

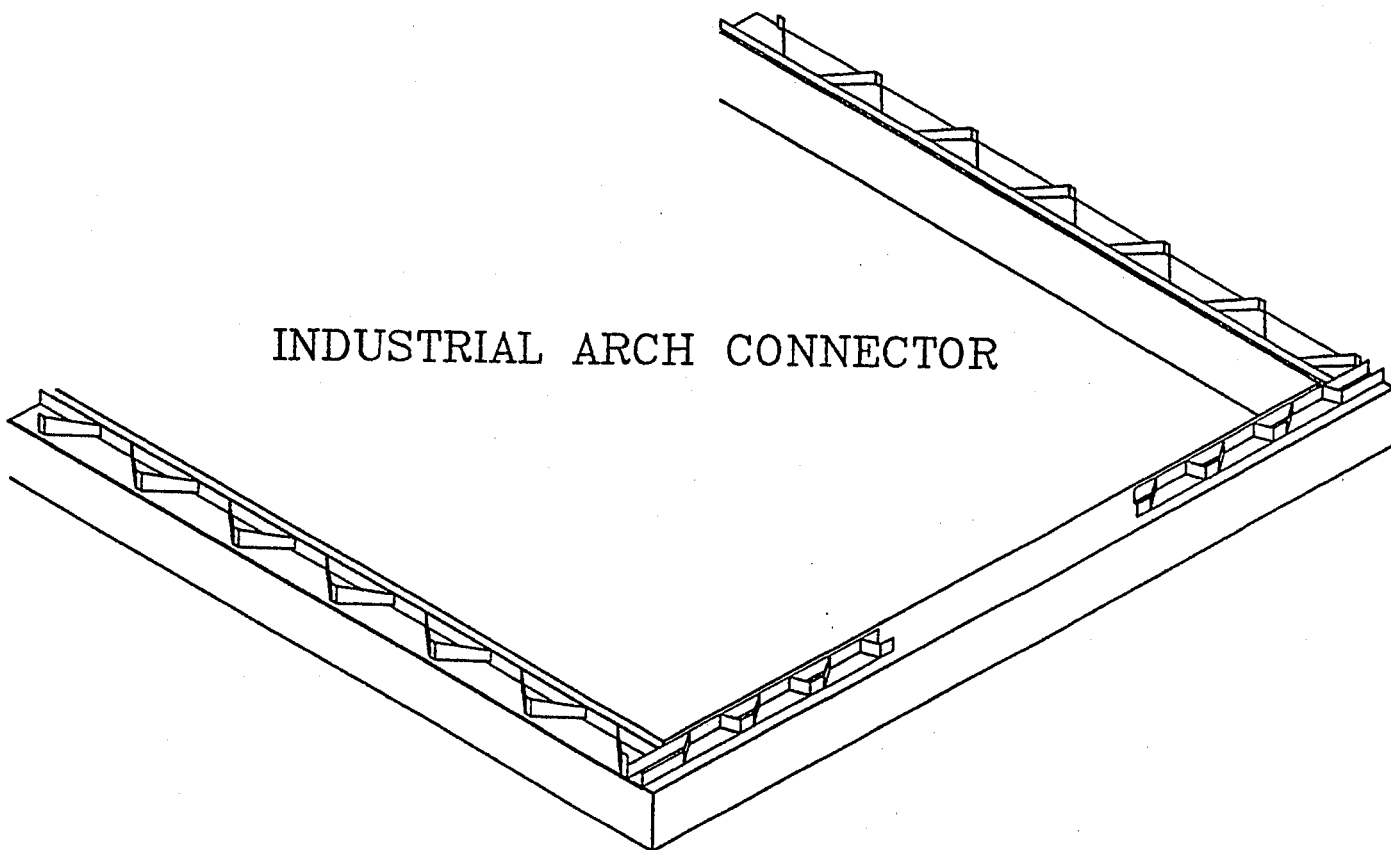


PRE FABRICATED STEEL BUILDINGS

<http://www.pioneerbuildings.com>

Industrial Arch Connector

INDUSTRIAL ARCH CONNECTOR



INTRODUCTION

PLEASE READ THIS GUIDE COMPLETELY BEFORE YOU BEGIN THE ERECTION OF YOUR BUILDING.

This guide should be used for PIONEER buildings that are to be erected on steel base connectors, and should be used in conjunction with the PIONEER building manual. The purpose of this guide is only to provide you with details on how to design and construct a foundation that employs base connectors. The main manual should then be used for the erection of the building.

There are two types of base connectors, the industrial base connector and the channel base connector. Determine which type of base connector you have, and refer to the applicable sections in this manual.

The most common types of buildings are listed in this guide. If for some reason you feel that your PIONEER building does not match types of buildings listed, please check with your dealer or contact the Engineering Department at the factory; the number is 1-800-668-5422. The manufacturer cannot accept liability for decisions and assumptions undertaken by the customer.

Again, it is important to read this guide completely. Check the model number of your PIONEER building or ask your dealer, so that you may verify foundation and building dimensions with the help of the tables in this book, and make certain that you fully understand all instructions before you begin construction.

NOTES ON FOUNDATION CONSTRUCTION

While this guide shows specific foundation details and dimensions it is illustrative only, as the soil and climatic conditions governing the design of the foundation for your PIONEER building could be totally different from those used in designing the prototype foundation described in this guide.

We recommend that you engage a professional civil engineer to design the foundation and to supervise construction to ensure that the design details are correctly interpreted. The engineer will require information on soil conditions at the site. He may rely on his own knowledge of conditions in the area, or else he may suggest an examination of the site by a soil specialist, to determine the engineering characteristics for foundation design.

Site selection and preparation are important. No two sites are exactly the same, and a professional engineer can offer valuable assistance in selecting the site, determining what site preparation is required and in interpreting local building by-laws. As these by-laws vary across the country the engineer can also check conformity of your PIONEER building with local regulations, and, where necessary, suggest modifications.

