. THERMAL & MOISTURE PROTECTION - CONTINUED

1.2. IN ACCORDANCE WITH THE FLASHING DESIGN OR METHOD OF A REGISTERED DESIGN

PROFESSIONAL 1.3. IN ACCORDANCE WITH OTHER APPROVED METHODS 2. AT THE INTERSECTION OF CHIMNEYS OR OTHER MASONRY CONSTRUCTION WITH FRAME OR STUCCO WALLS, WITH PROJECTING LIPS ON BOTH SIDES UNDER STUCCO COPINGS.

3. UNDER AND AT THE ENDS OF MASONRY, WOOD OR METAL COPINGS AND SILLS. 4. CONTINUOUSLY ABOVE ALL PROJECTING WOOD TRIM. 5. WHERE EXTERIOR PORCHES, DECKS OR STAIRS ATTACH TO A WALL OR FLOOR

ASSEMBLY OF WOOD-FRAME CONSTRUCTION. 6. AT WALL AND ROOF INTERSECTIONS.

7. AT BUILT-IN GUTTERS.

PROVIDE BASE AND CAP, SIDEWALL AND OTHER FLASHINGS AT ALL ROOF AND VERTICAL SURFACE INTERSECTIONS PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. (IRC

A DRIP EDGE SHALL BE PROVIDED AT EAVES AND RAKE EDGES OF SHINGLE ROOFS. ADJACENT SEGMENTS OF DRIP EDGE SHALL BE OVERLAPPED NOT LESS THAN 2 INCHES (51 MM). DRIP EDGES SHALL EXTEND NOT LESS THAN 1/4 INCH (6.4 MM) BELOW THE ROOF SHEATHING AND EXTEND UP BACK ONTO THE ROOF DECK NOT LESS THAN 2 INCHES (51 MM). DRIP EDGES SHALL BE MECHANICALLY FASTENED TO THE ROOF DECK AT NOT MORE THAN 12 INCHES (305 MM) O.C. WITH FASTENERS AS SPECIFIED IN SECTION R905.2.5. UNDERLAYMENT SHALL BE INSTALLED OVER THE DRIP EDGE ALONG EAVES AND UNDER THE DRIP EDGE ALONG RAKE EDGES. (R905.2.8.5)

ROOF VALLEY LININGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. OPEN VALLEY LININGS SHALL CONSIST OF NOT LESS THAN 26 GAGE GALVANIZED STEEL, 28 GAGE STAINLESS STEEL OR 0.0216 NOMINAL COLD ROLLED COPPER. LININGS SHALL BE 24" WIDE MINIMUM AND PLACED OVER 36" WIDE LAYER OF ICE AND WATER SHIELD. CLOSED VALLEY LININGS (ASPHALT SHINGLES) SHALL BE A 36" WIDE LAYER OF ICE AND WATER SHIELD. (IRC R905.2.8.2)

IN AREAS WHERE THERE HAS BEEN A HISTORY OF ICE FORMING ALONG THE EAVES CAUSING A BACKUP OF WATER AS DESIGNATED IN TABLE R301.2(1), AN ICE BARRIER SHALL BE INSTALLED FOR ASPHALT SHINGLES, METAL ROOF SHINGLES, MINERAL-SURFACED ROL ROOFING, SLATE AND SLATE-TYPE SHINGLES, WOOD SHINGLES AND WOOD SHAKES. THE ICE BARRIER SHALL CONSIST OF NOT FEWER THAN TWO LAYERS OF UNDERLAYMENT CEMENTED TOGETHER, OR A SELF-ADHERING POLYMER-MODIFIED BITUMEN SHEET SHALL BE USED IN PLACE OF NORMAL UNDERLAYMENT AND EXTEND FROM THE LOWEST EDGES OF ALL ROOF SURFACES TO A POINT NOT LESS THAN 24 INCHES (610 MM) INSIDE THE EXTERIOR WALL LINE OF THE BUILDING. ON ROOFS WITH SLOPE EQUAL TO OR GREATER THAN & UNITS VERTICAL IN 12 UNITS HORIZONTAL, THE ICE BARRIER SHALL ALSO BE APPLIED NOT LESS THAN 36 INCHES (914 MM) MEASURED ALONG THE ROOF SLOPE FROM THE EAVE EDGE OF THE BUILDING. (R905.1.2)

PROVIDE GRACE "ICE AND WATER SHIELD" UNDERLAYMENT AS ICE BARRIER, EXCEPT WHEN USING DIRECT APPLIED METAL ROOFING. FOR DIRECT APPLIED METAL ROOFING USE GRACE "ULTRA" UNDERLAYMENT. (IRC 905.2.7.1) IT IS RECOMMENDED THAT THE ENTIRE ROOF BE COVERED.

NATURAL VENTILATION OF ALL HABITABLE ROOMS SHALL BE PROVIDED. THE MINIMUM OPENABLE AREA TO THE OUTDOORS SHALL BE 4 PERCENT OF THE FLOOR AREA BEING VENTILATED (IRC SECTION R303.1)

EXCEPTION 1. AN APPROVED MECHANICAL VENTILATION SYSTEM IS PROVIDED CAPABLE OF PRODUCING 0.35 AIR CHANGES PER HOUR IN THE ROOM OR A WHOLE MECHANICAL VENTILATION SYSTEM IS INSTALLED CAPABLE OF SUPPLYING OUTDOOR VENTILATION AIR PER TABLE M1507.3.3 (1). (IRC R303.1)

VENTILATION OF BATHROOMS, WATER CLOSET COMPARTMENTS AND SIMILAR ROOMS WITHOUT OPERABLE WINDOW PROVIDING 1.5 SQUARE FEET OPENING, SHALL BE PROVIDED BY A MECHANICAL VENTILATION SYSTEM CAPABLE OF PRODUCING 50 CFM FOR INTERMITTENT USE OR 20 CFM CONTINUOUS VENTILATION. VENTILATION AIR FROM THE SPACE SHALL BE DIRECTLY EXHAUSTED TO THE OUTSIDE. (IRC R303.3) PROVIDE ENERGY-STAR QUALIFIED BATHROOM FANS WITH A RATING OF 1.5 SONES OR LESS WITH TIMER OR HUMIDISTAT CONTROL. SEE PLAN VIEW FOR REQUIRED CFM RATING.

ENCLOSED ATTICS AND ENCLOSED RAFTER SPACES FORMED WHERE CEILINGS ARE APPLIED DIRECTLY TO THE UNDERSIDE OF ROOF RAFTERS SHALL HAVE CROSS VENTILATION FOR EACH SEPARATE SPACE BY VENTILATING OPENINGS PROTECTED AGAINST THE ENTRANCE OF RAIN OR SNOW. VENTILATION OPENINGS SHALL HAVE A LEAST DIMENSION OF 1/16 INCH (1.6 MM) MINIMUM AND 1/4 INCH (6.4 MM) MAXIMUM. VENTILATION OPENINGS HAVING A LEAST DIMENSION LARGER THAN 1/4 INCH (6.4 MM) SHALL BE PROVIDED WITH CORROSION-RESISTANT WIRE CLOTH SCREENING, HARDWARE CLOTH OR SIMILAR MATERIAL WITH OPENINGS HAVING A LEAST DIMENSION OF 1/16 INCH (1.6 MM) MINIMUM AND 1/4 INCH (6.4 MM) MAXIMUM. OPENINGS IN ROOF FRAMING MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF SECTION R802.7. REQUIRED VENTILATION OPENINGS SHALL OPEN DIRECTLY TO THE OUTSIDE AIR. (IRC R806) WHERE EVE OR CORNICE VENTS ARE INSTALLED, INSULATION OR BLOCKING SHALL NOT BLOCK THE AIR FLOW. A MINIMUM OF 1" SHALL BE PROVIDED BETWEEN THE INSULATION AND ROOF SHEATHING. (R806.1)

THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/150 OF THE SPACE BEING VENTILATED EXCEPT THAT A REDUCTION TO 1/300 IS PERMITTED WHEN A CLASS | OR II VAPOR RETARDER IS INSTALLED ON THE WARM IN WINTER SIDE OF THE CEILING. (R806.2)

8. DOORS AND WINDOWS

CONTRACTOR SHALL SUPPLY AND INSTALL ALL DOORS, WINDOWS AND GLAZING AS DETAILED, SCHEDULED AND/OR SPECIFIED IN THESE DOCUMENTS.

