

replaces OMAFRA Factsheet #17-007, *Ungraded Lumber in Farm Buildings*

Using Ungraded Lumber in Farm Buildings

S. Beadle, P.Eng.

In Ontario, the use of ungraded lumber in some farm building projects is an acceptable practice. A woodlot can be a source of potentially inexpensive lumber for smaller farm buildings and may help reduce building capital costs.

This factsheet summarizes the difference between graded and ungraded lumber, the specific requirements to permit the use of ungraded lumber and key considerations owners and builders should address prior to starting a building project with ungraded lumber.

GRADED VERSUS UNGRADED LUMBER

Graded Lumber

Structural lumber is graded according to the [National Lumber Grades Authority \(NLGA\)](#) and bears the stamp of the agency accredited by the [Canadian Lumber Standards Accreditation Board \(CLSAB\)](#) under contract with the manufacturing facility. The stamp will bear the agency's mark, the facility number, the grade rule used and the grade of the lumber, the species, moisture content and phytosanitary treatment. The [Ontario Forest Industries Association \(OFIA\)](#) oversees NLGA grading and inspection in Ontario. An example of a grade stamp is shown in Figure 1. This lumber has been graded in accordance with NLGA grading rules and was produced by mill number 869. The lumber is a Spruce-Pine-Fir species, kiln dried (KD), heat treated (HT) and assigned a Number 2 grade.



Figure 1. Example of a grade stamp.

Throughout Canada, commercial lumber is graded by the manufacturer that produces it. Facilities producing commercial lumber are audited by an accredited agency of the CLSAB. More information regarding commercial lumber manufacturers is found on the [Ontario Lumber Manufacturers Agency \(OLMA\)](#) website.

Graded lumber meets the minimum requirements for strength, stiffness, moisture content and other qualities for a particular grade and species of lumber. Published design values can be used to carry out the structural design of wood structures using graded lumber.

Ungraded Lumber

In accordance with the [2012 Ontario Building Code](#), “ungraded” lumber is lumber that has not been grade-stamped to indicate its grade, as determined by the NLGA “Standard Grading Rules for Canadian Lumber,” but that meets the following visual traits:

- It is rough sawn to full nominal size.
- It has no evidence of decay.
- It has no tight knots that exceed 25% of the cross section and that are spaced closer than 150 mm (6 in.) on centre.
- It has no loose knots or holes that exceed 25% of the cross section and that are spaced closer than 600 mm (24 in.) on centre.
- It has the slope of grain not exceeding 1 (vertical) in 4 (horizontal).
- It is free of excessive warp.

Design of wood structures using ungraded lumber can be carried out by a qualified designer using the tables provided in [Supplementary Standard SB-11 of the Ontario Building Code](#).

REQUIREMENTS FOR USING UNGRADED LUMBER

The 2012 Ontario Building Code permits the use of ungraded lumber in farm buildings under a specific set of requirements:

- Farm buildings must be of low human occupancy, defined as an occupancy having an occupant load of not more than one person per 40 m² (430 ft²) of floor area during normal use.
- Farm buildings must be not more than one storey in building height.
- Farm buildings must have a building area not exceeding 600 m² (6,458 ft²).
- The ungraded lumber must meet the visual traits listed in the ungraded lumber section.
- Ungraded lumber may be used for wood posts, joists, rafters, lintels, beams and wall studs.

- The lumber must meet the appropriate requirements of [Subsection 9.3.2 of Division B of the Ontario Building Code](#):
 - Moisture content must be not more than 19% at the time of installation, and
 - Requirements for termite and decay protection (e.g., clearances to finished ground, physical barriers and preservative treatments) must be met.

Where one or more of the requirements cannot be met on a particular project, owners and builders can consider having the lumber graded. The Ontario Forest Industries Association and the Ontario Lumber Manufacturers Agency are capable of applying NLGA grading rules. These organizations have graders who travel to rural properties with portable sawmills and provide on-site inspection for grading and grade stamping the lumber to NLGA Standard Grading Rules. Both dressed and rough-sawn lumber can be graded. The fee for a licensed grader is on a per-day basis, plus expenses (e.g., mileage, meals, accommodations). For more information, contact the [OFIA](#) or [OLMA](#).

KEY CONSIDERATIONS WHEN USING UNGRADED LUMBER

To construct a smaller farm building using ungraded lumber from a woodlot, consider the following early in the planning process:

- Contact the local municipal planning department or bylaw enforcement officer to verify that harvesting from a woodlot is permitted and does not infringe on a municipal bylaw.
- Contact the local building department well in advance and discuss the building project. If possible, have the plans approved prior to cutting the lumber. It is the jurisdiction having authority that is ultimately responsible for administering and enforcing the Ontario Building Code.
- Discuss the plans with the builder and/or designer. They may have valuable suggestions or specific concerns that can be addressed prior to harvesting the wood.
- Discuss the plans and desired timeline with the local sawmill to ensure they will be able to cut the lumber. Confirm their costs to minimize surprises.

-
- Set aside adequate time to cut and properly cure the lumber before the expected construction start date.
 - Ensure there is appropriate space and facilities to properly cure and store the lumber.
 - Regardless of the care taken to harvest and saw the lumber, some lumber may not be structurally adequate for the project. Have an alternate lumber source identified (e.g., purchase of graded lumber) to minimize construction delays.
 - Ensure that lumber (installed in the building project) that is in contact with the ground is treated to resist fungal growth and decay.

SUMMARY

It is permitted to use ungraded lumber to construct smaller, single-storey farm buildings in Ontario, provided certain requirements are met. Where the requirements cannot be met, an owner can have the lumber graded by a licensed grader for use in building construction. In either case, a woodlot is a source of potentially inexpensive lumber, which can help reduce building capital costs. Careful planning and good communication with the local municipality, builder, designer and sawmill are essential to ensuring a successful building project.

This factsheet was revised by Steve Beadle, P.Eng., Engineering Specialist, Livestock Structures & Equipment — Swine and Sheep, OMAFRA, reviewed by Vicki Hilborn, P.Eng., Engineering Specialist, Civil Systems, OMAFRA, and Matt Farrell, CET, CBCO, Chief Building Official, Township of Huron-Kinloss.