

2 SECOND FLOOR FRAMING PLAN
S1 3/32"=1'-0"

NOTE:
1ST FLOOR EXTERIOR BEARING WALLS AND CORRIDOR WALLS, STUDS @ 12" O.C.

RIM JOIST NOTE
2ND FLOOR 1 1/2" X 20" LSL RIM
3RD FLOOR 2X8 CONT RIM
4TH FLOOR 2X8 CONT RIM

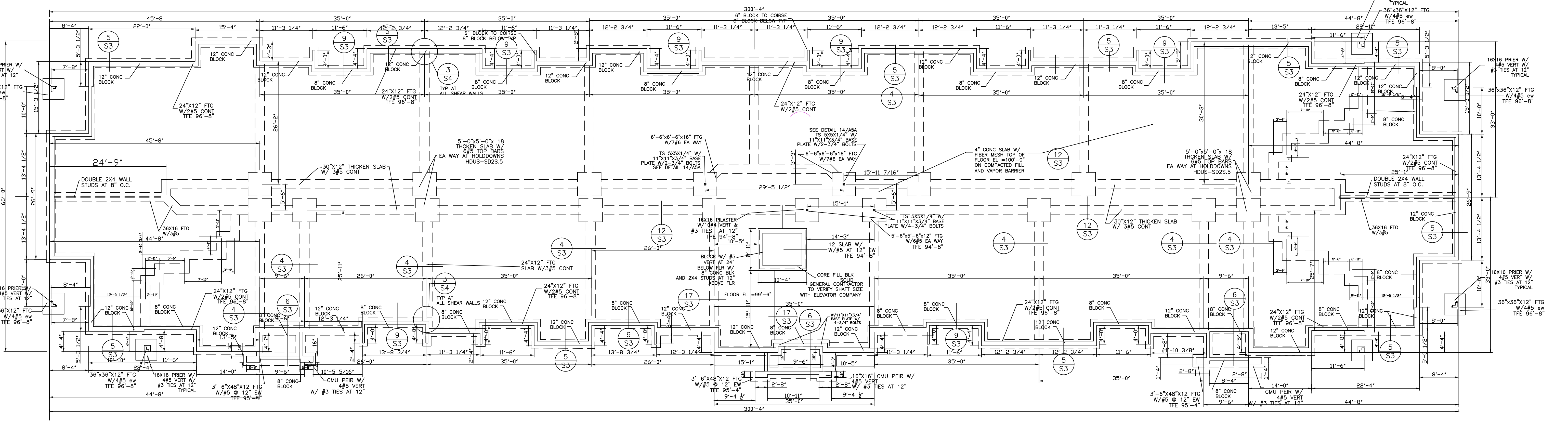
NOTE
SEE ARCHITECTURAL FOR ALL DEMINION

FLOOR PLAN NOTES:

- FLOOR SHEATHING SHALL BE 3/4" TONGUE AND GROOVE OSB.
- DIMENSIONAL LUMBER FLOOR JOISTS TO HAVE BRIDGING AT INTERVALS NOT TO EXCEED 8'-0".
- SEE ARCHITECT FOR ALL OPENING SIZES AND LOCATIONS.
- CORRIDOR WALLS AND BEARING WALLS, AND EXTERIOR TO BE 2X6 AT 16" O.C. U.N.O. SEE ARCHITECTURAL AT 2ND FLOOR AND ABOVE
- CORRIDOR WALLS AND BEARING WALLS, AND EXTERIOR TO BE 2X6 AT 12" O.C. U.N.O. AT 1ST FLOOR AND ABOVE
- ALL LINTEL TRIMMERS SHALL BE CONTINUOUS TO THE FOUNDATION.
- FLOOR TRUSS LOCATIONS MUST BE COORDINATED WITH ANY PROPOSED PLUMBING.

LINTEL SCHEDULE						
MARK	DESCRIPTION	1ST TO 2ND	2ND TO 3RD	3RD TO 4TH	4TH TO RF	
L1	3-2X10	3-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	
L2	3-2X12	3-2X6 BRG 1 FULL HT	3-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	
L3	3-2X6	3-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	
L4	2-2X10	3-2X6 BRG 1 FULL HT	3-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	

LINTEL SCHEDULE						
MARK	DESCRIPTION	1ST TO 2ND	2ND TO 3RD	3RD TO 4TH	4TH TO RF	
L5	3-1 3/4X9 1/2 LVLS	3-2X6 BRG 1 FULL HT	3-2X6 BRG 1 FULL HT	3-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	
L6	2-1 3/4X9 1/2 LVLS	HANGERS AND STUD BRG AT WALL				
L7	2-1 3/4X16 LVLS	3-2X6 BRG 1 FULL HT	3-2X6 BRG 1 FULL HT	3-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	
L8	2-1 3/4X17/8 LVLS	3-2X6 BRG 1 FULL HT	3-2X6 BRG 1 FULL HT	3-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	
L9	2-1 3/4X16 LVLS	4-2X6 BRG 1 FULL HT				
L10	8" BOND BEAM W/2#5					

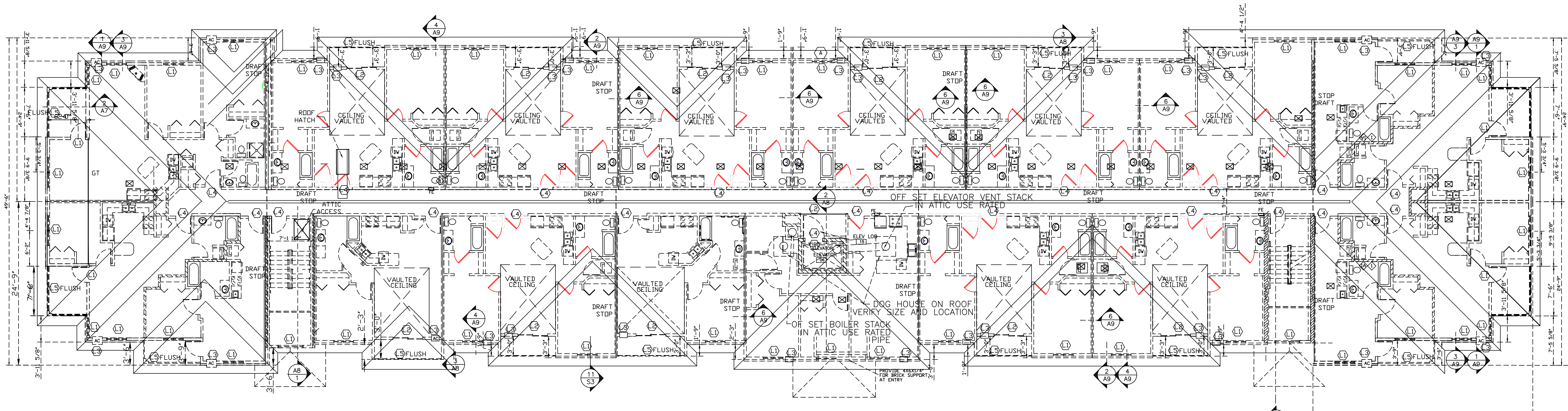


1 FOOTING AND FOUNDATION PLAN
S1 3/32"=1'-0"

RECESS ALL PATIO DOORS
3/4" AT FIRST FLOOR

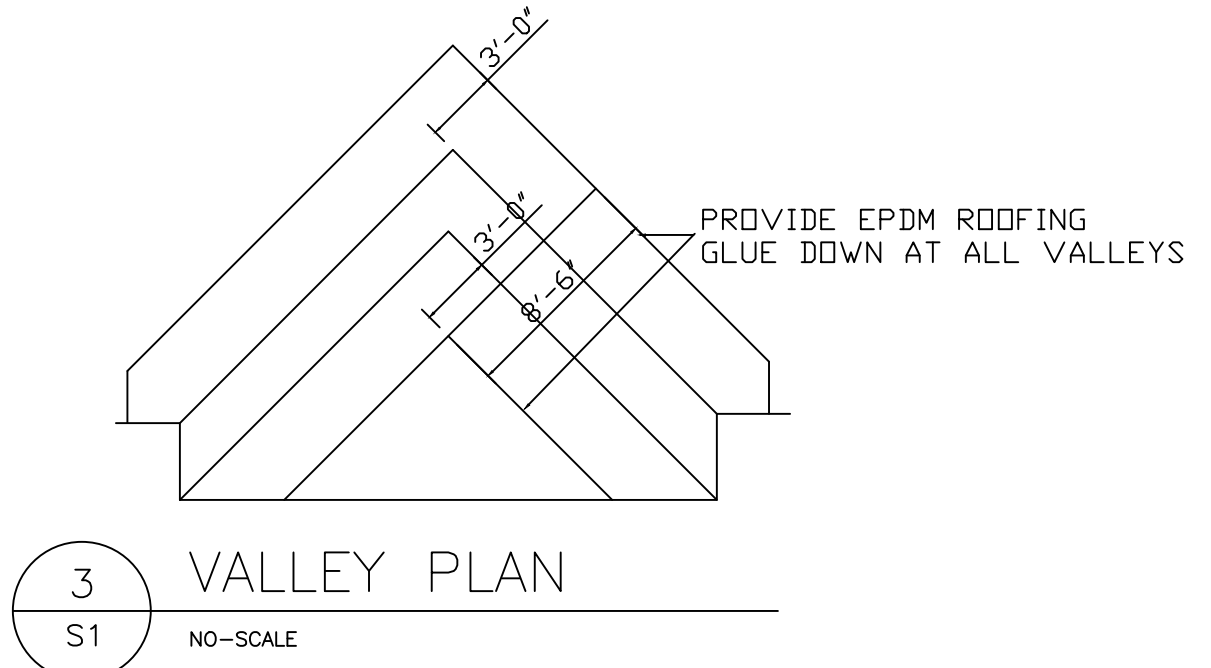
Larson Engineering, Inc.
3524 Labore Road
White Bear Lake, MN 55110
(P) 651.481.9120 (F) 651.481.9201
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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: **KEVIN RAMDULAR**
SIGNATURE: *Kevin Ramdular*
DATE: 12-0-17 REG. NO. 16256



2 ROOF PLAN
S1 3/32"=1'-0"

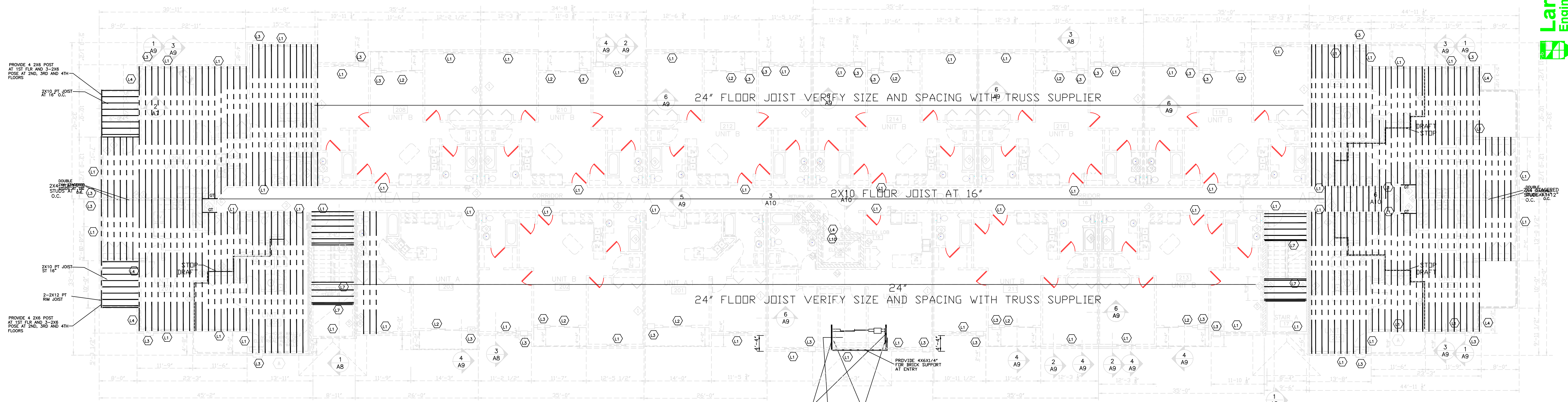
NOTE:
SEE ARCHITECTURAL FOR ALL DEMISSION
NOTE:
1ST FLOOR EXTERIOR BEARING WALLS AND
CORRIDOR WALLS, STUDS @ 12" O.C.



