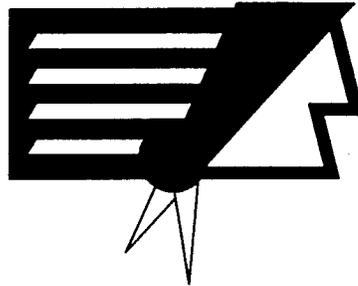


12/23/98

CHIEF INDUSTRIES, INC.

'98 DEC 23 P1:38
DEPT. OF ADMIN.
BLDG. CODES & SPEC.



HOUSING DIVISION

AURORA INDUSTRIAL SITE

West Hiway 34

Aurora, NE

**FIELD INSTALLATION
MANUAL
SINGLE SECTION HOME**

October, 1997

bpm030

21,0065

CHIEF INDUSTRIES, INC.
HOUSING DIVISION

----CONTENTS----

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

SECTION I SERVICE LOCATION - Single Section by Model

SECTION II PIER CONSTRUCTION - Single Section Homes

SECTION III SUPPORT BLOCKING - Single Section Homes

SECTION IV PERIMETER FOUNDATION - Single Section Homes

SECTION V BASEMENT CONSTRUCTION - Single Section Homes

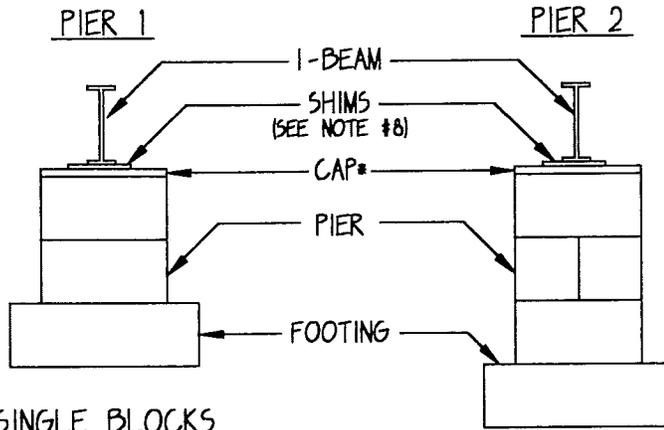
SECTION VI TYPICAL ANCHORAGE & FOOTINGS INSTRUCTIONS

SECTION VII SITE ASSEMBLY INSTRUCTIONS - Single Section Homes

SECTION I
SERVICE ENTRANCE LOCATIONS
Single Section Homes

SECTION II
PIER CONSTRUCTION
Single Section Homes

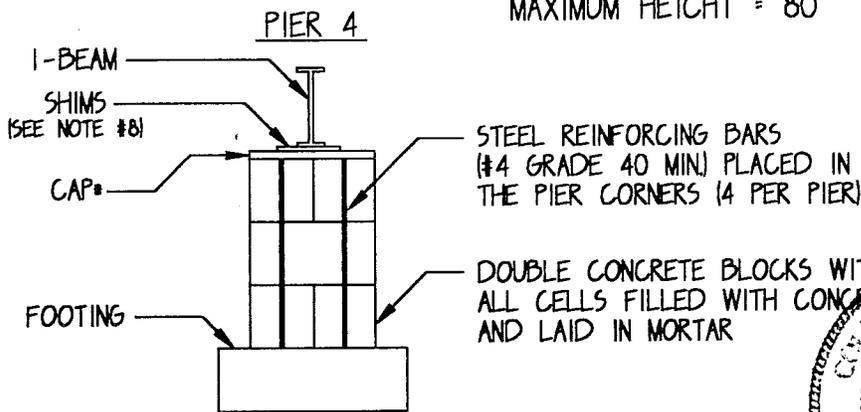
TYPICAL PIER CONSTRUCTION



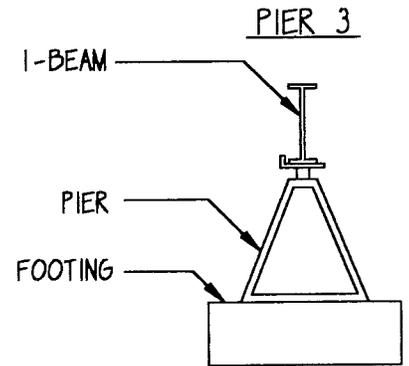
SINGLE BLOCKS
MAXIMUM HEIGHT = 36"
(SEE NOTE #2)

DOUBLE INTERLOCKED
BLOCKS
MAXIMUM HEIGHT = 80"

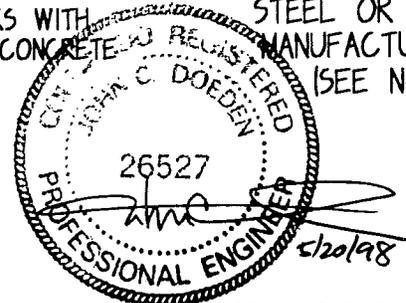
*CAP IS 4 X 16 X 16
SOLID CONCRETE BLOCK
FOR ALL DOUBLE STACKED
PIERS AND 2 X 8 X 16"
LONG MIN. FOR ALL
SINGLE STACKED PERS
(WOOD OR CONCRETE)



DOUBLE INTERLOCKED BLOCKS
MAXIMUM HEIGHT = 96"



STEEL OR CONCRETE
MANUFACTURED PIER
(SEE NOTE #5)



NOTES:

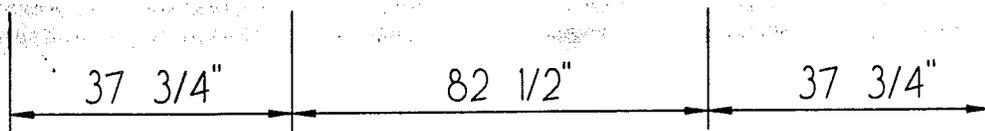
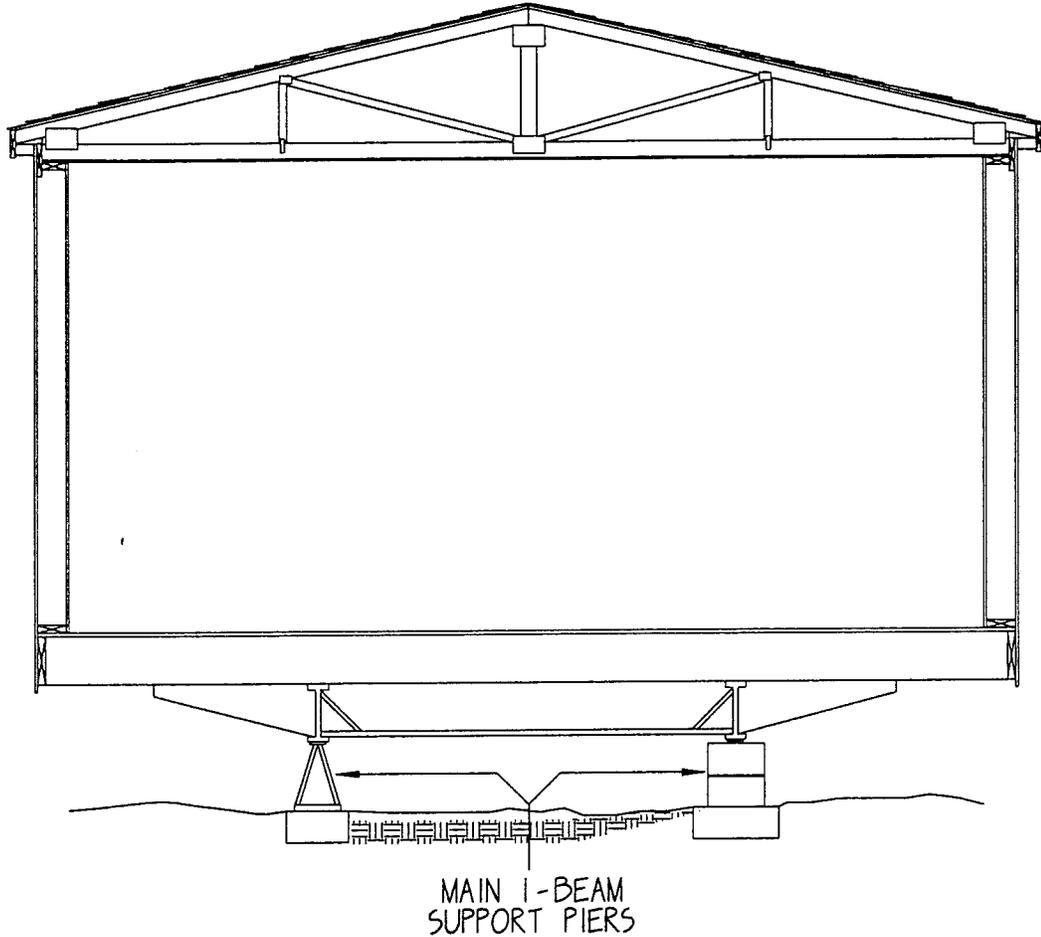
1. CONCRETE BLOCKS FOR PIERS ARE 8 X 16 X 8 NOMINAL SIZE, HOLLOW CELL LOAD BEARING CMU'S MANUFACTURED IN CONFORMANCE WITH ASTM C90-70, GRADE 'N'. OPEN CELLS ARE VERTICAL.
2. SINGLE STACKED CONCRETE BLOCKS ARE ORIENTED SO THAT LONG DIRECTION IS PERPENDICULAR TO THE LONG DIRECTION OF THE MAIN BEAM.
3. 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.

21.0069

REVISIONS	DATE	CHIEF INDUSTRIES		DRWG. BY: DM	9/24/97
		 HOUSING DIVISION		CHKD. BY:	
				SCALE: NONE	BPI421

SECTION III
SUPPORT BLOCKING
Single Section Homes

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

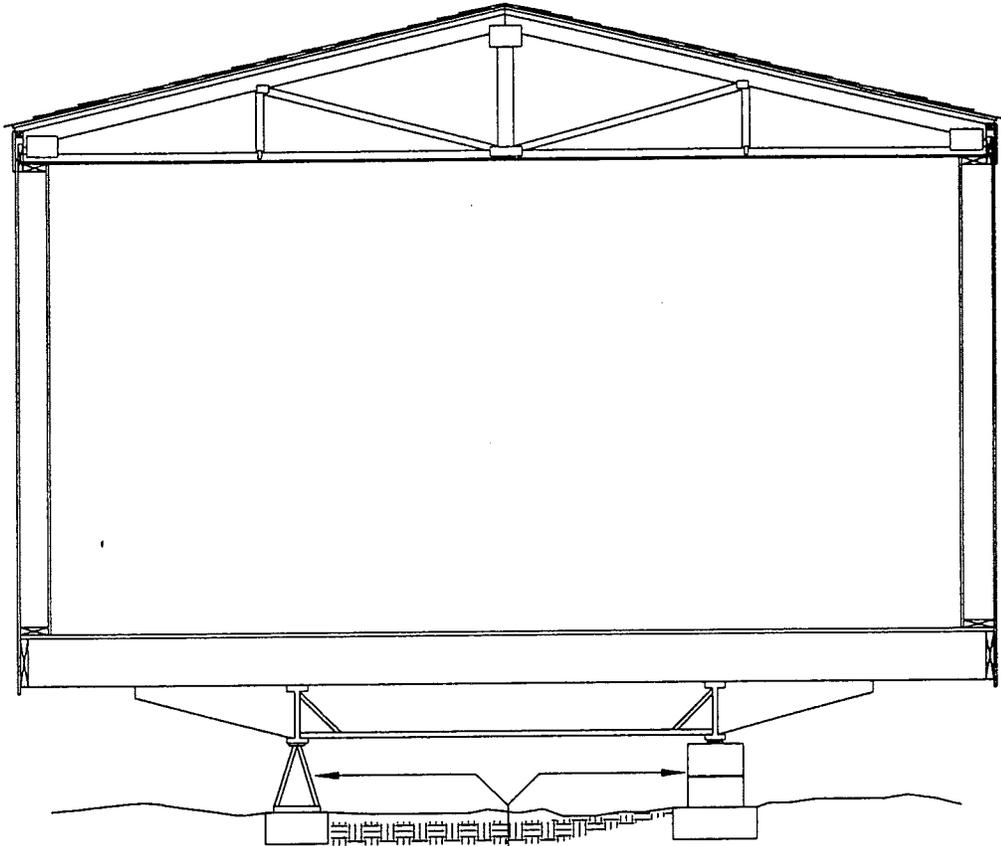


14' SINGLE WIDE
ACTUAL FLOOR DIMENSION 13'-2"

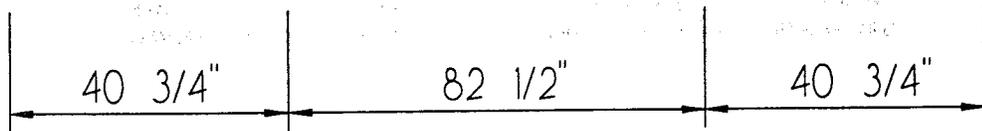
REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1596

21,0071

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



MAIN I-BEAM
SUPPORT PIERS

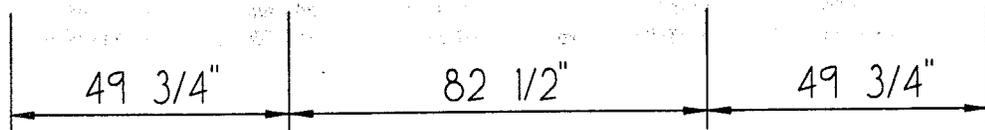
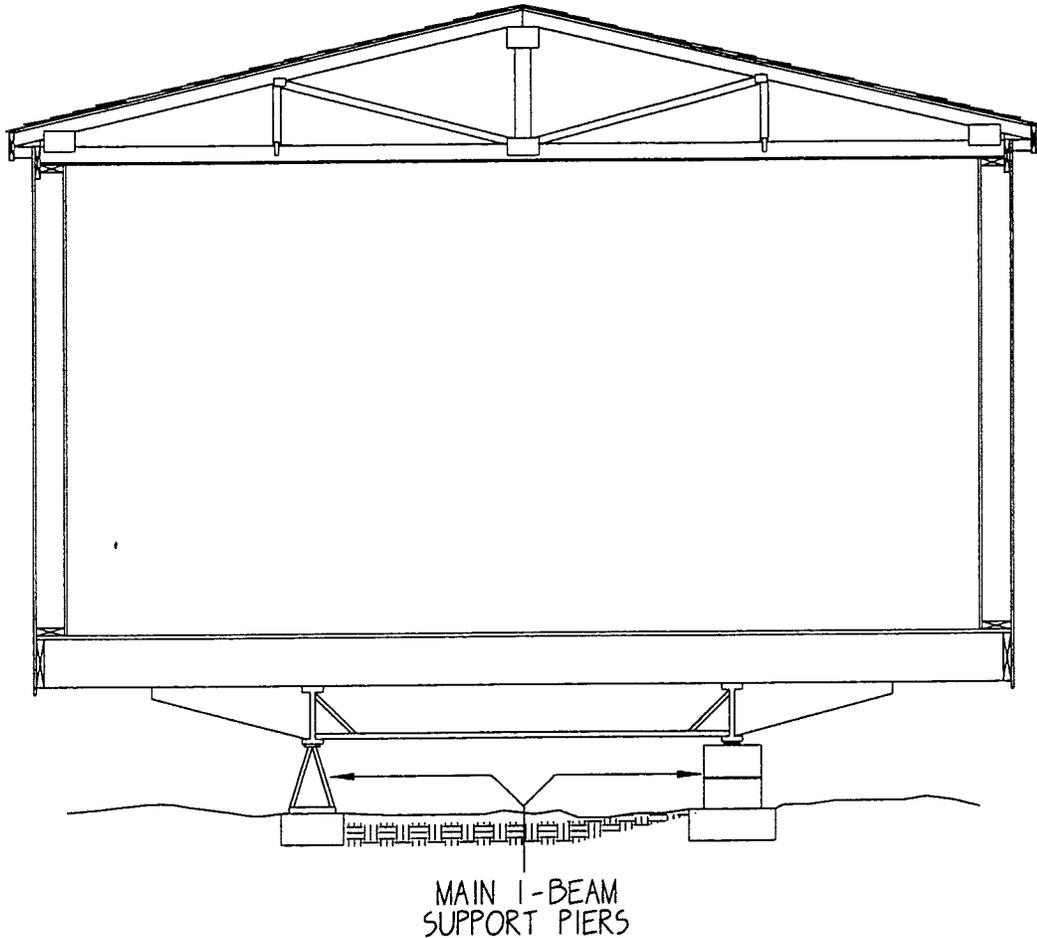


14' SINGLE WIDE
ACTUAL FLOOR DIMENSION 13'-8"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1422

21.0072

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

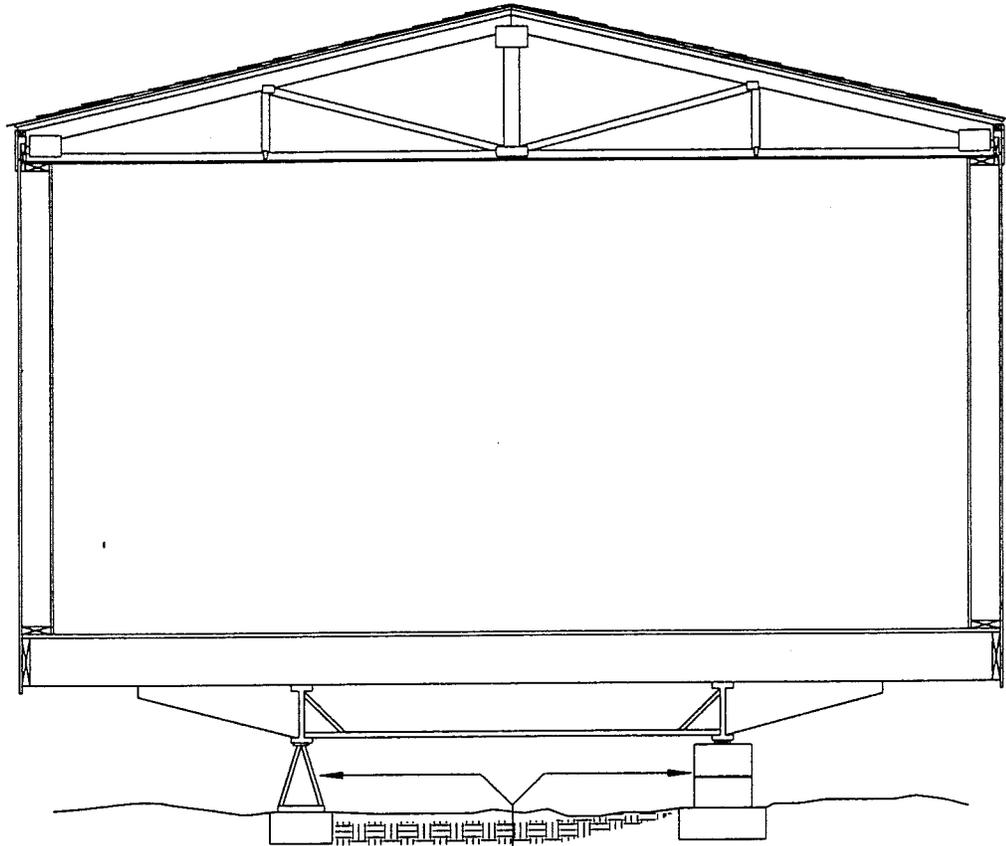


16' SINGLE WIDE
ACTUAL FLOOR DIMENSION 15'-2"

