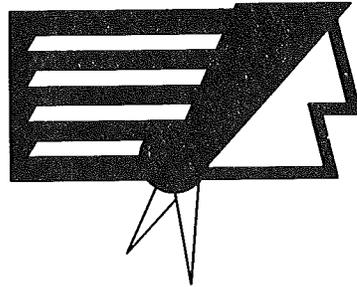


12120 102

CHIEF INDUSTRIES, INC.



HOUSING DIVISION

AURORA INDUSTRIAL SITE
West Hiway 34
Aurora, NE

**FIELD INSTALLATION
MANUAL
DOUBLE SECTION HOME**

October, 1997

2082 DEF 20
DEPT. OF ADMIN.
BLOG CODES & STDS. DIV.

CHIEF INDUSTRIES, INC.
HOUSING DIVISION

---CONTENTS---

This booklet contains **Field Installation Specifications**
for all Chief Industries, Inc., Housing Division
Double Section Homes, per category as follows:

- SECTION I SERVICE LOCATION - Double Section by Model
- SECTION II PIER CONSTRUCTION - Double Section Homes
- SECTION III SUPPORT BLOCKING - Double Section Homes
- SECTION IV PERIMETER FOUNDATION - Double Section Homes
- SECTION V BASEMENT CONSTRUCTION - Double Section Homes
- SECTION VI TYPICAL ANCHORAGE & FOOTINGS INSTRUCTIONS
- SECTION VII FOUNDATION READY SYSTEM - Double Section Homes
- SECTION VIII SITE ASSEMBLY INSTRUCTIONS - Double Section Homes

SECTION I

SERVICE ENTRANCE LOCATIONS

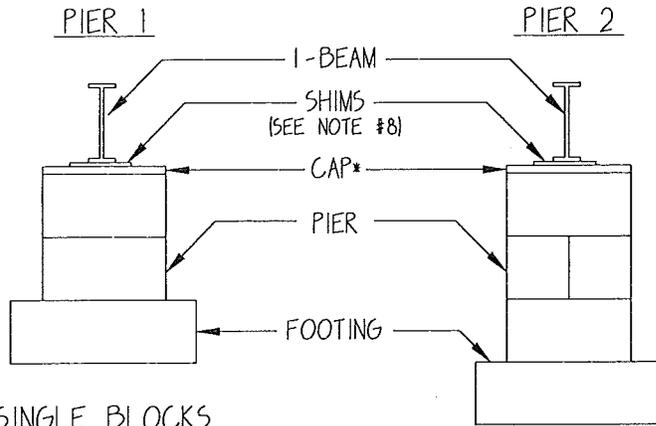
Double Section Homes

SECTION II

PIER CONSTRUCTION

Double Section Homes

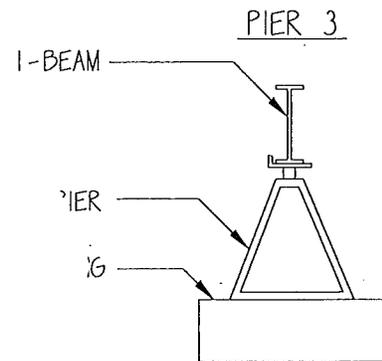
TYPICAL PIER CONSTRUCTION



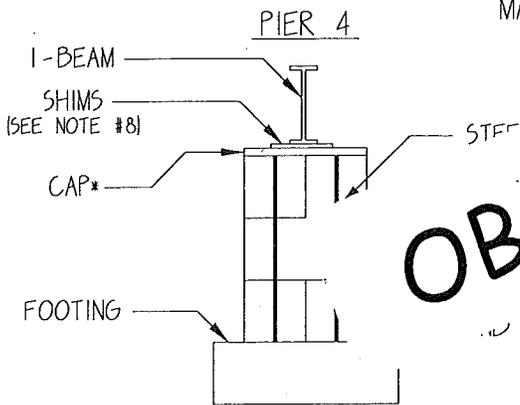
* CAP IS 4 X 16 X 16
SOLID CONCRETE BLOCK
FOR ALL DOUBLE STACKED
PIERS AND 2 X 8 X 16"
LONG MIN. FOR ALL
SINGLE STACKED PIER
(WOOD OR CONCRETE)

SINGLE BLOCKS
MAXIMUM HEIGHT = 36"
(SEE NOTE #2)

DOUBLE INTERLOCKED
BLOCKS
MAXIMUM HEIGHT = 80"



STEEL OR CONCRETE
MANUFACTURED PIER
(SEE NOTE#5)



DOUBLE INTERLOCKED BLOCKS
MAXIMUM HEIGHT = 96"

OBSOLETE

CONCRETE BLOCKS WITH
CORE FILLED WITH CONCRETE
AND LAID IN MORTAR

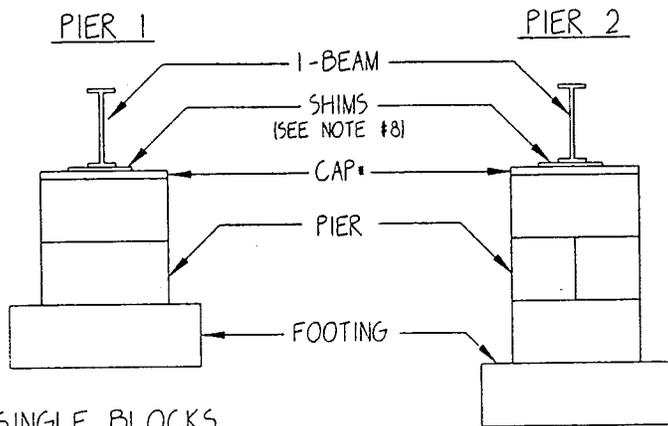


NOTES:

1. CONCRETE BLOCKS FOR PIERs ARE 8 X 16 X 8 NOMINAL SIZE, HOLLOW CELL LOAD BEARING CMU'S MANUFACTURED IN CONFORMANCE WITH ASTM C90-70, GRADE 'N'. OPEN CELLS ARE VERTICAL.
2. SINGLE STACKED CONCRETE BLOCKS ARE ORIENTED SO THAT LONG DIRECTION IS PERPENDICULAR TO THE LONG DIRECTION OF THE MAIN BEAM.
3. FOOTINGS MAY BE PRECAST OR POURED, BUT, IN EITHER CASE, MUST BE LEVEL IN ALL DIRECTIONS.
4. IT IS RECOMMENDED THAT BOTTOM OF ALL FOOTINGS BE BELOW LOCAL FROST LINE.
5. PIERs ARE TO BE PLACED ON THE FOOTING APPROXIMATELY CENTERED SO THAT THE FOOTING PROJECTION FROM THE PIER IS EQUAL FROM SIDE-TO-SIDE AND FRONT-TO-BACK. PIERs MUST BE LEVEL VERTICALLY ON ALL SIDES AND SQUARE WITH THE FOOTING.
6. PREFABRICATED PIERs (TYPE #3) MUST BE CERTIFIED FOR A RATED CAPACITY AT LEAST EQUAL TO THE LOAD DETERMINED FROM THE TABLES.
7. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH (F') OF 3000 PSI AFTER 28 DAYS.
8. GAP BETWEEN TOP OF PIER AND MAIN FRAME MAY BE A WOOD PLATE (NOT EXCEEDING 2" IN THICKNESS) AND SHIMS (NOT EXCEEDING 1" IN THICKNESS). SHIMS SHALL BE AT LEAST 4" WIDE AND 8" LONG, FITTED AND DRIVEN TIGHT BETWEEN WOOD PLATE OR PIER AND MAIN FRAME. (SHIMS TO BE PERPENDICULAR TO I-BEAM) TWO INCH OR 4" SOLID CONCRETE BLOCK MAY FILL REMAINDER OF GAP.
9. ALL WOOD USED IS TO BE PRESSURE TREATED.

REVISIONS	DATE		DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1421

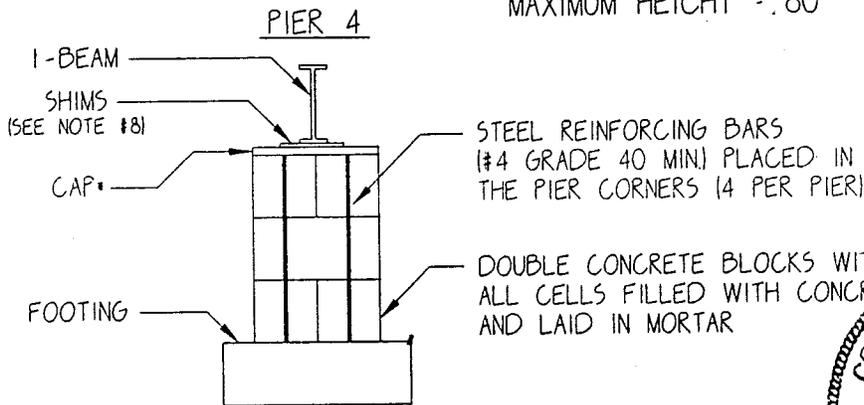
TYPICAL PIER CONSTRUCTION



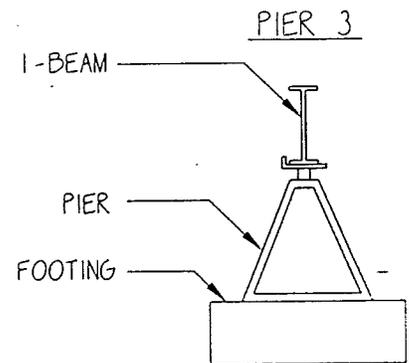
SINGLE BLOCKS
MAXIMUM HEIGHT = 36"
(SEE NOTE #2)

DOUBLE INTERLOCKED
BLOCKS
MAXIMUM HEIGHT = 80"

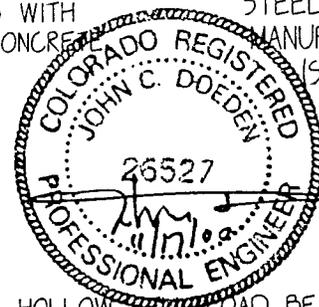
*CAP IS 4 X 16 X 16
SOLID CONCRETE BLOCK
FOR ALL DOUBLE STACKED
PIERS AND 2 X 8 X 16"
LONG MIN. FOR ALL
SINGLE STACKED PIERS
(WOOD OR CONCRETE)



DOUBLE INTERLOCKED BLOCKS
MAXIMUM HEIGHT = 96"



STEEL OR CONCRETE
MANUFACTURED PIER
(SEE NOTE #5)



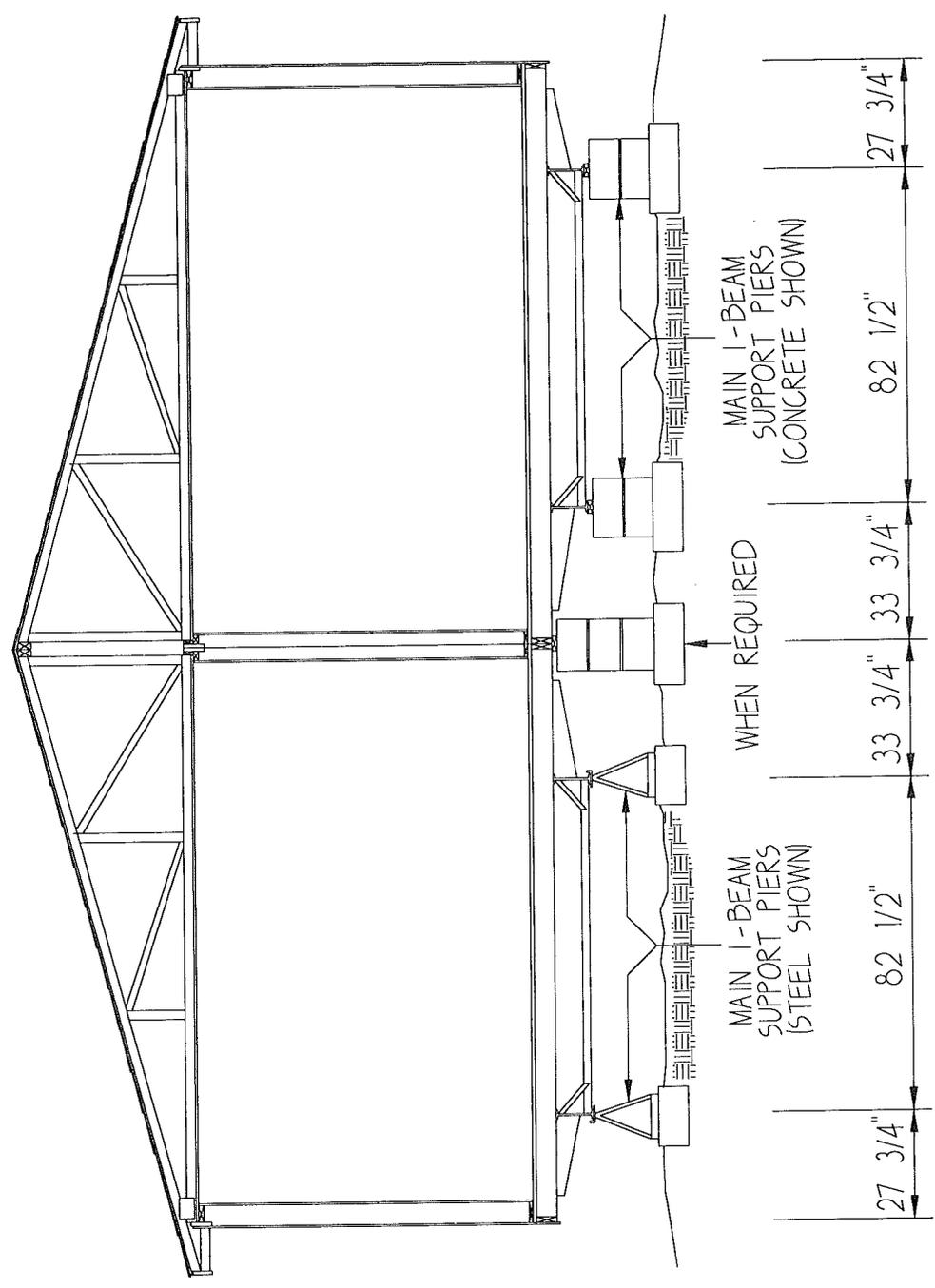
NOTES:

1. CONCRETE BLOCKS FOR PIERS ARE 8 X 16 X 8 NOMINAL SIZE, HOLLOW LOAD BEARING CMU'S MANUFACTURED IN CONFORMANCE WITH ASTM C90-70, GRADE 'N'. OPEN CELLS ARE VERTICAL.
2. SINGLE STACKED CONCRETE BLOCKS ARE ORIENTED SO THAT LONG DIRECTION IS PERPENDICULAR TO THE LONG DIRECTION OF THE MAIN BEAM.
3. FOOTINGS MAY BE PRECAST OR POURED, BUT, IN EITHER CASE, MUST BE LEVEL IN ALL DIRECTIONS.
4. IT IS RECOMMENDED THAT BOTTOM OF ALL FOOTINGS BE BELOW LOCAL FROST LINE.
5. PIERS ARE TO BE PLACED ON THE FOOTING APPROXIMATELY CENTERED SO THAT THE FOOTING PROJECTION FROM THE PIER IS EQUAL FROM SIDE-TO-SIDE AND FRONT-TO-BACK. PIERS MUST BE LEVEL VERTICALLY ON ALL SIDES AND SQUARE WITH THE FOOTING.
6. PREFABRICATED PIERS (TYPE #3) MUST BE CERTIFIED FOR A RATED CAPACITY AT LEAST EQUAL TO THE LOAD DETERMINED FROM THE TABLES.
7. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH (F) OF 3000 PSI AFTER 28 DAYS.
8. GAP BETWEEN TOP OF PIER AND MAIN FRAME MAY BE A WOOD PLATE (NOT EXCEEDING 2" IN THICKNESS) AND SHIMS (NOT EXCEEDING 1" IN THICKNESS). SHIMS SHALL BE AT LEAST 4" WIDE AND 8" LONG, FITTED AND DRIVEN TIGHT BETWEEN WOOD PLATE OR PIER AND MAIN FRAME. (SHIMS TO BE PERPENDICULAR TO I-BEAM) TWO INCH OR 4" SOLID CONCRETE BLOCK MAY FILL REMAINDER OF GAP.

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
OMIT PRESSURE TREATED REQ	11/6/00		CHKD. BY:	
			SCALE: NONE	BP1421

SECTION III
SUPPORT BLOCKING
Double Section Homes

STANDARD SUPPORT BLOCKING
 FOR 30 LB./SQ. FT. ROOF LIVE LOAD



MAIN I-BEAM
 SUPPORT PIERS
 (CONCRETE SHOWN)

WHEN REQUIRED

MAIN I-BEAM
 SUPPORT PIERS
 (STEEL SHOWN)

27 3/4"

82 1/2"

33 3/4"

33 3/4"

82 1/2"

27 3/4"

26' DOUBLE WIDE
 ACTUAL FLOOR DIMENSION 24'-0"

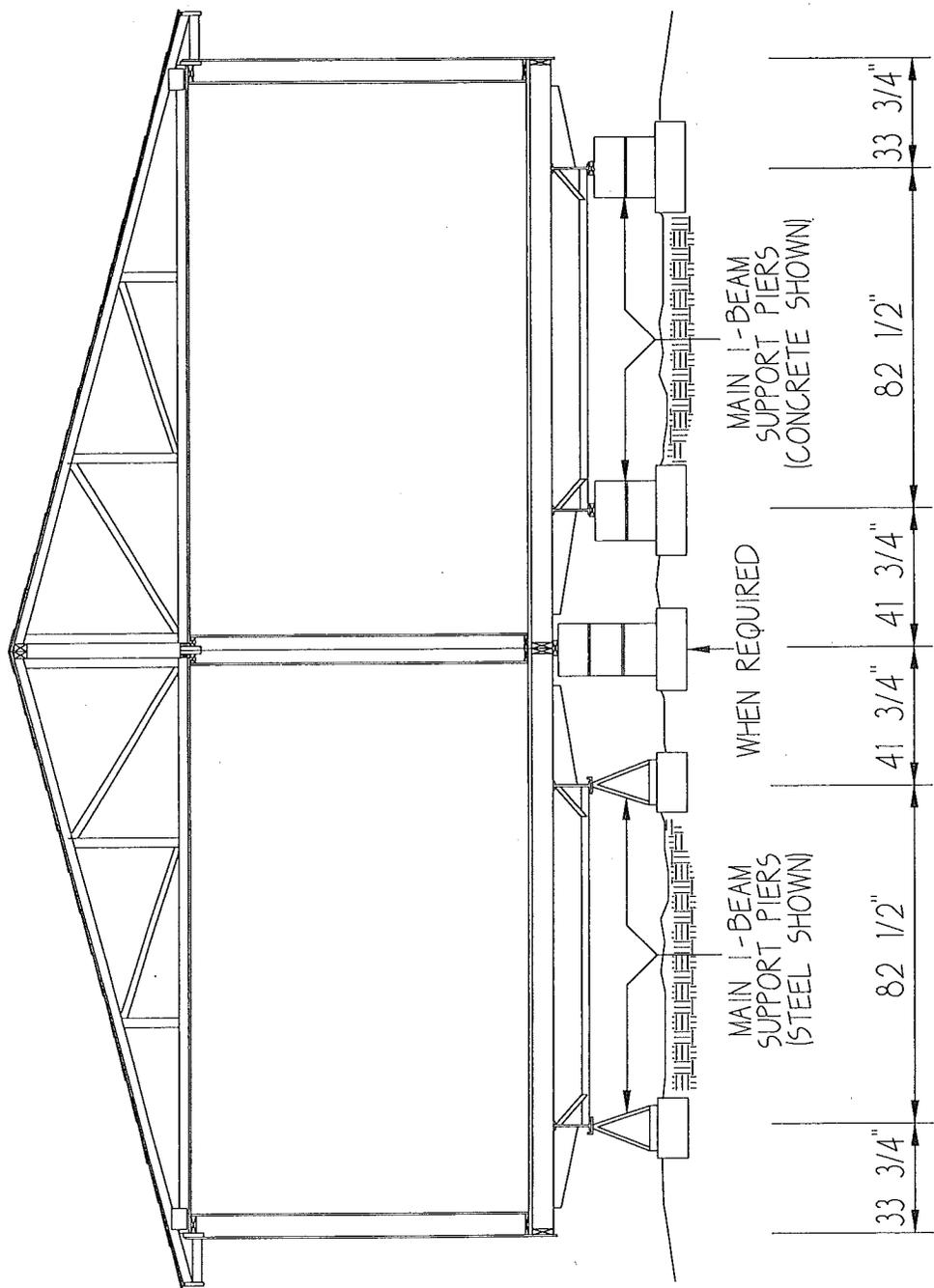
REVISIONS	DATE

CHIEF INDUSTRIES
 HOUSING DIVISION

DRWG. BY: DM	10/8/97
CHKD. BY:	
SCALE: NONE	BP1610

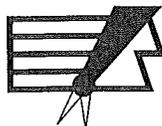
STANDARD SUPPORT BLOCKING

FOR 30 LB./SQ. FT. ROOF LIVE LOAD



28' DOUBLE WIDE
ACTUAL FLOOR DIMENSION 26'-4"

REVISIONS	DATE

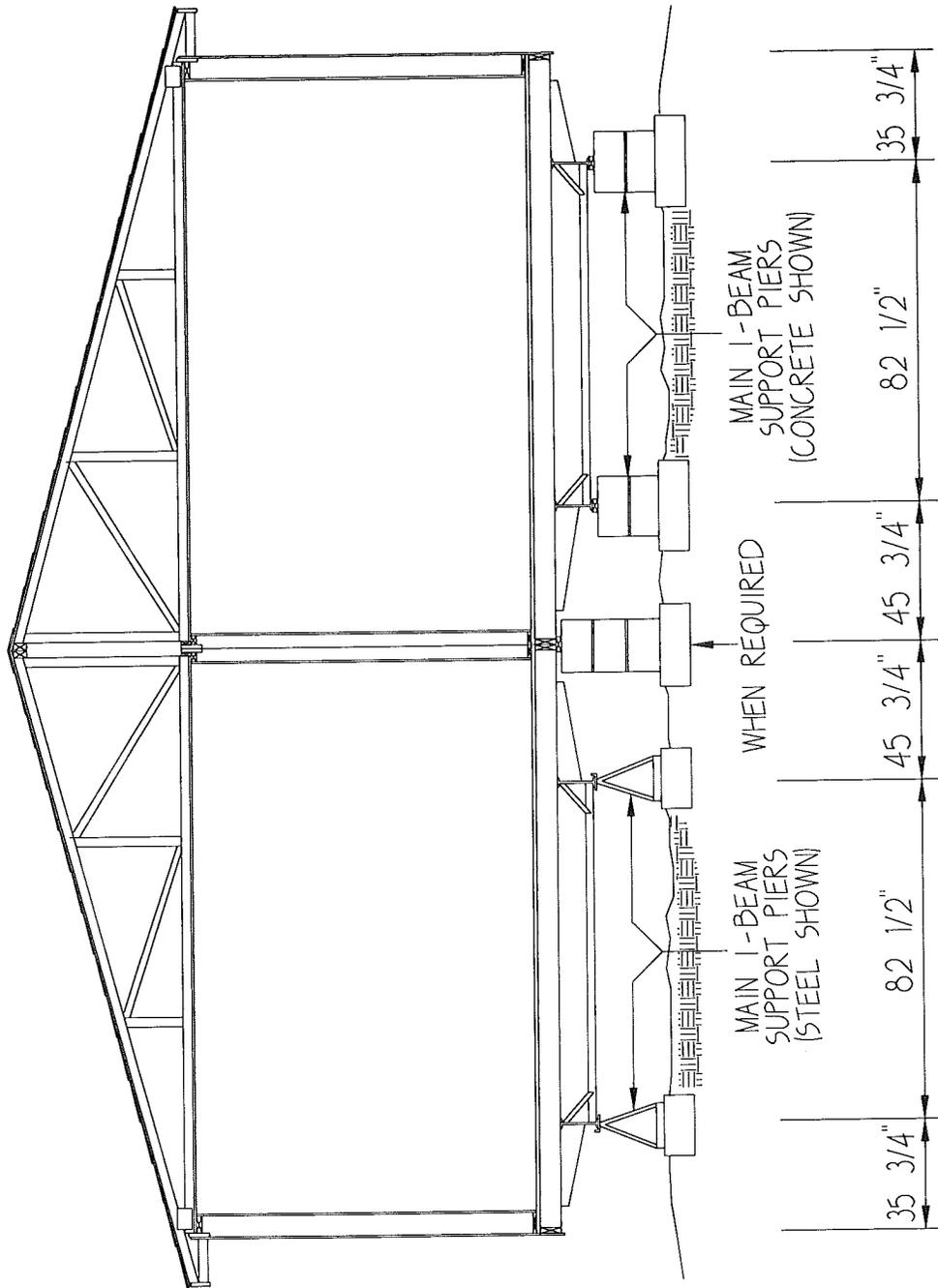


CHIEF INDUSTRIES
HOUSING DIVISION

DRWG. BY: DM	10/8/97
CHKD. BY:	
SCALE: NONE	BP1608

STANDARD SUPPORT BLOCKING

FOR 30 LB./SQ. FT. ROOF LIVE LOAD



30' DOUBLE WIDE
ACTUAL FLOOR DIMENSION 27'-4"

REVISIONS	DATE

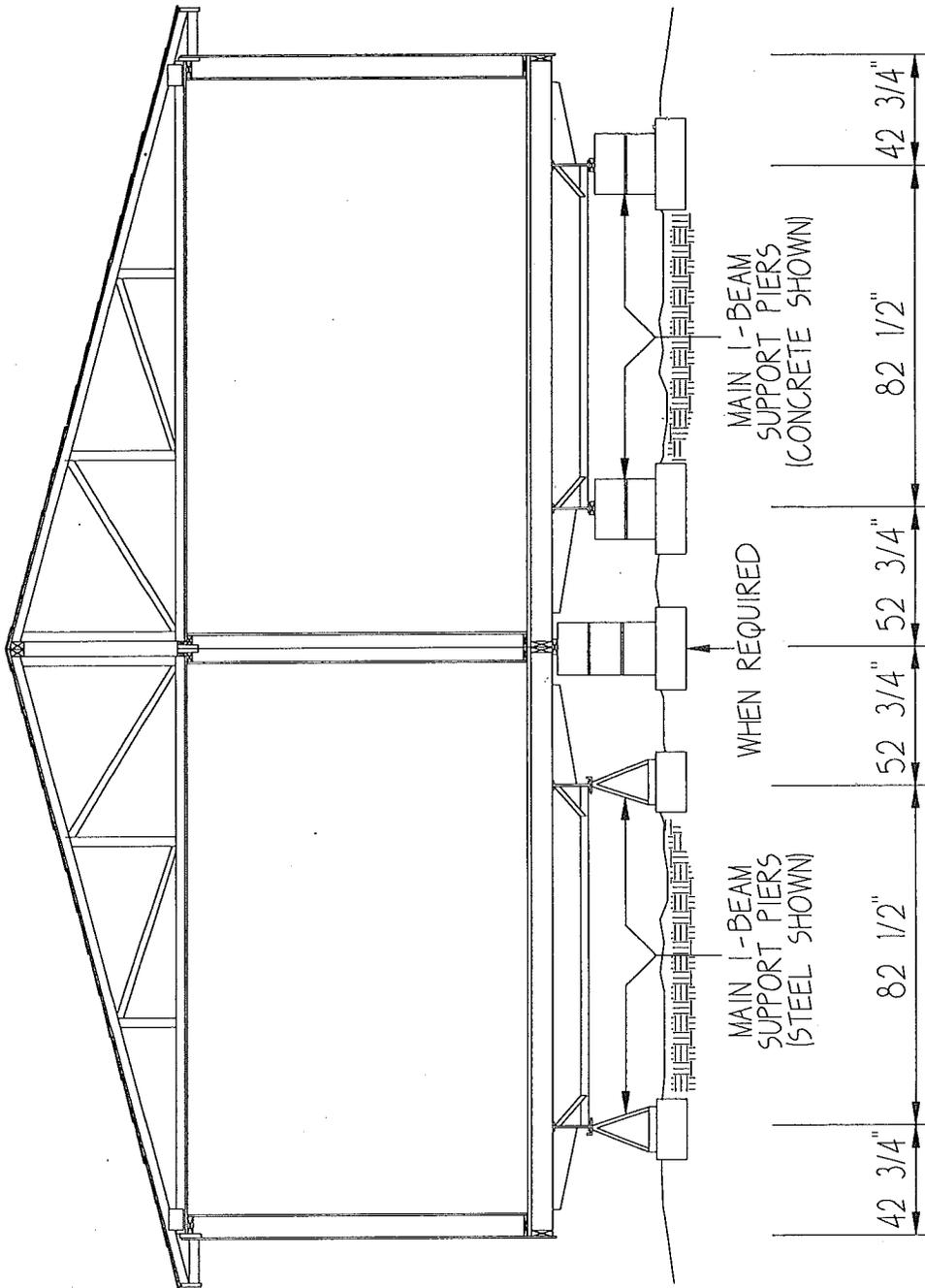


CHIEF INDUSTRIES
HOUSING DIVISION

DRWG. BY: DM	10/8/97
CHKD. BY:	
SCALE: NONE	BP1609

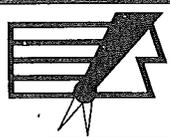
STANDARD SUPPORT BLOCKING

FOR 30 LB./SQ. FT. ROOF LIVE LOAD



32' DOUBLE WIDE
ACTUAL FLOOR DIMENSION 29'-8"

REVISIONS	DATE



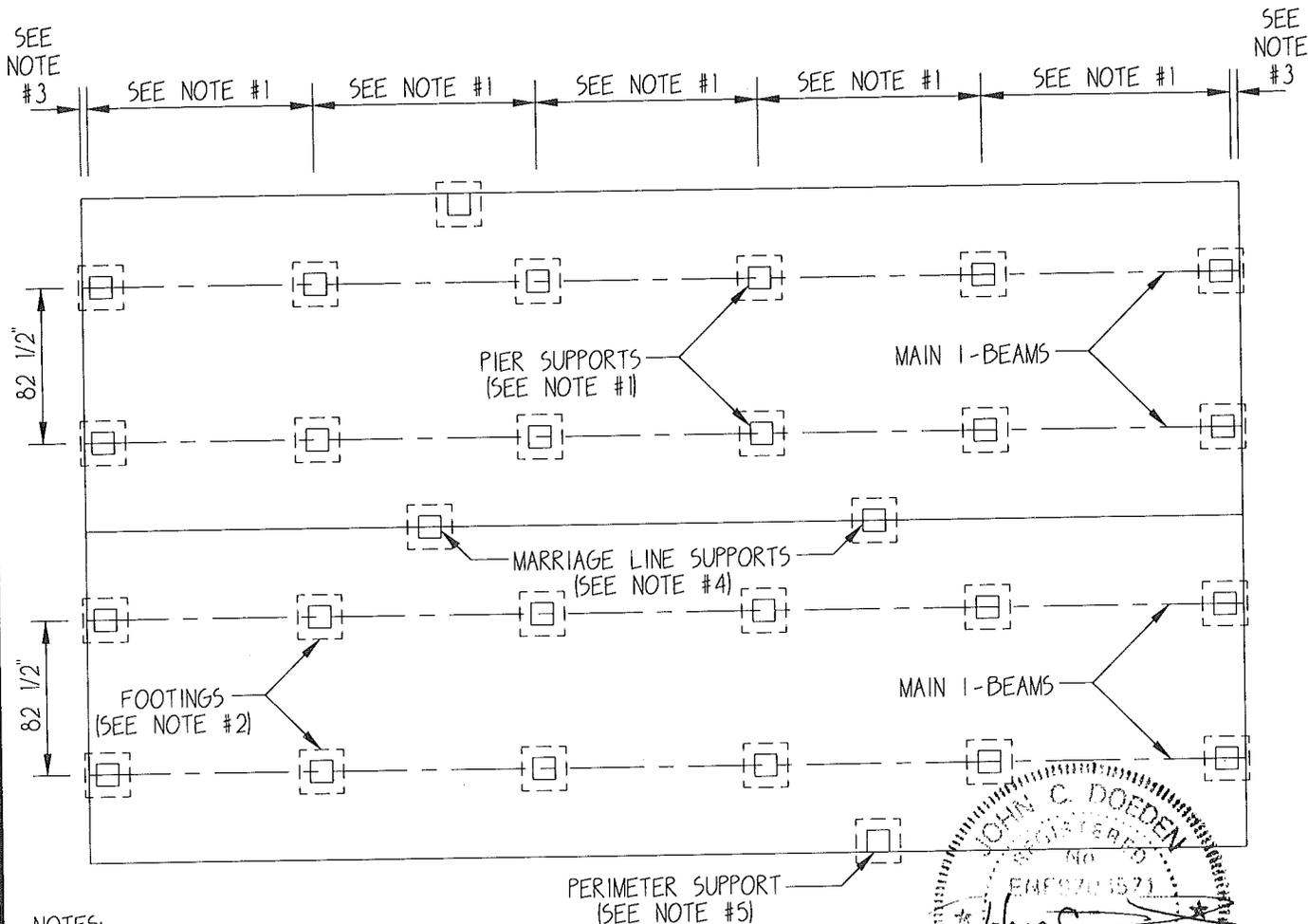
CHIEF INDUSTRIES
HOUSING DIVISION

DRWG. BY: DM	12/29/98
CHKD. BY:	
SCALE: NONE	BP1831

TYPICAL BLOCKING LAYOUTS

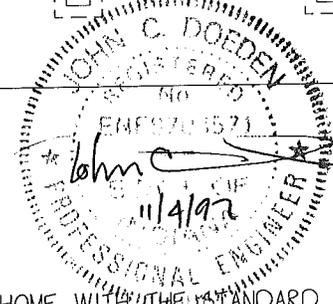
DOUBLE-SECTION HOMES

STANDARD BLOCKING AND 30 LB. ROOF LOAD



NOTES:

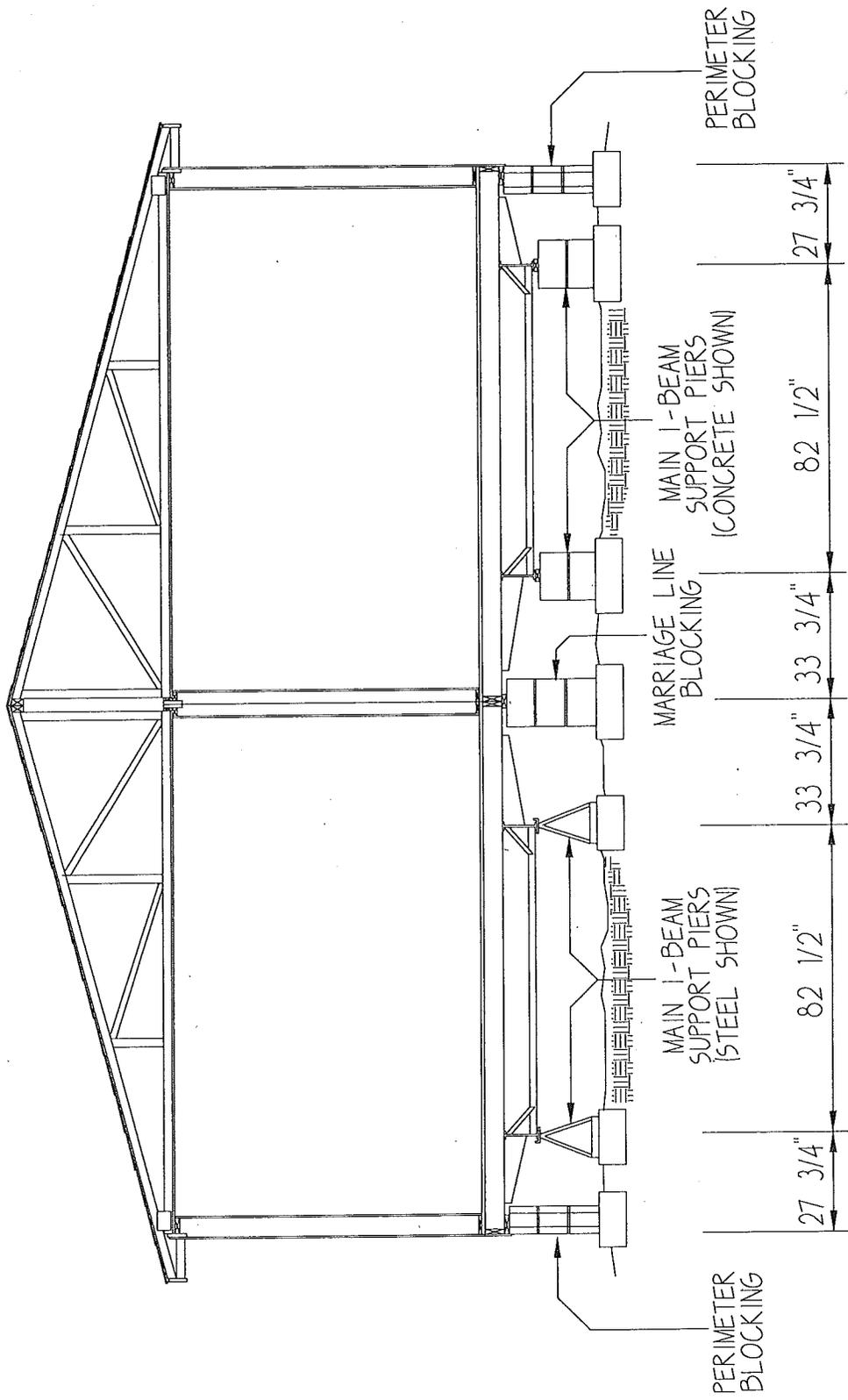
1. SEE TABLE 3.1 FOR REQUIRED PIER CAPACITY AND SPACING
2. SEE TABLE 6.1 FOR FOOTING REQUIREMENTS
3. A. THE EDGE OF THE PIER SHALL BE LOCATED FLUSH WITH END OF HOME WITH THE STANDARD FRAME.
 B. THE EDGE OF THE PIER SHALL BE LOCATED 4 1/2" IN FROM THE BOTH ENDS OF HOME WITH THE OPTIONAL 4" RECESSED FRAME.
 C. THE EDGE OF THE PIER SHALL BE LOCATED 10" IN FROM THE BOTH ENDS OF HOME WITH THE OPTIONAL 10" RECESSED FRAME.
4. SEE TABLE 3.2 FOR REQUIRED MARRIAGE LINE PIER CAPACITY
5. PIERS SHALL BE LOCATED AT THE HINGE SIDE OF ALL EXTERIOR DOORS AND ON BOTH SIDES OF ANY OPENING LARGER THAN 48" IN WIDTH.
6. ABOVE DESIGN IS FOR 30 PSF ROOF LIVE LOADS ONLY



REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BP1614

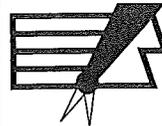
STANDARD SUPPORT BLOCKING

WITH OPTIONAL ROOF LOADS



26' DOUBLE WIDE
ACTUAL FLOOR DIMENSION 24'-0"

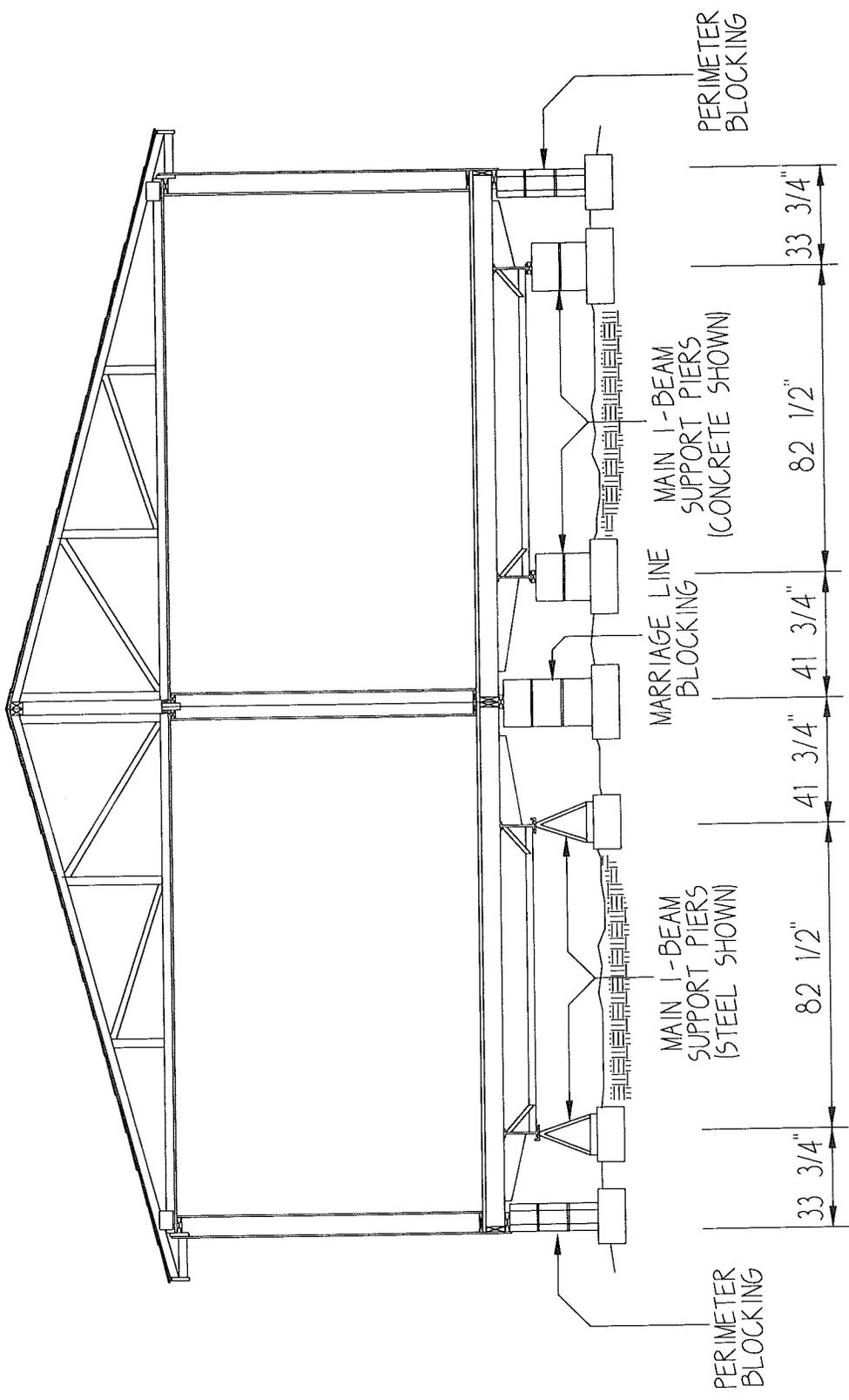
REVISIONS	DATE



CHIEF INDUSTRIES
HOUSING DIVISION

DRWG. BY: DM	10/8/97
CHKD. BY:	
SCALE: NONE	BP1611

STANDARD SUPPORT BLOCKING
WITH OPTIONAL ROOF LOADS

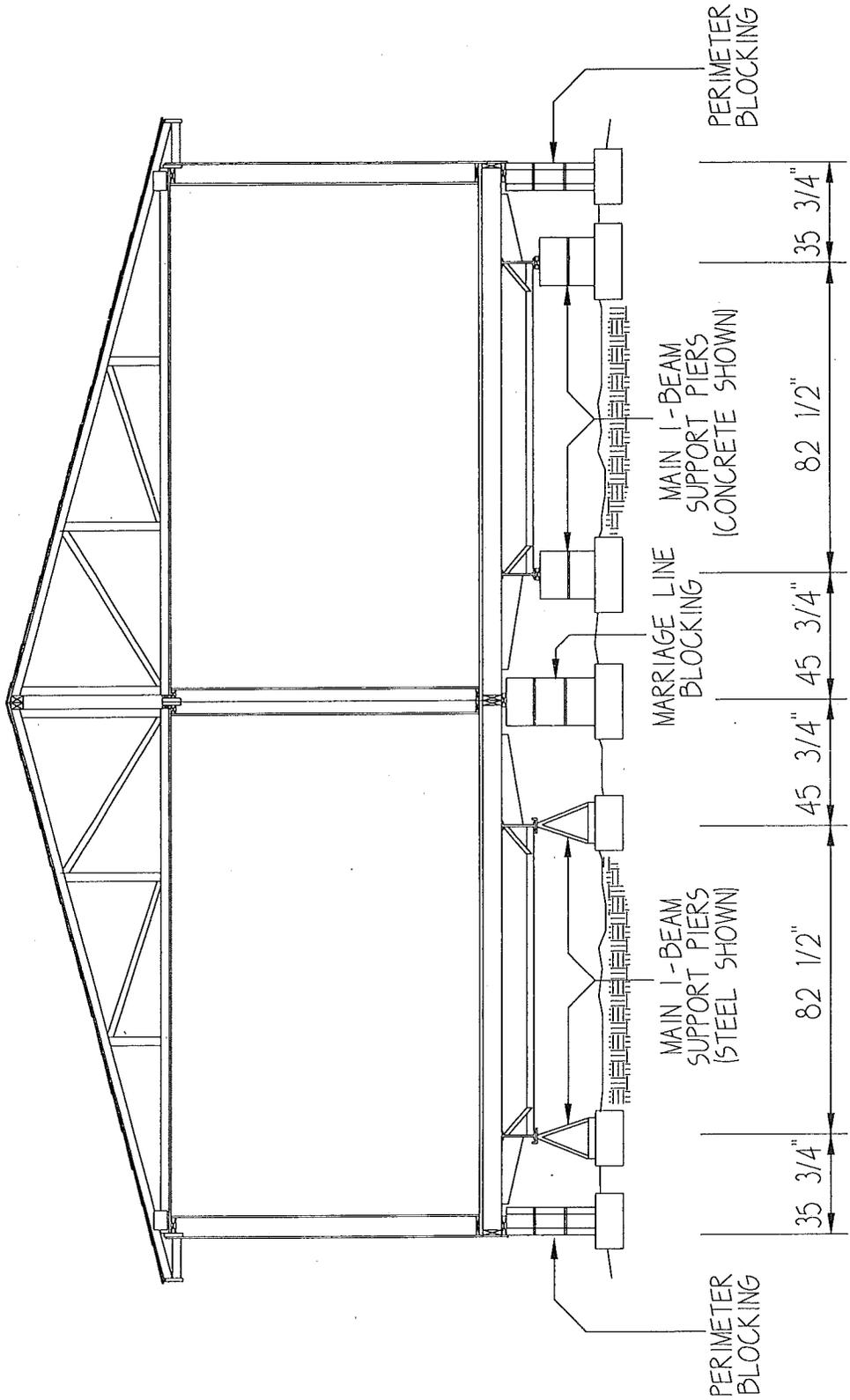


28' DOUBLE WIDE
ACTUAL FLOOR DIMENSION 26'-4"

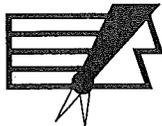
REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BP1612

STANDARD SUPPORT BLOCKING

WITH OPTIONAL ROOF LOADS

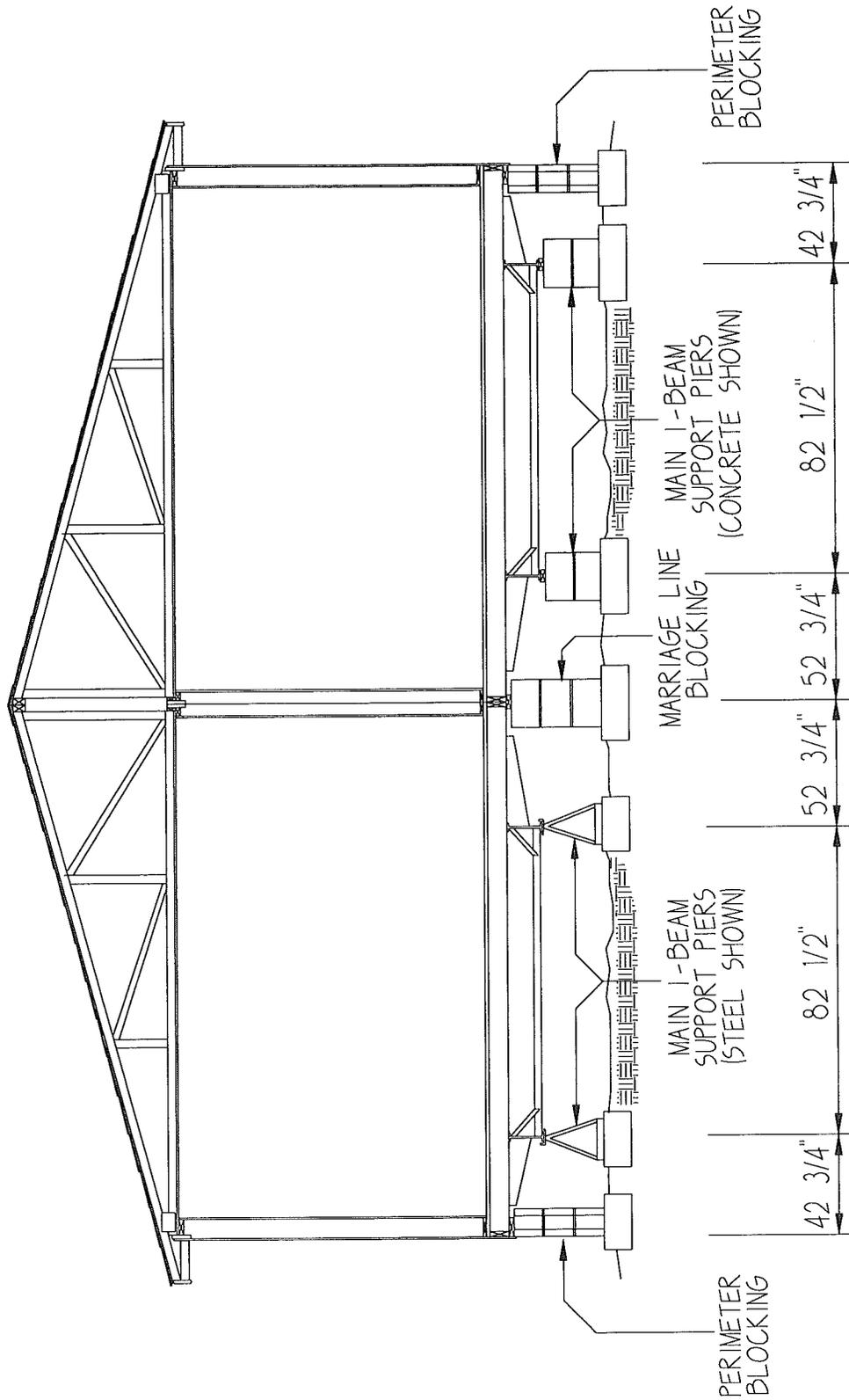


30' DOUBLE WIDE
ACTUAL FLOOR DIMENSION 27'-4"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BP1611

STANDARD SUPPORT BLOCKING

WITH OPTIONAL ROOF LOADS

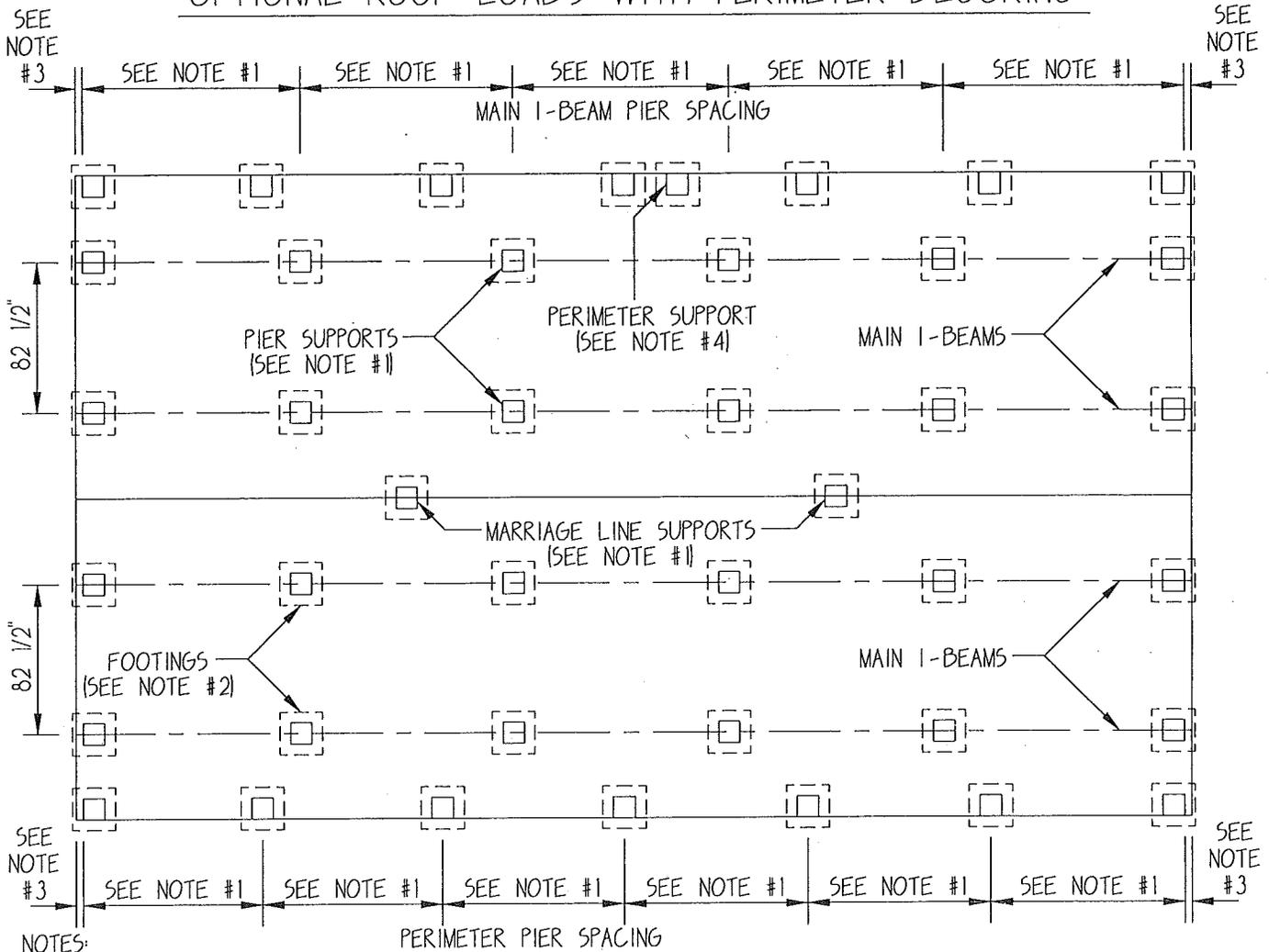


32' DOUBLE WIDE
ACTUAL FLOOR DIMENSION 29'-8"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	12/29/98
			CHKD. BY:	
			SCALE: NONE	BP1832

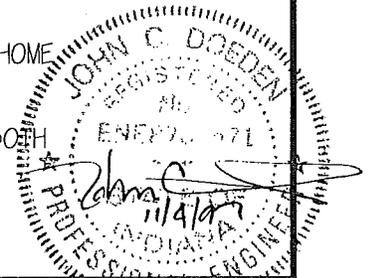
TYPICAL BLOCKING LAYOUTS

DOUBLE-SECTION HOMES OPTIONAL ROOF LOADS WITH PERIMETER BLOCKING



NOTES:

1. A. SEE TABLE 3.3 FOR REQUIRED PIER CAPACITY AND SPACING OF MAIN I-BEAM PIERS
- B. SEE TABLE 3.4 FOR REQUIRED PIER CAPACITY AND SPACING OF PERIMETER (SIDEWALL) PIERS
- C. SEE TABLE 3.5 AND 3.6 FOR REQUIRED PIER CAPACITY AND SPACING OF MARRIAGE LINE PIERS
2. SEE TABLE 6.1 FOR FOOTING REQUIREMENTS
3. A. THE EDGE OF THE PIER SHALL BE LOCATED FLUSH WITH END OF HOME WITH THE STANDARD FRAME.
- B. THE EDGE OF THE PIER SHALL BE LOCATED $4 \frac{1}{2}$ " IN FROM THE BOTH ENDS OF HOME WITH THE 4" RECESSED FRAME.
- C. THE EDGE OF THE PIER SHALL BE LOCATED 10" IN FROM THE BOTH ENDS OF HOME WITH THE 10" RECESSED FRAME.
4. PIERS SHALL BE LOCATED AT THE HINGE SIDE OF ALL EXTERIOR DOORS AND ON BOTH SIDES OF ANY OPENING LARGER THAN 48" IN WIDTH.
5. ABOVE DESIGN IS FOR OPTIONAL ROOF LIVE LOADS ONLY



REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BPI615

MINIMUM PIER CAPACITY TABLES WITHOUT PERIMETER SUPPORT

DOUBLE-SECTION HOMES MAIN 1-BEAM BLOCKING

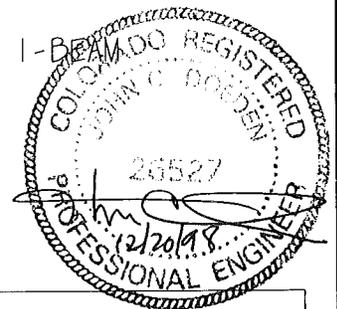
SECTION WIDTH (FEET)	ROOF LIVE LOAD (PSF)	MINIMUM PIER CAPACITY (POUNDS)					
		MAXIMUM PIER SPACING (FEET)					
		4'-0"	5'-4"	6'-8"	8'-0"	9'-4"	10'-8"
26 WIDE (24'-0" FLOOR)	30 PSF	3010	3890	4770	5650	6530	7410
28 WIDE (26'-4" FLOOR)	30 PSF	3220	4170	5125	6075	7025	7975
30 WIDE (27'-4" FLOOR)	30 PSF	3310	4290	5270	6250	7230	8210
32 WIDE (29'-8" FLOOR)	30 PSF	3520	4570	5620	6670	7720	8900

TABLE 3.1

NOTES:

1. MAXIMUM EAVE IS 24"
2. MAXIMUM 1-BEAM SPAN ALLOWED (BETWEEN PIERS) IS 9'-4" FOR 8" 1-BEAM AND 10'-8" FOR BOTH 10" AND 12" 1-BEAM

DOUBLE-SECTION HOMES RIDGE BEAM COLUMN SUPPORTS (30 PSF ROOF LIVE LOAD)



SECTION WIDTH (FEET)	MINIMUM PIER CAPACITY (POUNDS)								
	MAXIMUM RIDGE BEAM SPAN								
	4 FT	8 FT	12 FT	16 FT	20 FT	24 FT	28 FT	32 FT	36 FT
26 WIDE (24'-0" FLOOR)	1600	2680	3760	4840	5920	7000	8080	9155	10235
28 WIDE (26'-4" FLOOR)	1735	2910	4090	5270	6450	7625	8800	9980	11160
30 WIDE (27'-4" FLOOR)	1790	3010	4230	5450	6670	7900	9115	10335	11555
32 WIDE (29'-8" FLOOR)	1920	3240	4430	5710	7000	8275	9555	10840	12120

TABLE 3.2

REVISIONS	DATE		CHIEF INDUSTRIES	DRWG. BY: DM	10/8/97
			HOUSING DIVISION	CHKD. BY:	
				SCALE: NONE	BPI623

MINIMUM PIER CAPACITY TABLES WITH PERIMETER SUPPORT

DOUBLE-SECTION HOMES MAIN I-BEAM BLOCKING

SECTION WIDTH (FEET)	ROOF LIVE LOAD (PSF)	MINIMUM PIER CAPACITY (POUNDS)					
		MAXIMUM PIER SPACING (FEET)					
		4'-0"	5'-4"	6'-8"	8'-0"	9'-4"	10'-8"
26 WIDE (24'-0" FLOOR)	ALL LOADS	1290	1590	1885	2180	2475	2775
28 WIDE (26'-4" FLOOR)	ALL LOADS	1345	1660	1970	2285	2600	2915
30 WIDE (27'-4" FLOOR)	ALL LOADS	1365	1690	2010	2330	2650	2975
32 WIDE (29'-8" FLOOR)	ALL LOADS	1420	1760	2095	2435	2775	3115

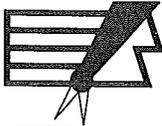
TABLE 3.3

DOUBLE-SECTION HOMES ROOF LOAD PERIMETER (SIDEWALL) BLOCKING



SECTION WIDTH (FEET)	ROOF LIVE LOAD (PSF)	MINIMUM PIER CAPACITY (POUNDS)			
		MAXIMUM PIER SPACING (FEET)			
		4'-0"	5'-4"	6'-8"	8'-0"
26 WIDE (24'-0" FLOOR)	40	2390	3055	3720	4380
	60	3030	3910	4785	-
	80	3670	4760	-	-
28 WIDE (26'-4" FLOOR)	40	2560	3280	4000	4720
	60	3250	4200	5145	-
	80	3935	5110	-	-
30 WIDE (27'-4" FLOOR)	40	2635	3380	4120	4865
	60	3340	4320	5300	-
	80	4050	5260	-	-
32 WIDE (29'-8" FLOOR)	40	2800	3600	4405	5205
	60	3555	4605	5660	-
	80	4310	5610	-	-

TABLE 3.4

REVISIONS	DATE		CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97	
					CHKD. BY:	
					SCALE: NONE	BP1616

MINIMUM PIER CAPACITY TABLES

WITH PERIMETER BLOCKING

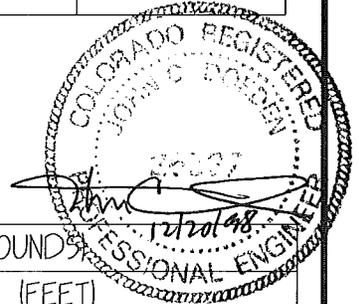
DOUBLE-SECTION HOMES

ROOF LOAD MARRIAGE LINE (COMMONWALL) BLOCKING

SECTION WIDTH (FEET)	ROOF LIVE LOAD (PSF)	MINIMUM PIER CAPACITY (POUNDS)			
		MAXIMUM PIER SPACING (FEET)			
		4'-0"	5'-4"	6'-8"	8'-0"
26 WIDE (24'-0" FLOOR)	40	3580	4640	5700	6765
	60	4540	5920	7300	-
	80	5500	7200	-	-
28 WIDE (26'-4" FLOOR)	40	3920	5095	6265	7440
	60	4975	6500	8025	-
	80	6025	7900	-	-
30 WIDE (27'-4" FLOOR)	40	4065	5290	6510	7730
	60	5160	6745	8330	-
	80	6250	8200	-	-
32 WIDE (29'-8" FLOOR)	40	4400	5740	7075	8410
	60	5590	7320	9060	-
	80	6780	8900	-	-

TABLE 3.5

DOUBLE-SECTION HOMES RIDGE BEAM COLUMN SUPPORTS



SECTION WIDTH (FEET)	ROOF LIVE LOAD (PSF)	MINIMUM PIER CAPACITY (POUNDS)							
		MAXIMUM RIDGE BEAM SPAN (FEET)							
		4 FT	8 FT	12 FT	16 FT	20 FT	24 FT	28 FT	32 FT
26 WIDE (24'-0" FLOOR)	40	4160	5500	6825	8160	9495	10825	12160	13500
	60	5065	6910	8750	10590	12430	14275	16115	17955
	80	5645	8000	10345	12700	15040	17390	19740	22090
28 WIDE (26'-4" FLOOR)	40	4530	5990	7445	8900	10360	11820	13275	14730
	60	5530	7550	9560	11570	13590	15600	17615	19630
	80	6165	8740	11310	13880	16450	19025	21600	24170
30 WIDE (27'-4" FLOOR)	40	4690	6200	7710	9220	10730	12240	13750	15260
	60	5725	7815	9900	12000	14080	16170	18260	20350
	80	6390	9055	11720	14390	17060	19725	22400	25060
32 WIDE (29'-8" FLOOR)	40	5060	6690	8325	9960	11590	13225	14855	16490
	60	6190	8450	10710	12970	15230	17490	19750	22015
	80	6910	9790	12675	15565	18450	21540	24230	27120

TABLE 3.6

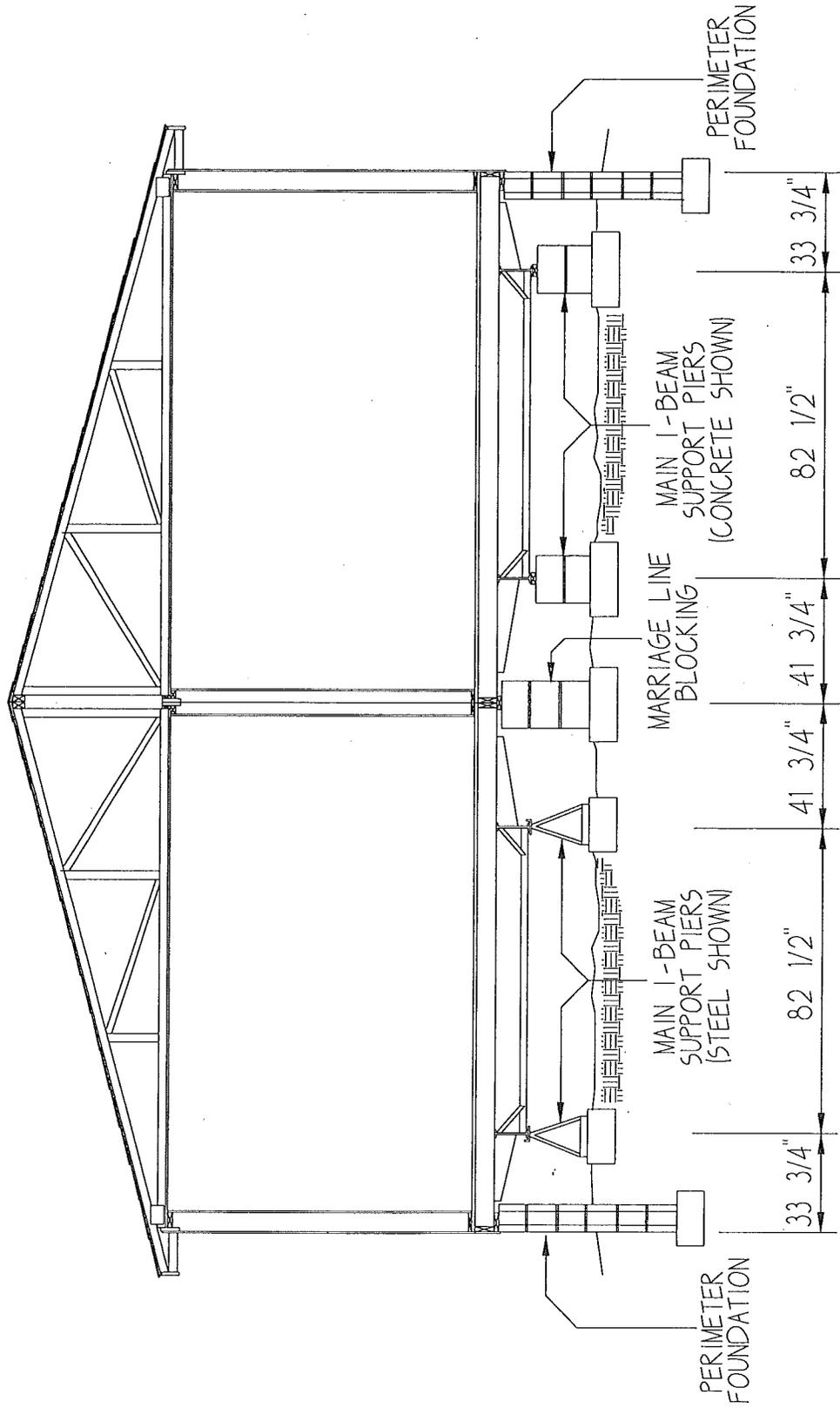
REVISIONS	DATE		CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97	
					CHKD. BY:	
					SCALE: NONE	BP1617

SECTION IV

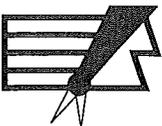
PERIMETER FOUNDATION

Double Section Homes

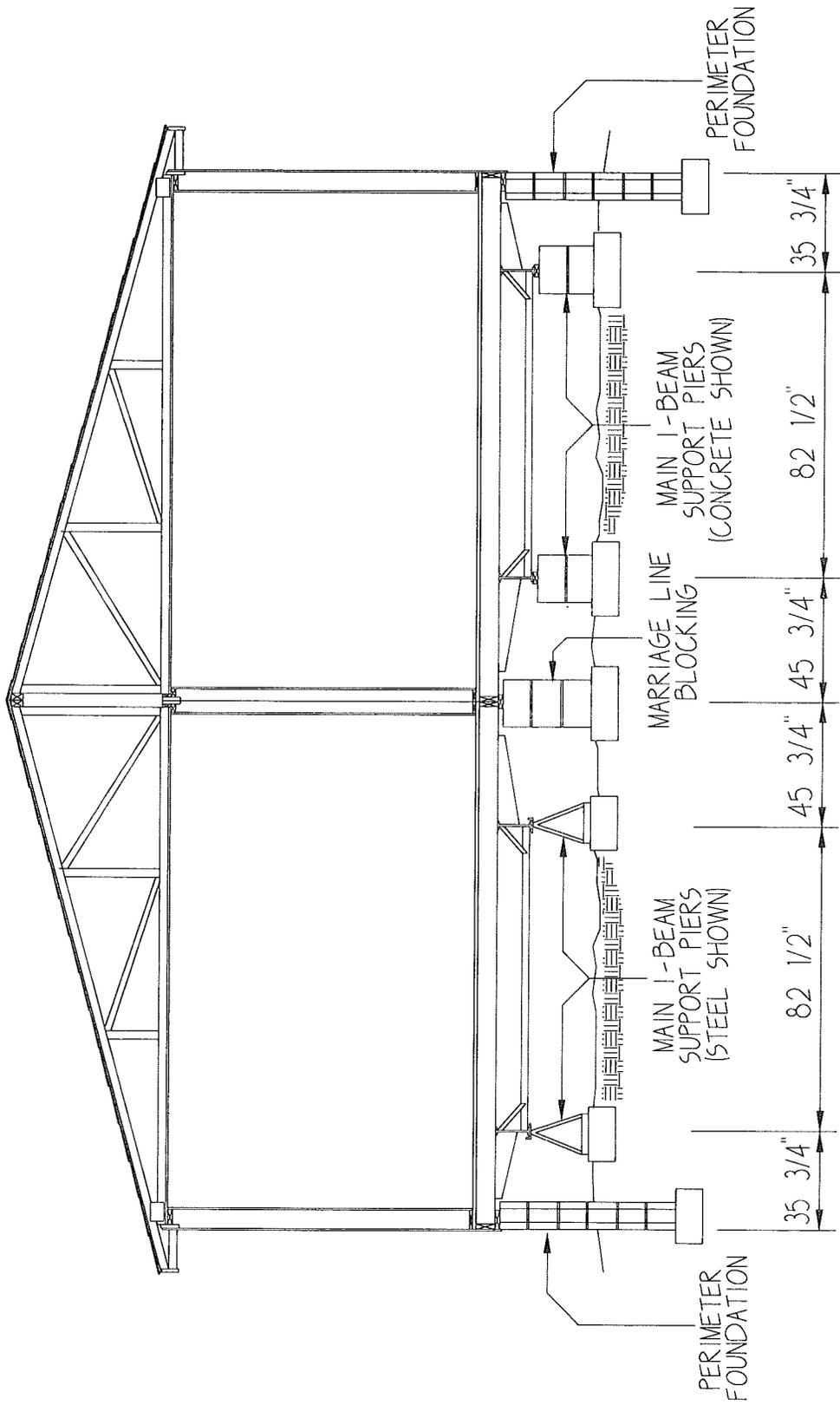
PERIMETER FOUNDATION



28' DOUBLE WIDE
ACTUAL FLOOR DIMENSION 26'-4"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BP1619

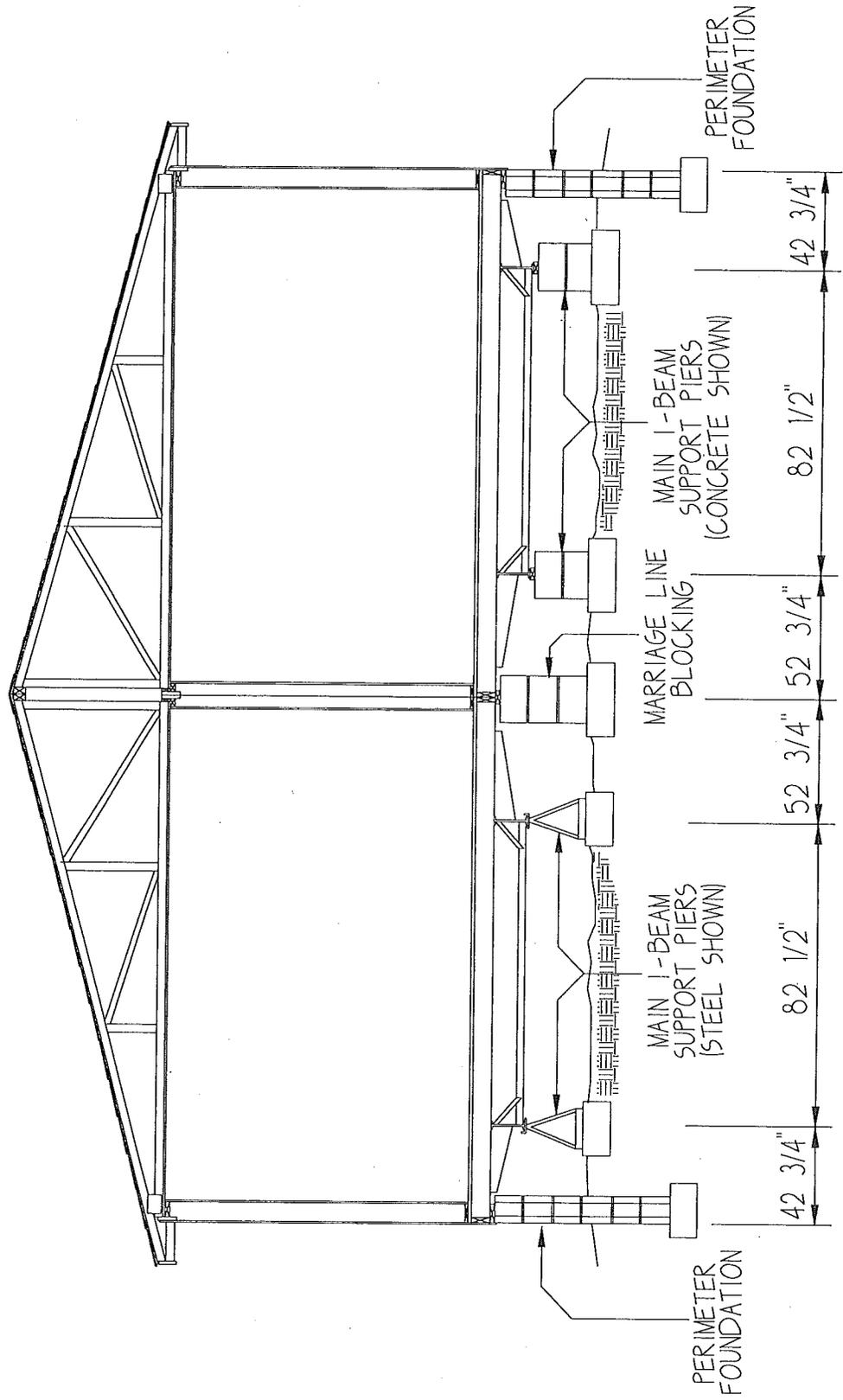
PERIMETER FOUNDATION



30' DOUBLE WIDE
ACTUAL FLOOR DIMENSION 27'-4"

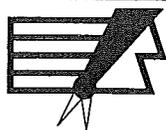
REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BP1620

PERIMETER FOUNDATION



32' DOUBLE WIDE
ACTUAL FLOOR DIMENSION 29'-8"

