

OTIS' BARN



BUILDING SUMMARY

NAME OF PROJECT:	OTIS' BARN	BUILDING AREA FOOTPRINT:	40 (WIDE) BY 60' (DEEP)
LOCATION:	PITTSBURGH, PA	BUILDING AREA PER LEVEL:	LEVEL 1: 2400 SF LEVEL 2: 2400 SF LEVEL 3: 600 SF
DESIGNER:	CM SERVICES, LLC 506 VALLEYBROOK ROAD MCMURRAY, PA 15317	CONDITIONED FLOOR SPACE:	5400 SF
APPLICABLE CODES:	2009 INTERNATIONAL BUILDING CODE W/ AMENDMENTS	DESIGN LOADS	OCCUPANCY CATEGORY = I ROOF LIVE LOAD = 40.0 PSF FLOOR LIVE LOAD = 125 PSF SUPPORT LOAD = 75.0 PLF GROUND SNOW LOAD, pg = 20.0 (Ce=1.0, Is=1.2, Ct=1.1) ROOF SNOW LOAD = 25 PSF
OCCUPANCY TYPE:	U-UTILITY		
CONSTRUCTION TYPE:	TYPE VB		
NUMBER OF STORIES:	2 ½		

DESCRIPTION: Traditional Western Pennsylvania Timber Frame Bank Barn with Double-Dutch Gambrel Roof with Hay Lofts. This barn is designed to be built into gently sloping terrain allowing direct access to the First Level (Basement) as well as the Second Level (Main Floor).

FIRST LEVEL (BASEMENT): Concrete slab (not sized in this Energy Model) with four bays, 15' long by 40' deep. Walls are 10" Poured concrete w/ 2" rigid insulation (exterior) R=11, Second Level floor is supported with a longitudinal center beam supported by the concrete walls and three interior posts at the ¼ points. Main Floor joists, support beam and beam support posts are not sized in this Energy Model.

SECOND LEVEL (MAIN FLOOR): 40' x 60' clear span with no interior posts necessary to support lofts or roof. Walls are formed by 8"x8" Hemlock posts (or material of your choice) supported by the concrete basement walls. 2"x4" wooden girts with 1 ½" polystyrene rigid insulation, with tyvek house wrap form the Main Floor walls, R=9. Ceilings are formed with 4' x 8' x 2" foil faced (to the inside) polystyrene rigid insulation, R=10. Roof trusses are NOT sized on these plans.

THIRD LEVEL (LOFTS): Two 15' x 20' loft rooms formed by the dutch gambrel roof trusses. Wall insulation is 1 ½" foil faced (inside) rigid insulation, R=9; ceiling is 2" foil faced rigid insulation R=10.

FOUNDATION: 10" Poured concrete w/ 2" rigid exterior insulation, Stone Veneer or siding of your choice, R=11.
SIDING: Full batten, 1' x 8" Rough cut Poplar, or material of your choice w/ 1 ½" rigid insul, R=9.

ROOFING: 22 ga. x 16" (structural) Standing seam Structural roofing Panels over purlins. Ceiling insulation, 2" foil faced rigid R=10.

HEATING/COOLING LOAD CALCULATIONS: Performed IAW Manual J, are for the Locale Pittsburgh, PA. and reflect an interior temperature of 50 degrees. Infiltration is specified as semi-loose.

HEATING: Primary heating system is Hydronic (hot water) consisting of 8 - 200' ½" loops, positioned into 4 zones (each bay). Hot water is provided by a Water to Water Ground Source Heat Pump.

COOLING: Air conditioning is provided via an air handler with hydronic (water) coil. cold water is provided by the same Water to Water GSHP.

ENERGY ESTIMATE: Use/ Occupancy is based on 40 Hrs/week 2 persons operating the building as a wood shop or automotive shop.



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MCMURRAY, PA 15317

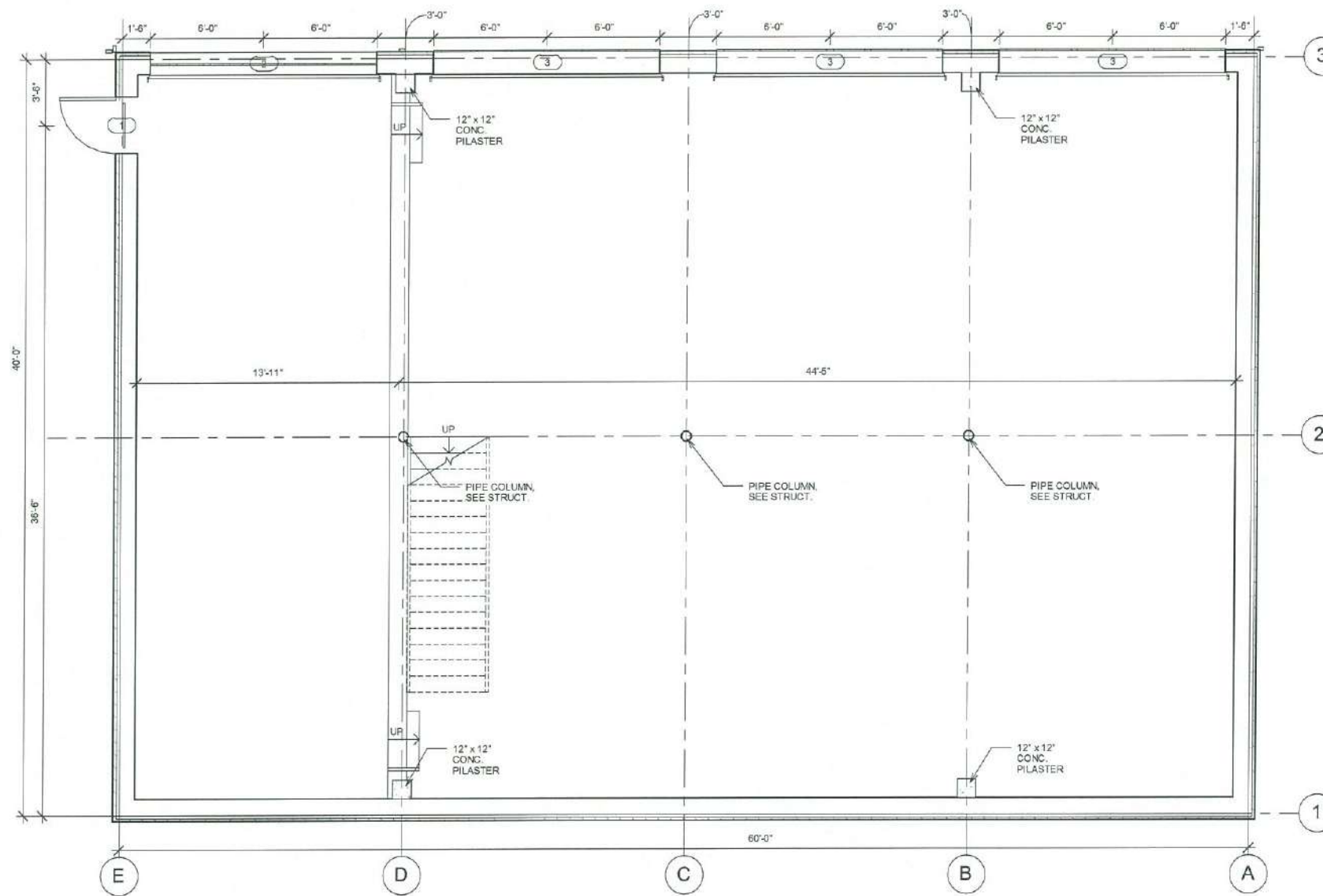
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OTIS' BARN
 PITTSBURGH, PA
 CONSTRUCTION SET

JOB NO:	
DRAWN:	BS
CHECKED:	FJC
ISSUED:	1-1-15
REVISIONS:	
TITLE: Coversheet	
SHEET: 1 OF 18	

DOOR SCHEDULE		SYMBOL (10)		
MARK	SIZE	DESCRIPTION	QUAN.	Material
1	3'-0" x 8'-0"	EXT. DOOR HALF GLASS	2	Half-Lite, Steel Door
2	12'-0" x 10'-0"	GARAGE DOOR	1	Insulated, Flush w/ High Lites
3	10'-0" x 10'-0"	GARAGE DOOR	3	Insulated, Flush w/ High Lites
4	12'-0" x 10'-0"	BARN DOOR	1	Wooden on Sliding Track

WINDOW SCHEDULE		SYMBOL (10)	
MARK	SIZE	DESCRIPTION	QTY.
A	8'-0" x 4'-0"	BARN WINDOW	1



OTIS' BARN
 PITTSBURGH, PA
 CONSTRUCTION SET

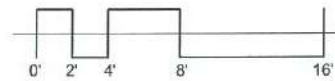
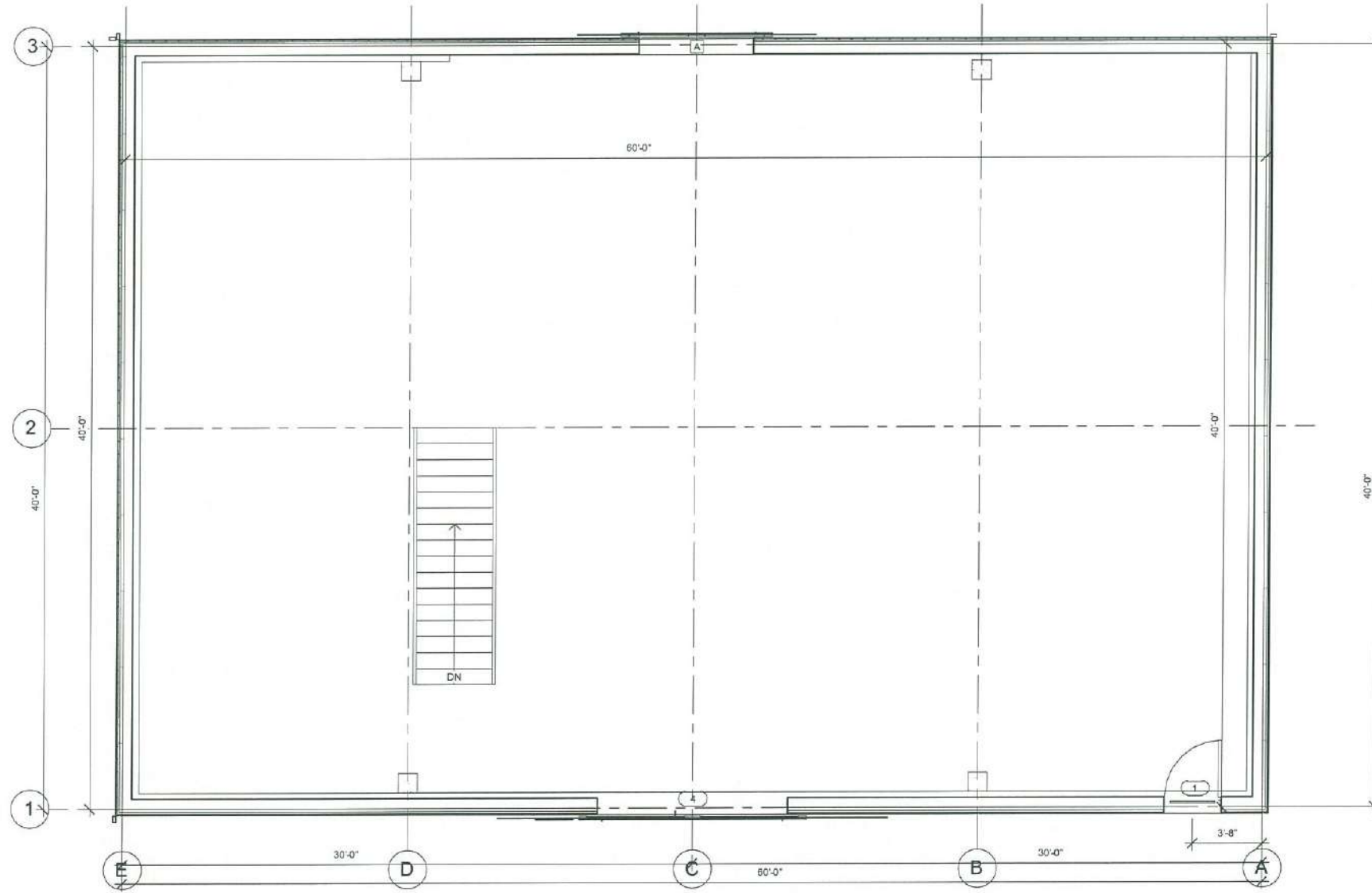
JOB NO:	
DRAWN:	BS
CHECKED:	FJC
ISSUED:	1-1-15
REVISIONS:	
TITLE: BASEMENT	
SHEET: 2 OF 18	

