Town of Vassalboro

MUBEC Building Plan Application Form #1 New Homes

Plans submitted should include the following information. This can be provided on a separate drawing(s) or provided in this application. All building plans submitted by an architect or professional engineer should contain a statement that the design of all structures meets MUBEC. If you use this form, have your contractor(s) fill it out.

Buildings should be designed to the following climatic design and geographic criteria (R301.2(1)

Ground Snow Load	70 psf
Ultimate Wind Speed	115 mph
Wind Topographic Effects	No
Wind Exposure	B default. If building is exposed to large open areas such as adjacent to
	a Lake use C.
Seismic Design Category	В
Weathering	Severe
Frost Line Depth	4 ft
Termite Protection?	No
Winter Design Temp	-10 F
Ice Underlayment required ?	Yes
Flood Hazzards Possible?	Yes
Air Freezing Index	2500
Mean Annual Temp	46 F

General Infor	mation		
Owner		Phone N	lo
Contractor _		Phone N	lo
Address			
Map	Lot		
Zoning District			
Shoreland	Resource Protection	Rural	Str Protection
Description of Pro	posed Structure		
Does the propose	d construction include one or more dec	:ks? (Y or N)	
Does the propose	d construction include an attached gara	age porch, breezeway, m	nudroom or other
unheated area? ()	(or N) If yes, describe		
Are any walls of the	ne proposed structure within 15 feet of	an ascending slope or 4	0 feet of a descending
slope greater than	n 3:1? (R403.1.7) (Y or N)		
Is the proposed b	uilding within 5 ft of a property line or e	existing building? (R302.)	1) (Y or N)
Are any proposed	structures are within 100 year flood zo	ne? (Y or N)	

Property Site Plan

Submit a scaled drawing of your property including the dimensions of all existing and proposed structures, location of driveway, septic system and well. The plan should verify that property line, water body, and road setbacks are met and verify road and water frontage requirements are met.

Building Plans

Submit scaled floor plans of your proposed building including dimensions and location of all rooms, interior and exterior walls, doors, windows, egress points, stairs, chimneys, bulkhead, location of plumbing fixtures, and any other pertinent information. Indicate type of heating and ventilation system. Indicate areas where significant dead loads may be prominent, such as floor tiled areas, kitchen cabinets, exercise rooms, fireplaces or hearths, hot tubs, pianos or similar heavy items.

Foundation Type (check all that apply)

- Footings a minimum of 4 ft below grade + frost wall Crawl space Haunch 12" wide x 22" high Slab (haunch required for slabs without a frost wall)
 - _____ Building on posts (footing required)
 - ___ Other __ Describe_

Foundation Specs (Fill out all that apply)

Footing fo	<mark>r wall, or</mark> ۹	labWidth	Height			
The required width of a footing varies according to the number of stories, width of home, type of						f
foundation	n, and load	l bearing value of the	e soil. See table below fo	or footing requireme	nts or Table	2
R403.1(1)	of the IRC	2015 editions.				
Appendix 2	1 Vertical F	Rebar Requirements for	or an 8" wide Concrete W	/all**		Append
		Minimum Vertic	e Rebar Spacing for #4 Bar (in	nches) Yield Strength 60	,000 psi	Soil typ
Max Wall	Max depth of fill over	L	Soil Classes and Design Lateral Lo	oad(psf of depth)		!
Height ft	footing (ft)	GW, GP, SW, SP, W	GM GC, SM, SM-SC, ML,Sa	SC,ML-Cl, Inorganic CL	Unified	Kenneb
		30	45	60		
		Hk.W. De	B,C,Ha,Hf,Hr,Lk,Ly,Mo,Pa,Pe,R	Bo*,Bu,Rf*,Sc,Sd*,Su,To*,	USDA-SCS	В
			,Sa,Sk,Wn,Wr	Va*		Во
5	4	NR	NR	NR		Bu
5	5	NR	NR	NR]	С
	4	NR	NR	NR		De
6	5	NR	NR	NR		На
	6	NR	NR	NR	7	Hf
		[7	

