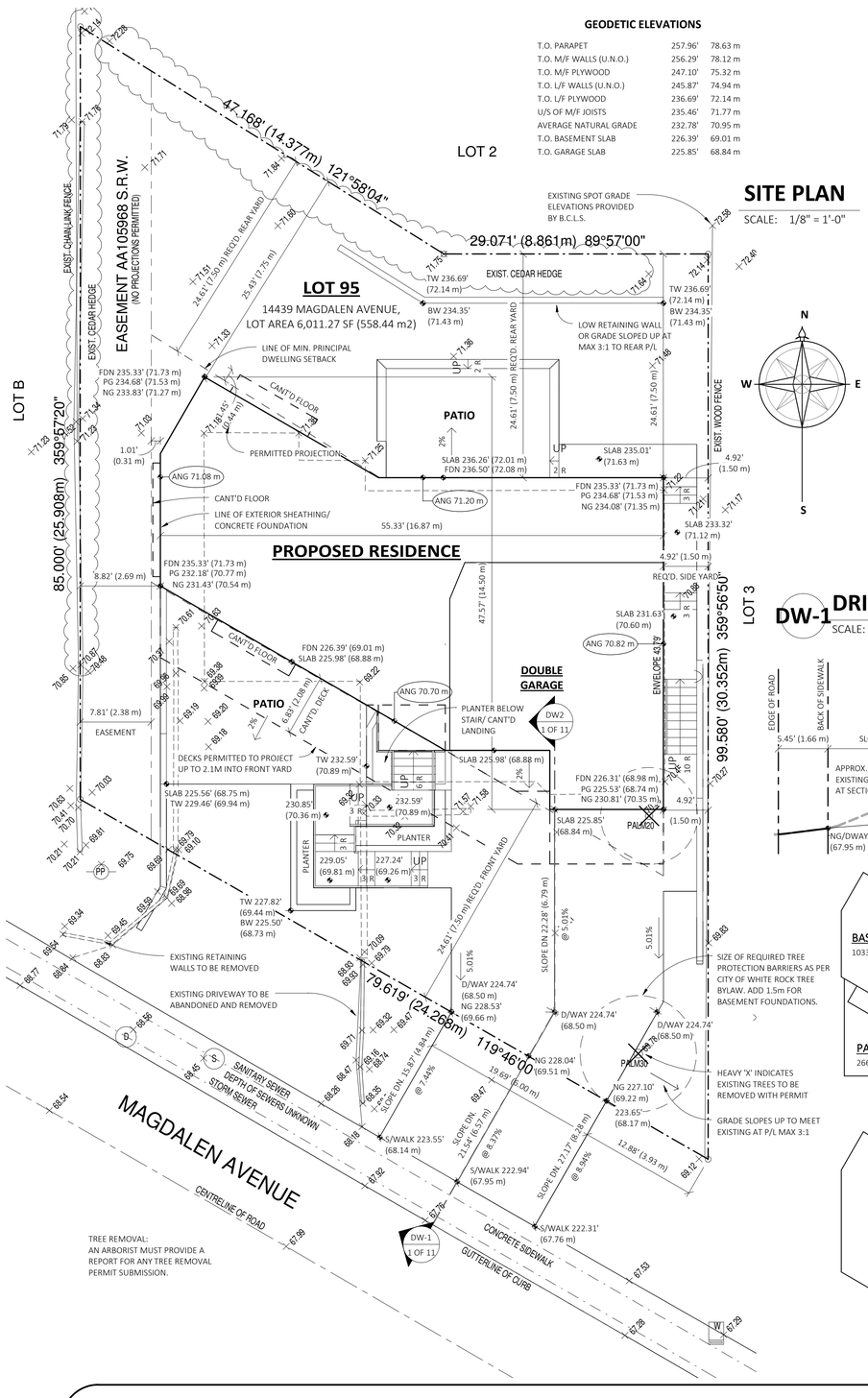
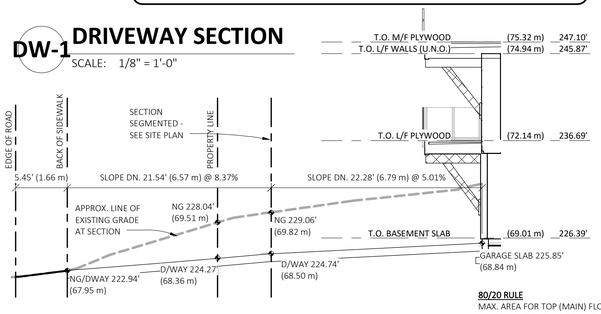


GEODETIC ELEVATIONS

T.O. PARAPET	257.96'	78.63 m
T.O. M/F WALLS (U.N.O.)	256.29'	78.12 m
T.O. M/F PLYWOOD	247.10'	75.32 m
T.O. L/F WALLS (U.N.O.)	245.87'	74.94 m
T.O. L/F PLYWOOD	236.69'	72.14 m
U/S OF M/F JOISTS	235.46'	71.77 m
AVERAGE NATURAL GRADE	232.78'	70.95 m
T.O. BASEMENT SLAB	226.39'	69.01 m
T.O. GARAGE SLAB	225.85'	68.84 m

SITE PLAN
SCALE: 1/8" = 1'-0"

DW-1 DRIVEWAY SECTION
SCALE: 1/8" = 1'-0"



PROJECT INFORMATION

CLIENT NAME	BALJINDER SANDHU
PROPERTY OWNER	BALJINDER SANDHU
SITE ADDRESS	14439 MAGDALEN AVENUE, WHITE ROCK B.C.
PROJECT TYPE	PROPOSED NEW SINGLE FAMILY DWELLING
AUTHORITY HAVING JURISDICTION	CITY OF WHITE ROCK
LEGAL DESCRIPTION	LT 95/ SEC 10/ NWD/ PL 36692/ TWP 1/ NWP36692 P.I.D. 007-373-791
TITLE SEARCH COMPLETED	YES - S.R.W. ON WEST SIDE OF LOT
ZONE	RS-1 - ZONING BYLAW 2000 2013
SUBDIVISION	INFILL LOT
DESIGN CONTROL CONSULTANT	NOT REQUIRED
BUILDER	OWNER/BUILDER

GENERAL PROJECT NOTES

- DIMENSIONS TO BE TAKEN FROM OUTSIDE FACE OF SHEATHING FOR EXT. WALLS AND CENTRE OR FACE OF STUDS FOR INT. WALLS AS SHOWN.
- ALL HEIGHT DIMENSIONS ON FLOOR PLANS ARE FROM TOP OF FLOOR PLYWOOD
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR OR BUILDER TO CHECK AND VERIFY ALL DIMENSIONS AND TO ENSURE ALL WORK CONFORMS TO ALL LOCAL BYLAWS AND REGULATIONS, AND TO THE CURRENT EDITION OF THE BRITISH BRITISH COLUMBIA BUILDING CODE.
- THE OWNER AND/OR CONTRACTOR IS TO ENSURE THAT THE LANDSCAPING MEETS THE REQUIREMENTS OF THE APPLICABLE BY-LAWS AND REGULATIONS IN EFFECT AT THE TIME OF CONSTRUCTION. IF NECESSARY, UTILIZE PLANTING BEDS AROUND THE BUILDING(S) TO ENSURE THE FINISHED LOT GRADING BLENDS INTO THE EXISTING LOT GRADING.
- BRING FOOTINGS TO UNDISTURBED, SOUND BEARING SOIL BELOW FROSTLINE (18" MIN. BELOW GRADE)
- APPLY ASPHALT EMULSION TO FOUNDATION WALLS BELOW GRADE
- FOUNDATION CONCRETE STRENGTH TO BE MIN. 20 MPa
- INTERIOR SLAB CONCRETE STRENGTH TO BE MIN. 20 MPa
- EXTERIOR SLAB CONCRETE STRENGTH TO BE MIN. 32 MPa WITH 5-8% AIR ENTRAINMENT
- LUMBER IN CONTACT WITH CONCRETE TO BE DAMPROOFED, AND ANCHORED WITH 1/2" A.B. @ 6'-0" O.C. MAX
- STRUCTURAL LUMBER TO BE #2 D.FIR-L U.N.O.
- LINTELS TO BE 2-2x10 D.FIR-L U.N.O.
- PROVIDE SOLID LAMINATED STUDDING @ BEARING POINTS
- DOUBLE JOISTS @ PARALLEL PARTITIONS (OPT. 2x10 BLOCKING @ 24" O.C.)
- BEDROOM WINDOWS MUST CONFORM TO B.C.B.C. SEC. 9.7.1.3
- DWELLING MUST MEET CURRENT B.C. VENTILATION CODE
- MIRRORED DOORS ARE NOT PERMITTED @ WALK-IN CLOSETS
- LINO OR EQUAL REQ'D ON BATHROOM FLOORS
- WATERPROOF WALLBOARD REQ'D AT TILE SURROUNDS @ TUBS AND SHOWERS
- PROVIDE A BOND-BREAKING MATERIAL BETWEEN FOUNDATION OR ROCK AND SLABS

ZONING ANALYSIS

SETBACKS

STRUCTURE	FRONT YARD	REAR YARD	INT. SIDE YARD	EXT. SIDE YARD
PRINCIPAL BUILDING	24.606' (7.5m)	24.606' (7.5m) (1)	4.921' (1.5m) (3)	12.467' (3.8m) (4)
ACCESSORY BUILDING	NOT ALLOWED	4.921' (1.5m) (2)	4.921' (1.5m) (3)	12.467' (3.8m) (4)

SPECIAL SETBACK NOTES:
(1) WHERE AN EXTERIOR SIDE SETBACK IS REQUIRED TO BE 24.606' (7.5m) THE REAR SETBACK MAY BE REDUCED TO 12.467' (3.8m).
(2) WHERE AN EXTERIOR SIDE SETBACK IS REQUIRED TO BE 24.606' (7.5m) THE REAR SETBACK MUST BE INCREASED TO 12.467' (3.8m).
(3) WHERE AN INTERIOR SIDE LOT LINE ABUTS A LANE THE REQUIRED SIDE YARD SETBACK MUST BE INCREASED TO 7.874' (2.4m).
(4) WHERE A REAR LOT LINE ABUTS THE INTERIOR SIDE LOT LINE OF AN ADJACENT RESIDENTIAL LOT THE EXTERIOR SIDE SETBACK MUST BE INCREASED TO 24.606' (7.5m).
- THERE IS NO MINIMUM SEPARATION BETWEEN BUILDINGS ON THE SAME LOT.

PERMITTED PROJECTIONS	FRONT YARD	REAR YARD	INT. SIDE YARD	EXT. SIDE YARD
ARCH. FEATURES AND CORNICES	1.0' (0.30m)	1.0' (0.30m)	1.0' (0.30m)	1.0' (0.30m)
CLADDING AND RAINSCREEN	0.375' (0.115m)	0.375' (0.115m)	0.375' (0.115m)	0.375' (0.115m)
BAY, BOW & BOX WINDOWS (1)	1.97' (0.60m)	1.97' (0.60m)	NOT PERMITTED	1.97' (0.60m)
FRONT PORCH ROOF (2)	3.94' (1.20m)	NOT PERMITTED	NOT PERMITTED	3.94' (1.20m)
BALC., DECKS, PATIOS, STEPS (3)	6.89' (2.10m)	6.89' (2.10m)	NOT PERMITTED	4.92' (1.50m)
EAVES, GUTTERS, SILLS, SHADES (4)	3.94' (1.20m)	3.94' (1.20m)	1.97' (0.60m)	3.94' (1.20m)
CHIMNEYS AND FIREPLACES (5)	1.97' (0.60m)	1.97' (0.60m)	NOT PERMITTED	1.97' (0.60m)

PERMITTED PROJECTION NOTES:
(1) BAY, BOW AND BOX WINDOWS AND CANTILEVERS MAY PROJECT A MAXIMUM OF 0.6M (2FT) INTO A FRONT, REAR OR EXTERIOR SIDE YARD SETBACK AREA (BUT NOT AN INTERIOR SIDE YARD SETBACK AREA) PROVIDED THAT SUCH PROJECTION SHALL ONLY APPLY TO THE PROJECTED FEATURE, SHALL NOT COMPRISE MORE THAN 3.0M (9.54FT) OF LINEAR DISTANCE OF ANY WALL, AND PROVIDED THAT THE PROJECTED FEATURE IS LOCATED AT LEAST 2.44M (8.0FT) FROM THE FRONT, REAR OR EXTERIOR SIDE LOT LINE
- BAY WINDOWS MAY CONTAIN A CANTILEVERED FLOOR (INCLUDED IN F.A.R.) BUT NO FOUNDATION.
(2) STRUCTURES TO PROVIDE WEATHER PROTECTION OVER THE MAIN PEDESTRIAN ENTRANCE MAY PROJECT A MAXIMUM OF 1.2m (4.0') INTO A REQUIRED FRONT OR EXTERIOR SIDE YARD PROVIDED IT MUST BE AT LEAST 2.44m (8.0') FROM A FRONT OR EXTERIOR SIDE LOT LINE. THIS IS FOR CANTILEVERED OR WALL HUNG ELEMENTS ONLY, NOT INCLUDING POSTS.
(3) BALCONIES, DECKS/ELEVATED PATIOS, OR STEPS MAY PROJECT BEYOND THE FACE OF THE PRINCIPAL BUILDING TO A MAXIMUM OF 1.5m INTO AN EXTERIOR SIDE YARD SETBACK, AND/OR 2.1m INTO A FRONT OR REAR YARD SETBACK, WHERE THE SETBACK BEING ENCROACHED INTO IS A MINIMUM OF 5.65m. ANY OF THESE ELEMENTS LOCATED LESS THAN 24" ABOVE FINISHED GRADE CAN BE LOCATED ANYWHERE ON THE PROPERTY.
(4) EAVES AND GUTTERS, CORNICES, SILLS AND SUN SHADES MAY PROJECT A MAXIMUM OF 0.6m (2FT) INTO A REQUIRED INTERIOR SIDE YARD SETBACK, AND 1.2m (4FT) INTO A REQUIRED FRONT, REAR OR EXTERIOR SIDE YARD SETBACK, PROVIDED THAT WHERE AN EXTERIOR SIDE YARD SETBACK REQUIRED IS LESS THAN 3.0m (9.84FT), THE MAXIMUM PROJECTION PERMITTED IS 0.6m (2FT).

ISSUED DRAWINGS

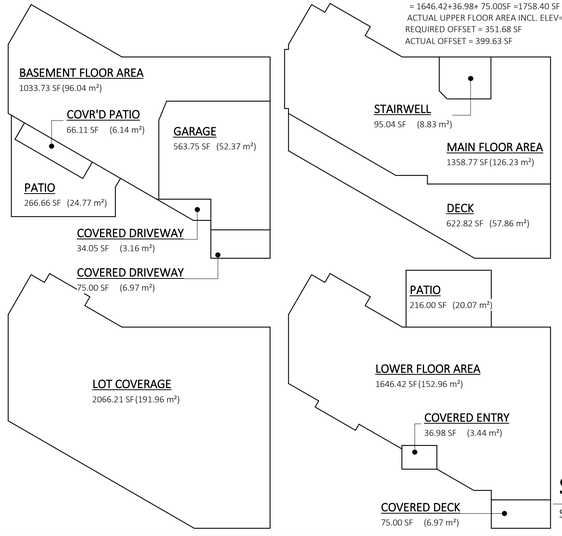
DATE	DESCRIPTION	INITIALS
JULY-07-2017	DRAFT W.D.	D.B.W.
JULY-07-2017	PLAN CHECK	D.B.W.
AUG-03-2017	REVISED FOR STRUCTURAL COORDINATION	D.B.W.

ENERGY EFFICIENCY REQUIREMENTS

THIS HOME IS DESIGNED TO COMPLY WITH ENERGY EFFICIENCY REQUIREMENTS AND VALUES FOR CLIMATE ZONE 4 - LOWER MAINLAND AND SOUTHERN VANCOUVER ISLAND WITHOUT H.R.V. AND IS DESIGNED UNDER THE PRESCRIPTIVE PATH OF BCBC 2012 SECTION 9.36

TYPICAL ENERGY EFFICIENCY NOTES:
- VENTILATION AND DUCTING MUST BE PROVIDED AS PER B.C.B.C. 2012 SECTION 9.32
- AN AIR BARRIER MUST TO BE INSTALLED AS PER B.C.B.C. 2012 SECTION 9.36
- ALL INSULATION TO BE INSTALLED AS PER B.C.B.C. 2012 SECTION 9.36
- ALL GARAGE DOORS: MINIMUM NOMINAL R.S.I. VALUE OF 1.1
- ALL ACCESS HATCHES TO UNCONDITIONED SPACES: MAXIMUM U VALUE OF 2.6
- ALL WINDOWS AND DOORS: MAX U VALUE OF 1.8 EXCEPT FOR 3 ENTRY UNITS
- ALL SKYLIGHTS: MAXIMUM U VALUE OF 2.9

80/20 RULE
MAX. AREA FOR TOP (MAIN) FLOOR = 80% OF LOWER FLOOR AREA INCL. COVR'D ENTRY & DECKS
= 1646.42+36.98+ 75.00SF =1758.40 SF x(0.8) = 1406.72 SF
ACTUAL UPPER FLOOR AREA INCL. ELEV= 1358.77 SF
REQUIRED OFFSET = 351.68 SF
ACTUAL OFFSET = 399.63 SF



SCHEMATIC AREA PLANS
SCALE: 1/16" = 1'-0"

FLOOR AREA SUMMARY

MAIN FLOOR AREA	1358.77 SF	126.23 m²
LOWER FLOOR AREA	1646.42 SF	152.96 m²
TOTAL ABOVE GRADE FIN. FLR AREA:	3005.19 SF	279.19 m²
GARAGE	563.75 SF	52.37 m²
BASEMENT FLOOR AREA	1033.73 SF	96.04 m²
EXTERIOR AREAS		
DECK	622.82 SF	57.86 m²
PATIO	216.00 SF	20.07 m²
COVERED ENTRY	36.98 SF	3.44 m²
COVERED DECK	75.00 SF	6.97 m²
PATIO	266.66 SF	24.77 m²
COVR'D PATIO	66.11 SF	6.14 m²
TOTAL EXTERIORS:	1283.56 SF	119.25 m²
LOT COVERAGE	2066.21 SF	191.96 m²

DRAWING INDEX

THESE PLANS CONFORM TO THE B.C. BUILDING CODE, 2012 ED.

ZONING ANALYSIS (CONTINUED)

LOT AREA	6,011.27 SF	558.44 m2

FLOOR AREA RATIO — INCLUDED: FLOOR AREA, CANT'D FLOORS, ELEVATOR @ U/FLOOR; NOT INCLUDED: GARAGE/CARPORT, BAY WINDOWS, DECKS OR PORCHES, INT. STAIRS @ U/FLOOR, BASEMENTS, CRAWLSPACES MAX 5'11

ALLOWABLE PERCENT	50%	
ALLOWABLE RES. GRS. FLR. AREA	3,005.59 SF	279.22 m2
PROPOSED PERCENT	49.99%	
PROPOSED RES. GRS. FLR. AREA	3,005.19 SF	279.19 m2

SPECIAL F.A.R. NOTES:
- A BASEMENT IS ANY FLOOR THAT IS AT LEAST 2.0' BELOW THE AVERAGE NATURAL GRADE. BASEMENT AREA PROJECTING BEYOND THE MAIN FLOOR PERIMETER IS NOT INCLUDED IN F.A.R.
- IN THE RS-1 ZONE ONLY ONE BASEMENT IS PERMITTED.
- MAXIMUM PERMITTED FLOOR AREA OF A SECOND STOREY FOR A PRINCIPAL BUILDING SHALL NOT EXCEED 80% OF THE FLOOR AREA OF THE FIRST STOREY INCLUDING ATTACHED GARAGE AND THAT PORTION OF ANY COVERED PORCH, DECK OR CARPORT. THE REDUCED FLOOR AREA OF THE SECOND STOREY SHALL BE ACCOMPLISHED BY AN OFFSET AT THE SECOND STOREY LEVEL FROM THE WALL AT THE MAIN FLOOR LEVEL FROM EITHER THE FRONT OR SIDE WALLS AT THE MAIN FLOOR LEVEL, OR A COMBINATION THEREOF.

LOT COVERAGE — INCLUDED: FLOOR AREA, CANT'D FLOORS, GARAGE/CARPORT, ACCESSORY BUILDING, COV. DECKS/PORCHES, CANT'D FIREPLACES; NOT INCLUDED: BOXED WINDOWS, DECK/PORCH STAIRS, DECKS>24" W/O ROOF, PATIOS>24" W/O ROOF, STEPS ON GRADE

FOR LOTS 7,491 SF OR LESS	45%	
FOR LOTS GREATER THAN 7,491 SF	40%	
ALLOWABLE AREA	2,705.03 SF	251.29 m2
PROPOSED PERCENT	34.37%	
PROPOSED AREA	2,066.01 SF	191.96 m2

SPECIAL LOT COVERAGE NOTES:
- CANTILEVERED ROOF OVERHANGS (EAVES) ARE NOT INCLUDED IN LOT COVERAGE. LOT COVERAGE IS TO SUPPORT POSTS ONLY.