3 VALLEY PLAN
S1 NO-SCALE

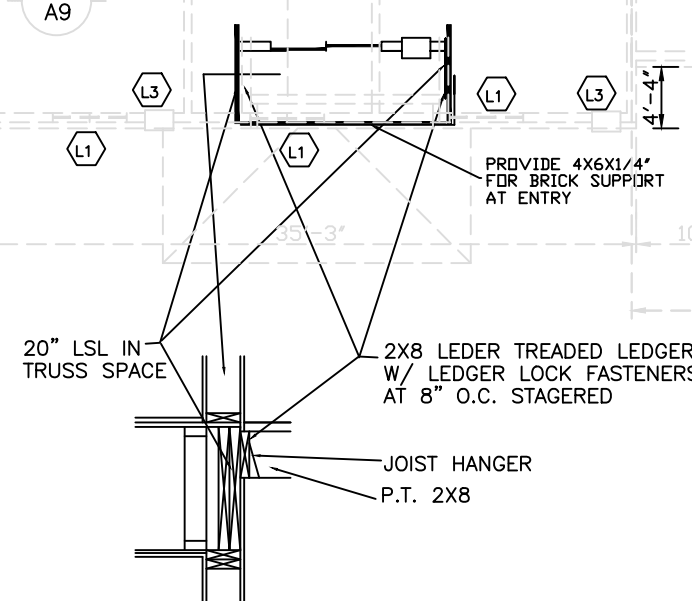
LINTEL SCHEDULE					
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L2	3-2X12	3-2X6 BRG 1 FULL HT	3-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT
L3	3-2X6	2-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT
L4	2-2X10	3-2X6 BRG 1 FULL HT	3-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT	2-2X6 BRG 1 FULL HT

LINTEL SCHEDULE					
MARK	DESCRIPTION	1ST TO 2ND	2ND TO 3RD	3RD TO 4TH	4TH TO RF
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L6	2-1 3/4X9 1/2 LVLS	HANGERS AND STUD BRG AT WALL	3	3	2-2X6 BRG 1 FULL HT
L7	3-1 3/4X16 LVLS	3-2X6 BRG 1 FULL HT	3-2X6 BRG 1 FULL HT	3-2X6 BRG 1 FULL HT	3-2X6 BRG 1 FULL HT
L8	2-1 3/4X17/8 LVLS	3-2X6 BRG 1 FULL HT	3-2X6 BRG 1 FULL HT	3-2X6 BRG 1 FULL HT	3-2X6 BRG 1 FULL HT



1 THIRD AND FOURTH FLOOR FRAMING PLAN
S2 3/32"=1'-0"

NOTE:
SEE ARCHITECTURAL FOR ALL DEMISSION



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PRINT NAME: KESH RAMDOLAR
SIGNATURE: [Signature]
DATE: 12-5-17 REG. NO.: 16256

Larson Engineering, Inc.
3524 Labore Road
White Bear Lake, MN 55110
(P) 651-481-9120 (F) 651-481-9201
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CDM# 1717
DATE 12/22/17