Minimum	Footing W	/idth and Thickness	(continued from previo	us page)		
Appendix 1 Vertical Rebar Requirements for an 8" wide Concrete Wall**				Append		
		Minimum Verti	Minimum Verticle Rebar Spacing for #4 Bar (inches) Yield Strength 60,000 psi			Soil typ
Max Wall	Max depth of	Soil Classes and Design Lateral Load(psf of depth)				
Height ft	footing (ft)	GW, GP, SW, SP, W	GM GC, SM, SM ₅ SC, ML,Sa	SC,ML-Cl, Inorganic CL	Unified	Kenneb
		30	45	60		
		Hk W De	B,C,Ha,Hf,Hr,Lk,Ly,Mo,Pa,Pe,R	Bo*,Bu,Rf*,Sc,Sd*,Su,To*,		В
		111,00,00	,Sa,Sk,Wn,Wr	Va*		Во
Soil type under footings (Tables R401.4.1 & R403.1) Engineered fill Undisturbed natural soils If natural specify type (this can be obtained from GIS soil layer on the Town Website)						
Soils under	r the footir	ng should be on und	isturbed natural soils to	prevent settling of th	e foundatio	n.
<u>Wall</u>	Widt	th Max	imum Height			
<u>Slab</u>						
Slab base i	Slab base material (R506) (minimum 4") Depth Gravel Crushed Rock					
lf you are _l	proposing	a radon system una	ler the slab, the base ma	terial must be crushe	d rock.	
Thickness	(minimur	n 3.5")				
Slab Vapor barrier (R405.2.2)						
6 mil polye	ethylene		Other			

Posts Describe all posts including ones used to support structural beams

Location	Number	Size	Spacing	Туре	Footing

Foundation Re-inforcement (Check or fill out all that apply)

Horizontal Rebar All rebar must be tied and held in place prior to pour of concrete (R404.1.2.3.7.4)

_____ Footing Describe (not required) ___

- _____ < 8 ft wall #4 bar 12" from top and at mid height (Table R404 1.2(1))
- > 8 ft wall #4 bar 12" from top and near third points

Haunch - #4 bar at top and bottom (R403.1.3.2)

Haunch - #5 bar or two #4 bars in middle third (R403.1.3.2)

_____ Slab - rebar or welded wire in top 1/3 (506.2.4)

Re-inforcement is not required for a slab. Welded wire is often used for slab re-inforcement. If a slab is re-inforced, the code requires that the re-inforcement be supported to remain in the center to upper 1/3 of the slab. If the welded wire is not located as such, it loses its benefit.

Vertical Rebar

Footing to wall dowels (R403.1.3)	#4 bar every 4 ft	Other
Vertical Reinforcement in Foundation N	Wall (Table R404.1.2) (see	table in Appendix)
Max. depth of fill over footing	_ USDA Soil Type	Max. wall height ft
Size bar Yield strength60K	_ Spacing	

The requirement for vertical re-bar is dependent upon wall height, soil type, depth of fill over the footing, yield strength of rebar, and the size of the bar. This can be determined from the Tables in Appendix 1 and 2 of this application. There is no requirement for walls 6 feet or less in height. The Building Inspector can determine this requirement for you.

Frost Protection of Foundation (choice of 1) (R403.1.4.1)

- _____ Footings or bottom of posts 4 ft below grade
- 2" rigid closed cell foam extending continuously 2 ft vertically and 2 ft horizontally (slab)
 - Posts on concrete pads placed upon 2 ft x 2 ft 2" rigid closed cell foam
- _ Footings erected on ledge

Other

Note: For a slab, the code requires a total of 4 ft of R-10 rigid insulation (typically 2" thick) to extend continuously by any combination of vertical insulation, and/or horizontal insulation. The horizontal insulation must be covered by a minimum of 12" of soil.

