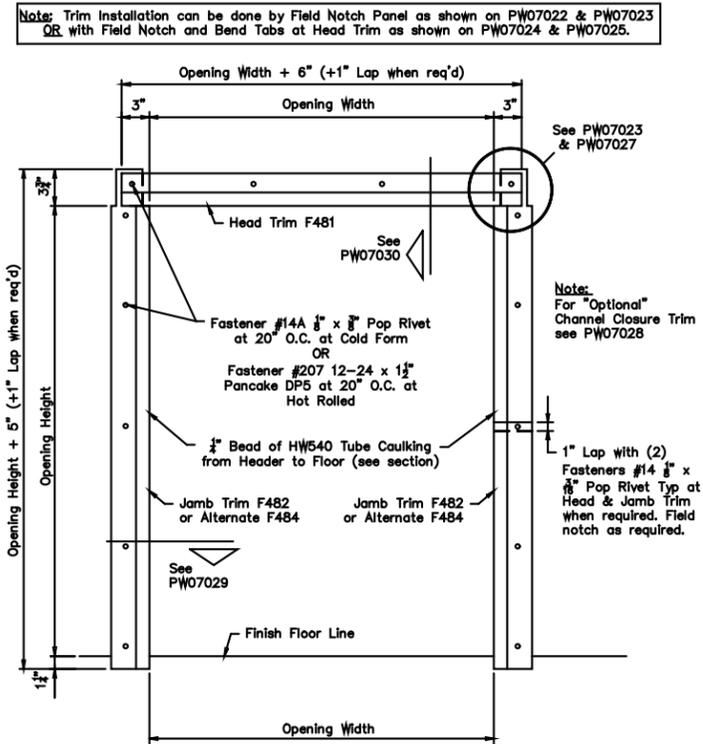
5230 Carroll Canyon Road
San Diego, California 92121,

PROJECT: BLANCHARD
 CUSTOMER: Mono County Dept.of Public Works
 OWNER: Mono County Dept.of Public Works
 LOCATION: Bridgeport,CA 93517

CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	1/21/16	N.T.S.	1	A	15-B-22650	DET5	A

PBR Wall Panel - Three Sided Framed Opening
Trim Installation with Field Notch Panel at Head Trim

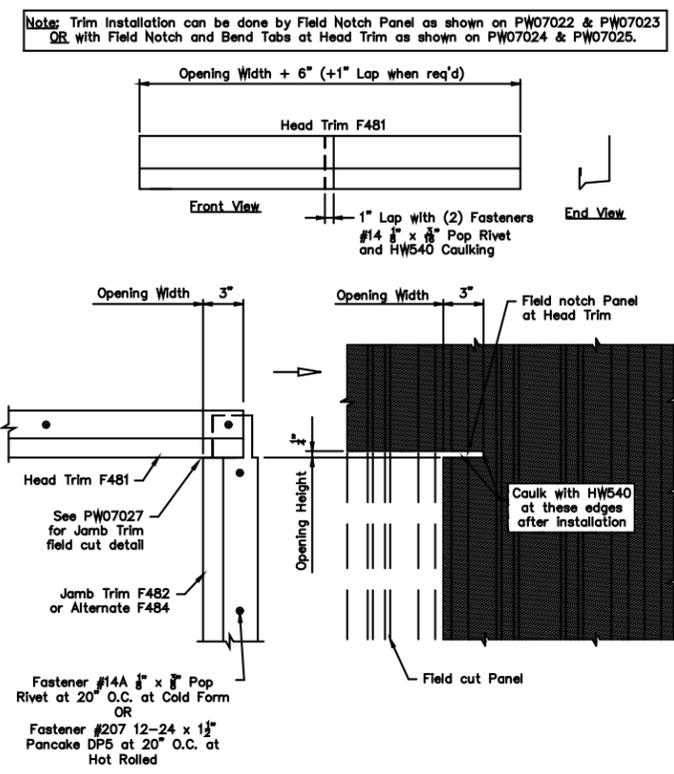
PW07022



Note: All trim is to be installed BEFORE blanket insulation is applied to walls.
Note: Field measure Opening Width and Height before making field cuts and adjust cut dimensions accordingly.

PBR Wall Panel - Three Sided Framed Opening
Field Notch Panel at Head Trim

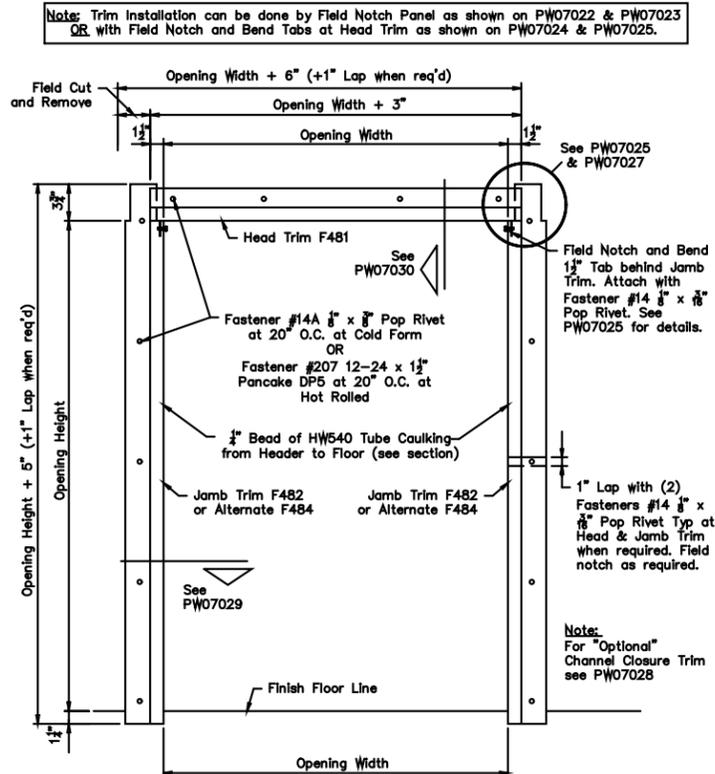
PW07023



Note: All trim is to be installed BEFORE blanket insulation is applied to walls.
Note: Panel position is shown with Panel Rib and Opening on 1'-0 module. Location of Rib may vary depending on the Opening Width and location. Field measure before cutting Panel and Trim.

PBR Wall Panel - Three Sided Framed Opening
Trim Installation with Field Notch and Bend Tabs at Head Trim

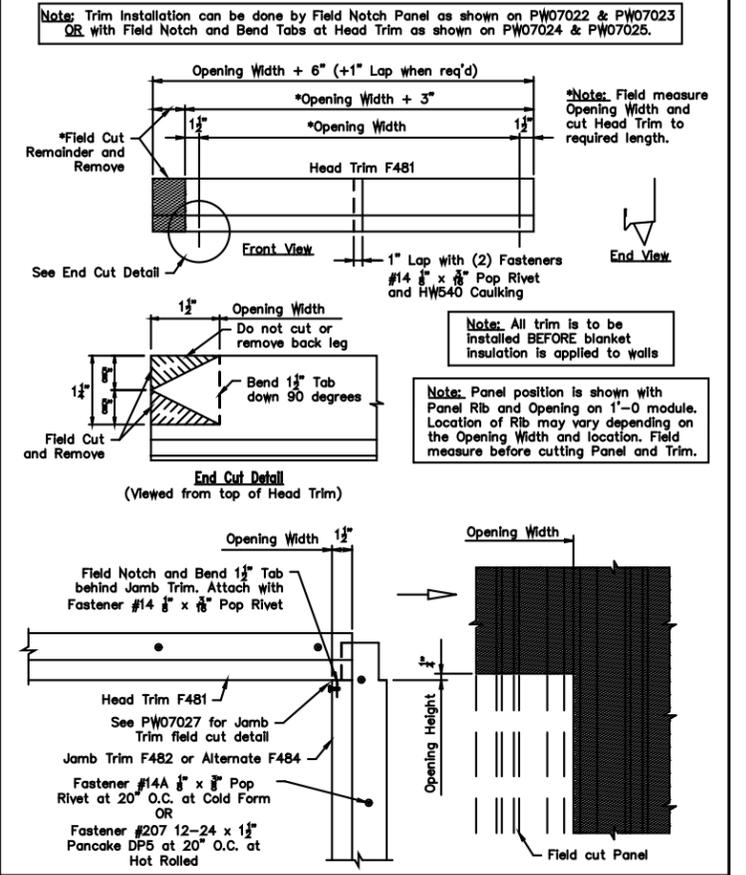
PW07024



Note: All trim is to be installed BEFORE blanket insulation is applied to walls.
Note: Field measure Opening Width and Height before making field cuts and adjust cut dimensions accordingly.

PBR Wall Panel - Three Sided Framed Opening
Field Notch and Bend Tabs at Head Trim

PW07025



Note: Field measure Opening Width and cut Head Trim to required length.
Note: All trim is to be installed BEFORE blanket insulation is applied to walls.
Note: Panel position is shown with Panel Rib and Opening on 1'-0 module. Location of Rib may vary depending on the Opening Width and location. Field measure before cutting Panel and Trim.

STANDARD FRAMED OPENING DETAILS (PBR WALL PANEL)

ISSUE	DATE	DESCRIPTION	BY	CK'D	DSN
A	1/21/16	FOR CONSTRUCTION PERMIT	PNR	PNR	ASK

Empire Steel Buildings
5230 Carroll Canyon Road
San Diego, California 92121,

PROJECT:	BLANCHARD						
CUSTOMER:	Mono County Dept.of Public Works						
OWNER:	Mono County Dept.of Public Works						
LOCATION:	Bridgeport,CA 93517						
CAD	DATE	SCALE	PHASE	BUILDING ID	JOB NUMBER	SHEET NUMBER	ISSUE
	1/21/16	N.T.S.	1	A	15-B-22650	DET7	A

SPECIFICATIONS

General:

The engineer, Alexander A. Tounian, shall not be held responsible for electrical, plumbing, mechanical or any other phase of this project which is not specifically shown or noted on the drawings, bearing the engineer's seal & signature.

Dimensions shall take precedence over scale on drawings. The engineer shall be notified of any discrepancy.

All work shall meet the general requirements of the California Building Code, 2013 Edition, and local ordinances.

Site work:

Remove all vegetable matter, scarify excavated area and any loose surface soil to a depth of 8 inches and compact to 90% of maximum density, conforming to the ASTM D1557 method of test.

Imported fill shall be granular and none expansive soil, free of vegetables matter, debris and rocks or similar irreducible matter larger than 8 inches. Fill shall be installed in horizontal layers of 8 inches in loose thickness and compacted to 90% of maximum density, conforming to the ASTM D1557 method of test.

Foundations:

Allowable net change in soil pressure = 1,500 psf, at 12" into native soil.

All column footings shall extend a minimum of 18" into native undisturbed soil or engineered fill.

Concrete:

Concrete shall develop a minimum compressive strength of 2,500 psi at 28 days of age.

Concrete shall have a minimum cement content of 5 sacks per yard, a maximum aggregate size of 1½ inches, a maximum of 7½ gallons of water per sack of cement, a maximum Water-Cement Ratio of 0.5, and a maximum slump of 4 inches.

Cement shall be Portland Cement Type II, conforming to ASTM C150 specifications.

All aggregate shall conform to the ASTM C33 specifications.

Minimum coverage of reinforcing bars shall be 3 inches where concrete is poured against earth, 2 inches where formed but in contact with earth, and 1½" elsewhere.

Welded steel wire fabric shall conform to the ASTM A185 specifications.

Reinforcement:

Reinforcing steel shall be deformed bars conforming with the ASTM A615 Grade 40 specifications.

Reinforcing bar splices shall be greater or equal to 40 times the bar diameter, with a minimum length of 24 inches.

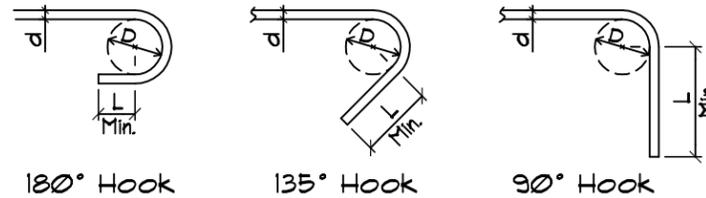
Reinforcing bar bends and hooks are as follows:

Minimum bend diameter "D" = 6 times the bar diameter "d", in inches.

Minimum 90° hook length "L" = 12 times the bar diameter "d", in inches.

Minimum 135° hook length "L" = 6 times the bar diameter "d", in inches.

Minimum 180° hook length "L" = 4 times the bar diameter "d", in inches.



Bar Size	"d" (in)	"D" (in)	90° "L" (in)	135° "L" (in)	180° "L" (in)
#3	3/8	2 1/4	4 1/2	2 1/4	1 1/2
#4	1/2	3	6	3	2
#5	5/8	3 3/4	7 1/2	3 3/4	2 1/2
#6	3/4	4 1/2	9	4 1/4	3

Anchor Bolts:

All anchor bolts shall conform to the stipulations of the ASTM A307 specifications.

REV	SUBJECT	BY	DATE
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ALEXANDER A TOUNIAN
 Structural Engineering
 8945 HILARY LANE, STOCKTON, Ca. 95212
 TELEPHONE: (209) 931-4246



FOUNDATION SPECIFICATIONS

Customer:
 MONO COUNTY DEPARTMENT
 OF PUBLIC WORKS
 BRIDGEPORT, CALIFORNIA

Date: 02-10-16	Job No. 16018
Drawn by: AAT	Sheet: S-1
Scale: NO SCALE	of 4 Sheets

FOOTING SCHEDULE

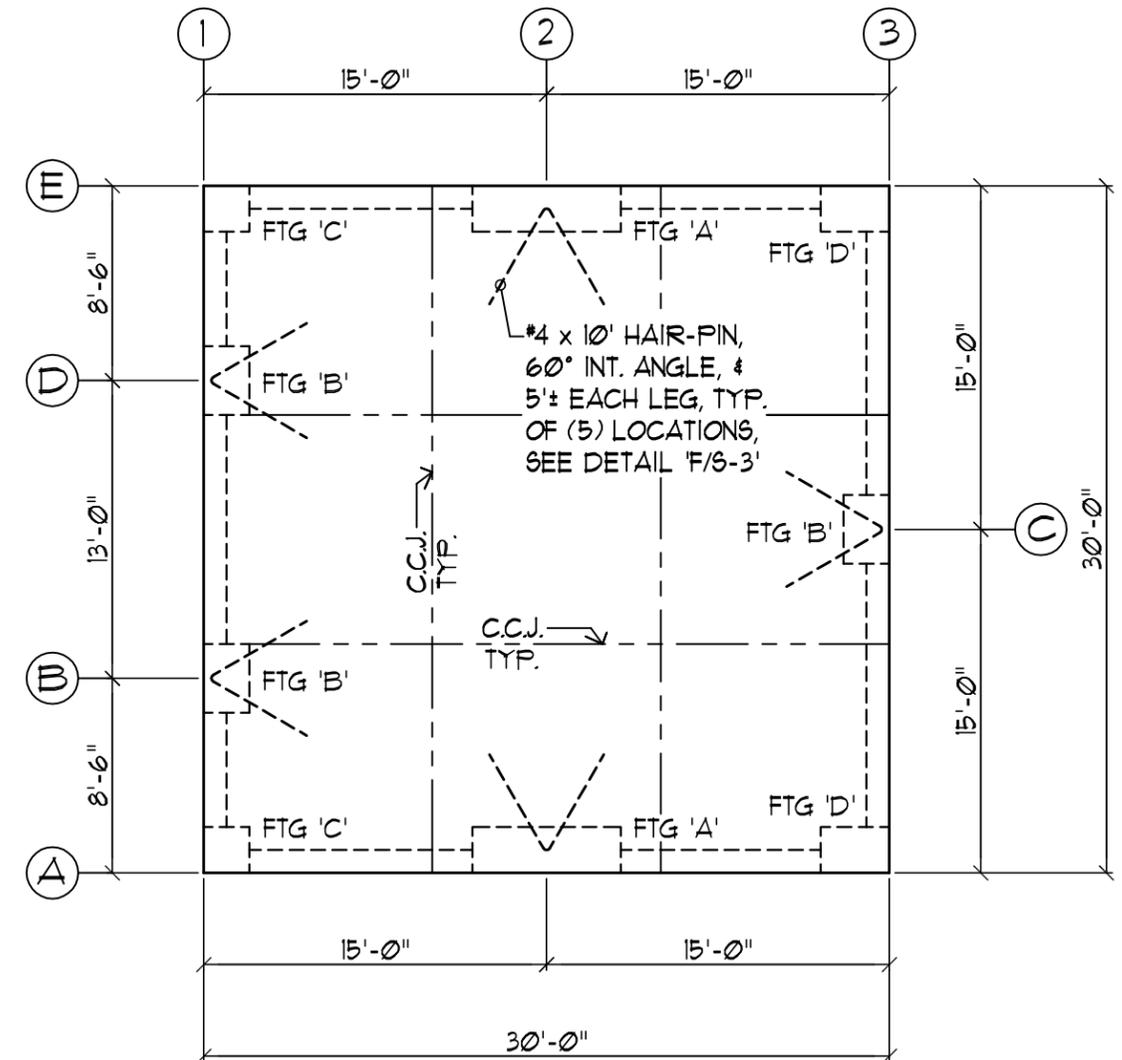
FTG	SIZE	DEPTH	REINFORCING	HAIR-PIN	DETAIL
"A"	2'-0" x 6'-6"	24"	#5 BARS AT 12" o.c. EACH WAY	TYPE "I"	"A/S-3"
"B"	2'-0" x 3'-0"	24"	#5 BARS AT 12" o.c. EACH WAY	TYPE "I"	"B/S-3"
"C"	2'-0" x 2'-0"	24"	#5 BARS AT 12" o.c. EACH WAY	N / A	"C/S-3"
"D"	3'-0" x 2'-0"	24"	#5 BARS AT 12" o.c. EACH WAY	N / A	"D/S-3"

HAIR-PIN SCHEDULE

TYPE	SIZE	DETAIL
"I"	(1) #4 x 10' W/ 60° INT. ANGLE, 5'± EACH LEG	"F/S-3"

STRUCTURAL NOTES:

- REFER TO THE EMPIRE STEEL BUILDING DRAWINGS, FOR ANCHOR BOLT SETTING PLAN.
- FLOOR: 6" THICK CONCRETE SLAB, REINFORCED WITH #4 BARS AT 18" o.c. EACH WAY, OVER 2" THICK LAYER OF MOIST SAND, OVER 4" THICK LAYER OF MOIST 3/4" CLASS 2 ROAD BASE, OVER COMPACTED SOIL.
OPTIONAL: 10 MIL VAPOR BARRIER MAY BE PLACED BETWEEN THE ABOVE LAYERS SAND AND ROAD BASE.
- "C.C.J.", DENOTES CRACK CONTROL JOINT, PLACED AT 10'± O.C. EACH WAY, REFER TO DETAIL "E/S-3".
- REFER TO DETAILS "G/S-4" THRU. "K/S-4" FOR ANCHOR BOLT DETAILS.
- REFER TO DETAILS ON "L/S-4", FOR PERIMETER FOOTING CONSTRUCTION.



REV	SUBJECT	BY	DATE
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ALEXANDER A TOUNIAN
 Structural Engineering
 8945 HILARY LANE, STOCKTON, Ca. 95212
 TELEPHONE: (209) 931-4246



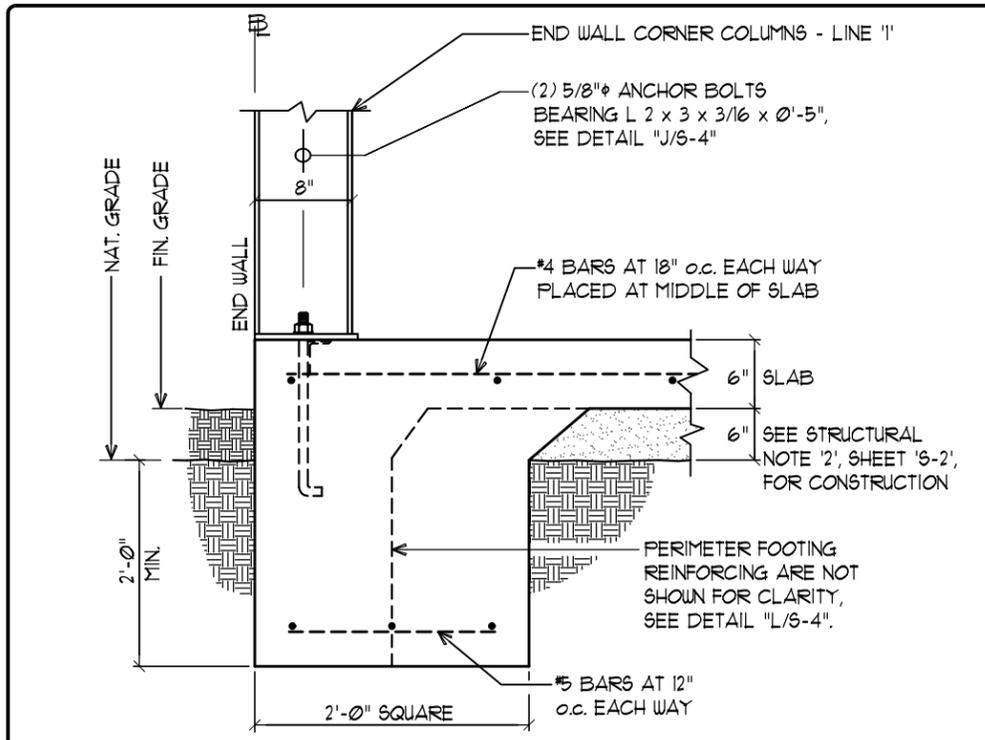
02-15-16

FOUNDATION PLAN

Customer:
 MONO COUNTY DEPARTMENT
 OF PUBLIC WORKS
 BRIDGEPORT, CALIFORNIA

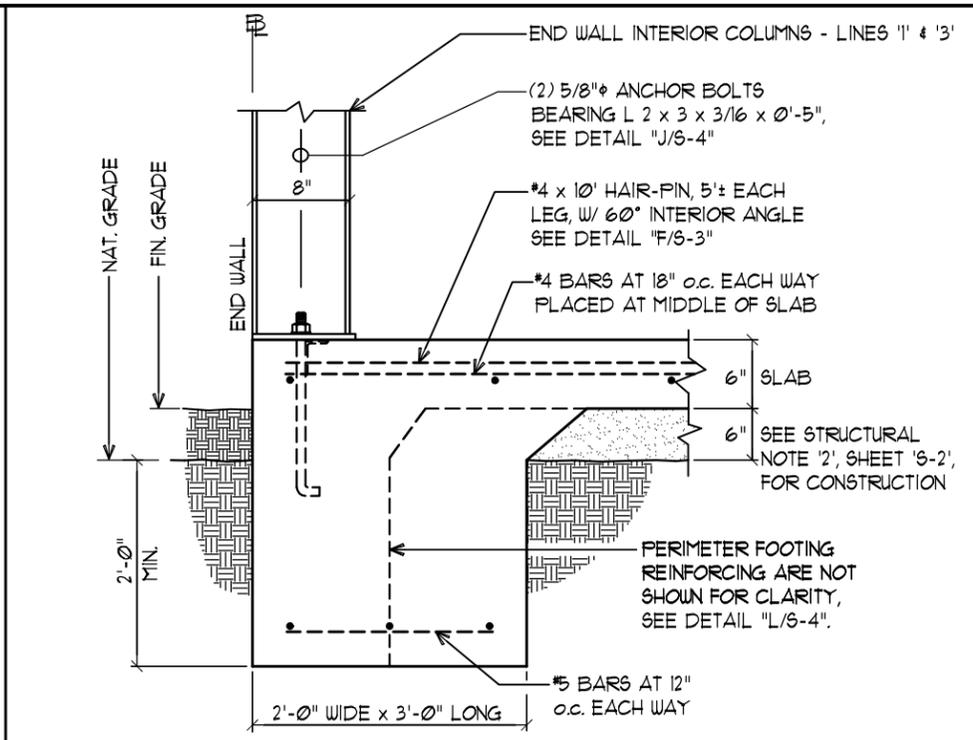
Date:
02-10-16
 Drawn by:
AAT
 Scale:
1/8" = 1'-0"

Job No.
16018
 Sheet:
S-2
 of 4 Sheets



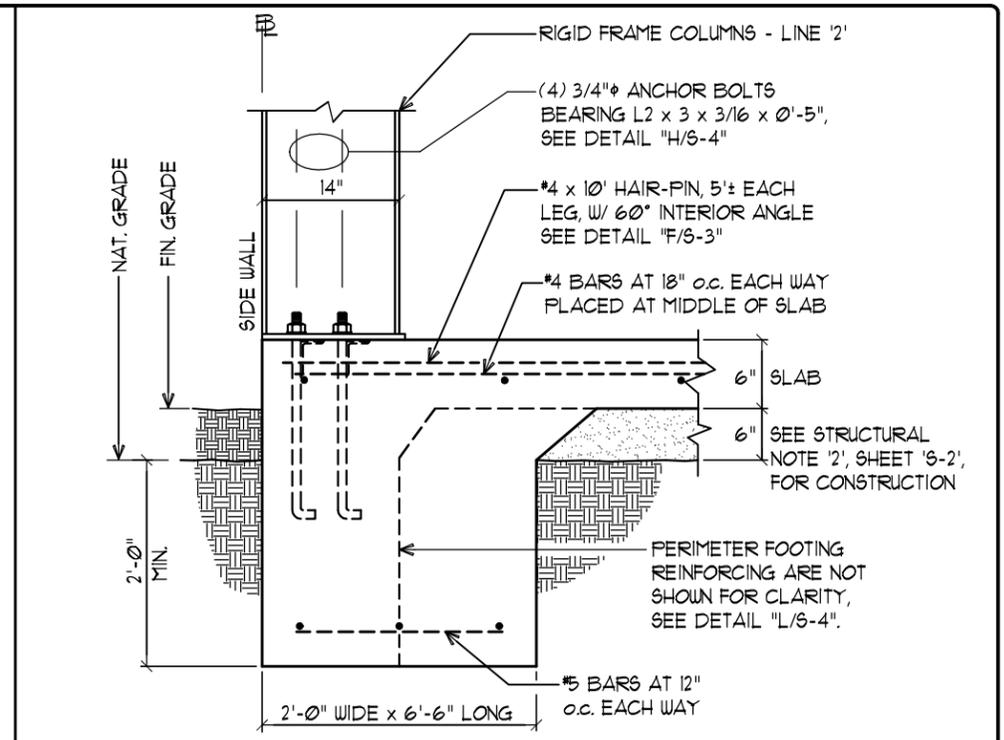
FOOTING "C" DETAIL

C



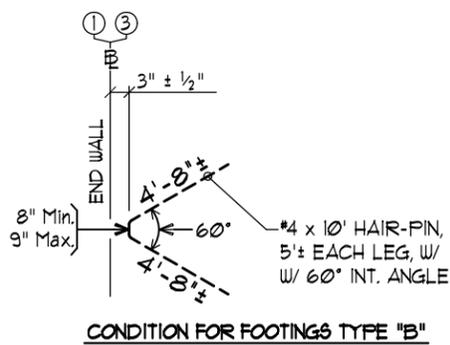
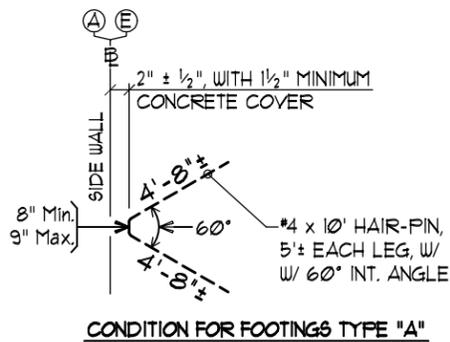
FOOTING "B" DETAIL

B



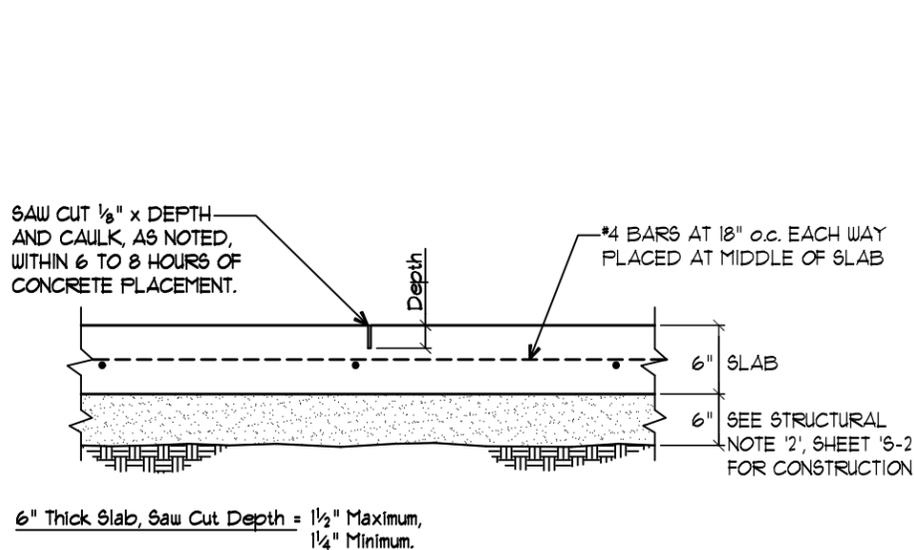
FOOTING "A" DETAIL

A



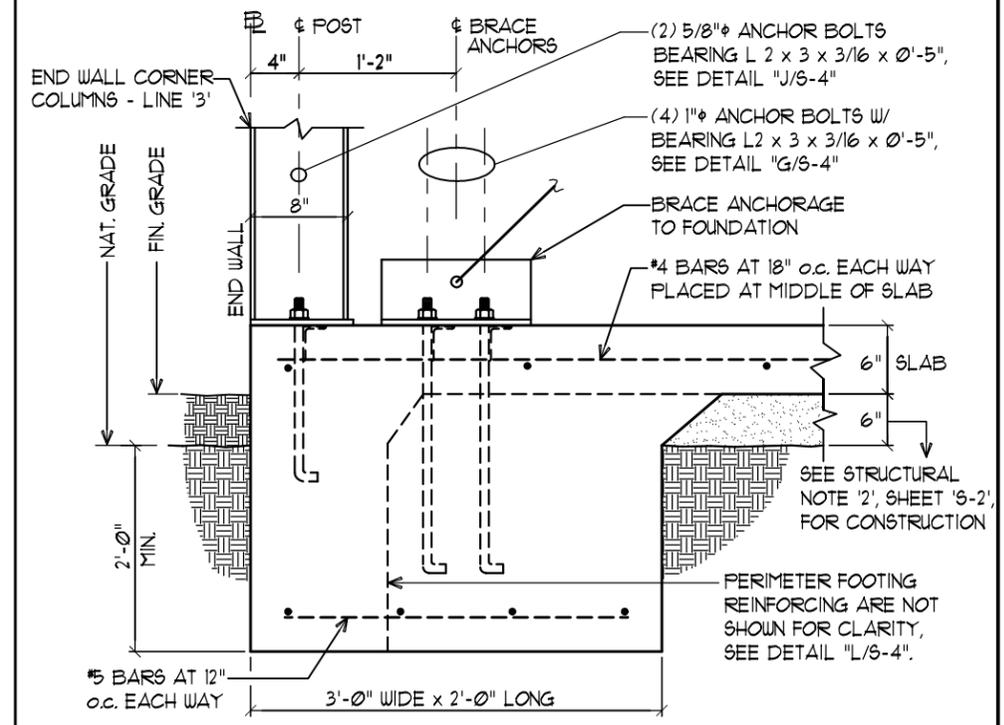
NOT USED

F



CONTROL JOINT (C.C.J.)

