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Note: Pre Development Avg grade will remain same post development.



FRONT ELEVATION

BUILDING DEPARTMENT NOTES:

DEFERRED PERMITS:
DEMOLITION PERMIT
PLUMBING PERMIT
MECHANICAL PERMIT
SEWER (BACKFLOW DEVICE REQUIRED)

3D RENDERING NOTES:

3D ELEVATIONS ARE FOR REFERENCE ONLY. THESE SHOULD NOT BE USED TO DETERMINE ANY PORTION OF THE CONSTRUCTION OTHER THAN GENERAL MATERIAL AND APPEARANCE. REFER TO ELEVATION SHEETS FOR DETAILS.

PROJECT NAME:

AMIRI RESIDENCE

PROJECT DATA:

PARCEL NO.:
PROPERTY TYPE:
LAND AREA:
ACRES:
Q.S.T.R.:
ADDRESS:

ZONING:
MIN SETBACKS:

MAX HEIGHT:

WATER:
SEWER/SEPTIC:
ROAD ACCESS:
STREET SURFACE:

DEMO PERMIT: DEMO-017831-2026 (METAL SHED 551 SF — REMOVED 07/01/2026)

DESIGN TEAM:

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BUILDER:

OWNER:

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CIVIL ENGINEER:

PROJECT NAME
SINGLE FAMILY RESIDENCE
SINGLE USE

PREPARED FOR
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SUBMITTAL/REVISION DATE
SUBMITTED:
REVISED:

DESIGNED BY:

DRAFTED BY:

SHEET TITLE

COVER SHEET

PROJECT NUMBER

21208-2-0

SHEET NUMBER

AO



URBAN DESIGN GROUP
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GENERAL NOTES

NORTH CAROLINA RESIDENTIAL CODE 2018 EDITION AND ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION TO BE FOLLOWED.

2018 NORTH CAROLINA RESIDENTIAL CODE
2018 NORTH CAROLINA STATE BUILDING CODE

CONTRACTOR SHALL VERIFY ALL NOTES, DIMENSIONS & CONDITIONS PRIOR TO CONSTRUCTION & PROVIDE TEMPORARY BRACING AS REQUIRED UNTIL ALL PERMANENT CONNECTIONS HAVE BEEN INSTALLED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY

REPETITIVE FEATURES NOT NOTED ON THE DRAWINGS SHALL BE COMPLETELY PROVIDED AS IF DRAWN IN FULL

CONTRACTOR SHALL VERIFY ALL ROUGH-IN DIMENSIONS FOR ALL EQUIPMENT TO BE INSTALLED

SITE WORK

GENERAL
UNLESS A SOILS INVESTIGATION BY A QUALIFIED SOILS ENGINEER IS PROVIDED, FOUNDATION DESIGN IS BASED ON AN ASSUMED AVERAGE SOIL BEARING OF 1500 PSF. EXTERIOR FOOTINGS SHALL BEAR 16" (MINIMUM) BELOW FINISHED GRADE. ALL FOOTINGS TO BEAR ON FIRM UNDISTURBED EARTH BELOW ORGANIC SURFACE SOILS. BACK FILL TO BE THOROUGHLY COMPACTED. FOUNDATION VENTS SHALL NOT INTERFERE WITH DIRECT LOAD PATH OF COLUMNS.

CONCRETE

MIX AND 28 DAY STRENGTH OF CONCRETE
- BASEMENT WALLS & FOUNDATIONS
OTHER CONCRETE NOT EXPOSED TO WEATHER:

PER STRUCTURAL
5-SHEETS

- BASEMENT SLABS & INTERIOR SLABS
INTERIOR SLABS ON GRADE, EXCEPT GARAGE DOOR SLABS

PER STRUCTURAL
5-SHEETS

- BASEMENT WALLS & FOUNDATION WALLS, EXTERIOR WALLS & OTHER VERTICAL CONCRETE WORK EXPOSED TO THE WEATHER:

PER STRUCTURAL
5-SHEETS

- PORCHES, CARPORT SLABS & STEPS EXPOSED TO WEATHER, & GARAGE

PER STRUCTURAL
5-SHEETS

FLOOR SLABS:

GARAGE FLOORS TO SLOPE 1/8"/FT. MIN. TOWARDS OPENING AS REQUIRED FOR DRAINAGE. CONCRETE SLABS TO HAVE CONTROL JOINTS AT 25' FT. (MAX.) INTERVALS EA. JAY. SLABS ARE TO BE 5-AIR ENTRAINED CONCRETE SIDEWALKS TO HAVE 3/4" IN. TOOLED JOINTS AT 5' FT. (MIN.) O.C.

CONCRETE COVER OF REINFORCING

3" CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.
1 1/2" CONCRETE EXPOSED TO EARTH OR WEATHER.
1 1/2" BEAMS AND COLUMNS NOT EXPOSED TO EARTH OR WEATHER.
3/4" SLABS AND WALLS NOT EXPOSED TO EARTH OR WEATHER.
LAP COLUMN VERTICALS. GLASS "A" CONCRETE AND MASONRY COLUMN AND WALL VERTICALS 32 DIAMETERS. LAP ALL OTHER REINFORCING 24 DIAMETERS. SPLICES AT TENSION REGIONS SHALL NOT BE PERMITTED.

CARPENTRY

GENERAL
ALL FRAMING TO COMPLY WITH ENGINEERING 5-SHEETS FOR NAIL SIZES AND SPACING.

ALL WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED.

6" MIN. CLEARANCE BETWEEN WOOD AND EARTH.
18" MIN. CLEARANCE BETWEEN FLOOR JOIST AND EARTH.
12" MIN. CLEARANCE BETWEEN FLOOR BEAMS AND EARTH.

FASTENERS FOR PRESSURE PRESERVATIVE AND FIRE-RETARDANT-TREATED WOOD SHALL BE OF HOT-DIPPED GALVANIZED STEEL.

REFERENCE SHEET-S1 FOR SPECIES AND GRADE (BASE DESIGN VALUES)

BOLT HEADS AND NUTS BEARING AGAINST WOOD TO BE PROVIDED WITH 3"x3"x.224" PLATE WASHERS. WOOD BEARING ON OR INSTALLED WITHIN 1" OF MASONRY OR CONCRETE TO BE TREATED WITH AN APPROVED PRESERVATIVE. SOLID BLOCKING OF NOT LESS THAN 2 X THICKNESS SHALL BE PROVIDED AT ENDS AND AT ALL SUPPORT OF JOISTS AND RAFTERS. BETWEEN SUPPORTS PROVIDED AT ENDS AND AT ALL SUPPORT OF JOISTS AND RAFTERS. JOISTS, 10'-0" FOR ROOF JOISTS. TYPICAL SILL BOLTS TO BE 5/8" DIAMETER AT 6'-0" O.C. MINIMUM T' EMBED. ALL METAL FRAMING ANCHORS AND HANGERS SHOWN ON DRAWINGS SHALL BE STRONG TIE CONNECTORS AS MANUFACTURED BY SIMPSON COMPANY.

PLYWOOD
PLYWOOD WALL AND ROOF SHEATHING SHALL BE 3/4" CDX, UNLESS OTHERWISE SPECIFIED. PLYWOOD FLOOR SHEATHING SHALL BE 3/4" CDX T&G. UNLESS OTHERWISE SPECIFIED. STAGGER END LAPS AT ROOF AND FLOOR SHEATHING. OSB SHEATHING PRODUCTS OF EQUIVALENT SPAN RATINGS SHALL BE ALLOWED.

WOOD TRUSSES
ALL ROOF TRUSSES SHALL BE FRAMED AND TIED INTO THE FRAME WORK AND SUPPORTING WALLS SO AS TO FROM AN INTEGRAL PART OF THE WHOLE BUILDING. ROOF TRUSSES SHALL HAVE JOINTS WELL FITTED AND SHALL HAVE ALL TENSION MEMBERS WELL TIGHTENED BEFORE ANY LOAD IS PLACED UPON THE TRUSS. DIAGONAL AND SWAY BRACING SHALL BE USED TO BRACE ALL TRUSSES.

SEE SHEET-S1 FOR DESIGN CRITERIA

INSULATION AND MOISTURE PROTECTION

GENERAL
INSULATION BAFFLES TO MAINTAIN 1" ABOVE BATT INSULATION
BAFFLES TO EXTEND 6" ABOVE BATT INSULATION
BAFFLES TO EXTEND 12" ABOVE LOOSE FILL INSULATION
INSULATE BEHIND TUBS/SHOWERS, PARTITIONS AND CORNERS FACE STAPLE BATTS
FRICTION FIT FACED BATTS
USE 4 MIL POLY VAPOR RETARDER AT WALLS.
* R-10 RIGID FOAM INSULATION ON 4X EVADERS AT EXTERIOR WALLS.

INFILTRATION CONTROL

1. EXTERIOR JOINTS AROUND WINDOWS AND DOOR FRAMES, OPENINGS BETWEEN WALLS AND FOUNDATIONS, BETWEEN WALLS AND ROOF AND BETWEEN WALL PANELS, OPENINGS AT PENETRATIONS OF UTILITY SERVICES THROUGH WALLS, FLOOR AND ROOFS, AND ALL OTHER SUCH OPENINGS IN THE BUILDING ENVELOPE, INCLUDING ACCESS PANELS INTO UNHEATED SPACES, SHALL BE SEALED, CAULKED, GASKETED OR WEATHER-STRIPPED TO LIMIT AIR LEAKAGE. ALL OPENINGS SHALL BE FLASHED, APPROVED CORROSION-RESISTIVE FLASHING SHALL BE PROVIDED IN THE EXTERIOR WALL ENVELOPE IN SUCH A MANNER AS TO PREVENT ENTRY OF WATER INTO THE WALL CAVITY OR PENETRATION OF WATER TO THE BUILDING STRUCTURAL FRAMING COMPONENTS. THE FLASHING SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL FINISH AND SHALL BE INSTALLED TO PREVENT WATER FROM REENTERING THE EXTERIOR WALL ENVELOPE. APPROVED CORROSION-RESISTANT FLASHING SHALL BE INSTALLED AT ALL OF THE FOLLOWING LOCATIONS:

- AT TOP OF ALL EXTERIOR WINDOW AND DOOR OPENINGS IN SUCH A MANNER AS TO BE LEAKPROOF, EXCEPT THAT SELF-FLASHING WINDOWS HAVING A CONTINUOUS LAP OF NOT LESS THAN 1-1/8" OVER THE SHEATHING MATERIAL AROUND THE PERIMETER OF THE OPENING, INCLUDING CORNERS, DO NOT REQUIRE ADDITIONAL FLASHING. JAMB FLASHING MAY ALSO BE OMITTED WHEN SPECIFICALLY APPROVED BY THE BUILDING OFFICIALS.
- AT THE INTERSECTION OF CHIMNEYS OR OTHER MASONRY CONSTRUCTION WITH FRAME OR WALLS, WITH PROJECTING LIPS ON BOTH SIDES UNDER STUCCO COPINGS.
- UNDER AND AT THE ENDS OF MASONRY, WOOD OR METAL COPINGS AND SILLS.
- CONTINUOUSLY ABOVE ALL PROJECTING WOOD TRIM.
- WHERE EXTERIOR PORCHES, DECKS OR STAIRS ATTACH TO A WALL OR FLOOR ASSEMBLY OF WOOD-FRAME CONSTRUCTION.
- AT WALL AND ROOF INTERSECTIONS.
- AT BUILT-IN GUTTERS.

- ALL EXTERIOR DOORS, OTHER THAN FIRE-RATED DOORS, SHALL BE DESIGNED TO LIMIT AIR LEAKAGE AROUND THEIR PERIMETER WHEN IN A CLOSED POSITION. DOORS BETWEEN RESIDENCE AND GARAGE ARE NOT CONSIDERED FIRE-RATED AND MUST MEET THE ABOVE REQUIREMENT.

- ALL EXTERIOR WINDOWS SHALL BE DESIGNED TO ADMIT INFILTRATION INTO OR FROM THE BUILDING ENVELOPE.

- RECESSED LIGHTING FIXTURES, WHEN INSTALLED IN THE BUILDING ENVELOPE, RECESSED LIGHTING FIXTURES SHALL BE TYPE IC RATED AND CERTIFIED TO HAVE NO MORE THAN 2.0 CFM AIR MOVEMENT FROM THE CONDITIONED SPACE TO THE CEILING CAVITY. THE LIGHTING FIXTURE SHALL BE TESTED AT 75 PASCALS OR 1.57 LBS/FT² PRESSURE DIFFERENCE AND HAVE A LABEL ATTACHED, SHOWING COMPLIANCE WITH THIS TEST METHOD. RECESSED LIGHTING FIXTURES SHALL BE INSTALLED WITH A GASKET OR CAULK BETWEEN THE FIXTURE AND CEILING TO PREVENT AIR LEAKAGE.

VAPOR BARRIERS/ GROUND COVERS
AN APPROVED VAPOR BARRIER SHALL BE PROPERLY INSTALLED IN ROOF DECKS, IN ENCLOSED RAFTER SPACES FORMED WHERE CEILINGS ARE APPLIED DIRECTLY TO THE UNDERSIDE OF ROOF RAFTERS, AND AT EXTERIOR WALLS, INSET STAPLED BATTS WITH A PERM RATING LESS THAN ONE MAY BE INSTALLED IF THE VAPOR BARRIER IS TO THE WARM SIDE, STAPLES ARE PLACED NOT MORE THAN 8 INCHES ON CENTER AND GAPS BETWEEN THE FACING AND THE FRAMING DO NOT EXCEED 1/16 INCH.

A GROUND COVER OF 6 MIL (0.006")BLACK POLYETHYLENE OR EQUIVALENT, SHALL BE LAID OVER THE GROUND IN ALL CRAWL SPACES. THE GROUND COVER SHALL BE OVERLAPPED ONE FOOT AT EACH JOINT AND SHALL EXTEND TO THE FOUNDATION WALL.

DOORS, WINDOWS AND SKYLIGHTS

GENERAL
DOORS TO THE EXTERIOR SHALL HAVE MAX. 3" STEP TO MIN. 36" DEEP LANDING. .

BEDROOM EMERGENCY EGRESS WINDOWS MINIMUM NET CLEAR OPENING OF 5.7 SQ. FT. MIN. NET CLEAR OPEN ABLE WIDTH OF 20" AND MINIMUM NET CLEAR OPENING HEIGHT OF 24". MAXIMUM FINISHED SILL HEIGHT OF 44" ABOVE FLOOR.

FACTORY BUILT WINDOWS TO BE CONSTRUCTED TO PERMIT MAXIMUM INFILTRATION OF 0.5 CFM PER LINEAL FOOT OF OPERABLE SASH PERIMETER AS TESTED BY ASTM STANDARDS. SITE BUILT AND MILL WORK SHOP BUILT WOODEN SASH ARE EXEMPT FROM INFILTRATION CRITERIA ABOVE, BUT MUST BE MADE TIGHTLY FITTING AND WEATHER STRIPPED OR CAULKED. SLIDING GLASS DOORS TO PERMIT MAXIMUM INFILTRATION OF 0.5 CFM INFILTRATION PER SQUARE FOOT OF DOOR AREA.

SAFETY GLAZING SHALL BE LOCATED WITHIN

- INGRESS AND EGRESS DOORS
- SLIDING GLASS DOORS, SWINGING GLASS DOORS
- SHOWER AND BATHTUB ENCLOSURES
- GLAZING IN/ THE EXPOSED EDGE WITHIN A 24" ARC OF EITHER VERTICAL EDGE OF A DOOR IN THE CLOSED PORTION# BOTTOM EDGE IS LESS THAN 60" ABOVE THE WALKING SURFACE
- GLAZING GREATER THAN 4 S.P. LESS THAN 13" ABOVE FINISHED FLOOR.
- WINDOW SILLS: 612.2, 24" MINIMUM SILL HEIGHT EXCEPTIONS ALLOW FOR OPENING LIMITING DEVICE FOR 4" DIAMETER SPHERE AND WINDOW FALL PREVENTION DEVICE THAT COMPLIES WITH 612.3.

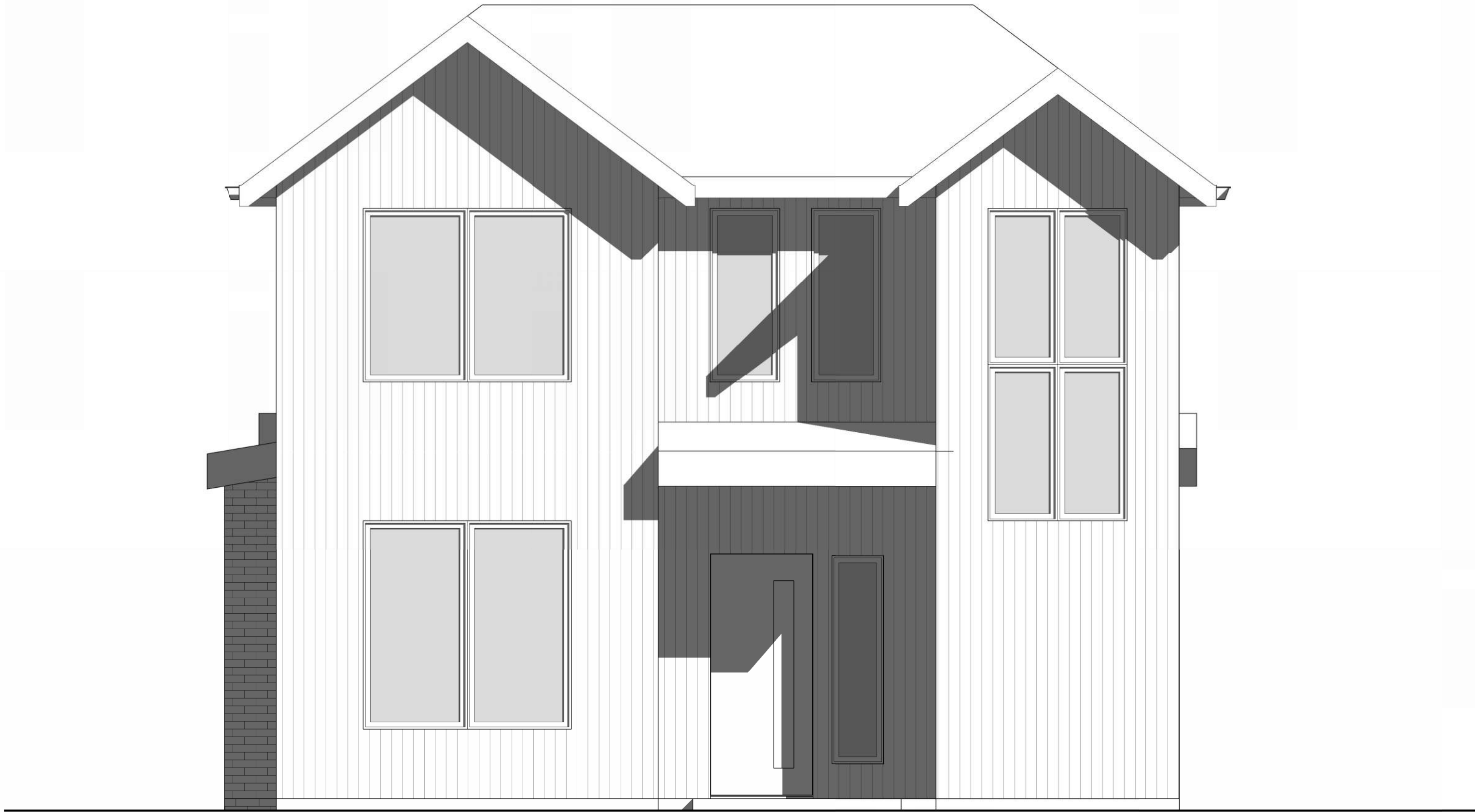
STRUCTURAL NOTES

- ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE CONTRACT DRAWINGS.
- DURING THE CONSTRUCTION PERIOD THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE BUILDING.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION PROCEDURES INCLUDING LAGGING, SHORING AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS AND UTILITIES IN ACCORDANCE WITH ALL NATIONAL, STATE AND LOCAL SAFETY ORDINANCES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES AND SHALL CHECK ALL DIMENSIONS. ALL DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF ENGINEER.
- ALL DETAILS DESIGNATED AS STANDARD OR TYPICAL SHALL OCCUR IN ADDITION TO ANY OTHER SPECIFIC DETAIL CALLED OUT
- COORDINATE WITH MECHANICAL, PLUMBING, AND ELECTRICAL REQUIREMENTS FOR SIZE AND LOCATION OF ALL OPENINGS REQUIRED FOR DUCTS, PIPES, AND PIPE SLEEVES, ELECTRICAL CONDUITS, AND OTHER ITEMS TO BE EMBEDDED IN CONCRETE OR OTHERWISE INCORPORATED IN STRUCTURAL WORK.
- PROVIDE OPENINGS AND SUPPORTS, AS REQUIRED PER STANDARD DETAILS FOR HEATERS, MECHANICAL EQUIPMENT, VENTS, DUCTS, PIPING, ETC. ALL SUSPENDED MECHANICAL EQUIPMENT SHALL BE SWAY OR LATERALLY BRACED.

TYPE OF CONSTRUCTION

Y-B

UNPROTECTED WOOD FRAME (EXAMPLES OF CONSTRUCTION ARE SINGLE FAMILY HOMES AND GARAGES. THEY OFTEN HAVE EXPOSED WOOD SO THERE IS NO FIRE RESISTANCE.)



PLAN PREVIEW

NOT TO SCALE

PROJECT NAME
SINGLE FAMILY RESIDENCE
SINGLE USE

PREPARED FOR
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SUBMITTAL/REVISION DATE
SUBMITTED:
REVISED:

DESIGNED BY:

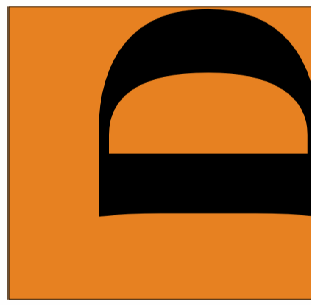
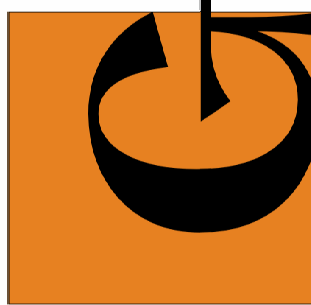
DRAFTED BY:

SHEET TITLE
GENERAL
NOTES &
PLAN
PREVIEW

PROJECT NUMBER
21208-2-0

SHEET NUMBER

A1



GROUP
DESIGN
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TYPICAL FLOOR NOTES:

1. INSTALL SMOKE DETECTORS IN ALL SLEEPING ROOMS AND AT AREAS ADJACENT TO SLEEPING ROOMS, AND AT CEILING HEIGHT CHANGES GREATER THAN 24". SMOKE DETECTORS TO BE HARD-WIRED AND INTERCONNECTED, WITH BATTERY BACK-UP PER CODE.
2. INSTALL CARBON MONOXIDE SENSORS ADJACENT TO SLEEPING AREAS.
3. ALL INTERIOR WALLS TO BE 2x4 @ 16" O.C. (U.N.O.)
4. ALL EXTERIOR WALLS TO BE 2x6 @ 16" O.C. (U.N.O.)
5. MAIN FLOOR HEADERS PER STRUCTURAL @ 8'-0" A.F. (U.N.O.)
6. WINDOW SIZES ARE NOMINAL ROUGH OPENING, WIDTH AND HEIGHT.
7. DOOR SIZES NOTED ARE SLABS NOT ROUGH OPENINGS.
8. PROVIDE FIREBLOCKING AT ALL PLUMBING OPENINGS.
9. PROVIDE SOLID BLOCKING OVER SUPPORTS.
10. WHEN THERE IS USABLE SPACE BOTH ABOVE AND BELOW THE CONCEALED SPACE OF A FLOOR-CEILING ASSEMBLY, DRAFTSTOPS SHALL BE INSTALLED SO THAT THE AREA OF CONCEALED SPACE DOES NOT EXCEED 1000 SF. DRAFTSTOPPING SHALL DIVIDE THE CONCEALED SPACE INTO APPROXIMATELY EQUAL AREAS AND SHALL BE OF 1/2" GYP BOARD OR OTHER APPROVED MATERIALS INSTALLED PARALLEL TO THE FLOOR FRAMING MEMBERS PER CODE.
11. PROVIDE FIREBLOCKING TO CUT OFF ALL CONCEALED HORIZONTAL AND VERTICAL DRAFT OPENINGS AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORES, AND BETWEEN 2-STORY AND THE ROOF SPACE. FIREBLOCKING SHALL CONSIST OF NOT LESS THAN 2" NOMINAL LUMBER OR OTHER APPROVED MATERIAL.
12. ASPHALT-SATURATED FELT FREE FROM HOLES OR BREAKS, WEIGHING NOT LESS THAN 14 POUNDS PER 100 SQUARE FEET AND COMPLYING WITH ASTM D 226 OR OTHER APPROVED WEATHER RESISTANT MATERIAL SHALL BE APPLIED OVER SHEATHING OF ALL EXTERIOR WALLS. APPROVED ALTERNATIVE WEATHERPROOF MEMBRANES SHALL BE USED FOR OPEN JOINT RAIN SCREEN SIDING. WEATHER RESISTANT MATERIALS SHALL BE APPLIED HORIZONTALLY PERMANUFACTURERS RECOMMENDATIONS, WITH THE UPPER LAYER LAPPED OVER THE LOWER LAYER NOT LESS THAN 2 INCHES AND NOT LESS THAN 6 INCHES WHERE JOINTS OCCUR PER CODE.
13. APPROVED CORROSION-RESISTIVE FLASHING SHALL BE PROVIDED IN THE EXTERIOR WALL ENVELOPE IN SUCH A MANNER AS TO PREVENT ENTRY OF WATER INTO THE WALL CAVITY OR PENETRATION OF WATER TO THE BUILDINGS STRUCTURAL FRAMING COMPONENTS. THE FLASHING SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL SURFACE AND SHALL BE INSTALLED TO PREVENT WATER FROM REENTERING THE EXTERIOR WALL ENVELOPE. FLASHING SHALL BE INSTALLED AT, BUT NOT LIMITED TO THE FOLLOWING LOCATIONS:
 - THE TOP OF ALL EXTERIOR WINDOW & DOOR OPENINGS
 - INTERSECTIONS OF FRAME WALLS AND MASONRY OR STUCCO
 - UNDER MASONRY, WOOD OR METAL COPINGS AND SILLS
 - CONTINUOUSLY ABOVE ALL PROJECTING WOOD TRIM
 - WHERE EXTERIOR PORCHES, DECKS OR STAIRS ATTACH TO A WALL
 - AT WALL AND ROOF OR SOFFIT INTERSECTIONS
 - AT BUILT-IN GUTTERS
14. EXTERIOR LOCATIONS FOR ENVIRONMENTAL AIR DUST EXHAUST & INTAKE OPENINGS TO BE A MINIMUM OF 3'-0" FROM BUILDING OPENINGS. EQUIP ALL DUCTS W/ BACK-DRAFT DAMPERS.
15. AIR EXHAUST & INTAKE OPENINGS THAT TERMINATE OUTDOORS SHALL BE PROTECTED W/ CORROSION RESISTANT SCREENS, LOUVERS, OR GRILLS W/ 1/4" MINIMUM & 1/2" MAX OPENINGS IN ANY DIMENSION. OPENINGS SHALL BE PROTECTED AGAINST LOCAL WEATHER CONDITIONS PER 2018 NRC.
16. DUCTS FOR KITCHEN RANGES SHALL BE OF METAL AND BE EQUIPPED W/ BACK-DRAFT DAMPERS PER CODE.
17. ALL INTERIOR FINISHES TO MEET MINIMUM FLAME SPREAD INDEX AND SMOKE DEVELOPMENT INDEX AS REQUIRED BY 2018 NRC.
18. UNDER FLOOR CLEANOUT NOT MORE THAN 20' FROM ACCESS DOOR WITH AN UNOBSTRUCTED 30" WIDE X 18" HIGH PATH PATHWAY. CLEANOUTS ARE ACCESSIBLE. 12" CLEARANCE REQUIRED AT LINES LESS THAN OR EQUAL TO 2". 18" CLEARANCE AT LINES GREATER THAN 2". (UPC 707.1)
19. GLAZING IN ALL FIXED AND OPERABLE PANELS OF SWINGS, SLIDING AND BIFOLD DOORS SHALL BE CONSIDERED A HAZARDOUS LOCATION, SAFETY GLAZING.