WINDOWS AND DOORS TO BE SEMCO OR APPROVED EQUAL. GLAZING TO BE 3/4" INSULATING GLASS WITH INSUL LOW-E 366 COATING. UNIT U VALUE TO BE 0.32 MAXIMUM. ALL OPERABLE UNITS TO BE PROVIDED WITH SCREENS, CLAD COLOR PER OWNER, WINDOWS AND DOORS SHALL BE INSTALLED AND FLASHED IN ACCORDANCE WITH THE FENESTRATION MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, WHICH SHALL BE PROVIDED BY THE MANUFACTURER FOR EACH WINDOW OR DOOR AND SECTION R703.4. (R609.1)

WHERE THE OPENING OF AN OPERABLE WINDOW IS LOCATED MORE THAN 72" ABOVE THE FINISHED GRADE OR SURFACE BELOM, THE LOWEST PART OF THE CLEAR OPENING SHALL BE 24" MINIMUM ABOVE THE FINISHED FLOOR OF THE ROOM IN WHICH THE WINDOW IS LOCATED. (R312.2.1)

EXCEPTIONS: WINDOWS WHOSE OPENING WILL NOT ALLOW A 4"\$ SPHERE TO PASS OR PROTECTED WITH FALL PROTECTION DEVICES THAT COMPLY WITH ASTM F 2090.

OPENINGS FROM A PRIVATE GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED. OTHER OPENINGS BETWEEN THE GARAGE AND RESIDENCE SHALL BE EQUIPPED WITH SOLID WOOD DOORS NOT LESS THAN 1-3/8 INCHES (35 MM) IN THICKNESS, SOLID OR HONEYCOMB-CORE STEEL DOORS NOT LESS THAN 1-3/8 INCHES (35 MM) THICK, OR 20-MINUTE FIRE-RATED DOORS, EQUIPPED WITH A SELF-CLOSING DEVICE. (R302.5.1)

ALL HABITABLE ROOMS SHALL HAVE AN AGGREGATE GLAZING AREA OF NOT LESS THAN 8 PERCENT OF THE FLOOR AREA OF SUCH ROOMS. (IRC R303.1)

EXCEPTION: THE GLAZED AREAS NEED NOT BE PROVIDED IN ROOMS WHERE ARTIFICIAL LIGHT IS PROVIDED CAPABLE OF PRODUCING AN AVERAGE ILLUMINATION OF 6 FOOT CANDLES AT A HEIGHT OF 30" ABOVE THE FLOOR.

BASEMENTS AND EVERY SLEEPING ROOM SHALL HAVE NOT LESS THAN ONE OPERABLE EMERGENCY ESCAPE AND RESCUE OPENING. WHERE BASEMENTS CONTAIN ONE OR MORE SLEEPING ROOMS, AN EMERGENCY ESCAPE AND RESCUE OPENING SHALL BE REQUIRED IN EACH SLEEPING ROOM. EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL OPEN DIRECTLY INTO A PUBLIC WAY, OR TO A YARD OR COURT THAT OPENS TO A PUBLIC WAY. (R310.1)

EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL BE OPERATIONAL FROM THE INSIDE OF THE ROOM WITHOUT THE USE OF KEYS, TOOLS OR SPECIAL KNOWLEDGE. WINDOW OPENING CONTROL DEVICES COMPLYING WITH ASTM F 2090 SHALL BE PERMITTED FOR USE ON WINDOWS SERVING AS A REQUIRED EMERGENCY ESCAPE AND RESCUE OPENING. (R310.1.1)

LESS THAN 5.7 SQUARE FEET (0.530 M2). THE NET CLEAR OPENING DIMENSIONS REQUIRED B THIS SECTION SHALL BE OBTAINED BY THE NORMAL OPERATION OF THE EMERGENCY ESCAPE AND RESCUE OPENING FROM THE INSIDE. THE NET CLEAR HEIGHT OPENING SHALL BE NOT LESS THAN 24 INCHES (610 MM) AND THE NET CLEAR WIDTH SHALL BE NOT LESS THAN 20 INCHES (508 MM) (R310.2.1).

EMERGENCY AND ESCAPE RESCUE OPENINGS SHALL HAVE A NET CLEAR OPENING OF NOT

EXCEPTION: GRADE FLOOR OR BELOW GRADE OPENINGS SHALL HAVE A NET CLEAR OPENING OF NOT LESS THAN 5 SQUARE FEET (0.465 M2).

WHERE A WINDOW IS PROVIDED AS THE EMERGENCY ESCAPE AND RESCUE OPENING, IT SHALL HAVE A SILL HEIGHT OF NOT MORE THAN 44 INCHES (1118 MM) ABOVE THE FLOOR. WHERE THE SILL HEIGHT IS BELOW GRADE, IT SHALL BE PROVIDED WITH A WINDOW WELL IN ACCORDANCE WITH SECTION R310.2.3. (R310.2.2)

THE HORIZONTAL AREA OF THE WINDOW WELL SHALL BE NOT LESS THAN 9 SQUARE FEET (0.9 M2), WITH A HORIZONTAL PROJECTION AND WIDTH OF NOT LESS THAN 36 INCHES (914 MM). THE AREA OF THE WINDOW WELL SHALL ALLOW THE EMERGENCY ESCAPE AND RESCUE OPENING TO BE FULLY OPENED. (R310.2.3)

8. DOORS & WINDOWS-CONTINUED

EXCEPTION: THE LADDER OR STEPS REQUIRED BY SECTION R310.2.3.1 SHALL BE PERMITTED TO ENCROACH NOT MORE THAN 6 INCHES (152 MM) INTO THE REQUIRED DIMENSIONS OF THE WINDOW WELL.

WINDOW WELLS WITH A VERTICAL DEPTH GREATER THAN 44 INCHES (1118 MM) SHALL BE EQUIPPED WITH A PERMANENTLY AFFIXED LADDER OR STEPS USABLE WITH THE WINDOW IN THE FULLY OPEN POSITION. LADDERS OR STEPS REQUIRED BY THIS SECTION SHALL NOT BE REQUIRED TO COMPLY WITH SECTIONS R311.7 AND R311.8. LADDERS OR RUNGS SHALL HAVE AN INSIDE WIDTH OF NOT LESS THAN 12 INCHES (305 MM), SHALL PROJECT NOT LESS THAN 3 INCHES (76 MM) FROM THE WALL AND SHALL BE SPACED NOT MORE THAN 18 INCHES (457 MM) ON CENTER VERTICALLY FOR THE FULL HEIGHT OF THE WINDOW WELL. (R310.2.3.1)

WINDOW WELLS SHALL BE DESIGNED FOR PROPER DRAINAGE BY CONNECTING TO THE BUILDING'S FOUNDATION DRAINAGE SYSTEM REQUIRED BY SECTION R405.1 OR BY AN APPROVED ALTERNATIVE METHOD. (R310.2.3.2)

WHERE A DOOR IS PROVIDED AS THE REQUIRED EMERGENCY ESCAPE AND RESCUE OPENING, IT SHALL BE PERMITTED TO BE A SIDE-HINGED DOOR OR A SLIDER. WHERE THE OPENING IS BELOW THE ADJACENT GROUND ELEVATION, IT SHALL BE PROVIDED WITH A BULKHEAD ENCLOSURE. (R310.3)

THE MINIMUM NET CLEAR HEIGHT OPENING FOR ANY DOOR THAT SERVES AS AN EMERGENCY AND ESCAPE RESCUE OPENING SHALL BE IN ACCORDANCE WITH SECTION R310.2.1. (R310.3.1)

BARS, GRILLES, COVERS, SCREENS OR SIMILAR DEVICES ARE PERMITTED TO BE PLACED OVER EMERGENCY ESCAPE AND RESCUE OPENINGS, BULKHEAD ENCLOSURES, OR WINDOW WELLS THAT SERVE SUCH OPENINGS, PROVIDED THAT THE MINIMUM NET CLEAR OPENING SIZE COMPLIES WITH SECTIONS R3 10.1.1 TO R3 10.2.3, AND SUCH DEVICES SHALL BE RELEASABLE OR REMOVABLE FROM THE INSIDE WITHOUT THE USE OF A KEY, TOOL, SPECIAL KNOWLEDGE OR FORCE GREATER THAN THAT REQUIRED FOR THE NORMAL OPERATION OF THE ESCAPE AND RESCUE OPENING. (R310.4)

SEE IRC SECTION R308.4 FOR HAZARDOUS LOCATIONS WHERE SAFETY GLAZING IS REQUIRED.

SKYLIGHTS AND SLOPED GLAZING SHALL COMPLY WITH IRC SECTION 308.6.

BUILDINGS WITH COMBUSTIBLE CEILING OR ROOF CONSTRUCTION SHALL HAVE AN ATTIC ACCESS OPENING TO ATTIC AREAS THAT HAVE A VERTICAL HEIGHT OF 30 INCHES (762 MM) OR GREATER OVER AN AREA OF NOT LESS THAN 30 SQUARE FEET (2.8 M2). THE VERTICAL HEIGHT SHALL BE MEASURED FROM THE TOP OF THE CEILING FRAMING MEMBERS TO THE UNDERSIDE OF THE ROOF FRAMING MEMBERS.