BUILDING HEIGHT

PRINCIPLE BLDG ALLOWED *	25.26' (7.7m)	DRIVEWAY	
ACCESSORY BLDG ALLOWED *	13.12' (4.0m)	ALLOWABLE SLOPE	15.00%
PRINCIPLE BLDG PROPOSED	25.18' (7.67m)	PROPOSED SLOPE	5.01/8.37% @ C/L - VARIES
ACCESSORY BLDG PROPOSED	N/A	MAX WIDTH @ >	19.68' (6.0m)

BUILDING HEIGHT NOTES:
* HEIGHT IS TO THE HIGHEST POINT OF THE BUILDING FROM THE AV. NATURAL GRADE.

SPECIAL BUILDING HEIGHT NOTES:
- AVERAGE NATURAL GRADE IS THE AVERAGE OF THE MIDPOINT OF ALL FOUR WALLS OF A BUILDING AT THE NATURAL GRADE AS DETERMINED BY A SURVEYOR.
- CHIMNEYS AND B-VENT CAPS ARE ALLOWED TO PROJECT 2'-0" ABOVE MAX BLDG. HEIGHT.

DRIVEWAY REQUIREMENTS:
- BOULEVARD CROSSING MUST SLOPE UP FROM ROAD TO P/L MIN. 2%.
- LOT MAY BE ACCESSED FROM BOTH LANE OR FRONTING ROAD.
- PERMIT DRAWINGS MUST INCLUDE A SECTION THROUGH THE DRIVEWAY.

PARKING REQUIREMENTS:
- EACH SINGLE FAMILY DWELLING REQUIRES TWO OFF STREET PARKING SPACES.
- EACH SECONDARY SUITE REQUIRES ONE OFF STREET PARKING SPACE.
- EACH OFF STREET PARKING SPACE MUST BE MINIMUM 8.85' (2.7m) x 19.0' (5.8m).

SITE SERVICES:
- PERIMETER DRAINAGE BELOW THE PROVIDED STORM SERVICE CAN BE PUMPED W/ COVENANT.
- RAIN WATER LEADER SYSTEM TO BE SEPARATE AND CAN BE GRAVITY FED TO STORM SERVICE.
- IF SANITARY CAN BE GRAVITY FED @ 2% TO HEIGHT AT > THEN IT WON'T HAVE TO BE PUMPED.

SECONDARY SUITES:
- THE MAXIMUM FLOOR AREA OF A SECONDARY SUITE IS 968 SF (90 Sm) AND MAY ONLY CONTAIN NOT MORE THAN TWO BEDROOMS.
- ONLY ONE SECONDARY SUITE IS PERMITTED PER RESIDENTIAL LOT INCLUDING COACH HOUSE.
- THE ADDITIONAL OFF STREET PARKING SPACE CANNOT BLOCK ACCESS TO THE TWO REQUIRED OFF STREET PARKING SPACES FOR THE PRINCIPAL DWELLING.
- A SEPARATE HINGED ACCESS DOOR MUST BE PROVIDED, SLIDING DOORS ARE NOT ALLOWED.
- SUITE MUST BE REGISTERED THROUGH THE CITY'S REGISTERED SUITE PROGRAM.

COACH HOUSE:
- A COACH HOUSE IS ONLY PERMITTED WHERE THERE IS SECONDARY ACCESS FROM A LANE.
- THE MAXIMUM FLOOR AREA OF A SECONDARY SUITE IS 968 SF (90 Sm) (EXCLUSIVE OF VESTIBULE) AND MAY ONLY CONTAIN NOT MORE THAN TWO BEDROOMS.
- ONLY ONE SECONDARY SUITE IS PERMITTED PER RESIDENTIAL LOT INCLUDING COACH HOUSE.
- THE ADDITIONAL OFF STREET PARKING SPACE CANNOT BLOCK ACCESS TO THE TWO REQUIRED OFF STREET PARKING SPACES FOR THE PRINCIPAL DWELLING.
- A COACH HOUSE IS ONLY PERMITTED ABOVE A GARAGE OR CARPORT BUT IS ALLOWED TO HAVE A FOYER OR VESTIBULE AT THE MAIN FLOOR OR GARAGE LEVEL.
- SUITE MUST BE REGISTERED THROUGH THE CITY'S REGISTERED SUITE PROGRAM.

SPRINKLERS:
- ALL HOMES IN WHITE ROCK REQUIRE SPRINKLERS.
- AREA OF UNPROTECTED OPENINGS DOUBLES WITH USE OF SPRINKLERS.

TREE PROTECTION:
- ALL TREES GREATER THAN 30cm ARE PROTECTED, TREES TO BE REMOVED REQUIRE A PERMIT.
- TREES ON PUBLIC PROPERTY (BOULEVARDS) ARE ALWAYS PROTECTED AND MAY ONLY BE REMOVED WITH A TREE CUTTING PERMIT.
- TREES TO REMAIN REQUIRE TREE PROTECTION FENCING AND ARE LIMITED IN THE AMOUNT THE LIMBS OR ROOTS ARE PRUNED.

RENOVATION/ADDITION UPGRADES:
- IF 25% OF THE CURRENT FINISHED LIVING AREA IS ADDED AS AN ADDITION THEN THE ENTIRE HOME MUST BE RETROFITTED WITH SPRINKLERS.
- IF THE VALUE OF CONSTRUCTION IS GREATER THAN 50% OF THE ASSED VALUE OF THE EXISTING HOUSE THEN THE ENTIRE HOUSE MUST BE BROUGHT UP TO CURRENT CODE STANDARDS.

GEOTECHNICAL ASSESSMENT:
- IF THE LOT FALLS WITHIN THE GEOTECHNICAL LANDSLIDE ASSESSMENT ZONE AS INDICATED ON THE MAP IN THE BUILDING BYLAW THEN A GEOTECHNICAL ASSESSMENT MUST BE PROVIDED WITH ALL PERMIT APPLICATIONS.
- THIS LOT IS WITHIN THE GEOTECHNICAL ASSESSMENT ZONE.

IMPORTANT NOTE:
THIS SET OF DRAWINGS WAS CAREFULLY PRODUCED AND CHECKED BY RAYMOND S. BONTER, DESIGNER LTD. AND IN WHOSE OPINION WHEN RELEASED MET THE RESTRICTIONS AND REQUIREMENTS OF THE CURRENT EDITION OF THE BC BUILDING CODE. HOWEVER DUE TO OUR OVERSIGHT OR DUE TO OTHERS AUGMENTING OR CHANGING WITH STRUCTURAL INFORMATION SHOULD ANY LINTEL, BEAM, FOOTING, OR ANY OTHER STRUCTURAL ASPECT(S) OF THIS SET OF DRAWINGS BE INCORRECTLY POSITIONED, SIZED, SPECIFIED, OR BEYOND THE SCOPE OF THE BUILDING CODE HAVING JURISDICTION, THE COMPLETE SET OF DRAWINGS MUST BE CHECKED, SIGNED, DATED AND SEALED BY A QUALIFIED STRUCTURAL ENGINEER.

PROPOSED SANDHU RESIDENCE

14439 MAGDALEN AVENUE, WHITE ROCK BC

SITE PLAN, ZONING ANALYSIS, SCHEMATICS

THESE DRAWINGS SHOULD BE PRINTED ON 34" x 22" PAPER TO BE AT SCALE INDICATED. ON REDUCED SIZE THEY WILL NOT BE TO SCALE.

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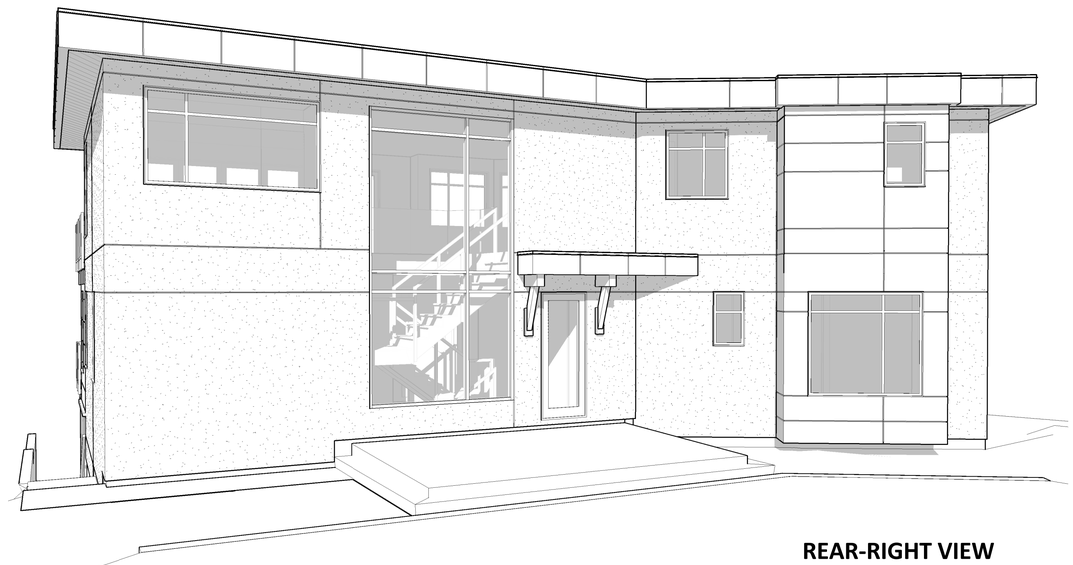
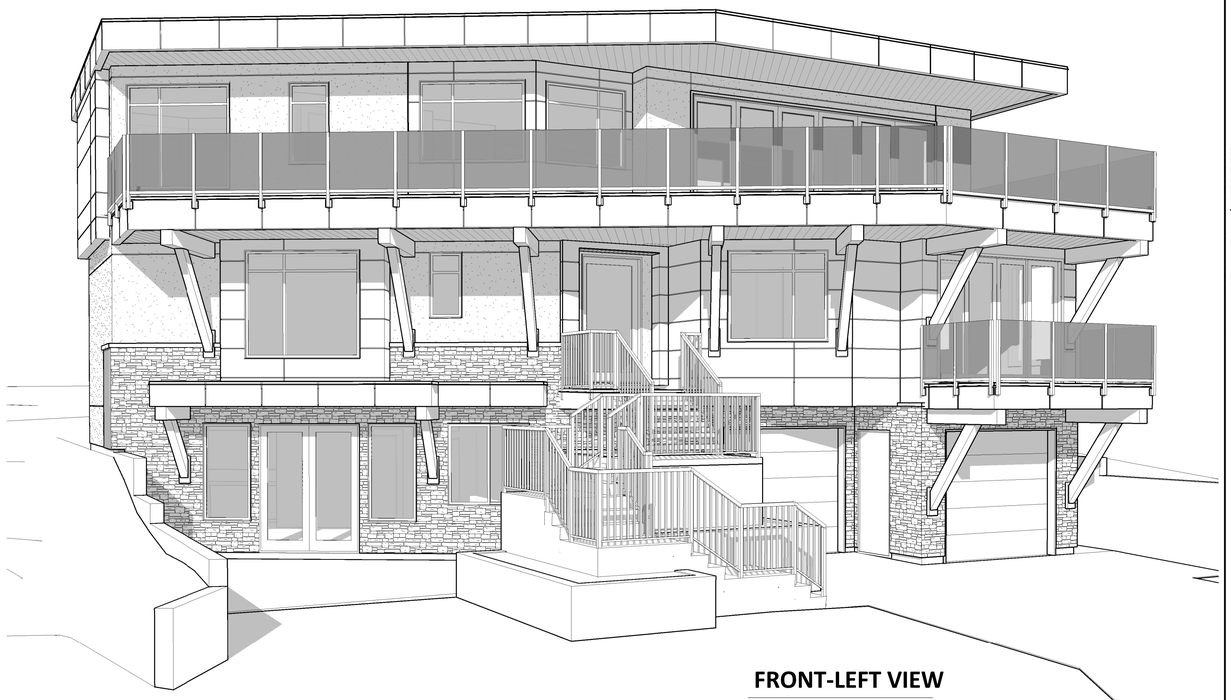
SCALE: As indicated

SHEET: 1 OF 11

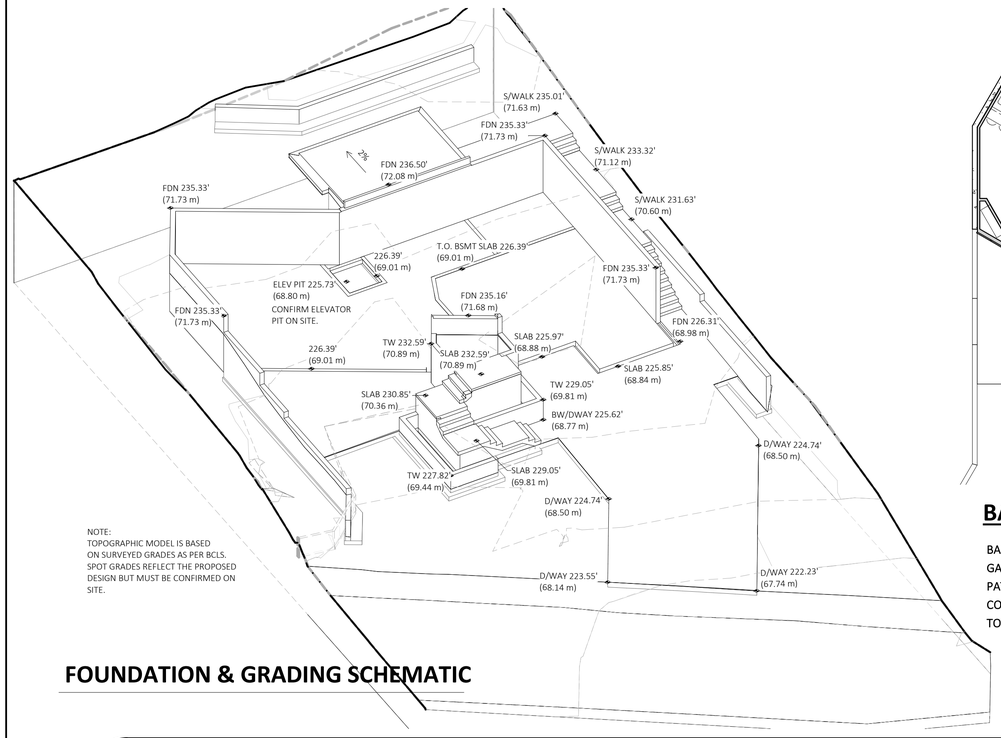
DESIGN BY RAYMOND S. BONTER DESIGNER LTD.
#88 - 1959 152nd STREET
SOUTH SURREY, B.C. V4A 9E3
PHONE: 604-535-3322 FAX 1-866-454-4271
EMAIL: info@raymondbonterdesigner.ca



REAR-RIGHT VIEW

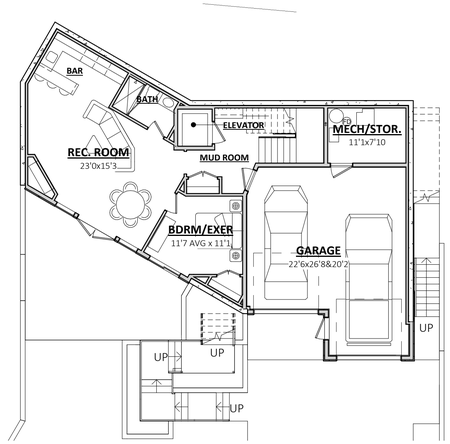


FRONT-LEFT VIEW



NOTE:
TOPOGRAPHIC MODEL IS BASED
ON SURVEYED GRADES AS PER BCLS.
SPOT GRADES REFLECT THE PROPOSED
DESIGN BUT MUST BE CONFIRMED ON
SITE.

FOUNDATION & GRADING SCHEMATIC

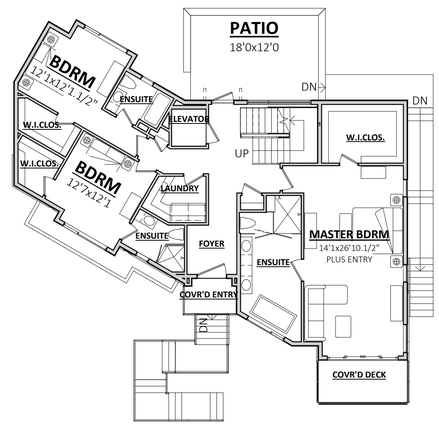


BASEMENT FLOOR

BASEMENT FLOOR AREA	1033.73 SF	96.04 m²
GARAGE	563.75 SF	52.37 m²
PATIO	266.66 SF	24.77 m²
COVR'D PATIO	66.11 SF	6.14 m²
TOTAL BASEMENT AREA	1930.25 SF	179.33 m²

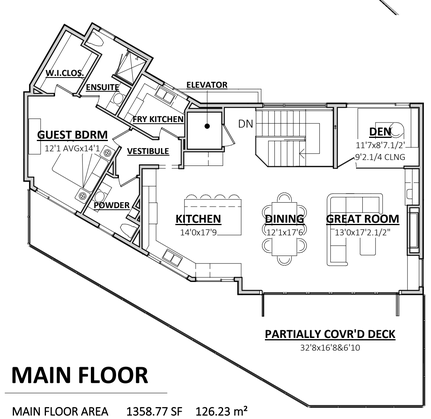
GRAPHIC FLOOR PLANS

SCALE: N.T.S.



LOWER FLOOR

COVERED DECK	75.00 SF	6.97 m²
LOWER FLOOR AREA	1646.42 SF	152.96 m²
PATIO	216.00 SF	20.07 m²
COVERED ENTRY	36.98 SF	3.44 m²
	1974.40 SF	183.43 m²



MAIN FLOOR

MAIN FLOOR AREA	1358.77 SF	126.23 m²
DECK	622.82 SF	57.86 m²
TOTAL AREA:	1981.59 SF	184.10 m²

IMPORTANT NOTE:
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PROPOSED SANDHU RESIDENCE

14439 MAGDALEN AVENUE, WHITE ROCK BC

THESE PLANS CONFORM TO THE B.C. BUILDING CODE, 2012 ED.

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EXTERIOR PERSPECTIVES, GRAPHIC PLANS

2017-08-03 1:53:07 PM
SCALE: 3/32" = 1'-0"

