CODE CLASSIFICATION AND ANALYSIS

BUILDING AUTHORITY:
CITY OF LEE'S SUMMIT, MISSOURI

APPLICABLE CODES:

2018 INTERNATIONAL BUILDING CODE	- 2018 IBC
2018 INTERNATIONAL FIRE CODE	- 2018 IFC
2018 INTERNATIONAL PLUMBING CODE	- 2018 IPC
2018 INTERNATIONAL MECHANICAL CODE	- 2018 IMC
2018 INTERNATIONAL FUEL GAS CODE	- 2018 IFGC
2018 INTERNATIONAL ENERGY CONSERVATION CODE	- 2018 IECC
2017 NATIONAL ELECTRIC CODE	- 2017 NEC
AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES	- ADAAG

PROJECT DESCRIPTION:
THIS PROJECT IS ONE NEW POOL OUT BUILDING FOR SUMMIT VIEW FARMS. THE BUILDING WILL BE ONE STOREY ABOVE GRADE WITH A RESTROOM FOR EITHER MEN OR WOMEN, STORAGE, AND MECHANICAL AREAS.

BUILDING CLASSIFICATION:

OCCUPANCY GROUP	A-4: SWIMMING POOL
NON-SEPARATED USE	(PER IBC 508.3)
CONSTRUCTION TYPE	V-B (TABLE 601)
ALLOWABLE AREA	6,000 SQ. FT. (TYPE A-4)(TABLE 506.2)
ACTUAL AREA (OUTDOOR GATED POOL)	6,923 SQ. FT.
ACTUAL AREA (BATHROOM/STORAGE BLDGS.)	848 SQ. FT.
ALLOWABLE STORIES	1 (TABLE 504.4)

OCCUPANCY LOAD:

BATHS
303 SQ. FT. / 100 = 3
CHANGING ROOMS
140 SQ. FT. / 50 = 2
POOL EQUIP. / MECHANICAL
142 SQ. FT. / 300 = 1
STORAGE
263 SQ. FT. / 300 = 1
BATHHOUSE OCCUPANCY = 7

TRELLIS AREA & POOL DECK (BY OTHERS)
4,614 SQ. FT. / 15 = 307
POOL (BY OTHERS)
2,751 SQ. FT. / 50 = 55
POOL DECK, POOL & TRELLIS OCCUPANCY = 362

TOTAL OCCUPANCY = 369

FIRE SAFETY:
SPRINKLER — NOT REQUIRED

PER IBC 903.2.1.4 - AUTOMATIC SPRINKLER NOT REQUIRED WHEN FIRE AREA IS UNDER 12,000 SQ. FT., OCCUPANT LOAD IS LESS THAN 300 (NO BUILDINGS, ONLY BATHHOUSE) AND THE FIRE AREA IS ON THE LEVEL OF DISCHARGE.

FIRE RATINGS

EXTERIOR WALLS	NOT RATED (IBC TABLE 602, SEPARATION >30')
LOAD BEARING WALL	NOT RATED (IBC TABLE 601, TYPE V-B)
ROOF / CEILINGS	NOT RATED (IBC TABLE 601, TYPE V-B)
STRUCTURE	NOT RATED (IBC TABLE 601, TYPE V-B)

EGRESS
THE BUILDING HAS 7 ACCESSIBLE EXITS THAT DO NOT UTILIZE OTHER AREAS FOR EGRESS PURPOSES.

PLUMBING FIXTURES: (BATHHOUSE, POOL & POOL DECK)

	REQUIRED	PROVIDED
WATER CLOSET - MEN (1/125)	2	2
WATER CLOSET - WOMEN (1/65)	3	3
LAVATORIES - MEN (1/200)	1	1
LAVATORIES - WOMEN (1/200)	1	1
DRINKING FOUNTAIN (1/1000)	1	2 (HIGH & LOW FOR ADA)

ENERGY CODE:
CLIMATE ZONE — LEES SUMMIT, MO - 4A

INSULATION SHALL BE INSTALLED PER TABLE C402.2 & C402.3 OF THE 2017 IECC, AS AMENDED BY THE CITY OF LEE'S SUMMIT, MISSOURI

INSULATION REQUIREMENTS

CEILINGS AND CATHEDRAL CEILINGS	R-38
WOOD FRAMED WALLS	R-13
UNHEATED SLABS	R-10 FOR 24" BELOW
OPAQUE SWINGING DOORS	U-0.61

FENESTRATION

FIXED WINDOW	U-0.38
OPERABLE WINDOW	U-0.45
ENTRANCE DOOR	U-0.77
DOOR - SHGC	0.40

DEVELOPER:	BILL KENNEY P.O. BOX 241 LEE'S SUMMIT, MO 64063 (816) 838-0552
SURVEYER/ CIVIL:	LAMP RYNEARSON 9001 STATE LINE RD. STE 200 KANSAS CITY, MO 64114 (816) 361-0440
ARCHITECT:	ELSWOOD SMITH CARLSON ARCHITECTS, P.A. 7133 W. 95TH ST., SUITE 200 OVERLAND PARK, KS 66212 (913) 644-7557
STRUCTURAL ENGINEER:	APEX ENGINEERS, INC. 1600 BALTIMORE, SUITE 102 KANSAS CITY, MO 64108 (816) 421-5222
MEP ENGINEER:	LATIMER, SOMMERS & ASSOCIATES 3639 SW SUMMERFIELD DR. #A TOPEKA, KA 66614 (785) 233-5232
POOL DESIGNER:	LORAX DESIGN GROUP 8021 SANTA FE DR. #200 OVERLAND PARK, KS 66204 (913) 912-7244

DRAWINGS SHEET INDEX

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Kansas state certificate of authority # A-143
Missouri state certificate of authority # 000336

SUMMIT VIEW FARMS
POOL HOUSE

LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
WESTON EUGENE COBLE
NUMBER
A-2016011206
ARCHITECT
Weston Coble
01/28/2021

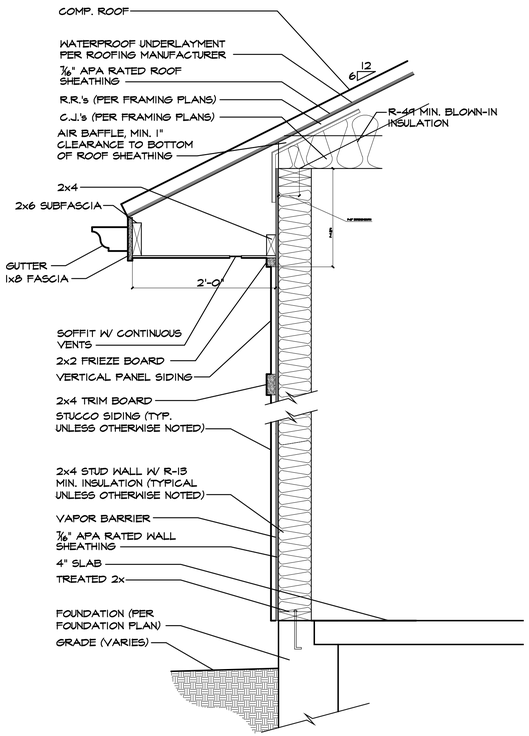
Weston E. Coble
Architect
KS# 6706
MO# A-2016011206

The Professional Architects seal affixed to this sheet applies only to material and items shown on this sheet. All drawings, instruments, or other documents not bearing this seal shall not be considered prepared by this architect, and this architect expressly disclaims any and all responsibility for such plan, drawings or documents not exhibiting this seal.

project no.	20091
date	01/28/2021
revised	
design by	W.C.
drawn by	A.H.
struct. by	APEX

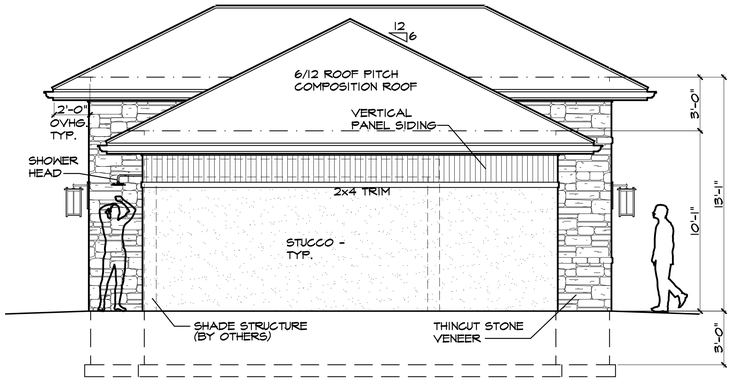
cover

sheet no.
C1



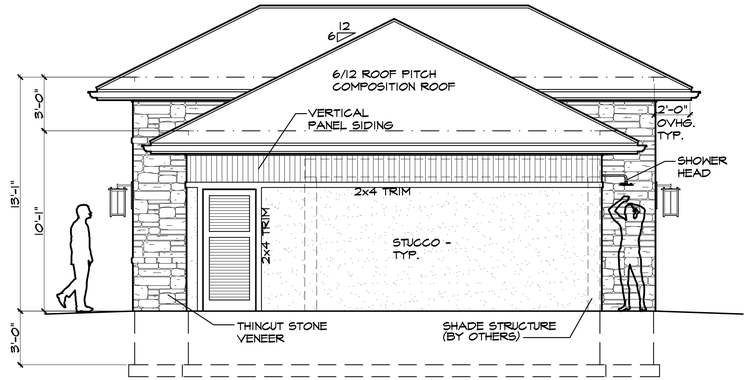
ARCHITECTURAL TYPICAL WALL/SOFFIT DETAIL

SCALE: 1" = 1'-0"



LEFT ELEVATION

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



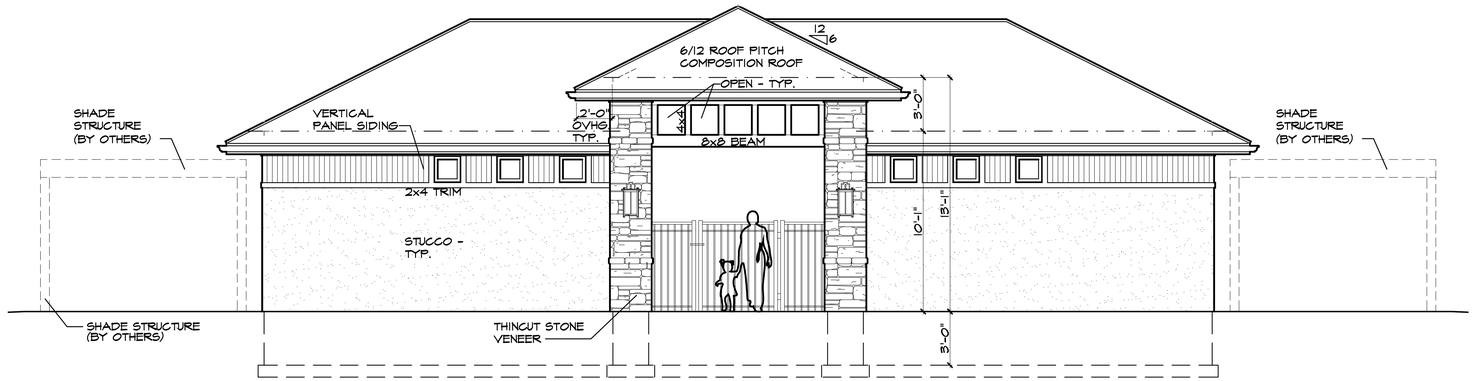
RIGHT ELEVATION

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

CONSTRUCTION SHALL COMPLY WITH THE 2018 INTERNATIONAL BUILDING CODE AS ADOPTED BY LEE'S SUMMIT, MISSOURI

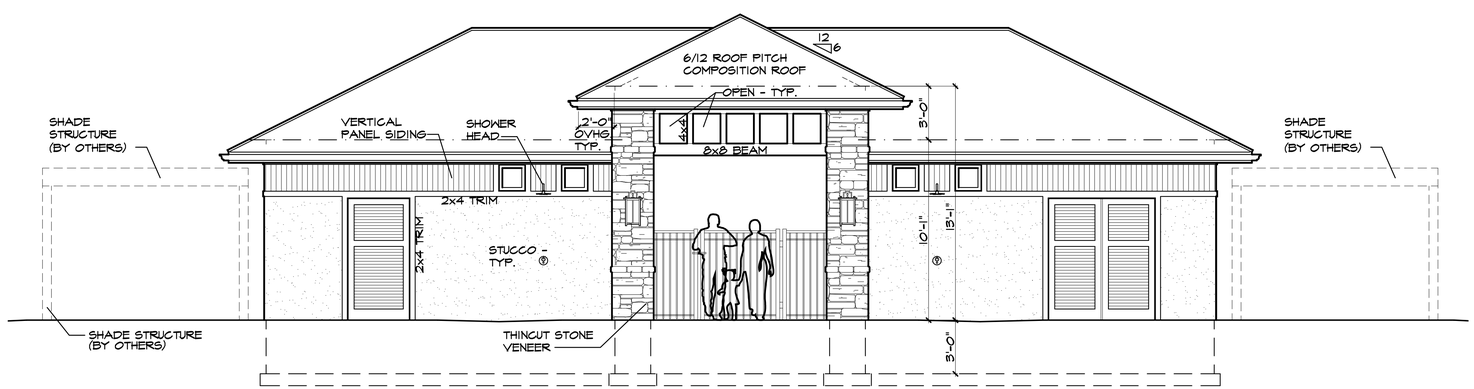
STEP FOOTING AND FOUNDATION AS REQUIRED BY GRADE TO MAINTAIN ADEQUATE BEARING AND PROPER FROST DEPTH.

FIELD VERIFY DEPTH OF ALL FOUNDATION WALLS UPON EXCAVATION



FRONT (STREET) ELEVATION

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



REAR (POOL) ELEVATION

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

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SUMMIT VIEW FARMS

POOL HOUSE

LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
WESTON EUGENE COBLE
NUMBER
A-2016011206
ARCHITECT
01/28/2021

Weston E. Coble
Architect
KS# 6705
MO# A-2016011206

project no.	20091
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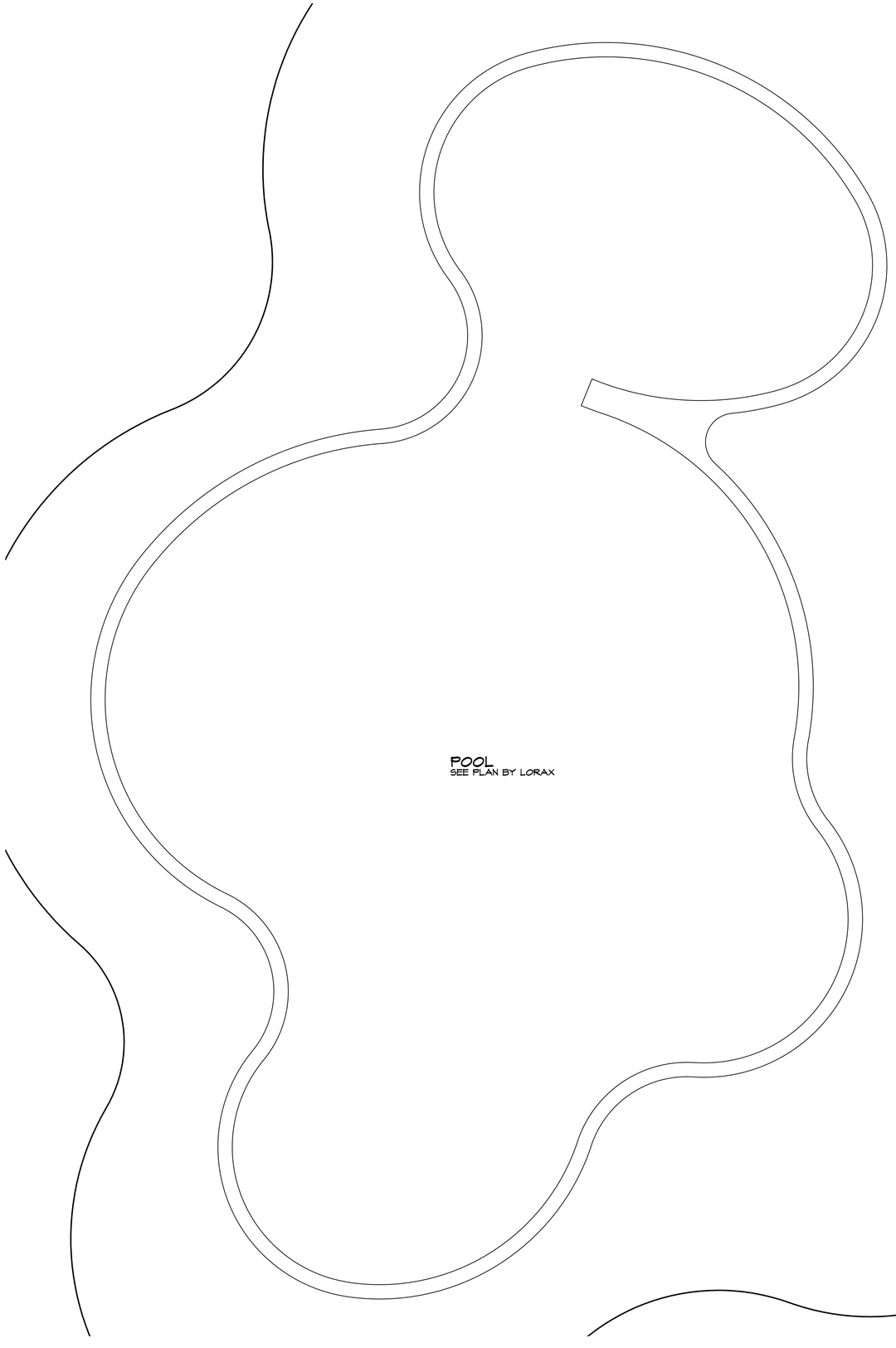
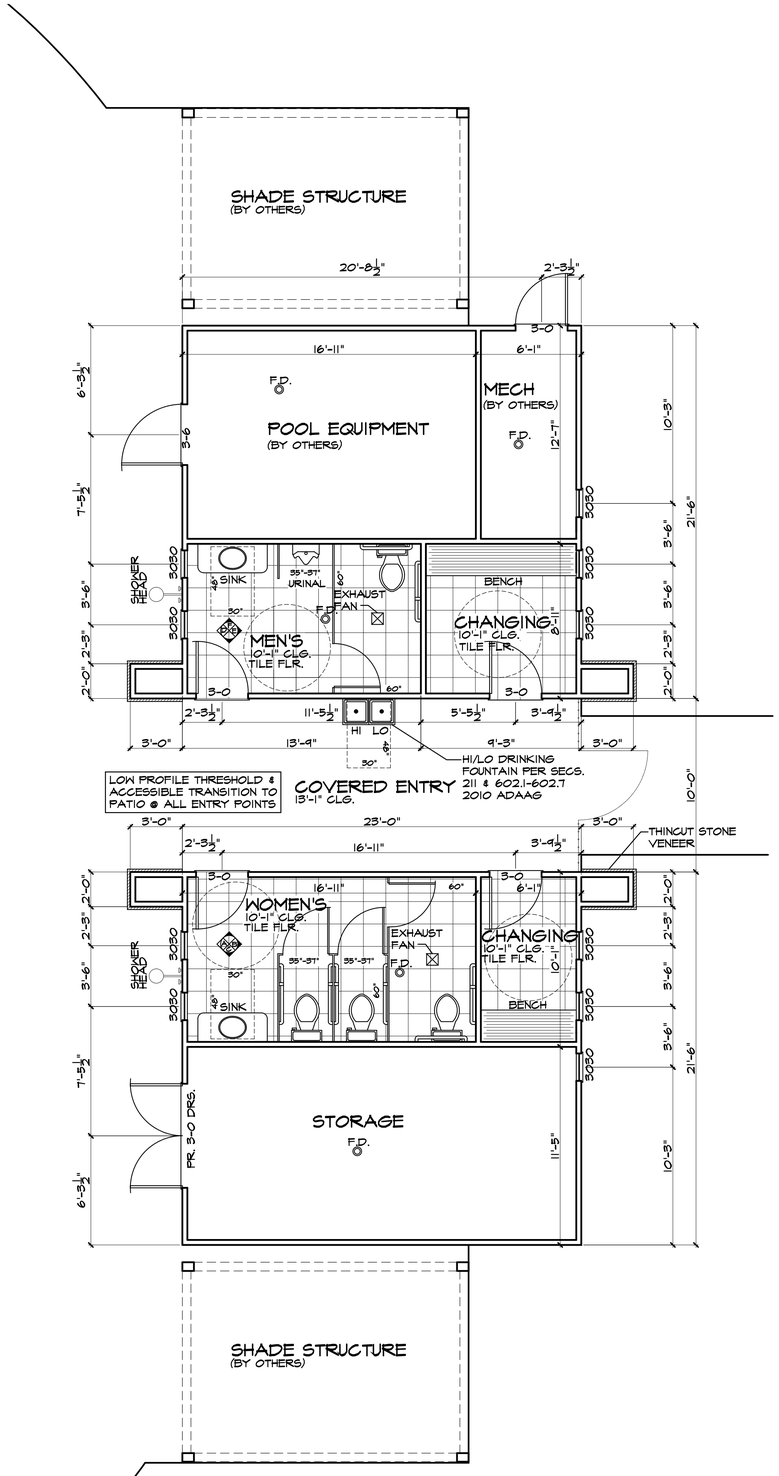
drawn by	A.H.
struct. by	APEX

elevations

sheet no.

A-1





FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"

CONSTRUCTION SHALL COMPLY WITH THE 2018 INTERNATIONAL BUILDING CODE AS ADOPTED BY THE CITY OF LEE'S SUMMIT, MISSOURI

1. CONSTRUCTION AND PLANS SHALL COMPLY WITH THE 2018 INTERNATIONAL BUILDING CODE WITH AMENDMENTS AS ADOPTED BY THE GOVERNING JURISDICTION. IF ANY CHANGES OR DEVIATIONS FORM THE PLANS ARE MADE DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE AUTHORITY AND THE ARCHITECT/ENGINEER ON RECORD, EITHER OR BOTH OF WHOM MAY REQUIRE REVISED DRAWINGS OR CALCULATIONS AT ITS DISCRETION.
2. WHERE DISCREPANCIES EXIST BETWEEN THE STANDARD COMMENTS NOTES FROM THE DESIGN PROFESSIONAL OR THE CODE, THE MOST RESTRICTIVE SHALL APPLY.
3. SQUARE FOOTAGE: "FINISHED SPACE": CALCULATIONS INCLUDE ALL CONDITIONED SPACE MEASURED AT THE FLOOR LEVEL TO THE OUTSIDE FRAMING DIMENSION. AREAS EXCLUDED UNCONDITIONED PORCHES.
4. WINDOW REFERENCE NUMBERS ARE "FRAME SIZE" CLAD CASEMENT WINDOWS UNLESS OTHERWISE NOTED.
5. PROVIDE SAFETY GLAZING IN ACCORDANCE W/ 2018 IBC SEC. 2406.4 (HAZARDOUS LOCATIONS)
6. DOORS AND OPENINGS THIS FLOOR ARE 8'-0" IN HEIGHT, UNLESS OTHERWISE NOTED.
7. EXTERIOR DOORS TO BE EQUIPTED WITH PANIC HARDWARE PER 2018 IBC SEC. 1008.1.9 WITH A 1/2" MAXIMUM THRESHOLD.
   INTERIOR DOORS TO COMPLY WITH 2010 ADAAG SEC. 404 & 309.4 WITH NO THRESHOLD.
8. DOORS SHALL BE EQUIPPED WITH LEVER ACTION DOOR HARDWARE PER 2018 IBC SEC. 1008.1.9/1008.1.8.1 AND A117.1 404.2.6.
9. WALL FRAMING
   EXTERIOR WALLS ARE 2x4's "STUD GRADE" @ 16" O.C., UNLESS OTHERWISE NOTED. INTERIOR WALLS ARE 2x4's "STUD GRADE" @ 16" O.C., UNLESS OTHERWISE NOTED. ALL SILLS & SLEEPERS SUPPORTED ON CONCRETE AND FURRING ATTACHED TO CONCRETE SHALL BE OF DECAY RESISTANT MATERIAL.
10. THE BUILDING SHALL BE IN COMPLIANCE FOR WATER-RESISTIVE EXTERIOR WALL COVERINGS PER 2018 IBC SEC. 1404.2
11. BATHROOM FLOOR FINISH MATERIALS SHALL HAVE A SMOOTH, HARD, NONABSORBENT SURFACE. THE INTERSECTION OF SUCH FLOORS WITH THE WALLS SHALL HAVE A SMOOTH, HARD, NONABSORBENT BASE THAT EXTENDS UPWARD ONTO THE WALLS NOT LESS THAN 4 INCHES PER 2018 IBC SEC. 1210.2.1
12. BATHROOM WALLS & PARTITIONS WITH IN 2 FEET OF SERVICE SINKS & WATER CLOSETS SHALL HAVE A SMOOTH, HARD, NOABSORBENT SURFACE, TO A HEIGHT OF NOT LESS THAN 4 FEET ABOVE THE FLOOR PER 2018 IBC SEC. 1210.2.2
13. SOUND TREAT INTERIOR WALLS (BUILDER AND CLIENT TO DETERMINE METHOD)

SQUARE FOOTAGE

RESTROOMS	=	303 SQ. FT.
CHANGING AREAS	=	140 SQ. FT.
POOL EQUIPT. / MECHANICAL	=	142 SQ. FT.
STORAGE	=	263 SQ. FT.
TOTAL LIVING AREA	=	848 SQ. FT.

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

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SUMMIT VIEW FARMS
POOL HOUSE

LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
WESTON EUGENE COBLE
NUMBER A-2016011206
ARCHITECT
01/28/2021

Weston E. Coble
Architect
KS# 6705
MO# A-2016011206

project no.	20091
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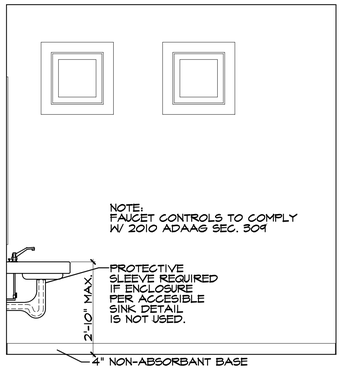
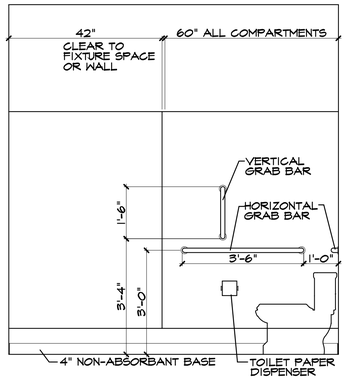
design by	W.C.
drawn by	A.H.
struct. by	APEX

first floor plan

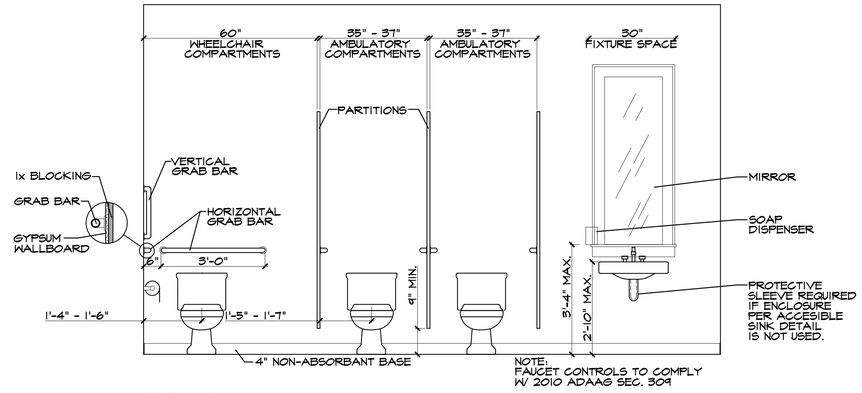
sheet no.
A-2



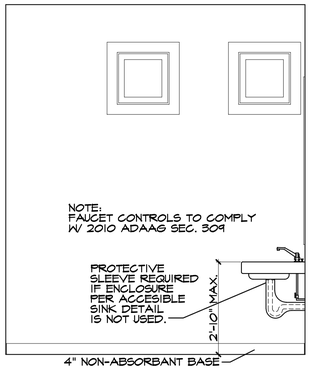
ELEVATION A
SCALE: 1/2" = 1'-0"



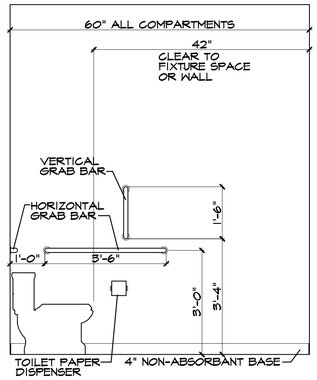
ELEVATION B
SCALE: 1/2" = 1'-0"



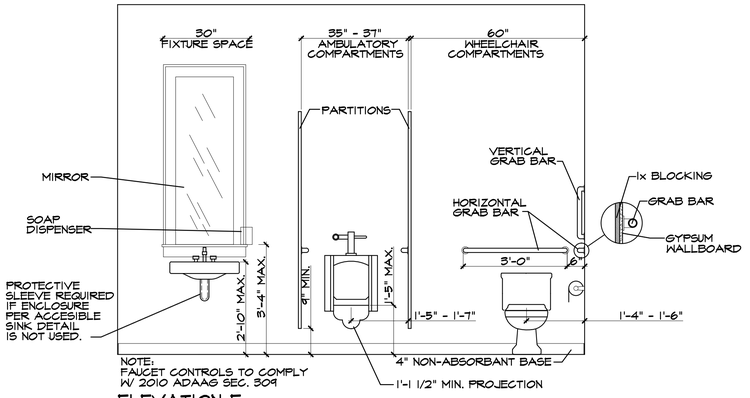
ELEVATION C
SCALE: 1/2" = 1'-0"



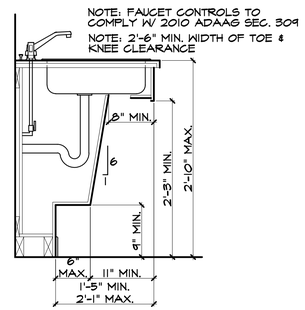
ELEVATION D
SCALE: 1/2" = 1'-0"



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



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



ACCESSIBLE SINK DETAIL
PER 2010 ADAAG SECS. 212 & 606

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NOTICE DUTY OF COOPERATION
Release of these plans contemplates further cooperation among the owner, his contractor, and the designer. Certain items and conditions which may affect the designer and his consultants have performed their services with due care and diligence, they cannot guarantee that certain conditions existing and not disclosed, contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the designer. A failure to cooperate by a simple notice to the designer shall relieve the designer of responsibility for any consequences. Any use of these from the plans without the consent of the designer are unauthorized, and shall relieve the designer of responsibility for any consequences arising out of such unauthorized use. Contractor shall check and verify all dimensions.