THE ROUGH-FRAMED OPENING SHALL BE NOT LESS THAN 22 INCHES BY 30 INCHES (559 MM BY 762 MM) AND SHALL BE LOCATED IN A HALLWAY OR OTHER READILY ACCESSIBLE LOCATION. WHERE LOCATED IN A WALL, THE OPENING SHALL BE NOT LESS THAN 22 INCHES WIDE BY 30 INCHES HIGH (559 MM WIDE BY 762 MM HIGH). WHERE THE ACCESS IS LOCATED IN A CEILING, MINIMUM UNOBSTRUCTED HEADROOM IN THE ATTIC SPACE SHALL BE 30 INCHES (762 MM) AT SOME POINT ABOVE THE ACCESS MEASURED VERTICALLY FROM THE BOTTOM OF CEILING FRAMING MEMBERS, SEE SECTION M 1305, 1.3 FOR ACCESS REQUIREMENTS WHERE MECHANICAL EQUIPMENT IS LOCATED IN ATTICS.(IRC R807). ACCESS PANELS SHALL BE 30" H X 22" W MINIMUM OR AS REQUIRED TO REMOVE EQUIPMENT WHEN USED TO ACCESS MECHANICAL EQUIPMENT. (IRC M1305.1.3)

## 9. FINISHES

CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS TO FINISH ROOMS AND BUILDING EXTERIOR AS DETAILED, SCHEDULED AND / OR SPECIFIED IN THESE DOCUMENTS.

ALL CONSTRUCTION ADHESIVES AND CAULK SHOULD BE LOW VOC (<70 G/L).

ROOFING MATERIAL TO BE DIMENSIONAL ASPHALT SHINGLES COLOR TO MATCH EXISTING HOUSE OR OPTIONAL 29 GAUGE RUSTINGSTEEL. SIDING TO BE LOG SIDING, STAIN COLOR TO MATCH EXISTING. TRIM TO BE 2X6 WESTERN RED CEDAR, STAIN COLOR TO MATCH EXISTING. ALL FINISHES SHALL BE INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS.

VERIFY WITH THE OWNER, EXACT FINISHES NOT NOTED OR SPECIFIED HEREIN.

THE GARAGE SHALL BE SEPARATED AS REQUIRED BY TABLE R302.6. OPENINGS IN GARAGE WALLS SHALL COMPLY WITH SECTION R302.5. ATTACHMENT OF GYPSUM BOARD SHALL COMPLY WITH TABLE R702.3.5. THE WALL SEPARATION PROVISIONS OF TABLE R302.6 SHALL NOT APPLY TO GARAGE WALLS THAT ARE PERPENDICULAR TO THE ADJACENT DWELLING UNIT WALL.(R302.6)

THE GARAGE SHALL BE SEPARATED FROM THE RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 1/2 INCH GYPSUM BOARD OR ITS EQUIVALENT APPLIED TO THE GARAGE SIDE. GARAGES BENEATH HABITABLE ROOMS SHALL BE SEPARATED FROM ALL HABITABLE ROOMS ABOVE BY NOT LESS THAN 5/8" TYPE X GYPSUM BOARD OR ITS EQUIVALENT. WHERE THE SEPARATION IS A FLOOR-CEILING ASSEMBLY THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY NOT LESS THAN 1/2 INCH GYPSUM BOARD OR ITS EQUIVALENT. GARAGES LOCATED LESS THAN 3 FEET FROM A DWELLING UNIT ON THE SAME LOT SHALL BE PROTECTED WITH NO LESS THAN 1/2 INCH GYPSUM BOARD APPLIED TO THE INTERIOR SIDE OF EXTERIOR WALLS THAT ARE WITHIN THIS AREA. OPENINGS IN THESE WALL ARE REGULATED BY SECTION R302.5. (IRC R302.6)

PENETRATIONS THROUGH THE SEPARATION REQUIRED BY SECTION R302.6 SHALL BE PROTECTED BY FILLING THE OPENING AROUND THE PENETRATING ITEM WITH APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME OR PRODUCTS OF COMBUSTION. (IRC R302.11 ITEM 4)

FLOOR ASSEMBLIES THAT ARE NOT REQUIRED ELSEWHERE IN THIS CODE TO BE FIRE-RESISTANCE RATED SHALL BE PROVIDED WITH A 1/2-INCH (12.7 MM) GYPSUM WALLBOARD MEMBRANE, 5/8-INCH (16 MM) WOOD STRUCTURAL PANEL MEMBRANE, OR EQUIVALENT ON THE UNDERSIDE OF THE FLOOR FRAMING MEMBER. PENETRATIONS OR OPENINGS FOR DUCTS VENTS, ELECTRICAL OUTLETS, LIGHTING, DEVICES, LUMINAIRES, WIRES, SPEAKERS, DRAINAGE, PIPING AND SIMILAR OPENINGS OR PENETRATIONS SHALL BE PERMITTED. (R302.13)

EXCEPTIONS:

1. FLOOR ASSEMBLIES LOCATED DIRECTLY OVER A SPACE PROTECTED BY AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION P2904, NFPA 13D, OR OTHER APPROVED EQUIVALENT SPRINKLER SYSTEM. 2. FLOOR ASSEMBLIES LOCATED DIRECTLY OVER A CRAWL SPACE NOT INTENDED FOR

STORAGE OR FUEL-FIRED APPLIANCES. 3. PORTIONS OF FLOOR ASSEMBLIES SHALL BE PERMITTED TO BE UNPROTECTED WHERE COMPLYING WITH THE FOLLOWING: 3.1. THE AGGREGATE AREA OF THE UNPROTECTED PORTIONS DOES NOT EXCEED 80

SQUARE FEET (7.4 M2) PER STORY 3.2. FIREBLOCKING IN ACCORDANCE WITH SECTION R302.11.1 IS INSTALLED ALONG THE PERIMETER OF THE UNPROTECTED PORTION TO SEPARATE THE UNPROTECTED PORTION FROM THE REMAINDER OF THE FLOOR ASSEMBLY.

4. WOOD FLOOR ASSEMBLIES USING DIMENSION LUMBER OR STRUCTURAL COMPOSITE LUMBER EQUAL TO OR GREATER THAN 2-INCH BY 10-INCH (50.8 MM BY 254 MM) NOMINAL DIMENSION, OR OTHER APPROVED FLOOR ASSEMBLIES DEMONSTRATING EQUIVALENT FIRE PERFORMANCE.

PERMITS ARE REQUIRED FOR ANY FUTURE FINISHING OF AREAS THAT ARE INCLUDED IN THIS PERMIT AS "UNFINISHED". UNFINISHED AREAS MUST INCLUDE (1) ELECTRICAL OUTLET AND (1) LIGHT ONLY. NO ROUGH-IN PLUMBING IS ALLOWED.

10. SPECIALTIES

CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS TO INSTALL THE SPECIALTY ITEMS SHOWN, NOTED OR SPECIFIED IN THESE DOCUMENTS.

CLOSET SPECIALTIES

FIREPLACES AND STOVES

11. EQUIPMENT

CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS TO INSTALL EQUIPMENT SHOWN, NOTED OR SPECIFIED IN THESE DOCUMENTS.

PROVIDE ELEVATOR PER SYMMETRY ELEVATORS OR APPROVED EQUAL. ELEVATOR SUPPLIER SHALL VERIFY ALL DIMENSIONS AND CONSTRUCTION DETAILS BY PROVIDING DETAILS OR SHOP DRAWINGS.

## BASED ON "WILDFIRE PROTECTION IN THE WILDLAND URBAN INTERFACE" COLORADO STATE FOREST SERVICE #143-691

REMOVE TREE BRANCHES HANGING WITHIN 15 FEET OF CHIMNEYS - CLEAR WEEDS AND OTHER DEBRIS TO A MINIMUM DISTANCE OF 10 FROM THE BASE OF THE STRUCTURE. USE ONLY LIMITED FOUNDATION PLANTINGS WITHIN THIS 10 FOOT STRIP. - STACK FIREMOOD UPHILL, OR ON CONTOUR WITH, AND AT LEAST 15 FEET AWAY FROM

BUILDINGS. REMOVE FINE FUELS FROM THE VICINITY OF THE FIREWOOD. DO NOT STACK FIREWOOD ON OR BELOW DECKS AND PORCHES. - PLACE (1) 10 POUND ABC CLASS FIRE EXTINGUISHER IN EACH BUILDING. IT IS RECOMMENDED TO HAVE A 50 GARDEN HOSE CONNECTED TO THE WATER HEATER DRAIN IN THE EVENT OF A FIRE EMERGENCY INSIDE THE HOME

- THIN OUT CONTINUOUS BRUSH AND TREES WITHIN 30 FEET (LEVEL) OF ALL STRUCTURES. 40 FEET ON SIDE AND UPHILL SLOPES AND 50 FEET ON DOWN HILL SLOPES (20%) OF ALL STRUCTURES. ADEQUATE THINNING IS REACHED IN THIS "DEFENSIBLE SPACE" WHEN TREE CROWNS ARE AT LEAST 10 FEET DISTANT ON ALL SIDES. ISOLATED CLUMPS MAY BE PERMITTED IF THE 10 FOOT MINIMUM DISTANCE IS INCREASED. REMOVE ALL DEAD

VEGETATION, BRUSH AND TREES FROM THIS AREA. - PRUNE DEAD LIMBS TO A HEIGHT OF 10 FEET FROM THOSE TREES REMAINING WITHIN(2, TREE HEIGHTS OF ALL STRUCTURES. IN THIS SAME AREA, PRUNE LIVE BRANCHES TO 10 FEET FROM AT LEAST 1/2 OF THOSE TREES REMAINING.

