TABLE R602.3(1)
FASTENER SCHEDULE FOR STRUCTURAL MEMBERS

DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER a,b,c	SPACING OF FASTENERS
Joist to sill or girder, toe nail	3-8d (2½"×0.113")	—
1"× 6" subfloor or less to each joist, face nail	2-8d (2½"×0.113") 2 staples, 1¾ "	— —
2" subfloor to joist or girder, blind and face nail	2-16d (3½"×0.135")	—
Sole plate to joist or blocking, face nail	16d (3½"×0.135")	16"o.c.
Top or sole plate to stud, end nail	2-16d (3½"×0.135")	—
Stud to sole plate, toe nail	3-8d (2½"×0.113") or 2-16d (3½"×0.135")	—
Double studs, face nail	10d (3"×0.128")	24"o.c.
Double top plates, face nail	10d (3"×0.128")	24"o.c.
Sole plate to joist or blocking at braced wall panels	3-16d (3½"×0.135")	16"o.c.
Double top plates, minimum 24-inch offset of end joints, face nail in lapped area	8-16d (3½"×0.135")	—
Blocking between joists or rafters to top plate, toe nail	3-8d (2½"×0.113")	—
Rim joist to top plate, toe nail	8d (2½"×0.113")	6"o.c.
Top plates, laps at corners and intersections, face nail	2-10d (3"×0.128")	—
Built-up header, two pieces with 1/2 "spacer	16d (3½"×0.135")	16"o.c. along each edge
Continued header, two pieces	16d (3½"×0.135")	16"o.c. along each edge
Ceiling joists to plate, toe nail	3-8d (2½"×0.113")	—
Continuous header to stud, toe nail	4-8d (2½"×0.113")	—
Ceiling joist, laps over partitions, face nail	3-10d (3"×0.128")	—
Ceiling joist to parallel rafters, face nail	3-10d (3"×0.128")	—
Rafter to plate, toe nail	2-16d (3½"×0.135")	—
1" brace to each stud and plate, face nail	2-8d (2½"×0.113") 2 staples, 1¾ "	— —
1"× 6" sheathing to each bearing, face nail	2-8d (2½"×0.113") 2 staples, 1¾ "	— —
1"× 8" sheathing to each bearing, face nail	2-8d (2½"×0.113") 3 staples, 1¾ "	— —
Wider than 1"× 8" sheathing to each bearing, face nail	3-8d (2½"×0.113") 4 staples, 1¾ "	— —
Built-up corner studs	10d (3"×0.128")	24"o.c.
Built-up girders and beams, 2-inch lumber layers	10d (3"×0.128")	Nail each layer as follows: 32"o.c. at top and bottom and staggered. Two nails at ends and at each splice.
2" planks	2-16d (3½"×0.135")	At each bearing
Roof rafters to ridge, valley or hip rafters: toe nail face nail	4-16d (3½"×0.135") 3-16d (3½"×0.135")	— — —
Rafter ties to rafters, face nail	3-8d (2½"×0.113")	—
Collar tie to rafter, face nail, or 1¼ "×20 gage ridge strap	3-10d (3"×0.128")	—

TABLE R602.3(1) - *continued*
FASTENER SCHEDULE FOR STRUCTURAL MEMBERS

DESCRIPTION OF BUILDING MATERIALS	DESCRIPTION OF FASTENER b, c, e	SPACING OF FASTENERS: Edges (inches) i	SPACING OF FASTENERS: Intermediate supports c,e (inches)
Wood structural panels, subfloor, roof and wall sheathing to framing, and particleboard wall sheathing to framing			
5/16 "-1/2 "	6d common (2"×0.113") nail (subfloor, wall) 8d common (2½"×0.131") nail (roof) f	6	12 g
19/32 "-1"	8d common nail (2½"×0.131")	6	12 g
1⅛ "-1¼ "	10d common (3"×0.148") nail or 8d (2½"×0.131") deformed nail	6	12
Other wall sheathing h			
1/2 "structural cellulosic fiberboard sheathing	1½ "galvanized roofing nail 8d common (2½"×0.131") nail; staple 16 ga., 1¼ " long	3	6
25/32 "structural cellulosic fiberboard sheathing	1¾ "galvanized roofing nail 8d common (2½"×0.131") nail; staple 16 ga., 1¼ " long	3	6
1/2 "gypsum sheathing d	1½ "galvanized roofing nail; 6d common (2"x 0.131") nail; staple galvanized 1½ "long; 1½ "screws, Type W or S	4	8
5/8 "gypsum sheathing d	1¾ "galvanized roofing nail; 8d common (2½"×0.131") nail; staple galvanized 1⅝ "long; 1⅝ "screws, Type W or S	4	8
Wood structural panels, combination subfloor underlayment to framing			
3/4 "and less	6d deformed (2"×0.120") nail or 8d common (2½"×0.131") nail	6	12
7/8 "-1"	8d common (2½"×0.131") nail or 8d deformed (2½"×0.120") nail	6	12
1⅛ "-1¼ "	10d common (3"×0.148") nail or 8d deformed (2½"×0.120") nail	6	12

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s; 1 ksi = 6.895 MPa.

a. All nails are smooth-common, box or deformed shanks except where otherwise stated. Nails used for framing and sheathing connections shall have minimum average bending yield strengths as shown: 80 ksi for shank diameter of 0.192 inch (20d common nail), 90 ksi for shank diameters larger than 0.142 inch but not larger than 0.177 inch, and 100 ksi for shank diameters of 0.142 inch or less.
b. Staples are 16 gage wire and have a minimum 7/16-inch on diameter crown width.
c. Nails shall be spaced at not more than 6 inches on center at all supports where spans are 48 inches or greater.
d. Four-foot-by-8-foot or 4-foot-by-9-foot panels shall be applied vertically.
e. Spacing of fasteners not included in this table shall be based on Table R602.3(2).
f. For regions having basic wind speed of 110 mph or greater, 8d deformed (2½"×0.120) nails shall be used for attaching plywood and wood structural panel roof sheathing to framing within minimum 48-inch distance from gable end walls, if mean roof height is more than 25 feet, up to 35 feet maximum.
g. For regions having basic wind speed of 100 mph or less, nails for attaching wood structural panel roof sheathing to gable end wall framing shall be spaced 6 inches on center. When basic wind speed is greater than 100 mph, nails for attaching panel roof sheathing to intermediate supports shall be spaced 6 inches on center for minimum 48-inch distance from ridges, eaves and gable end walls; and 4 inches on center to gable end wall framing.
h. Gypsum sheathing shall conform to ASTM C 79 and shall be installed in accordance with GA 253. Fiberboard sheathing shall conform to ASTM C 208.
i. Spacing of fasteners on floor sheathing panel edges applies to panel edges supported by framing members and required blocking and at all floor perimeters only. Spacing of fasteners on roof sheathing panel edges applies to panel edges supported by framing members and required blocking. Blocking of roof or floor sheathing panel edges perpendicular to the framing members need not be provided except as required by other provisions of this code. Floor perimeter shall be supported by framing members or solid blocking.

WOOD STRUCTURAL PANEL WALL SHEATHING
TABLE R602.3(3)

THICKNESS OF WALLS	PANEL NOMINAL THICKNESS	MAXIMUM STUD SPACING (inches) SIDING NAILED TO: (a) STUD	SHEATHING
12/0, 16/0, 20/0 OR WALL - 16" O.C.	5/16, 3/8	16	16 (b)
24/0, 24/16, 32/16 OR WALL 24" O.C.	3/8, 7/16, 15/32, 1/2	24	24 (c)

a. BLOCKING OF HORIZONTAL JOINTS SHALL NOT BE REQUIRED.
b. PLYWOOD SHEATHING 3/8-INCH THICK OR LESS SHALL BE APPLIED WITH LONG DIMENSION ACROSS STUDS.
c. THREE-PLY PLYWOOD PANELS SHALL BE APPLIED WITH LONG DIMENSION ACROSS STUDS

MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE
TABLE R402.2

TYPE OR LOCATION OF CONCRETE CONSTRUCTION	MINIMUM SPECIFIED COMPRESSIVE STRENGTH WEATHERING POTENTIAL - SEVERE
BASEMENT WALLS, FOUNDATIONS AND OTHER CONCRETE NOT EXPOSED TO THE WEATHER	2,500 (c)
BASEMENT SLABS AND INTERIOR SLABS ON GRADE, EXCEPT GARAGE FLOOR SLABS	2,500 (c)
BASEMENT WALLS, FOUNDATION WALLS, EXTERIOR WALLS AND OTHER VERTICAL CONCRETE WORK EXPOSED TO THE WEATHER	3,000 (d)
PORCHES, CARPORT SLABS AND STEPS EXPOSED TO THE WEATHER AND GARAGE FLOOR SLABS	3,500 (d, e, f)

(c). Concrete in these locations that may be subject to freezing and thawing during construction shall be air-entrained concrete in accordance with Footnote d.
(d). Concrete shall be air-entrained. Total air content (percent by volume of concrete) shall be not less than 5 percent or more than 7 percent.
(e). See Section R402.2 for maximum cementitious materials content.
(f). For garage floors with a steel-troweled finish, reduction of the total air content (percent by volume of concrete) to not less than 3 percent is permitted if the specified compressive strength of the concrete is increased to not less than 4,000 psi.

FLOOR JOIST SPANS FOR COMMON LUMBER SPECIES
PER TABLE 502.3.1(2) IRC 2018

RESIDENTIAL LIVING AREAS: LIVE LOAD 40 psf DEAD LOAD: 10 psf

RAFTER SPACING (INCHES)	SPECIES & GRADE		2 x 6	2 x 8	2 x 10	2 x 12
12	DOUGLAS FIR-LARCH	#2 (OR BETTER)	10-9	14-2	18-0	20-11
	HEM-FIR	#2 (OR BETTER)	10-0	13-2	16-10	20-4
16	DOUGLAS FIR-LARCH	#2 (OR BETTER)	9-9	12-9	15-7	18-1
	HEM-FIR	#2 (OR BETTER)	9-1	12-0	15-2	17-7
19.2	DOUGLAS FIR-LARCH	#2 (OR BETTER)	9-2	11-8	14-3	16-6
	HEM-FIR	#2 (OR BETTER)	8-7	11-3	13-10	16-1

* THIS CHART SHOULD NEVER BE USED TO REDUCE JOIST SIZE OR NUMBER SPECIFIED ON PLANS. ANY CHANGES TO PLAN MUST BE PRE-APPROVED BY THE ARCHITECT.

CEILING JOIST SPANS FOR COMMON LUMBER SPECIES
PER TABLE 802.4.1(2) IRC 2018 (CEILING ATTACHED TO RAFTERS)

RESIDENTIAL LIVING AREAS: LIVE LOAD 20 psf DEAD LOAD: 10 psf

JOIST SPACING (INCHES)	SPECIES & GRADE		2 x 4	2 x 6	2 x 8	2 x 10
12	DOUGLAS FIR-LARCH	#2 (OR BETTER)	9-10	15-6	20-5	26-0
	HEM-FIR	#2 (OR BETTER)	9-2	14-5	19-0	24-3
16	DOUGLAS FIR-LARCH	#2 (OR BETTER)	8-11	14-1	18-5	22-6
	HEM-FIR	#2 (OR BETTER)	8-4	13-1	17-3	21-11
19.2	DOUGLAS FIR-LARCH	#2 (OR BETTER)	8-5	13-3	16-10	20-7
	HEM-FIR	#2 (OR BETTER)	7-10	12-4	16-3	20-0

* THIS CHART SHOULD NEVER BE USED TO REDUCE JOIST SIZE OR NUMBER SPECIFIED ON PLANS. ANY CHANGES TO PLAN MUST BE PRE-APPROVED BY THE ARCHITECT.

WATERSENSE LABEL REQUIREMENTS FOR PLUMBING FIXTURES
TABLE 890.610

PLUMBING FIXTURE TYPE	MAXIMUM WATER USAGE
TANK-TYPE TOILET (gpf)	1.28
FLUSHOMETER VALVE TOILETS (gpf)	1.28
FLUSHING URINALS (gpf)	± 0.1 (0.4 lpf)
LAVATORY FAUCETS (gpm)	1.5
SHOWERHEADS (gpm)	2.0
COMMERCIAL PRE-RINSE SPRAY VALVES (gpm)	1.6

TABLE (IRC 2018) R404.1.2(1)
MINIMUM HORIZONTAL REINFORCEMENT FOR CONCRETE BASEMENT WALLS (a,b)

MAXIMUM UNSUPPORTED HEIGHT OF BASEMENT WALL (feet)	LOCATION OF HORIZONTAL REINFORCEMENT
≤8	ONE NO. 4 BAR WITHIN 12 INCHES OF THE TOP OF THE WALL STORY AND ONE NO. 4 BAR NEAR MID-HEIGHT OF THE WALL STORY.
>8	ONE NO. 4 BAR WITHIN 12 INCHES OF THE TOP OF THE WALL STORY AND ONE NO. 4 BAR NEAR THIRD POINTS IN THE WALL STORY.

SOIL CLASSIFICATION TABLE - (IRC 2018) R405.1

SOIL GROUP	UNIFIED SOIL CLASSIFICATION SYSTEM SYMBOL	SOIL DESCRIPTION	DRAINAGE CHARACTERISTICS	FROST HEAVE POTENTIAL	VOLUME CHANGE POTENTIAL EXPANSION
GROUP II	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	MEDIUM	MEDIUM	MEDIUM TO LOW

CONCRETE FOUNDATION WALLS - IRC2018 TABLE R404.1.2 (8)
SOIL CLASS: SC, ML-CL & INORGANIC CL

THICKNESS OF WALLS	MAXIMUM HEIGHT OF WALL	MAXIMUM HEIGHT OF UNBALANCED BACKFILL	MINIMUM VERTICAL REINFORCEMENT SIZE AND SPACING
8"	6'-0"	5'-0"	NONE
8"	7'-0"	6'-0"	#5 @ 48" O.C.
8"	8'-0"	7'-0"	#6 @ 43" O.C.
8"	9'-0"	8'-0"	#6 @ 29" O.C.
8"	10'-0"	9'-0"	#6 @ 22" O.C.
10"	8'-0"	7'-0"	NONE
10"	8'-0"	8'-0"	#6 @ 44" O.C.
10"	9'-0"	8'-0"	#6 @ 39" O.C.
10"	9'-0"	9'-0"	#6 @ 30" O.C.
10"	10'-0"	9'-0"	#6 @ 27" O.C.
10"	10'-0"	10'-0"	#6 @ 22" O.C.

(m). A plain concrete wall with a minimum nominal thickness of 12 inches is permitted, provided minimum specified compressive strength of concrete, f'c, is 3,500 psi.

FLOOR JOISTS AND BLOCKING SHALL BE CONNECTED TO THE SILL PLATE AT THE TOP OF WALL BY THE PRESCRIPTIVE METHOD CALLED OUT IN IRC 2012 R502.6, OR; SHALL BE CONNECTED WITH AN APPROVED CONNECTOR WITH LISTED CAPACITY MEETING IRC 2012 TABLE R602.3(1)

BOLT SPACING FOR THE SILL PLATE SHALL BE NO GREATER THAN PER IRC 2012, R403.1.6

FLOOR SHALL BE BLOCKED PERPENDICULAR TO THE FLOOR JOISTS. BLOCKING SHALL BE FULL DEPTH WITHIN TWO JOIST SPACES OF THE FOUNDATION WALL, AND BE FLAT-BLOCKED WITH MINIMUM 2-INCH BY 4-INCH BLOCKING ELSEWHERE.