DOOR SCHEDULE		SYMBOL ⁽¹⁰⁾		
MARK	SIZE	DESCRIPTION	QUAN.	Material
1	3'-0" x 8'-0"	EXT. DOOR HALF GLASS	2	Half-Lite, Steel Door
2	12'-0" x 10'-0"	GARAGE DOOR	1	Insulated, Flush w/ High Lites
3	10'-0" x 10'-0"	GARAGE DOOR	3	Insulated, Flush w/ High Lites
4	12'-0" x 10'-0"	BARN DOOR	1	Wooden on Sliding Track

WINDOW SCHEDULE		SYMBOL ⁽¹¹⁾	
MARK	SIZE	DESCRIPTION	QTY.
A	8'-0" x 4'-0"	BARN WINDOW	1



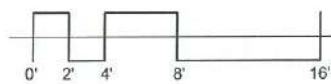
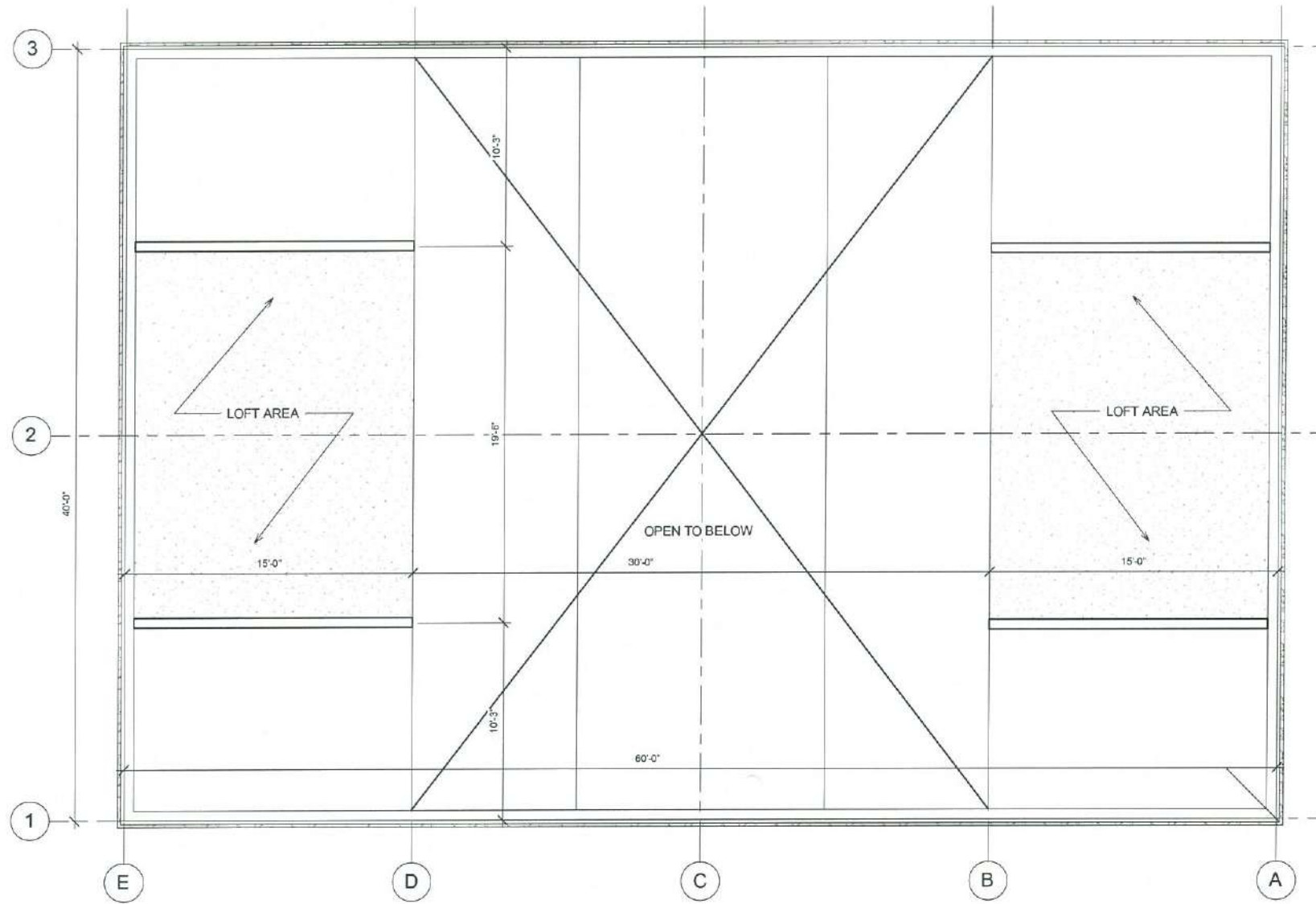
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OTIS' BARN
PITTSBURGH, PA
CONSTRUCTION SET

JOB NO:	
DRAWN:	BS
CHECKED:	FJC
ISSUED:	1-1-15
REVISIONS:	
TITLE: FIRST FLOOR PLAN	
SHEET: 3 OF 18	

OTIS' BARN
 PITTSBURGH, PA
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JOB NO:

DRAWN:	BS	
CHECKED:	FJC	
ISSUED:	1-1-15	
REVISIONS:		

TITLE:
 LOFT PLAN

SHEET:

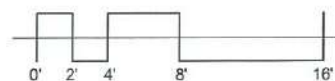
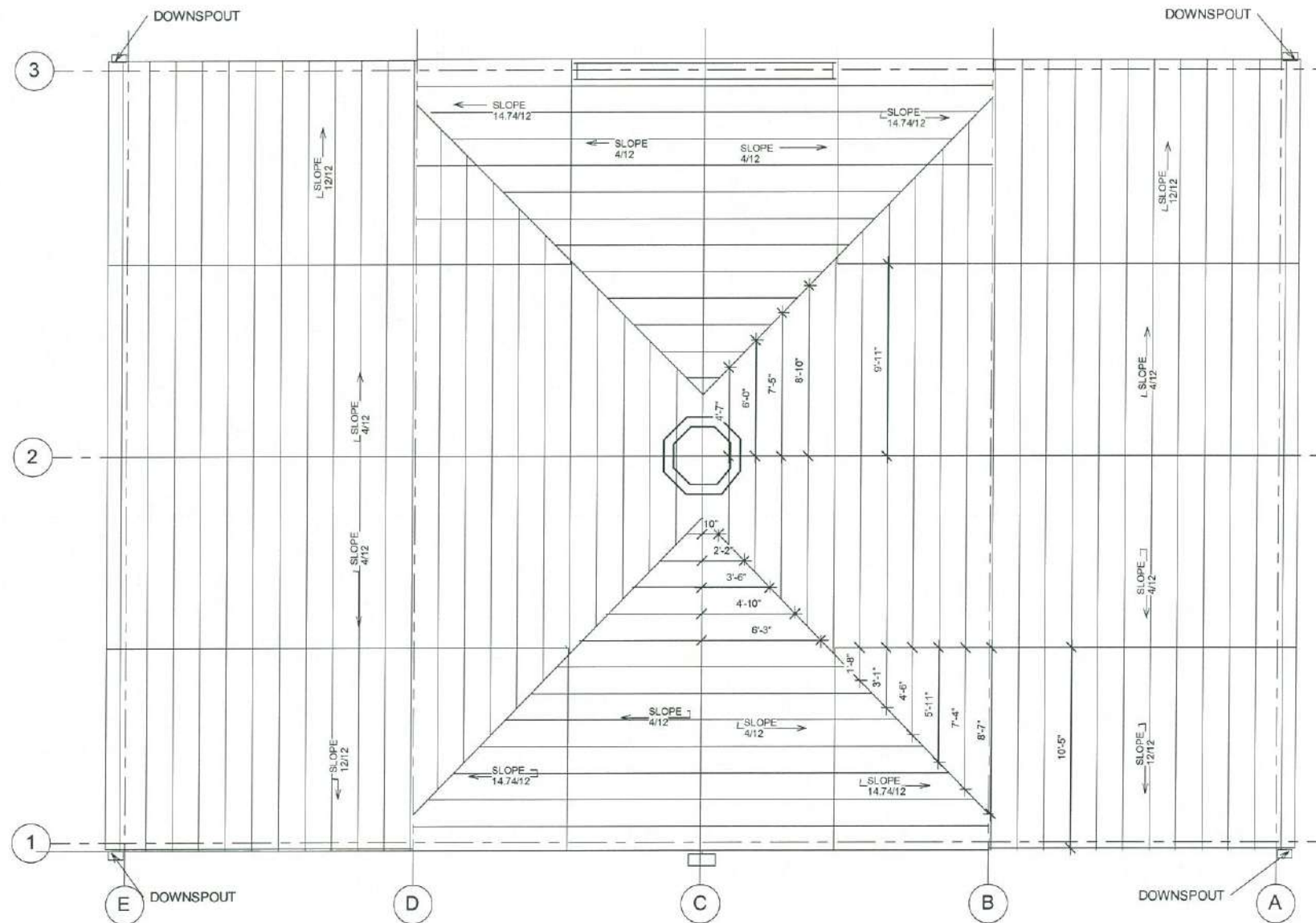
4 OF 18

ROOF MATERIALS LEGEND

1. ITEM: ROOFING
 MATL: 24 GAUGE STANDING SEAM ROOF, 16" PANELS
 MANUF: ATAS, ENGLERT, OR EQUAL
 COLOR/
 FINISH: GALVALUME
2. ITEM: GUTTERS AND DOWNSPOUTS
 TYPE: HALF ROUND w/ ROUND D.S.
 MATL: GALVALUME
 MANUF: GUTTER SUPPLY OR EQUAL
3. ITEM: EXTERIOR DOORS
 TYPE: HALF-LITE, STEEL DOOR
 MATL: RELIABILT, THERMA-TRU OR EQUAL
 MANUF: DARK SAND OR SAND TONE
4. ITEM: BARN DOORS
 TYPE: WOODEN ON SLIDING TRACK
 MATL: SITE BUILT
 MANUF: NATURAL OILED FINISH