E



FOOTING "D" DETAIL

D

REV	SUBJECT	BY	DATE
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△			
△			
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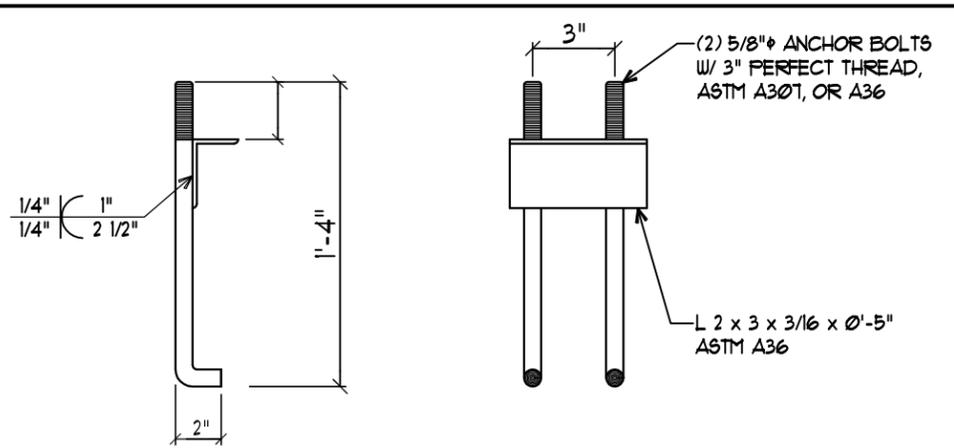
ALEXANDER A TOUNIAN
Structural Engineering
8945 HILARY LANE, STOCKTON, Ca. 95212
TELEPHONE: (209) 931-4246



FOUNDATION DETAILS

Customer: MONO COUNTY DEPARTMENT OF PUBLIC WORKS BRIDGEPORT, CALIFORNIA

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Drawn by:	AAT
Scale:	NONE
Sheet:	S-3
	of 4 Sheets

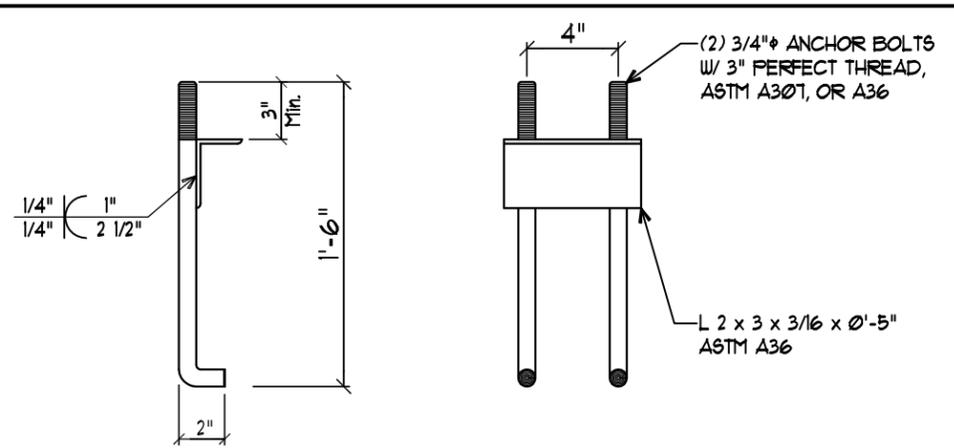


ANCHOR END OPTION No. '1': FORMED HOOK ANCHOR



ANCHOR END OPTION No. '2': DOUBLE NUT & WASHER

5/8" ϕ ANCHOR BOLT DETAIL J

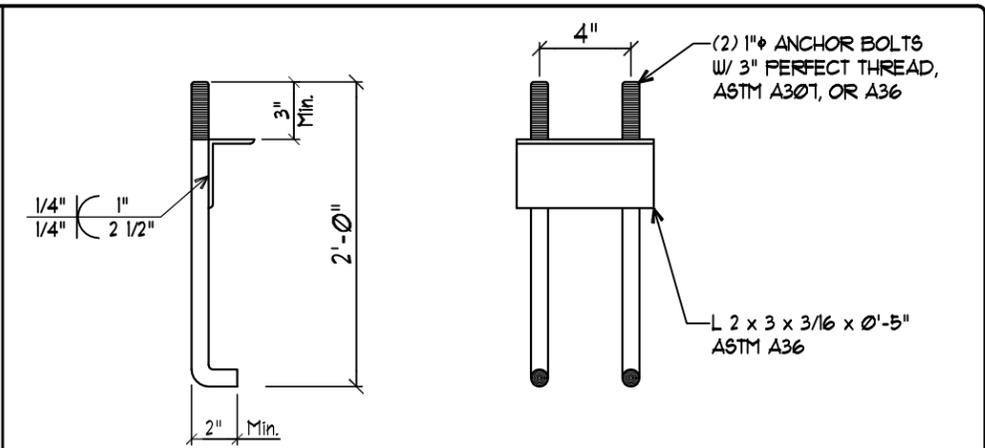


ANCHOR END OPTION No. '1': FORMED HOOK ANCHOR



ANCHOR END OPTION No. '2': DOUBLE NUT & WASHER

3/4" ϕ ANCHOR BOLT DETAIL H

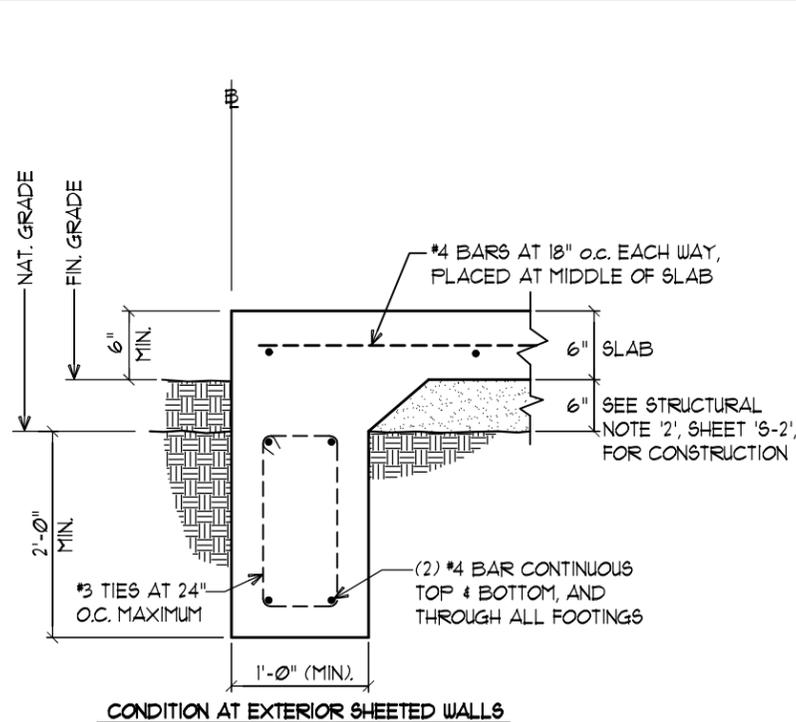


ANCHOR END OPTION No. '1': FORMED HOOK ANCHOR

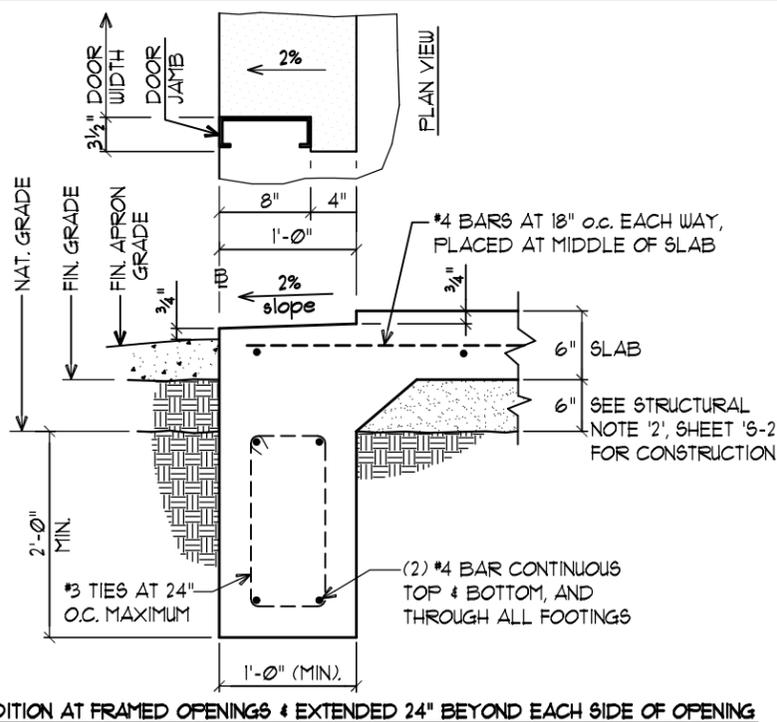


ANCHOR END OPTION No. '2': DOUBLE NUT & WASHER

1" ϕ ANCHOR BOLT DETAIL G

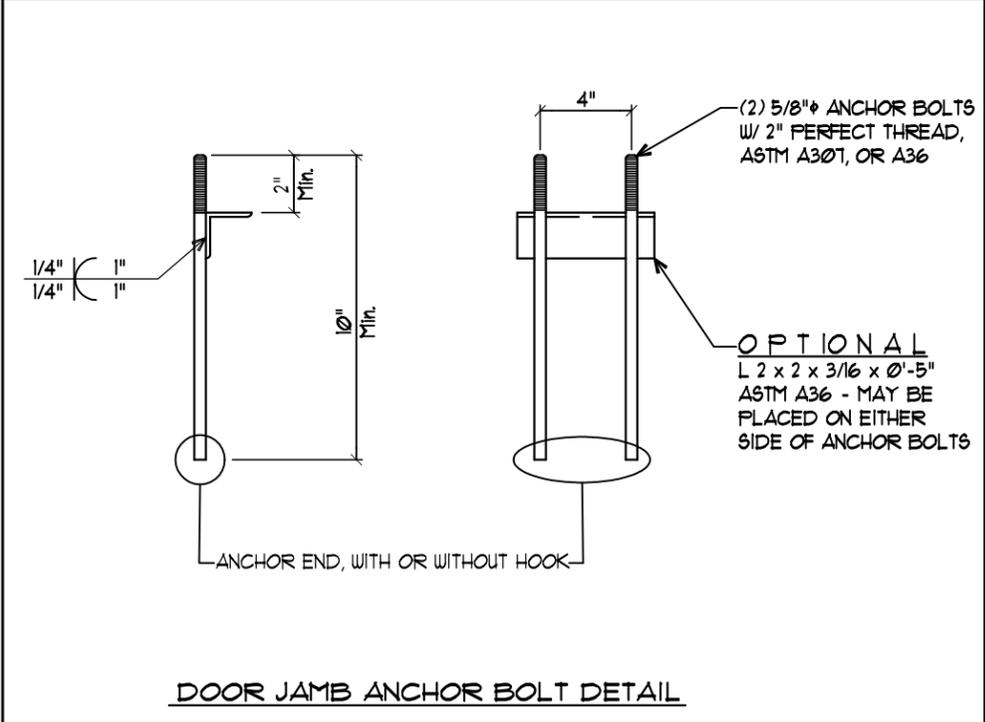


CONDITION AT EXTERIOR SHEETED WALLS



CONDITION AT FRAMED OPENINGS & EXTENDED 24" BEYOND EACH SIDE OF OPENING

PERIMETER FOOTING DETAILS L



DOOR JAMB ANCHOR BOLT DETAIL

5/8" ϕ DOOR JAMB ANCHOR DETAIL K

REV	SUBJECT	BY	DATE
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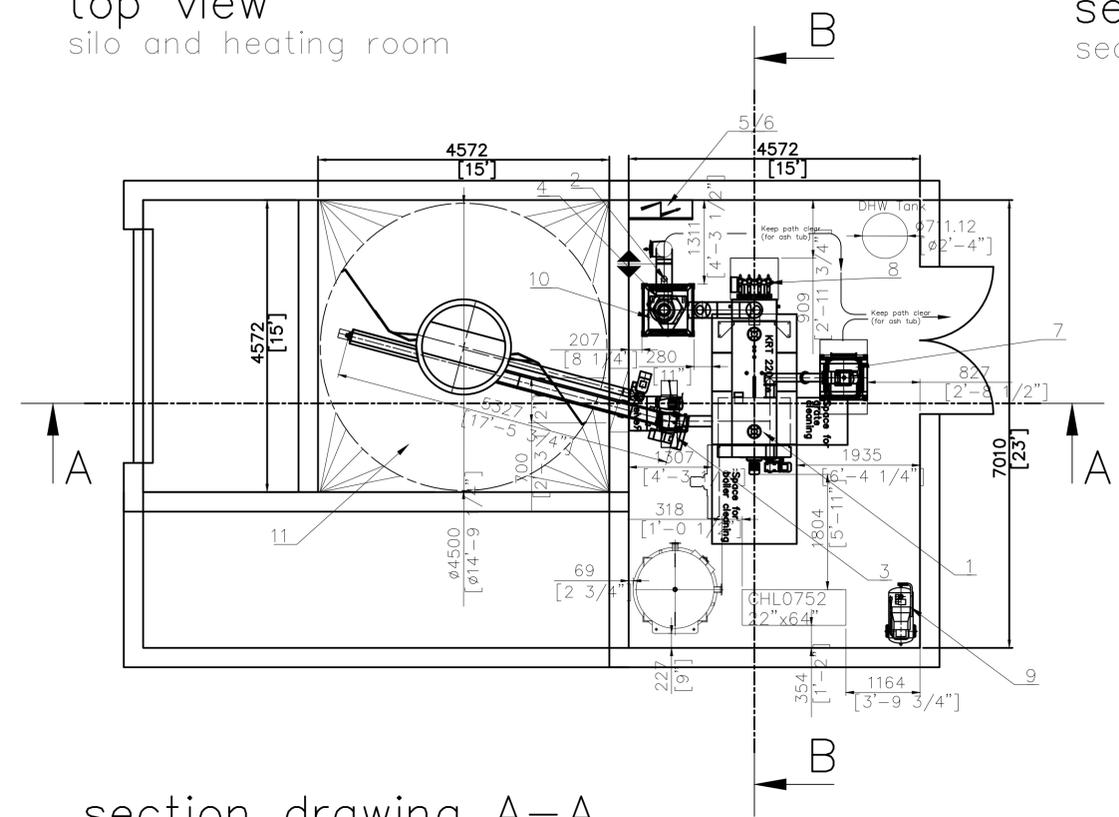
ALEXANDER A TOUNIAN
 Structural Engineering
 8945 HILARY LANE, STOCKTON, Ca. 95212
 TELEPHONE: (209) 931-4246



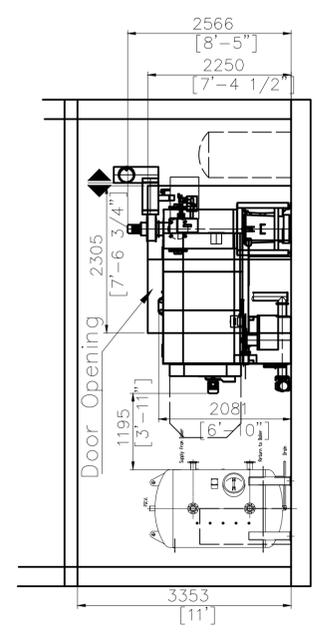
FOUNDATION DETAILS
 MONO COUNTY DEPARTMENT
 OF PUBLIC WORKS
 BRIDGEPORT, CALIFORNIA

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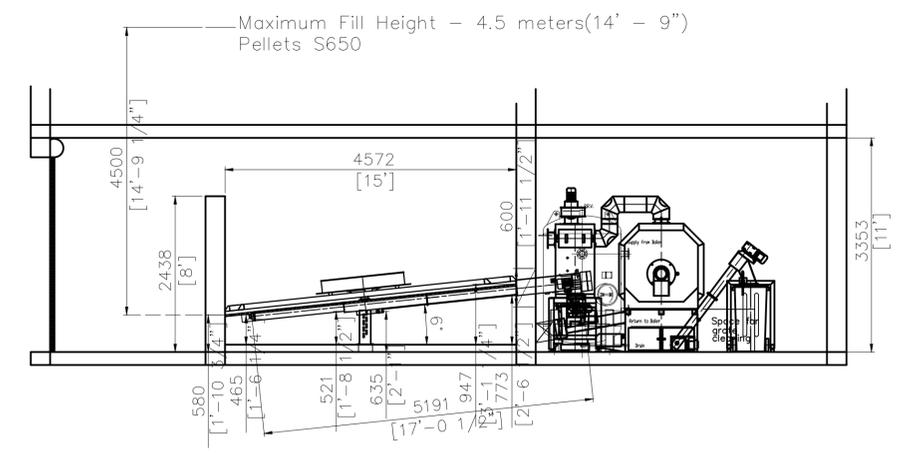
top view
silo and heating room



section drawing B-B
section through heating room



section drawing A-A
section through silo and heating room



Viessmann
supply limit 
provided by the customer

1. Heating boiler Vitoflex 300-RF 220
2. Flue gas Recirculation
3. Slide valve
4. Exhaust fan and exhaust pipe
5. Control cabinet
6. Control module
7. Automatic de-asher with 240-l container
8. Pneumatic pipe cleaning system
9. Air Compressor
10. Exhaust gas deduster, 240-l
11. Horizontal extraction system

Additional instructions on how to execute the silo floor:
 - The silo floor is not included in Köb Holzheizsysteme GmbH scope of work
 - The floor should be designed such that the forces applied to it through the extraction auger but rather via the silo floor.
 - The doors to the silo must be executed so as to be pressure- and dust-tight

The following are all required for the heating system's delivery and installation to go off smoothly (provided by the customer):
 - An opening to put in the boiler (as per project drawing)
 An opening in the wall (door): At least: 59"x88.5"
 (1500x2250mm)
 An opening in the ceiling: At least: 59"x112.25"
 (1500x2850mm)
 Ceiling opening including pneumatic cleaning system: 59"x128"
 (1500x3250mm)
 - An opening to put in the loader system (as per project drawing) at least:
 - Excavation or penetration of masonry (as per project drawing)
 - A suitable chimney and connection
 - A paved and clear access road for heavy lorries
 - The removal of any heating boiler that may have been present
 - The heating room and silo have to be accessible, dry and tidy
 - Mains connection 208/3/60, min 40A
 - Suitable openings for supply air and exhaust air, in accordance with local regulations

Performance to be provided by the customer:
 - All penetrations has to be prepared by the customer.
 - The penetration through the masonry has to be sealed by the customer after assembling Köb, so as to be dust-tight and fire-resistant.
 - The exhaust pipe and insulation has to be constructed by the customer (see Scope of Delivery)
 - The raised floor for the silo has to be constructed by the customer
 - Impact-protection mats have to be constructed by the customer
 - enough ventilation in the Hydraulicroom; Silo; Heatingroom has to be constructed by the customer
 - construction sites coordination

!!! IMPORTANT !!!
 This drawing contains no information on building statics. The static examination of the building in this drawing must be carried out by the customer. The loads that develop as a result of operating the facility can be taken from the enclosed spec sheets (KÖB Chart of Dimensions 8300). KöB Holzheizsysteme GmbH shall not assume the liability for any damage that might arise due to incorrect examination of the building's statics or the absence of such an examination altogether.

APPROVAL:
 Structural dimensions and layout of the facility checked and confirmed by

 on

Jason Davenport
Jason Davenport

10-29-2015

1	Revised Layout	9-21-15 Rvj	-				
Revision	Modification	Date	Name	Scale			
Copyright reserved DIN ISO 16016				Mono County Biomass KRT220			
Drawn	Date	Name	Drawing number		Sheet		
Checked	03/30/15	Rvj	Horizontal Extraction - Option1		Rev1 01		
VISSMANN Manufacturing Company (US) Inc.				Projectdrawing			

Technical Data Manual

for use by engineers and heating contractors

KOB

VIESSMANN Group



Pyrot®

Wood-fired Boiler
KRT 150 to KRT 540 Series



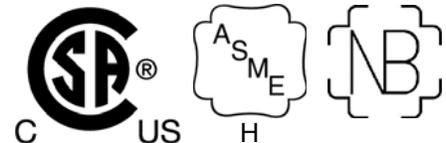
Product may not be exactly as shown

Pyrot with its patented rotating combustion chamber design, features the industry's most advanced combustion technology. An in-feed auger continuously moves the wood fuel onto a moving grate where gasification takes place.

The combustible gases blend with precisely controlled secondary air, resulting in a complete combustion with ultra low emissions.

Max. output: 150 to 540 kW (512 to 1843 MBH)

Min. output: 45 to 140 kW (154 to 478 MBH)



Pyrot

Steel wood-fired hot water heating boiler. For operation primarily with modulating boiler water temperatures in closed loop forced circulation hot water heating systems. Under certain conditions, open loop systems may also be considered. Contact Viessmann for details.

Specifications

- Fully-automatic rotating combustion wood-fired boiler
- 5 models from 512 to 1843 MBH
- For dry wood fuels with max. water content of 35%
- Efficiency: 85%
- Available for 30 or 60 psi max. operating pressure

Benefits at a glance

- High efficiency with advanced combustion technology, triple-pass heat exchanger and modulating output control (turndown ratio 4:1)
- Maximum heat transfer with triple-pass heat exchanger design.
- High efficiency and ultra-low emissions with precisely controlled primary and secondary air.
- Igniter device limits idling and saves fuel.
- Low maintenance with fully-automatic de-ashing, optional pneumatic cleaning system and flue gas cyclone.
- Advanced safety equipment ensures safe and reliable operation.
- Custom design of your system by our team of experts.
- Available as convenient portable boiler enclosure.

Codes

- CSA B366.1-M91
Solid Fuel Fired Central Heating Appliances
- CSA C.22.2#3-M88 (R2004)
Electrical Features of Fuel Burning Equipment
- UL2523
Solid Fuel-Fired Hydronic Heating Appliances, Water Heaters and Boilers
- CSA B365-10
Installation Code for Solid Fuel Burning Appliances and Equipment

Maximum allowable working pressure (water)...30 or 60 psi

Maximum water temperature.....250°F (120°C) (closed loop)

Maximum boiler temperature.....210°F (99°C) (open loop)

This boiler does not require a flow switch.



WARNING

Exposing the boiler to pressures and temperatures in excess of those listed will result in damages and will render the warranty null and void.

Boiler Description

Description

The PYROT Rotating Combustion System (patent no: EP 0 905 442 B1) was developed for automatic combustion of all dry to moist wood fuels (remnant wood, pellets and forest wood chips to max. W35-40, see section "Wood Fuel Requirements". The PYROT Rotating Combustion System is characterized by high efficiencies and perfect combustion at all load levels. The PYROT Boiler Plant has been built to ASME Sec. IV and has CRN for Canada. It is tested and approved to the applicable CSA / UL safety standards.

Function:

- The in-feed auger conveys the wood fuel diagonally from below into the combustion chamber. The holding devices for the back-burn sensor and the thermal extinguishing valve are situated on the in-feed auger. Above the in-feed auger, there is a metering container with a light barrier to ascertain the level of the fuel insulating layer required.
- The wood fuel is ignited automatically by an igniter, at the time of the boiler start. The gasification of the fuel is carried out on a feed grate moved by a worm-gear motor. The ash falls in an ash bin below. An automatic de-ashing assembly with ash is optional. The combustion chamber is heavily insulated and lined with fire clay refractory elements.
- The combustion gases rising from the combustion chamber are swept up by the rotary secondary airflow brought to bear from the rotation blower and burned out completely in the round combustion chamber. The thermal energy from the combustion gases is transmitted to the boiler water in horizontal heat exchanger tubes. The combustion chamber is heavily insulated and provided with excellent access through the boiler door in the front.
- A flue gas re-circulation system reduces the temperature in the combustion chamber while maintaining the highest possible degree of efficiency. This increases the service life of the un-cooled refractory elements in the gasification zone. With the basic setting, the ratio of re-circulated gas to fresh air is precisely adjusted according to the amount of wood fuel that is burned. A mechanical adjustable damper provides a constant ratio of the quantity of re-circulated gas to fresh air over the entire output range.
- The flue gas exhaust blower is specially designed for wood heating operation and is very quiet. The motor has a solid, heat resistant design with a heat dissipation hub and is spring supported. The blower casing has a round intake port and a round blowout nozzle. Installation is possible on the top, side or rear of the flue gas collector within 360° rotation.

Supplied with:

- Boiler with rotary heat exchanger including supply and return temperature sensors
- combustion chamber with moving grate and light barriers for ember monitoring
- Igniter
- In-feed auger including insulating layer, safety end switch for maintenance lid, back-burn temperature sensor, extinguisher water container with mounting bracket
- Set of displacement rods
- Flue gas re-circulation system
- Flue gas exhaust blower including flue gas temperature sensor and oxygen sensor
- Draft damper for installation in the flue gas pipe
- Boiler cleaning tools for the combustion chamber and heat exchanger
- Installation fittings including pressure relief valve, drain valve, low water cut off, fixed high limiter, temperature and pressure gauge

Customer supplied:

- Counter flanges for the boiler supply and return
- Piping to the 3-way mixing valve, boiler pump and thermal storage tank
- Piping for the safety heat exchanger
- Wiring to the control panel

Accessories for PYROT Rotating Combustion System:

- Flue gas cyclone 24 USG (90 L)
- Metal mesh filter
- Automatic de-ashing in bin, 63 USG (240 L)
- Automatic de-ashing in bin, 211 USG (800 L)
- Automatic de-ashing in base container
- Pneumatic cleaning system
- Operating pressure 30 or 60 psi
- Two-stage in-feed auger
- Insulation for flue gas re-circulation line
- Thermal safety flush valve
- Slide valve / Rotary valve
- Boiler pump and boiler 3-way mixing valve
- Ecotronic control system options:
 - 3 sensor storage tank management system
 - External control module for field supplied extraction system
 - Output module / Input module
 - Input module 0-10V
 - ModBus
 - BacNet gateway
 - Visualization

Transport and Installation

IMPORTANT

Precautions must be taken to avoid accidents and injury during the transportation of the boiler.

Only hoist the boiler when it is entirely empty of water, fuel and ash.

Lifting

A number of lifting lugs will be provided on each boiler and heat exchanger where lifting gear may be attached. A tie bar is required to lift the boiler by the boiler supply and boiler return flanges.

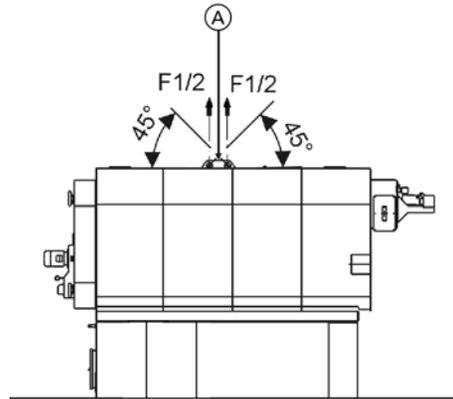
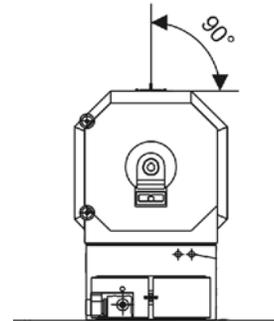
Minimum clearances to walls for installation and maintenance work must be observed. Anti-vibration boiler supports may be used if anti-vibration measures are required.

Pyrot 150 - 300:

Hoist by the lifting lug.