METHOD OF ENERGY COMPLIANCE IS PRESCRIPTIVE (2018 IECC)

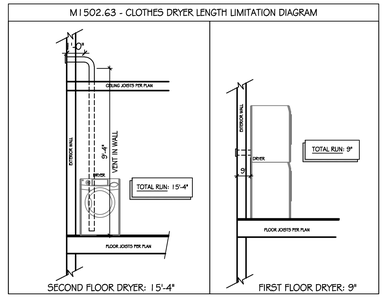
PRESUMPTIVE LOAD-BEARING VALUES OF FOUNDATION MATERIALS
TABLE R401.4.1

CLASS OF MATERIAL	LOAD-BEARING PRESSURE (pounds per square foot)
CRYSTALLINE BEDROCK	12,000
SEDIMENTARY AND FOLIATED ROCK	4,000
SANDY GRAVEL AND/OR GRAVEL (GW and GP)	3,000
SAND, SILTY SAND, CLAYEY SAND, SILTY GRAVEL AND CLAYEY GRAVEL (SW, SP, SM, SC, GM & GC)	2,000
CLAY, SANDY CLAY, SILTY CLAY, CLAYEY SILT, SILT AND SANDY SILT (CL, ML, MH and CH)	1,500

MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS (psf)
TABLE R301.5

ATTICS WITH LIMITED STORAGE	20
ATTICS WITHOUT STORAGE	10
ATTICS - HABITABLE	30
DECKS	40
EXTERIOR BALCONIES	60
FIRE ESCAPES	40
GUARDRAILS AND HANDRAILS	200
GUARDRAILS IN-FILL COMPONENTS	50
PASSENGER VEHICLE GARAGES	50
ROOMS OTHER THAN SLEEPING ROOMS	40
SLEEPING ROOMS	30
STAIRS	40

M1502.63 - CLOTHES DRYER LENGTH LIMITATION DIAGRAM



SECOND FLOOR DRYER: 15'-4" FIRST FLOOR DRYER: 9'

TABLE R403.5.6(2)
INTERMITTENT WHOLE-HOUSE MECHANICAL VENTILATION RATE FACTORS (a,b)

RUN-TIME PERCENTAGE IN EACH 4-HOUR SEGMENT	25%	33%	50%	66%	75%	100%
FACTOR (a)	4	3	2	1.5	1.3	1.0

TABLE R403.6.1 IECC2018
WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM FAN EFFICACY[a]

FAN LOCATION	AIR FLOW RATE MINIMUM (CFM)	MINIMUM EFFICACY (CFM/WATT)	AIR FLOW RATE MAXIMUM (CFM)
HRV OR ERV	ANY	1.2 cfm/watt	ANY
RANGE HOODS	ANY	2.8 cfm/watt	ANY
IN-LINE FAN	ANY	2.8 cfm/watt	ANY
BATHROOM, UTILITY ROOM	10	1.5 cfm/watt	< 90
BATHROOM, UTILITY ROOM	90	2.9 cfm/watt	ANY

a. WHEN TESTED IN ACCORDANCE WITH HVI STANDARD 916

CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA - TABLE R301.2(1) IRC2018

GROUND SNOW LOAD	WIND SPEED (mph)	SEISMIC DESIGN CATEGORY	SUBJECT TO DAMAGE FROM: WEATHERING	FROST LINE DEPTH	TERMITE	WINTER DESIGN TEMP.	ICE BARRIER UNDERLAYMENT REQUIRED	FLOOD HAZARDS	AIR FREEZING INDEX	MEAN ANNUAL TEMP.
30	115/3 SECOND WIND GUST	A	SEVERE	42"	MODERATE TO HEAVY	-4°F	YES	REFER TO LOCAL ORDINANCES	1635	48.7°F

INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT (IECC 2018) - R402.1.2

CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	GLAZED FENESTRATION SHGC	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE	FLOOR R-VALUE	BASEMENT WALL R-VALUE	SLAB R-VALUE & DEPTH	CRAWL SPACE WALL R-VALUE
5	0.30	0.55	NR	49	20 or 13+5	13/ 17	30	15/ 19	10, 2 ft	15/ 19

LEGAL DESCRIPTION:

LOT 5 IN BLOCK 4 IN ARTHUR T. McINTOSH AND COMPANYS NAPERVILLE HIGHLANDS, BEING A SUBDIVISION OF PARTS OF SECTION 18 AND19, TOWNSHIP 38 NORTH, RANGE 10 EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE FLAT THEREOF RECORDED JANUARY 8, 1926 AS DOCUMENT 205844, IN DUPAGE COUNTY, ILLINOIS.

COMMON ADDRESS: 730 HIGHLAND, NAPERVILLE, IL

SECTION 10-5-4 - NAPERVILLE ACCESSIBILITY REQUIREMENTS

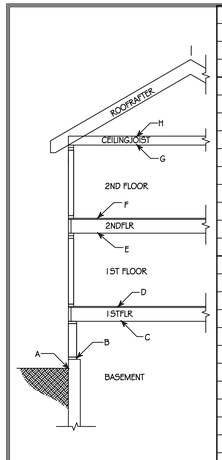
1. WALL REINFORCEMENT
ONE FIRST FLOOR BATH SHALL BE PROVIDED WITH WOOD BLOCKING INSTALLED WITHIN WALL FRAMING, TO SUPPORT GRAB BARS AS NEEDED. THE WOOD BLOCKING, WHEN MEASURED TO THE CENTER, SHALL BE LOCATED BETWEEN THIRTY-THREE (33) INCHES AND THIRTY-SIX (36) INCHES ABOVE THE FINISHED FLOOR. THE WOOD BLOCKING SHALL BE LOCATED IN ALL WALLS ADJACENT TO A TOILET, SHOWER STALL OR BATHTUB.

2. INTERIOR DOORS
DOORS SHALL BE WIDE ENOUGH TO ENABLE A PERSON IN A WHEELCHAIR TO MANEUVER THROUGH THEM INCLUDING PUBLIC AND COMMON-USE DOORS, DOORS LEADING INTO AN INDIVIDUAL DWELLING UNIT, AND ALL DOORS WITHIN THE DWELLING UNIT ITSELF. FOR WHEELCHAIRS, DOORS MUST HAVE A CLEAR OPENING WIDTH OF AT LEAST THIRTY-TWO (32) INCHES (MEASURED FROM FACE OF DOOR TO THE STOP, WITH THE DOOR OPEN NINETY (90) DEGREES.

3. SWITCH AND OUTLET REQUIREMENTS:
OPERABLE PARTS OF CONTROLS MUST BE NO LOWER THAN FIFTEEN (15) INCHES AND NO HIGHER THAN FORTY-EIGHT (48) INCHES FROM THE FLOOR. SWITCHES, OUTLETS, THERMOSTATS, AND CONTROLS SHALL BE ACCESSIBLE TO PERSONS IN WHEELCHAIRS.

ELECTRICAL NOTES

1. ELECTRICAL PANEL SHALL BE MINIMUM 5 FT. FROM SUMP PIT
2. ALL ELECTRIC IN ANY STRUCTURE SHALL BE INSTALLED IN METAL CONDUIT.
3. ALL WALL SWITCHES CONTROLLING LIGHT FIXTURES AND FANS SHALL BE LOCATED AT A HEIGHT NOT TO EXCEED FORTY-EIGHT (48") INCHES ABOVE THE FINISHED FLOOR. HEIGHT SHALL BE DETERMINED BY MEASURING FROM THE FINISHED FLOOR TO THE CENTER OF THE SWITCH.
4. ALL RECEPTACLES SHALL BE LOCATED AT A HEIGHT NOT LESS THAN FIFTEEN (15") INCHES ABOVE THE FINISHED FLOOR. HEIGHT SHALL BE DETERMINED BY MEASURING FROM THE FINISHED FLOOR TO THE CENTER OF THE RECEPTACLE. WHEN THE RECEPTACLE PLACEMENT IS PROHIBITED BY THE HEIGHT OF A WINDOW OR DESIGN FEATURE, AN ALTERNATE LOCATION CAN BE APPROVED BY THE CHIEF BUILDING OFFICIAL OR A DULY AUTHORIZED DESIGNEE.
5. ON ALL NEW RESIDENTIAL CONSTRUCTION A MINIMUM OF 10% FREE PANEL SPACE SHALL BE MAINTAINED FOR FUTURE EXPANSION. PROVIDE ELECTRICAL DISTRIBUTION PANEL DETAILING TOTAL AMPS PROVIDED & THE 10% FREE PANEL SPACE.
6. METAL CONDUIT SHALL BE PROVIDED FROM WATER METER TO EXTERIOR OF STRUCTURE TO FACILITATE THE INSTALLATION OF REQ. REMOTE READ APPARATUS. MIN. SIZE OF CONDUIT SHALL BE 1/2 INCH DIA. & EXTEND MIN. OF 4 INCHES PAST EXTERIOR FACE OF STRUCTURE WALL.
7. GROUND THE ELECTRIC SERVICE WITH A MINIMUM 8" SOLID COPPER DRIVEN GROUND ROD.
8. RUN CONTINUOUS GROUNDING CONDUCTOR FROM SERVICE AT THE PANEL TO THE STREET SIDE OF THE WATER METER WITH AN INSTALLED CONDUCTOR ACROSS THE METER. BOTH SIZED FOR THE SERVICE.
9. ALL LIGHTS ABOVE SHOWER OR BATHTUB TO BE U.L. LISTED FOR DAMP LOCATIONS AND BE G.F.I. PROTECTED.
10. ALL ELECTRICAL RECEPTACLES LOCATED IN GARAGES, BASEMENTS, BATHROOMS, UNFINISHED BASEMENTS, EXTERIOR LOCATIONS AND KITCHENS ARE TO BE G.F.I. PROTECTED.
11. ARC-FAULT INTERRUPTER PROTECTION (AFCI) WILL BE REQUIRED IN ALL KITCHENS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, LAUNDRY AREAS AND SIMILAR ROOMS OR AREAS IRC 2018 E3902.16
12. ALL SMOKE DETECTORS TO BE 110 V. INTERCONNECTED WITH BATTERY BACKUP POWER REQUIRED ON ALL FLOORS OF STRUCTURE, TO BE WITHIN 15'-0" OF ALL BEDROOMS AND WITHIN ALL BEDROOMS ON A DEDICATED POWER SOURCE.
13. ALL BOXES, CONDUCTORS AND RACEWAYS ARE TO BE INSTALLED BY THE TIME OF THE FRAMING AND ELECTRICAL INSPECTION.



POINT	DESCRIPTION	RESULT
A	DATUM POINT (AVG. ELEVATION OF BOTH PROPERTY LINES AT FRONT YARD SET BACK)	691.5
	ELEVATION #1 (USED ABOVE AT FRONT YARD SETBACKS)	692.0
	ELEVATION #2 (USED ABOVE AT FRONT YARD SETBACKS)	691.0
SEGMENT	**DESCRIPTION**	**RESULT**
GI	HEIGHT OF ROOF (BOTTOM OF CEILING JOIST OR TOP OF PLATE TO TALLEST PEAK)	12.6
AG	MEAN HEIGHT AG + (0.5*GI)	28.79
AC	DATUM POINT TO BASEMENT CEILING	2.25
AD	DATUM POINT TO 1ST STORY FINISHED FLOOR	3.25
AB	HEIGHT OF FOUNDATION	1.0
BC	HEIGHT OF KNEEWALL ABOVE FOUNDATION	1.25
DF	HEIGHT OF 1ST STORY (TOP OF FLOOR JOIST TO TOP OF FLOOR JOIST)	11.09
FH	HEIGHT OF 2ND STORY (TOP OF FLOOR JOIST TO TOP OF CEILING JOIST)	8.59
AI	PEAK HEIGHT	35.09
COLUMN	**DESCRIPTION**	**RESULT**
1	FOOTPRINT OF PRINCIPLE STRUCTURE	2,551 SQ. FT.
2	FOOTPRINT OF DETACHED GARAGE (FOOTPRINT - 480 SQ. FT.)	0 SQ. FT.
3	TOTAL LOT SQUARE FOOTAGE	7,957 SQ. FT.
4	BUILDING COVERAGE = (COLUMN 1 + COLUMN 2) / COLUMN 3	32.0 %
5	GROSS SQUARE FOOTAGE OF BASEMENT (FINISHED)	1,284 SQ. FT.
6	GROSS SQUARE FOOTAGE OF BASEMENT (UNFINISHED)	329 SQ. FT.
7	GROSS SQUARE FOOTAGE OF 1ST FLOOR (NOT INCLUDING PORCHES OR GARAGES)	1,797 SQ. FT.
8	GROSS SQUARE FOOTAGE OF GARAGE (ATTACHED)	754 SQ. FT.
9	GROSS SQUARE FOOTAGE OF ENCLOSED PORCHES	387 SQ. FT.
10	GROSS SQUARE FOOTAGE OF 2ND FLOOR	2,099 SQ. FT.
11	GROSS SQUARE FOOTAGE OF ANY 1/2 STORY	0 SQ. FT.

CODE BOOKS USED:

2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL RESIDENTIAL CODE
2018 INTERNATIONAL PROPERTY MAINTENANCE CODE
2018 INTERNATIONAL FIRE CODE
2018 INTERNATIONAL FUEL GAS CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL PLUMBING CODE
2018 INTERNATIONAL EXISTING BUILDING CODE
2018 INTERNATIONAL SWIMMING POOL AND SPA CODE
2017 NATIONAL ELECTRIC CODE (NFPA 70)
2006 INTERNATIONAL CODE COUNCIL ELECTRICAL ADMINISTRATIVE PROVISIONS
2018 LIFE SAFETY CODE (NFPA 101)
2018 ILLINOIS ENERGY CONSERVATION CODE
NATIONAL FIRE CODE (NFPA), CURRENT EDITION
ILLINOIS STATE PLUMBING CODE, CURRENT EDITION
ILLINOIS ACCESSIBILITY CODE, CURRENT EDITION
LOCAL AMENDMENTS PER NAPERVILLE MUNICIPAL CODE (TITLE V)

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A6 ROOF PLAN/ DRIP EDGE DETAIL/ STEP FLASHING DETAIL/ CRIPPLE WALL DETAIL/ ROOF ATTIC VENTILATION CALCULATIONS/ PURLIN DETAIL/ RIDGE DETAIL
A7 FINISHED BASEMENT PLAN/ FINISHED BASEMENT ELECTRICAL PLAN
A8 PASSIVE SUB-SLAB DEPRESSURIZATION SYSTEM SECTION & NOTES/ PLUMBING RISER DIAGRAM/ WASTE & VENT DIAGRAM/ PLUMBING UNIT FIXTURE COUNT/ PORTAL FRAMING DETAIL FOR CONTINUOUS SHEATHING
E1 FIRST & SECOND FLOOR ELECTRICAL PLANS

