15. MECHANICAL - CONTINUED

THE THERMOSTAT CONTROLLING THE PRIMARY HEATING OR COOLING SYSTEM OF THE DWELLING UNIT SHALL BE CAPABLE OF CONTROLLING THE HEATING AND COOLING SYSTEM ON A DAILY SCHEDULE TO MAINTAIN DIFFERENT TEMPERATURE SET POINTS AT DIFFERENT TIMES OF THE DAY. THIS THERMOSTAT SHALL INCLUDE THE CAPABILITY TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55°F (13°C) OR UP TO 85° F (29°C). THE THERMOSTAT SHALL INITIALLY BE PROGRAMMED BY THE MANUFACTURER WITH A HEATING TEMPERATURE SET POINT NO HIGHER THAN 70°F (21°C) AND A COOLING TEMPERATURE SET POINT NO LOWER THAN 78°F (26°C). (N1103.1.1 (R403.1.1))

HOT WATER BOILERS THAT SUPPLY HEAT TO THE BUILDING THROUGH ONE- OR TWO-PIPE HEATING SYSTEMS SHALL HAVE AN OUTDOOR SETBACK CONTROL THAT LOWERS THE BOILER WATER TEMPERATURE BASED ON THE OUTDOOR TEMPERATURE. (N1103.2 (R403.2))

THIS HOUSE AS PROPOSED WILL UTILIZE A RADIANT FLOOR HYDRONIC SYSTEM WITH A BOILER AND SIDE ARM WATER STORAGE TANK.

HYDRONIC TUBING WILL BE ATTACHED TO REINFORCEMENT AT ALL SLAB ON GRADE LOCATIONS, ATTACHED TO THE UNDERSIDE OF WOOD FLOOR SHEATHING BETWEEN JOIST OR ATTACHED TO UPPER SIDE OF FLOOR SHEATHING WHEN EMBEDDED IN 1-1/2" CONCRETE TOPPING SLAB. (USE 2X2 SLEEPERS FOR ATTACHMENT OF HARD WOOD FLOORING). TUBING SHALL BE CROSS LINKED POLYETHYLENE WITH OXYGEN INHIBITOR SUCH AS PEX OR WIRSBRO.

RADIANT FLOOR HEATING SYSTEMS SHALL HAVE A THERMAL BARRIER IN ACCORDANCE WITH SECTIONS M2103.2.1-4.

SLAB ON GRADE APPLICATIONS SHALL HAVE A MINIMUM OF R-5 INSULATION BELOW THE PIPING (IRC M2103.2.1) AND ASPHALT EXPANSION JOINT MATERIAL OR SIMILAR INSULATING MATERIAL WHERE THE HEATED SLAB MEETS A FOUNDATION WALL OR OTHER CONDUCTIVE SLAB. (IRC M2103.3)

SUSPENDED FLOOR APPLICATIONS SHALL HAVE A MINIMUM OF R-11 INSULATION BELOW THE PIPING (IRC M2103.2)

BOILER WILL BE LPG FUELED AND GRAVITY VENTED THROUGH THE ROOF OR DIRECT VENTED THROUGH THE WALL IN THE LOCATION SHOWN ON THE PLANS. BOILER SHALL BE 90% AFUE MINIMUM. BOILER, SIZING AND TUBING LAYOUT DIAGRAMS ARE TO BE PROVIDED BY THE SUPPLIER AND WILL BE REVIEWED BY JAKE'S DRAFTING SERVICE, INC. AT THE OWNER'S OPTION.

PROVIDE AGA APPROVED, GRAVITY OR DIRECT VENTED, LPG GAS FUELED MODULATING BOILER AT LOCATION NOTED ON PLANS. MECHANICAL CONTRACTOR TO PROVIDE EQUIPMENT SPECIFICATIONS, MAKE-UP AND COMBUSTION AIR REQUIREMENTS. SYSTEM DESIGNED BY OTHERS.

PROVIDE AGA APPROVED, GRAVITY VENTED, ZERO CLEARANCE FIREPLACE AT LOCATION NOTED ON PLANS. APPLIANCE TO BE RATED AS A FURNACE FOR THERMOSTATIC CONTROL.

PROVIDE COLORADO PHASE III CERTIFIED WOOD STOVE OR PREFABRICATED FIREPLACE, GRAVITY VENTED THROUGH THE ROOF AT THE NORTH EAST CORNER OF THE LIVING ROOM. . APPLIANCE TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS AND LOCAL CODES.

EVERY CHIMNEY OR FLUE SHALL BE EQUIPPED WITH AN APPROVED SPARK ARRESTOR.

CHIMNEYS SHALL EXTEND AT LEAST 2' ABOVE THE ROOF AND NOT LESS THAN 2' ABOVE ANY PORTION OF THE BUILDING WITHIN 10 FEET.

FUEL FIRED WATER HEATERS SHALL NOT BE INSTALLED IN A ROOM USED AS A STORAGE CLOSET. WATER HEATERS INSTALLED IN A BEDROOM OR BATHROOM SHALL BE INSTALLED IN A SEALED ENCLOSURE SO THAT COMBUSTION AIR WILL NOT BE TAKEN FROM THE LIVING SPACE. DIRECT VENT WATER HEATERS ARE NOT REQUIRED TO BE INSTALLED WITHIN AN ENCLOSURE. (IRC M2005.2)

WHEN THE WINTER DESIGN TEMPERATURE IS BELOW 60 F EVERY DWELLING UNIT SHALL BE PROVIDED WITH HEATING FACILITIES CAPABLE OF MAINTAINING A ROOM TEMPERATURE OF 68 DEGREES F AT A POINT 3' ABOVE THE FLOOR AND 2' FROM EXTERIOR WALLS IN ALL HABITABLE ROOMS AT THE DESIGN TEMPERATURE. (R303.10)

PROVIDE ENERGY-STAR QUALIFIED KITCHEN RANGE HOOD FAN WITH <4 SONE RATING VENTED DIRECTLY TO THE EXTERIOR.

APPLIANCES HAVING AN IGNITION SOURCE SHALL BE ELEVATED SUCH THAT THE IGNITION SOURCE IS NOT LESS THAN 18" ABOVE THE FLOOR IN GARAGES. ROOMS OR SPACES THAT ARE NOT PART OF THE LIVING SPACE OF A DWELLING UNIT THAT COMMUNICATE WITH A PRIVATE GARAGE THROUGH OPENINGS SHALL BE CONSIDERED PART OF THE GARAGE. (M1307.3)

EXCEPTION: APPLIANCES LISTED AS "FLAMMABLE VAPOR-IGNITION RESISTANT"

APPLIANCES SHALL NOT BE INSTALLED IN A LOCATION SUBJECT TO VEHICLE DAMAGE EXCEPT WHEN PROTECTED BY APPROVED BARRIERS. (M1307.3.1)

OPTIONALLY, PROVIDE 40 GALLON, QUICK RECOVERY LPG GAS FUELED, WATER HEATER AT LOCATION SHOWN ON PLANS DIRECT VENTED THROUGH THE WALL. WATER HEATER SHALL BE 59% EFFICIENT MINIMUM. WATER HEATER TO BE R-15 OR BETTER OR WRAP WATER HEATER WITH R-8 MINIMUM INSULATION BLANKET.

