GENERAL STRUCTURAL NOTES

1. BUILDING CODES USED FOR DESIGN:

   a. MINNESOTA BUILDING CODE, 2015 EDITION. (IBC 2012)

2. FOUNDATIONS:

   a. ALL FOOTINGS SHALL BEAR ON NATURAL UNDISTURBED SOIL OR ON COMPACTED GRANULAR FILL. ALL FOOTINGS ARE DESIGNED USING AN ALLOWABLE SOIL BEARING PRESSURE OF 3000 PSF. (SEE SOIL REPORT #SP-05-03253 BY BRAUN INTERTEC CORPORATION). THE SOILS ENGINEER SHALL CONFIRM THESE BEARING VALUES AT THE TIME OF EXCAVATION.
   b. GRANULAR FILL SHALL BE COMPACTED TO 98% STANDARD DENSITY (ASTM: D698-91).
   c. IF SOIL AT BOTTOM OF FOOTINGS AS DETAILED IS OF QUESTIONABLE BEARING VALUE, THE ARCHITECT/ENGINEER SHALL BE NOTIFIED AT ONCE.
   d. IN LIEU OF SOIL BORINGS, FOOTINGS HAVE BEEN DESIGNED FOR A MAXIMUM SOIL BEARING PRESSURE OF 1500 PSF. IT WILL BE THE RESPONSIBILITY OF OTHERS TO VERIFY THIS BEARING CAPACITY, TO INSURE THAT DAMAGING DIFFERENTIAL SETTLEMENT WILL NOT OCCUR.
   e. 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.
   f. ALL EXTERIOR WALL FOOTINGS SHALL HAVE A MINIMUM SOIL COVER OF 3'-6" MEASURED FROM BOTTOM OF FOOTING UNLESS OTHERWISE NOTED.
   g. 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.
   h. PROVIDE A 6" SUB-BASE OF COMPACTIBLE GRANULAR FILL AND A POLY VAPOR BARRIER BENEATH ALL SLABS ON GRADE. COMPACT GRANULAR FILL WITH MECHANICAL EQUIPMENT TO + 0" TO -½" OF CORRECT ELEVATIONS. THE VAPOR BARRIER SHALL BE PLACED DIRECTLY BENEATH THE SLAB. THE SLAB SHALL BE MOIST CURED TO PREVENT CURLING.
   i. SUB-BASE 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 ½".

3. DESIGN LOADS:

   a. a. WIND LOADS: (2012 IBC or later)

BASIC WIND SPEED, Vult	= 115 MPH
RISK CATEGORY	= II
EXPOSURE CATEGORY	= C
WIND TOPOGRAPHIC FACTOR, Kzt	= 1.0

   b. b. SNOW LOAD CRITERIA

GROUND SNOW LOAD	Pg = 50
SNOW LOAD IMPORTANCE FACTOR	Is = 1.0
SNOW LOAD EXPOSURE FACTOR	Ce = 1.0
SLOPED ROOF/FLAT ROOF FACTOR	Cs = 1.0
ROOF THERMAL FACTOR	Ct = 1.1
ROOF SNOW LOAD Ps = Pg(.7)(Is)(Ce)(Cs)(Ct)	= 38.5 PSF
SEE PLANS FOR SNOW DRIFT DIAGRAMS	

   c. c. LIVE LOADS:

PUBLIC AREAS, CORRIDORS AND STAIRS	100 PSF
OFFICE AREAS	20* + 50 PSF
COMPUTER	150 PSF
LIBRARIES	125 PSF
STORAGE	125 PSF
MECHANICAL	*125 PSF
RESIDENTIAL FLOOR	40 PSF

   * PARTITION LOAD
   ** OR EQUIPMENT WEIGHT IF HEAVIER

   d. d. DEAD LOADS

ROOF DEAD LOAD	20 PSF
FLOOR DEAD LOAD	20 PSF

4. DESIGN STRESSES:

   a. 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

   b. MASONRY PRISM STRENGTH — f'm = 1,500 PSI (@ 28 DAYS)
   c. MASONRY UNITS — f'c = 1,900 PSI (@ 28 DAYS)
   d. MASONRY GROUT — f'c = 3,000 PSI (@ 28 DAYS)
   e. NON-SHRINK GROUT — f'c = 10,000 PSI (@ 28 DAYS)
   f. REINFORCEMENT — Fy = 60,000 PSI ASTM A615 (DEFORMED BARS)

   g. STRUCTURAL STEEL
      1. WIDE FLANGE SHAPES — Fy = 50,000 PSI ASTM A992
      2. ALL OTHER SHAPES — Fy = 36,000 PSI ASTM A36
   h. RECTANGULAR HSS — Fy = 46,000 PSI ASTM A500 GRADE B
   i. PLATES — Fy = 36,000 PSI ASTM A36
   j. BOLTS — Fu = 120,000 PSI ASTM A325
   k. ANCHOR RODS — Fu = 58,000 PSI ASTM F1554 GRADE36
   l. WELD ELECTRODE — Fu = 70,000 PSI
   m. WELDED WIRE FABRIC — ASTM A185

5. CONCRETE COVERAGE FOR REINFORCEMENT:

a. FOOTINGS	3" FROM BOTTOM
b. PEDESTALS	2" TO TIES
c. FOUNDATION WALLS	EXTERIOR FACE 2" INTERIOR FACE 1"
d. COLUMNS	1 ½" TO TIES
e. STRUCTURAL SLAB	1" TOP AND BOTTOM
f. BEAMS	1 ½" TO STIRRUPS
g. JOISTS	1" TOP AND BOTTOM
h. EXPOSED EXTERIOR CONCRETE	2"
i. GRADE BEAMS	2" SIDES, 3" BOTTOM
j. SLAB ON GRADE	1" FROM TOP

6. MASONRY COVERAGE FOR REINFORCEMENT:

a. WALLS	3 ½"
b. PILASTERS	3" TO TIES

7. REINFORCING STEEL:

   a. 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.
   b. CONCRETE REINFORCEMENT SHALL BE PLACED ACCORDING TO THE CRSI "RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS".
   c. COMPRESSION AND TENSION LAP SPLICES FOR CAST-IN-PLACE CONCRETE SHALL BE 38 BAR DIAMETERS MINIMUM UNLESS NOTED OTHERWISE .
   d. 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 NOTED OTHERWISE.
   e. HORIZONTAL REINFORCING STEEL IN FOOTINGS AND CONCRETE WALLS SHALL BE CONTINUOUS AROUND CORNERS.
   f. ALL LAPS IN WWF SHOULD BE ONE MESH PLUS TWO INCHES AT SPLICES.
   g. TOP BARS SHALL BE HOOKED AT END SPANS.
   h. REINFORCING BARS MAY NOT BE WELDED WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER. ONLY ASTM A706 REINFORCEMENT MAY BE WELDED.

8. CONCRETE:

   a. CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301.
   b. EACH CONCRETE MIX SHALL BE DESIGNED BY A REGISTERED ENGINEER. A STAMPED COPY OF EACH MIX DESIGN SHALL BE SUBMITTED TO THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION.
   c. COMPLY WITH ACI 304 FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE.
   d. COMPLY WITH ACI 305 FOR HOT WEATHER CONCRETING.
   e. COMPLY WITH ACI 306 FOR COLD WEATHER CONCRETING.
   f. UNLESS SPECIFIED OTHERWISE, CONCRETE MUST REACH THE FOLLOWING PERCENTAGES OF ITS 28 DAY COMPRESSIVE STRENGTH (F'c) BEFORE FORMS MAY BE REMOVED:

1. WALLS, COLUMNS AND BEAM SIDES	40 PERCENT
2. JOIST PANS AND BEAM BOTTOMS	70 PERCENT
3. FLOOR SYSTEMS	80 PERCENT

9. REINFORCED MASONRY:

   a. HOLLOW LOAD BEARING MASONRY UNITS SHALL CONFORM TO ASTM C90 TYPE I, IN ADDITIONS TO THE REQUIREMENTS OF THE QUALITY CONTROL STANDARDS OF THE CONCRETE MASONRY ASSOCIATION. MINIMUM REQUIRED COMPRESSIVE STRENGTH OF BLOCK UNITS = 1,900 PSI (BASED ON NET AREA). MINIMUM FACE THICKNESS TO BE 1 1/4" FOR 8" BLOCK, 1 3/8" FOR 10" BLOCK, AND 1 1/2" FOR 12" BLOCK.
   b. MASONRY UNITS SHALL HAVE BEEN CURED FOR NOT LESS THAN 28 DAYS WHEN PLACED IN THE STRUCTURE.
   c. 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 ARCHITECT.
   d. 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".
   e. 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.
   f. DOWELS AS SHOWN SHALL MATCH SIZE AND NUMBER OF REINFORCING UNLESS NOTED OTHERWISE. HOOK INTO FOOTING AND LAP 30 DIAMETERS WITH MAIN STEEL.
   g. MORTAR SHALL BE TYPE M OR S. MASONRY CEMENT IS NOT PERMITTED. SPEC MIX MORTAR IS ACCEPTABLE.
   h. SEE ARCHITECTURAL DRAWINGS FOR LOCATION AND DETAIL OF VERTICAL CONTROL JOINTS.
   i. MAXIMUM SPACING FOR CONTROL JOINTS IN BLOCK WALLS SHALL NOT EXCEED 24'-0" O.C.
   j. 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.
   k. BOND BEAMS 8" OR SMALLER USE (1) #5 CONTINUOUS, BOND BEAMS 10" OR LARGER USE (2) #5 CONTINUOUS, UNLESS NOTED OTHERWISE.
   l. CONTRACTOR TO PROVIDE A 1'-4" x 8" STRIP FOOTING OR THICKENED SLAB WITH (1) #5 BAR CONTINUOUS UNDER ALL MASONRY WALLS, UNLESS NOTED OTHERWISE.
   m. 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.
   n. COMPLIANCE WITH fm: UNIT STRENGTH METHOD.
   o. COLD-WEATHER REQUIREMENTS: DO NOT USE FROZEN MATERIALS MIXED OR COATED WITH ICE OR FROST. DO NOT BUILD ON FROZEN SUBSTRATES. REMOVE AND REPLACE UNIT MASONRY DAMAGED BY FROST OR BY FREEZING CONDITIONS. COMPLY WITH COLD-WEATHER CONSTRUCTION REQUIREMENTS CONTAINED IN ACI 530.1/ASCE 6/TMS 602. COLD-WEATHER CLEANING: USE LIQUID CLEANING METHODS ONLY WHEN AIR TEMPERATURE IS 40 °F AND ABOVE AND WILL REMAIN SO UNTIL MASONRY HAS DRIED, BUT NOT LESS THAN 7 DAYS AFTER COMPLETING CLEANING.
   p. HOT-WEATHER REQUIREMENTS: PROTECT UNIT MASONRY WORK WHEN TEMPERATURE AND HUMIDITY CONDITIONS PRODUCE EXCESSIVE EVAPORATION OF WATER FROM MORTAR AND GROUT. PROVIDE ARTIFICIAL SHADE AND WIND BREAKS AMONG STACKED MATERIALS AS REQUIRED. WHEN AMBIENT TEMPERATURE EXCEEDS 100 °F, OR 90 °F WITH A WIND VELOCITY GREATER THAN 8 MPH, DO NOT SPREAD MORTAR BEDS MORE THAN 48" AHEAD OF MASONRY. SET MASONRY UNITS WITHIN ONE MINUTE OF SPREADING MORTAR.

10. DIMENSION LUMBER:

   a. DIMENSION LUMBER TO BE NORTHERN SPF NO. 2 (OR BETTER).
   b. ALL MISCELLANEOUS GIVEN ON PLAN ARE NOMINAL DIMENSIONS.
   c. WOOD LINTELS SHALL HAVE A FULL 3" LENGTH OF BEARING AT EACH END UNLESS NOTED OTHERWISE.
   d. ALL NAILING SHALL CONFORM TO IBC TABLE 2304.9.1 "FASTENING SCHEDULE" UNLESS NOTED OTHERWISE ON THE PLANS.
   e. SPACING OF BRIDGING FOR FLOOR AND ROOF JOISTS SHALL NOT EXCEED 8' OR 6 TIMES THE NOMINAL JOIST DEPTH (WHICHEVER IS GREATER).
   f. DOUBLE ALL JOISTS UNDER PARALLEL PARTITIONS.
   g. ALL WOOD CONNECTIONS 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 HANGER.
   h. 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.
   i. WOOD SHALL BEAR ON THE FULL WIDTH OF SUPPORTING MEMBER (STUD WALLS, BEAMS, ETC.), UNLESS NOTED OTHERWISE.
   j. PROVIDE SOLID BLOCKING BELOW ALL JAMB/TRIMMER/CRIPPLE STUDS (TYPICAL AT ALL FLOORS).
   k. 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.
   l. FOR ALL WOOD TREATED WITH PRESERVATIVES, CONNECTORS AND FASTENERS MUST BE COATED WITH ONE OF THE FOLLOWING:
      1. HOT DIPPED GALVANIZED PER ASTM A123 FOR CONNECTORS AND ASTM A153 FOR FASTENERS.
      2. MECHANICALLY GALVANIZED PER ASTM A695, CLASS 55 OR GREATER.
      3. TRIPLE ZINC G185 HDG PER ASTM A653 OR EQUAL.

11. ENGINEERED LUMBER:

   a. LAMINATED VENEER LUMBER (LVL)
      ALL LVL MEMBERS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:

ALLOWABLE BENDING STRESS	Fb = 2,800 PSI
ALLOWABLE SHEAR STRESS	Fv = 285 PSI
MODULUS OF ELASTICITY	E = 1,800,000 PSI

   b. LAMINATED STRAND LUMBER (LSL)
      ALL LSL STUDS AND COLUMNS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:

	(2x6 OR SMALLER)	(2x8 OR LARGER)
ALLOWABLE BENDING STRESS	Fb = 1,700 PSI	Fb = 2,250 PSI
ALLOWABLE SHEAR STRESS	Fv = 400 PSI	Fv = 400 PSI
MODULUS OF ELASTICITY	E = 1,300,000 PSI	E = 1,500,000 PSI
COMPRESSION PARALLEL TO GRAIN	Fcll = 1,400 PSI	Fcll = 1,950 PSI

   c. PARALLEL STRAND LUMBER (PSL)
      ALL PSL BEAMS AND COLUMNS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:

	(BEAMS)	(COLUMNS)
ALLOWABLE BENDING STRESS	Fb = 2,900 PSI	Fb = 2,400 PSI
ALLOWABLE SHEAR STRESS	Fv = 290 PSI	N/A
MODULUS OF ELASTICITY	E = 2,000,000 PSI	E = 1,800,000 PSI
COMPRESSION PARALLEL TO GRAIN	Fcll = 2,900 PSI	Fcll = 2,500 PSI

   d. MULTI-PLY MEMBERS SHALL BE FASTENED TOGETHER ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

12. ROOF AND FLOOR TRUSSES:

   a. TRUSSES SHALL BE DESIGNED TO MEET ALL LOADING AND SPANS AS INDICATED ON THE PLANS.
   b. TRUSSES SHALL BE DESIGNED AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.
   c. 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.
   d. 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.
   e. CONNECTOR PLATES SHALL BE MADE OF GRADE "A" GALVANIZED STEEL, MINIMUM 20 GAGE PER LATEST TPI SPECIFICATIONS.
   f. ALL CONNECTION HARDWARE SHALL BE DESIGNED AND FURNISHED BY THE TRUSS SUPPLIER UNLESS NOTED OTHERWISE ON THE PLANS.
   g. SCISSORS TRUSSES SHALL BE DESIGNED SUCH THAT HORIZONTAL LIVE LOAD DEFLECTIONS DO NOT EXCEED ½". WALLS ARE NOT DESIGNED TO RESIST A HORIZONTAL TRUSS REACTION.
   h. 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.
   i. ROOF TRUSSES SHALL BE DESIGNED FOR UNBALANCED SNOW LOADS IN ACCORDANCE WITH ASCE 7, SECTION 7.6.
   j. TRUSSES SHALL BE DESIGNED FOR A TOP CHORD DEAD LOAD OF 10 PSF AND A BOTTOM CHORD DEAD LOAD OF 10 PSF UNLESS NOTED OTHERWISE ON THE PLANS.
   k. FLOOR TRUSSES SHALL BE DESIGNED FOR A MAXIMUM LIVE LOAD DEFLECTION OF L/480.

13. PRECAST PRESTRESSED CONCRETE:

   a. PRECAST CONCRETE PLANK, COLUMNS AND BEAMS SHALL BE DESIGNED BY A STRUCTURAL ENGINEER AND CONSTRUCTED TO SAFELY SUSTAIN THE LIVE LOADS LISTED AND ALL SUPERIMPOSED DEAD LOADS IN ACCORDANCE WITH ACI 318-LATEST EDITION CODE.
   b. ALL CONNECTIONS SHALL BE DESIGNED, FABRICATED AND INSTALLED BY THE PRECAST SUPPLIER.
   c. WELDING REQUIRED OF PLATES, BARS, INSERTS, ANCHORS ETC. SHALL CONFORM TO THE AWS'S "RECOMMENDED PRACTICES FOR WELDING REINFORCING STEEL, METAL INSERTS & CONNECTIONS IN REINFORCED CONCRETE CONSTRUCTION."
   d. ALL MEMBERS SHALL HAVE FIRE RESISTIVE RATING IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE.
   e. CAST IN ALL OPENINGS SHOWN ON DRAWINGS. EXACT SIZE AND LOCATION AS PER APPROVED SHOP DRAWINGS. ALL HEADER ANGLES FOR THE PRECAST SHALL BE FURNISHED BY THE PRECASTER.
   f. PROVIDE AND CAST INTO THE PRECAST COLUMNS ALL ANCHOR BOLTS FOR THE STEEL COLUMNS AS DETAILED ON THE DRAWINGS.
   g. PRECAST SUPPLIER SHALL FURNISH ALL PRECAST COLUMN CONNECTION DEVICES AND LAYOUT TO THE GENERAL CONTRACTOR FOR INSTALLATION IN THE FOOTINGS.
   h. PRECAST SUPPLIER SHALL PROVIDE SHOP DRAWING AND STRUCTURAL CALCULATIONS SIGNED BY A REGISTERED STRUCTURAL ENGINEER IN THE STATE OF THE PROJECT.

