

MO-FLEX NURSERY BUILDING PLAN
 PREPARED FOR: MISSOURI PLAN SERVICE
 PLAN NUMBER: MO4-726-94C1

DEVELOPED BY:

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COMMERCIAL AGRICULTURE PROGRAM
 UNIVERSITY EXTENSION

AGRICULTURAL ENGINEERING DEPARTMENT
 UNIVERSITY OF MISSOURI - COLUMBIA

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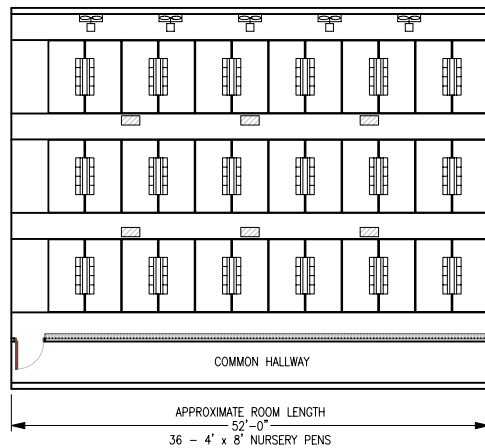
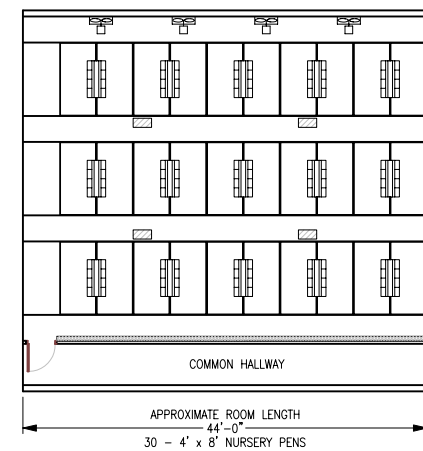
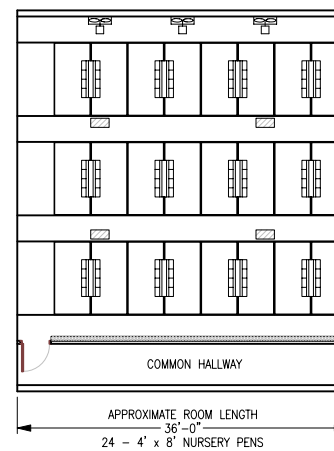
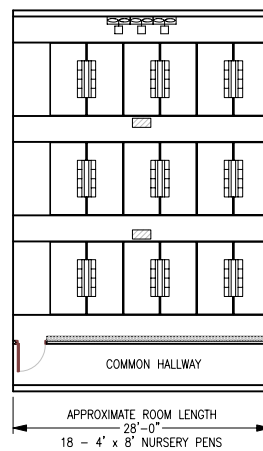
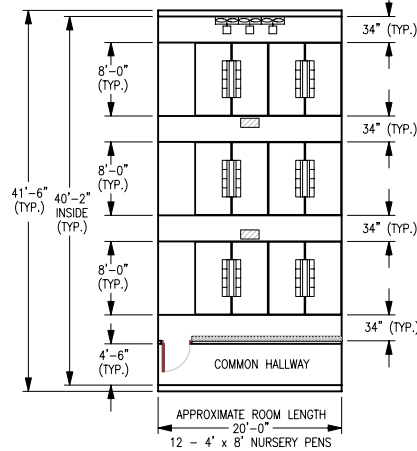
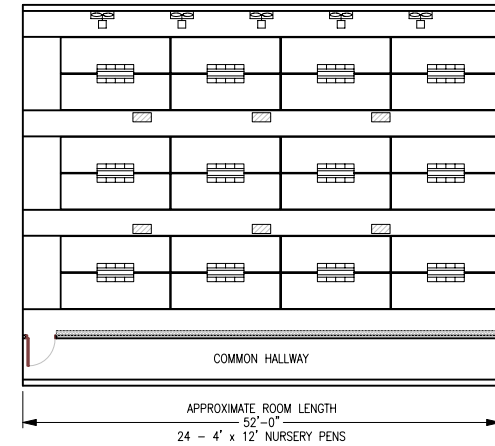
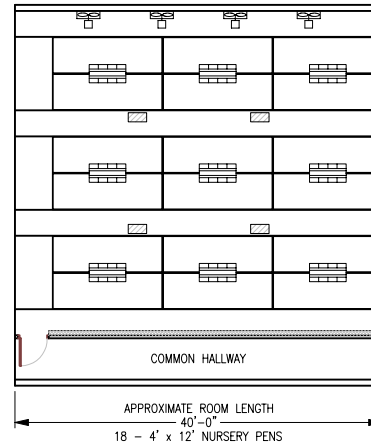
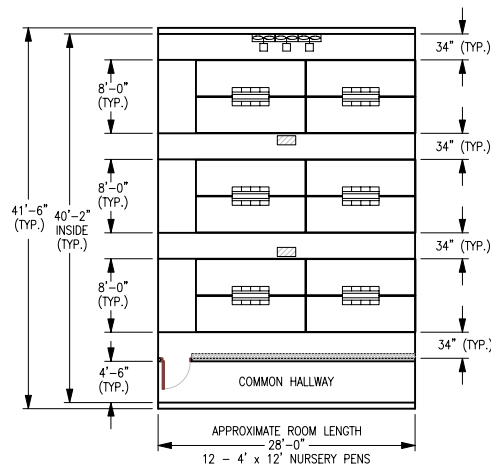
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- ASSURANCE OF COMPLIANCE WITH LOCAL CODES AND REGULATIONS;
- DEVELOPMENT AND/OR REVIEW OF SPECIFICATIONS FOR MATERIALS AND EQUIPMENT;
- SELECTION OF PROPER SITE PROVIDING ADEQUATE NATURAL RESOURCE BASE;
- SUPERVISION OF SITE PREPARATION, BID LETTING AND CONSTRUCTION;
- DEVELOPMENT OF A MANURE STORAGE SYSTEM AND MANURE MANAGEMENT PLAN;
- AND PROVISIONS FOR UTILITIES, ROADS AND/OR OTHER ACCESS.



NURSERY ROOM FLOOR PLANS

SCALE: 1" = 10'-0"

LEGEND FOR VENTILATION LAYOUT

- FAN LOCATION**
- WINTER CEILING INLET LOCATION**
- SUMMER INLET LOCATION**

- NOTES:
- SEE MANUAL FOR ADDITIONAL DISCUSSION OF VENTILATION SYSTEM REQUIREMENTS AND PERFORMANCE RECOMMENDATIONS.
 - SELECTED MANURE HANDLING OPTION IMPACTS WINTER MINIMUM VENTILATION DESIGN REQUIREMENTS. SEE MANUAL FOR ADDITIONAL DISCUSSION.

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NURSERY ROOM FLOOR PLAN OPTIONS

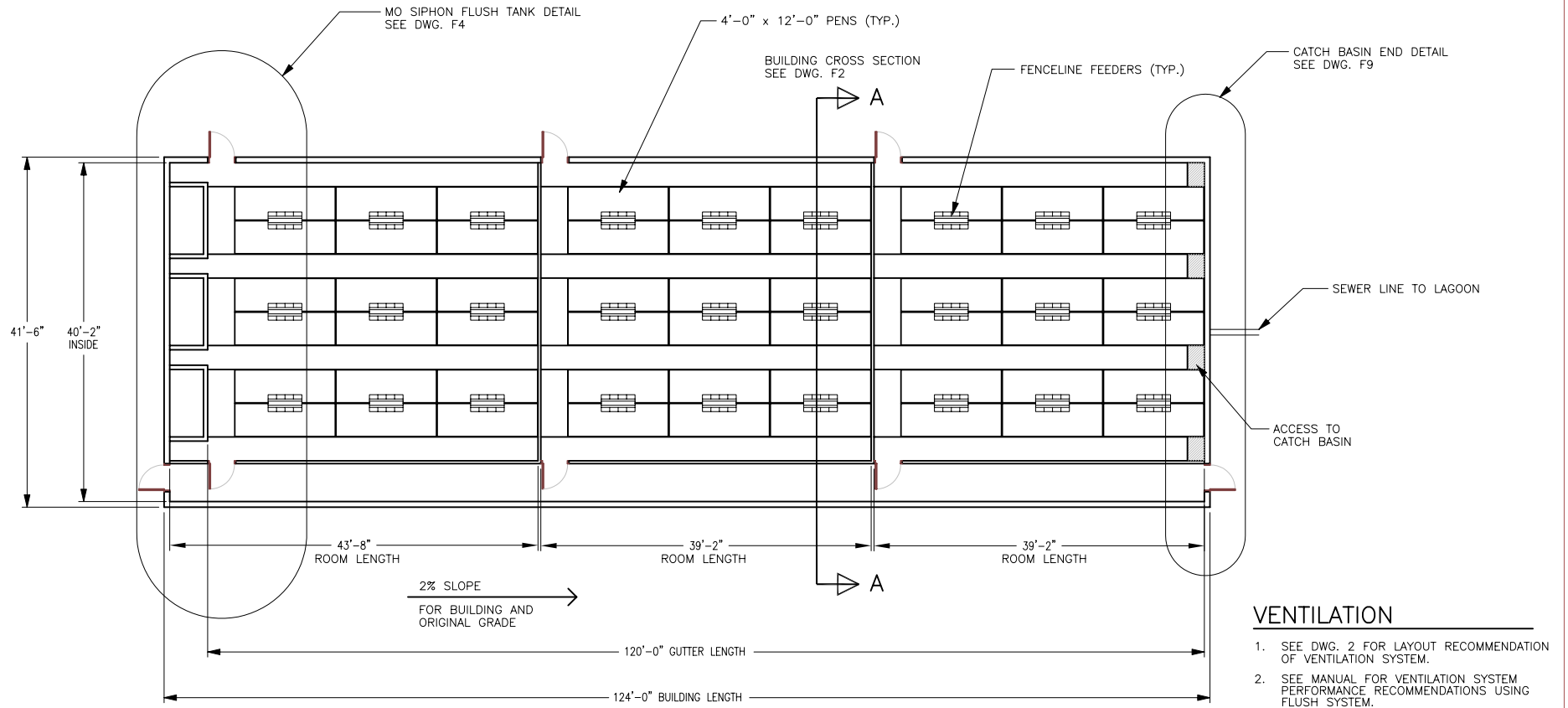
MO-FLEX NURSERY BUILDING PLAN

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PLAN NO.: M04-726-94C1	DATE: 9/94	SHEET
SCALE: 1"=10'-0"	2 : 2 OF 20	

MO-FLEX NURSERY BUILDING FLUSH SYSTEM USING MO SIPHON TANKS

REVIEW ACCOMPANYING MANUAL FOR DISCUSSION ON MODIFYING BUILDING SIZE AND HOW TO INCLUDE MULTIPLE ROOMS



FLUSH BUILDING FLOOR PLAN

SCALE: 1" = 10'-0"

LIVESTOCK EQUIPMENT

3 ROOMS WITH 18 - 4'-0" x 12'-0" PENS

SITE SELECTION AND PREPARATION INFORMATION

- SOIL BUILDING PAD SHOULD BE ABOUT 10'-0" TO 20'-0" LONGER AND 10'-0" WIDER THAN BUILDING.
- SOIL BUILDING PAD SHOULD SLOPE 2% FROM TANK END TO BASIN END FOR GOOD FLUSHING PERFORMANCE.
- NO SLOPE ACROSS WIDTH OF SOIL BUILDING PAD SHOULD EXIST.
- BUILDING PROXIMITY TO OTHER SWINE BUILDINGS IMPACTS PIG PERFORMANCE AND SHOULD BE CONSIDERED.