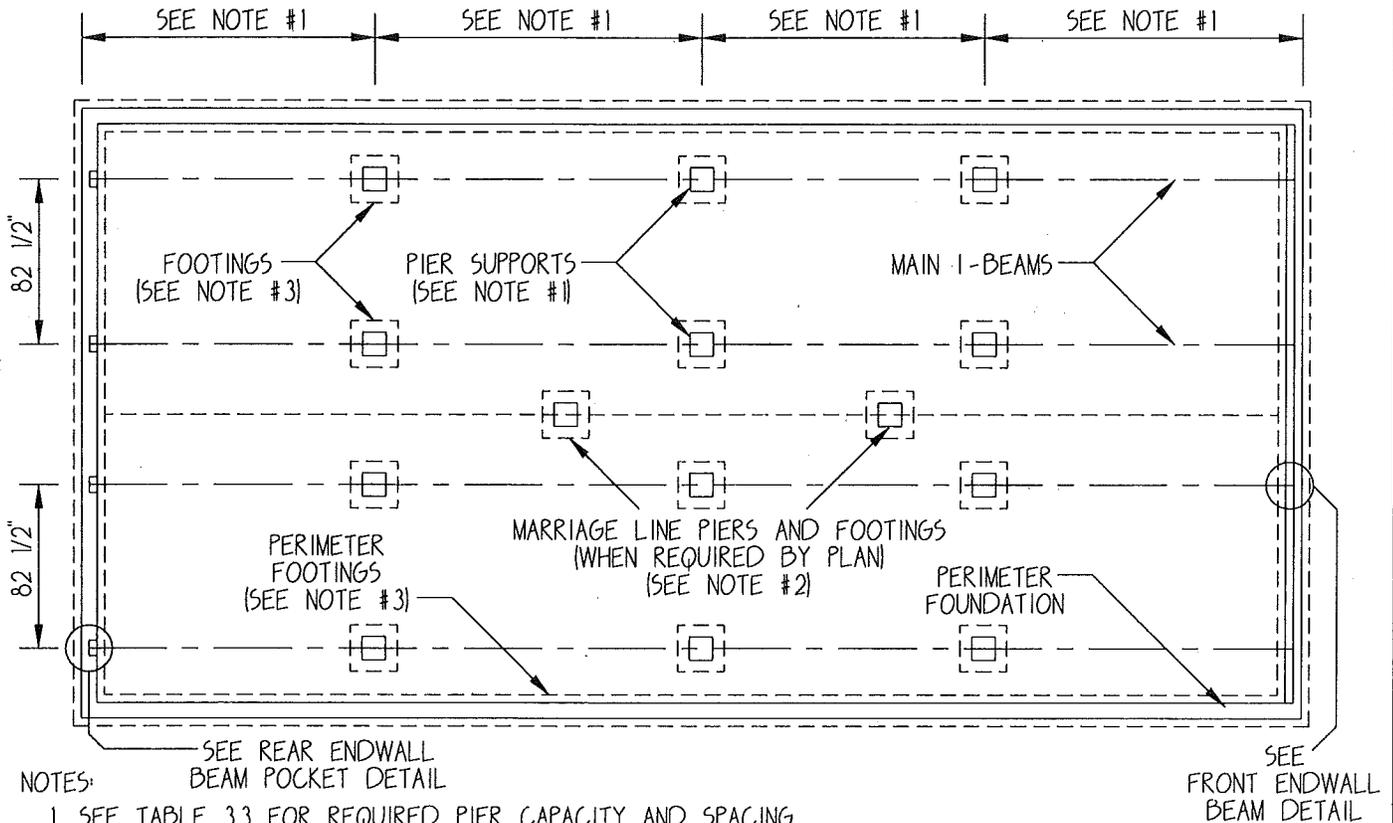
REVISIONS	DATE



CHIEF INDUSTRIES
HOUSING DIVISION

DRWG. BY: DM	12/29/98
CHKD. BY:	
SCALE: NONE	BPI833

TYPICAL BLOCKING LAYOUT DOUBLE-SECTION HOMES PERIMETER FOUNDATION WITH 4" RECESSED FRAME



NOTES:

1. SEE TABLE 3.3 FOR REQUIRED PIER CAPACITY AND SPACING
2. A. SEE TABLE 3.2 FOR REQUIRED PIER CAPACITY AND SPACING
B. SEE TABLE 3.5 AND 3.6 FOR REQUIRED PIER CAPACITY AND SPACING
3. SEE TABLE 6.1 FOR FOOTING REQUIREMENTS

* BEAM LEDGE RUNS ALONG THE ENTIRE FRONT END FOUNDATION WALL

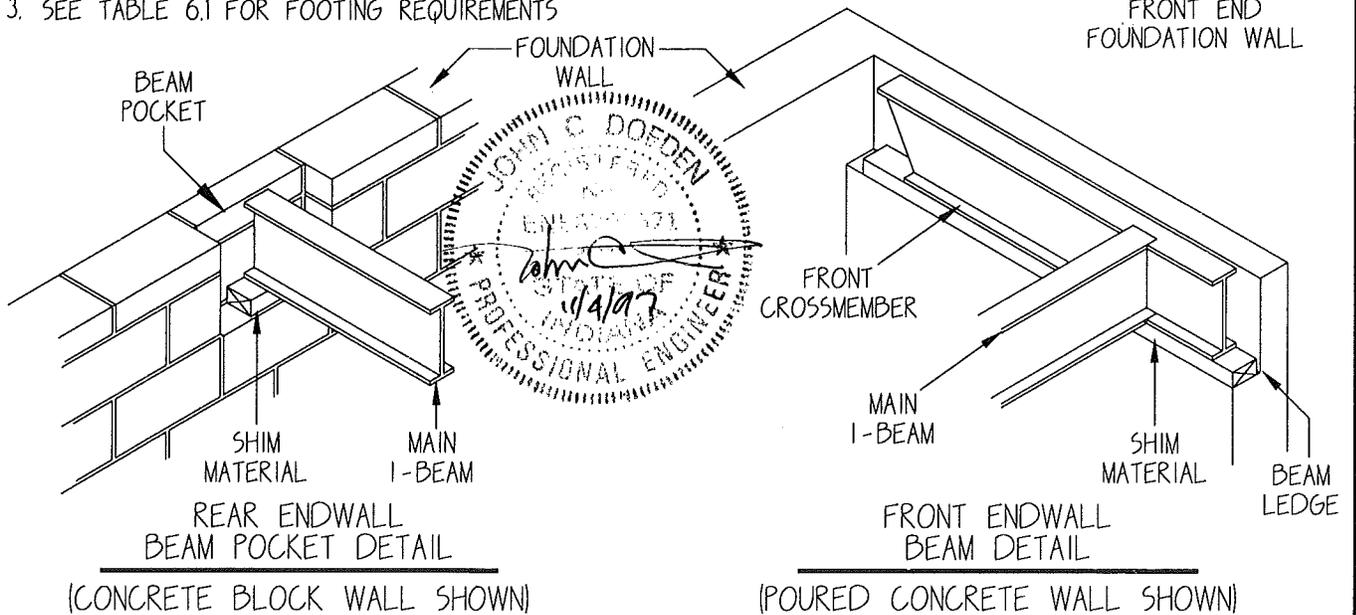
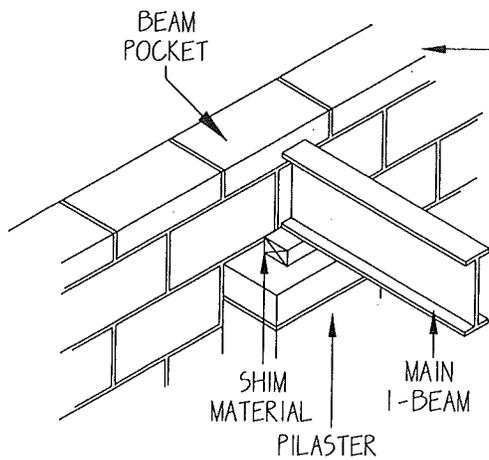
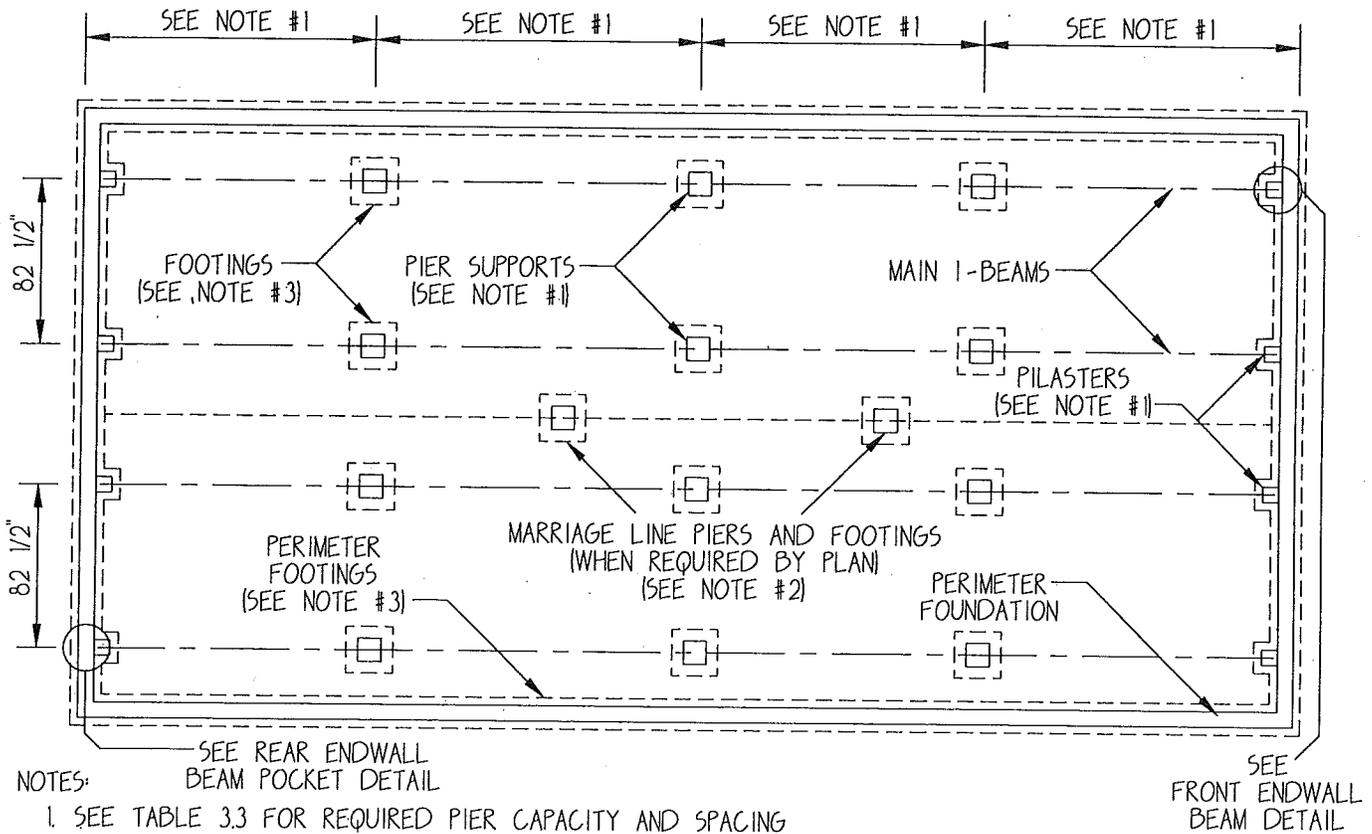


FIGURE 4.1

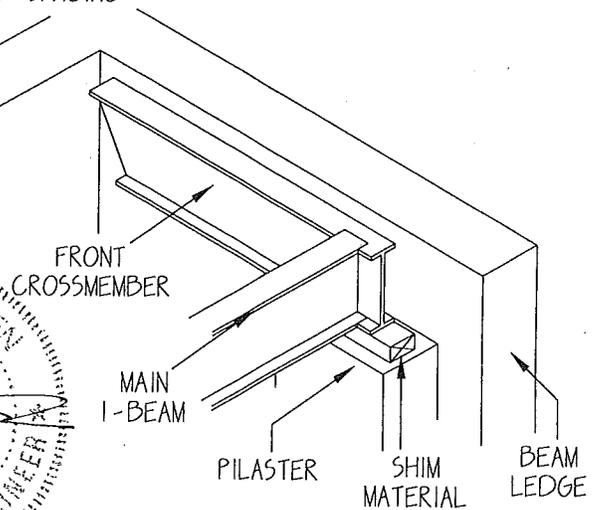
REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BPI621

TYPICAL BLOCKING LAYOUT DOUBLE-SECTION HOMES PERIMETER FOUNDATION WITH 10" RECESSED FRAME



REAR ENDWALL BEAM POCKET DETAIL

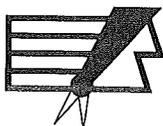
(CONCRETE BLOCK WALL SHOWN)



FRONT ENDWALL BEAM DETAIL

(POURED CONCRETE WALL SHOWN)

FIGURE 4.2

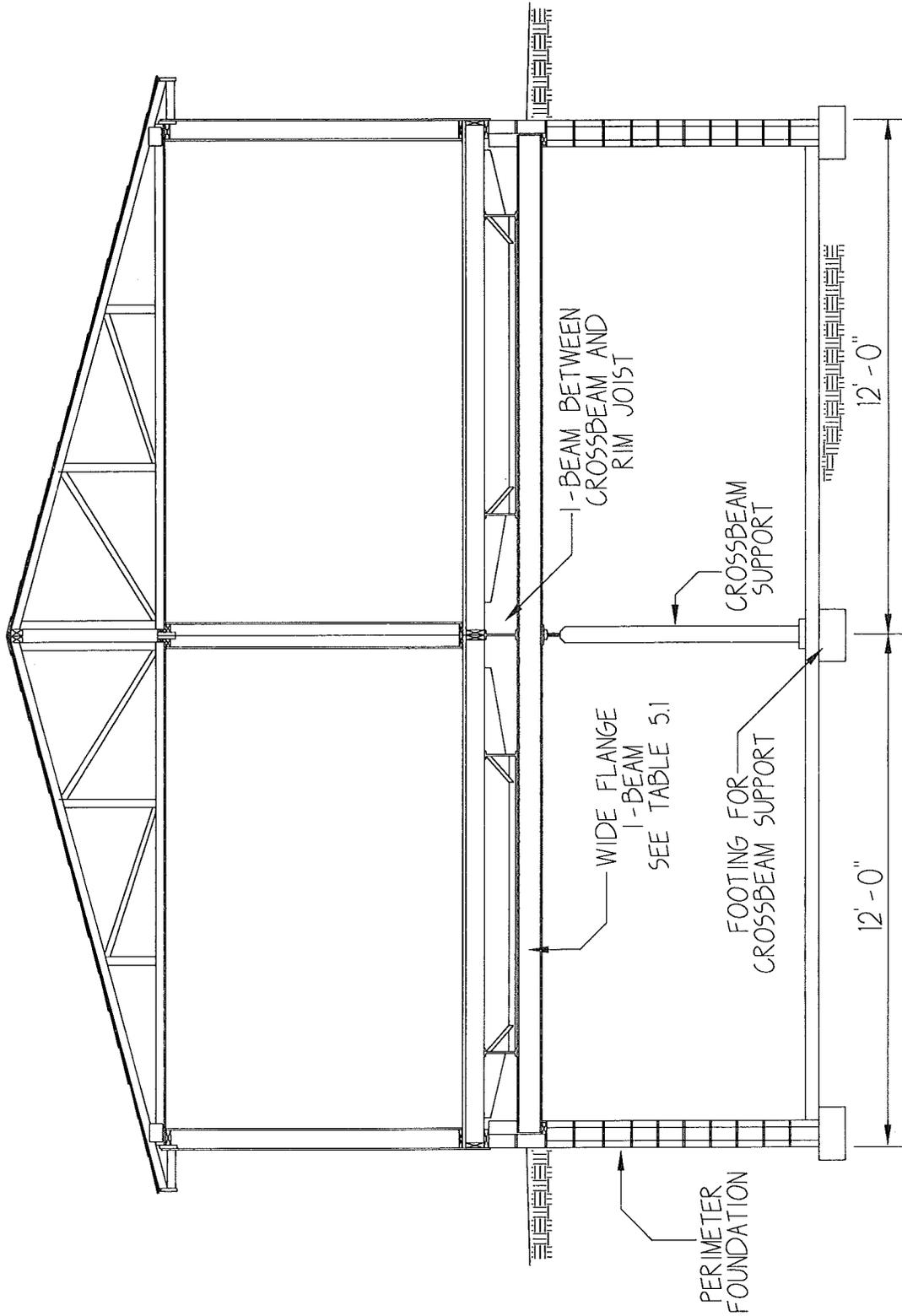
REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BP1622

SECTION V

BASEMENT CONSTRUCTION

Double Section Homes

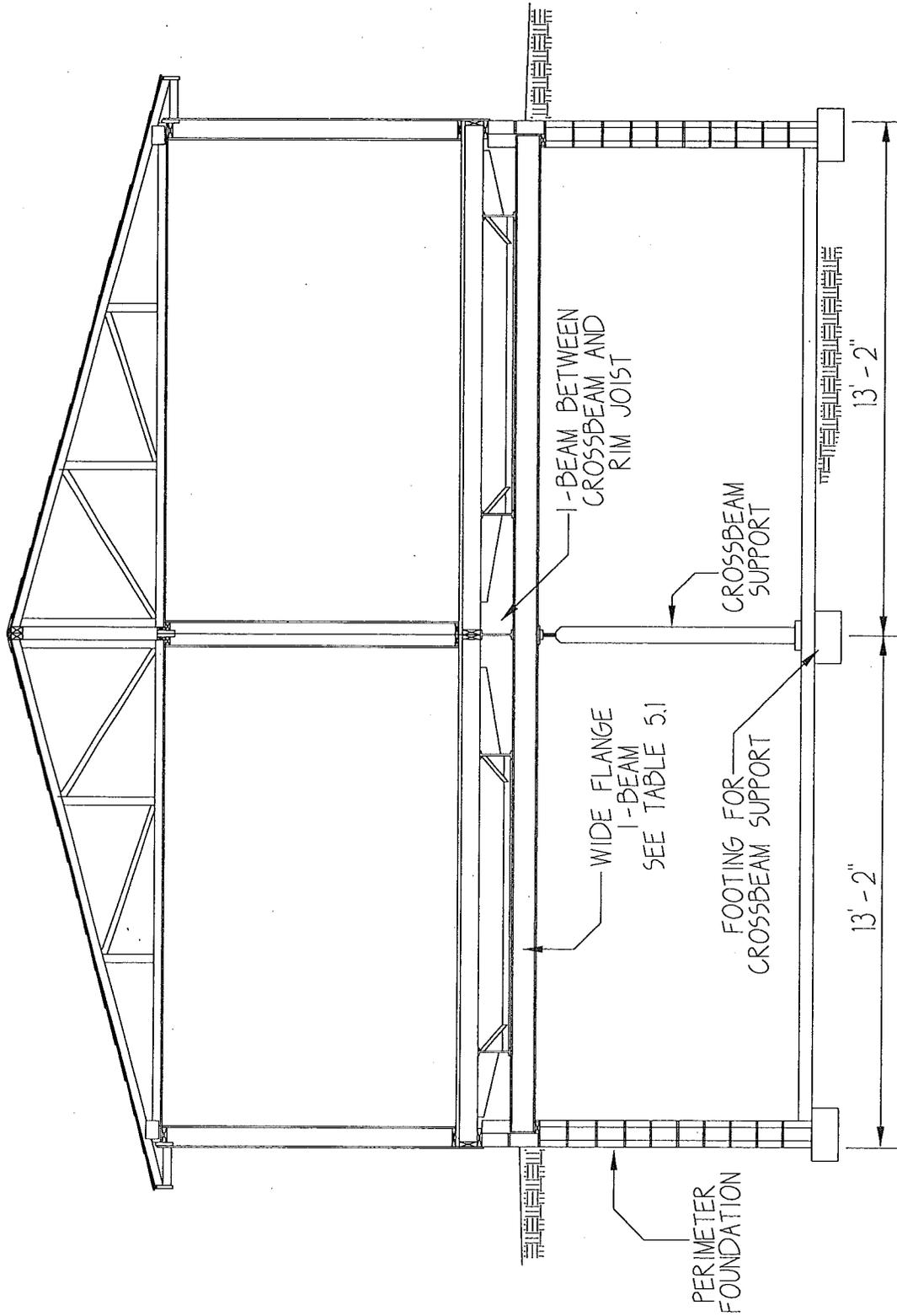
BASEMENT CONSTRUCTION



26' DOUBLE WIDE
ACTUAL FLOOR DIMENSION 24'-0"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BP1624

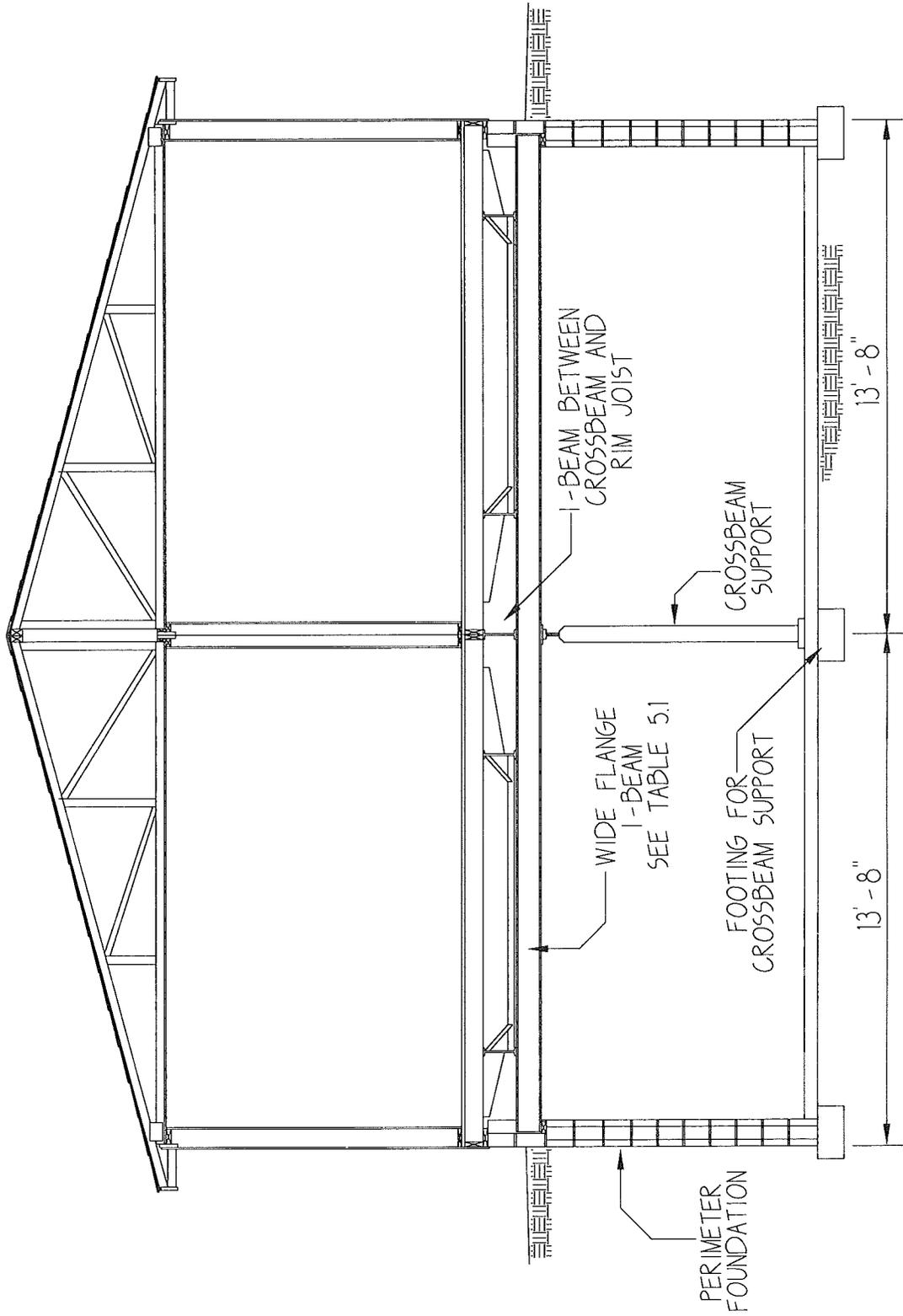
BASEMENT CONSTRUCTION



28' DOUBLE WIDE
ACTUAL FLOOR DIMENSION 26'-4"

REVISIONS	DATE	<p style="font-size: 24px; font-weight: bold; margin: 0;">CHIEF INDUSTRIES</p> <p style="font-weight: bold; margin: 0;">HOUSING DIVISION</p>	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BP1625

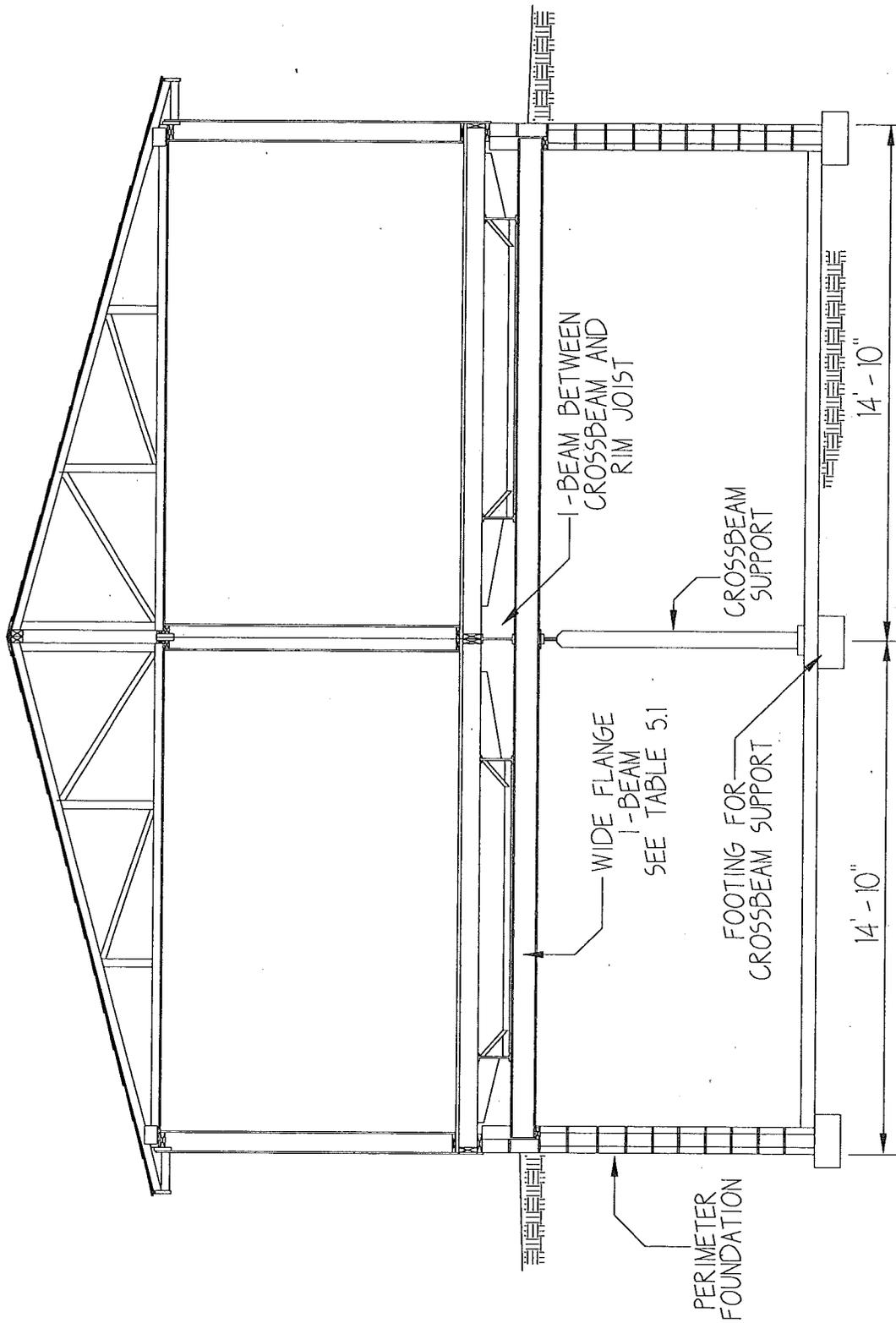
BASEMENT CONSTRUCTION



30' DOUBLE WIDE
ACTUAL FLOOR DIMENSION 27'-4"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BPI626

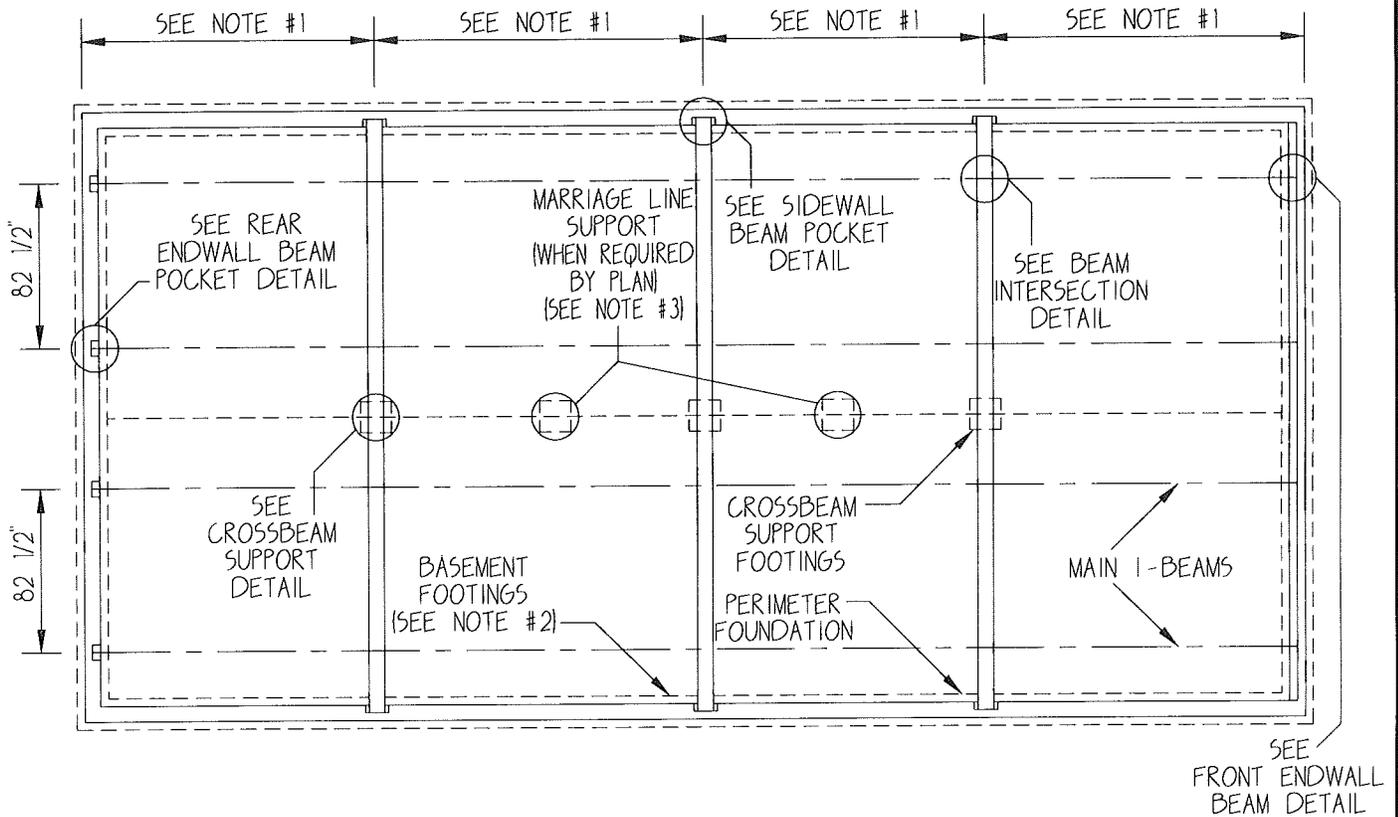
BASEMENT CONSTRUCTION



32' DOUBLE WIDE
ACTUAL FLOOR DIMENSION 29'-8"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	12/29/98
			CHKD. BY:	
			SCALE: NONE	BP1834

TYPICAL BASEMENT LAYOUT DOUBLE-SECTION HOMES BASEMENT CONSTRUCTION WITH 4" RECESSED FRAME



NOTES:

1. SEE TABLE 5.1 FOR REQUIRED BEAM CAPACITY AND SPACING
2. SEE TABLE 6.1 FOR FOOTING REQUIREMENTS
3. SEE TABLE 3.2 AND 3.6 FOR REQUIRED SUPPORT CAPACITY AND SPACING