14. STRUCTURAL STEEL:

   a. FABRICATION & ERECTION OF STRUCTURAL STEEL MEMBERS ARE TO BE IN ACCORDANCE WITH A.I.S.C. CODE OF STANDARD PRACTICE.
   b. 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.
   c. ALL WELDERS SHALL BE QUALIFIED IN ACCORDANCE WITH AWS D1.1 (LATEST EDITION).
   d. WELDING OF GALVANIZED PARTS IS NOT PERMITTED WITHOUT ENGINEER'S APPROVAL.
   e. ALL WELDING SHALL CONFORM TO THE STANDARDS OF AWS D1.1 (LATEST EDITION).
   f. ELECTRODES FOR ALL FIELD AND SHOP WELDING SHALL CONFORM TO MATCHING FILLER METAL REQUIREMENTS OF AWS D1.1-LATEST EDITION.
   g. FIELD CONNECTIONS ARE TO BE BOLTED. Use ¾" DIAM. HIGH STRENGTH BOLTS AND NUTS (A325) UNLESS SHOWN OTHERWISE ON PLANS.
   h. STEEL COLUMN BASE PLATES SHALL BE SIZE SHOWN ON PLAN WITH (F1554 GRADE 36) ANCHOR RODS AND 1" NON-SHRINK GROUT FOR UNIFORM BEARING.
   i. UNLESS OTHERWISE NOTED, STRUCTURAL STEEL SUPPLIER IS TO FURNISH 3 ½" X 3 ½" X ½" SHOP WELDED ANGLE FRAMES AT ALL ROOF OPENINGS. VERIFY SIZE AND LOCATION WITH MECHANICAL CONTRACTOR.
   j. ALL STRUCTURAL STEEL AND MISCELLANEOUS METALS SHALL BE PRIME PAINTED WITH ONE COAT OF TNEMEC #99 PRIMER OR EQUAL TOUCH UP ALL DISTURBED AREAS AFTER ERECTION.
   k. 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 ENGINEER.
   l. GROUT UNDER BEAM BEARING PLATES AND COLUMN BASE PLATES SHALL BE "NON-SHRINK" AND SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 10,000 PSI.
   m. MISCELLANEOUS STEEL FRAMING (STAIRS, RAILS, ETC.) SHALL BE DESIGNED BY THE FABRICATOR. THE FABRICATOR SHALL SUBMIT DOCUMENTATION THAT THE DESIGN HAS BEEN REVIEWED AND APPROVED BY A LICENSED ENGINEER.

15. BACKFILLING:

   a. 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.
   b. BOTH SIDES OF FOUNDATION WALLS SHALL BE BACKFILLED SIMULTANEOUSLY SO AS TO PREVENT OVERTURNING OR LATERAL MOVEMENT OF WALLS.
   c. ALL GRADE BEAMS SHALL BE ADEQUATELY BRACED TO PREVENT LATERAL MOVEMENT DURING BACKFILLING AND COMPACTION.

16. CONSTRUCTION AND CONTRACTION JOINTS IN CONCRETE:

   a. CONSTRUCTION JOINTS SHALL BE MADE AS DETAILED ON THE DRAWINGS.
   b. MAXIMUM SPACING FOR CONTROL JOINTS IN SLABS ON GRADE SHALL BE 15'-0".
   c. 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.
   d. CONSTRUCTION JOINTS IN CONCRETE FOUNDATION WALLS SHALL BE LOCATED SO NO SINGLE POUR IS LONGER THAN 40 FEET.

17. DRILLED ANCHORS:

   a. ALL EXPANSION BOLTS SHALL BE HILTI "KWIK-BOLTS", SIMPSON "WEDGE-ALL" OR RAMSET/REDHEAD "TRUBOLT", UNLESS NOTED OTHERWISE ON THE DRAWINGS.
   b. 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.

18. CONSTRUCTION PROCEDURES:

   a. THE STRUCTURE SHALL BE ADEQUATELY BRACED AND SHORED DURING ERECTION AGAINST WIND AND ERECTION LOADS. STRUCTURAL MEMBERS ARE DESIGNED FOR "INPLACE" LOADS.
   b. COMPLY WITH ALL APPLICABLE CITY, COUNTY, STATE, AND FEDERAL LAWS, INCLUDING THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND REGULATIONS ADOPTED PURSUANT THERETO.
   c. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. UNLESS NOTED OTHERWISE, 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.
   d. 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.
   e. 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.

19. MISCELLANEOUS:

   a. PLACEMENT OF ANCHOR BOLT, PIPE SLEEVES, PADS, AND OPENINGS FOR EQUIPMENT SHALL BE COORDINATED BETWEEN THE GENERAL CONTRACTOR AND THE OTHER SUBCONTRACTORS.
   b. 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".

20. COORDINATION WITH ARCHITECTURAL DRAWINGS:

   a. 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.

21. SHOP DRAWINGS:

   a. SHOP DRAWINGS, UNLESS NOTED OTHERWISE, SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION.
   b. 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.
   c. FABRICATORS SHALL DRAW THEIR OWN ERECTION PLANS. COPYING STRUCTURAL PLANS AND USING THEM AS ERECTION DRAWINGS IS NOT ACCEPTABLE.
   d. 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.
   e. SHOP DRAWINGS SHALL BE FURNISHED FOR ALL STRUCTURAL COMPONENTS.
   f. TURN AROUND TIME FOR SHOP DRAWINGS SHALL BE TWO WEEKS FROM DATE RECEIVED IN THE ENGINEER'S OFFICE.

22. 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:

   a. STEEL
      - SPECIAL INSPECTIONS ARE NOT REQUIRED FOR WORK DONE IN AN APPROVED FABRICATING SHOP. THE STEEL FABRICATOR MUST BE REGISTERED AND APPROVED BY THE BUILDING OFFICIAL TO PERFORM THE WORK WITHOUT SPECIAL INSPECTIONS. (IBC 1704.2.2).
      - HIGH STRENGTH BOLTING: CONTINUOUS INSPECTIONS ARE REQUIRED FOR SLIP-CRITICAL CONNECTIONS. PERIODIC INSPECTIONS ARE REQUIRED FOR BEARING-TYPE CONNECTIONS.
      - FIELD WELDING: CONTINUOUS INSPECTIONS ARE REQUIRED FOR COMPLETE AND PARTIAL PENETRATION GROVE WELDS, MULTI-PASS FILLET WELDS AND SINGLE PASS FILLET WELDS GREATER THAN 5/16". PERIODIC INSPECTIONS ARE REQUIRED FOR FLOOR AND ROOF DECK WELDS AND SINGLE-PASS FILLET WELDS SMALLER THAN OR EQUAL TO 5/16". CORRECT WELD FILLER MATERIAL SHALL BE VERIFIED IN ALL CASES.
      - STEEL ERECTION: PERIODIC INSPECTIONS SHALL BE MADE TO VERIFY COMPLIANCE WITH THE DESIGN DRAWINGS.
      - MATERIALS: THE STEEL MANUFACTURERS CERTIFIED MILL TEST REPORTS SHALL BE SUBMITTED TO THE SPECIAL INSPECTOR OR TO THE ENGINEER OF RECORD.

   CONCRETE
      - REINFORCEMENT: REINFORCING STEEL SHALL BE INSPECTED ON A PERIODIC BASIS. WELDING OF REINFORCEMENT SHALL BE CONTINUOUSLY INSPECTED. ONLY ASTM A706 REINFORCEMENT MAY BE WELDED.

   c. CONCRETE
      - ANCHOR BOLTS: ANCHOR BOLTS PLACEMENT SHALL BE CONTINUOUSLY INSPECTED FOR THE FOLLOWING ANCHOR BOLTS: (N/A)
      - SAMPLING AND TESTING: CONTINUOUS INSPECTIONS SHALL BE PROVIDED DURING

FASTENING SCHEDULE (IBC TABLE 2304.9.1)

CONNECTION DESCRIPTION	FASTENING[a, m]	LOCATION
1. JOIST TO SILL OR GIRDER	3 - 8d COMMON (2 1/2" x 0.131") 3 - 3" x 0.131" NAILS 3 - 3" 14 GAGE STAPLES	TOENAIL
2. BRIDGING TO JOIST	2 - 8d COMMON (2 1/2" x 0.131") 2 - 3" x 0.131" NAILS 2 - 3" 14 GAGE STAPLES	TOENAIL EACH END
3. 1" x 6" SUBFLOOR OR LESS TO EACH JOIST	2 - 8d COMMON (2 1/2" x 0.131")	FACE NAIL
4. WIDER THAN 1" x 6" SUBFLOOR EACH JOIST	3 - 8d COMMON (2 1/2" x 0.131")	FACE NAIL
5. 2" SUBFLOOR TO JOIST OR GIRDER	2 - 16d COMMON (3 1/2" x 0.162")	BLIND AND FACE NAIL
6. SOLE PLATE TO JOIST OR BLOCKING SOLE PLATE TO JOIST OR BLOCKING AT BRACED WALL PANEL	16d (3 1/2" x 0.135") AT 16" O.C. 3" x 0.131" NAIL AT 8" O.C. 3" 14 GAGE STAPLE AT 12" O.C. 3 - 16d (3 1/2" x 0.135") AT 16" O.C. 4 - 3" x 0.131" NAILS AT 16" O.C. 4 - 3" 14 GAGE STAPLES AT 16" O.C.	TYPICAL FACE NAIL BRACED WALL PANELS
7. TOP PLATE TO STUD	2 - 16d COMMON (3 1/2" x 0.162") 3 - 3" x 0.131" NAILS 3 - 3" 14 GAGE STAPLES	END NAIL
8. STUD TO SOLE PLATE 2 - 16d COMMON (3 1/2" x 0.162")	4 - 8d COMMON (2 1/2" x 0.131") 4 - 3" x 0.131" NAILS 3 - 3" 14 GAGE STAPLES 3 - 3" x 0.131" NAILS 3 - 3" 14 GAGE STAPLES	TOE NAIL END NAIL
9. DOUBLE STUDS	16d (3 1/2" x 0.135") AT 24" O.C. 3" x 0.131" NAIL AT 8" O.C. 3" 14 GAGE STAPLE AT 8" O.C.	FACE NAIL
10. DOUBLE TOP PLATES DOUBLE TOP PLATES	16d (3 1/2" x 0.135") AT 16" O.C. 3" x 0.131" NAIL AT 12" O.C. 3" 14 GAGE STAPLE AT 12" O.C. 8 - 16d COMMON (3 1/2" x 0.162") 12 - 3" x 0.131" NAILS 12 - 3" 14 GAGE STAPLES	TYPICAL FACE NAIL LAP SPLICE
11. BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE	3 - 8d COMMON (2 1/2" x 0.131") 3 - 3" x 0.131" NAILS 3 - 3" 14 GAGE STAPLES	TOENAIL
12. RIM JOIST TO TOP PLATE	8d (2 1/2" x 0.113") AT 6" O.C. 3" x 0.131" NAIL AT 6" O.C. 3" 14 GAGE STAPLE AT 6" O.C.	TOENAIL
13. TOP PLATES, LAPS, AND INTERSECTIONS	2 - 16d COMMON (3 1/2" x 0.162") 3 - 3" x 0.131" NAILS 3 - 3" 14 GAGE STAPLES	FACE NAIL
14. CONTINUOUS HEADER, TWO PIECES	16d COMMON (3 1/2" x 0.162")	16" O.C. ALONG EDGE
15. CEILING JOISTS TO PLATE	3 - 8d COMMON (2 1/2" x 0.131") 5 - 3" x 0.131" NAILS 5 - 3" 14 GAGE STAPLES	TOENAIL
16. CONTINUOUS HEADER TO STUD	4 - 8d COMMON (2 1/2" x 0.131")	TOENAIL
17. CEILING JOISTS, LAPS OVER PARTITIONS (SEE SECTION 2308.10.4.1, TABLE 2308.10.4.1)	3 - 16d COMMON MINIMUM, TABLE 2308.10.4.1 4 - 3" x 0.131" NAILS 4 - 3" 14 GAGE STAPLES	FACE NAIL
18. CEILING JOISTS TO PARALLEL RAFTERS (SEE SECTION 2308.10.4.1, TABLE 2308.10.4.1)	3 - 16d COMMON MINIMUM, TABLE 2308.10.4.1 4 - 3" x 0.131" NAILS 4 - 3" 14 GAGE STAPLES	FACE NAIL
19. RAFTER TO PLATE (SEE SECTION 2308.10.4.1, TABLE 2308.10.4.1)	3 - 8d COMMON (2 1/2" x 0.131") 3 - 3" x 0.131" NAILS 3 - 3" 14 GAGE STAPLES	TOENAIL
20. 1" DIAGONAL BRACE TO EACH STUD AND PLATE	2 - 8d COMMON (2 1/2" x 0.131") 2 - 3" x 0.131" NAILS 3 - 3" 14 GAGE STAPLES	FACE NAIL
21. 1" x 8" SHEATHING TO EACH BEARING WALL	3 - 8d COMMON (2 1/2" x 0.131")	FACE NAIL
22. WIDER THAN 1" x 8" SHEATHING TO EACH BEARING WALL	3 - 8d COMMON (2 1/2" x 0.131")	FACE NAIL
23. BUILT-UP CORNER STUDS	16d COMMON (3 1/2" x 0.162") 3" x 0.131" NAIL 3" 14 GAGE STAPLE	24" O.C. 16" O.C. 16" O.C.
24. BUILT-UP GIRDER AND BEAMS 2 - 20d COMMON (4" x 0.192")	20d COMMON (4" x 0.192") AT 32" O.C. 3" x 0.131" NAIL AT 24" O.C. 3" 14 GAGE STAPLE AT 24" O.C. 3 - 3" x 0.131" NAILS 3 - 3" 14 GAGE STAPLES	FACE NAIL AT TOP AND BOTTOM STAGGERED ON OPPOSITE SIDE FACE NAIL AT ENDS AND AT EACH SPLICE
25. 2" PLANKS	16d COMMON (3 1/2" x 0.162")	AT EACH BEARING
26. COLLAR TIE TO RAFTER	3 - 10d COMMON (3" x 0.148") 4 - 3" x 0.131" NAILS 4 - 3" 14 GAGE STAPLES	FACE NAIL
27. JACK RAFTER TO HIP 2 - 16d COMMON (3 1/2" x 0.162")	3 - 10d COMMON (3" x 0.148") 4 - 3" x 0.131" NAILS 4 - 3" 14 GAGE STAPLES 3 - 3" x 0.131" NAILS 3 - 3" 14 GAGE STAPLES	TOENAIL FACE NAIL
28. ROOF RAFTER TO 2-BY RIDGE BEAM 2 - 16d COMMON (3 1/2" x 0.162")	2 - 16d COMMON (3 1/2" x 0.162") 3 - 3" x 0.131" NAILS 3 - 3" 14 GAGE STAPLES 3 - 3" x 0.131" NAILS 3 - 3" 14 GAGE STAPLES	TOENAIL FACE NAIL
29. JOIST TO BAND JOIST	3 - 16d COMMON (3 1/2" x 0.162") 4 - 3" x 0.131" NAILS 4 - 3" 14 GAGE STAPLES	FACE NAIL
30. LEDGER STRIP	3 - 16d COMMON (3 1/2" x 0.162") 4 - 3" x 0.131" NAILS 4 - 3" 14 GAGE STAPLES	FACE NAIL
31. WOOD STRUCTURAL PANELS AND PARTICLEBOARD[b] SUBFLOOR, ROOF, AND WALL SHEATHING (TO FRAMING) SINGLE FLOOR (COMBINATION SUBFLOOR-UNDERLAYMENT TO FRAMING)	1/2" AND LESS 19/32" TO 3/4" 7/8" TO 1" 1 1/8" TO 1 1/4" 3/4" AND LESS 7/8" TO 1" 1 1/8" TO 1 1/4"	6d[c, l] 2 3/8" x 0.113" NAIL[n] 1 3/4" 16 GAGE STAPLE[o] 8d[d] OR 6d[e] 2 3/8" x 0.113" NAIL[p] 2" 16 GAGE STAPLE[o] 8d[c] 10d[d] OR 8d[e] 6d[e] 8d[e] 10d[d] OR 8d[e]	
32. PANEL SIDING (TO FRAMING)	1/2" OR LESS 5/8"	6d[f] 8d[f]	
33. FIBERBOARD SHEATHING[g]	1/2" 25/32"	NO. 11 GAGE ROOFING NAIL[h] 6d COMMON NAIL (2" x 0.113") NO. 16 GAGE STAPLE[i] NO. 11 GAGE ROOFING NAIL[h] 8d COMMON NAIL (2 1/2" x 0.131") NO. 16 GAGE STAPLE[i]	
34. INTERIOR PANELING	1/4" 3/8"	4d[j] 6d[k]	

a. COMMON OR BOX NAILS ARE PERMITTED TO BE USED EXCEPT WHERE OTHERWISE STATED.
b. NAILS SPACED AT 6 INCHES ON CENTER AT EDGES, 12 INCHES AT INTERMEDIATE SUPPORTS EXCEPT 6 INCHES AT 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.
c. COMMON OR DEFORMED SHANK (6d - 2" x 0.113"; 8d - 2 1/2" x 0.131"; 10d - 3" x 0.148").
d. COMMON (6d - 2" x 0.113"; 8d - 2 1/2" x 0.131"; 10d - 3" x 0.148").
e. DEFORMED SHANK (6d - 2" x 0.113"; 8d - 2 1/2" x 0.131"; 10d - 3" x 0.148").
f. CORROSION - RESISTANT SIDING (6d - 1 7/8" x 0.106"; 8d - 2 3/8" x 0.128") OR CASING (6d - 2" x 0.099"; 8d - 2 1/2" x 0.113") NAIL.
g. FASTENERS SPACED 3 INCHES ON CENTER AT EXTERIOR EDGES AND 6 INCHES ON CENTER AT INTERMEDIATE SUPPORTS, WHEN USED AS STRUCTURAL SHEATHING. SPACING SHALL BE 6 INCHES ON CENTER ON THE EDGES AND 12 INCHES ON CENTER AT INTERMEDIATE SUPPORTS FOR NONSTRUCTURAL APPLICATIONS.
h. CORROSION - RESISTANT ROOFING NAILS WITH 7/16 INCH DIAMETER HEAD AND 1 1/2 INCH LENGTH FOR 1/2 INCH SHEATHING AND 1 3/4 INCH LENGTH FOR 25/32 INCH SHEATHING.
i. CORROSION - RESISTANT STAPLES WITH NOMINAL 7/16 INCH CROWN OR 1 INCH CROWN AND 1 1/4 INCH LENGTH FOR 1/2 INCH SHEATHING AND 1 1/2 INCH LENGTH FOR 25/32 INCH SHEATHING. PANEL SUPPORTS AT 16 INCHES (20 INCHES IF STRENGTH AXIS IN THE LONG DIRECTION OF THE PANEL, UNLESS OTHERWISE MARKED).
j. CASING OR FINISH NAILS SPACED 6 INCHES ON PANEL EDGES, 12 INCHES AT INTERMEDIATE SUPPORTS.
k. PANEL SUPPORTS AT 24 INCHES. CASING OR FINISH NAILS SPACED 6 INCHES ON PANEL EDGES, 12 INCHES AT INTERMEDIATE SUPPORTS.
l. FOR ROOF SHEATHING APPLICATIONS, 8d NAILS ARE THE MINIMUM REQUIRED FOR WOOD STRUCTURAL PANELS.
m. STAPLES SHALL HAVE A MINIMUM CROWN WIDTH OF 7/16 INCH.
n. FOR ROOF SHEATHING APPLICATIONS, FASTENERS SPACED 4 INCHES ON CENTER AT EDGES, 8 INCHES AT INTERMEDIATE SUPPORTS.
o. FASTENERS SPACED 4 INCHES ON CENTER AT EDGES, 8 INCHES AT INTERMEDIATE SUPPORTS FOR SUBFLOOR AND WALL SHEATHING AND 3 INCHES ON CENTER AT EDGES, 6 INCHES AT INTERMEDIATE SUPPORTS FOR ROOF SHEATHING.
p. FASTENERS SPACED 4 INCHES ON CENTER AT EDGES, 8 INCHES AT INTERMEDIATE SUPPORTS.