Concrete Compressive Strength(Table R402.2)

	 3000 psi (foundation exposed to weather)	Location
	 2500 psi (foundation area not exposed to weather)	Location
Other		

Anchorage of Building to Foundation (R403.1.6)

______½" anchor bolts with washer and nut 6 ft OC and 1 ft from corners embedded 7" into concrete

_____ Hurricane straps Other

Height of top of foundation wall or slab above final grade (R404.1.6 and R317)

_____ 6" (Minimum requirement) Other______

Crawl Space – fill this section out if you are proposing a building with crawl space Foundation ventilation in crawl space wall (R408) Concrete slab on floor – ventilation not required

Vent openings 3 ft from corners (8 openings) size			
Vapor barrier and mechanical ventilation			
Crawl Space Access (R40	08.4) Under floor (min 18" x 24	') perimeter wall (min 16" x 24")	
Ground Vapor Barrier	6 ml polyethylene	slab with 6 ml polyethylene	
Foundation Backfill			
Foundation Backfill Gravel	Soil from Excavation	Other	
Foundation Backfill Gravel You should consider pur	Soil from Excavation chasing good gravel to backfill your fou	Other undation if the lot has poorly drained	

Describe foundation drainage system (R405)

	Default – 4" perforated pipe at top of footing imber Default – 4" perforated pipe at top of footing imber	edded in crushed stone at least	2" below pipe
and 6"	" above pipe and 12" wide		

Other

Foundation drainage is required if your home contains habitable space below grade unless you can provide evidence that the soil on your property is well drained and meets the definition of Group I soils. If your property contains poorly drained soils such as clay, you may want to consider providing foundation drainage even if it is not required. This will minimize damage from frost heaving.

Drainage (R405.1)

- ___ gravity
- ____ pump

____ both gravity and pump

oundation Moisture Protection R406
Damp proofed Waterproofed
Aaterial
This is required if your home contains habitable space below grade. Waterproofing provides more
notection than dump probling and is required in dreas with poorly dramed sons. Both waterprobling
ina damp proojing are applied to the outside wall from the jooting to final grade level.
Radon Control System – Fill out this section if you are proposing to have a radon system Alinimum recommendation 4" drainage pipe under slab with capped T-fitting through slab Passive system (includes 4" vent pipe through roof) Active system (includes 4" vent pipe through roof with air pump) Method Length of 4"perforated pipe min. of 20 ft in 4" depth of 1-1/2 inch crushed stone Loop of 4"perforated pipe in 4" depth of ½ to ¾ inch crushed rock
adon gas is a common issue in Maine cellars and could eventually cause cancer. Radon control is not
equired by code but must meet minimum standards if installed. The minimum recommendation will
llow you to add radon control after the home is built without removing large portions of the basement
loor slab. The capped T-fitting will be the vent pipe for the radon control system and should be located

so that it is concealed in a heated portion of the home such as a closet. If you sell your home, the buyer will often request radon testing.

Masonry				
Fill out the following if chimneys are proposed				
Material Type				
Footings Thickness (12" min)	Width (min 6" beyond wall)			
Wall thickness (min 4")	Lining type			
Cleanout location and size				
Height above roof				
Framing				
Room Requirements				

Room Require	
Room Area (C	Check to confirm requirement is met) (R304)
	Every room other than a kitchen has 70 sq ft of area > 5 ft in height
	Every room other than a kitchen is at least 7 ft in every horizontal direction
Room Height ((R305)
	Every room has a ceiling height of at least 7 ft for rooms with flat ceilings
	Every room has 50% of the ceiling height at least 7 ft for rooms with sloped ceilings
	Every room has no part of the ceiling < 5 ft for rooms with sloped ceilings.

Floor Joists (this may not apply if you have a slab floor)						
Joist Design (R502.3)	*Type – indic	ate 2x, LVL, PSL, L	SL, TJI (Wood	l beam), or tru	ISS	
Location #1	Size	Span	Spacing	Туре*		
Location #2	Size	Span	Spacing	Туре*		
Location #3	Size	Span	Spacing	Туре*		
Location #4	Size	Span	Spacing	Type*		
Floor Beams (R502.5)	Туре	e – indicate 2x, LV	'L, PSL, LSL,			
Location #1	_ Number	Size	Span	_Spacing	Туре*	
Location #2	Number	Size	Span	_Spacing	Туре*	
Location #3	Number	Size	Span	_Spacing	Туре*	
You may be able to eliminate cellar posts by use engineered beams such as an LVL, PSL, TJI, or floor						
trusses and possibly save money. Engineered beams usually require fire protection with coverage by ${}^{\prime\prime}\!\!\!\!2''$						
drywall on the ceiling or special paint that provides 15 minute fire protection.						
Floor Sheathing (R503.1/2) Thickness 5/8" other material						

