

#ASLA2018

Mythbusting Soils and Trees for Evidence-based Practice
Session SUN-B07 Sunday, October 21, 2:30-4pm

Learning Objectives:

1. Understand the most common myths/misconceptions in designing trees and soil in the urban landscape.
2. Learn the correct practice response related to each myth and how they create new “best practice”.
3. Learn the progression of scientific findings, their relative validity, and best practices that support different approaches to trees and soils.
4. Hear lessons learned when practitioners challenge goes against the grain of accepted practice to fight for a different way of designing trees and soils.

Outline:

1. Introduction

- a. The spectrum of how we make decisions as Designers
 - i. What are myths/misconceptions?
- b. What is the impact of myths and assumptions in practice?
- c. Two parts, Soils and Trees, with the same goal
- d. Mythbusting and Design: Knowledge base / Reality check / Design base

2. MYTH: reuse of subsoils is bad

- a. Rock, Debris and Clumps are good
 - i. Increase in soil porosity
 - ii. Up to 15% of soil volume can be rock/debris
 - iii. Greater the clumps (peds), the better
- b. Soils should not be screened
 - i. Screening damages soil structure and drainage
 - ii. Screening of clay and silt particularly problematic
- c. Clay soil is good
 - i. Unscreened clay soil is suitable for stormwater and trees
 - ii. Soils with large amounts of clay can drain well
 - iii. Soils with large amounts of clay are more resilient than sandy soils

3. MYTH: urban soils are unusable

- a. Imported new soil is not required
 - i. Decompaction and compost can be a simple solution
 - ii. Benefits of local soil biology
 - iii. Reuse is sustainable
- b. Assessment of existing soils is possible
 - i. Historic use research
 - ii. Existing plant performance as an indicator
 - iii. Limited soil investigation

4. **MYTH: 1000 cu ft of soil is required for large trees**
 - a. 1000 cu ft provides for a healthy 15-20 inch trunk diameter
 - b. Volume calculation is for loam based soils. A larger volume is likely needed for manufactured sand based soils
 - c. If existing soil is available, less soil is needed!
5. **MYTH: Soil design is for experts only**
 - a. Landscape architects can perform soil investigations, construction observations, write specs and review submittals
 - b. Urbantree.org reference specs and details
6. **MYTH: More compost is good**
 - a. Located compost in top 4-6 inches of soil profiles
 - b. High compost ratio in “topsoil” soil mixes
 - c. Compost deeper in soil profile can accelerate anaerobic conditions
 - d. Excessive compost leads to soil shrinkage and settlement
 - e. Compost is not the same as Soil Organic Matter
 - f. Over 50% of the mass of the compost feed stock becomes CO2 into atmosphere
7. **MYTH: Sand is a sustainable part of soil design**
 - a. Strip sand mining is as harmful as other forms of strip mining
 - b. Sand has a high embodied energy in construction
 - c. There are worldwide sand shortages
8. **MYTH: There is a limited supply of top soil**
 - a. Ample supply of B & C profile soils that can be amended
 - b. Majority of markets have available loam soils
 - c. Some markets like Boston or Miami would rely on more local sand based soils
9. **MYTH: All soil under paving options are the same**
 - a. Post and Deck structural cells offer more volume and access
 - b. Different irrigation needs and available soil volumes
 - c. Incorporating suspended paving system into garage structure is cost deceptive!
10. **MYTH: Structural cells are the too expensive**
 - a. Cost per cubic feet of effective soil volume
 - b. If budget restricted, better off providing less soil volume that is more effective
11. **MYTH: A warranty will assure survival**
 - a. Designers can influence the warranty
 - b. Methods for improving survival:
 - i. Tree selection
 - ii. Siting
 - iii. Planting systems
12. **MYTHS: Trees don't perform in hardscape**
 - a. Selecting for the hardscape microclimate
 - b. Resolving hardscape systems with soil requirements
 - c. Even vs Concentrated watering
 - d. Limitations of tree openings
13. **MYTH: Tree utilities are essential for survival**
 - a. Tree utilities lifespans vs installation lifespan
 - b. Common Utilities and their hiccups
 - i. Cleaning
 - ii. Pests
 - iii. Filter fabric clogging
14. **MYTH: Trees cannot be sited near utilities**
 - a. What kinds of damage do we see/our clients are concerned about
 - b. How to frame our/client/stakeholder expectations:
 - i. Balancing conflicts with Design

- ii. Conduct early conversations with agencies
 - iii. MOUs
- c. Strategies for working around utilities
 - i. Siting
 - ii. Barriers
 - iii. Developing flexible details

15. Conclusion

- a. Grounding decision making
- b. How to find resources
 - i. Urbantree.org
 - ii. Treefund.org
 - iii. Arborculture & Urban Forestry journal
- c. How to help push the field
 - i. Teaming with arborists, horticulturalists, and soil scientists
 - ii. Attend non-ASLA lectures (ISA, Soil and Land Conservation, sustainable Farming, Nursery Associations).
 - iii. Budget time to revisit project sites
 - iv. Research and try new applications (soil-less soil, biochar, etc.)
 - v. Review specs and proposed process with contractors

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