LINTEL SCHEDULE

TYPE MARK	DESCRIPTION	NO OF JAMBS 1ST-2ND	NO OF JAMBS 2ND-3RD	NO OF JAMBS 3RD-4TH	NO OF JAMBS 4TH-ROOF
L1	(2) 2x10	(3) 2x6 BRG (2) 2x6 KING	(2) 2x6 BRG (2) 2x6 KING	(2) 2x6 BRG (2) 2x6 KING	(2) 2x6 BRG (2) 2x6 KING
L2	(3) 2x10	(3) 2x6 BRG (2) 2x6 KING	(3) 2x6 BRG (2) 2x6 KING	(2) 2x6 BRG (2) 2x6 KING	(2) 2x6 BRG (2) 2x6 KING
L3	(2) 2x10	(2) 2x6 BRG (2) 2x6 KING			
L4	(3) 2x12				(2) 2x6 BRG (2) 2x6 KING
L5	(2) 1-3/4x9-1/2 LVL 2.0E	(5) 2x6 BRG (2) 2x6 KING	(4) 2x6 BRG (2) 2x6 KING	(3) 2x6 BRG (2) 2x6 KING	
L8	(3) 2x10			(2) 2x6 BRG (1) 2x6 KING	
L9	(3) 2x10	(4) 2x6 BRG (1) 2x6 KING	(3) 2x6 BRG (1) 2x6 KING	(3) 2x6 BRG (1) 2x6 KING	
L11	(2) 2x10	(3) 2x6 BRG (1) 2x6 KING	(2) 2x6 BRG (1) 2x6 KING	(2) 2x6 BRG (1) 2x6 KING	(2) 2x6 BRG (1) 2x6 KING
L12	(2) 1-3/4x9-1/2 LVL 2.0E	(3) 2x6 BRG (1) 2x6 KING			
L13	(2) 1-3/4x9-1/2 LVL 2.0E	SEE PLAN (1) 2x6 KING			
L14	(3) 1-3/4x11-7/8 LVL 2.0E	(3) 2x6 BRG (1) 2x6 KING			
L15	(3) 1-3/4x11-7/8 LVL 2.0E	(4) 2x6 BRG (1) 2x6 KING			
L16	(3) 1-3/4x18 LVL 2.0E	(4) 1 3/4 X 7 1/4 1.55 E LSL BRG (4) 1-3/4 x 7-1/4 LVL 2.0E KING			
L17	(3) 2x10	(2) 2x6 BRG (2) 2x6 KING			
L18	(2) 2x10	(3) 1 3/4x 7 1/4 1.55E LSL BRG (3) 1 3/4x 7 1/4 2.0E LVL KING	(2) 1 3/4x 7 1/4 1.55E LSL BRG (3) 1 3/4x 7 1/4 2.0E LVL KING		
L19	CIP BM 18" DP (MIN) W/ (2) #6 TOP AND BOTT. (EXTEND 1'-6" INTO WALL EA SIDE) & #3 TIES @ 10" O.C.				

FOOTING SCHEDULE

TYPE MARK	TYPE	TYPE COMMENTS
CF1.8	1'-8" x 1'-0" CONT FTG	(2) #5 CONT, BOTT
CF2.0	2'-0" x 1'-0" CONT FTG	(2) #5 CONT, BOTT
CF3.0	3'-0" x 1'-0" CONT FTG	(3) #5 CONT. AND #5 AT 12" O.C.
F6.0	6'-0" x 6'-0" x 1'-2"	(7) #5 EACH WAY, BOTT.
F7.0	7'-0" x 7'-0" x 1'-5"	(6) #6 EACH WAY, BOTT.
F8.0	8'-0" x 8'-0" x 1'-7"	(6) #7 EACH WAY, BOTT.
F10.0	10'-0" x 10'-0" x 2'-0"	(9) #7 EACH WAY, BOTT.
F10.5	10'-6" x 10'-6" x 2'-1"	(10) #7 EACH WAY, BOTT.

COLUMN SCHEDULE

TYPE MARK	TYPE	TYPE COMMENTS
C1	16x16 PC COL	
C2	HSS4X4X1/4	6" X 6" X 3/4" BP
C3	HSS5X5X1/4	6" X 6" X 3/4" BP

BEAM SCHEDULE

TYPE MARK	DESCRIPTION	REMARKS
B1	(3) 1-3/4x16 LVL	
B2	W14x61	2x TOP PL W/ 1/2" DIA THRU BOLTS @ 48" OC STAGGERED
B3	(3) 1-3/4x9-1/2 LVL	
B4	(3) 1-3/4x14 LVL	
B5	(3) 1-3/4x11-7/8 LVL	
B6	W8x15	W/ 3/4" X 6" X 8" BRG PLATE (8" BRG EA SIDE) W/ (2) 1/2" DIA X 4" LG WELD STUDS W/ CONT 1/4" FILLET WELD TO BEAM (BOTH SIDES)
B7	HSS16x8x3/8"	W/ 3/8" BOTT PLATE & 3/4" X 10" X 8" BRG PLATE (8" BRG EA SIDE) W/ (2) 1/2" DIA X 4" LG WELD STUDS W/ CONT FLARE WELD TO TUBE (BOTH SIDES)
B8	L8x6x7/16"	W/ 3/4" X 6" X 8" BRG PLATE (8" BRG EA SIDE) W/ (2) 1/2" DIA X 4" LG WELD STUDS W/ CONT 1/4" FILLET WELD TO BEAM (BOTH SIDES)

PIER SCHEDULE

TYPE MARK	TYPE	TYPE COMMENTS
P1	24x24 PC COL	24" x 24" W/ (8) #8 & #3 TIES @ 12" O.C.
P2	16x24 PC COL	24" x 16" (8) #8 & 3 TIES @ 10" OC EXTEND ALL REINF. FULL HGT OF WALL OR TO BRG PLATE ELEVATION

STAIR STRINGER SCHEDULE

SPAN	TYPE	SPACING	TYPE COMMENTS
4' - 0" - 12' - 5"	1 3/4" x 14" 1.55E LSL	12" O.C.	USE STRAP HANGERS
12' - 6" - 15' - 6"	1 3/4" x 16" 1.55E LSL	12" O.C.	USE STRAP HANGERS

BRICK LINTEL SCHEDULE

SPAN	TYPE	REMARKS
0' - 6" - 4' - 0"	L4 x 3 1/2 x 5/16	8" BEARING EACH END
4' - 4" - 6' - 4"	L6 x 3 1/2 x 5/16	8" BEARING EACH END
6' - 4" - 8' - 0"	L8 x 4 x 1/2	8" BEARING EACH END

STRUCTURAL ABBREVIATIONS

AB	ANCHOR BOLT	MATL	MATERIAL
ADDL	ADDITIONAL	MAU	MAKE-UP AIR UNIT
ADJ	ADJACENT	MAX	MAXIMUM
AFF	ABOVE FINISHED FLOOR	MECH	MECHANICAL
AHU	AIR HANDLING UNIT	MEZZ	MEZZANINE
ALT	ALTERNATE	MFR	MANUFACTURER
ALUM	ALUMINUM	MID	MIDDLE
APPROX	APPROXIMATE/APPROXIMATELY	MIN	MINIMUM
ARCH	ARCHITECT/ARCHITECTURAL	MISC	MISCELLANEOUS
		MO	MASONRY OPENING
BP	BASE PLATE/BEARING PLATE	MTL	METAL
BO	BOTTOM OF		
BLDG	BUILDING	NA	NOT APPLICABLE
BLK	BLOCK	NO	NUMBER
BLKG	BLOCKING	NS	NEAR SIDE
BM	BEAM	NTS	NOT TO SCALE
BOTT	BOTTOM		
BRG	BEARING	OC	ON CENTER
BTWN	BETWEEN	OD	OUTSIDE DIAMETER
		OF	OUTSIDE FACE
CANT	CANTILEVER	OH	OVERHANG
CIP	CAST-IN-PLACE CONCRETE	OPNG	OPENING
CJ	CONTROL JOINT/CONSTRUCTION JOINT	OPP	OPPOSITE
CJP	COMPLETE JOINT PENETRATION WELD	OSB	ORIENTED STRAND BOARD
CL	CENTER LINE		
CLR	CLEAR	PAF	POWDER ACTUATED FASTENER
CMU	CONCRETE MASONRY UNIT	PC	PRECAST
COL	COLUMN	PCF	POUNDS PER CUBIC FOOT
CONC	CONCRETE	PIL	PILASTER
CONN	CONNECT/CONNNECTION	PJP	PARTIAL JOINT PENETRATION WELD
CONT	CONTINUE/CONTINUOUS	PL	PLATE
COORD	COORDINATE	PLF	POUNDS PER LINEAR FOOT
		PLYWD	PLYWOOD
DBL	DOUBLE	PREFAB	PREFABRICATED
DEMO	DEMOLITION	PROJ	PROJECTION
DTL	DETAIL	PSF	POUNDS PER SQUARE FOOT
DIA	DIAMETER	PSI	POUNDS PER SQUARE INCH
DIAG	DIAGONAL	PSL	PARALLEL STRAND LUMBER
DIM	DIMENSION(S)	PT	POST TENSIONED
DL	DEAD/LOAD		
DN	DOWN	QTY	QUANTITY
DP	DEEP		
DWG	DRAWING	R	RADIUS
DWL	DOWEL	RD	ROOF DRAIN
		REF	REFERENCE
EA	EACH	REINF	REINFORCED/REINFORCEMENT
EF	EACH FACE	REQD	REQUIRED
EL	ELEVATION	REV	REVISED/REVISION
ELEV	ELEVATOR	RO	ROUGH OPENING
EMBED	EMBEDDED/EMBEDMENT	RTU	ROOF TOP UNIT
ENGR	ENGINEER		
EOR	ENGINEER OF RECORD	SCHED	SCHEDULE
EQ	EQUAL	SECT	SECITON
EQUIP	EQUIPMENT	SF	SQUARE FOOT
EW	EACH WAY	SHT	SHEET
EXIST	EXISTING	SIM	SIMILAR
EXP	EXPANSION	SL	SNOW LOAD
EXT	EXTERIOR	SOG	SLAB ON GRADE
		SP	SPACE
FAB	FABRICATOR/FABRICATION	SPEC	SPECIFICATION(S)
FD	FLOOR DRAIN	SQ	SQUARE
FDN	FOUNDATION	SS	STAINLESS STEEL
FFE	FINISHED FLOOR ELEVATION	STD	STANDARD
FLR	FLOOR	STIFF	STIFFENER
FS	FAR SIDE	STL	STEEL
FT	FEET/FOOT	STRUCT	STRUCTURAL
FTG	FOOTING	SYM	SYMMETRICAL
GA	GAUGE	TO	TOP OF
GALV	GALVANIZED	T&B	TOP AND BOTTOM
GC	GENERAL CONTRACTOR	T&G	TONGUE AND GROOVE
GLULAM	GLUE LAMINATED WOOD	TEMP	TEMPORARY
GB	GRADE BEAM	THK	THICK/THICKNESS
GT	GIRDER TRUSS	TL	TOTAL LOAD
GYP	GYPSUM	TRANS	TRANSVERSE
		TYP	TYPICAL
HORIZ	HORIZONTAL		
HT	HEIGHT	UNO	UNLESS NOTED OTHERWISE
ID	INSIDE DIAMETER	VERT	VERTICAL
IF	INSIDE FACE		
INFO	INFORMATION	W/	WITH
INSUL	INSULATION	W/O	WITHOUT
INT	INTERIOR	WL	WIND LOAD
		WP	WORKING POINT
JST	JOIST	WT	WEIGHT
JT	JOINT	WWF	WELDED WIRE FABRIC
K	KILO-POUND/1000 POUNDS	X BRACE	CROSS BRACE
KLF	KIPS PER LINEAR FOOT		
KSF	KIPS PER SQUARE FOOT		
KSI	KIPS PER SQUARE INCH		
LB	POUND(S)		
LG	LONG		
LL	LIVE LOAD		
LLH	LONG LEG HORIZONTAL		
LLV	LONG LEG VERTICAL		
LONG	LONGITUDINAL		
LT	LIGHT		
LVL	LAMINATED VENEER LUMBER		

ALL STEEL IN CONTACT WITH TREATED WOOD (CONNECTORS, JOIST HANGERS, NAILS, SCREWS, ANCHOR BOLTS ETC.) SHALL BE STAINLESS STEEL OR GALVANIZED TO THE REQUIREMENTS LISTED IN THE WOOD SECTION OF THE STRUCTURAL NOTES.

NOTE TO TRUSS SUPPLIER

THE TRUSS SUPPLIER SHALL BE RESPONSIBLE FOR DESIGNING ALL PERMANENT BRACING AS REQUIRED FOR THE STABILITY OF THE INDIVIDUAL TRUSS COMPRESSION MEMBERS. THE BRACING DESIGN MUST BE INCLUDED IN THE SHOP DRAWINGS AND CERTIFIED BY A REGISTERED ENGINEER. THE TRUSS SHOP DRAWINGS SHALL INCLUDE SIZE AND LOCATION OF BRACES AS WELL AS THE ATTACHMENT OF THE BRACES TO THE TRUSS MEMBERS. THIS BRACING IS NOT REQUIRED TO RESIST WIND LOADS AND IS INDEPENDENT OF THE OVERALL LATERAL FORCE RESISTING SYSTEM.

ALL TRUSS TO TRUSS CONNECTIONS AND TRUSS TO TOP PLATE CONNECTIONS SHALL BE DESIGNED AND SUPPLIED BY THE TRUSS SUPPLIER. THIS DESIGN SHALL BE CERTIFIED BY A REGISTERED ENGINEER. ALL TRUSSES SHALL BE DESIGNED SUCH THAT THE BEARING STRESS ON THE TOP PLATE DOES NOT EXCEED 425 PSI.

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision & that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Signature:

Printed Name: Kesh Ramdular

License No.: 16256

Date: 09/30/2016

Project No: 1602
Project Manager: DAS
Drawn By: SR
Date: 09/30/2016

	Date	Description
1		

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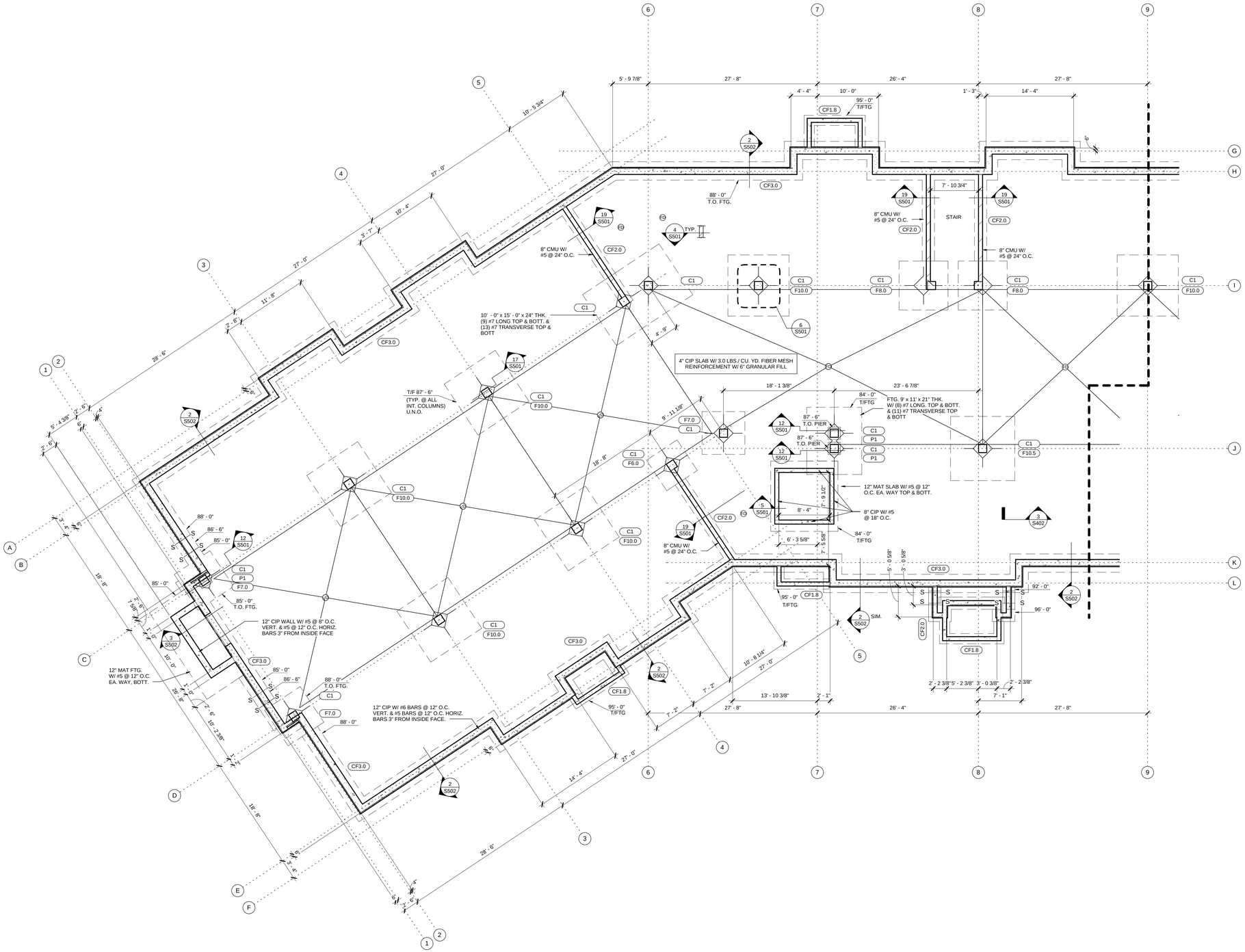
New Apartment Complex:

Rivers Ridge Luxury Apartments

Red Wing, MN

Structural Abbreviations

S001



FOUNDATION PLAN - GENERAL NOTES @ EXTERIOR WALLS:

1. T/FTG = 88' - 0", UNO.
2. EXTERIOR WALL FOOTINGS SHALL BE CF3.0, UNO.
3. STOOP WALL FOOTINGS SHALL BE CF1.8, UNO.
4. SEE DETAILS 1/SS01 AND 2/501 FOR CONSTRUCTION AND CONTROL JOINTS FOR SLAB ON GRADE.
5. SLAB ON GRADE: 4" CONCRETE SLAB WITH FIBER MESH REINFORCEMENT. PROVIDE 6" COMPACTED GRANULAR FILL. T/SLAB = 89' - 0", U.N.O.
6. SEE DETAIL 3/SS01 FOR STEP FOOTING DETAIL.
7. SEE ARCHITECTURAL DRAWINGS FOR ALL SLAB SLOPES AND FLOOR DRAINS.
8. SEE SHEET S000 FOR GENERAL STRUCTURAL NOTES.
9. SEE SHEET S001 FOR SCHEDULES AND ABBREVIATIONS.
10. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS.

ALL STEEL IN CONTACT WITH TREATED WOOD (CONNECTORS, JOIST HANGERS, NAILS, SCREWS, ANCHOR BOLTS ETC.) SHALL BE STAINLESS STEEL OR GALVANIZED TO THE REQUIREMENTS LISTED IN THE WOOD SECTION OF THE STRUCTURAL NOTES.