Walls Studs	(R602.3.1)	Size	Spacing	Height	

Interior Wall Coverings ½" drywall Other
Interior vapor barrier (R601.3) Kraft faced insulation Sheet Polyethelene
Exterior sheathing (Table R602.10.2) Material Thickness
Wall Exterior Water Resistant Barrier (703.2) Typar or equivalent Zip System
Siding Type
Headers (Table R502.5) windows and doors describe
Wall Lateral Bracing (R602.10 or R602.12)
The building inspector can determine whether or not your walls are adequately braced to resist lateral
wind loads. You will need to provide a floor plan of all stories drawn to scale with dimensions of exterior
walls, windows, and doors. The wall bracing generally is accomplished by 4x8 sheets of sheathing
7/16" thick or more properly connected to the framing. This typically becomes an issue in homes with
many large windows that lack areas of sheathing areas from the sill to the roof that are 3 feet or more
laterally. These areas are referred to as braced wall panels in the Code.
Filled out by Building Inspector
Wall Bracing Method Simplified Other
Walls are adequately braced? Yes No
Walls not adequately braced
Recommended changes
Signed Building Inspector
See spreadsheet for summary
Braced Wall Panel Blocking Connections to Roof Framing
Not required . Distance from wall top plate to top of rafter or truss $\leq 9 \frac{1}{4}$ "
Distance from wall top plate to top of rafter or truss > 9 ½ " but ≤ 15 ½ "
Solid blocking between rafters attached to rafters and top plate but leave only
enough space for ventilation with proper vent
Distance from wall top plate to top of rafter or truss > 15 ¼ "
Solid blocking between rafters attached to rafters and top plate but leave 2"
space maximum for ventilation with proper vent
Soffit blocking along wall top plate and soffit outer edge
There are illustrations in the appendix that describe the required braced wall panel blocking.
Egress Requirements (Check to confirm requirement is met) (R310 & 311)
Minimum one 36" x 78" door
All bedrooms have a window < 44" from the finished floor with the following
dimensions in the openable area: 5.7 sq ft 20" width 24" height
Basement has a door or window to outside meeting the above requirements

Roof / Ceiling
Ceiling Type Cathedral ceiling attic space combination
If a cathedral ceiling, indicate size and type of structural ridge beam and how the beam will be
supported.
Ridge beam size span type(LVL, PSL, or natural wood)
Ridge beam support posts x x
Other
Trusses ground snow load (minimum 70 psf) Type
Roof Anchorage (required for trusses)Hurricane Clips other
Roof Rafters (R802.5) Size Span Spacing
Ceiling joists or rafter ties (R802.4)
(Required in lower 1/3 at every rafter) Size Spacing
Collar ties (required in upper 1/3) (minimum required 1"x4" or ridge straps every 4 ft)
Size Spacing or 1¼" 20 gage ridge strap every 4 ft
Rafter ties(ceiling joists) are required by code in the lower third of the area in-between the top of the
wall and ridge of the roof on every rafter to prevent outward spreading of exterior walls and the sagging
of the roof ridge. Collar ties installed on the upper third of the ridge and are required to prevent uplift.
Cathedral ceilings are often built without rafter and collar ties. Ceilings proposed to be built this way
must be designed with a structural ridge beam typically supported by posts down to the foundation sill .
A cathedral ceiling also presents another compliance issue in that they have limited space for insulation
to meet the R-49 roof insulation requirement (15" of fiberglass insulation). 2x12 rafters and spray foam
insulation are often needed to meet the insulation requirement even though structurally a lower
dimension rafter would often suffice. A scissor truss may be a cost effective compromise sacrificing some
of the cathedral height to obtain space for insulation. If you are unsure of how to design a ridge beam,
China's building inspector can help you properly size a ridge beam which typically requires a large LVL,
PSL, or other structural beam.
Roof Ventilation (Check all that apply)
Soffit ridge vents gable end vent proper vent
Unvented system (See 5 requirements below for unvented system))
1. Attic, if present, is within building thermal envelop
2. No interior vapor barriers on ceiling side of attic
3. A ¼ inch vented air space is maintained between wood shingles and shakes and roof underlayment.
(may not apply)
4. Air impermeable insulation or a vapor retarder is used in direct contact with underside of roof
sheathing
5. Air impermeable insulation is installed on the underside of the roof sheathing or directly above the
roof sheathing to an R-25. Air permeable insulation is installed on the underside of impermeable
insulation.

