

FDM 27-20 Attachment 5.11 Guidelines for Planting Trees Near Overhead Power Lines

Guidelines for Planting Trees Near Overhead Power Lines

Distribution Lines

Planting Distance From Line Center	Low-growing Trees (Less than 20' tall)	Medium Height Trees (20' - 40' tall)	Tall Trees (Over 40' tall)
	Underneath line is okay	25' (8 m)	40' (12 m)

* Distribution lines serve residential, rural, commercial and small industrial customers

Transmission Lines

Planting Distance From Line Center	Low-growing Trees (Less than 20' tall)	Medium Height Trees (20' - 40' tall)	Tall Trees (Over 40' tall)
69 KV Line	Underneath line is okay	40' (12 m)	40' (12 m)
115 KV Line	Underneath line is okay	50' (15 m)	50' (15 m)
138 KV Line	Underneath line is okay	50' (15 m)	50' (15 m)
161 KV Line	Underneath line is okay	60' (18 m)	60' (18 m)
230 KV Line	Underneath line is okay	75' (23 m)	75' (23 m)
345 KV Line	Underneath line is okay	75' (23 m)	75' (23 m)

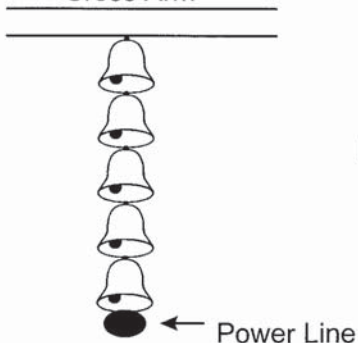
** Transmission lines serve large industrial customers and tie sources of power supplies

How to Identify Transmission Line KV Ratings (Length of Insulators)

- 69 KV = 5 Bells
- 115 KV = 8 Bells
- 138 KV = 10 Bells
- 161 KV = 12 Bells
- 230 KV = 15 Bells
- 345 KV = 20 Bells

Transmission Tower

Cross Arm



Example of a 5 - Bell Configuration

Aerial Salt Spray Tolerance of Deciduous Trees

Intolerant (I)	Intermediate (M)	Tolerant (T)
<u>Acer palmatum</u> (Japanese Maple)+	<u>Acer campestre</u> (Hedge Maple) +	<u>Acer platanoides</u> (Norway Maple) **^+
<u>Carpinus betulus</u> (European Hornbeam)+	<u>Acer ginnala</u> (Amur Maple) *(^I)+	<u>Acer saccharinum</u> (Silver Maple) *(^M)+
<u>Carpinus caroliniana</u> (Blue Beech, Ironwood) **^+	<u>Acer rubrum</u> (Red Maple) **^+	<u>Aesculus hippocastanum</u> (Horsechestnut) **^+
<u>Carya ovata</u> (Shagbark Hickory) **^(+M)	<u>Acer saccharum</u> (Sugar Maple) **^+	<u>Caragana arborescens</u> (Siberian Pea Tree) ^+
<u>Cercis canadensis</u> (Redbud) **	<u>Alnus incana</u> (White Alder) **^+	<u>Elaeagnus angustifolia</u> (Russian-olive) **^+
<u>Corvulus avellana</u> (European Filbert) **	<u>Alnus rugosa</u> (Speckled Alder) *(^I)+	<u>Fraxinus americana</u> (White Ash) **^(+M)
<u>Crataegus crusgalli</u> (Cockspur Hawthorn) **^+	<u>Amelanchier</u> spp. (Serviceberry) *(^I)(+I)	<u>Gleditsia triacanthos</u> (Honeylocust) *(^I)(+I)
<u>Celtis occidentalis</u> (Hackberry) **^+	<u>Betula alleghaniensis</u> (Yellow Birch) *(^T)	<u>Gymnocladus dioica</u> (Kentucky Coffeetree) +
<u>Fagus grandifolia</u> (Beech) **	<u>Betula lenta</u> (Sweet Birch) *(^T)	<u>Juglans nigra</u> (Black Walnut) *(+M)
<u>Fagus sylvatica</u> (European Beech) +	<u>Betula nigra</u> (River Birch) *	<u>Morus</u> spp. (Mulberry) *(^I)(+I)
<u>Ginkgo biloba</u> (Ginkgo) *	<u>Betula papyrifera</u> (Paper Birch) **^+	<u>Populus alba</u> (Silver-leaved Poplar) **^+
<u>Liriodendron tulipifera</u> (Tuliptree) **	<u>Betula populifolia</u> (Grey Birch) *(^T)+	<u>Populus deltoides</u> (Eastern Cottonwood) **^+
<u>Malus</u> spp. (Flowering Crabapple) **^+	<u>Catalpa speciosa</u> (Catalpa) **	<u>Populus grandidentata</u> (Bigtooth Aspen) **^+
<u>Ostrya virginiana</u> (American Hophornbeam) *	<u>Cladrastis lutea</u> (American Yellowwood) +	<u>Populus nigra</u> (Black Poplar) **^+
<u>Prunus serotina</u> (Black Cherry) **^+	<u>Fraxinus pennsylvanica</u> (Green Ash) **^+	<u>Populus tremuloides</u> (Quaking Aspen) **^+
<u>Prunus virginiana</u> (Chokecherry) *(+M)	<u>Pyrus</u> spp. (Ornamental Pear) **	<u>Robinia pseudoacacia</u> (Black Locust) **^+
<u>Quercus alba</u> (White Oak) **^+	<u>Quercus macrocarpa</u> (Bur Oak) **^+	<u>Sorbus</u> spp. (Mountain Ash) *(^I)(+M)
<u>Quercus bicolor</u> (Swamp White Oak) ^+	<u>Quercus robur</u> (English Oak) *(+I)	<u>Syringa reticulata</u> (Japanese Tree Lilac) *(+M)
<u>Quercus palustris</u> (Pin Oak) **^+	<u>Salix alba</u> (White Willow) **^+	
<u>Quercus rubra</u> (Red Oak) **^+	<u>Salix nigra</u> (Black Willow) **	
<u>Tilia cordata</u> (Littleleaf Linden) *(^T)+	<u>Tilia americana</u> (American Linden) *(^I)+	
	<u>Ulmus americana</u> (American Elm) **^+	
	<u>Ulmus pumila</u> (Siberian Elm) **	

