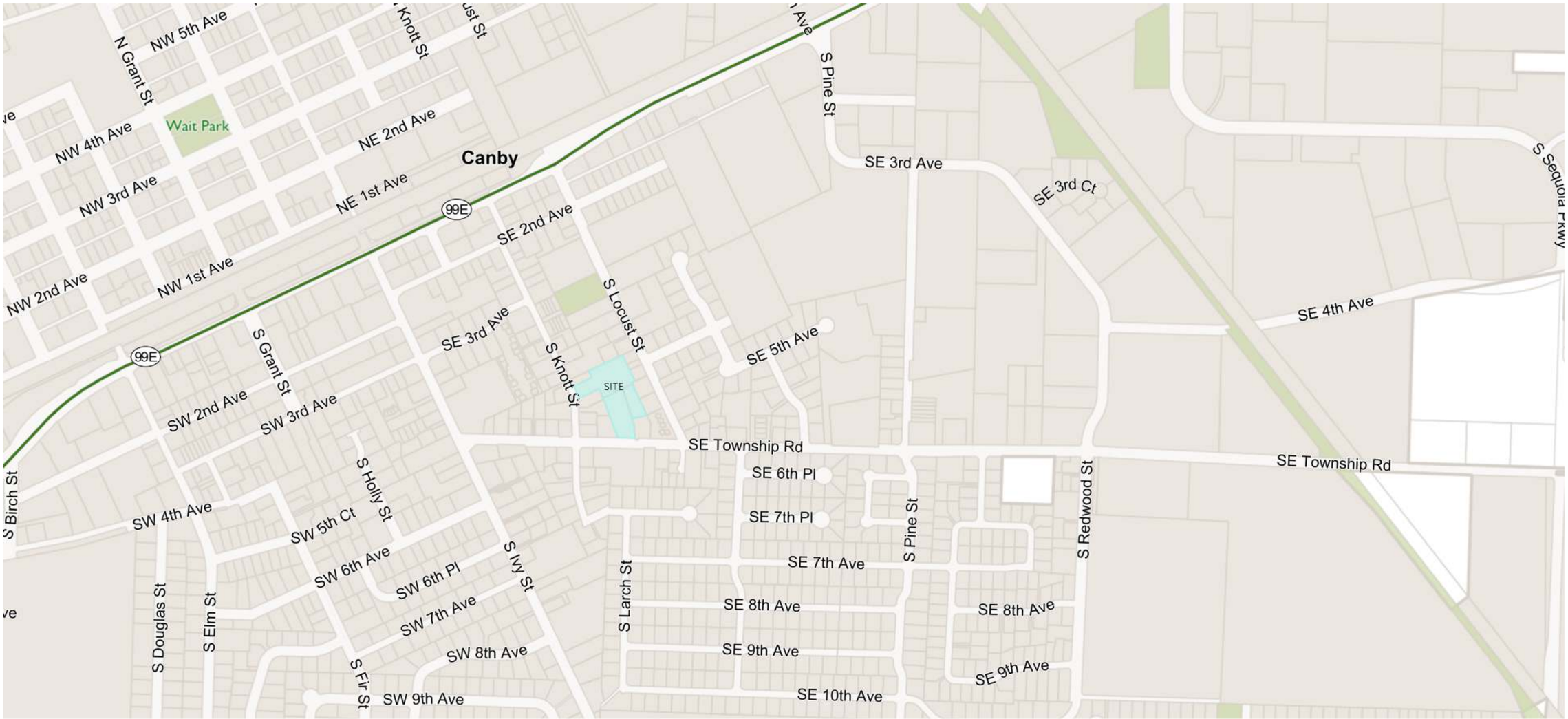
V. General Maps

a. Vicinity Map
b. Aerial Vicinity Map
c. Assessor Map

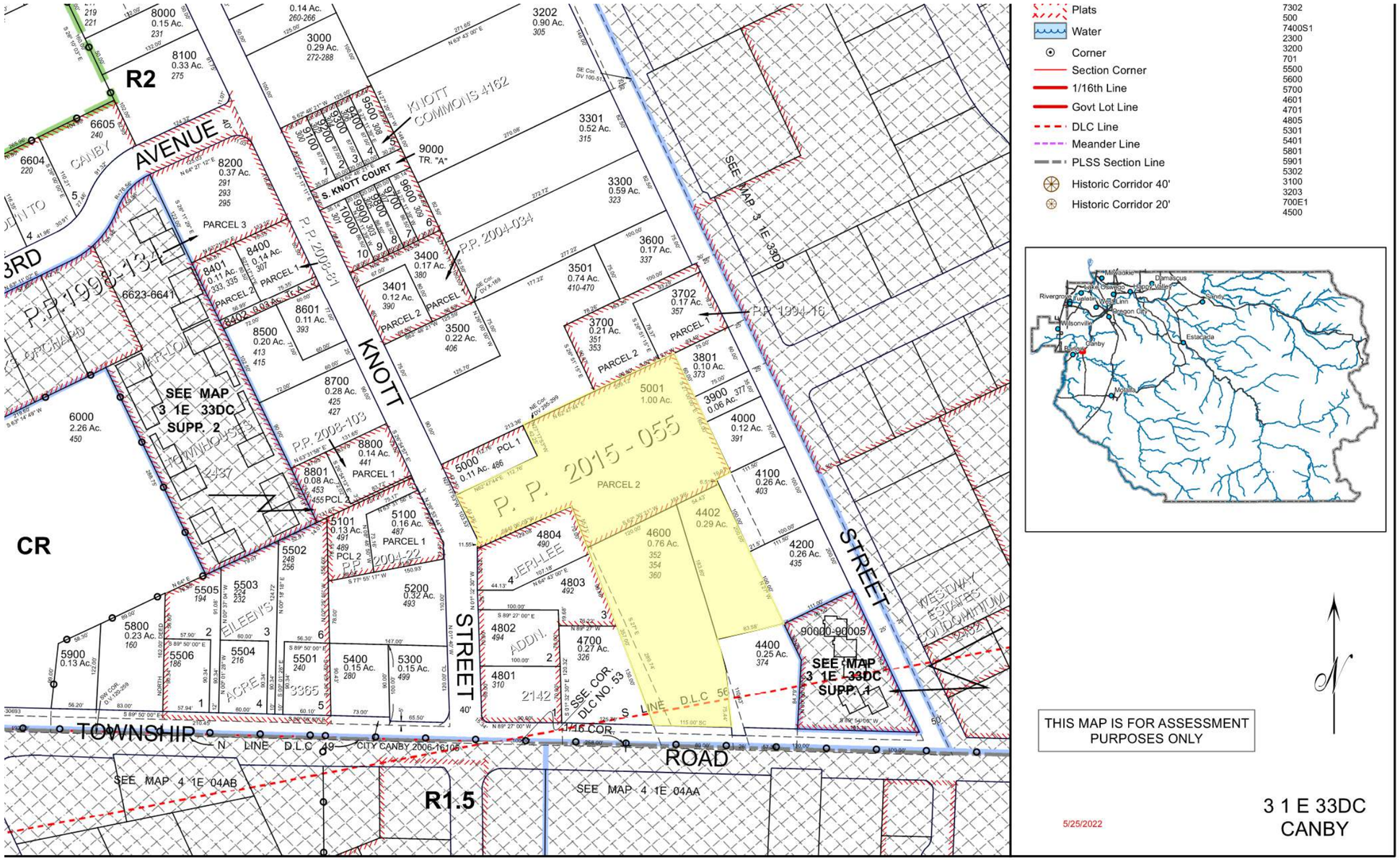
VICINITY MAP:



AERIAL MAP:

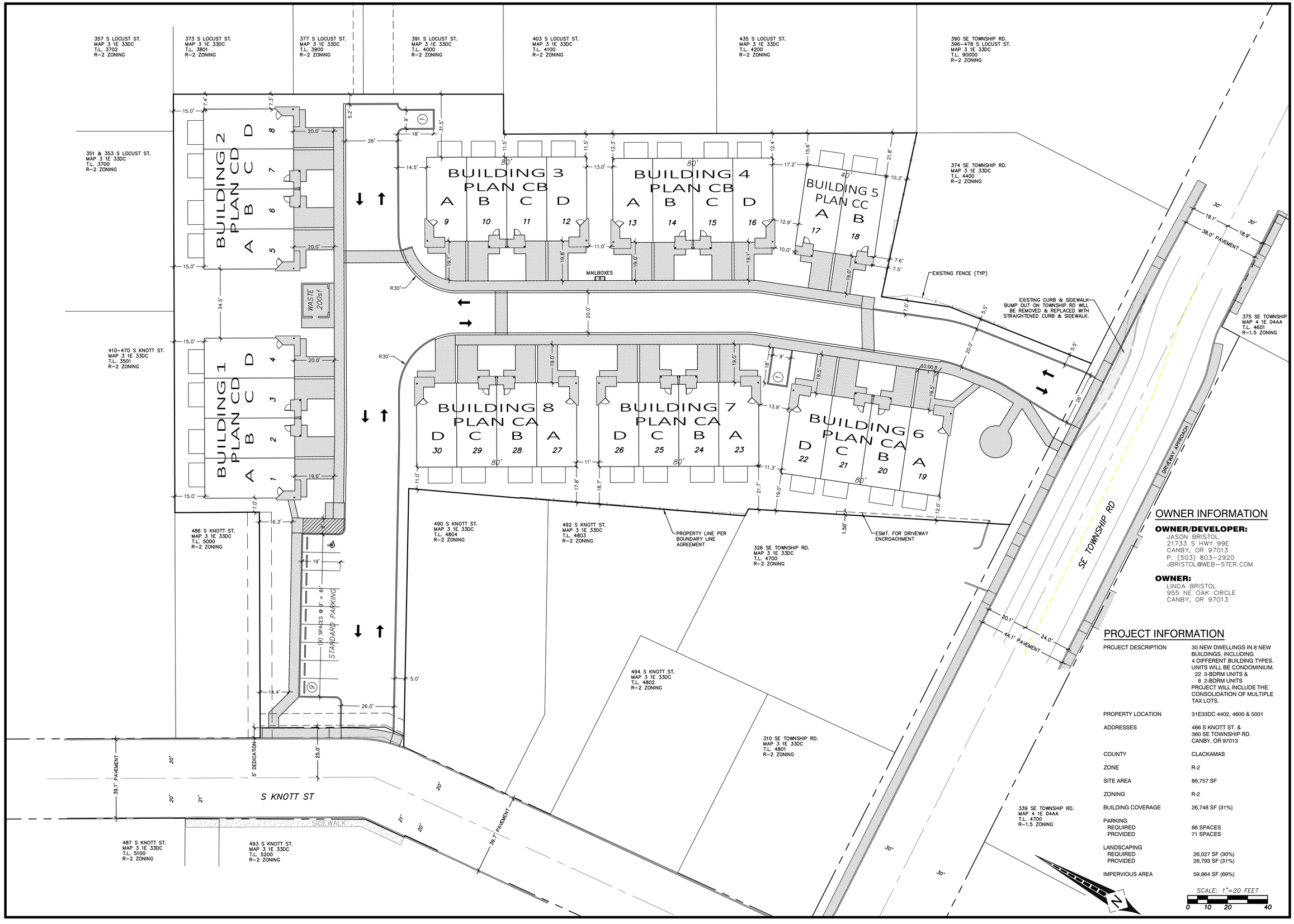
SE 3rd Ave
S Knott Ct
S Knott St
S Ivy St
S Locust St
SE 4th Ave
SE 5th Ave
S Maple St
SITE
SE Township Rd
SE 6th Pl

ASSESSOR MAP:



VI. Civil Plans

a. C1 Site Plan
b. C2 Site Plan with Aerial
c. C3 Supplemental Site Plan: Fences & Rec Space
d. C4 Supplemental Site Plan: Common Open Space
e. C5 Grading Plan
f. C6 Erosion & Sediment Control Plan
g. C7 Accessway Profiles & Sections
h. C8 Sanitary & Water System Plans
i. C9 Street & Storm Drain Plan



OWNER INFORMATION

OWNER/DEVELOPER:
JASON BRISTOL
21733 S HWY 99E
CANBY, OR 97013
P. (503) 803-2920
JBRISTOL@WEB-STER.COM

OWNER:
LINDA BRISTOL
955 NE OAK CIRCLE
CANBY, OR 97013

PROJECT INFORMATION

PROJECT DESCRIPTION	30 NEW DWELLINGS IN 8 NEW BUILDINGS, INCLUDING 4 DIFFERENT BUILDING TYPES. UNITS WILL BE CONDOMINIUM. 22 3-BDRM UNITS & 8 2-BDRM UNITS PROJECT WILL INCLUDE THE CONSOLIDATION OF MULTIPLE TAX LOTS.
PROPERTY LOCATION	31E33DC 4402, 4600 & 5001
ADDRESSES	486 S KNOTT ST. & 360 SE TOWNSHIP RD. CANBY, OR 97013
COUNTY	CLACKAMAS
ZONE	R-2
SITE AREA	86,757 SF
ZONING	R-2
BUILDING COVERAGE	26,748 SF (31%)
PARKING	
REQUIRED	66 SPACES
PROVIDED	71 SPACES
LANDSCAPING	
REQUIRED	26,027 SF (30%)
PROVIDED	26,793 SF (31%)
IMPERVIOUS AREA	59,964 SF (69%)

REVISIONS	BY

Tievoli Commons
Jason Bristol

Site Plan

SISUL ENGINEERING
375 PORTLAND AVENUE
GLADSTONE, OREGON 97027
(503) 657-0188
DRAWING: Land Use Plans.dwg

DATE	OCT., 2023
SCALE	1" = 20'
DRAWN	PS
JOB	SGL 22-036
SHEET	C1
OF	9 SHEETS

REVISIONS	BY

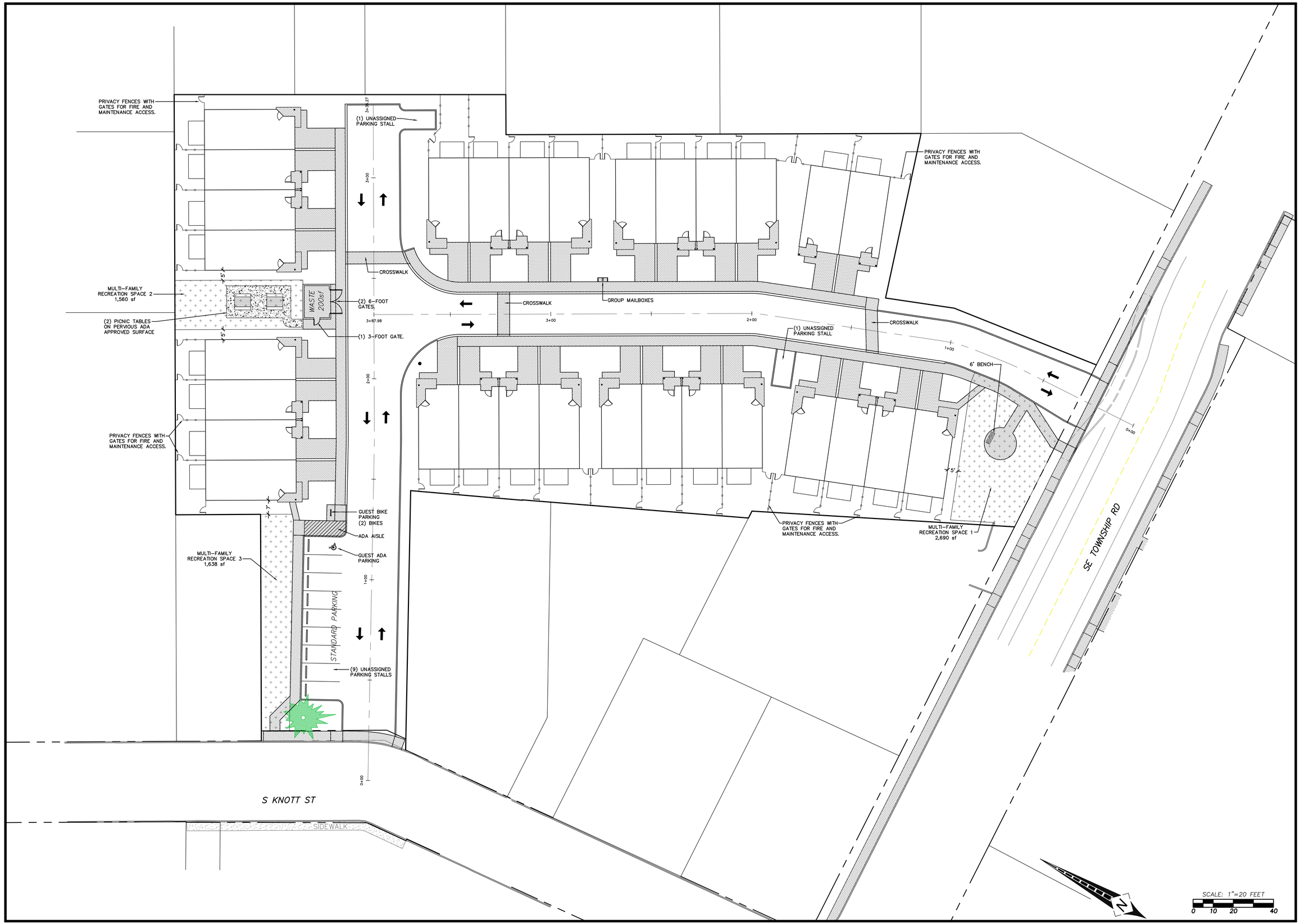
Tievoli Commons
Jason Bristol

Site Plan w/ Aerial

SISUL ENGINEERING
375 PORTLAND AVENUE
GLADSTONE, OREGON 97027
(503) 657-0188

DRAWING: Civil Base.dwg

DATE	OCT., 2023
SCALE	1" = 20'
DRAWN	PS
JOB	SGL 22-036
SHEET	C2
OF	9 SHEETS



REVISIONS	BY

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Supplemental Site Plan
Fencing and Multi-family Recreation Space

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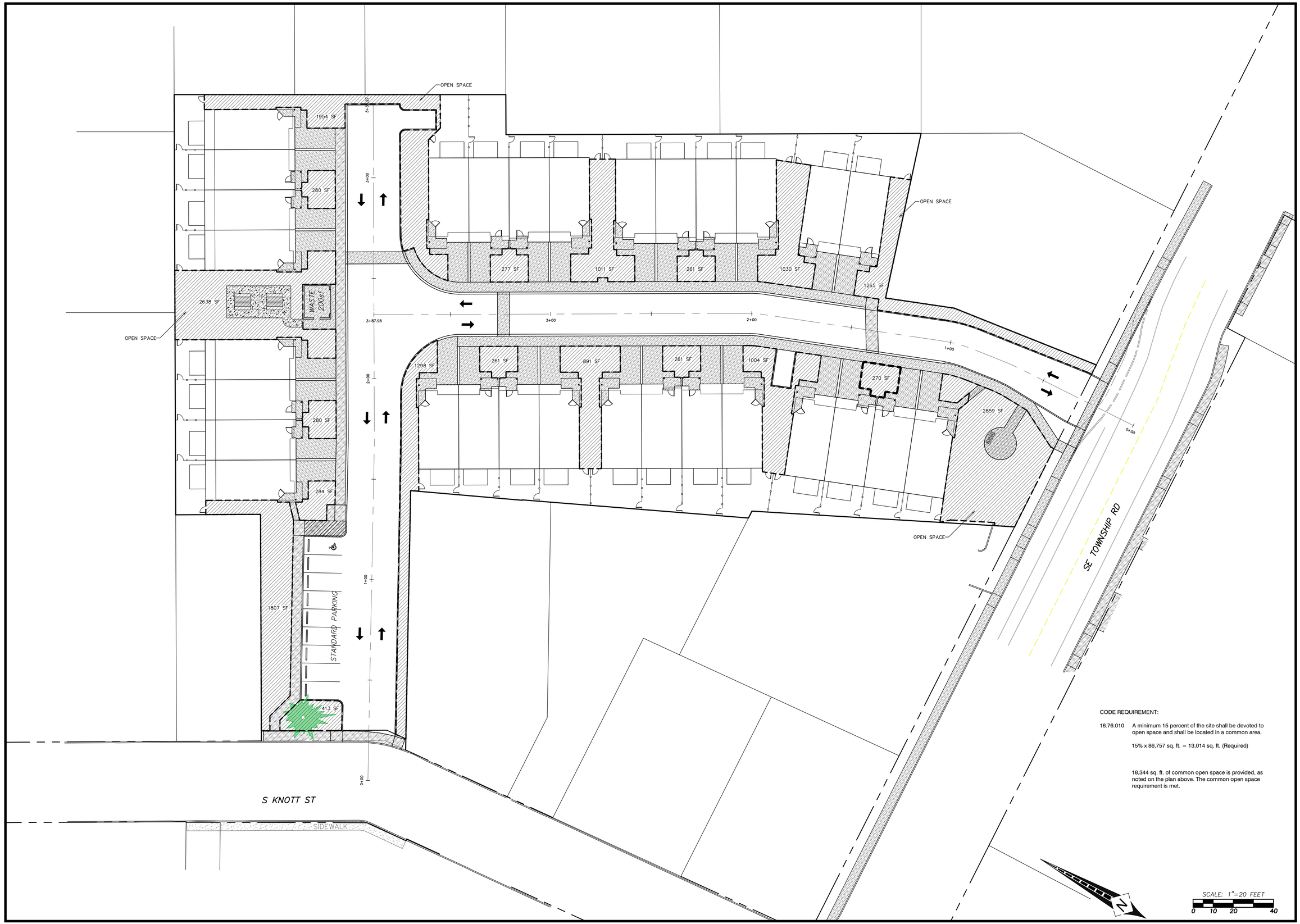
375 PORTLAND AVENUE
GLADSTONE, OREGON 97027
(503) 657-0188

DRAWING: Civil Base.dwg

DATE	OCT., 2023
SCALE	1" = 20'
DRAWN	PS
JOB	SGL 22-036
SHEET	C3
OF 9	SHEETS



CODE REQUIREMENT:

16.76.010 A minimum 15 percent of the site shall be devoted to open space and shall be located in a common area.

15% x 86,757 sq. ft. = 13,014 sq. ft. (Required)

18,344 sq. ft. of common open space is provided, as noted on the plan above. The common open space requirement is met.

REVISIONS	BY

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Supplemental Site Plan
Common Open Space

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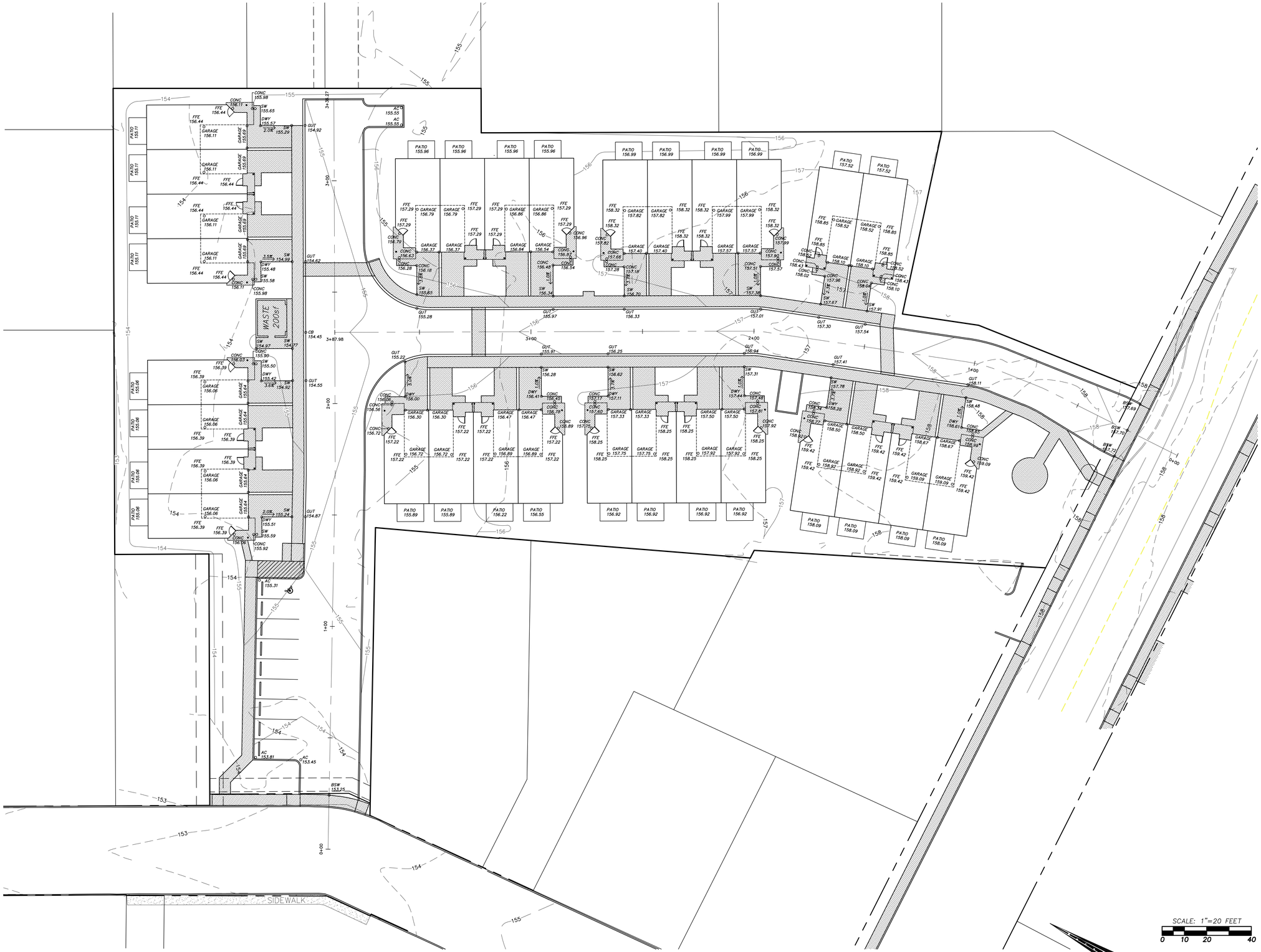
375 PORTLAND AVENUE
GLADSTONE, OREGON 97027
(503) 657-0188
DRAWING: Civil Base.dwg

DATE	OCT., 2023
SCALE	1" = 20'
DRAWN	PS
JOB	SGL 22-036
SHEET	C4
OF	9 SHEETS



REVISIONS	BY

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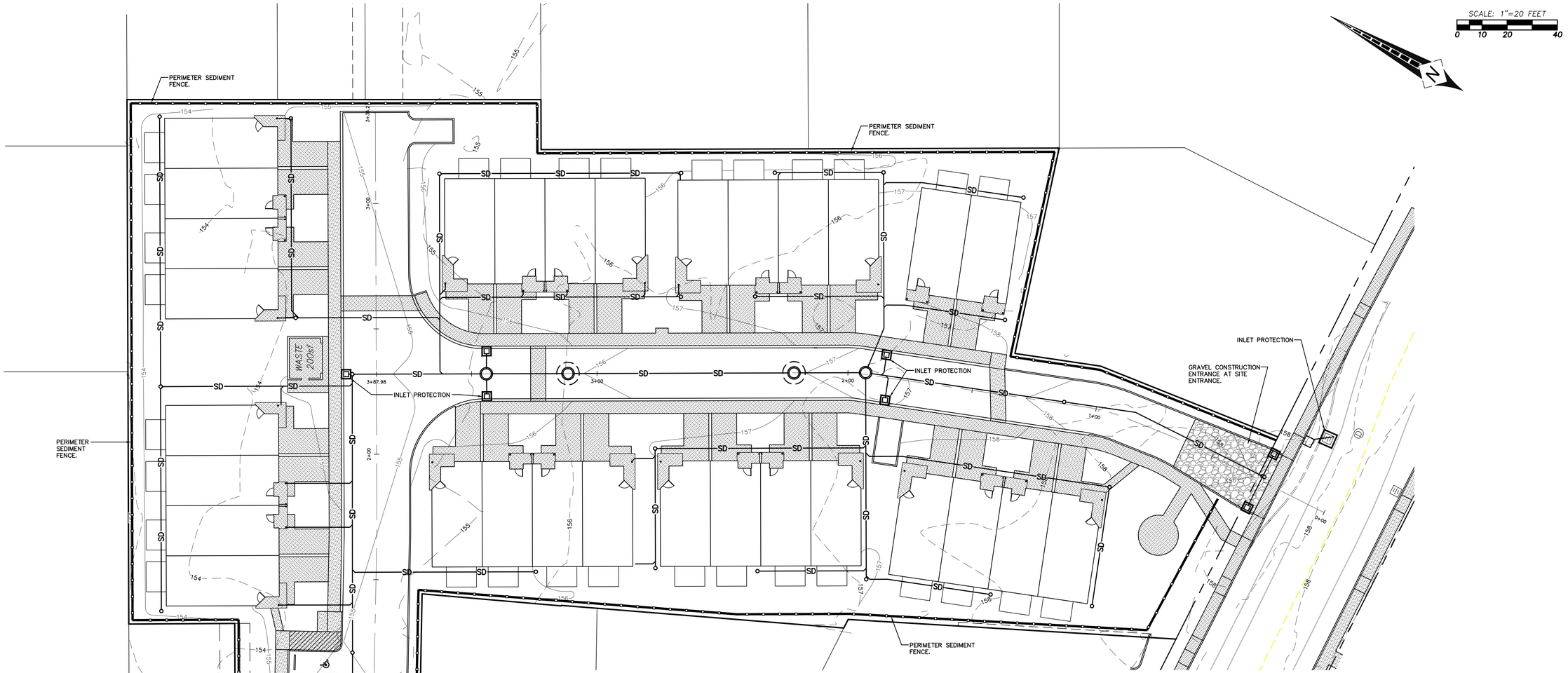
Jason Bristol

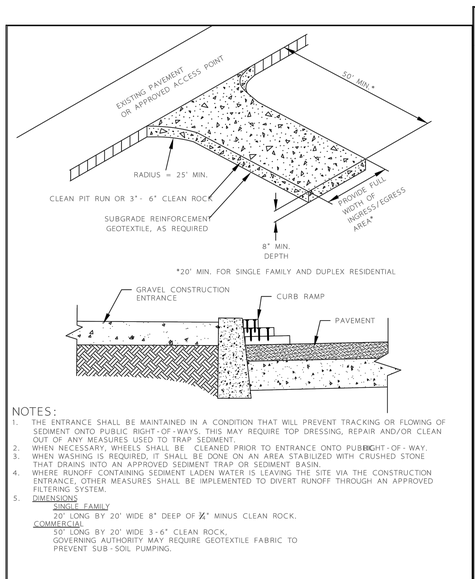
Grading Plan

SISUL ENGINEERING
375 PORTLAND AVENUE
GLADSTONE, OREGON 97027
(503) 657-0188

DRAWING: Land Use Plans.dwg

DATE	OCT., 2023
SCALE	1" = 20'
DRAWN	PS
JOB	SGL 22-036
SHEET	C5
OF 9	SHEETS



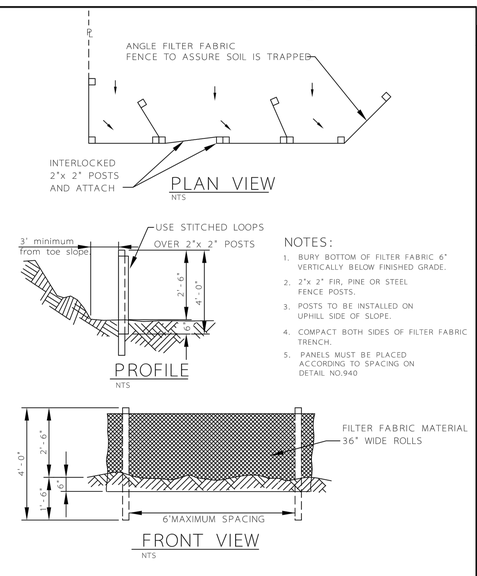


NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. WHERE RUNOFF CONTAINING SEDIMENT-LADEN WATER IS LEAVING THE SITE VIA THE CONSTRUCTION ENTRANCE, OTHER MEASURES SHALL BE IMPLEMENTED TO DIVERT RUNOFF THROUGH AN APPROVED FILTERING SYSTEM.
5. DIMENSIONS
   SINGLE FAMILY
   20' LONG BY 20' WIDE 8" DEEP OF ¾" MINUS CLEAN ROCK.
   COMMERCIAL
   50' LONG BY 20' WIDE 3-6" CLEAN ROCK, GOVERNING AUTHORITY MAY REQUIRE GEOTEXTILE FABRIC TO PREVENT SUB-SOIL PUMPING.

CONSTRUCTION ENTRANCE

DETAIL DRAWING 4-13 REVISED 01-09

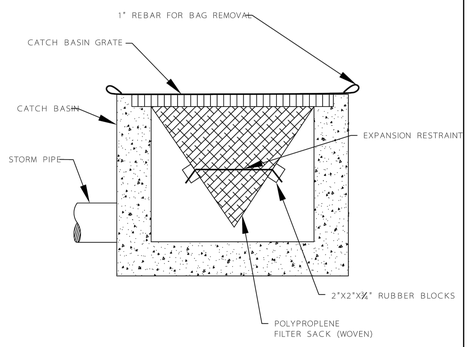


NOTES:

1. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
2. 2"x 2" FIR, PINE OR STEEL FENCE POSTS.
3. POSTS TO BE INSTALLED ON UPHILL SIDE OF SLOPE.
4. COMPACT BOTH SIDES OF FILTER FABRIC TRENCH.
5. PANELS MUST BE PLACED ACCORDING TO SPACING ON DETAIL NO.940

SEDIMENT FENCE

DETAIL DRAWING 4-23 REVISED 01-09



WOVEN POLYPROPLENE SACK

NOTE:

1. RECESSED CURB INLET CATCH BASINS MUST BE BLOCKED WHEN USING FILTER FABRIC INLET SACKS. SIZE OF FILTER FABRIC INLET SACKS TO BE DETERMINED BY MANUFACTURER.

INLET PROTECTION TYPE 5

DETAIL DRAWING 4-19 REVISED 01-09

REVISIONS	BY

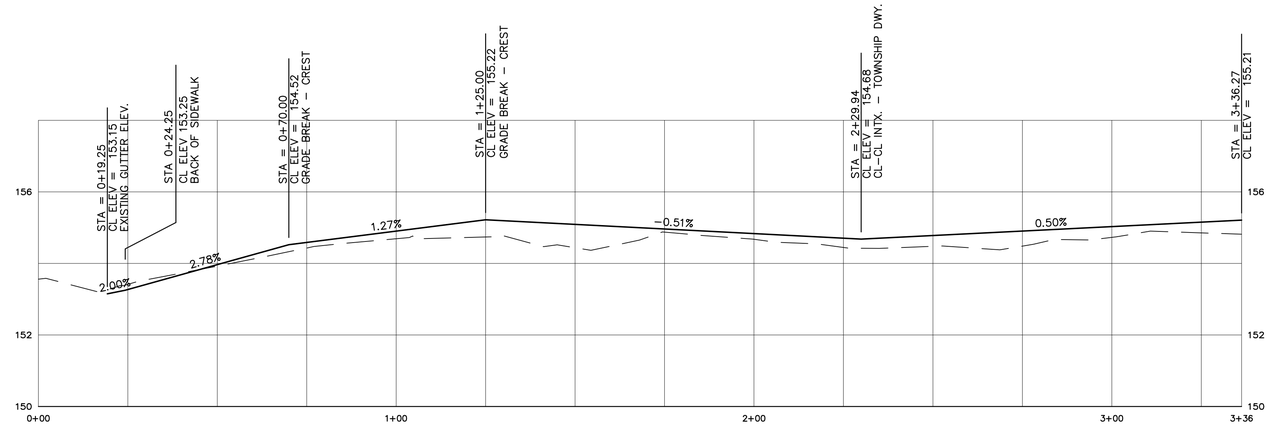
Tievoli Commons
Jason Bristol

Erosion and Sediment Control Plan

SISUL ENGINEERING
375 PORTLAND AVENUE
GLADSTONE, OREGON 97027
(503) 657-0188

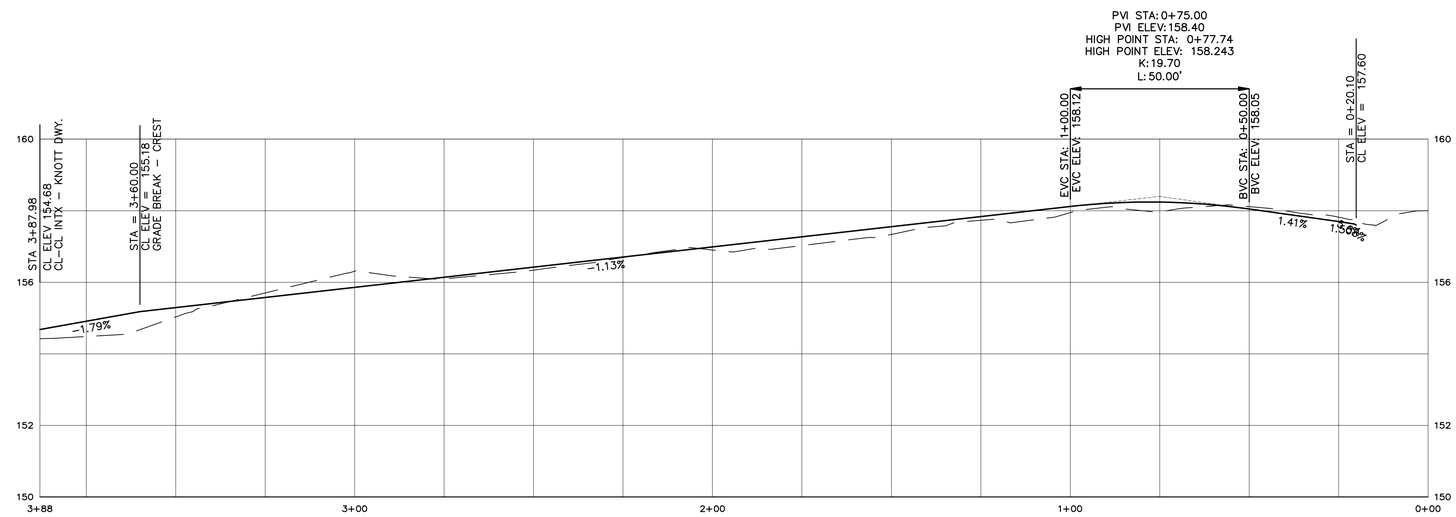
DRAWING: Land Use Plans.dwg

DATE	OCT., 2023
SCALE	1" = 20'
DRAWN	PS
JOB	SGL 22-036
SHEET	C6
OF	9 SHEETS



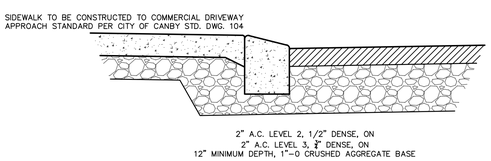
Knott Accessway

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=2'

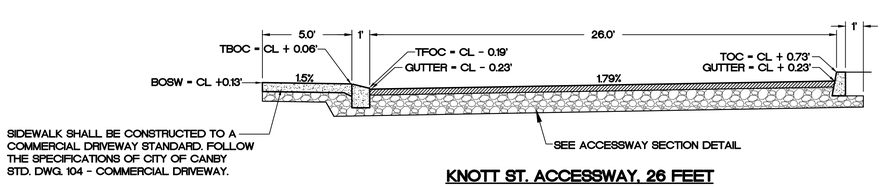


Township Accessway

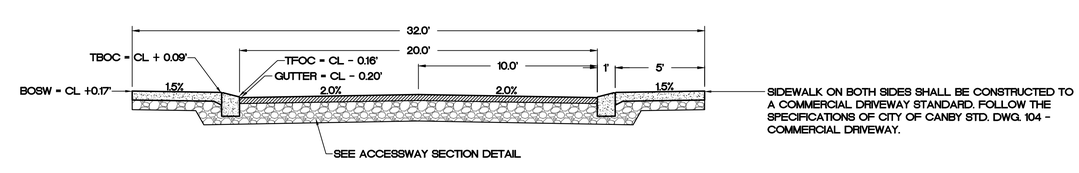
HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=2'



ACCESSWAY SECTION DETAIL



KNOTT ST. ACCESSWAY, 26 FEET



TOWNSHIP ACCESSWAY, 20 FEET WITH MOUNTABLE CURB

REVISIONS	BY

Tievoli Commons
Jason Bristol

Accessway Profiles and Sections

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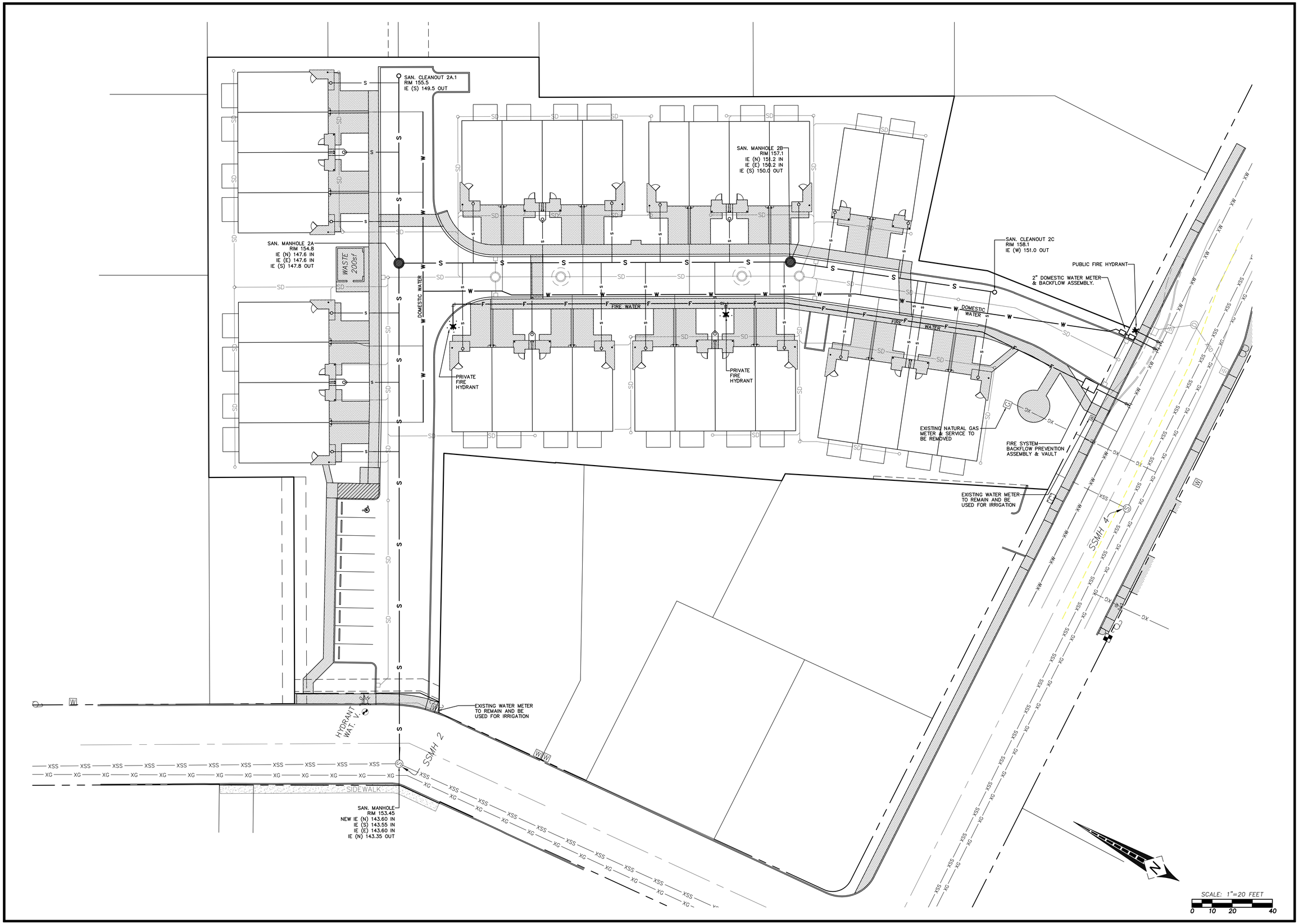
375 PORTLAND AVENUE
GLADSTONE, OREGON 97027
(503) 657-0188

DRAWING: Land Use Plans.dwg

DATE	OCT., 2023
SCALE	1" = 20'
DRAWN	PS
JOB	SGL 22-036
SHEET	C7
OF	9 SHEETS



REVISIONS	BY

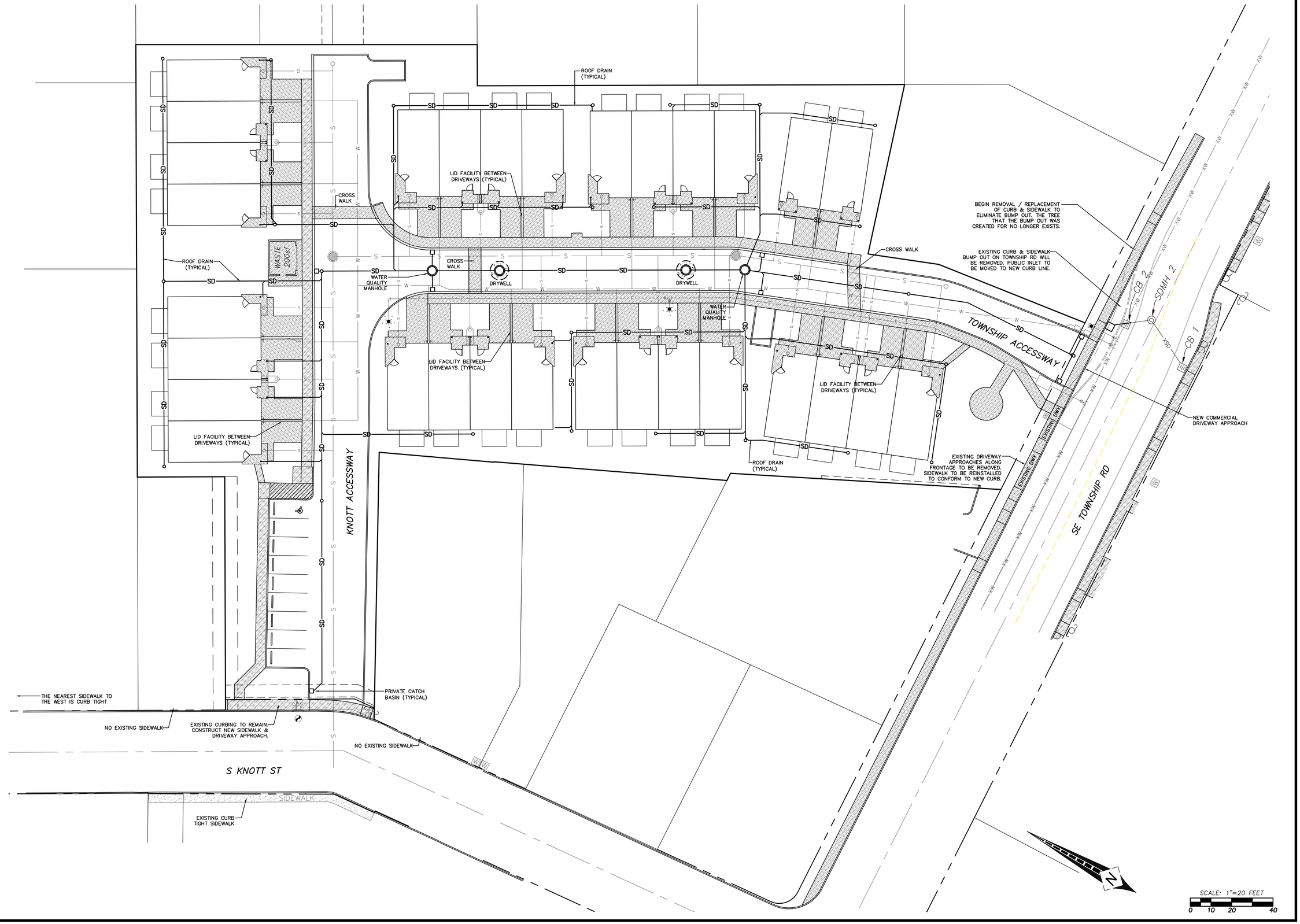
Tievoli Commons
Jason Bristol

Sanitary and Water System Plan

SISUL ENGINEERING
375 PORTLAND AVENUE
GLADSTONE, OREGON 97027
(503) 657-0188

DRAWING: Civil 22036.dwg

DATE	OCT., 2023
SCALE	1" = 20'
DRAWN	PS
JOB	SGL 22-036
SHEET	C8
OF	9 SHEETS



REVISIONS	BY

Tievoli Commons
Jason Bristol

Street and Drainage Plan

SGL ENGINEERING
375 PORTLAND AVENUE
GLADSTONE, OREGON 97027
(503) 657-0188

DRAWING: Civil E2020.dwg

DATE	OCT., 2023
SCALE	1" = 20'
DRAWN	PS
JOB	SGL 22-036
SHEET	8 OF 9 SHEETS

VII. Building Plans

a. Plan CA – 4-plex, 3 Bedroom Units, 42 feet
b. Plan CB – 4-plex, 2 Bedroom Units, 42 feet
c. Plan CC – 4-plex, 2 Bedroom Units, 42 feet
d. Plan CD – 4-plex, 2 Bedroom Units, 45 feet

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CONSTRUCTION DOCUMENT LICENSE

1. GRANT OF LICENSE: IN CONSIDERATION OF PAYMENT OF THE BUILDING FEE, WHICH IS PART OF THE PRICE YOU PAID FOR THIS PRODUCT, NORTHWEST HOME DESIGNING, INC., AS LICENSOR, GRANTS YOU, THE LICENSEE, A NONEXCLUSIVE RIGHT OF USE FOR THE PURPOSE OF CONSTRUCTING ONE STRUCTURE FROM THESE DOCUMENTS. NHD RESERVES ALL RIGHTS NOT EXPRESSLY GRANTED TO THE LICENSEE.

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IMPORTANT NOTICE:
THE PLAN YOU ARE RECEIVING IS DESIGNED TO BE SOLD THROUGHOUT MANY JURISDICTIONS AND BUILDING CODES WHICH ARE FOUND IN THE UNITED STATES. AS THESE JURISDICTIONS AND REQUIREMENTS MAY VARY, THESE PLANS WERE DESIGNED TO THE **INTERNATIONAL RESIDENTIAL CODE** AND RELATED NATIONAL ORDINANCES ONLY, AND MAY NOT COMPLY WITH SPECIFIC JURISDICTIONAL CODES AND SPECIFICATIONS± THEY WILL BE SUBJECT TO CHANGE AND VARYING INTERPRETATIONS.
THE PURCHASER MUST ENSURE THAT THE PLANS COMPLY WITH ALL LOCAL, AS WELL AS NATIONAL BUILDING CODES AND REQUIREMENTS, WHICH ARE APPLICABLE FOR THE SPECIFIC SITE AND STRUCTURAL ENGINEERING REQUIREMENTS. BEFORE BEGINNING CONSTRUCTION, PURCHASER MUST HAVE PLANS REVIEWED BY A LICENCED STRUCTURAL ENGINEER WHO WILL PROVIDE ANALYSIS, CALCULATIONS, DRAWINGS, AND DATA (INCLUDING HIS OR HER LICENSEE "STAMP") WHICH WILL BE SUBMITTED (WHERE REQUIRED) WITH THESE DRAWINGS AND SPECIFICATIONS TO THE LOCAL BUILDING OFFICIALS. FAILURE TO DO THIS RENDERS THESE DOCUMENTS LEGALLY INVALID AND ABSOLVES NHD OF ANY LIABILITY (EXPRESS OR IMPLIED) WITH REGARDS TO PUNITIVE DAMAGES.

APPROVED PLANS: IRC 106.3.1
APPROVAL OF CONSTRUCTION DOCUMENTS. WHEN THE BUILDING OFFICIAL ISSUES A PERMIT, THE CONSTRUCTION DOCUMENTS SHALL BE APPROVED IN WRITING OR BY A STAMP WHICH STATES "REVIEWED FOR CODE COMPLIANCE." ONE SET OF CONSTRUCTION DOCUMENTS SO REVIEWED SHALL BE RETAINED BY THE BUILDING OFFICIAL. THE OTHER SET SHALL BE RETURNED TO THE APPLICANT, SHALL BE KEPT AT THE SITE OF WORK AND SHALL BE OPEN TO INSPECTION BY THE BUILDING OFFICIAL OR HIS OR HER AUTHORIZED REPRESENTATIVE.

PREMISES IDENTIFICATION: R319.1 ADDRESS IDENTIFICATION. BUILDINGS SHALL BE PROVIDED WITH APPROVED ADDRESS IDENTIFICATION. THE ADDRESS IDENTIFICATION SHALL BE LEGIBLE AND PLACED IN A POSITION THAT IS VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. ADDRESS IDENTIFICATION CHARACTERS SHALL CONTRAST WITH THEIR BACKGROUND. ADDRESS NUMBERS SHALL BE ARABIC NUMBERS OR ALPHABETICAL LETTERS. NUMBERS SHALL NOT BE SPELLED OUT. EACH CHARACTER SHALL BE NOT LESS THAN 4 INCHES (102 MM) IN HEIGHT WITH A STROKE WIDTH OF NOT LESS THAN 0.5 INCH (12.7 MM). WHERE REQUIRED BY THE FIRE CODE OFFICIAL, ADDRESS IDENTIFICATION SHALL BE PROVIDED IN ADDITIONAL APPROVED LOCATIONS TO FACILITATE EMERGENCY RESPONSE. WHERE ACCESS IS BY MEANS OF A PRIVATE ROAD AND THE BUILDING ADDRESS CANNOT BE VIEWED FROM THE PUBLIC WAY, A MONUMENT, POLE OR OTHER SIGN OR MEANS SHALL BE USED TO IDENTIFY THE STRUCTURE. ADDRESS IDENTIFICATION SHALL BE MAINTAINED.

GROUNDED OUTLETS: ALL RECEPTACLES SHALL BE GROUNDED TYPE. RECEPTACLES LOCATED IN KITCHENS AND BATHS SHALL BE INSTALLED ABOVE THE WORK TOP . OTHER RECEPTACLES SHALL BE INSTALLED AT 12" VERTICALLY ABOVE THE FLOOR, UNLESS SHOWN OTHERWISE ON THE DRAWINGS.

WALL SWITCHES: WALL SWITCHES SHALL BE INSTALLED 42" ABOVE THE FLOOR, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

M1305.1 APPLIANCE ACCESS FOR INSPECTION SERVICE, REPAIR AND REPLACEMENT. APPLIANCES SHALL BE ACCESSIBLE FOR INSPECTION, SERVICE, REPAIR AND REPLACEMENT WITHOUT REMOVING PERMANENT CONSTRUCTION, OTHER APPLIANCES, OR ANY OTHER PIPING OR DUCTS NOT CONNECTED TO THE APPLIANCE BEING INSPECTED, SERVICED, REPAIRED OR REPLACED. A LEVEL WORKING SPACE NOT LESS THAN 30 INCHES DEEP AND 30 INCHES WIDE (762 MM BY 762 MM) SHALL BE PROVIDED IN FRONT OF THE CONTROL SIDE TO SERVICE AN APPLIANCE.

APPLIANCES LOCATED IN GARAGE: M1307.3 ELEVATION OF IGNITION SOURCE. APPLIANCES HAVING AN IGNITION SOURCE SHALL BE ELEVATED SUCH THAT THE SOURCE OF IGNITION IS NOT LESS THAN 18 INCHES (457 MM) ABOVE THE FLOOR IN GARAGES. FOR THE PURPOSE OF THIS SECTION, ROOMS OR SPACES THAT ARE NOT PART OF THE LIVING SPACE OF A DWELLING UNIT AND THAT COMMUNICATE WITH A PRIVATE GARAGE THROUGH OPENINGS SHALL BE CONSIDERED TO BE PART OF THE GARAGE.
M1307.3.1 PROTECTION FROM IMPACT. APPLIANCES SHALL NOT BE INSTALLED IN A LOCATION SUBJECT TO VEHICLE DAMAGE EXCEPT WHERE PROTECTED BY APPROVED BARRIERS.

CLOTHES DRYERS: M1502.3 DUCT TERMINATION. EXHAUST DUCTS SHALL TERMINATE ON THE OUTSIDE OF THE BUILDING. EXHAUST DUCT TERMINATIONS SHALL BE IN ACCORDANCE WITH THE DRYER MANUFACTURER'S INSTALLATION INSTRUCTIONS. IF THE MANUFACTURER'S INSTRUCTIONS DO NOT SPECIFY A TERMINATION LOCATION, THE EXHAUST DUCT SHALL TERMINATE NOT LESS THAN 3 FEET (914 MM) IN ANY DIRECTION FROM OPENINGS INTO BUILDINGS. EXHAUST DUCT TERMINATIONS SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER. SCREENS SHALL NOT BE INSTALLED AT THE DUCT TERMINATION. M1502.4.5.1 THE MAXIMUM LENGTH OF THE EXHAUST DUCT SHALL BE 35 FEET (7620 MM)FROM THE CONNECTION TO THE TRANSITION DUCT FROM THE DRYER TO THE OUTLET TERMINAL. DUCT LENGTH MUST BE REDUCED BY 2'-6" FOR 45° BEND & 5FT FOR 90° BEND FOR A 4" EXHAUST PIPE.

RANGE HOOD: M1503.2.1 GENERAL. DOMESTIC OPEN-TOP BROILER UNITS SHALL HAVE A METAL EXHAUST HOOD, HAVING A MINIMUM THICKNESS OF 0.0157-INCH (0.3950 MM) (NO. 28 GAUGE) WITH 1/4 INCH (6.4 MM) CLEARANCE BETWEEN THE HOOD AND THE UNDERSIDE OF COMBUSTIBLE MATERIAL OR CABINETS. A CLEARANCE OF AT LEAST 24 INCHES (610 MM) SHALL BE MAINTAINED BETWEEN THE COOKING SURFACE AND THE COMBUSTIBLE MATERIAL OR CABINET. THE HOOD SHALL BE AT LEAST AS WIDE AS THE BROILER UNIT, EXTEND OVER THE ENTIRE UNIT, DISCHARGE TO THE OUTDOORS AND BE EQUIPPED WITH A BACKDRAFT DAMPER OR OTHER MEANS TO CONTROL INFILTRATION/EXFILTRATION WHEN NOT IN OPERATION. BROILER UNITS INCORPORATING AN INTEGRAL EXHAUST SYSTEM, AND LISTED AND LABELED FOR USE WITHOUT AN EXHAUST HOOD, NEED NOT HAVE AN EXHAUST HOOD.

EXHAUST OPENINGS: M1504.3 AIR EXHAUST OPENINGS SHALL TERMINATE AS FOLLOWS:
1. NOT LESS THAN 3 FEET (914 MM) FROM PROPERTY LINES.
2. NOT LESS THAN 3 FEET (914 MM) FROM GRAVITY AIR INTAKE OPENINGS, OPERABLE WINDOWS AND DOORS.
3. NOT LESS THAN 10 FEET (3048 MM) FROM MECHANICAL AIR INTAKE OPENINGS EXCEPT WHERE THE EXHAUST OPENING IS LOCATED NOT LESS THAN 3 FEET (914 MM) ABOVE THE AIR INTAKE OPENING. OPENINGS SHALL COMPLY WITH SECTIONS R303.5.2 AND R303.6.

EXHAUST DUCTING: M1503.3 GENERAL. RANGE HOODS SHALL DISCHARGE TO THE OUT- DOORS THROUGH A DUCT. THE DUCT SERVING THE HOOD SHALL HAVE A SMOOTH INTERIOR SURFACE, SHALL BE AIR TIGHT, SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER AND SHALL BE INDEPENDENT OF ALL OTHER EXHAUST SYSTEMS. DUCTS SERVING RANGE HOODS SHALL NOT TERMINATE IN AN ATTIC OR CRAWL SPACE OR AREAS INSIDE THE BUILDING.

R303.10 REQUIRED HEATING. WHERE THE WINTER DESIGN TEMPERATURE IN TABLE R301.2(1) IS BELOW 60°F (16°C), EVERY DWELLING UNIT SHALL BE PROVIDED WITH HEATING FACILITIES CAPABLE OF MAINTAINING A ROOM TEMPERATURE OF NOT LESS THAN 68°F (20°C) AT A POINT 3 FEET (914 MM) ABOVE THE FLOOR AND 2 FEET (610 MM) FROM EXTERIOR WALLS IN HABITABLE ROOMS AT THE DESIGN TEMPERATURE. THE INSTALLATION OF ONE OR MORE PORTABLE SPACE HEATERS SHALL NOT BE USED TO ACHIEVE COMPLIANCE WITH THIS SECTION.

HEATING TYPE: HEATING TYPE AND FUEL SHALL BE SELECTED BY THE OWNER. ALL WARM AIR FURNACES SHALL BE LISTED AND LABELED BY AN APPROVED AGENCY AND INSTALLED TO LISTED SPECIFICATIONS.

FIREBLOCKING: R302.11 FIREBLOCKING. IN COMBUSTIBLE CONSTRUCTION, FIREBLOCKING SHALL BE PROVIDED TO CUT OFF ALL CONCEALED DRAFT OPENINGS (BOTH VERTICAL AND HORIZONTAL) AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES, AND BETWEEN A TOP STORY AND THE ROOF SPACE. FIREBLOCKING SHALL BE PROVIDED IN WOOD-FRAME CONSTRUCTION IN THE FOLLOWING LOCATIONS:
1. IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS:
1.1 VERTICALLY AT THE CEILING AND FLOOR LEVELS.
1.2. HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET(3048 MM).
2. AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES SUCH AS OCCUR AT SOFFITS, DROP CEILINGS AND COVE CEILINGS.
3. IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7.
4. AT OPENINGS AROUND VENTS, PIPES, DUCTS, CABLES 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 E 136 REQUIREMENTS.
5. FOR THE FIREBLOCKING OF CHIMNEYS AND FIREPLACES, SEE SECTION R1003.19.
6. FIREBLOCKING OF CORNICES OF A TWO-FAMILY DWELLING IS REQUIRED AT THE LINE OF DWELLING UNIT SEPARATION.

M1505.2 RECIRCULATION OF AIR. EXHAUST AIR FROM BATHROOMS AND TOILET ROOMS SHALL NOT BE RECIRCULATED WITHIN A RESIDENCE OR CIRCULATED TO ANOTHER DWELLING UNIT AND SHALL BE EXHAUSTED DIRECTLY TO THE OUTDOORS. EXHAUST AIR FROM BATHROOMS, TOILET ROOMS AND KITCHENS SHALL NOT DISCHARGE INTO AN ATTIC, CRAWL SPACE OR OTHER AREAS INSIDE THE BUILDING. THIS SECTION SHALL NOT PROHIBIT THE INSTALLATION OF DUCTLESS RANGE HOODS IN ACCORDANCE WITH THE EXCEPTION TO SECTION M1503.3.

M1601.4.1 JOINTS, SEAMS AND CONNECTIONS. LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS AND CONNECTIONS IN METALLIC AND NONMETALLIC DUCTS SHALL BE CONSTRUCTED AS SPECIFIED IN SMACNA HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE AND NAIMA FIBROUS GLASS DUCT CONSTRUCTION STANDARDS. JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS, AND CONNECTIONS IN DUCTWORK SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC- PLUS-EMBEDDED-FABRIC SYSTEMS, LIQUID SEALANTS OR TAPES. TAPES AND MASTICS USED TO SEAL FIBROUS GLASS DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A AND SHALL BE MARKED "181A-P" FOR PRESSURE-SENSITIVE TAPE, "181 A-M" FOR MASTIC OR "181 A-H" FOR HEAT-SENSITIVE TAPE. TAPES AND MASTICS USED TO SEAL METALLIC AND FLEXIBLE AIR DUCTS AND FLEXIBLE AIR CONNECTORS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED "181 B-FX" FOR PRESSURE-SENSITIVE TAPE OR "181 BM" FOR MASTIC. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. MECHANICAL FASTENERS FOR USE WITH FLEXIBLE NONMETALLIC AIR DUCTS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED 181B-C. CRIMP JOINTS FOR ROUND METALLIC DUCTS SHALL HAVE A CONTACT LAP OF NOT LESS THAN 1 INCH (25 MM) AND SHALL BE MECHANICALLY FASTENED BY MEANS OF NOT LESS THAN THREE SHEET-METAL SCREWS OR RIVET EQUALLY SPACED AROUND THE JOINT.

EGRESS DOOR: R311.2 EGRESS DOOR. NOT LESS THAN ONE EGRESS DOOR SHALL BE PROVIDED FOR EACH DWELLING UNIT. THE EGRESS DOOR SHALL BE SIDE-HINGED, AND SHALL PROVIDE A CLEAR WIDTH OF NOT LESS THAN 32 INCHES (813 MM) WHERE MEASURED BETWEEN THE FACE OF THE DOOR AND THE STOP, WITH THE DOOR OPEN 90 DEGREES (1.57 RAD). THE CLEAR HEIGHT OF THE DOOR OPENING SHALL BE NOT LESS THAN 78 INCHES (1981 MM) IN HEIGHT MEASURED FROM THE TOP OF THE THRESHOLD TO THE BOTTOM OF THE STOP. OTHER DOORS SHALL NOT BE REQUIRED TO COMPLY WITH THESE MINIMUM DIMENSIONS. EGRESS DOORS SHALL BE READILY OPENABLE FROM INSIDE THE DWELLING WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.

R311.3 FLOORS AND LANDINGS AT EXTERIOR DOORS. THERE SHALL BE A LANDING OR FLOOR ON EACH SIDE OF EACH EXTERIOR DOOR. THE WIDTH OF EACH LANDING SHALL BE NOT LESS THAN THE DOOR SERVED. LANDINGS SHALL HAVE A DIMENSION OF NOT LESS THAN 36 INCHES (914 MM) MEASURED IN THE DIRECTION OF TRAVEL. THE SLOPE AT EXTERIOR LANDINGS SHALL NOT EXCEED 1/4 UNIT VERTICAL IN 12 UNITS HORIZONTAL (2 PERCENT).

GARAGE/DWELLING DOOR:
R302.5.1 OPENING PROTECTION. 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 13/8 INCHES (35 MM) IN THICKNESS, SOLID OR HONEYCOMBCORE STEEL DOORS NOT LESS THAN 13/8 INCHES (35 MM) THICK, OR 20-MINUTE FIRE-RATED DOORS, EQUIPPED WITH A SELF-CLOSING OR AUTOMATIC-CLOSING DEVICE.

R308.4.2 GLAZING ADJACENT TO DOORS. GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL ADJACENT TO A DOOR SHALL BE CONSIDERED TO BE A HAZARDOUS LOCATION WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES (1524 MM) ABOVE THE FLOOR OR WALKING SURFACE AND IT MEETS EITHER OF THE FOLLOWING CONDITIONS:
1. WHERE THE GLAZING IS WITHIN 24 INCHES (610 MM) OF EITHER SIDE OF THE DOOR IN THE PLANE OF THE DOOR IN A CLOSED POSITION.
2. WHERE THE GLAZING IS ON A WALL LESS THAN 180 DEGREES (3.14 RAD) FROM THE PLANE OF THE DOOR IN A CLOSED POSITION AND WITHIN 24 INCHES (610 MM) OF THE HINGE SIDE OF AN IN-SWINGING DOOR.

R302.6 DWELLING-GARAGE FIRE SEPARATION. 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.

TABLE R302.6 DWELLING-GARAGE SEPARATION

FROM THE RESIDENCE AND ATTICS: NOT LESS THAN 1/2-INCH GYPSUM BOARD OR EQUIVALENT APPLIED TO THE GARAGE SIDE

FROM HABITABLE ROOMS ABOVE THE GARAGE: NOT LESS THAN 5/8-INCH TYPE X GYPSUM BOARD OR EQUIVALENT

STRUCTURE(S) SUPPORTING FLOOR/CEILING ASSEMBLIES USED FOR SEPARATION REQUIRED BY THIS SECTION: NOT LESS THAN 1/2-INCH GYPSUM BOARD OR EQUIVALENT

GARAGES LOCATED LESS THAN 3 FEET FROM A DWELLING UNIT ON THE SAME LOT: NOT LESS THAN 1/2-INCH GYPSUM BOARD OR EQUIVALENT APPLIED TO THE INTERIOR SIDE OF EXTERIOR WALLS THAT ARE WITHIN THIS AREA

LIGHTING EQUIPMENT (MANDATORY). NOT LESS THAN 75 PERCENT OF THE LAMPS IN PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL BE HIGH-EFFICACY LAMPS OR NOT LESS THAN 75 PERCENT OF THE PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL CONTAIN ONLY HIGH-EFFICACY LAMPS.

FOR WATER PRESSURE HIGHER THAN 80 PSI AN APPROVED PRESSURE REDUCING VALVE (PRV) SHALL BE INSTALLED.

R314.3 LOCATION. SMOKE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS:
1. IN EACH SLEEPING ROOM.
2. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS.
3. ON EACH ADDITIONAL STORY OF THE DWELLING, INCLUDING BASEMENTS AND HABITABLE ATTICS AND NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS. IN DWELLINGS OR DWELLING UNITS WITH SPLIT LEVELS AND WITHOUT AN INTERVENING DOOR BETWEEN THE ADJACENT LEVELS, A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SUFFICE FOR THE ADJACENT LOWER LEVEL PROVIDED THAT THE LOWER LEVEL IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL.

4. SMOKE ALARMS SHALL BE INSTALLED NOT LESS THAN 3 FEET (914 MM) HORIZONTALLY FROM THE DOOR OR OPENING OF A BATHROOM THAT CONTAINS A BATHTUB OR SHOWER UNLESS THIS WOULD PREVENT PLACEMENT OF A SMOKE ALARM REQUIRED BY THIS SECTION.

R315.3 CARBON MONOXIDE ALARMS IN DWELLING UNITS SHALL BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS. WHERE A FUEL-BURNING APPLIANCE IS LOCATED WITHIN A BEDROOM OR ITS ATTACHED BATHROOM, A CARBON MONOXIDE ALARM SHALL BE INSTALLED WITHIN THE BEDROOM. R315.4 COMBINATION ALARMS. COMBINATION CARBON MONOXIDE AND SMOKE ALARMS SHALL BE PERMITTED TO BE USED IN LIEU OF CARBON MONOXIDE ALARMS.

LIGHT & VENTILATION: R303.1 HABITABLE ROOMS. HABITABLE ROOMS SHALL HAVE AN AGGREGATE GLAZING AREA OF NOT LESS THAN 8 PERCENT OF THE FLOOR AREA OF SUCH ROOMS. NATURAL VENTILATION SHALL BE THROUGH WINDOWS, SKYLIGHTS, DOORS, LOUVERS OR OTHER APPROVED OPENINGS TO THE OUTDOOR AIR. SUCH OPENINGS SHALL BE PROVIDED WITH READY ACCESS OR SHALL OTHERWISE BE READILY CONTROLLABLE BY THE BUILDING OCCUPANTS. THE OPENABLE AREA TO THE OUTDOORS SHALL BE NOT LESS THAN 4 PERCENT OF THE FLOOR AREA BEING VENTILATED.

EGRESS WINDOWS: R310.2.1 MINIMUM OPENING AREA. EMERGENCY AND ESCAPE RESCUE OPENINGS SHALL HAVE A NET CLEAR OPENING OF NOT LESS THAN 5.7 SQUARE FEET (0.530 M2). THE NET CLEAR OPENING DIMENSIONS REQUIRED BY 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).

WINDOW SILLS: R312.2.1 WINDOW SILLS. IN DWELLING UNITS, WHERE THE TOP OF THE SILL OF AN OPERABLE WINDOW OPENING IS LOCATED LESS THAN 24 INCHES (610 MM) ABOVE THE FINISHED FLOOR AND GREATER THAN 72 INCHES (1829 MM) ABOVE THE FINISHED GRADE OR OTHER SURFACE BELOW ON THE EXTERIOR OF THE BUILDING, THE OPERABLE WINDOW SHALL COMPLY WITH ONE OF THE FOLLOWING:
1. OPERABLE WINDOW OPENINGS WILL NOT ALLOW A 4-INCHDIAMETER (102 MM) SPHERE TO PASS THROUGH WHERE THE OPENINGS ARE IN THEIR LARGEST OPENED POSITION.
2. OPERABLE WINDOWS ARE PROVIDED WITH WINDOW FALL PREVENTION DEVICES THAT COMPLY WITH ASTM F2090.
3. OPERABLE WINDOWS ARE PROVIDED WITH WINDOW OPENING CONTROL DEVICES THAT COMPLY WITH SECTION R312.2.2.