Remember that the successful performance of your finished PIONEER is largely dependent on having an adequate supporting foundation. Proper construction and reinforcement of your foundation is perhaps the most important step in the construction of your building. We strongly urge you to carefully study this guide, but we point out once again that the guide is illustrative only, and may not satisfy the conditions existing on your site.

The reinforcing steel shown in this guide is also for illustrative purposes only. Reinforcing steel should be detailed, formed and placed by people experienced in that kind of work, working to foundation drawings prepared or approved by a registered professional civil engineer.

PREPARING THE SITE

An important step in preparing a site for your PIONEER building is, of course, selecting a good location for the building. The following factors should be considered:

1. The building site should have adequate access roads.
2. Your building will probably be delivered on a 40-foot trailer. There should be enough room to position the trailer for unloading.
3. Check local by-laws and regulations for the required "setback" from adjacent structures, property lines and roadways.
4. Make certain there are no underground utilities on the site. If necessary, check with all utility authorities.
5. The condition of the soil should be suitable to support the building without excessively expensive foundations, and the site should be properly drained.
6. Check the grade of the site and the depth of the topsoil, to minimize the cost of stripping, grading and backfilling.
7. In areas of heavy snowfall, select an exposed location, away from trees and adjoining buildings, so that the wind can blow the snow off the roof, eliminating the need for manual removal.
8. Your PIONEER building should be oriented in the most favourable position, with regards to prevailing wind and rain, heat of the sun, and other weather factors.
9. Snow sliding off the side of the building should not obstruct traffic or access.
10. Leave enough room for future expansion or development.

When the right location has been decided upon, the site must be prepared for construction of the reinforced concrete foundation. If, as we strongly recommend, you have retained a civil engineer for the supervision of foundation construction, the engineer will specify, amongst other things:

1. Requirements for stripping and storage of the topsoil.
2. Quantity of backfill and nature of fill materials.
3. Compaction procedure for backfill or granular fill.
4. Drainage details.
5. Finished grades and profiles, and protection of banks.
6. Removal of stumps, roots, sod and other vegetable matter.
7. Disposition of existing foundations.
8. Diversion of existing buried utility services.
9. Special procedures for frozen ground.

ANCHOR BOLT PLANS

The following show details of the foundations along with some dimensional information. Choose the drawing that pertains to the building you have purchased and determine the overall width and length dimensions from tables 1 and 2.

The four most common buildings are as follows:

- Package 0: Buildings consisting of arches only with curved angles at each end.
- Package 1: Sliding doors at one end and solid endwall at the other end.
- Package 2: Sliding doors at both ends of the building.
- Package 3: Buildings with a solid endwall at each end or overhead type doors.

Determining the main dimensions of your foundation is quite a simple matter, if you follow the steps outlined below:

1. Look at your copy of the sales order and establish the model number, the number of arches and the package number of the building you ordered.
2. Next, find the model number in table 1 on page 5 and note the dimension given for that model. This dimension is the overall width of your foundation.
3. Now find the number of arches in table 2 on page 6, and under the package number which corresponds to your type of building note the dimension shown. This is the overall length of your foundation.
4. Refer to the schematic diagram that corresponds to the type of building you purchased for anchor bolt details.

NOTE: Anchor bolt plans show a 2 inch drop for the arches and the endwalls to prevent water seepage. This feature is optional, and if disregarded will not affect the overall width and length dimensions. If a flat floor type foundation is used, please note that the door guides will protrude up approximately 4".

**FOUNDATION WIDTH
INDUSTRIAL BASE CONNECTOR
TABLE 1**

Q-MODELS							
MODEL	WIDTH		MODEL	WIDTH		MODEL	WIDTH
19-09	19'-3"		40-14	40'-4"		50-17	50'-4 1/2"
21-10	21'-3"		40-16	40'-3 1/2"		50-19	50'-3 1/2"
23-11	23'-3"		40-18	40'-3"		50-22	50'-3"
25-10	25'-3 1/2"		40-20	40'-3"		52-18	52'-4"
25-12	25'-3"		42-15	42'-4"		54-17	54'-4 1/2"
27-13	27'-3"		42-17	42'-3 1/2"		55-19	55'-4"
28-12	28'-3 1/2"		42-20	42'-3"		56-16	56'-5 1/2"
30-14	30'-3"		44-14	44'-4 1/2"		57-18	57'-4 1/2"
32-13	32'-3 1/2"		44-16	44'-4"		60-18	60'-5"
33-15	33'-3"		45-18	45'-3 1/2"		60-20	60'-4 1/2"
34-13	34'-3 1/2"		46-15	46'-4 1/2"		64-18	64'-5 1/2"
35-14	35'-3 1/2"		46-19	46'-3 1/2"		64-20	64'-4 1/2"
35-17	35'-3"		47-18	47'-3 1/2"		68-20	68'-5"
37-15	37'-3 1/2"		48-15	48'-5"		68-22	68'-4 1/2"
38-14	38'-3 1/2"		48-18	48'-3 1/2"		70-24	70'-4"

S-MODELS	
MODEL	WIDTH
S20-12	20'-5"
S20-14	20'-5"
S25-12	25'-5"
S25-14	25'-5"
S25-16	25'-5"
S30-15	30'-2"
S30-16	30'-2"
S32-17	32'-3"
S35-16	35'-7"
S40-16	40'-1"
S40-18	40'-1"
S45-19	45'-4"
S50-20	50'-3"
S55-22	55'-3"
S60-25	60'-3"

E-MODELS	
MODEL	WIDTH
E20-12	20'-1"
E20-16	20'-1"
E25-12	25'-7"
E25-13	25'-7"
E25-16	25'-7"
E30-14	30'-0"
E30-16	30'-0"
E32-14	32'-2"
E32-16	32'-2"
E32-18	32'-2"
E35-14	35'-6"
E35-16	35'-6"
E40-16	39'-11"
E40-18	39'-11"