* from UWEX bulletin A2970 "Salt Injury to Landscape Plants", Ed Hasselkus and K.A. Delahaut
 ^ from Technical Bulletin 303-Forestry Series 20 "Effect of Deicing Salts on Woody Vegetation Along Minnesota Roads", Edward Sucoff
 + from "Yard and Garden" HO-142, a publication of the Horticulture Dept., Cooperative Extension Service, Purdue University, Ruth Kvaalen
 If information is missing from one or more of the three sources for a particular plant, the source had no information for the plant in question
 I= Intolerant of salt spray, M= Intermediate tolerance of salt spray, T = Tolerant of salt spray.

FDM 27-20 Attachment 5.12 Salt Tolerance Chart

Aerial Salt Spray Tolerance of Deciduous Shrubs and Vines

Intolerant (I)	Intermediate (M)	Tolerant (T)
<u>Berberis thunbergii</u> (Barberry) *^+	<u>Berberis koreana</u> (Korean Barberry) *^(+)	<u>Euonymus alatus</u> (Winged Euonymus) *+
<u>Chaenomeles speciosa</u> (Japanese Flowering Quince) *+	<u>Forsythia X intermedia</u> (Forsythia) *+	<u>Parthenocissus quinquefolia</u> (Virginia Creeper)*^+
<u>Cornus</u> spp. (Dogwood) *^+	<u>Ligustrum vulgare</u> (Common Privet) *^(+)	<u>Philadelphus</u> spp. (Mockorange) *^
<u>Corylus</u> spp. (Filbert) *^+	<u>Physocarpus opulifolius</u> 'nanus' (Dwarf Ninebark) ^	<u>Potentilla fruticosa</u> 'Jackmanni' (Jackman P.) ^
<u>Euonymus europaea</u> (European Spindletree) *^+	<u>Spiraea bumalda</u> 'Froebelii' (Froebel Spiraea) ^	<u>Rhus aromatica</u> (Fragrant Sumac) *
<u>Kolkwitzia amabilis</u> (Beauty Bush) +	<u>Syringa vulgaris</u> (Common Lilac) *^(+)	<u>Rhus glabra</u> (Smooth Sumac) *(^M)
<u>Prunus besseyi</u> (Sand Cherry) *	<u>Viburnum dentatum</u> (Arrowwood Viburnum) *(+)	<u>Rhus trilobata</u> (Skunkbush) +
<u>Rosa virginiana</u> (Virginia Rose)^+	<u>Viburnum lentago</u> (Nannyberry Viburnum) *(+)	<u>Rhus typhina</u> (Staghorn Sumac) *+
<u>Sambucus canadensis</u> (American Elder) *^+	<u>Vib. opulus</u> (European Cranberrybush Vib.) *^(+)	<u>Ribes alpinum</u> (Alpine Currant) *^+
<u>Sambucus racemosa</u> (European Red Elder) *^+	<u>Vib. trilobum</u> (American Cranberrybush Vib.) *^(+)	<u>Rosa rugosa</u> (Rugosa Rose) *^(+)
<u>Symphoricarpos orbiculatus</u> (Indiandurrant Coralberry) *^+		<u>Symphoricarpos albus</u> (Snowberry) *(^M)(+M)
<u>Viburnum lantana</u> (Wayfaringtree Viburnum) *^+		<u>Tamarix ramosissima</u> (Five-stamen Tamarisk) ^+
<u>Weigela</u> spp. (Weigela) *		