- TREES SHOULD BE THINNED HEAVILY IN THE "DEFENSIBLE SPACE", MODERATELY IN THE TRANSITION ZONE AND CONTINUE NORMAL FOREST THINNING IN THE SURROUNDING FOREST. "HINNING IN THE SURROUNDING FOREST IS NOT PLANNED, OR POSSIBLE, THE "DEFENSIBLE SPACE" AREA SHOULD BE DOUBLED. - INCORPORATE "DEFENSIBLE SPACE" THINNING ALONG DRIVEWAYS.

- CONTACT THE COLORADO STATE FOREST SERVICE, 879.0475, FOR REQUIRED DEFENSIBLE SPACE" INSPECTIONS.

- POTABLE WATER SYSTEM HOLDING TANKS, WHEN PROVIDED, SHOULD BE PROVIDED WITH A 6" STANDPIPE WITH 90 DEGREE ELBOW WITH 6" NST MALE FITTING AND CAP. PERMANENTLY MARK STANDPIPE - FIRE PROTECTION CISTERNS MAY BE REQUIRED, VERIFY WITH LOCAL FIRE PROTECTION

## 13. ENERGY EFFICIENCY

THE ROUTT COUNTY REGIONAL BUILDING DEPARTMENT HAS ADOPTED THE 2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) AND IRC CHAPTER 11. EITHER CODE MAY BE USED.

PROJECTS SHALL COMPLY WITH ONE OF THE FOLLOWING:

I. SECTIONS N1101.14 THROUGH N1104. PRESCRIPTIVE / UA ALTERNATIVE 2. SECTION N1105 AND THE PROVISIONS OF SECTIONS N1101.14 THROUGH N1104 LABELED "MANDATORY." SIMULATED PERFORMANCE ALTERNATIVE 3. AN ENERGY RATING INDEX (ERI) (HERS) APPROACH IN SECTION N 1 106.

# TABLES N1 102.1.2 (R402.1.2) & N1 102.1.4 (R402.1.4) FOR CLIMATE ZONE 7

 FENESTRATIONSKYLIGHT
 CEILINGSFRAMED
 MASS
 FLOORS
 BASEMENT
 SLAB

 U
 WALLS
 WALLS
 WALLS
 DEPTH
 WALLS C

 FACTOR
 FACTOR
 R-49
 R-20+5
 R-19/21
 R-38g
 R-15/R-19
 R-10,4'
 R-15/19

0.32 0.55 0.026 0.045 0.057 0.028 0.050 0.055

THERE ARE NO REQUIREMENTS FOR SOLAR HEAT GLAZING COEFFICIENTS a. R-VALUES SHOWN ARE MINIMUMS, U-FACTORS SHOWN ARE MAXIMUMS, 2. THE FIRST R-VALUE IS FOR CONTINUOUS INSULATION, THE SECOND R-VALUE IS FOR CAVITY

INSULATION, EITHER SYSTEM MEETS THE REQUIREMENT d. R-5 SHALL BE ADDED TO THE SLAB EDGE R-VALUE FOR HEATED SLABS g. OR INSULATION SUFFICIENT TO FILL THE FRAMING CAVITY, R-19 MINIMUM h. THE FIRST VALUE IS CAVITY INSULATION, THE SECOND VALUE IS CONTINUOUS INSULATION

TO MEET THE PRESCRIPTIVE REQUIREMENTS, THE BUILDING THERMAL ENVELOPE SHALL MEET THE REQUIREMENTS OF SECTIONS N1102.1 THROUGH N1102.1.5.

TO MEET THE TOTAL UA ALTERNATIVE REQUIREMENTS, THE TOTAL BUILDING THERMAL ENVELOPE UA (SUM OF U-FACTOR TIMES ASSEMBLY AREA) IS LESS THAN OR EQUAL TO THE TOTAL UA RESULTING FROM USING THE U-FACTORS IN TABLE N1102.1.4 (MULTIPLIED BY THE SAME ASSEMBLY AREA AS IN THE PROPOSED BUILDING), THE BUILDING SHALL BE CONSIDERED IN COMPLIANCE WITH TABLE N 1 102, 1, 2, THE UA CALCULATION SHALL BE DONE USING A METHOD CONSISTENT WITH THE ASHRAE HANDBOOK OF FUNDAMENTALS AND SHALL INCLUDE THE THERMAL BRIDGING EFFECTS OF FRAMING MATERIALS. THE SHGC REQUIREMENTS SHALL BE MET IN ADDITION TO UA COMPLIANCE. SEE ATTACHED RESCHECK COMPLIANCE REPORT

THE BUILDING THERMAL ENVELOPE IS REPRESENTED ON THE CONSTRUCTION DRAWINGS IN

INTERIOR DESIGN TEMPERATURES ARE 72° F MAX FOR HEATING AND 75° F FOR COOLING.

THE THICKNESS OF BLOWN IN OR SPRAYED (FIBERGLASS OR CELLULOSE) SHALL BE WRITTEN IN INCHES ON MARKERS WITH NUMBERS 1" TALL. MARKERS SHALL FACE THE ATTIC ACCESS OPENING AND BE PROVIDED FOR EACH 300 SF OF ATTIC AREA. (N 1 1 10.1.1)

A PERMANENT CERTIFICATE SHALL BE COMPLETED BY THE BUILDER OR REGISTERE DESIGN PROFESSIONAL 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 HE VISIBILITY OF THE CIRCUIT DIRECTORY LABEL, SERVICE DISCONNECT LABEL OR OTHER REQUIRED LABELS. THE CERTIFICATE SHALL LIST THE PREDOMINANT R-VALUES OF INSULATION INSTALLED IN OR ON CEILING/ROOF, WALLS, FOUNDATION (SLAB, BASEMENT WALL, CRAML SPACE WALL AND/OR FLOOR) AND DUCTS OUTSIDE CONDITIONED SPACES; U-FACTORS FOR FENESTRATION AND THE SOLAR HEAT GAIN COEFFICIENT (SHGC) OF FENESTRATION, AND THE RESULTS FROM ANY REQUIRED DUCT SYSTEM AND BUILDING ENVELOPE AIR LEAKAGE TESTING DONE ON THE BUILDING. WHERE THERE IS MORE THAN ONE VALUE FOR EACH COMPONENT, THE CERTIFICATE SHALL LIST THE VALUE COVERING THE LARGEST AREA. THE CERTIFICATE SHALL LIST 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 LIST "GAS-FIRED UNVENTED ROOM HEATER," "ELECTRIC FURNACE" OR "BASEBOARD ELECTRIC HEATER," AS APPROPRIATE. AN EFFICIENCY SHALL NOT BE LISTED FOR GAS-FIRED UNVENTED ROOM HEATERS, ELECTRIC FURNACES OR ELECTRIC

CEILINGS WITH ATTIC SPACES, WHERE SECTION N 1 102.1.2 WOULD REQUIRE R-49 INSULATION IN THE CEILING, INSTALLING R-38 OVER 100 PERCENT OF THE CEILING AREA REQUIRING INSULATION SHALL BE DEEMED TO SATISFY THE REQUIREMENT FOR R-49 INSULATION WHEREVER THE FULL HEIGHT OF UNCOMPRESSED R-38 INSULATION EXTENDS OVER THE WALL TOP PLATE AT THE EAVES. THIS REDUCTION SHALL NOT APPLY TO THE U-FACTOR ALTERNATIVE APPROACH IN SECTION N1102.1.4 AND THE TOTAL UA ALTERNATIVE IN SECTION N1102.1.5. (N1102.2.1(R402.2.1)

BASEBOARD HEATERS. (N1101.14)

ACCESS DOORS FROM CONDITIONED SPACES TO UNCONDITIONED SPACES SUCH AS ATTICS AND CRAWL SPACES SHALL BE WEATHERSTRIPPED AND INSULATED TO A LEVEL EQUIVALENT O THE INGULATION ON THE SURROUNDING SURFACES. ACCESS SHALL BE PROVIDED TO ALL EQUIPMENT THAT PREVENTS DAMAGING OR COMPRESSING THE INSULATION. A WOOD-FRAMED OR EQUIVALENT BAFFLE OR RETAINER IS REQUIRED TO BE PROVIDED WHEN LOOSE-FILL INSULATION IS INSTALLED, THE PURPOSE OF WHICH IS TO PREVENT THE LOOSE-FILL INSULATION FROM SPILLING INTO THE LIVING SPACE WHEN THE ATTIC ACCESS IS OPENED, AND TO PROVIDE A PERMANENT MEANS OF MAINTAINING THE INSTALLED R-VALUE OF THE LOOSE-FILL INSULATION. (N1102.2.4 (R402.2.4))