SUMMIT VIEW FARMS
POOL HOUSE
LEE'S SUMMIT, MISSOURI

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A-2016011206
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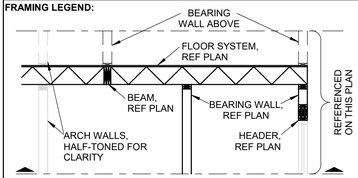
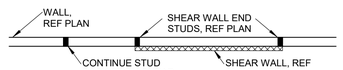
struct. by	APEX

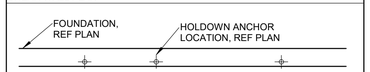
interior bathroom elevations

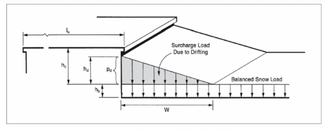
sheet no.

A-3









NOTES - FOUNDATION

1. CONTRACTOR SHALL BE FULLY FAMILIAR WITH IBC CHAPTER 18 FOR USE OF PRESUMPTIVE LOAD-BEARING CAPACITY.

2. CONTRACTOR SHALL USE IBC SPECIFICATIONS AND DETAILS FOR PLACEMENT OF PERIMETER DRAINS, UNDER-SLAB DRAINS, AND ANY OTHER SOILS RELATED ITEMS.

3. ALL FOUNDATIONS TO BEAR ON ORIGINAL, UNDISTURBED SOIL. REMOVE ANY MUD, ORGANIC SILT, ORGANIC CLAYS, PEAT OR UNPREPARED FILL PRIOR TO PLACING FOUNDATIONS.

4. ALL FOOTING EXCAVATIONS TO BE APPROVED BY A QUALIFIED GEOTECHICAL ENGINEER PRIOR TO PLACING CONCRETE.

5. ALL FOOTINGS SHALL EXTEND BELOW FROST DEPTH, REFERENCE DESIGN INFORMATION FOR FROST DEPTH.

NOTES - CONCRETE

1. ALL CONCRETE CONSTRUCTION TO CONFORM TO ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", THE GOVERNING EDITION OF THE ACI 318, AND ACI "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" ACI 301, UNLESS NOTED OTHERWISE.

2. WATER REDUCING ADD MIXTURES ARE ALLOWED IN CONCRETE MIX DESIGNS.

3. SYNTHETIC MICRO-FIBERS ARE NOT ALLOWED UNLESS SPECIFICALLY NOTED IN THESE DRAWINGS.

4. UNLESS OTHERWISE SHOWN IN THE ARCHITECTURAL DRAWINGS, PROVIDE 3/4" CHAMFERS AT THE EDGES THAT ARE EXPOSED TO VIEW IN THE FINISHED STRUCTURE.

5. REFERENCE ARCHITECTURAL DRAWINGS FOR DOOR AND WINDOW OPENINGS, DRIP SLOTS, REGLETS, MASONRY, ANCHORS, BRICK LEDGE ELEVATIONS AND FOR MISCELLANEOUS EMBEDDED PLATES, BOLTS, ANCHORS, ANGLES, ETC.

6. REFERENCE ARCHITECTURAL DRAWINGS FOR CONCRETE FINISHES. WHERE FINISH IS NOT SPECIFIED, CONFORM TO REQUIREMENTS OF ACI 301.

7. REFERENCE MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR DRAINS, SLEEVES, OUTLET BOXES, CONDUIT, ANCHORS, ETC.

8. CONTACT APEX ENGINEERS, INC. IF HOUSE KEEPING PADS OR INERTIA BASES ARE REQUIRED BEYOND WHAT IS SHOWN IN THE STRUCTURAL CONTRACT DOCUMENTS.

9. ALL REINFORCING STEEL TO BE DETAILED IN ACCORDANCE WITH ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES."

10. REINFORCING SHALL BE CONTINUOUS WHEREVER POSSIBLE. SPLICES AND LAPS TO CONFORM TO ACI 318. REFER TO CONCRETE REBAR SCHEDULE.

11. DOWELS IN FOOTING, WALLS, AND DRILLED PIERS MUST BE IN POSITION BEFORE PLACING CONCRETE WHENEVER POSSIBLE.

12. REFERENCE TYPICAL FOUNDATION DETAILS FOR INFORMATION ON REINFORCING REQUIREMENTS AT WALL AND SLAB OPENINGS.

13. REFERENCE TYPICAL FOUNDATION DETAILS FOR INFORMATION ON REINFORCING REQUIREMENTS AT CORNER AND TEE INTERSECTIONS.

14. PROVIDE VERTICAL CONTROL JOINTS ON ALL POURED CONCRETE WALLS AND BASEMENT WALLS. SPACE JOINTS AT 3 x WALL HEIGHT FOR WALLS LESS THAN 10'-0" AND WALL HEIGHT FOR TALLER WALLS. PROVIDE ADDITIONAL JOINT WITHIN 10'-0" OF CORNERS.

15. OPENINGS IN SLAB OF 1'-4" AND LESS ON A SIDE ARE GENERALLY NOT SHOWN ON THE STRUCTURAL DRAWINGS. REFERENCE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR SUCH OPENINGS.

NOTES - ROUGH CARPENTRY

1. CONTRACTOR IS RESPONSIBLE TO ADEQUATELY SHORE AND BRACE ALL FLOOR AND ROOF FRAMING AND WALLS DURING CONSTRUCTION.

2. NAILING: SHALL BE PER FASTENING SCHEDULE OF THE INTERNATIONAL BUILDING CODE. FOR PREFABRICATED CONNECTORS USE ALL FASTENERS AS PRESCRIBED BY THE MANUFACTURER.

3. ALL POST AND JAMBS ARE TO BE BLOCKED SOLID WITH THE SAME NUMBER OF PIECES AS THE POST OR JAMB WITHIN THE FLOOR SPACE AND CONTINUOUS TO THE FOUNDATION LEVEL. BLOCKING IS TO ALIGN WITH POST OR JAMBS.

4. SPECIES AND GRADES SHOWN IN SCHEDULE ARE THE MINIMUM ACCEPTABLE. BETTER GRADES MAY BE SUBSTITUTED.

5. PRESSURE TREATED WOOD TO BE USED WHEN EXPOSED TO WEATHER OR IN CONTACT WITH CONCRETE OR MASONRY.

6. WOOD STRUCTURAL PANELS TO BE A.P.A. RATED AND EXPOSURE 1. PANELS TO BE MANUFACTURED PER U.S. DEP. OF COMMERCE PRODUCT STANDARDS PS1 OR PS2.

7. ANY FASTENERS OR CONNECTORS TO AND THROUGH TREATED WOOD SHALL BE FASTENED WITH ASTM A153 CLASS D HOT DIP GALVANIZED OR STAINLESS STEEL FASTENERS.

8. WOOD FRAMING WILL HAVE SHRINKAGE. THE CONTRACTOR SHALL COORDINATE REQUIREMENTS TO ACCOMMODATE SHRINKAGE WITH OTHER TRADES.

9. BORED HOLES FOR HORIZONTAL PLUMBING PIPING SHALL BE PROVIDED WITH FLEXIBLE JOINTS TO PERMIT MOVEMENT.

10. RIGID ELECTRICAL CONDUIT INSTALLED VERTICALLY SHALL BE PROVIDED WITH FLEXIBLE JOINTS TO PERMIT MOVEMENT.

11. ALL DIMENSIONAL LUMBER SHALL BE GRADE STAMPED WITH MOISTURE CONTENT NOT TO EXCEED 19%.

12. INCISED STRUCTURAL LUMBER NOT PERMITTED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.

13. DIMENSIONAL LUMBER SIZES SHOWN ON PLANS ARE NOMINAL DIMENSIONS. DRESSED SIZES PUBLISHED IN THE LATEST EDITION OF AMERICAN SOFTWOOD LUMBER PS20 SHALL BE ACCEPTED AS MINIMUM NET SIZES CONFORMING TO SUCH NOMINAL SIZES.

14. WOOD HEADERS SHALL HAVE A FULL 3" LENGTH OF BEARING AT EACH END UNO.

15. ALL BEAMS AND JOISTS NOT BEARING ON SUPPORTING MEMBERS SHALL BE FRAMED WITH PREFABRICATED METAL JOIST HANGERS FOR REQUIRED CAPACITY. ALL PREFABRICATED METAL HARDWARE IS BY SIMPSON STRONG-TIE COMPANY OR APPROVED EQUIVALENT. CONNECTIONS IN CONTACT WITH PRESSURE TREATED WOOD SHALL HAVE G185 GALVANIZED COATING PER ASTM A653 AND HOT DIPPED GALVANIZED FASTENERS PER ASTM A153. ALTERNATE CORROSION RESISTANT CONNECTIONS IN ACCORDANCE WITH IBC WILL BE CONSIDERED. PRIOR WRITTEN APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD IS REQUIRED.

16. WALL, FLOOR, AND ROOF SHEATHING NAILS SHALL HAVE FULL HEADS. CLIPPED NAILS ARE NOT ALLOWED IN THESE APPLICATIONS.

17. NAIL TYPE USED IN WALL, FLOOR, AND ROOF WSP SHEATHING SHALL BE COMMON OR GALVANIZED BOX NAILS. SINKER NAILS, COOLER NAILS, ETC ARE NOT PERMITTED IN THESE APPLICATIONS.

18. ALL SIDE LOADED LVL BEAMS TO BE FASTENED TOGETHER PER MANUFACTURER REQUIREMENTS.

19. ALL MULTI-PLY BEAMS TO BE SUPPORTED BY STUD PACK WITH ONE ADDITIONAL STUD THAN BEAM PLY'S.

NOTES - GENERAL

1. THESE DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING SUCH REQUIREMENTS INTO THEIR SHOP DRAWINGS AND WORK.

2. NO OPENING SHALL BE MADE IN ANY STRUCTURAL MEMBER WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.

3. NO CHANGE IN SIZE OR DIMENSION OF STRUCTURAL MEMBERS SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.

4. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED UPON STRUCTURAL FRAMING. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED.

5. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES.

6. UNLESS OTHERWISE NOTED, FIREPROOFING METHODS AND MATERIALS FOR STRUCTURAL MEMBERS ARE NOT SHOWN ON STRUCTURAL DRAWINGS. REFERENCE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR FIRE RATING REQUIREMENTS, FIRE PROOFING METHODS AND MATERIALS.

7. DO NOT SCALE THESE DRAWINGS. USE DIMENSIONS SHOWN ON PLANS.

8. THE CONTRACTOR SHALL INFORM THE ARCHITECT/ENGINEER OF ANY DEVIATION FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOT BE RELIEVED OF THE RESPONSIBILITY FOR SUCH DEVIATION BY THE ARCHITECT/ENGINEER'S APPROVAL OF SHOP DRAWINGS, PRODUCT DATA, ETC., UNLESS HE HAS SPECIFICALLY INFORMED THE ARCHITECT/ENGINEER OF SUCH DEVIATION AT THE TIME OF SUBMISSION, AND THE ARCHITECT/ ENGINEER HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION.

9. ALL THINGS WHICH, IN THE OPINION OF THE CONTRACTOR, APPEAR TO BE DEFICIENCIES, OMISSIONS, CONTRADICTIONS, BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER. PLANS AND/OR SPECIFICATIONS WILL BE CORRECTED, OR WRITTEN INTERPRETATION OF THE ALLEGED DEFICIENCY, OMISSION, CONTRADICTION OR AMBIGUITY WILL BE MADE BY THE ARCHITECT/ENGINEER BEFORE THE AFFECTED WORK PROCEEDS.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ERRORS OF DETAILING, FABRICATION AND INSTALLATION. THE CONTRACTOR SHALL MAKE ALL MEASUREMENTS IN THE FIELD NECESSARY TO VERIFY OR SUPPLEMENT DIMENSIONS SHOWN ON THE CONTRACT DRAWINGS AND HE SHALL VERIFY THAT ALL DIMENSIONS SHOWN ON THE SHOP DRAWINGS ARE COORDINATED WITH THE DIMENSIONS AND REQUIREMENTS OF THE CONTRACT DRAWINGS. REVIEW OF THE SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLETING THE WORK SUCCESSFULLY IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS.

11. SUBMIT PRINTS OR ELECTRONIC COPIES OF EACH SHOP DRAWINGS. REPRODUCIBLE COPIES OF CONTRACT DOCUMENTS SHALL NOT BE USED AS SHOP DRAWINGS. SHOP DRAWINGS SHALL BE REVIEWED BY CONTRACTOR PRIOR TO SUBMISSION. CONTRACTOR STAMP SHOP DRAWINGS ACCEPTING RESPONSIBILITY FOR COORDINATION OF DIMENSIONS SHOWN IN THE CONTRACT DOCUMENTS, QUANTITIES AND COORDINATION WITH OTHER TRADES. DRAWINGS NOT BEARING CONTRACTOR'S STAMP MAY BE REJECTED AT THE DISCRETION OF THE ARCHITECT OR STRUCTURAL ENGINEER.

12. REVIEW AND RETURN OF SHOP DRAWINGS SHALL BE BASED ON A MINIMUM OF TEN (10) WORKING DAYS IN THE STRUCTURAL ENGINEER'S OFFICE FROM RECEIPT OF SUBMISSION TO RETURN TO THE NEXT PARTY FOR THEIR ACTION. SHOP DRAWINGS SHOULD BE SUBMITTED INCREMENTALLY AS APPROPRIATE PACKAGES ARE PREPARED TO EQUALIZE THE WORKLOAD FOR REVIEW OF THE DRAWINGS. SUBMISSION OF A LARGE VOLUME OF SHOP DRAWINGS AT ONE TIME MAY RESULT IN REVIEW TIMES WHICH WILL EXCEED THOSE NOTED ABOVE. DEFINITION OF A "LARGE VOLUME" OF SHOP DRAWINGS IS SUBJECT TO INTERPRETATION.

NOTES - DEFERRED SUBMITTALS

1. THE ARCHITECT OR ENGINEER OF RECORD SHALL LIST THE DEFERRED SUBMITTALS ON THE PLANS FOR REVIEW BY THE BUILDING OFFICIAL.

2. DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ARCHITECT OR ENGINEER OF RECORD WHO SHALL REVIEW THEM AND FORWARD THEM TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN THE GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING.

3. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

4. DEFERRED SUBMITTALS ARE DEFINED AS THOSE PORTIONS OF THE DESIGN THAT ARE NOT SUBMITTED AT THE TIME OF THE APPLICATION AND THAT ARE TO BE SUBMITTED TO THE BUILDING OFFICIAL WITHIN A SPECIFIED PERIOD.

5. DEFERRAL OF ANY SUBMITTAL ITEMS SHALL HAVE THE PRIOR APPROVAL OF THE BUILDING OFFICIAL.

6. SUBMITTALS SHALL INCLUDE DETAILED DRAWINGS OF EACH MEMBER AND ITS CONNECTIONS ALONG WITH SUPPORTING CALCULATIONS PREPARED UNDER THE SUPERVISION, BEARING THE SEAL AND SIGNATURE, OF A LICENSED PROFESSIONAL ENGINEER IN THE PROJECT JURISDICTION.

7. DEFERRED SUBMITTAL ITEMS:

- PREFABRICATED WOOD TRUSSES
- STEEL GUARDRAILS AND HANDRAILS
- STEEL FABRICATED STAIRS AND LADDERS
- PRE-MANUFACTURED CANOPIES AND AWNINGS

MATERIAL SPECIFICATIONS

STEEL MATERIAL SPECIFICATIONS

STEEL MEMBERS	MATERIAL
WIDE FLANGE SHAPES (W)	ASTM A992
CHANNELS (C), ANGLES (L)	ASTM A36
PLATES	ASTM A36
HOLLOW STRUCTURAL SHAPES (HSS)	ASTM A500, GRADE C
HIGH STRENGTH BOLTS	ASTM F3125, GRADE A325
ANCHOR BOLTS (HEX-HEAD UNO)	ASTM F1554 (55 ksi) "S1"
EPOXY ANCHOR RODS	ASTM A36
STEEL DECK, PLAIN STEEL	ASTM A1008, (33 ksi)
STEEL DECK, GALVANIZED	ASTM A653, (33 ksi)
NON-SHRINK GROUT, COL. BASES	5000 psi (28 DAY STRENGTH)

CONCRETE & REINFORCING STEEL SPECIFICATIONS

MATERIAL	SPECIFICATION
REINFORCING BARS	ASTM A615, GRADE 60
WELDED WIRE FABRIC	ASTM A1064
PORTLAND CEMENT	ASTM C 150
FLY ASH	ASTM C 618, 15% MAX
CONCRETE AGGREGATES	ASTM C 33, 3/4" MAX AGG. SIZE.
EPOXY - THREADED ROD ANCHORS	HILTI HIT-HY 200 A OR SIMPSON SET 3G
EPOXY - REINFORCING BARS	HILTI HIT-HY 200 R OR SIMPSON SET 3G
REBAR CONDITION	**MINIMUM CONCRETE COVER**
FORMED SURFACES EXPOSED TO GROUND OR WEATHER	2"
UNFORMED SURFACE IN CONTACT WITH THE GROUND	3"
WALLS AND SLABS NOT EXPOSED TO GROUND OR WEATHER	1"
INTERIOR BEAMS AND COLUMNS (TO TIES OF STIRRUPS)	1 1/2"

CONCRETE MIX DESIGN REQUIREMENTS

CONCRETE USE	WEIGHT	28 DAY f'c	CEMENT TYPE	MAX W/C RATIO	SLUMP (+/- 1")	% AIR
FOOTINGS	NW	3500 psi	I/II	0.55	5"	6% MAX
INT. SLAB ON GRADE	NW	4000 psi	I/II	0.45	5"	3% MAX

CONCRETE SLAB SPECIFICATIONS

FLOOR FLATNESS, F_F	SOV: 35 | MLV: 25
FLOOR LEVELNESS, F_L	SOV: 24 | MLV: 17

WOOD MATERIAL SPECIFICATIONS

MEMBERS	MATERIAL SPECIFICATION
JOIST, RAFTERS, HEADERS, BEAMS	No. 2 DF/L
TREATED LUMBER	No. 2 So. Pine
STUDS, BEARING WALL	No. 2 SPF
SILL AND TOP PLATES	No. 2 SPF
GLULAM BEAMS	DF/DF
SINGLE SPAN	24F-V4
MULTI SPAN	24F-V8
LAMINATED VENEER LUMBER, LVL	Fb = 2600 psi, E= 1.9 x 10E6 psi
LAMINATED STRAND LUMBER, LSL	Fb = 1700 psi, E = 1.3 x 10E6 psi
PARALLEL STRAND LUMBER, PSL	Fb = 1700 psi, E = 1.3 x 10E6 psi
BOLTS AND THREADED RODS	ASTM A307 (MIN.)

NAIL SIZE REFERENCE

COMMON NAIL			BOX NAIL		
SIZE	DIAMETER	LENGTH	SIZE	DIAMETER	LENGTH
8d	0.131"	2 1/2"	8d	0.113"	2 1/2"
10d	0.148"	3"	10d	0.128"	3"
16d	0.162"	3 1/2"	16d	0.135"	3 1/2"

VENEER MASONRY MATERIAL SPECIFICATIONS

MATERIAL	SPECIFICATION
BRICK MASONRY UNITS	ASTM C-62
MORTAR	ASTM C-270, TYPE N OR S

NOTES - MASONRY VENEER

1. PROVIDE MINIMUM 1" AIR SPACE BETWEEN BRICK AND SHEATHING.

2. REFERENCE ARCHITECTURAL FOR ADDITIONAL BRICK NOTES AND/OR REQUIREMENTS.

3. PROVIDE MINIMUM W1.7 (9 GAGE, MW11) ADJUSTABLE WIRE ANCHORS, HOT-DIPPED GALVANIZED, TWO-PIECE PER ASTM A-153, CLASS B-2.

4. ANCHORS ATTACHED TO WALL STUDS THROUGH SHEATHING, NOT SHEATHING ALONE.

5. PROVIDE MINIMUM ONE ANCHOR PER 2.67 FT^2 OF WALL AREA. MAXIMUM VERTICAL SPACING IS 18" OC MAXIMUM HORIZONTAL SPACING IS 32" OC.

6. PROVIDE ADDITIONAL ANCHORS AROUND OPENINGS LAGER THAN 16" IN EITHER DIMENSION . SPACE ANCHORS AROUND PERIMETER OF OPENINGS AT A MAXIMUM OF 36" OC. PLACE ANCHORS WITHIN 12" OF OPENINGS.

NOTES - SHOP DRAWING SUBMITTALS

1. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL STRUCTURAL ITEMS IN ADDITION TO ITEMS REQUIRED BY ARCHITECTURAL SPECIFICATIONS. SHOP DRAWING REVIEW IS INTENDED FOR VERIFICATION OF DESIGN CONCEPT CONVEYANCE AND GENERAL CONFORMANCE TO CONTRACT DOCUMENTS ONLY.

2. CHANGES, SUBSTITUTIONS, OR DEVIATIONS FROM CONTRACT DOCUMENTS SHALL BE CLOUDED BY MANUFACTURER/FABRICATOR. ANY OF THE AFOREMENTIONED WHICH ARE NOT CLOUDED OR FLAGGED BY SUBMITTING PARTIES SHALL NOT BE CONSIDERED APPROVED AFTER ENGINEER'S REVIEW, UNO.

3. SHOP DRAWINGS DO NOT REPLACE THE CONTRACT DOCUMENTS. ITEMS SHOWN INCORRECTLY OR OMITTED AND NOT FLAGGED BY THE ENGINEER DURING REVIEW ARE NOT TO BE CONSIDERED CHANGES TO THE CONTRACT DOCUMENTS.

4. THE ADEQUACY OF ENGINEERING DESIGNS AND LAYOUT PERFORMED BY OTHERS RESTS WITH THE DESIGNING OR SUBMITTING AUTHORITY. DESIGNED SHOP DRAWINGS SHALL BE PREPARED UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER.

5. SHOP DRAWINGS MUST BE ORIGINAL DOCUMENTS. REPRODUCTION OF ANY PORTION OF THE CONTRACT DOCUMENTS FOR USE IN SUBMITTALS IS NOT PERMITTED AND MAY RESULT IN REJECTION.

6. THE ENGINEER HAS THE RIGHT TO APPROVE OR DISAPPROVE ANY CHANGES TO CONTRACT DOCUMENTS AT ANY TIME BEFORE OR AFTER SHOP DRAWING REVIEW.

7. CONTRACTOR SHALL SUBMIT STRUCTURAL SHOP DRAWINGS FOR THE FOLLOWING:

- CONCRETE MIX DESIGN, MATERIALS, AND TEST REPORTS
- CONCRETE REINFORCING STEEL, HARDWARE, AND FASTENERS
- ROUGH CARPENTRY HARDWARE, AND FASTENERS
- ENGINEERED WOOD FRAMING

SYMBOLS / ABBREVIATIONS

SYMBOL/TAG	DESCRIPTION	APPLIES TO
X / SX.X	DETAIL ON SHEET / SHEET NUMBER	DETAILS, SECTIONS, & ELEVATIONS
T = XXX' - XX" / B = XXX' - XX"	ELEVATION (TOP) ELEVATION (BOTTOM)	FOOTINGS AND FOUNDATION WALLS
T.O.X. / XXX' - XX"	ELEVATION MARK	LEVELS, SPOT ELEVATIONS, & PLAN ELEVATIONS
T.O.S. = XXX' - XX"	TOP OF STEEL ELEVATION	PLAN VIEW NOTATIONS
JST BRG = XXX' - XX"	JOIST BEARING ELEVATION	PLAN VIEW NOTATIONS
△ X	REVISION MARK	SHEET REVISIONS

ABV	DEFINITION	ABV	DEFINITION
AB	ANCHOR BOLT	SIM	SIMILAR CONDITION
CJ	CONTRACTION JOINT	STD	STANDARD
CL	CENTERLINE	TOC	TOP OF CONCRETE
DIA	DIAMETER	TOD	TOP OF DECK
EOD	EDGE OF DECK ANGLE	TOL	TOP OF LEDGE
EOS	EDGE OF SLAB	TOM	TOP OF MASONRY
EXT	EXTERIOR	TOS	TOP OF STEEL
GA	GAUGE	TOW	TOP OF WALL
HAS	HEADED ANCHOR STUDS	TYP	TYPICAL CONDITION
OC	ON CENTER	UNO	UNLESS NOTED OTHERWISE
PAF	POWDER ACTUATED FASTNR	WP	WORK POINT

FRAMING LEGEND:

NOTE: THE FRAMING IN THIS EXAMPLE IS FOR REFERENCE ONLY, ACTUAL FRAMING SITUATION AND CONSTRUCTION TYPE MAY VARY

SHEAR WALL LEGEND:

SHEAR WALL PLAN

FOUNDATION PLAN

NOTES - PREFAB WOOD TRUSSES

1. TRUSSES TO BE DESIGNED AND ERECTED IN CONFORMANCE WITH TRUSS PLATE INSTITUTE SPECIFICATIONS AND RECOMMENDATIONS AND IN ACCORDANCE WITH LOCAL BUILDING CODES.

2. TRUSSES TO BE BRACED PER MANUFACTURER'S RECOMMENDATIONS DURING ERECTION.

3. TRUSSES SHALL BE LATERALLY SUPPORTED AT ALL PANEL POINTS.

4. TRUSS MANUFACTURER IS TO SUBMIT LAYOUT PLANS AND CALCULATIONS FOR ALL TRUSSES. THE CALCULATIONS ARE TO BEAR A LICENSED PROFESSIONAL ENGINEER'S SEAL IN THE STATE OF WHICH THE PROJECT IS LOCATED. CALCULATIONS ARE TO SHOW LOADINGS, SPACING, STRESSES, CONFIGURATION, CONNECTIONS, GRADE OF MATERIAL, CAMBER, AND DEFLECTIONS.

5. FLOOR AND ROOF TRUSSES NOTED AS A DRAG TRUSS SHALL BE DESIGNED TO TRANSFER OR CARRY AXIAL LOAD NOTED ON FRAMING PLANS ACTING ALONG TRUSS TOP CHORD AND SHALL BE RESISTED ALONG BOTTOM CHORD OVER LENGTH NOT GREATER THAN LENGTH OF SHEAR WALL NOTED ON PLANS (IF APPLICABLE).

6. TRUSSES SHALL NOT BE NOTCHED, DRILLED, CUT, OR ALTERED WITHOUT WRITTEN APPROVAL OF THE TRUSS MANUFACTURER'S ENGINEER. PROPOSED MODIFICATIONS SHALL BE REVIEWED BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO MODIFICATION.

7. THE WOOD TRUSS MANUFACTURER SHALL BE REGISTERED AND APPROVED PER IBC SECTION 1704.5.2 FOR FABRICATION WITHOUT SPECIAL INSPECTION.

8. FLAT ROOF TRUSSES SHALL BE DESIGNED FOR AN ADDITIONAL LOAD OF MIN (2) 200 LB POINT LOADS SPACED AT 6'-0" APART ANYWHERE ALONG THE TOP CHORD FOR MECH CONDENSORS. MECH CONDENSORS SHALL BE PLACED SUCH THAT THEY ARE SUPPORTED BY AT LEAST (2) ROOF TRUSSES.