LIQUEFIED PETROLEUM GAS BURNING APPLIANCES SHALL NOT BE INSTALLED IN A PIT, BASEMENT OR SIMILAR LOCATION WHERE HEAVIER THAN AIR GAS MIGHT COLLECT, UNLESS THE FOLLOWING CONDITIONS ARE MET:
1. THERE SHALL BE INSTALLED A LISTED GAS DETECTOR THAT IS INTERLOCKED TO A LISTED SOLENOID VALVE LOCATED SO AS TO SHUT OFF THE SUPPLY OF GAS TO THE BUILDING IN THE EVENT OF AN ALARM.
2. THERE SHALL BE INSTALLED AN APPROVED EXHAUST SYSTEM FOR THE PURPOSE OF REMOVING UNBURNED GASES. THE EXHAUST SYSTEM SHALL BE INTERLOCKED TO THE GAS DETECTOR SO AS TO OPERATE AUTOMATICALLY IN THE EVENT OF AN ALARM. THE EXHAUST SYSTEM SHALL PROVIDE A MINIMUM OF (4) AIR CHANGES PER HOUR, AND THE EXHAUST INTAKE SHALL BE LOCATED WITHIN 6 INCHES OF THE FLOOR. (R303.7 AMENDED)

EXCEPTIONS:
BASEMENTS SHALL NOT REQUIRE THE INSTALLATION OF AN EXHAUST/ALARM SYSTEM ON LIQUID PROPANE GAS APPLIANCES IF THE FOLLOWING EXCEPTIONS ARE MET.
1. THE BASEMENT MUST BE A WALK-OUT BASEMENT HAVING A MINIMUM OF ONE EXTERIOR DOOR WITH A MAXIMUM THRESHOLD HEIGHT OF 3/4" BETWEEN THE TOP OF THE FINISHED FLOOR OF THE BASEMENT AND THE TOP OF THE GRADE ON THE EXTERIOR SIDE OF THE BUILDING.
2. THE GRADE SHALL REMAIN LEVEL OR MAY SLOPE DOWNWARD FROM THE BUILDING FOR A DISTANCE OF NOT LESS THAN 10 FEET OUT FROM THE EXTERIOR DOOR/WALL AND BE A MINIMUM WIDTH OF 10 FEET WIDE THE ENTIRE DISTANCE OUT FROM THE BUILDING.

WHERE THE AIR INFILTRATION RATE OF A DWELLING UNIT IS 5 AIR CHANGES PER HOUR OR LESS WHERE TESTED WITH A BLOWER DOOR AT A PRESSURE OF 0.2 INCH W.C (50 PA) IN ACCORDANCE WITH SECTION N1102.4.1.2, THE DWELLING UNIT SHALL BE PROVIDED WITH WHOLE-HOUSE MECHANICAL VENTILATION IN ACCORDANCE WITH SECTION M1507.3. (R303.4)

THIS HOUSE IS REQUIRED TO HAVE A WHOLE HOUSE VENTILATION SYSTEM PER M1507.3. THE SYSTEM SHALL CONSIST OF ONE OR MORE SUPPLY OR EXHAUST FANS OR A COMBINATION OF SUCH & ASSOCIATED DUCTS & CONTROLS. LOCAL EXHAUST OR SUPPLY FANS ARE PERMITTED TO SERVE SUCH A SYSTEM OUT DOOR AIR DUCTS CONNECTED TO THE RETURN SIDE OF AN AIR HANDLER SHALL BE CONSIDERED AS PROVIDING SUPPLY VENTILATION. SYSTEM SHALL BE PROVIDED WITH CONTROLS THAT ENABLE MANUAL OVERRIDE. SYSTEM SHALL PROVIDE OUTDOOR AIR AT A CONTINUOUS RATE PER TABLE M1507.3.3(1) AND INTERMITTENTLY WITH SIZED PER TABLE M1503.3(2). DO NOT SUPPLY ONLY SYSTEM AS THEY PRESSURIZE THE HOUSE, POTENTIALLY DRIVING MOISTURE INTO WALLS. EXHAUST ONLY SYSTEMS DEPRESSURIZE THE HOUSE DRAWING POLLUTANTS ALONG W/ FRESH AIR INTO THE HOUSE. POLLUTANTS MY BE RADON & MOLD FROM CRAWLSPACES OR BASEMENTS, DUST FROM ATTIC FUMES FROM AN ATTACHED GARAGE OR FLUE GASSES FROM FIREPLACE OR GRAVITY VENTED WATER HEATER OR FURNACES.

OPTIONALLY, PROVIDE HEAT RECOVERY VENTILATOR OR ENERGY RECOVERY VENTILATOR AT LOCATION SHOWN ON PLANS. DUCT ALL BATH AND LAUNDRY ROOM FANS THROUGH THE HRV. DO NOT CONNECT RANGE HOOD OR DOWNDRAFT RANGE THROUGH HRV. HRV TO BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS AND LOCAL CODES (M1507.3)

DECORATIVE SHROUDS SHALL NOT BE INSTALLED AT THE TERMINATION OF VENTS EXCEPT WHERE SUCH SHROUDS ARE LISTED AND LABELED FOR USE WITH THE SPECIFIC VENTING SYSTEM AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. (IRC M1804.2.2) OR AS APPROVED BY THE RCRBD.

PROVIDE "DRYER BOX 480" OR EQUAL RECESSED DRYER TRANSITION BOX HOSE CONNECTOR ALIGNED WITH DRYER VENT LOCATION.

THE MAXIMUM LENGTH OF DRYER EXHAUST DUCT SHALL BE 35' LESS 5' FOR EACH 90° ELBOW & 2'-6" FOR EACH 45° ELBOW.

16. ELECTRICAL

CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT TO INSTALL ALL WIRING AND RELATED FIXTURES. ALL WORK SHALL COMPLY WITH IRC PART VIII - ELECTRICAL, CHAPTERS 33 THRU 41 OF THE 2018 IRC, THE 2017 NEC, STATE AND LOCAL CODES AND ORDINANCES.

THE ELECTRICAL SUBCONTRACTORS SHALL BE RESPONSIBLE FOR THE FINAL DESIGN OF THE SYSTEMS AS WELL AS THE EXECUTION OF THE WORK ACCORDING TO ACCEPTED STANDARDS OF ENGINEERING, WORKMANSHIP AND REGULATORY REQUIREMENTS. ELECTRICAL CONTRACTORS TO PROVIDE ADDITIONAL DRAWINGS, SPECIFICATIONS AND ENGINEERS CERTIFICATION AS REQUIRED BY FEDERAL, STATE, OR LOCAL LAWS AND BUILDING DEPARTMENT JURISDICTION.

