







- CONCRETE & REINFORCING NOTES:**
- CONCRETE STRENGTH SHALL MEET THE FOLLOWING MINIMUM 28 DAY STRENGTH REQUIREMENTS (IRC R402.2):
    - 2,500 PSI FOR BASEMENT FLOOR SLABS ON UNDISTURBED GRADE.
    - 3,000 PSI FOR FOOTINGS, FOUNDATION WALLS, AND OTHER VERTICAL CONCRETE.
    - 3,500 PSI FOR CARPORT AND GARAGE FLOOR SLABS ON UNDISTURBED GRADE.
    - 3,500 PSI FOR STRUCTURAL FLOOR SLABS.
  - CONCRETE SHALL BE 6% AIR ENTRAINMENT FOR GARAGE SLABS AND FOR ALL LOCATIONS (FOOTINGS, WALLS, FLATWORK, ETC.) EXPOSED TO WEATHER.
  - CONCRETE SHALL HAVE A SLUMP OF 4" ± 1". THE SLUMP CAN BE INCREASED THROUGH THE USE OF APPROVED ADDITIVES (NOT WATER).
  - THE REINFORCING STEEL SHALL BE ASTM A615, GRADE 40 MINIMUM UNLESS NOTED OTHERWISE ON THE DRAWINGS. ALL BARS SHALL BE LAPPED A MINIMUM OF 48 BAR DIAMETERS AND/OR CORNER BARS SHALL BE PROVIDED AT ALL FOOTING AND WALL CORNERS, AND FOOTING STEPS.
  - MINIMUM CONCRETE COVER SHALL BE AS FOLLOWS (ACI 318):
    - EARTH FORMED - 3"
    - EXPOSED TO WEATHER - 1 1/2" FOR #5 BARS & SMALLER
    - NOT EXPOSED TO WEATHER - 3/4" FOR SLABS.
  - NO WATER SHALL BE ADDED TO THE CONCRETE MIX AT THE SITE.
  - ADDITION OF CALCIUM CHLORIDE TO CONCRETE IS NOT PERMITTED.
  - NO ALUMINUM SHALL BE EMBEDDED IN CONCRETE.
  - CONCRETE PLACED IN COLD WEATHER SHALL COMPLY WITH ACI 306. CONCRETE PLACED IN HOT WEATHER SHALL COMPLY WITH ACI 305.

- FOUNDATION NOTES:**
- ALL FOUNDATIONS SHALL BEAR ON NATIVE, UNDISTURBED SOIL CAPABLE OF SUPPORTING 1,500 PSF UNLESS NOTED OTHERWISE, WITHOUT UNDE SETTLEMENT OR HEAVING. THE CONTRACTOR SHALL RETAIN A QUALIFIED TESTING LAB (APPROVED BY THE OWNER) TO FIELD VERIFY THE ACTUAL SOIL BEARING CAPACITY.
  - ALL EXTERIOR FOOTINGS SHALL BEAR A MIN. OF 36" BELOW FINISHED GRADE.
  - IF THE EXISTING SITE TOPOGRAPHY OR SOIL CONDITIONS VARY FROM THE CONDITIONS SHOWN ON THE DRAWINGS, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ARCHITECT/ENGINEER SO THAT A DESIGN THAT IS APPROPRIATE FOR THE SITE CAN BE GENERATED.
  - FOOTINGS SHALL BE POURED CONTINUOUS AT FOOTING STEPS (SOLID LUMPS).
  - ANY FILL THAT IS INSTALLED UNDER THE BASEMENT OR GARAGE FLOOR SLABS SHALL BE PROPERLY COMPACTED TO PREVENT SETTLEMENT OF THE FILL MATERIAL. PROPER COMPACTING IS WHERE THE SOIL IS PLACED IN 6" LIFTS AND EACH LIFT IS COMPACTED PRIOR TO INSTALLING MORE SOIL. THIS COMPACTED FILL SHALL THEN BE VERIFIED BY A QUALIFIED GEOTECHNICAL ENGINEER. AT THE CONTRACTOR'S OPTION, A PROPERLY DESIGNED STRUCTURAL SLAB MAY BE INSTALLED OVER ANY FILL THAT HAS NOT BEEN PROPERLY COMPACTED. ALL EXTERIOR SLABS INSTALLED ADJACENT TO THE FOUNDATION SHALL BE DOWELED INTO THE FOUNDATION WITH #4 BARS AT 12" ON CENTER (GRADE 60 STEEL) DRILLED IN 6" MINIMUM AND EPOXIED.
  - CONTROL JOINTS IN THE FLOOR SLABS SHALL BE INSTALLED AS TO MINIMIZE THE AMOUNT OF RANDOM CRACKING (12" INTERVALS MAXIMUM). THESE JOINTS SHALL BE SAWCUT 1-1/4" DEEP WITHIN 8 HOURS OF POURING THE SLAB OR MAY BE TOoled INTO THE SLAB WHEN POURED. SAWCUTS SHALL BE IN APPROXIMATE SQUARE PATTERN WITH MAXIMUM ASPECT RATIO OF 1-1/2 TO 1.
  - THE BUILDER SHALL BE RESPONSIBLE FOR TAKING THE APPROPRIATE STEPS TO MINIMIZE THE EFFECTS OF EXPANSIVE SOIL ON THE FOUNDATION, SLABS, AND WOOD FRAMED PORTIONS OF THE HOUSE. THIS INCLUDES ISOLATING THE FLOOR SLAB AT ALL COLUMNS, INTERIOR BEARING WALLS, AND AT THE FOUNDATION WALLS WITH TWO LAYERS OF 15# FELT. PARTITION WALLS IN THE BASEMENT SHALL NOT BE CONSTRUCTED TIGHT AGAINST THE FRAMING ABOVE.
  - INSTALL CONTINUOUS DRAIN TILE (4" DIAMETER MINIMUM) AROUND THE PERIMETER OF THE ENTIRE LOWER LEVEL AND COVER THE TILE WITH FILTER FABRIC AND COURSE CLEAN ROCK. INSTALL VERTICAL DRAINS TO PERIMETER DRAIN TILE AT ALL WINDOW WELLS. THE DRAIN TILE SHALL BE CONNECTED TO A 40 GALLON (MINIMUM) SUMP PIT WITH SUFFICIENT DEPTH FOR PROPER SLUMP PUMP OPERATION, OR SHALL BE DRAINED BY GRAVITY TO DAYLIGHT AT LEAST 10' FROM THE FOUNDATION. FOUNDATION DRAINAGE SHALL ALSO BE IN ACCORDANCE WITH IRC SECTION R406.1.
  - CONCRETE BASEMENT SLABS SHALL BE A MIN. OF 4" THICK OVER A MIN. OF 4" OF 1/2" TO 3/4" CLEAN, GRADED ROCK, U.N.O. OR IF SITE CONDITIONS REQUIRE OTHERWISE. MIN REINFORCING SHALL BE #4'S AT 24" OC OR EQUIVALENT.
  - PROVIDE A MIN. 6 MIL POLYETHYLENE MOISTURE BARRIER OVER GRAVEL BASE UNDER BASEMENT FLOOR SLABS (NOT REQUIRED FOR GARAGE SLABS) PER SECTION R405.2.2. LAP JOINTS A MIN. OF 6".
  - ALL FOOTING AND SLAB REINFORCEMENT SHALL BE BLOCKED OFF SUBGRADE WITH CHAIRS OR CONCRETE BRICKS.