DESIGN INFORMATION

BUILDING CODE:

2018 INTERNATIONAL BUILDING CODE AS ADOPTED AND/OR AMENDED BY LOCAL BUILDING CODES

SOILS INFORMATION:

THE FOUNDATION DESIGN PROVIDED IS BASED OFF OF A MINIMUM ALLOWABLE PRESUMPTIVE LOAD-BEARING VALUE AS INDICATED BY IBC TABLE 1806.2 IN LIEU OF A SITE BASE GEOTECHNICAL EVALUATION. IT IS RECOMMENDED THAT A QUALIFIED GEOTECHNICAL ENGINEER BE RETAINED TO VERIFY THESE ASSUMPTIONS PRIOR TO CONSTRUCTION. BY USE OF THIS FOUNDATION DESIGN WITHOUT PROVIDING SUCH VERIFICATION, APEX WILL NOT BE LIABLE FOR THIS DESIGN PARAMETER, AND THE OWNER SHALL ACCEPT ALL RISKS ASSOCIATED WITH DAMAGE TO THE STRUCTURE AS A RESULT OF EXPANSIVE, COMPRESSIBLE, SHIFTING AND/OR OTHER QUESTIONABLE SOILS CHARACTERISTICS THAT MAY BE PRESENT ON-SITE.

FROST DEPTH	36"
PRESUMPTIVE LOAD-BEARING PRESSURE	1500 psf

WIND DESIGN DATA:	Main Building
OCCUPANCY CATEGORY	II
ULTIMATE WIND SPEED (3 SECOND GUST), V	110 mph
WIND EXPOSURE CATEGORY	C
VELOCITY PRESSURE, q_z	22.4 psf
INTERNAL PRESSURE COEFFICIENT, GC_{pi}	+/-0.18

WIND DESIGN COMPONENTS & CLADDING DATA:	Main Building
EDGE REGION, a	3' - 0"

WALL ZONES	10 SF	20 SF	50 SF	100 SF	200 SF
4 & 5	26 psf	25 psf	24 psf	22 psf	21 psf
4	-29 psf	-27 psf	-26 psf	-25 psf	-24 psf
5	-35 psf	-33 psf	-30 psf	-27 psf	-25 psf
ROOF ZONES	**10 SF**	**20 SF**	**50 SF**	**100 SF**	**200 SF**
All Zones	19 psf	17 psf	13 psf	11 psf	11 psf
1	-22 psf	-31 psf	-26 psf	-22 psf	-22 psf
2e, 2r & 3	-24 psf	-44 psf	-37 psf	-32 psf	-26 psf
1 OH	-24 psf	-46 psf	-45 psf	-45 psf	-44 psf
2e & 2r OH	-26 psf	-57 psf	-54 psf	-51 psf	-49 psf
3 OH	-28 psf	-62 psf	-52 psf	-45 psf	-38 psf

SEISMIC DESIGN SITE DATA:	
SPECTRAL RESPONSE COEFFICIENTS	S_S = 0.100 S_1 = 0.068
SITE CLASS (ASSUMED)	D
DESIGN SPECTRAL RESPONSE ACCELERATIONS	S_{DS} = 0.107 S_{D1} = 0.109
SEISMIC ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE

SEISMIC DESIGN BUILDING DATA: **Main Building**

LATERAL SYSTEM: A. BEARING WALL SYSTEMS, No. 15. LIGHT-FRAME (WOOD) WALLS SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE OR STEEL SHEETS

RESPONSE MODIFICATION, R	6.50
DEF. AMPLIFICATION FACTOR, C_d	4.00
OVERSTRENGTH FACTOR, Ω	3.00
SEISMIC RESPONSE COEF., C_s	0.016
SEISMIC BASE SHEAR, V	0.8 kip
SEISMIC DESIGN CATEGORY	B
SEISMIC RISK CATEGORY	II

ROOF SNOW LOAD DATA:	Main Building
GROUND SNOW LOAD, P_g	20 psf
SNOW LOAD IMPORTANCE FACTOR, I_s	1.00
SNOW EXPOSURE FACTOR, C_e	0.90
THERMAL FACTOR, C_t	1.20
SLOPE FACTOR, C_s	1.00
ROOF SNOW LOAD, P_f	15 psf

FIGURE 7-8 Configuration of Snow Drifts on Lower Roofs.

Comments	DRIFT DATA	
	LOAD, Pd	WIDTH, W
SAMPLE COMMENT	30.4 psf	7' - 4"

GRAVITY LOAD DATA:

OCCUPANCY OR USE	LOADS	
	UNIFORM	POINT
ROOF DEAD LOADS		
— TYPICAL ROOF	24PSF	N/A
ROOF LIVE LOADS		
— ROOF: ORDINARY FLAT, PITCHED, AND CURVED	20PSF	

ROOF TRUSS DESIGN REQUIREMENTS	
MINIMUM DEFLECTION CRITERIA, UNO	
TOTAL LOAD	L/240
TRANSIENT LOAD	L/360
TOP CHORD LOADS	
LIVE LOAD / SNOW LOAD	30 psf
DEAD LOAD	10 psf
BOTTOM CHORD LOADS	
DEAD LOAD	10 psf

SHEET LIST - STRUCTURAL

SHEET NUMBER	SHEET NAME
S1.00	GENERAL NOTES & SPECIFICATIONS
S1.10	SPECIAL INSPECTIONS
S1.20	SCHEDULES
S1.30	LOADING DIAGRAMS
S2.00	PLANS
S3.00	TYPICAL WOOD SHEAR WALL DETAILS
S5.00	TYPICAL FOUNDATION DETAILS
S5.10	TYPICAL WOOD DETAILS
S5.11	TYPICAL WOOD DETAILS
S5.20	TYPICAL WOOD DETAILS

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Release of these plans contemplates further cooperation among the owner, his contractor, and the designer. Design and construction are complex. Although the designer and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is imperfect and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the designer. A failure to cooperate by a simple notice to the designer shall relieve the designer from responsibility for all consequences. Changes made from the plans without the consent of the designer are unauthorized, and shall relieve the designer of responsibility for all consequences arriving out of such changes. Contractor shall check and verify all dimensions.

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project no.	20091
date	1/28/2021
revised	
design by	APEX
drawn by	GLS
struct. by	GP

GENERAL NOTES & SPECIFICATIONS

sheet no.
S1.00

STATEMENT OF SPECIAL INSPECTION

IBC CODE REFERENCE	CONSTRUCTION TYPE	FREQUENCY CONT.	FREQUENCY PER.
1705.3	**REINFORCED CONCRETE**		
	1. INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS, AND PLACEMENT.		X
	2. INSPECTION OF REINFORCING STEEL WELDING:		
	A. VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A 706.		X
	B. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"		X
	C. INSPECT ALL OTHER WELDS	X	
	3. INSPECTION OF ANCHORS CAST IN CONCRETE:		X
	4. INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS:		
	A. ADHESIVE ANCHORS INSTALLED IN HOIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X	
	B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.A.		X
	5. VERIFYING USE OF REQUIRED MIX DESIGN		X
	6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFOR SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	
	7. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	
	8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.		X
	9. INSPECTION OF PRESTRESSED CONCRETE:		
	A. APPLICATION OF PRESTRESSING FORCES.	X	
	B. GROUTING OF BONDED PRESTRESSING TENDONS IN THE SEISMIC-FORCE-RESISTING SYSTEM.	X	
	10. ERECTION OF PRECAST CONCRETE MEMBERS.		X
	11. VERIFICATION OF IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORING.		X
	12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.		X
	SPECIAL INSPECTION AGENCY TO PERFORM TESTS AT SEVEN (7) DAYS AND AT TWENTY EIGHT (28) DAYS. A STRENGTH TEST SHALL BE THE AVERAGE OF THE STRENGTHS OF AT LEAST TWO (2) 6"x12" CYLINDERS OR AT LEAST THREE (3) 4"x8" CYLINDERS MADE FROM THE SAME SAMPLE OF CONCRETE. HOLD ONE ADDITIONAL CYLINDER IN RESERVE UNTIL PROJECT IS COMPLETED. TESTING LABORATORY IS TO FURNISH ARCHITECT/ENGINEER WITH TEST RESULTS PROMPTLY.		
	FREQUENCY OF TESTING IS TO BE IN ACCORDANCE WITH ACI 318:		
	A. ONCE EACH DAY A GIVEN CLASS IS PLACED, NOR LESS THAN.		
	B. ONCE FOR EACH 150 CUBIC YDS OF EACH CLASS PLACED EACH DAY. NOR LESS THAN.		
	C. ONCE FOR EACH 5000 SQFT OR SLAB WALL OR SURFACE AREA PLACED EACH DAY.		
1705.5	**WOOD CONSTRUCTION**		
	1. HIGH-LOAD DIAPHRAGMS:		
	A. THE WOOD STRUCTURAL PANEL SHEATHING TO ASCERTAIN WHETHER IT IS OF THE GRADE AND THICKNESS SHOWN ON THE APPROVED BUILDING PLANS.		X
	B. NOMINAL SIZE OF FRAMING MEMBERS AT ADJOINING PANEL EDGES.		X
	C. NAIL OR STAPLE DIAMETER AND LENGTH, THE NUMBER OF FASTENER LINES AND THAT THE SPACING BETWEEN FASTENERS IN EACH LINE AND AT EDGE MARGINS AGREES WITH THE APPROVED BUILDING PLANS.		X
	2. SHEAR WALLS AND BEARING WALLS		
	A. GRADE AND THICKNESS OF WOOD STRUCTURAL PANELS.		X
	B. NOMINAL SIZE OF FRAMIGN MEMBERS AT ADJOINING PANEL EDGES.		X
	C. NAIL OR STAPLE DIAMETER AND LENGTH, THE NUMBER OF FASTENER LINES AND THAT THE SPACING BETWEEN FASTENERS IN EACH LINE AND AT EDGE CONDITIONS.		X
	D. VERIFY THE TYPE, CONNECTION, AND ANCHORAGE OF HOLDDOWNS.		X
	E. PROPRIETARY COMPONENTS INSTALLED PER MANUFACTURER SPECIFICATIONS.		X
	F. VERIFY BLOCKING INSTALLATION AT PANEL EDGES.		X
	G. GRADE AND NOMINAL SIZE OF CHORD STUDS.		X
	3. DIAPHRAGMS AND FLOOR FRAMING		
	A. VERIFY THE SIZE AND SPACING BETWEEN BOLTS, LAG SCREWS, AND FRAMING ANCHORS.		X
	B. VERIFY CONNECTION OF DIAPHRAGMS TO SHEAR WALLS.		X
	C. DIAPHRAGM BLOCKING PLACEMENT AND INSTALLATION.		X
	D. DRAG TRUSS AND DRAG STRUT PLACEMENT AND CONNECTIONS.		X
	E. SPLICE CONNECTIONS, SHEAR TRANSFER CLIPS, AND TRANSITION CONNECTIONS BETWEEN FLOOR.		X
	F. PROPRIETRY COMPONENTS INSTALLED PER MANUFACTURER SPECIFICATIONS.		X
	4. GENERAL WOOD FRAMING		
	A. VERIFY THE SIZE AND SPACING BETWEEN BOLTS, LAG SCREWS, AND FRAMING ANCHORS.		X
	B. NAIL OR SCREW DIAMETER AND LENGTH, THE NUMBER OF FASTENER LINES AND SPACING FOR BUILT UP WOOD MEMBERS.		X
	C. JAMB AND SILL FRAMING.		X
	D. ATTACHMENT AT BEAM BEARING LOCATIONS.		X
	E. PROPRIETARY COMPONENTS INSTALLED PER MANUFACTURER SPECIFICATIONS.		X
	F. CUTTING, NOTCHING, AND HOLES COMPLY WITH PLAN SPECIFICATIONS. VERIFY SIZE, LOCATION, AND SHAPE DO NOT EXCEED LIMITS IN FRAMING DETAILS AND WOOD SHRINKAGE DIAGRAM RECOMMENDATIONS.		X
1705.6	**SOILS**		
	1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.		X
	2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.		X
	3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.		X
	4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	
	5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.		X

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project no.	20091
date	1/28/2021
revised	
design by	APEX
drawn by	GLS
struct. by	GP

SPECIAL INSPECTIONS

sheet no.

S1.10

SCHEDULE - SHEAR WALLS

MARK	BLOCKED	SHEATHING			EDGE NAILS		LTP4 / A35 SPACING	SILL PLATE ATTACHMENT	
		TYPE	THICKNESS	PLACEMENT	SIZE	SPACING		NAILING	1/2" DIA A.B. SPACING
SW-1	Yes	WSP-SHEATHING	7/16"	ONE-SIDE	8d	6"	16"	16d AT 6" OC	32"

1. WSP = WOOD STRUCTURAL PANEL PLYWOOD OR OSB.
2. NAIL SIZES GIVEN ARE FOR COMMON NAILS OR GALVANIZED (HOT-DIPPED OR TUMBLED) BOX NAILS. SINKER NAILS, COOLER NAILS, ETC. SHALL NOT BE USED FOR WSP SHEAR WALLS.
3. SHEAR WALL NAILS SHALL HAVE FULL HEADS, CLIPPED NAILS ARE NOT ALLOWED.
4. ALL NAILS SHALL BE DRIVEN SUCH THAT THE HEAD IS FLUSH WITH FACE OF SHEATHING. DO NO OVERDRIVE NAILS.
5. PROVIDE INTERMEDIATE NAILING (FIELD) AT 12" OC, TYP.
6. PROVIDE (2) TOTAL RIMBOARDS OR A LAYER OF BLOCKING IN ADDITION TO THE RIMBOARD WHERE SOLE PLATE NAILING REQUIRES 2 ROWS OF FASTENERS PER SCHEDULE.
7. SILL ANCHORS MAY BE CAST-IN-PLACE J-BOLTS WITH 8" EMBED OR SIMPSON TITEN HD SCREW ANCHORS WITH 6" EMBED. REF SCHEDULE FOR BOLT DIAMETER. BOTH BOLT TYPES REQUIRE 0.229"x3"x3" PLATE WASHER WITH EDGE OF PLATE LOCATED WITHIN ½" OF SHEAR WALL SHEATHING.
8. AT WALLS DESIGNATED AS FORCE TRANSFER SHEAR WALLS, PROVIDE SIMPSON STRAP ABOVE AND BELOW ALL OPENINGS PER SHEAR WALL DETAIL.
9. END STUDS MUST CONTINUE DOWN TO FOUNDATION WALL UNLESS INTERRUPTED BY TRANSFER BEAM.
10. TRIM/JAMB STUDS OF OPENINGS DO NOT COUNT TOWARDS THE REQUIRED NUMBER OF END STUDS IN A SHEAR WALL.
11. PROVIDE DOUBLE STUDS AND BLOCKING NAILED TOGETHER WITH (2) 16d NAILS AT 6" OC OR 3" NOMINAL STUDS AND BLOCKING AT THE FOLLOWING CONDITIONS:
    i. 2" OC EDGE NAIL SPACING
    ii. 10d NAILS AT 3" OC OR SMALLER EDGE NAIL SPACING
    iii. DOUBLE SIDED SHEAR WALL WHERE PANEL JOINTS ALIGN TO THE SAME STUD.
12. HOLDOWNS AND STRAPS OCCUR AT THE BOTTOM OF WALLS. HOLDOWNS AND STRAPS BETWEEN FLOORS ARE CONTROLED BY THE WALL ABOVE.

SCHEDULE - CONTINUOUS FOOTING

MARK	WIDTH	DEPTH	LONG BARS	TRANS BARS
CF1	2' - 0"	36"	(6) #6 CONT [(3) AT T&B]	#3 TIES AT 24" OC

SCHEDULE - SLAB ON GRADE

MARK	SLAB PROPERTIES	SLAB REINFORCING	ADDITIONAL REQUIREMENTS
SG1	4" (TOTAL DEPTH) NW CONCRETE	#4 AT 18"OC EA WAY OR 6X6 W2.1XW2.1 WWF	10 MIL. VAPOR BARRIER ON 4" OF 3/4" CLEAN, GRADED ROCK.

SCHEDULE - WOOD WALL

MARK	WALL STUDS	BLOCKING
WD1	2x6 AT 16" OC	AT SHEATHING PANEL EDGES (4'-0" OC MAX)

SCHEDULE - HEADERS

MARK	HEADER SIZE	COMMENTS
H1	(2) 2x12	
H2	(2) 2x10	
H3	6x6	

SCHEDULE - TRUSSES

MARK	TRUSSES	COMMENTS
R1	WOOD ROOF TRUSSES AT 24" OC	BY OTHERS

SCHEDULE - HOLDOWN

MARK	HOLDOWN	MIN END POST	ANCHOR / FASTENER	FASTENER ATTACHMENT
HD-1	HDU2-SDS2.5	(2) 2x	5/8" DIA. THREADED ROD	8" EMBED (PI)

1. ALL HOLDOWNS / STRAPS ARE SIMPSON PRODUCTS, UNO.
2. ANCHORAGE DEVICES SHALL BE INSTALLED PER MANUFACUTRER SPECIFICATIONS.
3. ALL THREADED ROD ANCHORS SHALL BE A36 (OR APPROVED EQUAL), UNO.
4. TOTAL CUT LENGTH OF STRAPS = END LENGTH x 2 + CLEAR SPAN.
5. REFERENCE TYPICAL DETAILS FOR ADDITIONAL CONSTRUCTION INFORMATION.
6. CAST-IN-PLACE (CIP) ANCHORS:
    i. CONTRACTOR SHALL VERIFY LOCATIONS PRIOR TO FOUNDATION REBAR INSPECTION.
    ii. POST-INSTALLED ANCHORS ARE NOT ACCEPTABLE EQUIVALENTS FOR CAST-IN-PLACE ANCHORS WITHOUT WRITTEN EOR APPROVAL. THEREFOR, THE LOCATION OF CAST-IN-PLACE ANCHORS IS CRITICAL.
7. POST-INSTALLED (PI) ANCHORS:
    i. ANCHORS SHALL BE INSTALLED USING SIMPSON SET-XP OR HILTI HIT-HY 200 ADHESIVE, UNO.
    ii. CONTRACTOR SHALL INSTALL PER MANUFACTURER SPECIFICATIONS AND MAINTAIN MIN REQUIRED EDGE DISTANCES.

SCHEDULE - WOOD FASTENING

IBC TABLE 2304.10.1

DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION	
		EDGE	FIELD
WOOD STRUCTURAL PANELS (WSP), SUBFLOOR, ROOF AND INTERIOR WALL SHEATHING TO FRAMING AND PARTICLEBOARD WALL SHEATHING TO FRAMING[A]			
30. 3/8" - 1/2"	6d COMMON OR DEFORMED (2"x0.113") (SUBFLOOR AND WALL)	6"	12"
	8d COMMON OR DEFORMED (2-1/2"x0.113") (ROOF) OR RSRS-01 (2-3/8"x0.113") NAIL (ROOF)	6"	12"
	2-3/8"x0.113" NAIL (SUBFLOOR AND WALL)	6"	12"
	1-3/4" 16 GAGE STAPLE, 7/16" CROWN (SUBFLOOR AND WALL)	6"	12"
	2-3/8"x0.113" NAIL (ROOF)	4"	8"
	1-3/4" 16 GAGE STAPLE, 7/16" CROWN (ROOF)	3"	6"
31. 19/32" - 3/4"	8d COMMON (2-1/2"x0.131"); OR 6d DEFORMED (2"x0.113") (SUBFLOOR AND WALL)	6"	12"
	8d COMMON OR DEFORMED (2-1/2"x0.131") (ROOF) OR RSRS-01 (2-3/8"x0.113") NAIL (ROOF)	6"	12"
	2-3/8"x0.113" NAIL; OR 2" 16 GAGE STAPLE, 7/16" CROWN	4"	8"
32. 7/8" - 1-1/4"	10d COMMON (3"x0.148"); OR 8d DEFORMED (2-1/2"x0.131")	6"	12"
OTHER EXTERIOR WALL SHEATHING			
33. 1/2" FIBERBOARD SHEATHING	1-1/2" GALVANIZED ROOFING NAIL (7/16" HEAD DIAMETER)	3"	6"
34. 25/32" FIBERBOARD SHEATHING	1-3/4" GALVANIZED ROOFING NAIL (7/16" HEAD DIAMETER)	3"	6"
WOOD STRUCTURAL PANELS, COMBINATION SUBFLOOR UNDERLAYMENT TO FRAMING			
35. 3/4" AND LESS	8d COMMON (2-1/2"x0.131"); OR 6d DEFORMED (2"x0.113")	6"	12"
36. 7/8" - 1"	8d COMMON (2-1/2"x0.131"); OR 6d DEFORMED (2"x0.113")	6"	12"
37. 1-1/8" - 1-1/4"	10d COMMON (3"x0.148"); OR 8d DEFORMED (2-1/2"x0.131")	6"	12"
PANEL SIDING TO FRAMING			
38. 1/2" OR LESS	6d CORROSION-RESISTANT SIDING (1-7/8"x0.106"); OR 6d CORROSION-RESISTANT CASING (2"x0.099")	6"	12"
39. 5/8"	8d CORROSION-RESISTANT SIDING (2-3/8"x0.128"); OR 8d CORROSION-RESISTANT CASING (2-1/2"x0.113")	6"	12"
INTERIOR PANELING			
40. 1/4"	4d CASING (1-1/2"x0.080"); OR 4d FINISH (1-1/2"x0.072")	6"	12"
41. 3/8"	6d CASING (2"x0.099"); OR 6d FINISH (PANEL SUPPORTS AT 24 INCHES)	6"	12"

NOTES:
A. NAILS SPACED AT 6 INCHES AT INTERMEDIATE SUPPORTS WHERE SPANS ARE 48 INCHES OR MORE. FOR NAILING OF WOOD STRUCTURAL PANEL AND PARTICLEBOARD DIAPHRAGMS AND SHEAR WALLS, REFER TO SECTION 2305. NAILS FOR WALL SHEATHING ARE PERMITTED TO BE COMMON, BOX OR CASING.
B. SPACING SHALL BE 6 INCHES ON CENTER ON THE EDGES AND 12 INCHES ON CENTER AT INTERMEDIATE SUPPORTS FOR NONSTRUCTURAL APPLICATIONS. PANEL SUPPORTS AT 16 INCHES (20 INCHES IF STRENGTH AXIS IN THE LONG DIRECTION OF THE PANEL, UNLESS OTHERWISE MARKED).
C. WHERE A RAFTER IS FASTENED TO AN ADJACENT PARALLEL CEILING JOIST IN ACCORDANCE WITH THIS SCHEDULE AND THE CEILING JOIST IS FASTENED TO THE TOP PLATE IN ACCORDANCE WITH THIS SCHEDULE, THE NUMBER OF TOENAILS IN THE RAFTER SHALL BE PERMITTED TO BE REDUCED BY ONE NAIL.

SCHEDULE - WOOD FASTENING

IBC TABLE 2304.10.1

DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
ROOF		
1. BLOCKING BETWEEN CEILING JOISTS, RAFTERS OR TRUSSES TO TOP PLATE OR OTHER FRAMING BELOW.	(3) 8d COMMON (2-1/2"x0.131"); OR (3) 10d BOX (3"x0.128")	EA END, TOENAIL
BLOCKING BETWEEN RAFTERS OR TRUSS NOT AT THE WALL TOP PLATE, TO RAFTER OR TRUSS.	(2) 8d COMMON (2-1/2"x0.131")	EA END, TOENAIL
	(2) 16d COMMON (3-1/2"x0.162")	END NAIL
FLAT BLOCKING TO TRUSS AND WEB FILLER	16d COMMON (3-1/2"x0.162") AT 6" OC	FACE NAIL
2. CEILING JOIST TO TOP PLATE	(3) 8d COMMON (2-1/2"x0.131"); OR (3) 10d BOX (3"x0.128")	EA END, TOENAIL
3. CEILING JOIST NOT ATTACHED TO PARALLEL RAFTER, LAPS OVER PARTITIONS (NO THRUST)	(3) 8d COMMON (2-1/2"x0.162"); OR (4) 10d BOX (3"x0.128")	FACE NAIL
4. CEILING JOIST ATTACHED TO PARALLEL RAFTER (HEEL JOINT)	PER IBC TABLE 2308.7.3.1	FACE NAIL
5. COLLAR TIE TO RAFTER	(3) 10d COMMON (3"x0.148"); OR (4) 10d BOX (3"x0.128")	FACE NAIL
6. RAFTER OR ROOF TRUSS TO TOP PLATE	(3) 10d COMMON (3"x0.148"); OR (3) 16d BOX (3-1/2"x0.135"); OR (4) 10d BOX (3"x0.128")	TOENAIL
7. ROOF RAFTERS TO RIDGE VALLEY OR HIP RAFTERS; OR ROOF RAFTER TO 2" RIDGE BEAM	(2) 16d COMMON (3-1/2"x0.162"); OR (3) 10d BOX (3"x0.128")	END NAIL
	(3) 10d COMMON (3"x0.148"); OR (4) 16d COMMON (3-1/2"x0.135"); OR (4) 10d BOX (3"x0.128")	TOENAIL
WALL		
8. STUD TO STUD (NOT AT BRACED WALL PANELS)	16d COMMON (3-1/2"x0.162"); OR	24" OC, FACE NAIL
	10d BOX (3"x0.128")	16" OC, FACE NAIL
9. STUD TO STUD AND ABUTTING STUDS AT INTERSECTION WALL CORNERS (AT BRACED WALL PANELS)	16d COMMON (3-1/2"x0.162")	16" OC, FACE NAIL
	16d BOX (3-1/2"x0.135"); OR	12" OC, FACE NAIL
	3"x0.131" NAILS	12" OC, FACE NAIL
10. BUILT-UP HEADER (2" TO 2" HEADER)	16d COMMON (3-1/2"x0.162"); OR	16" OC EA EDGE, FACE NAIL
	16d BOX (3-1/2"x0.135")	12" OC EA EDGE, FACE NAIL
11. CONTINUOUS HEADER TO STUD	(4) 8d COMMON (2-1/2"x0.131"); OR (4) 10d BOX (3"x0.128")	TOENAIL
12. TOP PLATE TO TOP PLATE	16d COMMON (3-1/2"x0.128"); OR	16" OC FACE NAIL
	10d BOX (3"x0.128")	12" OC FACE NAIL
13. TOP PLATE TO TOP PLATE, AT EA ENDS	(8) 16d COMMON (3-1/2"x0.162"); OR (12) 10d BOX (3"x0.128")	EA SIDE OF END JOINT, FACE NAIL (MIN 24" LAP SPLICE LENGTH EA JOINT)
14. BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST OR BLOCKING (NOT AT BRACED WALL PANELS)	16d COMMON (3-1/2"x0.135"); OR	16" OC FACE NAIL
	16d BOX (3-1/2"x0.135")	12" OC FACE NAIL
15. BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST OR BLOCKING AT BRACED WALL PANELS	(2) 16d COMMON (3-1/2"x0.162"); OR (3) 16d BOX (3-1/2"x0.135")	16" OC FACE NAIL
16. STUD TO TOP OR BOTTOM PLATE	(4) 8d COMMON (2-1/2"x0.131"); OR (4) 10d BOX (3"x0.128"); OR	TOENAIL
	(2) 16d COMMON (3-1/2"x0.162"); OR (3) 10d BOX (3"x0.128")	END NAIL
17. TOP PLATE, LAPS AT CORNERS AND INTERSECTIONS	(2) 16d COMMON (3-1/2"x0.162"); OR (3) 10d BOX (3"x0.128")	FACE NAIL
18. 1" BRACE TO EA STUD AND PLATE	(2) 8d COMMON (2-1/2"x0.131"); OR (2) 10d BOX (3"X0.128")	FACE NAIL
19. 1"x6" SHEATHING TO EA BEARING	(2) 8d COMMON (2-1/2"x0.131"); OR (2) 10d BOX (3"X0.128")	FACE NAIL
20. 1"x8" AND WIDER SHEATHING TO EA BEARING	(3) 8d COMMON (2-1/2"x0.131"); OR (3) 10d BOX (3"X0.128")	FACE NAIL
FLOOR		
21. JOIST TO SILL, TOP PLATE, OR GIRDER	(3) 8d COMMON (2-1/2"x0.131"); OR (3) 10d BOX (3"X0.128")	TOENAIL
22. RIM JOIST, BAND JOIST, OR BLOCKING TO TOP PLATE, SILL OR OTHER FRAMING BELOW	(3) 8d COMMON (2-1/2"x0.131"); OR (3) 10d BOX (3"X0.128")	6" OC, TOENAIL
23. 1"x6" SUBFLOOR OR LESS TO EA JOIST	(2) 8d COMMON (2-1/2"x0.131"); OR (2) 10d BOX (3"x0.128")	FACE NAIL
24. 2" SUBFLOOR TO JOIST OR GIRDER	(2) 16d COMMON (3-1/2"x0.162")	FACE NAIL
25. 2" PLANKS (PLANK & BEAM - FLOOR & ROOF)	(2) 16d COMMON (3-1/2"x0.162")	EA BEARING, FACE NAIL
26. BUILT-UP GIRDERS AND BEAM, 2" LUMBER LAYERS	20d COMMON (4"x0.192")	36" OC, FACE NAIL AT TOP AND BOTTOM STAGGERED ON OPPOSITE SIDES
	10d BOX (3"x0.128")	24" OC FACE NAIL AT TOP AND BOTTOM STAGGERED ON OPPOSITE SIDES
	AND: (2) 20d COMMON (4"x0.192"); OR (3) 10d BOX (3"x0.128")	ENDS AND AT SPLICE, FACE NAIL
27. LEDGER STRIP SUPPORTING JOISTS OR RAFTERS	(3) 16d COMMON (3-1/2"x0.162"); OR (4) 10d BOX (3"x0.128")	EA JOIST OR RAFTER, FACE NAIL
28. JOIST TO BAND JOIST OR RIM JOIST	(3) 16d COMMON (3-1/2"x0.162"); OR (4) 10d BOX (3"x0.128")	END NAIL
29. BRIDGING OR BLOCKING TO JOIST, RAFTER, OR TRUSS	(2) 8d COMMON (2-1/2"x0.131"); OR (2) 10d BOX (3"x0.128")	EA END, TOENAIL