Pyrot 400 - 540:

Hoist by boiler supply and boiler return flanges using a lifting lug.



Ⓐ Lifting lugs

WARNING

Follow instructions for proper installation.

For wood-fired installations:

This wood-fired boiler must be installed in accordance with local codes if any; if not, follow B365-10, Installation Code for Solid-Fuel Burning Appliances and Equipment.

Delivery Condition

Standard delivery condition

The standard delivery condition of the Pyrot boiler includes pre-assembled components as well as components that need to be assembled by the contractor in the field.

Components that are attached to the boiler at time of delivery:

- The heat exchanger is mounted to the combustion chamber
- Boiler is fully bricked
- Boiler door is mounted to the heat exchanger including secondary air rotary blower
- Primary air vents are attached to the combustion chamber
- Flue gas collector is attached to the heat exchanger
- Pneumatic cleaning system (optional) is attached to the flue gas collector

Components that are not attached or installed to the boiler at time of delivery (scope of the contractor):

- Electrical components which include temperature sensors, oxygen sensor, light barriers for the combustion chamber, igniter, low water cut off, and light barriers for the complete extraction system
- All wiring to the control cabinet
- Installation fittings which include pressure relief valve, drain valve, temperature and pressure gauge
- Drive for the combustion chamber grate is detached
- De-ashing (optional) and drive for the de-ashing
- Air compressor (optional) and connection to the pneumatic cleaning system (optional)
- The flue gas blower is not attached to the flue gas collector
- Re-circulation system and insulation (optional)
- Flue gas cyclone (optional) comes in two pieces
- The in-feed auger is detached from the combustion chamber
- Fire extinguishing system for the in-feed auger
- Slide valve (optional) or rotary valve (optional)
- All components of the extraction system (optional), welding for flanges and support legs required
- Glass fiber insulation between any auger connections

Measurements for the fire box as standard delivery condition

Boiler model	KRT150	KRT220	KRT300	KRT400	KRT540
Minimum size door	47¼ in. x 78¾ in. (1200 mm x 2000 mm)	59 in. x 88½ in. (1500 mm x 2250 mm)	59 in. x 88½ in. (1500 mm x 2250 mm)	70¾ in. x 98½ in. (1800 mm x 2500 mm)	70¾ in. x 98½ in. (1800 mm x 2500 mm)
Minimum ceiling opening (W x H)	47¼ in. x 112¼ in. (1200 mm x 2850 mm)	59 in. x 112¼ in. (1500 mm x 2850 mm)	59 in. x 126 in. (1500 mm x 3200 mm)	70¾ in. x 130 in. (1800 mm x 3300 mm)	70¾ in. x 137¾ in. (1800 mm x 3500 mm)
Minimum ceiling opening including pneumatic cleaning system	47¼ in. x 128 in. (1200 mm x 3250 mm)	59 in. x 128 in. (1500 mm x 3250 mm)	59 in. x 141¾ in. (1500 mm x 3600 mm)	70¾ in. x 145¾ in. (1800 mm x 3700 mm)	70¾ in. x 153½ in. (1800 mm x 3900 mm)

Delivery Condition *(continued)*

Special delivery condition (partially disbanded)

For special circumstances like restricted space to bring the boiler into the heating room, the size of the boiler can be reduced by detaching additional components to the ones as described in section “Standard delivery condition”. The assembly of these components require additional assembly time of approximately 6 hours.

The following additional objects will be delivered disbanded:

- The heat exchanger and the combustion chamber are separate
- No brickwork inside the heat exchanger and combustion chamber
- No insulation and panels are attached to the heat exchanger

Measurements of the largest part for reduced boiler size

Boiler model	KRT150	KRT220	KRT300	KRT400	KRT540
Minimum size door	35½ in. x 49¼ in. (900 mm x 1250 mm)	46 in. x 61 in. (1170 mm x 1550 mm)	46 in. x 61 in. (1170 mm x 1550 mm)	55 in. x 67 in. (1400 mm x 1700 mm)	55 in. x 67 in. (1400 mm x 1700 mm)
Minimum ceiling opening (W x H)	39¼ in. x 102¼ in. (1000 mm x 2600 mm)	49¼ in. x 103¼ in. (1250 mm x 2620 mm)	49¼ in. x 118 in. (1250 mm x 3000 mm)	59 in. x 122 in. (1500 mm x 3100 mm)	59 in. x 130 in. (1500 mm x 3300 mm)

Special delivery condition (fully disbanded)

For special circumstances like heavily restricted space to bring the boiler into the heating room, the size of the boiler can be reduced by detaching additional components to the ones as described in section “Standard delivery condition” and “Special delivery condition partially disbanded”. The assembly of these components require welding and additional assembly time of approximately 20 hours.

The following additional objects will be delivered disbanded:

- The heat exchanger is a separate piece
- The flue gas collector is detached from the heat exchanger
- The boiler door is detached from the heat exchanger (welding required)

Measurements of the largest part for reduced boiler size

Boiler model	KRT150	KRT220	KRT300	KRT400	KRT540
Minimum size door	35½ in. x 49¼ in. (900 mm x 1250 mm)	46 in. x 59 in. (1170 mm x 1500 mm)	46 in. x 59 in. (1170 mm x 1500 mm)	55 in. x 67 in. (1400 mm x 1700 mm)	55 in. x 67 in. (1400 mm x 1700 mm)
Minimum ceiling opening (W x H)	39¼ in. x 85 in. (1000 mm x 2160 mm)	49¼ in. x 85¾ in. (1250 mm x 2180 mm)	49¼ in. x 98¾ in. (1250 mm x 2510 mm)	59 in. x 96½ in. (1500 mm x 2450 mm)	59 in. x 110 in. (1500 mm x 2800 mm)

Wood Fuel Requirements

The PYROT is only suitable for burning fuels listed in this section.

A prerequisite for approval is of a fuel by Viessmann is the approval for the fuel by the responsible public authorities.

Warranty claims for Viessmann Biomass boilers are excluded if the following fuel conditions are not met.

Allowed fuels

- *Forest wood and plantation wood (complete untreated trees and trunk wood):*
Mature wood from trunks and branches, untreated, chopped to chips
- Compressed wood, pellets conforming to standards, as per CAN/CSA-B366.1-M91, size P1, P2, P4.

Untreated wood with limited bark content, compressed by machine and calibrated

Fuel	Minimal Diameter	Maximal Diameter
P1 - Pellets Small	---	3/8 in. (10 mm)
P2 - Pellets Medium	3/8 in. (10 mm)	3/4 in. (20 mm)
P4 - Briquettes (Pellets Large)	3/4 in. (20 mm)	2 1/2 in. (60 mm)

- *Wood with an increased proportion of bark, tree cuttings from roadside trees (untreated):*
Wood remnants from the forestry and sawmill industries or from landscape conservation (likelihood of elevated ash content).
- *Remnants from derived timber products:*
Usually a mixture of untreated and treated wood in the form of shavings from processing machinery and chips from choppers.

IMPORTANT

If different fuels are used, Viessmann will not assume any liability for the functioning or service life of the boiler plant. Refer to the "Warranty" section in the General Terms and Conditions of Delivery.

- **Burn wood only**
- **Do not use chemicals or fluids to start fire.**
- **Do not burn garbage, gasoline, naphtha, engine oil, or other inappropriate materials.**

- *Used wood:*
This is untreated wood that has been used prior to its energetic utilization (e.g. pallets). It is reduced in size by shredders for thermal utilization. The metal parts have to be removed by magnetic separators.

Size of Wood Chips as per CAN/CSA-B366.1-M91, Grade C7

Total mass 100%		G 30 Fine	G 50 Medium
Coarse percentage max. 20%	Max. cross-section	in. ² (cm ²)	1/2 (3)
	Max. length	in. (cm)	3 1/3 (8.5)
	Coarse sieve nominal mesh width	in. (mm)	5/8 (16)
Main percentage 60 to 100%	Medium sieve nominal mesh width	in. (mm)	1 1/4 (31.5)
Percentage of fines (incl. ultrafine content) max. 20%	Fine sieve nominal mesh width	in. (mm)	1/8 (2.8)
			1/25 (1)

CAUTION

Chips have to pass through a 1 in. (25 mm) sieve, additionally, a fraction of max. 5% of the fuel with a cross-section of max. 3/4 in² (500 mm²) up to a length of max. 6 1/4 in. (160 mm) can be tolerated.

Size of briquettes:

- Fraction of one-offs. max. 5% with cross-section of max. 3/4 in² (500 mm²) up to a length of max. 6 1/4 in. (160 mm).
- Frayed surface by chopping tools (shredders) or slow-running choppers.
- Briquettes, diameter max. 2 3/8 in. (60 mm).

Consequence of overstepping particle size:

- Increased maintenance because of a substantially higher risk of malfunction
- Shortened service life of the conveyor augers and drives

Wood Fuel Requirements *(continued)*

Maximum water content

The maximum allowable water content of the fuel for Pyrot systems is limited to 35%.
The water content impacts the maximum boiler output.

Non-wood fuels

Non-wood fuels, even if consisting of biomass, such as needles, foliage, grain, straw, fruit pits, etc., are unsuited as fuel for boiler operation and may not be used.

Limitation super fines & dust [wood particles smaller than 1/32 in. (1.0 mm)]

Max. 10.0% of the total mass; if fuel does not comply with this limit the following process may occur:

- Temperature peaks
- Slag formation
- Even higher temperature
- This process leads to damage by overheating and can affect refractory materials.

Elevated values are especially critical for remnant wood in combination with elevated values of Chlorine and Sulphur.

Suitable fuel types for Pyrot systems

- Bulk density (**S**) in kg/m³ [lb/ft³], water content (**W**) in %, size C1, C7, P1, P2, P4 as per CAN/CSA-B366.1-M91.

Note: Fuel for Pyrot systems allow for a max. of 35% water content (**W**).

Saw dust

Fuel code	Bulk Density kg/m ³ [lb/ft ³]	Water content %	Fuel Size	Description
a	S 130 [8.1]	W 10 to W 20	C1	Sawdust, untreated (planing shop)
b1	S 200 [12.5]	W 20 to W 35	C1	Sawdust, untreated (sawmill)
c2	S 250 [15.6]	W 35 to W 50	C1	Sawdust, untreated (sawmill)

Wood chips

Fuel code	Bulk Density kg/m ³ [lb/ft ³]	Water content %	Fuel Size	Description
b2	S 200 [12.5]	W 20	C7	Forest wood chips, soft, untreated
c1	S 250 [15.6]	W 20 to W 35	C7	Forest wood chips, soft, untreated
d1	S 300 [18.7]	W 20 to W 35	C7	Forest wood chips, soft/hard, untreated
d2	S 300 [18.7]	W 35 to W 50	C7	Forest wood chips, soft, untreated
e1	S 350 [21.8]	W 20 to W 35	C7	Forest wood chips, hard, untreated
e2	S 350 [21.8]	W 35 to W 50	C7	Forest wood chips, soft/hard, untreated
f1	S 400 [24.9]	W 35 to W 50	C7	Forest wood chips, hard, untreated

Shavings and chips

Fuel code	Bulk Density kg/m ³ [lb/ft ³]	Water content %	Fuel Size	Description
g	S 130 [8.1]	Less than W 15	C7	Shavings & chips from wood remnants, dry, mixed
h	S 200 [12.5]	Less than W 15	C7	Shavings & chips from wood remnants, dry, mixed
i	S 250 [15.6]	Less than W 15	C7	Shavings & chips from wood remnants, dry, mixed

Pellets and briquettes

Fuel code	Bulk Density kg/m ³ [lb/ft ³]	Water content %	Fuel Size	Description
j	S 350 [21.8]	Less than W 15	P4	Briquettes from wood remnants 3/4 in. (20 mm) to max. 2 in. (60 mm)
k1	S 650 [40.6]	Less than W 10	P1	untreated up to 3/8 in. (10 mm)
k2	S 650 [40.6]	Less than W 10	P2	untreated 3/8 in. to 3/4 in. (11 mm to 20 mm)

Note: For size of wood chips, see page 7.

Wood Fuel Requirements *(continued)*

Content limits for non-combustible substances

- No wood fuels may contain any foreign bodies, such as pieces of metal, stones, masonry remnants or plastics.

The following limits (per lb/kg of dry fuel) of contained non-combustible substances apply [ash analyzed at a temperature of 1500°F (815°C)]:

Substance	Limit	Comparative value untreated forest wood
Chlorine (Cl)	max. 300 ppm (300 mg/kg)	10 ppm (10 mg/kg)
Sulphur (S)	max. 1000 ppm (1000 mg/kg)	120 ppm (120 mg/kg)
Total Cl, S	max. 1000 ppm (1000 mg/kg)	130 ppm (130 mg/kg)
Ash content, total	max. 0.25 oz/lb (15.0 g/kg)	0.08 oz/lb (5.0 g/kg)
Alkali oxides in the ash (K ₂ O and Na ₂ O)	max. 0.016 oz/lb (1.0 g/kg)	0.006 oz/lb (0.35 g/kg)
Sintering point of the ash	min. 1800°F (1000°C)	approx. 2200°F (1200°C)

If fuel does not comply with these limits, there is a risk of corrosion within the heat exchanger and early sintering and melting of the ash which leads to:

- Shortened life of the heat exchanger
- Increased maintenance costs (firing, boiler door)

The maintenance instructions need to be complied with in order to avoid a process, which will increasingly cause damage to the boiler.

If maintenance instructions are not complied with the following process may occur:

- Cinders change the airflow
- Temperature peaks
- More slag is produced
- More cinder builds up and changes the airflow more

This process leads to damage by overheating and may affect refractory materials.

Additives in remnant and used wood have to be free of heavy metals and halogen compounds.

Other information

- *Ash and cleaning:*
 Untreated wood without bark produces less than 0.5% ash of the fuel mass supplied. All the specifications regarding cleaning are based on untreated wood with bark attached with an ash amount of 0.8% of the fuel mass.
 If the ash content is higher and/or the ash melting point is lower, increased maintenance and/or cleaning are required.
- *Changing fuels:*
 A substantial change in fuel quality, such as bulk density, water content, dust proportion or ash content might require a manual correction of the firing parameters (see Operating section).

Power Failure Provision

Customers must ensure that there is a supply of water independent of the electrical supply. This design ensures that in case of a power failure, the boiler will be reliably cooled by the thermal safety flush valve.

Venting Requirements

The PYROT Rotating Combustion system is equipped with a flue gas exhaust blower.

This boiler must be properly vented. Use a vent material certified for use with solid-fuel fired equipment.

This boiler shall be connected to:

- a) a masonry chimney conforming to local regulations or, in the absence of such regulations, to the requirements of the National Building Code.
- b) a certified factory-built chimney (refer to the NFPA 211 standard).

A flue pipe serving this boiler shall be constructed of steel or other suitable material with a melting point of not less than 2000°F (1100°C).

IMPORTANT

Do not use galvanized steel.

For installations in Canada:

The boiler venting system must be tested and listed by a Nationally Recognized Testing Lab such as ULC/CSA for solid fuel burning appliances.

The PYROT rotating combustion system is output-controlled within a range from 30%-100% of the rated boiler output. This produces flue gas temperatures from min. 212°F (100°C) to max. 482°F (250°C).

An insulated chimney should be provided to prevent sooting.

The distance from the flue gas exhaust blower to the chimney should be as short as possible. 90° elbows should be avoided if possible. Flue gas pipes of more than 3 ft. (1 m) in length must be insulated.

The connection to the chimney should be made such that it rises at an angle of 30°- 45° (to prevent excess ash accumulating in the lateral section of the vent pipe).

The flue gas line, including the lead-in into the chimney, must be gas-tight.

Mechanical Room

Ensure the mechanical room complies with the requirements in these instructions.

Viessmann recommends the installation of an additional electrical disconnect switch and a fuel shut-off valve (if possible) outside the mechanical room or enclosed area of installation.

A separate, dry heating room must always be provided for the PYROT rotating combustion system. No combustible materials may be stored in the heating room. The heating boiler may only be set up on a fire- and temperature-resistant floor.

No temperature-sensitive pipes or lines may be installed in the floor beneath the heating boiler.

The temperature in the heating room must not exceed 104°F (40°C) while the system is in operation (in the area approx. 3 ft. (1 m) away from the boiler).

The temperature in the heating room must not fall below 50°F (10°C) while the system is in operation (measured at the inner side of exterior walls).

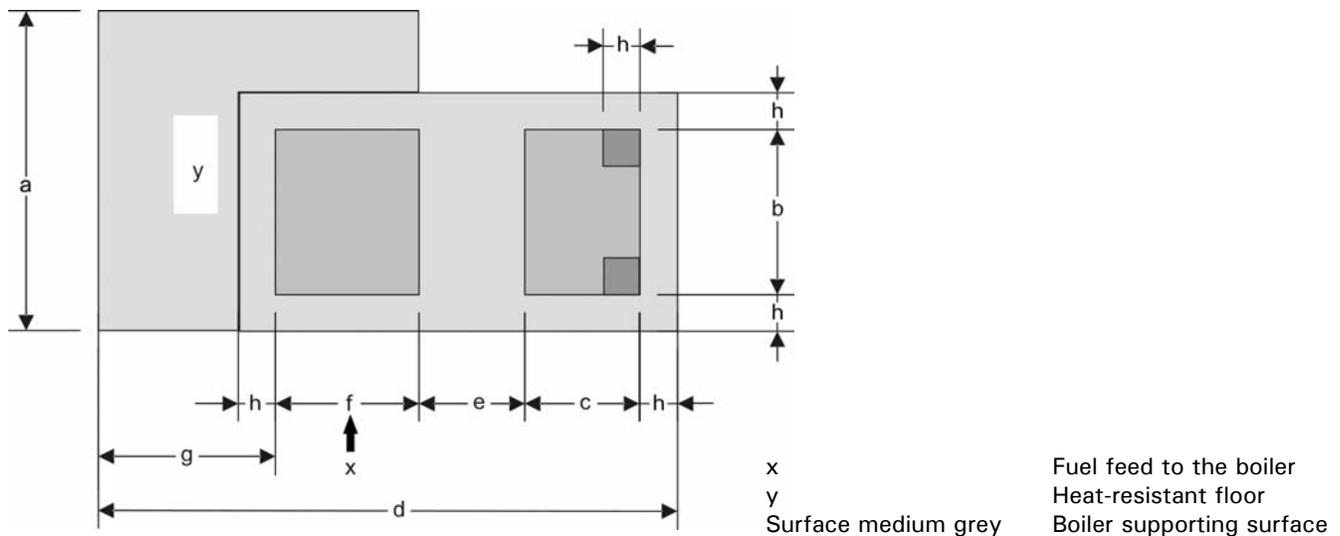
The load-bearing capacity of the heating room floor must be designed for the weight of the system plus filling with water and fuel. The load-bearing capacity of the floor in the area of the boiler bearing surface must be 512 lb/ft² (2500 kg/m²).

IMPORTANT

Always follow the most up-to-date local, municipal and building regulations and codes.

The minimum distance to the walls and ceiling required according to the table of dimensions for proper cleaning and maintenance of the boiler must be complied with.

A sufficient supply of fresh air must be provided directly from outdoors into the heating room. Induced ventilation is necessary for heating rooms that are confined or enclosed.



Foundation dimensions

Boiler model	KRT-	150	220	300	400	540
a	in. (mm)	61 ¹³ / ₁₆ (1570)	80 ¹¹ / ₁₆ (2050)	80 ¹¹ / ₁₆ (2050)	96 ⁷ / ₈ (2460)	96 ⁷ / ₈ (2460)
b	in. (mm)	34 ¹ / ₄ (870)	45 ¹ / ₄ (1150)	45 ¹ / ₄ (1150)	54 ³ / ₄ (1390)	54 ³ / ₄ (1390)
c	in. (mm)	24 ³ / ₈ (620)	26 ³ / ₄ (680)	26 ³ / ₄ (680)	31 ¹ / ₂ (800)	31 ¹ / ₂ (800)
d	in. (mm)	112 ³ / ₁₆ (2850)	123 ¹ / ₄ (3130)	142 ¹ / ₄ (3613)	147 ¹ / ₈ (3738)	161 ¹ / ₂ (4103)
e	in. (mm)	20 ¹ / ₂ (520)	20 ¹ / ₂ (520)	28 ¹ / ₂ (723)	17 ⁵ / ₈ (448)	21 ³ / ₈ (543)
f	in. (mm)	29 ¹ / ₈ (740)	29 ¹ / ₈ (740)	34 ⁵ / ₈ (880)	37 ¹³ / ₁₆ (960)	43 ¹¹ / ₁₆ (1095)
g	in. (mm)	34 ¹ / ₄ (870)	45 ¹ / ₄ (1150)	45 ¹ / ₄ (1150)	54 ³ / ₄ (1390)	54 ³ / ₄ (1390)
h	in. (mm)	9 ⁷ / ₈ (250)	9 ⁷ / ₈ (250)	9 ⁷ / ₈ (250)	9 ⁷ / ₈ (250)	9 ⁷ / ₈ (250)

Combustion Air Supply

Codes

Provision for combustion and ventilation air must be made in accordance with applicable local codes.

In the absence of local codes, use:

CSA B365-10, Installation Code for Solid Fuel Burning Appliances and Equipment.

Always use latest edition codes.



WARNING

Failure to provide an adequate supply of fresh combustion air can cause poisonous flue gases to enter living space. Flue gases entering living space can cause carbon monoxide poisoning which can result in severe personal injury or loss of life.



WARNING

Never cover the boiler or store debris or other materials near the boiler, or in any way block the flow of adequate fresh air to the boiler. Never cover the combustion air opening. Advise system operator / ultimate owner accordingly.

General

This equipment requires fresh air for safe operation and must be installed ensuring provisions for adequate combustion and ventilation air exist.

Whenever possible, install boiler near an outside wall so that it is easy to duct fresh air directly to the boiler area.

The boiler location must never be under negative pressure. Exhaust blowers, attic blowers, or dryer blowers may cause air to be exhausted at a rate higher than air can enter the structure for safe combustion.

The heating contractor shall ensure all of the following requirements are met:

- An adequate supply of combustion air must be available to ensure proper combustion.
- Ambient air temperatures must be maintained within safe operating limits.
- When a damper is provided in any opening intended to admit combustion air into the room within which the appliance is installed, the damper shall be interlocked to prevent any burner from starting before the damper is fully open.
- *Each duct used to convey air from the outdoors shall have:*
 1. a cross-sectional area throughout its length at least equal to the free area of the inlet and outlet openings which it connects,
 2. making a provision for outside combustion air, the intake shall not be less than 1 ft. (0.3 m) above the anticipated snow level for the location.
- The heating contractor must check with local authorities (municipal building department) for combustion air requirements particular to the area.

Confined spaces

When a furnace or boiler is enclosed in a space that has a volume less than 20% of that to be heated by the appliance, the space shall:

- a) have a permanent opening or openings for natural air circulation with a minimum net free area of 1.5 in² / 1000 Btu/h (3300 mm² / kW) input, and
- b) connect to another space or spaces such that the total volume of air available for natural air circulation is at least 30% of the total volume to be heated by the appliance.

The minimum dimension of any opening specified in item (a) shall be no less than 1 in. (25 mm) The lower edge of at least one opening shall be located within 1.5 ft. (0.5 m) of the floor of the enclosed space, and the upper edge of at least one opening shall be located within 1.5 ft. (0.5 m) of the ceiling of the enclosed space.

Note: The intent of this Clause is to allow either one long vertical opening or two shorter horizontal openings, one high and the other low, to allow for air circulation to prevent overheating of the appliance.

Unconfined spaces

Where the boiler is located in an unconfined space in a building having insufficient infiltration, additional air for combustion and ventilation shall be obtained from outdoors or from spaces freely communicating with the outdoors. Under these conditions, permanent opening(s) shall be provided so that the total air received through these openings will be at least as much as would be admitted by openings having a total free area of 1 in² / 5,000 Btu/h or (450 mm² / kWh) of the total input rating of all wood-fired appliances.

Louvers and grilles

In calculating free area as specified, consideration shall be given to the blocking effect of louvers, grilles, or screens that protect openings. Screens shall be no smaller than ¼ in. (6 mm) mesh and shall be readily accessible for cleaning. If the free area through a design of louver or grille is known, it shall be used in calculating the size of opening required to provide the free area specified. If the design and free area are not known, it shall be assumed that wood louvers have 20 - 25% free area and metal louvers and grilles have 60 - 75% free area.

Technical Data

Boiler model	KRT-	150	220	300	400	540
Maximum output	MBH (kW)	512 (150)	751 (220)	1024 (300)	1365 (400)	1843 (540)
Minimum output¹	MBH (kW)	154 (45)	205 (60)	273 (80)	341 (100)	478 (140)
Efficiency		85%				
Fuel moisture content²	%	W 40				
Size of wood chips³		G 30 / G 50 as per CAN/CSA-B366. 1-M91				
Flue gas figures						
Connection flue gas pipe Ø A	in. (mm)	97/8 (250)	97/8 (250)	117/8 (300)	137/8 (350)	137/8 (350)
Mass flow rate; W5; O ₂ 6%	lb/s (g/s)	0.18 (80.4)	0.26 (117.9)	0.35 (160.8)	0.47 (214.4)	0.64 (289.44)
Volume flow; W5; O ₂ 6%; 150°C (302° F)	ft ³ /s (m ³ /s)	3.1 (0.09)	4.9 (0.14)	6.7 (0.19)	8.8 (0.25)	12.4 (0.35)
Mass flow rate; W35; O ₂ 8%;	lb/s (g/s)	0.24 (106.9)	0.35 (156.9)	0.47 (213.9)	0.63 (285.2)	0.85 (385.1)
Volume flow;W35; O ₂ 8%; 150°C (302° F)	ft ³ /s (m ³ /s)	4.2 (0.12)	6.7 (0.19)	8.8 (0.25)	12.0 (0.34)	16.2 (0.46)
Average flue gas temperature at full load ⁴	°F (°C)	320 (160)				
Average flue gas temperature at partial load ⁴	°F (°C)	266 (130)				
Chimney draft required	Pa	±0				
Electrical connections						
Electrical connections, total	kW	2.67	2.85	3.6	3.98	3.63
Igniter	kW	1.6	1.6	1.6	1.6	1.6
Flue gas exhaust blower	kW	0.55	0.55	0.75	1.1	1.1
Rotary blower	kW	0.12	0.12	0.12	0.12	0.12
In-feed auger	kW	0.37	0.55	1.1	1.1	0.75
Grate drive unit	kW	0.03	0.03	0.03	0.06	0.06
Electric power consumption at full load	kW	1.032	1.108	1.521	1.868	1.753
Electric power consumption at partial load	kW	0.355	0.369	0.434	0.480	0.460
Heating						
Water side resistance (diff. 27°F/15 K)	"wc (mbar)	13 (38)	30 (76)	16 (42)	11 (29)	22 (56)
Boiler water volume	USG (L)	114 (430)	209 (790)	238 (900)	350 (1330)	399 (1510)
Heating surface	ft ² (m ²)	116.3 (10.8)	172.3 (16.0)	222.9 (20.7)	310.1 (28.8)	424.1 (39.4)
Volume on heating gas side	USG (L)	99 (374)	197 (744)	233 (883)	354 (1340)	426 (1613)
Volume of ash container for grate ash	USG (L)	8 (32)	12 (45)	15 (55)	20 (75)	24 (91)
Volume of ash container for flue gas cyclone	USG (L)	24 (90)				
Test pressure ⁵	psi (bar)	60 or 90 (4 or 6)				
Maximum allowable working pressure (water) ⁵	psi (bar)	30 or 60 (2 or 4)				
Maximum water temperature	°F (°C)	250 (120)				
Minimum return temperature	°F (°C)	149 (65)				
Weight						
Weight of combustion chamber	lb. (kg)	1049 (477)	1278 (581)	1410 (641)	1712 (778)	2061 (937)
Weight of pressure vessel (30 psi) ⁶	lb. (kg)	4885 (2216)	6535 (2964)	7408 (3360)	9764 (4429)	11233 (5095)
Weight of pressure vessel (60 psi) ⁶	lb. (kg)	4974 (2256)	6667 (3024)	7452 (3380)	9875 (4479)	11453 (5195)
Weight of displacement rods	lb. (kg)	191 (87)	310 (141)	359 (163)	484 (220)	636 (289)
Weight of flue gas exhaust blower	lb. (kg)	88 (40)	88 (40)	99 (45)	136 (62)	136 (62)
Weight of in-feed auger	lb. (kg)	315 (143)	315 (143)	315 (143)	315 (143)	328 (149)
Total weight without water (30 psi) ⁷	lb. (kg)	6532 (2963)	8530 (3869)	9595 (4352)	12416 (5632)	14401 (6532)
Total weight without water (60 psi) ⁷	lb. (kg)	6620 (3003)	8662 (3929)	9639 (4372)	12527 (5682)	14621 (6632)
Total weight with water (30 psi) ⁷	lb. (kg)	7485 (3395)	10280 (4663)	11585 (5255)	15340 (6958)	17730 (8042)
Total weight with water (60 psi) ⁷	lb. (kg)	7573 (3435)	10412 (4723)	11629 (5275)	15450 (7008)	17950 (8142)

1 Minimum load: Operation with modulated control (Infinitely variable power control)
Low load with ON Qmin / OFF (Stop-and-go mode)

2 Moist fuels: >W35 further limitations regarding output, degree of efficiency and control behavior

3 Specification: See section on Wood Fuel Requirements

4 Flue gas temperature: An increase is possible by removing the displacement rods [Full load 86°F (30°C); Partial load 50°F (10°C)]