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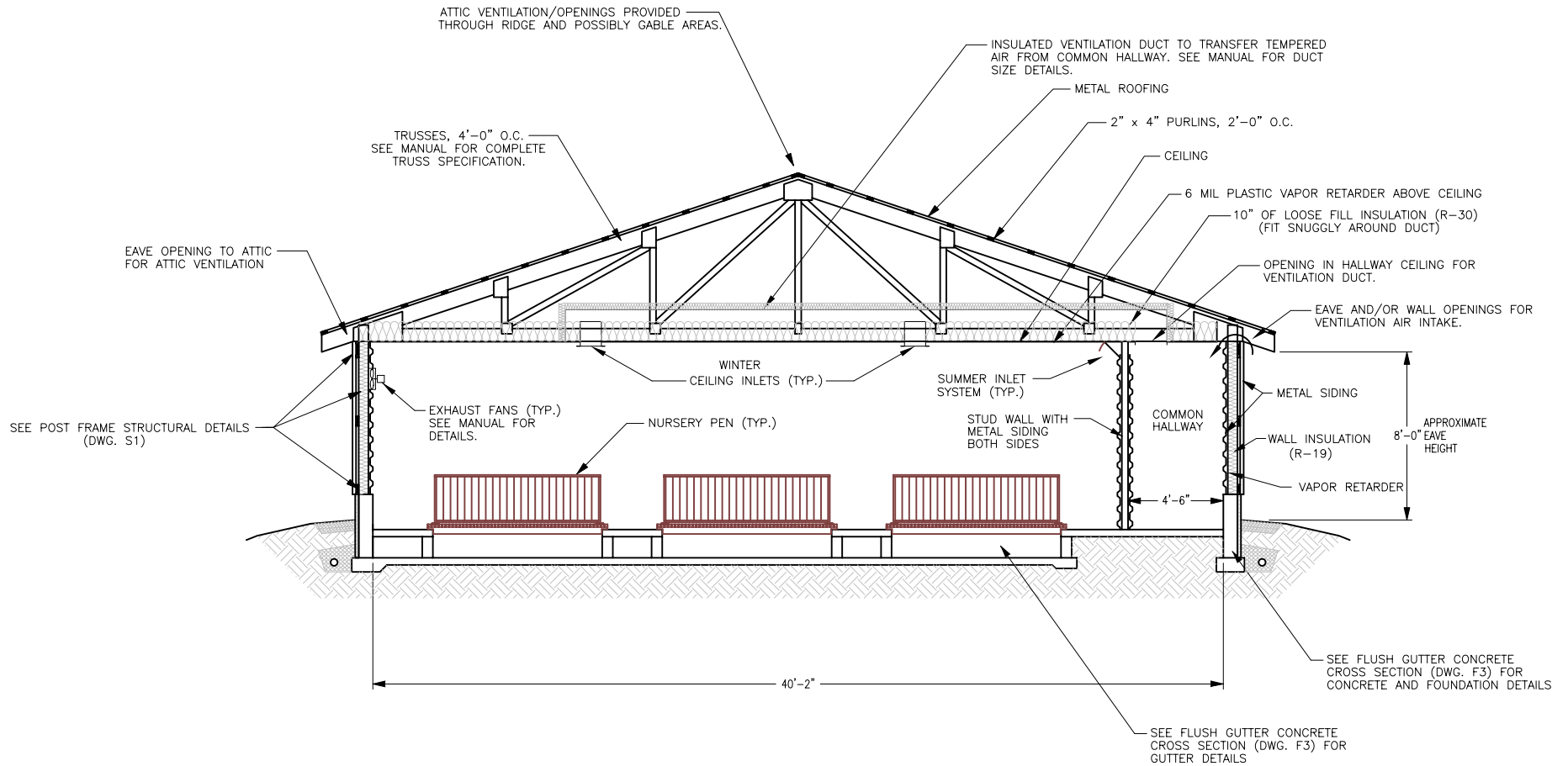
FLOOR PLAN USING FLUSH AND MO SIPHON TANKS

MO-FLEX NURSERY BUILDING PLAN

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FLUSH BUILDING

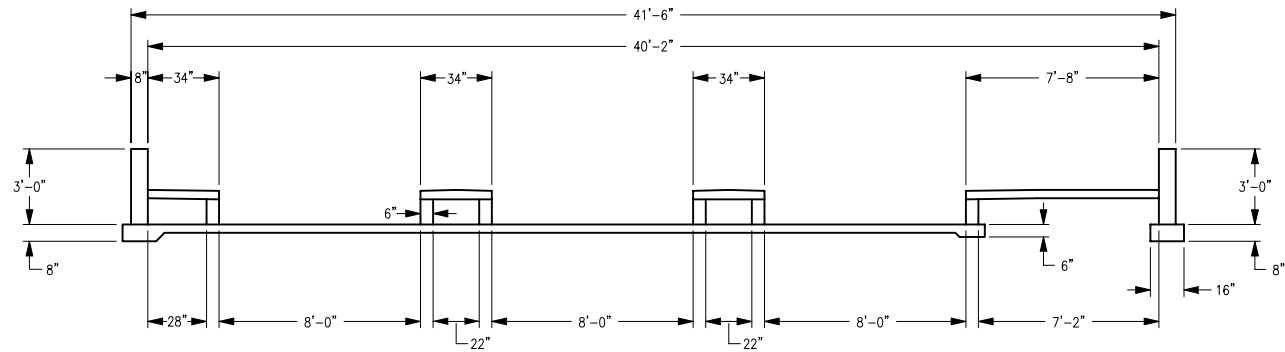


FLUSH BUILDING CROSS SECTION

SCALE: 1/4" = 1'-0"

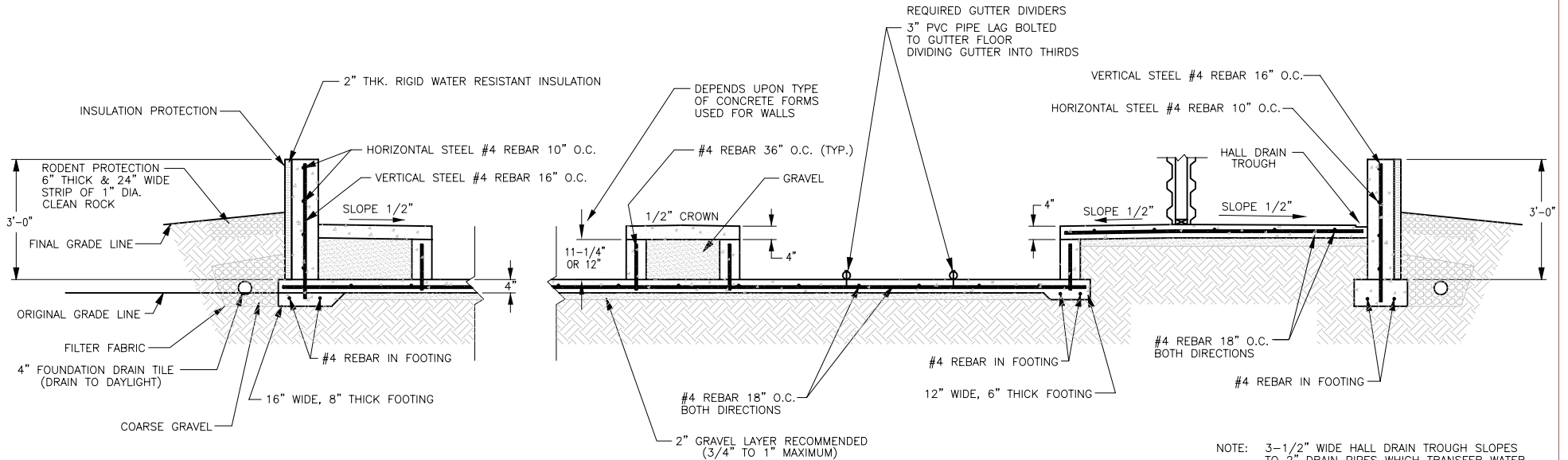
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FLUSH BUILDING CROSS SECTION			
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		SCALE:	1/4"=1'-0"
		SHEET	P2 : 4 OF 20



FLUSH GUTTER CONCRETE CROSS SECTION

SCALE: 1/4" = 1'-0"



SIDEWALL, GUTTER & GUTTER WALL DETAILS

SCALE: 1/2" = 1'-0"

NOTE: 3-1/2" WIDE HALL DRAIN TROUGH SLOPES TO 2" DRAIN PIPES WHICH TRANSFER WATER FROM HALLWAY TO FLUSH GUTTER. DRAIN PIPES HAVE P-TRAPS AND ARE SPACED NO MORE THAN 20' APART.

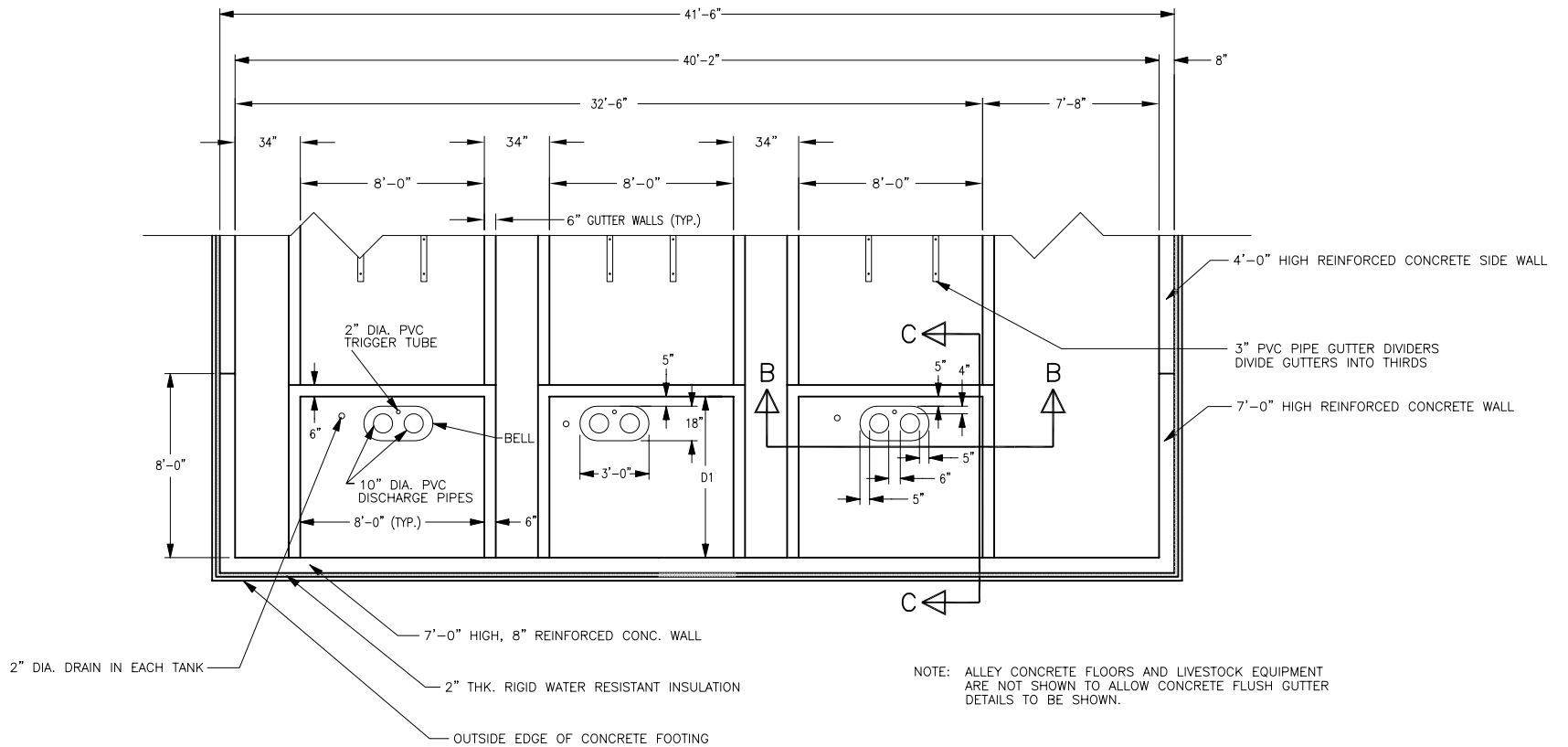
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FLUSH GUTTER CONCRETE CROSS SECTION

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SCALE: AS SHOWN	SHEET: P3 : 5 OF 20	



MO SIPHON FLUSH TANK DETAIL

SCALE: 1/4" = 1'-0"

GUTTER LENGTH	TANK LENGTH D1	DIST. FROM FOOTER TO SUMP D2
UP TO 160'	4'-0"	14"
160'-200'	5'-0"	26"
201'-240'	6'-0"	38"
241'-280'	7'-0"	50"