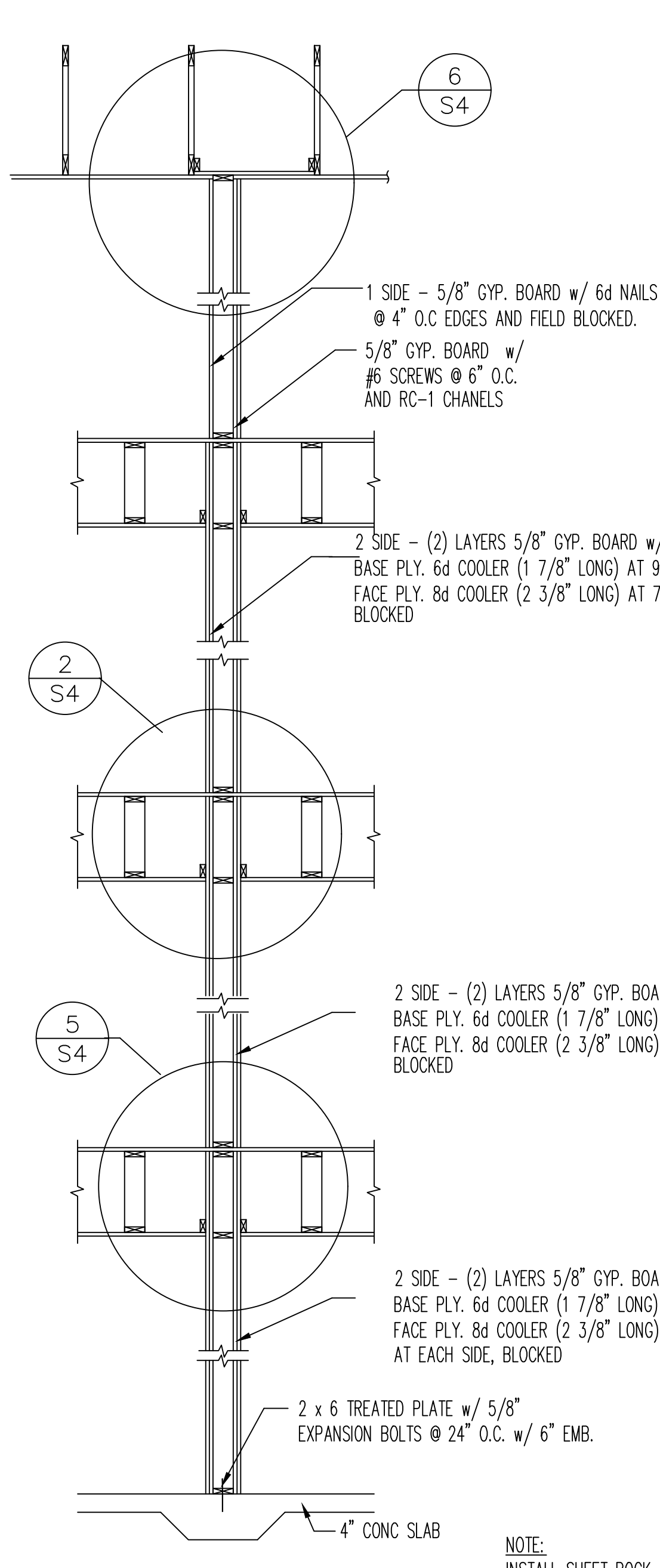
REVISION

PROJECT NAME

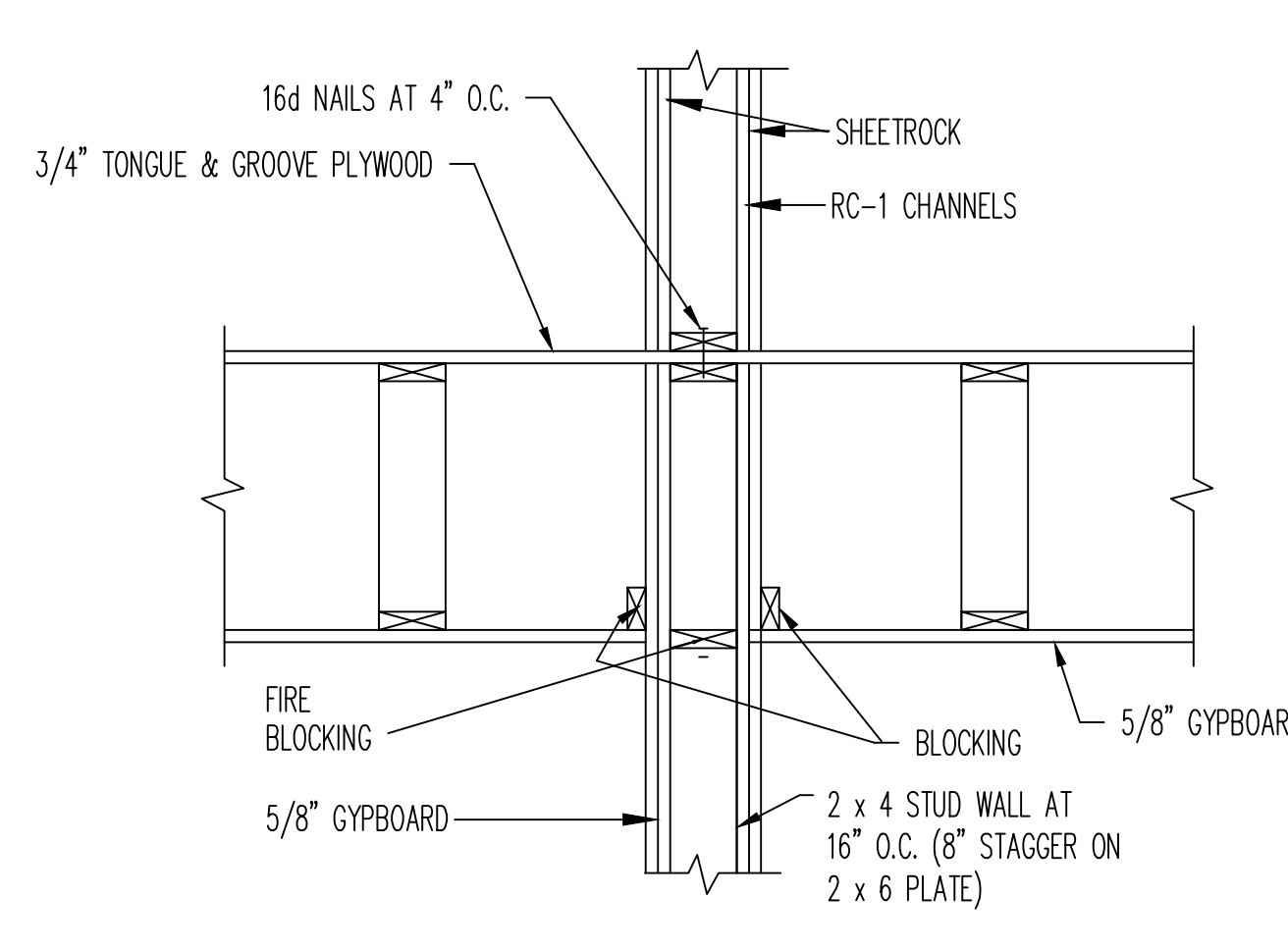
TIMBER RIDGE APARTMENTS
73 UNIT BUILDING
FOREST LAKE, MINNESOTA

RHA ARCHITECT'S INC.
ARCHITECTS, PLANNERS, DESIGNERS
P.O. BOX 988
ST. CLOUD, MINNESOTA EMAIL: RHA@RHAARCH.COM

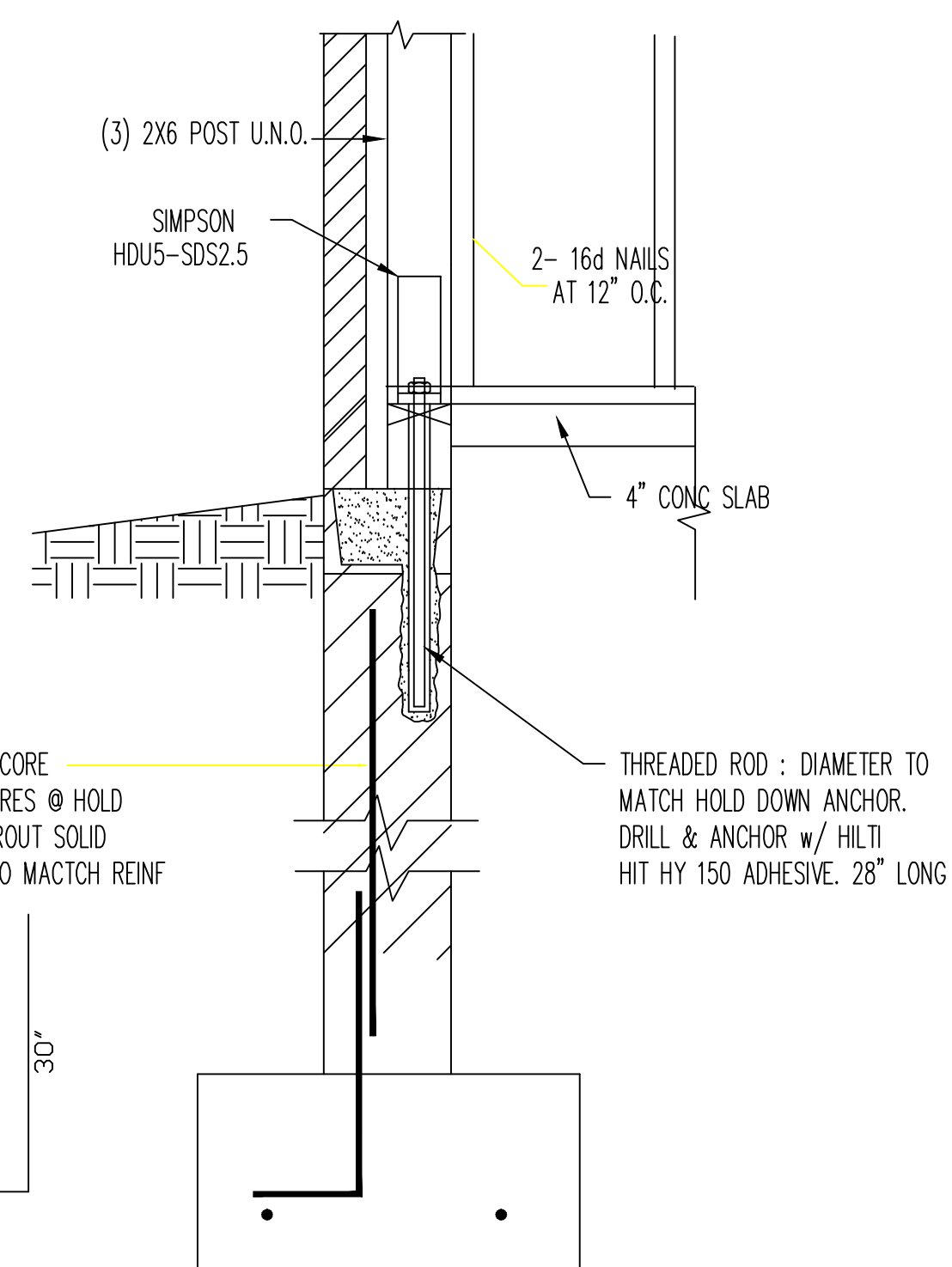
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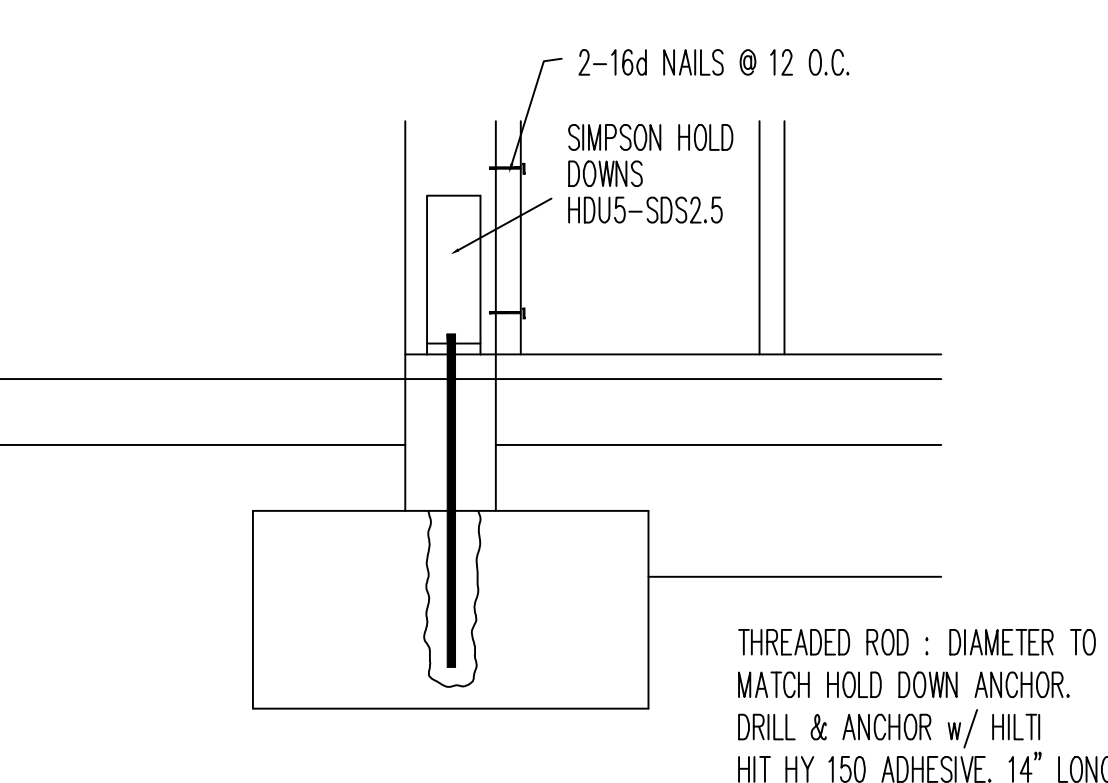
1 S4
ND-SCALE



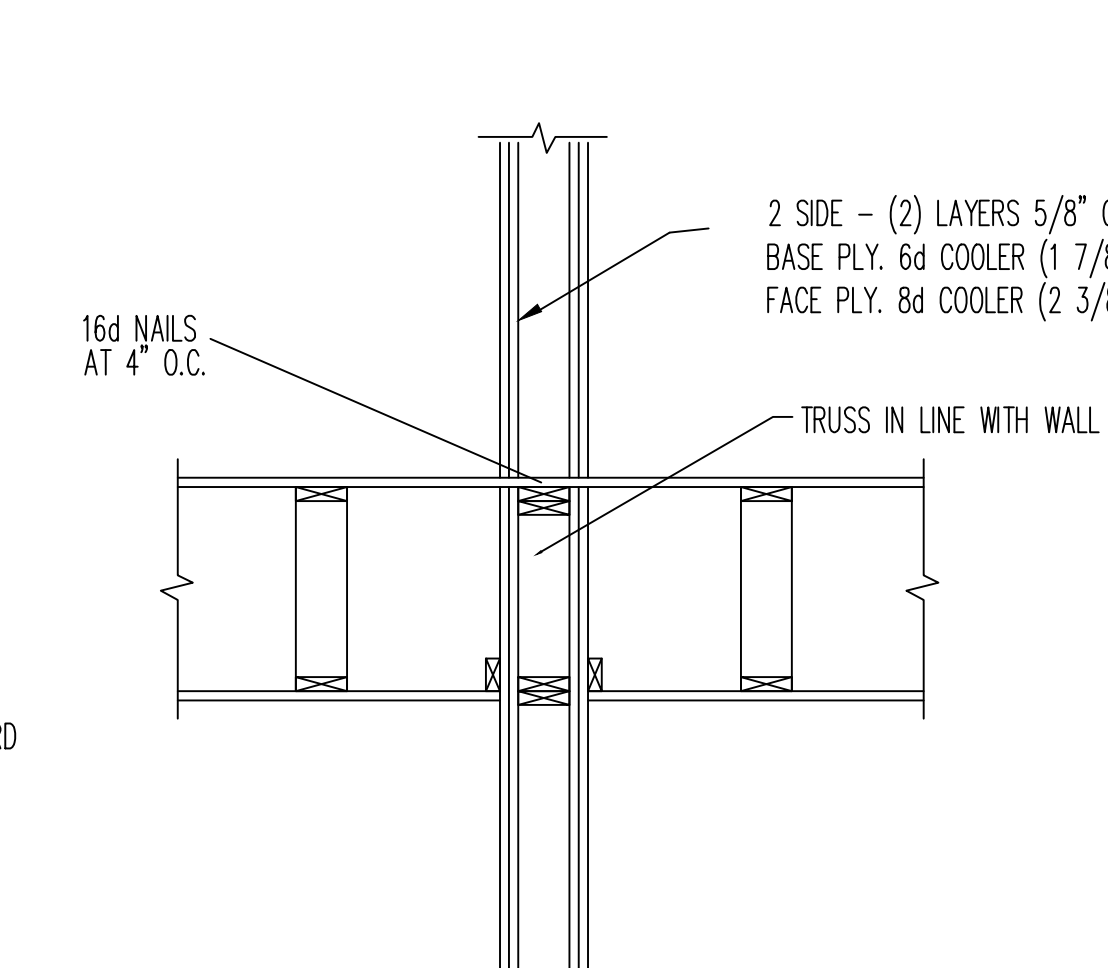
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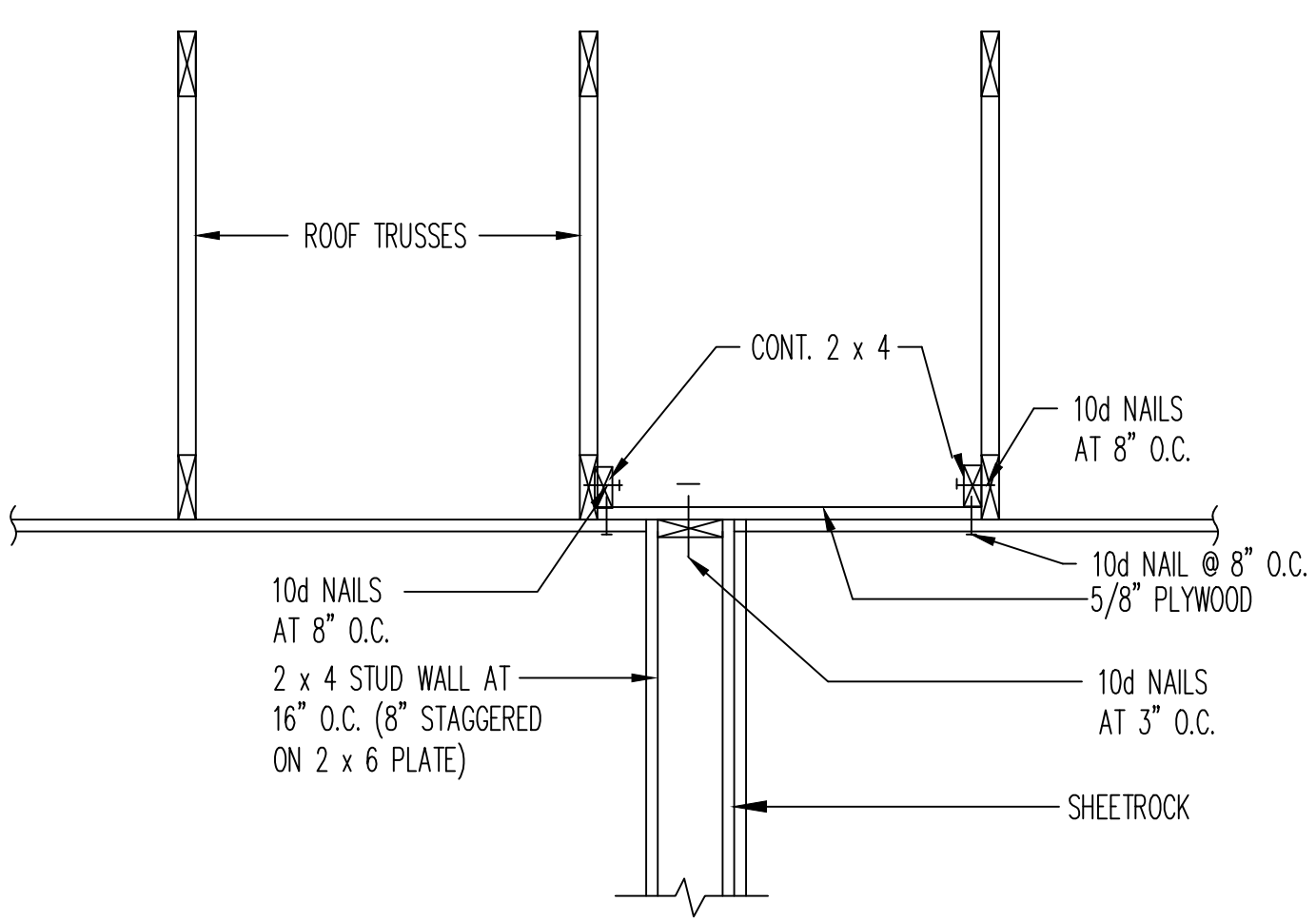
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ND-SCALE



