

SAMPLE DRAWINGS

CONSTRUCTION CODE AUTHORITY - SK

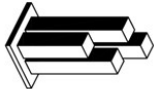
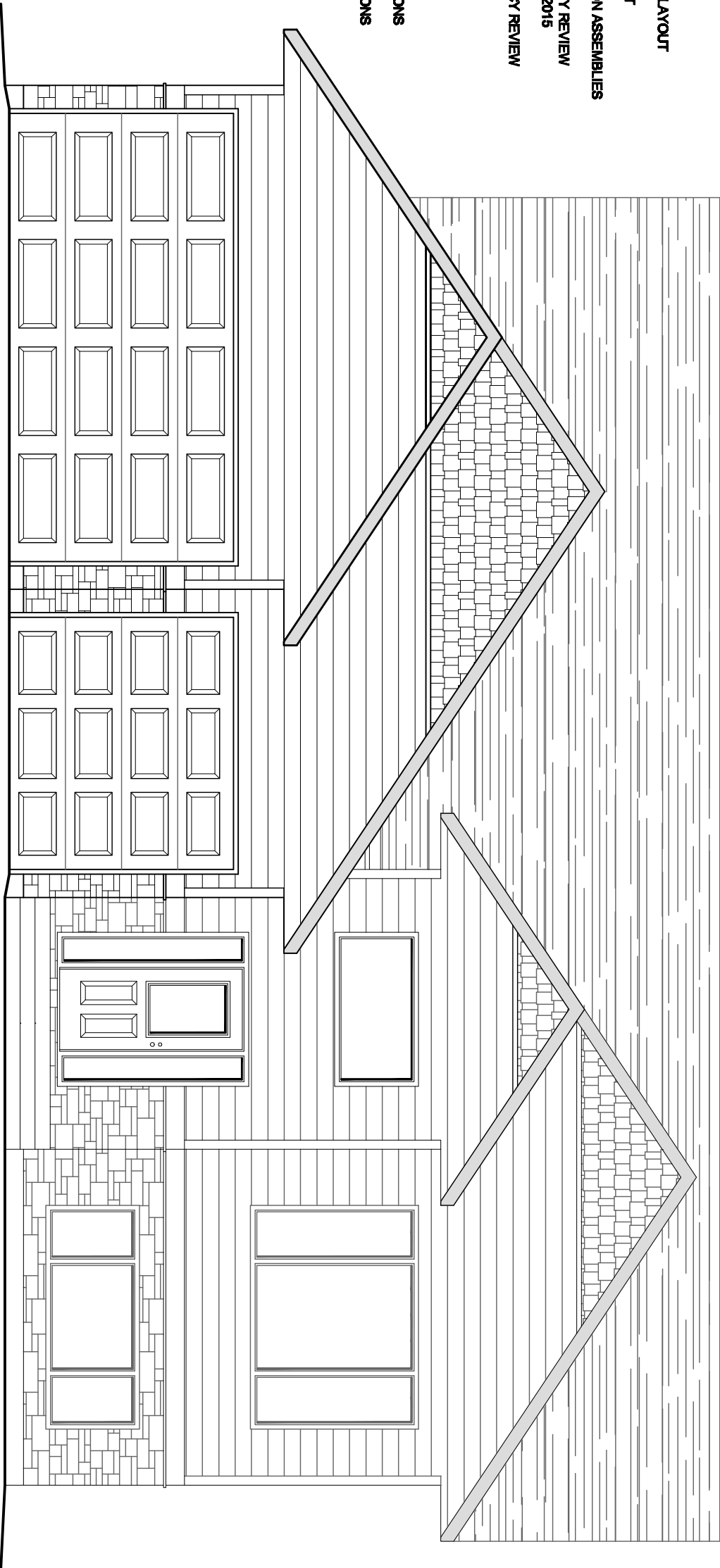
LIST OF DRAWINGS

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- A-2.1 SITE PLAN
- A-3.0 BASEMENT FLOOR PLAN
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SAMPLE SET ONLY

This is not intended to prescribe a specific design requirement. There are several construction systems and techniques that can achieve compliance and appropriate performance levels. The information shown here is meant to be a sample of the type and level of detail and information required to be submitted for review as part of the building permit approval process. In some cases, an engineer or architect may be required to provide design / design review with stamped designs in order to approve.



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DRAWING NAME:

TITLE PAGE

DATE:

JUNE 11, 2019

PROJECT #:

2019-33

DRAWN:

BMV

A-1.0

SAMPLE SET ONLY

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BUILDING AREA

BASEMENT FLOOR: 1354 SQ. FT.
MAIN FLOOR: 1354 SQ. FT.
GARAGE: 728 SQ. FT.
DECK: 280 SQ. FT.

NOTE: AREAS INCLUDE EXTERIOR WALLS

WINDOW SCHEDULE:

	LOCATION:	SIZE:	QTY:
A	LIVING ROOM	96"x72"	1
B	DINING ROOM	36"x72"	2
C	BEDROOM 2, BEDROOM 3	48"x48"	2
D	MASTER BEDROOM	30"x48"	2
E	FAMILY ROOM	96"x40"	1
F	FAMILY ROOM, BEDROOM 4, BEDROOM 5	60"x40"	3
G	ENTRY	66"x36" <small>SEE NOTE 2</small>	1
H	ENSUITE	30"x48"	1

- WINDOW NOTES:
- CONTRACTOR TO CONFIRM WINDOW SIZES AND ROUGH OPENINGS WITH WINDOW SUPPLIER
 - WINDOW WIDTH TO MATCH DOOR UNIT BELOW
 - ALL WINDOWS AND DOORS TO CONFORM TO SECTION 9.36. ENERGY EFFICIENCY OF THE NATIONAL BUILDING CODE OF CANADA 2015

GENERAL NOTES:

CONTRACTOR TO CONFORM TO PART 9 OF NATIONAL BUILDING CODE OF CANADA
DO NOT SCALE DRAWINGS. ALL DIMENSIONS TO BE CONFIRMED BY CONTRACTOR
ALL DIMENSIONS ARE FROM OUTSIDE OF EXTERIOR SHEATHING TO CENTER LINE OF WALLS OR TO CENTER OF WINDOW OPENINGS
CONTRACTOR TO REVIEW AND CONFIRM WINDOW SIZES

ALL DOORS TO BE 6'-8" UNLESS NOTED OTHERWISE

ALL DIMENSION LUMBER MEMBERS (JOISTS, B.U., BEAMS, LINTELS ETC.) ARE SIZED FROM "SPAN BOOK". THE NATIONAL BUILDING CODE OF CANADA 2015 REFERENCES THE "SPAN BOOK" IN APPENDIX A-9.23.4.2.

FOUNDATION TO BE CONFIRMED BY FOUNDATION CONTRACTOR OR IF MUNICIPALITY REQUIRES TO BE CONFIRMED BY A PROFESSIONAL ENGINEER

CONTRACTOR & OWNER TO DETERMINE PLACEMENT OF RESIDENCE ON PROPERTY; MUST CONFORM TO LOCAL & MUNICIPAL BYLAWS/STANDARDS.

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ALL STEEL BEAM MEMBERS SIZED FROM NATIONAL BUILDING CODE OF CANADA 2015 TABLE 9.23.4.4.

STEP FOOTINGS SHALL HAVE MAXIMUM RISE OF 600mm AND A MINIMUM RUN OF 600mm (9.15.3.9)

CONTRACTOR TO VERIFY SETBACKS TO PROPERTY LINES ON SITE AND CONFORM TO MUNICIPAL BYLAWS

DOUBLE JOISTS AROUND ALL FLOOR OPENINGS AND UNDER PARALLEL PARTITIONS

CONTRACTOR TO INSURE POSITIVE DRAINAGE AWAY FROM RESIDENCE

THE DRAWINGS HEREIN ARE A GUIDE ONLY. CONTRACTOR TO ENSURE DRAWINGS MEET LOCAL BUILDING CODES AND PRACTICES. VETTER DRAFTING AND HOME DESIGN NOT RESPONSIBLE FOR ANY CHANGES DONE AFTER SUBMISSION OF DRAWINGS TO THE OWNER

ELECTRICAL LAYOUT AND DESIGN TO BE DONE BY OWNER AND ELECTRICAL CONTRACTOR

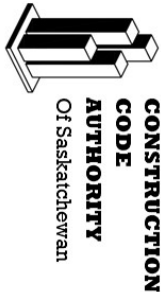
PRESERVED WOOD FOUNDATIONS SHALL CONFORM TO CAN/CSA--S406 "CONSTRUCTION OF PRESERVED WOOD FOUNDATIONS"

INSULATED CONCRETE FORMS SHALL BE REINFORCED WITH REBAR CONFORMING TO MANUFACTURES SPECIFICATIONS
ROUGH IN PIPE FOR RADON GAS AS PER NBC 2015 (9.13.4.3)

LIST OF ABBREVIATIONS:

AA	ATTIC ACCESS	FD	FLOOR DRAIN
ADU.	ADJUSTABLE	FDN	FOUNDATION
AVB	AIR/VAPOUR BARRIER	FLR	FLOOR
AA	ATTIC ACCESS	FLRN	FURNACE
BR	BROOM CLOSET	MECH.	MECHANICAL
B.U.	BUILT UP	o.c.	ON CENTER
CANT.	CANTILEVERED	P.	PANTRY
℄	CENTER LINE	PT	PRESSURE TREATED
COL.	COLUMN	PWF	PRESERVED WOOD FOUNDATION
CONC.	CONCRETE	REINF.	REINFORCED
c/w	COMES WITH	ST.	STEEL
DW	DISHWASHER	T/O	TO OF
DN	DOWN	TYP.	TYPICAL
D	DRYER	U/S	UNDERSIDE OF
ELEC.	ELECTRICAL	VAC	CENTRAL VACUUM
ENG.	ENGINEERED	W.I.C.	WALK IN CLOSET
F.	FRIDGE	W	WASHING MACHINE
H.R.V.	HEAT RECOVERY VENTILATOR	W/H	WATER HEATER
ICE	INSULATED CONCRETE FORMS	WD	WOOD
INSUL.	INSULATION		

THESE ABBREVIATIONS MAY OR MAY NOT APPEAR ON THIS SET OF DRAWINGS



BuildTECH
Consulting & Inspections Inc.