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Aerial Salt Spray Tolerance of Evergreen Trees

Intolerant (I)	Intermediate (M)	Tolerant (T)
<u>Abies balsamea</u> (Balsam Fir) **+	<u>Pinus ponderosa</u> (Ponderosa Pine)**^	<u>Abies concolor</u> (White Fir) +
<u>Metasequoia glyptostroboides</u> (Dawn Redwood) **+	<u>Pseudotsuga menziesii</u> (Douglasfir) *(^)(+)(I)	<u>Juniperus virginiana</u> (Eastern Redcedar) *(^M)+
<u>Picea abies</u> (Norway Spruce) **+		<u>Larix decidua</u> (European Larch) **^+
<u>Picea glauca</u> (White Spruce) **+		<u>Larix leptolepis</u> (Japanese Larch) ^+
<u>Pinus resinosa</u> (Red Pine) **^+		<u>Picea pungens</u> (Colorado Spruce) **^
<u>Pinus strobus</u> (White Pine) **^+		<u>Pinus banksiana</u> (Jack Pine) **+
<u>Pinus sylvestris</u> (Scots Pine) **^+		<u>Pinus mugo</u> (Mugo Pine) **+
<u>Thuja occidentalis</u> (Arborvitae) *(^M)+		<u>Pinus nigra</u> (Austrian Pine) *(^M)+
<u>Tsuga canadensis</u> (Eastern Hemlock) **^+		

Aerial Salt Spray Tolerance of Broadleaf and Needled Evergreen Shrubs

Intolerant (I)	Intermediate (M)	Tolerant (T)
<u>Buxus sempervirens</u> (Boxwood) *	<u>Juniperus horizontalis</u> (Creeping Juniper) *	<u>Juniperus chinensis</u> (Chinese Juniper) *
<u>Rhododendron</u> spp. (Rhododendron) *		
<u>Taxus</u> spp. (Yew) **+		

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I= Intolerant of salt spray, M= Intermediate tolerance of salt spray, T = Tolerant of salt spray

LARGE DECIDUOUS TREES (>40 feet)

