

Dept of Safety & Professional Services Industry Services Division Wisconsin Stats. 101.63, 101.73	<h2 style="margin:0;">Wisconsin Uniform Building Permit Application</h2> <p style="font-size: small; margin: 5px 0;">Instructions on back of second ply. The information you provide may be used by other government agency programs [(Privacy Law, s. 15.04 (1)(m))]</p>	Application No. _____  Parcel No. _____
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**PERMIT REQUESTED**     Constr.     HVAC     Electric     Plumbing     Erosion Control     Other:

Owner's Name	Mailing Address			Tel.
Contractor Name & Type	Lic/Cert#	Exp Date	Mailing Address	Telephone & Email
Dwelling Contractor (Constr.)				
Dwelling Contr. Qualifier (The Dwelling Contr. Qualifier shall be an owner, CEO, COB or employee of the Dwelling Contr.)				
HVAC				
Electrical Contractor				
Electrical Master Electrician				
Plumbing				

**PROJECT LOCATION**    Lot area \_\_\_\_\_ Sq.ft.     One acre or more of soil will be disturbed     Town     Village     City of \_\_\_\_\_    \_\_\_\_\_ 1/4, \_\_\_\_\_ 1/4, of Section \_\_\_\_\_, T \_\_\_\_\_ N, R \_\_\_\_\_ E/W

Building Address \_\_\_\_\_ County \_\_\_\_\_ Subdivision Name \_\_\_\_\_ Lot No. \_\_\_\_\_ Block No. \_\_\_\_\_

Zoning District(s) \_\_\_\_\_ Zoning Permit No. \_\_\_\_\_ Setbacks: Front \_\_\_\_\_ ft. Rear \_\_\_\_\_ ft. Left \_\_\_\_\_ ft. Right \_\_\_\_\_ ft.

<b>1. PROJECT</b> <input type="checkbox"/> New <input type="checkbox"/> Repair <input type="checkbox"/> Alteration <input type="checkbox"/> Raze <input type="checkbox"/> Addition <input type="checkbox"/> Move <input type="checkbox"/> Other: _____	<b>3. OCCUPANCY</b> <input type="checkbox"/> Single Family <input type="checkbox"/> Two Family <input type="checkbox"/> Garage <input type="checkbox"/> Other: _____	<b>6. ELECTRIC</b> Entrance Panel Amps: _____ <input type="checkbox"/> Underground <input type="checkbox"/> Overhead <b>7. WALLS</b> <input type="checkbox"/> Wood Frame <input type="checkbox"/> Steel <input type="checkbox"/> ICF <input type="checkbox"/> Timber/Pole <input type="checkbox"/> Other: _____	<b>9. HVAC EQUIP.</b> <input type="checkbox"/> Furnace <input type="checkbox"/> Radiant Basebd <input type="checkbox"/> Heat Pump <input type="checkbox"/> Boiler <input type="checkbox"/> Central AC <input type="checkbox"/> Fireplace <input type="checkbox"/> Other: _____	<b>12. ENERGY SOURCE</b> <table style="width:100%; font-size: x-small;"> <tr> <td>Fuel</td> <td>Nat Gas</td> <td>LP</td> <td>Oil</td> <td>Elec</td> <td>Solid</td> <td>Solar Geo</td> </tr> <tr> <td>Space Htg</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Water Htg</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	Fuel	Nat Gas	LP	Oil	Elec	Solid	Solar Geo	Space Htg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Water Htg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							
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<b>2. AREA INVOLVED (sq ft)</b> <table style="width:100%; font-size: x-small;"> <tr> <th></th> <th>Unit 1</th> <th>Unit 2</th> <th>Total</th> </tr> <tr> <td>Unfin.</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Bsmt</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Living Area</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Garage</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Deck/Porch</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Totals</td> <td></td> <td></td> <td></td> </tr> </table>		Unit 1	Unit 2	Total	Unfin.				Bsmt				Living Area				Garage				Deck/Porch				Totals				<b>4. CONST. TYPE</b> <input type="checkbox"/> Site-Built <input type="checkbox"/> Mfd. per WI UDC <input type="checkbox"/> Mfd. per US HUD <b>5. STORIES</b> <input type="checkbox"/> 1-Story <input type="checkbox"/> 2-Story <input type="checkbox"/> Other: _____ <input type="checkbox"/> Basement	<b>8. USE</b> <input type="checkbox"/> Seasonal <input type="checkbox"/> Permanent <input type="checkbox"/> Other: _____	<b>10. SEWER</b> <input type="checkbox"/> Municipal <input type="checkbox"/> Sanitary Permit# _____  <b>11. WATER</b> <input type="checkbox"/> Municipal <input type="checkbox"/> On-Site Well	<b>13. HEAT LOSS</b> _____ BTU/HR Total Calculated Envelope and Infiltration Losses (available from "Total Building Heating Load" on Rescheck report)
	Unit 1	Unit 2	Total																													
Unfin.																																
Bsmt																																
Living Area																																
Garage																																
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Totals																																
					<b>14. EST. BUILDING COST w/o LAND</b> \$ _____																											

I understand that I am subject to all applicable codes, laws, statutes and ordinances, including those described on the reverse side of the last ply of this form; am subject to any conditions of this permit; understand that the issuance of this permit creates no legal liability, express or implied, on the state or municipality; and certify that all the above information is accurate. If one acre or more of soil will be disturbed, I understand that this project is subject to ch. NR 151 regarding additional erosion control and stormwater management and the owner shall sign the statement on the back of the permit if not signing below. I expressly grant the building inspector, or the inspector's authorized agent, permission to enter the premises for which this permit is sought at all reasonable hours and for any proper purpose to inspect the work which is being done.

I vouch that I am or will be an owner occupant of this dwelling for which I am applying for an erosion control or construction permit without a Dwelling Contractor Certification and have read the cautionary statement regarding contractor responsibility on the second page of this form.

**APPLICANT (Print):** \_\_\_\_\_ **Sign:** \_\_\_\_\_ **DATE** \_\_\_\_\_

**APPROVAL CONDITIONS**    This permit is issued pursuant to the following conditions. Failure to comply may result in suspension or revocation of this permit or other penalty.     See attached for conditions of approval.

**ISSUING JURISDICTION**     Town of \_\_\_\_\_     County of \_\_\_\_\_    State-Contracted Inspection Agency#: \_\_\_\_\_    Municipality Number of Dwelling Location \_\_\_\_\_  
 Village of \_\_\_\_\_     State \_\_\_\_\_  
 City of \_\_\_\_\_

<b>FEES:</b>	<b>PERMIT(S) ISSUED</b>	<b>WIS PERMIT SEAL #</b>	<b>PERMIT ISSUED BY:</b>
Plan Review \$	<input type="checkbox"/> Construction		Name _____
Inspection \$	<input type="checkbox"/> HVAC		Date _____ Tel. _____
Wis. Permit Seal \$	<input type="checkbox"/> Electrical		Cert No. _____
Other \$	<input type="checkbox"/> Plumbing		Email: _____
Total \$	<input type="checkbox"/> Erosion Control		

## INSTRUCTIONS

The owner, builder or agents shall complete the application form down through the Signature of Applicant block and submit it and building plans and specifications to the enforcing jurisdiction, which is usually your municipality or county. Permit application data is used for statewide statistical gathering on new one- and two-family dwellings, as well as for local code administration. **Please type or use ink and press firmly with multi-ply form.**

### PERMIT REQUESTED

- Check off type of Permit Requested, such as structural, HVAC, Electrical or Plumbing.
- Fill in owner's current Mailing Address and Telephone Number.
- If the project will disturb one acre or more of soil, the project is subject to the additional erosion control and stormwater provisions of ch. NR 151 of the WI Administrative Code. Checking this box will satisfy the related notification requirements of ch. NR 216.
- Fill in Contractor and Contractor Qualifier Information. Per s. 101.654 (1) WI Stats., an individual taking out an erosion control or construction permit shall enter his or her dwelling contractor certificate number, and name and certificate number of the dwelling contractor qualifier employed by the contractor, unless they reside or will reside in the dwelling. Per s. 101.63 (7) Wis. Stats., the master plumber name and license number must be entered before issuing a plumbing permit.

### PROJECT LOCATION

- Fill in Building Address (number and street or sufficient information so that the building inspector can locate the site).
- Local zoning, land use and flood plain requirements must be satisfied before a building permit can be issued. County approval may be necessary.
- Fill in Zoning District, lot area and required building setbacks.

PROJECT DATA - Fill in all numbered project data blocks (1-14) with the required information. All data blocks must be filled in, including the following:

2. Area (involved in project):
  - Basements - include unfinished area only
  - Living area - include any finished area including finished areas in basements
  - Two-family dwellings - include separate and total combined areas
3. Occupancy - Check only "Single-Family" or "Two-Family" if that is what is being worked on. In other words, do not check either of these two blocks if only a new detached garage is being built, even if it serves a one or two family dwelling. Instead, check "Garage" and number of stalls. If the project is a community based residential facility serving 3 to 8 residents, it is considered a single-family dwelling.
9. HVAC Equipment - Check only the major source of heat, plus central air conditioning if present. Only check "Radiant Baseboard" if there is no central source of heat.
10. Sewage - Indicate if the dwelling will be served by municipal sewer or privately owned treatment system. If a private system is used, include the Sanitary Permit number. Note: A building permit cannot be issued for a new dwelling that utilizes a privately owned wastewater treatment system until a sanitary permit has been issued. This applies to any new or existing private onsite wastewater treatment system that will be used by the dwelling.
13. Heat Loss – Provide heat loss summation data (BTUs/HR) derived from the ResCheck report or the "Heating System Sizing Summary Calculator" available on the Division's website: <http://dsps.wi.gov/Programs/Industry-Services/Industry-Services-Programs/One-and-Two-Family-UDC>.
14. Estimated Cost - Include the total cost of construction, including materials and market rate labor, but not the cost of land or landscaping.

SIGNATURE – The owner or the contractor's authorized agent shall sign and date this application form. If you do not possess the Dwelling Contractor certification, then you will need to check the owner-occupancy statement for any erosion control or construction permits.

CONDITIONS OF APPROVAL - The authority having jurisdiction uses this section to state any conditions that must be complied with pursuant to issuing the building permit.

ISSUING JURISDICTION: This must be completed by the authority having jurisdiction.

- Check off Jurisdiction Status, such as town, village, city, county or state and fill in Municipality Name
- Fill in State Inspection Agency number only if working under state inspection jurisdiction.
- Fill in Municipality Number of Dwelling Location
- Check off type of Permit Issued, such as construction, HVAC, electrical or plumbing.
- Fill in Wisconsin Uniform Permit Seal Number, if project is a new one- or two-family dwelling.
- Fill in Name and Inspector Certification Number of person reviewing building plans and date building permit issued.

(Part of Ply 4 for Applicants)

**Cautionary Statement to Owners Obtaining Building Permits**

101.65(lr) of the Wisconsin Statutes requires municipalities that enforce the Uniform Dwelling Code to provide an owner who applies for a building permit with a statement advising the owner that:

If the owner hires a contractor to perform work under the building permit and the contractor is not bonded or insured as required under s. 101.654 (2) (a), the following consequences might occur:

(a) The owner may be held liable for any bodily injury to or death of others or for any damage to the property of others that arises out of the work performed under the building permit or that is caused by any negligence by the contractor that occurs in connection with the work performed under the building permit.

(b) The owner may not be able to collect from the contractor damages for any loss sustained by the owner because of a violation by the contractor of the one- and two- family dwelling code or an ordinance enacted under sub. (1) (a), because of any bodily injury to or death of others or damage to the property of others that arises out of the work performed under the building permit or because of any bodily injury to or death of others or damage to the property of others that is caused by any negligence by the contractor that occurs in connection with the work performed under the building permit.

**Cautionary Statement to Contractors for Projects Involving Building Built Before 1978**

If this project is in a dwelling or child-occupied facility, built before 1978, and disturbs 6 sq. ft. or more of paint per room, 20 sq. ft. or more of exterior paint, or involves windows, then the requirements of ch. DHS 163 requiring Lead-Safe Renovation Training and Certification apply. Call (608)261-6876 or go to the Wisconsin Department of Health Services' lead homepage for details of how to be in compliance.

**Wetlands Notice to Permit Applicants**

You are responsible for complying with state and federal laws concerning the construction near or on wetlands, lakes, and streams. Wetlands that are not associated with open water can be difficult to identify. Failure to comply may result in removal or modification of construction that violates the law or other penalties or costs. For more information, visit the Department of Natural Resources wetlands identification web page or contact a Department of Natural Resources service center.