**RESIDENTIAL BASEMENT WALL NOTES:**

- HORIZONTAL REINFORCING FOR CONC FOUND WALLS SHALL BE #4'S AT 24" oc.
- VERTICAL REBAR SPACING FOR CONCRETE FOUNDATION WALLS SHALL BE PER THE TABLE BELOW:

WALL THICK	60 KSI REINFORCING		40KSI REINFORCING	
	8"	10"	8"	10"
6" OR LESS	#4 @ 36" oc	#4 @ 36" oc	#4 @ 36" oc	#4 @ 36" oc
7"	#4 @ 32" oc	#4 @ 36" oc	#4 @ 21" oc	#4 @ 36" oc
8"	#4 @ 24" oc	#4 @ 36" oc	#4 @ 16" oc	#4 @ 36" oc
9"	#4 @ 16" oc	#4 @ 20" oc	#4 @ 12" oc	#4 @ 16" oc
10"	#4 @ 12" oc	#4 @ 16" oc	#4 @ 8" oc	#4 @ 12" oc

- MINIMUM REQUIREMENT FOR VERTICAL REBAR IN PLAIN CONCRETE WALLS IS #4 BARS @ 36" O.C. (ACI 318).
  - VERTICAL BARS SHALL BE CONTINUED TO WITHIN 4" OF THE TOP OF THE WALL.
  - REBAR SHALL BE POSITIONED AT THE TENSION FACE OF THE WALL (2" FROM THE INSIDE FACE).
  - REINFORCEMENT SHALL LAP A MINIMUM OF 24" AT ENDS, SPLICES, AND AROUND CORNERS.
  - DESIGN BY A PROFESSIONAL ENGINEER IS REQUIRED FOR WALLS OVER 10' IN HEIGHT.
- BARS SHALL LAP A MINIMUM OF 48 BAR DIAMETERS AT ENDS, SPLICES AND AROUND CORNERS. UNLESS OTHERWISE NOTED ON THESE DRAWINGS.
  - CONTINUOUS WALL FOOTINGS SHALL BE A MINIMUM OF 16" WIDE AND 8" DEEP WITH (2) #4 BARS CONTINUOUS FOR 8" THICK WALLS, U.N.O. CONTINUOUS WALL FOOTINGS SHALL BE A MINIMUM OF 24" WIDE AND 12" DEEP WITH (2) #4 BARS CONTINUOUS FOR 12" THICK WALLS.
  - INSTALL 1/2" x 1-1/2" LONG ANCHOR BOLTS (7" EMBEDMENT) AT 3'-0" O.C. AND WITHIN 12" OF THE END OF EACH SILL MEMBER. MINIMUM SILL PLATE TO BE 2X6 PRESSURE TREATED.
  - THE TOPS OF ALL BASEMENT (LOWER LEVEL) FOUNDATION WALLS SHALL BE CONNECTED TO THE FLOOR JOISTS. NAIL EACH FLOOR JOIST END WALL BLOCKING TO THE WOOD SILL PLATE PER THE IRC NAILING SCHEDULE. WHERE FLOOR JOISTS RUN PARALLEL TO THE FOUNDATION WALLS, PROVIDE BLOCKING IN THE FIRST THREE JOIST SPACES AT 2'-0" O.C. OVER THE ENTIRE LENGTH OF THE FLOOR JOISTS.
  - WALLS SHALL BE FULL HEIGHT FROM FOOTING TO FLOOR FRAMING. NO WOOD FRAMED CRIPPLE WALLS EXCEPT AS SPECIFICALLY NOTED ON THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
  - STRAIGHT WALLS MORE THAN 5 FEET TALL AND MORE THAN 16 FEET LONG SHALL BE PROVIDED WITH EXTERIOR BRACED RETURN WALLS. REF TYP DEADMAN DETAIL.
  - FOUNDATION WALLS SHALL BE DESIGNED FOR AN EQUIVALENT FLUID PRESSURE (EPF) 60 PSF.
  - PROVIDE STEEL SHIMS IN BEAM POCKETS TO LEVEL BEAMS. BEAM POCKETS SHALL BE GROUTED SOLID WITH 4,000 PSI NON-SHRINK GROUT AFTER BEAMS ARE LOADED WITH FRAMING MEMBERS.
  - REINFORCE AROUND BEAM POCKETS BY BENDING TOP CONTINUOUS HORIZONTAL BAR BELOW BEAM POCKET OR INSTALL SEPARATE BENT BAR LAPPED AND TIED MINIMUM 24" EACH SIDE.
  - PROVIDE TWO #4 X 4'-0" LONG DIAGONAL BARS AT THE CORNERS OF ALL OPENINGS IN CONCRETE WALLS AND AT FOOTING STEPS. ALSO PROVIDE 2 ADDITIONAL #4 ON ALL SIDES OF WALL OPENINGS. BARS SHALL BE 3'-0" LONGER THAN OPEN VERTICAL OR HORIZONTAL DIMENSION.
  - FOUNDATION WALLS THAT RETAIN EARTH AND ENCLOSE INTERIOR SPACES AND FLOORS BELOW GRADE SHALL BE DAMP PROOFED FROM THE TOP OF THE FOOTING TO THE FINISHED GRADE WITH A BITUMINOUS COATING IN ACCORDANCE WITH SECTION R406.1.
  - INSULATION SHALL BE INSTALLED FOR ALL BASEMENT WALLS AS REQUIRED PER SECTION N102.1.
  - ALL SITE RETAINING WALLS GREATER THAN 4'-0" IN HEIGHT SHALL REQUIRE A DESIGN BY A PROFESSIONAL ENGINEER.
  - A CONCRETE ENCASED GROUNDING ELECTRODE CONNECTION SHALL BE PROVIDED TO THE ELECTRICAL SERVICE PER SECTION E3608.1.