SMOKE & CARBON MONOXIDE ALARMS:

SMOKE AND CARBON MONOXIDE ALARMS MUST BE PROVIDED IN ALL REQUIRED LOCATIONS AND MUST BE:

- * AUDIBLE IN ALL PARTS OF THE HOUSE
- * INSTALLED PER MANUFACTURER'S INSTRUCTIONS

NEW HOUSES (IRC R314 & R315)

SMOKE ALARMS AND CARBON MONOXIDE ALARMS ARE REQUIRED AND MUST BE CONNECTED TO THE MAIN ELECTRICAL SYSTEM WITH BATTERY BACKUP.

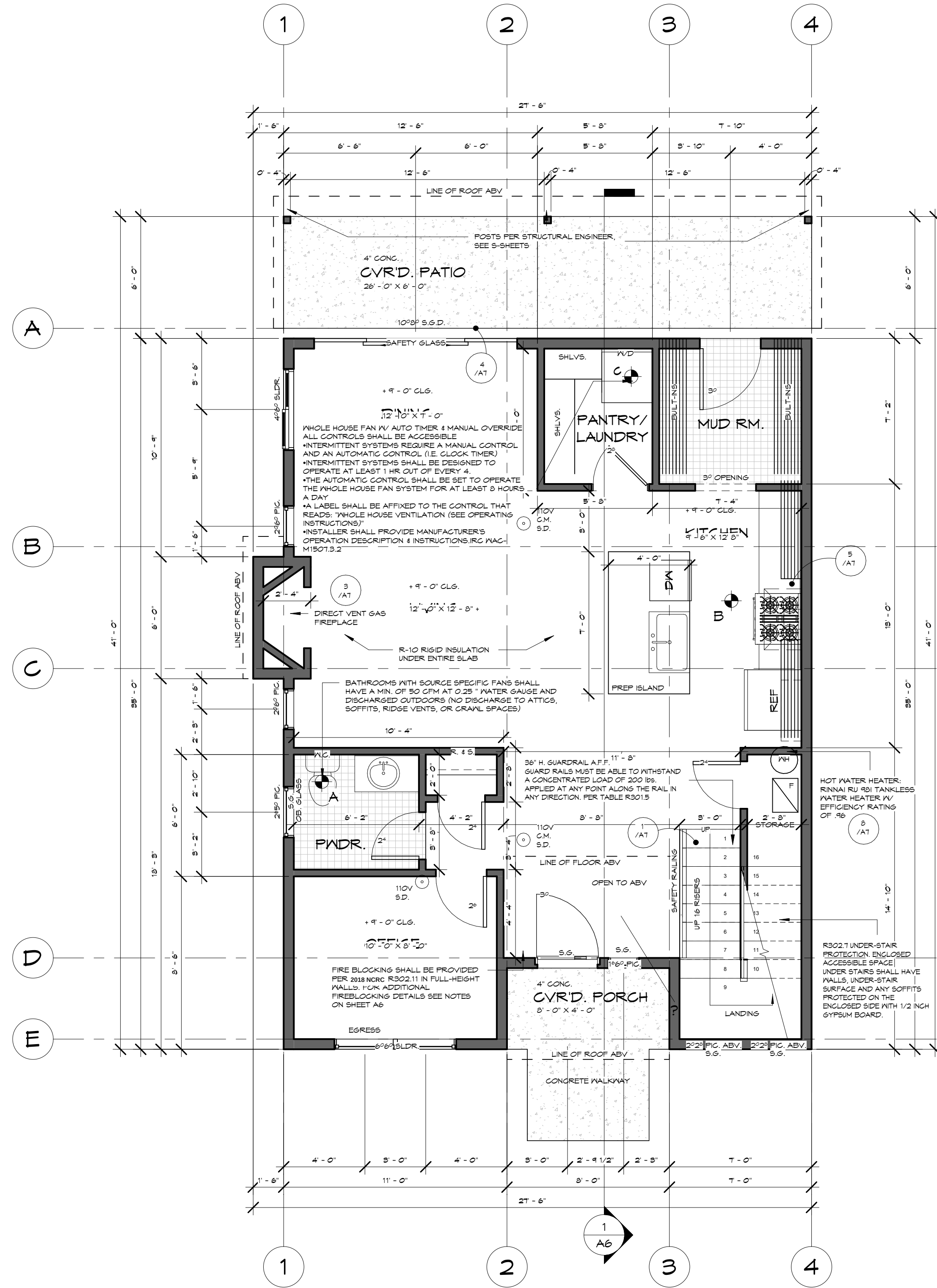
CARBON MONOXIDE ALARMS ARE REQUIRED IN ALL NEW AND EXISTING HOMES, APARTMENTS, CONDOMINIUMS, AND OTHER MULTI-FAMILY UNITS. REQUIRED LOCATIONS

- * SMOKE ALARMS SHALL BE LOCATED IN EACH SLEEPING ROOM AND IN NAPPING AREAS IN A FAMILY HOME CHILD CARE.
- * SMOKE ALARMS AND CARBON MONOXIDE ALARMS SHALL BE LOCATED OUTSIDE EACH SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS.
- * SMOKE ALARMS AND CARBON MONOXIDE ALARMS SHALL BE LOCATED ON EVERY FLOOR LEVEL, INCLUDING BASEMENTS (DOES NOT INCLUDE CRAWLSPACE AND UNINHABITABLE ATTICS).
- * IN SPLIT LEVEL FLOOR PLANS, AT THE UPPER LEVEL, PROVIDED THERE IS NO INTERVENING DOOR BETWEEN ADJACENT LEVELS AND THE LOWER LEVEL IS LESS THAN A FULL STORY BELOW THE UPPER LEVEL.
- * A CARBON MONOXIDE ALARM IS REQUIRED IN A BEDROOM WHEN A FUEL-BURNING APPLIANCE IS INSTALLED IN THE BEDROOM OR ITS ATTACHED BATHROOM.
- * A COMBINATION ALARM (COMBINED SMOKE AND CARBON MONOXIDE ALARM) IS ACCEPTABLE IN ANY REQUIRED LOCATION.
- * WALL MOUNTED ALARMS MUST BE NOT MORE THAN 12 INCHES FROM THE ADJOINING CEILING SURFACE.
- * AVOID PLACING ALARMS LESS THAN 3 FEET FROM SUPPLY REGISTERS OF A FORCED AIR HEATING OR COOLING SYSTEM AND DO NOT PLACE ALARMS IN THE DIRECT AIRFLOW OF THE REGISTERS.
- * AVOID PLACING ALARMS WITHIN 3 FEET HORIZONTALLY FROM DOORS TO BATHROOMS CONTAINING A BATHTUB OR SHOWER.
- * DO NOT PLACE ALARMS IN SPACES WHERE TEMPERATURES MAY BE ABOVE OR BELOW THE ALARM'S OPERATING TEMPERATURE RANGE.
- * DO NOT PLACE ALARMS WITHIN 3 FEET OF THE BLADES OF A CEILING FAN.
- * ALARMS IN PEAKED OR SLOPED CEILINGS MUST BE WITHIN 3 FEET OF THE PEAK, MEASURED HORIZONTALLY, BUT NOT IN THE HIGHEST 4 INCHES OF THE CEILING, MEASURED VERTICALLY.

- A. PHOTOELECTRIC SMOKE ALARMS MUST NOT BE LESS THAN 6 FEET FROM A PERMANENT COOKING APPLIANCE.
- B. IONIZATION SMOKE ALARMS WITH AN ALARM-SILENCING SWITCH MUST NOT BE LESS THAN 10 FEET FROM A PERMANENT COOKING APPLIANCE.
- C. IONIZATION SMOKE ALARMS WITHOUT AN ALARM-SILENCING SWITCH MUST NOT BE LESS THAN 20 FEET FROM A PERMANENT COOKING APPLIANCE

CARBON MONOXIDE ALARM LOCATION LIMITATIONS

- * DO NOT PLACE ALARMS DIRECTLY ABOVE OR BESIDE FUEL-BURNING APPLIANCES.
- * DO NOT PLACE ALARMS IN DIRECT SUNLIGHT.
- * DO NOT PLACE ALARMS IN LOW AREAS WHERE CHILDREN CAN REACH. DO NOT PLACE ALARMS BEHIND CURTAINS OR ANY STRUCTURE THAT MIGHT PREVENT CARBON MONOXIDE FROM REACHING THE SENSOR.



MAIN FLOOR PLAN

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

AREA SUMMARY:

MAIN FLOOR:	870	SF.
UPPER FLOOR:	714	SF.
TOTAL (LIVING/HEATED SPACE):	1 644	SF.
ENTRY PORCH (FRONT):	32	SF.
COVERED PATIO @ MAIN FLOOR (REAR):	156	SF.

NOTE:
EACH DOOR TO BE UNDERCUT A MINIMUM OF 1/2-INCH TO ASSURE FREE FLOW OF FRESH AIR THROUGHOUT HABITABLE ROOMS

NOTE:
NO OPERABLE WINDOW SHALL BE INSTALLED LESS THAN 24 INCHES ABOVE FINISHED FLOOR THAT IS GREATER THAN 12 INCHES ABOVE THE FINISH GRADE OR OTHER SURFACE BELOW ON THE EXTERIOR OF THE BUILDING.

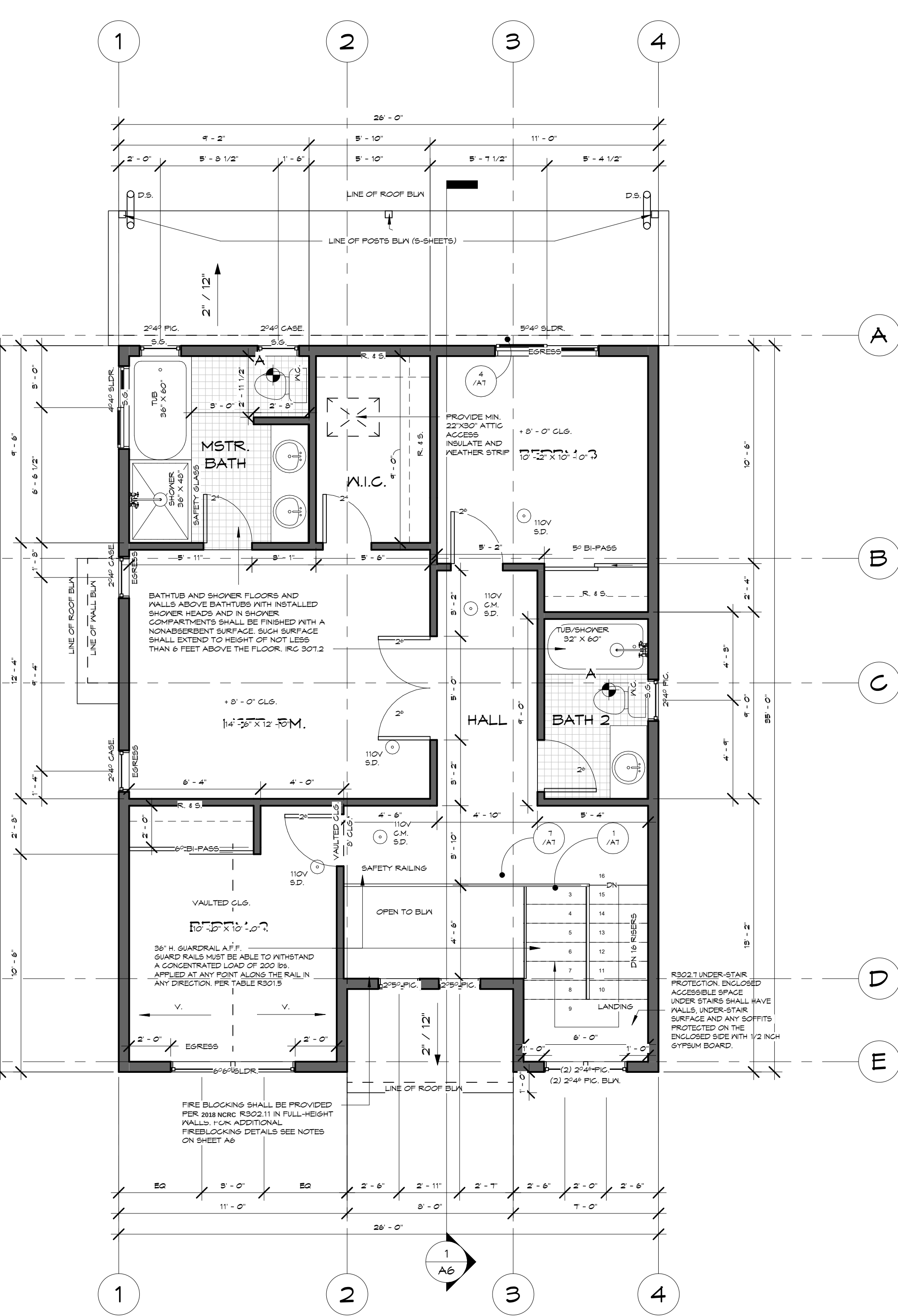
NOTE:
REFER TO STRUCTURAL SHEETS FOR SHEAR WALL SCHEDULE AND ENGINEERING PLAN WHICH CONTAIN REFERENCES AND/OR INSTRUCTIONS PERTAINING TO EACH SHEAR WALL INDICATED IN THIS PLAN

NOTE:
CONTRACTOR TO VERIFY ALL DIMENSIONS AND CONDITIONS OF PROJECT AND REPORT ANY OMISSIONS / DISCREPANCIES TO DESIGNER PRIOR TO COMMENCING WORK. DESIGNER SHALL NOT BE RESPONSIBLE FOR DISCREPANT CONDITIONS RESULTING FROM UNAUTHORIZED WORK PERFORMED BY THE CONTRACTOR.

EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL BE INSTALLED IN EVERY SLEEPING ROOM BELOW THE 4TH STORY AND IN BASEMENTS. OPENABLE W/O KEYS OR SPECIAL TOOLS

- * MIN. 5.7 SF NET CLR. OPENABLE AREA
- * MIN. 24" NET CLR. OPENABLE HEIGHT
- * MIN. 20" NET CLR. OPENABLE WIDTH
- * MAX. 44" FINISHED SILL HEIGHT

IRC R310 & IBC 1030.



UPPER FLOOR PLAN

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

PROJECT NAME
SINGLE FAMILY RESIDENCE
SINGLE USE

PREPARED FOR
BIJAN AMIRI
401 RAVENSTONE DR
CARY, NC 27518
PH: (919) 412-0450
E: bijan@buildirima.com

SUBMITTAL/REVISION DATE
SUBMITTED:
REVISED:

DESIGNED BY:

DRAFTED BY:

SHEET TITLE

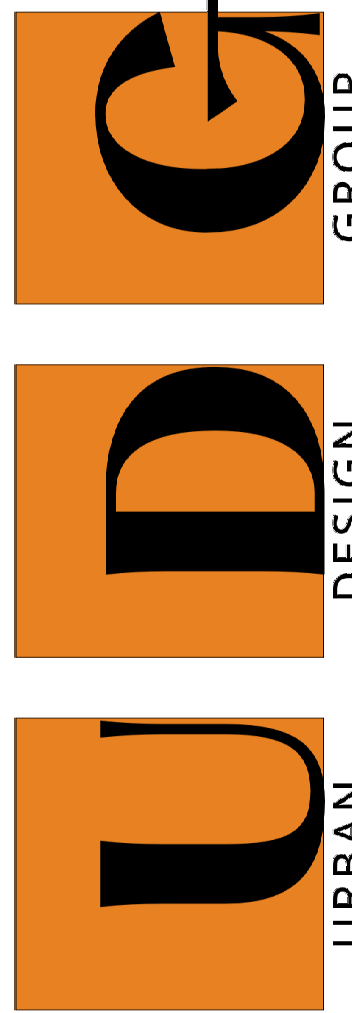
MAIN AND
UPPER
FLOOR
PLANS

PROJECT NUMBER

21208-2-0

SHEET NUMBER

A2



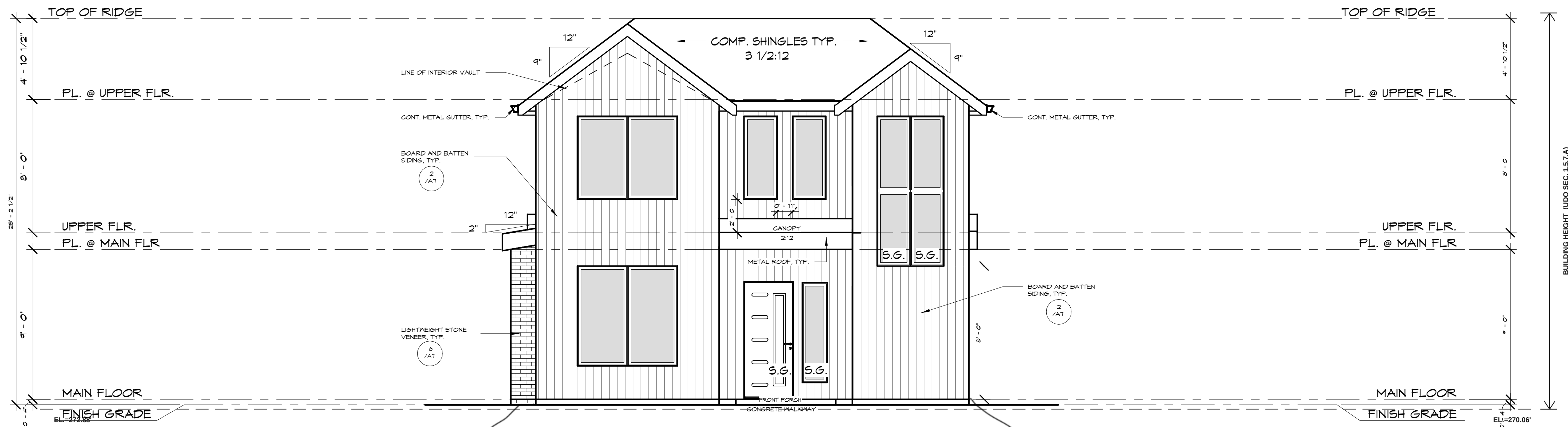
GROUP
DESIGN
URBAN
1201 MONSTER ROAD SW, SUITE 250 RENTON, WA 98057
(206) 838-8250 E-MAIL: URBANDESIGNCENTER@YAHOOD.COM

- ELEVATION NOTES:
- ELEVATION NOTES:
1. VERIFY SHEAR WALL NAILING & HOLDDOWNS PER PLAN PRIOR TO INSTALLING SIDING.
 2. CAULK ALL EXTERIOR JOINTS & PENETRATIONS.
 3. PROVIDE APPROVED CORROSION RESISTANT FLASHING AT EXTERIOR WALL ENVELOPE PER I.R.C. R703.8
 4. PROVIDE FLASHING AT ROOF PENETRATIONS PER I.R.C. R905.2.8
 5. PROVIDE WEATHER STRIPPING AT ALL EXTERIOR & GARAGE-INTERIOR DOORS.
 6. PROVIDE CONTINUOUS GUTTERS & DOWNSPOUTS @ ALL EAVES, TYP.
 7. ADDRESS OR HOUSE NUMBER TO BE POSTED AND PLAINLY VISIBLE FROM THE STREET FRONTAGE. MIN. 4" HEIGHT, 1/2" STROKE WIDTH AND CONTRASTING BACKGROUND.
 8. PROVIDE STAIRWAY ILLUMINATION PER I.R.C. R303.6
 9. SEE SHEET A1 FOR ADDITIONAL NOTES.
 10. PROVIDE SURFACE DRAINAGE 6" : 10' MIN. AWAY FROM HOUSE FOOTPRINT I.R.C. R401.3

NOTE:
NO OPERABLE WINDOW SHALL BE INSTALLED LESS THAN 24 INCHES ABOVE FINISHED FLOOR THAT IS GREATER THAN 12 INCHES ABOVE THE FINISH GRADE OR OTHER SURFACE BELOW ON THE EXTERIOR OF THE BUILDING.

NOTE:
CONTRACTOR TO VERIFY ALL DIMENSIONS AND CONDITIONS OF PROJECT AND REPORT ANY OMISSIONS / DISCREPANCIES TO DESIGNER PRIOR TO COMMENCING WORK. DESIGNER SHALL NOT BE RESPONSIBLE FOR DISCREPANT CONDITIONS RESULTING FROM UNAUTHORIZED WORK PERFORMED BY THE CONTRACTOR.

AVG. GRADE
(PRE + POST DEV.)
EL.=271.81' AVG.



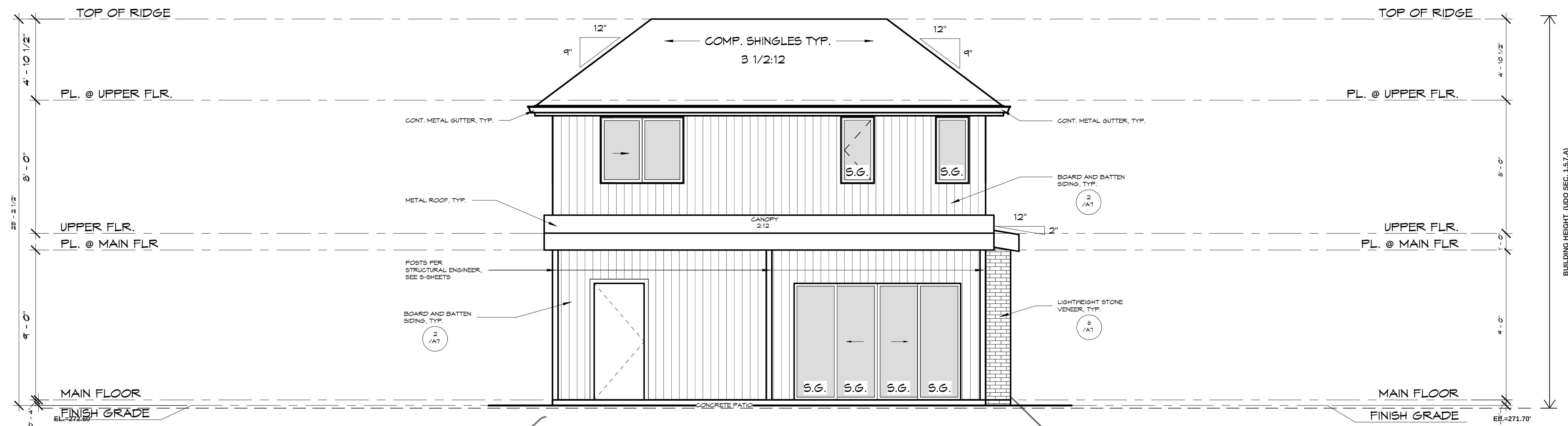
Avg Grade: 272.80

Avg Grade: 271.70

FRONT ELEVATION

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

Note: Pre Development Avg grade will remain same post development.