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

R307.2 BATHTUB AND SHOWER SPACES. BATHTUB AND SHOWER FLOORS AND WALLS ABOVE BATHTUBS WITH INSTALLED SHOWER HEADS AND IN SHOWER COMPARTMENTS SHALL BE FINISHED WITH A NONABSORBENT SURFACE. SUCH WALL SURFACES SHALL EXTEND TO A HEIGHT OF NOT LESS THAN 6 FEET (1829 MM) ABOVE THE FLOOR.

SHOWER AREAS: R307.1 SHOWERS SHALL BE A MINIMUM SIZE OF 30" BY 30" WITH A 24" IN. CLEARANCE IN FRONT OF OPENING.

WATER CLOSET CLEARANCES: IRC R307.1 WATER CLOSET SHALL BE LOCATED IN A CLEAR SPACE NOT LESS THAN 30" IN WIDTH. THE CLEAR SPACE IN FRONT SHALL NOT BE LESS THAN 21".

WATERPROOF WALL BOARD: ALL WALLS AND CEILINGS OF BATH TUB AND SHOWER ENCLOSURE AREAS SHALL BE COVERED WITH APPROVED WATERPROOF MATERIAL.

UTILITY ROOM WALL BOARD: ALL SURFACES IMMEDIATELY ADJACENT TO WASHERS, DRYERS, AND LAUNDRY TUBS SHALL BE SURFACED WITH APPROVED WATERPROOF MATERIAL.

GYPSUM WALLBOARD: R702.3.7 WATER-RESISTANT GYPSUM BACKING BOARD. GYPSUM BOARD USED AS THE BASE OR BACKER FOR ADHESIVE APPLICATION OF CERAMIC TILE OR OTHER REQUIRED NONABSORBENT FINISH MATERIAL SHALL CONFORM TO ASTM C1178, C1278 OR C1396. USE OF WATER-RESISTANT GYPSUM BACKING BOARD SHALL BE PERMITTED ON CEILINGS. WATER-RESISTANT GYPSUM BOARD SHALL NOT BE INSTALLED OVER A CLASS I OR II VAPOR RETARDER IN A SHOWER OR TUB COMPARTMENT. CUT OR EXPOSED EDGES, INCLUDING THOSE AT WALL INTERSECTIONS, SHALL BE SEALED AS RECOMMENDED BY THE MANUFACTURER.

R702.3.7.1 LIMITATIONS. WATER-RESISTANT GYPSUM BACKING BOARD SHALL NOT BE USED WHERE THERE WILL BE DIRECT EXPOSURE TO WATER, OR IN AREAS SUBJECT TO CONTINUOUS HIGH HUMIDITY.

NOTE: THE PRESCRIPTIVE PATH METHOD OF THE IRC WAS NOT FOLLOWED IN THE DESIGN OF THIS RESIDENCE, ALL LATERAL AND GRAVITY DESIGN SOLUTIONS SHALL BE PROVIDED BY THE ENGINEER OF RECORD.

WOOD IN CONTACT WITH CONCRETE AND MASONRY: IRC 317.1(3) SILLS AND SLEEPERS ON A CONCRETE OR MASONRY SLAB THAT ISIN DIRECT CONTACT WITH THE GROUND UNLESS SEPARATED FROM SUCH SLAB BY AN IMPERVIOUS MOISTURE BARRIER.

R317.1.4 WOOD COLUMNS. WOOD COLUMNS SHALL BE APPROVED WOOD OF NATURAL DECAY RESISTANCE OR APPROVED PRESSURE-PRESERVATIVE-TREATED WOOD.

EXCEPTIONS:
1. COLUMNS EXPOSED TO THE WEATHER OR IN BASEMENTS WHERE SUPPORTED BY CONCRETE PIERS OR METAL PEDESTALS PROJECTING 1 INCH (25 MM) ABOVE A CONCRETE FLOOR OR 6 INCHES (152 MM) ABOVE EXPOSED EARTH AND THE EARTH IS COVERED BY AN APPROVED IMPERVIOUS MOISTURE BARRIER.

2. COLUMNS IN ENCLOSED CRAWL SPACES OR UNEXCAVATED AREAS LOCATED WITHIN THE PERIPHERY OF THE BUILDING WHERE SUPPORTED BY A CONCRETE PIER OR METAL PEDESTAL AT A HEIGHT MORE THAN 8 INCHES (203 MM) FROM EXPOSED EARTH AND THE EARTH IS COVERED BY AN IMPERVIOUS MOISTURE BARRIER.

3. DECK POSTS SUPPORTED BY CONCRETE PIERS OR METAL PEDESTALS PROJECTING NOT LESS THAN 1 INCH (25 MM) ABOVE A CONCRETE FLOOR OR 6 INCHES (152 MM) ABOVE EXPOSED EARTH.

FLOOR FRAMING: R502.6 BEARING. THE ENDS OF EACH JOIST, BEAM OR GIRDER SHALL HAVE NOT LESS THAN 11/2 INCHES (38 MM) OF BEARING ON WOOD OR METAL, HAVE NOT LESS THAN 3 INCHES OF BEARING (76 MM) ON MASONRY OR CONCRETE OR BE SUPPORTED BY APPROVED JOIST HANGERS. ALTERNATIVELY, THE ENDS OF JOISTS SHALL BE SUPPORTED ON A 1-INCH BY 4-INCH (25 MM BY 102 MM) RIBBON STRIP AND SHALL BE NAILED TO THE ADJACENT STUD. THE BEARING ON MASONRY OR CONCRETE SHALL BE DIRECT, OR A SILL PLATE OF 2-INCH-MINIMUM (51 MM) NOMINAL THICKNESS SHALL BE PROVIDED UNDER THE JOIST, BEAM OR GIRDER. THE SILL PLATE SHALL PROVIDE A MINIMUM NOMINAL BEARING AREA OF 48 SQUARE INCHES (30 865 MM2).

BEARING PARTITIONS: R502.4 JOISTS UNDER BEARING PARTITIONS. JOISTS UNDER PARALLEL BEARING PARTITIONS SHALL BE OF ADEQUATE SIZE TO SUPPORT THE LOAD. DOUBLE JOISTS, SIZED TO ADEQUATELY SUPPORT THE LOAD, THAT ARE SEPARATED TO PERMIT THE INSTALLATION OF PIPING OR VENTS SHALL BE FULL-DEPTH SOLID BLOCKED WITH LUMBER NOT LESS THAN 2 INCHES (51 MM) IN NOMINAL THICKNESS SPACED NOT MORE THAN 4 FEET (1219 MM) ON CENTER. BEARING PARTITIONS PERPENDICULAR TO JOISTS SHALL NOT BE OFFSET FROM SUPPORTING GIRDERS, WALLS OR PARTITIONS MORE THAN THE JOIST DEPTH UNLESS SUCH JOISTS ARE OF SUFFICIENT SIZE TO CARRY THE ADDITIONAL LOAD.

WALL FRAMING: R602.3.2 TOP PLATE. WOOD STUD WALLS SHALL BE CAPPED WITH A DOUBLE TOP PLATE INSTALLED TO PROVIDE OVERLAPPING AT CORNERS AND INTERSECTIONS WITH BEARING PARTITIONS. END JOINTS IN TOP PLATES SHALL BE OFFSET NOT LESS THAN 24 INCHES (610 MM). JOINTS IN PLATES NEED NOT OCCUR OVER STUDS. PLATES SHALL BE NOT LESS THAN 2-INCHES (51 MM) NOMINAL THICKNESS AND HAVE A WIDTH NOT LESS THAN THE WIDTH OF THE STUDS.

HEADERS: R502.10 FRAMING OF OPENINGS. OPENINGS IN FLOOR FRAMING SHALL BE FRAMED WITH HEADER AND TRIMMER JOISTS. WHERE THE HEADER JOIST SPAN DOES NOT EXCEED 4 FEET (1219 MM), THE HEADER JOIST SHALL BE A SINGLE MEMBER THE SAME SIZE AS THE FLOOR JOIST. SINGLE TRIMMER JOISTS SHALL BE USED TO CARRY A SINGLE HEADER JOIST THAT IS LOCATED WITHIN 3 FEET (914 MM) OF THE TRIMMER JOIST BEARING. WHERE THE HEADER JOIST SPAN EXCEEDS 4 FEET (1219 MM), THE TRIMMER JOISTS AND THE HEADER JOIST SHALL BE DOUBLED AND OF SUFFICIENT CROSS SECTION TO SUPPORT THE FLOOR JOISTS FRAMING INTO THE HEADER.

STRUCTURAL PROPERTIES FOR HORIZONTAL MEMBERS: THE PRESCRIPTIVE PATH METHOD OF THE IRC WAS NOT FOLLOWED IN THE DESIGN OF THIS RESIDENCE, ALL LATERAL AND GRAVITY DESIGN SOLUTIONS SHALL BE PROVIDED BY THE ENGINEER OF RECORD.

R312.1.2 HEIGHT. REQUIRED GUARDS AT OPEN-SIDED WALKING SURFACES, INCLUDING STAIRS, PORCHES, BALCONIES OR LANDINGS, SHALL BE NOT LESS THAN 36 INCHES (914 MM) IN HEIGHT AS MEASURED VERTICALLY ABOVE THE ADJACENT WALKING SURFACE OR THE LINE CONNECTING THE NOSINGS.

R312.1.3 OPENING LIMITATIONS. REQUIRED GUARDS SHALL NOT HAVE OPENINGS FROM THE WALKING SURFACE TO THE REQUIRED GUARD HEIGHT THAT ALLOW PASSAGE OF A SPHERE 4 INCHES (102 MM) IN DIAMETER.

BUILDING COMPONENTS

WALL INSULATION ABOVE GRADE:	R-21 INTERMEDIATE
FLAT CEILINGS:	R-49
UNDERFLOORS:	R-30
WINDOWS:	U-0.27
SKYLIGHTS:	U-0.50
EXTERIOR DOORS:	U-0.20
EXTERIOR DOORS W/2.5FT GLAZING:	U-0.40

ADDITIONAL MEASURES:

TABLE N1101.1

DUCTLESS HEAT PUMP HSPF 10.0 IN PRIMARY ZONE OF DWELLING
W/ PROGRAMMABLE THERMOSTATS FOR ALL HEATERS IN BEDROOMS

TIEVOLI HOMES,
JASON BRISTOL
TOWNSHIP RD. CANBY, OR.
LICENSE # 95432

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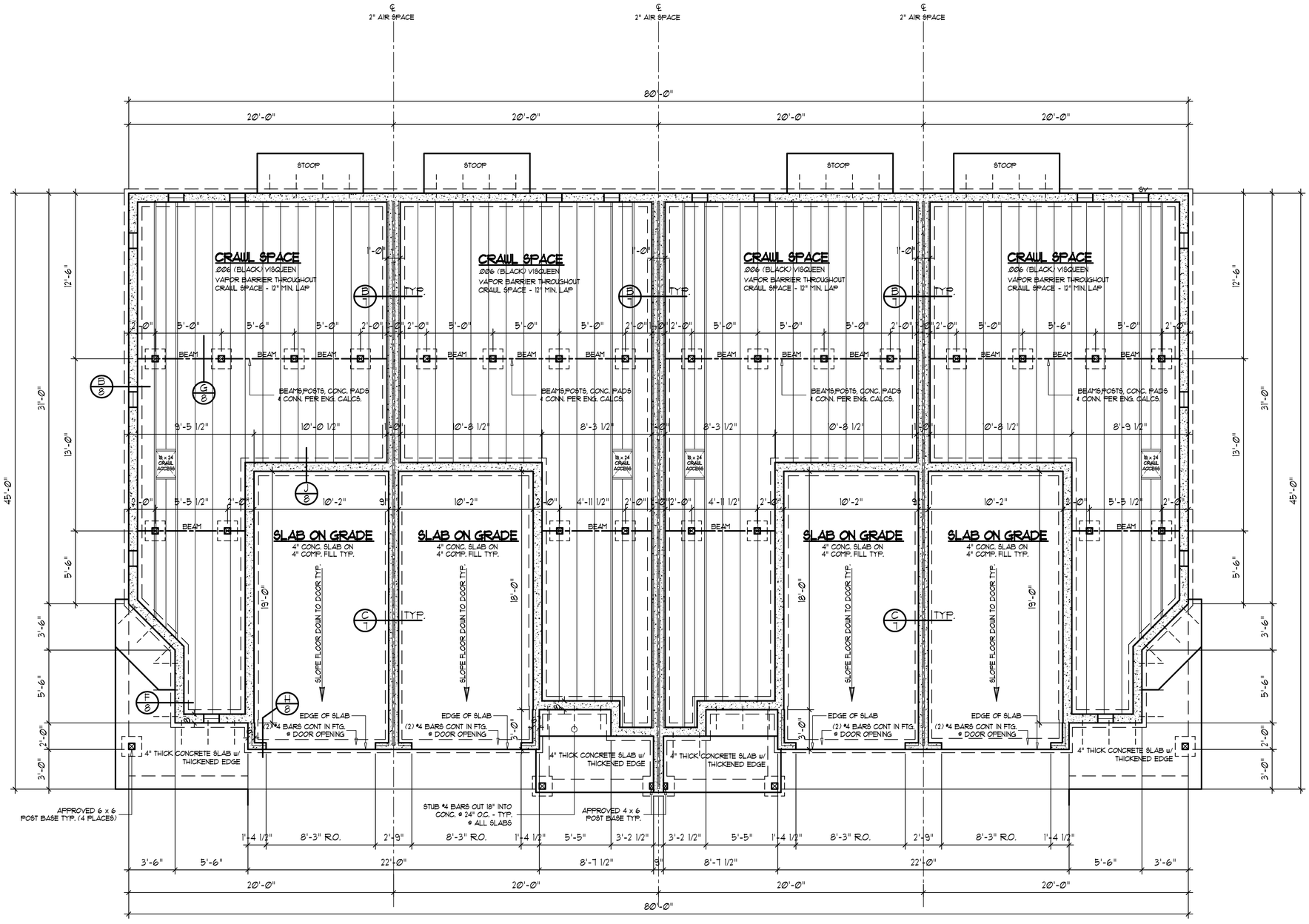

FOUNDATION & FLOOR FRAMING PLAN

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SCALE : ¼" = 1'-0"

FOUNDATION VENTILATION (OUTSIDE UNITS)

PROVIDE MECHANICAL VENTILATION W/
CONTINUOUSLY OPERATED EXHAUST FAN (AND
INTAKE VENTS) TO PROVIDE A MINIMUM OF 1 CFM
FOR EA. 50 S.F. OF CRAWL SPACE AREA.
(501 Sq. Ft. x 1/150 = 3.34 Sq. Ft. VENT AREA REQ'D)

FOUNDATION VENTILATION (INSIDE UNITS)

PROVIDE MECHANICAL VENTILATION W/
CONTINUOUSLY OPERATED EXHAUST FAN (AND
INTAKE VENTS) TO PROVIDE A MINIMUM OF 1 CFM
FOR EA. 50 S.F. OF CRAWL SPACE AREA.
(528 Sq. Ft. x 1/150 = 3.52 Sq. Ft. VENT AREA REQ'D)

NOTE:
While every attempt has been made to assure the accuracy of these drawings, **ALL INFORMATION MUST BE VERIFIED** prior to ordering any raw materials or fabricated components.
Any structural components specified are for reference only and must be verified with the **ENGINEER OF RECORD's "S-Sheets"** and/or (attached) documents

SOILS: IRC R401.4.1 IN LIEU OF A COMPLETE GEO-TECHNICAL EVALUATION, THE LOAD-BEARING VALUES IN TABLE R401.4.1 SHALL BE USED.

R403.1.5 SLOPE. THE TOP SURFACE OF FOOTINGS SHALL BE LEVEL. THE BOTTOM SURFACE OF FOOTINGS SHALL NOT HAVE A SLOPE EXCEEDING ONE UNIT VERTICAL IN 10 UNITS HORIZONTAL (10-PERCENT SLOPE). FOOTINGS SHALL BE STEPPED WHERE IT IS NECESSARY TO CHANGE THE ELEVATION OF THE TOP SURFACE OF THE FOOTINGS OR WHERE THE SLOPE OF THE BOTTOM SURFACE OF THE FOOTINGS WILL EXCEED ONE UNIT VERTICAL IN 10 UNITS HORIZONTAL (10-PERCENT SLOPE).

EROSION CONTROL: ADJOINING PUBLIC AND PRIVATE PROPERTY SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION, REMODELING AND DEMOLITION WORK. VERIFY METHOD WITH LOCAL JURISDICTION.

R401.3 DRAINAGE. SURFACE DRAINAGE SHALL BE DIVERTED TO A STORM SEWER CONVEYANCE OR OTHER APPROVED POINT OF COLLECTION THAT DOES NOT CREATE A HAZARD. LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS. THE GRADE SHALL FALL NOT FEWER THAN 6 INCHES (152 MM) WITHIN THE FIRST 10 FEET (3048 MM)

FOUNDATION WALL SIZE: 8" AT PERIMETER & 12" AT DEMISING.

R404.1.6 HEIGHT ABOVE FINISHED GRADE. CONCRETE AND MASONRY FOUNDATION WALLS SHALL EXTEND ABOVE THE FINISHED GRADE ADJACENT TO THE FOUNDATION AT ALL POINTS NOT LESS THAN 4 INCHES (102 MM) WHERE MASONRY VENEER IS USED AND NOT LESS THAN 6 INCHES (152 MM) ELSEWHERE.

R403.1.6 FOUNDATION ANCHORAGE. WOOD SILL PLATES AND WOOD WALLS SUPPORTED DIRECTLY ON CONTINUOUS FOUNDATIONS SHALL BE ANCHORED TO THE FOUNDATION IN ACCORDANCE WITH THIS SECTION. WOOD SOLE PLATES AT ALL EXTERIOR WALLS ON MONOLITHIC SLABS, WOOD SOLE PLATES OF BRACED WALL PANELS AT BUILDING INTERIORS ON MONOLITHIC SLABS AND ALL WOOD SILL PLATES SHALL BE ANCHORED TO THE FOUNDATION WITH MINIMUM 1/2-INCH DIAMETER (12.7 MM) ANCHOR BOLTS SPACED NOT GREATER THAN 6 FEET (1829 MM) ON CENTER OR APPROVED ANCHORS OR ANCHOR STRAPS SPACED AS REQUIRED TO PROVIDE EQUIVALENT ANCHORAGE TO 1/2-INCH-DIAMETER (12.7 MM) ANCHOR BOLTS. BOLTS SHALL EXTEND NOT LESS THAN 7 INCHES (178 MM) INTO CONCRETE OR GROUTED CELLS OF CONCRETE MASONRY UNITS. THE BOLTS SHALL BE LOCATED IN THE MIDDLE THIRD OF THE WIDTH OF THE PLATE. A NUT AND WASHER SHALL BE TIGHTENED ON EACH ANCHOR BOLT. THERE SHALL BE NOT FEWER THAN TWO BOLTS PER PLATE SECTION WITH ONE BOLT LOCATED NOT MORE THAN 12 INCHES (305 MM) OR LESS THAN SEVEN BOLT DIAMETERS FROM EACH END OF THE PLATE SECTION. **REFER TO S-SHEETS FOR ADDITIONAL REQUIREMENTS.**

R317.1 LOCATION REQUIRED. PROTECTION OF WOOD AND WOODBASED PRODUCTS FROM DECAY SHALL BE PROVIDED IN THE FOLLOWING LOCATIONS BY THE USE OF NATURALLY DURABLE WOOD OR WOOD THAT IS PRESERVATIVE-TREATED IN ACCORDANCE WITH AWPA U1.
4. THE ENDS OF WOOD GIRDERS ENTERING EXTERIOR MASONRY OR CONCRETE WALLS HAVING CLEARANCES OF LESS THAN 1/2 INCH (12.7 MM) ON TOPS, SIDES AND ENDS.

CONCRETE STRENGTH: IRC R402.2 CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH AS SHOWN IN TABLE R402.2. CONCRETE SUBJECT TO WEATHERING SHALL BE AIR ENTAINED AS SPECIFIED IN TABLE R402.2. **UNLESS NOTED OTHERWISE BY THE ENGINEER OF RECORD ON THEIR S-SHEETS.**

FILL: R506.2.2 BASE. A 4-INCH-THICK (102 MM) BASE COURSE CONSISTING OF CLEAN GRADED SAND, GRAVEL, CRUSHED STONE, CRUSHED CONCRETE OR CRUSHED BLAST-FURNACE SLAG PASSING A 2-INCH (51 MM) SIEVE SHALL BE PLACED ON THE PREPARED SUBGRADE WHERE THE SLAB IS BELOW GRADE.

R403.1.3 FOOTING AND STEM WALL REINFORCING IN SEISMIC DESIGN CATEGORIES D0, D1, AND D2. CONCRETE FOOTINGS LOCATED IN SEISMIC DESIGN CATEGORIES D0, D1 AND D2, AS ESTABLISHED IN TABLE R301.2(1), SHALL HAVE MINIMUM REINFORCEMENT IN ACCORDANCE WITH THIS SECTION AND FIGURE R403.1.3. REINFORCEMENT SHALL BE INSTALLED WITH SUPPORT AND COVER IN ACCORDANCE WITH SECTION R403.1.3.5.

R403.1.4 MINIMUM DEPTH. EXTERIOR FOOTINGS SHALL BE PLACED NOT LESS THAN 12 INCHES (305 MM) BELOW THE UNDISTURBED GROUND SURFACE. WHERE APPLICABLE, THE DEPTH OF FOOTINGS SHALL ALSO CONFORM TO SECTION R403.1.4.1.

R403.1.1 MINIMUM SIZE. THE MINIMUM WIDTH, W, AND THICKNESS, T, FOR CONCRETE FOOTINGS SHALL BE IN ACCORDANCE WITH TABLES R403.1(1) THROUGH R403.1(3) AND FIGURE R403.1(1) OR R403.1.3, AS APPLICABLE. THE FOOTING WIDTH SHALL BE BASED ON THE LOAD-BEARING VALUE OF THE SOIL IN ACCORDANCE WITH TABLE R401.4.1. FOOTING PROJECTIONS, P, SHALL BE NOT LESS THAN 2 INCHES (51 MM) AND SHALL NOT EXCEED THE THICKNESS OF THE FOOTING. FOOTING THICKNESS AND PROJECTION FOR FIREPLACES SHALL BE IN ACCORDANCE WITH SECTION R1001.2. **REFER TO S-SHEETS FOR ADDITIONAL REQUIREMENTS.**

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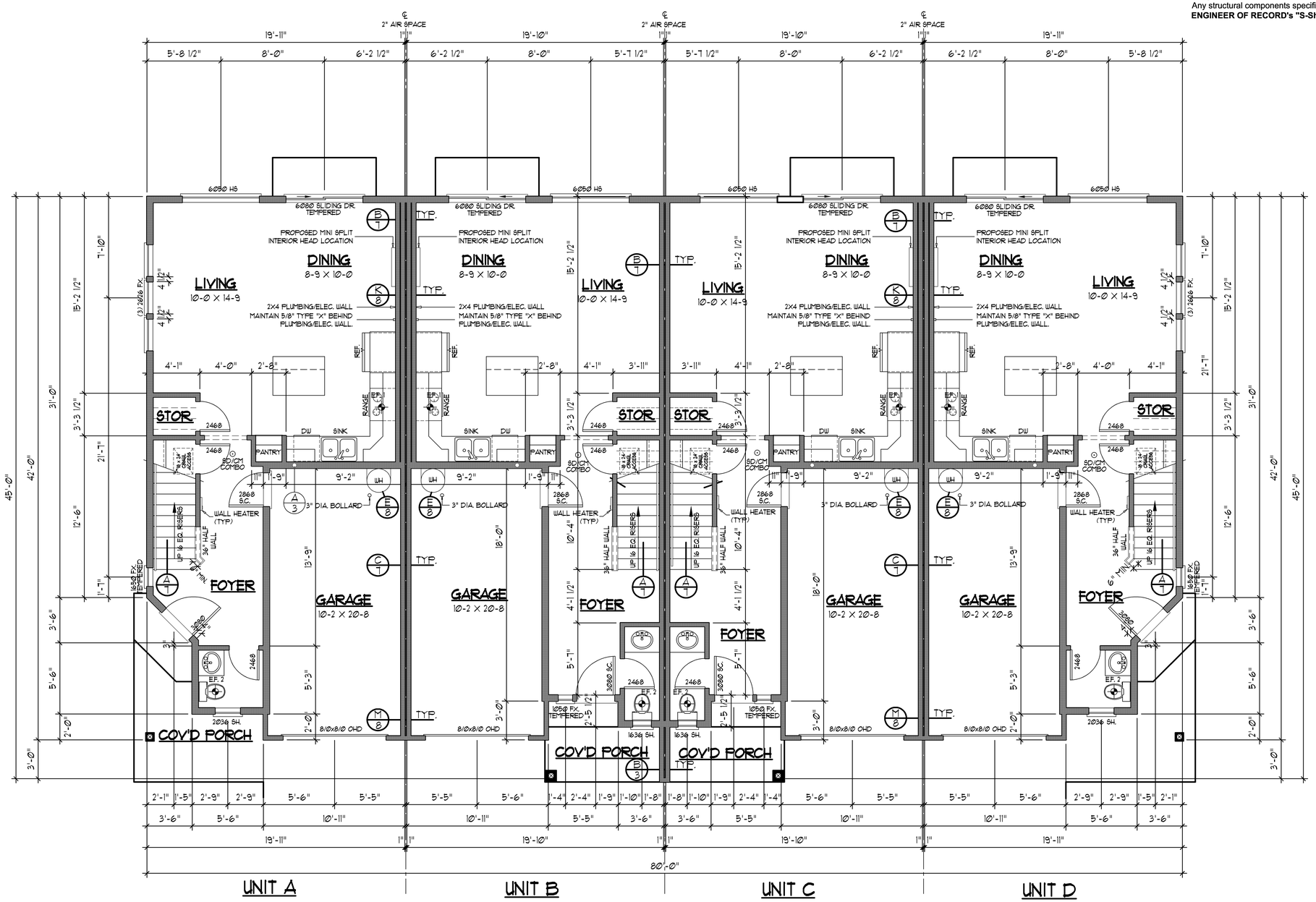

MAIN FLOOR PLAN

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

AREA SUMMARY (UNITS A & D)

MAIN FLOOR: 573 S.F.
UPPER FLOOR: 756 S.F.
TOTAL: 1329 S.F.

GARAGE: 211 S.F.
COV'D PORCH: 43 S.F.
GLASS AREA .. 157 S.F.
GLAZING PERCENTAGE (GL / FL) .. 11.8 %

AREA SUMMARY (UNIT B)

MAIN FLOOR: 592 S.F.
UPPER FLOOR: 753 S.F.
TOTAL: 1345 S.F.

GARAGE: 211 S.F.
COV'D PORCH: 47 S.F.
GLASS AREA .. 115.25 S.F.
GLAZING PERCENTAGE (GL / FL) .. 8.7 %

AREA SUMMARY (UNIT C)

MAIN FLOOR: 592 S.F.
UPPER FLOOR: 762 S.F.
TOTAL: 1354 S.F.

GARAGE: 211 S.F.
COV'D PORCH: 47 S.F.
GLASS AREA .. 115.25 S.F.
GLAZING PERCENTAGE (GL / FL) .. 8.5 %

VENTILATION REQUIREMENTS

1	"PANASONIC" FV-11VK3 110CFM .8 SONES	112 CFM @ .25 WS 110 CFM @ .1 WS
2	"PANASONIC" FV-08VK3 80CFM .4 SONES	79 CFM @ .25 WS 80 CFM @ .1 WS

NOTES:
1. USE PANASONIC FV-11VK3 (100 CFM MIN.) @ ALL KITCHEN.
2. USE PANASONIC FV-08VK3 (50 CFM MIN.) @ ALL OTHER LOCATIONS.
3. ALL FANS TO VENT DIRECTLY TO OUTSIDE.

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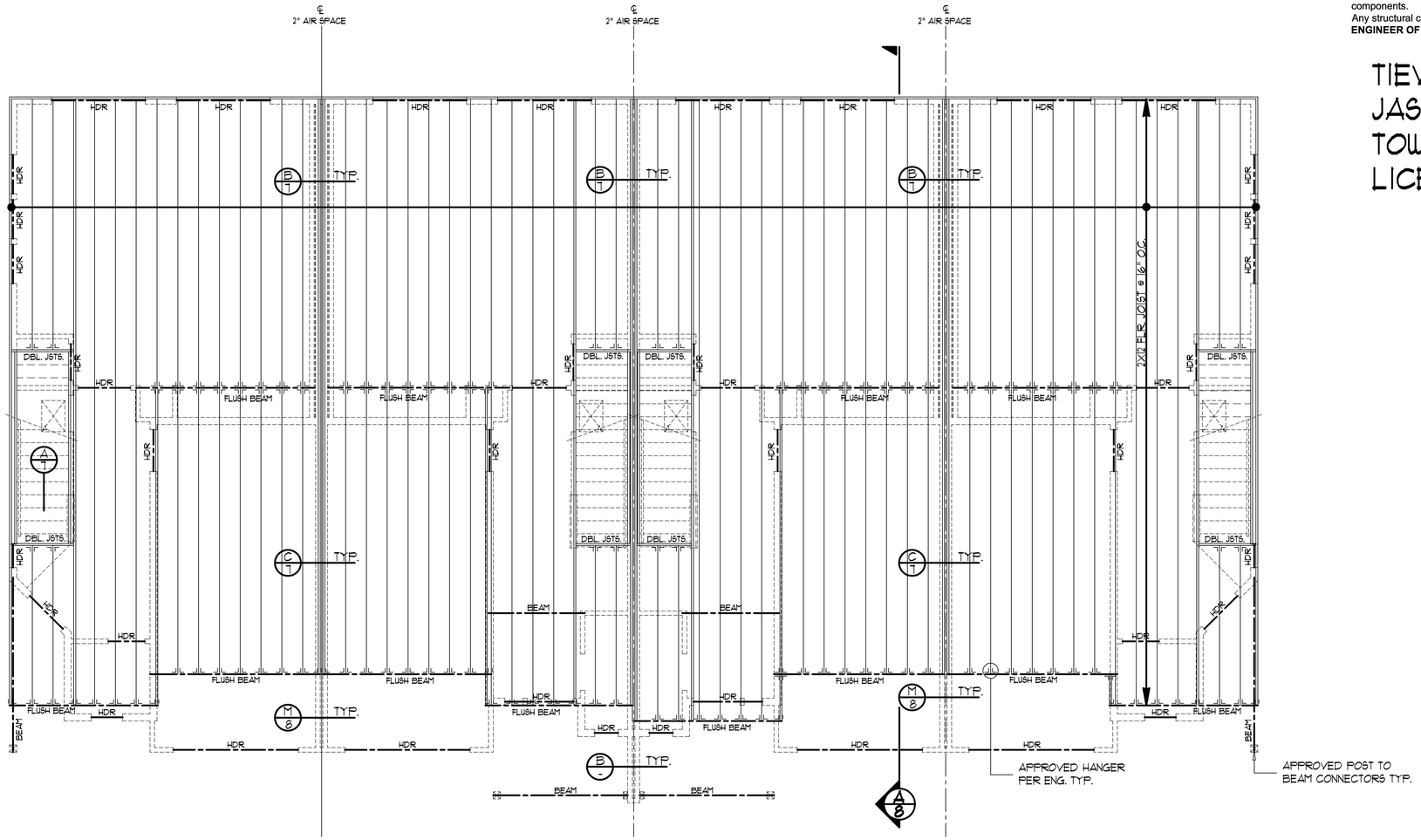

UPPER FLOOR FRAMING PLAN

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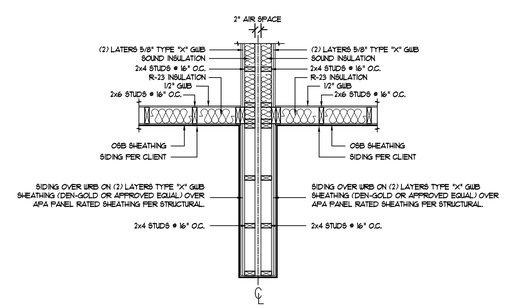
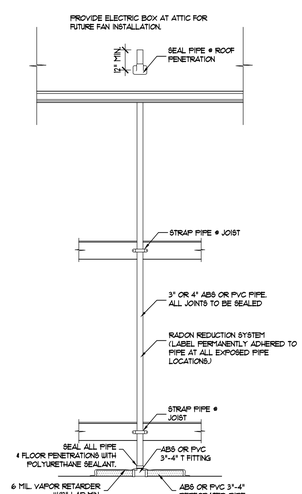
SCALE : ¼" = 1'-0"



FIREWALL INTERSECTION (B)

SCALE: 1/2" = 1'-0"



RADON PIPING DETAIL (A)

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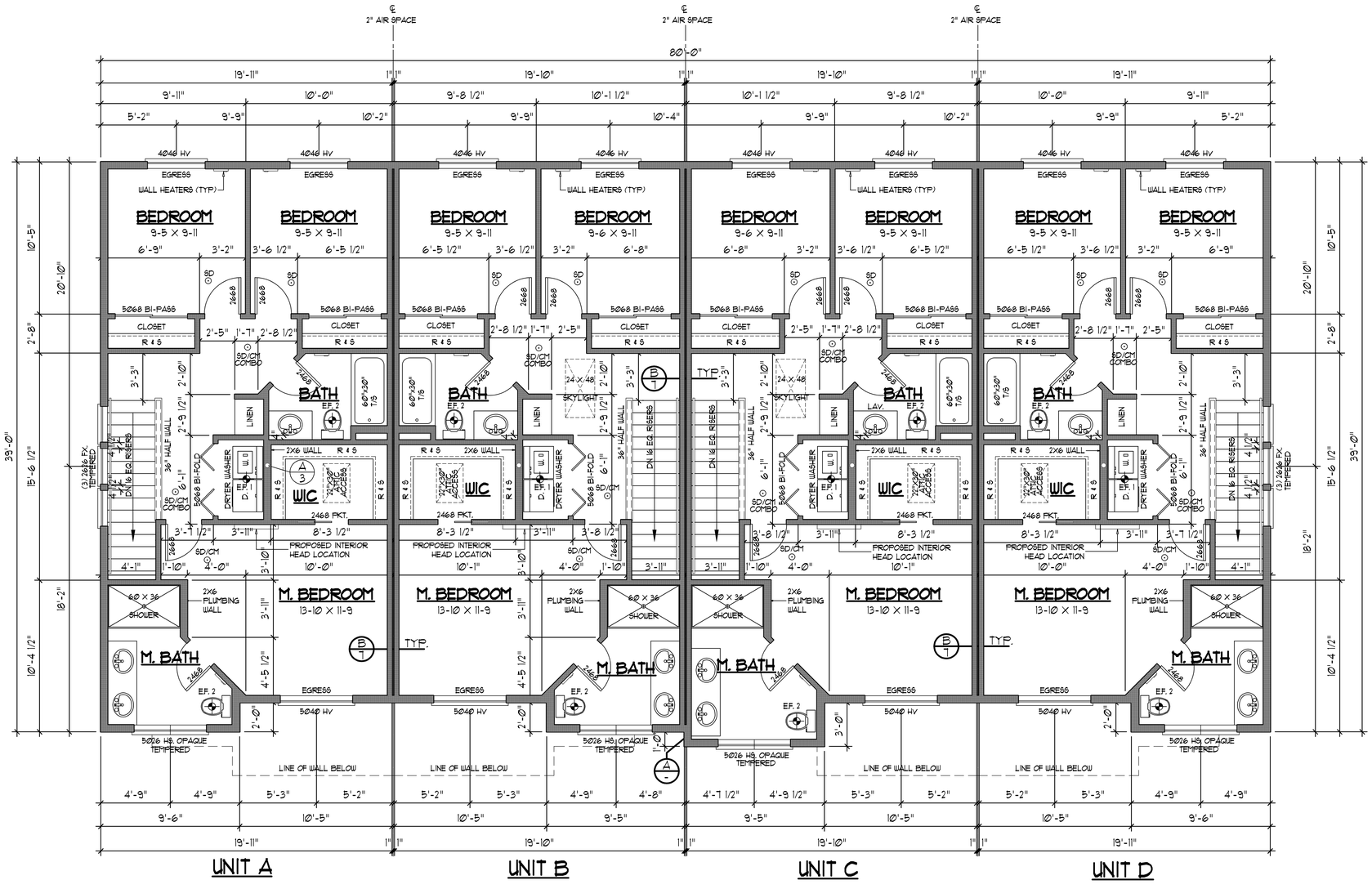

UPPER FLOOR PLAN

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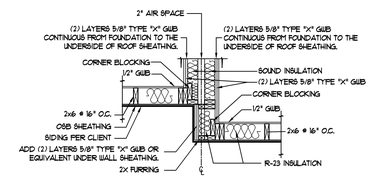
SCALE : 1/4" = 1'-0"



CORNER DETAIL (A)

SCALE: 1/2" = 1'-0"

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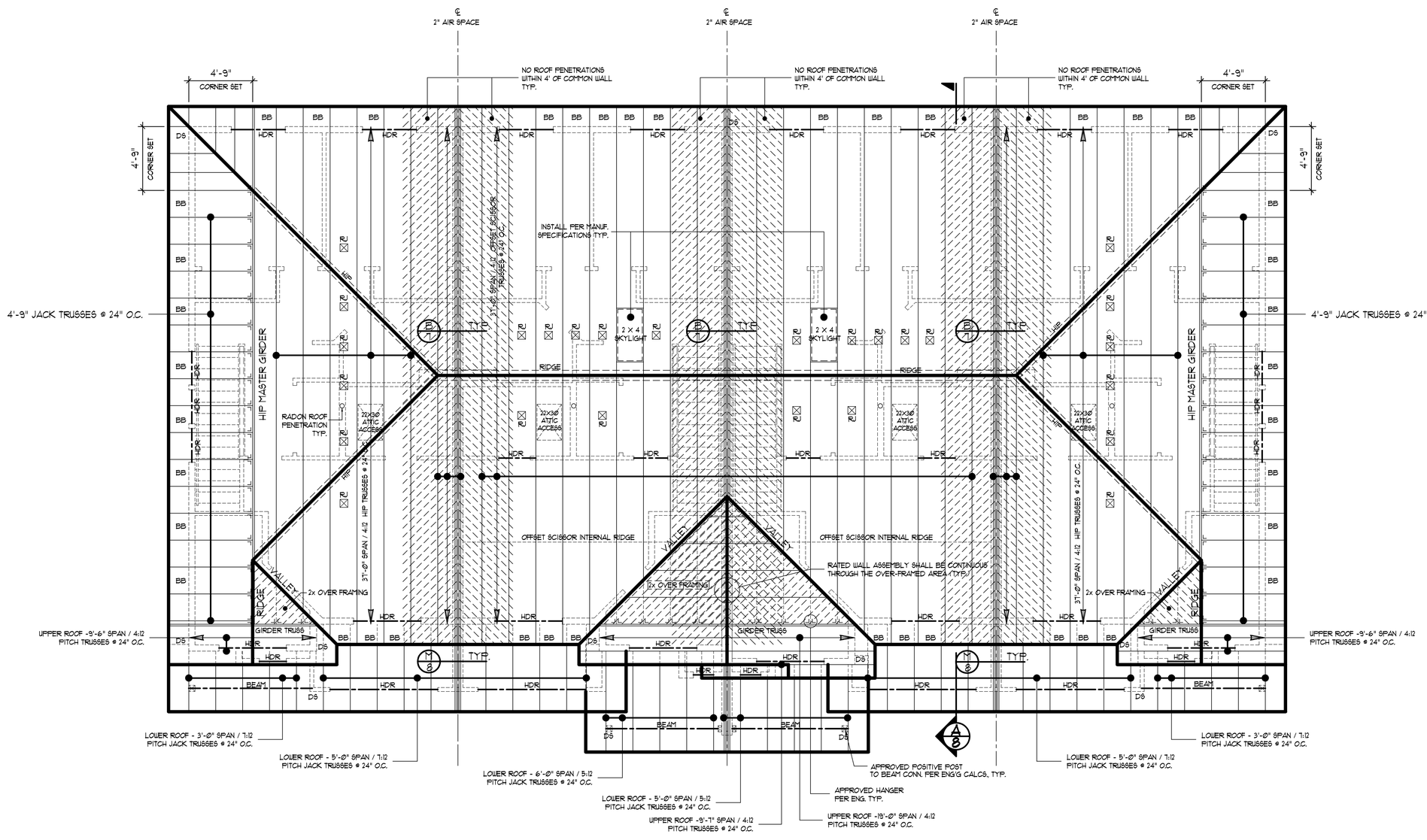

ROOF FRAMING PLAN

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

ATTIC VENTILATION

PROVIDE ATTIC SPACE VENTILATION AS PER IRC
(3046 Sq. Ft. x 1/150 = 203 Sq. Ft. VENT AREA REQ'D)
(203 Sq. Ft./ 4 = 508 Sq. Ft. REQ'D PER UNIT)

ROOF VENTILATION EACH UNIT

11'-6" CONT. RIDGE VENT = 14" (18 SQ. IN.) ..... 1.44 SQ. FT.
8 EA. (BB) BIRD BLOCKING = 2 HOLES W/ 3" DIA HOLES (.0491 SQ. FT.) ..... 1.18 SQ. FT.
7 EA. (RJ) ROOF JACKS = (MASTER FLOW) 60 SQ. IN. (.416 SQ. FT.) ..... 2.91 SQ. FT.
TOTAL PROVIDED ..... 5.53 SQ. FT.

TRUSSES: R502.11.1 DESIGN. WOOD TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH APPROVED ENGINEERING PRACTICE. THE DESIGN AND MANUFACTURE OF METAL-PLATE-CONNECTED WOOD TRUSSES SHALL COMPLY WITH ANSI/TPI 1. THE TRUSS DESIGN DRAWINGS SHALL BE PREPARED BY A REGISTERED PROFESSIONAL WHERE REQUIRED BY THE STATUTES OF THE JURISDICTION IN WHICH THE PROJ- ECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH SECTION R106.1.

R502.11.2 BRACING. TRUSSES SHALL BE BRACED TO PREVENT ROTATION AND PROVIDE LATERAL STABILITY IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE CONSTRUCTION DOCUMENTS FOR THE BUILDING AND ON THE INDIVIDUAL TRUSS DESIGN DRAWINGS. IN THE ABSENCE OF SPECIFIC BRACING REQUIREMENTS, TRUSSES SHALL BE BRACED IN ACCORDANCE WITH ACCEPTED INDUSTRY PRACTICES, SUCH AS, THE SBCA BUILDING COMPONENT SAFETY INFORMATION (BCSI) GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING & BRACING OF METAL PLATE CONNECTED WOOD TRUSSES.

R305.2.1 ROOF SLOPES FROM 2 UNITS VERTICAL BY 12 UNITS HORIZONTAL UP TO 4 UNITS VERTICAL BY 12 UNITS HORIZONTAL, UNDERLAYMENT SHALL BE 2 LAYERS OVERLAPPING 19 INCHES, FOR SLOPES OF 4 UNITS VERTICAL BY 12 UNITS HORIZONTAL OR GREATER, UNDERLAYMENT SHALL BE 1 LAYER OVERLAPPING 2 INCHES.

R903.2.1 LOCATIONS. FLASHINGS SHALL BE INSTALLED AT WALL AND ROOF INTERSECTIONS, WHEREVER THERE IS A CHANGE IN ROOF SLOPE OR DIRECTION AND AROUND ROOF OPENINGS. A FLASHING SHALL BE INSTALLED TO DIVERT THE EATER AWAY FROM WHERE THE EAVE OF A SLOPED ROOF INTERSECTS A VERTICAL SIDEWALL. WHERE FLASHING IS OF METAL, THE METAL SHALL BE CORROSION RESISTANT WITH A THICKNESS OF NOT LESS THAN 0.019 INCH (0.5 MM) (NO. 26 GALVANIZED SHEET).

R703.4 FLASHING. APPROVED CORROSION-RESISTANT FLASHING SHALL BE APPLIED SHINGLE-FASHION IN A MANNER TO PREVENT ENTRY OF WATER INTO THE WALL CAVITY OR PENETRATION OF WATER TO THE BUILDING STRUCTURAL FRAMING COMPONENTS. SELF-ADHERED MEMBRANES USED AS FLASHING SHALL COMPLY WITH AAMA 711. FLUID-APPLIED MEMBRANES USED AS FLASHING IN EXTERIOR WALLS SHALL COMPLY WITH AAMA 714. THE FLASHING SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL FINISH. APPROVED CORROSION-RESISTANT FLASHINGS SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS:
1. EXTERIOR WINDOW AND DOOR OPENINGS. FLASHING AT EXTE- RIOR WINDOW AND DOOR OPENINGS SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL FINISH OR TO THE WATER-RESISTIVE BARRIER COMPLYING WITH SECTION 703.2 FOR SUBSEQUENT DRAINAGE. MECHANICALLY ATTACHED FLEXIBLE FLASHINGS SHALL COMPLY WITH AAMA 712. FLASHING AT EXTERIOR WINDOW AND DOOR OPENINGS SHALL BE INSTALLED IN ACCORDANCE WITH ONE OR MORE OF THE FOLLOWING:
11. THE FENESTRATION MANUFACTURER'S INSTALLATION AND FLASHING INSTRUCTIONS, OR FOR APPLICATIONS NOT ADDRESSED IN THE FENESTRATION MANUFACTURER'S INSTRUCTIONS, IN ACCORDANCE WITH THE FLASHING MANUFACTURER'S INSTRUCTIONS, WHERE FLASHING INSTRUCTIONS OR DETAILS ARE NOT PROVIDED, PAN FLASHING SHALL BE INSTALLED AT THE SILL OF EXTERIOR WINDOW AND DOOR OPENINGS. PAN FLASHING SHALL BE SEALED OR SLOPED IN SUCH A MANNER AS TO DIRECT WATER TO THE SURFACE OF THE EXTERIOR WALL FINISH OR TO THE WATER-RESISTIVE BARRIER FOR SUBSEQUENT DRAINAGE. OPENINGS USING PAN FLASHING SHALL INCORPORATE FLASHING OR PROTECTION AT THE HEAD AND SIDES.
12. IN ACCORDANCE WITH THE FLASHING DESIGN OR METHOD OF A REGISTERED DESIGN PROFESSIONAL.
13. IN ACCORDANCE WITH OTHER APPROVED METHODS.
2. AT THE INTERSECTION OF CHIMNEYS OR OTHER MASONRY CON- STRUCTION 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.

WEATHER RESISTIVE SHEATHING PAPER: R703.2 WATER-RESISTIVE BARRIER. ONE LAYER OF NO. 15 ASPHALT FELT, FREE FROM HOLES AND BREAKS, COMPLYING WITH ASTM D 226 FOR TYPE I FELT OR OTHER APPROVED WATER-RESISTIVE BARRIER SHALL BE APPLIED OVER STUDS OR SHEATHING OF ALL EXTERIOR WALLS. SUCH FELT OR MATERIAL SHALL BE APPLIED HORIZONTALLY, WITH THE UPPER LAYER LAPPED OVER THE LOWER LAYER NOT LESS THAN 2 INCHES (51 MM). WHERE JOINTS OCCUR, FELT SHALL BE LAPPED NOT LESS THAN 6 INCHES (152 MM). THE FELT OR OTHER APPROVED MATERIAL SHALL BE CONTINUOUS TO THE TOP OF WALLS AND TERMINATED AT PEN- ETRATIONS AND BUILDING APPENDAGES IN A MANNER TO MEET THE REQUIREMENTS OF THE EXTERIOR WALL ENVELOPE AS DESCRIBED IN SECTION R703. THE WATER-RESISTIVE BARRIER IS NOT REQUIRED FOR DETACHED ACCESSORY BUILDINGS.

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DESIGN STANDARD

GARAGE WIDTH = 55%

1. GABLES, HIP ROOF OR GAMBREL ROOF FORM.
2. FRONT ENTRY RECESSED 3' FOR INTERIOR UNITS & 5'-6" FOR EXTERIOR UNITS.
3. COVERED PORCH ENTRIES. (MIN. 48 SQ. FT., MIN. 4' DEEP)
4. ANY EAVES OF 12 INCHES OR GREATER.
5. OFF-SET OF 16 INCHES OR GREATER ON BUILDING FACE OR ROOF.
6. WINDOWS AND MAIN ENTRANCE DOORS OCCUPY A MINIMUM OF THE FACADE. (NOT INCUDING THE ROOF)

FRONT ELEVATION

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SCALE : ¼"= 1'-0"

EXPLANATION OF HEIGHT

OVERALL HEIGHT - "X":	26'-6 1/2"
LOWEST TRUSS POINT - "Y":	19'-6 1/2"
26'-6 1/2" (X) - 19'-6 1/2" (Y) =	7'-0" (Q)
7'-0" (Q) / 2 =	3'-6"
19'-6 1/2" (Y) + 3'-6" =	23'-0 1/2"

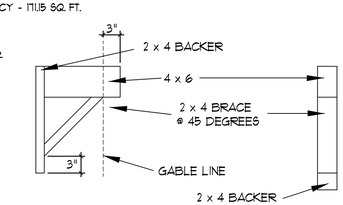
AVERAGE HEIGHT = 23'-0 1/2"

WINDOW AREA SUMMARY:

6

BUILDING FACADE SQ. FT. = 1141 SQ. FT.
WINDOW AREA REQ TO EQUAL 15% TRANSPARENCY - 171.15 SQ. FT.
WINDOW AREA PROVIDED - 230.5 SQ. FT.

TOTAL FACADE TRANSPARENCY - 20.2%



GABLE BRACE DETAIL (A)

REAR ELEVATION

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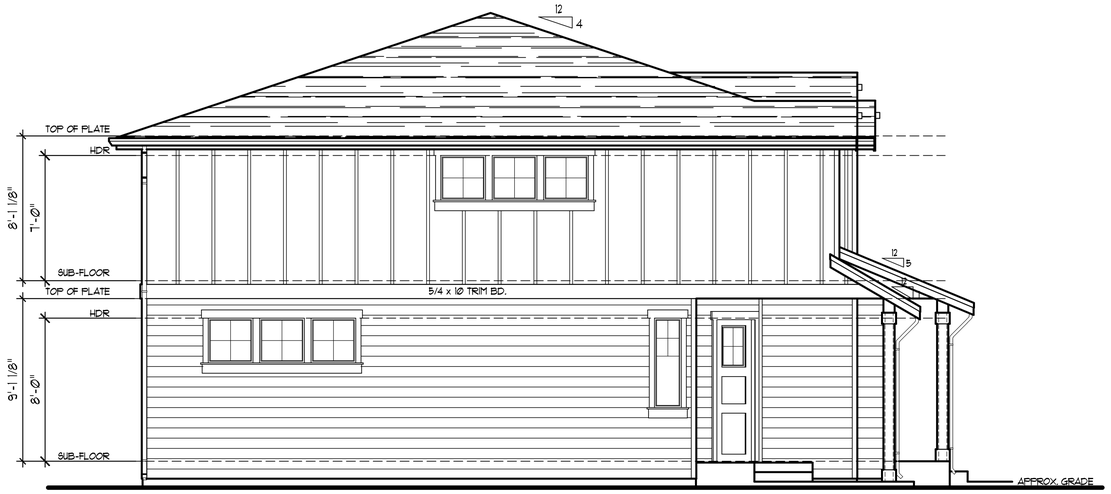

LEFT ELEVATION

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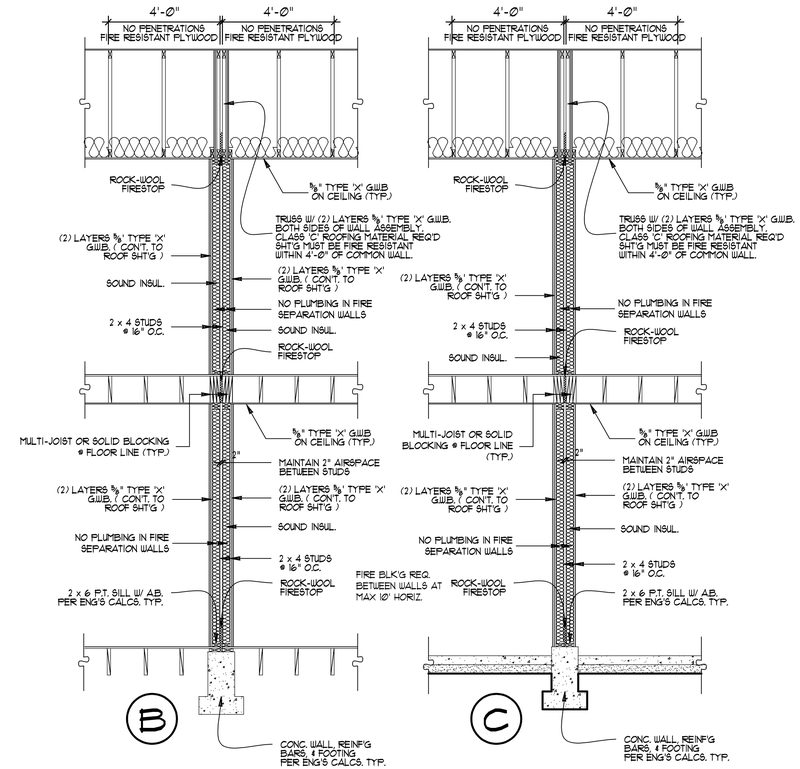
SCALE : 1/4" = 1'-0"



TYP. 2-HOUR COMMON WALL DETAIL

SCALE : 3/8" = 1'-0"

GA FILE NO. WP 3725 | GENERIC

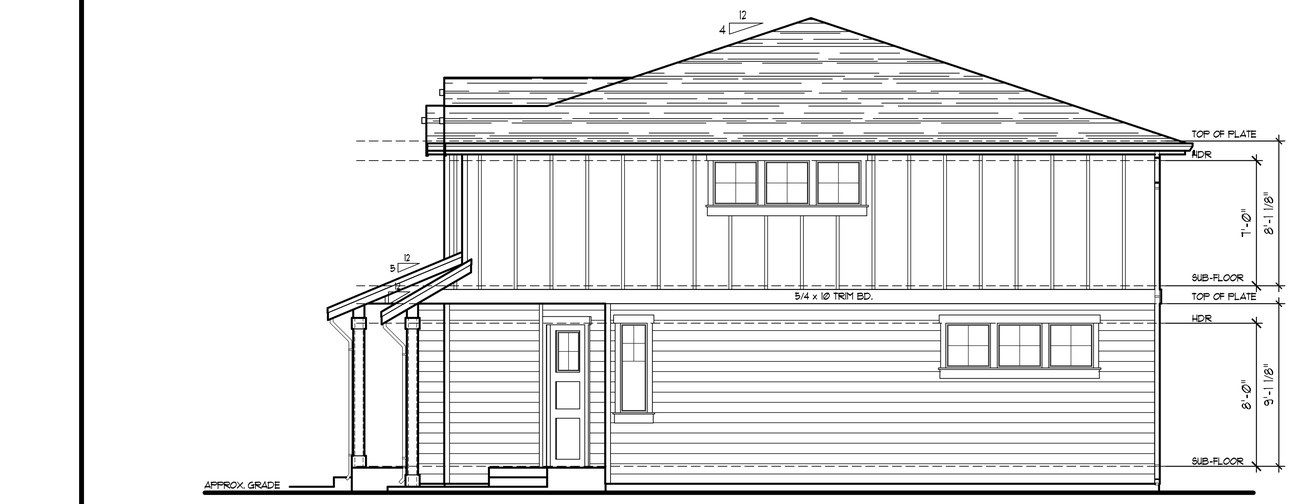
GYPSUM WALLBOARD, WOOD STUDS, INSULATION

FIRE DESIGN:
BASE LAYER 5/8" TYPE X GYPSUM WALLBOARD OR GYPSUM VENEER BASE APPLIED AT RIGHT ANGLES TO EACH SIDE OF DOUBLE RO OD 2X4 WOOD STUDS 16" O.C. ON SEPARATE PLATES 1" APART WITH 2" TYPE W SCREWS 24" O.C.
FACE LAYER 5/8" TYPE X GYPSUM WALLBOARD OR GYPSUM VENEER BASE APPLIED AT RIGHT ANGLES TO EACH SIDE WITH 2-1/ 2" TYPE W SCREWS, 8" O.C. TWO LAYERS 3.5" UNFACED GLASS FIBER INSULATION FRICTION FIT BETWEEN STUD, ONE PER SIDE.
JOISTS STAGGERED 16" EACH LAYER AND SIDE. HORIZONTAL BRACING REQUIRED AT MID-HEIGHT. (**LOAD BEARING**)

SOUND DESIGN:
A: SOUND TESTED WITHOUT BRACING
B: SOUND TESTED WITH BRACING

THICKNESS: 10 3/4" (FIRE & SOUND)
APPROX. WEIGHT: 11.5 Psf (SYSTEM A FIRE & SOUND)
12 Psf (SYSTEM B FIRE & SOUND)
FIRE TEST: UL R4024, 10-31-68
SOUND TEST: A: NOAL 17-0842, 8-28-17
B: NOAL 17-0843, 8-28-17

2 HOUR FIRE | 65 TO 69 STC SOUND



RIGHT ELEVATION

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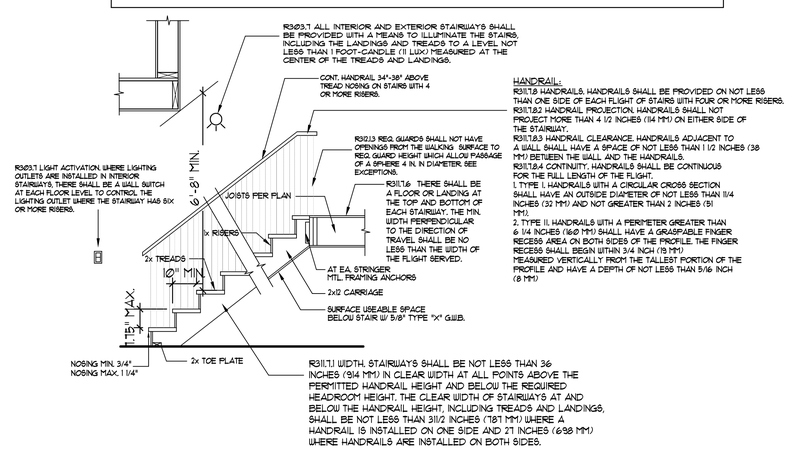
SCALE : 1/4" = 1'-0"



STAIR CONSTRUCTION DETAIL (SIMILAR) A

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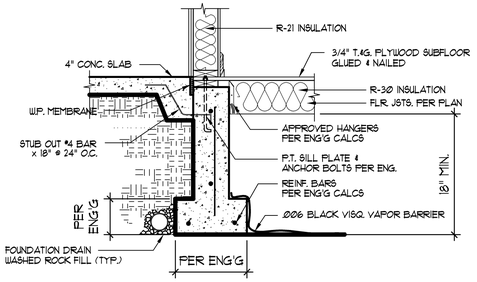
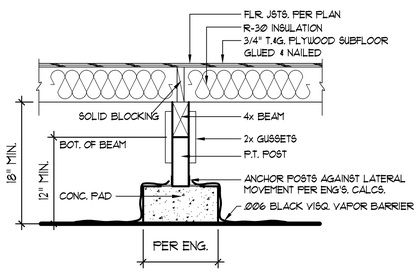


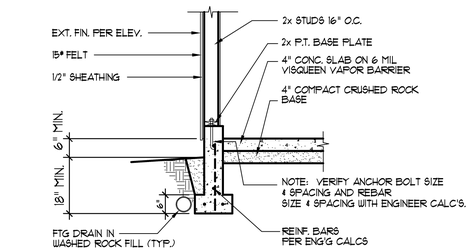
PORCH/SLAB DETAIL (F)

SCALE: 3/4" = 1'-0"



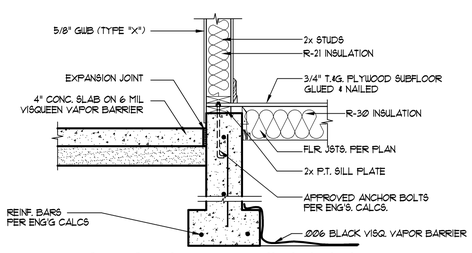
GIRDER DETAIL (G)

SCALE: 3/4" = 1'-0"



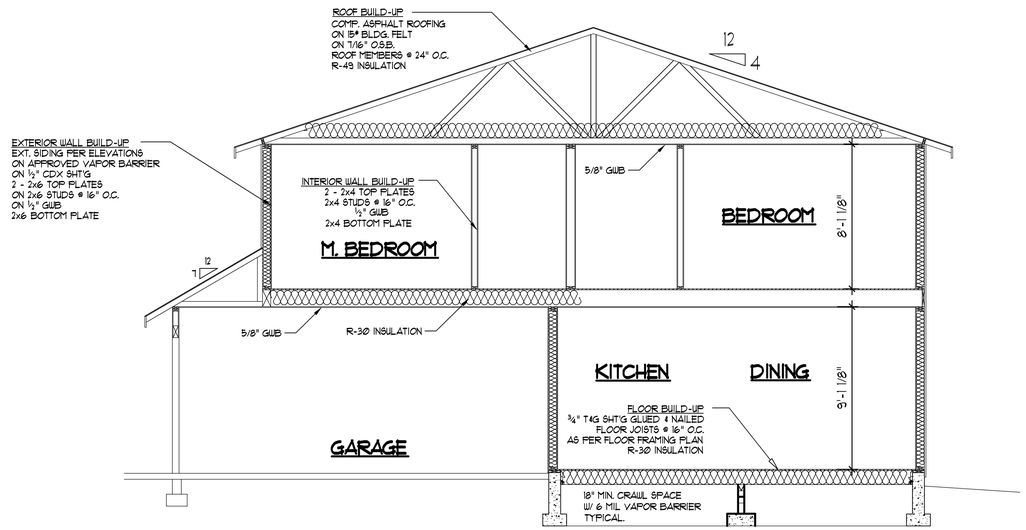
STEM WALL DETAIL (H)

SCALE: 3/4" = 1'-0"



GARAGE / DWELLING SEPARATION DETAIL (J)

SCALE: 3/4" = 1'-0"



SECTION - A

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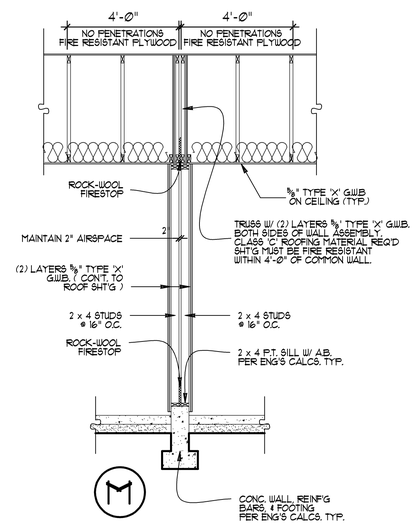
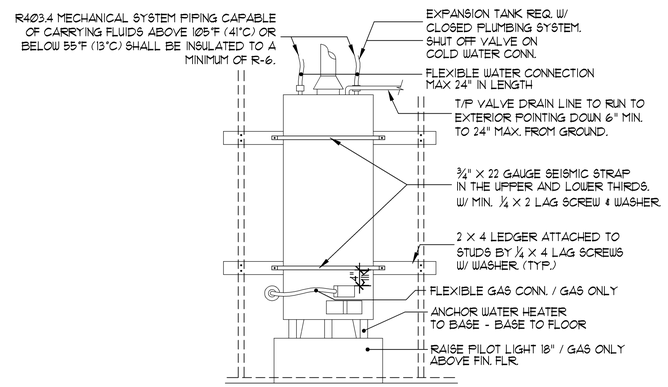
SCALE : ¼" = 1'-0"



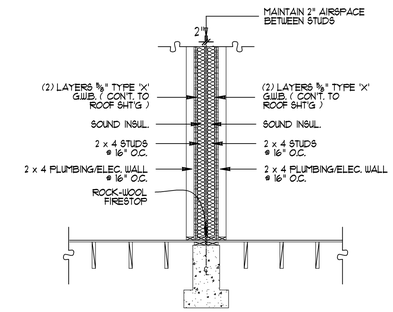
2-HOUR COMMON WALL DETAIL

SCALE : ⅜" = 1'-0"



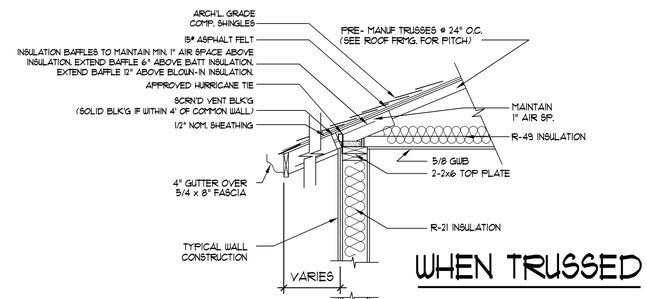
WATER HEATER SUPPORT (E)

(ALL ELECTRIC WATER HEATERS IN UNHEATED SPACES OR ON CONCRETE FLOORS SHALL BE PLACED ON A INSULATED SURFACE WITH A MIN. THERMAL RESISTANCE OF R-10 AND A MINIMUM COMPRESSIVE STRENGTH OF 40 PSI.

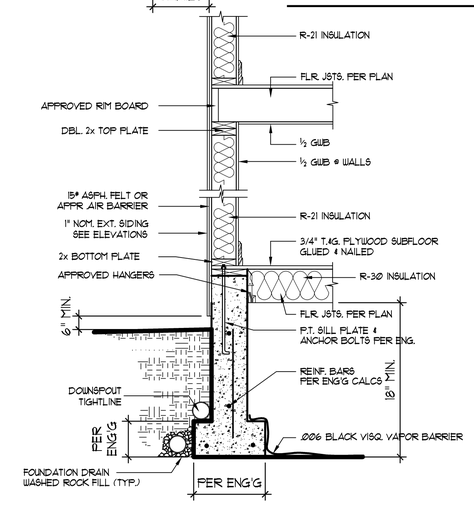


PLUMBING / ELEC. WALL DETAIL (K)

SCALE : ⅜" = 1'-0"



WHEN TRUSSED



TYP. TWO STORY CONFIG. (B)

SCALE: 3/4" = 1'-0"

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NORTHWEST HOME DESIGNING, INC.
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APPROVED PLANS: IRC 106.3.1
APPROVAL OF CONSTRUCTION DOCUMENTS. WHEN THE BUILDING OFFICIAL ISSUES A PERMIT, THE CONSTRUCTION DOCUMENTS SHALL BE APPROVED IN WRITING OR BY A STAMP WHICH STATES "REVIEWED FOR CODE COMPLIANCE." ONE SET OF CONSTRUCTION DOCUMENTS SO REVIEWED SHALL BE RETAINED BY THE BUILDING OFFICIAL. THE OTHER SET SHALL BE RETURNED TO THE APPLICANT, SHALL BE KEPT AT THE SITE OF WORK AND SHALL BE OPEN TO INSPECTION BY THE BUILDING OFFICIAL OR HIS OR HER AUTHORIZED REPRESENTATIVE.

PREMISES IDENTIFICATION: R319.1 ADDRESS IDENTIFICATION. BUILDINGS SHALL BE PROVIDED WITH APPROVED ADDRESS IDENTIFICATION. THE ADDRESS IDENTIFICATION SHALL BE LEGIBLE AND PLACED IN A POSITION THAT IS VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. ADDRESS IDENTIFICATION CHARACTERS SHALL CONTRAST WITH THEIR BACKGROUND. ADDRESS NUMBERS SHALL BE ARABIC NUMBERS OR ALPHABETICAL LETTERS. NUMBERS SHALL NOT BE SPELLED OUT. EACH CHARACTER SHALL BE NOT LESS THAN 4 INCHES (102 MM) IN HEIGHT WITH A STROKE WIDTH OF NOT LESS THAN 0.5 INCH (12.7 MM). WHERE REQUIRED BY THE FIRE CODE OFFICIAL, ADDRESS IDENTIFICATION SHALL BE PROVIDED IN ADDITIONAL APPROVED LOCATIONS TO FACILITATE EMERGENCY RESPONSE. WHERE ACCESS IS BY MEANS OF A PRIVATE ROAD AND THE BUILDING ADDRESS CANNOT BE VIEWED FROM THE PUBLIC WAY, A MONUMENT, POLE OR OTHER SIGN OR MEANS SHALL BE USED TO IDENTIFY THE STRUCTURE. ADDRESS IDENTIFICATION SHALL BE MAINTAINED.

GROUNDED OUTLETS: ALL RECEPTACLES SHALL BE GROUNDED TYPE. RECEPTACLES LOCATED IN KITCHENS AND BATHS SHALL BE INSTALLED ABOVE THE WORK TOP . OTHER RECEPTACLES SHALL BE INSTALLED AT 12" VERTICALLY ABOVE THE FLOOR, UNLESS SHOWN OTHERWISE ON THE DRAWINGS.

WALL SWITCHES: WALL SWITCHES SHALL BE INSTALLED 42" ABOVE THE FLOOR, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

M1305.1 APPLIANCE ACCESS FOR INSPECTION SERVICE, REPAIR AND REPLACEMENT. APPLIANCES SHALL BE ACCESSIBLE FOR INSPECTION, SERVICE, REPAIR AND REPLACEMENT WITHOUT REMOVING PERMANENT CONSTRUCTION, OTHER APPLIANCES, OR ANY OTHER PIPING OR DUCTS NOT CONNECTED TO THE APPLIANCE BEING INSPECTED, SERVICED, REPAIRED OR REPLACED. A LEVEL WORKING SPACE NOT LESS THAN 30 INCHES DEEP AND 30 INCHES WIDE (762 MM BY 762 MM) SHALL BE PROVIDED IN FRONT OF THE CONTROL SIDE TO SERVICE AN APPLIANCE.

APPLIANCES LOCATED IN GARAGE: M1307.3 ELEVATION OF IGNITION SOURCE. APPLIANCES HAVING AN IGNITION SOURCE SHALL BE ELEVATED SUCH THAT THE SOURCE OF IGNITION IS NOT LESS THAN 18 INCHES (457 MM) ABOVE THE FLOOR IN GARAGES. FOR THE PURPOSE OF THIS SECTION, ROOMS OR SPACES THAT ARE NOT PART OF THE LIVING SPACE OF A DWELLING UNIT AND THAT COMMUNICATE WITH A PRIVATE GARAGE THROUGH OPENINGS SHALL BE CONSIDERED TO BE PART OF THE GARAGE.
M1307.3.1 PROTECTION FROM IMPACT. APPLIANCES SHALL NOT BE INSTALLED IN A LOCATION SUBJECT TO VEHICLE DAMAGE EXCEPT WHERE PROTECTED BY APPROVED BARRIERS.

CLOTHES DRYERS: M1502.3 DUCT TERMINATION. EXHAUST DUCTS SHALL TERMINATE ON THE OUTSIDE OF THE BUILDING. EXHAUST DUCT TERMINATIONS SHALL BE IN ACCORDANCE WITH THE DRYER MANUFACTURER'S INSTALLATION INSTRUCTIONS. IF THE MANUFACTURER'S INSTRUCTIONS DO NOT SPECIFY A TERMINATION LOCATION, THE EXHAUST DUCT SHALL TERMINATE NOT LESS THAN 3 FEET (914 MM) IN ANY DIRECTION FROM OPENINGS INTO BUILDINGS. EXHAUST DUCT TERMINATIONS SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER. SCREENS SHALL NOT BE INSTALLED AT THE DUCT TERMINATION. M1502.4.5.1 THE MAXIMUM LENGTH OF THE EXHAUST DUCT SHALL BE 35 FEET (7620 MM)FROM THE CONNECTION TO THE TRANSITION DUCT FROM THE DRYER TO THE OUTLET TERMINAL. DUCT LENGTH MUST BE REDUCED BY 2'-6" FOR 45° BEND & 5FT FOR 90° BEND FOR A 4" EXHAUST PIPE.

