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 latest version (4.4.3) of the **RES Check Software** to calculate this number. This software can be downloaded for free at 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.

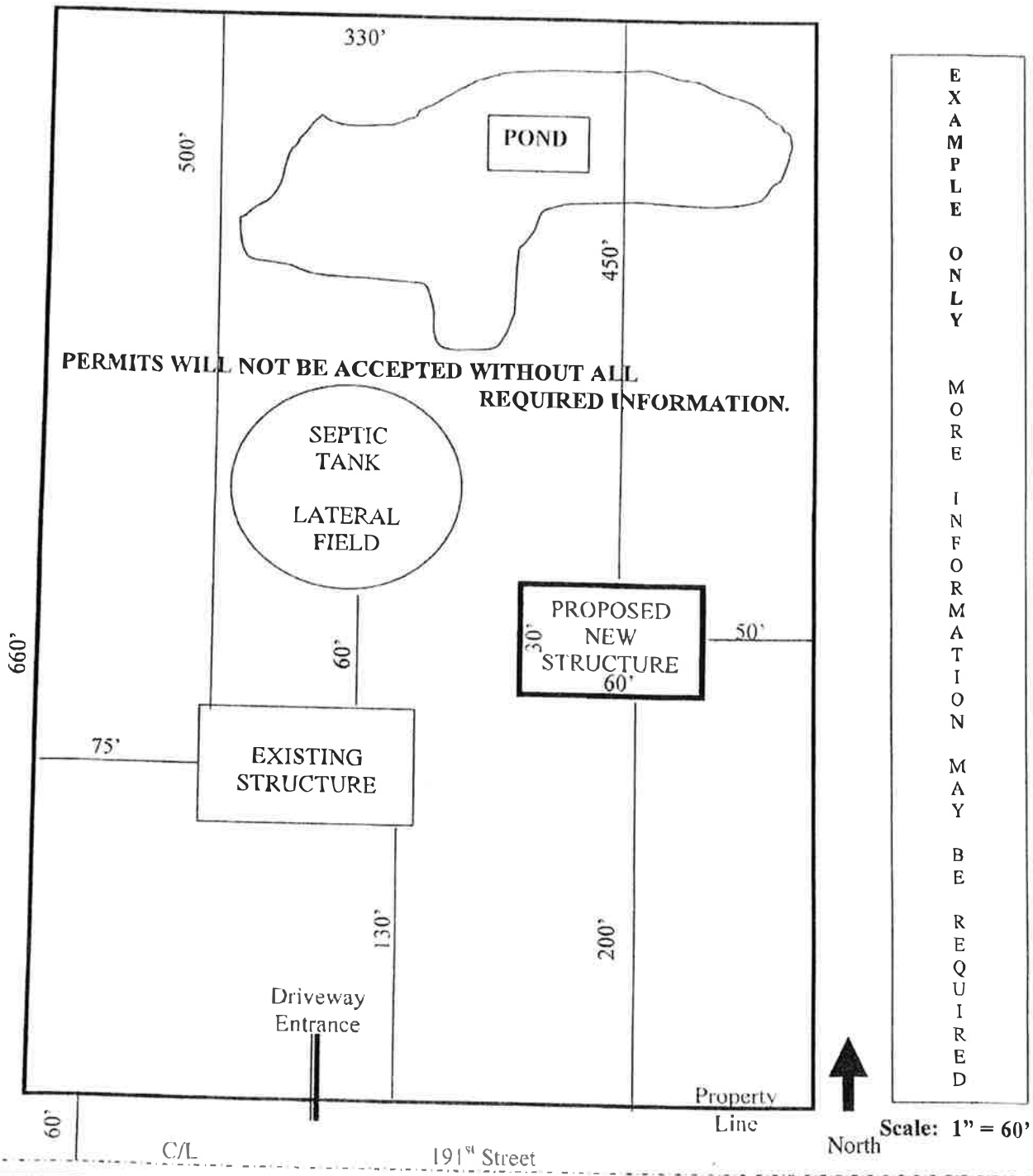
  Elevations must show all of the following:

  - ❑ 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

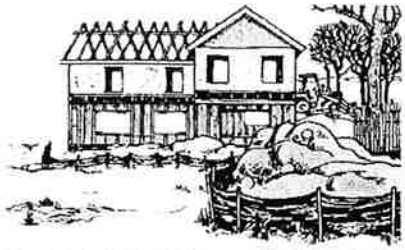


EXAMPLE SITE PLAN

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

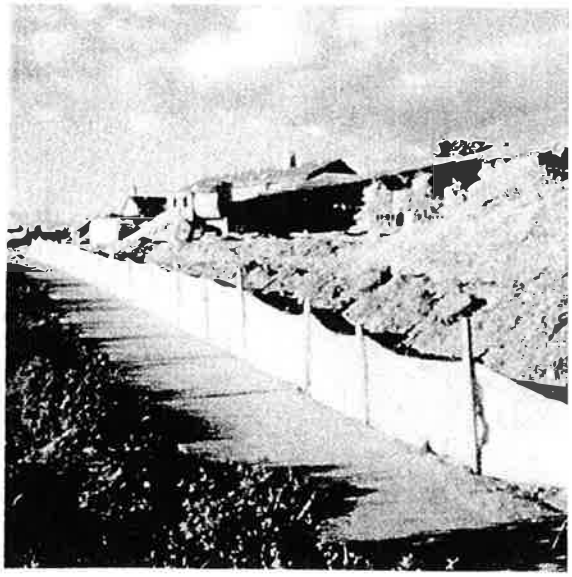
Please indicate:
- The location of all existing and proposed buildings/structures. ☐
- The distance from each structure to nearest property line. ☐
- The distance from centerline of adjacent street to property lines. ☐
- The scale used to draw the Site Plan. ☐



Erosion Control for Home Builders

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

Eroding 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.

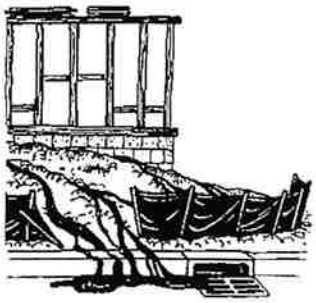
If you need help developing an erosion control plan or training your staff, contact your local building inspection, zoning or erosion control office.

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 stockpilkes;
- 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.

GWQ001 Erosion Control for Home Builders. Additional copies are available from Cooperative Extension Publications, 45 N. Charter St., Madison, WI 53715, 608/262-3346 (toll-free 877-947-7827) or Dept. of Commerce, P.O. Box 2509, Madison, WI 53701-2509, 608/267-4405.



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 ½-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 & 321of 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.