SHEET: 2 OF 11

#88 - 1959 152nd STREET
SOUTH SURREY, B.C. V4A 9E3
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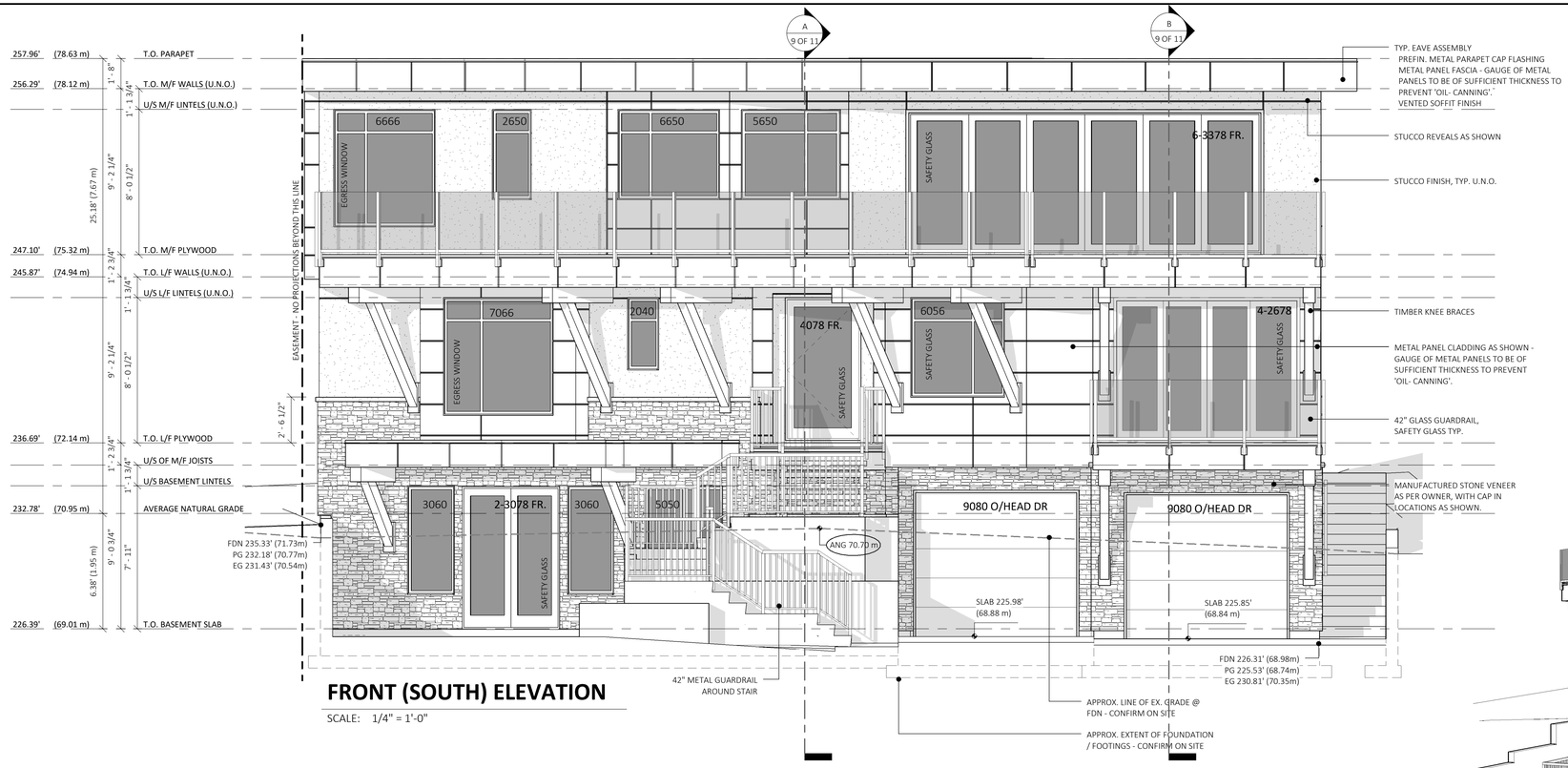
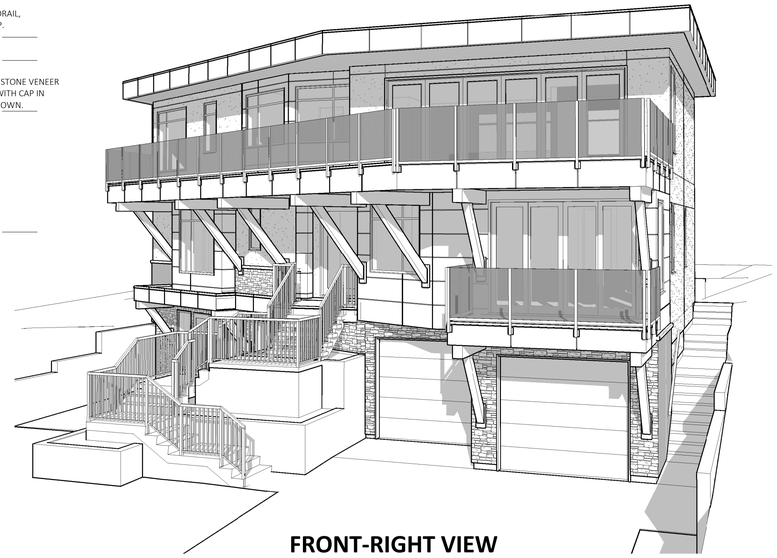
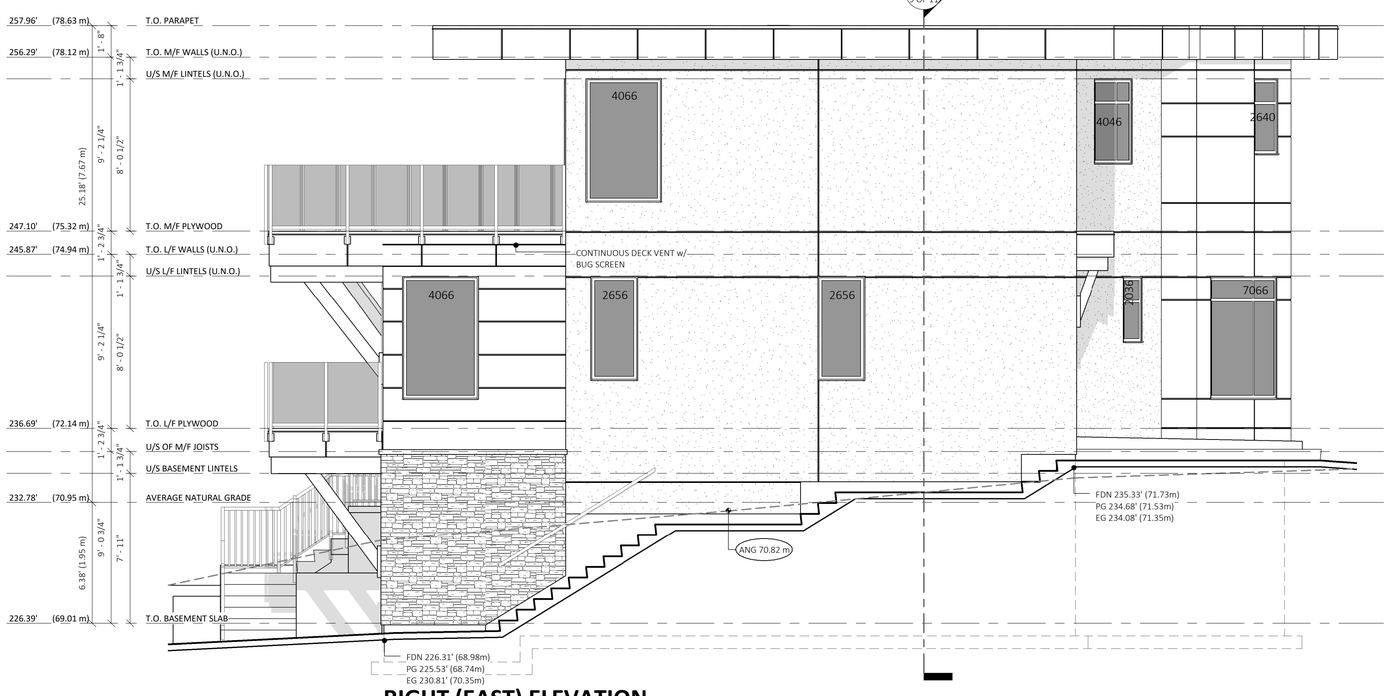


FRONT (SOUTH) ELEVATION

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



FRONT-RIGHT VIEW

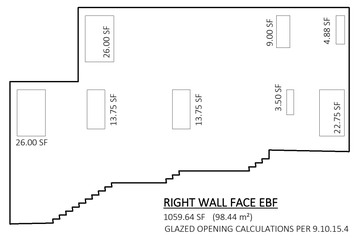


RIGHT (EAST) ELEVATION

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

RIGHT (EAST) WALL FACE

SCALE: 3/32" = 1'-0"



RIGHT WALL FACE EBF

1059.64 SF (98.44 m²)
GLAZED OPENING CALCULATIONS PER 9.10.15.4
TOTAL GLAZING: 119.63 SF (11.11 m²)
LIMITING DISTANCE: 1.50m
PERMITTED UPO: 14% (DBL'D FOR SPRINKLERS)
ACTUAL UPO: 11.29%

TYPICAL ELEVATION CONSTRUCTION NOTES

- WALL CLADDING TO BE ON RAIN SCREEN (MIN. 10mm STRAPPING) U.N.O.
- CAULK JOINTS BETWEEN DISSIMILAR MATERIALS
- FLASH ALL UNPROTECTED EXTERIOR OPENINGS
- FLASHINGS TO BE MIN. 6% SLOPE AND HAVE END DAMS
- FLASH ALL HORIZONTAL INTERSECTIONS OF DIFFERING WALL FINISHES
- ALL WINDOW OPENER'S TO BE CONFIRMED BY THE OWNER
- DOORS TO CONFORM TO SECTION 9.6 OF THE BUILDING CODE
- WINDOWS TO CONFORM TO SECTION 9.7 OF THE BUILDING CODE
- SEE ROOF PLAN FOR ROOF OVERHANGS
- ALL HANDRAILS & GUARDS TO B.C.B.C. 2012 SEC. 9.8.7 AND 9.8.8.
- ALL SOFFITS WITHIN 1.2m OF THE PROPERTY LINE TO BE SOLID, UNVENTED SOFFIT PER B.C.B.C. 9.10.15.5.10 (2012).
- ALL EXTERIOR WINDOWS AND DOORS TO COMPLY WITH NORTH AMERICAN FENESTRATION STANDARDS AS PER B.C.B.C. 2012 SECTION 9.7.4.2

IMPORTANT NOTE:
THIS SET OF DRAWINGS WAS CAREFULLY PRODUCED AND CHECKED BY RAYMOND S. BONTER, DESIGNER LTD. AND IN WHOSE OPINION WHEN RELEASED MET THE RESTRICTIONS AND REQUIREMENTS OF THE CURRENT EDITION OF THE BC BUILDING CODE. HOWEVER DUE TO OUR OVERSIGHT OR DUE TO OTHERS AUGMENTING OR CHANGING WITH STRUCTURAL INFORMATION SHOULD ANY LINTEL, BEAM, FOOTING, OR ANY OTHER STRUCTURAL ASPECT(S) OF THIS SET OF DRAWINGS BE INCORRECTLY POSITIONED, SIZED, SPECIFIED, OR BEYOND THE SCOPE OF THE BUILDING CODE HAVING JURISDICTION, THE COMPLETE SET OF DRAWINGS MUST BE CHECKED, SIGNED, DATED AND SEALED BY A QUALIFIED STRUCTURAL ENGINEER.

PLAN #-2-3005.19R-55.33x47.57-B

THESE PLANS CONFORM TO THE B.C. BUILDING CODE, 2012 ED.

EXTERIOR ELEVATIONS - FRONT & RIGHT

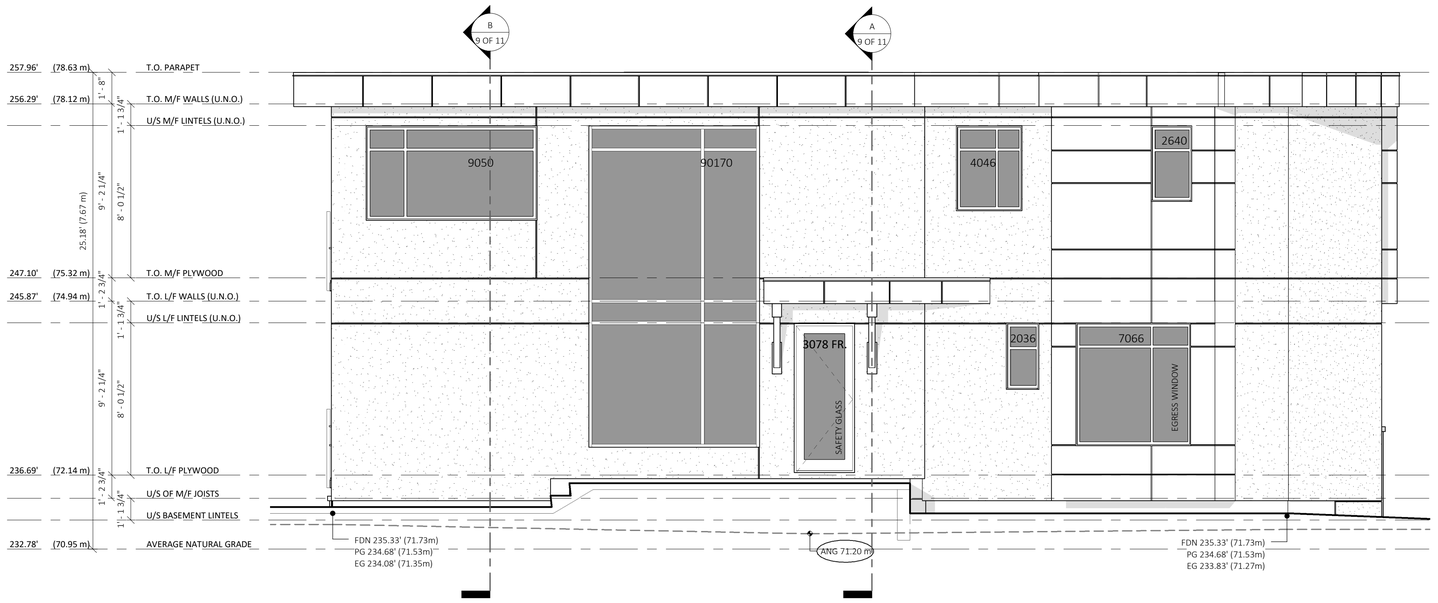
14439 MAGDALEN AVENUE, WHITE ROCK BC

THESE DRAWINGS SHOULD BE PRINTED ON 34" x 22" PAPER TO BE AT SCALE INDICATED. ON REDUCED SIZE THEY WILL NOT BE TO SCALE.

2017-08-03 1:53:16 PM
SCALE: As indicated

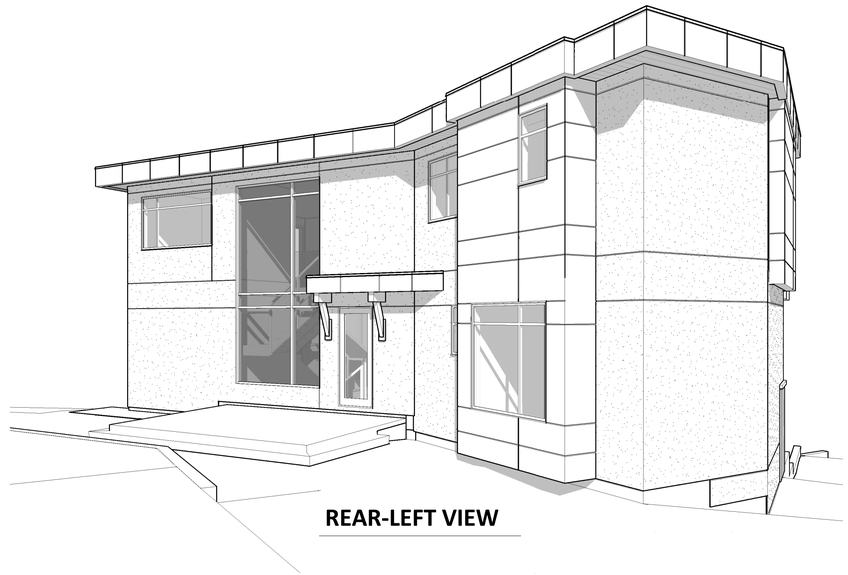
SHEET: 3 OF 11

DESIGN BY RAYMOND S. BONTER DESIGNER LTD.
#88 - 1959 152nd STREET
SOUTH SURREY, B.C. V4A 9E3
PHONE: 604-535-3322 FAX 1-866-454-4271
EMAIL: info@raymondbonterdesigner.ca

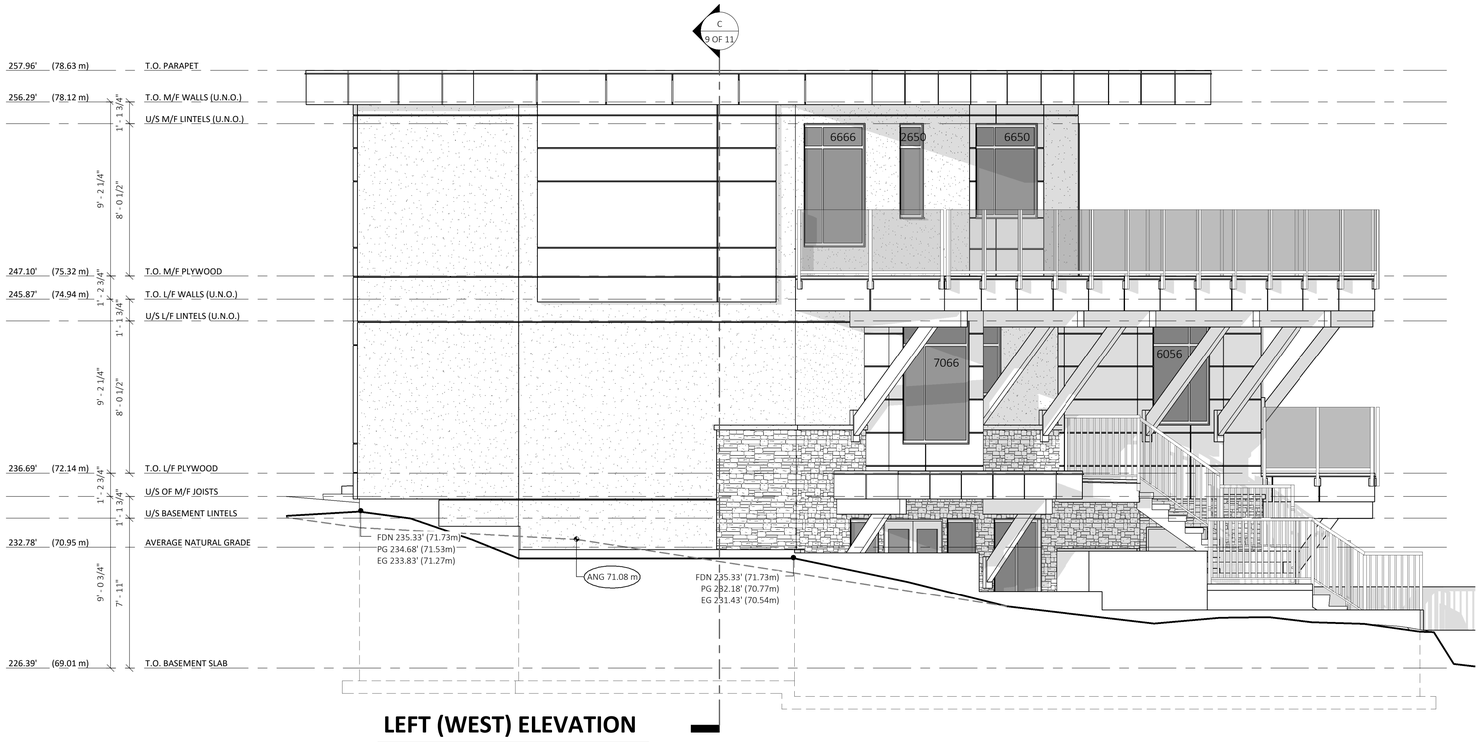


REAR (NORTH) ELEVATION

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



REAR-LEFT VIEW

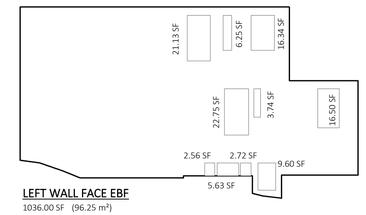


LEFT (WEST) ELEVATION

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

LEFT (WEST) WALL FACE

SCALE: 3/32" = 1'-0"



LEFT WALL FACE EBF

1036.00 SF (96.25 m²)

GLAZED OPENING CALCULATIONS PER 9.10.15.4

TOTAL GLAZING:	107.21 SF	(9.96 m²)
LIMITING DISTANCE:	2.91m	
PERMITTED UPO:	19.64%	
ACTUAL UPO:	10.35%	

TYPICAL ELEVATION CONSTRUCTION NOTES

- WALL CLADDING TO BE ON RAIN SCREEN (MIN. 10mm STRAPPING) U.N.O.
- CAULK JOINTS BETWEEN DISSIMILAR MATERIALS
- FLASH ALL UNPROTECTED EXTERIOR OPENINGS
- FLASHINGS TO BE MIN. 6% SLOPE AND HAVE END DAMS
- FLASH ALL HORIZONTAL INTERSECTIONS OF DIFFERING WALL FINISHES
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PLAN #-2-3005.19R-55.33x47.57-B

THESE PLANS CONFORM TO THE B.C. BUILDING CODE, 2012 ED.

EXTERIOR ELEVATIONS - REAR & LEFT

14439 MAGDALEN AVENUE, WHITE ROCK BC

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2017-08-03 1:53:26 PM

SCALE: As indicated

SHEET: 4 OF 11

DESIGN BY RAYMOND S. BONTER DESIGNER LTD.
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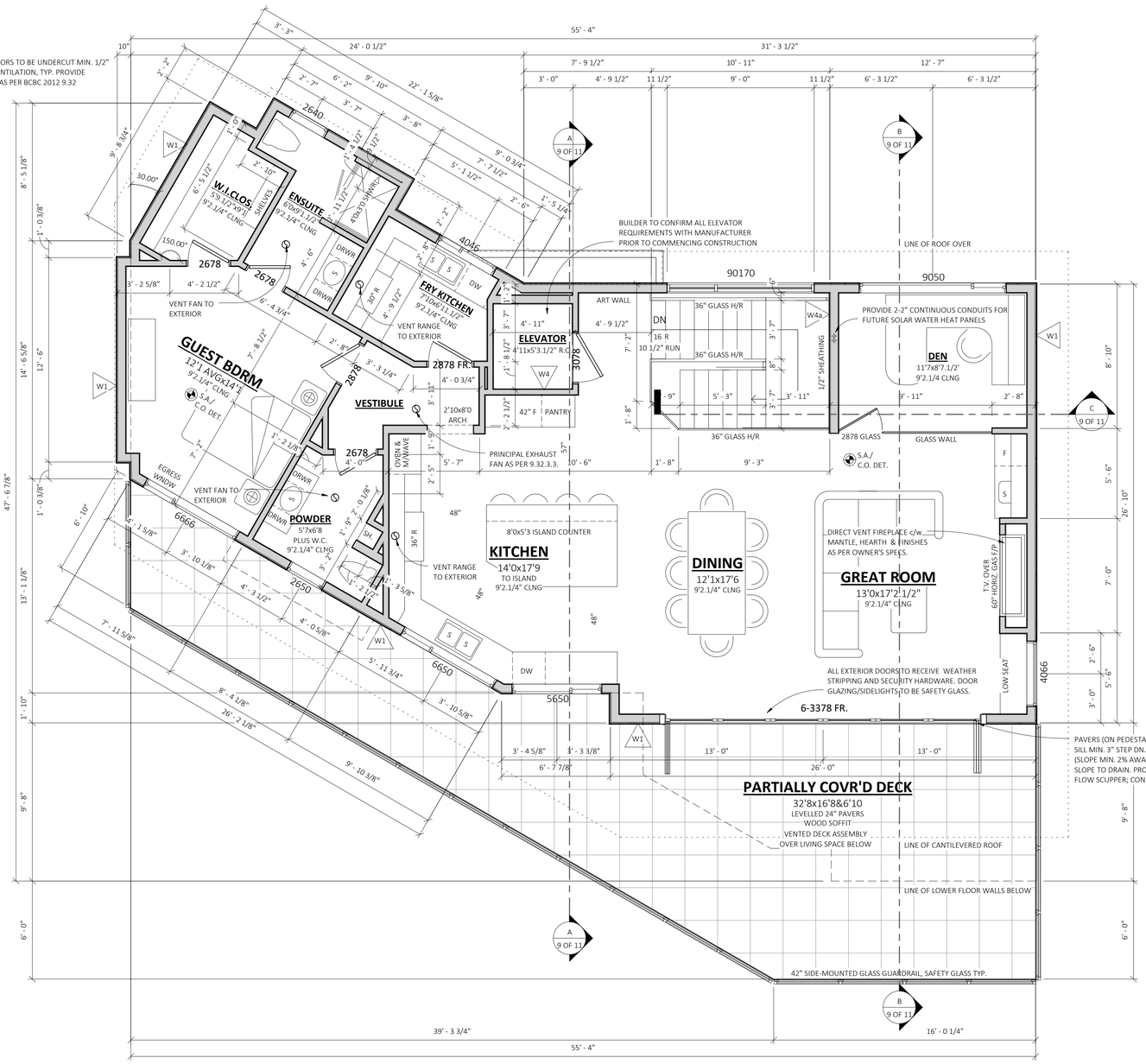
PHONE: 604-535-3322 FAX 1-866-454-4271
EMAIL: info@raymondbonterdesigner.ca

NOTE:
ALL WATERPROOFING/VENTING DETAILS TO BE CONFIRMED BY A BUILDING ENVELOPE CONSULTANT AS REQUIRED BY THE CITY OF WHITE ROCK.