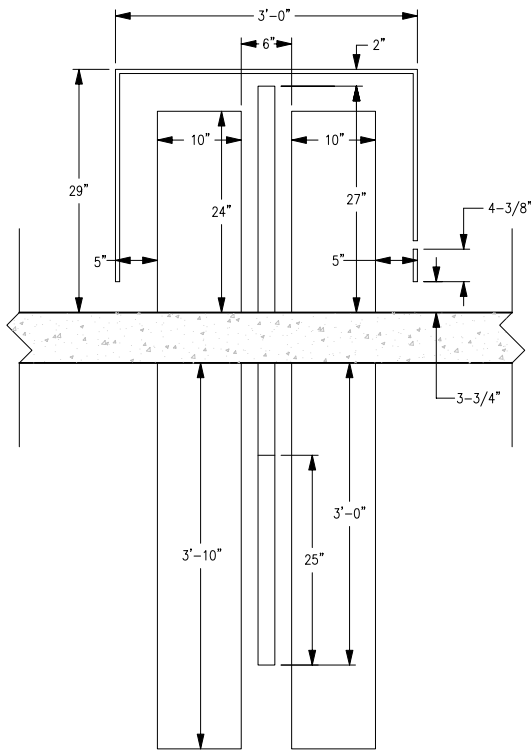
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MO SIPHON FLUSH TANK DETAIL

MO-FLEX NURSERY BUILDING PLAN

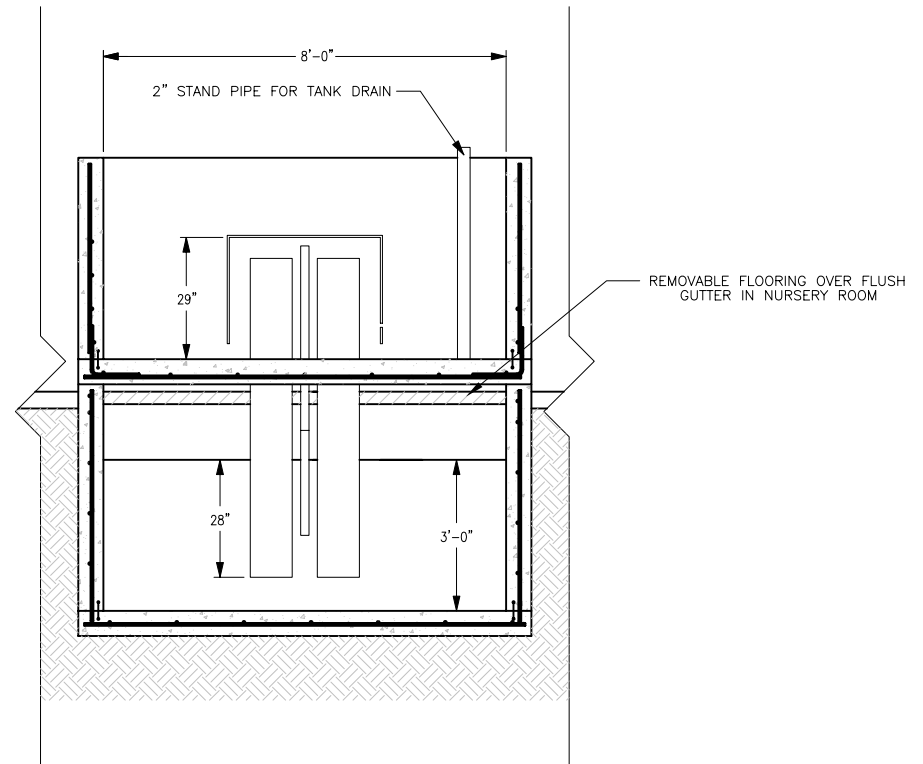
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SCALE: AS SHOWN	SHEET: F4 : 6 OF 20	



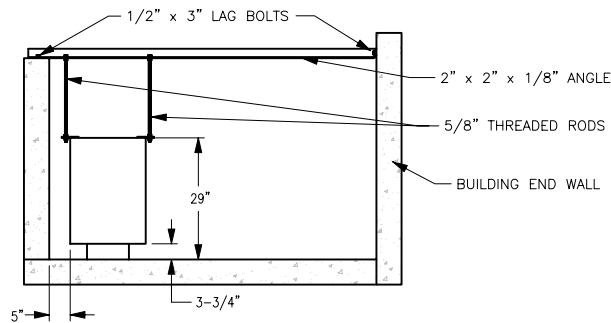
PIPING DIMENSIONS

SCALE: 1" = 1'-0"



B SIPHON FLUSH TANK SECTION
B (SIPHON DETAILS)

SCALE: 1/2" = 1'-0"



BELL SECURING DETAIL

SCALE: 1/2" = 1'-0"

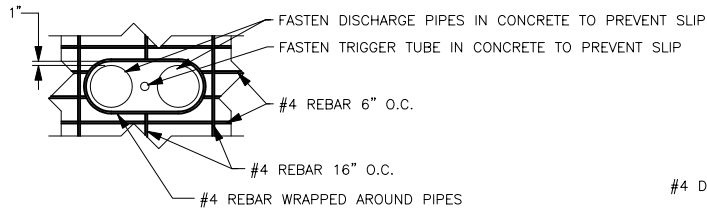
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TANK AND SUMP LONGITUDINAL SECTION (PART 1)

MO-FLEX NURSERY BUILDING PLAN

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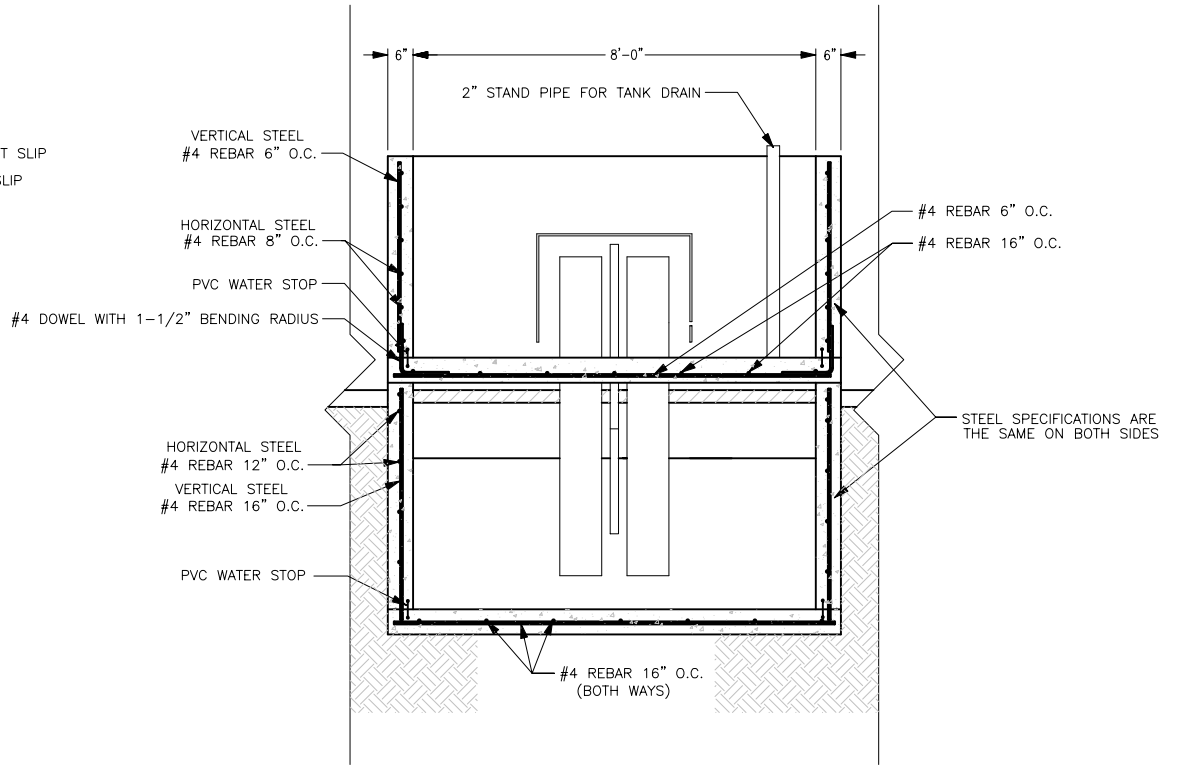
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SCALE: AS SHOWN	SHEET: P5 : 7 OF 20	



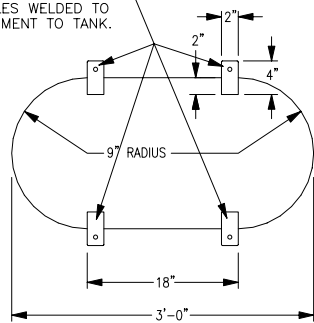
NOTE: ALL STEEL SHOULD BE TIED TOGETHER AT JOINTS.

STEEL DETAILS AROUND PIPING

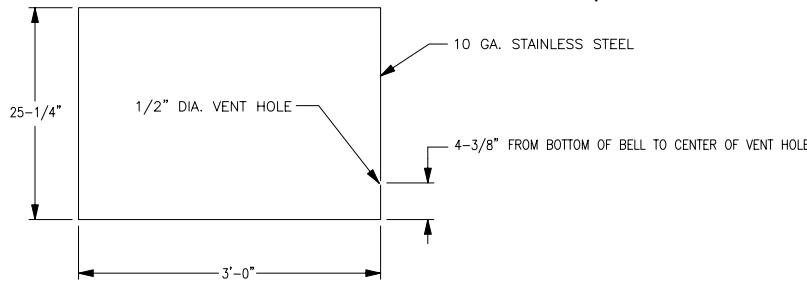
SCALE: 1/2" = 1'-0"



2" x 4" x 1/4" FLAT STEEL WITH 11/16" HOLES WELDED TO BELL FOR ATTACHMENT TO TANK.



TOP VIEW



SIDE VIEW

TANK BELL CONSTRUCTION DETAILS

SCALE: 1" = 1'-0"

B SIPHON FLUSH TANK SECTION (CONCRETE DETAILS)

SCALE: 1/2" = 1'-0"

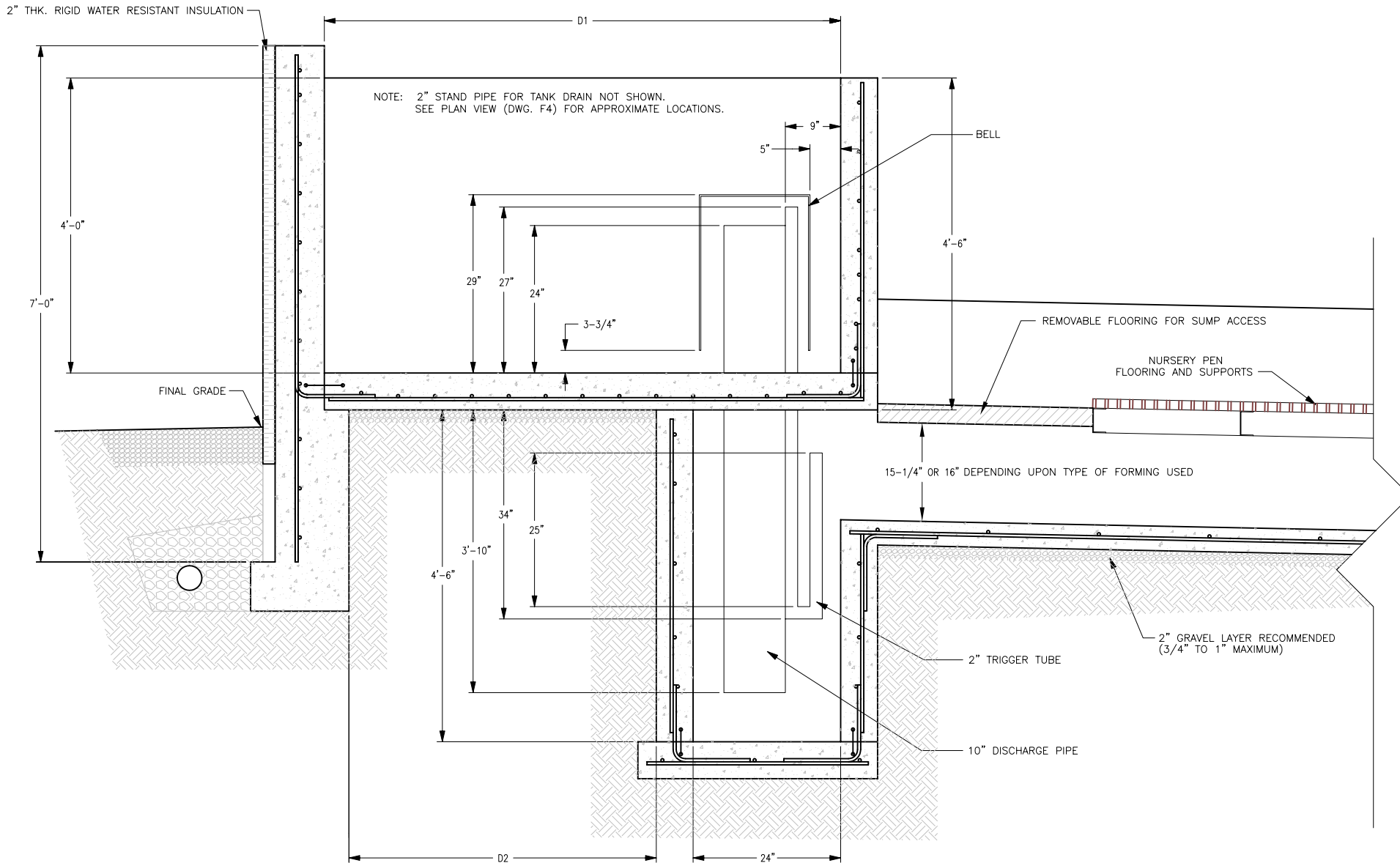
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TANK AND SUMP LONGITUDINAL SECTION (PART 2)

MO-FLEX NURSERY BUILDING PLAN

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SCALE: AS SHOWN	SHEET: P6 : 8 OF 20	



c MO SIPHON FLUSH TANK SECTION
c (SIPHON DETAILS)

SCALE: 1" = 1'-0"

GUTTER LENGTH	TANK LENGTH D1	DIST. FROM FOOTER TO SUMP D2
UP TO 160'	4'-0"	14"
161'-200'	5'-0"	26"
201'-240'	6'-0"	38"
241'-280'	7'-0"	50"

NOTE:
 GUTTER LENGTH IS THE DISTANCE FROM THE FRONT OF THE TANK TO THE FAR END WALL.