A-MODELS	
MODEL	WIDTH
A20-12	20'-7 1/2"
A25-12	25'-6 1/2"
A25-14	25'-7 1/2"
A30-14	30'-6 1/2"
A30-16	30'-7 1/2"
A32-18	31'-9 1/2"
A35-14	35'-8 1/2"
A35-16	35'-9 1/2"
A40-16	40'- 8 1/2"
A40-18	40'-1/2"
A45-17	45'-4 1/2"
A45-19	45'-6 1/2"
A50-17	50'-3 1/2"
A50-19	50'-4 1/2"

**FOUNDATION LENGTH
INDUSTRIAL BASE CONNECTOR
TABLE 2**

NUMBER OF ARCHES	FOUNDATION LENGTH			
	PACKAGE 0	PACKAGE 1	PACKAGE 2	PACKAGE 3
9	19'-0"	19'-8"	20'-4"	19'-0"
10	21'-0"	21'-8"	22'-4"	21'-0"
11	23'-0"	23'-8"	24'-4"	23'-0"
12	25'-0"	25'-8"	26'-4"	25'-0"
13	27'-0"	27'-8"	28'-4"	27'-0"
14	29'-0"	29'-8"	30'-4"	29'-0"
15	31'-0"	31'-8"	32'-4"	31'-0"
16	33'-0"	33'-8"	34'-4"	33'-0"
17	35'-0"	35'-8"	36'-4"	35'-0"
18	37'-0"	37'-8"	38'-4"	37'-0"
19	39'-0"	39'-8"	40'-4"	39'-0"
20	41'-0"	41'-8"	42'-4"	41'-0"
21	43'-0"	43'-8"	44'-4"	43'-0"
22	45'-0"	45'-8"	46'-4"	45'-0"
23	47'-0"	47'-8"	48'-4"	47'-0"
24	49'-0"	49'-8"	50'-4"	49'-0"
25	51'-0"	51'-8"	52'-4"	51'-0"
26	53'-0"	53'-8"	54'-4"	53'-0"
27	55'-0"	55'-8"	56'-4"	55'-0"
28	57'-0"	57'-8"	58'-4"	57'-0"
29	59'-0"	59'-8"	60'-4"	59'-0"
30	61'-0"	61'-8"	62'-4"	61'-0"
31	63'-0"	63'-8"	64'-4"	63'-0"
32	65'-0"	65'-8"	66'-4"	65'-0"
33	67'-0"	67'-8"	68'-4"	67'-0"
34	69'-0"	69'-8"	70'-4"	69'-0"
35	71'-0"	71'-8"	72'-4"	71'-0"
36	73'-0"	73'-8"	74'-4"	73'-0"
37	75'-0"	75'-8"	76'-4"	75'-0"
38	77'-0"	77'-8"	78'-4"	77'-0"
39	79'-0"	79'-8"	80'-4"	79'-0"
40	81'-0"	81'-8"	82'-4"	81'-0"
41	83'-0"	83'-8"	84'-4"	83'-0"
42	85'-0"	85'-8"	86'-4"	85'-0"
43	87'-0"	87'-8"	88'-4"	87'-0"
44	89'-0"	89'-8"	90'-4"	89'-0"
45	91'-0"	91'-8"	92'-4"	91'-0"
46	93'-0"	93'-8"	94'-4"	93'-0"
47	95'-0"	95'-8"	96'-4"	95'-0"
48	97'-0"	97'-8"	98'-4"	97'-0"
49	99'-0"	99'-8"	100'-4"	99'-0"
50	101'-0"	101'-8"	102'-4"	101'-0"

