

DESIGN CODES AND STANDARDS

2015 MICHIGAN BUILDING CODE
2015 MICHIGAN RESIDENTIAL CODE
2019 DETROIT CITY CODE

LATERAL LOADS:	WIND	20 PSF (MAIN LATERAL RESISTING SYSTEM)
	- RISK CATEGORY	II
	- BASIC DESIGN WIND SPEED	108 MPH
	- EXPOSURE CATEGORY	B
SEISMIC		
	SITE CLASS D	DESIGN CATEGORY B
	S _{0.1s} = 0.093	S _s = 0.11
	S _{D1} = 0.07	S ₁ = 0.049
	RISK CATEGORY	II

LIVE LOADS USED IN DESIGN IN LBS. PER SQ. FT. (PSF) ARE AS FOLLOWS:

LIVE LOADS:	SNOW P _g	20 PSF
	ROOF LIVE LOAD	20 PSF
	DWINGINGS	50 PSF (40PSF + 10 PSF PARTITIONS)
	UNINHABITABLE ATTICS WITH STORAGE	20 PSF
HANDRAILS	VERTICAL & HORIZONTAL 50 lbs./ft. OR 200 lbs. ANY DIRECTION (SEE SPECIFICATIONS)	

EXISTING CONDITIONS

VERIFY ALL FIELD CONDITIONS AT AREAS OF WORK PRIOR TO FABRICATION AND CONSTRUCTION. NOTIFY A/E OF ANY DISCREPANCIES.

WHERE EXISTING CONSTRUCTION IS TO BE ALTERED, OR OTHERWISE DISTURBED, PROVIDE TEMPORARY BRACING AND SHORING AS MAY BE REQUIRED BEFORE AND DURING OPERATIONS AND UNTIL WORK IS SAFELY COMPLETED AND IS NO LONGER REQUIRED.

EXISTING MATERIAL STRENGTH

BASED UPON SIMILAR MATERIAL TESTING, THE FOLLOWING VALUES WERE UTILIZED FOR EXISTING MATERIALS:

F_y = 30 KSI (STRUCTURAL STEEL)
f_y = 40 KSI (REBAR)
F_c = 3 KSI (CONCRETE)
F_m = 1500 PSI (MASONRY)

SOIL CONDITIONS AND FOUNDATIONS

ALL FOUNDATION EXCAVATION SHALL BE INSPECTED BY A QUALIFIED SOILS ENGINEER PRIOR TO PLACING CONCRETE TO ENSURE THE ALLOWABLE SOIL BEARING PRESSURE.

NOTE: PLACEMENT OF ENGINEERING FILL TO ACHIEVE ALLOWABLE SOIL BEARING SHALL BE SPECIFIED BY THE GEOTECHNICAL ENGINEER.

ALL FOOTINGS SHALL BE PLACED ONTO UNDISTURBED VIRGIN SUBGRADE OR COMPACTED ENGINEERED FILL CAPABLE OF SUPPORTING AN ALLOWABLE BEARING PRESSURE OF 3,000 PSF WITH TOTAL LONG-TERM SETTLEMENTS NOT EXCEEDING 1 INCH AND DIFFERENTIAL SETTLEMENTS NOT EXCEEDING 1/2 INCH IN 40 FEET. AS VERIFIED BY A GEOTECHNICAL ENGINEER REGISTERED IN THE STATE OF ILLINOIS AND RETAINED BY THE OWNER. FOOTING ELEVATIONS SPECIFIED SHALL BE CONSIDERED A MINIMUM DEPTH. IF THE SUBGRADE IS DEEMED UNSTABLE, EXTEND THE EXCAVATION UNTIL A SUITABLE BEARING SURFACE, AS DETERMINED BY THE TESTING AGENCY IS REACHED. BACKFILL WITH COMPACTED ENGINEERED FILL OR PLAIN CONCRETE AS DIRECTED BY THE OWNER OR GEOTECHNICAL ENGINEER.

A REGISTERED GEOTECHNICAL ENGINEER SHOULD OBSERVE THE FOUNDATION BEARING SURFACES AND IS TO BE SOLELY RESPONSIBLE FOR THEIR SUITABILITY TO SUPPORT A SHALLOW FOUNDATION SYSTEM PER THE MAXIMUM ALLOWABLE LOADING AND SETTLEMENT REQUIREMENTS. FOOTING ELEVATIONS SHALL BE ADJUSTED AS REQUIRED.

DO NOT PLACE BACKFILL AGAINST BASEMENT WALLS UNTIL FIRST FLOOR AND BASEMENT SLAB ARE IN PLACE UNLESS TEMPORARY BRACING IS PROVIDED.

NO FOUNDATIONS SHALL BE PLACED ONTO OR AGAINST SUBGRADES CONTAINING FREE WATER, FROST, OR ICE.

BACKFILLING AGAINST WALLS AND GRADE BEAMS SHALL BE DONE EVENLY ON BOTH SIDES.

AFTER EXCAVATING FOR ALL EARTH-SUPPORTED FLOOR AND STAIR SLABS, THE EXPOSED NATURAL SOIL SHALL BE THOROUGHLY COMPACTED PRIOR TO PLACING FILL.

ALL FILL AND TOP SOIL SHALL BE REMOVED FROM BELOW ALL PROPOSED SLABS-ON-GRADE AND THE SUBGRADE PROOF-ROLLED. AREAS EXHIBITING PUMPING OR WEAKNESS, AS OBSERVED BY A QUALIFIED SOILS TESTING FIRM, SHALL BE REMOVED AND REPLACED WITH ACCEPTABLE COMPACTED FILL.

ALL FILL REQUIRED TO ATTAIN FINAL SUBGRADE FOR SLABS SHALL BE AN ACCEPTABLE MATERIAL, PLACED IN LIFTS NOT EXCEEDING 9" IN LOOSE THICKNESS AND COMPACTED TO A MINIMUM DENSITY (MODIFIED PROCTOR METHOD, ASTM D-1557).

BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BEAR A MINIMUM OF 3'-6" BELOW FINAL GRADE FOR FROST PROTECTION.

PROVIDE DOWELS IN FOOTINGS FOR WALLS AND COLUMNS, PLASTER, ETC. TO MATCH REINFORCING ABOVE U.N.O.

STRUCTURAL WOOD

ERECTION OF ALL WOOD FRAMING SHALL CONFORM TO THE NATIONAL FOREST PRODUCTS ASSOCIATION DESIGN SPECIFICATIONS, AMERICAN PLYWOOD ASSOCIATION, LATEST EDITIONS.

MINIMUM LUMBER STRESS GRADE SHALL BE AS FOLLOWS: DOUGLAS-FIR LARCH NO. 2 OR SOUTHERN PINE NO. 2, U.N.O.

MAXIMUM ALLOWABLE MOISTURE CONTENT SHALL BE 19%.

ALL PLYWOOD SHOWN FOR FLOOR/ROOF DECKS AND AS WALL SHEATHING SHALL BE OF THE THICKNESS SHOWN ON THE STRUCTURAL DRAWINGS AND SHALL MEET ALL THE REQUIREMENTS OF THE U.S. PRODUCT STANDARD PS 1, LATEST EDITION, FOR STRUCTURAL 1 GRADE MATERIAL.

STANDARD H-CLIPS ARE REQUIRED MID-SPAN AT BUTT JOINTS OF PLYWOOD ROOF DECK.

UNLESS SPECIFIED ON DRAWINGS, HANGER CONNECTIONS SHALL DEVELOP THE SHEAR STRENGTH OF THE TRUSS, BEAM OR JOIST.

ALL JOISTS SHALL BE POSITIONED WITH THE NATURAL CAMBER TURNED UP.

MASONRY

ALL MASONRY DESIGN AND CONSTRUCTION SHALL CONFORM TO THE "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" (TMS 402-13/ACI 530-13/ASCE 5-13) AND THE "SPECIFICATIONS FOR MASONRY STRUCTURES" (TMS 602-13/ACI 530-13/ASCE 6-13).

MASONRY MATERIALS SHALL CONFORM TO THE LATEST EDITION OF THE FOLLOWING ASTM SPECIFICATIONS:

BRICK: ASTM C62 (COMMON BRICK) AND C216 (FACE BRICK) AND STONE (AS DETERMINED BY ARCHITECT) MINIMUM COMPRESSIVE STRENGTH = 4000 PSI, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

HOLLOW LAID BEARING CONCRETE BLOCK: ASTM C 90, GRADE N-1. MORTAR: ASTM C 270, TYPE S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH = 3000 PSI. F'm = 2500 PSI

MASONRY REINFORCEMENT: ASTM A 82 - GALVANIZED.

