

# Minnesota Ecological Science Job Approval Authority Factsheet

## Windbreak/Shelterbelt Establishment and Renovation (380)



**DEFINITION:**

Establishing, enhancing, or renovating windbreaks, also known as shelterbelts, which are single or multiple rows of trees and/or shrubs in linear or curvilinear configurations.

Job Classes	Control Factors
	Complexity
<b>Job Class I</b>	Establishment: All types EXCEPT odor, pesticide drift, and living snow fence; Renovation: addition of row
<b>Job Class II</b>	Establishment: All types EXCEPT odor and living snow fence; Renovation: row replacement
<b>Job Class III</b>	Establishment: All types
<b>Job Class IV</b>	Renovation: Individual plant thinning and individual plant replacement within row
<b>Job Class V</b>	All

**CONTROL FACTORS:** Based on the establishment complexity of the windbreak/shelterbelt design/function and the renovation treatment complexity.

**National KNOWLEDGE, SKILLS, AND ABILITIES (KSA):**

1. Knowledge of windbreak/shelterbelt design and function, including snow management, if applicable.
2. Knowledge of forest ecology and management for the local area.
3. Knowledge of crops protected by windbreaks and shelterbelts.
4. Knowledge of silvics of tree species to be established.
5. Knowledge of soil health and management.
6. Skills in use of pruning tools and equipment (Renovation specific).

**Minnesota Guidance:** Typically award the appropriate, specific job class level for all three planning phases (planning/design/certification).

**MINNESOTA KNOWLEDGE, SKILLS, AND ABILITIES (KSA) needed:**

**All Planning Phases (I&E planning/design and development/certification)**

**-Job Class I-**

- Read & understand the CPS Windbreak/Shelterbelt Establishment and Renovation (380), Guidance Document, & SOW.
- Understand Minnesota prevailing wind direction.
- Ability to design all types of windbreaks except odor, pesticide drift, and living snow fence.

## Minnesota KNOWLEDGE, SKILLS, AND ABILITIES (KSA) needed:

- Understand site preparation, planting methods and equipment.
- Ability to document environmental benefits of a windbreak/shelterbelt.
- Ability to select appropriate species for site conditions such as hydrology, soil type, topography, ecology, and other conditions.
- Knowledge of tree and shrub pests and diseases that may influence species selection and management.
- Ability to use the Conservation Tree/Shrub Groups excel workbook located on the FOTG.
- Understand tree and shrub planting row spacing, both between and within row.
- Understand techniques to protect trees from wildlife damage.
- Ability to identify tree and shrub species.
- Ability to add a row to an existing windbreak.

### -Job Class II-

- All requirements from Job Class I.
- Ability to design a windbreak for pesticide drift.
- Includes ability to use WIN-PST.
- Ability to replace a row in an existing windbreak.

### -Job Class III-

- All requirements from Job Class I and II.
- Ability to design a windbreak for odor control and living snow fence.
- Includes the ability to use the MN DOT/UMN Drift-Free Roads Design Tool: [University of Minnesota - Snow Fence \(umn.edu\)](https://www.umn.edu/)
- Includes the ability to use UMN extension's Odor From Feedlot Setback Estimation Tool (OFFSET): [Manure management | UMN Extension](https://www.umn.edu/).

### -Job Class IV -

- All requirements from Job Class I, II, and III.
- Ability to design a windbreak renovation with individual plant thinning and individual plant replacement within row.

### -Job Class V –

- All requirements from Job Class I, II, III, and IV.

**COMMON ASSOCIATED PRACTICES:** Tree/Shrub Site Preparation (Code 490), Tree/Shrub Establishment (Code 612), Mulching (484), and Upland Wildlife Habitat Management (Code 645).

### ADDITIONAL RESOURCES:

- Windbreak Economic Model, Version 1.0: [Windbreak Economic Model \(usda.gov\)](https://www.usda.gov/)
- Various National Agroforestry Center Information Sheets: [Agroforestry Publications \(usda.gov\)](https://www.usda.gov/)