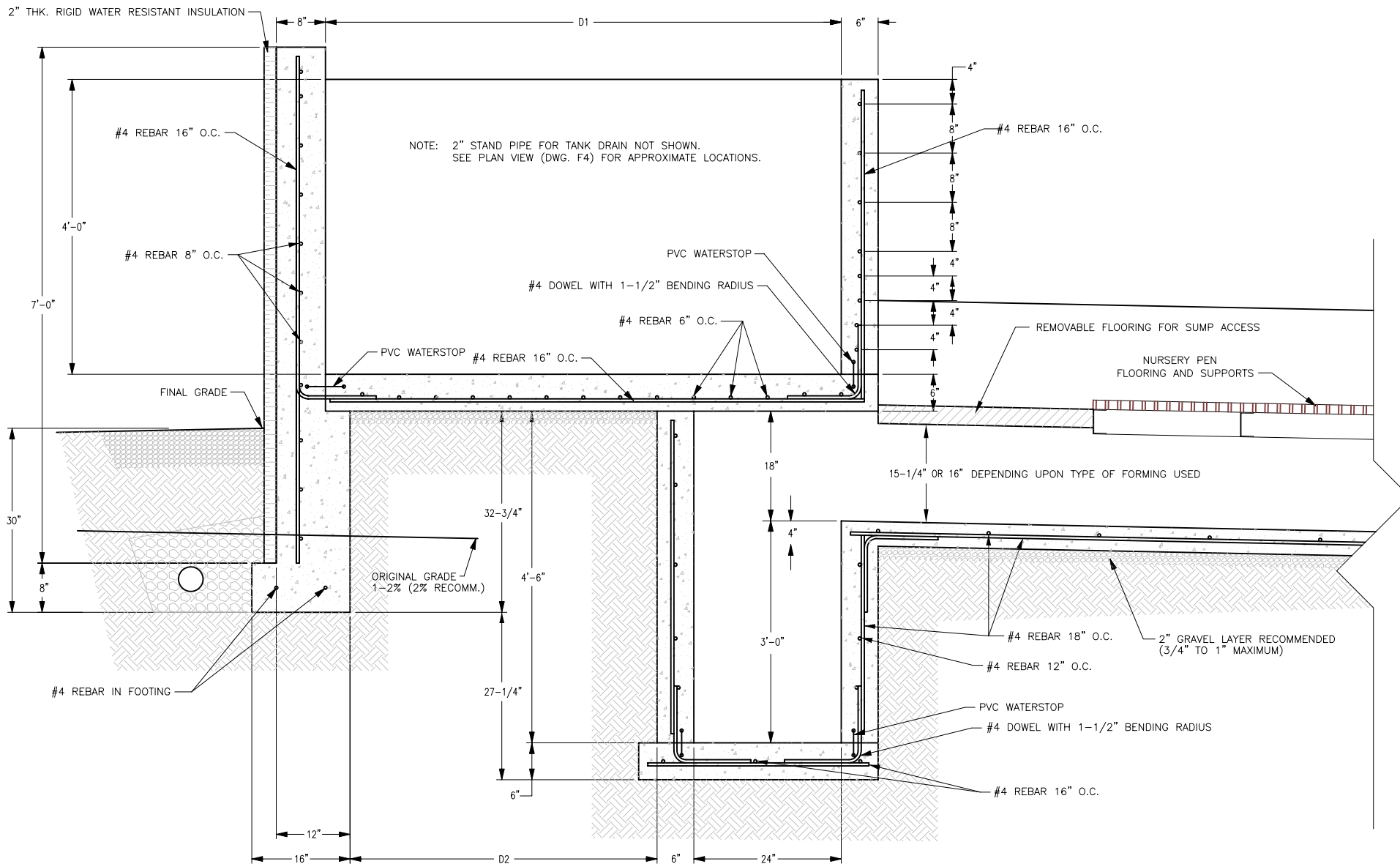
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TANK AND SUMP CROSS SECTION (PART 1)

MO-FLEX NURSERY BUILDING PLAN

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SCALE: 1"=1'-0"	SHEET: F7 : 9 OF 20	



c MO SIPHON FLUSH TANK SECTION
c (CONCRETE DETAILS)

SCALE: 1" = 1'-0"

GUTTER LENGTH	TANK LENGTH D1	DIST. FROM FOOTER TO SUMP D2
UP TO 160'	4'-0"	14"
161'-200'	5'-0"	26"
201'-240'	6'-0"	38"
241'-280'	7'-0"	50"

NOTE:
 GUTTER LENGTH IS THE DISTANCE FROM THE FRONT OF THE TANK TO THE FAR END WALL.

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TANK AND SUMP CROSS SECTION (PART 2)

MO-FLEX NURSERY BUILDING PLAN

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SCALE: 1"=1'-0"	SHEET	P8 : 10 OF 20

GENERAL NOTES

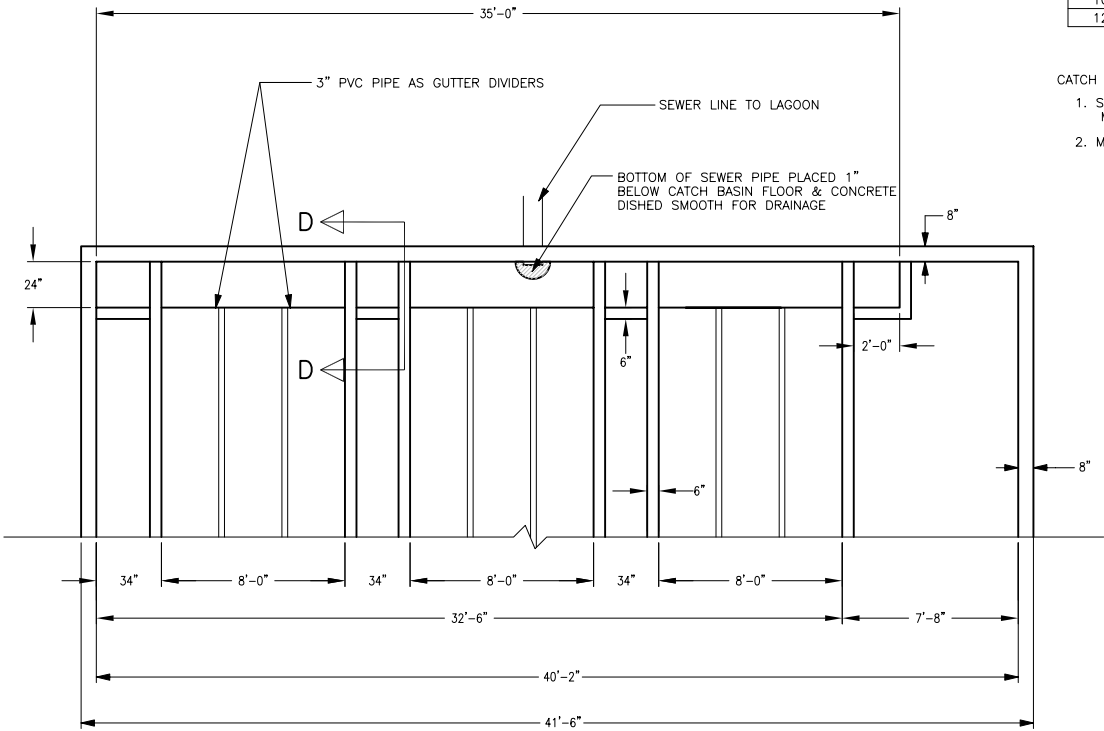
SEWER INFORMATION:

- 1. SEWER LINE SLOPE - 2% .
- 2. SEWER LINE CAN BE LOCATED ANYWHERE IN CATCH BASIN TO SIMPLIFY RETURN TO LAGOON.

SEWER LINE	GUTTER LENGTH
8"	UP TO 200'
10"	201' TO 240'
12"	241' TO 280'

CATCH BASIN:

- 1. SLOPE BASIN FLOOR TO SEWER LINE A MINIMUM OF 1/8"/FT.
- 2. MAXIMUM BASIN DEPTH IS 24".



NOTE: ALLEY CONCRETE FLOORS AND LIVESTOCK EQUIPMENT ARE NOT SHOWN TO ALLOW FLUSH GUTTER CONCRETE DETAILS TO BE SHOWN.

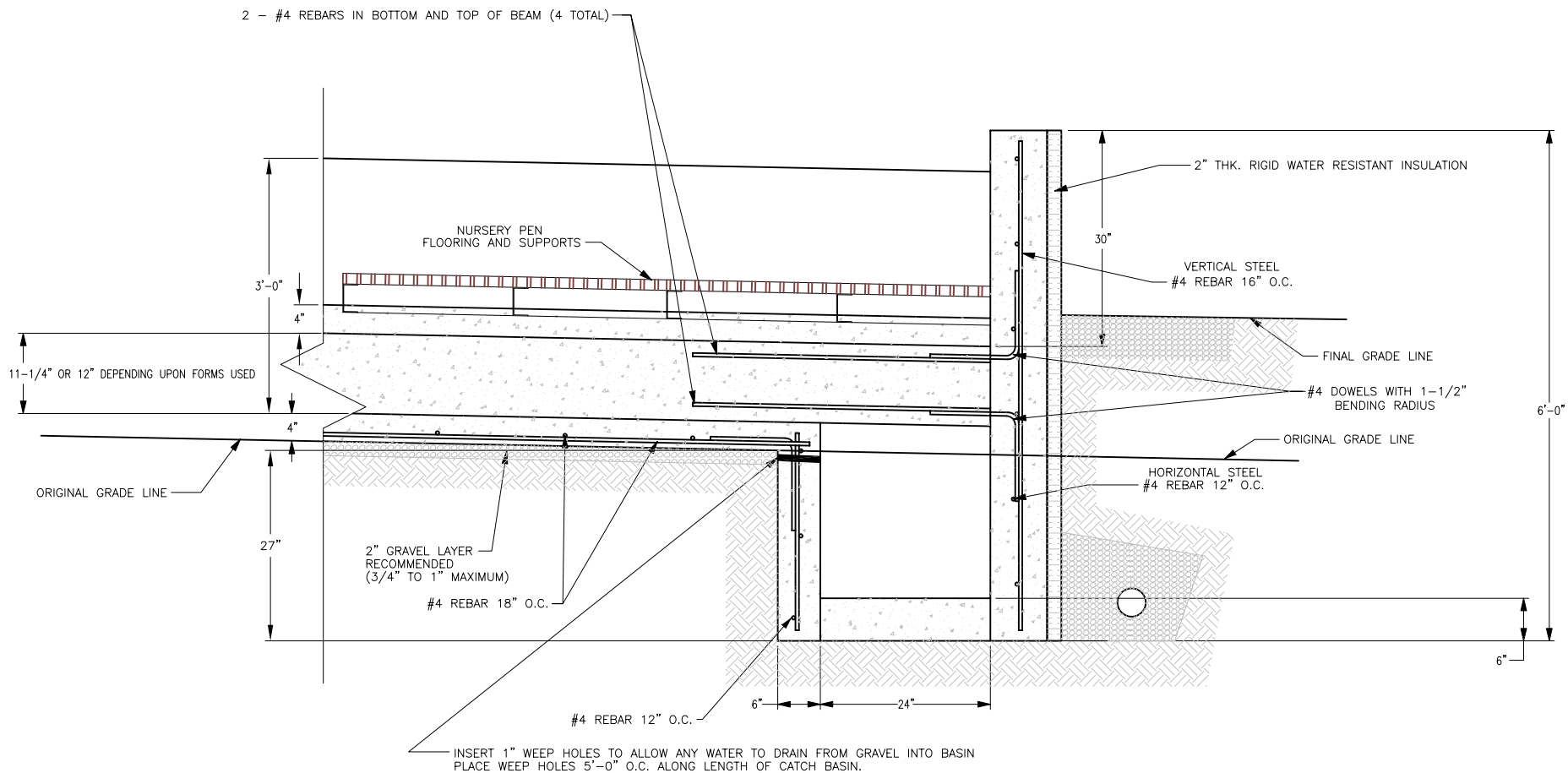
CATCH BASIN DETAIL

SCALE: 1/4" = 1'-0"