**FOOTING SCHEDULE**

MARK	SIZE L x W x THK	REINFORCING (NO) SIZE LOCATION	TOF EL	COLUMN
F1	2'-0" x 2'-0" x 1'-0"	(4) #4 EW BOTTOM	8" BELOW TOP OF SLAB	3" STD STEEL PIPE COLUMN
F2	2'-6" x 2'-6" x 1'-0"	(4) #4 EW BOTTOM	8" BELOW TOP OF SLAB	3" STD STEEL PIPE COLUMN
F3	3'-0" x 3'-0" x 1'-0"	(6) #4 EW BOTTOM	8" BELOW TOP OF SLAB	3" STD STEEL PIPE COLUMN
F4	4'-0" x 4'-0" x 1'-4"	(8) #4 EW BOTTOM	8" BELOW TOP OF SLAB	3" STD STEEL PIPE COLUMN

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



N&S JOB NUMBER: 2025-0717  
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**PROJECT INFORMATION**  
THE LEXINGTON II  
2614 SW Firefly Lane  
Lee's Summit, Missouri 64082  
McFarland Builders L.L.C.

**ISSUES & REVISIONS**

#	DATE	DESCRIPTION
1	3/21/2025	City Comments

DRAWN BY: MLR  
CHECKED BY: BSS  
ISSUED FOR:

**SHEET TITLE**  
FOUNDATION PLAN

**SHEET NUMBER**  
S100

RELEASE FOR CONSTRUCTION AS NOTED ON PLANS. REVIEW DEVELOPMENT SERVICES LEE'S SUMMIT, MISSOURI 03/28/2025 9:30:36













## GENERAL NOTES

GOVERNING BUILDING CODE: 2018 INTERNATIONAL RESIDENTIAL CODE (IRC) AND ITS APPROPRIATE SUPPLEMENTS

### DESIGN LOADS:

- ROOF DEAD LOAD: \_\_\_\_\_ 10 PSF
- ROOF LIVE LOAD: \_\_\_\_\_ 20 PSF
- FLOOR DEAD LOAD: \_\_\_\_\_ 10 PSF
- FLOOR LIVE LOAD: \_\_\_\_\_ 30 PSF
- BEDROOMS: \_\_\_\_\_ 40 PSF
- ALL OTHER LIVING AREAS: \_\_\_\_\_ 40 PSF
- WIND LOADS: \_\_\_\_\_ VASD=90 MPH, EXPOSURE C
- SEISMIC LOADS: \_\_\_\_\_ SITE CLASS 'B'
- ASSUMED ALLOWABLE SOIL BEARING PRESSURE: \_\_\_\_\_ 1500 PSF

### GENERAL:

- FURNISH ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY TO COMPLETE THE WORK SHOWN OR INFERRED BY THESE DRAWINGS.
- THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND ELEVATIONS SHOWN ON THE PLANS AND FOR COORDINATING ALL DIMENSIONS AND ELEVATIONS SHOWN WITH THE EXISTING CONDITIONS. IF ERRORS OR DISCREPANCIES IN THE DIMENSIONS OCCUR, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO BRING ALL DISCREPANCIES TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
- THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY BRACING AND SHORING AS REQUIRED DURING CONSTRUCTION TO ENSURE THE SAFETY OF ALL INDIVIDUALS INVOLVED.
- ALL MECHANICAL, ELECTRICAL, AND PLUMBING ELEMENTS SHALL BE INSTALLED PER THE REQUIREMENTS OF THE GOVERNING BUILDING CODE AND THE LOCAL MUNICIPALITY.
- NORTON & SCHMIDT CONSULTING ENGINEERS, L.L.C. HAS DESIGNED THE STRUCTURAL FLOOR FRAMING AND WALL BRACING SYSTEM OF THESE PLANS FOR THE CONSTRUCTION OF A RESIDENCE AT THE ADDRESS REFERENCED IN THE PLANS. NORTON & SCHMIDT CONSULTING ENGINEERS, L.L.C. WILL NOT TAKE RESPONSIBILITY FOR ANY RE-USE OF ANY PORTION OF THE DESIGN, PLANS OR SPECIFICATIONS AT ANY OTHER PROPERTY OR ADDRESS WITHOUT OUR PRIOR WRITTEN CONSENT.