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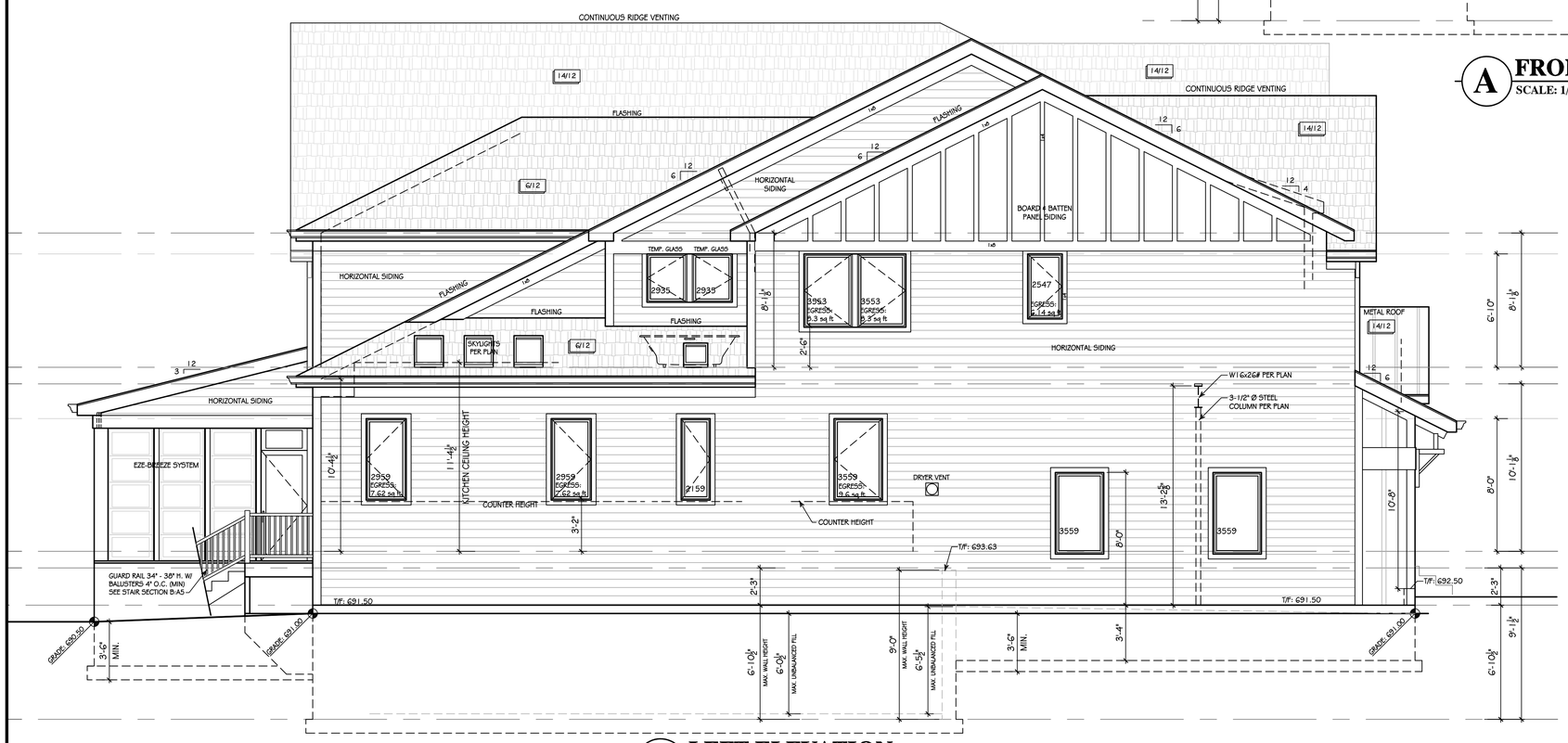
SHEET NO:
T1

GENERAL NOTES

1. A MINIMUM 6 MIL VAPOR BARRIER REQUIRED UNDER ALL CRAWL SPACES, BASEMENT AND GARAGE FLOORS.
2. MINIMUM 4" CONCRETE SLABS IN BASEMENTS AND GARAGES AND A MINIMUM 2" SLAB IN ALL CRAWL SPACES, TYPICAL.
3. GARAGE FLOOR TO BE A MINIMUM 4" BELOW THE TOP OF FOUNDATION WALL IN GARAGE.
4. INSULATE AROUND THE BOX ON THE FOUNDATION.
5. GROUT ALL BEAM POCKETS SOLID.
6. FOUNDATION SILL PLATE BOLTS SHALL BE SPACED MAX. OF 6 FT. O.C. THERE SHALL BE MIN. (2) BOLTS PER PLATE SECTION OR WALL. BOLTS SHALL BE NO MORE THAN 12 INCHES FROM ANY CORNER OR SPLICE BETWEEN PLATE SECTIONS.
7. THE HORIZONTAL DIMENSION OF THE WINDOW WELL FOR AN ESCAPE WINDOW SHALL PROVIDE A MINIMUM NET CLEAR AREA OF 9 SQUARE FEET WITH A MINIMUM HORIZONTAL PROJECTION AND WIDTH OF 36 INCHES.
8. WINDOW WELLS WITH A VERTICAL DEPTH GREATER THAN 44 INCHES BELOW THE GROUND LEVEL SHALL BE EQUIPPED WITH A PERMANENTLY AFFIXED LADDER OR STEPS.
9. EMERGENCY ESCAPE AND RESCUE OPENINGS FOR BEDROOMS MUST BE ACCOMPLISHED BY THE NORMAL OPERATION OF THE WINDOW.
10. WINDOWS SHALL HAVE A MAXIMUM GLAZING U-FACTOR OF 0.30 UNLESS OTHERWISE NOTED.
11. TEMPERED GLASS: TO QUALIFY AS GLASS WITH SPECIAL PERFORMANCE CHARACTERISTICS, EACH UNIT OF LAMINATED, HEAT STRENGTHENED, TEMPERED GLASS SHALL BE PERMANENTLY IDENTIFIED BY MFG., ID SHALL BE ETCHED OR CERAMIC FIRED ON GLASS & VISIBLE WHEN UNIT IS GLAZED.
12. ALL GLAZING IN STAIRWAYS AND STAIRWELLS, REGARDLESS OF SIZE, WHOS BOTTOM EDGE IS LESS THAN 60 INCHES ABOVE THE FLOOR OR WALKING SURFACE SHALL BE TEMPERED GLASS.
13. IRC 2406.4.2: GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL ADJACENT TO A DOOR WHERE THE NEAREST VERTICAL EDGE OF THE GLAZING IS WITHIN A 24-INCH ARCH OF EITHER VERTICAL EDGE OF THE DOOR IN A CLOSED POSITION AND WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES ABOVE THE WALKING SURFACE SHALL BE CONSIDERED TO BE A HAZARDOUS LOCATION. (SEE CODE FOR EXCEPTIONS)
14. GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL MUST BE TEMPERED IF IT MEETS ALL OF THE FOLLOWING CONDITIONS: EXPOSED AREA OF AN INDIVIDUAL PANE GREATER THAN 9 SQUARE FEET (0.836 M2). BOTTOM EDGE LESS THAN 18 INCHES (457 MM) ABOVE THE FLOOR. TOP EDGE GREATER THAN 36 INCHES (914 MM) ABOVE THE FLOOR. ONE OR MORE WALKING SURFACES WITHIN 36 INCHES (914 MM) HORIZONTALLY OF THE GLAZING.
15. PROVIDE JOIST HANGERS FOR ALL HEADER TO HEADER & JOIST TO HEADER CONNECTIONS. INSTALL JOIST HANGERS W/ MFG. APPROVED NAILS. FILL ALL HOLES, GALVANIZED ROOFING & BOX NAILS ARE NOT PERMITTED.
17. ICE & WATER SHIELD REQUIRED AT ALL EAVES, 2' INSIDE EXTERIOR WALL
18. FIREPLACE HEARTH SURROUND MUST CONFORM TO IRC CHAPTER 10.
19. SPARK ARRESTORS REQUIRED PER CODE ON ALL FIREPLACE CHIMNEYS, TYPICAL.
20. CLEAN-OUT OPENING FOR MASONRY FIREPLACE SHALL BE EQUIPPED WITH FERROUS METAL DOORS & FRAMES CONSTRUCTION TO REMAIN TIGHTLY CLOSED EXCEPT WHEN IN USE. CLEAN-OUTS SHALL BE ACCESSIBLE & LOCATED SO THAT ASH REMOVAL WILL NOT CREATE A HAZARD TO COMBUSTIBLE MATERIAL.
21. PROVIDE OUTSIDE COMBUSTION AIR INTAKE FOR ALL FIREPLACES.
22. ALL ATTIC AND CRAWL SPACE ACCESSES TO BE A MINIMUM 22"X30". AT LEAST ONE LIGHTING OUTLET THAT CONTAINS A SWITCH OR IS CONTROLLED BY A WALL SWITCH MUST BE PROVIDED. R402.2.4 ACCESS FROM CONDITIONED TO UNCONDITIONED ATTICS SHALL BE WEATHER-STRIPPED AND INSULATED TO A LEVEL EQUIVALENT TO THE INSULATION ON SURROUNDING SURFACES
23. PROVIDE FIREBLOCKING IN ACCORDANCE TO IRC R502.12
24. FIRESTOP ALL SOFFITS, PANS, DROPPED CEILINGS AND COVE CEILINGS WITH APPROVED FIRE STOP MATERIAL (PER IRC R302.11.1).
25. ALL PENETRATIONS FROM ONE FLOOR TO ANOTHER MUST BE SEALED WITH APPROVED FIRE STOP MATERIAL (PER IRC R302.11.1).
26. INSULATION MATERIALS INSTALLED WITHIN FLOOR-CEILING ASSEMBLIES, CRAWL SPACES AND ATTICS SHALL HAVE A FLAME-SPREAD INDEX NOT TO EXCEED 25 WITH AN ACCOMPANYING SMOKE-DEVELOPED INDEX NOT TO EXCEED 450 WHEN TESTED IN ACCORDANCE WITH ASTM E84.
27. 20-MINUTE FIRE RATED DOOR, WITH A SELF CLOSING DEVICE IF REQUIRED, FROM THE GARAGE TO THE HOUSE TYPICAL PER CODE.
28. ALL COPPER PIPING WITHIN ANY CONCRETE FLOOR SLAB MUST BE WRAPPED WITH AN APPROVED MATERIAL PER CODE.
29. FROST PROOF ANTI-SIPHON HOSE BIB REQUIRED AT FRONT AND REAR OF HOUSE.
30. ALL BATHROOM FAN EXHAUST VENTS TO BE INSULATED DUCT AND ARE TO BE DIRECTLY VENTED TO EXTERIOR
31. WHERE THE SPACE IN WHICH FUEL-BURNING APPLIANCES ARE LOCATED DOES NOT MEET THE CRITERION FOR INDOOR AIR SPECIFIED IN SECTION M1702 OF IRC, OUTSIDE COMBUSTION AIR SHALL BE SUPPLIED.
32. PROVIDE HAND RAIL FOR ALL STAIRWAYS W/ TOTAL RISE OF 30 INCHES OR MORE ABOVE SURROUNDING GRADE, FLOOR OR WALKING SURFACE OR HAVING 4 OR MORE RISERS.
33. ALL REQ. HANDRAILS SHALL BE CONTINUOUS THE FULL LENGTH OF STAIRS. ENDS SHALL BE RETURNED TO THE WALL OR SHALL TERMINATE IN NEWEL POSTS OR SAFETY TERMINALS AND PLACED ON NARROW SIDE OF STAIR.
34. THE HANDRAIL MAXIMUM GRIP SIZE TO BE 2-1/4" CROSS SECTIONAL DIMENSION (6.25M MAX. PERIMETER ALLOWED)
35. WINDERS ARE PERMITTED, PROVIDED THE MIN. TREAD WIDTH AT NARROW SIDE IS NO LESS THAN 6 INCHES & WIDTH AT NO MORE THAN 12 INCHES FROM NARROW SIDE IS A MIN. OF 10 INCHES DEEP.
36. ALL STAIRWAYS SHALL BE PROVIDED WITH A CLOSED RISER SYSTEM.
37. ALL PORCHES, BALCONIES, DECKS, OR OTHER RAISED FLOOR SURFACE LOCATED MORE THAN 30 INCHES ABOVE SURROUNDING GRADE, FLOOR OR WALKING SURFACE SHALL BE PROVIDED WITH GUARD RAILS.

A FRONT ELEVATION
SCALE: 1/4" = 1'-0"



B LEFT ELEVATION
SCALE: 1/4" = 1'-0"

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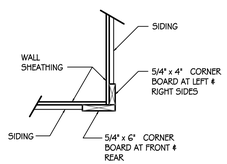
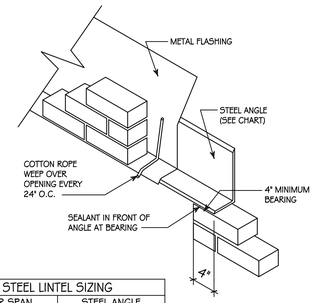
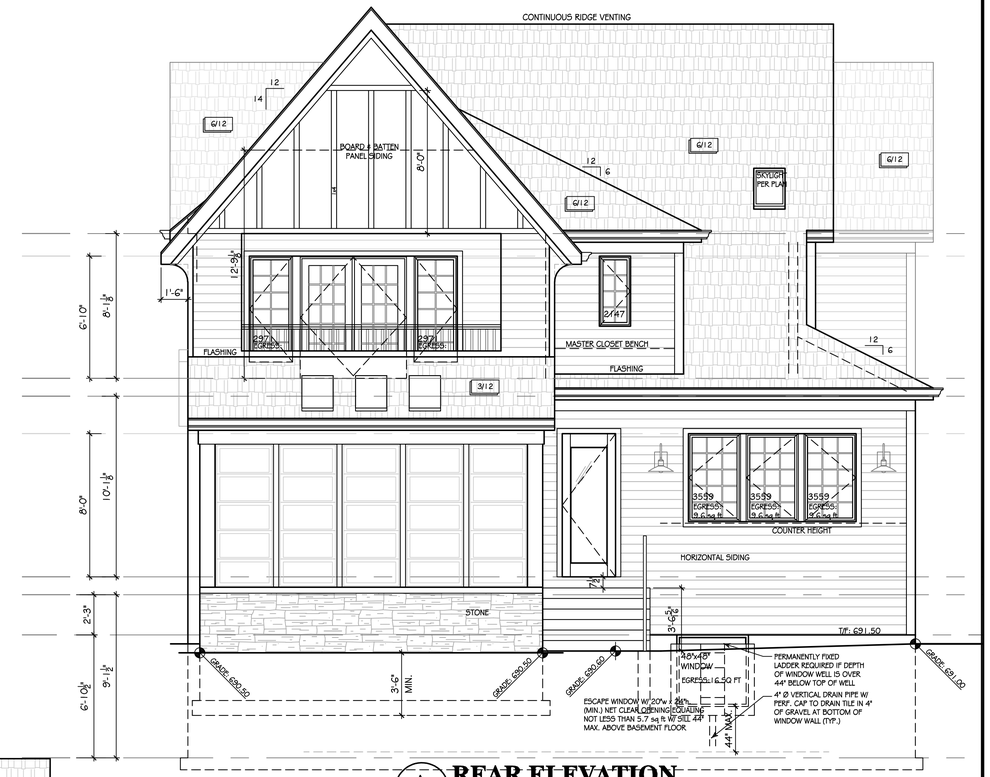


C CORNER BOARD DETAIL
SCALE: 1" = 1'-0"



STEEL LINTEL SIZING	
CLEAR SPAN	STEEL ANGLE
0'-8" to 4'-0"	3-1/2" x 3-1/2" x 5/16"
4'-0" to 6'-0"	3-1/2" x 4" x 5/16"
6'-0" TO 7'-11"	3-1/2" x 5" x 5/16"
8'-0" TO 9'-11"	4" x 6" x 3/8"
10'-0" TO 18'-0"	4" X 8" X 1/2"

D LINTEL SCHEDULE
SCALE: NTS



A REAR ELEVATION
SCALE: 1/4" = 1'-0"

B RIGHT ELEVATION
SCALE: 1/4" = 1'-0"