SAMPLE DRAWINGS

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DRAWING NAME:

GENERAL NOTES

WINDOW SCHEDULE

DATE:

JUNE 11, 2019

PROJECT #:

2019-33

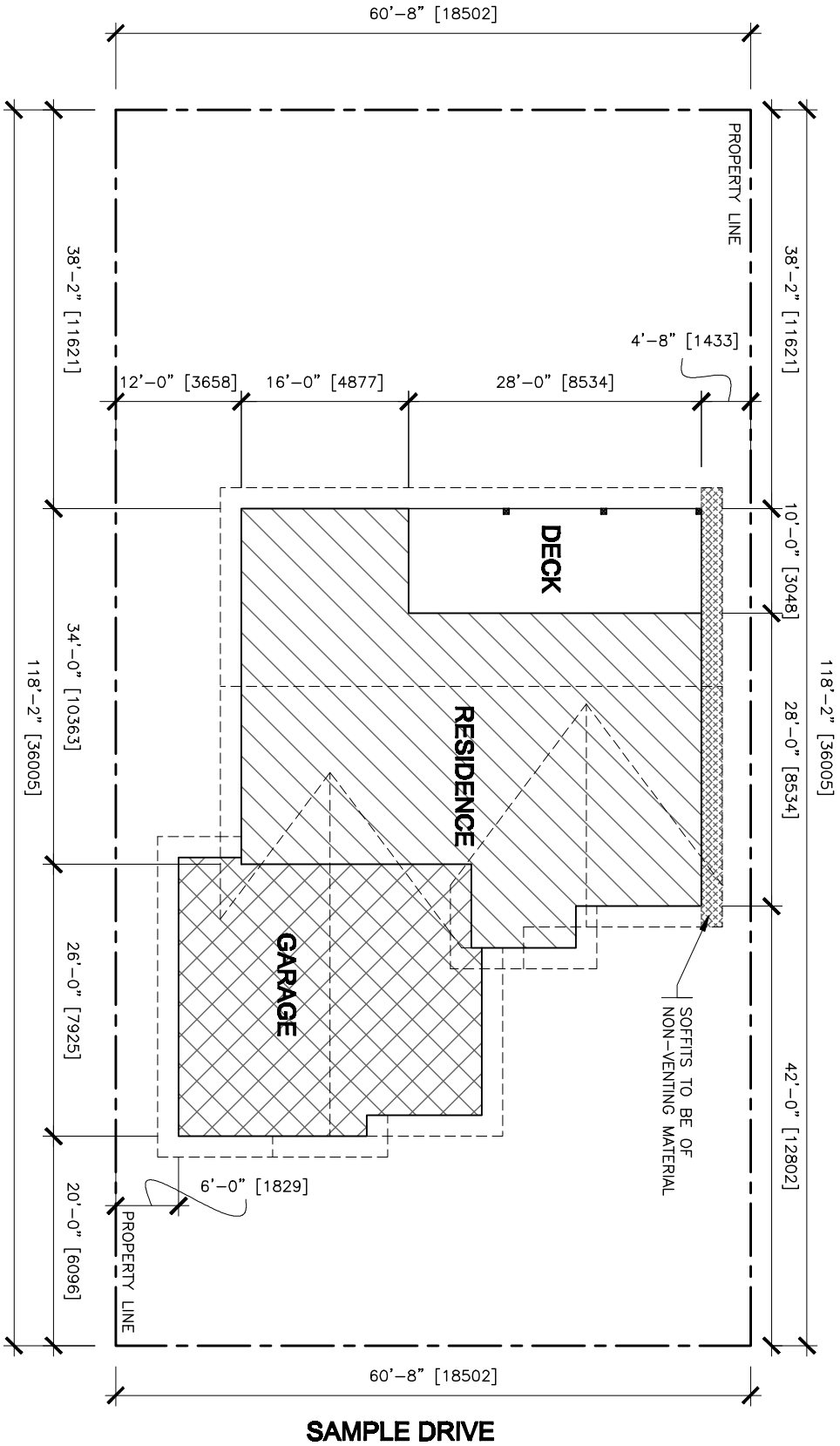
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SITE PLAN

SCALE: $\frac{1}{8}" = 1'-0"$



LOT AREA:
7171 ft² [666.2 m²]
SITE COVERAGE = 32.8%

NOTE:
CONFIRM WITH AUTHORITIES HAVING JURISDICTION
CORRECT SETBACKS FROM PROPERTY LINES;
CONTRACTOR TO ENSURE THE CONSTRUCTION OF
THE RESIDENCE CONFORM TO THESE SETBACKS

LEGAL DESCRIPTION:

LOT 1, BLOCK 2 PLAN #: 123456789

CIVIC ADDRESS:

123 SAMPLE DRIVE, SAMPLE, SK



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DRAWING NAME:

SITE PLAN

DATE:

JUNE 11, 2019

PROJECT #:

2019-33

DRAWN:

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A-2.1

Street Address
#7 - 301 Centennial Drive North
Martensville, SK

Mailing Address
PO Box 1612
Martinsville, SK S0K 2T0

Website
www.buildtechinspections.ca

Phone:
(306) 370-2824

Fax:
(306) 978-3014

FOUNDATION PLAN
SCALE: $\frac{1}{8}" = 1'-0"$
NORTH

SCALE: $\frac{1}{8}" = 1'-0"$

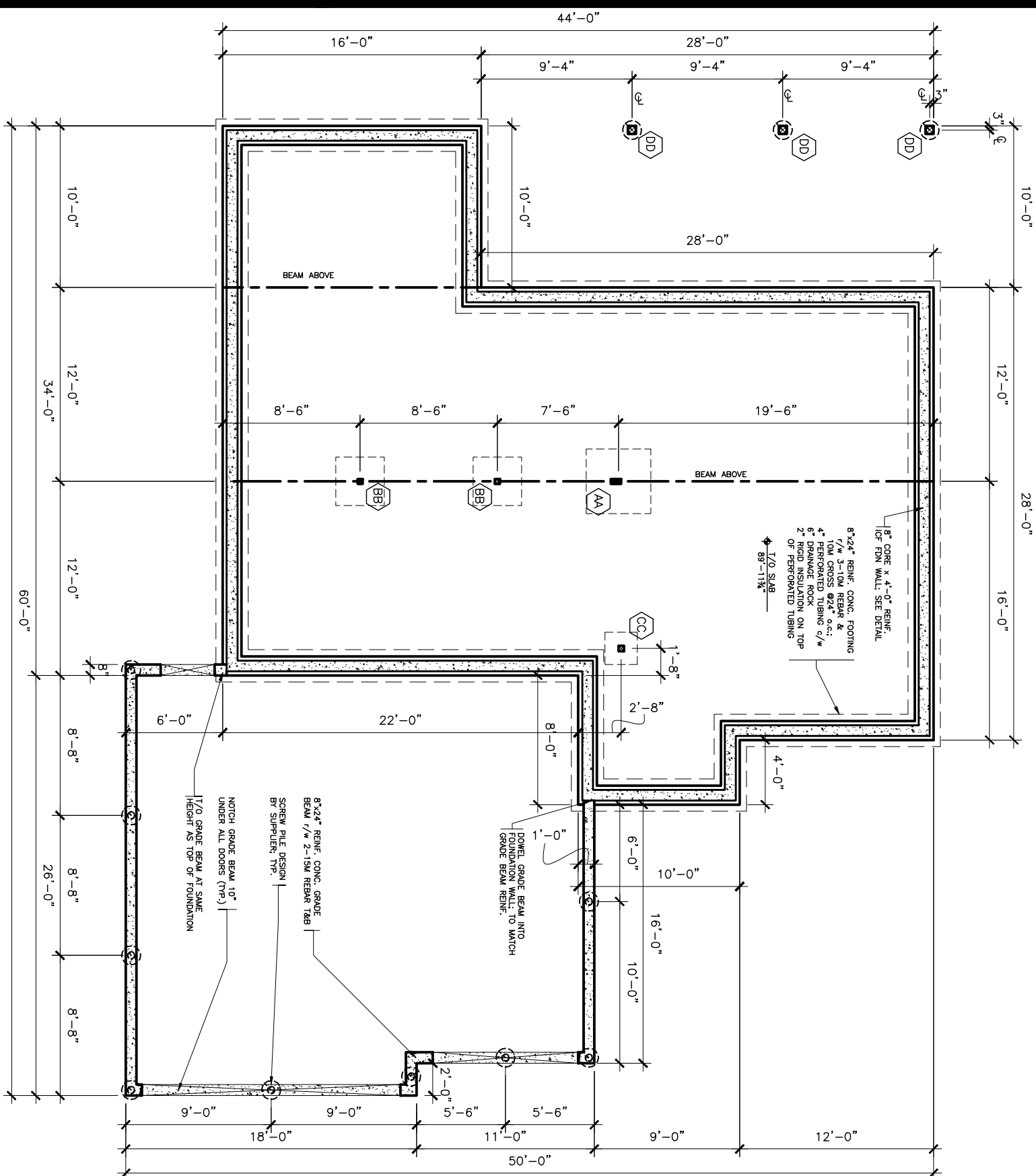
FOUNDATION PLAN

NOTES:

1. CONCRETE IN ACCORDANCE WITH CSA A23.1-04 3600 psi 28 DAY COMPRESSIVE STRENGTH
2. REINFORCING STEEL IN ACCORDANCE WITH CSA G30.18 400MPa YIELD, 10M MATERIAL MAY BE 300MPa YIELD
3. ALL CONCRETE TO BE MINIMUM 20 MPa; 32 MPa MINIMUM FOR GARAGE SLABS
4. FOUNDATION TO BE CONFIRMED BY FOUNDATION CONTRACTOR OR IF MUNICIPALITY REQUIRES TO BE CONFIRMED BY A PROFESSIONAL ENGINEER
5. ROUGH IN PIPE FOR RADON GAS AS PER NBC 2015 (9.13.4.3)

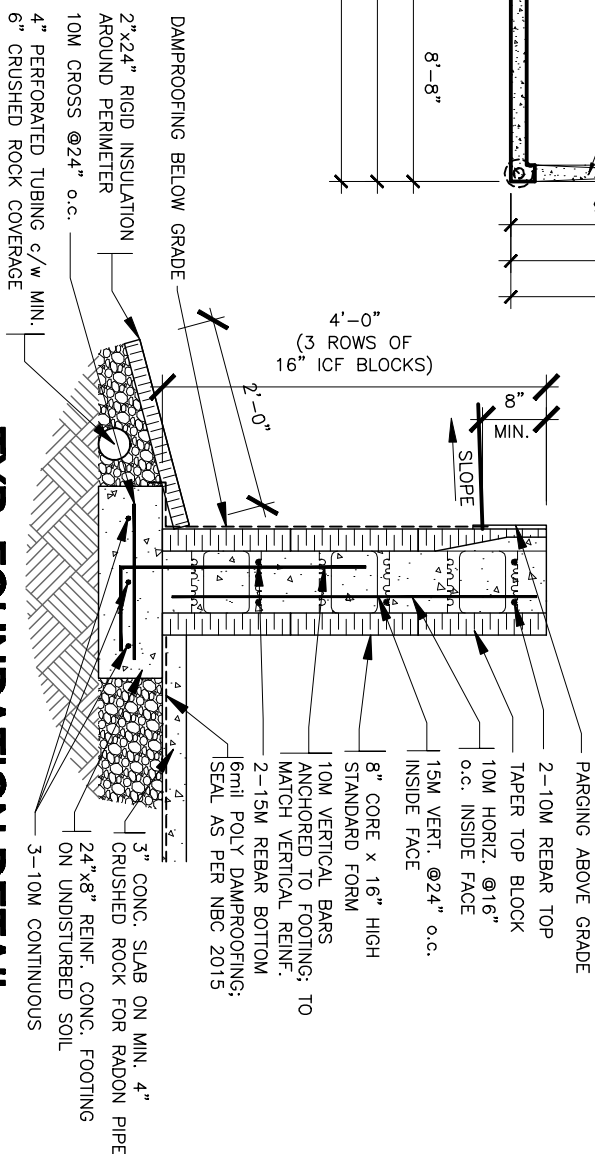
COLUMNS & COLUMN FOOTINGS

- | | |
|----|--|
| AA | 2-4" HD. STEEL COLUMN ON 48"x48"x12" REINF. CONC. COLUMN FOOTING r/w 15M REBAR 8" o.c. E/W |
| BB | 4" HD. STEEL COLUMN ON 36"x36"x8" REINF. CONC. COLUMN FOOTING r/w 15M REBAR 8" o.c. E/W |
| CC | 4"x4" P.T. COLUMN ON 24"x24"x8" REINF. CONC. COLUMN FOOTING r/w 15M REBAR 8" o.c. E/W |
| DD | 6"x6" P.T. POST ON SCREW PILE BY SUPPLIER |



SAMPLE SET ONLY

THIS IS NOT INTENDED TO PRESCRIBE A SPECIFIC DESIGN REQUIREMENT. THERE ARE SEVERAL CONSTRUCTION SYSTEMS & TECHNIQUES THAT CAN ACHIEVE COMPLIANCE AND APPROPRIATE PERFORMANCE LEVELS. THE INFORMATION SHOWN HERE IS ONLY MEANT TO BE A SAMPLE OF THE TYPE AND LEVEL OF DETAIL AND INFORMATION REQUIRED TO BE SUBMITTED FOR REVIEW AS PART AS THE BUILDING PERMIT APPROVAL PROCESS. THE LEVEL OF DETAIL WILL DEPEND ON THE COMPLEXITY OF THE PROJECT. IN SOME CASES, AN ENGINEER OR AN ARCHITECT MAY BE REQUIRED TO PROVIDE DESIGN/REVIEW WITH STAMPED DESIGNS IN ORDER TO APPROVE.