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OTIS' BARN

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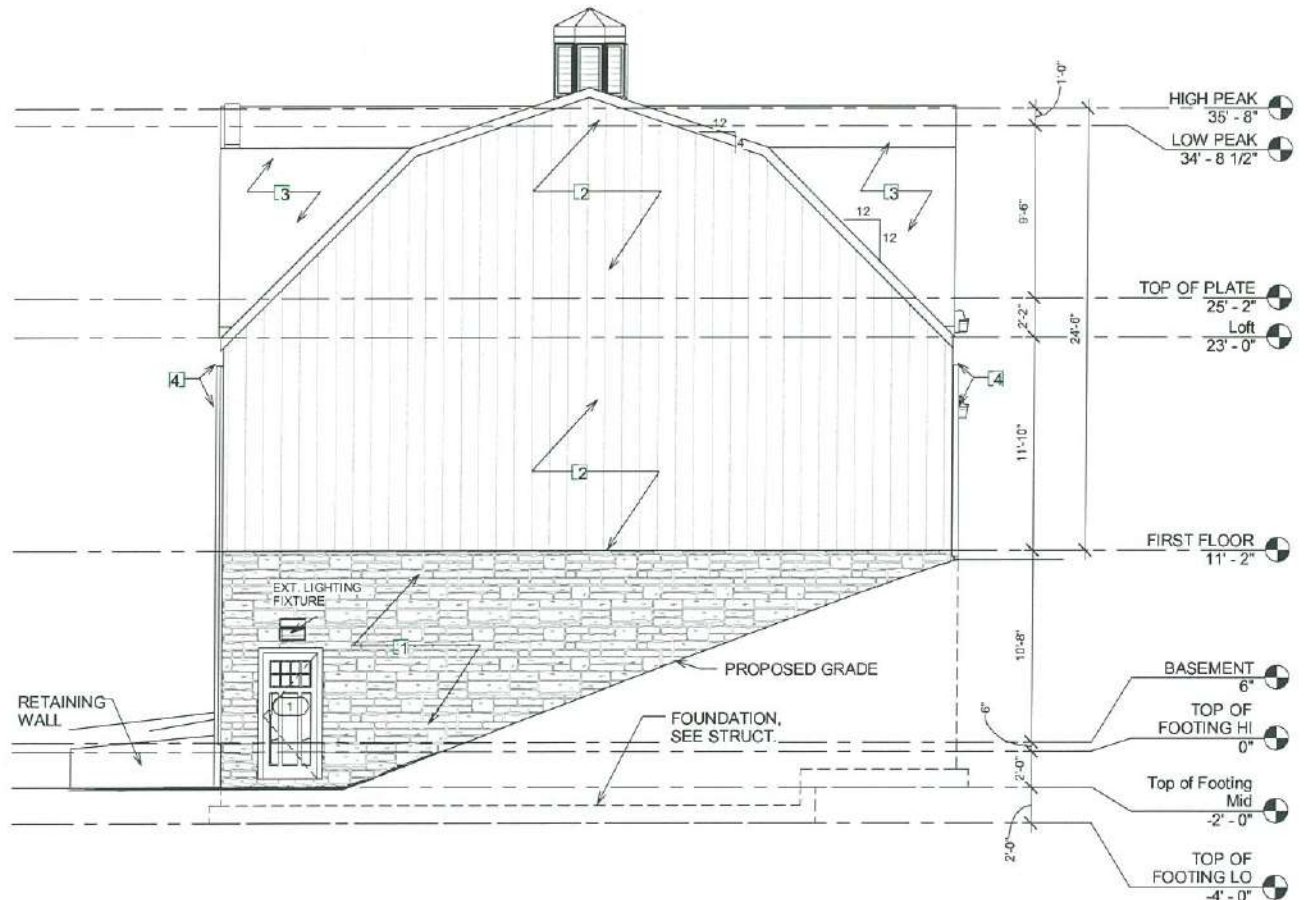
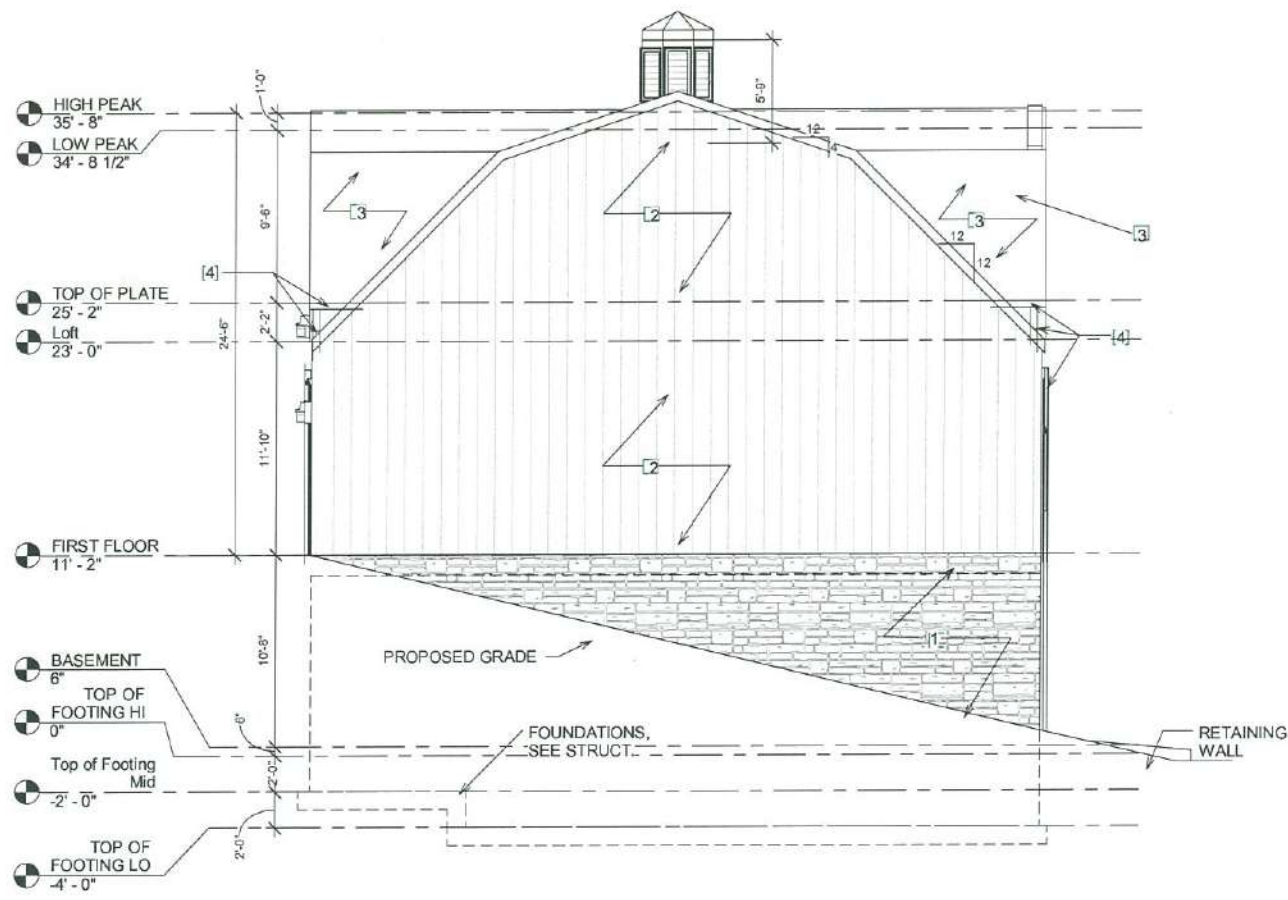
JOB NO:	
DRAWN:	BS
CHECKED:	FJC
ISSUED:	1-1-16
REVISIONS:	
TITLE: ROOF PLAN	
SHEET: 5 OF 18	

OTIS' BARN
 PITTSBURGH, PA
 CONSTRUCTION SET

JOB NO:	
DRAWN:	BS
CHECKED:	FJC
ISSUED:	1-1-15
REVISIONS:	
TITLE: SIDE ELEVATIONS (EAST & WEST)	
SHEET: 6 OF 18	

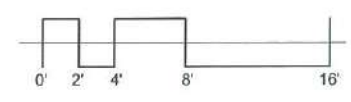
EXTERIOR FINISH LEGEND

- ITEM: STONE VENEER
 TYPE: SUSQUEHANA
 COLOR: COBBLESTONE
 MANUF: QUALITY STONE OR EQUAL
- ITEM: SIDING
 MATL: POPLAR OR OAK w/ MARINE OIL TREATMENT
 MANUF: DENOON LUMBER WINTERSVILLE, OH
 COLOR: NATURAL OILED FINISH
- ITEM: ROOFING
 MATL: 24 GAUGE STANDING SEAM ROOF, 16" PANELS
 MANUF: ATAS, ENGLERT, OR EQUAL
 COLOR/ FINISH: GALVALUME
- ITEM: GUTTERS AND DOWNSPOUTS
 TYPE: HALF ROUNDED w/ ROUND D.S.
 MATL: GALVALUME
 MANUF: GUTTER SUPPLY OR EQUAL



① East

② West



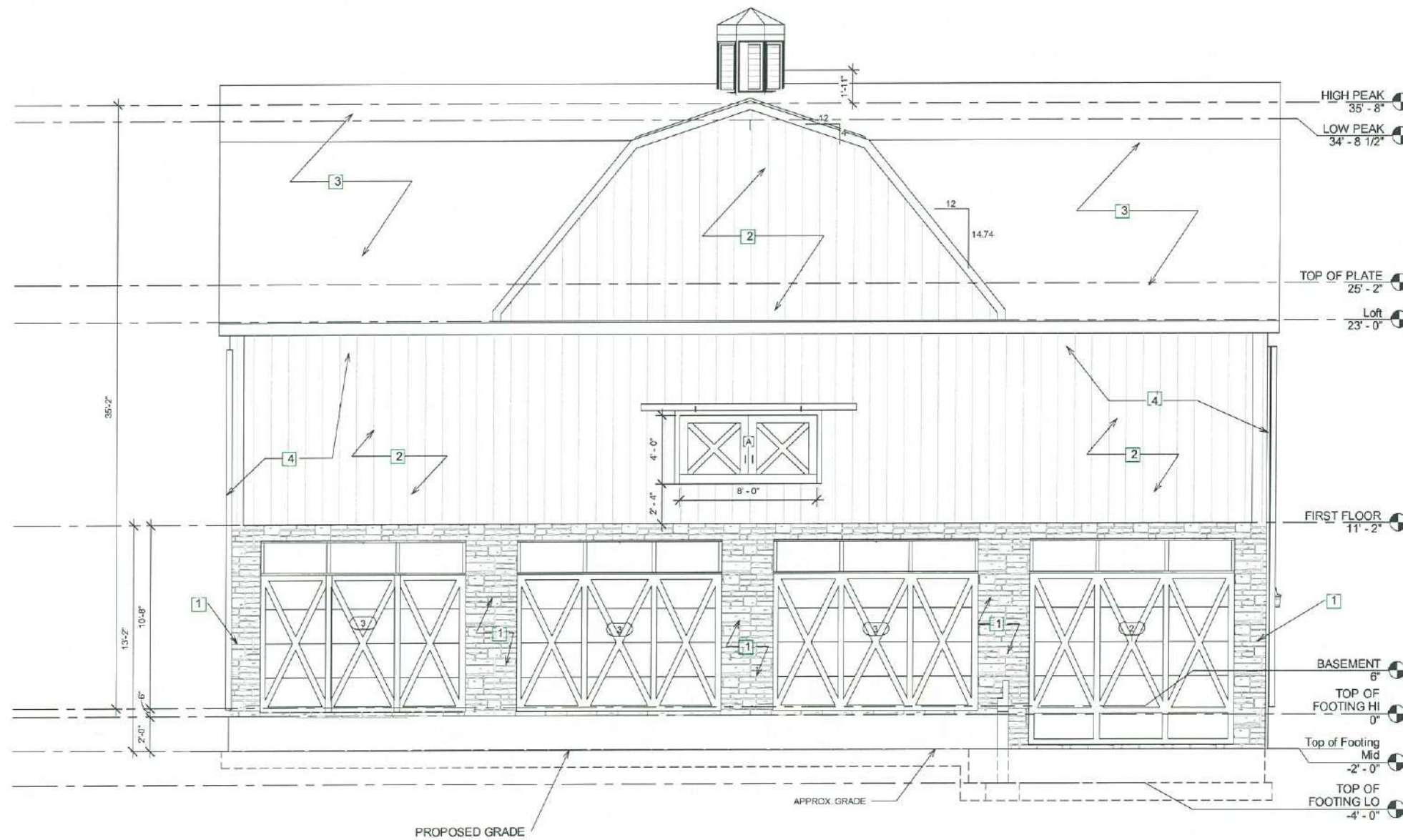
EXTERIOR FINISH LEGEND

1. ITEM: STONE VENEER
TYPE: SUSQUEHANA
COLOR: COBBLESTONE
MANUF: QUALITY STONE OR EQUAL
2. ITEM: SIDING
MATL: POPLAR OR OAK w/ MARINE OIL TREATMENT
MANUF: DENOON LUMBER WINTERSVILLE, OH
COLOR: NATURAL OILED FINISH
3. ITEM: ROOFING
MATL: 24 GAUGE STANDING SEAM ROOF, 16" PANELS
MANUF: ATAS, ENGLERT, OR EQUAL
COLOR/ FINISH: GALVALUME
4. ITEM: GUTTERS AND DOWNSPOUTS
TYPE: HALF ROUNDED w/ ROUND D.S.
MATL: GALVALUME
MANUF: GUTTER SUPPLY OR EQUAL