**Additional Responsibilities for Owners of Projects Disturbing One or More Acre of Soil**

I understand that this project is subject to ch. NR 151 regarding additional erosion control and stormwater management standards, and will comply with those standards.

Owner's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## Building a One or Two-Family Home in Wisconsin

- If applicable, you will need to obtain a **sanitary permit**, a **driveway permit**, and a **zoning permit** as required by your local municipality or county before a building permit can be issued; a copy of these permits will need to be submitted to the building inspector **prior** to a building permit being issued.
- Complete the latest version (R.6/10) of the **Wisconsin Uniform Building Permit Application** (attached) and return to the building inspector.
- Submit an **Erosion Control Plan** showing the locations of erosion control measures to be taken for sediment control, the location of the tracking pad for driveway access, and the locations of temporary soil storage piles. A copy of the Site Plan with the additional erosion control information may be used for the Erosion Control Plan.
- Submit your **Energy Calculations** to the building inspector; you may use the 2009 IECC to calculate this number. This software can be downloaded for free at [www.energycodes.gov](http://www.energycodes.gov). If you are uncertain how to obtain this calculation, please refer to your HVAC contractor.

### **Plan Submittal (Two Sets)**

At least **two** sets of plans for all one and two-family dwellings need to be submitted to the building inspector for examination and approval at the time the **Wisconsin Uniform Building Permit** application is submitted. The required building plans must be legible and drawn to scale or dimensioned and must include **ALL** of the following:

**Site Plan** must show all of the following:

- The location of the dwelling and other buildings, wells, surface waters and dispersal systems on the site with respect to property lines and surface waters adjacent to the site.
- The areas of land-disturbing construction activity and the location of all erosion and sediment control measures to be employed in order to comply with SPS 321.125.
- The pre-construction ground surface slope and direction of runoff flow within the proposed areas of land disturbance.

**Floor Plan** must be provided for each floor and must show all of the following:

- The size and location of all rooms, doors, windows, structural features, exit passageways and stairs.
- The use of each room.
- The location of plumbing fixtures, chimneys, heating and cooling appliances and a heating distribution layout.
- The location and construction details of the braced wall lines.

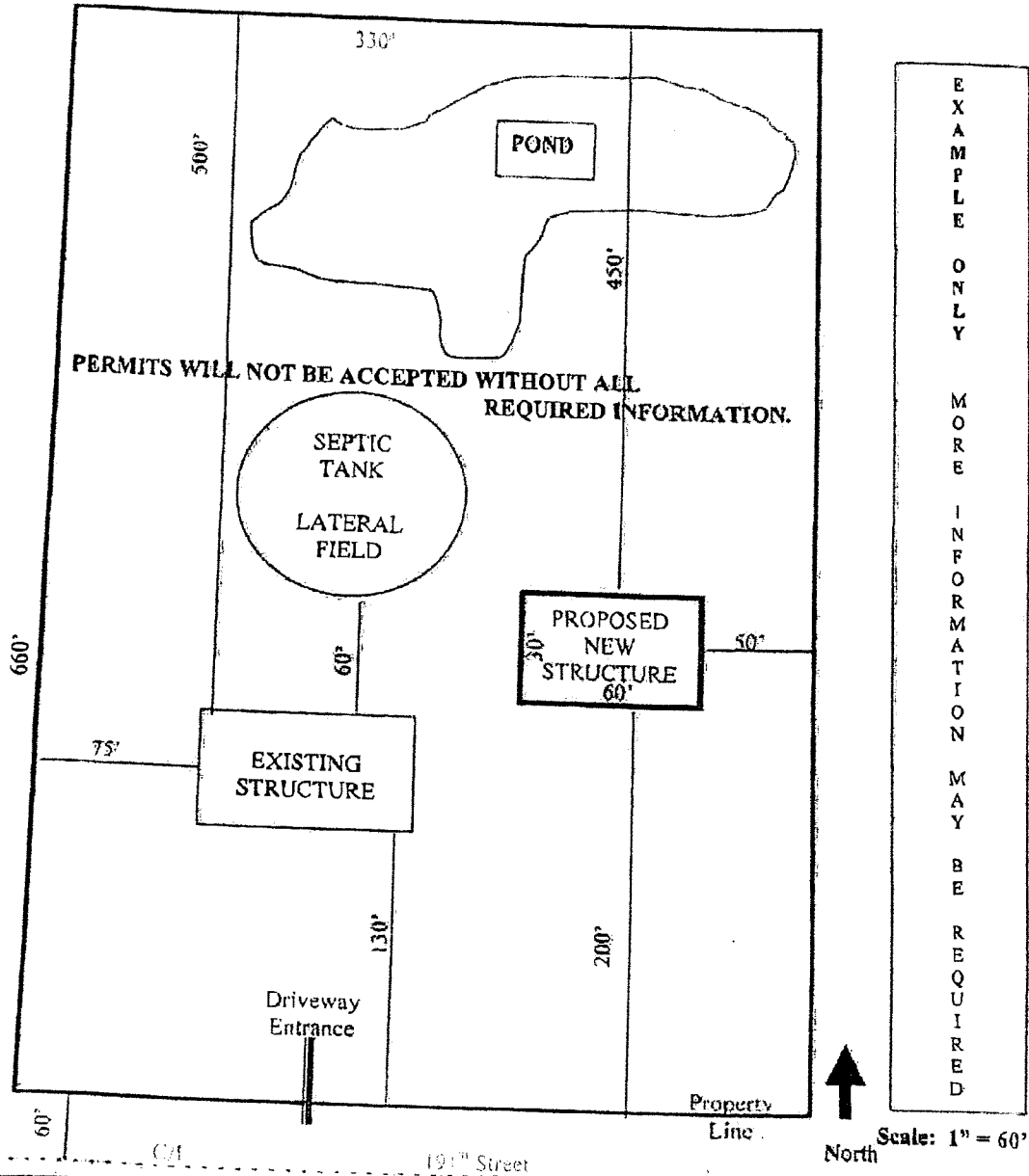
**Elevations** must show all of the following:

- The exterior appearance of the building, including the type of exterior materials.
- The location, size and configuration of doors, windows, roof, chimneys, exterior grade, footings and foundation walls.

### **Storm Water Management Plan:**

- Must be prepared for a site where one acre or more of land will be disturbed.
- Must delineate and describe the post-construction storm water management practices to be employed to comply with SPS 321.126.

**All above Listed Materials MUST be Submitted PRIOR to the Issuance of a Building Permit**



EXAMPLE ONLY MORE INFORMATION MAY BE REQUIRED

**EXAMPLE SITE PLAN**

**NOTE ALL MEASUREMENTS IDENTIFIED ON THIS EXAMPLE SHOULD APPEAR ON THE SUBMITTED SITE PLAN. THE SUBMITTED SITE PLAN MUST BE DRAWN TO SCALE.**

- ALL MEASUREMENTS MUST BE TO SCALE
- Please indicate:
- The location of all existing and proposed buildings/structures.
  - The distance from each structure to nearest property line.
  - The distance from centerline of adjacent street to property lines.
  - The scale used to draw the Site Plan.

## WBA Regulatory Alert: New Wall bracing rules in effect April 1st



Posted: 27 Feb 2014 08:05 AM PST

WBA has been working with the Uniform Dwelling Code (UDC) Council and the Department of Safety and Professional Services (DPS) over the last six months on an improved wall bracing code in Wisconsin. The new code preserves building safety and design flexibility, but it is easier to use and to understand for both builders and inspectors. It should also save money.

The DPS is making a great deal of information on this matter available on their website. Click here: <http://165.189.64.111/Default.aspx?Page=4a17a637-d158-4c31-bcda-ae4be0744942> for a number of resources including the actual wall bracing rule language, a Wall Bracing Compliance Worksheet and a How To guide for the new provision.

In addition to these tools, WBA has been working with DPS staff members to come up with answers to frequently asked questions (FAQ) on the wall bracing rule changes. We expect that FAQ to be available before the April 1, 2014 effective date. We will alert our members when it is available.

While the new code is easier and less expensive to comply with than the old rule, WBA recognizes that there will be questions from members now and after the April 1, 2014 effective date. Remember that you have free access to the WBA code hotline (1-888-947-2458). The hotline is ready and will be available for members that have questions on the wall bracing rule. WBA will continue to work with DPS staff and the engineer that was hired to consult with us on the rule as well and will continue to provide you with the latest and most accurate information available.

## UDC Wall Bracing Provisions Permanent Rule effective September 1, 2014

### A 'How To' guide for use of the new provisions

**Summary:** Forget what you knew about the previous wall bracing provisions – this method is a different concept. The provisions are generally based on the 2012 IRC Simplified Wall Bracing Provisions. The new prescriptive Tables provide the number of braced wall panels required on a rectangle side (intermittent sheathing method) OR the total length of braced wall panels required on a rectangle side (continuously sheathed method) in wood frame walls parallel to the wind direction being considered.

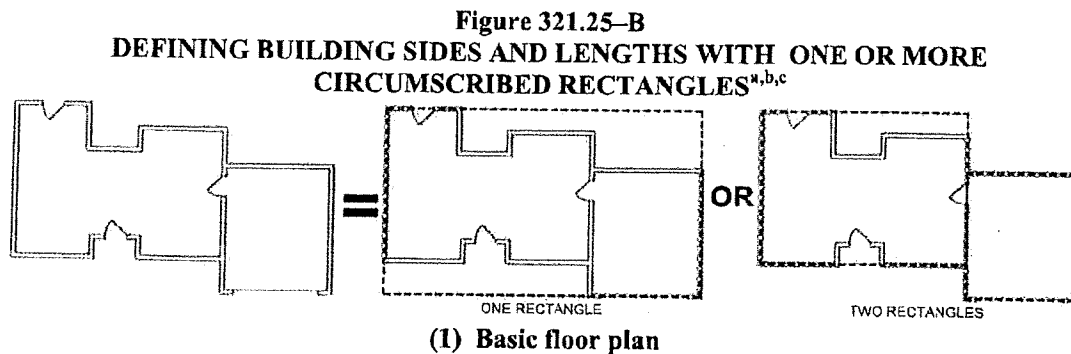
What hasn't changed? Generally the bracing materials and fastening in Table 321.25-G remain unchanged.

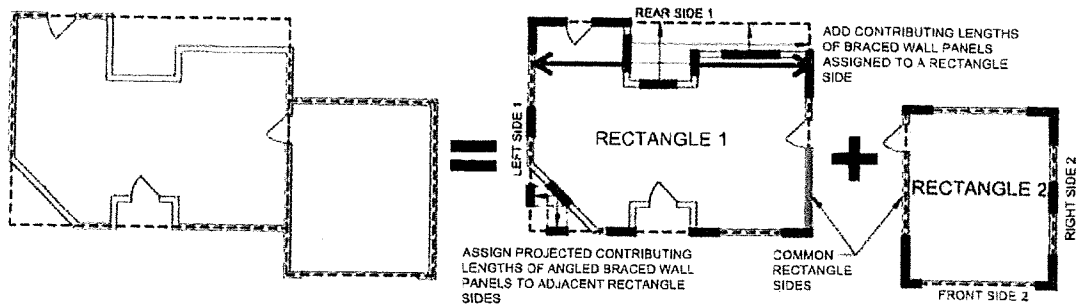
#### Major Assumptions/Defaults:

- Interior side of exterior walls are sheathed with ½" gypsum board
- 10' wall heights
- Wind Exposure category B
- For the intermittent bracing method roof eave (top of wall) to ridge height is 10'

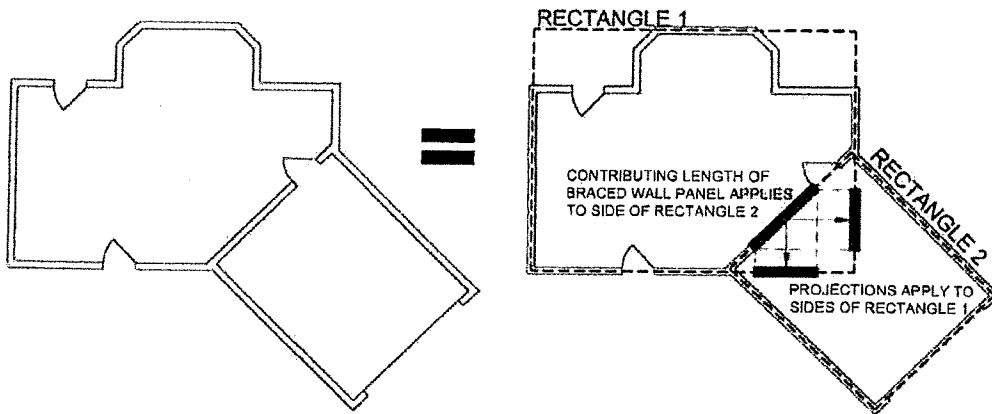
Starting with the topmost floor level ...