### BUILDER'S PLANS:

THE TERM "BUILDER'S PLANS" REFERS TO A CERTAIN LEVEL OF DEVELOPMENT OF THE DRAWINGS. AS THE NAME IMPLIES, THESE PLANS REQUIRE THAT THE CONTRACTOR POSSESS THE COMPETENCE IN RESIDENTIAL CONSTRUCTION AND A THOROUGH UNDERSTANDING OF THE INTERNATIONAL RESIDENTIAL CODE (IRC). THE CONTRACTOR WARRANTS TO NORTON & SCHMIDT CONSULTING ENGINEERS, L.L.C. THAT HE POSSESSES THE PARTICULAR COMPETENCE AND SKILL IN CONSTRUCTION NECESSARY TO BUILD THIS PROJECT WITHOUT FULL ENGINEERING SERVICES. AND FOR THAT REASON THE CONTRACTOR OR HOME OWNER HAS RESTRICTED THE SCOPE OF PROFESSIONAL SERVICES. THE CONSTRUCTION DOCUMENTS PROVIDED BY THE LIMITED SERVICES SHALL BE TERMED "BUILDER'S PLANS" IN RECOGNITION OF THE CONTRACTOR'S SOPHISTICATION. ALTHOUGH NORTON & SCHMIDT CONSULTING ENGINEERS, L.L.C. AND OUR CONSULTANTS HAVE PERFORMED THEIR SERVICES WITH DUE CARE AND DILIGENCE, WE CANNOT GUARANTEE PERFECTION. ANY AMBIGUITY OR DISCREPANCY DISCOVERED BY THE USE OF THESE PLANS SHALL BE REPORTED IMMEDIATELY TO NORTON & SCHMIDT CONSULTING ENGINEERS, L.L.C. CONSTRUCTION MAY REQUIRE THAT THE CONTRACTOR ADAPT THE "BUILDER'S PLANS" TO THE FIELD CONDITIONS ENCOUNTERED AND MAKE LOGICAL ADJUSTMENTS IN FIT, FORM, DIMENSION AND QUANTITY. CHANGES MADE FROM THE PLANS WITHOUT THE CONSENT OF NORTON & SCHMIDT CONSULTING ENGINEERS, L.L.C. ARE UNAUTHORIZED. IT IS ALSO UNDERSTOOD THAT THE CONTRACTOR WILL BE RESPONSIBLE FOR MEETING ALL APPLICABLE BUILDING CODES INCLUDING BUT NOT LIMITED TO MECHANICAL, ELECTRICAL, AND PLUMBING CODE REQUIREMENTS (WHICH IS EXCLUDED FROM THESE PLANS). IN THE EVENT ADDITIONAL DETAIL OR GUIDANCE IS NEEDED BY THE CONTRACTOR OR HOMEOWNER FOR CONSTRUCTION OF ANY ASPECT OF THE PROJECT, NORTON & SCHMIDT CONSULTING ENGINEERS, L.L.C. OR A QUALIFIED ARCHITECT/ENGINEER SHALL BE NAMED. FAILURE TO NOTIFY US OF THESE NEEDS OR OF CHANGES TO THE PLANS SHALL RELIEVE NORTON & SCHMIDT CONSULTING ENGINEERS, L.L.C. OF ALL RESPONSIBILITIES OF THE CONSEQUENCES.

### ARCHITECTURAL NOTES:

- WATER RESISTIVE EXTERIOR WALL COVERING, FREE FROM HOLES AND BREAKS, SHALL BE APPLIED TO STUDS OR SHEATHING OF ALL EXTERIOR WALLS. WRAP SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND SHALL BE IN COMPLIANCE WITH SECTION R703.2.
- BUILDING SHALL COMPLY WITH SECTIONS 802.3 AND 802.3.1 OF THE IRC FOR RAFTER AND CEILING JOIST CONNECTIONS.
- "UFER" GROUND SHALL BE PROVIDED PER IRC SECTION 906.1.
- GUTTERS, DOWNSPOUTS, AND SPLASH BLOCKS SHALL BE PROVIDED TO INSURE ALL ROOF DRAINAGE IS DIRECTED 5 FEET MINIMUM FROM HOUSE BEFORE TOUCHING SOIL.

### STAIR NOTES:

- MAXIMUM RISER AT STAIRWAYS IS 7 3/4" AND MINIMUM TREAD IS 10" WITH A MINIMUM 6'-8" HEADROOM, PER IRC SEC. R311.7.
- PLACE HANDRAILS ON ALL STAIRS AND/OR LEVELS THAT EXCEED 30" ABOVE THE FLOOR OR GRADE. RAILINGS TO BE MIN. 36" HIGH AND HAVE INTERMEDIATE RAILS THAT DO NOT ALLOW THE PASSAGE OF A 4" DIAMETER SPHERE AND SHALL COMPLY W/ IRC SEC. R312.
- ENCLOSE ACCESSIBLE SPACE BENEATH STAIRS SHALL HAVE WALLS AND THE UNDERSIDE OF THE STAIR AND LANDING PROTECTED WITH 1/2" GYPSUM BOARD ON ENCLOSURE SIDE PER SECTION R302.7.
- STAIRWAYS CONSISTING OF 3 OR MORE RISERS SHALL HAVE A CONTINUOUS HANDRAIL ON AT LEAST ONE SIDE BETWEEN 34" AND 38" ABOVE THE STAIR NOSING AND LANDINGS WHERE THE GLAZING IS WITHIN 60" OF THE TOP OR BOTTOM OF THE STAIR. ENCLOSURES FOR SPAS, TUBS, SHOWERS AND WHIRLPOOLS, GLAZING IN FIXED OR OPERABLE PANELS EXCEEDING 9 SQ. FT. AND WHOSE BOTTOM EDGE IS LESS THAN 18" ABOVE THE FLOOR OR WALKING SURFACE WITHIN 36".
- SPIRAL STAIRS SHALL BE CONSTRUCTED PER SECTION R311.7.10.11.

### EMERGENCY EGRESS NOTES:

- ALL SLEEPING ROOMS AND BASEMENT SHALL BE PROVIDED WITH PROPER EMERGENCY ESCAPE AND RESCUE OPENINGS PER IRC SEC R310. PROVIDE (1) WINDOW IN EACH BEDROOM THAT HAS A MINIMUM OPERABLE AREA OF 5.7 SQ. FT. WITH A MINIMUM OPERABLE HEIGHT OF 24" AND WIDTH OF 21".
- PROVIDE SMOKE ALARMS IN EACH SLEEPING ROOM, OUTSIDE OF EACH SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS AND ON EACH ADDITIONAL FLOOR, INCLUDING BASEMENTS AND STAIRWAYS. ALARMS SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTIVATION OF ONE ALARM ACTIVATES ALL OTHERS AND BE HARD WIRED WITH A BATTERY BACKUP, PER IRC SEC. R314 AND NFPA 72.
- CARBON MONOXIDE DETECTORS SHALL BE PROVIDED PER R315.

