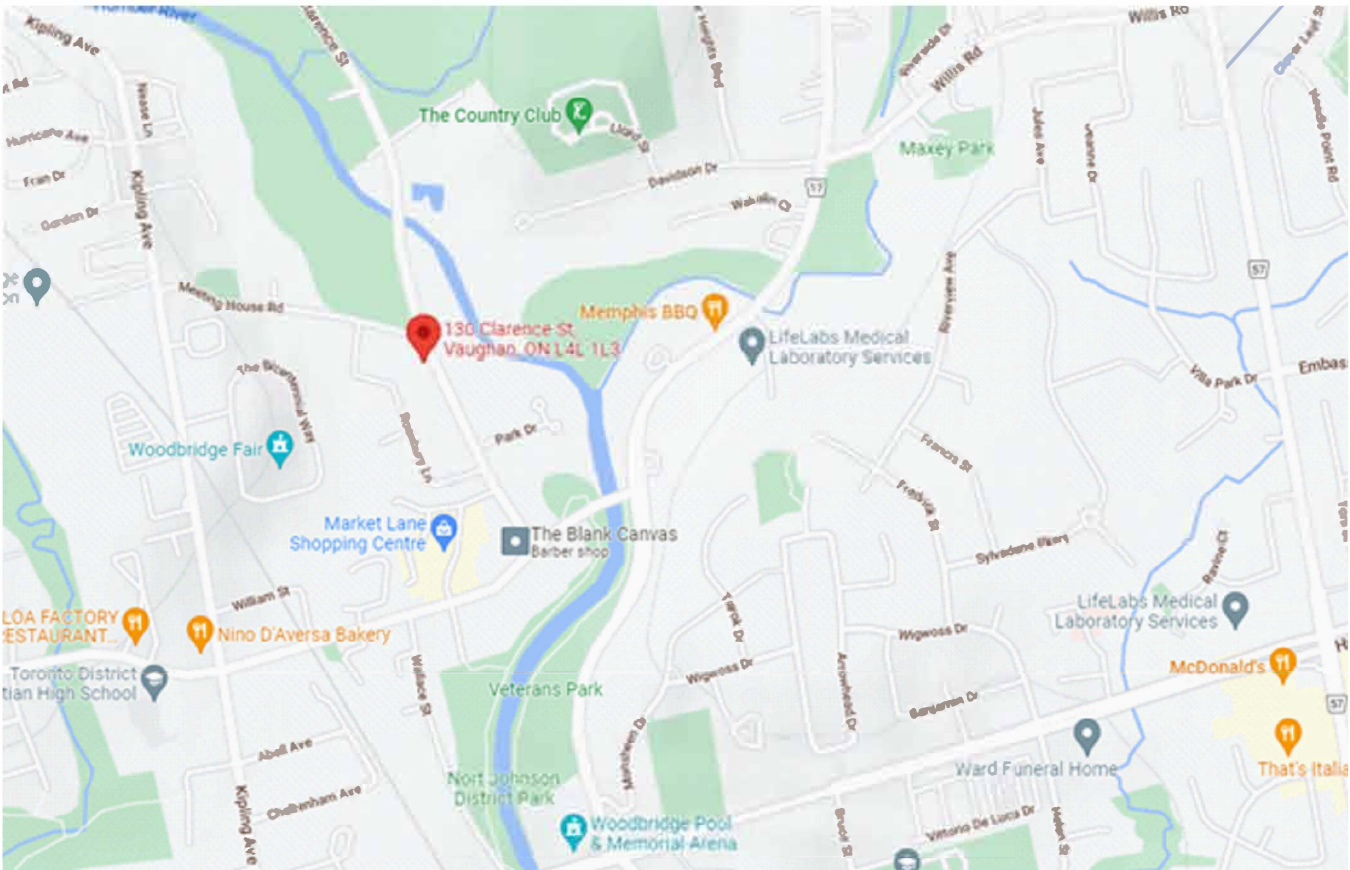
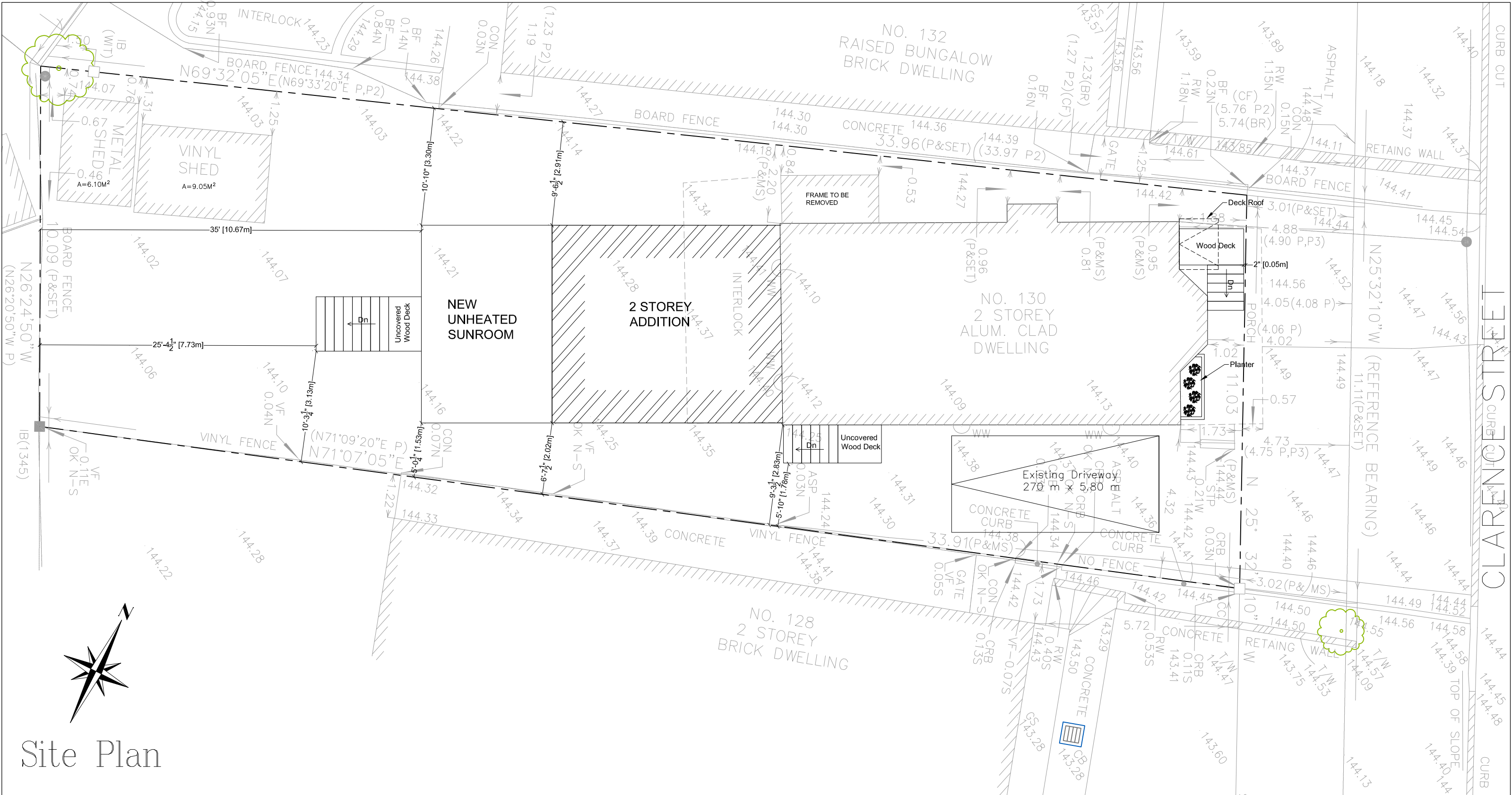


Project Address:
130 CLARENCE ST WOODBRIDGE ON L4L 1L3

Scope of Work:
REAR AND SECOND FLOOR ADDITION
ON EXISTING DETACHED DWELLING

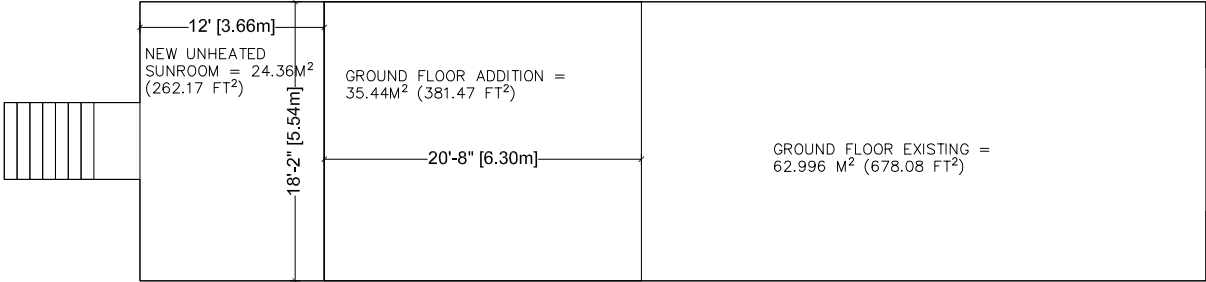
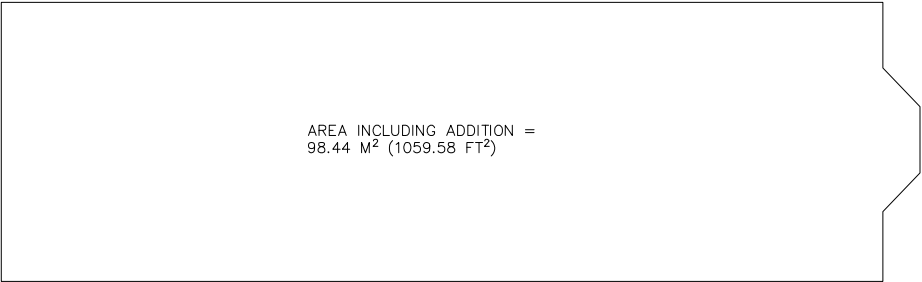
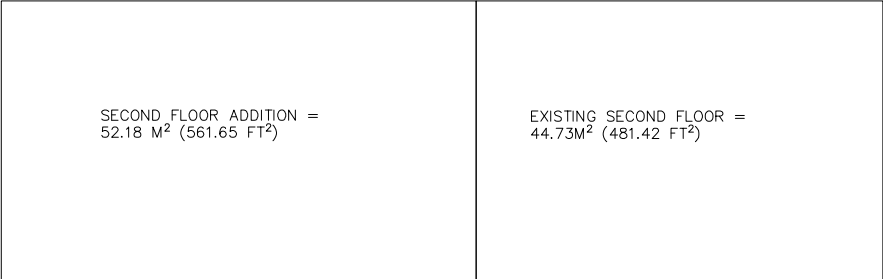
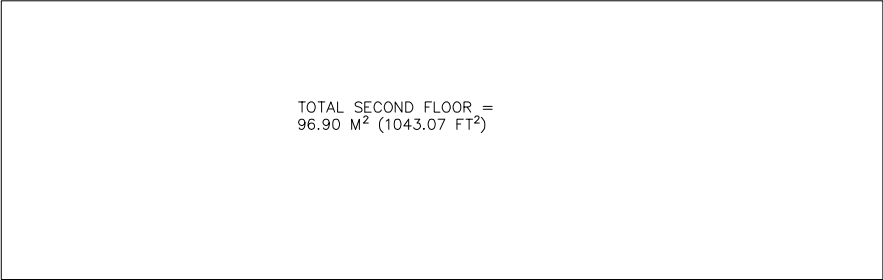
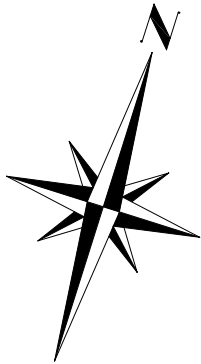


<div><div><div>TBM. ENGINEERS INC.</div><div>DESIGN. DELIVER. INNOVATE.</div></div></div>	<div><div>TBM Engineers Inc.</div><div>15 Jaylynn Crt. Woodbridge, ON (905) 893-9070 www.tbmengeers.com tbmengeers@mail.com</div></div>	<div><div><div>LICENSED PROFESSIONAL ENGINEER</div><div><div>B.F. ESCOBAR</div><div>100138692</div><div>2022-08-16</div></div><div>PROVINCE OF ONTARIO</div></div></div>	<div><div>Project Address: 130 Clarence St, Vaughan, ON L4L 1L3</div><div>Addition and Interior Alterations on Existing Dwelling</div></div>	<div><div>Date 2022-08-16</div><div>Issued for: Building Permit</div><div>Scale: 3/16" = 1'-0" (1:64)</div></div>	<div><div>These Drawings are the sole property of TBM Engineers Inc. and must not be used for any other project and/or by any other person without written permission. All drawings must not be used for any construction before the building Permit. Do not scale this document.</div></div>	<div><div>Drawing No.</div><div>D-01</div><div>1 of 25</div></div>	<div><div>ATTACHMENT 4</div><div>130 CLARENCE</div></div>
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Site Plan

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ADDRESS	130 Clarence St
ZONING	R3
PLAN No.	65M3274 PT LOT 171 RP
LOT AREA	356.14 M ²
LOT FRONTAGE	11.03 M
LOT DEPTH	33.94 M
MAX. LOT COVERAGE	40/50 %
MA. BUILDING HEIGHT	9.5 M

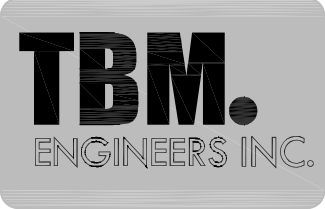
SITE STATISTICS	EXISITING	PROPOSED	TOTAL
	M2	M2	M2
BASEMENT FLOOR		0	0
GROUND FLOOR	62.996	35.44	98.44
SECOND FLOOR	44.73	52.18	96.91
TOTAL GROUND FLOOR AND SECOND FLOOR EXCLUDED GARAGE	107.726		195.346
VINYL SHED			9.05
METAL SHED			6.1
NEW UNHEATED SUNROOM			20.25
TOTAL GROUND FLOOR + TWO SHEDS+ UNHEATED SUNROOM			133.836

COVERAGE %	37.58
------------	-------

FRONT YARD NO CHANGES		
REAR YARD		
REAR YARD	M2	%
REAR YARD AREA	147.79	74.98
REAR UNHEATED ROOM AND STAIRS	24.36	
VINYL SHED	9.05	
METAL SHED	6.1	
TOTAL SOFT LANDSCAPING	110.82	


SETBACKS	
	M
FRONT EXISTING	1.73
SIDE	2.97& 1.91
REAR	14.33

SITE STATISTICS



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TBM Engineers Inc.
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Woodbridge, ON (905) 893-9070
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tbmengineers@mail.com



Project Address:
130 Clarence St,
Vaughan,ON
L4L 1L3

**Addition and
Interior Alterations
on Existing Dwelling**

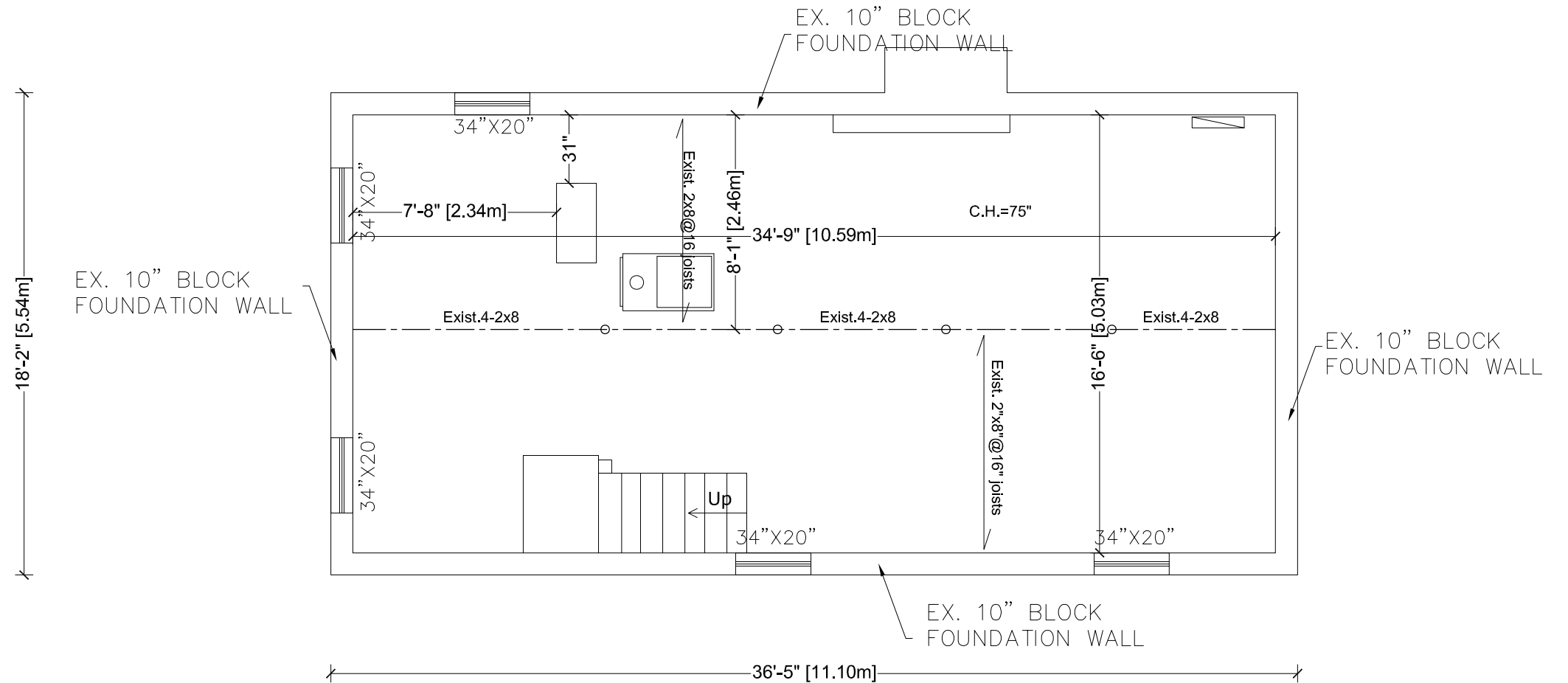
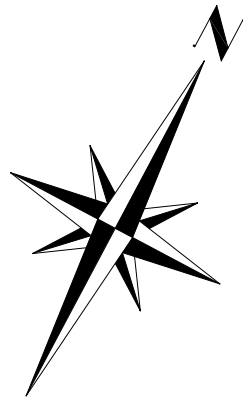
Date
2022-08-16