2018 IECC NOTES

1. (R401.3) CERTIFICATE (MANDATORY): A PERMANENT CERTIFICATE SHALL BE COMPLETED BY THE BUILDER OR OTHER APPROVED PARTY AND POSTED ON A WALL IN THE SPACE WHERE THE FURNACE IS LOCATED, A UTILITY ROOM OR AN APPROVED LOCATION INSIDE THE BUILDING. WHERE LOCATED ON AN ELECTRICAL PANEL, THE CERTIFICATE SHALL NOT COVER OR OBSTRUCT THE VISIBILITY OF THE CIRCUIT DIRECTORY LABEL, SERVICE DISCONNECT LABEL OR OTHER REQUIRED LABELS. THE CERTIFICATE SHALL INDICATE THE PREDOMINANT R-VALUES OF INSULATION INSTALLED IN OR ON CEILINGS, ROOFS, WALLS, FOUNDATION COMPONENTS SUCH AS SLABS, BASEMENT WALLS, CRAWL SPACE WALLS AND FLOORS AND DUCTS OUTSIDE CONDITIONED SPACES; U-FACTORS OF FENESTRATION AND THE SOLAR HEAT GAIN COEFFICIENT (SHGC) OF FENESTRATION, AND THE RESULTS FROM ANY REQUIRED DUCT SYSTEM AND BUILDING ENVELOPE AIR LEAKAGE TESTING PERFORMED ON THE BUILDING. WHERE THERE IS MORE THAN ONE VALUE FOR EACH COMPONENT, THE CERTIFICATE SHALL INDICATE THE VALUE COVERING THE LARGEST AREA. THE CERTIFICATE SHALL INDICATE THE TYPES AND EFFICIENCIES OF HEATING, COOLING AND SERVICE WATER HEATING EQUIPMENT. WHERE A GAS-FIRED UNVENTED ROOM HEATER, ELECTRIC FURNACE OR BASEBOARD ELECTRIC HEATER IS INSTALLED IN THE RESIDENCE, THE CERTIFICATE SHALL INDICATE "GAS-FIRED UNVENTED ROOM HEATER," "ELECTRIC FURNACE" OR BASEBOARD ELECTRIC HEATER," AS APPROPRIATE. AN EFFICIENCY SHALL NOT BE INDICATED FOR GAS-FIRED UNVENTED ROOM HEATERS, ELECTRIC FURNACES AND ELECTRIC BASEBOARD HEATERS.
2. MINIMUM R-20 IN WOOD FRAME WALL CONSTRUCTION PER TABLE N1102.1.2 (R402.1.2) SEE WALL SECTIONS FOR INSULATION R-VALUES FOR THIS PROJECT.
3. (R402.4) AIR LEAKAGE (MANDATORY): THE BUILDING THERMAL ENVELOPE SHALL BE CONSTRUCTED TO LIMIT AIR LEAKAGE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTIONS R402.4.1 THROUGH R402.4.5
4. (R402.4.2) NEW WOOD-BURNING FIREPLACES SHALL HAVE TIGHT-FITTING FLUE DAMPERS OR DOORS, AND OUTDOOR COMBUSTION AIR. WHERE USING TIGHT-FITTING DOORS ON FACTORY-BUILT FIREPLACES LISTED AND LABELED IN ACCORDANCE WITH UL 127, THE DOORS SHALL BE TESTED AND LISTED FOR THE FIREPLACE.
5. (R402.4.1.2) TESTING: THE BUILDING OR DWELLING UNIT SHALL BE TESTED AND VERIFIED AS HAVING AN AIR LEAKAGE RATE NOT EXCEEDING THREE AIR CHANGES PER HOUR IN CLIMATE ZONES 3 THROUGH 8. TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH RESNET/ICC 380, ASTM E 779 OR ASTM E 1827 AND REPORTED AT A PRESSURE OF 0.2 INCH W.G. (50 PASCALS). WHERE REQUIRED BY THE CODE OFFICIAL, TESTING SHALL BE CONDUCTED BY AN APPROVED THIRD PARTY. A WRITTEN REPORT OF THE RESULTS OF THE TEST SHALL BE SIGNED BY THE PARTY CONDUCTING THE TEST AND PROVIDED TO THE CODE OFFICIAL. TESTING SHALL BE PERFORMED AT ANY TIME AFTER CREATION OF ALL PENETRATIONS OF THE BUILDING THERMAL ENVELOPE. (SEE R402.4.1.2 FOR REQUIREMENTS DURING TESTING.)
6. (R403.2) OR (R403.3.1 PRESCRIPTIVE): SUPPLY AND RETURN DUCTS IN ATTICS SHALL BE INSULATED TO AN R-VALUE OF NOT LESS THAN R-8 FOR DUCTS 3 INCHES (76 mm) IN DIAMETER AND LARGER AND NOT LESS THAN R-6 FOR DUCTS SMALLER THAN 3 INCHES (76 mm) IN DIAMETER. SUPPLY AND RETURN DUCTS IN OTHER PORTIONS OF THE BUILDING SHALL BE INSULATED TO NOT LESS THAN R-6 FOR DUCTS 3 INCHES (76 mm) IN DIAMETER AND NOT LESS THAN R-4.2 FOR DUCTS SMALLER THAN 3 INCHES (76 mm) IN DIAMETER.
7. (R403.4) MECHANICAL SYSTEM PIPING INSULATION (MANDATORY): MECHANICAL SYSTEM PIPING CAPABLE OF CARRYING FLUIDS GREATER THAN 105°F (41°C) OR LESS THAN 55°F (13°C) SHALL BE INSULATED TO AN R-VALUE OF NOT LESS THAN R-3.
8. (R403.6.1) WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM FAN EFFICACY: FANS USED TO PROVIDE WHOLE-HOUSE MECHANICAL VENTILATION SHALL MEET THE EFFICACY REQUIREMENT OF TABLE R403.6.1 (SEE TITLE PAGE FOR TABLE)
9. (R404.1) LIGHTING EQUIPMENT (MANDATORY): NOT LESS THAN 90% OF THE PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL CONTAIN ONLY HIGH-EFFICACY LAMPS.
10. RECESSED LIGHTING (IRC 2018 R402.4.5) WHEN INSTALLED IN THE BUILDING THERMAL ENVELOPE, RECESSED LIGHTING SHALL BE SEALED AND IC RATED AND LABELED AS HAVING AN AIR LEAKAGE RATE OF NOT GREATER THAN 2.0 cfm WHEN TESTED AT A PRESSURE OF 75 Pa (1.57 psf). RECESSED LIGHTS SHALL BE SEALED WITH A GASKET OR CAULKING.

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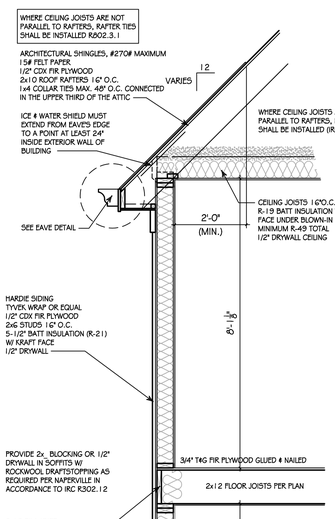
SHEET NO:
A2



NOTE:
WOOD STRUCTURAL PANEL SHEATHING WITH A THICKNESS NOT LESS THAN 3/8-INCH (9.52 MM) PER R602.10.3(3) SHALL BE INSTALLED ON ALL FRAME WALLS

INSULATION & FENESTRATION REQUIREMENTS
PER 2018 IRC TABLE N1102.1.2 (R402.1.2)

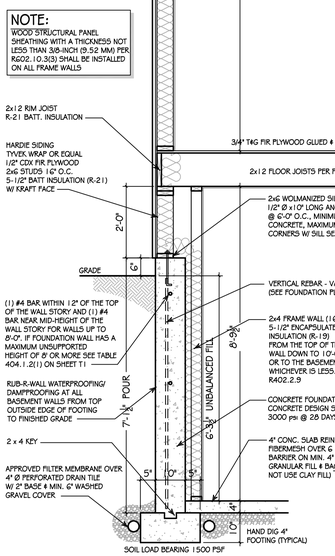
MINIMUM R-VALUES
CRAWLSPACE: R-15/R-19
BASEMENT WALL: R-15/R-19
FLOOR: R-30
WOOD FRAME WALL: R-20/R-13+5*
CEILING: R-49

FENESTRATION U-FACTOR: 0.30
SKYLIGHT U-FACTOR: 0.55

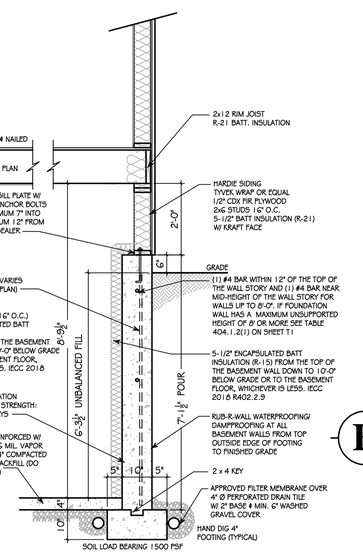
SUPPLY DUCTS IN ATTICS ARE INSULATED TO > R-8 FOR DUCTS > 3" IN DIAMETER AND NOT LESS THAN R-6 FOR DUCTS SMALLER THAN 3" IN DIAMETER. SUPPLY AND RETURN DUCTS IN OTHER PORTIONS OF THE BUILDING SHALL BE INSULATED > R-6 FOR DUCTS 3" IN DIAMETER AND NOT LESS THAN R-4.2 FOR DUCTS SMALLER THAN 3" IN DIAMETER.

EXCEPTIONS:
(R402.2.7) IF STRUCTURAL SHEATHING COVERS 40% OR LESS OF THE GROSS AREA OF ALL EXTERIOR WALLS, THE CONTINUOUS INSULATION R-VALUE SHALL BE PERMITTED TO BE REDUCED BY NO MORE THAN R-3 TO RESULT IN A CONSISTENT TOTAL SHEATHING THICKNESS ON AREAS COVERED BY STRUCTURAL SHEATHING.

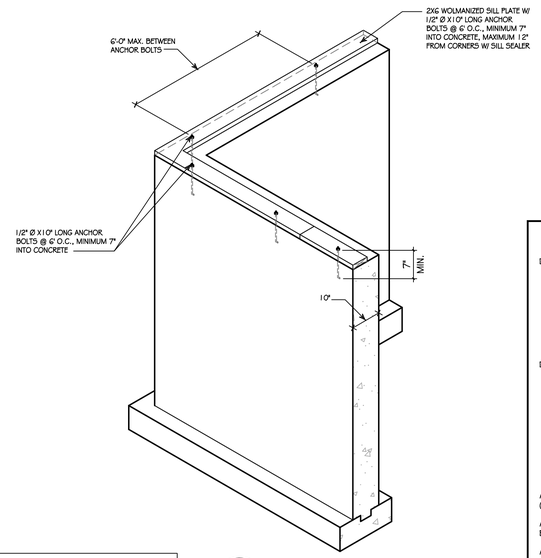
SUNROOMS WITH THERMAL ISOLATION AND ENCLOSING CONDITIONED SPACE, THE FENESTRATION U-FACTOR SHALL NOT EXCEED 0.45 AND THE SKYLIGHT U-FACTOR SHALL NOT EXCEED 0.70.



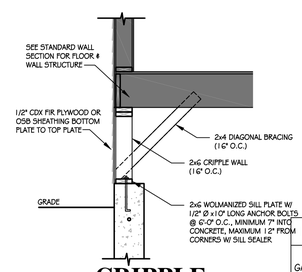
B TYPICAL FINISHED BASEMENT SECTION
SCALE: 1/2"=1'-0"



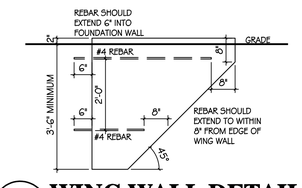
C TYPICAL UNFINISHED BASEMENT SECTION
SCALE: 1/2"=1'-0"



D SILL DETAIL
SCALE: NTS



E CRIPPLE WALL DETAIL
SCALE: 1/2"=1'-0"



F WING WALL DETAIL
SCALE: 1/2"=1'-0"

DESIGN CRITERIA

DESIGN LOADS

Floor=	40 psf LL	Carpet=	10 psf DL
Sleeping=	30 psf LL	Hardwood=	11.6 psf DL
3rd Floor=	30 psf LL	Tile=	14 psf DL
		Marble=	16 psf DL
Stairways/ Exterior decks =			60 psf LL
Walls =	60 pff or actual vertical load		
Ceiling =	20 psf LL		10 psf DL
Rafters =	30 psf snow load		10 psf DL
Cathedral =	30 psf LL		15 psf DL

DESIGN STRESSES

S.P.F. Stud grade - fb 675		
2x4	fb=	839 psi
2x6	fb=	776 psi
White Fir/Hem Fir #2 (N) - fb 850		
2x8	fb=	1173 psi
2x10	fb=	1075 psi
2x12	fb=	977 psi
LVL - Level Trus Joist		
Microllam E=1.9x10" psi	fb=	2600 psi
Parallam E=2.0x10" psi	fb=	2900 psi
Parallam Post E=1.8x10" psi	fb=	2400 psi

ALL JOISTS AND RAFTERS TO BE HEM FIR #2 (DOMESTIC) AND/OR DOUGLAS FIR #2 (DOMESTIC)

ALL STRUCTURAL WOOD MUST BE GRADE STAMPED BY AN AGENCY IN COMPLIANCE WITH DOC PS 20

ALL UNSPECIFIED HEADERS AT BEARING WALLS TO BE (2) 2X12 HEM FIR #2 (DOMESTIC) AND/OR DOUGLAS FIR #2 (DOMESTIC)

ALL JOISTS TO BE DOUBLED UNDER FRAME WALLS PARALLEL TO JOISTS

ALL JOISTS AROUND OPENINGS IN ALL FLOOR, CEILING AND ROOF FRAMING TO BE DOUBLED WITH JOIST HANGERS

ALL 3-1/2" COLUMNS SHALL BE OF STANDARD PIPE, AND GIVEN A SHOP COAT OF RUST INHIBITING PAINT

■ = BEARING POINT (BP)
MIN. (2) 2x4 STUD @ SOLID SAWN
MIN. (3) 2x4 STUD OR (2) 2x6 STUD @ LVL

⊠ = POST TO ROOF (RIDGE, HIP OR VALLEY)
MINIMUM (2) 2x4 STUDS

LOAD BEARING INTERIOR WALL

HANGER SCHEDULE

SIMPSON STRONG-TIE GALVANIZED METAL HANGERS (SOME HANGERS MAY NOT APPLY)

0	LU210 or U210
1	U26-2
2	U210-2
3	HUS212-2
4	U410
5	HHUS410
6	HGU5412
7	HHUS5.50/10
8	HHUS7.25/10
9	SUL/L210-2
10	SUR/L210-2
11	LS90
12	SUR/L26-2
13	SUL/L26-2

ALL JOISTS CONNECTED INTO THE SIDE OF A WOOD BEAM OR GIRDER SHALL USE HANGER "0" UNLESS OTHERWISE NOTED OR APPROVED IN ADVANCE BY ARCHITECT.

PIER SCHEDULE

C1 - 3½" Ø CONCRETE FILLED COLUMN

C2 - 6x6 WOLMANIZED POST ON STAND-OFF

W1 - 8" STEM WALL ON 18" CONTINUOUS CONCRETE FOOTING

W2 - 10" STEM WALL ON 20" CONTINUOUS CONCRETE FOOTING

P1 - 3/0x3/0x1/0 CONCRETE FOOTING REINFORCED W/ 4 #4 BARS EACH WAY CAPACITY=13,500 lbs.

P2 - 3/6x3/6x1/0 CONCRETE FOOTING REINFORCED W/ 4 #4 BARS EACH WAY CAPACITY=18,375 lbs.

P3 - 4/0x4/0x1/0 CONCRETE FOOTING REINFORCED W/ 5 #4 BARS EACH WAY CAPACITY=24,000 lbs.