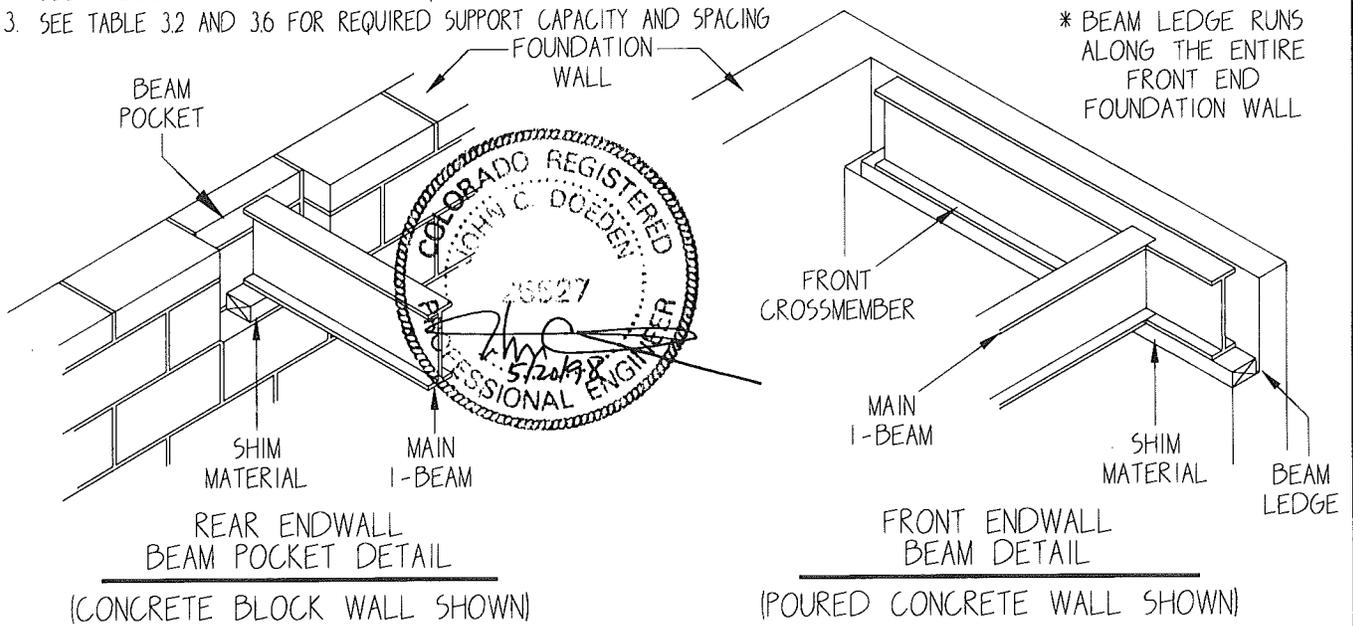


FIGURE 5.1

REVISIONS	DATE		CHIEF INDUSTRIES	DRWG. BY: DM	9/24/97	
			HOUSING DIVISION	CHKD. BY:		
				SCALE: NONE		BP1627

TYPICAL BASEMENT LAYOUT DOUBLE-SECTION HOMES BASEMENT CONSTRUCTION WITH 4" RECESSED FRAME

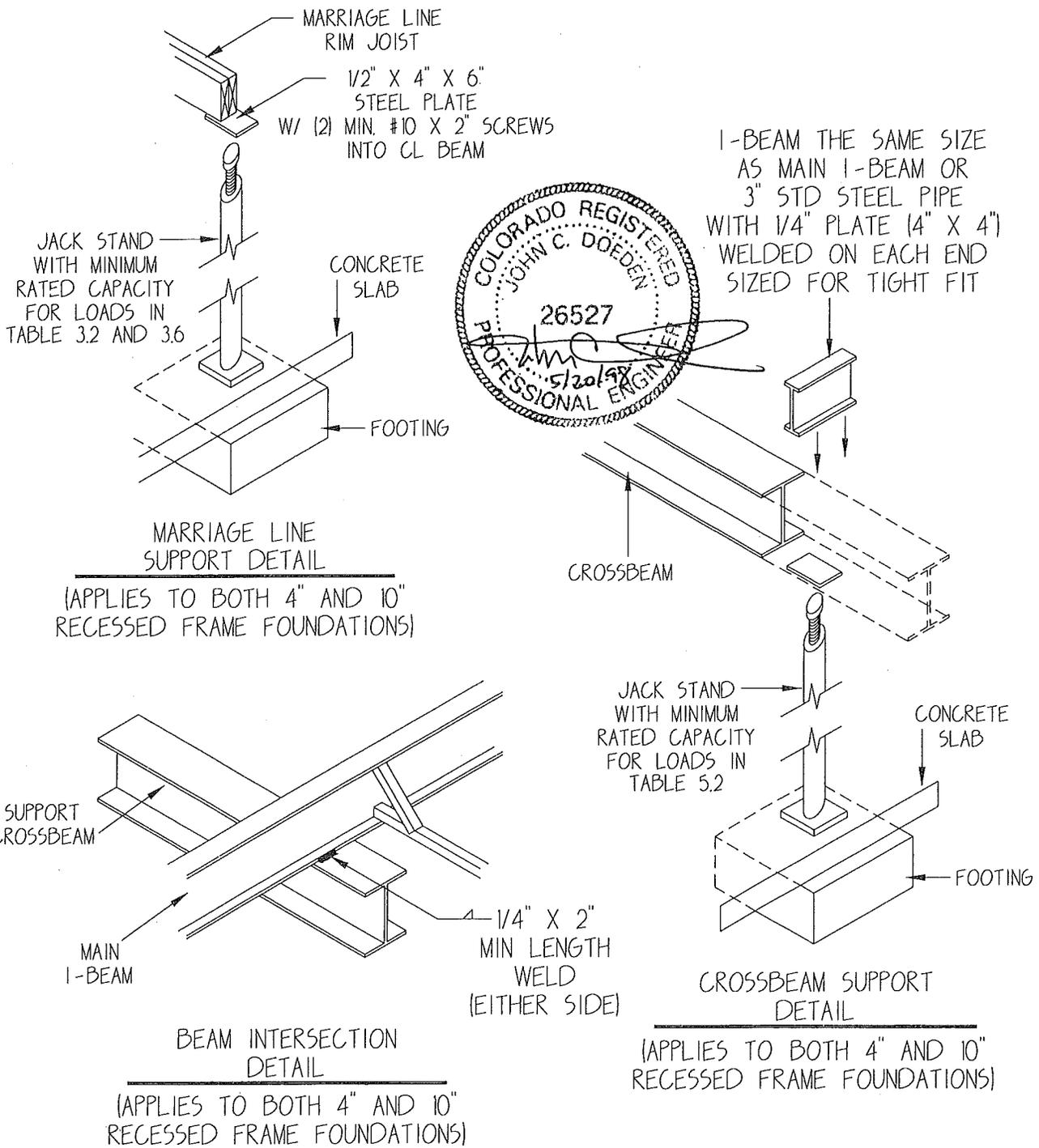
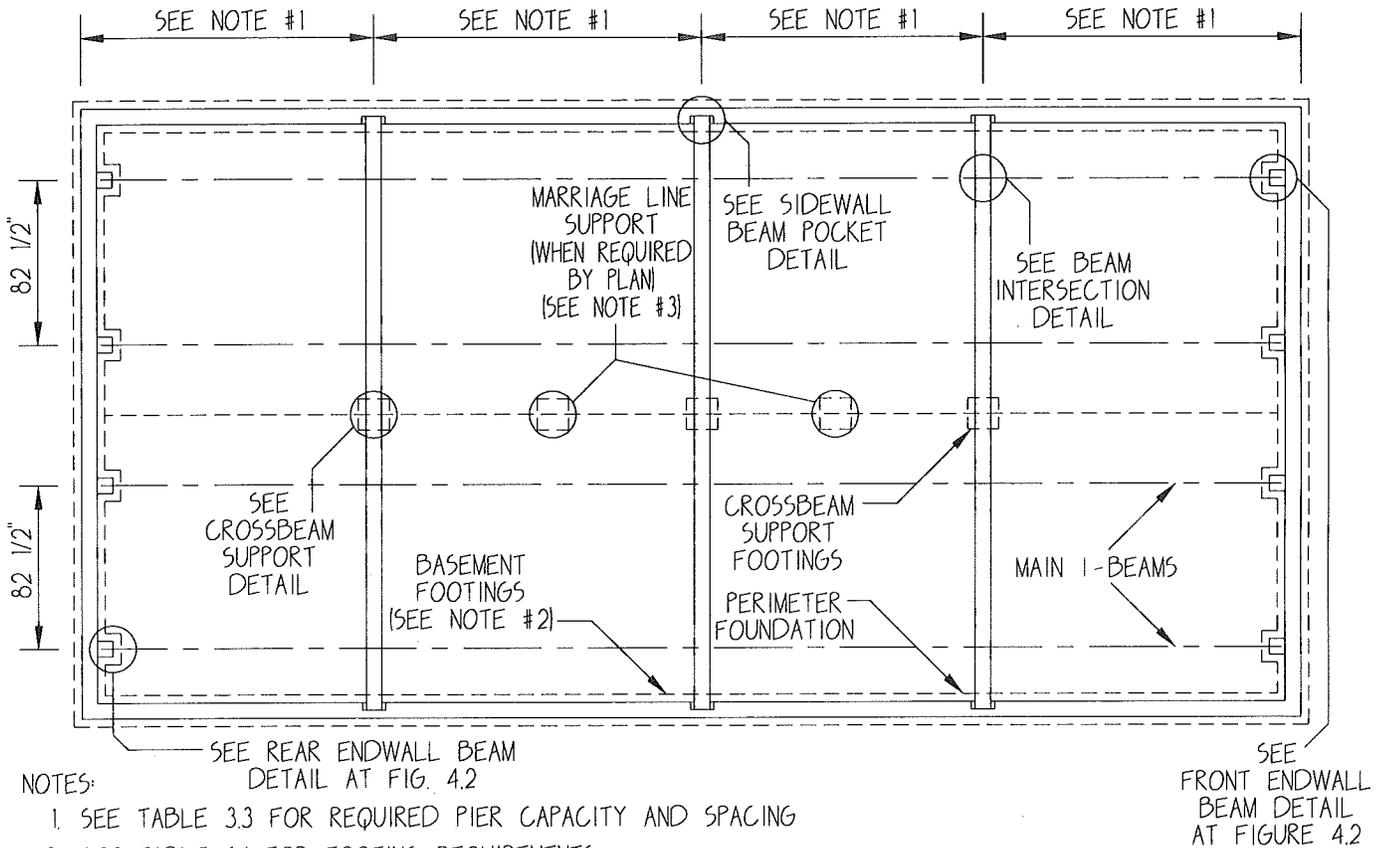


FIGURE 5.2

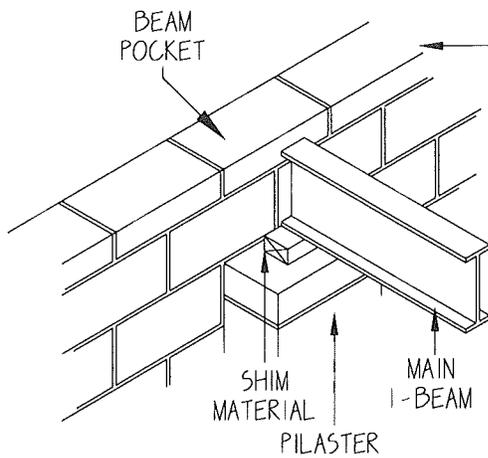
REVISIONS	DATE	CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BP1628

TYPICAL BLOCKING LAYOUT DOUBLE-SECTION HOMES BASEMENT CONSTRUCTION WITH 10" RECESSED FRAME

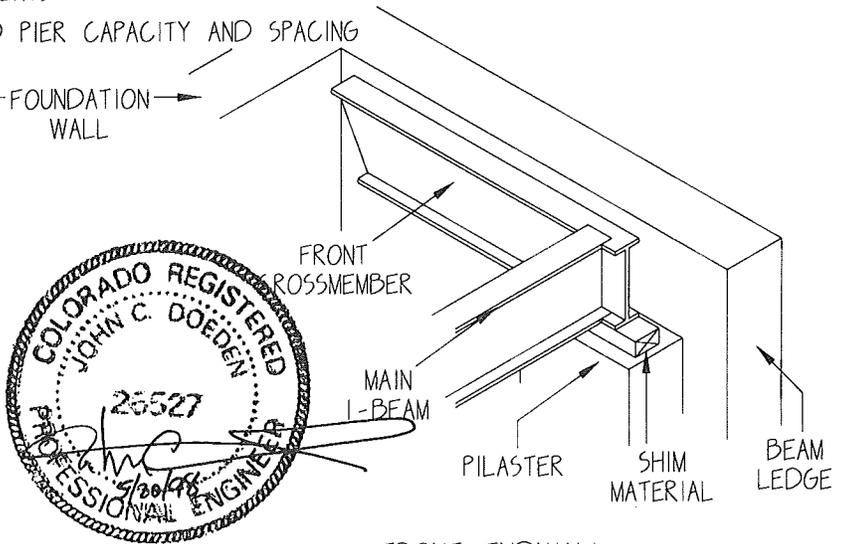


NOTES:

1. SEE TABLE 3.3 FOR REQUIRED PIER CAPACITY AND SPACING
2. SEE TABLE 6.1 FOR FOOTING REQUIREMENTS
3. SEE TABLE 3.2 AND 3.6 FOR REQUIRED PIER CAPACITY AND SPACING



REAR ENDWALL
BEAM POCKET DETAIL
(CONCRETE BLOCK WALL SHOWN)



FRONT ENDWALL
BEAM DETAIL
(POURED CONCRETE WALL SHOWN)

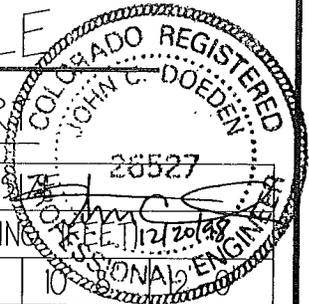


FIGURE 5.3

REVISIONS	DATE	CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BP1705

MINIMUM CROSSBEAM SIZE TABLE

DOUBLE-SECTION HOMES CROSSBEAM SUPPORT



SECTION WIDTH (FEET)	ROOF LIVE LOAD (PSF)	CROSS BEAM DEPTH	MINIMUM CROSSBEAM SIZE						
			MAXIMUM CROSSBEAM SPACING (FEET)						
			4'-0"	5'-4"	6'-8"	8'-0"	9'-4"	10'-0"	
26 WIDE (24'-0" FLOOR)	ALL LOADS	8"	W8X24	W8X31	-	-	-	-	-
		10"	W10X21	W10X25	W10X33	W10X39	W10X39	W10X45	W10X49
		12"	W12X19	W12X27	W12X27	W12X31	W12X31	W12X36	W12X40
28 WIDE (26'-4" FLOOR)	ALL LOADS	8"	W8X24	W8X31	-	-	-	-	-
		10"	W10X25	W10X29	W10X33	W10X39	W10X45	W10X54	W10X60
		12"	W12X27	W12X27	W12X27	W12X36	W12X40	W12X45	W12X50
30 WIDE (27'-4" FLOOR)	ALL LOADS	8"	W8X26	W8X35	-	-	-	-	-
		10"	W10X25	W10X33	W10X39	W10X45	W10X49	W10X54	W10X60
		12"	W12X27	W12X27	W12X31	W12X36	W12X40	W12X45	W12X53
32 WIDE (29'-8" FLOOR)	ALL LOADS	8"	W8X31	-	-	-	-	-	-
		10"	W10X25	W10X39	W10X45	W10X49	W10X60	W10X66	-
		12"	W12X27	W12X31	W12X36	W12X45	W12X50	W12X58	W12X72

TABLE 5.1

1. USE ANY ONE OF THE BEAMS IN EACH CATEGORY
2. RIDGE BEAM COLUMN SUPPORTS FOR SPANS GREATER THAN GIVEN ABOVE FOR BEAMS LISTED MUST HAVE A SEPARATE PIER AND FOOTER SIZED PER TABLE 3.6. IN ADDITION, COLUMN SUPPORTS MUST BE DIRECTLY ABOVE A CROSSBEAM OR SEPARATE PIER/FOOTER.
3. MAXIMUM CROSSBEAM SPACING FOR 10" MAIN I-BEAM IS 12'-0". ALSO PER TABLE 5.2 AND FIGURE 5.2 WHICHEVER IS WORSE CASE.

DOUBLE-SECTION HOMES PIER AND FOOTER CAPACITY (MIN) @ CROSSBEAM SUPPORT(CENTERLINE)

NOTE: POSTS SUPPORTING CROSSBEAMS MUST BE RATED FOR THE APPROPRIATE LOAD (12) - APPLIES TO ONLY 12" MAIN I-BEAM FLOOR GIRDER MUST BE DESIGNED TO CARRY THE ROOF LOAD AT THE SPECIFIED SPAN

SECTION WIDTH (FEET)	ROOF LIVE LOAD (PSF)	LOAD @ EACH CROSSBEAM-CENTERLINE SUPPORT						
		CROSSBEAM SPACING (FEET)						
		4'-0"	5'-4"	6'-8"	8'-0"	9'-4"	10'-8"	12'-0"
26 WIDE (24'-0" FLOOR)	30	5480	6975	8470	9960	11785	13370	14940
	40	5960	7615	9270	10920	12905	14650	16380 (12)
	60	6920	8900	10870	12840	15150	17210	19260 (12)
	80	7880	10175	12470	14760	17390	19770	22140 (12)
28 WIDE (26'-4" FLOOR)	30	5880	7500	9130	10755	12715	14430	16130
	40	6400	8200	10010	11810	13940	15830	17710 (12)
	60	7460	9610	11765	13915	16400	18640 (12)	20870 (12)
	80	8510	11015	13520	16020	18860	21450 (12)	NA
30 WIDE (27'-4" FLOOR)	30	6050	7730	9415	11100	13110	14880	16640
	40	6595	8460	10325	12190	14380	16340	18280 (12)
	60	7690	9915	12150	14375	16940	19255 (12)	21560 (12)
	80	8780	11375	13970	16560	19500	22170 (12)	NA
32 WIDE (29'-8" FLOOR)	30	6445	8255	10075	11890	13700	15520	17330 (12)
	40	7040	9045	11065	13075	15085	17110	19110 (12)
	60	8225	10630	13045	15450	17850	20270 (12)	NA
	80	9410	12210	15025	17820	20620	23435 (12)	NA

TABLE 5.2

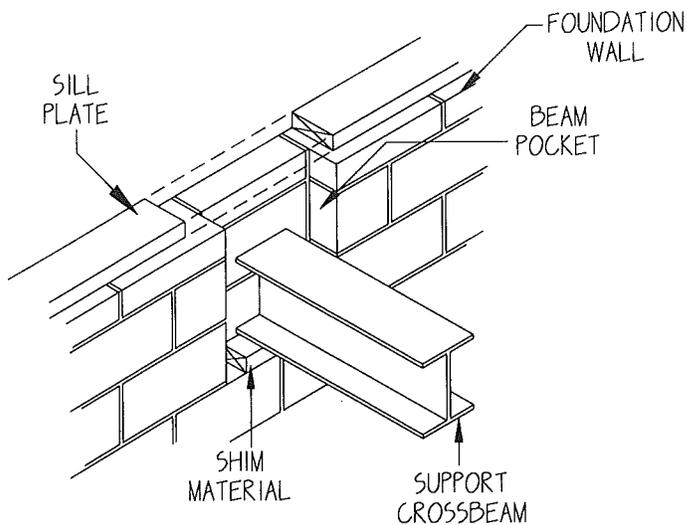
REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BPI629

MAXIMUM SPANS BETWEEN CROSSBEAMS AND PIERS

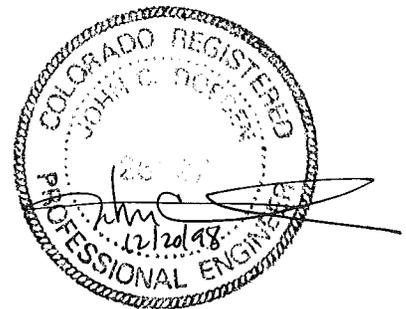
DOUBLE-SECTION HOMES CROSSBEAM SUPPORT

SECTION WIDTH (FEET)	MAIN I-BEAM SIZE	ROOF LIVE LOAD (PSF)			
		30	40	60	80
26 WIDE (24'-0" FLOOR)	10"	12'-0"	10'-8"	10'-8"	9'-4"
	12"	12'-0"	12'-0"	12'-0"	12'-0"
28 WIDE (26'-4" FLOOR)	10"	12'-0"	10'-8"	9'-4"	9'-4"
	12"	12'-0"	12'-0"	12'-0"	10'-8"
30 WIDE (27'-4" FLOOR)	10"	12'-0"	10'-8"	9'-4"	9'-4"
	12"	12'-0"	12'-0"	12'-0"	10'-8"
32 WIDE (29'-8" FLOOR)	10"	10'-8"	10'-8"	9'-4"	8'-0"
	12"	12'-0"	12'-0"	12'-0"	10'-8"

TABLE 5.3



SIDEWALL
BEAM POCKET DETAIL
(CONCRETE BLOCK WALL SHOWN)



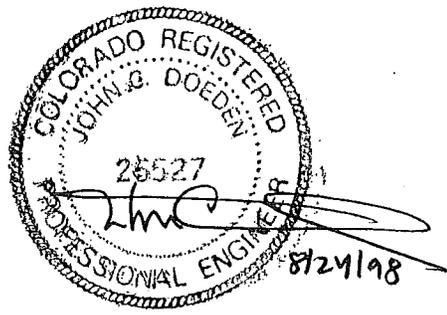
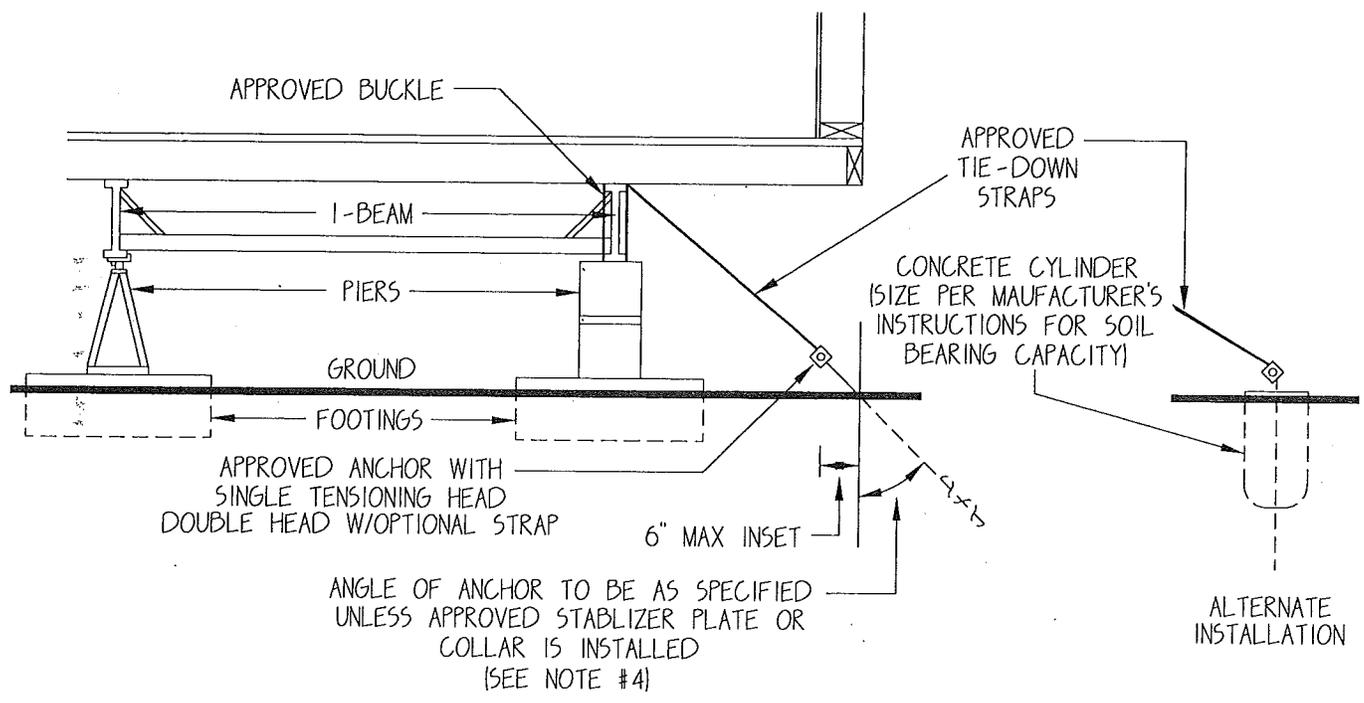
REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BPI706

SECTION VI

TYPICAL ANCHORAGE & FOOTINGS INSTRUCTIONS

Double Section Homes

TIE-DOWN STRAP AND ANCHORING POSITION INSTALLATION WITHOUT VERTICAL TIES



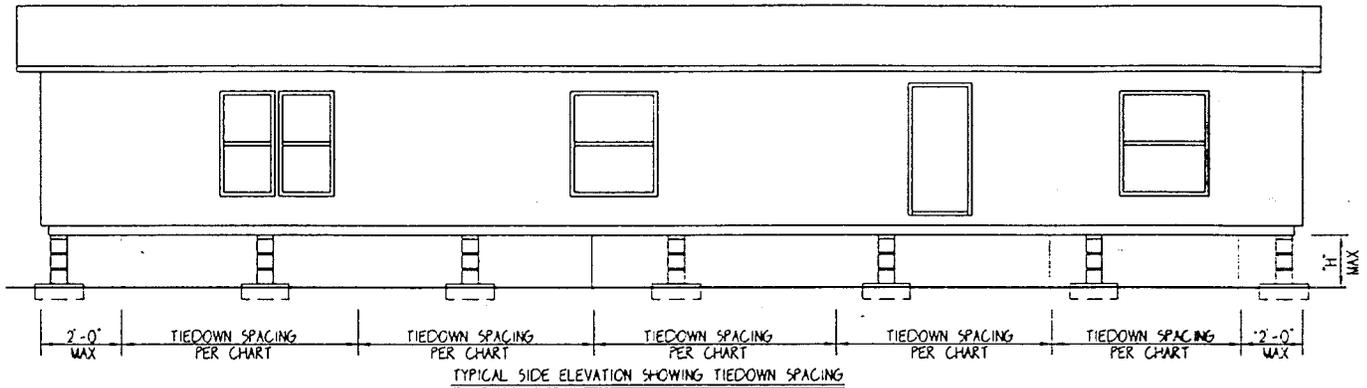
NOTES:

1. TIE-DOWN STRAPS AND DEVICES TO HAVE A MINIMUM WORKING LOAD RATING OF 3150# (OVERLOAD OF 4725#) AND MUST BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS
2. PROTECTION SHALL BE PROVIDED AT SHARP CORNERS WHERE THE ANCHORING SYSTEM REQUIRES THE USE OF EXTERNAL STRAPS OR CABLES
3. SEE FIGURE 6.2 FOR ADDITIONAL REQUIREMENTS

FIGURE 6.1

REVISIONS	DATE	CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1438

RECOMMENDED TIEDOWN SYSTEM WIND ZONE 1



LOADS: HORIZONTAL = 15 PSF X 1.5 SAFETY FACTOR
UPLIFT = 9 PSF X 1.5 SAFETY FACTOR

FRAME TIE-DOWN SPACING CHART DOUBLE SECTION HOMES

FLOOR WIDTH	WIND ZONE 1		
	SPACING	MAX. PIER HEIGHT (H MAX)	ANCHOR ANGLE
24'-0" MIN.	10'-0"	35"	40° - 50°
26'-4" MIN.	10'-0"	45"	40° - 50°
27'-4" MIN.	10'-0"	50"	40° - 50°
29'-8" MIN.	10'-0"	48"	40° - 50°

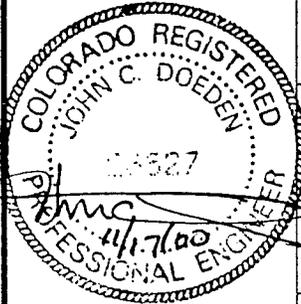
* GROUND ANCHORS NOT INSTALLED AT ANGLE SPECIFIED MUST HAVE AN APPROVED STABILIZER PLATE INSTALLED

NOTES:

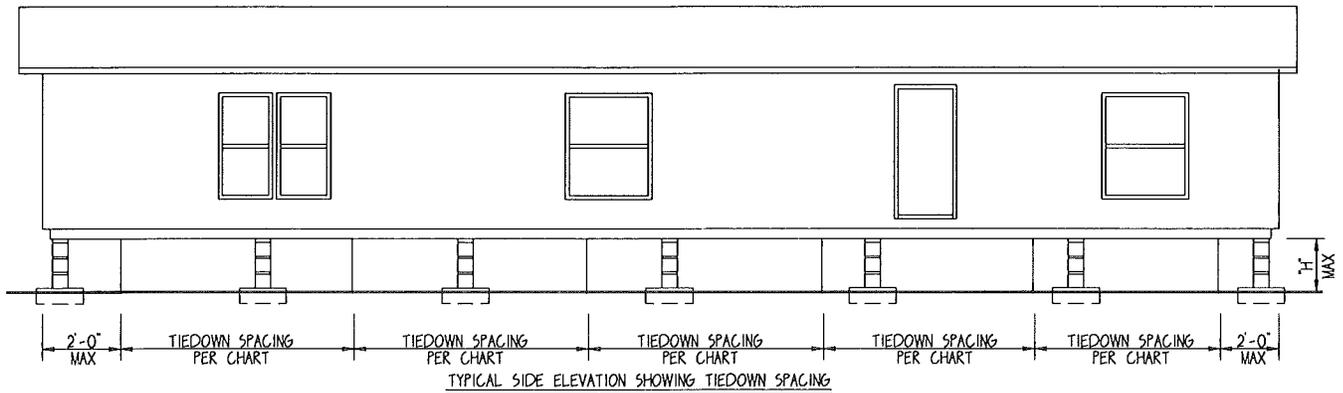
1. FRAME TIE-DOWN SHOULD BE INSTALLED TO PROPERLY SECURE THE HOME.
2. OPTIONAL VERTICAL TIES MAY BE SECURED TO THE SAME GROUND ANCHOR AS THE DIAGONAL TIE-DOWNS WHEN DOUBLE HEADED ANCHOR IS CAPABLE OF RESISTING COMBINED LOADING. WHEN ANCHORS ARE NOT INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE, A STABILIZER PLATE MUST BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTRUCTIONS.
3. DIAGONAL TIE-DOWNS AND ANCHORS ARE NOT SUPPLIED BY CHIEF INDUSTRIES HOUSING DIVISION.
4. ALL TIE STRAPS ARE SUPPLIED BY OTHERS. ANCHORS AND END TREATMENTS ARE TO BE SUPPLIED BY OTHERS.
5. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4,725 LBS. AND ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
6. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL.
7. DESIGN BASED ON 82 1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 7'-6".
8. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 4, 6, & 7.
9. FRAME TIE-DOWNS ARE POSITIONED AT CROSSMEMBER LOCATIONS (WITHIN 3") WHEN STRAP COMES OFF FLANGE OF BEAM WITH APPROVED BUCKLE OR LOOP.
10. ANCHORS SHOULD BE CERTIFIED FOR THESE CONDITIONS BY A PROFESSIONAL ENGINEER, ARCHITECT OR A NATIONALLY RECOGNIZED TESTING LABORATORY AS TO THEIR RESISTANCE, BASED ON THE INSTALLED ANGLE OF DIAGONAL TIE AND/OR VERTICAL TIE LOADING AND ANGLE OF ANCHOR INSTALLATION, AND TYPE OF SOIL IN WHICH THE ANCHOR IS TO BE INSTALLED.
11. GROUND ANCHORS SHOULD BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE. ANCHORS SHOULD ALSO BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES INSTALLED TO PROVIDE RESISTANCE TO OVERTURNING OR SLIDING FORCES.
12. ANCHORING EQUIPMENT SHOULD BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT TO RESIST THESE SPECIFIED FORCES IN ACCORDANCE WITH TESTING PROCEDURES IN ASTM STANDARD SPECIFICATION D3953-91, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.

FIGURE 6.2

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
TIES VERTICAL TO DIAGONAL	11/8/00		CHKD. BY:	
			SCALE: NONE	BPI633



RECOMMENDED TIEDOWN SYSTEM WIND ZONE 1

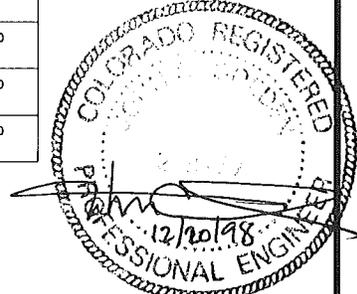


LOADS: HORIZONTAL = 15 PSF X 1.5 SAFETY FACTOR
UPLIFT = 9 PSF X 1.5 SAFETY FACTOR

FRAME TIE-DOWN SPACING CHART DOUBLE SECTION		
FLOOR WIDTH	SPACING	HOR ANGLE
24'-0" MIN		10° - 50°
		40° - 50°
	50"	40° - 50°
	48"	40° - 50°

OBSOLETE

* ANCHORS NOT INSTALLED AT ANGLE SPECIFIED MUST HAVE APPROVED STABILIZER PLATE INSTALLED



NOTES:

1. FRAME TIE-DOWN SHOULD BE INSTALLED TO PROPERLY SECURE THE HOME.
2. VERTICAL TIES ARE REQUIRED IN ADDITION TO FRAME TIE-DOWNS.
3. VERTICAL TIES MAY BE SECURED TO THE SAME GROUND ANCHOR AS THE FRAME TIE-DOWNS WHEN DOUBLE HEADED ANCHOR IS CAPABLE OF RESISTING COMBINED LOADING. WHEN ANCHORS ARE NOT INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE, A STABILIZER PLATE MUST BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTRUCTIONS.
4. FRAME TIE-DOWNS AND ANCHORS ARE NOT SUPPLIED BY CHIEF INDUSTRIES HOUSING DIVISION.
5. VERTICAL TIE STRAPS ARE SUPPLIED BY OTHERS. ANCHORS AND END TREATMENTS ARE TO BE SUPPLIED BY OTHERS.
6. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4,725 LBS. AND ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
7. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL.
8. DESIGN BASED ON 82 1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 7'-6".
9. LONGITUDINAL TIES ARE INSTALLED JUST INSIDE I-BEAMS AT CROSSMEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 4, 6, + 7.
10. FRAME TIE-DOWNS ARE POSITIONED AT CROSSMEMBER LOCATIONS (WITHIN 3') WHEN STRAP COMES OFF FLANGE OF BEAM WITH APPROVED BUCKLE OR LOOP.
11. ANCHORS SHOULD BE CERTIFIED FOR THESE CONDITIONS BY A PROFESSIONAL ENGINEER, ARCHITECT OR A NATIONALLY RECOGNIZED TESTING LABORATORY AS TO THEIR RESISTANCE, BASED ON THE INSTALLED ANGLE OF DIAGONAL TIE AND/OR VERTICAL TIE LOADING AND ANGLE OF ANCHOR INSTALLATION, AND TYPE OF SOIL IN WHICH THE ANCHOR IS TO BE INSTALLED.
12. GROUND ANCHORS SHOULD BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE. ANCHORS SHOULD ALSO BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES INSTALLED TO PROVIDE RESISTANCE TO OVERTURNING OR SLIDING FORCES.
13. ANCHORING EQUIPMENT SHOULD BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT TO RESIST THESE SPECIFIED FORCES IN ACCORDANCE WITH TESTING PROCEDURES IN ASTM STANDARD SPECIFICATION D3953-91, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.

FIGURE 6.2

REVISIONS	DATE	CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BPI633

DOUBLE WIDE HOME ANCHORAGE DETAILS

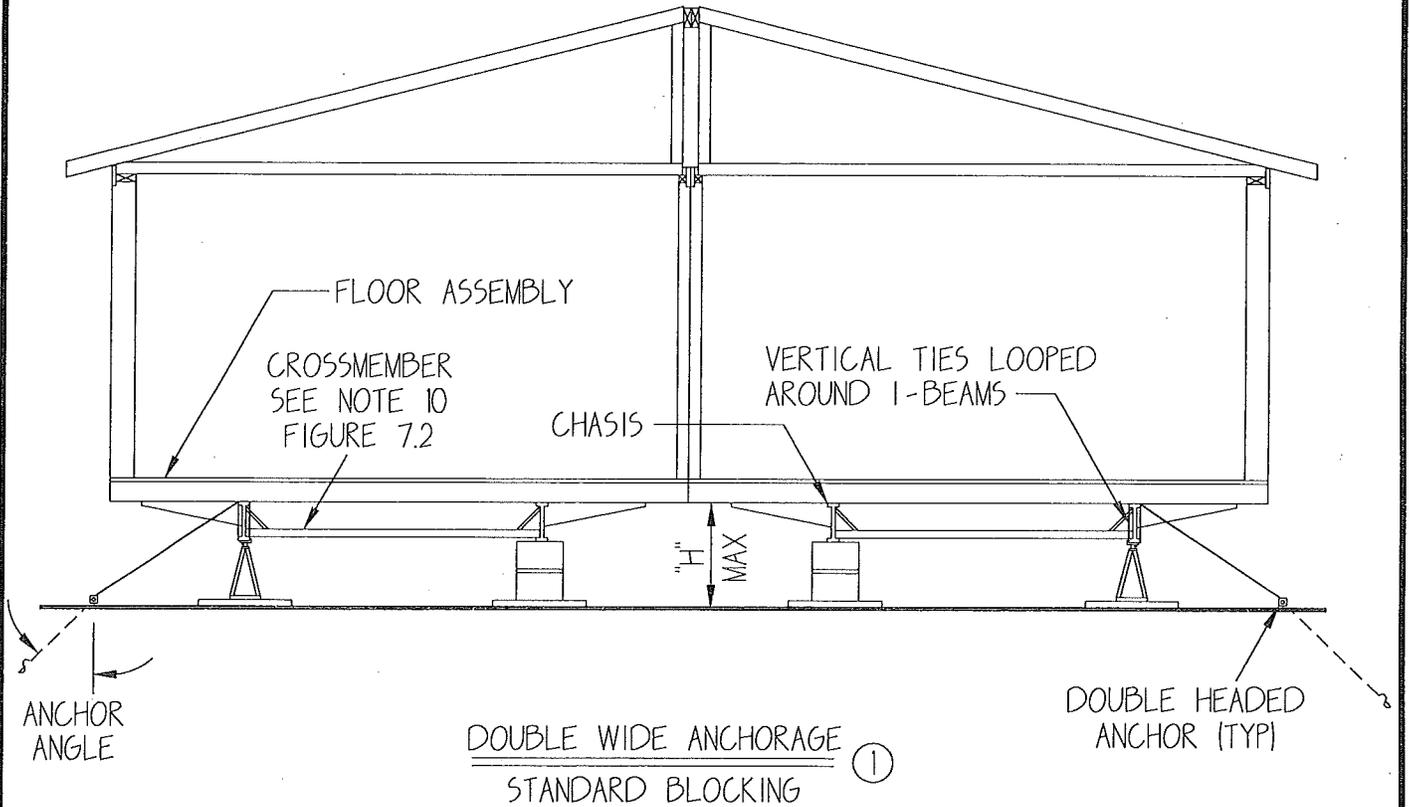
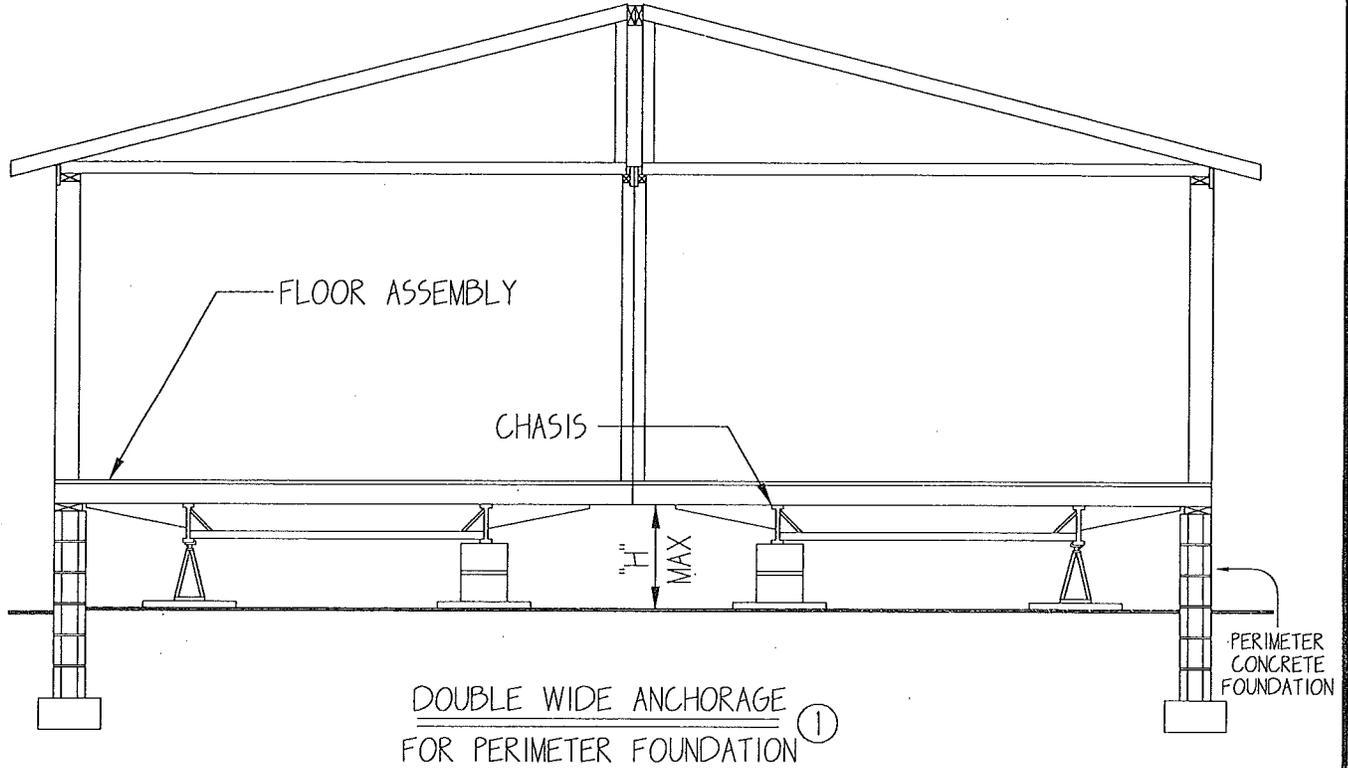
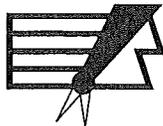
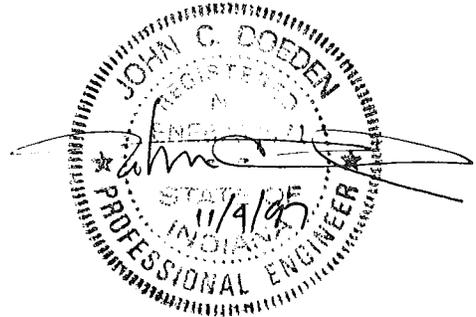
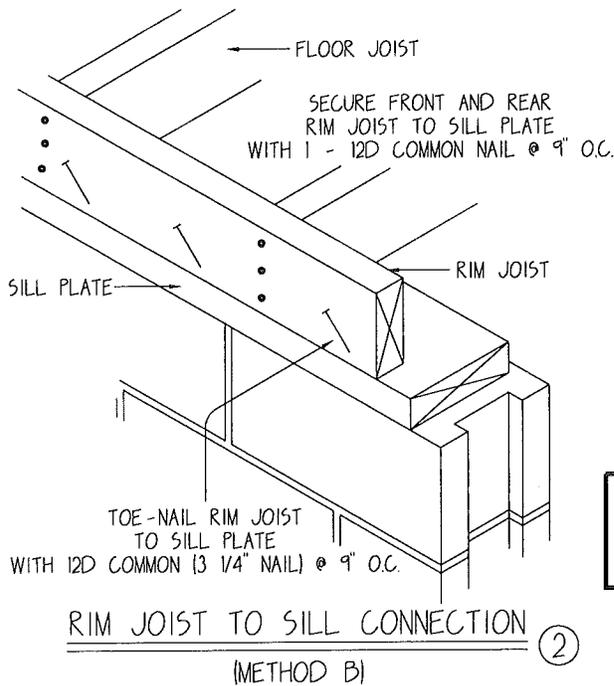
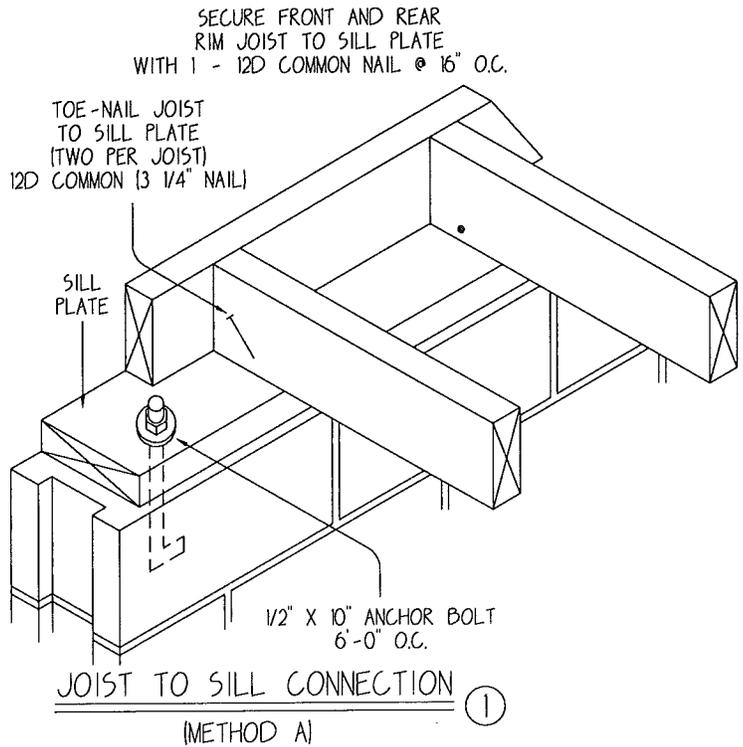


FIGURE 6.3

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BP1634

DOUBLE WIDE HOME ANCHORAGE DETAILS FOR PERIMETER FOUNDATION

* DETAILS 1 AND 2 APPLY TO BOTH PERIMETER FOUNDATION WITH PIERS AND BASEMENT CONSTRUCTION.