Issued for:
Building Permit

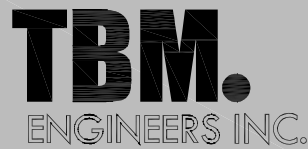
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Drawing No.
D-03
3 of 20



Existing Basement Floor Plan



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Project Address:
130 Clarence St,
Vaughan, ON
L4L 1L3

**Addition and Interior
Alterations on
Existing Dwelling**

Date 2022-08-16 **Issued for:** Building Permit

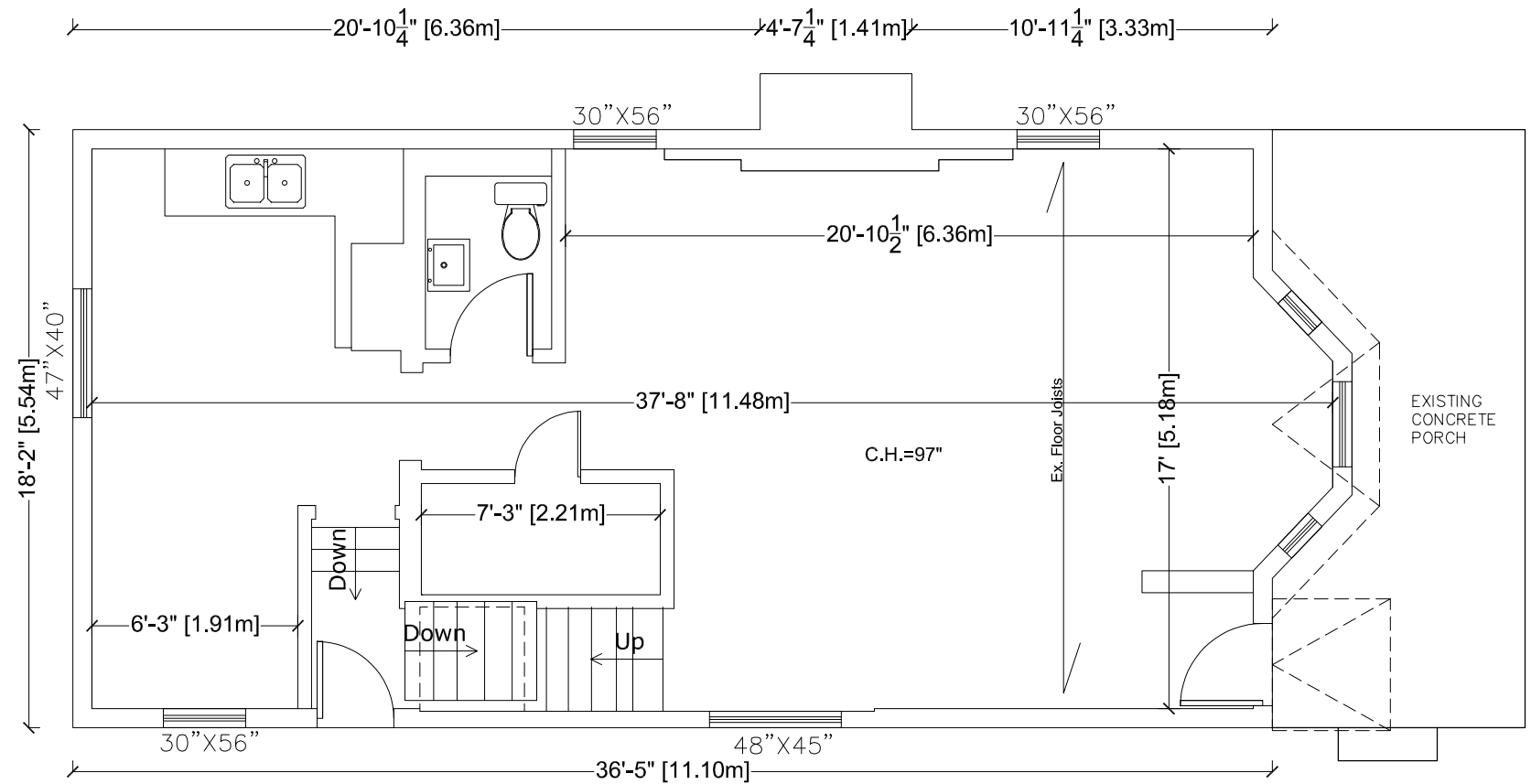
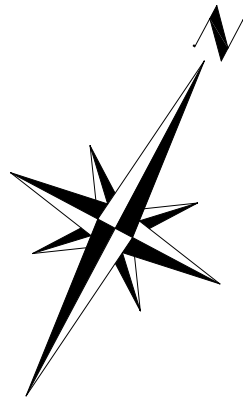
Scale:
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Drawing No.

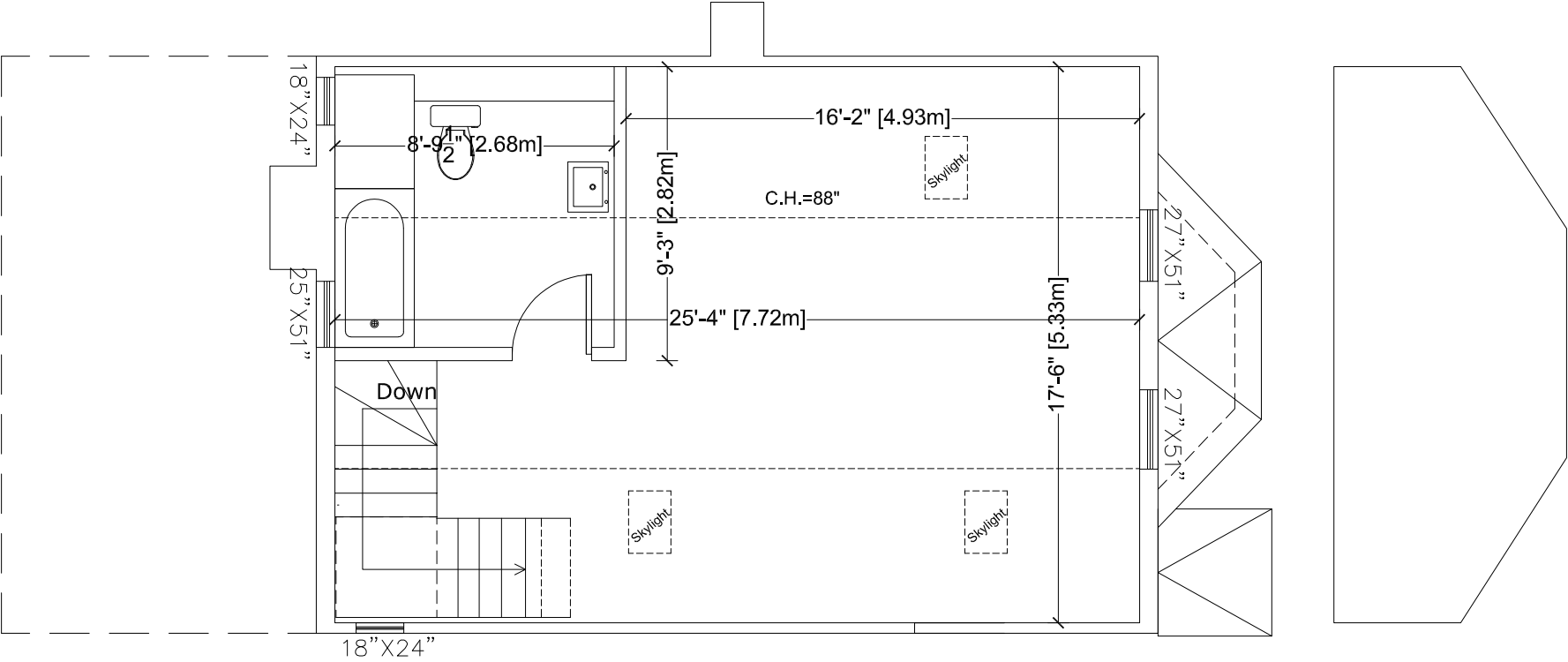
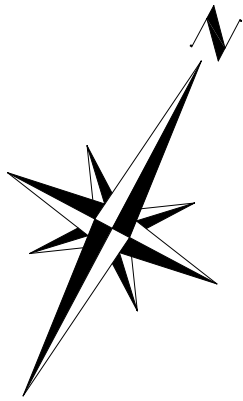
D-04

4 of 25



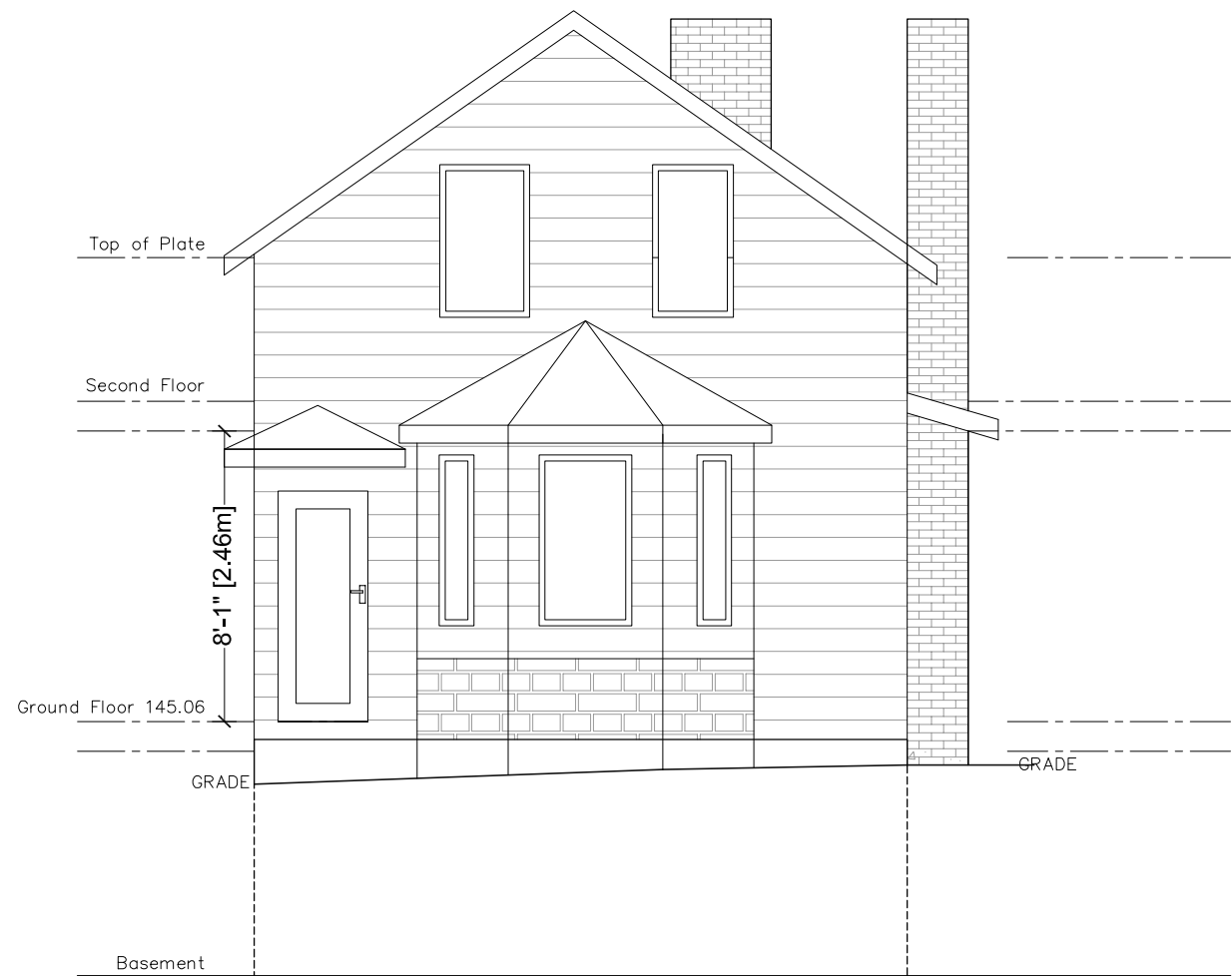
Existing Ground Floor Plan

<div><div><div>TBM.</div><div>ENGINEERS INC.</div></div><div>DESIGN. DELIVER. INNOVATE.</div></div>	<div><div>TBM Engineers Inc.</div><div>15 Jaylynn Crt. Woodbridge, ON (905) 893-9070 www.tbmengineers.com tbmengineers@mail.com</div></div>	<div><div><div>LICENSED PROFESSIONAL ENGINEER</div><div><div>B.F. ESCOBAR</div><div>100138692</div><div>2022-08-16</div></div><div>PROVINCE OF ONTARIO</div></div></div>	<div><div>Project Address:</div><div>130 Clarence St, Vaughan, ON L4L 1L3</div></div> <div><div>Addition and Interior Alterations on Existing Dwelling</div></div>	<div><div>Date</div><div>2022-08-16</div></div> <div><div>Issued for:</div><div>Building Permit</div></div> <div><div>Scale:</div><div>$\frac{3}{16}$" = 1'-0" (1:64)</div></div>	<div><div>These Drawings are the sole property of TBM Engineers Inc. and must not be used for any other project and/or by any other person without written permission. All drawings must not be used for any construction before the building Permit. Do not scale this document.</div></div>	<div><div>Drawing No.</div><div>D-05</div><div>5 of 25</div></div>
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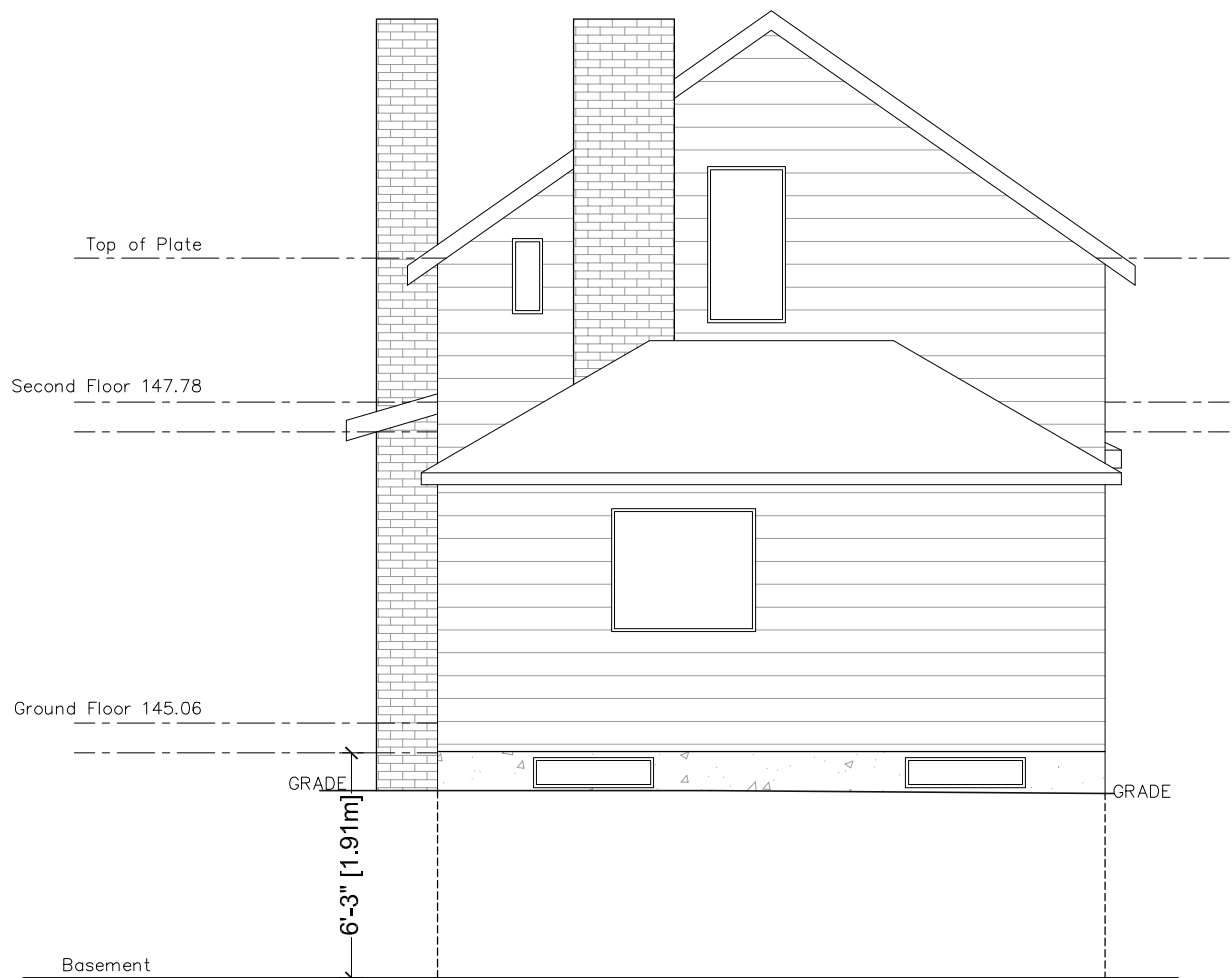