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New Apartment Complex:

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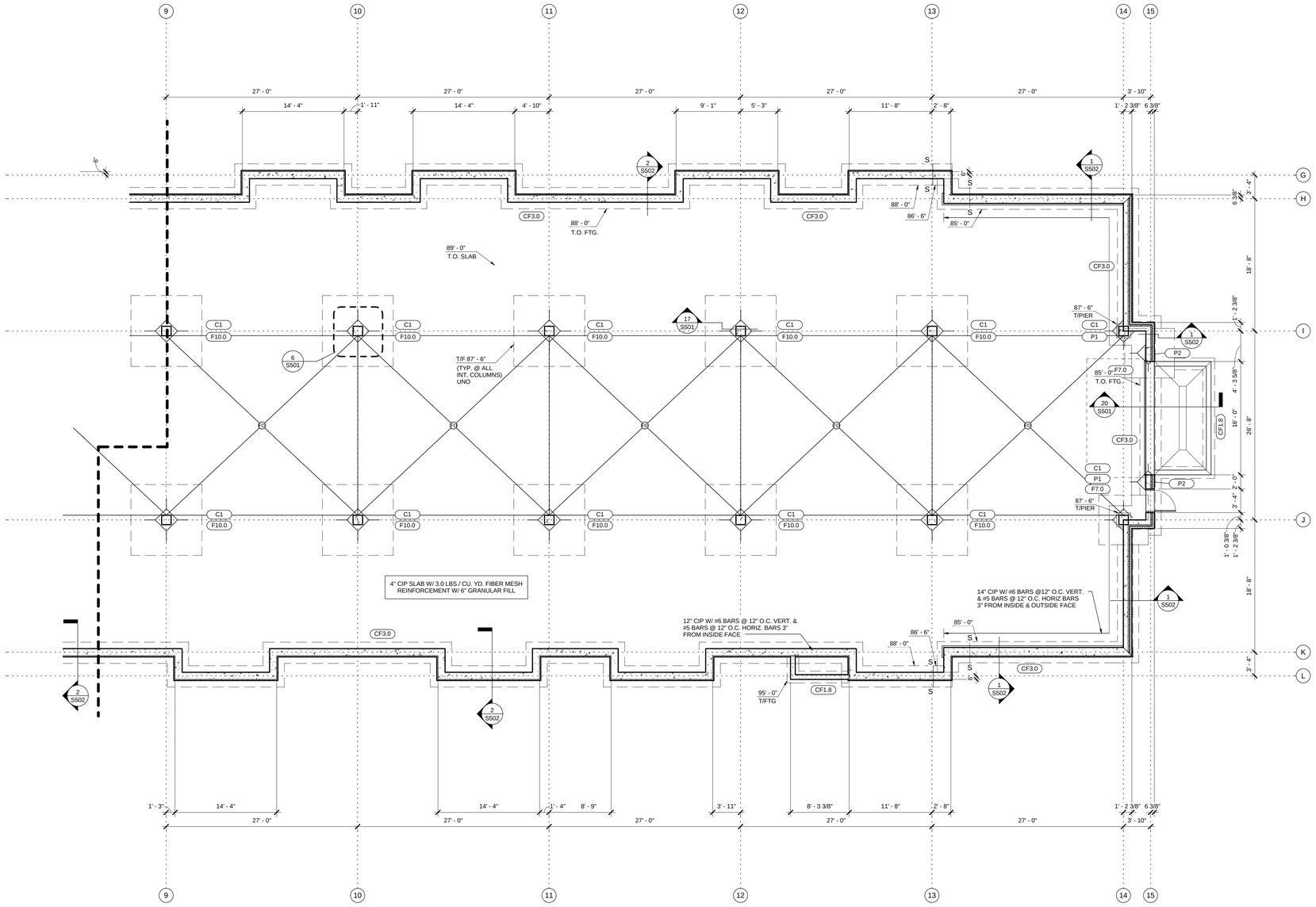
Foundation Plan - Area A

S100



1 S101 FOUNDATION PLAN - AREA 'B'

SCALE: 1/8" = 1'-0"

NORTH

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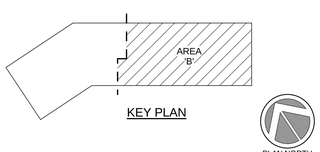

KEY PLAN

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New Apartment Complex:

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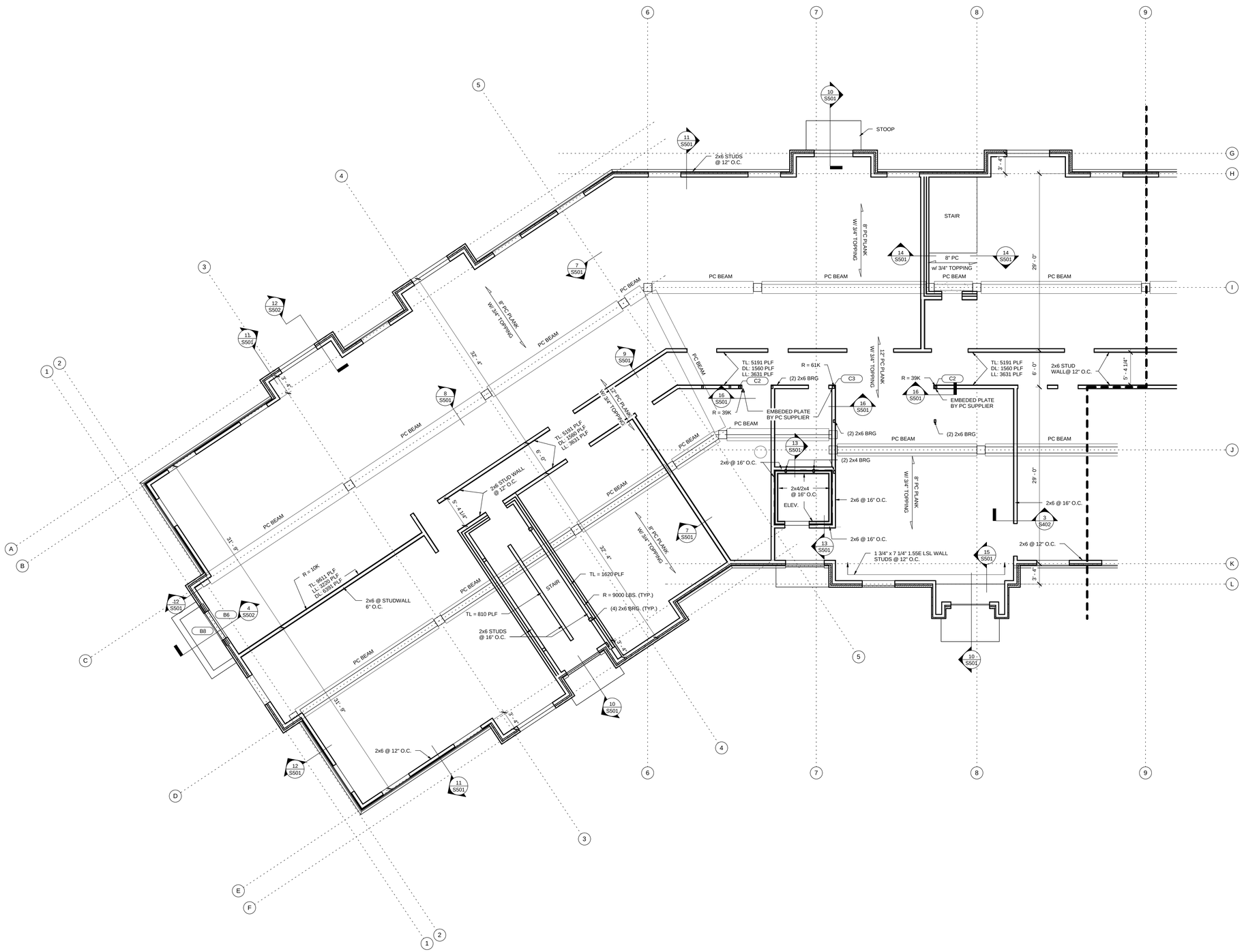
Red Wing, MN

Foundation Plan - Area B

S101



1 S102 FIRST FLOOR FRAMING PLAN - AREA 'A'

SCALE: 1/8" = 1'-0"

NORTH

AREA 'A'

KEY PLAN

PLAN NORTH

FLOOR FRAMING PLAN NOTES:

1. 1ST FLOOR TOP OF PLANK = 100' - 0"
   2ND FLOOR TOP OF SHEATHING = 111' - 1 7/8"
   3RD FLOOR TOP OF SHEATHING = 121' - 3 3/4"
   4TH FLOOR TOP OF SHEATHING = 131' - 5 5/8"
2. FLOOR SHEATHING TO BE 3/4" TONGUE AND GROOVE PLYWOOD GLUED AND NAILED. (SEE SPECIFICATIONS).
3. ALL FLOOR AREA TO HAVE 3/4" GYPCRETE, UNO. (SEE ARCH).
4. PROVIDE BRIDGIND FOR FLOOR TRUSSES ACCORDING TO MANUFACTURER'S RECOMENDATION.
5. DIMENSIONAL LUMBER FLOOR JOISTS TO HAVE BRIDGING AT INTERVALS NOT TO EXCEE 8' - 0".
6. SEE ARCH FOR ALL OPENING SIZES AND LOCATIONS.
7. ALL INTERIOR STEEL BEAMS TO HAVE 2x WOOD TOP PLATES WITH 1/2" DIA THROUGH BOLTS AT 48" O.C., STAGGERED.
8. COORDINATE ALL TRUSSES WITH PLUMBING LOCATIONS. ADJUST TRUSS SPACING AS NECESSARY FOR LOAD AND DEFLECTION REQUIREMENTS (MAX 24" O.C.).
9. ALL TRUSSES AND/OR ENGINEERED FLOORS TO BE DESIGNED FOR:
   a. LIVE LOAD DEFLECTION OF L/480 FOR RESIDENT UNITS.
   b. LIVE LOAD DEFLECTION OF L/360 FOR 100 PSF LOAD AREAS.
10. SEE DETAIL 15/S502 FOR CONT BLOCKING REQUIREMENTS IN TRUSS SPACE.
11. SEE SHEET S000 FOR IBC NAILING SCHEDULE.
12. PROVIDE CONT 2x12 RIBBON AT INTERIOR CORRIDOR. PROVIDE CONT 2x6 RIBBON AT EXTERIOR WALLS. EXTERIOR SHEATHING SHALL BE 7/16" APA RATED SHEATHING NAILS @ 6" OC AT EDGE & 12" OC FIELD UNO
14. BEARING STUDS TO BE CONTINUOUS DOWN TO FOUNDATION LEVEL

ALL STEEL IN CONTACT WITH TREATED WOOD (CONNECTORS, JOIST HANGERS, NAILS, SCREWS, ANCHOR BOLTS ETC.) SHALL BE STAINLESS STEEL OR GALVANIZED TO THE REQUIREMENTS LISTED IN THE WOOD SECTION OF THE STRUCTURAL NOTES.

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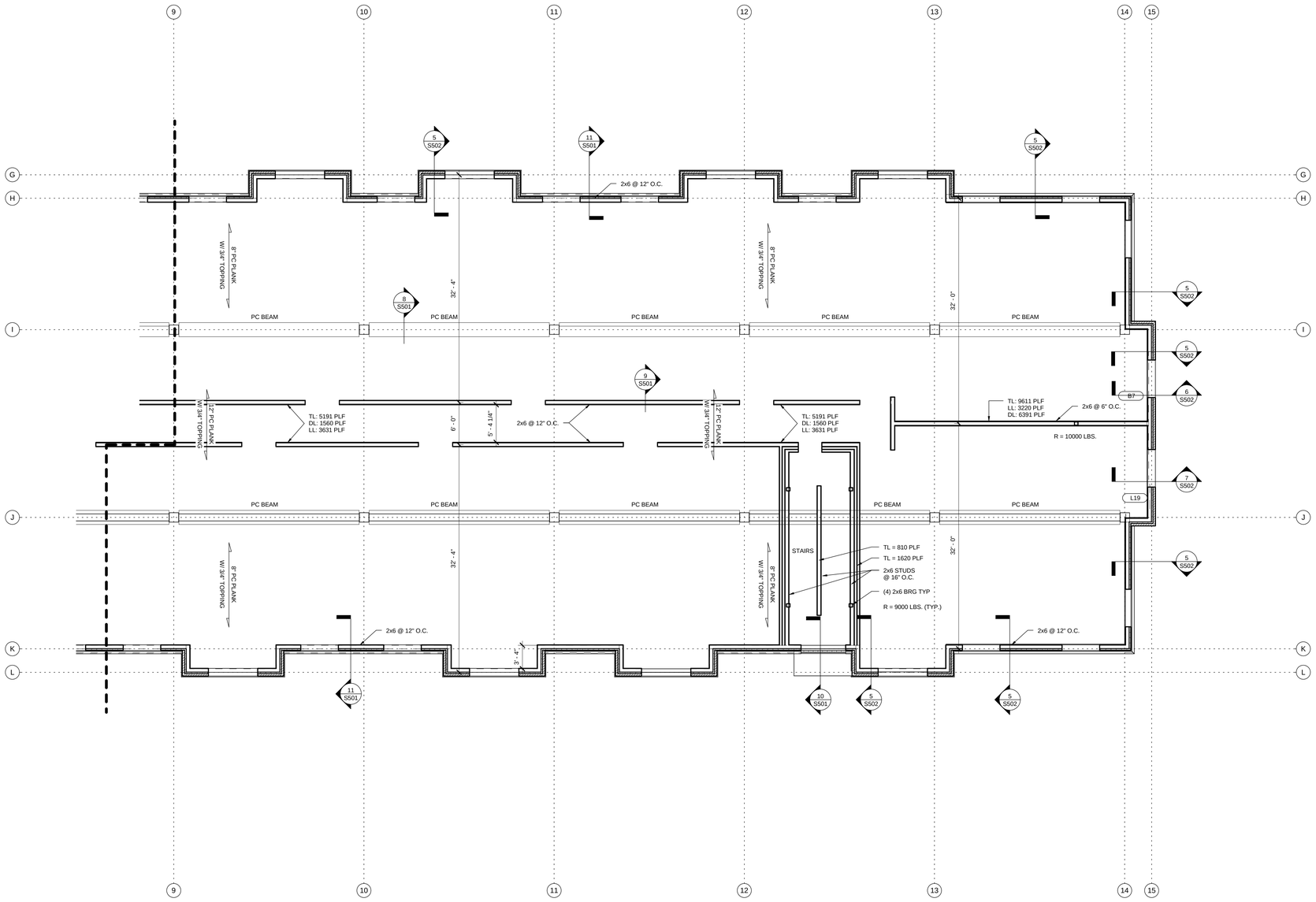
New Apartment Complex:

Rivers Ridge Luxury Apartments

Red Wing, MN

First Floor Framing Plan - Area A

S102



1 S103 FIRST FLOOR FRAMING PLAN - AREA 'B'

SCALE: 1/8" = 1'-0"

NORTH

FLOOR FRAMING PLAN NOTES:

1. 1ST FLOOR TOP OF PLANK = 100' - 0"
   2ND FLOOR TOP OF SHEATHING = 111' - 1 7/8"
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10. SEE DETAIL 15/S502 FOR CONT BLOCKING REQUIREMENTS IN TRUSS SPACE.
11. SEE SHEET S000 FOR IBC NAILING SCHEDULE.
12. PROVIDE CONT 2x12 RIBBON AT INTERIOR CORRIDOR. PROVIDE CONT 2x6 RIBBON AT EXTERIOR WALLS.
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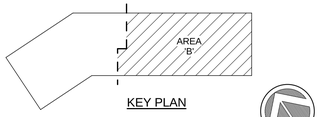

KEY PLAN

PLAN NORTH

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Drawn By: SR
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New Apartment Complex:

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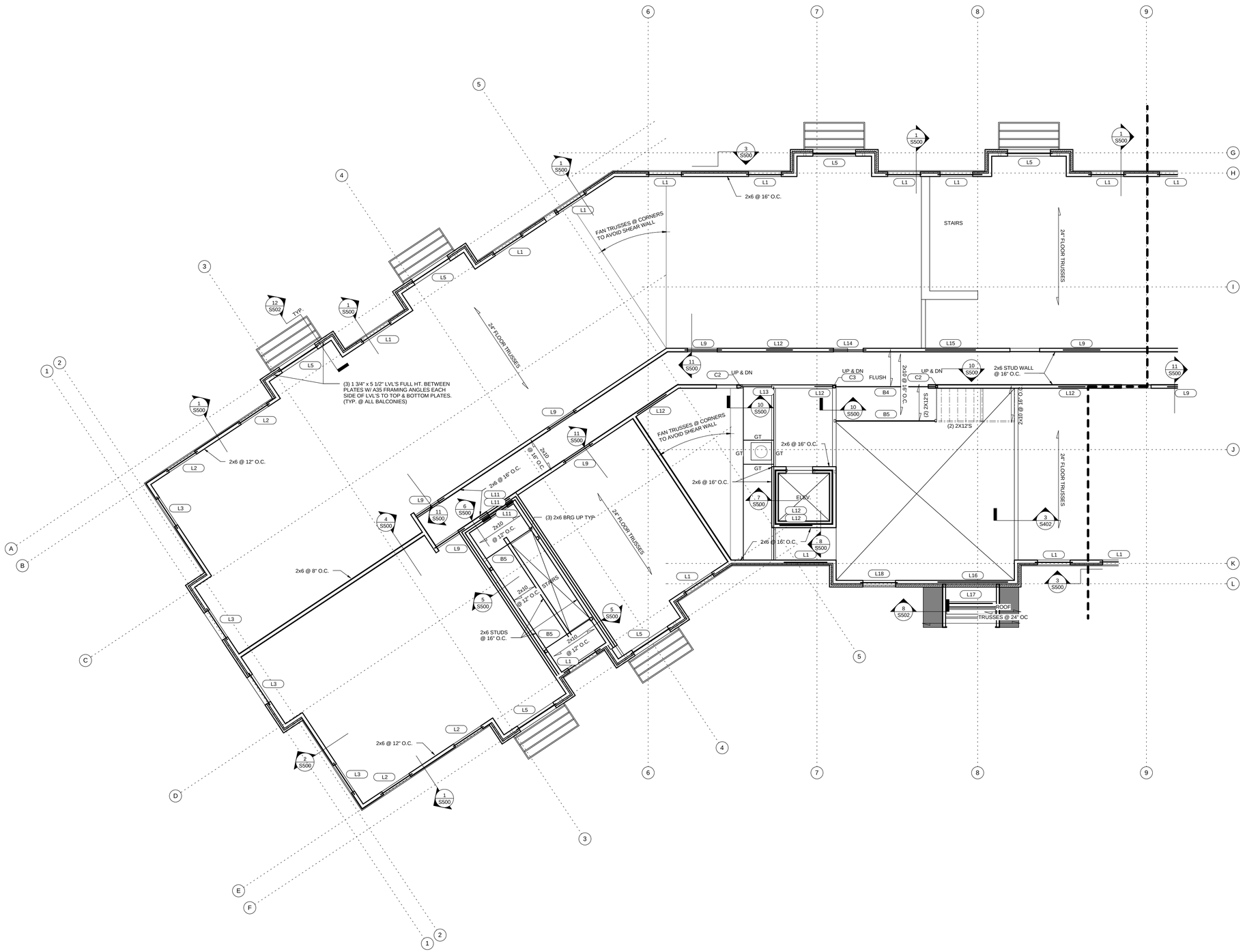
Red Wing, MN

First Floor Framing Plan - Area B

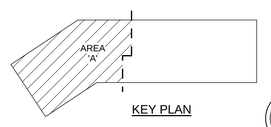
S103



1 S104 SECOND FLOOR FRAMING PLAN - AREA 'A'

SCALE: 1/8" = 1'-0"

NORTH



KEY PLAN

PLAN NORTH

FLOOR FRAMING PLAN NOTES:

1. 1ST FLOOR TOP OF PLANK = 100' - 0"
   2ND FLOOR TOP OF SHEATHING = 111' - 1 7/8"
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   4TH FLOOR TOP OF SHEATHING = 131' - 5 5/8"
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3. ALL FLOOR AREA TO HAVE 3/4" GYPCRETE, UNO. (SEE ARCH).
4. PROVIDE BRIDGIND FOR FLOOR TRUSSES ACCORDING TO MANUFACTURER'S RECOMENDATION.
5. DIMENSIONAL LUMBER FLOOR JOISTS TO HAVE BRIDGING AT INTERVALS NOT TO EXCEE 8' - 0".
6. SEE ARCH FOR ALL OPENING SIZES AND LOCATIONS.
7. ALL INTERIOR STEEL BEAMS TO HAVE 2x WOOD TOP PLATES WITH 1/2" DIA THROUGH BOLTS AT 48" O.C., STAGGERED.
8. COORDINATE ALL TRUSSES WITH PLUMBING LOCATIONS. ADJUST TRUSS SPACING AS NECESSARY FOR LOAD AND DEFLECTION REQUIREMENTS (MAX 24" O.C.).
9. ALL TRUSSES AND/OR ENGINEERED FLOORS TO BE DESIGNED FOR:
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   b. LIVE LOAD DEFLECTION OF L/360 FOR 100 PSF LOAD AREAS.
10. SEE DETAIL 15/S502 FOR CONT BLOCKING REQUIREMENTS IN TRUSS SPACE.
11. SEE SHEET S000 FOR IBC NAILING SCHEDULE.
12. PROVIDE CONT 2x12 RIBBON AT INTERIOR CORRIDOR. PROVIDE CONT 2x6 RIBBON AT EXTERIOR WALLS.
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New Apartment Complex:

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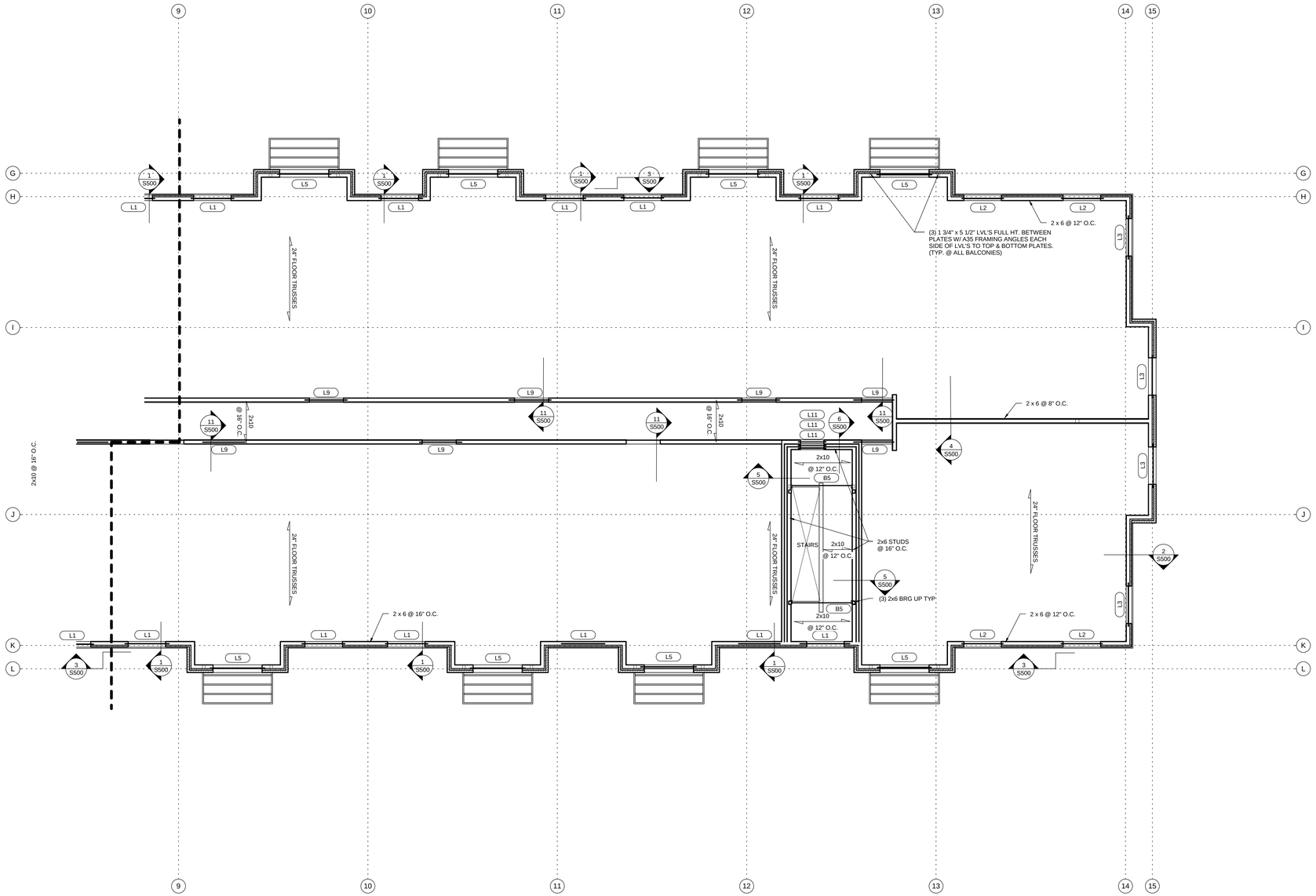
Red Wing, MN

Second Floor Framing Plan - Area A

S104



1 S105 SECOND FLOOR FRAMING PLAN - AREA 'B'

SCALE: 1/8" = 1'-0"

NORTH

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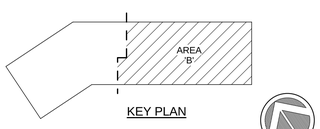

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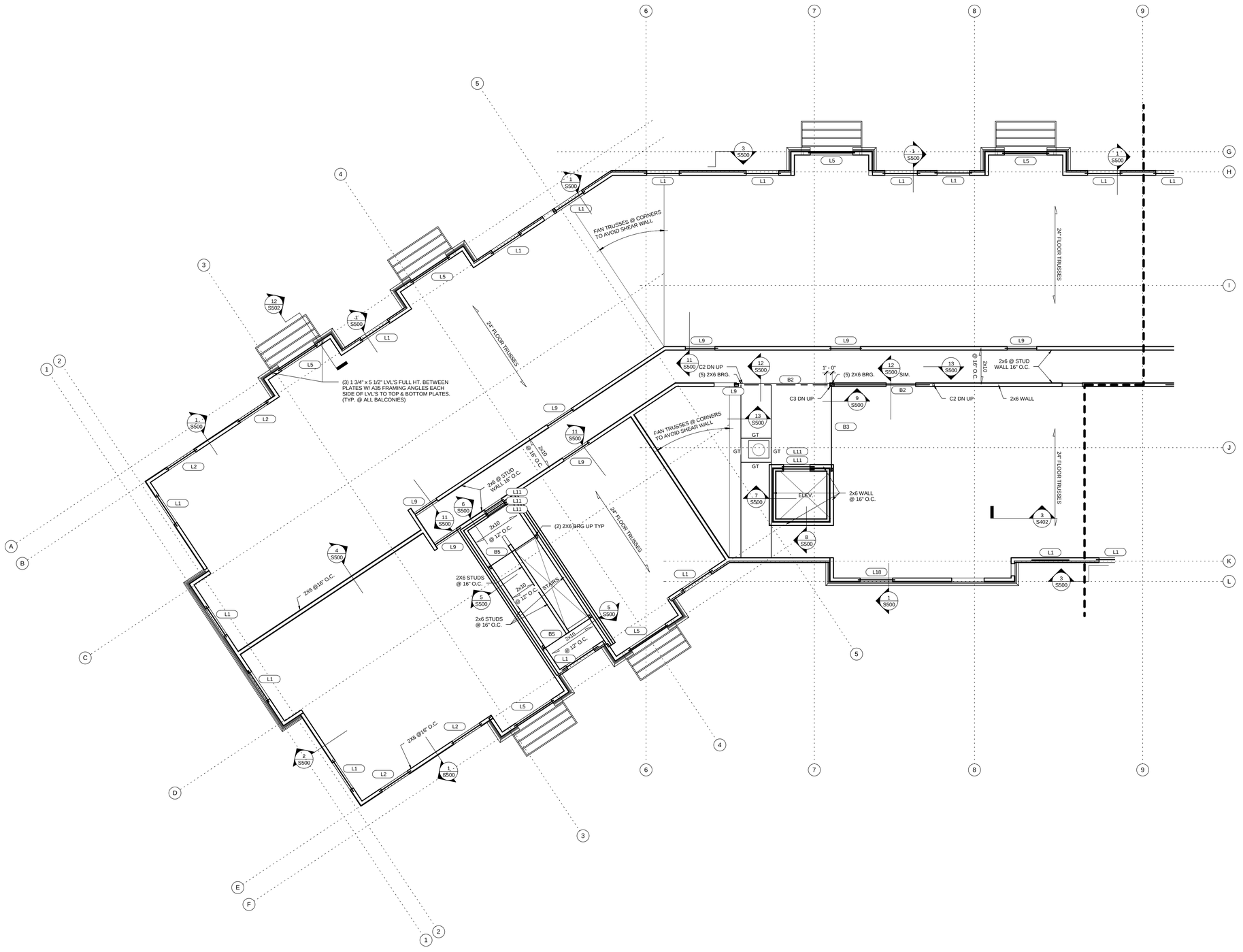
Second Floor Framing Plan - Area B

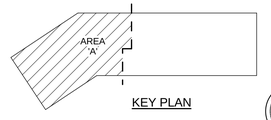
S105



1 S106 THIRD FLOOR FRAMING PLAN - AREA 'A'

SCALE: 1/8" = 1'-0"

NORTH



KEY PLAN

PLAN NORTH

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3. ALL FLOOR AREA TO HAVE 3/4" GYPCRETE, UNO. (SEE ARCH).
4. PROVIDE BRIDGIND FOR FLOOR TRUSSES ACCORDING TO MANUFACTURER'S RECOMENDATION.
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6. SEE ARCH FOR ALL OPENING SIZES AND LOCATIONS.
7. ALL INTERIOR STEEL BEAMS TO HAVE 2x WOOD TOP PLATES WITH 1/2" DIA THROUGH BOLTS AT 48" O.C., STAGGERED.
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13. EXTERIOR SHEATHING SHALL BE 7/16" APA RATED SHEATHING NAILS @ 6" OC AT EDGE & 12" OC FIELD UNO
14. BEARING STUDS TO BE CONTINUOUS DOWN TO FOUNDATION LEVEL

ALL STEEL IN CONTACT WITH TREATED WOOD (CONNECTORS, JOIST HANGERS, NAILS, SCREWS, ANCHOR BOLTS ETC.) SHALL BE STAINLESS STEEL OR GALVANIZED TO THE REQUIREMENTS LISTED IN THE WOOD SECTION OF THE STRUCTURAL NOTES.

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Signature:

Printed Name: Kesh Ramdular

License No.: 16256

Date: 09/30/2016

Project No: 1602
Project Manager: DAS
Drawn By: SR
Date: 09/30/2016

#	Date	Description

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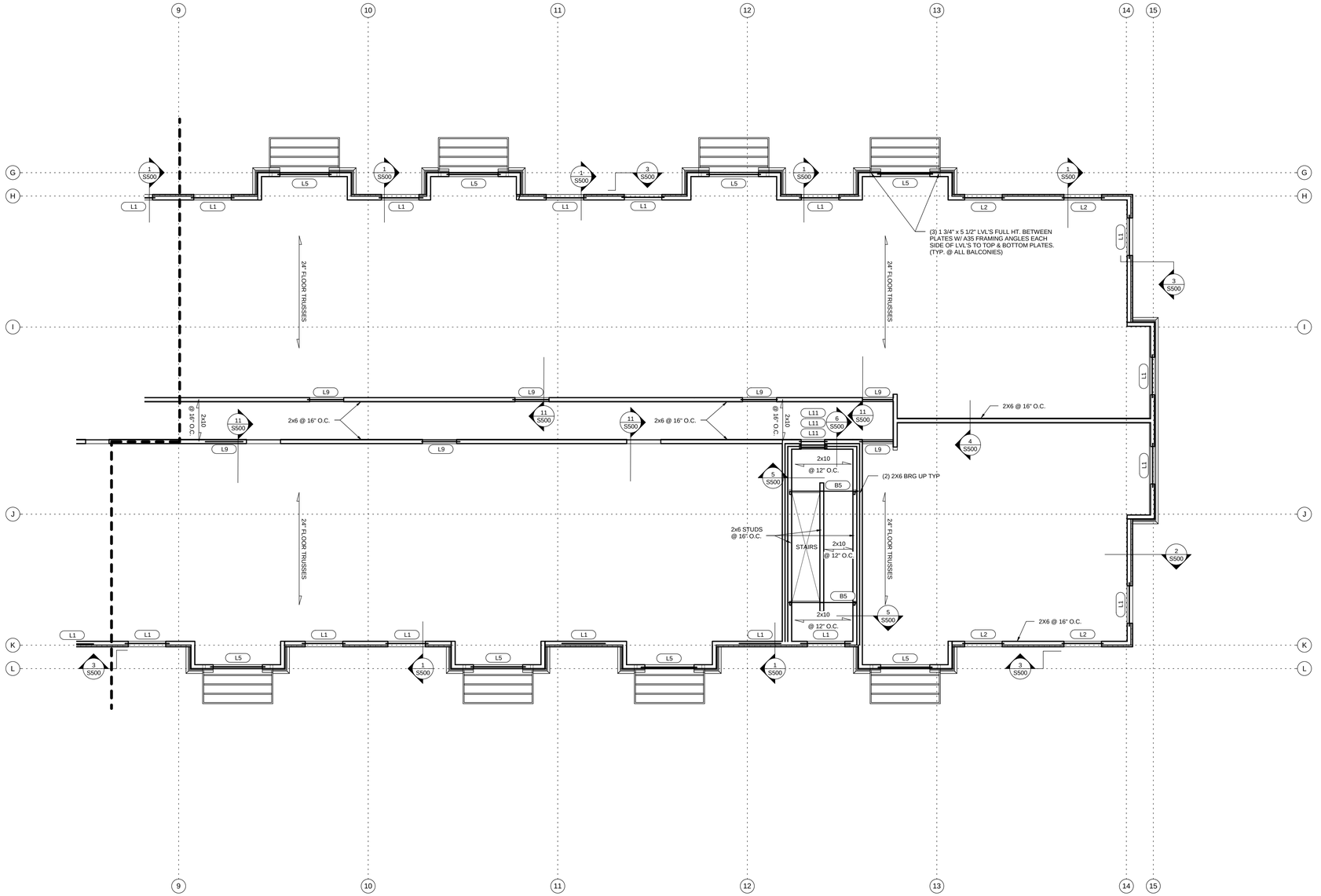
New Apartment Complex:

Rivers Ridge Luxury Apartments

Red Wing, MN

Third Floor Framing Plan - Area A

S106



1 S107 THIRD FLOOR FRAMING PLAN - AREA 'B'

SCALE: 1/8" = 1'-0"

NORTH

FLOOR FRAMING PLAN NOTES:

1. 1ST FLOOR TOP OF PLANK = 100' - 0"
   2ND FLOOR TOP OF SHEATHING = 111' - 1 7/8"
   3RD FLOOR TOP OF SHEATHING = 121' - 3 3/4"
   4TH FLOOR TOP OF SHEATHING = 131' - 5 5/8"
2. FLOOR SHEATHING TO BE 3/4" TONGUE AND GROOVE PLYWOOD GLUED AND NAILED. (SEE SPECIFICATIONS).
3. ALL FLOOR AREA TO HAVE 3/4" GYPCRETE, UNO. (SEE ARCH).
4. PROVIDE BRIDGIND FOR FLOOR TRUSSES ACCORDING TO MANUFACTURER'S RECOMENDATION.
5. DIMENSIONAL LUMBER FLOOR JOISTS TO HAVE BRIDGING AT INTERVALS NOT TO EXCEE 8' - 0".
6. SEE ARCH FOR ALL OPENING SIZES AND LOCATIONS.
7. ALL INTERIOR STEEL BEAMS TO HAVE 2x WOOD TOP PLATES WITH 1/2" DIA THROUGH BOLTS AT 48" O.C., STAGGERED.
8. COORDINATE ALL TRUSSES WITH PLUMBING LOCATIONS. ADJUST TRUSS SPACING AS NECESSARY FOR LOAD AND DEFLECTION REQUIREMENTS (MAX 24" O.C.).
9. ALL TRUSSES AND/OR ENGINEERED FLOORS TO BE DESIGNED FOR:
   a. LIVE LOAD DEFLECTION OF L/480 FOR RESIDENT UNITS.
   b. LIVE LOAD DEFLECTION OF L/360 FOR 100 PSF LOAD AREAS.
10. SEE DETAIL 15/S502 FOR CONT BLOCKING REQUIREMENTS IN TRUSS SPACE.
11. SEE SHEET S000 FOR IBC NAILING SCHEDULE.
12. PROVIDE CONT 2x12 RIBBON AT INTERIOR CORRIDOR. PROVIDE CONT 2x6 RIBBON AT EXTERIOR WALLS.
13. EXTERIOR SHEATHING SHALL BE 7/16" APA RATED SHEATHING NAILS @ 6" OC AT EDGE & 12" OC FIELD UNO
14. BEARING STUDS TO BE CONTINUOUS DOWN TO FOUNDATION LEVEL

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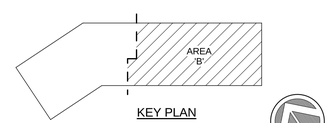