FOUNDATION LENGTH

Package 0 = Number of Arches x 2 Feet + 12 Inches

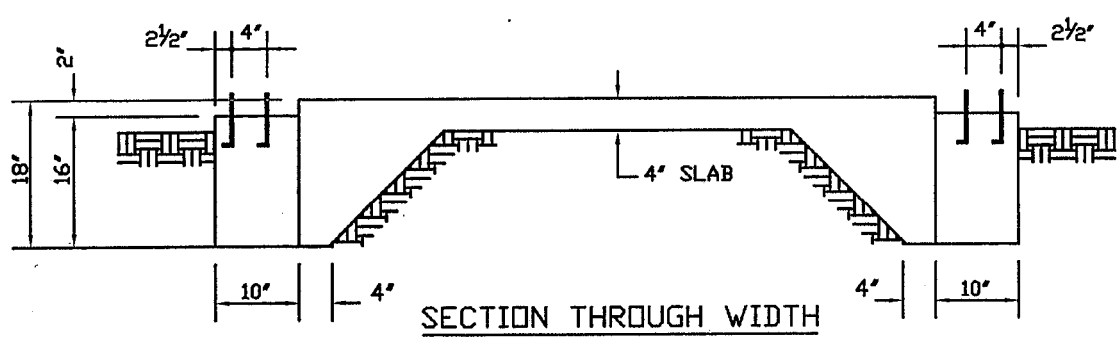
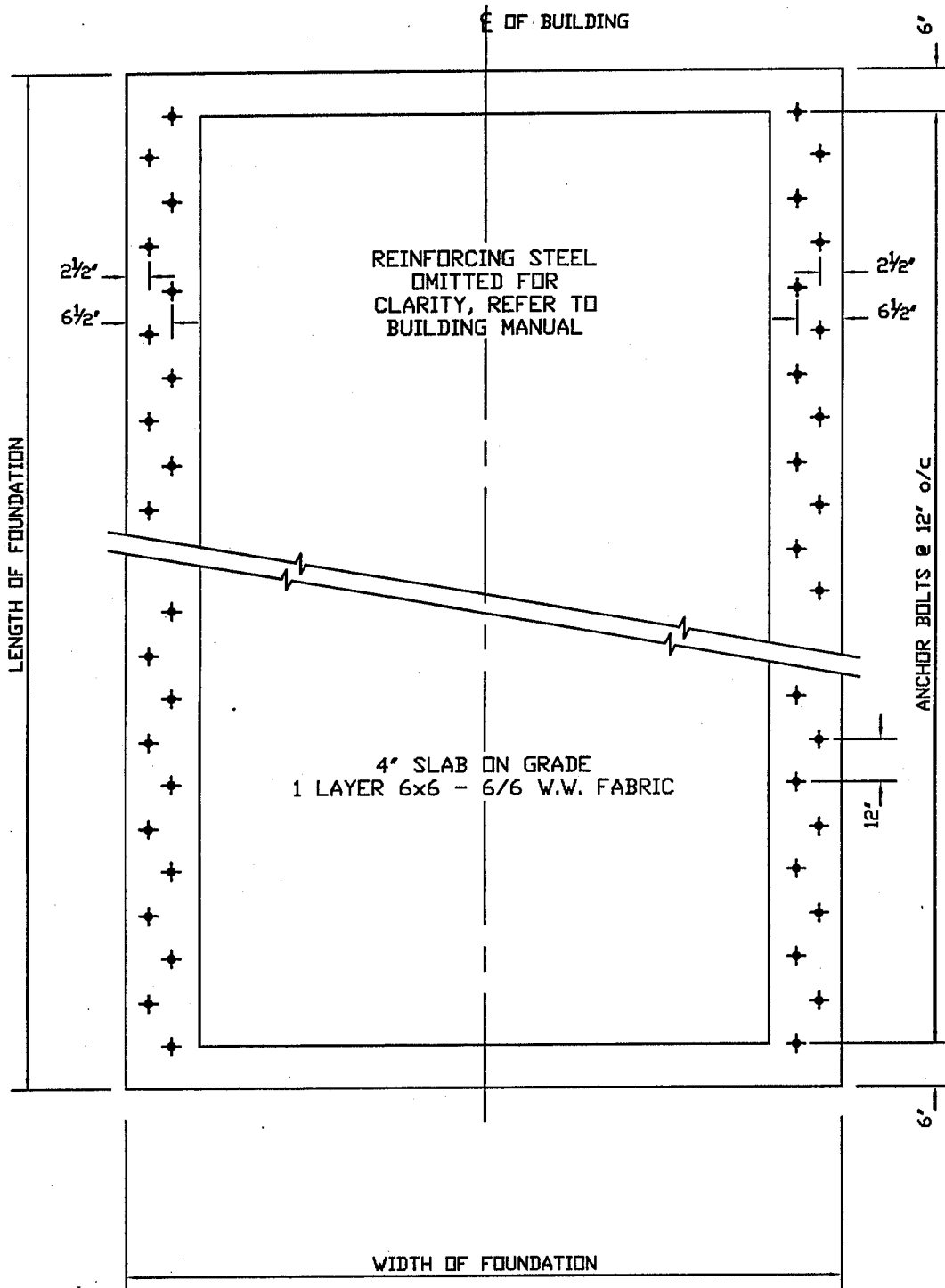
Package 1 = Number of Arches x 2 Feet + 20 Inches