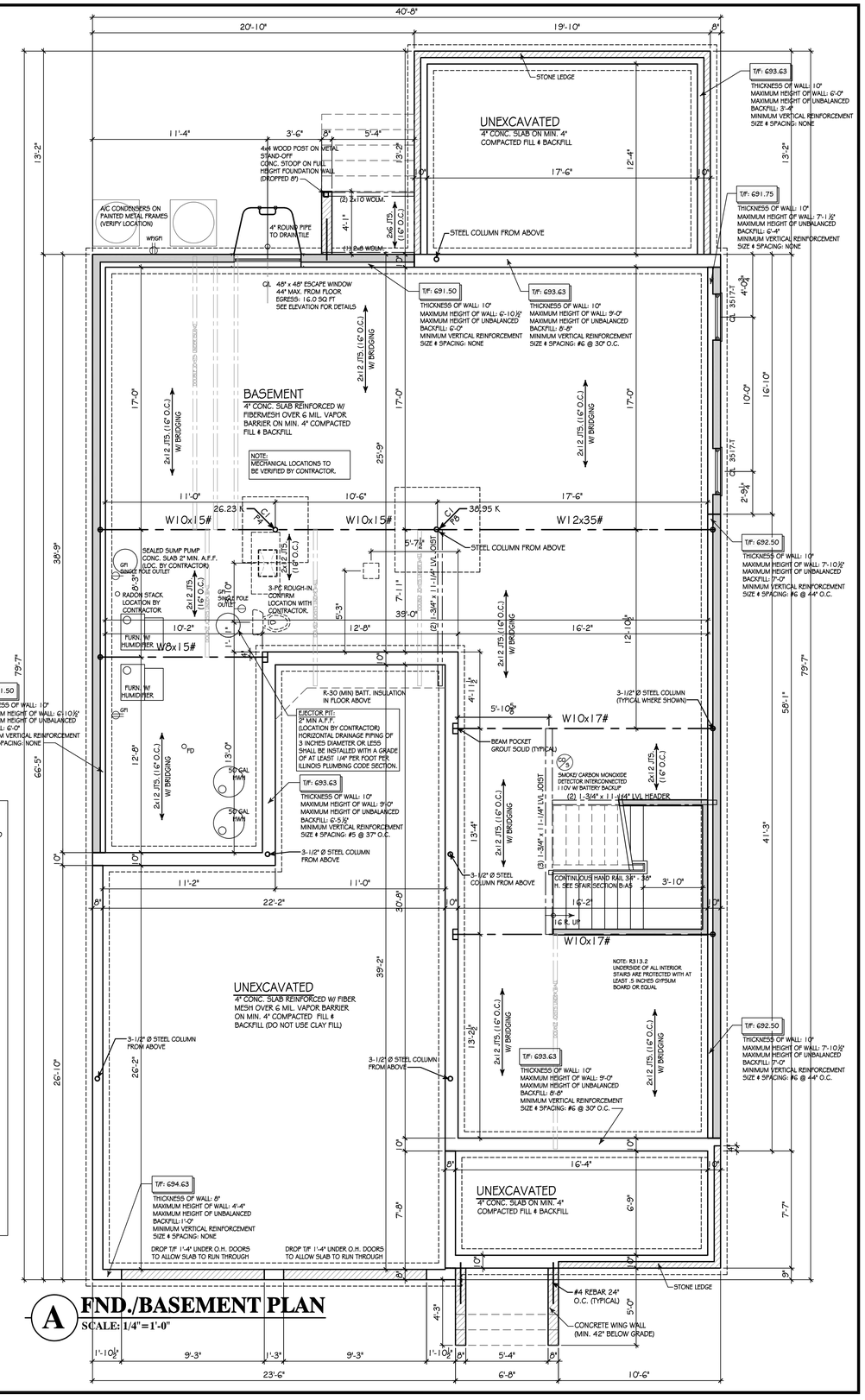
P4 - 4/3x4/3x1/3 CONCRETE FOOTING REINFORCED W/ 5 #4 BARS EACH WAY CAPACITY=27,094 lbs.

P5 - 4/6x4/6x1/3 CONCRETE FOOTING REINFORCED W/ 6 #4 BARS EACH WAY CAPACITY=30,375 lbs.

P7 - 5/0x5/0x1/3 CONCRETE FOOTING REINFORCED W/ 7 #4 BARS EACH WAY CAPACITY=37,500 lbs.

P8 - 12"x12"x1/2" STEEL BEARING PLATE ON 5/6x5/6x1/6 CONCRETE FOOTING REINFORCED W/ #4 BARS 9" O.C. EACH WAY CAPACITY=45,375 lbs.

FOUNDATION NOTE:
BACKFILL SHALL NOT BE PLACED AGAINST THE WALL UNTIL THE WALL HAS SUFFICIENT STRENGTH AND HAS BEEN ANCHORED TO THE FLOOR ABOVE, OR HAS BEEN SUFFICIENTLY BRACED TO PREVENT DAMAGE BY THE BACKFILL.



A FND./BASEMENT PLAN
SCALE: 1/4"=1'-0"

BUILDER:
Lakewest
Custom Homes
630.470.9442

MEYER DESIGN
630.889.0994
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MD19-132

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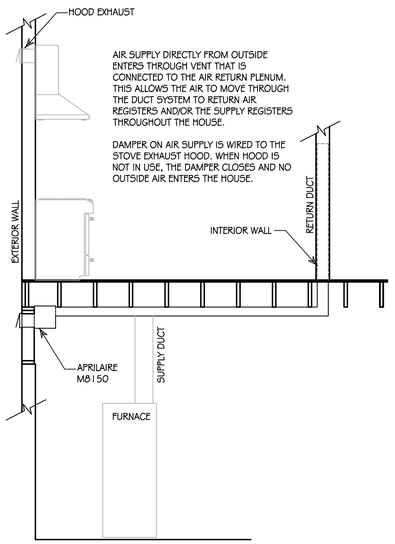
10-14-2020	CONST DOCUMENTS (PERMIT SET)

SHEET NO:
A3



E MAKE UP AIR DETAIL
SCALE: NTS

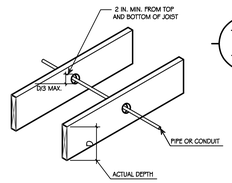
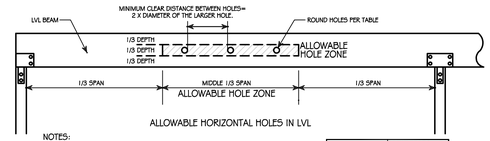


FIGURE R502.8
CUTTING, NOTCHING AND DRILLING

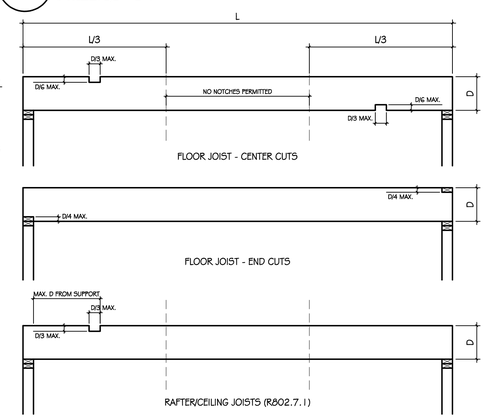


ALLOWABLE HORIZONTAL HOLES IN LVL

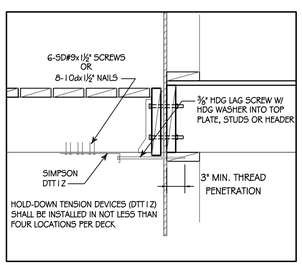
NOTES:
1. HOLE(S) MUST BE LOCATED COMPLETELY IN THE ALLOWABLE HOLE ZONE.
2. NO RECTANGULAR HOLES ARE ALLOWED.
3. NO MORE THAN THREE HOLES ALLOWED PER SPAN.
4. TABLE IS VALID FOR SINGLE AND MULTIPLE SPAN UNIFORMLY LOADED BEAMS ONLY. TABLE IS NOT VALID FOR CANTILEVER SECTIONS.
5. HOLE LOCATION, CLEARANCE AND THE EFFECTS OF BEAM DEFLECTION SHOULD BE CONSIDERED TO AVOID PROBLEMS WITH PIPING.

BEAM DEPTH	MAXIMUM ROUND HOLE DIAMETER
5'-7"	3"
7'-9"-	1'-
9'-1 6"	2"
DEEPER THAN 16"	3"

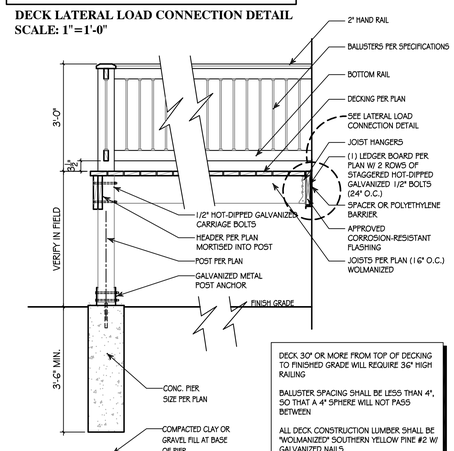
D LVL CUTTING & NOTCHING DETAILS
SCALE: 1/2"=1'-0"



C CUTTING & NOTCHING DETAILS
SCALE: 1/2"=1'-0"



DECK LATERAL LOAD CONNECTION DETAIL
SCALE: 1"=1'-0"



DECK 30" OR MORE FROM TOP OF DECKING TO FINISHED GRADE WILL REQUIRE 36" HIGH RAILING

BALUSTER SPACING SHALL BE LESS THAN 4", SO THAT A 4" SPHERE WILL NOT PASS BETWEEN

ALL DECK CONSTRUCTION LUMBER SHALL BE "WOLMANIZED" SOUTHERN YELLOW PINE #2 W/ GALVANIZED NAILS

ALUMINUM FLASHING SHALL NOT BE ALLOWED TO MAKE DIRECT CONTACT WITH ACQ TREATED LUMBER

THROUGH BOLT LEDGER TO HOUSE FRAMING (DO NOT USE LAG BOLTS)

B DECK SECTION
SCALE: 1/2"=1'-0"

DESIGN CRITERIA

DESIGN LOADS

Floor=	40 psf LL	Carpet=	10 psf DL
Sleeping=30 psf LL		Hardwood=	11.6 psf DL
3rd Floor=30 psf LL		Tile=	14 psf DL
		Marble=	16 psf DL
Stairways/ Exterior decks =			60 psf LL
Walls	=	60 psf or actual vertical load	
Ceiling	=	20 psf LL	10 psf DL
Rafters	=	30 psf snow load	10 psf DL
Cathedral	=	30 psf LL	15 psf DL

DESIGN STRESSES
S.P.F. Stud grade - fb 675

2x4	fb=	639 psi
2x6	fb=	776 psi
White Fir/Hem Fir #2 (N) - fb 850		
2x8	fb=	1173 psi
2x10	fb=	1075 psi
2x12	fb=	977 psi
LVL - iLevel Trus Joist		
Microllam E=1.9x10^6 psi	fb=	2600 psi
Paralam E=2.0x10^6 psi	fb=	2900 psi
Paralam Post E=1.8x10^6 psi	fb=	2400 psi

ALL JOISTS AND RAFTERS TO BE HEM FIR #2 (DOMESTIC) AND/OR DOUGLAS FIR #2 (DOMESTIC)

ALL STRUCTURAL WOOD MUST BE GRADE STAMPED BY AN AGENCY IN COMPLIANCE WITH DOC PS 20

ALL UNSPECIFIED HEADERS AT BEARING WALLS TO BE (2) 2X12 HEM FIR #2 (DOMESTIC) AND/OR DOUGLAS FIR #2 (DOMESTIC)

ALL JOISTS TO BE DOUBLED UNDER FRAME WALLS PARALLEL TO JOISTS

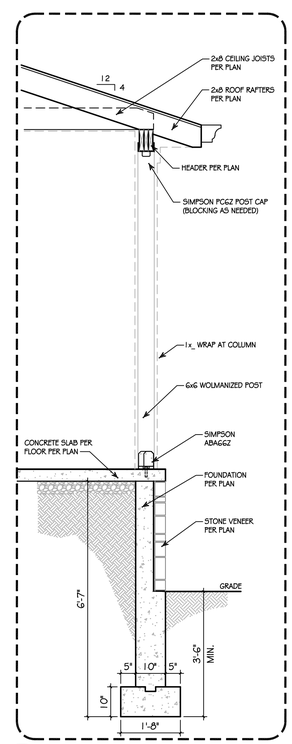
ALL JOISTS AROUND OPENINGS IN ALL FLOOR, CEILING AND ROOF FRAMING TO BE DOUBLED WITH JOIST HANGERS

ALL 3-1/2" COLUMNS SHALL BE OF STANDARD PIPE, AND GIVEN A SHOP COAT OF RUST INHIBITING PAINT

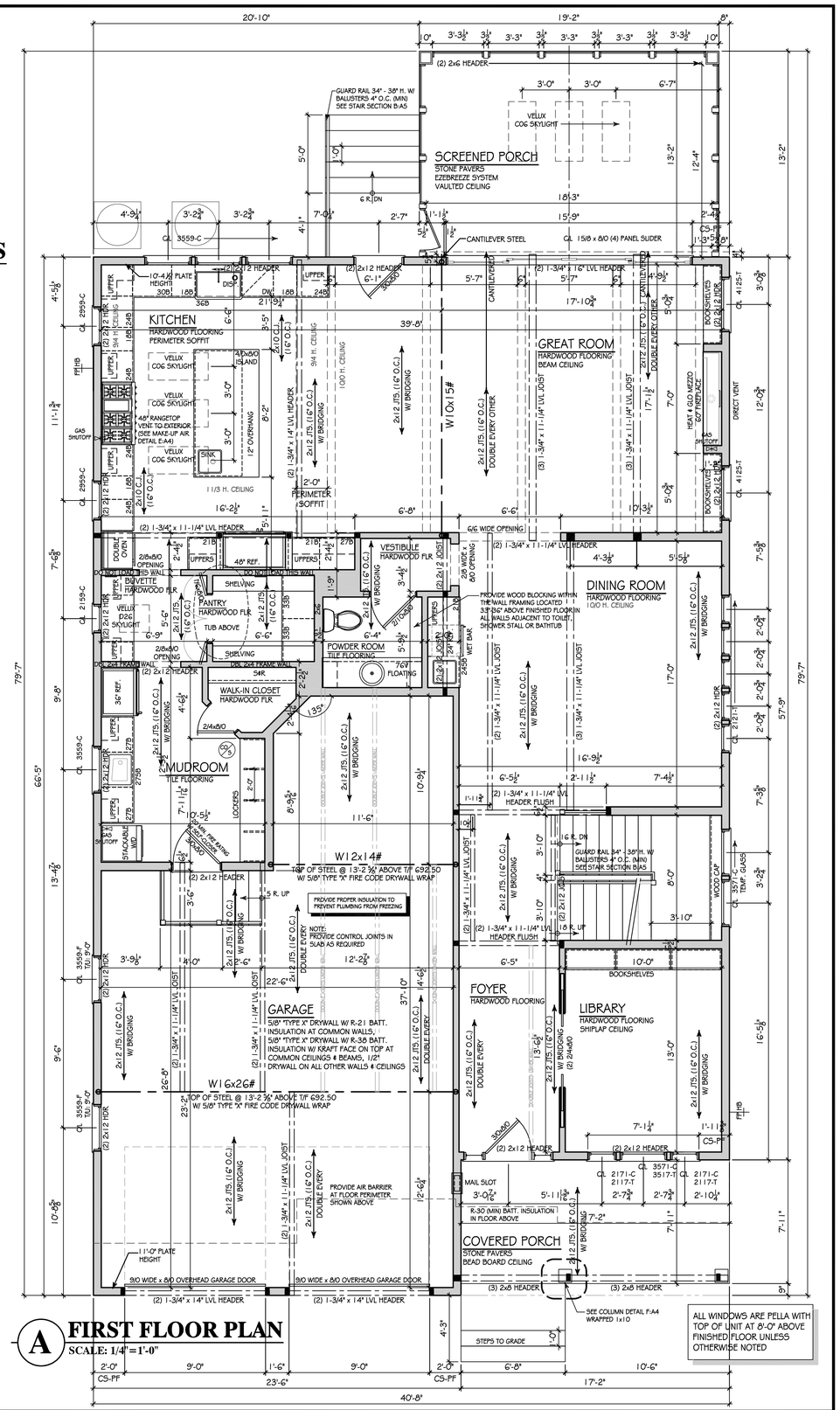
■ = BEARING POINT (BP)
MIN. (2) 2x4 STUD @ SOLID SAWN
MIN. (3) 2x4 STUD OR (2) 2x6 STUD @ LVL

⊠ = POST TO ROOF (RIDGE, HIP OR VALLEY)
MINIMUM (2) 2x4 STUDS

LOAD BEARING INTERIOR WALL



F COLUMN DETAIL
SCALE: 1/2"=1'-0"