PROVIDE BATTIC DOOR "EZ HATCH ATTIC ACCESS SCUTTLE DOOR" R-42 FOR 22" X 30" OPENING OR "ATTIC PULL DOWN STAIR LADDER COVER" R-50 FOR 22" X 54" LADDERS. INSTALL PER MANUFACTURER'S INSTRUCTIONS. (IECC 402.2.3)

### FLOOR FRAMING-CAVITY INSULATION SHALL BE INSTALLED TO MAINTAIN PERMANENT CONTACT WITH THE UNDERSIDE OF THE SUBFLOOR DECKING. (N1102.2.8 (R402.2.8))

WALLS ASSOCIATED WITH CONDITIONED BASEMENTS SHALL BE INSULATED FROM THE TOP OF THE BASEMENT WALL DOWN TO THE FOOTING, WALLS ASSOCIATED WITH UNCONDITIONED BASEMENTS SHALL MEET THIS REQUIREMENT UNLESS THE FLOOR OVERHEAD IS INSULATED IN ACCORDANCE WITH SECTIONS N1102.1.2 AND N1102.2.8 (N1102.2.9 (R402.2.9))

13. ENERGY EFFICIENCY - CONTINUED

AREA WEIGHTED AVERAGE OF FENESTRATION PRODUCTS SHALL BE PERMITTED TO SATISFY THE U-FACTOR REQUIREMENTS. (N1102.3.1 (R402.3.1))

UP TO 15 SQUARE FEET OF GLAZED FENESTRATION SHALL BE EXEMPT FROM THE U-FACTOR REQUIREMENTS IN SECTION 402.1.1. (N1102.3.3 (R402.3.3))

ONE SIDE-HINGED OPAQUE DOOR ASSEMBLY UP TO 24 SQUARE FEET (2.22 M2) IN AREA IS EXEMPTED FROM THE U-FACTOR REQUIREMENT IN SECTION N1102.1.2. THIS EXEMPTION SHALL NOT APPLY TO THE U-FACTOR ALTERNATIVE APPROACH IN SECTION N 1 102.1.4 AND THE TOTAL UA ALTERNATIVE IN SECTION N1102.1.5. (N1102.3.4 (R402.3.4))

(MANDATORY). THE BUILDING THERMAL ENVELOPE SHALL BE CONSTRUCTED TO LIMIT AIR LEAKAGE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTIONS N1 102.4.1 THROUGH N1102.4.5. (N1102.4 (R402.4))

THE BUILDING THERMAL ENVELOPE SHALL COMPLY WITH SECTIONS N1102.4.1.1 AND N1102.4.1.2. THE SEALING METHODS BETWEEN DISSIMILAR MATERIALS SHALL ALLOW FOR DIFFERENTIAL EXPANSION AND CONTRACTION. (N1102.4.1 (R402.4.1))

THE COMPONENTS OF THE BUILDING THERMAL ENVELOPE AS LISTED IN TABLE N1102.4.1.1 SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THE CRITERIA LISTED IN TABLE N1102.4.1.1, AS APPLICABLE TO THE METHOD OF CONSTRUCTION. WHERE REQUIRED BY THE BUILDING OFFICIAL, AN APPROVED THIRD PARTY SHALL INSPECT ALL AREA. COMPONENTS AND VERIFY COMPLIANCE. (N1102.4.1.1 (R402.4.1.1))

WINDOWS, SKYLIGHTS AND SLIDING GLASS DOORS SHALL HAVE AN AIR INFILTRATION RATE OF NO MORE THAN 0.3 CFM PER SQUARE FOOT (1.5 L/S/M2), AND SWINGING DOORS NO MORE THAN 0.5 CFM PER SQUARE FOOT (2.6 L/S/M2), WHEN TESTED ACCORDING TO NFRC 400 OR AAMA/WDMA/CSA 101/I.S.2/A440 BY AN ACCREDITED, INDEPENDENT LABORATORY AND LISTED AND LABELED BY THE MANUFACTURER. (N1102.4.3 (R402.4.3))

EXCEPTION: SITE-BUILT WINDOWS, SKYLIGHTS AND DOORS. IN CLIMATE ZONES 3 THROUGH & WHERE OPEN COMBUSTION AIR DUCTS PROVIDE

COMBUSTION AIR TO OPEN COMBUSTION FUEL-BURNING APPLIANCES, THE APPLIANCES AND COMBUSTION AIR OPENING SHALL BE LOCATED OUTSIDE THE BUILDING THERMAL ENVELOPE OR FNCL OSED IN A ROOM ISOLATED FROM INSIDE THE THERMAL ENVELOPE, SUCH ROOMS SHALL BE SEALED AND INSULATED IN ACCORDANCE WITH THE ENVELOPE REQUIREMENTS OF TABLE N 1 1 0 2. 1. 2, WHERE THE WALLS, FLOORS AND CEILINGS SHALL MEET A MINIMUM OF THE BASEMENT WALL R-VALUE REQUIREMENT. THE DOOR INTO THE ROOM SHALL BE FULLY SECTION N1 103. THE COMBUSTION AIR DUCT SHALL BE INSULATED WHERE IT PASSES THROUGH CONDITIONED SPACE TO A MINIMUM OF R-8. (N1102.4.4 (R402.4.4))

EXCEPTIONS: 1. DIRECT VENT APPLIANCES WITH BOTH INTAKE AND EXHAUST PIPES INSTALLED CONTINUOUS TO THE OUTSIDE. 2. FIREPLACES AND STOVES COMPLYING WITH SECTIONS N1102.4.2 AND R1006.

RECESSED LUMINAIRES INSTALLED IN THE BUILDING THERMAL ENVELOPE SHALL BE SEALED TO LIMIT AIR LEAKAGE BETWEEN CONDITIONED AND UNCONDITIONED SPACES. ALL RECESSED LUMINAIRES SHALL BE IC-RATED AND LABELED AS HAVING AN AIR LEAKAGE RATE NOT MORE THAN 2.0 CFM (0.944 L/S) WHEN TESTED IN ACCORDANCE WITH ASTME 283 AT A 1.57 PSF (75 A COLD WATER SUPPLY PIPE SHALL BE A DEMAND RECIRCULATION WATER SYSTEM. PUMPS PA) PRESSURE DIFFERENTIAL. ALL RECESSED LUMINAIRES SHALL BE SEALED WITH A GASKET OR CAULK BETWEEN THE HOUSING AND THE INTERIOR WALL OR CEILING COVERING. (N 1 102.4.5 (R402.4.5))

(MANDATORY). THE AREA-WEIGHTED AVERAGE MAXIMUM FENESTRATION U-FACTOR PERMITTED USING TRADEOFFS FROM SECTION N1102.1.5 OR N1105 SHALL BE 0.40. (N1102.5 (R402.5))

DUCTS AND AIR HANDLERS SHALL BE IN ACCORDANCE WITH SECTIONS N1103.3.1 THROUGH N1103.3.5. (N1103.3 (R403.3))

OR GREATER AND R-4.2 WHERE LESS THAN 3 INCHES (76.2 MM) IN DIAMETER. (N1103.3.1 (R403.3.1))

THERMAL ENVELOPE.

SEAMS SHALL COMPLY WITH EITHER THE INTERNATIONAL MECHANICAL CODE OR SECTION M1601.4.1 OF THIS CODE, AS APPLICABLE. (N1103.3.2 (R403.3.2))

1. AIR-IMPERMEABLE SPRAY FOAM PRODUCTS SHALL BE PERMITTED TO BE APPLIED WITHOUT ADDITIONAL JOINT SEALS. 2. FOR DUCTS HAVING A STATIC PRESSURE CLASSIFICATION OF LESS THAN 2 INCHES OF WATER COLUMN (500 PA), ADDITIONAL CLOSURE SYSTEMS SHALL NOT BE REQUIRED FOR CONTINUOUSLY WELDED JOINTS AND SEAMS, AND LOCKING-TYPE JOINTS AND SEAMS OF OTHER VENTILATION SYSTEM IS NOT OPERATING. (N 1 103.6 (R 403.6)) THAN THE SNAP-LOCK AND BUTTON-LOCK TYPES

MORE THAN 2 PERCENT OF THE DESIGN AIR FLOW RATE WHEN TESTED IN ACCORDANCE WITH FOR FANS (90 CFM. (N 1 103.6.1 (R 403.6.1)) ASHRAE 193. (N1103.3.2.1 (R403.3.2.1))

THE FOLLOWING METHODS: (N1103.3.3 (R403.3.3))

1. ROUGH-IN TEST: TOTAL LEAKAGE SHALL BE MEASURED WITH A PRESSURE DIFFERENTIAL OF 0.1 INCH W.G. (25 PA) ACROSS THE SYSTEM, INCLUDING THE MANUFACTURER'S AIR HANDLER ENCLOSURE IF INSTALLED AT THE TIME OF THE TEST. ALL REGISTERS SHALL BE TAPED OR OTHERWISE SEALED DURING THE TEST.