**STEP 1:** Define the rectangle sides by circumscribing the outermost extents of the building at each floor level with a rectangle. The maximum length of any side of the rectangle is 75' for intermittent bracing and 80' for continuously sheathed bracing. For either method the maximum length to width ratio of the rectangle is 3:1. If the length of the rectangle side exceeds the prescriptive limit of the respective table or the length to width ratio exceeds 3:1 the building must be circumscribed or divided with more than one rectangle or designed by engineering analysis. See examples below from the rules - Figure 321.25-B.





**(2) Angled-building-side plan<sup>d</sup>**



**(3) Angled floor plan<sup>e</sup>**

<sup>a</sup>Each floor plan level shall be circumscribed with one or more rectangles around the entire floor plan at the floor level under consideration as shown. When multiple rectangles are used, each side shall be braced as though it were a separate building and the bracing amount added together along the common wall where adjacent rectangles overlap or abut.

<sup>b</sup>Rectangles shall surround all enclosed plan offsets and projections. Chimneys, partial height projections, and open structures, such as carports and decks, shall be excluded from the rectangle.

<sup>c</sup>Each rectangle shall have a maximum rectangle length-to-width ratio of 3:1.

<sup>d</sup>Projected contributing lengths of angled braced wall panels shall be assigned to the closest rectangle sides, as shown for the angled corner in the angled-building-side-plan shown above.

<sup>e</sup>Braced wall panels located on a common wall where angled rectangles intersect, as shown in Figure 321.25-B(3), shall have their contributing length applied towards the required length of bracing for the parallel rectangle side and its projected contributing lengths towards the adjacent angled rectangle sides. Where the common side of rectangle 2 as shown in Figure 321.25-B(3) has no physical wall, the portion shall be designed in accordance with s. SPS 321.25 (8) (a).

**STEP 2:** Select the wall bracing method (intermittent or continuous), materials, and panel width (intermittent method) from Table 321.25-G. If using intermittent braced wall panels, in general most of the bracing methods are considered equivalent and the method simply tells you the NUMBER of panels required on a rectangle side. For continuously sheathed bracing the method yields the total LENGTH of braced wall required on a rectangle side.



**Table 321.25-G  
BRACING METHODS<sup>a, f</sup>**

Material	Minimum Brace Material Thickness or Size	Maximum Nominal Wall Height <sup>b</sup>	Minimum Braced Wall Panel Width or Brace Angle	Connection Criteria	
				Minimum Fasteners	Maximum Spacing
<b>Intermittent Bracing Methods</b>					
LIB <sup>c</sup> Let-in bracing	1x4 wood brace (or approved metal brace installed per manufacturer instructions)	10'	45° angle and maximum 16" o.c. stud spacing <sup>b</sup>	2-8d common nails or 3-8d box nails (2 3/8" long x 0.113" diameter)	Per stud and top and bottom plates <sup>e</sup>
DWB Diagonal wood boards	3/4" (1" nominal) for maximum 24" o.c. stud spacing	10'	48"	2-8d box nails (2 3/8" long x 0.113" diameter) or 2 - 1 3/4" long 16-gage staples	Per stud and top and bottom plates <sup>e</sup>
WSP Wood structural panel	3/8" for maximum 16" o.c. stud spacing; 7/16" for maximum 24" o.c. stud spacing	10'	48"	6d common nail or 8d box nail (2 3/8" long x 0.113" diameter); or 7/16"- or 1/2"-crown 16-gage staples, 1 1/4" long	6" edges, 12" field (nails) 3" edges, 6" field (staples)
SFB Structural fiberboard sheathing	1/2" for maximum 16" o.c. stud spacing	10'	48"	1 1/2" long x 0.120" diameter galvanized roofing nails or 1"-crown 16-gage staples, 1 1/4" long	3" edges, 6" field
GB Gypsum board (installed on both sides of wall)	1/2" for maximum 24" o.c. stud spacing	10'	96"	5d cooler nails, or #6 screws	7" edges, 7" field (including top and bottom plates)
<b>Continuous Sheathed Bracing Methods</b>					
CS-WSP <sup>d</sup> Continuous sheathed WSP	3/8" for maximum 16" o.c. stud spacing;	12'	Refer to Table 321.25-H	Same as WSP	Same as WSP

	7/16" for maximum 24" o.c. stud spacing				
CS-SFB <sup>d</sup> Continuous sheathed SFB	1/2" for maximum 16" o.c. stud spacing			Same as SFB	Same as SFB
<b>Narrow Panel Bracing</b>					
PF Portal frame	7/16"	12'	Refer to Figure 321.25-A	Refer to Figure 321.25-A	Refer to Figure 321.25-A

<sup>a</sup>The interior side of all exterior walls shall be sheathed with minimum 1/2-inch gypsum wallboard unless otherwise permitted to be excluded by this subsection. All edges of panel-type wall bracing, except horizontal joints in GB bracing, shall be attached to framing or blocking.

<sup>b</sup>The actual measured wall height shall include stud height and thickness of top and bottom plates. The actual wall height shall be permitted to exceed the listed nominal values by not more than 4 1/2 inches. Tabulated bracing amounts in s. SPS 321.25 (8) (c) are based on a 10-foot nominal wall height for all bracing methods and shall be permitted to be adjusted to other nominal wall heights not exceeding 12 feet in accordance with footnotes to Table 321.25-I or Table 321.25-J.

<sup>c</sup>LIB is not permitted for walls supporting a roof and two floors. Two LIB braces installed at a 60° angle from horizontal shall be permitted to be substituted for each 45° angle LIB brace.

<sup>d</sup>Bracing with CS-WSP and CS-SFB shall have sheathing installed on all sheathable surfaces above, below, and between wall openings.



<sup>e</sup>Shall be attached to the top and bottom plates and any intermediate studs, in one continuous length.


<sup>f</sup>Each braced panel may contain no more than one hole, having a maximum dimension of no more than ten percent of the least dimension of the panel, and confined to the middle three-fourths of the panel.

**STEP 3: DETERMINE NUMBER OF PANELS OR REQUIRED TOTAL LENGTH OF BRACING REQUIRED USING ONE OF THE FOLLOWING METHODS**

- A) Intermittent braced wall panels. Determine the NUMBER of braced panels required on each rectangle side using Table 321.25-I based on the length of the perpendicular side.  
NOTE a minimum of 2 braced wall panels is required on each rectangle side.

**Table 321.25-I  
REQUIRED NUMBER OF INTERMITTENT BRACED WALL PANELS  
ON WALLS PARALLEL TO EACH RECTANGLE SIDE  
AT EACH FLOOR LEVEL<sup>a,b,c,d,e,f,h</sup>**

Wall Supporting:		Required Number of Brace Panels on a Building Side		
		Length of Perpendicular Side (feet) <sup>g</sup>		
		≤25	≤50	≤75
Roof and ceiling only		1 <sup>i</sup>	2	3
One floor, roof and ceiling		2	4	6

Two floors, roof and ceiling		3	6	9
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<sup>1</sup>Interpolation is permitted. Extrapolation to buildings larger than addressed in this table is prohibited.  
<sup>2</sup>This table applies to wind exposure category B. For wind exposure category C or D, multiply the number of braced wall panels required by 1.3 or 1.6, respectively.

Wind exposure category B is comprised of urban and suburban areas, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger. Exposure B shall be assumed unless the site meets the definition of another type exposure.

Wind exposure category C is comprised of flat, open country and grasslands with scattered obstructions, including surface undulations or other irregularities, having heights generally less than 30 feet extending more than 1,500 feet from the building site in any quadrant. This exposure also applies to any building located within Exposure B type terrain where the building is directly adjacent to open areas of Exposure C type terrain in any quadrant for a distance of more than 600 feet.

Wind exposure category D is comprised of flat, unobstructed areas exposed to wind flowing over open water for a distance of at least 1 mile. This exposure applies only to those buildings and other structures exposed to the wind coming from over the water. Exposure D extends inland from the shoreline a distance of 1,500 feet or 10 times the height of the building or structure, whichever is greater.

<sup>3</sup>Tabulated values are based on a nominal wall height of 10 feet. For nominal wall heights other than 10 feet and not more than 12 feet, multiply the required number of brace panels by the following factors: 0.9 for 8 feet, 0.95 for 9 feet, 1.15 for 11 feet, or 1.3 for 12 feet.

<sup>4</sup>Tabulated values are based on a roof with a top-of-wall-to-ridge height of 10 feet. For top-of-wall-to-ridge heights other than 10 feet, multiply the required number of brace panels by the following factors for each floor level support condition:

- Roof only – 0.7 for 5 feet, 1.3 for 15 feet, or 1.6 for 20 feet
- Roof + 1 Floor – 0.85 for 5 feet, 1.15 for 15 feet, or 1.3 for 20 feet
- Roof + 2 Floors – 0.9 for 5 feet or 1.1 for 15 feet.

<sup>5</sup>Where minimum ½-inch gypsum wallboard is not included on the interior side of the wall, multiply the number of braced wall panels by 1.7 for LIB bracing or 1.4 for all other bracing methods, except this increase is not required for the portal frame method.

<sup>6</sup>Adjustments in footnotes b to e apply cumulatively. Fractions of panels shall be rounded to the nearest one-half braced wall panel.

<sup>7</sup>Perpendicular sides to the front and rear sides are the left and right sides. Perpendicular sides to the left and right sides are the front and rear sides. See Figure 321.25-B.

<sup>8</sup>The following braced wall panel conditions shall be permitted to be counted as one-half a braced wall panel toward meeting the required number of panels: (1) one 60 degree LIB; (2) one 48" GB or one 96" GB with gypsum wallboard on one side; (3) one 36" WSP or SFB braced wall panel for wall heights not more than 9 feet; (4) a 48" WSP or SFB braced wall panel where there is no more than one unblocked horizontal joint; or (5) one PF brace panel complying with Figure 321.25-A.










<sup>9</sup>This value of less than 2 serves only as the beginning value for calculation purposes. The resulting value shall be 2 or greater, to be consistent with subd. 2.

**OR**

B) Continuously Sheathed braced walls. Determine the TOTAL LENGTH of braced wall panels on each rectangle side using Table 321.25-J based on the length of the perpendicular side.

**Table 321.25-J**  
**REQUIRED LENGTH OF CONTINUOUS BRACING ON WALLS PARALLEL TO EACH RECTANGLE SIDE AT EACH FLOOR LEVEL** <sup>a,b,c,d,e,g,h</sup>

Top-of-Wall-to-Ridge	Wall Supporting:	Total Required Length (feet) of Full-Height Bracing on Any Side of Rectangle
----------------------	------------------	--

Height (feet)		Length of Perpendicular Side (feet) <sup>f</sup>								
		10	20	30	40	50	60	70	80	
10	Roof and ceiling only 	2.0 <sup>i</sup>	3.5 <sup>i</sup>	5.0	6.0	7.5	9.0	10.5	12.0	
	One floor, roof and ceiling 	3.5 <sup>i</sup>	6.5	9.0	12.0	14.5	17.0	19.8	22.6	
	Two floors, roof and ceiling 	5.0	9.5	13.5	17.5	21.5	25.5	29.2	33.4	
15	Roof and ceiling only 	2.6 <sup>i</sup>	4.6	6.5	7.8	9.8	11.7	13.7	15.7	
	One floor, roof and ceiling 	4.0	7.5	10.4	13.8	16.7	19.6	22.9	26.2	
	Two floors, roof and ceiling 	5.5	10.5	14.9	19.3	23.7	27.5	32.1	36.7	
20	Roof and ceiling only 	2.9 <sup>i</sup>	5.2	7.3	8.8	11.1	13.2	15.4	17.6	
	One floor, roof and ceiling 	4.5	8.5	11.8	15.6	18.9	22.1	25.8	29.5	
	Two floors, roof and ceiling 	6.2	11.9	16.8	21.8	27.3	31.1	36.3	41.5	

<sup>a</sup>Interpolation is permitted. Extrapolation to buildings larger than addressed in this table is prohibited.

<sup>b</sup>This table applies to wind exposure category B. For wind exposure category C or D, multiply the required length of wall bracing by 1.3 or 1.6, respectively. Wind exposure categories are as defined in Table 321.25-I footnote b.