PRIOR TO DELIVERY OF MASONRY UNITS TO THE JOB SITE, FURNISH THE ARCHITECT/OWNER WITH AFFIDAVITS FROM AN APPROVED TESTING LABORATORY CERTIFYING THAT ALL UNITS CONFORM TO THEIR RESPECTIVE ASTM REQUIREMENTS.

CALCIUM CHLORIDE AND/OR ADMIXTURES CONTAINING SAME SHALL NOT BE INCLUDED IN MORTAR OR GROUT MIX EXCEPT WHEN APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.

NO EXTERIOR MASONRY SHALL BE LAID WHEN THE OUTSIDE AIR TEMPERATURE IS LESS THAN 40 DEGREES F., UNLESS THE RECOMMENDATIONS SPECIFIED BY THE INTERNATIONAL MASONRY INDUSTRY ALL-WEATHER COUNCIL. IN THEIR BOOK "RECOMMENDED PRACTICES AND GUIDE SPECIFICATIONS FOR COLD WEATHER MASONRY CONSTRUCTION" ARE STRICTLY FOLLOWED.

MASONRY WALLS SHALL BE ADEQUATELY BRACED AGAINST WIND DURING THEIR ERECTION, AND UNTIL THEIR DESIGN SUPPORTS ARE IN PLACE.

MORTAR SHALL BE TESTED BY AN APPROVED TESTING LABORATORY IN ACCORDANCE WITH ASTM C780. TWO SETS OF THREE MORTAR CUBES SHALL BE TAKEN AT RANDOM FOR EACH DAY OF MASONRY WORK. TEST ONE CUBE OF EACH SET AT 7 DAYS AND 28 DAYS. THE THIRD CUBE TO BE TESTED AT 56 DAYS IF REQUIRED BY THE ARCHITECT.

UNLESS NOTED OTHERWISE ON DRAWINGS, ALL MASONRY WALLS SHOWN ON THE STRUCTURAL DRAWINGS HAVING TWO OR MORE WYTHES OF BRICK AND/OR CONCRETE BLOCK SHALL HAVE ALL VERTICAL COLLAR JOINTS FILLED WITH MORTAR FOR FULL HEIGHT OR NATURAL BOND SHALL BE PROVIDED.

PARGING IS NOT ACCEPTABLE. THIS REQUIREMENT DOES NOT APPLY BETWEEN WYTHES OF CAVITY WALLS, UNLESS SHOWN OTHERWISE.

TUCKPOINTING

DETERIORATED MORTAR SHOULD BE REMOVED TO A UNIFORMED DEPTH THAT IS THE MINIMUM OF:
- TWICE THE JOINT WIDTH
- UNTIL SOUND MORTAR IS REACHED

REMOVE DUST AND DEBRIS FROM THE JOINTS BY BRUSHING, BLOWING WITH AIR OR RINSING WITH WATER. DO NOT RINSE WHEN TEMPERATURE IS BELOW FREEZING.

JOINTS TO BE REPOINTED SHOULD BE DAMPENED, BUT ALLOW MASONRY UNITS TO ABSORB SURFACE WATER BEFORE APPLICATION OF MORTAR.

TIGHTLY PACK MORTAR INTO JOINTS IN THIN LAYERS, 1/4" THICK MAXIMUM.

ALLOW LAYER TO BECOME "THUMBPRINT HARD" BEFORE APPLYING NEXT LAYER.

PACK FINAL LAYER FLUSH WITH SURFACES OF MASONRY UNITS. WHEN MORTAR BECOMES "THUMBPRINT HARD", TOOL JOINTS.

PROVIDE CONCAVED JOINTS.

REPLACEMENT OF BRICK

CUT OUT THE MORTAR JOINTS SURROUNDING MASONRY UNITS THAT ARE TO BE REMOVED AND REPLACED.

UNITS REMOVED MAY BE BROKEN AND REMOVED, PROVIDING SURROUNDING UNITS TO REMAIN ARE NOT DAMAGED.

ONCE UNITS ARE REMOVED, REMOVE OLD MORTAR, DUST AND DEBRIS.

DAMPEN SURROUNDING EXISTING BRICK SURFACES OF THE REPLACEMENT UNITS BEFORE NEW UNITS ARE PLACED.

ALLOW EXISTING MASONRY TO ABSORB SURFACE MOISTURE PRIOR TO STARTING INSTALLATION OF THE NEW REPLACEMENT UNITS.

BUTTER CONTACT SURFACES OF EXISTING MASONRY AND NEW REPLACEMENT MASONRY UNITS WITH MORTAR.

POINT AROUND REPLACEMENT MASONRY UNITS TO INSURE FULL HEAD AND BED JOINTS.

WHEN MORTAR BECOMES "THUMBPRINT HARD", TOOL JOINTS.

PROVIDE CONCAVED JOINTS.

GENERAL NOTES

ALL DIMENSIONS ON STRUCTURAL DRAWINGS TO BE CHECKED AGAINST ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS BY THE GENERAL CONTRACTOR, ANY DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT IMMEDIATELY.

UNLESS OTHERWISE NOTED, ALL DETAILS, SECTIONS AND NOTES ON THE DRAWINGS ARE INTENDED TO BE TYPICAL FOR SIMILAR SITUATIONS ELSEWHERE.

THESE DRAWINGS ARE NOT TO BE REPRODUCED FOR THE PURPOSE OF USING THEM AS SHOP DRAWINGS.

ARCHITECTS/OWNER'S APPROVAL MUST BE SECURED FOR ALL SUBSTITUTIONS.

ARCHITECTURAL'S REVIEW OF SHOP DRAWINGS IS ONLY FOR CONFORMANCE WITH THE DESIGN CONCEPT. CONSTRUCTION SHALL NOT BEGIN WITHOUT SAID REVIEW AND ONLY SHOP DRAWINGS STAMPED BY THE ARCHITECT SHALL BE ALLOWED AT THE JOB SITE.

CONTRACTOR IS TO ASSUME FULL RESPONSIBILITY, UNRELIEVED BY REVIEW OF SHOP DRAWINGS OR PERIODIC OBSERVATION OF CONSTRUCTION, FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS, FOR DIMENSIONS TO BE CONFIRMED AND CORRELATED ON THE JOB SITE AND BETWEEN INDIVIDUAL DRAWINGS OR SETS OF DRAWINGS FOR FABRICATION PROCESSES AND CONSTRUCTION TECHNIQUES INCLUDING EXCAVATION, SHORING, SCAFFOLDING, BRACING, ERECTION, FORMWORK, ETC.), FOR COORDINATION OF THE VARIOUS TRADES, AND FOR SAFE CONDITIONS ON THE JOB SITE. VARIATIONS IN FIELD CONDITIONS RELATIVE TO THE CONTRACT DOCUMENTS SHALL BE REPORTED TO THE ARCHITECT/OWNER. WORK SHALL NOT PROGRESS UNTIL WRITTEN PERMISSION FROM THE ARCHITECT/OWNER IS OBTAINED.

CONCRETE AND REINFORCEMENT

ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE "AMERICAN CONCRETE INSTITUTE BUILDING CODE" (ACI 318) AND WITH "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301), LATEST EDITIONS.

UNLESS OTHERWISE SHOWN OR NOTED ALL CONCRETE WORK SHALL CONTAIN MINIMUM REINFORCEMENT AS REQUIRED BY ACI 318.

REINFORCEMENT GRADES: BAR REINFORCEMENT SHALL CONFORM TO ASTM A 615, GRADE 60. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185.

DETAIL BAR REINFORCEMENT ACCORDING TO ACI 315 - DETAILING MANUAL, LATEST EDITION. DETAIL WELDED WIRE FABRIC IN ACCORDANCE WITH THE WELDED WIRE FABRIC MANUAL OF STANDARD PRACTICE, LATEST EDITION.

PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT REINFORCEMENT AT POSITIONS SHOWN ON THE PLANS AND DETAILS. PLASTIC COATED ACCESSORIES SHALL BE USED IN ALL EXPOSED CONCRETE WORK.