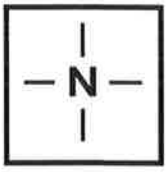
PROJECT LOCATION _____

BUILDER_____ OWNER _____

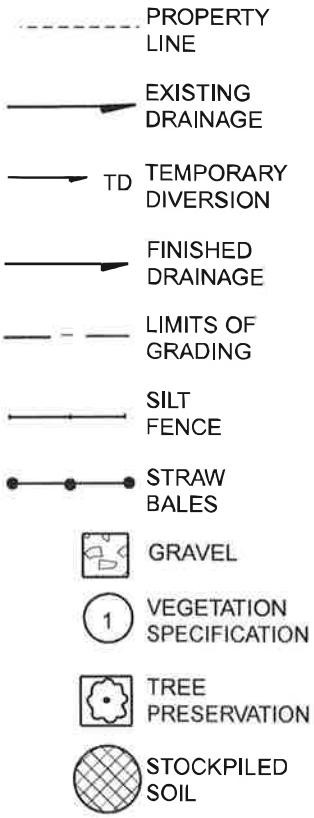
WORKSHEET COMPLETED BY_____ DATE _____

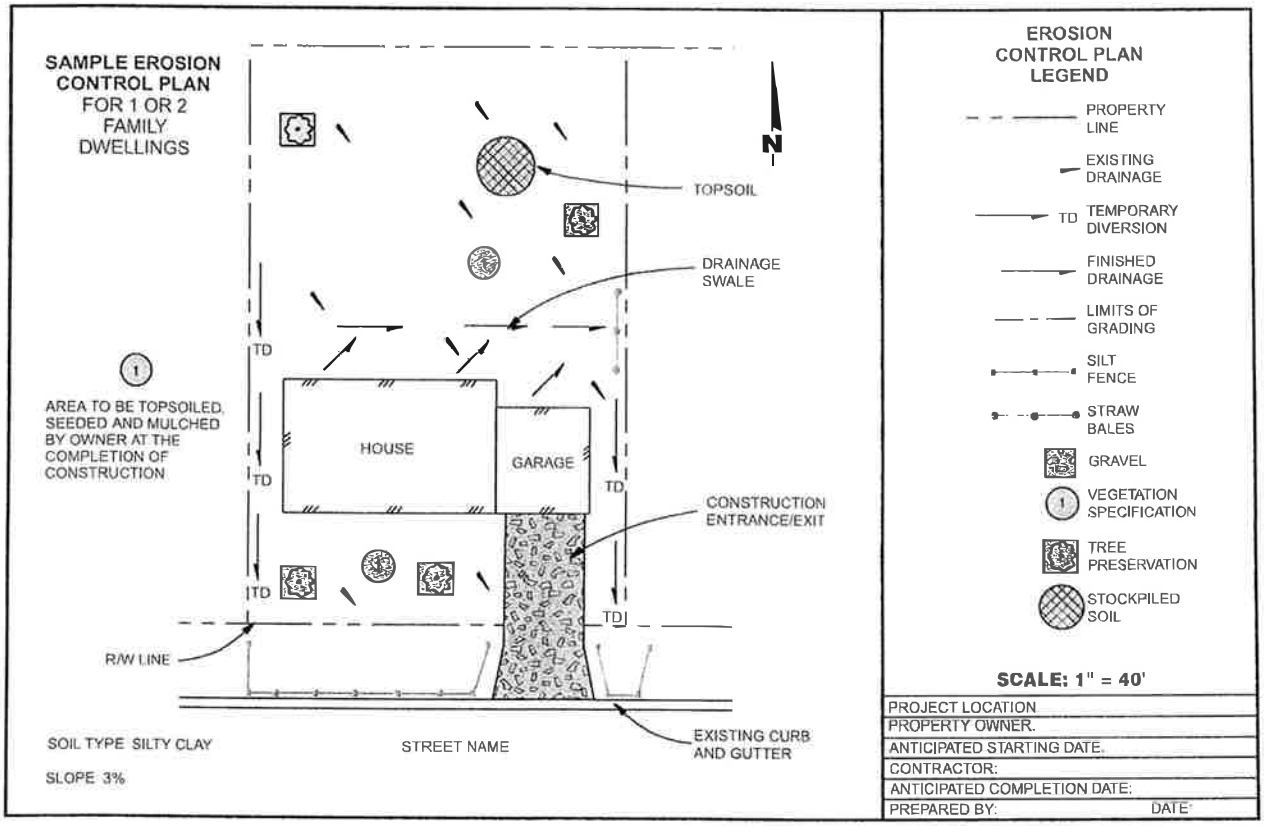
SITE DIAGRAM **Scale: 1 inch =____feet**

Please indicate north by completing the arrow.



EROSION CONTROL PLAN LEGEND





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

	Percent by Weight	
Grass	**Sunny Site**	**Shady Site**
Kentucky bluegrass	65%	15%
Fine fescue	20%	70%
Perennial ryegrass	15%	15%
Seeding rate (lb./1000 sq. ft.)	3-4	4-5

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

EROSION CONTROL PLAN CHECKLIST

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

COMPLETED	NOT APPLICABLE	
		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.