PROVIDE 200 AMP PEDESTAL PER DS-4.1.2.MP AT LOCATION NOTED ON THE SITE PLAN OR PER YVEA "REDLINED" LOCATION. PROVIDE 3"SCHEDULE 80 PVC ABOVE GRADE AND SCH 40 PVC BELOW GRADE. CONDUIT TO BE BEDDED WITH 2" MINIMUM CLEAN DIRT OR SAND AND COVERED WITH 4" OF THE SAME MATERIAL. MINIMUM BURY IS 3' PROVIDE ELECTRICAL WARNING TAPE 12" ABOVE THE CONDUIT.

PROVIDE CONCRETE ENCASED ELECTRODE (UFER GROUND) PER IRC SECTION E3608.1.2.

PROVIDE 42 CIRCUIT SERVICE PANEL (OVERCURRENT DEVICE) WITH DISCONNECT, AT THE LOCATION NOTED ON PLANS. PROVIDE 50 AMP, 12 CIRCUIT SUB-PANEL WITH DISCONNECT, SERVICED FROM THE EXISTING HOUSE AT THE LOCATION NOTED ON THE PLANS. SERVICE PANELS SHALL NOT BE LOCATED IN THE VICINITY OF EASILY IGNITABLE MATERIALS, SUCH AS CLOTHES CLOSETS OR IN BATHROOMS. (E3705.7) SERVICE CONDUCTORS AND EQUIPMENT TO BE SIZED PER IRC CHAPTER 36.

A MINIMUM OF (2) 20 AMP BRANCH CIRCUITS SHALL BE PROVIDED TO SERVE RECEPTACLES LOCATED IN THE KITCHEN, PANTRY, BREAKFAST AREA AND DINING AREAS. THE KITCHEN COUNTER TOP RECEPTACLES SHALL BE SERVED BY NOT LESS THAN (2) 20 AMP SMALL APPLIANCE BRANCH CIRCUITS. (E3703.2)

A MINIMUM OF (1) 20 AMP BRANCH CIRCUIT SHALL BE PROVIDED TO SERVE RECEPTACLES LOCATED IN THE LAUNDRY AREA AND SHALL SERVE ONLY RECEPTACLE OUTLETS LOCATED IN THE LAUNDRY AREA. (E3703.3)

A MINIMUM OF (1) 20 AMP BRANCH CIRCUIT SHALL BE PROVIDED TO SERVE RECEPTACLES LOCATED IN THE BATHROOM AND SHALL SERVE ONLY RECEPTACLE OUTLETS LOCATED IN THE BATHROOM. (E3703.4)

A MINIMUM OF (1) 20 AMP BRANCH CIRCUIT SHALL BE PROVIDED TO SERVE RECEPTACLES LOCATED IN THE GARAGE AND SHALL SERVE ONLY RECEPTACLE OUTLETS LOCATED IN THE GARAGE. (E3901.9)

RECEPTACLES ABOVE COUNTERS IN KITCHEN AND OTHER SIMILAR AREAS SHALL BE SPACED NOT MORE THAN 4 FEET OC AND WITHIN 2 FEET OF EACH END, INCLUDING ISLANDS AND PENINSULAR. PROVIDE A MINIMUM OF (1) RECEPTACLE PER COUNTER SPACE OF 12 INCHES OR GREATER. (E3901.4)

PROVIDE AT LEAST (1) RECEPTACLE OUTLET IN WEATHER PROOF HOUSING, ACCESSIBLE AT GRADE LEVEL AND NOT MORE THAN 6'-6" ABOVE GRADE AT THE FRONT AND AT THE BACK OF EACH DWELLING. (E3901.7)

ALL 125 VOLT, SINGLE PHASE RECEPTACLES INSTALLED IN BATHROOMS, GARAGES, OUTDOORS, CRAWL SPACES, UNFINISHED BASEMENTS, KITCHEN COUNTERTOP SURFACES, DISHWASHER AND WITHIN 6' OF LAUNDRY, UTILITY OR BAR SINKS, (EXCEPT DEDICATED USES) SHALL BE GROUND-FAULT CIRCUIT-INTERRUPTER PROTECTED FOR PERSONNEL. (E3902.1-9) RECEPTACLES IN GARAGES TO BE MOUNTED 42" MINIMUM ABOVE FINISHED FLOOR.

ALL BRANCH CIRCUITS INSTALLED IN KITCHEN, FAMILY, DINING, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, LAUNDRY AND SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A COMBINATION TYPE ARC-FAULT CIRCUIT INTERRUPTER. (E3902.16) BATHS AND GARAGES ARE EXEMPT FROM THIS REQUIREMENT.

LUMINAIRE INSTALLED IN CLOTHES CLOSETS SHALL BE LIMITED TO SURFACE MOUNTED OR RECESSED INCANDESCENT OR LED LUMINAIRES WITH COMPLETELY ENCLOSED LIGHT SOURCES, SURFACE MOUNTED OR RECESSED FLUORESCENT LUMINAIRES AND SURFACE MOUNTED FLUORESCENT OR LED LUMINAIRES IDENTIFIED A SUITABLE FOR INSTALLATION WITHIN THE STORAGE AREA. SURFACE MOUNTED INCANDESCENT OR LED LUMINAIRES SHALL BE MOUNTED ON THE WALL ABOVE THE DOOR OR ON THE CEILING PROVIDED THERE IS A MINIMUM CLEARANCE OF 12 INCHES BETWEEN THE FIXTURE AN THE NEAREST POINT OF A STORAGE SPACE. RECESSED INCANDESCENT, LED OR FLUORESCENT LUMINAIRES SHALL BE INSTALLED IN THE WALL OR ON THE CEILING PROVIDED THERE IS A MINIMUM OF 6 INCHES BETWEEN THE FIXTURE AND THE NEAREST POINT OF A STORAGE AREA. INCANDESCENT FIXTURES WITH OPEN OR PARTIALLY ENCLOSED LAMPS, PENDANT FIXTURES AND LAMP HOLDERS ARE NOT PERMITTED. (E4003.12)

PROVIDE DEDICATED 15 AMP CIRCUIT FOR REFRIGERATORS AND FREEZERS.