Symbol	Common Name	Scientific Name	ANS Type	Note
GA	Ash, Green	<i>Fraxinus pennsylvanica</i>	1T	A
MGA	Ash, Green Marshall's Seedless	<i>Fraxinus penn.</i> 'Marshall's Seedless'	1T	A
SGA	Ash, Green Summit	<i>Fraxinus pennsylvanica</i> 'Summit'	1T	A
WA	Ash, White	<i>Fraxinus americana</i>	1T	B
OB	Buckeye, Ohio	<i>Aesculus glabra</i>	1T	C
BC	Cherry, Black	<i>Prunus serotina</i>	2T	A
KC	Coffeetree, Kentucky	<i>Gymnocladus dioicus</i>	2T	C
CE	Elm, Cathedral	<i>Ulmus x cathedral</i>	2T	C
G	Ginkgo	<i>Ginkgo biloba</i>	1T	C
PSG	Ginkgo, Princeton Sentry	<i>Ginkgo biloba</i> 'Princeton Sentry'	1T	C
H	Hackberry, Common	<i>Celtis occidentalis</i>	2T	A
SH	Shagbark Hickory	<i>Carya ovata</i>	1T	A
TH	Honeylocust, Common Thornless	<i>Gleditsia triacanthos inermis</i>	1T	B
ITH	Honeylocust, Thornless Imperial	<i>Gleditsia triacanthos inermis</i> 'Imperial'	1T	B
STH	Honeylocust, Thornless Skyline	<i>Gleditsia triacanthos inermis</i> 'Skyline'	1T	B
AL	Linden, American	<i>Tilia americana</i>	1T	A
LL	Linden, Littleleaf	<i>Tilia cordata</i>	2T	C
GLL	Linden, Littleleaf 'Greenspire'	<i>Tilia cordata</i> 'Greenspire'	2T	C
NM	Maple, Norway	<i>Acer platanoides</i>	1T	C *
CNM	Maple, Norway Columnar	<i>Acer platanoides</i> 'Columnare'	1T	C *
ENM	Maple, Norway Emerald Queen	<i>Acer platanoides</i> 'Emerald Queen'	1T	C *
SNM	Maple, Norway Superform	<i>Acer platanoides</i> 'Superform'	1T	C *
RM	Maple, Red	<i>Acer rubrum</i>	1T	A
RSM	Maple, Red Red Sunset	<i>Acer rubrum</i> 'Red Sunset'	1T	A
M	Maple, Silver	<i>Acer saccharinum</i>	1T	A
SM	Maple, Sugar	<i>Acer saccharum</i>	1T	A
GSM	Maple, Sugar Green Mountain	<i>Acer saccharum</i> 'Green Mountain'	1T	A
BO	Oak, Bur	<i>Quercus macrocarpa</i>	1T	A
PO	Oak, Pin	<i>Quercus palustris</i>	1T	C
RO	Oak, Northern Red	<i>Quercus borealis</i>	1T	A
WO	Oak, White	<i>Quercus alba</i>	2T	A
SWO	Oak, Swamp White	<i>Quercus bicolor</i>	1T	A
CP	Poplar, Carolina	<i>Populus canadensis</i> var. <i>eugenei</i>	1T	C
NW	Willow, Niobe Weeping	<i>Salix x blanda</i>	1T	C

Notes:

- A - Native to Wisconsin
- B - Native to some parts of Wisconsin
- C - Not native to Wisconsin

* Tends to be invasive. Use with care in urban areas only.

Plants Used for Roadside Planting in WI

MEDIUM DECIDUOUS TREES (20-40 feet)

Symbol	Common Name	Scientific Name	ANS Type	Note
BA	Aspen, Bigtooth	Populus grandidentata	1T	A
QA	Aspen, Quaking	Populus tremuloides	1T	A
PB	Birch, Paper	Betula papyrifera	1T	B
RB	Birch, River	Betula nigra	1T	A
WB	Birch, Whitespire	Betula platyphylla 'Whitespire'	1T	C
AH	Hornbeam, American	Carpinus caroliniana	3T	A
JTL	Tree Lilac, Japanese	Syringa reticulata	3T	C

SMALL DECIDUOUS TREES (<20 feet)

Symbol	Common Name	Scientific Name	ANS Type	Note
CC	Chokecherry, Common	Prunus virginiana	3T	A
CRC	Chokecherry, Canada Red	Prunus virginiana 'Canada Red'	3T	A
PC	Crabapple, Prairie	Malus ioensis	3T	A
PD	Dogwood, Pagoda	Cornus alternifolia	4T	A
CHW	Hawthorn, Cockspur	Crataegus crusgalli	3T	C
THW	Hawthorn, Thicket	Crataegus intricata coccinea	3T	A
AH	Hophornbeam, American	Ostrya virginiana	2T	A
AM	Maple, Amur	Acer ginnala	3T	C *
AMA	Mountainash, American	Sorbus americana	2T	B
SMA	Mountainash, Showy	Sorbus decora	2T	B
BP	Pear, Bradford Callery	Pyrus calleryana 'Bradford'	2T	C *
APL	Plum, American	Prunus americana	4T	B
ASB	Serviceberry, Allegheny	Amelanchier laevis	3T	A
SBS	Serviceberry, Shadblow	Amelanchier canadensis	3T	A
LW	Willow, Laurel	Salix pentandra	4T	C
CW	Witchhazel, Common	Hamamelis virginiana	4T	A

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Plants Used for Roadside Planting in WI
LARGE EVERGREEN TREES (>30 feet)

Symbol	Common Name	Scientific Name	ANS Type	Note
CD	Douglasfir, Common	<i>Pseudotsuga menziesii</i>	4E	C
WF	Fir, White	<i>Abies concolor</i>	4E	C
CH	Hemlock, Canadian	<i>Tsuga canadensis</i>	4E	B
EL	Larch, Eastern (Tamarack)	<i>Larix laricina</i>	4E	A
AP	Pine, Austrian	<i>Pinus nigra</i>	4E	C
WP	Pine, Eastern White	<i>Pinus strobus</i>	4E	A
RP	Pine, Red	<i>Pinus resinosa</i>	4E	A
CS	Spruce, Colorado	<i>Picea pungens</i>	4E	C
NS	Spruce, Norway	<i>Picea abies</i>	4E	C
WS	Spruce, White	<i>Picea glauca</i>	4E	B
BHS	Spruce, Black Hills	<i>Picea glauca</i> 'Densata'	4E	B