<sup>c</sup>Tabulated values are based on a nominal wall height of 10 feet. For nominal wall heights other than 10 feet, multiply the required length of bracing by the following factors: 0.90 for 8 feet, 0.95 for 9 feet, 1.05 for 11 feet, or 1.10 for 12 feet.

<sup>d</sup>Where minimum 1/2-inch gypsum wallboard interior finish is not provided, the required bracing amount for the affected rectangle side shall be multiplied by 1.4, except this increase is not required for the portal frame method.

<sup>e</sup>Adjustments in footnotes b to d apply cumulatively.

<sup>f</sup>Perpendicular sides to the front and rear sides are the left and right sides. Perpendicular sides to the left and right sides are the front and rear sides. See Figure 321.25-B.

<sup>g</sup>Continuous sheathing shall be applied to all surfaces of the wall, including areas between brace panels and above and below wall openings.

<sup>h</sup>When used on a wall line with continuous sheathing, each portal frame panel is counted for its actual length in contributing toward the length of continuous sheathing used on other portions of the same wall line, such as the building side at a given story level.

<sup>i</sup>Any value of less than 4.0 in this table serves only as the beginning value for calculation purposes. The resulting value shall be 4.0 or greater, to be consistent with Table 321.25-H and subd. 2.

**STEP 4:** If required, apply any adjustment factors (adjustments may decrease or increase the required bracing amount) per the footnotes to the respective Table for the method used (intermittent or continuous). For example wall heights taller than 10' and wind exposure category C or D would both increase the bracing amount. Absence of interior ½" gypsum board sheathing increases the required bracing amount.

**STEP 5:** Repeat steps 2 through 4 considering wind in the perpendicular direction.

**STEP 6:** Determine the minimum required width of braced wall panels. For intermittent bracing method the minimum length of braced wall panel is given in Table 321.25-G (see step 2 above). For continuously sheathed bracing method the minimum width is determined using Table 321.25-H dependent on the maximum opening height adjacent to the panel and the wall height.

**Table 321.25-H<sup>a, b</sup>**  
**MINIMUM WIDTHS OF CS-WSP AND CS-SFB BRACED WALL PANELS**

Maximum Opening Height Adjacent to Braced Wall Panel	Minimum Width of Full-Height Braced Wall Panel (inches)			
	8' Tall Wall	9' Tall Wall	10' Tall Wall	12' Tall Wall
5'- 4"	24	27	30	36
6'- 8"	32	30	30	36
8'	48	41	38	36
9'	-	54	46	41
10'	-	-	60	48
12'	-	-	-	72

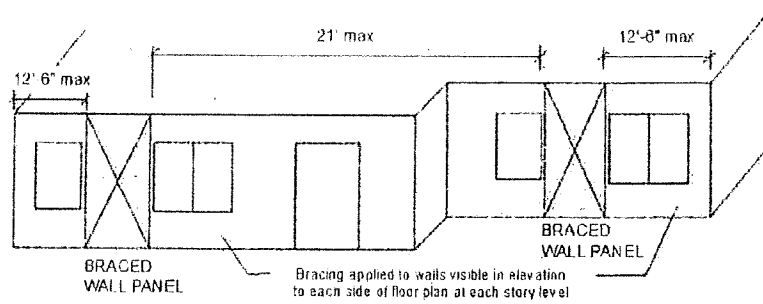
<sup>a</sup>Sheathing shall extend from the top of the top plate to the bottom of the bottom plate and may be multiple sheets. All joints shall be blocked.

<sup>b</sup>Interpolation is permitted.

**PF (Portal Frame) Method:** Portal Frame narrow panel bracing may be used with either the intermittent or continuously sheathed bracing methods. For Intermittent bracing, per Table 321.25-I footnote 'h', each PF panel (16-24" wide per Figure 321.25-A) counts as ½ of a braced wall panel when determining compliance with Table 321.25-I. For Continuously Sheathed bracing, the actual length of each PF panel (16-24" wide per Figure 321.15-A) in feet, counts toward the required total length of bracing required.

**STEP 7:** Check that the location of braced wall panels meets Figure 321.25-C. A braced wall panel must start within 12 ½' from the end of the rectangle side and braced panels must be spaced a maximum of 21' edge to edge along the rectangle side. For intermittent or continuous methods, each PF panel meeting the minimum required width of Fig. 321.25-A counts as a braced wall panel when evaluating compliance with Fig. 321.25-C.

**FIGURE 321.25-C**  
**LOCATION OF BRACED WALL PANELS ALONG A BUILDING SIDE\***



\*A braced wall panel can be anything from one-half to one brace panel.

**STEP 8:** Repeat steps 1 through 7 for additional floor levels.

See also the One- and Two-Family Dwellings (Uniform Dwelling Code) Program web page for a Frequently Asked Questions document that provides further guidance and explanation on the use of the wall bracing permanent rule provisions.

**MINIMUM WIDTH OF BRACED WALL PANEL BETWEEN END OF WALL AND  
GARAGE DOOR**

(Assuming garage end wall is the end of a rectangle side)

<b>METHOD</b>	<b>WALL HEIGHT</b>				
	<b>8'</b>	<b>9'</b>	<b>10'</b>	<b>11'</b>	<b>12'</b>
<b>PORTAL FRAME<sup>1,2</sup></b>	16"	18"	20"	22"	24"
<b>CONTINUOUS<sup>3</sup> SHEATHING (HEIGHT OF DOOR OPENING)</b>					
6'8"	32"	30"	30"	33"	36"
8'	48"	41"	38"	37"	36"
9'		54"	46"	43.5"	41"
10'			60"	54"	48"
12'					72"
<b>INTERMITTENT<sup>3</sup></b>	36" <sup>4</sup>	36" <sup>4</sup>	48"	48"	48"

<sup>1</sup> If using Intermittent Sheathing on the remainder of the rectangle side, a Portal Frame panel counts as ½ panel toward the total number of panels needed.

<sup>2</sup> A full-height braced wall panel must go immediately on the other side of the garage door opening.

<sup>3</sup> As long as the first panel starts within 12.5' of the end, there is no minimum width.

<sup>4</sup> Counts as ½ panel toward the total number of panels needed.

### Wall Bracing Compliance Worksheet

Complete this worksheet or provide equivalent information on the plans submitted with the permit application.

Sketch and dimension the building plan and the wall bracing rectangle(s) per 321.25(8)(c)1. and Figure 321.25-B. Provide and label additional sketches if the building plan/rectangles change at different floor levels.

Indicate applicable Wall Bracing Method for each level (see Table 321.25-G), each labeled rectangle if more than one [see 321.25(8)(c)], and amount of bracing (# of braced panels or length of braced wall required) per the respective table (provide additional worksheets for additional rectangles as needed):

**Rectangle:**      Wall Ht. =      Eave to Ridge Ht. =      Max. Opening Ht. =      Wind Exp. =

Walls Supporting:	Intermittent method (LIB, DWB, WSP, SFB, GB, PCP) and # of panels per Table 321.25-I Min. panel width (Table 321.25-G) =		Continuous method (CS-WSP, CS-SFB) and total length required per Table 321.25-J Min. panel width (Table 321.25-H) =		PF Method (see Figure 321.25-A). Indicate number of PF panels 16-24" wide provided. Min. PF width (Fig. 321.25-A) =	
	Long side	Short side	Long side	Short side	Long side	Short side
Roof and ceiling only						
One floor, roof and ceiling						
Two floors, roof and ceiling						

**Rectangle:**      Wall Ht. =      Eave to Ridge Ht. =      Max. Opening Ht. =      Wind Exp. =

Walls Supporting:	Intermittent method (LIB, DWB, WSP, SFB, GB, PCP) and # of panels per Table 321.25-I Min. panel width (Table 321.25-G) =		Continuous method (CS-WSP, CS-SFB) and total length required per Table 321.25-H Min. panel width (Table 321.25-H) =		PF Method (see Figure 321.25-A). Indicate number of PF panels 16-24" wide provided. Min. PF width (Fig. 321.25-A) =	
	Long side	Short side	Long side	Short Side	Long side	Short side
Roof and ceiling only						
One floor, roof and ceiling						
Two floors, roof and ceiling						

**PF Method:** For Intermittent bracing, per Table 321.25-I footnote 'h', each PF panel (16-24" wide per Figure 321.25-A) counts as 1/2 of a braced wall panel when determining compliance with Table 321.25-I. For Continuously Sheathed bracing, the actual length of each PF panel (16-24" wide per Figure 321.25-A) in feet counts toward the required total length of bracing required. For intermittent or continuous methods, each PF panel meeting min. required width of Fig. 321.25-A counts as a braced wall panel when evaluating panel spacing per Fig. 321.25-C.

**Indicate the location and construction details of required braced wall panels determined above on each rectangle side as required by Figure 321.25-C on the floor plans submitted with the permit application.**





Wisconsin Chapter

March 2014

# ELECTRICAL LICENSING GUIDE

## Wisconsin's New Law

*Many of the recent changes to Wisconsin's electrical licensing law were established by legislation passed in March of 2008. In addition to requiring statewide licensing, this legislation provided for a 5-year delayed effective date (April 1, 2013) to give people time to get the credentials required by the 2008 law.*

### The Important Facts You Need to Know

#### How ABC Can Help You

##### ABC of Wisconsin Electrical Exam Preparation Training

Starting April 7, 2014, the new  
wisconsin electrical licensing law  
will be in effect. For more information  
on the new law, visit the Wisconsin  
electrical website at [www.abcofwi.com](http://www.abcofwi.com)  
for additional information.

- **Effective April 1, 2014** - Everyone (with certain exceptions) working as an electrician or in business as an electrical contractor will need to be licensed or registered with the Wisconsin Department of Safety and Professional Services (DSPS).
- **Electricians** - If you have a current DSPS electrical credential (i.e. Master license, Journeyman license, Apprentice or Beginning Electrician registration) you will be in compliance with the new law.
- **Apprentices** - If you are an active apprentice in a registered apprenticeship program, and have a current DSPS electrical credential (i.e. Apprentice or Beginning Electrician registration), you will be in compliance with the new law.
- **Electrical Contractor** - If you have a current Electrical Contractor license and you are or employ a Master Electrician, you will be in compliance with the new law. If you are not a Master Electrician or do not employ a Master electrician, you will need to meet this requirement in order to be an Electrical Contractor.
- **No DSPS Credential** - If you do not have a current DSPS credential, you will need to either obtain a Master Electrician license, Journeyman license, or register as a Beginning Electrician. Beginning Electricians will be "converted" to Registered Electricians in the future.
- **Exemptions** - Many types of "electrical work" are exempt from the licensing requirement.
- **Grandfathering** - There is a very limited grandfathering clause affecting only individuals born before January 1, 1956.
- **Further Details** - Many "details" not addressed in the law will be established by Administrative Rules. The Administrative Rules have not yet been approved.



Wisconsin Chapter

March 2014

# ELECTRICAL LICENSING GUIDE

## Wisconsin's New Law

### Legislative Changes Began in 2008

Many of the recent changes to Wisconsin's electrical licensing law were established by legislation passed in March of 2008. In addition to requiring statewide licensing, this legislation provided for a 5-year delayed effective date (April 1, 2013) to give people time to get the credentials required by the 2008 law.

As the effective date approached, some of those regulated by the new law raised concerns and in March of 2013 the legislature pushed back the effective date of the legislation another year (April 1, 2014) in order to consider changes. In February of 2014 the legislature passed new legislation making several changes to the 2008 law but keeping the effective date of April 1, 2014.

Now, under provisions that will become law on 11, 2014, no person may work as an electrician, and no person may engage in business as an electrical contractor, unless that person is licensed by, or registered with, the Department of Safety and Professional Services.