Existing Second Floor Plan

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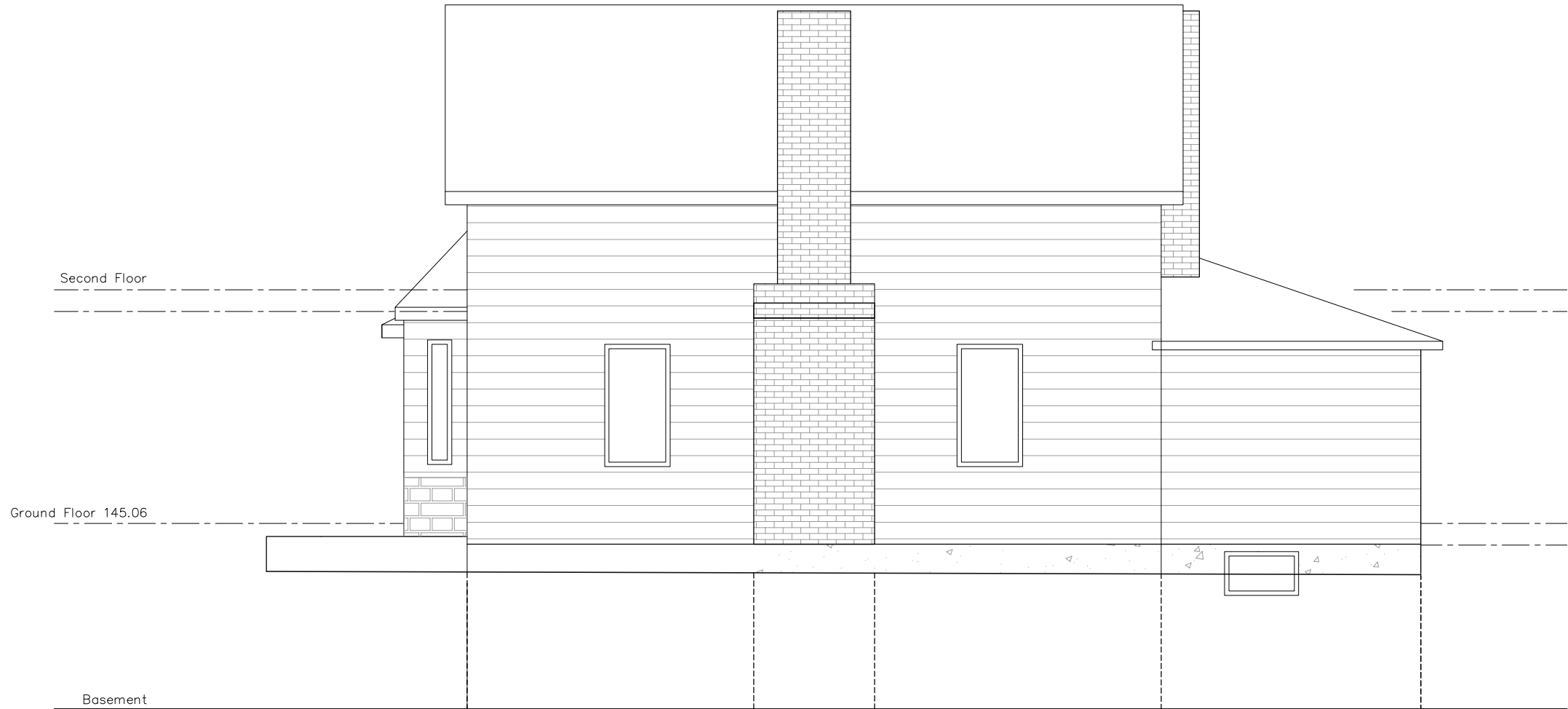


Existing Front (East) Elevation



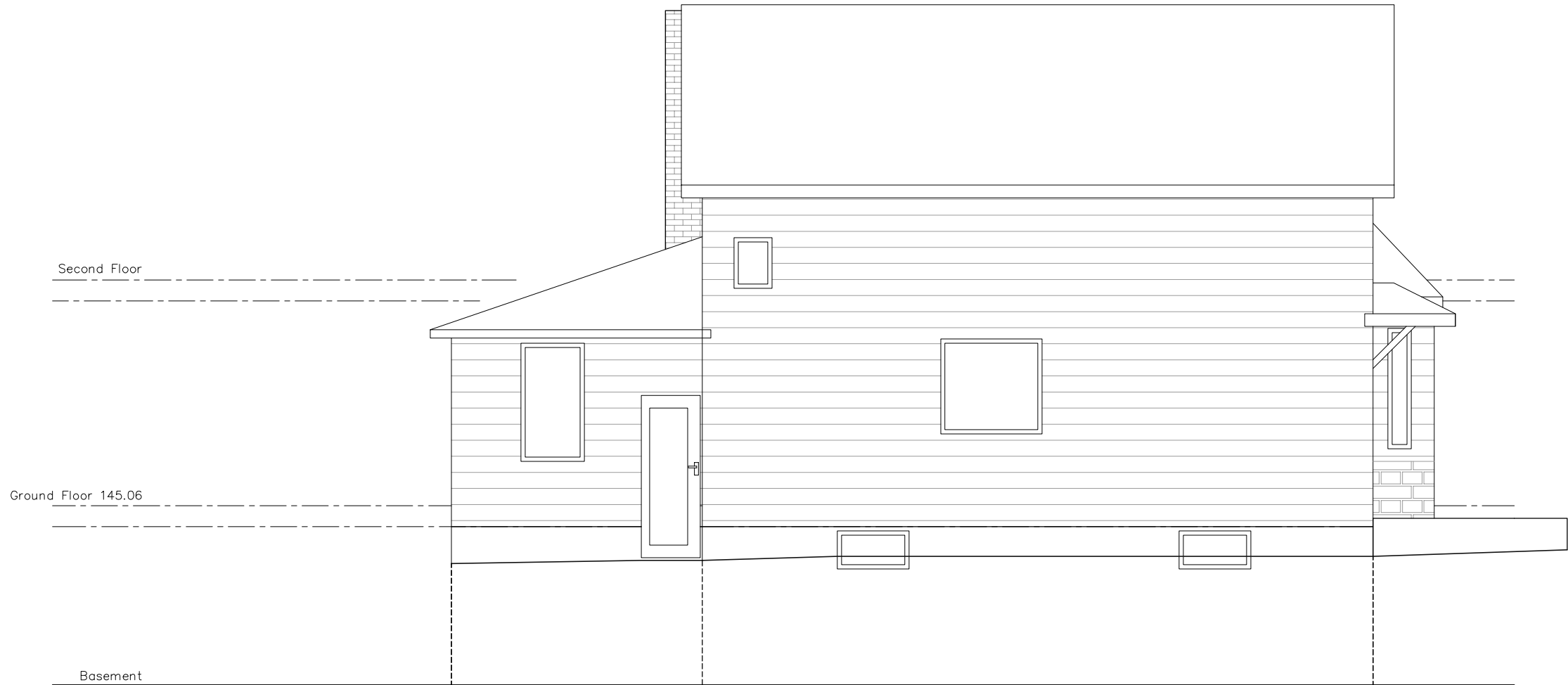
Existing Rear (West) Elevation

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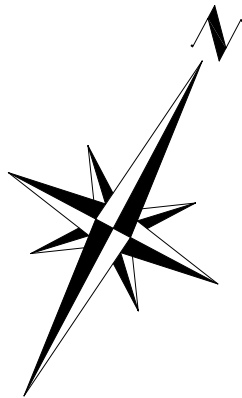
Existing Right Side (North) Elevation

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Existing Left Side (South) Elevation

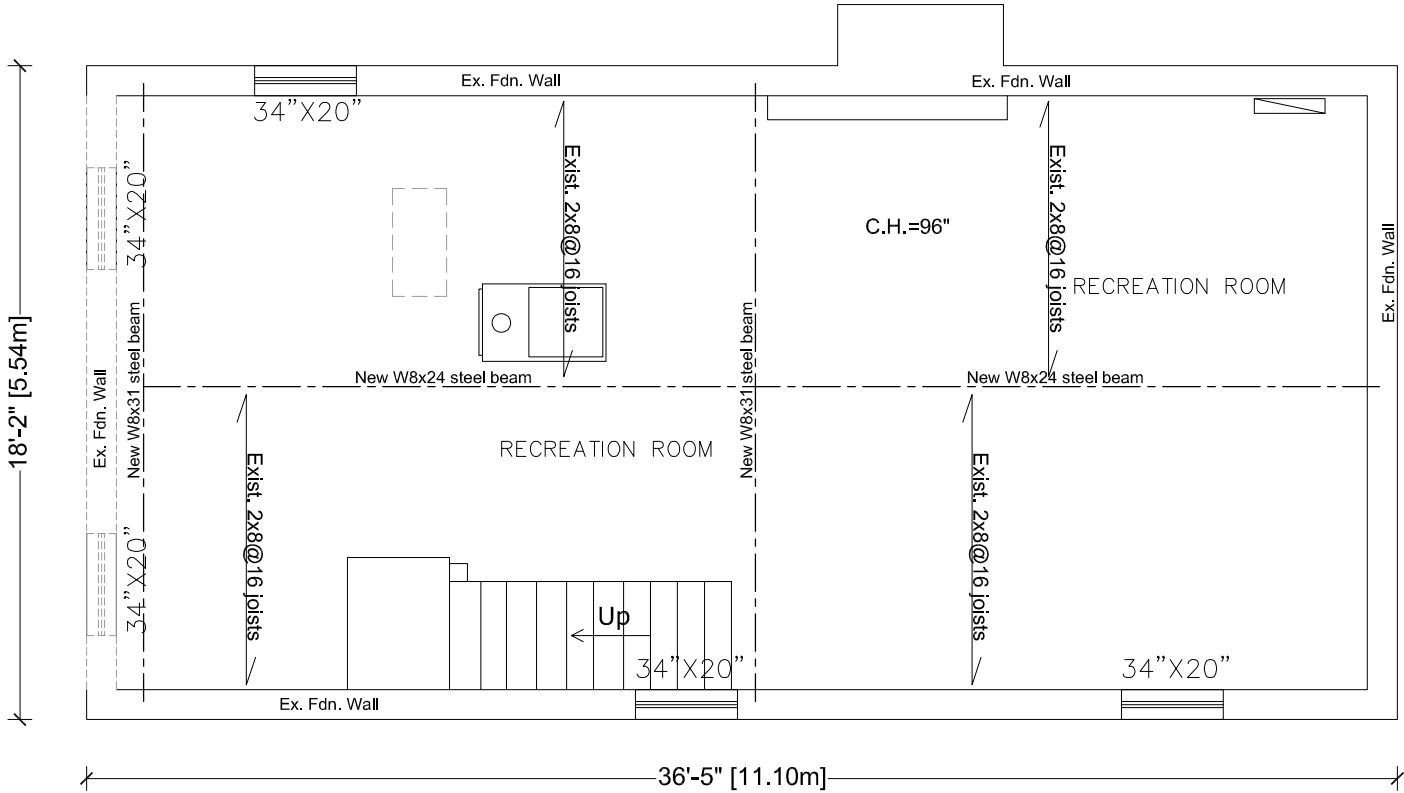
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SB= Solid Wood Bearing - the width of wood column shall not be less than the width of the supported member

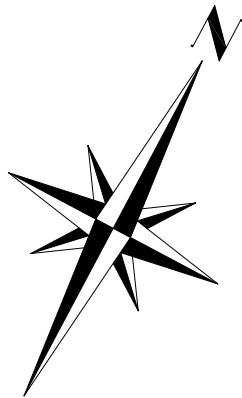
C1= 3½"x3½"x¼" HSS square post with 6x6x½ bottom plate

- Walls to be Removed
- Existing Walls
- Proposed Walls



Demo Basement Floor Plan

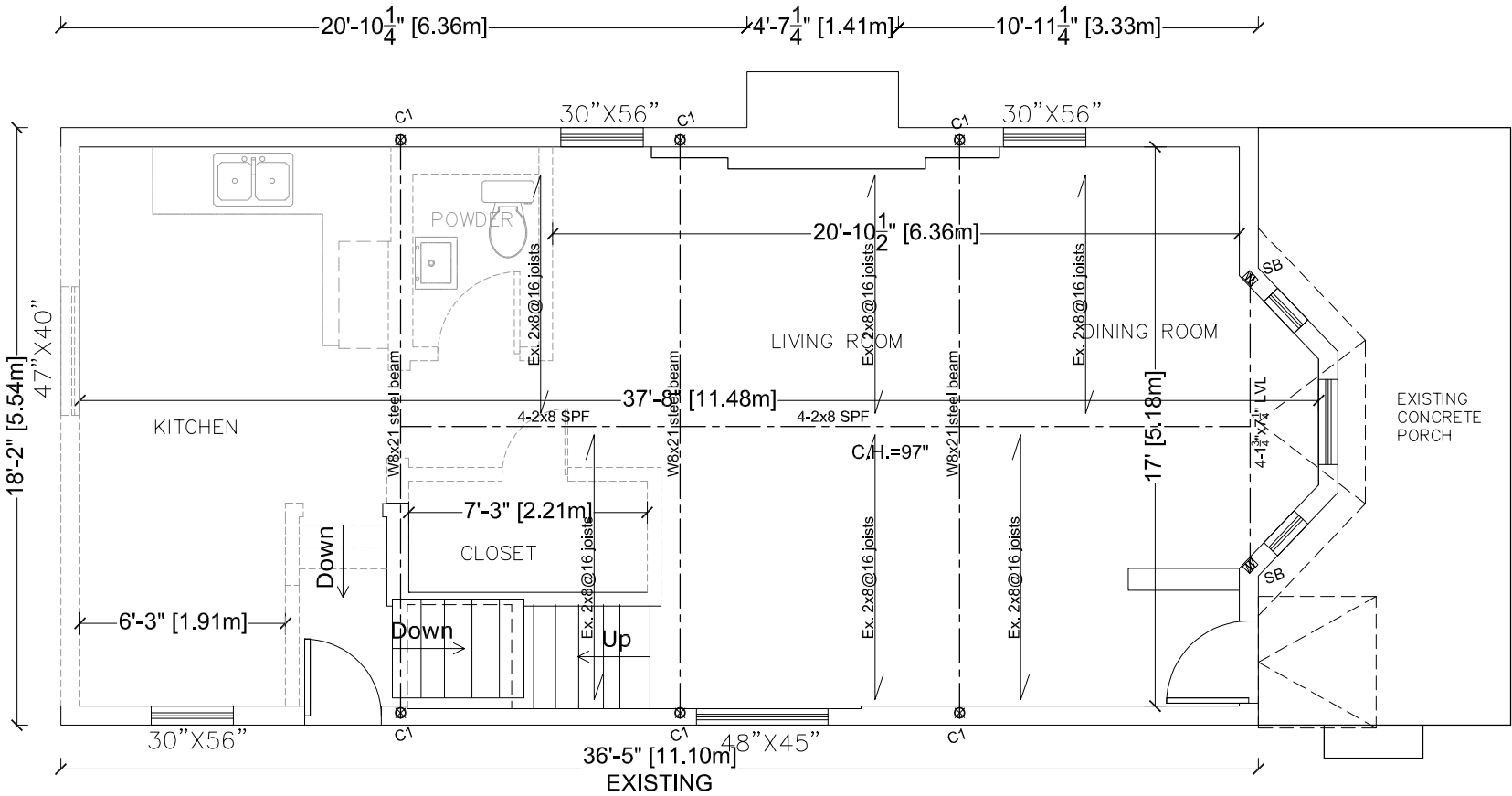
<div><div>TBM. ENGINEERS INC.</div><div>DESIGN. DELIVER. INNOVATE.</div></div>	<div><div>TBM Engineers Inc.</div><div>15 Jaylynn Crt. Woodbridge, ON (905) 893-9070 www.tbmengineers.com tbmengineers@mail.com</div></div>	<div><div>LICENSED PROFESSIONAL ENGINEER</div><div>B.F. ESCOBAR 100138692 2022-08-16 PROVINCE OF ONTARIO</div></div>	<div><div>Project Address:</div><div>130 Clarence St, Vaughan, ON L4L 1L3</div><div>Addition and Interior Alterations on Existing Dwelling</div></div>	<div><div>Date</div><div>2022-08-16</div><div>Issued for:</div><div>Building Permit</div><div>Scale:</div><div>3⁄16" = 1'-0" (1:64)</div></div>	<div><div>These Drawings are the sole property of TBM Engineers Inc. and must not be used for any other project and/or by any other person without written permission. All drawings must not be used for any construction before the building Permit. Do not scale this document.</div></div>	<div><div>Drawing No.</div><div>D-10</div><div>10 of 25</div></div>
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SB= Solid Wood Bearing - the width of wood column shall not be less than the width of the supported member

C1= 3 1/2"x3 1/2"x1/4" HSS square post with 6x6x1/2 bottom plate

- Walls to be Removed
- Existing Walls
- Proposed Walls



Demo Ground Floor Plan

TBM.