# 13. ENERGY EFFICIENCY - CONTINUED

2. POSTCONSTRUCTION TEST: TOTAL LEAKAGE SHALL BE MEASURED WITH A PRESSURE DIFFERENTIAL OF 0.1 INCH W.G. (25 PA) ACROSS THE ENTIRE SYSTEM, INCLUDING THE MANUFACTURER'S AIR HANDLER ENCLOSURE. REGISTERS SHALL BE TAPED OR OTHERWISE SEALED DURING THE TEST

EXCEPTION: A DUCT AIR LEAKAGE TEST SHALL NOT BE REQUIRED WHERE THE DUCTS AND AIR HANDLERS ARE LOCATED ENTIRELY WITHIN THE BUILDING THERMAL ENVELOPE.

CONDUCTING THE TEST AND PROVIDED TO THE CODE OFFICIAL

1. ROUGH-IN TEST: THE TOTAL LEAKAGE SHALL BE LESS THAN OR EQUAL TO 4 CUBIC FEET PER MINUTE (113.3 L/MIN) PER 100 SQUARE FEET (9.29 M2) OF CONDITIONED FLOOR AREA WHERE THE AIR HANDLER IS INSTALLED AT THE TIME OF THE TEST. WHERE THE AIR HANDLER IS NOT INSTALLED AT THE TIME OF THE TEST, THE TOTAL LEAKAGE SHALL BE LESS THAN OR EQUAL TO 3 CUBIC FEET PER MINUTE (85 L/MIN) PER 100 SQUARE FEET (9.29 M2) OF CONDITIONED FLOOR AREA. 2. POSTCONSTRUCTION TEST: TOTAL LEAKAGE SHALL BE LESS THAN OR EQUAL TO 4 CUBIC

FEET PER MINUTE (113.3 L/MIN) PER 100 SQUARE FEET (9.29 M2) OF CONDITIONED FLOOR MANDATORY). BUILDING FRAMING CAVITIES SHALL NOT BE USED AS DUCTS OR PLENUMS.

(N1103.3.5 (R403.3.5)) MECHANICAL SYSTEM PIPING CAPABLE OF CARRYING FLUIDS ABOVE 105 DEGREES F OR

MANDATORY). HEATED WATER CIRCULATION SYSTEMS SHALL BE IN ACCORDANCE WITH SECTION R 1 103.5.1.1. HEAT TRACE TEMPERATURE MAINTENANCE SYSTEMS SHALL BE IN ACCORDANCE WITH SECTION R 1 103.5.1.2. AUTOMATIC CONTROLS, TEMPERATURE SENSORS AND PUMPS SHALL BE ACCESSIBLE. MANUAL CONTROLS SHALL BE READILY ACCESSIBLE. (N1103.5.1 (R403.5.1))

SYSTEM". (AF 103.9) HEATED WATER CIRCULATION SYSTEMS SHALL BE PROVIDED WITH A CIRCULATION PUMP. THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD WATER SUPPLY PIPE. WHERE RADON VENT PIPE (VTR) IS PROVIDED, A LOW SONE CONTINUOUS DUTY, CUT IN FAN MAY BE GRAVITY AND THERMO-SIPHON CIRCULATION SYSTEMS SHALL BE PROHIBITED. CONTROLS FOR REQUIRED. PROVIDE AMPLE ROOM FOR FAN INSTALLATION & POWER SOURCE PER AF 103.12. CIRCULATING HOT WATER SYSTEM PUMPS SHALL START THE PUMP BASED ON THE GASKETED AND ANY WATER LINES AND DUCTS IN THE ROOM INSULATED IN ACCORDANCE WITH IDENTIFICATION OF A DEMAND FOR HOT WATER WITHIN THE OCCUPANCY. THE CONTROLS SHALL COORDINATE W/ PLUMBER, MECHANICAL & ELECTRICAL CONTRACTORS. AUTOMATICALLY TURN OFF THE PUMP WHEN THE WATER IN THE CIRCULATION LOOP IS AT THE THE USA EPA HAS SET AN ACTION LEVEL OF 4PCI/L. AT OR ABOVE THIS LEVEL OF RADON, THE EPA DESIRED TEMPERATURE AND WHEN THERE IS NO DEMAND FOR HOT WATER. (N 1 1 0 3.5.1.1 RECOMMENDS CORRECTIVE MEASURES TO REDUCE RADON GAS. IT IS RECOMMEDED TO TEST THE (R403.5.1.1)) COMPLETED STRUCTURE AND PROVIDE AN ADEQUATE VENT FAN.

ELECTRIC HEAT TRACE SYSTEMS SHALL COMPLY WITH IEEE 515.1 OR UL 515. CONTROLS FOR SUCH SYSTEMS SHALL AUTOMATICALLY ADJUST THE ENERGY INPUT TO THE HEAT TRACING TO MAINTAIN THE DESIRED WATER TEMPERATURE IN THE PIPING IN ACCORDANCE WITH THE TIMES WHEN HEATED WATER IS USED IN THE OCCUPANCY. (N 1 103.5.1.2 (R 403.5.1.2))

A WATER DISTRIBUTION SYSTEM HAVING ONE OR MORE RECIRCULATION PUMPS THAT PUMP WATER FROM A HEATED WATER SUPPLY PIPE BACK TO THE HEATED WATER SOURCE THROUGH SHALL HAVE CONTROLS THAT COMPLY WITH BOTH OF THE FOLLOWING: (N1103.5.2 (R403.5.2))

1. THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION OF A USER OF A FIXTURE OR APPLIANCE, SENSING THE PRESENCE OF A USER OF A FIXTURE OR SENSING THE FLOW OF HOT OR TEMPERED WATER TO A FIXTURE FITTING OR APPLIANCE. 2. THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE MATER ENTERING THE COLD MATER PIPING TO 104ºF (40ºC).

(PRESCRIPTIVE). INSULATION FOR HOT WATER PIPE WITH A MINIMUM THERMAL RESISTANCE (R-VALUE) OF R-3 SHALL BE APPLIED TO THE FOLLOWING: (N1103.5.3 (R403.5.3))

1. PIPING 3/4 INCH (19 MM) AND LARGER IN NOMINAL DIAMETER. 2. PIPING SERVING MORE THAN ONE DWELLING UNIT. 3. PIPING LOCATED OUTSIDE THE CONDITIONED SPACE. 4. PIPING FROM THE WATER HEATER TO A DISTRIBUTION MANIFOLD. 5. PIPING LOCATED UNDER A FLOOR SLAB. 6. BURIED PIPING.

7. SUPPLY AND RETURN PIPING IN RECIRCULATION SYSTEMS OTHER THAN DEMAND RECIRCULATION SYSTEMS.

NHERE WATER HEATERS OR HOT WATER STORAGE TANKS ARE INSTALLED IN LOCATIONS WHERE LEAKAGE WOULD CAUSE DAMAGE, THE TANK OR WATER HEATER SHALL BE INSTALLED IN A GALVANIZED (MANDATORY). THE BUILDING SHALL BE PROVIDED WITH VENTILATION THAT MEETS THE STEEL PAN PER IRC P2801.6. LISTED PANS SHALL COMPLY WITH CSA LC3. THE PAN SHALL BE DRAINED REQUIREMENTS OF SECTION M1507 OF THIS CODE OR THE INTERNATIONAL MECHANICAL CODE, BY AN INDIRECT WASTE PIPE PER IRC P 2801.6.1 AND TERMINATED OVER A SUITABLY LOCATED AS APPLICABLE, OR WITH OTHER APPROVED MEANS OF VENTILATION. OUTDOOR AIR INTAKES INDIRECT WASTE RECEPTOR OR EXTENDED TO THE BUILDING EXTERIOR AND TERMINATED BETWEEN 6" AND EXHAUSTS SHALL HAVE AUTOMATIC OR GRAVITY DAMPERS THAT CLOSE WHEN THE AND 24" ABOVE THE ADJACENT GROUND SURFACE PER IRC P2801.6.2. VENTILATION SYSTEM IS NOT OPERATING. (N1103.6 (R403.6))

(MANDATORY). THE BUILDING SHALL BE PROVIDED WITH VENTILATION THAT MEETS THE REQUIREMENTS OF SECTION M1507 OF THIS CODE OR THE INTERNATIONAL MECHANICAL CODE, AS APPLICABLE, OR WITH OTHER APPROVED MEANS OF VENTILATION. OUTDOOR AIR INTAKES AND EXHAUSTS SHALL HAVE AUTOMATIC OR GRAVITY DAMPERS THAT CLOSE WHEN THE

MECHANICAL VENTILATION SYSTEM FANS SHALL MEET THE EFFICACY REQUIREMENTS OF AIR HANDLERS SHALL HAVE A MANUFACTURER'S DESIGNATION FOR AN AIR LEAKAGE OF NO TABLE N 1 103.6.1 OF 2.8 CFM/WATT EXCEPT BATH AND UTILITY ROOM FANS OF 1.4 CFM/WATT

EXCEPTION: WHERE MECHANICAL VENTILATION FANS ARE INTEGRAL TO TESTED AND LISTED (MANDATORY). DUCTS SHALL BE PRESSURE TESTED TO DETERMINE AIR LEAKAGE BY ONE OF HVAC EQUIPMENT, THEY SHALL BE POWERED BY AN ELECTRONICALLY COMMUTATED MOTOR.