5 Pressure: Per ASME Sec. IV

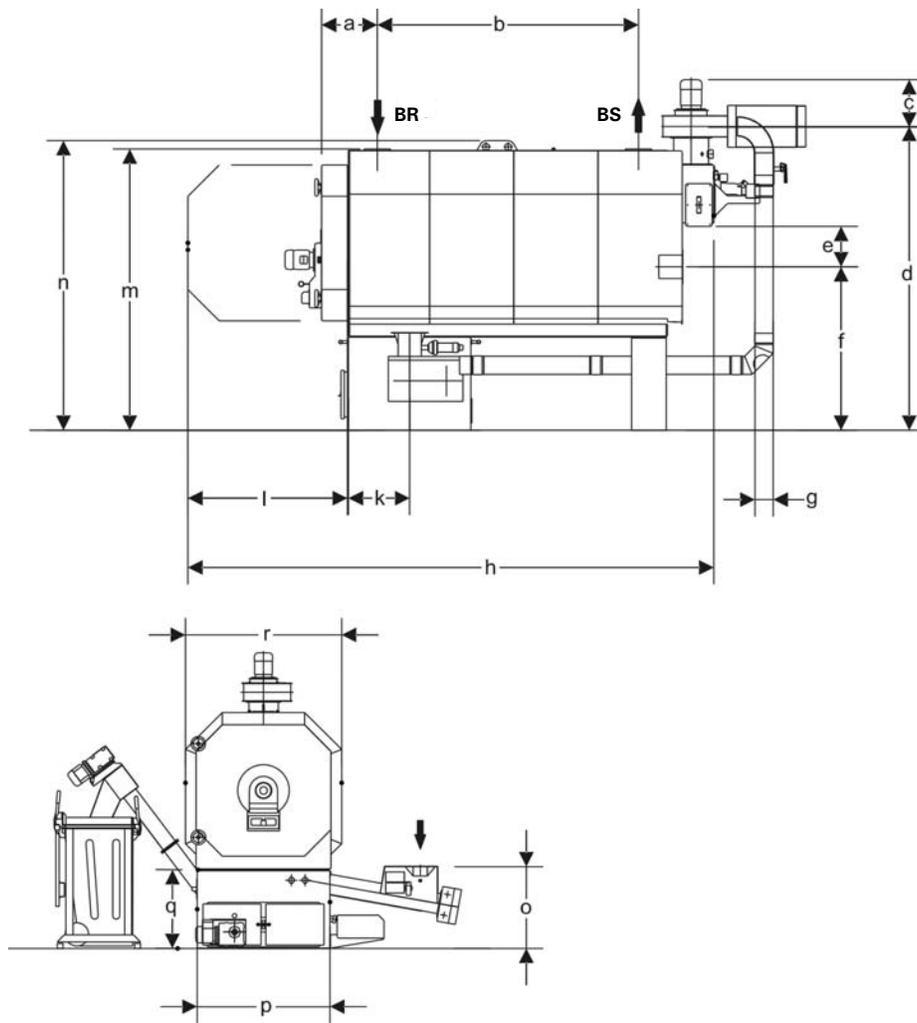
6 Weight: Includes door and refractory concrete lining

7 Overall weight: Includes displacement rods

Other influences: Fuel, water content, ash content, pneumatic cleaning system yes/no; track time (number of operating hours without cleaning).
Specifications for the start of the track time [toward the end of the track time there is an increase in the flue gas temperature by approx. 68°F (20°C)]

Boiler Dimensions

BR Boiler Return
BS Boiler Supply

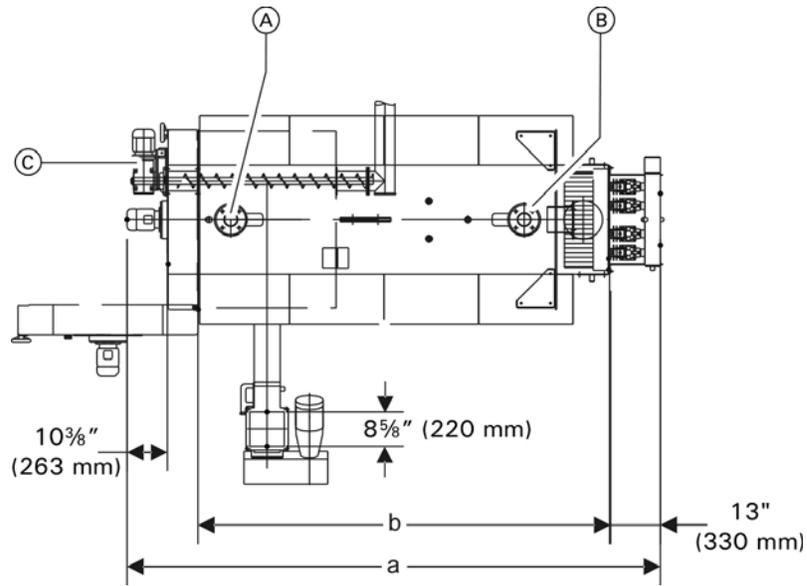


Dimensions

Boiler Model KRT-		150	220	300	400	540
a	in. (mm)	15 ⁷ / ₁₆ (392)	16 (406)	16 (406)	18 ³ / ₈ (466)	18 ³ / ₈ (466)
b	in. (mm)	60 ⁵ / ₈ (1541)	60 (1525)	73 ¹³ / ₁₆ (1875)	70 ⁷ / ₈ (1800)	79 ¹⁵ / ₁₆ (2030)
c	in. (mm)	14 ¹ / ₁₆ (358)	14 ¹ / ₁₆ (358)	13 ⁷ / ₈ (352)	14 ³ / ₄ (375)	14 ³ / ₄ (375)
d	in. (mm)	75 ¹ / ₈ (1908)	85 ³ / ₈ (2168)	86 ¹ / ₈ (2182)	96 ³ / ₄ (2457)	99 ¹ / ₂ (2527)
e	in. (mm)	11 ¹⁵ / ₁₆ (303)	12 ⁷ / ₁₆ (316)	12 ⁷ / ₁₆ (316)	12 ⁹ / ₁₆ (319)	12 ⁹ / ₁₆ (319)
f	in. (mm)	43 (1093)	46 ⁷ / ₁₆ (1179)	46 ⁷ / ₁₆ (1179)	48 (1219)	50 ³ / ₈ (1279)
g	in. (mm)	3 (DN 80)	3 (DN 80)	5 (DN 125)	5 (DN 125)	5 (DN 125)
h	in. (mm)	122 ¹³ / ₁₆ (3120)	134 ¹³ / ₁₆ (3424)	148 ¹³ / ₁₆ (3780)	157 ⁵ / ₈ (4004)	166 ⁵ / ₈ (4232)
k	in. (mm)	14 ⁹ / ₁₆ (370)	14 ⁹ / ₁₆ (370)	17 ⁵ / ₁₆ (440)	17 ⁵ / ₁₆ (440)	24 ⁹ / ₁₆ (548)
l	in. (mm)	34 ¹ / ₄ (870)	45 ¹ / ₄ (1150)	45 ¹ / ₄ (1150)	54 ³ / ₄ (1390)	54 ³ / ₄ (1390)
m	in. (mm)	69 ¹ / ₂ (1765)	79 ¹¹ / ₁₆ (2024)	79 ¹¹ / ₁₆ (2024)	89 ¹ / ₁₆ (2262)	91 ¹³ / ₁₆ (2332)
n	in. (mm)	71 ⁷ / ₈ (1825)	82 ¹ / ₁₆ (2084)	82 ¹ / ₁₆ (2084)	95 ³ / ₈ (2422) *1	98 ¹ / ₈ (2492) *1
o	in. (mm)	27 ⁹ / ₁₆ (700)	29 ³ / ₁₆ (742)			
p	in. (mm)	34 ¹ / ₄ (870)	45 ¹ / ₄ (1150)	45 ¹ / ₄ (1150)	54 ³ / ₄ (1390)	54 ³ / ₄ (1390)
q	in. (mm)	26 ¹ / ₂ (673)	29 ¹ / ₂ (750)			
r	in. (mm)	41 ³ / ₈ (1050)	52 ³ / ₈ (1330)	52 ³ / ₈ (1330)	61 ⁷ / ₈ (1570)	61 ⁷ / ₈ (1570)

*1 For Pyrot 400/540 - Suspension gear is detachable.

Boiler Dimensions *(continued)*



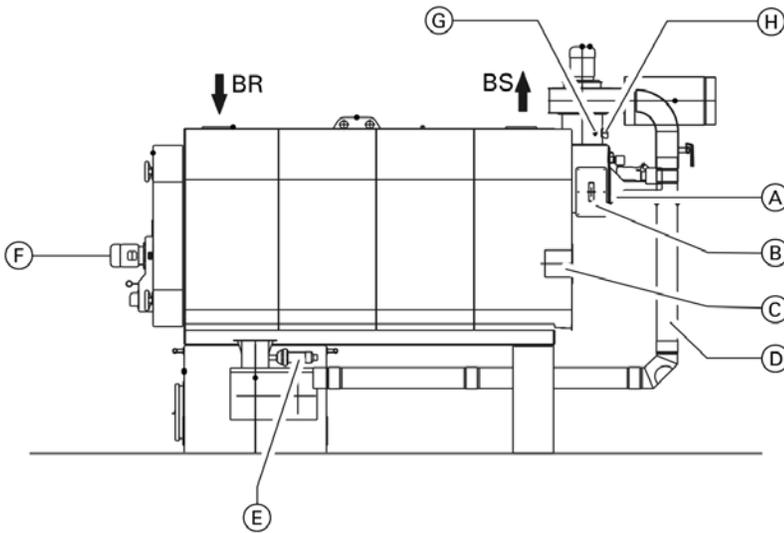
Legend

- (A) Boiler Return
- (B) Boiler Supply
- (C) Automatic de-ashing assembly with ash container (optional)

Dimensions

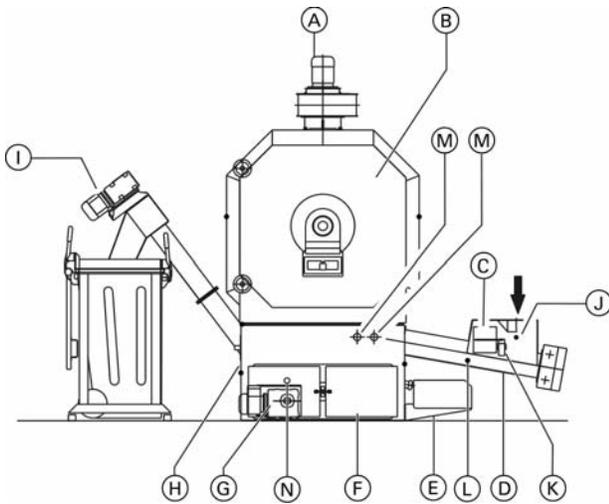
Boiler Model KRT-		150	220	300	400	540
a	in. (mm)	119½ (3035)	120½ (3059)	134 ⁷ / ₁₆ (3415)	136 ¹ / ₈ (3457)	145 ¹ / ₁₆ (3685)
b	in. (mm)	88 ⁹ / ₁₆ (2250)	89½ (2274)	103 ⁹ / ₁₆ (2630)	102 ¹⁵ / ₁₆ (2614)	111 ⁷ / ₁₆ (2842)

Boiler Components



Legend

- (A) Pneumatic cleaning system (optional)
- (B) Cleaning cover, flue gas collector, alternate port for the flue gas exhaust blower
- (C) Cover with sight glass
- (D) Recirculation gas line, line routing variable
- (E) Igniter
- (F) Rotary blower
- (G) Flue gas temperature sensor
- (H) Oxygen sensor
- BS Boiler Supply
- BR Boiler Return



Legend

- (A) Flue gas exhaust blower
- (B) Boiler door with rotary blower
- (C) Extinguishing water connection 3/4 in.
- (D) In-feed auger
- (E) Grate motor
- (F) Ash doors of the grate ash container (2 units)
- (G) Motor for automatic de-ashing assembly
- (H) Combustion chamber
- (I) Incline auger for automatic de-ashing assembly
- (J) Light barrier for in-feed auger
- (K) Limit switch for maintenance cover
- (L) Temperature sensor for in-feed auger
- (M) Light barrier for ember monitoring (2 locations)
- (N) Light barrier for automatic de-ashing assembly

Automatic De-ashing Assembly with Ash Container

Description

De-ashing in Ash Bin, 63.5 USG (240 L)
 De-ashing in Ash Bin, 211.3 USG (800 L)

Complete auger de-ashing from the ash chamber for the fire block into an externally situated movable galvanized ash bin. A light barrier control system keeps the level of the ashes constantly over the auger.
 As a result, the ash in the ash pan under the incineration system can burn out, and in normal operation only cool ash that has burned out is conveyed into the container.

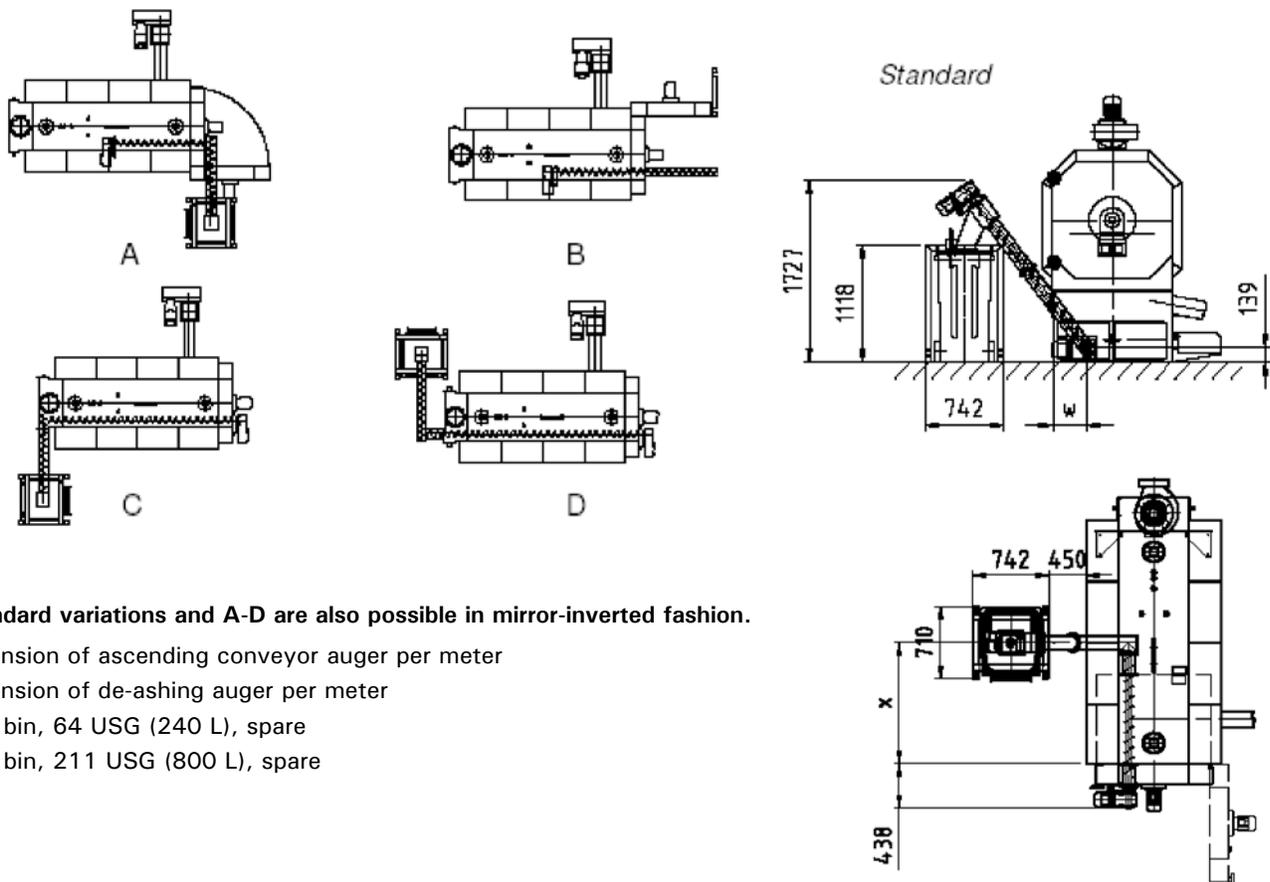
Supplied with:

- Boiler ash chamber with ash level control system and de-ashing auger made of high-temperature steel drive via worm-gear motor
- Connection station with moveable ash bin
- Triggering system for the drives
- Infrared light barrier for level monitoring of ash in the combustion chamber

Data and dimensions for de-ashing into ash bin, 64 USG (240 L)

Boiler Model		KRT-	150	220	300	400	540
Dimensions							
w	in (mm)		9 ^{13/16} (249)	12 ^{13/16} (319)	12 ^{13/16} (319)	11 ^{7/8} (301)	11 ^{7/8} (301)
x	in (mm)		40 ^{1/4} (1023)	40 ^{1/4} (1023)	47 (1193)	50 ^{1/8} (1273)	55 ^{7/16} (1408)

Connection station with moveable ash bin; mountable at 90° and thus making it possible to select the direction in which it moves out.



Standard variations and A-D are also possible in mirror-inverted fashion.

- Extension of ascending conveyor auger per meter
- Extension of de-ashing auger per meter
- Ash bin, 64 USG (240 L), spare
- Ash bin, 211 USG (800 L), spare

De-ashing in Base Container

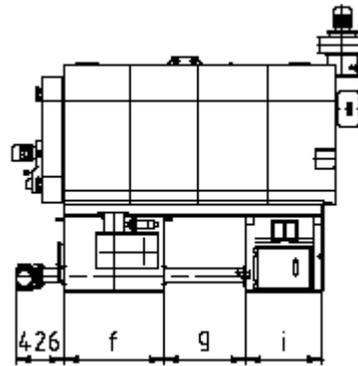
Description

- De-ashing in Base Container (for Pyrot KRT-150)
- De-ashing in Base Container (for Pyrot KRT-220)
- De-ashing in Base Container (for Pyrot KRT-300)
- De-ashing in Base Container (for Pyrot KRT-400)
- De-ashing in Base Container (for Pyrot KRT-540)

Complete de-ashing by auger of the combustion chamber ash chamber into the maximum volume base container situated under the boiler. A light barrier control system keeps the ash level over the auger even. As a result, the ash in the ash chamber under the gasification system can burn out, and in normal operation only cool ash that has burned out is conveyed into the container. With the large base container, maximum maintenance-free intervals are achieved.

Supplied with:

- Boiler ash chamber with ash level control system and de-ashing auger made of high-temperature steel; powered by a worm drive motor
- Base container with maximum volume and two maintenance doors for removing ash by vacuum or rake
- Control of the de-ashing by light barrier



Data and dimensions for de-ashing in base container

Boiler Model		KRT-	150	220	300	400	540
Dimensions							
f	in (mm)		29 ¹ / ₈ (740)	29 ¹ / ₈ (740)	34 ⁵ / ₈ (880)	37 ¹³ / ₁₆ (960)	43 ¹ / ₈ (1096)
g	in (mm)		17 ¹¹ / ₁₆ (450)	20 ³ / ₁₆ (513)	31 (787)	17 ¹⁵ / ₁₆ (456)	21 ¹¹ / ₁₆ (551)
i	in (mm)		23 ³ / ₈ (593)	26 ³ / ₄ (680)	26 ³ / ₄ (680)	31 ½ (800)	31 ½ (800)
Volume of base container							
USG (L)			63 (240)	95 (360)	100 (380)	158.5 (600)	185 (700)
Weight of complete de-ashing assembly with ash container (in addition to boiler weight)							
lb (kg)			705 (320)	749 (340)	793 (360)	838 (380)	882 (400)

Pneumatic Cleaning System

Description

Pneumatic Cleaning System (for Pyrot KRT-150)
 Pneumatic Cleaning System (for Pyrot KRT-220)
 Pneumatic Cleaning System (for Pyrot KRT-300)
 Pneumatic Cleaning System (for Pyrot KRT-400)
 Pneumatic Cleaning System (for Pyrot KRT-540)

The complete heat exchanger is cleaned off by periodic blasts of compressed air while the system is in regular operation. During the cleaning process the individual sections are blasted clean one after another.

The ash on the heat exchanger tubes is detached by very short but strong blasts of air. The particles detached are conducted by the flow of gas to the cyclone, where most are filtered out and collected. The system is built into the rear side of the boiler. The compressor should preferably be installed in a cool spot in the heating room.

Function of the control system:

The number of cleaning cycles within one time unit (e.g. per hour) is adapted to the load of the boiler. One individual, complete cleaning cycle consists of a series of pressure impulses over all the sections of the heat exchanger.

Supplied with:

- Nozzle element integrated in the exhaust gas collector, incl. connection piece with heat dissipation plates
- Compressed air distributor with container and valve; with high-temperature hoses connected to the nozzle element
- Compressor (optional) with the following specs: Delivery capacity of 11.3 CFM (0.32 m³/min); tank: 60 USG (227 L); pressure: max. 135 psi; motor: 3 HP, 1200 RPM, 230V, includes pressure controller, pressure switch and operating time limiter; plug and play; noise level of normal design: 75 dBA
- Compressed air hose to max. of 13 ft (4.0 m) in length and 3/4" in diameter
- Valves permanently wired on terminal strip
- Software component in the control system

To be carried out by the customer:

- Provide a power supply, 120V or 230/1/ 16A

Technical data

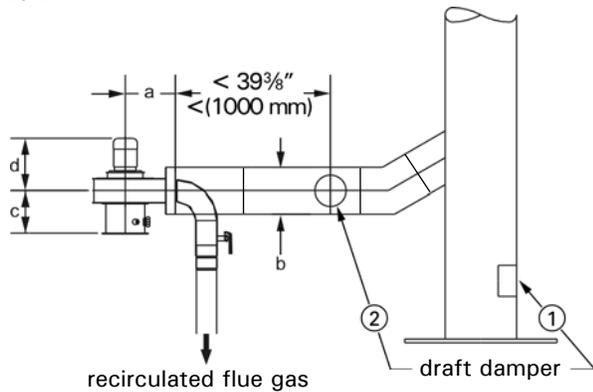
Boiler Model	KRT-	150	220	300	400	540
Number of zones/valves		4	4	4	5	6
Size of the valves		G 1"				
Max. air consumption at full load USG/h (L/h)		343 (1300)	660 (2500)	660 (2500)	872 (3300)	1189 (4500)

A customer supplied air compressor has to deliver at least the quantity and quality of air specified and have an adjustable pressure controller as well as a safeguard against hose rupture (e.g. operating time limiter).

Chimney Connection

It is recommended to install a draft damper in the chimney ①.
The draft damper is field supplied.

Optional, the Viessmann supplied draft damper can be installed in the flue gas pipe of the biomass boiler ②.
The draft damper should be installed in the flue gas pipe (not included) as close as possible to the chimney not closer than 39³/₈ In. (1000 mm) to the outlet of the flue gas exhaust blower. The final position has to be arranged with the chimney supplier. The draft damper must be installed in the heating room together with the biomass boiler.



Dimensions

Boiler Model KRT-		150	220	300	400	540
a	in. (mm)	11 ¹ / ₂ (292)	11 ¹ / ₂ (292)	12 ¹¹ / ₁₆ (323)	12 ¹¹ / ₁₆ (323)	17 ³ / ₈ (442)
b	in. (mm)	9 ⁷ / ₈ (250)	9 ⁷ / ₈ (250)	11 ⁷ / ₈ (300)	13 ⁷ / ₈ (350)	13 ⁷ / ₈ (350)
c	in. (mm)	9 ¹ / ₈ (232)	10 ¹ / ₈ (257)	10 ⁷ / ₈ (277)	14 (355)	14 (355)
d	in. (mm)	14 ¹ / ₁₆ (358)	14 ¹ / ₁₆ (358)	13 ⁷ / ₁₆ (352)	14 ³ / ₄ (375)	14 ³ / ₄ (375)
e	in. (mm)	9 ⁷ / ₈ (250)	9 ⁷ / ₈ (250)	11 ³ / ₄ (300)	13 ³ / ₄ (350)	13 ³ / ₄ (350)
f	in. (mm)	4 ⁷ / ₈ (125)	4 ⁷ / ₈ (125)	5 ⁷ / ₈ (150)	6 ⁷ / ₈ (175)	6 ⁷ / ₈ (175)

Flue Gas Cyclone

The flue gas cyclone minimizes dust emissions and is designed as a multi cyclone with axial function. The de-duster is fully insulated and has three covers for cleaning.

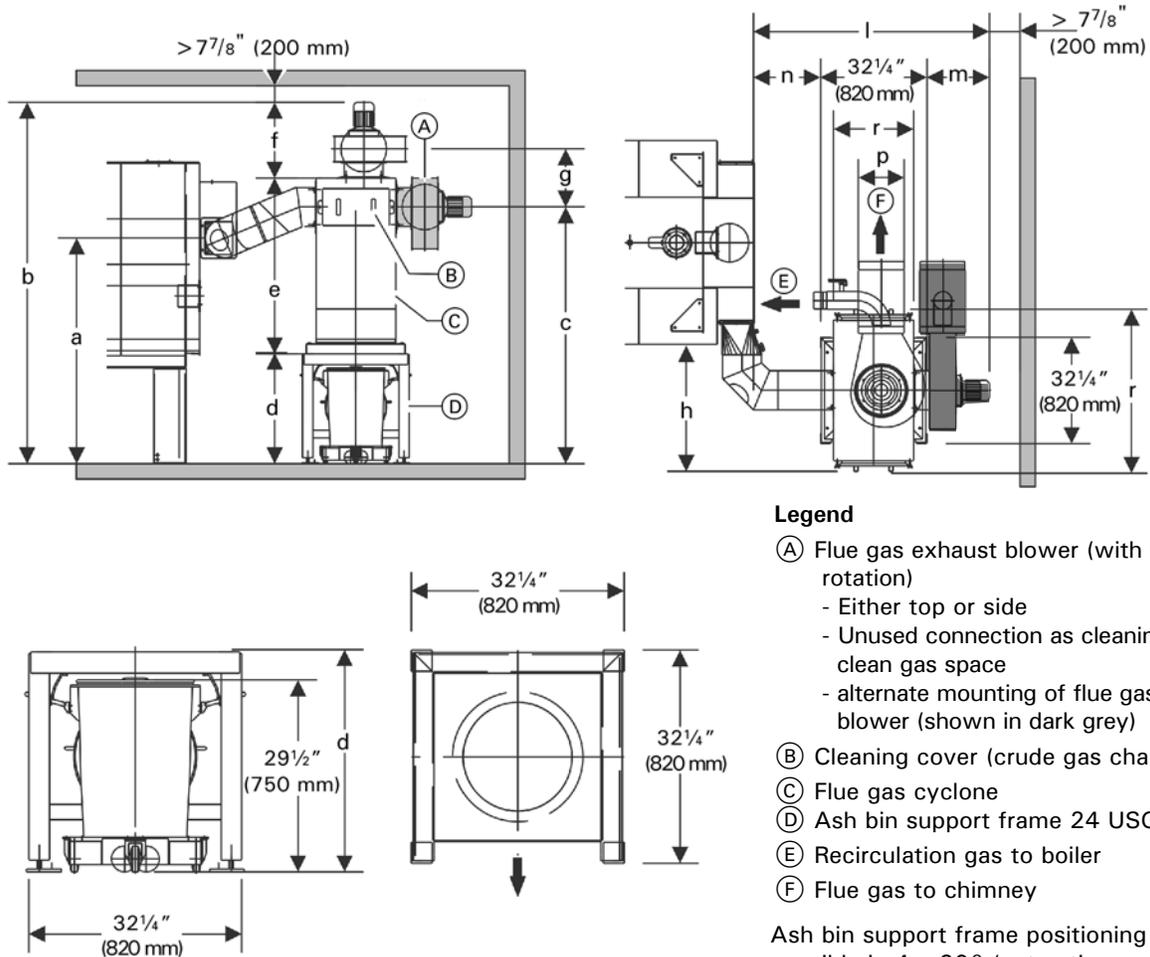
The crude gas chamber is cleaned via the side cleaning cover. The clean gas chamber is cleaned via the upper or back cleaning cover (unused blower connection).

The ash box has a carriage and is connected to the de-duster with quick-action fasteners. It can easily be pulled out for emptying. The blower can be installed either on the side or the top.

Supplied with:

- 1 flue gas cyclone
- 1 ash container 24 USG (90 L)

! CAUTION
The effects of heat can create dangerous conditions.