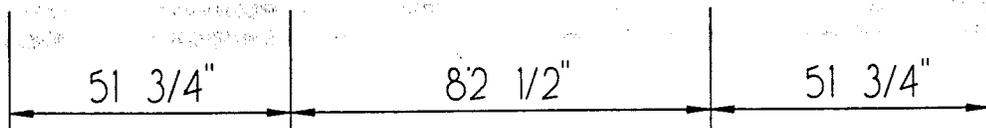
REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1597

21-0073

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



MAIN I-BEAM
SUPPORT PIERS



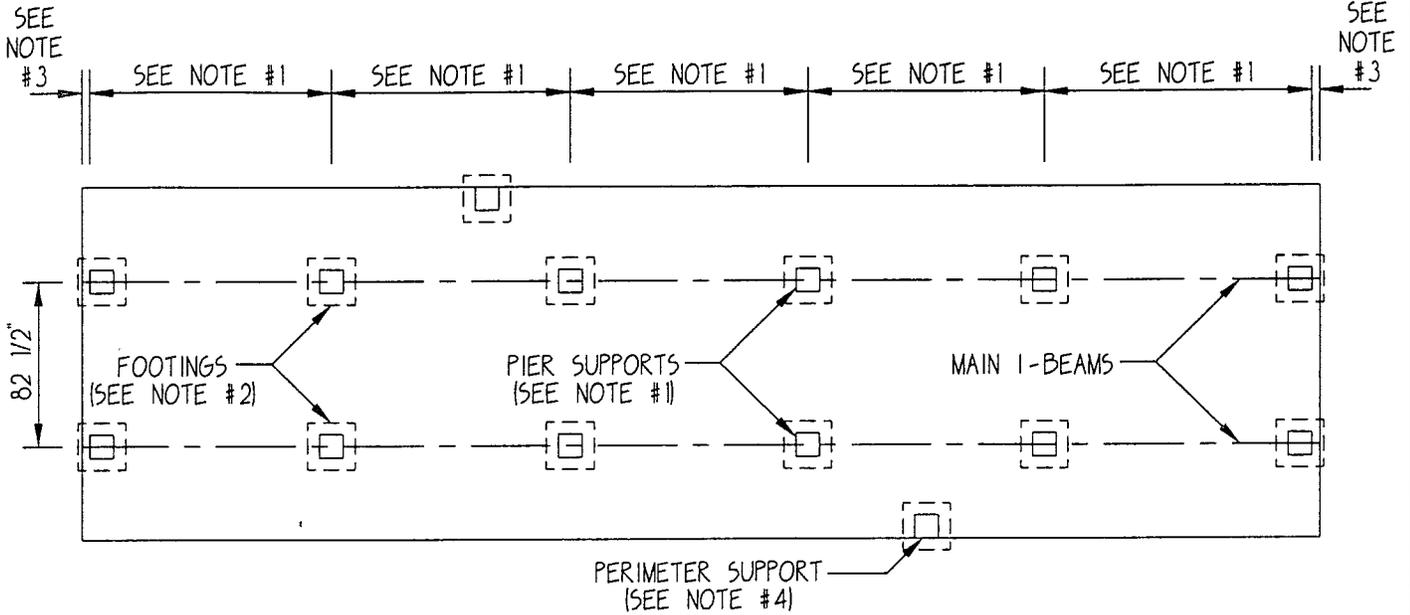
16' SINGLE WIDE
ACTUAL FLOOR DIMENSION 15'-6"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1423

21.0074

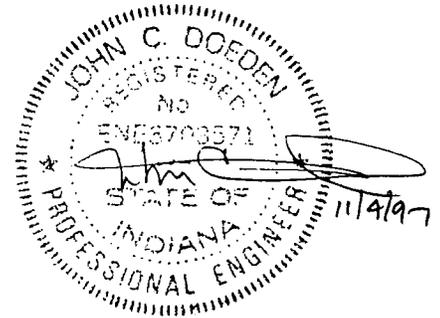
TYPICAL BLOCKING LAYOUTS

SINGLE-SECTION HOMES STANDARD BLOCKING AND 30 LB. ROOF LOAD



NOTES:

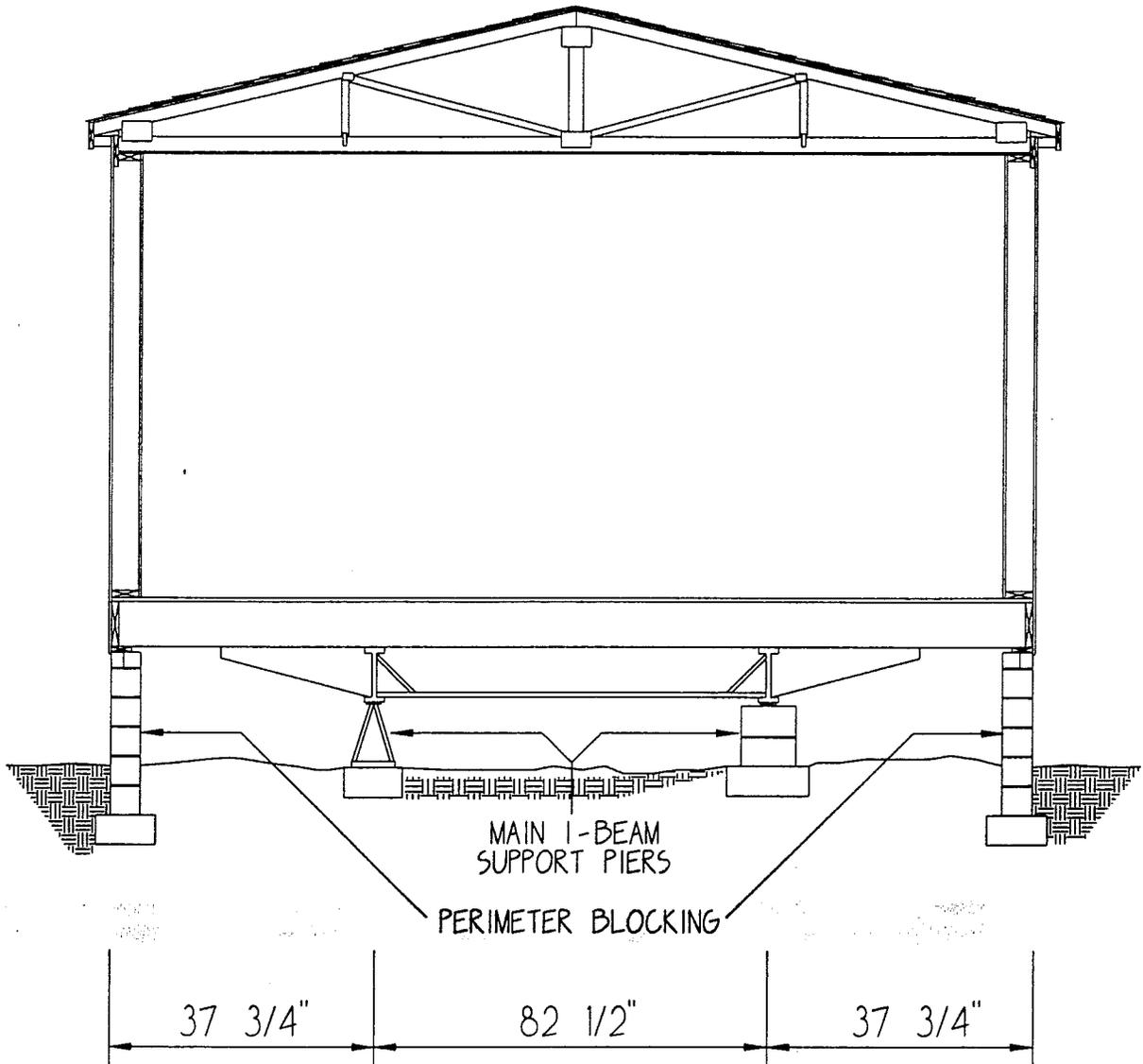
1. SEE TABLE 3.1 FOR REQUIRED PIER CAPACITY AND SPACING
2. SEE TABLE 6.1 FOR FOOTING REQUIREMENTS
3. A. THE EDGE OF THE PIER SHALL BE LOCATED FLUSH WITH END OF HOME WITH THE STANDARD FRAME.
B. THE EDGE OF THE PIER SHALL BE LOCATED 4 1/2" IN FROM THE BOTH ENDS OF HOME WITH THE 4" RECESSED FRAME.
C. THE 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 30 PSF ROOF LIVE LOADS ONLY



REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BPI426

21.0075

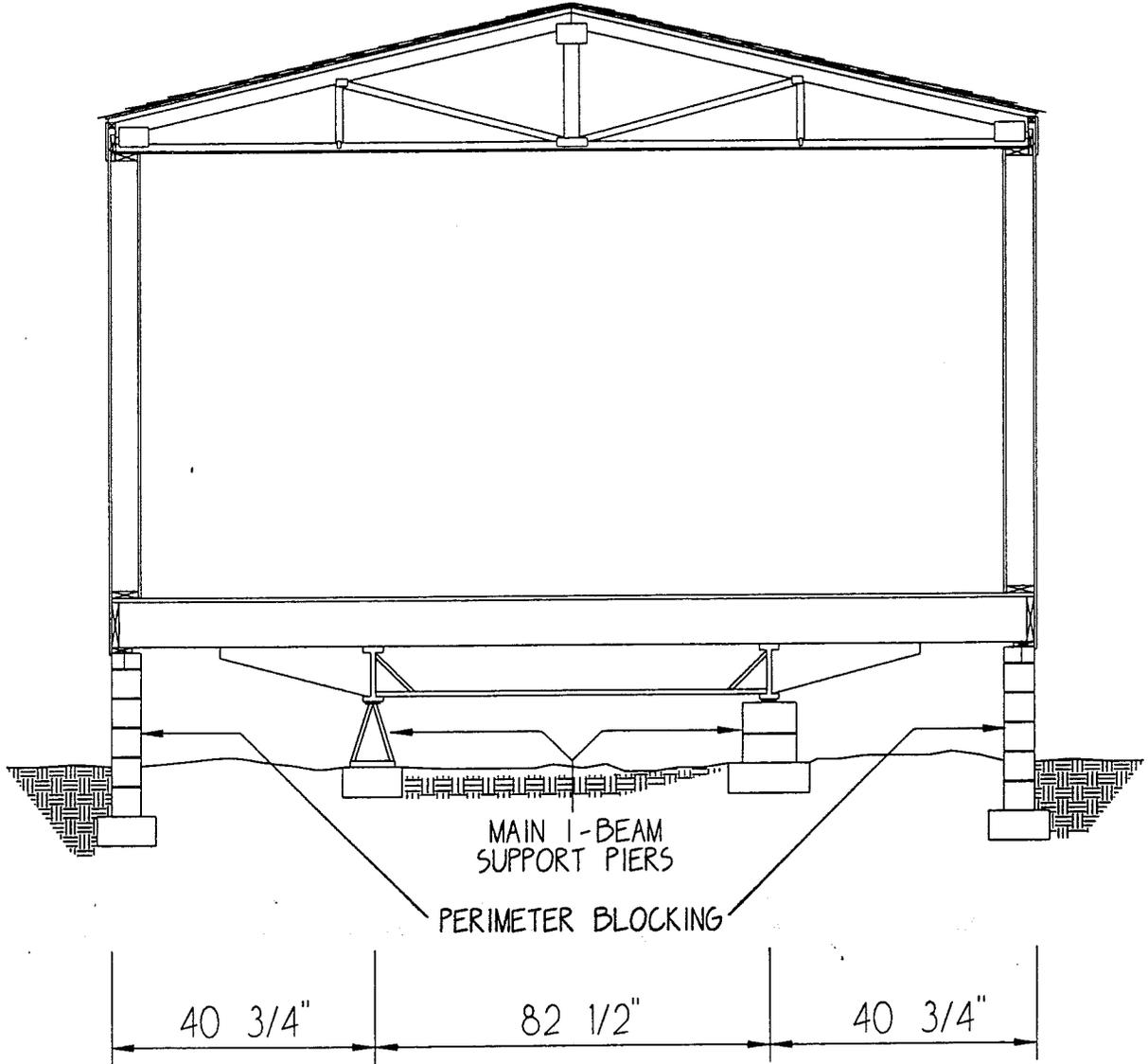
STANDARD SUPPORT BLOCKING WITH OPTIONAL ROOF LOADS



14' SINGLE WIDE
ACTUAL FLOOR DIMENSION 13'-2"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1598

STANDARD SUPPORT BLOCKING WITH OPTIONAL ROOF LOADS

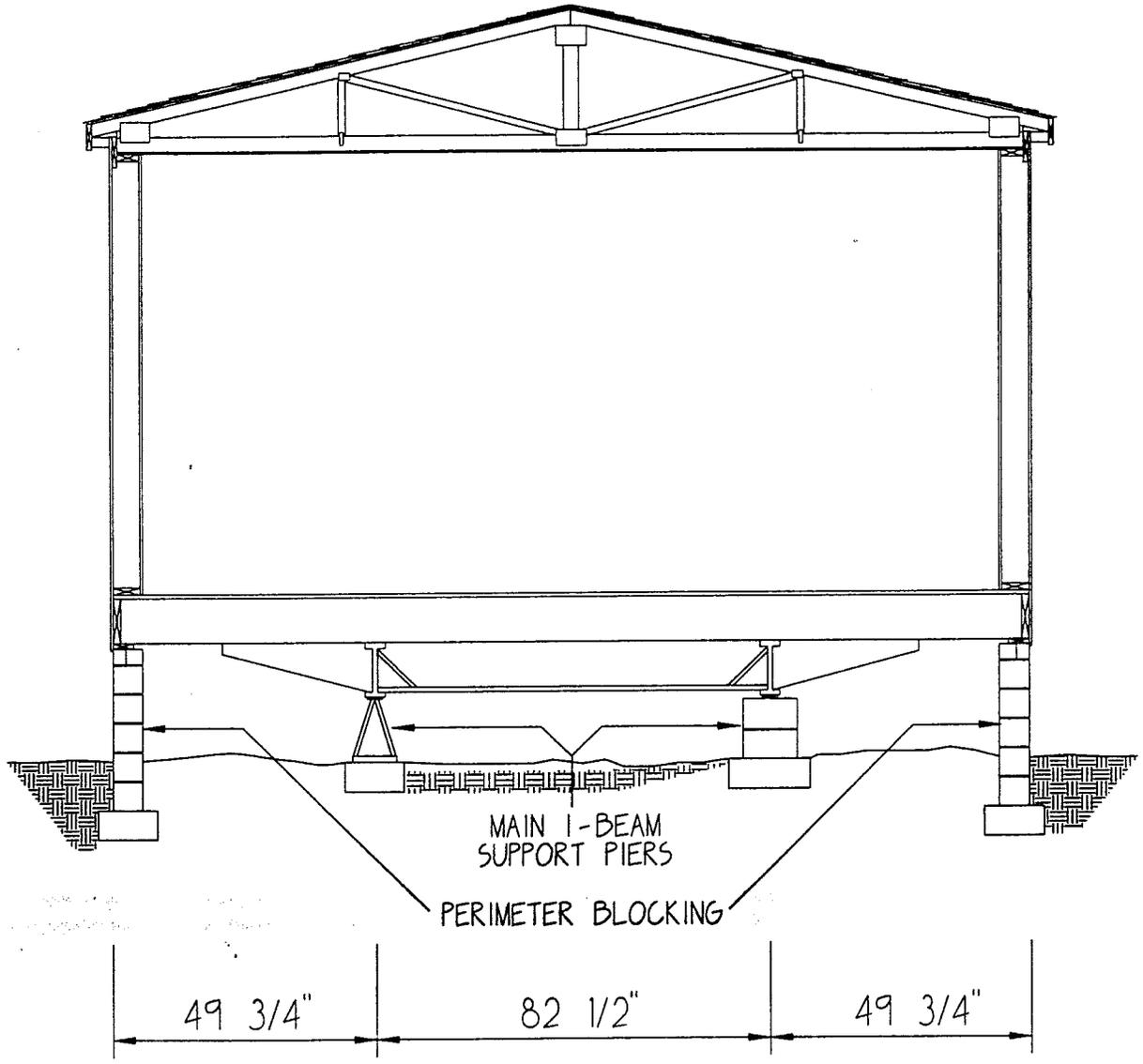


14' SINGLE WIDE
ACTUAL FLOOR DIMENSION 13'-8"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
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21.0077

STANDARD SUPPORT BLOCKING WITH OPTIONAL ROOF LOADS

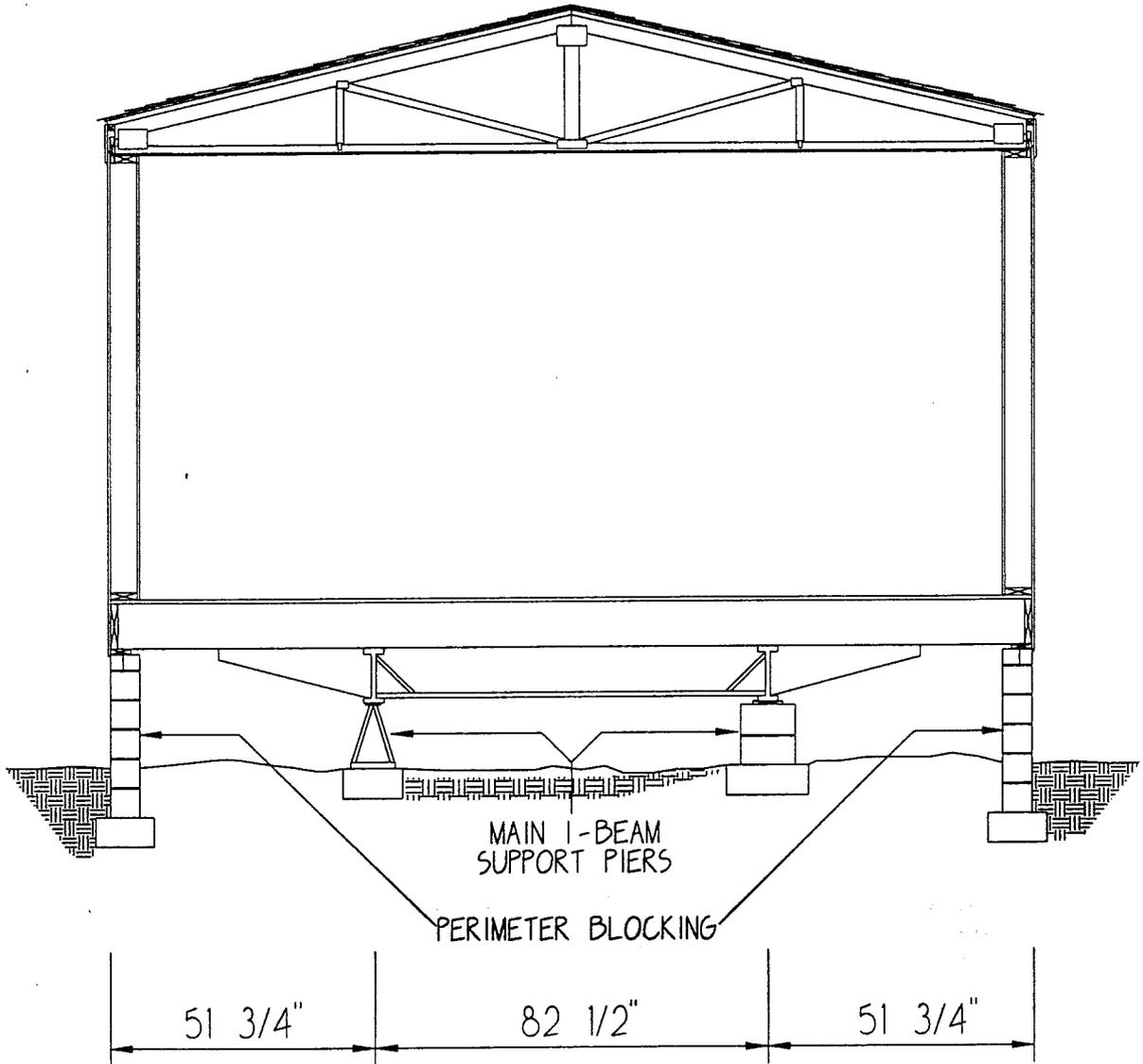


16' SINGLE WIDE
ACTUAL FLOOR DIMENSION 15'-2"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1599