TYP. FOUNDATION DETAIL

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

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FOUNDATION PLAN

DATE:

JUNE 11, 2019

PROJECT #:

2018-33

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A-3-1

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DRAWING NAME:

BASEMENT FLOOR PLAN

DATE:

JUNE 11, 2019

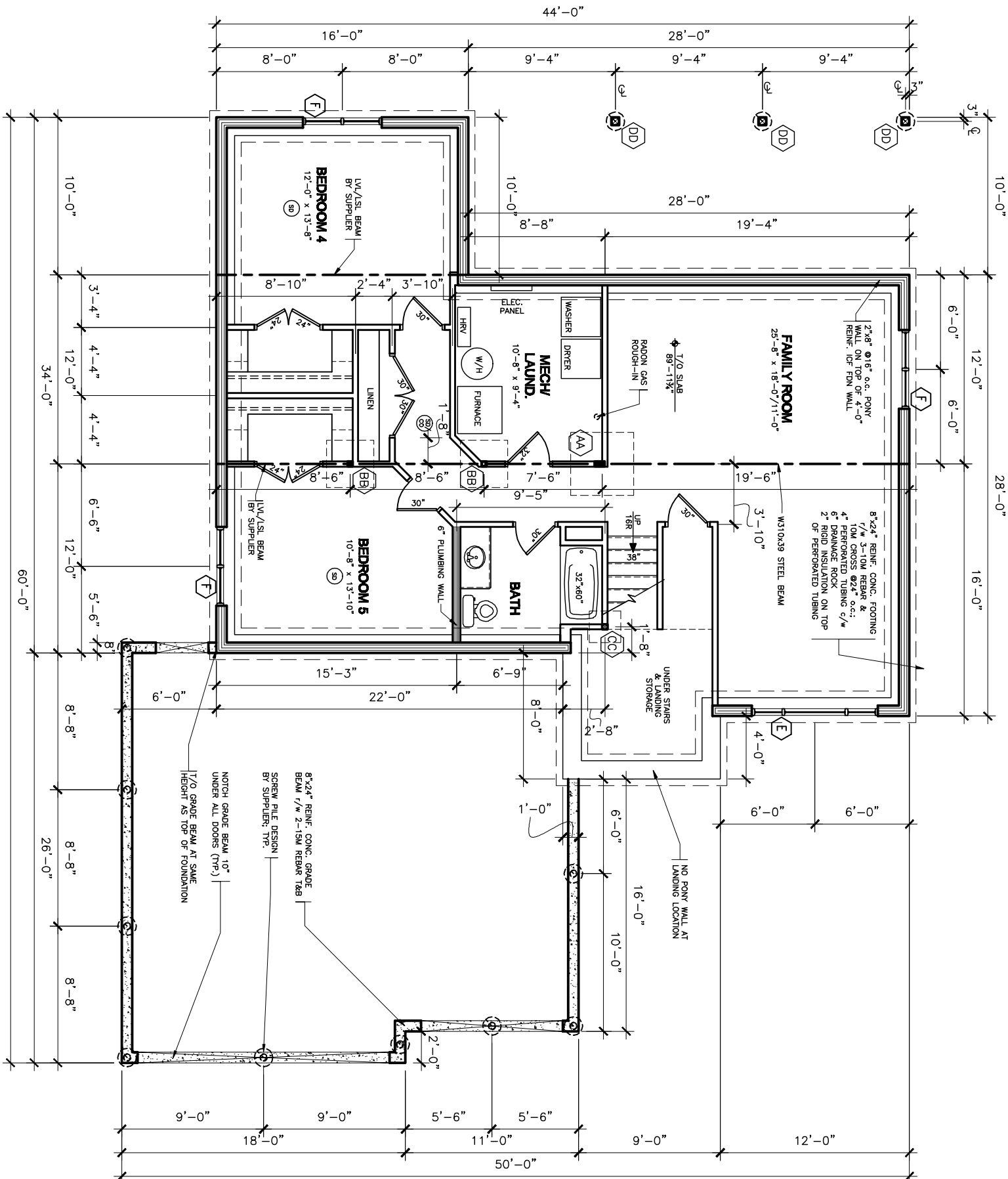
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2019-33

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A-3.0



BASEMENT FLOOR PLAN

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

NOTES:

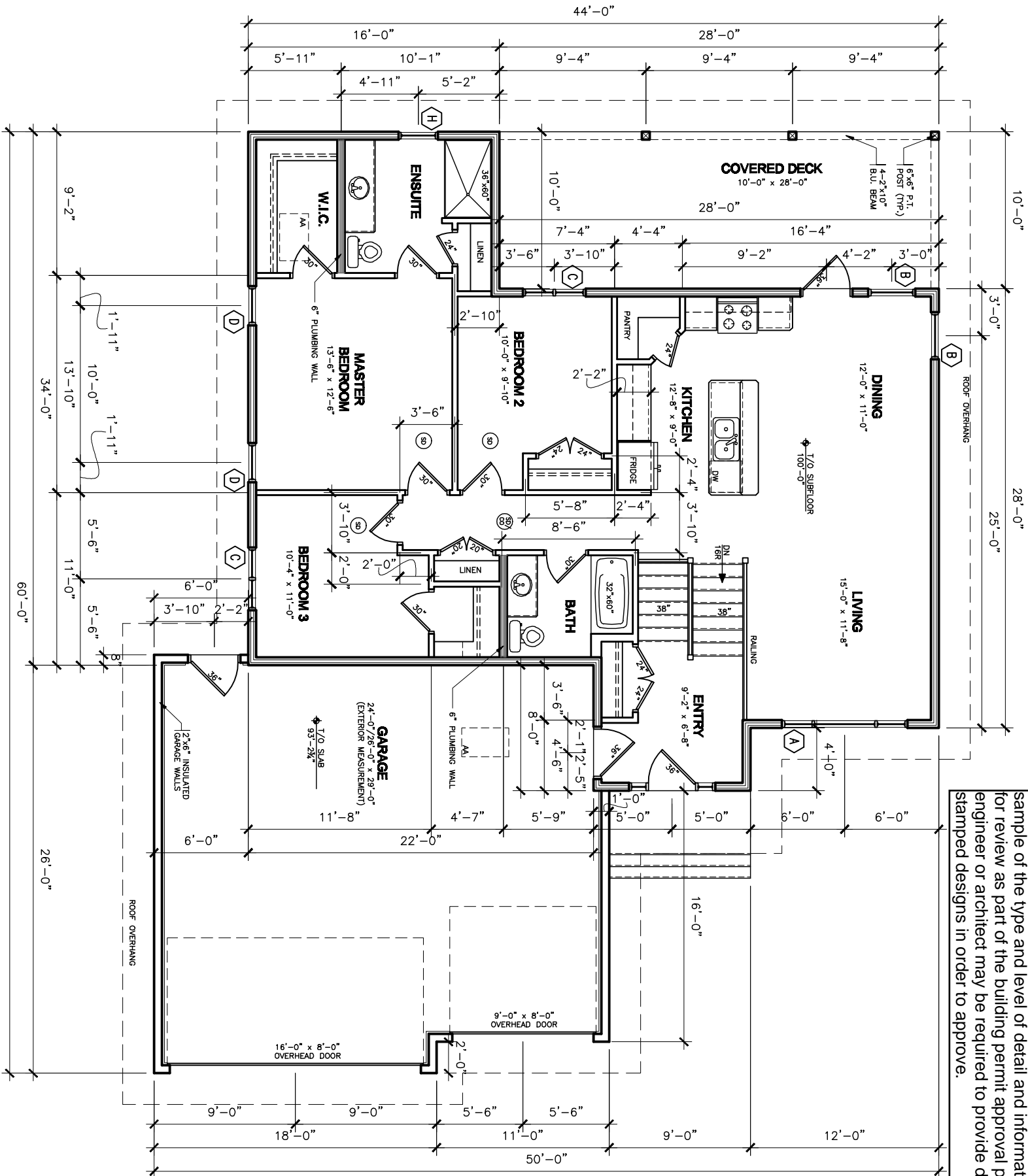
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2. REINFORCING STEEL IN ACCORDANCE WITH CSA G30.18 400MPa YIELD, 10M MATERIAL MAY BE 300MPa YIELD
3. ALL CONCRETE TO BE MINIMUM 20 MPa; 32 MPa MINIMUM FOR GARAGE SLABS
4. FOUNDATION TO BE CONFIRMED BY FOUNDATION CONTRACTOR OR IF MUNICIPALITY REQUIRES TO BE CONFIRMED BY A PROFESSIONAL ENGINEER
5. ROUGH IN PIPE FOR RADON GAS AS PER NBC 2015 (9.13.4.3)

COLUMNS & COLUMN FOOTINGS

- AA 2-4" HD. STEEL COLUMN ON 48"x48"x12" REINF. CONC. COLUMN FOOTING r/w 15M REBAR 8" o.c. E/W
- BB 4" HD. STEEL COLUMN ON 36"x36"x8" REINF. CONC. COLUMN FOOTING r/w 15M REBAR 8" o.c. E/W
- CC 4"x4" P.T. COLUMN ON 24"x24"x8" REINF. CONC. COLUMN FOOTING r/w 15M REBAR 8" o.c. E/W
- DD 6"x6" P.T. POST ON SCREW PILE BY SUPPLIER

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MAIN FLOOR PLAN

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

- NOTE:
1. ATTIC ACCESS HATCHES TO BE MINIMUM 20"x36" AND HAVE A MINIMUM RSI VALUE OF 2.6 [R14.8].
 2. SEE PAGE A-7.0 FOR TYPICAL CONSTRUCTION ASSEMBLIES.

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MAIN FLOOR PLAN

DATE:

JUNE 11, 2019

PROJECT #:

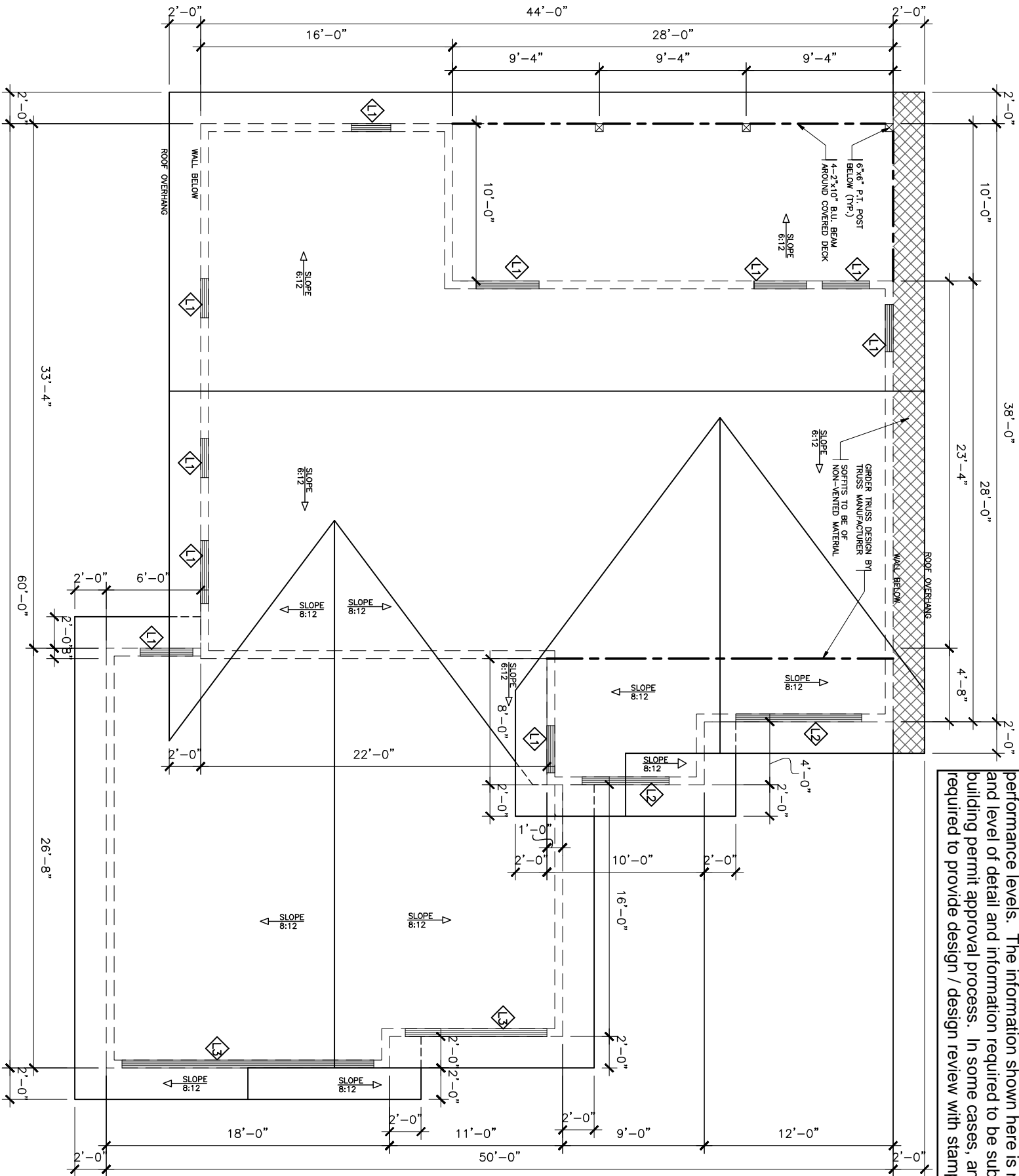
2019-33

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A-4.0

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ROOF PLAN

SCALE: $\frac{1}{8}'' = 1'-0''$

- NOTE:
1. FINAL TRUSS LAYOUT AND DESIGN TO BE DONE BY TRUSS MANUFACTURER/SUPPLIER
 2. ALL HANGERS TO BE SUPPLIED BY TRUSS MANUFACTURER/SUPPLIER
 3. ROOF SOFFITS THAT PROJECT TO LESS THAN 1.2m FROM PROPERTY LINE TO BE NON-VENTED
 4. A MIN. OF 14² OF VENTING AREA PER 3004² OF INSULATED CEILING AREA REQUIRED IN ATTIC SPACE; MIN 25% OF THE VENTING REQUIREMENT TO BE AT LOWER END AND A MIN. OF 25% OF THE VENTING REQUIREMENT TO BE AT UPPER END OF ROOF.

LINTEL SCHEDULE:

L1	2 PLY 2"x10" SPF #2 OR BTR
L2	3 PLY 2"x10" SPF #2 OR BTR
L3	LVL/LSL LINTEL BY SUPPLIER

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DRAWING NAME:

ROOF PLAN

DATE:

JUNE 11, 2019

PROJECT #:

2019-33

DRAWN:

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A-5.0

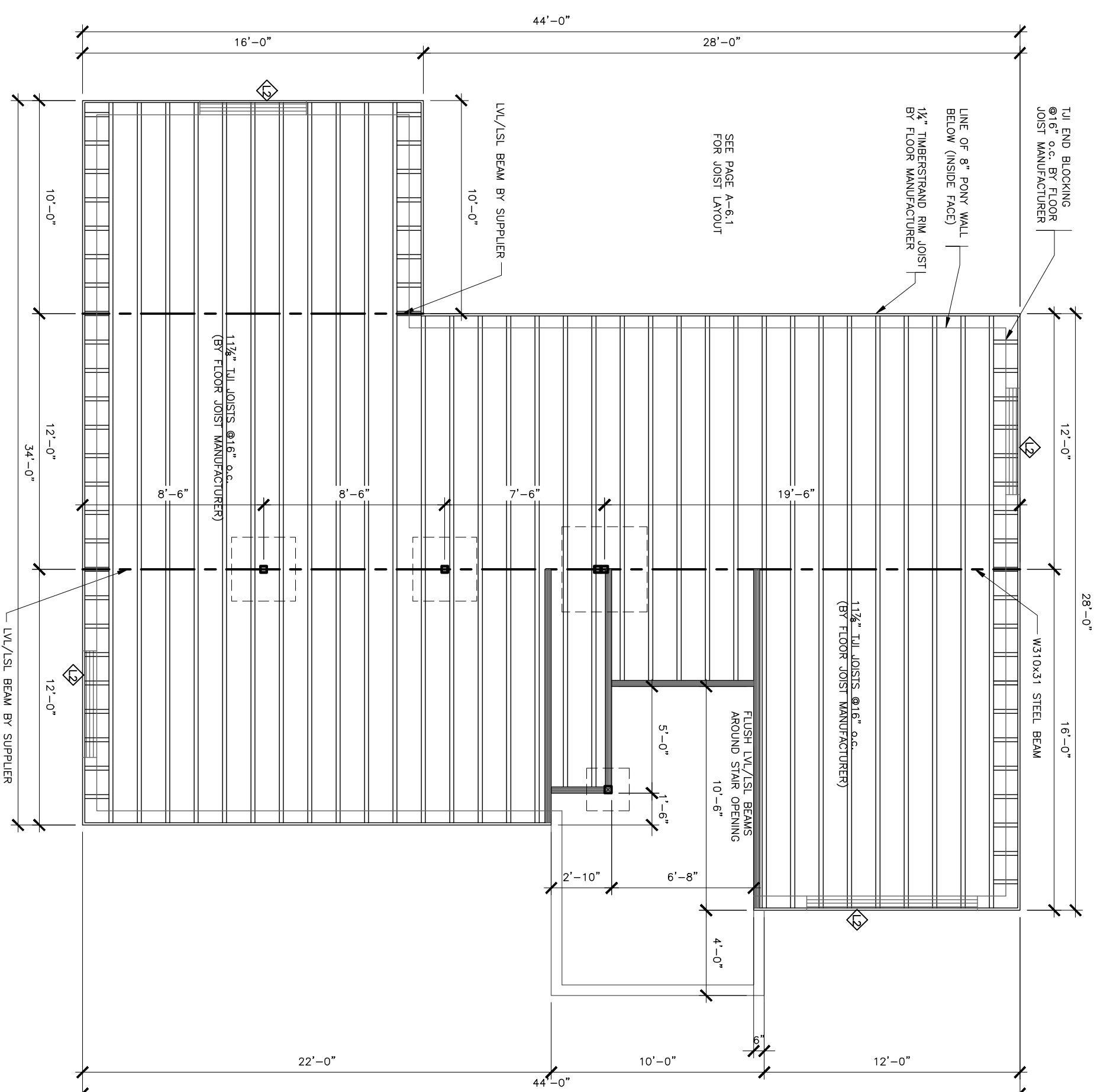
SCALE: $\frac{3}{16}'' = 1'-0''$

NOTES:

1. FINAL FLOOR JOIST DESIGN AND LAYOUT TO BE DONE BY FLOOR JOIST MANUFACTURER/SUPPLIER
2. FLOOR MANUFACTURER TO CONFIRM BEAM & COLUMN SIZES
3. SOLID BLOCKING OR DOUBLE JOISTS UNDER INTERIOR WALLS RUNNING PARALLEL WITH JOISTS
4. ALL BRIDGING AND HANGERS TO BE SUPPLIED BY FLOOR JOIST MANUFACTURER/SUPPLIER

DENOTES FLUSH LVL/LSL
BEAM BY SUPPLIER

INTEL SCHEDULE:	
①	2 PLY 2"x10" SPF #2 OR BTR
②	3 PLY 2"x10" SPF #2 OR BTR
③	LVL/LSL INTEL BY SUPPLIER



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DRAWING NAME

MAIN FLOOR JOIST LAYOUT

DATE:

JUNE 11, 2018

PROJECT #:

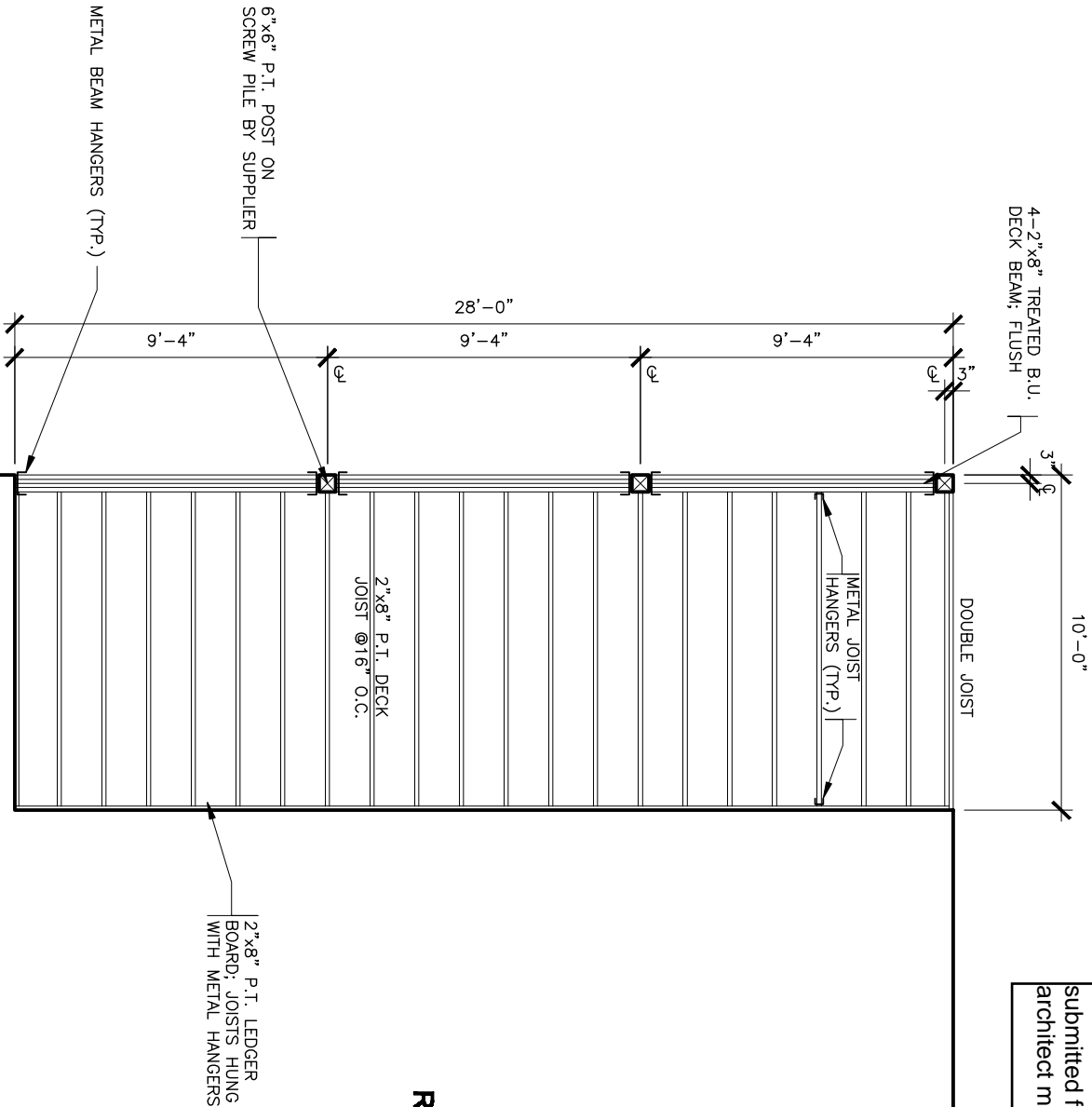
2018-33

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RESIDENCE

DECK PLAN

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



- DECK NOTES:
1. ALL RAILINGS TO BE MINIMUM 42" HIGH; 4" MAX. SPACING BETWEEN VERTICAL MEMBERS; BOTTOM RAIL MAX 4" ABOVE DECKING; TOP RAIL MUST WITHSTAND OUTWARD PRESSURE OF 40 POUNDS/LINEAL FOOT.
 2. ALL DECK MATERIAL TO BE OF TREATED MATERIAL.
 3. DECK STAIRS TO HANG DIRECTLY FROM DECK WITH GUARDS & HANDRAILS ON STAIRS WITH MORE THAN 3 RISERS.
 4. LATERAL BRACING IS REQUIRED ON POSTS WHERE THE DISTANCE FROM GROUND TO U/S OF JOISTS EXCEED 600mm (24")