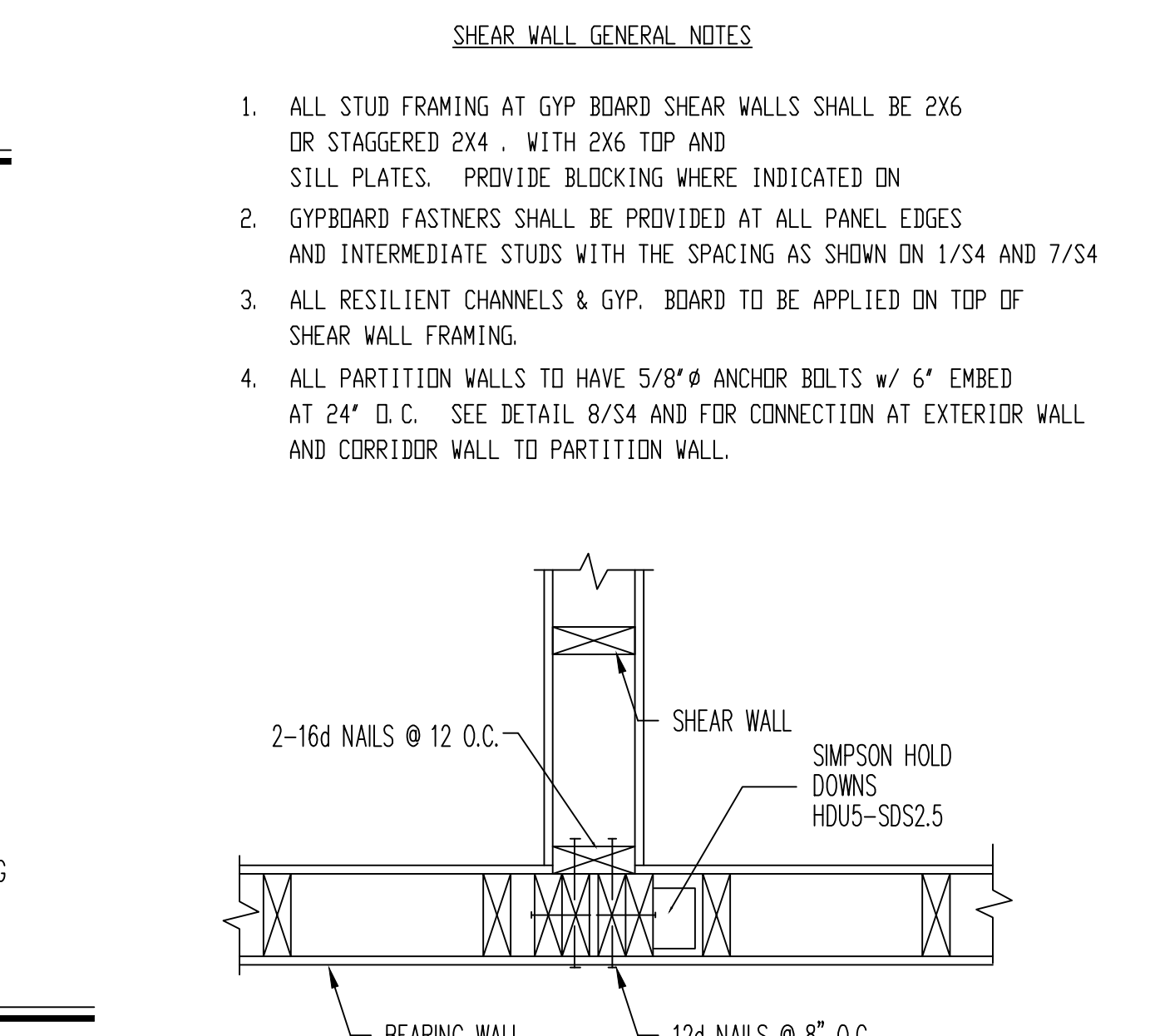
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ND-SCALE