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

BUILDER:
Lakewest
Custom Homes
630.470.9442

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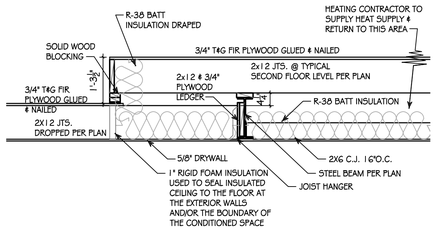
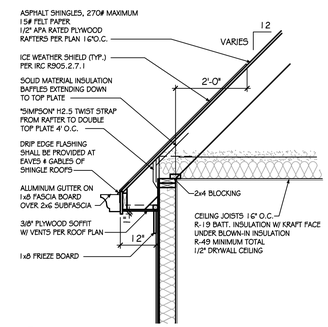
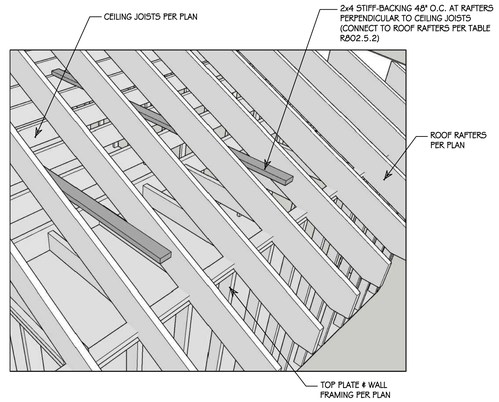
SHEET NO:
A4



F DROP CEILING DETAIL
SCALE: 1/2"=1'-0"



E EAVE DETAIL
SCALE: 1/2"=1'-0"



G STIFF-BACKING DETAIL
SCALE: NONE

DESIGN CRITERIA

DESIGN LOADS

Floor=	40 psf LL	Carpet=	10 psf DL
Sleeping=30 psf LL		Hardwood=	11.6 psf DL
3rd Floor=30 psf LL		Tile=	14 psf DL
		Marble=	16 psf DL
Stairways/ Exterior decks =			60 psf LL
Walls	=	60 plf or actual vertical load	
Ceiling	=	20 psf LL	10 psf DL
Rafters	=	30 psf snow load	10 psf DL
Cathedral	=	30 psf LL	15 psf DL

DESIGN STRESSES

S.P.F. Stud grade - fb 675		
2x4	fb=	839 psi
2x6	fb=	776 psi
White Fir/Hem Fir #2 (N) - fb 850		
2x8	fb=	1173 psi
2x10	fb=	1075 psi
2x12	fb=	977 psi
LVL - Level Trus Joist		
Microllam E=1.9x10^6 psi	fb=	2600 psi
Parallam E=2.0x10^6 psi	fb=	2900 psi
Paralam Post E=1.8x10^6 psi	fb=	2400 psi

ALL JOISTS AND RAFTERS TO BE HEM FIR #2 (DOMESTIC) AND/OR DOUGLAS FIR #2 (DOMESTIC)

ALL STRUCTURAL WOOD MUST BE GRADE STAMPED BY AN AGENCY IN COMPLIANCE WITH DOC PS 20

ALL UNSPECIFIED HEADERS AT BEARING WALLS TO BE (2) 2X12 HEM FIR #2 (DOMESTIC) AND/OR DOUGLAS FIR #2 (DOMESTIC)

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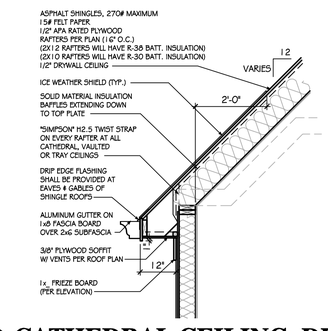
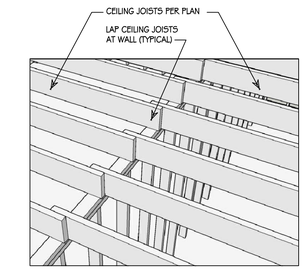
MIN. (3) 2x4 STUD OR (2) 2x6 STUD @ LVL

⊠ = POST TO ROOF (RIDGE, HIP OR VALLEY)
MINIMUM (2) 2x4 STUDS

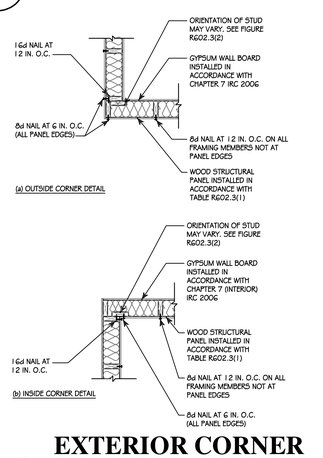
LOAD BEARING INTERIOR WALL



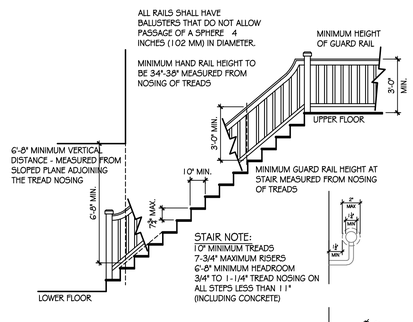
D CATHEDRAL CEILING DETAIL
SCALE: 1/2"=1'-0"



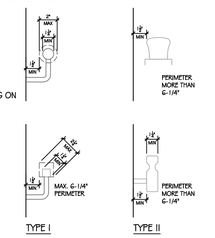
H LAPPED CEILING JOIST DETAIL
SCALE: NONE

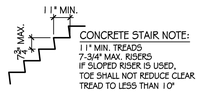


C EXTERIOR CORNER FRAMING DETAIL
SCALE: 1/2"=1'-0"
IRC FIG. R605.10.5



B STAIR DETAIL
SCALE: 1/4"=1'-0"

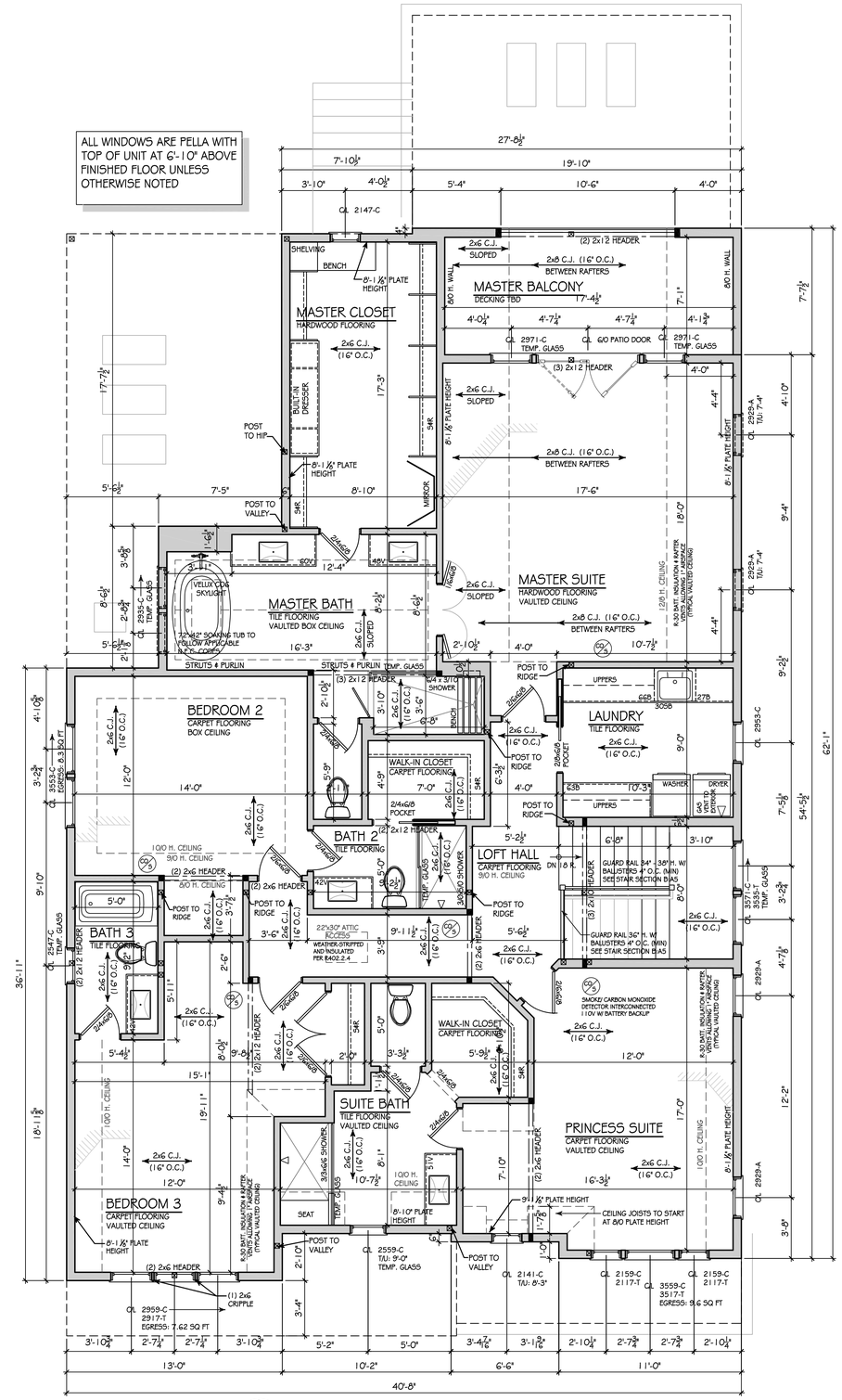




CONCRETE STAIR NOTE:
11" MIN. TREADS
7-3/4" MAX. RISERS
IF SLOPED RISER IS USED, TOE SHALL NOT REDUCE CLEAR TREAD TO LESS THAN 10"

HANDRAIL NOTES

ALL HANDRAILS TO BE 34"-38" IN HEIGHT MEASURED VERTICALLY FROM THE NOSING OF TREAD.
HANDRAIL GRIP-SIZE SHALL BE TYPE I OR TYPE II PER R311.7.8.3
ALL REQUIRED HANDRAILS SHALL BE CONTINUOUS THE FULL LENGTH OF THE STAIRS WITH TWO OR MORE RISERS FROM A POINT DIRECTLY ABOVE THE TOP RISER OF A FLIGHT TO A POINT DIRECTLY ABOVE THE LOWEST RISER OF THE FLIGHT.
ENDS SHALL BE RETURNED OR SHALL TERMINATE IN NEWEL POSTS OR SAFETY TERMINALS.



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

BUILDER:
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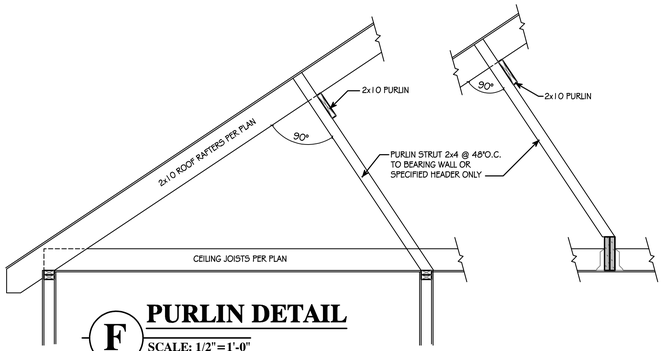
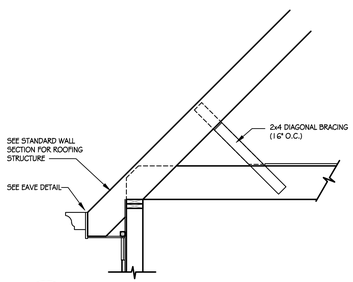
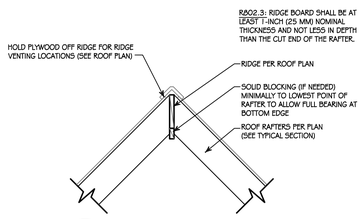
A5



F PURLIN DETAIL
SCALE: 1/2"=1'-0"



E CRIPPLE WALL DETAIL
SCALE: 1/2"=1'-0"



D RIDGE DETAIL
SCALE: 1/2"=1'-0"

DESIGN CRITERIA

DESIGN LOADS

Floor=	40 psf LL	Carpet=	10 psf DL
Sleeping=30 psf LL		Hardwood=	11.6 psf DL
3rd Floor=30 psf LL		Tile=	14 psf DL
		Marble=	16 psf DL
Stairways/ Exterior decks =			60 psf LL
Walls =	60 plf or actual vertical load		
Ceiling =	20 psf LL		10 psf DL
Rafters =	30 psf snow load		10 psf DL
Cathedral =	30 psf LL		15 psf DL

DESIGN STRESSES

S.P.F. Stud grade - fb 675

2x4	fb=	839 psi
2x6	fb=	776 psi
White Fir/Hem Fir #2 (N) - fb 850		
2x8	fb=	1173 psi
2x10	fb=	1075 psi
2x12	fb=	977 psi

LVL - Level Trus Joist

Microllam E=1.9x10" psi	fb=	2600 psi
Parallam E=2.0x10" psi	fb=	2900 psi
Parallam Post E=1.8x10" psi	fb=	2400 psi

ALL JOISTS AND RAFTERS TO BE HEM FIR #2 (DOMESTIC) AND/OR DOUGLAS FIR #2 (DOMESTIC)

ALL STRUCTURAL WOOD MUST BE GRADE STAMPED BY AN AGENCY IN COMPLIANCE WITH DOC PS 20

ALL UNSPECIFIED HEADERS AT BEARING WALLS TO BE (2) 2X12 HEM FIR #2 (DOMESTIC) AND/OR DOUGLAS FIR #2 (DOMESTIC)

ALL JOISTS TO BE DOUBLED UNDER FRAME WALLS PARALLEL TO JOISTS

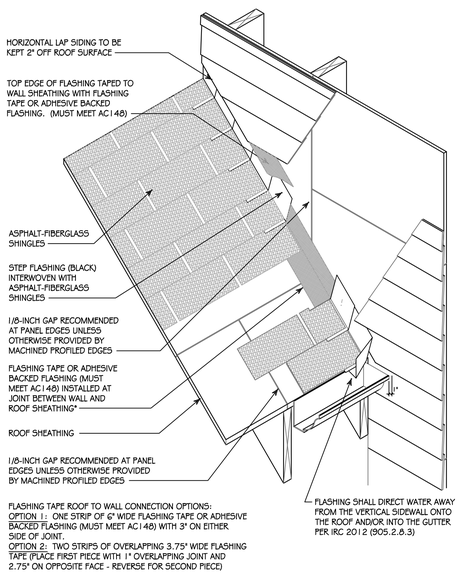
ALL JOISTS AROUND OPENINGS IN ALL FLOOR, CEILING AND ROOF FRAMING TO BE DOUBLED WITH JOIST HANGERS

ALL 3-1/2" COLUMNS SHALL BE OF STANDARD PIPE, AND GIVEN A SHOP COAT OF RUST INHIBITING PAINT

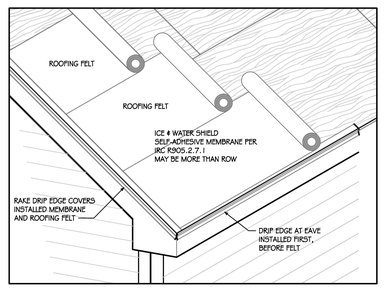
■ = BEARING POINT (BP)
MIN. (2) 2x4 STUD @ SOLID SAWN
MIN. (3) 2x4 STUD OR (2) 2x6 STUD @ LVL