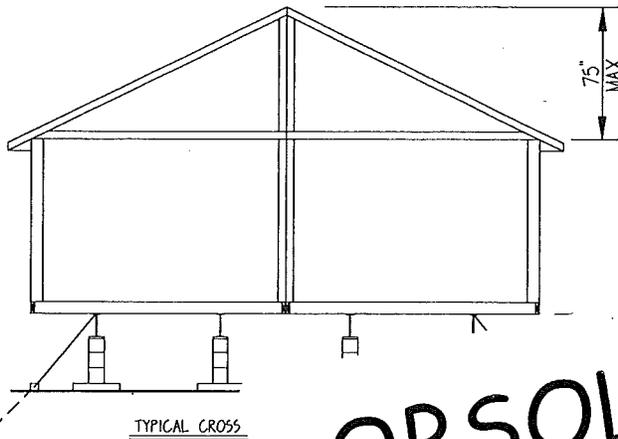
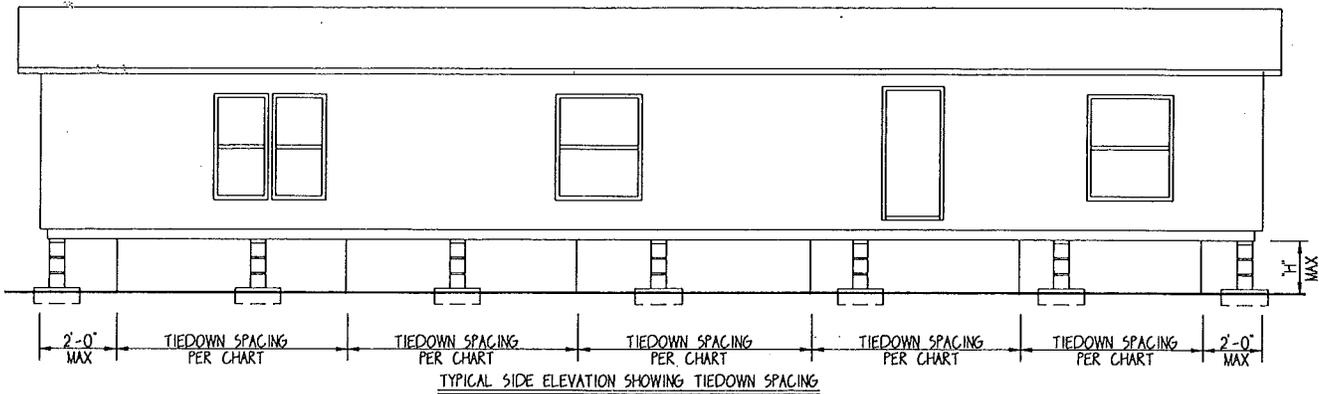


* ANCHORAGE DESIGNED FOR STANDARD WIND ZONE 1 (15 PSF HORIZONTAL, 9 PSF UPLIFT)

FIGURE 6.4

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1642

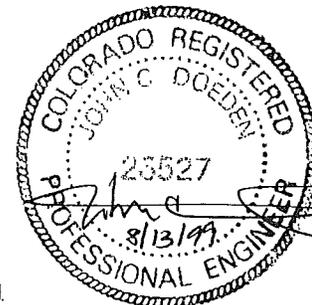
RECOMMENDED TIEDOWN SYSTEM - 5:12 PITCH ROOF WIND ZONE 1 / 15 PSF LATERAL



FRAME TIE-DOWN SPACING CHART			
FLOOR WIDTH	WIND ZONE 1		
	SPACING	MAX. PIER HEIGHT (H MAX)	EAVE OVERHANG
27'-4"	4'-0"	58"	24" MAX.

OBSOLETE

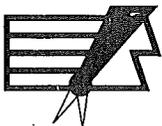
ES DEPTH OF I-BEAM



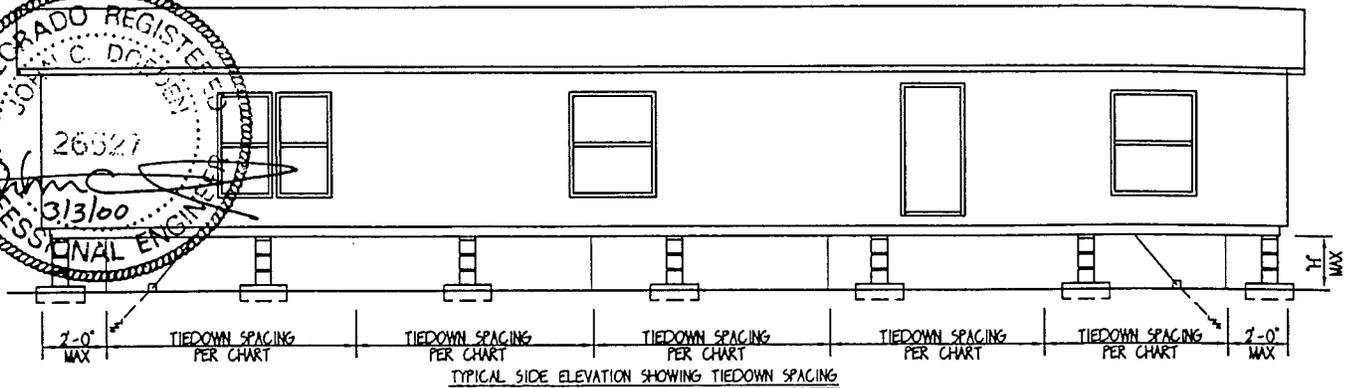
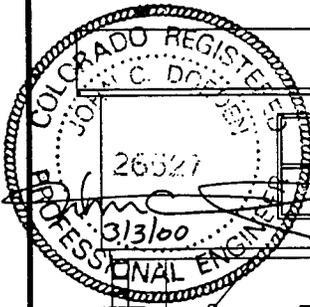
NOTES:

1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
2. FRAME TIE-DOWNS AND ANCHORS ARE NOT SUPPLIED BY CHIEF INDUSTRIES HOUSING DIVISION.
3. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING A TENSILE LOAD OF 4,725 LBS. AND ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
4. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL.
5. DESIGN BASED ON 82 1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 7'-6".
6. ANCHORS SHALL BE CERTIFIED FOR THESE CONDITIONS BY A PROFESSIONAL ENGINEER, ARCHITECT OR A NATIONALLY RECOGNIZED TESTING LABORATORY AS TO THEIR RESISTANCE, BASED ON THE INSTALLED ANGLE OF DIAGONAL TIE AND/OR VERTICAL TIE LOADING AND ANGLE OF ANCHOR INSTALLATION, AND TYPE OF SOIL IN WHICH THE ANCHOR IS TO BE INSTALLED.
7. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE. ANCHORS SHALL ALSO BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES INSTALLED TO PROVIDE RESISTANCE TO OVERTURNING OR SLIDING FORCES.
8. ANCHORING EQUIPMENT SHALL BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT TO RESIST THESE SPECIFIED FORCES IN ACCORDANCE WITH TESTING PROCEDURES IN ASTM STANDARD SPECIFICATION D3953-91, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
9. STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1 1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM "STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS".
10. ANGLE OF ANCHOR TO BE AT SAME ANGLE AS STRAP UNLESS APPROVED STABILIZER PLATE OR COLLAR IS INSTALLED.

FIGURE 6.6

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BP1644

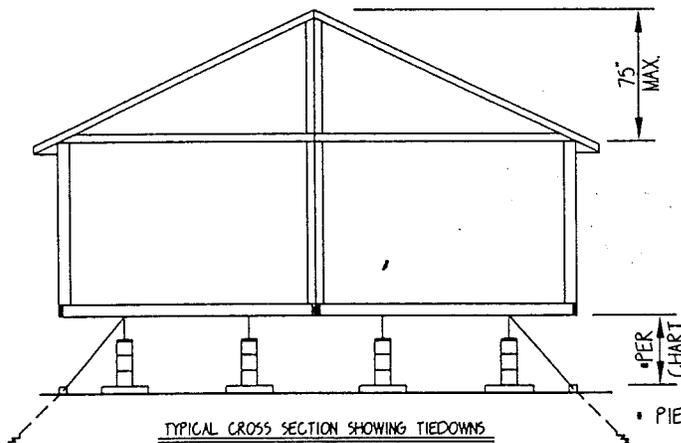
RECOMMENDED TIEDOWN SYSTEM - 5:12 PITCH ROOF WIND ZONE 1 / 15 PSF LATERAL



FRAME TIE-DOWN SPACING CHART			
WIND ZONE 1			
FLOOR WIDTH	SPACING	MAX. PIER HEIGHT (H MAX)	EAVE OVERHANG
27'-4"	4'-0"	58"	24" MAX.

5:12 ROOF SLOPE - DOUBLE SECTION HOMES (ALTERNATE WITH BLOCK PIERS*)			
FLOOR WIDTH	MINIMUM UNIT LENGTH		NUMBER OF LONGITUDINAL TIES TOTAL EACH END
	SINGLE STACK	DOUBLE STACK	
27'-4"	76'-0"	52'-0"	0
	32'-0"	32'-0"	2

* FOR USE IN ABOVE TABLES
SINGLE STACK BLOCK PIERS = 28" MAX HEIGHT
DOUBLE STACK BLOCK PIERS = 64" MAXIMUM HEIGHT
MINIMUM STRAP ANGLE (DEGREES) = 40



5:12 ROOF SLOPE		
FLOOR WIDTH	MIN QTY EACH END EACH SECTION	MIN STRAP ANGLE (DEGREES)
27'-4"	2	33

* MAY REDUCE TO 0 OR 1 LONGITUDINAL TIE PER HALF WITH PIER RESTRICTIONS PER CHART ABOVE

NOTES:

1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
2. FRAME TIE-DOWNS AND ANCHORS ARE NOT SUPPLIED BY CHIEF INDUSTRIES HOUSING DIVISION.
3. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING A TENSILE LOAD OF 4,725 LBS. AND ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
4. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL.
5. DESIGN BASED ON 82 1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 7'-6".
6. ANCHORS SHALL BE CERTIFIED FOR THESE CONDITIONS BY A PROFESSIONAL ENGINEER, ARCHITECT OR A NATIONALLY RECOGNIZED TESTING LABORATORY AS TO THEIR RESISTANCE, BASED ON THE INSTALLED ANGLE OF DIAGONAL TIE AND/OR VERTICAL TIE LOADING AND ANGLE OF ANCHOR INSTALLATION, AND TYPE OF SOIL IN WHICH THE ANCHOR IS TO BE INSTALLED.
7. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE. ANCHORS SHALL ALSO BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES INSTALLED TO PROVIDE RESISTANCE TO OVERTURNING OR SLIDING FORCES.
8. ANCHORING EQUIPMENT SHALL BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT TO RESIST THESE SPECIFIED FORCES IN ACCORDANCE WITH TESTING PROCEDURES IN ASTM STANDARD SPECIFICATION D3953-91, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
9. STRAPPING TO BE TYPE I, FINISH B, GRADE 1 STEEL STRAPPING, 1 1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
10. ANGLE OF ANCHOR TO BE AT SAME ANGLE AS STRAP UNLESS APPROVED STABILIZER PLATE OR COLLAR IS INSTALLED.

FIGURE 6.6

REVISIONS	DATE		DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BP1644

PIER CAPACITY (POUNDS)	MINIMUM FOOTING SIZE (OR EQUAL AREA) (INCHES)			
	SOIL BEARING CAPACITY (PSF)			
	1000	1500	2000	4000
600	12 X 12	12 X 12	12 X 12	
800	12 X 12	12 X 12	12 X 12	
1000	12 X 12	12 X 12	12 X 12	
1500	15 X 15	12 X 12	12 X 12	
2000	17 X 17	14 X 14	12 X 12	
2500	19 X 19	15 X 15	13 X 13	
3000	21 X 21	17 X 17	15 X 15	
3500	22 X 22	18 X 18	16 X 16	
4000	24 X 24	20 X 20	17 X 17	
4500	25 X 25	21 X 21	18 X 18	
5000	27 X 27	22 X 22	19 X 19	13 X 13
5500	28 X 28	23 X 23	20 X 20	14 X 14
6000	29 X 29	24 X 24	21 X 21	15 X 15
6500	31 X 31	25 X 25	22 X 22	15 X 15
7000	32 X 32	26 X 26	22 X 22	16 X 16
7500	33 X 33	27 X 27	23 X 23	16 X 16
8000	34 X 34	28 X 28	24 X 24	17 X 17
8500	35 X 35	29 X 29	25 X 25	17 X 17
9000	36 X 36	29 X 29	25 X 25	18 X 18
9500	37 X 37	30 X 30	26 X 26	19 X 19
10000	38 X 38	31 X 31	27 X 27	19 X 19
11000	40 X 40	32 X 32	28 X 28	20 X 20
12000	42 X 42	34 X 34	29 X 29	21 X 21
13000	43 X 43	35 X 35	31 X 31	22 X 22
14000	45 X 45	37 X 37	32 X 32	22 X 22
15000	46 X 46	38 X 38	33 X 33	23 X 23
16000	48 X 48	39 X 39	34 X 34	24 X 24
17000	49 X 49	40 X 40	35 X 35	25 X 25
18000	51 X 51	42 X 42	36 X 36	25 X 25
19000	52 X 52	43 X 43	37 X 37	26 X 26
20000	54 X 54	44 X 44	38 X 38	27 X 27
21000	55 X 55	45 X 45	39 X 39	28 X 28
22000	57 X 57	46 X 46	40 X 40	28 X 28
23000	58 X 58	47 X 47	41 X 41	29 X 29
24000	59 X 59	48 X 48	42 X 42	30 X 30
25000	60 X 60	49 X 49	43 X 43	30 X 30

- FOOTING SIZES SHOWN ARE FOR SQUARE PADS AND ARE BASED ON THE AREA (SQURE INCHES) REQUIRED FOR THE LOAD. OTHER FOOTING CONFIGURATIONS, SUCH AS RECTANGULAR, MAY BE USED PROVIDED THE AREA (SQURE INCHES) IS EQUAL TO OR GREATER THAN THE AREA OF THE SQUARE FOOTING SHOWN IN THE TABLE.
- THE FOLLOWING TABLE SPECIFIES THE MAXIMUM FOOTING SIZE FOR VARIOUS FOOTING THICKNESSES. THIS TABLE IS BASED ON UNREINFORCED FOOTINGS. REINFORCED FOOTINGS MAY REQUIRE A SMALLER THICKNESS THAN THAT LISTED BUT MUST BE DESIGNED BY A LICENSED ENGINEER.
- IT IS RECOMMENDED THAT THE TOP OF THE FOOTINGS BE LOCATED AT THE DEPTH OF LOCAL FROST LINE LEVELS.

FOOTINGS		SGL STACKED PIERS (W X L)	DBL STACKED BLOCKS (L X W)
T	P' MAX		
4"	4"	16" X 16"	16" X 16"
6"	6"	16" X 24"	24" X 24"
8"	8"	19" X 27"	27" X 27"
12"	12"	24" X 32"	32" X 32"
18"	18"	32" X 40"	40" X 40"

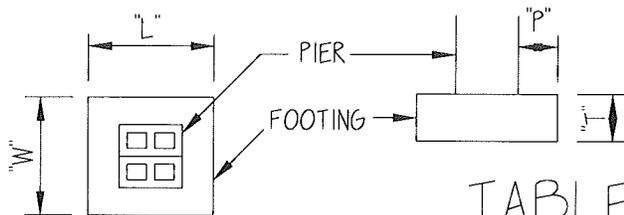
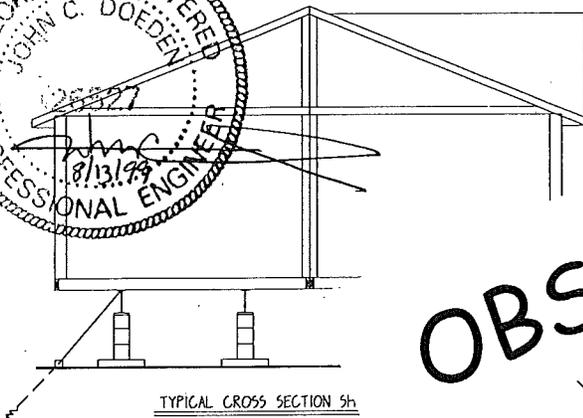
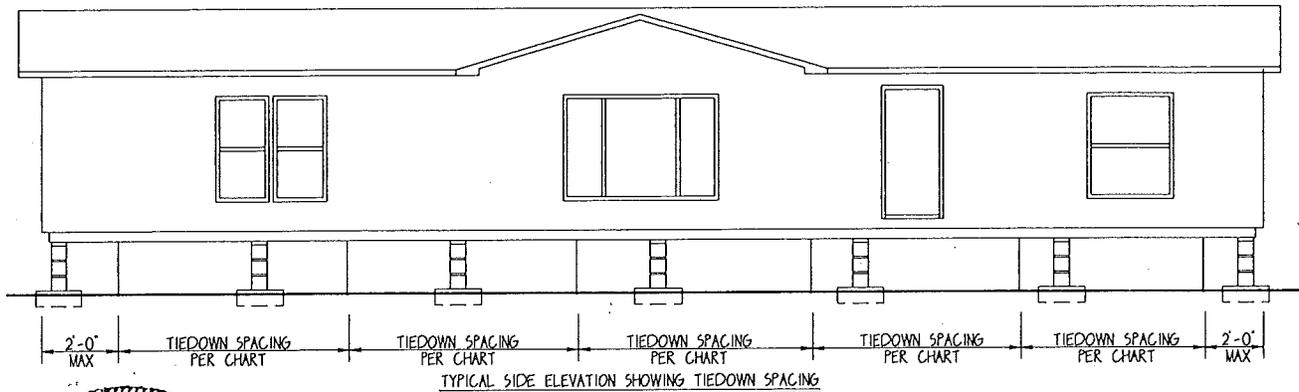


TABLE 6.1

REVISIONS	DATE		DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1441

CHIEF INDUSTRIES
HOUSING DIVISION

RECOMMENDED TIEDOWN SYSTEM VAULTED DORMER WIND ZONE 1 / 15 PSF LATERAL



FRAME TIE-DOWN SPACING CHART		
FLOOR WIDTH	WIND ZONE 1	
	X. PIER HEIGHT (H MAX)	EAVE OVERHANG
	32"	16" MAX.
	35"	16" MAX.
	42"	16" MAX.

OBSOLETE

• PIER HEIGHT INCLUDES DEPTH OF I-BEAM

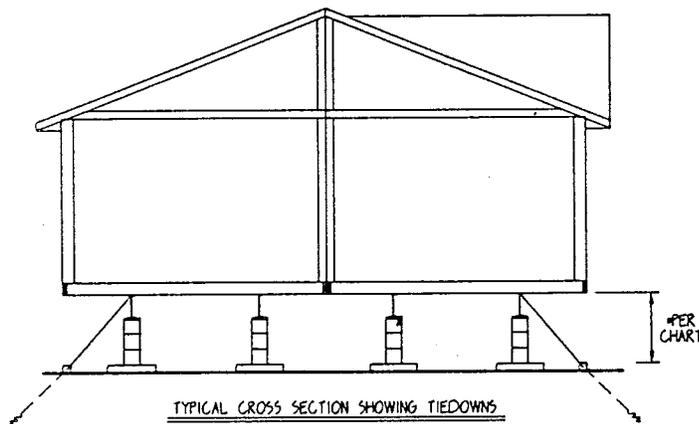
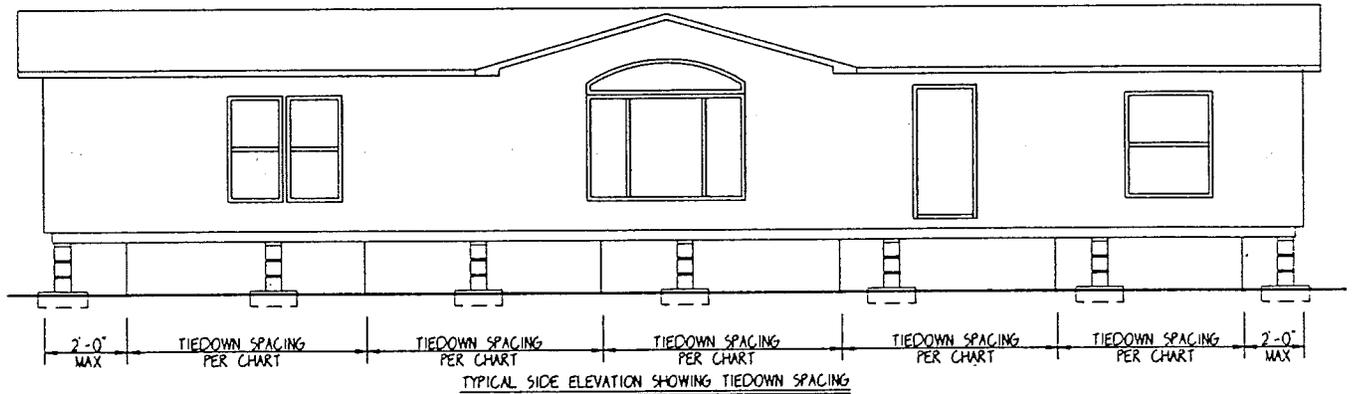
NOTES:

1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
2. FRAME TIE-DOWNS AND ANCHORS ARE NOT SUPPLIED BY CHIEF INDUSTRIES HOUSING DIVISION.
3. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING A TENSILE LOAD OF 4,725 LBS. AND ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
4. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL.
5. DESIGN BASED ON 82 1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 9'-2" AT HIGHEST POINT.
6. ANCHORS SHALL BE CERTIFIED FOR THESE CONDITIONS BY A PROFESSIONAL ENGINEER, ARCHITECT OR A NATIONALLY RECOGNIZED TESTING LABORATORY AS TO THEIR RESISTANCE, BASED ON THE INSTALLED ANGLE OF DIAGONAL TIE AND/OR VERTICAL TIE LOADING AND ANGLE OF ANCHOR INSTALLATION, AND TYPE OF SOIL IN WHICH THE ANCHOR IS TO BE INSTALLED.
7. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE. ANCHORS SHALL ALSO BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES INSTALLED TO PROVIDE RESISTANCE TO OVERTURNING OR SLIDING FORCES.
8. ANCHORING EQUIPMENT SHALL BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT TO RESIST THESE SPECIFIED FORCES IN ACCORDANCE WITH TESTING PROCEDURES IN ASTM STANDARD SPECIFICATION D3953-91, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
9. STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1 1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
10. THE CHART ABOVE IS ONLY APPLICABLE TO THE VAULTED PORTION OF THE UNIT. FOR TIEDOWN SPACING AND PIER HEIGHTS BEYOND THIS PORTION, REFER TO STANDARD TIEDOWN DESIGNS.

FIGURE 6.8

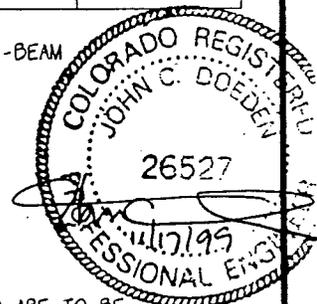
REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	7/21/99
			CHKD. BY:	
			SCALE: NONE	BP1857

RECOMMENDED TIEDOWN SYSTEM VAULTED DORMER WIND ZONE 1 / 15 PSF LATERAL



FRAME TIE-DOWN SPACING CHART			
FLOOR WIDTH	WIND ZONE 1		
	SPACING	MAX. PIER HEIGHT (H MAX)	EAVE OVERHANG
26'-4"	10'-0"	32"	16" MAX.
27'-4"	10'-0"	35"	16" MAX.
29'-8"	10'-0"	42"	16" MAX.

• PIER HEIGHT INCLUDES DEPTH OF I-BEAM



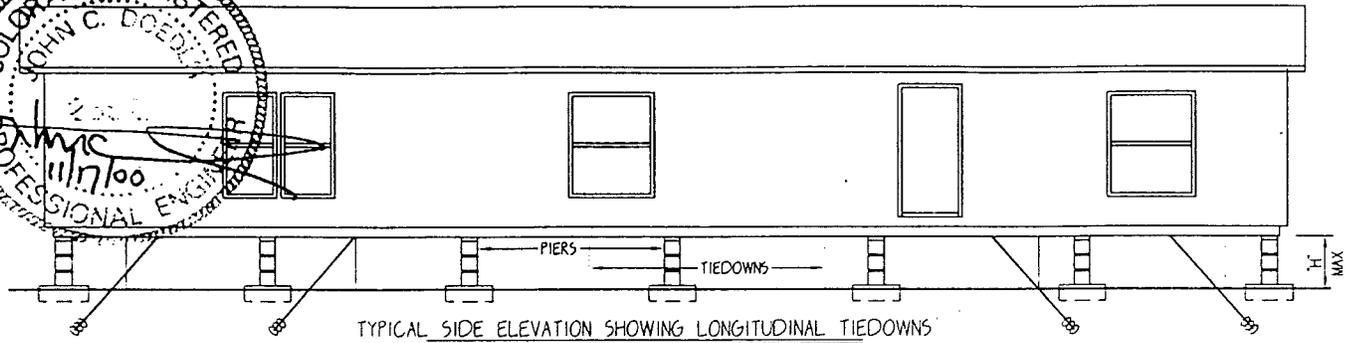
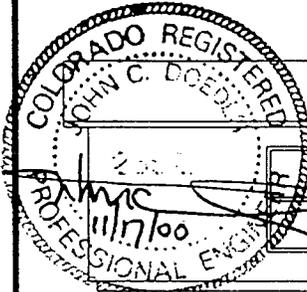
NOTES:

1. FRAME TIE-DOWN SHALL BE INSTALLED TO PROPERLY SECURE THE HOME.
2. FRAME TIE-DOWNS AND ANCHORS ARE NOT SUPPLIED BY CHIEF INDUSTRIES HOUSING DIVISION.
3. GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING A TENSILE LOAD OF 4,725 LBS. AND ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
4. STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQUARE FOOT OF STEEL.
5. DESIGN BASED ON 82 1/2" I-BEAM SPACING AND A MAXIMUM SIDEWALL HEIGHT OF 9'-2" AT HIGHEST POINT.
6. ANCHORS SHALL BE CERTIFIED FOR THESE CONDITIONS BY A PROFESSIONAL ENGINEER, ARCHITECT OR A NATIONALLY RECOGNIZED TESTING LABORATORY AS TO THEIR RESISTANCE, BASED ON THE INSTALLED ANGLE OF DIAGONAL TIE AND/OR VERTICAL TIE LOADING AND ANGLE OF ANCHOR INSTALLATION, AND TYPE OF SOIL IN WHICH THE ANCHOR IS TO BE INSTALLED.
7. GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE. ANCHORS SHALL ALSO BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES INSTALLED TO PROVIDE RESISTANCE TO OVERTURNING OR SLIDING FORCES.
8. ANCHORING EQUIPMENT SHALL BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT TO RESIST THESE SPECIFIED FORCES IN ACCORDANCE WITH TESTING PROCEDURES IN ASTM STANDARD SPECIFICATION D3953-91, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
9. STRAPPING TO BE TYPE 1, FINISH B, GRADE 1 STEEL STRAPPING, 1 1/4" WIDE AND .035 INCHES IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
10. THE CHART ABOVE IS ONLY APPLICABLE TO THE VAULTED PORTION OF THE UNIT. FOR TIEDOWN SPACING AND PIER HEIGHTS BEYOND THIS PORTION, REFER TO STANDARD TIEDOWN DESIGNS.

FIGURE 6.8

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	7/21/99
			CHKD. BY:	
			SCALE: NONE	BP1857

RECOMMENDED TIEDOWN SYSTEM WIND ZONE 1 (15 PSF LATERAL)



4.4:12 MAXIMUM ROOF SLOPE - DOUBLE SECTION HOMES (ALTERNATE WITH BLOCK PIERS*)

FLOOR WIDTH	MINIMUM UNIT LENGTH		NUMBER OF LONGITUDINAL TIES (TOTAL EACH END)
	SINGLE STACK	DOUBLE STACK	
24'-0" MIN.	47'-0"	36'-0"	0
	32'-0"	32'-0"	2
26'-4" MIN.	56'-0"	40'-0"	0
	32'-0"	32'-0"	2
27'-4" MIN.	62'-0"	44'-0"	0
	32'-0"	32'-0"	2
29'-3" MIN.	NA	54'-0"	0
	36'-0"	32'-0"	2

* FOR USE IN ABOVE TABLE
SINGLE STACK BLOCK PIERS : 28" MAXIMUM HEIGHT
DOUBLE STACK BLOCK PIERS : 62" MAXIMUM HEIGHT
MINIMUM STRAP ANGLE (DEGREES) : 40

4.4:12 MAXIMUM ROOF SLOPE NO RESTRICTION AS TO PIER TYPE OR HEIGHT (EXCEPT AS LIMITED OTHER DETAILS)

FLOOR WIDTH	MINIMUM QUANTITY EACH END EACH SECTION	MINIMUM STRAP ANGLE (DEGREES)
• 144" DOUBLE WIDE	2	30
• 158" DOUBLE WIDE	2	30
• 164" DOUBLE WIDE	2	31
• 178" DOUBLE WIDE	2	35

• MAY REDUCE TO 0 OR 1 LONGITUDINAL TIE PER HALF WITH PIER RESTRICTIONS PER CHART TO LEFT.

NOTES:

- SEE OTHER DRAWINGS FOR FRAME TIEDOWN REQUIREMENTS. THIS DETAIL IS FOR LONGITUDINAL TIEDOWN DESIGN ONLY.
- WHEN ANCHORS ARE NOT INSTALLED AT THE ANGLE SPECIFIED IN THE TABLE, A STABILIZER PLATE MUST BE INSTALLED IN ACCORDANCE WITH ANCHOR MANUFACTURER'S INSTRUCTIONS.
- LONGITUDINAL TIEDOWNS AND ANCHORS ARE NOT SUPPLIED BY CHIEF INDUSTRIES.
- GROUND ANCHORS AND FRAME TIES SHALL BE CAPABLE OF RESISTING AN ULTIMATE TENSION LOAD OF 4,725 LBS. AND ARE TO BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, BUT ARE NOT TO EXTEND BEYOND THE SIDEWALL OF THE HOME.
- STEEL ANCHORING EQUIPMENT EXPOSED TO THE WEATHER SHALL BE PROTECTED WITH AT LEAST 0.30 OZ. OF ZINC PER SQ FT OF STEEL.
- DESIGN BASED ON A MAXIMUM SIDEWALL HEIGHT OF 7'-6" AND 1-BEAM SPACING OF 82 1/2"
- LONGITUDINAL TIES ARE INSTALLED JUST INSIDE 1-BEAMS AT CROSSMEMBERS IN ACCORDANCE WITH THE TABLE AND NOTES 3, 4, 5, 12, AND 13.
- ANCHORS SHALL BE CERTIFIED FOR THESE CONDITIONS BY A PROFESSIONAL ENGINEER, ARCHITECT OR A NATIONALLY RECOGNIZED TESTING LABORATORY AS TO THEIR RESISTANCE, BASED ON THE INSTALLED ANGLE OF DIAGONAL TIE AND/OR VERTICAL TIE LOADING AND ANGLE OF ANCHOR INSTALLATION, AND TYPE OF SOIL IN WHICH THE ANCHOR IS TO BE INSTALLED.
- GROUND ANCHORS SHALL BE EMBEDDED BELOW THE FROST LINE AND BE AT LEAST 12" ABOVE THE WATER TABLE. ANCHORS SHALL ALSO BE INSTALLED TO THEIR FULL DEPTH, AND STABILIZER PLATES INSTALLED TO PROVIDE RESISTANCE TO OVERTURNING OR SLIDING FORCES.
- ANCHORING EQUIPMENT SHALL BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT TO RESIST THESE SPECIFIED FORCES IN ACCORDANCE WITH TESTING PROCEDURES IN ASTM STANDARD SPECIFICATION D3953-91, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
- STRAPPING TO BE TYPE I, FINISH B, GRADE 1 STEEL STRAPPING, 1 1/4" WIDE AND .035" IN THICKNESS, CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT AS CONFORMING WITH ASTM STANDARD SPECIFICATION D3953-91, STANDARD SPECIFICATION FOR STRAPPING, FLAT STEEL AND SEALS.
- SELECT A CROSSMEMBER WHERE PIERS DO NOT INTERFERE WITH THE REQUIRED ANGLE OF THE STRAP. INSTALL THE STRAP JUST INSIDE THE MAIN BEAMS LOOPED AROUND THE CROSSMEMBER AND TIE TO AN ANCHOR LOCATED DIRECTLY UNDER THE MAIN BEAM AT THE ANGLE SPECIFIED IN THE CHART ABOVE (SEE DETAIL)
- WHEN THIS ANCHOR ANGLE IS NOT ATTAINABLE INSTALL ANCHOR PER MANUFACTURER'S INSTRUCTIONS WITH APPROVED STABILIZING PLATE.