ENGINEERS INC.

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tbmengineers@mail.com



Project Address:
130 Clarence St,
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L4L 1L3

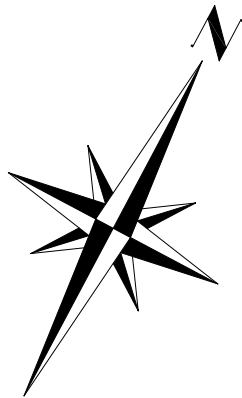
**Addition and Interior
Alterations on
Existing Dwelling**

Date 2022-08-16 **Issued for:** Building Permit

Scale:
3/16" = 1'-0" (1:64)

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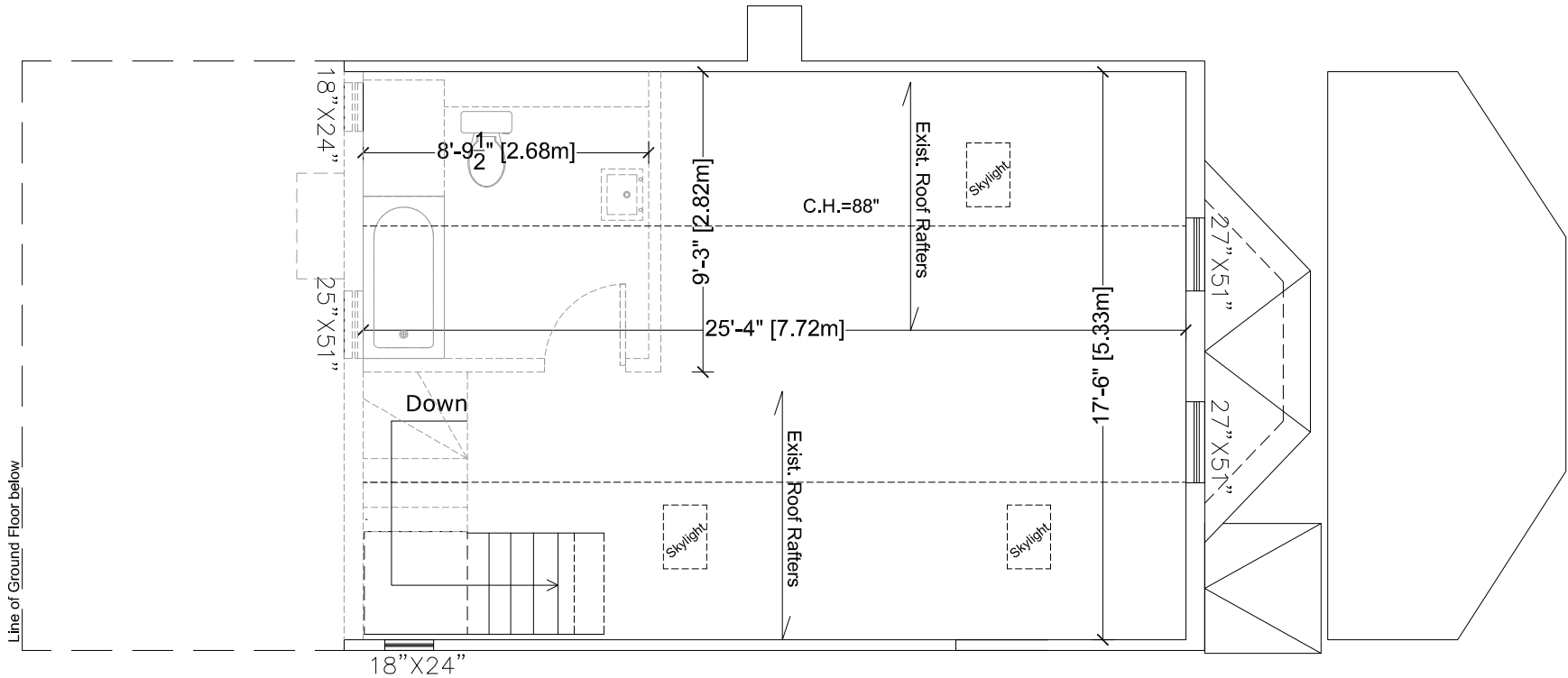
Drawing No.
D-11
11 of 25



- Walls to be Removed
- Existing Walls
- Proposed Walls

SB= Solid Wood Bearing - the width of wood column shall not be less than the width of the supported member

C1= 3½"x3½"x¼" HSS square post with 6x6x½ bottom plate



Demo Second Floor Plan

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Project Address:
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Vaughan, ON
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**Addition and Interior
Alterations on
Existing Dwelling**

Date 2022-08-16 **Issued for:** Building Permit

Scale:
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Drawing No.
D-12
12 of 25

SB= Solid Wood Bearing - the width of wood column shall not be less than the width of the supported member
PLA= Point Load Above

C1= 3 1/2"x3 1/2"x1/4" HSS square post with 6x6x1/2 bottom plate
C4= 6"x6" PT post

FDN1= 10" (25 MPa) poured concrete foundation wall with 15M@16" horizontal and vertical rebar on 20"x8" poured concrete strip footing with 2-15M long. rebar, min. 3" concrete cover.

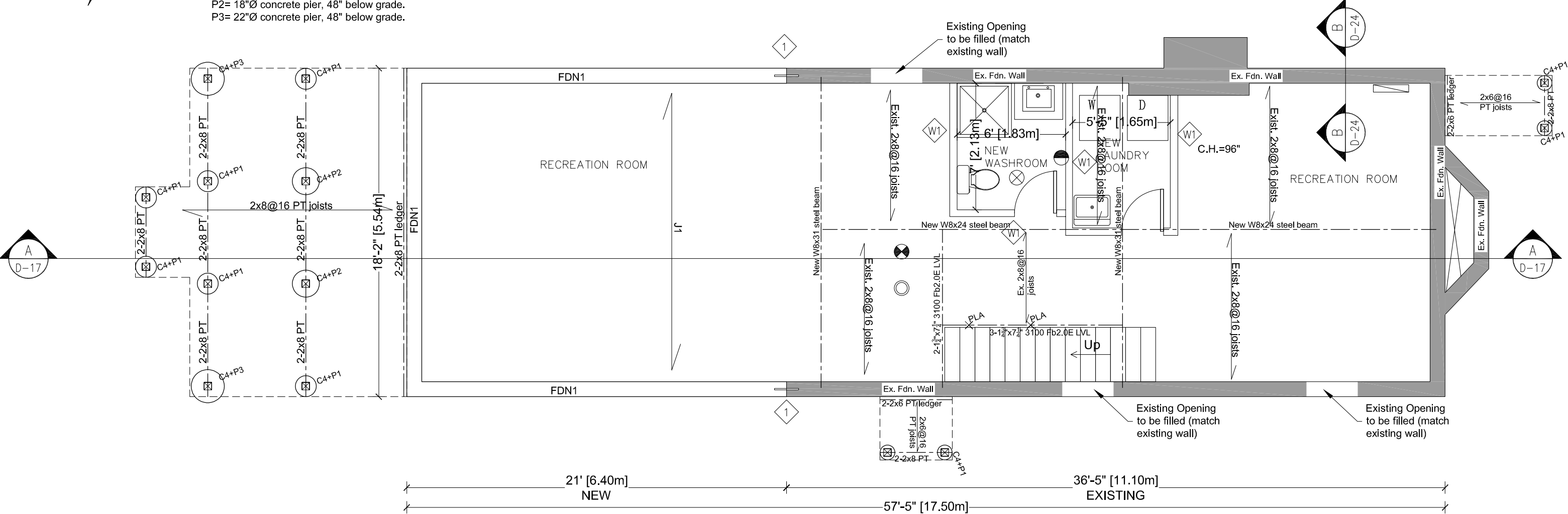
F1= 20"x20"x12" concrete footing pad.
P1= 14"Ø concrete pier, 48" below grade.
P2= 18"Ø concrete pier, 48" below grade.
P3= 22"Ø concrete pier, 48" below grade.

INTERIOR STUD PARTITION
W1 1/2" DRYWALL FINISH BOTH SIDES OF 2"x4"@16" SPF STUDS, DOUBLE PLATE@ TOP, SOLE PLATE @ BOTTOM. PROVIDE SOUND INSULATION ON BATHROOM WALLS AND FURNACE ROOM.
W2 USE 1/2" WATERPROOFING GYPSUM BOARD ON WASHROOMS AND 1/2" WATERPROOF CEMENT BOARD ON BATHTUBS.

WALL TYPE W2
FINISH AS PER ELEVATIONS: WOOD-LIKE SIDING
INSTALLED CONFORM TO MANUFACTURER SPECIFICATIONS OR ADHERED MANUFACTURED STONE VENEER AS PER MANUFACTURER SPECIFICATIONS
SHEATHING PAPER LAYERS
R-5 RIGID INSULATION
WATER RESISTIVE BARRIER
1/2" EXTERIOR PLYWOOD OR O.S.B
38X140 WOOD STUDS @ 400 O.C.
DOUBLE PLATE AT TOP AND SOLE PLATE AT BOTTOM
MIN R19 (RSI-3.34) BATT INSULATION IN CONTINUOUS CONTACT W SHEATHING
CONTINUOUS AIR/VAPOUR BARRIER
5/8" (15.9 mm) GYPSUM BOARD

Walls to be Removed
Existing Walls
Proposed Walls

TYPICAL CONNECTION: 15M dowels 24" long @24" o.c. vertically. Drill 8" into existing wall and grout solid with Hilti Hit HY150 adhesive system.



Proposed Basement Floor Plan

- Smoke Alarm
- Carbon Monoxide Alarm
- Exhaust Fan
- Floor Drain

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B.F. ESCOBAR
100138692
2022-08-16
PROVINCE OF ONTARIO

Project Address:
130 Clarence St,
Vaughan, ON
L4L 1L3

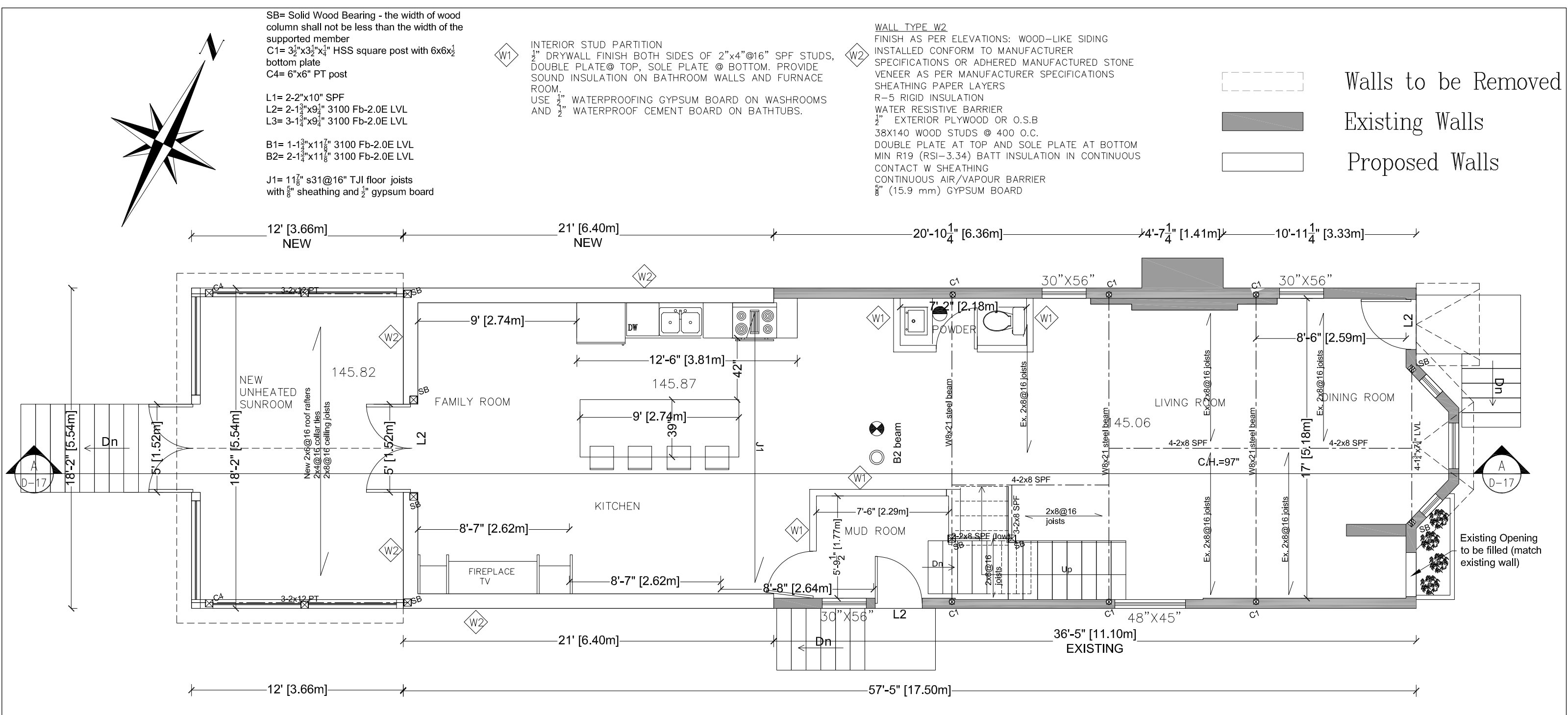
**Addition and Interior
Alterations on
Existing Dwelling**

Date 2022-08-16 **Issued for:** Building Permit


Scale:
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Drawing No.
D-13
13 of 25



Proposed Ground Floor Plan

 Smoke Alarm

 Carbon Monoxide Alarm

 Exhaust Fan

SB= Solid Wood Bearing - the width of wood column shall not be less than the width of the supported member
C1= 3½"x3½"x¼" HSS square post with 6x6x1 bottom plate
C4= 6"x6" PT post

L1= 2-2"x10" SPF
L2= 2-1¾"x9¾" 3100 Fb-2.0E LVL
L3= 3-1¾"x9¾" 3100 Fb-2.0E LVL

B1= 1-1¾"x11¾" 3100 Fb-2.0E LVL
B2= 2-1¾"x11¾" 3100 Fb-2.0E LVL

J1= 11¾" s31@16" TJI floor joists with ⅝" sheathing and ½" gypsum board

W1

INTERIOR STUD PARTITION
½" DRYWALL FINISH BOTH SIDES OF 2"x4"@16" SPF STUDS, DOUBLE PLATE@ TOP, SOLE PLATE @ BOTTOM. PROVIDE SOUND INSULATION ON BATHROOM WALLS AND FURNACE ROOM.
USE ½" WATERPROOFING GYPSUM BOARD ON WASHROOMS AND ½" WATERPROOF CEMENT BOARD ON BATHTUBS.