MINIMUM CONCRETE COVER, UNLESS NOTED OTHERWISE:

UNFORMED SURFACE IN CONTACT WITH THE GROUND 3"

FORMED SURFACES EXPOSED TO EARTH OR WEATHER
#6 BARS AND LARGER 2"
#5 BARS AND SMALLER 1 1/2"

FORMED SURFACES NOT EXPOSED TO EARTH OR WEATHER:
BEAMS, GIRDERS, COLUMNS 1 1/2"
SLABS, WALLS, JOISTS, 3/4"
#11 BARS & SMALLER 3/4"
#14 & #18 1 1/2"

NO CHLORIDES SHALL BE ALLOWED IN THE CONCRETE MIX. ALL CONCRETE EXPOSED TO WEATHER SHALL BE AIR-ENTRAINED CONCRETE (SEE SPECIFICATIONS).

ALL SLAB-ON-GRADE SHALL BE PLACED ON COMPACTED GRANULAR FILL. PITCH ALL SLABS TO DRAINS WHERE DRAINS ARE INDICATED WITHOUT REDUCING THE THICKNESS OF SLAB.

FOR SLAB-ON-GRADE RECEIVING ARCHITECTURE FINISHES, VERIFY JOINT LOCATIONS WITH ARCHITECT.

CONSTRUCTION JOINTS SHALL BE PROVIDED AS SHOWN ON DRAWINGS AND DETAILS. NO JOINT SHALL BE OMITTED OR ADDED WITHOUT THE APPROVAL OF THE ENGINEER.

PROVIDE VERTICAL CONSTRUCTION JOINTS IN EXPOSED CONCRETE WALLS AT A MAXIMUM OF 35'-0" INTERVAL. ALL JOINTS BELOW GRADE SHALL BE PROVIDED WITH A BENOTONITE WATERSTOP.

CHECKED SHOP DRAWINGS SHOWING REINFORCING DETAILS, INCLUDING STEEL SIZES, LAPS, SPACING AND PLACEMENT, SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW PRIOR TO FABRICATION.

CONTINUOUS REINFORCEMENT SHALL BE LAPPED AS FOLLOWS: TOP BARS NEAR MIDSPANS, BOTTOM BARS DIRECTLY OVER SUPPORTS. ADDITIONAL LAPS REQUIRED FOR CONSTRUCTION SHALL BE CLASS B.

MINIMUM CONCRETE STRENGTH SHALL BE AS FOLLOWS:

CONCRETE STRENGTHS:
ULTIMATE STRENGTH AT 28 DAYS (PER ACI CYLINDER TESTING)

ITEM	CONCRETE STRENGTH:	UNIT WEIGHT:
FOUNDATION WALLS, MATS, FOOTINGS, GRADE BEAMS	4000 PSI	150 PCF
SLABS ON GRADE	3000 PSI	150 PCF

ALL EMBEDMENT LENGTHS AND LAPS SHALL BE AS REQUIRED BY ACI 318. UNLESS OTHERWISE NOTED, MINIMUM LAP TO BE 36 BAR DIAMETERS.

CORNER BARS SHALL BE PROVIDED AT ALL WALL CORNERS EQUAL TO THE HORIZONTAL WALL REINFORCEMENT.

UNLESS OTHERWISE SHOWN OR NOTED, PLACE 2-#5 (1 EACH FACE) WITH 2'-0" PROJECTION AROUND ALL OPENINGS IN CONCRETE.

NO SLAB, BEAM OR JOIST SHALL HAVE A CONSTRUCTION JOINT IN THE HORIZONTAL PLANE. ANY STOP IN CONCRETE WORK MUST BE MADE AT CENTER OF SPAN WITH A VERTICAL BULKHEAD AND HORIZONTAL KEY AND SPLICED REINFORCEMENT.

CONTROL OR CONSTRUCTION JOINTS FOR SLABS ON GRADE SHALL BE IN A SQUARE PATTERN AND BE NOT MORE THAN 20 FT. X 20 FT.

THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE LOCATION AND PLACEMENT OF ALL INSERTS, HANGERS, SLEEVES, DUCT WORK, PADS AND ANCHOR BOLTS THAT ARE REQUIRED BY THE ARCHITECT AND/OR EQUIPMENT, ETC. SLEEVES GREATER THAN 4" IN DIAMETER AND THE EDGE OF ANY OPENING SHALL BE NOT CLOSER THAN 12" TO ANY COLUMN, UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS. THE GENERAL CONTRACTOR SHALL VERIFY ALL OPENINGS THROUGH FLOORS AND WALLS WITH MECHANICAL AND ELECTRICAL CONTRACTOR AND SHALL SUBMIT TO THE STRUCTURAL ENGINEER SHOP DRAWINGS SHOWING OPENINGS IN THE SLABS INCLUDING BUT NOT LIMITED TO SLEEVE SIZES AND LOCATIONS, DUCT SIZE AND LOCATION, ETC.

NO ALUMINUM OF ANY TYPE SHALL BE ALLOWED IN THE CONCRETE WORK, UNLESS COATED TO PREVENT ALUMINUM-CONCRETE REACTION. THIS INCLUDES PUMPING THROUGH ALUMINUM PIPE.

ELECTRICAL CONDUIT MUST BE PLACED ABOVE THE BOTTOM REINFORCEMENT AND BELOW THE TOP REINFORCEMENT.

ELECTRICAL CONDUIT EMBEDDED IN SLABS SHALL NOT BE LARGER IN OUTSIDE DIAMETER THAN 1/3 THE THICKNESS OF THE SLAB AND SHALL NOT BE SPACED CLOSER THAN THREE DIAMETERS ON CENTER.

CONTRACTOR SHALL PROVIDE A DUPLICATE COPY OF ALL READY MIX CONCRETE DELIVERY TICKETS TO THE ARCHITECT/OWNER.

WELDING OF REINFORCING BARS WILL ONLY BE ALLOWED WHEN SHOWN ON THE STRUCTURAL DRAWINGS. IN NO INSTANCE SHALL WELDING BE DONE AT THE BEND OF A BAR NOR SHALL THERE BE ANY TACK WELDING DONE BETWEEN CROSSING BARS. WHEN WELDING IS SHOWN PROCEDURES SHALL BE IN ACCORDANCE WITH AWS D1.4-79, "STRUCTURAL WELDING CODE-REINFORCING STEEL".

TEST CYLINDERS SHALL BE MADE AND TESTED AS OUTLINED IN SECTION 1.6 OF ACI 301.

ALL REINFORCING SHALL BE BENT COLD, DO NOT APPLY HEAT.

UNLESS OTHERWISE SHOWN OR NOTED, ALL MISCELLANEOUS CONCRETE SLABS, FILL CONCRETE AND SIDEWALKS SHALL BE MINIMUM 4" THICK. CONCRETE FOR THE ABOVE AND FOR CURBS AND GUTTERS SHALL CONTAIN 6% AIR-ENTRAINMENT WITH 6 BAGS OF CEMENT MINIMUM AND 0.55 MAXIMUM WATER CEMENT RATIO, PROPERLY CURED FOR A MINIMUM OF 7 DAYS.

EXPANSION JOINTS OF 1/2" THICKNESS SHALL BE PROVIDED AT UNIFORM INTERVALS OF NOT MORE THAN 40 FEET AND WHERE CONCRETE ABUTS DIFFERING ELEMENTS.

CONTROL JOINTS AT LEAST 1 1/2" DEEP, MINIMUM 1/4" WIDE, PROPERLY CAULKED WITH POLYURETHANE SEALANT, SHALL BE PROVIDED TO LIMIT AREAS OF CONCRETE TO A MAXIMUM OF 400 SQ. FT. FOR INTERIOR SLABS, 300 SQ. FT. FOR SIDEWALKS AND 250 SQ. FT. FOR ALL OTHER SLABS, SQUARE AS FAR AS FEASIBLE.

SEE ARCHITECTURAL DRAWINGS FOR DETAILS, EXTENT AND FINISHING OF THE AFOREMENTIONED.