FIGURE 6.7

REVISIONS	DATE		CHIEF INDUSTRIES	DRWG. BY: DM	6/22/99
REMOVE SINGLE WIDE INFO.	11/7/00		HOUSING DIVISION	CHKD. BY:	SCALE: NONE

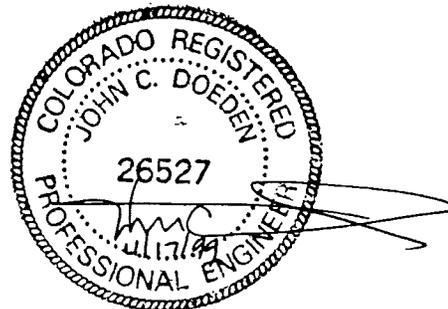
FOUNDATION DESIGN: GENERAL NOTES

GENERAL NOTES:

1. THIS FOUNDATION HAS BEEN DESIGNED FOR SITES WITH AN ALLOWABLE SOIL BEARING CAPACITY OF 2000 PSF MINIMUM.
2. FOUNDATIONS TO BE CONSTRUCTED ON SOIL WITH A LOWER BEARING CAPACITY SHALL BE DESIGNED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICE BY A LICENSED ENGINEER TO LOCAL CONDITIONS AND CODES.
3. CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS TO BE 3000 PSI MINIMUM.
4. REINFORCING STEEL SPECIFIED TO BE GRADE 60 BARS MEETING ASTM A615, A616, AND A617.
5. FOUNDATION WALL MAY BE POURED CONCRETE 8" THICK, REINFORCED WITH #4 REBAR AT 12" O.C. VERTICAL AND #5 REBAR AT 18" O.C. HORIZONTAL.
6. UNIT COLUMN SUPPORTS FOR CENTERLINE RIDGE BEAMS REQUIRE ADDITIONAL PIER SUPPORTS UNDER CENTERLINE BEAM LOCATIONS PER FLOOR PLAN.
7. THESE SPECIFICATIONS ARE TYPICAL. LOCAL CODES MAY CONTAIN ADDITIONAL REQUIREMENTS.
8. FOUNDATION WALL STEMS MAY BE CONCRETE OR CONCRETE BLOCK.
9. CONCRETE BLOCK SHALL CONFORM TO ASTM C-90.
10. IN CONCRETE BLOCK STEM WALLS A MINIMUM OF (2) #4 REBARS ARE TO BE INSTALLED IN BLOCK WITH MUD SILL ANCHORS FULLY GROUT EACH CELL CONTAINING REBAR.
11. ALL LUMBER IN CONTACT WITH CONCRETE SHALL BE OF PRESSURE TREATED TYPE OR OF SPECIES APPROVED FOR USE IN DIRECT CONTACT WITH CONCRETE.
12. THE INSTALLATION SITE MUST BE GRADED SO THAT WATER DRAINAGE IS AWAY FROM STRUCTURE AND DOES NOT ACCUMULATE UNDER THE HOME.
13. BACK FILL ADJACENT TO THE SHALL NOT BE PLACED UNTIL THE WALL HAS SUFFICIENT STRENGTH OR HAS BEEN BRACED TO PREVENT DAMAGE.
14. MINIMUM FOUNDATION VENTILATION REQUIREMENTS:
 - A. 18" X 24" ACCESS CRAWL SPACE TO UNDER FLOOR AREA.
 - B. 1 1/2 SQUARE FEET OF VENTILATION PER 25 LINEAL FEET OF FOUNDATION WALL.
 - C. COVER VENT OPENINGS WITH CORROSION-RESISTANT WIRE MESH NOT LESS THAN 1/8" NOR MORE THAN 1/2" IN ANY DIRECTION.
15. THIS FOUNDATION SYSTEM FOR USE WITH FLOOR SYSTEMS WHICH ARE DESIGNED TO SPAN FROM PERIMETER WALL TO CENTERLINE SUPPORTS.
16. DAMP PROOFING OF CONCRETE OR MASONRY WALLS TO BE IN ACCORDANCE WITH LOCAL CODES. IN THE ABSENCE OF CODE REQUIREMENTS, THE FOLLOWING SHALL APPLY:
 - A. EXTERIOR FOUNDATION WALLS OF MASONRY CONSTRUCTION ENCLOSING BASEMENTS SHALL BE DAMP PROOFED BY APPLYING NOT LESS THAN 3/8" OF PORTLAND CEMENT PARGING TO THE WALL FROM THE FOOTING TO THE FINISH GRADE. THE PARGING SHALL BE COVERED WITH A COAT OF APPROVED BITUMINOUS MATERIAL APPLIED AT THE RECOMMENDED RATE. EXTERIOR FOUNDATION WALLS OF CONCRETE CONSTRUCTION ENCLOSING BASEMENTS SHALL BE DAMP PROOFED BY APPLYING A COAT OF APPROVED BITUMINOUS MATERIAL TO THE WALL FROM THE FOOTING TO THE FINISH GRADE AT THE RECOMMENDED RATE.

GENERAL NOTES:

- 16 B. FOUNDATION WALL OF HABITABLE ROOMS LOCATED BELOW GRADE SHALL BE WATER PROOFED WITH MEMBRANES EXTENDING FROM THE EDGE OF THE FOOTING TO THE FINISH GRADE LINE. THE MEMBRANE SHALL CONSIST OF EITHER 2-PLY HOT MOPPED FELT, 6-MIL POLYVINYL CHLORIDE, 55-POUND ROLL ROOFING OR EQUIVALENT MATERIAL. THE LAP IN THE MEMBRANE SHALL BE SEALED AND FIRMLY AFFIXED TO THE WALL.
 - C. FOUNDATION WALLS MAY BE DAMP PROOFED OR WATER PROOFED USING MATERIALS AND METHODS OF CONSTRUCTION OTHER THAN COVERED IN THIS SECTION WHEN APPROVED BY THE LOCAL BUILDING OFFICIAL.
17. DRAINS SHALL BE PROVIDED AROUND FOUNDATIONS ENCLOSING HABITABLE OR USEABLE SPACES LOCATED BELOW GRADE AND WHICH ARE SUBJECT TO GROUND WATER CONDITIONS. DRAINS SHALL BE INSTALLED AT OR BELOW THE AREA TO BE PROTECTED AND SHALL DISCHARGE BY GRAVITY OR MECHANICAL MEANS INTO AN APPROVED DRAINAGE SYSTEM.
18. THE TOP OF OPEN JOINTS OF DRAIN TILES SHALL BE PROTECTED WITH STRIPS OF BUILDING PAPER AND THE DRAINAGE TILES SHALL BE PLACED ON 2 INCHES OF WASHED GRAVEL OR CRUSHED ROCK ONE SIEVE SIZE LARGER THAN THE TILE JOINT OPENING OR PERFORATION AND COVERED WITH NOT LESS THAN 6 INCHES OF THE SAME MATERIAL.
19. THE DESIGNS ON THIS AND ACCOMPANYING SHEETS ARE APPLICABLE TO SEISMIC ZONES 0, 1, AND 2.
21. THIS FOUNDATION DESIGN IS NOT FOR INSTALLATION ON A FLOOD PLAIN. WHEN INSTALLING CRAWL SPACE OR BASEMENT IN AN AREA WITH SOILS HAVING POOR DRAINAGE, CONSIDERATION SHOULD BE GIVEN TO METHODS OF ELIMINATING ACCUMULATION OF WATER IN THE CRAWL SPACE OR BASEMENTS, SUCH AS THE USE OF SUMP PUMPS. INSTALLATION OF SUMP PUMPS TO BE IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.



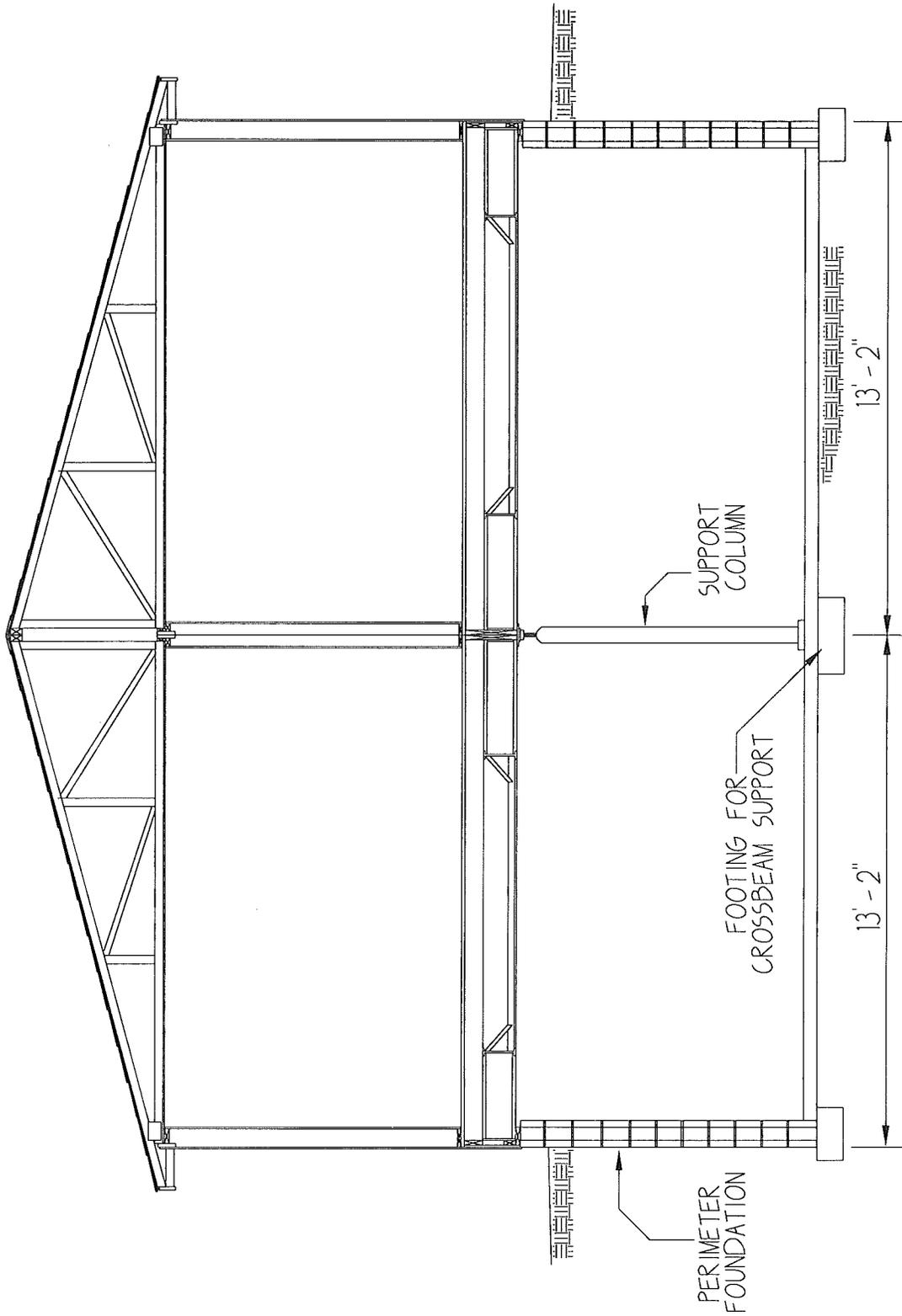
REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: ARS	10/16/97
			CHKD. BY:	
			SCALE: NONE	BP164

SECTION VII

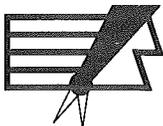
FOUNDATION READY SYSTEM

Double Section Homes

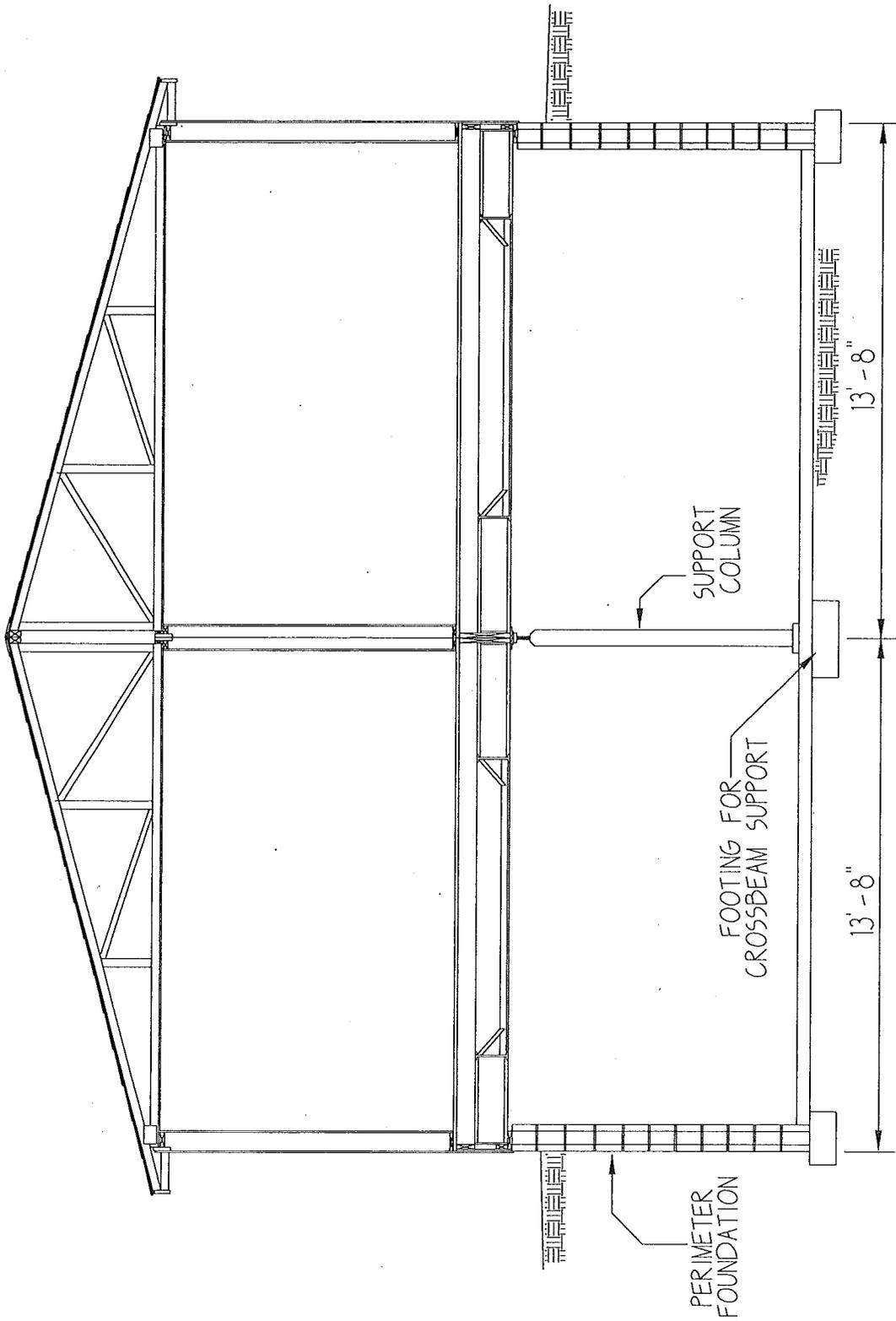
FOUNDATION READY CONSTRUCTION



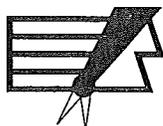
28' DOUBLE WIDE
ACTUAL FLOOR DIMENSION 26'-4"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BPI630

FOUNDATION READY CONSTRUCTION



30' DOUBLE WIDE
ACTUAL FLOOR DIMENSION 27'-4"

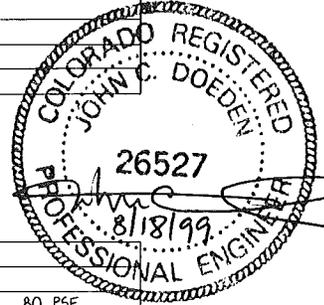
REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	10/8/97
			CHKD. BY:	
			SCALE: NONE	BP1631

FOUNDATION READY DETAILS

MAXIMUM SPANS FOR GIRDER BEAM					
ROOF AND FLOOR LOAD AREAS (UNDER MARRIAGE WALL) (DENOTED BY 'A')					
ROOF LIVE LOAD		30 PSF	40 PSF	60 PSF	80 PSF
15 3/8" BEAM	MAX. SPAN	9'-6"	9'-0"	8'-3"	7'-6"
	MIN. FOOTER SIZE	32" X 32" X 10"	33" X 33" X 10"	34" X 34" X 10"	34" X 34" X 12"
17 3/8" BEAM	MAX. SPAN	10'-2"	9'-8"	8'-9"	8'-2"
	MIN. FOOTER SIZE	32" X 32" X 10"	32" X 32" X 10"	34" X 34" X 10"	35" X 35" X 12"
FLOOR LOAD ONLY AREAS (CLEAR SPANS) (DENOTED BY 'C')					
15 3/8" BEAM	MAX. SPAN	12'-3" FOR ALL ROOF LIVE LOADS			
	MIN. FOOTER SIZE	26" X 26" X 8" FOR ALL ROOF LIVE LOADS			
17 3/8" BEAM	MAX. SPAN	13'-0" FOR ALL ROOF LIVE LOADS			
	MIN. FOOTER SIZE	27" X 27" X 8" FOR ALL ROOF LIVE LOADS			

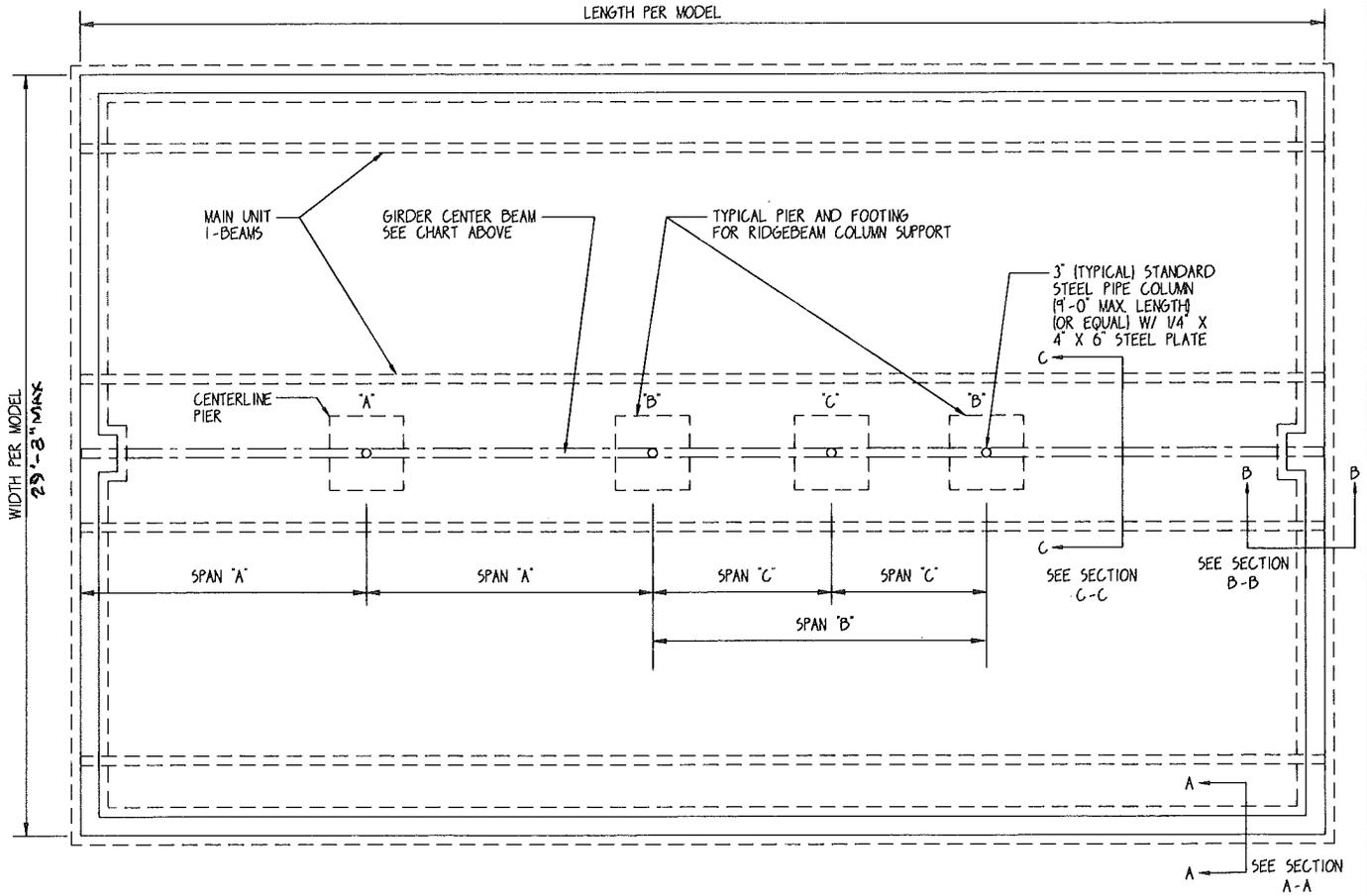
TABLE 7.1

NOTE: CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO FOUNDATION CONSTRUCTION.
NOTE: PLAN FOR FULL SPAN FLOOR SYSTEM



MAXIMUM SPANS FOR COLUMN SUPPORTS					
MAXIMUM RIDGE BEAM SPANS (DENOTED BY 'B')					
FOOTER SIZE	GIRDER BEAM	30 PSF	40 PSF	60 PSF	80 PSF
40" X 40" X 12"	15 3/8"	18'-0"	18'-0"	18'-0"	14'-0"
	17 3/8"	16'-0"	18'-0"	18'-0"	12'-0"
43" X 43" X 13"	15 3/8"	18'-0"	18'-0"	18'-0"	18'-0"
	17 3/8"	18'-0"	18'-0"	18'-0"	18'-0"
48" X 48" X 14.5"	15 3/8"	18'-0"	18'-0"	18'-0"	18'-0"
	17 3/8"	18'-0"	18'-0"	18'-0"	18'-0"

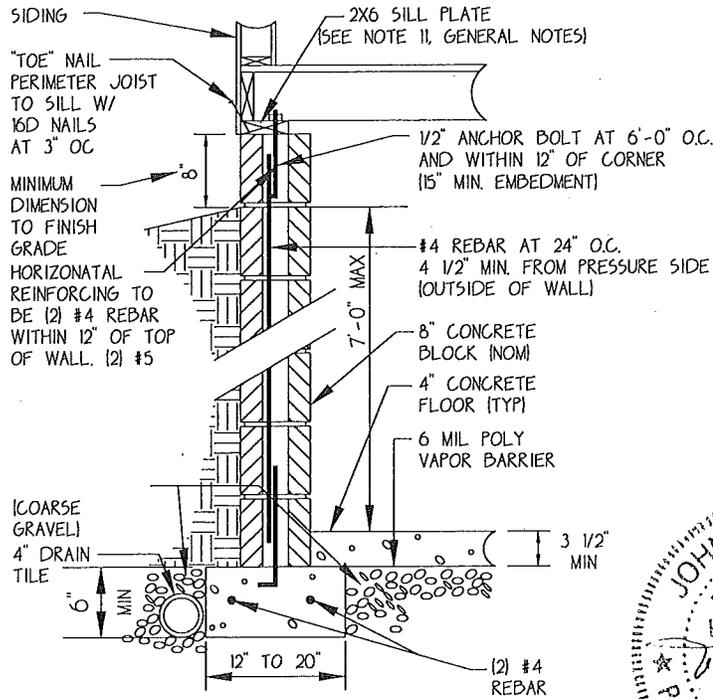
TABLE 7.2



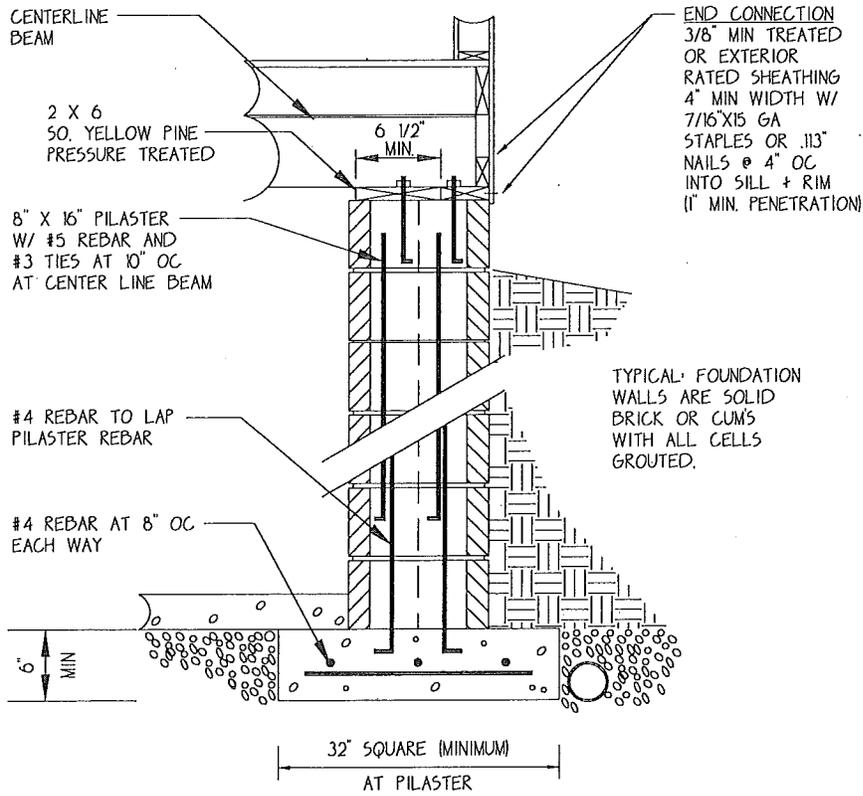
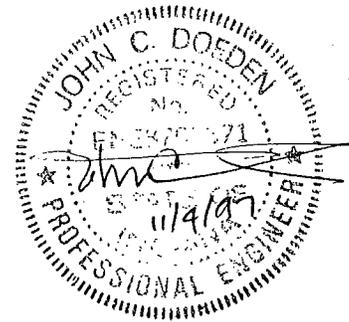
TYPICAL FOUNDATION PLAN (CRAWL SPACE OR BASEMENT)

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	8/13/99
			CHKD. BY:	
			SCALE: NONE	BP1637

BASEMENT DETAILS



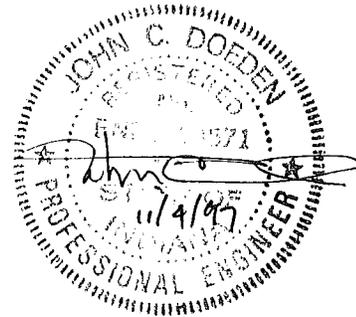
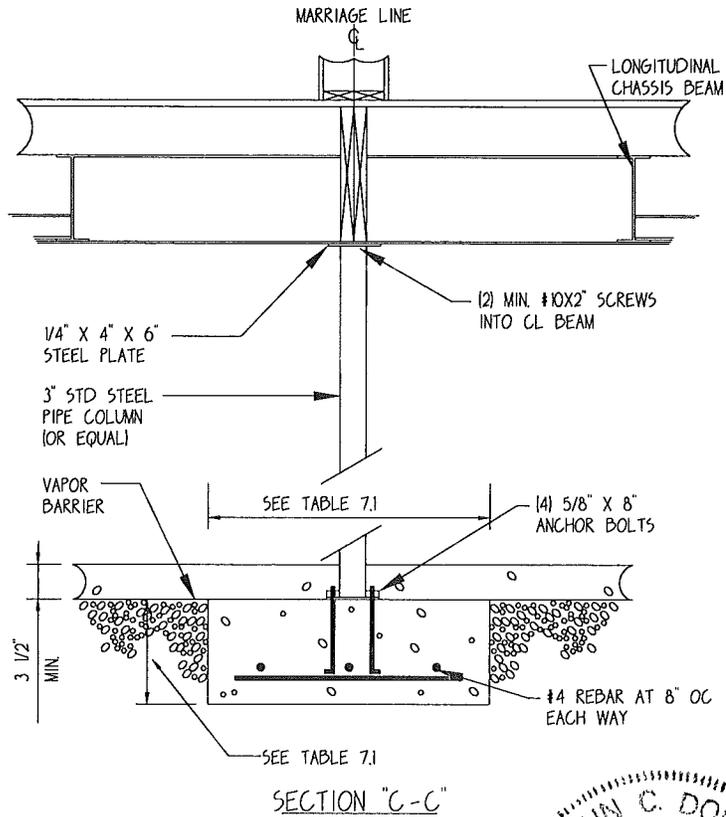
SECTION "A-A"



SECTION "B-B"

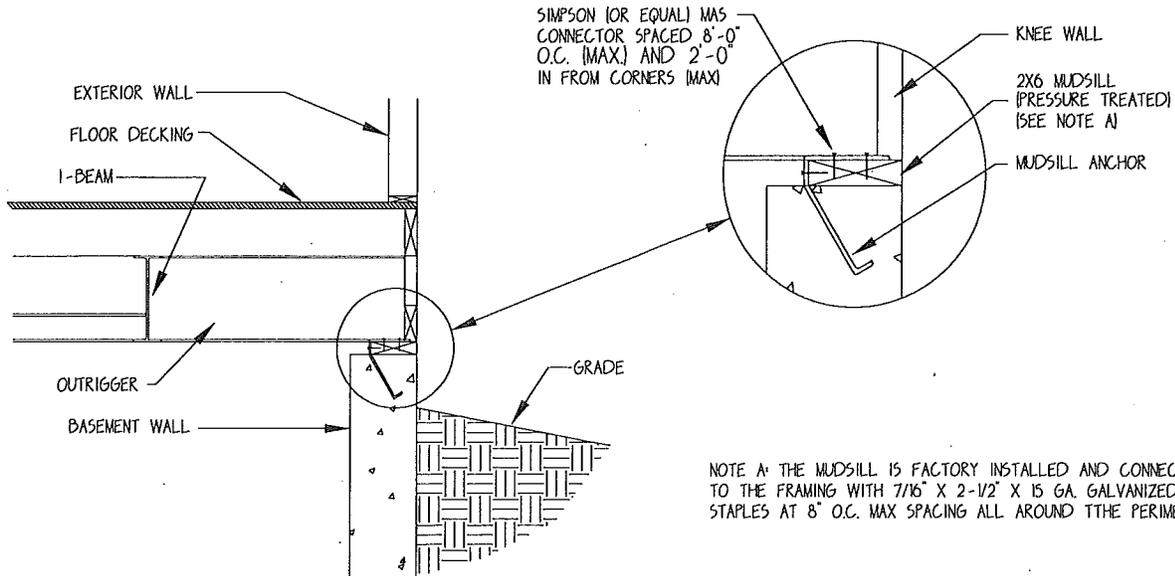
REVISIONS	DATE		CHIEF INDUSTRIES	DRWG. BY: RU	9/24/97
			HOUSING DIVISION	CHKD. BY:	
				SCALE: NONE	BPI638

BASEMENT DETAILS

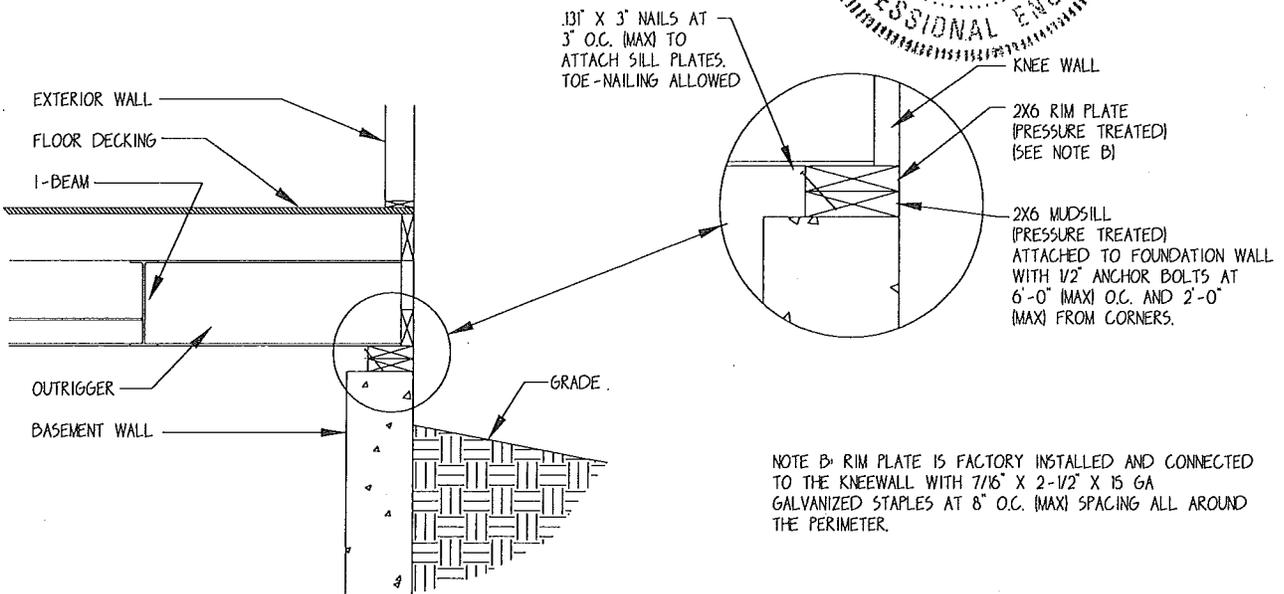
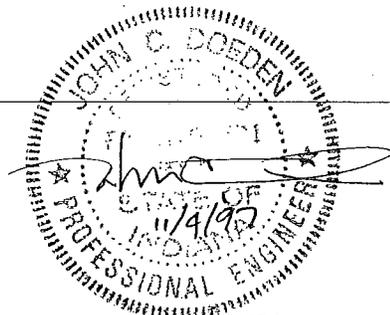


REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: RU	10/8/97
			CHKD. BY:	
			SCALE: NONE	BP1639

FOUNDATION DESIGN: ANCHORAGE DETAILS



(A) MUDSILL ANCHORING METHOD: MAS ANCHOR



(B) MUDSILL ANCHORING METHOD: DOUBLE SILL PLATE

REVISIONS	DATE	CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: RU	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1640

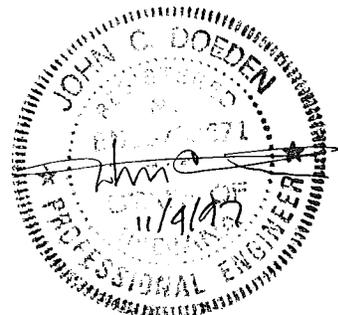
FOUNDATION DESIGN: GENERAL NOTES

GENERAL NOTES:

1. THIS FOUNDATION HAS BEEN DESIGNED FOR SITES WITH AN ALLOWABLE SOIL BEARING CAPACITY OF 2000 PSF MINIMUM.
2. FOUNDATIONS TO BE CONSTRUCTED ON SOIL WITH A LOWER BEARING CAPACITY SHALL BE DESIGNED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICE BY A LICENSED ENGINEER TO LOCAL CONDITIONS AND CODES.
3. CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS TO BE 3000 PSI MINIMUM.
4. REINFORCING STEEL SPECIFIED TO BE GRADE 60 BARS MEETING ASTM A615, A616, AND A617.
5. FOUNDATION WALL MAY BE POURED CONCRETE 8" THICK, REINFORCED WITH #4 REBAR AT 12" O.C. VERTICAL AND #5 REBAR AT 18" O.C. HORIZONTAL.
6. UNIT COLUMN SUPPORTS FOR CENTERLINE RIDGE BEAMS REQUIRE ADDITIONAL PIER SUPPORTS UNDER CENTERLINE BEAM LOCATIONS PER FLOOR PLAN.
7. THESE SPECIFICATIONS ARE TYPICAL. LOCAL CODES MAY CONTAIN ADDITIONAL REQUIREMENTS.
8. FOUNDATION WALL STEMS MAY BE CONCRETE OR CONCRETE BLOCK.
9. CONCRETE BLOCK SHALL CONFORM TO ASTM C-90.
10. IN CONCRETE BLOCK STEM WALLS A MINIMUM OF (2) #4 REBARS ARE TO BE INSTALLED IN BLOCK WITH MUD SILL ANCHORS. FULLY GROUT EACH CELL CONTAINING REBAR.
11. ALL LUMBER IN CONTACT WITH CONCRETE SHALL BE OF PRESSURE TREATED TYPE OR OF SPECIES APPROVED FOR USE IN DIRECT CONTACT WITH CONCRETE.
12. THE INSTALLATION SITE MUST BE GRADED SO THAT WATER DRAINAGE IS AWAY FROM STRUCTURE AND DOES NOT ACCUMULATE UNDER THE HOME.
13. BACK FILL ADJACENT TO THE SHALL NOT BE PLACED UNTIL THE WALL HAS SUFFICIENT STRENGTH OR HAS BEEN BRACED TO PREVENT DAMAGE.
14. MINIMUM FOUNDATION VENTILATION REQUIREMENTS:
 - A. 18" X 24" ACCESS CRAWL SPACE TO UNDER FLOOR AREA.
 - B. 1 1/2" SQUARE FEET OF VENTILATION PER 25 LINEAL FEET OF FOUNDATION WALL.
 - C. COVER VENT OPENINGS WITH CORROSION-RESISTANT WIRE MESH NOT MORE THAN 1/2" IN ANY DIRECTION.
15. THIS FOUNDATION SYSTEM FOR USE WITH FLOOR SYSTEMS WHICH ARE DESIGNED TO SPAN FROM PERIMETER WALL TO CENTERLINE SUPPORTS.
16. DAMP PROOFING OF CONCRETE OR MASONRY WALLS TO BE IN ACCORDANCE WITH LOCAL CODES. IN THE ABSENCE OF CODES REQUIREMENTS THE FOLLOWING SHALL APPLY:
 - A. EXTERIOR FOUNDATION WALLS OF MASONRY CONSTRUCTION ENCLOSING BASEMENTS SHALL BE DAMP PROOFED BY APPLYING NOT LESS THAN 3/8" OF PORTLAND CEMENT PARING TO THE WALL FROM THE FOOTING TO THE FINISH GRADE. THE PARING SHALL BE COVERED WITH A COAT OF APPROVED BITUMINOUS MATERIAL APPLIED AT THE RECOMMENDED RATE. EXTERIOR FOUNDATION WALLS OF CONCRETE CONSTRUCTION ENCLOSING BASEMENTS SHALL BE DAMP PROOFED BY APPLYING A COAT OF APPROVED BITUMINOUS MATERIAL TO THE WALL FROM THE FOOTING TO THE FINISH GRADE AT THE RECOMMENDED RATE.