### WINDOWS AND SAFETY GLAZING NOTES:

- GLAZING IN HAZARDOUS LOCATIONS AS IDENTIFIED IN IRC SECTION R308.4 SHALL BE OF APPROVED SAFETY GLAZING MATERIALS. GLASS IN STORM DOORS, INDIVIDUAL FIXED OR OPERABLE PANELS ADJACENT TO A DOOR WHERE THE NEAREST VERTICAL EDGE IS WITHIN A 24" ARCH OF THE DOOR IN A CLOSED POSITION AND WHOSE BOTTOM EDGE IS WITHIN 60" OF THE FLOOR, WALLS ENCLOSING STAIRWAYS AND LANDINGS WHERE THE GLAZING IS WITHIN 60" OF THE TOP OR BOTTOM OF THE STAIR, ENCLOSURES FOR SPAS, TUBS, SHOWERS AND WHIRLPOOLS, GLAZING IN FIXED OR OPERABLE PANELS EXCEEDING 9 SQ. FT. AND WHOSE BOTTOM EDGE IS LESS THAN 18" ABOVE THE FLOOR OR WALKING SURFACE WITHIN 36".
- ALL WINDOWS SHALL MEET THE FALL PROTECTION REQUIREMENTS OF SECTION R312.2.

### GARAGE:

- GARAGE FLOORS SHALL SLOPE TOWARDS THE GARAGE DOORWAYS.
- DOORS BETWEEN THE GARAGE AND THE DWELLING SHALL BE A MINIMUM 1 3/8" SOLID CORE OR HONEY COMBED STEEL DOOR OR A 20 MINUTE FIRE RATED DOOR WITH A SELF-CLOSING AND SELF-LATCHING DEVICE.
- THE GARAGE SHALL BE SEPARATED FROM THE DWELLING AND ITS UNFINISHED ATTIC AREAS BY A MINIMUM 1/2" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. WHERE UNFINISHED ATTIC AREAS ARE PROVIDED ABOVE THE GARAGE, THE SUPPORTING COLUMNS AND BEAMS SHALL ALSO BE PROTECTED WITH 1/2" GYPSUM BOARD OR EQUIVALENT, WHERE HABITABLE SPACE OCCURS ABOVE. THE GARAGE THE FLOOR/CEILING ASSEMBLY SHALL BE PROTECTED WITH A MINIMUM 5/8" TYPE X GYPSUM BOARD ON THE GARAGE CEILING. SHALL COMPLY WITH IRC SEC. R309.
- GARAGE DOOR AND FRAME (H-FRAME) FOR THE ATTACHMENT OF THE TRACK AND COUNTER BALANCE SHALL CONSIST OF THE FOLLOWING: 2X6 VERTICAL JAMBS RUNNING FROM THE FLOOR TO CEILING ATTACHED WITH 1 3/4"x12" NAILS @ 7"OC STAGGERED WITH (7) 3 1/4"x10" 102" NAILS THRU THE JAMB INTO THE HEADER. MINIMUM 2X8 HEADER FOR ATTACHMENT FOR COUNTER BALANCE SYSTEM.
- BUILDING SHALL COMPLY WITH THE REQUIREMENTS FOR A SELF CLOSING DOOR BETWEEN RESIDENCE AND GARAGE.
- GARAGE DOORS SHALL MEET THE REQUIREMENTS OF DASMA 90 MPH.

### STRUCTURAL STEEL:

- ALL STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING:
  - STRUCTURAL STEEL \_\_\_\_\_ ASTM A992, FY = 50 KSI
  - MISCELLANEOUS STEEL \_\_\_\_\_ ASTM A36
  - HOLLOW STRUCTURAL STEEL (HSS) \_\_\_\_\_ ASTM A500, GRADE B
  - STEEL PIPE \_\_\_\_\_ ASTM A53, GRADE B (SCH 40 MIN)
- ALL BEAM CONNECTIONS SHALL BE DESIGNED BY THE STEEL FABRICATOR UNDER THE DIRECTION OF A REGISTERED PROFESSIONAL ENGINEER UNLESS SPECIFIC CONNECTIONS ARE SHOWN ON THE DRAWINGS. CONNECTIONS SHALL BE DESIGNED TO 50% U.D.L. OR THE REACTION PROVIDED ON THE DRAWINGS, WHICH EVER IS GREATER. CONNECTIONS SHALL BE WELDED OR BOLTED PER AISC STEEL CONSTRUCTION MANUAL 13TH EDITION. BOLTS SHALL BE ASTM A325N.
- ALL COLUMN ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 36.
- WELDING SHALL CONFORM TO THE LATEST PUBLICATION OF APPLICABLE CODES SET FORTH BY THE AMERICAN WELDING SOCIETY. NO UNAUTHORIZED WELDS WILL BE ACCEPTED.
- PROVIDE 30# FELT BOND BREAK AROUND ALL STEEL COLUMNS WHERE IN CONTACT WITH SLAB-ON-GRADE.
- ALL EXTERIOR STEEL EXPOSED TO THE ELEMENTS SHALL BE HOT DIPPED GALVANIZED UNLESS NOTED OTHERWISE.
- ALL STRUCTURAL STEEL SHALL HAVE ONE COAT OF RUST INHIBITIVE PRIMER CONFORMING TO SPECIFICATIONS. FIELD TOUCH-UP ALL UNPAINTED AREAS AND WELD AREAS.