BEDROOM DOORS TO BE UNDERCUT MIN. 1/2" FOR CROSS VENTILATION, TYP. PROVIDE VENTILATION AS PER BCBC 2012 9.32



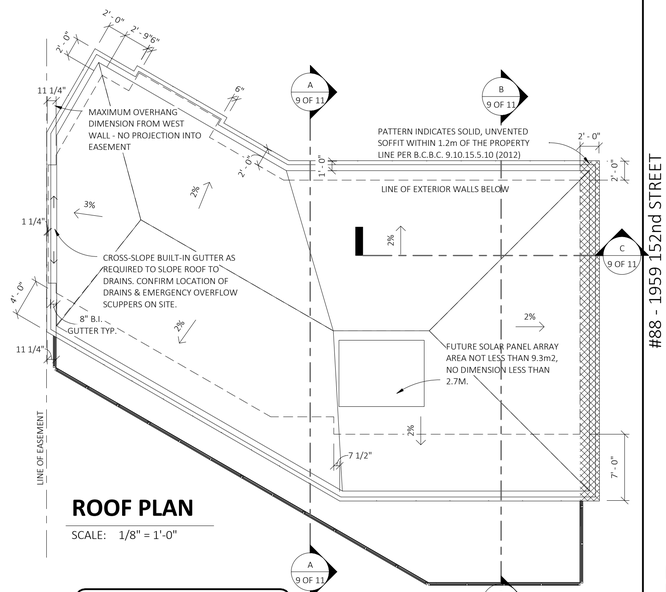
MAIN FLOOR PLAN

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

MAIN FLOOR AREA	1358.77 SF	126.23 m²
DECK	622.82 SF	57.86 m²
TOTAL AREA:	1981.59 SF	184.10 m²

WALL ASSEMBLIES

TYPE	DESCRIPTION
W1	TYP EXTERIOR WALLS - ASSEMBLY A.9.36.2.6.A-3(a) CLADDING MTRL. AS PER ELEVATIONS RAIN SCREEN - MIN. 10mm STRAPPING U.N.O. BUILDING WRAP 1/2" PLYWOOD SHEATHING 2x6 WOOD STUDS @ 16" o.c. U.N.O. w/ 5.5" F.G. BATT INSUL (R20) 6 MIL UV POLY VAPOUR BARRIER 1/2" GYPSUM WALL BOARD
W1a	TYP 2x4 EXT. WALLS - (UNCOND. ALL AROUND) CLADDING MTRL. AS PER ELEVATIONS RAIN SCREEN - MIN. 10mm STRAPPING U.N.O. BUILDING WRAP 1/2" PLYWOOD SHEATHING 2x4 WOOD STUDS @ 16" o.c. U.N.O.
W2	EXTERIOR WALL - MANUFACTURED STONE ASSEMBLY 9.36.2.6.1-3(a) MANUF. STONE AS PER ELEVATIONS MIN. 3/8" SCRATCH COAT ON METAL LATH 2 LAYERS 30 MIN. BLDG. PAPER 1/2" PLYWOOD SHEATHING 2x6 WOOD STUDS @ 16" o.c. U.N.O. W/ 5.5" F.G. BATT INSUL (R20) 6 MIL UV POLY VAPOUR BARRIER 1/2" GYPSUM WALL BOARD
W3	TYP. BASEMENT FOUNDATION WALL - ASSEMBLY 9.6.2.8.A-1(a) ASPHALT EMULSION 8" ENG'D. CONC. FOUNDATION WALL FURRING (AS INDICATED ON PLAN) 1/2" AIRSPACE FROM CONCRETE 2x4 WOOD STUDS @ 16" o.c. w/ 3.5" F.G. BATT INSUL (R12) 1/2" GYPSUM WALL BOARD VAPOUR BARRIER PAINT ENG'D. CONCRETE STRIP FOOTING 6" MIN. DRAIN ROCK w/ 4" PERF. FOOTING DRAIN 4" PERIMETER DRAIN
W3A	TYP. RETAINING WALL 8" ENG'D. C.I.P. CONCRETE RETAINING WALL ENG'D. CONCRETE STRIP FOOTING 6" MIN. DRAIN ROCK w/ 4" PERF. FOOTING DRAIN 4" PERIMETER DRAIN
W4	INTERIOR PARTITION (2X4 OR 2x6) 1/2" GYPSUM WALL BOARD 2x4 OR 2x6 WOOD STUDS @ 16" o.c. (U.N.O.) 1/2" GYPSUM WALL BOARD
W4a	INTERIOR PARTITION - SHEATHED 1/2" GYPSUM WALL BOARD 1/2" PLYWOOD SHEATHING PER STRUCTURAL 2x6 WOOD STUDS @ 16" o.c. (U.N.O.) 1/2" GYPSUM WALL BOARD
W4b	INTERIOR PARTITION @ GARAGE - ASSEMBLY 9.36.2.6.A-3(c) 5/8" GYPSUM WALL BOARD 1/2" PLYWOOD SHEATHING 2x4 OR 2x6 WOOD STUDS @ 16" o.c. (U.N.O.) W/ 5.5" F.G. BATT INSUL (R20) 6 MIL UV POLY VAPOUR BARRIER ON WARM SIDE OF WALL 1/2" GYPSUM WALL BOARD
	SEE ENERGY EFFICIENCY DETAIL SHEETS FOR ASSEMBLY DESCRIPTIONS WITH ERSI CALCULATIONS



ROOF PLAN

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

TYPICAL ROOF NOTES

EAVE OVERHANGS ARE MEASURED TO THE OUTSIDE PLYWOOD FACING OF THE PARAPET

VENTILATE ALL ATTIC SPACES 1:300 VENTILATION TO BE DISTRIBUTED EVENLY WITH NOT MORE THAN 25% AT THE TOP AND 25% AT THE BOTTOM OF THE ROOF

SPECIAL DIMENSION NOTES

- DIMENSIONS AT EXTERIOR WALLS ARE TO THE OUTSIDE FACE OF THE WALL SHEATHING.
- DIMENSIONS AT THE FOUNDATION ARE TO THE OUTSIDE FACE OF THE CONCRETE.
- TYPICALLY THE OUTSIDE FACE OF THE WALL SHEATHING SHOULD LINE UP WITH THE OUTSIDE FACE OF THE CONCRETE FOUNDATION.
- DIMENSIONS AT THE INTERIOR WALLS ARE TO THE CENTER OR THE OUTSIDE FACE OF THE 2x4 OR 2x6 STUDS.
- CEILING HEIGHTS SHOWN ON UPPER FLOOR/MAIN FLOOR ARE FROM TOP OF PLYWOOD SHEATHING NOT TOP OF CONCRETE TOPPING
- ALL ROOM SIZES ARE MEASURED TO STUD FACE, NOT DRYWALL FACE

IMPORTANT NOTE:
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ATTENTION STRUCTURAL ENGINEER

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THESE PLANS CONFORM TO THE B.C. BUILDING CODE, 2012 ED.

PLAN #-2-3005.19R-55.33x47.57-B

ROOF PLAN, MAIN FLOOR PLAN

14439 MAGDALEN AVENUE, WHITE ROCK BC

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2017-08-03 1:53:27 PM
SCALE: As indicated

SHEET: 5 OF 11

DESIGN BY RAYMOND S. BONTER DESIGNER LTD.
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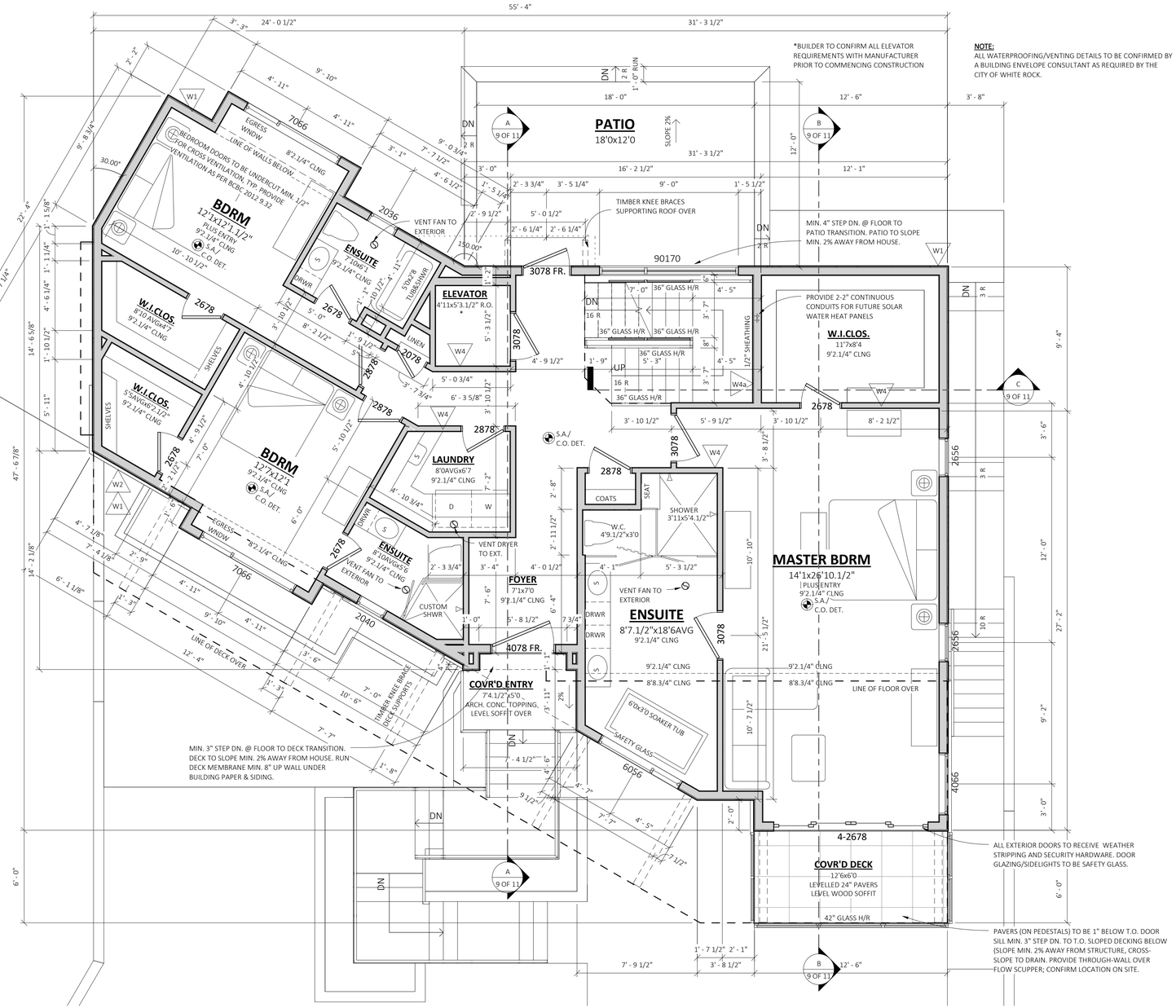

LOWER FLOOR PLAN

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

COVERED DECK	75.00 SF	6.97 m²
LOWER FLOOR AREA	1646.42 SF	152.96 m²
PATIO	216.00 SF	20.07 m²
COVERED ENTRY	36.98 SF	3.44 m²
	1974.40 SF	183.43 m²

SPECIAL DIMENSION NOTES

- DIMENSIONS AT EXTERIOR WALLS ARE TO THE OUTSIDE FACE OF THE WALL SHEATHING.
- DIMENSIONS AT THE FOUNDATION ARE TO THE OUTSIDE FACE OF THE CONCRETE.
- TYPICALLY THE OUTSIDE FACE OF THE WALL SHEATHING SHOULD LINE UP WITH THE OUTSIDE FACE OF THE CONCRETE FOUNDATION.
- DIMENSIONS AT THE INTERIOR WALLS ARE TO THE CENTER OR THE OUTSIDE FACE OF THE 2x4 OR 2x6 STUDS.
- CEILING HEIGHTS SHOWN ON UPPER FLOOR/MAIN FLOOR ARE FROM TOP OF PLYWOOD SHEATHING NOT TOP OF CONCRETE TOPPING
- ALL ROOM SIZES ARE MEASURED TO STUD FACE, NOT DRYWALL FACE

WALL ASSEMBLIES

TYPE	DESCRIPTION
W1	TYP EXTERIOR WALLS - ASSEMBLY A.9.36.2.6.A-3(a) CLADDING MTRL. AS PER ELEVATIONS RAIN SCREEN - MIN. 10mm STRAPPING U.N.O. BUILDING WRAP 1/2" PLYWOOD SHEATHING 2x6 WOOD STUDS @ 16" o.c. U.N.O. w/ 5.5" F.G. BATT INSUL (R20) 6 MIL UV POLY VAPOUR BARRIER 1/2" GYPSUM WALL BOARD
W1a	TYP 2x4 EXT. WALLS - (UNCOND. ALL AROUND) CLADDING MTRL. AS PER ELEVATIONS RAIN SCREEN - MIN. 10mm STRAPPING U.N.O. BUILDING WRAP 1/2" PLYWOOD SHEATHING 2x4 WOOD STUDS @ 16" o.c. U.N.O.
W2	EXTERIOR WALL - MANUFACTURED STONE ASSEMBLY 9.36.2.6.1-3(a) MANUF. STONE AS PER ELEVATIONS MIN. 3/8" SCRATCH COAT ON METAL LATH 2 LAYERS 30 MIN. BLDG. PAPER 1/2" PLYWOOD SHEATHING 2x6 WOOD STUDS @ 16" o.c. U.N.O. W/ 5.5" F.G. BATT INSUL (R20) 6 MIL UV POLY VAPOUR BARRIER 1/2" GYPSUM WALL BOARD
W3	TYP. BASEMENT FOUNDATION WALL - ASSEMBLY 9.6.2.8.A-1(a) ASPHALT EMULSION 8" ENG'D. CONC. FOUNDATION WALL FURRING (AS INDICATED ON PLAN) 1/2" AIRSPACE FROM CONCRETE 2x4 WOOD STUDS @ 16" o.c. w/ 3.5" F.G. BATT INSUL (R12) 1/2" GYPSUM WALL BOARD VAPOUR BARRIER PAINT ENG'D. CONCRETE STRIP FOOTING 6" MIN. DRAIN ROCK w/ 4" PERF. FOOTING DRAIN 4" PERIMETER DRAIN
W3A	TYP. RETAINING WALL 8" ENG'D. C.I.P. CONCRETE RETAINING WALL ENG'D. CONCRETE STRIP FOOTING 6" MIN. DRAIN ROCK w/ 4" PERF. FOOTING DRAIN 4" PERIMETER DRAIN
W4	INTERIOR PARTITION (2X4 OR 2x6) 1/2" GYPSUM WALL BOARD 2x4 OR 2x6 WOOD STUDS @ 16" o.c. (U.N.O.) 1/2" GYPSUM WALL BOARD
W4a	INTERIOR PARTITION - SHEATHED 1/2" GYPSUM WALL BOARD 1/2" PLYWOOD SHEATHING PER STRUCTURAL 2x6 WOOD STUDS @ 16" o.c. (U.N.O.) 1/2" GYPSUM WALL BOARD
W4b	INTERIOR PARTITION @ GARAGE - ASSEMBLY 9.36.2.6.A-3(c) 5/8" GYPSUM WALL BOARD 1/2" PLYWOOD SHEATHING 2x4 OR 2x6 WOOD STUDS @ 16" o.c. (U.N.O.) W/ 5.5" F.G. BATT INSUL (R20) 6 MIL UV POLY VAPOUR BARRIER ON WARM SIDE OF WALL 1/2" GYPSUM WALL BOARD

SEE ENERGY EFFICIENCY DETAIL SHEETS FOR ASSEMBLY DESCRIPTIONS WITH ERSI CALCULATIONS

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PLAN #-2-3005.19R-55.33x47.57-B

THESE PLANS CONFORM TO THE B.C. BUILDING CODE, 2012 ED.

LOWER FLOOR PLAN

14439 MAGDALEN AVENUE, WHITE ROCK BC

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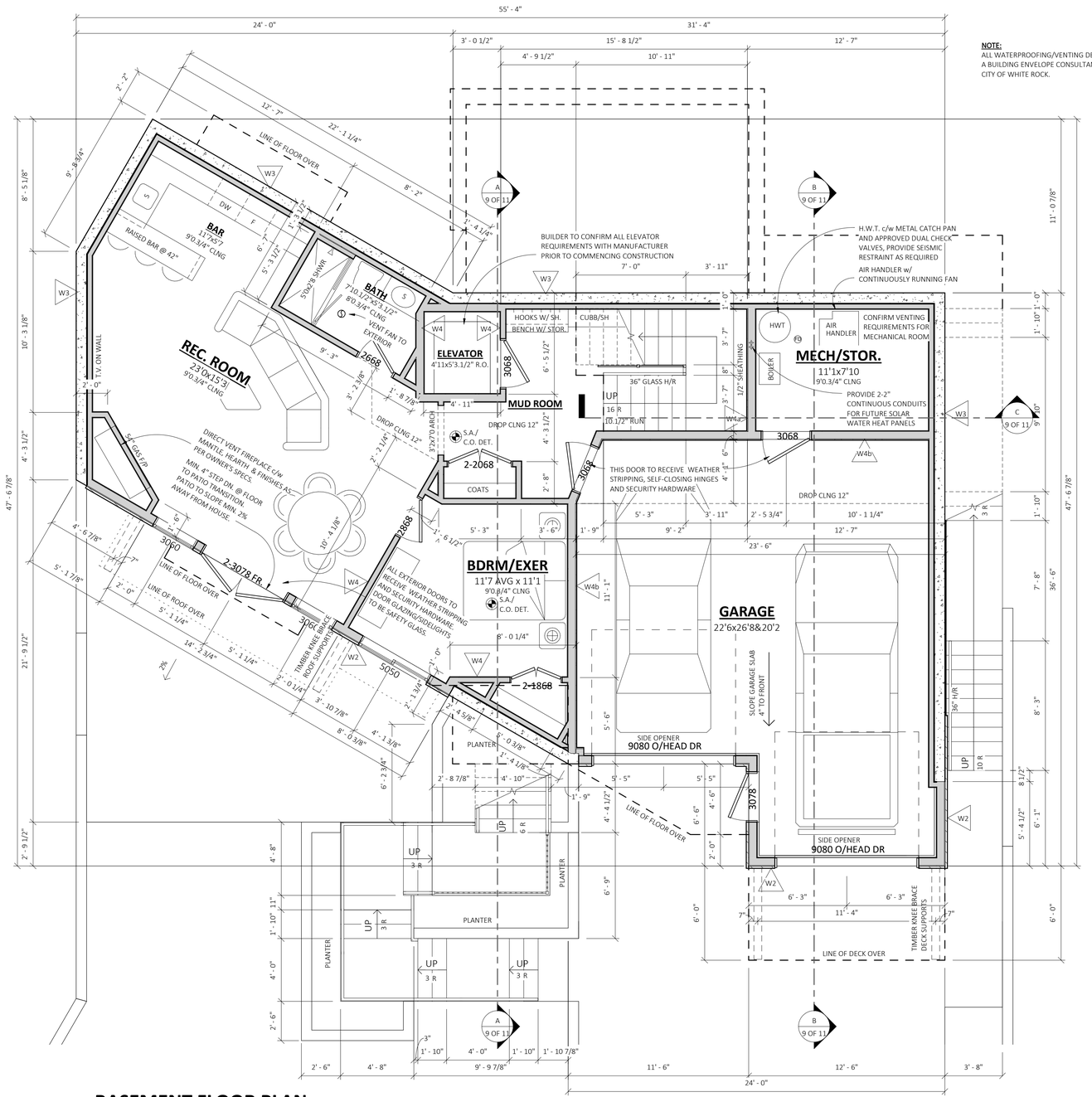
2017-08-03 1:53:28 PM
SCALE: 1/4" = 1'-0"

SHEET: 6 OF 11



NOTE:
ALL WATERPROOFING/VENTING DETAILS TO BE CONFIRMED BY A BUILDING ENVELOPE CONSULTANT AS REQUIRED BY THE CITY OF WHITE ROCK.