### Credentialing Requirements Effective April 1, 2014

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<b>Electrical Contractor</b>	<ul style="list-style-type: none"><li>✓ No person may engage in the business of installing, repairing, or maintaining electrical wiring unless the person is licensed as an electrical contractor by the department of safety and professional services.</li><li>✓ No person who is not a master electrician may install, repair, or, maintain electrical wiring unless a master electrician is at all times responsible for the persons work.</li></ul>
<b>Master Electricians</b>	<p><b>At least one of the following:</b></p> <ul style="list-style-type: none"><li>✓ A bachelor's degree or master's degree in electrical engineering, followed by passage of an examination.</li><li>✓ 12 months of experience as a journeyman electrician, followed by passage of an examination.</li><li>✓ 60 months, with at least 10,000 hours experience, followed by passage of an examination.</li></ul>
<b>Journeyman Electricians</b>	<p><b>At least one of the following:</b></p> <ul style="list-style-type: none"><li>✓ Completion of a construction electrician apprenticeship program lasting at least 3 years<sup>#</sup> and that is approved by the U.S. department of labor or the department of workforce development, followed by passage of an examination.</li><li>✓ 48 months, with at least 8,000 hours experience, followed by passage of an examination (completion of a 2-year approved program shall be equivalent to 12 months and 2,000 hours of experience).</li></ul>
<b>Apprentice Electricians</b>	<ul style="list-style-type: none"><li>✓ The department of safety and professional services must promulgate rules for the registration of electrical apprentices.</li></ul>
<b>Registered Electricians</b> (formerly Beginning Electricians)	<ul style="list-style-type: none"><li>✓ The department of safety and professional services must promulgate rules that establish procedures for the enrollment of registered electricians.</li><li>✓ Registered electricians must be supervised by licensed journeyman or master electricians.</li><li>✓ The department must promulgate rules to differentiate the scope of installation, repair, or maintenance of electrical wiring that may be performed by registered electricians.</li></ul>
<b>Grandfathering</b>	<ul style="list-style-type: none"><li>✓ Persons born on or before January 1, 1956 and who have at least 15 years of experience in installing, repairing, or maintaining electrical wiring will be regulated under separate rules to be developed.</li><li>✓ It is generally presumed that these individual will not be required to pass an examination and may be limited by other restriction.</li></ul>

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# ELECTRICAL LICENSING GUIDE

## Wisconsin's New Law

### Exemptions to Wisconsin's Electrical Licensing Law

1. A residential property owner who installs, repairs, or maintains electrical wiring on premises that the property owner owns and occupies as a residence, unless a license or registration issued by the department is required by local ordinance.
2. A person engaged in maintaining or repairing electrical wiring within an existing facility or on premises owned or leased by the person or by an entity for which the person is an agent or employee.
3. A person engaged in installing, repairing, or maintaining electrical wiring, apparatus, or equipment for elevators and escalators.
4. A person engaged in installing, repairing, or maintaining equipment or systems that operate at 100 volts or less.
5. A person engaged in installing, repairing, or maintaining an electronic system designed to monitor a premise for the presence of an emergency, to issue an alarm for an emergency, or to detect and summon aid for an emergency.
6. A person engaged in installing, repairing, or maintaining electrical wiring of facilities that support telecommunication services that is provided by a telecommunications provider.
7. A person engaged in installing, repairing, or maintaining manufactured equipment or utilization equipment, including ballasts, electric signs and luminaries or any other manufactured system that is designed to provide a function that is not primarily electrical in nature if the installation, repair, or maintenance does not involve the modification or installation of branch circuit conductors that are external to the manufactured or utilization equipment or other manufactured system.
8. A person engaged in installing electrical wiring for components of a manufactured home or a manufactured building, while the manufactured home or the manufactured building is at or in the facility at which it is being manufactured.
9. A person employed by an electricity provider, or a subcontractor of an electricity provider, who installs, repairs, or maintains electrical wiring for equipment that is installed in the normal course of providing utility services by the electricity provider.
10. A person engaged in installing, repairing, or maintaining electrical wiring that provides lighting or signals for public thoroughfares and for public airports.
11. A person engaged in installing, repairing, or maintaining electric lines on the utility side of substations and other distribution facilities owned or operated by customers or members of electricity providers.
12. A person employed by an electricity provider, or a subcontractor of an electricity provider, who installs, repairs, or maintains primary voltage electric facilities that are owned by the electricity provider's customers or members and that operate at greater than 600 volts.
13. A person employed by an electricity provider, or a subcontractor of an electricity provider, who restores service during an emergency.
14. A person who installs a replacement for an existing switch or outlet, if the replacement switch or outlet has a rating of not more than 20 amperes.
15. A person engaged in installing electrical wiring within an existing industrial facility or existing manufacturing facility owned or leased by the person or by an entity for which the person is an agent or employee.
16. A person who installs electrical wiring without receiving payment in a new one or two family dwelling that is being constructed by a qualified nonprofit corporation.

### Municipal Authority

Municipal licenses and registrations issued to electricians, electrical contractors, and electrical inspectors are no longer valid (or required) as of March 31, 2014. Municipalities may no longer impose any registration, licensing, or certification requirements on electrical contractors, electricians, or electrical inspectors. And no person may work as an electrician, and no person may engage in business as an electrical contractor, unless that person is licensed by, or registered with, the Department of Safety and Professional Services.

### Reciprocity

Many of the most recent changes were intended to facilitate reciprocal agreements with neighboring states. The 2014 legislation allows the department to enter into reciprocal agreements with other states provided the credentials are comparable, the individual submits an application, and pays the fee. It is presumed the department will begin to negotiate such agreements.



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# ELECTRICAL LICENSING GUIDE

## Wisconsin's New Law

### Topics to be Further Defined in Administrative Rules

<b>Inspections</b>	<ul style="list-style-type: none"> <li>✓ Current law requires the department to establish rules for the inspection of electrical wiring.</li> <li>✓ This legislation prohibits the department from requiring inspection of electrical wiring in an existing industrial facility unless the project required plan review.</li> <li>✓ Under the bill, all inspections shall be performed by inspectors certified by the department.</li> <li>✓ Promulgate rules that establish criteria for the certification of electrical inspectors.</li> </ul>
<b>Registered electricians and electrical apprentices</b>	<ul style="list-style-type: none"> <li>✓ Promulgate rules that establish criteria for the enrollment of registered electrician and the registration of electrical apprentices.</li> <li>✓ Promulgate rules that establish requirements for the supervision of registered electricians.</li> </ul>
<b>Registration and licensing procedure</b>	<ul style="list-style-type: none"> <li>✓ Promulgate rules that establish the procedures for the licensing of journeyman electricians and master electricians.</li> </ul>
<b>Suspension or revocation</b>	<ul style="list-style-type: none"> <li>✓ Establish criteria and a process for the suspension and revocation of registrations and licenses.</li> </ul>
<b>Types of electricians</b>	<ul style="list-style-type: none"> <li>✓ The department may promulgate rules that recognize and regulate different types and subtypes of electricians.</li> </ul>
<b>Scope of work</b>	<ul style="list-style-type: none"> <li>✓ Promulgate rules to differentiate the scope of installation, repair, or maintenance that may be performed by electrical contractors, registered electricians, journeyman electricians, master electricians, and any additional type of electrician created in rules.</li> </ul>
<b>Continuing Education</b>	<ul style="list-style-type: none"> <li>✓ Continuing Education requirements for all types of electricians will be defined in Administrative Rule.</li> </ul>

### Additional Resources

- For Master or Journeyman electrician exam locations check the Department of Safety and Professional Services website ([www.dsps.wi.gov](http://www.dsps.wi.gov)).
- If you are unable to schedule an exam before April 1, 2014, register as a "Beginning Electrician" on the DSPS website ([www.dsps.wi.gov](http://www.dsps.wi.gov)).
- ABC of Wisconsin has Electrical Exam Preparation training (Master and Journeyman) scheduled starting on April 2nd and concluding on May 21st. Visit [www.abcwi.org](http://www.abcwi.org) and click on the "events" tab for more details. For more information contact Elizabeth Roddy at 608-244-6050 or [eroddy@abcwi.org](mailto:eroddy@abcwi.org).
- For questions about this document contact: John Mielke at 608-244-5883 or [jmielke@abcwi.org](mailto:jmielke@abcwi.org).

*This guide is intended to be a summary of the major provisions of Wisconsin's electrical licensing laws. For actual language<sup>iii</sup> refer to Wisconsin State Statute Ch. 101 and Wisconsin Administrative Rule SPS 305.40.*

<sup>iii</sup>See "Exemptions to Wisconsin's Electrical Licensing Laws"

The actual length of approved apprenticeship programs is determined by either the Wisconsin Bureau of Apprenticeship Standard or the U.S. Department of Labor Websites and printed material may not yet be updated to reflect changes in law and Administrative Rule resulting in confusing or seemingly contradictory information.

**Associated Builders and Contractors of Wisconsin, Inc.**

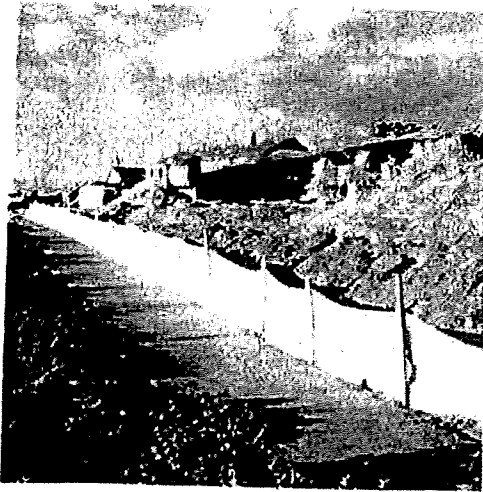
5330 Wall Street, Madison, WI 53718

Phone: 608-244-5883 [www.abcwi.org](http://www.abcwi.org)



# Erosion Control for Home Builders

By controlling erosion, home builders help keep our lakes and streams clean.



Building construction sites are a leading cause of water quality problems in Wisconsin. For every acre under construction, about a dump truck and a half of soil washes into a nearby lake or stream unless the builder uses erosion controls. Problems caused by this sediment include:

#### Taxes

Cleaning up sediment in streets, sewers and ditches adds extra costs to local government budgets.

#### Lower property values

Neighboring property values are damaged when a lake or stream fills with sediment. Shallow areas encourage weed growth and create boating hazards.

#### Poor fishing

Muddy water drives away fish like northern pike that rely on sight to feed. As it settles, sediment smothers gravel beds where fish like smallmouth bass find food and lay their eggs. Soil particles in suspension can act like a sand blaster during a storm and damage fish gills.

#### Nuisance growth of weeds and algae

Sediment carries fertilizers that fuel algae and weed growth.

#### Dredging

The expense of dredging sediment from lakes, harbors and navigation channels is paid for by taxpayers.

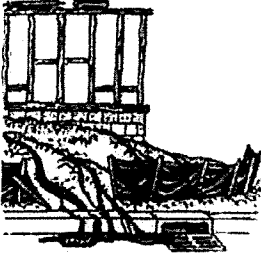
This fact sheet includes the diagrams and step-by-step instructions needed by builders on most home sites. Additional controls may be needed for sites that have steep slopes, are adjacent to lakes and streams, receive a lot of runoff from adjacent land, or are larger than an acre.

If you need help developing an erosion control plan or training your staff, contact your local building inspection, zoning or erosion control office.

## Controlling Erosion is Easy

Erosion control is important even for home sites of an acre or less. The materials needed are easy to find and relatively inexpensive - straw bales or silt fence, stakes, gravel, plastic tubes, and grass seed. Putting these materials to use is a straightforward process. Only a few controls are needed on most sites:

- Preserving existing trees and grass where possible to prevent erosion;
- Revegetating the site as soon as possible;
- Silt fence or straw bales to trap sediment on the downslope sides of the lot;
- Placing soil piles away from any roads or waterways;
- Diversions on upslope side and around stockpiles;
- Stone/rock access drive used by all vehicles to limit tracking of mud onto streets;
- Cleanup of sediment carried off-site by vehicles or storms; and
- Downspout extenders to prevent erosion from roof runoff



A poorly installed silt fence will not prevent soil erosion. Fabric must be buried in a trench and sections must overlap (see diagram on back of this fact sheet).

**WARNING! Extra measures may be needed if your site:**

- is within 300 feet of a stream or wetland;
- is within 1000 feet of a lake;
- is steep (slopes of 12% or more);
- receives runoff from 10,000 sq. ft. or more of adjacent land;
- has more than an acre of disturbed ground.

For information on appropriate measures for these sites, contact your local building inspection, zoning or erosion control office.

*Straw Bale or Silt Fence*

- Install within 24 hours of land disturbance
- Install on downslope sides of site parallel to contour of the land.
- Extended ends upslope enough to allow water to pond behind fence.
- Bury eight inches of fabric in trench (see back page).
- Stake (two stakes per bale).
- Leave no gaps. Stuff straw between bales, overlap sections of silt fence, or twist ends of silt fence together.
- Inspect and repair once a week and after every 1/2-inch rain. Remove sediment if deposits reach half the fence height. Replace bales after three months.
- Maintain until a lawn is established.

*Soil Piles*

- Cover with plastic and locate away from any downslope street, driveway, stream, lake, wetland, ditch or drainageway.
- Temporary seed such as annual rye or winter wheat is recommended for topsoil piles.