Package 2 = Number of Arches x 2 Feet + 28 Inches

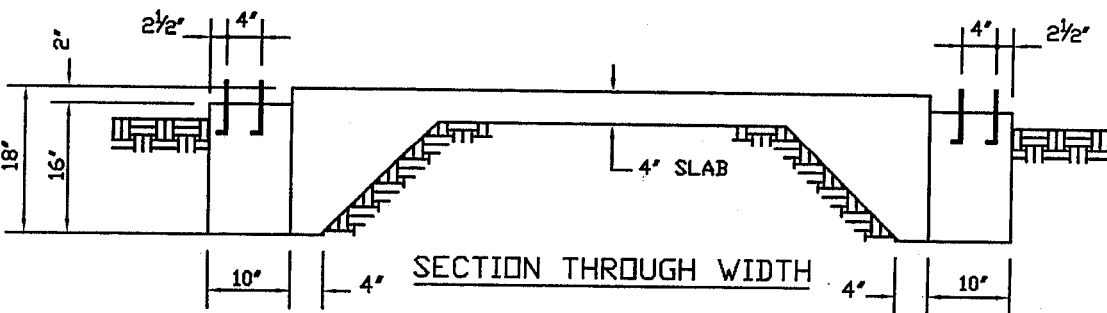
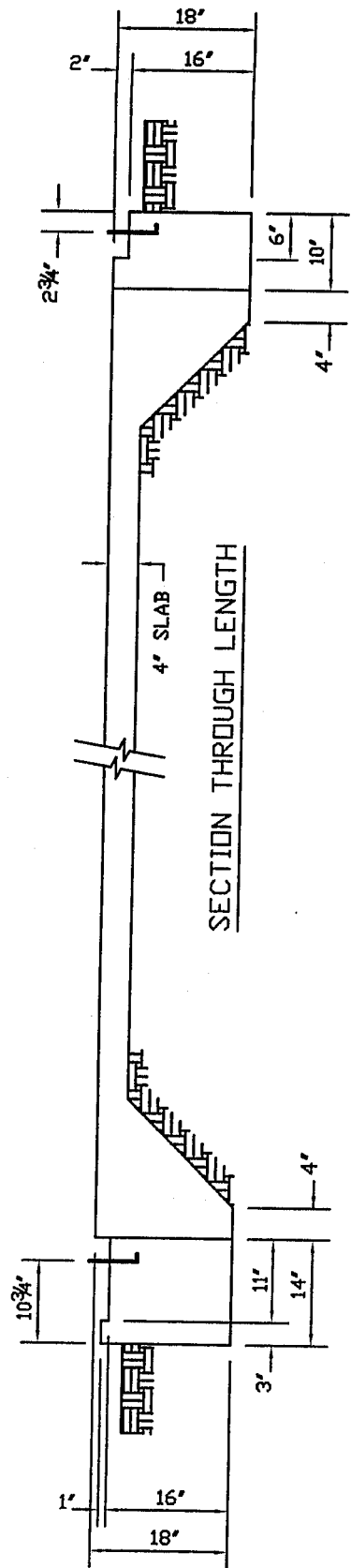
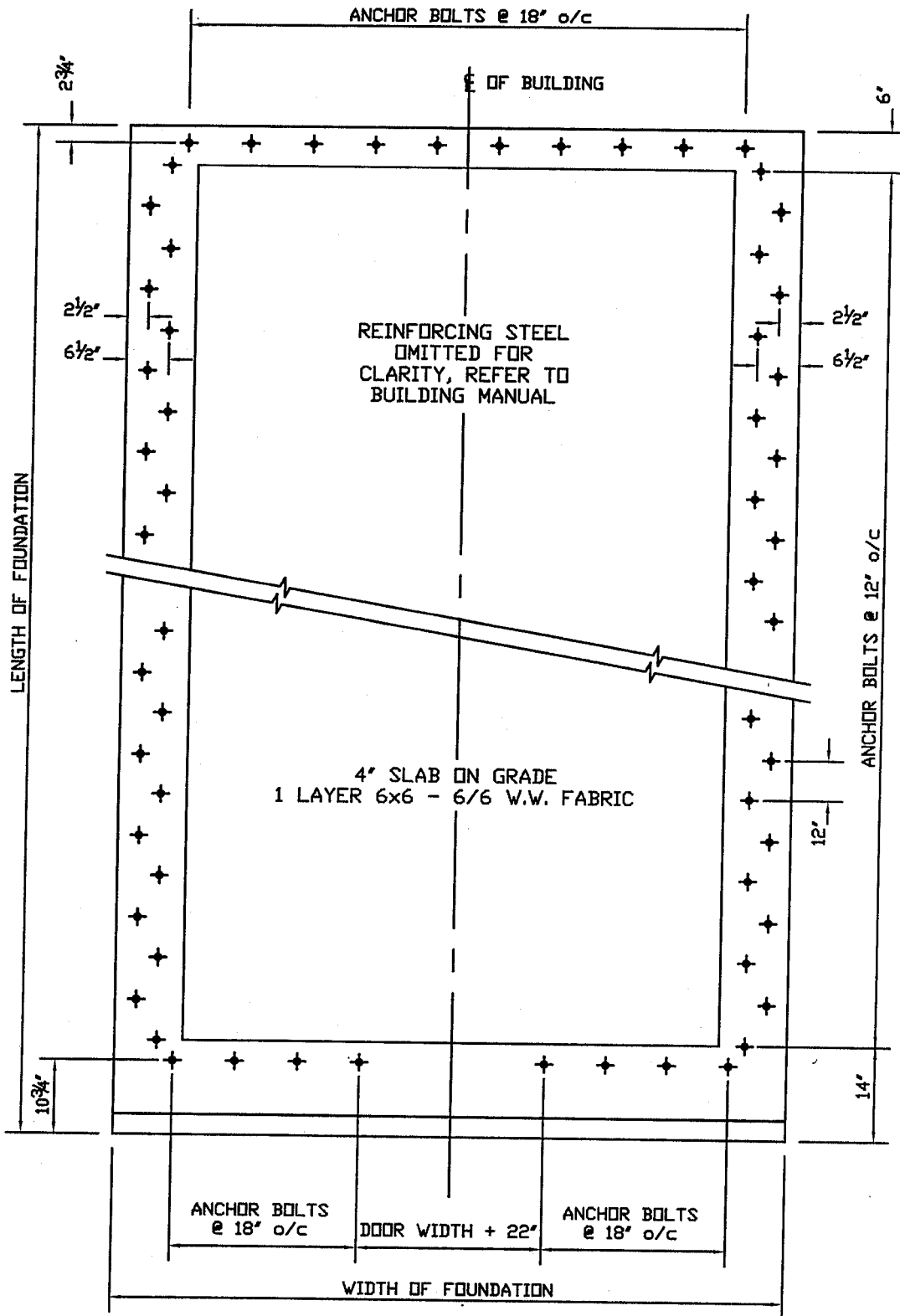
Package 3 = Number of Arches x 2 Feet + 12 Inches

NOTE: For buildings consisting of arches only with no curved angles or only inner curved angles at each end, use package 0 and deduct 6 inches from the foundation length. Therefore the foundation length would equal the number of arches x 2 feet + 6 inches and the first and last anchor bolt would start 3 inches from the end.