Avg Grade: 272.80

Avg Grade: 270.05

REAR ELEVATION

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

PROJECT NAME
SINGLE FAMILY RESIDENCE
SINGLE USE

PREPARED FOR
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401 RAVENSTONE DR
CARY, NC 27518
PH: (919) 412-0450
E: bijan@buildirima.com

SUBMITTAL/REVISION DATE
SUBMITTED:
REVISED:

DESIGNED BY:

DRAFTED BY:

SHEET TITLE

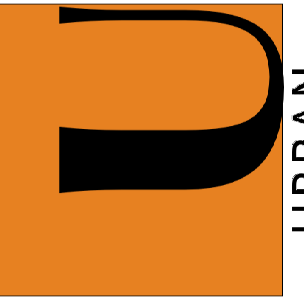
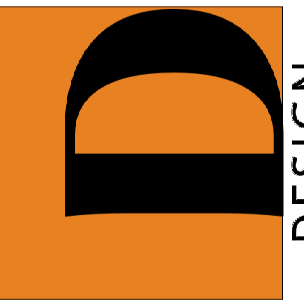
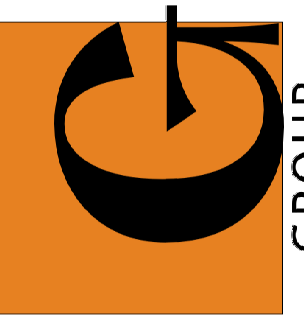
FRONT AND
REAR
ELEVATIONS

PROJECT NUMBER

21208-2-0

SHEET NUMBER

A3



GROUP
DESIGN
URBAN
1201 MONSTER ROAD SW, SUITE: 250 RENTON, WA 98057
(206) 838-8250 E-MAIL: URBANDESIGNCENTER@YAHOO.COM

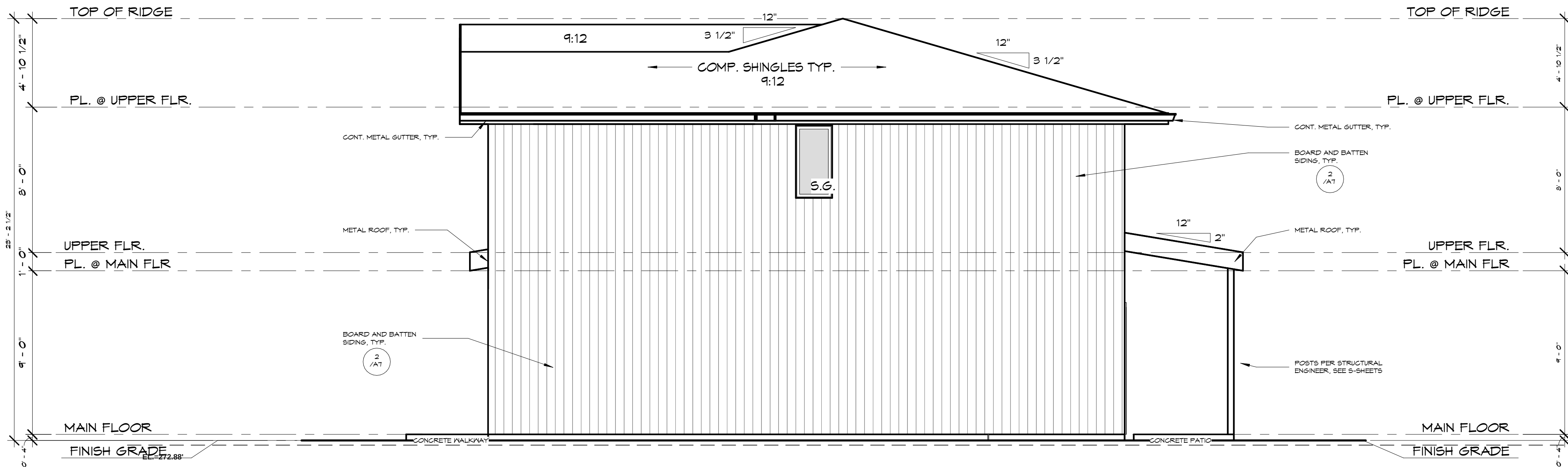
ELEVATION NOTES:

ELEVATION NOTES:

1. VERIFY SHEAR WALL NAILING & HOLD-DOWNS PER PLAN PRIOR TO INSTALLING SIDING.
2. CAULK ALL EXTERIOR JOINTS & PENETRATIONS.
3. PROVIDE APPROVED CORROSION RESISTANT FLASHING AT EXTERIOR WALL ENVELOPE PER I.R.C. R103.8
4. PROVIDE FLASHING AT ROOF PENETRATIONS PER I.R.C. R405.2.8
5. PROVIDE WEATHER STRIPPING AT ALL EXTERIOR & GARAGE-INTERIOR DOORS.
6. PROVIDE CONTINUOUS GUTTERS & DOWNSPOUTS @ ALL EAVES, TYP.
7. ADDRESS OR HOUSE NUMBER TO BE POSTED AND PLAINLY VISIBLE FROM THE STREET FRONTAGE. MIN. 4" HEIGHT, 1/2" STROKE WIDTH AND CONTRASTING BACKGROUND.
8. PROVIDE STAIRWAY ILLUMINATION PER I.R.C. R303.6
9. SEE SHEET A1 FOR ADDITIONAL NOTES.
10. PROVIDE SURFACE DRAINAGE 6" : 10' MIN. AWAY FROM HOUSE FOOTPRINT IRC R401.3

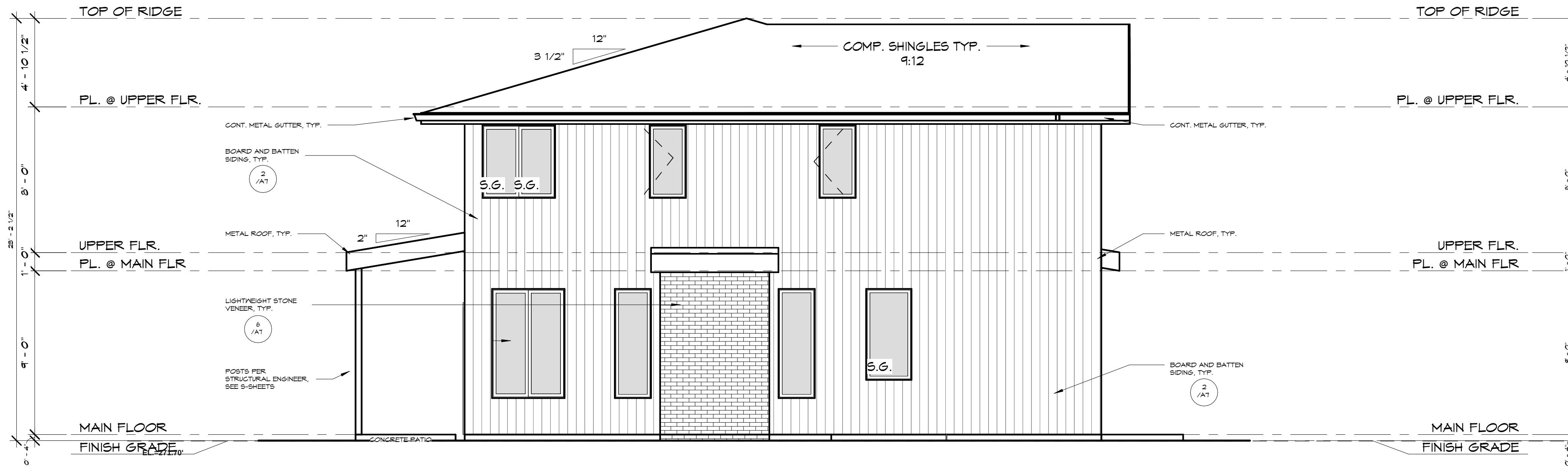
NOTE:
NO OPERABLE WINDOW SHALL BE INSTALLED LESS THAN 24 INCHES ABOVE FINISHED FLOOR THAT IS GREATER THAN 72 INCHES ABOVE THE FINISH GRADE OR OTHER SURFACE BELOW ON THE EXTERIOR OF THE BUILDING.

NOTE:
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RIGHT ELEVATION

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



LEFT ELEVATION

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

PROJECT NAME
SINGLE FAMILY RESIDENCE
SINGLE USE

PREPARED FOR
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CARY, NC 27518
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SUBMITTAL/REVISION DATE
SUBMITTED:
REVISED:

DESIGNED BY:

DRAFTED BY:

SHEET TITLE

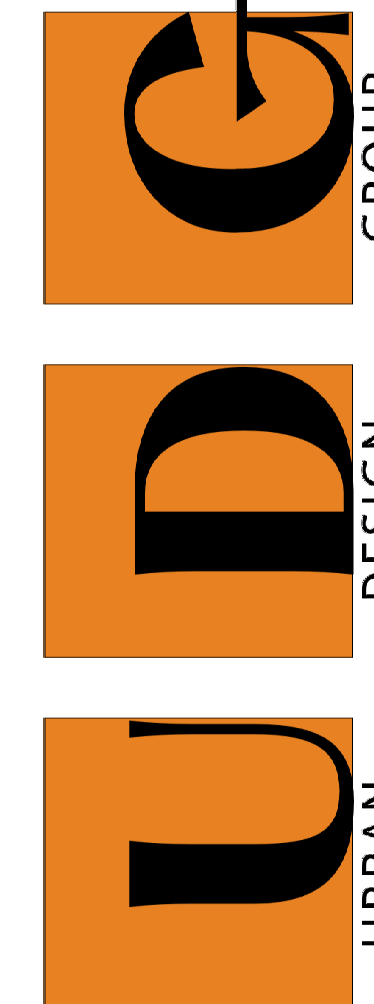
RIGHT AND
LEFT
ELEVATIONS

PROJECT NUMBER

21208-2-0

SHEET NUMBER

A4



1201 MONSTER ROAD SW, SUITE 250 RENTON, WA 98057
(206) 898-8250 E-MAIL: URBANDESIGNCENTER@YAHOO.COM

BUILDING HEIGHT (UDO SEC. 1.5.7.A)



PERSPECTIVE VIEW: FRONT/TOP BIRD VIEW



PERSPECTIVE VIEW: FRONT / RIGHT ELEVATION



PERSPECTIVE VIEW: REAR/RIGHT ELEVATION



PERSPECTIVE VIEW: REAR / LEFT ELEVATION

PERSPECTIVE VIEW:

PERSPECTIVE VIEWS ARE FOR REFERENCE ONLY. THEY SHOULD NOT BE USED TO DETERMINE ANY PORTION OF THE CONSTRUCTION OTHER THAN GENERAL MATERIAL APPEARANCE. REFER TO ELEVATION SHEETS FOR DETAILS.

PROJECT NAME
SINGLE FAMILY RESIDENCE
SINGLE USE

PREPARED FOR
BIJAN AMIRI
401 RAVENSTONE DR
CARY, NC 27518
PH: (919) 412-0450
E: bijan@buildirima.com

SUBMITTAL/REVISION DATE
SUBMITTED:
REVISED:

DESIGNED BY:

DRAFTED BY:

SHEET TITLE

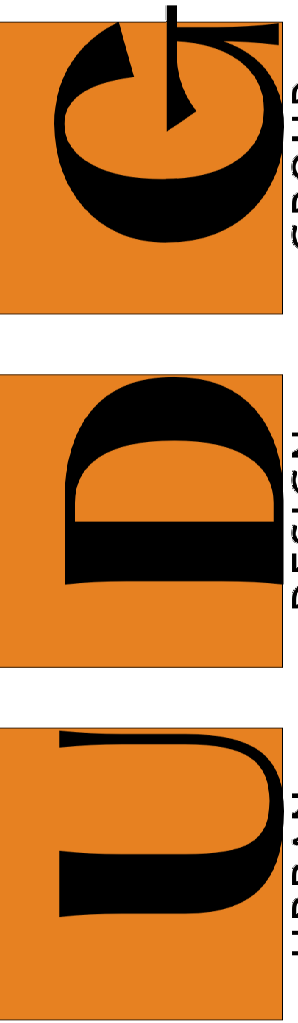
PERSPECTIVE
VIEWS

PROJECT NUMBER

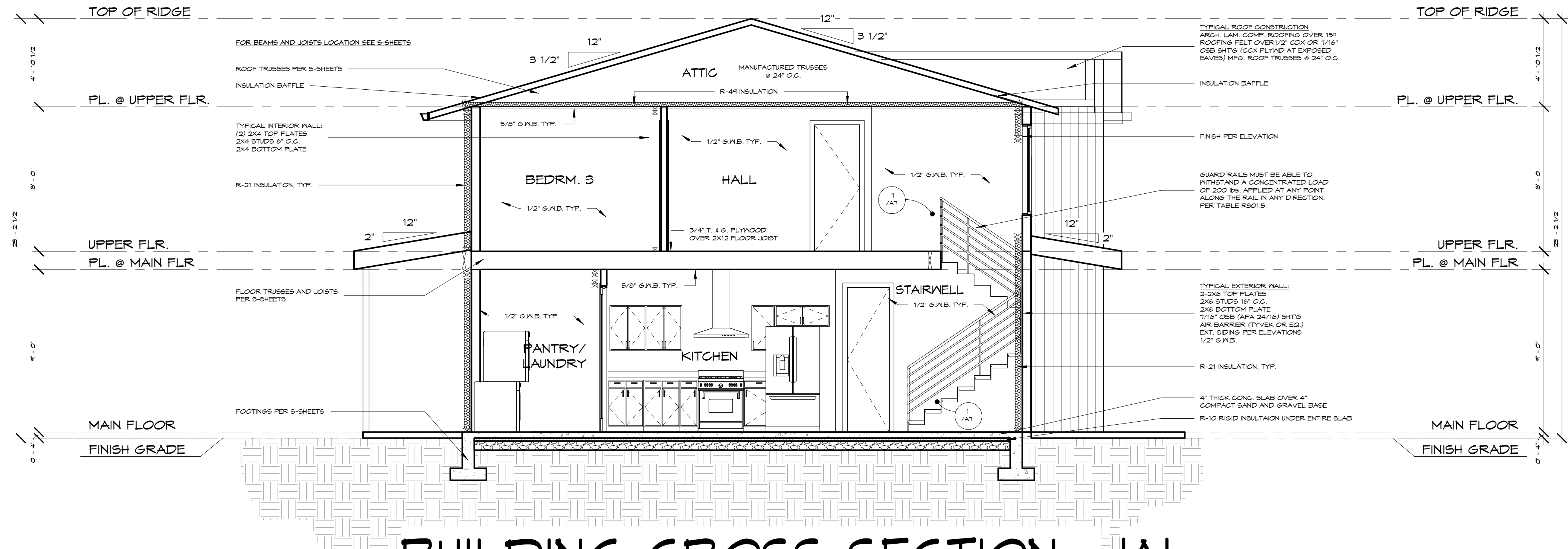
21208-2-0

SHEET NUMBER

A5



URBAN DESIGN GROUP
1201 MONSTER ROAD SW, SUITE: 250 RENTON, WA 98057
(206) 838-8250 E-MAIL: URBANDESIGNCENTER@YAHOO.COM



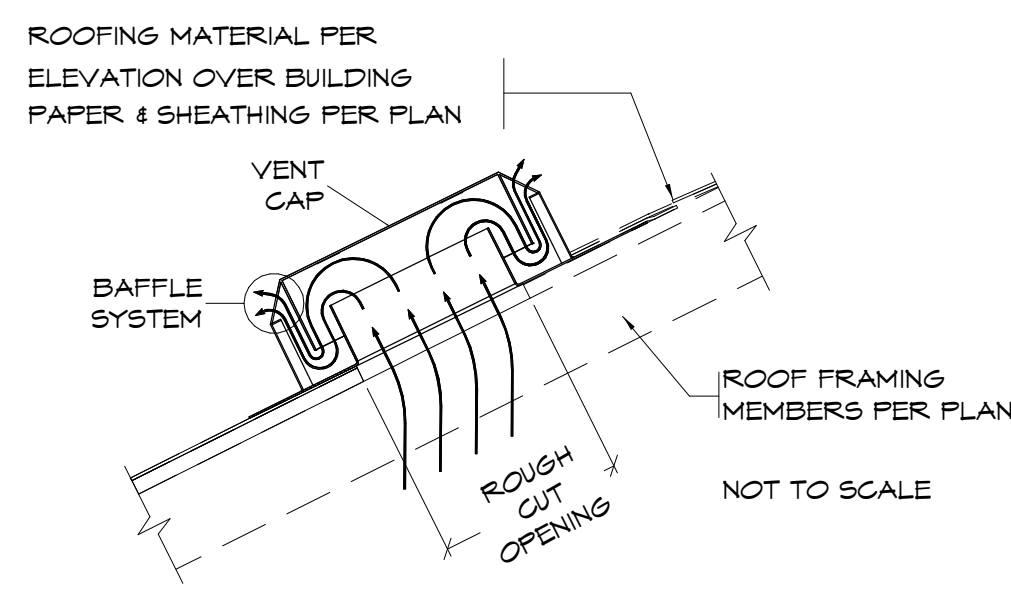
BUILDING CROSS-SECTION - 'A'

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

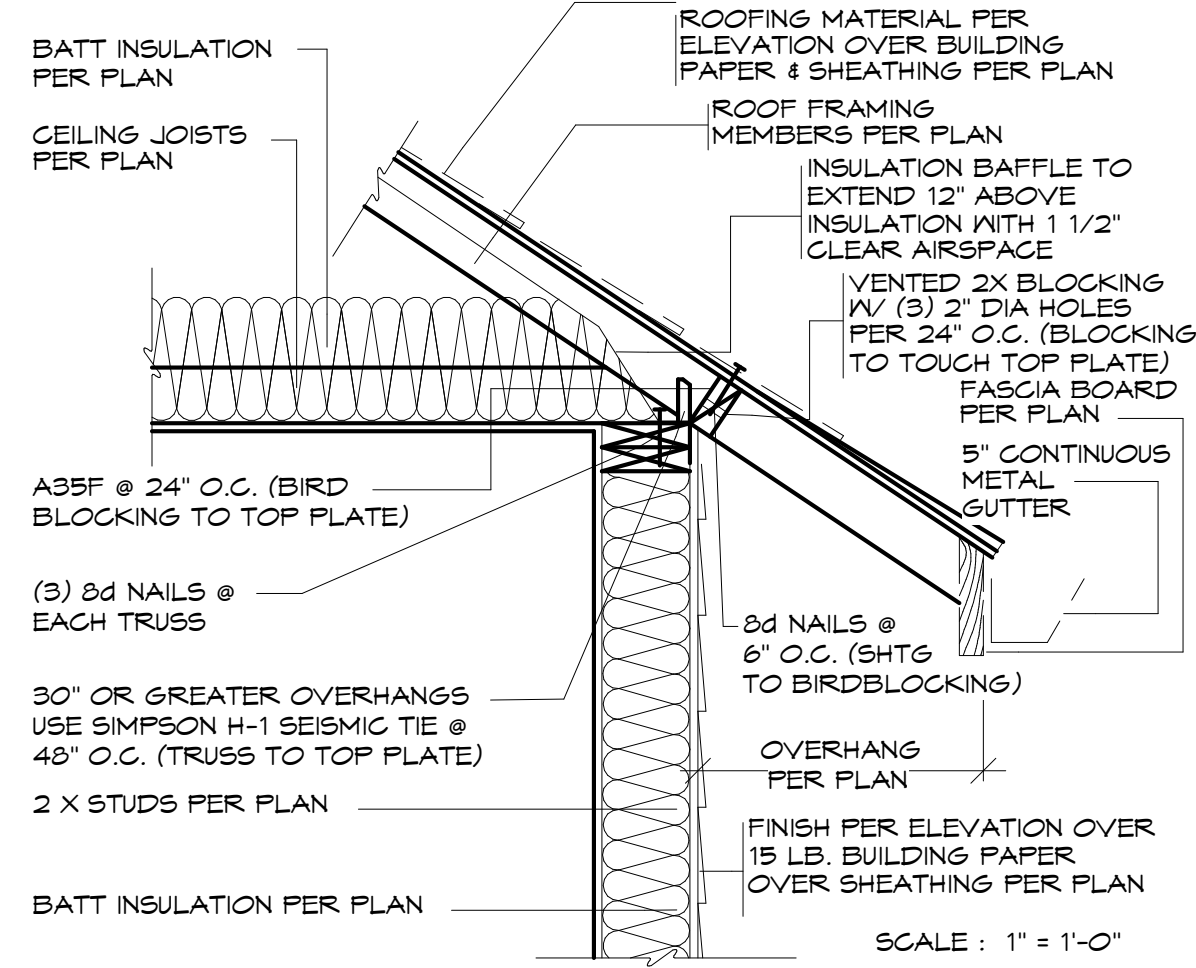
NOTE:
CONTRACTOR TO VERIFY ALL DIMENSIONS AND CONDITIONS OF PROJECT AND REPORT ANY OMISSIONS / DISCREPANCIES TO DESIGNER PRIOR TO COMMENCING WORK. DESIGNER SHALL NOT BE RESPONSIBLE FOR DISCREPANT CONDITIONS RESULTING FROM UNAUTHORIZED WORK PERFORMED BY THE CONTRACTOR.

NOTE:
FOR MORE DETAILS SEE STRUCTURAL ENGINEERING PLAN.

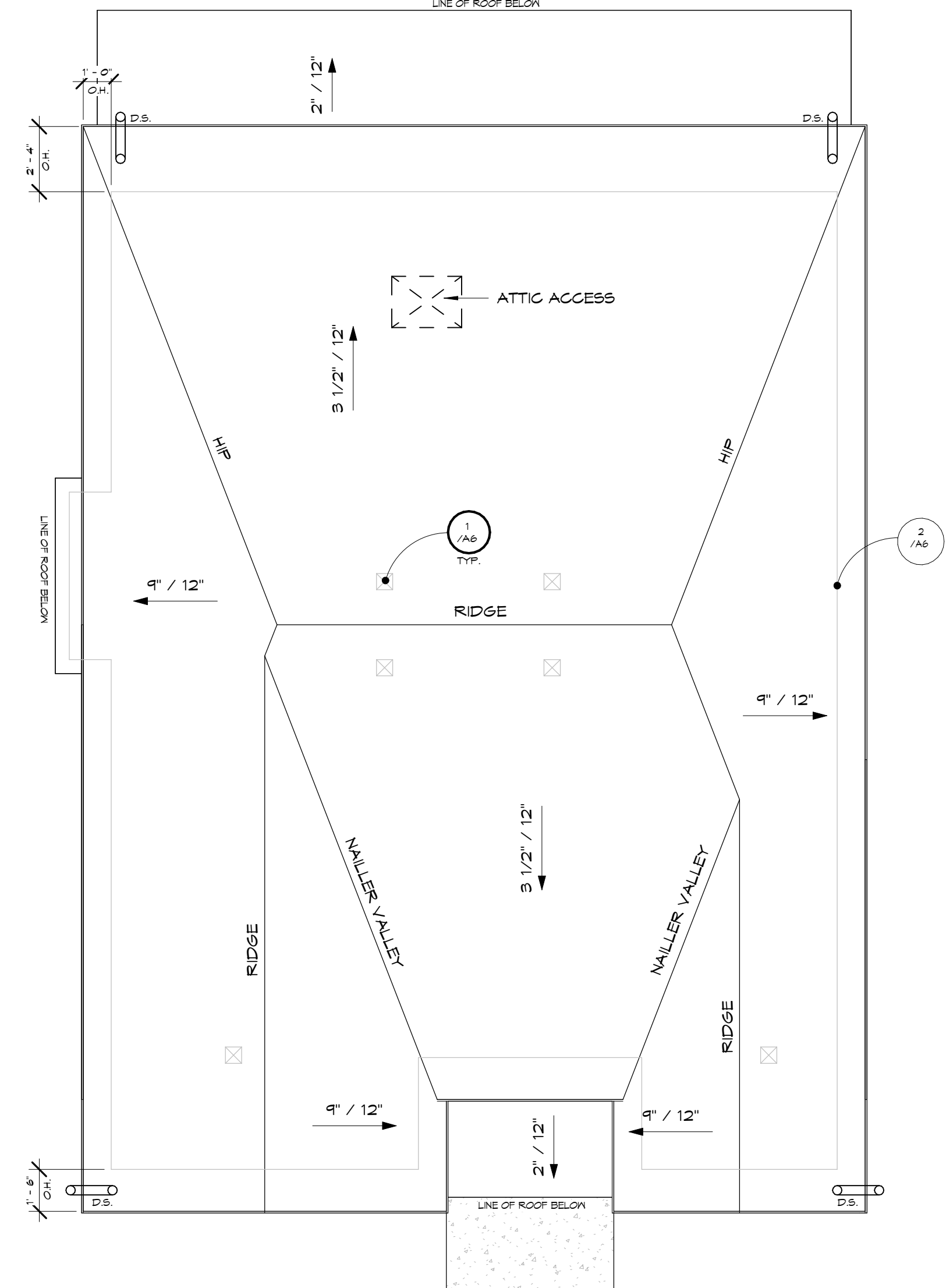
NOTE:
REFER TO STRUCTURAL SHEETS FOR SHEAR WALL SCHEDULE AND ENGINEERING PLAN WHICH CONTAIN REFERENCES AND/OR INSTRUCTIONS PERTAINING TO EACH SHEAR WALL INDICATED IN THIS PLAN



1 LOW OR HIGH ROOF VENTS



2 FLAT CEILING & EAVE



ROOF LAYOUT

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

PROJECT NAME
SINGLE FAMILY RESIDENCE
SINGLE USE

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CARY, NC 27518
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E: bijan@buildirima.com

SUBMITTAL/REVISION DATE
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REVISED:

DESIGNED BY:

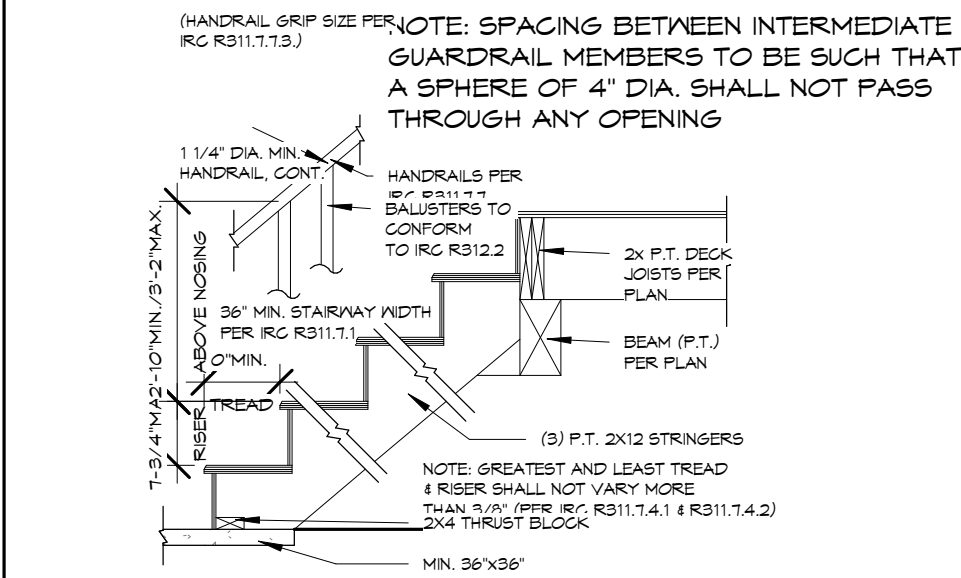
DRAFTED BY:

SHEET TITLE
BUILDING
CROSS-SECTION
AND ROOF
LAYOUT

PROJECT NUMBER
21208-2-0

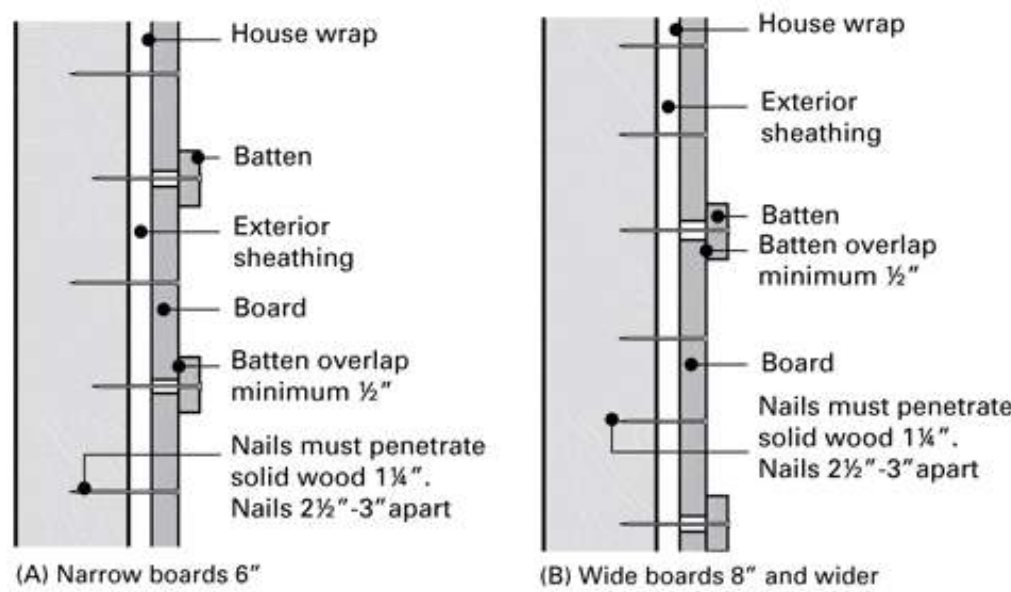
SHEET NUMBER

A6

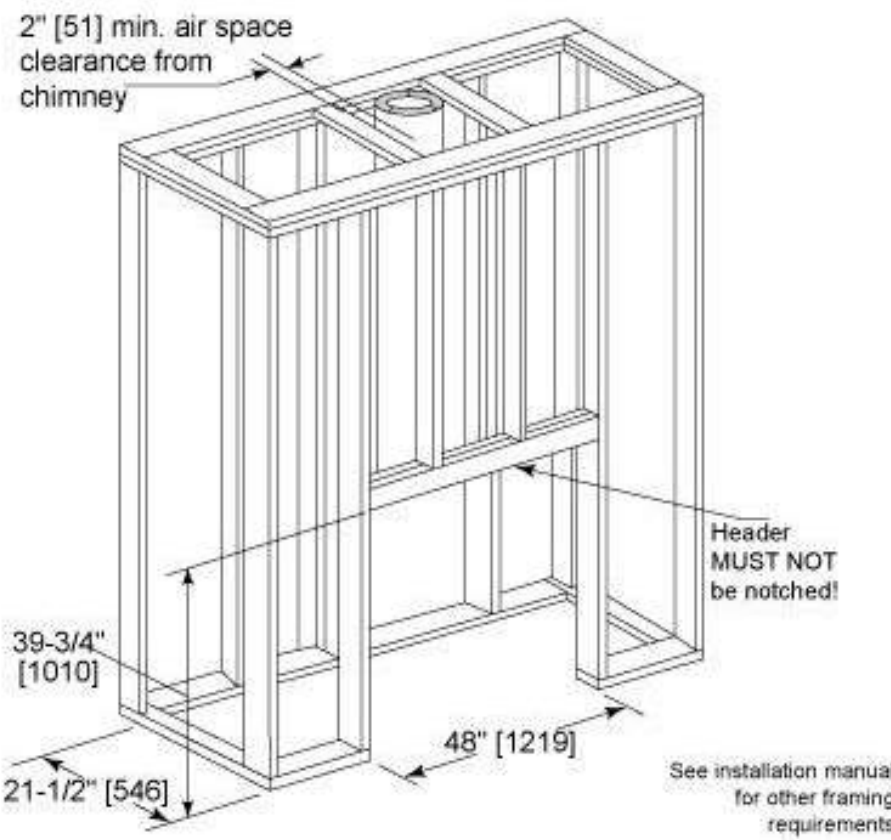


NOT TO SCALE

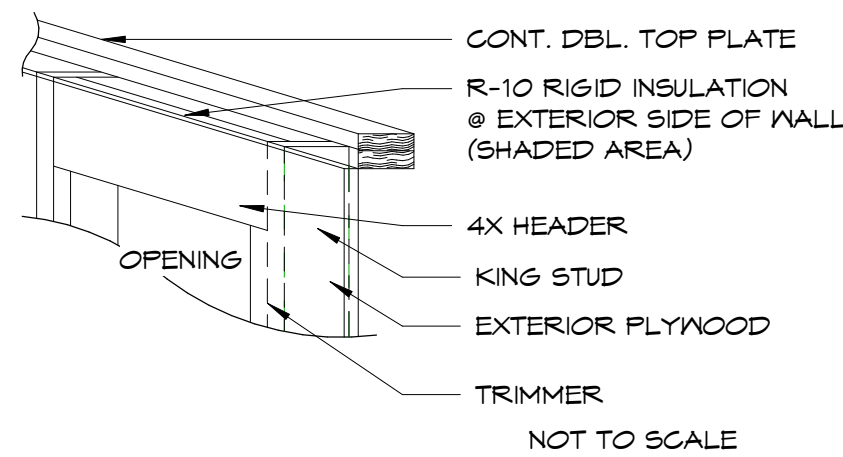
1 INTERIOR STAIR DETAIL W/ SLAB



2 BOARD & BATTEN SIDING DETAILS



3 FIREPLACE FRAMING

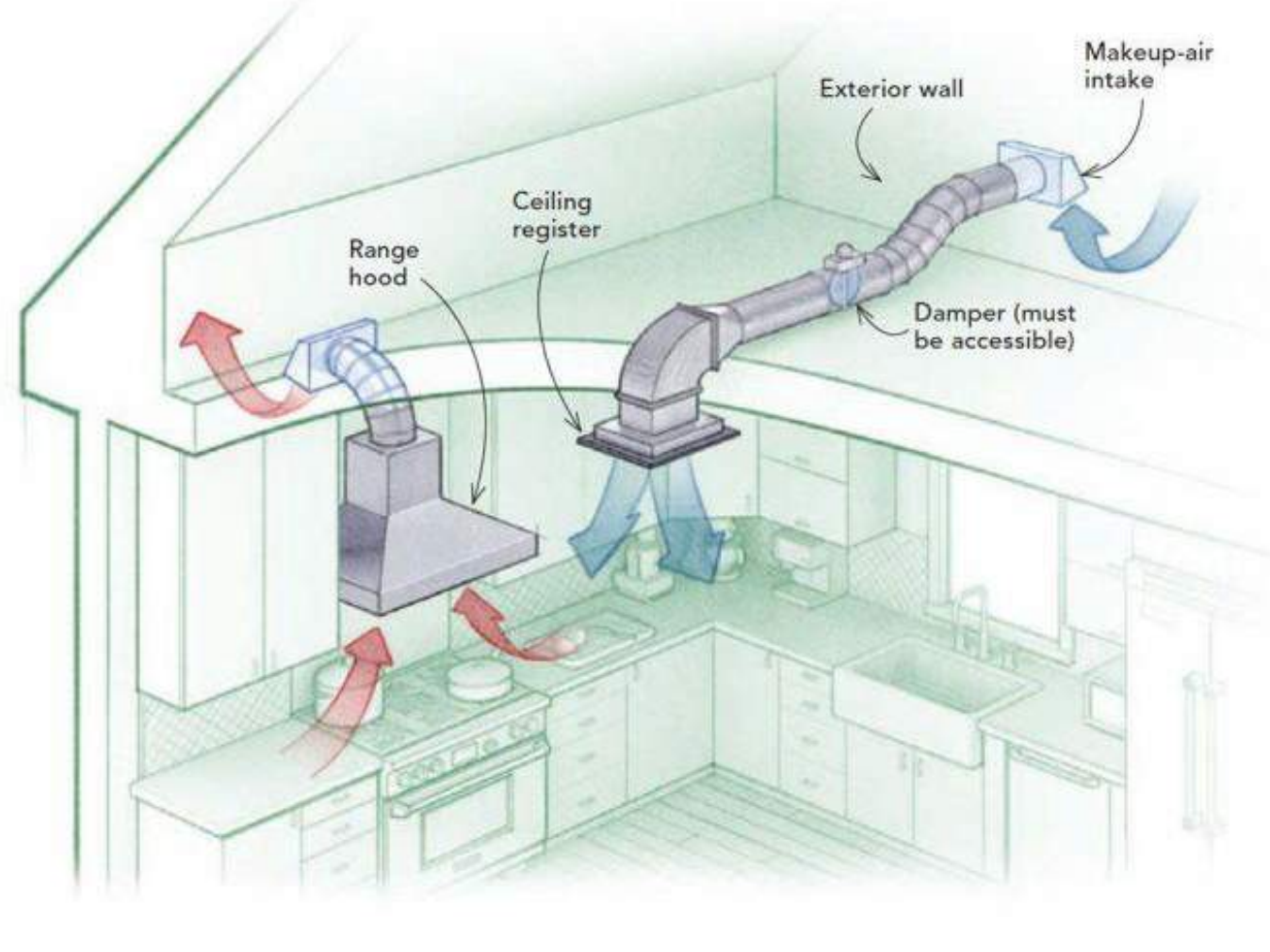


4 HEADER / INSULATION

FREESTANDING RANGE AND RANGE HOOD:

M1503.4 MAKEUP AIR REQUIRED:
EXHAUST HOOD SYSTEMS CAPABLE OF EXHAUSTING IN EXCESS OF 400 CUBIC FEET PER MINUTE (0.19 M³/S) SHALL BE MECHANICALLY OR NATURALLY PROVIDED WITH MAKEUP AIR AT A RATE APPROXIMATELY EQUAL TO THE EXHAUST AIR RATE. SUCH MAKEUP AIR SYSTEMS SHALL BE EQUIPPED WITH NOT LESS THAN ONE DAMPER. EACH DAMPER SHALL BE A GRAVITY DAMPER OR AN ELECTRICALLY OPERATED DAMPER THAT AUTOMATICALLY OPENS WHEN THE EXHAUST SYSTEM OPERATES. DAMPERS SHALL BE ACCESSIBLE FOR INSPECTION, SERVICE, REPAIR AND REPLACEMENT WITHOUT REMOVING PERMANENT CONSTRUCTION OR ANY OTHER DUCTS NOT CONNECTED TO THE DAMPER BEING INSPECTED, SERVICED, REPAIRED OR REPLACED.

M1503.4.1 LOCATION:
KITCHEN EXHAUST MAKEUP AIR SHALL BE DISCHARGED INTO THE SAME ROOM IN WHICH THE EXHAUST SYSTEM IS LOCATED OR INTO ROOMS OR DUCT SYSTEMS THAT COMMUNICATE THROUGH ONE OR MORE PERMANENT OPENINGS WITH THE ROOM IN WHICH SUCH EXHAUST SYSTEM IS LOCATED. SUCH PERMANENT OPENINGS SHALL HAVE A NET CROSS-SECTIONAL AREA NOT LESS THAN THE REQUIRED AREA OF THE MAKEUP AIR SUPPLY OPENINGS.



G2407.9.1 (304.9.1) MAKEUP AIR:
HERE EXHAUST FANS ARE INSTALLED, MAKEUP AIR SHALL BE PROVIDED TO REPLACE THE EXHAUSTED AIR.

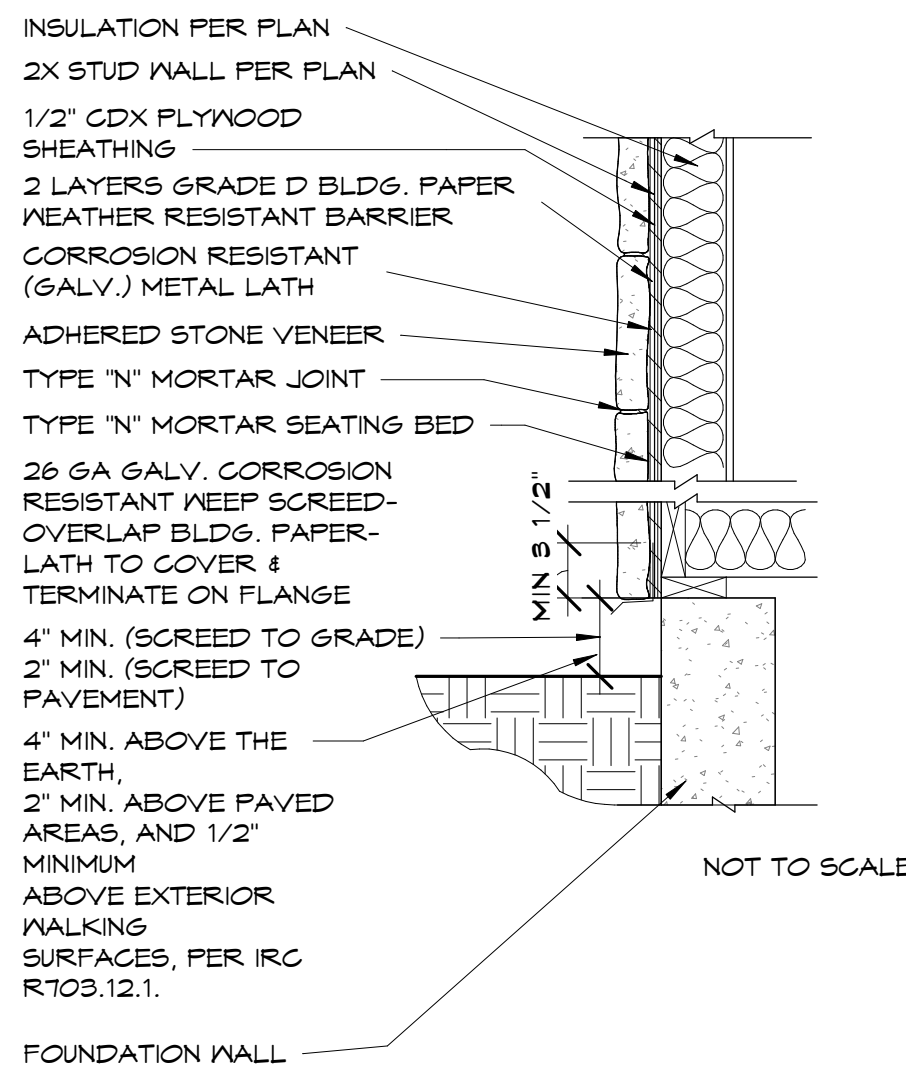
G2407.9.2 (304.9.2) APPLIANCE INTERLOCK:
EACH OF THE APPLIANCES SERVED SHALL BE INTERLOCKED WITH THE MECHANICAL AIR SUPPLY SYSTEM TO PREVENT MAIN BURNER OPERATION WHEN THE MECHANICAL AIR SUPPLY SYSTEM IS NOT IN OPERATION.

G2407.9.3 COMBINED COMBUSTION AIR AND VENTILATION AIR SYSTEM:
WHERE COMBUSTION AIR IS PROVIDED BY THE BUILDING'S MECHANICAL VENTILATION SYSTEM, THE SYSTEM SHALL PROVIDE THE SPECIFIED COMBUSTION AIR RATE IN ADDITION TO THE REQUIRED VENTILATION AIR.

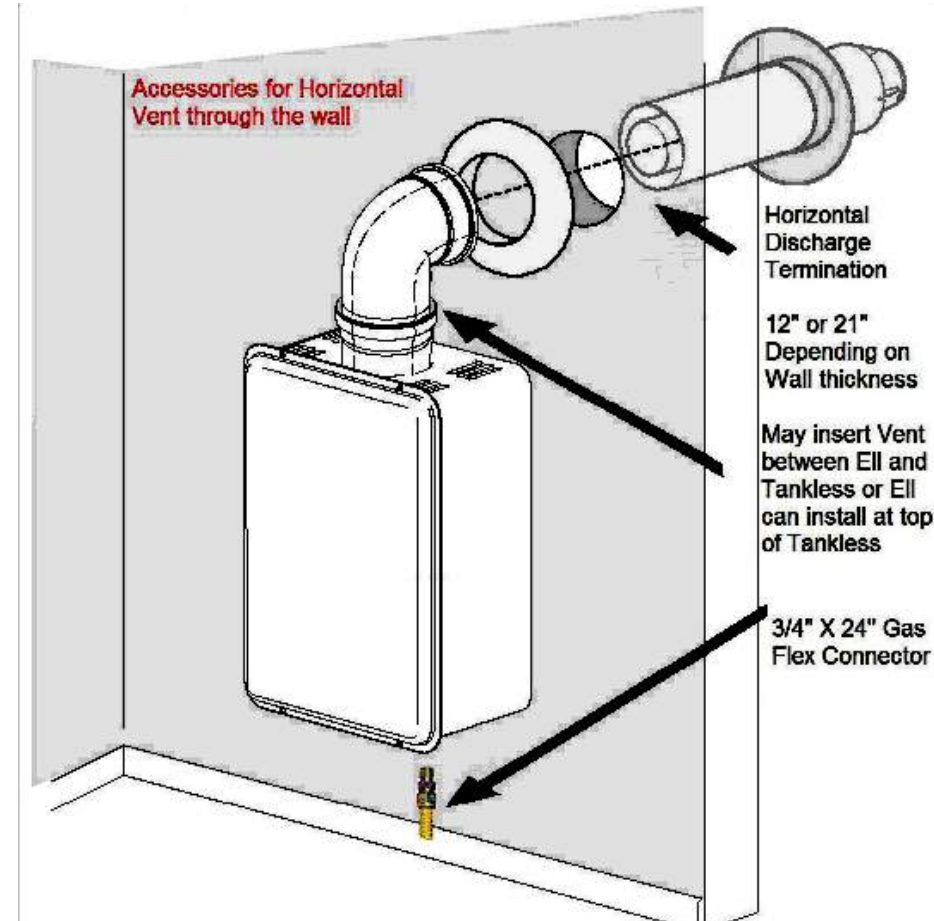
APPLIANCES:

- THOR KITCHEN HRG3610U 36" PRO-STYLE 6 STAINLESS STEEL BURNER GAS RANGE.
- THOR KITCHEN HRH3606U 36" STAINLESS STEEL UNDER CABINET RANGE HOOD.

5 RANGE & HOOD



6 ADHERED VENEER O/ SHEATHING



NOTE:

- ENERGY STAR QUALIFIED
- ENERGY FACTOR OF .92 FOR BOTH NATURAL GAS AND PROPANE
- CERTIFIED FOR INSTALLATION IN MANUFACTURED (MOBILE) HOMES
- ENHANCED SCALE DETECTION LESSENS POSSIBILITY OF SERIOUS, LONG-TERM DAMAGE TO UNIT
- TEMPERATURE LOCK FUNCTION PREVENTS ACCIDENTAL OR UNAUTHORIZED CHANGES TO WATER TEMPERATURE
- COMPLIES WITH SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 14 NG/L OR 20 PPM NOX EMISSION LEVELS

8 RINNAI TANKLESS WTR HEATER

Figure 24. Example Guard Detail.

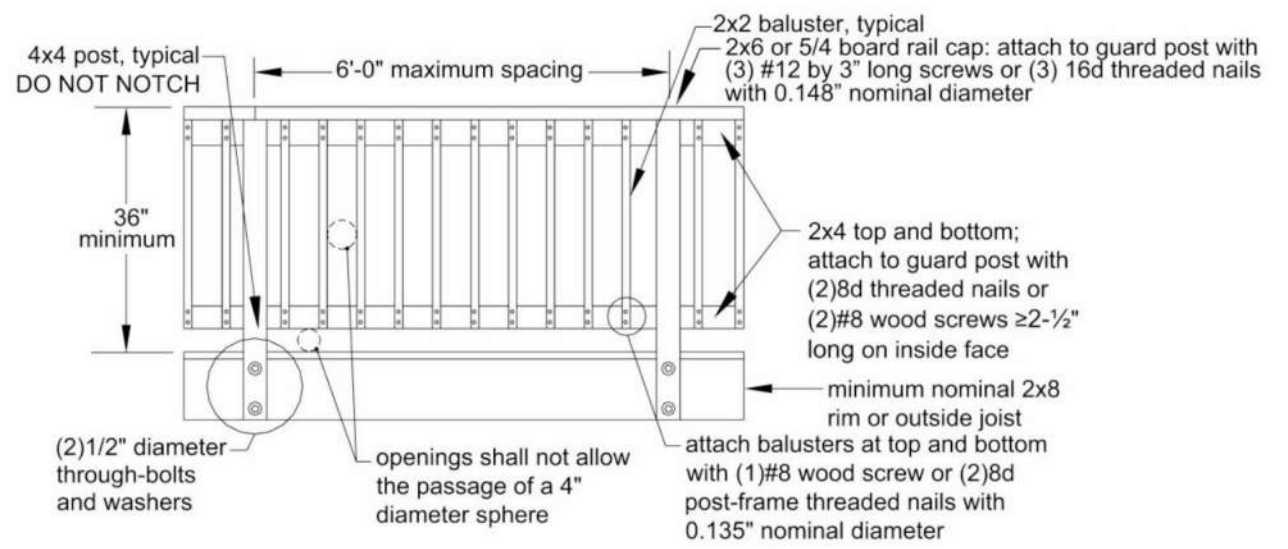


Figure 25. Guard Post to Outside-Joist Example.