Legend

- Ⓐ Flue gas exhaust blower (with variable rotation)
 - Either top or side
 - Unused connection as cleaning cover, clean gas space
 - alternate mounting of flue gas exhaust blower (shown in dark grey)
- Ⓑ Cleaning cover (crude gas chamber)
- Ⓒ Flue gas cyclone
- Ⓓ Ash bin support frame 24 USG (90 L)
- Ⓔ Recirculation gas to boiler
- Ⓕ Flue gas to chimney

Ash bin support frame positioning is possible in 4 x 90° (extraction, ash bin)

Boiler Model	KRT-	150	300	400	540
a	in. (mm)	59 ⁷ / ₈ (1521)	64 ¹ / ₈ (1628)	65 ³ / ₄ (1671)	68 ⁹ / ₁₆ (1741)
b	in. (mm)	90 (2285)	100 ¹ / ₂ (2552)	106 ³ / ₈ (2702)	109 ⁵ / ₁₆ (2776)
c	in. (mm)	59 ³ / ₄ (1518)	69 ⁷ / ₈ (1775)	73 ¹³ / ₁₆ (1875)	76 ³ / ₄ (1949)
d	in. (mm)	33 ⁵ / ₁₆ (846)	33 ⁵ / ₁₆ (846)	33 ⁵ / ₁₆ (846)	36 ¹ / ₄ (920)
e	in. (mm)	35 ⁷ / ₁₆ (899)	45 ¹ / ₂ (1156)	49 ⁷ / ₁₆ (1256)	49 ⁷ / ₁₆ (1256)
f	in. (mm)	21 ¹ / ₄ (540)	21 ⁵ / ₈ (550)	23 ⁵ / ₈ (600)	23 ⁵ / ₈ (600)
g	in. (mm)	16 ¹⁵ / ₁₆ (430)	16 ¹¹ / ₁₆ (424)	17 ⁵ / ₈ (447)	17 ⁵ / ₈ (447)
h	in. (mm)	21 ⁷ / ₁₆ (545)	20 ⁷ / ₈ (530)	38 ¹ / ₂ (977)	38 ¹ / ₂ (977)
l	in. (mm)	64 ⁹ / ₁₆ (1640)	56 ¹¹ / ₁₆ (1440)	70 ¹ / ₂ (1790)	70 ¹ / ₂ (1790)
m	in. (mm)	16 ⁵ / ₁₆ (414)	16 ⁵ / ₁₆ (414)	18 ⁷ / ₈ (480)	18 ⁷ / ₈ (480)
n	in. (mm)	11 (280)	14 ⁹ / ₁₆ (370)	14 ⁹ / ₁₆ (370)	14 ⁹ / ₁₆ (370)
p	in. (mm)	7 ⁷ / ₈ (200)	9 ⁷ / ₈ (250)	11 ¹³ / ₁₆ (300)	11 ¹³ / ₁₆ (300)
r	in. (mm)	30 ¹¹ / ₁₆ (780)	30 ¹¹ / ₁₆ (780)	49 ⁵ / ₈ (1260)	49 ⁵ / ₈ (1260)

Metal Mesh Filter

The metal mesh filter removes dust and fine dust from the flue gas. It is characterized by a particularly high degree of separation. This ensures a fine dust content of less than 20 mg/Nm³ in the clean gas. The flue gas cyclone is not required when using the metal mesh filter.

The metal mesh filter compresses two block shaped units joined together. The compact design enables it to also be used in low level boiler rooms. The filter cartridges are robust and resistant to a shower of sparks.

Function:

The filter is operated under negative pressure. With the cylindrical filter cartridges, the flow is from outside in. The filter cartridges are protected against condensation by means of a heating system and are therefore protected against corrosion.

In the case of boiler demand, the filter cartridges are preheated. If the set filter temperature is reached, boiler start-up operation is enabled. If the temperature falls below the filter temperature set point, the filter heating system starts in heating mode.

The filters are cleaned automatically in the counter current. This means that the dust layer on the mesh is regularly discarded into the ash box.

Filter operation is controlled via the boiler control unit. Operation is carried out via the control unit programming module.

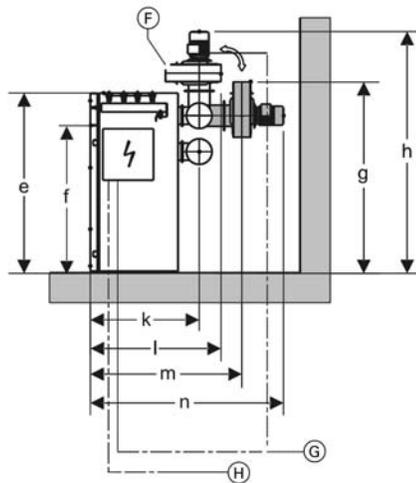
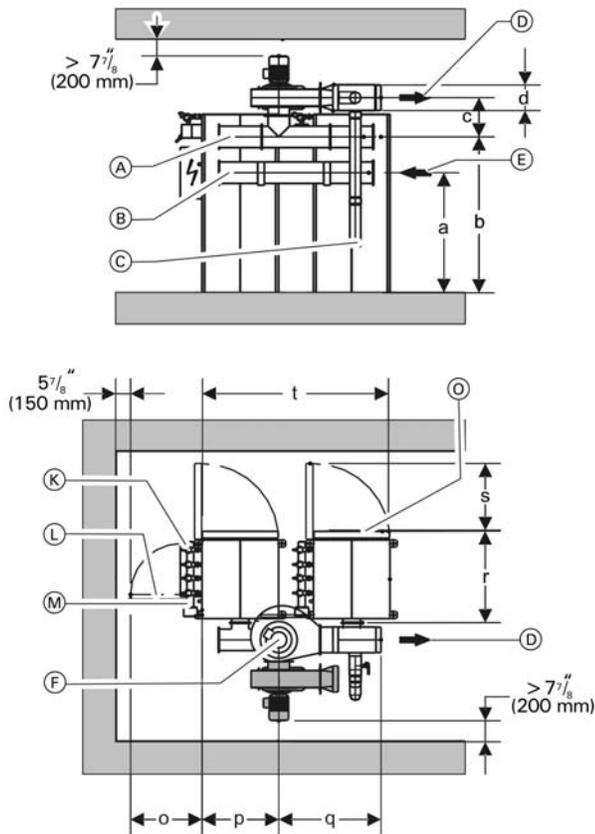
Supplied with:

- Two-part, insulated filter casing with:
 - Hinged doors, lockable by means of a quick-action fastener and lock
 - Maintenance cover for clean gas space
- Filter cartridges
- Ash box
- Electric heater
- Pneumatic cleaning
- Flue gas exhaust blower for boiler and filter
- Control panel fully wired.

On-site tasks:

Provision of a compressor or a connection to a compressed air line system [adjustable pressure level 4-6 bar (60-90 psi)] and a power supply of 208/3/60.

Metal Mesh Filter (continued)



Legend

- Ⓐ Clean gas collector
- Ⓑ Crude gas distributor (connection possible on both sides)
- Ⓒ Recirculation gas connection
- Ⓓ Clean gas to chimney
- Ⓔ Crude gas from boiler (connection possible on both sides)
- Ⓕ Flue gas exhaust blower (with variable rotation)
(alternate mounting of flue gas blower shown in dark grey)
- Ⓖ Control panel Ecotronic
- Ⓗ Power supply 208/3/60
- Ⓚ Pneumatic cleaning system
- Ⓛ Control panel door
- Ⓜ Compressed air connection
- Ⓞ Filter door

Dimensions

Boiler Model KRT-		220	300	400
a	in. (mm)	55 ⁵ / ₈ (1413)	55 ⁵ / ₈ (1413)	55 ⁵ / ₈ (1413)
b	in. (mm)	72 ³ / ₁₆ (1833)	72 ³ / ₁₆ (1833)	72 ³ / ₁₆ (1833)
c	in. (mm)	18 ¹ / ₈ (460)	18 ¹ / ₈ (460)	18 ¹ / ₈ (460)
d	in. (mm)	11 ¹³ / ₁₆ (300)	11 ¹³ / ₁₆ (300)	13 ³ / ₄ (350)
e	in. (mm)	82 ⁹ / ₁₆ (2096)	82 ⁹ / ₁₆ (2096)	82 ⁹ / ₁₆ (2096)
f	in. (mm)	67 ³ / ₄ (1720)	67 ³ / ₄ (1720)	67 ³ / ₄ (1720)
g	in. (mm)	87 ¹³ / ₁₆ (2230)	87 ¹³ / ₁₆ (2230)	87 ¹³ / ₁₆ (2230)
h	in. (mm)	111 (2820)	111 (2820)	111 ¹ / ₄ (2827)
k	in. (mm)	50 (1270)	50 (1270)	55 ¹ / ₈ (1400)
l	in. (mm)	65 ³ / ₄ (1670)	65 ³ / ₄ (1670)	67 ⁵ / ₈ (1717)
m	in. (mm)	68 ¹ / ₈ (1730)	68 ¹ / ₈ (1730)	69 ¹¹ / ₁₆ (1770)
n	in. (mm)	88 ³ / ₄ (2255)	88 ³ / ₄ (2255)	94 ¹ / ₂ (2400)
o	in. (mm)	33 ¹ / ₁₆ (840)	33 ¹ / ₁₆ (840)	33 ¹ / ₁₆ (840)
p	in. (mm)	35 ⁷ / ₁₆ (900)	35 ⁷ / ₁₆ (900)	35 ⁷ / ₁₆ (900)
q	in. (mm)	46 ¹⁵ / ₁₆ (1192)	46 ¹⁵ / ₁₆ (1192)	47 (1040)
r	in. (mm)	42 ¹⁵ / ₁₆ (1069)	42 ¹⁵ / ₁₆ (1069)	42 ¹⁵ / ₁₆ (1069)
s	in. (mm)	31 ¹ / ₂ (800)	31 ¹ / ₂ (800)	31 ¹ / ₂ (800)
t	in. (mm)	86 ⁵ / ₈ (2200)	86 ⁵ / ₈ (2200)	86 ⁵ / ₈ (2200)

Weight

Transport weight	lb. (kg)	1036 + 1036 (470 + 470)	1081 + 1081 (490 + 490)	1081 + 1081 (470 + 470)
Total weight	lb. (kg)	2073 (940)	2117 (960)	2161 (980)

Safety Devices

Boiler system with return valve

To reliably prevent boiler corrosion through condensation of the flue gases, the boiler return temperature must never be below 149°F (65°C).

The step less control of the PYROT rotating combustion chamber requires a constant flow through the boiler of the water to be heated. The boiler circuit, the boiler pump and boiler 3-way mixing valve must therefore be installed according to section piping and installation of safety devices.

The boiler circuit should be designed that the temperature difference between the boiler supply and the boiler return temperature is equal to or less than 27°F (15°C).

The activation of the boiler pump and boiler 3-way mixing valve is integrated in the custom control panel.

The safety equipment for the heating installation must be installed by the heating contractor authorized to do so.

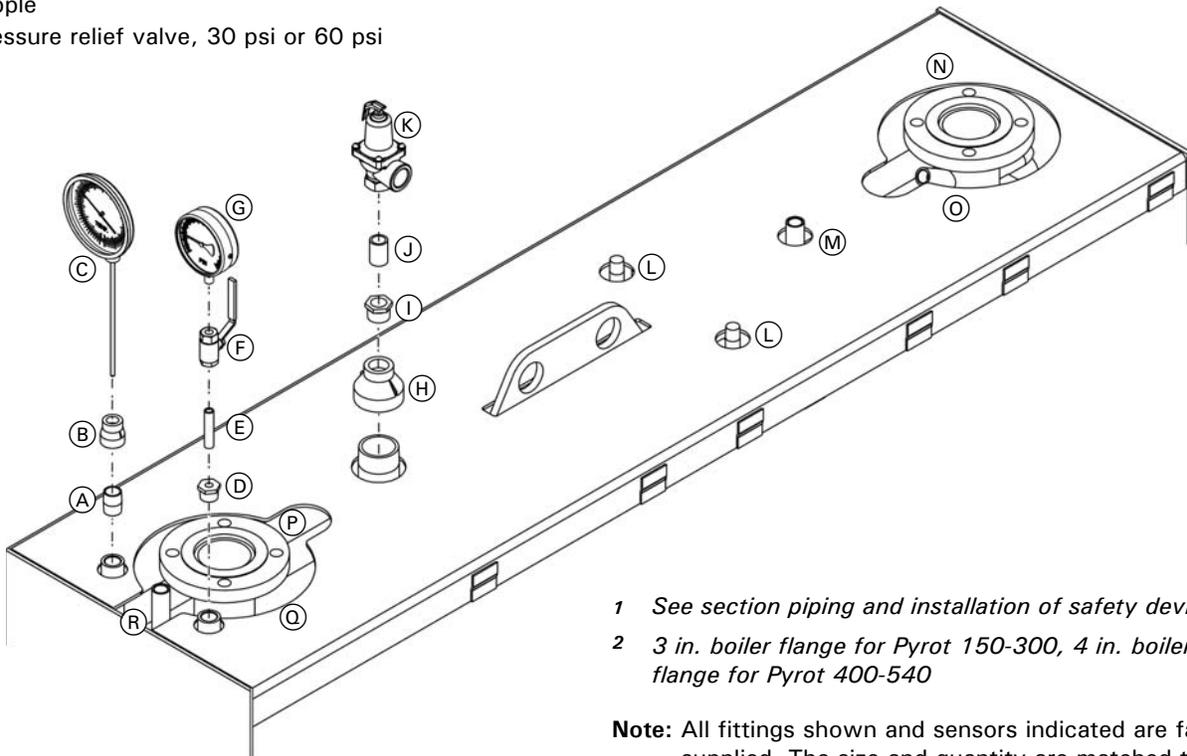
Fire extinguishing water tank

The self-activating extinguishing device must be installed next to the boiler feed system. Refer to section fire extinguishing systems for the assembly.

The fire suppression is performed by means of an extinguishing valve, which is not dependent on an electric current. A float-type switch monitors the water level and should be electrically connected (see field wiring diagram).

Legend

- (A) Nipple, 3/4 in. x 1 1/2 in.
- (B) Reducing coupling, 3/4 in. x 1/2 in.
- (C) Boiler water temperature gauge
- (D) Bushing 3/4 in. x 1/4 in.
- (E) Nipple 1/4 in. x 2 1/2 in.
- (F) Ball valve 1/4 in.
- (G) Pressure gauge
- (H) Reducing coupling
- (I) Reducing bushing
- (J) Nipple
- (K) Pressure relief valve, 30 psi or 60 psi
- (L) Safety heat exchanger connections, NPTM 1/2 in. ¹
- (M) Sensor well - fixed high limit
- (N) 3 in. or 4 in. Boiler supply flange ²
- (O) Supply sensor well (sensor supplied)
- (P) Return sensor well (sensor supplied)
- (Q) 3 in. or 4 in. Boiler return flange ²
- (R) Sensor well for thermal safety flush valve (R1/2 in.) (sensor supplied)

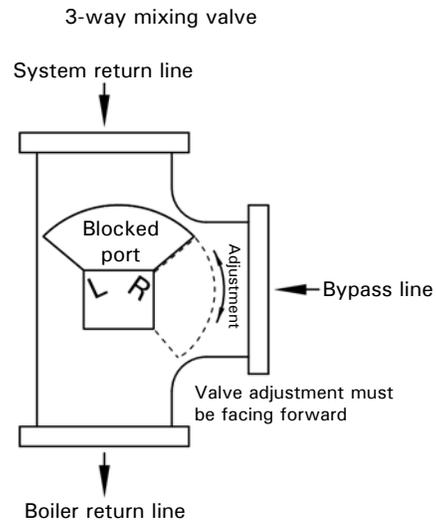
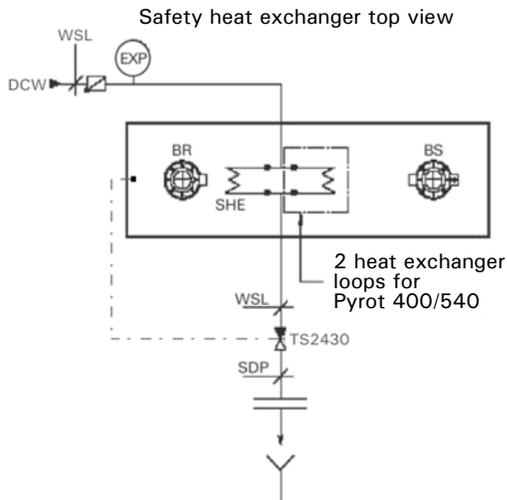
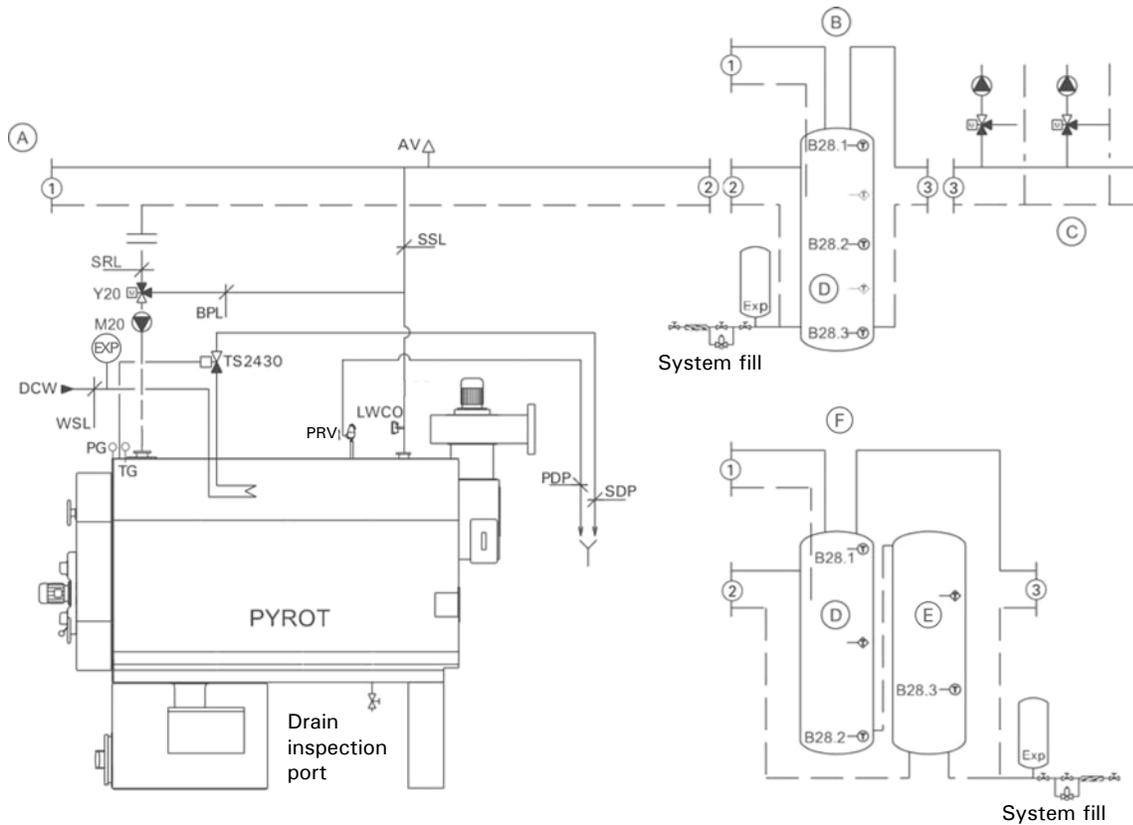


¹ See section piping and installation of safety devices

² 3 in. boiler flange for Pyrot 150-300, 4 in. boiler flange for Pyrot 400-540

Note: All fittings shown and sensors indicated are factory supplied. The size and quantity are matched to the specific boiler model.

Piping and Installation of Safety Devices



Legend

- (A) Additional heat source
- (B) Thermal storage tank as low loss header (option A) (3 sensors, optionally 5 sensors)
- (C) Distributor, heat consumer
- (D) Thermal storage tank #1
- (E) Thermal storage tank #2
- (F) Two thermal storage tanks as low loss header (option B) (3 sensors, optionally 5 sensors)
- (G) Additional heat source controlled with a directional control valve for oil/gas boiler

①, ② and ③ indicates system connections

Piping and Installation of Safety Devices *(continued)*

Note: To reliably prevent boiler corrosion caused by condensation of flue gases, the boiler return temperature must not under any circumstances be below 150°F (65°C).
 A Viessmann sized boiler pump with a boiler 3-way mixing valve are provided according to the tables below. The boiler circuit should be designed that the temperature difference between the supply and the return temperature is equal to or less than Δt 27°F (15°C).
 The expansion tank has to be connected to the boiler without any shut-offs.

Safety equipment included in the scope of supply provided by Viessmann:

- M 20 Boiler pump
- Y 20 Boiler 3-way mixing valve
- PRV Pressure relief valve, pressure set to 30 or 60 psi
- TS2430 Thermal safety flush valve R ¾ in., approved component; special-purpose, designed for opening at a temperature of 122°-248°F (50°-120°C), (safety heat exchanger loop built into the boiler).
 The Pyrot 150 to Pyrot 300 have one safety heat exchanger loop and require one thermal safety flush valve. The Pyrot-400 and Pyrot-540, have two safety heat exchanger loops and require one thermal safety flush valve.
- LWCO Low water cut-off
- PG Pressure gauge
- TG Temperature gauge (thermometer)
- SHE Safety heat exchanger, water volume 1.1 USG (4.2L) per loop, NPTM ½ in.

Equipment to be supplied by the installing heating contractor:

- PDP Pressure relief valve drain pipe
- DCW Cold water inlet, min. 36 psi (2.5 bar), max. 51 psi (3.5 bar)
- AV Air separator / vent
- ExP Expansion tank closed;
 - for safety heat exchanger required (size according to volume of safety heat exchanger loops and volume of piping)
 - for heating system (optional)
- WSL Water supply line for safety heat exchanger
- SDP Safety heat exchanger drain pipe
- SRL System return line to the boiler from the system
- SSL System supply line from the boiler to the system
- BPL Bypass line
- BR Boiler return
- BS Boiler supply

Design recommendation:

Thermal safety flush valve

Boiler Model KRT-	Thermal safety flush valve TS-2430 (Quantity)	Water through-put required at 36 psi (2.5 bar)		Supply line WSL	Drain pipe SDP ²
		L/h	GPM		
150	1	915	4	R ¾ in.	R 1 in.
220	1	1230	5.4	R ¾ in.	R 1 in.
300	1	1500	6.6	R ¾ in.	R 1 in.
400	1	1880	8.3	R ¾ in.	R 1 in.
540	1	2226	10	R ¾ in.	R 1 in.

Pressure relief valve

Boiler Model KRT-	Pressure relief valve Conbraco ¹ 30 psi or 60 psi		Pressure relief valve drain pipe PDP ² 30 psi or 60 psi	
	1 in.	¾ in.	1 ¼ in.	1 in.
150	1 in.	¾ in.	1 ¼ in.	1 in.
220	1 in.	¾ in.	1 ¼ in.	1 in.
300	1 ¼ in.	1 in.	1 ½ in.	1 ¼ in.
400	1 ¼ in.	1 ¼ in.	1 ½ in.	1 ½ in.
540	1 ½ in.	1 ¼ in.	2 in.	1 ½ in.

¹ Threaded connection for supply line

² Length of the drain pipe up to 13 ft. (4.0 m)

Piping and Installation of Safety Devices *(continued)*

Design recommendation (continued):

Boiler pump

Boiler model KRT-	Pump	Freq.	Voltage and phase	Speed
150	UPS 32-80 F	60 Hz	3 x 208-230 V	3
220	UPS 40-80/4 F	60 Hz	3 x 208-230 V	1
300	UPS 50-80/4 F	60 Hz	3 x 208-230 V	2
400	UPS 80-80/4 F	60 Hz	3 x 208-230 V	2
540	UPS 80-80/4 F	60 Hz	3 x 208-230 V	3

3-way mixing valve

Boiler model KRT-	Nominal pipe size	Valve
150	2½ in.	3-way mixing valve
220	2½ in.	3-way mixing valve
300	3 in.	3-way mixing valve
400	3 in.	3-way mixing valve
540	4 in.	3-way mixing valve

Viessmann ASME recommended tank sizes (U-stamped)

Boiler model KPT-	Tank size	
	L	USG
150	1514	400
220	2006	530
300	2650	700
400	3785	1000
540	5678	1500

Fire Protection

Follow local regulations for wood-fired heating systems.

Power failure provision

The customer must ensure that there is a supply of water independent of the electrical supply. This design ensures that in case of a power failure, the boiler will be reliably cooled by the thermal safety flush valve.

Protection against back-burn for the boiler plant

The following safeguards are part of the scope of supply for the PYROT Rotating Combustion System:

- Preventing overfilling of the combustion chamber

A level monitor must be installed to prevent overfilling of the combustion chamber. The PYROT Rotating Combustion System has a light barrier to monitor the embers.

- Preventing back-burn

With a temperature sensor directly on the in-feed auger, any danger of back-burn initiation will be detected and quickly counteracted at an early stage by increasing the fuel conveyance speed into the combustion chamber.

- Back flash safeguard

The PYROT Rotating Combustion System is operated with continuous negative pressure and is equipped with a back flash prevention device. This device prevents back flashes caused by flying embers or combustible gases that may ignite the fuel system.

- Automatic In-feed auger extinguishing system

The supplied fire extinguishing system is necessary on the in-feed auger. This system should reliably prevent back-burn in case of a malfunction (such as a power failure). For safety reasons and to prevent damage by flooding, connecting the extinguishing system directly to the water network is not advisable.

This extinguishing system must be equipped with a 6.6 USG (25 L) extinguishing water tank with a float-type switch and an adjustable Danfoss extinguisher valve. The tank for the extinguishing system must be equipped with a level monitoring system.

If there is a shortage of water, the PYROT Rotating Combustion System will switch off automatically. In case of excess temperature, the in-feed auger will be flooded reliably but in a limited fashion.

IMPORTANT

The heating contractor must perform the installation of the fire extinguishing system as specified in section fire extinguishing systems.

Fire Protection *(continued)*

Back-burn safeguard for the fuel supply system

The fire extinguishing system for the conveyor auger and the down pipe depends on specific requirements (location, size of the fuel storage site, material, pressure conditions and regulations), these being accessories to the scope of delivery ordered from Viessmann according to their descriptions.

Automatic triggering system for the fuel supply system

Approved in part as a variation to the shut-off valve in pressure-less fuel storage units.

Slide valve

The slide valve is approved in pressure-less fuel storage units and is a suitable safeguard against back-burn.

The slide valve is optional and closes in case of standstill, danger of back-burn, or power failure, with the help of a spring return motor.

IMPORTANT

We recommend installing a rotary valve for the PYROT Rotating Combustion System. In addition to being a safeguard against back-burn, this will also prevent any penetration by air leaking in via the in-feed auger.

Rotary valve

The Rotary valve is optional and used if remnant wood is moved into fuel storage spaces with blowers, then, in order to reduce pressure applied, at least one rotary valve is necessary to reduce pressure between the fuel storage unit and the boiler. The rotary valve is suited to reduce pressure and at the same time is considered a suitable safeguard against back-burn.

Max. overpressure allowed in fuel storage unit:
+ 500 Pa / + 2.00"wc.

Max. negative pressure allowed in fuel storage unit:
+ 0 Pa / + 0"wc.

Double rotary valve with pressure compensation system

If, due to special circumstances, any mechanically produced negative pressures or extraordinarily high overpressures are expected in the fuel storage unit, then two rotary valves must be installed in the material transport route according to the respective project plan with a pressure compensation line to the outdoors.

Max. overpressure allowed in fuel storage unit:
+ 3000 Pa / + 12"wc.

Max. negative pressure allowed in fuel storage unit:
-3000 Pa / -12"wc.

IMPORTANT

The supplier of the silo must confirm the maximum weight that is to be expected on the rotary valve.

The rotary valve below the silo extraction system can become leaky due to wear of the sealing elements or through large pieces of wood that cannot be conveyed. This leakage can make it possible for low-temperature gases to flow back from the boiler into the silo.

A smoke alarm must be installed between the rotary valve and the silo extraction system, which, when triggered, will disconnect the system and create negative pressure in the silo.

Down pipe

A vertical drop-off section interrupts the connected line of burning material.

Fire protection for fuel storage space

Viessmann does not provide fire protection for the fuel storage space.

IMPORTANT

The local building codes and regulations must be followed by the heating contractor.

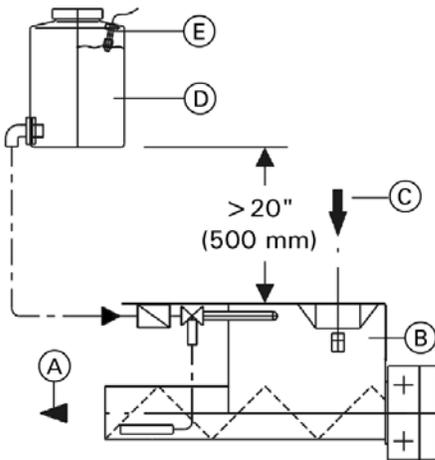
Fire Extinguishing System

The fire extinguishing system functions independent from the electrical power and is flooding the material which is still remaining in the in-feed auger in case of a back-burn. The activation temperature is approx. 200°F (95°C).

Fire extinguishing system for the in-feed auger

Note: The fire extinguishing system for the in-feed auger is part of the boiler.

- Line from the extinguishing water container to the ½ in. valve (as short as possible).
- Valve thermostatic, Danfoss AVTA 15 122°F - 194°F (50°C - 90°C) position 3 equals approximately 176°F (80°C).
- The lines must be executed as hard piping in metal (½ in.).
- It must not be possible to shut off the cold water inlet without the aid of tools.
- Be especially sure to comply with the instruction in the Fire Protection section.

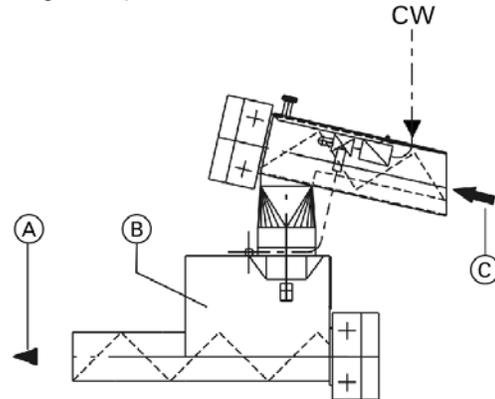


Legend

- (A) Combustion
 - (B) Metering Container
 - (C) Fuel supply
 - (D) Extinguishing water container 6.6 USG (25 L)
 - (E) N1 Floater switch
- CW Cold water supply ½ in. min. 30 psi (2.0 bar), max. 45 psi (3.0 bar)

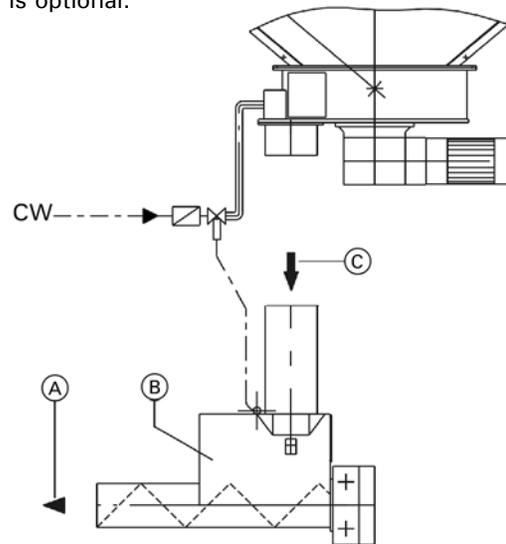
Fire extinguishing system for the conveyor auger

Note: The fire extinguishing system for the conveyor auger is optional.