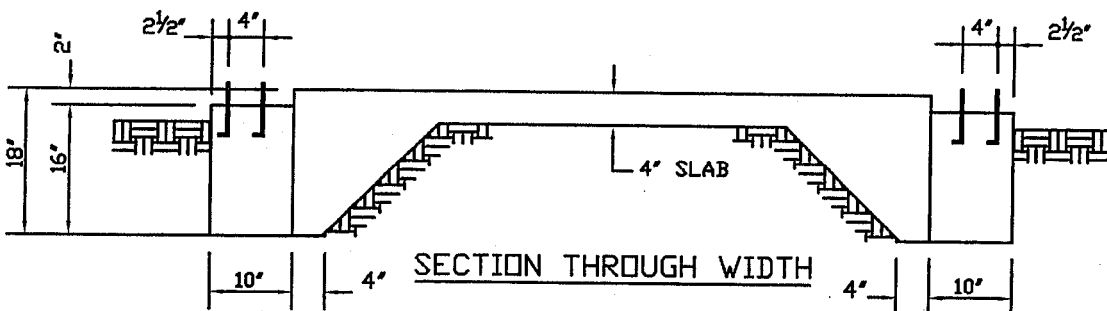
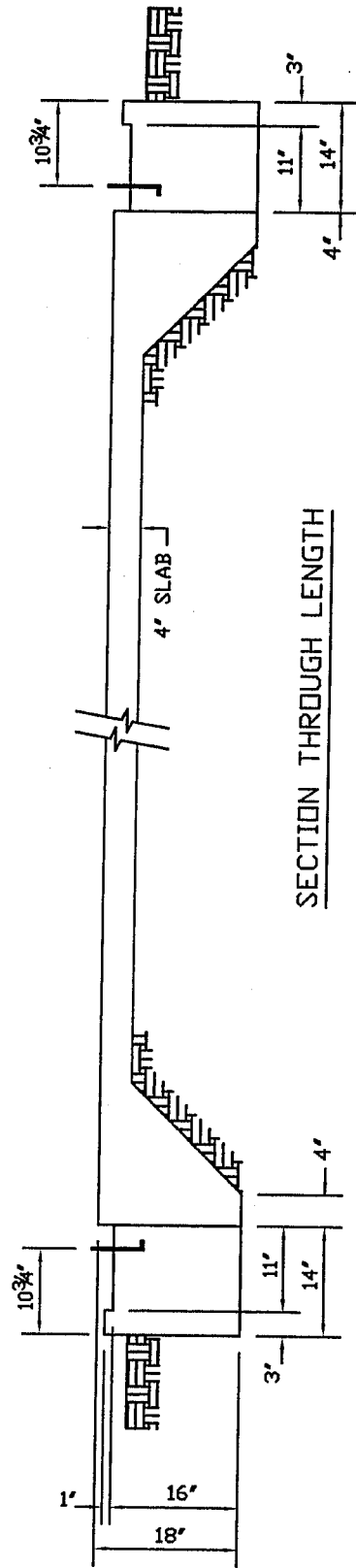
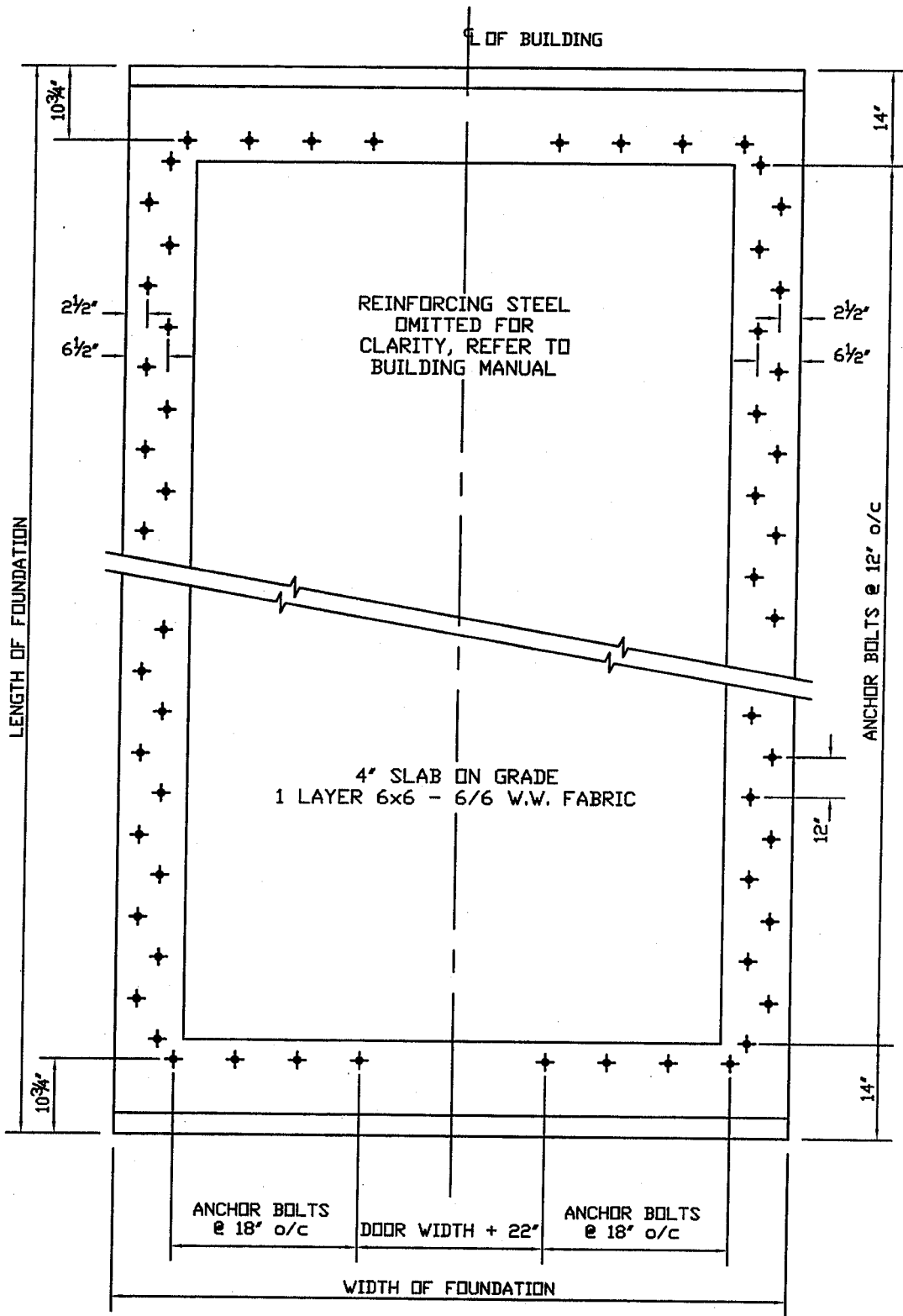
PACKAGE 0 - ANCHOR BOLT PLAN