WALL ASSEMBLIES

TYPE	DESCRIPTION
W1	TYP EXTERIOR WALLS - ASSEMBLY A.9.36.2.6.A-3(a) CLADDING MTRL. AS PER ELEVATIONS RAIN SCREEN - MIN. 10mm STRAPPING U.N.O. BUILDING WRAP 1/2" PLYWOOD SHEATHING 2x6 WOOD STUDS @ 16" o.c. U.N.O. w/ 5.5" F.G. BATT INSUL (R20) 6 MIL UV POLY VAPOUR BARRIER 1/2" GYPSUM WALL BOARD
W1a	TYP 2x4 EXT. WALLS - (UNCOND. ALL AROUND) CLADDING MTRL. AS PER ELEVATIONS RAIN SCREEN - MIN. 10mm STRAPPING U.N.O. BUILDING WRAP 1/2" PLYWOOD SHEATHING 2x4 WOOD STUDS @ 16" o.c. U.N.O.
W2	EXTERIOR WALL - MANUFACTURED STONE ASSEMBLY 9.36.2.6.1-3(a) MANUF. STONE AS PER ELEVATIONS MIN. 3/8" SCRATCH COAT ON METAL LATH 2 LAYERS 30 MIN. BLDG. PAPER 1/2" PLYWOOD SHEATHING 2x6 WOOD STUDS @ 16" o.c. U.N.O. W/ 5.5" F.G. BATT INSUL (R20) 6 MIL UV POLY VAPOUR BARRIER 1/2" GYPSUM WALL BOARD
W3	TYP. BASEMENT FOUNDATION WALL - ASSEMBLY 9.6.2.8.A-1(a) ASPHALT EMULSION 8" ENG'D. CONC. FOUNDATION WALL FURRING (AS INDICATED ON PLAN) 1/2" AIRSPACE FROM CONCRETE 2x4 WOOD STUDS @ 16" o.c. w/ 3.5" F.G. BATT INSUL (R12) 1/2" GYPSUM WALL BOARD VAPOUR BARRIER PAINT ENG'D. CONCRETE STRIP FOOTING 6" MIN. DRAIN ROCK w/ 4" PERF. FOOTING DRAIN 4" PERIMETER DRAIN
W3A	TYP. RETAINING WALL 8" ENG'D. C.I.P. CONCRETE RETAINING WALL ENG'D. CONCRETE STRIP FOOTING 6" MIN. DRAIN ROCK w/ 4" PERF. FOOTING DRAIN 4" PERIMETER DRAIN
W4	INTERIOR PARTITION (2X4 OR 2x6) 1/2" GYPSUM WALL BOARD 2x4 OR 2x6 WOOD STUDS @ 16" o.c. (U.N.O.) 1/2" GYPSUM WALL BOARD
W4a	INTERIOR PARTITION - SHEATHED 1/2" GYPSUM WALL BOARD 1/2" PLYWOOD SHEATHING PER STRUCTURAL 2x6 WOOD STUDS @ 16" o.c. (U.N.O.) 1/2" GYPSUM WALL BOARD
W4b	INTERIOR PARTITION @ GARAGE - ASSEMBLY 9.36.2.6.A-3(c) 5/8" GYPSUM WALL BOARD 1/2" PLYWOOD SHEATHING 2x4 OR 2x6 WOOD STUDS @ 16" o.c. (U.N.O.) W/ 5.5" F.G. BATT INSUL (R20) 6 MIL UV POLY VAPOUR BARRIER ON WARM SIDE OF WALL 1/2" GYPSUM WALL BOARD
	SEE ENERGY EFFICIENCY DETAIL SHEETS FOR ASSEMBLY DESCRIPTIONS WITH ERSI CALCULATIONS

BASEMENT FLOOR PLAN

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

BASEMENT FLOOR AREA	1033.73 SF	96.04 m²
GARAGE	563.75 SF	52.37 m²
PATIO	266.66 SF	24.77 m²
COVR'D PATIO	66.11 SF	6.14 m²
TOTAL BASEMENT AREA	1930.25 SF	179.33 m²

SPECIAL DIMENSION NOTES

- DIMENSIONS AT EXTERIOR WALLS ARE TO THE OUTSIDE FACE OF THE WALL SHEATHING.
- DIMENSIONS AT THE FOUNDATION ARE TO THE OUTSIDE FACE OF THE CONCRETE.
- TYPICALLY THE OUTSIDE FACE OF THE WALL SHEATHING SHOULD LINE UP WITH THE OUTSIDE FACE OF THE CONCRETE FOUNDATION.
- DIMENSIONS AT THE INTERIOR WALLS ARE TO THE CENTER OR THE OUTSIDE FACE OF THE 2x4 OR 2x6 STUDS.
- CEILING HEIGHTS SHOWN ON UPPER FLOOR/MAIN FLOOR ARE FROM TOP OF PLYWOOD SHEATHING NOT TOP OF CONCRETE TOPPING
- ALL ROOM SIZES ARE MEASURED TO STUD FACE, NOT DRYWALL FACE

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PLAN #-2-3005.19R-55.33x47.57-B

BASEMENT FLOOR PLAN

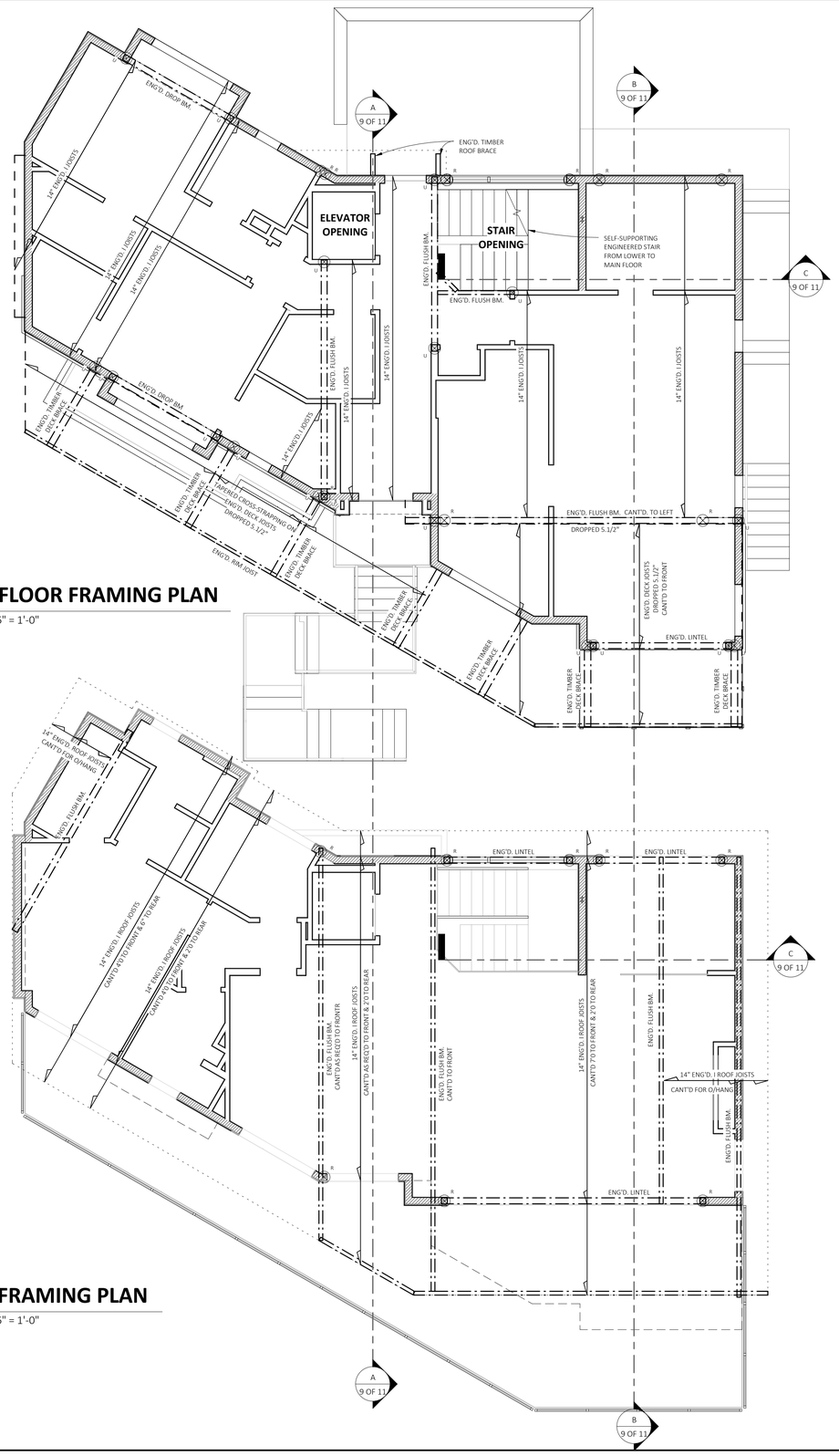
14439 MAGDALEN AVENUE, WHITE ROCK BC

THESE DRAWINGS SHOULD BE PRINTED ON 34" x 22" PAPER TO BE AT SCALE INDICATED. ON REDUCED SIZE THEY WILL NOT BE TO SCALE.

2017-08-03 1:53:29 PM
SCALE: 1/4" = 1'-0"

SHEET: 7 OF 11

DESIGN BY RAYMOND S. BONTER DESIGNER LTD.
#88 - 1959 152nd STREET
SOUTH SURREY, B.C. V4A 9E3
PHONE: 604-535-3322 FAX 1-866-454-4271
EMAIL: info@raymondbonterdesigner.ca



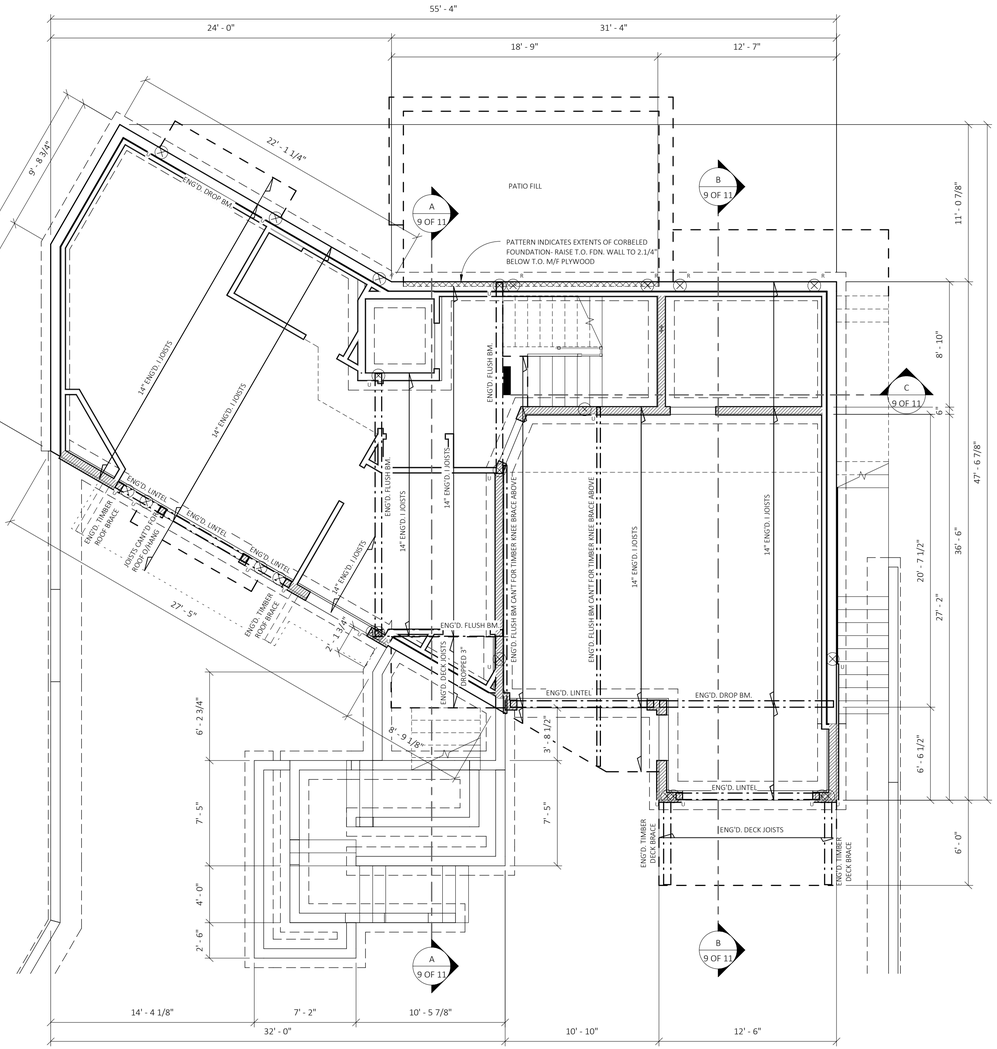
MAIN FLOOR FRAMING PLAN

SCALE: 3/16" = 1'-0"

ROOF FRAMING PLAN

SCALE: 3/16" = 1'-0"

NOTE:
DOUBLE SILL PLATE TYP. ALL WALLS TO ALLOW FOR CONCRETE TOPPING:
2x6 SILL @ 2x4 WALLS
2x8 SILL @ 2x6 WALLS



LOWER FLOOR FRAMING & FDN PLAN

SCALE: 3/16" = 1'-0"

GENERAL SYMBOL LEGEND

- CROSS SECTION MARKER
- DIRECTION OF VIEW
- SECTION IDENTIFICATION
- SHEET WHERE DRAWN
- WALL CONSTRUCTION TYPE
- MAIN FLOOR POINT LOAD SYMBOL: CONFIRM CONNECTIONS ON SITE
- UPPER FLOOR POINT LOAD SYMBOL: CONFIRM CONNECTIONS ON SITE
- ROOF PLAN POINT LOAD SYMBOL: CONFIRM CONNECTIONS ON SITE
- C.O. CARBON MONOXIDE DETECTOR
- S.A./C.O. DET. SMOKE ALARM

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PLAN #-2-3005.19R-55.33x47.57-B

FRAMING PLANS

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2017-08-03 1:53:29 PM
SCALE: As indicated

SHEET: 8 OF 11

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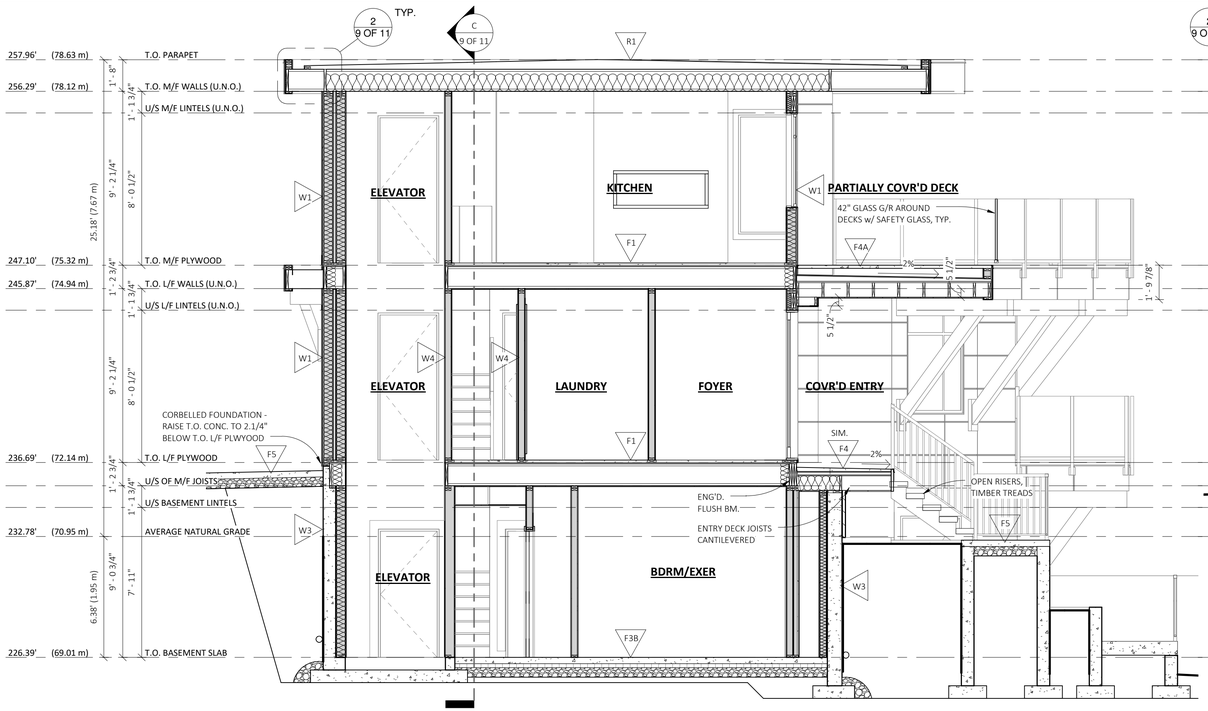
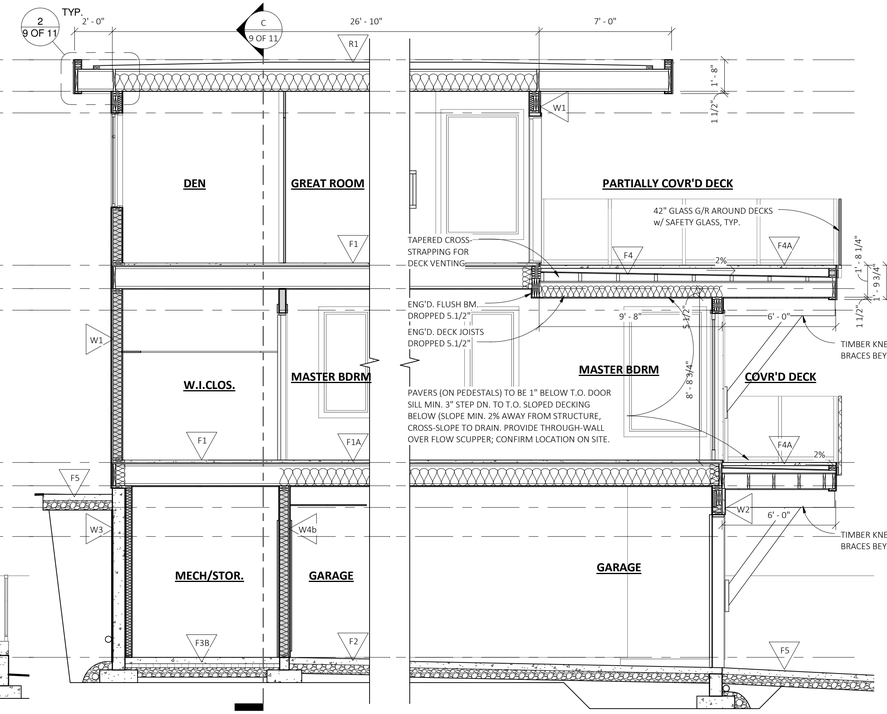


SECTION A-A

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

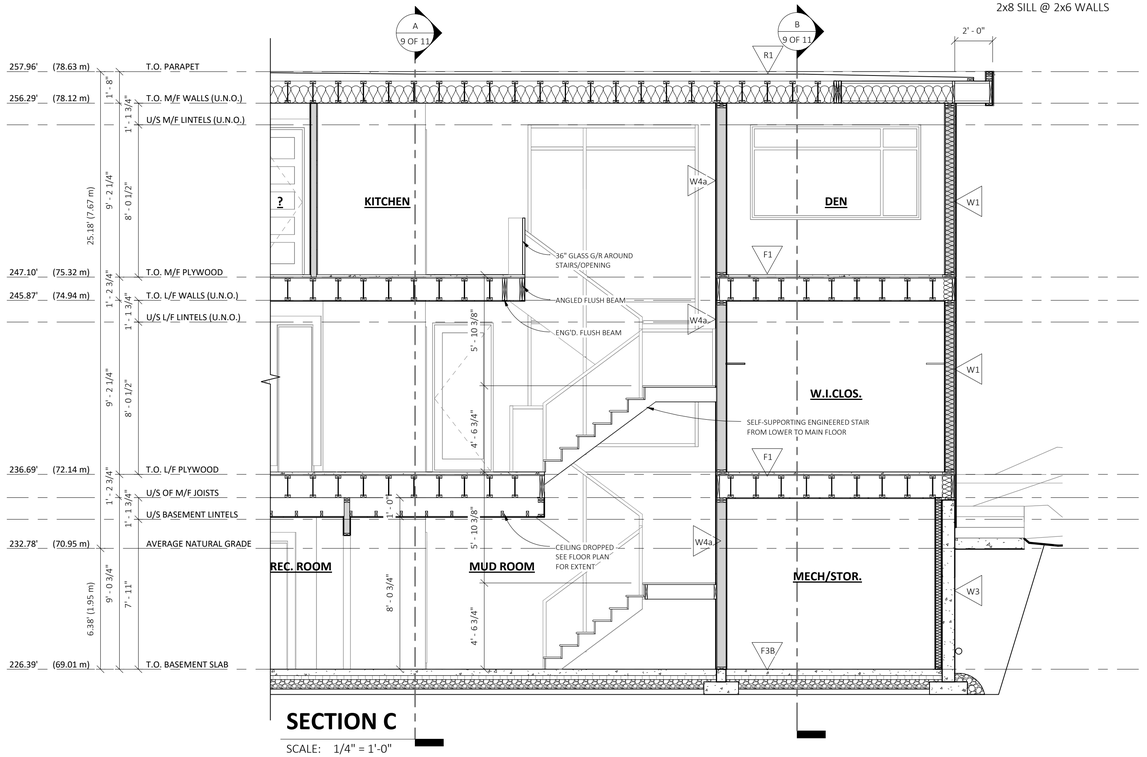


SECTION B-B

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

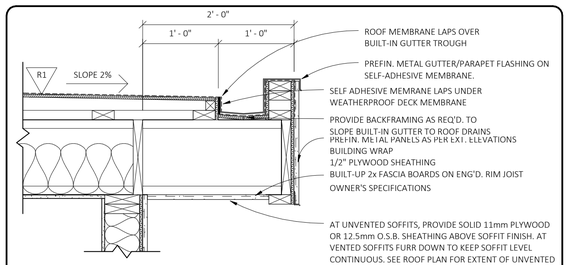
NOTE:
DOUBLE SILL PLATE TYP. ALL WALLS
TO ALLOW FOR CONCRETE TOPPING:
2x6 SILL @ 2x4 WALLS
2x8 SILL @ 2x6 WALLS

NOTE:
ALL WATERPROOFING/VENTING DETAILS TO BE CONFIRMED BY
A BUILDING ENVELOPE CONSULTANT AS REQUIRED BY THE
CITY OF WHITE ROCK.