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DRAWING NAME:

DECK JOIST LAYOUT

DATE:

JUNE 11, 2019

PROJECT #:

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DRAWN:

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A-6.1



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TYPICAL CONSTRUCTION ASSEMBLIES:

NOTE:
SEE PAGE A-7.1 & A-7.2 FOR CALCULATIONS FOR ENERGY EFFICIENCY OF BUILDING ASSEMBLIES TO MEET SECTION 9.36 OF THE "2015 NATIONAL BUILDING CODE OF CANADA"

R1 TYP. ROOF CONSTRUCTION

- ASPHALT SHINGLES
- ROOF VENTING AS REQUIRED
- WATERPROOFING MEMBRANE
- 7/16" OSB SHEATHING c/w H-CLIPS
- ENG. TRUSSES @24" o.c.
- 12" HEEL HEIGHT MIN.
- R60 BLOWN-IN INSULATION
- 6mil POLY AIR/VAPOUR BARRIER
- c/w ACOUSTIC COMPOUND & BLUE TUCK TAPE
- 1/2" CEILING DRYWALL (TAPED & SANDED)
- FINISH AS PER OWNER
- NOTE: - 1ft² ROOF VENTS PER 300ft² ATTIC SPACE
- INSULATION MUST REACH FULL R/RSI-VALUE AT 1.2m (4ft) FROM EXTERIOR WALL
- R20 MIN. ABOVE EXTERIOR WALL @ EAVES

R2 TYP. ROOF CONSTRUCTION ABOVE GARAGE

- ASPHALT SHINGLES
- ROOF VENTING AS REQUIRED
- WATERPROOFING MEMBRANE
- 7/16" OSB SHEATHING c/w H-CLIPS
- ENG. TRUSSES @24" o.c.
- 12" HEEL HEIGHT MIN.
- R40 BLOWN-IN INSULATION
- 6mil POLY AIR/VAPOUR BARRIER
- c/w ACOUSTIC COMPOUND & BLUE TUCK TAPE
- 1/2" CEILING DRYWALL (TAPED & SANDED)
- FINISH AS PER OWNER
- NOTE: - 1ft² ROOF VENTS PER 300ft² ATTIC SPACE
- GARAGE ROOF NEED NOT COMPLY TO SECTION 9.36. ENERGY EFFICIENCY OF THE NATIONAL BUILDING CODE OF CANADA

TYP. EAVE CONSTRUCTION

- PREFINISHED 5" CONTINUOUS METAL EAVESTROUGH
- PREFINISHED METAL FASCIA
- 2"x6" SPF FASCIA BOARD
- PREFINISHED METAL VENTED SOFFITS
- INSULATION BATTLES
- NOTE: IF SOFFITS ARE WITHIN 1.2m OF PROPERTY LINE 1/2" EXTERIOR GRADE DRYWALL OR 3/8" OSB MUST BE APPLIED UNDER SOFFITS; OR A NON VENTED SOFFT MAY BE USED

TYP. FOOTING CONSTRUCTION

- 24"x8" REINF. CONC. FOOTING ON UNDISTURBED SOIL
- c/w 3-10M REBAR CONTINUOUS & 10M CROSS @24" o.c.
- 4"Ø WEEPING TILE
- 6" CRUSHED ROCK MIN. ABOVE WEEPING TILE
- 2"x24" RIGID INSULATION FROST PROTECTION AROUND PERIMETER

TYP. GARAGE GRADE BEAM CONSTRUCTION

- 8"x24" REINF. CONC. GRADE BEAM
- 1/w 2-15M REBAR T&B
- 6" VOID FORM BENEATH GRADE BEAM BETWEEN PILES
- SCREW PILES DESIGNED BY SUPPLIER

W1 TYP. EXTERIOR WALL CONSTRUCTION

- CEMENT BOARD SIDING
- BUILDING WRAP
- METAL FLASHINGS OVER ALL EXTERIOR OPENINGS
- 3/8" O.S.B. SHEATHING
- 2"x6" WD. STUDS @ 16" o.c.
- R24 BATT INSULATION
- 6mil POLY AIR/VAPOUR BARRIER
- c/w ACOUSTIC COMPOUND & BLUE TUCK TAPE
- 1/2" DRYWALL (TAPED & SANDED)
- FINISH AS PER OWNER

W2 TYP. PONY WALL CONSTRUCTION

- CEMENT BOARD SIDING
- BUILDING WRAP
- METAL FLASHINGS OVER ALL EXTERIOR OPENINGS
- 3/8" O.S.B. SHEATHING
- 2"x8" WD. STUDS @ 16" o.c.
- c/w P.T. BOTTOM PLATE
- R28 BATT INSULATION
- 6mil POLY AIR/VAPOUR BARRIER
- c/w ACOUSTIC COMPOUND & BLUE TUCK TAPE
- 1/2" DRYWALL (TAPED & SANDED)
- FINISH AS PER OWNER

W3 TYP. INTERIOR WALL CONSTRUCTION

- FINISH AS PER OWNER
- 1/2" DRYWALL (TAPED & SEALED)
- 2"x4" WD. STUDS @ 16" o.c. (2"x6" AS NOTED) (P.T. BOTTOM PLATE ON BASEMENT INT. WALLS)
- 1/2" DRYWALL (TAPED & SEALED)
- FINISH AS PER OWNER

W4 TYP. FOUNDATION CONSTRUCTION

- PARGING ABOVE GRADE
- DAMPROOFING BELOW GRADE
- 8" CORE ICF. FDN. WALL
- REINF. AS PER MANUFACTURER'S SPECS.
- 1/2" DRYWALL (TAPED & SANDED)
- FINISH AS PER OWNER
- NOTE: ALL ELECTRICAL WIRE AND BOX CUT-OUTS IN ICF WALL TO BE SPRAY FOAMED AFTER INSTALLATION

W5 TYP. GARAGE WALL CONSTRUCTION

- CEMENT BOARD SIDING
- BUILDING WRAP
- METAL FLASHINGS OVER ALL EXTERIOR OPENINGS
- 3/8" O.S.B. SHEATHING
- 2"x6" WD. STUDS @ 16" o.c.
- R20 BATT INSULATION
- 6mil POLY AIR/VAPOUR BARRIER
- c/w ACOUSTIC COMPOUND & BLUE TUCK TAPE
- 1/2" DRYWALL (TAPED & SANDED)
- FINISH AS PER OWNER
- NOTE: - GARAGE WALL NEED NOT COMPLY TO SECTION 9.36. ENERGY EFFICIENCY OF THE NATIONAL BUILDING CODE OF CANADA

W6 WALL CONSTRUCTION BETWEEN GARAGE & RESIDENCE

- FINISH AS PER OWNER
- 3/8" TYPE "x" DRYWALL (GARAGE SIDE)
- BUILDING WRAP
- 3/8" O.S.B. SHEATHING
- 2"x6" WD. STUDS @ 16" o.c.
- R24 BATT INSULATION
- 6mil POLY AIR/VAPOUR BARRIER
- c/w ACOUSTIC COMPOUND & BLUE TUCK TAPE
- 1/2" DRYWALL (TAPED & SANDED)
- FINISH AS PER OWNER

F1 TYP. 1st FLOOR CONSTRUCTION

- FINISHED FLOORING AS PER OWNER
- 3/4" T&G PLYWOOD SUBFLOOR; SCREWED & GLUED
- 11/16" ENGINEERED TJI @16" o.c. BY SUPPLIER
- 1/2" CEILING DRYWALL (TAPED & SANDED)
- FINISH AS PER OWNER
- NOTE: RIM JOIST TO BE SPRAY FOAMED WITH MIN. R20 INSULATION

F2 TYP. BASEMENT SLAB CONSTRUCTION

- 3" CONCRETE SLAB
- 6mil POLY DAMPROOFING; SEALED TO FDN WALL AND ALL PENETRATIONS w/ ACOUSTIC COMPOUND & BLUE TUCK TAPE
- 4" COMPACTED CRUSHED ROCK MIN.
- NOTE: - ROUGH IN PIPE FOR RADON GAS AS PER NBC 2015 (9.13.4.3)
- SLAB NEED NOT BE INSULATED AS FOUNDATION IS INSULATED ON EXTERIOR AS PER 9.36.2.8 4)0

F3 TYP. LANDING CONSTRUCTION

- FINISHED FLOORING AS PER OWNER
- 3/4" T&G PLYWOOD SUBFLOOR; SCREWED & GLUED
- 2"x10" @16" o.c. FLOOR JOISTS
- NOTE: RIM JOIST TO BE SPRAY FOAMED WITH MIN. R22 INSULATION

F4 TYP. GARAGE SLAB CONSTRUCTION

- 4" CONCRETE SLAB 1/w 10M REBAR 24" o.c. DOWELED INTO GRADE BEAM & FOUNDATION WALL; TO MATCH REINFORCING
- 6mil POLY DAMPROOFING; SEALED TO FDN WALL AND ALL PENETRATIONS w/ ACOUSTIC COMPOUND & BLUE TUCK TAPE
- 8" COMPACTED BASE FILL
- NOTE: - GARAGE SLAB NEED NOT COMPLY TO SECTION 9.36. ENERGY EFFICIENCY OF THE NATIONAL BUILDING CODE OF CANADA

SAMPLE DRAWINGS

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DRAWING NAME:

TYPICAL CONSTRUCTION ASSEMBLIES

DATE:

JUNE 11, 2019

PROJECT #:

2019-33

DRAWN:

BMV

A-7.0

ENERGY EFFICIENCY REVIEW
"2015 NATIONAL BUILDING CODE OF CANADA"
SECTION 9.36

OVERVIEW
ZONE – 7B 6000–6999 CELSIUS DEGREE DAYS

NOTE: THIS REVIEW ASSUMES HEAT RECOVERY VENTILATOR TO BE INSTALLED

CONTRACTOR TO CONFORM TO ALL PARTS OF SECTION 9.36 OF THE "NATIONAL BUILDING CODE OF CANADA 2015" NOT JUST THE SECTIONS CONTAINED IN THIS REVIEW.

SECTIONS

9.36.2.4.
4) COMMON WALL BETWEEN GARAGE AND RESIDENCE CAN HAVE A EFFECTIVE THERMAL RESISTANCE RATING REDUCED BY 0.16 RSI WHICH WOULD BE 2.92 RSI [R16:38].

9.36.2.6.

1) b) OPAQUE CONSTRUCTION ASSEMBLIES ABOVE GRADE REQUIRED EFFECTIVE THERMAL RESISTANCE RATINGS

- CEILING BELOW ATTICS RSI 10.43 [R59.23]
- CATHEDRAL CEILINGS/FLAT ROOFS RSI 5.02 [R28.51]
- WALLS (INCLUDING FOUNDATIONS ABOVE GRADE) RSI 3.08 [R17.49]
- FLOORS OVER UNHEATED SPACE RSI 5.02 [R28.51]

2) RIM JOISTS SHALL HAVE AN EFFECTIVE THERMAL RESISTANCE RATING OF RSI 3.08 [R17.49]

9.36.2.7.

- 1) ALL DOORS AND WINDOWS TO HAVE A MAX U–VALUE OF 1.40 OR A ENERGY RATING NOT LESS THAN 29.
- 5) ONE DOOR SEPARATING A CONDITIONED SPACE TO A UNCONDITIONED SPACE OR THE EXTERIOR IS ALLOWED TO HAVE A U–VALUE UP TO 2.6.
- 7) OVERHEAD GARAGE DOORS TO HAVE A NOMINAL THERMAL RESISTANCE OF NOT LESS THAN RSI 1.1 [R6.25]
- 8) ACCESS HATCHES TO HAVE A NOMINAL THERMAL RESISTANCE RATING OF NOT LESS THAN RSI 2.6 [R14.76]

9.36.2.8.