21.0678

STANDARD SUPPORT BLOCKING WITH OPTIONAL ROOF LOADS



16' SINGLE WIDE
ACTUAL FLOOR DIMENSION 15'-6"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
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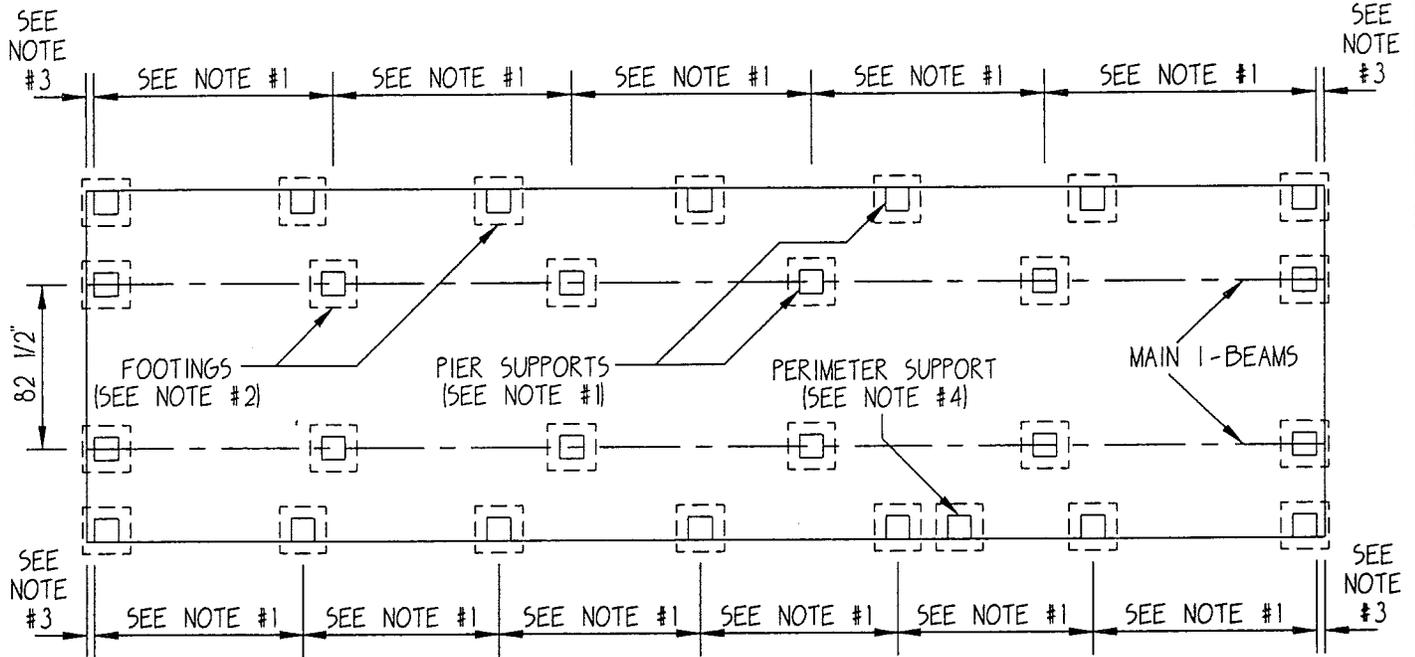
21.0079

TYPICAL BLOCKING LAYOUTS

SINGLE-SECTION HOMES

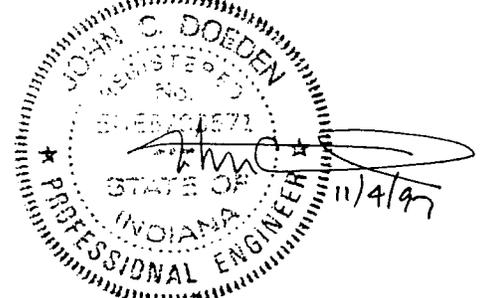
OPTIONAL ROOF LOADS W/ PERIMETER BLOCKING

* PERIMETER FOUNDATION MAY BE USED IN LIEU OF BELOW - SEE FIG. 4.1.



NOTES:

1. A. SEE TABLE 3.2 FOR REQUIRED PIER CAPACITY AND SPACING OF MAIN I-BEAM PIERS
 B. SEE TABLE 3.3 FOR REQUIRED PIER CAPACITY AND SPACING OF PERIMETER (SIDEWALL) 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 1/2" IN FROM THE END OF HOME WITH THE 4" RECESSED FRAME.
 C. THE EDGE OF THE PIER SHALL BE LOCATED 10" IN FROM THE END 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.



REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1427

21.0080

MINIMUM PIER CAPACITY TABLES

SINGLE-SECTION HOMES
MAIN I-BEAM BLOCKING
 WITHOUT PERIMETER 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"
14 WIDE (158" FLOOR)	30 PSF	2980	3850	4720	5590	6460	7330
14 WIDE (164" FLOOR)	30 PSF	3070	3970	4875	5775	6675	7575
16 WIDE (182" FLOOR)	30 PSF	3340	4330	5320	6310	7300	8290
16 WIDE (186" FLOOR)	30 PSF	3400	4410	5420	6430	7440	8575

SEE PERIMETER BLOCKING REQUIREMENTS
 FOR ROOF LOADS HIGHER THAN 30 PSF
 AND FOR FLOORS NOT CAPABLE OF
 SUPPORTING ADDITIONAL ROOF LIVE LOADS

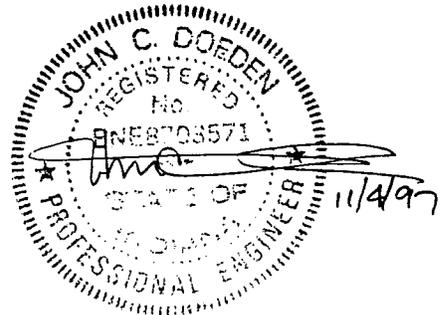


TABLE 3.1

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BPI432

MINIMUM PIER CAPACITY TABLES

SINGLE-SECTION HOMES MAIN I-BEAM BLOCKING WITH PERIMETER BLOCKING

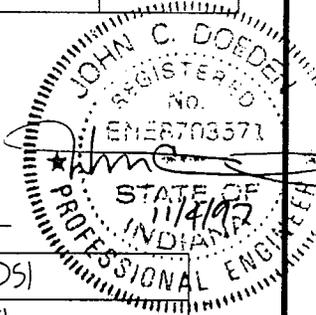
SECTION WIDTH (FEET)	ROOF LIVE LOAD (PSF)	MINIMUM PIER CAPACITY (POUNDS)					
		MAXIMUM PIER SPACING (FEET)					
		4'-0"	5'-4"	6'-8"	8'-0"	9'-4"	10'-8"
14 WIDE (158" FLOOR)	ALL LOADS	1350	1655	1975	2285	2600	2915
14 WIDE (164" FLOOR)	ALL LOADS	1365	1685	2010	2330	2650	2975
16 WIDE (182" FLOOR)	ALL LOADS	1435	1775	2125	2465	2810	3155
16 WIDE (186" FLOOR)	ALL LOADS	1450	1800	2150	2500	2845	3200

TABLE 3.2

SINGLE-SECTION HOMES ROOF LOAD SIDEWALL PERIMETER BLOCKING

SECTION WIDTH (FEET)	ROOF LIVE LOAD (PSF)	MINIMUM PIER CAPACITY (POUNDS)			
		MAXIMUM PIER SPACING (FEET)			
		4'-0"	5'-4"	6'-8"	8'-0"
14 WIDE (158" FLOOR) 6" EAVE MAX.	40	2260	2880	3500	4120
	60	2830	3635	4450	5250
	80	3400	4390	5400	6390
14 WIDE (164" FLOOR) 6" EAVE MAX.	40	2335	2975	3625	4265
	60	2920	3760	4600	5440
	80	3510	4540	5580	6610
16 WIDE (182" FLOOR) 6" EAVE MAX.	40	2550	3265	3985	4700
	60	3200	4130	5065	5995
	80	3845	4990	6145	7290
16 WIDE (186" FLOOR) 6" EAVE MAX.	40	2600	3330	4065	4800
	60	3260	4210	5170	6120
	80	3920	5090	6270	7440

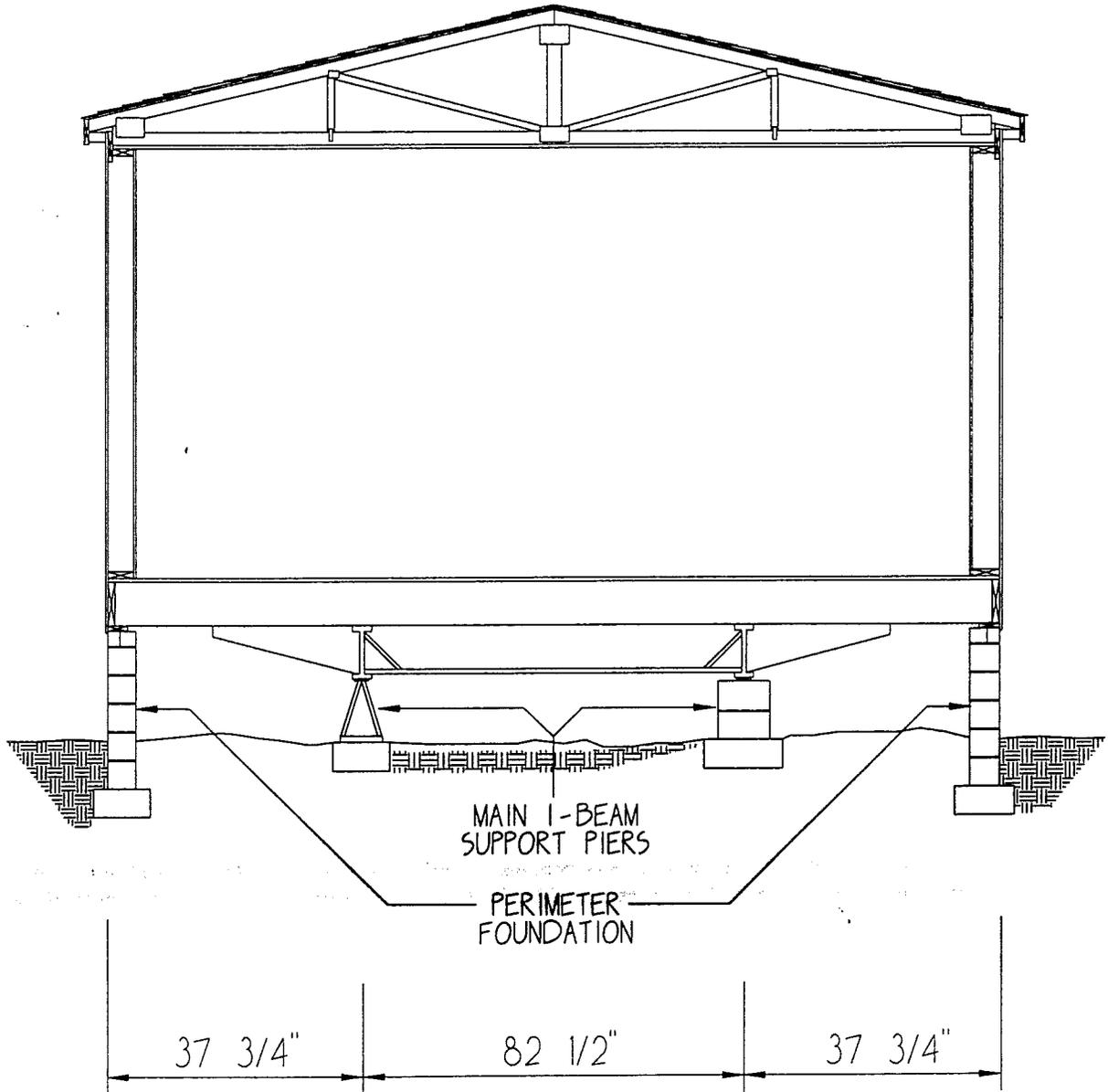
TABLE 3.3



REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1428

SECTION IV
PERIMETER FOUNDATION CONSTRUCTION
Single Section Homes

PERIMETER FOUNDATION W/PIERS

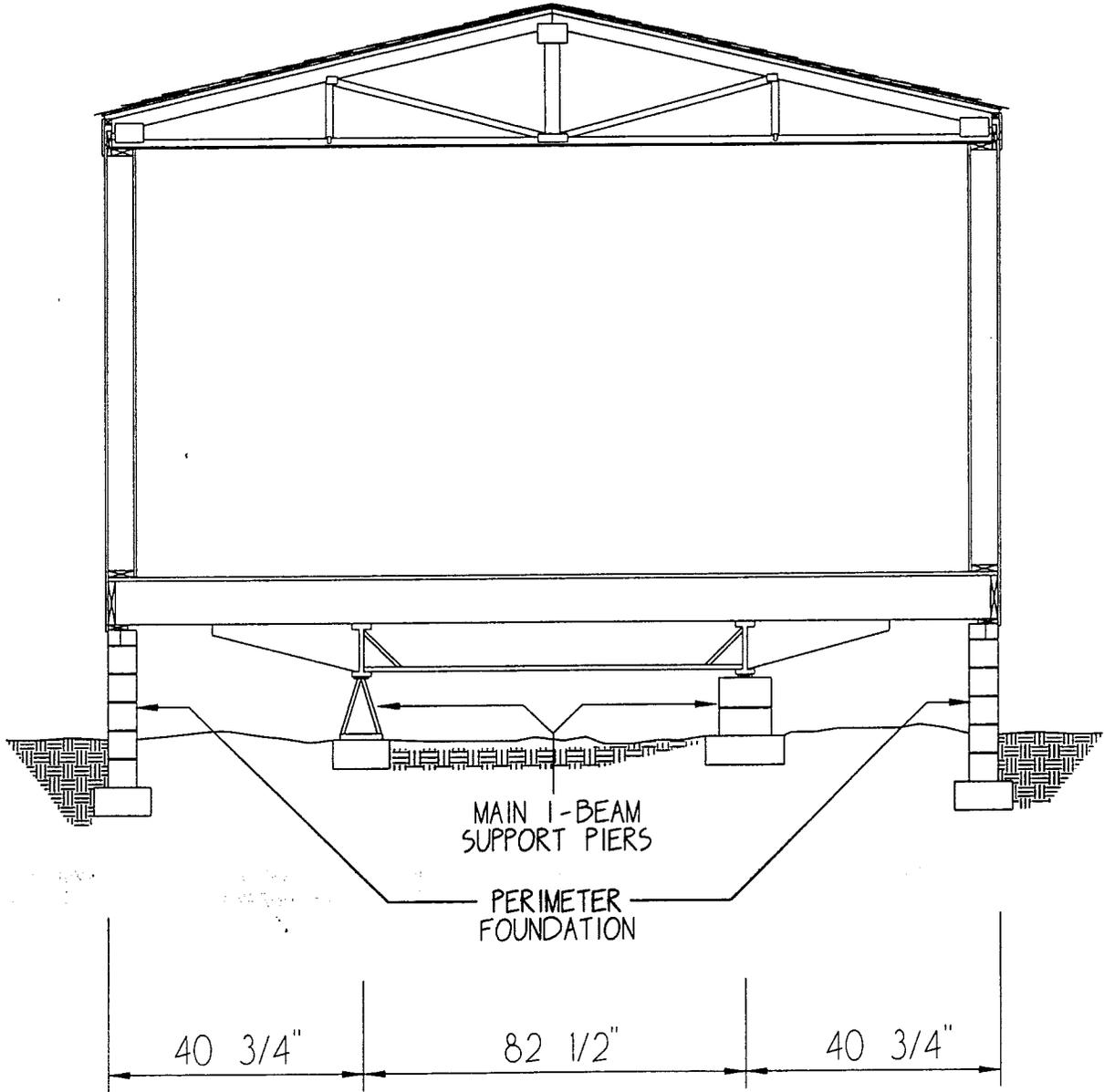


14' SINGLE WIDE
ACTUAL FLOOR DIMENSION 13'-2"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1603