GENERAL NOTES:

16. B. FOUNDATION WALL OF HABITABLE ROOMS LOCATED BELOW GRADE SHALL BE WATER PROOFED WITH MEMBRANES EXTENDING FROM THE EDGE OF THE FOOTING TO THE FINISH GRADE LINE. THE MEMBRANE SHALL CONSIST OF EITHER 2-PLY HOT MOPPED FELT, 6-MIL POLYVINYL CHLORIDE, 55-POUND ROLL ROOFING OR EQUIVALENT MATERIAL. THE LAP IN THE MEMBRANE SHALL BE SEALED AND FIRMLY AFFIXED TO THE WALL.
 - C. FOUNDATION WALLS MAY BE DAMP PROOFED OR WATER PROOFED USING MATERIALS AND METHODS OF CONSTRUCTION OTHER THAN COVERED IN THIS SECTION WHEN APPROVED BY THE LOCAL BUILDING OFFICIAL.
17. DRAINS SHALL BE PROVIDED AROUND FOUNDATIONS ENCLOSING HABITABLE OR USEABLE SPACES LOCATED BELOW GRADE AND WHICH ARE SUBJECT TO GRAINED WATER CONDITIONS. DRAINS SHALL BE INSTALLED AT OR BELOW THE AREA TO BE PROTECTED AND SHALL DISCHARGE BY GRAVITY OR MECHANICAL MEANS INTO AN APPROVED DRAINAGE SYSTEM.
18. THE TOP OF OPEN JOINTS OF DRAIN TILES SHALL BE PROTECTED WITH STRIPS OF BUILDING PAPER AND THE DRAINAGE TILES SHALL BE PLACED ON 2 INCHES OF WASHED GRAVEL OR CRUSHED ROCK ONE SIEVE SIZE LARGER THAN THE TILE JOINT OPENING OR PERFORATION AND COVERED WITH NOT LESS THAN 6 INCHES OF THE SAME MATERIAL.
19. THE DESIGNS ON THIS AND FOLLOWING ARE APPLICABLE TO SEISMIC ZONES 0, 1, AND 2.
21. THIS FOUNDATION DESIGN IS NOT FOR INSTALLATION ON A FLOOD PLAIN. WHEN INSTALLING CRAWL SPACE OR BASEMENT IN AN AREA WITH SOILS HAVING POOR DRAINAGE, CONSIDERATION SHOULD BE GIVEN TO METHODS OF ELIMINATING ACCUMULATION OF WATER IN THE CRAWL SPACE OR BASEMENTS, SUCH AS THE USE OF SUMP PUMPS). INSTALLATION OF SUMP PUMPS TO BE IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.



REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: ARS	10/16/97
			CHKD. BY:	
			SCALE: NONE	BP1641

SECTION VIII

SITE ASSEMBLY INSTRUCTIONS

Double Section Homes

General

The first step in properly maintaining your new manufactured home is to provide a solid support for it. Unlike a site-built house, your home does not need a perimeter foundation to support it. Your home has been designed with a steel chassis which will be supported by individual supports, or piers, together with tie down straps and anchors appropriate for local conditions. We recommend concrete piers for manufactured home blocking support and leveling. However, depending upon the site conditions and the judgement of your manufactured home installer, cement blocks, adjustable steel jacks or other support devices (such as tripod stands) may be adequate. If manufactured load bearing supports or devices are used, they shall be listed and labeled by an approved testing agency.

Data describing the roof and wind loads for which your home was designed may be found on the data plate in your home. Load zone maps of the United States showing roof load, wind load and thermal zones are also included in the Homeowners Manual. The support system must resist all vertical loads from the weight of your home, plus temporary extra roof loading, and it must resist side loads imposed on the structure by wind gusts.

All manufactured home installations shall comply with the requirements of local zoning ordinances and conditional use permits established by local authorities pertaining to any health and/or safety codes.

Introduction

Thank you for choosing Chief Industries as your home builder. We hope your new home brings you comfort and pleasure for many years to come. This home was engineered, constructed and inspected to comply with the *Federal Manufactured Homes Construction and Safety Standards* in effect on the date of construction. Minimal specifications are required from federal standards for the design, construction, thermal protection, heating systems, plumbing systems, and electrical systems for manufactured homes intended for residential use.

Our intent is to produce a safe and comfortable home for you. Our company standards surpass compliance with federal standards. Chief Industries has highly qualified plant personnel to inspect these standards throughout the construction process.

Before set up can even begin, you must contact the building officials in your area for necessary permits, licenses and inspections required for installation of this home. It is extremely important in preparing your home for its occupancy that it be properly blocked, set and leveled by an experienced manufactured home mover, dealer, or installer. Correct procedures in setting your home could prevent any costly future reconstruction.

The following step-by-step instructions were designed to assist you with the installation of your home.

Due to changes that are brought about by Chief Industries' continuing effort to improve our product and provide our customers with a wide variety of features; there may be products in or on your home that are not thoroughly covered by this manual. Before starting the set up process, you should go completely through your home owner's information to see if there are supplemental details and/or information that will aid in the completion of the set up of your home. It is imperative that you check for and read these instructions and details carefully before any attempt is made in setting your home.

Set Up Responsibility

Many local codes require that your home must be set up by a dealer, installer, or home mover specially licensed for this procedure. If your dealer is not licensed himself, he will make the arrangements with a contractor who is licensed. It is strongly recommended that the home be set and leveled by professional persons experienced in the construction of manufactured homes.

Site Implications

When selecting a site some items to be considered are as follows:

- Is your site suitable for its intended use?
- Does this intended use act in accordance with any jurisdiction over it? (Federal, State, and Local laws)
- Have you considered inherent potential hazards?

Consider such things as:

- proximity to flood plains or water features; these might cause flooding, excessive humidity, erosion, and sediment deposition.
- proximity to noise and air pollution such as industrial sites, construction sites, landfills, traffic ways, and airports.
- "hidden" factors such as groundwater table level, soil composition and bearing capacity, frost line, and possible termite infestation.

Once all problems encountered on your site are addressed with corrective work, you will be able to begin site preparation.



Home Installation

Site Preparation

The process of supporting your home for occupancy has three initial steps—site preparation, setting and blocking, and leveling. These are the first of many important steps to be seriously adhered to in order to prevent costly reconstruction measures you may encounter in the future. If you intend to place the home on a site of your own, some work will be necessary.

Normally, the area of the site where you will locate the home should be relatively level. However, the area beneath the home should have enough slope to allow for good water drainage. The recommended slope is one (1) inch for every four (4) feet. The rest of the site should be graded in a manner that rainwater and melting snow will be diverted from the support or foundation of the house. A vapor barrier, such as a layer of polyethylene plastic sheeting or similar material must be placed on the ground under the home. Supports must rest on undisturbed soil or on fill that has been compacted and fully settled.

In addition, provision for utilities must be made before the home is set. Installation of lines and equipment supplying water, electricity, and fuel, plus sewage disposal systems must be completed and ready for connection in accordance with all local codes and regulations. Your county engineer, building inspector, or local utility company officials can advise you on the requirements in your community.

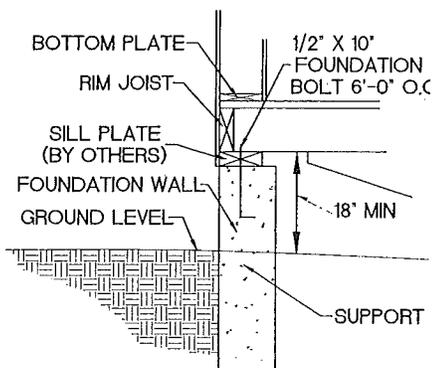
Footings & Piers

Proper support for your home includes footings and blocking. The purpose of supports is to distribute the load of your home as evenly as possible on the footings, and to provide a sturdy base. The footings carry and distribute the weight of the home placed on the blocking. Piers are usually built of concrete block or appropriate support stands on individual footings. We recommend three types of piers: concrete block, steel jacks, and concrete perimeter blocking.

Support piers are generally constructed of standard 8" x 8" x 16" concrete blocks. Blocking must be tall enough to raise the under side of the frame at least 12" off ground level and to keep the under sides of the floor joists at least 18" off the ground. On sloped sites where tall piers are unavoidable, many codes require a permanent supporting structure, such as piers of poured concrete or mortared concrete block.

Adjustable steel jacks make excellent supports, and simplify the job of leveling. Any manufactured supports that you use should be listed and labeled by an approved testing agency.

Your setup contractor or your local building inspector can advise you on the best supports to use.



Typical Perimeter Foundation

The third method is the use of perimeter blocking. The perimeter blocking could be constructed of either poured concrete or concrete blocks. This type of blocking allows the I-beam supports to be placed at larger intervals. This versatile foundation setup allows for either a crawlspace setup or a basement application.

You will have fewer problems maintaining a level home if the footings lie below the frost line in your community. This minimizes the heave and fall of the piers during the freeze and thaw cycle. To determine the size of piers and footings, refer to the sections dealing with pier construction and footing instructions.

Pre-cast footings can be substituted for poured concrete footings. They simplify the process of blocking. These should be listed and labeled by an approved testing agency.

****This next set of instructions is specifically for a snow load roof option. This option is not included with a standard specification house.****

Snow Load Designed Roofs

In order to support the snow load applied to the home, perimeter blocking becomes a necessity. To accommodate this additional blocking prints are provided with your installation manual.

- 1) The blocking prints provided will demonstrate proper pier spacing for your situation. Refer to the appropriate section for information on the foundation type that you have chosen.
- 2) Pier size and construction are also listed on the charts for pier loading.
- 3) Continue set up per foundation type.

Lifting Considerations

By following this information you will minimize the setup related problems you may have during the installation of your home.

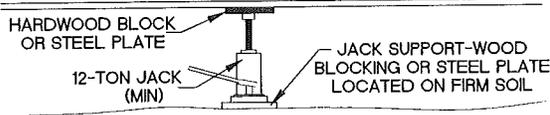


WARNING: SITTING UNDER A MANUFACTURED HOME WHEN IT IS SUSPENDED ON JACKS IS DANGEROUS. IF THE HOME SLIPS OFF OF THE JACK, YOU OR SOMEONE ELSE COULD BE SERIOUSLY OR EVEN FATALLY INJURED.

If it is ever necessary to be underneath the home, make sure that there is sufficient blocking to safely carry the load of the home. If the home is being moved by rollers or beams, make sure there are timbers or other safety blocking material supports in place so as to safely limit the distance the home can fall or unexpectedly move. Never suspend a home more than four (4) inches above safety supports. Always follow the 6 **minimum** safety precautions when lifting a home:

- 1) Use only jacks in good condition with a twelve (12) ton minimum rating.
- 2) Provide a firm support such as wood blocking or a steel plate underneath the jack bases to prevent them from tipping.

STANDARD BEAM



Safe Jack Support

- 3) Leave tires and axles on the unit until all blocking is in place in order to reduce the hazard from collapse.
- 4) Distribute the concentrated loads created by the jacks by using 3/8" x 4" x 12" steel plates or 4" x 4" x 12" hardwood blocks between the jacks and the main I-Beam.



WARNING: NEVER APPLY THE JACK DIRECTLY TO THE I-BEAM OR OTHER STRUCTURAL MEMBER.

Such a concentrated load may cause the I-Beam or structural member to fail resulting in the home sliding off of the jack.

- 5) Position safety supports beneath solid members such as I-Beams or floor joists and never under an axle or other spring-mounted member.
- 6) Avoid overstressing structural members.

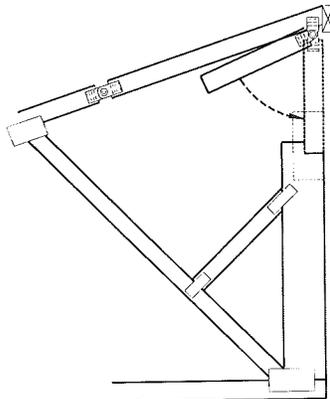
Pre-Foundation Home Set-Up

Any items which could be difficult to place after the home is set should be dealt with now. If you are using only the Crawlspace with Standard Blocking, it is much easier to place the moisture barrier before the house is set. It can left folded up and then unfolded after pads and support piers have been positioned under the frame members.

This next set of instructions is specifically for finishing a tip-up roof application. This feature is an option and is not included with a standard specification house.

Tip-Up Roof Trusses

- 1) When the home is on site, remove the protective shipping plastic from the area of the home above the marriage wall roof line.
- 2) Raise the



Hinged Roof Truss

entire hinged section of the roof into place. Ensure that excessive structural racking is eliminated by raising the entire length of the roof at the same time. Failure to do so may cause decking and/or roof framing to separate. The recommended method of raising the roof system is to locate a post jack at intervals not exceeding twenty (20) feet. the roof section can then be raised to a reasonable height at each successive location until the entire roof is raised into final position.

- 3) After the roof section has been raised into position, move upper hinged kingpost into place. The upper king



Gusset Construction

post must fit into the pocket created by the dado in the fixed lower kingpost. Secure the upper hinged kingpost to the lower kingpost by reinforcing the joint with an APA rated osb gusset 3/8" x 3" x 12" in size. The gusset shall be secured with six (total of 12) 8d nails or eight (total of 16) 16 gauge, 7/16" crown by 1 1/2" leg staple (Senco N17 Typical) each side of joint.

- 4) Follow set up instructions per foundation type, making a special provision for the shingling completion as follows: Completely shingle the remaining portion of the roof to the peak. Adhere to the shingle manufacturer's installation instructions. Take extra care to smooth underlayment on top of roof subsheathing. Failure to do this will produce unsightly ridges under the shingles.

Setting, Blocking & Positioning

General

NOTE: Excessive or nonuniform lifting during the leveling process can cause the home to be racked and twisted. This could result in serious structural damage to the home, thus voiding your warranty.



This next section involves lists for setting your home on its foundation. There are three different sets of instructions for their corresponding foundation types, you must find the set that is descriptive of your particular circumstance. At the end of these set of lists, there will be a checklist for post-foundation or finish setup.

It is imperative that you provide a legal drain tile or other approved method for draining water away from the foundation footing, You must also provide a means of interior support for a basement wall until the

backfilled earth on the exterior of the wall until the proper time.



NOTICE: These lists are Chief's recommended lists for home setup, however other methodology may be employed provided that these allow for complete structural integrity during the whole setting

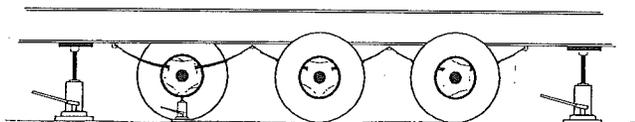
process.

List of Sets:

- Crawspace with Standard Blocking
- Foundation with Crossbeam
- Foundation Ready System

Crawspace with Standard Blocking

- 1) The foundation footings must be completed.
- 2) Carefully remove plastic material covering the marriage wall from both halves. Make certain the marriage wall gasket material on the one half remains firmly secured around the perimeter of the living area. Should any of this material be loose, it should be re-attached to the home using 1 1/4" roofing nails.
- 3) Position appropriate half of home on desired lot. To prevent unit from moving block both sets of tires at front and rear.
- 4) Raise the hitch of the unit to be blocked and leveled approximately 2" higher than its final position with



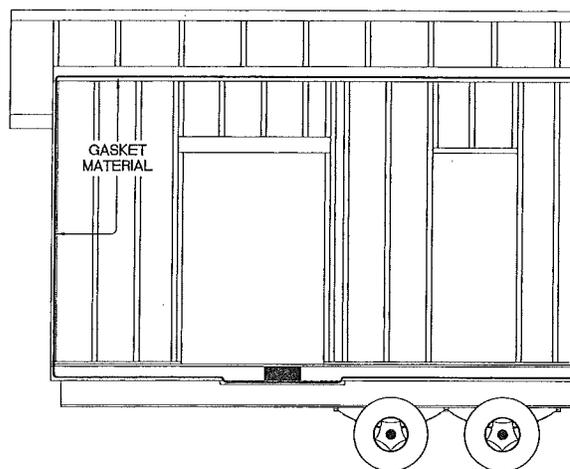
Jack Placement for Axle Removal

a heavy duty hydraulic jack. Adequate blocking should then be placed under the hitch assembly to prevent it from falling to the ground in the event the jack stem assembly should fail. Place a 12 ton jack under each main frame member just to the rear of the rear spring hangers. These two jacks should be operated simultaneously to raise the home until it is approximately 2" higher than its final position.

- 5) If the tires and axles are going to be removed, safety supports should be placed tightly under the frame members to prevent the home from dropping should the jack fail. When removing axles, one jack should be located directly in front of the first spring hanger and another directly behind the last spring hanger. It would also be wise to position a jack under each end of the axles when removing bolts.
- 6) The concrete pad pier supports are now located directly under each I-beam adhering to the specified spacing. Concrete or metal piers are then placed

into position on the pads. These piers should also be placed under the sidewalls at the exterior doors. Placement should be under the hinge side of the exterior door. For exact measurements, see the blocking print.

- 7) Slowly lower side of unit onto support blocks and level each pier. Some methods for leveling are listed at the end of this section.
- 8) After the sequence of leveling the piers is complete, lower the jacks so that the steel frame members rest on the threaded brackets of the piers.
- 9) Before moving the second half into position, make certain that the connection seal for the duct system as well as the marriage wall gasket is in place prior to joining the two halves. **CAUTION: THE JOINT FORMED BY THE CONNECTION OF THE TWO HALVES SHOULD BE TIGHT TO RESIST ANY AIR INFILTRATION.** Special care should be taken to assure that this step is performed.



Marriage Wall Gasket Placement

- 10) To prevent damage to electrical wiring and interior floor coverings (carpet and linoleum) in marriage wall openings, temporarily fasten away from edge of home to prevent material from being caught between the two sections.
- 11) Move the second section of the home into position along side of the first (within approximately 10"-12"). It is recommended that a dollie device utilizing steel rollers be used for this purpose. The dollies are constructed to carry hydraulic jacks that can be positioned under the frame members in order to produce less resistance moving the house laterally. Most service crews and installers have this equipment. It will minimize any possibility of frame damage which could void your warranty. After the two sections are side by side, the dollie devices are placed behind the axle and approximately midway in the front span.
- 12) Repeat steps 4 through 8 for second half.

- 13) By using a hand winch attached to the main I-Beams the two sections can be pulled tightly together.
- 14) WHEN ALIGNING HALVES KEEP EXTERIOR ENDWALLS FLUSH. DO NOT JUDGE BY INTERIOR DOORWAYS. This will allow the exterior endwalls to be sided with minimal shimming.

Crawlspace Completion

Keep in mind when completing the skirting around the perimeter of the home (if it is not set on a perimeter foundation) that you must allow for ventilation underneath the house. There should be vents as close to the corners as possible to prevent "dead air pockets." One square foot of venting is required for every 150 square feet of floor space.

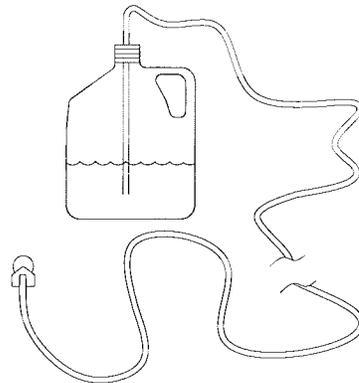
Example: a 30' x 80' house with actual dimensions of 27'-4" x 76'-0" equals 2078 square feet. Divide 2078 square feet by 150 which equals 13.85 square feet. Round up to 14 square feet of venting area within the crawlspace skirting.

Leveling

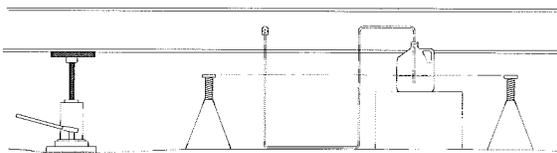
There are many commonly accepted methods of leveling homes. Our recommended methods of leveling are: a "water level" system, use of a bubble level or a laser transit.

A "water level" system is simply a plastic reservoir holding colored water with approximately 75 feet of plastic hose attached. This device operates on the principle that water seeks its own level.

Position the water level at a height whereby the level of the water inside the reservoir is exactly at the height of the bottom of the steel frame will be in its final position. By placing a shut-off valve at the end of the plastic tubing, the liquid will be prevented from escaping



Water Level

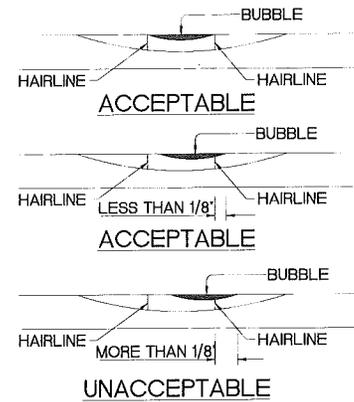


Water Level System

when the end of the hose is lowered below the level of the fluid in the reservoir. By pulling the end of the plastic tube to the first pier, the end of the tube is raised

above the adjustable clamp and the valve is opened. The top of the adjustable clamp on the pier is then adjusted to match the level of the water in the tube. When this operation is complete, then each succeeding pier is leveled in the same manner.

Another method of leveling is using a bubble level that is at least four (4) feet long. A deviation from level where part of the bubble is less than 1/8" outside one hairline is usually acceptable, as long as the reading is not the aforesaid consistently throughout the length of the house. Any deviation greater than 1/8" would suggest that the house should be releveled.



Bubble Level Reading

To achieve the best results, your home must stand as level as possible on its supports. If it does not, here are some of the problems that can result:

- Walls, partitions, and floors that buckle
- Leaks around windows, doors, seams in the roof, ceiling, and walls.
- Cabinet doors and drawers won't shut properly.
- Walls, partitions, and ceiling materials can come loose.
- Floor covering can wrinkle.
- Floor structure can loosen enough to feel soft and spongy under foot.
- Exterior siding can wrinkle or crack.
- Piping and wiring can snap under tension.

To prevent these non-warranted problems, your setup contractor should check and adjust the level of your home during the entire blocking process.

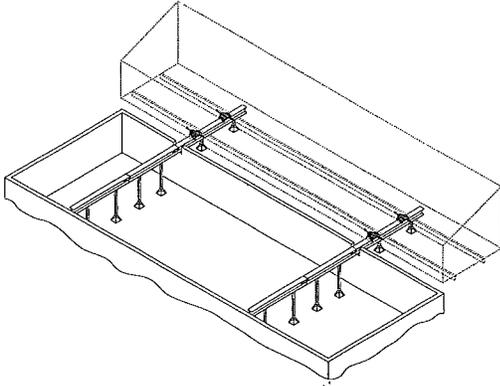
Keep in mind that you are obligated to check the level of your house once a month for the first three months and twice a year thereafter. Check after the spring thaw (when frost is out of the ground), and check again when the ground refreezes. The freeze-thaw cycle could cause your house to heave or settle.

Perimeter Foundation with Crossbeams

- 1) Full foundation with structural crossbeams must be completed prior to setting the home. A 2" x 8" sill plate must be secured to the foundation wall with one 1/2" x 8" foundation anchor every six (6) feet on center beginning one (1) foot (maximum) from each corner.
- 2) Carefully remove the plastic material covering the marriage wall from both halves. If applicable,

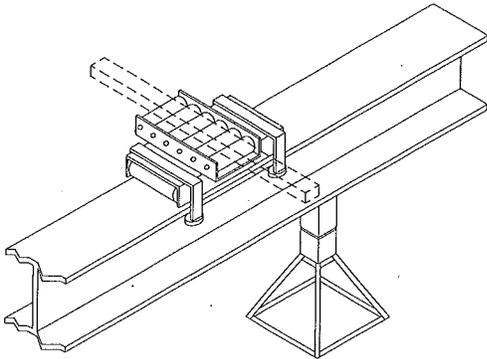
remove temporary flooring over stairwell area. Make certain the marriage wall gasket material on the one half remains firmly secured around the perimeter of the living area. Should any of this material be loose, it should be re-attached to the home using 1 1/4" roofing nails.

- 3) Set up the "Roller Beam" or I-Beam within the



Roller Beam Setup

foundation walls per *Setting System* manufacturer guidelines. Place roller devices on the proper beams. Place a support beam on top of the roller devices to help distribute the weight of the home evenly. Make sure that appropriate jacks or temporary blocking are spaced as listed. If the floor length of your house is 60'-0" or longer, we recommend the use of three beams for setting the house. Space the beams evenly along the length of the house.



Roller Device on Beam

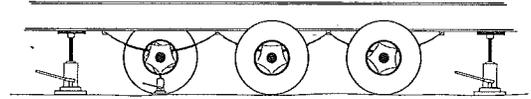
- 4) Move appropriate half of house parallel to the foundation wall.
- 5) Raise the house high enough to slide "Roller Beam" or I-Beam under the frame leaving an height allowance for the roller devices used for sliding the house. Also leave enough room for the "building support" that will disperse the weight of the house evenly on the rollers. In order to prohibit excess shear stress to the main structural members, distribute concentrated loads by using a plate or smaller beam.

- 6) Adequate blocking should be placed under the hitch assembly to prevent it from falling to the ground. Make certain that temporary support blocking is in place to prevent house from falling to the ground in the event that the jacks fails. Place a 12-ton jack under each main frame member just to the rear of the rear spring hangers. These two jacks should be operated simultaneously to raise the home. A third 12-ton jack should be placed under



the hitch. **WARNING: SITTING UNDER A MANUFACTURED HOME WHEN IT IS SUPENDED ON JACKS IS DANGEROUS. IF THE HOME SLIPS OFF OF THE JACK, YOU COULD BE SERIOUSLY OR EVEN FATALLY INJURED.**

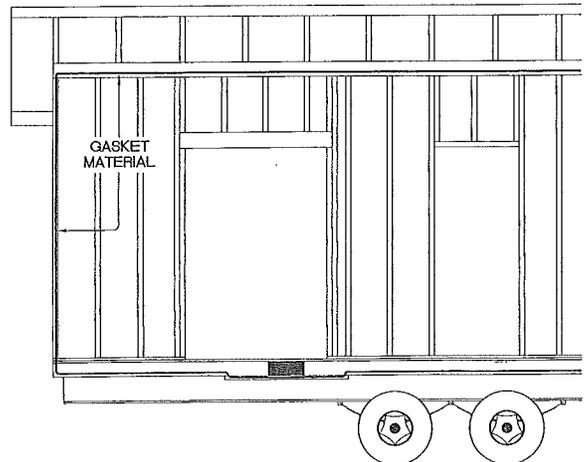
- 7) To remove the axles, supports should be placed tightly under the frame members to prevent the home from dropping should the jack fail. When



Jack Placement for Axle

removing axles, one jack should be located directly in front of the first spring hanger and another directly behind the last spring hanger. It would also be wise to position a jack under each end of the axles when removing bolts. To remove the hitch, block under the A-frame to prevent it from falling to the ground. Remove the bolts from all frame to hitch connection plates. Lower the A-frame safely to the ground. Store the A-frame for possible future movement when it can be reattached.

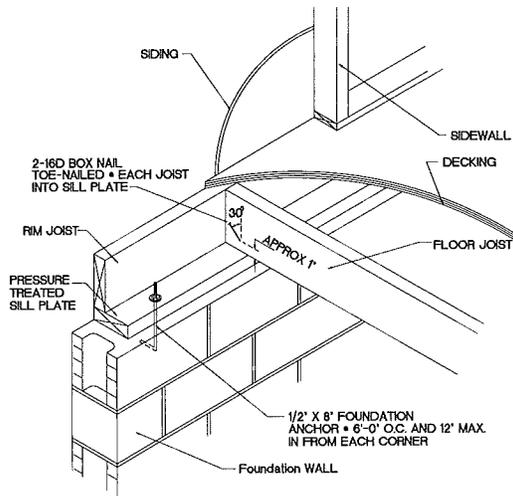
- 8) Lower the home onto the support beams.
- 9) Slide section to final position over foundation.
- 10) To prevent damage to electrical wiring and interior floor coverings (carpet and linoleum) in



Marriage Wall Gasket Placement

marriage wall openings, temporarily fasten away from edge of home to prevent material from getting caught between the two sections.

- 11) Before moving the second half into position, make certain that the connection seal for the duct system as well as the marriage wall gasket is in place prior to joining the two halves. **CAUTION: THE JOINT FORMED BY THE CONNECTION OF THE TWO HALVES SHOULD BE TIGHT TO RESIST ANY AIR INFILTRATION.** Special care should be taken to assure that this step is performed.
- 12) Repeat steps 4-9 for the second half of home. Slide the second section to within a few inches of the first section.
- 13) Pull halves as tight as possible together with hand winch.
- 14) When aligning halves keep exterior endwalls flush **DO NOT** judge by interior doorways. This will allow the exterior endwalls to be sided with minimal shimming.
- 15) Lower houses simultaneously to the foundation.
- 16) Nail flooring system to sill plate in one of these manners:
 - a) Toe-nail two 12d common nails from each floor joist into sill plate and one 12d common nail every 8" on center through the length of each



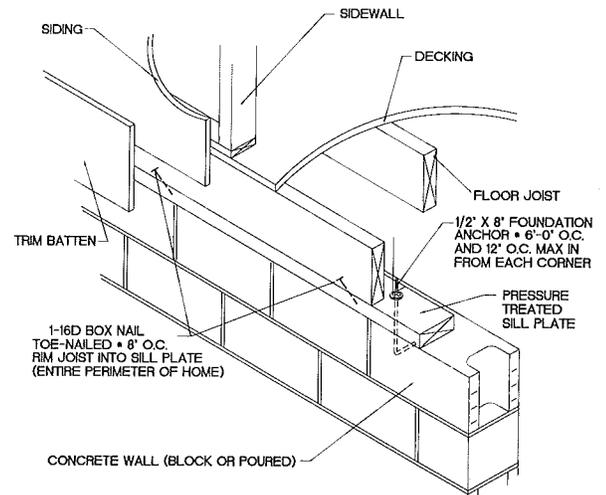
Interior Sill Plate Connection (method a)

front and rear rim joist. Toe-nails should be driven at an angle of approximately thirty (30) degrees with the joist. Start the nail from the end of the joist.

- b) For this method of nailing floor system to sill plate, the home must be ordered with the lower siding trim shipped loose. After the home has been set into place, toe-nail one 12d common nail every 8" on center around the entire perimeter of the home, from the rim joist into the foundation sill plate. Toe-nails should be

driven at an angle of approximately thirty (30) degrees with the rim joists. After the home has been secured to the foundation, apply lower trim batten. Caulk all horizontal siding joints, then paint to match home.

- 17) Lag together the rim joist located directly underneath the marriage wall.
- 18) Place columns along marriage wall line spaced as shown on the *Foundation Ready* print. After

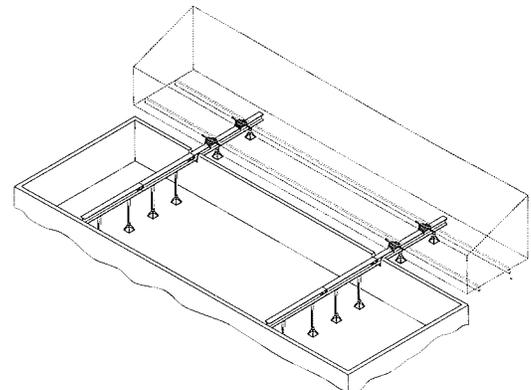


Exterior Sill Plate Connection (method b)

columns are placed as outlined, then remove the temporary house supports.

Foundation Ready System

- 1) Full foundation must be completed. A 2" x 8" sill plate must be secured to the foundation wall with one 1/2" x 8" foundation anchor every six (6) feet on center beginning one (1) foot (maximum) from each corner.

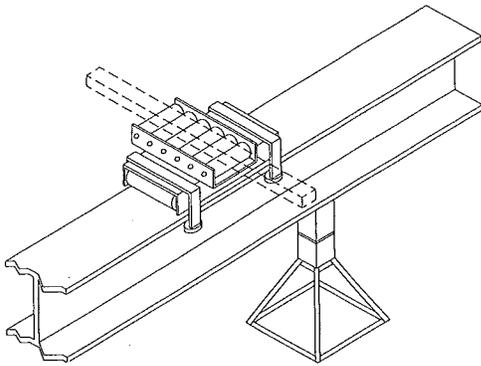


Roller Beam Setup

- 2) Carefully remove the plastic material covering the marriage wall from both halves. Remove temporary flooring over stairwell area. Make certain the marriage wall gasket material on the one half

remains firmly secured around the perimeter of the living area. Should any of this material be loose, it should be re-attached to the home using 1 1/4" roofing nails

- 3) Set up the "Roller Beam" or I-Beam within the foundation walls per *Setting System* manufacturer guidelines. Place roller devices on the proper beams. Place a support beam on top of the roller devices to help distribute the weight of the home evenly. Make sure that appropriate jacks or temporary blocking are spaced as listed. If the floor length of your house is 60'-0" or longer, we



Roller Device on Beam

recommend the use of three beams for setting the house.

- 4) Move appropriate half of house parallel to the foundation wall.
- 5) Raise the house high enough to slide "Roller Beam" or I-Beam under the frame leaving an height allowance for the roller devices used for sliding the house. Also leave enough room for the "building support" that will disperse the weight of the house evenly on the rollers. In order to prohibit excess shear stress to the main structural members, distribute concentrated loads by using a plate or smaller beam.
- 6) Adequate blocking should be placed under the hitch assembly to prevent it from falling to the ground. Make certain that temporary support blocking is in place to prevent house from falling to the ground in the event that the jacks fail. Place a 12-ton jack under each main frame member just to the rear of the rear spring hangers. These two jacks should be operated simultaneously to raise the home. A third 12-ton jack should be placed under the hitch. **WARNING: SITTING UNDER A**

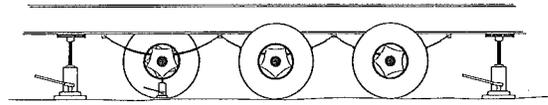


MANUFACTURED HOME WHEN IT IS SUSPENDED ON JACKS IS DANGEROUS. IF THE HOME SLIPS OFF OF THE JACK, YOU

COULD BE SERIOUSLY OR EVEN FATALLY INJURED.

- 7) To remove the axles, supports should be placed tightly under the frame members to prevent the

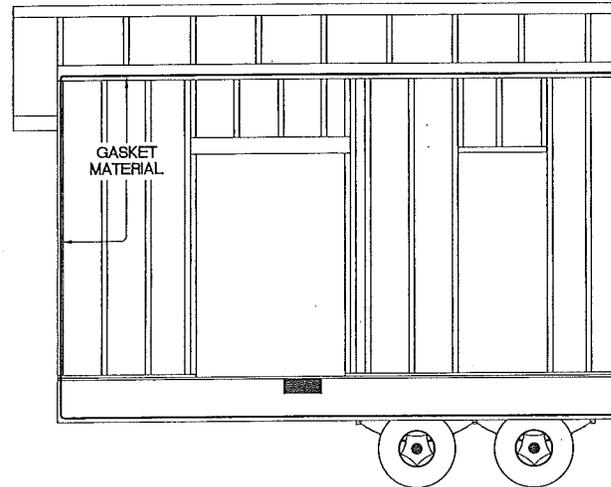
home from dropping should the jack fail. When



Jack Placement for Axle Removal

removing axles, one jack should be located directly in front of the first spring hanger and another directly behind the last spring hanger. It would also be wise to position a jack under each end of the axles when removing bolts. To remove the hitch, block under the A-frame to prevent it from falling to the ground. Remove the bolts from all frame to hitch connection plates. Lower the A-frame safely to the ground. Store the A-frame for possible future movement when it can be reattached.

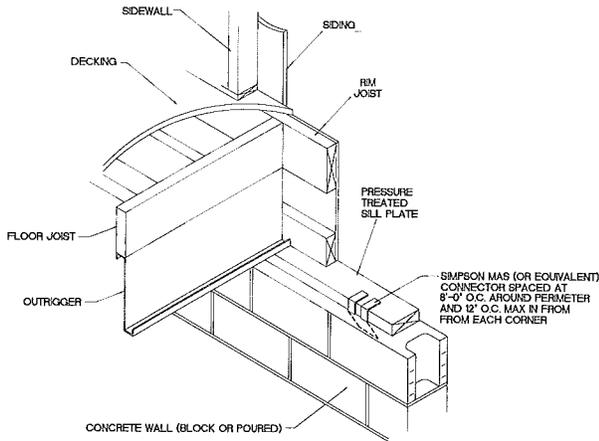
- 8) Lower the home onto the support beams.
- 9) Slide section to final position over foundation.
- 10) To prevent damage to electrical wiring and interior floor coverings (carpet and linoleum) in marriage wall openings, temporarily fasten away from edge of home to prevent material from getting caught between the two sections.
- 11) Before moving the second half into position, make certain that the connection seal for the duct system as well as the marriage wall gasket is in place prior to joining the two halves. **CAUTION: THE JOINT FORMED BY THE CONNECTION OF THE TWO HALVES SHOULD BE TIGHT TO RESIST ANY AIR INFILTRATION.** Special care should be taken to assure that this step is performed.



Marriage Wall Gasket

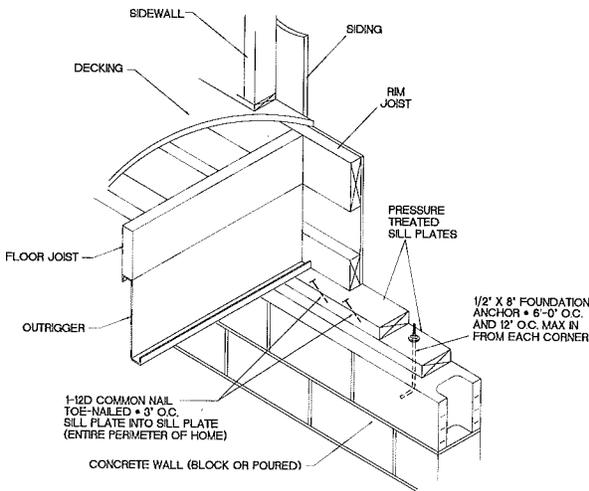
- 12) Repeat steps 4-9 for the second half of home. Slide the second section to within a few inches of the first section.
- 13) Pull halves as tight as possible together with hand winch.

- 14) When aligning halves keep exterior endwalls flush. DO NOT judge by interior doorways. This will allow the exterior endwalls to be sided with minimal shimming.
- 15) Lower houses simultaneously to the foundation.
- 16) Fasten the factory installed sill plate to your foundation in one of these manners:



Sill Plate Connection (method a)

- a) A Simpson MAS (or equivalent) connector should be installed in your foundation wall spaced at 8'-0" on center maximum around the entire perimeter and 2'-0" maximum in from the corners. After the home is properly aligned with and set on your foundation, these anchors are then secured to the sill plate.



Sill Plate Connection (method b)

- b) A second sill plate shall be installed on your foundation wall. The factory installed sill plate shall be aligned and set directly on top of this second sill. Fasten the sill plates together by

toe-nailing 12d common nails every 3" on center around the entire perimeter of the home. Toe-nails should be driven at an angle or approximately thirty (30) degrees with the rim joist. For this method the home must be ordered with the lower siding trim shipped loose. After the home has been secured, apply lower trim batten, caulk all horizontal siding joints, and paint to match the home.