Fire Extinguishing System for the Down Pipe

Note: The fire extinguishing system for the down pipe is optional.



Note: A slide valve is required as standard for an unpressurized material store or a rotary valve for a material storage with over pressure or under pressure (charging with blower, e.g. wood processing operations).

- The lines must be executed as hard piping in metal (½ in.).
- It must not be possible to shut off the cold water inlet without the aid of tools.
- Be especially sure to comply with the instruction in the Fire Protection section.

Vitocontrol

Mounting of the control panel

The control panel should be in an area where the heat radiation (front side of boiler, rear side of boiler with flue gas deduster and flue gas exhaust blower as well as recirculation line) and the exposure to dust during cleaning is at a minimum.

The ambient temperature for the control panel (approx. 4 in. (100 mm) away from the control cabinet) should not exceed 104°F (40°C) while the system is in operation. The minimum temperature must not be less than 50°F (10°C). In case of doubt, preference should be given to placing the control panel outside the mechanical room near the heating room door.

Electrical connection

- Install the control panel according to the field wiring diagram. The field wiring diagram is supplied with the control panel.
- In the area of hot parts (flue gas exhaust blower, flue gas pipe), the lines should be installed in steel pipes at an appropriate distance so as to be protected from excessive temperatures. See section "Boiler Wiring".
- The cable bushings to the motors and equipment must be dust-tight and provided with a strain relief.

A microprocessor control system for the complete PYROT Boiler Plant, including control of the fuel loading systems required for the separately listed items. The heat output of the boiler adjusts to the heat consumption in modulating fashion. A regulating circuit for the combustion optimizing system is superimposed on the output control circuit with an oxygen sensor. Maximum quality criteria are met in terms of fire protection and personal protection.

Functions:

- Automatic ignition
- Output and control circuits with modulating output operation (25%-100%)
- Air-conducted by means of a speed-regulated exhaust fan, depending on the boiler supply temperature
- Precise re supplying of fuel by the in-feed auger from the metering container with an insulating layer
- Refilling of the metering container with the use of a level monitoring system
- Limitation and distribution of the mass burning in the combustion chamber by means of a level monitoring system in the combustion chamber along with movement of the feed grate
- Emissions-optimized control circuit: Optimized air supply through motor-operated air vents for the best possible combustion using an oxygen sensor. Upholding the return temperature with the boiler mixing value provides for a long service life of the boiler.
- Safety functions for: Excess temperature, burn-back, opening of a lid in the loading system and forced heat dissipation
- Floating output (malfunction combustion system)

Operation:

Operation is carried out by means of a control panel with a membrane keyboard and plain language display. All the operational data can be read on the display. The set points for all the important parameters can be entered simply using the keyboard. Malfunctions are displayed in plain language and indicated in the order of their occurrence.

Supplied with:

- A microprocessor control system (control panel with back-lit plain language display), CSA-tested, battery-backed real-time clock, RS 232 serial interface for connection to PC.
- Control cabinet (uninstalled), surface powder-coated with RAL 7035 (gray) textured, executed according to CSA C.22, ready-wired on series terminals, Power supply: 208V/3/60Hz; control voltage: 120/240V/1/60 Hz or 24V
- Adapted, updateable software
- Soft starter for all the drives for the loader system (208V/3/60 Hz) according to the items priced separately
- Overload protection for boiler pump
- Outputs for stepping motors
- Variable frequency drive (EMC-Operation Class 3) for exhaust fan
- Main disconnect
- Documentation, including bound circuit diagram, terminal connection diagram with cable designation, service and maintenance instructions, installation and operating instructions in document pocket
- Sensors and switches for the in-feed auger
- Infrared light barrier level monitoring system, insulating layer for in-feed auger
- Safety limit switch on the maintenance lid for the in-feed auger
- PT-100 temperature sensor for the in-feed auger
- Sensors and switches on the combustion chamber for firing and in the exhaust gas nozzle (installation on site)
- Infrared light barriers for level monitoring of fuel in the combustion chamber
- Oxygen sensor with instrument reading converter
- PT-100 exhaust gas sensor
- Sensors and switches mounted on top of the boiler
- KTY boiler sensor in the connecting piece, supply
- KTY boiler return sensor in the connecting piece, return
- Fixed high limit
- Sensor, uninstalled
- One KTY sensor with sensor shell, 1/2 " x 280 mm

Vitocontrol Accessories

Triggering System for external drive

Function:

Starttec, motor soft start for optimized connection of an external conveyor drive or rotary valve without reversal. A CAN bus is used to directly connect the motors to the gentle start-up system via the Ecotronic. Temperature-monitored and protected against overloading. Its electronic circuit breakers are wear-free, even at high switching frequencies.

Supplied with:

- Starttec completely integrated in the control cabinet
- Parameter assignment for the drive function
- Input in the control cabinet for safety end switch on the maintenance cover
- Output in the control cabinet for external conveyor drive

Customer supplied:

- Delivery and/or installation of safety end switch for the external conveyor drive

Note: Only for PYROT. Starttec is built into the control cabinet for the boiler plant.

Only possible with defined, limited material feed facility (upstream conveyor auger)

Triggering System for external drive with light barrier

Function:

Starttec motor starter for optimized connection of an external conveyor drive without reversal. A CAN bus is used to directly connect the motors to the gentle start-up system via the Ecotronic. Temperature-monitored and protected against overloading. Its electronic circuit breakers are wear-free, even at high switching frequencies. Additional protection of the external drive through level-monitoring system of the further feed system by means of a light barrier. The light barrier connects directly to the Starttec for the continuing feed system, affecting the extraction system.

Supplied with:

- Starttec completely integrated in control cabinet
- Parameter assignment for the drive function
- Input in the control cabinet for safety end switch on the maintenance cover
- Output in the control cabinet for external conveyor drive
- Infrared light barrier, level-monitoring system for fuel

Customer supplied:

- Delivery and/or installation of safety end switch for the external conveyor drive

Note: Only for PYROT. Starttec is built into the control cabinet for the boiler plant.

Note: The control system components below are reserved for the PYROT Single-unit System.

With the PYROT Double-unit System, these functions are included in the Mastercontrol.

Thermal Storage Tank Management System 3 Sensors

Function:

Using a heat accumulator improves the modulating output operation of the PYROT grate firing system. In addition, sudden heat requirement peaks are covered.

The accumulator's load of heat is detected by the temperature sensors. The firing power is adapted to the accumulator's degree of loading.

Supplied with:

- Two additional KTY sensors with sensor well, 1/2" x 280 mm

External Request ON/OFF

Input for switching the system on and off automatically by an external potential-free N.O. contact.

Operational Message

Function:

System status "Operating Load" indication; from operation of the boiler pump to higher-level control.

Supplied with:

- Floating output (operational message)

Output signals 0 - 10 V

Function:

The system includes output of the boiler in the form of a voltage signal and preparation for connection to receive a maximum limitation of the boiler output.

Supplied with:

- Output of the boiler, 0 - 10 V
- Reception and processing of an external output limitation

0.1 - 3 V..... Standby

3.1 - 10 V... 30% to 100% output operation

Note: Installation of "Output signals 0 - 10 V" is possible according to "QM for Wood Heating Systems" irrespective of any additional control system components to be used.

Vitocontrol Accessories *(continued)*

Note: The control system components below are reserved for the PYROT Single-unit System. With the PYROT Double-unit System, these functions are included in the PYROT Mastercontrol.

Export System for Operational Data

Function:

Output of all relevant operational data and error reports for the PYRTEC Boiler Plant via MOD-BUS in the form of an ASCII-data record via serial interface to higher-level control equipment of the customer's. All the adjustable parameters can be changed via the higher-level control equipment as long as the control equipment provides for this.

Supplied with:

- Interface on the control panel
- Software component
- MOD-BUS protocol (baud rate 9600)

Visualization by web server

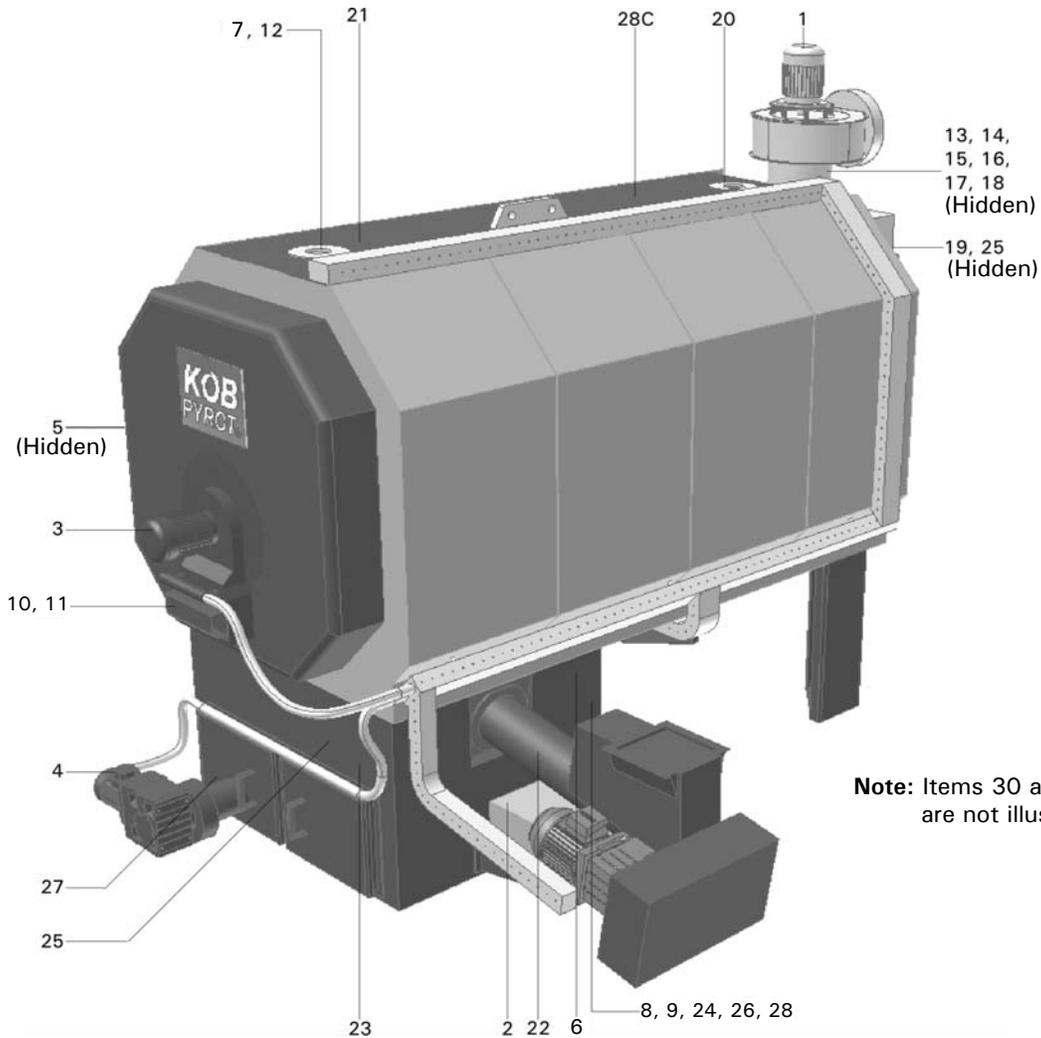
Function:

A complete package for transmitting all data to a remote computer for visualization, remote maintenance and archiving of operational data for the PYRTEC Boiler Plant. The hardware and software are integrated in the Vitocontrol control system. All the adjustable parameters can be changed from the remote computer.

Customer supplied:

- IP address configuration

Electrical Components



Note: Items 30 and 32 are not illustrated.

Electrical Components *(continued)*

Component overview

M High voltage

Y Low voltage

B Sensors

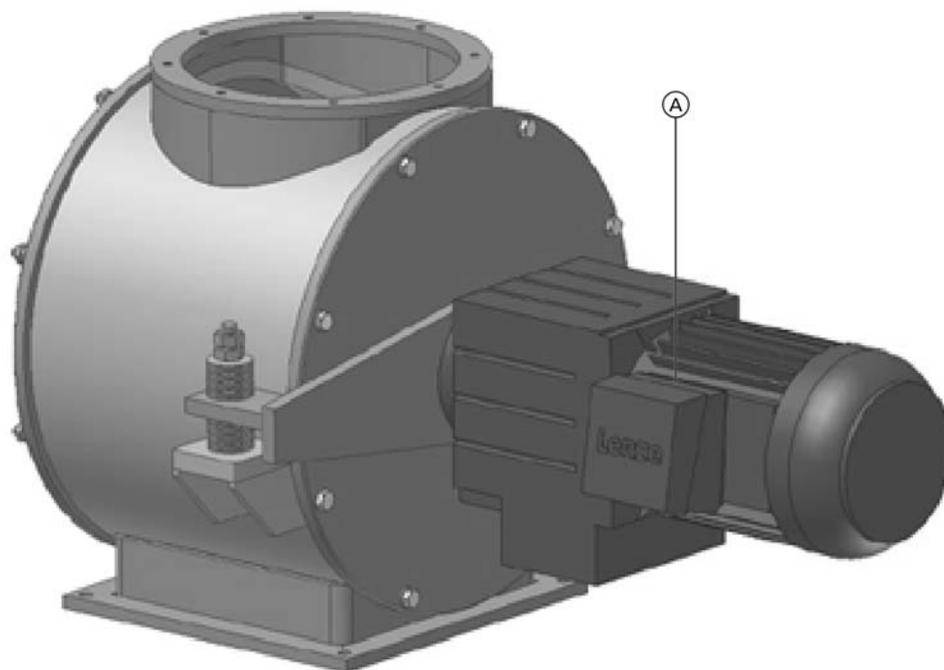
S Switches

N Sensors

High voltage			
Number	Designation	Device tag	Description
1	M1	-14M1	Flue gas exhaust blower
2	M2	-27M2	Grate drive
3	M3	-28M3	Rotary blower
4	M4	-8M4	De-ashing auger
5	M5	-8M5	De-ashing ascending conveyor auger (not shown)
6	M16	-24M16	Igniter
7	M20	-9M20	Boiler pump
Low voltage			
8	Y10	-21Y10	Primary air valve 1
9	Y11	-21Y11	Primary air valve 2
10	Y13	-20Y13	Secondary air valve 1
11	Y14	-20Y14	Secondary air valve 2
12	Y20	-26Y20	Mixing valve actuator
13	Y21	-29Y21	Solenoid valve 1
14	Y22	-29Y22	Solenoid valve 2
15	Y23	-29Y23	Solenoid valve 3
16	Y24	-29Y24	Solenoid valve 4
17	Y25	-29Y25	Solenoid valve 5
18	Y26	-29Y26	Solenoid valve 6
Temperature sensors			
19	B1	-22B1	Flue gas temperature sensor
20	B20	-22B20	Boiler supply temperature sensor
21	B20.1	-22B20.1	Boiler return temperature sensor
22	B02	-22B02	In-feed auger temperature sensor
Light barriers			
23	B1.1	-16B1.1	Light barrier embers 1 (Transmitter)
24	B1.2	-16B1.2	Light barrier embers 1 (Receiver)
25	B2.1	-17B2.1	Light barrier embers 2 (Transmitter)
26	B2.2	-17B2.2	Light barrier embers 2 (Receiver)
27	B4.1	-18B4.1	Light barrier de-ashing assembly (Transmitter)
28	B4.2	-18B4.2	Light barrier de-ashing assembly (Receiver)
Sensors			
29	B26	-23B26	Oxygen sensor
30	N1	-19N1	Floater switch for fire extinguishing water container (not shown)
31	N21	-6N21	Fixed high limit
32	N22	-6N22	Low water cut-off (not shown)

Fuel Transport and Extraction Systems

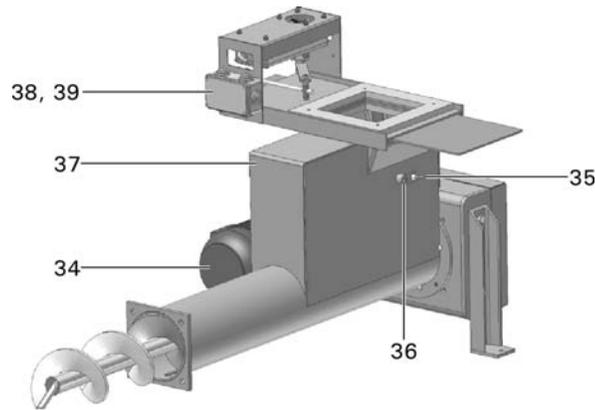
Rotary Valve



Number	Designation	Device tag	Description
Ⓐ	M9	-9 M9	Motor for rotary valve

Fuel Transport and Extraction Systems

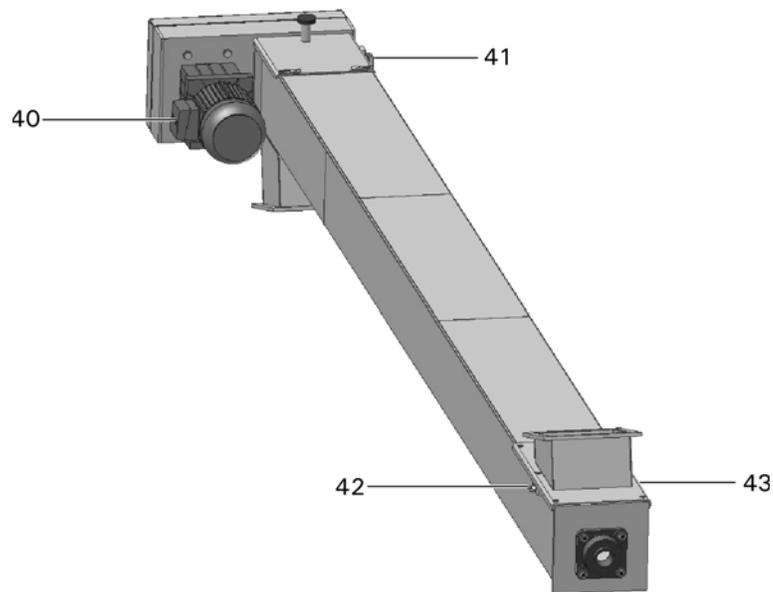
In-feed auger



Number	Designation	Device tag	Description
34	M31	-11M31	Motor for in-feed auger
35	S31.1	11S31.1	Limit switch for maintenance lid
36	B31.1	-11B31.1	Light barrier metering container (Transmitter)
37	B31.2	-11B31.2	Light barrier metering container (Receiver)
38	Y30.1	-23Y30.1	Slide valve T30
39	Y30.2	-23Y30.2	Slide valve T30

Note: For details on designation, see field wiring diagram.

Pipe/trough conveyor auger

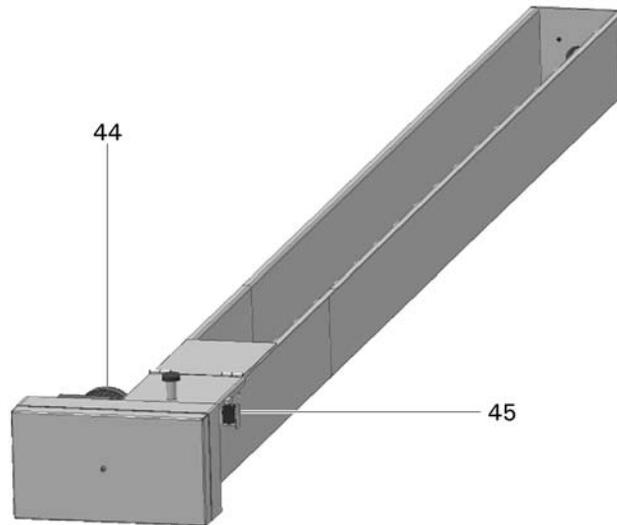


Number	Designation	Device tag	Description
40	M32	-12M32	Motor for pipe/trough conveyor auger
41	S32.1	-12S32.1	Limit switch for maintenance lid
42	B32.1	-12B32.1	Light barrier conveyor auger (Transmitter)
43	B32.2	-12B32.2	Light barrier conveyor auger (Receiver)

Note: For details on designation, see field wiring diagram.

Fuel Transport and Extraction Systems *(continued)*

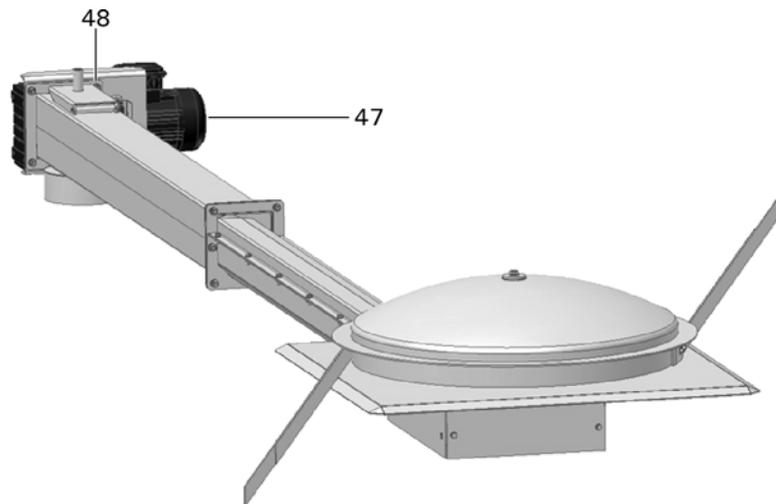
Pellet extraction auger



Number	Designation	Device tag	Description
44	M32	-12M32	Motor for pellet extraction auger
45	S32.1	-12S32.1	Limit switch for maintenance lid
46	S32.2	-12S32.2	Limit switch for silo door (not shown)

Note: For details on designation, see field wiring diagram.

Spring extraction system

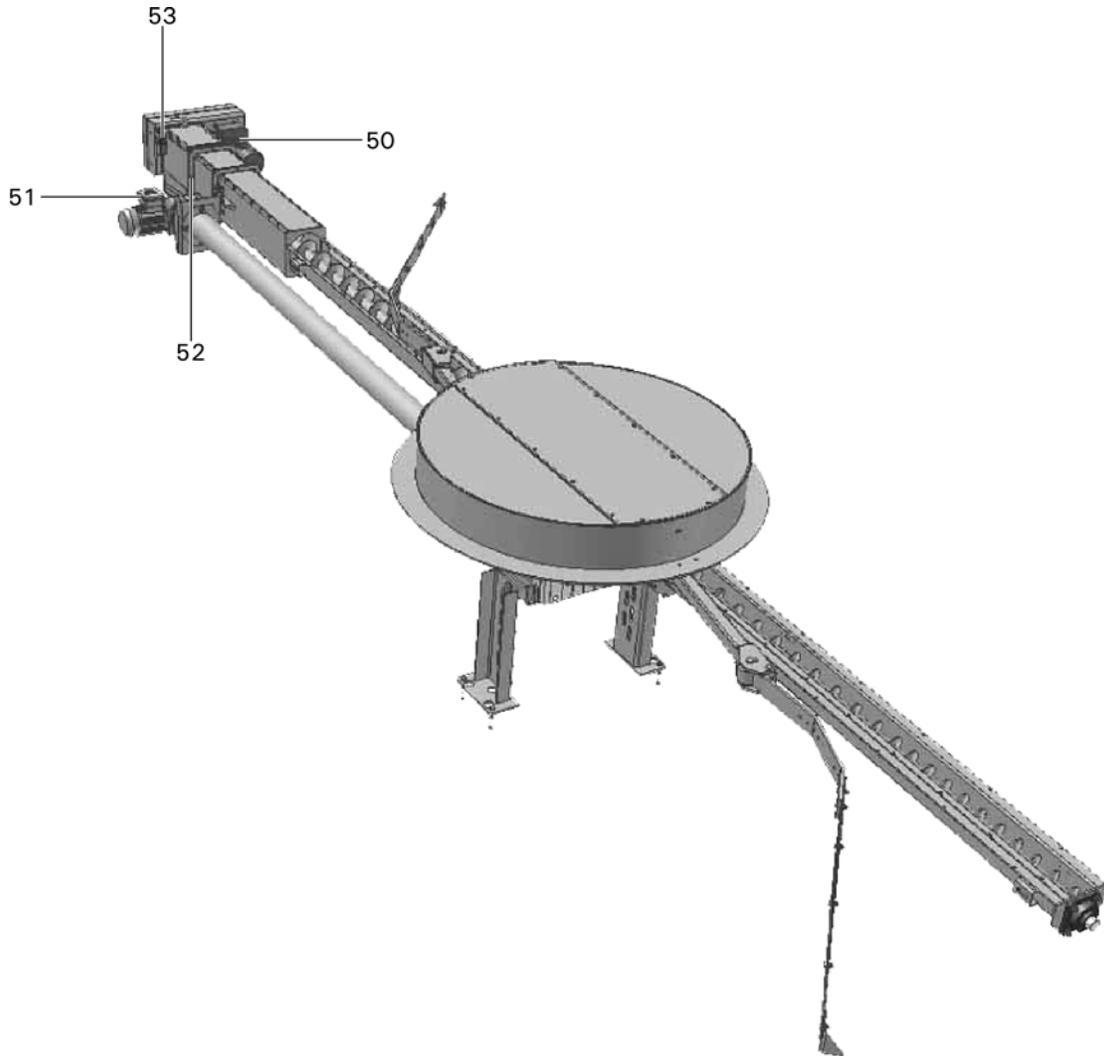


Number	Designation	Device tag	Description
47	M32	-12M32	Motor for spring extraction system
48	S32.1	-12S32.1	Limit switch for maintenance lid
49	S32.2	-12S32.2	Limit switch for silo door (not shown)

Note: For details on designation, see field wiring diagram.

Fuel Transport and Extraction Systems *(continued)*

Horizontal extraction system

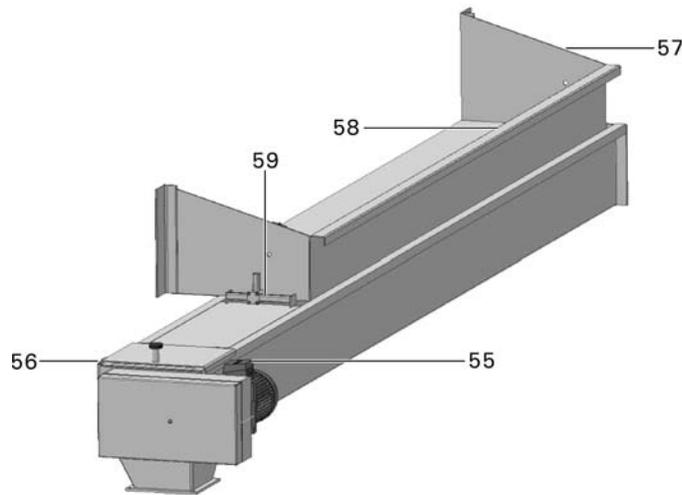


Number	Device tag	Device tag	Description
50	M32	-12M32	Motor for extraction auger
51	M33	-12M33	Motor for agitator
52	B32	-12B32	Light barrier for extraction auger
53	S32.1	-12S32.1	Safety switch for maintenance lid
54	S32.2	-12S32.2	Safety switch for silo door (not shown)

Note: For details on designation, see field wiring diagram.

Fuel Transport and Extraction Systems *(continued)*

Walking floor auger

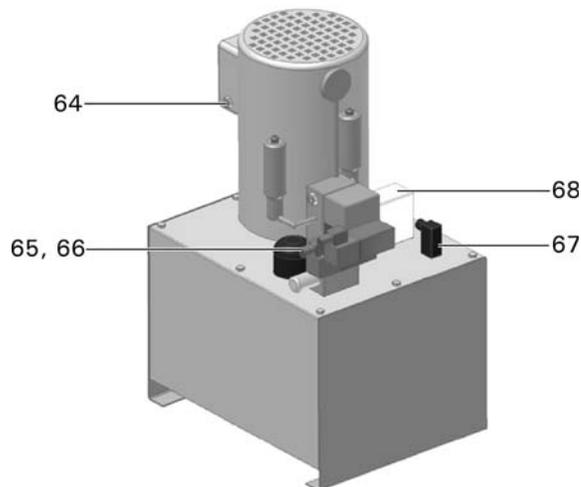


Number	Designation	Device tag	Description
55	M3	-6M3	Motor for walking floor auger
56	S3	-68S3	Safety switch for maintenance lid
57	S3.1	-68S3.1	Safety switch for auger cover
58	B3/1	-61B3/1	Light barrier walking floor auger (Transmitter)
59	B3/2	-61B3/2	Light barrier walking floor auger (Receiver)
60	B6.1/1	-61B6.1/1	Light barrier silo distribution top (Transmitter)
61	B6.1/2	-61B6.1/2	Light barrier silo distribution top (Receiver)
62	B6.2/1	-61B6.2/1	Light barrier silo distribution bottom (Transmitter)
63	B6.2/2	-61B6.2/2	Light barrier silo distribution bottom (Receiver)

Note: Items 67 to 70 only apply to the walking floor with filling function.

Note: For details on designation, see field wiring diagram.