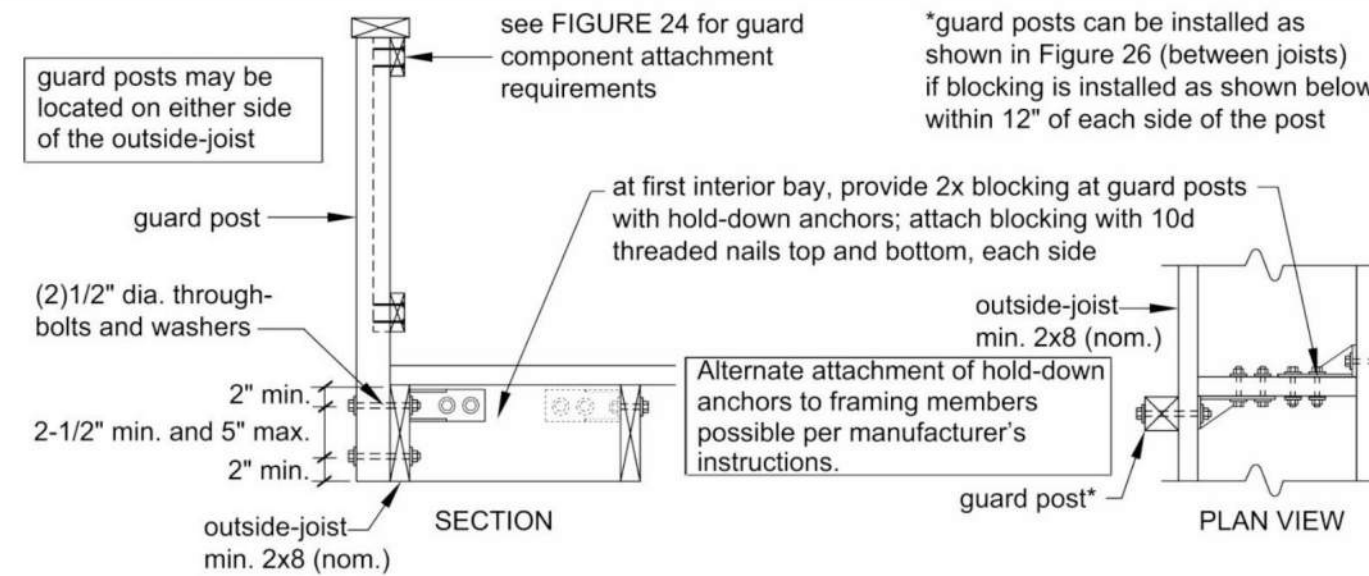
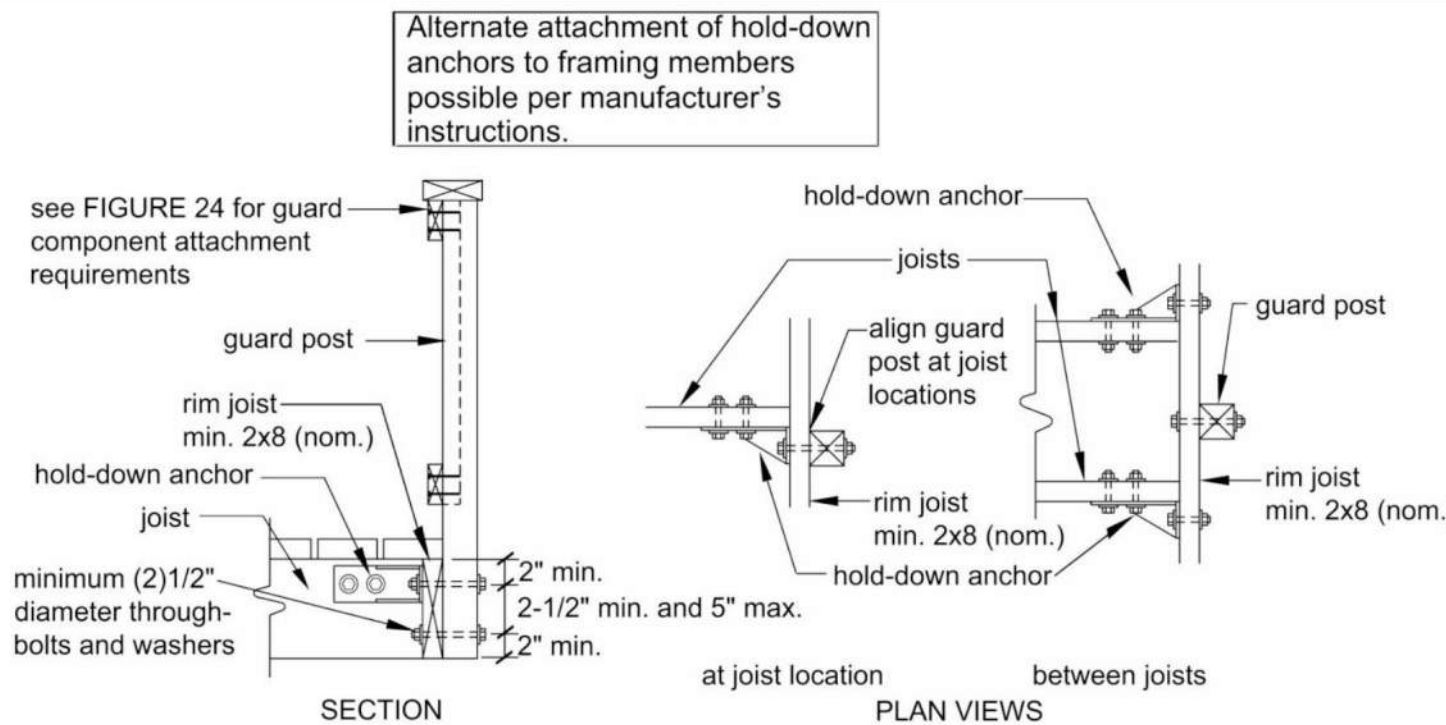


Figure 26. Guard Post to Rim Joist Example.



7 GUARD RAILING DETAIL

REQUIRED SAFETY GLAZING LOCATIONS:

- GLAZING IN SWINGING DOORS EXCEPT LOUVERED WINDOWS AND JALOUSIES COMPLYING WITH IRC R308.2.
- GLAZING IN FIXED AND SLIDING PANELS OF SLIDING DOOR ASSEMBLIES AND PANELS IN SLIDING AND BIFOLD CLOSET DOOR ASSEMBLIES.
- GLAZING IN STORM DOORS.
- GLAZING IN ALL UNFRAMED SWINGING DOORS.
- GLAZING IN DOORS, WALLS, FENCES AND ENCLOSURES FOR HOT TUBS, WHIRLPOOLS, SAUNAS, STEAM ROOMS, BATHROOMS, AND SHOWERS. GLAZING IN ANY PORTION OF A BUILDING WALL ENCLOSING THESE COMPARTMENTS WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60" ABOVE ANY STANDING OR WALKING SURFACE.
EXCEPTION: OPENINGS THROUGH WHICH A 3" SPHERE IS UNABLE TO PASS.
- GLAZING IN FIXED OR OPERABLE PANELS ADJACENT TO A DOOR WHERE THE NEAREST VERTICAL IS WITHIN A 24" ARC OF EITHER VERTICAL EDGE OF THE DOOR IN A CLOSED POSITION AND WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60" ABOVE THE WALKING SURFACE.
EXCEPTION: WHERE THERE IS AN INTERVENING WALL OR PARTITION BETWEEN DOOR AND GLAZING OR WHERE THE DOOR ACCESSES A CLOSET 3' OR LESS IN DEPTH.
- GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL, WHEN ALL OF THE FOLLOWING APPLY:

- 1.1 EXPOSED AREA OF AN INDIVIDUAL PANE GREATER THAN 9 S.F.
- 1.2 BOTTOM EDGE LESS THAN 18" ABOVE THE FLOOR.
- 1.3 TOP EDGE GREATER THAN 36" ABOVE THE FLOOR.
- 1.4 ONE OR MORE WALKING SURFACES WITHIN 36" HORIZONTALLY OF THE GLAZING.
EXCEPTION: WHERE A PROTECTIVE 1-1/2"-WIDE BAR IS INSTALLED ON THE ACCESSIBLE SIDE OF THE GLAZING 34" - 38" ABOVE THE FLOOR AND IS CAPABLE OF WITHSTANDING A LOAD OF 50 LBS PER LINEAL FOOT OR WHERE THE BOTTOM EDGE OF THE GLASS IS 25" OR MORE ABOVE GRADE, A ROOF, WALKING SURFACE, OR OTHER HORIZONTAL SURFACE.
5. GLAZING IN RAILINGS REGARDLESS OF AREA OR HEIGHT ABOVE A WALKING SURFACE. INCLUDES STRUCTURAL BALUSTER PANELS AND NONSTRUCTURAL IN-FILL PANELS.
9. GLAZING IN WALLS AND FENCES ENCLOSING INDOOR AND OUTDOOR SWIMMING POOLS, HOT TUBS, AND SPAS WHERE THE BOTTOM EDGE OF THE GLAZING IS LESS THAN 60" ABOVE A WALKING SURFACE AND WITHIN 60" HORIZONTALLY OF THE WATER'S EDGE. THIS WILL APPLY TO ALL SINGLE GLAZING AND ALL PANES IN MULTIPLE GLAZING.
10. R308.4.6 GLAZING ADJACENT TO STAIRS AND RAMPS.
GLAZING WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 36 INCHES (914 MM) ABOVE THE PLANE OF THE ADJACENT WALKING SURFACE OF STAIRWAYS, LANDINGS BETWEEN FLIGHTS OF STAIRS AND RAMPS SHALL BE CONSIDERED TO BE A HAZARDOUS LOCATION.

EXCEPTIONS:

1. WHERE A RAIL IS INSTALLED ON THE ACCESSIBLE SIDE(S) OF THE GLAZING 34 TO 38 INCHES (864 TO 965 MM) ABOVE THE WALKING SURFACE. THE RAIL SHALL BE CAPABLE OF WITHSTANDING A HORIZONTAL LOAD OF 50 POUNDS PER LINEAL FOOT (130 N/M) WITHOUT CONTACTING THE GLASS AND HAVE A CROSS-SECTIONAL HEIGHT OF NOT LESS THAN 1 1/2 INCHES (38 MM).
2. GLAZING 36 INCHES (914 MM) OR MORE MEASURED HORIZONTALLY FROM THE WALKING SURFACE.
11. R308.4.7 GLAZING ADJACENT TO THE BOTTOM STAIR LANDING. GLAZING ADJACENT TO THE LANDING AT THE BOTTOM OF A STAIRWAY WHERE THE GLAZING IS LESS THAN 36 INCHES (914 MM) ABOVE THE LANDING AND WITHIN A 60-INCH (1524 MM) HORIZONTAL ARC LESS THAN 180 DEGREES FROM THE BOTTOM TREAD NOSING SHALL BE CONSIDERED TO BE A HAZARDOUS LOCATION.

EXCEPTION: THE GLAZING IS PROTECTED BY A GUARD COMPLYING WITH SECTION R312 AND THE PLANE OF THE GLASS IS MORE THAN 18 INCHES (457 MM) FROM THE GUARD.

NOTE:
REFER TO STRUCTURAL SHEETS FOR SHEAR WALL SCHEDULE AND ENGINEERING PLAN WHICH CONTAIN REFERENCES AND/OR INSTRUCTIONS PERTAINING TO EACH SHEAR WALL INDICATED IN THIS PLAN.

NOTE:
REFER TO STRUCTURAL SHEETS FOR SHEAR WALL SCHEDULE AND ENGINEERING PLAN WHICH CONTAIN REFERENCES AND/OR INSTRUCTIONS PERTAINING TO EACH SHEAR WALL INDICATED IN THIS PLAN.

PROJECT NAME
SINGLE FAMILY RESIDENCE
SINGLE USE

PREPARED FOR
BIJAN AMIRI
401 RAYNSTONE DR
CARY, NC 27518
PH: (919) 412-0450
E: bijan@buildirima.com

SUBMITTAL/REVISION DATE
SUBMITTED:
REVISED:

DESIGNED BY:

DRAFTED BY:

SHEET TITLE

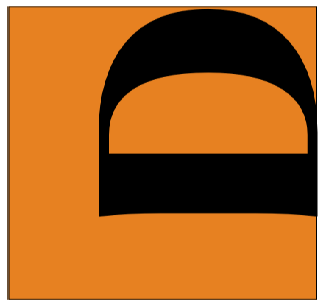
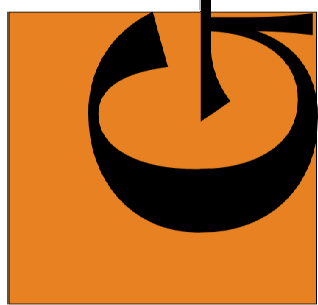
DETAILS AND
NOTES

PROJECT NUMBER

21208-2-0

SHEET NUMBER

A7



GLAZING SCHEDULE

ROOM	# OF WINDS.	WIND. W.	WIND. H.	MANUF.	FRAME TYPE	WDW. TYPE	MODEL NO.	AIR GAP	GAS	LO-E	U-VAL (1)	AREA	N.A.
MAIN FLOOR													
FOYER	1	1.50	6.00	MILGARD	VINYL	PICTURE	5320	1/2"	AIR	YES	0.28	9.00	2.52
PWDR	1	2.50	5.00	MILGARD	VINYL	PICTURE	5320	1/2"	AIR	YES	0.28	12.50	3.50
OFFICE	2	2.00	6.00	MILGARD	VINYL	CASE	5521	1/2"	AIR	YES	0.28	24.00	6.72
OFFICE	1	2.50	6.00	MILGARD	VINYL	PICTURE	5320	1/2"	AIR	YES	0.28	15.00	4.20
LIVING	2	2.00	6.00	MILGARD	VINYL	PICTURE	5320	1/2"	AIR	YES	0.28	24.00	6.72
DINING	1	4.00	6.00	MILGARD	VINYL	SLIDER	5120	1/2"	AIR	YES	0.28	24.00	6.72
DINING	1	10.00	8.00	MILGARD	VINYL	S.G.D.	5621	1/2"	AIR	YES	0.28	80.00	22.40
UPPER FLOOR													
OPEN TO FOYER BELOW	2	2.00	5.00	MILGARD	VINYL	PICTURE	5320	1/2"	AIR	YES	0.28	20.00	5.60
BEDROOM 2	1	2.50	5.00	MILGARD	VINYL	PICTURE	5320	1/2"	AIR	YES	0.28	12.50	3.50
BEDROOM 2	2	2.00	5.00	MILGARD	VINYL	CASE	5521	1/2"	AIR	YES	0.28	20.00	5.60
STAIRWELL	4	2.00	4.50	MILGARD	VINYL	PICTURE	5320	1/2"	AIR	YES	0.28	36.00	10.08
BATH 2	1	2.00	4.00	MILGARD	VINYL	PICTURE	5320	1/2"	AIR	YES	0.28	8.00	2.24
BEDROOM 3	1	5.00	4.00	MILDARD	VINYL	SLIDER	5120	1/2"	AIR	YES	0.28	20.00	5.60
MASTER STE	2	2.00	4.00	MILGARD	VINYL	CASE	5521	1/2"	AIR	YES	0.28	16.00	4.48
MASTER BATH	1	4.00	4.00	MILGARD	VINYL	SLIDER	5120	1/2"	AIR	YES	0.28	16.00	4.48
MASTER BATH	1	2.00	4.00	MILGARD	VINYL	CASE	5521	1/2"	AIR	YES	0.28	8.00	2.24
MASTER BATH	1	2.00	4.00	MILGARD	VINYL	PICTURE	5320	1/2"	AIR	YES	0.28	8.00	2.24
WIND. TOTAL:												353.00	98.84

DOORS WITH MORE THAN 50% GLASS													
DOORS WITH MORE THAN 50% GLASS-TOTAL:													
AVG. U-VALUE (VERTICAL GLASS):													

SKYLIGHTS AND SKYWALLS

SKYLIGHT TOTAL:
AVG. U-VALUE (OVERHEAD GLASS):

				AREA		UA	
				353.00		98.84	
				TOTAL 1	TOTAL 2		
				5.20%			
GLAZING % = TOTAL 1				353.00	S.F. =		
				HEATED AREA	6792.00	S.F.	
AVG. U-VALUE = UA TOTAL (TOT. 2)				98.84	UA =	0.28	U-VALUE
				AREA TOTAL (TOT. 1)	353.00	A	

NOTE:
REFER TO STRUCTURAL ENGINEERING SHEETS FOR
FOUNDATION/CRAWL SPACE VENTILATION.

NOTE:
REFER TO STRUCTURAL SHEETS FOR SHEAR WALL SCHEDULE AND
ENGINEERING PLAN WHICH CONTAIN REFERENCES AND/OR
INSTRUCTIONS PERTAINING TO EACH SHEAR WALL INDICATED IN THIS
PLAN

NOTE:
CONTRACTOR TO VERIFY ALL DIMENSIONS AND CONDITIONS OF
PROJECT AND REPORT ANY OMISSIONS / DISCREPANCIES TO
DESIGNER PRIOR TO COMMENCING WORK. DESIGNER SHALL NOT BE
RESPONSIBLE FOR DISCREPANT CONDITIONS RESULTING FROM
UNAUTHORIZED WORK PERFORMED BY THE CONTRACTOR.

ROOF VENTILATION

Standard Truss / Scissor Truss Roof Framing Assembly:		LOWER ROOF
Roof Area :	878 s.f.	
Ventilation Required:	878 s.f. x 144 s.i. / s.f. / 300 =	421.44 s.i. Req'd
Provide 1/2 ventilation at eaves, 1/2 above midpoint & min. 3 ft. above eave vents		
Eave Ventilation:		
Birdblocking =	4.71 s.i. / l.f. - 25% reduction =	3.53 s.i. / l.f.
Eave Ventilation Req'd =	421.44 s.i. / 2 / s.i. per l.f. =	59.65 l.f.
Provide :	60 l.f. birdblocking. Ventilation =	211.95 s.i.
Min. Ventilation Provided =	211.95 s.i. is greater than	210.72 s.i. Req'd
Upper Roof Ventilation:		
7"x7" Attic Roof Jack =	49 s.i. each - 25% screen reduction =	36.75 s.i. each.
Upper Ventilation Req'd =	421.44 s.i. / 2 / s.i. of each vent =	5.73 vents
Provide:	6 -7"x7" roof jacks. Ventilation =	220.50 s.i.
Ventilation Provided =	220.50 s.i. is greater than	210.72 s.i. Req'd
Use : (minimum)	60 l.f. birdblocking. Ventilation =	211.95 s.i.
Use : (minimum)	6 -7"x7" roof jacks. Ventilation =	220.50 s.i.
Total Min. Ventilation Provided =	432.45 s.i. IS GREATER THAN :	421.44 s.i. Req'd

2018 WHOLE HOUSE VENTILATION

OPTION 1 - INTERMITTENT WHOLE HOUSE VENTILATION USING
EXHAUST FANS

A.

- * 80 CFM EXHAUST FAN FLOW RATING PER TABLE M1508.2
- * FAN CONTROLS: 24 HOUR CLOCK TIMER WITH CAPACITY OF CONTINUOUS OPERATION, MANUAL AND AUTOMATIC CONTROL & ACCESSIBLE.
- * WHOLE HOUSE FANS LOCATED 4 FEET OR LESS FROM THE INTERIOR. GRILLE SHALL HAVE A SONE RATING OF 1.0 OR LESS AT 0.1 INCHES W.G.

B.

80 CFM X 1.5 (66%) = 120 CFM INTERMITTENT WHOLE-
HOUSE FAN @ 66% (1.5 FACTOR) RUNTIME PERCENTAGE
IN EACH 4-HOUR SEGMENT PER IRC M1507.3.3(2).

* INTERMITTENT WHOLE-HOUSE MECHANICAL VENTILATION
RATE PER TABLE IRC M1507.3.3(2)

Basic Stairs
This tip sheet reflects code requirements of the 2021 International Residential Code (IRC) with Washington State Amendments.

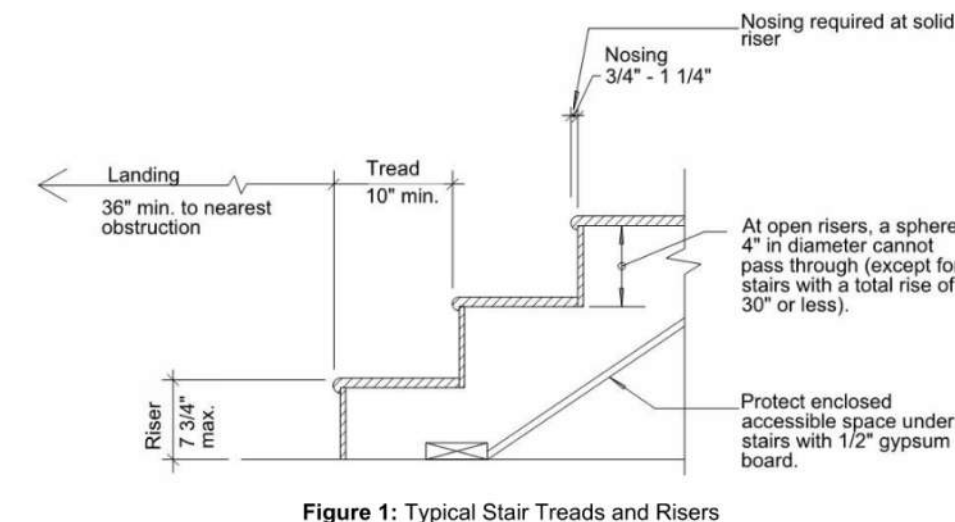


Figure 1: Typical Stair Treads and Risers

- Stair Treads and Risers**
- The largest tread or riser within any flight of stairs is not to exceed the smallest by more than 3/8 inches. (R311.7.5.1)

- Illumination**
- Interior stairways shall be provided with an artificial light source to illuminate the landings and treads. There shall be a wall switch at each floor level to control the light source where the stairways 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 and located at the bottom landing where accessing a basement. Stairway illumination shall receive primary power from the building wiring. (R303.8)

- Handrails**
- Handrails are required on at least one side for stairways with four or more risers. See Tip Sheet 2 for additional information regarding handrails. (R311.7.8)

- Landings**
- Landings are required at the top and the bottom of stairways. A floor landing is not required at the top of an interior flight of stairs, including stairs in an enclosed garage, provided a door does not swing over the stairs. (R311.7.6)

- A landing extending the width of the stairs and measuring a minimum of 36 inches in the direction of travel is required at the top and bottom of every stairway. (R311.7.6)

- Circular, Winding, or Spiral Stairways**
- For exceptions related to the construction of circular, winding, or spiral stairways, see IRC R311.7.5.2.1 and R311.7.10.

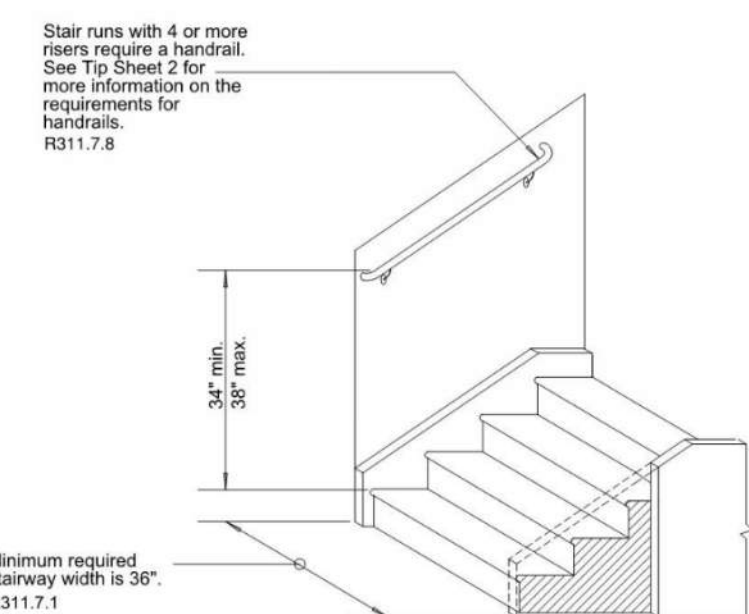


Figure 2: Typical Stair Elevation

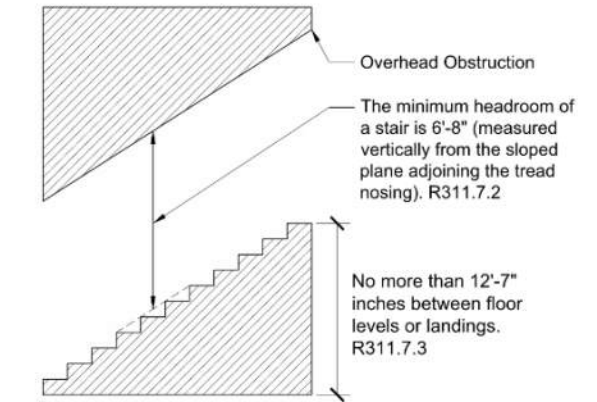


Figure 3: Headroom Clearance Requirements

1 BASIC STAIRS DETAIL

Residential Guards (Guardrails)
This tip sheet reflects code requirements of the 2018 International Residential Code (IRC) with Washington State Amendments.

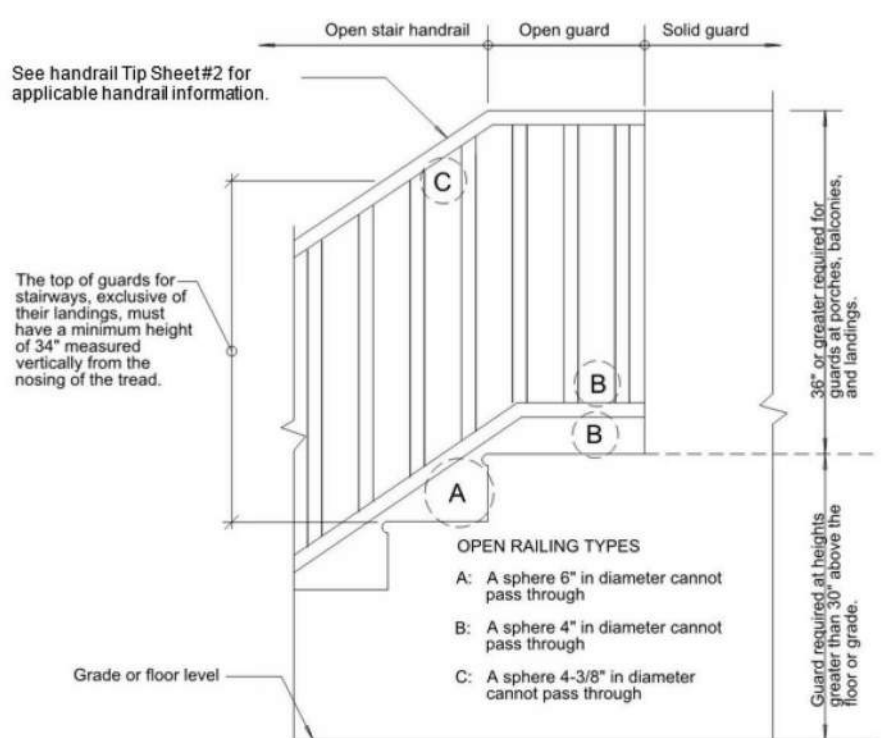


Figure 1: Guard Elevation (IRC R312)

- Requirements**
- Guards shall comply with IRC R312.1; refer to Figure 1 for major requirements.
 - Guards shall be structurally designed to comply with IRC Table R301.5 (i.e., designed for a 200-pound load in any direction along the top and a 50-pound point load elsewhere).
 - For glass guards or guards with glazing, see IRC R308.4.4.

2 GUARDRAILS DETAIL

Smoke, Heat, and Carbon Monoxide Alarms
This tip sheet reflects code requirements of the 2021 International Residential Code (IRC) with Washington State Amendments and NFPA 72 - 2019.