RANGE HOOD: M1503.2.1 GENERAL. DOMESTIC OPEN-TOP BROILER UNITS SHALL HAVE A METAL EXHAUST HOOD, HAVING A MINIMUM THICKNESS OF 0.0157-INCH (0.3950 MM) (NO. 28 GAUGE) WITH 1/4 INCH (6.4 MM) CLEARANCE BETWEEN THE HOOD AND THE UNDERSIDE OF COMBUSTIBLE MATERIAL OR CABINETS. A CLEARANCE OF AT LEAST 24 INCHES (610 MM) SHALL BE MAINTAINED BETWEEN THE COOKING SURFACE AND THE COMBUSTIBLE MATERIAL OR CABINET. THE HOOD SHALL BE AT LEAST AS WIDE AS THE BROILER UNIT, EXTEND OVER THE ENTIRE UNIT, DISCHARGE TO THE OUTDOORS AND BE EQUIPPED WITH A BACKDRAFT DAMPER OR OTHER MEANS TO CONTROL INFILTRATION/EXFILTRATION WHEN NOT IN OPERATION. BROILER UNITS INCORPORATING AN INTEGRAL EXHAUST SYSTEM, AND LISTED AND LABELED FOR USE WITHOUT AN EXHAUST HOOD, NEED NOT HAVE AN EXHAUST HOOD.

EXHAUST OPENINGS: M1504.3 AIR EXHAUST OPENINGS SHALL TERMINATE AS FOLLOWS:
1. NOT LESS THAN 3 FEET (914 MM) FROM PROPERTY LINES.
2. NOT LESS THAN 3 FEET (914 MM) FROM GRAVITY AIR INTAKE OPENINGS, OPERABLE WINDOWS AND DOORS.
3. NOT LESS THAN 10 FEET (3048 MM) FROM MECHANICAL AIR INTAKE OPENINGS EXCEPT WHERE THE EXHAUST OPENING IS LOCATED NOT LESS THAN 3 FEET (914 MM) ABOVE THE AIR INTAKE OPENING. OPENINGS SHALL COMPLY WITH SECTIONS R303.5.2 AND R303.6.

EXHAUST DUCTING: M1503.3 GENERAL. RANGE HOODS SHALL DISCHARGE TO THE OUT- DOORS THROUGH A DUCT. THE DUCT SERVING THE HOOD SHALL HAVE A SMOOTH INTERIOR SURFACE, SHALL BE AIR TIGHT, SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER AND SHALL BE INDEPENDENT OF ALL OTHER EXHAUST SYSTEMS. DUCTS SERVING RANGE HOODS SHALL NOT TERMINATE IN AN ATTIC OR CRAWL SPACE OR AREAS INSIDE THE BUILDING.

R303.10 REQUIRED HEATING. WHERE THE WINTER DESIGN TEMPERATURE IN TABLE R301.2(1) IS BELOW 60°F (16°C), EVERY DWELLING UNIT SHALL BE PROVIDED WITH HEATING FACILITIES CAPABLE OF MAINTAINING A ROOM TEMPERATURE OF NOT LESS THAN 68°F (20°C) AT A POINT 3 FEET (914 MM) ABOVE THE FLOOR AND 2 FEET (610 MM) FROM EXTERIOR WALLS IN HABITABLE ROOMS AT THE DESIGN TEMPERATURE. THE INSTALLATION OF ONE OR MORE PORTABLE SPACE HEATERS SHALL NOT BE USED TO ACHIEVE COMPLIANCE WITH THIS SECTION.

HEATING TYPE: HEATING TYPE AND FUEL SHALL BE SELECTED BY THE OWNER. ALL WARM AIR FURNACES SHALL BE LISTED AND LABELED BY AN APPROVED AGENCY AND INSTALLED TO LISTED SPECIFICATIONS.

FIREBLOCKING: R302.11 FIREBLOCKING. IN COMBUSTIBLE CONSTRUCTION, FIREBLOCKING SHALL BE PROVIDED TO CUT OFF ALL CONCEALED DRAFT OPENINGS (BOTH VERTICAL AND HORIZONTAL) AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES, AND BETWEEN A TOP STORY AND THE ROOF SPACE. FIREBLOCKING SHALL BE PROVIDED IN WOOD-FRAME CONSTRUCTION IN THE FOLLOWING LOCATIONS:
1. IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS:
1.1 VERTICALLY AT THE CEILING AND FLOOR LEVELS.
1.2. HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET(3048 MM).
2. AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES SUCH AS OCCUR AT SOFFITS, DROP CEILINGS AND COVE CEILINGS.
3. IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7.
4. AT OPENINGS AROUND VENTS, PIPES, DUCTS, CABLES 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 E 136 REQUIREMENTS.
5. FOR THE FIREBLOCKING OF CHIMNEYS AND FIREPLACES, SEE SECTION R1003.19.
6. FIREBLOCKING OF CORNICES OF A TWO-FAMILY DWELLING IS REQUIRED AT THE LINE OF DWELLING UNIT SEPARATION.

M1505.2 RECIRCULATION OF AIR. EXHAUST AIR FROM BATHROOMS AND TOILET ROOMS SHALL NOT BE RECIRCULATED WITHIN A RESIDENCE OR CIRCULATED TO ANOTHER DWELLING UNIT AND SHALL BE EXHAUSTED DIRECTLY TO THE OUTDOORS. EXHAUST AIR FROM BATHROOMS, TOILET ROOMS AND KITCHENS SHALL NOT DISCHARGE INTO AN ATTIC, CRAWL SPACE OR OTHER AREAS INSIDE THE BUILDING. THIS SECTION SHALL NOT PROHIBIT THE INSTALLATION OF DUCTLESS RANGE HOODS IN ACCORDANCE WITH THE EXCEPTION TO SECTION M1503.3.

M1601.4.1 JOINTS, SEAMS AND CONNECTIONS. LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS AND CONNECTIONS IN METALLIC AND NONMETALLIC DUCTS SHALL BE CONSTRUCTED AS SPECIFIED IN SMACNA HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE AND NAIMA FIBROUS GLASS DUCT CONSTRUCTION STANDARDS. JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS, AND CONNECTIONS IN DUCTWORK SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC- PLUS-EMBEDDED-FABRIC SYSTEMS, LIQUID SEALANTS OR TAPES. TAPES AND MASTICS USED TO SEAL FIBROUS GLASS DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A AND SHALL BE MARKED "181A-P" FOR PRESSURE-SENSITIVE TAPE, "181 A-M" FOR MASTIC OR "181 A-H" FOR HEAT-SENSITIVE TAPE. TAPES AND MASTICS USED TO SEAL METALLIC AND FLEXIBLE AIR DUCTS AND FLEXIBLE AIR CONNECTORS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED "181 B-FX" FOR PRESSURE-SENSITIVE TAPE OR "181 BM" FOR MASTIC. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. MECHANICAL FASTENERS FOR USE WITH FLEXIBLE NONMETALLIC AIR DUCTS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED 181B-C. CRIMP JOINTS FOR ROUND METALLIC DUCTS SHALL HAVE A CONTACT LAP OF NOT LESS THAN 1 INCH (25 MM) AND SHALL BE MECHANICALLY FASTENED BY MEANS OF NOT LESS THAN THREE SHEET-METAL SCREWS OR RIVET EQUALLY SPACED AROUND THE JOINT.

EGRESS DOOR: R311.2 EGRESS DOOR. NOT LESS THAN ONE EGRESS DOOR SHALL BE PROVIDED FOR EACH DWELLING UNIT. THE EGRESS DOOR SHALL BE SIDE-HINGED, AND SHALL PROVIDE A CLEAR WIDTH OF NOT LESS THAN 32 INCHES (813 MM) WHERE MEASURED BETWEEN THE FACE OF THE DOOR AND THE STOP, WITH THE DOOR OPEN 90 DEGREES (1.57 RAD). THE CLEAR HEIGHT OF THE DOOR OPENING SHALL BE NOT LESS THAN 78 INCHES (1981 MM) IN HEIGHT MEASURED FROM THE TOP OF THE THRESHOLD TO THE BOTTOM OF THE STOP. OTHER DOORS SHALL NOT BE REQUIRED TO COMPLY WITH THESE MINIMUM DIMENSIONS. EGRESS DOORS SHALL BE READILY OPENABLE FROM INSIDE THE DWELLING WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.

R311.3 FLOORS AND LANDINGS AT EXTERIOR DOORS. THERE SHALL BE A LANDING OR FLOOR ON EACH SIDE OF EACH EXTERIOR DOOR. THE WIDTH OF EACH LANDING SHALL BE NOT LESS THAN THE DOOR SERVED. LANDINGS SHALL HAVE A DIMENSION OF NOT LESS THAN 36 INCHES (914 MM) MEASURED IN THE DIRECTION OF TRAVEL. THE SLOPE AT EXTERIOR LANDINGS SHALL NOT EXCEED 1/4 UNIT VERTICAL IN 12 UNITS HORIZONTAL (2 PERCENT).

GARAGE/DWELLING DOOR:
R302.5.1 OPENING PROTECTION. 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 13/8 INCHES (35 MM) IN THICKNESS, SOLID OR HONEYCOMBCORE STEEL DOORS NOT LESS THAN 13/8 INCHES (35 MM) THICK, OR 20-MINUTE FIRE-RATED DOORS, EQUIPPED WITH A SELF-CLOSING OR AUTOMATIC-CLOSING DEVICE.

R308.4.2 GLAZING ADJACENT TO DOORS. GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL ADJACENT TO A DOOR SHALL BE CONSIDERED TO BE A HAZARDOUS LOCATION WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES (1524 MM) ABOVE THE FLOOR OR WALKING SURFACE AND IT MEETS EITHER OF THE FOLLOWING CONDITIONS:
1. WHERE THE GLAZING IS WITHIN 24 INCHES (610 MM) OF EITHER SIDE OF THE DOOR IN THE PLANE OF THE DOOR IN A CLOSED POSITION.
2. WHERE THE GLAZING IS ON A WALL LESS THAN 180 DEGREES (3.14 RAD) FROM THE PLANE OF THE DOOR IN A CLOSED POSITION AND WITHIN 24 INCHES (610 MM) OF THE HINGE SIDE OF AN IN-SWINGING DOOR.

R302.6 DWELLING-GARAGE FIRE SEPARATION. 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.

<u>TABLE R302.6 DWELLING-GARAGE SEPARATION</u>

FROM THE RESIDENCE AND ATTICS: NOT LESS THAN 1/2-INCH GYPSUM BOARD OR EQUIVALENT APPLIED TO THE GARAGE SIDE

FROM HABITABLE ROOMS ABOVE THE GARAGE: NOT LESS THAN 5/8-INCH TYPE X GYPSUM BOARD OR EQUIVALENT

STRUCTURE(S) SUPPORTING FLOOR/CEILING ASSEMBLIES USED FOR SEPARATION REQUIRED BY THIS SECTION: NOT LESS THAN 1/2-INCH GYPSUM BOARD OR EQUIVALENT

GARAGES LOCATED LESS THAN 3 FEET FROM A DWELLING UNIT ON THE SAME LOT: NOT LESS THAN 1/2-INCH GYPSUM BOARD OR EQUIVALENT APPLIED TO THE INTERIOR SIDE OF EXTERIOR WALLS THAT ARE WITHIN THIS AREA

LIGHTING EQUIPMENT (MANDATORY). NOT LESS THAN 75 PERCENT OF THE LAMPS IN PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL BE HIGH-EFFICACY LAMPS OR NOT LESS THAN 75 PERCENT OF THE PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL CONTAIN ONLY HIGH-EFFICACY LAMPS.

FOR WATER PRESSURE HIGHER THAN 80 PSI AN APPROVED PRESSURE REDUCING VALVE (PRV) SHALL BE INSTALLED.

R314.3 LOCATION. SMOKE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS:
1. IN EACH SLEEPING ROOM.
2. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS.
3. ON EACH ADDITIONAL STORY OF THE DWELLING, INCLUDING BASEMENTS AND HABITABLE ATTICS AND NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS. IN DWELLINGS OR DWELLING UNITS WITH SPLIT LEVELS AND WITHOUT AN INTERVENING DOOR BETWEEN THE ADJACENT LEVELS, A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SUFFICE FOR THE ADJACENT LOWER LEVEL PROVIDED THAT THE LOWER LEVEL IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL.

4. SMOKE ALARMS SHALL BE INSTALLED NOT LESS THAN 3 FEET (914 MM) HORIZONTALLY FROM THE DOOR OR OPENING OF A BATHROOM THAT CONTAINS A BATHTUB OR SHOWER UNLESS THIS WOULD PREVENT PLACEMENT OF A SMOKE ALARM REQUIRED BY THIS SECTION.

R315.3 CARBON MONOXIDE ALARMS IN DWELLING UNITS SHALL BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS. WHERE A FUEL-BURNING APPLIANCE IS LOCATED WITHIN A BEDROOM OR ITS ATTACHED BATHROOM, A CARBON MONOXIDE ALARM SHALL BE INSTALLED WITHIN THE BEDROOM. R315.4 COMBINATION ALARMS. COMBINATION CARBON MONOXIDE AND SMOKE ALARMS SHALL BE PERMITTED TO BE USED IN LIEU OF CARBON MONOXIDE ALARMS.

LIGHT & VENTILATION: R303.1 HABITABLE ROOMS. HABITABLE ROOMS SHALL HAVE AN AGGREGATE GLAZING AREA OF NOT LESS THAN 8 PERCENT OF THE FLOOR AREA OF SUCH ROOMS. NATURAL VENTILATION SHALL BE THROUGH WINDOWS, SKYLIGHTS, DOORS, LOUVERS OR OTHER APPROVED OPENINGS TO THE OUTDOOR AIR. SUCH OPENINGS SHALL BE PROVIDED WITH READY ACCESS OR SHALL OTHERWISE BE READILY CONTROLLABLE BY THE BUILDING OCCUPANTS. THE OPENABLE AREA TO THE OUTDOORS SHALL BE NOT LESS THAN 4 PERCENT OF THE FLOOR AREA BEING VENTILATED.

EGRESS WINDOWS: R310.2.1 MINIMUM OPENING AREA. EMERGENCY AND ESCAPE RESCUE OPENINGS SHALL HAVE A NET CLEAR OPENING OF NOT LESS THAN 5.7 SQUARE FEET (0.530 M2). THE NET CLEAR OPENING DIMENSIONS REQUIRED BY 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).

WINDOW SILLS: R312.2.1 WINDOW SILLS. IN DWELLING UNITS, WHERE THE TOP OF THE SILL OF AN OPERABLE WINDOW OPENING IS LOCATED LESS THAN 24 INCHES (610 MM) ABOVE THE FINISHED FLOOR AND GREATER THAN 72 INCHES (1829 MM) ABOVE THE FINISHED GRADE OR OTHER SURFACE BELOW ON THE EXTERIOR OF THE BUILDING, THE OPERABLE WINDOW SHALL COMPLY WITH ONE OF THE FOLLOWING:
1. OPERABLE WINDOW OPENINGS WILL NOT ALLOW A 4-INCHDIAMETER (102 MM) SPHERE TO PASS THROUGH WHERE THE OPENINGS ARE IN THEIR LARGEST OPENED POSITION.
2. OPERABLE WINDOWS ARE PROVIDED WITH WINDOW FALL PREVENTION DEVICES THAT COMPLY WITH ASTM F2090.
3. OPERABLE WINDOWS ARE PROVIDED WITH WINDOW OPENING CONTROL DEVICES THAT COMPLY WITH SECTION R312.2.2.

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

R307.2 BATHTUB AND SHOWER SPACES. BATHTUB AND SHOWER FLOORS AND WALLS ABOVE BATHTUBS WITH INSTALLED SHOWER HEADS AND IN SHOWER COMPARTMENTS SHALL BE FINISHED WITH A NONABSORBENT SURFACE. SUCH WALL SURFACES SHALL EXTEND TO A HEIGHT OF NOT LESS THAN 6 FEET (1829 MM) ABOVE THE FLOOR.

SHOWER AREAS: R307.1 SHOWERS SHALL BE A MINIMUM SIZE OF 30" BY 30" WITH A 24" IN. CLEARANCE IN FRONT OF OPENING.

WATER CLOSET CLEARANCES: IRC R307.1 WATER CLOSET SHALL BE LOCATED IN A CLEAR SPACE NOT LESS THAN 30" IN WIDTH. THE CLEAR SPACE IN FRONT SHALL NOT BE LESS THAN 21".

WATERPROOF WALL BOARD: ALL WALLS AND CEILINGS OF BATH TUB AND SHOWER ENCLOSURE AREAS SHALL BE COVERED WITH APPROVED WATERPROOF MATERIAL.

UTILITY ROOM WALL BOARD: ALL SURFACES IMMEDIATELY ADJACENT TO WASHERS, DRYERS, AND LAUNDRY TUBS SHALL BE SURFACED WITH APPROVED WATERPROOF MATERIAL.

GYPSUM WALLBOARD: R702.3.7 WATER-RESISTANT GYPSUM BACKING BOARD. GYPSUM BOARD USED AS THE BASE OR BACKER FOR ADHESIVE APPLICATION OF CERAMIC TILE OR OTHER REQUIRED NONABSORBENT FINISH MATERIAL SHALL CONFORM TO ASTM C1178, C1278 OR C1396. USE OF WATER-RESISTANT GYPSUM BACKING BOARD SHALL BE PERMITTED ON CEILINGS. WATER-RESISTANT GYPSUM BOARD SHALL NOT BE INSTALLED OVER A CLASS I OR II VAPOR RETARDER IN A SHOWER OR TUB COMPARTMENT. CUT OR EXPOSED EDGES, INCLUDING THOSE AT WALL INTERSECTIONS, SHALL BE SEALED AS RECOMMENDED BY THE MANUFACTURER.

R702.3.7.1 LIMITATIONS. WATER-RESISTANT GYPSUM BACKING BOARD SHALL NOT BE USED WHERE THERE WILL BE DIRECT EXPOSURE TO WATER, OR IN AREAS SUBJECT TO CONTINUOUS HIGH HUMIDITY.

NOTE: THE PRESCRIPTIVE PATH METHOD OF THE IRC WAS NOT FOLLOWED IN THE DESIGN OF THIS RESIDENCE, ALL LATERAL AND GRAVITY DESIGN SOLUTIONS SHALL BE PROVIDED BY THE ENGINEER OF RECORD.

WOOD IN CONTACT WITH CONCRETE AND MASONRY: IRC 317.1(3) SILLS AND SLEEPERS ON A CONCRETE OR MASONRY SLAB THAT ISIN DIRECT CONTACT WITH THE GROUND UNLESS SEPARATED FROM SUCH SLAB BY AN IMPERVIOUS MOISTURE BARRIER.

R317.1.4 WOOD COLUMNS. WOOD COLUMNS SHALL BE APPROVED WOOD OF NATURAL DECAY RESISTANCE OR APPROVED PRESSURE-PRESERVATIVE-TREATED WOOD.

EXCEPTIONS:
1. COLUMNS EXPOSED TO THE WEATHER OR IN BASEMENTS WHERE SUPPORTED BY CONCRETE PIERS OR METAL PEDESTALS PROJECTING 1 INCH (25 MM) ABOVE A CONCRETE FLOOR OR 6 INCHES (152 MM) ABOVE EXPOSED EARTH AND THE EARTH IS COVERED BY AN APPROVED IMPERVIOUS MOISTURE BARRIER.

2. COLUMNS IN ENCLOSED CRAWL SPACES OR UNEXCAVATED AREAS LOCATED WITHIN THE PERIPHERY OF THE BUILDING WHERE SUPPORTED BY A CONCRETE PIER OR METAL PEDESTAL AT A HEIGHT MORE THAN 8 INCHES (203 MM) FROM EXPOSED EARTH AND THE EARTH IS COVERED BY AN IMPERVIOUS MOISTURE BARRIER.

3. DECK POSTS SUPPORTED BY CONCRETE PIERS OR METAL PEDESTALS PROJECTING NOT LESS THAN 1 INCH (25 MM) ABOVE A CONCRETE FLOOR OR 6 INCHES (152 MM) ABOVE EXPOSED EARTH.

FLOOR FRAMING: R502.6 BEARING. THE ENDS OF EACH JOIST, BEAM OR GIRDER SHALL HAVE NOT LESS THAN 11/2 INCHES (38 MM) OF BEARING ON WOOD OR METAL, HAVE NOT LESS THAN 3 INCHES OF BEARING (76 MM) ON MASONRY OR CONCRETE OR BE SUPPORTED BY APPROVED JOIST HANGERS. ALTERNATIVELY, THE ENDS OF JOISTS SHALL BE SUPPORTED ON A 1-INCH BY 4-INCH (25 MM BY 102 MM) RIBBON STRIP AND SHALL BE NAILED TO THE ADJACENT STUD. THE BEARING ON MASONRY OR CONCRETE SHALL BE DIRECT, OR A SILL PLATE OF 2-INCH-MINIMUM (51 MM) NOMINAL THICKNESS SHALL BE PROVIDED UNDER THE JOIST, BEAM OR GIRDER. THE SILL PLATE SHALL PROVIDE A MINIMUM NOMINAL BEARING AREA OF 48 SQUARE INCHES (30 865 MM2).

BEARING PARTITIONS: R502.4 JOISTS UNDER BEARING PARTITIONS. JOISTS UNDER PARALLEL BEARING PARTITIONS SHALL BE OF ADEQUATE SIZE TO SUPPORT THE LOAD. DOUBLE JOISTS, SIZED TO ADEQUATELY SUPPORT THE LOAD, THAT ARE SEPARATED TO PERMIT THE INSTALLATION OF PIPING OR VENTS SHALL BE FULL-DEPTH SOLID BLOCKED WITH LUMBER NOT LESS THAN 2 INCHES (51 MM) IN NOMINAL THICKNESS SPACED NOT MORE THAN 4 FEET (1219 MM) ON CENTER. BEARING PARTITIONS PERPENDICULAR TO JOISTS SHALL NOT BE OFFSET FROM SUPPORTING GIRDERS, WALLS OR PARTITIONS MORE THAN THE JOIST DEPTH UNLESS SUCH JOISTS ARE OF SUFFICIENT SIZE TO CARRY THE ADDITIONAL LOAD.

WALL FRAMING: R602.3.2 TOP PLATE. WOOD STUD WALLS SHALL BE CAPPED WITH A DOUBLE TOP PLATE INSTALLED TO PROVIDE OVERLAPPING AT CORNERS AND INTERSECTIONS WITH BEARING PARTITIONS. END JOINTS IN TOP PLATES SHALL BE OFFSET NOT LESS THAN 24 INCHES (610 MM). JOINTS IN PLATES NEED NOT OCCUR OVER STUDS. PLATES SHALL BE NOT LESS THAN 2-INCHES (51 MM) NOMINAL THICKNESS AND HAVE A WIDTH NOT LESS THAN THE WIDTH OF THE STUDS.

HEADERS: R502.10 FRAMING OF OPENINGS. OPENINGS IN FLOOR FRAMING SHALL BE FRAMED WITH HEADER AND TRIMMER JOISTS. WHERE THE HEADER JOIST SPAN DOES NOT EXCEED 4 FEET (1219 MM), THE HEADER JOIST SHALL BE A SINGLE MEMBER THE SAME SIZE AS THE FLOOR JOIST. SINGLE TRIMMER JOISTS SHALL BE USED TO CARRY A SINGLE HEADER JOIST THAT IS LOCATED WITHIN 3 FEET (914 MM) OF THE TRIMMER JOIST BEARING. WHERE THE HEADER JOIST SPAN EXCEEDS 4 FEET (1219 MM), THE TRIMMER JOISTS AND THE HEADER JOIST SHALL BE DOUBLED AND OF SUFFICIENT CROSS SECTION TO SUPPORT THE FLOOR JOISTS FRAMING INTO THE HEADER.

STRUCTURAL PROPERTIES FOR HORIZONTAL MEMBERS: THE PRESCRIPTIVE PATH METHOD OF THE IRC WAS NOT FOLLOWED IN THE DESIGN OF THIS RESIDENCE, ALL LATERAL AND GRAVITY DESIGN SOLUTIONS SHALL BE PROVIDED BY THE ENGINEER OF RECORD.

R312.1.2 HEIGHT. REQUIRED GUARDS AT OPEN-SIDED WALKING SURFACES, INCLUDING STAIRS, PORCHES, BALCONIES OR LANDINGS, SHALL BE NOT LESS THAN 36 INCHES (914 MM) IN HEIGHT AS MEASURED VERTICALLY ABOVE THE ADJACENT WALKING SURFACE OR THE LINE CONNECTING THE NOSINGS.

R312.1.3 OPENING LIMITATIONS. REQUIRED GUARDS SHALL NOT HAVE OPENINGS FROM THE WALKING SURFACE TO THE REQUIRED GUARD HEIGHT THAT ALLOW PASSAGE OF A SPHERE 4 INCHES (102 MM) IN DIAMETER.

BUILDING COMPONENTS

WALL INSULATION ABOVE GRADE:	R-21 INTERMEDIATE
FLAT CEILINGS:	R-49
UNDERFLOORS:	R-30
WINDOWS:	U-0.27
SKYLIGHTS:	U-0.50
EXTERIOR DOORS:	U-0.20
EXTERIOR DOORS W/2.5FT GLAZING:	U-0.40

ADDITIONAL MEASURES:

<u>TABLE N1101.1</u>

DUCTLESS HEAT PUMP HSPF 10.0 IN PRIMARY ZONE OF DWELLING
W/ PROGRAMMABLE THERMOSTATS FOR ALL HEATERS IN BEDROOMS

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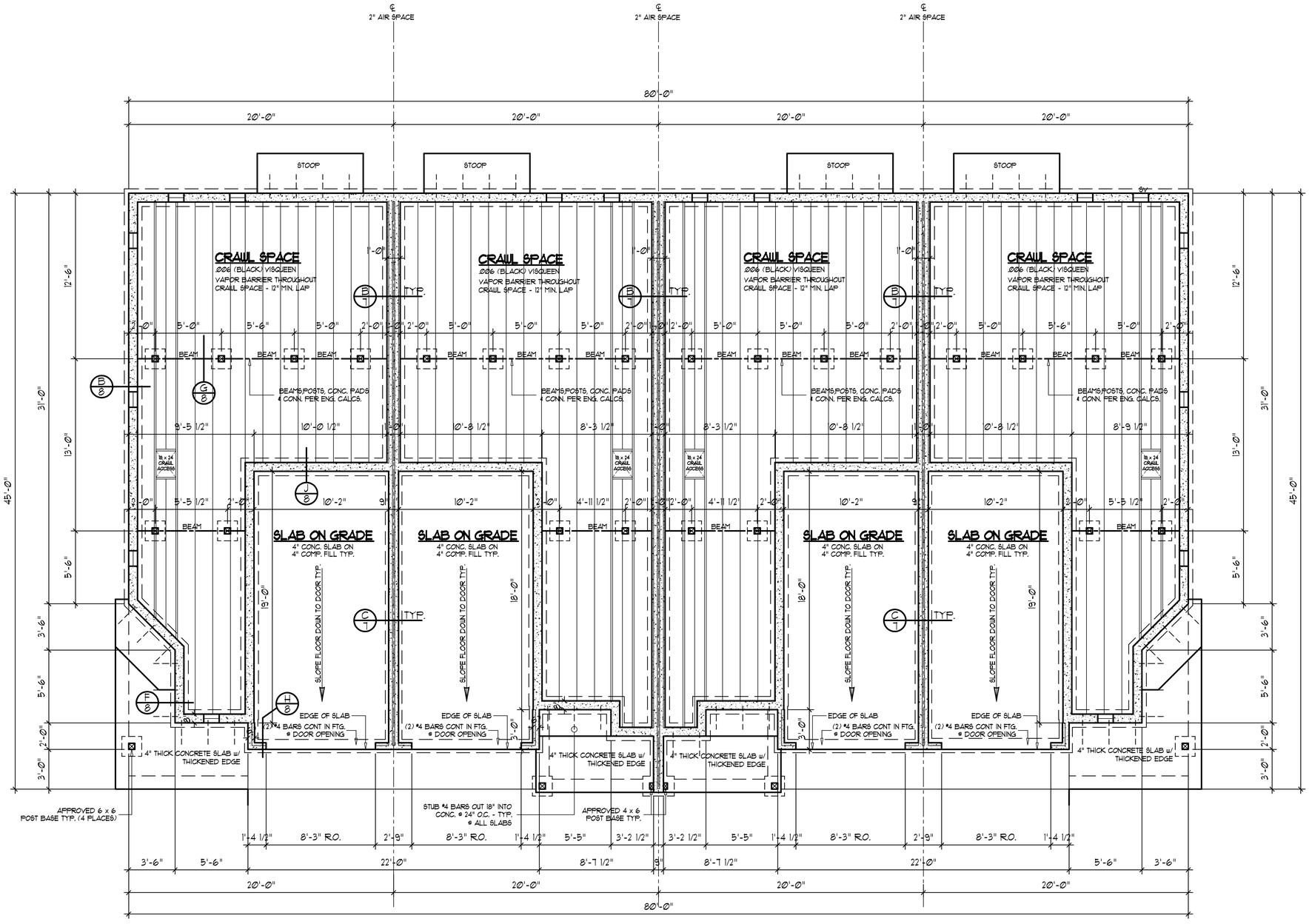

FOUNDATION & FLOOR FRAMING PLAN

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SCALE : ¼" = 1'-0"

FOUNDATION VENTILATION (OUTSIDE UNITS)

PROVIDE MECHANICAL VENTILATION W/
CONTINUOUSLY OPERATED EXHAUST FAN (AND
INTAKE VENTS) TO PROVIDE A MINIMUM OF 1 CFM
FOR EA. 50 S.F. OF CRAWL SPACE AREA.
(501 Sq. Ft. x 1/150 = 3.34 Sq. Ft. VENT AREA REQ'D)

FOUNDATION VENTILATION (INSIDE UNITS)

PROVIDE MECHANICAL VENTILATION W/
CONTINUOUSLY OPERATED EXHAUST FAN (AND
INTAKE VENTS) TO PROVIDE A MINIMUM OF 1 CFM
FOR EA. 50 S.F. OF CRAWL SPACE AREA.
(528 Sq. Ft. x 1/150 = 3.52 Sq. Ft. VENT AREA REQ'D)

NOTE:
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SOILS: IRC R401.4.1 IN LIEU OF A COMPLETE GEO-TECHNICAL EVALUATION, THE LOAD-BEARING VALUES IN TABLE R401.4.1 SHALL BE USED.

R403.1.5 SLOPE. THE TOP SURFACE OF FOOTINGS SHALL BE LEVEL. THE BOTTOM SURFACE OF FOOTINGS SHALL NOT HAVE A SLOPE EXCEEDING ONE UNIT VERTICAL IN 10 UNITS HORIZONTAL (10-PERCENT SLOPE.) FOOTINGS SHALL BE STEPPED WHERE IT IS NECESSARY TO CHANGE THE ELEVATION OF THE TOP SURFACE OF THE FOOTINGS OR WHERE THE SLOPE OF THE BOTTOM SURFACE OF THE FOOTINGS WILL EXCEED ONE UNIT VERTICAL IN 10 UNITS HORIZONTAL (10-PERCENT SLOPE.).

EROSION CONTROL: ADJOINING PUBLIC AND PRIVATE PROPERTY SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION, REMODELING AND DEMOLITION WORK. VERIFY METHOD WITH LOCAL JURISDICTION.

R401.3 DRAINAGE. SURFACE DRAINAGE SHALL BE DIVERTED TO A STORM SEWER CONVEYANCE OR OTHER APPROVED POINT OF COLLECTION THAT DOES NOT CREATE A HAZARD. LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS. THE GRADE SHALL FALL NOT FEWER THAN 6 INCHES (152 MM) WITHIN THE FIRST 10 FEET (3048 MM)

FOUNDATION WALL SIZE: 8" AT PERIMETER & 12" AT DEMISING.

R404.1.6 HEIGHT ABOVE FINISHED GRADE. CONCRETE AND MASONRY FOUNDATION WALLS SHALL EXTEND ABOVE THE FINISHED GRADE ADJACENT TO THE FOUNDATION AT ALL POINTS NOT LESS THAN 4 INCHES (102 MM) WHERE MASONRY VENEER IS USED AND NOT LESS THAN 6 INCHES (152 MM) ELSEWHERE.

R403.1.6 FOUNDATION ANCHORAGE. WOOD SILL PLATES AND WOOD WALLS SUPPORTED DIRECTLY ON CONTINUOUS FOUNDATIONS SHALL BE ANCHORED TO THE FOUNDATION IN ACCORDANCE WITH THIS SECTION. WOOD SOLE PLATES AT ALL EXTERIOR WALLS ON MONOLITHIC SLABS, WOOD SOLE PLATES OF BRACED WALL PANELS AT BUILDING INTERIORS ON MONOLITHIC SLABS AND ALL WOOD SILL PLATES SHALL BE ANCHORED TO THE FOUNDATION WITH MINIMUM 1/2-INCH DIAMETER (12.7 MM) ANCHOR BOLTS SPACED NOT GREATER THAN 6 FEET (1829 MM) ON CENTER OR APPROVED ANCHORS OR ANCHOR STRAPS SPACED AS REQUIRED TO PROVIDE EQUIVALENT ANCHORAGE TO 1/2-INCH-DIAMETER (12.7 MM) ANCHOR BOLTS. BOLTS SHALL EXTEND NOT LESS THAN 7 INCHES (178 MM) INTO CONCRETE OR GROUTED CELLS OF CONCRETE MASONRY UNITS. THE BOLTS SHALL BE LOCATED IN THE MIDDLE THIRD OF THE WIDTH OF THE PLATE. A NUT AND WASHER SHALL BE TIGHTENED ON EACH ANCHOR BOLT. THERE SHALL BE NOT FEWER THAN TWO BOLTS PER PLATE SECTION WITH ONE BOLT LOCATED NOT MORE THAN 12 INCHES (305 MM) OR LESS THAN SEVEN BOLT DIAMETERS FROM EACH END OF THE PLATE SECTION. **REFER TO S-SHEETS FOR ADDITIONAL REQUIREMENTS.**

R317.1 LOCATION REQUIRED. PROTECTION OF WOOD AND WOODBASED PRODUCTS FROM DECAY SHALL BE PROVIDED IN THE FOLLOWING LOCATIONS BY THE USE OF NATURALLY DURABLE WOOD OR WOOD THAT IS PRESERVATIVE-TREATED IN ACCORDANCE WITH AWPA U1.
4. THE ENDS OF WOOD GIRDERS ENTERING EXTERIOR MASONRY OR CONCRETE WALLS HAVING CLEARANCES OF LESS THAN 1/2 INCH (12.7 MM) ON TOPS, SIDES AND ENDS.

CONCRETE STRENGTH: IRC R402.2 CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH AS SHOWN IN TABLE R402.2. CONCRETE SUBJECT TO WEATHERING SHALL BE AIR ENTAINED AS SPECIFIED IN TABLE R402.2. **UNLESS NOTED OTHERWISE BY THE ENGINEER OF RECORD ON THEIR S-SHEETS.**

FILL: R506.2.2 BASE. A 4-INCH-THICK (102 MM) BASE COURSE CONSISTING OF CLEAN GRADED SAND, GRAVEL, CRUSHED STONE, CRUSHED CONCRETE OR CRUSHED BLAST-FURNACE SLAG PASSING A 2-INCH (51 MM) SIEVE SHALL BE PLACED ON THE PREPARED SUBGRADE WHERE THE SLAB IS BELOW GRADE.

R403.1.3 FOOTING AND STEM WALL REINFORCING IN SEISMIC DESIGN CATEGORIES D0, D1, AND D2. CONCRETE FOOTINGS LOCATED IN SEISMIC DESIGN CATEGORIES D0, D1 AND D2, AS ESTABLISHED IN TABLE R301.2(1), SHALL HAVE MINIMUM REINFORCEMENT IN ACCORDANCE WITH THIS SECTION AND FIGURE R403.1.3. REINFORCEMENT SHALL BE INSTALLED WITH SUPPORT AND COVER IN ACCORDANCE WITH SECTION R403.1.3.5.

R403.1.4 MINIMUM DEPTH. EXTERIOR FOOTINGS SHALL BE PLACED NOT LESS THAN 12 INCHES (305 MM) BELOW THE UNDISTURBED GROUND SURFACE. WHERE APPLICABLE, THE DEPTH OF FOOTINGS SHALL ALSO CONFORM TO SECTION R403.1.4.1.

R403.1.1 MINIMUM SIZE. THE MINIMUM WIDTH, W, AND THICKNESS, T, FOR CONCRETE FOOTINGS SHALL BE IN ACCORDANCE WITH TABLES R403.1(1) THROUGH R403.1(3) AND FIGURE R403.1(1) OR R403.1.3, AS APPLICABLE. THE FOOTING WIDTH SHALL BE BASED ON THE LOAD-BEARING VALUE OF THE SOIL IN ACCORDANCE WITH TABLE R401.4.1. FOOTING PROJECTIONS, P, SHALL BE NOT LESS THAN 2 INCHES (51 MM) AND SHALL NOT EXCEED THE THICKNESS OF THE FOOTING. FOOTING THICKNESS AND PROJECTION FOR FIREPLACES SHALL BE IN ACCORDANCE WITH SECTION R1001.2. **REFER TO S-SHEETS FOR ADDITIONAL REQUIREMENTS.**

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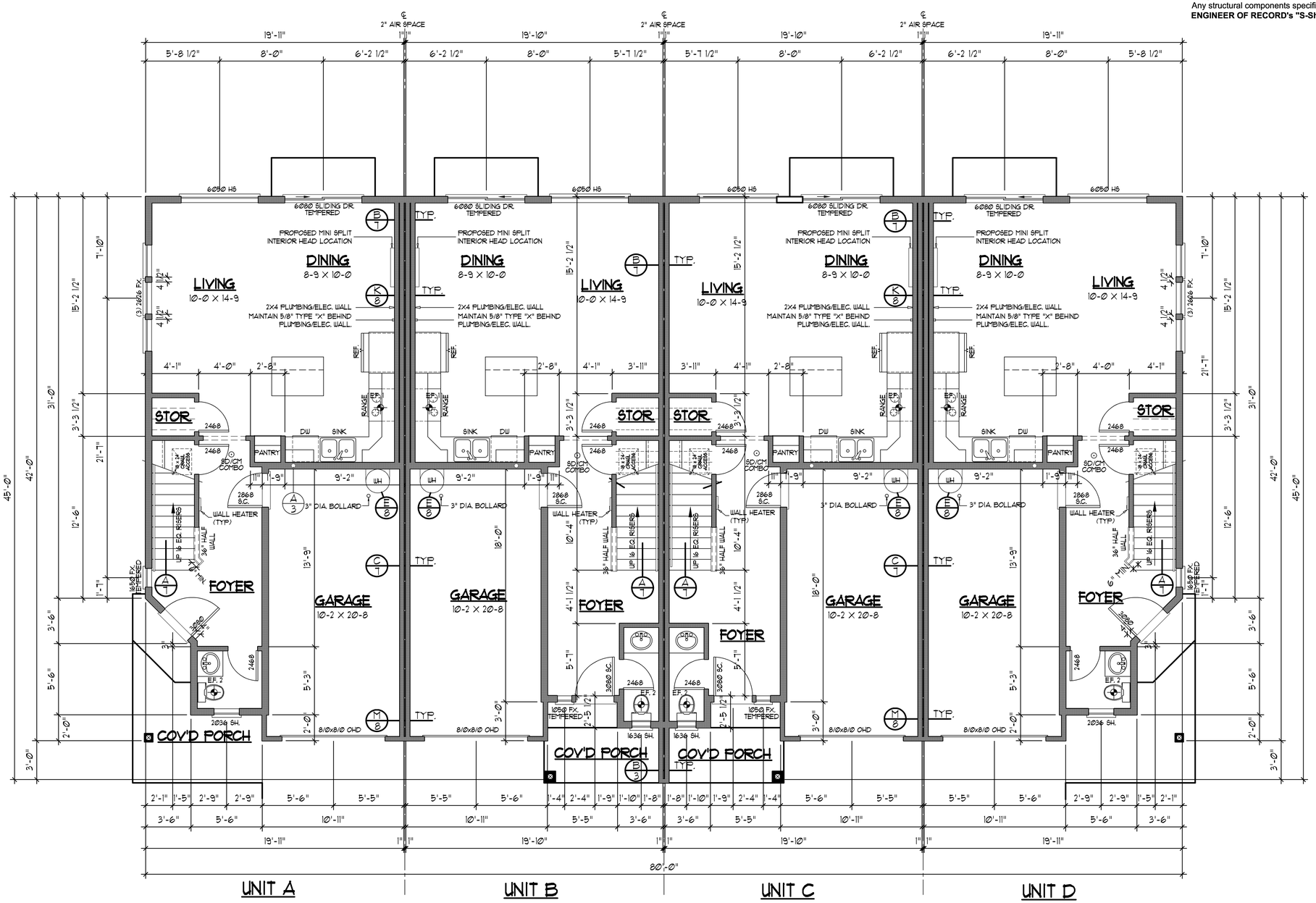

MAIN FLOOR PLAN

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

AREA SUMMARY (UNITS A & D)

MAIN FLOOR: 573 S.F.
UPPER FLOOR: 756 S.F.
TOTAL: 1329 S.F.

GARAGE: 211 S.F.
COV'D PORCH: 43 S.F.
GLASS AREA _ 141 S.F.
GLAZING PERCENTAGE (GL / FL) _ 10.6 %

AREA SUMMARY (UNIT B)

MAIN FLOOR: 592 S.F.
UPPER FLOOR: 753 S.F.
TOTAL: 1345 S.F.

GARAGE: 211 S.F.
COV'D PORCH: 47 S.F.
GLASS AREA _ 99.25 S.F.
GLAZING PERCENTAGE (GL / FL) _ 7.4 %

AREA SUMMARY (UNIT C)

MAIN FLOOR: 592 S.F.
UPPER FLOOR: 762 S.F.
TOTAL: 1354 S.F.

GARAGE: 211 S.F.
COV'D PORCH: 47 S.F.
GLASS AREA _ 99.25 S.F.
GLAZING PERCENTAGE (GL / FL) _ 7.3 %

VENTILATION REQUIREMENTS

1	"PANASONIC" FV-11VK3 110CFM .8 SONES	112 CFM @ .25 WS 110 CFM @ .1 WS
2	"PANASONIC" FV-08VK3 80CFM .4 SONES	79 CFM @ .25 WS 80 CFM @ .1 WS

NOTES:
1. USE PANASONIC FV-11VK3 (100 CFM MIN.) @ ALL KITCHEN.
2. USE PANASONIC FV-08VK3 (50 CFM MIN.) @ ALL OTHER LOCATIONS.
3. ALL FANS TO VENT DIRECTLY TO OUTSIDE.

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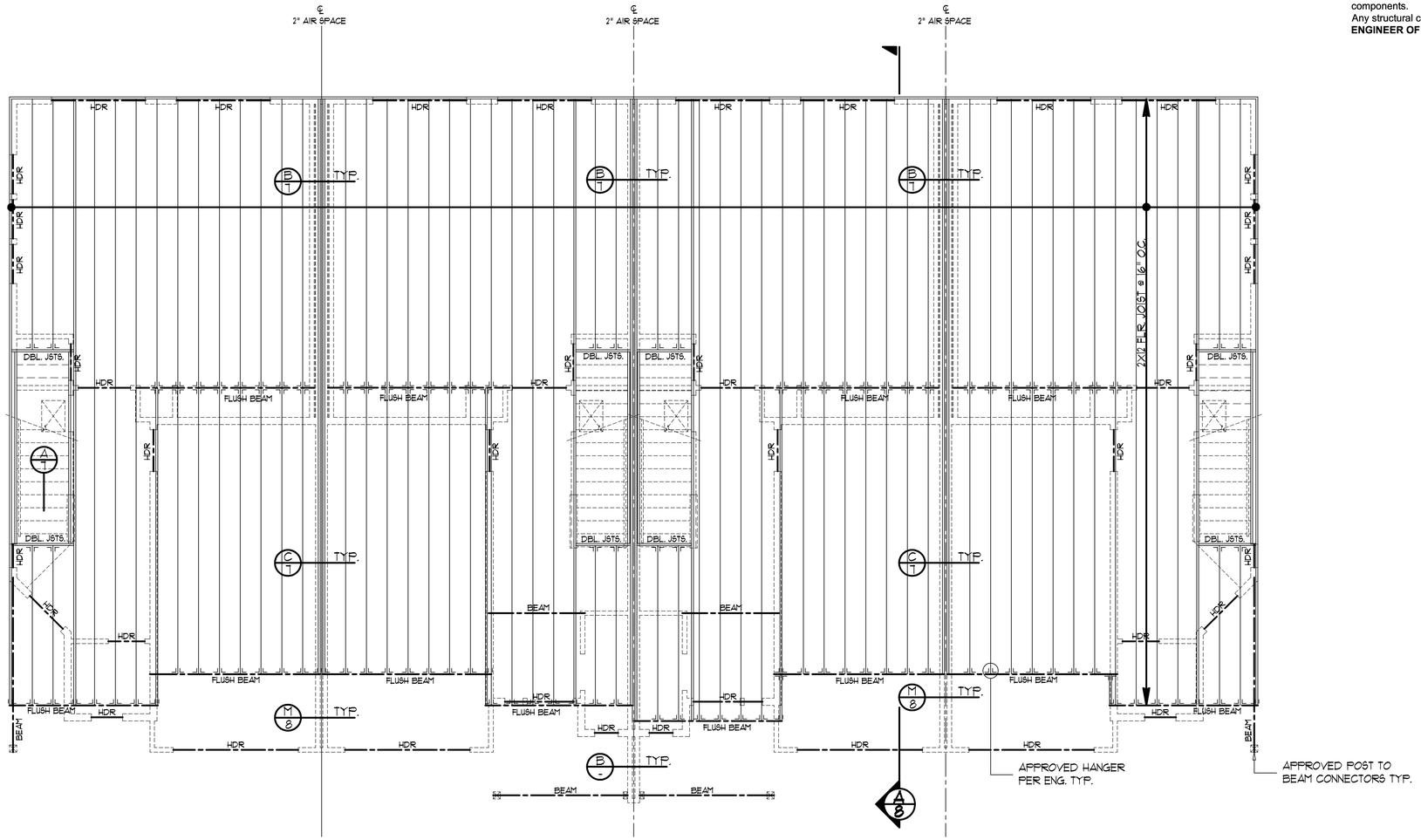

UPPER FLOOR FRAMING PLAN

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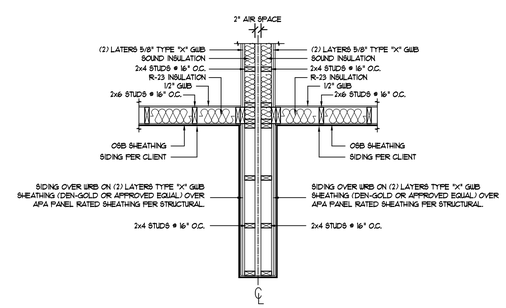
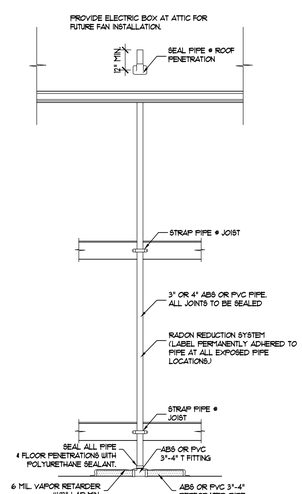
SCALE : ¼" = 1'-0"



FIREWALL INTERSECTION (B)

SCALE: 1/2" = 1'-0"



RADON PIPING DETAIL (A)

NTS.

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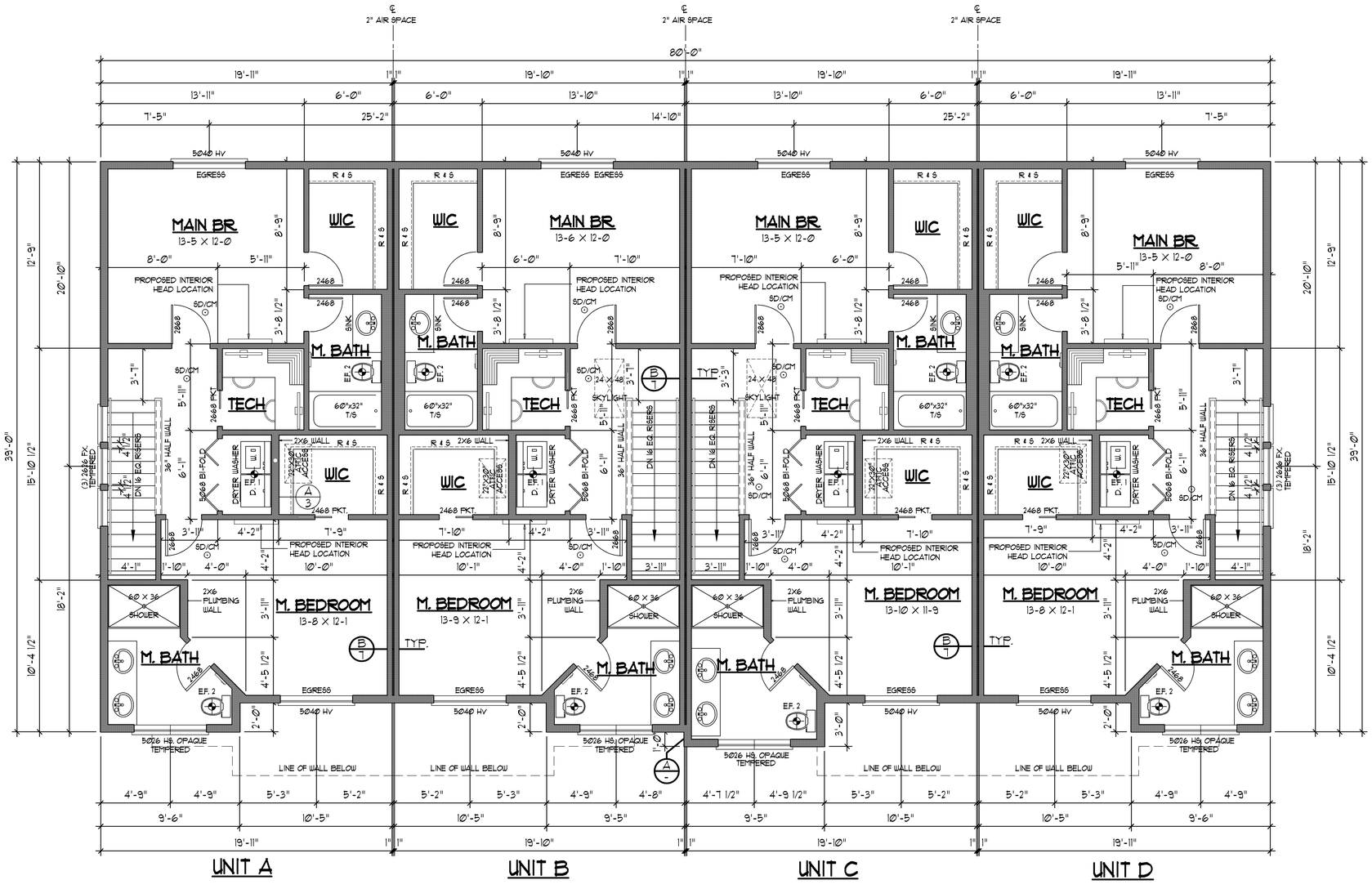

UPPER FLOOR PLAN

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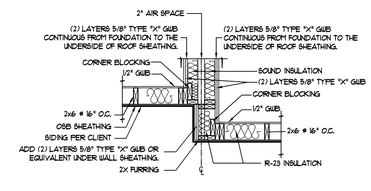
SCALE : 1/4" = 1'-0"



CORNER DETAIL

SCALE: 1/2" = 1'-0"

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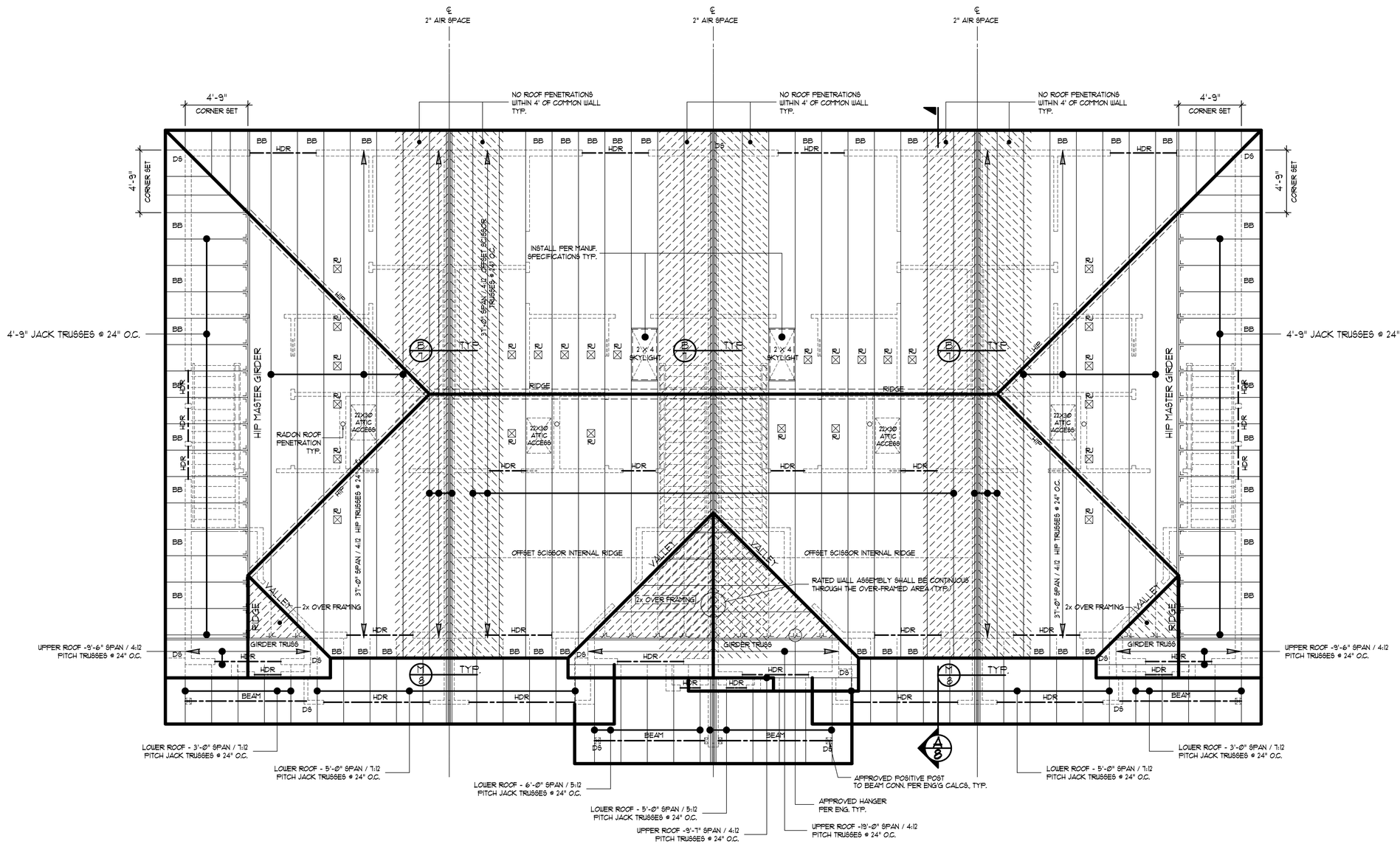

ROOF FRAMING PLAN

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

ATTIC VENTILATION

PROVIDE ATTIC SPACE VENTILATION AS PER IRC
(3,046 Sq. Ft. x 1/150 = 203 Sq. Ft. VENT AREA REQ'D)
(203 Sq. Ft./ 4 = 5.08 Sq. Ft. REQ'D PER UNIT)

ROOF VENTILATION EACH UNIT

11'-6" CONT. RIDGE VENT = 14" (18 SQ. IN.) ..... 1.44 SQ. FT.
8 EA. (BB) BIRD BLOCKING = 2 HOLES W/ 3" DIA HOLES (.0491 SQ. FT.) ..... 1.18 SQ. FT.
7 EA. (RJ) ROOF JACKS = (MASTER FLOW) 60 SQ. IN. (.416 SQ. FT.) ..... 2.91 SQ. FT.
TOTAL PROVIDED ..... 5.53 SQ. FT.

TRUSSES: R502.11.1 DESIGN. WOOD TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH APPROVED ENGINEERING PRACTICE. THE DESIGN AND MANUFACTURE OF METAL-PLATE-CONNECTED WOOD TRUSSES SHALL COMPLY WITH ANSI/TPI 1. THE TRUSS DESIGN DRAWINGS SHALL BE PREPARED BY A REGISTERED PROFESSIONAL WHERE REQUIRED BY THE STATUTES OF THE JURISDICTION IN WHICH THE PROJ- ECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH SECTION R106.1.

R502.11.2 BRACING. TRUSSES SHALL BE BRACED TO PREVENT ROTATION AND PROVIDE LATERAL STABILITY IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE CONSTRUCTION DOCUMENTS FOR THE BUILDING AND ON THE INDIVIDUAL TRUSS DESIGN DRAWINGS. IN THE ABSENCE OF SPECIFIC BRACING REQUIREMENTS, TRUSSES SHALL BE BRACED IN ACCORDANCE WITH ACCEPTED INDUSTRY PRACTICES, SUCH AS, THE SBCA BUILDING COMPONENT SAFETY INFORMATION (BCSI) GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING & BRACING OF METAL PLATE CONNECTED WOOD TRUSSES.

R305.2.1 ROOF SLOPES FROM 2 UNITS VERTICAL BY 12 UNITS HORIZONTAL UP TO 4 UNITS VERTICAL BY 12 UNITS HORIZONTAL, UNDERLAYMENT SHALL BE 2 LAYERS OVERLAPPING 19 INCHES, FOR SLOPES OF 4 UNITS VERTICAL BY 12 UNITS HORIZONTAL OR GREATER, UNDERLAYMENT SHALL BE 1 LAYER OVERLAPPING 2 INCHES.

R903.2.1 LOCATIONS. FLASHINGS SHALL BE INSTALLED AT WALL AND ROOF INTERSECTIONS, WHEREVER THERE IS A CHANGE IN ROOF SLOPE OR DIRECTION AND AROUND ROOF OPENINGS. A FLASHING SHALL BE INSTALLED TO DIVERT THE EATER AWAY FROM WHERE THE EAVE OF A SLOPED ROOF INTERSECTS A VERTICAL SIDEWALL. WHERE FLASHING IS OF METAL, THE METAL SHALL BE CORROSION RESISTANT WITH A THICKNESS OF NOT LESS THAN .0019 INCH (.05 MM.) (NO. 26 GALVANIZED SHEET).

R703.4 FLASHING. APPROVED CORROSION-RESISTANT FLASHING SHALL BE APPLIED SHINGLE-FASHION IN A MANNER TO PREVENT ENTRY OF WATER INTO THE WALL CAVITY OR PENETRATION OF WATER TO THE BUILDING STRUCTURAL FRAMING COMPONENTS. SELF-ADHERED MEMBRANES USED AS FLASHING SHALL COMPLY WITH AAMA 711. FLUID-APPLIED MEMBRANES USED AS FLASHING IN EXTERIOR WALLS SHALL COMPLY WITH AAMA 714. THE FLASHING SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL FINISH. APPROVED CORROSION-RESISTANT FLASHINGS SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS:
1. EXTERIOR WINDOW AND DOOR OPENINGS. FLASHING AT EXTE- RIOR WINDOW AND DOOR OPENINGS SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL FINISH OR TO THE WATER-RESISTIVE BARRIER COMPLYING WITH SECTION 703.2 FOR SUBSEQUENT DRAINAGE. MECHANICALLY ATTACHED FLEXIBLE FLASHINGS SHALL COMPLY WITH AAMA 712. FLASHING AT EXTERIOR WINDOW AND DOOR OPENINGS SHALL BE INSTALLED IN ACCORDANCE WITH ONE OR MORE OF THE FOLLOWING:
11. THE FENESTRATION MANUFACTURER'S INSTALLATION AND FLASHING INSTRUCTIONS, OR FOR APPLICATIONS NOT ADDRESSED IN THE FENESTRATION MANUFACTURER'S INSTRUCTIONS, IN ACCORDANCE WITH THE FLASHING MANUFACTURER'S INSTRUCTIONS, WHERE FLASHING INSTRUCTIONS OR DETAILS ARE NOT PROVIDED, PAN FLASHING SHALL BE INSTALLED AT THE SILL OF EXTERIOR WINDOW AND DOOR OPENINGS. PAN FLASHING SHALL BE SEALED OR SLOPED IN SUCH A MANNER AS TO DIRECT WATER TO THE SURFACE OF THE EXTERIOR WALL FINISH OR TO THE WATER-RESISTIVE BARRIER FOR SUBSEQUENT DRAINAGE. OPENINGS USING PAN FLASHING SHALL INCORPORATE FLASHING OR PROTECTION AT THE HEAD AND SIDES.
12. IN ACCORDANCE WITH THE FLASHING DESIGN OR METHOD OF A REGISTERED DESIGN PROFESSIONAL.
13. IN ACCORDANCE WITH OTHER APPROVED METHODS.
2. AT THE INTERSECTION OF CHIMNEYS OR OTHER MASONRY CON- STRUCTION 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.

WEATHER RESISTIVE SHEATHING PAPER: R703.2 WATER-RESISTIVE BARRIER. ONE LAYER OF NO. 15 ASPHALT FELT, FREE FROM HOLES AND BREAKS, COMPLYING WITH ASTM D 226 FOR TYPE I FELT OR OTHER APPROVED WATER-RESISTIVE BARRIER SHALL BE APPLIED OVER STUDS OR SHEATHING OF ALL EXTERIOR WALLS. SUCH FELT OR MATERIAL SHALL BE APPLIED HORIZONTALLY, WITH THE UPPER LAYER LAPPED OVER THE LOWER LAYER NOT LESS THAN 2 INCHES (51 MM.). WHERE JOINTS OCCUR, FELT SHALL BE LAPPED NOT LESS THAN 6 INCHES (152 MM.). THE FELT OR OTHER APPROVED MATERIAL SHALL BE CONTINUOUS TO THE TOP OF WALLS AND TERMINATED AT PEN- ETRATIONS AND BUILDING APPENDAGES IN A MANNER TO MEET THE REQUIREMENTS OF THE EXTERIOR WALL ENVELOPE AS DESCRIBED IN SECTION R703.1. THE WATER-RESISTIVE BARRIER IS NOT REQUIRED FOR DETACHED ACCESSORY BUILDINGS.

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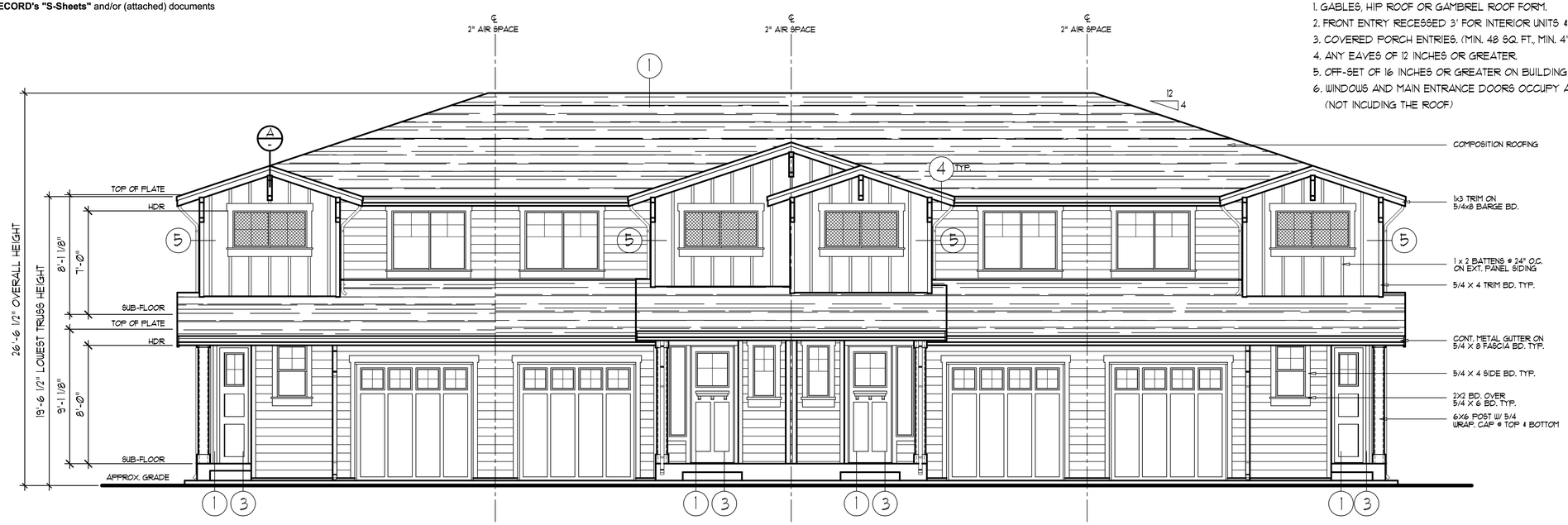
DESIGN STANDARD

GARAGE WIDTH = 55%

1. GABLES, HIP ROOF OR GAMBREL ROOF FORM.
2. FRONT ENTRY RECESSED 3' FOR INTERIOR UNITS & 5'-6" FOR EXTERIOR UNITS.
3. COVERED PORCH ENTRIES. (MIN. 48 SQ. FT., MIN. 4' DEEP)
4. ANY EAVES OF 12 INCHES OR GREATER.
5. OFF-SET OF 16 INCHES OR GREATER ON BUILDING FACE OR ROOF.
6. WINDOWS AND MAIN ENTRANCE DOORS OCCUPY A MINIMUM OF THE FACADE. (NOT INCUDING THE ROOF)



EXPLANATION OF HEIGHT

OVERALL HEIGHT - "X":	26'-6 1/2"
LOWEST TRUSS POINT - "Y":	19'-6 1/2"
26'-6 1/2" (X) - 19'-6 1/2" (Y) =	7'-0" (Q)
7'-0" (Q) / 2 =	3'-6"
19'-6 1/2" (Y) + 3'-6" =	23'-0 1/2"

AVERAGE HEIGHT = 23'-0 1/2"

FRONT ELEVATION

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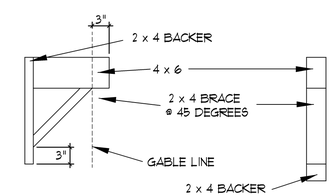
SCALE : 1/4" = 1'-0"

WINDOW AREA SUMMARY:

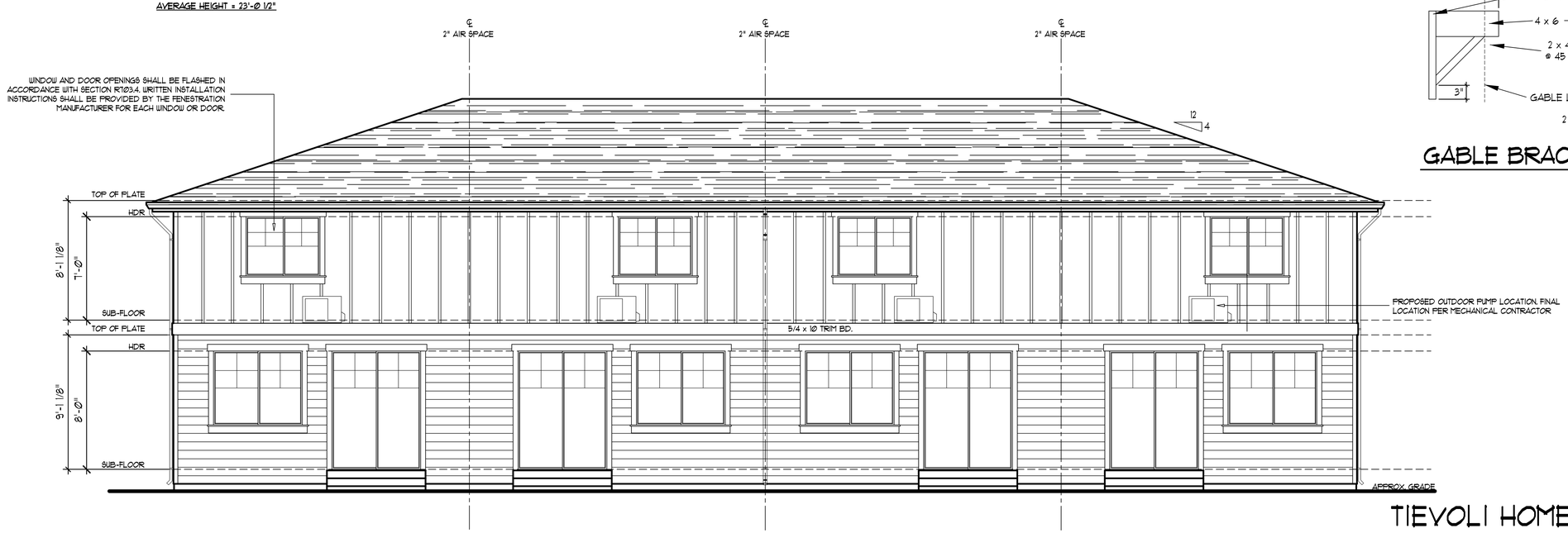
6

BUILDING FACADE SQ. FT. = 1141 SQ. FT.
WINDOW AREA REQ TO EQUAL 15% TRANSPARENCY - 171.15 SQ. FT.
WINDOW AREA PROVIDED - 230.5 SQ. FT.