Hydraulic unit



Number	Designation	Device tag	Description
64	M6	-7M6	Motor for hydraulic unit
65	Y6.1	-25Y6.1	Silo lid
66	Y6.9	-7Y6.9	Change silo distribution
67	N6.1	-7N6.1	Hydraulic temperature
68	N6.2	-7N6.2	Hydraulic level

Note: For details on designation, see field wiring diagram.

Thermal Storage Tank

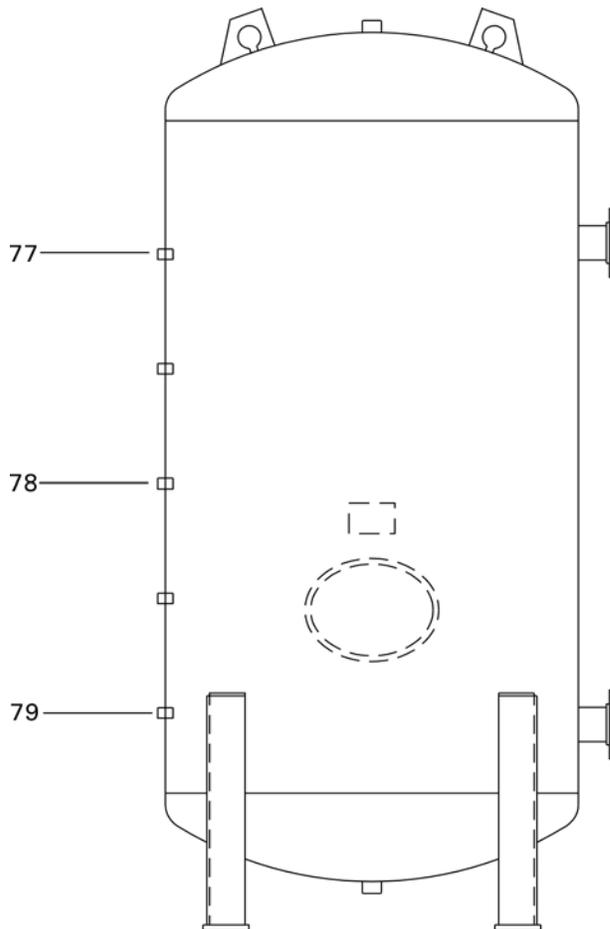
Silo Lid

Number	Designation	Device tag	Description
69	Y6.3	-22Y6.3	Solenoid valve silo lid open
70	Y6.4	-22Y6.4	Solenoid valve silo lid close
71	S6.1	-22S6.1	Key operated switch for silo lid
72	M901	-24M901	Vibration motor 1
73	M902	-24M902	Vibration motor 2
74	M903	-24M903	Vibration motor 3
75	S901	-24S901	Key operated switch for vibration motor
76	S5.1	-68S5.1	Safety switch for silo lid

Note: For details on designation see field wiring diagram

Note: The quantity of items 79 to 81 will depend on the size of the silo lid.

Thermal storage tank



Number	Designation	Device tag	Description
77	B28.1	-22B28.1	Thermal storage tank sensor (top)
78	B28.2	-22B28.2	Thermal storage tank sensor (middle)
79	B28.3	-22B28.3	Thermal storage tank sensor (bottom)

Note: For details on designation, see field wiring diagram.

Commissioning

Fuel for the commissioning

For the commissioning, sufficient dry fuel (max. W 20%) should be stored for approx. 10-24 full operating hours:

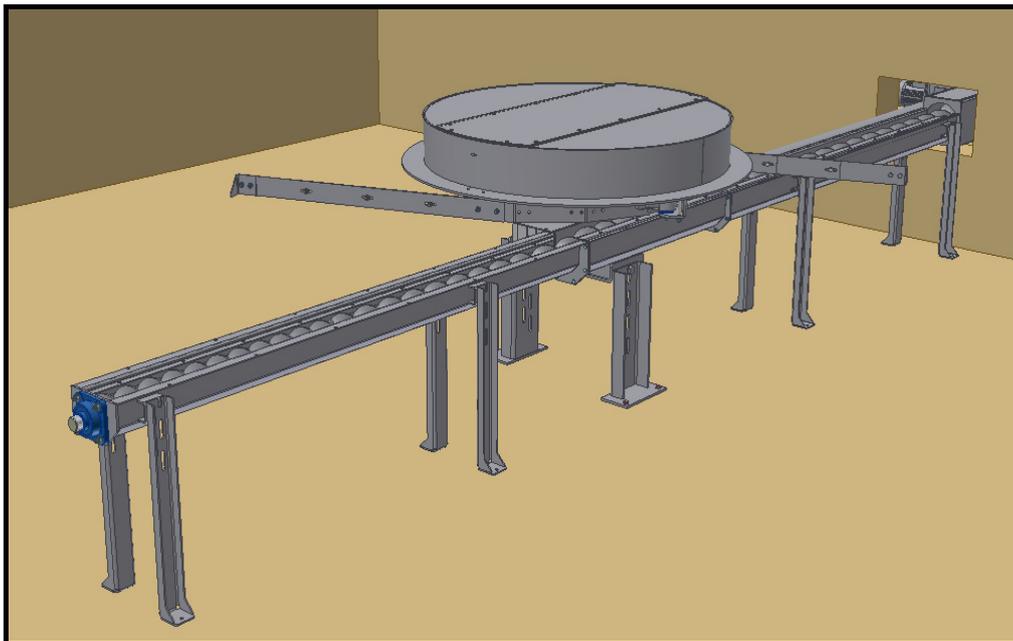
PYROT	150	approx.	2640 lb.
PYROT	220	approx.	3300 lb.
PYROT	300	approx.	4400 lb.
PYROT	400	approx.	5500 lb.
PYROT	500	approx.	6600 lb.

Since the boiler plant will be cold, and residual moisture will be drawn from the refractory concrete during the initial operation, the material to be burned for the initial operation has to be at least air dry. For the first three hours, the heating-up process should be carried out at low output.

To ensure that the silo extraction system is functioning properly, only place a minimal amount of fuel in the silo in case there is a problem. This enables the extraction system to be cleaned out quickly and the problem to be identified and corrected.

Horizontal Extraction System

Assembly Instructions AH 111 to AH 216



1	General information	1
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1.2	Delivery & transport	1
1.3	Technical standing	1
2	Important information	1
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2.4	General assembly sequence for heating boiler and fuel extraction system	1
3	Transporting the system components to the assembly site	1
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4	Assembly	2
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4.2	Assembly sequence	2
5	The electrical installations	6
5.1	Electrical connection	6
6	Initial Start-up	6
6.1	Preparation for the initial start-up	6
7	Supplement/Spec Sheets	
Drawing no. 110413	Assembly Drawing for AHorizontal	
Drawing no. 107932	Auger design, conveying equipment	
Drawing no. 109918	Spring plate assembly 5.5 m & 6 m left	
Drawing no. 109290	Spring plate assembly 4.5 m & 5 m left	
8230-1, 2, 3, 4	Fuel conveyance system, silo extraction systems/horizontal extraction system	
1000-1, 2	General Terms of Delivery	

1 General information

1.1 Product description

A horizontal extraction system with sweep mechanism on the bottom with heavy-duty design, especially for large bunker volumes and/or large furnace outputs.

1.2 Delivery & transport

Be sure to check your delivery for completeness (parts lists) and transport damage. Further information is available on this subject in our General Terms of Delivery.

1.3 Technical standing

The Assembly Instructions are in keeping with the horizontal extraction system at the time it is delivered. In the interest of our customers, we reserve the right to make, without any notification requirement, subsequent changes resulting from further technology developments.

Issue: 2007-02_englisch

Prepared by: MeJ

2 Important information

2.1 Safety information

- No individuals may be in the silo while test operation is being carried out!
- Remove any foreign objects and tools from the silo.
- There is a danger of accidents caused by whip-lash of the articulated arms, even when drive motor is disconnected from the power!
- Incorrect direction of rotation means a risk of accidents and mechanical damage to the extraction system!
- Reverse operation by the sweep mechanism on the bottom will result in major mechanical damage to it.

2.2 Qualification of personnel for assembly work

Personnel for the transport at the construction site and for assembly have to fulfil the regulations applicable at the location of assembly. These Assembly Instructions also assume the following points:

- Technical qualification for assembly in the field of machine building as well as sufficient knowledge of industrial safety and accident prevention.
- Physical suitability and personal protective equipment
- Technical equipping
- A sufficient command of the language to implement these instructions

2.3 Transport packaging/unpacking

When possible, do not remove the transport packaging until immediately before assembling

Important:

There is a danger of accidents if the transport securing devices are removed prematurely!
Dispose of the packaging material in accordance with applicable regulations.

2.4 General assembly sequence for heating boiler and fuel extraction system

- Preparation of the silo and heating room according to the project drawing, such as penetrations through the masonry, the chimney connection, pumping out any water that has entered, etc.
- Checking of the building dimensions for installation of the heating system according to the constructional drawing/project plan
- Bringing in the system components/transport to the assembly site
- Position boiler, mount feed and blockage unit
- Assembling the extraction system and making the transition to the underfeed
- Optimising the position of the boiler and of the extraction system
- Attaching the sensory mechanisms, add-on components and heating tubes
- Electing the facility by the plumber and electrician
- Initial start-up

3 Transporting the system components to the assembly site

3.1 Inspection before transport

Before transporting the system components, check the building and means of transport in terms of:

- Accident safety
- Inner dimensions of passageways
- Static load-bearing capacity (weight of approximately 550 kg)

3.2 Carrying out the transport

Carry out the transport of the system components with suitable equipment, such as a lift truck, crane & chain hoist. A qualified individual should determine the aids and proper sequence according to the project planning and conditions at the construction site.

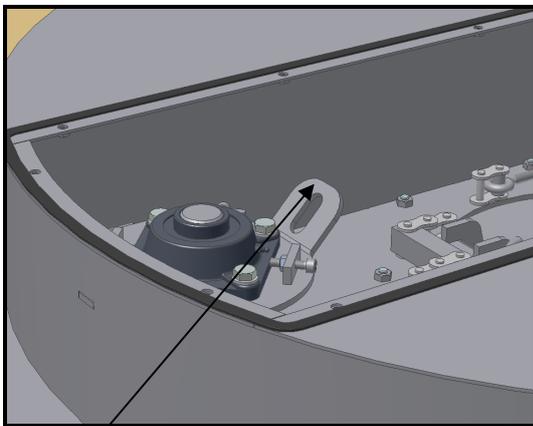
4 Assembly

4.1 Preparation for the assembly

- Remove the transport packaging except for the fastening of the arms.
- Check the system components for any transport damage.
- Check the system components for completeness.
- The silo must be completely empty (condition according to project drawing).
- The assembly drawing (No. 110413) must be used for the complete assembly.

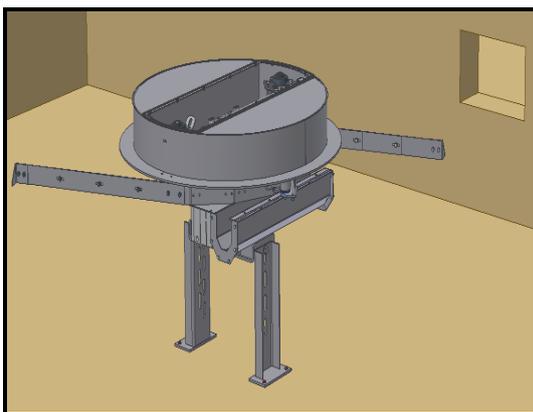
4.2 Assembly sequence

1. Remove the cover of the sweep mechanism on the bottom and position in the silo using the transport tie pieces. (Do not yet anchor the support legs tight.)



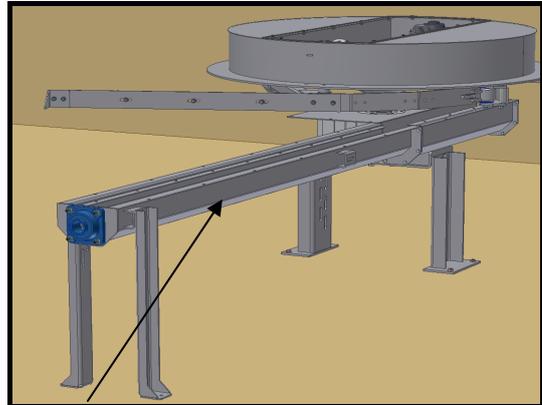
Transport tie piece

Picture 1.0



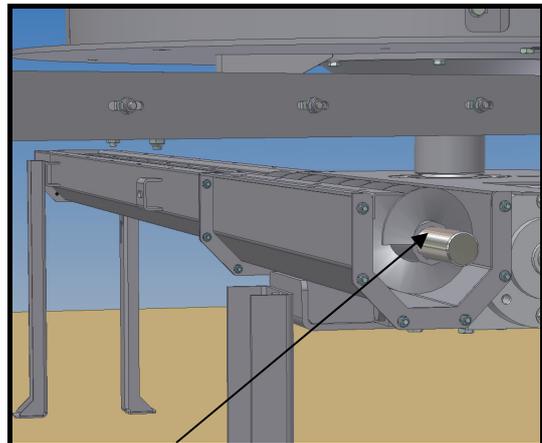
Picture 1.1

2. Mount Extraction Chute 1 temporarily with two support legs and insert the extraction auger (Dm 120) that goes with it.



Extraction Chute 1

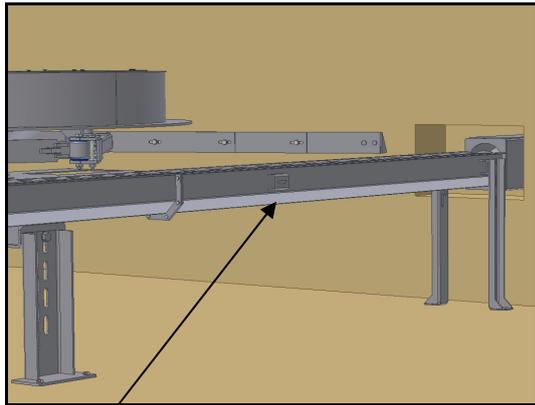
Picture 2.0



Insert Extraction Auger 1 here.

Picture 2.1

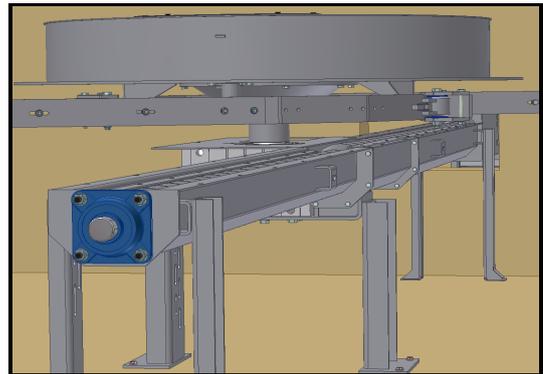
3. Temporarily mount with two support legs Extraction Chute 2 with the mounted auger drive unit.



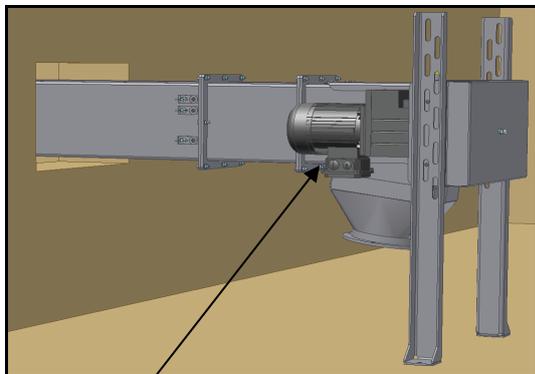
Extraction Chute 2

Picture 3.0

4. Align the complete shoot properly, mount the remaining support legs and tighten all the connecting bolts. In addition, also weld the support legs at the bottom sweeping mechanism.

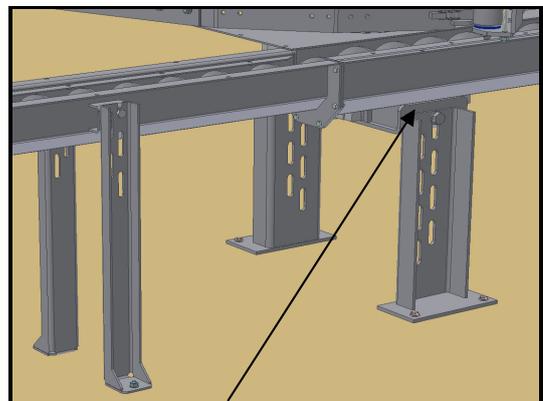


Picture 4.0



Mounted auger drive unit

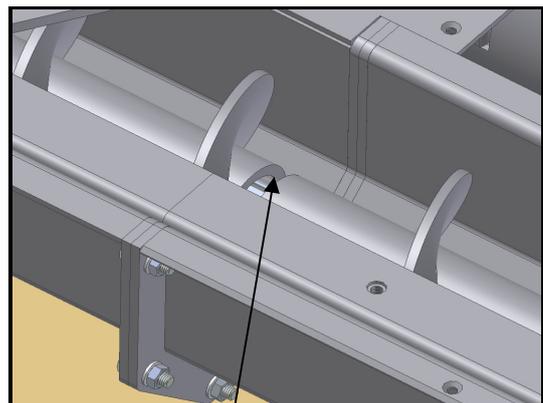
Picture 3.1



Weld here (see Drawing No. 110413)

Picture 4.1

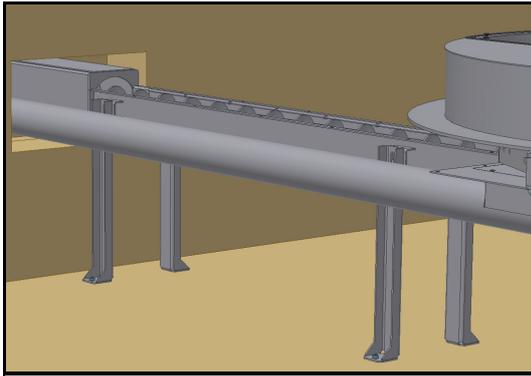
5. Weld auger connection.



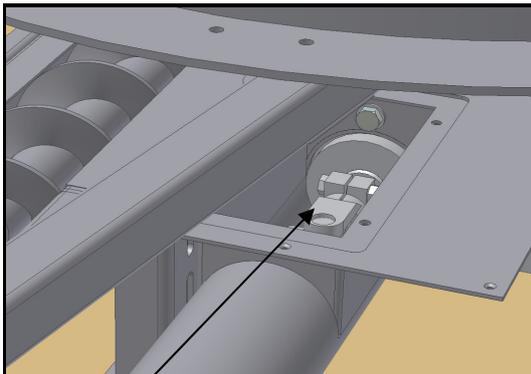
Weld here (see Drawing No. 107932).

Picture 5.0

6. Mount drive for bottom sweeping mechanism.

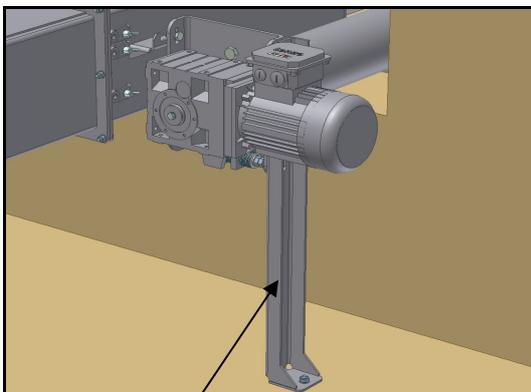


Picture 6.0



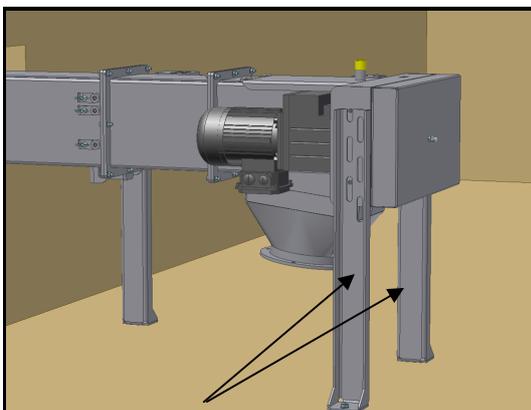
Only attach the universal joint to the drive shaft (see drawing number 110413)

Picture 6.1



Be absolutely sure to mount support leg for assuming torque force

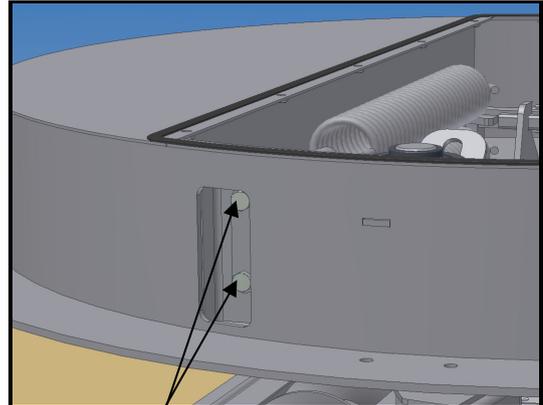
Bild 6.2



Be absolutely sure to support leg for assuming torque force

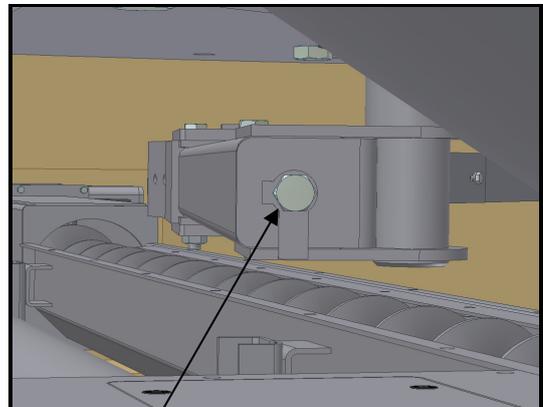
Bild 6.3

7. Tense all the tension springs all the way to the stop and secure bolts with bolt retainers.



Tighten and secure these bolts (turn down metal plate projections)

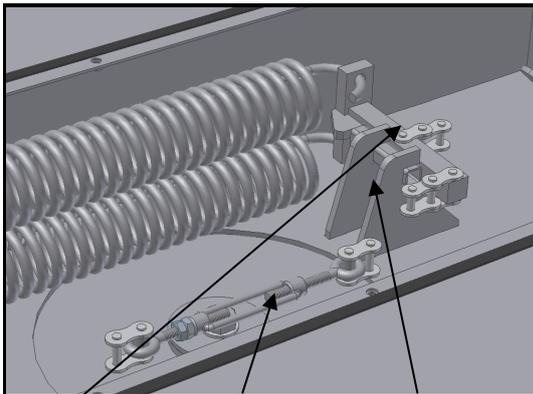
Picture 7.0



Tighten and secure these bolts (turn down metal plate projections)

Picture 7.1

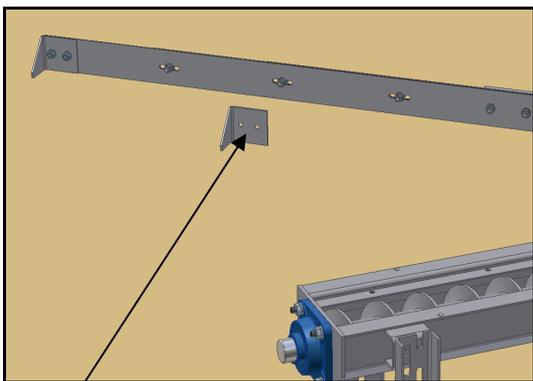
8. Check whether when the arms move the angle of stroke is parallel to the support bracket. If not, adjust the turnbuckle until this is parallel and secure with locknut.



Angle of stroke, turnbuckle & support bracket

Picture 8.0

9. If necessary, cut leaf springs to length according to Drawing 109290 or 109918.

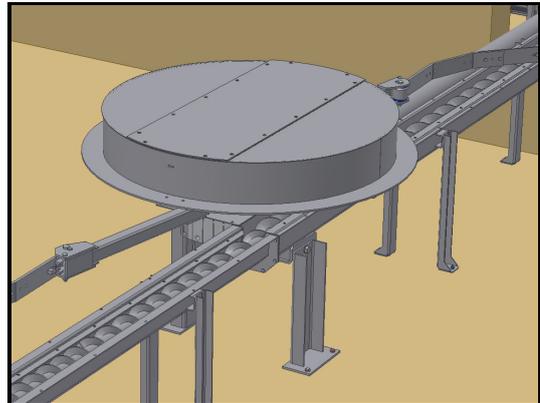


Scraper

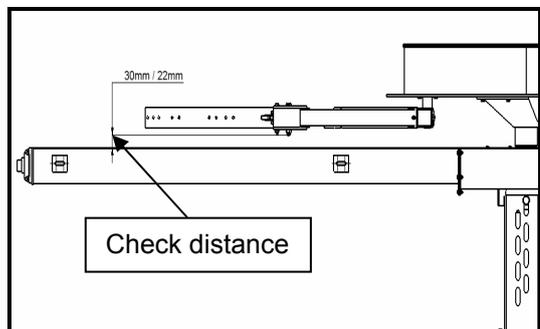
Picture 9.0

The leaf springs do not touch the silo wall when extended. Exception: There is protective sheet metal on the silo wall to protect it.

10. Check the distance between the bottom sweeping mechanism and the extraction auger in every position. If necessary, attach pellet cover plates (see No. 110413). Check the functioning of all the moving parts and grease or lubricate well. Shut lid.



Picture 10.0



Minimum distance with standard design, L = 30 mm
 Minimum distance with pellets design, L = 22 mm

Bild 10.1

11. The following must also be assembled:
- Raised floor (see Spec Sheet 8230)
 - Plates that close forming fire-resistant seal for wall openings (see Spec Sheet 8230)

5 The electrical installations

5.1 Electrical connection

Only licensed electrical firms are allowed to make the connection to the electrical network.

They should be carried out in accordance with the connection diagram.

The regulations of the local electric supply company must be complied with.

6 Initial Start-up

6.1 Preparation for the initial start-up

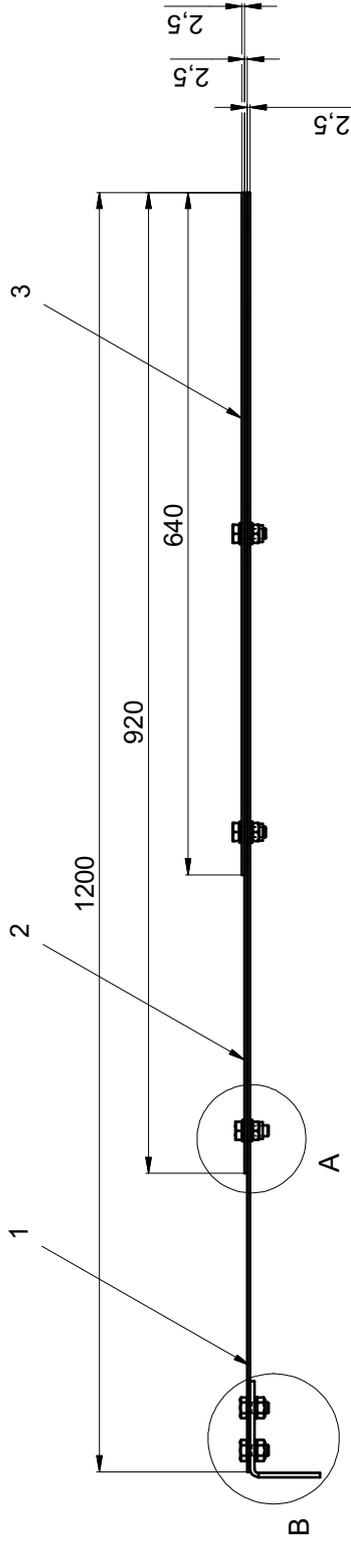
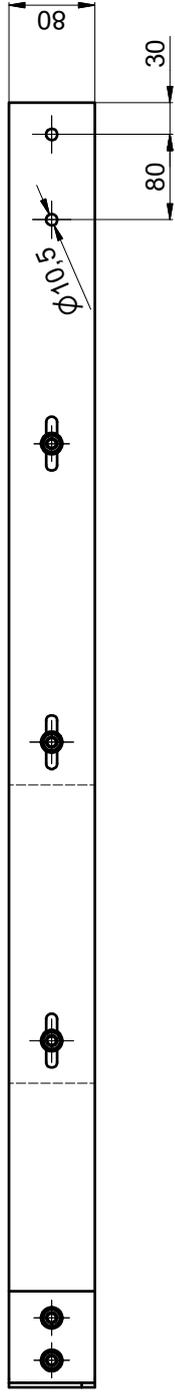
Before filling with fuel

- Check the functioning of the switch on the over-fill lid.
- Fill the silo evenly with fuel to approx. 30 cm above the articulated arms.
- Put the extraction system into operation for a few minutes until the articulated arms lie under the cup washer.
- Check the grain size of the fuel (max. G30/G50) as well as the quality according to Spec Sheets 8230 and 1010.
- Fuels allowed by the manufacturer are stipulated in the confirmation of the order.
- Fill the fuel storage unit (silo).

CAUTION

RISK OF INJURY

Always turn off the master switch before entering the silo room and each time before opening the maintenance lid.

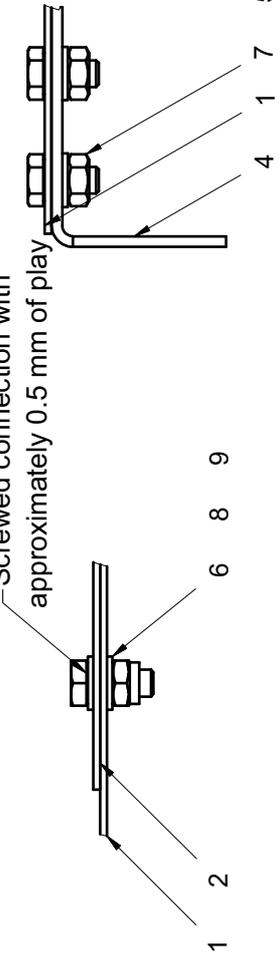


With the design "spring plate 5.5 m",
 remove the spring scraper with Item 1 and
 position the scraper at the outermost slot.