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CATCH BASIN END DETAIL

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	M04-726-94C1	9/94	
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1/4"=1'-0"	P9 : 11 OF 20		



D CATCH BASIN CROSS SECTION

SCALE: 1" = 1'-0"

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CATCH BASIN CROSS SECTION

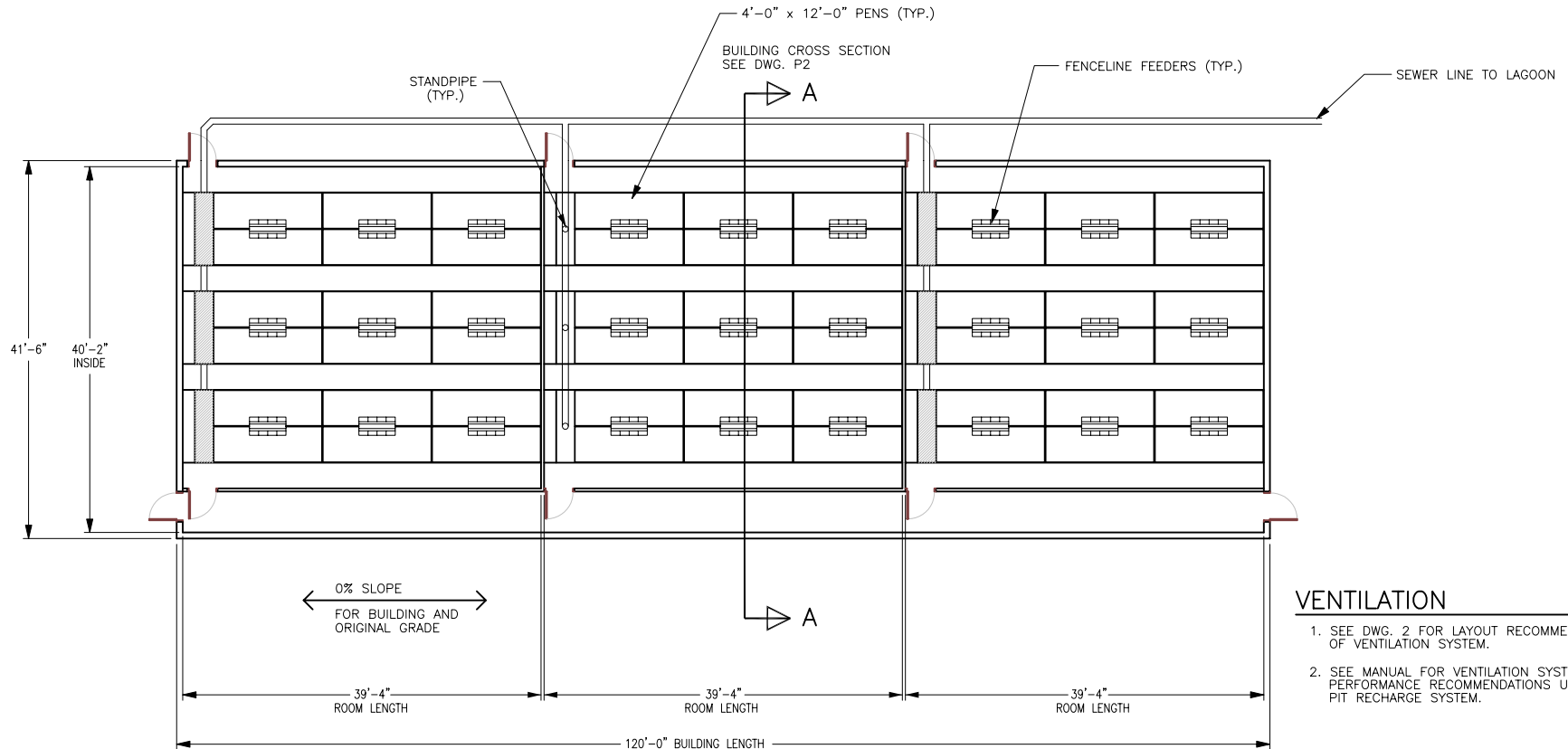
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MO-FLEX NURSERY BUILDING PIT RECHARGE MANURE SYSTEM

REVIEW ACCOMPANYING MANUAL FOR DISCUSSION ON MODIFYING BUILDING SIZE AND HOW TO INCLUDE MULTIPLE ROOMS



VENTILATION

1. SEE DWG. 2 FOR LAYOUT RECOMMENDATION OF VENTILATION SYSTEM.
2. SEE MANUAL FOR VENTILATION SYSTEM PERFORMANCE RECOMMENDATIONS USING PIT RECHARGE SYSTEM.

PIT RECHARGE BUILDING FLOOR PLAN

SCALE: 1" = 10'-0"

LIVESTOCK EQUIPMENT

3 ROOMS WITH 18 - 4'-0" x 12'-0" PENS

SITE SELECTION AND PREPARATION INFORMATION

1. SOIL BUILDING PAD SHOULD BE ABOUT 10'-0" TO 20'-0" LONGER AND 10'-0" WIDER THAN BUILDING.
2. NO SLOPE ACROSS WIDTH OR LENGTH OF SOIL BUILDING PAD SHOULD EXIST.
3. BUILDING PROXIMITY TO OTHER SWINE BUILDINGS IMPACTS PIG PERFORMANCE AND SHOULD BE CONSIDERED.

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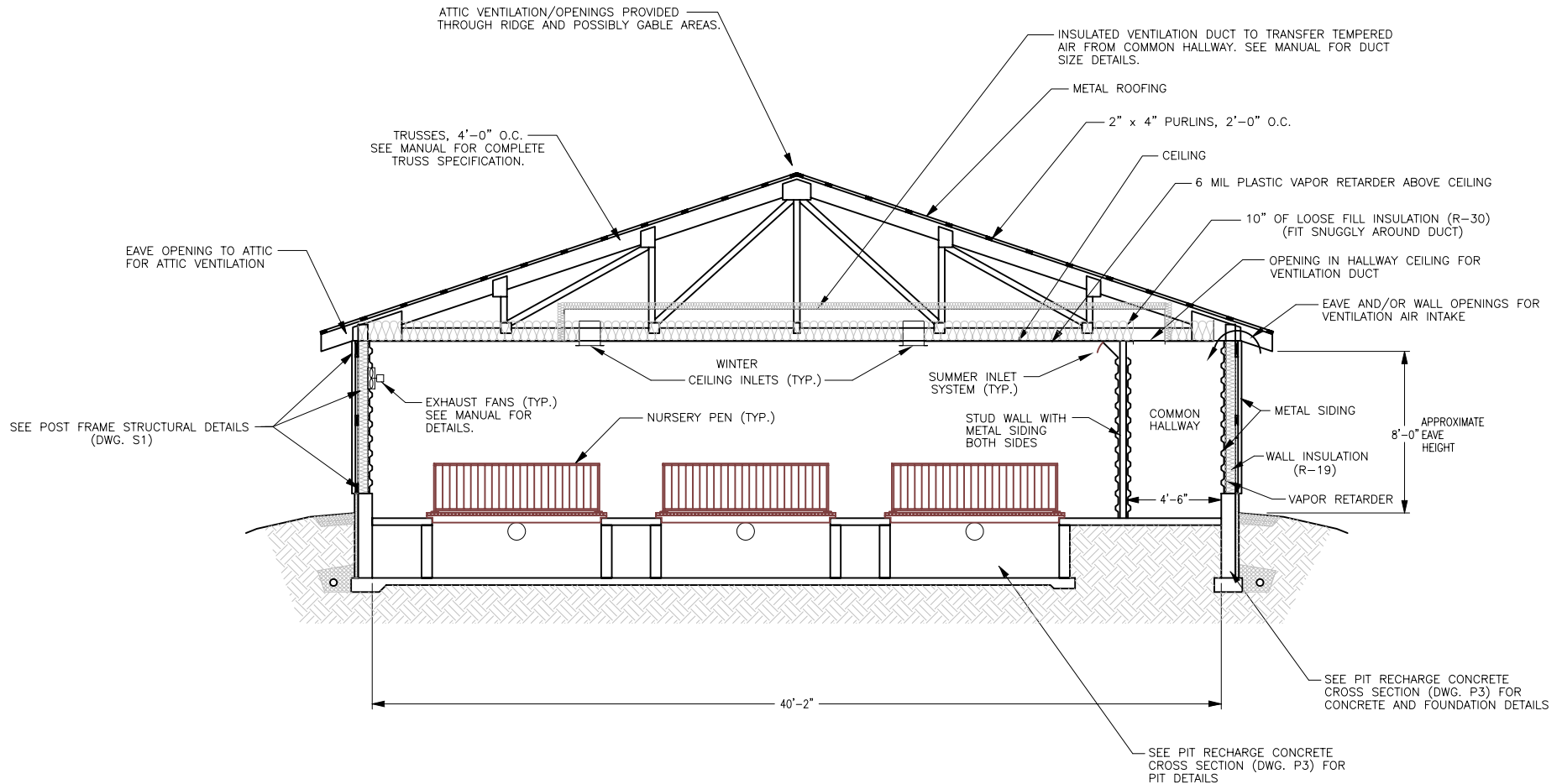
FLOOR PLAN USING PIT RECHARGE MANURE SYSTEM

MO-FLEX NURSERY BUILDING PLAN

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PIT RECHARGE BUILDING



PIT RECHARGE BUILDING CROSS SECTION

SCALE: 1/4" = 1'-0"

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PIT RECHARGE BUILDING CROSS SECTION