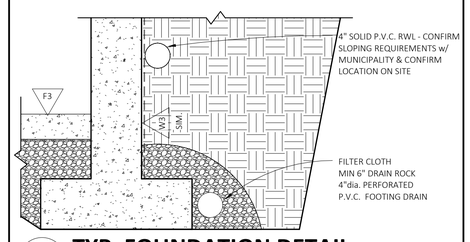
SECTION C

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



2 TYP. EAVE/PARAPET DETAIL

SCALE: 1" = 1'-0"



1 TYP. FOUNDATION DETAIL

SCALE: 1" = 1'-0"

ROOF ASSEMBLIES

TYPE	DESCRIPTION
R1	TYP. LOW SLOPE ROOF (ASSEMBLY A.9.36.2.6.A-2 SIM.) LOW-SLOPE ROOFING MEMBRANE APPROVED UNDERLAYMENT 1/2" PLYWOOD SHEATHING c/w H-CLIPS @ UNSUPPORTED JOINTS TAPERED CROSS STRAPPING FOR DRAINAGE & VENTING ENG'D. ROOF JOISTS MIN. R31 BATT INSULATION 6 MIL. UV RATED POLY V.B. 5/8" GYPSUM CEILING BOARD
	SEE ENERGY EFFICIENCY DETAIL SHEETS FOR ASSEMBLY DESCRIPTIONS WITH ERSI CALCULATIONS

FLOOR ASSEMBLIES

TYPE	DESCRIPTION
F1	TYP. WOOD FRAMED FLOOR - CONDITIONED EACH SIDE FINISH FLOORING 1.1/2" CONCRETE TOPPING w IN-FLOOR HEAT 3/4" T&G PLYWOOD (GLUED & NAILED) ENG. FLOOR JOISTS (SEE FLOOR PLANS) 5/8" GYPSUM CEILING BOARD
F1A	TYP. WOOD FRAMED FLOOR OVER UNHEATED SPACE ASSEMBLY 9.36.2.6.A-4(b) FINISH FLOORING 1.1/2" CONCRETE TOPPING w IN-FLOOR HEAT 3/4" T&G PLYWOOD (GLUED & NAILED) 6 MIL U.V. POLY V.B. ENG. FLOOR JOISTS (SEE FLOOR PLANS) w/ MIN. 9.25" F.G. BATT INSUL (R31) 5/8" GYPSUM CEILING BOARD OR VENTED SOFFIT OVER EXTERIOR SPACE
F2	TYP. GARAGE FLOOR - SLAB-ON-GRADE FINISH BY OWNER 4" CONCRETE SLAB COMPACTED GRANULAR FILL MIN. 1% SLOPE TO ENTRY
F3A	TYP. SLAB-ON-GRADE FLOOR - ABOVE FROST LINE ASSEMBLY 9.36.2.8.A-2(a) FINISH BY OWNER 4" CONCRETE SLAB 6 MIL UV POLY V.B. 2.5" TYPE 3 RIGID INSULATION - TO 48" BELOW SLAB - OR 48" FROM PERIMETER COMPACTED GRANULAR FILL - PROVIDE MIN. E.R.S.I. 0.98 THERMAL BREAK FROM PERIM. OF SLAB TO EXT. FDN.
F3B	TYP. SLAB-ON-GRADE FLOOR - IN SLAB HEAT ASSEMBLY 9.36.2.8.A-3 (a) FINISH BY OWNER 4" CONCRETE SLAB w/ IN SLAB RADIANT HEATING 6 MIL UV POLY V.B. MIN. 2.1/2" TYPE 3 RIGID INSULATION CONTINUOUS BELOW SLAB COMPACTED GRANULAR FILL - PROVIDE MIN. E.R.S.I. 0.98 THERMAL BREAK FROM PERIM. OF SLAB TO EXT. FDN.
F4	TYP. WOOD FRAME DECK OVER LIVING SPACE ASSEMBLY 9.36.2.6.A-2(c) WEATHERPFROOF DECK MEMBRANE (RUN MIN. 8" UP WALL SHEATHING UNDER BLDG. PAPER) 5/8" PLYWOOD SHEATHING (OR AS STRUCTURAL) 2x4 STRAPPING @ 24" o.c. W/ VENTED AIRSPACE ENG'D. DECK JOISTS @ 16" o.c. w/ MIN. 9.25" F.G. BATT INSUL (R31) 6 MIL. UV RATED POLY V.B. 5/8" GYPSUM CEILING BOARD
F4A	PAVERS ON PEDESTALS 2'-0" x 2'-0" CONCRETE PAVERS ON LEVELLING PEDESTALS WATERPROOF DECK MEMBRANE (RUN MIN 8" UP WALL SHEATHING UNDER BLDG PAPER.) 5/8" P.T. WOOD PLYWOOD SHEATHING 2x TAPERED STRAPPING @ 16" o.c. 2x FLOOR JOISTS (SEE FRAMING PLANS) VENTED SOFFITING TO OWNER'S SPECIFICATIONS
F5	TYP. EXTERIOR PATIO/SIDEWALK FINISH PER OWNER MIN. 4" CONCRETE SLAB c/w MESH REINFORCING, COMPACTED GRANULAR FILL
	SEE ENERGY EFFICIENCY DETAIL SHEETS FOR ASSEMBLY DESCRIPTIONS WITH ERSI CALCULATIONS

STAIR ASSEMBLIES

TYPE	DESCRIPTION
S1	TYP. INTERIOR STAIRS 11" TREAD, 10" RUN RISE - SEE FLOOR PLANS PROVIDE HANDRAIL @ 32-36" @ STAIRS w/ 3 OR MORE RISERS PROVIDE MIN. 6'8" MIN. FIN. HEADROOM 1" PLYWOOD TREADS c/w 1/2" RADIUS NOSING 1/2" PLYWOOD RISER, 3 - 2x12 STRINGERS 5/8" GYPSUM CEILING BOARD

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PLAN #-2-3005.19R-55.33x47.57-B

SECTIONS, DETAILS

14439 MAGDALEN AVENUE, WHITE ROCK BC

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2017-08-03 1:53:31 PM
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SHEET: 9 OF 11

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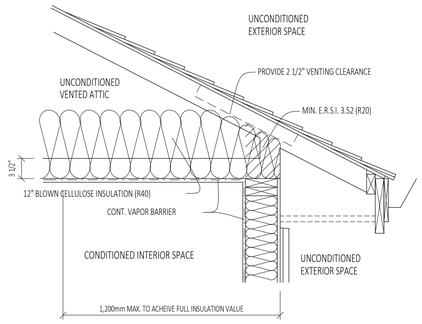
9.36.2.6.A - EFFECTIVE THERMAL RESISTANCE OF ABOVE-GROUND OPAQUE ASSEMBLIES IN BUILDINGS WITHOUT A HEAT-RECOVERY VENTILATOR - CLIMATE ZONE 4

DETAIL 9.36.2.6.A-1 - CEILINGS BELOW ATTICS



- A REDUCTION IN THE EFFECTIVE THERMAL RESISTANCE OF CEILING ASSEMBLIES IN ATTICS UNDER SLOPED ROOFS IS PERMITTED FOR A LENGTH NO GREATER THAN 1 200 MM BUT ONLY TO THE EXTENT IMPOSED BY THE ROOF SLOPE AND MINIMUM VENTING CLEARANCE, PROVIDED THE NOMINAL THERMAL RESISTANCE OF THE INSULATION DIRECTLY ABOVE THE EXTERIOR WALL IS NOT LESS THAN E.S.R.I. 3.52 (R20).

ASSEMBLY 9.36.2.6.A-1 (a)
TYPICAL TRUSS ROOF W/ ATTIC
REQUIRED MIN. E.R.S.I. VALUE = 6.91

- ROOFING MATERIAL AS PER BUILDING SPECIFICATIONS
- #15 ROOFING FELT
- 1/2" PLYWOOD SHEATHING, PROVIDE "H" CLIPS AT SEAMS, OR: 1x4 STRAPPING WITH SOLID EAVE PROTECTION PER B.C.B.C.
- EXTERIOR AIR FILM (E.R.S.I. 0.03)
- PRE-FAB TRUSSES @ 24" O.C. W/ 12" BLOWN CELLULOSE INSULATION (R40) (E.R.S.I. 7.10) (SEE CALCULATION FOR PARALLEL MATERIALS)
- 6 MIL POLY V.B. (E.R.S.I. 0.0)
- 5/8" GYPSUM WALL BOARD (E.R.S.I. 0.10)
- INTERIOR AIR FILM (E.R.S.I. 0.11)

TOTAL EFFECTIVE R.S.I. VALUE = 7.34

CALCULATION FOR E.S.R.I. OF PARALLEL MATERIALS

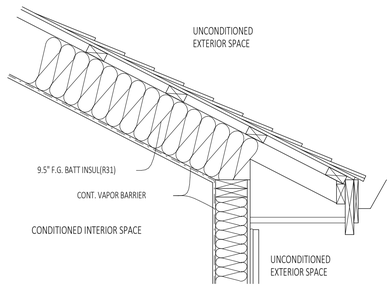
3.5" WOOD TRUSS BTTM E.R.S.I.: 0.0085x90mm=0.76
CELLULOSE INSUL E.R.S.I.: 0.025/mm
3.5" CELLULOSE INSUL E.R.S.I.: 0.025x90mm=2.25
8.5" CELLULOSE INSUL E.R.S.I.: 0.025x210mm=5.25

PART. 1 - 3.5" TRUSS BTTM W/ 3.5" CELLULOSE INSUL: 11% FRAMING AND 89% INSUL FOR 24" O.C.
100 / [11/0.76+(89/2.25)] = 2.25

PART. 2 - 8.5" CELLULOSE INSUL E.R.S.I.: 5.25

PART. 1 + PART. 2 = TOTAL E.R.S.I.:
1.85+5.25=7.10

DETAIL 9.36.2.6.A-2 - CATHEDRAL CEILINGS AND FLAT ROOFS



SPECIAL NOTE:
TOTAL E.S.R.I. VALUES ARE THE SAME FOR FLAT ROOF ASSEMBLIES ALTHOUGH THE MATERIALS ABOVE THE COMPONENTS WITH E.S.R.I. VALUES MAY BE DIFFERENT (IE. ROOFING MATERIALS AND VENTING ASSEMBLIES). SEE BUILDING SPECIFICATIONS ON DESIGN DRAWINGS FOR SPECIFIC ASSEMBLY MATERIALS.

ALTHOUGH E.S.R.I. VALUES FOR TRUSS JOISTS ARE NOT PROVIDED IN THE CODE IT IS ASSUMED THAT 9.5" AND 11.87" T.J.I. JOISTS ON SIMILAR CENTERS MEET OR EXCEED THE VALUES LISTED FOR DIMENSIONAL LUMBER.

ASSEMBLY 9.36.2.6.A-2 (a)
TYPICAL 2x10 @ 16" RAFTER ROOF
REQUIRED MIN. E.R.S.I. VALUE = 4.67

- ROOFING MATERIAL AS PER BUILDING SPECIFICATIONS
- #15 ROOFING FELT
- 1/2" PLYWOOD SHEATHING, PROVIDE "H" CLIPS AT SEAMS, OR: 1x4 STRAPPING WITH SOLID EAVE PROTECTION PER B.C.B.C.
- 2x4 STRAPPING AT 24" O.C. W/ VENTED AIRSPACE
- EXTERIOR AIR FILM (E.R.S.I. 0.03)
- 2x10 @ 16" O.C. W/ 9.5" F.G. BATT INSUL(R31) (E.R.S.I. 4.46) (SEE CALCULATION FOR PARALLEL MATERIALS)
- 6 MIL POLY V.B. (E.R.S.I. 0.0)
- 5/8" GYPSUM WALL BOARD (E.R.S.I. 0.10)
- INTERIOR AIR FILM (E.R.S.I. 0.11)

TOTAL EFFECTIVE R.S.I. VALUE = 4.70

CALCULATION FOR E.S.R.I. OF PARALLEL MATERIALS

2x10 WOOD E.R.S.I.: 0.0085x235mm=2.00
R31 F.G. BATT INSUL E.R.S.I.: 241mm TH. = 5.46
13% FRAMING AND 87% INSUL FOR 16" O.C.
100 / [13/2.00)+(87/5.46)] = 4.46

ASSEMBLY 9.36.2.6.A-2 (b)
TYPICAL 2x10 @ 24" RAFTER ROOF
REQUIRED MIN. E.R.S.I. VALUE = 4.67

- ROOFING MATERIAL AS PER BUILDING SPECIFICATIONS
- #15 ROOFING FELT
- 1/2" PLYWOOD SHEATHING, PROVIDE "H" CLIPS AT SEAMS, OR: 1x4 STRAPPING WITH SOLID EAVE PROTECTION PER B.C.B.C.
- 2x4 STRAPPING AT 24" O.C. W/ VENTED AIRSPACE
- EXTERIOR AIR FILM (E.R.S.I. 0.03)
- 2x10 @ 24" O.C. W/ 9.5" F.G. BATT INSUL(R31) (E.R.S.I. 4.65) (SEE CALCULATION FOR PARALLEL MATERIALS)
- 6 MIL POLY V.B. (E.R.S.I. 0.0)
- 5/8" GYPSUM WALL BOARD (E.R.S.I. 0.10)
- INTERIOR AIR FILM (E.R.S.I. 0.11)

TOTAL EFFECTIVE R.S.I. VALUE = 4.89

CALCULATION FOR E.S.R.I. OF PARALLEL MATERIALS

2x10 WOOD E.R.S.I.: 0.0085x235mm=2.00
R31 F.G. BATT INSUL E.R.S.I.: 241mm TH. = 5.46
10% FRAMING AND 90% INSUL FOR 24" O.C.
100 / [10/2.00)+(90/5.46)] = 4.65

ASSEMBLY 9.36.2.6.A-2 (c)
TYPICAL 2x12 @ 16" RAFTER ROOF
REQUIRED MIN. E.R.S.I. VALUE = 4.67

- ROOFING MATERIAL AS PER BUILDING SPECIFICATIONS
- #15 ROOFING FELT
- 1/2" PLYWOOD SHEATHING, PROVIDE "H" CLIPS AT SEAMS, OR: 1x4 STRAPPING WITH SOLID EAVE PROTECTION PER B.C.B.C.
- 2x4 STRAPPING AT 24" O.C. W/ VENTED AIRSPACE
- EXTERIOR AIR FILM (E.R.S.I. 0.03)
- 2x12 @ 16" O.C. W/ 9.5" F.G. BATT INSUL(R31) (E.R.S.I. 4.81) (SEE CALCULATION FOR PARALLEL MATERIALS)
- 6 MIL POLY V.B. (E.R.S.I. 0.0)
- 5/8" GYPSUM WALL BOARD (E.R.S.I. 0.10)
- INTERIOR AIR FILM (E.R.S.I. 0.11)

TOTAL EFFECTIVE R.S.I. VALUE = 4.93

CALCULATION FOR E.S.R.I. OF PARALLEL MATERIALS

2x12 WOOD E.R.S.I.: 0.0085x285mm=2.42
R31 F.G. BATT INSUL E.R.S.I.: 241mm TH. = 5.46
13% FRAMING AND 87% INSUL FOR 16" O.C.
100 / [13/2.42)+(87/5.46)] = 4.69

ASSEMBLY 9.36.2.6.A-2 (d)
TYPICAL 2x12 @ 24" RAFTER ROOF
REQUIRED MIN. E.R.S.I. VALUE = 4.67

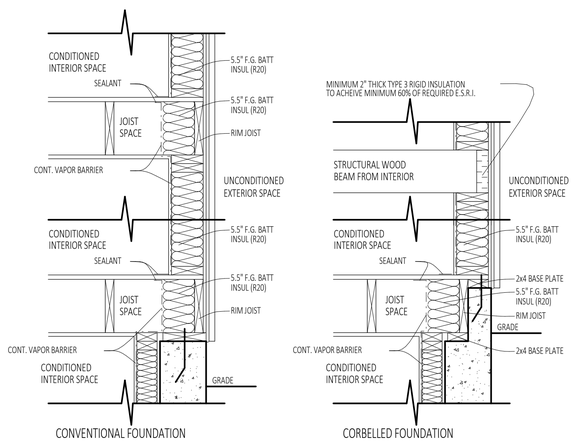
- ROOFING MATERIAL AS PER BUILDING SPECIFICATIONS
- #15 ROOFING FELT
- 1/2" PLYWOOD SHEATHING, PROVIDE "H" CLIPS AT SEAMS, OR: 1x4 STRAPPING WITH SOLID EAVE PROTECTION PER B.C.B.C.
- 2x4 STRAPPING AT 24" O.C. W/ VENTED AIRSPACE
- EXTERIOR AIR FILM (E.R.S.I. 0.03)
- 2x12 @ 24" O.C. W/ 9.5" F.G. BATT INSUL(R31) (E.R.S.I. 4.85) (SEE CALCULATION FOR PARALLEL MATERIALS)
- 6 MIL POLY V.B. (E.R.S.I. 0.0)
- 5/8" GYPSUM WALL BOARD (E.R.S.I. 0.10)
- INTERIOR AIR FILM (E.R.S.I. 0.11)

TOTAL EFFECTIVE R.S.I. VALUE = 5.09

CALCULATION FOR E.S.R.I. OF PARALLEL MATERIALS

2x12 WOOD E.R.S.I.: 0.0085x285mm=2.42
R31 F.G. BATT INSUL E.R.S.I.: 241mm TH. = 5.46
10% FRAMING AND 90% INSUL FOR 24" O.C.
100 / [10/2.42)+(90/5.46)] = 4.85

DETAIL 9.36.2.6.A-3 - EXTERIOR WALLS



- EXCEPT FOR TUBULAR DAYLIGHTING DEVICES, THE MINIMUM EFFECTIVE THERMAL RESISTANCE VALUES FOR WALLS SHALL ALSO APPLY TO SHAFTS FOR SKYLIGHTS.
- A WALL OR A FLOOR BETWEEN A CONDITIONED SPACE AND A RESIDENTIAL GARAGE MUST BE AIRTIGHT AND INSULATED BECAUSE, EVEN IF THE GARAGE IS EQUIPPED WITH SPACE-HEATING EQUIPMENT, IT MAY IN FACT BE KEPT UNHEATED MOST OF THE TIME.
- WHERE A COMPONENT OF THE BUILDING ENVELOPE IS PROTECTED BY AN ENCLOSED UNCONDITIONED SPACE, SUCH AS A SUN PORCH, ENCLOSED VERANDA, VESTIBULE OR ATTACHED GARAGE, THE REQUIRED EFFECTIVE THERMAL RESISTANCE OF THE BUILDING ENVELOPE COMPONENT BETWEEN THE BUILDING AND THE UNCONDITIONED ENCLOSURE IS PERMITTED TO BE REDUCED BY E.R.S.I. 0.16.