REINFORCING LAP SPLICE		
CONCRETE - 3000 - 5000 PSI, REINFORCING = GRADE 60 KSI		
BAR SIZE	MINIMUM SPLICE LENGTH	
	TOP BAR	OTHER BAR
#3	2'-0"	1'-7"
#4	2'-8"	2'-1"
#5	3'-4"	2'-7"
#6	4'-0"	3'-1"
#7	5'-10"	4'-6"
#8	6'-8"	5'-2"
#9	7'-7"	5'-10"
#10	8'-6"	6'-7"
#11	9'-5"	7'-3"

ABBREVIATIONS:

ABBREVIATIONS AS APPEAR IN THE DRAWINGS SCHEDULES AND SPECIFICATIONS FOR GENERAL TERMS AND FOR STRUCTURAL TERMS ARE EXPLAINED IN THIS SECTION AS LISTED BELOW.

FOR ALL SYMBOLS AND RELATED ABBREVIATIONS, SEE DRAWINGS.

ABBREVIATIONS: NOTE THAT ALL ABBREVIATIONS HEREIN LISTED NECESSARILY APPEAR IN THESE DRAWINGS AND SPECIFICATIONS.

ADDL	ADDITIONAL	IF	INSIDE FACE
ADJ	ADJACENT	INT	INTERIOR
ALT	ALTERNATE	JF	JOINT FILLER
AP	ACOUSTICAL PANEL	JT	JOINT
ARCH	ARCHITECTURAL	LLH	LONG LEG HORIZONTAL
AUTO	AUTOMATIC		
B	BOTTOM	LLV	LONG LEG VERTICAL
B/	BOTTOM OF	LP	LOW POINT
BD	BOARD	LT	LIGHT
BIT	BITUMINOUS	LT WT	LIGHTWEIGHT
BLDG	BUILDING	MAS	MASONRY
BM	BEAM	MATL	MATERIAL
BOT	BOTTOM	MAX	MAXIMUM
CB	CATCH BASIN	MFR/MANUF	MANUFACTURER
CC	CENTER TO CENTER	MIN	MINIMUM OR MINUTE
CFLG	COUNTERFLASH (ING)	MISC	MISCELLANEOUS
CI	CAST IRON	NIC	NOT IN CONTACT
CJ	CONTROL JOINT	NOM	NOMINAL
CL	CENTERLINE OR COLUMN LINE	NTS	NOT TO SCALE
CLR	CLEAR	OC	ON CENTER
CLS	CELING	OD	OUTSIDE DIAMETER
CMT	CERAMIC MOSAIC TILE	OF	OUTSIDE FACE
COL	COLUMN	OH	OVERHEAD
CMJ	CONCRETE MASONRY UNIT	OPNG	OPENING
COL	CONCRETE	OPP	OPPOSITE
CONSTR	CONSTRUCTION	PL	PLATE
CONT	CONTINUOUS	PLY	PLYWOOD
CENTRD	CENTERED	PSF	POUNDS PER SQUARE FOOT
CONTR	CONTRACTOR	PSI	POUNDS PER SQUARE INCH
		PT	PRE TREATED
		PVC	POLYVINYL CHLORIDE
DET	DETAIL	RD	ROOF DRAIN
DIA OR Ø	DIAMETER	REINF	REINFORCEMENT OR REINFORCING
DIM	DIMENSION	REDD	REQUIRED
DR	DOOR	REV	REVISION OR REVISED
DS	DOWNSPOUT	RO	ROUGH OPENING
DWVG	DRAINAGE	SECT	SECTION
EA	EACH FACE	SIM	SIMILAR
EF	ELEVATOR	SPEC	SPECIFICATION
EL	ELEVATOR	SQ	SQUARE
ELEV	ELEVATOR	SS	STAINLESS STEEL
EMBED	EMBEDMENT	STL	STEEL
EOP	EQUIPMENT	STD	STANDARD
EXIST	EXISTING	STRUCT	STRUCTURAL
EXP	EXPANSION	SYM	SYMMETRICAL
EXP JT	EXPANSION JOINT	T	TOP
EXT	EXTERIOR	T/	TOP OF
FD	FLOOR DRAIN	T&B	TOP & BOTTOM
FDN	FOUNDATION	T/CONC	TOP OF CONCRETE
FIN	FINISH	TYP	TYPICAL
FLG	FLANGE	UNO	UNLESS NOTED OTHERWISE
FLR	FLOOR	VERT	VERTICAL
FT	FEET	VIF	VERIFY IN FIELD
FTG	FOOTING	W/	WITH
GA	GABLE	W/O	WITHOUT
HORIZ	HORIZONTAL	WP	WORK POINT
HP	HIGH POINT	WS	WATERSTOP
HT	HEIGHT	WWF	WELDED WIRE FABRIC

TOP OF STRUCTURAL ELEMENT NOTATION U.N.O.

(+XX-X") INDICATES TOP OF BEAM OR GIRDER

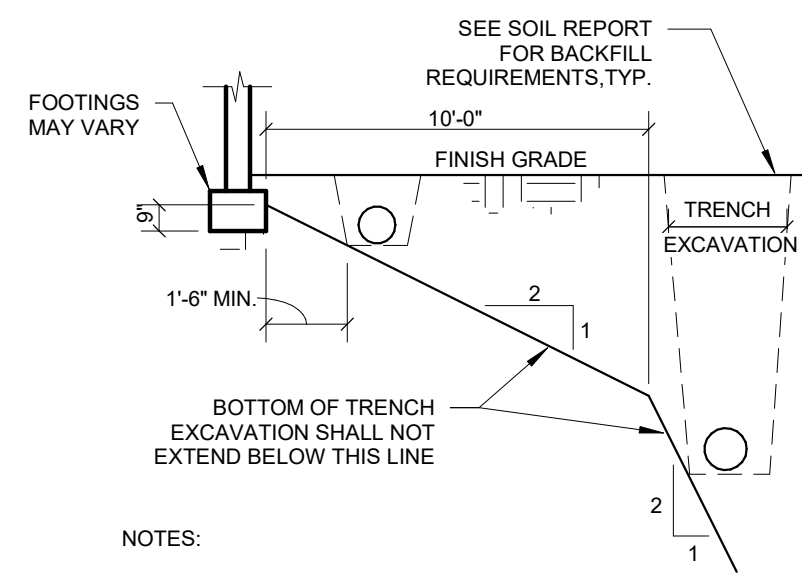
+XX-X" INDICATES TOP OF CONCRETE SLAB

{+XX-X"} INDICATES TOP OF CONCRETE WALL

STRUCTURAL STEEL

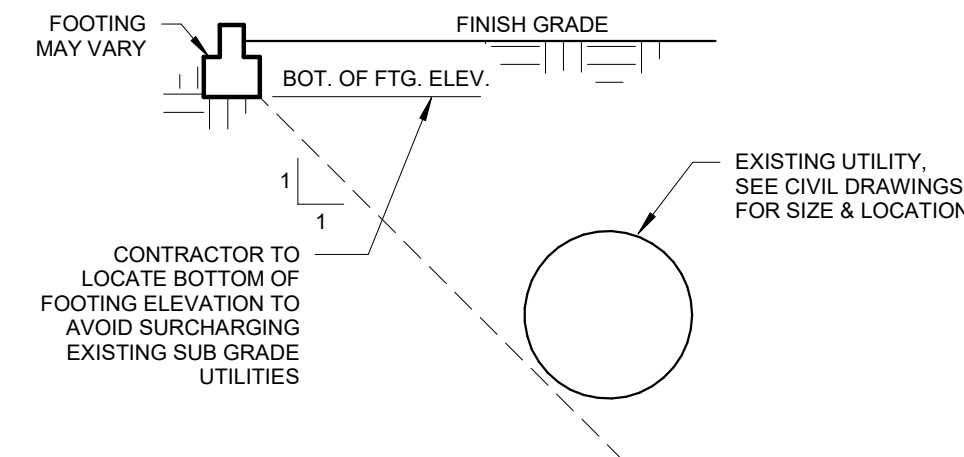
STRUCTURAL STEEL DETAILS, FABRICATION AND ERECTION SHALL CONFIRM TO THE LATEST EDITION OF THE AISC "MANUAL OF STEEL CONSTRUCTION" ALLOWABLE STRESS DESIGN.