21.0084

PERIMETER FOUNDATION W/PIERS

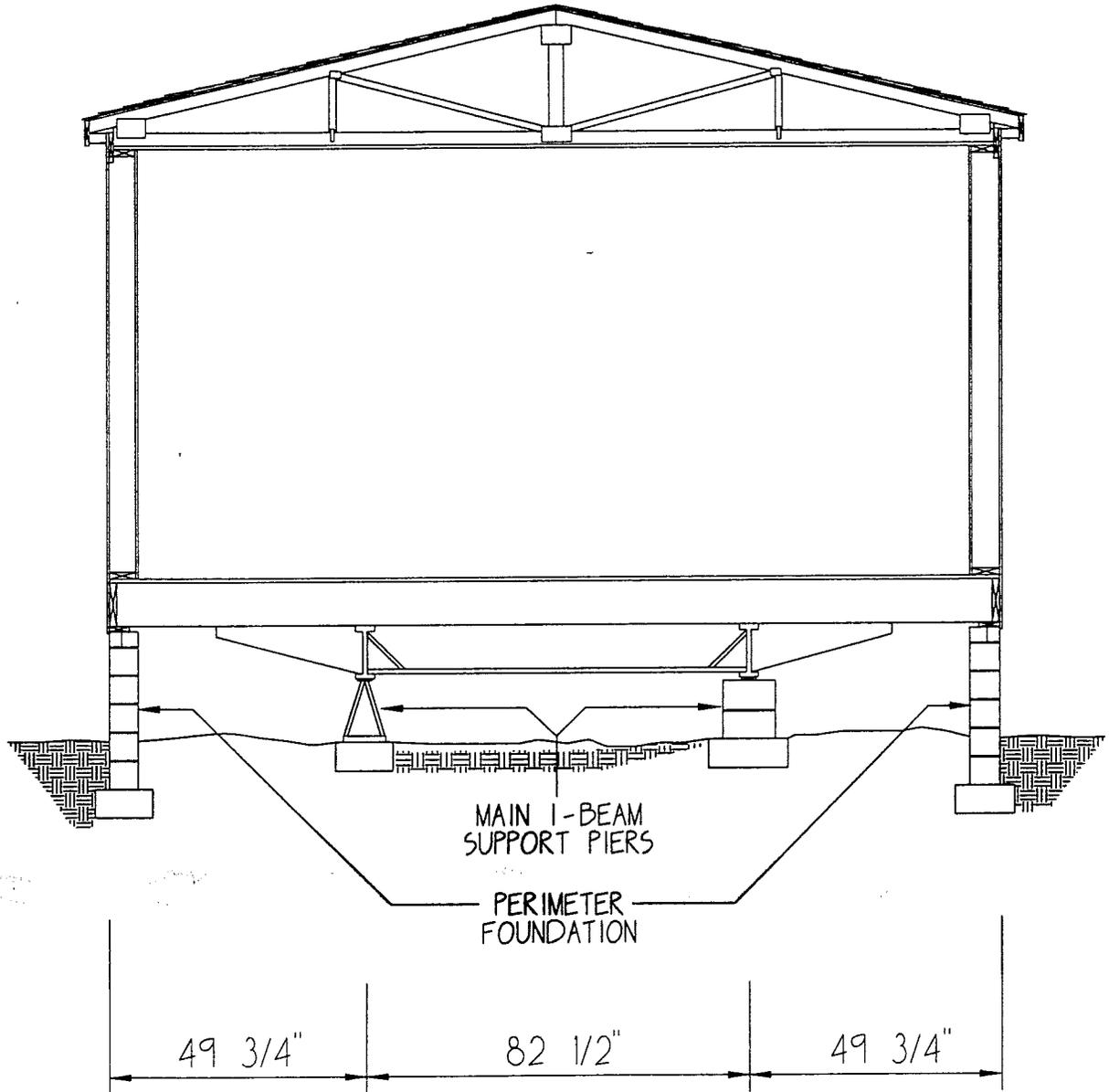


14' SINGLE WIDE
 ACTUAL FLOOR DIMENSION 13'-8"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BPI429

21.0085

PERIMETER FOUNDATION W/PIERS

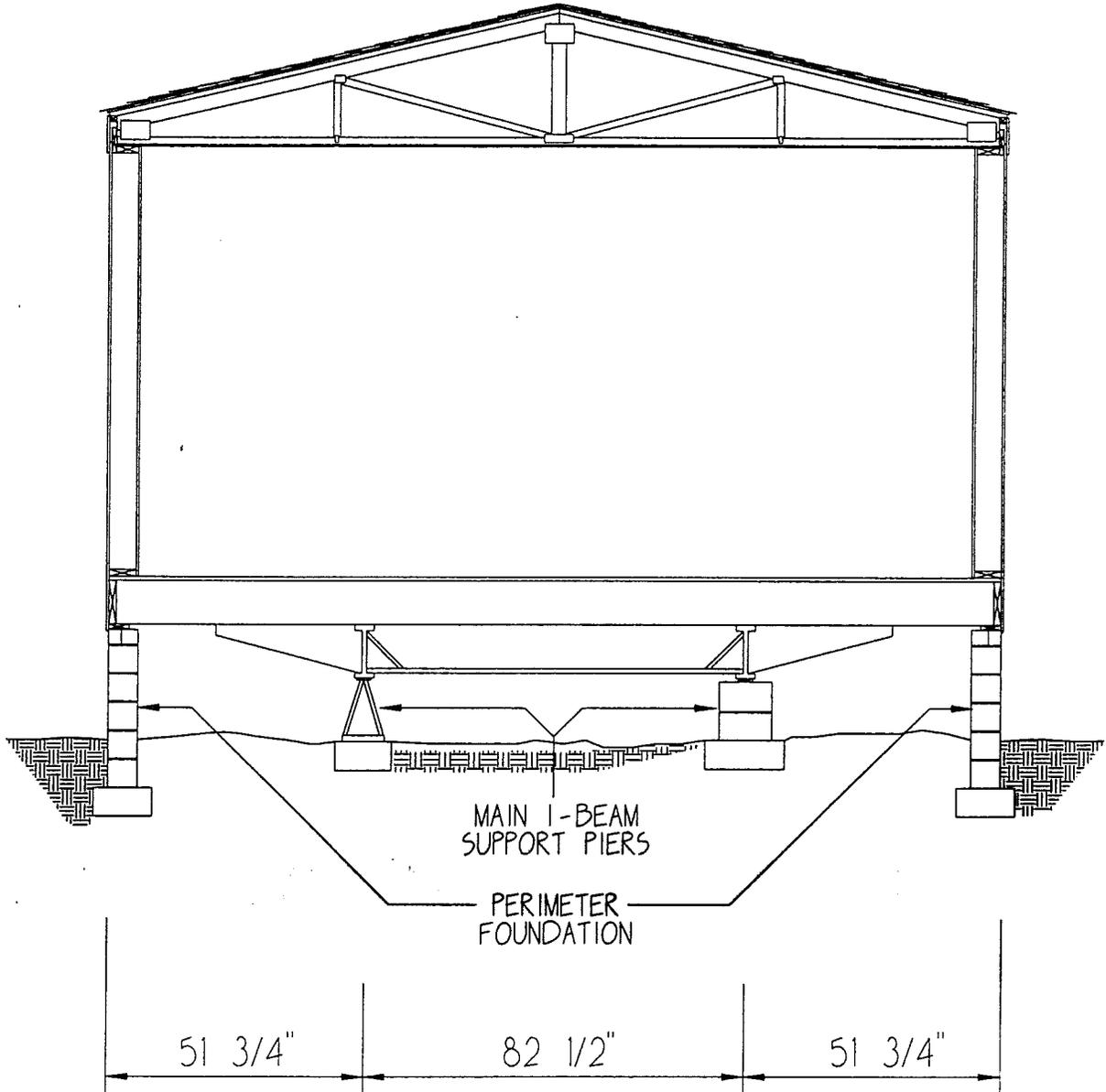


16' SINGLE WIDE
ACTUAL FLOOR DIMENSION 15'-2"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1604

21.0086

PERIMETER FOUNDATION W/PIERS

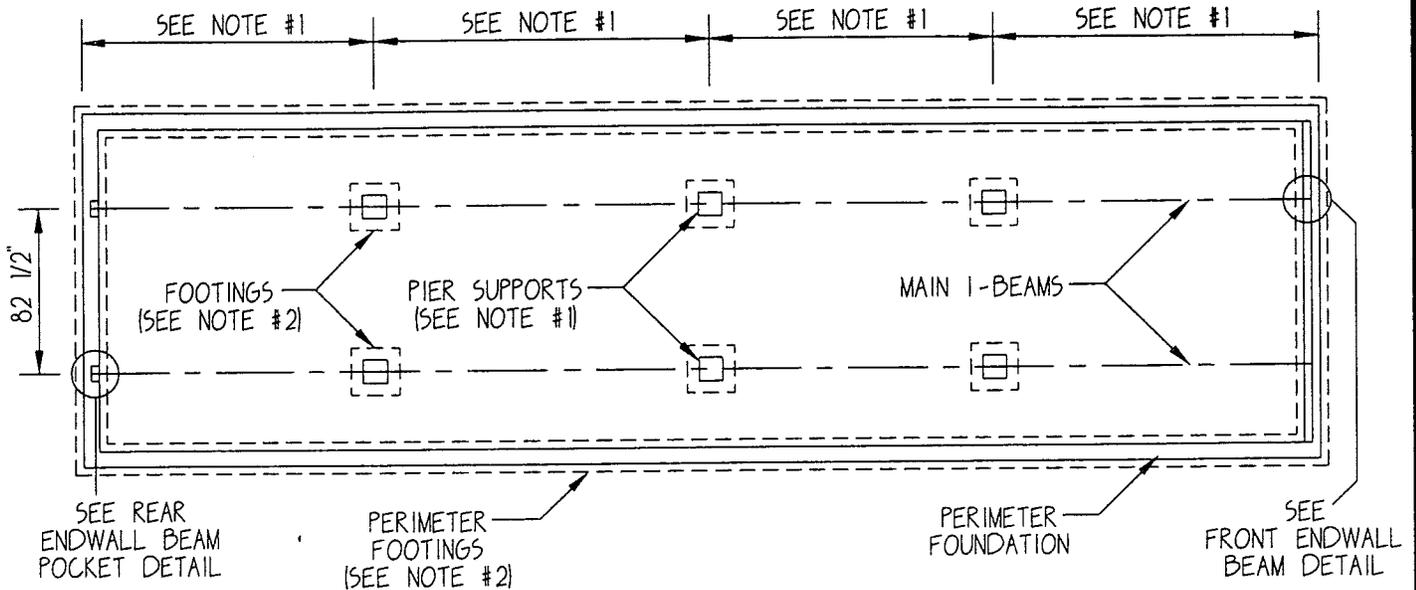


16' SINGLE WIDE
 ACTUAL FLOOR DIMENSION 15'-6"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1430

21.0087

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



NOTES:

1. SEE TABLE 3.2 FOR REQUIRED PIER CAPACITY AND SPACING
2. SEE TABLE 6.1 FOR FOOTING REQUIREMENTS
3. FOUNDATION WALL TO BE CONSTRUCTED IN ACCORDANCE WITH 1 AND 2 FAMILY DWELLING CODE OR ANSI A225.1 "MANUFACTURED HOME INSTALLATION" OR PER LOCAL CODES

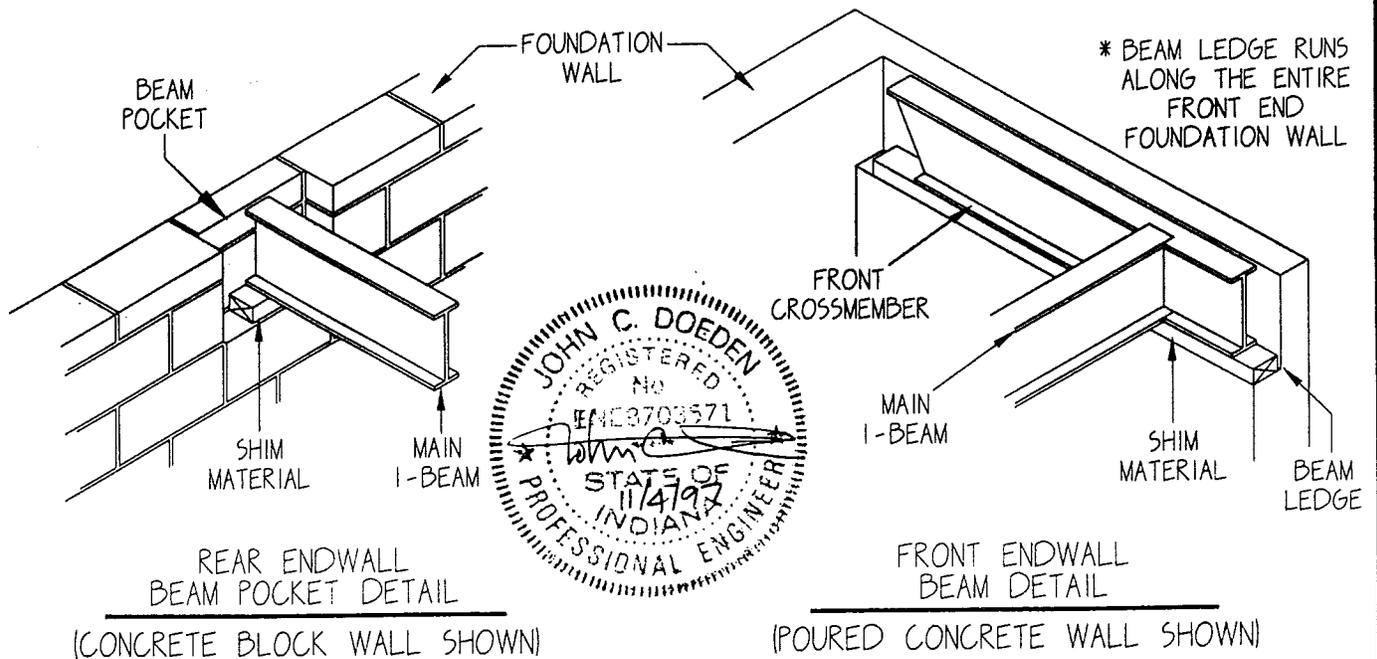
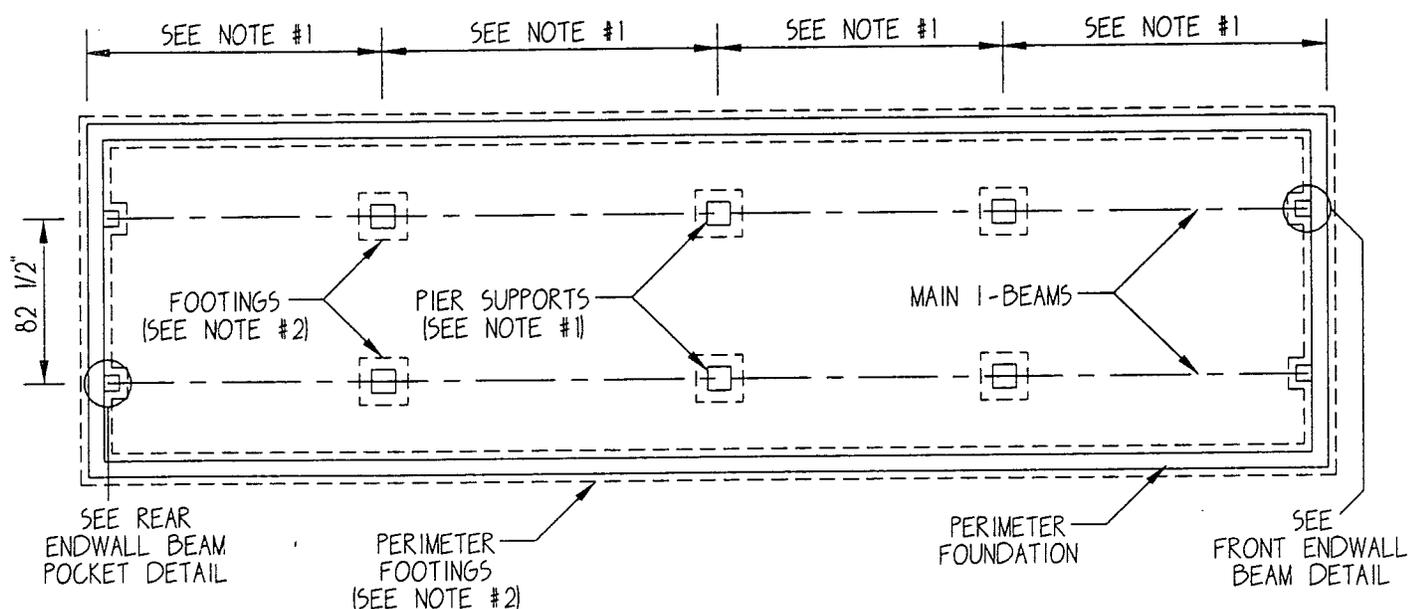


FIGURE 4.1

REVISIONS	DATE		CHIEF INDUSTRIES	DRWG. BY: DM	9/24/97
			HOUSING DIVISION	CHKD. BY:	
				SCALE: NONE	BP1431

21.0088

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



NOTES:

1. SEE TABLE 3.3 FOR REQUIRED PIER CAPACITY AND SPACING
2. SEE TABLE 6.1 FOR FOOTING REQUIREMENTS
3. FOUNDATION WALL TO BE CONSTRUCTED IN ACCORDANCE WITH 1 AND 2 FAMILY DWELLING CODE OR ANSI A225.1 "MANUFACTURED HOME INSTALLATION" OR PER LOCAL CODES