- 1) b) CONSTRUCTION ASSEMBLIES BELOW GRADE OR IN CONTACT WITH GROUND REQUIRED EFFECTIVE THERMAL RESISTANCE RATINGS
 - FOUNDATION WALLS RSI 2.98 [R16.92]
 - UNHEATED FLOORS BELOW FROST LINE UNINSULATED
 - UNHEATED FLOORS ABOVE FROST LINE RSI 1.96 [R11.13]
 - HEATED AND UNHEATED FLOORS ON PERMAFROST RSI 4.44 [R25.21]
 - HEATED FLOORS RSI 2.84 [R16.13]
 - SLABS ON GRADE WITH AN INTEGRAL FOOTING RSI 2.84 [R16.13]
- 3) WHERE THE TOP OF FOUNDATION WALL IS ON AVERAGE MORE THAN 600mm [23^{3⁄4}] ABOVE GRADE THAN IT MUST BE INSULATED IN ACCORDANCE WITH SECTION 9.36.2.6.

9.36.3. HVAC REQUIREMENTS

- MECHANICAL/PLUMBING CONTRACTOR TO CONFORM TO THIS SECTION.
- 9.36.4. SERVICE WATER HEATING SYSTEMS
- MECHANICAL/PLUMBING CONTRACTOR TO CONFORM TO THIS SECTION.

CALCULATIONS PER TYPICAL CONSTRUCTION ASSEMBLIES FROM PAGE A-8.0

SAMPLE SET ONLY

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W1		REFERENCE	RSI VALUE
MATERIAL		TABLE	
OUTSIDE AIR FILM		A-9.36.2.4(1)-D	0.03
CEMENT BOARD SIDING		TABLE	0.026
BUILDING WRAP		A-9.36.2.4(1)-D	NIL
3⁄8" OSB SHEATHING		TABLE	0.093
2"x6" @ 16" o.c. c/w R24 BATT		TABLE	2.66
6mil POLY AIR/VAPOUR BARRIER		A-9.36.2.4(1)-B	NIL
1⁄2" DRYWALL		TABLE	0.07625
INTERIOR AIR FILM		TABLE	0.12
TOTAL:			RSI 3.01 ⁽⁹⁾ [R17.09]

W2		REFERENCE	RSI VALUE
MATERIAL		TABLE	
OUTSIDE AIR FILM		A-9.36.2.4(1)-D	0.03
CEMENT BOARD SIDING		TABLE	0.026
BUILDING WRAP		A-9.36.2.4(1)-D	NIL
3⁄8" OSB SHEATHING		TABLE	0.093
2"x8" @ 16" o.c. c/w R28 BATT		SEE CALCULATIONS	3.29766
6mil POLY AIR/VAPOUR BARRIER			NIL
1⁄2" DRYWALL		TABLE	0.07625
INTERIOR AIR FILM		TABLE	0.12
TOTAL:			RSI 3.64 [R20.67]

W4		REFERENCE	RSI VALUE
MATERIAL		TABLE	
OUTSIDE AIR FILM		A-9.36.2.4(1)-D	0.03
PARGING ABOVE GRADE			NIL
DAMP-PROOFING BELOW GRADE			NIL
OUTER EPS (TYPE 1) INSULATION LAYER (67mm)		TABLE	1.742
8" CONCRETE (203mm)		TABLE	0.0812
INNER EPS (TYPE 1) INSULATION LAYER (67mm)		TABLE	1.742
1⁄2" DRYWALL		TABLE	0.07625
INTERIOR AIR FILM		TABLE	0.12
TOTAL:			RSI 3.79 [R21.52]

W6		REFERENCE	RSI VALUE
MATERIAL		TABLE	
OUTSIDE AIR FILM		TABLE	0.03
3⁄8" TYPE "X" DRYWALL		A-9.36.2.4(1)-D	0.09684
BUILDING WRAP		A-9.36.2.4(1)-D	NIL
3⁄8" OSB SHEATHING		TABLE	0.093
2"x6" @ 16" o.c. c/w R24 BATT		TABLE	2.66
6mil POLY AIR/VAPOUR BARRIER		A-9.36.2.4(1)-B	NIL
1⁄2" DRYWALL		TABLE	0.07625
INTERIOR AIR FILM		TABLE	0.12
TOTAL:			RSI 3.08 [R17.49]

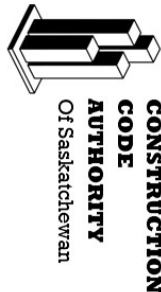
R1		REFERENCE	RSI VALUE
MATERIAL			
ASPHALT SHINGLES			NIL
EAVE PROTECTION			NIL
7⁄8" OSB SHEATHING			NIL
ENG. TRUSSES @24" o.c. w/ R60 BLOWN IN INSULATION ⁽⁹⁾		SEE CALCULATIONS	10.50098
6mil POLY AIR/VAPOUR BARRIER			NIL
1⁄2" CEILING DRYWALL		TABLE	0.07625
INTERIOR AIR FILM		TABLE	0.11
TOTAL:			RSI 10.69 [R60.70]

1st FLOOR RIM JOISTS			
MATERIAL		REFERENCE	RSI VALUE
OUTSIDE AIR FILM		TABLE	0.03
CEMENT BOARD SIDING		TABLE	0.026
BUILDING PAPER		A-9.36.2.4(1)-D	NIL
1 1⁄2" TIMBERSTRAND RIM JOIST		TABLE	0.31115
1 1⁄2" TJI JOIST @ 16" o.c. w/ R20 SPRAY FOAM ⁽⁹⁾		SEE CALCULATIONS	2.72802
INTERIOR AIR FILM		TABLE	0.12
TOTAL:			RSI 3.22 [R18.28]

LANDING RIM JOISTS			
MATERIAL		REFERENCE	RSI VALUE
OUTSIDE AIR FILM		TABLE	0.03
CEMENT BOARD SIDING		TABLE	0.026
BUILDING PAPER		A-9.36.2.4(1)-D	NIL
2"x10" RIM JOIST		TABLE	0.32385
2"x10" @ 16" o.c. w/ R22 SPRAY FOAM ⁽⁹⁾		SEE CALCULATIONS	2.72912
INTERIOR AIR FILM		TABLE	0.12
TOTAL:			RSI 3.23 [R18.34]

NOTES:

- (1). GLASS FIBRE BLOWN-IN INSULATION ASSUMED
- (2). MEDIUM DENSITY SPRAY FOAM INSULATION ASSUMED
- (3). SEE TRADE OFF CALCULATIONS PAGE A-7.2 FOR REDUCED EFFECTIVE RSI VALUE



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ENERGY EFFICIENCY REVIEW
SECTION 9.36.
NBC 2015

DATE:

JUNE 11, 2019

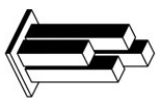
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A-7.1



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W2 CALCULATIONS
TYPICAL WOOD FRAMED WALL FRAMING/CAVITY PERCENTAGES ASSUMED
(TABLE A-9.36.2.4.(1)-A):

FRAMING PERCENTAGE 16" o.c.: 23%
CAVITY PERCENTAGE 16" o.c.: 77%

RSI_f : 184mm x 0.0085 RSI/mm = 1.564 RSI
RSI_c : R28 BATT = 4.93 RSI

RSI(effective):
$$\frac{100}{\left(\frac{\% \text{ FRAMING}}{\text{RSI}_f}\right) + \left(\frac{\% \text{ CAVITY}}{\text{RSI}_c}\right)} = 3.29766 \text{ RSI}$$

R1 CALCULATIONS
CEILING WITH RAISED HEEL TRUSSES FRAMING/CAVITY PERCENTAGES ASSUMED
(TABLE A-9.36.2.4.(1)-A):

FRAMING PERCENTAGE 24" o.c.: 7%
CAVITY PERCENTAGE 24" o.c.: 93%

RSI_f : 89mm x 0.0085 RSI/mm + 475mm x 0.01875 RSI/mm = 9.66275 RSI
RSI_c : R60 BLOWN-IN 564mm (GLASS FIBRE) = 10.57 RSI

RSI(effective):
$$\frac{100}{\left(\frac{\% \text{ FRAMING}}{\text{RSI}_f}\right) + \left(\frac{\% \text{ CAVITY}}{\text{RSI}_c}\right)} = 10.50098 \text{ RSI}$$

PLAN
1st FLOOR RIM JOIST CALCULATIONS
I-JOIST AND TRUSS FLOORS FRAMING/CAVITY PERCENTAGES ASSUMED
(TABLE A-9.36.2.4.(1)-A):

FRAMING PERCENTAGE 16" o.c.: 9%
CAVITY PERCENTAGE 16" o.c.: 91%

RSI_f : 98mm x 0.0085 RSI/mm = 0.833 RSI
RSI_c : R20 SPRAY FOAM 98mm (MEDIUM DENSITY) = 3.52 RSI

RSI(effective):
$$\frac{100}{\left(\frac{\% \text{ FRAMING}}{\text{RSI}_f}\right) + \left(\frac{\% \text{ CAVITY}}{\text{RSI}_c}\right)} = 2.72802 \text{ RSI}$$

PLAN
LANDING RIM JOIST CALCULATIONS
I-JOIST AND TRUSS FLOORS FRAMING/CAVITY PERCENTAGES ASSUMED
(TABLE A-9.36.2.4.(1)-A):

FRAMING PERCENTAGE 16" o.c.: 13%
CAVITY PERCENTAGE 16" o.c.: 87%

RSI_f : 108mm x 0.0085 RSI/mm = 0.918 RSI
RSI_c : R22 SPRAY FOAM 108mm (MEDIUM DENSITY) = 3.87 RSI

RSI(effective):
$$\frac{100}{\left(\frac{\% \text{ FRAMING}}{\text{RSI}_f}\right) + \left(\frac{\% \text{ CAVITY}}{\text{RSI}_c}\right)} = 2.72912 \text{ RSI}$$

TRADE OFF FOR ABOVE-GROUND BUILDING ENVELOPE ASSEMBLIES 9.36.2.11
(TOTAL A/R VALUE OF PROPOSED IS TO BE EQUAL OR LESSER THAN TOTAL A/R VALUE OF REFERENCE)
RSI = (m²xk)/W

SCOPE:

EFFECTIVE RSI VALUE OF MAIN FLOOR WALL ASSEMBLY (W1) IS 3.01 RSI, WHICH DOES NOT MEET SECTION 9.36.2.6. VALUE OF 3.08 RSI.

EFFECTIVE RSI VALUE OF PONY WALL ASSEMBLY (W2) IS 3.64 RSI, WHICH EXCEEDS SECTION 9.36.2.6. VALUE OF 3.08 RSI.