SWIMMING POOLS AND SPAS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND IRC CHAPTER 42. A DISCONNECT SHALL BE LOCATED WITHIN SIGHT OF THE EQUIPMENT, BETWEEN 5' MIN & 20' MAX FROM THE WATERS EDGE (E4203.3)

INTERIOR STAIRWAYS SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE TO ILLUMINATE THE LANDINGS & TREAD TO 1 FOOT CANDLE POWER. THERE SHALL BE A WALL SWITCH AT EACH FLOOR LEVEL WHEN THE STAIRWAY HAS 6 OR MORE RISERS. (R303.7)

EXTERIOR STAIRWAYS SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE LOCATED AT THE TOP LANDING OF THE STAIRWAY (R303.8)(E3903.3.1)

SMOKE ALARMS SHALL COMPLY WITH NFPA 72 AND SECTION R314. (R314.1)

SMOKE ALARMS SHALL BE LISTED IN ACCORDANCE WITH UL 217. COMBINATION SMOKE AND CARBON MONOXIDE ALARMS SHALL BE LISTED IN ACCORDANCE WITH UL 217 AND UL 2034. (R314.1.1)

SMOKE ALARMS SHALL BE PROVIDED IN ACCORDANCE WITH THIS SECTION. (R314.2)

SMOKE ALARMS SHALL BE PROVIDED IN DWELLING UNITS. (R314.2.1)

SMOKE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS: (R314.3)

1. IN EACH SLEEPING ROOM.
2. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS.
3. ON EACH ADDITIONAL STORY OF THE DWELLING, INCLUDING BASEMENTS AND HABITABLE ATTICS AND NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS. IN DWELLINGS OR DWELLING UNITS WITH SPLIT LEVELS AND WITHOUT AN INTERVENING DOOR BETWEEN THE ADJACENT LEVELS, A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SUFFICE FOR THE ADJACENT LOWER LEVEL PROVIDED THAT THE LOWER LEVEL IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL.
4. SMOKE ALARMS SHALL BE INSTALLED NOT LESS THAN 3 FEET (914 MM) HORIZONTALLY FROM THE DOOR OR OPENING OF A BATHROOM THAT CONTAINS A BATHTUB OR SHOWER UNLESS THIS WOULD PREVENT PLACEMENT OF A SMOKE ALARM REQUIRED BY SECTION R314.3.

SMOKE ALARMS SHALL NOT BE INSTALLED IN THE FOLLOWING LOCATIONS UNLESS THIS WOULD PREVENT PLACEMENT OF A SMOKE ALARM IN A LOCATION REQUIRED BY SECTION R314.3. (R314.3.1)

1. IONIZATION SMOKE ALARMS SHALL NOT BE INSTALLED LESS THAN 20 FEET (6096 MM) HORIZONTALLY FROM A PERMANENTLY INSTALLED COOKING APPLIANCE.
2. IONIZATION SMOKE ALARMS WITH AN ALARM-SILENCING SWITCH SHALL NOT BE INSTALLED LESS THAN 10 FEET (3048 MM) HORIZONTALLY FROM A PERMANENTLY INSTALLED COOKING APPLIANCE.
3. PHOTOELECTRIC SMOKE ALARMS SHALL NOT BE INSTALLED LESS THAN 6 FEET (1828 MM) HORIZONTALLY FROM A PERMANENTLY INSTALLED COOKING APPLIANCE.

WHERE MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING UNIT IN ACCORDANCE WITH SECTION R314.3, THE ALARM DEVICES SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTUATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL DWELLING UNIT. PHYSICAL INTERCONNECTION OF SMOKE ALARMS SHALL NOT BE REQUIRED WHERE LISTED WIRELESS ALARMS ARE INSTALLED AND ALL ALARMS SOUND UPON ACTIVATION OF ONE ALARM. (R314.4)

EXCEPTION: INTERCONNECTION OF SMOKE ALARMS IN EXISTING AREAS SHALL NOT BE REQUIRED WHERE ALTERATIONS OR REPAIRS DO NOT RESULT IN REMOVAL OF INTERIOR WALL OR CEILING FINISHES EXPOSING THE STRUCTURE, UNLESS THERE IS AN ATTIC, CRAWL SPACE OR BASEMENT AVAILABLE THAT COULD PROVIDE ACCESS FOR INTERCONNECTION WITHOUT THE REMOVAL OF INTERIOR FINISHES.

COMBINATION SMOKE AND CARBON MONOXIDE ALARMS SHALL BE PERMITTED TO BE USED IN LIEU OF SMOKE ALARMS. (R314.5)

SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING WHERE SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND, WHERE PRIMARY POWER IS INTERRUPTED, SHALL RECEIVE POWER FROM A BATTERY. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN THOSE REQUIRED FOR OVERCURRENT PROTECTION. (R314.6)

16. ELECTRICAL - CONTINUED

CARBON MONOXIDE ALARMS SHALL COMPLY WITH SECTION R315. (R315.1)

CARBON MONOXIDE ALARMS SHALL BE LISTED IN ACCORDANCE WITH UL 2034. COMBINATION CARBON MONOXIDE AND SMOKE ALARMS SHALL BE LISTED IN ACCORDANCE WITH UL 2034 AND UL 217. (R315.1.1)

CARBON MONOXIDE ALARMS SHALL BE PROVIDED IN ACCORDANCE WITH SECTIONS R315.2.1 AND R315.2.2. (R315.2)

FOR NEW CONSTRUCTION, CARBON MONOXIDE ALARMS SHALL BE PROVIDED IN DWELLING UNITS WHERE EITHER OR BOTH OF THE FOLLOWING CONDITIONS EXIST. (R315.2.1)

1. THE DWELLING UNIT CONTAINS A FUEL-FIRED APPLIANCE.
2. THE DWELLING UNIT HAS AN ATTACHED GARAGE WITH AN OPENING THAT COMMUNICATES WITH THE DWELLING UNIT.

CARBON MONOXIDE ALARMS IN DWELLING UNITS SHALL BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS. WHERE A FUEL-BURNING APPLIANCE IS LOCATED WITHIN A BEDROOM OR ITS ATTACHED BATHROOM, A CARBON MONOXIDE ALARM SHALL BE INSTALLED WITHIN THE BEDROOM. (R315.3)

COMBINATION CARBON MONOXIDE AND SMOKE ALARMS SHALL BE PERMITTED TO BE USED IN LIEU OF CARBON MONOXIDE ALARMS. (R315.4)

CARBON MONOXIDE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING WHERE SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE AND, WHERE PRIMARY POWER IS INTERRUPTED, SHALL RECEIVE POWER FROM A BATTERY. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN THOSE REQUIRED FOR OVERCURRENT PROTECTION. (R315.5)

EXCEPTIONS:
1. CARBON MONOXIDE ALARMS SHALL BE PERMITTED TO BE BATTERY OPERATED WHERE INSTALLED IN BUILDINGS WITHOUT COMMERCIAL POWER.
2. CARBON MONOXIDE ALARMS INSTALLED IN ACCORDANCE WITH SECTION R315.2.2 SHALL BE PERMITTED TO BE BATTERY POWERED.