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OTIS' BARN

PITTSBURGH, PA
CONSTRUCTION SET

JOB NO:

DRAWN:	BS
CHECKED:	FJC
ISSUED:	1-1-15
REVISIONS:	

TITLE:
REAR ELEVATION
(NORTH)
SHEET:

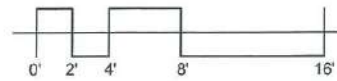
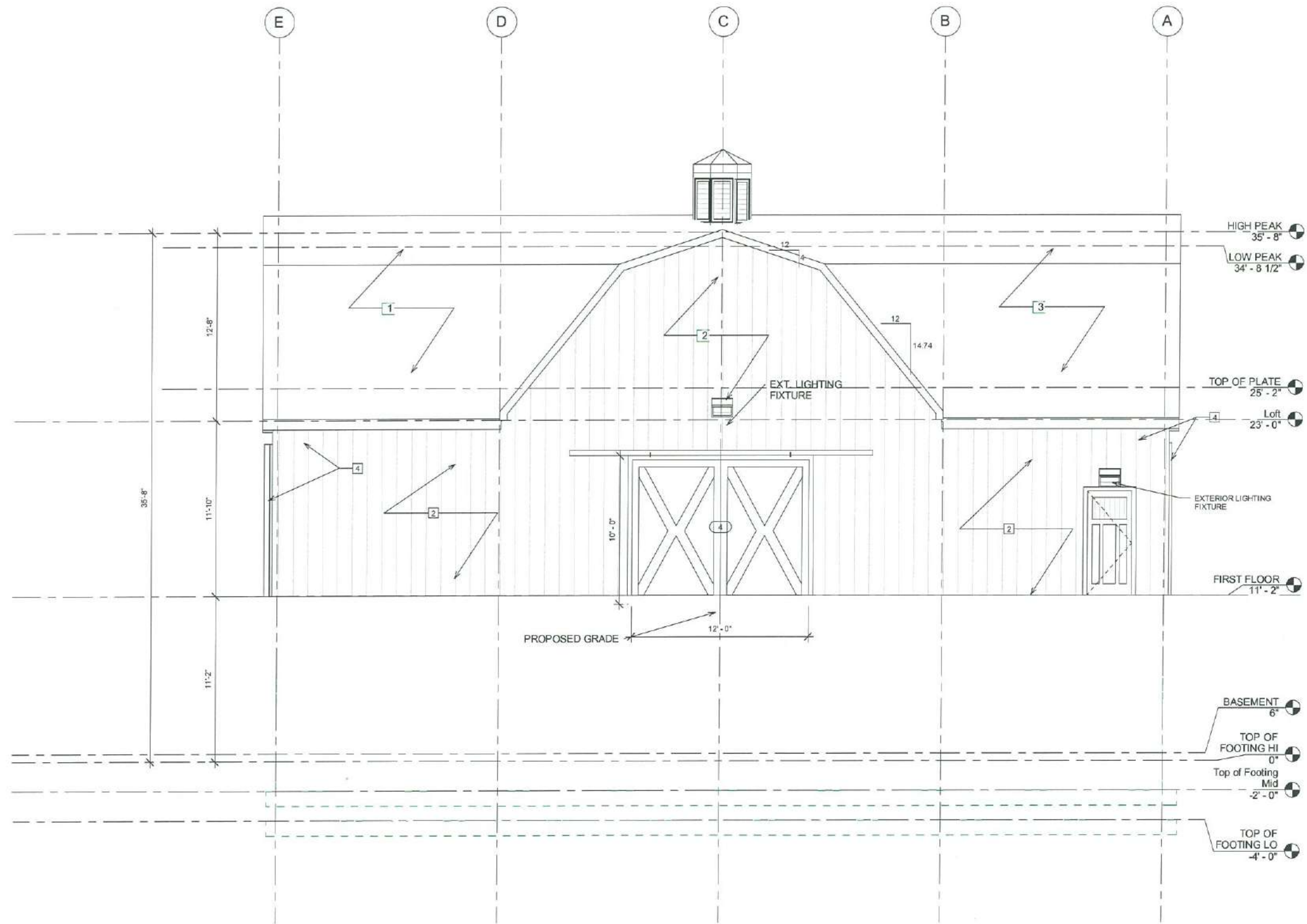
7 OF 18

EXTERIOR FINISH LEGEND

- 1. ITEM: STONE VENEER
TYPE: SUSQUEHANA
COLOR: COBBLESTONE
MANUF: QUALITY STONE OR EQUAL
- 2. ITEM: SIDING
MATL: POPLAR OR OAK w/ MARINE OIL TREATMENT
MANUF: DENOON LUMBER WINTERSVILLE, OH
COLOR: NATURAL OILED FINISH
- 3. ITEM: ROOFING
MATL: 24 GAUGE STANDING SEAM ROOF, 16" PANELS
MANUF: ATAS, ENGLERT, OR EQUAL
COLOR/ FINISH: GALVALUME
- 4. ITEM: GUTTERS AND DOWNSPOUTS
TYPE: HALF ROUNDED w/ ROUND D.S.
MATL: GALVALUME
MANUF: GUTTER SUPPLY OR EQUAL



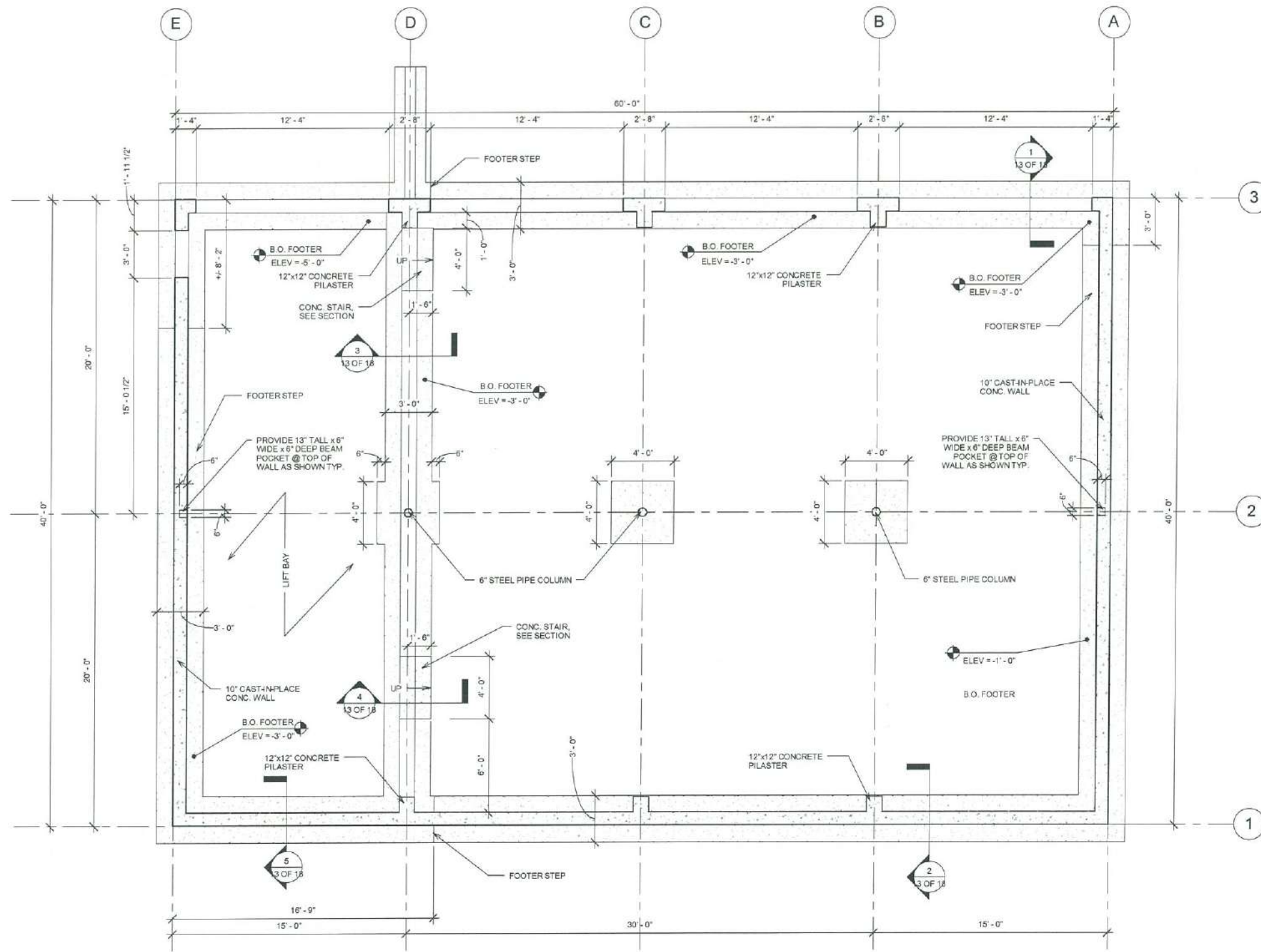
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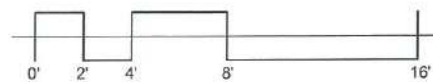
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CONSTRUCTION SET

JOB NO:	
DRAWN:	BS
CHECKED:	FJC
ISSUED:	1-1-15
REVISIONS:	
	FJC
TITLE: FRONT ELEVATION (SOUTH)	
SHEET: 1/4" = 1'-0"	
8 OF 18	