ALL STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS:
WIDE FLANGE SHAPES: A992 (F_y = 50 ksi)
TUBE SHAPES: A500
STE

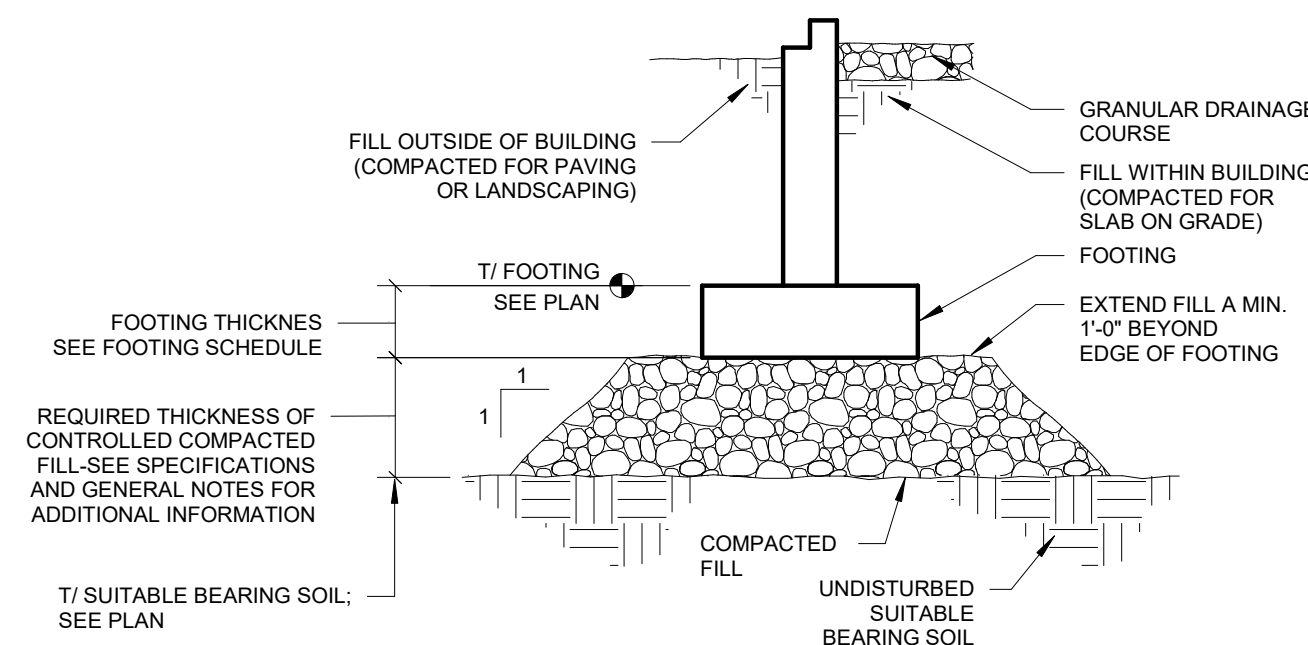


NOTES:
THE CONTRACTOR SHALL COORDINATE ALL EXCAVATION OPERATIONS WITH BUILDING REQUIREMENTS.

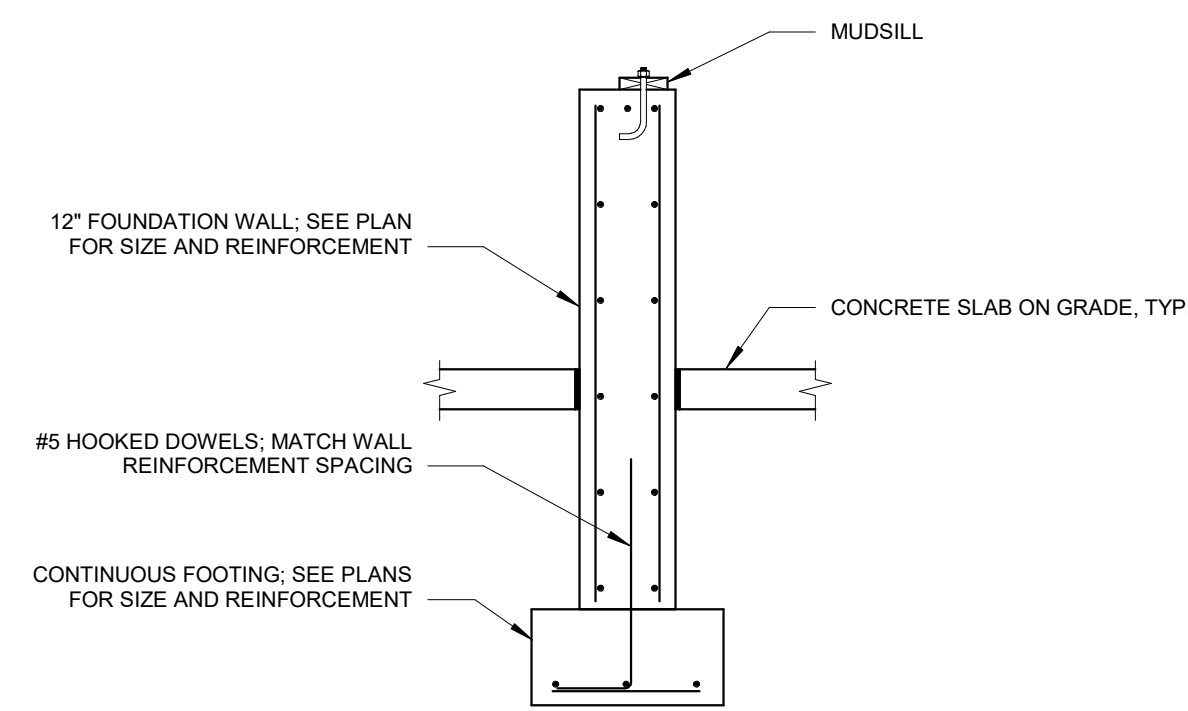
EXCAVATION PARALLEL TO FOOTING



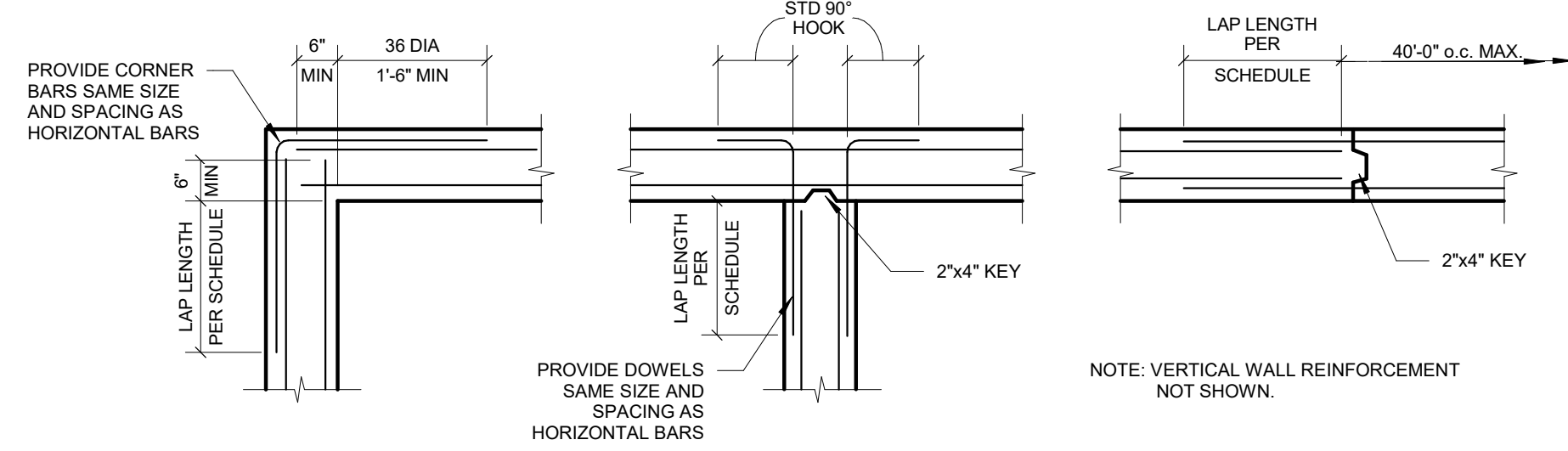
FOOTING PARALLEL TO EXISTING UTILITY



TYPICAL EXCAVATION / FILL DETAIL
SEE SOIL REPORT FOR FILL PLACEMENT AND COMPACTION REQUIREMENTS



TYPICAL 12" FOUNDATION WALL DETAIL



WALL CORNER WALL INTERSECTION WALL CONST. JOINT

TYPICAL FOUNDATION WALL DETAILS

THE ABOVE DRAWINGS AND SPECIFICATIONS AND IDEAS, DESIGNS AND ARRANGEMENTS REPRESENTED THEREBY ARE AND SHALL REMAIN THE PROPERTY OF THE ENGINEER, AND NO PART THEREOF SHALL BE COPIED, DISCLOSED TO OTHERS OR USED IN THE CONNECTION WITH ANY WORK OR PROJECT OTHER THAN THE SPECIFIC PROJECT FOR WHICH THEY HAVE BEEN PREPARED AND DEVELOPED WITHOUT THE WRITTEN CONSENT OF THE ARCHITECT. VISUAL CONTACT WITH THESE DRAWINGS OR SPECIFICATIONS SHALL CONSTITUTE CONCLUSIVE EVIDENCE OF ACCEPTANCE OF THESE RESTRICTIONS.

