UNIVERSITY OF MINNESOTA | EXTENSION

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Right Plant, Right Place, Right Purpose!

SUSTAINABLE LANDSCAPE DESIGN …

- Emphasizes plant health and longevity.
- Is important regardless of budget or maintenance level.
- Unsustainable landscapes:
- Lack of soil preparation
- Improper plant selection.

THE 5 CONSIDERATIONS OF SUSTAINABLE DESIGN

- Functional - What you do in your landscape.
- Maintainable - How you take care of your landscape.
- Environmentally sound - Landscaping to minimize long-term impact.
- Cost effective - Doing things the right way to and your wallet.
- Visually pleasing - What do you want to see in your landscape?

IN SUSTAINABLE DESIGN, PLANTS ARE SELECTED BASED ON:

- Design use - *The plant's design purpose in the landscape – tree, key, specimen, accent, group, mass*
- Plant elements of design - *A plant's characteristics and optimal growing conditions.*

Design use: Trees

- Purpose: Structure – the "bones" of the landscape
- Create shade / sun areas.
- Influence all other plants you will choose.

Design use: Key

- Purpose: To rounded to soften architectural features and hardscape.
- Visible
- Planted individually or groups of three – "key group".
- Combine large and small key plants.
- Help transition from building to ground.
- No pyramidal plants.

Design use: Accent

- Purpose: To guide a visitor through a landscape.
- Form specific
- Year-round emphasis
- One or three plants
- Often evergreen
- Lots of texture
- Foliage color and bark
- A focal point (not always a plant)
- If used incorrectly, accent plants draw attention to the harsh edges of a building...

Design use: Specimen

- Purpose: To provide seasonal interest in flowers, foliage, and fruit.
- Planted individually.
- May go in / out of season.
- May be a key plant as well.

Design use: Species /cultivar group

- Purpose: To provide a backdrop to highlight other plants.
- Same species or cultivar.
- Help transition.
- Odd number
- Individual plants are distinguishable.

Design use: Mass

- Purpose: To create unity through repetition.
- Same species
- Individuals indistinguishable.
- Read as one element.
- Finest texture

In addition to design use, plants are selected based on the <u>Plant Elements of Design.</u>

- Type of plant
    - Woody plants - Trees, shrubs, groundcovers, woody vines
    - Herbaceous plants - Annuals, perennials, biennials, wildflowers, ferns, herbs, groundcovers

- Size
    - Always select for mature size
    - Measure your space available for a plant.
    - Plants too large for space will:
        - Grow into neighboring plants, buildings, over windows, block doorways, walkways, paths, patios, and power lines

- Texture - Coarse, Medium-coarse, Medium, Medium-fine, Fine
    - Texture of a plant can change depending on how elements are combined
    - The finer the texture of the plant, the greater the number required.

- Form – round, mounded, upright, vase-shaped, arching, spreading, etc.

- Seasonal interest & color: Spring - early, mid, late; Fall - early, mid, late; Summer - early, mid, late; Winter

- Cold Hardiness http://planthardiness.ars.usda.gov/PHZMWeb/
    - 13 US zones based on average annual extreme temperature;
    - Zone 1 (-60 to -55 ^{o} F) to Zone 13 (65 to 70^{o} F)

- Soil
    - The foundation of a landscape.
    - Sustainability is lost through poor soil preparation and improper plant selection.
    - U of M Soil Test Lab http://soiltest.cfans.umn.edu/
    - Common soil terms / classifications
        - Compacted, dry, wet, clay, loamy, sandy, well-drained, poorly drained, salt-tolerant, high organic matter, pH (alkaline, acidic), coarse, medium, fine

- Most plants can survive in a wide range of soil conditions when given proper care.
- Drought & moisture

- Sun & shade
    - Full Sun - 6+ hrs sun
    - Part Sun - 3-6 hrs sun
    - Light Shade (dappled)
    - Part Shade - 3-6 hrs shade
    - Full Shade
    - Less than 3 hrs sun
    - Heavy Shade
    - Almost to no sun
    - Winter Sun /shade

- Pest resistance – Insects, diseases & weeds
    - Keep plants healthy so they can out-compete pests and weeds.
    - Choose plants with disease resistance whenever possible.

TAKE-HOME MESSAGES

1. Project in mind? Start with the 5 considerations of sustainable design
    - Function, maintenance, environment, cost, visual appeal
2. Test your soil and follow recommendations
3. Study your site: sun, shade, space
4. Choose plants that thrive – not just survive! - in your site conditions

ADDITIONAL RESOURCES

Sustainable Urban Landscape Information Series (SULIS) http://www.extension.umn.edu/garden/landscaping/
University of Minnesota Extension Horticulture http://www.extension.umn.edu/garden

Plant Databases
Plant Elements of Design http://landscapeplants.extension.umn.edu/
Minnesota Department of Natural Resources http://www.dnr.state.mn.us/nr/
US Department of Agriculture http://plants.usda.gov/
Minnesota Landscape Arboretum https://plantinfo.umn.edu/arboretum/default.asp
U of MN WROC Annual Flower Research Results http://wcroc.cfans.umn.edu/flower-research-results

Plants for pollinators
Holm, Heather, *Pollinators of Native Plants,* Pollination Press LLC, Minnetonka, MN. 2014
"Insect Pollinator Best Management Practices for Minnesota Yards and Gardens", MN Dept.of Agriculture, 2014. http://z.umn.edu/mdabees
"Plants for Bees", UMN Dept. of Entomology Bee Lab, 2014, http://beelab.umn.edu/Education/index.htm
The Xerces Society for Insect Conservation, http://www.xerces.org/

Associations & Societies
Minnesota State Horticultural Society (MSHS) http://www.northerngardener.org/
Minnesota Nursery & Landscape Association (MNLA) http://www.gardenminnesota.com/
Minnesota Turf & Grounds Foundation (MTGF) http://www.mtgf.org/
American Horticulture Society (AHS) http://www.ahs.org/
American Society of Landscape Architects (ASLA) http://www.asla.org/

Public & Botanical Gardens

American Public Garden Association http://www.publicgardens.org/
Botanic Gardens http://www.botanicgardens.org/pageinpage/home.cfm
Chicago Botanic Garden http://www.chicagobotanic.org/
United States Botanic Garden http://www.usbg.gov/
Brooklyn Botanic Garden http://www.bbg.org/
Missouri Botanic Garden http://www.mobot.org/
Como Park Zoo & Conservatory http://www.comozooconservatory.org/
Noerenberg Gardens https://www.threeriversparks.org/parks/noerenberg-gardens.aspx

QUESTIONS OR COMMENTS?

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