CARBON MONOXIDE DETECTION SYSTEMS SHALL BE PERMITTED TO BE USED IN LIEU OF CARBON MONOXIDE ALARMS AND SHALL COMPLY WITH SECTIONS R315.6.1 THROUGH R315.6.4. (R315.6)

HOUSEHOLD CARBON MONOXIDE DETECTION SYSTEMS SHALL COMPLY WITH NFPA 720. CARBON MONOXIDE DETECTORS SHALL BE LISTED IN ACCORDANCE WITH UL 2075. (R315.6.1)

CARBON MONOXIDE DETECTORS SHALL BE INSTALLED IN THE LOCATIONS SPECIFIED IN SECTION R315.3. THESE LOCATIONS SUPERSEDE THE LOCATIONS SPECIFIED IN NFPA 720. (R315.6.2)

WHERE A HOUSEHOLD CARBON MONOXIDE DETECTION SYSTEM IS INSTALLED, IT SHALL BECOME A PERMANENT FIXTURE OF THE OCCUPANCY AND OWNED BY THE HOMEOWNER. (R315.6.3)

COMBINATION CARBON MONOXIDE AND SMOKE DETECTORS SHALL BE PERMITTED TO BE INSTALLED IN CARBON MONOXIDE DETECTION SYSTEMS IN LIEU OF CARBON MONOXIDE DETECTORS, PROVIDED THAT THEY ARE LISTED IN ACCORDANCE WITH UL 2075 AND UL 268. (R315.6.4)

EXTERIOR LIGHTING SHALL BE DOWN CAST FIXTURES LIMITED TO 5,500 LUMENS TOTAL. EXTERIOR FLOOD LIGHTS SHALL BE CONTROLLED BY PHOTO SENSOR AND MOTION DETECTOR.

PROVIDE 1"Ø MINIMUM ELECTRICAL CONDUIT FOR FUTURE PHOTOVOLTAIC PANEL INSTALLATION FROM THE ATTIC TO JUNCTION BOX NEAR THE ELECTRICAL PANEL.

SPECIAL NOTICE

ANY DISCREPANCY IN DIMENSIONS AND/OR DRAWINGS AND/OR GRAPHIC REPRESENTATION AND/OR FIELD MEASUREMENTS SHALL BE BROUGHT TO THE ATTENTION OF JAKE'S DRAFTING SERVICE, INC. PRIOR TO THE COMMENCEMENT OF ANY WORK.

ANY DEVIATION FROM THESE PLANS IS EXPRESSLY FORBIDDEN WITHOUT PRIOR WRITTEN NOTIFICATION AND APPROVAL BY JAKE'S DRAFTING SERVICE, INC., AS THE DESIGNER; THE OWNER; THE ENGINEER AND THE GENERAL CONTRACTOR. THESE SPECIFICATIONS ARE GENERAL IN NATURE. SOME DIVISIONS OR SECTIONS MAY NOT BE APPLICABLE.

BUILDERS PLANS

THE CONTRACTOR WARRANTS TO JAKE'S DRAFTING SERVICE, INC. THAT HE POSSESSES THE PARTICULAR COMPETENCE AND SKILL IN CONSTRUCTION NECESSARY TO BUILD THIS PROJECT WITHOUT FULL ENGINEERING AND ARCHITECTURAL SERVICES, AND FOR THE REASON THAT THE CONTRACTOR WISHES TO RELY UPON HIS OWN COMPETENCE. THE CONTRACTOR OR OWNER HAS RESTRICTED JAKE'S DRAFTING SERVICE, INC.'S SCOPE OF PROFESSIONAL SERVICES. IN RELIANCE ON THE CONTRACTOR'S WARRANTY AND AT THE EXPRESS REQUEST OF THE CONTRACTOR OR OWNER, JAKE'S DRAFTING SERVICE, INC. HAS UNDERTAKEN A LIMITED 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. CONSTRUCTION WILL REQUIRE THAT THE CONTRACTOR ADAPT THE "BUILDER'S PLANS" TO THE FIELD CONDITIONS ENCOUNTERED, AND MAKE LOGICAL ADJUSTMENTS IN FIT, FORM, DIMENSION, AND QUANTITY THAT ARE TREATED ONLY GENERALLY BY THE "BUILDER'S PLANS." IN THE EVENT ADDITIONAL DETAILS OR GUIDANCE ARE NEEDED BY THE CONTRACTOR OR OWNER, FOR CONSTRUCTION OF ANY ASPECT OF THE PROJECT, HE SHALL IMMEDIATELY NOTIFY JAKE'S DRAFTING SERVICE, INC. FAILURE TO GIVE A SIMPLE NOTICE SHALL RELIEVE JAKE'S DRAFTING SERVICE, INC. OF RESPONSIBILITY FOR THE CONSEQUENCES.

DUTY OF COOPERATION

RELEASE OF THESE PLANS ANTICIPATES FURTHER COOPERATION AMONG THE OWNER, HIS CONTRACTOR, AND JAKE'S DRAFTING SERVICE, INC. ALTHOUGH JAKE'S DRAFTING SERVICE, INC. AND ITS CONSULTANTS HAVE PERFORMED THEIR SERVICES WITH DUE CARE AND DILIGENCE, THEY CANNOT GUARANTEE PERFECTION. ANY AMBIGUITY OR DISCREPANCY DISCOVERED SHALL BE REPORTED IN WRITING TO JAKE'S DRAFTING SERVICE, INC. IMMEDIATELY AND PRIOR TO THE COMMENCEMENT OF ANY WORK. FAILURE TO COOPERATE BY SIMPLE NOTICE TO JAKE'S DRAFTING SERVICE, INC. SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ALL CONSEQUENCES. CHANGES MADE FROM THE PLANS WITHOUT CONSENT OF JAKE'S DRAFTING SERVICE, INC. ARE UNAUTHORIZED, AND SHALL RELIEVE JAKE'S DRAFTING SERVICE, INC. OF RESPONSIBILITY FOR ALL CONSEQUENCES ARISING OUT OF SUCH CHANGES.

DISCLAIMER

IF JAKE'S DRAFTING SERVICE, INC., AS CLAIMANT OR A DEFENDING PARTY, IS AT ANY TIME A PARTY TO LITIGATION INVOLVING ANY CLAIM RELATED TO WORK CONTAINED IN THESE DRAWINGS, AND SHOULD CLAIMANT NOT PREVAIL SUBSTANTIALLY AGAINST DEFENDING PARTY IN SUCH LITIGATION; ALL LITIGATION EXPENSES, WITNESS FEES, COURT COSTS, AND ATTORNEY'S FEES INCURRED BY THE DEFENDING PARTY IN DEFENDING AGAINST SUCH A CLAIM, SHALL BE PAID BY THE CLAIMANT.

THE DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS PREPARED BY JAKE'S DRAFTING SERVICE, INC., (AS THE DESIGNER,) FOR THIS PROJECT ARE "INSTRUMENTS OF SERVICE", FOR USE SOLELY WITH RESPECT TO THIS PROJECT. JAKE'S DRAFTING SERVICE, INC., (AS THE DESIGNER) SHALL BE DEEMED THE AUTHOR OF THESE DOCUMENTS AND SHALL RETAIN ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS, INCLUDING THE COPYRIGHT. SUBMISSION OF THESE PLANS AND SPECIFICATIONS, IN PART OR IN WHOLE, BY THE CLIENT OR HIS AGENT FOR BUILDING PERMIT APPLICATION SHALL BE DEEMED AS EVIDENCE OF ACCEPTANCE FOR FINAL PAYMENT OF CONTRACT.

THESE PLANS ARE FOR USE ONLY BY THE CLIENT AND ONLY AT THE SITE IDENTIFIED IN THE TITLE BLOCK.