WRITTEN DIMENSIONS ON THESE DRAWINGS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS. CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB AND THIS OFFICE MUST BE NOTIFIED OF ANY VARIATIONS FROM THE DIMENSIONS AND CONDITIONS SHOWN BY THESE DRAWINGS. SHOP DETAILS MUST BE SUBMITTED TO THIS OFFICE FOR APPROVAL BEFORE PROCEEDING WITH FABRICATION.

Three Pillar
STRUCTURAL ENGINEERING GROUP

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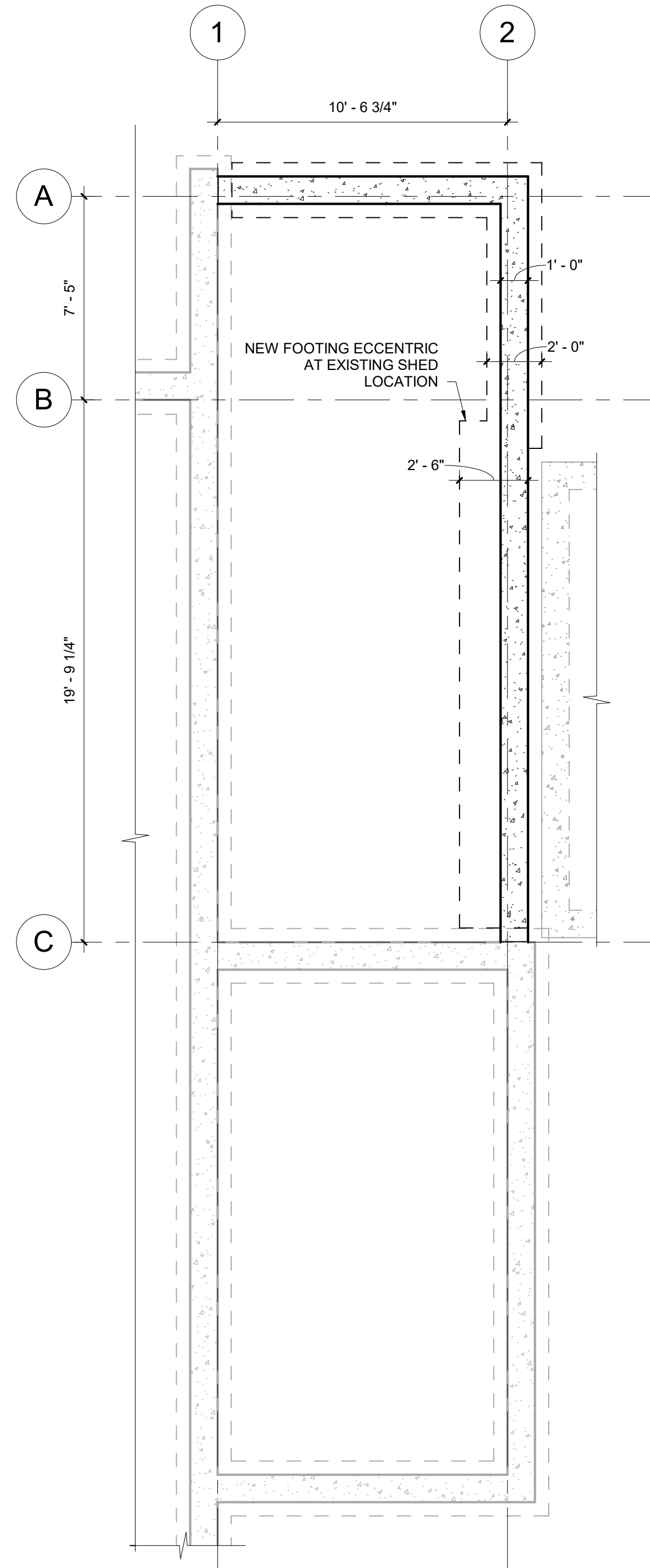
No.	Description	Date
	ISSUE FOR REVIEW	12/07/21

PROJECT NAME AND ADDRESS
HOUSE ADDITION
31 ARDEN PARK BLVD,
DETROIT, MI 48202

**STRUCTURAL
TYPICAL DETAILS**

Project Number	21-019
Date	12/07/2021
Drawn by	SP
Checked by	MW

S-010
Scale 1/2" = 1'-0"



1 FOUNDATION FRAMING PLAN
1/4" = 1'-0"

FOUNDATION PLAN NOTES:

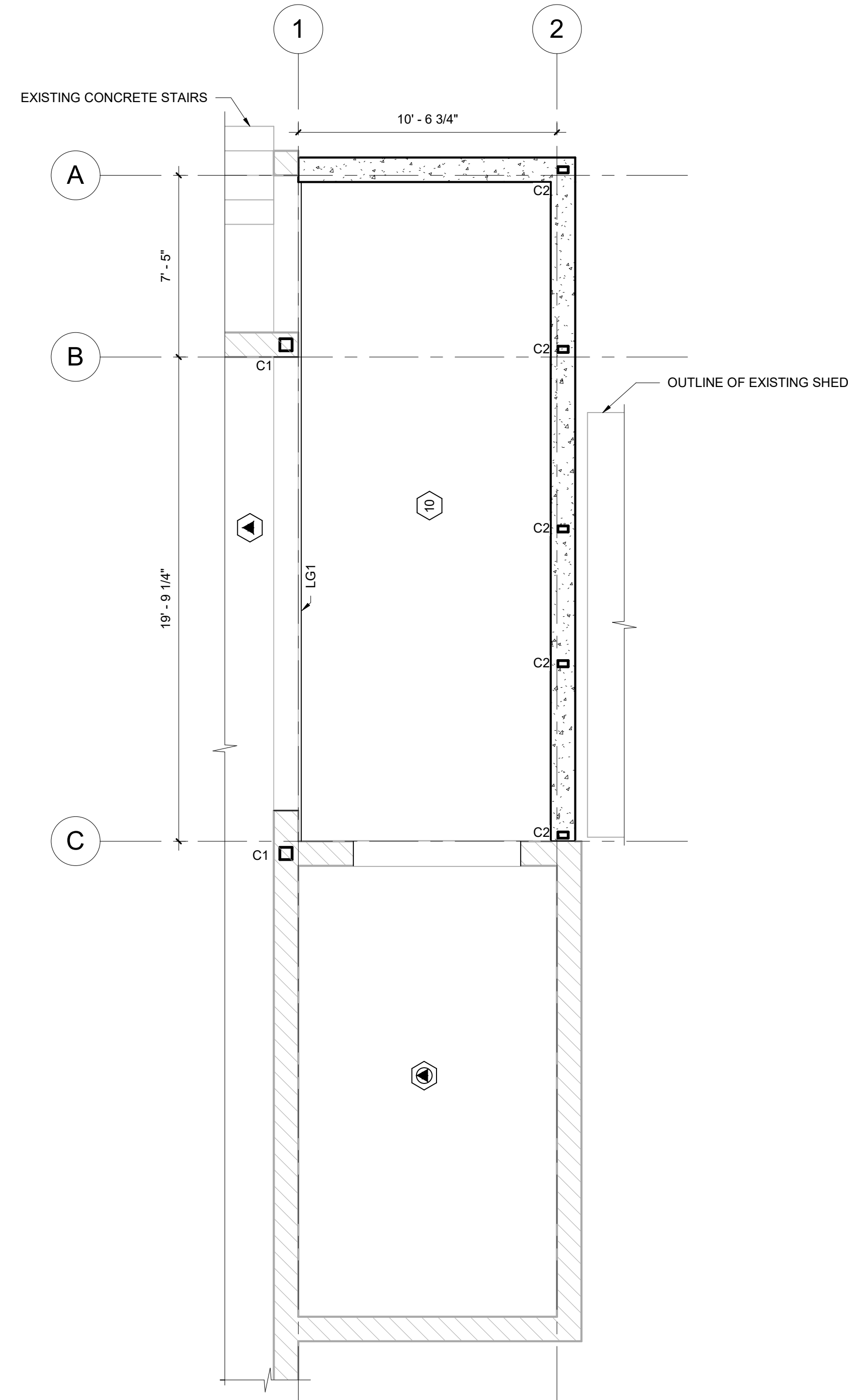
SEE ARCHITECTURAL PLANS FOR ELEVATIONS

SYMBOLS:

- ▭ INDICATES EXISTING CONCRETE FOUNDATION WALL.
- ▭ INDICATES NEW CONCRETE FOUNDATION WALL. SEE PLAN FOR SIZE AND REINFORCING.