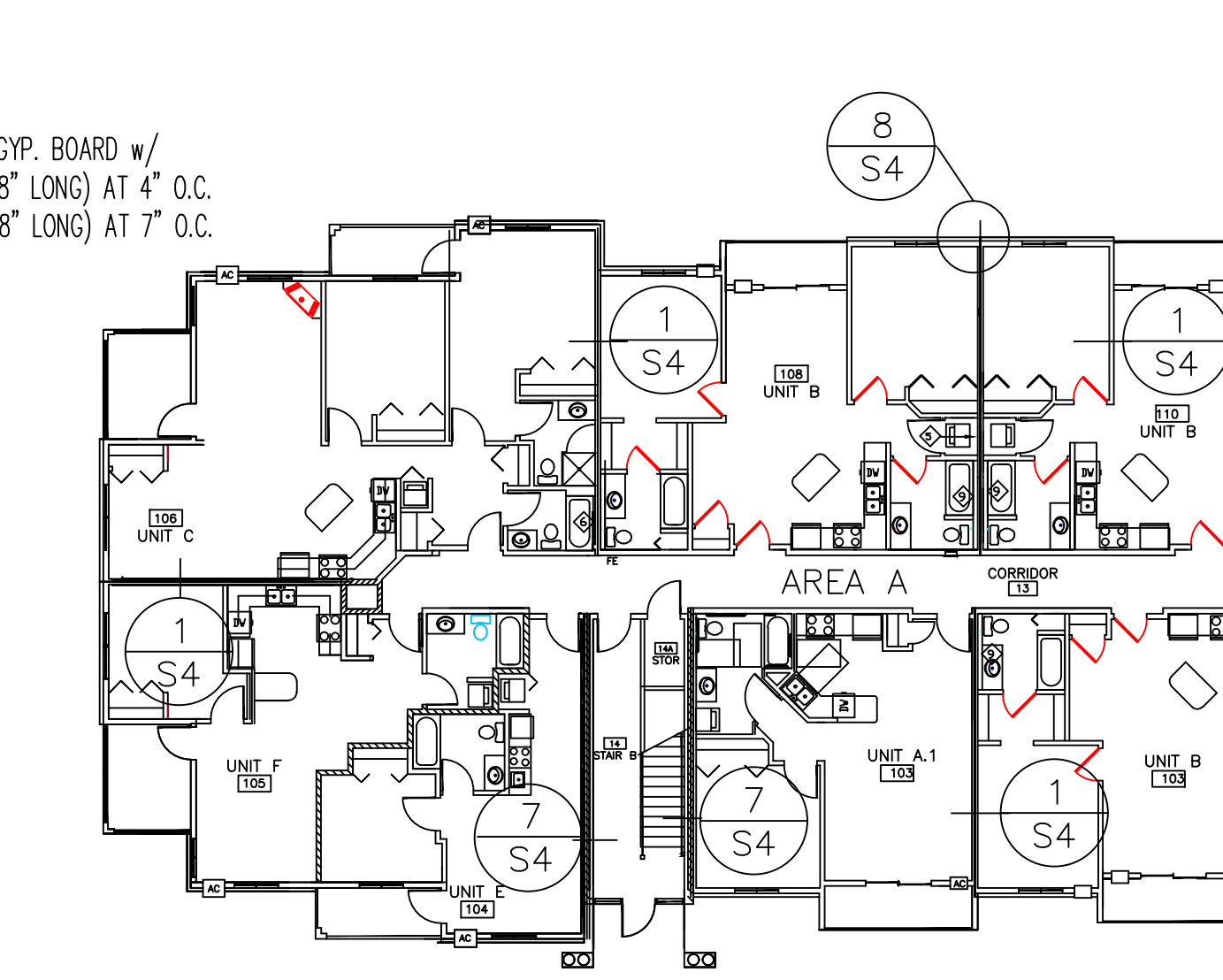
5 S4
ND-SCALE



6 S4
ND-SCALE



7 S4
ND-SCALE

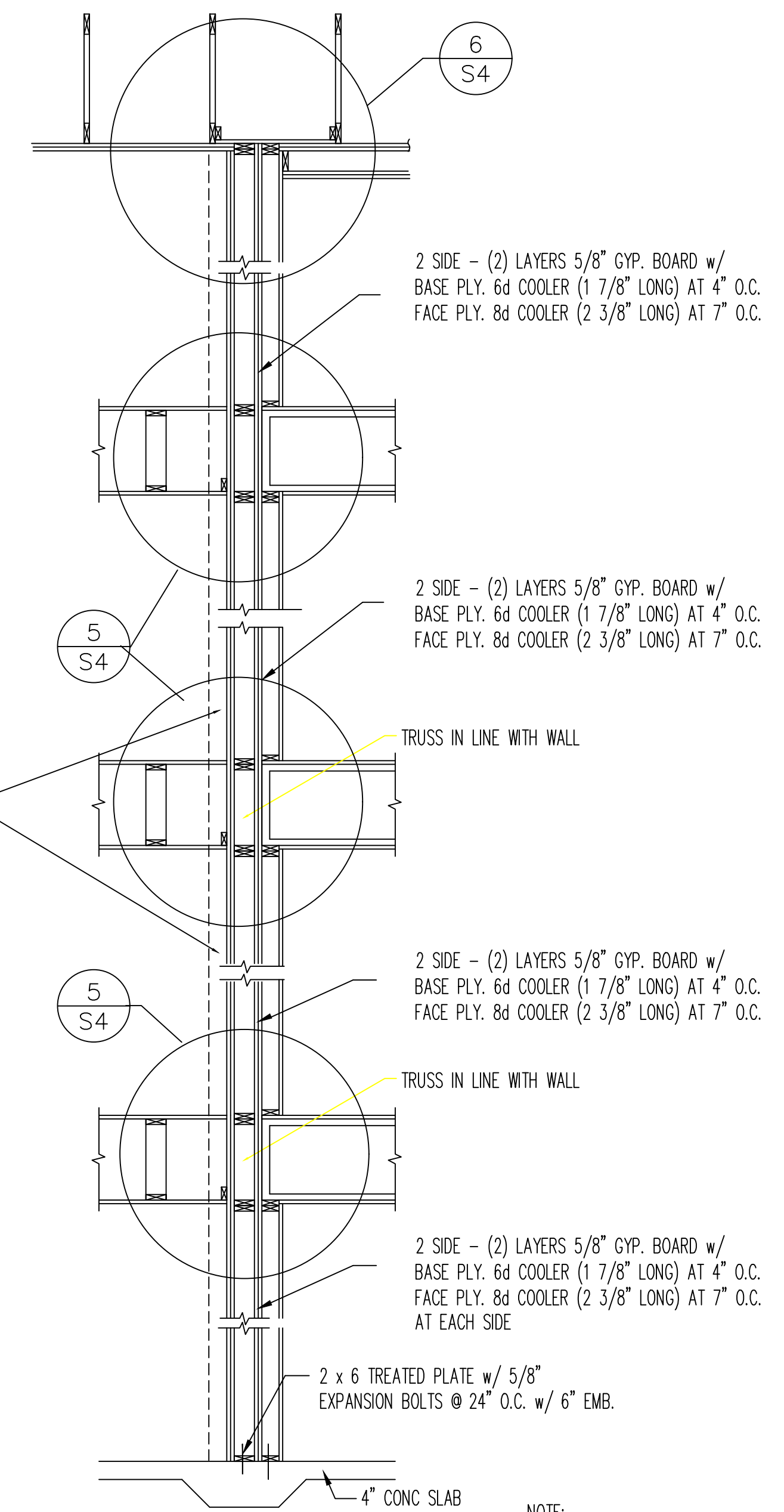


8 S4
ND-SCALE

DETAIL
ND-SCALE

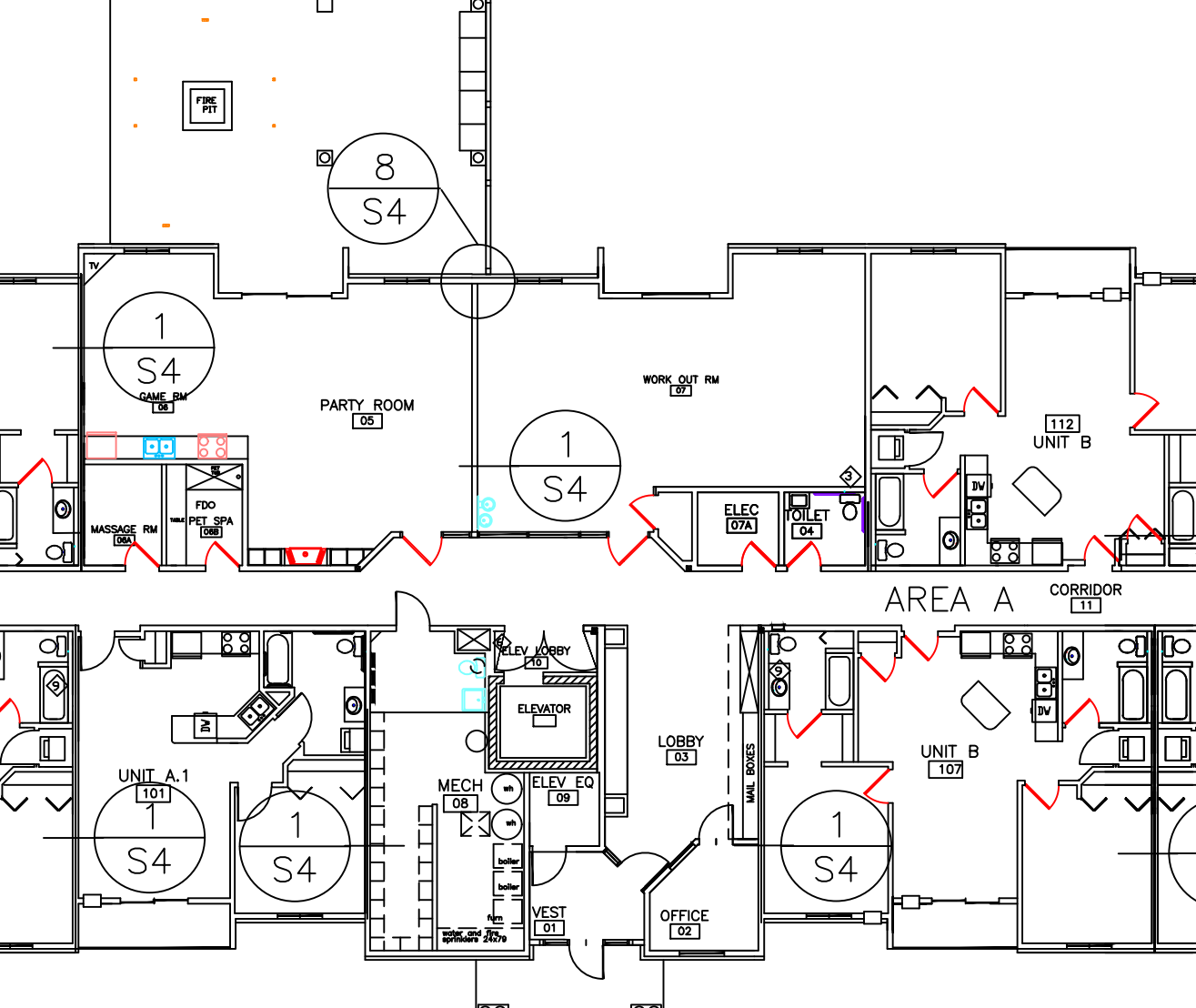
- SHEAR WALL GENERAL NOTES
1. ALL STUD FRAMING AT GYP BOARD SHEAR WALLS SHALL BE 2X6 OR STAGGERED 2X4 . WITH 2X6 TOP AND SILL PLATES. PROVIDE BLOCKING WHERE INDICATED ON
 2. GYPBOARD FASTNERS SHALL BE PROVIDED AT ALL PANEL EDGES AND INTERMEDIATE STUDS WITH THE SPACING AS SHOWN ON 1/S4 AND 7/S4
 3. ALL RESILIENT CHANNELS & GYP. BOARD TO BE APPLIED ON TOP OF SHEAR WALL FRAMING.
 4. ALL PARTITION WALLS TO HAVE 5/8"Ø ANCHOR BOLTS w/ 6" EMBED AT 24" O.C. SEE DETAIL 8/S4 AND FOR CONNECTION AT EXTERIOR WALL AND CORRIDOR WALL TO PARTITION WALL.

DETAIL
ND-SCALE

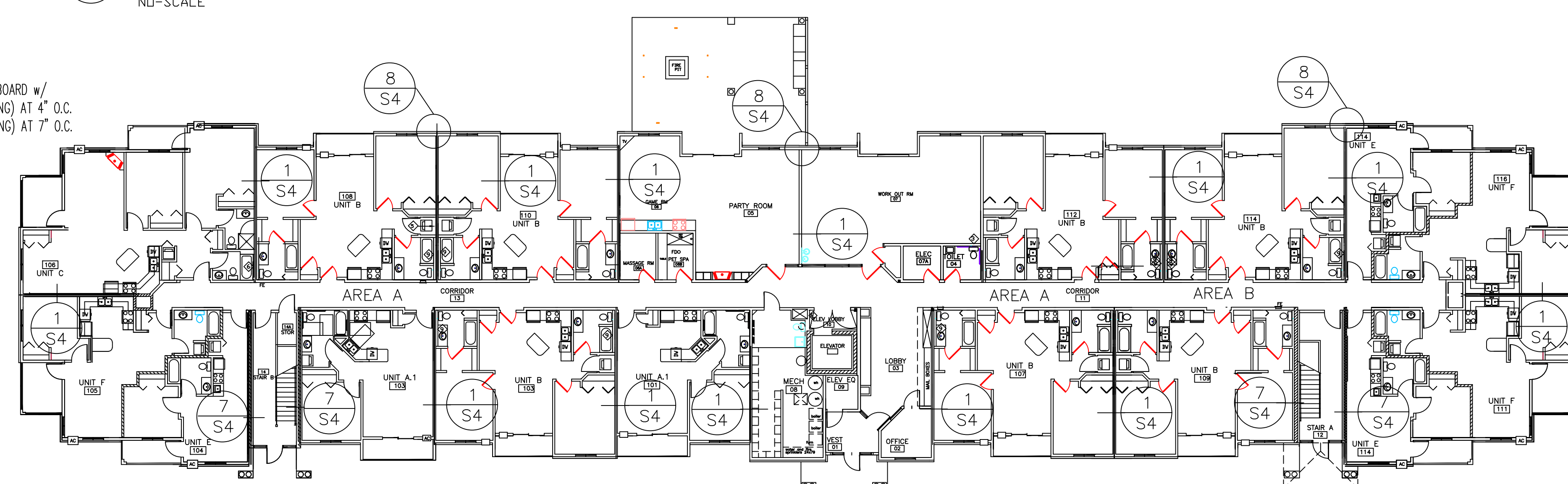


6 S4
ND-SCALE

DETAIL
ND-SCALE



7 S4
ND-SCALE



SHEAR WALL PLAN

SCALE : 1/16"=1'-0"