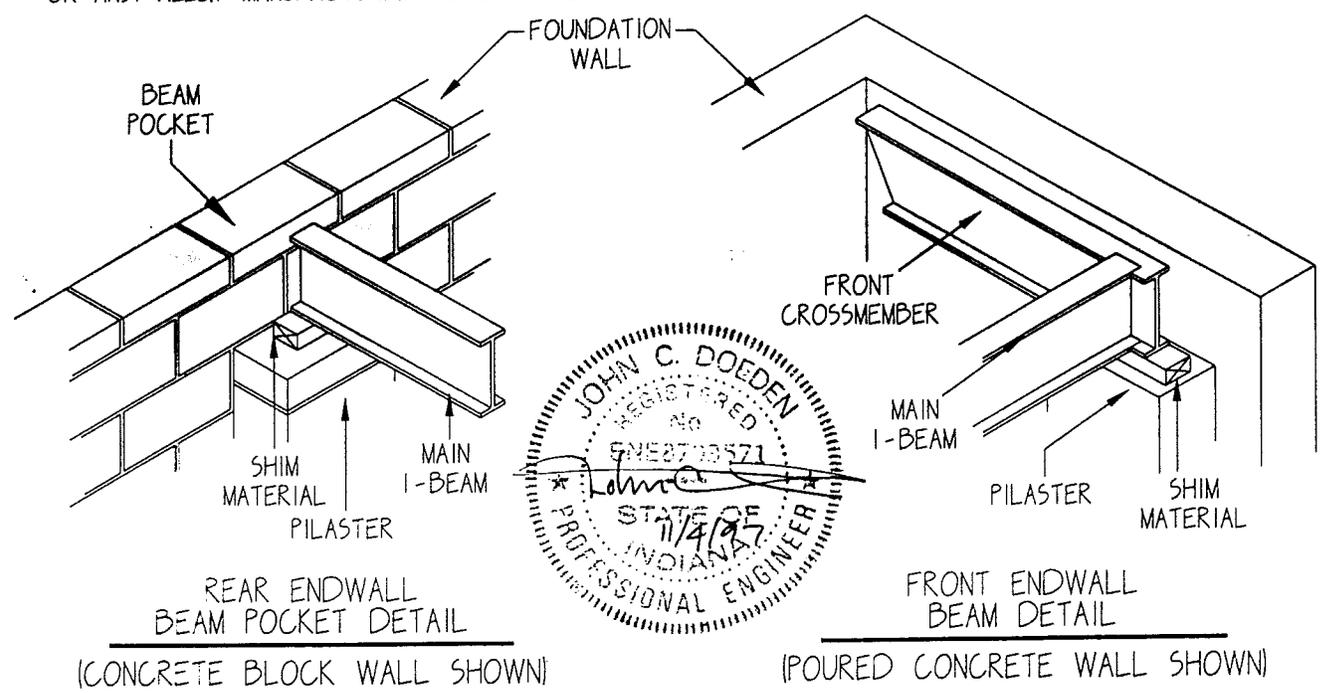


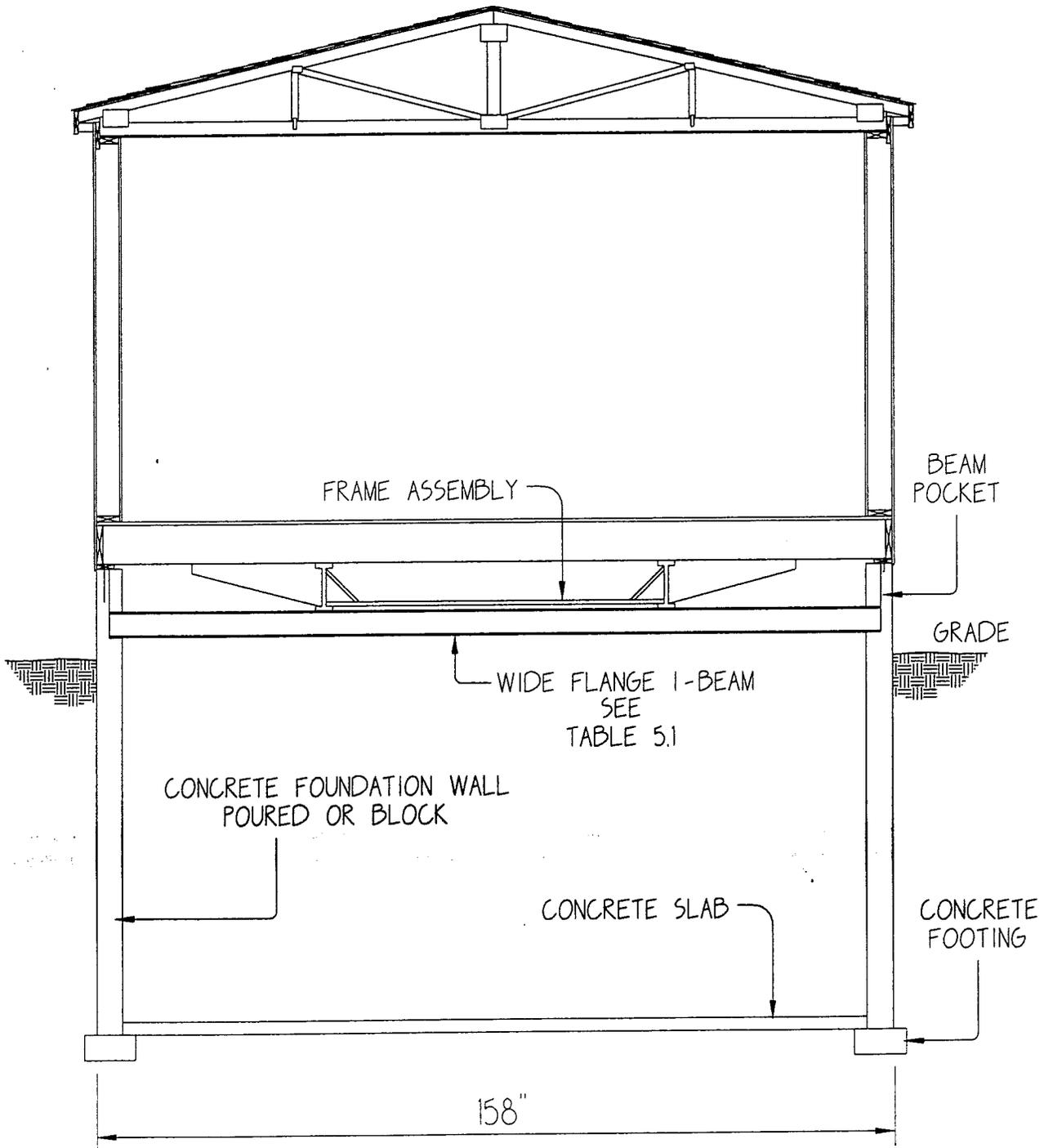
FIGURE 4.2

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1605

21.0089

SECTION V
BASEMENT CONSTRUCTION
Single Section Homes

BASEMENT CONSTRUCTION W/ CROSSBEAMS

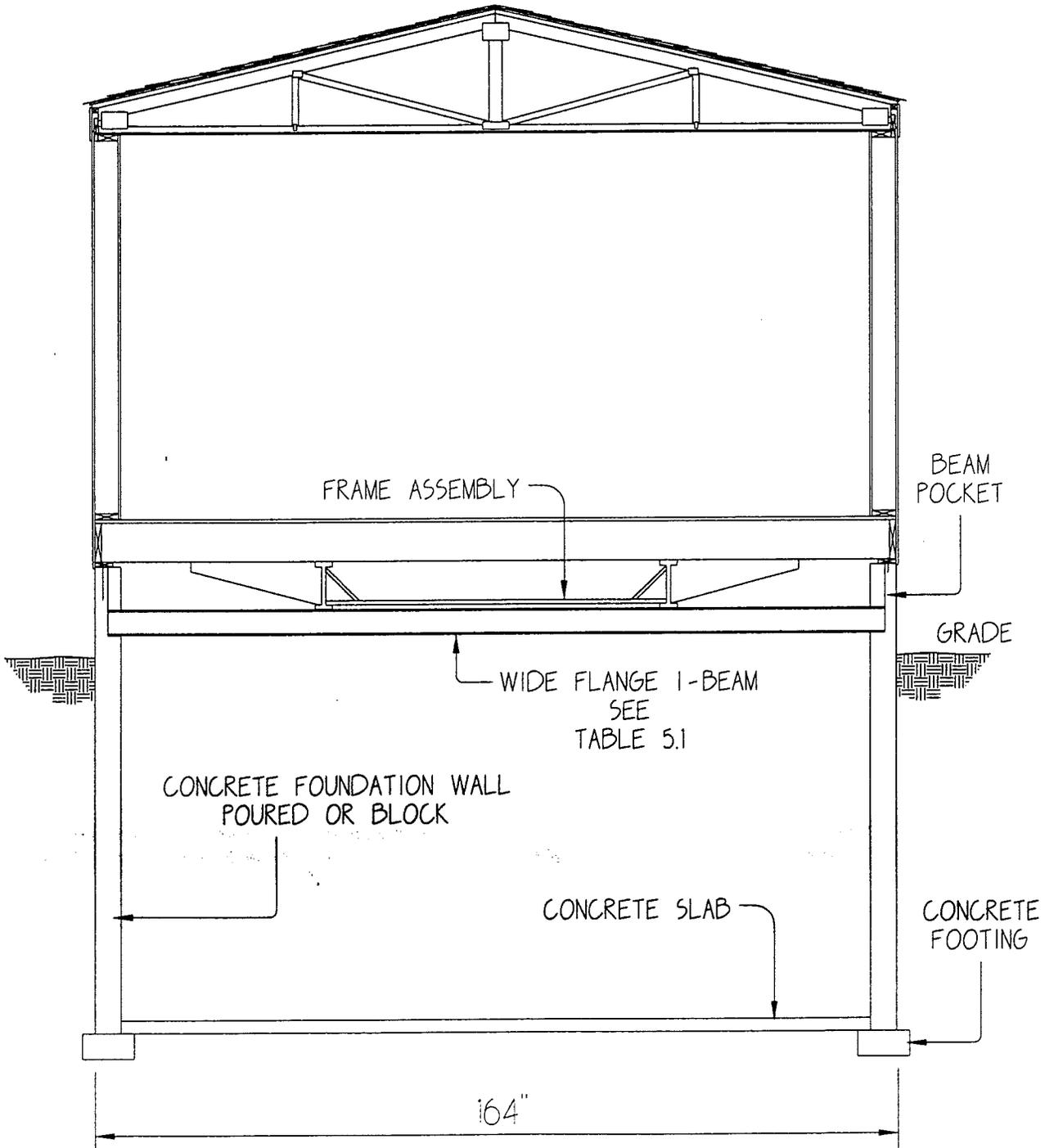


14' SINGLE WIDE
ACTUAL FLOOR DIMENSION 13'-2"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1600

21.0091

BASEMENT CONSTRUCTION W/ CROSSBEAMS

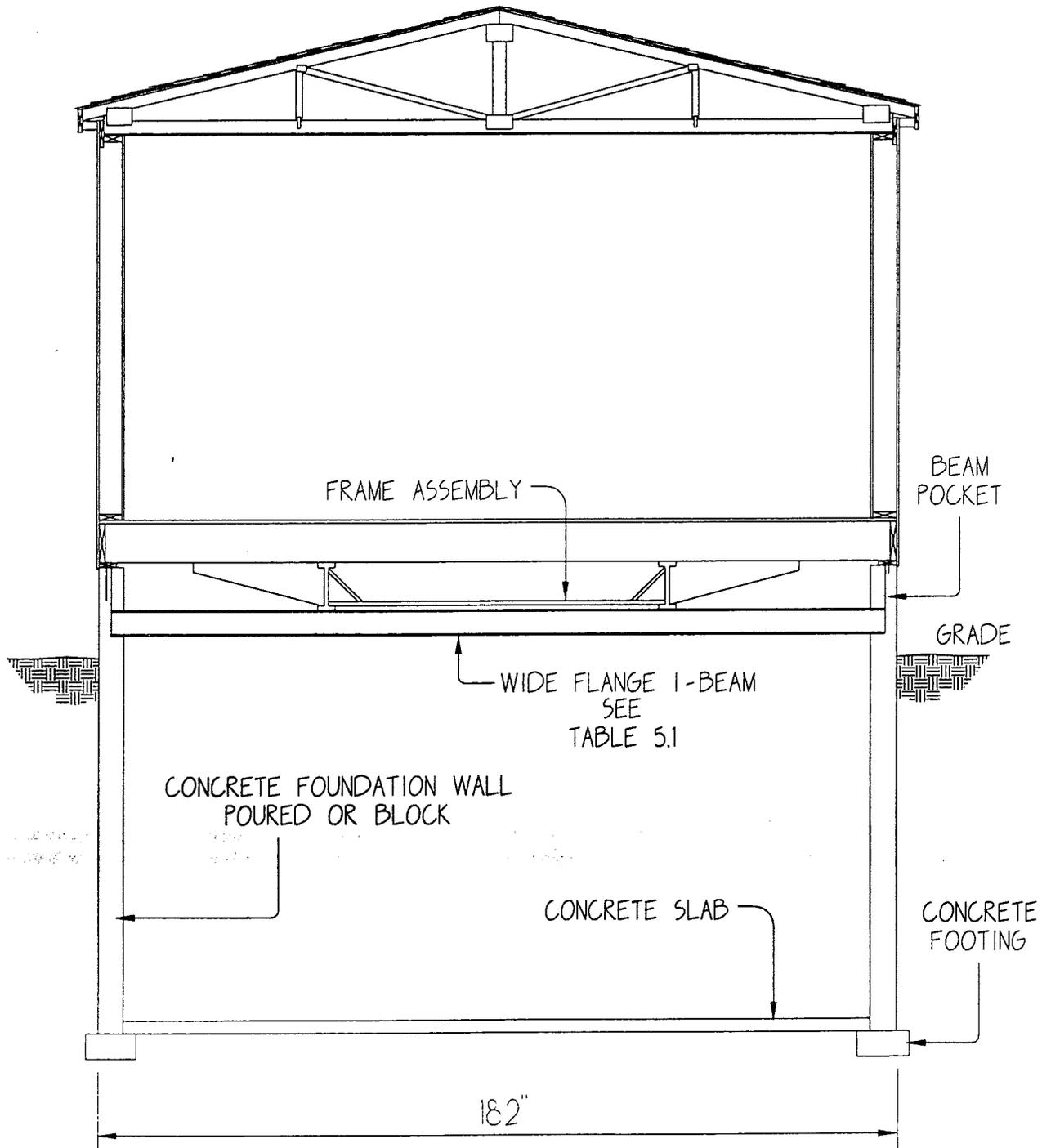


14' SINGLE WIDE
ACTUAL FLOOR DIMENSION 13'-8"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1433

21.0092

BASEMENT CONSTRUCTION W/ CROSSBEAMS

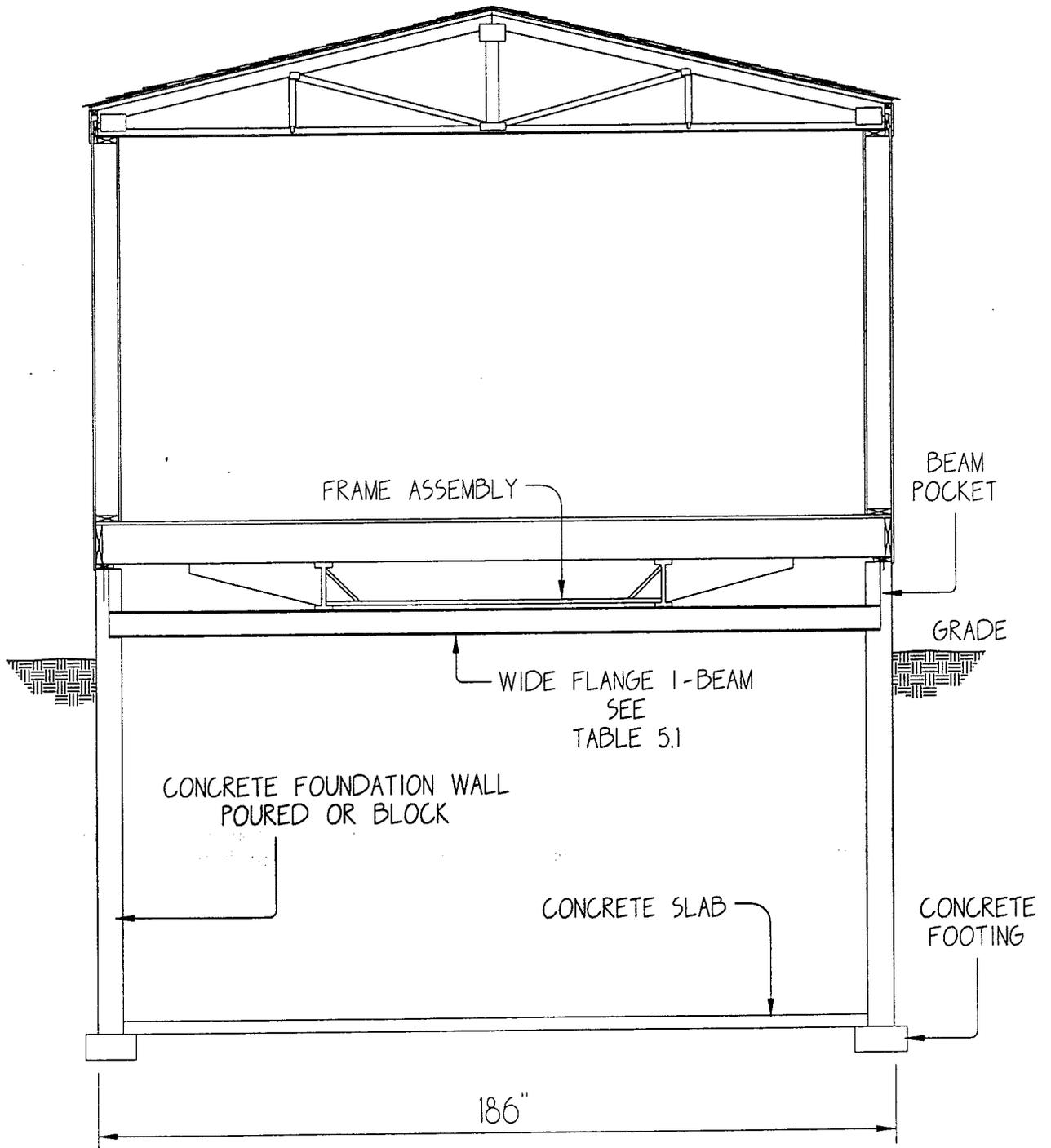


16' SINGLE WIDE
ACTUAL FLOOR DIMENSION 15'-2"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1601

21.0093

BASEMENT CONSTRUCTION W/ CROSSBEAMS

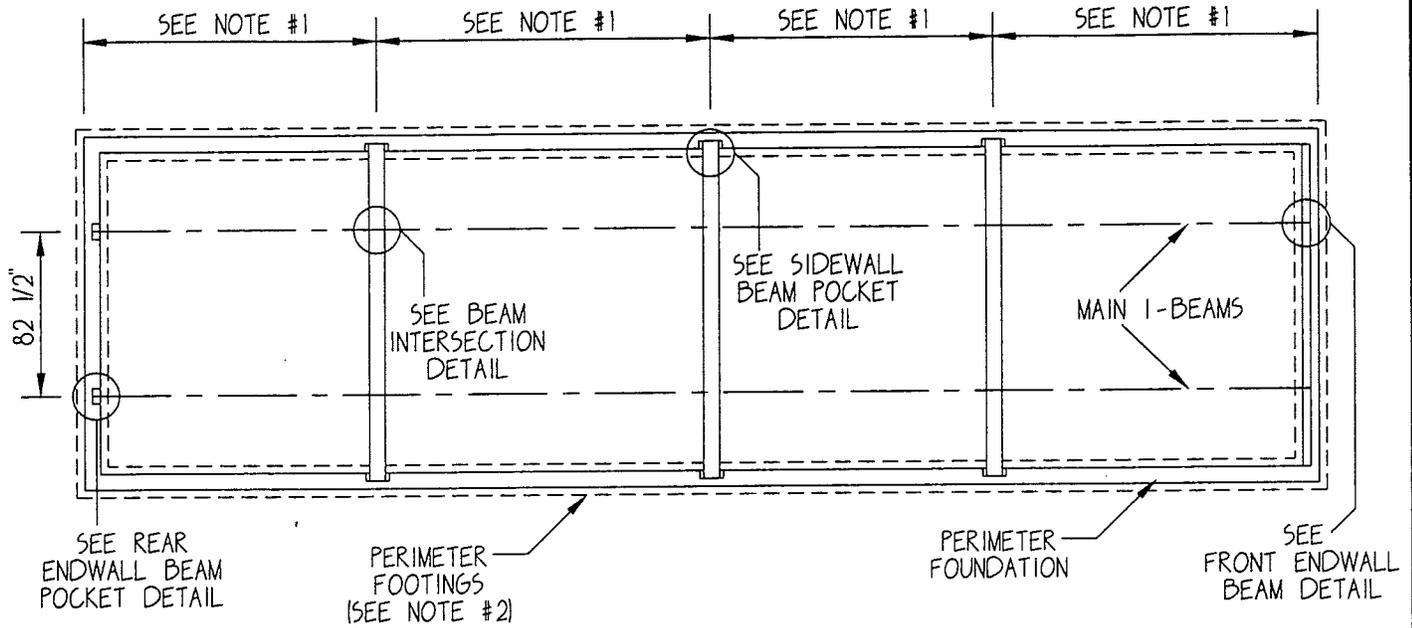


16' SINGLE WIDE
ACTUAL FLOOR DIMENSION 15'-6"