If vents are provided, the area of the vents should be 1/150 of the floor area of the attic. In particular					
situations this may be reduced to 1/300 of the floor area					
Roof Underlayment (R905.2.7) Material					
Roof Sheathing	Material	Thickness			
Roof Covering	Material				
Roof Ice Barrier	Material / Location				
Attic Access (R807.1)	22" x 30" min req	Other			
This is required for attic spaces > 30 sq ft and with a vertical height of at least 30".					

Energy Code

Insulation (IECC 402.1)*

Prescriptive Requirements

ltem	Minimum Requirements	Proposal / Method
Wood frame wall	R-20 cavity or	5.5" High density fiberglass
	R-13 cavity + R-5 sheathing	5.5" Roxul
		Other
Mass Wall	R-15 (>1/2 exterior) or	
	R-19 (> ½ interior)	
Cathedral Ceiling	R-49	15" Fiberglass
	R-38 if raised heel scissor truss	15" Cellulose
	used	12" Fiberglass w/raised heel truss
	if insufficient space	12" Cellulose w/raised heel truss
	R-30 limited to lesser of 20% or 500 sq ft of	Other
	celling	
Flat Ceiling	R-49	15" Fiberglass
		15" Cellulose
	R-38 if raised heel truss used	12" Fiberglass w/raised heel truss
		12" Cellulose w/raised heel truss
		Other
Floor	R-30	
	Not req. if basement/crawl	
	space wall is insulated	
Crawl Space wall or	R-10 continuous sheathing	2" rigid foam outside foundation
basement wall	or R-13 Cavity	2" rigid foam inside foundation w/ 15
		minute fire protection
		Other
Slab	R-10 continuous for 4 ft	2" rigid foam 2 ft down and 2 ft
	R-15 for heated slab	horizontal
Slab edge	vertical+horizontal	Other
Hot water pipes	R-3	
Circulating hot water	R-2	
Windows	U value 0.35 or less	
Doors	U value 0.35 or less	
Eave air sealing	Eave area under rafter (proper)	Acuvent (recommended option)
	vent is completely air sealed to	Sneatning extended up raised heel truss Sealed with sheathing and blocking
	prevent wind washing	

	Sealed with other impermeable material
	Other

*If the insulation is part of a retrofit on existing framing, insulation requirements may be reduced. As part of the energy code, your home will be inspected for air leaks in the building envelope. Any potential source of air infiltration should be sealed from wind with caulk, putty, flashing or any material that is not wind permeable. Fiberglass, roxul, or cellulose insulation is not an acceptable material to block air infiltration, since wind can penetrate the insulation. Sealing of the eaves is important to prevent "wind washing" which compromises the effectiveness of the insulation. Acuvents are a good way to seal eaves that are not otherwise sealed by blocking or other methods.

Fire Protection
Interior Foam Plastic
Note: Rigid foam or spray foam on the inside of a basement, crawl space, or building is required to be
fire protected by the use of a thermal barrier.
Method1/2 " drywall Thermax sheathing Paint w/ 15 min fire protection
Crawl spaces and attics where access is for maintenance or repairs only may use the additional methods
1 ½ " mineral insulation¼ " wood structural panel 3/8 " particleboard
1/4 " hardboard3/8 ´drywall corrosive resistant steel .016"
Garages (Table R302.6)½" gypsum5/8" type X gypsum(required on walls adjacent to living areas)
<u>Floors</u> (R501.3)
½" Drywall installed on underside of framing Joist with Flak Jacket protection
Other fire protective coating on floor framing material
This is required typically in a basement if your floor is framed with trusses, structurally composite

lumber, or dimensional lumber that is under 10" nominal size.