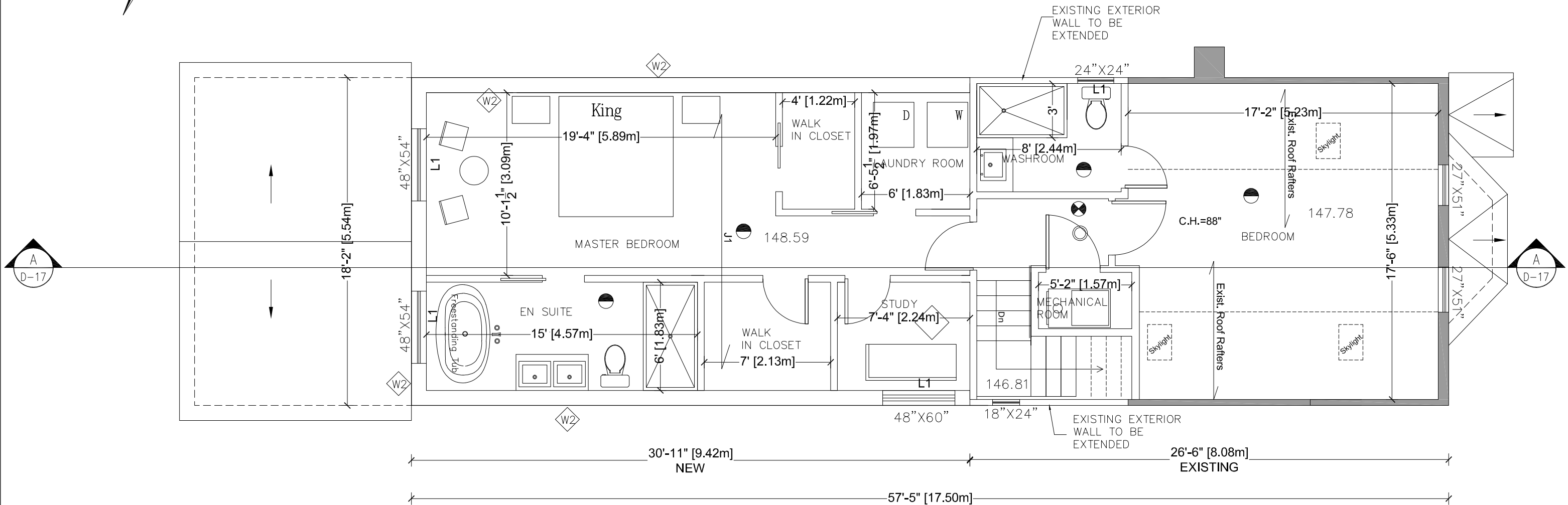
W2

WALL TYPE W2
FINISH AS PER ELEVATIONS: WOOD-LIKE SIDING
INSTALLED CONFORM TO MANUFACTURER SPECIFICATIONS OR ADHERED MANUFACTURED STONE VENEER AS PER MANUFACTURER SPECIFICATIONS
SHEATHING PAPER LAYERS
R-5 RIGID INSULATION
WATER RESISTIVE BARRIER
½" EXTERIOR PLYWOOD OR O.S.B
38X140 WOOD STUDS @ 400 O.C.
DOUBLE PLATE AT TOP AND SOLE PLATE AT BOTTOM
MIN R19 (RSI-3.34) BATT INSULATION IN CONTINUOUS CONTACT W SHEATHING
CONTINUOUS AIR/VAPOUR BARRIER
⅝" (15.9 mm) GYPSUM BOARD

Walls to be Removed

Existing Walls

Proposed Walls



Proposed Second Floor Plan

- Smoke Alarm
- Carbon Monoxide Alarm
- Exhaust Fan

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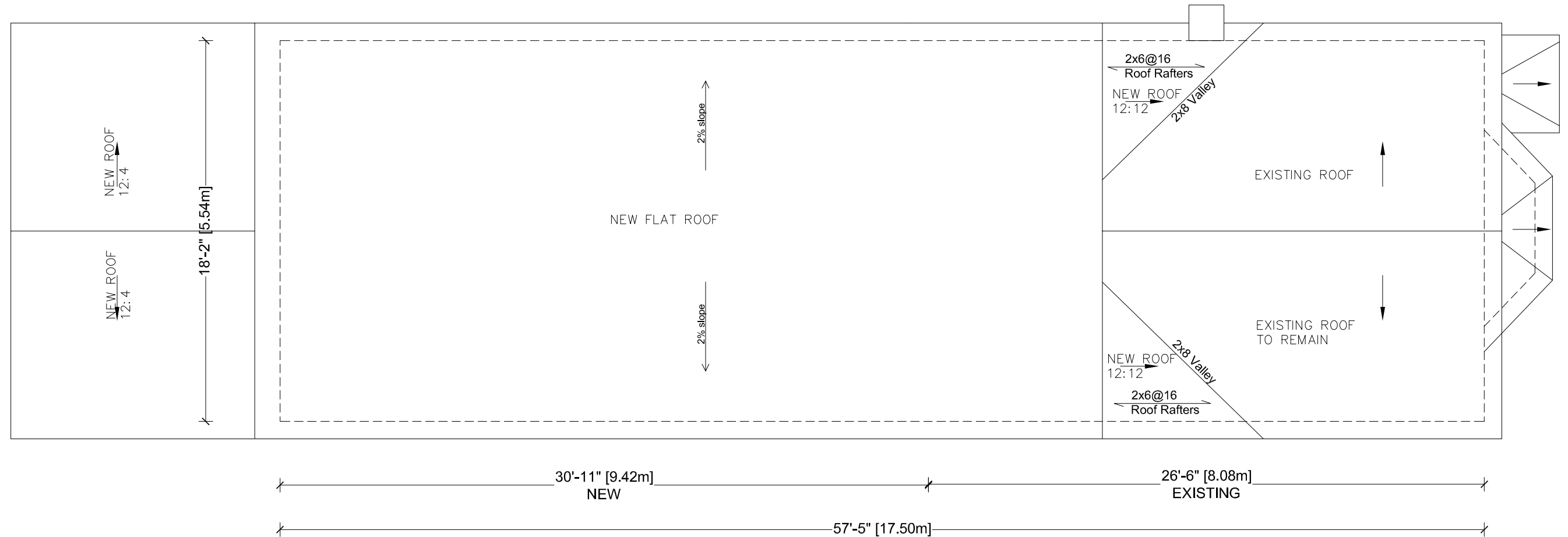
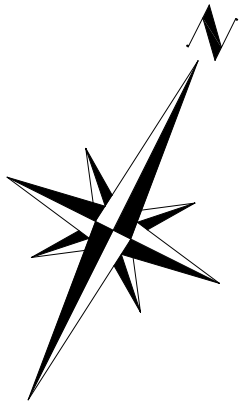
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Existing Dwelling**

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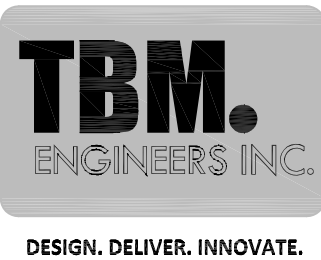
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Proposed Roof Plan



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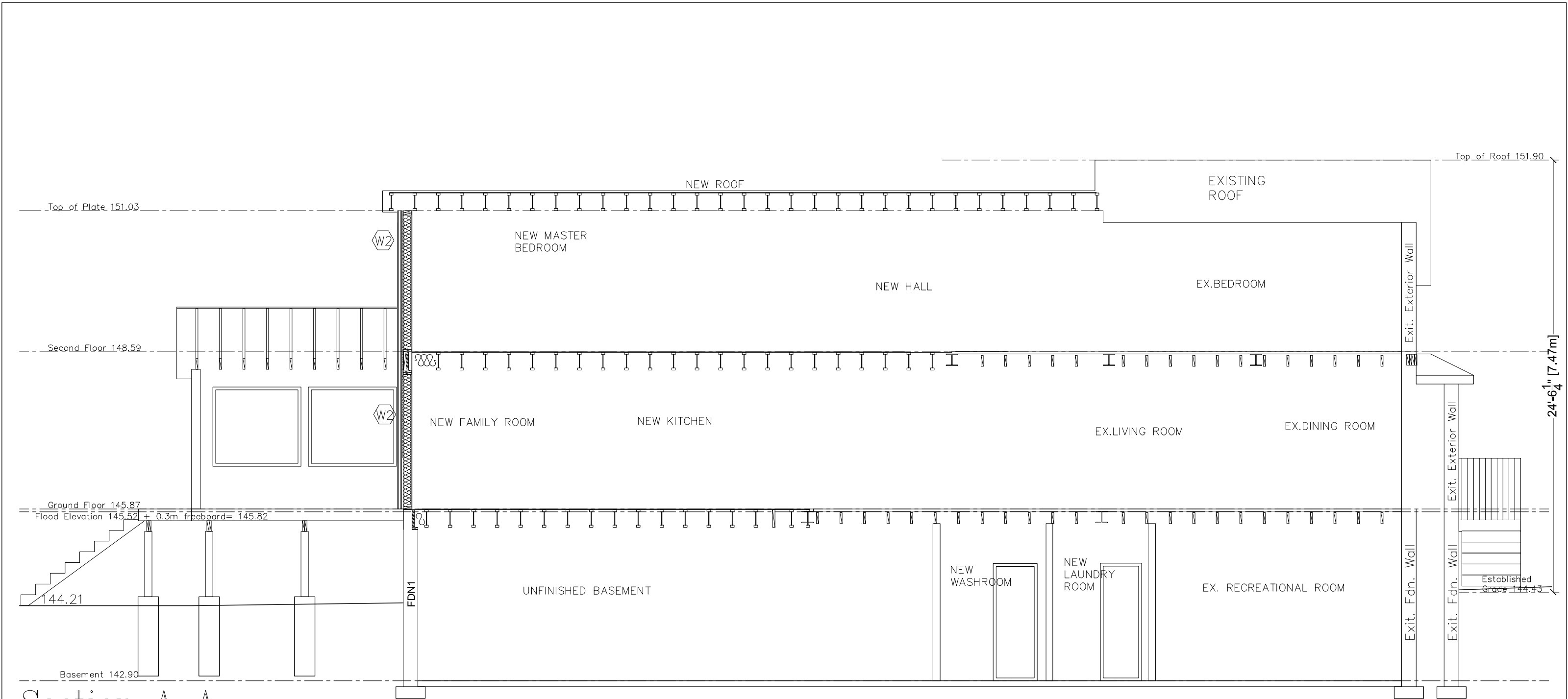
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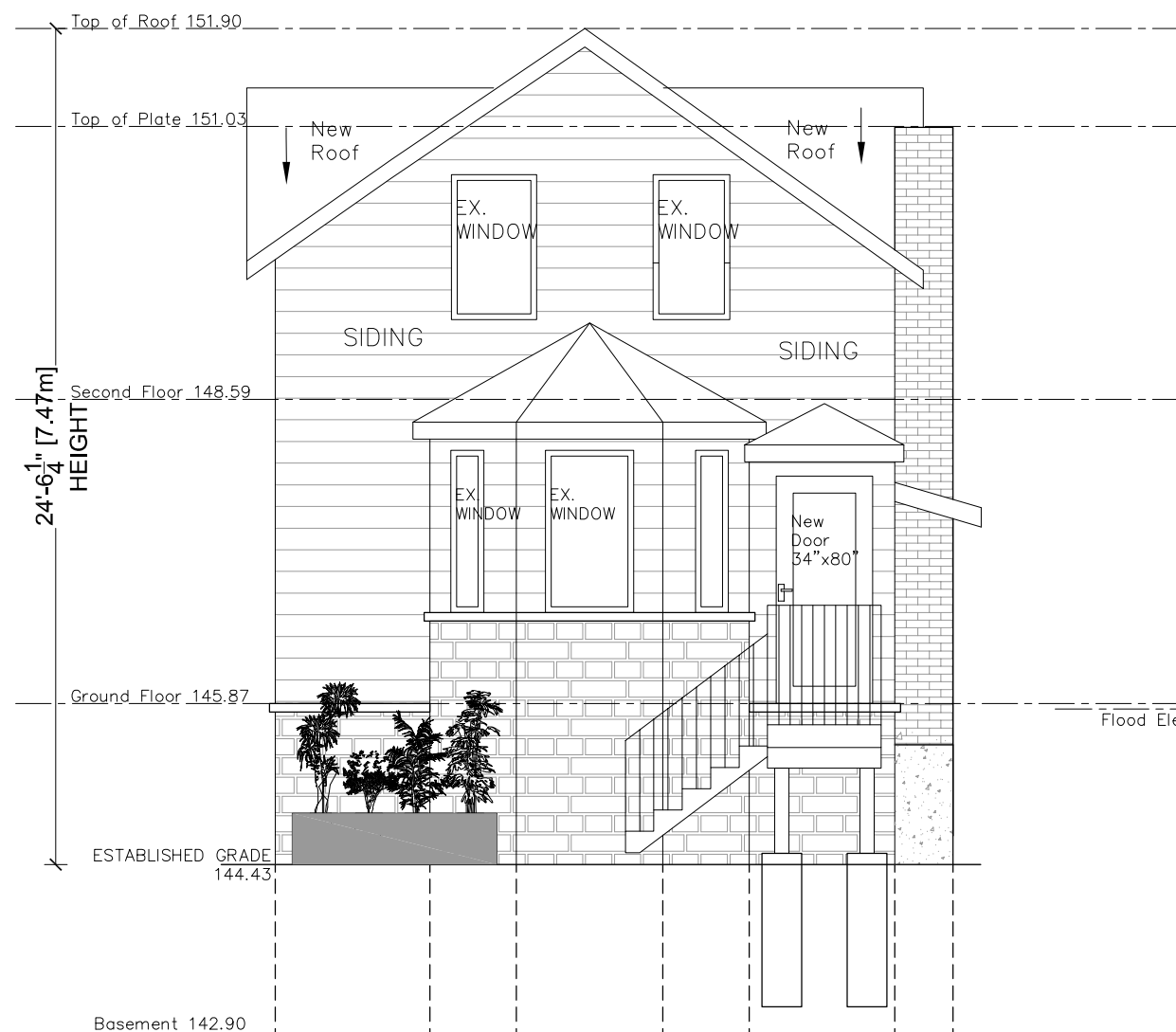
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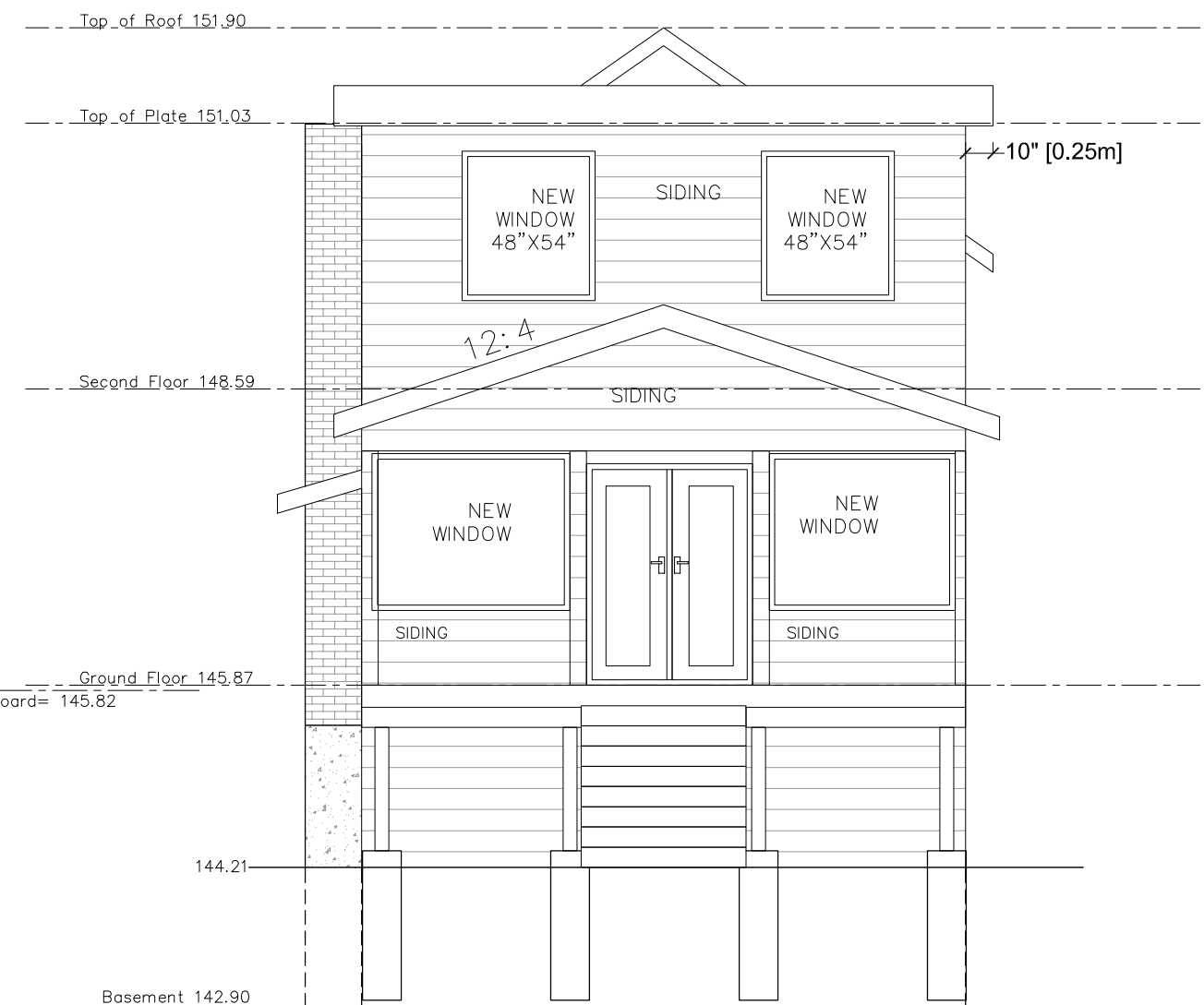


Section A-A

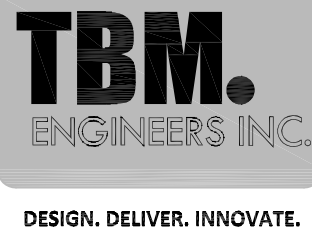
<div><div><div>TBM.</div><div>ENGINEERS INC.</div></div><div>DESIGN. DELIVER. INNOVATE.</div></div>	<div><div>TBM Engineers Inc.</div><div>15 Jaylynn Crt. Woodbridge, ON (905) 893-9070 www.tbmengineers.com tbmengineers@mail.com</div></div>	<div><div><div>LICENSED PROFESSIONAL ENGINEER</div><div><div>B.F. ESCOBAR</div><div>100138692</div><div>2022-08-16</div></div><div>PROVINCE OF ONTARIO</div></div></div>	<div><div>Project Address:</div><div>130 Clarence St, Vaughan, ON L4L 1L3</div></div> <div><div>Addition and Interior Alterations on Existing Dwelling</div></div>	<div><div>Date</div><div>2022-08-16</div></div> <div><div>Issued for:</div><div>Building Permit</div></div> <div><div>Scale:</div><div>3/16" = 1'-0" (1:64)</div></div> <div><div>These Drawings are the sole property of TBM Engineers Inc. and must not be used for any other project and/or by any other person without written permission. All drawings must not be used for any construction before the building Permit. Do not scale this document.</div></div>	<div><div>Drawing No.</div><div>D-17</div><div>17 of 25</div></div>
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Proposed Front (East) Elevation