OTIS' BARN
 PITTSBURGH, PA
 CONSTRUCTION SET

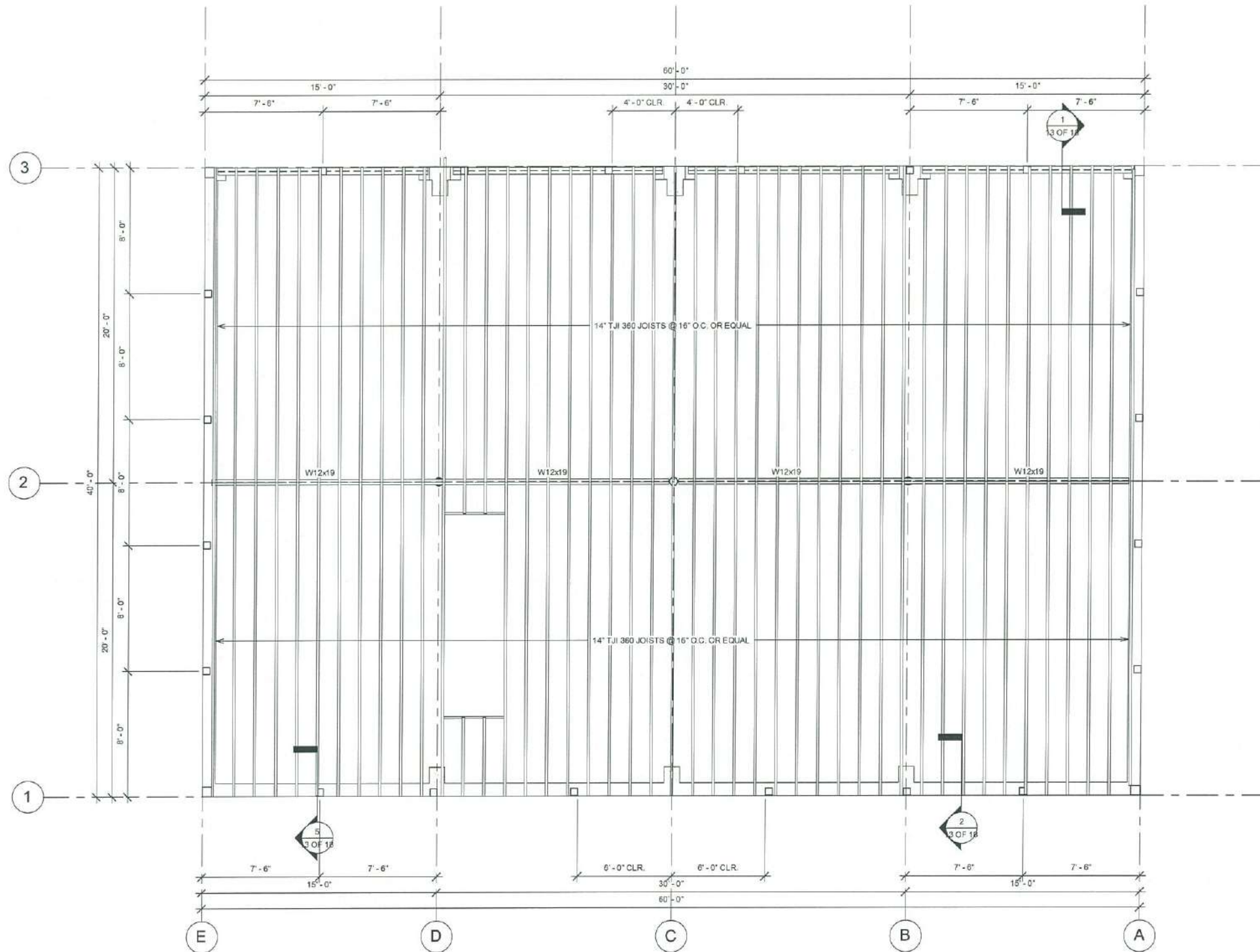


1 Foundation Plan

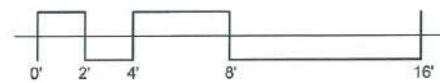


JOB NO:		
DRAWN:	BS	
CHECKED:	FJC	
ISSUED:	1-1-15	
REVISIONS:		
TITLE: FOUNDATION PLAN		
SHEET: 9 OF 18		

OTIS' BARN
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 CONSTRUCTION SET



1 First Floor Framing



JOB NO:

DRAWN: BS

CHECKED: FJC

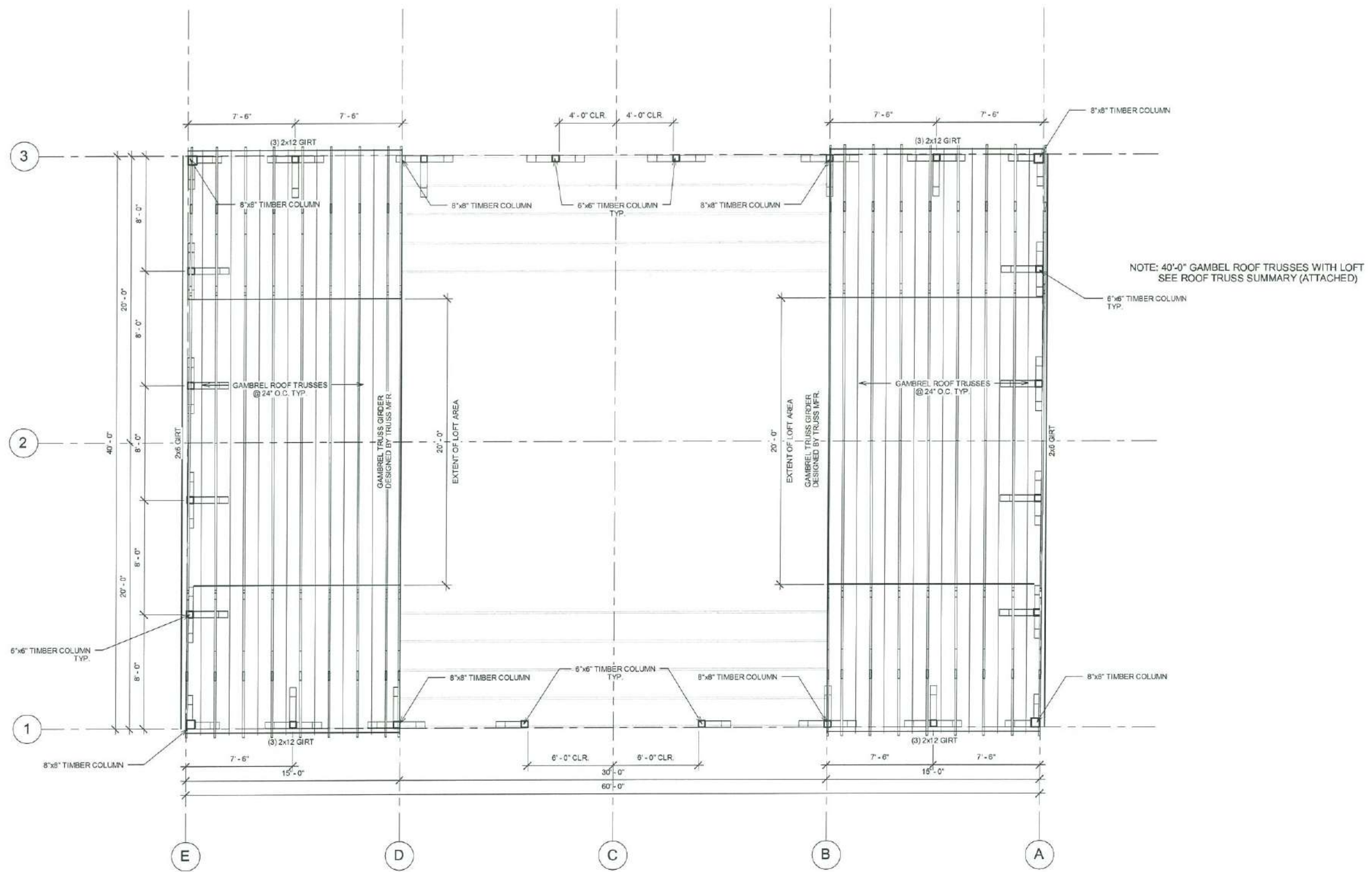
ISSUED: 1-1-15

REVISIONS:

TITLE:
 FIRST FLOOR FRAMING
 PLAN

SHEET:

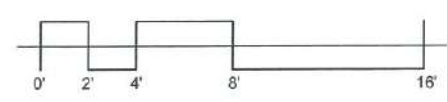
10 OF 18



NOTE: 40'-0" GAMBREL ROOF TRUSSES WITH LOFT
 SEE ROOF TRUSS SUMMARY (ATTACHED)

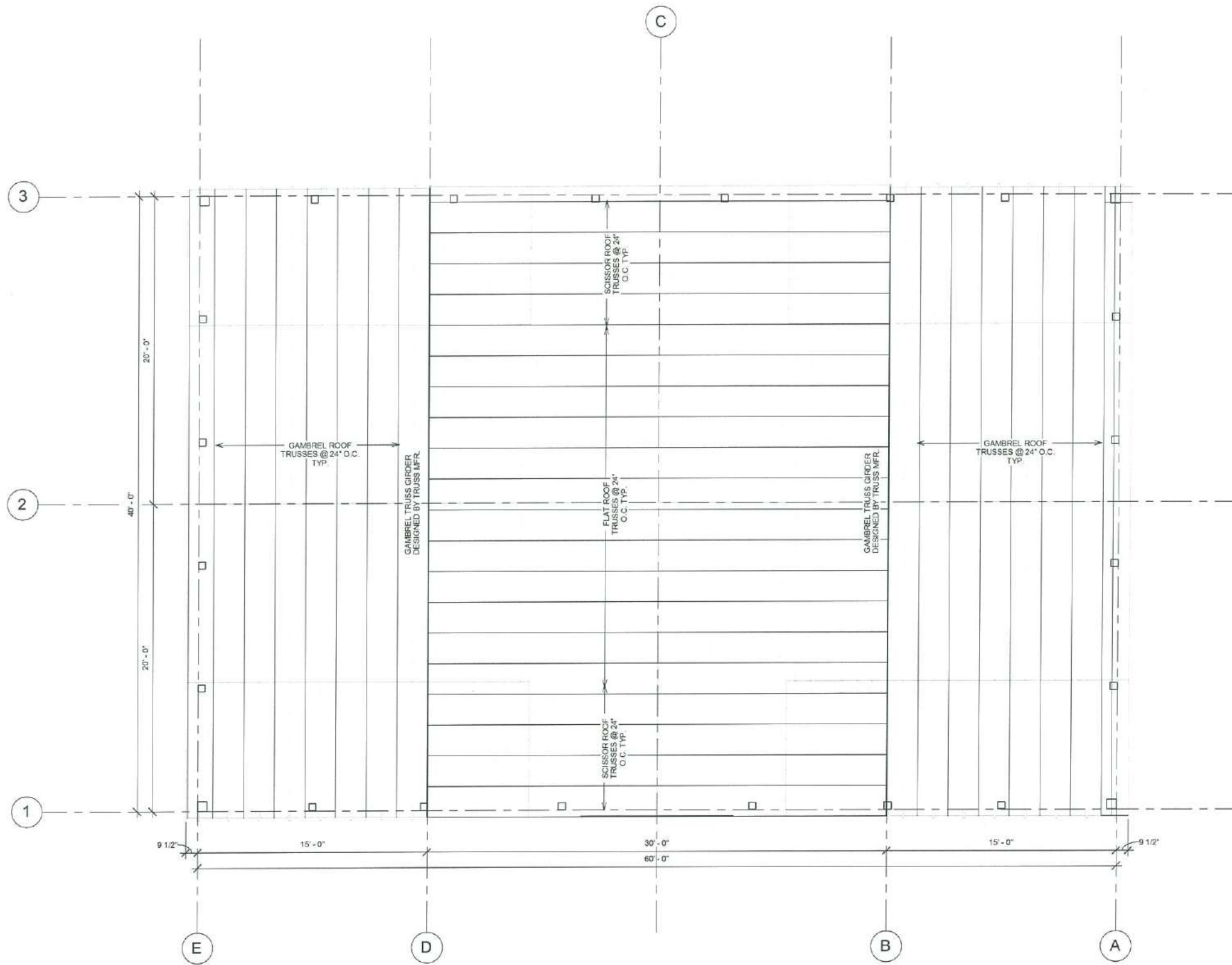
OTIS' BARN
 PITTSBURGH, PA
 CONSTRUCTION SET