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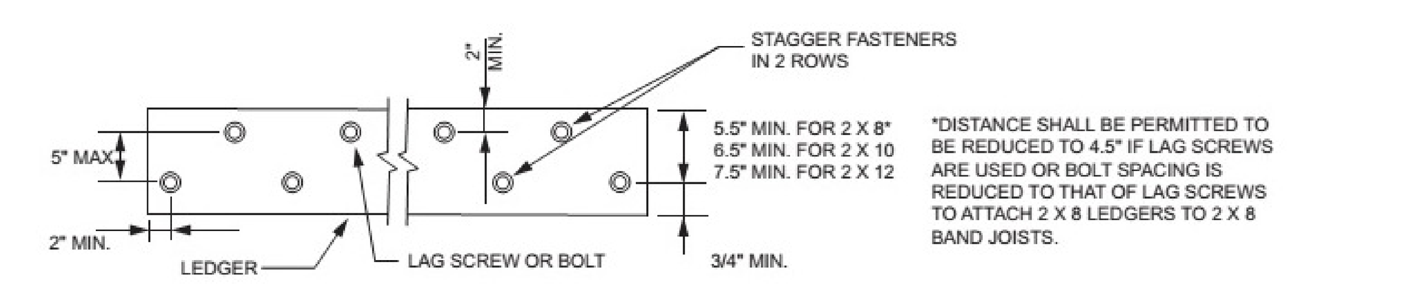
CONTACT THE SOILS ENGINEER AT TIME OF EXCAVATION TO VERIFY THAT ALL STRUCTURAL CONCRETE IS PLACED ON SUITABLE BEARING MATERIAL.

TABLE N1102.4.1.1 (402.4.1.1) AIR BARRIER AND INSULATION INSTALLATION

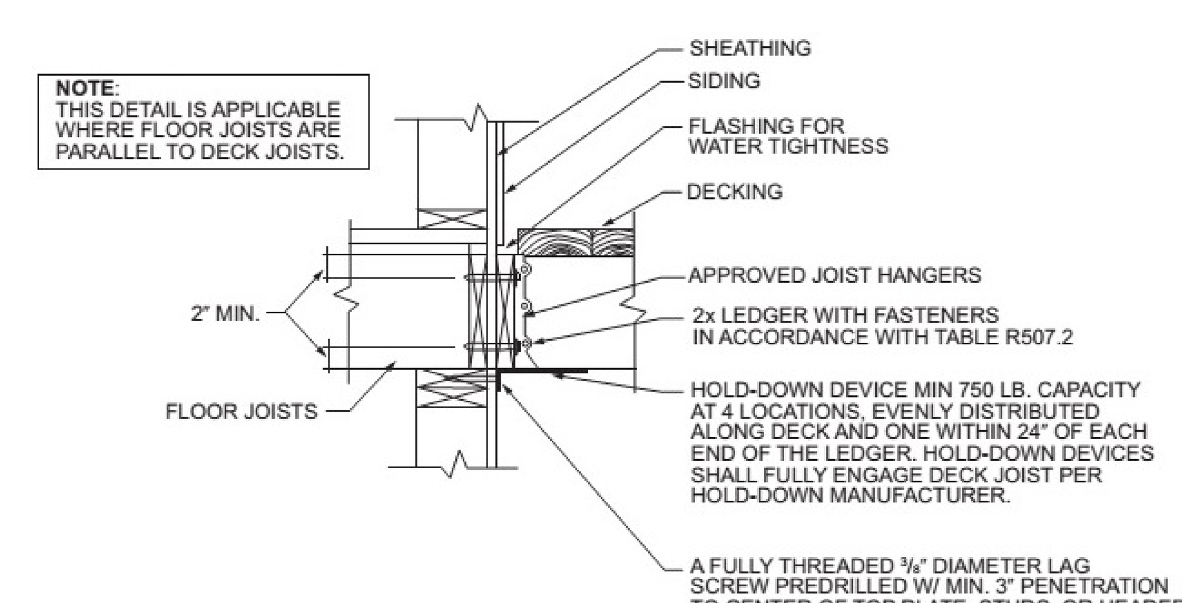
COMPONENT	AIR BARRIER CRITERIA	INSULATION INSTALLATION CRITERIA
GENERAL REQUIREMENTS	A CONTINUOUS AIR BARRIER SHALL BE INSTALLED IN THE BUILDING ENVELOPE. THE EXTERIOR THERMAL ENVELOPE CONTAINS A CONTINUOUS AIR BARRIER. BREAKS OR JOINTS IN THE AIR BARRIER SHALL BE SEALED.	AIR-PERMEABLE INSULATION SHALL NOT BE USED AS A SEALING MATERIAL.
CEILING/ATTIC	THE AIR BARRIER IN ANY DROPPED CEILING/SOFFIT SHALL BE ALIGNED WITH THE INSULATION AND ANY GAPS IN THE AIR BARRIER SEALED. ACCESS OPENINGS, DROP DOWN STAIRS OR KNEE WALL DOORS TO UNCONDITIONED ATTIC SPACES SHALL BE SEALED.	THE INSULATION IN ANY DROPPED CEILING/SOFFIT SHALL BE ALIGNED WITH THE AIR BARRIER.
WALLS	THE JUNCTION OF THE FOUNDATION AND SILL PLATE SHALL BE SEALED. THE JUNCTION OF THE TOP PLATE AND THE TOP OF EXTERIOR WALLS SHALL BE SEALED. KNEE WALLS SHALL BE SEALED.	CAVITIES WITHIN CORNERS AND HEADERS OF FRAME WALLS SHALL BE INSULATED BY COMPLETELY FILLING THE CAVITY WITH A MATERIAL HAVING A THERMAL RESISTANCE OF R-3 PER INCH MINIMUM. EXTERIOR THERMAL ENVELOPE INSULATION FOR FRAMED WALLS SHALL BE INSTALLED IN SUBSTANTIAL CONTACT AND CONTINUOUS ALIGNMENT WITH THE AIR BARRIER.
WINDOWS, SKYLIGHTS AND DOORS	THE SPACE BETWEEN WINDOW/DOOR JAMBS AND FRAMING, AND SKYLIGHTS AND FRAMING SHALL BE SEALED.	
RIM JOISTS	RIM JOISTS SHALL INCLUDE THE AIR BARRIER.	RIM JOISTS SHALL BE INSULATED.
FLOORS (INCLUDING ABOVE GARAGE AND CANTILEVERED FLOORS)	THE AIR BARRIER SHALL BE INSTALLED AT ANY EXPOSED EDGE OF INSULATION.	FLOOR FRAMING CAVITY INSULATION SHALL BE INSTALLED TO MAINTAIN PERMANENT CONTACT WITH THE UNDERSIDE OF SUBFLOOR DECKING, OR FLOOR FRAMING CAVITY INSULATION SHALL BE PERMITTED TO BE IN CONTACT WITH THE TOP SIDE OF SHEATHING, OR CONTINUOUS INSULATION INSTALLED ON THE UNDERSIDE OF FLOOR FRAMING; AND EXTENDS FROM THE BOTTOM TO THE TOP OF ALL PERIMETER FLOOR FRAMING MEMBERS.
CRAWL SPACE WALLS	EXPOSED EARTH IN UNVENTED CRAWL SPACES SHALL BE COVERED WITH A CLASS I VAPOR RETARDER WITH OVERLAPPING JOINTS TAPED.	WHERE PROVIDED INSTEAD OF FLOOR INSULATION, INSULATION SHALL BE PERMANENTLY ATTACHED TO THE CRAWL SPACE WALLS.
SHAFTS, PENETRATIONS	DUCT SHAFTS, UTILITY PENETRATIONS, AND FLUE SHAFTS OPENING TO EXTERIOR OR UNCONDITIONED SPACE SHALL BE SEALED.	
NARROW CAVITIES		BATTS IN NARROW CAVITIES SHALL BE CUT TO FIT, OR NARROW CAVITIES SHALL BE FILLED BY INSULATION THAT ON INSTALLATION READILY CONFORMS TO THE AVAILABLE CAVITY SPACE.
GARAGE SEPARATION	AIR SEALING SHALL BE PROVIDED BETWEEN THE GARAGE AND CONDITIONED SPACES.	
RECESSED LIGHTING	RECESSED LIGHT FIXTURES INSTALLED IN THE BUILDING THERMAL ENVELOPE SHALL BE SEALED TO THE DRYWALL.	RECESSED LIGHT FIXTURES INSTALLED IN THE BUILDING THERMAL ENVELOPE SHALL BE AIR TIGHT AND IC RATED.
PLUMBING AND WIRING		BATT INSULATION SHALL BE CUT NEATLY TO FIT AROUND WIRING AND PLUMBING IN EXTERIOR WALLS, OR INSULATION THAT ON INSTALLATION READILY CONFORMS TO AVAILABLE SPACE SHALL EXTEND BEHIND PIPING AND WIRING.
SHOWER/TUB ON EXTERIOR WALL	THE AIR BARRIER INSTALLED AT EXTERIOR WALLS ADJACENT TO SHOWERS AND TUBS SHALL SEPARATE THEM FROM THE SHOWERS AND TUBS.	EXTERIOR WALLS ADJACENT TO SHOWERS AND TUBS SHALL BE INSULATED.
ELECTRICAL/PHONE BOX ON EXTERIOR WALLS	THE AIR BARRIER SHALL BE INSTALLED BEHIND ELECTRICAL OR COMMUNICATION BOXES OR AIR-SEALED BOXES SHALL BE INSTALLED.	
HVAC REGISTER BOOTS	HVAC REGISTER BOOTS THAT PENETRATE BUILDING THERMAL ENVELOPE SHALL BE SEALED TO THE SUBFLOOR OR DRYWALL.	
CONCEALED SPRINKLERS	WHEN REQUIRED TO BE SEALED, CONCEALED FIRE SPRINKLERS SHALL ONLY BE SEALED IN A MANNER THAT IS RECOMMENDED BY THE MANUFACTURER. CAULKING OR OTHER ADHESIVE SEALANTS SHALL NOT BE USED TO FILL VOIDS BETWEEN FIRE SPRINKLER COVER PLATES AND WALLS OR CEILINGS.	