SMALL EVERGREEN TREES (10-30 feet)

Symbol	Common Name	Scientific Name	ANS Type	Note
AA	Arborvitae, American	<i>Thuja occidentalis</i>	4E	B
PA	Arborvitae, Pyramidal	<i>Thuja occidentalis</i> 'Pyramidalis'	4E	B
TA	Arborvitae, Techny	<i>Thuja occidentalis</i> 'Techny'	4E	B
IJ	Juniper, Iowa	<i>Juniperus chinensis</i> 'Iowa'	4E	C
MJ	Juniper, Mountbatten	<i>Juniperus chinensis</i> 'Mountbatten'	4E	C
ER	Redcedar, Eastern	<i>Juniperus virginiana</i>	4E	A
CER	Redcedar, Eastern Canaert	<i>Juniperus virginiana</i> 'Canaertii'	4E	A

EVERGREEN SHRUBS (<10 feet)

Symbol	Common Name	Scientific Name	ANS Type	Note
AJ	Juniper, Andorra	<i>Juniperus horizontalis</i> 'Plumosa'	1C	C
DJJ	Juniper, Dwarf Japanese	<i>Juniperus procumbens</i> nana	1C	C
HJ	Juniper, Hughes	<i>Juniperus chinensis</i> 'Hughes'	2C	C
MJ	Juniper Maney	<i>Juniperus chinensis</i> 'Maney'	3C	C
MJJ	Juniper, Mint Julep	<i>Juniperus chinensis</i> 'Mint Julep'	2C	C
OCJ	Juniper, Oldfield Common	<i>Juniperus communis</i> var. <i>depressa</i>	3C	A
PJ	Juniper, Pfitzer	<i>Juniperus chinensis</i> 'Pfitzeriana'	2C	C
SGJ	Juniper, Sea Green	<i>Juniperus chinensis</i> 'Sea Green'	3C	C
BRJ	Juniper, Wilton Blue Rug	<i>Juniperus horizontalis</i> 'Wiltonii'	1C	C
MP	Pine, Mugo Swiss Mountain	<i>Pinus mugo</i> var. <i>mugo</i>	3C	C
CY	Yew, Canada	<i>Taxus canadensis</i>	2C	B

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Plants Used for Roadside Planting in WI

LARGE DECIDUOUS SHRUBS (>10 feet)

Symbol	Common Name	Scientific Name	ANS Type	Note
SB	Buffaloberry, Silver	Shepherdia argentea	3S	C
MC	Cotoneaster, Many-flowered	Cotoneaster multiflorus	3S	C
SP	Peashrub, Siberian	Caragana arborescens	4S	C *
AS	Serviceberry, Apple	Amelanchier x grandiflora	3S	A
SS	Sumac, Smooth	Rhus glabra	3S	A
SH	Sumac, Staghorn	Rhus typhina	3S	A
BV	Viburnum, Blackhaw	Viburnum prunifolium	4S	C
NV	Viburnum, Nannyberry	Viburnum lentago	3S	A
WV	Viburnum, Wayfaringtree	Viburnum lantana	3S	C
ACV	Viburnum, American Cranberrybush	Viburnum trilobum	3S	A
EW	Wahoo, Eastern	Euonymus atropurpureus	4S	A

MEDIUM DECIDUOUS SHRUBS (4-10 feet)

Symbol	Common Name	Scientific Name	ANS Type	Note
GD	Dogwood, Grey	Cornus racemosa	2S	A
RD	Dogwood, Redosier	Cornus sericea	2S	A
ID	Dogwood, Isanti	Cornus sericea 'Isanti'	2S	A
AE	Elder, American	Sambucus canadensis	3S	A
AF	Filbert, American	Corylus americana	3S	A
CAM	Maple, Amur Compact	Acer ginnala 'Compact'	3S	C *
CN	Ninebark, Common	Physocarpus opulifolius	3S	A
DCN	Ninebark, Dwarf Common	Physocarpus opulifolius 'Nanus'	2S	A
PR	Rose, Prairie	Rosa setigera	3S	B
RR	Rose, Rugosa	Rosa rugosa	3S	C
VS	Spiraea, Vanhoutte	Spiraea x vanhouttei	1S	C
FS	Sumac, Fragrant	Rhus aromatica	3S	A
AV	Viburnum, Arrowwood	Viburnum dentatum	3S	C