### WOOD FRAMING NOTES:

- ALL STRUCTURAL LUMBER (RAFTERS, CEILING JOISTS, PURLINS AND HEADERS) SHALL BE DOUGLAS FIR LARCH #2 OR BETTER UNLESS OTHERWISE NOTED ON THE DRAWINGS. ALL LOAD BEARING WALL STUDS AND PURLIN STRUTS SHALL BE DOUGLAS FIR STUD GRADE OR BETTER.
- GLUE LAMINATED MEMBERS MARKED "LVL" (LAMINATED VENEER LUMBER) SHALL HAVE A MINIMUM ALLOWABLE BENDING STRESS (FB) OF 2600 PSI, A MINIMUM ALLOWABLE SHEAR STRESS (FV) OF 265 PSI, AND A MINIMUM MODULUS OF ELASTICITY (E) OF 2,000 KSI. ALL MANUFACTURER'S RECOMMENDATIONS FOR NAILING AND CONNECTIONS SHALL BE FOLLOWED.
- FLOOR JOISTS BELOW PARTITION WALLS RUNNING PARALLEL TO THE JOIST SPAN SHALL BE DOUBLED. ALL DOUBLED MEMBERS SHALL BE NAILED TOGETHER WITH 16D NAILS 16" ON CENTER IN TWO ROWS STAGGERED OR PER MANUFACTURER SPEC.
- SOLID BLOCKING BETWEEN FLOOR JOISTS SHALL BE INSTALLED WHERE JOISTS BEAR ON TOP OF BEAMS OR HEADERS AND BELOW POINT LOADS. ALL SOLID BLOCKING AND RIM JOIST MATERIAL SHALL BE THE SAME SIZE AND GRADE AS THE JOISTS.
- ALL FLOOR AND CEILING JOISTS THAT BUTT INTO THE SIDE OF A HEADER OR STEEL BEAM SHALL BE ANCHORED TO THE HEADER OR STEEL BEAM WITH STANDARD JOIST HANGERS.
- ALL SUPPORTS FOR WOOD TRUSSES, RAFTERS AND PURLINS, UNLESS SHOWN OTHERWISE ON THE DRAWINGS, SHALL BE ON LOAD BEARING WALLS (WALLS LOCATED DIRECTLY ABOVE A BEAM LINE OR CONTINUOUS FOOTING) ALL CONCENTRATED LOADS SHALL BE CARRIED THROUGH THE FLOOR SYSTEM THICKNESS WITH SOLID BLOCKING OR WITH 2X4 STUB COLUMNS (SQUASH BLOCKS) THAT TRANSFER THE LOAD DOWN TO THE SUPPORT WALL OR BEAM BELOW.
- ALL NAILING NOT INDICATED ON THE DRAWINGS SHALL CONFORM TO THE NAILING SCHEDULE OF THE GOVERNING BUILDING CODE. SPACING, END DISTANCES AND EDGE DISTANCES OF NAILS AND SPIKES SHALL BE SUCH AS TO AVOID THE UNUSUAL SPLITTING OF THE WOOD.
- ALL NON-LOADBEARING STUD WALLS IN THE BASEMENT SHALL BE PROVIDED WITH A 1" MINIMUM VERTICAL EXPANSION JOINT TO ALLOW FOR HEAVE IN THE FLOOR SLAB. WALLS SHALL NOT BE TIGHT BETWEEN THE SLAB AND THE FRAMING ABOVE!
- SHEATHING FOR HORIZONTAL DIAPHRAGMS SHALL BE EXTERIOR GRADE, CD STRUCTURAL GROUP II OR BETTER. ROOF AND WALL FRAMING SHALL BE OF DOUGLAS FIR-LARCH OR SOUTHERN PINE. PROVIDE SOLID BLOCKING AT ALL PANEL EDGES UNLESS OTHERWISE NOTED. WHERE PANELS ARE APPLIED ON BOTH FACES OF A WALL, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS.
- ALL WOOD STRUCTURAL PANELS SHALL BE IDENTIFIED WITH THE APPROPRIATE GRADE TRADEMARK OF THE AMERICAN PLYWOOD ASSOCIATION (APA) AND SHALL MEET THE REQUIREMENTS OF PRODUCT STANDARD PS-1.
- ALL EXTERIOR STRUCTURAL PANELS SHALL BE SET WITH FACE GRAIN PERPENDICULAR TO SUPPORTING MEMBERS AND STAGGER END JOINTS 4'-0".
- STANDARD WASHERS SHALL BE USED WITH ALL BOLTS FASTENING WOOD MEMBERS.
- ALL SAWN LUMBER EXPOSED TO WEATHER OR IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE TREATED.
- ROOF FRAMING - RIDGE BEAMS, VALLEY AND HIP RAFTERS SHALL HAVE A MINIMUM NOMINAL THICKNESS OF 2" AND MINIMUM DEPTH NOT LESS THAN THE END CUT OF THE RAFTERS. HIP AND VALLEY RAFTERS SHALL BE SUPPORTED AT THE RIDGE BY A 2X6 "TEE" BRACE TO A BEARING PARTITION. WHERE ROOF BRACING IS USED TO PERMIT LONGER RAFTERS SPAN, USE 2X6 "TEE" BRACES AT 4'-0" O.C. WITH CONTINUOUS 2X6 PURLIN UNDER THE RAFTERS. BRACE RAFTERS TO BEARING PARTITIONS.
- PROVIDE CONTINUOUS STRONG BACKS FOR CEILING JOIST SPANS 12'-0" OR GREATER.
- MAXIMUM FLOOR JOIST SPANS SHALL BE AS FOLLOWS FOR THE SIZE AND SPACING OF THE JOISTS INDICATED (40 PSF LIVE LOAD, 10 PSF DEAD LOAD):
  - 2X8'S AT 16' O.C. - 17'-7"
  - 2X10'S AT 16' O.C. - 15'-5"
  - 2X10'S AT 12' O.C. - 16'-10"
  - 2X12'S AT 16' O.C. - 17'-10"
- CEILING JOISTS (C.J.'S) ARE DFL #2, AT 16' O.C., WITH AN ALLOWABLE SPAN AS FOLLOWS, OR AS SHOWN ON PLANS:
  - 2X8'S AT 16' O.C. - 16'-3"
  - 2X10'S AT 16' O.C. - 19'-10"
  - 2X12'S AT 16' O.C. - 22'-0"
- ROOF RAFTERS (R.R.'S) ARE DFL #2, WITH AN ALLOWABLE RAFTER SPAN AS FOLLOWS:
  - 2X8'S AT 24' O.C. - 10'-0"
  - 2X8'S AT 16' O.C. - 12'-0"
  - 2X8'S AT 14' O.C. - 12'-4"
  - 2X8'S AT 16' O.C. - 15'-1"
- BRACE THE COMPRESSION FLANGE OF ALL BEAMS UNLESS NOTED OTHERWISE.
- ALL BEAMS OR HEADERS THAT BEAR ON WOOD FRAMING SHALL BE SUPPORTED BY ANOTHER BEAM OR HEADER OR A BUILT-UP STUD COLUMN THE FULL WIDTH OF THE BEAM CONTINUOUS TO THE FOUNDATION OR OTHER STRUCTURAL FRAMING MEMBER, UNO.
- ALL LIGHT GAGE METAL FRAMING ACCESSORIES NOTED SHALL BE AS MANUFACTURED BY "SIMPSON STRONG TIE" OR APPROVED EQUAL. ATTACH FRAMING ACCESSORIES TO WOOD FRAMING IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- PROVIDE HEADERS AS SHOWN ON PLAN, FOR HEADERS NOT MARKED REFERENCE TYPICAL BEARING WALL HEADER SCHEDULE.
- FLOOR SHEATHING SHALL BE 3/4" TONGUE & GROOVE WOOD STRUCTURAL PANEL. GLUE & NAIL TO FLOOR JOISTS WITH 8D NAILS AT 6" O.C. AT ALL PANEL EDGES AND AT 12" O.C. AT INTERMEDIATE SUPPORTS.
- ALL EXTERIOR WOOD WALL FRAMING SHALL BE 2X6 DOUG-FIR NO. 2 AT 16" O.C. UNO.
- ALL INTERIOR BEARING WALL FRAMING SHALL BE 2X4 DOUG-FIR NO. 2 AT 16" O.C. UNO.
- WOOD TRUSSES AND THEIR CONNECTIONS SHALL BE DESIGNED BY THE TRUSS MANUFACTURER FOR THE LOADS STIPULATED ON THE DRAWINGS. SHOP DRAWINGS AND CALCULATIONS WITH AN ENGINEER'S SEAL FOR THE STATE OF MISSOURI SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION. CONNECTION PLATES SHALL MEET THE REQUIREMENTS OF THE GOVERNING BUILDING CODE.
- TEMPORARY STABILITY OF WOOD TRUSSES DURING ERECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR IN CONJUNCTION WITH ALL RECOMMENDATIONS OF THE MANUFACTURER.
- WOOD TRUSSES SHALL NOT BE FIELD CUT.