TOTAL FACADE TRANSPARENCY - 20.2%



GABLE BRACE DETAIL A



REAR ELEVATION

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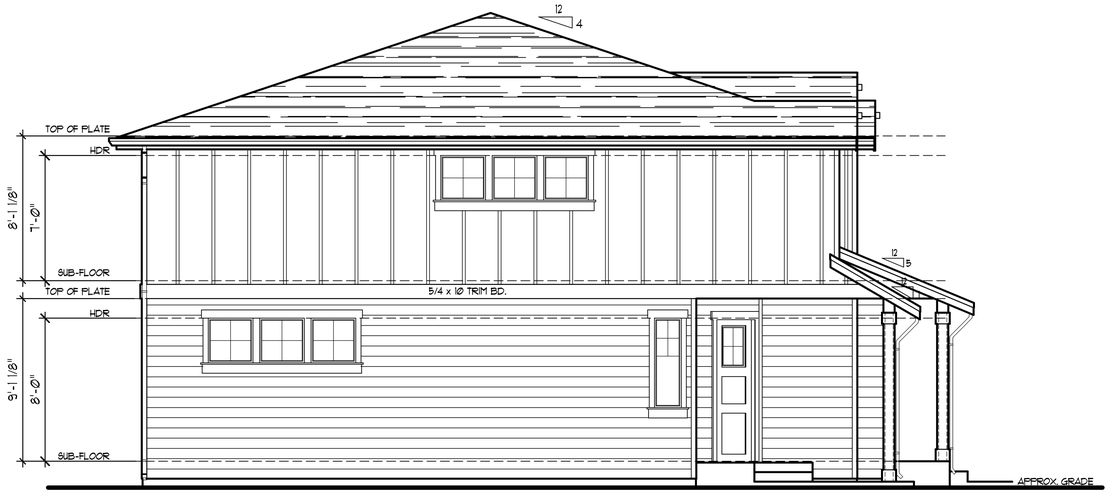
	6 OF 8



LEFT ELEVATION

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

RIGHT ELEVATION

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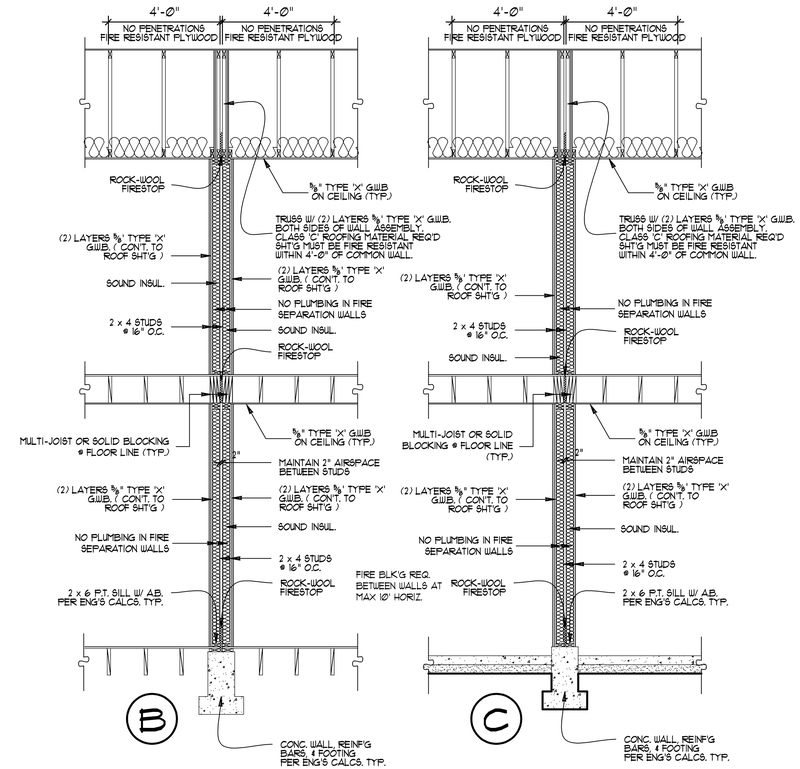
SCALE : 1/4" = 1'-0"



TYP. 2-HOUR COMMON WALL DETAIL

SCALE : 3/8" = 1'-0"

GA FILE NO. WP 3125 | GENERIC

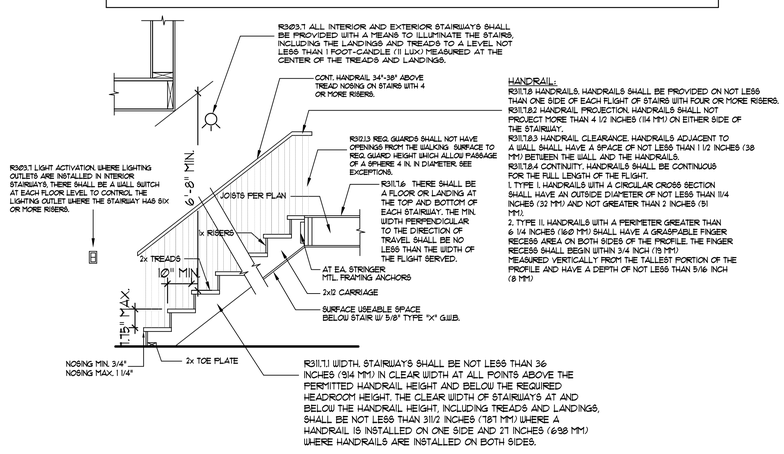
GYPSUM WALLBOARD, WOOD STUDS, INSULATION

FIRE DESIGN:
BASE LAYER 5/8" TYPE X GYPSUM WALLBOARD OR GYPSUM VENEER BASE APPLIED AT RIGHT ANGLES TO EACH SIDE OF DOUBLE RO OD 2X4 WOOD STUDS 16" O.C. ON SEPARATE PLATES 1" APART WITH 2" TYPE W SCREWS 24" O.C.
FACE LAYER 5/8" TYPE X GYPSUM WALLBOARD OR GYPSUM VENEER BASE APPLIED AT RIGHT ANGLES TO EACH SIDE WITH 2-1/ 2" TYPE W SCREWS, 8" O.C. TWO LAYERS 3.5" UNFACED GLASS FIBER INSULATION FRICTION FIT BETWEEN STUD, ONE PER SIDE.
JOISTS STAGGERED 16" EACH LAYER AND SIDE. HORIZONTAL BRACING REQUIRED AT MID-HEIGHT. (**LOAD BEARING**)

SOUND DESIGN:
A: SOUND TESTED WITHOUT BRACING
B: SOUND TESTED WITH BRACING

THICKNESS: 10 3/4" (FIRE & SOUND)
APPROX. WEIGHT: 11.5 Psf (SYSTEM A FIRE & SOUND)
12 Psf (SYSTEM B FIRE & SOUND)
FIRE TEST: UL R4024, 10-31-68
SOUND TEST: A: NOAL 17-0842, 8-28-17
B: NOAL 17-0843, 8-28-17

2 HOUR FIRE | 65 TO 69 STC SOUND



HANDRAIL:
R311.7.8 HANDRAILS. HANDRAILS SHALL BE PROVIDED ON NOT LESS THAN ONE SIDE OF EACH FLIGHT OF STAIRS WITH FOUR OR MORE RISERS.
R311.7.8.2 HANDRAIL PROJECTION. HANDRAILS SHALL NOT PROJECT MORE THAN 4 1/2 INCHES (114 MM) ON EITHER SIDE OF THE STAIRWAY.
R311.7.8.3 HANDRAIL CLEARANCE. HANDRAILS ADJACENT TO A WALL SHALL HAVE A SPACE OF NOT LESS THAN 1 1/2 INCHES (38 MM) BETWEEN THE WALL AND THE HANDRAILS.
R311.7.8.4 CONTINUITY. HANDRAILS SHALL BE CONTINUOUS FOR THE FULL LENGTH OF THE FLIGHT.
1. TYPE I. HANDRAILS WITH A CIRCULAR CROSS SECTION SHALL HAVE AN OUTSIDE DIAMETER OF NOT LESS THAN 1 1/4 INCHES (32 MM) AND NOT GREATER THAN 2 INCHES (51 MM).
2. TYPE II. HANDRAILS WITH A PERIMETER GREATER THAN 6 1/4 INCHES (160 MM) SHALL HAVE A GRASPABLE FINGER RECESS AREA ON BOTH SIDES OF THE PROFILE. THE FINGER RECESS SHALL BEGIN WITHIN 3/4 INCH (19 MM) MEASURED VERTICALLY FROM THE TALLEST PORTION OF THE PROFILE AND HAVE A DEPTH OF NOT LESS THAN 5/16 INCH (8 MM)

STAIR CONSTRUCTION DETAIL

NTS. (SIMILAR) A

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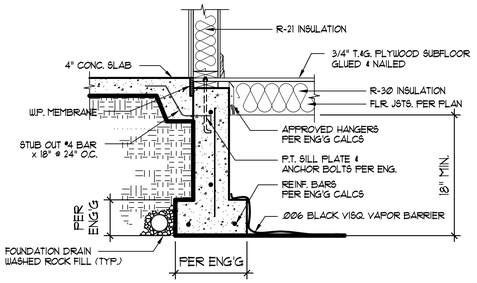
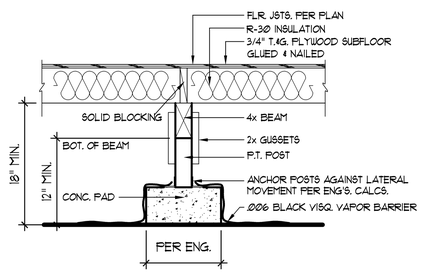


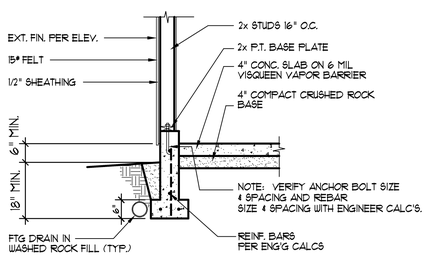
PORCH/SLAB DETAIL (F)

SCALE: 3/4" = 1'-0"



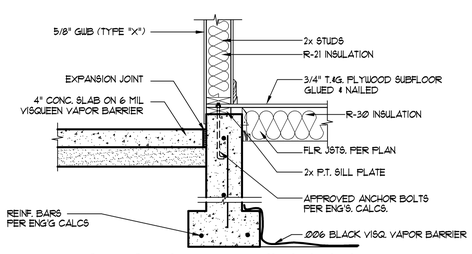
GIRDER DETAIL (G)

SCALE: 3/4" = 1'-0"



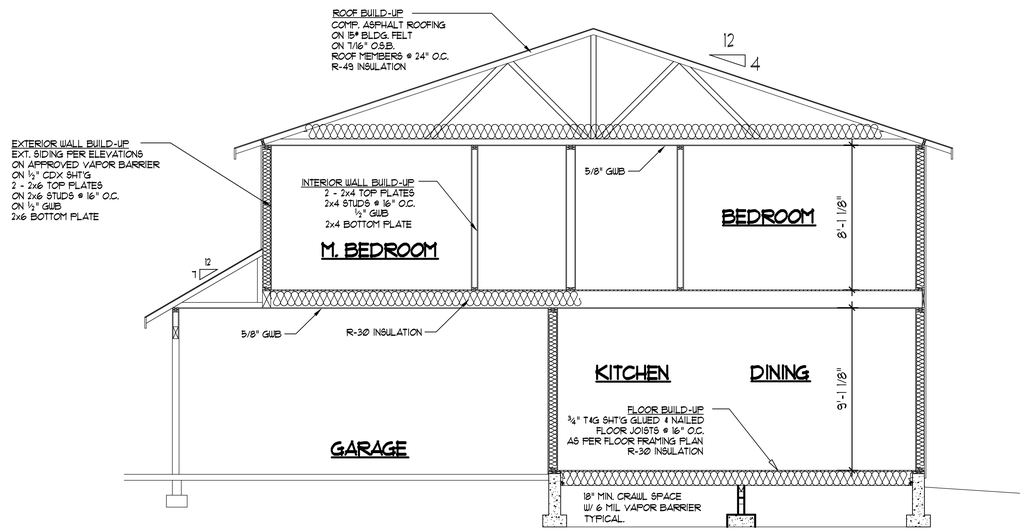
STEM WALL DETAIL (H)

SCALE: 3/4" = 1'-0"



GARAGE / DWELLING SEPARATION DETAIL (J)

SCALE: 3/4" = 1'-0"



SECTION - A

SCALE : ¼" = 1'-0"

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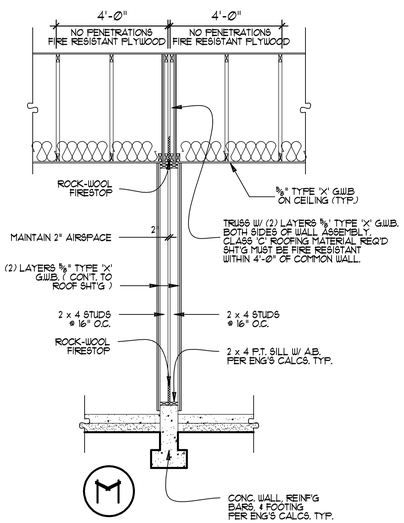
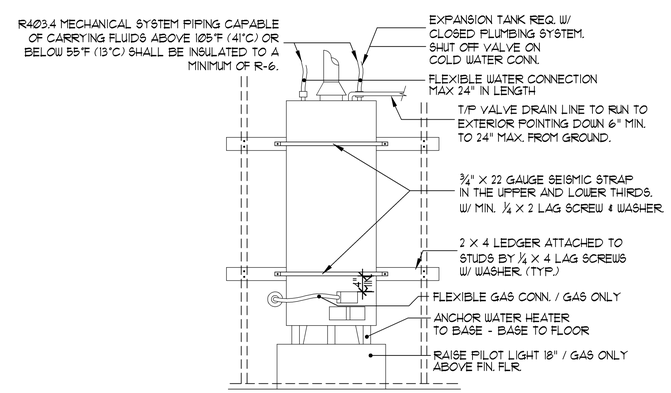


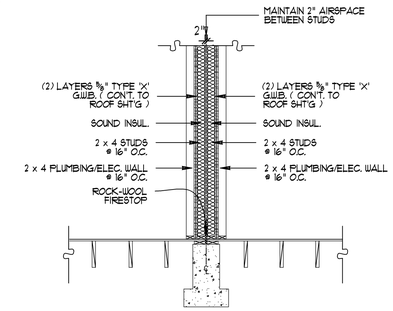
2-HOUR COMMON WALL DETAIL (M)

SCALE : ⅜" = 1'-0"



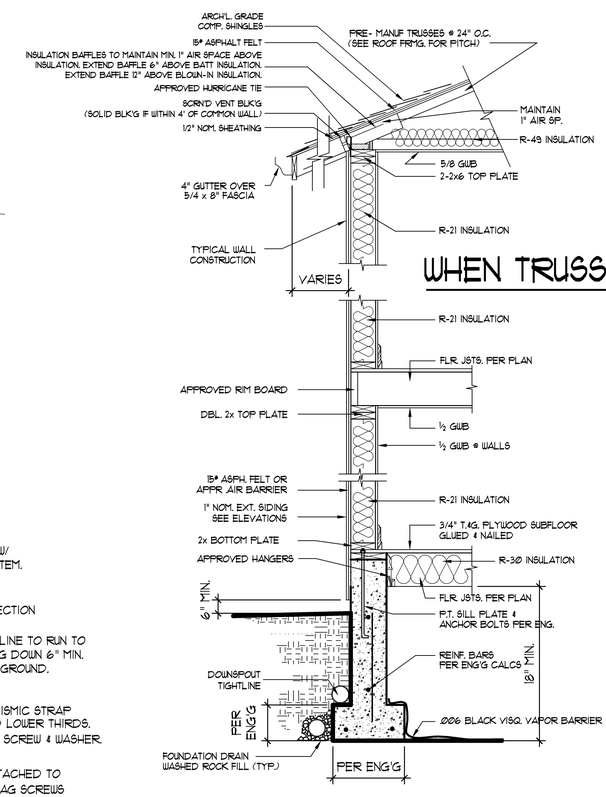
WATER HEATER SUPPORT (E)

(ALL ELECTRIC WATER HEATERS IN UNHEATED SPACES OR ON CONCRETE FLOORS SHALL BE PLACED ON A INSULATED SURFACE WITH A MIN. THERMAL RESISTANCE OF R-10 AND A MINIMUM COMPRESSIVE STRENGTH OF 40 PSI.



PLUMBING / ELEC. WALL DETAIL (K)

SCALE : ⅜" = 1'-0"



WHEN TRUSSED

TYP. TWO STORY CONFIG. (B)

SCALE: 3/4" = 1'-0"

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THE PURCHASER MUST ENSURE THAT THE PLANS COMPLY WITH ALL LOCAL, AS WELL AS NATIONAL BUILDING CODES AND REQUIREMENTS, WHICH ARE APPLICABLE FOR THE SPECIFIC SITE AND STRUCTURAL ENGINEERING REQUIREMENTS. BEFORE BEGINNING CONSTRUCTION, PURCHASER MUST HAVE PLANS REVIEWED BY A LICENCED STRUCTURAL ENGINEER WHO WILL PROVIDE ANALYSIS, CALCULATIONS, DRAWINGS, AND DATA (INCLUDING HIS OR HER LICENSEE "STAMP") WHICH WILL BE SUBMITTED (WHERE REQUIRED) WITH THESE DRAWINGS AND SPECIFICATIONS TO THE LOCAL BUILDING OFFICIALS. FAILURE TO DO THIS RENDERS THESE DOCUMENTS LEGALLY INVALID AND ABSOLVES NHD OF ANY LIABILITY (EXPRESS OR IMPLIED) WITH REGARDS TO PUNITIVE DAMAGES.

APPROVED PLANS: IRC 106.3.1
APPROVAL OF CONSTRUCTION DOCUMENTS. WHEN THE BUILDING OFFICIAL ISSUES A PERMIT, THE CONSTRUCTION DOCUMENTS SHALL BE APPROVED IN WRITING OR BY A STAMP WHICH STATES "REVIEWED FOR CODE COMPLIANCE." ONE SET OF CONSTRUCTION DOCUMENTS SO REVIEWED SHALL BE RETAINED BY THE BUILDING OFFICIAL. THE OTHER SET SHALL BE RETURNED TO THE APPLICANT, SHALL BE KEPT AT THE SITE OF WORK AND SHALL BE OPEN TO INSPECTION BY THE BUILDING OFFICIAL OR HIS OR HER AUTHORIZED REPRESENTATIVE.

PREMISES IDENTIFICATION: R319.1 ADDRESS IDENTIFICATION. BUILDINGS SHALL BE PROVIDED WITH APPROVED ADDRESS IDENTIFICATION. THE ADDRESS IDENTIFICATION SHALL BE LEGIBLE AND PLACED IN A POSITION THAT IS VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. ADDRESS IDENTIFICATION CHARACTERS SHALL CONTRAST WITH THEIR BACKGROUND. ADDRESS NUMBERS SHALL BE ARABIC NUMBERS OR ALPHABETICAL LETTERS. NUMBERS SHALL NOT BE SPELLED OUT. EACH CHARACTER SHALL BE NOT LESS THAN 4 INCHES (102 MM) IN HEIGHT WITH A STROKE WIDTH OF NOT LESS THAN 0.5 INCH (12.7 MM). WHERE REQUIRED BY THE FIRE CODE OFFICIAL, ADDRESS IDENTIFICATION SHALL BE PROVIDED IN ADDITIONAL APPROVED LOCATIONS TO FACILITATE EMERGENCY RESPONSE. WHERE ACCESS IS BY MEANS OF A PRIVATE ROAD AND THE BUILDING ADDRESS CANNOT BE VIEWED FROM THE PUBLIC WAY, A MONUMENT, POLE OR OTHER SIGN OR MEANS SHALL BE USED TO IDENTIFY THE STRUCTURE. ADDRESS IDENTIFICATION SHALL BE MAINTAINED.

GROUNDED OUTLETS: ALL RECEPTACLES SHALL BE GROUNDED TYPE. RECEPTACLES LOCATED IN KITCHENS AND BATHS SHALL BE INSTALLED ABOVE THE WORK TOP . OTHER RECEPTACLES SHALL BE INSTALLED AT 12" VERTICALLY ABOVE THE FLOOR, UNLESS SHOWN OTHERWISE ON THE DRAWINGS.

WALL SWITCHES: WALL SWITCHES SHALL BE INSTALLED 42" ABOVE THE FLOOR, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

M1305.1 APPLIANCE ACCESS FOR INSPECTION SERVICE, REPAIR AND REPLACEMENT. APPLIANCES SHALL BE ACCESSIBLE FOR INSPECTION, SERVICE, REPAIR AND REPLACEMENT WITHOUT REMOVING PERMANENT CONSTRUCTION, OTHER APPLIANCES, OR ANY OTHER PIPING OR DUCTS NOT CONNECTED TO THE APPLIANCE BEING INSPECTED, SERVICED, REPAIRED OR REPLACED. A LEVEL WORKING SPACE NOT LESS THAN 30 INCHES DEEP AND 30 INCHES WIDE (762 MM BY 762 MM) SHALL BE PROVIDED IN FRONT OF THE CONTROL SIDE TO SERVICE AN APPLIANCE.

APPLIANCES LOCATED IN GARAGE: M1307.3 ELEVATION OF IGNITION SOURCE. APPLIANCES HAVING AN IGNITION SOURCE SHALL BE ELEVATED SUCH THAT THE SOURCE OF IGNITION IS NOT LESS THAN 18 INCHES (457 MM) ABOVE THE FLOOR IN GARAGES. FOR THE PURPOSE OF THIS SECTION, ROOMS OR SPACES THAT ARE NOT PART OF THE LIVING SPACE OF A DWELLING UNIT AND THAT COMMUNICATE WITH A PRIVATE GARAGE THROUGH OPENINGS SHALL BE CONSIDERED TO BE PART OF THE GARAGE.
M1307.3.1 PROTECTION FROM IMPACT. APPLIANCES SHALL NOT BE INSTALLED IN A LOCATION SUBJECT TO VEHICLE DAMAGE EXCEPT WHERE PROTECTED BY APPROVED BARRIERS.

CLOTHES DRYERS: M1502.3 DUCT TERMINATION. EXHAUST DUCTS SHALL TERMINATE ON THE OUTSIDE OF THE BUILDING. EXHAUST DUCT TERMINATIONS SHALL BE IN ACCORDANCE WITH THE DRYER MANUFACTURER'S INSTALLATION INSTRUCTIONS. IF THE MANUFACTURER'S INSTRUCTIONS DO NOT SPECIFY A TERMINATION LOCATION, THE EXHAUST DUCT SHALL TERMINATE NOT LESS THAN 3 FEET (914 MM) IN ANY DIRECTION FROM OPENINGS INTO BUILDINGS. EXHAUST DUCT TERMINATIONS SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER. SCREENS SHALL NOT BE INSTALLED AT THE DUCT TERMINATION. M1502.4.5.1 THE MAXIMUM LENGTH OF THE EXHAUST DUCT SHALL BE 35 FEET (7620 MM)FROM THE CONNECTION TO THE TRANSITION DUCT FROM THE DRYER TO THE OUTLET TERMINAL. DUCT LENGTH MUST BE REDUCED BY 2'-6" FOR 45° BEND & 5FT FOR 90° BEND FOR A 4" EXHAUST PIPE.

RANGE HOOD: M1503.2.1 GENERAL. DOMESTIC OPEN-TOP BROILER UNITS SHALL HAVE A METAL EXHAUST HOOD, HAVING A MINIMUM THICKNESS OF 0.0157-INCH (0.3950 MM) (NO. 28 GAUGE) WITH 1/4 INCH (6.4 MM) CLEARANCE BETWEEN THE HOOD AND THE UNDERSIDE OF COMBUSTIBLE MATERIAL OR CABINETS. A CLEARANCE OF AT LEAST 24 INCHES (610 MM) SHALL BE MAINTAINED BETWEEN THE COOKING SURFACE AND THE COMBUSTIBLE MATERIAL OR CABINET. THE HOOD SHALL BE AT LEAST AS WIDE AS THE BROILER UNIT, EXTEND OVER THE ENTIRE UNIT, DISCHARGE TO THE OUTDOORS AND BE EQUIPPED WITH A BACKDRAFT DAMPER OR OTHER MEANS TO CONTROL INFILTRATION/EXFILTRATION WHEN NOT IN OPERATION. BROILER UNITS INCORPORATING AN INTEGRAL EXHAUST SYSTEM, AND LISTED AND LABELED FOR USE WITHOUT AN EXHAUST HOOD, NEED NOT HAVE AN EXHAUST HOOD.

EXHAUST OPENINGS: M1504.3 AIR EXHAUST OPENINGS SHALL TERMINATE AS FOLLOWS:
1. NOT LESS THAN 3 FEET (914 MM) FROM PROPERTY LINES.
2. NOT LESS THAN 3 FEET (914 MM) FROM GRAVITY AIR INTAKE
OPENINGS, OPERABLE WINDOWS AND DOORS.
3. NOT LESS THAN 10 FEET (3048 MM) FROM MECHANICAL AIR INTAKE OPENINGS EXCEPT WHERE THE EXHAUST OPENING IS LOCATED NOT LESS THAN 3 FEET (914 MM) ABOVE THE AIR INTAKE OPENING. OPENINGS SHALL COMPLY WITH SECTIONS R303.5.2 AND R303.6.

EXHAUST DUCTING: M1503.3 GENERAL. RANGE HOODS SHALL DISCHARGE TO THE OUT- DOORS THROUGH A DUCT. THE DUCT SERVING THE HOOD SHALL HAVE A SMOOTH INTERIOR SURFACE, SHALL BE AIR TIGHT, SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER AND SHALL BE INDEPENDENT OF ALL OTHER EXHAUST SYSTEMS. DUCTS SERVING RANGE HOODS SHALL NOT TERMINATE IN AN ATTIC OR CRAWL SPACE OR AREAS INSIDE THE BUILDING.

R303.10 REQUIRED HEATING. WHERE THE WINTER DESIGN TEMPERATURE IN TABLE R301.2(1) IS BELOW 60°F (16°C), EVERY DWELLING UNIT SHALL BE PROVIDED WITH HEATING FACILITIES CAPABLE OF MAINTAINING A ROOM TEMPERATURE OF NOT LESS THAN 68°F (20°C) AT A POINT 3 FEET (914 MM) ABOVE THE FLOOR AND 2 FEET (610 MM) FROM EXTERIOR WALLS IN HABITABLE ROOMS AT THE DESIGN TEMPERATURE. THE INSTALLATION OF ONE OR MORE PORTABLE SPACE HEATERS SHALL NOT BE USED TO ACHIEVE COMPLIANCE WITH THIS SECTION.

HEATING TYPE: HEATING TYPE AND FUEL SHALL BE SELECTED BY THE OWNER. ALL WARM AIR FURNACES SHALL BE LISTED AND LABELED BY AN APPROVED AGENCY AND INSTALLED TO LISTED SPECIFICATIONS.

FIREBLOCKING: R302.11 FIREBLOCKING. IN COMBUSTIBLE CONSTRUCTION, FIREBLOCKING SHALL BE PROVIDED TO CUT OFF ALL CONCEALED DRAFT OPENINGS (BOTH VERTICAL AND HORIZONTAL) AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES, AND BETWEEN A TOP STORY AND THE ROOF SPACE. FIREBLOCKING SHALL BE PROVIDED IN WOOD-FRAME CONSTRUCTION IN THE FOLLOWING LOCATIONS:
1. IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS:
1.1 VERTICALLY AT THE CEILING AND FLOOR LEVELS.
1.2. HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET(3048 MM).
2. AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES SUCH AS OCCUR AT SOFFITS, DROP CEILINGS AND COVE CEILINGS.
3. IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7.
4. AT OPENINGS AROUND VENTS, PIPES, DUCTS, CABLES 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 E 136 REQUIREMENTS.
5. FOR THE FIREBLOCKING OF CHIMNEYS AND FIREPLACES, SEE SECTION R1003.19.
6. FIREBLOCKING OF CORNICES OF A TWO-FAMILY DWELLING IS REQUIRED AT THE LINE OF DWELLING UNIT SEPARATION.

M1505.2 RECIRCULATION OF AIR EXHAUST AIR FROM BATHROOMS
AND TOILET ROOMS SHALL NOT BE RECIRCULATED WITHIN A RESIDENCE OR CIRCULATED TO ANOTHER DWELLING UNIT AND SHALL BE EXHAUSTED DIRECTLY TO THE OUTDOORS. EXHAUST AIR FROM BATHROOMS, TOILET ROOMS AND KITCHENS SHALL NOT DISCHARGE INTO AN ATTIC, CRAWL SPACE OR OTHER AREAS INSIDE THE BUILDING. THIS SECTION SHALL NOT PROHIBIT THE INSTALLATION OF DUCTLESS RANGE HOODS IN ACCORDANCE
WITH THE EXCEPTION TO SECTION M1503.3.

M1601.4.1 JOINTS, SEAMS AND CONNECTIONS. LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS AND CONNECTIONS IN METALLIC AND NONMETALLIC DUCTS SHALL BE CONSTRUCTED AS SPECIFIED IN SMACNA HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE AND NAIMA FIBROUS GLASS DUCT CONSTRUCTION STANDARDS. JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS, AND CONNECTIONS IN DUCTWORK SHALL BE SECURELY FASTENED
AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC- PLUS-EMBEDDED-FABRIC SYSTEMS, LIQUID SEALANTS OR TAPES. TAPES AND MASTICS USED TO SEAL FIBROUS GLASS DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A AND SHALL BE MARKED "181A-P" FOR PRESSURE-SENSITIVE TAPE, "181 A-M" FOR MASTIC OR "181 A-H" FOR HEAT-SENSITIVE TAPE. TAPES AND MASTICS USED TO SEAL METALLIC AND FLEXIBLE AIR DUCTS AND FLEXIBLE AIR CONNECTORS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED "181 B-FX" FOR PRESSURE-SENSITIVE TAPE OR "181 BM" FOR MASTIC. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. MECHANICAL FASTENERS FOR USE WITH FLEXIBLE NONMETALLIC AIR DUCTS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED 181B-C. CRIMP JOINTS FOR ROUND METALLIC DUCTS SHALL HAVE A CONTACT LAP OF NOT LESS THAN 1 INCH (25 MM) AND SHALL BE MECHANICALLY FASTENED BY MEANS OF NOT LESS THAN THREE SHEET-METAL SCREWS OR RIVET EQUALLY SPACED AROUND THE JOINT.

EGRESS DOOR: R311.2 EGRESS DOOR. NOT LESS THAN ONE EGRESS DOOR SHALL BE PROVIDED FOR EACH DWELLING UNIT. THE EGRESS DOOR SHALL BE SIDE-HINGED, AND SHALL PROVIDE A CLEAR WIDTH OF NOT LESS THAN 32 INCHES (813 MM) WHERE MEASURED BETWEEN THE FACE OF THE DOOR AND THE STOP, WITH THE DOOR OPEN 90 DEGREES (1.57 RAD). THE CLEAR HEIGHT OF THE DOOR OPENING SHALL BE NOT LESS THAN 78 INCHES (1981 MM) IN HEIGHT MEASURED FROM THE TOP OF THE THRESHOLD TO THE BOTTOM OF THE STOP. OTHER DOORS SHALL NOT BE REQUIRED TO COMPLY WITH THESE MINIMUM DIMENSIONS. EGRESS DOORS SHALL BE READILY OPENABLE FROM INSIDE THE DWELLING WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.

R311.3 FLOORS AND LANDINGS AT EXTERIOR DOORS. THERE SHALL
BE A LANDING OR FLOOR ON EACH SIDE OF EACH EXTERIOR DOOR. THE WIDTH OF EACH LANDING SHALL BE NOT LESS THAN THE DOOR SERVED. LANDINGS SHALL HAVE A DIMENSION OF NOT LESS THAN 36 INCHES (914 MM) MEASURED IN THE DIRECTION OF TRAVEL. THE SLOPE AT EXTERIOR LANDINGS SHALL NOT EXCEED 1/4 UNIT VERTICAL IN 12 UNITS HORIZONTAL (2 PERCENT).

GARAGE/DWELLING DOOR:
R302.5.1 OPENING PROTECTION. 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 13/8 INCHES (35 MM) IN THICKNESS, SOLID OR HONEYCOMBCORE STEEL DOORS NOT LESS THAN 13/8 INCHES (35 MM) THICK, OR 20-MINUTE FIRE-RATED DOORS, EQUIPPED WITH A SELF-CLOSING OR AUTOMATIC-CLOSING DEVICE.

R308.4.2 GLAZING ADJACENT TO DOORS. GLAZING IN AN INDIVIDUAL
FIXED OR OPERABLE PANEL ADJACENT TO A DOOR SHALL BE CONSIDERED TO BE A HAZARDOUS LOCATION WHERE THE BOTTOM
EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES (1524
MM) ABOVE THE FLOOR OR WALKING SURFACE AND IT MEETS EITHER OF THE FOLLOWING CONDITIONS:
1. WHERE THE GLAZING IS WITHIN 24 INCHES (610 MM) OF EITHER SIDE OF THE DOOR IN THE PLANE OF THE DOOR IN A CLOSED POSITION.
2. WHERE THE GLAZING IS ON A WALL LESS THAN 180 DEGREES
(3.14 RAD) FROM THE PLANE OF THE DOOR IN A CLOSED POSITION AND WITHIN 24 INCHES (610 MM) OF THE HINGE SIDE OF AN IN-SWINGING DOOR.

R302.6 DWELLING-GARAGE FIRE SEPARATION. 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.

TABLE R302.6 DWELLING-GARAGE SEPARATION

FROM THE RESIDENCE AND ATTICS: NOT LESS THAN 1/2-INCH GYPSUM BOARD OR EQUIVALENT APPLIED TO THE GARAGE SIDE

FROM HABITABLE ROOMS ABOVE THE GARAGE: NOT LESS THAN 5/8-INCH TYPE X GYPSUM BOARD OR EQUIVALENT

STRUCTURE(S) SUPPORTING FLOOR/CEILING ASSEMBLIES USED FOR SEPARATION REQUIRED BY THIS SECTION: NOT LESS THAN 1/2-INCH GYPSUM BOARD OR EQUIVALENT

GARAGES LOCATED LESS THAN 3 FEET FROM A DWELLING UNIT ON THE SAME LOT: NOT LESS THAN 1/2-INCH GYPSUM BOARD OR EQUIVALENT APPLIED TO THE INTERIOR SIDE OF EXTERIOR WALLS THAT ARE WITHIN THIS AREA

LIGHTING EQUIPMENT (MANDATORY). NOT LESS THAN 75 PERCENT OF THE LAMPS IN PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL BE HIGH-EFFICACY LAMPS OR NOT LESS THAN 75 PERCENT OF THE PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL CONTAIN ONLY HIGH-EFFICACY LAMPS.

FOR WATER PRESSURE HIGHER THAN 80 PSI AN APPROVED PRESSURE REDUCING VALVE (PRV) SHALL BE INSTALLED.

R314.3 LOCATION. SMOKE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS:
1. IN EACH SLEEPING ROOM.
2. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS.
3. ON EACH ADDITIONAL STORY OF THE DWELLING, INCLUDING BASEMENTS AND HABITABLE ATTICS AND NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS. IN DWELLINGS OR DWELLING UNITS WITH SPLIT LEVELS AND WITHOUT AN INTERVENING DOOR BETWEEN THE ADJACENT LEVELS, A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SUFFICE FOR THE ADJACENT LOWER LEVEL PROVIDED THAT THE LOWER LEVEL IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL.

4. SMOKE ALARMS SHALL BE INSTALLED NOT LESS THAN 3 FEET (914 MM) HORIZONTALLY FROM THE DOOR OR OPENING OF A BATHROOM THAT CONTAINS A BATHTUB OR SHOWER UNLESS THIS WOULD PREVENT PLACEMENT OF A SMOKE ALARM REQUIRED BY THIS SECTION.

R315.3 CARBON MONOXIDE ALARMS IN DWELLING UNITS SHALL BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS. WHERE A FUEL-BURNING APPLIANCE IS LOCATED WITHIN A BEDROOM OR ITS ATTACHED BATHROOM, A CARBON MONOXIDE ALARM SHALL BE INSTALLED WITHIN THE BEDROOM. R315.4 COMBINATION ALARMS. COMBINATION CARBON MONOXIDE AND SMOKE ALARMS SHALL BE PERMITTED TO BE USED IN LIEU OF CARBON MONOXIDE ALARMS.

LIGHT & VENTILATION: R303.1 HABITABLE ROOMS. HABITABLE ROOMS SHALL HAVE AN AGGREGATE GLAZING AREA OF NOT LESS THAN 8 PERCENT OF THE FLOOR AREA OF SUCH ROOMS. NATURAL VENTILATION SHALL BE THROUGH WINDOWS, SKYLIGHTS, DOORS, LOUVERS OR OTHER APPROVED OPENINGS TO THE OUTDOOR AIR. SUCH OPENINGS SHALL BE PROVIDED WITH READY ACCESS OR SHALL OTHERWISE BE READILY CONTROLLABLE BY THE BUILDING OCCUPANTS. THE OPENABLE AREA TO THE OUTDOORS SHALL BE NOT LESS THAN 4 PERCENT OF THE FLOOR AREA BEING VENTILATED.

EGRESS WINDOWS: R310.2.1 MINIMUM OPENING AREA. EMERGENCY AND ESCAPE RESCUE OPENINGS SHALL HAVE A NET CLEAR OPENING OF NOT LESS THAN 5.7 SQUARE FEET (0.530 M2). THE NET CLEAR OPENING DIMENSIONS REQUIRED BY 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).

WINDOW SILLS: R312.2.1 WINDOW SILLS. IN DWELLING UNITS, WHERE THE TOP OF THE SILL OF AN OPERABLE WINDOW OPENING IS LOCATED LESS THAN 24 INCHES (610 MM) ABOVE THE FINISHED FLOOR AND GREATER THAN 72 INCHES (1829 MM) ABOVE THE FINISHED GRADE OR OTHER SURFACE BELOW ON THE EXTERIOR OF THE BUILDING, THE OPERABLE WINDOW SHALL COMPLY WITH ONE OF THE FOLLOWING:
1. OPERABLE WINDOW OPENINGS WILL NOT ALLOW A 4-INCHDIAMETER (102 MM) SPHERE TO PASS THROUGH WHERE THE
OPENINGS ARE IN THEIR LARGEST OPENED POSITION.
2. OPERABLE WINDOWS ARE PROVIDED WITH WINDOW FALL PREVENTION DEVICES THAT COMPLY WITH ASTM F2090.
3. OPERABLE WINDOWS ARE PROVIDED WITH WINDOW OPENING
CONTROL DEVICES THAT COMPLY WITH SECTION R312.2.2.

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

R307.2 BATHTUB AND SHOWER SPACES. BATHTUB AND SHOWER FLOORS AND WALLS ABOVE BATHTUBS WITH INSTALLED SHOWER HEADS AND IN SHOWER COMPARTMENTS SHALL BE FINISHED WITH A NONABSORBENT SURFACE. SUCH WALL SURFACES SHALL EXTEND TO A HEIGHT OF NOT LESS THAN 6 FEET (1829 MM) ABOVE THE FLOOR.

SHOWER AREAS: R307.1 SHOWERS SHALL BE A MINIMUM SIZE OF 30" BY 30" WITH A 24" IN. CLEARANCE IN FRONT OF OPENING.

WATER CLOSET CLEARANCES: IRC R307.1 WATER CLOSET SHALL BE LOCATED IN A CLEAR SPACE NOT LESS THAN 30" IN WIDTH. THE CLEAR SPACE IN FRONT SHALL NOT BE LESS THAN 21".

WATERPROOF WALL BOARD: ALL WALLS AND CEILINGS OF BATH TUB AND SHOWER ENCLOSURE AREAS SHALL BE COVERED WITH APPROVED WATERPROOF MATERIAL.

UTILITY ROOM WALL BOARD: ALL SURFACES IMMEDIATELY ADJACENT TO WASHERS, DRYERS, AND LAUNDRY TUBS SHALL BE SURFACED WITH APPROVED WATERPROOF MATERIAL.

GYPSUM WALLBOARD: R702.3.7 WATER-RESISTANT GYPSUM BACKING BOARD. GYPSUM BOARD USED AS THE BASE OR BACKER FOR ADHESIVE APPLICATION OF CERAMIC TILE OR OTHER REQUIRED NONABSORBENT FINISH MATERIAL SHALL CONFORM TO ASTM C1178, C1278 OR C1396. USE OF WATER-RESISTANT GYPSUM BACKING BOARD SHALL BE PERMITTED ON CEILINGS. WATER-RESISTANT GYPSUM BOARD SHALL NOT BE INSTALLED OVER A CLASS I OR II VAPOR RETARDER IN A SHOWER OR TUB COMPARTMENT. CUT OR EXPOSED EDGES, INCLUDING THOSE AT WALL INTERSECTIONS, SHALL BE SEALED AS RECOMMENDED BY THE MANUFACTURER.

R702.3.7.1 LIMITATIONS. WATER-RESISTANT GYPSUM BACKING BOARD SHALL NOT BE USED WHERE THERE WILL BE DIRECT EXPOSURE TO WATER, OR IN AREAS SUBJECT TO CONTINUOUS HIGH HUMIDITY.

NOTE: THE PRESCRIPTIVE PATH METHOD OF THE IRC WAS NOT FOLLOWED IN THE DESIGN OF THIS RESIDENCE, ALL LATERAL AND GRAVITY DESIGN SOLUTIONS SHALL BE PROVIDED BY THE ENGINEER OF RECORD.

WOOD IN CONTACT WITH CONCRETE AND MASONRY: IRC 317.1(3) SILLS AND SLEEPERS ON A CONCRETE OR MASONRY SLAB THAT ISIN DIRECT CONTACT WITH THE GROUND UNLESS SEPARATED FROM SUCH SLAB BY AN IMPERVIOUS MOISTURE BARRIER.

R317.1.4 WOOD COLUMNS. WOOD COLUMNS SHALL BE APPROVED WOOD OF NATURAL DECAY RESISTANCE OR APPROVED PRESSURE-PRESERVATIVE-TREATED WOOD.

EXCEPTIONS:
1. COLUMNS EXPOSED TO THE WEATHER OR IN BASEMENTS WHERE SUPPORTED BY CONCRETE PIERS OR METAL PEDESTALS PROJECTING 1 INCH (25 MM) ABOVE A CONCRETE FLOOR OR 6 INCHES (152 MM) ABOVE EXPOSED EARTH AND THE EARTH IS COVERED BY AN APPROVED IMPERVIOUS MOISTURE BARRIER.

2. COLUMNS IN ENCLOSED CRAWL SPACES OR UNEXCAVATED AREAS LOCATED WITHIN THE PERIPHERY OF THE BUILDING WHERE SUPPORTED BY A CONCRETE PIER OR METAL PEDESTAL AT A HEIGHT MORE THAN 8 INCHES (203 MM) FROM EXPOSED EARTH AND THE EARTH IS COVERED BY AN IMPERVIOUS MOISTURE BARRIER.

3. DECK POSTS SUPPORTED BY CONCRETE PIERS OR METAL PEDESTALS PROJECTING NOT LESS THAN 1 INCH (25 MM) ABOVE A CONCRETE FLOOR OR 6 INCHES (152 MM) ABOVE EXPOSED EARTH.

FLOOR FRAMING: R502.6 BEARING. THE ENDS OF EACH JOIST, BEAM OR GIRDER SHALL HAVE NOT LESS THAN 11/2 INCHES (38 MM) OF BEARING ON WOOD OR METAL, HAVE NOT LESS THAN 3 INCHES OF BEARING (76 MM) ON MASONRY OR CONCRETE OR BE SUPPORTED BY APPROVED JOIST HANGERS. ALTERNATIVELY, THE ENDS OF JOISTS SHALL BE SUPPORTED ON A 1-INCH BY 4-INCH (25 MM BY 102 MM) RIBBON STRIP AND SHALL BE NAILED TO THE ADJACENT STUD. THE BEARING ON MASONRY OR CONCRETE SHALL BE DIRECT, OR A SILL PLATE OF 2-INCH-MINIMUM (51 MM) NOMINAL THICKNESS SHALL BE PROVIDED UNDER THE JOIST, BEAM OR GIRDER. THE SILL PLATE SHALL PROVIDE A MINIMUM NOMINAL BEARING AREA OF 48 SQUARE INCHES (30 865 MM2).

BEARING PARTITIONS: R502.4 JOISTS UNDER BEARING PARTITIONS. JOISTS UNDER PARALLEL BEARING PARTITIONS SHALL BE OF ADEQUATE SIZE TO SUPPORT THE LOAD. DOUBLE JOISTS, SIZED TO ADEQUATELY SUPPORT THE LOAD, THAT ARE SEPARATED TO PERMIT THE INSTALLATION OF PIPING OR VENTS SHALL BE FULL-DEPTH SOLID BLOCKED WITH LUMBER NOT LESS THAN 2 INCHES (51 MM) IN NOMINAL THICKNESS SPACED NOT MORE THAN 4 FEET (1219 MM) ON CENTER. BEARING PARTITIONS PERPENDICULAR TO JOISTS SHALL NOT BE OFFSET FROM SUPPORTING GIRDERS, WALLS OR PARTITIONS MORE THAN THE JOIST DEPTH UNLESS SUCH JOISTS ARE OF SUFFICIENT SIZE TO CARRY THE ADDITIONAL LOAD.

WALL FRAMING: R602.3.2 TOP PLATE. WOOD STUD WALLS SHALL BE CAPPED WITH A DOUBLE TOP PLATE INSTALLED TO PROVIDE OVERLAPPING AT CORNERS AND INTERSECTIONS WITH BEARING PARTITIONS. END JOINTS IN TOP PLATES SHALL BE OFFSET NOT LESS THAN 24 INCHES (610 MM). JOINTS IN PLATES NEED NOT OCCUR OVER STUDS. PLATES SHALL BE NOT LESS THAN 2-INCHES (51 MM) NOMINAL THICKNESS AND HAVE A WIDTH NOT LESS THAN THE WIDTH OF THE STUDS.

HEADERS: R502.10 FRAMING OF OPENINGS. OPENINGS IN FLOOR FRAMING SHALL BE FRAMED WITH HEADER AND TRIMMER JOISTS. WHERE THE HEADER JOIST SPAN DOES NOT EXCEED 4 FEET (1219 MM), THE HEADER JOIST SHALL BE A SINGLE MEMBER THE SAME SIZE AS THE FLOOR JOIST. SINGLE TRIMMER JOISTS SHALL BE USED TO CARRY A SINGLE HEADER JOIST THAT IS LOCATED WITHIN 3 FEET (914 MM) OF THE TRIMMER JOIST BEARING. WHERE THE HEADER JOIST SPAN EXCEEDS 4 FEET (1219 MM), THE TRIMMER JOISTS AND THE HEADER JOIST SHALL BE DOUBLED AND OF SUFFICIENT CROSS SECTION TO SUPPORT THE FLOOR JOISTS FRAMING INTO THE HEADER.

STRUCTURAL PROPERTIES FOR HORIZONTAL MEMBERS: THE PRESCRIPTIVE PATH METHOD OF THE IRC WAS NOT FOLLOWED IN THE DESIGN OF THIS RESIDENCE, ALL LATERAL AND GRAVITY DESIGN SOLUTIONS SHALL BE PROVIDED BY THE ENGINEER OF RECORD.

R312.1.2 HEIGHT. REQUIRED GUARDS AT OPEN-SIDED WALKING SURFACES, INCLUDING STAIRS, PORCHES, BALCONIES OR LANDINGS, SHALL BE NOT LESS THAN 36 INCHES (914 MM) IN HEIGHT AS MEASURED VERTICALLY ABOVE THE ADJACENT WALKING SURFACE OR THE LINE CONNECTING THE NOSINGS.

R312.1.3 OPENING LIMITATIONS. REQUIRED GUARDS SHALL NOT HAVE OPENINGS FROM THE WALKING SURFACE TO THE REQUIRED GUARD HEIGHT THAT ALLOW PASSAGE OF A SPHERE 4 INCHES (102 MM) IN DIAMETER.

BUILDING COMPONENTS

WALL INSULATION ABOVE GRADE:	R-21 INTERMEDIATE
FLAT CEILINGS:	R-49
UNDERFLOORS:	R-30
WINDOWS:	U-0.27
SKYLIGHTS:	U-0.50
EXTERIOR DOORS:	U-0.20
EXTERIOR DOORS W/2.5FT GLAZING:	U-0.40

ADDITIONAL MEASURES:

TABLE N1101.1

DUCTLESS HEAT PUMP HSPF 10.0 IN PRIMARY ZONE OF DWELLING W/ PROGRAMMABLE THERMOSTATS FOR ALL HEATERS IN BEDROOMS

TIEVOLI HOMES,
JASON BRISTOL
TOWNSHIP RD. CANBY, OR.
LICENSE # 95435

NORTHWEST HOME DESIGNING, INC.
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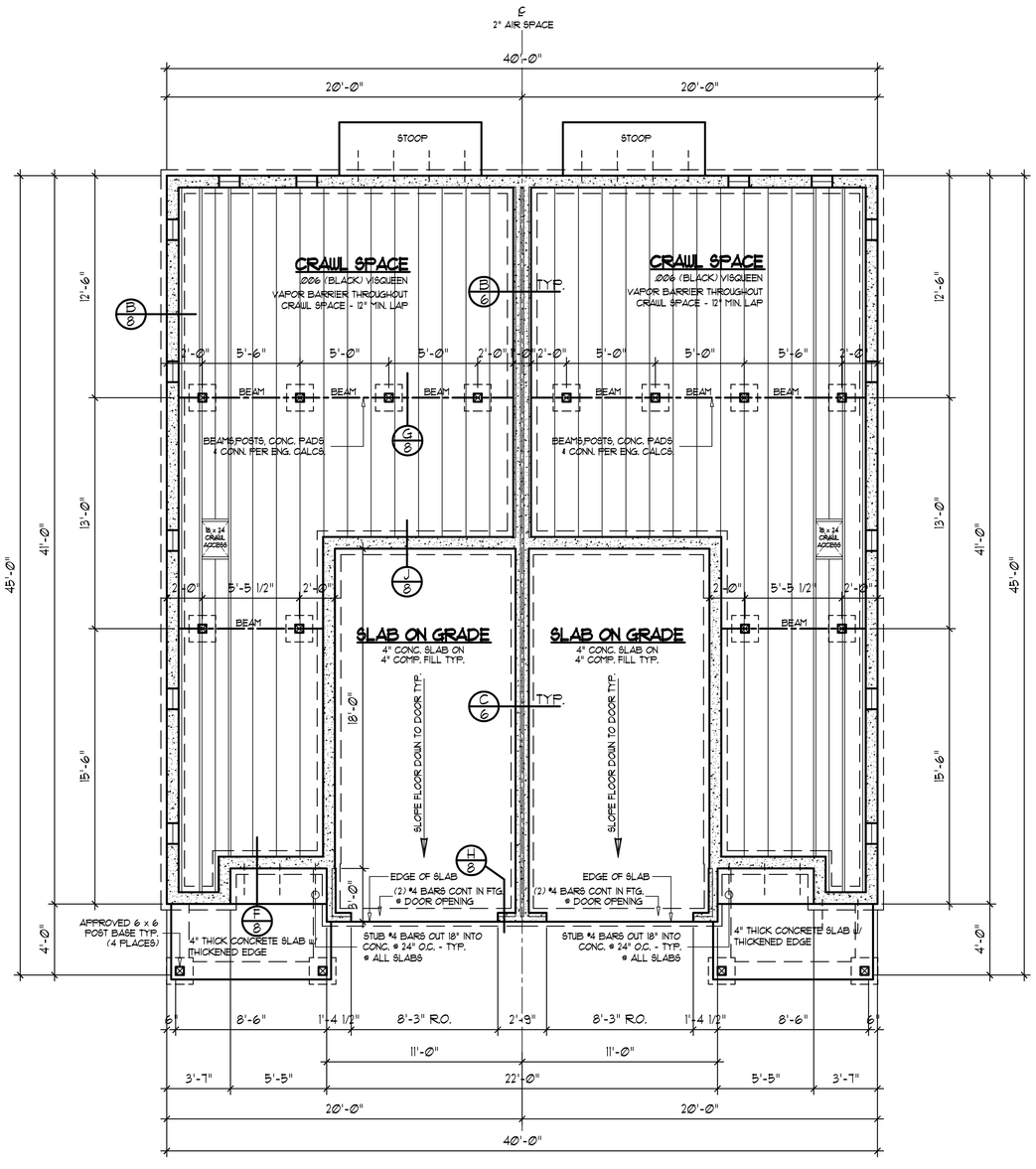

FOUNDATION & FLOOR FRAMING PLAN

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

FOUNDATION VENTILATION

PROVIDE MECHANICAL VENTILATION W/
CONTINUOUSLY OPERATED EXHAUST FAN (AND
INTAKE VENTS) TO PROVIDE A MINIMUM OF 1 CFM
FOR EA. 50 S.F. OF CRAWL SPACE AREA.
(596 Sq. Ft. x 1/150 = 3.97 Sq. Ft. VENT AREA REQ'D PER UNIT)

SOILS: IRC R401.4.1 IN LIEU OF A COMPLETE GEO-TECHNICAL EVALUATION, THE LOAD-BEARING VALUES IN TABLE R401.4.1 SHALL BE USED.

R403.1.5 SLOPE. THE TOP SURFACE OF FOOTINGS SHALL BE LEVEL. THE BOTTOM SURFACE OF FOOTINGS SHALL NOT HAVE A SLOPE EXCEEDING ONE UNIT VERTICAL IN 10 UNITS HORIZONTAL (10-PERCENT SLOPE). FOOTINGS SHALL BE STEPPED WHERE IT IS NECESSARY TO CHANGE THE ELEVATION OF THE TOP SURFACE OF THE FOOTINGS OR WHERE THE SLOPE OF THE BOTTOM SURFACE OF THE FOOTINGS WILL EXCEED ONE UNIT VERTICAL IN 10 UNITS HORIZONTAL (10-PERCENT SLOPE).

EROSION CONTROL: ADJOINING PUBLIC AND PRIVATE PROPERTY SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION, REMODELING AND DEMOLITION WORK. VERIFY METHOD WITH LOCAL JURISDICTION.

R401.3 DRAINAGE. SURFACE DRAINAGE SHALL BE DIVERTED TO A STORM SEWER CONVEYANCE OR OTHER APPROVED POINT OF COLLECTION THAT DOES NOT CREATE A HAZARD. LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS. THE GRADE SHALL FALL NOT FEWER THAN 6 INCHES (152 MM) WITHIN THE FIRST 10 FEET (3048 MM)

FOUNDATION WALL SIZE: 8" AT PERIMETER & 12" AT DEMISING.

R404.1.6 HEIGHT ABOVE FINISHED GRADE. CONCRETE AND MASONRY FOUNDATION WALLS SHALL EXTEND ABOVE THE FINISHED GRADE ADJACENT TO THE FOUNDATION AT ALL POINTS NOT LESS THAN 4 INCHES (102 MM) WHERE MASONRY VENEER IS USED AND NOT LESS THAN 6 INCHES (152 MM) ELSEWHERE.

R403.1.6 FOUNDATION ANCHORAGE. WOOD SILL PLATES AND WOOD WALLS SUPPORTED DIRECTLY ON CONTINUOUS FOUNDATIONS SHALL BE ANCHORED TO THE FOUNDATION IN ACCORDANCE WITH THIS SECTION. WOOD SOLE PLATES AT ALL EXTERIOR WALLS ON MONOLITHIC SLABS, WOOD SOLE PLATES OF BRACED WALL PANELS AT BUILDING INTERIORS ON MONOLITHIC SLABS AND ALL WOOD SILL PLATES SHALL BE ANCHORED TO THE FOUNDATION WITH MINIMUM 1/2-INCH DIAMETER (12.1 MM) ANCHOR BOLTS SPACED NOT GREATER THAN 6 FEET (1829 MM) ON CENTER OR APPROVED ANCHORS OR ANCHOR STRAPS SPACED AS REQUIRED TO PROVIDE EQUIVALENT ANCHORAGE TO 1/2-INCH-DIAMETER (12.7 MM) ANCHOR BOLTS. BOLTS SHALL EXTEND NOT LESS THAN 7 INCHES (178 MM) INTO CONCRETE OR GROUTED CELLS OF CONCRETE MASONRY UNITS. THE BOLTS SHALL BE LOCATED IN THE MIDDLE THIRD OF THE WIDTH OF THE PLATE. A NUT AND WASHER SHALL BE TIGHTENED ON EACH ANCHOR BOLT. THERE SHALL BE NOT FEWER THAN TWO BOLTS PER PLATE SECTION WITH ONE BOLT LOCATED NOT MORE THAN 12 INCHES (305 MM) OR LESS THAN SEVEN BOLT DIAMETERS FROM EACH END OF THE PLATE SECTION. **REFER TO S-SHEETS FOR ADDITIONAL REQUIREMENTS.**

R317.1 LOCATION REQUIRED. PROTECTION OF WOOD AND WOODBASED PRODUCTS FROM DECAY SHALL BE PROVIDED IN THE FOLLOWING LOCATIONS BY THE USE OF NATURALLY DURABLE WOOD OR WOOD THAT IS PRESERVATIVE-TREATED IN ACCORDANCE WITH AWPA U1.
4. THE ENDS OF WOOD GIRDERS ENTERING EXTERIOR MASONRY OR CONCRETE WALLS HAVING CLEARANCES OF LESS THAN 1/2 INCH (12.7 MM) ON TOPS, SIDES AND ENDS.

CONCRETE STRENGTH: IRC R402.2 CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH AS SHOWN IN TABLE R402.2. CONCRETE SUBJECT TO WEATHERING SHALL BE AIR ENTAINED AS SPECIFIED IN TABLE R402.2. **UNLESS NOTED OTHERWISE BY THE ENGINEER OF RECORD ON THEIR S-SHEETS.**

FILL: R506.2.2 BASE. A 4-INCH-THICK (102 MM) BASE COURSE CONSISTING OF CLEAN GRADED SAND, GRAVEL, CRUSHED STONE, CRUSHED CONCRETE OR CRUSHED BLAST-FURNACE SLAG PASSING A 2-INCH (51 MM) SIEVE SHALL BE PLACED ON THE PREPARED SUBGRADE WHERE THE SLAB IS BELOW GRADE.

R403.1.3 FOOTING AND STEM WALL REINFORCING IN SEISMIC DESIGN CATEGORIES D0, D1, AND D2. CONCRETE FOOTINGS LOCATED IN SEISMIC DESIGN CATEGORIES D0, D1 AND D2, AS ESTABLISHED IN TABLE R301.2(1), SHALL HAVE MINIMUM REINFORCEMENT IN ACCORDANCE WITH THIS SECTION AND FIGURE R403.1.3. REINFORCEMENT SHALL BE INSTALLED WITH SUPPORT AND COVER IN ACCORDANCE WITH SECTION R403.1.3.5.

R403.1.4 MINIMUM DEPTH. EXTERIOR FOOTINGS SHALL BE PLACED NOT LESS THAN 12 INCHES (305 MM) BELOW THE UNDISTURBED GROUND SURFACE. WHERE APPLICABLE, THE DEPTH OF FOOTINGS SHALL ALSO CONFORM TO SECTION R403.1.4.1.

R403.1.1 MINIMUM SIZE. THE MINIMUM WIDTH, W, AND THICKNESS, T, FOR CONCRETE FOOTINGS SHALL BE IN ACCORDANCE WITH TABLES R403.1(1) THROUGH R403.1(3) AND FIGURE R403.1(1) OR R403.1.3, AS APPLICABLE. THE FOOTING WIDTH SHALL BE BASED ON THE LOAD-BEARING VALUE OF THE SOIL IN ACCORDANCE WITH TABLE R401.4.1. FOOTING PROJECTIONS, P, SHALL BE NOT LESS THAN 2 INCHES (51 MM) AND SHALL NOT EXCEED THE THICKNESS OF THE FOOTING. FOOTING THICKNESS AND PROJECTION FOR FIREPLACES SHALL BE IN ACCORDANCE WITH SECTION R1002. **REFER TO S-SHEETS FOR ADDITIONAL REQUIREMENTS.**

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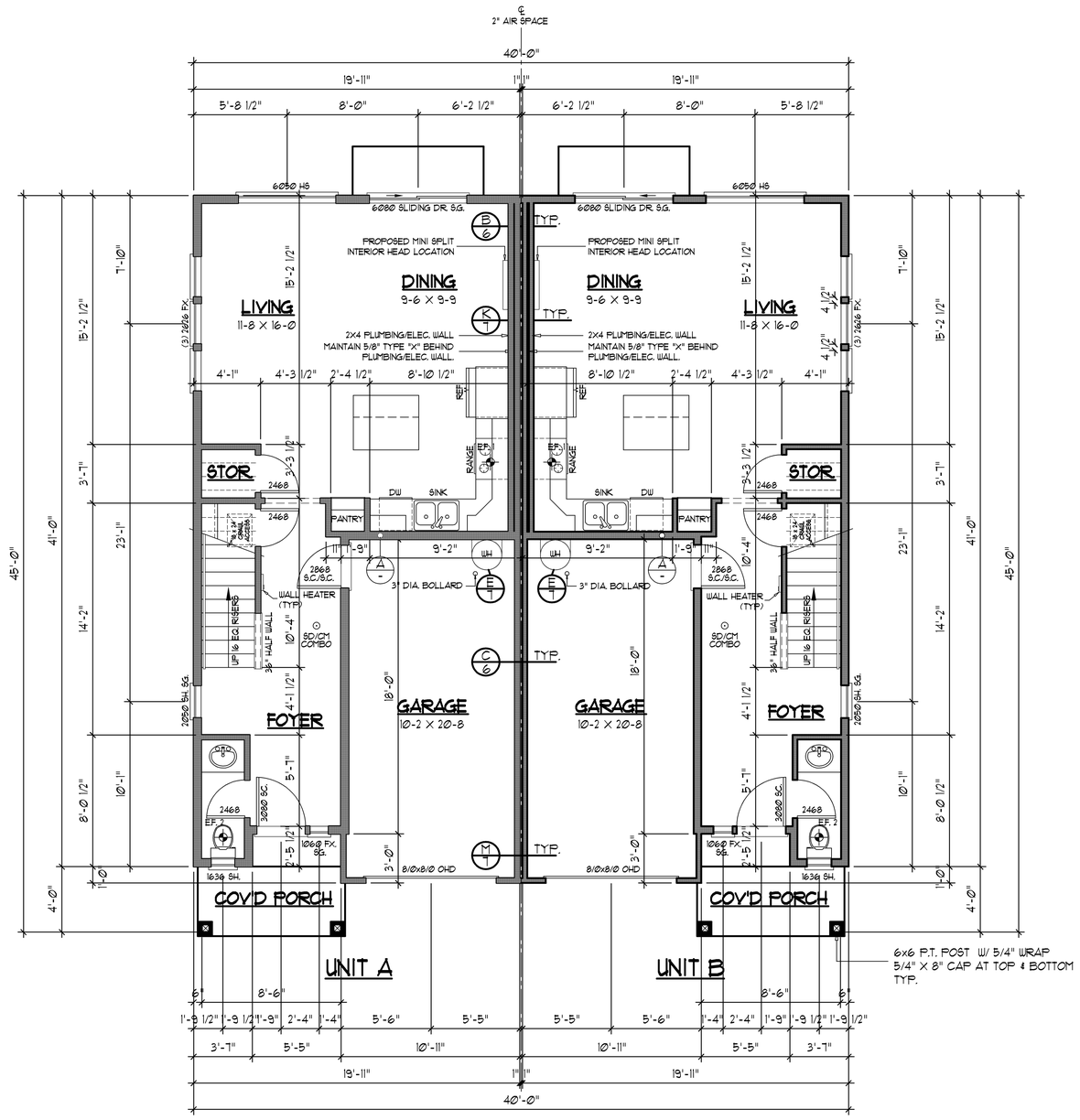

MAIN FLOOR PLAN

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SCALE : ¼" = 1'-0"

AREA SUMMARY

MAIN FLOOR: 596 S.F.
UPPER FLOOR: 756 S.F.

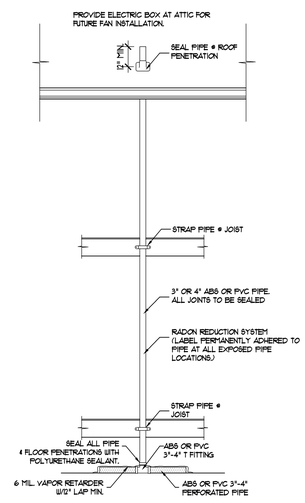
TOTAL: 1,352 S.F.

GARAGE: 211 S.F.
COV'D PORCH: 45 S.F.
GLASS AREA .. 156.25 S.F.
GLAZING PERCENTAGE (GL / FL) .. 11.6 %

VENTILATION REQUIREMENTS

1	"PANASONIC" FV-11VK3 110CFM .8 SONES	112 CFM @ .25 WS 110 CFM @ .1 WS
2	"PANASONIC" FV-08VK3 80CFM .4 SONES	79 CFM @ .25 WS 80 CFM @ .1 WS

NOTES:
1. USE PANASONIC FV-11VK3 (100 CFM MIN.) @ ALL KITCHEN & WHOLE HOUSE FAN.
2. USE PANASONIC FV-08VK3 (50 CFM MIN.) @ ALL OTHER LOCATIONS.
3. ALL FANS TO VENT DIRECTLY TO OUTSIDE.
4. ALL OTHER REQUIREMENTS OF WSEC MUST BE MET.



RADON PIPING DETAIL (A)

NTS.

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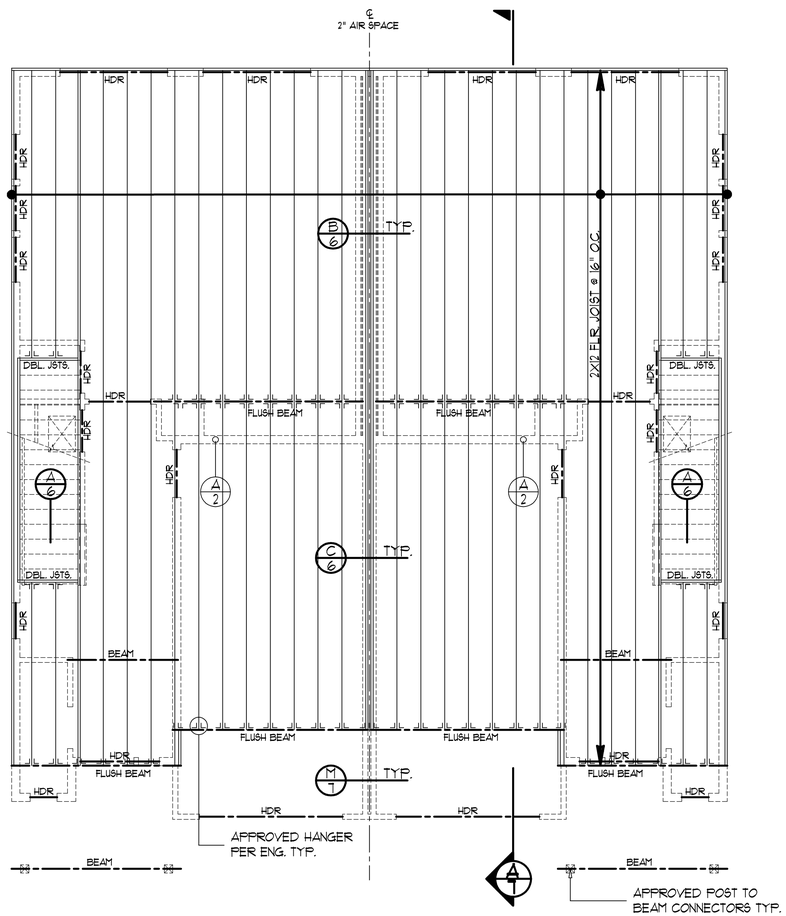

UPPER FLOOR FRAMING PLAN

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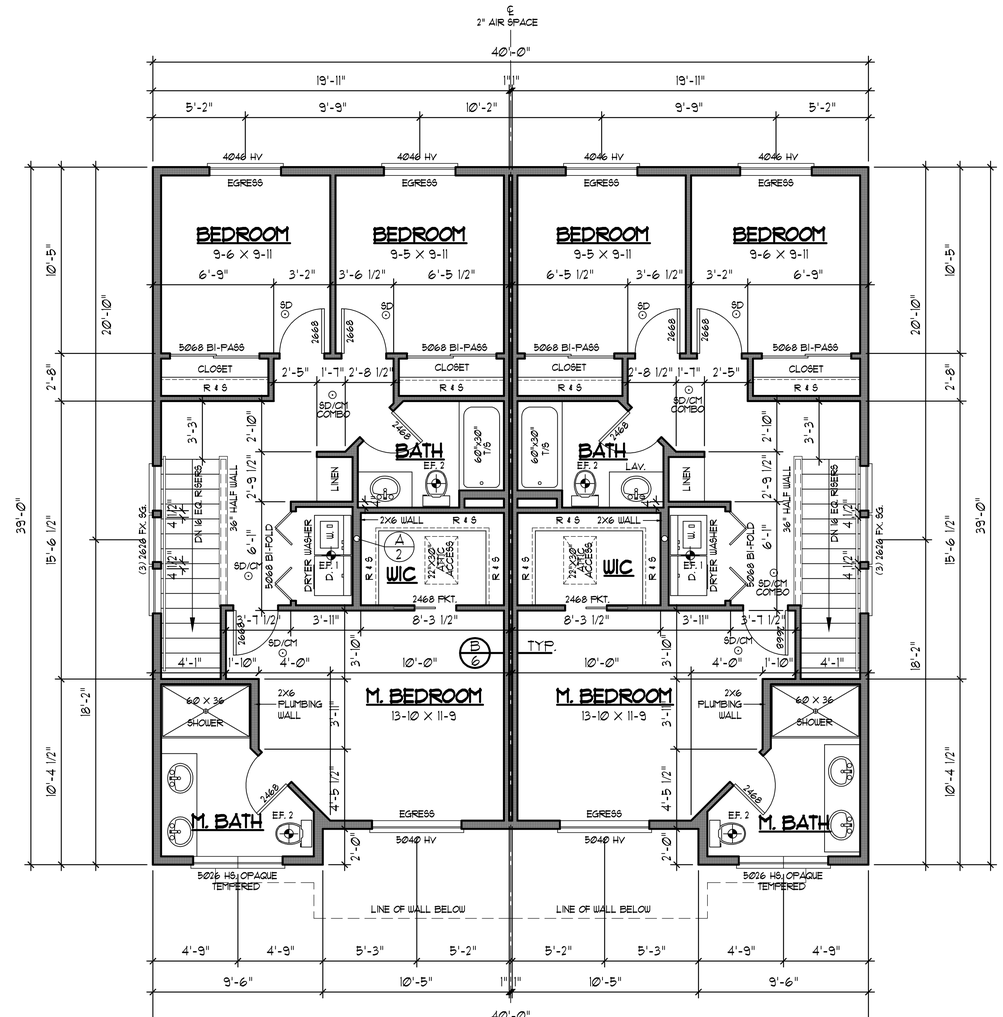
SCALE : 1/4" = 1'-0"



UPPER FLOOR PLAN

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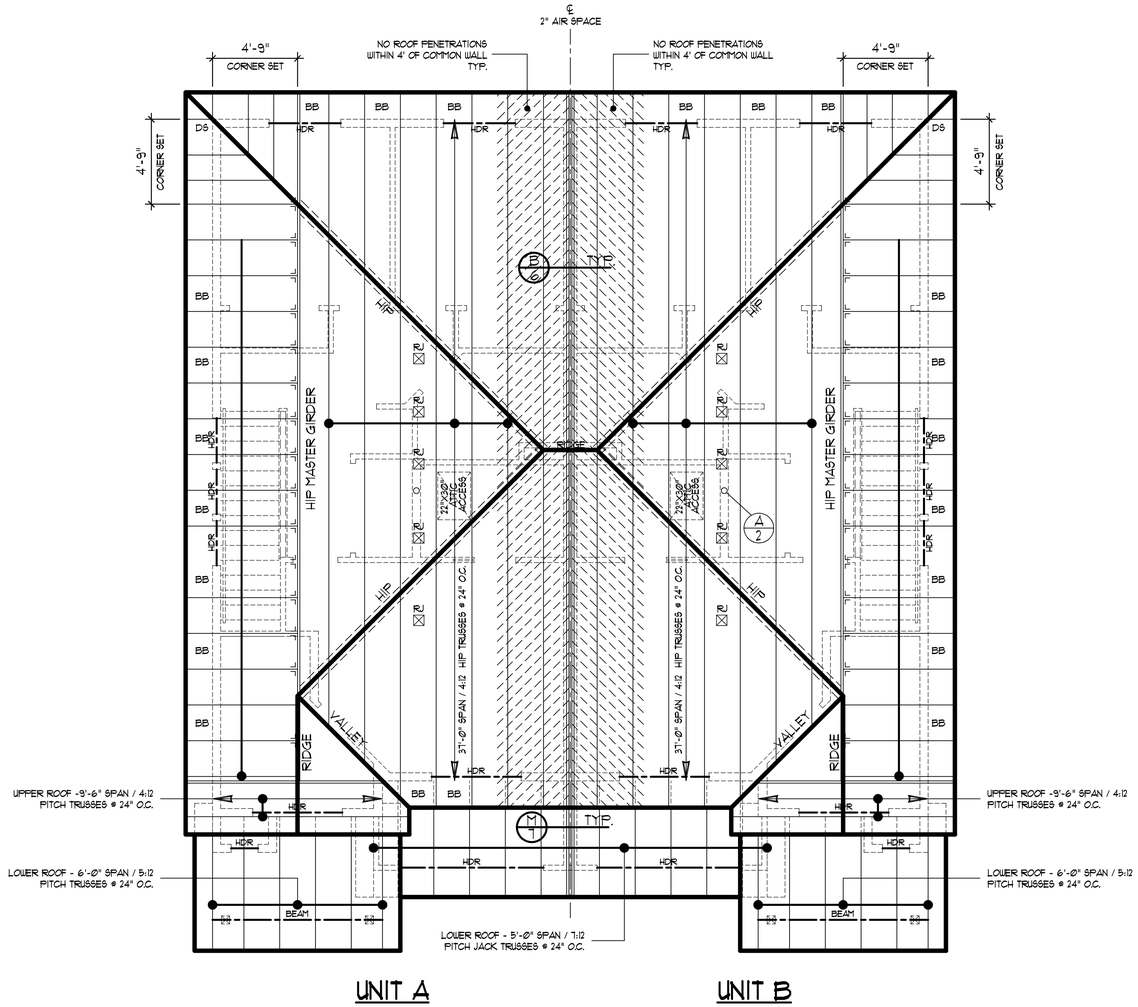

ROOF FRAMING PLAN

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SCALE : ¼" = 1'-0"

ATTIC VENTILATION

PROVIDE ATTIC SPACE VENTILATION AS PER IRC
(1,532 Sq. Ft. x 1/150 = 10.2 Sq. Ft. VENT AREA REQ'D)
(10.2 Sq. Ft./ 2 = 5.1 Sq. Ft. REQ'D PER UNIT)

ROOF VENTILATION EACH UNIT

30'-0" CONT. RIDGE VENT = 14" (18 SQ. IN.) ..... 3.75 SQ. FT.
11 EA. (BB) BIRD BLOCKING = 2 HOLES W/ 3" DIA HOLES (.0491 SQ. FT.) ..... .54 SQ. FT.
5 EA. (RJ) ROOF JACKS = (MASTER FLOW) 60 SQ. IN. (.416 SQ. FT.) ..... 2.08 SQ. FT.
TOTAL PROVIDED ..... 6.37 SQ. FT.