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Plants Used for Roadside Planting in WI

LARGE DECIDUOUS SHRUBS (>10 feet)

Symbol	Common Name	Scientific Name	ANS Type	Note
SB	Buffaloberry, Silver	Shepherdia argentea	3S	C
MC	Cotoneaster, Many-flowered	Cotoneaster multiflorus	3S	C
SP	Peashrub, Siberian	Caragana arborescens	4S	C *
AS	Serviceberry, Apple	Amelanchier x grandiflora	3S	A
SS	Sumac, Smooth	Rhus glabra	3S	A
SH	Sumac, Staghorn	Rhus typhina	3S	A
BV	Viburnum, Blackhaw	Viburnum prunifolium	4S	C
NV	Viburnum, Nannyberry	Viburnum lentago	3S	A
WV	Viburnum, Wayfaringtree	Viburnum lantana	3S	C
ACV	Viburnum, American Cranberrybush	Viburnum trilobum	3S	A
EW	Wahoo, Eastern	Euonymus atropurpureus	4S	A

MEDIUM DECIDUOUS SHRUBS (4-10 feet)

Symbol	Common Name	Scientific Name	ANS Type	Note
GD	Dogwood, Grey	Cornus racemosa	2S	A
RD	Dogwood, Redosier	Cornus sericea	2S	A
ID	Dogwood, Isanti	Cornus sericea 'Isanti'	2S	A
AE	Elder, American	Sambucus canadensis	3S	A
AF	Filbert, American	Corylus americana	3S	A
CAM	Maple, Amur Compact	Acer ginnala 'Compact'	3S	C *
CN	Ninebark, Common	Physocarpus opulifolius	3S	A
DCN	Ninebark, Dwarf Common	Physocarpus opulifolius 'Nanus'	2S	A
PR	Rose, Prairie	Rosa setigera	3S	B
RR	Rose, Rugosa	Rosa rugosa	3S	C
VS	Spiraea, Vanhoutte	Spiraea x vanhouttei	1S	C
FS	Sumac, Fragrant	Rhus aromatica	3S	A
AV	Viburnum, Arrowwood	Viburnum dentatum	3S	C

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Plants Generally Used for Roadside Planting in WI

SMALL DECIDUOUS SHRUBS (<4 feet)

Symbol	Common Name	Scientific Name	ANS Type	Note
JB	Barberry, Japanese	Berberis thunbergii	1S	C *
DB	Bushhoneysuckle, Dwarf	Diervilla lonicera	2S	A
BLC	Chokeberry, Black	Aronia melanocarpa	3S	A
BC	Cinquefoil, Bush	Potentilla fruticosa	1S	A
ABC	Cinquefoil, Bush Abbotswood	Potentilla fruticosa 'Abbotswood'	1S	A
JBC	Cinquefoil, Bush Jackman	Potentilla fruticosa 'Jackmanii'	1S	A
IC	Coralberry, Indiancurrant	Symphoricarpos orbiculatus	3S	B
AC	Currant, Alpine	Ribes alpinum	1S	C
CDH	Honeysuckle, Clavey's Dwarf	Lonicera x xylosteoides 'Clavey's Dwarf'	2S	C
CR	Rose, Carolina	Rosa carolina	3S	A
NWR	Rose, Nearly Wild	Rosa spp. 'Nearly Wild'	3S	A
VR	Rose, Virginia	Rosa virginiana	3S	A
S	Snowberry	Symphoricarpos albus	3S	B
AWS	Spiraea, Anthony Waterer	Spiraea x bumalda 'Anthony Waterer'	1S	C
DWS	Spiraea, Dwarf White	Spiraea albiflora	1S	C
DRS	Spiraea, Dwarf Red	Spiraea x bumalda 'Coccinea'	1S	C
FSP	Spiraea, Froebel	Spiraea x bumalda 'Froebelii'	1S	C
SMS	Spiraea, Snowmound	Spiraea nipponica 'Snowmound'	1S	C
GFS	Sumac, Fragrant Gro-low	Rhus aromatica 'Gro-low'	3S	A

VINES

AB	Bittersweet, American	Celastrus scandens	4V	A
BI	Ivy, Boston	Parthenocissus tricuspidata	4V	C
VC	Creeper, Virginia	Parthenocissus quinquefolia	4V	A
EI	Ivy, Engelmann	Parthenocissus quinquefolia 'Engelmanni'	4V	A

Notes:

- A - Native to Wisconsin
- B - Native to some parts of Wisconsin
- C - Not native to Wisconsin

* Tends to be invasive. Use with care in urban areas only.