1 Loft Framing Plan



JOB NO:		
DRAWN:	BS	
CHECKED:	FJC	
ISSUED:	1-1-15	
REVISIONS:		
TITLE: LOFT FRAMING PLAN		
SHEET: 11 OF 18		

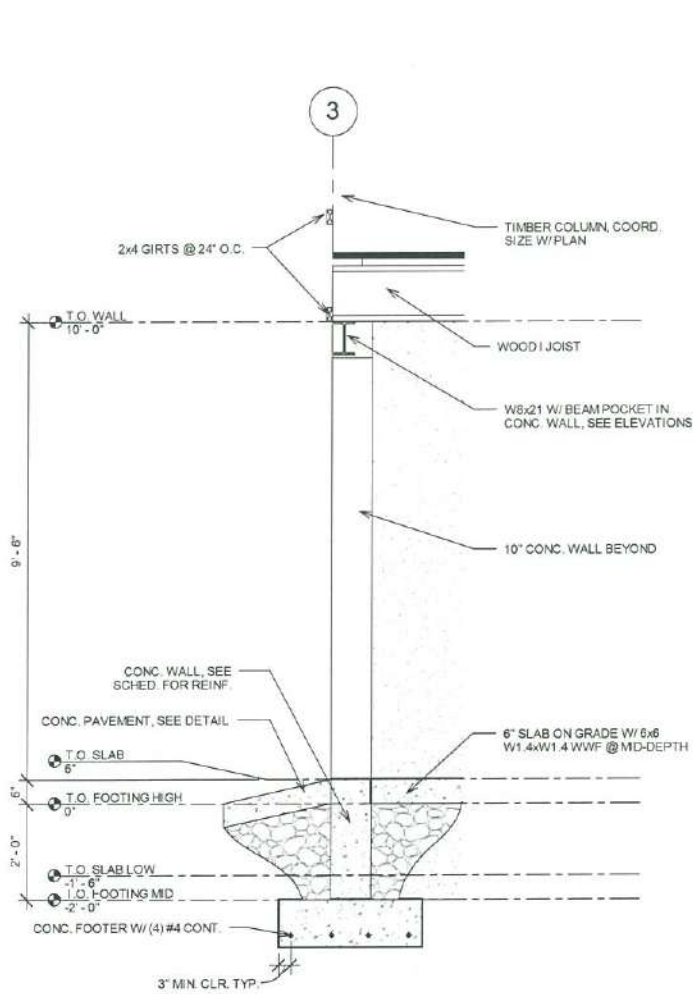
OTIS' BARN
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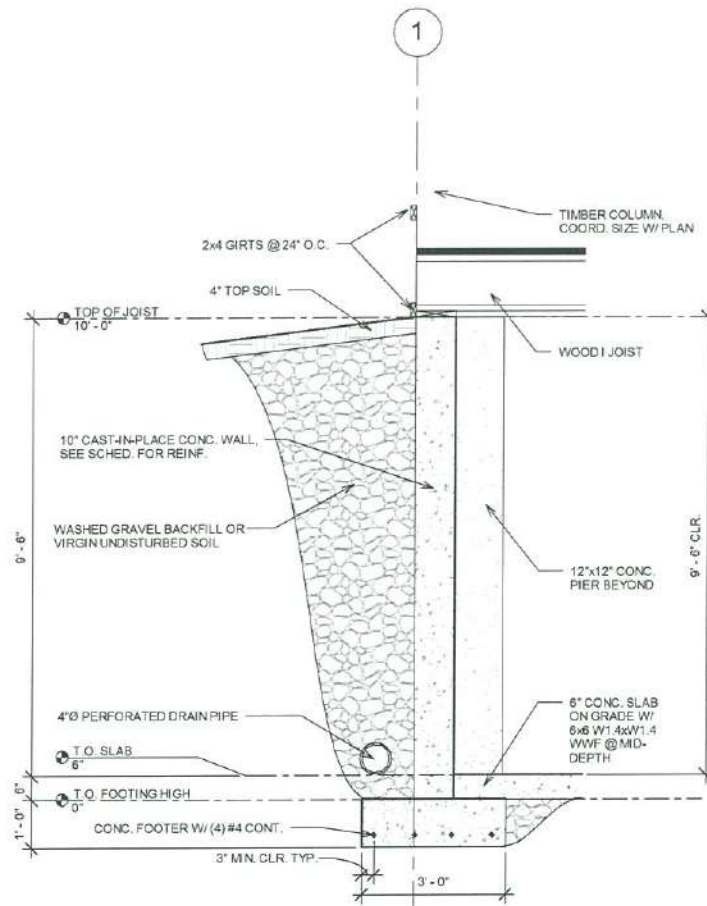
1 Roof Framing Plan

JOB NO:	
DRAWN:	BS
CHECKED:	FJC
ISSUED:	1-1-15
REVISIONS:	
TITLE: ROOF FRAMING PLAN	
SHEET: 12 OF 18	

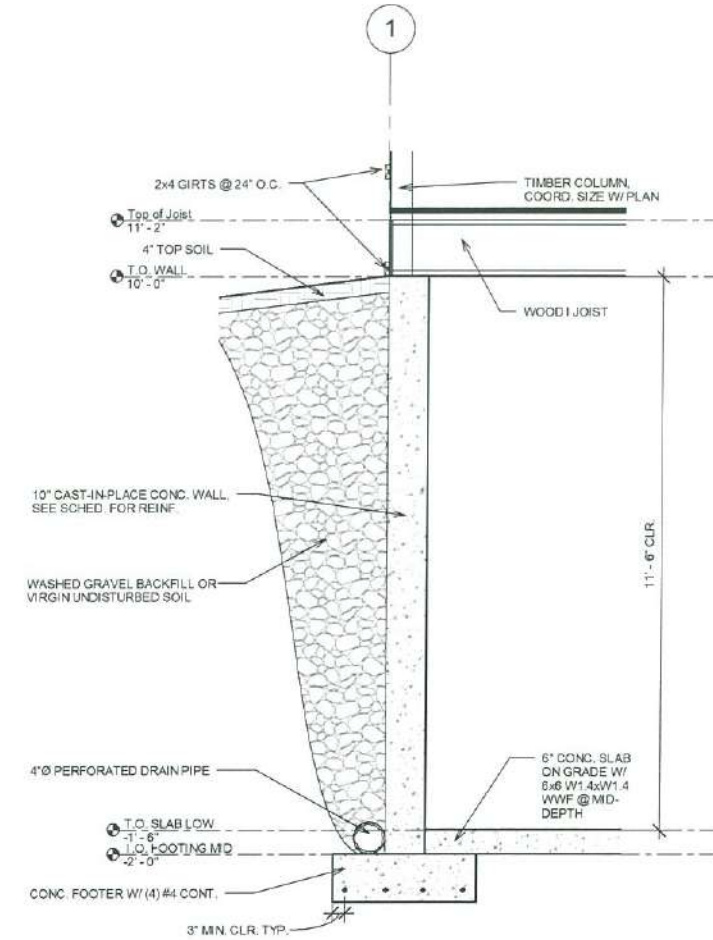
OTIS' BARN
 PITTSBURGH, PA
 CONSTRUCTION SET



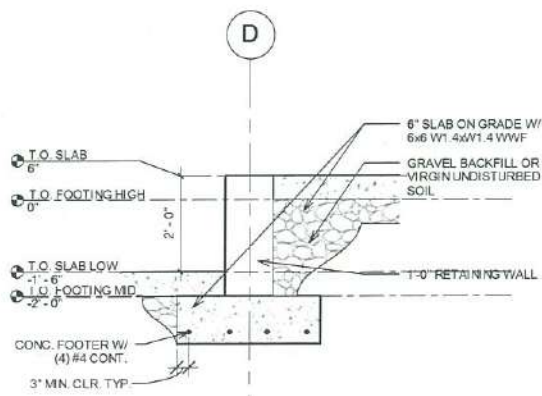
1 Garage Door Section



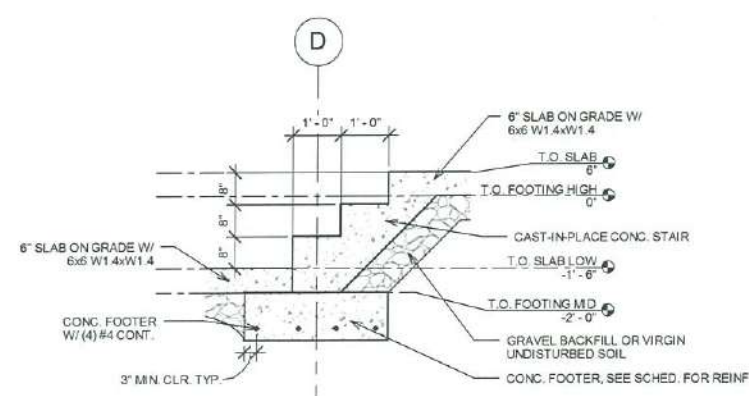
2 Retaining Basement Wall Section



5 Retaining Basement Wall Section 2

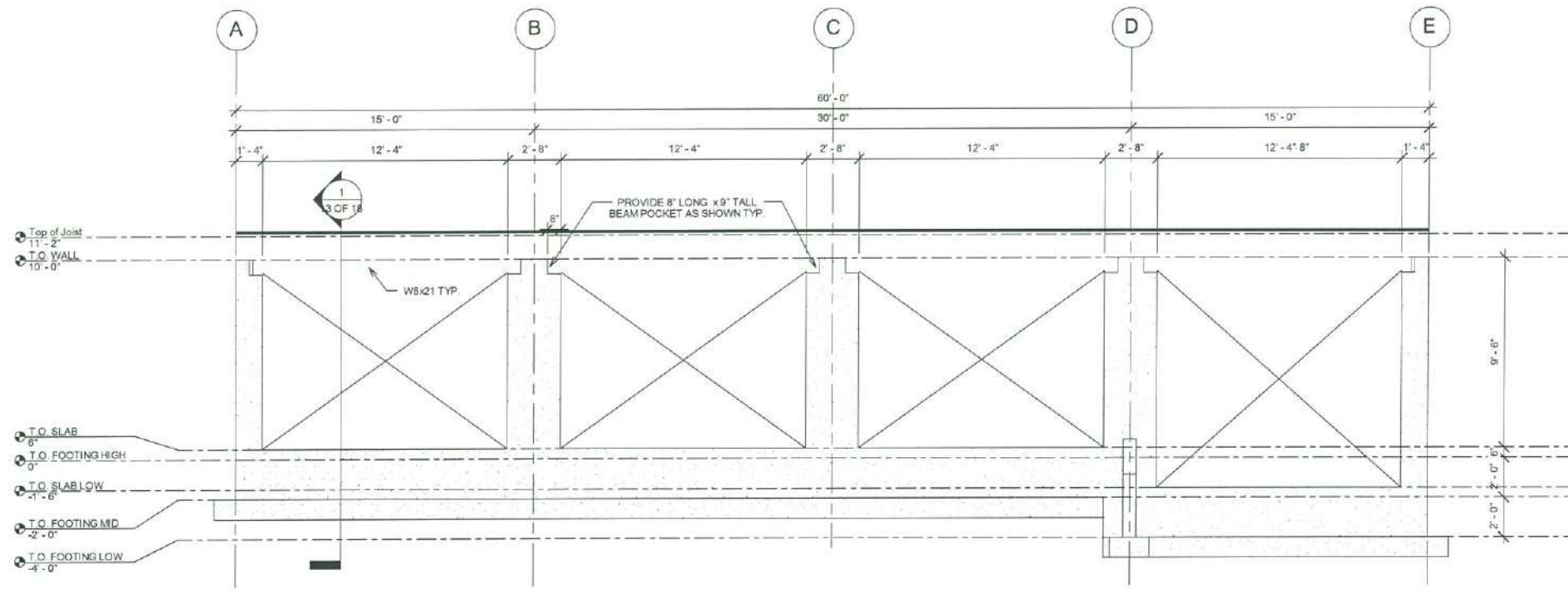


3 Interior Grade Wall Section

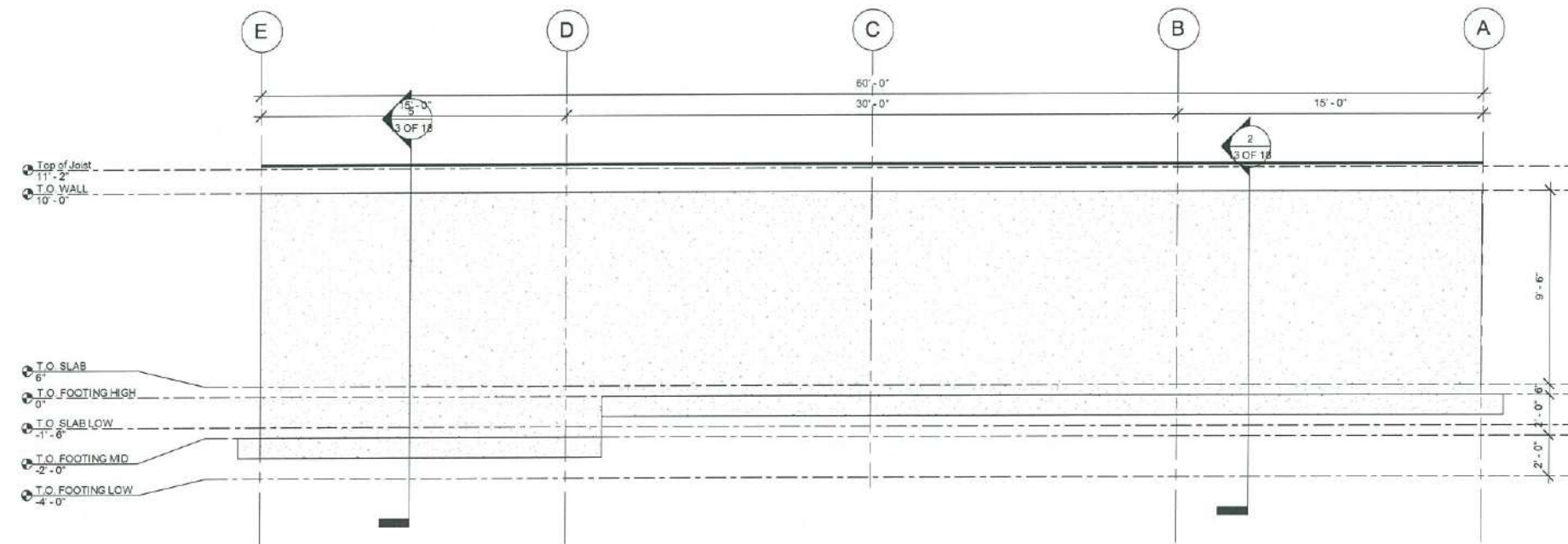


4 Interior Concrete Stair

JOB NO:	
DRAWN:	BS
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ISSUED:	1-1-15
REVISIONS:	
TITLE: SECTIONS & DETAILS	
SHEET: 13 OF 18	