KEY PLAN

PLAN NORTH

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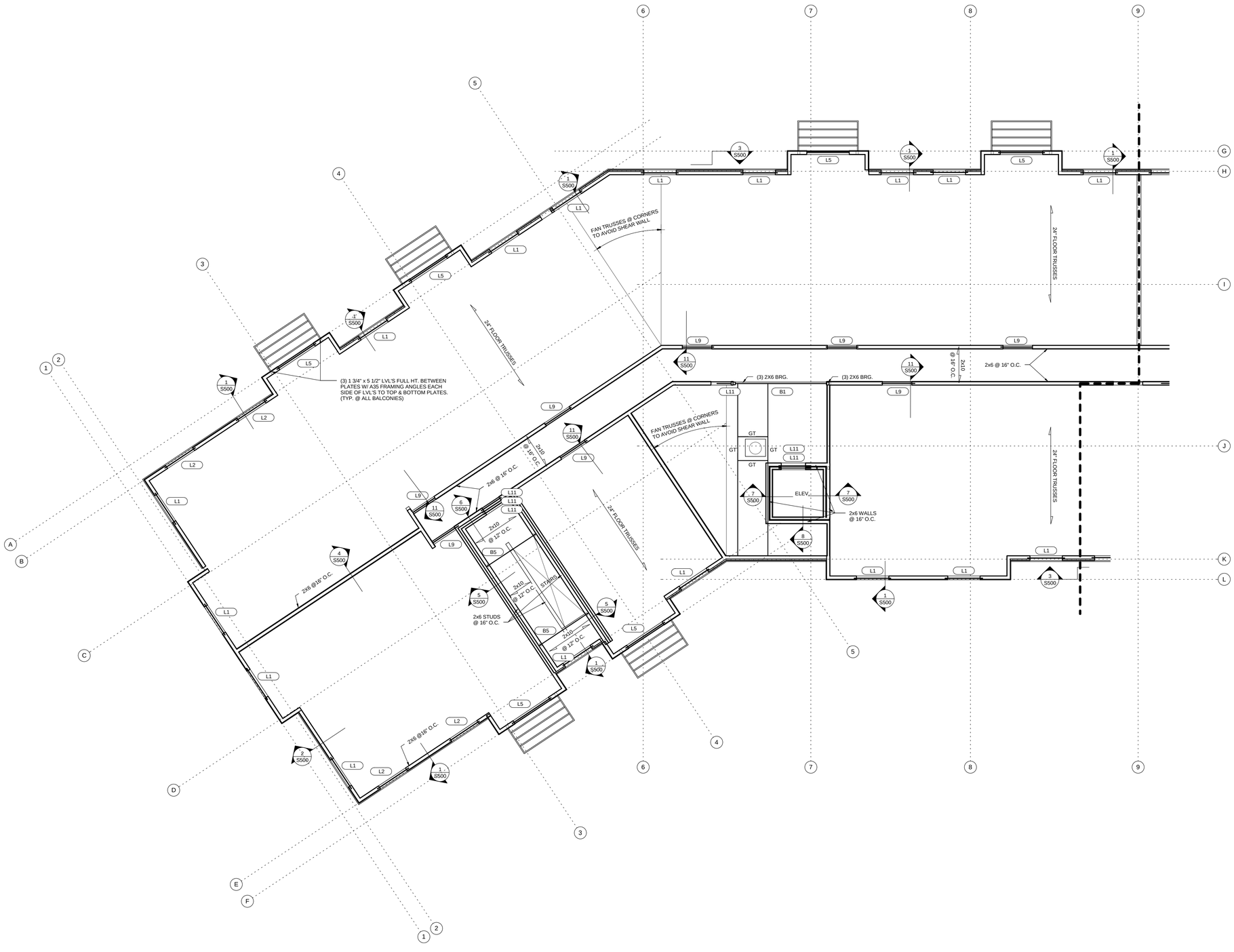
New Apartment Complex:

Rivers Ridge Luxury Apartments

Red Wing, MN

Third Floor Framing Plan - Area B

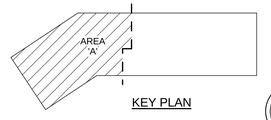
S107



1 S108 FOURTH FLOOR FRAMING PLAN - AREA A

SCALE: 1/8" = 1'-0"

NORTH



KEY PLAN

PLAN NORTH

FLOOR FRAMING PLAN NOTES:

1. 1ST FLOOR TOP OF PLANK = 100' - 0"
   2ND FLOOR TOP OF SHEATHING = 111' - 1 7/8"
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   4TH FLOOR TOP OF SHEATHING = 131' - 5 5/8"
2. FLOOR SHEATHING TO BE 3/4" TONGUE AND GROOVE PLYWOOD GLUED AND NAILED. (SEE SPECIFICATIONS).
3. ALL FLOOR AREA TO HAVE 3/4" GYPCRETE, UNO. (SEE ARCH).
4. PROVIDE BRIDGIND FOR FLOOR TRUSSES ACCORDING TO MANUFACTURER'S RECOMENDATION.
5. DIMENSIONAL LUMBER FLOOR JOISTS TO HAVE BRIDGING AT INTERVALS NOT TO EXCEE 8' - 0".
6. SEE ARCH FOR ALL OPENING SIZES AND LOCATIONS.
7. ALL INTERIOR STEEL BEAMS TO HAVE 2x WOOD TOP PLATES WITH 1/2" DIA THROUGH BOLTS AT 48" O.C., STAGGERED.
8. COORDINATE ALL TRUSSES WITH PLUMBING LOCATIONS. ADJUST TRUSS SPACING AS NECESSARY FOR LOAD AND DEFLECTION REQUIREMENTS (MAX 24" O.C.).
9. ALL TRUSSES AND/OR ENGINEERED FLOORS TO BE DESIGNED FOR:
   a. LIVE LOAD DEFLECTION OF L/480 FOR RESIDENT UNITS.
   b. LIVE LOAD DEFLECTION OF L/360 FOR 100 PSF LOAD AREAS.
10. SEE DETAIL 15/S502 FOR CONT BLOCKING REQUIREMENTS IN TRUSS SPACE.
11. SEE SHEET S000 FOR IBC NAILING SCHEDULE.
12. PROVIDE CONT 2x12 RIBBON AT INTERIOR CORRIDOR. PROVIDE CONT 2x6 RIBBON AT EXTERIOR WALLS. EXTERIOR SHEATHING SHALL BE 7/16" APA RATED SHEATHING NAILS @ 6" OC AT EDGE & 12" OC FIELD UNO
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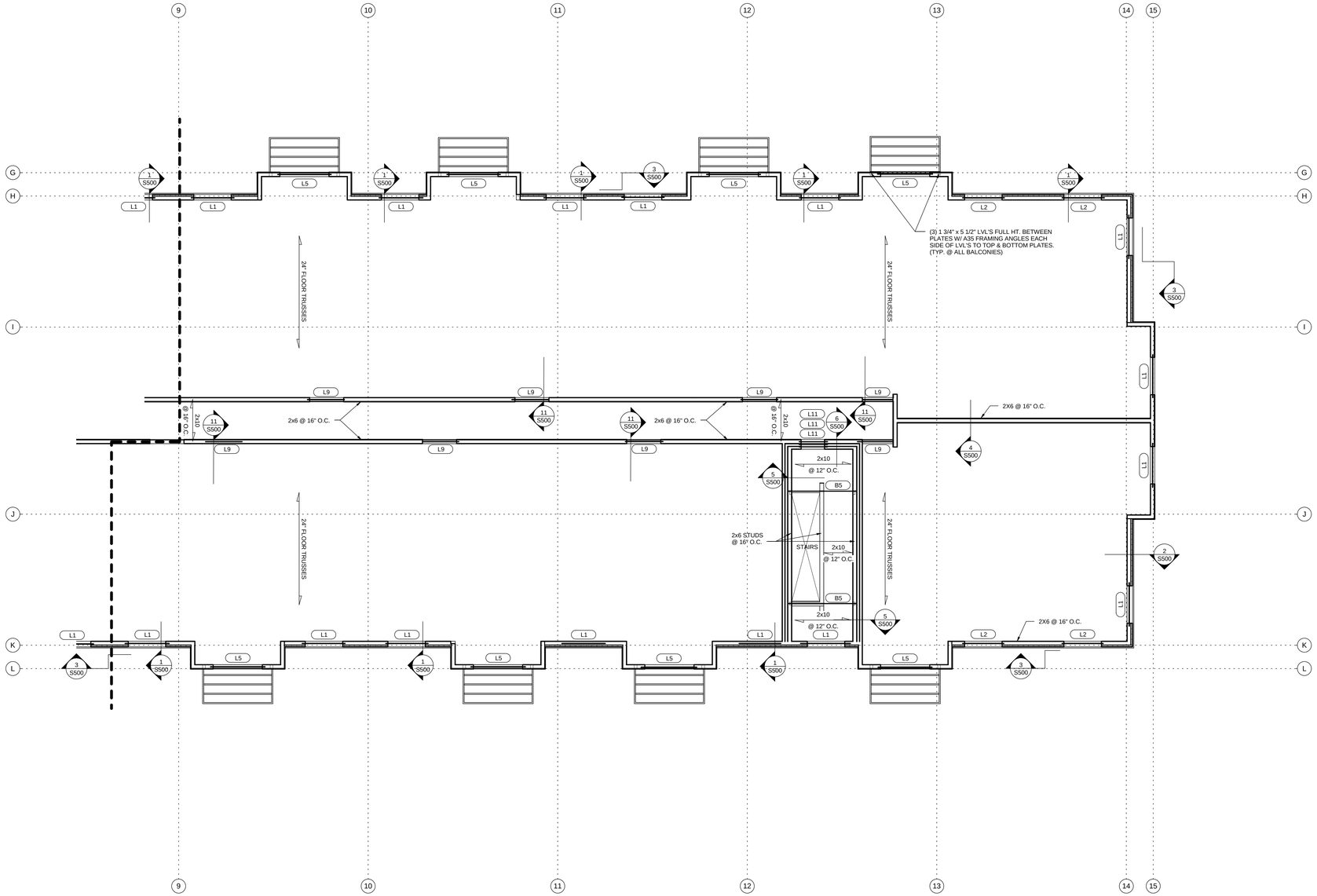
New Apartment Complex:

Rivers Ridge Luxury Apartments

Red Wing, MN

Fourth Floor Framing Plan - Area A

S108



1 S109 FOURTH FLOOR FRAMING PLAN - AREA 'B'

SCALE: 1/8" = 1'-0"

NORTH

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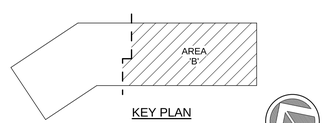

KEY PLAN

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Drawn By: SR
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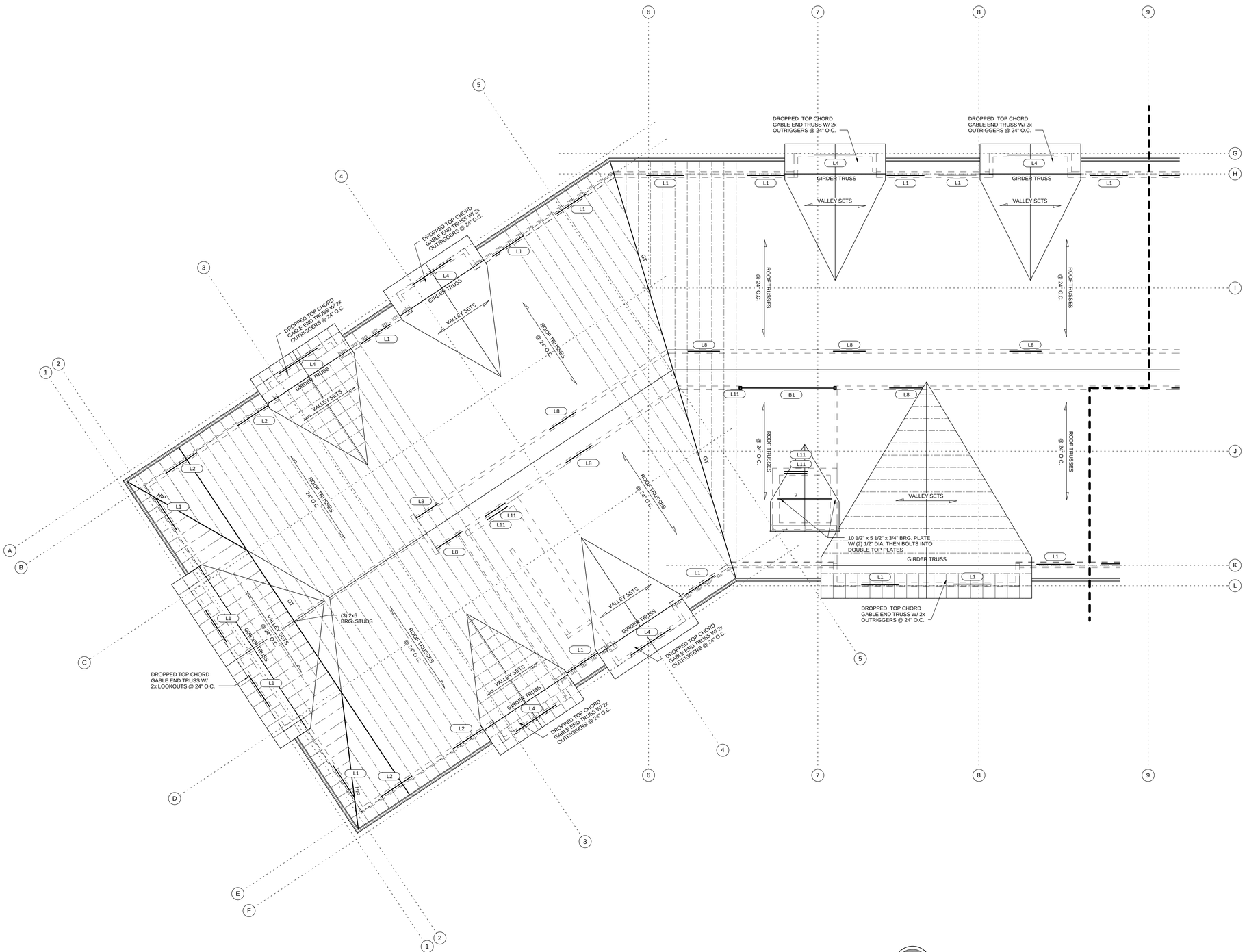
New Apartment Complex:

Rivers Ridge Luxury Apartments

Red Wing, MN

Fourth Floor Framing Plan - Area B

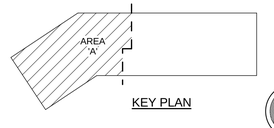
S109



1 S110 ROOF FRAMING PLAN - AREA 'A'

SCALE: 1/8" = 1'-0"

NORTH



KEY PLAN

PLAN NORTH

GENERAL NOTES:

1. TRUSS BEARING = 139' - 6 3/4", UNLESS NOTED OTHERWISE.
2. PROVIDE BRIDGING FOR ROOF TRUSSES ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
3. DIMENSIONAL LUMBER ROOF JOISTS TO HAVE BRIDGING AT INTERVALS NOT TO EXCEED 8' - 0".
4. TIE NON-BEARING WALLS TO BOTTOM CHORD OF ROOF TRUSS AT 3' - 0" O.C.
5. ALL BEARING STUDS AT GIRDERS AND OPENINGS CONTINUOUS DOWN TO THE FOUNDATION.
6. ROOF SHEATHING TO BE 1/2" APA RATED SHEATHING. SEE DETAIL -/SS02 FOR NAILING PATTERN.
7. END JOINT OF SHEATHING SHALL BE STAGGERED AND NAILING PATTERN SHALL BE ACCORDING TO THE IBC. SEE SHEET S001 FOR IBC NAILING SCHEDULE.
8. PLYWOOD CLIPS SHALL BE USED WHEN SUPPORTING MEMBERS ARE SPACED GREATER THAN 16" O.C.
9. SEE ARCHITECTURAL DRAWINGS FOR ATTIC ACCESS OPENING AND WALL SEPARATION LOCATIONS.
10. SEE ARCHITECTURAL DRAWINGS FOR ROOF SLOPES.
11. VERIFY ALL OVERHANG AND EAVE CONDITIONS WITH ARCHITECTURAL DRAWINGS.
12. SEE SHEET S001 FOR SCHEDULES AND ABBREVIATIONS.
13. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS.
14. PROVIDE MINIMUM (2) BRG. STUDS AT ALL GIRDER TRUSSES UNO.

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New Apartment Complex:

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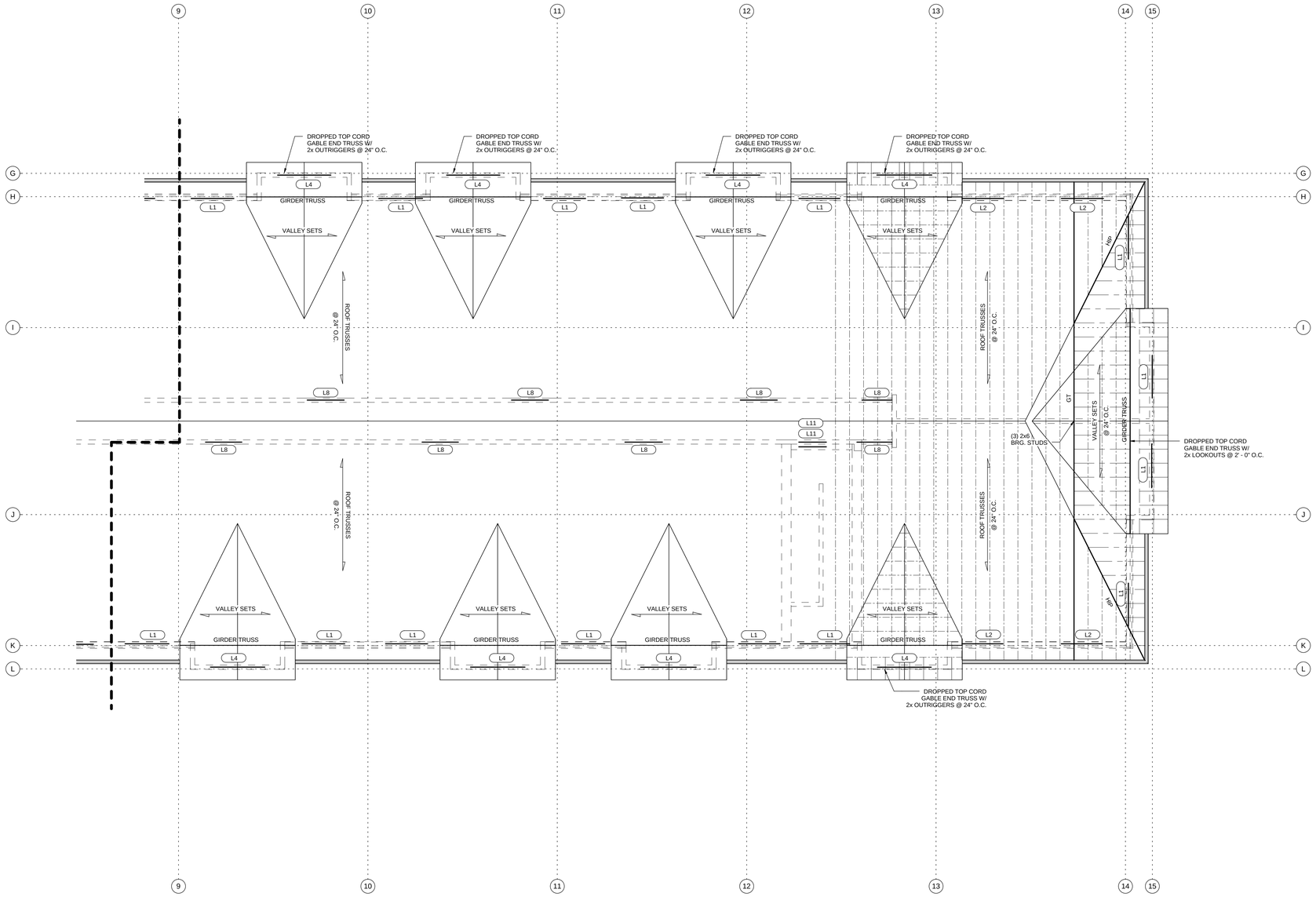
Red Wing, MN

Roof Framing Plan - Area A

S110



1 S111 ROOF FRAMING PLAN - AREA 'B'

SCALE: 1/8" = 1'-0"

NORTH

GENERAL NOTES:

1. TRUSS BEARING = 139' - 6 3/4", UNLESS NOTED OTHERWISE.
2. PROVIDE BRIDGING FOR ROOF TRUSSES ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
3. DIMENSIONAL LUMBER ROOF JOISTS TO HAVE BRIDGING AT INTERVALS NOT TO EXCEED 8' - 0".
4. TIE NON-BEARING WALLS TO BOTTOM CHORD OF ROOF TRUSS AT 3' - 0" O.C.
5. ALL BEARING STUDS AT GIRDERS AND OPENINGS CONTINUOUS DOWN TO THE FOUNDATION.
6. ROOF SHEATHING TO BE 1/2" APA RATED SHEATHING. SEE DETAIL -/SS02 FOR NAILING PATTERN.
7. END JOINT OF SHEATHING SHALL BE STAGGERED AND NAILING PATTERN SHALL BE ACCORDING TO THE IBC. SEE SHEET S001 FOR IBC NAILING SCHEDULE.
8. PLYWOOD CLIPS SHALL BE USED WHEN SUPPORTING MEMBERS ARE SPACED GREATER THAN 16" O.C.
9. SEE ARCHITECTURAL DRAWINGS FOR ATTIC ACCESS OPENING AND WALL SEPARATION LOCATIONS.
10. SEE ARCHITECTURAL DRAWINGS FOR ROOF SLOPES.
11. VERIFY ALL OVERHANG AND EAVE CONDITIONS WITH ARCHITECTURAL DRAWINGS.
12. SEE SHEET S001 FOR SCHEDULES AND ABBREVIATIONS.
13. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS.
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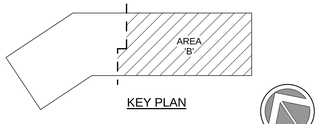

KEY PLAN

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New Apartment Complex:

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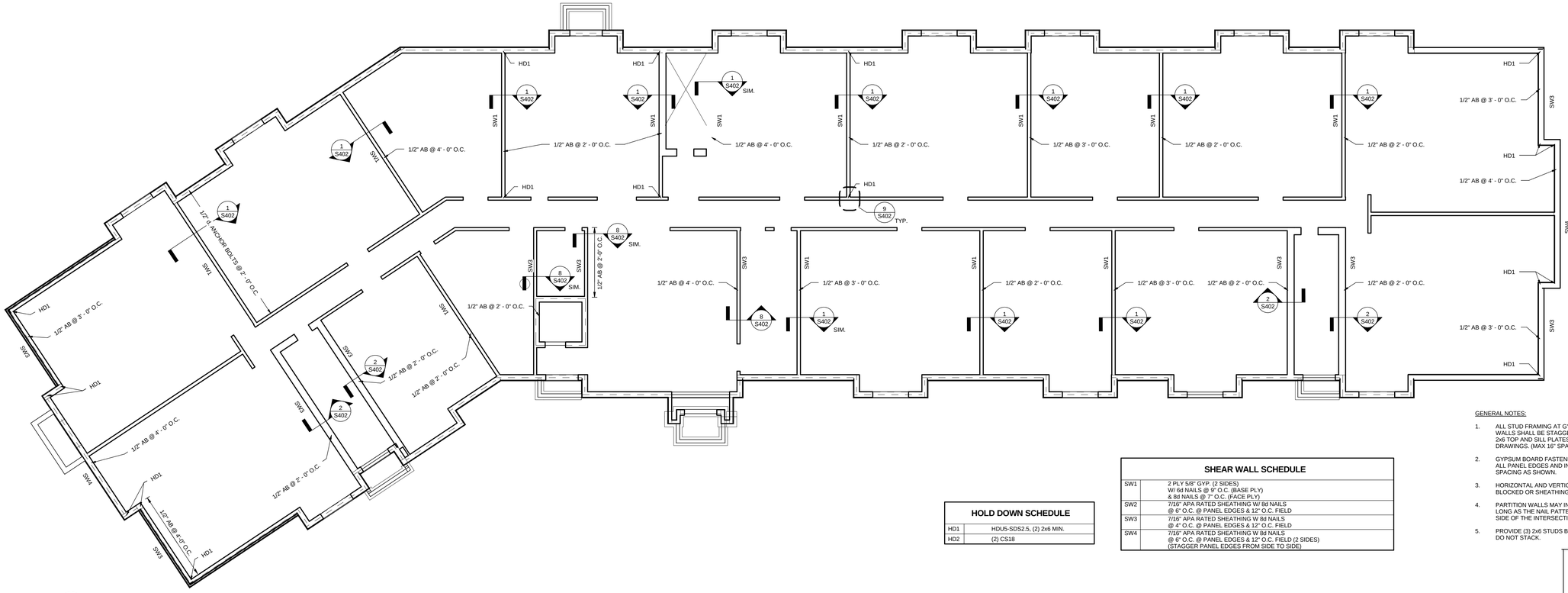
Red Wing, MN

Roof Framing Plan - Area B

S111



1 S400 FIRST FLOOR SHEAR WALL PLAN

SCALE: 3/32" = 1'-0"

HOLD DOWN SCHEDULE

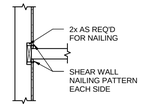
HD1	HDU5-SDS2.5, (2) 2x6 MIN.
HD2	(2) CS18

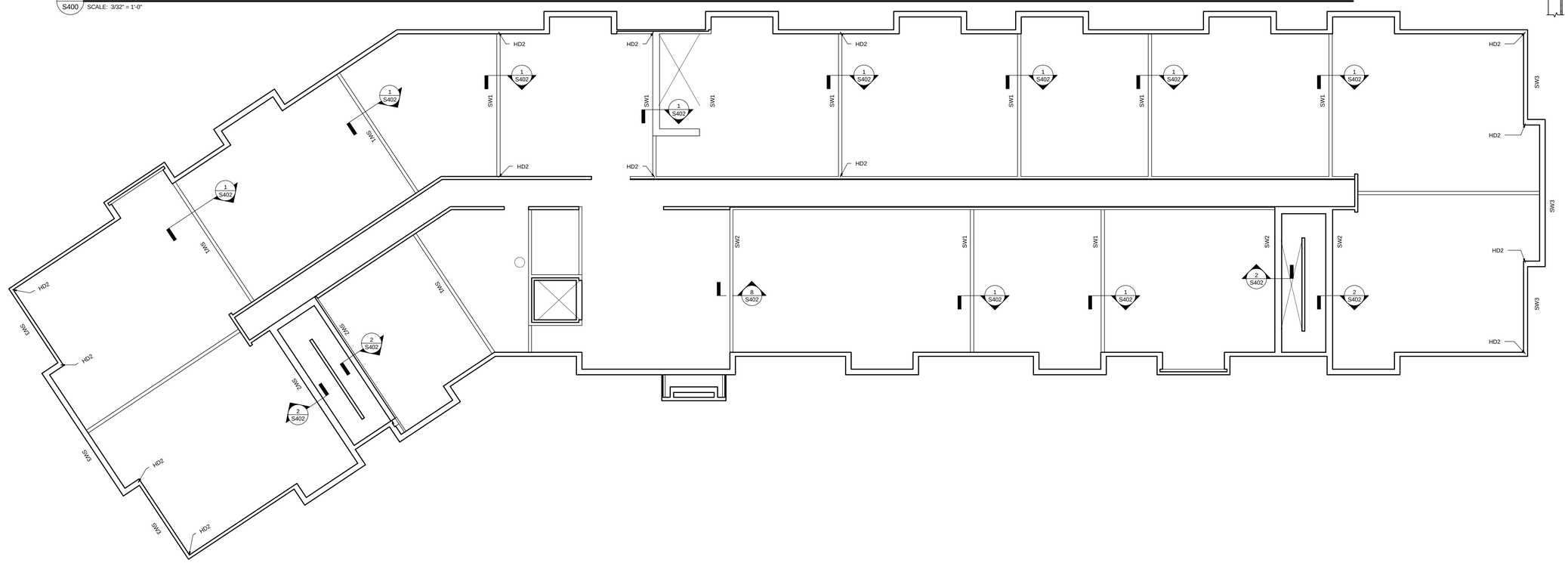
SHEAR WALL SCHEDULE

SW1	2 PLY 5/8" GYP. (2 SIDES) W/ 6d NAILS @ 9" O.C. (BASE PLY) & 8d NAILS @ 7" O.C. (FACE PLY)
SW2	7/16" APA RATED SHEATHING W/ 8d NAILS @ 6" O.C. @ PANEL EDGES & 12" O.C. FIELD
SW3	7/16" APA RATED SHEATHING W 8d NAILS @ 4" O.C. @ PANEL EDGES & 12" O.C. FIELD
SW4	7/16" APA RATED SHEATHING W 8d NAILS @ 6" O.C. @ PANEL EDGES & 12" O.C. FIELD (2 SIDES) (STAGGER PANEL EDGES FROM SIDE TO SIDE)

GENERAL NOTES:

1. ALL STUD FRAMING AT GYPSUM BOARD SHEAR WALLS SHALL BE STAGGERED 2x4 AT 16" O.C. WITH 2x6 TOP AND SILL PLATES. SEE ARCHITECTURAL DRAWINGS. (MAX 16" SPACING OF 2x4's)
2. GYPSUM BOARD FASTENERS SHALL BE PROVIDED AT ALL PANEL EDGES AND INTERMEDIATE STUDS WITH SPACING AS SHOWN.
3. HORIZONTAL AND VERTICAL JOINTS MUST BE BLOCKED OR SHEATHING APPLIED VERTICALLY.
4. PARTITION WALLS MAY INTERSECT SHEAR WALLS AS LONG AS THE NAIL PATTERN IS FOLLOWED ON EACH SIDE OF THE INTERSECTION AS SHOWN BELOW.
5. PROVIDE (3) 2x6 STUDS BELOW ALL SHEAR WALLS THAT DO NOT STACK.





2 S400 SECOND FLOOR SHEAR WALL PLAN

SCALE: 3/32" = 1'-0"

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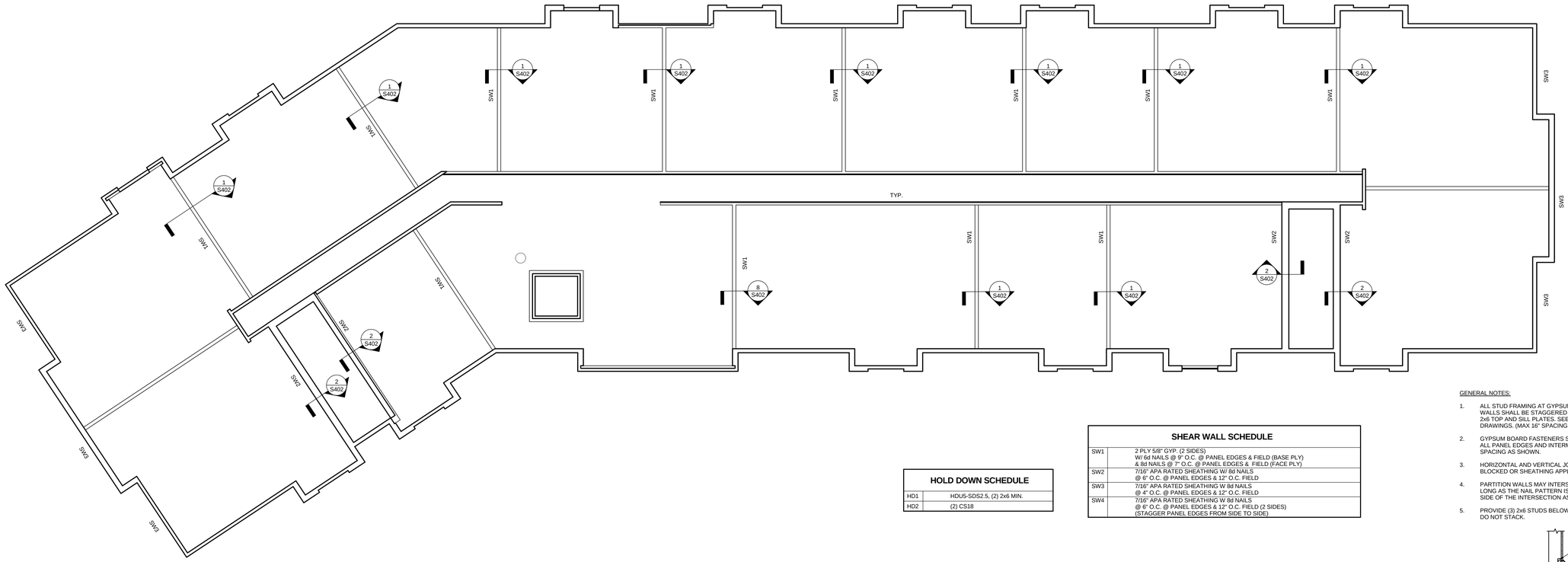
Shear Wall Plans

S400



HOLD DOWN SCHEDULE

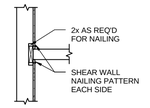
HD1	HDU5-SDS2.5, (2) 2x6 MIN.
HD2	(2) CS18

SHEAR WALL SCHEDULE

SW1	2 PLY 5/8" GYP. (2 SIDES) W/ 6d NAILS @ 8" O.C. @ PANEL EDGES & FIELD (BASE PLY) & 8d NAILS @ 7" O.C. @ PANEL EDGES & FIELD (FACE PLY)
SW2	7/16" APA RATED SHEATHING W/ 8d NAILS @ 6" O.C. @ PANEL EDGES & 12" O.C. FIELD
SW3	7/16" APA RATED SHEATHING W 8d NAILS @ 4" O.C. @ PANEL EDGES & 12" O.C. FIELD
SW4	7/16" APA RATED SHEATHING W 8d NAILS @ 6" O.C. @ PANEL EDGES & 12" O.C. FIELD (2 SIDES) (STAGGER PANEL EDGES FROM SIDE TO SIDE)

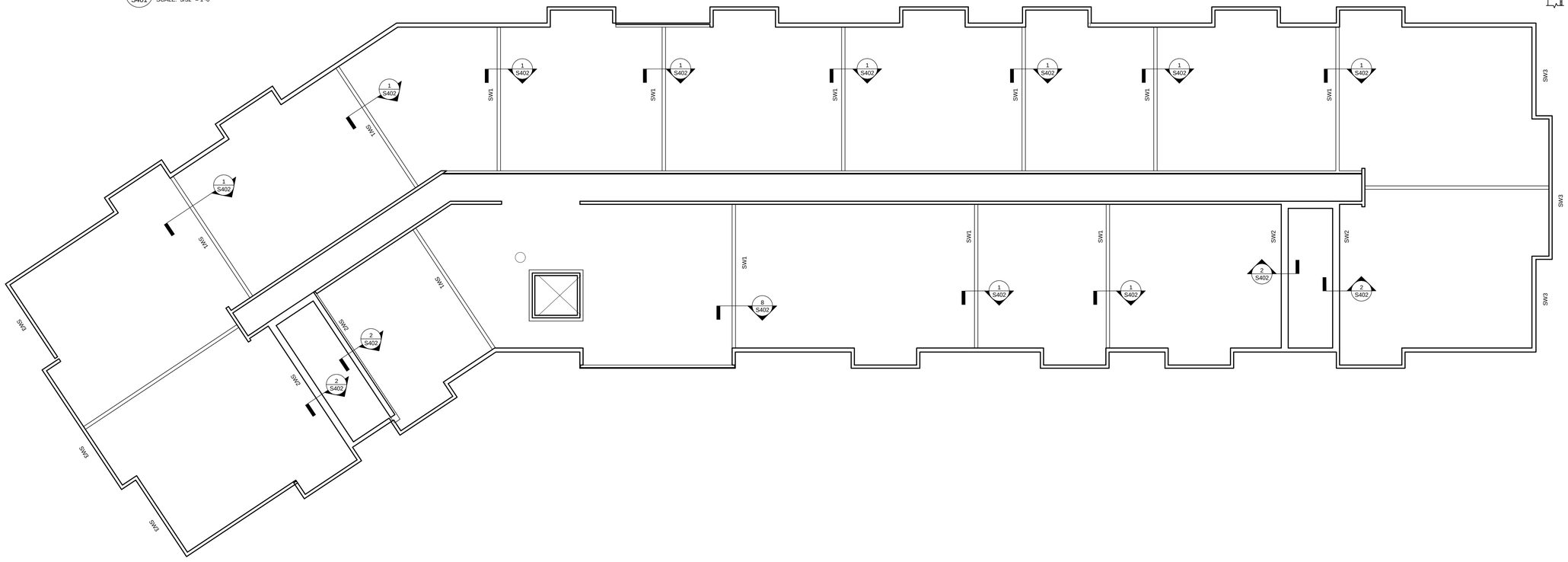
GENERAL NOTES:

1. ALL STUD FRAMING AT GYPSUM BOARD SHEAR WALLS SHALL BE STAGGERED 2x4 AT 16" O.C. WITH 2x6 TOP AND SILL PLATES. SEE ARCHITECTURAL DRAWINGS. (MAX 16" SPACING OF 2x4's)
2. GYPSUM BOARD FASTENERS SHALL BE PROVIDED AT ALL PANEL EDGES AND INTERMEDIATE STUDS WITH SPACING AS SHOWN.
3. HORIZONTAL AND VERTICAL JOINTS MUST BE BLOCKED OR SHEATHING APPLIED VERTICALLY.
4. PARTITION WALLS MAY INTERSECT SHEAR WALLS AS LONG AS THE NAIL PATTERN IS FOLLOWED ON EACH SIDE OF THE INTERSECTION AS SHOWN BELOW.
5. PROVIDE (3) 2x6 STUDS BELOW ALL SHEAR WALLS THAT DO NOT STACK.