SCHEDULE - CONCRETE REBAR

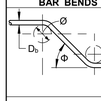
DEVELOPMENT LENGTHS - L_d

BAR SIZE	f'c = 3000 PSI STD. L_d TYP.	f'c = 3000 PSI STD. L_d TOP	f'c = 3000 PSI CLASS B TYP.	f'c = 3000 PSI CLASS B TOP	BAR SIZE	f'c = 4000 PSI STD. L_d TYP.	f'c = 4000 PSI STD. L_d TOP	f'c = 4000 PSI CLASS B TYP.	f'c = 4000 PSI CLASS B TOP
#4	22"	29"	29"	38"	#4	19"	25"	25"	33"
#5	28"	36"	37"	47"	#5	24"	31"	32"	41"
#6	33"	43"	43"	56"	#6	29"	37"	38"	49"
#7	48"	63"	63"	82"	#7	42"	54"	55"	71"
#8	55"	72"	72"	94"	#8	48"	62"	63"	81"
#9	62"	81"	81"	106"	#9	54"	70"	71"	91"

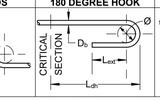
STANDARD HOOKS & BAR BENDS

BAR SIZE	f'c = 3000 PSI L_{dh}	f'c = 3000 PSI Ø	f'c = 3000 PSI L_{ext} 180	f'c = 3000 PSI L_{ext} 90	BAR SIZE	f'c = 4000 PSI L_{dh}	f'c = 4000 PSI Ø	f'c = 4000 PSI L_{ext} 180	f'c = 4000 PSI L_{ext} 90
#4	6"	3"	2 1/2"	6"	#4	6"	3"	2 1/2"	6"
#5	10"	3 3/4"	2 1/2"	7 1/2"	#5	9"	3 3/4"	2 1/2"	7 1/2"
#6	12"	4 1/2"	3"	9"	#6	10"	4 1/2"	3"	9"
#7	14"	5 1/4"	3 1/2"	10 1/2"	#7	12"	5 1/4"	3 1/2"	10 1/2"
#8	16"	6"	4"	12"	#8	14"	6"	4"	12"
#9	18"	6 3/4"	4 1/2"	13 1/2"	#9	15"	9"	4 1/2"	13 1/2"

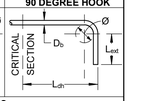
BAR BENDS



180 DEGREE HOOK



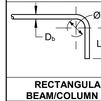
90 DEGREE HOOK



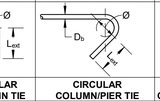
STIRRUPS, TIES, & HOOPS

BAR SIZE	Ø	L_{ext} 90	L_{ext} 135	L_{ext} 180	BAR SIZE	Ø	L_{ext} 90	L_{ext} 135	L_{ext} 180
#3	1 1/2"	3"	3"	2 1/2"	#6	4 1/2"	9"	4 1/2"	3"
#4	2"	3"	3"	2 1/2"	#7	5 1/4"	10 1/2"	5 1/4"	3 1/2"
#5	2 1/2"	3 3/4"	3 3/4"	2 1/2"	#8	6"	12"	6"	4"

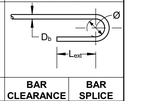
90 DEGREE HOOK



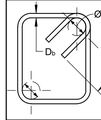
135 DEGREE HOOK



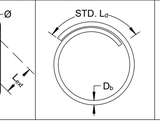
180 DEGREE HOOK



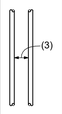
RECTANGULAR BEAM/COLUMN TIE



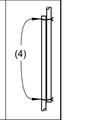
CIRCULAR COLUMN/PIER TIE



BAR CLEARANCE



BAR SPLICE

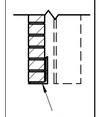


NOTES:
1. USE THE ABOVE TABLE UNLESS NOTED OTHERSIZE ON PLAN OR IN DETAILS.
2. PROVIDE 6" LAP AT ALL WELDED WIRE FABRIC JOINTS.
3. PROVIDE 1 D_b (1" MINIMUM) CLEARANCE BETWEEN ADJACENT BARS.
4. PROVIDE WIRE TIES AT EACH END OF BAR SPLICE.

SCHEDULE - LOOSE LINTEL

LINTEL SIZE	MAX OPENING, ft: NO JOINTS AT OPENINGS	JOINTS AT OPENINGS: ≤ 10' BRICK ABOVE	JOINTS AT OPENINGS: > 10' BRICK ABOVE ≤ 20'
L3 1/2x3x1/4 LLH	6' - 0"	3' - 8"	2' - 8"
L4x3 1/2x1/4 LLV	7' - 4"	4' - 8"	3' - 4"
L5x3 1/2x5/16 LLV	8' - 8"	6' - 0"	4' - 8"
L6x4x3/8 LLV	10' - 8"	7' - 4"	6' - 0"
L7x4x3/8 LLV	12' - 0"	8' - 8"	6' - 8"

NOTES:
1. BRICK OVER OPENINGS MUST BE GREATER THAN SPAN/2 TO USE **"NO JOINTS AT OPENINGS"** VALUES. IF BRICK OVER OPENINGS IS LESS THAN SPAN/2 USE THE VALUES IN **"JOINTS AT OPENINGS"**.
2. LOOSE LINTELS MUST BE SUPPORTED DURING PLACEMENT OF BRICK TO ENSURE EVEN LOADING.
3. (1) ANGLE FOR EACH 4" WITHE OF MASONRY
4. REFERENCE ARCHITECTURAL DRAWINGS FOR OPENING SIZES AND LOCATIONS
5. LOOSE LINTEL MUST BE INSTALLED TIGHT AGAINST BRICK.
6. LINTEL BEARING:
    A. ≤5'-0" = 4" BEARING
    B. ≤7'-0" = 6" BEARING
    C. >7'-0" = 8" BEARING



LOOSE LINTEL

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Release of these plans contemplates further cooperation among the owner, his contractor, and the designer. Certain items and conditions cannot be known to the designer and his consultants have performed their services with due care and diligence, they cannot guarantee performance of construction and shall not be held contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be immediately reported to the designer. Failure to comply by a simple notice to the designer shall relieve the designer from responsibility for all consequences. Changes made from the plans without the consent of the designer are unauthorized, and shall relieve the designer of responsibility for consequences arising out of such changes. Contractor shall check and verify all dimensions.

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SUMMIT VIEW FARMS
POOL HOUSE

LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
BRYCE D. CRADY
NUMBER PE-2006026494
01.28.21
PROFESSIONAL ENGINEER

MISSOURI ENGINEERING LICENSE: 2003004673

Bryce D. Crady
Structural Engineer
KS# 18799
MO# 2003004673

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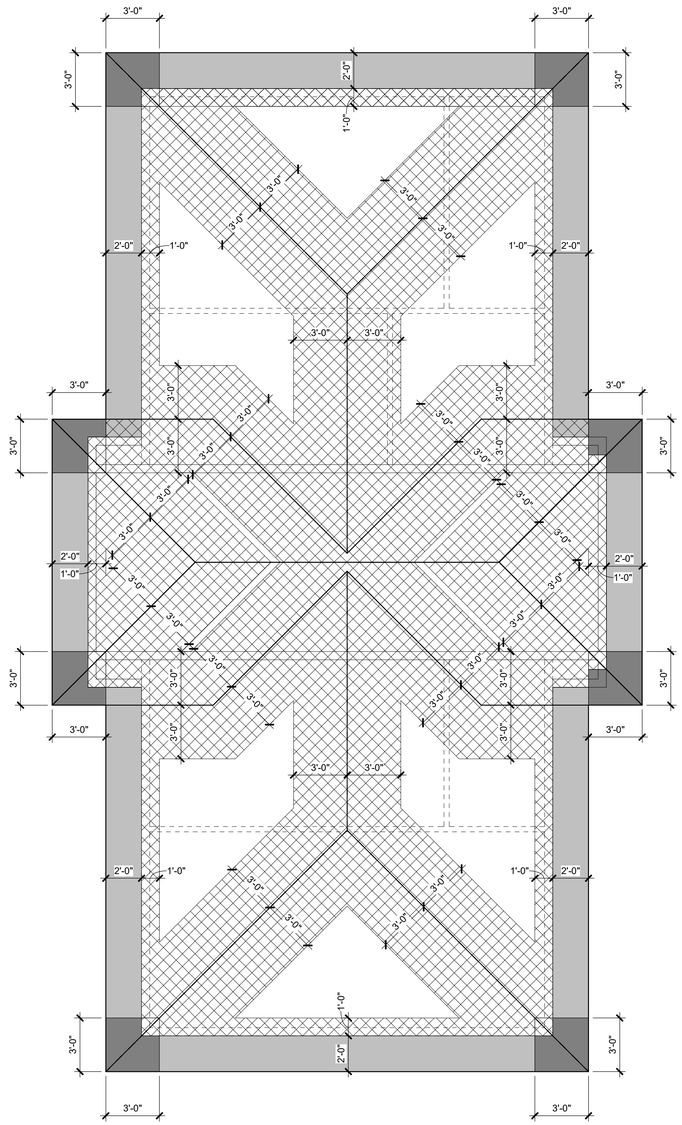
project no.	20091
date	1/28/2021
revised	
design by	APEX
drawn by	GLS
struct. by	GP

SCHEDULES

sheet no.
S1.20

NET WIND UPLIFT	
	ROOF ZONE 1 = -2 PSF (ASD)
	ROOF ZONE 2e, 2r, & 3 = -8 PSF (ASD)
	ROOF ZONE 2e & 2r OH = -17 PSF (ASD)
	ROOF ZONE 3 OH = -13 PSF (ASD)

**UPLIFT LOADS BASED ON 100 SF EFFECTIVE WIND AREA.*
NET UPLIFT PRESSURES BASED ON 0.6D+0.6W ASD LOAD COMBINATION.



NET UPLIFT DIAGRAM
1/4" = 1'-0"

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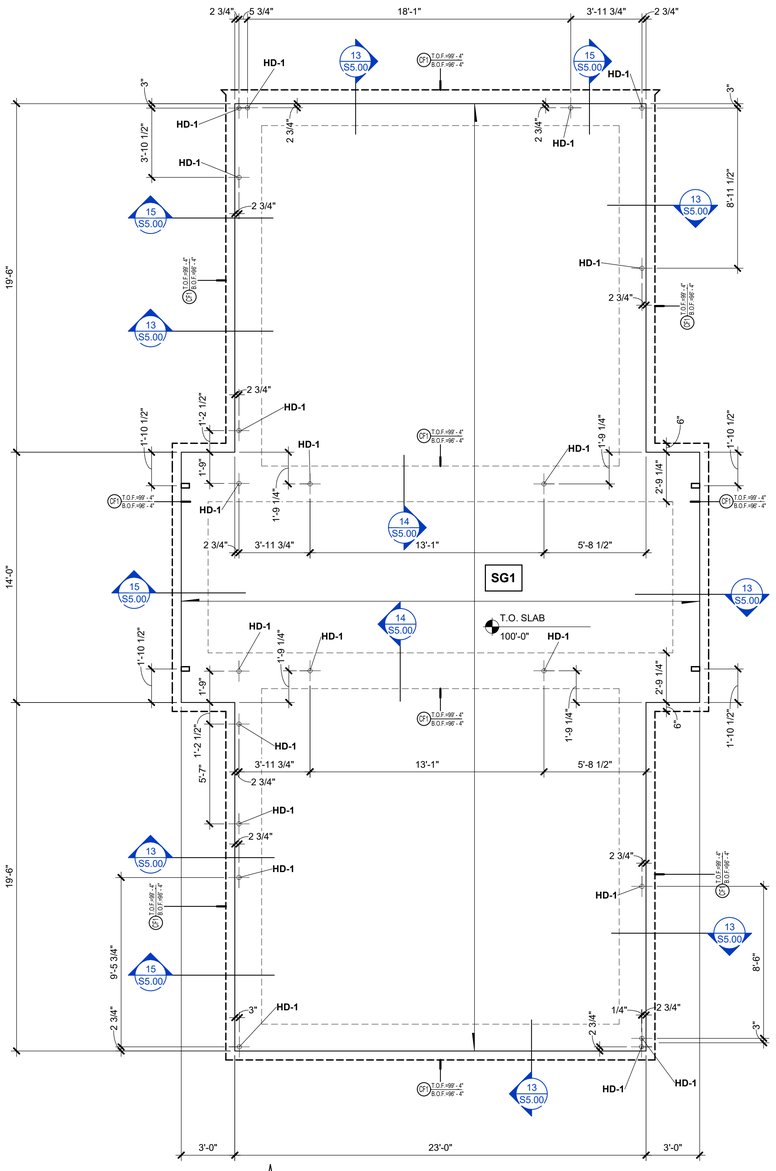
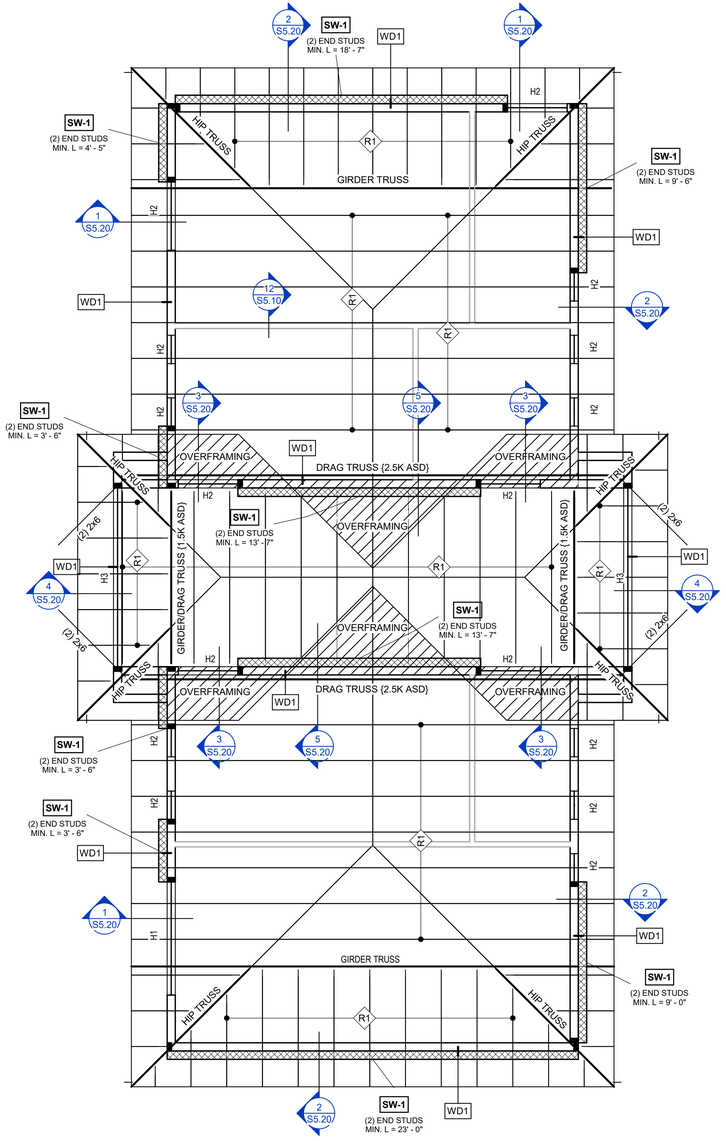
LOADING DIAGRAMS

sheet no.
S1.30



FOUNDATION PLAN

1/4" = 1'-0"



FRAMING PLAN

1/4" = 1'-0"

PLAN NOTES - FOUNDATIONS

1. PROVIDE CONTROL JOINTS (1/4 SLAB DEPTH) AT 10'-0" OC BOTH WAYS, NOT SHOWN FOR CLARITY.
2. CONTRACTOR TO VERIFY ALL FOUNDATION ELEVATIONS AND STEPS PER SITE CONDITIONS.
3. TOP OF SLAB ELEVATION SHOWN IN PLAN IS FOR REFERENCE ONLY.
4. REFERENCE ARCHITECTURAL DRAWINGS FOR WALL OPENING DIMENSIONS, EXTERIOR FINISHES AND ADDITIONAL NOTES.
5. REFERENCE GENERAL NOTES SHEET FOR ADDITIONAL FOUNDATION SPECIFICATIONS.
6. CONTRACTOR TO CONTACT APEX ENGINEERS, INC AT LEAST 48 HRS IN ADVANCE OF ANY CONCRETE POUR.

SCHEDULE - CONTINUOUS FOOTING

MARK	WIDTH	DEPTH	LONG BARS	TRANS BARS
CF1	2' - 0"	36"	(6) #6 CONT [(3) AT T&B]	#3 TIES AT 24" OC

SCHEDULE - SLAB ON GRADE

MARK	SLAB PROPERTIES	SLAB REINFORCING	ADDITIONAL REQUIREMENTS
SG1	4" (TOTAL DEPTH) NW CONCRETE	#4 AT 18"OC EA WAY OR 6X6 W2.1XW2.1 WWF	10 MIL. VAPOR BARRIER ON 4" OF 3/4" CLEAN, GRADED ROCK.

SHEAR WALL HOLDOWN COORDINATION NOTE:
GENERAL CONTRACTOR IS REQUIRED TO COORDINATE LOCATION OF ALL HOLDOWNS PER THE SHEAR WALL SCHEDULE & PLANS PRIOR TO FOUNDATION WALL POUR. REFERENCE SHEAR WALL DETAILS FOR DIFFERENT STRAP AND HOLDOWN CONDITIONS. APEX RECOMMENDS PROVIDING SHOP DRAWINGS FOR SHEAR WALL HOLDOWN/EMBED LOCATIONS. POST INSTALLED HOLDOWN ANCHORS ARE NOT ACCEPTABLE.

PLAN NOTES - WOOD ROOF NOTES

1. ROOF SHEATHING: 5/8" NOMINAL APA RATED WSP, 40/20 SPAN RATING. PANEL FASTENED WITH 10d NAILS AT 6" OC EDGE AND 12" OC FIELD.
2. ROOF CONSTRUCTION: REFERENCE ARCHITECTURAL DRAWINGS FOR ROOF MATERIAL WATERPROOFING MEMBRANE, AND INSULATION.
3. WALL CONSTRUCTION: STUD GRADE 2x6 SPF STUDS AT 16 OC MAX, UNO.
4. WALL SHEATHING: 7/16" APA RATED WSP, 24/16 SPAN RATING. PANEL EDGES FASTENED WITH 8d NAILS AT 6" OC EDGE AND 12" OC FIELD.
5. ALL UNMARKED HEADERS SHALL BE MIN (2) 2x10, UNO.
6. REFERENCE GENERAL NOTES FOR ADDITIONAL SPECIFICATIONS.
7. REFERENCE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS, FINISHES, AND ADDITIONAL NOTES.
8. REFERENCE MECHANICAL DRAWINGS FOR ADDITIONAL RTU INFORMATION.

SCHEDULE - HEADERS

MARK	HEADER SIZE	COMMENTS
H1	(2) 2x12	
H2	(2) 2x10	
H3	6x6	

SCHEDULE - TRUSSES

MARK	TRUSSES	COMMENTS
R1	WOOD ROOF TRUSSES AT 24" OC	BY OTHERS

SCHEDULE - WOOD WALL

MARK	WALL STUDS	BLOCKING
WD1	2x6 AT 16" OC	AT SHEATHING PANEL EDGES (4'-0" OC MAX)

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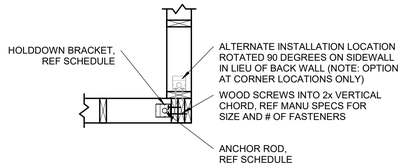
drawn by	GLS
struct. by	GP

PLANS

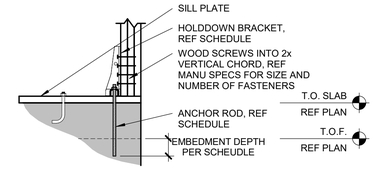
sheet no.
S2.00



3 | TYPICAL HOLDDOWN ANCHOR PLAN

S3.00 | NO SCALE

THIS DETAIL IS TYPICAL TO THE PROJECT AND MAY NOT BE CUT OR CALLED OUT ON PLANS



2 | TYPICAL WOOD HOLDDOWN ANCHOR

S3.00 | NO SCALE

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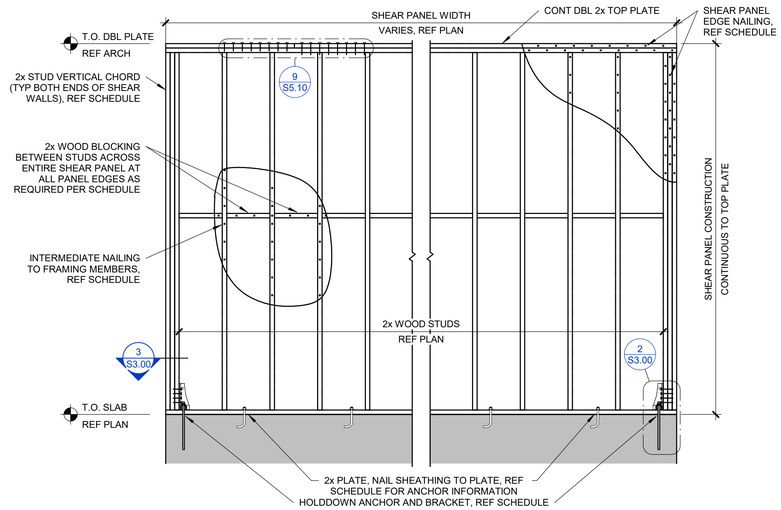
SCHEDULE - SHEAR WALLS

MARK	BLOCKED	SHEATHING			EDGE NAILS		LTP4 / A35 SPACING	SILL PLATE ATTACHMENT	
		TYPE	THICKNESS	PLACEMENT	SIZE	SPACING		NAILING	1/2" DIA A.B. SPACING
SW-1	Yes	WSP-SHEATHING	7/16"	ONE-SIDE	8d	6"	16"	16d AT 6" OC	32"

1. WSP = WOOD STRUCTURAL PANEL PLYWOOD OR OSB.
2. NAIL SIZES GIVEN ARE FOR COMMON NAILS OR GALVANIZED (HOT-DIPPED OR TUMBLED) BOX NAILS. SINKER NAILS, COOLER NAILS, ETC. SHALL NOT BE USED FOR WSP SHEAR WALLS.
3. SHEAR WALL NAILS SHALL HAVE FULL HEADS, CLIPPED NAILS ARE NOT ALLOWED.
4. ALL NAILS SHALL BE DRIVEN SUCH THAT THE HEAD IS FLUSH WITH FACE OF SHEATHING. DO NO OVERDRIVE NAILS.
5. PROVIDE INTERMEDIATE NAILING (FIELD) AT 12" OC, TYP.
6. PROVIDE (2) TOTAL RIMBOARDS OR A LAYER OF BLOCKING IN ADDITION TO THE RIMBOARD WHERE SOLE PLATE NAILING REQUIRES 2 ROWS OF FASTENERS PER SCHEDULE.
7. SILL ANCHORS MAY BE CAST-IN-PLACE J-BOLTS WITH 8" EMBED OR SIMPSON TITEN HD SCREW ANCHORS WITH 6" EMBED. REF SCHEDULE FOR BOLT DIAMETER. BOTH BOLT TYPES REQUIRE 0.229"x3"x3" PLATE WASHER WITH EDGE OF PLATE LOCATED WITHIN ½" OF SHEAR WALL SHEATHING.
8. AT WALLS DESIGNATED AS FORCE TRANSFER SHEAR WALLS, PROVIDE SIMPSON STRAP ABOVE AND BELOW ALL OPENINGS PER SHEAR WALL DETAIL.
9. END STUDS MUST CONTINUE DOWN TO FOUNDATION WALL UNLESS INTERRUPTED BY TRANSFER BEAM.
10. TRIM/JAMB STUDS OF OPENINGS DO NOT COUNT TOWARDS THE REQUIRED NUMBER OF END STUDS IN A SHEAR WALL.
11. PROVIDE DOUBLE STUDS AND BLOCKING NAILED TOGETHER WITH (2) 16d NAILS AT 6" OC OR 3" NOMINAL STUDS AND BLOCKING AT THE FOLLOWING CONDITIONS:
    i. 2" OC EDGE NAIL SPACING
    ii. 10d NAILS AT 3" OC OR SMALLER EDGE NAIL SPACING
    iii. DOUBLE SIDED SHEAR WALL WHERE PANEL JOINTS ALIGN TO THE SAME STUD.
12. HOLDOWNS AND STRAPS OCCUR AT THE BOTTOM OF WALLS. HOLDOWNS AND STRAPS BETWEEN FLOORS ARE CONTROLED BY THE WALL ABOVE.



1 | TYPICAL SINGLE STORY BRACED WOOD WALL

S3.00 | NO SCALE

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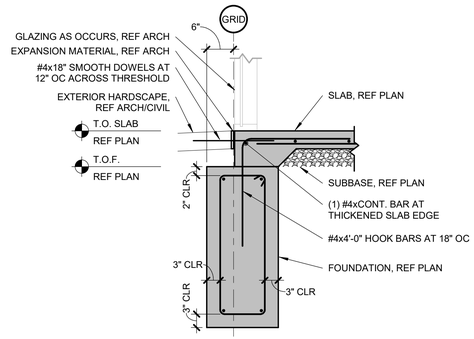
struct. by	**GP**

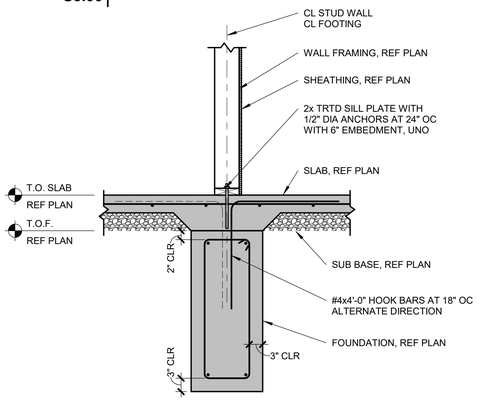
TYPICAL WOOD SHEAR WALL DETAILS

sheet no.