*Access Drive*

- Install an access drive using two-to-three-inch aggregate prior to placing the first floor decking on foundation.
- Lay stone six inches deep and at least seven feet wide from the foundation to the street (or 50 feet if less).
- Use to prevent tracking mud onto the road by all vehicles.
- Maintain throughout construction.
- In clay soils, use of geotextile under the stone is recommended.

*Sediment Cleanup*

- By the end of each work day, sweep or scrape up soil tracked onto the road
- By the end of the next work day after a storm, clean up soil washed off-site.

*Sewer Inlet Protection*

- Protect on-site storm sewer inlets with straw bales, silt fences or equivalent measures.
- Inspect, repair and remove sediment deposits after every storm.

*Downspout Extenders*

- Not required, but highly recommended.
- Install as soon as gutters and downspouts are completed to prevent erosion from roof runoff
- Use plastic drainage pipe to route water to a grassed or paved area. Once a lawn is established, direct runoff to the lawn or other pervious areas.
- Maintain until a lawn is established.

*Preserving Existing Vegetation*

- Wherever possible, preserve existing trees, shrubs, and other vegetation.
- To prevent root damage, do not grade, place soil piles, or park vehicles near trees marked for preservation.
- Place plastic mesh or snow fence barriers around trees to protect the root area below their branches.

*Revegetation*

- Seed, sod or mulch bare soil as soon as possible. Vegetation is the most effective way to control erosion.

*Seeding and Mulching*

- Spread four to six inches of topsoil.
- Fertilize and lime if needed according to soil test (or apply 10 lb./1000 sq. ft. of 10-10-10 fertilizer).
- Seed with an appropriate mix for the site (see table).
- Rake lightly to cover seed with 1/4" of soil. Roll lightly.
- Mulch with straw (70-90 lb. or one bale per 1000 sq. ft.).
- Anchor mulch by punching into the soil, watering, or by using netting or other measures on steep slopes.
- Water gently every day or two to keep soil moist. Less watering is needed once grass is two inches tall.



# Standard Erosion Control Plan

## for 1- & 2-Family Dwelling Construction Sites

According to SPS 320 & 321 of the Wisconsin Uniform Dwelling Code, soil erosion control information needs to be included on the plot plan which is submitted and approved prior to the issuance of building permits for 1- & 2-family dwelling units in those jurisdictions where the soil erosion control provisions of the Uniform Dwelling Code are enforced. This Standard Erosion Control Plan is provided to assist in meeting this requirement.

**Instructions:**

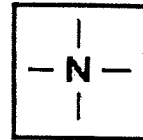
1. Complete this plan by filling in requested information, completing the site diagram and marking appropriate boxes on the inside of this form.
2. In completing the site diagram, give consideration to potential erosion that may occur before, during, and after grading. Water runoff patterns can change significantly as a site is reshaped.
3. Submit this plan at the time of building permit application.

PROJECT LOCATION \_\_\_\_\_

BUILDER \_\_\_\_\_ OWNER \_\_\_\_\_

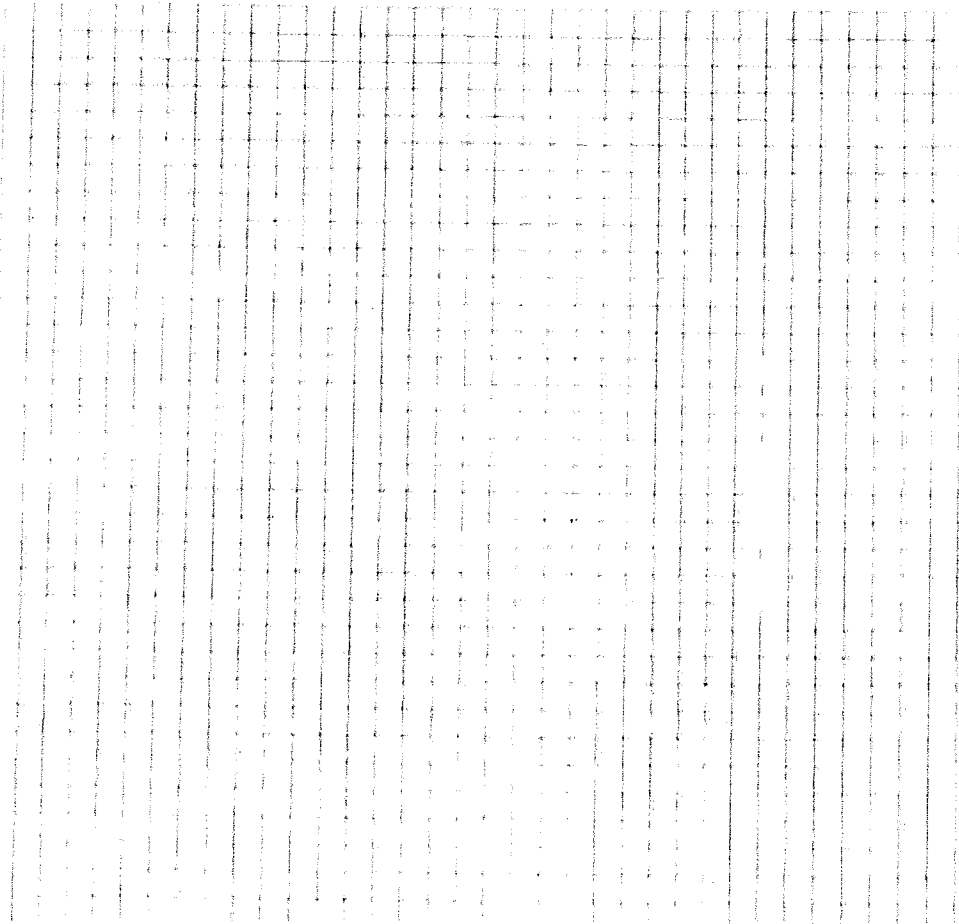
WORKSHEET COMPLETED BY \_\_\_\_\_ DATE \_\_\_\_\_

Please indicate north by completing the arrow.



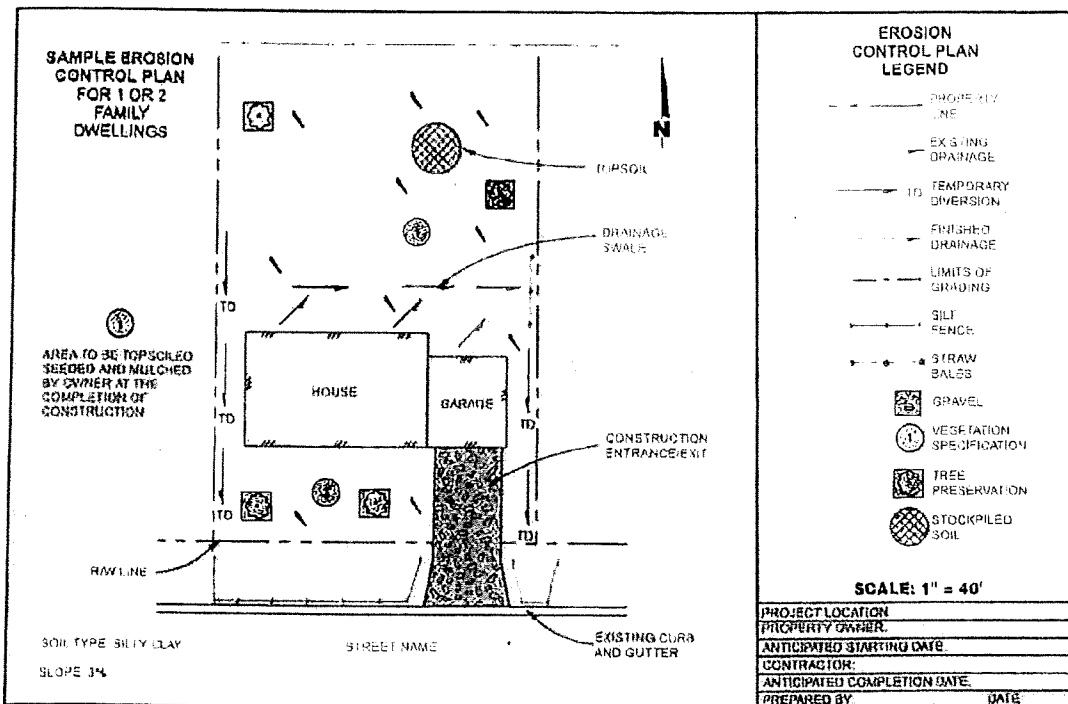
**SITE DIAGRAM**

Scale: 1 Inch = \_\_\_\_\_ feet



**EROSION CONTROL PLAN LEGEND**

- PROPERTY LINE
- > EXISTING DRAINAGE
- > TD TEMPORARY DIVERSION
- > FINISHED DRAINAGE
- LIMITS OF GRADING
- SILT FENCE
- STRAW BALES
- ☐ GRAVEL
- ① VEGETATION SPECIFICATION
- ☐ TREE PRESERVATION
- ⊗ STOCKPILED SOIL



**Sodding**

- Spread four to six inches of topsoil.
- Fertilize and lime if needed according to soil test (or apply 10 lb./1000 sq. ft. of 10-10-10 fertilizer).
- Lightly water the soil.
- Lay sod. Tamp or roll lightly.
- On slopes, lay sod starting at the bottom and work toward the top. Laying in a brickwork pattern. Peg each piece down in several places.
- Initial watering should wet soil six inches deep (or until water stands one inch deep in a straight-sided container). Then water lightly every day or two to keep soil moist but not saturated for two weeks.
- Generally, the best times to sod and seed are early fall (Aug. 15-Sept. 15) or spring (May). If construction is completed after September 15, final seeding should be delayed. Sod may be laid until November 1. Temporary seed (such as rye or winter wheat) may be planted until October 15.

Mulch or matting may be applied after October 15, if weather permits. Straw bale or silt fences must be maintained until final seeding or sodding is completed in spring (by June 1).

**Concrete Wash Water**

- Dispose of concrete wash water in an area of soil away from surface waters where soil can act as a filter or evaporate the water. Dispose of remaining cement. Be aware that this water can kill vegetation.

**De-Watering**

- Dispose of de-watering water in a pervious area. Prevent the discharge of sediment from de-watering operations into storm sewers and surface waters.

**Material Storage**

- Manage chemicals, materials and other compounds to avoid contamination of runoff.

**Typical Lawn Seed Mixtures**

Grass	Percent by Weight	
	Sunny Site	Shady Site
Kentucky bluegrass	65%	15%
Fine fescue	20%	70%
Perennial ryegrass	15%	15%

Seeding rate 3-4 4-5 (lb./1000 sq. ft.)

Source: R.C. Newman, Lawn Establishment, UW-Extension, 1988.



COMPLETED

NOT APPLICABLE

# EROSION CONTROL PLAN CHECKLIST

Check (✓) appropriate boxes below, and complete the site diagram with necessary information.

## Site Characteristics

- North arrow, scale, and site boundary. Indicate and name adjacent streets or roadways.
- Location of existing drainageways, streams, rivers, lakes, wetlands or wells.
- Location of storm sewer inlets.
- Location of existing and proposed buildings and paved areas.
- The disturbed area on the lot.
- Approximate gradient and direction of slopes before grading operations.
- Approximate gradient and direction of slopes after grading operations.
- Overland runoff (sheet flow) coming onto the site from adjacent areas.

## Erosion Control Practices

- Location of temporary soil storage piles.
  - Note: Soil storage piles should be placed behind a sediment fence, a 10 foot wide vegetative strip, or should be covered with a tarp or more than 25 feet from any downslope road or drainageway.
- Location of access drive(s).
  - Note: Access drive should have 2 to 3 inch aggregate stone laid at least 7 feet wide and 6 inches thick. Drives should extend from the roadway 50 feet or to the house foundation (whichever is less).
- Location of sediment controls (filter fabric fence, straw bale fence or 10-foot-wide vegetative strip) that will prevent eroded soil from leaving the site.
- Location of sediment barriers around on-site storm sewer inlets.
- Location of diversions.
  - Note: Although not specifically required by code, it is recommended that concentrated flow (drainageways) be diverted (re-directed) around disturbed areas. Overland runoff (sheet flow) from adjacent areas greater than 10,000 sq. ft. should also be diverted around disturbed areas.
- Location of practices that will be applied to control erosion on steep slopes (greater than 12% grade).
  - Note: Such practices include maintaining existing vegetation, placement of additional sediment fences, diversions, and re-vegetation by sodding or seeding with use of erosion control mats.
- Location of practices that will control erosion on areas of concentrated runoff flow.
  - Note: Unstabilized drainageways, ditches, diversions, and inlets should be protected from erosion through use of such practices as in-channel fabric or straw bale barriers, erosion control mats, staked sod, and rock rip-rap. When used, a given in-channel barrier should not receive drainage from more than two acres of unpaved area, or one acre of paved area. In-channel practices should not be installed in perennial streams (streams with year round flow).
- Location of other planned practices not already noted.