TRUSSES: R502.1.1 DESIGN. WOOD TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH APPROVED ENGINEERING PRACTICE. THE DESIGN AND MANUFACTURE OF METAL-PLATE-CONNECTED WOOD TRUSSES SHALL COMPLY WITH ANSI/TPI 1. THE TRUSS DESIGN DRAWINGS SHALL BE PREPARED BY A REGISTERED PROFESSIONAL WHERE REQUIRED BY THE STATUTES OF THE JURISDICTION IN WHICH THE PROJ- ECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH SECTION R106.1.

R502.1.1.2 BRACING. TRUSSES SHALL BE BRACED TO PREVENT ROTATION AND PROVIDE LATERAL STABILITY IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE CONSTRUCTION DOCUMENTS FOR THE BUILDING AND ON THE INDIVIDUAL TRUSS DESIGN DRAWINGS. IN THE ABSENCE OF SPECIFIC BRACING REQUIREMENTS, TRUSSES SHALL BE BRACED IN ACCORDANCE WITH ACCEPTED INDUSTRY PRACTICES, SUCH AS, THE SBCA BUILDING COMPONENT SAFETY INFORMATION (BCSI) GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING & BRACING OF METAL PLATE CONNECTED WOOD TRUSSES.

R905.2.7 ROOF SLOPES FROM 2 UNITS VERTICAL BY 12 UNITS HORIZONTAL UP TO 4 UNITS VERTICAL BY 12 UNITS HORIZONTAL. UNDERLAYMENT SHALL BE 2 LAYERS OVERLAPPING 19 INCHES. FOR SLOPES OF 4 UNITS VERTICAL BY 12 UNITS HORIZONTAL OR GREATER, UNDERLAYMENT SHALL BE 1 LAYER OVERLAPPPING 2 INCHES.

R903.2.1 LOCATIONS. FLASHINGS SHALL BE INSTALLED AT WALL AND ROOF INTERSECTIONS, WHEREVER THERE IS A CHANGE IN ROOF SLOPE OR DIRECTION AND AROUND ROOF OPENINGS. A FLASHING SHALL BE INSTALLED TO DIVERT THE EATER AWAY FROM WHERE THE EAVE OF A SLOPED ROOF INTERSECTS A VERTICAL SIDEWALL. WHERE FLASHING IS OF METAL, THE METAL SHALL BE CORROSION RESISTANT WITH A THICKNESS OF NOT LESS THAN .0019 INCH (.05 MM) (NO. 26 GALVANIZED SHEET).

R703.4 FLASHING. APPROVED CORROSION-RESISTANT FLASHING SHALL BE APPLIED SHINGLE-FASHION IN A MANNER TO PREVENT ENTRY OF WATER INTO THE WALL CAVITY OR PENETRATION OF WATER TO THE BUILDNG STRUCTURAL FRAMING COMPONENTS. SELF-ADHERED MEMBRANES USED AS FLASHING SHALL COMPLY WITH AAMA 711. FLUID-APPLIED MEMBRANES USED AS FLASHING IN EXTERIOR WALLS SHALL COMPLY WITH AAMA 714. THE FLASHING SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL FINISH. APPROVED CORROSION-RESISTANT FLASHINGS SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS:
1. EXTERIOR WINDOW AND DOOR OPENINGS. FLASHING AT EXTE- RIOR WINDOW AND DOOR OPENINGS SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL FINISH OR TO THE WATER-RESISTIVE BARRIER COMPLYING WITH SECTION 703.2 FOR SUBSEQUENT DRAINAGE. MECHANICALLY ATTACHED FLEXIBLE FLASHINGS SHALL COMPLY WITH AAMA 712. FLASHING AT EXTERIOR WINDOW AND DOOR OPENINGS SHALL BE INSTALLED IN ACCORDANCE WITH ONE OR MORE OF THE FOLLOWING:
11. THE FENESTRATION MANUFACTURER'S INSTALLATION AND FLASHING INSTRUCTIONS, OR FOR APPLICATIONS NOT ADDRESSED IN THE FENESTRATION MANUFACTURER' S INSTRUCTIONS, IN ACCORDANCE WITH THE FLASHING MANUFACTURER' S INSTRUCTIONS. WHERE FLASHING INSTRUCTIONS OR DETAILS ARE NOT PROVIDED, PAN FLASHING SHALL BE INSTALLED AT THE SILL OF EXTERIOR WINDOW AND DOOR OPENINGS. PAN FLASHING SHALL BE SEALED OR SLOPED IN SUCH A MANNER AS TO DIRECT WATER TO THE SURFACE OF THE EXTERIOR WALL FINISH OR TO THE WATER-RESISTIVE BARRIER FOR SUBSEQUENT DRAINAGE. OPENINGS USING PAN FLASHING SHALL INCORPORATE FLASHING OR PROTECTION AT THE HEAD AND SIDES.
12. IN ACCORDANCE WITH THE FLASHING DESIGN OR METHOD OF A REGISTERED DESIGN PROFESSIONAL.
13. IN ACCORDANCE WITH OTHER APPROVED METHODS.
2. AT THE INTERSECTION OF CHIMNEYS OR OTHER MASONRY CON- STRUCTION 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.

WEATHER RESISTIVE SHEATHING PAPER: R703.2 WATER-RESISTIVE BARRIER. ONE LAYER OF NO. 15 ASPHALT FELT, FREE FROM HOLES AND BREAKS, COMPLYING WITH ASTM D 226 FOR TYPE I FELT OR OTHER APPROVED WATER-RESISTIVE BARRIER SHALL BE APPLIED OVER STUDS OR SHEATHING OF ALL EXTERIOR WALLS. SUCH FELT OR MATERIAL SHALL BE APPLIED HORIZONTALLY, WITH THE UPPER LAYER LAPPED OVER THE LOWER LAYER NOT LESS THAN 2 INCHES (51 MM). WHERE JOINTS OCCUR, FELT SHALL BE LAPPED NOT LESS THAN 6 INCHES (152 MM). THE FELT OR OTHER APPROVED MATERIAL SHALL BE CONTINUOUS TO THE TOP OF WALLS AND TERMINATED AT PEN- ETRATIONS AND BUILDING APPENDAGES IN A MANNER TO MEET THE REQUIREMENTS OF THE EXTERIOR WALL ENVELOPE AS DESCRIBED IN SECTION R703.1. THE WATER-RESISTIVE BARRIER IS NOT REQUIRED FOR DETACHED ACCESSORY BUILDINGS.

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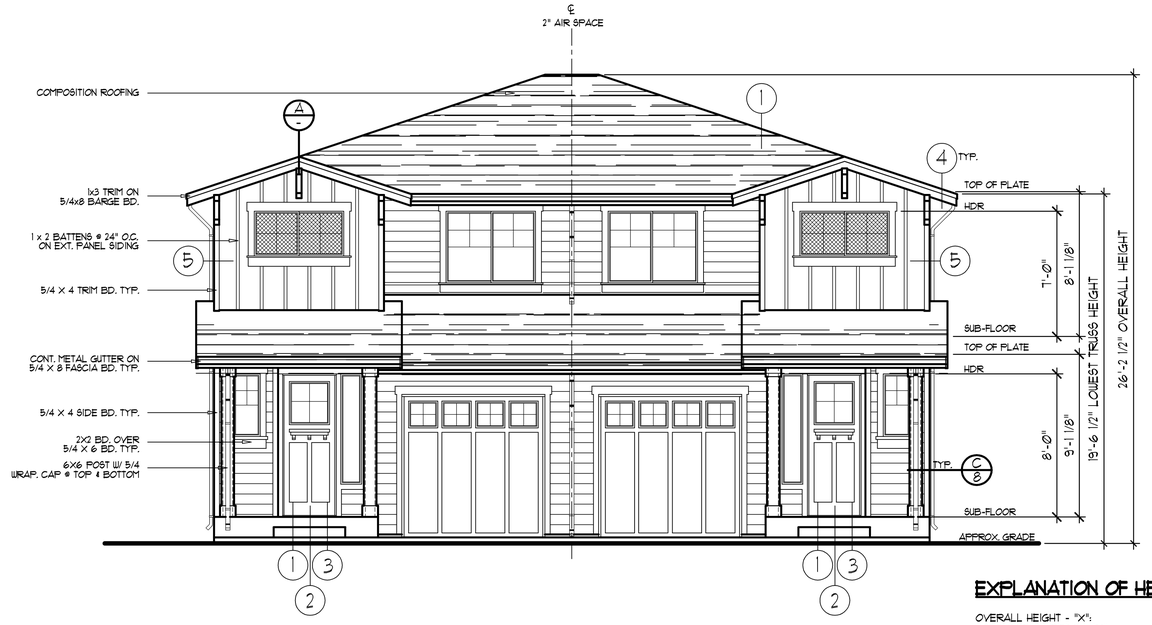

FRONT ELEVATION

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SCALE : ¼"= 1'-0"

DESIGN STANDARD

GARAGE WIDTH = 55%

1. GABLES, HIP ROOF OR GAMBREL ROOF FORM.
2. FRONT ENTRY RECESSED 3' FOR INTERIOR UNITS & 5'-6" FOR EXTERIOR UNITS.
3. COVERED PORCH ENTRIES. (MIN. 48 SQ. FT., MIN. 4' DEEP)
4. ANY EAVES OF 12 INCHES OR GREATER.
5. OFF-SET OF 16 INCHES OR GREATER ON BUILDING FACE OR ROOF.
6. WINDOWS AND MAIN ENTRANCE DOORS OCCUPY A MINIMUM OF THE FACADE. (NOT INCUDING THE ROOF)

WINDOW AREA SUMMARY:

6

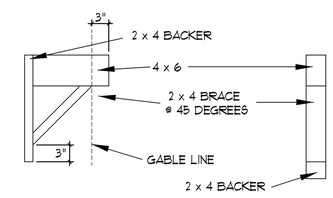
BUILDING FACADE SQ. FT. = 651 SQ. FT.
WINDOW AREA REQ TO EQUAL 15% TRANSPARENCY - 97.65 SQ. FT.
WINDOW AREA PROVIDED - 110.5 SQ. FT.

TOTAL FACADE TRANSPARENCY - 16.9%

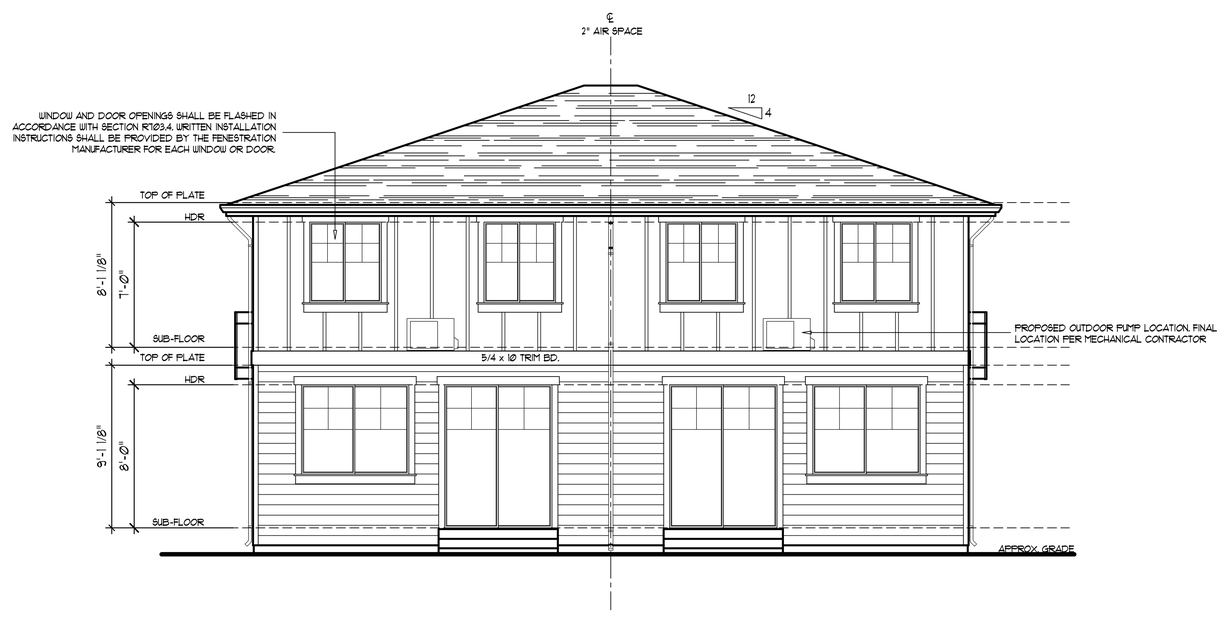
EXPLANATION OF HEIGHT

OVERALL HEIGHT - "X":	26'-2 1/2"
LOWEST TRUSS POINT - "Y":	19'-6 1/2"
26'-2 1/2" (X) - 19'-6 1/2" (Y) =	6'-8" (Q)
6'-8" (Q) / 2 =	3'-4"
19'-6 1/2" (Y) + 3'-4" =	22'-10 1/2"

AVERAGE HEIGHT = 22'-10 1/2"



GABLE BRACE DETAIL A



REAR ELEVATION

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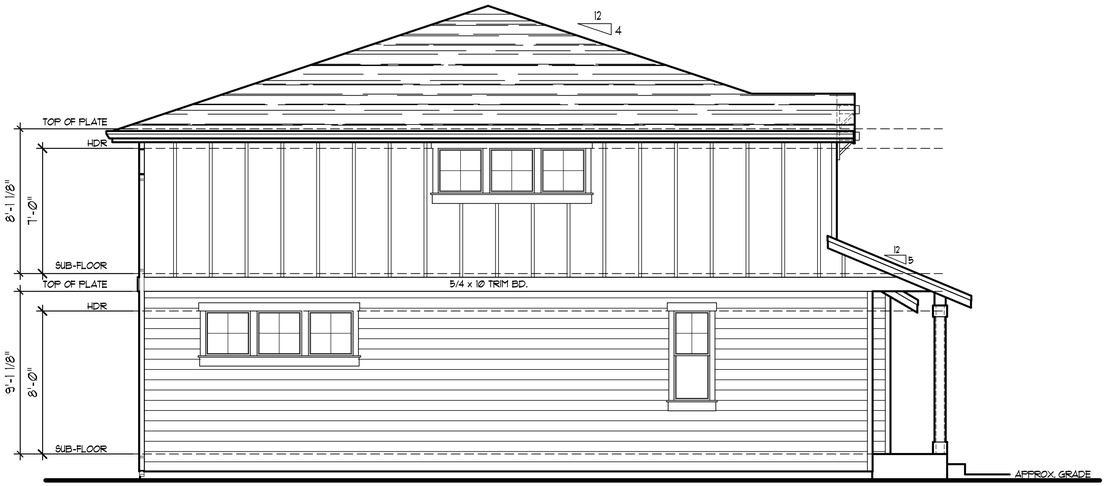

LEFT ELEVATION

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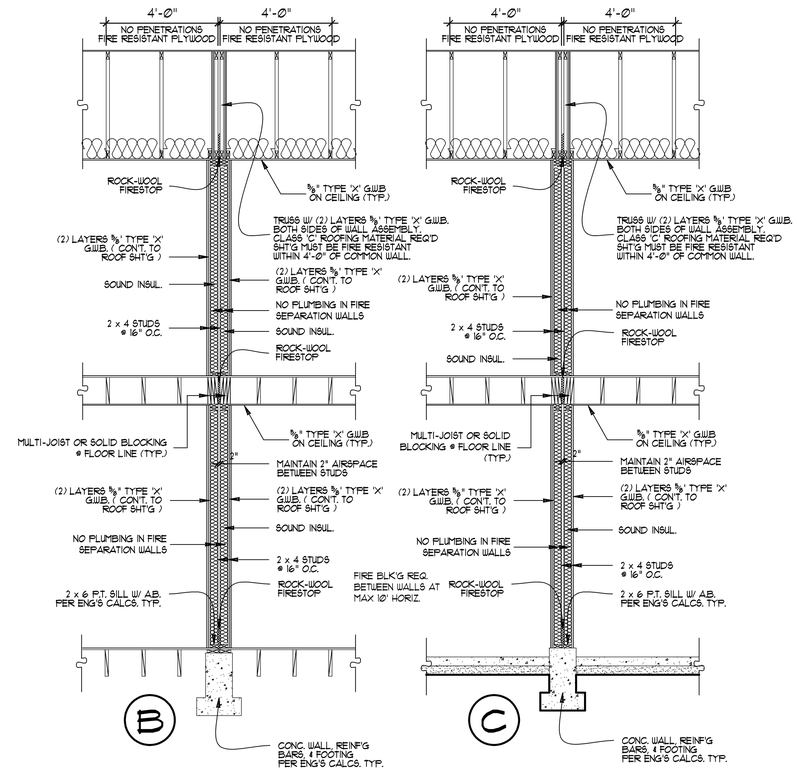


TYP. 2-HOUR COMMON WALL DETAIL

SCALE : 3/8" = 1'-0"

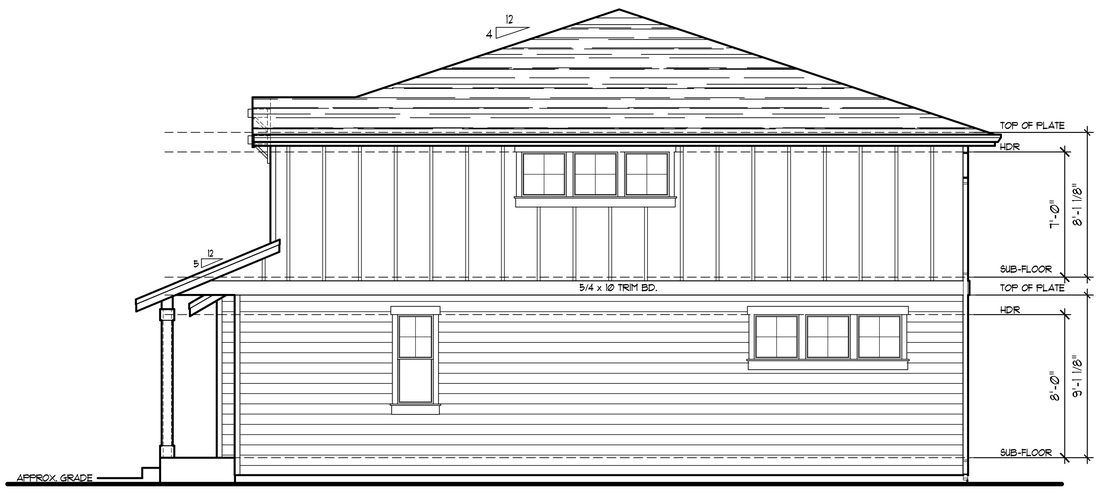
GA FILE NO. WP 3725	GENERIC	2 HOUR FIRE	65 TO 69 STC SOUND

GYPSUM WALLBOARD, WOOD STUDS, INSULATION

FIRE DESIGN:
BASE LAYER 5/8" TYPE X GYPSUM WALLBOARD OR GYPSUM VENEER BASE APPLIED AT RIGHT ANGLES TO EACH SIDE OF DOUBLE R20 OD 2X4 WOOD STUDS 16" O.C. ON SEPARATE PLATES 1" APART WITH 2" TYPE W SCREWS 24" O.C.
FACE LAYER 5/8" TYPE X GYPSUM WALLBOARD OR GYPSUM VENEER BASE APPLIED AT RIGHT ANGLES TO EACH SIDE WITH 2-1/ 2" TYPE W SCREWS, 8" O.C. TWO LAYERS 3.5" UNFACED GLASS FIBER INSULATION FRICTION FIT BETWEEN STUD, ONE PER SIDE.
JOISTS STAGGERED 16" EACH LAYER AND SIDE. HORIZONTAL BRACING REQUIRED AT MID-HEIGHT. (LOAD BEARING)

SOUND DESIGN:
A: SOUND TESTED WITHOUT BRACING
B: SOUND TESTED WITH BRACING

THICKNESS: 10 3/4" (FIRE & SOUND)
APPROX. WEIGHT: 11.5 Psf (SYSTEM A FIRE & SOUND)
12 Psf (SYSTEM B FIRE & SOUND)
FIRE TEST: UL R4024, 10-31-68
SOUND TEST: A: NCAL 11-0842, 8-28-11
B: NCAL 11-0843, 8-28-11



RIGHT ELEVATION

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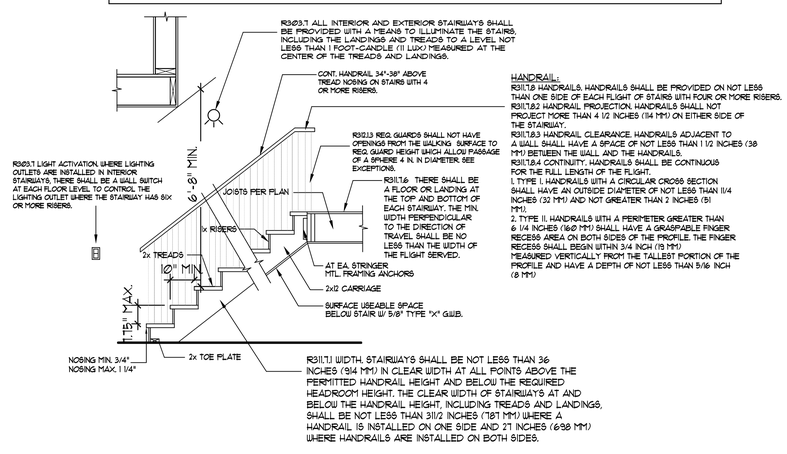

HANDRAIL:
R311.7.8 HANDRAILS. HANDRAILS SHALL BE PROVIDED ON NOT LESS THAN ONE SIDE OF EACH FLIGHT OF STAIRS WITH FOUR OR MORE RISERS.
R311.7.8.2 HANDRAIL PROJECTION. HANDRAILS SHALL NOT PROJECT MORE THAN 4 1/2 INCHES (114 MM) ON EITHER SIDE OF THE STAIRWAY.
R311.7.8.3 HANDRAIL CLEARANCE. HANDRAILS ADJACENT TO A WALL SHALL HAVE A SPACE OF NOT LESS THAN 1 1/2 INCHES (38 MM) BETWEEN THE WALL AND THE HANDRAILS.
R311.7.8.4 CONTINUITY. HANDRAILS SHALL BE CONTINUOUS FOR THE FULL LENGTH OF THE FLIGHT.
1. TYPE I. HANDRAILS WITH A CIRCULAR CROSS SECTION SHALL HAVE AN OUTSIDE DIAMETER OF NOT LESS THAN 1 1/4 INCHES (32 MM) AND NOT GREATER THAN 2 INCHES (51 MM).
2. TYPE II. HANDRAILS WITH A PERIMETER GREATER THAN 6 1/4 INCHES (160 MM) SHALL HAVE A GRASPABLE FINGER RECESS AREA ON BOTH SIDES OF THE PROFILE. THE FINGER RECESS SHALL BEGIN WITHIN 3/4 INCH (19 MM) MEASURED VERTICALLY FROM THE TALLEST PORTION OF THE PROFILE AND HAVE A DEPTH OF NOT LESS THAN 5/16 INCH (8 MM)

STAIR CONSTRUCTION DETAIL (SIMILAR) A

NTS.

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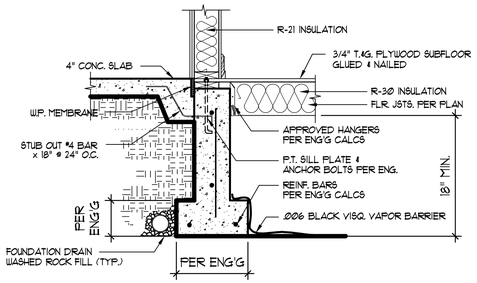
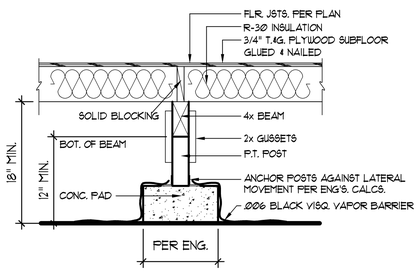


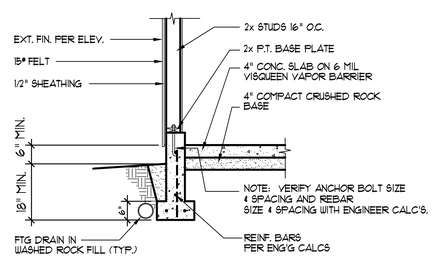
PORCH/SLAB DETAIL (F)

SCALE: 3/4" = 1'-0"



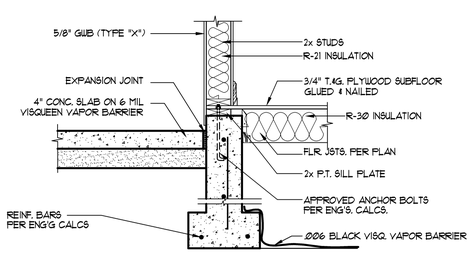
GIRDER DETAIL (G)

SCALE: 3/4" = 1'-0"



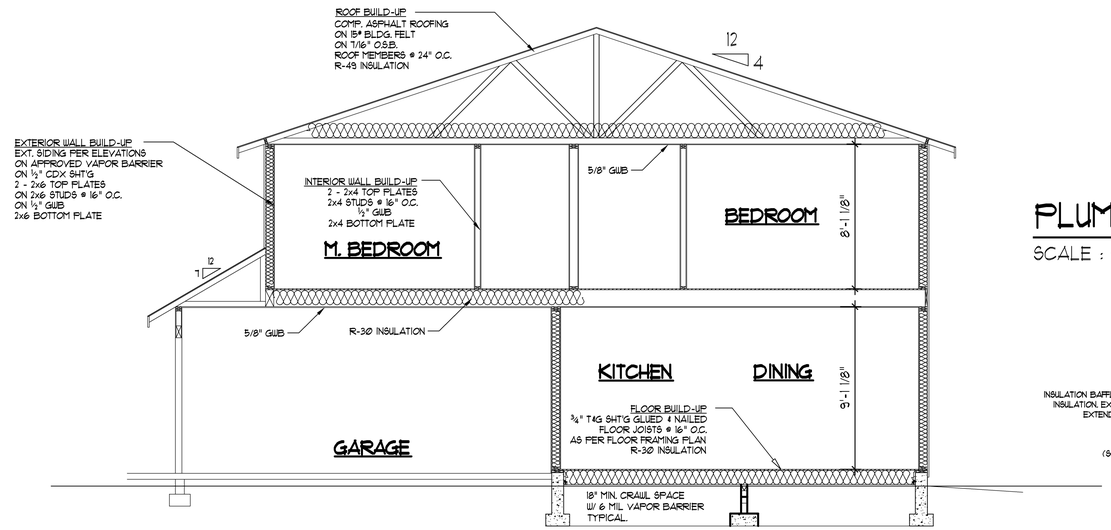
STEM WALL DETAIL (H)

SCALE: 3/4" = 1'-0"



GARAGE / DWELLING SEPARATION DETAIL (J)

SCALE: 3/4" = 1'-0"



SECTION - A

SCALE : ¼" = 1'-0"

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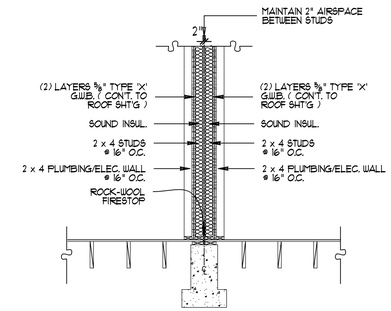
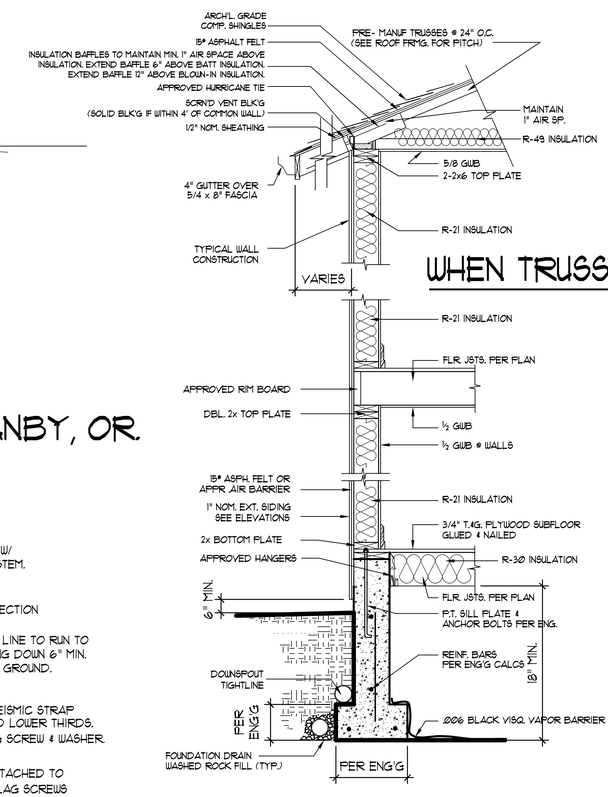


PLUMBING / ELEC. WALL DETAIL (K)

SCALE : ⅜" = 1'-0"



WHEN TRUSSED

TYP. TWO STORY CONFIG. (B)

SCALE: 3/4" = 1'-0"

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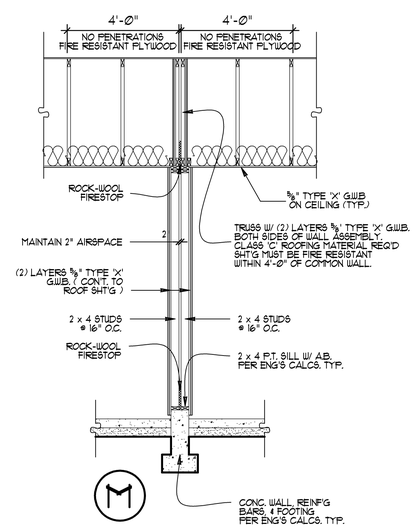
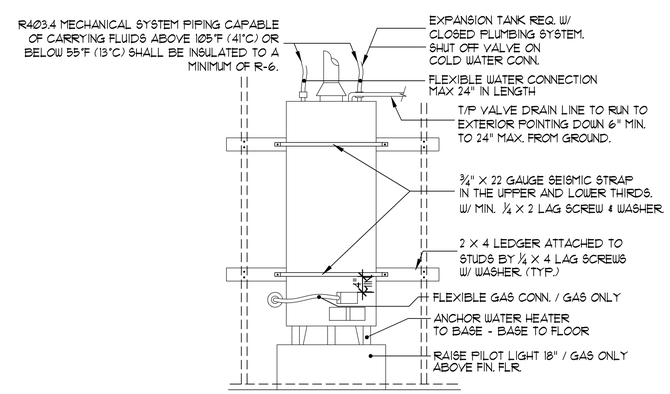


(M)

2-HOUR COMMON WALL DETAIL

SCALE : ⅜" = 1'-0"



WATER HEATER SUPPORT (E)

(ALL ELECTRIC WATER HEATERS IN UNHEATED SPACES OR ON CONCRETE FLOORS SHALL BE PLACED ON A INSULATED SURFACE WITH A MIN. THERMAL RESISTANCE OF R-10 AND A MINIMUM COMPRESSIVE STRENGTH OF 40 PSI.

NOTE:
While every attempt has been made to assure the accuracy of these drawings, **ALL INFORMATION MUST BE VERIFIED** prior to ordering any raw materials or fabricated components.
Any structural components specified are for reference only and must be verified with the **ENGINEER OF RECORD's "S-Sheets"** and/or (attached) documents

NORTHWEST HOME DESIGNING, INC.
P.O. BOX 881038, STEILACOOM, WA 98388 (253) 584-6309
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DRAWN BY	MJW
DESIGN	RM-2407 CC
SHEET NUMBER	7
	7 OF 7

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THE PURCHASER MUST ENSURE THAT THE PLANS COMPLY WITH ALL LOCAL, AS WELL AS NATIONAL BUILDING CODES AND REQUIREMENTS, WHICH ARE APPLICABLE FOR THE SPECIFIC SITE AND STRUCTURAL ENGINEERING REQUIREMENTS. BEFORE BEGINNING CONSTRUCTION, PURCHASER MUST HAVE PLANS REVIEWED BY A LICENCED STRUCTURAL ENGINEER WHO WILL PROVIDE ANALYSIS, CALCULATIONS, DRAWINGS, AND DATA (INCLUDING HIS OR HER LICENSEE "STAMP") WHICH WILL BE SUBMITTED (WHERE REQUIRED) WITH THESE DRAWINGS AND SPECIFICATIONS TO THE LOCAL BUILDING OFFICIALS. FAILURE TO DO THIS RENDERS THESE DOCUMENTS LEGALLY INVALID AND ABSOLVES NHD OF ANY LIABILITY (EXPRESS OR IMPLIED) WITH REGARDS TO PUNITIVE DAMAGES.

APPROVED PLANS: IRC 106.3.1
APPROVAL OF CONSTRUCTION DOCUMENTS. WHEN THE BUILDING OFFICIAL ISSUES A PERMIT, THE CONSTRUCTION DOCUMENTS SHALL BE APPROVED IN WRITING OR BY A STAMP WHICH STATES "REVIEWED FOR CODE COMPLIANCE." ONE SET OF CONSTRUCTION DOCUMENTS SO REVIEWED SHALL BE RETAINED BY THE BUILDING OFFICIAL. THE OTHER SET SHALL BE RETURNED TO THE APPLICANT, SHALL BE KEPT AT THE SITE OF WORK AND SHALL BE OPEN TO INSPECTION BY THE BUILDING OFFICIAL OR HIS OR HER AUTHORIZED REPRESENTATIVE.

PREMISES IDENTIFICATION: R319.1 ADDRESS IDENTIFICATION. BUILDINGS SHALL BE PROVIDED WITH APPROVED ADDRESS IDENTIFICATION. THE ADDRESS IDENTIFICATION SHALL BE LEGIBLE AND PLACED IN A POSITION THAT IS VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. ADDRESS IDENTIFICATION CHARACTERS SHALL CONTRAST WITH THEIR BACKGROUND. ADDRESS NUMBERS SHALL BE ARABIC NUMBERS OR ALPHABETICAL LETTERS. NUMBERS SHALL NOT BE SPELLED OUT. EACH CHARACTER SHALL BE NOT LESS THAN 4 INCHES (102 MM) IN HEIGHT WITH A STROKE WIDTH OF NOT LESS THAN 0.5 INCH (12.7 MM). WHERE REQUIRED BY THE FIRE CODE OFFICIAL, ADDRESS IDENTIFICATION SHALL BE PROVIDED IN ADDITIONAL APPROVED LOCATIONS TO FACILITATE EMERGENCY RESPONSE. WHERE ACCESS IS BY MEANS OF A PRIVATE ROAD AND THE BUILDING ADDRESS CANNOT BE VIEWED FROM THE PUBLIC WAY, A MONUMENT, POLE OR OTHER SIGN OR MEANS SHALL BE USED TO IDENTIFY THE STRUCTURE. ADDRESS IDENTIFICATION SHALL BE MAINTAINED.

GROUNDED OUTLETS: ALL RECEPTACLES SHALL BE GROUNDED TYPE. RECEPTACLES LOCATED IN KITCHENS AND BATHS SHALL BE INSTALLED ABOVE THE WORK TOP . OTHER RECEPTACLES SHALL BE INSTALLED AT 12" VERTICALLY ABOVE THE FLOOR, UNLESS SHOWN OTHERWISE ON THE DRAWINGS.

WALL SWITCHES: WALL SWITCHES SHALL BE INSTALLED 42" ABOVE THE FLOOR, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

M1305.1 APPLIANCE ACCESS FOR INSPECTION SERVICE, REPAIR AND REPLACEMENT. APPLIANCES SHALL BE ACCESSIBLE FOR INSPECTION, SERVICE, REPAIR AND REPLACEMENT WITHOUT REMOVING PERMANENT CONSTRUCTION, OTHER APPLIANCES, OR ANY OTHER PIPING OR DUCTS NOT CONNECTED TO THE APPLIANCE BEING INSPECTED, SERVICED, REPAIRED OR REPLACED. A LEVEL WORKING SPACE NOT LESS THAN 30 INCHES DEEP AND 30 INCHES WIDE (762 MM BY 762 MM) SHALL BE PROVIDED IN FRONT OF THE CONTROL SIDE TO SERVICE AN APPLIANCE.

APPLIANCES LOCATED IN GARAGE: M1307.3 ELEVATION OF IGNITION SOURCE. APPLIANCES HAVING AN IGNITION SOURCE SHALL BE ELEVATED SUCH THAT THE SOURCE OF IGNITION IS NOT LESS THAN 18 INCHES (457 MM) ABOVE THE FLOOR IN GARAGES. FOR THE PURPOSE OF THIS SECTION, ROOMS OR SPACES THAT ARE NOT PART OF THE LIVING SPACE OF A DWELLING UNIT AND THAT COMMUNICATE WITH A PRIVATE GARAGE THROUGH OPENINGS SHALL BE CONSIDERED TO BE PART OF THE GARAGE.
M1307.3.1 PROTECTION FROM IMPACT. APPLIANCES SHALL NOT BE INSTALLED IN A LOCATION SUBJECT TO VEHICLE DAMAGE EXCEPT WHERE PROTECTED BY APPROVED BARRIERS.

CLOTHES DRYERS: M1502.3 DUCT TERMINATION. EXHAUST DUCTS SHALL TERMINATE ON THE OUTSIDE OF THE BUILDING. EXHAUST DUCT TERMINATIONS SHALL BE IN ACCORDANCE WITH THE DRYER MANUFACTURER'S INSTALLATION INSTRUCTIONS. IF THE MANUFACTURER'S INSTRUCTIONS DO NOT SPECIFY A TERMINATION LOCATION, THE EXHAUST DUCT SHALL TERMINATE NOT LESS THAN 3 FEET (914 MM) IN ANY DIRECTION FROM OPENINGS INTO BUILDINGS. EXHAUST DUCT TERMINATIONS SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER. SCREENS SHALL NOT BE INSTALLED AT THE DUCT TERMINATION. M1502.4.5.1 THE MAXIMUM LENGTH OF THE EXHAUST DUCT SHALL BE 35 FEET (7620 MM)FROM THE CONNECTION TO THE TRANSITION DUCT FROM THE DRYER TO THE OUTLET TERMINAL. DUCT LENGTH MUST BE REDUCED BY 2'-6" FOR 45° BEND & 5FT FOR 90° BEND FOR A 4" EXHAUST PIPE.

RANGE HOOD: M1503.2.1 GENERAL. DOMESTIC OPEN-TOP BROILER UNITS SHALL HAVE A METAL EXHAUST HOOD, HAVING A MINIMUM THICKNESS OF 0.0157-INCH (0.3950 MM) (NO. 28 GAUGE) WITH 1/4 INCH (6.4 MM) CLEARANCE BETWEEN THE HOOD AND THE UNDERSIDE OF COMBUSTIBLE MATERIAL OR CABINETS. A CLEARANCE OF AT LEAST 24 INCHES (610 MM) SHALL BE MAINTAINED BETWEEN THE COOKING SURFACE AND THE COMBUSTIBLE MATERIAL OR CABINET. THE HOOD SHALL BE AT LEAST AS WIDE AS THE BROILER UNIT, EXTEND OVER THE ENTIRE UNIT, DISCHARGE TO THE OUTDOORS AND BE EQUIPPED WITH A BACKDRAFT DAMPER OR OTHER MEANS TO CONTROL INFILTRATION/EXFILTRATION WHEN NOT IN OPERATION. BROILER UNITS INCORPORATING AN INTEGRAL EXHAUST SYSTEM, AND LISTED AND LABELED FOR USE WITHOUT AN EXHAUST HOOD, NEED NOT HAVE AN EXHAUST HOOD.

EXHAUST OPENINGS: M1504.3 AIR EXHAUST OPENINGS SHALL TERMINATE AS FOLLOWS:
1. NOT LESS THAN 3 FEET (914 MM) FROM PROPERTY LINES.
2. NOT LESS THAN 3 FEET (914 MM) FROM GRAVITY AIR INTAKE
OPENINGS, OPERABLE WINDOWS AND DOORS.
3. NOT LESS THAN 10 FEET (3048 MM) FROM MECHANICAL AIR INTAKE OPENINGS EXCEPT WHERE THE EXHAUST OPENING IS LOCATED NOT LESS THAN 3 FEET (914 MM) ABOVE THE AIR INTAKE OPENING. OPENINGS SHALL COMPLY WITH SECTIONS R303.5.2 AND R303.6.

EXHAUST DUCTING: M1503.3 GENERAL. RANGE HOODS SHALL DISCHARGE TO THE OUT- DOORS THROUGH A DUCT. THE DUCT SERVING THE HOOD SHALL HAVE A SMOOTH INTERIOR SURFACE, SHALL BE AIR TIGHT, SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER AND SHALL BE INDEPENDENT OF ALL OTHER EXHAUST SYSTEMS. DUCTS SERVING RANGE HOODS SHALL NOT TERMINATE IN AN ATTIC OR CRAWL SPACE OR AREAS INSIDE THE BUILDING.

R303.10 REQUIRED HEATING. WHERE THE WINTER DESIGN TEMPERATURE IN TABLE R301.2(1) IS BELOW 60°F (16°C), EVERY DWELLING UNIT SHALL BE PROVIDED WITH HEATING FACILITIES CAPABLE OF MAINTAINING A ROOM TEMPERATURE OF NOT LESS THAN 68°F (20°C) AT A POINT 3 FEET (914 MM) ABOVE THE FLOOR AND 2 FEET (610 MM) FROM EXTERIOR WALLS IN HABITABLE ROOMS AT THE DESIGN TEMPERATURE. THE INSTALLATION OF ONE OR MORE PORTABLE SPACE HEATERS SHALL NOT BE USED TO ACHIEVE COMPLIANCE WITH THIS SECTION.

HEATING TYPE: HEATING TYPE AND FUEL SHALL BE SELECTED BY THE OWNER. ALL WARM AIR FURNACES SHALL BE LISTED AND LABELED BY AN APPROVED AGENCY AND INSTALLED TO LISTED SPECIFICATIONS.

FIREBLOCKING: R302.11 FIREBLOCKING. IN COMBUSTIBLE CONSTRUCTION, FIREBLOCKING SHALL BE PROVIDED TO CUT OFF ALL CONCEALED DRAFT OPENINGS (BOTH VERTICAL AND HORIZONTAL) AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES, AND BETWEEN A TOP STORY AND THE ROOF SPACE. FIREBLOCKING SHALL BE PROVIDED IN WOOD-FRAME CONSTRUCTION IN THE FOLLOWING LOCATIONS:
1. IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS:
1.1 VERTICALLY AT THE CEILING AND FLOOR LEVELS.
1.2. HORIZONTALLY AT INTERVALS NOT EXCEEDING 10 FEET(3048 MM).
2. AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES SUCH AS OCCUR AT SOFFITS, DROP CEILINGS AND COVE CEILINGS.
3. IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7.
4. AT OPENINGS AROUND VENTS, PIPES, DUCTS, CABLES 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 E 136 REQUIREMENTS.
5. FOR THE FIREBLOCKING OF CHIMNEYS AND FIREPLACES, SEE SECTION R1003.19.
6. FIREBLOCKING OF CORNICES OF A TWO-FAMILY DWELLING IS REQUIRED AT THE LINE OF DWELLING UNIT SEPARATION.

M1505.2 RECIRCULATION OF AIR. EXHAUST AIR FROM BATHROOMS
AND TOILET ROOMS SHALL NOT BE RECIRCULATED WITHIN A RESIDENCE OR CIRCULATED TO ANOTHER DWELLING UNIT AND SHALL BE EXHAUSTED DIRECTLY TO THE OUTDOORS. EXHAUST AIR FROM BATHROOMS, TOILET ROOMS AND KITCHENS SHALL NOT DISCHARGE INTO AN ATTIC, CRAWL SPACE OR OTHER AREAS INSIDE THE BUILDING. THIS SECTION SHALL NOT PROHIBIT THE INSTALLATION OF DUCTLESS RANGE HOODS IN ACCORDANCE
WITH THE EXCEPTION TO SECTION M1503.3.

M1601.4.1 JOINTS, SEAMS AND CONNECTIONS. LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS AND CONNECTIONS IN METALLIC AND NONMETALLIC DUCTS SHALL BE CONSTRUCTED AS SPECIFIED IN SMACNA HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE AND NAIMA FIBROUS GLASS DUCT CONSTRUCTION STANDARDS. JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS, AND CONNECTIONS IN DUCTWORK SHALL BE SECURELY FASTENED
AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC- PLUS-EMBEDDED-FABRIC SYSTEMS, LIQUID SEALANTS OR TAPES. TAPES AND MASTICS USED TO SEAL FIBROUS GLASS DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A AND SHALL BE MARKED "181A-P" FOR PRESSURE-SENSITIVE TAPE, "181 A-M" FOR MASTIC OR "181 A-H" FOR HEAT-SENSITIVE TAPE. TAPES AND MASTICS USED TO SEAL METALLIC AND FLEXIBLE AIR DUCTS AND FLEXIBLE AIR CONNECTORS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED "181 B-FX" FOR PRESSURE-SENSITIVE TAPE OR "181 BM" FOR MASTIC. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. MECHANICAL FASTENERS FOR USE WITH FLEXIBLE NONMETALLIC AIR DUCTS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED 181B-C. CRIMP JOINTS FOR ROUND METALLIC DUCTS SHALL HAVE A CONTACT LAP OF NOT LESS THAN 1 INCH (25 MM) AND SHALL BE MECHANICALLY FASTENED BY MEANS OF NOT LESS THAN THREE SHEET-METAL SCREWS OR RIVET EQUALLY SPACED AROUND THE JOINT.

EGRESS DOOR: R311.2 EGRESS DOOR. NOT LESS THAN ONE EGRESS DOOR SHALL BE PROVIDED FOR EACH DWELLING UNIT. THE EGRESS DOOR SHALL BE SIDE-HINGED, AND SHALL PROVIDE A CLEAR WIDTH OF NOT LESS THAN 32 INCHES (813 MM) WHERE MEASURED BETWEEN THE FACE OF THE DOOR AND THE STOP, WITH THE DOOR OPEN 90 DEGREES (1.57 RAD). THE CLEAR HEIGHT OF THE DOOR OPENING SHALL BE NOT LESS THAN 78 INCHES (1981 MM) IN HEIGHT MEASURED FROM THE TOP OF THE THRESHOLD TO THE BOTTOM OF THE STOP. OTHER DOORS SHALL NOT BE REQUIRED TO COMPLY WITH THESE MINIMUM DIMENSIONS. EGRESS DOORS SHALL BE READILY OPENABLE FROM INSIDE THE DWELLING WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.

R311.3 FLOORS AND LANDINGS AT EXTERIOR DOORS. THERE SHALL
BE A LANDING OR FLOOR ON EACH SIDE OF EACH EXTERIOR DOOR. THE WIDTH OF EACH LANDING SHALL BE NOT LESS THAN THE DOOR SERVED. LANDINGS SHALL HAVE A DIMENSION OF NOT LESS THAN 36 INCHES (914 MM) MEASURED IN THE DIRECTION OF TRAVEL. THE SLOPE AT EXTERIOR LANDINGS SHALL NOT EXCEED 1/4 UNIT VERTICAL IN 12 UNITS HORIZONTAL (2 PERCENT).

GARAGE/DWELLING DOOR:
R302.5.1 OPENING PROTECTION. 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 13/8 INCHES (35 MM) IN THICKNESS, SOLID OR HONEYCOMBCORE STEEL DOORS NOT LESS THAN 13/8 INCHES (35 MM) THICK, OR 20-MINUTE FIRE-RATED DOORS, EQUIPPED WITH A SELF-CLOSING OR AUTOMATIC-CLOSING DEVICE.

R308.4.2 GLAZING ADJACENT TO DOORS. GLAZING IN AN INDIVIDUAL
FIXED OR OPERABLE PANEL ADJACENT TO A DOOR SHALL BE CONSIDERED TO BE A HAZARDOUS LOCATION WHERE THE BOTTOM
EXPOSED EDGE OF THE GLAZING IS LESS THAN 60 INCHES (1524
MM) ABOVE THE FLOOR OR WALKING SURFACE AND IT MEETS EITHER OF THE FOLLOWING CONDITIONS:
1. WHERE THE GLAZING IS WITHIN 24 INCHES (610 MM) OF EITHER SIDE OF THE DOOR IN THE PLANE OF THE DOOR IN A CLOSED POSITION.
2. WHERE THE GLAZING IS ON A WALL LESS THAN 180 DEGREES
(3.14 RAD) FROM THE PLANE OF THE DOOR IN A CLOSED POSITION AND WITHIN 24 INCHES (610 MM) OF THE HINGE SIDE OF AN IN-SWINGING DOOR.

R302.6 DWELLING-GARAGE FIRE SEPARATION. 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.

TABLE R302.6 DWELLING-GARAGE SEPARATION

FROM THE RESIDENCE AND ATTICS: NOT LESS THAN 1/2-INCH GYPSUM BOARD OR EQUIVALENT APPLIED TO THE GARAGE SIDE

FROM HABITABLE ROOMS ABOVE THE GARAGE: NOT LESS THAN 5/8-INCH TYPE X GYPSUM BOARD OR EQUIVALENT

STRUCTURE(S) SUPPORTING FLOOR/CEILING ASSEMBLIES USED FOR SEPARATION REQUIRED BY THIS SECTION: NOT LESS THAN 1/2-INCH GYPSUM BOARD OR EQUIVALENT

GARAGES LOCATED LESS THAN 3 FEET FROM A DWELLING UNIT ON THE SAME LOT: NOT LESS THAN 1/2-INCH GYPSUM BOARD OR EQUIVALENT APPLIED TO THE INTERIOR SIDE OF EXTERIOR WALLS THAT ARE WITHIN THIS AREA

LIGHTING EQUIPMENT (MANDATORY). NOT LESS THAN 75 PERCENT OF THE LAMPS IN PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL BE HIGH-EFFICACY LAMPS OR NOT LESS THAN 75 PERCENT OF THE PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL CONTAIN ONLY HIGH-EFFICACY LAMPS.

FOR WATER PRESSURE HIGHER THAN 80 PSI AN APPROVED PRESSURE REDUCING VALVE (PRV) SHALL BE INSTALLED.

R314.3 LOCATION. SMOKE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS:
1. IN EACH SLEEPING ROOM.
2. OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS.
3. ON EACH ADDITIONAL STORY OF THE DWELLING, INCLUDING BASEMENTS AND HABITABLE ATTICS AND NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS. IN DWELLINGS OR DWELLING UNITS WITH SPLIT LEVELS AND WITHOUT AN INTERVENING DOOR BETWEEN THE ADJACENT LEVELS, A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SUFFICE FOR THE ADJACENT LOWER LEVEL PROVIDED THAT THE LOWER LEVEL IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL.

4. SMOKE ALARMS SHALL BE INSTALLED NOT LESS THAN 3 FEET (914 MM) HORIZONTALLY FROM THE DOOR OR OPENING OF A BATHROOM THAT CONTAINS A BATHTUB OR SHOWER UNLESS THIS WOULD PREVENT PLACEMENT OF A SMOKE ALARM REQUIRED BY THIS SECTION.

R315.3 CARBON MONOXIDE ALARMS IN DWELLING UNITS SHALL BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS. WHERE A FUEL-BURNING APPLIANCE IS LOCATED WITHIN A BEDROOM OR ITS ATTACHED BATHROOM, A CARBON MONOXIDE ALARM SHALL BE INSTALLED WITHIN THE BEDROOM. R315.4 COMBINATION ALARMS. COMBINATION CARBON MONOXIDE AND SMOKE ALARMS SHALL BE PERMITTED TO BE USED IN LIEU OF CARBON MONOXIDE ALARMS.

LIGHT & VENTILATION: R303.1 HABITABLE ROOMS. HABITABLE ROOMS SHALL HAVE AN AGGREGATE GLAZING AREA OF NOT LESS THAN 8 PERCENT OF THE FLOOR AREA OF SUCH ROOMS. NATURAL VENTILATION SHALL BE THROUGH WINDOWS, SKYLIGHTS, DOORS, LOUVERS OR OTHER APPROVED OPENINGS TO THE OUTDOOR AIR. SUCH OPENINGS SHALL BE PROVIDED WITH READY ACCESS OR SHALL OTHERWISE BE READILY CONTROLLABLE BY THE BUILDING OCCUPANTS. THE OPENABLE AREA TO THE OUTDOORS SHALL BE NOT LESS THAN 4 PERCENT OF THE FLOOR AREA BEING VENTILATED.

EGRESS WINDOWS: R310.2.1 MINIMUM OPENING AREA. EMERGENCY AND ESCAPE RESCUE OPENINGS SHALL HAVE A NET CLEAR OPENING OF NOT LESS THAN 5.7 SQUARE FEET (0.530 M2). THE NET CLEAR OPENING DIMENSIONS REQUIRED BY 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).

WINDOW SILLS: R312.2.1 WINDOW SILLS. IN DWELLING UNITS, WHERE THE TOP OF THE SILL OF AN OPERABLE WINDOW OPENING IS LOCATED LESS THAN 24 INCHES (610 MM) ABOVE THE FINISHED FLOOR AND GREATER THAN 72 INCHES (1829 MM) ABOVE THE FINISHED GRADE OR OTHER SURFACE BELOW ON THE EXTERIOR OF THE BUILDING, THE OPERABLE WINDOW SHALL COMPLY WITH ONE OF THE FOLLOWING:
1. OPERABLE WINDOW OPENINGS WILL NOT ALLOW A 4-INCHDIAMETER (102 MM) SPHERE TO PASS THROUGH WHERE THE
OPENINGS ARE IN THEIR LARGEST OPENED POSITION.
2. OPERABLE WINDOWS ARE PROVIDED WITH WINDOW FALL PREVENTION DEVICES THAT COMPLY WITH ASTM F2090.
3. OPERABLE WINDOWS ARE PROVIDED WITH WINDOW OPENING
CONTROL DEVICES THAT COMPLY WITH SECTION R312.2.2.

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

R307.2 BATHTUB AND SHOWER SPACES. BATHTUB AND SHOWER FLOORS AND WALLS ABOVE BATHTUBS WITH INSTALLED SHOWER HEADS AND IN SHOWER COMPARTMENTS SHALL BE FINISHED WITH A NONABSORBENT SURFACE. SUCH WALL SURFACES SHALL EXTEND TO A HEIGHT OF NOT LESS THAN 6 FEET (1829 MM) ABOVE THE FLOOR.

SHOWER AREAS: R307.1 SHOWERS SHALL BE A MINIMUM SIZE OF 30" BY 30" WITH A 24" IN. CLEARANCE IN FRONT OF OPENING.

WATER CLOSET CLEARANCES: IRC R307.1 WATER CLOSET SHALL BE LOCATED IN A CLEAR SPACE NOT LESS THAN 30" IN WIDTH. THE CLEAR SPACE IN FRONT SHALL NOT BE LESS THAN 21".

WATERPROOF WALL BOARD: ALL WALLS AND CEILINGS OF BATH TUB AND SHOWER ENCLOSURE AREAS SHALL BE COVERED WITH APPROVED WATERPROOF MATERIAL.

UTILITY ROOM WALL BOARD: ALL SURFACES IMMEDIATELY ADJACENT TO WASHERS, DRYERS, AND LAUNDRY TUBS SHALL BE SURFACED WITH APPROVED WATERPROOF MATERIAL.

GYPSUM WALLBOARD: R702.3.7 WATER-RESISTANT GYPSUM BACKING BOARD. GYPSUM BOARD USED AS THE BASE OR BACKER FOR ADHESIVE APPLICATION OF CERAMIC TILE OR OTHER REQUIRED NONABSORBENT FINISH MATERIAL SHALL CONFORM TO ASTM C1178, C1278 OR C1396. USE OF WATER-RESISTANT GYPSUM BACKING BOARD SHALL BE PERMITTED ON CEILINGS. WATER-RESISTANT GYPSUM BOARD SHALL NOT BE INSTALLED OVER A CLASS I OR II VAPOR RETARDER IN A SHOWER OR TUB COMPARTMENT. CUT OR EXPOSED EDGES, INCLUDING THOSE AT WALL INTERSECTIONS, SHALL BE SEALED AS RECOMMENDED BY THE MANUFACTURER.

R702.3.7.1 LIMITATIONS. WATER-RESISTANT GYPSUM BACKING BOARD SHALL NOT BE USED WHERE THERE WILL BE DIRECT EXPOSURE TO WATER, OR IN AREAS SUBJECT TO CONTINUOUS HIGH HUMIDITY.

NOTE: THE PRESCRIPTIVE PATH METHOD OF THE IRC WAS NOT FOLLOWED IN THE DESIGN OF THIS RESIDENCE, ALL LATERAL AND GRAVITY DESIGN SOLUTIONS SHALL BE PROVIDED BY THE ENGINEER OF RECORD.

WOOD IN CONTACT WITH CONCRETE AND MASONRY: IRC 317.1(3) SILLS AND SLEEPERS ON A CONCRETE OR MASONRY SLAB THAT ISIN DIRECT CONTACT WITH THE GROUND UNLESS SEPARATED FROM SUCH SLAB BY AN IMPERVIOUS MOISTURE BARRIER.

R317.1.4 WOOD COLUMNS. WOOD COLUMNS SHALL BE APPROVED WOOD OF NATURAL DECAY RESISTANCE OR APPROVED PRESSURE-PRESERVATIVE-TREATED WOOD.

EXCEPTIONS:
1. COLUMNS EXPOSED TO THE WEATHER OR IN BASEMENTS WHERE SUPPORTED BY CONCRETE PIERS OR METAL PEDESTALS PROJECTING 1 INCH (25 MM) ABOVE A CONCRETE FLOOR OR 6 INCHES (152 MM) ABOVE EXPOSED EARTH AND THE EARTH IS COVERED BY AN APPROVED IMPERVIOUS MOISTURE BARRIER.

2. COLUMNS IN ENCLOSED CRAWL SPACES OR UNEXCAVATED AREAS LOCATED WITHIN THE PERIPHERY OF THE BUILDING WHERE SUPPORTED BY A CONCRETE PIER OR METAL PEDESTAL AT A HEIGHT MORE THAN 8 INCHES (203 MM) FROM EXPOSED EARTH AND THE EARTH IS COVERED BY AN IMPERVIOUS MOISTURE BARRIER.

3. DECK POSTS SUPPORTED BY CONCRETE PIERS OR METAL PEDESTALS PROJECTING NOT LESS THAN 1 INCH (25 MM) ABOVE A CONCRETE FLOOR OR 6 INCHES (152 MM) ABOVE EXPOSED EARTH.

FLOOR FRAMING: R502.6 BEARING. THE ENDS OF EACH JOIST, BEAM OR GIRDER SHALL HAVE NOT LESS THAN 11/2 INCHES (38 MM) OF BEARING ON WOOD OR METAL, HAVE NOT LESS THAN 3 INCHES OF BEARING (76 MM) ON MASONRY OR CONCRETE OR BE SUPPORTED BY APPROVED JOIST HANGERS. ALTERNATIVELY, THE ENDS OF JOISTS SHALL BE SUPPORTED ON A 1-INCH BY 4-INCH (25 MM BY 102 MM) RIBBON STRIP AND SHALL BE NAILED TO THE ADJACENT STUD. THE BEARING ON MASONRY OR CONCRETE SHALL BE DIRECT, OR A SILL PLATE OF 2-INCH-MINIMUM (51 MM) NOMINAL THICKNESS SHALL BE PROVIDED UNDER THE JOIST, BEAM OR GIRDER. THE SILL PLATE SHALL PROVIDE A MINIMUM NOMINAL BEARING AREA OF 48 SQUARE INCHES (30 865 MM2).

BEARING PARTITIONS: R502.4 JOISTS UNDER BEARING PARTITIONS. JOISTS UNDER PARALLEL BEARING PARTITIONS SHALL BE OF ADEQUATE SIZE TO SUPPORT THE LOAD. DOUBLE JOISTS, SIZED TO ADEQUATELY SUPPORT THE LOAD, THAT ARE SEPARATED TO PERMIT THE INSTALLATION OF PIPING OR VENTS SHALL BE FULL-DEPTH SOLID BLOCKED WITH LUMBER NOT LESS THAN 2 INCHES (51 MM) IN NOMINAL THICKNESS SPACED NOT MORE THAN 4 FEET (1219 MM) ON CENTER. BEARING PARTITIONS PERPENDICULAR TO JOISTS SHALL NOT BE OFFSET FROM SUPPORTING GIRDERS, WALLS OR PARTITIONS MORE THAN THE JOIST DEPTH UNLESS SUCH JOISTS ARE OF SUFFICIENT SIZE TO CARRY THE ADDITIONAL LOAD.

WALL FRAMING: R602.3.2 TOP PLATE. WOOD STUD WALLS SHALL BE CAPPED WITH A DOUBLE TOP PLATE INSTALLED TO PROVIDE OVERLAPPING AT CORNERS AND INTERSECTIONS WITH BEARING PARTITIONS. END JOINTS IN TOP PLATES SHALL BE OFFSET NOT LESS THAN 24 INCHES (610 MM). JOINTS IN PLATES NEED NOT OCCUR OVER STUDS. PLATES SHALL BE NOT LESS THAN 2-INCHES (51 MM) NOMINAL THICKNESS AND HAVE A WIDTH NOT LESS THAN THE WIDTH OF THE STUDS.

HEADERS: R502.10 FRAMING OF OPENINGS. OPENINGS IN FLOOR FRAMING SHALL BE FRAMED WITH HEADER AND TRIMMER JOISTS. WHERE THE HEADER JOIST SPAN DOES NOT EXCEED 4 FEET (1219 MM), THE HEADER JOIST SHALL BE A SINGLE MEMBER THE SAME SIZE AS THE FLOOR JOIST. SINGLE TRIMMER JOISTS SHALL BE USED TO CARRY A SINGLE HEADER JOIST THAT IS LOCATED WITHIN 3 FEET (914 MM) OF THE TRIMMER JOIST BEARING. WHERE THE HEADER JOIST SPAN EXCEEDS 4 FEET (1219 MM), THE TRIMMER JOISTS AND THE HEADER JOIST SHALL BE DOUBLED AND OF SUFFICIENT CROSS SECTION TO SUPPORT THE FLOOR JOISTS FRAMING INTO THE HEADER.

STRUCTURAL PROPERTIES FOR HORIZONTAL MEMBERS: THE PRESCRIPTIVE PATH METHOD OF THE IRC WAS NOT FOLLOWED IN THE DESIGN OF THIS RESIDENCE, ALL LATERAL AND GRAVITY DESIGN SOLUTIONS SHALL BE PROVIDED BY THE ENGINEER OF RECORD.

R312.1.2 HEIGHT. REQUIRED GUARDS AT OPEN-SIDED WALKING SURFACES, INCLUDING STAIRS, PORCHES, BALCONIES OR LANDINGS, SHALL BE NOT LESS THAN 36 INCHES (914 MM) IN HEIGHT AS MEASURED VERTICALLY ABOVE THE ADJACENT WALKING SURFACE OR THE LINE CONNECTING THE NOSINGS.

R312.1.3 OPENING LIMITATIONS. REQUIRED GUARDS SHALL NOT HAVE OPENINGS FROM THE WALKING SURFACE TO THE REQUIRED GUARD HEIGHT THAT ALLOW PASSAGE OF A SPHERE 4 INCHES (102 MM) IN DIAMETER.

BUILDING COMPONENTS

WALL INSULATION ABOVE GRADE:	R-21 INTERMEDIATE
FLAT CEILINGS:	R-49
UNDERFLOORS:	R-30
WINDOWS:	U-0.27
SKYLIGHTS:	U-0.50
EXTERIOR DOORS:	U-0.20
EXTERIOR DOORS W/2.5FT GLAZING:	U-0.40

ADDITIONAL MEASURES:

TABLE N1101.1

DUCTLESS HEAT PUMP HSPF 10.0 IN PRIMARY ZONE OF DWELLING W/ PROGRAMMABLE THERMOSTATS FOR ALL HEATERS IN BEDROOMS

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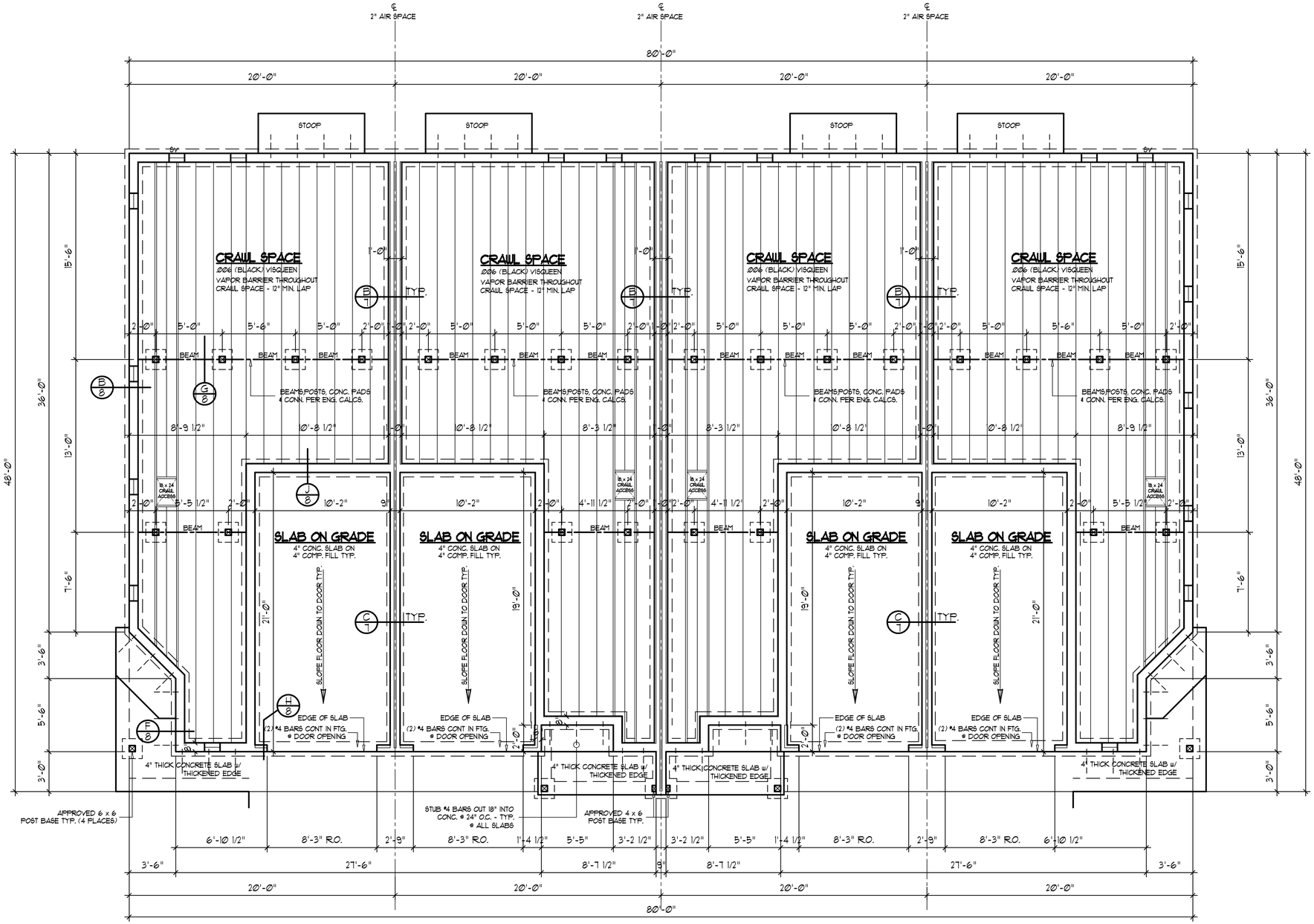

FOUNDATION & FLOOR FRAMING PLAN

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SCALE : ¼"= 1'-0"

FOUNDATION VENTILATION (OUTSIDE UNITS)

PROVIDE MECHANICAL VENTILATION W/
CONTINUOUSLY OPERATED EXHAUST FAN (AND
INTAKE VENTS) TO PROVIDE A MINIMUM OF 1 CFM
FOR EA. 50 S.F. OF CRAWL SPACE AREA.
(651 Sq. Ft. x 1/150 = 4.34 Sq. Ft. VENT AREA REQ'D)

FOUNDATION VENTILATION (INSIDE UNITS)

PROVIDE MECHANICAL VENTILATION W/
CONTINUOUSLY OPERATED EXHAUST FAN (AND
INTAKE VENTS) TO PROVIDE A MINIMUM OF 1 CFM
FOR EA. 50 S.F. OF CRAWL SPACE AREA.
(661 Sq. Ft. x 1/150 = 4.41 Sq. Ft. VENT AREA REQ'D)

SOILS: IRC R401.4.1 IN LIEU OF A COMPLETE GEO-TECHNICAL EVALUATION, THE LOAD-BEARING VALUES IN TABLE R401.4.1 SHALL BE USED.

R403.1.5 SLOPE. THE TOP SURFACE OF FOOTINGS SHALL BE LEVEL. THE BOTTOM SURFACE OF FOOTINGS SHALL NOT HAVE A SLOPE EXCEEDING ONE UNIT VERTICAL IN 10 UNITS HORIZONTAL (10-PERCENT SLOPE). FOOTINGS SHALL BE STEPPED WHERE IT IS NECESSARY TO CHANGE THE ELEVATION OF THE TOP SURFACE OF THE FOOTINGS OR WHERE THE SLOPE OF THE BOTTOM SURFACE OF THE FOOTINGS WILL EXCEED ONE UNIT VERTICAL IN 10 UNITS HORIZONTAL (10-PERCENT SLOPE).

EROSION CONTROL: ADJOINING PUBLIC AND PRIVATE PROPERTY SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION, REMODELING AND DEMOLITION WORK. VERIFY METHOD WITH LOCAL JURISDICTION.

R401.3 DRAINAGE. SURFACE DRAINAGE SHALL BE DIVERTED TO A STORM SEWER CONVEYANCE OR OTHER APPROVED POINT OF COLLECTION THAT DOES NOT CREATE A HAZARD. LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS. THE GRADE SHALL FALL NOT FEWER THAN 6 INCHES (152 MM) WITHIN THE FIRST 10 FEET (3048 MM)

FOUNDATION WALL SIZE: 8" AT PERIMETER & 12" AT DEMISING.

R404.1.6 HEIGHT ABOVE FINISHED GRADE. CONCRETE AND MASONRY FOUNDATION WALLS SHALL EXTEND ABOVE THE FINISHED GRADE ADJACENT TO THE FOUNDATION AT ALL POINTS NOT LESS THAN 4 INCHES (102 MM) WHERE MASONRY VENEER IS USED AND NOT LESS THAN 6 INCHES (152 MM) ELSEWHERE.