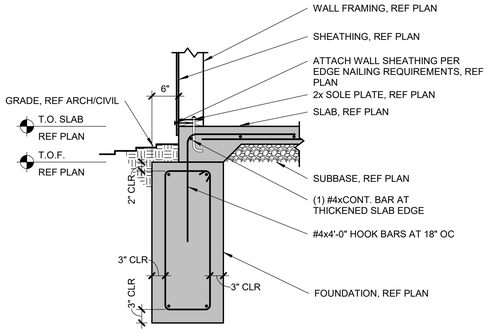
S3.00



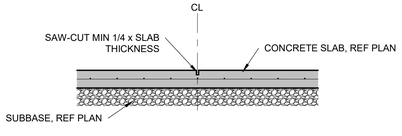
15 | THRESHOLD AT TRENCH FOOTING
S5.00 | 3/4" = 1'-0"



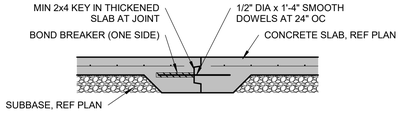
14 | TYPICAL INTERIOR FOUNDATION WALL
S5.00 | 3/4" = 1'-0"



13 | WOOD FRAMING ON TRENCH FOOTING
S5.00 | 3/4" = 1'-0"



CONTRACTION JOINT DETAIL



CONSTRUCTION JOINT DETAIL

12 | SLAB ON GRADE CONTROL JOINT
S5.00 | NO SCALE

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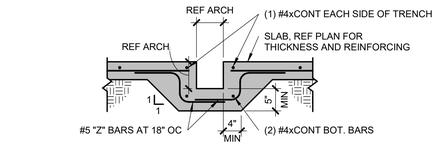

11 | TYP SLAB AT TRENCH
S5.00 | NO SCALE

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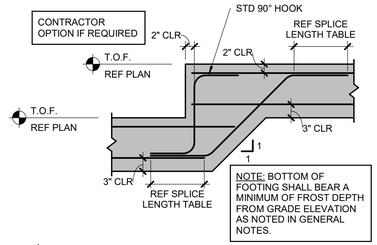

10 | TYP FOOTING STEP
S5.00 | NO SCALE

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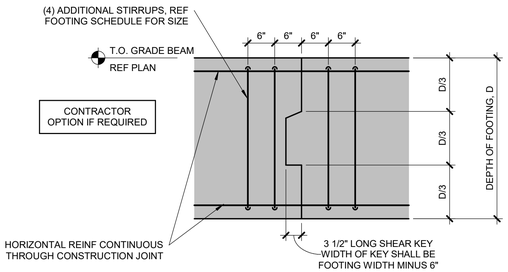

9 | TYP GRADE BEAM CONSTRUCTION JOINT
S5.00 | NO SCALE

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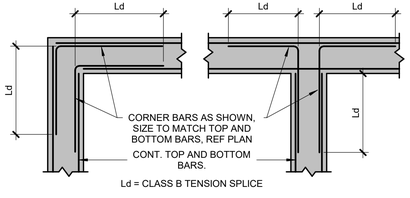

8 | TYP FOUNDATION CORNER DETAIL
S5.00 | NO SCALE

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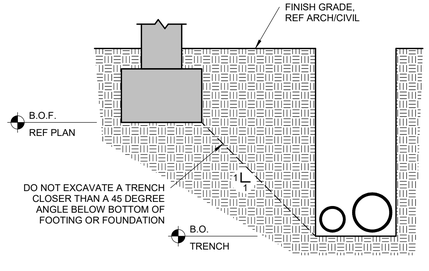

7 | MAXIMUM SLOPE BETWEEN FOUNDATION AND TRENCH
S5.00 | NO SCALE

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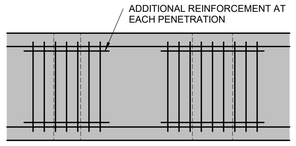
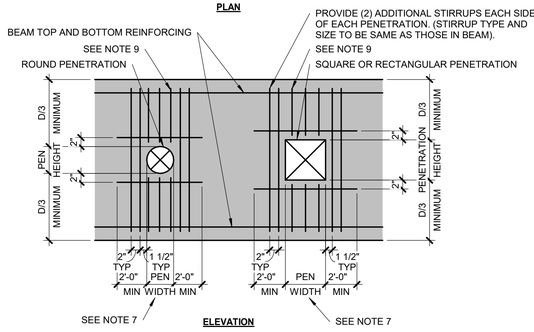
NOTES:
1. CONTRACTOR TO COORDINATE LOCATION, SIZE AND ELEVATION AND INCLUDE IN HIS CONTRACT PRICE ALL REQUIRED HORIZONTAL PENETRATIONS THROUGH CONCRETE BEAMS WHETHER SHOWN ON STRUCTURAL DRAWINGS OR NOT.
2. WHERE BEAM PENETRATIONS ARE REQUIRED BUT ARE NOT SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS, SUBMIT DRAWINGS, SHOWING DIMENSIONS AND LOCATIONS OF ALL REQUIRED PENETRATIONS, FOR REVIEW AND APPROVAL.
3. "D" DENOTES THE DEPTH OF BEAM.
4. CLEAR SPACING BETWEEN PENETRATIONS SHALL BE 24" MINIMUM UNLESS DESIGNED OTHERWISE BY THE ENGINEER.
5. PENETRATIONS SHALL BE LOCATED ACCORDING TO THE FOLLOWING CRITERIA:
   A. FOR BEAMS NOT SUPPORTING INTERSECTING BEAMS: LOCATE PENETRATIONS WITHIN TWO FEET EITHER SIDE OF BEAM MIDSPAN.
   B. FOR BEAMS SUPPORTING INTERSECTING BEAMS: CHECK WITH STRUCTURAL ENGINEER
6. AT EACH SLEEVE, UNLESS REQUIRED OTHERWISE BY NOTE #7 BELOW, PROVIDE THE FOLLOWING:
   - (1) #5 TOP AND BOTTOM AT BEAMS WITH WIDTHS LESS THAN 9".
   - (2) #5 TOP AND BOTTOM AT BEAMS WITH (2) LEG STIRRUPS.
   - (4) #5 TOP AND BOTTOM AT BEAMS WITH (4) LEG STIRRUPS.
   - (N) #5 TOP AND BOTTOM AT BEAMS WITH (N) LEG STIRRUPS.
7. PENETRATION WIDTH << PENETRATION DEPTH (UNLESS SHOWN OTHERWISE ON THE STRUCTURAL DRAWINGS).
8. FOR LOCATIONS AND/OR SIZES OF PENETRATIONS NOT CONFORMING TO THE ABOVE CRITERIA AND NOT OTHERWISE DETAILED ON THE STRUCTURAL DRAWINGS, CONTRACTOR SHALL COORDINATE REQUIRED ADDITIONAL REINFORCEMENT WITH THE ENGINEER ON THE SHOP DRAWINGS.
9. PROVIDE ADDITIONAL STIRRUPS AT SPACING NOT TO EXCEED ONE HALF OF THE SCHEDULED STIRRUP SPACING (UNLESS DETAILED OTHERWISE ON THE STRUCTURAL DRAWINGS).
10. SEPARATE THE UTILITIES PASSING THRU SLEEVES / PENETRATIONS TO ADEQUATELY ACCOMMODATE ANY POTENTIAL SWELL FROM THE ON-SITE SOILS.



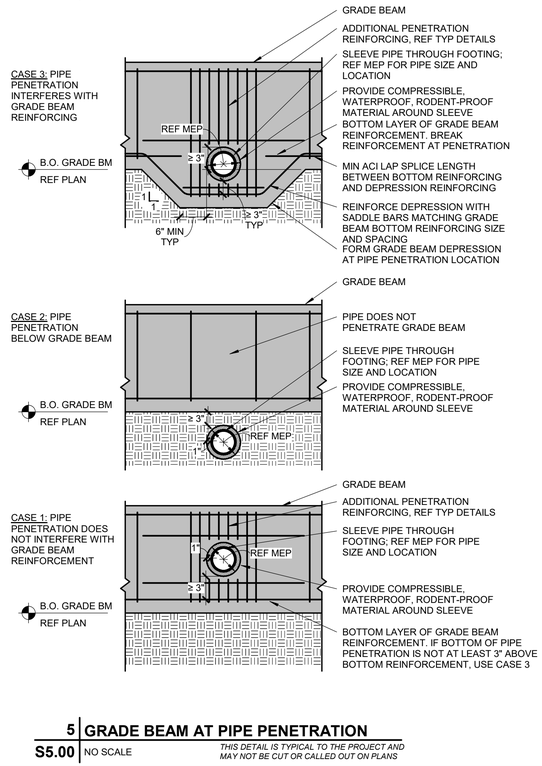
PLAN



ELEVATION

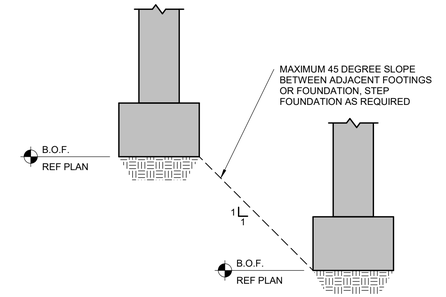
6 | GRADE BEAM PIPE SLEEVE
S5.00 | NO SCALE

THIS DETAIL IS TYPICAL TO THE PROJECT AND MAY NOT BE CUT OR CALLED OUT ON PLANS



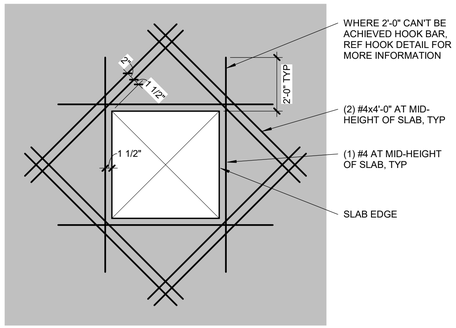
5 | GRADE BEAM AT PIPE PENETRATION
S5.00 | NO SCALE

THIS DETAIL IS TYPICAL TO THE PROJECT AND MAY NOT BE CUT OR CALLED OUT ON PLANS



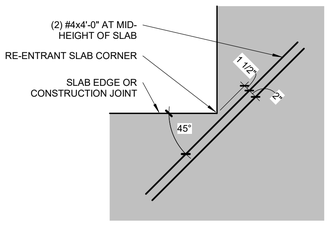
4 | MAXIMUM SLOPE BETWEEN ADJACENT FOUNDATIONS
S5.00 | NO SCALE

THIS DETAIL IS TYPICAL TO THE PROJECT AND MAY NOT BE CUT OR CALLED OUT ON PLANS



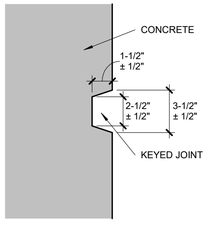
3 | TYP OPENING IN CONCRETE SLAB
S5.00 | NO SCALE

THIS DETAIL IS TYPICAL TO THE PROJECT AND MAY NOT BE CUT OR CALLED OUT ON PLANS



2 | TYP RE-ENTRANT CORNER IN CONCRETE SLAB
S5.00 | NO SCALE

THIS DETAIL IS TYPICAL TO THE PROJECT AND MAY NOT BE CUT OR CALLED OUT ON PLANS



1 | TYP KEY IN CONCRETE
S5.00 | NO SCALE

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STATE OF MISSOURI
BRYCE D. CRADY
NUMBER PE-2006026494
01.28.21
PROFESSIONAL ENGINEER
MISSOURI ENGINEERING LICENSE: 2003004673

Bryce D. Crady
Structural Engineer
KS# 19799
MO# 2003004673

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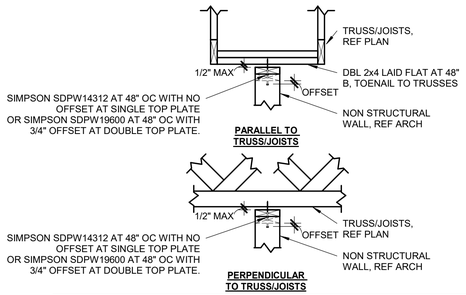
project no.	20091
date	1/28/2021
revised	
design by	APEX
drawn by	GLS
struct. by	GP

TYPICAL FOUNDATION DETAILS

sheet no.
S5.00

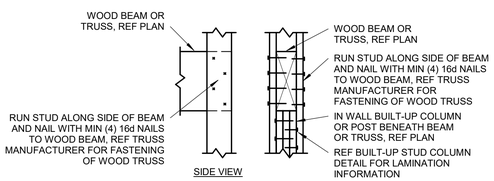


NOTES:
1. FOR CLARITY, TRUSSES ARE SHOWN IN THIS DETAIL. HOWEVER, DETAIL APPLIES TO ALL FLOOR/ROOF FRAMING TYPES.
2. CEILING FINISH SHALL NOT BE ATTACHED TO ROOF TRUSS WITHIN 12" OF WALL.

12 ARCHITECTURAL WALL CONNECTION
S5.10 | 3/4" = 1'-0"

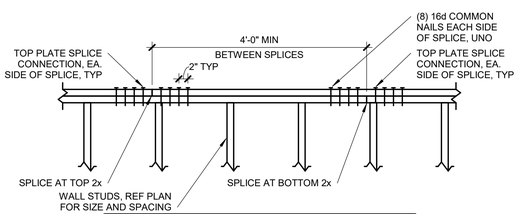
11 FLUSH WOOD BEAM AT WOOD STUD WALL
S5.10 | NO SCALE

THIS DETAIL IS TYPICAL TO THE PROJECT AND MAY NOT BE CUT OR CALLED OUT ON PLANS



10 TYPICAL BEAM OR TRUSS AT STUD WALL
S5.10 | NO SCALE

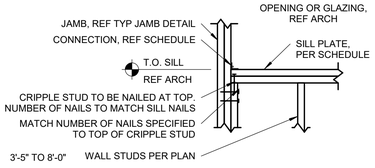
THIS DETAIL IS TYPICAL TO THE PROJECT AND MAY NOT BE CUT OR CALLED OUT ON PLANS



TOP CHORD APPLIES AT ALL LOAD BEARING AND SHEAR WALLS

9 TYPICAL PLATE SPLICE
S5.10 | NO SCALE

THIS DETAIL IS TYPICAL TO THE PROJECT AND MAY NOT BE CUT OR CALLED OUT ON PLANS



SCHEDULE - WOOD SILL

OPENING WIDTH	SILL REQUIRED	CONNECTION
UP TO 3'-4"	(1) CONTINUOUS 2x6	(4) 16d NAILS
3'-5" TO 8'-0"	(2) CONTINUOUS 2x6	SIMPSON A35

8 TYPICAL SILL DETAIL
S5.10 | NO SCALE

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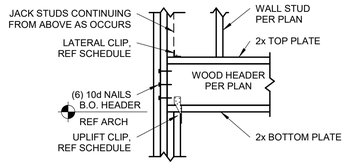
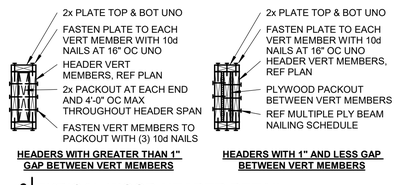


SCHEDULE - WOOD JAMB

OPENING WIDTH	# OF STUDS d1	# OF STUDS d2	UPLIFT CLIP	LATERAL CLIP
UP TO 3'-4"	1	2	N/A	N/A
3'-5" TO 8'-0"	2	3	SIMPSON H3 EA SIDE	SIMPSON A34

7 TYPICAL JAMB DETAIL
S5.10 | NO SCALE

THIS DETAIL IS TYPICAL TO THE PROJECT AND MAY NOT BE CUT OR CALLED OUT ON PLANS



6 TYPICAL WOOD HEADER DETAIL
S5.10 | NO SCALE

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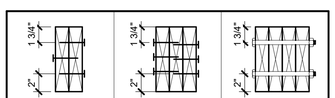
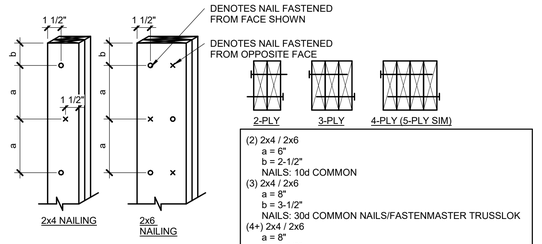


2 - PLY	3 - PLY	4 - PLY
(3) ROWS OF 16d x 3-1/2" NAILS AT 6" OC	(3) ROWS OF 16d x 3-1/2" NAILS AT 4" OC	(2) ROWS OF 1/2" DIA. A307 THRU-BOLTS AT 12" OC STAGGERED

NOTES:
1. NAILING SHOWN APPLIES UNLESS SPECIFICALLY NOTED IN DETAILS.
2. SPACE NAILS EVENLY THROUGHOUT DEPTH OF BEAM.

5 MULTIPLE PLY BEAM NAILING SCHEDULE
S5.10 | NO SCALE

THIS DETAIL IS TYPICAL TO THE PROJECT AND MAY NOT BE CUT OR CALLED OUT ON PLANS



NOTES:
1. ADJACENT NAILS ARE DRIVEN FROM OPPOSITE SIDES OF COLUMN.
2. ALL NAILS/SCREWS SHALL PENETRATE ALL LAMINATIONS AND AT LEAST 75% OF THE OUTERMOST LAMINATION
3. REFERENCE MINIMUM FASTENER LENGTH
   (2) 2x - 2 5/8" (2) 1 3/4" - 3 1/16"
   (3) 2x - 4 1/8" (3) 1 3/4" - 4 13/16"
   (4) 2x - 5 5/8" (4) 1 3/4" - 6 9/16"
   (5) 2x - 7 1/8" (5) 1 3/4" - 8 5/16"

4 TYPICAL BUILT-UP STUD COLUMN
S5.10 | NO SCALE

THIS DETAIL IS TYPICAL TO THE PROJECT AND MAY NOT BE CUT OR CALLED OUT ON PLANS

PENETRATIONS THRU STUDS

WALL SIZE	STUDS LOAD BEARING OR EXTERIOR WALL BORED HOLE SIZE 40%	STUDS LOAD BEARING OR EXTERIOR WALL BORED HOLE SIZE 60%	NON LOAD BEARING WALL BORED HOLE SIZE 60%	LOAD BEARING WALL NOTCH 25%	NON-LOAD BEARING WALL NOTCH 40%
2 x 4	1 3/8"	-	2 1/8"	7/8"	1 3/8"
(2) 2 x 4	-	2 1/8"	2 1/8"	7/8"	1 3/8"
2 x 6	2 1/4"	-	3 15/16"	1 3/8"	2 1/4"
(2) 2 x 6	-	3 5/16"	3 15/16"	1 3/8"	2 1/4"
2 x 8	2 7/8"	-	4 3/8"	1 13/16"	2 7/8"
(2) 2 x 8	-	4 3/8"	4 3/8"	1 13/16"	2 7/8"

NOTE:
SEE SECTION 2308.9.10, 2308.9.11 AND FIGURE 2308.9.10 IBC.

PLATES:
TOP AND BOTTOM PLATE HOLE, CUT OR NOTCH THAT IS 50% OR MORE OF WIDTH MUST BE REPAIRED USING 16 GA (MIN) METAL TIE THAT IS AT LEAST 1-1/2" WIDE (SECTION 2308.9.8 IBC) IF WALL IS A SHEAR WALL IT MUST BE REPAIRED USING HARDY FRAME SADDLE (HFS).

WALL SIZE	HOLE SIZE
2 x 4	1 3/4"
2 x 6	2 3/4"
2 x 8	3 5/8"

VERTICAL HOLE SIZE (H)
D + 1/2" AT LVL'S 1&2
D + 1" AT LVL 3
D + 1-1/4" AT LVL 4
D + 1-1/2" AT LVL 5

2 CUTTING, NOTCHING, AND BORED HOLES IN STUDS AND PLATES
S5.10 | NO SCALE

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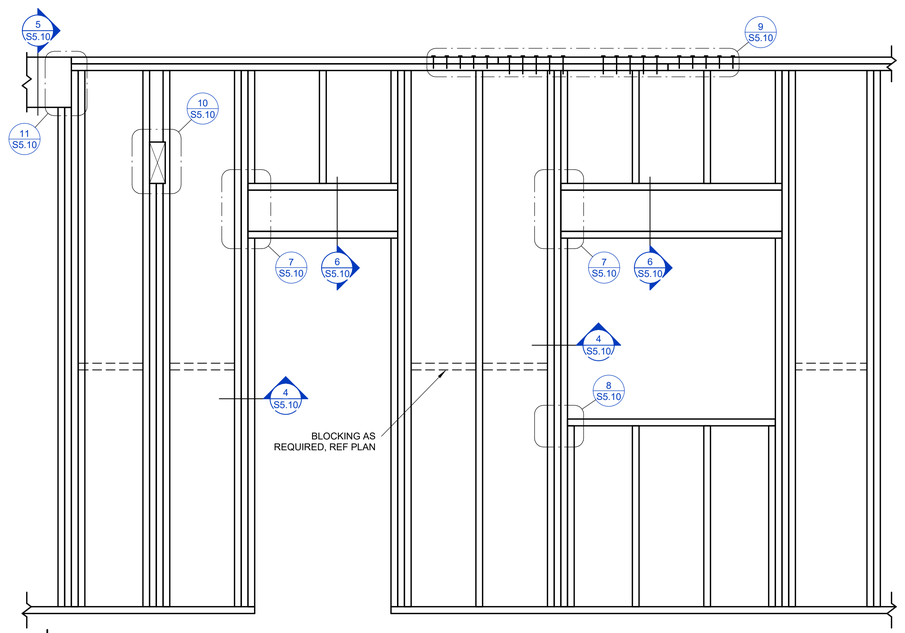

1 TYPICAL WOOD FRAMED WALL
S5.10 | NO SCALE

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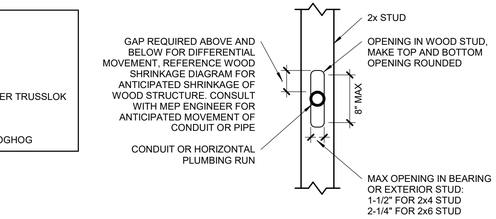
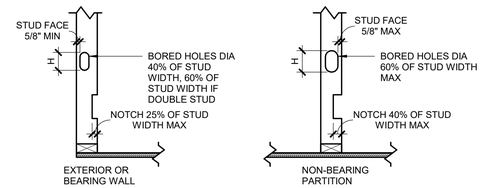
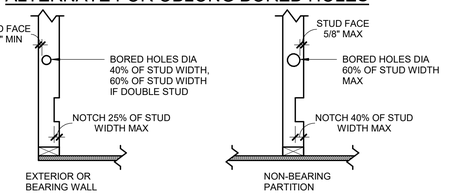


3 WOOD STUD PENETRATION FOR SHRINKAGE
S5.10 | NO SCALE

THIS DETAIL IS TYPICAL TO THE PROJECT AND MAY NOT BE CUT OR CALLED OUT ON PLANS



ALTERNATE FOR OBLONG BORED HOLES



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STATE OF MISSOURI BRYCE D. CRADY NUMBER PE-2006026494 01.28.21 PROFESSIONAL ENGINEER

MISSOURI ENGINEERING LICENSE: 2003004673

Bryce D. Crady
Structural Engineer
KS# 18799
MO# 2003004673

project no.	20091
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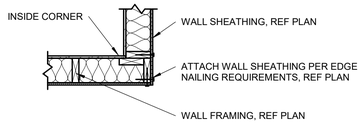
revised	
design by	APEX
drawn by	GLS
struct. by	GP

TYPICAL WOOD DETAILS

sheet no.
S5.10



4 TYPICAL THREE STUD CORNER

S5.11 NO SCALE

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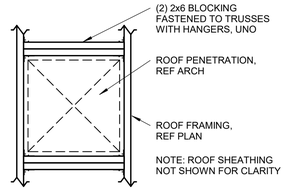

NOTE: THIS DETAIL APPLIES TO PENETRATIONS BETWEEN ROOF RAFTERS. CUTTING OF RAFTERS IS NOT PERMITTED.

3 TYPICAL ROOF PENETRATION DETAIL

S5.11 NO SCALE

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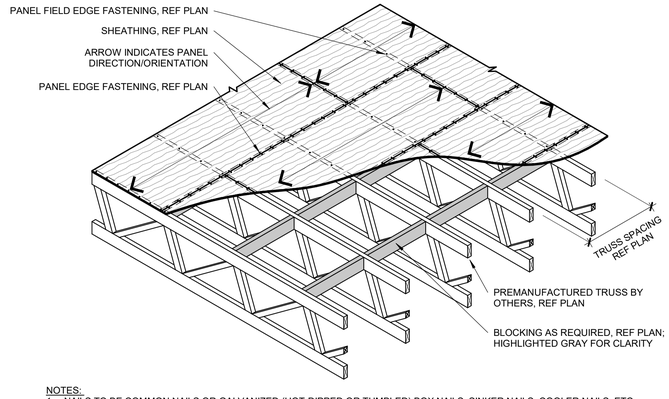

NOTES:
1. NAILS TO BE COMMON NAILS OR GALVANIZED (HOT-DIPPED OR TUMBLED) BOX NAILS. SINKER NAILS, COOLER NAILS, ETC SHALL NOT BE USED.
2. NAILS SHALL HAVE FULL HEADS, CLIPPED NAILS ARE NOT ALLOWED.
3. PANELS SHALL NOT BE LESS THAN 4'-0"x8'-0" EXCEPT AT BOUNDARIES AND CHANGES IN FRAMING, WHERE MINIMUM PANEL DIMENSIONS SHALL BE 24" UNLESS SUPPORTED BY AND FASTENED TO FRAMING MEMBERS.
4. ALL NAILS SHALL BE DRIVEN SUCH THAT THE HEAD IS FLUSH WITH FACE OF SHEATHING. **DO NOT OVERDRIVE NAILS**.
5. NAILS SHALL BE LOCATED AT LEAST 3/8" FROM EDGE OF PANELS.
6. THE WIDTH OF THE NAILED FACE OF FRAMING MEMBERS AND BLOCKING SHALL BE 2" NOMINAL OR GREATER AT ADJOINING PANEL EDGES EXCEPT THAT A 3" NOMINAL OR GREATER WIDTH AT ADJOINING PANEL EDGES AND STAGGERED NAILING AT ALL PANEL EDGES WHERE EDGE NAIL SPACING OF 2-1/2" OC OR LESS IS SPECIFIED, OR 10d COMMON NAILS HAVING PENETRATION INTO FRAMING MEMBERS AND BLOCKING OF MORE THAN 1-1/2" IS SPECIFIED AT 3" OC OR LESS EDGE NAILING.

TYPICAL WOOD TRUSS WOOD DIAPHRAGM

S5.11 3/8" = 1'-0"

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project no.	**20091**
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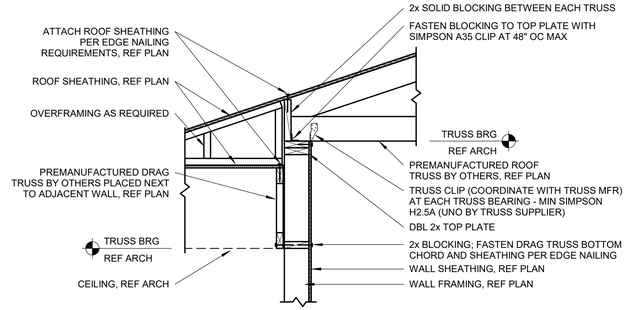
design by	**APEX**
drawn by	**GLS**
struct. by	**GP**

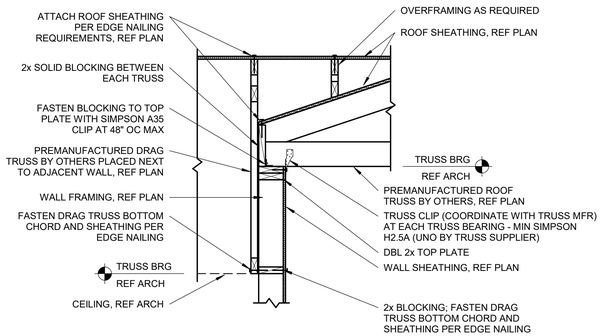
TYPICAL WOOD DETAILS

sheet no.

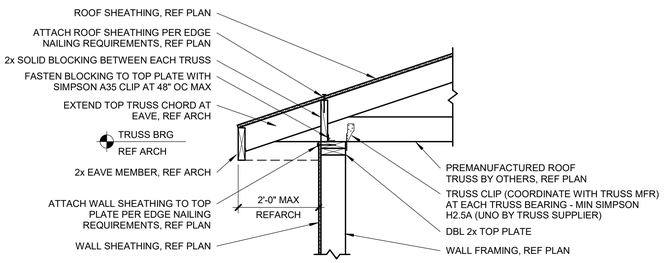
S5.11



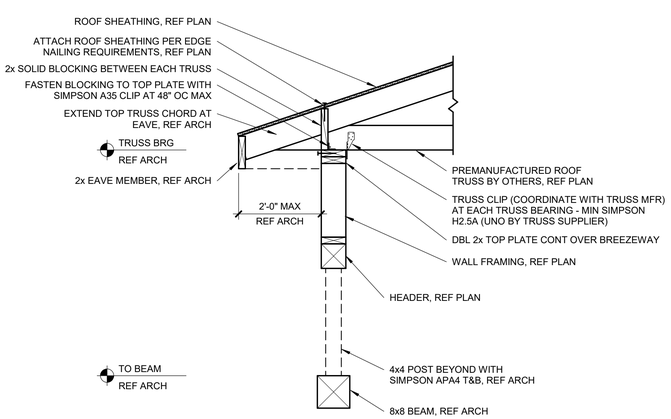
3 | S5.20 — **DRAG TRUSS DETAIL**
3/4" = 1'-0"



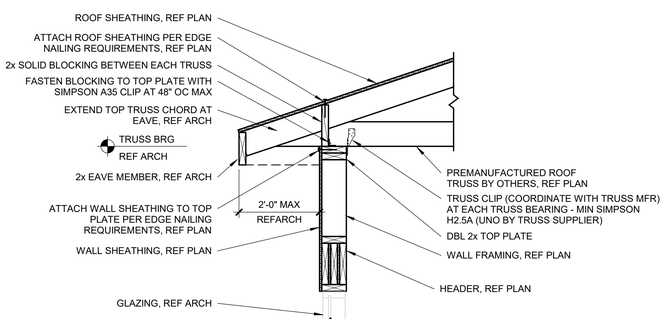
5 | S5.20 — **TRUSS CHANGE DIRECTION**
3/4" = 1'-0"



2 | S5.20 — **SLOPED ROOF TRUSS BEARING**
3/4" = 1'-0"



4 | S5.20 — **TRUSS BEARING AT BREEZEWAY BEAM**
3/4" = 1'-0"



1 | S5.20 — **SLOPED ROOF TRUSS BEARING AT HEADER**
3/4" = 1'-0"

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Release of these plans contemplates further cooperation among the owner, his contractor, and the designer. Omissions and conflicts may occur and unless the designer and his consultants have performed their services with due care and diligence, they cannot guarantee construction documents free of all errors. Some contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be immediately reported to the designer. Failure to report it by a simple notice to the designer shall relieve the designer from responsibility for all consequences. Changes made from the plans without the consent of the designer are unauthorized, and shall relieve the designer of responsibility for consequences arising out of such changes. Contractor shall check and verify all dimensions.