- Definitions**
- **Smoke alarm:** A device designed to respond when it senses smoke, typically as an indicator of fire.
 - **Heat alarm:** A device designed to respond when it senses a rise in temperature, typically as an indicator of fire.
 - **Carbon monoxide alarm:** A device designed to respond when it senses carbon monoxide, a poisonous gas.
 - **All alarms** shall be UL listed and installed per manufacturer instructions. (R314.1.1, R315.1.1)
- New Construction**
- Smoke alarms and carbon monoxide alarms shall be installed throughout each dwelling unit in all required locations. (R314.2.1, R315.2.1)
 - A heat detector shall be provided in each new attached garage. (R314.2.3)
 - Smoke alarms, heat alarms, and 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. (R314.6, R315.6)
 - Where more than one smoke alarm is required to be installed within an individual dwelling unit, the alarm devices shall be **interconnected** in such a manner that the activation of one alarm will activate all of the alarms in the individual dwelling unit. (R314.4, R315.5)
 - Heat alarms shall be **connected** to a heat alarm or smoke alarm that is installed in the dwelling unit. Alarms that are installed for this purpose shall be located in a hallway, room, or other location that will provide occupant notification. (R314.4.1)
 - 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, R315.5)

- Alterations, Repairs, and Additions**
- In a dwelling unit where alterations, repairs or additions occur, smoke alarms and carbon monoxide alarms shall be installed throughout each dwelling unit, in all required locations, where not already present. (R314.2.2, R315.2.2)
 - Smoke and carbon monoxide alarms can be powered by the building wiring or batteries. (R314.6, R315.6)
 - Smoke alarms shall be **interconnected** within an individual dwelling except where such existing smoke alarms are not interconnected or where such new smoke alarm or alarm is not capable of being interconnected to the existing smoke alarms. (R314.4)
 - Carbon monoxide alarms shall be **interconnected** except where the permit related work does not provide access to the building wiring such as removing interior walls or ceiling finishes and there is no attic, crawlspace, or basement available. (R315.5)

Required Locations

- A **smoke alarm** shall be located in each sleeping room. (R314.3)
- A **smoke alarm** shall be located in each napping area of a family home childcare. (R314.3)
- A **smoke alarm** and a **carbon monoxide alarm** (or combination smoke and carbon monoxide alarm) shall be located outside each sleeping area in the immediate vicinity of the bedroom(s). (R314.3, R315.3)
- At least one **smoke alarm** and one **carbon monoxide alarm** shall be located on each floor level, including basements and habitable attics. (R314.3, R315.3)
- In split level floor plans, at the upper level, provided there is no intervening door between adjacent levels and the lower level is less than a full story below the upper level. (R314.3)
- A **smoke alarm** shall be located in the hallway and in the room open to the hallway in dwelling units where the ceiling height of a room open to a hallway serving bedrooms exceeds that of the hallway by 24 inches or more. (R314.3)
- Within the room to which a loft is open, in the immediate vicinity of the loft. (R314.3)
- A **carbon monoxide alarm** is required in a bedroom when a fuel-burning appliance is installed in the bedroom or its attached bathroom. (R315.3)

- A **combination alarm** (combined smoke and carbon monoxide alarm) is acceptable in any required location. (R314.5, R315.4)
- A **heat alarm** is required in each new attached garage. (R314.2.3)

Alarms and Detectors on Walls and Sloped/Ceilinged/Coffered Ceilings per NFPA 72 - 2019.

- Alarms and detectors in a **peaked ceiling** must be within 36 inches horizontally and no closer than 4 inches vertically to the peak. Avoid placing alarms in **dead air spaces**; refer to Figure 1. (NFPA 72 29.11.3.1)
- Alarms and detectors mounted on a **sloped ceiling** having a rise greater than 1-foot in 8-feet horizontally (1:8) shall be located within 36 inches of the high side of the ceiling, but not closer than 4 inches from the adjoining wall surface. Refer to Figure 1. (NFPA 72 29.11.3.2)

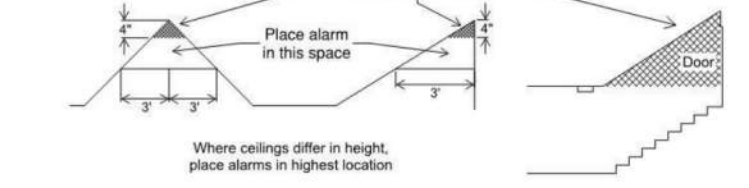


Figure 1: Smoke Alarms and Smoke Detectors in Peaked/Sloped Ceilings

- Where **stairs lead** to other occupable levels, alarms and detectors shall be located so that smoke rising in the stairway cannot be prevented from reaching the alarm or detector by an intervening door or obstruction. For stairways leading up from a basement, alarms and detectors shall be located in the **basement ceiling** near the entry to the stairs. Refer to Figure 1. (NFPA 72 29.11.3.4 (1), (11))

- **Wall mounted** alarms and detectors must be not more than 12 inches from the adjoining ceiling surface. (NFPA 72 29.11.3.3)
- Alarms and detectors installed in rooms with **joints or beams** shall comply with NFPA 72 17.3.2.4 and 17.6.3. (NFPA 72 29.11.3.4 (3), (14))
- For **coffered ceilings** (and ceilings with soffits), alarms and detectors shall be installed on the high side of the ceiling or on the sloped portion of the ceiling within 12 inches vertically down from the highest point. Refer to Figure 2. Provide the manufacturer's installation instructions to confirm the maximum horizontal distance from the alarm or detector. (NFPA 72 29.11.3.4 (12))

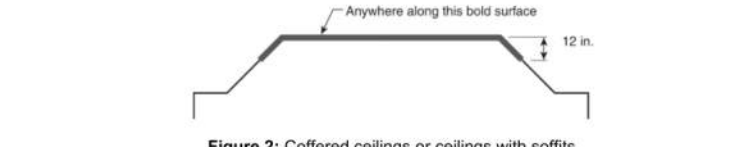


Figure 2: Coffered ceilings or ceilings with soffits.

Specific Location Requirements per NFPA 72

- Do not place alarms in spaces where **temperatures and humidity** may be above or below the alarm's operating temperature range. (NFPA 72 29.11.3.4 (1), (2), (3))
- Avoid placing alarms within 3 feet horizontally from doors or openings to **bathrooms** containing a bathtub or shower unless listed for installation in those locations. (NFPA 72 29.11.3.4 (7))
- Do not place alarms within 3 feet from a **supply register** of a forced air heating or cooling system and it shall be installed outside of the direct airflow from those registers. (NFPA 72 29.8.3.4 (7))
- Do not place alarms within 3 feet of the blades of a **ceiling fan**. (NFPA 72 29.8.3.4 (8))

Carbon Monoxide Alarm Location Limitations

- Do not place alarms directly above or beside fuel-burning appliances.
- Do not place alarms in direct sunlight.
- Do not place alarms in low areas where children can reach. Do not place alarms behind curtains or any structure that might prevent carbon monoxide from reaching the sensor.

Alarms and Detectors Near Cooking Appliances per NFPA 72 Refer to Figure 3:

The following are guidelines for safe installation near a cooking appliance.

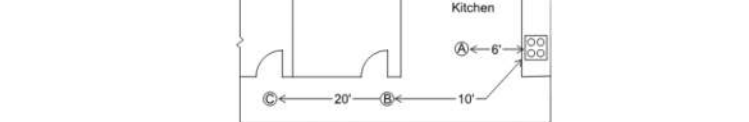


Figure 3: Smoke Alarms and Smoke Detectors Near Cooking Appliances

- A. **Photoelectric** smoke alarms shall not be installed less than 6 feet horizontally from a permanently installed cooking appliance. (NFPA 72 29.8.3.4 (4))
- Ionization** smoke alarms with an alarm-silencing switch must not be less than 10 feet from a permanent cooking appliance. (NFPA 72 29.8.3.4 (4))
- A. **Ionization** smoke alarms without an alarm-silencing switch must not be less than 20 feet from a permanent cooking appliance. (NFPA 72 29.8.3.4 (4))
- B. Smoke alarms listed and marked "helps reduce cooking nuisance alarms" shall not be installed less than 6 feet horizontally from a permanently installed cooking appliance. (NFPA 72 29.11.3.4 (6))

3 ALARMS DETAIL

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Construction Tip Sheet 07

Water Heaters
This Tip Sheet reflects code requirements of the 2021 International Residential Code (IRC) and the 2021 Uniform Plumbing Code (UPC) with Washington State Amendment

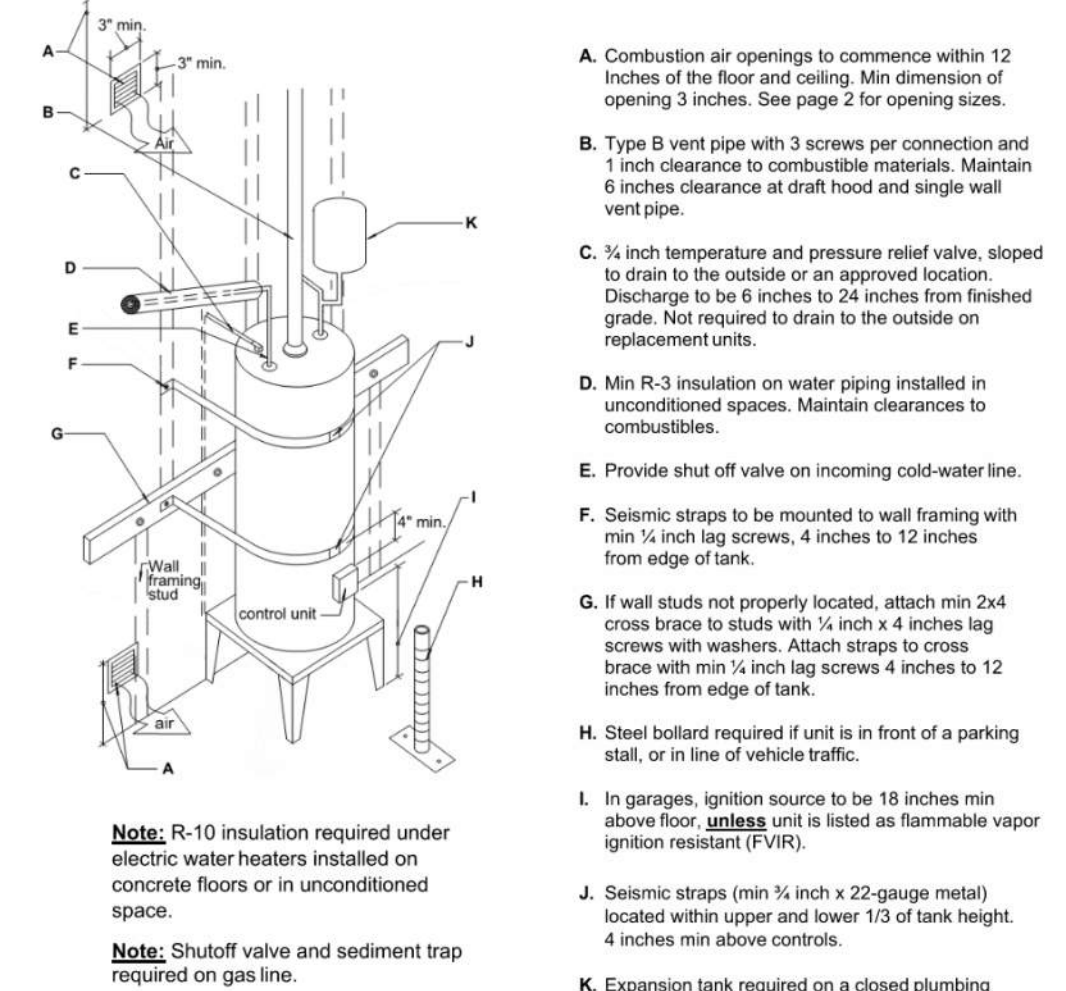


Figure 1: Water Heater Installation Details

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Construction Tip Sheet 07

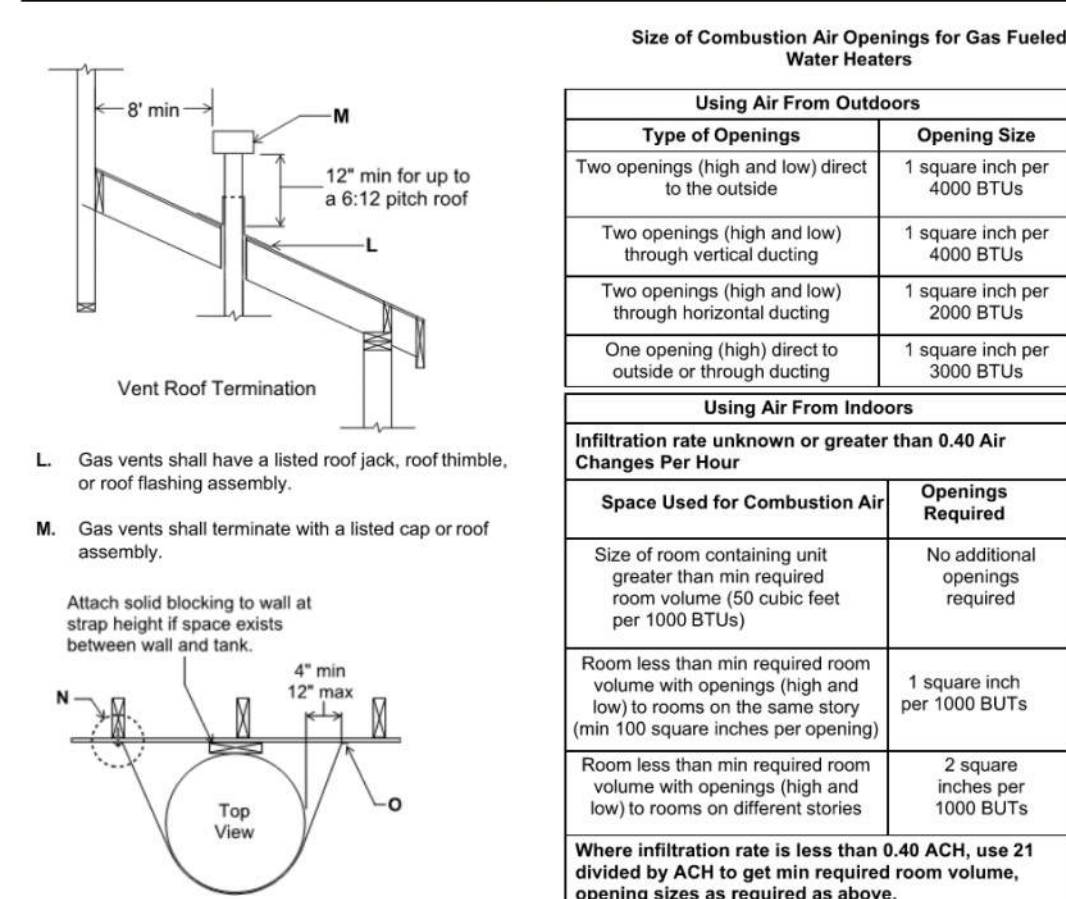


Figure 2: Water Heater Installation Details

- N. Seismic straps to be mounted to wall framing with min 1/2 inch lag screws 4 inches to 12 inches from edge of tank.
- O. If wall studs not properly located, attach min 2x4 cross brace to studs with 1/2 inch x 4 inches lag screws with washers. Attach straps to cross brace with min 1/2 inch lag screws, 4 inches to 12 inches from edge of tank. **Note:** Perforated iron strap (plumbers tape) will not be an acceptable method of seismic strapping.

Using Air From Indoors and Outdoors

- If using combustion air from both indoors and outdoors the percentage of indoor space available versus the minimum required volume from the indoor table, and the percentage of actual outdoor opening size versus the minimum required opening size from the outdoor table, must equal 100%.

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Construction Tip Sheet 07

STARTING JULY 1, 2023
In new construction, primary water heating must be provided by a heat pump system. Both unitary heat pump water heaters (HPWHs) and split systems are acceptable.



Figure 1: Heat pump water heater diagram.

Source: Heat Pump Water Heaters | Department of Energy

Some exceptions apply. For example, homes with less than 1,000 square feet of conditioned floor area may be served by other water heating system types.

Supplementary heating for heat pump water heating systems may be provided by other system types.

Also, water heaters must now be installed within the conditioned space of the home unless it has a system efficiency of 2.0 UEF or better.

For complete code text, exceptions, and control requirements, see 2021 WSEC Section R403.5.7

In existing buildings, other water heating system types may be replaced like-in-kind so long as the rated capacity of the equipment is not greater than the existing.



Figure 2: Examples of water heater types that can be replaced like-in-kind. **Estimating Costs and Efficiency of Storage, Demand, and Heat Pump Water Heaters | Department of Energy**

For full code text, see 2021 WSEC Section R503.1. https://www.wa.gov/sites/default/files/2023/04/2021_WSEC_R-1stPrint-1_042623.pdf

In new or existing buildings, this change does not prohibit gas supply from being provided to homes. This change does not ban the use of gas or propane for cooking appliances or decorative gas fireplaces.

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4 WATER HEATERS

Residential Emergency Egress Openings
This tip sheet reflects code requirements of the 2021 International Residential Code (IRC) with Washington State Amendments.

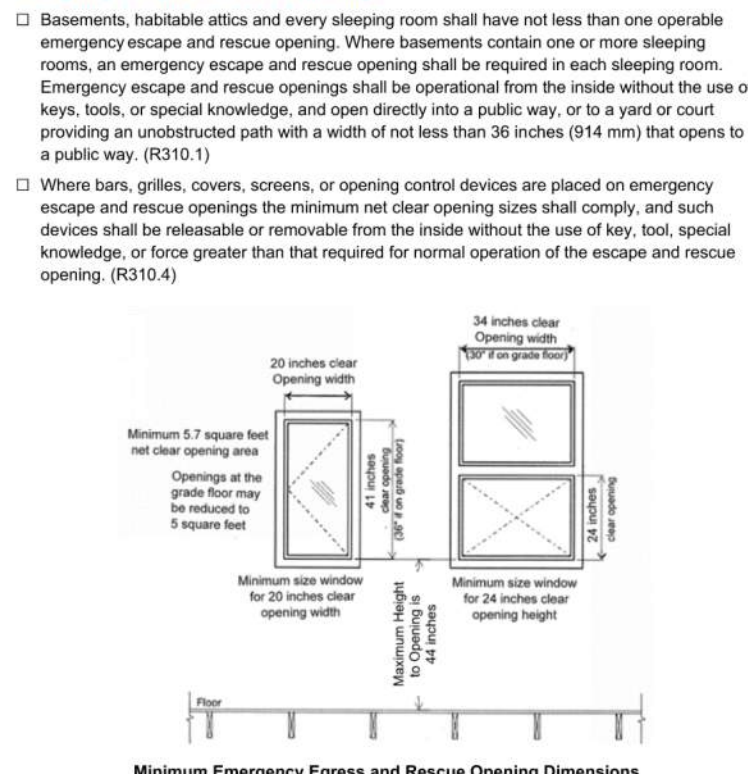


Figure 1: Minimum Emergency Egress and Rescue Opening Dimensions

Area Wells in Conjunction With Emergency Escape and Rescue Openings

- The horizontal area of the area well shall be not less than 5.7 square feet, with a horizontal projection and width not more than 36 inches. The size of the area well shall allow the emergency escape and rescue opening to be fully opened. (R310.4.1)
- Area wells with a vertical depth greater than 44 inches shall be equipped with a permanently affixed ladder or steps useable with the emergency escape and rescue opening in the fully opened position and shall not encroach into the required dimensions of the window well. (R310.4.2)
- Ladders, rungs, and steps shall have an inside width of not less than 12 inches, shall project not less than 3 inches from the wall or have a minimum 5-inch tread depth, and be spaced not more than 18 inches on center vertically for the full height of the area well. (R310.4.2.1, R310.4.2.2)
- Where bars, grilles, covers, screens or similar devices are placed bulkhead enclosures or area wells that serve emergency escape and rescue openings, the minimum net clear opening size shall be not less than the emergency escape and rescue opening as shown in the figures above. Such devices shall be releasable or removable from the inside without the use of a key or tool or force greater than that required for the normal operation of the escape and rescue opening, and shall not obstruct access to or from the emergency escape and rescue opening. (R310.4.4)

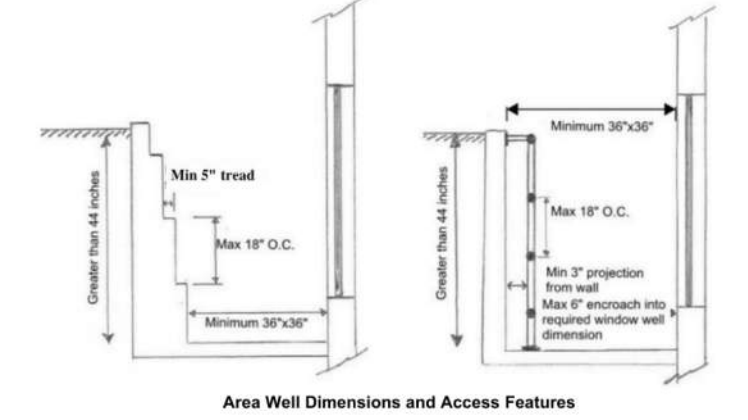


Figure 2: Area Well Dimensions and Access Features

5 EMERGENCY EGRESS DETAIL

Window Fall Protection

This tip sheet reflects code requirements of the 2021 International Residential Code (IRC) and the 2021 International Building Code (IBC) with Washington State Amendments.

Requirements

- Where the sill height above finished grade on the exterior side of an operable window opening is greater than 72 inches, and the sill height above the finished floor on the interior side of the operable window opening is less than 24 inches (or 36 inches in dwelling units regulated by the IBC) (see Figure 1), then window fall protection shall be provided by one of the following: (R312.2.1, R312.2.2, IBC 1015.6)
- 1. Operable windows with openings that, when in their largest opened position, will not allow the passage of a 4-inch sphere (see Figure 2).
- 2. Operable windows that are provided with opening control or fall prevention devices that comply with ASTM F 2090 (see Figure 2) (IBC 1015.6.1.1)
- 3. In dwelling units regulated by the IBC where the sill height of an operable window above exterior finished grade is more than 75 feet, provide window fall prevention devices complying with ASTM F 2090 (see Figure 2).

□ Where operable windows serve as emergency escape and rescue openings, any window opening control or fall prevention device, after operation to release the device allowing the window to fully open, shall not reduce the net clear opening area of the window units to less than the area required by R310.2.1 and R310.2.2 (R312.2) (IBC 1015.6.1). See Egress Windows below.

Standards

- ASTM F 2090: Standard Safety Specification for Window Fall Prevention Devices for Non-Emergency Escape (Egress) and Rescue (Ingress) Windows
- ASTM F 2090: Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms.

Egress Windows

- Egress windows must meet minimum size requirements. Minimum clear opening size of 5.7 square feet (5 square feet on the grade level) with minimum clear height of 24 inches and minimum clear width of 20 inches.
- For additional emergency egress window requirements refer to Tip Sheet 10.

Safety Glazing

- For additional safety glazing requirements refer to Tip Sheet 18.

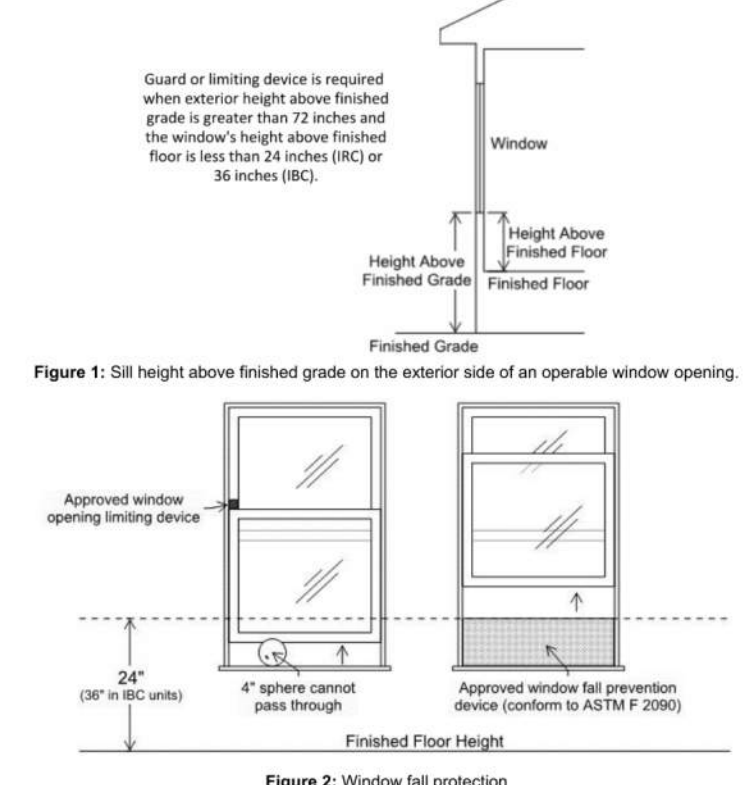


Figure 1: Window fall protection

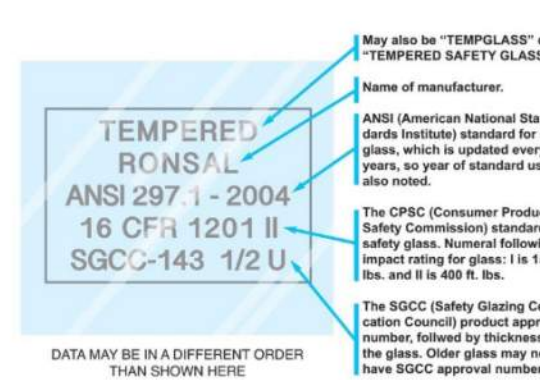
Exterior Sill Height Above Finished Grade	Interior Sill Height Above Finished Floor	Can be used for Egress	Safety Glazing Required	Fall Protection Required
Greater than 44 inches	Greater than 44 inches	No	-	No
72 inches or less	Between 18 and 44 inches	Yes	-	No
	50 inches or less, top of window above 36 inches, and individual pane of glass is greater than 36 inches	Yes	Yes	No
	Greater than 44 inches	No	-	No
	Between 24 and 44 inches (IBC: dwelling units)	Yes	-	No
	Less than 24 inches (IBC: dwelling units)	Yes	-	Yes
Greater than 72 inches	Between 36 and 44 inches (IBC: dwelling units)	Yes	-	No
	Less than 36 inches (IBC: dwelling units)	Yes	-	Yes
	Sill below 18 inches, top of window above 36 inches, and individual pane of glass is greater than 36 inches	Yes	Yes	Yes
Greater than 72 inches	Less than 36 inches	No	-	Yes

6 WINDOW FALL PROTECTION

Safety Glazing
This tip sheet reflects code requirements of the 2021 International Residential Code (IRC) with Washington State Amendments.