Proposed Rear (West) Elevation



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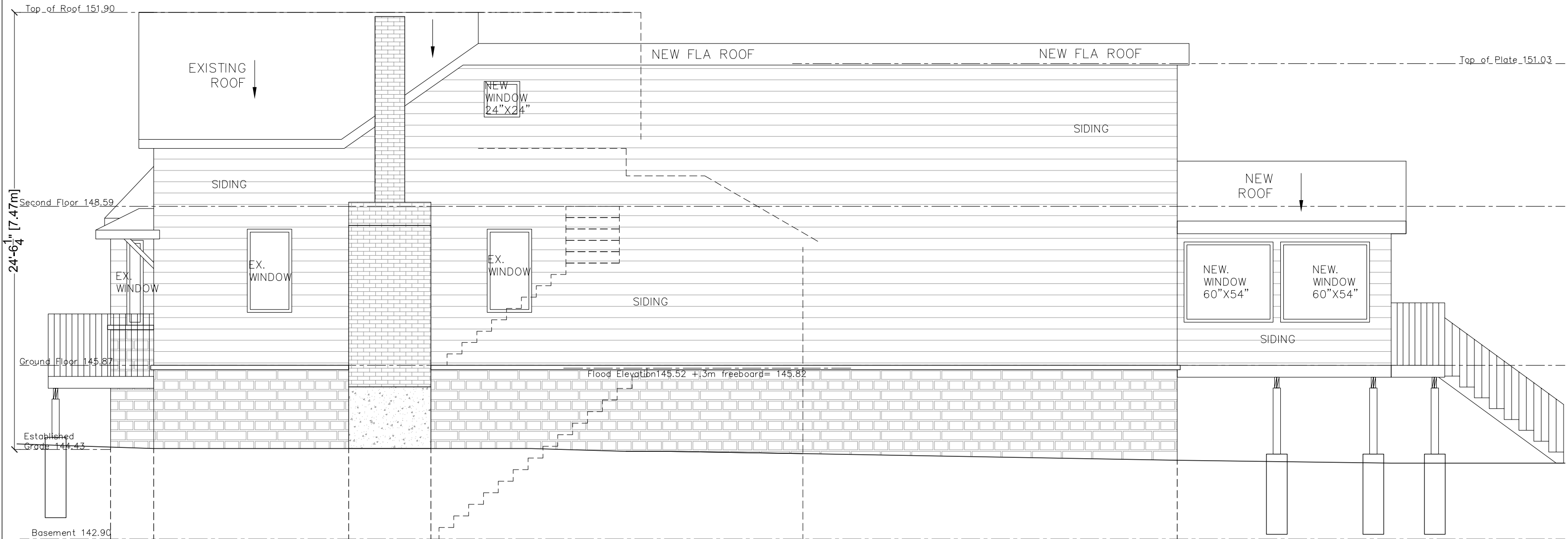
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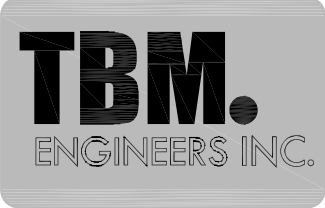

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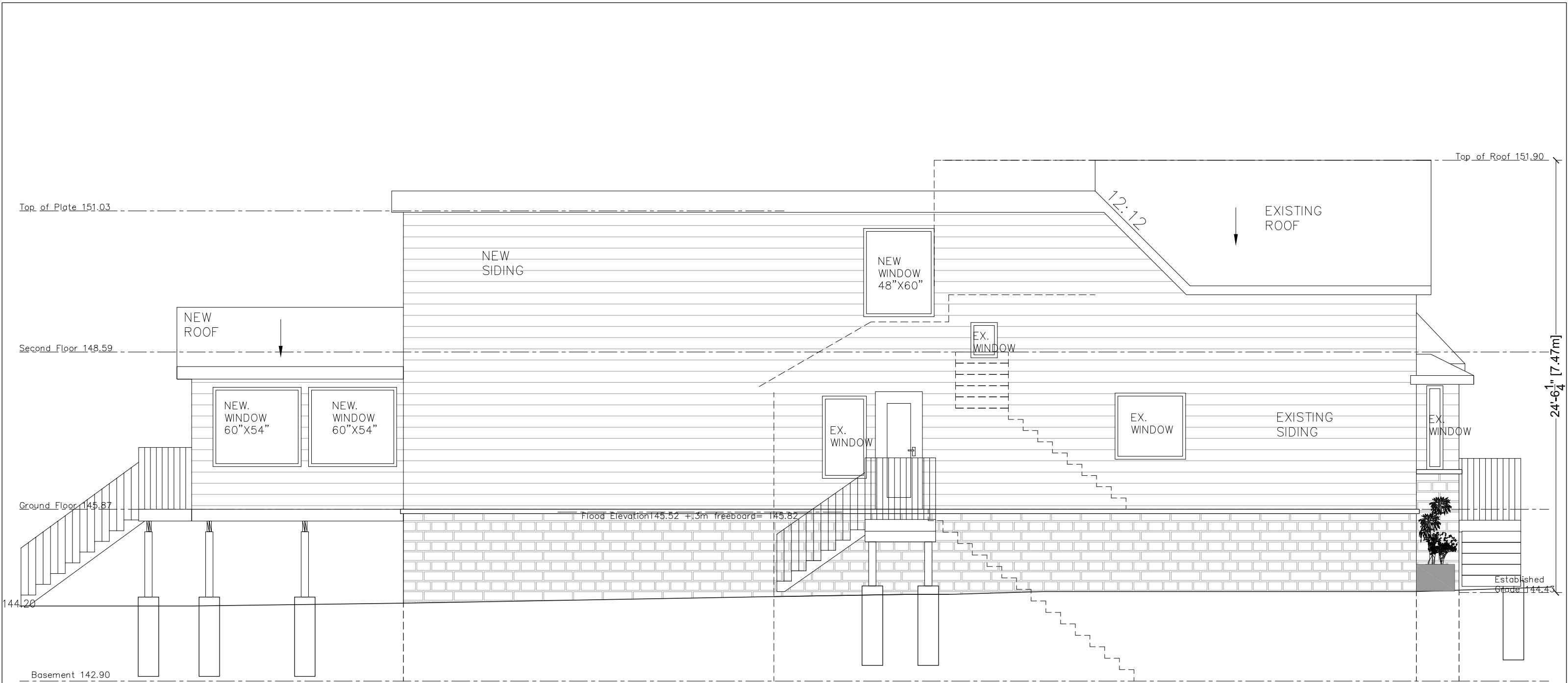
Drawing No.
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Proposed Right Side (North) Elevation

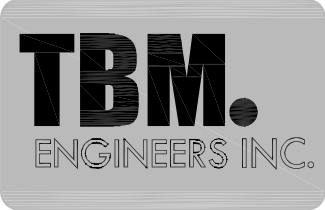
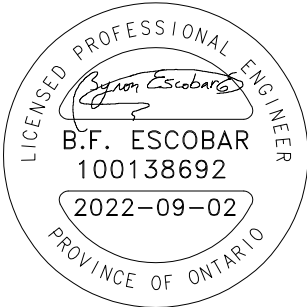
UNPROTECTED OPENINGS (Table 9.10.15.4)	
Wall Area	116.92 m2
Limiting Distance	1.50 m @ 8.0%
Maximum Allowable Openings	9.35 m2
Total Openings Provided	6.72 m2

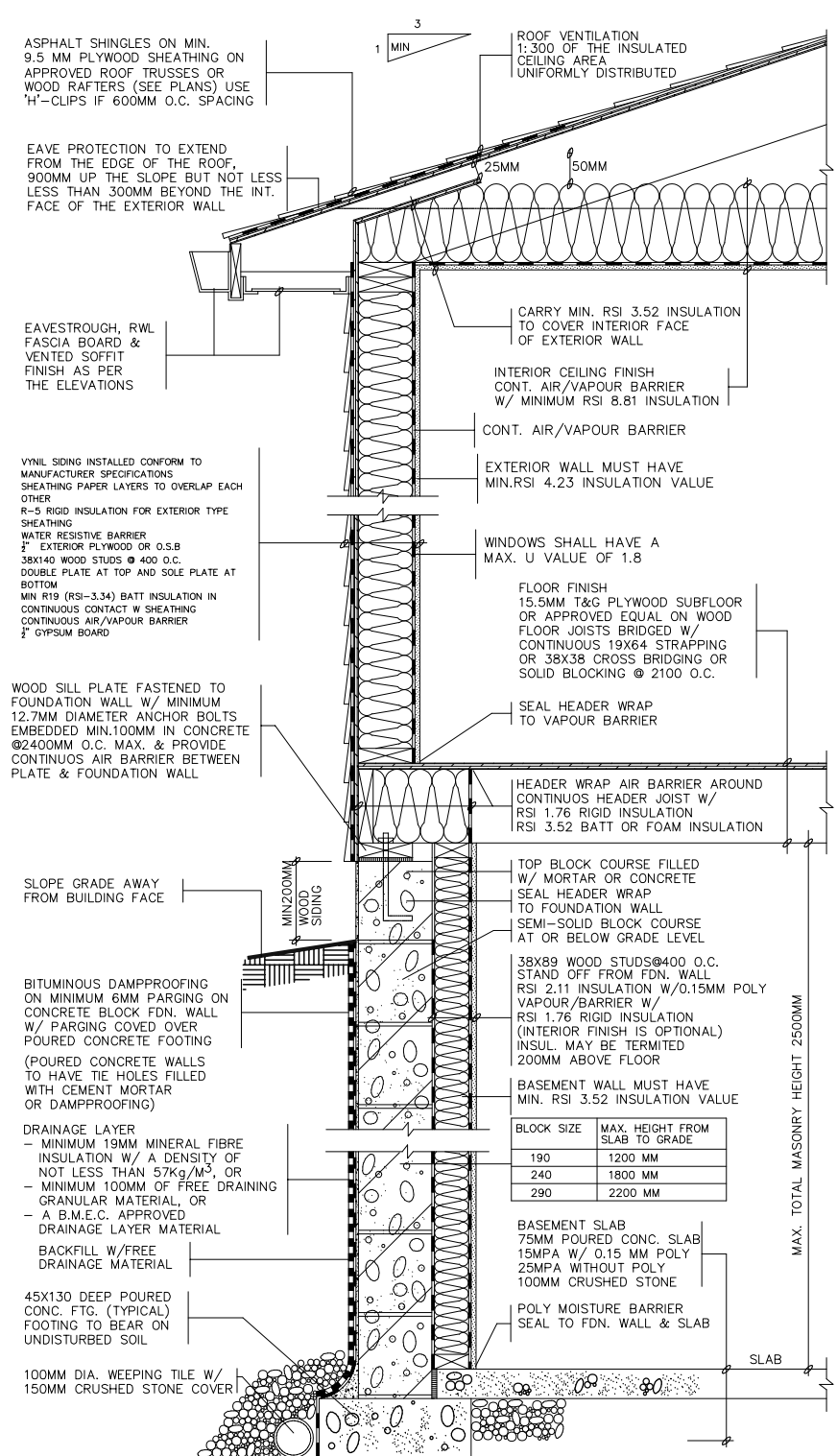
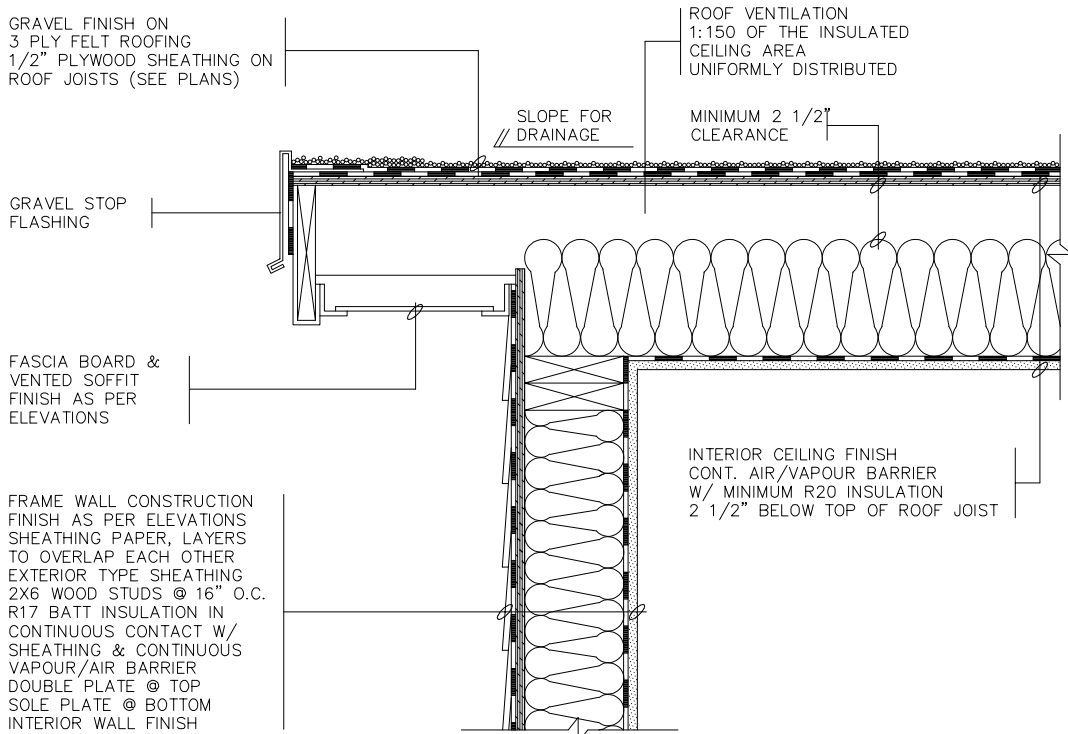
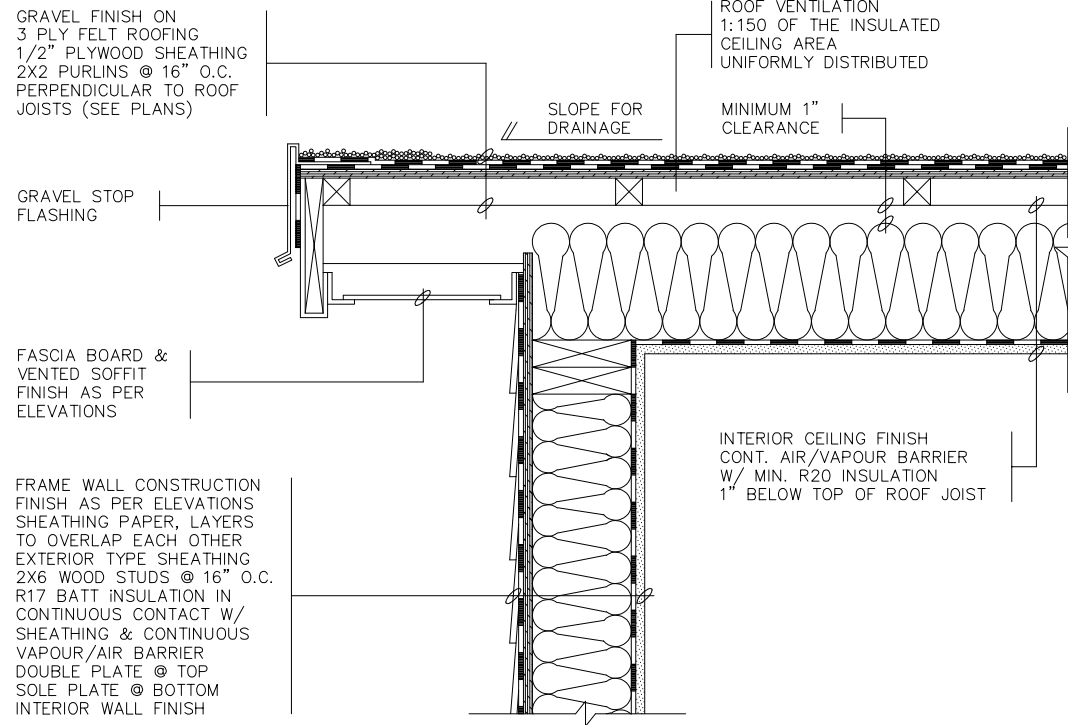
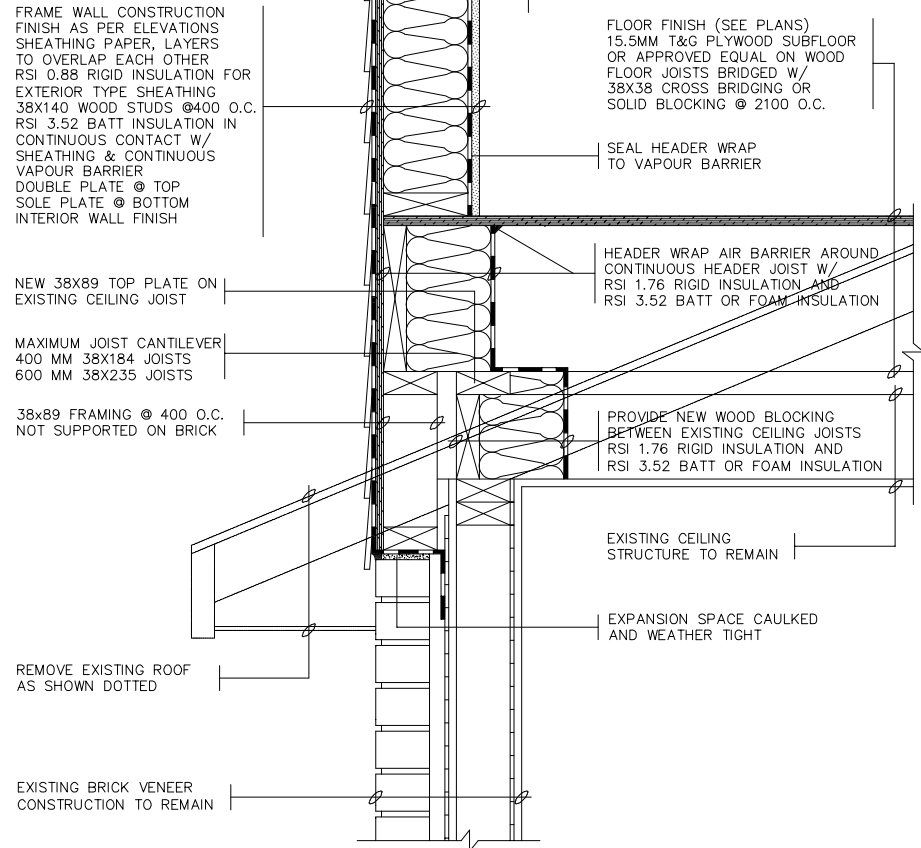
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Proposed Left Side (South) Elevation

UNPROTECTED OPENINGS (Table 9.10.15.4)	
Wall Area	116.92 m2
Limiting Distance	1.91 m @ 9.0%
Maximum Allowable Openings	10.52 m2
Total Openings Provided	10.45 m2

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SECOND STOREY ADDITION

FLAT ROOF DETAIL

FRAME WALL SECTION

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Drawing No.