⊠ = POST TO ROOF (RIDGE, HIP OR VALLEY)
MINIMUM (2) 2x4 STUDS

LOAD BEARING INTERIOR WALL



C STEP FLASHING DETAIL
SCALE: NTS



B DRIP EDGE DETAIL
SCALE: NTS

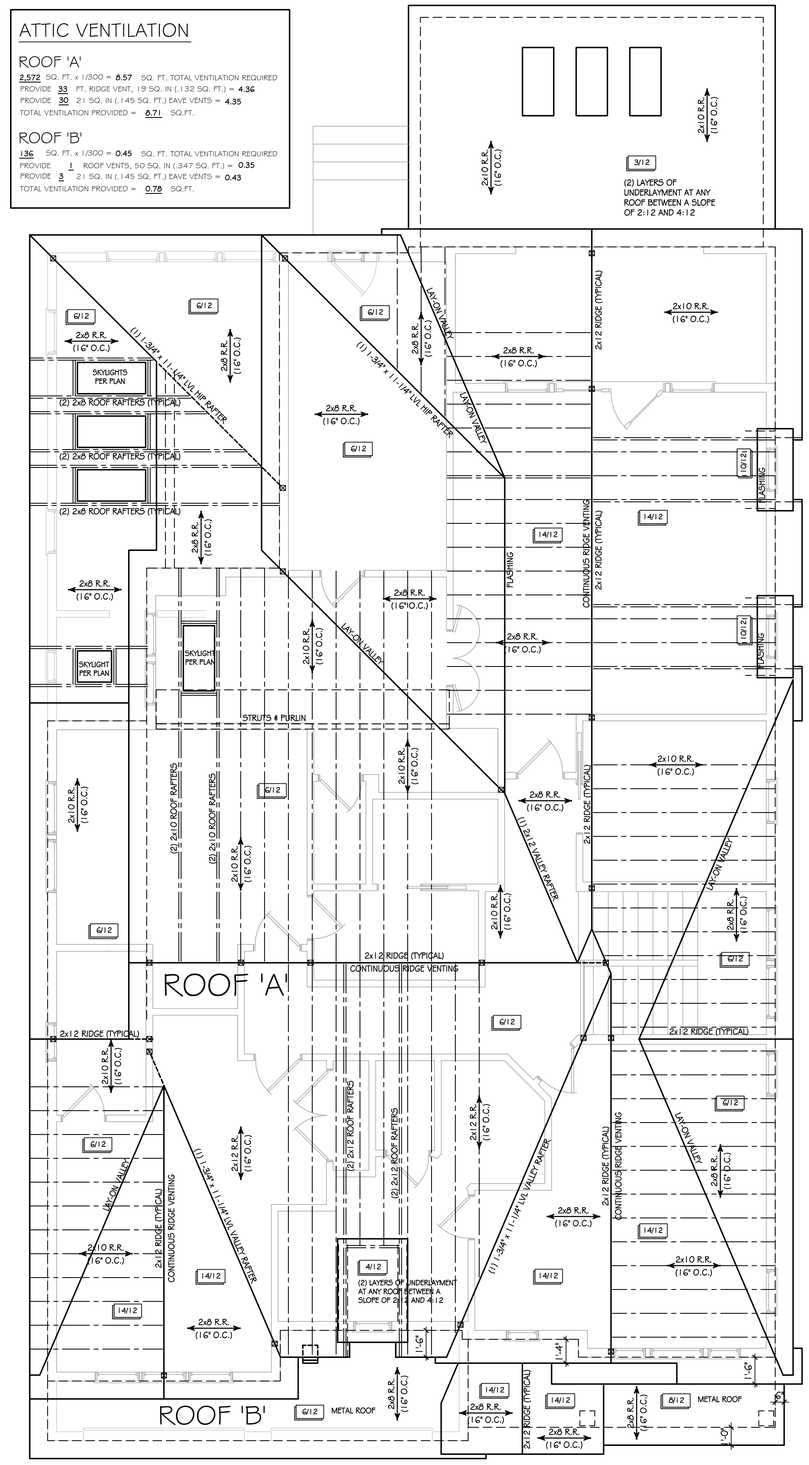
ATTIC VENTILATION

ROOF 'A'

2,572 SQ. FT. x 1/300 = 8.57 SQ. FT. TOTAL VENTILATION REQUIRED
PROVIDE 33 FT. RIDGE VENT, 1.9 SQ. IN (.132 SQ. FT.) = 4.36
PROVIDE 30 21 SQ. IN (.145 SQ. FT.) EAVE VENTS = 4.35
TOTAL VENTILATION PROVIDED = 8.71 SQ.FT.

ROOF 'B'

136 SQ. FT. x 1/300 = 0.45 SQ. FT. TOTAL VENTILATION REQUIRED
PROVIDE 1 ROOF VENTS, 50 SQ. IN (.347 SQ. FT.) = 0.35
PROVIDE 3 21 SQ. IN (.145 SQ. FT.) EAVE VENTS = 0.43
TOTAL VENTILATION PROVIDED = 0.78 SQ.FT.



A ROOF PLAN
SCALE: 1/4"=1'-0"

BUILDER: Lakewest Custom Homes 630.470.9442

MEYER DESIGN 630.889.0594 INFO@MEYERDESIGN.NET

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730 Highland Ave
Naperville, IL

PROJECT NO:
MD19-132

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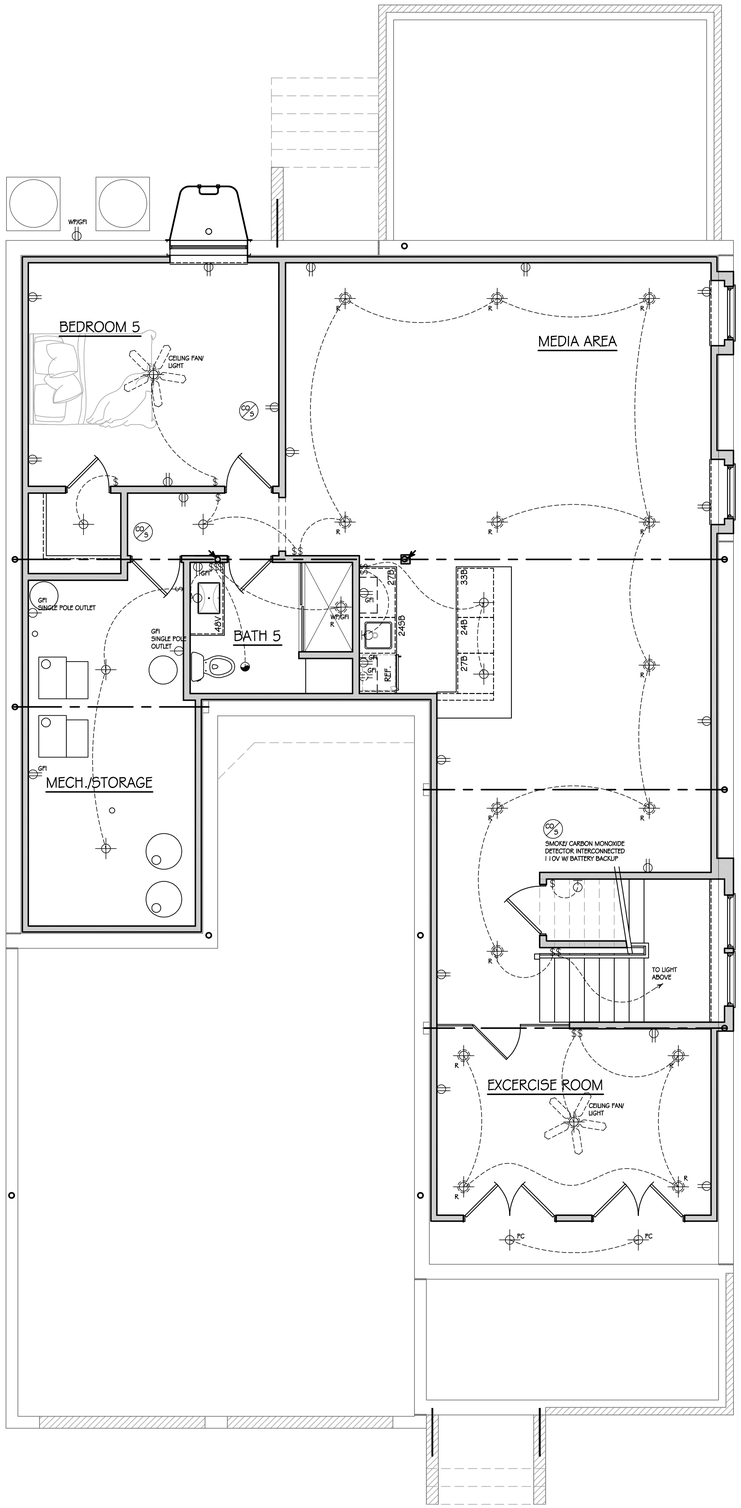
SHEET NO:
A6

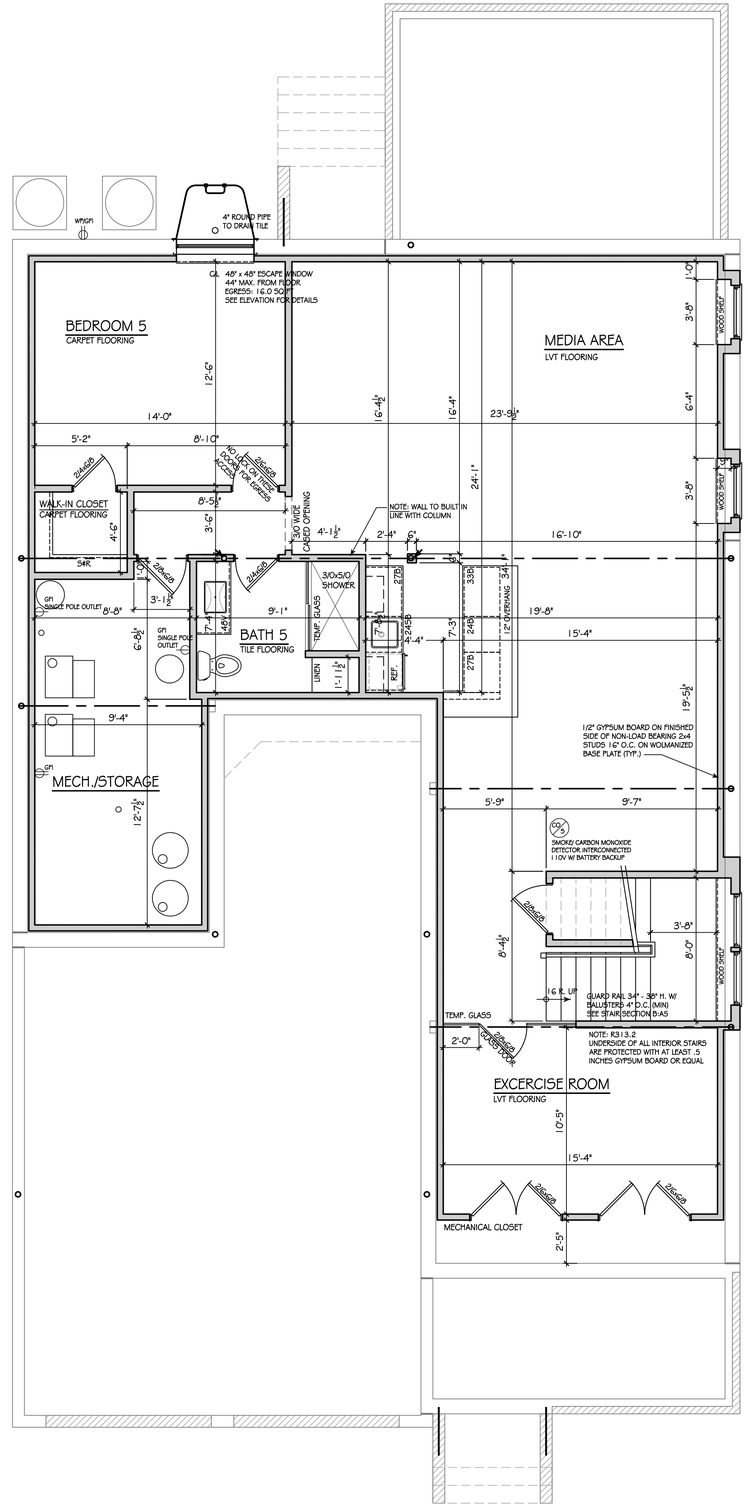


B FINISHED BASEMENT ELECTRICAL PLAN

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

ELECTRICAL LEGEND

- CEILING FAN
- EXHAUST FAN
- EXHAUST FAN WITH LIGHT
- LIGHT - RECESSED CEILING
- LIGHT - RECESSED CEILING WATERPROOF GFI PROTECTED
- LIGHT - CEILING
- LIGHT - CEILING WITH PULL CORD
- LIGHT - WALL SCONCE
- SMOKE/ CARBON MONOXIDE DETECTOR INTERCONNECTED 110V W/ BATTERY BACKUP
- SWITCH - SINGLE
- SWITCH - GFI PROTECTED
- OUTLET - SINGLE POLE
- OUTLET - DUPLEX
- OUTLET - GFI PROTECTED
- OUTLET - WATERPROOF GFI PROTECTED
- OUTLET - PLACED 44" A.F.F.
- OUTLET - DUPLEX IN FLOOR
- OUTLET - 220 VOLT
- ELEC PANEL-LOC. BY CONTRACTOR



A FINISHED BASEMENT FLOOR PLAN

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

BUILDER:

Lakewest Custom Homes 630.470.9442

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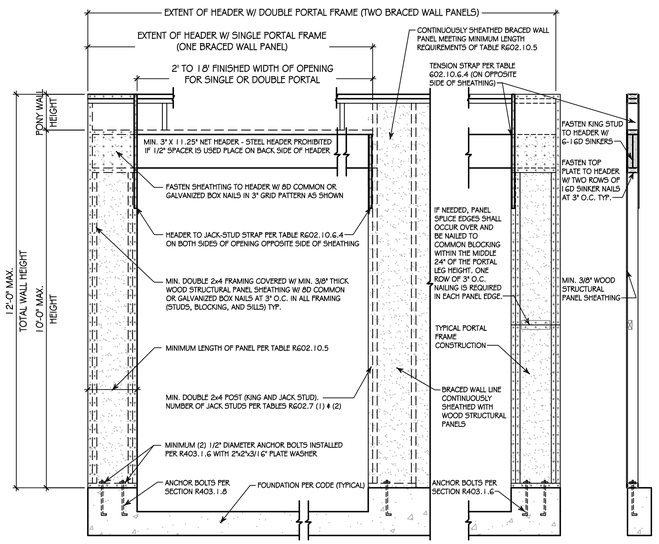
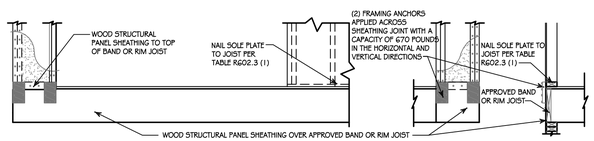
SHEET NO:

A7

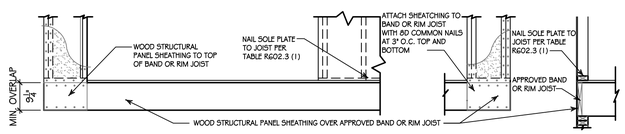
FIGURE R602.10.6.4
METHOD CS-PF CONTINUOUSLY SHEATHED PORTAL FRAME PANEL CONSTRUCTION



OVER CONCRETE OR MASONRY BLOCK FOUNDATION



OVER RAISED WOOD FLOOR - FRAMING ANCHOR OPTION
(WHERE PORTAL SHEATHING DOES NOT LAP OVER BAND OR RIM JOIST)



OVER RAISED WOOD FLOOR - OVERLAP OPTION
(WHERE PORTAL SHEATHING LAPS OVER BAND OR RIM JOIST)

FRONT ELEVATION FRONT ELEVATION SECTION

A PORTAL FRAME DETAIL AT GARAGE CS-PF

IRC 2018: FIGURE R602.10.6.3
SCALE: NONE

PASSIVE SUB-SLAB DEPRESSURIZATION (SSD) SYSTEM

'A' SUBFLOOR PREPARATION: A LAYER OF GAS PERMABLE MATERIAL SHALL BE PLACED UNDER ALL CONCRETE SLABS AND OTHER FLOOR SYSTEMS THAT DIRECTLY CONTACT THE GROUND. CLEAN AGGREGATE 4" THICK STONE/SAND MINIMUM 6 MIL POLYETHYLENE, 12" OVERLAP FIT TIGHT TO PENETRATIONS. CUTS, RIPS AND TEARS SHALL BE OVERLAPPED AND TAPED.