MANDATORY). HEATING AND COOLING EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT TO INSTALL VENTILATION. ACCA MANUAL 5 BASED ON BUILDING LOADS CALCULATED IN ACCORDANCE WITH ACCA HEATING AND AIR CONDITIONING EQUIPMENT; DUCTING AND ALL RELATED CONTROLS. ALL WORK SHAL MANUAL J OR OTHER APPROVED HEATING AND COOLING CALCULATION METHODOLOGIES. NEW COMPLY WITH IRC PART V - MECHANICAL, CHAPTERS 12 THRU 23, STATE AND LOCAL CODES AND OR REPLACEMENT HEATING AND COOLING EQUIPMENT SHALL HAVE AN EFFICIENCY RATING ORDINANCES. ALL EQUIPMENT SHALL BE INSTALLED PER THE MANUFACTURER'S PRINTED INSTRUCTIONS EQUAL TO OR GREATER THAN THE MINIMUM REQUIRED BY FEDERAL LAW FOR THE GEOGRAPHIC AND LOCAL CODES AND THE REQUIREMENTS OF IRC CHAPTERS 13 & 14. LOCATION WHERE THE EQUIPMENT IS INSTALLED. (N 1 103.7 (R 403.7))

THE MECHANICAL SUBCONTRACTORS SHALL BE RESPONSIBLE FOR THE FINAL DESIGN OF THE (MANDATORY). A MINIMUM OF 75% OF THE LAMPS IN PERMANENTLY INSTALLED LIGHTING SYSTEMS AS WELL AS THE EXECUTION OF THE WORK ACCORDING TO ACCEPTED STANDARDS OF FIXTURES SHALL BE HIGH EFFICACY LAMPS AND NOT LESS THAN 75% OF THE PERMANENTLY ENGINEERING, WORKMANSHIP AND REGULATORY REQUIREMENTS. MECHANICAL CONTRACTORS TO INSTALLED LIGHTING FIXTURES SHALL CONTAIN ONLY HIGH EFFICACY LAMPS.. (N 1 104.1(R404.1)) PROVIDE ADDITIONAL DRAWINGS. SPECIFICATIONS AND ENGINEER'S CERTIFICATION AS REQUIRED BY FEDERAL, STATE, OR LOCAL LAWS AND BUILDING DEPARTMENT JURISDICTION.

PROVIDE PROGRAMMABLE THERMOSTAT FOR EACH SEPARATE HEATING AND COOLING SYSTEM (N1103.1.2 (R403.1.2))

HOT WATER BOILERS SHALL HAVE AN OUTDOOR SETBACK CONTROL THAT LOWERS THE BOILER WATER TEMPERATURE BASED ON THE OUTDOOR TEMPERATURE (N 1 103.2 (R 403.2))

AS DESIGNED THIS HOUSE AND GARAGE WILL COMPLY WITH THE PRESCRIPTIVE PATH, SECTIONS N 1 1 0 1.14-N 1 1 04. IF FIELD DECISIONS OR SUBSTITUTIONS ARE MADE RESULTING IN FAILURE TO COMPLY WITH SECTIONS N1101.14-N1104 (PRESCRIPTIVE) THE HOME MUST BE EVALUATED UNDER SECTION N1105, SIMULATED PERFORMANCE ALTERNATIVE PATH (PERFORMANCE) OR SECTION N1106 ENERGY RATING INDEX (COMPLIANCE ALTERNATIVE). A FOR THE BUILDING PERMIT. VERIFICATION OF COMPLIANCE WITH SECTION N 1 105 OR N 1 106 SHALL BE COMPETED BY AN APPROVED THIRD PARTY AND THE COMPLIANCE REPORT SHALL BE SUBMITTED WITH THE BUILDING PERMIT APPLICATION.

TO PROVIDE CALCULATIONS BY DEFERRED SUBMITTAL FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION OF MECHANICAL OR HVAC EQUIPMENT. SEE ATTACHED HEAT LOSS CALCULATIONS. EXHAUST SYSTEMS SHALL BE INSTALLED PER IRC CHAPTER 15. COMPLIANCE REPORT ON THE PROPOSED DESIGN SHALL BE SUBMITTED WITH THE APPLICATION DUCT SYSTEMS SERVING HEAT, COOLING AND VENTILATION EQUIPMENT SHALL BE FABRICATED \$ INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF IRC CHAPTER 16  $\ddagger$  ACCA MANUAL D  $\ddagger$ MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.

(PRESCRIPTIVE). SUPPLY AND RETURN DUCTS IN ATTICS SHALL BE INSULATED TO A MINIMUM OF R-8 WHERE 3 INCHES (76.2 MM) IN DIAMETER AND GREATER AND R-6 WHERE LESS THAN 3 INCHES (76.2 MM) IN DIAMETER. SUPPLY AND RETURN DUCTS IN OTHER PORTIONS OF THE BUILDING SHALL BE INSULATED TO A MINIMUM OF R-6 WHERE 3 INCHES (76.2 MM) IN DIAMETER

EXCEPTION: DUCTS OR PORTIONS THEREOF LOCATED COMPLETELY INSIDE THE BUILDING

(MANDATORY). DUCTS, AIR HANDLERS AND FILTER BOXES SHALL BE SEALED. JOINTS AND

A WRITTEN REPORT OF THE RESULTS OF THE TEST SHALL BE SIGNED BY THE PARTY

(PRESCRIPTIVE). THE TOTAL LEAKAGE OF THE DUCTS, WHERE MEASURED IN ACCORDANCE WITH SECTION R403.3.3, SHALL BE AS FOLLOWS: (N1103.3.4 (R403.3.4))

BELOW 55 DEGREES F SHALL BE INSULATED TO R-3 MINIMUM. (N 1 103.4 (IECC 403.3))

14. PLUMBING

CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS TO INSTALL ALL PERIMETER STORM DRAINAGE, FLOOR DRAINS, PLUMBING, RELATED FIXTURES, GAS PIPING AND RADON GAS VENT PIPING ALL WORK SHALL COMPLY WITH IRC PART VI - FUEL GAS, CHAPTER 24 AND PART VII - PLUMBING, CHAPTERS 25 THRU 33, STATE AND LOCAL CODES AND ORDINANCES. WATER HEATERS SHALL BE LOCATED PER IRC CHAPTER 20. AND SHALL BE INSTALLED IN

ACCORDANCE WITH IRC CHAPTERS 25 \$ 28. WATER SUPPLY AND DISTRIBUTION SHALL COMPLY WITH IRC CHAPTER 29 SANITARY DRAINAGE SHALL COMPLY WITH IRC CHAPTER 30. VENTING SHALL COMPLY WITH IRC CHAPTER 31.

FIXTURE TRAPS SHALL COMPLY WITH IRC CHAPTER 32. DWELLING FIRE SPRINKLER SYSTEM IF REQUIRED SHALL BE INSTALLED PER CHAPTER 29 SECTION

PROVIDE TRUNK AND BRANCH PLUMBING SYSTEM WITH HOT WATER RECIRCULATION LOOP ON RUNS LONGER THAN 30 FEET HORIZONTAL. RECIRCULATION LOOP TO BE DESIGNED FOR GRAVITY FLOW OR PROVIDED WITH A LOW FLOW, HIGH EFFICIENCY, CONTINUOUS DUTY PUMP. OR PROVIDE PARALLEL FLOW (MANIFOLD OR HOME RUN) PIPING SYSTEM USING "PEX" OR APPROVED EQUAL PIPING.

ROUTT COUNTY IS LISTED IN ZONE 2, MODERATE POTENTIAL FOR RADON PER FIGURE AF 101. BELOW GRADE AND CRAML SPACE FOUNDATIONS ARE RECOMMENDED TO COMPLY WITH APPENDIX F "RADON CONTROL METHODS".

IN BUILDINGS WITH CRAWL SPACES WHERE A PASSIVE SUBMEMBRANE DEPRESSURIZATION SYSTEM IS SHOWN ON THE FOUNDATION PLAN, PROVIDE VENTILATION PER AF 103.5.1. SOIL GAS RETARDER PER AF 103.5.2 AND VENT PIPE PER AF 3 10.3. SEE AF 102 FOR DETAILS. (AF 103.5)

IN BUILDINGS WITH BASMENTS OR SLAB-ON-GRADE CONSTRUCTION WHERE A PASSIVE SUBSLAB DEPRESSURIZATION SYSTEM IS SHOWN ON THE FOUNDATION PLAN, PROVIDE VENT PIPE PER AF 103.6. OR AF 103.6.2. SEE FIGURE AF 102 FOR DETAILS. (AF 103.6)

RADON VENT PIPES SHALL BE ACCESSIBLE FOR FUTURE FAN INSTALLATION THROUGH AN ATTIC OR OTHER AREA OUTSIDE THE HABITABLE SPACE. (AF 103.8)

EXPOSED OR VISIBLE INTERIOR RADON VENT PIPES SHALL BE IDENTIFIED WITH NOT LESS THAN ONE LABEL ON EACH FLOOR AND IN ACCESSIBLE ATTICS. THE LABEL SHALL READ "RADON REDUCTION

THE MAXIMUM WATER CONSUMPTION FLOW RATES AND QUANTITIES FOR ALL PLUMBING FIXTURES AND FIXTURE FITTINGS SHALL BE IN ACCORDANCE WITH TABLE P2903.2. HIGH EFFICIENCY TOILETS, WHEN SPECIFIED, SHALL BE DUAL FLUSH OR < 1.3 GPF.