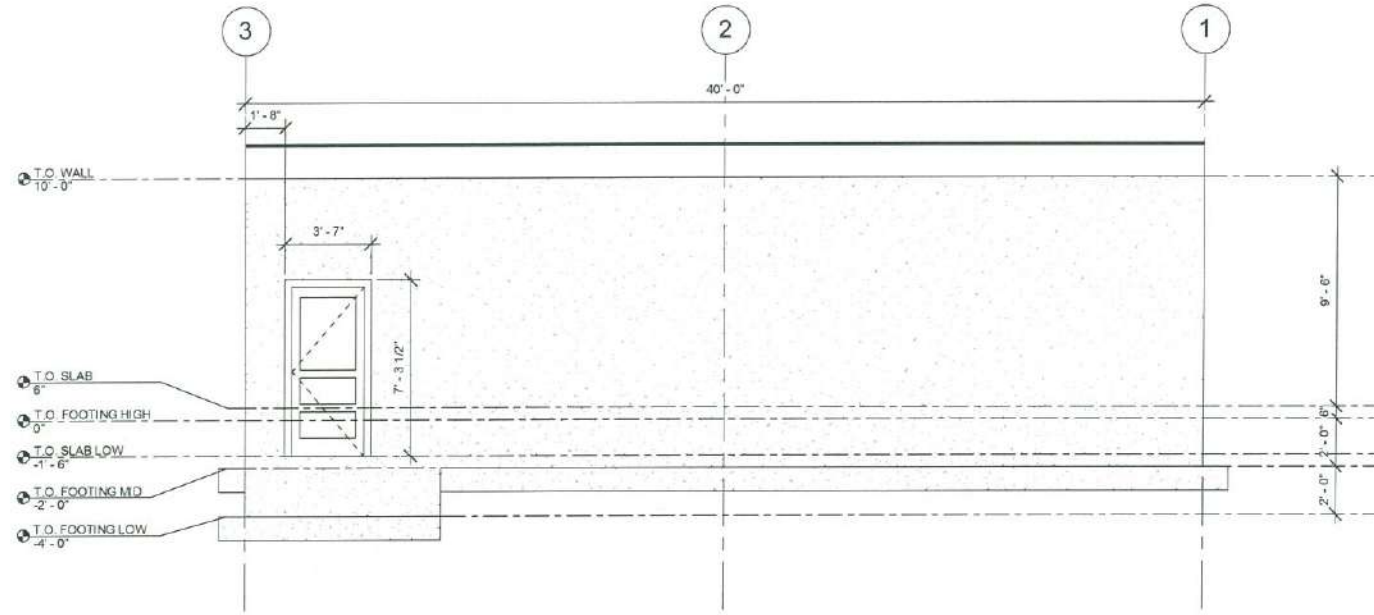
1 EAST STRUCTURAL



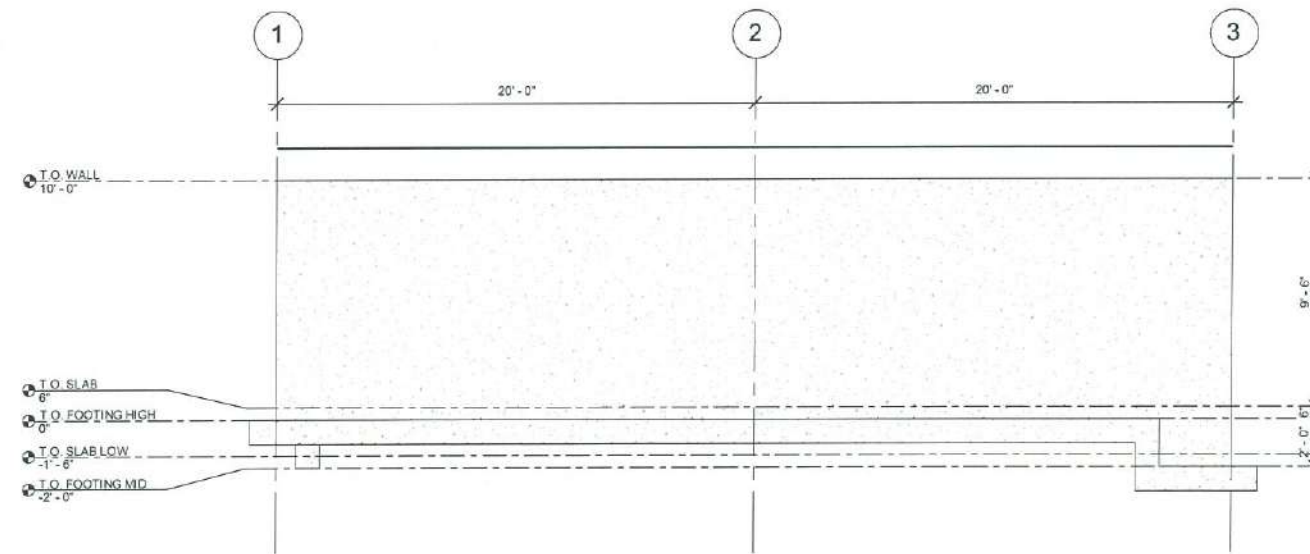
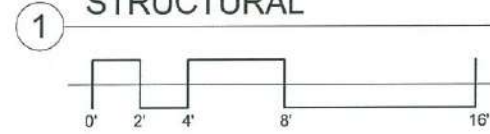
2 WEST STRUCTURAL

OTIS' BARN
 PITTSBURGH, PA
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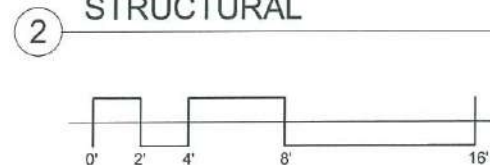
JOB NO:		
DRAWN:	BS	
CHECKED:	FJC	
ISSUED:	1-1-15	
REVISIONS:		
TITLE: STRUCTURAL ELEVATIONS		
SHEET: 14 OF 18		