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POOL HOUSE
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project no.	20091
date	1/28/2021
revised	
design by	APEX
drawn by	GLS
struct. by	GP

TYPICAL WOOD DETAILS

sheet no.
S5.20

MECHANICAL SPECIFICATIONS

GENERAL PROVISIONS

CONTRACT DOCUMENTS

A. ALL CONTRACT DOCUMENTS INCLUDING DRAWINGS, ALTERNATES, ADDENDA AND MODIFICATIONS PRECEDING THIS SPECIFICATION DIVISION ARE APPLICABLE TO MECHANICAL CONTRACTOR AND HIS SUB-CONTRACTORS, AND MATERIAL SUPPLIERS.

SPECIFICATION FORM AND DEFINITIONS

A. THESE SPECIFICATIONS ARE ABBREVIATED FORM AND CONTAIN INCOMPLETE SENTENCES. OMISSIONS OF WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL", "SHALL BE", "AS NOTED ON THE DRAWINGS", "ACCORDING TO THE DRAWINGS", "A", "AN", "THE" AND "ALL" ARE INTENTIONAL. OMITTED WORDS AND PHRASES SHALL BE SUPPLIED BY INFERENCE.

B. ENGINEER WHEREVER USED IN THESE SPECIFICATIONS, SHALL MEAN LATIMER, SOMMERS & ASSOCIATES, P.A., 3639 SW SUMMERFIELD DRIVE, SUITE A, TOPEKA, KANSAS 66614, PHONE 785-233-3232.

C. CONTRACTOR, WHEREVER USED IN THESE SPECIFICATIONS, SHALL MEAN ANY TRADE CONTRACTOR THAT ENTERS INTO CONTRACT WITH THE OWNER TO PERFORM THIS SECTION OF WORK.

D. WHEN A WORD, SUCH AS "PROPER", "SATISFACTORY", "EQUIVALENT", AND "AS DIRECTED", IS USED, IT REQUIRES ENGINEER'S REVIEW. "PROVIDE" MEANS FURNISH AND INSTALL.

QUALIFICATIONS

A. THE CONTRACTOR(S) RESPONSIBLE FOR WORK UNDER THIS SECTION SHALL HAVE COMPLETED A JOB OF SIMILAR SCOPE AND MAGNITUDE WITHIN THE LAST 3 YEARS AND BE ABLE TO DOCUMENT SUCH WORK UPON REQUEST. THE CONTRACTOR(S) SHALL EMPLOY AN EXPERIENCED, COMPETENT AND ADEQUATE WORK FORCE LICENSED IN THEIR SPECIFIC TRADE AND PROPERLY SUPERVISED AT ALL TIMES. MECHANICAL CONTRACTING SHALL BE THE COMPANY'S PRIMARY NATURE OF BUSINESS. UNLICENSED WORKERS AND GENERAL LABORERS SHALL BE ADEQUATELY SUPERVISED TO INSURE COMPETENT AND QUALITY WORK AND WORKMANSHIP REQUIRED BY THIS CONTRACT AND ALL OTHER REGULATIONS, CODES AND PRACTICES. AT ALL TIMES THE CONTRACTOR(S) SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL GUIDELINES, PRACTICES AND REGULATIONS. CONTRACTOR MAY BE REQUIRED TO SUBMIT A STATEMENT OF QUALIFICATIONS, PERTAINING TO THE TYPE OF WORK TO BE PERFORMED, UPON REQUEST BEFORE ANY FINAL APPROVAL AND SELECTION. FAILURE TO BE ABLE TO COMPLY WITH THESE REQUIREMENTS IS SUITABLE REASON FOR REJECTION OF A BID WHETHER ACTING AS A PRIME OR SUBCONTRACTOR.

LOCAL CONDITIONS

A. VISIT SITE AND DETERMINE EXISTING LOCAL CONDITIONS AFFECTING WORK IN CONTRACT. FAILURE TO DETERMINE SITE CONDITIONS OR NATURE OF EXISTING OR NEW CONSTRUCTION WILL NOT BE CONSIDERED A BASIS FOR GRANTING ADDITIONAL COMPENSATION.

CONTRACT CHANGES

A. CHANGES OR DEVIATIONS FROM CONTRACT, INCLUDING THOSE FOR EXTRA OR ADDITIONAL WORK MUST BE SUBMITTED IN WRITING FOR REVIEW OF ARCHITECT-ENGINEER. NO VERBAL ORDERS WILL BE RECOGNIZED.

LOCATIONS AND INTERFERENCES

A. LOCATIONS OF EQUIPMENT, PIPING AND OTHER MECHANICAL WORK IS INDICATED DIAGRAMMATICALLY BY MECHANICAL DRAWINGS. DETERMINE EXACT LOCATIONS ON JOB, SUBJECT TO STRUCTURAL CONDITIONS, WORK OF OTHER CONTRACTORS, ACCESS REQUIREMENTS FOR INSTALLATION AND MAINTENANCE TO APPROVAL OF ARCHITECT-ENGINEER.

EXTENT OF CONTRACT WORK AND CODES - MECHANICAL

A. PROVIDE MECHANICAL SYSTEMS INDICATED ON DRAWINGS, SPECIFIED OR REASONABLY IMPLIED. PROVIDE EVERY DEVICE AND ACCESSORY NECESSARY FOR PROPER OPERATION AND COMPLETION OF MECHANICAL SYSTEMS. IN NO CASE WILL CLAIMS FOR "EXTRA WORK" BE ALLOWED FOR WORK ABOUT WHICH CONTRACTOR COULD HAVE BEEN INFORMED BEFORE BIDS WERE TAKEN.

B. DRAWINGS AND SPECIFICATIONS INDICATE MINIMUM CONSTRUCTION STANDARD. SHOULD ANY WORK INDICATED BE SUB-STANDARD TO ANY ORDINANCES, LAWS, CODES, RULES OR REGULATIONS BEARING ON WORK, CONTRACTOR SHALL PROMPTLY NOTIFY ARCHITECT-ENGINEER IN WRITING BEFORE PROCEEDING WITH WORK SO THAT NECESSARY CHANGES CAN BE MADE. HOWEVER, IF CONTRACTOR PROCEEDS WITH WORK KNOWING IT TO BE CONTRARY TO ANY ORDINANCES, LAWS, RULES, AND REGULATIONS, CONTRACTOR SHALL THEREBY HAVE ASSUMED FULL RESPONSIBILITY FOR AND SHALL BEAR ALL COSTS REQUIRED TO CORRECT NON-COMPLYING WORK.

PIPE HANGERS AND SUPPORTS

PROVIDE AND BE RESPONSIBLE FOR LOCATIONS OF PIPING HANGERS, SUPPORTS AND INSERTS, ETC., REQUIRED FOR INSTALLATION OF PIPING DESIGN OF HANGERS AND SUPPORTS SHALL CONFORM TO CURRENT ISSUE OF MANUFACTURERS STANDARDIZATION SOCIETY SPECIFICATION (MSS) SP-58.

PIPE HANGERS SHALL BE CAPABLE OF SUPPORTING PIPING IN ALL CONDITIONS OF OPERATION. THEY SHALL ALLOW FREE EXPANSION AND CONTRACTION OF PIPING, AND PREVENT EXCESSIVE STRESS RESULTING FROM TRANSFERRED WEIGHT BEING INDUCED INTO PIPE OR CONNECTED EQUIPMENT. SUPPORT HORIZONTAL OR VERTICAL PIPES AT LOCATIONS OF LEAST VERTICAL MOVEMENT.

PROVIDE SUFFICIENT HANGERS TO ADEQUATELY SUPPORT PIPING SYSTEM AT CHANGES IN PIPING DIRECTION AND AT CONCENTRATED LOADS. HANGERS SHALL PROVIDE FOR VERTICAL ADJUSTMENT TO MAINTAIN PITCH REQUIRED FOR PROPER DRAINAGE, AND FOR LONGITUDINAL TRAVEL DUE TO EXPANSION AND CONTRACTION OF PIPING.

PIPING AND FITTINGS

PIPING AND FITTINGS USED THROUGHOUT PROJECT SHALL BE AS INDICATED IN SCHEDULE ON PLANS. PIPING SHALL BE PLAINLY MARKED WITH MANUFACTURERS NAME AND WEIGHT. ALL MATERIALS LISTED MAY NOT BE REQUIRED ON THIS PROJECT. SEE PIPING MATERIAL SCHEDULE AT END OF THIS SECTION FOR MATERIALS TO BE USED FOR EACH PIPING SYSTEM. PIPING MATERIALS SHALL BE AS FOLLOWS:

1)CONDENSATE DRAIN - SCH 40 PVC
2)DOM. WATER <2" - PEX/CPVC
3)DWV BELOW GRADE - SCH 40 SOLID PVC
4)DWV ABOVE GRADE - SCH 40 PVC
5)GAS ABOVE GRADE - SCH 40 BLACK STEEL
6)GAS BELOW GRADE - POLYPROPYLENE
7)REFRIGERANT - COPPER/SILVER SOLDER

VALVES

INSTALL NECESSARY VALVES WITHIN PIPING SYSTEMS TO PROVIDE REQUIRED FLOW CONTROL AND TO ALLOW ISOLATION FOR INSPECTION, MAINTENANCE AND REPAIR OF EACH PIECE OF EQUIPMENT OR FIXTURE, AND ON EACH MAIN AND BRANCH SERVICE LOOP.

VALVES INSTALLED IN PIPING SYSTEMS SHALL BE AS SCHEDULED ON PLANS AND SHALL BE COMPATIBLE WITH SYSTEM MAXIMUM TEST PRESSURE, PIPE MATERIALS, PIPE JOINING METHOD, AND FLUID OR GAS CONVEYED IN SYSTEM.

SCHEDULE	STOP	CHECK	BALANCE
1) DOM. WATER <2.5"	BRONZE BALL	BRONZE SWING	AUTO FLOW
2)GAS	BRONZE/IRON PLUG		

UNIONS

PROVIDE UNIONS IN EACH LINE PRECEDING CONNECTIONS TO EQUIPMENT OR VALVES REQUIRING MAINTENANCE. PROVIDE STOCKHAM BRONZE TO IRON GROUND SEAT UNIONS OF MATERIAL AND PRESSURE RATING REQUIRED BY PIPING SYSTEM.

WHERE PIPING SYSTEMS OF DISSIMILAR MATERIALS ARE JOINTED TOGETHER PROVIDE PROPER INSULATING UNION AS SPECIFIED UNDER THIS SPECIFICATION.

STRAINERS

INSTALL STRAINERS WHERE SHOWN ON PLANS. STRAINERS SHALL BE SAME SIZE AS PIPING. PROVIDE STRAINERS WITH PROPER ISOLATION AND BLOW DOWN VALVES TO ALLOW BASKET REMOVAL FOR CLEANING. STRAINER SHALL BE SELF CLEANING WITH SCREWED AND GASKETED CAPS AND SCREWED CONNECTIONS.

PIPE INSULATION

PROVIDE NECESSARY MATERIALS AND ACCESSORIES FOR INSTALLATION OF INSULATION MECHANICAL SYSTEMS. PROVIDE INSULATION MATERIALS MANUFACTURED BY ARMSTRONG INDUSTRIES, DOW CHEMICAL, SCHULLER.

SCHEDULE

1)REFRIGERANT - ¾" ARMAFLEX

DUCTWORK INSULATION

A. PROVIDE NECESSARY MATERIALS AND ACCESSORIES FOR INSTALLATION OF INTERIOR AND EXTERIOR DUCTWORK INSULATION AS SPECIFIED AND/OR DETAILED ON DRAWINGS. PROVIDE INSULATION MATERIALS MANUFACTURED BY SCHULLER, KNAUF FIBERGLASS, CERTAIN/TEED, OR OWENS-CORNING FIBERGLASS.

C. PROVIDE ROUND SHEET METAL DUCTWORK WITH EXTERIOR THERMAL INSULATION OF TYPE AND THICKNESS LISTED IN INSULATION SCHEDULE. APPLY INSULATION WITH JOINTS TIGHTLY BUTTED TOGETHER WITH LONGITUDINAL AND END JOINT STRIPS SEALED WITH VAPOR BARRIER ADHESIVE. INSULATE FITTINGS WITH INSULATION THICKNESS EQUAL TO ADJOINING INSULATION WITH COVER OVERLAPPING 2" ONTO ADJACENT COVERING.

D. DUCT INSULATION MATERIALS BY TYPE SHALL BE AS FOLLOWS:

1. TYPE 2-DEW: EXTERNAL THERMAL INSULATION SHALL BE 1.0 LB. DENSITY STANDARD DUCT INSULATION TYPE IV WITH FOIL-SCRIM-CRAFT FACING AND .27 BTUH THERMAL CONDUCTIVITY AT 75 DEGREES MEAN TEMPERATURE.

E. SPECIFIC INSULATION MATERIALS AND INSTALLATION METHODS FOR DUCTWORK SYSTEMS SHALL BE AS FOLLOWS:

DUCTWORK SYSTEM	INSUL TYPE	INSULATION THICKNESS
ROUND/RECTANGULAR SUPPLY	2-DEW	1-1/2"
EXHAUST -	NONE	

DUCTWORK

A. CONSTRUCT DUCTWORK AS DETAILED ON DRAWINGS AND AS DETAILED IN THE LATEST EDITION OF THE SHEET METAL AND AIR CONDITIONING CONTRACTOR'S ASSOCIATION (SMACNA) DUCT MANUAL.

B. CONSTRUCT AND INSTALL DUCTWORK TO BE COMPLETELY FREE FROM VIBRATION UNDER ALL CONDITIONS OF OPERATION. SUPPORT AND SECURELY ANCHOR DUCTWORK AND EQUIPMENT FROM STRUCTURAL FRAMING OF BUILDING. PROVIDE SUITABLE INTERMEDIATE METAL FRAMING WHERE REQUIRED BETWEEN BUILDING STRUCTURAL FRAMING.

C. SEALING OF DUCTWORK SHALL BE WITH CLASS 'C' CAULK.

GRILLES, REGISTERS AND DIFFUSERS

A. PROVIDE GRILLES, REGISTERS AND DIFFUSERS AS SHOWN ON THE DRAWINGS AND HEREINAFTER SPECIFIED. SET ALL UNITS WITH RUBBER GASKETS FOR AIR TIGHT CONNECTION WITH MOUNTING SURFACE, SEE DRAWINGS FOR TYPES, SIZES, AIR FLOW AND QUANTITY.

B. INSTALL ALL REGISTERS WITH CURVE OF LOUVER AWAY FROM LINE OF SIGHT. UNLESS NOTED OTHERWISE, PROVIDE DUCT MOUNTED DIFFUSERS AND REGISTERS WITH STANDARD MARGINS. FINISH SHALL BE OFF WHITE WHEN MOUNTED IN CEILING, PRIME COAT WHEN MOUNTED ON WALL FINISH.

SPLIT SYSTEMS - AIR HANDLERS

A. AIR HANDLING UNITS SHALL BE COMPLETELY FACTORY ASSEMBLED INCLUDING COIL, CONDENSATE DRAIN PAN, FAN MOTOR(S), FILTERS AND CONTROLS IN AN INSULATED CASING THAT CAN BE APPLIED IN EITHER VERTICAL OR HORIZONTAL CONFIGURATION. UNITS SHALL BE RATED AND TESTED IN ACCORDANCE WITH ARI STANDARD 210/240, 340/360. UNITS SHALL BE UL LISTED AND LABELED IN ACCORDANCE WITH UL 465/1995 FOR INDOOR BLOWER COIL UNITS.

B. UNIT CASING SHALL BE CONSTRUCTED OF ZINC COATED, HEAVY GAUGE, GALVANIZED STEEL. CASING SHALL BE COMPLETELY INSULATED WITH CLEANABLE, FOIL-FACED, FIRE-RETARDANT, PERMANENT, ODORLESS GLASS FIBER MATERIAL. ALL INSULATION EDGES SHALL BE EITHER CAPTURED OR SEALED. KNOCKOUTS SHALL BE PROVIDED FOR UNIT ELECTRICAL POWER AND REFRIGERANT PIPING CONNECTIONS. CAPTIVE SCREWS SHALL BE STANDARD ON ALL ACCESS PANELS.

C. EVAPORATOR COIL TO HAVE CONFIGURED ALUMINUM FIN SURFACE, MECHANICALLY BONDED TO 3/8" INTERNALLY ENHANCED COPPER TUBING AND FACTORY PRESSURE AND LEAK TESTED AT 365 PSIG. COIL IS ARRANGED FOR DRAW-THROUGH AIRFLOW AND SHALL PROVIDE A DOUBLE SLOPED CONDENSATE DRAIN PAN CONSTRUCTED OF PVC PLASTIC.

D. EVAPORATOR FAN SHALL BE DOUBLE INLET, DOUBLE WIDTH, FORWARD CURVED, DIRECT DRIVE CENTRIFUGAL-TYPE FAN(S). THERMAL OVERLOAD PROTECTION SHALL BE STANDARD ON MOTOR. FAN AND MOTOR BEARINGS SHALL BE PERMANENTLY LUBRICATED.

E. MAGNETIC EVAPORATOR FAN CONTACTOR, LOW VOLTAGE TERMINAL STRIP, CHECK VALVE(S), AND SINGLE POINT POWER ENTRY AND DISCONNECT SHALL BE INCLUDED. ALL CONTROLS SHALL BE FACTORY-INSTALLED AND WIRED. EVAPORATOR DEFROST CONTROL SHALL BE INCLUDED TO PREVENT COMPRESSOR SLUGGING BY TEMPORARILY INTERRUPTING COMPRESSOR OPERATION WHEN LOW EVAPORATOR COIL TEMPERATURES ARE ENCOUNTERED.

F. FILTERS SHALL BE ONE INCH MERV-8 THROWAWAY. FILTERS SHALL BE ACCESSIBLE FROM THE FRONT OF THE UNIT.

G. PROVIDE MANUAL CHANGEOVER 7-DAY (NOT 5/2) PROGRAMMABLE HEATING/COOLING THERMOSTAT.

SPLIT SYSTEMS - OUTDOOR UNITS

A. CASING SHALL BE GALVANIZED STEEL WITH WEATHER RESISTANT POWDER PAINT.

B. REFRIGERANT CONTROLS TO INCLUDE CONDENSER FAN AND COMPRESSOR CONTACTOR AND CONTROL SYSTEM. COMPRESSOR OVERLOAD PROTECTION, AND SERVICE VALVES ARE TO BE PROVIDED.

C. HERMETIC COMPRESSOR TO HAVE OVER TEMPERATURE/PRESSURE PROTECTION, EPOXY-DIPPED WINDINGS. A 5 YEAR LIMITED COMPRESSOR WARRANTY TO BE INCLUDED.

D. CONDENSER COIL TO BE COPPER TUBES, ALUMINUM FINS WITH BRAZED JOINTS PROTECTED BY LOUVERED PANELS.

E. PROVIDE ALL ACCESSORIES FOR PROPER SYSTEM OPERATION TAKING INTO CONSIDERATION REFRIGERANT PIPE LENGTH, EXPOSURE AND POSITION FROM AHU TO ACCOUNT FOR EACH SPECIFIC UNIT INSTALLATION. REVIEW DRAWINGS WITH SUPPLIER.

F AIR HANDLERS TO BE PIPED TO APPROPRIATE DRAIN, MOUNTED WITH ACCESS FOR SERVICE, WITH FLEXIBLE DUCT CONNECTIONS. OUTDOOR UNITS SHALL BE MOUNTED ON MONOLITHIC CONCRETE PADS. STRAP DOWN CONDUITS AND SECURE DX PIPING TO WALL OR SLAB WHERE OVER 3 FEET IN LENGTH. INSTALL WITH CLEARANCES PER MANUFACTURER'S RECOMMENDATIONS.

ELECTRICAL SPECIFICATIONS

ELECTRICAL

EXTENT OF CONTRACT WORK AND CODES

A. PROVIDE ELECTRICAL SYSTEMS INDICATED ON DRAWINGS, SPECIFIED OR REASONABLY IMPLIED. PROVIDE EVERY DEVICE AND ACCESSORY NECESSARY FOR PROPER OPERATION AND COMPLETION OF ELECTRICAL SYSTEMS. IN NO CASE WILL CLAIMS FOR "EXTRA WORK" BE ALLOWED FOR WORK ABOUT WHICH ELECTRICAL CONTRACTOR COULD HAVE BEEN INFORMED BEFORE BIDS WERE TAKEN.

B. DRAWINGS AND SPECIFICATIONS INDICATE MINIMUM CONSTRUCTION STANDARD, SHOULD ANY WORK INDICATED BE SUB-STANDARD TO ANY ORDINANCES, LAWS, CODES, RULES OR REGULATIONS BEARING ON WORK, CONTRACTOR SHALL PROMPTLY NOTIFY ARCHITECT/ENGINEER IN WRITING BEFORE PROCEEDING WITH WORK SO THAT NECESSARY CHANGES CAN BE MADE. HOWEVER, IF ELECTRICAL CONTRACTOR PROCEEDS WITH WORK KNOWING IT TO BE CONTRARY TO ANY ORDINANCES, LAWS, RULES, AND REGULATIONS HE SHALL THEREBY HAVE ASSUMED FULL RESPONSIBILITY FOR AND SHALL BEAR ALL COSTS REQUIRED TO CORRECT NON-COMPLYING WORK.

BASIC MATERIALS AND METHODS

IDENTIFICATION OF WIRING

A. ALL WIRES FOR BRANCH CIRCUIT WORK SHALL BE COLOR CODED. IDENTIFY THE SAME PHASE CONDUCTOR OF SAME VOLTAGE SYSTEM WITH SAME COLOR THROUGHOUT.

B. ALL BRANCH CIRCUITS SHALL HAVE DEDICATED HOT, NEUTRAL, GROUND. COMMON NEUTRALS SHALL NOT BE UTILIZED. ONE GROUNDING CONDUCTOR CAN BE PROVIDED FOR A MAXIMUM OF (3) SINGLE PHASE CIRCUITS, EACH ON A SEPARATE PANEL PHASE IN A COMMON CONDUIT.

CONDUCTORS

A. PROVIDE CODE GRADE SOFT ANNEALED COPPER CONDUCTORS WITH SPECIFIED COLORED INSULATION TO CONFORM WITH COLOR CODING SPECIFIED. COMPACT ALUMINUM MAY BE USED FOR FEEDERS LARGER THAN #2 AS PER CODE AND LOCAL JURISDICTION. PROVIDE CONDUCTORS NO. 8 GAUGE AND LARGER STRANDED AND CONDUCTORS NO. 10 GAUGE AND SMALLER SHALL BE SOLID.

B. USE NO CONDUCTORS SMALLER THAN NO. 12 GAUGE UNLESS SPECIFICALLY CALLED FOR OR APPROVED BY ENGINEER.

C. PROVIDE CONDUCTORS FOR LISTED APPLICATIONS AS FOLLOWS:

1. LIGHTING AND RECEPTACLE CIRCUITS: TYPE THWN, OR THWN/THHN 600 VOLT, 75 DEGREES C (167OF) THERMOPLASTIC INSULATED BUILDING CONDUCTOR OR BETTER. TYPE NM MAY BE USED WHERE ALLOWED BY LOCAL CODE AND THE NEC. NO EXTERIOR CIRCUITS MAY BE TYPE NM.

2. LIGHTING AND RECEPTACLES CIRCUITS WITH NO. 8 OR LARGER CONDUCTORS, MOTOR CIRCUITS, POWER AND FEEDER CIRCUITS AND BUILDING SERVICE FEEDERS: TYPE THHN/THWN 600 VOLTS, 75 DEGREES C (167OF) THERMOPLASTIC INSULATED BUILDING CONDUCTOR.

CONDUCTOR INSTALLATION

A. RUN CONDUCTORS IN CONDUIT CONTINUOUS BETWEEN OUTLETS AND JUNCTION BOXES WITH NO SPLICES OR TAPS PULLED INTO CONDUITS.

B. NEATLY ROUTE, TIE AND SUPPORT CONDUCTORS TERMINATING AT SWITCHBOARDS, MOTOR CONTROL CENTERS, PANELBOARDS, SOUND EQUIPMENT, ETC., WITH THOMAS & BETTS TY-RAP CABLE TIES AND CLAMPS OR EQUIVALENT BY ELECTROVERT OR PANDUIT.

GROUNDING

A. SUPPLEMENT GROUNDED NEUTRAL OF SECONDARY DISTRIBUTION SYSTEM WITH EQUIPMENT GROUNDING SYSTEM, INSTALLED SO THAT METALLIC STRUCTURES, ENCLOSURES, RACEWAYS, JUNCTION BOXES, OUTLET BOXES, CABINETS, MACHINE FRAMES, PORTABLE EQUIPMENT AND OTHER CONDUCTIVE ITEMS OPERATE CONTINUOUSLY AT GROUND POTENTIAL AND PROVIDE LOW IMPEDANCE PATH FOR GROUND FAULT CURRENTS.

B. SYSTEM SHALL COMPLY WITH NATIONAL ELECTRICAL CODE AND AS SPECIFIED.

GROUNDING CONNECTIONS

A. EQUIPMENT GROUNDING CONDUCTORS FOR BRANCH CIRCUIT HOME RUNS SHOWN ON THE DRAWINGS SHALL INDICATE AN INDIVIDUAL AND SEPARATE GROUND CONDUCTOR FOR THAT BRANCH CIRCUIT WHICH SHALL BE TERMINATED AT THE BRANCH CIRCUIT PANELBOARD, SWITCHBOARD, OR OTHER DISTRIBUTION EQUIPMENT. GROUNDING CONDUCTORS SIZED ACCORDING TO THE SIZE OF THE OVERCURRENT DEVICE AND NEC TABLE 250-95 SHALL BE ALLOWED.

B. REQUIRED EQUIPMENT GROUNDING CONDUCTORS AND STRAPS SHALL BE SIZED IN COMPLIANCE WITH N.E.C. TABLE 250-95. EQUIPMENT GROUNDING CONDUCTORS SHALL BE PROVIDED WITH GREEN TYPE TW 600 VOLT INSULATION. RELATED FEEDER AND BRANCH CIRCUIT GROUNDING CONDUCTORS SHALL BE CONNECTED TO GROUND BUS WITH APPROVED PRESSURE CONNECTORS.

C. PROVIDE LOW VOLTAGE DISTRIBUTION SYSTEM WITH A SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR FOR EACH SINGLE-PHASE FEEDER. SINGLE PHASE 120 VOLT BRANCH CIRCUITS FOR LIGHTING AND POWER SHALL CONSIST OF PHASE AND NEUTRAL CONDUCTORS AND A GREEN GROUND CONDUCTOR INSTALLED IN COMMON METALLIC CONDUIT WHICH SHALL SERVE AS GROUNDING CONDUCTOR. PROVIDE FLEXIBLE METALLIC CONDUIT UTILIZED IN CONJUNCTION WITH ABOVE SINGLE PHASE BRANCH CIRCUITS WITH SUITABLE GREEN INSULATED GROUNDING CONDUCTORS CONNECTED TO APPROVED GROUNDING TERMINALS AT EACH END OF FLEXIBLE CONDUIT. SINGLE PHASE BRANCH CIRCUIT INSTALLED IN NONMETALLIC CONDUITS SHALL BE PROVIDED WITH SEPARATE GROUNDING CONDUCTOR. INSTALL GROUNDING CONDUCTOR IN COMMON CONDUIT WITH RELATED PHASE AND/OR NEUTRAL CONDUCTORS. WHERE PARALLEL FEEDERS ARE INSTALLED IN MORE THAN ONE RACEWAY, EACH RACEWAY SHALL HAVE A GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR.

D. GROUNDING CONDUCTORS SHALL BE AS SHOWN ON PLANS OR IF NOT SPECIFICALLY SHOWN SHALL BE NO SMALLER THAN THAT REQUIRED BY THE NEC.

CONDUITS

CONDUIT

A. CONDUIT OR GALVANIZED RIGID STEEL TUBING: (EMT) CONDUIT SHALL BE GALVANIZED STEEL ELECTRICAL METALLIC TUBING AND BEAR AND UNDERWRITERS' LABORATORY LABEL. CONDUIT SHALL CONFORM TO FEDERAL SPECIFICATION WWC-563 AND ANSI SPECIFICATION C80.3.

B. MC CABLE AND FLEXIBLE METAL CONDUIT: WHERE ALLOWABLE BY CODE, MC CABLE AND FLEXIBLE METAL CONDUIT (FMC) WITH CONDUCTORS AND GROUND MAY BE USED ONLY IN THE FORM OF 8' WHIPS (OR LESS) FOR BRANCH CIRCUIT DROPS FROM JBS TO INDIVIDUAL LIGHTING FIXTURES, VAV BOXES, SMALL EXHAUST FANS, AND OTHER FRACTIONAL HP EQUIPMENT. IN ALL CASES, THE FLEXIBLE CONDUIT AND/OR MC CABLE SHALL CONTAIN A DEDICATED EQUIPMENT GROUNDING CONDUCTOR.

C. RIGID SCH. 40 PVC MAY BE USED BELOW SLAB/GRADE.

CONDUIT FITTINGS

A. EMT CONDUIT: COUPLINGS AND BOX CONNECTORS SHALL BE DIE CAST SET SCREW TYPE. UNILETS SHALL BE MALLEABLE IRON WITH BLANK COVER.