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PRINT NAME: KESH RAMDULAR
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Larson Engineering, Inc.
3524 Labore Road
White Bear Lake, MN 55110
(P) 651.461.9120 (F) 651.461.9201
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REVISION

PROJECT NAME

TIMBER RIDGE APARTMENTS
73 UNIT BUILDING
FOREST LAKE, MINNESOTA

RHA ARCHITECT'S INC.
ARCHITECTS, PLANNERS, DESIGNERS
P.O. BOX 363
ST. CLOUD, MINNESOTA
PHONE: 320-267-7115
EMAIL: RHA120@TAROO.COM

SHEET NO.
S4

GENERAL STRUCTURAL NOTES

- BUILDING CODES USED FOR DESIGN:
 - MINNESOTA BUILDING CODE, 2015 EDITION. (IBC 2012)
- FOUNDATIONS:
 - GRANULAR FILL SHALL BE COMPACTED TO 98% STANDARD DENSITY (ASTM: D698-91).
 - IF SOIL AT BOTTOM OF FOOTINGS AS DETAILED IS OF QUESTIONABLE BEARING VALUE, THE ARCHITECT'S OFFICE SHALL BE NOTIFIED AT ONCE. IN LIEU OF SOIL BORINGS, FOOTINGS HAVE BEEN DESIGNED FOR A MAXIMUM SOIL BEARING PRESSURE OF 2500 PSF. IT WILL BE THE RESPONSIBILITY OF OTHERS TO VERIFY THIS BEARING CAPACITY. TO INSURE THAT DAMAGING DIFFERENTIAL SETTLEMENT WILL NOT OCCUR.
 - WALL FOOTING ELEVATION CHANGES SHALL BE STEPPED AT A RATIO OF 1 (VERTICAL) TO 2 (HORIZONTAL). MAXIMUM VERTICAL STEP SHALL BE 1'-4" UNLESS OTHERWISE NOTED.
 - ALL EXTERIOR WALL FOOTINGS SHALL HAVE A MINIMUM SOIL COVER OF 3'-6" MEASURED FROM BOTTOM OF FOOTING UNLESS OTHERWISE NOTED.
 - SEE SOILS REPORT FOR ANTICIPATED SETTLEMENT VALUES. THE OWNER SHOULD VERIFY THAT THIS SETTLEMENT CRITERIA WILL NOT BE DETRIMENTAL TO THE BUILDING OR ITS OPERATION.
 - PROVIDE A 6" SAND CUSHION AND POLY VAPOR BARRIER BENEATH ALL SLABS ON GRADE. COMPACT SAND WITH MECHANICAL EQUIPMENT TO +0 TO -3/4" OF CORRECT ELEVATIONS. THE VAPOR BARRIER SHALL BE PLACED DIRECTLY BENEATH THE SLAB. THE SLAB SHALL BE MOIST CURED TO PREVENT CURLING.
 - BASE FILL (SAND CUSHION) FOR SLABS ON GRADE SHALL BE REASONABLY WELL GRADED SAND (SW OR SP) CLEAN AND FREE OF ORGANIC MATERIAL WITH NOT MORE THAN 5% BY WEIGHT, PASSING A NO. 200 SIEVE AND LESS THAN 40% BY WEIGHT, PASSING THE #40 SIEVE. COARSE AGGREGATE SHALL NOT EXCEED 3/4".
- DESIGN LOADS:
 - WIND LOAD CRITERIA
 - METHOD USED: ASCE 7

BASIC WIND (3 SECOND GUST)	V3s = 115
WIND LOAD IMPORTANCE FACTOR	I = 1
WIND LOAD EXPOSURE	B
 - SNOW LOAD CRITERIA

GROUND SNOW LOAD:	Pg = 60 psf
SNOW LOAD IMPORTANCE FACTOR	Is = 1
SNOW LOAD EXPOSURE FACTOR	Ce = 1
SLOPED ROOF/FLAT ROOF FACTOR	Cs = 1
ROOF THERMAL FACTOR	Ct = 1.1
 - ROOF SNOW LOAD Ps = Pg(.7)(Is)(Ce)(Cs)(Ct) = 38.5 psf
 - MISC. LIVE LOADS:

PUBLIC AREAS, CORRIDORS AND STAIRS	100 PSF
RESIDENTIAL FLOOR	40 PSF
- DESIGN STRESSES:
 - CONCRETE:

STRENGTH AT 28 DAYS(Psi)	TYPE MIX	LOCATION
3000	STANDARD WEIGHT	INTERIOR SLABS & WALLS
4000	STD. WT. AIR-ENTRAINED	EXTERIOR SLABS & WALLS
3000	STANDARD WEIGHT	FOOTINGS
3000	STANDARD WEIGHT	INTERIOR TOPPING
 - MASONRY PRISM STRENGTH

f _m = 2000 PSI (@ 28 DAYS)

 - MASONRY UNITS

f _c = 2800 PSI (@ 28 DAYS)

 - MASONRY GROUT

f _c = 3000 PSI (@ 28 DAYS)

 - NON-SHRINK GROUT

f _c = 10,000 PSI (@ 28 DAYS)

 - REINFORCEMENT

F _y = 60,000 PSI ASTM A615 (DEFORMED BARS)

 - STRUCTURAL STEEL

i) WIDE FLANGE SHAPES	F _y = 50,000 PSI ASTM A992
ii) ALL OTHER SHAPES	F _y = 36,000 PSI ASTM A36
 - STRUCTURAL TUBING

F _y = 46,000 PSI ASTM A500 GRADE B

 - STANDARD STEEL PIPE

F _y = 35,000 PSI ASTM A53 GRADE B
--
 - PLATES

F _y = 36,000 PSI ASTM A36

 - BOLTS

F _u = 120,000 PSI ASTM A325
--
 - ANCHOR BOLTS

F _u = 58,000 PSI ASTM F1554 GRADE 36

 - WELD ELECTRODE

F _u = 70,000 PSI

 - WELDED WIRE FABRIC

ASTM A185

- CONCRETE COVERAGE FOR REINFORCEMENT:

FOOTINGS	3" FROM BOTTOM
PEDESTALS	2" TO TIES
FOUNDATION WALLS	EXTERIOR FACE 2"
	INTERIOR FACE 1"
STRUCTURAL SLAB	1" TOP AND BOTTOM
EXPOSED EXTERIOR CONCRETE	2"
SLAB ON GRADE	1" FROM TOP
- MASONRY COVERAGE FOR REINFORCEMENT:

WALLS	3 1/2"
PILASTERS	3" TO TIES
- REINFORCING STEEL:
 - THE REINFORCING STEEL CONTRACTOR SHALL FABRICATE ALL REINFORCEMENT AND FURNISH ALL ACCESSORIES, CHAIRS, SPACER BARS AND SUPPORTS NECESSARY TO SECURE THE REINFORCEMENT UNLESS SHOWN OTHERWISE ON THE PLANS AND/OR DETAILS.
 - CONCRETE REINFORCEMENT SHALL BE PLACED ACCORDING TO THE CRSI "RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS".
 - COMPRESSION AND TENSION LAP SPLICES FOR CAST-IN-PLACE CONCRETE SHALL BE 38 BAR DIAMETER MINIMUM UNLESS OTHERWISE NOTED.
 - TENSION LAP SPLICES FOR REINFORCED MASONRY SHALL BE 48 BAR DIAMETERS MINIMUM FOR #5 BARS OR SMALLER AND 64 BAR DIAMETERS MINIMUM FOR #6 BARS OR LARGER, UNLESS OTHERWISE NOTED.
 - HORIZONTAL REINFORCING STEEL IN FOOTINGS AND CONCRETE WALLS SHALL BE CONTINUOUS AROUND CORNERS.
 - ALL LAPS IN WWF SHOULD BE ONE MESH PLUS TWO INCHES AT SPLICES.
 - TOP BARS SHALL BE HOOKED AT END SPANS.
 - REINFORCING BARS MAY NOT BE WELDED WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER. ONLY ASTM A706 REINFORCEMENT MAY BE WELDED.

- CONCRETE:
 - CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301.
 - COMPLY WITH ACI 304 FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE.
 - COMPLY WITH ACI 305 FOR HOT WEATHER CONCRETING.
 - COMPLY WITH ACI 306 FOR COLD WEATHER CONCRETING.
- REINFORCED MASONRY:
 - HOLLOW LOAD BEARING MASONRY UNITS SHALL CONFORM TO ASTM C90 TYPE I, IN ADDITION TO THE REQUIREMENTS OF THE QUALITY CONTROL STANDARDS OF THE CONCRETE MASONRY ASSOCIATION. MINIMUM REQUIRED COMPRESSIVE STRENGTH OF BLOCK UNITS = 2800 PSI (BASED ON NET AREA). MINIMUM FACE SHELL THICKNESS TO BE 1 1/4" FOR 8" BLOCK, 1 3/8" FOR 10" BLOCK, AND 1 1/2" FOR 12" BLOCK.
 - MASONRY UNITS SHALL HAVE BEEN CURED FOR NOT LESS THAN 28 DAYS WHEN PLACED IN THE STRUCTURE.
 - THE USE OF ADMIXTURES WILL NOT BE PERMITTED IN THE GROUT OR MORTAR UNLESS SUBSTANTIATING DATA IS SUBMITTED TO AND APPROVED BY THE STRUCTURAL ENGINEER OR THE ARCHITECTS.
 - GROUT FOR VERTICALLY REINFORCED MASONRY WALLS AND BOND BEAMS SHALL BE PROPORTIONED AS FOLLOWS: 1 PORTLAND CEMENT: 2 1/2 FINE AGGREGATE: 2 PEA GRAVEL: f_c = 3,000 PSI AT 28 DAYS. GROUT SLUMP SHALL BE 9" TO 10".
 - ALL MASONRY WALLS SHALL HAVE HORIZONTAL REINFORCING CONSISTING OF GALVANIZED STANDARD WEIGHT 9 GA. "DUR-O-WALL" OR EQUAL (TRUSS TYPE) CONFORMING TO ASTM A951. REINFORCING SHALL BE LOCATED EVERY OTHER COURSE.
 - DOWELS AS SHOWN SHALL MATCH SIZE AND NUMBER OF REINFORCING UNLESS OTHERWISE NOTED. HOOK INTO FOOTING AND LAP 30 DIAMETERS WITH MAIN STEEL.
 - MORTAR SHALL BE TYPE M OR S. MASONRY CEMENT IS NOT PERMITTED. SPEC. MIX MORTAR IS ACCEPTABLE.
 - SEE ARCHITECTURAL PLANS FOR LOCATION AND DETAIL OF VERTICAL CONTROL JOINTS.
 - MAXIMUM SPACING FOR CONTROL JOINTS IN BLOCK WALLS SHALL NOT EXCEED 24'-0" O.C.
 - ALL STEEL BEAMS BEARING ON MASONRY SHALL BE WELDED TO BEARING PLATE AND HAVE 2 CORES MINIMUM FILLED WITH GROUT DIRECTLY BELOW THE BEARING POINT EXCEPT AS NOTED ON THE PLANS.
 - BOND BEAMS 8" OR SMALLER USE 1-#5 CONT., BOND BEAMS 10" OR LARGER USE 2-#5 CONT., UNLESS NOTED OTHERWISE.
 - CONTRACTOR TO PROVIDE A 1'-4" X 8" STRIP FOOTING OR THICKENED SLAB WITH (2) #5 BARS CONTINUOUS UNDER ALL MASONRY WALLS, UNLESS NOTED OTHERWISE.
 - REINFORCEMENT SHALL BE SECURED AGAINST DISPLACEMENT PRIOR TO GROUTING BY WIRE POSITIONERS OR OTHER SUITABLE DEVICES AT INTERVALS NOT EXCEEDING 200 BAR DIAMETERS. REINFORCEMENT SHALL BE PLACED PRIOR TO GROUTING. GROUT SHALL BE CONSOLIDATED BY MECHANICAL VIBRATION DURING PLACEMENT AND RECONSOLIDATED BY MECHANICAL VIBRATION TO MINIMIZE VOIDS DUE TO WATER LOSS.
 - COMPLIANCE WITH f_m: UNIT STRENGTH METHOD
 - ALL REINFORCED MASONRY WALLS BELOW GRADE SHALL UTILIZE "OPEN-CORE" BLOCK UNITS UNLESS STANDARD UNITS ARE APPROVED BY THE ENGINEER.