### ENERGY REQUIREMENTS:

- THE BUILDING THERMAL ENVELOPE SHALL BE SEALED WITH AN AIR BARRIER PER IRC SEC N1102.
- LIGHTING FIXTURES PENETRATING THE THERMAL ENVELOPE SHALL BE RATED, LEAKAGE RATED AND SEALED TO THE GYPSUM WALLBOARD AS REQUIRED PER N1102.4.4.
- PROGRAMMABLE THERMOSTATS SHALL BE INSTALLED AS REQUIRED PER N1103.1.1.
- AIR HANDERS SHALL BE RATED FOR MAXIMUM 2% AIR LEAKAGE RATE PER N1103.2.2.1.
- BUILDING CAVITIES USED AS RETURN AIR PLENUMS SHALL BE SEALED TO PREVENT LEAKAGE ACROSS THE THERMAL ENVELOPE AS REQUIRED PER N1103.2.3.
- BUILDING CAVITIES IN A THERMAL ENVELOPE WALL SHALL NOT BE USED AS RETURN AIR PLENUMS UNLESS THE REQUIRED INSULATION BARRIER IS MAINTAINED PER M1601.1.1.
- HOT WATER PIPES SHALL BE INSULATED AS REQUIRED PER N1103.4.
- ALL EXHAUST FANS SHALL TERMINATE TO THE BUILDING EXTERIOR AS REQUIRED PER M1607.2.
- MAKEUP AIR SYSTEMS SHALL BE INSTALLED FOR KITCHEN EXHAUST HOODS THAT EXCEED 400 CFM AS REQUIRED PER M1603.4.
- AN AIR HANDLING SYSTEM SHALL NOT SERVE BOTH THE LIVING SPACE AND THE GARAGE PER M1601.6.
- MINIMUM MECHANICAL EFFICIENCY RATING FOR AC EQUIPMENT IS 13 SEER AS REQUIRED PER IRC.
- MINIMUM MECHANICAL EFFICIENCY RATING FOR FORCED AIR FURNACE IS 78% AS REQD PER IRC.

### INSULATION AND FENESTRATION REQUIREMENTS - IRC TABLE N1102.1.1:

FENESTRATION	U<=0.35 (b)
SKYLIGHT	U<=0.55 (b)
CEILING - FLAT	R-49
CEILING - VAULTED	R-38
WOOD FRAME WALL	R-13
MASS WALL	R-8R-13 (f)
FLOOR OVER UNHEATED SPACE	R-19
FLOOR OVER OUTSIDE AIR	R-30
DUCTS OUTSIDE OF THE CONDITIONED SPACE	R-8
BASEMENT WALL	R-10R-13 (c)
SLAB (R VALUE/DEPTH)	R-10/2ft (d)
CRAWLSPACE WALL W/ FLOOR INSULATION	R-10R-13 (c)
CRAWLSPACE WALL W/O FLOOR INSULATION	R-19