B. FLEXIBLE CONDUIT: CONNECTORS SHALL BE THREADED TYPE IRON WITH INSULATED THROAT.

C. PROVIDE GROUNDING BUSHINGS WHERE FEEDER CONDUIT ATTACHES TO PANELBOARD BACKBOX. BOND GROUNDING BUSHING TO GROUND BUS.

CONDUIT INSTALLATION

A. ALIGN CONDUIT TERMINATIONS AT PANELBOARDS, SWITCHBOARDS, MOTOR CONTROL EQUIPMENT, JUNCTION BOXES, ETC. AND INSTALL TRUE AND PLUMB. PROVIDE SUPPORTS OR TEMPLATES TO HOLD CONDUIT ALIGNMENT DURING ROUGH-IN STAGE OF WORK.

B. INSTALL CONDUIT CONTINUOUS BETWEEN OUTLET BOXES, CABINETS AND EQUIPMENT. MAKE BENDS SMOOTH AND EVEN WITHOUT FLATTENING OR FLAKING CONDUIT. RADIUS OF BENDS SHALL NOT BE SHORTER THAN RADIUS LISTED IN THE NEC. LONG RADIUS ELBOWS MAY BE USED WHERE NECESSARY.

C. INSTALL NO CONDUITS OR OTHER RACEWAYS SIZED SMALLER THAN PERMITTED IN APPLICABLE NEC TABLES. WHERE CONDUIT SIZES SHOWN ON DRAWINGS ARE SMALLER THAN PERMITTED BY CODE, CONTRACTOR SHALL INCLUDE COST FOR PROPER SIZE CONDUIT IN HIS BASE BID. IN NO CASE REDUCE CONDUIT SIZES INDICATED ON DRAWINGS OR SPECIFIED WITHOUT WRITTEN APPROVAL OF ENGINEER.

OUTLET BOXES

A. PROVIDE ELECTRICAL SERVICE OUTLETS, INCLUDING PLUG RECEPTACLES, LAMP RECEPTACLES, LIGHTING FIXTURES AND SWITCHES WITH STEEL CITY, RACO, OR EQUIVALENT FOUR INCH CODE GAUGE STEEL KNOCKOUT BOXES GALVANIZED OR SHERADIZED OF REQUIRED DEPTH FOR SERVICE OR DEVICE.

B. PVC BOXES MAY BE USED WHERE NOT EXPOSED.

SWITCHES, RECEPTACLES AND COVER PLATES

A. PROVIDE WHERE SHOWN ON PLANS WIRING DEVICES. PART NUMBERS SHALL BE AS LISTED FOR EACH DEVICE SPECIFIED. EQUIVALENT DEVICES BY HUBBELL, PASS & SEYMOUR.

INDUSTRY REFERENCES

A. UNDERWRITER'S LABORATORIES (UL)
- SWITCHES (UL 20)
- RECEPTACLES, PLUGS & CONNECTORS (UL 498)
- PIN & SLEEVE CONNECTORS (UL 1286)
- DEVICE PLATES (UL 514)
- GFCI'S (UL 943)

B. NATIONAL ELECTRIC MANUFACTURERS ASSOCIATION (NEMA)
- WD-1 (DEVICES, PLATES, COLORS)
- WD-6

PRODUCTS

A. GENERAL: PROVIDE FACTORY-FABRICATED WIRING DEVICES IN TYPES, COLORS, AND ELECTRICAL RATINGS FOR APPLICATIONS INDICATED. WHEREVER POSSIBLE, DEVICES SHALL BE BACK AND SIDE WIRED. ALL SWITCHES AND RECEPTACLES SHALL INCORPORATE A METAL MOUNTING STRAP: NON-METALLIC MOUNTING STRAPS ARE NOT ACCEPTABLE. SWITCHES SHALL BE SPEC GRADE AND LISTED PER UL 20 AND CERTIFIED BY UL TO FED SPEC. WS-596E. RECEPTACLES SHALL BE SPEC GRADE AND LISTED PER UL 498 AND CERTIFIED BY UL TO FED. SPEC. WS-896E. BOTH SWITCHES AND RECEPTACLES SHALL BE VISIBLY MARKED WITH THE "UL-FS" MARK TO CONFIRM CERTIFICATION. ALL DEVICES SHALL BE FROM THE SAME MANUFACTURER. ALL DEVICES SHALL BE GRAY UNLESS OTHERWISE ON PLANS. ALL SURFACE RACEWAY SHALL BE SATIN ALUMINUM UNLESS NOTED OTHERWISE ON PLANS.

B. EACH CONVENIENCE RECEPTACLE OUTLET SHALL BE EQUIPPED WITH A 20 AMPERE DUPLEX PLUG RECEPTACLES EXCEPT WHERE NOT ON A CODE-REQUIRED DWELLING UNIT 20-AMP CIRCUIT AND THEN MAY BE 15 AMP. RECEPTACLES SHALL BE 3 WIRE GROUNDING TYPE. RECEPTACLES SHALL BE RESIDENTIAL GRADE, TAMPER-RESISTANT PER CODE WHERE IN DWELLING UNITS AND SPEC GRADE ELSEWHERE.

SWITCH AND RECEPTACLE FLUSH WALL PLATES

A. WALL PLATES: WALL PLATES FOR ALL FLUSH OUTLETS AND SWITCHES SHALL BE SMOOTH STAINLESS STEEL. ALL PLATES SHALL OF THE SAME MANUFACTURER AS THE DEVICES. PLATES FOR SURFACE MOUNTED DEVICE OUTLETS SHALL BE DRAWN GALVANIZED STEEL FOR STEEL BOXES AND CAST FOR CAST BOXES.

LIGHTING FIXTURES

A. PROVIDE LIGHTING FIXTURES COMPLETE WITH NOTED LAMP SOURCES AND ACCESSORIES REQUIRED FOR INSTALLATION. CONTRACTOR SHALL INSURE THAT FIXTURES ARE CLEAN AT TIME OF FINAL INSPECTION. MOUNT RECESSED FIXTURES WITH TRIM FLUSH TO CEILINGS, FREE OF GAPS OR CRACKS.

B. COORDINATE MOUNTING OF CEILING MOUNTED LIGHTING FIXTURES WITH GENERAL CONTRACTOR. WHERE ADDITIONAL FIXTURE SUPPORTS ARE REQUIRED DUE TO LIGHTING FIXTURE LOCATION OR WEIGHT, SUPPORTS SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR, UNLESS OTHERWISE SPECIFIED UNDER CEILING SPECIFICATIONS.

CIRCUIT BREAKER PANELBOARDS

A. PROVIDE DEAD_FRONT PANELBOARDS WITH MOLDED CASE CIRCUIT BREAKERS AS LISTED IN SCHEDULE. PANELBOARDS SHALL CONFORM TO NEMA STANDARD PUBLICATION NO. PB_1 AND UL STANDARDS NO. 50 & 67 FOR PANELBOARDS.

B. BOXES SHALL BE GALVANIZED STEEL STANDARD WIDTH AND DEPTH EXCEPT WHERE SCHEDULED OTHERWISE. FRONTS SHALL BE CODE GAUGE STEEL FINISHED WITH RUST_INHIBITING PRIMER AND BAKED ENAMEL FINISH. FRONTS SHALL HAVE FLUSH DOORS WITH FLUSH CYLINDER TUMBLER TYPE LOCKS, SPRING_LOADED DOOR PULLS, CONCEALED DOOR HINGES. PROVIDE DOORS HIGHER THAN 48" WITH THREE POINT CATCH.

C. PROVIDE TIN_FINISHED ALUMINUM BARS FULL LENGTH OF PANEL WITH RATING LISTED IN SCHEDULE. BUS BAR CONNECTION TO BRANCH CIRCUIT BREAKERS SHALL BE "PHASE SEQUENCE" TYPE DESIGNED AND ASSEMBLED SO CIRCUIT BREAKERS CAN BE REPLACED WITHOUT DISTURBING ADJACENT BREAKERS OR REMOVING MAIN BUS OR BRANCH CIRCUIT CONNECTORS. PROVIDE BUS BARS WITH WIRE LUGS SUITABLE FOR COPPER OR ALUMINUM CONDUCTORS. PROVIDE EACH PANEL WITH EQUIPMENT GROUNDING BUS GROUNDED TO BOX AND NEUTRAL BUS INSULATED FROM BOX.

D. BRANCH CIRCUIT BREAKERS SHALL BE QUICK_MAKE, QUICK_BREAK WITH TRIP INDICATION. CIRCUIT BREAKERS SHALL OPERATE BOTH MANUALLY FOR NORMAL SWITCH FUNCTIONS AND AUTOMATICALLY UNDER OVERLOAD AND SHORT CIRCUIT CONDITIONS. OPERATING HANDLE OF CIRCUIT BREAKER SHALL OPEN AND CLOSE ALL POLES OF A MULTI-POLE BREAKER SIMULTANEOUSLY AND CONFORM TO NEMA STANDARDS PUBLICATIONS NO. PB_1 AND BE APPROVED BY UL. CIRCUIT BREAKER SHALL HAVE A THERMAL MAGNETIC TRIP UNIT FOR EACH POLE FOR INVERSE TIME DELAYED OVERLOAD PROTECTION AND AN INSTANTANEOUS MAGNETIC ELEMENT FOR SHORT CIRCUIT PROTECTION.

E. PANELS SHALL HAVE BRANCH CIRCUIT DIRECTORY HOLDERS WITH CLEAR PLASTIC COVER. PROVIDE NEATLY TYPED LIST OF BRANCH CIRCUIT LOADS CORRESPONDING INDICATING EQUIPMENT SERVED AND SPECIFIC LOCATION TO BRANCH CIRCUIT NUMBERS.

F. PANELBOARDS FOR APARTMENTS SHALL BE SQUARE "D" NQOD FOR 400 A AND LESS.

DISCONNECT SWITCHES

A. PROVIDE HEAVY DUTY HORSEPOWER RATED SAFETY SWITCHES RATED IN ACCORDANCE WITH NEMA ENCLOSED SWITCH STANDARD KS 1_1969 AND L98 STANDARD.

B. ENCLOSURE SHALL BE NEMA TYPE REQUIRED BY SWITCH LOCATION AND ENVIRONMENT. ENCLOSURE DOOR SHALL LATCH WITH MEANS FOR PADLOCKING AND COVER INTERLOCK WITH DEFEATER TO PREVENT OPENING DOOR WHEN SWITCH IS ENERGIZED OR CLOSING SWITCH WITH DOOR OPEN.

C. FUSE HOLDERS SHALL BE HIGH PRESSURE SUITABLE FOR USE WITH DUAL ELEMENT FUSES OR REJECTION TYPE CURRENT LIMITING FUSES WHERE REQUIRED. FUSE HOLDERS SHALL BE COMPLETELY ACCESSIBLE FROM FRONT OF SWITCH.

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NOTICE DUTY OF COOPERATION
Release of these plans contemplates further cooperation among the owner, his contractor, and the designer. Design and construction are complex. Although the designer and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is imperfect and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the designer. A failure to cooperate by a simple notice to the designer shall relieve the designer from responsibility for all consequences. Changes made from the plans without the consent of the designer are unauthorized, and shall relieve the designer of responsibility for all consequences arriving out of such changes. Contractor shall check and verify all dimensions.

RICHARD R. BEARDMORE

01/14/2021

SUMMIT VIEW FARMS
POOL HOUSE
LEE'S SUMMIT, MISSOURI

Weston E. Coble
Architect
KS# 6705
MO# A-2016011206

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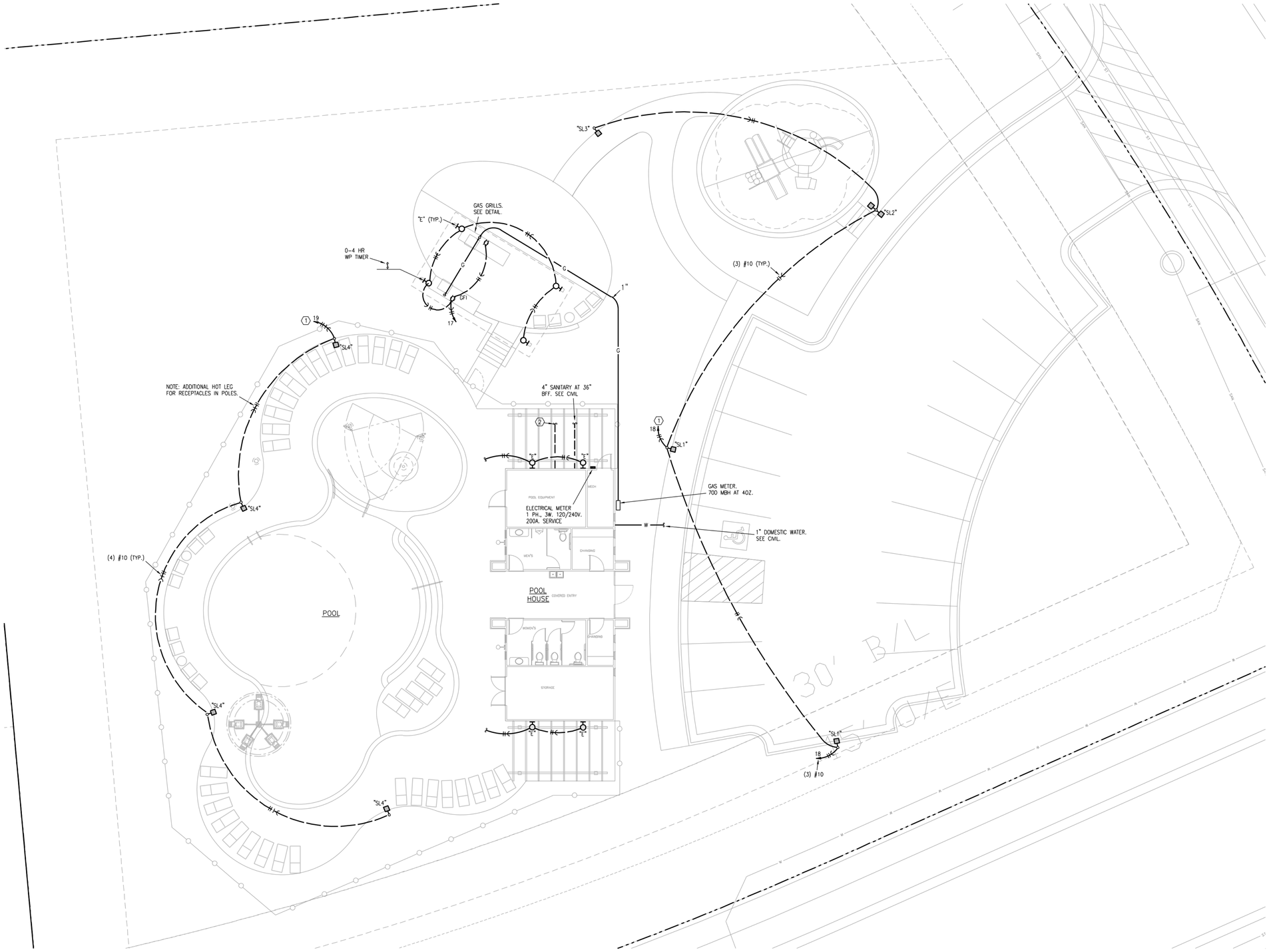
project no.	20091
date	01/14/2021
revised	
design by	RRB
drawn by	CAD
struct. by	APEX

Mech/Elec Specifications

sheet no.
ME-0



1 **SITE PLAN** 1"=10'-0" MECH/ELEC

NORTH

NOTES:

1. SEE CIVIL, ARCHITECTURAL AND LANDSCAPE DRAWING FOR FURTHER INFORMATION AND WORK.
2. NOTIFY UTILITY PROVIDERS PRIOR TO ANY EXCAVATION, TRENCHING OR GRADING TO MARK UTILITIES.
3. PROVIDE ALL UTILITY PROVIDER REQUIREMENTS WITH REGARDS TO INTERFACING WITH THEIR WORK AND INCLUDE ALL ITEMS REQUIRED FOR PROPER INSTALLATION.
4. TRANSFORMER AND PRIMARY LOCATIONS ARE TO BE VERIFIED WITH THE PROVIDER AS TO FINAL LOCATIONS BASED ON THEIR DESIGN AND CONTRACTOR REQUIREMENTS.
5. ALL SITE LIGHTING CIRCUITS ROUTE THROUGH PHOTOCELL/TIME CLOCK AND HAVE (3) #10 WIRES UNLESS NOTED OTHERWISE.

LEGEND:

(1) THRU PHOTOCELL/TIMECLOCK.

(2) 6" POOL BACKWASH TO SITE DRAIN. SEE CIVIL, CONFORM TO CITY STANDARDS.

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LEE'S SUMMIT, MISSOURI

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Site Plan - Mech/Elec

sheet no.

ME-1

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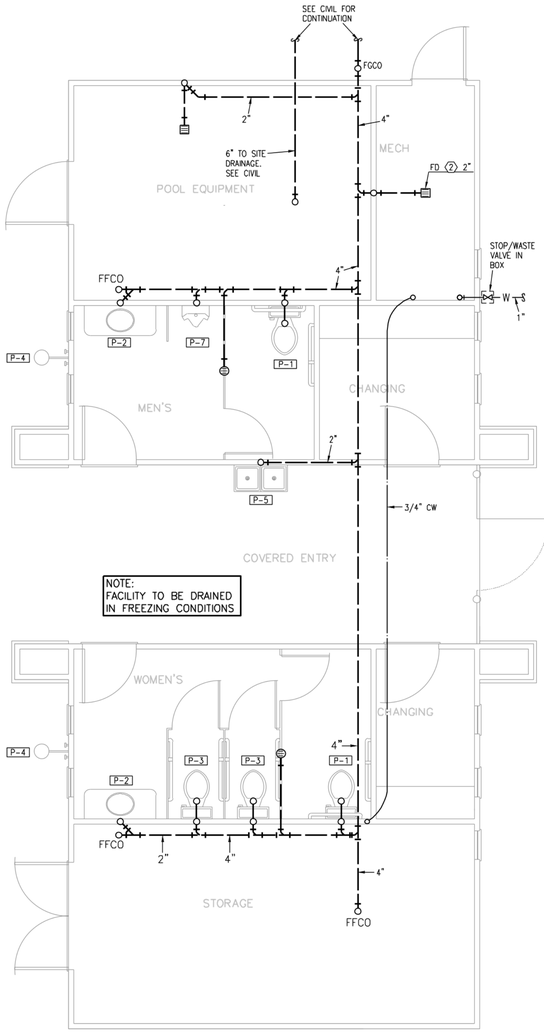
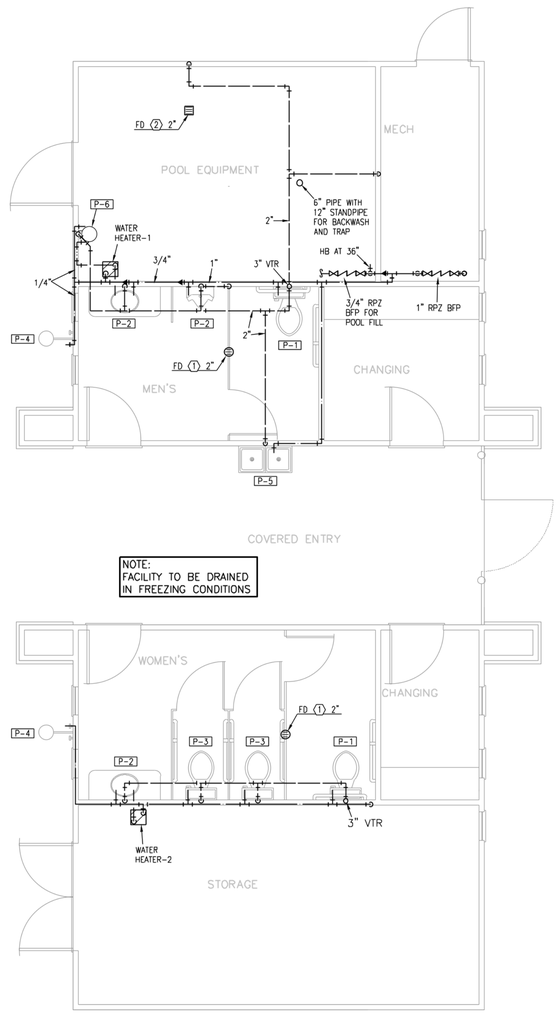


1 **FIRST FLOOR PLAN** — 1/4"=1'-0" — BELOW- GRADE PLUMBING

NORTH



2 **FIRST FLOOR PLAN** — 1/4"=1'-0" — PLUMBING

NORTH

NOTES: PLUMBING

1. COORDINATE WITH OTHER SUB-CONTRACTORS FOR PLACEMENT OF WORK PRIOR TO INSTALLATION BEGINNING.
2. ALL DRAIN, WASTE AND VENT PIPING IS 2" UNLESS NOTED OTHERWISE. ALL 2" AND 3" WASTE SLOPE AT 1/4" PER FT. PIPING 4" AND GREATER MAY BE AT 1/8" PER FT UNLESS NOTED OTHERWISE.
3. ANY BELOW SLAB SUPPLY PIPING SHALL BE PEX WITH NO JOINTS.
4. ALL SUPPLY PIPING IS 1/2" UNLESS NOTED OTHERWISE OR REQUIRED BY THE PLUMBING CODE.
5. CONNECT ALL APPLIANCES OR EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS.
6. ALL PLUMBING VENTS SHALL BE 10 FEET FROM OPENINGS OR INTAKES.
7. ALL FIXTURES SHALL HAVE AIR CHAMBERS OR BLADDER TYPE SHOCK SUPPRESSORS FOR EACH CHASE.
8. SEE THE ARCHITECTURAL DRAWINGS FOR ALL MOUNTING HEIGHTS.
9. REFER TO THE ARCHITECTURAL DRAWINGS FOR FLOOR DRAIN LOCATIONS AND FLOOR SLOPES IF PRESENT. ALL FLOOR DRAINS ARE 2" TYPE 1 UNLESS NOTED OTHERWISE.
10. ROUTE DRAIN PIPING FROM WATER HEATERS, AIR HANDLERS OR EQUIPMENT TO FLOOR DRAINS. PROVIDE PROPER TRAPS.
11. ROUTE NO PIPING OVER ELECTRICAL EQUIPMENT.

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01/14/2021

SUMMIT VIEW FARMS

POOL HOUSE

LEE'S SUMMIT, MISSOURI

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struct. by	APEX

First Floor Plan - Mech/Elec

sheet no.

ME-2

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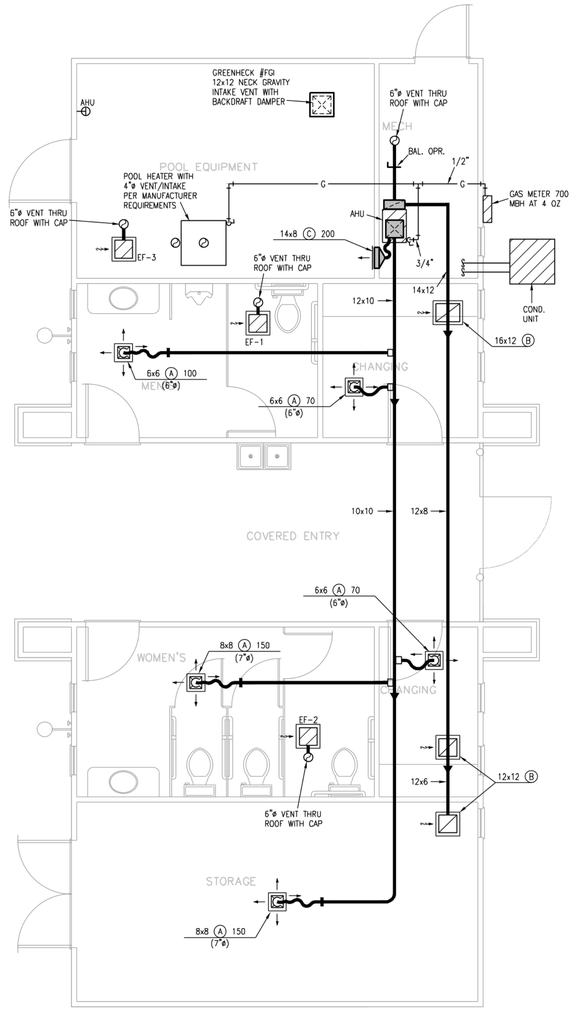
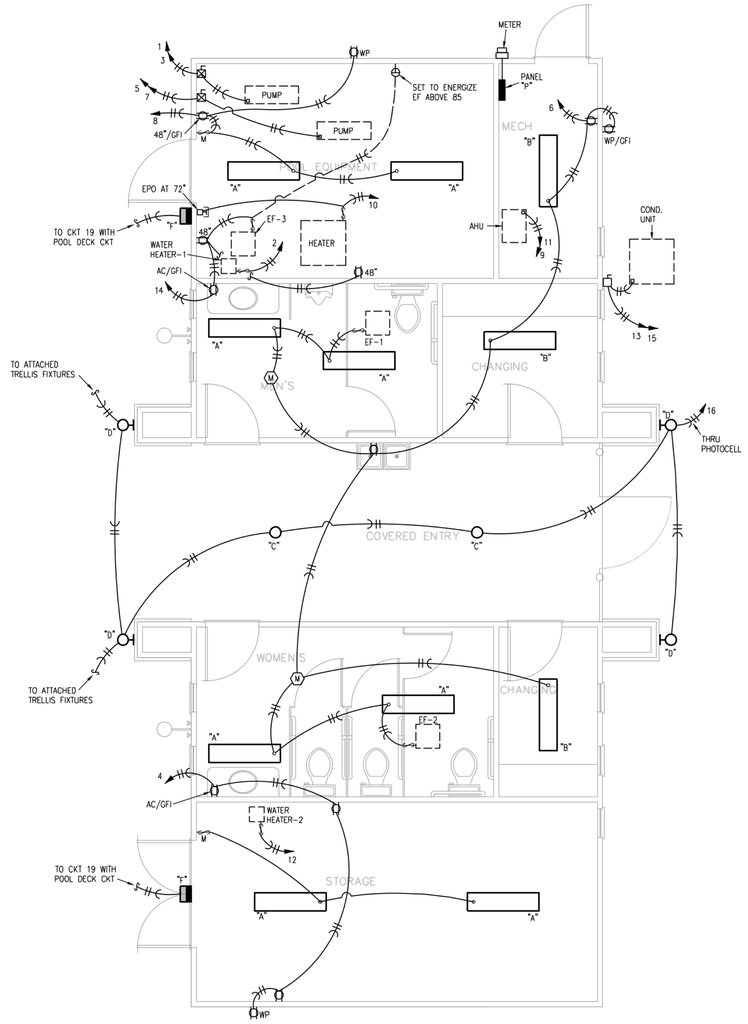
NOTES: HVAC
1. COORDINATE WITH OTHER SUB-CONTRACTORS FOR PLACEMENT OF WORK PRIOR TO INSTALLATION BEGINNING.
2. ALL INDIVIDUAL BRANCH DUCTS ARE THE SIZE OF THE DIFFUSER NECK LISTED AND HAVE A MANUAL BALANCING DAMPER WHERE NOT INTEGRAL WITH THE DIFFUSER.
3. SEE THE ARCHITECTURAL, LIGHTING AND STRUCTURAL DRAWINGS FOR CLEARANCES.
4. MAINTAIN 3 FEET CLEARANCE FROM EXHAUST DUCTS TO BUILDING OPENINGS AND 10 FEET TO AIR INTAKES.
5. ROUTE NO DUCTS OVER ELECTRICAL EQUIPMENT.
6. FLEXIBLE DUCT LENGTHS SHALL NOT EXCEED 15 FEET AND SHALL BE AS STRAIGHT AS POSSIBLE AND NOT KINKED AT DIFFUSER OR TAKE-OFF.
7. RECTANGULAR DUCT RUNS MAY BE CONVERTED TO EQUIVALENT ROUND WITH THE SAME STATIC LOSS PER 100 FT.



1 FIRST FLOOR PLAN
1/4"=1'-0" HVAC

NORTH

NOTES: ELECTRICAL
1. COORDINATE WITH OTHER SUB-CONTRACTORS FOR PLACEMENT OF WORK PRIOR TO INSTALLATION BEGINNING.
2. PROVIDE NEC CLEARANCES FOR ALL PANELS AND ELECTRICAL EQUIPMENT.
3. LABEL ALL JUNCTION BOXES AS TO THE PANEL AND CIRCUIT NUMBER SERVED.
4. PANEL DIRECTORIES SHALL BE SPECIFIC TO THE ROOMS/EQUIPMENT SERVED.
5. SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS AND DETAILS.