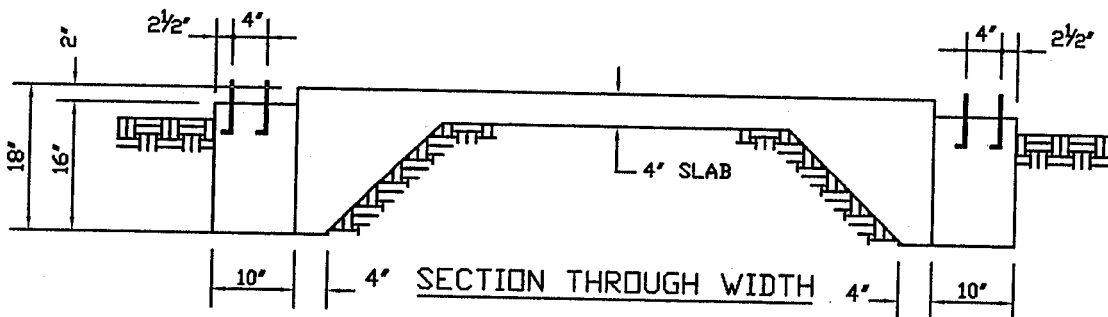
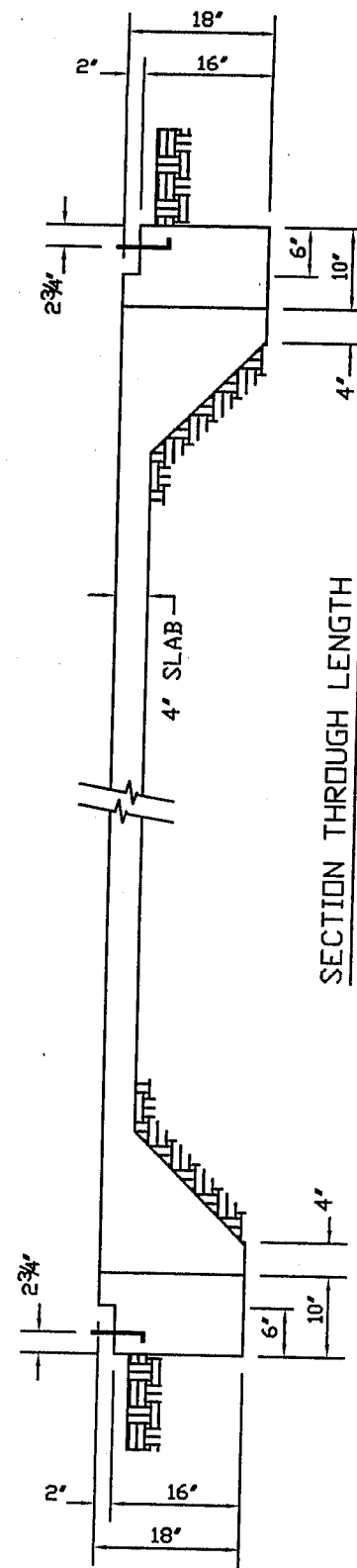
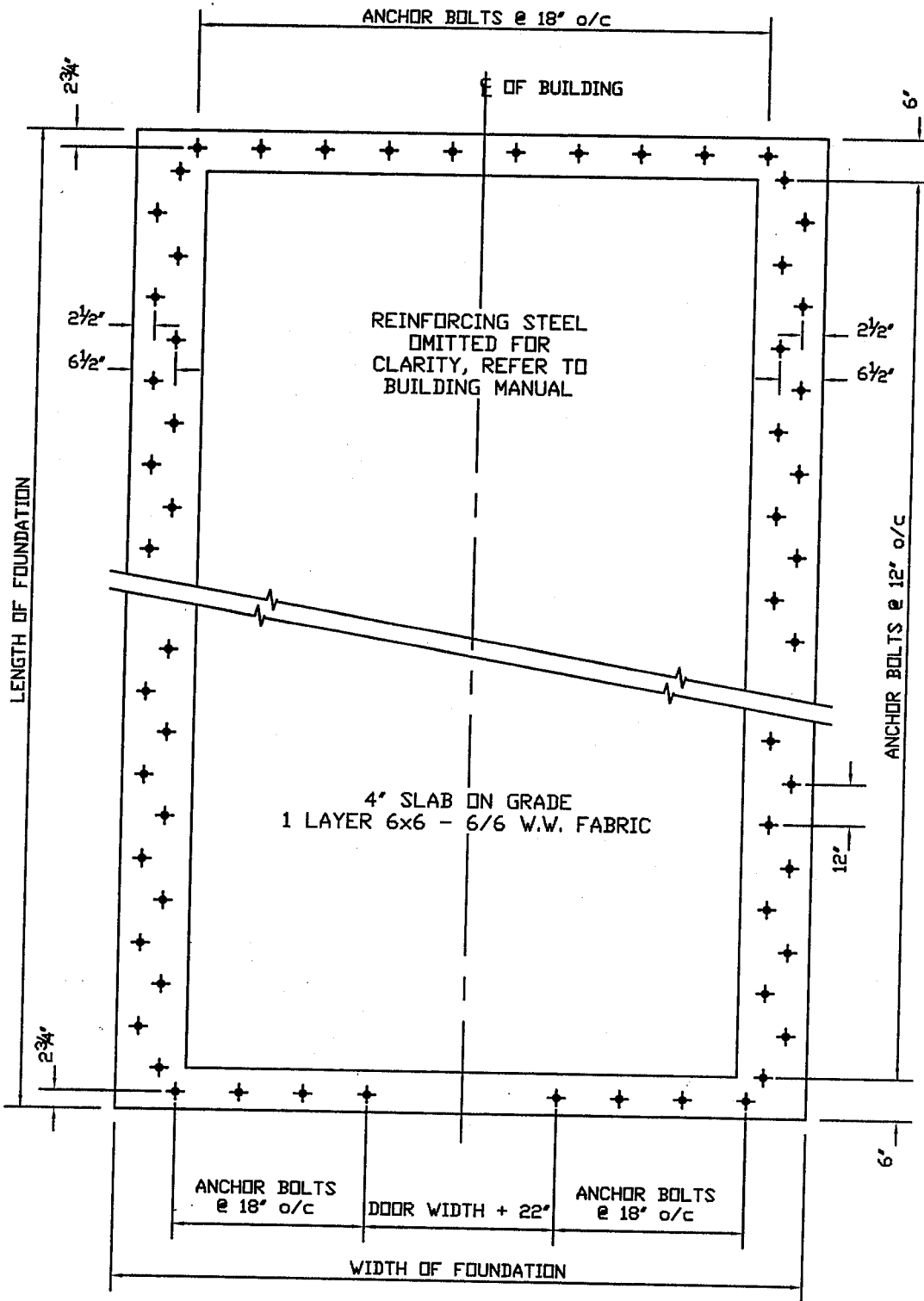
PACKAGE 1 - ANCHOR BOLT LAYOUT