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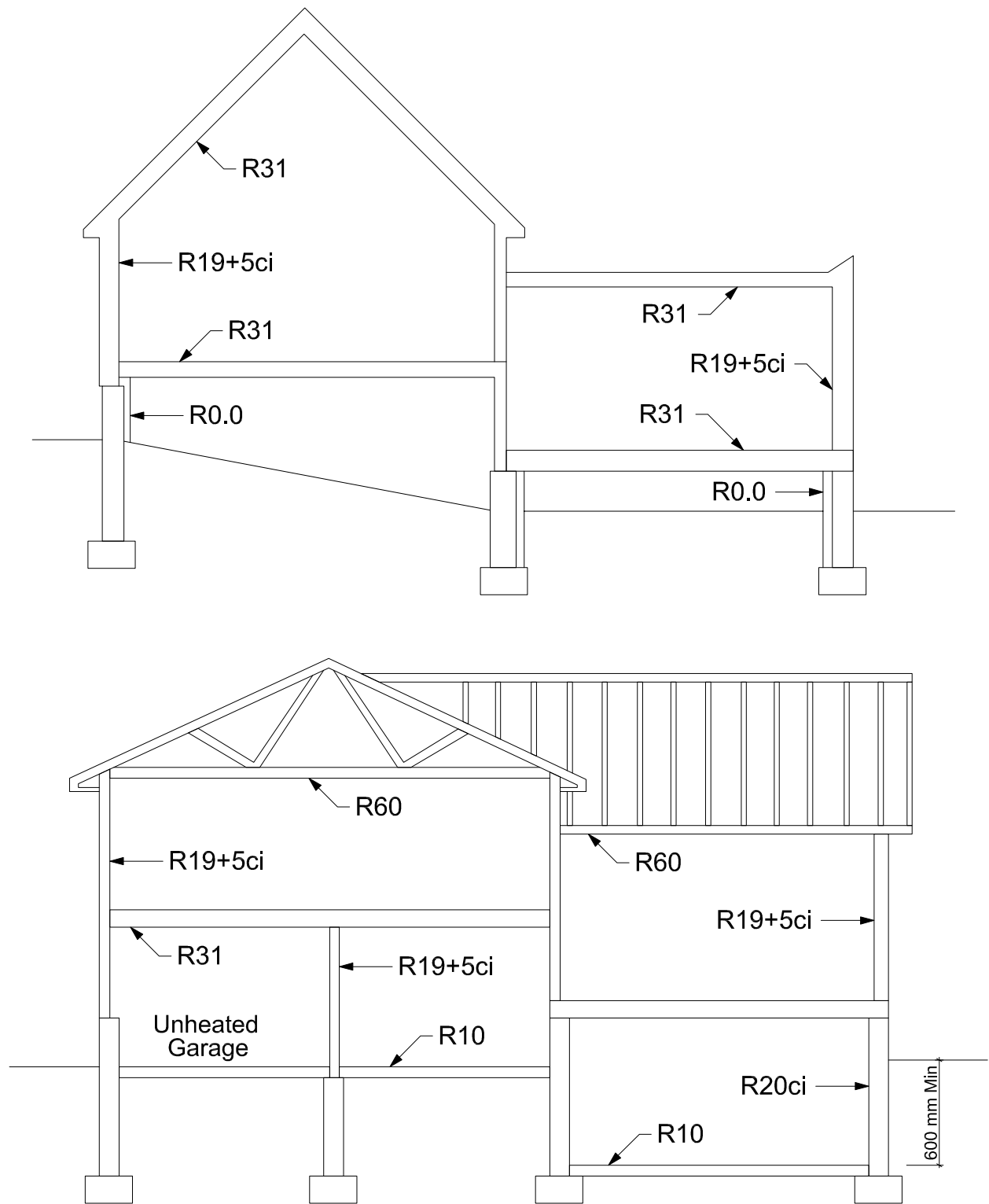


Table 3.1.1.11. (IP)
Thermal Performance Requirements for Additions to Existing Buildings(3)
Forming Part of Sentence 3.1.1.11.(2)

Component	Thermal Values(7)	Compliance Package		
		Zone 1	Zone 2	Electric Space Heating
		Less than 5000 Degree Days	5000 or more Degree Days	Zones 1 and 2
Ceiling with Attic Space	Min. Nominal R(1)	60	60	60
	Max. U(2)	0.017	0.017	0.017
	Min. Effective R(2)	59.22	59.22	59.22
Ceiling Without Attic Space	Min. Nominal R(1)	31	31	31
	Max. U(2)	0.036	0.036	0.036
	Min. Effective R(2)	27.65	27.65	27.65
Exposed Floor	Min. Nominal R(1)	31	31	31
	Max. U(3)	0.034	0.034	0.034
	Min. Effective R(3)	29.80	29.80	29.80
Walls Above Grade	Min. Nominal R(1)	19 + 5 ci	22 + 7.5 ci	22 + 10 ci
	Max. U(3)	0.049	0.042	0.038
	Min. Effective R(3)	20.32	23.90	26.40
Basement Walls(6)	Min. Nominal R(1)	20 ci	20 ci	20 ci
	Max. U(4)	0.047	0.047	0.047
	Min. Effective R(4)	21.12	21.12	21.12
Heated Slab or Slab ≤ 600 mm Below Grade	Min. Nominal R(1)	10	10	10
	Max. U(4)	0.090	0.090	0.090
	Min. Effective R(4)	11.13	11.13	11.13
Edge of Below Grade Slab ≤ 600 mm Below Grade	Min. Nominal R(1)	10	10	10
Windows and Sliding Glass Doors	Max. U(5)	0.28	0.25	0.25
	Energy Rating	25	29	29
Column 1	2	3	4	5

Notes to Table 3.1.1.11:

(1) The values listed are minimum Nominal R values for the thermal insulation component only.

(2) U-Value and effective R value shall include entire ceiling assembly components, from interior air film to vented space air film above insulation.

(3) U-Value and effective R value shall include entire exposed floor or above grade wall assembly components, from interior air film to exterior air film.

(4) U-Value and effective R value shall include entire basement wall or slab assembly components and interior air film.

(5) U-Value is the overall coefficient of heat transfer for a window assembly, sliding glass door assembly or skylight assembly expressed in Btu/(h•ft²•F).

(6) In the case of basement wall assemblies, where R20 ci is required R12 + 10 ci is permitted to be used or vice versa; or where R1 2+ 5 ci is required, R15 ci is permitted to be used or vice versa.

(7) Nominal and effective R values are expressed in (h•ft²•F)/Btu. U-Values are expressed in Btu/(h•ft²•F).

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① EXCAVATION AND BACKFILL

- Excavation shall be undertaken in such a manner so as to prevent damage to existing structures, adjacent property and utilities
- The topsoil and vegetable matter in unexcavated areas under a building shall be removed. The bottom of excavations for foundations shall be free of all organic material
- If termites are known to exist, all stumps, roots and wood debris shall be removed to a minimum depth of 11 3/4”in excavated areas under a building, and the clearance between untreated structural wood elements and the ground shall be no less than 17 3/4”
- Backfill within 23 5/8”of the foundation walls shall be free of deleterious debris and boulders over 9 7/8” in diameter

② DAMPPROOFING AND DRAINAGE

- In normal soil conditions, the exterior surfaces of foundation walls enclosing basements and crawl spaces shall be dampproofed. Where hydrostatic pressure occurs, a waterproofing system is required
- Masonry foundation walls shall be parged with 1/4”of mortar coved over the footing prior to dampproofing
- 4” foundation drains shall be laid on level, undisturbed ground adjacent to the footings at or below the top of the basement slab or crawl space floor, and shall be covered with 6” of crushed stone. Foundation drains shall drain to a storm sewer, drainage ditch, dry well or sump
- Window wells shall be drained to the footing
- Downspouts not directly connected to a storm sewer shall have extensions to carry water away from the building, and provisions shall be made to prevent soil erosion
- Concrete slabs in attached garages shall be sloped to drain to the exterior
- The building site shall be graded so that surface, sump and roof drainage will not accumulate at or near the building and will not adversely affect adjacent properties

③ FOOTINGS

- minimum 15 MPa poured concrete
- minimum 48”below finished grade
- Footings shall be founded on natural undisturbed soil, rock or compacted granular fill with minimum bearing capacity of 100 kPa

④ FOOTING SIZE

- | Floors Supported | Supporting Ext. Wall | Supporting Int. Wall | Column Area |
|------------------|----------------------|----------------------|-------------|
| 1 | 9 7/8” | 9 7/8” | 4.3 ft2 |
| 2 | 13 3/4” | 13 3/4” | 8.1 ft2 |
| 3 | 17 3/4” | 19 3/4” | 10.9 ft2 |
- Increase footing width by 2 5/8”for each storey of brick veneer supported, and by 5 1/8” for each storey of masonry
 - The projection of an unreinforced footing beyond the wall supported shall not be greater than its thickness

⑤ STEP FOOTINGS

- Vertical Rise 23 5/8”Max. for firm soils 15 3/4”Max. for sand or gravel Horizontal Run = 23 5/8”Min.

⑥ FOUNDATION WALLS

- To be poured concrete, unit masonry or preserved wood (see drawings for type and thickness)
- Dampproofing shall be a heavy coat of bituminous material.
- Foundation wall to extend minimum 5 7/8” above finished grade.
- A drainage layer is required on the outside of a foundation wall where the interior insulation extends more than 2’–11” below exterior grade. A drainage layer shall consist of
 - Min. 3/4” mineral fibre insulation with min. Density of 3.6 lb/ft²
 - Min. 4” of free drainage granular material, or
 - An approved system which provides equivalent performance
- Foundation walls shall be braced or have the floor joists installed before backfilling

⑦ CONCRETE FLOOR SLABS

- Garage, carport and exterior slabs and exterior steps shall be 4650psi concrete with 5–8%air entrainment
- Other slabs 3600psi concrete
- Minimum 3” thick, placed on a minimum 4” of coarse, clean, granular material
- All fill other than coarse clean material placed beneath concrete slabs shall be compacted to provide uniform support

⑧ MASONRY WALLS

- Where constructed of 3 1/2”brick, wall shall be bonded with header course every 6th course
- Provide 2” solid masonry or continuous 1 1/2” plate under all roof and floor framing members
- Provide 7 1/2” solid masonry under beams and columns
- Masonry wall to be tied to each tier of joists with 1 9/16” x 3/16” corrosion resistant steel straps, keyed minimum 4” into masonry. When joists are parallel to wall, ties are to extend across at least 3 joists @ 6’–7” o.c.
- Inside back of wall to be parged and covered with No.15 breather–type asphalt paper
- For reduced foundation walls to allow a brick facing while maintaining lateral support, tie minimum 3 1/2” brick to minimum 3 1/2” back–up block with corrosion resistant ties at least 0.028in² in cross sectional area, spaced 7 7/8” vertically and 2’–11” horizontally, with joints completely filled with mortar
- Masonry over openings shall be supported on corrosion resistant or prime painted steel lintels with a minimum of 5 7/8” end bearing

⑨ MASONRY VENEER

- Minimum 2 3/4” thick if joints are not raked and 3 1/2” thick if joints are raked
- Minimum 1” air space to sheathing
- Provide weep holes @ 31 1/2” o.c.at the bottom of the cavity and over doors and windows
- Direct drainage through weep holes with 20 mil poly flashing extending minimum 5 7/8” up behind the sheathing paper
- Veneer ties minimum 0.030” thick x 7/8” wide corrosion resistant straps spaced @ 23 5/8” vertically and 15 3/4” horizontally
- Fasten ties with corrosion resistant 0.125” diameter screws or spiral nails which penetrate at least 1–3/16” into studs

⑩ WOOD FRAME CONSTRUCTION

- All lumber shall be spruce–pine–fir No. 1 &2, and shall be identified by a grade stamp
- Maximum moisture content 19% at time of installation
- Wood framing members which are supported on concrete in direct contact with soil shall be separated from the concrete with 6 mil polyethylene

⑪ WALLS

- Exterior walls shall consist of:
 - cladding
 - sheathing paper lapped 4” at joints
 - 3/8” fibreboard or gypsum board or 1/4” plywood sheathing
 - 2x6 studs @ 16” o.c.
 - 2x6 bottom plate and double 2x6 top plate
 - 2x4 studs @ 16” o.c. can be utilized provided the combined R value of the batt insulation and exterior rigid insulation achieves R–17.
- Interior loadbearing walls shall consist of:
 - 2x4 studs @ 16” o.c.
 - 2x4 bottom plate and double 2x4 top plate
 - 2x4 mid–girts if not sheathed
 - 1/2” gypsum board sheathing

⑫ FLOORS

- See S04 for floor joist size and spacing requirements
- Joists to have minimum 1 1/2” of end bearing
- Joists shall bear on a sill plate fixed to foundation with 1/2” anchor bolts @ 7’ 10” o.c
- Header joists between 3’ 11” and 10’ 6” in length shall be doubled. Header joists exceeding 10’ 6” shall be sized by calculations
- Trimmer joists shall be doubled when supported header is between 2’ 7” and 6’ 7”. Trimmer joists shall be sized by calculations when supported header exceeds 6’ 7”
- 2x2 cross bridging required not more than 6’ 11” from each support and from other rows of bridging
- Joists shall be supported on joist hangers at all flush beams, trimmers, and headers.
- Joists located under parallel non–loadbearing partitions shall be doubled
- See S04 for subflooring requirements

⑬ ROOF AND CEILINGS

- See S04 for rafter, roof joist and ceiling joist size and spacing requirements
- Hip and valley rafter shall be 2” deeper than common rafters
- 2x4 collar ties @ rafter spacing with 1x4 continuous brace at mid span if collar tie exceeds 7’ 10” in length
- See S04 for roof sheathing requirements

⑭ NOTCHING & DRILLING OF TRUSSES, JOISTS, RAFTERS

- Holes in floor, roof and ceiling members to be maximum 1/4 x actual depth of member and not less than 2” from edges
- Notches in floor, roof and ceiling members to be located on top of the member within 1/2 the actual depth from the edge of bearing and not greater than 1/3 joist depth
- Wall studs may be notched or drilled provided that no less than 2/3 the depth of the stud remains, if load bearing, and 1 9/16” if non–load bearing
- Roof truss members shall not be notched, drilled or weakened unless accommodated in the design

⑮ ROOFING

- Fasteners for roofing shall be corrosion resistant. Roofing nails shall penetrate through or at least 1/2” into roof sheathing
- Every asphalt shingle shall be fastened with at least 4 nails
- Eave protection shall extend 2’ 11” up the roof slope from the edge, and at least 11 3/4” from the inside face of the exterior wall, and shall consist of Type M or Type S Roll Roofing laid with minimum 4” head and end laps cemented together, or glass Fibre or Polyester Fibre coated base sheets, or self sealing composite membranes consisting of modified bituminous coated material. Eave protection is not required for unheated buildings, for roofs exceeding a slope of 1 in 1.5, or where a low slope asphalt shingle application is provided
- Open valleys shall be flashed with 2 layers of roll roofing, or 1 layer of sheet metal min. 23 5/8” wide
- Flashing shall be provided at the intersection of shingle roofs with exterior walls and chimneys
- Sheet metal flashing shall consist of not less than 1/16” sheet lead, 0.013” galvanized steel, 0.018” copper, 0.018” zinc, or 0.019” aluminum

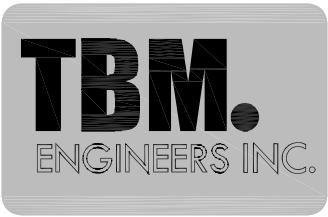
⑯ COLUMNS, BEAMS & LINTELS

- Steel beams and columns shall be shop primed.
- Minimum 3 1/2” end bearing for wood and steel beams, with 7 7/8” solid masonry beneath the beam.
- Steel columns to have minimum outside diameter of 2 7/8” and minimum wall thickness of 3/16”
- Wood columns for carports and garages shall be minimum 3 1/2” x 3 1/2”; in all other cases either 5 1/2” x 5 1/2” or 7 1/4” round, unless calculations based on actual loads show lesser sizes are adequate. All columns shall be not less than the width of the supported member
- Masonry columns shall be a minimum of 1 3/8” x 11 3/8” or 9 1/2” x 15”
- Provide solid blocking the full width of the supported member under all concentrated loads

⑰ INSULATION & WEATHERPROOFING

Ceiling with attic	R–60
Ceiling without attic space	R–31
Exposed Floor	R–31
Walls above Grade	R–19+5ci
Basement Walls	R–20ci
Heated Slab or Slab < 600 mm Below Grade	R–10
Edge of Below Grade Slab < 600 mm Below Grade	R–10

- Supply Ducts in unheated space R–20
- Insulation shall be protected with gypsum board or an equivalent interior finish, except for unfinished basements where 6 mil poly is sufficient for fibreglass type insulations
- Ducts passing through unheated space shall be made airtight with tape or sealant
- Caulking shall be provided for all exterior doors and windows between the frame and the exterior cladding
- Weatherstripping shall be provided on all doors and access hatches to the exterior, except doors from a garage to the exterior
- Exterior walls, ceilings and floors shall be constructed so as to provide a continuous barrier to the passage of water vapour from the interior and to the leakage of air from the exterior



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Addition and Interior Alterations on Existing Dwelling

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3/16" = 1'-0" (1:64)

Drawing No.