Symbols are derived from the first letter of each word in the common name of the plant. Symbols for plants not shown on this list should conform to this convention. The first letter of three-letter symbols usually, but not always, represents a cultivar name. For example, ABC stands for Abbotswood (A), a cultivar of bush cinquefoil. Cultivars with variegated or unusually colored foliage should not be planted.

BALLING & BURLAPPING SPECIFICATIONS

The following tables represent the recommended minimum sizes for trees which are grown in a nursery under favorable conditions

**SHADE & FLOWERING TREES
TYPES 1 AND 2***

SIZE (Cal.) WHEN PLANTED	MINIMUM SIZE				MULCH RING DIAMETER
	BALL		PLANT HOLE		
	DIAMETER	DEPTH	DIAMETER	DEPTH	
1/2"	12"	8"	36"	8"	48"
3/4"	14"	9"	38"	9"	50"
1"	16"	10"	40"	10"	52"
1 1/4"	18"	12"	42"	12"	54"
1 1/2"	20"	12"	44"	12"	56"
1 3/4"	22"	13"	46"	13"	58"
2" cal.	24"	14"	48"	14"	60"
2 1/2"	28"	17"	52"	17"	64"
3"	32"	19"	56"	19"	68"
3 1/2"	38"	23"	62"	23"	74"
4"	42"	25"	66"	25"	78"
4 1/2"	48"	29"	72"	29"	84"

* See the American Nursery & Landscape Association standards for definitions of plant types.

**SHADE & FLOWERING TREES
TYPES 3 AND 4***

SIZE (HT) WHEN PLANTED	MINIMUM SIZE				MULCH RING DIAMETER
	BALL		PLANT HOLE		
	DIAMETER	DEPTH	DIAMETER	DEPTH	
2' ht.	10"	6.5"	34"	6.5"	46"
3' ht.	12"	8"	36"	8"	48"
4' ht.	14"	9"	38"	9"	50"
5' ht.	16"	10"	40"	10"	52"

SIZE (Cal.) WHEN PLANTED	MINIMUM SIZE				MULCH RING DIAMETER
	BALL		PLANT HOLE		
	DIAMETER	DEPTH	DIAMETER	DEPTH	
1 1/2"	20"	12"	44"	12"	56"
1 3/4"	22"	13"	46"	13"	58"
2" cal.	24"	14"	48"	14"	60"
2 1/2"	28"	17"	52"	17"	64"
3" cal.	32"	19"	56"	19"	68"
3 1/2"	38"	23"	62"	23"	74"
4"	42"	25"	66"	25"	78"
4 1/2"	48"	29"	72"	29"	84"

* See the American Nursery & Landscape Association standards for definitions of plant types.

BALLING & BURLAPPING SPECIFICATIONS

TYPES 1, 2, 3*

SPREAD WHEN PLANTED	MINIMUM SIZE				MULCH RING DIAMETER
	BALL		PLANT HOLE		
	DIAMETER	DEPTH	DIAMETER	DEPTH	
9"	8"	5"	32"	5"	44"
12"	8"	5"	32"	5"	44"
15"	10"	6.5"	34"	6.5"	46"
18"	10"	6.5"	34"	6.5"	46"
24"	12"	8"	36"	8"	48"
30"	14"	9"	38"	9"	50"
36"	16"	10"	40"	10"	52"
42"	18"	12"	42"	12"	54"
48"	21"	12.5"	45"	12.5"	57"
60"	24"	14"	48"	14"	60"
72"	28"	17"	52"	17"	64"
84"	32"	19"	56"	19"	68"
96"	36"	21.5"	60"	21.5"	72"

* See the American Nursery & Landscape Association standards for definitions of plant types.