**TABLE 322.31-1  
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT\***

Zone	Fenestration U-Factor	Skylight U-Factor	Ceiling R-Value	Wood Frame Wall R-Value	Mass Wall R-Value	Floor R-Value	Basement or Crawl Space Wall R-Value <sup>b</sup>	Heated Slab R-Value <sup>c</sup>	Unheated Slab R-Value <sup>d</sup>
1	0.35	0.60	49 <sup>e</sup>	19 <sup>f</sup> or 13+5 <sup>g</sup>	15	30 <sup>h</sup>	10/13	10/15	10
2	0.35	0.60	49 <sup>e</sup>	21 <sup>f</sup>	19	30 <sup>h</sup>	10/13	10/15	10

\* R-values are minimums. U-factors are maximums.

<sup>b</sup> The first R-value applies to continuous insulation. The second R-value applies to framing cavity insulation. Either insulation meets the requirement.

<sup>c</sup> The first R-value applies under the entire slab, regardless of depth below grade. The second R-value applies to the slab edge where the bottom of the slab is less than 12 inches below adjacent grade. Slab edge insulation shall extend downward from the top of the slab for a minimum of 48 inches or downward to at least the bottom of the slab and then horizontally to the interior or exterior for a minimum total distance of 48 inches. Also, see s. SPS 321.16 for protection against frost for slabs with supports less than 4 feet below grade.

<sup>d</sup> The R-value applies to any slab, the bottom of which is less than 12 inches below adjacent grade. Also, see s. SPS 321.16 for protection against frost for slabs with supports less than 4 feet below grade.

<sup>e</sup> See s. SPS 322.32 (1) for application and permitted reduced R-value.

<sup>f</sup> R-19 and R-21 may be compressed into a 2X6 cavity.

<sup>g</sup> "13+5" means R-13 cavity insulation plus R-5 insulated sheathing. If structural sheathing covers 25% or less of the exterior, insulating sheathing is not required where structural sheathing is used. If structural sheathing covers more than 25% of the exterior, structural sheathing shall be covered with insulated sheathing of at least R-2.

<sup>h</sup> Or insulation sufficient to fill the framing cavity with a minimum of R-19.

**TABLE 322.31-2  
EQUIVALENT U-FACTORS**

Zone	Fenestration U-Factor	Skylight U-Factor	Ceiling U-Factor	Wood Frame Wall U-Factor	Mass Wall U-Factor	Floor U-Factor	Basement Wall U-Factor	Crawl Space U-Factor
1	0.35	0.60	0.026	0.060	0.060	0.033	0.065	0.065
2	0.35	0.60	0.026	0.057	0.057	0.033	0.065	0.065

**TABLE 322.31-3  
WARM AIR FURNACES AND BOILERS, MINIMUM EFFICIENCY REQUIREMENTS**

Equipment Type	Minimum Efficiency	Test Procedure
Natural gas and propane furnace	90% AFUE	DOE 10 CFR Part 430 or ANSI Z21.47
Natural gas and propane hot water boilers	90% AFUE	DOE 10 CFR Part 430
Oil-fired furnaces	83% AFUE	DOE 10 CFR Part 430 or UL 727
Oil-fired hot water boilers	84% AFUE	DOE 10 CFR Part 430

Please Call \_\_\_\_\_ for inspections

24 Hours Notice is Appreciated

I will be available in your municipality on \_\_\_\_\_

Wisconsin Administrative Code, SPS 320.10(2)(b)1: "The applicant or an authorized representative shall request inspections from the municipality ..."

Below are shown the required inspections you must call for:

## NOTICE REQUIRED INSPECTIONS

SEWER  
EROSION CONTROL  
FOOTINGS  
(BEFORE POURING)  
FOUNDATION & DRAIN TILE  
(BEFORE POURING)  
UNDERFLOOR PLUMBING  
VAPOR RETARDER  
(Under Basement Floor)  
TEMPORARY ELECTRICAL SERVICE  
ROUGH CONSTRUCTION  
ROUGH PLUMBING  
ROUGH ELECTRIC  
ROUGH HEATING- A/C  
SERVICE- PERMANENT ELECTRICAL  
INSULATION  
FINAL INSPECTION  
(OCCUPANCY)



Account #  
OFFICE USE ONLY

BANGOR MUNICIPAL UTILITY  
106 15<sup>TH</sup> AVE NORTH - PO BOX 130  
BANGOR, WI 54614-0130  
PHONE (608) 486-2151 FAX (608)486-2951

## APPLICATION FOR UTILITY SERVICE

Type of Service: Village \_\_\_\_\_ Rural \_\_\_\_\_ If rural, is farming your principal income? Yes \_\_\_\_\_ No \_\_\_\_\_

Residential: Own \_\_\_\_\_ Rent \_\_\_\_\_ Commercial: Own \_\_\_\_\_ Rent \_\_\_\_\_

Date to Begin Service: \_\_\_\_\_ Phone #: \_\_\_\_\_

Name of Customer(s): \_\_\_\_\_

Service Address: \_\_\_\_\_

Mailing address (if different from above): \_\_\_\_\_

If renting, landlord's name and address: \_\_\_\_\_

Previous Address: \_\_\_\_\_

Driver's License # or I.D. #: \_\_\_\_\_

Social Security # (If not a WI resident): \_\_\_\_\_

Employer: \_\_\_\_\_ Work Phone #: \_\_\_\_\_

Have you been billed by this utility in the past (in your name)? Yes \_\_\_\_\_ No \_\_\_\_\_

Have you had utility service interrupted due to non-payment of a bill within the past 12 months? Yes \_\_\_\_\_ No \_\_\_\_\_

Do you have a balance owed at this or another utility? Yes \_\_\_\_\_ No \_\_\_\_\_

If so, please give name and location of utility: \_\_\_\_\_

If you have a past due balance with Bangor Municipal Utility or any other utility, you may be required to pay a deposit.

**I agree to abide by the rules and regulations set forth by this utility and to pay for services at the specified rate. I understand that non-payment of utility bills could result in interrupted service and require posting of a deposit.**

**Upon termination of this service I understand that it is my responsibility to notify the Utility to request my service be terminated or changed from my name.**

Signature of Applicant(s) \_\_\_\_\_ Date \_\_\_\_\_

\_\_\_\_\_

**DRIVEWAY APPLICATION**  
**Per Title 6, Chapter 3**  
**Code of Ordinances**  
**For the**  
**Village of Bangor**

I do hereby apply for said driveway permit to the Village of Bangor. **I have attached a drawing** accurately depicting the portion of the proposed private driveway to be constructed, reconstructed, altered or enlarged lying within the dedicated portion of the public street, the dimensions thereof and a statement of the materials proposed to be used.

I do hereby hold the Village of Bangor, its officials, officers, agents or employees harmless against any claim or any cause of action for personal injury or property damage sustained by reason of exercise of such permit.

I understand that the Village of Bangor does not assume any responsibility for the removal or clearance of snow, ice or sleet or the opening of any windrows of such material upon such portion of such driveway within the dedicated portion of the Village street or alley.

I am in receipt of copy of ordinance titled *Driveways in Title 6, Chapter 3 of the Code of Ordinances for the Village of Bangor* and will comply with such ordinance as written and adopted by the Village of Bangor.

In accordance with the fee schedule, I agree to pay that fee prior to the issuance of this permit. **Note!** Fee is waived when a new driveway is constructed in conjunction with the construction of a new principal structure.

\_\_\_\_\_  
Signed Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Phone Number

\_\_\_\_\_  
Site Address

\_\_\_\_\_ Approved

\_\_\_\_\_ Denied

\_\_\_\_\_  
Director of Public Works

## Title 6 ► Chapter 3

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# Driveways

**6-3-1** Driveway Permit Required

**6-3-2** Driveway and Culvert Location, Design and Construction Requirements

### **Sec. 6-3-1 Driveway Permit Required.**

- (a) **Purpose.** For the safety of the general public, the Village of Bangor shall determine the location, size, construction and number of access points to public roadways within the Village limits. It is the Village's intent to provide safe access to properties abutting public roadways suitable for the property to be developed to its highest and best use, provided that access is not deficient or dangerous to the general public.
- (b) **Permit Required to Construct, Reconstruct, Alter or Enlarge.** No person, firm or corporation shall construct, reconstruct, alter or enlarge any private driveway within the limits of the dedicated portion of any public street under the control and jurisdiction of the Village of Bangor without first obtaining a driveway permit therefor as provided by this Chapter from the Director of Public Works. A driveway permit is not required when a new driveway is to be constructed in conjunction with the construction of a new principal structure; the driveway is included in the building permit process in such cases. For bond and insurance requirements, see provisions of Section 6-2-3(g) and (h).
- (c) **Application.**
  - (1) Application for such permit shall be made to the Village Administrator for referral to the Director of Public Works on a form provided by the Village and shall be accompanied by a drawing accurately depicting the portion of the proposed private driveway to be constructed, reconstructed, altered or enlarged lying within the dedicated portion of the public street, the dimensions thereof and a statement of the materials proposed to be used. The applicant shall pay a fee as prescribed in Section 1-3-1. Upon receipt of the application and the fee if required, unless the proposed private driveway is a part of construction for a building or other structure for which a building permit has been applied for, in which case no additional fee is required, the Director of Public Works shall approve such application if the proposed driveway complies with the terms and conditions of this and any other applicable Village of Bangor ordinance.

- (2) All applications for permits shall be made on a form prescribed by the Director of Public Works and be accompanied by a sketch in duplicate showing exact location of any naming:
  - a. Driveway and approaches.
  - b. Property lines.
  - c. Right-of-way lines.
  - d. Intersecting roads, streets or roadways within three hundred (300) feet.
  - e. Width of right-of-way.
  - f. Width and type of road surface.
  - g. Distance from right-of-way line to gasoline pumps and other structures on the site.
  - h. Type of surface and width of driveways and approaches.
  - i. Proposed turning radii.
  - j. Other pertinent information as may be required.
- (d) **Application Provisions.** All driveway permit applications shall contain the applicant's statement that:
  - (1) The applicant represents all parties in interest, and that such proposed driveway is for the bona fide purpose of securing access to his/her property and not for the purpose of parking or servicing vehicles, advertising, storage or merchandising of goods within the dedicated portion of the Village street, or for any other purpose.
  - (2) The Village of Bangor, notwithstanding the construction of such driveway, reserves the right to make any changes, additions, repairs or relocations within the dedicated portion of the Village street at any time, including relocation, reconstruction, widening and maintaining the street without compensating the owner of such private driveway for the damage or destruction of such private roadway.
  - (3) The permittee, his/her successors or assigns, agrees to indemnify and hold harmless the Village of Bangor, its officials, officers, agents or employees, against any claim or any cause of action for personal injury or property damage sustained by reason of the exercise of such permit.
  - (4) The Village of Bangor does not assume any responsibility for the removal or clearance of snow, ice or sleet or the opening of any windrows of such material upon such portion of such driveway within the dedicated portion of the Village street.

## **Sec. 6-3-2 Driveway and Culvert Location, Design and Construction Requirements.**

- (a) **General Requirements.** The location, design and construction of driveways shall be in accordance with the following:
  - (1) **General Design.**
    - a. Private driveways shall be of such width and so located that all of such driveways and their appurtenances are within the limits of the frontage abutting the street of the property served.