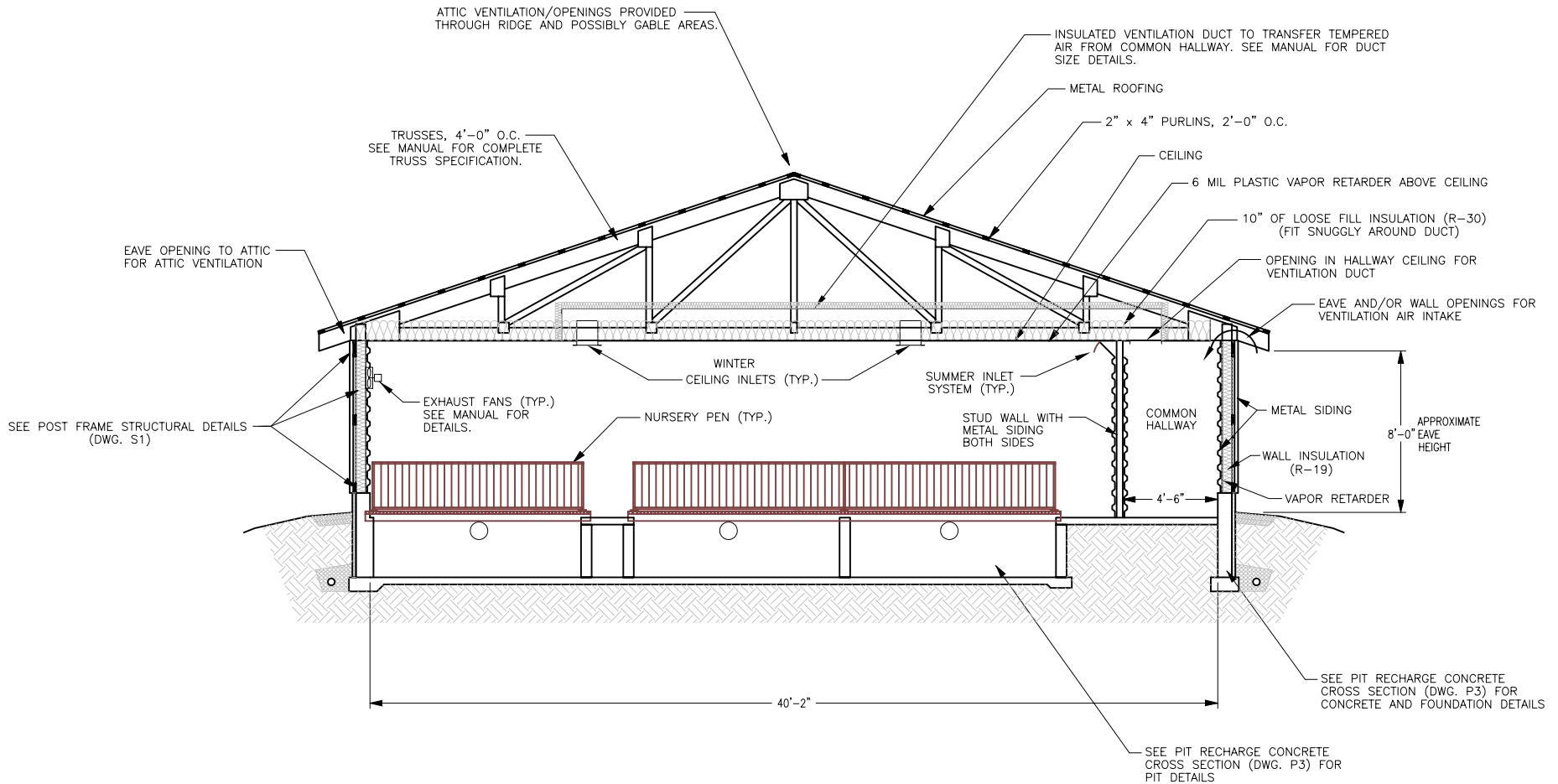
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 SCALE: **1/4"=1'-0"** SHEET: **P2 : 14 OF 20**

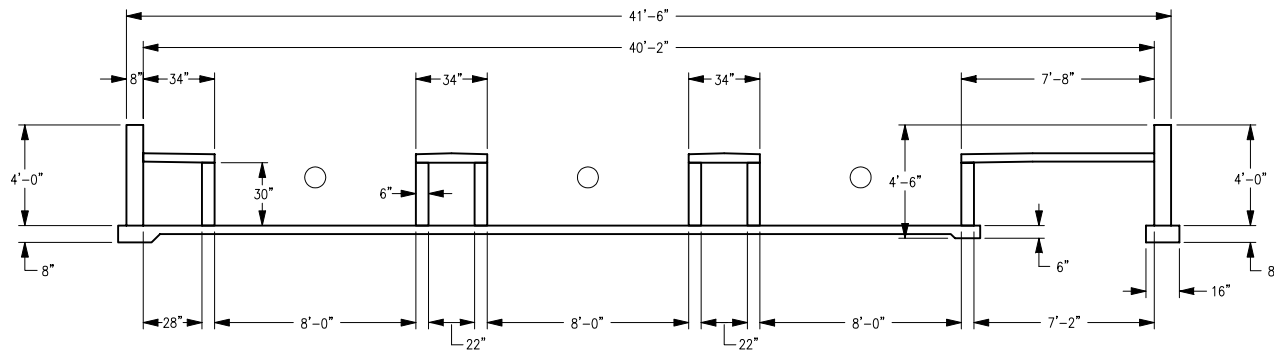
PIT RECHARGE BUILDING



PIT RECHARGE BUILDING CROSS SECTION

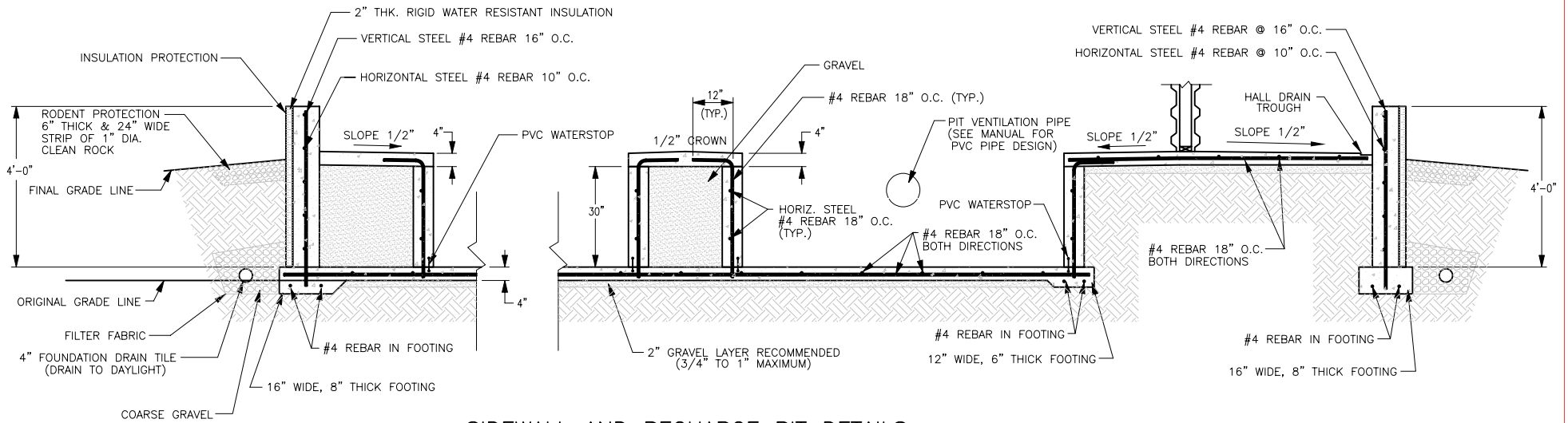
SCALE: 1/4" = 1'-0"

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		SCALE: 1/4"=1'-0"	SHEET P2B : 14 OF 20



PIT RECHARGE CONCRETE CROSS SECTION

SCALE: 1/4" = 1'-0"



SIDEWALL AND RECHARGE PIT DETAILS

SCALE: 1/2" = 1'-0"

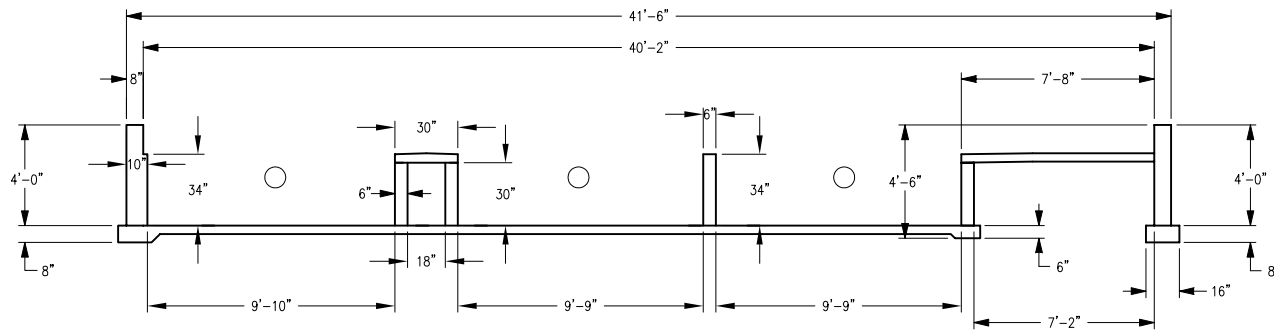
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PIT RECHARGE CONCRETE CROSS SECTION

MO-FLEX NURSERY BUILDING PLAN

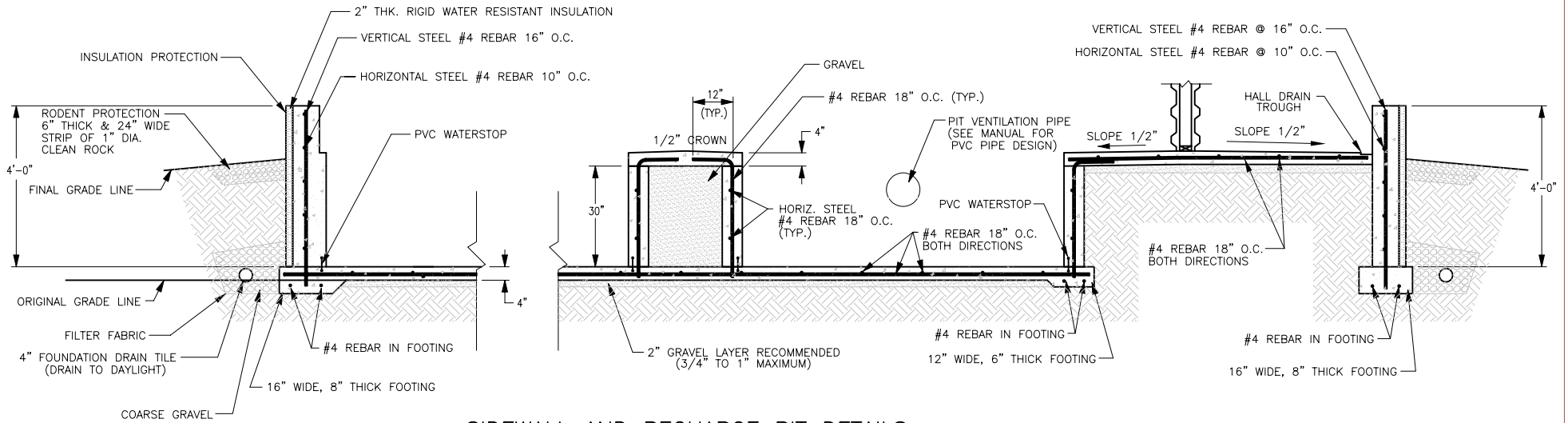
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DESIGNED BY: JMZ	DRAWN BY: TDT/CMA	CHECKED BY: JMZ
PLAN NO.: M04-726-94C1	DATE: 9/94	
SCALE: AS SHOWN	SHEET: P3	OF 20



PIT RECHARGE CONCRETE CROSS SECTION

SCALE: 1/4" = 1'-0"



SIDEWALL AND RECHARGE PIT DETAILS

SCALE: 1/2" = 1'-0"

NOTE: 3-1/2" WIDE HALL DRAIN TROUGH SLOPES TO 2" DRAIN PIPES WHICH TRANSFER WATER FROM HALLWAY TO RECHARGE PIT. DRAIN PIPES HAVE P-TRAPS AND ARE SPACED NO MORE THAN 20' APART.

- ADDITIONAL NOTES:
- 1) SIDEWALL AND RECHARGE PITS DETAILS SHOW DETAILS; USE CONCRETE CROSS SECTION FOR MEASUREMENTS
 - 2) THE SINGLE STEM WALL (6" THICK AND 34" HIGH) SHOULD HAVE STRAIGHT, 32" LONG #4 REBAR SPACED AT 18" O.C.
 - 3) SINGLE STEM WALL AND ALLEY CAN BE MODIFIED TO FIT EQUIPMENT IF NECESSARY.