R403.1.6 FOUNDATION ANCHORAGE. WOOD SILL PLATES AND WOOD WALLS SUPPORTED DIRECTLY ON CONTINUOUS FOUNDATIONS SHALL BE ANCHORED TO THE FOUNDATION IN ACCORDANCE WITH THIS SECTION. WOOD SOLE PLATES AT ALL EXTERIOR WALLS ON MONOLITHIC SLABS, WOOD SOLE PLATES OF BRACED WALL PANELS AT BUILDING INTERIORS ON MONOLITHIC SLABS AND ALL WOOD SILL PLATES SHALL BE ANCHORED TO THE FOUNDATION WITH MINIMUM 1/2-INCH DIAMETER (12.7 MM) ANCHOR BOLTS SPACED NOT GREATER THAN 6 FEET (1829 MM) ON CENTER OR APPROVED ANCHORS OR ANCHOR STRAPS SPACED AS REQUIRED TO PROVIDE EQUIVALENT ANCHORAGE TO 1/2-INCH-DIAMETER (12.7 MM) ANCHOR BOLTS. BOLTS SHALL EXTEND NOT LESS THAN 7 INCHES (178 MM) INTO CONCRETE OR GROUTED CELLS OF CONCRETE MASONRY UNITS. THE BOLTS SHALL BE LOCATED IN THE MIDDLE THIRD OF THE WIDTH OF THE PLATE. A NUT AND WASHER SHALL BE TIGHTENED ON EACH ANCHOR BOLT. THERE SHALL BE NOT FEWER THAN TWO BOLTS PER PLATE SECTION WITH ONE BOLT LOCATED NOT MORE THAN 12 INCHES (305 MM) OR LESS THAN SEVEN BOLT DIAMETERS FROM EACH END OF THE PLATE SECTION. **REFER TO S-SHEETS FOR ADDITIONAL REQUIREMENTS.**

R317.1 LOCATION REQUIRED. PROTECTION OF WOOD AND WOODBASED PRODUCTS FROM DECAY SHALL BE PROVIDED IN THE FOLLOWING LOCATIONS BY THE USE OF NATURALLY DURABLE WOOD OR WOOD THAT IS PRESERVATIVE-TREATED IN ACCORDANCE WITH AWPA U1.
4. THE ENDS OF WOOD GIRDERS ENTERING EXTERIOR MASONRY OR CONCRETE WALLS HAVING CLEARANCES OF LESS THAN 1/2 INCH (12.7 MM) ON TOPS, SIDES AND ENDS.

CONCRETE STRENGTH: IRC R402.2 CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH AS SHOWN IN TABLE R402.2. CONCRETE SUBJECT TO WEATHERING SHALL BE AIR ENTAINED AS SPECIFIED IN TABLE R402.2. **UNLESS NOTED OTHERWISE BY THE ENGINEER OF RECORD ON THEIR S-SHEETS.**

FILL: R506.2.2 BASE. A 4-INCH-THICK (102 MM) BASE COURSE CONSISTING OF CLEAN GRADED SAND, GRAVEL, CRUSHED STONE, CRUSHED CONCRETE OR CRUSHED BLAST-FURNACE SLAG PASSING A 2-INCH (51 MM) SIEVE SHALL BE PLACED ON THE PREPARED SUBGRADE WHERE THE SLAB IS BELOW GRADE.

R403.1.3 FOOTING AND STEM WALL REINFORCING IN SEISMIC DESIGN CATEGORIES D0, D1, AND D2. CONCRETE FOOTINGS LOCATED IN SEISMIC DESIGN CATEGORIES D0, D1 AND D2, AS ESTABLISHED IN TABLE R301.2(1), SHALL HAVE MINIMUM REINFORCEMENT IN ACCORDANCE WITH THIS SECTION AND FIGURE R403.1.3. REINFORCEMENT SHALL BE INSTALLED WITH SUPPORT AND COVER IN ACCORDANCE WITH SECTION R403.1.3.5.

R403.1.4 MINIMUM DEPTH. EXTERIOR FOOTINGS SHALL BE PLACED NOT LESS THAN 12 INCHES (305 MM) BELOW THE UNDISTURBED GROUND SURFACE. WHERE APPLICABLE, THE DEPTH OF FOOTINGS SHALL ALSO CONFORM TO SECTION R403.1.4.1.

R403.1.1 MINIMUM SIZE. THE MINIMUM WIDTH, W, AND THICKNESS, T, FOR CONCRETE FOOTINGS SHALL BE IN ACCORDANCE WITH TABLES R403.1(1) THROUGH R403.1(3) AND FIGURE R403.1(1) OR R403.1.3, AS APPLICABLE. THE FOOTING WIDTH SHALL BE BASED ON THE LOAD-BEARING VALUE OF THE SOIL IN ACCORDANCE WITH TABLE R401.4.1. FOOTING PROJECTIONS, P, SHALL BE NOT LESS THAN 2 INCHES (51 MM) AND SHALL NOT EXCEED THE THICKNESS OF THE FOOTING. FOOTING THICKNESS AND PROJECTION FOR FIREPLACES SHALL BE IN ACCORDANCE WITH SECTION R1002. **REFER TO S-SHEETS FOR ADDITIONAL REQUIREMENTS.**

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NOTE:
While every attempt has been made to assure the accuracy of these drawings, **ALL INFORMATION MUST BE VERIFIED** prior to ordering any raw materials or fabricated components.
Any structural components specified are for reference only and must be verified with the **ENGINEER OF RECORD's "S-Sheets"** and/or (attached) documents

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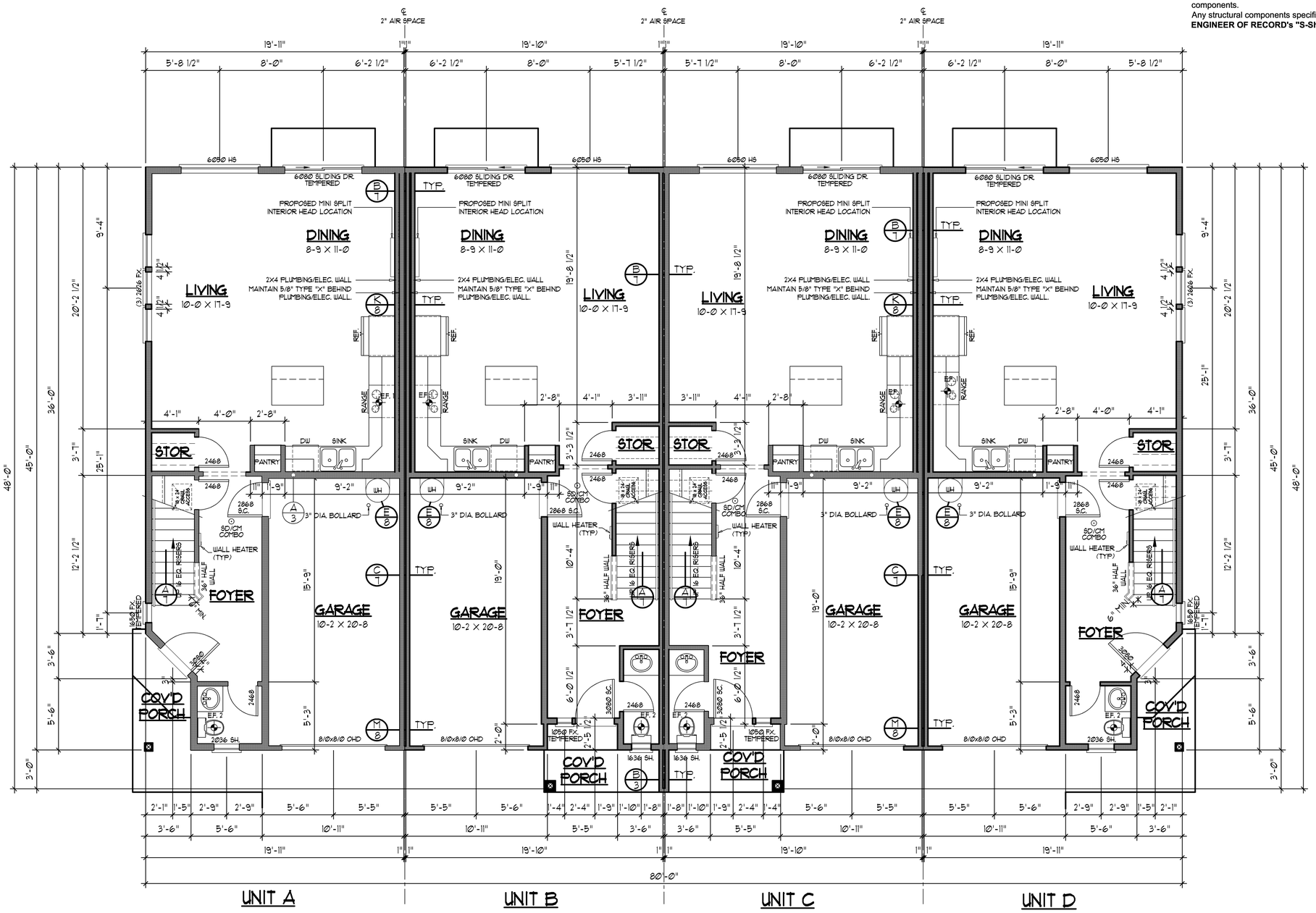

MAIN FLOOR PLAN

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SCALE : ¼"= 1'-0"

AREA SUMMARY (UNITS A & D)

MAIN FLOOR: 651 S.F.
UPPER FLOOR: 756 S.F.
TOTAL: 1,407 S.F.

GARAGE: 211 S.F.
COV'D PORCH: 43 S.F.
GLASS AREA .. 157 S.F.
GLAZING PERCENTAGE (GL / FL) .. 11.1 %

AREA SUMMARY (UNIT B)

MAIN FLOOR: 661 S.F.
UPPER FLOOR: 753 S.F.
TOTAL: 1,414 S.F.

GARAGE: 211 S.F.
COV'D PORCH: 47 S.F.
GLASS AREA .. 115.25 S.F.
GLAZING PERCENTAGE (GL / FL) .. 8.1 %

AREA SUMMARY (UNIT C)

MAIN FLOOR: 661 S.F.
UPPER FLOOR: 762 S.F.
TOTAL: 1,423 S.F.

GARAGE: 211 S.F.
COV'D PORCH: 47 S.F.
GLASS AREA .. 115.25 S.F.
GLAZING PERCENTAGE (GL / FL) .. 8.1 %

VENTILATION REQUIREMENTS

1	"PANASONIC" FV-11VK3 110CFM .8 SONES	112 CFM @ .25 WS 110 CFM @ .1 WS
2	"PANASONIC" FV-08VK3 80CFM .4 SONES	79 CFM @ .25 WS 80 CFM @ .1 WS

NOTES:
1. USE PANASONIC FV-11VK3 (100 CFM MIN.) @ ALL KITCHEN.
2. USE PANASONIC FV-08VK3 (50 CFM MIN.) @ ALL OTHER LOCATIONS.
3. ALL FANS TO VENT DIRECTLY TO OUTSIDE.

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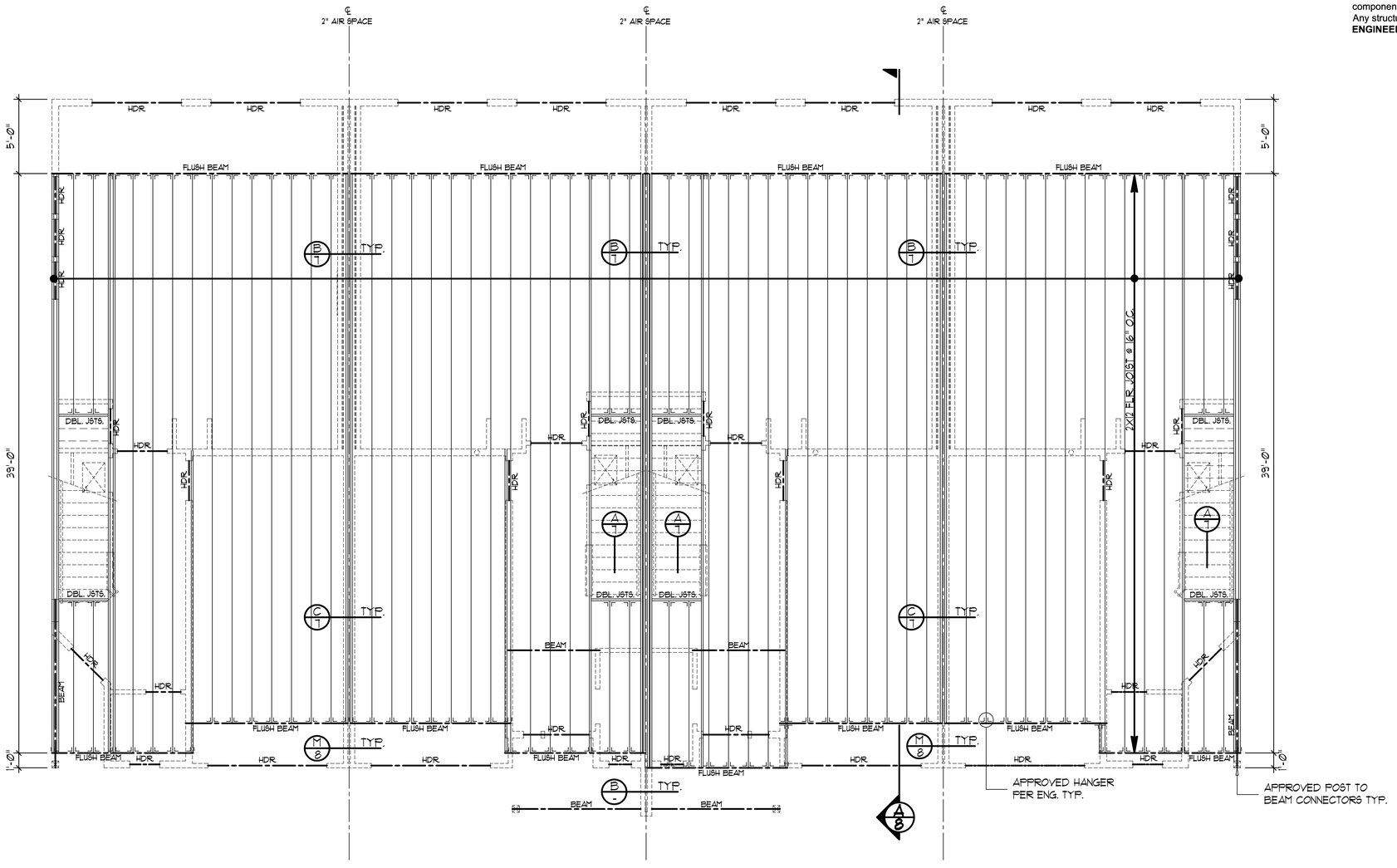

UPPER FLOOR FRAMING PLAN

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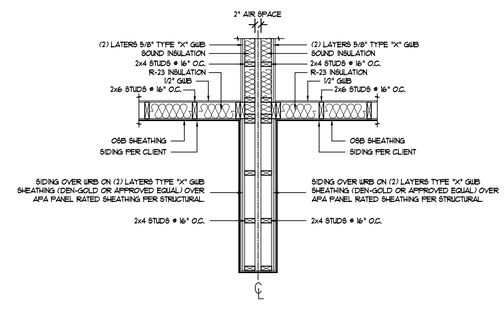
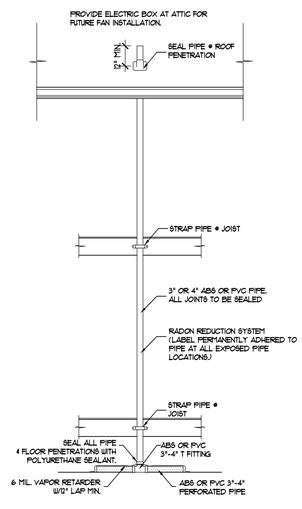
SCALE : 1/4" = 1'-0"



FIREWALL INTERSECTION (B)

SCALE: 1/2" = 1'-0"



RADON PIPING DETAIL (A)

NTS.

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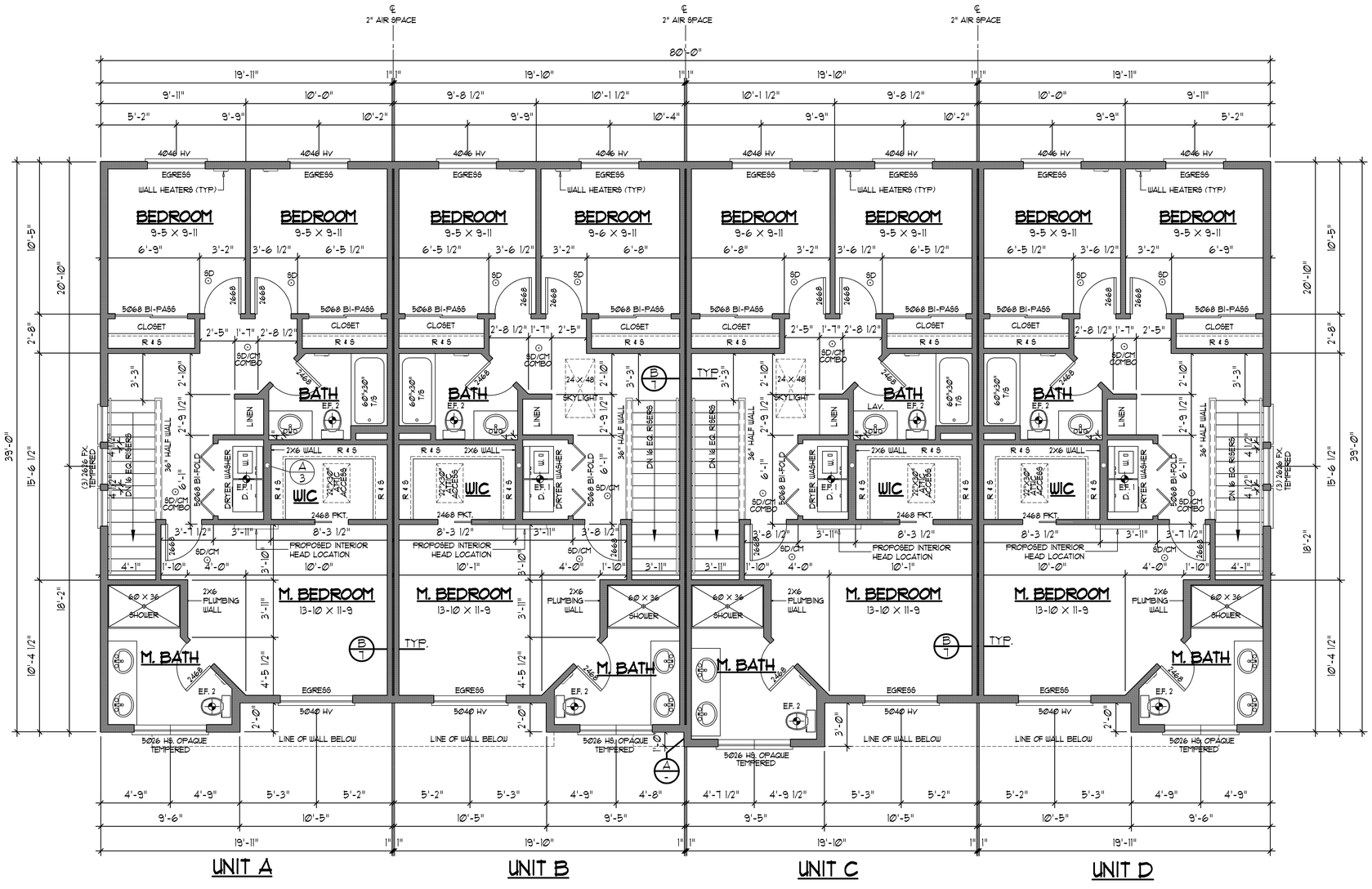

UPPER FLOOR PLAN

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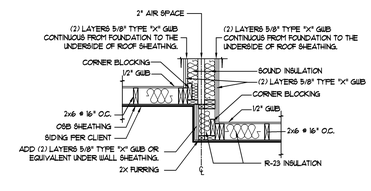

CORNER DETAIL

SCALE: 1/2" = 1'-0"

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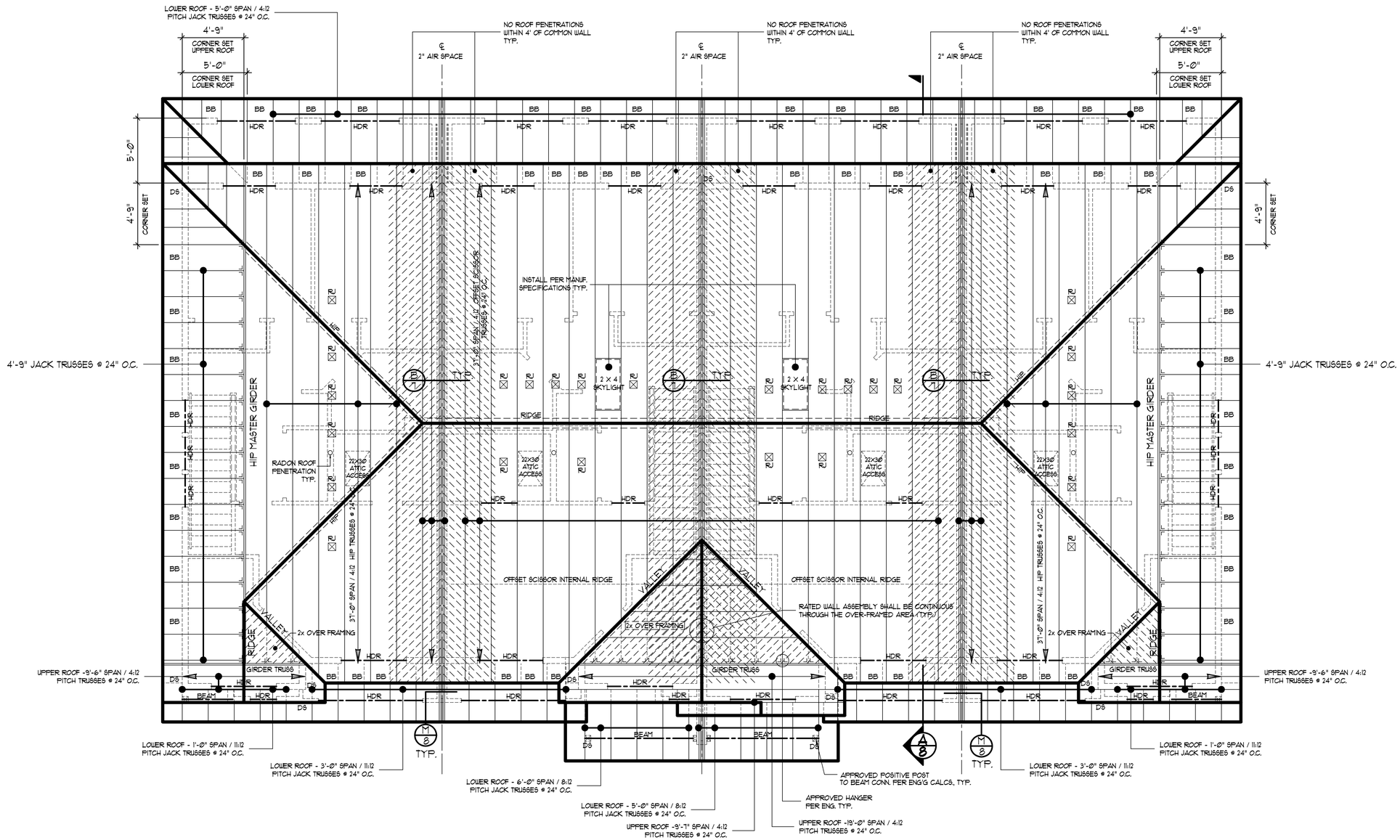

ROOF FRAMING PLAN

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SCALE : ¼" = 1'-0"

ATTIC VENTILATION

PROVIDE ATTIC SPACE VENTILATION AS PER IRC
(3046 Sq. Ft. x 1/150 = 20.3 Sq. Ft. VENT AREA REQ'D)
(20.3 Sq. Ft./ 4 = 5.08 Sq. Ft. REQ'D PER UNIT)

ROOF VENTILATION EACH UNIT

11'-6" CONT. RIDGE VENT = 14" (18 SQ. IN.) ..... 1.44 SQ. FT.
8 EA. (BB) BIRD BLOCKING = 2 HOLES W/ 3" DIA HOLES (.0491 SQ. FT.) ..... 1.18 SQ. FT.
7 EA. (RJ) ROOF JACKS = (MASTER FLOW) 60 SQ. IN. (.416 SQ. FT.) ..... 2.91 SQ. FT.
TOTAL PROVIDED ..... 5.53 SQ. FT.

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NOTE:
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TRUSSES: R502.11.1 DESIGN. WOOD TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH APPROVED ENGINEERING PRACTICE. THE DESIGN AND MANUFACTURE OF METAL-PLATE-CONNECTED WOOD TRUSSES SHALL COMPLY WITH ANSI/TPI 1. THE TRUSS DESIGN DRAWINGS SHALL BE PREPARED BY A REGISTERED PROFESSIONAL WHERE REQUIRED BY THE STATUTES OF THE JURISDICTION IN WHICH THE PROJ- ECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH SECTION R106.1.

R502.11.2 BRACING. TRUSSES SHALL BE BRACED TO PREVENT ROTATION AND PROVIDE LATERAL STABILITY IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE CONSTRUCTION DOCUMENTS FOR THE BUILDING AND ON THE INDIVIDUAL TRUSS DESIGN DRAWINGS. IN THE ABSENCE OF SPECIFIC BRACING REQUIREMENTS, TRUSSES SHALL BE BRACED IN ACCORDANCE WITH ACCEPTED INDUSTRY PRACTICES, SUCH AS, THE BBCA BUILDING COMPONENT SAFETY INFORMATION (BCSI) GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING & BRACING OF METAL PLATE CONNECTED WOOD TRUSSES.

R305.2.1 ROOF SLOPES FROM 2 UNITS VERTICAL BY 12 UNITS HORIZONTAL UP TO 4 UNITS VERTICAL BY 12 UNITS HORIZONTAL, UNDERLAYMENT SHALL BE 2 LAYERS OVERLAPPING 19 INCHES, FOR SLOPES OF 4 UNITS VERTICAL BY 12 UNITS HORIZONTAL OR GREATER, UNDERLAYMENT SHALL BE 1 LAYER OVERLAPPING 2 INCHES.

R903.2.1 LOCATIONS. FLASHINGS SHALL BE INSTALLED AT WALL AND ROOF INTERSECTIONS, WHEREVER THERE IS A CHANGE IN ROOF SLOPE OR DIRECTION AND AROUND ROOF OPENINGS. A FLASHING SHALL BE INSTALLED TO DIVERT THE EATER AWAY FROM WHERE THE EAVE OF A SLOPED ROOF INTERSECTS A VERTICAL SIDEWALL. WHERE FLASHING IS OF METAL, THE METAL SHALL BE CORROSION RESISTANT WITH A THICKNESS OF NOT LESS THAN .0019 INCH (.05 MM) (NO. 26 GALVANIZED SHEET).

R703.4 FLASHING. APPROVED CORROSION-RESISTANT FLASHING SHALL BE APPLIED SHINGLE-FASHION IN A MANNER TO PREVENT ENTRY OF WATER INTO THE WALL CAVITY OR PENETRATION OF WATER TO THE BUILDING STRUCTURAL FRAMING COMPONENTS. SELF-ADHERED MEMBRANES USED AS FLASHING SHALL COMPLY WITH AAMA 711. FLUID-APPLIED MEMBRANES USED AS FLASHING IN EXTERIOR WALLS SHALL COMPLY WITH AAMA 714. THE FLASHING SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL FINISH. APPROVED CORROSION-RESISTANT FLASHINGS SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS:
1. EXTERIOR WINDOW AND DOOR OPENINGS. FLASHING AT EXTE- RIOR WINDOW AND DOOR OPENINGS SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL FINISH OR TO THE WATER-RESISTIVE BARRIER COMPLYING WITH SECTION 703.2 FOR SUBSEQUENT DRAINAGE. MECHANICALLY ATTACHED FLEXIBLE FLASHINGS SHALL COMPLY WITH AAMA 712. FLASHING AT EXTERIOR WINDOW AND DOOR OPENINGS SHALL BE INSTALLED IN ACCORDANCE WITH ONE OR MORE OF THE FOLLOWING:
1.1. THE FENESTRATION MANUFACTURER'S INSTALLATION AND FLASHING INSTRUCTIONS, OR FOR APPLICATIONS NOT ADDRESSED IN THE FENESTRATION MANUFACTURER'S INSTRUCTIONS, IN ACCORDANCE WITH THE FLASHING MANUFACTURER'S INSTRUCTIONS, WHERE FLASHING INSTRUCTIONS OR DETAILS ARE NOT PROVIDED, PAN FLASHING SHALL BE INSTALLED AT THE SILL OF EXTERIOR WINDOW AND DOOR OPENINGS. PAN FLASHING SHALL BE SEALED OR SLOPED IN SUCH A MANNER AS TO DIRECT WATER TO THE SURFACE OF THE EXTERIOR WALL FINISH OR TO THE WATER-RESISTIVE BARRIER FOR SUBSEQUENT DRAINAGE. OPENINGS USING PAN FLASHING SHALL INCORPORATE FLASHING OR PROTECTION AT THE HEAD AND SIDES.
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 CON- STRUCTION 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.

WEATHER RESISTIVE SHEATHING PAPER: R703.2 WATER-RESISTIVE BARRIER. ONE LAYER OF NO. 15 ASPHALT FELT, FREE FROM HOLES AND BREAKS, COMPLYING WITH ASTM D 226 FOR TYPE I FELT OR OTHER APPROVED WATER-RESISTIVE BARRIER SHALL BE APPLIED OVER STUDS OR SHEATHING OF ALL EXTERIOR WALLS. SUCH FELT OR MATERIAL SHALL BE APPLIED HORIZONTALLY, WITH THE UPPER LAYER LAPPED OVER THE LOWER LAYER NOT LESS THAN 2 INCHES (51 MM) WHERE JOINTS OCCUR, FELT SHALL BE LAPPED NOT LESS THAN 6 INCHES (152 MM). THE FELT OR OTHER APPROVED MATERIAL SHALL BE CONTINUOUS TO THE TOP OF WALLS AND TERMINATED AT PEN- ETRATIONS AND BUILDING APPENDAGES IN A MANNER TO MEET THE REQUIREMENTS OF THE EXTERIOR WALL ENVELOPE AS DESCRIBED IN SECTION R703.1. THE WATER-RESISTIVE BARRIER IS NOT REQUIRED FOR DETACHED ACCESSORY BUILDINGS.

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DRAWN BY	MJW
DESIGN	RM-2407 CD
SHEET NUMBER	5
	5 OF 8

NOTE:
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DESIGN STANDARD

GARAGE WIDTH = 55%

1. GABLES, HIP ROOF OR GAMBREL ROOF FORM.
2. FRONT ENTRY RECESSED 3' FOR INTERIOR UNITS & 5'-6" FOR EXTERIOR UNITS.
3. COVERED PORCH ENTRIES. (MIN. 48 SQ. FT., MIN. 4' DEEP)
4. ANY EAVES OF 12 INCHES OR GREATER.
5. OFF-SET OF 16 INCHES OR GREATER ON BUILDING FACE OR ROOF.
6. WINDOWS AND MAIN ENTRANCE DOORS OCCUPY A MINIMUM OF THE FACADE. (NOT INCUDING THE ROOF)

FRONT ELEVATION

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SCALE : ¼" = 1'-0"

EXPLANATION OF HEIGHT

OVERALL HEIGHT - "X":	26'-6 1/2"
LOWEST TRUSS POINT - "Y":	19'-6 1/2"
26'-6 1/2" (X) - 19'-6 1/2" (Y) =	7'-0" (Q)
7'-0" (Q) / 2 =	3'-6"
19'-6 1/2" (Y) + 3'-6" =	23'-0 1/2"

AVERAGE HEIGHT = 23'-0 1/2"

WINDOW AREA SUMMARY:

6

BUILDING FACADE SQ. FT. = 1141 SQ. FT.
WINDOW AREA REQ TO EQUAL 15% TRANSPARENCY - 171.15 SQ. FT.
WINDOW AREA PROVIDED - 230.5 SQ. FT.

TOTAL FACADE TRANSPARENCY - 20.2%

REAR ELEVATION

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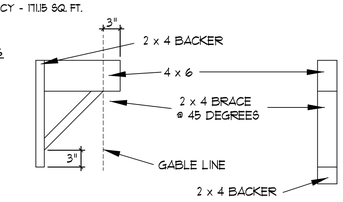
SCALE : ¼" = 1'-0"



GABLE BRACE DETAIL A

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	6 OF 8

LEFT ELEVATION

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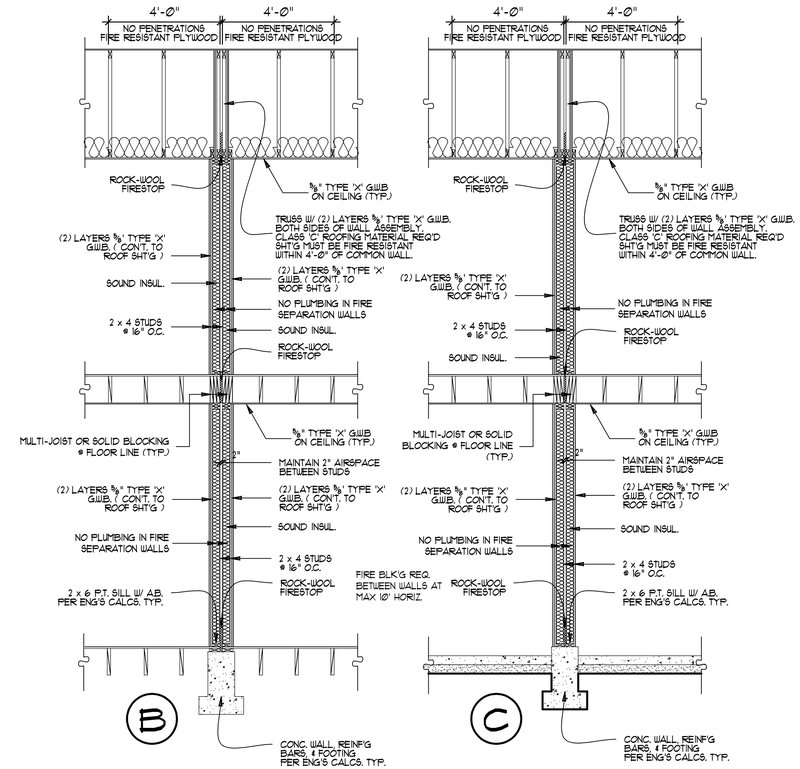
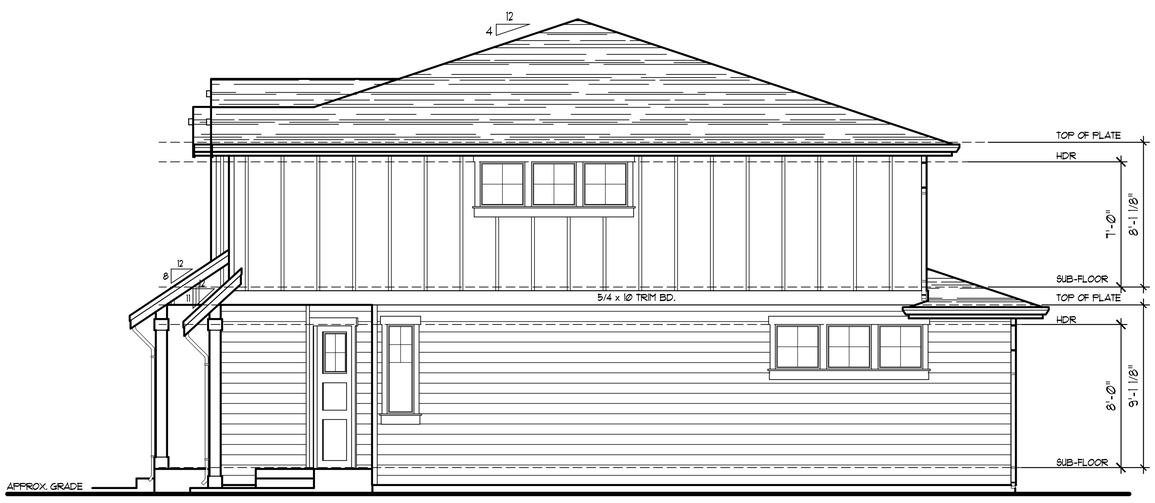
SCALE : 1/4" = 1'-0"



TYP. 2-HOUR COMMON WALL DETAIL

SCALE : 3/8" = 1'-0"



RIGHT ELEVATION

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

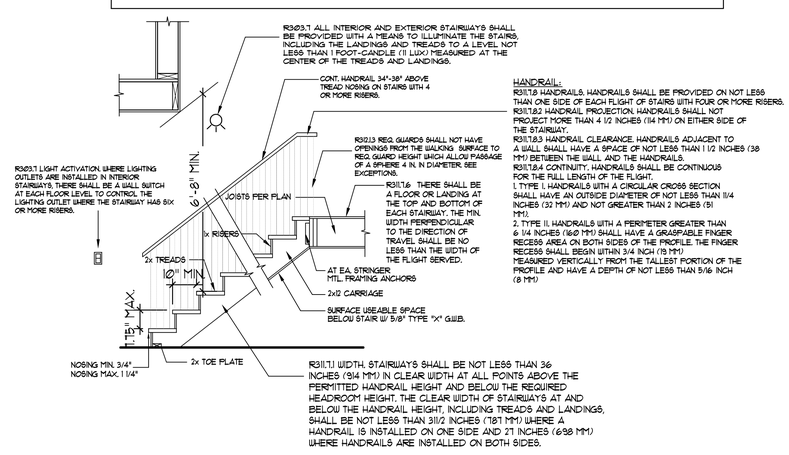
GA FILE NO. WP 3725	GENERIC	2 HOUR FIRE	65 TO 69 STC SOUND

GYPSUM WALLBOARD, WOOD STUDS, INSULATION

FIRE DESIGN:
BASE LAYER 5/8" TYPE X GYPSUM WALLBOARD OR GYPSUM VENEER BASE APPLIED AT RIGHT ANGLES TO EACH SIDE OF DOUBLE RO OD 2X4 WOOD STUDS 16" O.C. ON SEPARATE PLATES 1" APART WITH 2" TYPE W SCREWS 24" O.C.
FACE LAYER 5/8" TYPE X GYPSUM WALLBOARD OR GYPSUM VENEER BASE APPLIED AT RIGHT ANGLES TO EACH SIDE WITH 2-1/ 2" TYPE W SCREWS, 8" O.C. TWO LAYERS 3.5" UNFACED GLASS FIBER INSULATION FRICTION FIT BETWEEN STUD, ONE PER SIDE.
JOISTS STAGGERED 16" EACH LAYER AND SIDE. HORIZONTAL BRACING REQUIRED AT MID-HEIGHT. (LOAD BEARING)

SOUND DESIGN:
A: SOUND TESTED WITHOUT BRACING
B: SOUND TESTED WITH BRACING

THICKNESS: 10 3/4" (FIRE & SOUND)
APPROX. WEIGHT: 11.5 Psf (SYSTEM A FIRE & SOUND)
12 Psf (SYSTEM B FIRE & SOUND)
FIRE TEST: UL R4024, 10-31-68
SOUND TEST: A: NOAL 17-0842, 8-28-17
B: NOAL 17-0843, 8-28-17



HANDRAIL:
R311.7.8 HANDRAILS. HANDRAILS SHALL BE PROVIDED ON NOT LESS THAN ONE SIDE OF EACH FLIGHT OF STAIRS WITH FOUR OR MORE RISERS.
R311.7.8.2 HANDRAIL PROJECTION. HANDRAILS SHALL NOT PROJECT MORE THAN 4 1/2 INCHES (114 MM) ON EITHER SIDE OF THE STAIRWAY.
R311.7.8.3 HANDRAIL CLEARANCE. HANDRAILS ADJACENT TO A WALL SHALL HAVE A SPACE OF NOT LESS THAN 1 1/2 INCHES (38 MM) BETWEEN THE WALL AND THE HANDRAILS.
R311.7.8.4 CONTINUITY. HANDRAILS SHALL BE CONTINUOUS FOR THE FULL LENGTH OF THE FLIGHT.
1. TYPE I. HANDRAILS WITH A CIRCULAR CROSS SECTION SHALL HAVE AN OUTSIDE DIAMETER OF NOT LESS THAN 1 1/4 INCHES (32 MM) AND NOT GREATER THAN 2 INCHES (51 MM).
2. TYPE II. HANDRAILS WITH A PERIMETER GREATER THAN 6 1/4 INCHES (160 MM) SHALL HAVE A GRASPABLE FINGER RECESS AREA ON BOTH SIDES OF THE PROFILE. THE FINGER RECESS SHALL BEGIN WITHIN 3/4 INCH (19 MM) MEASURED VERTICALLY FROM THE TALLEST PORTION OF THE PROFILE AND HAVE A DEPTH OF NOT LESS THAN 5/16 INCH (8 MM)

STAIR CONSTRUCTION DETAIL

NTS. (SIMILAR) A

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DESIGN	RM-2407 CD
SHEET NUMBER	7

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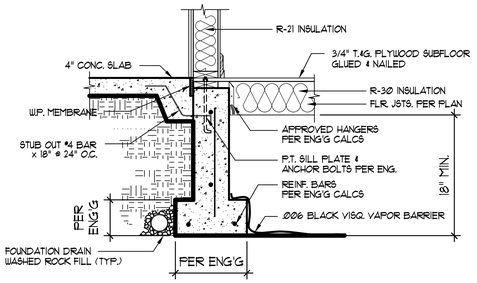
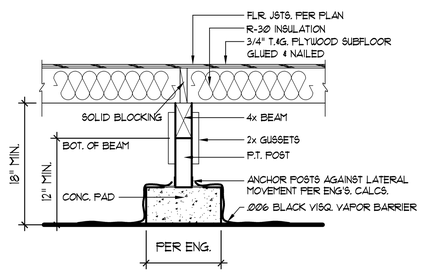


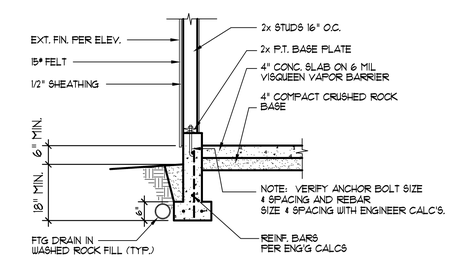
PORCH/SLAB DETAIL (F)

SCALE: 3/4" = 1'-0"



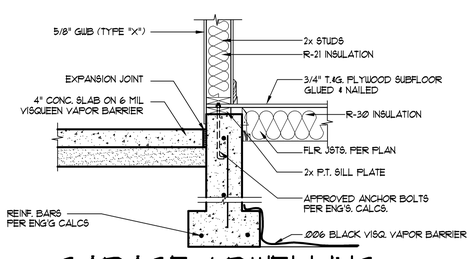
GIRDER DETAIL (G)

SCALE: 3/4" = 1'-0"



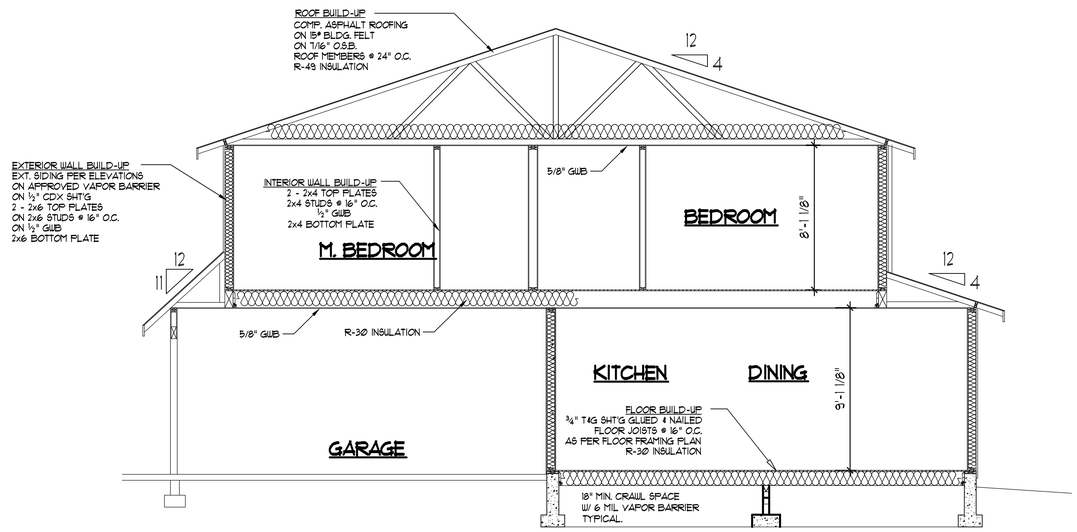
STEM WALL DETAIL (H)

SCALE: 3/4" = 1'-0"



GARAGE / DWELLING SEPARATION DETAIL (J)

SCALE: 3/4" = 1'-0"



SECTION - A

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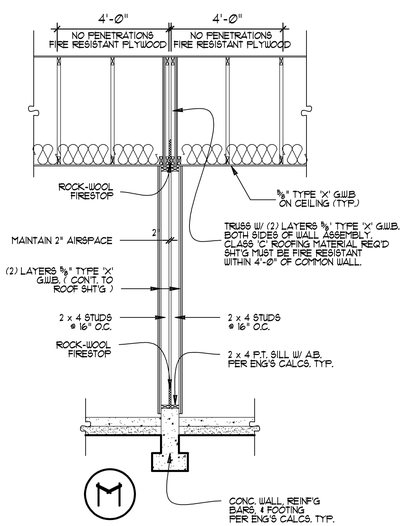
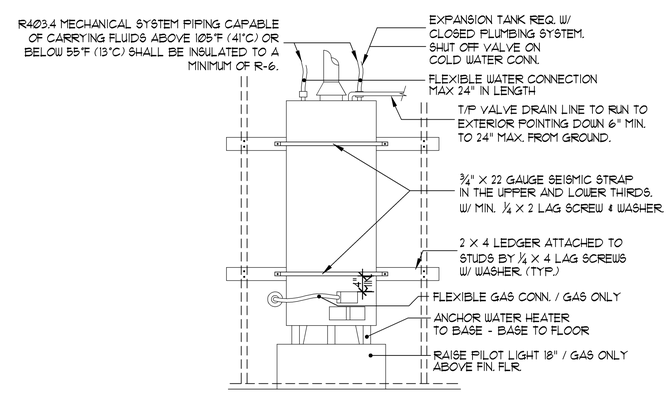
SCALE : ¼" = 1'-0"



(M)

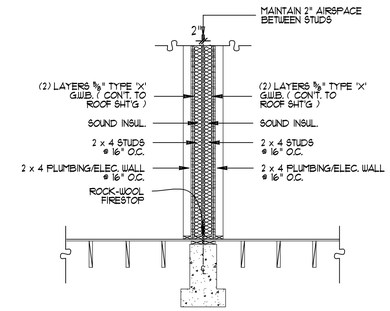
2-HOUR COMMON WALL DETAIL

SCALE : ⅜" = 1'-0"



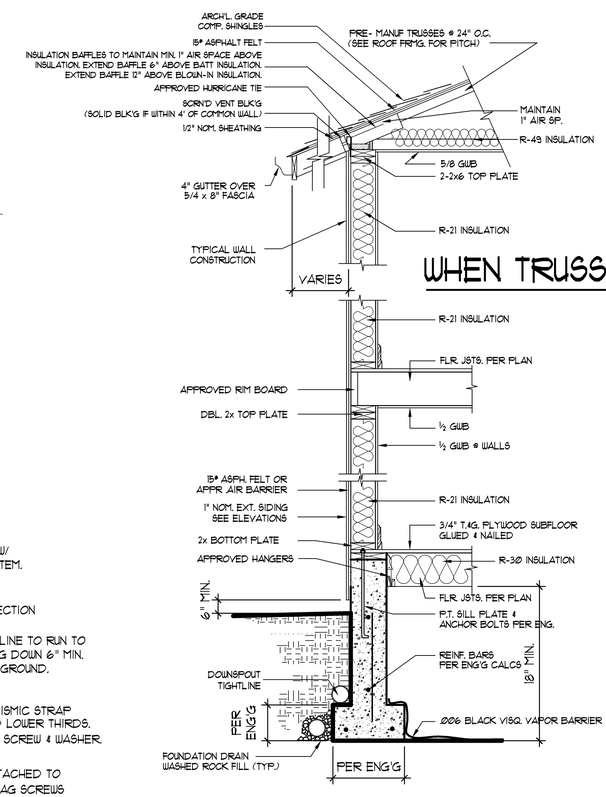
WATER HEATER SUPPORT (E)

(ALL ELECTRIC WATER HEATERS IN UNHEATED SPACES OR ON CONCRETE FLOORS SHALL BE PLACED ON A INSULATED SURFACE WITH A MIN. THERMAL RESISTANCE OF R-10 AND A MINIMUM COMPRESSIVE STRENGTH OF 40 PSI.



PLUMBING / ELEC. WALL DETAIL (K)

SCALE : ⅜" = 1'-0"



WHEN TRUSSED

TYP. TWO STORY CONFIG. (B)

SCALE: 3/4" = 1'-0"

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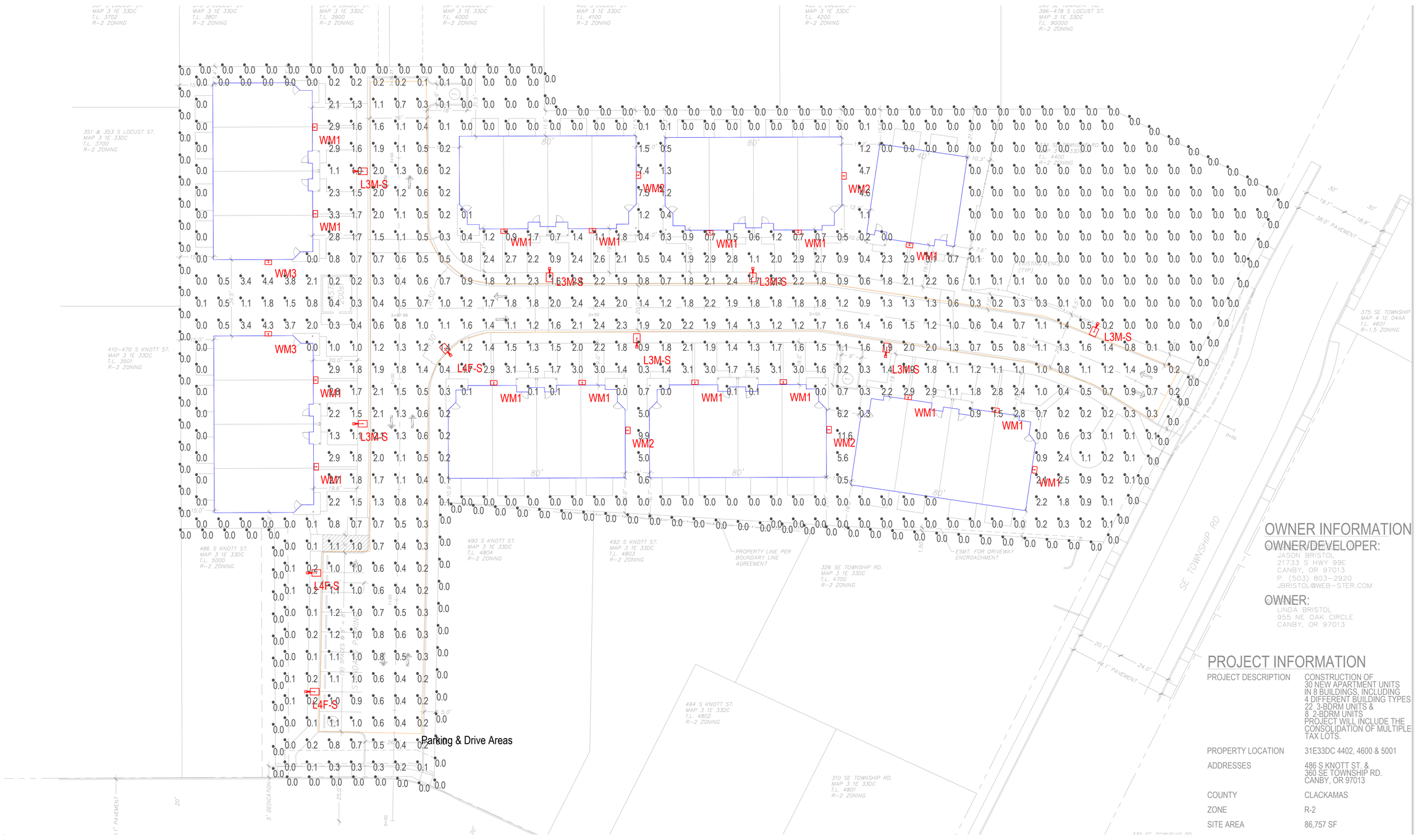
DRAWN BY	MJW
DESIGN	RM-2407 CD
SHEET NUMBER	8
	8 OF 8

VIII. Site Lighting Plans

TYPE L: 15'0" MOUNTING HEIGHT
TYPE WM: 8'0" MOUNTING HEIGHT

Luminaire Schedule								
Symbol	Qty	Label	Arrangement	Manufacturer	Description	Luminaire Lumens	Luminaire Watts	LLF
	7	L3M-S	Single	U.S. ARCHITECTURAL LIGHTING	RZR-M-PLED-III-M-24LED-350mA-30K-HS	2543	28.2	0.920
	3	L4F-S	Single	U.S. ARCHITECTURAL LIGHTING	RZR-M-PLED-IV-FT-24LED-350mA-30K-HS	2481	28.2	0.920
	16	WM1	Single	U.S. ARCHITECTURAL LIGHTING	RZR-WM1-PLED-IV-FT-20LED-350mA-30K-HS	2037	21.4	0.920
	4	WM2	Single	U.S. ARCHITECTURAL LIGHTING	RZR-WM1-PLED-II-FR-20LED-350mA-30K-HS	2097	21.4	0.920
	2	WM3	Single	U.S. ARCHITECTURAL LIGHTING	RZR-WM1-PLED-III-M-20LED-350mA-30K-HS	2085	21.4	0.920

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Property Line	Illuminance	Fc	0.0	0.0	0.0	N.A.	N.A.
Parking & Drive Areas	Illuminance	Fc	1.1	2.4	0.2	5.5	12.0



OWNER INFORMATION

OWNER/DEVELOPER:
JASON BRISTOL
21733 S HWY 99E
CANBY, OR 97013
P: (503) 803-2920
JBRISTOL@WEB-STER.COM

OWNER:
LINDA BRISTOL
955 NE OAK CIRCLE
CANBY, OR 97013

PROJECT INFORMATION

PROJECT DESCRIPTION	CONSTRUCTION OF 30 NEW APARTMENT UNITS IN 8 BUILDINGS, INCLUDING 4 DIFFERENT BUILDING TYPES 22 3-BDRM UNITS & 8 2-BDRM UNITS PROJECT WILL INCLUDE THE CONSOLIDATION OF MULTIPLE TAX LOTS.
PROPERTY LOCATION	31E33DC 4402, 4600 & 5001
ADDRESSES	486 S KNOTT ST. & 360 SE TOWNSHIP RD. CANBY, OR 97013
COUNTY	CLACKAMAS
ZONE	R-2
SITE AREA	86,757 SF

U.S. ARCHITECTURAL LIGHTING
SUN VALLEY LIGHTING

U.S. ARCHITECTURAL & SUN VALLEY LIGHTING
660 W AVE O, PALMDALE, CA 93551
(661) 233-2000

NOTES:
See schedule for luminaire specifications.
Luminaire Symbols are not to scale.
Varying the position, mounting height, or orientation from what is specified in this drawing will invalidate the calculation performed.

DRAWN BY: L.C.P.
AGENCY: Northern Illumination Company, LLC
Date:10/23/2023
SCALE: 1" = 20'0"

Point-By-Point Illuminance Calculation (At Grade)

Tievoli Commons

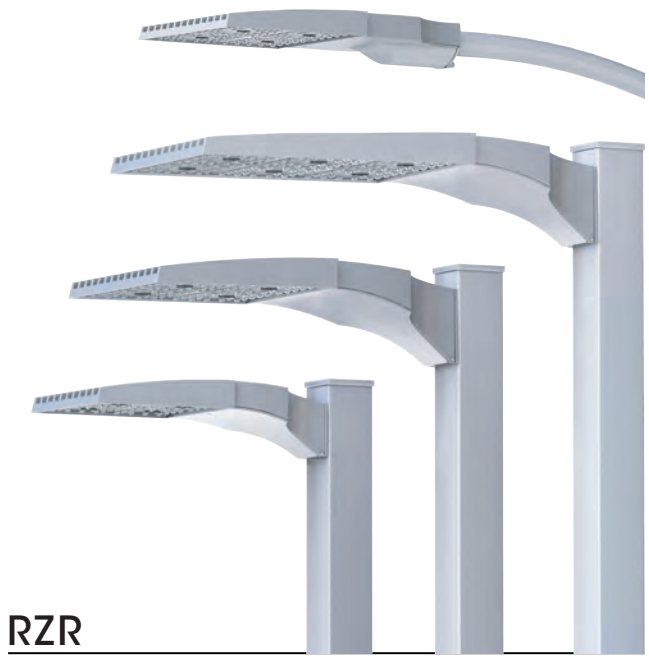
AREA & ROADWAY LIGHTING

RAZAR SERIES - LED

LOW PROFILE AREA LUMINAIRE

PROJECT NAME:

PROJECT TYPE: L3M-S



RZR

(**MODELS**: RZRM, RZR, RZR-G & RZR-MAF*) PATENT PENDING

Optical Housing

Heavy cast, low copper aluminum assembly (A356 alloy, <.2% copper) minimum wall thickness .188". LED Module mounting area is machined to within a 0.002" surface flatness variance for maximum surface contact and thermal conductivity from the LED modules to the radiating fins. Passive radiating fins above the LED Optics provide superior thermal management and long LED life.The optical and electrical compartments are integrated with the support arm to create one assembly. Cast and hinged driver compartment cover allows access to the drivers and wiring.

Electrical Housing w/ Integrated Arm

Heavy cast low copper aluminum (A356 alloy; <0.2% copper) assembly with integral cooling ribs surrounding the electrical compartment and a flat surface on the top of the arm to accommodate a photocell receptacle. Solid barrier wall separates optical and electrical compartments. The optical compartment and electrical compartment with the integrated support arm combine to create one assembly. Minimum wall thickness is .188". Cast and hinged driver assembly cover is integrated with wiring compartment cover.

PLED™ Optics

Emitters (LED's) are arrayed on a metal core PCB panel with each emitter located on a copper thermal transfer pad and enclosed by an LED refractor. LED optics completely seal each individual emitter to meet an IP66 rating. In asymmetric distributions, a micro-reflector inside the refractor re-directs the house side emitter output towards the street side and functions as a house side shielding element. Refractors are injection molded H12 acrylic. Each LED refractor is sealed to the PCB over an emitter and all refractors are retained by an aluminum frame. Any one Panel, or group of Panels in a luminaire, have the same optical pattern. LED refractors produce standard site/area distributions. Panels are field replaceable and field rotatable in 90° increments.

LED Driver(s)

Constant current electronic with a power factor of >.90 and a minimum operating temperature of -40°F/-40°C. Driver(s) is/are UL and cUL recognized and mounted directly against the Electrical Housing to facilitate thermal transfer, held down by universal clamps to facilitate easy removal. In-line terminal blocks facilitate wiring between the driver and optical arrays. Drivers accept an input of 120-277V, 50/60Hz or 347V-480V, 50,60Hz. (0 - 10V dimmable driver is standard. Driver has a minimum of 3KV internal surge protection. Luminaire supplied with 20KV surge protector for field accessible installation.)

LED Emitters

High output LED's are utilized with drive currents ranging from 350mA to 1050mA. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

Amber LED's

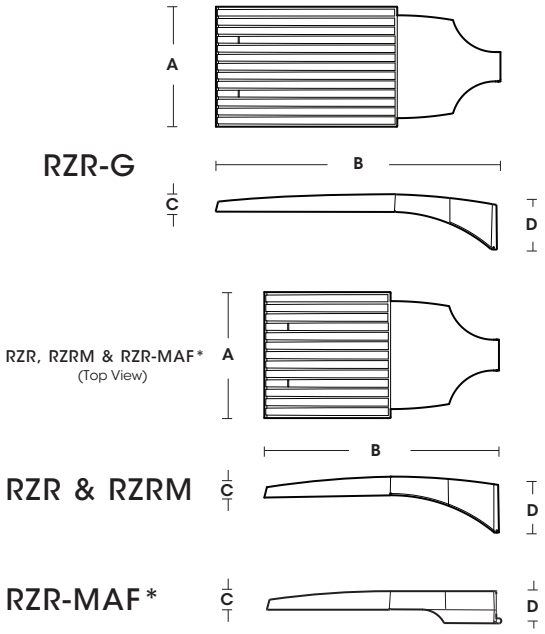
TRA (True Amber) LED's utilize material that emits light in the amber spectral bandwidth only without the use of phosphors.

Finish

Electrostatically applied TGIC Polyester Powder Coat on substrate prepared with 20 PSI power wash at 140°F. Four step media blast and iron phosphate pretreatment for protection and paint adhesion. 400°F bake for maximum hardness and durability.

Mast Arm Fitter/Electrical Housing

Replaces standard Electrical Housing. Fits standard 2 3/8" O.D. horizontal tenon.Two (2) straps with two (2) bolts each encircle the lower half of the tenon. Upper half of the tenon rests on self-centering steps that position the angle of the luminaire at 0°, +1.5°, +1.5 or +3° up from the horizontal. All hardware is stainless steel.



FIXTURE	A	B	C	D
RZR-G	15" 381mm	36.5" 927mm	3" 76mm	7" 187mm
RZR	14.75" 375mm	28.25" 718mm	2.75" 70mm	6.5" 165mm
RZRM	11.5" 292mm	22" 559mm	2.5" 64mm	5.25" 133mm
RZR-MAF	15" 381mm	28.25" 724mm	2.5" 64mm	4" 102mm

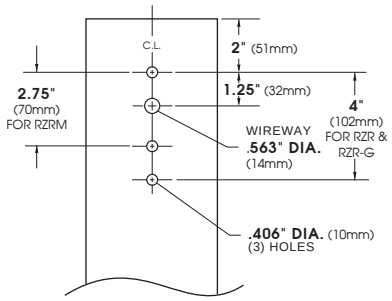
U.L. Listed for Wet Location

2022158

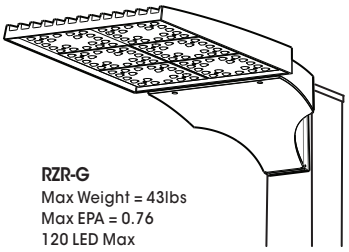
RZR SERIES - LED

SPECIFICATIONS

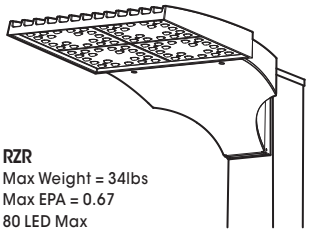
POLE DRILLING TEMPLATE



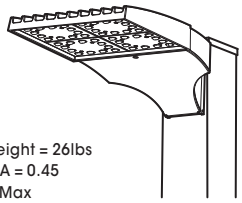
EPA & WEIGHT



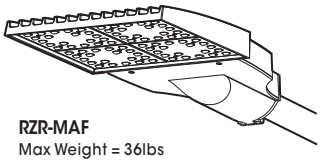
RZR-G
Max Weight = 43lbs
Max EPA = 0.76
120 LED Max



RZR
Max Weight = 34lbs
Max EPA = 0.67
80 LED Max

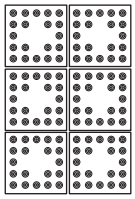


RZRM
Max Weight = 26lbs
Max EPA = 0.45
48 LED Max

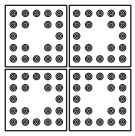


RZR-MAF
Max Weight = 36lbs
Max EPA = 0.56
80 LED Max

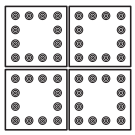
PLED™ MODULES



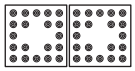
120 LED Module



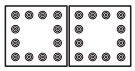
80 LED Module



48 LED Module



40 LED Module



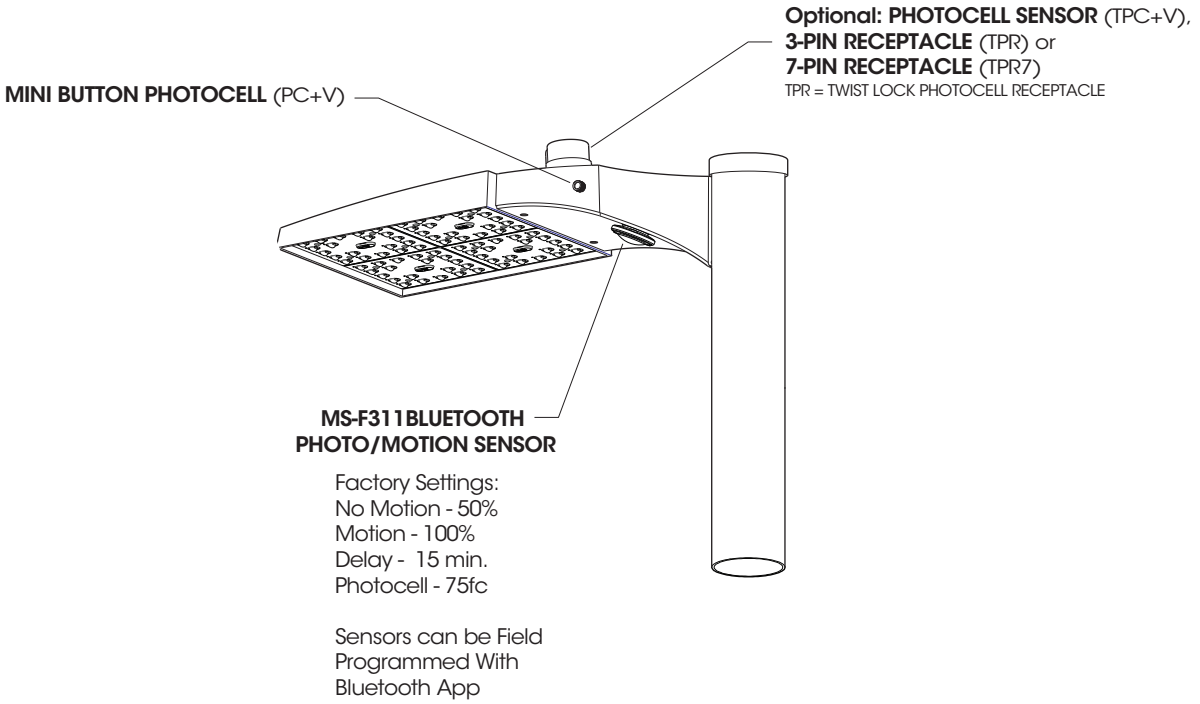
24 LED Module

ORDERING INFORMATION

Spec/Order Example: RZR/PLED-IV/80LED-700mA/CW/277/RAL-8019-S

Luminaire	Optics	LED Mode	Voltage	Mounting	Finish	Options
Luminaire	**Optics**	**LED**	**Voltage**	**Mounting**	**Finish**	**Options**
☐ RZR-G ☐ RZR ☐ RZR-MAF ☐ RZRM	**PLED™** Distribution Type ☐ Type II **PLED-II** ☐ Type II Front Row **PLED-II-FR** ☐ Type III Median Illuminator **PLED-II-MIL** ☐ Type III Med. **PLED-III** ☐ Type III Wide **PLED-III-W** ☐ Type IV **PLED-IV** ☐ Type IV **PLED-IV-FT** ☐ Type V Narrow **PLED-VSQ-N** ☐ Type V Med. **PLED-V-SQ-M** ☐ Type V Wide **PLED-V-SQ-W**	# of LEDs **RZR-G** ☐ 120LED ☐ 80LED **RZR/RZR-MAF** ☐ 80LED ☐ 40LED **RZRM** ☐ 48LED ☐ 24LED Drive Current ☐ 1050mA[1] ☐ 875mA[1] ☐ 700mA[1] ☐ 525mA ☐ 350mA Color Temp - CCT ☐ 27K (2700K) ☐ 30K (3000K) ☐ 40K (4000K) ☐ 50K (5000K) ☐ TRA True Amber[2] Consult Factory for Other LED Color, CCT, & CRI Options NOTES: 1 - 700mA, 875mA and 1050mA not for use with TRA LED's 2 - Available in 350mA & 525mA drive currents only Consult Factory for Other Drive Currents	☐ 120 ☐ 208 ☐ 240 ☐ 277 ☐ 347 ☐ 480	Arm Mount ☐ 1 ☐ 2-180 ☐ 2-90 ☐ 3-90 ☐ 3-120 ☐ 4-90 Wall Mount ☐ WM WM - Wall Mount provided with mounting bracket and cover.	Standard Textured Finish ☐ Black **RAL-9005-T** ☐ White **RAL-9003-T** ☐ Grey **RAL-7004-T** ☐ Dark Bronze **RAL-8019-T** ☐ Green **RAL-6005-T** Premium Finishes ☐ Rust ☐ Patina Copper **PC** For smooth finish replace suffix "T" with suffix "S" (Example: RAL-9500-S) Consult factor for custom colors	☐ Internal House Side Shield inc. LED Count (Example: HS-PLED/48) **HS-PLED** ☐ External Glare Shield 4 Sided **EGS4** ☐ External Glare Shield 3 Sided Rear Wedge **EGS3W** ☐ Round Pole Adapter **RPA** ☐ Twist Lock Receptable Only **TPR** ☐ 7-Pin Twist Lock Receptable Only **TPR7** ☐ High-Low Dimming for Switch by Others/Select Levels 50/100 or 25/100 (Example: HLSW/25) **HLSW** ☐ Twist Lock Photocell + Voltage (Example: TPC347V) **TPC+V** ☐ Photo Cell + Voltage (Example: PC120V) **PC+V** ☐ Single Fuse (120V, 277V) **SF** ☐ Double Fuse (208V, 240V) **DF** ☐ Blue-Tooth Programmable Photo/Motion Sensor (Factory - Motion 50/100; Photo 75fc) **MS-F311**

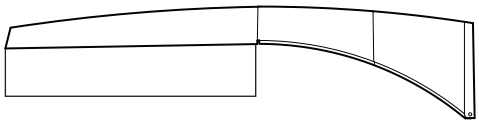
OPTIONS



High Low Dimming For Switches (HLSW)
The HLSW is a Small Electronic Switch which Provides High Low Dimming Control Through the LED Driver's 0-10V Control. Switching is Done by Adding a Seconday AC Switched Hot Trigger Line to the HLSW in Addition to the Normal AC Power Line. When the Secondary Trigger Line is Powered, the Fixture will go to 100% Dimming. With no Power to the Trigger, the Fixture will operate at 50% or 25% Dimming. Switches for the Trigger Line can be a Normal AC Switch/Breaker or Timed Switch/Breaker.

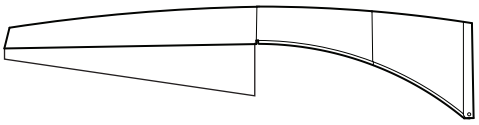
Wireless and Other Fixture Controls
Contact Factory for Wireless and Other Fixture Controls and Recomendations. Most Controls Can be Integrated and Factory Installed.