D-23

18 NATURAL VENTILATION

- Every roof space above an insulated ceiling shall be ventilated with unobstructed openings equal to not less than 1/300 of insulated area
- Insulated roof spaces not incorporating an attic shall be ventilated with unobstructed openings equal to not less than 1/150 of insulated area.
- Roof vents shall be uniformly distributed and designed to prevent the entry of rain, snow or insects
- Unheated crawl spaces shall be provided with 1.1 ft² of ventilation for each 538² ft
- Minimum natural ventilation areas, where mechanical ventilation is not provided, are:
Bathrooms: 0.97 ft²
other rooms: 3 ft²
Unfinished basement: 0.2% of floor area

19 DOORS AND WINDOWS

- Every floor level containing a bedroom and not served by an exterior door shall contain at least 1 window having an unobstructed open area of 3.8 ft² and no dimension less than 15", which is openable from the inside without tools
- Exterior house doors and windows within 6' 7" from grade shall be constructed to resist forced entry. Doors shall have a deadbolt lock
- The principal entry door shall have either a door viewer, transparent glazing or a sidelight

20 EXTERIOR WALLS

- No windows or other unprotected openings are permitted in exterior walls less than 3' 11" from property lines
- 5/8" fire rated drywall shall be installed on the inside face of attached garage exterior walls and gable ends of roofs which are less than 3' 11" from property lines
- Non combustible cladding shall be installed on all exterior walls less than 23 5/8" from property lines

21 CERAMIC TILE

- When ceramic tile applied to a mortar bed with adhesive, the bed shall be a minimum of 1/2" thick & reinforced with galvanized diamond mesh lath, applied over polyethylene on subflooring on joists at no more than 16" o.c. with at least 2 rows cross bridging

22 ACCESS TO ATTICS AND CRAWL SPACES

- Access hatch minimum 19 3/4" x 2' 4" to be provided to every crawl space and every roof space which is 108 ft² or more in area and more than 23 5/8" in height

23 GARAGE GASPROOFING

- The walls and ceiling of an attached garage shall be constructed and sealed so as to provide an effective barrier to exhaust fumes
- All plumbing and other penetrations through the walls and ceiling shall be caulked
- Doors between the dwelling and attached garage may not open into a bedroom and shall be weatherstripped and have a self-closer

24 ALARMS AND DETECTORS

- At least one smoke alarm shall be installed on or near the ceiling on each floor and basement level 2' 11" or more above an adjacent level
- Smoke alarms shall be interconnected and located such that one is within 16' 5" of every bedroom door and no more than 49' 3" travel distance from any point on a floor
- A carbon monoxide detector shall be installed on or near the ceiling in every room containing a solid fuel burning fireplace or stove

25 STAIRS

- Maximum Rise 7 7/8"
- Minimum Run 10"
- Maximum Run 14"
- Minimum Head Room 6' 5"
- Minimum Width 2' 10"
- Curved stairs shall have a min. run of 5 7/8" at any point and a minimum average run of 7 7/8"
- Winders which converge to a point in stairs must turn through an angle of no more than 90°; with no less than 30° or more than 45° per tread. Sets of winders must be separated by 3' 11" along the run of the stair
- A landing minimum 2' 11" in length is required at the top of any stair leading to the principal entrance to a dwelling, and other entrances with more than 3 risers
- Exterior concrete stairs with more than 2 risers require foundations

26 HANDRAILS AND GUARDS

- A handrail is required for interior stairs containing more than 2 risers and exterior stairs containing more than 3 risers
- Guards are required around every accessible surface which is more than 23 5/8" above the adjacent level
- Interior and exterior guards min. 2' 11" high. Exterior guards shall be 3' 6" high where height above adjacent surface exceeds 5' 11"
- Guards shall have no openings greater than 4", and no member between 4" and 2' 11" that will facilitate climbing

27 PLUMBING

- Every dwelling requires a kitchen sink, lavatory, water closet, bathtub or shower stall and the installation or availability of laundry facilities
- A floor drain shall be installed in the basement, and connected to the sanitary sewer where gravity drainage is possible. In other cases, it shall be connected to a storm drainage system, ditch or dry well

28 ELECTRICAL

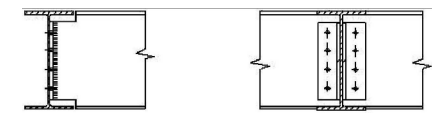
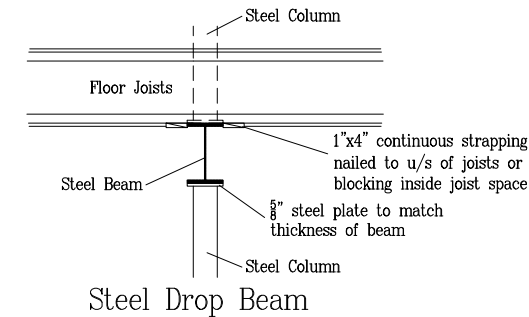
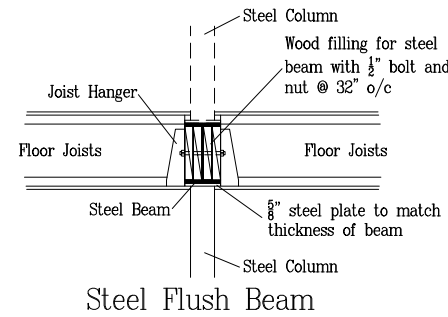
- An exterior light controlled by an interior switch is required at every entrance
- A light controlled by a switch is required in every kitchen, bedroom, living room, utility room, laundry room, dining room, bathroom, vestibule, hallway, garage and carport. A switched receptacle may be provided instead of a light in bedrooms and living rooms
- Stairs shall be lighted, and except where serving an unfinished basement shall be controlled by a 3 way switch at the head and foot of the stairs
- Basements require a light for each 323 ft² controlled by a switch at the head of the stairs

29 MECHANICAL VENTILATION

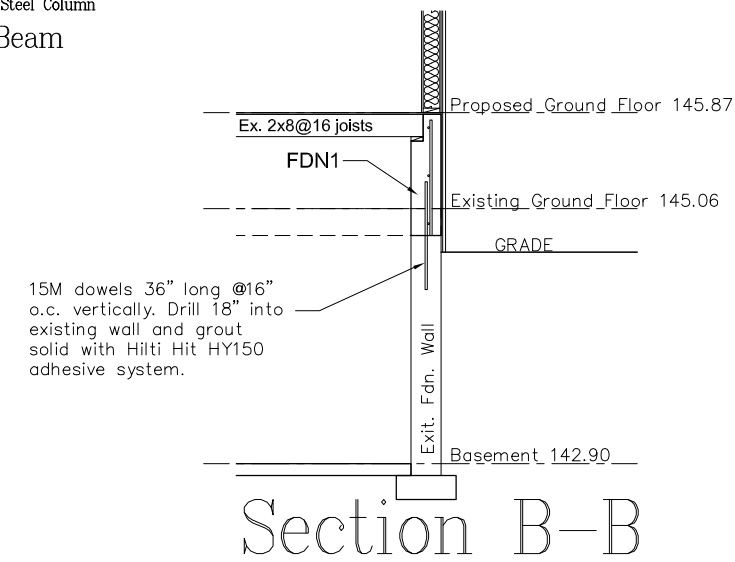
- A mechanical ventilation system is required with a total capacity at least equal to the sum of:
 - 10 cfm each for basement and master bedroom
 - 5 cfm for each other room
- A principal dwelling exhaust fan shall be installed and controlled by a centrally located switch identified as such
- Supplemental exhaust shall be installed so that the total capacity of all kitchen, bathroom and other exhausts, less the principal exhaust, is not less than the total required capacity
- A Heat Recovery Ventilator may be employed in lieu of exhaust to provide ventilation. An HRV is required if any solid fuel burning appliances are installed
- Supply air intakes shall be located so as to avoid contamination from exhaust outlets

GENERAL NOTES:

- All work according to Ontario Building Code and Municipal by-laws and standards.
- Excavation shall be undertaken in such a manner as to prevent movement that would cause damage to adjacent buildings at all phases of construction.
- Material shall not be placed nor shall equipment be operated or placed in or adjacent to an excavation in a manner that may endanger the integrity of the excavation or its supports.
- Surface water, all groundwater, perched ground water and in particular artesian water shall be kept under control at all phases of excavation and construction.
- All sides of excavation shall be continuously maintained and protected from possible deterioration by construction activity or by the action of frost, rain and wind.
- All dimensions and locations to be verified on site prior construction
- Contractor to provide all temporary bracing and shoring necessary for the safe execution of this work
- All footing to be minimum 48" below finish grade, on natural undisturbed soil, rock, or 6" of compacted granular fill with minimum bearing capacity of 100 kPa
- All members shall be so framed, fastened, tied, braced, and anchored to provide the necessary strength, rigidity, and stability OBC 9.2.3.2.1 and 4.1.1.3
- All loads must be supported and transferred to foundation or adequate support



Steel Beam to Steel Beam Connection



DESIGN. DELIVER. INNOVATE.

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**Addition and Interior
Alterations on
Existing Dwelling**

Date 2022-08-16 **Issued for:** Building Permit

Scale:
3/16" = 1'-0" (1:64)

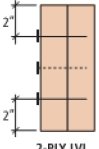
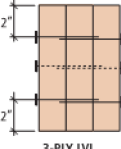
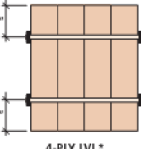
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MULTIPLE MEMBER CONNECTIONS FOR SIDE-LOADED BEAMS: 3100F_b – 2.0E

Verify adequacy of beam in uniform load tables prior to using values listed below.

3100F_b-2.0E 1¾" WEST FRASER™ LVL

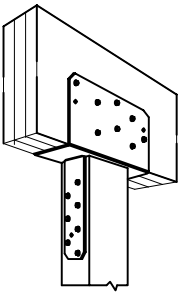
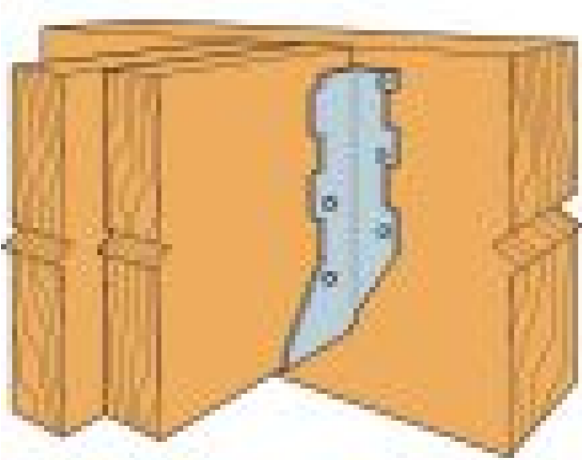
Maximum Factored Uniform Load (PLF) Applied to Either Outside Member			 2-PLY LVL	 3-PLY LVL	 4-PLY LVL*
Connector	Spacing	Rows	Nails On One Side or Through Bolts	Nails Both Sides or Through Bolts	Through Bolts Only
16d (3½") Common Wire Nails	12" o.c.	2 Rows	885	663	Not Applicable
		3 Rows	1327	995	
	6" o.c.	2 Rows	1770	1326	Not Applicable
		3 Rows	2654	1990	
	4" o.c.	2 Rows	2655	1989	Not Applicable
		3 Rows	3981	2985	
½" A307 Through Bolts	24" o.c.	2 Rows	671	503	448
	12" o.c.	2 Rows	1342	1006	895
	6" o.c.	2 Rows	2684	2012	1790

* 4-ply beams should only be side-loaded when loads are applied to both sides of the member.

1. Nails to be located a minimum of 2" from the top and bottom of the member. Start all nails a minimum of 2½" in from ends.

2. Bolts are to be material conforming to ASTM Standard A307. Bolt holes are to be the same diameter as the bolt, and located 2" from the top and bottom of the member. Washers should be used under head and nut. Start all bolts a minimum of 2½" in from ends.

3. Values listed are for standard term loading.



CONCRETE:

Unreinforced and reinforced concrete shall be designated, mixed, placed, cured and tested in accordance with the requirements for "R" class concrete stated in Clause 8.13 of CSA A23.1, "Concrete Materials and Methods of Concrete Construction", with a maximum aggregate size of 19 mm. For strip footings, footing pads and foundation walls, use 20 MPa. For concrete exposed to cold weather, use 32 MPa concrete with 5%–8% air entrainment.

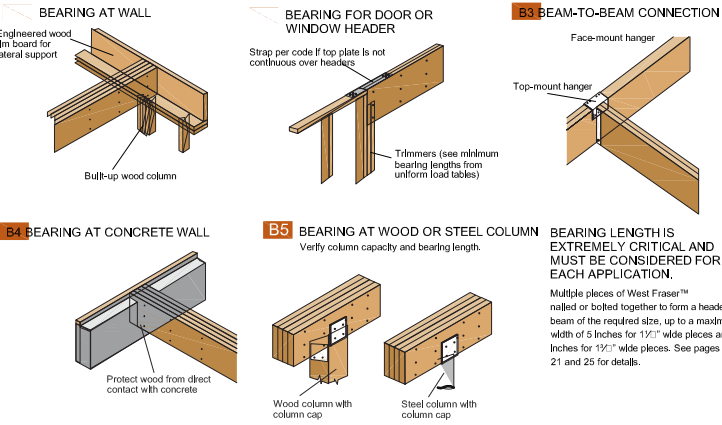
STEEL REINFORCEMENT:

Reinforcement shall conform to CAN/CSA–G30.18–M "Billet–Steel Bars for Concrete Reinforcement" with a minimum specified yield strength of 400 MPa, and be lapped a minimum of 450 mm for 10M bars and 650 mm for 15 M bars.

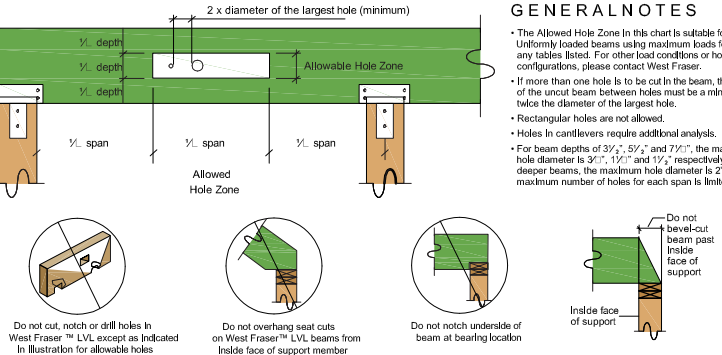
STRUCTURAL STEEL:

Structural steel shall conform to CAN/C.S.A.–G40.20/G40.21 Grade 350W to be shop painted (primed). Structural steel connections to be bolted or welded on site. Contractor to submit stamped shop drawings for approval prior fabrication. Structural elements to be supported on steel, concrete, or masonry walls. Do not support steel on wood, LVL, or combustible materials.

BEARING DETAILS



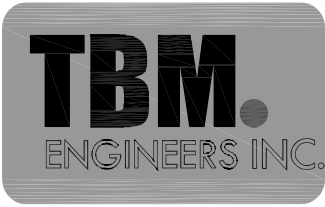
ALLOWABLE HOLES



GENERALNOTES

- The Allowed Hole Zone in this chart is suitable for Uniformly loaded beams using maximum loads for any tables listed. For other load conditions or hole configurations, please contact West Fraser.
- If more than one hole is to be cut in the beam, the length of the uncut beam between holes must be a minimum of twice the diameter of the largest hole.
- Rectangular holes are not allowed.
- Holes in cantilevers require additional analysis.
- For beam depths of 3½", 5½", and 7½", the maximum hole diameter is 3½", 1½", and 1½", respectively. For deeper beams, the maximum hole diameter is 2". The maximum number of holes for each span is limited to 3.

STRUCTURAL - SPECIFICATIONS - WOOD



DESIGN. DELIVER. INNOVATE.

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Addition and Interior
Alterations on
Existing Dwelling

Date Issued for:
2022-08-10 Building Permit

Scale:
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Drawing No.

D-25

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