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1434

21.0094

TYPICAL BASEMENT LAYOUT SINGLE-SECTION HOMES PERIMETER FOUNDATION WITH CROSSBEAMS 4" RECESSED FRAME



NOTES:

1. SEE TABLE 5.1 FOR REQUIRED BEAM SIZE AND SPACING
2. SEE TABLE 6.1 FOR FOOTING REQUIREMENTS

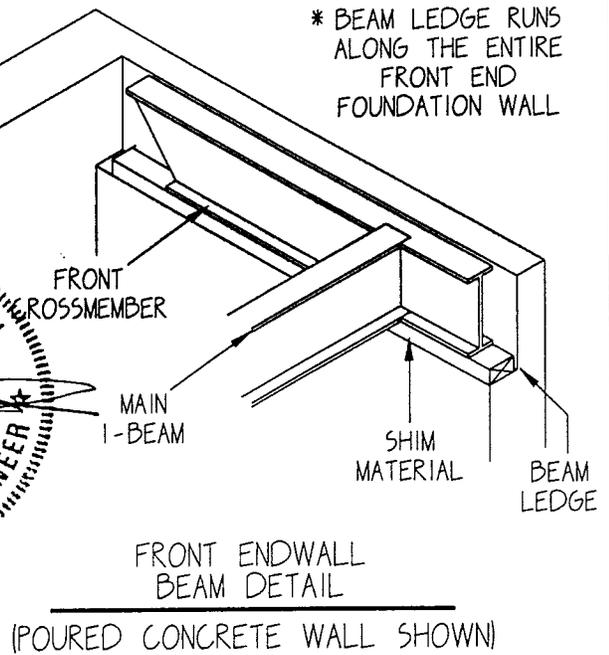
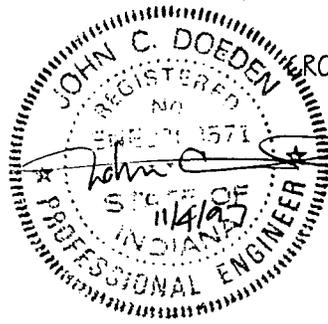
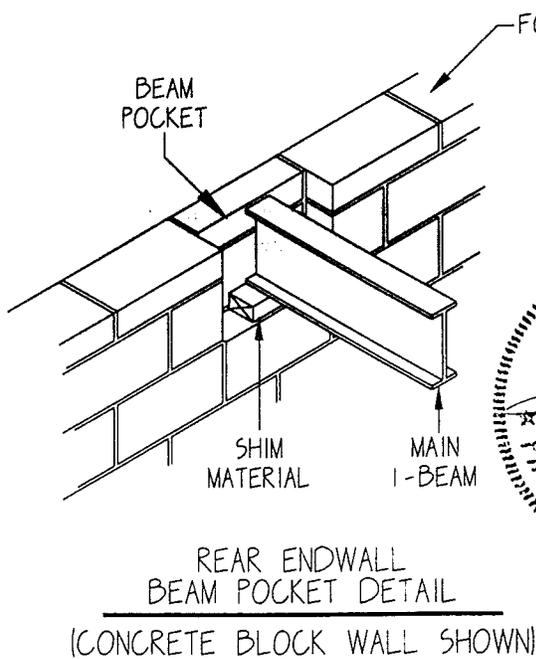
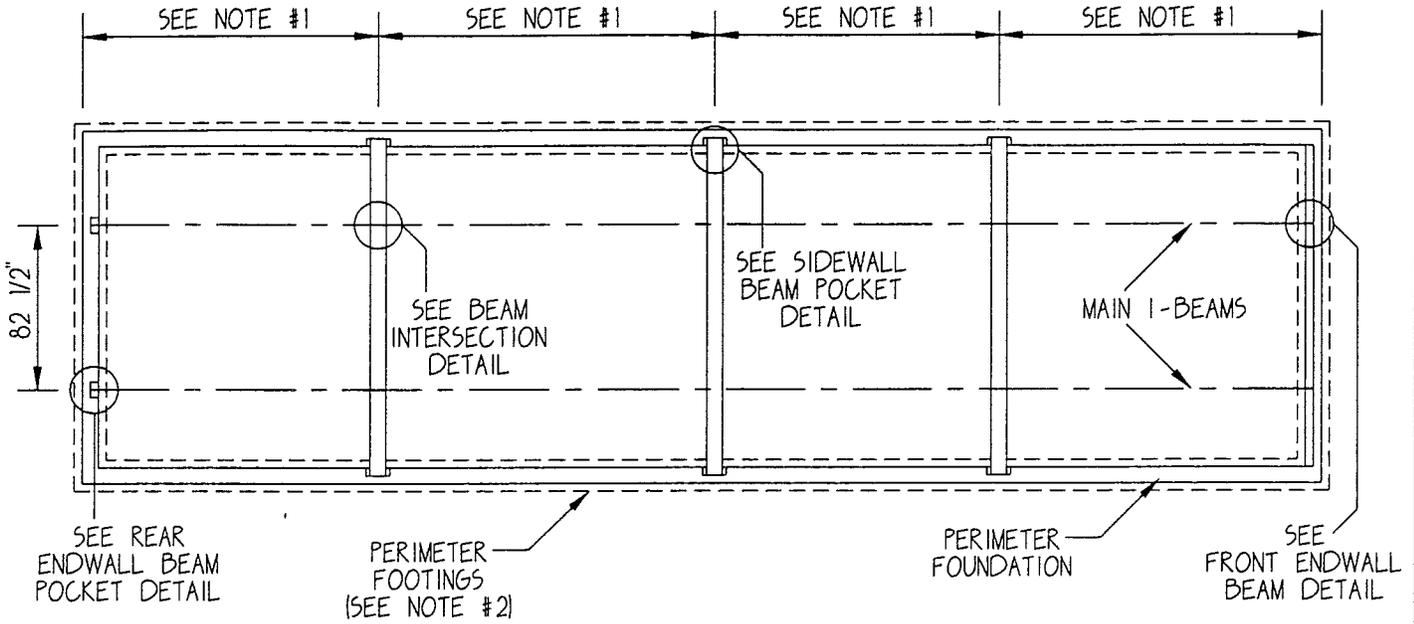


FIGURE 5.1

REVISIONS	DATE	CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1435

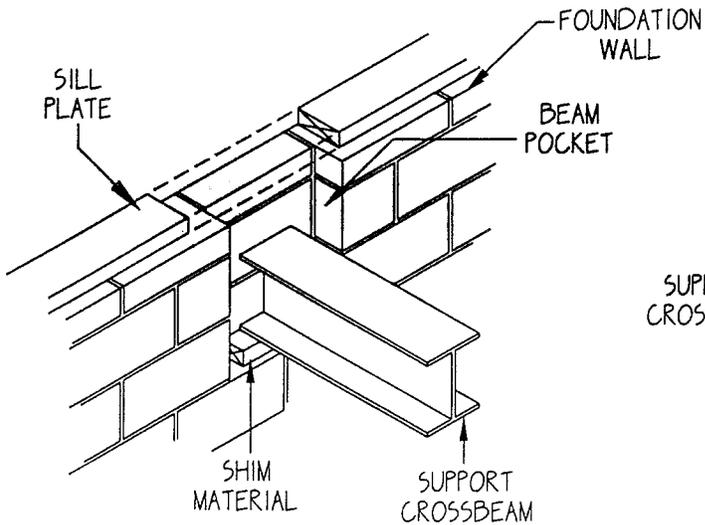
21.0095

TYPICAL BASEMENT LAYOUT SINGLE-SECTION HOMES PERIMETER FOUNDATION WITH CROSSBEAMS 4" RECESSED FRAME

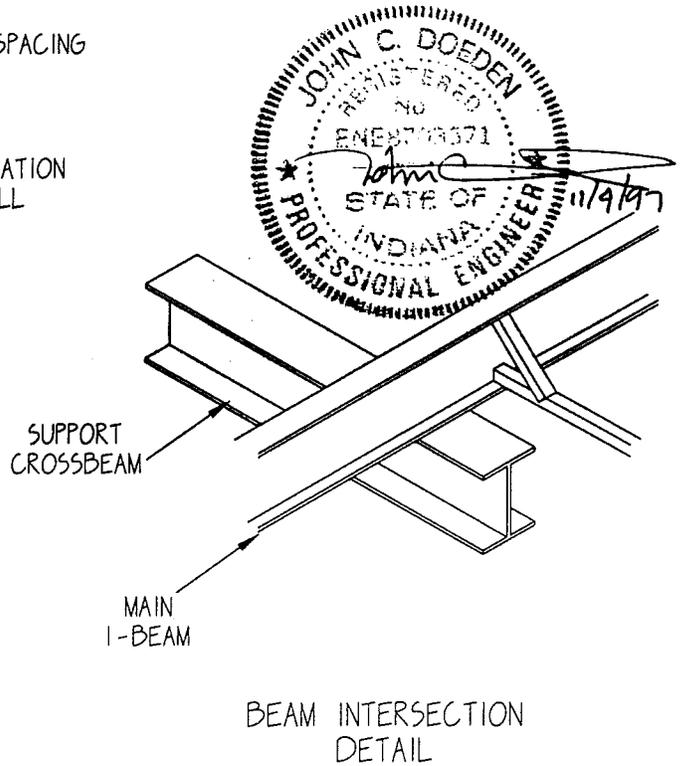


NOTES:

1. SEE TABLE 5.1 FOR REQUIRED BEAM SIZE AND SPACING
2. SEE TABLE 6.1 FOR FOOTING REQUIREMENTS



SIDEWALL BEAM POCKET DETAIL
(CONCRETE BLOCK WALL SHOWN)



BEAM INTERSECTION DETAIL

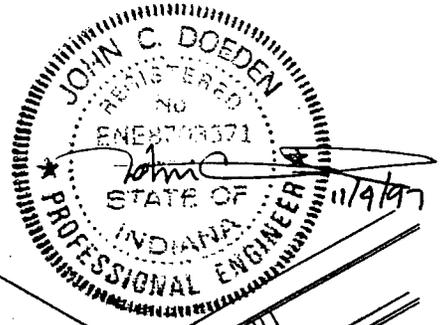
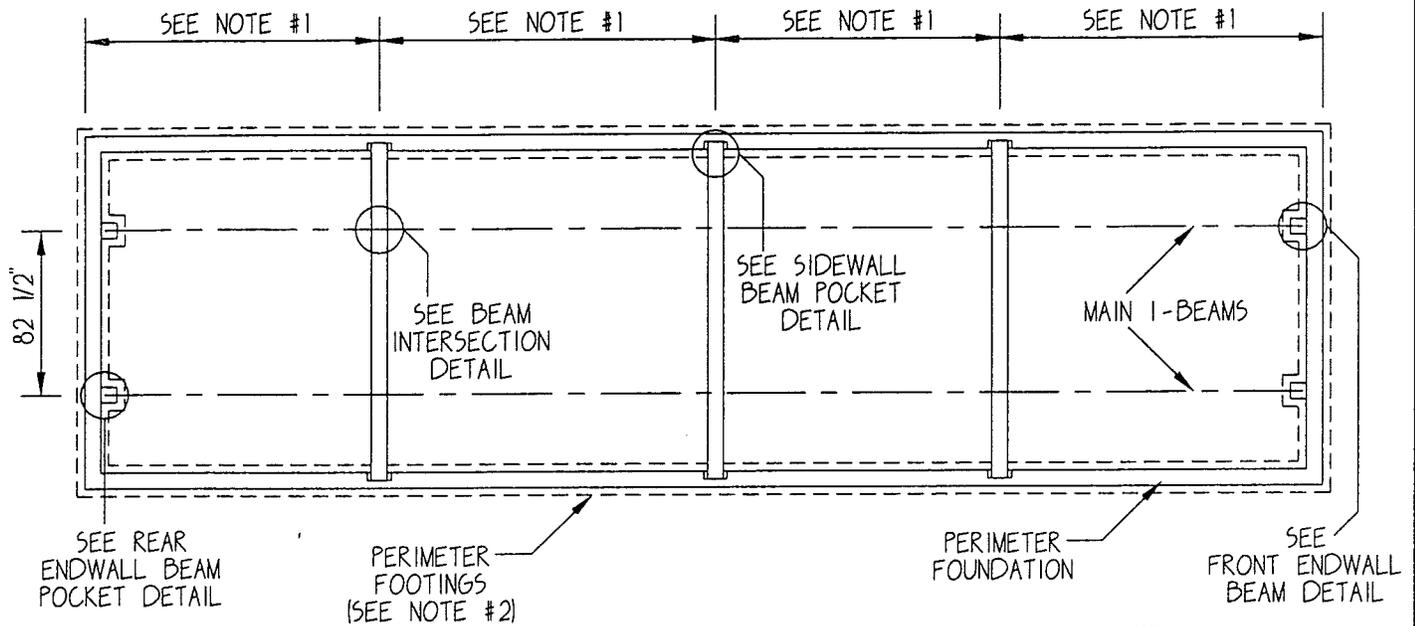


FIGURE 5.2

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1436

TYPICAL BASEMENT LAYOUT SINGLE-SECTION HOMES PERIMETER FOUNDATION WITH CROSSBEAMS 10" RECESSED FRAME



NOTES:

1. SEE TABLE 5.1 FOR REQUIRED BEAM SIZE AND SPACING
2. SEE TABLE 6.1 FOR FOOTING REQUIREMENTS

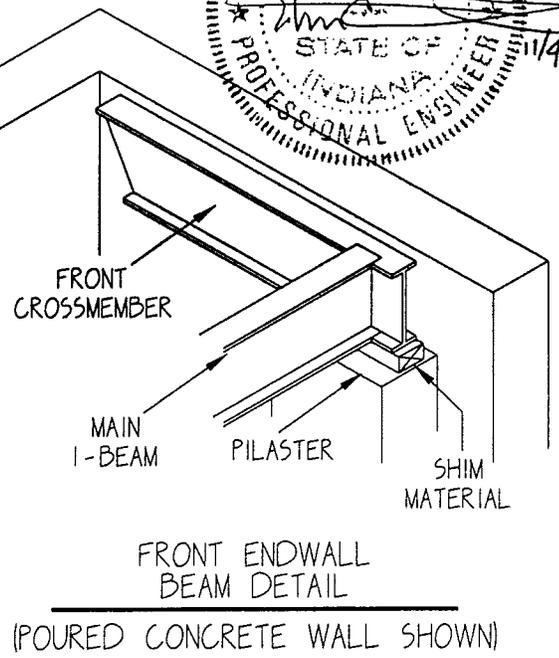
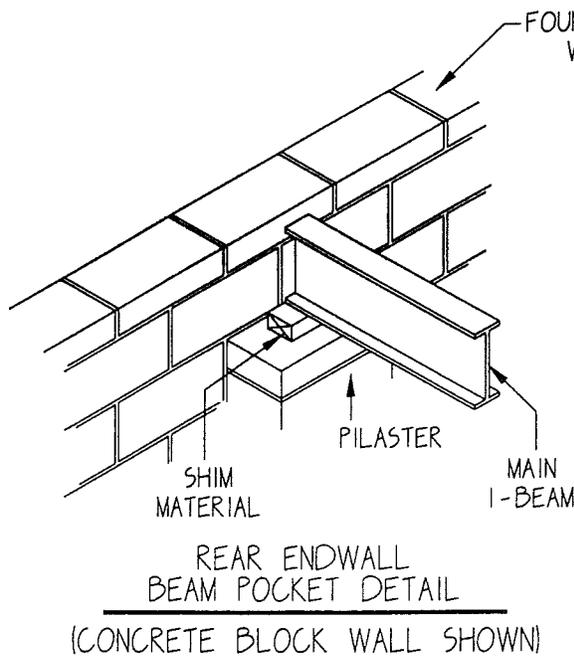
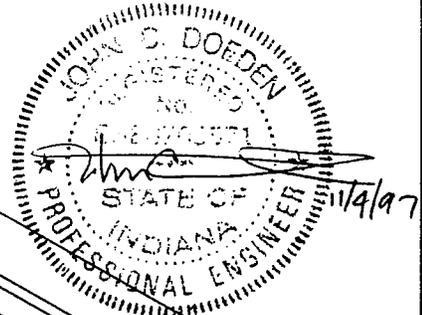
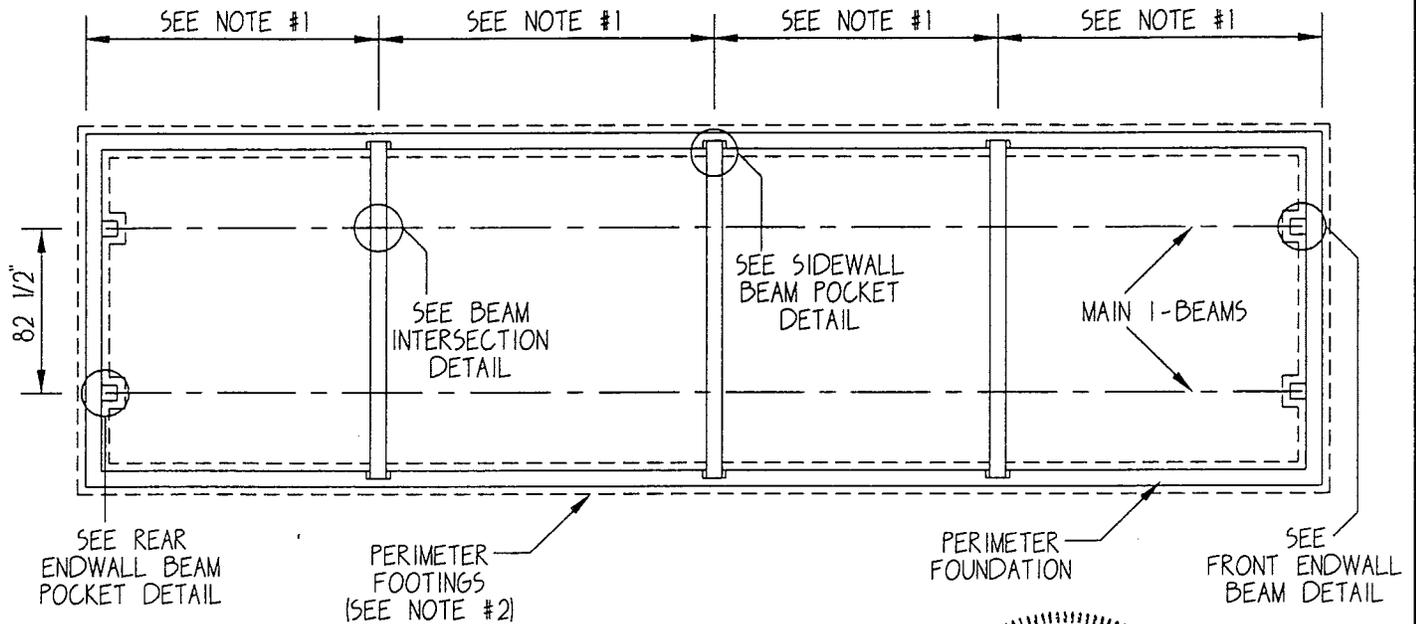