EXTERNAL GLARE SHIELDS



EGS4 - 4 Sided Shield

Minimum Cutoff = 12°
Average Cutoff = 23°

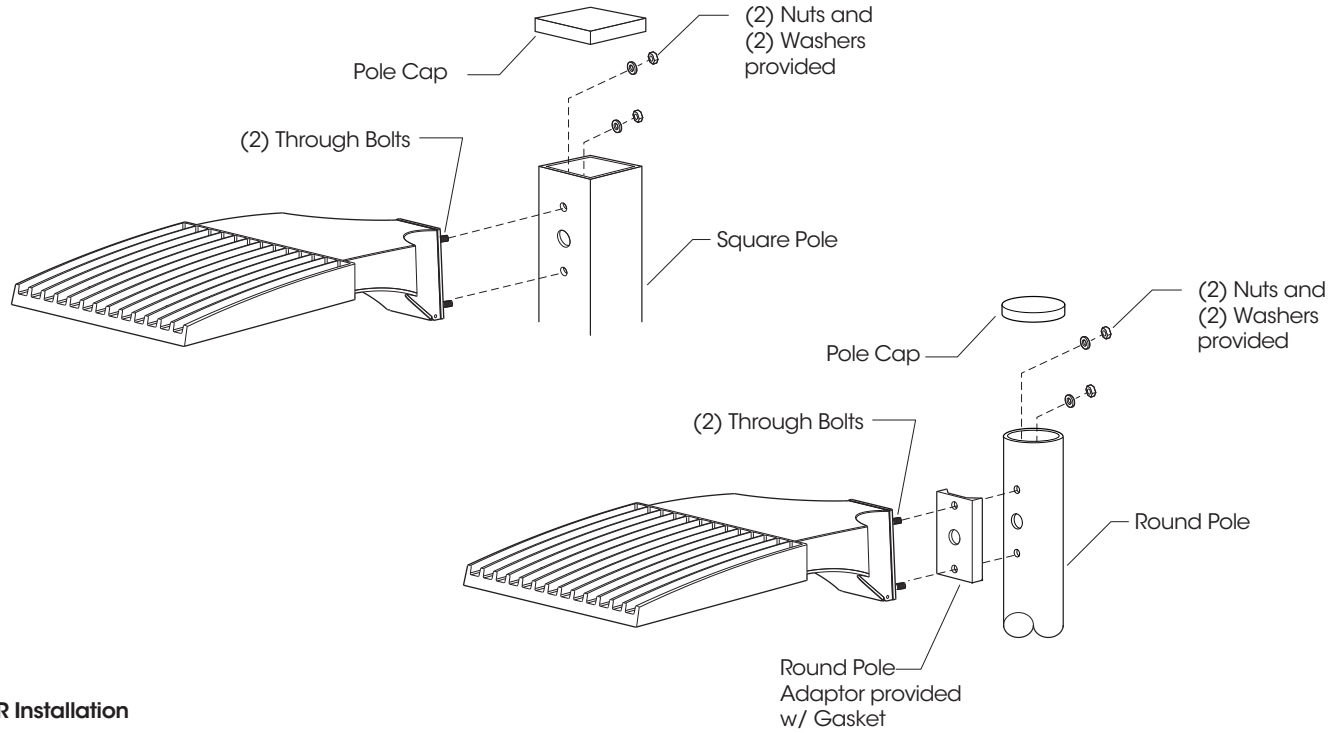


EGS3W - 3 Sided Shield

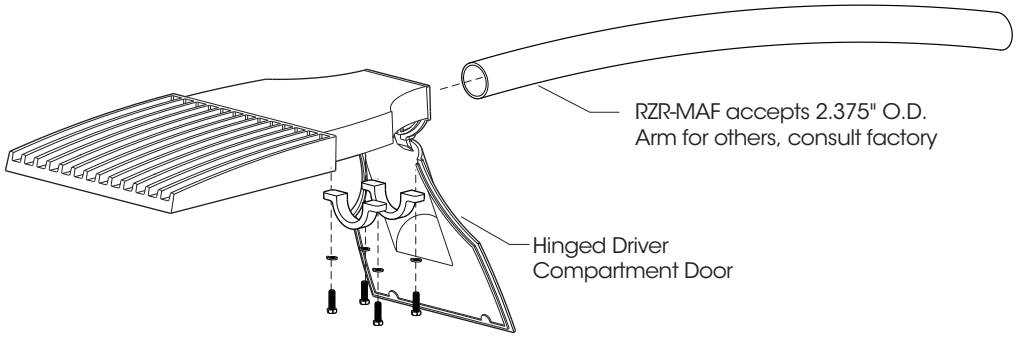
Minimum Rear Cutoff = 12°
Average Rear Cutoff = 23°
Minimum Side Cutoff = 4°
Average Side Cutoff = 16°

Glare Shields are rotatable on RZR and RZRM. Consult factory for custom applications.

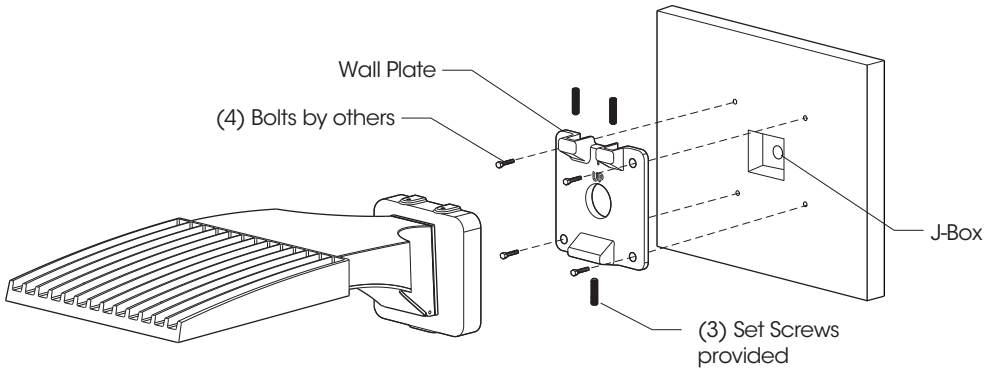
INSTALLATION DETAIL



RZR Installation



RZR-MAF Installation



RZR-WM Installation

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LM-80 LUMEN MAINTENANCE

LED Life / Operating Hours	Lumen Depreciation	Lumen Depreciation Scale Factor
60,000 (10x Test Time Calculated)	L94	0.94x
100,000 (Theoretical Calculated)	L92	0.92x
150,000 (Theoretical Calcualted)	L89	0.89x

Lumen Depreciation Calculations Done in Accordance With IESNA TM-21 & LM-80 (25°C Ambient) **TM-21 6x Test Time Dicatates that L94 > 60,000 Hours**.

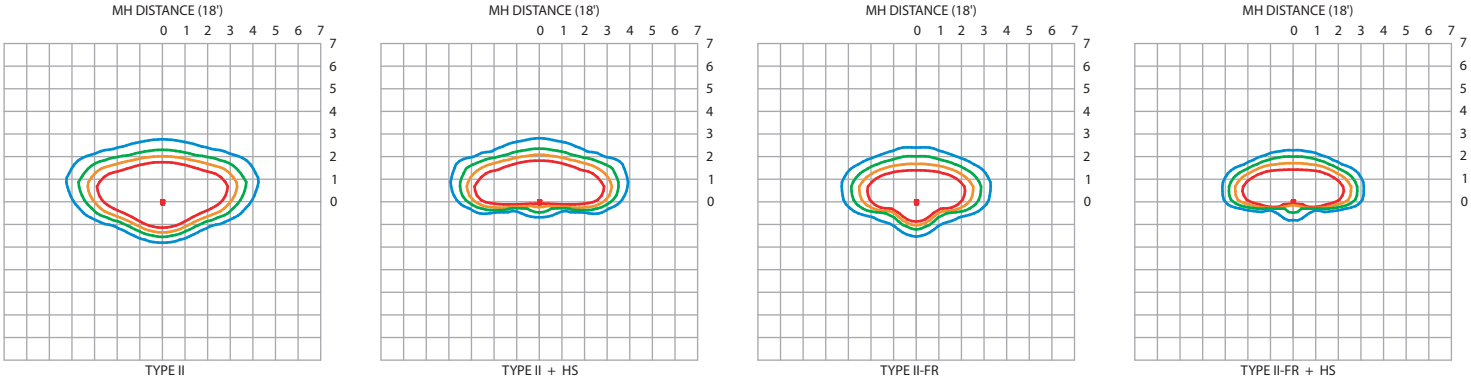
ELECTRICAL DATA GUIDE - AMPERAGE CHARTS

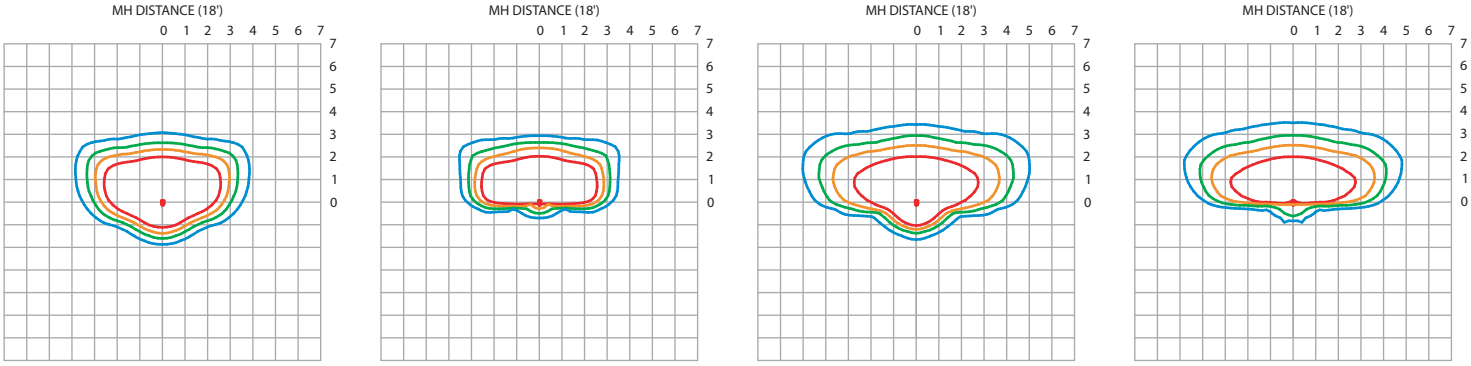
# of LEDs	mA	System Watts	120V	208V	277V	347V	480V
24	350	28	0.24	0.14	0.10	0.08	0.06
24	525	42	0.35	0.20	0.15	0.12	0.09
24	700	56	0.47	0.27	0.20	0.16	0.12
24	875	68	0.57	0.33	0.24	0.20	0.14
24	1050	82	0.68	0.39	0.30	0.24	0.17
48	350	53	0.44	0.25	0.19	0.15	0.11
48	525	79	0.66	0.38	0.29	0.23	0.16
48	700	105	0.88	0.51	0.38	0.30	0.22
48	875	132	1.10	0.63	0.48	0.38	0.27
48	1050	160	1.33	0.77	0.58	0.46	0.33
40	350	43	0.36	0.21	0.15	0.12	0.09
40	525	65	0.54	0.31	0.23	0.19	0.13
40	700	87	0.72	0.42	0.31	0.25	0.18
40	875	108	0.90	0.52	0.39	0.31	0.23
40	1050	128	1.07	0.62	0.46	0.37	0.27
80	350	85	0.71	0.41	0.31	0.25	0.18
80	525	129	1.08	0.62	0.47	0.37	0.27
80	700	174	1.45	0.83	0.63	0.50	0.36
80	875	216	1.80	1.04	0.78	0.62	0.45
80	1050	256	2.14	1.23	0.93	0.74	0.53
120	350	130	1.08	0.63	0.47	0.37	0.27
120	525	192	1.60	0.92	0.69	0.55	0.40
120	700	260	2.17	1.25	0.94	0.75	0.54
120	875	329	2.74	1.58	1.19	0.95	0.69
120	1050	398	3.32	1.91	1.44	1.15	0.83

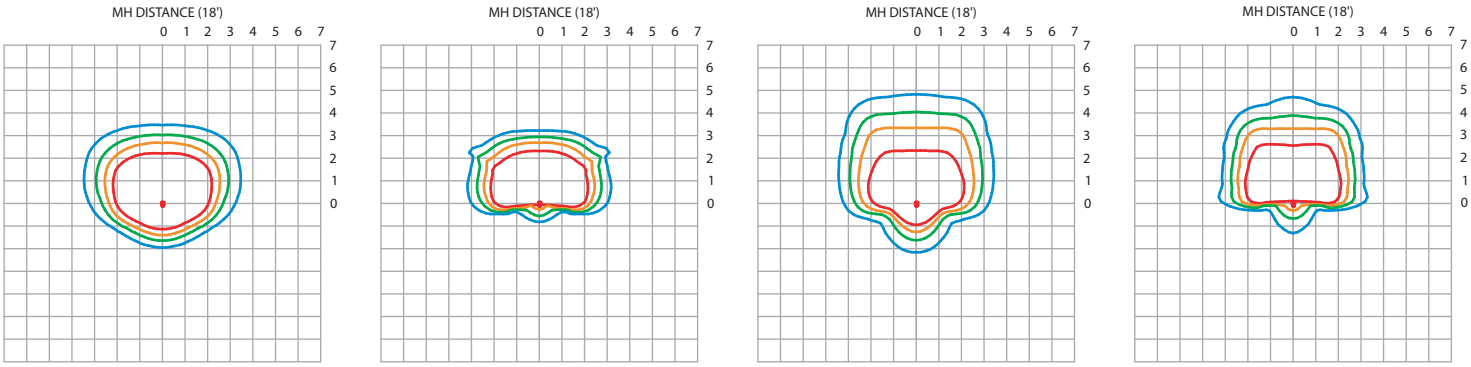
RZR SERIES - LED

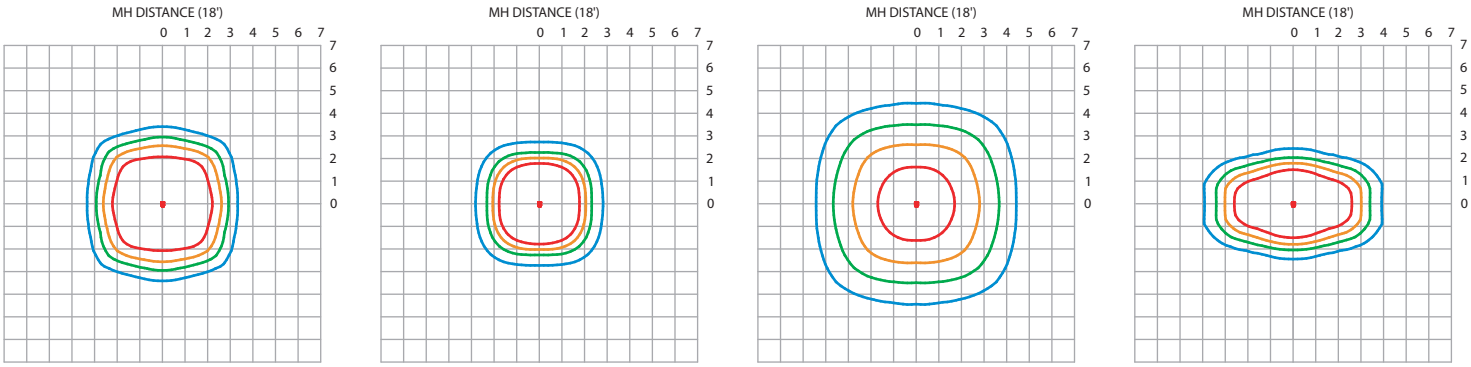
PHOTOMETRIC DATA GUIDE - ISOFOOTCANDLE PLOTS

RZRM-PLED-48LED-700mA-40K - 18' Pole Height









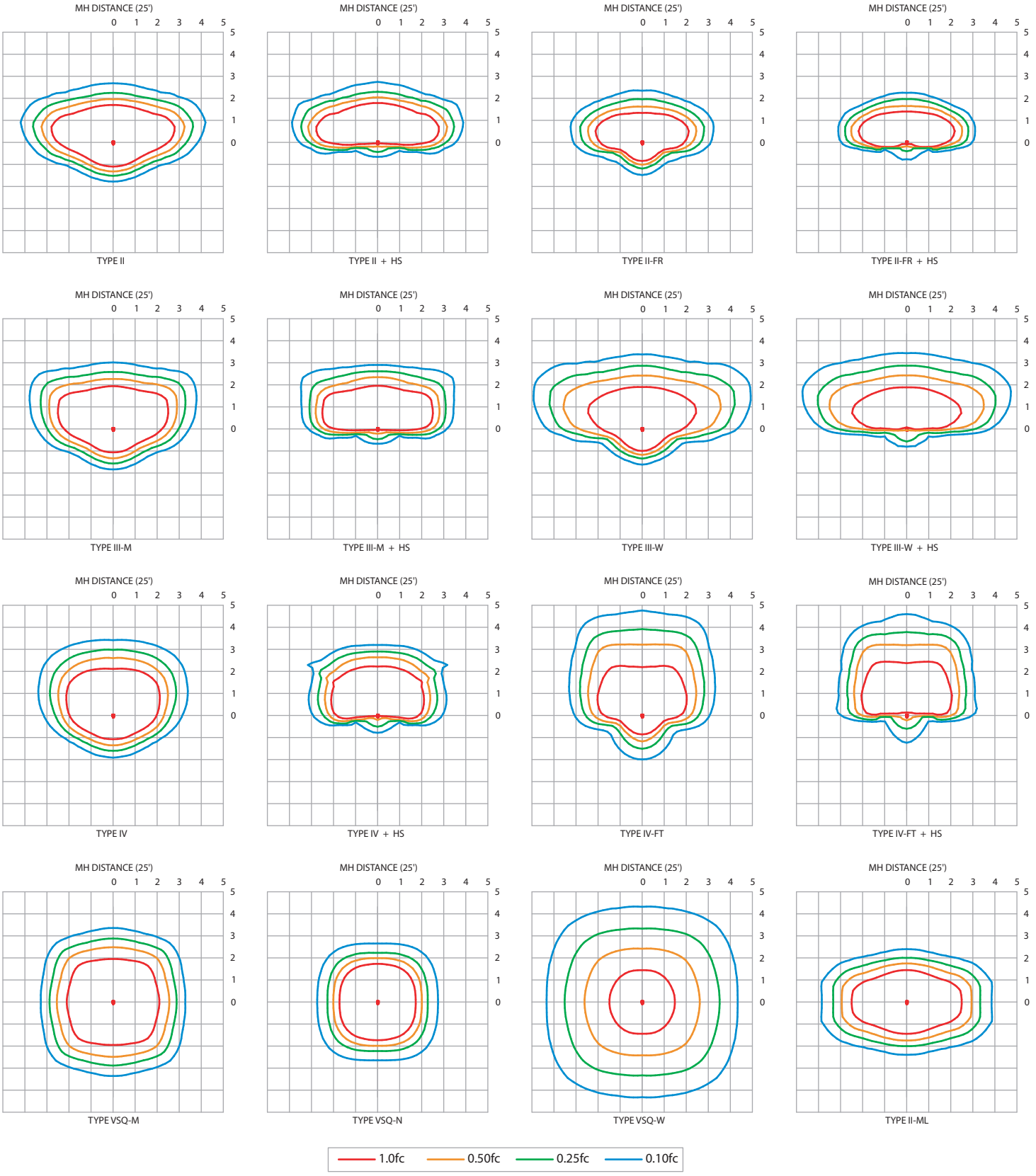
1.0fc 0.50fc 0.25fc 0.10fc

IES File downloads for this product can be found at www.usaltg.com/downloads/asr.html

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - ISOFOOTCANDLE PLOTS

RZR-PLED-80LED-700mA-40K - 25' Pole Height

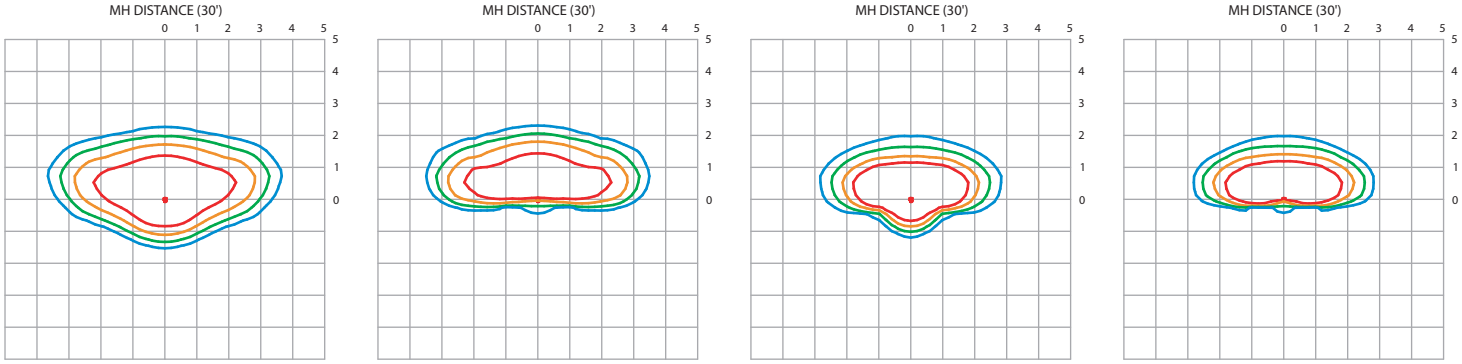


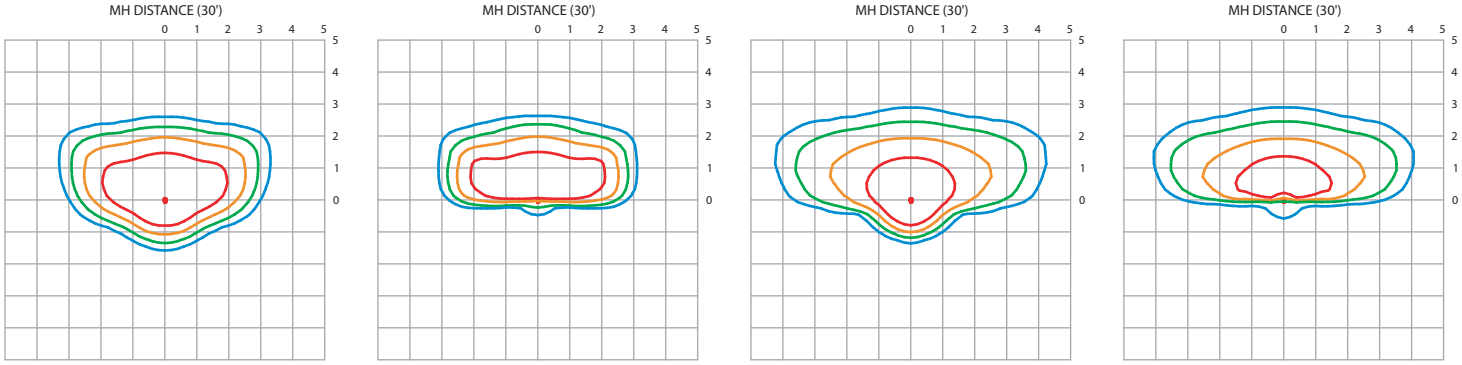
IES File downloads for this product can be found at www.usaltg.com/downloads/asr.html

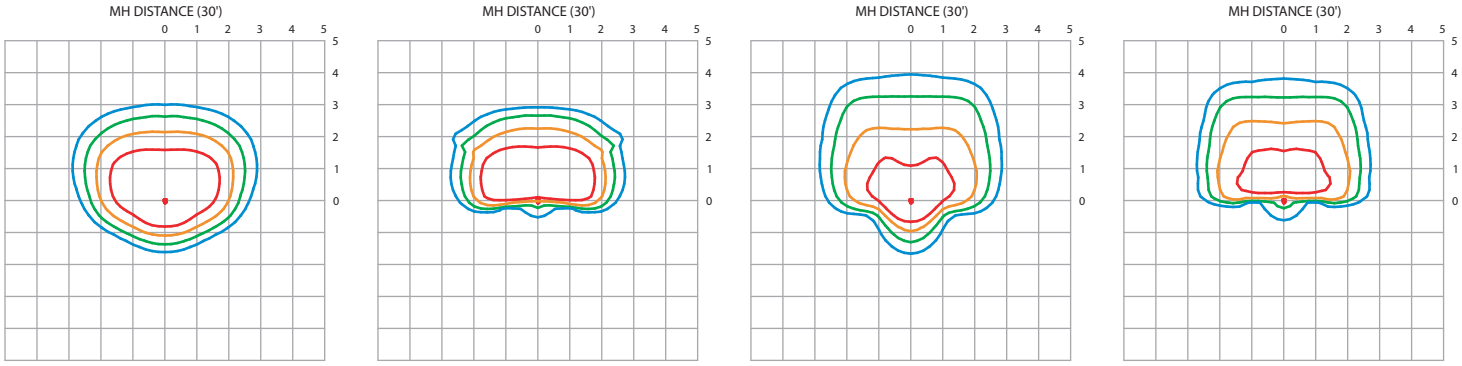
RZR SERIES - LED

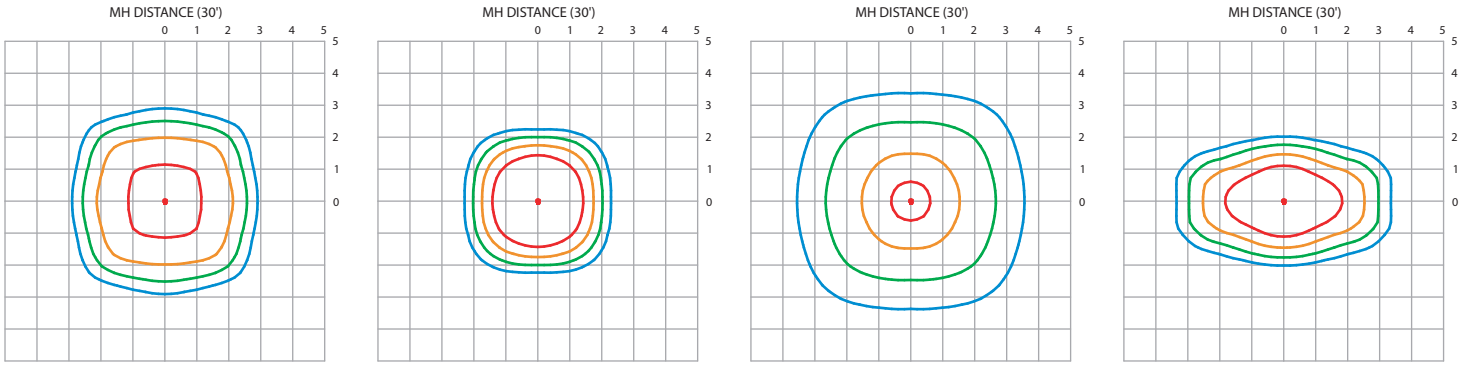
PHOTOMETRIC DATA GUIDE - ISOFOOTCANDLE PLOTS

RZRG-PLED-120LED-700mA-40K 30' Pole Height









1.0fc — 0.50fc — 0.25fc — 0.10fc

IES File downloads for this product can be found at www.usaltg.com/downloads/asr.html

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LUMEN TABLES (RZRM-PLED)

RZR-M-PLED																			
LED Count	Drive Current (mA)	System Watts	Dist'n Type	27K (2700K - 70CRI)			30K (3000K - 70CRI)			40K (4000K - 70CRI)			50K (5000K - 70CRI)			System Watts	TRA (590nm)		
				LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING		LUMENS	LPW	BUG RATING
24	350	28.2	II	3436	122	B1-U0-G1	3709	132	B1-U0-G1	3904	138	B1-U0-G1	4100	145	B1-U0-G1	20.0	1363	68	B1-U0-G1
			II-FR	3459	123	B1-U0-G1	3734	132	B1-U0-G1	3930	139	B1-U0-G1	4127	146	B1-U0-G1		1372	69	B1-U0-G0
			II-ML	3436	122	B2-U0-G2	3709	132	B2-U0-G2	3905	138	B2-U0-G2	4100	145	B2-U0-G2		1363	68	B1-U0-G1
			III-M	3496	124	B1-U0-G1	3775	134	B1-U0-G1	3973	141	B1-U0-G1	4172	148	B1-U0-G1		1387	69	B1-U0-G0
			III-W	3246	115	B1-U0-G1	3505	124	B1-U0-G1	3689	131	B1-U0-G1	3873	137	B1-U0-G1		1289	64	B0-U0-G1
			IV	3469	123	B1-U0-G1	3746	133	B1-U0-G1	3943	140	B1-U0-G1	4140	147	B1-U0-G1		1377	69	B1-U0-G1
			IV-FT	3161	112	B1-U0-G1	3412	121	B1-U0-G1	3592	127	B1-U0-G1	3771	134	B1-U0-G1		1254	63	B0-U0-G1
			VSQ-N	3627	129	B2-U0-G0	3915	139	B2-U0-G0	4121	146	B2-U0-G0	4327	153	B2-U0-G1		1439	72	B1-U0-G0
			VSQ-M	3556	126	B2-U0-G1	3838	136	B2-U0-G1	4041	143	B2-U0-G1	4242	150	B3-U0-G1		1410	71	B1-U0-G0
			VSQ-W	3471	123	B3-U0-G1	3748	133	B3-U0-G1	3945	140	B3-U0-G1	4142	147	B3-U0-G1		1377	69	B1-U0-G1
			II-HS	2513	89	B0-U0-G1	2713	96	B0-U0-G1	2856	101	B0-U0-G1	2998	106	B0-U0-G1		997	50	B0-U0-G0
			II-FR-HS	2556	91	B0-U0-G0	2759	98	B0-U0-G0	2905	103	B0-U0-G0	3050	108	B0-U0-G0		1014	51	B0-U0-G0
			III-M-HS	2543	90	B0-U0-G1	2745	97	B0-U0-G1	2889	102	B0-U0-G1	3034	108	B0-U0-G1		1008	50	B0-U0-G0
			III-W-HS	2488	88	B0-U0-G1	2686	95	B0-U0-G1	2827	100	B0-U0-G1	2969	105	B0-U0-G1		987	49	B0-U0-G1
			IV-HS	2626	93	B0-U0-G1	2835	101	B0-U0-G1	2984	106	B0-U0-G1	3133	111	B0-U0-G1		1042	52	B0-U0-G0
			IV-FT-HS	2481	88	B0-U0-G1	2679	95	B0-U0-G1	2820	100	B0-U0-G1	2961	105	B0-U0-G1		985	49	B0-U0-G1
24	525	41.5	II	4908	118	B1-U0-G1	5298	128	B1-U0-G1	5577	134	B1-U0-G1	5856	141	B2-U0-G1	31.0	1586	51	B1-U0-G1
			II-FR	4941	119	B1-U0-G1	5334	129	B1-U0-G1	5614	135	B2-U0-G1	5895	142	B2-U0-G1		1598	52	B1-U0-G0
			II-ML	4908	118	B2-U0-G2	5299	128	B2-U0-G2	5578	134	B2-U0-G2	5856	141	B3-U0-G3		1587	51	B1-U0-G1
			III-M	4994	120	B1-U0-G1	5392	130	B1-U0-G1	5675	137	B1-U0-G1	5959	144	B1-U0-G2		1615	52	B1-U0-G0
			III-W	4637	112	B1-U0-G2	5005	121	B1-U0-G2	5269	127	B1-U0-G2	5533	133	B1-U0-G2		1500	48	B0-U0-G1
			IV	4956	119	B1-U0-G1	5350	129	B1-U0-G1	5632	136	B1-U0-G1	5913	142	B1-U0-G2		1602	52	B1-U0-G1
			IV-FT	4515	109	B1-U0-G2	4875	117	B1-U0-G2	5131	124	B1-U0-G2	5388	130	B1-U0-G2		1460	47	B0-U0-G1
			VSQ-N	5180	125	B2-U0-G1	5592	135	B2-U0-G1	5886	142	B2-U0-G1	6181	149	B2-U0-G1		1676	54	B1-U0-G0
			VSQ-M	5080	122	B3-U0-G1	5484	132	B3-U0-G1	5772	139	B3-U0-G1	6061	146	B3-U0-G1		1643	53	B1-U0-G0
			VSQ-W	4959	119	B3-U0-G2	5353	129	B3-U0-G2	5635	136	B3-U0-G2	5917	143	B3-U0-G2		1603	52	B1-U0-G1
			II-HS	3589	86	B0-U0-G1	3875	93	B0-U0-G1	4079	98	B0-U0-G1	4282	103	B0-U0-G1		1161	37	B0-U0-G0
			II-FR-HS	3652	88	B0-U0-G1	3942	95	B0-U0-G1	4150	100	B0-U0-G1	4357	105	B0-U0-G1		1181	38	B0-U0-G0
			III-M-HS	3631	88	B0-U0-G1	3920	94	B0-U0-G1	4127	99	B0-U0-G1	4333	104	B0-U0-G2		1174	38	B0-U0-G0
			III-W-HS	3555	86	B0-U0-G2	3838	92	B0-U0-G2	4040	97	B0-U0-G2	4242	102	B0-U0-G2		1150	37	B0-U0-G1
			IV-HS	3751	90	B0-U0-G1	4050	98	B0-U0-G1	4263	103	B0-U0-G1	4476	108	B0-U0-G1		1213	39	B0-U0-G0
			IV-FT-HS	3545	85	B0-U0-G2	3827	92	B0-U0-G2	4029	97	B0-U0-G2	4230	102	B0-U0-G2		1146	37	B0-U0-G1
24	700	55.9	II	6275	112	B2-U0-G1	6774	121	B2-U0-G2	7130	128	B2-U0-G2	7487	134	B2-U0-G2	N/A	N/A		
			II-FR	6317	113	B2-U0-G1	6819	122	B2-U0-G1	7178	128	B2-U0-G1	7537	135	B2-U0-G1				
			II-ML	6275	112	B3-U0-G3	6774	121	B3-U0-G3	7130	128	B3-U0-G3	7487	134	B3-U0-G3				
			III-M	6385	114	B2-U0-G2	6893	123	B2-U0-G2	7256	130	B2-U0-G2	7618	136	B2-U0-G2				
			III-W	5928	106	B1-U0-G2	6399	114	B1-U0-G2	6736	121	B1-U0-G2	7073	127	B1-U0-G2				
			IV	6337	113	B2-U0-G2	6841	122	B2-U0-G2	7201	129	B2-U0-G2	7561	135	B2-U0-G2				
			IV-FT	5772	103	B1-U0-G2	6231	111	B1-U0-G2	6559	117	B1-U0-G2	6887	123	B1-U0-G2				
			VSQ-N	6624	118	B2-U0-G1	7151	128	B2-U0-G1	7527	135	B2-U0-G1	7903	141	B3-U0-G1				
			VSQ-M	6494	116	B3-U0-G1	7011	125	B3-U0-G1	7380	132	B3-U0-G1	7749	139	B3-U0-G2				
			VSQ-W	6340	113	B3-U0-G2	6844	122	B3-U0-G2	7204	129	B3-U0-G2	7565	135	B3-U0-G2				
			II-HS	4589	82	B1-U0-G1	4954	89	B1-U0-G2	5215	93	B1-U0-G2	5475	98	B1-U0-G2				
			II-FR-HS	4668	84	B0-U0-G1	5040	90	B0-U0-G1	5305	95	B0-U0-G1	5570	100	B0-U0-G1				
			III-M-HS	4643	83	B0-U0-G2	5012	90	B0-U0-G2	5276	94	B0-U0-G2	5539	99	B0-U0-G2				
			III-W-HS	4544	81	B0-U0-G2	4906	88	B0-U0-G2	5164	92	B0-U0-G2	5422	97	B0-U0-G2				
			IV-HS	4796	86	B0-U0-G2	5177	93	B0-U0-G2	5450	97	B0-U0-G2	5722	102	B0-U0-G2				
			IV-FT-HS	4532	81	B0-U0-G2	4893	88	B0-U0-G2	5150	92	B0-U0-G2	5408	97	B0-U0-G2				
24	875	67.8	II	7406	109	B2-U0-G2	7995	118	B2-U0-G2	8416	124	B2-U0-G2	8837	130	B2-U0-G2	N/A	N/A		
			II-FR	7456	110	B2-U0-G1	8049	119	B2-U0-G1	8473	125	B2-U0-G1	8896	131	B2-U0-G1				
			II-ML	7406	109	B3-U0-G3	7995	118	B3-U0-G3	8416	124	B3-U0-G3	8837	130	B3-U0-G3				
			III-M	7536	111	B2-U0-G2	8135	120	B2-U0-G2	8563	126	B2-U0-G2	8992	133	B2-U0-G2				
			III-W	6997	103	B1-U0-G2	7553	111	B1-U0-G2	7951	117	B2-U0-G2	8348	123	B2-U0-G2				
			IV	7479	110	B2-U0-G2	8073	119	B2-U0-G2	8498	125	B2-U0-G2	8923	132	B2-U0-G2				
			IV-FT	6813	100	B1-U0-G2	7355	108	B2-U0-G2	7742	114	B2-U0-G2	8129	120	B2-U0-G2				
			VSQ-N	7817	115	B2-U0-G1	8439	124	B3-U0-G1	8883	131	B3-U0-G1	9327	138	B3-U0-G1				
			VSQ-M	7665	113	B3-U0-G2	8275	122	B3-U0-G2	8711	128	B3-U0-G2	9146	135	B3-U0-G2				
			VSQ-W	7482	110	B3-U0-G2	8078	119	B3-U0-G2	8503	125	B4-U0-G2	8928	132	B4-U0-G2				
			II-HS	5417	80	B1-U0-G2	5847	86	B1-U0-G2	6155	91	B1-U0-G2	6463	95	B1-U0-G2				
			II-FR-HS	5510	81	B0-U0-G1	5948	88	B1-U0-G1	6261	92	B1-U0-G1	6574	97	B1-U0-G1				
			III-M-HS	5480	81	B0-U0-G2	5916	87	B0-U0-G2	6227	92	B0-U0-G2	6538	96	B0-U0-G2				
			III-W-HS	5363	79	B0-U0-G2	5790	85	B0-U0-G2	6095	90	B0-U0-G2	6399	94	B0-U0-G2				
			IV-HS	5660	83	B0-U0-G2	6110	90	B0-U0-G2	6432	95	B0-U0-G2	6753	100	B0-U0-G2				
			IV-FT-HS	5349	79	B0-U0-G2	5775	85	B0-U0-G2	6078	90	B0-U0-G2	6382	94	B0-U0-G2				
24	1050	82.0	II	8513	104	B2-U0-G2	9190	112	B2-U0-G2	9674	118	B2-U0-G2	10157	124	B2-U0-G2	N/A	N/A		
			II-FR	8570	105	B2-U0-G1	9252	113	B2-U0-G1	9739	119	B2-U0-G1	10225	125	B2-U0-G1				
			II-ML	8513	104	B3-U0-G3	9190	112	B3-U0-G3	9674	118	B3-U0-G3	10157	124	B3-U0-G3				
			III-M	8662	106	B2-U0-G2	9351	114	B2-U0-G2	9843	120	B2-U0-G2	10335	126	B2-U0-G2				
			III-W	8042	98	B2-U0-G2	8682	106	B2-U0-G2	9139	111	B2-U0-G3	9595	117	B2-U0-G3				
			IV	8596	105	B2-U0-G2	9280	113	B2-U0-G2	9768	119	B2-U0-G2	10256	125	B2-U0-G2				
			IV-FT	7831	95	B2-U0-G2	8454	103	B2-U0-G2	8899	109	B2-U0-G3	9344	114	B2-U0-G3				
			VSQ-N	8985	110	B3-U0-G1	9700	118	B3-U0-G1	10210	125	B3-U0-G1	10721	131	B3-U0-G1				
			VSQ-M	8811	107	B3-U0-G2	9512	116	B3-U0-G2	10012	122	B3-U0-G2	10513	128	B3-U0-G2				
			VSQ-W	8601	105	B4-U0-G2	9285	113	B4-U0-G2	9773	119	B4-U0-G3	10262	125	B4-U0-G3				
			II-HS	6226	76	B1-U0-G2	6721	82	B1-U0-G2	7075	86	B1-U0-G2	7429	91	B1-U0-G2				
			II-FR-HS	6333	77	B1-U0-G1	6837	83	B1-U0-G1	7197	88	B1-U0-G1	7557	92	B1-U0-G1				
			III-M-HS	6299	77	B0-U0-G2	6799	83	B0-U0-G2	7158	87	B0-U0-G2	7515	92	B1-U0-G2				
			III-W-HS	6165	75	B0-U0-G2	6655	81	B0-U0-G2	7005	85	B0-U0-G2	7356	90	B0-U0-G2				
			IV-HS	6506	79	B0-U0-G2	7023	86	B0-U0-G2	7393	90	B1-U0-G2	7762	95	B1-U0-G2				
			IV-FT-HS	6148	75	B0-U0-G2	6637	81	B0-U0-G2	6986	85	B1-U0-G3	7336	89	B1-U0-G3				

IES File downloads for this product can be found at www.usaltg.com/downloads/asr.html

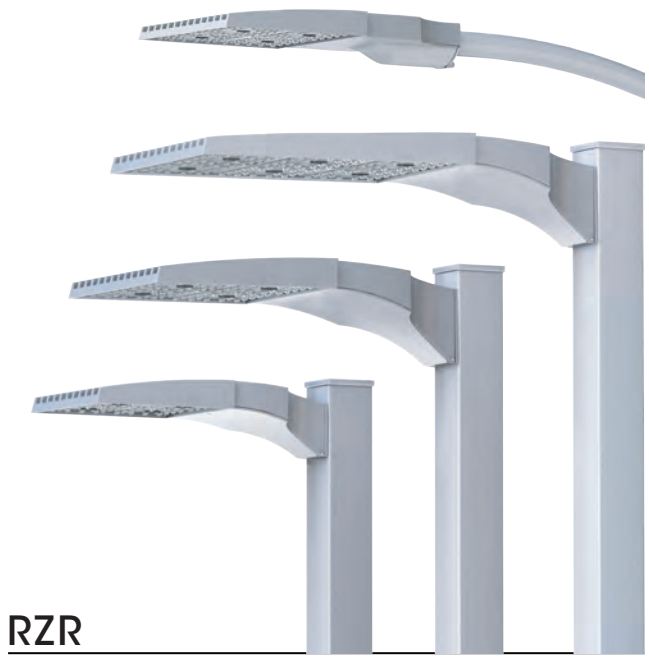
AREA & ROADWAY LIGHTING

RAZAR SERIES - LED

LOW PROFILE AREA LUMINAIRE

PROJECT NAME:

PROJECT TYPE: L3M-S



RZR

(**MODELS**: RZRM, RZR, RZR-G & RZR-MAF*) PATENT PENDING

Optical Housing

Heavy cast, low copper aluminum assembly (A356 alloy, <.2% copper) minimum wall thickness .188". LED Module mounting area is machined to within a 0.002" surface flatness variance for maximum surface contact and thermal conductivity from the LED modules to the radiating fins. Passive radiating fins above the LED Optics provide superior thermal management and long LED life.The optical and electrical compartments are integrated with the support arm to create one assembly. Cast and hinged driver compartment cover allows access to the drivers and wiring.

Electrical Housing w/ Integrated Arm

Heavy cast low copper aluminum (A356 alloy; <0.2% copper) assembly with integral cooling ribs surrounding the electrical compartment and a flat surface on the top of the arm to accommodate a photocell receptacle. Solid barrier wall separates optical and electrical compartments. The optical compartment and electrical compartment with the integrated support arm combine to create one assembly. Minimum wall thickness is .188". Cast and hinged driver assembly cover is integrated with wiring compartment cover.

PLED™ Optics

Emitters (LED's) are arrayed on a metal core PCB panel with each emitter located on a copper thermal transfer pad and enclosed by an LED refractor. LED optics completely seal each individual emitter to meet an IP66 rating. In asymmetric distributions, a micro-reflector inside the refractor re-directs the house side emitter output towards the street side and functions as a house side shielding element. Refractors are injection molded H12 acrylic. Each LED refractor is sealed to the PCB over an emitter and all refractors are retained by an aluminum frame. Any one Panel, or group of Panels in a luminaire, have the same optical pattern. LED refractors produce standard site/area distributions. Panels are field replaceable and field rotatable in 90° increments.

LED Driver(s)

Constant current electronic with a power factor of >.90 and a minimum operating temperature of -40°F/-40°C. Driver(s) is/are UL and cUL recognized and mounted directly against the Electrical Housing to facilitate thermal transfer, held down by universal clamps to facilitate easy removal. In-line terminal blocks facilitate wiring between the driver and optical arrays. Drivers accept an input of 120-277V, 50/60Hz or 347V-480V, 50,60Hz. (0 - 10V dimmable driver is standard. Driver has a minimum of 3KV internal surge protection. Luminaire supplied with 20KV surge protector for field accessible installation.)

LED Emitters

High output LED's are utilized with drive currents ranging from 350mA to 1050mA. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

Amber LED's

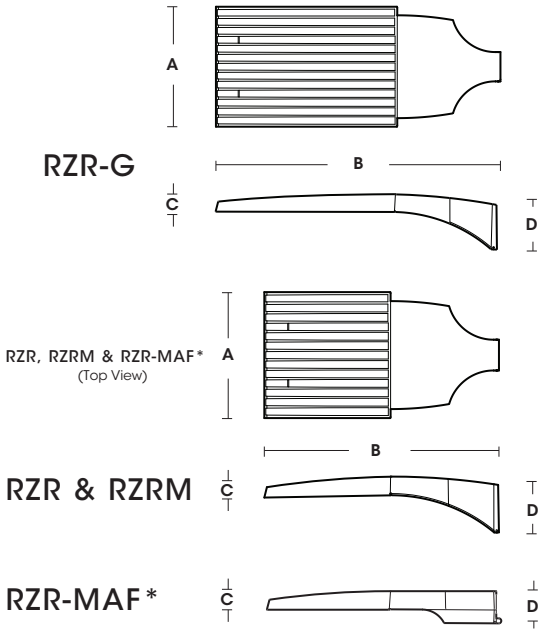
TRA (True Amber) LED's utilize material that emits light in the amber spectral bandwidth only without the use of phosphors.

Finish

Electrostatically applied TGIC Polyester Powder Coat on substrate prepared with 20 PSI power wash at 140°F. Four step media blast and iron phosphate pretreatment for protection and paint adhesion. 400°F bake for maximum hardness and durability.

Mast Arm Fitter/Electrical Housing

Replaces standard Electrical Housing. Fits standard 2 3/8" O.D. horizontal tenon.Two (2) straps with two (2) bolts each encircle the lower half of the tenon. Upper half of the tenon rests on self-centering steps that position the angle of the luminaire at 0°, +1.5°, +1.5 or +3° up from the horizontal. All hardware is stainless steel.



FIXTURE	A	B	C	D
RZR-G	15" 381mm	36.5" 927mm	3" 76mm	7" 187mm
RZR	14.75" 375mm	28.25" 718mm	2.75" 70mm	6.5" 165mm
RZRM	11.5" 292mm	22" 559mm	2.5" 64mm	5.25" 133mm
RZR-MAF	15" 381mm	28.25" 724mm	2.5" 64mm	4" 102mm

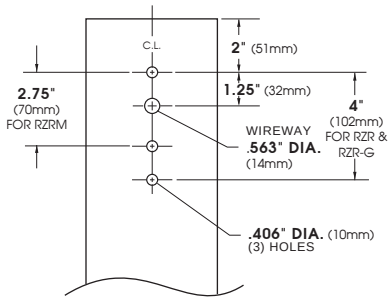
U.L. Listed for Wet Location

2022158

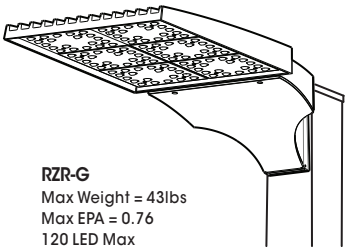
RZR SERIES - LED

SPECIFICATIONS

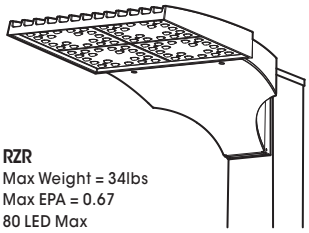
POLE DRILLING TEMPLATE



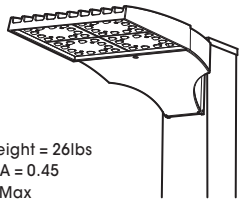
EPA & WEIGHT



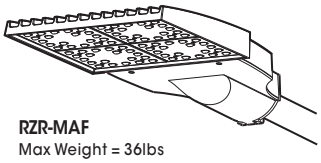
RZR-G
Max Weight = 43lbs
Max EPA = 0.76
120 LED Max



RZR
Max Weight = 34lbs
Max EPA = 0.67
80 LED Max

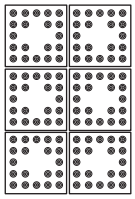


RZRM
Max Weight = 26lbs
Max EPA = 0.45
48 LED Max

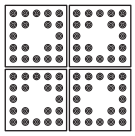


RZR-MAF
Max Weight = 36lbs
Max EPA = 0.56
80 LED Max

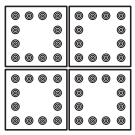
PLED™ MODULES



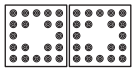
120 LED Module



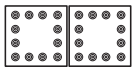
80 LED Module



48 LED Module



40 LED Module



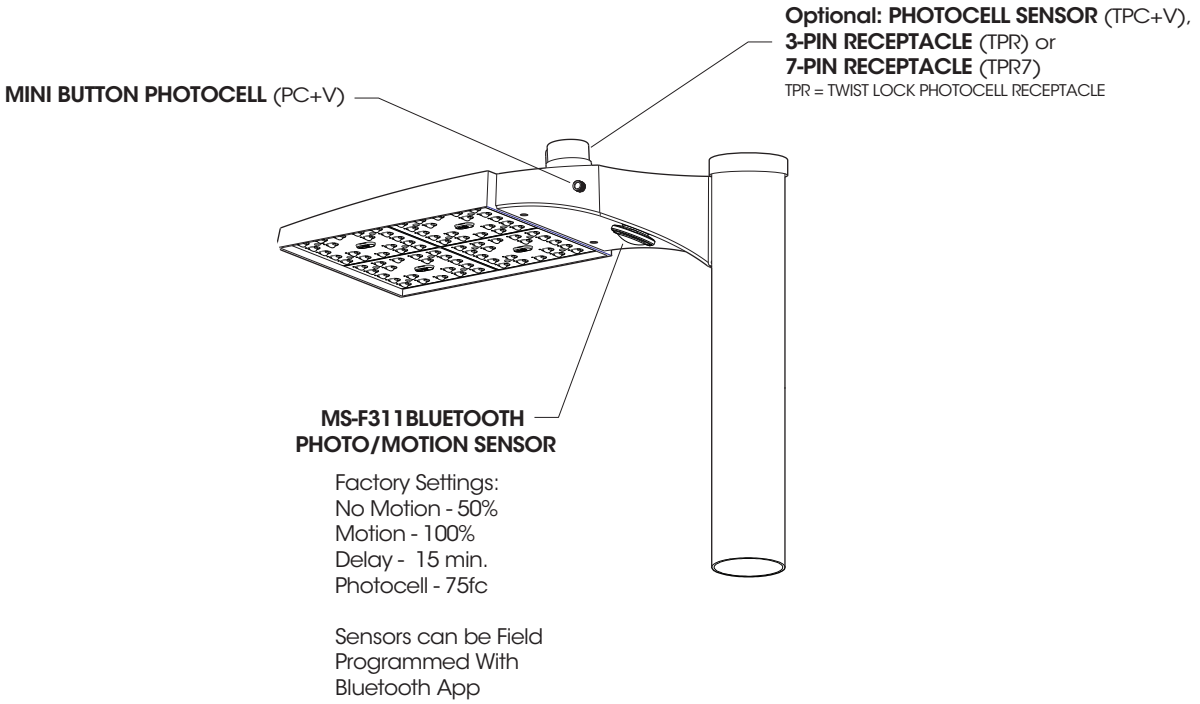
24 LED Module

ORDERING INFORMATION

Spec/Order Example: RZR/PLED-IV/80LED-700mA/CW/277/RAL-8019-S

Luminaire	Optics	LED Mode	Voltage	Mounting	Finish	Options
Luminaire	**Optics**	**LED**	**Voltage**	**Mounting**	**Finish**	**Options**
☐ RZR-G ☐ RZR ☐ RZR-MAF ☐ RZRM	PLED™ Distribution Type ☐ Type II **PLED-II** ☐ Type II Front Row **PLED-II-FR** ☐ Type III Median Illuminator **PLED-II-MIL** ☐ Type III Med. **PLED-III** ☐ Type III Wide **PLED-III-W** ☐ Type IV **PLED-IV** ☐ Type IV **PLED-IV-FT** ☐ Type V Narrow **PLED-VSQ-N** ☐ Type V Med. **PLED-V-SQ-M** ☐ Type V Wide **PLED-V-SQ-W**	# of LEDs **RZR-G** ☐ 120LED ☐ 80LED **RZR/RZR-MAF** ☐ 80LED ☐ 40LED **RZRM** ☐ 48LED ☐ 24LED Drive Current ☐ 1050mA[1] ☐ 875mA[1] ☐ 700mA[1] ☐ 525mA ☐ 350mA Color Temp - CCT ☐ 27K (2700K) ☐ 30K (3000K) ☐ 40K (4000K) ☐ 50K (5000K) ☐ TRA True Amber[2] Consult Factory for Other LED Color, CCT, & CRI Options NOTES: 1 - 700mA, 875mA and 1050mA not for use with TRA LED's 2 - Available in 350mA & 525mA drive currents only Consult Factory for Other Drive Currents	☐ 120 ☐ 208 ☐ 240 ☐ 277 ☐ 347 ☐ 480	Arm Mount ☐ 1 ☐ 2-180 ☐ 2-90 ☐ 3-90 ☐ 3-120 ☐ 4-90 Wall Mount ☐ WM WM - Wall Mount provided with mounting bracket and cover.	Standard Textured Finish ☐ Black **RAL-9005-T** ☐ White **RAL-9003-T** ☐ Grey **RAL-7004-T** ☐ Dark Bronze **RAL-8019-T** ☐ Green **RAL-6005-T** Premium Finishes ☐ Rust ☐ Patina Copper **PC** For smooth finish replace suffix "T" with suffix "S" (Example: RAL-9500-S) Consult factor for custom colors	☐ Internal House Side Shield inc. LED Count (Example: HS-PLED/48) **HS-PLED** ☐ External Glare Shield 4 Sided **EGS4** ☐ External Glare Shield 3 Sided Rear Wedge **EGS3W** ☐ Round Pole Adapter **RPA** ☐ Twist Lock Receptable Only **TPR** ☐ 7-Pin Twist Lock Receptable Only **TPR7** ☐ High-Low Dimming for Switch by Others/Select Levels 50/100 or 25/100 (Example: HLSW/25) **HLSW** ☐ Twist Lock Photocell + Voltage (Example: TPC347V) **TPC+V** ☐ Photo Cell + Voltage (Example: PC120V) **PC+V** ☐ Single Fuse (120V, 277V) **SF** ☐ Double Fuse (208V, 240V) **DF** ☐ Blue-Tooth Programmable Photo/Motion Sensor (Factory - Motion 50/100; Photo 75fc) **MS-F311**

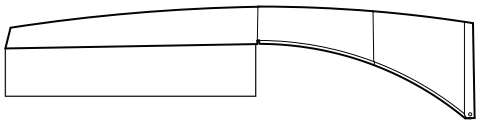
OPTIONS



High Low Dimming For Switches (HLSW)
The HLSW is a Small Electronic Switch which Provides High Low Dimming Control Through the LED Driver's 0-10V Control. Switching is Done by Adding a Seconday AC Switched Hot Trigger Line to the HLSW in Addition to the Normal AC Power Line. When the Secondary Trigger Line is Powered, the Fixture will go to 100% Dimming. With no Power to the Trigger, the Fixture will operate at 50% or 25% Dimming. Switches for the Trigger Line can be a Normal AC Switch/Breaker or Timed Switch/Breaker.

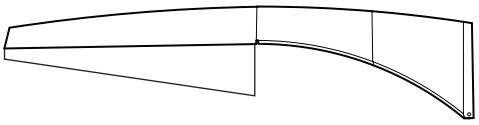
Wireless and Other Fixture Controls
Contact Factory for Wireless and Other Fixture Controls and Recomendations. Most Controls Can be Integrated and Factory Installed.

EXTERNAL GLARE SHIELDS



EGS4 - 4 Sided Shield

Minimum Cutoff = 12°
Average Cutoff = 23°

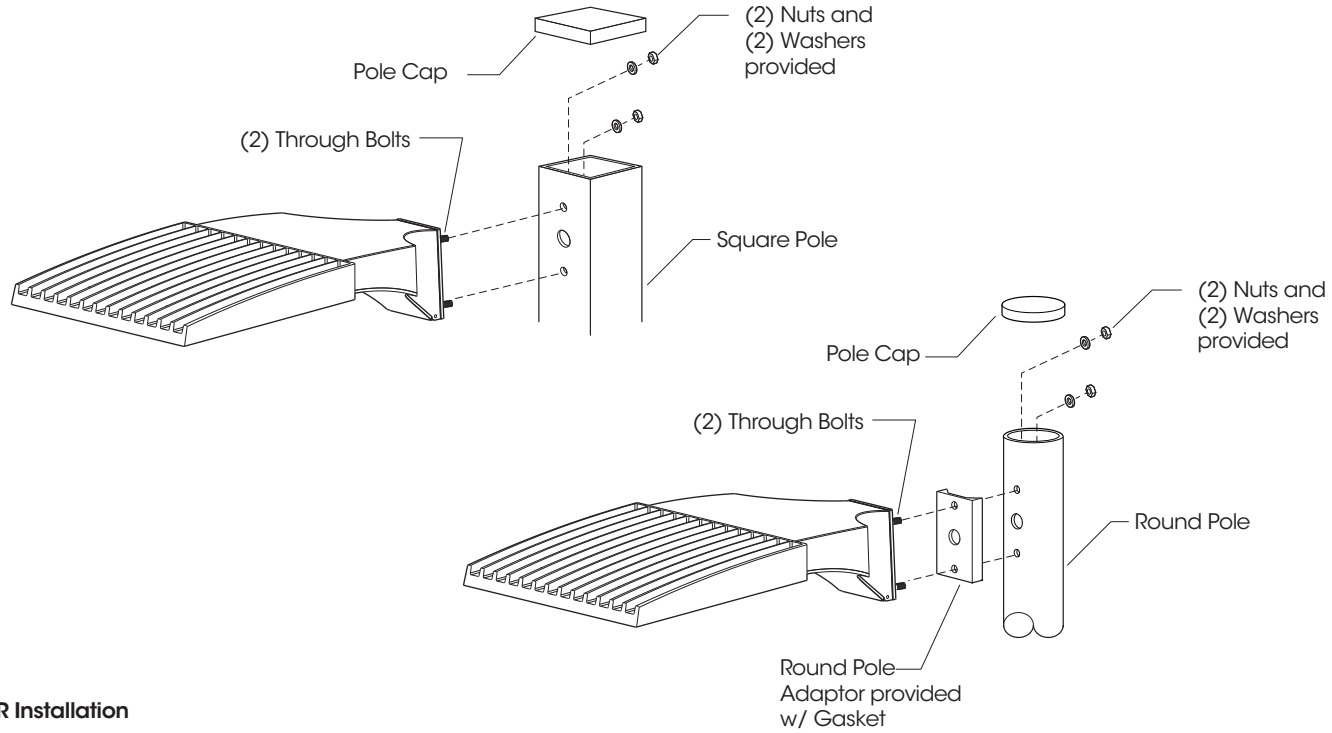


EGS3W - 3 Sided Shield

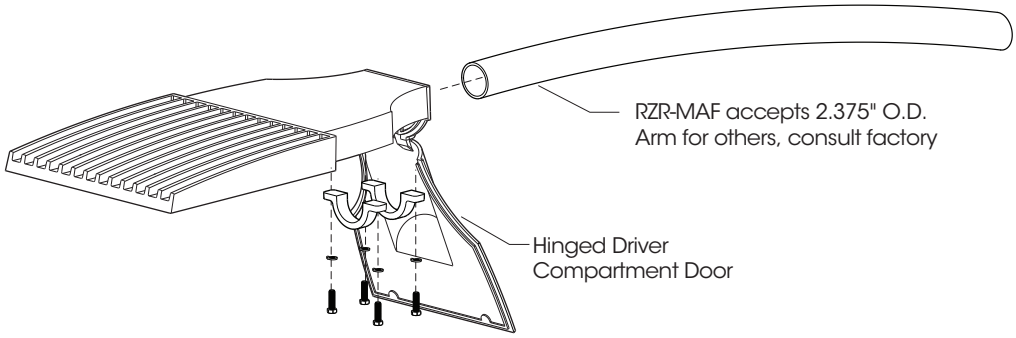
Minimum Rear Cutoff = 12°
Average Rear Cutoff = 23°
Minimum Side Cutoff = 4°
Average Side Cutoff = 16°

Glare Shields are rotatable on RZR and RZRM. Consult factory for custom applications.

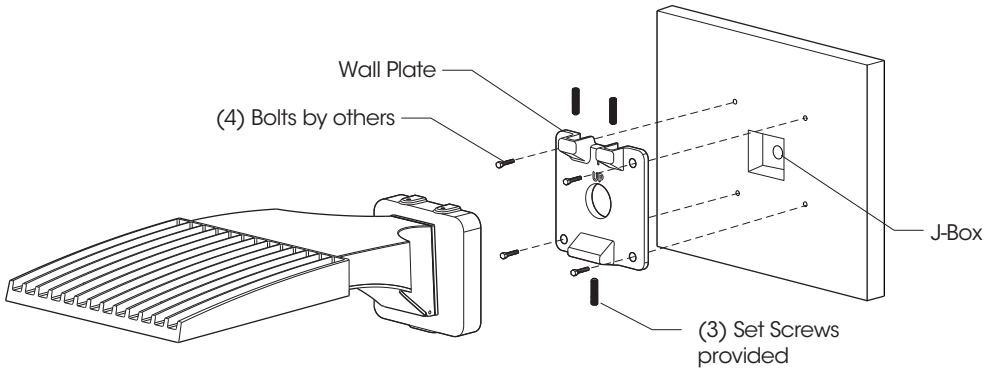
INSTALLATION DETAIL



RZR Installation



RZR-MAF Installation



RZR-WM Installation

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LM-80 LUMEN MAINTENANCE

LED Life / Operating Hours	Lumen Depreciation	Lumen Depreciation Scale Factor
60,000 (10x Test Time Calculated)	L94	0.94x
100,000 (Theoretical Calculated)	L92	0.92x
150,000 (Theoretical Calcualted)	L89	0.89x

Lumen Depreciation Calculations Done in Accordance With IESNA TM-21 & LM-80 (25°C Ambient) **TM-21 6x Test Time Dicatates that L94 > 60,000 Hours**.