PACKAGE 2 - ANCHOR BOLT LAYOUT



PACKAGE 3 - ANCHOR BOLT LAYOUT

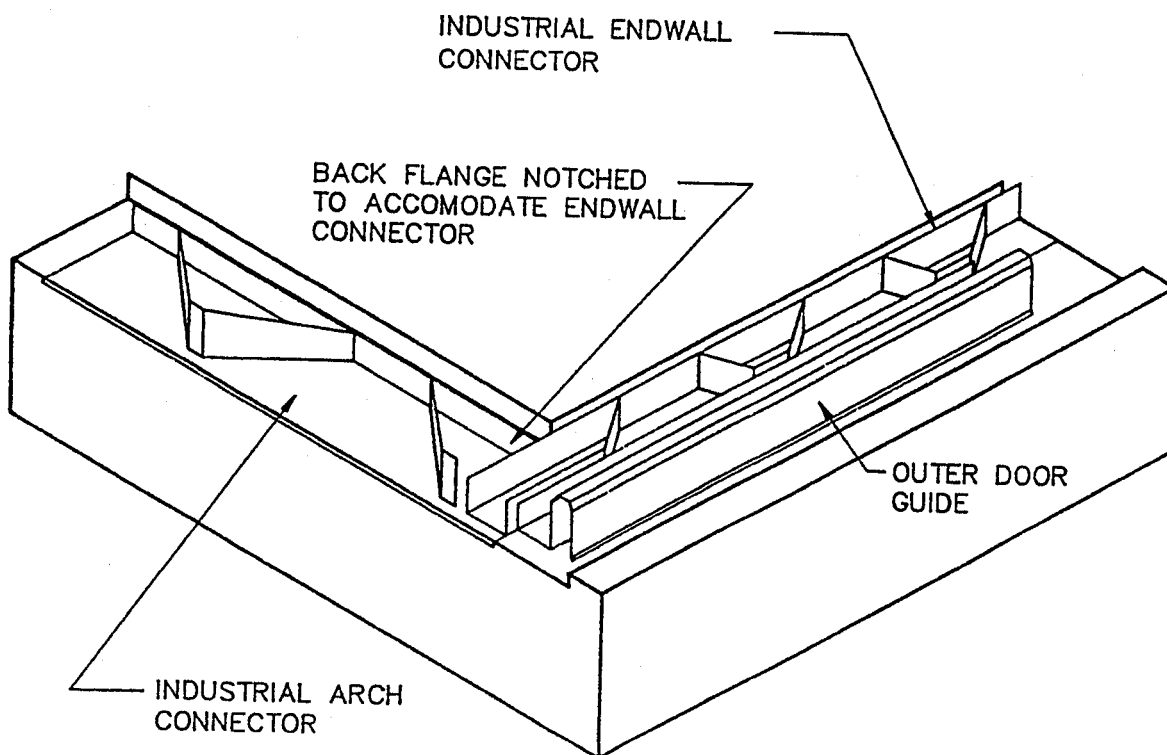


INSTALLATION OF CONNECTORS

When installing the arch connectors you will notice four special sections of arch connectors that are to be used on each end of the foundation. The end sections are 10 feet 5 inches in length and have a anchor bolt hole punched 5 inches from the edge. Once you have identified these four special sections, place them at each corner of the foundation. The sections that fit in between the end sections should then be placed. It is these sections that vary in length.

NOTE: It is best to first install the arch connectors and then place in position and install the endwall connectors. Endwall connectors can also be installed once the arches are erected.

The endwall connectors should be installed to extend out to the outside width of the building (not the outside width of the foundation). In order to obtain this, the back flange of the arch connector may have to be field cut or notched as shown below. As the endwalls are not load bearing, the fastening of the endwall connectors is not as critical as that of the arch connectors. The doorwall connectors have an anchor bolt punched 11 inches from the end.



ANCHOR BOLTS

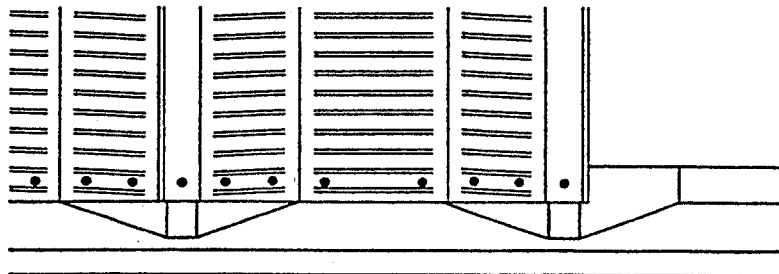
The anchor bolts to be used should be 1/2 inches in diameter and a minimum of 8 inches in length. If you are not using anchor bolts and decide to use lag bolts and lead shields, or some other type of fastener, you must determine that the pull out strength provided is equal to the standard anchor bolts.

NOTE: Anchor bolts are not supplied with the building.

BUILDING ERECTION

The arches and endwalls should be positioned in the connectors so that the respective holes are aligned. It is important that all bolts be inserted to provide a good connection, and to maintain the strength of the building. It may be necessary to do some field drilling of holes in the arch and endwall panels. You will notice that all the short arch panels will need to have holes drilled in the bottom end to enable them to be bolted to the arch connector.

NOTE: The building manual should be referred to for complete erection of the building.



HOLES IN SHORT ARCH PANEL
WILL HAVE TO BE DRILLED

CAULKING

Caulking or water proofing between the steel connector and the concrete foundation should be done. Two beads of butyl caulking should be applied under the arch connectors and one bead under the endwall connectors. Caulking should also be applied where the connectors butt up against each other. This measure will help to ensure that the joints are watertight.

GROUTING

Once the building is completely erected, it is wise to grout in the arches and endwalls. The round shape of the arches may result in wind suction during strong gusts of wind, which might lift some of the arches out of the arch connectors. It is therefore important to grout the building as soon as the assembly is completed. Grouting also contributes to the stiffness of the arches, resulting in a stronger building. By grouting in the cavities of the arches and endwalls you will also help to provide a watertight joint.