2 FIRST FLOOR PLAN
1/4"=1'-0" ELECTRICAL

NORTH

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01/14/2021

SUMMIT VIEW FARMS
POOL HOUSE

LEE'S SUMMIT, MISSOURI

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First Floor Plan - Mech/Elec

sheet no.
ME-3

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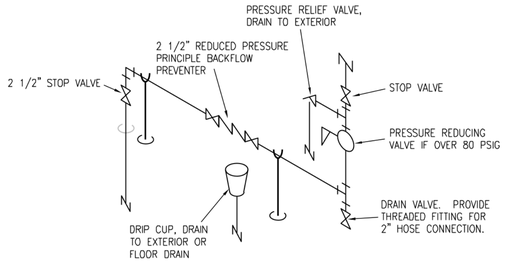
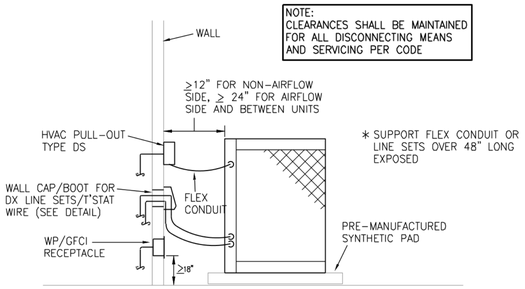
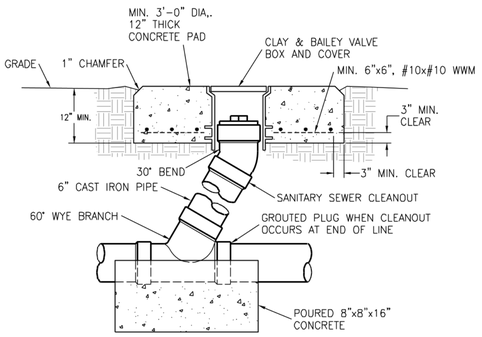


1 DOMESTIC WATER ENTRANCE RISER
NO SCALE

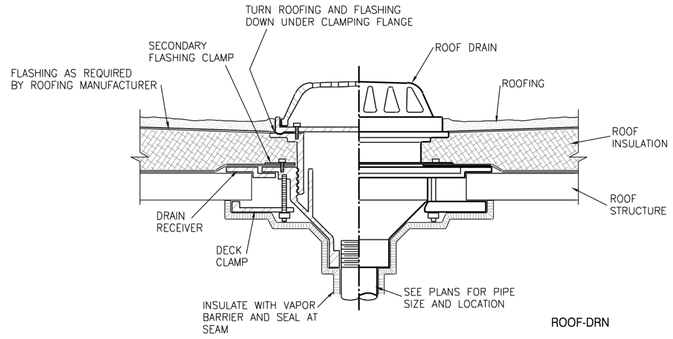
NOTES:
1. ALL WATER SERVICE INSTALLATIONS INCLUDING BACKFLOW DEVICES ARE SUBJECT TO FIELD VERIFICATION AND APPROVAL BY THE WATER DEPARTMENT INSPECTOR.



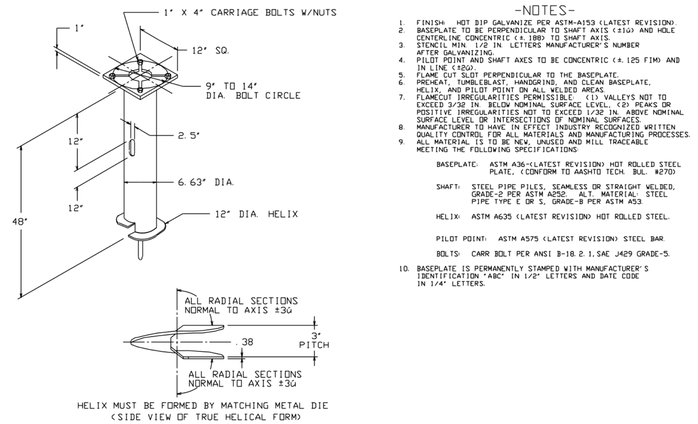
2 GROUND-MOUNTED CONDENSING UNIT DETAIL
NO SCALE



3 FLUSH GRADE CLEANOUT DETAIL
NO SCALE



4 ROOF DRAIN DETAIL
NO SCALE



-NOTES-

1. FINISH: HOT DIP GALVANIZE PER ASTM-A153 (LATEST REVISION).
2. BASEPLATE TO BE PERPENDICULAR TO SHAFT AXIS (±1°) AND HOLE CENTERLINE CONCENTRIC (±.188) TO SHAFT AXIS.
3. STENCIL MIN. 1/2 IN. LETTERS MANUFACTURER'S NUMBER AFTER GALVANIZING.
4. PILOT POINT AND SHAFT AXES TO BE CONCENTRIC (±.125 FIM) AND IN LINE (±2°).
5. FLAME CUT SLOT PERPENDICULAR TO THE BASEPLATE.
6. PREHEAT, TUMBLEBLAST, HANDGRIND, AND CLEAN BASEPLATE, HELIX, AND PILOT POINT ON ALL WELDED AREAS.
7. FLAMECUT IRREGULARITIES PERMISSIBLE: (1) VALLEYS NOT TO EXCEED 3/32 IN. BELOW NOMINAL SURFACE LEVEL, (2) PEAKS OR POSITIVE IRREGULARITIES NOT TO EXCEED 1/32 IN. ABOVE NOMINAL SURFACE LEVEL OR INTERSECTIONS OF NOMINAL SURFACES.
8. MANUFACTURER TO HAVE IN EFFECT INDUSTRY RECOGNIZED WRITTEN QUALITY CONTROL FOR ALL MATERIALS AND MANUFACTURING PROCESSES.
9. ALL MATERIAL IS TO BE NEW, UNUSED AND MILL TRACEABLE MEETING THE FOLLOWING SPECIFICATIONS:

   BASEPLATE: ASTM A36-(LATEST REVISION) HOT ROLLED STEEL PLATE. (CONFORM TO AASHTO TECH. BUL. #270)

   SHAFT: STEEL PIPE PILES, SEAMLESS OR STRAIGHT WELDED, GRADE-2 PER ASTM A252. ALT. MATERIAL: STEEL PIPE TYPE E OR S, GRADE-B PER ASTM A53

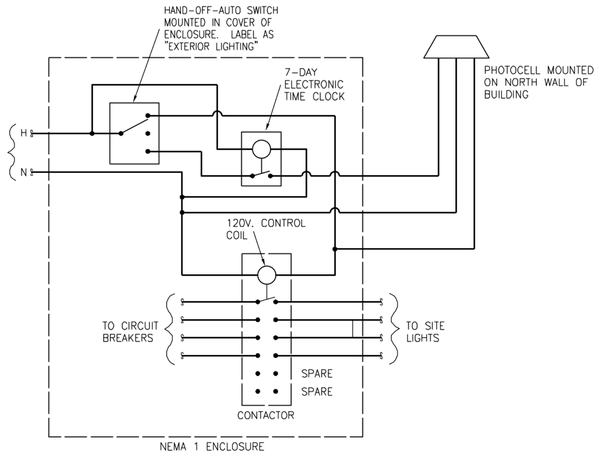
   HELIX: ASTM A635 (LATEST REVISION) HOT ROLLED STEEL.

   PILOT POINT: ASTM A575 (LATEST REVISION) STEEL BAR.

   BOLTS: CARR BOLT PER ANSI B-18.2.1, SAE J429 GRADE-5.

10. BASEPLATE IS PERMANENTLY STAMPED WITH MANUFACTURER'S IDENTIFICATION "ABC" IN 1/2" LETTERS AND DATE CODE IN 1/4" LETTERS.

5 LIGHT POLE FOUNDATION
NO SCALE CAT. NO. C11242NG4VP



6 EXTERIOR LIGHTING CONTROL PANEL SCHEMATIC
NO SCALE

ELECTRICAL SYMBOLS LEGEND

	CONDUIT CONCEALED IN CEILING OR WALL	$	SWITCH - SINGLE POLE
	CONDUIT CONCEALED IN FLOOR SLAB	$ 3, 4	3-WAY, 4-WAY
	EXPOSED CONDUIT	"A"	LIGHT FIXTURE AND TYPE
	HOMERUN - ARROW INDICATES CKT., LINES INDICATE WIRES		EXIT LIGHT (CEILING OR WALL MOUNTED)
	GROUND WIRE		FLUSH PANELBOARD
	GROUNDING ROD		SURFACE PANELBOARD
	SINGLE RECEPTACLE		DISTRIBUTION PANEL OR SWITCHBOARD
	DUPLEX RECEPTACLE (20 AMP UNLESS NOTED)	AC	DEVICE LOCATED ABOVE COUNTER
	FOURPLEX RECEPTACLE	AFF	ABOVE FINISHED FLOOR
	208 OR 240 VOLT RECEPTACLE (20 AMP UNLESS NOTED)	D	DIMMER
	PUSHBUTTON	EDF	ELECTRIC DRINKING FOUNTAIN
	MOTOR	GFI	GROUND FAULT INTERRUPTER
	FUSIBLE SWITCH (BUSSMAN SSU)	NL	NIGHTLIGHT FIXTURE, WIRED HOT
	DISCONNECT SWITCH (D.S.)	WP	WEATHERPROOF
	COMBINATION MOTOR STARTER (CMS)		LOCKABLE GUARD
	RELAY		CEILING MOTION SENSOR
	JUNCTION BOX		WALL MOTION SENSOR
	THERMOSTAT		

NOTES: ALL SYMBOLS SHOWN ABOVE MAY NOT APPEAR ON PLANS. REFER TO MECHANICAL SYMBOLS LEGEND FOR MECHANICAL SYMBOLS THAT MAY BE SHOWN ON ELECTRICAL PLANS.

MECHANICAL SYMBOLS LEGEND

P-1	WATER CLOSET & TYPE (TYP. FOR ALL PLUMBING FIXTURES)		MANUAL DAMPER
	WASTE LINE ABOVE EARTH (W.)	BD	BACKDRAFT DAMPER
	WASTE LINE IN EARTH (W.)	AD	AUTOMATIC DAMPER
CO	CLEAN OUT	6x6 A/BD	GRILLE, REGISTER OR DIFFUSER, SIZE, TYPE & CFM
FFCO	FLUSH FLOOR CLEAN OUT		VOLUME EXTRACTOR AND TURNING VANES
FGCO	FLUSH GRADE CLEAN OUT		RETURN, EXHAUST OR FRESH AIR DUCT SECTION UP & DOWN
2" (1) FD	FLOOR DRAIN AND TYPE		SUPPLY AIR DUCT SECTION UP AND DOWN
V	VENT LINE (V.)		ROUND OR RECTANGULAR RIGID DUCT
DCW	DOMESTIC COLD WATER SUPPLY (DCW)		FLEXIBLE DUCT
DHW	DOMESTIC HOT WATER SUPPLY (DHW)		THERMOSTAT
HB/36"	HOSE BIBB AND MOUNTING HEIGHT	L	REFRIGERANT LIQUID
WH	WALL HYDRANT	S	REFRIGERANT SUCTION
D	DRAIN LINE	AD	ACCESS DOOR
G	NATURAL GAS LINE	AFF	ABOVE FINISHED FLOOR
	RISE & DROP IN PIPE WITH CUT-OFF VALVE	EA	EXHAUST AIR
	REDUCER	OA	OUTSIDE AIR
	CHECK VALVE	RA	RETURN AIR
	STOP VALVE	SA	SUPPLY AIR
	PLUG VALVE	VBS	VENT BELOW SLAB
	PRESSURE REDUCING VALVE	VTR	VENT THRU ROOF
	STRAINER		LOCKABLE GUARD
	UNION		
	FLEXIBLE PIPE CONNECTION		

NOTES: ALL SYMBOLS SHOWN ABOVE MAY NOT APPEAR ON PLANS. REFER TO ELECTRICAL SYMBOLS LEGEND FOR ELECTRICAL SYMBOLS THAT MAY BE SHOWN ON MECHANICAL PLANS.

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MECH./ELEC. DETAILS

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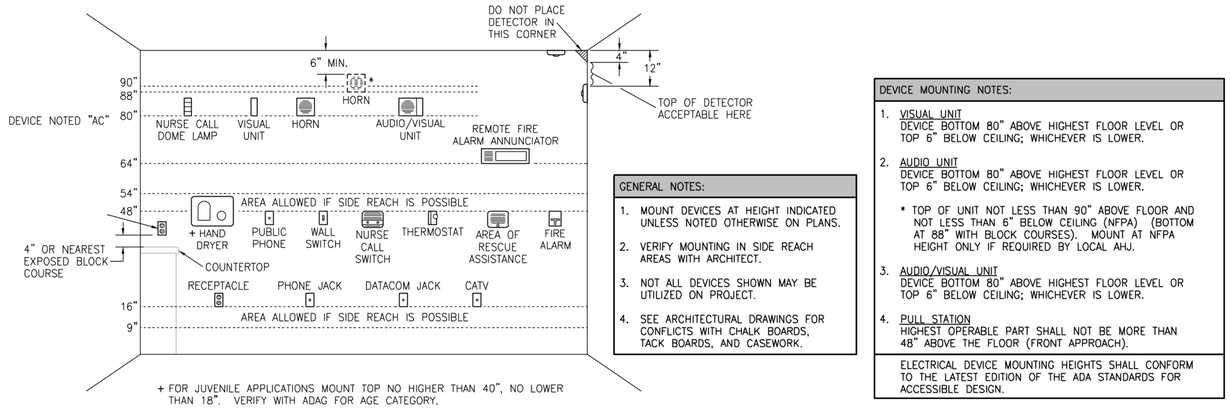


+ FOR JUVENILE APPLICATIONS MOUNT TOP NO HIGHER THAN 40", NO LOWER THAN 18". VERIFY WITH ADAG FOR AGE CATEGORY.

GENERAL NOTES:

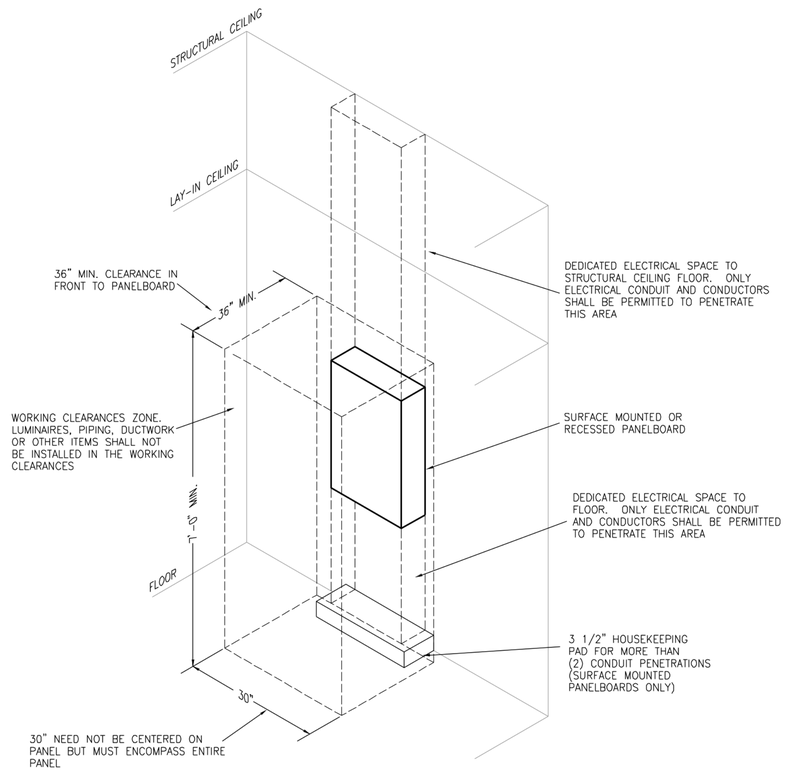
1. MOUNT DEVICES AT HEIGHT INDICATED UNLESS NOTED OTHERWISE ON PLANS.
2. VERIFY MOUNTING IN SIDE REACH AREAS WITH ARCHITECT.
3. NOT ALL DEVICES SHOWN MAY BE UTILIZED ON PROJECT.
4. SEE ARCHITECTURAL DRAWINGS FOR CONFLICTS WITH CHALK BOARDS, TACK BOARDS, AND CASEWORK.

DEVICE MOUNTING NOTES:

1. VISUAL UNIT
   DEVICE BOTTOM 80" ABOVE HIGHEST FLOOR LEVEL OR TOP 6" BELOW CEILING; WHICHEVER IS LOWER.
2. AUDIO UNIT
   DEVICE BOTTOM 80" ABOVE HIGHEST FLOOR LEVEL OR TOP 6" BELOW CEILING; WHICHEVER IS LOWER.
   * TOP OF UNIT NOT LESS THAN 90" ABOVE FLOOR AND NOT LESS THAN 6" BELOW CEILING (NFPA) (BOTTOM AT 88" WITH BLOCK COURSES). MOUNT AT NFPA HEIGHT ONLY IF REQUIRED BY LOCAL AHJ.
3. AUDIO/VISUAL UNIT
   DEVICE BOTTOM 80" ABOVE HIGHEST FLOOR LEVEL OR TOP 6" BELOW CEILING; WHICHEVER IS LOWER.
4. PULL STATION
   HIGHEST OPERABLE PART SHALL NOT BE MORE THAN 48" ABOVE THE FLOOR (FRONT APPROACH).

ELECTRICAL DEVICE MOUNTING HEIGHTS SHALL CONFORM TO THE LATEST EDITION OF THE ADA STANDARDS FOR ACCESSIBLE DESIGN.

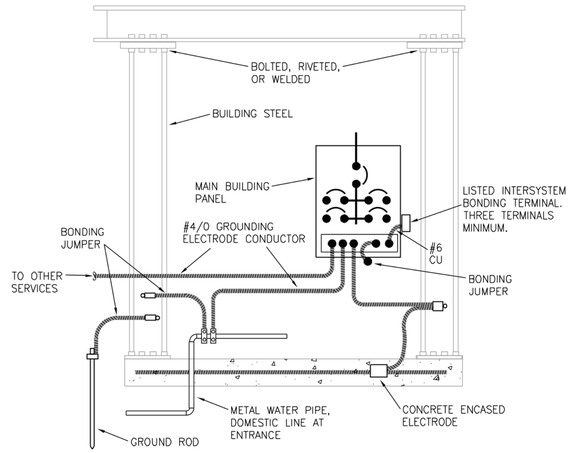
1 ELECTRICAL DEVICE MOUNTING HEIGHTS
NO SCALE



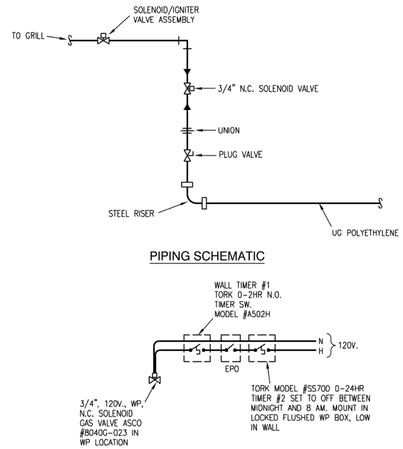
NOTE:

COORDINATE ALL WORK WITH OTHER TRADES. MAINTAIN ALL OTHER NEC CLEARANCES AND REQUIREMENTS.

2 TYPICAL PANELBOARD INSTALLATION DETAIL
NO SCALE



3 GROUNDING ELECTRODE SYSTEM DETAIL
NO SCALE



4 GAS CONTROL DETAIL
NO SCALE (GRILL)

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STATE OF MISSOURI
RICHARD R. BEARDMORE
NUMBER
PROFESSIONAL ENGINEER

01/14/2021

SUMMIT VIEW FARMS
POOL HOUSE
LEE'S SUMMIT, MISSOURI

Weston E. Coble
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MO# A-2016011206

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project no.	20091
date	01/14/2021
revised	
design by	RRB
drawn by	CAD
struct. by	APEX

MECH./ELEC. DETAILS

sheet no.
ME-5

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PLUMBING FIXTURE SCHEDULE

Mark	Item	Model	Description	Individual Connections				Accessories					
				W	V	CW	HW	Supplies	Stops	Carrier	P-Trap	Drain	Other
P-1	Accessible Water Closet, Tank Type	Profio #1203WH with PFTS2000wh	Floor-mounted ADA height white vitreous china elongated bowl 1.6 gpf gravity type with Fluidmaster 400A flush mechanicsm and bolt covers. Provide solid plastic open front elongated white heavy duty seat with integral bumpers, external check hinges with stainless steel posts.	3" or 4"	2"	1/2"		2	1				3
P-2	Accessible Lavatory, Countertop	Profio #PF20174BS with Peerless #PFLL1011MBN	20" x 17" oval vitreous china countertop lavatory with overflow. Faucet is 4" o.c. single lever ADA handle, copper waterways, chrome finish.	2"	1 1/2" or 2"	1/2"	1/2"	2, 4	1		1	1	1
P-3	Water Closet, Tank Type	Profio #1201WH with PFTS2000wh	Floor-mounted standard height white vitreous china elongated bowl 1.6 gpf gravity type with Fluidmaster 400A flush mechanicsm and bolt covers. Provide solid plastic open front elongated white heavy duty seat with integral bumpers, external check hinges with stainless steel posts.	3" or 4"	2"	1/2"		2	1				3
P-4	Outdoor Shower	Symmons SYM-3-325	Self-closing single temperature metering valve with fixed head			1/2"							
P-5	Accessible Dual Height Water Cooler with Bottle Filler	Halsey Taylor #HACBBLFSQ	ADA compliant dual bowl cooler providing 8 gph of 50 deg water at 90 deg ambient. Provide front and side push bars, lead free, mounted with 27" knee clearance and spout no more than 36" AFF. Provide bottle filler in backsplash.	2"	1 1/2" or 2"	1/2"	1/2"	2	1		1		1
P-6	Eye Wash	Guardian G1814BC	Wall-mounted stainless steel bowl with cover, paddle valve, thermostatic mixing valve.	2"	2"	1/2"	1/2"						
P-7	Urinal	American Standard #6561.017	White vitreous china wall hung with 3/4" top spud, 1.0 gallon siphon jet flushing action. Mount rim per Architectural elevation.	2"	2"	3/4"		3		1			

Supplies
1 - Flexible braided stainless steel
2 - Flexible braided compression hose.
3 - Sloan Royal 186 1.0 gpf diaphragm type.
4 - Provide tempering valve below sink set at 110 deg

Stops
1 - Angle handle compression

Carrier
1 - Steel tube floor-mounted in-wall carrier with arms
2 - Cast iron floor mount adjustable carrier for water closet

P-Trap
1 - PVC with deep escutcheon
2 - PVC
3 - deep seal PVC trap and 30" standpipe.

Drain
1 - Metal pop-up with tailpiece
2 - Basket strainers in finish to match faucet, tailpiece.
3 - Chrome drain cover.

Other
1 - Provide trap and supply guard if exposed.
2 - Hose and bracket, mop hanger and hose rack.
3 - Open front seat in public restrooms
4 - Provide Watts Tempering valve, max 110 Deg. F.

HVAC SYSTEM SCHEDULE

			AHU										OUTDOOR UNIT						
MARK	MFGR	NOM TON	MODEL	CFM	OA CFM	E.S.P.	HP	SMBH	TMBH	HEAT CAP	ELEC	FLA	OCP	MFGR	MODEL	ELEC	FLA	OCP	SEER	NOTES
AHU/CU	GOODMAN	2	ARUF25B14	750	130	0.4	0.33	16.9	23.0	6 KW	240/1	27	40	GOODMAN	GSX14-0241	240/1	8.4	15	14.0	

COOLING EAT = 80/67/95

WATER HEATER SCHEDULE

MARK	MFGR	MODEL	FUEL	VOLTAGE/PH/ AMPS	INPUT	EFFICIENCY /PF	GALLONS STORAGE	GPH RECOVERY @ 80° RISE	FLUE TYPE	EXPANSION	CIRCULATOR GPM/HD	NOTES
WH - L1, L2	EEMAX	EMT-1	ELEC	120/1/12	1.4 KW	0.95	1.5	5	N/A			

DRAIN SCHEDULE

MARK	APPLICATION	MFGR	MODEL	BODY MAT'L	DEPTH	GRATE MAT'L	GRATE SHAPE	ACCESSORIES
FD-1	FLOOR	ZURN	ZN-415S	COATED CAST IRON	3"	NICKEL BRONZE	6" ROUND	1, 2
FD-2	FLOOR	ZURN	Z-611-S	COATED CAST IRON	6"	COATED CAST IRON	9" SQUARE	1, 2, 3

ACCESSORIES:
1 - DEEP TRAP, ADJUSTABLE GRATE
2 - USE WIDE FLANGE MODEL WHERE IN WOOD CONSTRUCTION
3 - INTERNAL STRAINER

AIR TERMINAL DEVICE SCHEDULE

MARK	MANUFACTURER	MODEL	FINISH	DAMPER	FRAME TYPE	NOTES
A	AIR MATE	A140, A190	WHITE	YES	GYP BD	
B	AIR MATE	170	WHITE	NO	GYP BD	
C	AIR MATE	240 VO	WHITE	YES	GYP BD	

FAN SCHEDULE

						ELECTRICAL				
MARK	MFGR	MODEL	CFM	ESP	FAN HP	VOLTS/ PH	FLA	OCP	WIRING	CONFIGURATION - NOTES
EF - 1, 2, 3	GREENHECK	SP-A390	210-280	0.25	Fr.	120/1	3	15	(3) #12	ceiling, 1, 2

NOTES:
1-CEILING GRILLE, DS
2-BD DAMPER, DS, SPEED CONTROLLER, WALL/ROOF CAP

Luminaire Schedule - Units and Buildings

MARK	DESCRIPTION	MFGR	MODEL	MOUNTING	FINISH	LAMPS	NOTES
A	Strip Light	Lithonia	CSS L48 4000LM	surface	white	4300 Lumen 4000K	Wet Location
B	Strip Light	Lithonia	CSS L48 4000LM	surface	white	4300 Lumen 4000K	w/built-in motion sensor
C	Disk Light	Progress	P8222-28-30K	jb/surface	white	1200 Lumen 3000K 15W LED	Wet Location
D	Exterior Sconce	Progress	P5674-31-30K	wall	black	1600 lumen 15W 3000K LED	
E	Trellis	Progress	P5641-20/30K	ceiling	bronze	1355 Lumen 29W 3000K LED	
F	Exterior Wall Light	Lithonia	WSR LED P2 SR2 30K MVOLT	wall	bronze	3100 Lumen 4000K LED	
SL1	Exterior Pole	McGraw Edison	GLEON -AF-02 LED E1 T4FT	pole	bronze	113W 12252 Lumen 4000K led	provide with 16 ft pole
SL2	Exterior Pole	McGraw Edison	GLEON-AF-01-LED-E1-SL4	pole	bronze	(2) 59W 5922 Lumen 4000K led	provide with 16 ft pole
SL3	Exterior Pole	McGraw Edison	GLEON-AF-01-LED-E1-T3	pole	bronze	59W 6235 Lumen 4000K led	provide with 16 ft pole
SL4	Exterior Pole	McGraw Edison	GLEON-AF-01-LED-E1-T3	pole	bronze	59W 6235 Lumen 4000K led	w/ WP-GFI receptacle

ELECTRICAL PANEL SCHEDULE

PANEL: P			LOCATION:						MOUNTING:	SURFACE	
BUS: 200 A	MAINS:	MLO	VOLTAGE:		120/240		PHASE/WIRE:		1 Ph 3 Wire	KAIC: 42	
	WATTS				POLE				WATTS		
DESCRIPTION	A	B	BRKR	WIRE		WIRE	BRKR	A	B	DESCRIPTION	
POOL PUMP	2200		30	10	1 2	12	20	1500		WH - L1	
5 HP - VERIFY		2200	2P	10	3 4	12	20		800	RECEPTACLES	
POOL PUMP	1300		20	12	5 6	12	20	1000		LTS/RECEPTS	
3 HP - VERIFY		1300	2P	12	7 8	12	20		600	LTS/RECEPTS	
AHU	3200		40	8	9 10	12	20	200		POOL HEATER	
		3200	2P	8	11 12	12	20		1500	WH - L2	
CU	1000		20	12	13 14	12	20	600		RECEPTACLES	
		1000	2P	12	15 16	12	20		200	LIGHTING	
COOKING STATION	600		20	12	17 18	10	20	1000		LIGHTING	
LIGHTING		700	20	10	19 20					SPACE	
SPARE			20		21 22					SPACE	
SPARE			2P		23 24					SPACE	
SPARE			20		25 26					SPACE	
SPARE			20		27 28					SPACE	
SPARE			20		29 30					SPACE	
CONNECTED LOAD-WATTS	12600	11500			FEEDER LOAD-WATTS						
CONNECTED LOAD-AMPS	105	96			FEEDER LOAD-AMPS						
CONTINUOUS LOAD					FEEDER WIRE						
RECEPTACLES					FEEDER OCP					200 A	
NON-CONTINUOUS LOAD											
OTHER DIVERSIFIED LOAD			@	0							

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Release of these plans contemplates further cooperation among the owner, contractor and architect in which Design and construction are complex. Although the designer and his consultants have performed their services in a professional manner, these plans are not perfection. Communication is imperfect and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the designer. A failure to cooperate in this manner relieves the designer and consultants from responsibility for all consequences. Changes made from the plans without the consent of the designer are unauthorized and the designer shall assume no responsibility for all consequences arising out of such changes. Contractor shall check and verify all dimensions.

STATE OF MISSOURI
RICHARD R. BEARDMORE
NUMBER
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01/14/2021

SUMMIT VIEW FARMS
POOL HOUSE

LEE'S SUMMIT, MISSOURI

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MECH./ELEC. SCHEDULES

sheet no.
ME-6

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