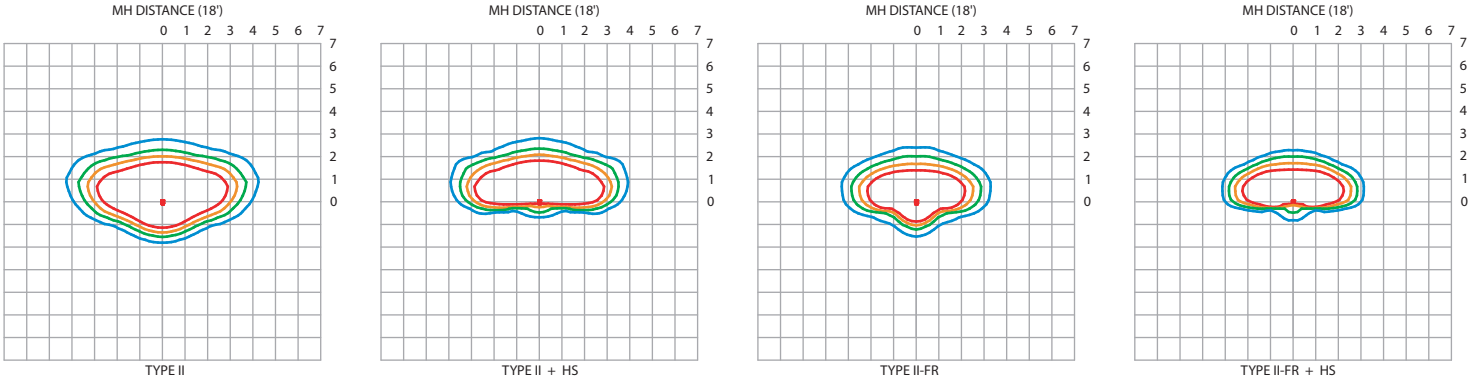
ELECTRICAL DATA GUIDE - AMPERAGE CHARTS

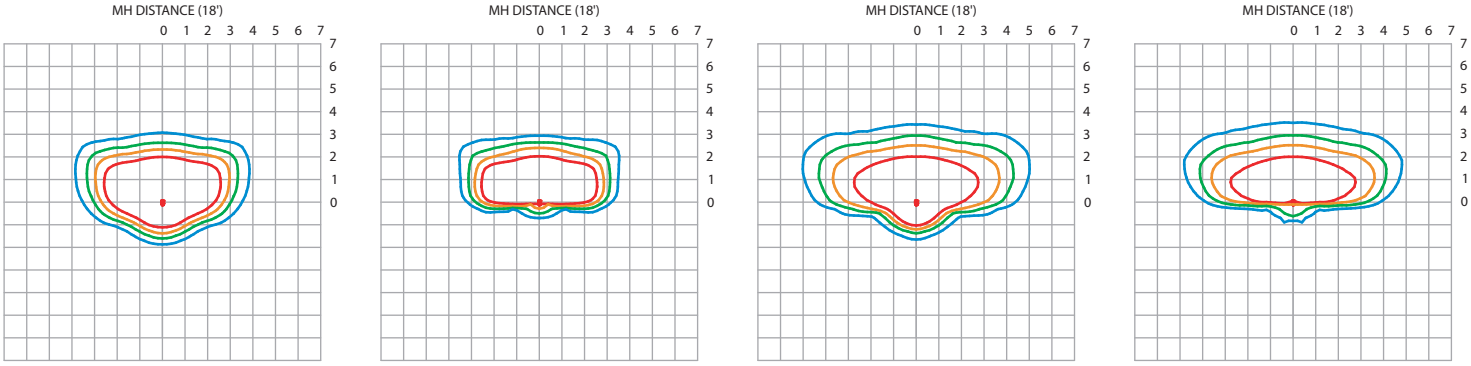
# of LEDs	mA	System Watts	120V	208V	277V	347V	480V
24	350	28	0.24	0.14	0.10	0.08	0.06
24	525	42	0.35	0.20	0.15	0.12	0.09
24	700	56	0.47	0.27	0.20	0.16	0.12
24	875	68	0.57	0.33	0.24	0.20	0.14
24	1050	82	0.68	0.39	0.30	0.24	0.17
48	350	53	0.44	0.25	0.19	0.15	0.11
48	525	79	0.66	0.38	0.29	0.23	0.16
48	700	105	0.88	0.51	0.38	0.30	0.22
48	875	132	1.10	0.63	0.48	0.38	0.27
48	1050	160	1.33	0.77	0.58	0.46	0.33
40	350	43	0.36	0.21	0.15	0.12	0.09
40	525	65	0.54	0.31	0.23	0.19	0.13
40	700	87	0.72	0.42	0.31	0.25	0.18
40	875	108	0.90	0.52	0.39	0.31	0.23
40	1050	128	1.07	0.62	0.46	0.37	0.27
80	350	85	0.71	0.41	0.31	0.25	0.18
80	525	129	1.08	0.62	0.47	0.37	0.27
80	700	174	1.45	0.83	0.63	0.50	0.36
80	875	216	1.80	1.04	0.78	0.62	0.45
80	1050	256	2.14	1.23	0.93	0.74	0.53
120	350	130	1.08	0.63	0.47	0.37	0.27
120	525	192	1.60	0.92	0.69	0.55	0.40
120	700	260	2.17	1.25	0.94	0.75	0.54
120	875	329	2.74	1.58	1.19	0.95	0.69
120	1050	398	3.32	1.91	1.44	1.15	0.83

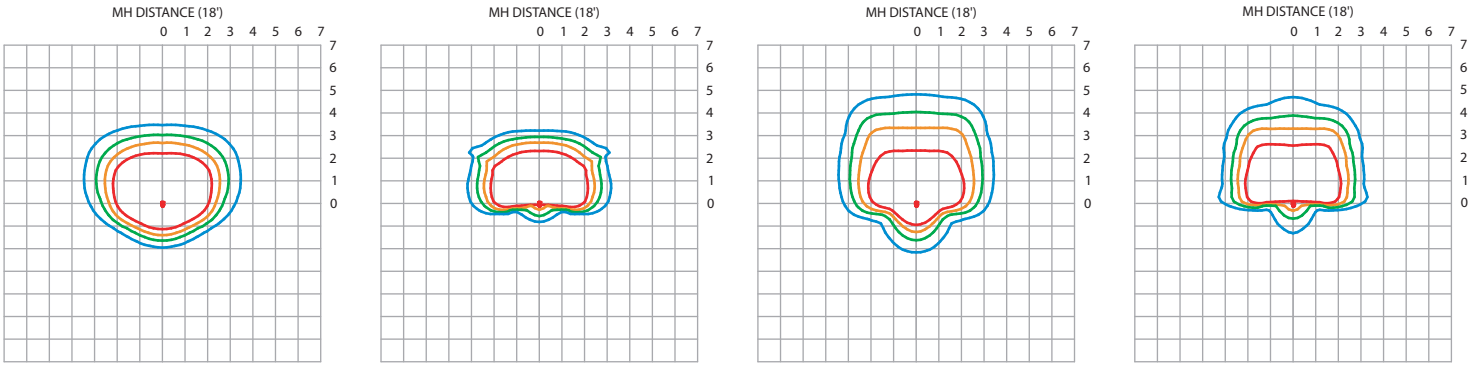
RZR SERIES - LED

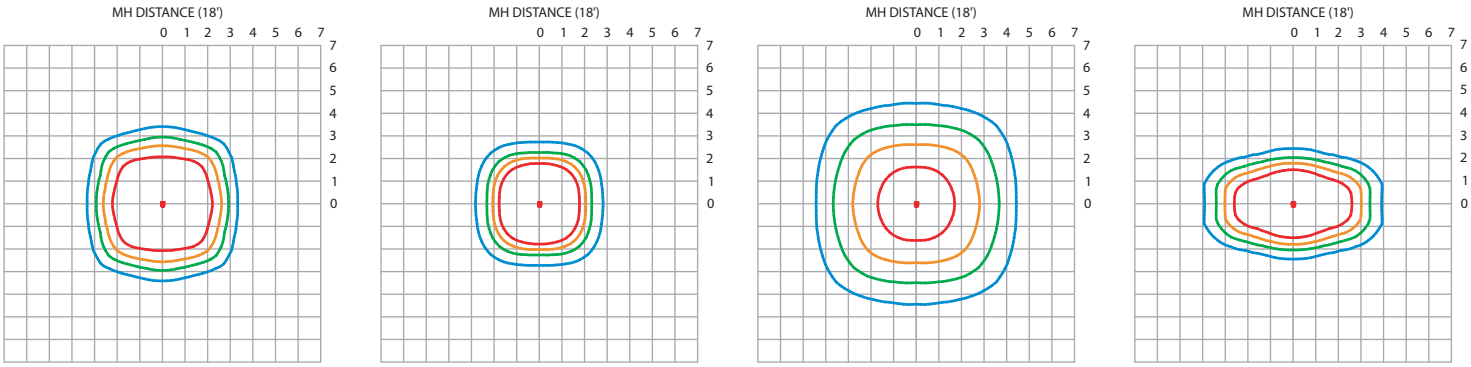
PHOTOMETRIC DATA GUIDE - ISOFOOTCANDLE PLOTS

RZRM-PLED-48LED-700mA-40K - 18' Pole Height









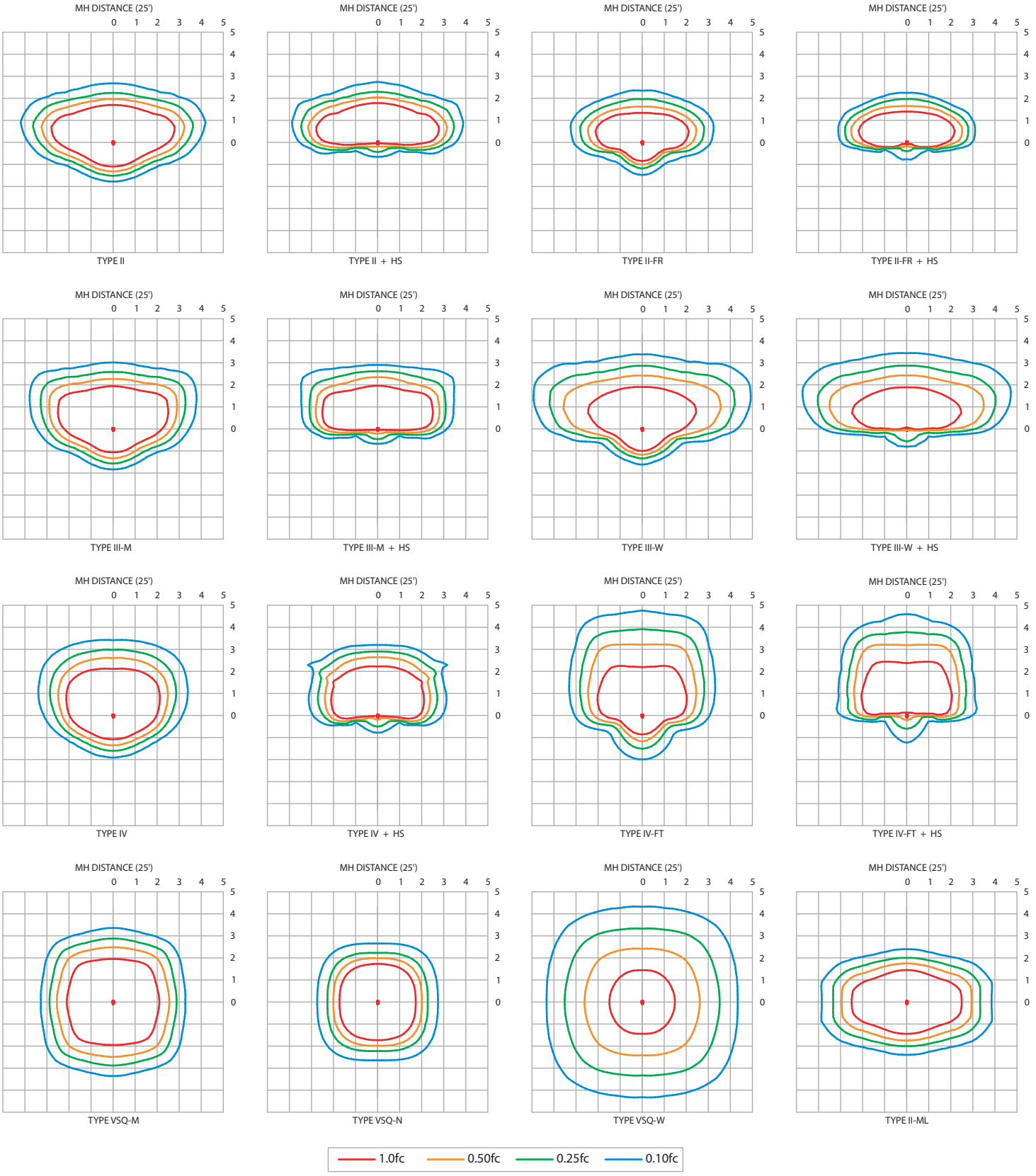
1.0fc 0.50fc 0.25fc 0.10fc

IES File downloads for this product can be found at www.usaltg.com/downloads/asr.html

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - ISOFOOTCANDLE PLOTS

RZR-PLED-80LED-700mA-40K - 25' Pole Height

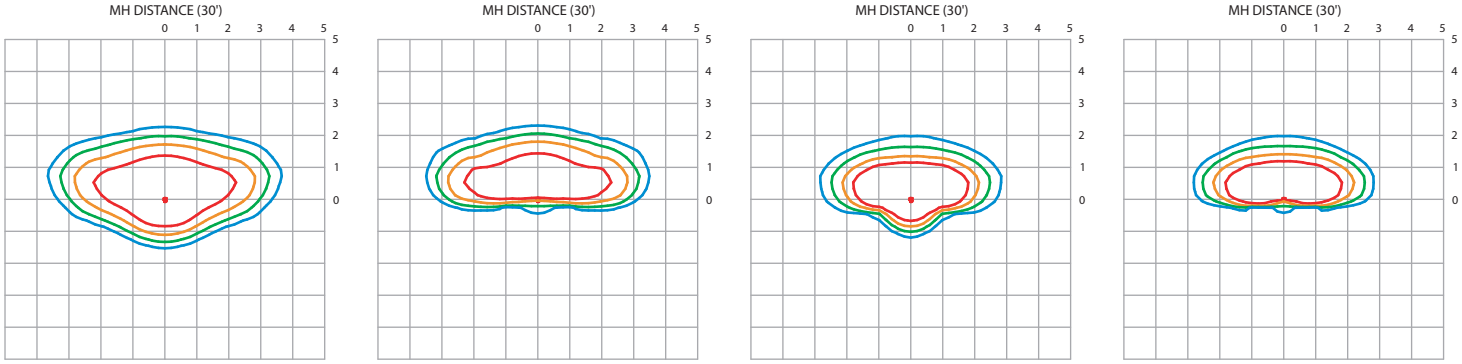


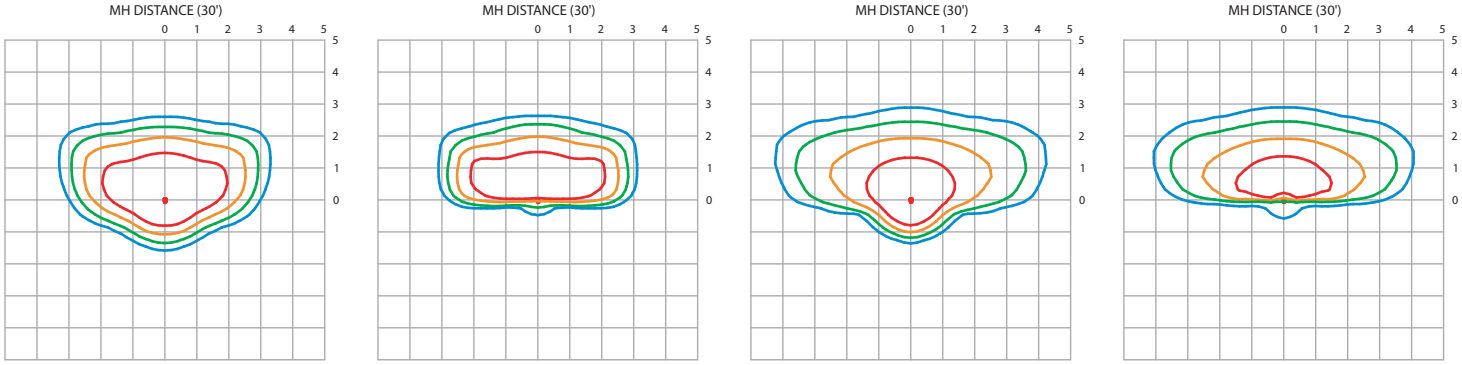
IES File downloads for this product can be found at www.usaltg.com/downloads/asr.html

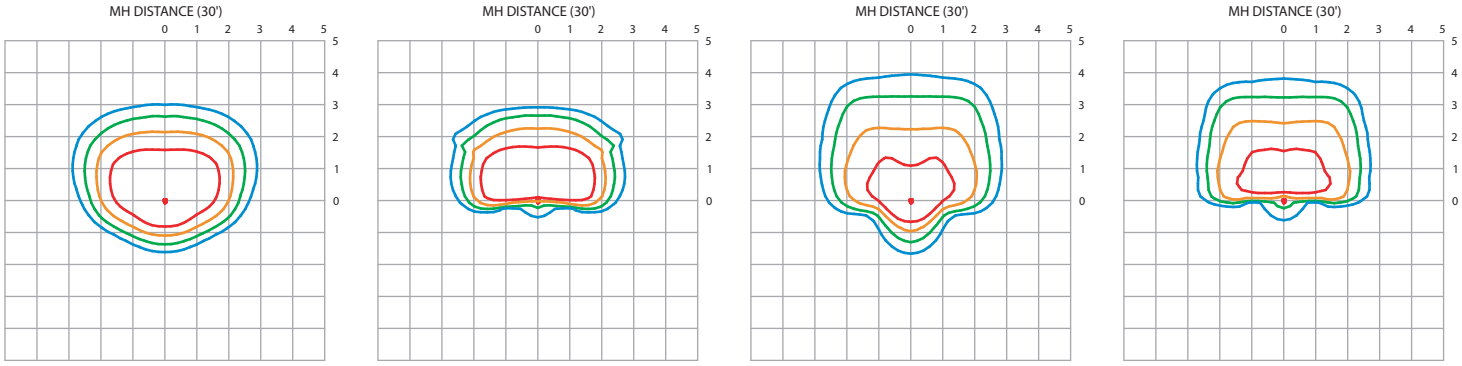
RZR SERIES - LED

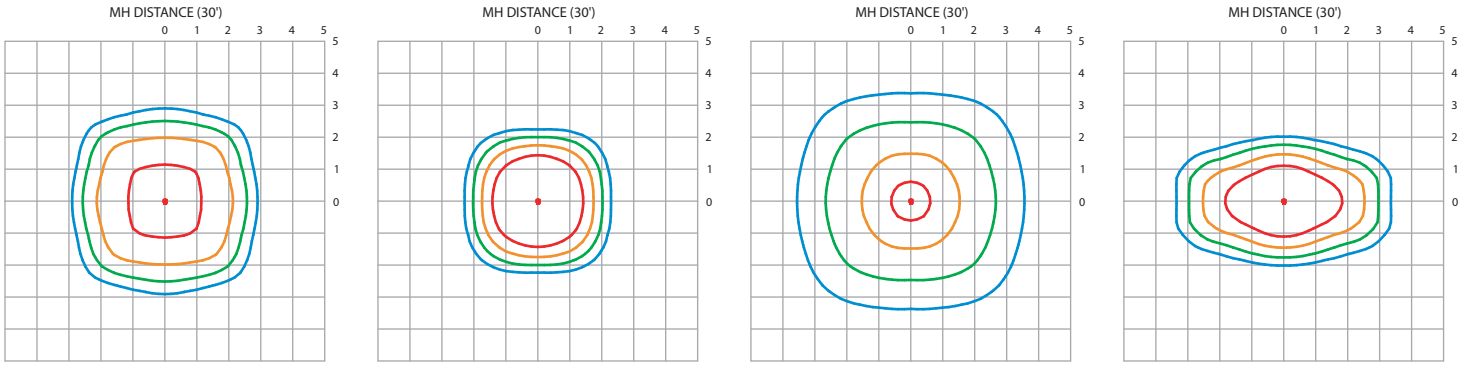
PHOTOMETRIC DATA GUIDE - ISOFOOTCANDLE PLOTS

RZRG-PLED-120LED-700mA-40K 30' Pole Height









1.0fc — 0.50fc — 0.25fc — 0.10fc

IES File downloads for this product can be found at www.usaltg.com/downloads/asr.html

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LUMEN TABLES (RZRM-PLED)

RZR-M-PLED																			
LED Count	Drive Current (mA)	System Watts	Dist'n Type	27K (2700K - 70CRI)			30K (3000K - 70CRI)			40K (4000K - 70CRI)			50K (5000K - 70CRI)			System Watts	TRA (590nm)		
				LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING		LUMENS	LPW	BUG RATING
24	350	28.2	II	3436	122	B1-U0-G1	3709	132	B1-U0-G1	3904	138	B1-U0-G1	4100	145	B1-U0-G1	20.0	1363	68	B1-U0-G1
			II-FR	3459	123	B1-U0-G1	3734	132	B1-U0-G1	3930	139	B1-U0-G1	4127	146	B1-U0-G1		1372	69	B1-U0-G0
			II-ML	3436	122	B2-U0-G2	3709	132	B2-U0-G2	3905	138	B2-U0-G2	4100	145	B2-U0-G2		1363	68	B1-U0-G1
			III-M	3496	124	B1-U0-G1	3775	134	B1-U0-G1	3973	141	B1-U0-G1	4172	148	B1-U0-G1		1387	69	B1-U0-G0
			III-W	3246	115	B1-U0-G1	3505	124	B1-U0-G1	3689	131	B1-U0-G1	3873	137	B1-U0-G1		1289	64	B0-U0-G1
			IV	3469	123	B1-U0-G1	3746	133	B1-U0-G1	3943	140	B1-U0-G1	4140	147	B1-U0-G1		1377	69	B1-U0-G1
			IV-FT	3161	112	B1-U0-G1	3412	121	B1-U0-G1	3592	127	B1-U0-G1	3771	134	B1-U0-G1		1254	63	B0-U0-G1
			VSQ-N	3627	129	B2-U0-G0	3915	139	B2-U0-G0	4121	146	B2-U0-G0	4327	153	B2-U0-G1		1439	72	B1-U0-G0
			VSQ-M	3556	126	B2-U0-G1	3838	136	B2-U0-G1	4041	143	B2-U0-G1	4242	150	B3-U0-G1		1410	71	B1-U0-G0
			VSQ-W	3471	123	B3-U0-G1	3748	133	B3-U0-G1	3945	140	B3-U0-G1	4142	147	B3-U0-G1		1377	69	B1-U0-G1
			II-HS	2513	89	B0-U0-G1	2713	96	B0-U0-G1	2856	101	B0-U0-G1	2998	106	B0-U0-G1		997	50	B0-U0-G0
			II-FR-HS	2556	91	B0-U0-G0	2759	98	B0-U0-G0	2905	103	B0-U0-G0	3050	108	B0-U0-G0		1014	51	B0-U0-G0
			III-M-HS	2543	90	B0-U0-G1	2745	97	B0-U0-G1	2889	102	B0-U0-G1	3034	108	B0-U0-G1		1008	50	B0-U0-G0
			III-W-HS	2488	88	B0-U0-G1	2686	95	B0-U0-G1	2827	100	B0-U0-G1	2969	105	B0-U0-G1		987	49	B0-U0-G1
			IV-HS	2626	93	B0-U0-G1	2835	101	B0-U0-G1	2984	106	B0-U0-G1	3133	111	B0-U0-G1		1042	52	B0-U0-G0
			IV-FT-HS	2481	88	B0-U0-G1	2679	95	B0-U0-G1	2820	100	B0-U0-G1	2961	105	B0-U0-G1		985	49	B0-U0-G1
24	525	41.5	II	4908	118	B1-U0-G1	5298	128	B1-U0-G1	5577	134	B1-U0-G1	5856	141	B2-U0-G1	31.0	1586	51	B1-U0-G1
			II-FR	4941	119	B1-U0-G1	5334	129	B1-U0-G1	5614	135	B2-U0-G1	5895	142	B2-U0-G1		1598	52	B1-U0-G0
			II-ML	4908	118	B2-U0-G2	5299	128	B2-U0-G2	5578	134	B2-U0-G2	5856	141	B3-U0-G3		1587	51	B1-U0-G1
			III-M	4994	120	B1-U0-G1	5392	130	B1-U0-G1	5675	137	B1-U0-G1	5959	144	B1-U0-G2		1615	52	B1-U0-G0
			III-W	4637	112	B1-U0-G2	5005	121	B1-U0-G2	5269	127	B1-U0-G2	5533	133	B1-U0-G2		1500	48	B0-U0-G1
			IV	4956	119	B1-U0-G1	5350	129	B1-U0-G1	5632	136	B1-U0-G1	5913	142	B1-U0-G2		1602	52	B1-U0-G1
			IV-FT	4515	109	B1-U0-G2	4875	117	B1-U0-G2	5131	124	B1-U0-G2	5388	130	B1-U0-G2		1460	47	B0-U0-G1
			VSQ-N	5180	125	B2-U0-G1	5592	135	B2-U0-G1	5886	142	B2-U0-G1	6181	149	B2-U0-G1		1676	54	B1-U0-G0
			VSQ-M	5080	122	B3-U0-G1	5484	132	B3-U0-G1	5772	139	B3-U0-G1	6061	146	B3-U0-G1		1643	53	B1-U0-G0
			VSQ-W	4959	119	B3-U0-G2	5353	129	B3-U0-G2	5635	136	B3-U0-G2	5917	143	B3-U0-G2		1603	52	B1-U0-G1
			II-HS	3589	86	B0-U0-G1	3875	93	B0-U0-G1	4079	98	B0-U0-G1	4282	103	B0-U0-G1		1161	37	B0-U0-G0
			II-FR-HS	3652	88	B0-U0-G1	3942	95	B0-U0-G1	4150	100	B0-U0-G1	4357	105	B0-U0-G1		1181	38	B0-U0-G0
			III-M-HS	3631	88	B0-U0-G1	3920	94	B0-U0-G1	4127	99	B0-U0-G1	4333	104	B0-U0-G2		1174	38	B0-U0-G0
			III-W-HS	3555	86	B0-U0-G2	3838	92	B0-U0-G2	4040	97	B0-U0-G2	4242	102	B0-U0-G2		1150	37	B0-U0-G1
			IV-HS	3751	90	B0-U0-G1	4050	98	B0-U0-G1	4263	103	B0-U0-G1	4476	108	B0-U0-G1		1213	39	B0-U0-G0
			IV-FT-HS	3545	85	B0-U0-G2	3827	92	B0-U0-G2	4029	97	B0-U0-G2	4230	102	B0-U0-G2		1146	37	B0-U0-G1
24	700	55.9	II	6275	112	B2-U0-G1	6774	121	B2-U0-G2	7130	128	B2-U0-G2	7487	134	B2-U0-G2	N/A	N/A		
			II-FR	6317	113	B2-U0-G1	6819	122	B2-U0-G1	7178	128	B2-U0-G1	7537	135	B2-U0-G1				
			II-ML	6275	112	B3-U0-G3	6774	121	B3-U0-G3	7130	128	B3-U0-G3	7487	134	B3-U0-G3				
			III-M	6385	114	B2-U0-G2	6893	123	B2-U0-G2	7256	130	B2-U0-G2	7618	136	B2-U0-G2				
			III-W	5928	106	B1-U0-G2	6399	114	B1-U0-G2	6736	121	B1-U0-G2	7073	127	B1-U0-G2				
			IV	6337	113	B2-U0-G2	6841	122	B2-U0-G2	7201	129	B2-U0-G2	7561	135	B2-U0-G2				
			IV-FT	5772	103	B1-U0-G2	6231	111	B1-U0-G2	6559	117	B1-U0-G2	6887	123	B1-U0-G2				
			VSQ-N	6624	118	B2-U0-G1	7151	128	B2-U0-G1	7527	135	B2-U0-G1	7903	141	B3-U0-G1				
			VSQ-M	6494	116	B3-U0-G1	7011	125	B3-U0-G1	7380	132	B3-U0-G1	7749	139	B3-U0-G2				
			VSQ-W	6340	113	B3-U0-G2	6844	122	B3-U0-G2	7204	129	B3-U0-G2	7565	135	B3-U0-G2				
			II-HS	4589	82	B1-U0-G1	4954	89	B1-U0-G2	5215	93	B1-U0-G2	5475	98	B1-U0-G2				
			II-FR-HS	4668	84	B0-U0-G1	5040	90	B0-U0-G1	5305	95	B0-U0-G1	5570	100	B0-U0-G1				
			III-M-HS	4643	83	B0-U0-G2	5012	90	B0-U0-G2	5276	94	B0-U0-G2	5539	99	B0-U0-G2				
			III-W-HS	4544	81	B0-U0-G2	4906	88	B0-U0-G2	5164	92	B0-U0-G2	5422	97	B0-U0-G2				
			IV-HS	4796	86	B0-U0-G2	5177	93	B0-U0-G2	5450	97	B0-U0-G2	5722	102	B0-U0-G2				
			IV-FT-HS	4532	81	B0-U0-G2	4893	88	B0-U0-G2	5150	92	B0-U0-G2	5408	97	B0-U0-G2				
24	875	67.8	II	7406	109	B2-U0-G2	7995	118	B2-U0-G2	8416	124	B2-U0-G2	8837	130	B2-U0-G2	N/A	N/A		
			II-FR	7456	110	B2-U0-G1	8049	119	B2-U0-G1	8473	125	B2-U0-G1	8896	131	B2-U0-G1				
			II-ML	7406	109	B3-U0-G3	7995	118	B3-U0-G3	8416	124	B3-U0-G3	8837	130	B3-U0-G3				
			III-M	7536	111	B2-U0-G2	8135	120	B2-U0-G2	8563	126	B2-U0-G2	8992	133	B2-U0-G2				
			III-W	6997	103	B1-U0-G2	7553	111	B1-U0-G2	7951	117	B2-U0-G2	8348	123	B2-U0-G2				
			IV	7479	110	B2-U0-G2	8073	119	B2-U0-G2	8498	125	B2-U0-G2	8923	132	B2-U0-G2				
			IV-FT	6813	100	B1-U0-G2	7355	108	B2-U0-G2	7742	114	B2-U0-G2	8129	120	B2-U0-G2				
			VSQ-N	7817	115	B2-U0-G1	8439	124	B3-U0-G1	8883	131	B3-U0-G1	9327	138	B3-U0-G1				
			VSQ-M	7665	113	B3-U0-G2	8275	122	B3-U0-G2	8711	128	B3-U0-G2	9146	135	B3-U0-G2				
			VSQ-W	7482	110	B3-U0-G2	8078	119	B3-U0-G2	8503	125	B4-U0-G2	8928	132	B4-U0-G2				
			II-HS	5417	80	B1-U0-G2	5847	86	B1-U0-G2	6155	91	B1-U0-G2	6463	95	B1-U0-G2				
			II-FR-HS	5510	81	B0-U0-G1	5948	88	B1-U0-G1	6261	92	B1-U0-G1	6574	97	B1-U0-G1				
			III-M-HS	5480	81	B0-U0-G2	5916	87	B0-U0-G2	6227	92	B0-U0-G2	6538	96	B0-U0-G2				
			III-W-HS	5363	79	B0-U0-G2	5790	85	B0-U0-G2	6095	90	B0-U0-G2	6399	94	B0-U0-G2				
			IV-HS	5660	83	B0-U0-G2	6110	90	B0-U0-G2	6432	95	B0-U0-G2	6753	100	B0-U0-G2				
			IV-FT-HS	5349	79	B0-U0-G2	5775	85	B0-U0-G2	6078	90	B0-U0-G2	6382	94	B0-U0-G2				
24	1050	82.0	II	8513	104	B2-U0-G2	9190	112	B2-U0-G2	9674	118	B2-U0-G2	10157	124	B2-U0-G2	N/A	N/A		
			II-FR	8570	105	B2-U0-G1	9252	113	B2-U0-G1	9739	119	B2-U0-G1	10225	125	B2-U0-G1				
			II-ML	8513	104	B3-U0-G3	9190	112	B3-U0-G3	9674	118	B3-U0-G3	10157	124	B3-U0-G3				
			III-M	8662	106	B2-U0-G2	9351	114	B2-U0-G2	9843	120	B2-U0-G2	10335	126	B2-U0-G2				
			III-W	8042	98	B2-U0-G2	8682	106	B2-U0-G2	9139	111	B2-U0-G3	9595	117	B2-U0-G3				
			IV	8596	105	B2-U0-G2	9280	113	B2-U0-G2	9768	119	B2-U0-G2	10256	125	B2-U0-G2				
			IV-FT	7831	95	B2-U0-G2	8454	103	B2-U0-G2	8899	109	B2-U0-G3	9344	114	B2-U0-G3				
			VSQ-N	8985	110	B3-U0-G1	9700	118	B3-U0-G1	10210	125	B3-U0-G1	10721	131	B3-U0-G1				
			VSQ-M	8811	107	B3-U0-G2	9512	116	B3-U0-G2	10012	122	B3-U0-G2	10513	128	B3-U0-G2				
			VSQ-W	8601	105	B4-U0-G2	9285	113	B4-U0-G2	9773	119	B4-U0-G3	10262	125	B4-U0-G3				
			II-HS	6226	76	B1-U0-G2	6721	82	B1-U0-G2	7075	86	B1-U0-G2	7429	91	B1-U0-G2				
			II-FR-HS	6333	77	B1-U0-G1	6837	83	B1-U0-G1	7197	88	B1-U0-G1	7557	92	B1-U0-G1				
			III-M-HS	6299	77	B0-U0-G2	6799	83	B0-U0-G2	7158	87	B0-U0-G2	7515	92	B1-U0-G2				
			III-W-HS	6165	75	B0-U0-G2	6655	81	B0-U0-G2	7005	85	B0-U0-G2	7356	90	B0-U0-G2				
			IV-HS	6506	79	B0-U0-G2	7023	86	B0-U0-G2	7393	90	B1-U0-G2	7762	95	B1-U0-G2				
			IV-FT-HS	6148	75	B0-U0-G2	6637	81	B0-U0-G2	6986	85	B1-U0-G3	7336	89	B1-U0-G3				

IES File downloads for this product can be found at www.usaltg.com/downloads/asr.html

SOLID STATE AREA LIGHTING

RAZAR WALLMOUNT-LED

S P E C I F I C A T I O N S

OPTICAL HOUSING
Heavy cast low copper aluminum (A356 alloy; <0.2% copper) assembly with integral cooling fins. The Optical Panel mounting surface is milled flat (surface variance <± .003") to facilitate thermal transfer of heat to housing and cooling fins. The Optical Housing bolts to the Electrical Housing forming a unified assembly. The minimum wall thickness is .188".

ELECTRICAL HOUSING
Heavy cast low copper aluminum (A356 alloy; <0.2% copper) assembly. Minimum wall thickness is .188". Fixture Mounting Plate affixes to mounting surface over a recessed j-box. Electrical Housing anchors on the top edge of the Mounting Plate and stainless steel recessed socket head screws tighten the Electrical Housing to the Mounting Plate from the bottom.

PLED™ OPTICAL MODULES
Emitters (LED's) are arrayed on a metal core PCB panel with each emitter located on a copper thermal transfer pad and enclosed by an LED refractor. LED optics completely seal each individual emitter to meet an IP66 rating. The asymmetric distributions, have a micro-reflector inside the refractor which re-directs the house side emitter output towards the street side and functions as a house side shielding element. Refractors are injection molded H12 acrylic. Each LED refractor is sealed to the PCB over an emitter and all refractors are retained by an aluminum frame. Any one Panel, or group of Panels in a luminaire, have the same optical pattern. LED refractors produce Type II, III, and Type IV site/area distributions as well as other specialty asymmetric distributions. Panels are field replaceable and field rotatable in 90° increments.

LED DRIVER(S)
Constant current electronic with a power factor of >.90 and a minimum operating temperature of -40°F/-40°C. Driver(s) is/are UL and cUL recognized and mounted directly against the Electrical Housing to facilitate thermal transfer, held down by universal clamps to facilitate easy removal. In-line terminal blocks facilitate wiring between the driver and optical arrays. Drivers accept an input of 120-277V, 50/60Hz or 347V-480V, 50,60Hz. (0 - 10V dimmable driver is standard. Driver has a minimum of 3KV internal surge protection. Luminaire supplied with 20KV surge protector for field accessible installation.)

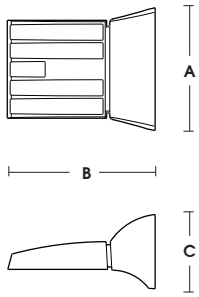
LED EMITTERS
High output LED's are utilized with drive currents ranging from 350mA to 1050mA. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

AMBER LED's
PCA (Phosphor Converted Amber) LED's utilize phosphors to create color output similar to LPS lamps and have a slight output in the blue spectral bandwidth. **TRA** (True Amber) LED's utilize material that emits light in the amber spectral bandwidth only without the use of phosphors.

FINISH
Electrostatically applied TGIC Polyester Powder Coat on substrate prepared with 20 PSI power wash at 140°F. Four step media blast and iron phosphate pretreatment for protection and paint adhesion. 400°F bake for maximum hardness and durability.

PROJECT NAME:

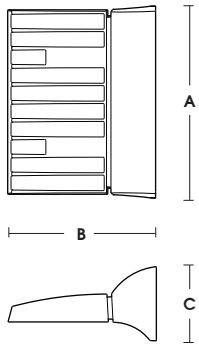
PROJECT TYPE: WM1



FIXTURE	A	B	C
RZRW1	8.75" (22mm)	12" (305mm)	6" (152mm)
RZRW1-EM	11" (279mm)	14" (356mm)	6.5" (165mm)

RZR-WM1

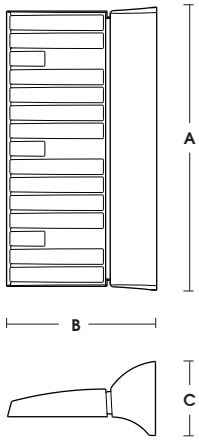
PATENT PENDING



FIXTURE	A	B	C
RZRW2	16" (406mm)	12" (305mm)	6" (152mm)
RZRW2-EM	16" (406mm)	14" (356mm)	6.5" (165mm)

RZR-WM2

PATENT PENDING



FIXTURE	A	B	C
RZRW3	23" (584mm)	12" (305mm)	6" (152mm)
RZRW3-EM	23" (584mm)	14" (356mm)	6.5" (165mm)

RZR-WM3

PATENT PENDING

c UL us LISTED

MADE IN THE USA

2019093

U.S. Architectural Lighting

660 West Avenue O, Palmdale, CA 93551
Phone (661) 233-2000 Fax (661) 233-2001
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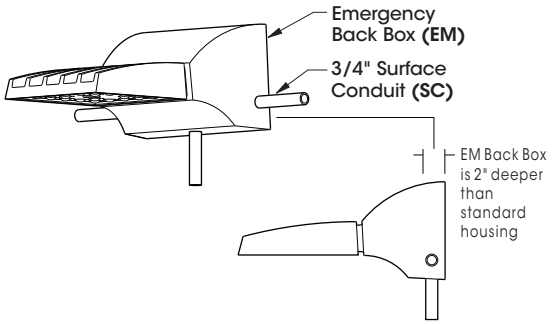
U.S. ARCHITECTURAL LIGHTING

RAZAR WALLMOUNT SERIES-LED

S P E C I F I C A T I O N S

EMERGENCY OPTION



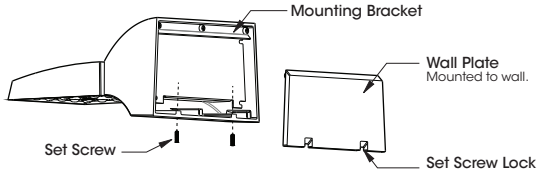
THE EMERGENCY OPTION BACK BOX EXTENDS 2" BEYOND THE STANDARD HOUSING AND CONTAINS THE EMERGENCY COMPONENTS (EC) INCLUDING BATTERIES OR CAN BE USED FOR SURFACE CONDUIT (SC) APPLICATIONS. THERE IS TO BE AN SC1, SC2, AND SC3 OPTION FOR THE DIFFERING HOUSING SIZES. SC SHIPS WITH THREADED CONDUIT PLUGS.

THE EM-LED SYSTEM PROVIDES POWER TO ALL LEDS IN THE ARRAY (20, 40, or 60) TO MEET THE FOLLOWING LIGHT LEVELS FOR A MINIMUM OF 90 MINUTES -

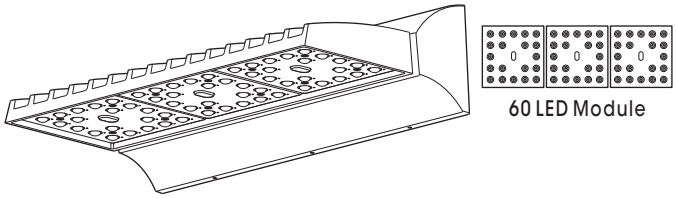
WM1 = 45% @ 350MA
WM2 = 36% @ 350MA
WM3 = 24% @ 350MA

*MULTIPLY THE % ABOVE BY THE LUMEN OUTPUT @ 350MA

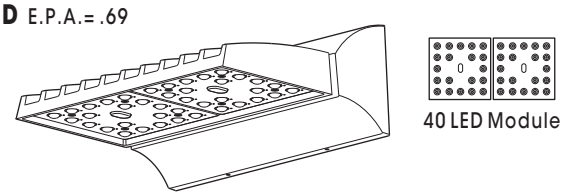
WALL MOUNTING



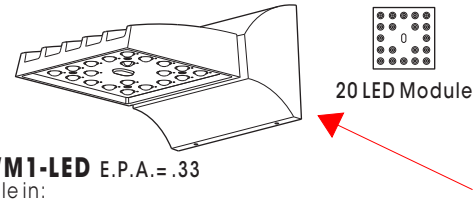
PLED® MODULES



RZR-WM3-LED E.P.A.= .69
Available in:
60 LED Module



RZR-WM2-LED E.P.A.= .47
Available in:
40 LED Module



RZR-WM1-LED E.P.A.= .33
Available in:
20LED Module

MAX INPUT WATTAGE

# OF LED's	DRIVE CURRENT 350mA	525mA	700mA	1050mA
60	68W	99W	131W	198W
40	45W	66W	87W	134W
20	23W	33W	44W	66W

Spec/Order Example: RZR-WM2/PLED-IV/40LED-700mA/CW/277/RAL-8019-S/SF

S P E C / O R D E R I N G I N F O R M A T I O N

MODEL	OPTICS	LED MODE	VOLTAGE	FINISH	OPTIONS

MODEL

- ☐ RZR-WM1
- ☐ RZR-WM2
- ☐ RZR-WM3

OPTICS

PLED® DISTRIBUTION TYPE

- ☐ TYPE II **PLED-II** . . . . . .
- ☐ TYPE II FRONT ROW **PLED-II-FR** . . . . .
- ☐ TYPE III **PLED-III** . . . . . .
- ☐ TYPE III WIDE **PLED-III-W** . . . .
- ☐ TYPE IV **PLED-IV**. . . . . .
- ☐ TYPE IV-FT **PLED-IV-FT** . . . .

LED MODE

NO. LEDs

RZR-WM1
- ☐ 20LED

RZR-WM2
- ☐ 40LED

RZR-WM3
- ☐ 60LED

DRIVE CURRENT
- ☐ 350mA
- ☐ 525mA
- ☐ 700mA[1]
- ☐ 1050mA[1]

COLOR TEMP - CCT
- ☐ NW (4000K)* *STANDARD
- ☐ CW (5000K)
- ☐ WW (3000K)

CONSULT FACTORY FOR OTHER LED COLORS

AMBER[2]
- ☐ PHOSPHOR CONVERTED AMBER **PCA**
- ☐ TRUE AMBER[3] **TRA**

NOTES:
1 - 700mA and 1050mA NOT FOR USE WITH TRA LED'S
2 - NARROW BAND AMBERS HAVE NO DEFINABLE CCT EQUIVALENT
3 - AVAILABLE IN 350mA & 525mA DRIVE CURRENTS ONLY

VOLTAGE

- ☐ 120
- ☐ 208
- ☐ 240
- ☐ 277
- ☐ 347
- ☐ 480

FINISH

STANDARD TEXTURED FINISH
- ☐ BLACK **RAL-9005-T**
- ☐ WHITE **RAL-9003-T**
- ☐ GREY **RAL-7004-T**
- ☐ DARK BRONZE **RAL-8019-T**
- ☐ GREEN **RAL-6005-T**

FOR SMOOTH FINISH REPLACE SUFFIX "T" WITH SUFFIX "S" (EXAMPLE: RAL-9005-S)

CONSULT FACTORY FOR CUSTOM COLORS

OPTIONS

- ☐ HIGH-LOW DIMMING FOR EXTERNAL CONTROL . . **HLSW**
- ☐ HOUSE SIDE SHIELDING . . . . . **HS-PLED**
- ☐ PHOTO CELL + VOLTAGE (EXAMPLE: PC120V) . . . **PC+V**
- ☐ SINGLE FUSE (120V & 277V) . . . . . **SF**
- ☐ DOUBLE FUSE (208V & 240V) . . . . . **DF**
- ☐ BLUE-TOOTH PROGRAMMABLE PHOTO/MOTION SENSOR (FACTORY - MOTION 50/100; PHOTO 75FC) **MS-F311**
- ☐ EMERGENCY BACKUP 1. . **EM1**
- ☐ EMERGENCY BACKUP 1 (HOUSING ONLY) **EMH1**
- ☐ EMERGENCY BACKUP 2. . **EM2**
- ☐ EMERGENCY BACKUP 3. . **EM3**
- ☐ SURFACE CONDUIT 1. . . **SC1**
- ☐ SURFACE CONDUIT 2 . . **SC2**
- ☐ SURFACE CONDUIT 3 . . **SC3**

U.S. Architectural Lighting

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U.S. ARCHITECTURAL LIGHTING

RAZAR WALLMOUNT-LED

LAMP/ELECTRICAL GUIDE

LED COUNT	SOURCE TYPE	SOURCE	INITIAL LUMENS - 4000K	INITIAL LUMENS - 3000K	INITIAL LUMENS - 5000K	L70 GREATER THAN (HR)-TM21	STARTING TEMP.	SYSTEM WATTS	VOLTS	MAX INPUT AMPS
20	LED	20 PLED® Optical Module - 350mA	2,706 – 2,993	2,571 – 2,843	2,841 – 3,143	60,000+	-20°F	22	120 277 347	0.19 0.08 0.07
20	LED	20 PLED® Optical Module - 525mA	3,897 – 4,310	3,702 – 4,095	4,092 – 4,526	60,000+	-20°F	33	120 277 347	0.28 0.12 0.10
20	LED	20 PLED® Optical Module - 700mA	4,942 – 5,466	4,695 – 5,193	5,189 – 5,739	60,000+	-20°F	44	120 277 347	0.37 0.16 0.13
20	LED	20 PLED® Optical Module - 1050mA	6,564 – 7,260	6,236 – 6,897	6,892 – 7,623	60,000+	-20°F	65	120 277 347	0.55 0.24 0.19
40	LED	40 PLED Optical Module - 350mA	5,585 – 6,178	5,206 – 5,869	5,864 – 6,487	60,000+	-20°F	43	120 277 347	0.36 0.16 0.13
40	LED	40 PLED® Optical Module - 525mA	8,059 – 8,914	7,656 – 8,468	8,462 – 9,360	60,000+	-20°F	65	120 277 347	0.55 0.24 0.19
40	LED	40 PLED® Optical Module - 700mA	10,240 – 11,327	9,728 – 10,761	10,752 – 11,893	60,000+	-20°F	87	120 277 347	0.73 0.32 0.26
40	LED	40 PLED® Optical Module - 1050mA	13,642 – 15,089	12,690 – 14,335	14,324 – 15,843	60,000+	-20°F	129	120 277 347	1.08 0.47 0.38
60	LED	60 PLED® Optical Module - 350mA	8,118 – 8,979	7,712 – 8,530	8,524 – 9,428	60,000+	-20°F	65	120 277 347	0.55 0.24 0.19
60	LED	60 PLED® Optical Module - 525mA	11,690 – 12,930	11,106 – 12,284	12,275 – 13,577	60,000+	-20°F	98	120 277 347	0.82 0.36 0.29
60	LED	60 PLED® Optical Module - 700mA	14,825 – 16,398	14,084 – 15,578	15,566 – 17,218	60,000+	-20°F	131	120 277 347	1.09 0.47 0.38
60	LED	60 PLED® Optical Module - 1050mA	19,691 – 21,780	18,706 – 20,691	20,676 – 22,869	60,000+	-20°F	193	120 277 347	1.61 0.70 0.56

NOTES:

1. Max Input Amps is the highest of starting, operating, or open circuit currents
2. Lumen values for LED Modules vary according to the distribution type
3. System Watts includes the source watts and all driver components.
4. Fuse value should be sufficient to protect all wiring components.
5. L70(10K) – TM-21 6x rule applied

   L70(10K) – Calculated = 244,000 @ 700mA
   = 102,000@ 1050mA

WARNING: All fixtures must be installed in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

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SOLID STATE AREA LIGHTING

RAZAR WALLMOUNT-LED

S P E C I F I C A T I O N S

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FINISH
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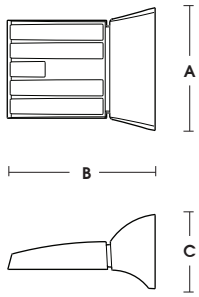
PROJECT NAME:

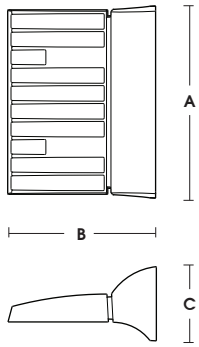
PROJECT TYPE: WM2



FIXTURE	A	B	C
RZRW1	8.75" (22mm)	12" (305mm)	6" (152mm)
RZRW1-EM	11" (279mm)	14" (356mm)	6.5" (165mm)

RZR-WM1

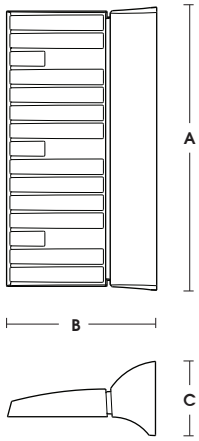
PATENT PENDING



FIXTURE	A	B	C
RZRW2	16" (406mm)	12" (305mm)	6" (152mm)
RZRW2-EM	16" (406mm)	14" (356mm)	6.5" (165mm)

RZR-WM2

PATENT PENDING



FIXTURE	A	B	C
RZRW3	23" (584mm)	12" (305mm)	6" (152mm)
RZRW3-EM	23" (584mm)	14" (356mm)	6.5" (165mm)

RZR-WM3

PATENT PENDING

c UL US LISTED

MADE IN THE USA

2019093

U.S. Architectural Lighting

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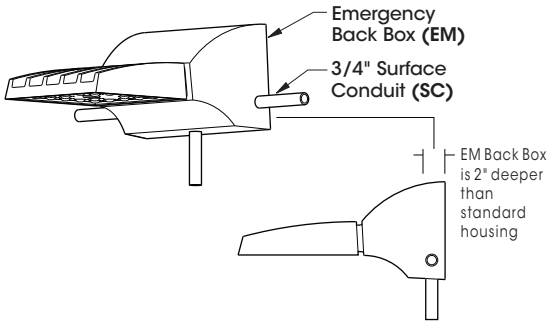
U.S. ARCHITECTURAL LIGHTING

RAZAR WALLMOUNT SERIES-LED

S P E C I F I C A T I O N S

EMERGENCY OPTION



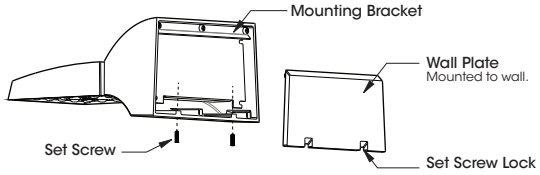
THE EMERGENCY OPTION BACK BOX EXTENDS 2" BEYOND THE STANDARD HOUSING AND CONTAINS THE EMERGENCY COMPONENTS (EC) INCLUDING BATTERIES OR CAN BE USED FOR SURFACE CONDUIT (SC) APPLICATIONS. THERE IS TO BE AN SC1, SC2, AND SC3 OPTION FOR THE DIFFERING HOUSING SIZES. SC SHIPS WITH THREADED CONDUIT PLUGS.

THE EM-LED SYSTEM PROVIDES POWER TO ALL LEDS IN THE ARRAY (20, 40, or 60) TO MEET THE FOLLOWING LIGHT LEVELS FOR A MINIMUM OF 90 MINUTES -

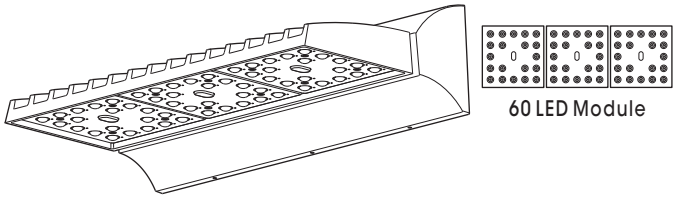
WM1 = 45% @ 350MA
WM2 = 36% @ 350MA
WM3 = 24% @ 350MA

*MULTIPLY THE % ABOVE BY THE LUMEN OUTPUT @ 350MA

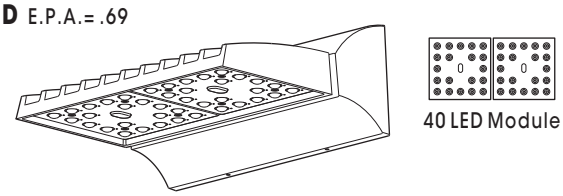
WALL MOUNTING



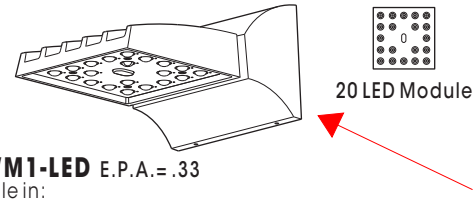
PLED® MODULES



RZR-WM3-LED E.P.A.= .69
Available in:
60 LED Module



RZR-WM2-LED E.P.A.= .47
Available in:
40 LED Module



RZR-WM1-LED E.P.A.= .33
Available in:
20LED Module

MAX INPUT WATTAGE

# OF LED's	DRIVE CURRENT 350mA	525mA	700mA	1050mA
60	68W	99W	131W	198W
40	45W	66W	87W	134W
20	23W	33W	44W	66W

Spec/Order Example: RZR-WM2/PLED-IV/40LED-700mA/CW/277/RAL-8019-S/SF

S P E C / O R D E R I N G I N F O R M A T I O N

MODEL	OPTICS	LED MODE	VOLTAGE	FINISH	OPTIONS

MODEL

- ☐ RZR-WM1
- ☐ RZR-WM2
- ☐ RZR-WM3

OPTICS

PLED® DISTRIBUTION TYPE

- ☐ TYPE II **PLED-II** . . . . . .
- ☐ TYPE II FRONT ROW **PLED-II-FR** . . . . .
- ☐ TYPE III **PLED-III** . . . . . .
- ☐ TYPE III WIDE **PLED-III-W** . . . .
- ☐ TYPE IV **PLED-IV**. . . . . .
- ☐ TYPE IV-FT **PLED-IV-FT** . . . .

LED MODE

NO. LEDs

RZR-WM1
- ☐ 20LED

RZR-WM2
- ☐ 40LED

RZR-WM3
- ☐ 60LED

DRIVE CURRENT
- ☐ 350mA
- ☐ 525mA
- ☐ 700mA[1]
- ☐ 1050mA[1]

COLOR TEMP - CCT
- ☐ NW (4000K)* *STANDARD
- ☐ CW (5000K)
- ☐ WW (3000K)

CONSULT FACTORY FOR OTHER LED COLORS

AMBER[2]
- ☐ PHOSPHOR CONVERTED AMBER **PCA**
- ☐ TRUE AMBER[3] **TRA**

NOTES:
1 - 700mA and 1050mA NOT FOR USE WITH TRA LED'S
2 - NARROW BAND AMBERS HAVE NO DEFINABLE CCT EQUIVALENT
3 - AVAILABLE IN 350mA & 525mA DRIVE CURRENTS ONLY

VOLTAGE

- ☐ 120
- ☐ 208
- ☐ 240
- ☐ 277
- ☐ 347
- ☐ 480

FINISH

STANDARD TEXTURED FINISH
- ☐ BLACK **RAL-9005-T**
- ☐ WHITE **RAL-9003-T**
- ☐ GREY **RAL-7004-T**
- ☐ DARK BRONZE **RAL-8019-T**
- ☐ GREEN **RAL-6005-T**

FOR SMOOTH FINISH REPLACE SUFFIX "T" WITH SUFFIX "S" (EXAMPLE: RAL-9005-S)

CONSULT FACTORY FOR CUSTOM COLORS

OPTIONS

- ☐ HIGH-LOW DIMMING FOR EXTERNAL CONTROL . . **HLSW**
- ☐ HOUSE SIDE SHIELDING . . . . . **HS-PLED**
- ☐ PHOTO CELL + VOLTAGE (EXAMPLE: PC120V) . . . **PC+V**
- ☐ SINGLE FUSE (120V & 277V) . . . . . **SF**
- ☐ DOUBLE FUSE (208V & 240V) . . . . . **DF**
- ☐ BLUE-TOOTH PROGRAMMABLE PHOTO/MOTION SENSOR (FACTORY - MOTION 50/100; PHOTO 75FC) **MS-F311**
- ☐ EMERGENCY BACKUP 1. . **EM1**
- ☐ EMERGENCY BACKUP 1 (HOUSING ONLY) **EMH1**
- ☐ EMERGENCY BACKUP 2. . **EM2**
- ☐ EMERGENCY BACKUP 3. . **EM3**
- ☐ SURFACE CONDUIT 1. . . **SC1**
- ☐ SURFACE CONDUIT 2 . . **SC2**
- ☐ SURFACE CONDUIT 3 . . **SC3**

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U.S. ARCHITECTURAL LIGHTING

RAZAR WALLMOUNT-LED

LAMP/ELECTRICAL GUIDE

LED COUNT	SOURCE TYPE	SOURCE	INITIAL LUMENS - 4000K	INITIAL LUMENS - 3000K	INITIAL LUMENS - 5000K	L70 GREATER THAN (HR)-TM21	STARTING TEMP.	SYSTEM WATTS	VOLTS	MAX INPUT AMPS
20	LED	20 PLED® Optical Module - 350mA	2,706 – 2,993	2,571 – 2,843	2,841 – 3,143	60,000+	-20°F	22	120 277 347	0.19 0.08 0.07
20	LED	20 PLED® Optical Module - 525mA	3,897 – 4,310	3,702 – 4,095	4,092 – 4,526	60,000+	-20°F	33	120 277 347	0.28 0.12 0.10
20	LED	20 PLED® Optical Module - 700mA	4,942 – 5,466	4,695 – 5,193	5,189 – 5,739	60,000+	-20°F	44	120 277 347	0.37 0.16 0.13
20	LED	20 PLED® Optical Module - 1050mA	6,564 – 7,260	6,236 – 6,897	6,892 – 7,623	60,000+	-20°F	65	120 277 347	0.55 0.24 0.19
40	LED	40 PLED Optical Module - 350mA	5,585 – 6,178	5,206 – 5,869	5,864 – 6,487	60,000+	-20°F	43	120 277 347	0.36 0.16 0.13
40	LED	40 PLED® Optical Module - 525mA	8,059 – 8,914	7,656 – 8,468	8,462 – 9,360	60,000+	-20°F	65	120 277 347	0.55 0.24 0.19
40	LED	40 PLED® Optical Module - 700mA	10,240 – 11,327	9,728 – 10,761	10,752 – 11,893	60,000+	-20°F	87	120 277 347	0.73 0.32 0.26
40	LED	40 PLED® Optical Module - 1050mA	13,642 – 15,089	12,690 – 14,335	14,324 – 15,843	60,000+	-20°F	129	120 277 347	1.08 0.47 0.38
60	LED	60 PLED® Optical Module - 350mA	8,118 – 8,979	7,712 – 8,530	8,524 – 9,428	60,000+	-20°F	65	120 277 347	0.55 0.24 0.19
60	LED	60 PLED® Optical Module - 525mA	11,690 – 12,930	11,106 – 12,284	12,275 – 13,577	60,000+	-20°F	98	120 277 347	0.82 0.36 0.29
60	LED	60 PLED® Optical Module - 700mA	14,825 – 16,398	14,084 – 15,578	15,566 – 17,218	60,000+	-20°F	131	120 277 347	1.09 0.47 0.38
60	LED	60 PLED® Optical Module - 1050mA	19,691 – 21,780	18,706 – 20,691	20,676 – 22,869	60,000+	-20°F	193	120 277 347	1.61 0.70 0.56

NOTES:

1. Max Input Amps is the highest of starting, operating, or open circuit currents
2. Lumen values for LED Modules vary according to the distribution type
3. System Watts includes the source watts and all driver components.
4. Fuse value should be sufficient to protect all wiring components.
5. L70(10K) – TM-21 6x rule applied

   L70(10K) – Calculated = 244,000 @ 700mA
   = 102,000@ 1050mA

WARNING: All fixtures must be installed in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

660 West Avenue O, Palmdale, CA 93551
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SOLID STATE AREA LIGHTING

RAZAR WALLMOUNT-LED

S P E C I F I C A T I O N S

OPTICAL HOUSING
Heavy cast low copper aluminum (A356 alloy; <0.2% copper) assembly with integral cooling fins. The Optical Panel mounting surface is milled flat (surface variance <± .003") to facilitate thermal transfer of heat to housing and cooling fins. The Optical Housing bolts to the Electrical Housing forming a unified assembly. The minimum wall thickness is .188".

ELECTRICAL HOUSING
Heavy cast low copper aluminum (A356 alloy; <0.2% copper) assembly. Minimum wall thickness is .188". Fixture Mounting Plate affixes to mounting surface over a recessed j-box. Electrical Housing anchors on the top edge of the Mounting Plate and stainless steel recessed socket head screws tighten the Electrical Housing to the Mounting Plate from the bottom.

PLED™ OPTICAL MODULES
Emitters (LED's) are arrayed on a metal core PCB panel with each emitter located on a copper thermal transfer pad and enclosed by an LED refractor. LED optics completely seal each individual emitter to meet an IP66 rating. The asymmetric distributions, have a micro-reflector inside the refractor which re-directs the house side emitter output towards the street side and functions as a house side shielding element. Refractors are injection molded H12 acrylic. Each LED refractor is sealed to the PCB over an emitter and all refractors are retained by an aluminum frame. Any one Panel, or group of Panels in a luminaire, have the same optical pattern. LED refractors produce Type II, III, and Type IV site/area distributions as well as other specialty asymmetric distributions. Panels are field replaceable and field rotatable in 90° increments.

LED DRIVER(S)
Constant current electronic with a power factor of >.90 and a minimum operating temperature of -40°F/-40°C. Driver(s) is/are UL and cUL recognized and mounted directly against the Electrical Housing to facilitate thermal transfer, held down by universal clamps to facilitate easy removal. In-line terminal blocks facilitate wiring between the driver and optical arrays. Drivers accept an input of 120-277V, 50/60Hz or 347V-480V, 50,60Hz. (0 - 10V dimmable driver is standard. Driver has a minimum of 3KV internal surge protection. Luminaire supplied with 20KV surge protector for field accessible installation.)

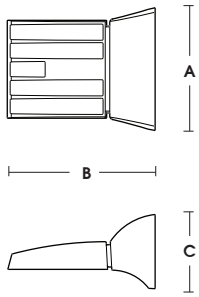
LED EMITTERS
High output LED's are utilized with drive currents ranging from 350mA to 1050mA. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

AMBER LED's
PCA (Phosphor Converted Amber) LED's utilize phosphors to create color output similar to LPS lamps and have a slight output in the blue spectral bandwidth. **TRA** (True Amber) LED's utilize material that emits light in the amber spectral bandwidth only without the use of phosphors.

FINISH
Electrostatically applied TGIC Polyester Powder Coat on substrate prepared with 20 PSI power wash at 140°F. Four step media blast and iron phosphate pretreatment for protection and paint adhesion. 400°F bake for maximum hardness and durability.

PROJECT NAME:

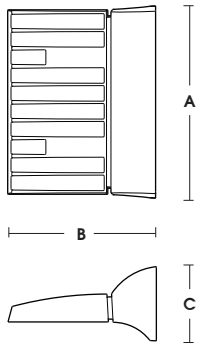
PROJECT TYPE: WM3



FIXTURE	A	B	C
RZRW1	8.75" (22mm)	12" (305mm)	6" (152mm)
RZRW1-EM	11" (279mm)	14" (356mm)	6.5" (165mm)

RZR-WM1

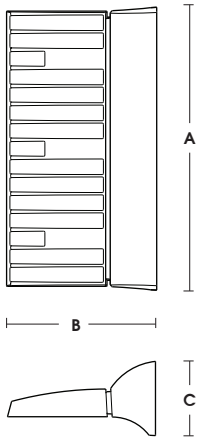
PATENT PENDING



FIXTURE	A	B	C
RZRW2	16" (406mm)	12" (305mm)	6" (152mm)
RZRW2-EM	16" (406mm)	14" (356mm)	6.5" (165mm)

RZR-WM2

PATENT PENDING



FIXTURE	A	B	C
RZRW3	23" (584mm)	12" (305mm)	6" (152mm)
RZRW3-EM	23" (584mm)	14" (356mm)	6.5" (165mm)

RZR-WM3

PATENT PENDING

c UL US LISTED

MADE IN THE USA

2019093

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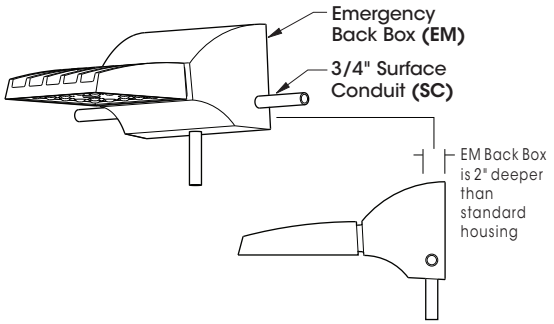
U.S. ARCHITECTURAL LIGHTING

RAZAR WALLMOUNT SERIES-LED

S P E C I F I C A T I O N S

EMERGENCY OPTION



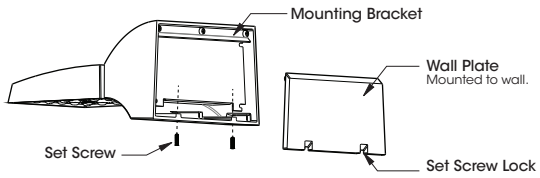
THE EMERGENCY OPTION BACK BOX EXTENDS 2" BEYOND THE STANDARD HOUSING AND CONTAINS THE EMERGENCY COMPONENTS (EC) INCLUDING BATTERIES OR CAN BE USED FOR SURFACE CONDUIT (SC) APPLICATIONS. THERE IS TO BE AN SC1, SC2, AND SC3 OPTION FOR THE DIFFERING HOUSING SIZES. SC SHIPS WITH THREADED CONDUIT PLUGS.

THE EM-LED SYSTEM PROVIDES POWER TO ALL LEDS IN THE ARRAY (20, 40, or 60) TO MEET THE FOLLOWING LIGHT LEVELS FOR A MINIMUM OF 90 MINUTES -

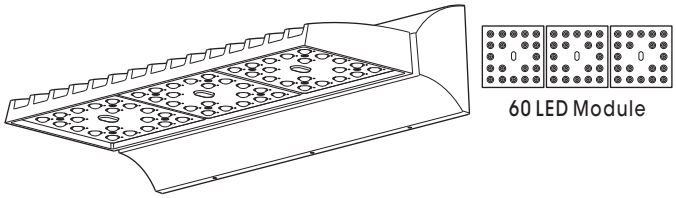
WM1 = 45% @ 350MA
WM2 = 36% @ 350MA
WM3 = 24% @ 350MA

*MULTIPLY THE % ABOVE BY THE LUMEN OUTPUT @ 350MA

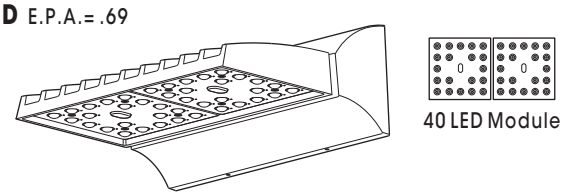
WALL MOUNTING



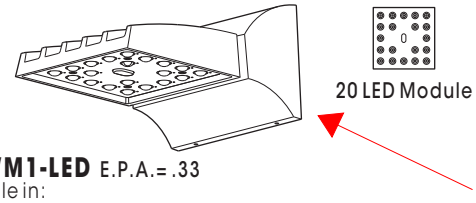
PLED® MODULES



RZR-WM3-LED E.P.A.= .69
Available in:
60 LED Module



RZR-WM2-LED E.P.A.= .47
Available in:
40 LED Module



RZR-WM1-LED E.P.A.= .33
Available in:
20LED Module

MAX INPUT WATTAGE

# OF LED's	DRIVE CURRENT 350mA	525mA	700mA	1050mA
60	68W	99W	131W	198W
40	45W	66W	87W	134W
20	23W	33W	44W	66W

Spec/Order Example: RZR-WM2/PLED-IV/40LED-700mA/CW/277/RAL-8019-S/SF

S P E C / O R D E R I N G I N F O R M A T I O N

MODEL	OPTICS	LED MODE	VOLTAGE	FINISH	OPTIONS

MODEL

- ☐ RZR-WM1
- ☐ RZR-WM2
- ☐ RZR-WM3

OPTICS

PLED® DISTRIBUTION TYPE

- ☐ TYPE II **PLED-II** . . . . . .
- ☐ TYPE II FRONT ROW **PLED-II-FR** . . . . .
- ☐ TYPE III **PLED-III** . . . . . .
- ☐ TYPE III WIDE **PLED-III-W** . . . .
- ☐ TYPE IV **PLED-IV**. . . . . .
- ☐ TYPE IV-FT **PLED-IV-FT** . . . .

LED MODE

NO. LEDs

RZR-WM1
- ☐ 20LED

RZR-WM2
- ☐ 40LED

RZR-WM3
- ☐ 60LED

DRIVE CURRENT
- ☐ 350mA
- ☐ 525mA
- ☐ 700mA[1]
- ☐ 1050mA[1]

COLOR TEMP - CCT
- ☐ NW (4000K)* *STANDARD
- ☐ CW (5000K)
- ☐ WW (3000K)

CONSULT FACTORY FOR OTHER LED COLORS

AMBER[2]
- ☐ PHOSPHOR CONVERTED AMBER **PCA**
- ☐ TRUE AMBER[3] **TRA**

NOTES:
1 - 700mA and 1050mA NOT FOR USE WITH TRA LED'S
2 - NARROW BAND AMBERS HAVE NO DEFINABLE CCT EQUIVALENT
3 - AVAILABLE IN 350mA & 525mA DRIVE CURRENTS ONLY

VOLTAGE

- ☐ 120
- ☐ 208
- ☐ 240
- ☐ 277
- ☐ 347
- ☐ 480

FINISH

STANDARD TEXTURED FINISH
- ☐ BLACK **RAL-9005-T**
- ☐ WHITE **RAL-9003-T**
- ☐ GREY **RAL-7004-T**
- ☐ DARK BRONZE **RAL-8019-T**
- ☐ GREEN **RAL-6005-T**

FOR SMOOTH FINISH REPLACE SUFFIX "T" WITH SUFFIX "S" (EXAMPLE: RAL-9005-S)

CONSULT FACTORY FOR CUSTOM COLORS

OPTIONS

- ☐ HIGH-LOW DIMMING FOR EXTERNAL CONTROL . . **HLSW**
- ☐ HOUSE SIDE SHIELDING . . . . . **HS-PLED**
- ☐ PHOTO CELL + VOLTAGE (EXAMPLE: PC120V) . . . **PC+V**
- ☐ SINGLE FUSE (120V & 277V) . . . . . **SF**
- ☐ DOUBLE FUSE (208V & 240V) . . . . . **DF**
- ☐ BLUE-TOOTH PROGRAMMABLE PHOTO/MOTION SENSOR (FACTORY - MOTION 50/100; PHOTO 75FC) **MS-F311**
- ☐ EMERGENCY BACKUP 1. . **EM1**
- ☐ EMERGENCY BACKUP 1 (HOUSING ONLY) **EMH1**
- ☐ EMERGENCY BACKUP 2. . **EM2**
- ☐ EMERGENCY BACKUP 3. . **EM3**
- ☐ SURFACE CONDUIT 1. . . **SC1**
- ☐ SURFACE CONDUIT 2 . . **SC2**
- ☐ SURFACE CONDUIT 3 . . **SC3**

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RAZAR WALLMOUNT-LED

LAMP/ELECTRICAL GUIDE

LED COUNT	SOURCE TYPE	SOURCE	INITIAL LUMENS - 4000K	INITIAL LUMENS - 3000K	INITIAL LUMENS - 5000K	L70 GREATER THAN (HR)-TM21	STARTING TEMP.	SYSTEM WATTS	VOLTS	MAX INPUT AMPS
20	LED	20 PLED® Optical Module - 350mA	2,706 – 2,993	2,571 – 2,843	2,841 – 3,143	60,000+	-20°F	22	120 277 347	0.19 0.08 0.07
20	LED	20 PLED® Optical Module - 525mA	3,897 – 4,310	3,702 – 4,095	4,092 – 4,526	60,000+	-20°F	33	120 277 347	0.28 0.12 0.10
20	LED	20 PLED® Optical Module - 700mA	4,942 – 5,466	4,695 – 5,193	5,189 – 5,739	60,000+	-20°F	44	120 277 347	0.37 0.16 0.13
20	LED	20 PLED® Optical Module - 1050mA	6,564 – 7,260	6,236 – 6,897	6,892 – 7,623	60,000+	-20°F	65	120 277 347	0.55 0.24 0.19
40	LED	40 PLED Optical Module - 350mA	5,585 – 6,178	5,206 – 5,869	5,864 – 6,487	60,000+	-20°F	43	120 277 347	0.36 0.16 0.13
40	LED	40 PLED® Optical Module - 525mA	8,059 – 8,914	7,656 – 8,468	8,462 – 9,360	60,000+	-20°F	65	120 277 347	0.55 0.24 0.19
40	LED	40 PLED® Optical Module - 700mA	10,240 – 11,327	9,728 – 10,761	10,752 – 11,893	60,000+	-20°F	87	120 277 347	0.73 0.32 0.26
40	LED	40 PLED® Optical Module - 1050mA	13,642 – 15,089	12,690 – 14,335	14,324 – 15,843	60,000+	-20°F	129	120 277 347	1.08 0.47 0.38
60	LED	60 PLED® Optical Module - 350mA	8,118 – 8,979	7,712 – 8,530	8,524 – 9,428	60,000+	-20°F	65	120 277 347	0.55 0.24 0.19
60	LED	60 PLED® Optical Module - 525mA	11,690 – 12,930	11,106 – 12,284	12,275 – 13,577	60,000+	-20°F	98	120 277 347	0.82 0.36 0.29
60	LED	60 PLED® Optical Module - 700mA	14,825 – 16,398	14,084 – 15,578	15,566 – 17,218	60,000+	-20°F	131	120 277 347	1.09 0.47 0.38
60	LED	60 PLED® Optical Module - 1050mA	19,691 – 21,780	18,706 – 20,691	20,676 – 22,869	60,000+	-20°F	193	120 277 347	1.61 0.70 0.56

NOTES:

1. Max Input Amps is the highest of starting, operating, or open circuit currents
2. Lumen values for LED Modules vary according to the distribution type
3. System Watts includes the source watts and all driver components.
4. Fuse value should be sufficient to protect all wiring components.
5. L70(10K) – TM-21 6x rule applied

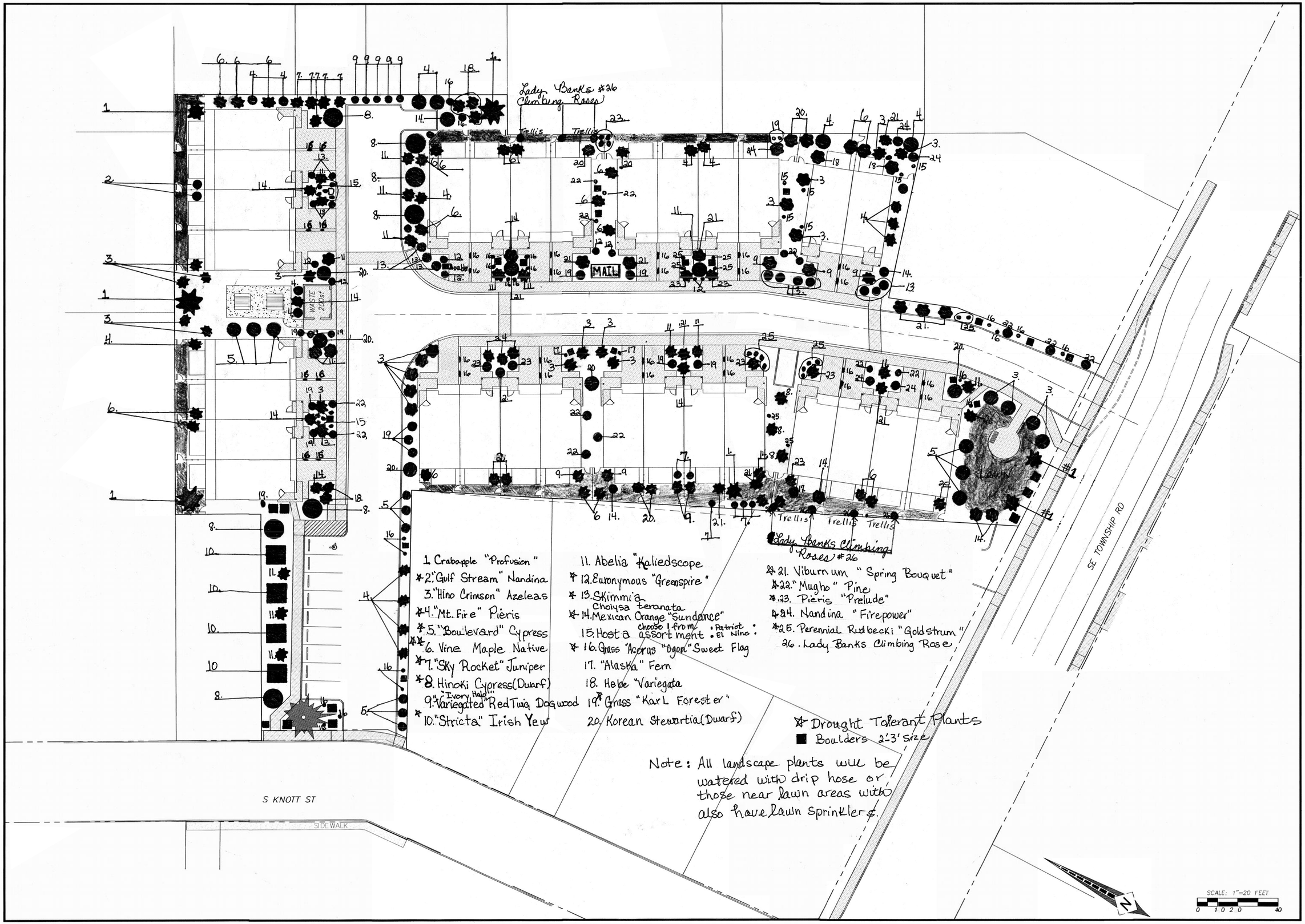
   L70(10K) – Calculated = 244,000 @ 700mA
   = 102,000@ 1050mA

WARNING: All fixtures must be installed in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

660 West Avenue O, Palmdale, CA 93551
Phone (661) 233-2000 Fax (661) 233-2001
www.usaltg.com

IX. Landscaping Plans

a. L1 Preliminary Landscape Plan
b. Plant List and Photos



REVISIONS	BY

Tievoli Commons
Jason Bristol

L1

TIEVOLI COMMONS PLANT LIST:

LEGEND	#	PLANT NAME	SIZE
1	10	Malus "Profusion"	10 Gal or 2.5 Caliper if B and B
2	6	Nandina Domestica "Gulf Stream"	5 gal
3	24	Rhododendron "Hino Crimson"	1 gal.
4	14	Pieris japonica "Mountain Fire"	5 gal.
5	12	Chamaecyparis pisifera "Boulevard"	5 gal.
6	17	Acer circumatum "Vine Maple"	10 gal or 2.5 Caliper if B and B
7	10	Juniperus Virginiana "Skyrocket"	5 gal.
8	8	Chamaecyparis obtusa "Hinoki"	5 gal. or 5' tall
9	12	Red Twig Dogwood Variegated "Ivory Halo"	2 gal
10	4	Taxus Baccata Fastigiata Irish Yew	10 gal or B and B
11	16	Abelia x grandiflora "Kaliedoscope"	1 gal.
12	10	Euronymous japonicus "Greenspire"	1 gal.
13	14	Skimmia japonica (self-fertile)	1 gal.
14	10	Choisya ternata Mexican Orange "Sundance"	2 gal.
15	7	Hosta assortment choose one for each area Patriot Francee El Nino Mouse Ears	1 gal.
16	30	Grass Dwarf Sweet Flag Ogon	4" container
17	6	Polystichum Fern "Alaska"	1 gal.
18	8	Hebe Speciosa Variegata "Hebe Variegata"	1 gal.
19	16	Reed Grass "Karl Forester"	1 gal.
20	11	Stewartia pseudocamellia tree	5 gal.
21	13	Viburnum "Spring Bouquet"	2 gal.
22	13	Mugho Pine Dwarf	2 gal.
23	8	Pieris japonica "Prelude"	2 gal.
24	9	Nandina "Firepower"	2 gal.
25	16	Rudbecki "Goldstrum"	1 gal.
26	8	Rosa "Lady Banks" yellow	3 gal.

LF STREAM NA DINA
andina domestica 'G tream'

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Garden
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'El Nino' Hosta
Hosta 'El Nino' (PP14,632)
Shade/PM shade. Ht 18 in.
Gray with white edged foliage.
New for 2006 Sport of 'Halcyon'
Size
N2

Pieris japonica
Prelude
Slow growing, densely branched
globe-shaped form 2 1/2' high and
wide. Late bloomer, profusion of erect
short stalks of pure white flower
clusters. Partial sun. r C
GARDEN CENTER