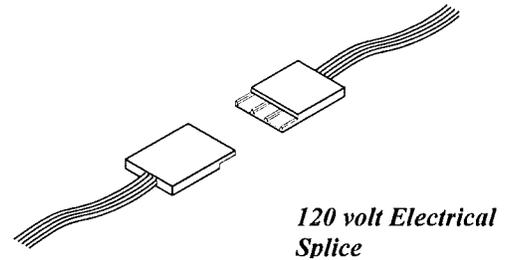
- 17) Lag together the laminated beams located directly underneath the marriage wall.
- 18) Place columns along marriage wall line spaced as shown on the *Foundation Ready* print. After columns are placed as outlined, then remove the temporary house supports.

Post Foundation (Finish) Setup

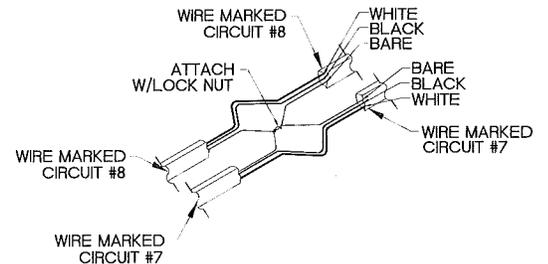
- 1) Each 120V wire that crosses the marriage line has been fitted with a special cable splicing device. Orient the splices so the mating ends align.

WARNING: BEFORE CONNECTING THE ELECTRICAL WIRES, BE POSITIVE THE POWER HAS BEEN DISCONNECTED.

Slide the splices together until the locking latched engage. Once coupled, the splices



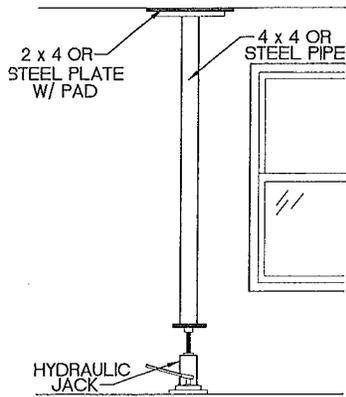
are NOT to be uncoupled. Finally, nail the coupled splices to a floor joist with four 4d common nails.



Caution!! Do not use oversized nails or drive nail heads into the splice!! Each 240V wire that crosses

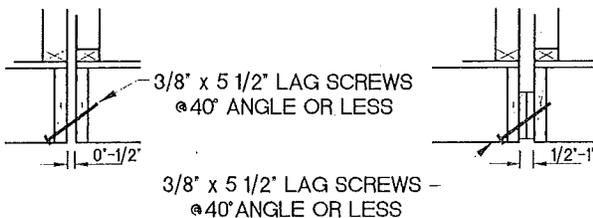
the marriage line has been fit into a covered junction box. Using a cutting blade, split the cable sheathing back approximately 1 1/8". Remove the sheathing back to the cable split. Attach the two ungrounded or "black" wires together with a locknut. Repeat this step for the two neutral or "white" wires and the two grounded or "bare" wires.

- 2) To level all ceiling sections set a jack at the lower section. Carefully raise the jack until the two ceiling sections are flush. Then finish fastening the two ridge beams together on the outside of the home with #8 x 3 1/2" woodscrews at 16" on center. This procedure should be followed at each location if one part of the ceiling is low. By carefully inspecting the ceiling or using a straight edge, low points can be determined. To raise the low portion, use a wood member such as a 4" x 4" or a steel pipe placed on the top of a hydraulic jack. A second piece of 2" x 4" properly padded is placed on top of the vertical posts and directly underneath the low point.



Interior Jack Placement

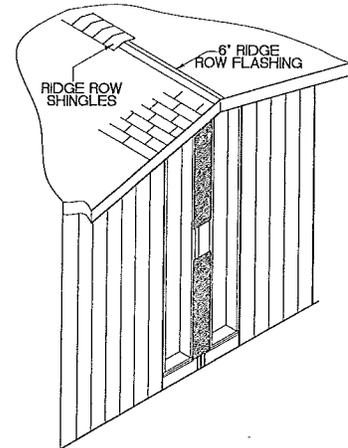
- 3) Remove shipping walls. Be aware of the potential damage when the studs fall.
- 4) The ceiling panels and the endwalls on each half must align on the inside of the house. If the halves are not in proper alignment they may be adjusted by raising the back corner on one half. It should be noted that the opposite end of the home should be blocked while raising one end. This lift will cause the ceiling to move forward.
- 5) Align the floor sections. Sections should fit tightly together. Gapping between sections may occur, however, the gaps should be no more than one (1) inch. If spacing between sections is less than 1/2",



Securing Floor Sections

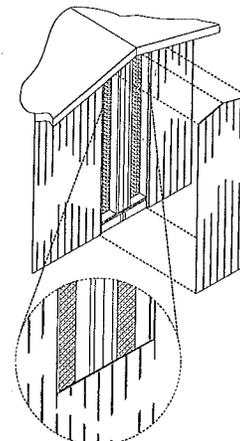
no fill material is necessary. Should the spacing be 1/2" to 1" fill with lumber. Use 3/8" x 5 1/2" lag

screws at 16" on center throughout the length of the home. Alternate angles for every screw installed ensuring the screws run through any fill material that may be used. After completion of this task, repair the moisture



Endwall & Roof Finishing

- 6) The front and rear endwalls should now be fastened and finished. The home will be shipped to you with the endwall sheathing or hardboard siding held back from the marriage line approximately 16". To secure the sections, use the 3 strips of 6" x 7' metal. Cut for length and space the metal along the height of the endwall, fastening to the studs with 1 1/4" galvanized roofing nails every 8" along both edges. To finish securing, cut a piece of sheathing or siding large enough to cover the remaining uncovered portion of the endwall with OSB sheathing leave about an 1/8" gap at the seams to allow for expansion.
- 7) Secure the roof sections together at the ridge using #10 x 3 1/2" screws at 12" on center for the entire length of the home. After this is completed, fasten the 6" x 10' pieces of angled ridge metal along the ridge line with the galvanized roofing nails provided. Next, apply roofing underlayment the entire length of the home. Complete the ridge by fastening ridge row shingles.
- 8) **For Hardboard Siding**---The endwalls of a hardboard sided home will have the siding held back from the marriage line much like the sheathing previously mentioned. To finish the siding, cut a piece of siding large



Endwall Siding

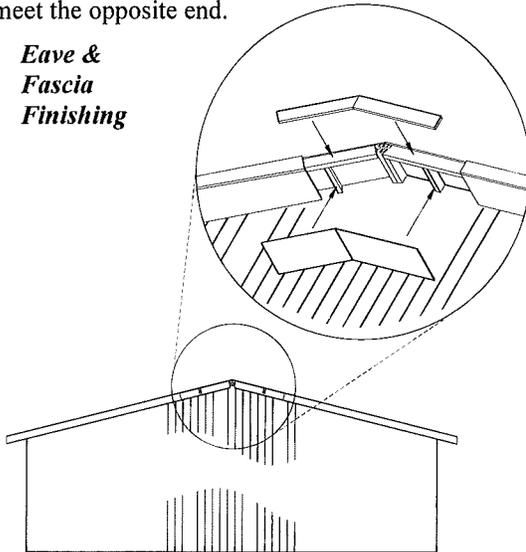
enough to cover manufacturers precut lap joint. The edges of the fiberboard siding should also be remedied to properly fit the manufacturers lap joint. This can be accomplished by cutting the panel with a circular saw with the blade set at the appropriate depth. Complete eave by installing the ridge soffit panel. This panel must be cut to fit for length between the two factory installed soffit panels.

For Cedar Siding—If your home has cedar siding, endwalls will need to be completely sided. The first step will be to remove all shipping plastic that may remain on the endwalls. Start a row of siding at the bottom of the endwall. Subsequent rows of siding should be applied up the endwall with a 1" overlap. Fasten siding through the sheathing and into the studs at 16" on center using the 2 1/2" stainless steel nails provided.

For Vinyl Siding—The endwalls will need to be completely sided. To begin, nail a vinyl starter strip to the bottom edge of the wall. The corner trim piece will already be in place when the home is shipped. Trim will need to be fitted next to the soffit before piece can go up to the peak of the wall. Start a piece of siding by snapping it into place and then nailing it about every 8" to allow for expansion and contraction of the vinyl. Manufacturer's installation instructions for vinyl siding are shipped with or on the home. If you cannot find these instructions, call your dealer for this information.

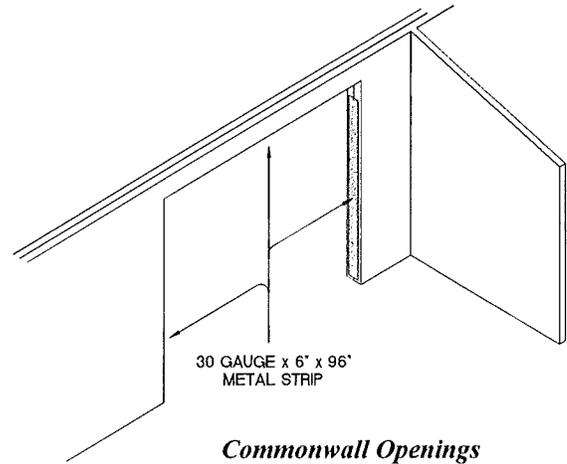
- 9) For finishing asphalt shingled roofs, secure ridge shingles with galvanized roofing nails provided. Start at the end and overlap the shingles until they meet the opposite end.

Eave & Fascia Finishing

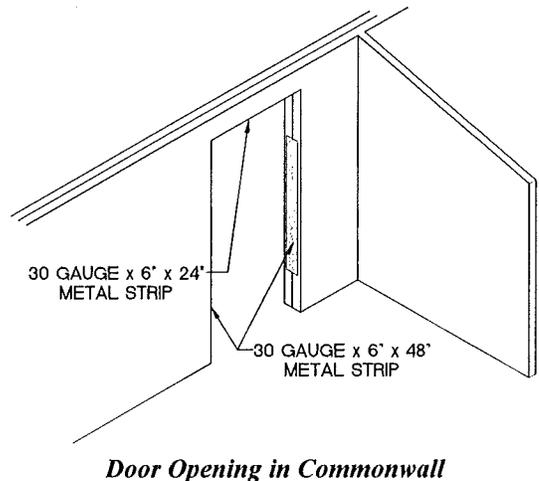


- 10) Complete eave by securing the fascia near the ridge.
 11) All openings in the commonwall should be secured with 6" x 96" strips of 30 gauge metal. The metal should be secured with 1 1/4" galvanized roofing nails. One strip of metal should be used for the top of the archway as well as one piece on each side.

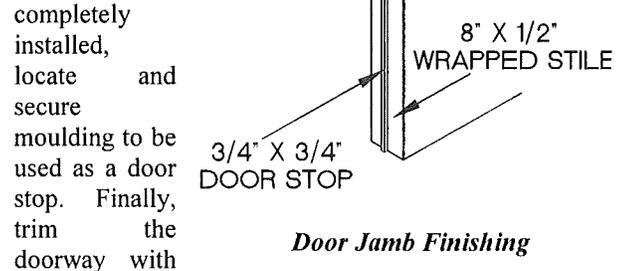
- 12) Openings that have a door installed should be secured with 6" x 48" on the side jambs and a 6" x 24" piece on the top jamb. Care should be taken to predrill all holes as close as possible to the edge in order that trim moulding will cover screws.



- 13) Doors in the marriage wall that have been installed will now be completed. After securing opening as outlined in step 12, apply a 1/2" wrapped stile directly to stud on side of opening. Now mount



door on side of opening, allowing ample space on top and bottom of door. After door has been mounted, apply a 1/2" wrapped stile directly to the remaining side, shimming where necessary. This will complete the side jamb. Now complete top of door with the same steps as for the side jamb. After door jambs have been completely installed,



moulding provided.

- 14) All archway openings should now be paneled and trimmed with the material provided. Refer to trim schedule for proper trim placement.
- 15) Completion of all plumbing should be made. Check all work for leaks, improper sizing or slope with instructions provided in owners manual.
- 16) The electrical system should be wired to supply and then checked for operation.

Anchorage Instructions

In accordance with the Federal Manufactured Housing Construction and Safety Standard in effect on date of construction, the following anchorage requirements for all Wind Zones are in addition to any requirements covered under the previous standard:

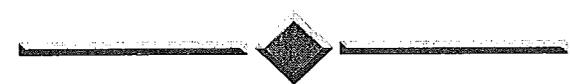
Design of anchors should be certified for their installation by a professional engineer or a nationally recognized testing laboratory as to their resistance based on the installed angle of diagonal tie and/or vertical tie loading and type of soil in which the anchor is to be installed.

Anchoring equipment should be certified by a registered engineer or architect to resist these specified forces in accordance with testing procedures in ASTM specification D3953-91; "Standard Specification for Strapping, Flat Steel, and Seals."

Tie Downs must start no more than two (2) feet from each end of unit (i.e. open end anchorage).

Protections shall be provided at sharp corners where the anchoring system requires external straps or cables.

Strapping to be Type 1, Finish B, Grade 1 steel strapping, 1.25 inches wide and .035 inches in thickness, certified by a registered professional engineer or architect as conforming with aforesaid ASTM specifications.



Utility Connections

General

Before connecting any utility systems, it is recommended that local, county, and state authorities should be consulted for compliance with local requirements.

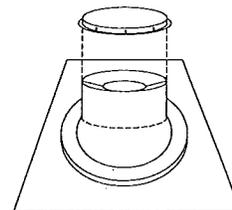


CAUTION: IT MUST BE POSSIBLE TO GAIN ACCESS TO UTILITY HOOKUPS, either by removable sections of skirting or through access doors.

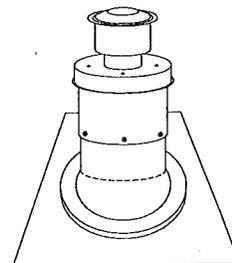
Heating, Ventilation, and Air Conditioning

It is imperative that you read and understand the owners manual provided by the manufacturer of each piece of equipment in the house. In the event that there is a discrepancy between this manual and the appliance manufacturers' provided manual, follow the instructions given by the manufacturer of the appliance.

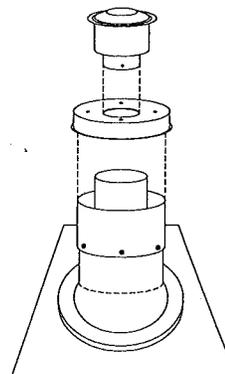
It is mandatory that the combustion air and flue tube assembly be fully engaged at back sides and front, and combustion air tube securely fastened to the furnace with sheet metal screws in the screw holes provided.



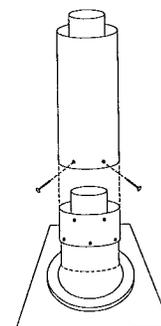
Step 1



Step 2



Step 3



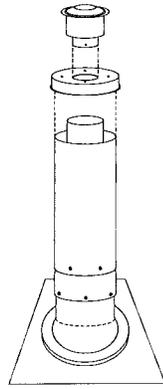
Step 4

Installation of Exterior Roof Jack Extension

- 1) Remove weather cover. Remove the 3 screws that secure the weather cover to the roof jack barrel. Remove and discard the cover.
- 2) Install crown assembly. Slide the crown assembly over the roof jack barrel. Secure with the 3 screws previously removed from the weather cap, using the pre-punched holes as guides.
- 3) Remove upper and lower caps. Remove the 2 screws that secure the upper cap to the crown assembly base and remove the upper cap. Next, remove the 3 screws that secure the lower cap to the crown assembly base. Set

both caps aside for later use.

- 4) Install Extension. Place the roof jack extension on top of the crown assembly base, pushing down firmly to assure a snug fit. **IMPORTANT:** Make sure that the pipes are connected. Using the 4 holes at the base of the extension as a guide, drill 4 holes 1/8" in diameter into the crown assembly base. Secure the extension to the crown assembly base with the 4 screws provided.



Step 5

- 5) Reinstall Upper and Lower Cap to Extension. Install the lower cap on top of the extension so that the center pipe sticks through the hole in the lower cap. Using the 3 screws removed in step 3, attach the lower cap to the extension upper cap over the center pipe of the extension. Using the 2 holes located at the base of the upper cap as guides, drill 2 holes 1/8" diameter into the center pipe. Finally, attach the upper cap to the center pipe using the 2 screws removed in step 3 to the center pipe.

Use 1/2" blunt or sharp end metal screws to fasten roof jack combustion air pipe to furnace combustion air collar. Excessively long screws may extend to the flue pipe and puncture it. Screw holes are provided in the pipe to furnace combustion air collar. Excessively long screws may extend to the flue pipe and puncture it. Screws are not to exceed 1 1/2" in length.

Combustion air tube and flue pipe are part of the same assembly. Only the combustion air tube need be fastened to the furnace.

- 1) Check to be certain that the flue pipe and combustion air tube are present.
- 2) Pull the telescoping flue tube and combustion air tube assembly down from the roof jack. Slide the flue tube/combustion air tube assembly down firmly over the furnace outlet and combustion air collar. Insure that the back, side, and front of combustion air tube collar is fully engaged. Fasten the combustion air tube to the furnace combustion air collar using two 1/2" sheet metal screws. (Screw holes are provided in combustion air tube and furnace combustion air collar.)

At this time have all the gas connections checked for air pressure and the flue checked for tightness. Then a serviceman can light the pilot. Change the furnace filter as often as needed. Clean the air distribution system regularly to prevent the motor from overheating. Keep up maintenance on the air distribution system as defined in the manufacturers instruction. Check the flue pipe regularly for soot, rust or corrosion.

On double-section homes, the flow of heat from one section to the other is accomplished by a crossover

duct system. This crossover system consists of a rigid duct that connects the two main duct trunks. This rigid crossover duct is sealed together at the commonwall line with insulation. Be sure that the commonwall insulation that is placed when setting the house is not constricting the air flow between the two halves.

Branch circuits installed at the factory for the purpose of energizing exterior air conditioning panel through the floor. You must connect the air conditioning equipment according to the instructions given in the owners manual provided by the equipment manufacturer. The supports or slab built for the air conditioner must be freestanding. The condensation tubing for the air conditioner must drain to the exterior of the house.

Check all air intakes and outlets regularly to make sure that they are completely free from any constrictions. Be sure to check the return air filter which must also be kept clean.

Air Quality Improvement System

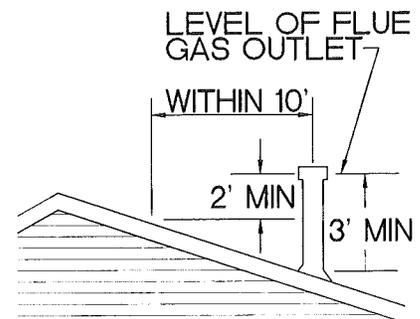
Federal standards require that an air quality improvement system be made available to all prospective mobile home purchasers. The Coleman Blend-Air system is offered in the Chief Industries protect line, which has been explained to you by your dealer.

If you purchased the Blend-Air system with your home, the operation of this system is completely automatic. The Blend-Air Environmental System is designed to work on conjunction with the home's heating system to introduce fresh air to the living area. Federal standards require that a mechanical air quality device have the capacity to introduce a minimum of 25 cubic feet of air per minute (cfm) into the living area. The Blend-Air Environmental System has the capacity of introducing 30 to 50 cfm into the living area. In addition, the Blend-Air Environmental System can help reduce the level of humidity in your home. There is a general consensus that higher levels of humidity can result in higher levels of indoor pollution.

The Blend-Air Environmental System should be maintained as outlined in the owners manual provided by the manufacturer.

Fireplace Installation

Once the home is set and leveled, finish the chimney for the fireplace. All chimney extensions must extend a minimum of 3 feet above the highest point where it passes



Chimney Clearances

through the roof and must be at least 2 feet above the roof within a 10 foot horizontal span. **IMPORTANT:** If an exposed portion of chimney is greater than 4 feet above the roof line, use support wires to keep chimney secure. The support wires may be attached to the outer pipe of the chimney with screws, provided the screws do not penetrate the inner flue pipe.

To install the glass doors that are shipped with your house, refer to the fireplace owner's manual. When starting a fire in the fireplace remember to fully open the glass doors and flue damper for sufficient air combustion. Always keep the fire from coming into contact with the glass doors. Clean the glass with any commercial glass cleaner or soap and water. Do NOT use any abrasive material to clean glass. Do NOT clean glass with cool water if it is still hot from fire.

The damper control lever should be located inside the fire chamber. Pull down to close, push up to open. The damper must be open when lighting a fire, not doing so will cause smoke spillage into the room. When the fireplace is not in use, close the damper to prevent down-drafts to enter the room.

The grate in the fire chamber is there to provide air combustion space beneath the solid fuel. Remember to keep the ashes cleaned out for this reason.

Electrical System

Your home is designed to be connected to an electrical supply source rated at 240 volts, 3 pole, 4-wire including ground system. If an option was purchased for an overhead mast or meter hub, the home may have been designed as a 240V, 3 pole, 3-wire including ground system. Refer to name plate on exterior of home to determine type of system.

In making the feeder connections to this power source, connection should be made only by a qualified electrician. It is also extremely important that wire of the correct size be used. If the wire is incorrectly sized, the ampacity a voltage drop to your home. Ampacity is the safe carrying capacity of a wire expressed in amperes. The greater the amperes flowing, the greater the heat produced.

Moreover, if the amperage is allowed to become too great, the wire may become so hot that it will damage the insulation or even cause a fire. A voltage drop in your home can cause a drop in the efficiency of all lights as well as appliances. Motors may burn out and you may be paying for electricity that you do not use. Refer to the following table to determine recommended conductor type and size for the size of panel box.

SERVICE AMPS	WIRE SIZE		CONDUIT SIZE
	FEEDER	GROUNDING CONDUCTOR	
100	#4	#8	1-1/2"
150	#1	#6	2"
200	#2/0	#6	2"
225	#3/0	#6	2"

Conductor types: RH-, RHH, -RHW, -THHN, -THW, -THWN, -XHHN

It is also critical for the protection of the occupants of the home that all non-currant-carrying metal parts be properly grounded. The only safe and approved method of grounding your home is through an electrical-isolated grounding bar in the manufactured home power supply panel which grounds all non-currant-carrying metal parts to the electrical system in your home at a single point.

The ground conductor of the power supply feeder cable connects the grounding bar to a good electrical ground. Insulate the grounded circuit conductor (neutral or white) wire from the grounding conductors (green wires) and from equipment enclosures and other grounded parts. Bonding screws, straps or buses in the distribution panel board should have been removed and discarded at the manufacturing facility.

Homes with a factory-installed service meter base must be grounded differently. The exterior equipment and enclosure must be weatherproof, and conductors must be suitable for use in wet locations. When a meter is provided on the home, connect the neutral (white) conductor to the system grounding (green) conductor on the supply side of the main disconnect. The grounding electrode conductor is run from the meter to the grounding electrode. The homeowner must provide the grounding electrode conductor(s). The grounding electrode should be an 8' length of 1/2" dia. copper rod or 3/4" galvanized steel pipe. Drive it into the ground at least 12" below the surface and 2' from the foundation, or bury it horizontally in a 2 1/2' deep trench. Connect the grounding conductor wire to the grounding electrode with a grounding clamp.



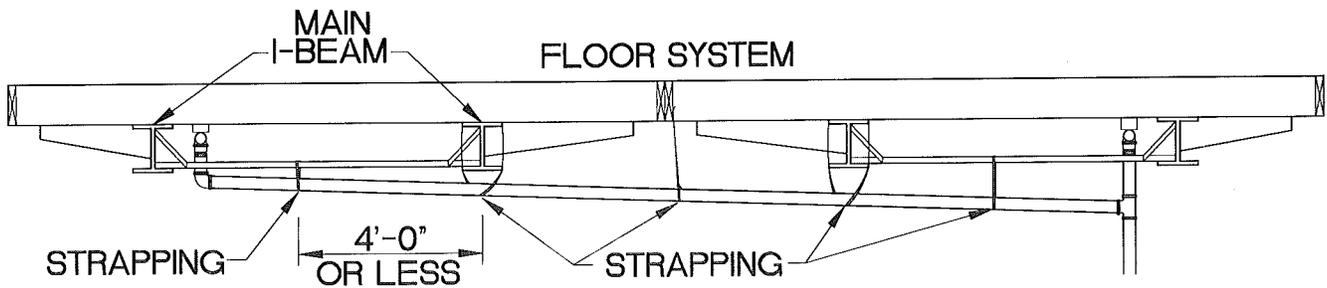
WARNING: IT IS EXTREMELY IMPORTANT THAT THE NEUTRAL CONNECTOR NOT BE GROUNDED IN OR ON THE MANUFACTURED HOME OR THE HOME SERVICE ENTRANCE CABINET.

Electric crossovers between halves of section homes are located along the center line between the sections. The crossover wires will be located in the first floor joist cavity from either end of the home. These crossover locations can be distinguished by access cover panels. Remove these panels and connect enclosed wires by using the splicing devices.

Once your electrical system has been connected, be sure to check all smoke detectors for operation.

Phone and Television Hookups

If you have ordered phone and television hookups, these will be located in the third floor joist cavity from the rear of the house. These will be in a covered junction box 12" away from the marriage wall on each section. If there are hookups on both sections of the house you will have to connect these at the marriage wall line.



Drain Line Strapping Diagram

Water System

Your home's water system has been designed for an inlet water pressure of 80 psi. Should the home be installed in an area where the water pressure exceeds 80 psi, a pressure reducing valve should be installed.

A 3/4" threaded inlet is provided by the manufacturer for the water supply systems connection. This inlet is located below the home and usually near the water heater compartment. A tag on the side of the home indicates the location of the water inlet. A shutoff valve must also be installed between the water supply and the house inlet. The valve must be a full port gate valve or a full port ball valve. **CAUTION: THE MAIN SHUTOFF VALVE IS NOT SUPPLIED BY THE MANUFACTURER, BUT MUST BE INSTALLED ON THE SYSTEM TO COMPLY WITH THE FEDERAL CONSTRUCTION AND SAFETY STANDARDS.**

All piping located underneath the home is subject to freezing temperatures and shall be insulated to prevent freezing. The manufacturer has provided a heat tape receptacle outlet located on the underside of the home within two (2) feet of the water inlet. The use of a heat tape is recommended to further prevent pipes from freezing. Be sure that heat tapes are listed and approved for use in manufactured homes. Installation shall be in accordance with the heat tape manufacturer's installation instructions.

If your home has fixtures that require water located on both sections, there will be proper pieces and fittings provided for connecting the water lines. A 1/2" water line that crosses the marriage wall line uses a single fitting because one side is cut back while the corresponding line on the other half will have extra length to compensate. A 3/4" water line that crosses the marriage wall line will have a connection kit provided. The dimensions to the crossover will be listed on the *Water Line* print (assuming presence of crossover).

Drain, Waste and Vent

If there are plumbed fixtures on both halves, there will be drain pipe and fittings provided by the manufacturer in order to complete the entire drain line. An enclosed *Drain Line* print will specify how to

assemble the fittings and the drain pipe provided should be cut to size.

Due to the possibility of transportation damage, the manufacturer has provided the drain line fittings, the drain line pipe sections and the assembly instructions (shown on the *Drain Line* print in dashed lines) and are shipped loose to complete the plumbing system at the setup site.

The drain lines shall be assembled using the pipe, cement, and supports shipped with the home. Assembly of the system shall be in accordance with state and local codes.

Final drain connections are made at the 3" outlet located in the center portion of the home. Approved 3" connectors should be used at both ends when connection this drain outlet to the main sewer system. The drain lines installed on the home must have a slope on 1/4" per foot. In order to support the connecting drain line, strapping has been provided by the manufacturer. This support strapping should be spaced at intervals not greater than four (4) feet apart.

After the system has been connected, all the fixtures in the home should be filled with water and allowed to drain through the newly installed system. Check all joints for any visible leaks.

Gas System

The heating system in your home has been designed to operate effectively on natural gas. If your energy source is LP (liquid propane) modifications must be made to each gas appliance in the house. Check with each respective appliance manual for conversion standards, these conversions are to be done by qualified individuals.

On some sectional homes which locate gas appliances in both halves, the gas crossover line will be provided between the home sections. This crossover line will be located below the floor structure and near to the center line. It will be equipped with an approved flex connector and a shutoff valve. The final connection of the crossover is made after the dust cover on the shutoff valve has been removed and snapped on to the two halves, completing the connection.

After the gas system has been installed, it must be checked over meticulously to insure absence of leaks. To avoid damage to the lines or possible injuries to oneself use a mixture of soap and water to check these lines for leaks.

To avoid possible damage to associated gas valves and regulators incorporated on appliances, do not pressurize the gas line in excess of 8 ounces maximum after final connections are made.

After final testing of the gas supply lines, the home can be connected by using a listed gas connector of the capacity indicated on the label by the gas inlet.

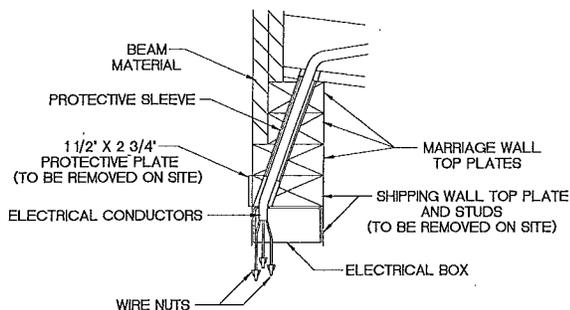


Interior Finishing

Large Light Fixtures

If your home has large light fixtures or ceiling fans, you will have to complete installation on site. The light fixtures will be shipped loose with the home. Locate the junction box that has been placed where your light fixture will be attached. Remove the cover plate from the junction box, this will expose the wires for assembly. Remove the wire nuts from the end of the wires and complete as follows:

- 1) Connect wires together according to color (i.e. black to black) using a wire nut. Note: Grounding wires may be either bare or colored coded green.



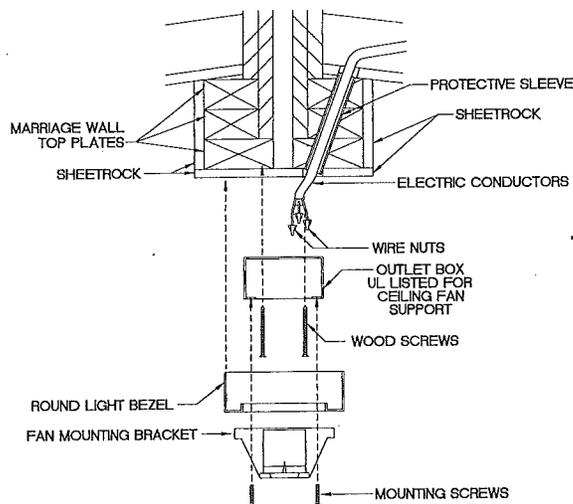
Ceiling Fan as Shipped

- 2) Grounding of the mounting bracket must be made by attaching the grounding conductor to the bracket grounding screw or if no screw exists, a listed clamp must be used. This connection must be made prior to the connection of the fixture.
- 3) Place fixture over junction box, secure it with the bracket supplied by the fixture manufacturer.

Ceiling Fan on Marriage Wall Beam

If you have ordered a ceiling fan that should be placed on the marriage wall beam, your home has been constructed with provision for the installation of the fan. This installation shall be completed following the setting and fastening of your home. This fan shall be installed as follows:

- 1) Once the sections have been fastened together, you should make sure the electricity has been turned off at the circuit breaker or panel box to reduce the risk of electrical shock.
- 2) Remove the wire nuts from the electrical conductors and take the electrical box from the bottom of the marriage wall beam before removing shipping wall components. This should allow the conductors to pass through as the shipping wall top plate is removed.
- 3) Finish the marriage wall opening as detailed, but remember to allow electrical conductors to pass through the finish material.



Ceiling Fan Attachment

- 4) Open one of the knock-out holes in the top of the electrical box that is provided. (This electrical box must be UL listed for ceiling fan support.) Feed the electrical conductors through this hole, and slide the electrical box up to the beam. Secure the box to the marriage wall beam with a minimum of 3 - #8 x 2 1/2" screws that are provided.
- 5) Once the electrical box is solidly fastened into place, slide the round light bezel over the box. Using the mounting screws provided, fasten the fan mounting bracket to the electrical box. This will hold the light bezel in place. Remember to pull the ends of the electrical conductors into the center of the mounting bracket.

- 6) From this point, there are several options in mounting your ceiling fan. Consult the ceiling fan manufacturer's installation instructions, decide which ceiling fan mounting you will use, and proceed with the appropriate instructions per their manual. Where necessary, each section will note the different procedures for the various types of mounting and wiring.

Appliance Installation

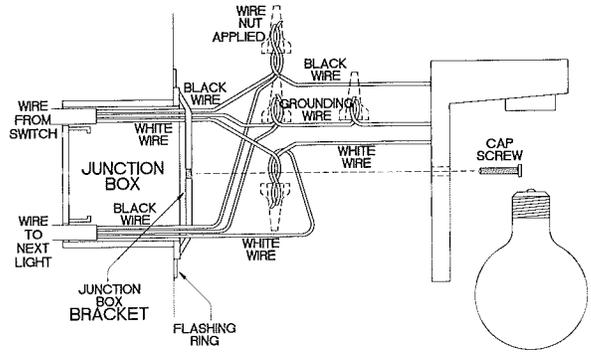
General

A gas or electric clothes dryer installed in the home must be exhausted on the outside by a moisture lint exhaust duct and termination fittings. Ducts shall not terminate beneath the home.

Clothes Dryer

Your home has been constructed with provisions for a dryer vent. This installation shall be completed prior to the use of your appliance. The dryer vent shall be installed as follows:

- 1) A four (4) inch diameter access has been provided in the floor directly behind the dryer. The access hole has been covered with a plywood cover.
- 2) Select a length of 4" dryer hose to complete the vent. This hose will be required to exhaust to the outside of the home. The vent can not terminate underneath the home.
- 3) Secure the hose to the vent of the dryer. Feed the hose through the access hole and through the protection membrane covering the underside of the home.
- 4) Install a louvered vent termination kit on the exterior of the home. (This kit is not provided as part of the home and is the responsibility of the homeowner.)
- 5) Completion of the vent shall be the sealing of the outer membrane at the point the hose exits the membrane. Several types of tape sealant are available on the market locally that would adequately seal the membrane from entrance of moisture and/or rodents.



Exterior Light Connection

Grounding wires may be either bare or color coded green.

- 3) Grounding of the junction box bracket must be made by attaching the grounding conductor to the bracket grounding screw or if no screw exists, a listed clamp must be used. This connection must be made prior to the connection of the fixture.
- 4) Fold wires over the junction box bracket back into junction box.
- 5) Place light fixture over junction box and using a cap screw, secure the fixture into the threads in the junction box bracket.
- 6) Furnish bulb and attach globe.

Porches & Steps

Porches and steps must be designed and built to the specifications of any local authority having jurisdiction over the site. It is the responsibility of the homeowner to ensure compliance. These must NOT use any part of the manufactured home for structural bearing or support. The home was designed and built to meet specific loading requirements; any alteration to this loading will void the structural warranty and any problems thereafter are the responsibility of the homeowner.

Home Extensions & Additions

Addition or extension design, construction, and acceptance is the responsibility of the state, city, or municipality having jurisdiction. The home was designed and built to meet specific loading requirements; any alteration to this loading will void the structural warranty and any problems thereafter are the responsibility of the homeowner.

Exterior Finishing

Exterior Light Connection

- 1) Remove junction box cover.
- 2) Connect wires together according to color (i.e. black to black) using a wire nut. Note:

Final Inspection

General

After your home has been completely set up, it is imperative to have a final inspection to insure no items have been overlooked. Any missed step could cause a service problem. Special emphasis should be placed on the following items:

Air Infiltration Barrier

A special material is fastened to the bottom side of your new home. It was installed at the factory to protect against moisture, rodents and unconditioned air. This covering was inspected at the factory, but could have been damaged during transit. It is important that the areas that are damaged be resealed.

Using vinyl patching tape designed to repair tears or holes. If a hole is large, use a patch of the same or similar material as the bottom covering and tape the edges for an airtight seal. Specifications for the sealing tape are listed in the Homeowner's Packet.

Exterior Siding and Trim

A through check should be made of all portions of the exterior siding to make certain that it is not cracked, split, buckled, or loose in any manner. Any siding observed to be in this condition should be repaired or replaced.

All fasteners that are loose should be retightened or replaced.

All decorative trim pieces or moulding strips should have special attention to make certain there are no gaps or voids in the sealant tapes or caulking material. If any such places are observed, they should be resealed.

Should your home be constructed with cedar siding, please be aware that the home comes to you with the cedar unfinished. It is highly recommended that before or immediately after you have completed setting your home, you treat the siding with a wood preserving stain or sealant. It is also recommended that you repeat this finishing treatment at a time duration recommended by the preservative's manufacturer.

Cedar siding, being a natural product, will experience some natural expanding and contracting due to atmospheric conditions. To best protect your home you should annually check for any new gaps or areas that may need to be recaulked.

It is highly recommended that you employ the use of gutters and downspouts to help preserve your exterior siding. The downspouts, if done correctly, will make most water flow away from the foundation of the house.

Roofs

The roof should be checked to make certain that all vent pipe flashings are in place, properly attached, and properly sealed.

The shingles should be checked for proper attachment, making certain that none are loose or have been displaced during transit.

Clearances

If there are any low-hanging trees or bushes adjacent to your home which could cause damage the exterior or the roof, they should be trimmed out or cut accordingly. Future growth of these bushes or trees should be considered in connection with possible movement during wind conditions or under snow or ice loads.

Caulking

There are many good brands of caulking material and roof sealers which can be purchased from local retail stores. Whatever brand of caulking and/or sealer is purchased, the instructions regarding application should be read closely. This will include any special preparation of the surface to be coated. Observe the labeling on this material for any notes concerning resistance to running or streaking the sides of the home. This can be very unsightly and in many cases extremely difficult to remove.

Interior

At this time all furniture, carpet, fixtures, or other loose items should be installed. All clamps or brackets installed on windows and doors for shipping purposes should be removed and the operation of these items checked. After initial leveling recheck doors, cabinet doors, and windows for square and re-square as needed.



Summary

Once you are initially finished with this manual, remember to store it with all your home related manuals for future reference.

This concludes the setup portion in preparing your home for residence. We hope you enjoy your new investment for many years to come. Thank you for choosing Chief Industries to assist you in making your dream a reality!