1 S401 THIRD FLOOR SHEAR WALL PLAN

SCALE: 3/32" = 1'-0"



2 S401 FOURTH FLOOR SHEAR WALL PLAN

SCALE: 3/32" = 1'-0"

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision & that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Signature:

Printed Name: Kesh Ramdular

License No.: 16256

Date: 09/30/2016

Project No: 1602
Project Manager: DAS
Drawn By: SR
Date: 09/30/2016

	Date	Description
1		

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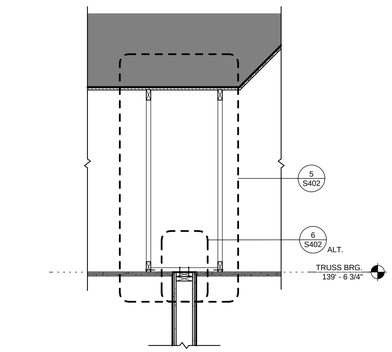
New Apartment Complex:

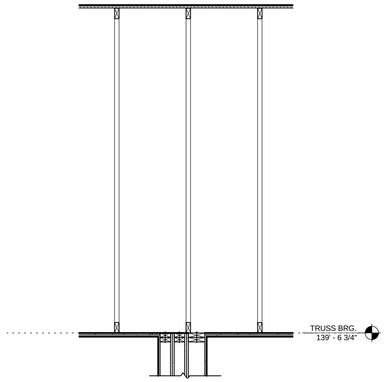
Rivers Ridge Luxury Apartments

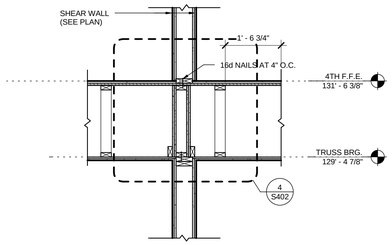
Red Wing, MN

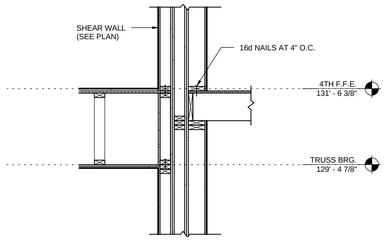
Shear Wall Plans

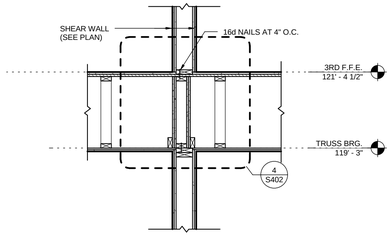
S401

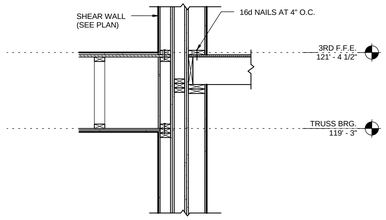


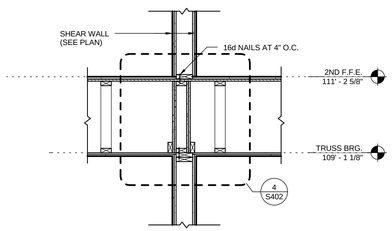


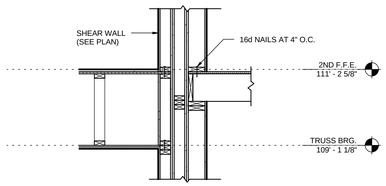


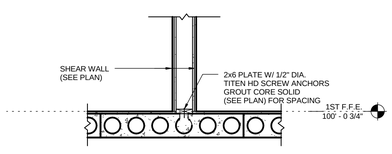


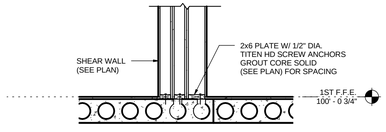


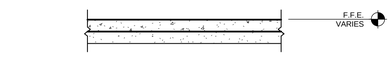


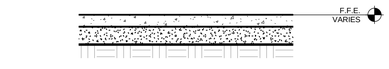






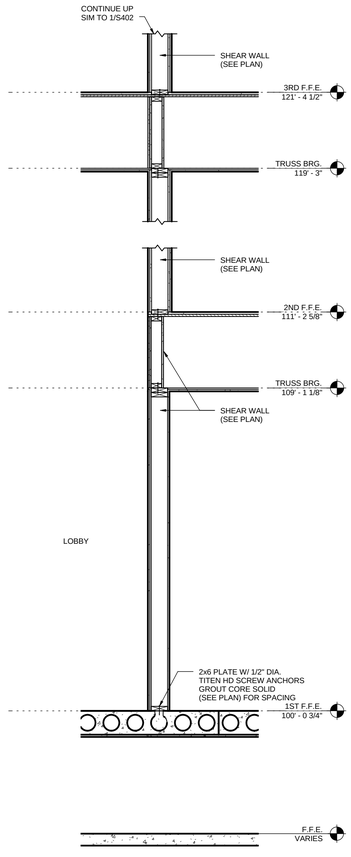




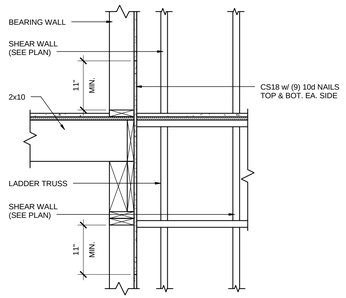


1 S402 DETAIL
SCALE: 1/2" = 1'-0"

2 S402 DETAIL
SCALE: 1/2" = 1'-0"



3 S402 DETAIL
SCALE: 1/2" = 1'-0"



7 S402 DETAIL
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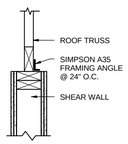

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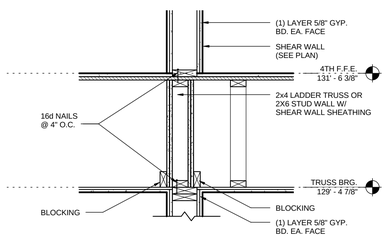

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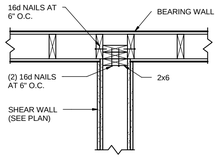

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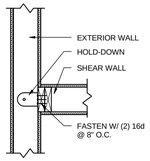

8 S402 DETAIL
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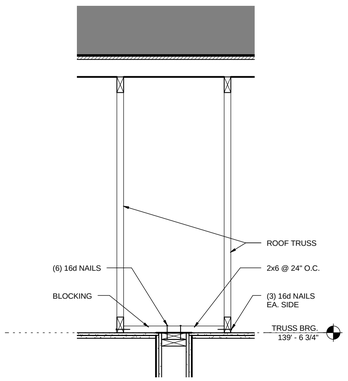

5 S402 DETAIL
SCALE: 3/4" = 1'-0"

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Signature:

Printed Name: Kesh Ramdular

License No.: 16256

Date: 09/30/2016

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Project Manager: DAS
Drawn By: SR
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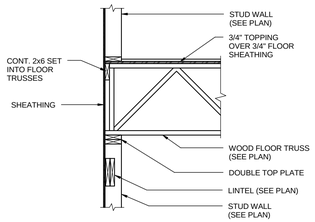
S402



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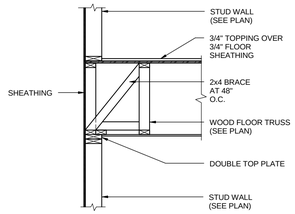

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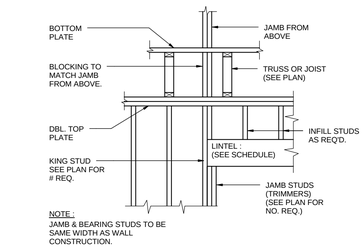

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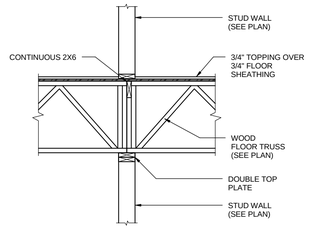

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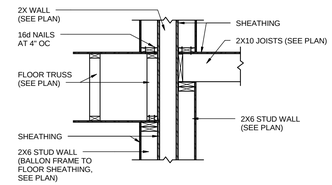

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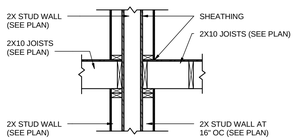

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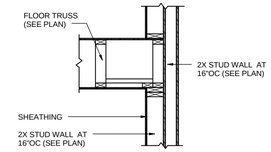

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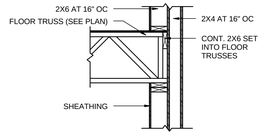

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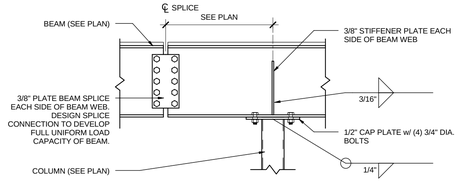

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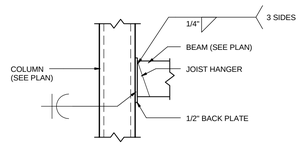

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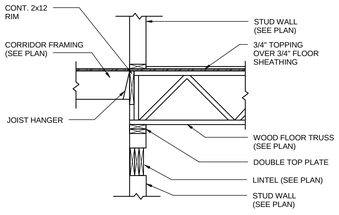

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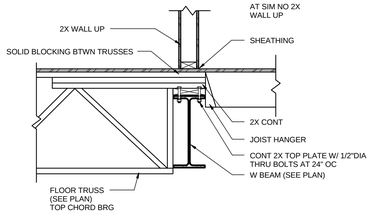

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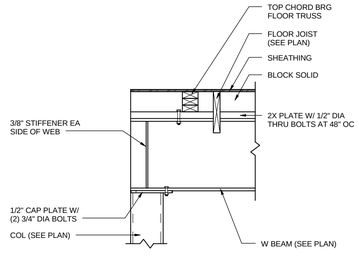

13 S500 SECTION
SCALE: 3/4" = 1'-0"

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New Apartment Complex:

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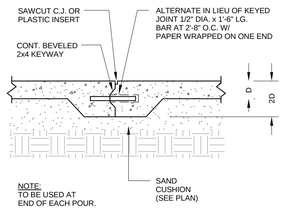
Red Wing, MN

Details

S500



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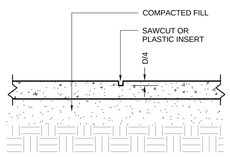

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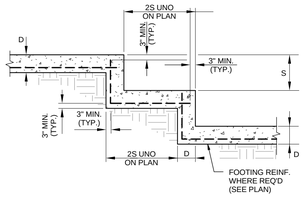

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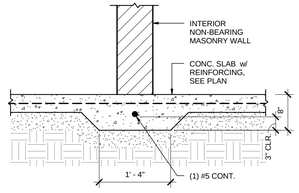

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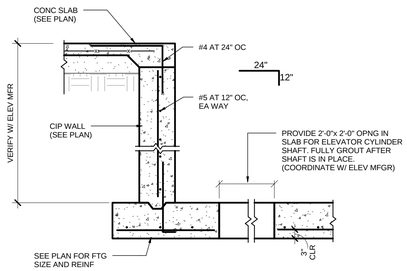
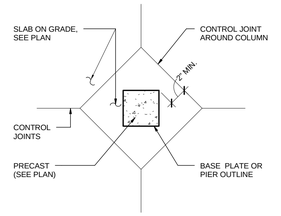
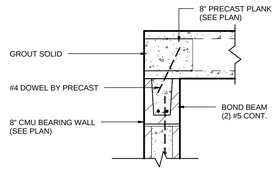


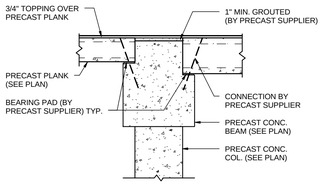
5 SECTION S501 SCALE: 1/2" = 1'-0"



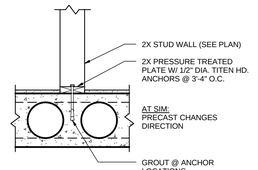
6 SECTION S501 SCALE: 3/4" = 1'-0"



7 SECTION S501 SCALE: 1" = 1'-0"



8 SECTION S501 SCALE: 1/2" = 1'-0"



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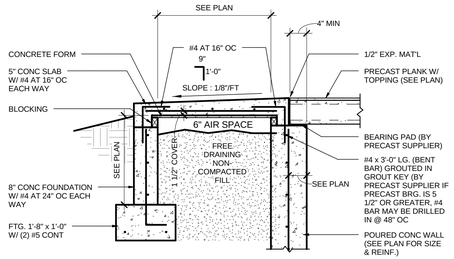
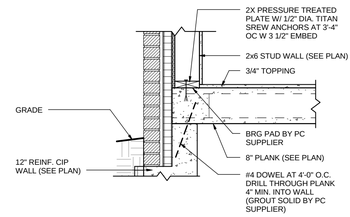
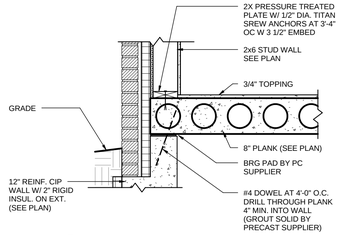


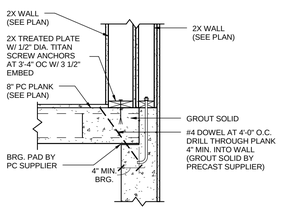
10 SECTION S501 SCALE: 1/2" = 1'-0"



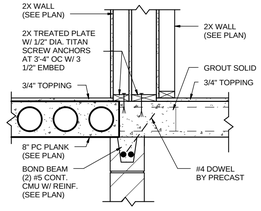
11 SECTION S501 SCALE: 3/4" = 1'-0"



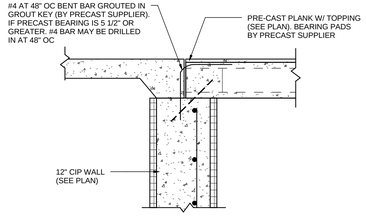
12 SECTION S501 SCALE: 3/4" = 1'-0"



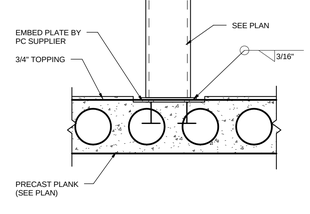
13 SECTION S501 SCALE: 3/4" = 1'-0"



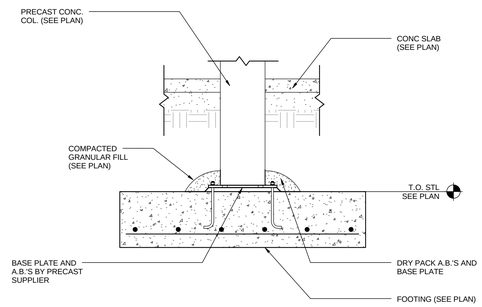
14 SECTION S501 SCALE: 3/4" = 1'-0"



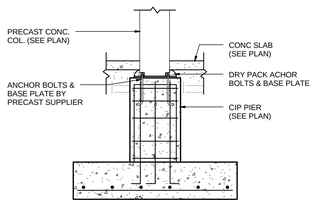
15 SECTION S501 SCALE: 3/4" = 1'-0"



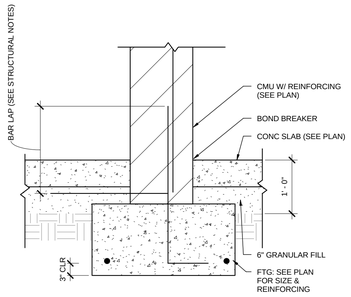
16 SECTION S501 SCALE: 3/4" = 1'-0"



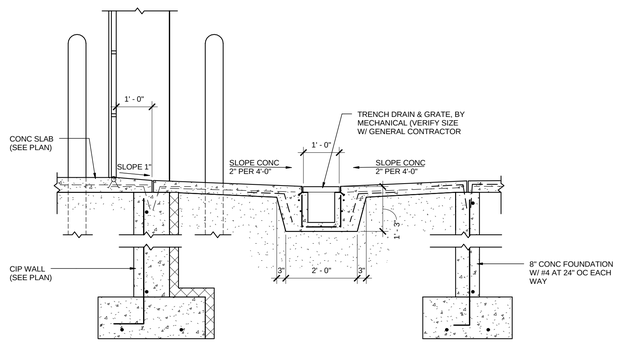
17 SECTION S501 SCALE: 3/4" = 1'-0"



18 SECTION S501 SCALE: 1/2" = 1'-0"



19 SECTION S501 SCALE: 3/4" = 1'-0"



20 SECTION S501 SCALE: 1/2" = 1'-0"

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White Bear Lake, MN 55110-5126
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www.larsonengr.com

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision & that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Signature:

Printed Name: Kesh Ramdular

License No.: 16256

Date: 09/30/2016

Project No: 1602
Project Manager: DAS
Drawn By: SR
Date: 09/30/2016

	Date	Description

hma ARCHITECTS
700 W. St. Germain Street
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F | 320.251.4919
hma@hma-archs.com

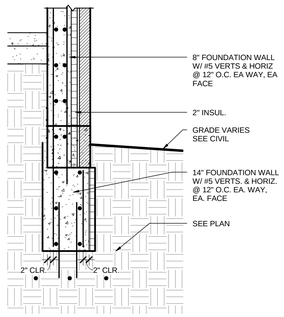
New Apartment Complex:

Rivers Ridge Luxury Apartments

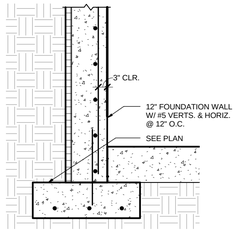
Red Wing, MN

Details

S501



1 S502 DETAIL
SCALE: 1/2" = 1'-0"



2 S502 DETAIL
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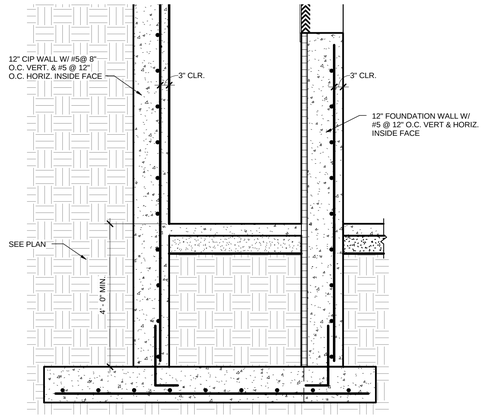
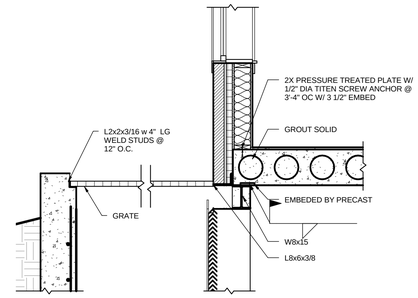
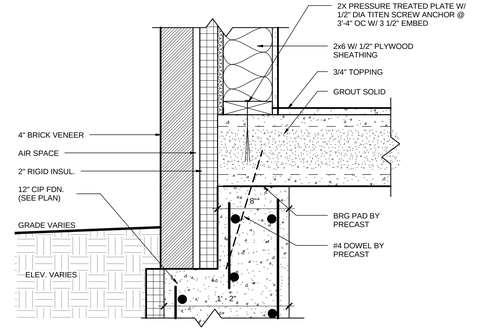


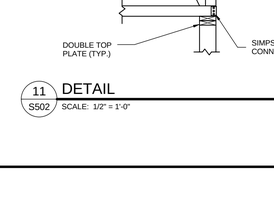
3 S502 DETAIL
SCALE: 1/2" = 1'-0"



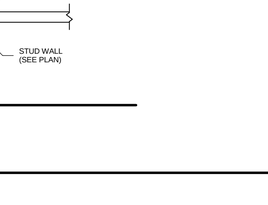
4 S502 DETAIL
SCALE: 1/2" = 1'-0"



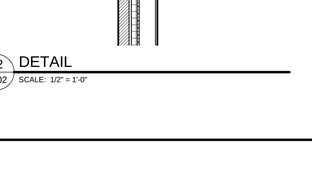
5 S502 DETAIL
SCALE: 1 1/2" = 1'-0"



6 S502 DETAIL
SCALE: 1/2" = 1'-0"



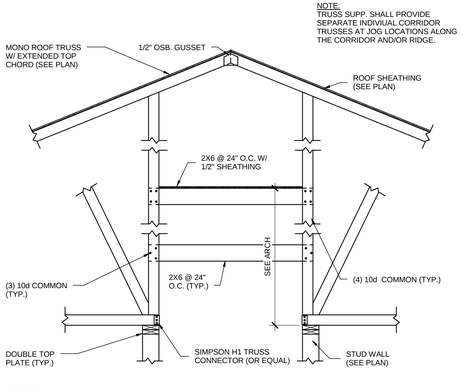
7 S502 DETAIL
SCALE: 1/2" = 1'-0"



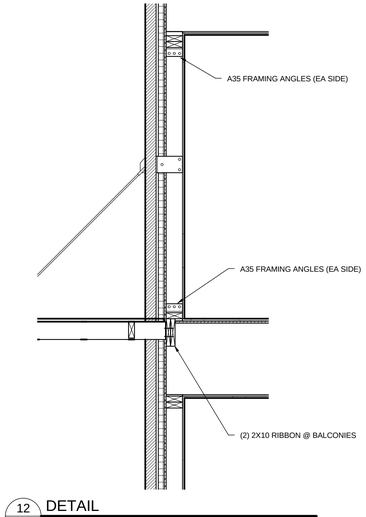
8 S502 DETAIL
SCALE: 1/2" = 1'-0"

9 S502 DETAIL
SCALE: 1/2" = 1'-0"

10 S502 DETAIL
SCALE: 1/2" = 1'-0"



11 S502 DETAIL
SCALE: 1/2" = 1'-0"



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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision & that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Signature:

Printed Name: Kesh Ramdular

License No.: 16256

Date: 09/30/2016

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