**CONIFEROUS EVERGREENS
TYPES 4, 5***

SIZE (HT) WHEN PLANTED	MINIMUM SIZE				MULCH RING DIAMETER
	BALL		PLANT HOLE		
	DIAMETER	DEPTH	DIAMETER	DEPTH	
12"	10"	6.5"	34"	6.5"	46"
18"	10"	6.5"	34"	6.5"	46"
24"	12"	8"	36"	8"	48"
36"	14"	9"	38"	9"	50"
48"	16"	10"	40"	10"	52"
60"	20"	12"	44"	12"	56"
72"	22"	13"	46"	13"	58"
84"	24"	14"	48"	14"	60"
96"	27"	16"	51"	16"	63"
108"	30"	18"	54"	18"	66"
120"	34"	20.5"	58"	20.5"	70"
144"	34"	20.5"	58"	20.5"	70"
168"	42"	25"	66"	25"	78"
192"	46"	27.5"	70"	27.5"	82"

* See the American Nursery & Landscape Association standards for definitions of plant types.

BALLING & BURLAPPING SPECIFICATIONS

The following tables represent the recommended minimum sizes for trees which are grown in a nursery under favorable conditions

**CONIFEROUS EVERGREENS
COLUMNAR CONIFERS (TYPE 6) ***

SIZE (HT) WHEN PLANTED	MINIMUM SIZE				MULCH RING DIAMETER
	BALL		PLANT HOLE		
	DIAMETER	DEPTH	DIAMETER	DEPTH	
12"	10"	6.5"	34"	6.5"	46"
18"	10"	6.5"	34"	6.5"	46"
24"	12"	8"	36"	8"	48"
36"	14"	9"	38"	9"	50"
48"	16"	10"	40"	10"	52"
60"	20"	12"	44"	12"	56"
72"	22"	13"	46"	13"	58"
84"	24"	14"	48"	14"	60"
96"	27"	16"	51"	16"	63"
108"	30"	18"	54"	18"	66"
120"	34"	20.5"	58"	20.5"	70"
144"	34"	20.5"	58"	20.5"	70"
168"	42"	25"	66"	25"	78"
192"	46"	27.5"	70"	27.5"	82"

* See the American Nursery & Landscape Association standards for definitions of plant types.

**DECIDUOUS SHRUBS
TYPES 1, 2, 3, 4, 5 ***

SIZE (HT) WHEN PLANTED	MINIMUM SIZE				MULCH RING DIAMETER
	BALL		PLANT HOLE		
	DIAMETER	DEPTH	DIAMETER	DEPTH	
12"	8"	5'	32"	5"	44"
18"	9"	6'	33"	6"	45"
24"	10"	6.5'	34"	6.5"	46"
36"	12"	8'	36"	8"	48"
48"	14"	9'	38"	9"	50"
60"	16"	10'	40"	10"	52"
72"	18"	12'	42"	12"	54"
84"	20"	12'	44"	12"	56"
96"	22"	13'	46"	13"	58"
108"	24"	14'	48"	14"	60"
120"	26"	15.5'	50"	15.5"	62"

* See the American Nursery & Landscape Association standards for definitions of plant types.

BARE ROOT SPECIFICATIONS

The following table represents the approved minimum root spread for nursery-grown shade trees

**SHADE AND FLOWERING TREES
TYPES 1, 2, 3, 4 ***

SIZE (CAL.) WHEN PLANTED	MINIMUM SIZE				MULCH RING DIAMETER
	ROOT		PLANT HOLE		
	SPREAD	DEPTH	DIAMETER	DEPTH	
1/2"	12"	8"	36"	8"	48"
3/4"	16"	9"	40"	9"	52"
1"	18"	10"	42"	10"	54"
1 1/4"	20"	12"	44"	12"	56"
1 1/2"	22"	12"	46"	12"	58"
1 3/4"	24"	13"	48"	13"	60"
2"	28"	14"	52"	14"	64"
2 1/2"	32"	17"	56"	17"	68"
3"	38"	19"	62"	19"	74"

* See the American Nursery & Landscape Association standards for definitions of plant types.

BARE ROOT SPECIFICATIONS

The following table represents the approved minimum root spread for nursery-grown deciduous shrubs

**DECIDUOUS SHRUBS
TYPES 1, 2, 3, 4, 5 ***

SIZE (HT) WHEN PLANTED	MINIMUM SIZE				MULCH RING DIAMETER
	ROOT		PLANT HOLE		
	SPREAD	DEPTH	DIAMETER	DEPTH	
18"	10"	6.5"	34"	6.5"	46"
24"	11"	8"	35"	8"	47"
36"	14"	10"	38"	10"	50"
48"	16"	12.5"	40"	12.5"	52"
60"	18"	14"	42"	14"	54"
72"	20"	17"	44"	17"	56"

* See the American Nursery & Landscape Association standards for definitions of plant types.