- b. Driveways shall not provide direct ingress or egress to or from any street intersection area and shall not encroach upon or occupy areas of the street right-of-way required for effective traffic control or for street signs or signals. A driveway shall be so located and constructed that vehicles approaching or using it shall have adequate sight distance along the street.
  - c. Driveway approaches shall be at least ten (10) feet apart except by special written permission from the Director of Public Works, and driveways shall in all cases be placed whenever possible as not to interfere with utilities in place.
- (2) **Number of Driveways.** The number of driveways serving an individual property fronting on a street shall be one (1), except where deemed necessary and feasible by the Village Board for reasonable and adequate service to the property, considering the safety, convenience and utility of the street and unique lot characteristics.
- (3) **Island Area.** The island area in the street right-of-way between successive driveways or adjoining a driveway and between the highway shoulder and right-of-way shall constitute a restricted area and may be filled in and graded only as provided in Subsection (a)(6).
- (4) **Drainage; Street Obstructions.**
- a. The surface of the driveway connecting with street cross sections shall slope downward and away from the street/highway shoulder a sufficient distance to minimize ordinary surface water drainage from flowing onto the street roadbed.
  - b. No driveway apron shall extend out into the street right-of-way further than the face of the curb, and under no circumstances shall such driveway apron extend into the street gutter area. Where a street does not have curb and gutter, no driveway apron shall extend out into the street right-of-way further than the street pavement edge. All driveway entrances and approaches shall be so constructed that they shall not interfere with the drainage of streets, side ditches, or roadside areas or with any existing structure on the right-of-way. [See also Subsection (e) below.]
- (5) **Reconstruction of Sidewalks and Curb and Gutter.**
- a. When the construction or reconstruction of a driveway requires the removal of a curb or gutter, the new connections shall be of equivalent acceptable material and curb returns shall be provided or restored in a neat, workmanlike manner. The driveway apron surface shall be connected with the street/highway pavement and the sidewalk, if any, in a neat, workmanlike manner.
  - b. The driveway construction shall include the replacement of such sidewalk areas which are inadequate or which are or may have been damaged by means of vehicle travel across the sidewalk. All driveway entrances and approaches which are constructed across sidewalks shall be paved in accordance with the requirements for sidewalk construction in Section 6-2-2 of this Code of



Ordinances insofar as such requirements are applicable, including thickness requirements. Standard thickness of residential driveway approaches will be six (6) inches thick unless otherwise provided in Section 6-2-2.

- (6) **Restricted Areas Between Successive Driveways.** The restricted area between successive driveways may be filled in and graded only when the following requirements are complied with:
- a. The filling or draining shall be to grades approved by the Director of Public Works and, except where highway drainage is by means of curb and gutter, water drainage of the area shall be directed away from the street roadbed in a suitable manner.
  - b. Culvert extensions under the restricted area shall be of the same size and of equivalent acceptable material as the culvert under the driveway, except where the Director of Public Works deems it necessary for a larger culvert is necessary to correct inadequate drainage.
  - c. Intermediate manholes adequate for cleanout purposes may be required when deemed necessary by the Director of Public Works due to total culvert length.
  - d. Where no street side ditch separates the restricted area from the street roadbed, permanent provision may be required to separate the area from the street roadbed to prevent its use for driveway or parking purposes by construction of a border, curb, rail or posts as may be required by the Director of Public Works.
- (7) **Relocation of Utilities.** Any costs of relocating utilities shall be the responsibility of the property owner, with approval of the Director of Public Works necessary before any utility may be relocated and the driveway installed.
- (8) **Construction Across Sidewalks.** All driveway entrances and approaches which are constructed across sidewalks shall be paved in accordance with the requirements for sidewalk construction in Section 6-2-2 of this Code of Ordinances insofar as such requirements are applicable, including thickness requirements.
- (9) **Special Requirements for Driveways Over 150 Feet in Length; Special Situations.**
- a. In addition to those driveway requirements prescribed herein, private driveways one hundred and fifty (150) feet and over in length, measured from the edge of the traveled surface of the intersecting street/highway to the structure, shall meet the following standards to permit access to principal buildings by the Fire Department and/or other public safety authorities:
    1. A minimum of a twenty-four (24) foot right-of-way;
    2. A minimum clear-cut width of twenty (20) feet;
    3. A minimum driving surface of sixteen (16) feet;
    4. A minimum height clearance of fifteen (15) feet; and
    5. A minimum width of twenty (20) feet for all aprons and approaches.
  - b. Driveways of one hundred fifty (150) feet and over accessing parcels on which there are no structural improvements are exempt from the requirements of this

Subsection. However, if a structure is subsequently built, all standards and requirements for driveways and culverts prescribed by this Section shall then be fully complied with.

- c. The Director of Public Works, based on recommendations of the Fire Department, may require additional clear-cut width clearances and extra driving surface widths to alleviate concerns caused by narrowness, sharp curves, steep inclines or other situations which could interfere with emergency vehicles properly and safely utilizing the driveway.
- (10) **Variances.** Any of the above requirements may be varied by the Village Board in such instances where the unique characteristics of the property or the design of the street may make the rigid adherence to the above requirements impossible or impractical. Such variance shall be applied for and approved prior to the construction of a nonconforming driveway.
- (b) **Special Requirements for Commercial and Industrial Driveways.** The following regulations are applicable to driveways serving commercial or industrial establishments:
- (1) **Width of Drive.** The maximum permitted width of a commercial or industrial driveway approach shall be thirty-five (35) feet at the curb line, except as increased by permissible radii. In instances where the unique nature of the commercial or industrial activity or the physical characteristics of the land would require a driveway of greater width than herein specified, the Village Board, in its discretion, may permit a driveway of additional width. Such variance shall be applied for and approved prior to the construction of a nonconforming driveway.
  - (2) **Angular Placement of Driveway.** The angle between the center line of the driveway and the curb line shall not be less than 45°.
  - (3) **Island Areas.**
    - a. Where the public sidewalk is adjacent to the curb, an island of a minimum length of six (6) feet measured along the curb line shall be placed between each entrance to a Village street. The curb shall be left intact for the length of this island.
    - b. Where the public sidewalk is remote from the curb, an island of a minimum length of ten (10) feet measured along the right-of-way line shall be maintained along each entrance to the Village street.
    - c. All flares shall be tangent to the curb line.
    - d. A curb length of not less than three (3) feet shall be left undisturbed adjacent to each property line to serve as an island area in the event an adjoining property owner applies for a driveway permit to serve his/her property.
- (c) **Special Dimensional Requirements for Residential Driveways.** The following regulations are applicable to driveways serving residential property:
- (1) **Width.** Unless special permission is first received from the Village Board, the driveway width for a residential single-type driveway shall be:
    - a. For residential lots zoned R-2 or R-3 served by a single-type driveway, no greater than twenty-four (24) feet wide or less than ten (10) feet wide at the curb line or outer or street edge of the sidewalk.

- b. For residential lots zoned R-2 or R-3 served by a double-type driveway, no greater than twenty-four (24) feet wide or less than eighteen (18) feet wide at the curb line or the outer or street edge of the sidewalk.
  - c. For residential lots zoned R-1, R-4, R-5 or R-6 served by a single-type driveway, no greater than thirty-six (36) feet wide or less than ten (10) feet wide at the curb line or outer or street edge of the sidewalk.
  - d. For residential lots zoned R-1, R-4, R-5 or R-6 served by a double-type driveway, no greater than thirty-six (36) feet wide or less than eighteen (18) feet wide at the curb line or outer or street edge of the sidewalk.
- (2) **Angular Placement.** The center line of the driveway may be parallel to the property line of the lot where access is required or at right angles to the curb line.
- (d) **Appeal from Permit Refusal.** Any person feeling himself/herself aggrieved by the refusal of the Director of Public Works to issue a permit for a private driveway may appeal, in writing, such refusal to the Village Board within fourteen (14) days after such refusal to issue such permit is made.
- (e) **Prohibited Driveways.**
- (1) **Prohibited Obstructions.** No person, firm or corporation shall place, construct, locate in, or cause to be placed, constructed or located in, any obstruction or structure within the limits of any public road, highway or street in the Village of Bangor except as permitted by this Section. As used herein the word "structure" includes private driveways, a portion of which extends into any public road, highway or street, and which is in non-conformance with this Chapter.
  - (2) **Intersections and Traffic Control Devices Limitations.** No driveway shall be closer than thirty-five (35) feet to the extended street line at an intersection. At street intersections a driveway shall not provide direct ingress or egress to or from the street intersection area and shall not occupy areas of the roadway deemed necessary by the Village for effective traffic control or for highway signs or signals.
  - (3) **Grade.** The grade of that portion of any private driveway or pedestrian path located within the limits of any public road, highway or street shall be such as shall meet the grade of the existing public roadway at its edge and not cause an obstruction to the maintenance or clearing of such public roadway. Whenever possible, the driveway area located within the right-of-way area shall consist of at least four (4) feet of flat surface area from the pavement edge.
  - (4) **Prohibited Driveway Apron Extensions.** No driveway apron shall extend out into the street further than the facing of the curb and under no circumstances shall such driveway apron extend into any gutter area. All driveway entrances and approaches shall be constructed as not to interfere with the drainage of streets, side ditches or roadside areas, or with any existing structure on the right-of-way.
  - (5) **Improper Private Curbs or Retaining Walls.** No portion of any curb, parapet or retaining wall, rising above the grade of the driveway, erected by the owner of the premises involved shall extend beyond the culvert spanning the water course located in such public way.

(f) **Culvert Construction and Standards.**

- (1) **Culvert Requirement.** The Village Board may require the property owner to provide for adequate surface water drainage along the street, and the property owner shall provide any necessary culvert pipe at his/her expense.
- (2) **Culvert Permit Required.**
  - a. No person shall lay, remove, replace or repair any culvert within the Village of Bangor unless he/she is under contract with the Village to do such work or has obtained a permit therefor from the Director of Public Works at least three (3) business days before work is undertaken. The Director of Public Works shall determine the diameter of the culvert to be installed which shall not be less than twelve (12) inches and shall approve of the laying of said culvert so as to provide proper drainage.
  - b. No person, not under contract to the Village of Bangor, shall lay, remove, replace or repair any culvert until a permit has been obtained from the Director of Public Works at least three (3) business days before work is undertaken. The fee for such permit shall be as prescribed in Section 1-3-1. The Director of Public Works shall view the site for installation of the culvert and determine the position and diameter of the culvert necessary to provide adequate drainage.
- (3) **Existing Driveway Situations.**
  - a. The owner of a driveway existing at the time this Section originally became effective may be required to install a culvert if such existing driveway impedes the flow of surface waters. The Director of Public Works shall advise the Village Board of any driveway which intersects with a public street that impedes the flow of surface water, and the Village Board shall order the owner thereof to install a proper culvert as directed by the Director of Public Works.
  - b. The cost of such installation shall be borne by the owner. If the owner refuses or neglects to install a culvert within the time designated by the Village, the Village shall, after notice to the owner, proceed to make such installation and charge the cost therefor to the owner. If such costs are not paid by November 1st, the Village Administrator shall place such charges on the tax roll in the same manner as a special charge to be collected with real estate taxes.
- (4) **Size.** Culverts shall be installed prior to construction work being commenced on the property served. No culvert pipe smaller than twelve (12) inches in diameter (or equivalent elliptical or arch pipe) will be allowed. All culverts shall be constructed of galvanized steel or reinforced concrete, and shall be made of new manufacture, unless specifically excepted by the Director of Public Works or Village Engineer in the case of quality used culverts. PVC plastic culverts may only be used in situations if the Director of Public Works determines there is adequate cover to protect such culvert.
- (5) **Gauge.** The minimum wall thickness for the galvanized steel pipe culverts shall be in accordance with the following:

Pipe Diameter	Gauge
15 to 24 inch	16
30 to 36 inch	14
42 to 54 inch	12
60 to 72 inch	10
78 to 84 inch	8

The class of reinforced concrete pipe shall be in accordance with the following:

Height of Cover (in feet)	Class of Pipe
0-2	IV
2-3	III
3-6	II

- (6) **Drainage.** The culverts shall be placed in the ditchline at elevations that will assure proper drainage.
- (7) **Endwalls.** Culverts shall be provided with earthen, concrete or metal apron endwalls as directed by the Village Engineer or Director of Public Works.
- (8) **Backfill Material.** Material used for backfill shall be of quantity and quality acceptable to the Village Engineer or Director of Public Works and shall be free from frozen lumps, wood, debris or other extraneous or perishable materials. The minimum cover, measured from the top of the culvert pipe to the top of the subgrade, shall be six (6) inches.
- (9) **Erosion Control.** Erosion control measures shall be implemented as necessary to control erosion, or as directed by the Village Engineer or Director of Public Works.
- (10) **Distance.** The distance between culverts under successive driveways shall not be less than ten (10) feet except as such restricted area is permitted to be filled pursuant to Subsection (a)(6).
- (11) **Cost.** The property owner shall install the culvert and be responsible for the cost thereof. The property owner shall keep his/her culverts unobstructed and clean.
- (12) **Appeals.** Persons may request a variance from the culvert requirements of this Section by filing a written appeals request with the Director of Public Works or Village Administrator, who shall place the matter as an agenda item for the Village Board's next meeting. The Village Board may only waive the requirement for a culvert upon a finding that unique physical characteristics of the location in question render a culvert unnecessary. The Village Engineer or Director of Public Works may be asked to render an opinion on the request.



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