

Trees & Construction

ASCA 2022 Annual Conference

Background

The International Society of Arboriculture is updating the *Managing Trees During Construction Best Management Practices*. The Third Edition incorporates new science and the experiences of dozens of arborists working around the world.

Definitions

critical root zone (CRZ) – area of soil around a tree where the minimum amount of roots considered critical to the health of the tree or structural stability are located.

tree protection zone (TPZ) – area within which certain activities are prohibited or restricted to prevent or minimize potential injury to designated trees, especially during construction or development. The TPZ should encompass the Critical Root Zone, based on the judgment of the arborist.

calculated tree protection zone – a TPZ that is calculated using the trunk diameter and a multiplication factor based on the species tolerance to construction and age of the tree.

specified tree protection zone – a TPZ that is adjusted in size or shape to accommodate the existing infrastructure, planned construction, and specific aspects of the site, while also taking into consideration tree canopy conformation, visible root orientation, size, condition, maturity, and species response to construction.

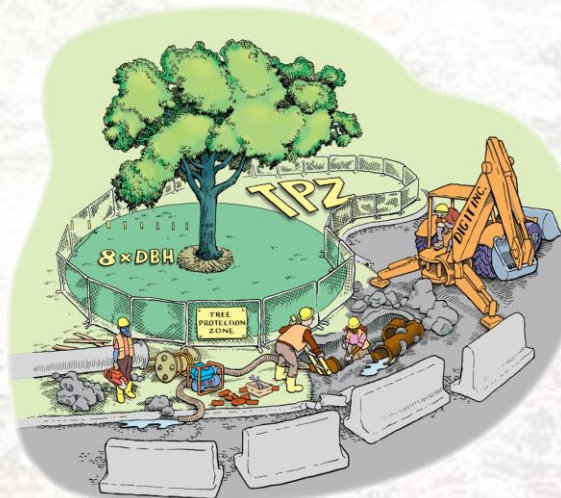
Additional Resources

[ISA's Best Management Practices for Construction near Trees Video](#)
[Why Definitions Matter: The Tree Protection Plan and Critical Root Zone](#) Arborist News December 2021

[A test of tree protection zones: Responses of *Quercus virginiana* trees to root severance treatments](#) Urban Forestry & Urban Greening February 2019

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Development Phase	Arborist involvement
Planning	Resource evaluation Permitting needs Suitability for preservation Tree Inventory
Design	Tree impact assessment Tree protection plan Tree Protection Zones (TPZ) Landscape plan review
Pre-construction	Contractor communication TPZ barrier installation Arboricultural treatments
Construction	Site monitoring Assessing impacts Maintaining TPZ Arboricultural treatments
Landscaping	Site Monitoring TPZ barrier adjustments Mitigate tree impacts
Post-construction	Site Monitoring TPZ barrier removal Mitigate tree impacts Plan for maintenance

Species Tolerance to Construction Damage	Relative Tree Age*	Multiplication Factor for Trees in Good Condition
High	Young or semimature	6
	Mature	8
	Old	12
Medium	Young or semimature	8
	Mature	12
	Old	15
Low	Young or semimature	12
	Mature	15
	Old	18

*Young to semimature = less than 40 percent life expectancy, Mature = 40 to 80 percent life expectancy; old = greater than 80 percent life expectancy