ASSEMBLY 9.36.2.6.A-3 (a)
TYPICAL EXTERIOR WALLS
REQUIRED MIN. E.R.S.I. VALUE = 2.78

- EXTERIOR AIR FILM (E.R.S.I. 0.03)
- CLADDING MATERIAL AS PER BUILDING SPECIFICATIONS (E.S.R.I. VARIES) (SEE LIST OF TYPICAL CLADDING MATERIALS)
- RAIN SCREEN W/ MIN. 10mm STRAPPING U.N.O. (E.R.S.I. 0.12)
- BUILDING PAPER (E.R.S.I. 0.0)
- 1/2" PLYWOOD SHEATHING (E.R.S.I. 0.11)
- 2x6 @ 16" O.C. W/ 5.5" F.G. BATT INSUL (R20) (E.R.S.I. 2.36) (SEE CALCULATION FOR PARALLEL MATERIALS)
- 6 MIL POLY V.B. (E.R.S.I. 0.0)
- 1/2" GYPSUM WALL BOARD (E.R.S.I. 0.08)
- INTERIOR AIR FILM (E.R.S.I. 0.12)

TOTAL EFFECTIVE R.S.I. VALUE = 2.82 ∗

∗ TOTAL E.S.R.I. EXCEEDS REQUIREMENT WITHOUT CLADDING INCLUDED IN CALCULATION HOWEVER CLADDING MUST BE PROVIDED. SEE LIST OF TYPICAL CLADDING MATERIALS FOR E.S.R.I. VALUES.

CALCULATION FOR E.S.R.I. OF PARALLEL MATERIALS

2x6 WOOD E.R.S.I.: 0.0085x140mm = 1.19
R20 F.G. BATT INSUL E.R.S.I.: 140mm TH. = 3.34
23% FRAMING AND 77% INSUL FOR 16" O.C.
100 / [23/1.19)+(77/3.34)] = 2.36

THE EFFECTIVE THERMAL RESISTANCE OF RIM JOISTS SHALL BE NOT LESS THAN THAT REQUIRED FOR ABOVE-GROUND WALLS.

ASSEMBLY 9.36.2.6.A-3 (b)
TYPICAL JOIST SPACE AT EXTERIOR WALLS
REQUIRED MIN. E.R.S.I. VALUE = 2.78

- EXTERIOR AIR FILM (E.R.S.I. 0.03)
- CLADDING MATERIAL AS PER BUILDING SPECIFICATIONS (E.S.R.I. VARIES) (SEE LIST OF TYPICAL CLADDING MATERIALS)
- RAIN SCREEN W/ MIN. 10mm STRAPPING U.N.O. (E.R.S.I. 0.12)
- BUILDING PAPER (E.R.S.I. 0.0)
- 1.5" THICK RIM JOIST (E.R.S.I. 0.33)
- 5.5" THICK BATT INSULATION (R20) (E.R.S.I. 3.36)
- 6 MIL POLY V.B. (E.R.S.I. 0.0)
- INTERIOR AIR FILM (E.R.S.I. 0.12)

TOTAL EFFECTIVE R.S.I. VALUE = 3.95 ∗

∗ TOTAL E.S.R.I. EXCEEDS REQUIREMENT WITHOUT CLADDING INCLUDED IN CALCULATION HOWEVER CLADDING MUST BE PROVIDED. SEE LIST OF TYPICAL CLADDING MATERIALS FOR E.S.R.I. VALUES.

TYP. CLADDING MATERIALS AND ASSOCIATED E.S.R.I. VALUES

- HOLLOW BACKED VINYL SIDING - E.S.R.I. 0.11 (SOME PROFILES MAY NOT REQUIRE RAINSCREEN HOWEVER MINIMUM TOTAL E.S.R.I. WILL BE MET WITH SIDING ONLY)
- 6.35mm FIBER CEMENT SIDING - E.S.R.I. 0.023
- WOOD SHINGLES WITH 190mm EXPOSURE - E.S.R.I. 0.15
- 19mm THICK STUCCO - E.S.R.I. 0.017
- 50mm THICK STONE - E.S.R.I. 0.017
- 100mm THICK BRICK - E.S.R.I. 0.07

ASSEMBLY 9.36.2.6.A-3 (c)
TYPICAL WALL BETWEEN GARAGE AND DWELLING
REQUIRED MIN. E.R.S.I. VALUE = 2.62

- EXTERIOR AIR FILM (E.R.S.I. 0.03)
- 5/8" GYPSUM WALL BOARD (E.R.S.I. 0.10)
- 2x6 @ 16" O.C. W/ 5.5" (R20) F.G. BATT INSUL (E.R.S.I. 2.36) (SEE CALCULATION FOR PARALLEL MATERIALS)
- 6 MIL POLY V.B. (E.R.S.I. 0.0)
- 1/2" GYPSUM WALL BOARD (E.R.S.I. 0.08)
- INTERIOR AIR FILM (E.R.S.I. 0.12)

TOTAL EFFECTIVE R.S.I. VALUE = 2.69

CALCULATION FOR E.S.R.I. OF PARALLEL MATERIALS

2x6 WOOD E.R.S.I.: 0.0085x140mm=1.19
R20 F.G. BATT INSUL E.R.S.I.: 140mm TH. = 3.34
23% FRAMING AND 77% INSUL FOR 16" O.C.
100 / [23/1.19)+(77/3.34)] = 2.36

ASSEMBLY 9.36.2.6.A-3 (d)
TYPICAL WALL BETWEEN SKYLIGHT SHAFT AND ATTIC
REQUIRED MIN. E.R.S.I. VALUE = 2.78

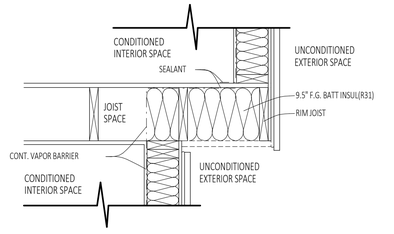
- EXTERIOR AIR FILM (E.R.S.I. 0.03)
- 1/2" INSULATING FIBERBOARD (E.R.S.I. 0.19)
- 2x6 @ 16" O.C. W/ 5.5" (R20) F.G. BATT INSUL (E.R.S.I. 2.36) (SEE CALCULATION FOR PARALLEL MATERIALS)
- 6 MIL POLY V.B. (E.R.S.I. 0.0)
- 1/2" GYPSUM WALL BOARD (E.R.S.I. 0.08)
- INTERIOR AIR FILM (E.R.S.I. 0.12)

TOTAL EFFECTIVE R.S.I. VALUE = 2.78

CALCULATION FOR E.S.R.I. OF PARALLEL MATERIALS

2x6 WOOD E.R.S.I.: 0.0085x140mm=1.19
R20 F.G. BATT INSUL E.R.S.I.: 140mm TH. = 3.34
23% FRAMING AND 77% INSUL FOR 16" O.C.
100 / [23/1.19)+(77/3.34)] = 2.36

DETAIL 9.36.2.6.A-4 - FLOORS OVER UNHEATED SPACES



- A WALL OR A FLOOR BETWEEN A CONDITIONED SPACE AND A RESIDENTIAL GARAGE MUST BE AIRTIGHT AND INSULATED BECAUSE, EVEN IF THE GARAGE IS EQUIPPED WITH SPACE-HEATING EQUIPMENT, IT MAY IN FACT BE KEPT UNHEATED MOST OF THE TIME.
- WHERE A COMPONENT OF THE BUILDING ENVELOPE IS PROTECTED BY AN ENCLOSED UNCONDITIONED SPACE, SUCH AS A SUN PORCH, ENCLOSED VERANDA, VESTIBULE OR ATTACHED GARAGE, THE REQUIRED EFFECTIVE THERMAL RESISTANCE OF THE BUILDING ENVELOPE COMPONENT BETWEEN THE BUILDING AND THE UNCONDITIONED ENCLOSURE IS PERMITTED TO BE REDUCED BY E.R.S.I. 0.16.

ALTHOUGH E.S.R.I. VALUES FOR TRUSS JOISTS ARE NOT PROVIDED IN THE CODE IT IS ASSUMED THAT 9.5" AND 11.87" T.J.I. JOISTS ON SIMILAR CENTERS MEET OR EXCEED THE VALUES LISTED FOR DIMENSIONAL LUMBER.

IT IS ASSUMED THAT HEATED CONCRETE TOPPING ADDED TO THE TOP OF THE FLOOR SHEATHING WOULD ONLY INCREASE THE TOTAL E.R.S.I. VALUE OF THE ASSEMBLY AND IS NOT REQUIRED TO BE CALCULATED TO SHOW CONFORMITY WITH THE MINIMUM REQUIRED VALUES.

ASSEMBLY 9.36.2.6.A-4 (a)
TYPICAL 2x10 @ 16" FLOOR OVER UNHEATED SPACE
REQUIRED MIN. E.R.S.I. VALUE = 4.67 OVER EXTERIOR
REQUIRED MIN. E.R.S.I. VALUE = 4.51 OVER GARAGE

- INTERIOR AIR FILM (E.R.S.I. 0.16)
- FINISH FLOORING (SEE LIST OF TYPICAL FLOORING MATERIALS)
- 3/4" T&G PLY. SHEATHING (GLUED & NAILED) (E.R.S.I. 0.16)
- 6 MIL POLY V.B. (E.R.S.I. 0.0)
- 2x10 @ 16" O.C. W/ 9.5" F.G. BATT INSUL(R31) (E.R.S.I. 4.46) (SEE CALCULATION FOR PARALLEL MATERIALS)
- EXTERIOR AIR FILM (E.R.S.I. 0.03)
- PERFORATED SOFFIT FINISH OR 5/8" GYPSUM WALL BOARD (SOFFIT FINISH FOR EXT. OR G.W.B. FOR GARAGE)

TOTAL EFFECTIVE R.S.I. VALUE = 4.81 ∗

∗ TOTAL E.S.R.I. EXCEEDS REQUIREMENT WITHOUT FLOORING INCLUDED IN CALCULATION. SEE LIST OF TYPICAL FLOORING MATERIALS FOR E.S.R.I. VALUES.

CALCULATION FOR E.S.R.I. OF PARALLEL MATERIALS

2x10 WOOD E.R.S.I.: 0.0085x235mm=2.00
R31 F.G. BATT INSUL E.R.S.I.: 241mm TH. = 5.46
13% FRAMING AND 87% INSUL FOR 16" O.C.
100 / [13/2.00)+(87/5.46)] = 4.46

ASSEMBLY 9.36.2.6.A-4 (b)
TYPICAL 2x12 @ 16" FLOOR OVER UNHEATED SPACE
REQUIRED MIN. E.R.S.I. VALUE = 4.67 OVER EXTERIOR
REQUIRED MIN. E.R.S.I. VALUE = 4.51 OVER GARAGE

- INTERIOR AIR FILM (E.R.S.I. 0.16)
- FINISH FLOORING (SEE LIST OF TYPICAL FLOORING MATERIALS)
- 3/4" T&G PLY. SHEATHING (GLUED & NAILED) (E.R.S.I. 0.16)
- 6 MIL POLY V.B. (E.R.S.I. 0.0)
- 2x12 @ 16" O.C. W/ 9.5" F.G. BATT INSUL(R31) (E.R.S.I. 4.81) (SEE CALCULATION FOR PARALLEL MATERIALS)
- EXTERIOR AIR FILM (E.R.S.I. 0.03)
- PERFORATED SOFFIT FINISH OR 5/8" GYPSUM WALL BOARD (SOFFIT FINISH FOR EXT. OR G.W.B. FOR GARAGE)

TOTAL EFFECTIVE R.S.I. VALUE = 5.04 ∗

∗ TOTAL E.S.R.I. EXCEEDS REQUIREMENT WITHOUT FLOORING INCLUDED IN CALCULATION. SEE LIST OF TYPICAL FLOORING MATERIALS FOR E.S.R.I. VALUES.

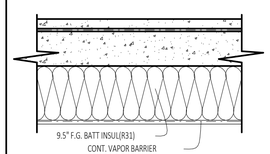
CALCULATION FOR E.S.R.I. OF PARALLEL MATERIALS

2x12 WOOD E.R.S.I.: 0.0085x285mm=2.42
R31 F.G. BATT INSUL E.R.S.I.: 241mm TH. = 5.46
13% FRAMING AND 87% INSUL FOR 16" O.C.
100 / [13/2.42)+(87/5.46)] = 4.69

TYP. FLOORING MATERIALS AND ASSOCIATED E.S.R.I. VALUES

- CERAMIC TILE ON 3/8" LOW DENSITY PARTICLE BOARD - E.R.S.I. 0.10
- VINYL OR LINOLEUM TILE ON 3/8" LOW DENSITY PARTICLE BOARD - E.R.S.I. 0.10
- CARPET AND RUBBER PAD - E.R.S.I. 0.22
- 19mm HARDWOOD FLOORING - E.S.R.I 0.12

DETAIL 9.36.2.6.A-5 - SUSPENDED SLAB ROOF



ASSEMBLY 9.36.2.6.A-5 (a)
SUSPENDED SLAB CEILING WITH SAME
E.S.R.I. REQUIREMENTS AS CATHEDRAL CEILINGS
REQUIRED MIN. E.R.S.I. VALUE = 4.67

- EXTERIOR AIR FILM (E.R.S.I. 0.03)
- MIN. 2" CONCRETE SKIM COAT (E.R.S.I. 0.02)
- TORCH-ON WATERPROOF MEMBRANE (E.R.S.I. 0.00)
- 8" ENGD CONC. SUSPENDED SLAB (E.R.S.I. 0.08)
- 2x10 @ 16" O.C. W/ 9.5" F.G. BATT INSUL(R31) (E.R.S.I. 4.46) (SEE CALCULATION FOR PARALLEL MATERIALS)
- 6 MIL POLY V.B. (E.R.S.I. 0.0)
- 5/8" GYPSUM WALL BOARD (E.R.S.I. 0.10)
- INTERIOR AIR FILM (E.R.S.I. 0.11)

TOTAL EFFECTIVE R.S.I. VALUE = 4.78

CALCULATION FOR E.S.R.I. OF PARALLEL MATERIALS

2x10 WOOD E.R.S.I.: 0.0085x235mm=2.00
R31 F.G. BATT INSUL E.R.S.I.: 241mm TH. = 5.46
13% FRAMING AND 87% INSUL FOR 16" O.C.
100 / [13/2.00)+(87/5.46)] = 4.46

TYPICAL NOTES:

- VENTILATION AND DUCTING MUST BE PROVIDED AS PER B.C.B.C. 2012 SECTION 9.32
- AN AIR BARRIER MUST TO BE INSTALLED AS PER B.C.B.C. 2012 SECTION 9.36
  - THE AIR BARRIER SYSTEM MUST COMPLY WITH SECTIONS 9.36.2.9 AND 9.36.2.10 AND MUST SPECIFICALLY BE CONSTRUCTED USING METHODS OUTLINED IN SUBSECTION 9.36.2.10 (8) AND 9.36.2.10 (11).
- ALL INSULATION TO BE INSTALLED AS PER B.C.B.C. 2012 SECTION 9.36
- ALL GARAGE DOORS: MINIMUM NOMINAL R.S.I. VALUE OF 1.1
- ALL ACCESS HATCHES TO UNCONDITIONED SPACES: MAXIMUM U VALUE OF 2.6
- THE MINIMUM LEVEL OF PERFORMANCE REQUIRED FOR WINDOWS, DOORS AND SKYLIGHTS SHALL BE THAT OF THE PERFORMANCE CLASS R
- ALL WINDOWS AND DOORS [illegible]
- ALL SKYLIGHTS: MAXIMUM [illegible]

THESE PLANS CONFORM TO THE B.C. BUILDING CODE, 2012 ED.

PLAN #-2-3005.19R-55.33x47.57-B

ENERGY EFFICIENCY - ABOVE GRADE

14439 MAGDALEN AVENUE, WHITE ROCK BC

THESE DRAWINGS SHOULD BE PRINTED ON 34" x 22" PAPER TO BE AT SCALE INDICATED. ON REDUCED SIZE THEY WILL NOT BE TO SCALE.

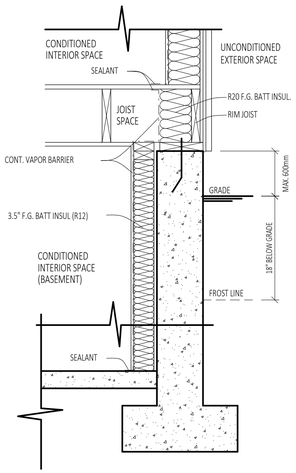
2017-08-03 1:53:32 PM
SCALE: 1/4" = 1'-0"

SHEET: 10 OF 11

DESIGN BY RAYMOND S. BONTER DESIGNER LTD.
#88 - 1959 152nd STREET
SOUTH SURREY, B.C. V4A 9E3
PHONE: 604-535-3322 FAX 1-866-454-4271
EMAIL: info@raymondbonterdesigner.ca

9.36.2.8.A - EFFECTIVE THERMAL RESISTANCE OF ASSEMBLIES BELOW-GRADE OR IN CONTACT WITH THE GROUND IN BUILDINGS WITHOUT A HEAT-RECOVERY VENTILATOR - CLIMATE ZONE 4

DETAIL 9.36.2.8.A-1 - FOUNDATION WALLS



ASSEMBLY 9.36.2.8.A-1 (a)
TYPICAL BASEMENT FOUNDATION WALL
REQUIRED MIN. E.R.S.I. VALUE = 1.99

- ASPHALT EMULSION (E.R.S.I. 0.00)
- 8" ENG'D CONC. FOUNDATION WALL (E.R.S.I. 0.08)
- 1/2" AIR SPACE (E.R.S.I. 0.16)
- 2x4 @ 24" O.C. w/ 3.5" F.G. BATT INSUL (R12) (E.R.S.I. 1.74)
- 6 MIL POLY VAPOR BARRIER (E.R.S.I. 0.00)
- 1/2" GYPSUM WALL BOARD (E.R.S.I. 0.08)
- INTERIOR AIR FILM (E.R.S.I. 0.12)

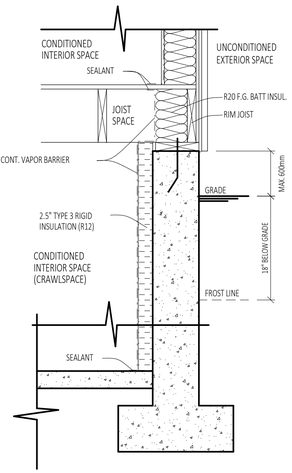
TOTAL EFFECTIVE R.S.I. VALUE = 2.18

CALCULATION FOR E.S.R.I. OF PARALLEL MATERIALS

2x4 WOOD E.R.S.I.: 0.0085x90mm=0.76
3.5" F.G. BATT INSUL E.R.S.I.: 0.0246x90mm=2.16
13% FRAMING AND 87% INSUL FOR 24" O.C. IN BSMNT

$$\frac{100}{(13/0.76)+(87/2.16)} = 1.74$$

- WHERE THE TOP OF A SECTION OF FOUNDATION WALL IS ON AVERAGE LESS THAN 600 MM ABOVE THE ADJOINING GROUND LEVEL, THE ABOVE-GROUND PORTION OF THAT SECTION OF WALL SHALL BE INSULATED TO THE EFFECTIVE THERMAL RESISTANCE REQUIRED FOR THE PORTION IN CONTACT WITH GROUND.



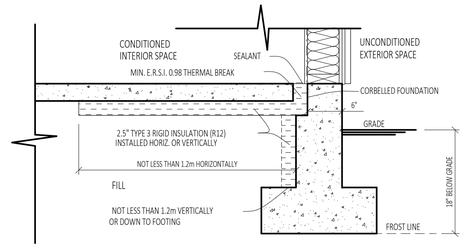
ASSEMBLY 9.36.2.8.A-1 (b)
TYPICAL CRAWLSPACE FOUNDATION WALL
REQUIRED MIN. E.R.S.I. VALUE = 1.99

- ASPHALT EMULSION (E.R.S.I. 0.00)
- 8" ENG'D CONC. FOUNDATION WALL (E.R.S.I. 0.08)
- 2.5" TYPE 3 RIGID INSULATION (R12) (E.R.S.I. 1.90)
- 6 MIL POLY VAPOR BARRIER (E.R.S.I. 0.00)
- INTERIOR AIR FILM (E.R.S.I. 0.12)

TOTAL EFFECTIVE R.S.I. VALUE = 2.10

- WHERE THE TOP OF A SECTION OF FOUNDATION WALL IS ON AVERAGE LESS THAN 600 MM ABOVE THE ADJOINING GROUND LEVEL, THE ABOVE-GROUND PORTION OF THAT SECTION OF WALL SHALL BE INSULATED TO THE EFFECTIVE THERMAL RESISTANCE REQUIRED FOR THE PORTION IN CONTACT WITH GROUND.

DETAIL 9.36.2.8.A-2 - UNHEATED FLOOR ABOVE FROST LINE



ASSEMBLY 9.36.2.8.A-2 (a)
TYPICAL UNHEATED FLOOR ABOVE FROST LINE
REQUIRED MIN. E.R.S.I. VALUE = 1.96

- INTERIOR AIR FILM (E.R.S.I. 0.16)
- 3" CONCRETE SLAB (E.R.S.I. 0.03)
- 6 MIL POLY V.B. (E.R.S.I. 0.00)
- 2.5" TYPE 3 RIGID INSULATION (R12) (E.R.S.I. 1.90)
  - TO 48" BELOW SLAB
  - OR 48" FROM PERIMETER
- PROVIDE MIN. E.R.S.I. 0.98 THERMAL BREAK FROM PERIM. OF SLAB TO EXTERIOR FOUND.