What is Safety Glazing?
Safety glazing is glass that is less dangerous when it breaks, such as tempered or laminated glass.

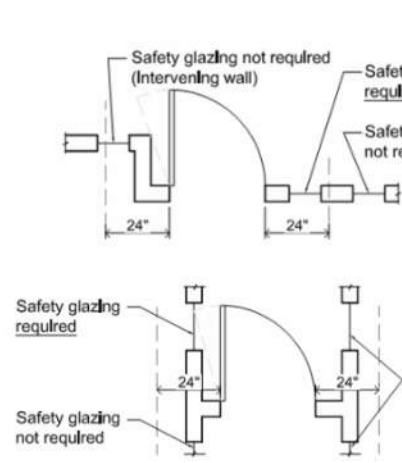
Per R308.1, where safety glazing is required, each pane must be provided with a manufacturer's label defining the type of glass and safety glazing standard to which it complies. For tempered glazing the label must be permanently etched, fired, or embossed, on the glass or be a type that once applied cannot be removed without being destroyed. For other types of safety glazing (such as laminated glass), a certificate, affidavit or other evidence confirming compliance with the code must be provided at time of inspection.



Hazardous Locations where Safety Glazing is Required

- Glazing in Doors:** Safety glazing is required in fixed and operable panels of swinging, sliding, and bi-fold doors. Safety glazing is not required in a door if the glazed openings do not allow the passage of a 3-inch sphere, or if the glazing in the door is decorative. (R308.4.1)

- Glazing Adjacent to Doors:** Glazing adjacent to doors is required in the following locations if the bottom edge of the glazing is less than 60 inches above the walking surface: Within 24 inches of either side of the door in a closed position, or if glazing is in a wall less than 180 degrees from the plane of the door in a closed position and within 24 inches of the hinge side of an in-swinging door. Safety glazing is not required if there is an intervening wall or permanent barrier between the door and the glazing. (R308.4.2)



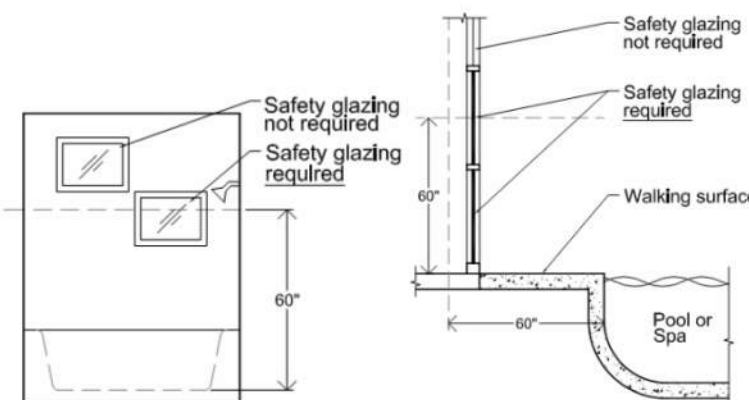
- Glazing in Windows:** Safety glazing in windows is required if the individual panel meets all of the following requirements (R308.4.3):

- Exposed area of the individual panel is greater than 9 square feet.
- The bottom edge of the glazing is less than 18 inches from the floor.
- The top edge of the glazing is more than 36 inches above the floor.
- There is a walking surface within 36 inches, measured horizontally, from the glazing. Exceptions:
 - Decorative glazing.
 - Where a horizontal rail capable of resisting 50 pounds per linear foot of force without making contact with the glass is installed on the accessible side of the glazing 34 to 38 inches above the walking surface.

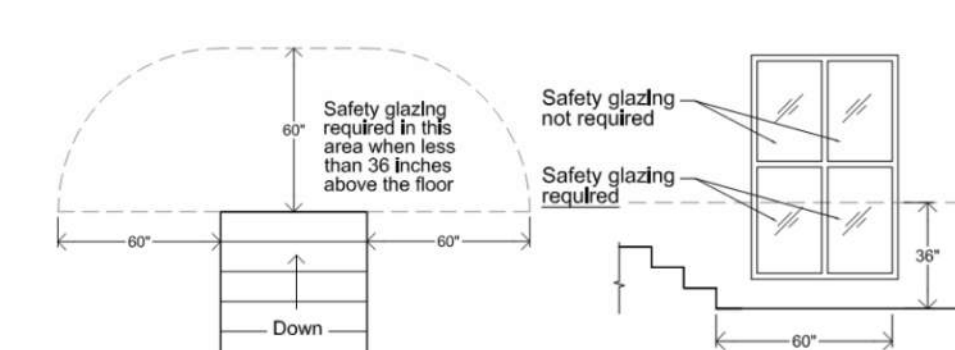
- Glazing in Railings and Guards:** All glazing in railings and guards, including structural baluster panels and nonstructural in-fill panels, is required to be safety glazing.

Guards with structural glass baluster panels shall be installed with an attached top rail or handrail. The top rail or handrail shall be supported by not less than three glass baluster panels, or shall be otherwise supported to remain in place should one glass baluster panel fail. Exception: An attached top rail or handrail is not required where the glass baluster panels are laminated glass with two or more glass plies of equal thickness and of the same glass type. (R308.4.4)

- Glazing and Wet Surfaces:** Glazing in walls, enclosures, or fences adjacent to hot tubs, spas, whirlpools, saunas, steam rooms, bathtubs, showers and indoor or outdoor swimming pools where the bottom edge of the glazing is less than 60 inches from the standing or walking surface is required to be safety glazing. Safety glazing is not required where the glazing is more than 60 inches, horizontally, from the edge of the water. (R308.4.5)

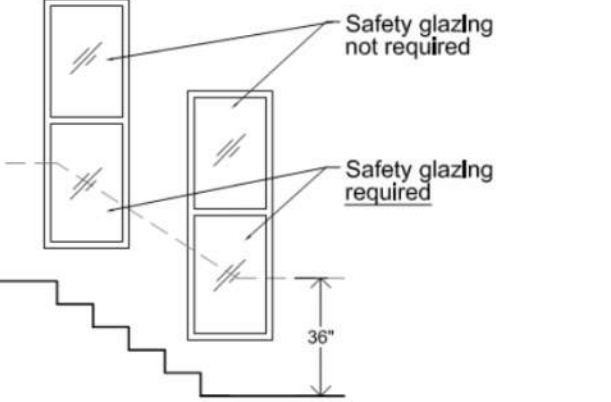


- Glazing Adjacent to Bottom Stair Landings:** Glazing adjacent to the landing at the bottom of a stairway where the glazing is less than 36 inches above the landing and within a 60-inch horizontal arc from the bottom tread must be safety glazing. (R308.4.7)



- Glazing Adjacent to Stairs and Ramps:** Glazing where the bottom edge is less than 36 inches above the plane of the adjacent walking surface of stairways, ramps, and landings between stair flights and ramp runs, must be safety glazing. (R308.4.6)

- Exceptions:
- Where a horizontal rail capable of resisting 50 pounds per linear foot of force without making contact with the glass is installed on the accessible side of the glazing 34 to 38 inches above the walking surface.
 - Glazing more than 36 inches horizontally from the walking surface is not required to be safety glazing.



7 SAFETY GLAZING DETAIL



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SINGLE USE

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SHEET TITLE

PROJECT DETAILS

PROJECT NUMBER

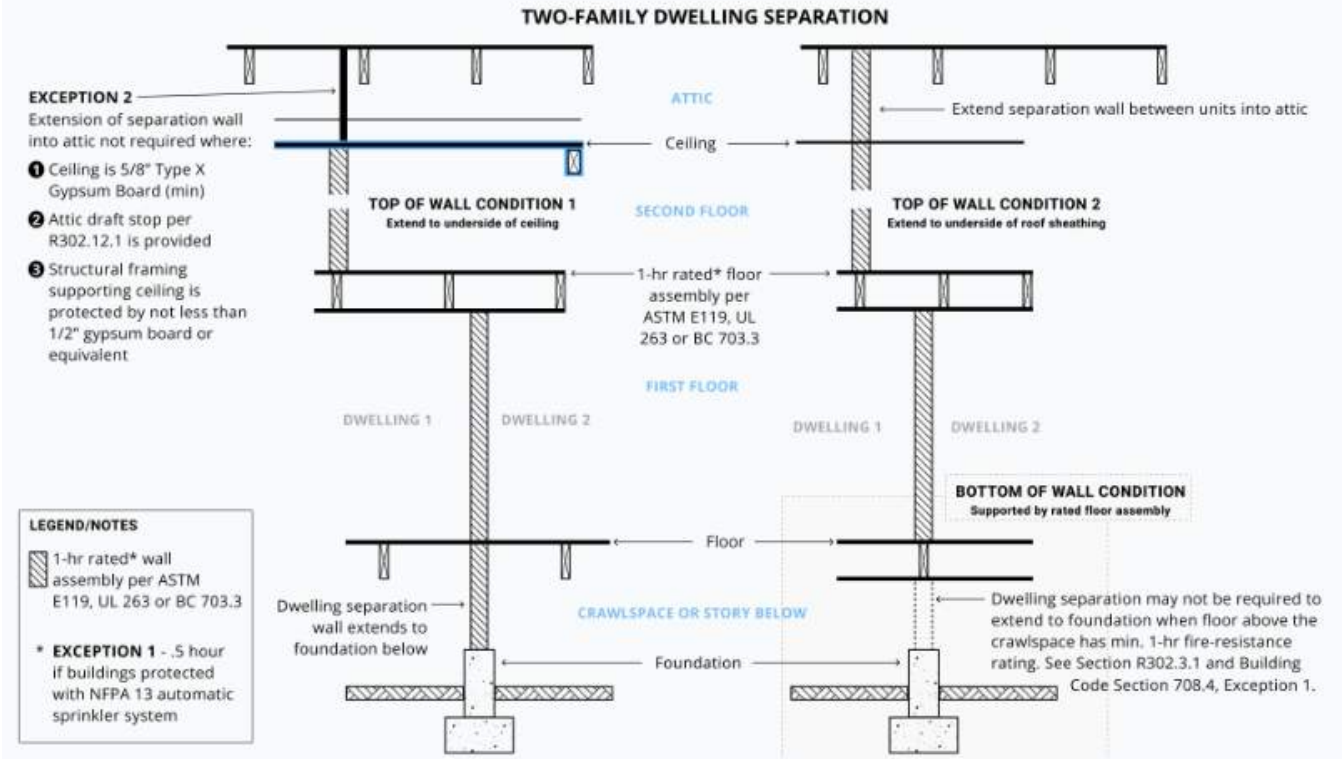
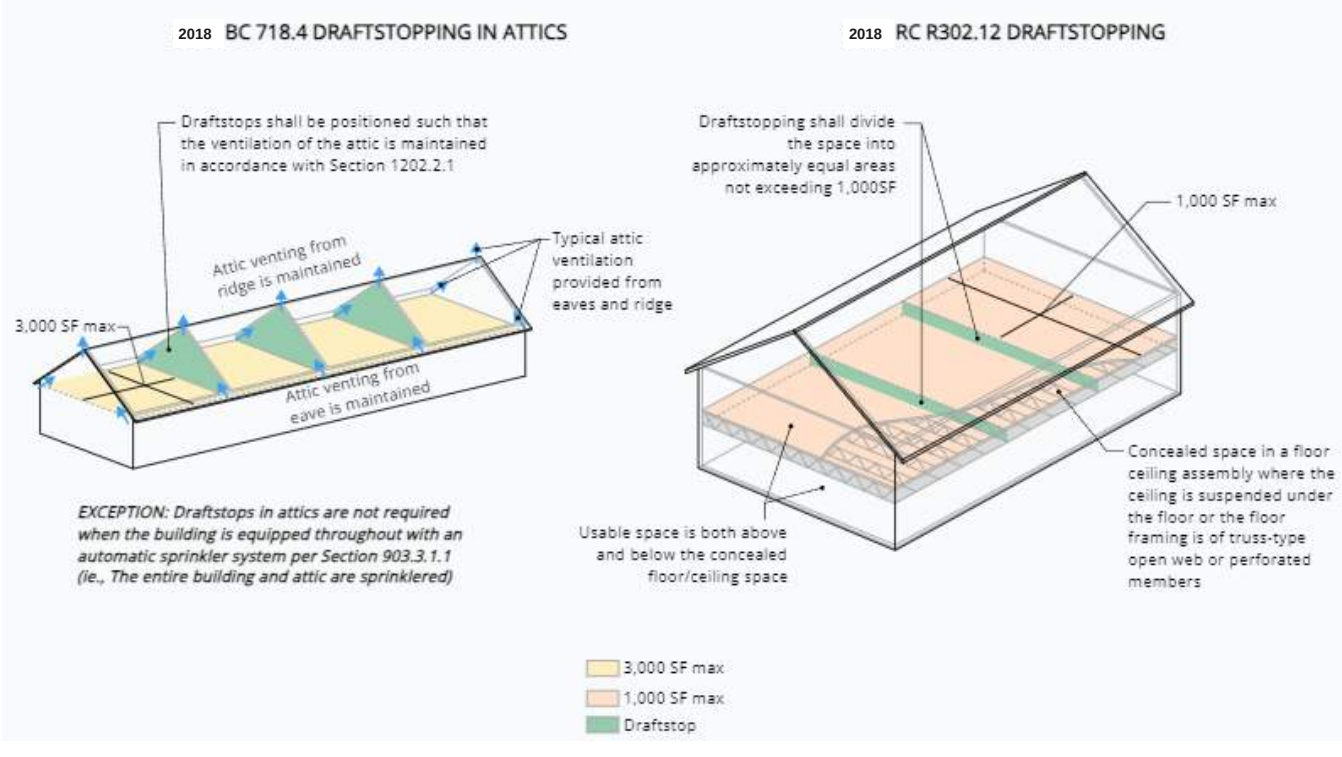
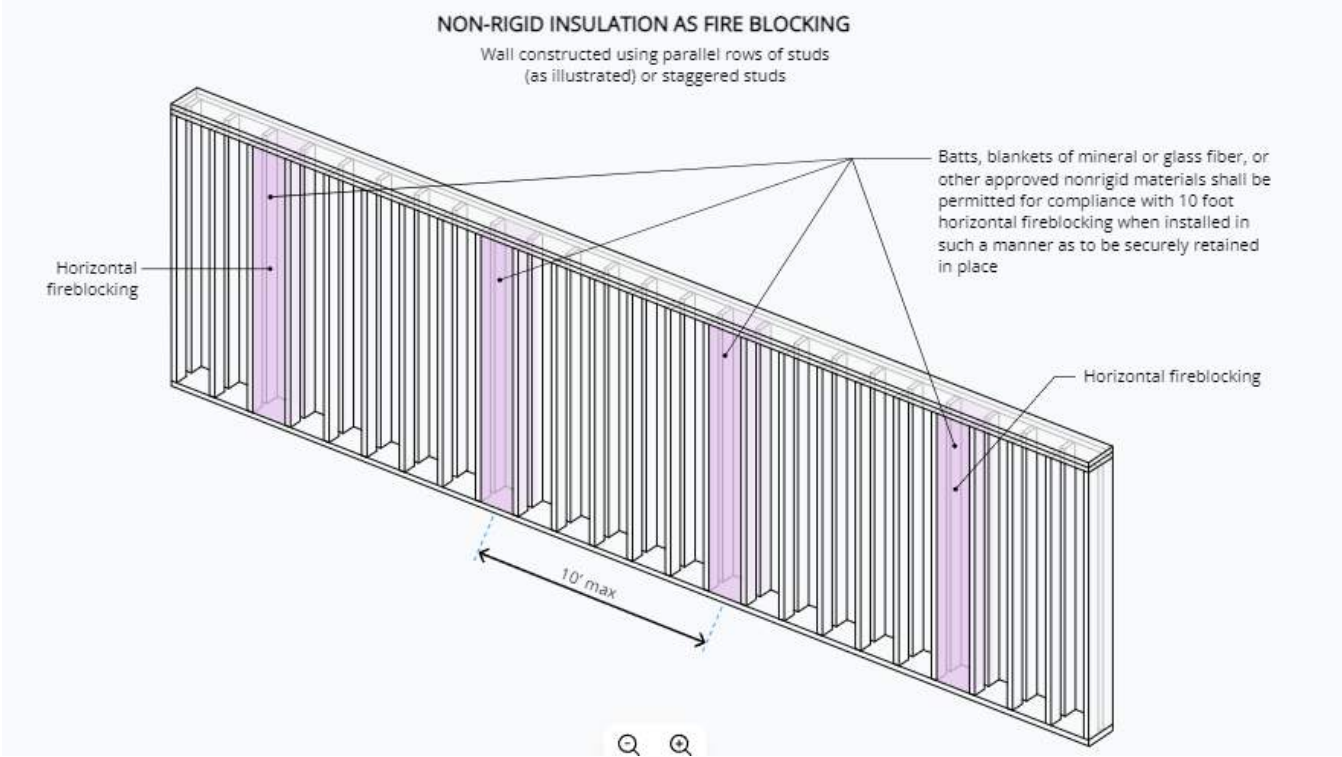
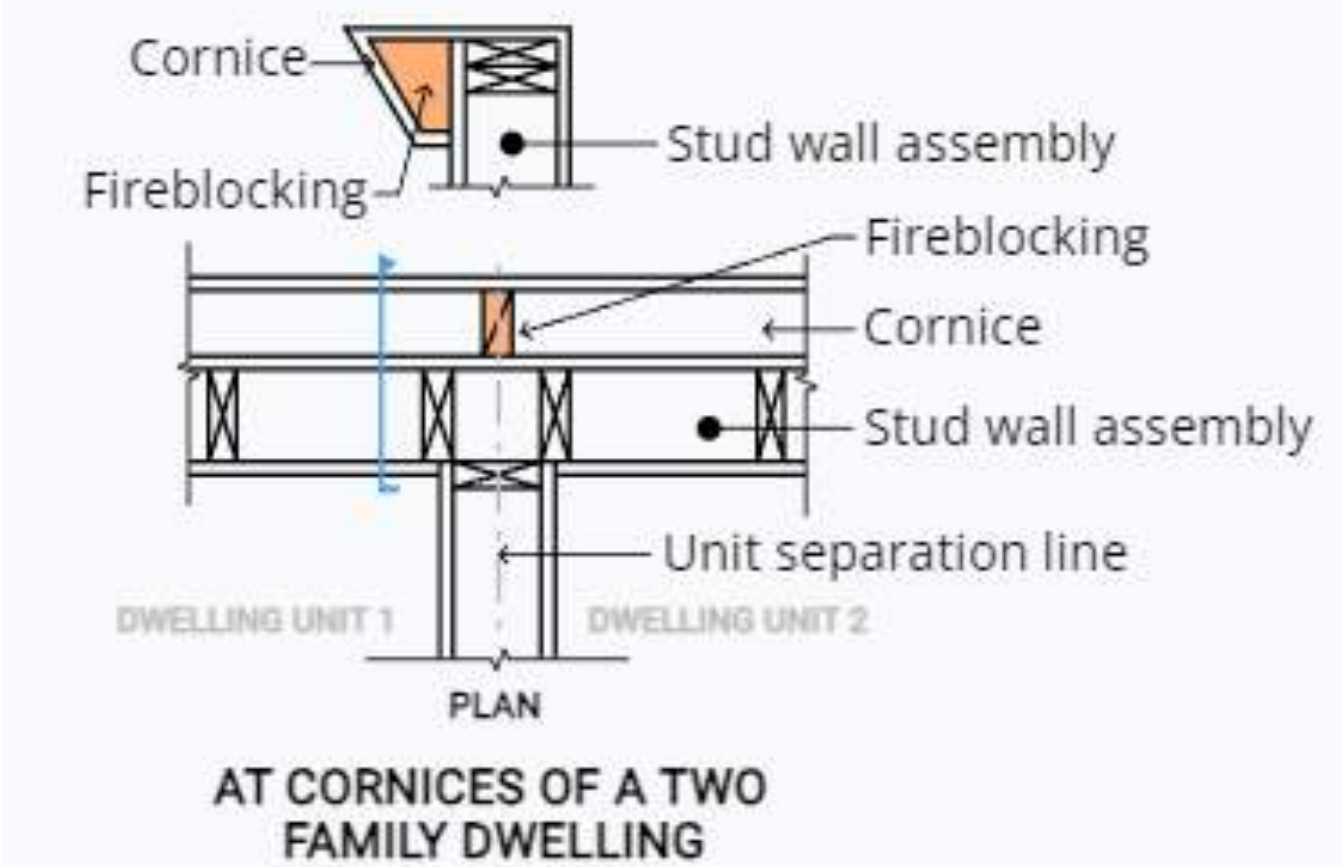
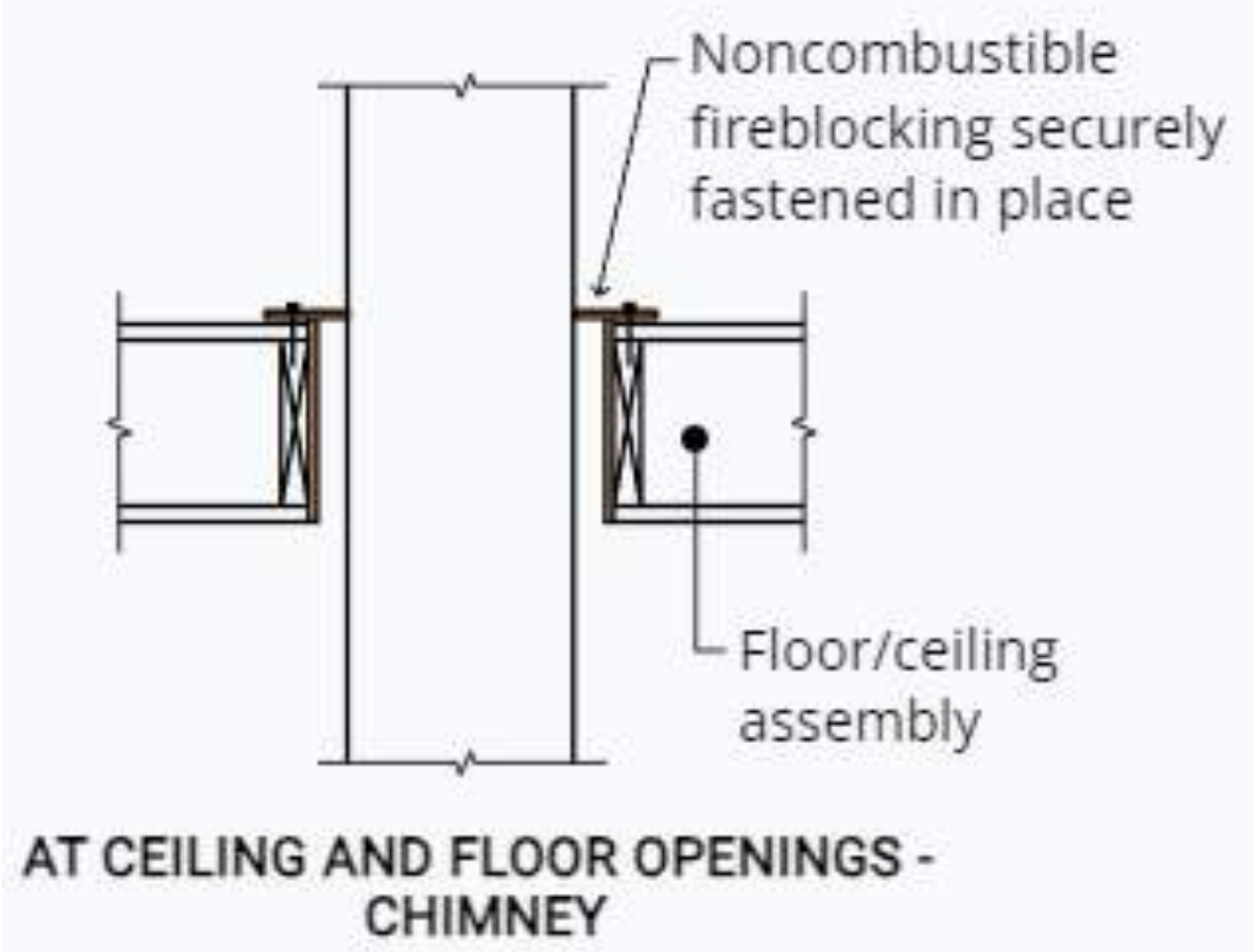
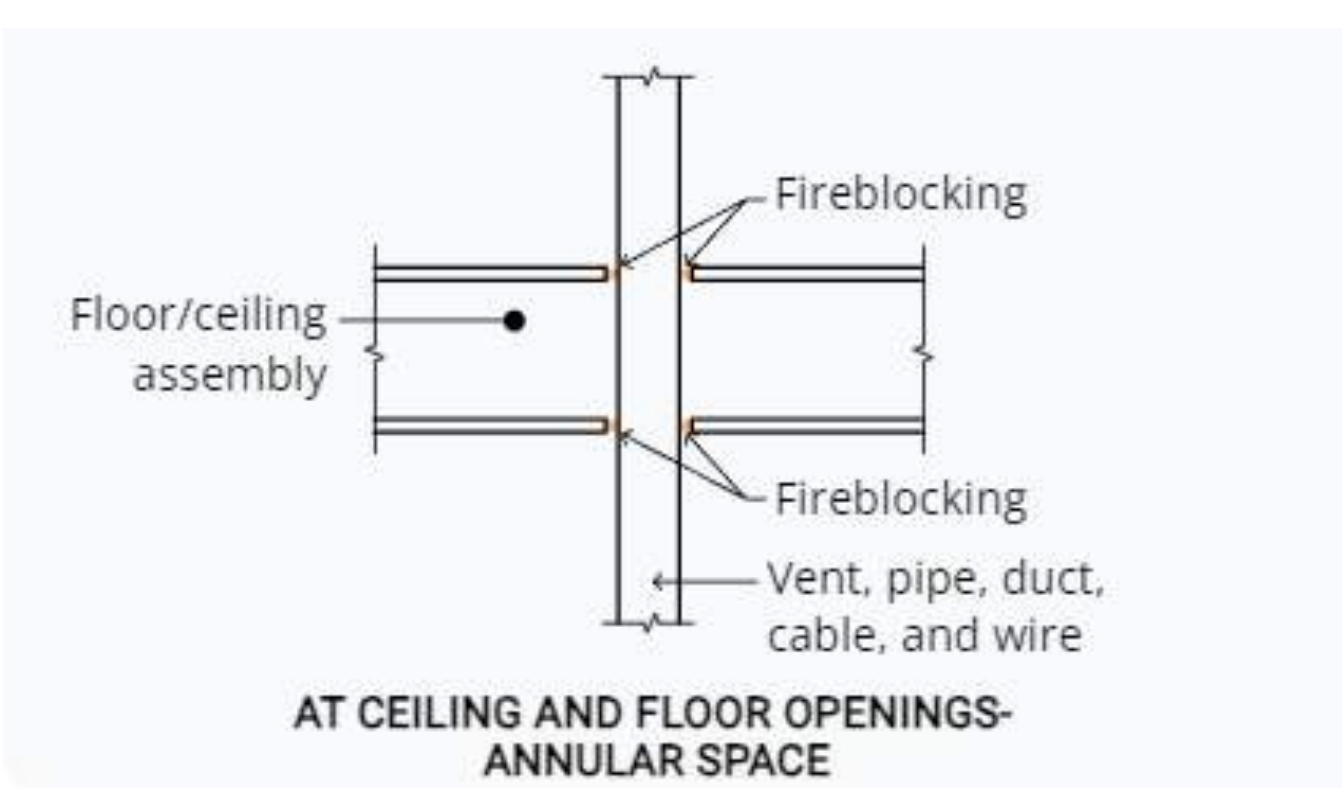
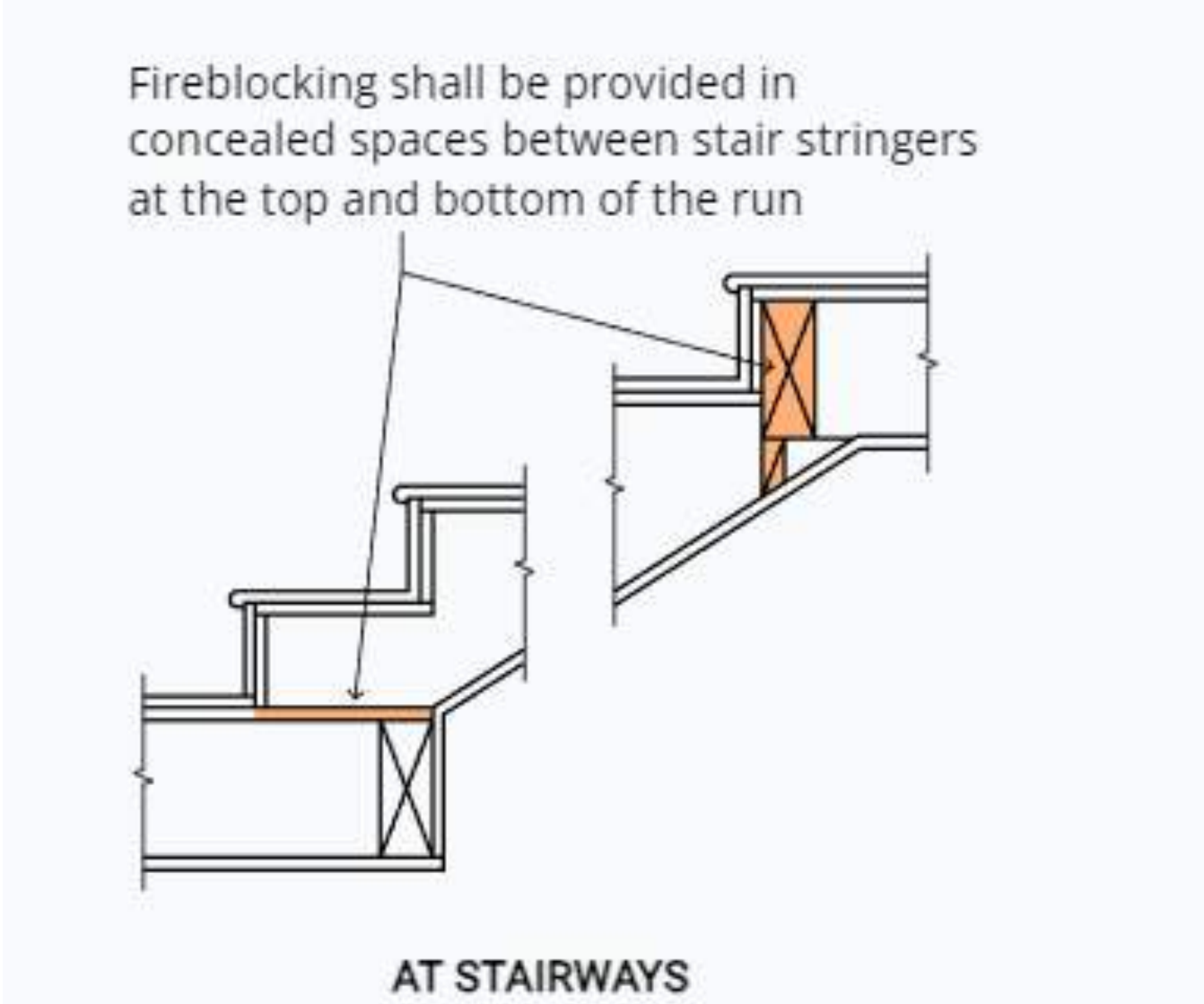
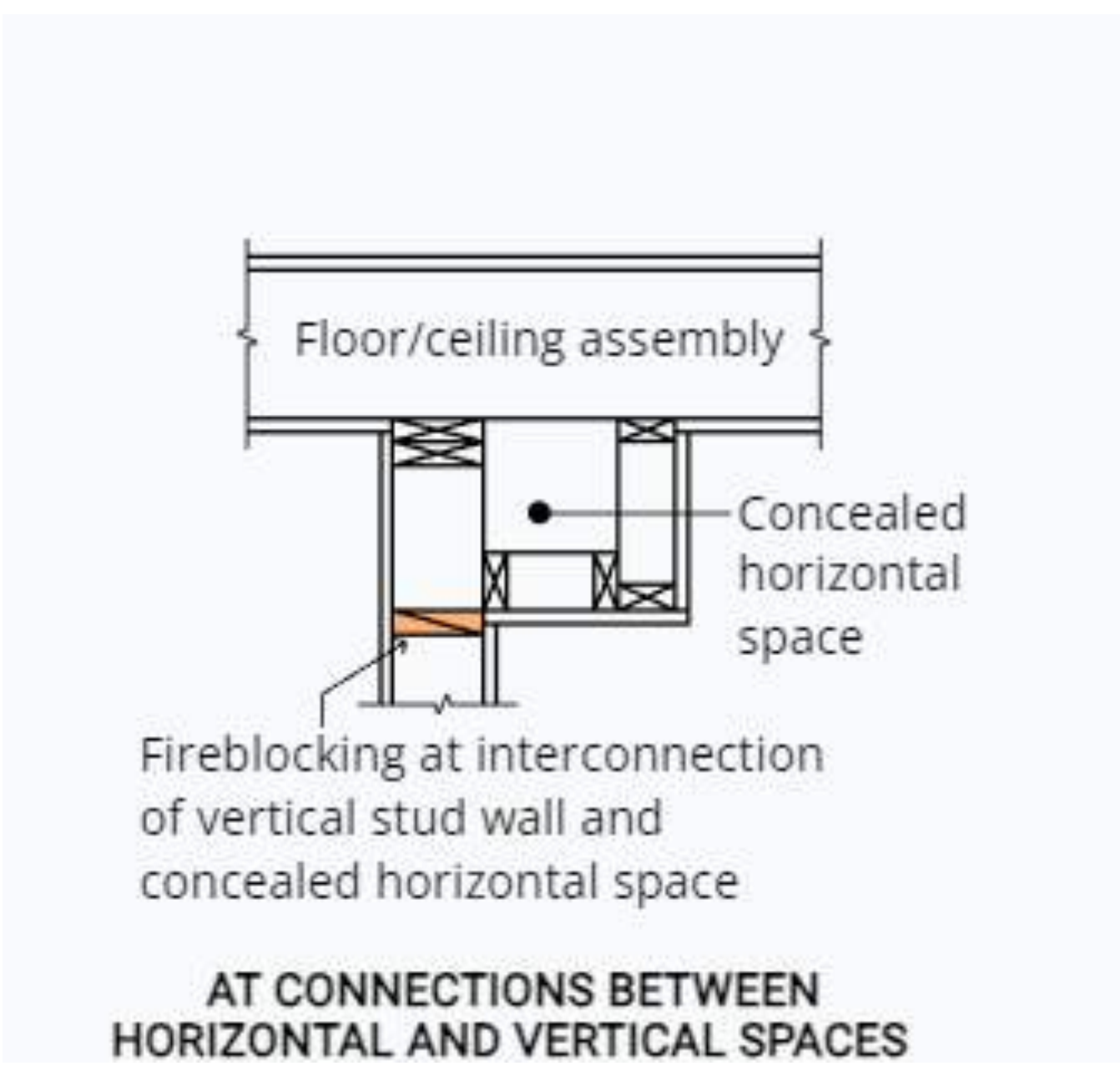
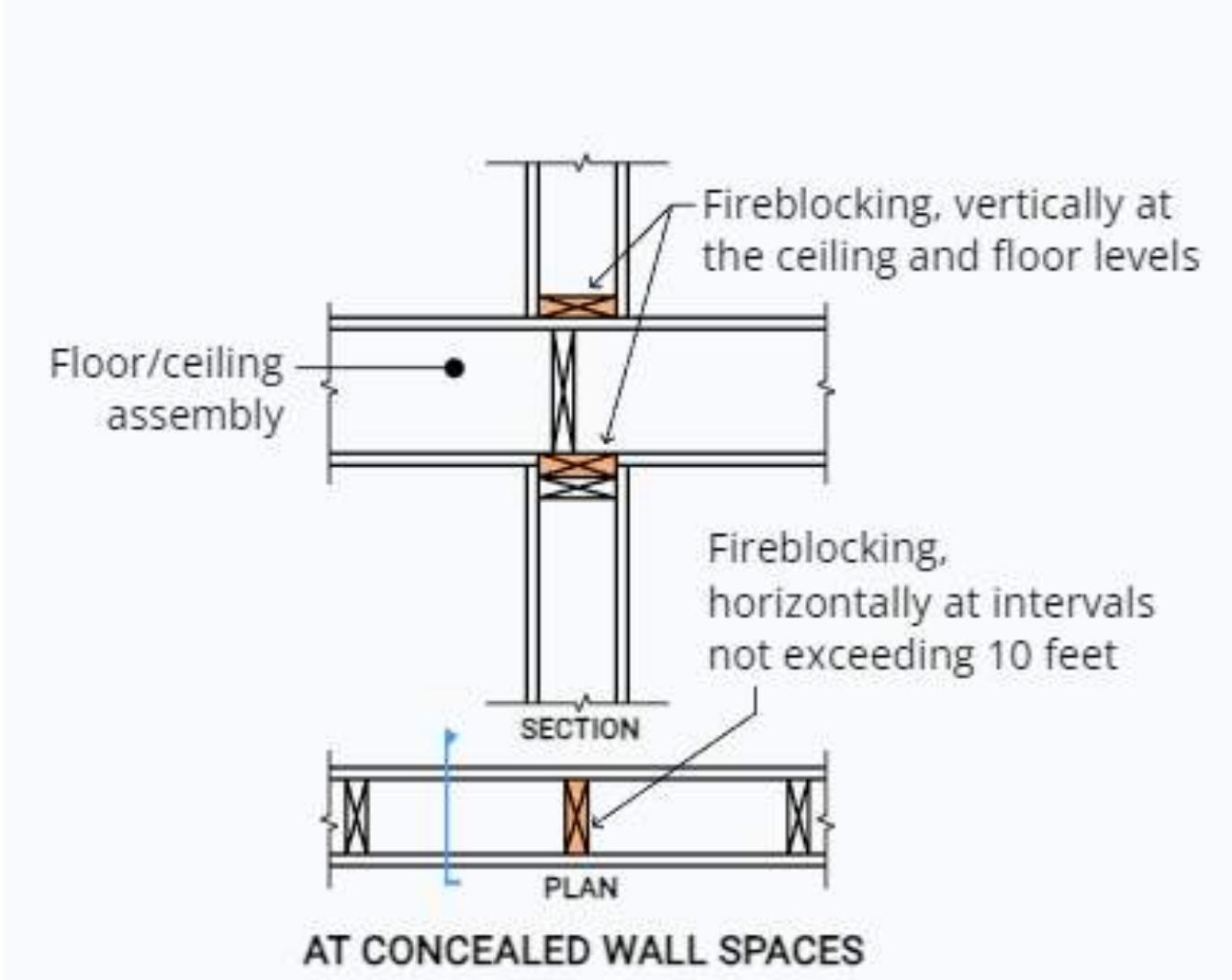
21208-2-0