FIGURE 5.3

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BPI606

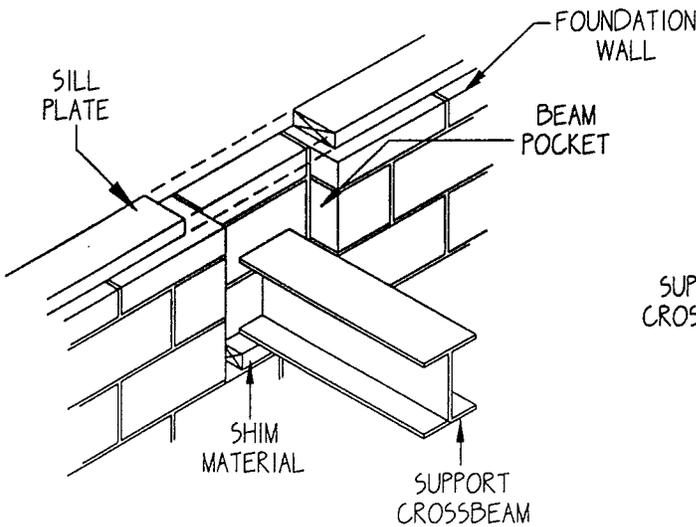
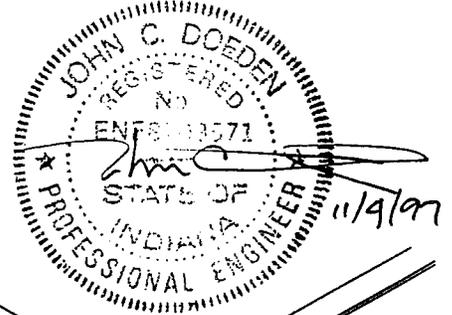
21.0097

TYPICAL BASEMENT LAYOUT SINGLE-SECTION HOMES PERIMETER FOUNDATION WITH CROSSBEAMS 10" RECESSED FRAME

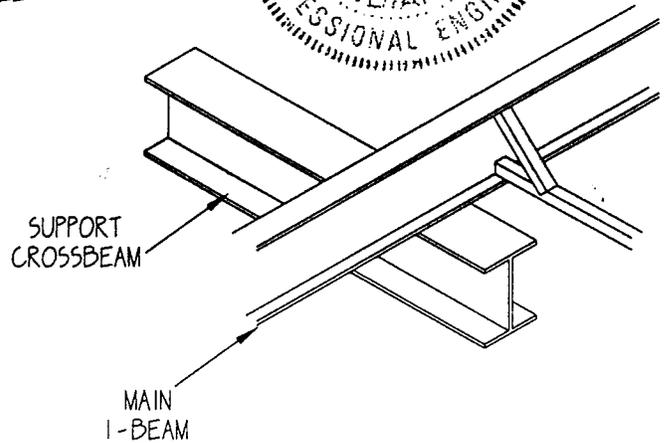


NOTES:

1. SEE TABLE 5.1 FOR REQUIRED BEAM SIZE AND SPACING
2. SEE TABLE 6.1 FOR FOOTING REQUIREMENTS



SIDEWALL
BEAM POCKET DETAIL
(CONCRETE BLOCK WALL SHOWN)



BEAM INTERSECTION
DETAIL

FIGURE 5.4

REVISIONS	DATE	CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BPI607

21.0098

MINIMUM CROSSBEAM CAPACITY TABLES

SINGLE-SECTION HOMES CROSSBEAM SUPPORT

SECTION WIDTH (FEET)	ROOF LIVE LOAD (PSF)	MINIMUM CROSSBEAM SIZE					
		MAXIMUM CROSSBEAM SPACING (FEET)					
		4'-0"	5'-4"	6'-8"	8'-0"	9'-4"	10'-8"
14 WIDE (158" FLOOR)	ALL LOADS	W8X24	W8X31	-	-	-	-
		W10X25	W10X29	W10X33	W10X39	W10X45	W10X54
		W12X27	W12X27	W12X27	W12X36	W12X40	W12X45
14 WIDE (164" FLOOR)	ALL LOADS	W8X28	W8X35	-	-	-	-
		W10X25	W10X33	W10X39	W10X45	W10X49	W10X54
		W12X27	W12X27	W12X31	W12X36	W12X40	W12X45
16 WIDE (182" FLOOR)	ALL LOADS	W8X35	-	-	-	-	-
		W10X33	W10X39	W10X45	W10X54	W10X60	-
		W12X27	W12X31	W12X40	W12X45	W12X53	W12X58
16 WIDE (186" FLOOR)	ALL LOADS	W8X35	-	-	-	-	-
		W10X33	W10X39	W10X49	W10X54	W10X66	-
		W12X27	W12X31	W12X40	W12X50	W12X53	W12X65

ANY ONE BEAM LISTED IN EACH CATEGORY MAY BE USED

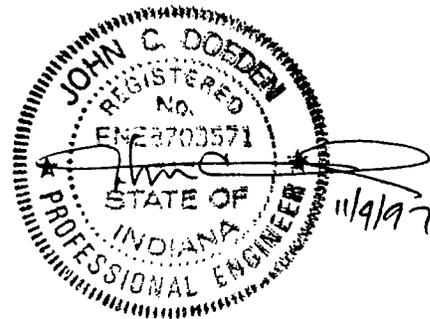


TABLE 5.1

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BPI437

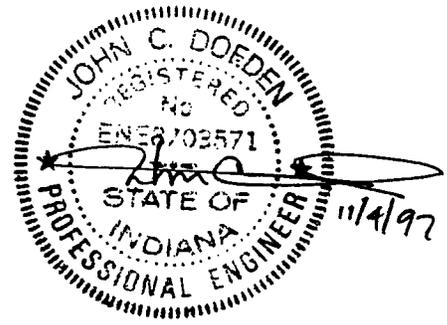
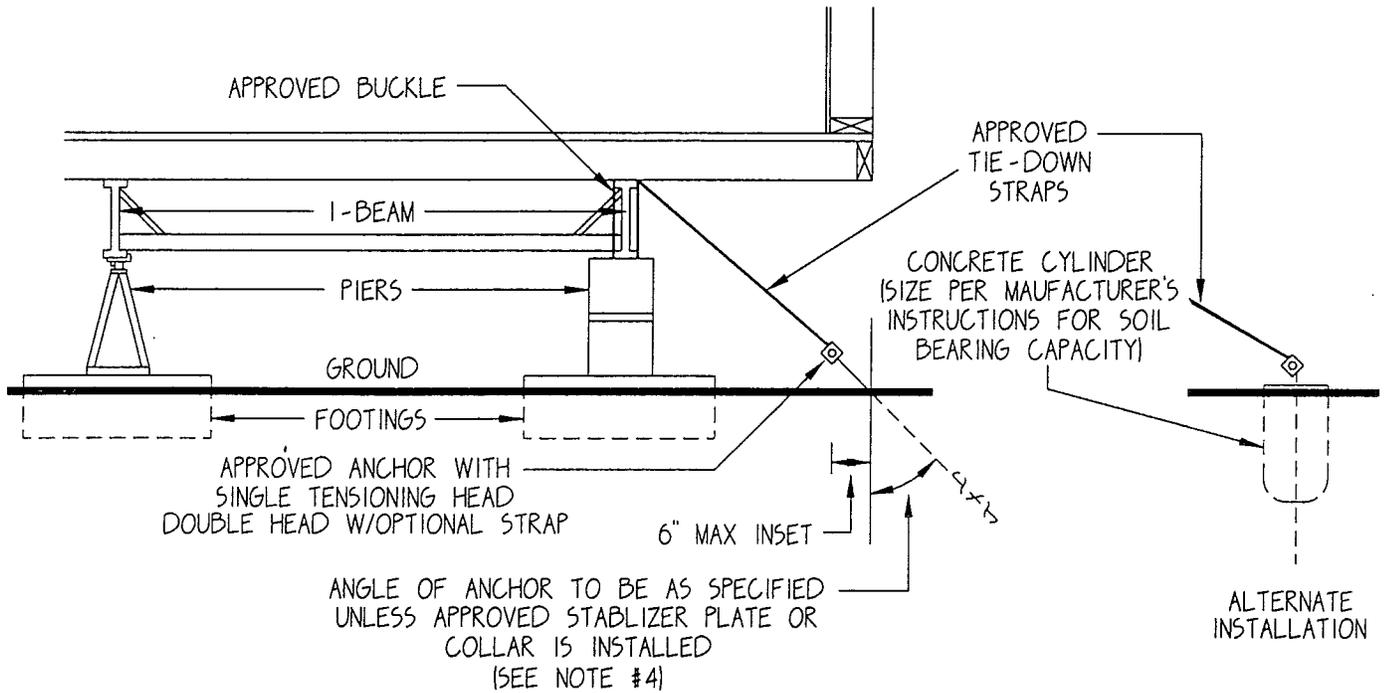
21.0099

SECTION VI

TYPICAL ANCHORAGE & FOOTINGS INSTRUCTIONS

Single Section Homes

TIE-DOWN STRAP AND ANCHORING POSITION INSTALLATION WITHOUT VERTICAL TIES



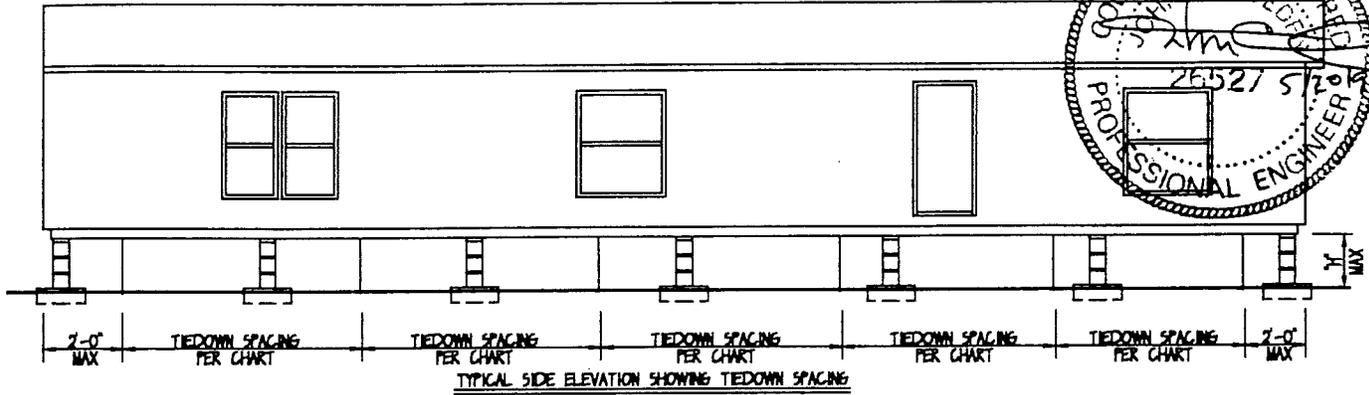
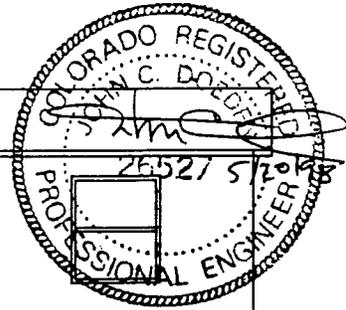
NOTES:

1. OVER-THE-ROOF TIE-DOWN STRAPS ARE NOT REQUIRED BUT MAY BE INSTALLED AS AN OPTION BY THE MANUFACTURER
2. 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
3. PROTECTION SHALL BE PROVIDED AT SHARP CORNERS WHERE THE ANCHORING SYSTEM REQUIRES THE USE OF EXTERNAL STRAPS OR CABLES
4. SEE FIGURE 6.2 FOR ADDITIONAL REQUIREMENTS

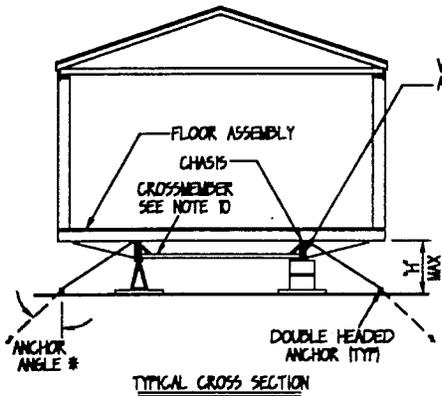
FIGURE 6.1

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 SINGLE SECTION HOMES			
WIND ZONE 1			
FLOOR WIDTH	SPACING	MAX PIER HEIGHT "H MAX"	ANCHOR ANGLE
13'-2" MIN / 13'-8" MAX	10'-0"	46"	35° - 40°
15'-2" MIN / 15'-6" MAX	10'-0"	62"	35° - 40°

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

NOTES

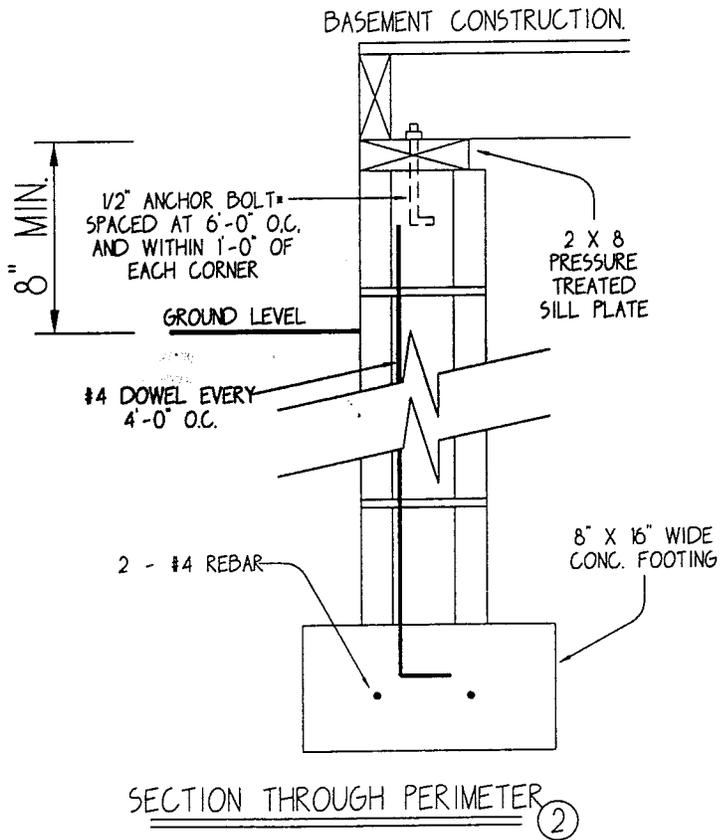
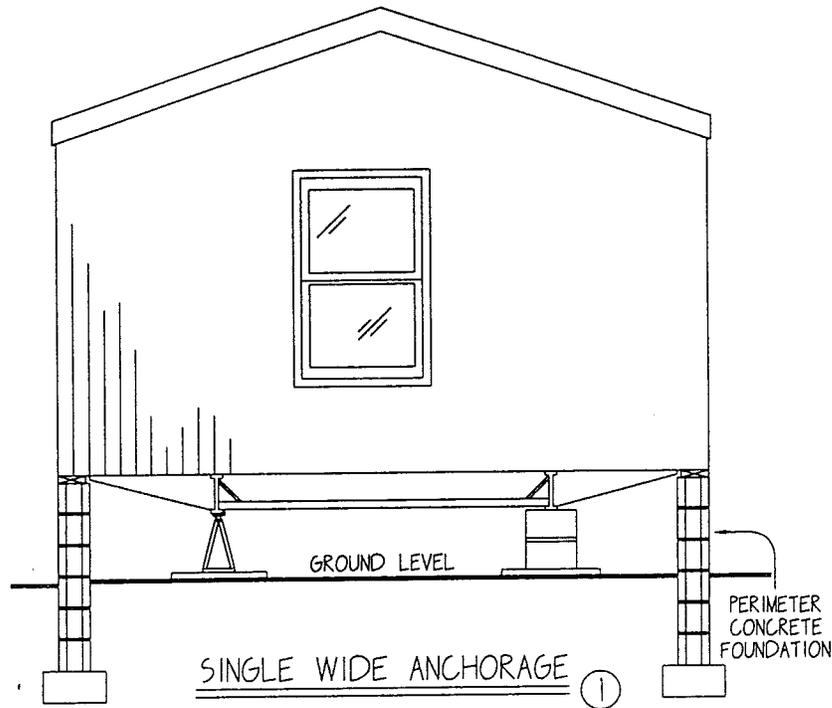
1. FRAME TIE-DOWN SHOULD BE INSTALLED TO PROPERLY SECURE THE HOME.
2. VERTICAL TIES ARE REQUIRED IN ADDITION TO FRAME TIE-DOWNS.
3. VERTICAL TIES MAY BE SECURED TO THE SAME GROUND ANCHOR AS THE FRAME TIE-DOWNS WHEN DOUBLE HEADED ANCHOR IS CAPABLE OF RESISTING COMBINED LOADING. WHEN ANCHORS ARE NOT INSTALLED 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

21.0102 ..

REVISIONS	DATE	CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1440

SINGLE WIDE HOME ANCHORAGE DETAILS ANCHORAGE DETAILS FOR PERIMETER FOUNDATION



DETAIL 2 APPLIES TO BOTH PERIMETER FOUNDATION WITH PIERS AND BASEMENT CONSTRUCTION

* ANCHOR BOLTS EMBEDDED 7" MIN IN POURED CONCRETE WALLS AND 15" MIN IN MASONRY WALLS

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

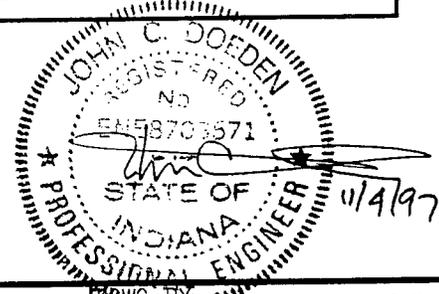


FIGURE 6.3

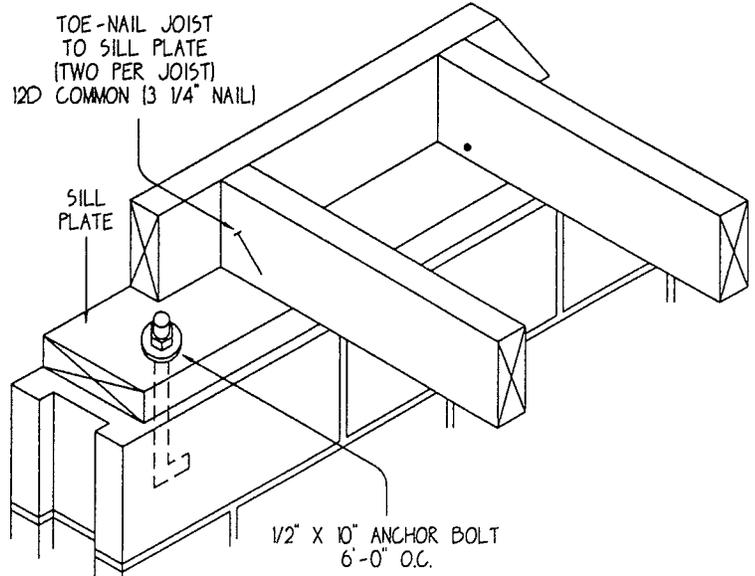
REVISIONS	DATE	CHIEF INDUSTRIES HOUSING DIVISION	DRAWN BY: DM	8/1/96
			CHKD. BY:	
			SCALE: NONE	BP1442

SINGLE WIDE HOME ANCHORAGE DETAILS FOR PERIMETER FOUNDATION

SECURE FRONT AND REAR
RIM JOIST TO SILL PLATE
WITH 1 - 12D COMMON NAIL @ 16" O.C.