TOTAL EFFECTIVE R.S.I. VALUE = 2.09

- UNHEATED FLOORS-ON-GROUND THAT ARE ABOVE THE FROST LINE AND HAVE NO EMBEDDED HEATING PIPES, CABLES OR DUCTS SHALL BE INSULATED TO THE EFFECTIVE THERMAL RESISTANCE REQUIRED
  - A) ON THE EXTERIOR OF THE FOUNDATION WALL DOWN TO THE FOOTING, OR
  - B) ON THE INTERIOR OF THE FOUNDATION WALL AND, AS APPLICABLE,
    - I) BENEATH THE SLAB FOR A DISTANCE NOT LESS THAN 1.2 M HORIZONTALLY OR VERTICALLY DOWN FROM ITS PERIMETER WITH A THERMAL BREAK ALONG THE EDGE OF THE SLAB THAT MEETS AT LEAST 50% OF THE REQUIRED THERMAL RESISTANCE,
    - II) ON TOP OF THE SLAB FOR A DISTANCE NOT LESS THAN 1.2 M HORIZONTALLY FROM ITS PERIMETER, OR
    - III) WITHIN THE WOODEN SLEEPERS BELOW THE FLOOR FOR A DISTANCE NOT LESS THAN 1.2 M HORIZONTALLY FROM ITS PERIMETER.

SPECIAL NOTE: UNHEATED FLOORS BELOW FROST LINE (BASEMENT OR CRAWLSPACE SLAB) DO NOT REQUIRE INSULATION.

EXCERPT FROM B.C. BUILDING CODE 2012 SECTION 9.36

9.36.2.1. Scope and Application

1) Except as provided in Sentence (2), this Subsection is concerned with the loss of energy due to heat transfer and air leakage through materials, components and assemblies, including their interfaces, forming part of the building envelope where it separates conditioned space from unconditioned space, the exterior air or the ground.
2) The requirements of this Subsection also apply to components of a building envelope assembly that separate a conditioned space from an adjoining storage garage, even if the storage garage is intended to be heated. (See Appendix A and A-9.36.1.3.(5) in Appendix A.)
3) Except for skylight shafts addressed in Sentence 9.36.2.6.(3), for the purpose of this Subsection, wall assemblies inclined less than 60° from the horizontal shall be considered as roof assemblies, and roof assemblies inclined 60° or more from the horizontal shall be considered as wall assemblies.
4) The properties, performance and installation of windows, doors and skylights shall also conform to Section 9.7.
5) The properties, location and installation of thermal insulation, air barrier systems, vapour barriers, and materials with low air or vapour permeance shall also conform to Section 9.25.

9.36.2.2. Determination of Thermal Characteristics of Materials, Components and Assemblies

1) The thermal characteristics of materials shall be determined by calculation or by testing in accordance with the applicable product standards listed in the Code or, in the absence of such standards or where such standards do not address the determination of thermal resistance, in accordance with
a) ASTM C 177, "Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus," or
b) ASTM C 518, "Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus." (See Table A-9.36.2.4.(1)D. in Appendix A for the thermal characteristics of commonly used materials.)
2) Calculations and tests performed in accordance with Sentence (1) shall be carried out at an average temperature of 24±2°C and under a temperature differential of 22±2°C.
3) The thermal characteristics of window, doors and skylights shall be determined by calculation or testing in accordance with
a) CSA A440.2/A440.3, "Fenestration Energy Performance/User Guide to CSA A440.2-09, Fenestration Energy Performance," for the reference sizes listed therein, or
b) NFRC 100, "Determining Fenestration Product U-factors," and NFRC 200, "Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence," for the reference sizes listed therein. (See Appendix A.)
4) The effective thermal resistance of opaque building assemblies shall be determined from
a) calculations conforming to Article 9.36.2.4., or
b) laboratory tests performed in accordance with ASTM C 1363, "Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus," using an indoor air temperature of 21±1°C and an outdoor air temperature of -19±1°C.
5) The thermal characteristics of log walls shall be determined by calculation in accordance with Section 305 of ICC 400, "Design and Construction of Log Structures." (See Appendix A.)

9.36.2.3. Calculation of Ceiling, Wall, Fenestration and Door Areas

1) The gross roof-ceiling assembly area shall be calculated as the sum of the interior surface areas of insulated roof-ceiling assemblies and of skylight openings.
2) Except as permitted by Sentence (3), the gross wall area shall be calculated as the sum of the interior surface areas of all exterior building envelope assemblies above the finished ground level that are inclined 60° or more from the horizontal, including
a) rim joists,
b) fenestration and opaque portions of doors,
c) insulated walls extending from finished ground level to the interior side of the insulated roof-ceiling assembly, and
d) the exposed areas of below-ground building envelope assemblies, where fenestration or doors are located below the plane of the adjacent finished ground.
(See Appendix A.)
3) Where a building of residential occupancy contains more than 2 dwelling units, the gross wall area enclosing conditioned space shall be permitted to include the interior surface areas of walls that enclose a suite, measured from the top surface of the lowest floor to the underside of the highest ceiling in the suite. (See Appendix A.)
4) Fenestration and door areas shall be the actual sizes of window, doors and skylights including all related frame and sash members.
5) The fenestration area made of flat panes that are not all in the same plane or curved panes shall be measured along the surface of the glass. (See Appendix A.)

9.36.2.4. Calculation of Effective Thermal Resistance of Assemblies

1) In calculating the effective thermal resistance of assemblies for the purpose of comparison with the requirements of Articles 9.36.2.6. and 9.36.2.8., the thermal bridging effect of closely spaced, repetitive structural members, such as studs and joists, and of ancillary members, such as lintels, sills and plates, shall be accounted for. (See Appendix A.)
2) Minor penetrations through assemblies, such as pipes, ducts, equipment with through-the-wall venting, packaged terminal air conditioners or heat pumps, shelf angles, anchors and ties and associated fasteners, and minor structural members that must partially or completely penetrate the building envelope to perform their intended function need not be taken into account in the calculation of the effective thermal resistance of that assembly.
3) Major structural penetrations, such as balcony and canopy slabs, beams, columns and ornamentation or appendages that must completely penetrate the building envelope to perform their intended function, need not be taken into account in the calculation of the effective thermal resistance of the penetrated assembly, provided
a) the insulation is installed tight against the outline of the penetration, and
b) the sum of the areas of all such major structural penetrations is limited to a maximum of 2 % of the gross wall area calculated as described in Sentence 9.36.2.3.(2).
(See Appendix A.)
4) Where a component of the building envelope is protected by an enclosed unconditioned space, such as a sun porch, enclosed veranda, vestibule or attached garage, the required effective thermal resistance of the building envelope component between the building and the unconditioned enclosure is permitted to be reduced by 0.16 (m2·K)/W. (See Appendix A.)

9.36.2.5. Continuity of Insulation

1) Except as provided in Sentences (2) to (9) and in Sentence 9.36.2.4.(3) regarding balcony and canopy slabs, and except for clearances around components required for fire safety reasons, interior building components that meet building envelope components and major structural members that partly penetrate the building envelope shall not break the continuity of the insulation and shall not decrease the effective thermal resistance at their projected area to less than that required in Articles 9.36.2.6. and 9.36.2.8. (See Appendix A.)
2) Where an interior wall, foundation wall, firewall, party wall or structural element penetrates an exterior wall or insulated roof or ceiling and breaks the continuity of the plane of insulation, the penetrating element shall be insulated
a) on both of its sides, inward or outward from the building envelope, for a distance equal to 4 times its uninsulated thickness to an effective thermal resistance not less than that required for exterior walls as stated in Table 9.36.2.6.A. or 9.36.2.6.B.,
b) within the plane of insulation of the penetrated element to an effective thermal resistance not less than 60% of that required for the penetrated element, or
c) within itself to an effective thermal resistance not less than that required for the penetrated element.
(See Appendix A.)
3) Where a masonry fireplace or flue penetrates an exterior wall and breaks the continuity of the plane of insulation, it shall be insulated within the plane of insulation of the wall or within itself to an effective thermal resistance not less than 55% of that required for the exterior wall as stated in Table 9.36.2.6.A. or 9.36.2.6.B. (See Appendix A.)
4) Where an ornamentation or appendage penetrates an exterior wall and breaks the continuity of the plane of insulation, the penetrating element shall be insulated
a) on both of its sides, inward or outward from the building envelope, for a distance equal to 4 times the insulated thickness of the exterior wall to an effective thermal resistance not less than that required for the wall as stated in Table 9.36.2.6.A. or 9.36.2.6.B.,
b) within the plane of insulation of the wall to an effective thermal resistance not less than 55% of that required for the exterior wall, or
c) within the penetrating element to an effective thermal resistance not less than that required for the exterior wall.
5) Except as provided in Sentences (8) and (9), where two planes of insulation are separated by a building envelope assembly and cannot be physically joined, one of the planes of insulation shall be extended for a distance equal to at least 4 times the thickness of the assembly separating the two planes. (See Appendix A.)
6) Where mechanical, plumbing or electrical system components, such as pipes, ducts, conduits, cabinets, chases, panels or recessed heaters, are placed within and parallel to a wall assembly required to be insulated, the effective thermal resistance of that wall at the projected area of the system component shall be not less than that required by Tables 9.36.2.6.A, 9.36.2.6.B., 9.36.2.8.A. and 9.36.2.8.B. (See Appendix A.)
7) Except as permitted by Article 9.36.2.11., where mechanical ducts, plumbing pipes, conduits for electrical services or communication cables are placed within the insulated portion of a floor or ceiling assembly, the effective thermal resistance of the assembly at the projected area of the ducts, pipes, conduits or cables shall be not less than 2.78 (m2·K)/W.
8) Joints and junctions between walls and other building envelope components shall be insulated in a manner that provides an effective thermal resistance that is no less than the lower of the minimum values required for the respective adjoining components. (See Appendix A.)
9) Sentence (1) does not apply where the continuity of the insulation is interrupted
a) between the insulation in the foundation wall and that of the floor slab,
b) by an integral perimeter footing of a slab-on-grade (see Sentences 9.25.2.3.(5) and 9.36.2.8.(8)), or
c) at the horizontal portion of a foundation wall that supports masonry veneer and is insulated on the exterior.

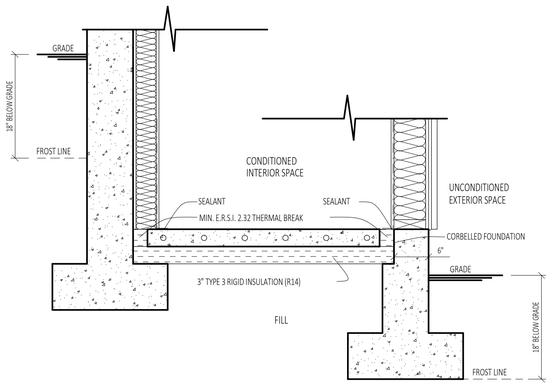
9.36.2.9. Airtightness

1) The leakage of air into and out of conditioned spaces shall be controlled by constructing
a) a continuous air barrier system in accordance with Sentences (2) to (6), Subsection 9.25.3. and Article 9.36.2.10., 3) (Type A4) when tested in
b) a continuous air barrier system in accordance with Sentences (2) to (6) and Subsection 9.25.3. and a building assembly having an air leakage rate not greater than 0.20 L/(s·m accordance with CAN/ULC-S742, "Air Barrier Assemblies - Specification," at a pressure differential of 75 Pa, or
c) a continuous air barrier system in accordance with Sentences (2) to (6) and Subsection 9.25.3. and a building assembly having an air leakage rate not greater than 0.20 L/(s·m 2) when tested in accordance with ASTM E 2357, "Determining Air Leakage of Air Barrier Assemblies."
(See Appendix A.)
2) An air barrier system installed to meet the requirements of Sentence (1) shall be continuous
a) across construction, control and expansion joints,
b) across junctions between different building materials and assemblies, and
c) around penetrations through all building assemblies.
3) Windows, doors and skylights and their components shall comply with the minimum air leakage requirements stated in
a) AAMA/WDMA/CSA 101/I.S.2/A440, "NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights" (Harmonized Standard), and
b) CSA A440S1, "Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights" (Canadian Supplement).
4) Vehicular access doors that separate heated garages from unconditioned spaces or the exterior shall be weatherstripped around their perimeter to prevent air leakage.
5) Fireplaces shall be equipped with doors, enclosures or devices to restrict air movement through the chimney when the fireplace is not in use. (See Appendix A.)
6) Where the airtight material used in the air barrier system is installed toward the exterior of the building envelope, its location and properties shall conform to Subsection 9.25.5. (See Appendix A.)

9.36.2.10. Construction of Air Barrier Details

1) Materials intended to provide the principal resistance to air leakage shall conform to CAN/ULC-S741, "Air Barrier Materials - Specification."
(See A-9.25.5.1.(1) in Appendix A for air leakage characteristics and water vapour permeance values for a number of common materials.)
2) Materials referred to in Sentence (1) shall be
a) compatible with adjoining materials, and
b) free of holes and cracks.
(See A-9.36.2.10.(5)(b) in Appendix A.)
3) Where the air barrier system consists of rigid panel-type material, all joints shall be sealed. (See A-9.36.2.10.(5)(b) in Appendix A.)
4) Where the air barrier system consists of timber logs, all joints shall be sealed to resist airflow through gaps between logs that have shifted due to in-service conditions such as shrinkage and settling.
5) Where the air barrier system consists of flexible sheet material, all joints shall be
a) lapped not less than 50 mm,
b) sealed (see Appendix A), and
c) structurally supported.
6) Sealant material used for the purpose of creating a continuous air barrier system shall
a) be a non-hardening type, or
b) conform to
i) Subsection 9.27.4.,
ii) CAN/ULC-S710.1, "Thermal Insulation - Bead-Applied One Component Polyurethane Air Sealant Foam, Part 1: Material Specification," or
iii) CAN/ULC-S710.1, "Thermal Insulation - Bead-Applied Two Component Polyurethane Air Sealant Foam, Part 1: Material Specification."
7) Penetrations by electrical wiring, outlets, switches or recessed light fixtures through the plane of airtightness shall be constructed airtight
a) where the component is designed to provide a seal against air leakage, by sealing the component to the air barrier material (see Appendix A), or
b) where the component is not designed to provide a seal against air leakage, by covering the component with an air barrier material and sealing it to the adjacent air barrier material.
8) The joints between the foundation wall and the sill plate, between the sill plate and rim joist, between the rim joist and the subfloor material, and between the subfloor material and the bottom plate of the wall above shall be constructed airtight by
a) sealing all joints and junctions between the structural components, or
b) covering the structural components with an air barrier material and sealing it to the adjacent air barrier material.
9) The interfaces between windows, doors and skylights and wall/ceiling assemblies shall be constructed airtight by sealing all joints and junctions between the air barrier material in the wall and the window, door or skylight frame. (See Appendix A.) (See also Subsection 9.7.6.)
10) Cantilevered floors and floors over unheated spaces or over the exterior shall be constructed airtight by one of the following methods or a combination thereof:
a) sealing all joints and junctions between the structural components, or
b) covering the structural components with an air barrier material and sealing it to the adjacent air barrier material.
11) Interior walls that meet exterior walls or ceilings whose plane of airtightness is on the interior of the building envelope and knee walls that separate conditioned space from unconditioned space shall be constructed airtight by
a) sealing all junctions between the structural components,
b) covering the structural components with an air barrier material and sealing it to the adjacent air barrier material, or
c) maintaining the continuity of the air barrier system above or through the interior wall or below or through the knee wall, as applicable.
12) Steel-lined chimneys that penetrate the building envelope shall be constructed airtight by mechanically fastening a metal flange or steel stud that extends not less than 75 mm out from the chimney and sealing the air barrier material to it with a sealant capable of withstanding high temperatures.
13) Masonry or concrete chimneys that penetrate the building envelope shall be constructed airtight by sealing the penetration through the building envelope. (See Appendix A.)
14) Ducts that penetrate the building envelope shall be constructed airtight by sealing the penetration through the building envelope. (See Appendix A.)
15) Plumbing vent stack pipes that penetrate the building envelope shall be constructed airtight by
a) sealing the air barrier material to the vent stack pipe with a compatible sealant or sheathing tape, or
b) installing a rubber gasket or prefabricated roof flashing at the penetration of the plane of airtightness then sealing it and mechanically fastening it to the top plate.
16) Where a party wall meets the plane of airtightness, that junction shall be constructed airtight by sealing any voids within the party wall at the perimeter to the adjacent air barrier material and by
a) sealing all junctions between the structural components, or
b) covering the structural components with an air barrier material and sealing it to the adjacent air barrier material.
17) Where the concrete in a flat insulating concrete form wall acts as the air barrier, the continuity of the plane of airtightness shall be maintained between the concrete and adjacent air barrier materials. minimum values required for the respective adjoining components. (See Appendix A.)
9) Sentence (1) does not apply where the continuity of the insulation is interrupted
a) between the insulation in the foundation wall and that of the floor slab,
b) by an integral perimeter footing of a slab-on-grade (see Sentences 9.25.2.3.(5) and 9.36.2.8.(8)), or
c) at the horizontal portion of a foundation wall that supports masonry veneer and is insulated on the exterior.

DETAIL 9.36.2.8.A-3 - HEATED FLOOR ABOVE OR BELOW FROST LINE



ASSEMBLY 9.36.2.8.A-3 (a)
TYPICAL HEATED FLOOR ABOVE
OR BELOW FROST LINE
REQUIRED MIN. E.R.S.I. VALUE = 2.32

- INTERIOR AIR FILM (E.R.S.I. 0.16)
- 3" CONCRETE SLAB W/ IN-FLOOR HEAT (E.R.S.I. 0.03)
- 6 MIL POLY V.B. (E.R.S.I. 0.00)
- 3" TYPE 3 RIGID INSULATION (R14) (E.R.S.I. 2.28)
- PROVIDE MIN. E.R.S.I. 2.32 THERMAL BREAK FROM PERIM. OF SLAB TO EXTERIOR FOUND.

TOTAL EFFECTIVE R.S.I. VALUE = 2.47

- FLOORS-ON-GROUND WITH EMBEDDED HEATING DUCTS, CABLES OR PIPES SHALL BE INSULATED TO THE EFFECTIVE THERMAL RESISTANCE REQUIRED UNDER THEIR FULL BOTTOM SURFACE INCLUDING THE EDGES.
- WHERE ONLY A PORTION OF A FLOOR-ON-GROUND HAS EMBEDDED HEATING DUCTS, CABLES OR PIPES, THAT HEATED PORTION SHALL BE INSULATED TO THE EFFECTIVE THERMAL RESISTANCE REQUIRED UNDER ITS FULL BOTTOM SURFACE TO 1.2 M BEYOND ITS PERIMETER INCLUDING EXTERIOR EDGES IF APPLICABLE.
- IN ADDITION TO THE REQUIREMENTS STATED ABOVE, HEATED FLOORS-ON-GROUND SHALL BE INSULATED TO THE EFFECTIVE THERMAL RESISTANCE REQUIRED VERTICALLY
  - A) AROUND THEIR PERIMETER, OR
  - B) ON THE OUTSIDE OF THE FOUNDATION WALL, EXTENDING DOWN TO THE LEVEL OF THE BOTTOM OF THE FLOOR.

CONSIDERATION MUST BE GIVEN TO THE FOLLOWING AT THE TIME OF CONSTRUCTION:

- DUCTS LOCATED OUTSIDE THE THERMAL ENCLOSURE ARE SEALED AND INSULATED TO THE EXTERIOR WALL INSULATION REQUIREMENTS.
- DAMPERS ARE INSTALLED AT AIR INLETS AND EXHAUSTS WHERE REQUIRED.
- PIPING FOR HEATING OR COOLING SYSTEMS IS LOCATED WITHIN THE THERMAL ENCLOSURE OR ARE FULLY INSULATED.
- HVAC EQUIPMENT IS LOCATED WITHIN THERMAL ENCLOSURE OR DESIGNATED TO BE INSTALLED OUTSIDE OF THERMAL ENCLOSURE.
- TEMPERATURE CONTROLS ARE INSTALLED ON HEATING AND COOLING EQUIPMENT.
- INDOOR POOLS ARE COVERED OR HAVE AN HRV/DEHUMIDIFIER.
- HVAC AND SWH EQUIPMENT MEET MINIMUM PERFORMANCE REQUIREMENTS DETERMINED IN TABLES 9.36.3.10. AND 9.36.4.2.
- SERVICE WATER HEATING PIPES ARE INSULATED AT THE INLET AND OUTLET OF STORAGE TANKS.
- SERVICE WATER HEATERS HAVE TEMPERATURE CONTROLS.

ENERGY EFFICIENCY REQUIREMENTS

THIS HOME IS DESIGNED TO COMPLY WITH ENERGY EFFICIENCY REQUIREMENTS AND VALUES FOR CLIMATE ZONE 4 - LOWER MAINLAND AND SOUTHERN VANCOUVER ISLAND WITHOUT H.R.V. AND IS DESIGNED UNDER THE PRESCRIPTIVE PATH OF B.C.B.C. 2012 SECTION 9.36.

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DESIGN BY RAYMOND S. BONTER DESIGNER LTD.

PLAN #-2-3005.19R-55.33x47.57-B

THESE PLANS CONFORM TO THE B.C. BUILDING CODE, 2012 ED.

ENERGY EFFICIENCY - BELOW GRADE

14439 MAGDALEN AVENUE, WHITE ROCK BC

THESE DRAWINGS SHOULD BE PRINTED ON 34" x 22" PAPER TO BE AT SCALE INDICATED. ON REDUCED SIZE THEY WILL NOT BE TO SCALE.

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