- R VALUES ARE MINIMUMS. U - FACTORS ARE MAXIMUMS. WHEN INSULATION IS INSTALLED IN A CAVITY WHICH IS LESS THAN THE LABEL OR DESIGN THICKNESS OF THE INSULATION, THE INSTALLED R-VALUE OF THE INSULATION SHALL NOT BE LESS THAN THE R-VALUE SPECIFIED IN THE TABLE.
- THE FENESTRATION U - FACTOR EXCLUDES SKYLIGHTS.
- THE FIRST R VALUE APPLIES TO CONTINUOUS INSULATION, THE SECOND TO FRAMING CAVITY INSULATION; EITHER INSULATION MEETS THE REQUIREMENT.
- R - 5 SHALL BE ADDED TO THE REQUIRED SLAB EDGE R - VALUES FOR HEATED SLABS. INSULATION DEPTH SHALL BE THE DEPTH OF THE FOOTING OR 2 FEET WHICHEVER IS LESS IN ZONES 1 THROUGH 3 FOR HEATED SLABS.
- THERE ARE NO SHERO REQUIREMENTS IN THE MARINE ZONE.
- BASEMENT WALL INSULATION IS NOT REQUIRED IN WARM-HUMID LOCATIONS AS DEFINED BY FIGURE N1101.10 AND TABLE N1101.10.
- OR INSULATION SUFFICIENT TO FILL THE CAVITY, R - 19 MINIMUM.
- FIRST VALUE IS CAVITY INSULATION, SECOND IS CONTINUOUS INSULATION OR INSULATED SIDING, SO "13-5" MEANS R-13 CAVITY INSULATION PLUS R-5 CONTINUOUS INSULATION OR INSULATED SIDING. IF STRUCTURAL SHEATHING COVERS 40 PERCENT OR LESS OF THE EXTERIOR, CONTINUOUS INSULATION R-VALUE SHALL BE PERMITTED TO BE REDUCED BY NO MORE THAN R-3 IN THE LOCATIONS WHERE STRUCTURAL SHEATHING IS USED - TO MAINTAIN A CONSISTENT TOTAL SHEATHING THICKNESS.
- THE SECOND R-VALUE APPLIES WHEN MORE THAN HALF OF THE INSULATION IS ON THE INTERIOR OF THE MASS WALL.

## ABBREVIATIONS LEGEND

AB	ANCHOR BOLT	MECH	MECHANICAL
ACI	AMERICAN CONCRETE INSTITUTE	MFR	MANUFACTURER
AFF	ABOVE FINISH FLOOR	MIN	MINIMUM
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	MISC	MISCELLANEOUS
AISI	AMERICAN IRON AND STEEL INSTITUTE	MTL	METAL
ARCH	ARCHITECTURAL	NO	NUMBER
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	NS	NEAR SIDE
AWS	AMERICAN WELDING SOCIETY	NTS	NOT TO SCALE
BFF	BELOW FINISH FLOOR	OC	ON CENTER
BO	BOTTOM OF FOOTING STEP	OH	OPPOSITE HAND
BOS	BOTTOM OF FOOTING STEP	PAF	POWDER ACTUATED
BRG	BOTTOM OF STEEL BEARING	PCF	POUNDS PER CUBIC FEET
BWP	BRACED WALL PANEL	PLF	PLATE
CIP	CAST-IN-PLACE CONCRETE	PSF	POUNDS PER LINEAR FOOT
CJ	CONTROL JOINT (WALL)	PSI	POUNDS PER SQUARE FOOT
CL	CENTER LINE	QTY	POUNDS PER SQUARE INCH
CLR	CLEAR	REF	REFERENCE
COL	COLUMN	REQD	REINFORCING
CONC	CONCRETE	REV	REQUIRED
CONST	CONSTRUCTION	RO	REVERSE
DIA	DIAMETER	SIM	ROUGH OPENING
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM	T&B	SIMILAR
EL	ELEVATION	TFS	TOP AND BOTTOM
ELEC	ELECTRICAL	TK	TOP OF FOOTING STEP
EQ	EQUAL	THK	THICK
FDN	FOUNDATION	TOC	TOP OF
FF	FINISH FLOOR	TOF	TOP OF CONCRETE
FS	FAR SIDE	TOS	TOP OF FOOTING
FTG	FOOTING	TOS	TOP OF PAVING
GA	GAGE	TRANS	TOP OF STEEL
GC	GENERAL CONTRACTOR	TYP	TRANSVERSE
GYP BD	GYPSUM BOARD	UNO	TYPICAL
HORIZ	HORIZONTAL	VERT	UNLESS NOTED OTHERWISE
HSA	HEADED STUD ANCHOR	W	VERTICAL
INFO	INFORMATION	WBM	WIDTH
JST	JOIST	WP	WALL BRACE METHOD
JT	JOINT	WS	WORK POINT
KSI	KILOPS PER SQUARE INCH	WWW	WALL STEP
LB	POUNDS		WELDED WIRE FABRIC
LONG	LONGITUDINAL		
MAX	MAXIMUM		

## SYMBOLS LEGEND

ELEVATION DESCRIPTION	ELEVATION DESIGNATION N	REVISION DESIGNATION
CUT SYMBOL		PLAN NOTE SYMBOL
SECTION CUT		SLAB JOINT DESIGNATION
ELEVATION DETAIL	100'-0"	SPOT ELEVATION
BLOWUP DETAIL	CONCRETE WALL	
WOOD STRUCTURAL PANEL	WOOD NON-LOAD BEARING STUD WALL	
ALTERNATE BRACED WALL PANEL	BRACED WALL PANEL	
PORTAL FRAME WITH HOLD-DOWNS	BRACED WALL LINE	
PORTAL FRAME AT GARAGE	WOOD STUD BEARING WALL	
SMOKE DETECTOR	CARBON-MONOXIDE DETECTOR	

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N&S JOB NUMBER: 2025-0717  
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**PROJECT INFORMATION**  
THE LEXINGTON II  
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McFarland Builders L.L.C.

## ISSUES & REVISIONS

#	DATE	DESCRIPTION
1	3/21/2025	City Comments

DRAWN BY: MLR

CHECKED BY: BSS

ISSUED FOR:

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER  
S500



