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A9

ACCORDING TO THE RESIDENTIAL CODE, FIREBLOCKING IS DEFINED AS BUILDING MATERIALS THAT ARE INSTALLED TO RESIST THE FREE PASSAGE OF FLAME TO OTHER AREAS OF THE BUILDING THROUGH CONCEALED SPACES. SECTION R302.11.1 PROVIDES THE VARIOUS BUILDING MATERIALS THAT ARE CLASSIFIED AS FIREBLOCKING.

SECTION T18.2.3 APPLIES TO COMBUSTIBLE CONSTRUCTION AND IS PROVIDED TO SAFEGUARD THE BUILDING AGAINST FIRE PASSAGE FROM CONCEALED VERTICAL TO CONCEALED HORIZONTAL SPACES AND VICE VERSA. FIRE BLOCKING IS CALLED FOR AT SUCH INTERSECTIONS TO LIMIT THE FLAME SPREAD FROM TRANSFERRING FROM ONE CONCEALED SPACE TO ANOTHER.



CONCEALED SPACES WITHIN WALLS ARE REQUIRED TO HAVE HORIZONTAL FIREBLOCKING TO PREVENT THE HORIZONTAL SPREAD OF FIRE WITHIN THE WALL CAVITY NOT MORE THAN 10' APART. IN "DOUBLE STUD" WALLS THAT ARE COMPRISED OF TWO SEPARATE PARALLEL OR STAGGERED STUD WALLS, THE FIREBLOCKING IS PERMITTED TO BE BATTEN INSULATION MADE OF MINERAL WOOL OR FIBERGLASS.

DRAFTSTOP: A MATERIAL, DEVICE OR CONSTRUCTION INSTALLED TO RESTRICT THE MOVEMENT OF AIR WITHIN OPEN SPACES OF CONCEALED AREAS OF BUILDING COMPONENTS SUCH AS CRAWL SPACES, FLOOR/CEILING ASSEMBLIES, ROOF/CEILING ASSEMBLIES AND ATTICS.

ATTIC DRAFTSTOPPING HELPS TO SLOW THE SPREAD OF FIRE (VIA RESTRICTING AIR MOVEMENT, NOT FLAMES) AND SMOKE IN THE EVENT OF A FIRE. BY BLOCKING AIR MOVEMENT BETWEEN THE LIVING SPACE AND THE ATTIC OR SECTIONS OF ATTIC, DRAFTSTOPPING CAN HELP TO REDUCE THE RISK OF FIRE SPREADING FROM THE ATTIC TO OTHER PARTS OF THE BUILDING THROUGH AN OPEN FLOOR CAVITY. IT CAN SERVE A FEW OTHER IMPORTANT PURPOSES:

- ENERGY EFFICIENCY: DRAFTSTOPPING COULD HELP TO REDUCE THE AMOUNT OF AIR THAT MOVES IN AND OUT OF THE ATTIC, WHICH CAN HELP TO REDUCE HEATING AND COOLING LOSSES BETWEEN INDIVIDUAL UNITS SHARING AN ATTIC. THIS CAN RESULT IN LOWER ENERGY BILLS AND A MORE COMFORTABLE LIVING ENVIRONMENT.
- IMPROVED INDOOR AIR QUALITY: DRAFTSTOPPING CAN HELP TO PREVENT OUTDOOR POLLUTANTS AND ALLERGENS FROM ENTERING THE LIVING SPACE THROUGH THE ATTIC. THIS CAN IMPROVE INDOOR AIR QUALITY AND REDUCE THE RISK OF RESPIRATORY PROBLEMS.
- PEST PREVENTION: ATTIC DRAFTSTOPPING CAN ALSO HELP TO PREVENT PESTS, SUCH AS RODENTS AND INSECTS, FROM ENTERING THE LIVING SPACES.

DWELLING UNIT: A SINGLE UNIT PROVIDING COMPLETE INDEPENDENT LIVING FACILITIES FOR ONE OR MORE PERSONS, INCLUDING PERMANENT PROVISIONS FOR LIVING, SLEEPING, EATING, COOKING AND SANITATION.

TWO DWELLING UNITS CAN BE STRUCTURES KNOWN AS "DUPLEXES" OR ADU'S (ACCESSORY DWELLING UNITS IN SOME JURISDICTIONS. WHEN ALTERING AN EXISTING RESIDENCE TO CREATE A SECOND UNIT, ATTENTION SHOULD BE PAID TO THE CONTINUITY OF THE DWELLING SEPARATION BETWEEN THE EXISTING DWELLING AND THE NEW DWELLING. THIS COULD REQUIRE UNEXPECTED WORK TO BE REQUIRED IN THE CRAWLSPACE (IF PRESENT) OR IN THE ATTIC.

IN CERTAIN JURISDICTIONS, TWO FAMILY DWELLINGS MAY BE GOVERNED BY EITHER THE BUILDING CODE OR RESIDENTIAL CODE (BUT PROVISIONS MAY NOT BE MIXED). IN THE BUILDING CODE, SIMILAR WALL AND FLOOR SEPARATIONS ARE KNOWN AS FIRE PARTITIONS (SECTION T08) AND HORIZONTAL ASSEMBLIES (SECTION T11). SEE ALSO SECTION 420 FOR ADDITIONAL BUILDING CODE REQUIREMENTS.

2018 NCRC SECTION R302.11 FIREBLOCKING.

IN COMBUSTIBLE CONSTRUCTION, FIREBLOCKING SHALL BE PROVIDED TO CUT OFF BOTH VERTICAL AND HORIZONTAL CONCEALED DRAFT OPENINGS AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES, AND BETWEEN A TOP STORY AND THE ROOF SPACE.

- FIREBLOCKING SHALL BE PROVIDED IN WOOD-FRAMED CONSTRUCTION IN THE FOLLOWING LOCATIONS:
 - IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS:
 - VERTICALLY AT THE CEILING AND FLOOR LEVELS.
 - HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET (3048 MM).
 - AT INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES SUCH AS OCCUR AT SOFFITS, DROP CEILINGS AND COVE CEILINGS.
 - IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7.
 - AT OPENINGS AROUND VENTS, PIPES, DUCTS, CABLES AND WIRES AT CEILING AND FLOOR LEVEL WITH AN APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION. THE MATERIAL FILLING THIS ANNULAR SPACE SHALL NOT BE REQUIRED TO MEET THE ASTM E136 REQUIREMENTS.
 - FOR THE FIREBLOCKING OF CHIMNEYS AND FIREPLACES, SEE SECTION R1003.19.
 - FIREBLOCKING OF CORNICES OF A TWO-FAMILY DWELLING IS REQUIRED AT THE LINE OF DWELLING UNIT SEPARATION.

R302.11.1 FIREBLOCKING MATERIALS

EXCEPT AS PROVIDED IN SECTION R302.11, ITEM 4, FIREBLOCKING SHALL CONSIST OF THE FOLLOWING MATERIALS.

- TWO-INCH (51 MM) NOMINAL LUMBER.
- TWO THICKNESSES OF 1-INCH (25.4 MM) NOMINAL LUMBER WITH BROKEN LAP JOINTS.
- ONE THICKNESS OF 23/32-INCH (18.3 MM) WOOD STRUCTURAL PANELS WITH JOINTS BACKED BY 23/32-INCH (18.3 MM) WOOD STRUCTURAL PANELS.
- ONE THICKNESS OF 3/4-INCH (19.1 MM) PARTICLEBOARD WITH JOINTS BACKED BY 3/4-INCH (19.1 MM) PARTICLEBOARD.
- ONE-HALF-INCH (12.7 MM) GYPSUM BOARD.
- BATTS OR BLANKETS OF MINERAL WOOL OR GLASS FIBER OR OTHER APPROVED MATERIALS INSTALLED IN SUCH A MANNER AS TO BE SECURELY RETAINED IN PLACE.
- CELLULOSE INSULATION INSTALLED AS TESTED IN ACCORDANCE WITH ASTM E119 OR UL 263, FOR THE SPECIFIC APPLICATION.

R302.11.1.1 BATTS OR BLANKETS OF MINERAL OR GLASS FIBER

BATTS OR BLANKETS OF MINERAL OR GLASS FIBER OR OTHER APPROVED NONRIGID MATERIALS SHALL BE PERMITTED FOR COMPLIANCE WITH THE 10-FOOT (3048 MM) HORIZONTAL FIREBLOCKING IN WALLS CONSTRUCTED USING PARALLEL ROWS OF STUDS OR STAGGERED STUDS.

R302.11.1.3 LOOSE-FILL INSULATION MATERIAL

LOOSE-FILL INSULATION MATERIAL SHALL NOT BE USED AS A FIREBLOCK UNLESS SPECIFICALLY TESTED IN THE FORM AND MANNER INTENDED FOR USE TO DEMONSTRATE ITS ABILITY TO REMAIN IN PLACE AND TO RETARD THE SPREAD OF FIRE AND HOT GASES.

THE INTEGRITY OF FIREBLOCKS SHALL BE MAINTAINED. (R302.11.2)

R302.12 DRAFTSTOPPING

IN COMBUSTIBLE CONSTRUCTION WHERE THERE IS USABLE SPACE BOTH ABOVE AND BELOW THE CONCEALED SPACE OF A FLOOR-CEILING ASSEMBLY, DRAFTSTOPS SHALL BE INSTALLED SO THAT THE AREA OF THE CONCEALED SPACE DOES NOT EXCEED 1,000 SQUARE FEET (92.9 M2). DRAFTSTOPPING SHALL DIVIDE THE CONCEALED SPACE INTO APPROXIMATELY EQUAL AREAS. WHERE THE ASSEMBLY IS ENCLOSED BY A FLOOR MEMBRANE ABOVE AND A CEILING MEMBRANE BELOW, DRAFTSTOPPING SHALL BE PROVIDED IN FLOOR-CEILING ASSEMBLIES UNDER THE FOLLOWING CIRCUMSTANCES:

- CEILING IS SUSPENDED UNDER THE FLOOR FRAMING.
- FLOOR FRAMING IS CONSTRUCTED OF TRUSS-TYPE OPEN-WEB OR PERFORATED MEMBERS.

R302.12.1 MATERIALS

DRAFTSTOPPING MATERIALS SHALL BE NOT LESS THAN 1/2-INCH (12.7 MM) GYPSUM BOARD, 3/8-INCH (9.5 MM) WOOD STRUCTURAL PANELS OR OTHER APPROVED MATERIALS ADEQUATELY SUPPORTED. DRAFTSTOPPING SHALL BE INSTALLED PARALLEL TO THE FLOOR FRAMING MEMBERS UNLESS OTHERWISE APPROVED BY THE BUILDING OFFICIAL. THE INTEGRITY OF THE DRAFTSTOPS SHALL BE MAINTAINED.

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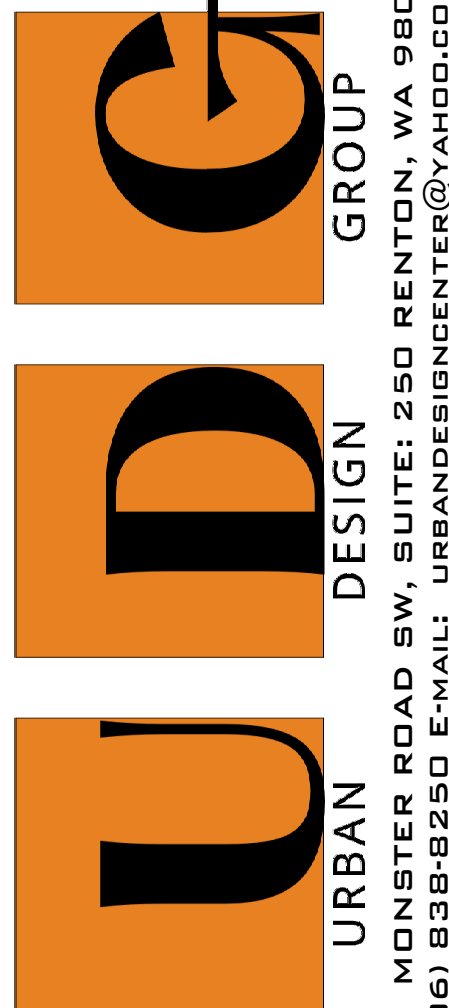
FIREBLOCKING

PROJECT NUMBER

21208-2-0

SHEET NUMBER

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