A WATER CLOSET LAVATORY OR BIDET SHALL NOT BE SET CLOSER THAN 15" FROM ITS CENTER TO ANY SIDEWALL PARTITION OR VANITY. THE CLEAR SPACE IN FRONT OF THE WATER CLOSET SHALL BE NOT LESS THAN 21" (R307.1 \$ P2705.1.5). PROVIDE ELONGATED BOWLS UNLESS OTHERWISE NOTED.

SHOWER COMPARTMENTS SHALL HAVE AT LEAST 900 SQUARE INCHES OF INTERIOR CROSS SECTIONAL AREA AND SHALL NOT BE LESS THAN 30" IN MINIMUM DIMENSION. (P2708) SHOWER FLOORS AND WALLS ABOVE BATHTUBS WITH INSTALLED SHOWER HEADS AND SHOWER COMPARTMENTS SHALL BE FINISHED WITH A NON-ABSORBENT SURFACE EXTENDING TO A HEIGHT OF 6'-0" MINIMUM ABOVE THE FLOOR. (R307.2)

PROVIDE CAST-N-PLACE CAST IRON FLOOR DRAINS WITH INTEGRAL SAND TRAP, PIPED @ 1% MINIMUM SLOPE TO DAYLIGHT IN THE GARAGE. DAYLIGHTED END SHALL BE SCREENED AND PROTECTED WITH ROCK RIPRAP. IF EXPANSIVE SOILS ARE PRESENT, DO NOT CONNECT FLOOR DRAIN OUTFALL TO FOUNDATION PERIMETER DRAIN UNTIL 10 FEET AWAY FROM THE FOUNDATION.

PROVIDE FLOOR DRAIN PIPED TO HOUSE SEWER IN ALL MECHANICAL ROOMS CONTAINING BOILERS DRAIN SHALL BE LOCATED AS NOTED ON PLANS. IF USED AS AN INDIRECT DRAIN RECEPTOR FOR BOILER OR WATER HEATER RELOCATE AS CLOSE AS POSSIBLE TO BOILER OR WATER HEATER.

PROVIDE FLOOR DRAIN PIPED TO HOUSE SEWER IN ALL LAUNDRY ROOM UNLESS WASHING MACHINE IS PLACED IN A WATER TIGHT PAN COMPLYING WITH IRC SECTION P2801.6

PROVIDE (2) FROST PROOF HOSE BIBBS AT LOCATIONS NOTED ON THE PLANS. PROVIDE BARBEQUE GRILL GAS SERVICE LINE WITH SHUT OFF VALVE AT LOCATION NOTED ON THE

PLANS

PROVIDE "WATER BUG" OR OTHER OWNER APPROVED LEAK DETECTOR & SHUT OFF SYSTEM.

APPLIANCES AND EQUIPMENT USED FOR HEATING WATER OR STORING HOT WATER SHALL BE PROTECTED BY A PRV AND TRV OR COMBINATION P/TRV PER IRC SECTION P2803 AND SHALL NOT B DIRECTLY CONNECTED TO THE DRAINAGE SYSTEM. THE DISCHARGE SHALL BE THROUGH AND AIR GAP TO AN INDIRECT WASTE RECEPTOR OR OTHER APPROVED MEANS (P2803.6.1)

15. MECHANICAL

ADDITIONS, ALTERATIONS, RENOVATIONS OR REPAIRS TO A MECHANICAL SYSTEM SHALL CONFORM TO THE REQUIREMENTS FOR A NEW MECHANICAL SYSTEM WITHOUT REQUIRING THE EXISTING MECHANICAL SYSTEM TO COMPLY WITH ALL OF THE REQUIREMENTS OF THIS CODE.(IRC M 1 202.1)

HEATING AND COOLING EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH SECTION M1401.3, OF THE IRC; ACCA MANUAL J OR OTHER APPROVED METHODOLOGY. (IECC 403.6) MECHANICAL CONTRACTOR

SOLID FUEL BURNING APPLIANCES SHALL BE PROVIDED WITH COMBUSTION AIR IN ACCORDANCE WITH THE APPLIANCE MANUFACTURER'S INSTALLATION INSTRUCTIONS THE REQUIREMENTS FOR COMBUSTION VENTILATION & DILUTION AIR FOR GAS FIRED APPLIANCES SHALL BE IN ACCORDANCE WITH CHAPTER 24

FUEL BURNING APPLIANCES SHALL BE VENTED TO THE OUTDOORS IN ACCORDANCE WITH THEIR LISTING AND LABEL AND MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PER IRC CHAPTER 18. FREE STANDING OR BUILT-IN RANGES SHALL HAVE A VERTICAL CLEARANCE ABOVE THE COOKING

TOP OF NOT LESS THAN 30 INCHES. (IRC M1901.1) BOILERS SHALL BE INSTALLED IN ACCORDANCE WITH IRC CHAPTER 20. WATER HEATERS SHALL BE INSTALLED IN ACCORDANCE WITH IRC CHAPTER 20. HYDRONIC PIPING SYSTEMS SHALL BE INSTALLED PER IRC CHAPTER 21. SOLAR ENERGY SYSTEMS SHALL BE DESIGNED, CONSTRUCTED AND INSTALLED PER IRC CHAPTER 23.

GAS FIRED APPLIANCES SHALL BE VENTED IN ACCORDANCE WITH IRC CHAPTER 24. (MANDATORY). DUCTS SHALL BE PRESSURE TESTED TO DETERMINE AIR LEAKAGE BY ONE OF THE

FOLLOWING METHODS: (N1103.3.3 (R403.3.3)) 1. ROUGH-IN TEST: TOTAL LEAKAGE SHALL BE MEASURED WITH A PRESSURE DIFFERENTIAL OF 0.1 INC

M.G. (25 PA) ACROSS THE SYSTEM, INCLUDING THE MANUFACTURER'S AIR HANDLER ENCLOSURE IF INSTALLED AT THE TIME OF THE TEST. ALL REGISTERS SHALL BE TAPED OR OTHERWISE SEALED DURING THE TEST. 2. POSTCONSTRUCTION TEST: TOTAL LEAKAGE SHALL BE MEASURED WITH A PRESSURE DIFFERENTIA

OF 0.1 INCH W.G. (25 PA) ACROSS THE ENTIRE SYSTEM, INCLUDING THE MANUFACTURER'S AIR HANDLER ENCLOSURE. REGISTERS SHALL BE TAPED OR OTHERWISE SEALED DURING THE TEST.

EXCEPTION: A DUCT AIR LEAKAGE TEST SHALL NOT BE REQUIRED WHERE THE DUCTS AND AIR HANDLERS ARE LOCATED ENTIRELY WITHIN THE BUILDING THERMAL ENVELOPE.

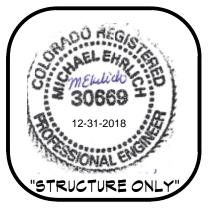
A WRITTEN REPORT OF THE RESULTS OF THE TEST SHALL BE SIGNED BY THE PARTY CONDUCTING THE TEST AND PROVIDED TO THE CODE OFFICIAL

(PRESCRIPTIVE). THE TOTAL LEAKAGE OF THE DUCTS, WHERE MEASURED IN ACCORDANCE WITH SECTION R403.3.3, SHALL BE AS FOLLOWS: N1103.3.4 (R403.3.4)

1. ROUGH-IN TEST: THE TOTAL LEAKAGE SHALL BE LESS THAN OR EQUAL TO 4 CUBIC FEET PER MINUTE (113.3 L/MIN) PER 100 SQUARE FEET (9.29 M2) OF CONDITIONED FLOOR AREA WHERE THE AIR HANDLER IS INSTALLED AT THE TIME OF THE TEST. WHERE THE AIR HANDLER IS NOT INSTALLED AT THE TIME OF THE TEST, THE TOTAL LEAKAGE SHALL BE LESS THAN OR EQUAL TO 3 CUBIC FEET PER MINUTE (85 L/MIN) PER 100 SQUARE FEET (9.29 M2) OF CONDITIONED FLOOR AREA. 2. POSTCONSTRUCTION TEST: TOTAL LEAKAGE SHALL BE LESS THAN OR EQUAL TO 4 CUBIC FEET PEI MINUTE (113.3 L/MIN) PER 100 SQUARE FEET (9.29 M2) OF CONDITIONED FLOOR AREA.

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