Ventilation - Fill this section out if you are proposing a mechanical air exchange system

There are no requirements to mechanical ventilate your home, but I think you are asking for trouble if you don't. Your new home will likely need a fresh source of air from the outdoors to prevent indoor air quality problems and issues with lack of adequate air supply for fuel burning appliances. It is recommended that you hire a professional to design a ventilation system. It is best to have a balanced system which provides outdoor supply air as well as the exhaust air from bathroom and kitchen fans. The reliance on entirely exhaust air for ventilation can lead to negative pressure which is problematic for fuel burning appliances and can lead to increased infiltration of radon gas into your cellar or from the slab. If you decide to mechanically ventilate your home, it must meet minimum standards.

Fan Exchange R	ate (CFM)	Kitchen	Bathroom		Whole house	
Type Intermittant			Continuous			

10 Form #1 New Homes Revised January 2019 The minimum requirements for intermittent fans are 100 cfm for a kitchen and 50 cfm for a bathroom and 5 ach and 20 cfm, respectilvely for continuous fans. Minimum requirements for whole house ventilation is dependent upon the floor area of the home and the number of bedrooms.

Whole House Ventilation

Describe system or attach plans.

By virtue of the signature below, I hereby verify that all materials contained within this application are true and accurate to the best of my knowledge. I understand that the information contained within this application will be used as a basis for determining compliance with the Maine Uniform Building and Energy Code. Failure to follow the Building Plan Application, as submitted, could result in ordered corrections and / or removal of unauthorized work. All subsequent work shall not be authorized until the required corrections are made. I understand that I am responsible for contacting the Town for all required building and energy code inspections.

Capacity

Heating System

Type_____

Signature of Contractor

Signature of Applicant

Approval of Plans

By virtue of this signature, the plans submitted are complete and are consistent with the Maine Uniform Building and Energy Code.

Building Inspector

Plans Not Approved

The submitted plans are incomplete due to the following

Date

Date

Date

The following sections of the application do not meet code.

Building Inspector

Date

Аррениях	i verticuri	tebai nequirements io						
		Minimum Verticle Rebar Spacing for #4 Bar (inches) Yield Strength 60,000 psi						
Max Wall	Max depth of	Soil Classes and Design Lateral Load(psf of depth)						
Height ft	footing (ft)	GW, GP, SW, SP, W	GM GC, SM, SM-SC, ML,Sa	SC,ML-Cl, Inorganic CL	Unified	Kennet		
		30	45	60				
		Hk,W, De	B,C,Ha,Hf,Hr,Lk,Ly,Mo,Pa,Pe,R	Bo*,Bu,Rf*,Sc,Sd*,Su,To*,	USDA-SCS	В		
			,Sa,Sk,Wn,Wr	va*		Во		
5	4	NR	NR	NR		Bu		
5	5	NR	NR	NR		С		
	4	NR	NR	NR		De		
6	5	NR	NR	NR		На		
	6	NR	NR	NR		Hf		
	4	NR	NR	NR		Hk		
7	5	NR	NR	NR		Hr		
/	6	NR	NR	31		Lk		
	7	NR	30	22		Ly		
4	4	NR	NR	NR		Мо		
	5	NR	NR	NR		Ра		
8	6	NR	NR	28		Ре		
	7	NR	26	20		R		
	8	30	20	15		Rf		
	4	NR	NR	NR		Sa		
	5	NR	NR	NR		Sc		
9	6	NR	NR	18		Sd		
5	7	NR	16	17		Sk		
	8	26	17	13		Su		
	9	21	14	10		То		
	4	NR	NR	NR		VA		
	5	NR	NR	NR		W		
	6	NR	NR	24		Wn		
10	7	NR	22	16		Wr		
	8	25	15	12				
	9	19	12	10		*AASH ⁻		
	10	15	10	10				

Appendix 1 Vertical Rebar Requirements for an 8" wide Concrete Wall**

Append

NR = No requirement

*Not suitable for building unless engineered by P.E. or intensive soil analysis

n GIS layer on Tax Maps on Town website

** For walls other than 8" wide; or different rebar types see Table R404.1.2(8) of IRC 2015