TOE-NAIL JOIST
TO SILL PLATE
(TWO PER JOIST)
12D COMMON (3 1/4" NAIL)

SILL
PLATE

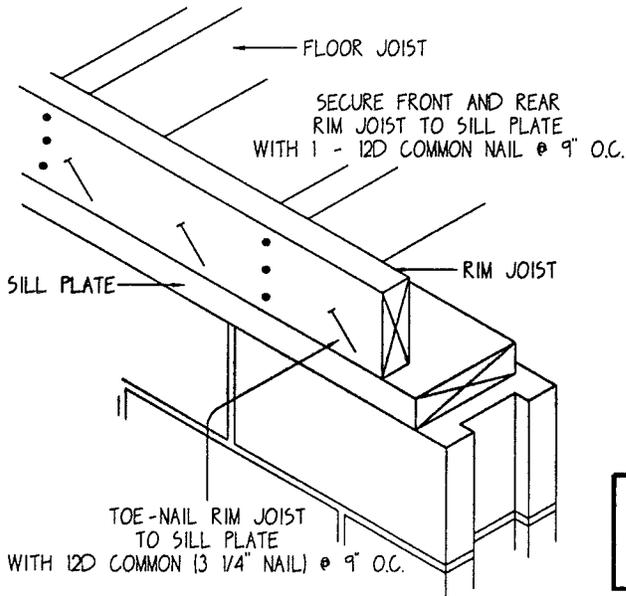


1/2" X 10" ANCHOR BOLT
6'-0" O.C.

JOIST TO SILL CONNECTION ①

(METHOD A)

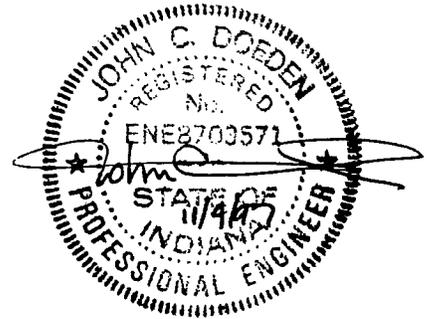
* DETAILS 1 AND 2 APPLY
TO BOTH PERIMETER
FOUNDATION WITH PIERS
AND BASEMENT CONSTRUCTION.



TOE-NAIL RIM JOIST
TO SILL PLATE
WITH 12D COMMON (3 1/4" NAIL) @ 9" O.C.

RIM JOIST TO SILL CONNECTION ②

(METHOD B)



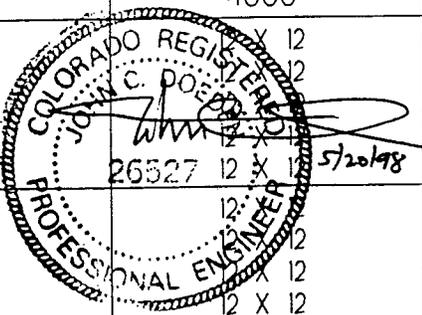
* ANCHORAGE DESIGNED FOR STANDARD WIND
ZONE 1 (15 PSF HORIZONTAL, 9 PSF UPLIFT)

FIGURE 6.4

REVISIONS	DATE	 CHIEF INDUSTRIES HOUSING DIVISION	DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BP1602

21.0104

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	12 X 12
800	12 X 12	12 X 12	12 X 12	12 X 12
1000	12 X 12	12 X 12	12 X 12	12 X 12
1500	15 X 15	12 X 12	12 X 12	12 X 12
2000	17 X 17	14 X 14	12 X 12	12 X 12
2500	19 X 19	15 X 15	13 X 13	12 X 12
3000	21 X 21	17 X 17	15 X 15	12 X 12
3500	22 X 22	18 X 18	16 X 16	12 X 12
4000	24 X 24	20 X 20	17 X 17	12 X 12
4500	25 X 25	21 X 21	18 X 18	13 X 13
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 (SQUARE INCHES) REQUIRED FOR THE LOAD. OTHER FOOTING CONFIGURATIONS, SUCH AS RECTANGULAR, MAY BE USED PROVIDED THE AREA (SQUARE 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	DBL STACKED
T	P MAX	PIERS (W X L)	BLOCKS (L X W)
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"

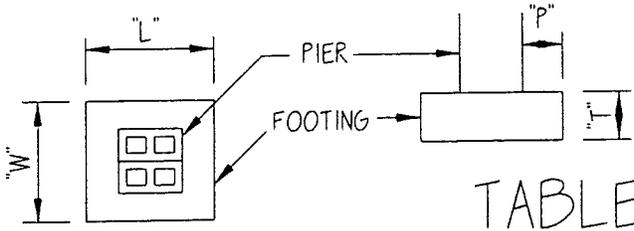


TABLE 6.1

REVISIONS	DATE		DRWG. BY: DM	9/24/97
			CHKD. BY:	
			SCALE: NONE	BPI441

SECTION VII
SITE ASSEMBLY INSTRUCTIONS
Single Section Homes

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A. General

Set-up Responsibility
Site Implications

B. Home Installation

Site Preparation
Footings & Piers
Lifting Considerations

C. Setting, Blocking & Positioning

General
Setting Procedure
Leveling
Anchorage Instructions
Crawlspace Completion

D. Utility Connections

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 Fireplace Installation
Electrical System
Water System
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E. Interior Finishing

Large Light Fixture Connection
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F. Exterior Finishing

Exterior Light Connection
Porches & Steps
Home Extensions & Additions

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Air Infiltration Barrier
Exterior Siding and Trim
Roofs
Clearances
Caulking
Interior

H. Summary

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 may be adequate. If manufactured load bearing supports or devices (such as tripod stands) 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 describing 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 established by local authorities pertaining to any health and/or safety codes.

Set-up Responsibility

Many local codes require that your home 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 are going to live in a park, the site should already be prepared for your home. But 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"x8"x16" 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 set-up contractor or your local building inspector can advise you on the best supports to use.

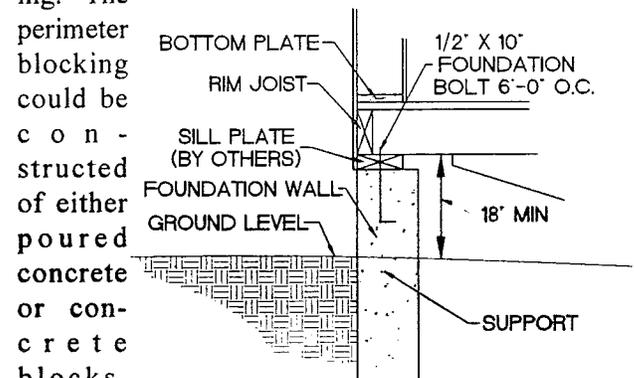
The third method is the use of perimeter blocking.

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.

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.



Typical Perimeter Foundation

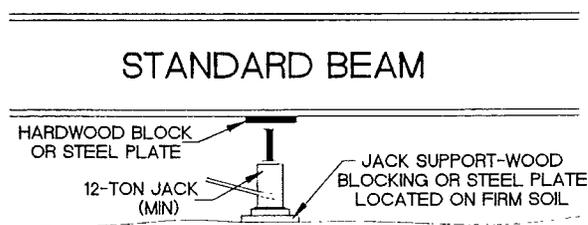
Lifting Considerations

By following this information you will minimize the set-up 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 these 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.
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"x4"x12" steel plates or 4"x4"x12" hardwood blocks between the jacks and the main I-Beam. **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



Safe Jack Support

- 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.

Setting, Blocking & Positioning

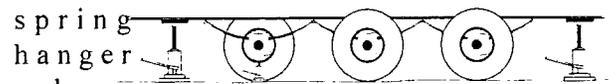
General

If the wheels are going to be left in place, it should be determined at this time. Any other items which could be difficult to install after the home is positioned such as ground anchors installed at an angle, should be placed in the proper locations. It is more convenient to place the moisture barrier under the house before it is set. It can be left folded up and then unfolded after pads and support piers have been positioned under the frame members.

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.

Setting Procedure

1. Determine the proper spacing for the piers located under the home from previous sections. Concrete pads should be positioned as illustrated. This includes any additional piers needed under column supports.
2. Raise the hitch of the unit to be blocked and leveled approximately two inches (2") higher than its final position with a heavy duty hydraulic jack. Adequate blocking should then be placed under the hitch assembly to prevent its 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 two inches (2") higher than its final position.
3. If the tires and axles are to be removed, safety supports should be placed tightly under the frame members at this point 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 one directly behind the last spring hanger. It would be wise to position a jack under each end of the axle when removing bolts.
4. The concrete pier supports, previously positioned



on the site, should now be located directly under each I-Beam. Concrete or metal piers are then placed into position on the pads. The steel jacks to be used as piers have an adjustable bracket placed in the top, on which the steel frame will set.

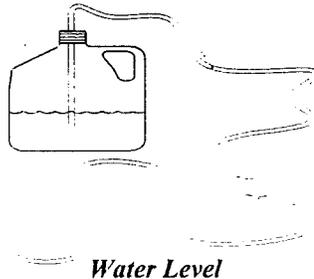
5. The house should be checked for level and adjusted as needed. Some methods for leveling are listed in the next section.
6. The safety supports previously placed in the axle area when the wheels were being removed and the support under the A-frame should now be removed.
7. The jacks are then lowered together, allowing the frame to rest on each pier.
8. The screw jack assembly on the hitch is retracted so that it no longer touches the soil and all jacks are removed from under the frame.
9. If your house has a detachable hitch that you would like to remove, 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.
10. After completion of the leveling and set-up procedure, all doors and windows should be checked to see that they operate freely without binding.

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" 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 when the end



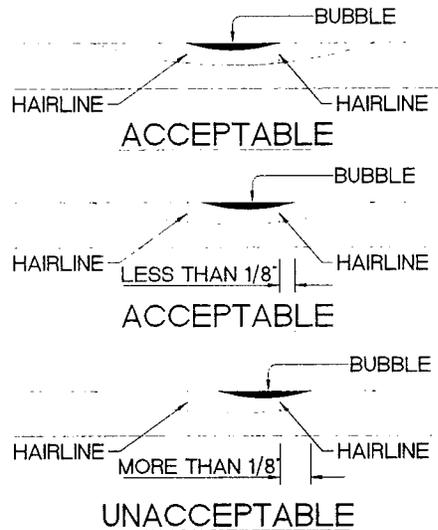
Water Level



Water Level System

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 re-leveled.



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 set-up 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.

Anchorage Instructions

In accordance with the Federal Manufactured Housing Construction and Safety Standard in effect on date of construction, the following anchorage requirements apply to all Wind Zones:

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.

Ground anchors should be embedded below the frost line and be at least twelve inches (12") above the water table and should be installed to their full depth and stabilizer plates should be installed to provide added resistance to overturning or sliding forces.

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 feet (2') from each end of unit (i.e. open end anchorage).

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

Strapping is 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.

The tie down straps should now be installed around the frame members and the ground anchors in accordance with the ground anchor manufacturer's installation instructions. Recommendations and illustrations for this tie down procedure are included in another section of this manual.

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 as not to create "dead air pockets." One square foot of venting is required per every 150 square feet of floor space.

Example: a 16'x80' house with actual dimensions of 15'-6" x 76'-0" equals 1178 square feet. Di-

vide 1178 square feet by 150 which equals 7.85 square feet. Round up to 8 square feet of venting area within the crawlspace skirting.



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 ALL 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 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.

Use 1/2" blunt or sharp end sheet metal screws to fasten roof jack combustion air pipe to furnace combustion air collar. Screw holes are provided in the pipe and 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 instructions. Check the flue pipe regularly for soot, rust or corrosion.

Branch circuits installed at the factory for the purpose of energizing exterior air conditioning equipment will have a 1 1/4" conduit from the service 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 should 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 installed in all manufactured homes. The Coleman Blend-Air system is offered in the Chief Industries product line, which has been explained to you by your dealer.

Operation of the Blend-Air system is completely automatic. The Blend-Air Environmental System is designed to work in 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.

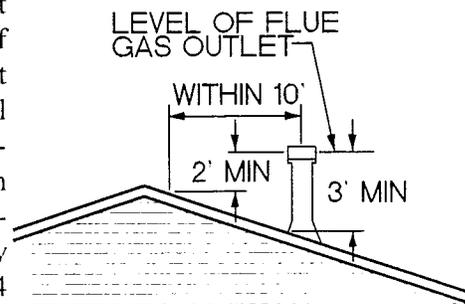
The Blend-Air Environmental System should be maintained as outlined in the owners manual provided by the manufacturer.

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 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



Chimney Clearances

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 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, connections 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 for that wire may be exceeded and you will experience 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 table below to determine recommended conductor type and size for the size of panel box installed in your home.

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-current-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-current-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 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.

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

Phone and Television Hookups

Phone and television hookups are located in the third floor joist cavity back from the rear of the house on the back door side. These are located in a covered junction box.

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 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 supply 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.

Drain, Waste & Vent

If your home has been designed with a plumbing system that needs to be completed after the home has been blocked in its final position, a print has been enclosed showing the recommended assembly of the plumbing system.

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 print in dashed lines) and are shipped loose to complete the plumbing system at the set-up site.

The drain lines shall be assembled using the pipe and fittings shipped with the home. Assembly of the system shall be as required by approved drawings sent with home.

After the plumbing lines have been completed, a flood test should be performed on all drain lines to insure proper installation.

Final drain connections are made at the 3" outlet location in the center portion of the home. When connecting this drain outlet to the main sewer system, an approved 3" connector should be used at this point. The drain lines installed on the home must have a slope of $\frac{1}{4}$ " per foot and be supported at intervals not exceeding four (4) feet.

Be sure to check that all P-traps are hand tightened.

Gas System

The gas heating system in your home has been designed to operate effectively on natural gas. If your energy source is LP (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.

To avoid possible damage to associated gas valves and regulators incorporated on appliances, do not pressurize the gas line in excess of 8 ounces of pressure (0.5 psi) after final connections are made.

Hook the gas system to the house then check it to insure freedom from 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.

After final testing of the gas supply lines, the pilot light can be lit by a professional.



Interior Finishing

Large Light Fixture Connection

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 ends 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 color coded green.
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 to the fixture.
3. Place fixture over junction box, secure it with the bracket supplied by the fixture manufacturer.

Clothes Dryer Installation

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

In most cases, the dryer exhaust system will be provided in its entirety. In some circumstances the exhaust system will be required to be installed on site according to the following instructions:

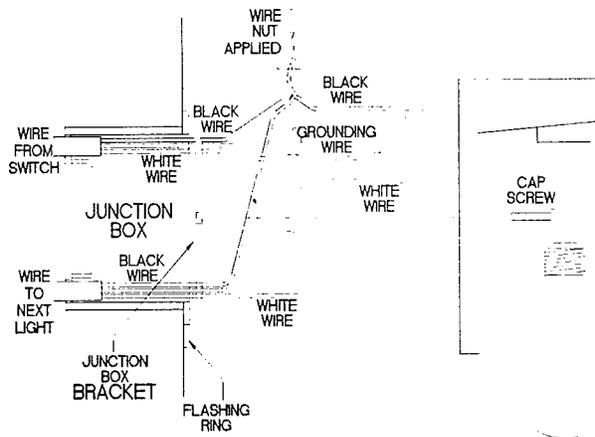
1. An access panel is located in the dryer area to provide access to the dryer end of the duct system.
2. Access to rough in from outside may be located on the bottom side of the floor or on an exterior wall.
3. The exhaust system shall be completed on site as shown with materials provided by the owner.

Exhaust duct and termination fittings must be listed by an approved testing agency or certified as components of the dryer.

Exterior Finishing

Exterior Light Connection

1. Remove junction box cover.
2. Connect wire together according to color (i.e. black to black) using a wire nut. Note: Grounding wires may be either bare wire or color coded green.
3. Grounding of the junction box bracket must be made by attaching the grounding conductor to the brackets grounding screw or if no screw exists, a listed



Exterior Light Connection

clamp must be used. This connection must be made prior to the connection to 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. Burden of compliance is the responsibility of the dealer, contractor/installer or homeowner with the local agency 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.

Final Inspection

General

After your home has been completely set up, a final inspection should be made to insure that no items have been overlooked which could cause a serious 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.

Use 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 also listed in the Homeowners Packet.

Exterior Siding and Trim

A thorough check should be made of all portions of the exterior siding to make certain that it is not cracked or 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 roofs 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.

Materials attached to the roof in the factory to protect shingles in transit should be removed. You must properly seal all nail and/or staple holes by using a high quality asphalt roofing sealant. Apply the sealant to the underlaying shingle then push the upper shingle into the sealant and seal on the top of the upper shingle. It is important that both layers of shingles with the hole punctured in them be properly sealed for proper weather proofing.

Clearances

If there are any low-hanging trees or bushes adjacent to your home which could damage the exterior or the roof, they should be trimmed or cut accordingly. Future growth of these bushes or trees should be considered in connection with their 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.



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 set-up 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!

Coleman'



Notice of Air Quality Improvement Option

Federal regulations require that buyers of manufactured homes be informed of available options for air quality improvement devices prior to purchase.

The Coleman® Blend Air™ Environmental System is included in your home. The Blend Air™ Environmental System is designed to work in conjunction with the home's heating system to introduce fresh air to the attic cavity and 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 and 80 to 120 cfm into the attic cavity. 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.

Coleman® Blend Air™ Environmental System Specifications

Description	Gas	Electric
CFM - Total	150	150
In attic cavity*	80 to 120	80 to 120
In Furnace Plenum*	30 to 50	30 to 50
RPM - Squirrel Cage Blower	1800	1800
FLA - Full Load Amps	1.8	0.9
Operating Volts	115 VAC	230 VAC

*CFM will vary depending on furnace installation

Due to Coleman's aggressive research and development program, models and specifications are subject to change without notice.

For more information about the Coleman Blend Air™ Environmental System, Coleman air conditioners, heat pumps, furnaces, or any other fine Coleman products, ask your salesman or feel free to contact Coleman directly at:

The Coleman Company, Inc.
Manufactured Housing Products
P.O. Box 1762, Wichita, KS 67201