FIGURE 321.25–K

6:1 ASPECT RATIO BRACED WALL PANELS USING CONTINUOUS WOOD STRUCTURAL PANEL SHEATHING AND EXTENDED HEADERS

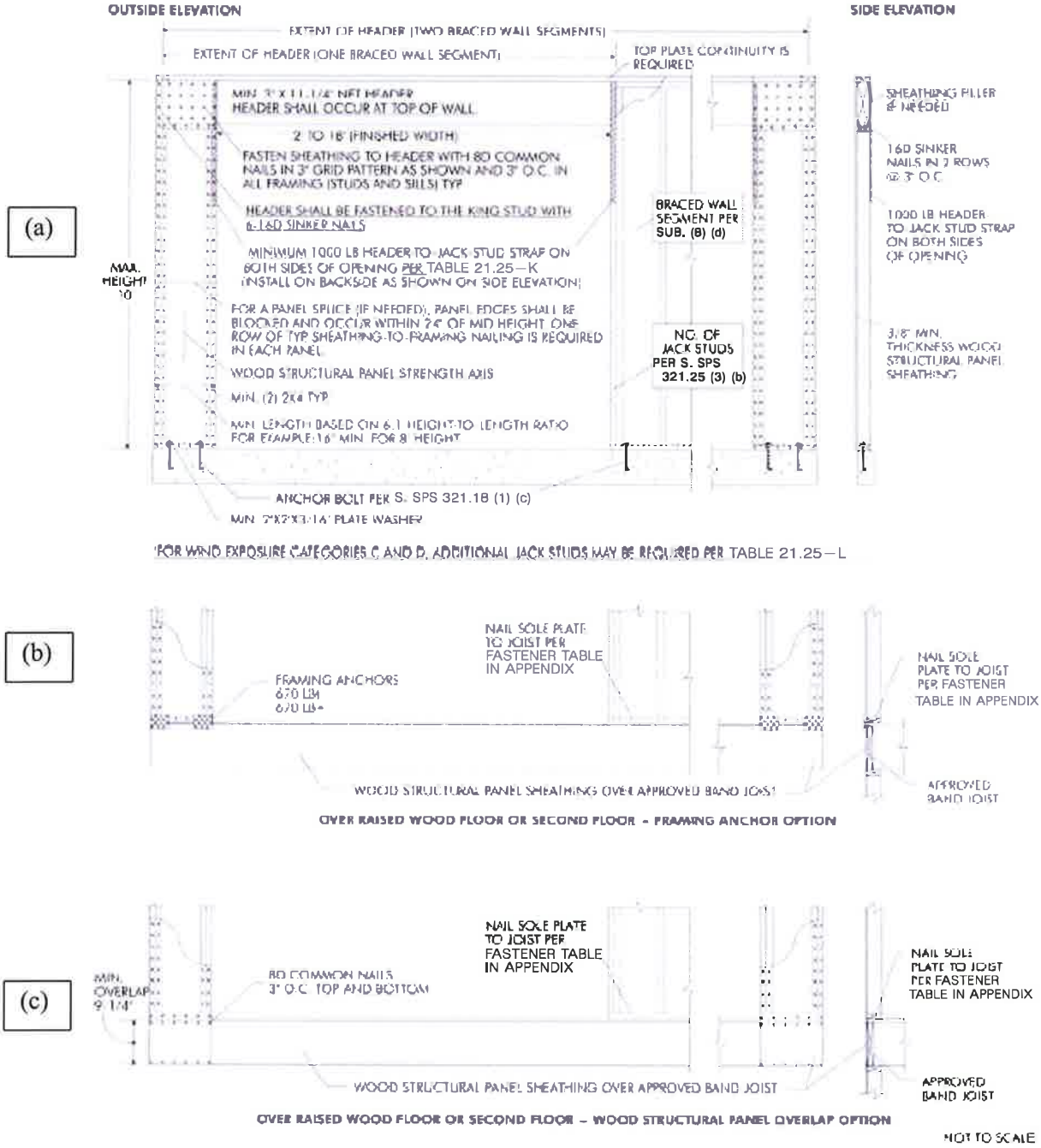


TABLE 322.31–1
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT[a]

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[b]	Heated Slab R–Value[c]	Unheated Slab R–Value[d]
1	0.35	0.60	49[e]	19[f] or 13+5[g]	15	30[h]	10/13	10/15	10
2	0.35	0.60	49[e]	21[f]	19	30[h]	10/13	10/15	10

[a] R–values are minimums. U–factors are maximums.

[b] The first R–value applies to continuous insulation. The second R–value applies to framing cavity insulation. Either insulation meets the requirement.

[c] 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 that 4 feet below grade.

[d] 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.

[e] See s. SPS 322.32 (1) for application and permitted reduced R–value.

[f] R–19 and R–21 may be compressed into a 2X6 cavity.

[g] "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.

[h] 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

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)