a. In addition, inspection of log walls shall be in accordance with the provisions of ICC 400.



For SI: 1 inch = 25.4 mm.

FIGURE R507.2.1(1) PLACEMENT OF LAG SCREWS AND BOLTS IN LEDGERS



For SI: 1 inch = 25.4 mm.

FIGURE R507.2.1(2) PLACEMENT OF LAG SCREWS AND BOLTS IN BAND JOISTS

TABLE R602.3(1) FASTENING SCHEDULE

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER[a, b, c]	SPACING AND LOCATION
	Roof		
1	Blocking between ceiling joists or rafters to top plate	4-8d box (2 1/2" × 0.113"); or 3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Toe nail
2	Ceiling joists to top plate	4-8d box (2 1/2" × 0.113"); or 3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Per joist, toe nail
3	Ceiling joist not attached to parallel rafter, laps over partitions [see Sections R802.3.1, R802.3.2 and Table R802.5.1(9)]	4-10d box (3" × 0.128"); or 3-16d common (3 1/2" × 0.162"); or 4-3" × 0.131" nails	Face nail
4	Ceiling joist attached to parallel rafter (heel joint) [see Sections R802.3.1 and R802.3.2 and Table R802.5.1(9)]	Table R802.5.1(9)	Face nail
5	Collar tie to rafter, face nail or 1 1/4" × 20 ga. ridge strap to rafter	4-10d box (3" × 0.128"); or 3-10d common (3" × 0.148"); or 4-3" × 0.131" nails	Face nail each rafter
6	Rafter or roof truss to plate	3-16d box nails (3 1/2" × 0.135"); or 3-10d common nails (3" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	2 toe nails on one side and 1 toe nail on opposite side of each rafter or truss[i]
7	Roof rafters to ridge, valley or hip rafters or roof rafter to minimum 2" ridge beam	4-16d (3 1/2" × 0.135"); or 3-10d common (3 1/2" × 0.148"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	Toe nail
		3-16d box 3 1/2" × 0.135"); or 2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	End nail
	Wall		
8	Stud to stud (not at braced wall panels)	16d common (3 1/2" × 0.162")	24" o.c. face nail
		10d box (3" × 0.128"); or 3" × 0.131" nails	16" o.c. face nail
9	Stud to stud and abutting studs at intersecting wall corners (at braced wall panels)	16d box (3 1/2" × 0.135"); or 3" × 0.131" nails	12" o.c. face nail
		16d common (3 1/2" × 0.162")	16" o.c. face nail
10	Built-up header (2" to 2" header with 1/2" spacer)	16d common (3 1/2" × 0.162")	16" o.c. each edge face nail
		16d box (3 1/2" × 0.135")	12" o.c. each edge face nail
11	Continuous header to stud	5-8d box (2 1/2" × 0.113"); or 4-8d common (2 1/2" × 0.131"); or 4-10d box (3" × 0.128")	Toe nail
12	Top plate to top plate	16d common (3 1/2" × 0.162")	16" o.c. face nail
		10d box (3" × 0.128"); or 3" × 0.131" nails	12" o.c. face nail
13	Double top plate splice for SDCs A-D2 with seismic braced wall line spacing < 25'	8-16d common (3 1/2" × 0.162"); or 12-16d box (3 1/2" × 0.135"); or 12-10d box (3" × 0.128"); or 12-3" × 0.131" nails	Face nail on each side of end joint (minimum 24" lap splice length each side of end joint)
	Double top plate splice SDCs D0, D1, or D2; and braced wall line spacing ≥25'	12-16d (3 1/2" × 0.135")	
14	Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d common (3 1/2" × 0.162")	16" o.c. face nail
		16d box (3 1/2" × 0.135"); or 3" × 0.131" nails	12" o.c. face nail
15	Bottom plate to joist, rim joist, band joist or blocking (at braced wall panel)	3-16d box (3 1/2" × 0.135"); or 2-16d common (3 1/2" × 0.162"); or 4-3" × 0.131" nails	3 each 16" o.c. face nail 2 each 16" o.c. face nail 4 each 16" o.c. face nail
16	Top or bottom plate to stud	4-8d box (2 1/2" × 0.113"); or 3-16d box (3 1/2" × 0.135"); or 4-8d common (2 1/2" × 0.131"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	Toe nail
		3-16d box (3 1/2" × 0.135"); or 2-16d common (3 1/2" × 0.162"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	End nail
17	Top plates, laps at corners and intersections	3-10d box (3" × 0.128"); or 2-16d common (3 1/2" × 0.162"); or 3-3" × 0.131" nails	Face nail
18	1" brace to each stud and plate	3-8d box (2 1/2" × 0.113"); or 2-8d common (2 1/2" × 0.131"); or 2-10d box (3" × 0.128"); or 2 staples 1 3/4"	Face nail
19	1" × 6" sheathing to each bearing	3-8d box (2 1/2" × 0.113"); or 2-8d common (2 1/2" × 0.131"); or 2-10d box (3" × 0.128"); or 2 staples, 1" crown, 16 ga., 1 3/4" long	Face nail
20	1" × 8" and wider sheathing to each bearing	3-8d box (2 1/2" × 0.113"); or 3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3 staples, 1" crown, 16 ga., 1 3/4" long Wider than 1" × 8" 4-8d box (2 1/2" × 0.113"); or 3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 4 staples, 1" crown, 16 ga., 1 3/4" long	Face nail
	Floor		
21	Joist to sill, top plate or girder	4-8d box (2 1/2" × 0.113"); or 3-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Toe nail
22	Rim joist, band joist or blocking to sill or top plate (roof applications also)	8d box (2 1/2" × 0.113")	4" o.c. toe nail
		8d common (2 1/2" × 0.131"); or 10d box (3" × 0.128"); or 3" × 0.131" nails	6" o.c. toe nail
23	1" × 6" subfloor or less to each joist	3-8d box (2 1/2" × 0.113"); or 2-8d common (2 1/2" × 0.131"); or 3-10d box (3" × 0.128"); or 2 staples, 1" crown, 16 ga., 1 3/4" long	Face nail