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PIT RECHARGE CONCRETE CROSS SECTION

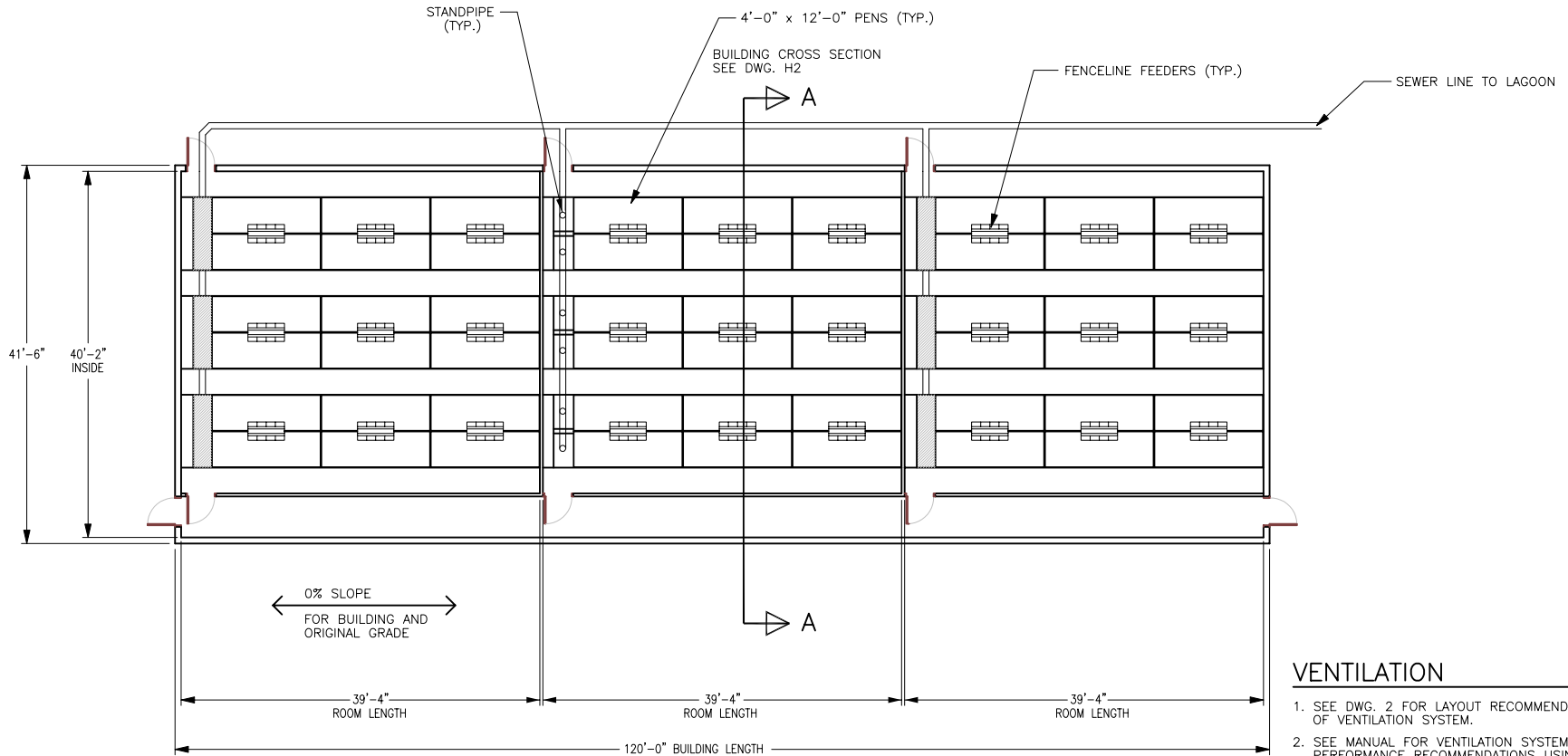
MO-FLEX NURSERY BUILDING PLAN

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SCALE: AS SHOWN	SHEET: P3B : 15 OF 20	

MO-FLEX NURSERY BUILDING HAIRPIN GUTTER MANURE SYSTEM

REVIEW ACCOMPANYING MANUAL FOR DISCUSSION ON MODIFYING BUILDING SIZE AND HOW TO INCLUDE MULTIPLE ROOMS



VENTILATION

1. SEE DWG. 2 FOR LAYOUT RECOMMENDATION OF VENTILATION SYSTEM.
2. SEE MANUAL FOR VENTILATION SYSTEM PERFORMANCE RECOMMENDATIONS USING HAIRPIN GUTTER SYSTEM.

HAIRPIN GUTTER BUILDING FLOOR PLAN

SCALE: 1" = 10'-0"

LIVESTOCK EQUIPMENT

3 ROOMS WITH 18 - 4'-0" x 12'-0" PENS

SITE SELECTION AND PREPARATION INFORMATION

1. SOIL BUILDING PAD SHOULD BE ABOUT 10'-0" TO 20'-0" LONGER AND 10'-0" WIDER THAN BUILDING.
2. NO SLOPE ACROSS WIDTH OR LENGTH OF SOIL BUILDING PAD SHOULD EXIST.
3. BUILDING PROXIMITY TO OTHER SWINE BUILDINGS IMPACTS PIG PERFORMANCE AND SHOULD BE CONSIDERED.

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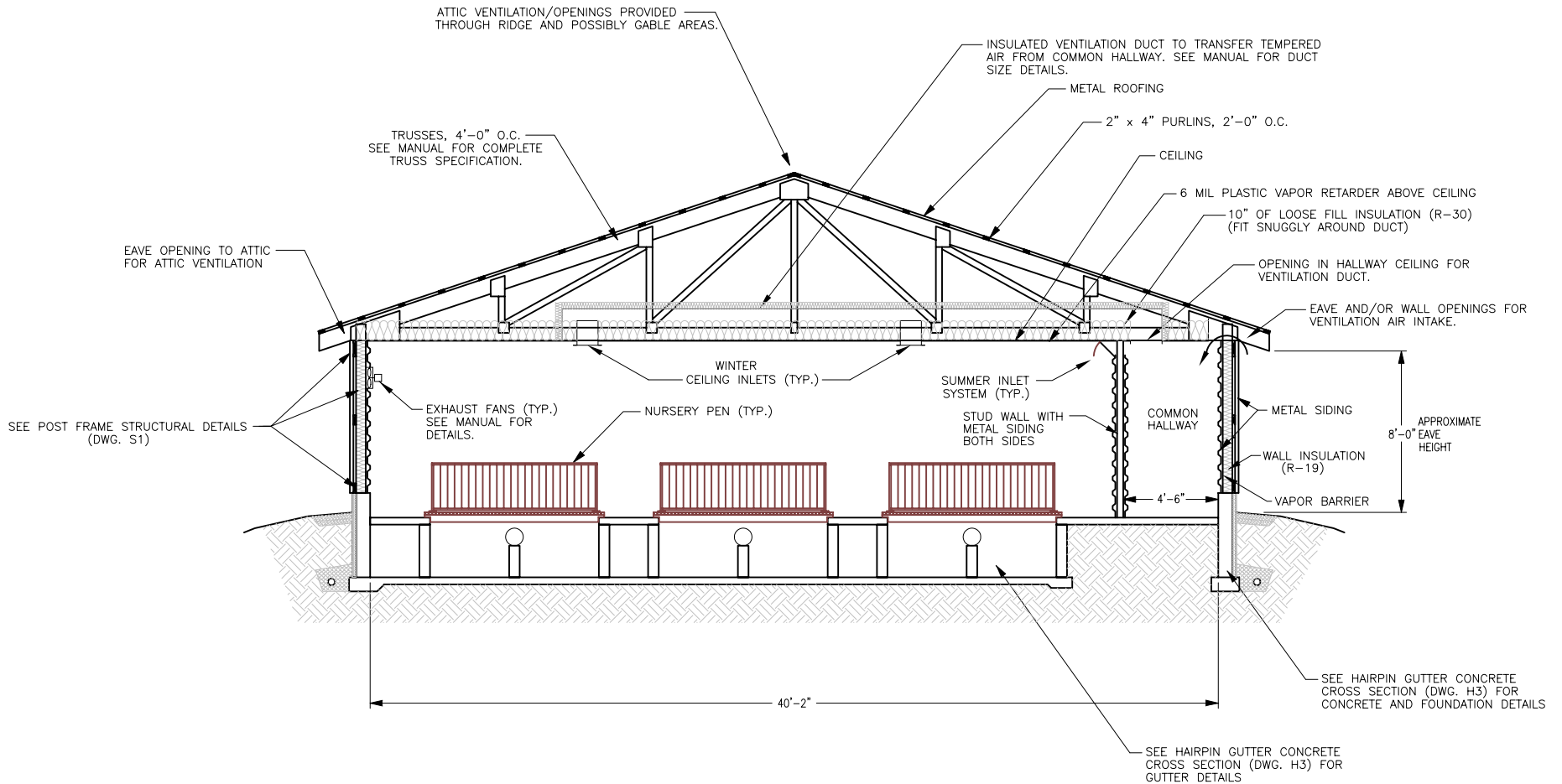
FLOOR PLAN USING HAIRPIN GUTTER LIQUID MANURE SYSTEM

MO-FLEX NURSERY BUILDING PLAN

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SCALE: 1"=10'-0"	SHEET	H1 : 16 OF 20

HAIRPIN GUTTER BUILDING

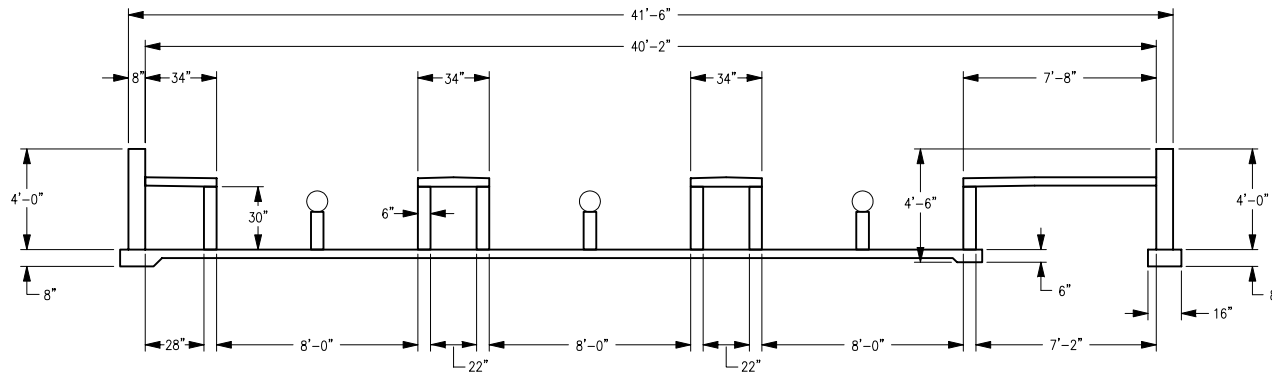


HAIRPIN GUTTER BUILDING CROSS SECTION

SCALE: 1/4" = 1'-0"

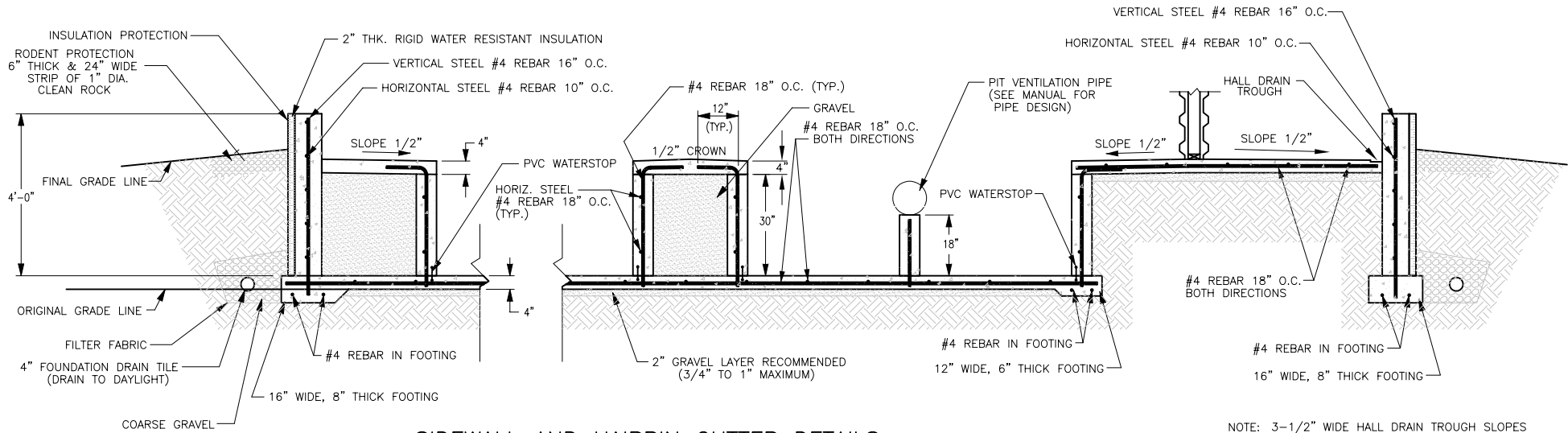
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HAIRPIN GUTTER BUILDING CROSS SECTION			
MO-FLEX NURSERY BUILDING PLAN			
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		SCALE:	1/4"=1'-0"
		SHEET	H2 : 17 OF 20



HAIRPIN GUTTER CONCRETE CROSS SECTION

SCALE: 1/4" = 1'-0"



SIDEWALL AND HAIRPIN GUTTER DETAILS

SCALE: 1/2" = 1'-0"

NOTE: 3-1/2" WIDE HALL DRAIN TROUGH SLOPES TO 2" DRAIN PIPES WHICH TRANSFER WATER FROM HALLWAY TO HAIRPIN GUTTER. DRAIN PIPES HAVE P-TRAPS AND ARE SPACED NO MORE THAN 20' APART.