TRADE OFF CALCULATIONS TO SHOW INCREASED RSI VALUES IN PONY WALL ASSEMBLY (W2) TO COMPENSATE FOR DECREASED VALUE IN WALL ASSEMBLY (W1)

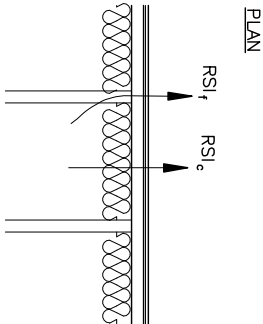
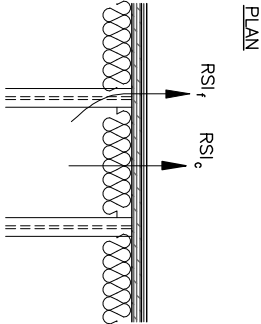
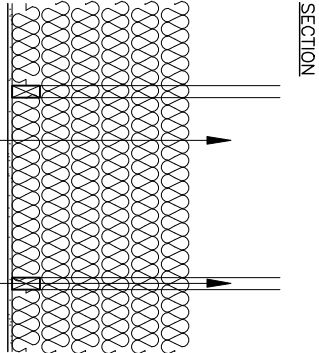
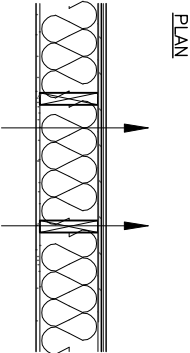
AREAS:

(W1) MAIN FLOOR: 128'-0" [39.014m] x 9'-1" [2.769m] = 1163 ft² [108.03m²]
LANDING: 22'-0" [6.706m] x 14'-1½" [3.775m] = 311 ft² [25.32m²]
1474 ft² [133.35m²]

(W2) BASEMENT: 128'-0" [39.014m] x 5'-2½" [1.591m] = 665 ft² [62.07m²]

ASSEMBLIES BEING TRADED	AREA OF EACH ASSEMBLY (A)	REFERENCE DESIGN VALUES		PROPOSED DESIGN VALUES	
		RSI VALUES (R)	A/R VALUES	RSI VALUES (R)	A/R VALUES
WALL (W1)	133.35m²	3.08 (m²k)/W	43.30 W/K	3.01 (m²k)/W	44.30 W/K
WALL (W2)	62.07m²	3.08 (m²k)/W	20.15 W/K	3.64 (m²k)/W	17.05 W/K
TOTAL A/R VALUE:		63.45 W/K		TOTAL A/R VALUE: 61.35 W/K	

THE ABOVE TRADE OFF CALCULATION MEETS THE REQUIREMENTS OF SECTION 9.36.2.11(2) OF NBC 2015 AS THE TOTAL PROPOSED A/R VALUE IS EQUAL TO OR LESS THAN THE TOTAL REFERENCE A/R VALUE



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REVIEW
CALCULATIONS**

DATE:

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PROJECT #:

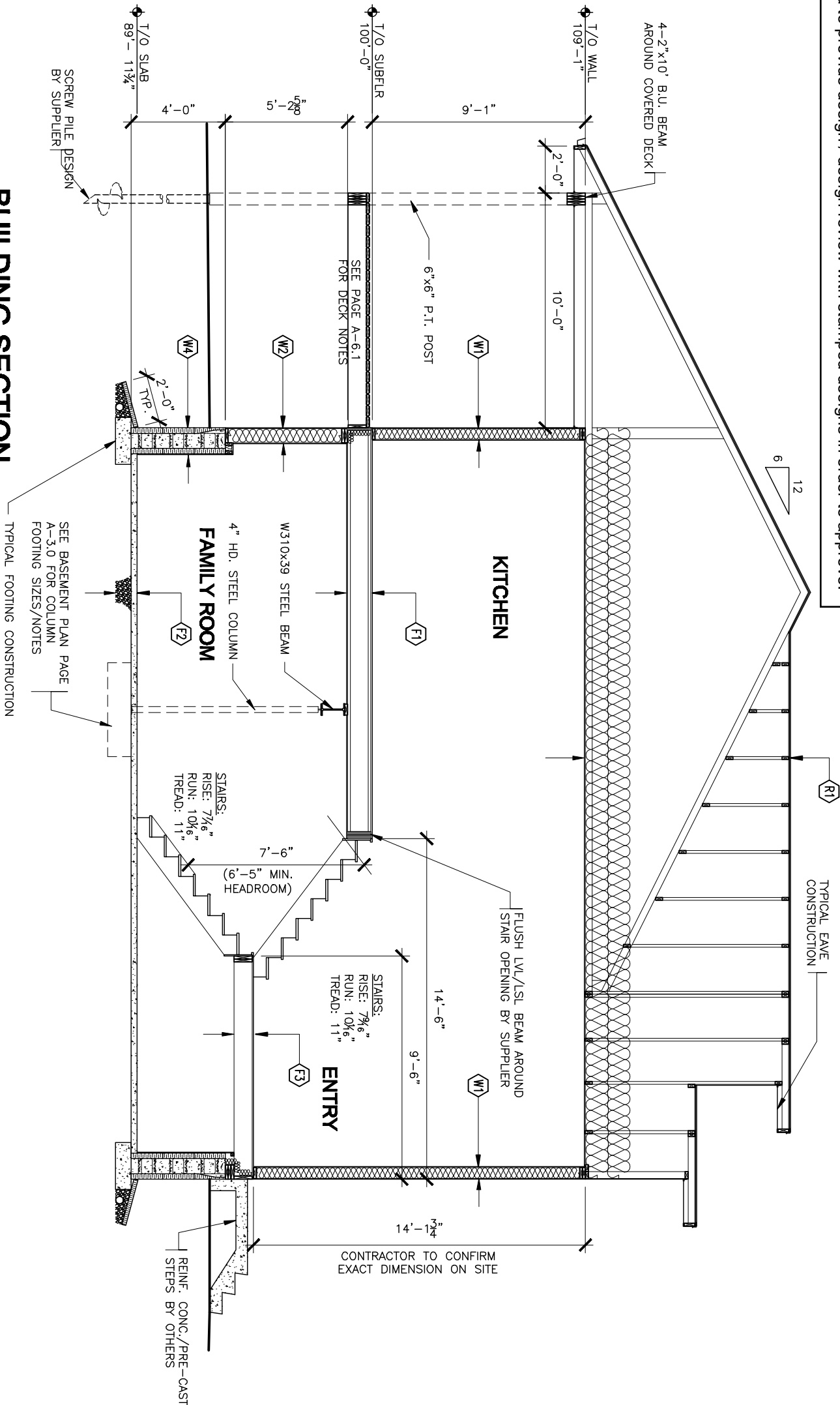
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BUILDING SECTION

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

- NOTES:
1. SEE PAGE A-7.0 FOR TYPICAL CONSTRUCTION ASSEMBLIES
 2. SEE PAGE A-7.1 FOR COMPLIANCE TO SECTION 9.36 ENERGY EFFICIENCY OF THE NATIONAL BUILDING CODE OF CANADA 2015
 3. ALL LUMBER IN CONTRACT WITH CONCRETE FOUNDATION TO BE OF PRESSURE TREATED MATERIAL
 4. TOP OF FDN. TO BE 8" ABOVE GRADE (MIN.)
 5. ROUGH IN PIPE FOR RADON GAS AS PER NBC 2015 (9.13.4.3)
 6. ALL LVL/LSL BEAMS TO BE DESIGN AND SUPPLIED BY FLOOR JOIST MANUFACTURER/SUPPLIER
 7. ALL COLUMNS TO BE SUPPLIED AND DESIGNED BY FLOOR JOIST MANUFACTURER/SUPPLIER
 8. FOUNDATION TO BE CONFIRMED BY FOUNDATION CONTRACTOR OR IF MUNICIPALITY REQUIRES BY A PROFESSIONAL ENGINEER.

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BUILDING SECTION

DATE:

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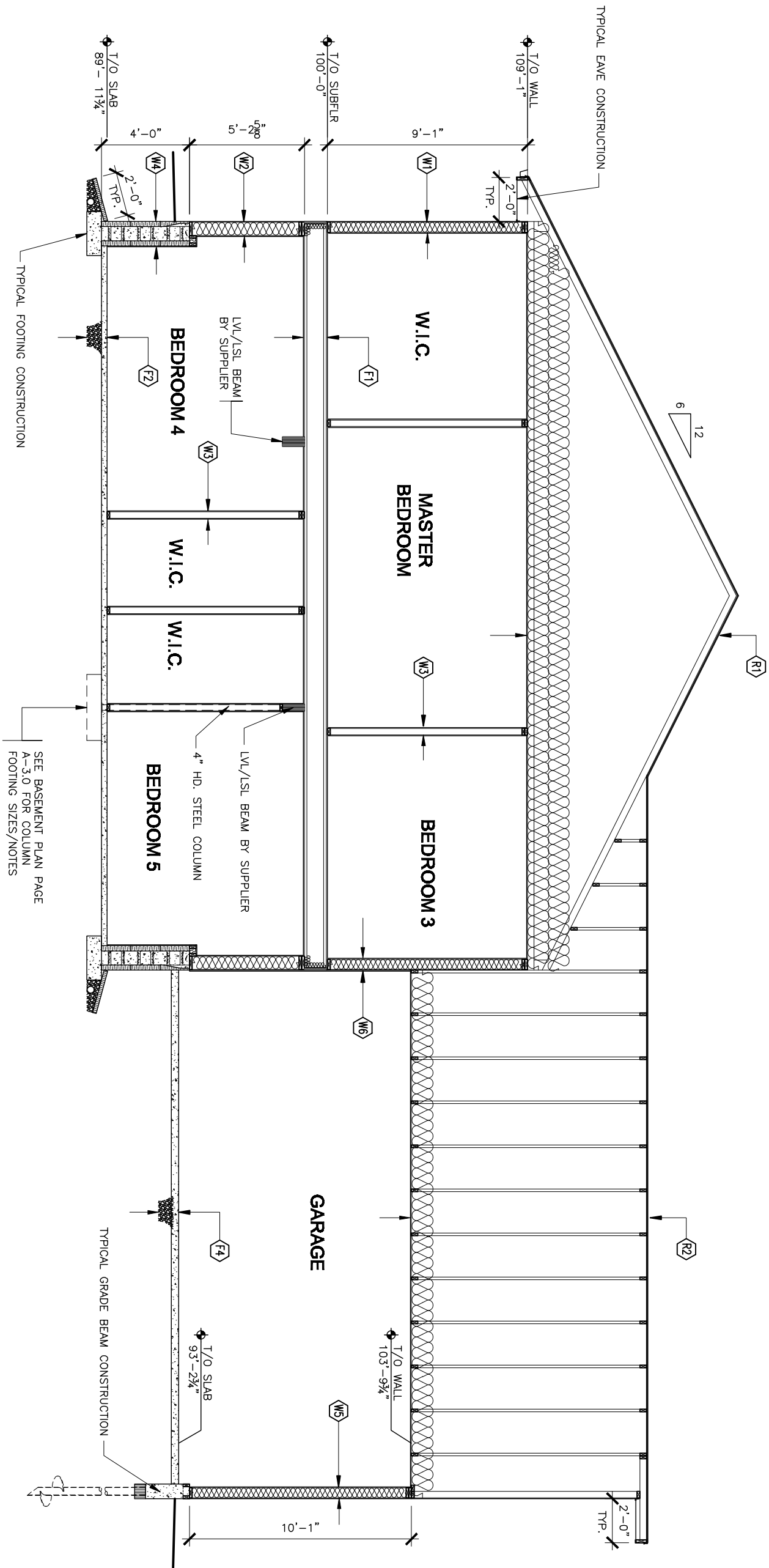
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BUILDING SECTION

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

- NOTES:
1. SEE PAGE A-7.0 FOR TYPICAL CONSTRUCTION ASSEMBLIES
 2. SEE PAGE A-7.1 FOR COMPLIANCE TO SECTION 9.3.6 ENERGY EFFICIENCY OF THE NATIONAL BUILDING CODE OF CANADA 2015
 3. ALL LUMBER IN CONTACT WITH CONCRETE FOUNDATION TO BE OF PRESSURE TREATED MATERIAL
 4. TOP OF FDN. TO BE 8" ABOVE GRADE (MIN.)
 5. ROUGH IN PIPE FOR RADON GAS AS PER NBC 2015 (9.13.4.3)
 6. ALL LVL/LSL BEAMS TO BE DESIGN AND SUPPLIED BY FLOOR JOIST MANUFACTURER/SUPPLIER
 7. ALL COLUMNS TO BE SUPPLIED AND DESIGNED BY FLOOR JOIST MANUFACTURER/SUPPLIER
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BUILDING SECTION

DATE:

JUNE 11, 2019

PROJECT #:

2019-33

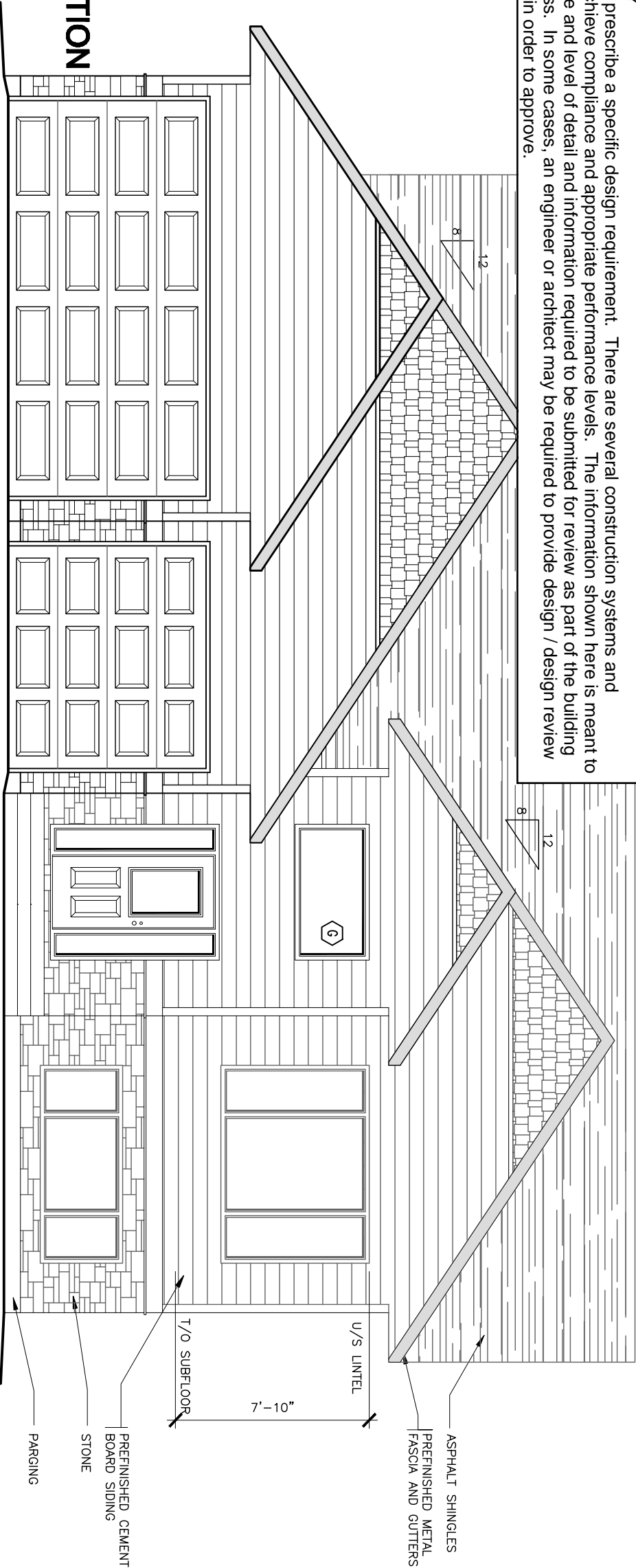
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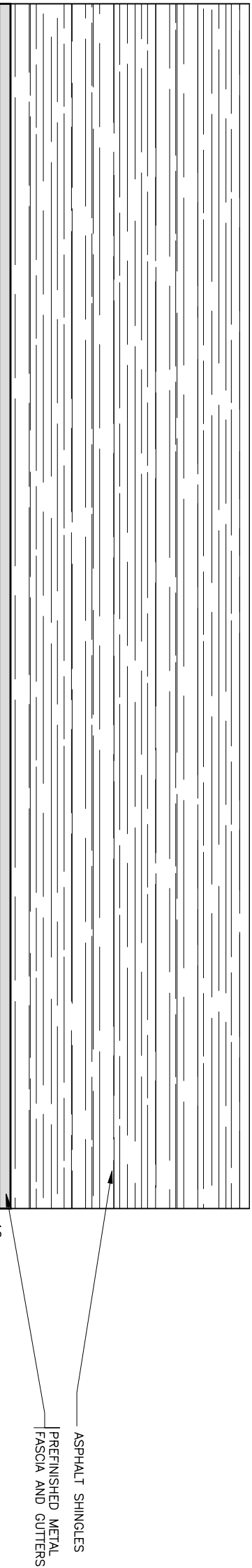
SAMPLE SET ONLY

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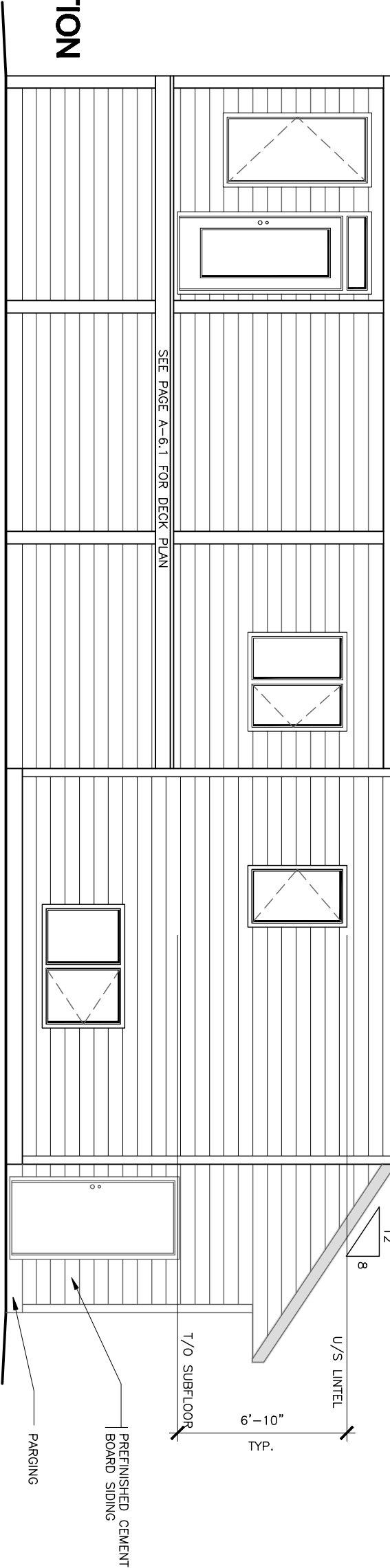
WEST ELEVATION

SCALE: $\frac{3}{8}'' = 1'-0''$



EAST ELEVATION

SCALE: $\frac{3}{8}'' = 1'-0''$



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EXTERIOR ELEVATIONS

DATE:

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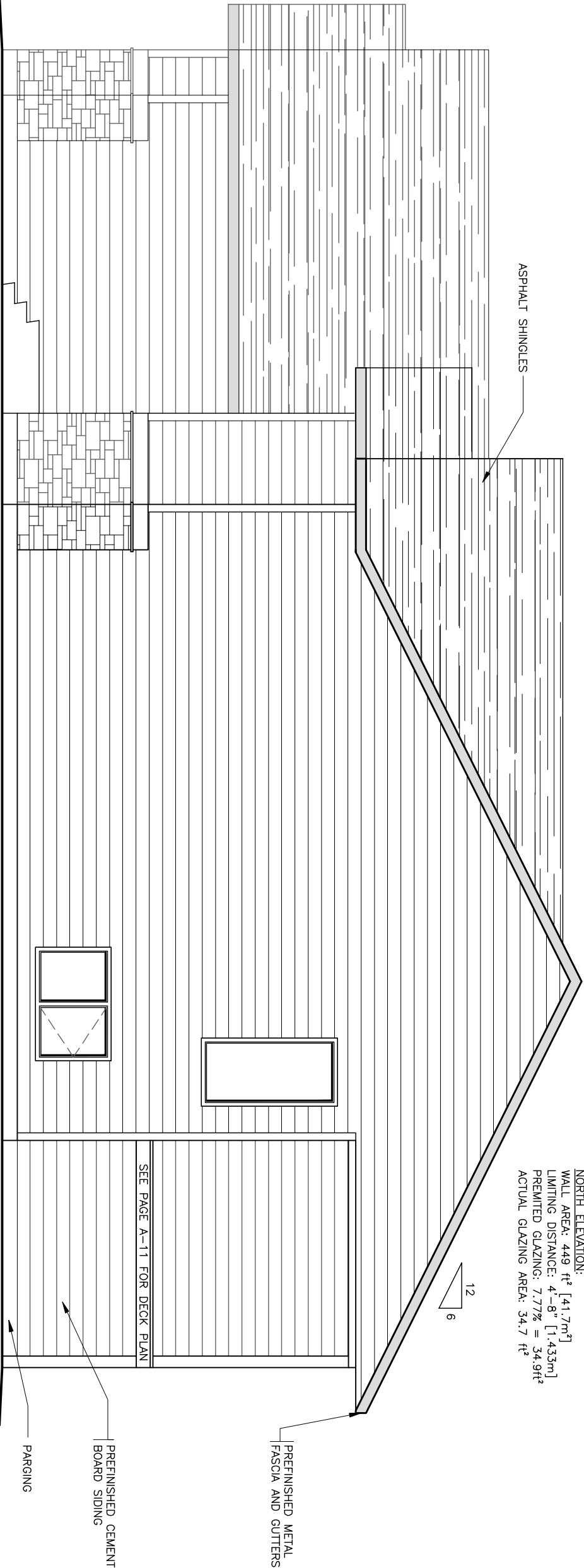
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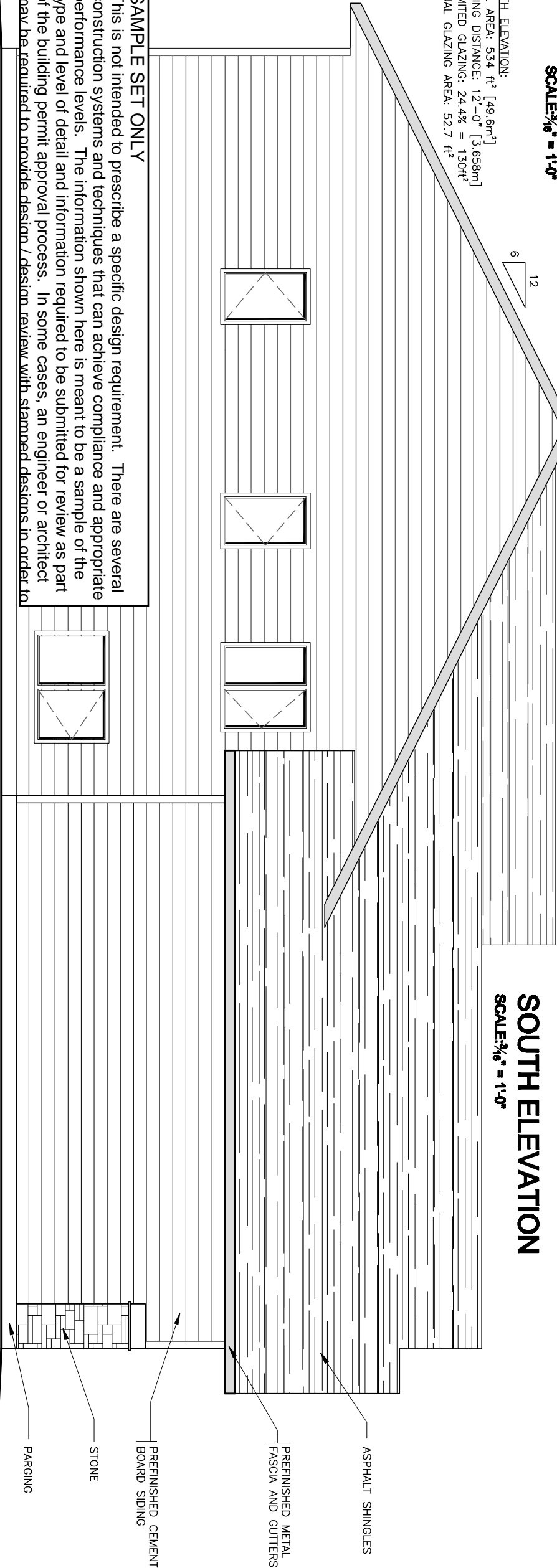
NORTH ELEVATION

SCALE: $\frac{3}{16}" = 1'-0"$

SOUTH ELEVATION:
WALL AREA: 534 ft² [49.6m²]
LIMITING DISTANCE: 12'-0" [3.658m]
PREMITTED GLAZING: 24.4% = 130ft²
ACTUAL GLAZING AREA: 52.7 ft²

SOUTH ELEVATION

SCALE: $\frac{3}{16}" = 1'-0"$



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