- DIMENSION LUMBER:
 - DIMENSION LUMBER TO BE NORTHERN SPF NO. 2 (OR BETTER) FOR JOISTS & BEAMS AND NORTHERN SPF STUD GRADE (OR BETTER) FOR STUDS AND PLATES.
 - ALL MEMBER SIZES GIVEN ON PLAN ARE NOMINAL DIMENSIONS.
 - WOOD UNITS SHALL HAVE A FULL 3" LENGTH OF BEARING AT EACH END UNLESS OTHERWISE NOTED.
 - ALL NAILING SHALL CONFORM TO IBC TABLE 2304.9.1 "FASTENING SCHEDULE" UNLESS OTHERWISE NOTED ON THE PLANS.
 - SPACING OF BRIDGING FOR FLOOR AND ROOF JOISTS SHALL NOT EXCEED 8' OR 6 TIMES THE NOMINAL JOIST DEPTH (WHICHEVER IS GREATER).
 - DOUBLE ALL JOISTS UNDER PARALLEL PARTITIONS.
 - ALL WOOD CONNECTORS SHALL BE BY "USP LUMBER CONNECTORS" OR "SIMPSON STRONG-TIE". ALL JOISTS AND BEAMS NOT BEARING ON A SUPPORTING MEMBER SHALL BE FRAMED WITH AN APPROPRIATE WOOD CONNECTOR.
 - WOOD STUD BEARING WALLS SHALL HAVE AT LEAST ONE 8" COURSE OF CONCRETE BLOCK BETWEEN THE BOTTOM OF THE SILL PLATE AND THE TOP OF THE FOOTING.
 - WOOD JOISTS SHALL BEAR ON THE FULL WIDTH OF SUPPORTING MEMBERS (STUD WALLS, BEAMS, ETC.), UNLESS NOTED OTHERWISE.
 - PROVIDE SOLID BLOCKING BELOW ALL JAMB/TRIMMER/CRIPPLE STUDS (TYPICAL AT ALL FLOORS)
 - ALL FOUNDATION PLATES, SILLS AND SLEEPERS ON CONCRETE SLAB, WHICH IS IN DIRECT CONTACT WITH EARTH, AND SILLS WHICH REST ON CONCRETE OR MASONRY FOUNDATION WALLS, SHALL BE TREATED WOOD OR FOUNDATION REDWOOD.
 - FOR ALL WOOD TREATED WITH PRESERVATIVES OTHER THAN CCA, CONNECTORS AND FASTENERS MUST BE COATED WITH ONE OF THE FOLLOWING:
 - BATCH/POST HOT DIPPED GALVANIZED PER ASTM A123 FOR CONNECTORS AND ASTM 153 FOR FASTENERS.
 - MECHANICALLY GALVANIZED PER ASTM 695, CLASS 55 OR GREATER.
 - TRIPLE ZINC G185 HDG PER ASTM A653 OR EQUAL.
- BRACED WALL PANELS (SHEAR WALLS) IN WOOD CONSTRUCTION:
 - UNLESS NOTED OTHERWISE ON THE PLANS, ALL INTERIOR PARTITION WALLS WITH GYPSUM BOARD SHEATHING ARE DESIGNED TO PROVIDE LATERAL STABILITY TO THE STRUCTURE. THIS INCLUDES WALLS SHOWN ON THE ARCHITECTURAL PLANS AND NOT NECESSARILY SHOWN ON THE STRUCTURAL PLANS.
- LAMINATED VENEER LUMBER (LVL):
 - ALL LVL HEADERS AND BEAMS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:

ALLOWABLE BENDING STRESS,	F _b = 2800 PSI
ALLOWABLE SHEAR STRESS,	F _v = 285 PSI
MODULUS OF ELASTICITY,	E = 1,800,000 PSI
 - LVL MEMBERS SHALL BE ONE OF THE FOLLOWING:
 - "MICROLAM" BY TRUS JOIST
 - "GANG-LAM" BY LOUISIANA PACIFIC.
 - "STRUCLAM" BY WILLAMETTE INDUSTRIES

- ROOF AND FLOOR TRUSSES:
 - TRUSSES SHALL BE DESIGNED TO MEET ALL LOADING AND SPANS AS INDICATED ON THE PLANS.
 - TRUSSES SHALL BE DESIGNED AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.
 - ALL PERMANENT BRACING FOR INDIVIDUAL TRUSS COMPRESSION ELEMENTS SHALL BE PROVIDED AS INDICATED ON THE TRUSS SHOP DRAWINGS. THE DESIGN OF THIS BRACING IS THE RESPONSIBILITY OF THE TRUSS SUPPLIER.
 - THE CONTRACTOR SHALL INSTALL ALL NECESSARY TEMPORARY BRACING AS REQUIRED BY BCSI 1-03 (BY WTCA AND TPI) AND BE FULLY RESPONSIBLE FOR THE STABILITY OF THE TRUSSES DURING ERECTION.
 - CONNECTOR PLATES SHALL BE MADE OF GRADE "A" GALVANIZED STEEL, MINIMUM 20 GAGE PER LATEST TPI SPECIFICATIONS.
 - ALL CONNECTION HARDWARE SHALL BE DESIGNED AND FURNISHED BY THE TRUSS SUPPLIER UNLESS NOTED OTHERWISE ON THE PLANS.
 - SCISSORS TRUSSES SHALL BE DESIGNED SUCH THAT HORIZONTAL LIVE LOAD DEFLECTIONS DO NOT EXCEED 3/4". WALLS ARE NOT DESIGNED TO RESIST A HORIZONTAL TRUSS REACTION.
 - THE STRUCTURE IS DESIGNED ACCORDING TO THE TRUSS LAYOUT INDICATED ON THE PLANS. THE TRUSS SUPPLIER SHALL NOT DEVIATE FROM THIS LAYOUT WITHOUT PERMISSION FROM THE ENGINEER OF RECORD.
 - SINGLE GABLE ROOF TRUSSES SHALL BE DESIGNED FOR AN UNBALANCED SNOW LOAD OF 150% OF THE DESIGN SNOW LOAD ON ONE SLOPE AND 40 % OF THE DESIGN LOAD ON THE OPPOSITE SLOPE. MONOSLOPE TRUSSES SUPPORTING ONE FACE OF A GABLE OR HIP ROOF SHALL BE DESIGNED FOR 150 % OF THE BASIC SNOW LOAD.
 - ALL TRUSSES LOCATED BENEATH PIGGY-BACK TRUSSES SHALL HAVE THE TOP CHORD SHEATHED WITH 1/2" PLYWOOD UNLESS NOTED OTHERWISE ON THE PLANS.
- BRICK TIES: (FOR STUD BACK UP)
 - THERE SHALL BE A MINIMUM OF ONE BRICK TIE FOR EVERY 1.75 SQ. FT. OF WALL AREA. THESE SHALL BE SPACED AT A MAXIMUM OF 24 INCHES ON CENTER. TIES SHALL BE OF MINIMUM 3/16" GA. CORROSION RESISTANT WIRE AND SHALL BE OF AN ADJUSTABLE TYPE SUCH AS DUR-O-WALL ADJUSTABLE DA207 OR EQUAL. CORRUGATED GALVANIZED SHEET TIES ARE NOT ACCEPTABLE. ALL TIES MUST BE ATTACHED THROUGH THE SHEATHING TO THE STUDS PER MANUFACTURER'S RECOMMENDATIONS.
- BRICK TIES: (FOR MASONRY BACKUP)
 - THERE SHALL BE A MINIMUM OF ONE BRICK TIE FOR EVERY 1.75 SQ. FT. OF WALL AREA. THESE SHALL BE SPACED AT A MAXIMUM OF 24" HORIZONTAL. TIES SHALL BE A MINIMUM OF 3/16" DIAMETER CORROSION RESISTANT WIRE. CORRUGATED GALVANIZED SHEET TIES ARE NOT ACCEPTABLE.
- STRUCTURAL STEEL:
 - FABRICATION & ERECTION OF STRUCTURAL STEEL MEMBERS IS TO BE IN ACCORDANCE WITH A.I.S.C. CODE OF STANDARD PRACTICE.
 - ALL CONNECTIONS SHALL BE BOLTED OR WELDED. EACH CONNECTION SHALL BE ADEQUATE TO SUPPORT ONE HALF THE TOTAL UNIFORM LOAD CAPACITY OF THE BEAM, UNLESS NOTED OTHERWISE ON THE PLANS. BOLTED CONNECTIONS SHALL HAVE A MINIMUM OF TWO BOLTS.
 - ALL WELDING SHALL BE BY QUALIFIED WELDERS AND SHALL CONFORM TO THE STANDARDS OF THE AMERICAN WELDING SOCIETY, D1.1-98-STRUCTURAL WELDING CODE - STEEL. WELDING OF GALVANIZED PARTS IS NOT PERMITTED.
 - ELECTRODES FOR ALL FIELD AND SHOP WELDING SHALL CONFORM TO MATCHING FILLER METAL REQUIREMENTS OF AWS D1.1-98.
 - FIELD CONNECTIONS ARE TO BE BOLTED. USE 3/4" DIAM. HIGH STRENGTH BOLTS AND NUTS (A325) UNLESS SHOWN OTHERWISE ON PLANS.
 - STEEL COLUMN BASE PLATES SHALL BE SIZE SHOWN ON PLAN WITH (F1554 GRADE 36) ANCHOR BOLTS AND 1" NON-SHRINK GROUT FOR UNIFORM BEARING.
 - UNLESS OTHERWISE NOTED, STRUCTURAL STEEL SUPPLIER IS TO FURNISH 3 1/2" X 3 1/2" X 1/4" SHOP WELDED ANGLE FRAMES AT ALL ROOF OPENINGS. VERIFY SIZE AND LOCATION WITH MECHANICAL CONTRACTOR.
 - ALL STRUCTURAL STEEL AND MISCELLANEOUS METALS SHALL BE PRIME PAINTED WITH ONE COAT OF TNEMC #99 PRIMER OR EQUAL. TOUCH UP ALL DISTURBED AREAS AFTER ERECTION.
 - CUTS, HOLES (OPENINGS), ETC. REQUIRED IN STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES SHALL NOT BE ALLOWED, EXCEPT BY WRITTEN PERMISSION FROM THE ARCHITECT.
 - GROUT UNDER BEAM BEARING PLATES AND COLUMN BASE PLATES SHALL BE "NON-SHRINK" AND SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 10,000 PSI.
- BACKFILLING:
 - NO BACKFILLING AND COMPACTING OF EARTH SHALL BE PERMITTED AGAINST FOUNDATION WALLS UNTIL SUPPORTING FLOOR SYSTEMS HAVE BEEN PLACED AND HAVE REACHED 75 % OF THEIR DESIGN STRENGTH OR UNLESS ADEQUATE BRACING SUBMITTED FOR REVIEW IS PROVIDED.
 - BOTH SIDES OF FOUNDATION WALLS SHALL BE BACKFILLED SIMULTANEOUSLY SO AS TO PREVENT OVERTURNING OR LATERAL MOVEMENT OF WALLS.
 - ALL GRADE BEAMS SHALL BE ADEQUATELY BRACED TO PREVENT LATERAL MOVEMENT DURING BACKFILLING AND COMPACTION.
- CONSTRUCTION AND CONTROL JOINTS IN CONCRETE:
 - CONSTRUCTION JOINTS SHALL BE MADE AS DETAILED ON THE DRAWINGS.
 - MAXIMUM SPACING FOR CONTROL JOINTS IN SLABS ON GRADE SHALL BE 15'-0".
 - A 15'-0" MAXIMUM SPACING OF CONTROL JOINTS MAY NOT INSURE COMPLETE CONTROL OF SHRINKAGE CRACKS. A CLOSER SPACING MAY BE USED BY REQUEST OF OWNER IF MORE COMPLETE SHRINKAGE CRACK CONTROL IS DESIRED. CONTRACTOR TO VERIFY WITH OWNER.
 - CONSTRUCTION JOINTS IN CONCRETE FOUNDATION WALLS SHALL BE LOCATED SO NO SINGLE POUR IS LONGER THAN 40 FEET.