**SOUTH
 STRUCTURAL**



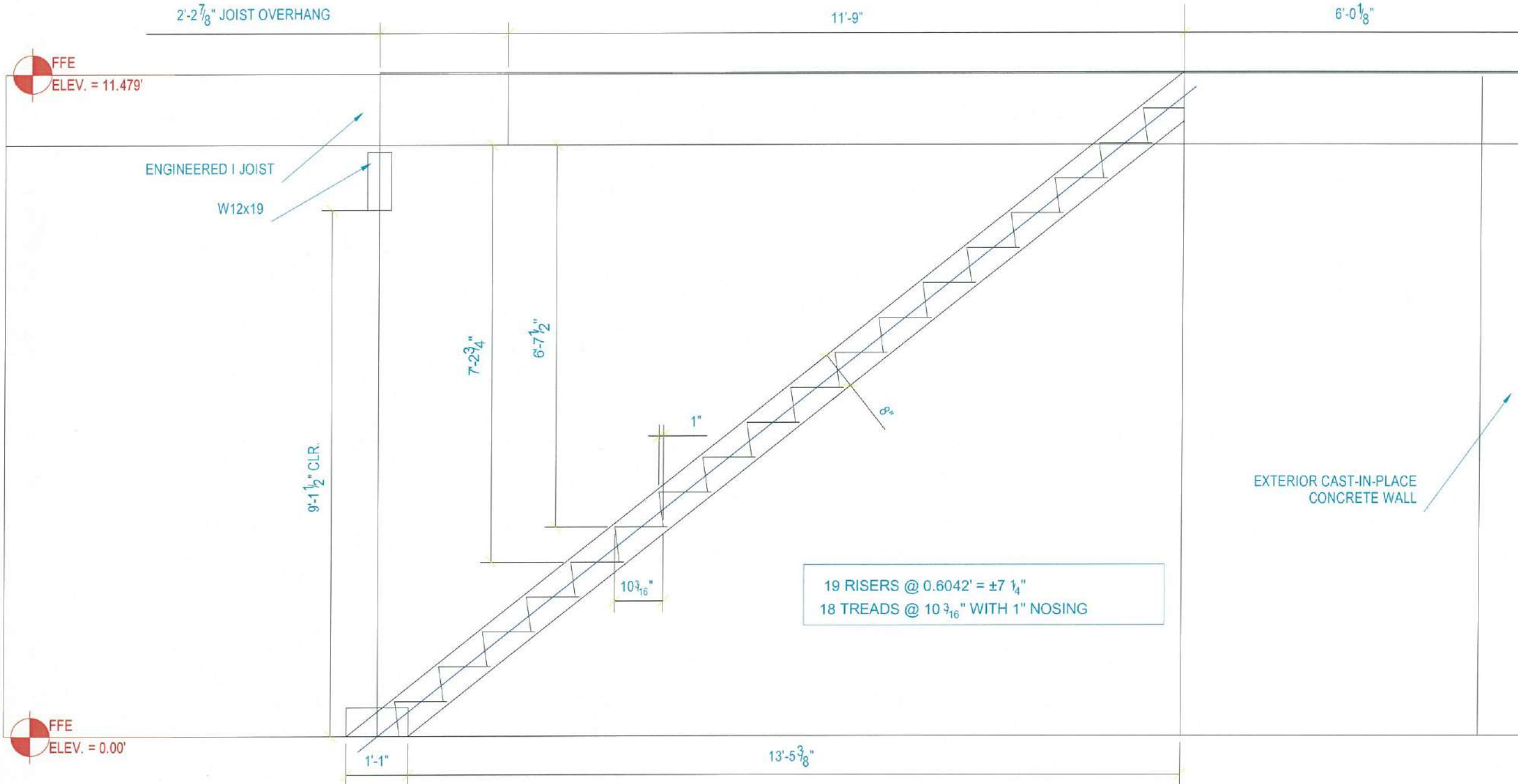
**NORTH
 STRUCTURAL**



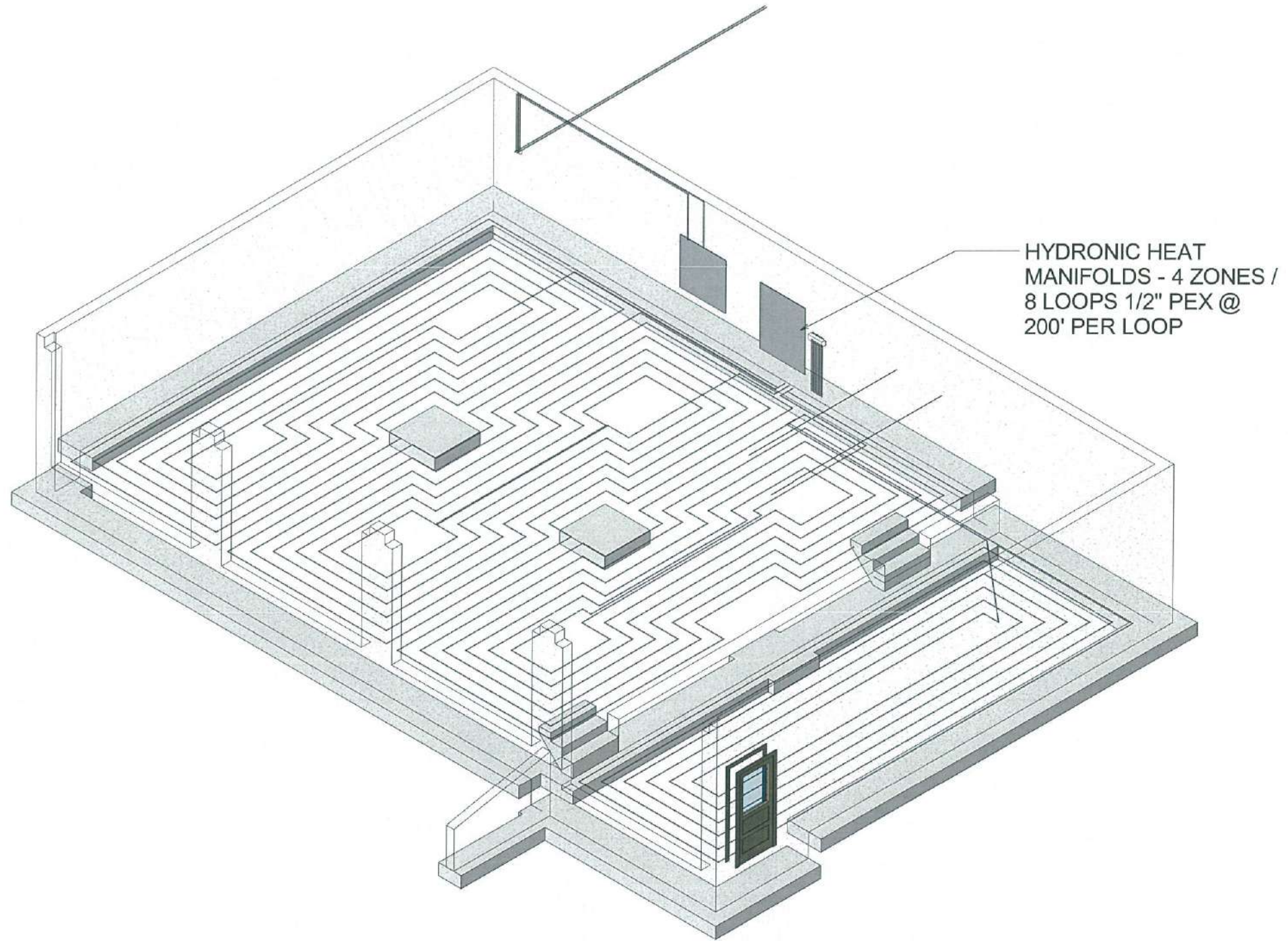
OTIS' BARN
 PITTSBURGH, PA
 CONSTRUCTION SET

JOB NO:		
DRAWN:	BS	
CHECKED:	FJC	
ISSUED:	1-1-16	
REVISIONS:		
TITLE: STRUCTURAL ELEVATIONS		
SHEET:		
15 OF 18		

OTIS' BARN
 PITTSBURGH, PA
 CONSTRUCTION SET

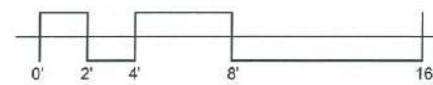


JOB NO:	
DRAWN:	BS
CHECKED:	FJC
ISSUED:	1-1-15
REVISIONS:	
TITLE: STAIR SECTION	
SHEET: 16 OF 18	



OTIS' BARN
 PITTSBURGH, PA
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① HYDRONIC 3D PLAN



JOB NO:		
DRAWN:	BS	
CHECKED:	FJC	
ISSUED:	1-1-15	
REVISIONS:		
TITLE: HYDRONIC 3D PLAN		
SHEET: 17 OF 18		

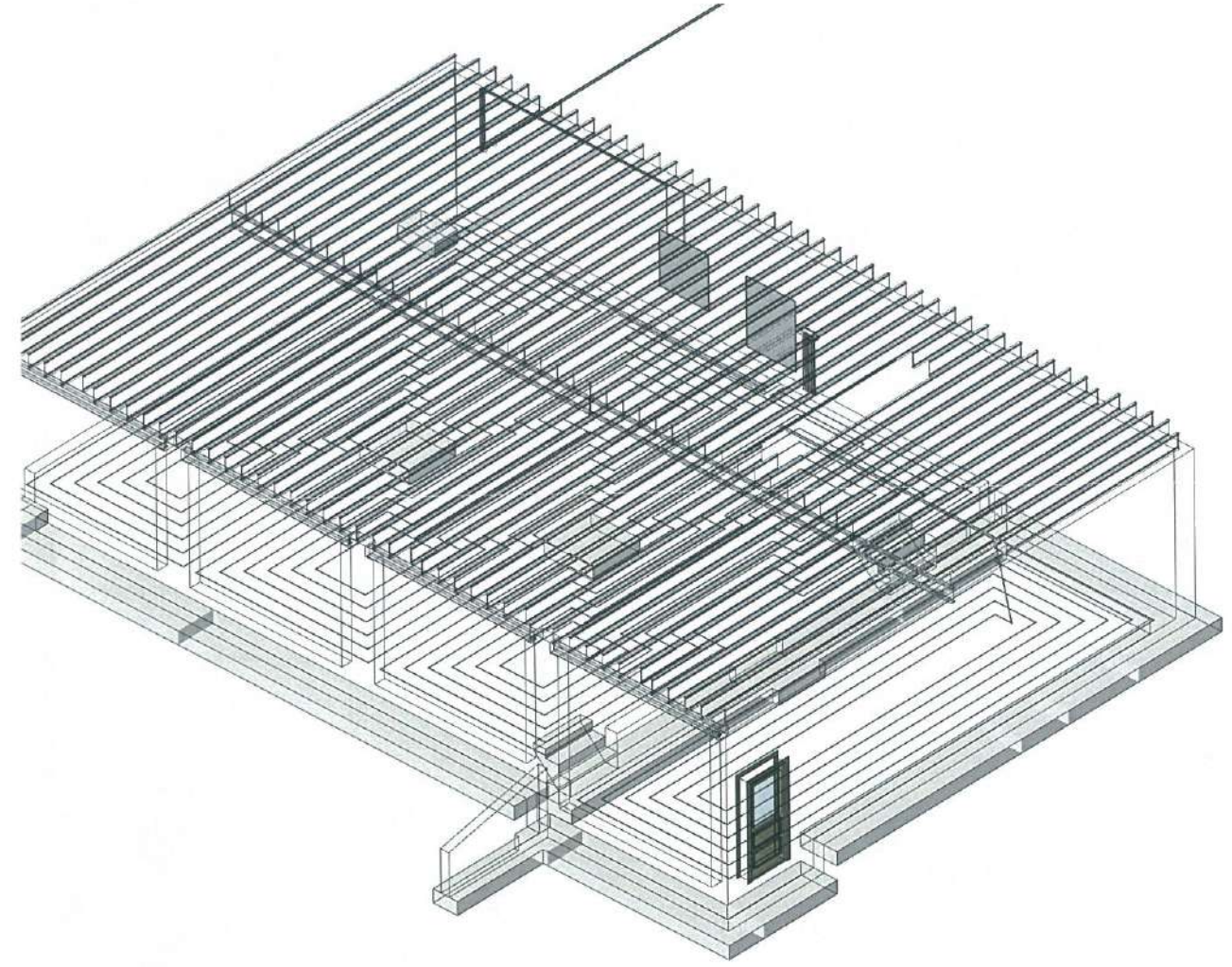


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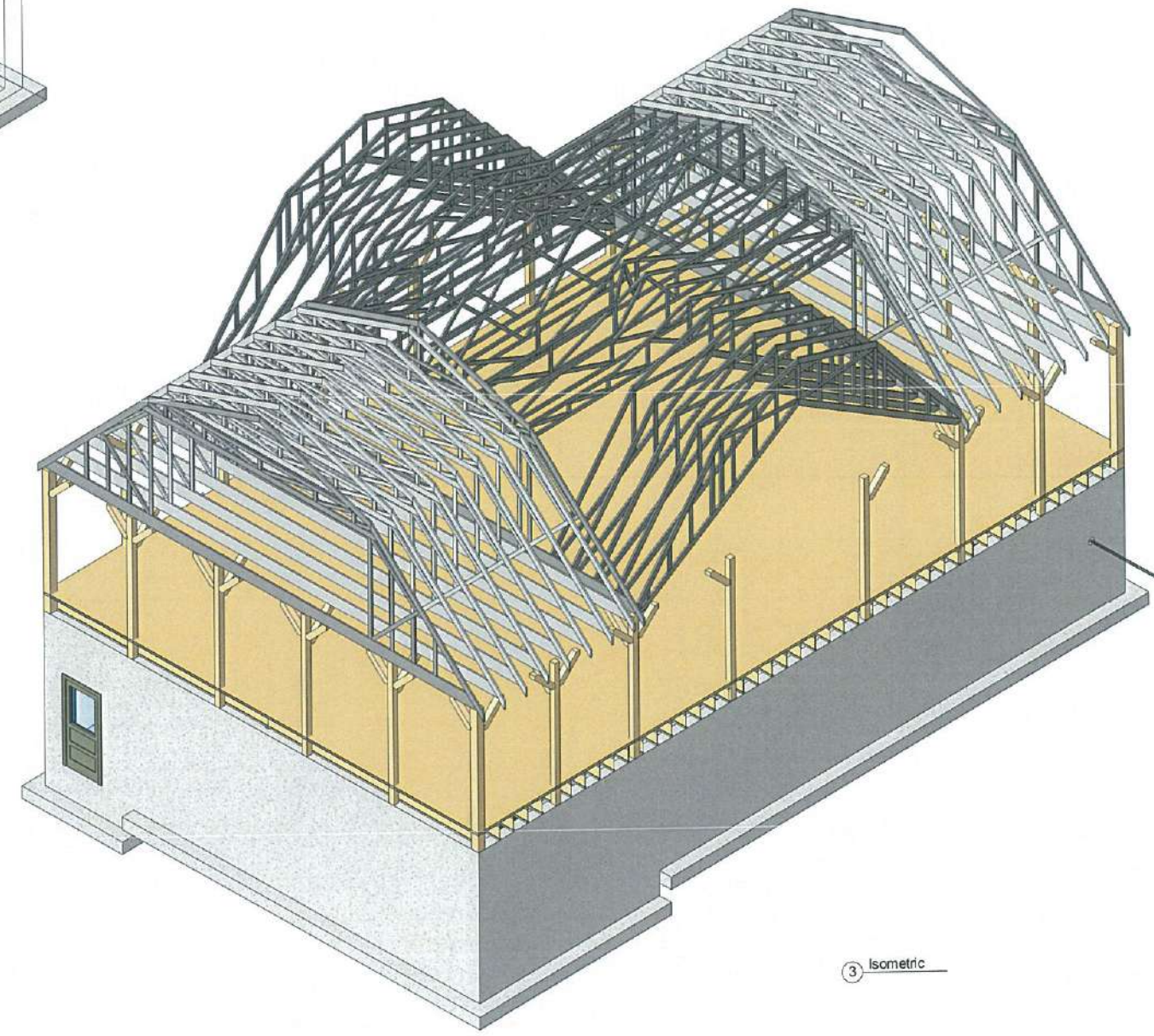
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OTIS' BARN
PITTSBURGH, PA
CONSTRUCTION SET



② BASEMENT ISOMETRIC



③ Isometric

JOB NO:	
DRAWN:	BS
CHECKED:	FJC
ISSUED:	1-1-15
REVISIONS:	
TITLE: ISOMETRIC	
SHEET: 18 OF 18	