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER[a, b, c]	SPACING AND LOCATION
	Floor		
24	2" subfloor to joist or girder	3-16d box (3 1/2" × 0.135"); or 2-16d common (3 1/2" × 0.162")	Blind and face nail
25	2" planks (plank & beam—floor & roof)	3-16d box (3 1/2" × 0.135"); or 2-16d common (3 1/2" × 0.162")	At each bearing, face nail
26	Band or rim joist to joist	3-16d common (3 1/2" × 0.162") 4-10 box (3" × 0.128"), or 4-3" × 0.131" nails; or 4-3" × 14 ga. staples, 7/16" crown	End nail
27	Built-up girders and beams, 2-inch lumber layers	20d common (4" × 0.192"); or	Nail each layer as follows: 32" o.c. at top and bottom and staggered.
		10d box (3" × 0.128"); or 3" × 0.131" nails	24" o.c. face nail at top and bottom staggered on opposite sides
		And: 2-20d common (4" × 0.192"); or 3-10d box (3" × 0.128"); or 3-3" × 0.131" nails	Face nail at ends and at each splice
28	Ledger strip supporting joists or rafters	4-16d box (3 1/2" × 0.135"); or 3-16d common (3 1/2" × 0.162"); or 4-10d box (3" × 0.128"); or 4-3" × 0.131" nails	At each joist or rafter, face nail
29	Bridging to joist	2-10d (3" × 0.128")	Each end, toe nail

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER[a, b, c]	SPACING OF FASTENERS: Edges (inches)[h]	SPACING OF FASTENERS: Intermediate supports[c, e] (inches)
	Wood structural panels, subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing [see Table R602.3(3) for wood structural panel *exterior* wall sheathing to wall framing]			
30	3/8" – 1/2"	6d common (2" × 0.113") nail (subfloor, wall)[i] 8d common (2 1/2" × 0.131") nail (roof)	6	12[f]
31	19/32" – 1"	8d common nail (2 1/2" × 0.131")	6	12[f]
32	1 1/8" – 1 1/4"	10d common (3" × 0.148") nail; or 8d (2 1/2" × 0.131") deformed nail	6	12
	Other wall sheathing[g]			
33	1/2" structural cellulosic fiberboard sheathing	1 1/2" galvanized roofing nail, 7/16" head diameter, or 1" crown staple 16 ga., 1 1/4" long	3	6
34	25/32" structural cellulosic fiberboard sheathing	1 3/4" galvanized roofing nail, 7/16" head diameter, or 1" crown staple 16 ga., 1 1/4" long	3	6
35	1/2" gypsum sheathing[d]	1 1/2" galvanized roofing nail; staple galvanized, 1 1/2" long; 1 1/4" screws, Type W or S	7	7
36	5/8" gypsum sheathing[d]	1 3/4" galvanized roofing nail; staple galvanized, 1 5/8" long; 1 5/8" screws, Type W or S	7	7
	Wood structural panels, combination subfloor underlayment to framing			
37	3/4" and less	6d deformed (2" × 0.120") nail; or 8d common (2 1/2" × 0.131") nail	6	12
38	7/8" – 1"	8d common (2 1/2" × 0.131") nail; or 8d deformed (2 1/2" × 0.120") nail	6	12
39	1 1/8" – 1 1/4"	10d common (3" × 0.148") nail; or 8d deformed (2 1/2" × 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. 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. WHERE THE ULTIMATE DESIGN WIND SPEED IS 130 MPH OR LESS, NAILS FOR ATTACHING WOOD STRUCTURAL PANEL ROOF SHEATHING TO GABLE END WALL FRAMING SHALL BE SPACED 6 INCHES ON CENTER. WHERE THE ULTIMATE DESIGN WIND SPEED IS GREATER THAN 130 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.
G. GYPSUM SHEATHING SHALL CONFORM TO ASTM C 1396 AND SHALL BE INSTALLED IN ACCORDANCE WITH GA 253. FIBERBOARD SHEATHING SHALL CONFORM TO ASTM C 208.
H. SPACING OF FASTENERS ON FLOOR SHEATHING PANEL EDGES APPLIES TO PANEL EDGES SUPPORTED BY FRAMING MEMBERS AND REQUIRED BLOCKING AND AT 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.
I. WHERE A RAFTER IS FASTENED TO AN ADJACENT PARALLEL CEILING JOIST IN ACCORDANCE WITH THIS SCHEDULE, PROVIDE TWO TOE NAILS ON ONE SIDE OF THE RAFTER AND TOE NAILS FROM THE CEILING JOIST TO TOP PLATE IN ACCORDANCE WITH THIS SCHEDULE. THE TOE NAIL ON THE OPPOSITE SIDE OF THE RAFTER SHALL NOT BE REQUIRED.

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SPECIFICATIONS FOR
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OWNER, 720.427.0161

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SHEET 4 OF 6

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