NOTES:

1. ALL BOTTOM OF EXTERIOR FOOTING SHALL BE 42" MINIMUM BELOW FINISH GRADE.
2. FIELD LOCATE EXISTING UNDERGROUND UTILITIES, PIPING, etc. PRIOR TO PLACEMENT OF FOUNDATIONS. NOTIFY ENGINEER OF ANY INTERFERENCE WHICH MIGHT REQUIRE RELOCATION AND/OR MODIFICATION OF FOUNDATIONS.
3. DOWEL NEW FOUNDATION TO EXISTING FOOTING WITH #4@12. EMBED 6" WITH HILTI HY200 ADHESIVE.



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

FIRST FLOOR FRAMING PLAN NOTES:

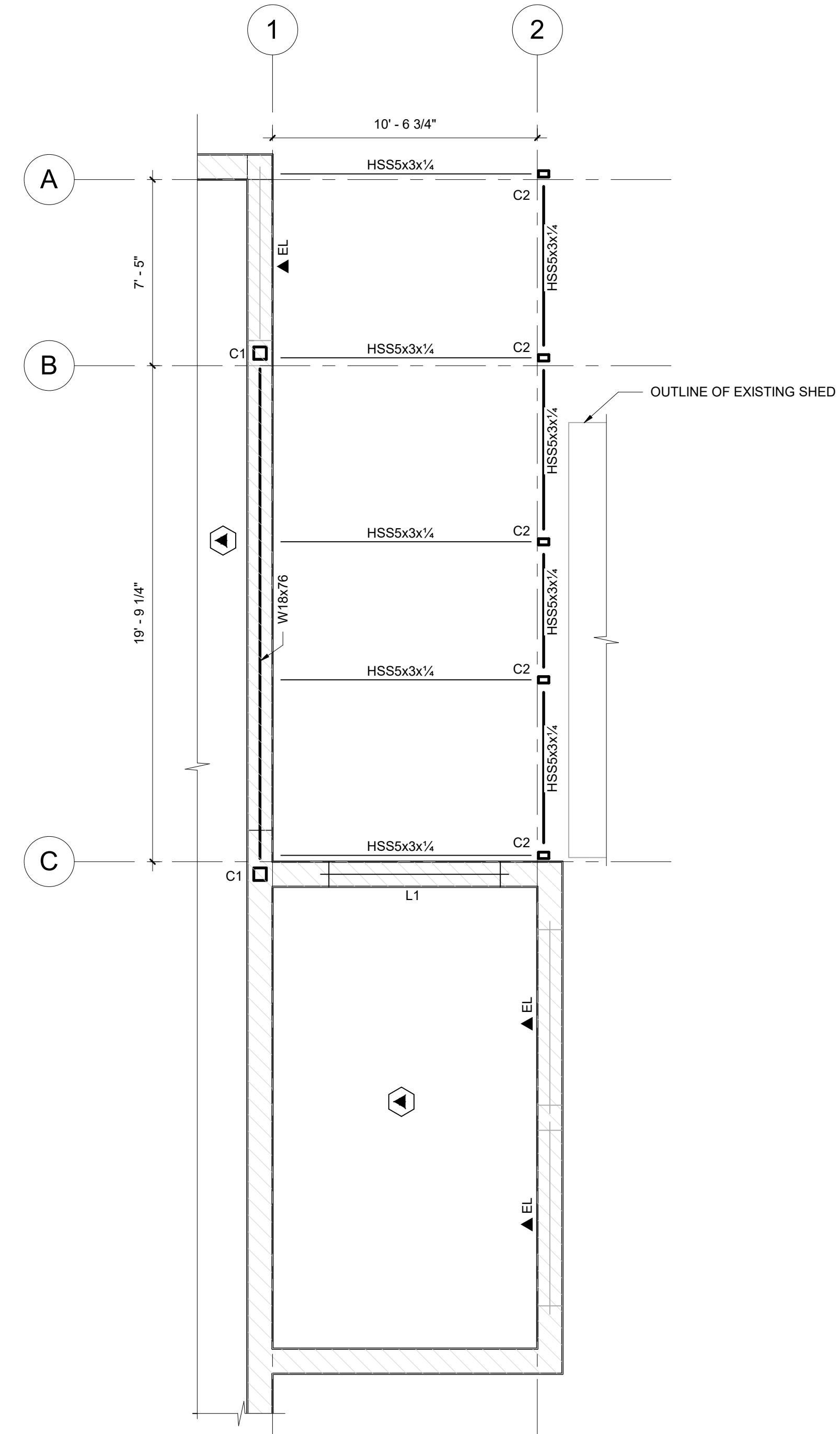
SEE ARCHITECTURAL PLANS FOR ELEVATIONS

SYMBOLS:

- ▭ INDICATES EXISTING MASONRY WALL.
- ▭ INDICATES NEW CONCRETE FOUNDATION WALL. SEE FOUNDATION FRAMING PLAN FOR SIZE AND REINFORCING.
- ▭ INDICATES EXISTING FRAMING.
- ⊗ INDICATES EXISTING FRAMING TO BE REINFORCED. SISTER EXISTING JOIST WITH NEW SAME SIZE JOIST.
- ⊗ INDICATES SPAN OF 2x10 WOOD JOISTS AT 12" OC WITH 3/4" T&G PLYWOOD.
- LG1 INDICATES NEW 2x10 PT WOOD LEDGER.
- C1 INDICATES NEW STEEL COLUMN ABOVE. SEE SECOND FLOOR FRAMING PLAN FOR SIZE.
- C2 INDICATES NEW STEEL COLUMN ABOVE. SEE SECOND FLOOR FRAMING PLAN FOR SIZE.

NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR DESIGN AND INSTALLATION OF ALL TEMPORARY SHORING.
2. PROVIDE BRIDGING FOR JOIST AT INTERVALS NOT TO EXCEED 8 FEET.
3. JOIST SHALL BE SUPPORTED Laterally AT THE ENDS BY FULL-DEPTH SOLID BLOCKING.
4. JOIST SHALL BE MINIMUM SOUTHERN PINE #2.
5. COORDINATE ALL MECHANICAL OPENINGS SIZE WITH ARCHITECTURAL & MECHANICAL DRAWINGS.



3 SECOND FLOOR FRAMING PLAN
1/4" = 1'-0"

SECOND FLOOR FRAMING PLAN NOTES:

SEE ARCHITECTURAL PLANS FOR ELEVATIONS

SYMBOLS:

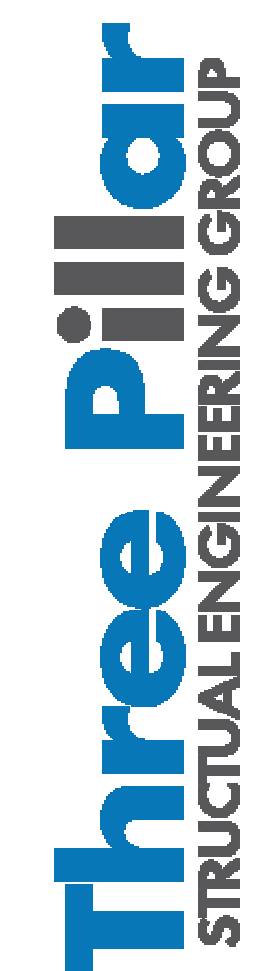
- ▭ INDICATES EXISTING MASONRY WALL.
- ▲EL INDICATES EXISTING LINTEL.
- ▭ INDICATES EXISTING FRAMING.
- L1 INDICATES NEW W8x15 STEEL LINTEL WITH 4" BEARING AT EACH END. WELD 3/8"-THICK STEEL PLATE TO BOTTOM FLANGE OF W-STEEL AT NEW WALL OPENING.
- C1 INDICATES NEW HSS6x6x1/4" STEEL COLUMN.
- C2 INDICATES NEW HSS5x3x1/4" STEEL COLUMN.

NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR DESIGN AND INSTALLATION OF ALL TEMPORARY SHORING.
2. COORDINATE ALL MECHANICAL OPENINGS SIZE WITH ARCHITECTURAL & MECHANICAL DRAWINGS.

THE ABOVE DRAWINGS AND SPECIFICATIONS AND IDEAS, DESIGNS AND ARRANGEMENTS REPRESENTED THEREBY ARE AND SHALL REMAIN THE PROPERTY OF THE ENGINEER. AND NO PART THEREOF SHALL BE COPIED, DISCLOSED TO OTHERS OR USED IN THE CONNECTION WITH ANY WORK OR PROJECT OTHER THAN THE SPECIFIC PROJECT FOR WHICH THEY HAVE BEEN PREPARED AND DEVELOPED WITHOUT THE WRITTEN CONSENT OF THE ARCHITECT. VISUAL CONTACT WITH THESE DRAWINGS OR SPECIFICATIONS SHALL CONSTITUTE CONCLUSIVE EVIDENCE OF ACCEPTANCE OF THESE RESTRICTIONS.

WRITTEN DIMENSIONS ON THESE DRAWINGS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS. CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB AND THIS OFFICE MUST BE NOTIFIED OF ANY VARIATIONS FROM THE DIMENSIONS AND CONDITIONS SHOWN BY THESE DRAWINGS. SHOP DETAILS MUST BE SUBMITTED TO THIS OFFICE FOR APPROVAL BEFORE PROCEEDING WITH FABRICATION.



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No.	Description	Date
	ISSUE FOR REVIEW	12/07/21

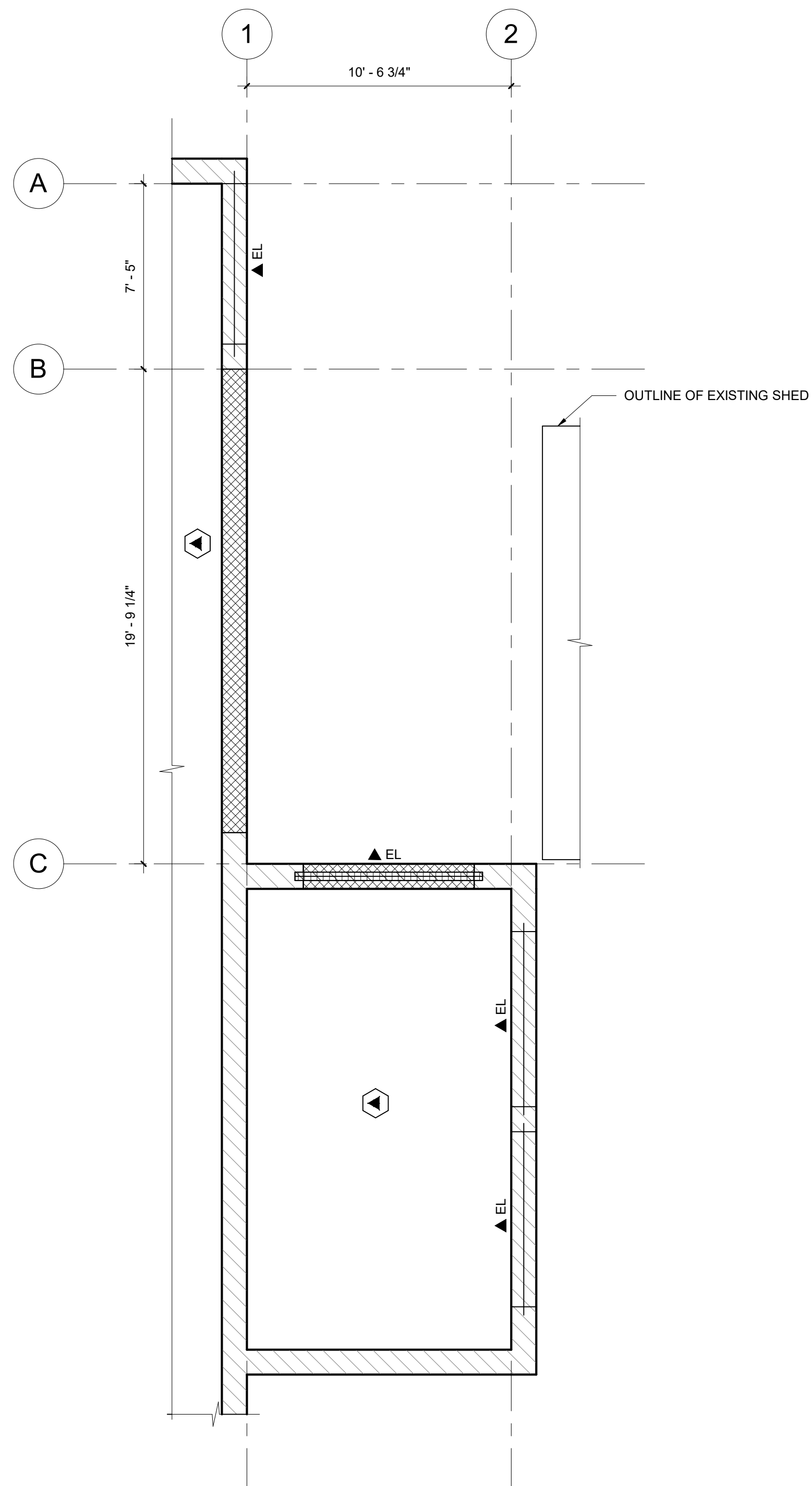
PROJECT NAME AND ADDRESS
HOUSE ADDITION
31 ARDEN PARK BLVD,
DETROIT, MI 48202

**STRUCTURAL
FRAMING PLANS**

Project Number	21-019
Date	12/07/2021
Drawn by	SP
Checked by	MW

S-200

Scale As indicated



① SECOND FLOOR DEMO PLAN
1/4" = 1'-0"

SECOND FLOOR DEMOLITION PLAN NOTES:

SYMBOLS:

- INDICATES EXISTING MASONRY WALL.
- INDICATES WALL TO BE DEMOLISHED.
- INDICATES EXISTING LINTEL TO BE DEMOLISHED.
- INDICATES EXISTING JOIST AND SUBFLOOR FRAMING TO REMAIN.
- EL INDICATES EXISTING LINTEL TO REMAIN.

NOTES:

1. VERIFY ALL EXISTING STRUCTURAL MEMBERS IN FIELD.
2. CONTRACTOR IS RESPONSIBLE FOR DESIGN AND INSTALLATION OF ALL TEMPORARY SHORING.

THE ABOVE DRAWINGS AND SPECIFICATIONS AND IDEAS, DESIGNS AND ARRANGEMENTS REPRESENTED THEREBY ARE AND SHALL REMAIN THE PROPERTY OF THE ENGINEER, AND NO PART THEREOF SHALL BE COPIED, DISCLOSED TO OTHERS OR USED IN THE CONNECTION WITH ANY WORK OR PROJECT OTHER THAN THE SPECIFIC PROJECT FOR WHICH THEY HAVE BEEN PREPARED AND DEVELOPED WITHOUT THE WRITTEN CONSENT OF THE ARCHITECT. VISUAL CONTACT WITH THESE DRAWINGS OR SPECIFICATIONS SHALL CONSTITUTE CONCLUSIVE EVIDENCE OF ACCEPTANCE OF THESE RESTRICTIONS.

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No.	Description	Date
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PROJECT NAME AND ADDRESS
HOUSE ADDITION
31 ARDEN PARK BLVD,
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STRUCTURAL DEMO PLANS	
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Checked by	MW

SD-200

Scale As indicated