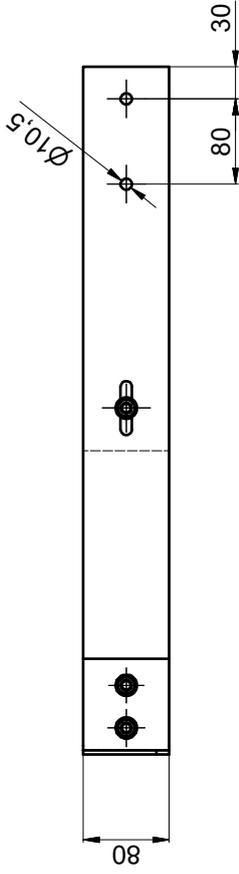
Detail B (1 : 2)

Detail A (1 : 2)

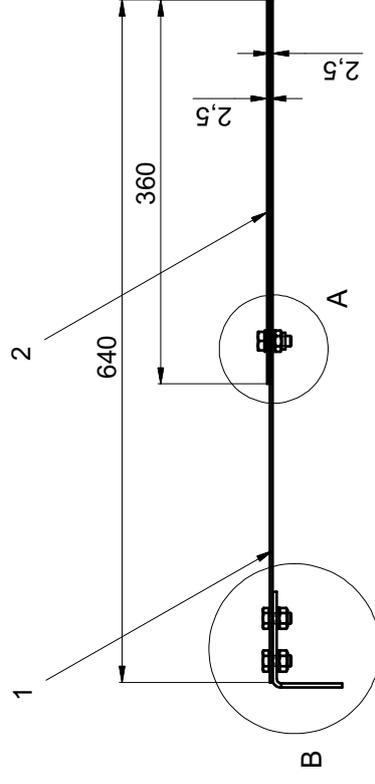
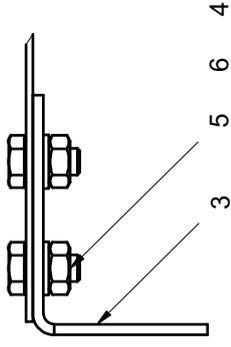
Screwed connection with
 approximately 0.5 mm of play



KOB Wärme aus Holz		E		Maßstab: 1:5											
A-6922 Wolfurt - Flotzbachstr. 33 Tel. +43(0)55746770-0 - Fax +43(0)557465707 office@kob-schaefer.com - www.kob-schaefer.com UID-Nr. ATU 5506300		<table border="1"> <tr><td>Name</td><td>Mejo</td></tr> <tr><td>Datum</td><td>22.06.2006</td></tr> <tr><td>Ersteller</td><td>Mejo</td></tr> <tr><td>Gepr.</td><td>26.06.2006</td></tr> <tr><td>Norm</td><td></td></tr> </table>		Name	Mejo	Datum	22.06.2006	Ersteller	Mejo	Gepr.	26.06.2006	Norm		Spring plate assembly 5,5 m & 6m left AHorizontal	
Name	Mejo														
Datum	22.06.2006														
Ersteller	Mejo														
Gepr.	26.06.2006														
Norm															
Die Zeichnung ist urheberrechtlich geschützt und darf ohne schriftliche Genehmigung von KOB nicht nach Dritten zugänglich gemacht werden. Technische Veränderungen oder Verbesserungen behalten wir uns vor.		109918		- 1/1											
Zust.	Änderungen	Datum	Name	Artikel-Nr.	Index										
				109918	-										
					Anggelegt										
					Mejo										



Detail B (1 : 2)



Detail A (1 : 2)

Screwed connection with approximately 0.5 mm of play

With the design "spring plate 4.5 m", remove the spring plate with Item 1 and position the scraper at the outermost slot.

	E 	Maßstab: 1:5
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Name Datum Ersteller Gepr.	Name Mejo Mejo Mejo	Datum 28.04.2006 09.05.2006
Änderungen Datum Name	Norm Die Zeichnung ist urheberrechtlich geschützt und darf ohne schriftliche Genehmigung von KOB nicht nach Dritten zugänglich gemacht werden. Technische Veränderungen oder Verbesserungen behalten wir uns vor.	Artikel-Nr. 109290
Zust.	WKSRRV02/Compass_Daten_LBS_Temp1171380607109909.dwg	Index Angelegt
		- 1/1
		A3
		Mejo

Horizontal Extraction System [Art. No. AH-...]

Function:

A horizontal extraction system with sweep mechanism on the bottom with heavy-duty design, especially for large-volume bunkers and/or large furnace outputs.

The fuel feed system is carried out using separate drives – the extraction auger on the one side, and the sweep mechanism on the bottom on the other side. The two arms of the sweeping mechanism are made of solid articulated arms on the inside with an elastic spring assembly on the outside.

The sweeping mechanism is driven by a separate drive in cyclic operation, depending on how full the auger is (regulation by light barrier). The result is problem-free operation and long service life. If designed for pellets, a cover plate over the auger trough is necessary.

Piling height: max. of 8.0 m with a piled density of 350 kg/m³ (forest wood chips)

Comes with:

- Horizontal Extraction System according to the order data
- Extraction auger for horizontal extraction system; length b + 1100 mm
- Triggering system for the drives for the sweeping mechanism and auger
- Safety limit switch mounted on the maintenance lid for the horizontal extraction system

To be carried out by the customer:

- It is necessary for a raised floor to be installed (preferably wooden boards).

Extension of Extraction Auger, per m [Art. No. AH-L]

Extension of the extraction auger outside the silo (unlike the standard).

Information required for ordering: b, DL, L see page 4

Protective Plate with Fastening [Art. No. AH-Z01]

Function:

A metal cover to protect the silo wall from getting damaged by the arms of the sweeping mechanism.

Fastens to the inside wall of the silo.

Comes with:

- Protective plate, enamelled, length and quantity according to project
- Anchors and screws

Cover Plate of Auger Trough for Pellets [Art. No. AH-Z02]

Function:

A metal cover for the open area of the auger to reduce the area of intake.

Piling height: max. of 5.0 m with a piled density of 650 kg/m³ (pellets)

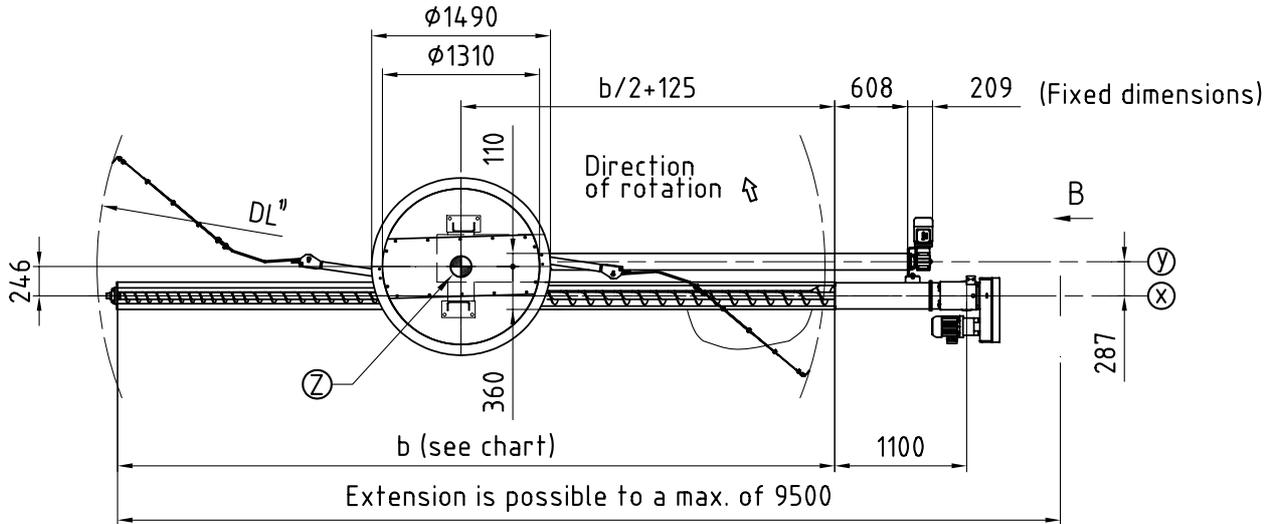
Note about changing fuels:

- a) Forest wood chips after pellets
Before filling the silo with forest wood chips, take off the cover plates over the extraction auger.
- b) Pellets after forest wood chips
The extraction system should be extended with cover plates [Art. No. AH-Z02].

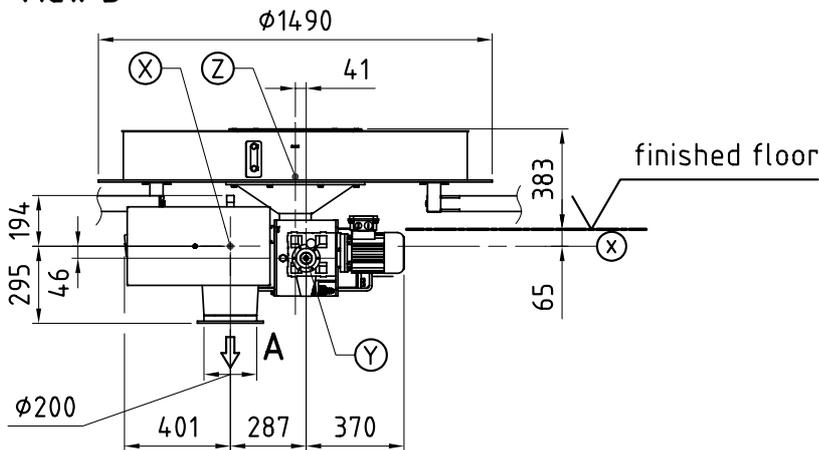
Comes with:

- Cover plate, enamelled, length and quantity according to project
- Screws

Dimensions and data:



View B



A [mm]	Possible connecting parts / equipment:
A 200:	MZ-22, MA-22 MF/MR-L150, MF/MR-L190, MF-L: Execution by factory, on a project-by-project basis
A 150:	Reduction for fuel pellets with MR-L120, KPM-DYN

- ⊗ Axis of auger
- ⊙ Axis of drive for sweeping mechanism
- ⊙ Centre axis of sweeping mechanism

Note: Suited for shavings, wood chips G30/G50 and pellets (as per Spec Sheet 1010)
Maximum incline allowed: Shavings, forest wood chips 15°; pellets 0°;

Important: Avoid filling on one side or compacting on one side. (Follow instructions for filling.)
It is not allowed for this to be driven on by any vehicles.

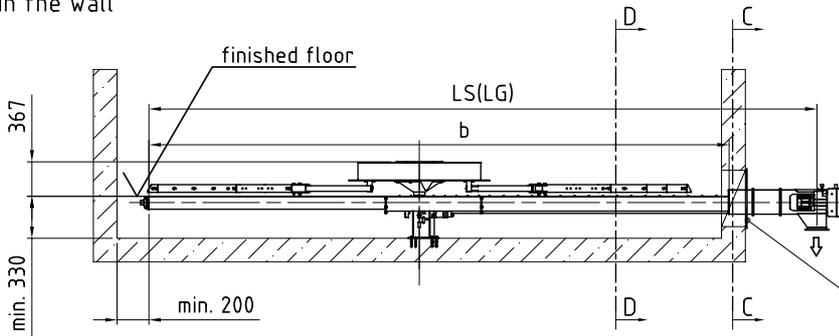
[Art. No.]	Boiler control system	Auger open b) [m]	Sweeping mechanism DL ¹⁾		Weight [kg]	Driving power [kW] 3x400V		c= 0° horizontal to boiler [kW]			c= 15° inclined to boiler [kW]	
			D min. [m]	D max. [m]		Sweeping mech.	Auger	Pellets S 650 ²⁾	Forest wood chips S 200	Shavings S 130	Forest wood chips S 200	Shavings S 130
AH-111	ECO	3.8	3.9	3.9	840	0,75	0.55 - 2.2kW adapted to project (fuel & boiler output)	2000	720	540	720	540
AH-211	PYR											
AH-112	ECO	4.5	4.2	4.6	870							
AH-212	PYR											
AH-113	ECO	5.0	4.2	5.1	900							
AH-213	PYR											
AH-114	ECO	5.5	4.2	5.6	930							
AH-214	PYR											
AH-115	ECO	6.0	4.2	6.1	960							
AH-215	PYR											
AH-116	ECO	6.5	4.2	6.1	990							
AH-216	PYR											

¹⁾ The design is on a project-related basis, see page 4; drawn standard without extension; b = DL (empty circle)

²⁾ Cover plate Art. No. AH-Z02 required

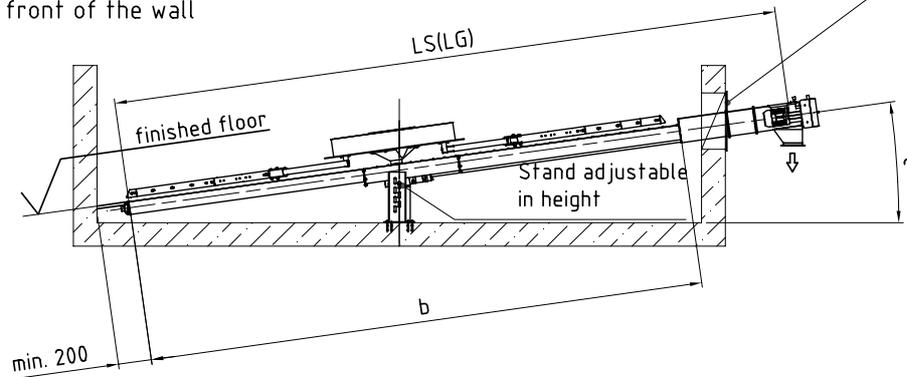
Interfaces to the building: (A raised floor is absolutely necessary)

Horizontal position of installation: Variation 1, transition open/closed in the wall



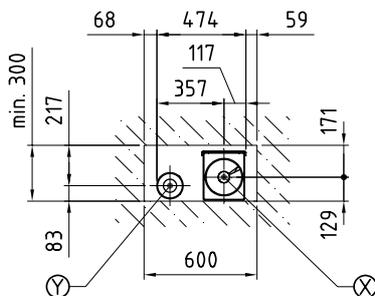
Seal installation hole with plate that closes to form fire-resistant seal

Inclined position of installation: Variation 2, transition open/closed in front of the wall

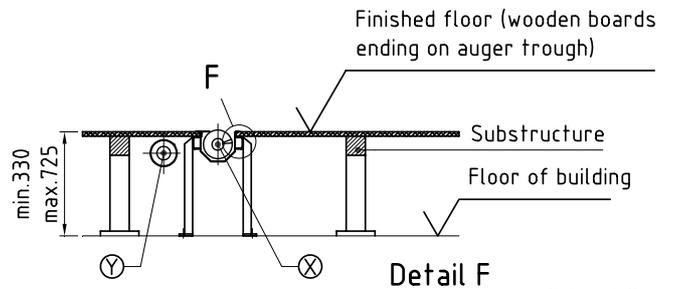


Section drawing C-C silo wall recess

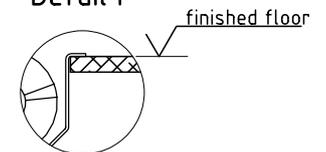
Minimum dimensions (horizontal position)



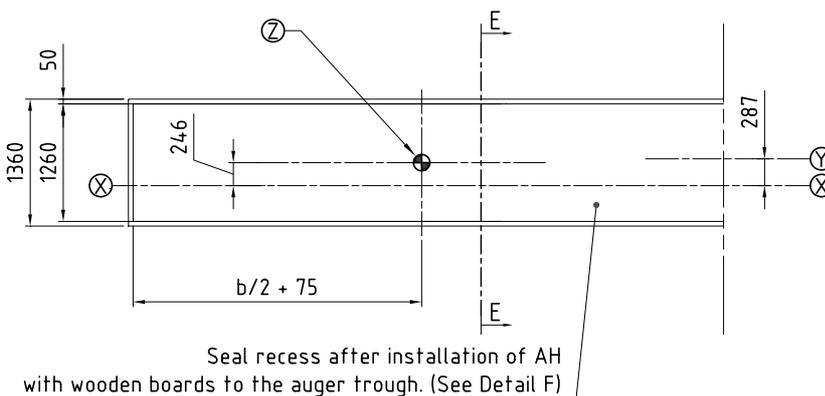
Section drawing D-D raised floor made of wood



Detail F

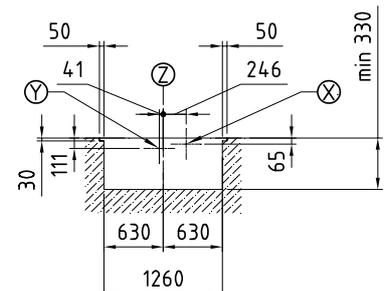


Finished floor applied in concrete (concrete recess)



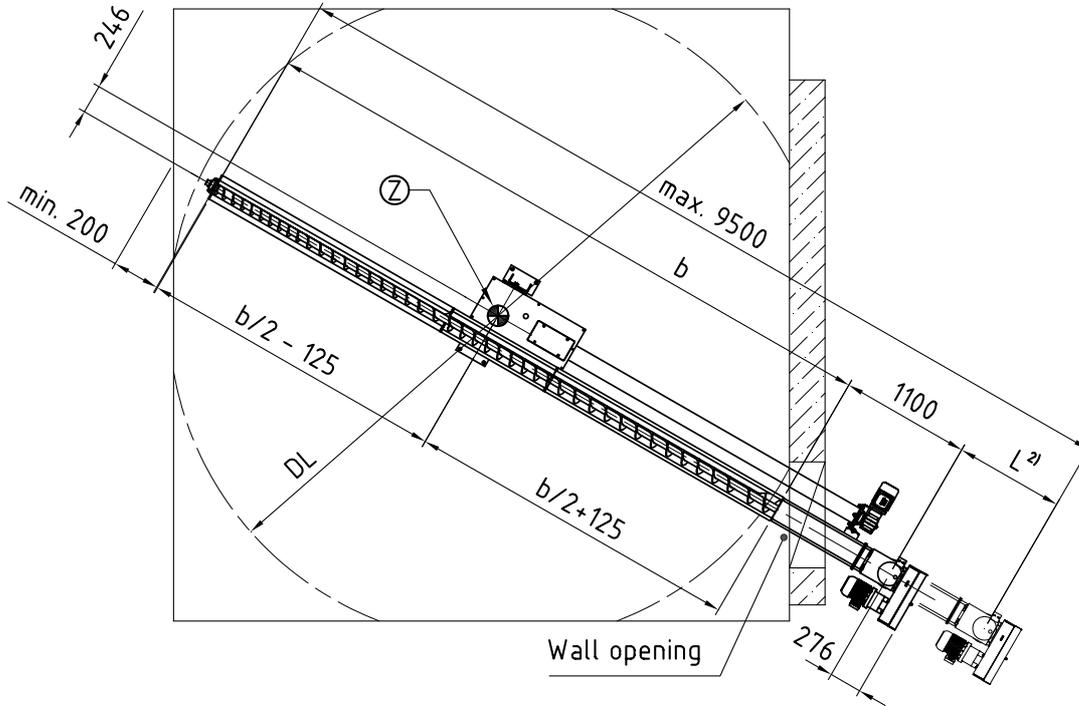
Seal recess after installation of AH with wooden boards to the auger trough. (See Detail F)

Section drawing E-E



Extraction efficiency:

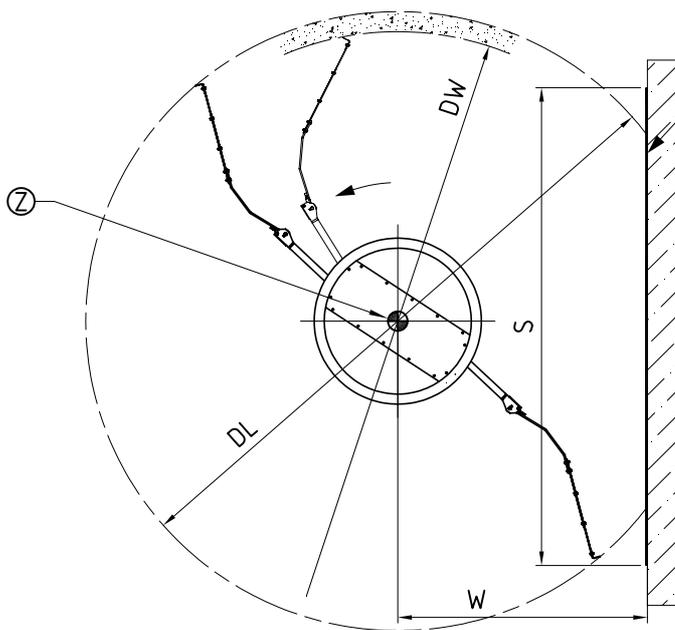
Extraction auger: diagonal position in room drawn, for improved emptying



2) Extension available at extra charge, Art. No. AH-L

Sweeping mechanism:

Drawn with retraction on a wall
Retraction is possible on 1,2,3 or 4 walls



A protective plate is required with wall retraction system
Art No. AH-Z01

- DL ... Empty circle from 3.9 to 6.1 m, depending on bunker situation
- DW ... Effective magnitude of 0.8 to 0.95 x DL, depending on: fuel, position of installation, compacting, etc
- W ... Distance from wall to centre
- S ... Length of protective plate, round up to round metre

$$\text{min. } W = \frac{DL}{2,5} > 2000$$

$$\text{min. } S = \sqrt{DL^2 - 4xW^2}$$

1) Liability on Orders of Confirmation, Altering and Cancelling Orders

- 1.1) If no other agreement exists, the confirmation of order determines the contents and the time of delivery. If the technical specifications of individual parts delivered are not restated in the confirmation of order, then the technical specifications stipulated in the last bid are valid.
- 1.2) Should in addition to the confirmation of order, the customer's order be valid, it is noted on the supplier's confirmation of order according to priority.
- 1.3) If within 10 days of sending the confirmation of order, no objection is raised, then the order is regarded as accepted. With terms of deliveries of less than 30 days, the window for objections is narrowed to 30% of the terms of delivery.
- 1.4) Altering and cancelling orders after the term of objection has expired, is only possible with the written consent of the supplier. Any additional cost is to the buyer's account.

2) Prices

- 2.1) The listed prices of the supplier (price lists) may be changed at any time without prior notice.
- 2.2) The listed prices of the supplier are ex-factory prices and do not include Value Added Taxes (VAT).

3) Illustrations, Properties and Technical Terms

All technical data, illustrations, measurements, diagrams and weights specified in bids, remain non-binding until they are part of a binding documentation delivered in connection with an order of confirmation. All rights for construction related changes remain reserved. Materials may be replaced by equivalent alternatives.

4) Copyrights and Ownership of Technical Drawings and Documentations

Technical drawings and documentation that are handed to the buyer but do not form an integral part of the equipment and its applications, remain the property of the supplier. Only with the written consent of the supplier, may documents be passed on to third parties in a changed form or in the original form.

5) Copyrights and Ownership of Control Programs

Control programs used to control the equipment remain the property of the supplier. With the full payment of the equipment, the buyer receives life-long, unrestricted user rights to the control programs.

6) Terms of Delivery

- 6.1) Agreed upon terms of delivery are binding.
- 6.2) Equipment related preparations of the delivery site must be made before delivery of the equipment. Clarifications on the dimensions of the site (to adapt mountings and fittings of the equipment to the site, the following minimum terms of delivery are required:

14 days for feed worm up to D 150 mm

42 days for all other parts

Should it not be possible to make these preparations within the stated minimum terms and should the sup-

plier not be at fault, then the supplier is relieved of all liabilities of the term of delivery.

- 6.3) The supplier reserves the rights to hold back on the delivery should the agreed terms of payment not be met by the buyer.
- 6.4) Should any additional cost arise due to the delay in delivery, a mutually acceptable settlement of the cost to the buyer should be negotiated between the contract partners.
- 6.5) Should ordered equipment not be accepted at the agreed term of delivery, the supplier has the right to invoice the equipment to the buyer. Any additional cost arising from storage should be negotiated and settled between the contract partners
- 6.6) With on demand orders, the supplier reserves the right to only start with the production of the equipment after the receipt of the on demand order.

7) Shipment /Transportation

- 7.1) The supplier uses the type of packaging materials and means of transportation he deems suitable.
- 7.2) If no other agreement exists, the equipment is sold ex-factory. Furthermore, the INCOTERMS of the day of the contract signing is valid.
- 7.3) Should parts of the equipment be shipped individually at the buyer's request, then the additional cost will be to his account.

8) Installations by the Supplier

- 8.1) Has the mode of transportation and installation of the equipment been agreed upon, then the buyer is obligated to prepare the installation site on time and in the manner stipulated. These required preparations are listed in the confirmation of order under the position "Installation".
- 8.2) In general, a paved pathway suited for trucks that bring the equipment to the site must be prepared.
- 8.3) Furthermore, before installation starts, the masonry, carpentry and other preparatory work has to be moved along far enough so that upon delivery of the equipment, the installation technicians can take up their duties right away and carry them out without interruptions.
- 8.4) Should installation have to be interrupted due to lack of preparedness of masons, carpenters, etc. the buyer then must properly store the uninstalled equipment and protect it as if it was his own property

The cost arising from the delay and additional travel expenses of the installation technicians are to the buyer's account.

9) Inspection/Complaints during Handover

- 9.1) The buyer is obligated to inspect the goods immediately upon receipt.

Should the goods not correspond to the items on the delivery note, or in case of visible damage to the delivered goods, the buyer has to mark it on the delivery note. His failing to do so, validates the shipment of the items delivered.

- 9.2) A complaint outside of the terms voids the supplier's warranty.

9.3) Should the buyer desire a handover inspection, he has to have a written agreement to that end and all additional cost is to his account.

Should the handover inspection for whatever reasons (that the supplier needs not stipulate), be delayed, then the specifications that are to be checked shall count as met until the opposite is proven.

Complaints do not void terms of payment.

10) Complaints on goods where the damage was not discernable at delivery

Complaints on goods where the damage was not discernable at delivery (analogue to the procedure in point 9), should be made as soon as detected, latest however before the warranty runs out according to point 11.

11) Warranty/Starting Point and Duration

The equipment can only function correctly within the warranty period, if the operational guidelines are adhered to.

The operational guidelines are an intrinsic part of the delivered equipment and essential to its correct operations.

The operational guidelines are:

- a) The operating manual with the instructions on operating the equipment.
- b) The specifications of compatible fuels for the burner. (Refer to 1010-1, minimum requirements on wood fuels, notices).
- c) The handover protocol with the installation report and the specifications of the fuel used at the point of handover.
- d) Maintenance and service plan.
- e) Fulfilling and adhering to the legal framework.

If these are maintained, the following warranty periods are valid:

11.1) 5 years on seal warranty for burners and tanks

Warranty on water tightness of water bearing, welded construction such as the burner, heat storage tank and utility water heater (electric heater not included), is 5 years as of date of delivery.

11.2) 3 years on movable parts

Warranty on the all movable parts, such as firebox door, fire-proof materials for coatings, grills, dedusters etc. is 3 years as of the date of delivery.

11.3) 2 years electrical, motorized movable parts

Warranty on all electrical parts, such as controls, controllers, sensors for drives and motorized movable parts such as drive motors, hydraulic units, hydraulic cylinders, pushrods, extraction and feed worm, sluice wheels, movable grills, valves, pumps, step down gearing, chain drives, blowers, fire protection door, motor covers etc. is 2 years as of the date of delivery.

11.4) Normal Wear, Oils and Lubricants

There is no warranty on parts subjected to normal wear such as seals, etc. Also oils and lubricants, such as hydraulic oils etc. carry no warranty. Normal wear is also present in the fireproof coatings (surface wear, wear around the edges, cracks etc) that do not

lead to any malfunction of the equipment- are not covered by warranty.

New parts carry the stipulated new parts warranty. No warranty extension on original parts that had no complaints.

12) Payment

12.1) Payment is done in accordance with the terms of payment. It is not acceptable to withhold or suspend payment because of complaints, outstanding credit notes or not agreed upon charges to the account of the supplier.

12.2) The terms of payment must be adhered to, even if minor, non-essential parts are missing in the delivery or must be reworked after delivery, as long as they do not impair the operations of the equipment.

12.3) Should the buyer fall behind in the payment schedule or not live up to certain agreed upon stipulations,

- a) then the supplier may insist on the payment of the outstanding amount in rates or delay agreed services
- b) extend the terms of payment on the outstanding amount
- c) invoice the buyer with the entire outstanding amount for immediate settlement
- d) add the usual bank interest rates to the outstanding amount or step away from the contract after granting the buyer a reasonable period of respite.

13) Liabilities

The supplier is not liable to the buyer for any losses occurred due to interruptions in production, financial losses, missed opportunities, breakdowns, lost contracts or any other economical transaction or for any indirectly occurred losses.

14) Limits of Liabilities

Acts of God are unpredictable occurrences beyond the control of either party and may be the cause the contract not being partially nor totally fulfilled. Neither party is then liable for breach of contract.

Acts of God in this case are:

Fire, conscription, confiscation, embargos, prohibition of currency transfers, rebellion, unavailable means of transportation, general lack of supply goods, limits set to energy consumption, plane crash, volcanic eruption, earth quake, avalanche, landslides, hurricanes, tidal waves, etc.

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