- DRILLED ANCHORS:
 - ALL EXPANSION BOLTS SHALL BE HILTI "KWIK-BOLTS", SIMPSON "WEDGE-ALL" OR RAMSET/REDHEAD "TRUBOLT", UNLESS NOTED OTHERWISE ON THE DRAWINGS.
 - ADHESIVE ANCHORAGE FOR DRILLED REBAR DOWELS SHALL BE HILTI "HIT HY 150 ADHESIVE" OR SIMPSON "EPOXY-TIE" OR SIMPSON "ACRYLIC-TIE", UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- CONSTRUCTION PROCEDURE:
 - THE STRUCTURE SHALL BE ADEQUATELY BRACED AND SHORED DURING ERECTION AGAINST WIND AND ERECTION LOADS. STRUCTURAL MEMBERS ARE DESIGNED FOR "INPLACE" LOADS.
 - COMPLY WITH ALL APPLICABLE CITY, COUNTY, STATE AND FEDERAL LAWS, INCLUDING THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND REGULATIONS ADOPTED PURSUANT THERETO.
 - THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. UNLESS OTHERWISE NOTED, THEY DO NOT INDICATE THE MEANS OR METHOD OF CONSTRUCTION. PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE, WORKMEN OR OTHER PERSONS DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR THE BUILDING, SHORING FOR EARTH BANKS, FORMS, SCAFFOLDING, PLANKING, SAFETY NETS, SUPPORT AND BRACING FOR CRANES AND GIN POLES, ETC.
 - ENGAGE PROPERLY QUALIFIED PERSONS TO DETERMINE WHERE AND HOW TEMPORARY PRECAUTIONARY MEASURES SHALL BE USED AND INSPECT SAME IN THE FIELD. OBSERVATION VISITS TO THE SITE BY ENGINEER'S FIELD REPRESENTATIVE SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
 - SUPERVISE AND DIRECT THE WORK SO AS TO MAINTAIN SOLE RESPONSIBILITY FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. AS A PART OF THIS RESPONSIBILITY, RETAIN THE SERVICES OF A LICENSED STRUCTURAL ENGINEER TO DESIGN AND SUPERVISE ANY SCAFFOLDING FOR WORKMEN, AND ALL SHORING OF FORMS AND ELEMENTS OF THE CONSTRUCTION.
- MISCELLANEOUS:
 - PLACEMENT OF ANCHOR BOLT, PIPE SLEEVES, PADS AND OPENINGS FOR EQUIPMENT SHALL BE COORDINATED BETWEEN THE GENERAL CONTRACTOR AND THE OTHER SUBCONTRACTORS.
 - ALL CORE DRILLING SHALL BE DONE UNDER THE SUPERVISION OF THE GENERAL CONTRACTOR. NO REINFORCING SHALL BE CUT. VERIFY LOCATION OF REINFORCING BEFORE CORE DRILLING. THERE SHALL NOT BE ANY CORE DRILLING THROUGH BEAMS OR COLUMNS. MAXIMUM CORE HOLE THROUGH SLABS SHALL BE PIPE DIAMETER PLUS 1".
- COORDINATION WITH ARCHITECTURAL DRAWINGS:
 - THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS. WHERE DISCREPANCIES OCCUR IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ARCHITECT PRIOR TO CONSTRUCTION.
- SHOP DRAWINGS:
 - SHOP DRAWINGS, UNLESS OTHERWISE NOTED, SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION.
 - SHOP DRAWINGS SHALL BE PREPARED UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL ENGINEER, AND INCLUDE COMPLETE DETAILS SCHEDULES, PROCEDURES AND DIAGRAMS FOR FABRICATION AND ASSEMBLY OF STRUCTURAL MEMBERS.
 - FABRICATORS SHALL DRAW THEIR OWN ERECTION PLANS. COPYING THE STRUCTURAL PLANS AND USING THEM AS ERECTION DRAWINGS IS NOT ACCEPTABLE.
 - PRIOR TO SUBMITTAL, THE CONTRACTOR SHALL REVIEW THE SHOP DRAWINGS AND MAKE ANY CORRECTIONS REQUIRED. THE CONTRACTOR SHALL STAMP AND SIGN THE DRAWINGS AS EVIDENCE THAT HE HAS REVIEWED THEM.
 - SHOP DRAWINGS SHALL BE FURNISHED FOR ALL STRUCTURAL COMPONENTS.
 - TURN AROUND TIME FOR SHOP DRAWINGS SHALL BE TWO WEEKS FROM DATE RECEIVED IN THE ENGINEER'S OFFICE.
- SPECIAL INSPECTIONS

SPECIAL INSPECTIONS SHALL BE PROVIDED IN ACCORDANCE WITH IBC SECTION 1704. AS OUTLINED BELOW, THE SPECIAL INSPECTOR SHALL BE EMPLOYED BY THE OWNER. SHALL BE THOROUGHLY KNOWLEDGEABLE OF IBC SPECIAL INSPECTION REQUIREMENTS AND SHALL DEMONSTRATE COMPETENCE TO THE SATISFACTION OF THE BUILDING OFFICIAL (IBC 1704.1). THE CONTRACTOR SHALL CONTACT THE SPECIAL INSPECTOR DURING APPROPRIATE PHASES OF CONSTRUCTION SO THAT INSPECTIONS CAN BE MADE IN A TIMELY MANNER. THE SPECIAL INSPECTOR SHALL SUBMIT WRITTEN INSPECTION REPORTS TO THE ENGINEER OF RECORD'S OFFICE, WITHIN 3 WORKING DAYS OF EACH INSPECTION. ANY PROBLEMS SHOULD BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR. THE FOLLOWING ITEMS WILL REQUIRE SPECIAL INSPECTION:

 - CONCRETE
 - REINFORCEMENT: REINFORCING STEEL BE INSPECTED ON A PERIODIC BASIS. WELDING OF REINFORCEMENT SHALL BE CONTINUOUSLY INSPECTED. ONLY ASTM A706 REINFORCEMENT MAY BE WELDED.
 - ANCHOR BOLTS: ANCHOR BOLTS PLACEMENT SHALL BE PERIODICALLY INSPECTED.
 - SAMPLING AND TESTING: CONTINUOUS INSPECTIONS SHALL BE PROVIDED DURING SLUMP TESTS, AIR CONTENT TESTS AND WHEN DETERMINING THE TEMPERATURE OF FRESH CONCRETE AT THE TIME OF MAKING SPECIMENS FOR STRENGTH TESTS.
 - CONCRETE PLACEMENT: CONTINUOUS INSPECTION REQUIRED
 - COLD AND HOT WEATHER CONCRETING. PERIODIC INSPECTION OF COMPLIANCE IS REQUIRED.
 - SOILS:
 - THE SPECIAL INSPECTOR SHALL DETERMINE COMPLIANCE WITH THE SOIL REPORT FOR SITE PREPARATION, FILL PLACEMENT AND DENSITY TESTS.
- TESTING REQUIREMENTS
 - CONCRETE:
 - SAMPLE FOR STRENGTH TESTS OF EACH CLASS OF CONCRETE PLACED EACH DAY SHALL BE TAKEN NOT LESS THAN ONCE A DAY, NOR LESS THAN ONCE FOR EACH 150 CUBIC YARDS OF CONCRETE, NOR LESS THAN ONCE FOR EACH 5000 SQUARE FEET OF SURFACE AREA FOR SLABS OR WALLS. A MINIMUM OF FIVE STRENGTH TESTS SHOULD BE MADE FOR A GIVEN PROJECT.



3524 Labore Road
White Bear Lake, MN 55110
(P) 651.481.9120 (F) 651.481.9201
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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: KESH RAMDULAR
SIGNATURE: *Kesh Ramdular*
DATE: 12-5-17 REG. NO.: 16256

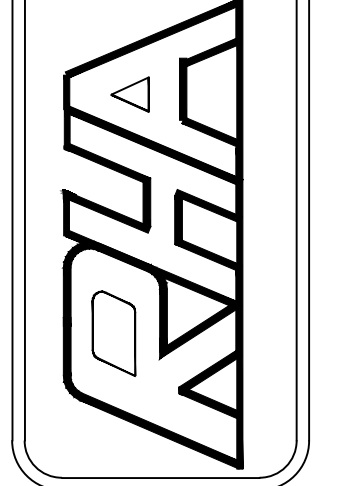
CDM# NO. 1747
DATE 12/22/17

REVISION

PROJECT NAME

TIMBER RIDGE APARTMENTS
73 UNIT BUILDING
FOREST LAKE, MINNESOTA

RHA ARCHITECT'S INC.
ARCHITECTS, PLANNERS, DESIGNERS
PHONE: 320-267-7115
P.O. BOX 363
ST. CLOUD, MINNESOTA
EMAIL: RHA@RHA0087A.HO00.COM



SHEET NO.
S5