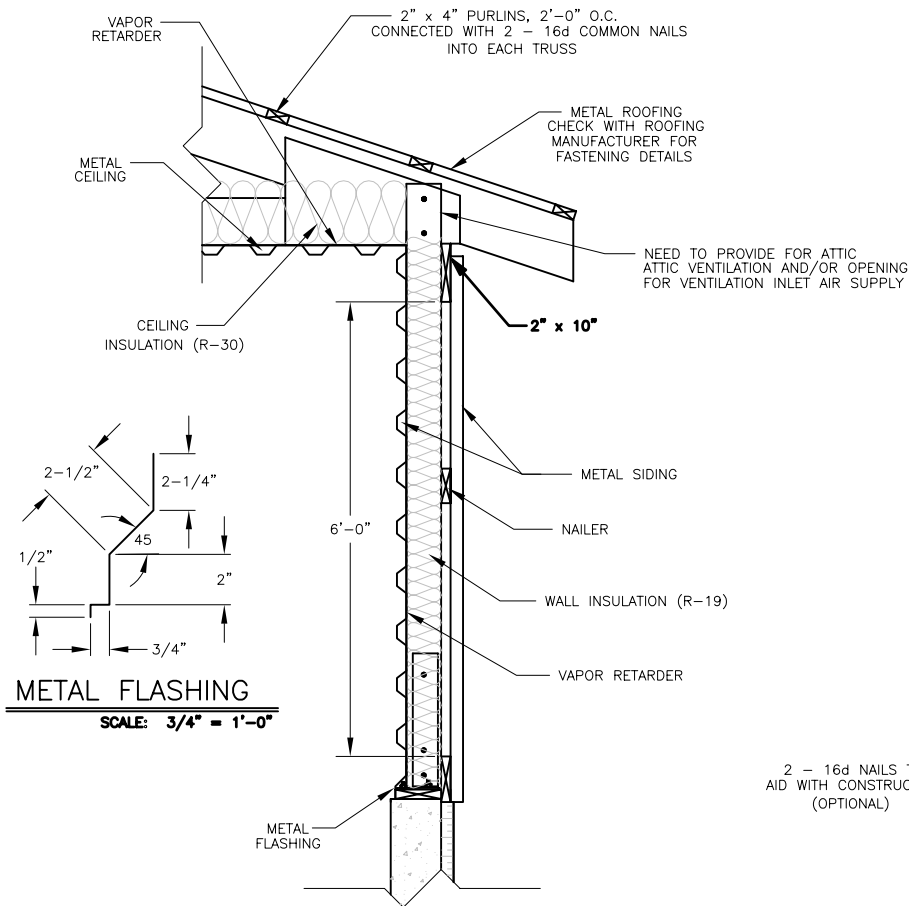
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HAIRPIN GUTTER CONCRETE CROSS SECTION

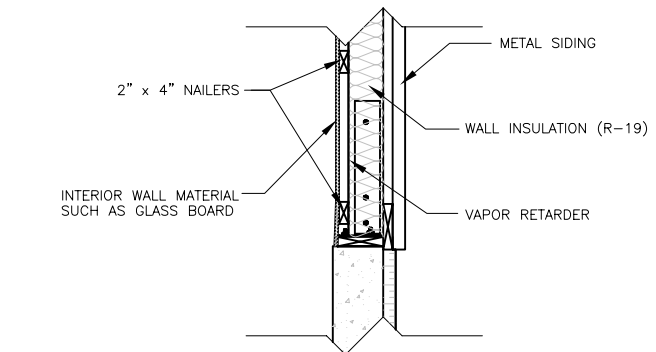
MO-FLEX NURSERY BUILDING PLAN

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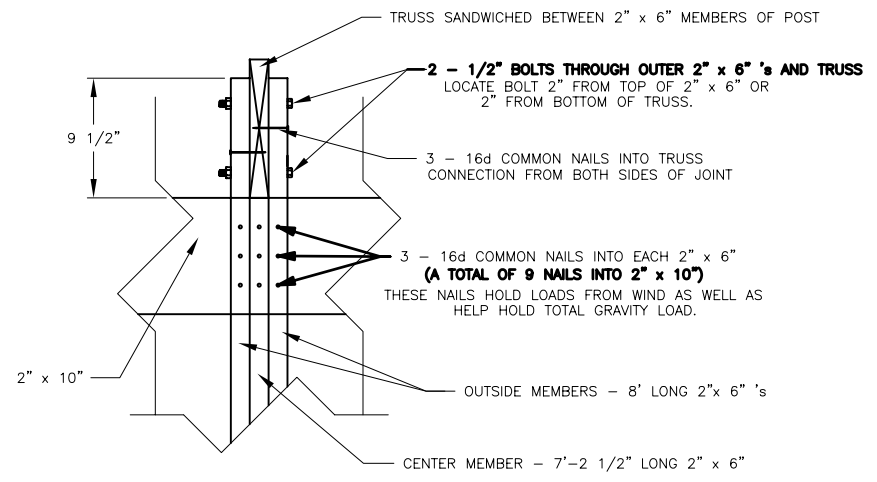
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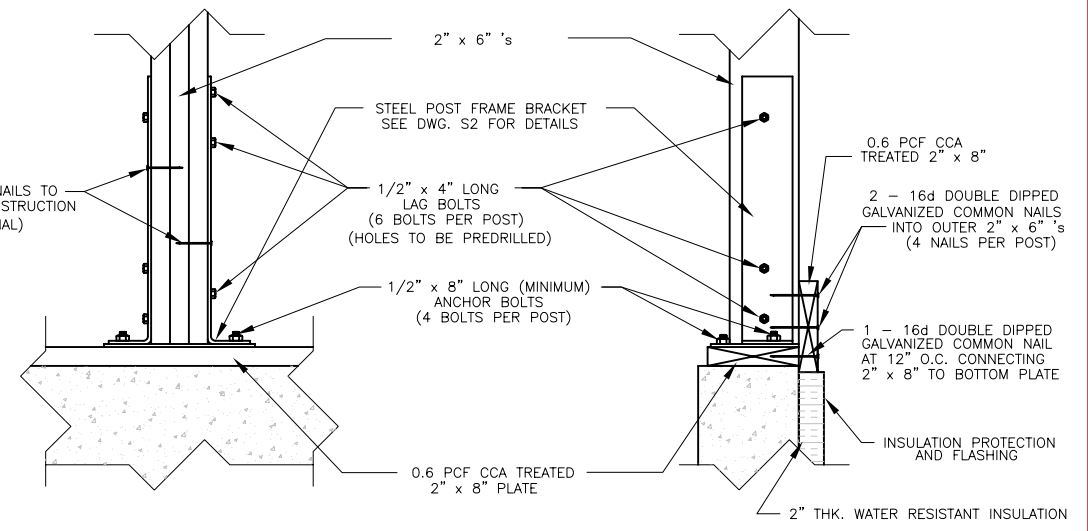
POST FRAME WALL SECTION
SCALE: 3/4" = 1'-0"



ALTERNATE POST FRAME WALL CONSTRUCTION
SCALE: 3/4" = 1'-0"



TRUSS CONNECTION DETAIL
SCALE: 1 1/2" = 1'-0"

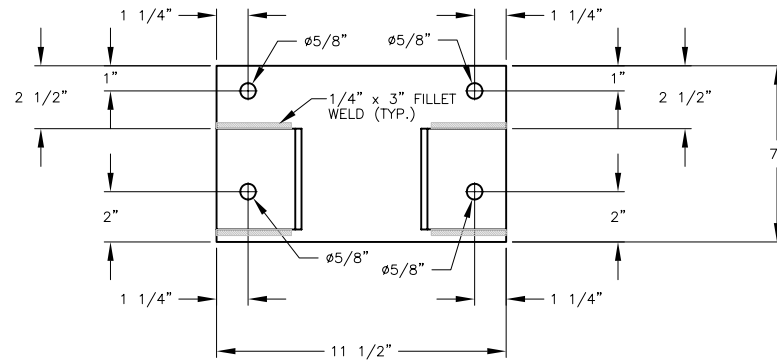


POST BASE CONNECTION DETAILS
SCALE: 1 1/2" = 1'-0"

NOTE: LUMBER QUALITY FOR ALL STRUCTURAL MEMBERS (2" x 6" POST MEMBERS, BOTTOM PLATE, 2" x 8" BOTTOM GIRT, AND 2" x 10" TOP GIRT) IS TO BE NUMBER 2 SOUTHERN PINE OR BETTER.

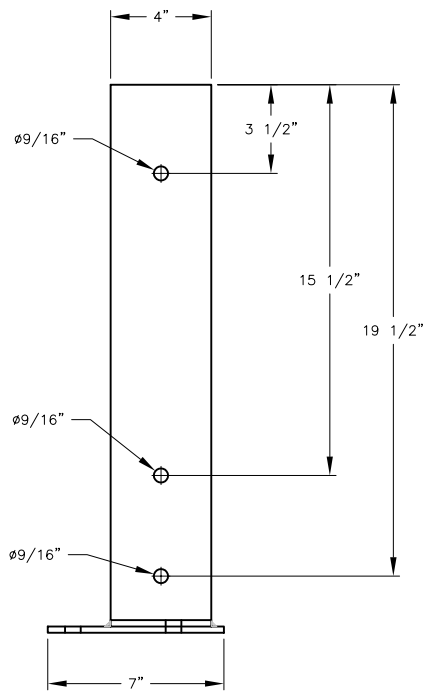
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POST FRAME STRUCTURAL DETAILS		DESIGNED BY: JMZ	DRAWN BY: JMZ	CHECKED BY: JMZ
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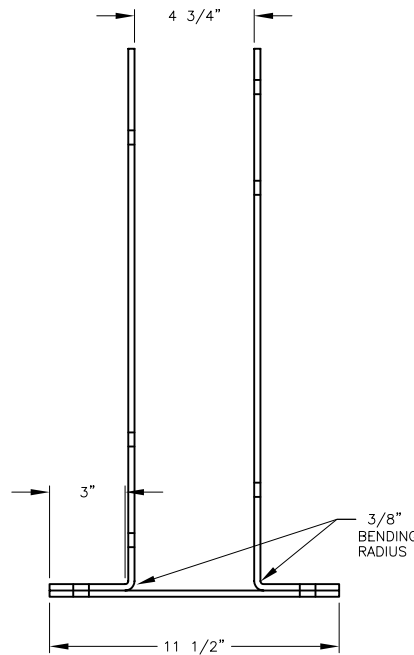
TOP VIEW

SCALE: 3" = 1'-0"



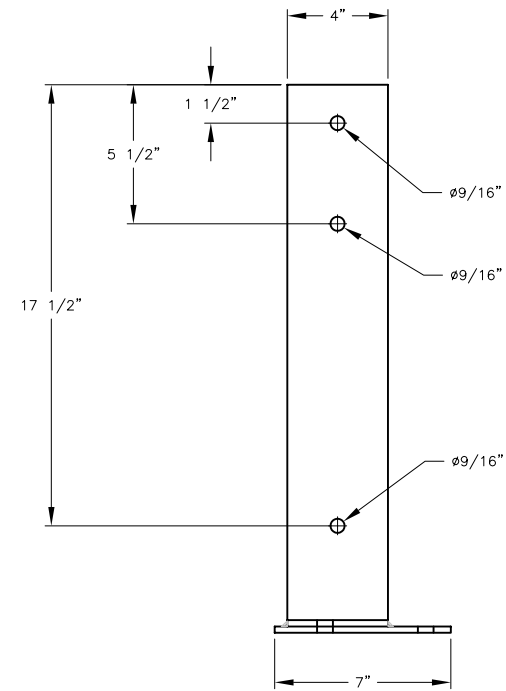
LEFT SIDE VIEW

SCALE: 3" = 1'-0"



FRONT VIEW

SCALE: 3" = 1'-0"



RIGHT SIDE VIEW

SCALE: 3" = 1'-0"

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GENERAL NOTES

1. BOTTOM STEEL PLATE - 1/4" x 7" FLAT PLATE A36 STEEL
2. VERTICAL STEEL PIECES - 1/4" x 4" FLAT PLATE A36 STEEL
3. 1/4" FILLET WELDS USING E 60 XX ELECTRODES

POST FRAME STEEL BRACKET

MO-FLEX NURSERY BUILDING PLAN

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