'B' ENTRY ROUTES: FLOOR OPENINGS AROUND ALL PENETRATIONS IN THE SLAB SHALL BE SEALED; PIPES, COLUMNS, PERIMETER JOINTS, CONTROL AND ISOLATION JOINTS SHALL BE CAULKED/SEALED (POLYURETHANE CAULK) FOR FINAL INSPECTION

'C' ALL EXPOSED AND VISIBLE INTERIOR RADON VENT PIPES SHALL BE CONSPICUOUSLY IDENTIFIED WITH AT LEAST ONE LABEL ON EACH FLOOR OR ACCESSIBLE ATTICS. THE LABEL SHALL READ "RADON REDUCTION SYSTEM"

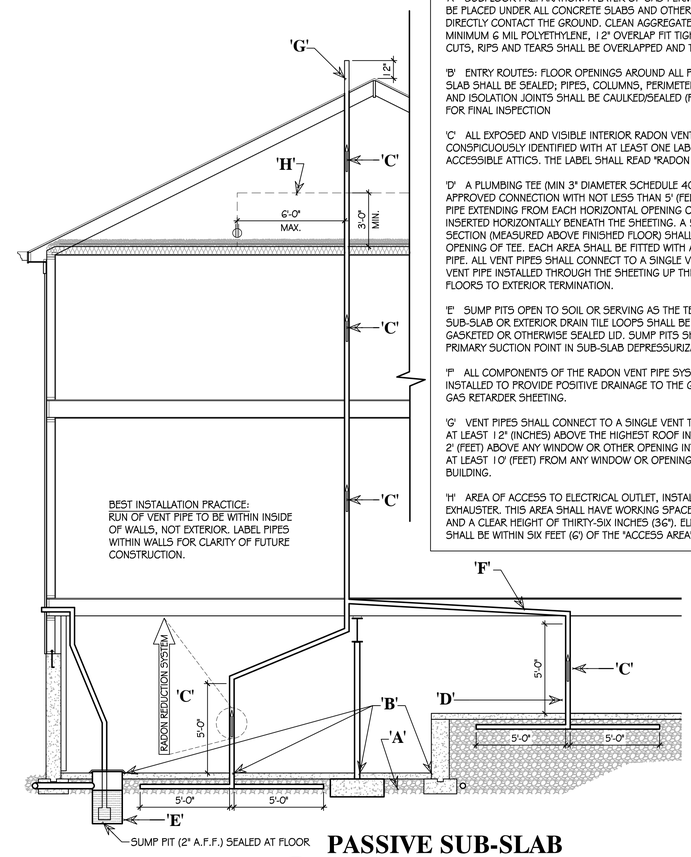
'D' A PLUMBING TEE (MIN 3" DIAMETER SCHEDULE 40 PVC) OR OTHER APPROVED CONNECTION WITH NOT LESS THAN 5' (FEET) OF PERFORATED PIPE EXTENDING FROM EACH HORIZONTAL OPENING OF THE TEE SHALL BE INSERTED HORIZONTALLY BENEATH THE SHEETING. A 5' (FEET) VERTICAL SECTION (MEASURED ABOVE FINISHED FLOOR) SHALL BE INSTALLED IN TOP OPENING OF TEE. EACH AREA SHALL BE FITTED WITH AN INDIVIDUAL VENT PIPE. ALL VENT PIPES SHALL CONNECT TO A SINGLE VENT WITH A VERTICAL VENT PIPE INSTALLED THROUGH THE SHEETING UP THROUGH THE BUILDING FLOORS TO EXTERIOR TERMINATION.

'E' SUMP PITS OPEN TO SOIL OR SERVING AS THE TERMINATION POINT FOR SUB-SLAB OR EXTERIOR DRAIN TILE LOOPS SHALL BE COVERED WITH A GASKETED OR OTHERWISE SEALED LID. SUMP PITS SHALL NOT BE USED AS PRIMARY SUCTION POINT IN SUB-SLAB DEPRESSURIZATION SYSTEM.

'F' ALL COMPONENTS OF THE RADON VENT PIPE SYSTEM SHALL BE INSTALLED TO PROVIDE POSITIVE DRAINAGE TO THE GROUND BENEATH THE GAS RETARDER SHEETING.

'G' VENT PIPES SHALL CONNECT TO A SINGLE VENT THAT SHALL TERMINATE AT LEAST 12" (INCHES) ABOVE THE HIGHEST ROOF IN A LOCATION AT LEAST 2' (FEET) ABOVE ANY WINDOW OR OTHER OPENING INTO THE BUILDING AND AT LEAST 10' (FEET) FROM ANY WINDOW OR OPENING IN AN ADJACENT BUILDING.

'H' AREA OF ACCESS TO ELECTRICAL OUTLET, INSTALLATION OF POWER EXHAUSTER. THIS AREA SHALL HAVE WORKING SPACE FOR ATTIC APPLIANCE AND A CLEAR HEIGHT OF THIRTY-SIX INCHES (36"). ELECTRICAL "OUTLET" SHALL BE WITHIN SIX FEET (6') OF THE "ACCESS AREA" AND VENT PIPE.

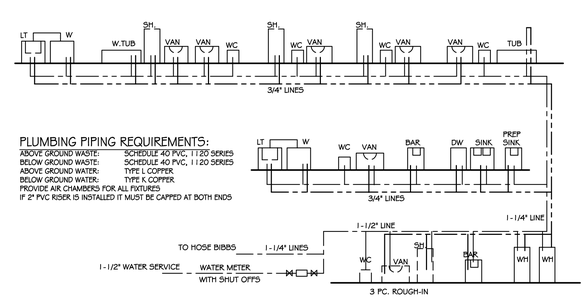


B PASSIVE SUB-SLAB DEPRESSURIZATION SYSTEM

SCALE: NTS

FIXTURE UNIT COUNT

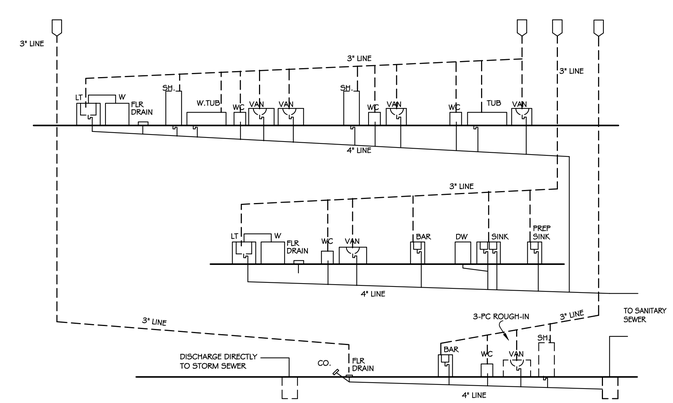
QUANTITY	FIXTURE	UNITS	TOTAL
3	BAR SINK	1	3
2	BATHTUB (WITH OR WITHOUT SHOWER)	2	4
0	BIDET	1	0
2	CLOTHES WASHER	2	4
1	DISHWASHER	1	1
3	FLOOR DRAIN	0+DISCHARGE	0
1	KITCHEN SINK	2	2
7	LAVATORY	1	7
2	LAUNDRY TUB	3	6
4	SHOWER VALVE	2	8
6	WATER CLOSET (1.6 GALLONS)	3	18
0	WATER CLOSET (> 1.6 GALLONS)	4	0
2	HOSE BIB	5	10
TOTAL FIXTURE UNITS			63



C WATER SUPPLY DIAGRAM

SCALE: NTS

HOT
COLD



D WASTE/VENT DIAGRAM

SCALE: NTS

WASTE
VENT

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SHEET NO: A8

ELECTRICAL LEGEND

- LIGHT - WALL SCONCE
- LIGHT - CEILING WITH PULL CORD
- LIGHT - CEILING
- LIGHT - RECESSED CEILING WATERPROOF GFI PROTECTED
- LIGHT - RECESSED CEILING
- EXHAUST FAN WITH LIGHT
- EXHAUST FAN
- CEILING FAN
- SMOKE DETECTOR INTERCONNECTED 110V W/ BATTERY BACKUP
- SMOKE/ CARBON MONOXIDE DETECTOR INTERCONNECTED 110V W/ BATTERY BACKUP
- SWITCH - SINGLE
- SWITCH - GFI PROTECTED
- OUTLET - SINGLE POLE
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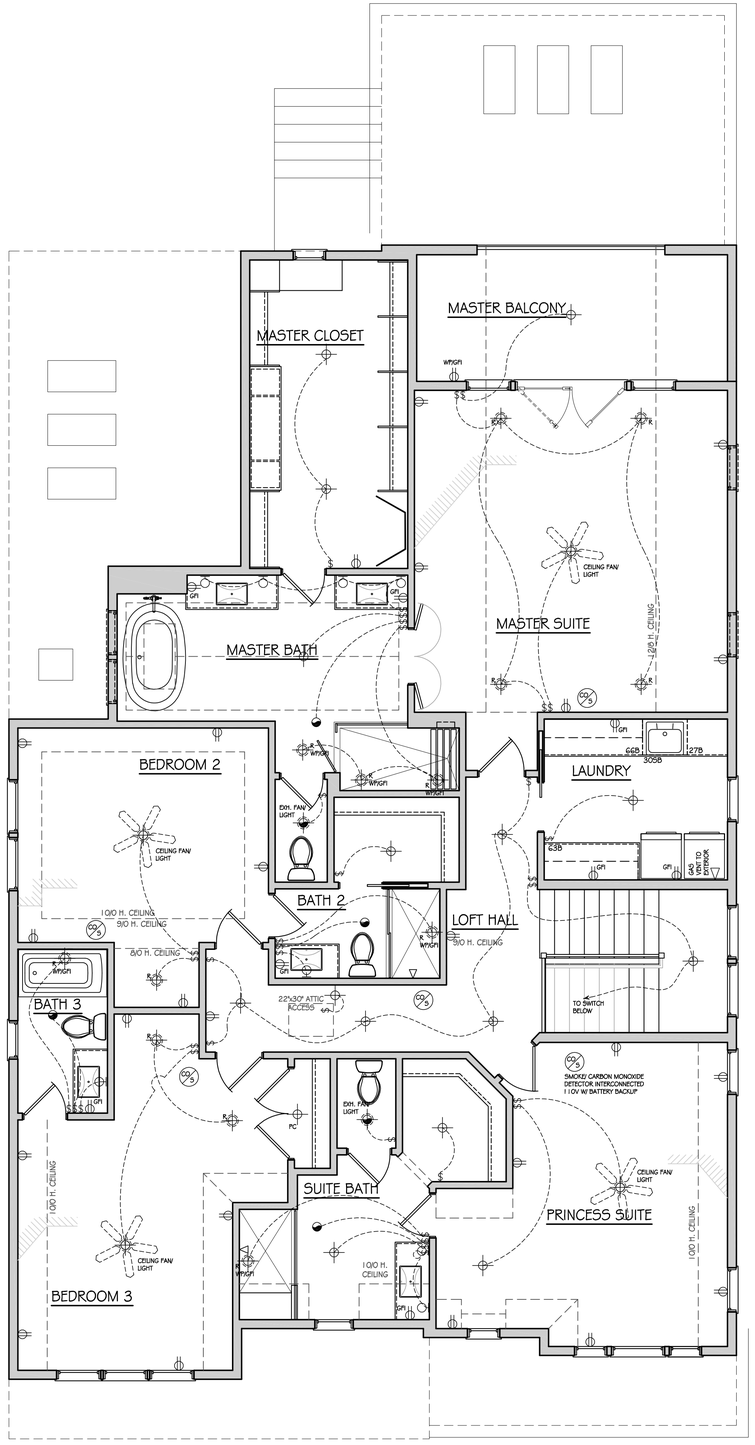
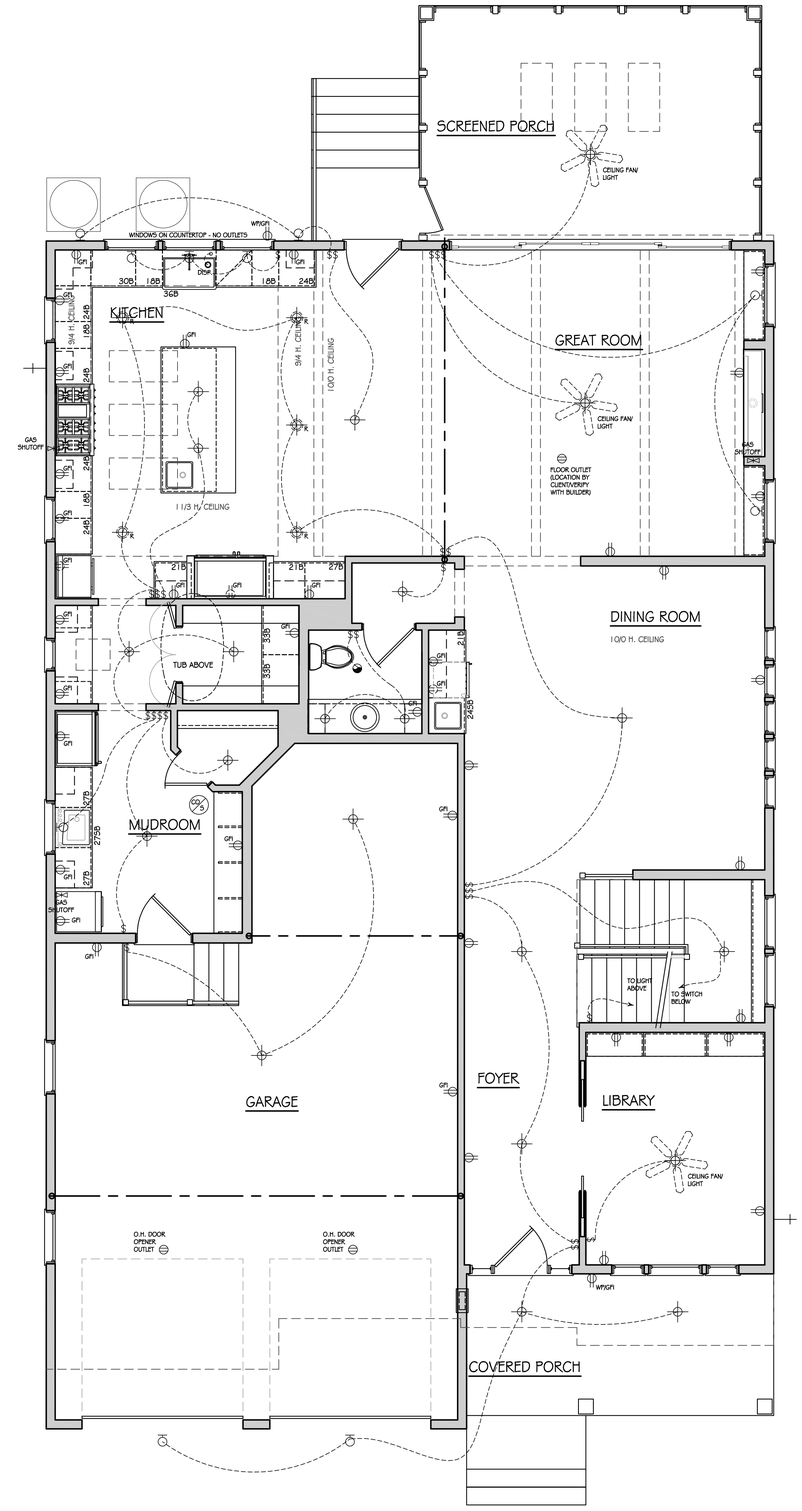


B SECOND FLOOR ELECTRICAL PLAN

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



A FIRST FLOOR ELECTRICAL PLAN

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

BUILDER: Lakewest Custom Homes 630.470.9442

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SHEET NO: E1