UE 5
PROTECT STREET TREES
FROM CONSTRUCTION ACTIVITIES

New York City Building Code
Proposal developed by the Site & Site Stormwater Committee

Summary

Issue:
While sidewalk sheds protect pedestrians during the construction, maintenance and inspection of buildings, they can cause considerable damage to trees. Limbs are often damaged or removed, and the trees are cut off from access to sun and moisture, often resulting in the weakening or even death of the tree.

Recommendation:
During construction, require that street trees be protected and watered, and that any pruning be performed by a professional.

Proposed Legislation, Rule or Study

Amendments to the New York City Building Code:

1. Amend Section 3302 by adding the definition of “certified arborist”:

   CERTIFIED ARBORIST. A person designated as a certified arborist in accordance with rules or guidelines established by the department of parks and recreation.

2. Amend Section 3307.6.3 as follows:

   3307.6.3 Design of sidewalk sheds. All sidewalk sheds shall meet the following design requirements:

   1. All sidewalk sheds shall be designed by an engineer.

   Exception: Sidewalk sheds that follow a standard design approved by the department or the Board of Standards and Appeals.

   2. If any tree trunk or tree canopy will be located within the area of a sidewalk shed, a certified arborist shall develop and submit a mitigation plan to the department prior to the construction of any sidewalk shed. Any required pruning or limb removal shall be performed by a certified arborist prior to construction of the sidewalk shed. Such mitigation plan shall:

     a. include photographs of the existing street trees in accordance with the protocols of the department of parks and recreation for photographing trees;

     b. describe the tree pruning and limb removal to be performed by a certified arborist along with adjustments to the design of the sidewalk shed necessary to protect and accommodate the existing street trees, including notching of any decks or railings; and

     c. identify the appropriate times of year within the project schedule for any tree pruning or limb removal and a schedule/timeline for undertaking any such work.

   3. Sidewalk sheds shall not extend over the crown of any tree, nor shall any tree leader be removed. No more than 20% of the limbs of any tree shall be removed during pruning.

3. Add a new paragraph 9 to Section 3307.6.4 as follows:

   9. After the removal of the sidewalk shed, a certified arborist shall inspect the trees, perform any further compensatory pruning as required, and may order the removal or replacement of any trees that have been too damaged to survive. The caliper of any replacement trees shall be a minimum of 4 inches. Sign off for the project shall include documentation of any tree replacements specified by the certified arborist.
4. Add a new definition to Section 3302.1 as follows:

   **DRIP IRRIGATION BAG.** A polyethylene plastic bag with nylon webbing that is placed around the base of a tree to provide water.

5. Add a new paragraph 3 to Section 3307.6.5 as follows:

   3. Trees covered by sidewalk sheds shall be equipped with drip irrigation bags to provide water and shall be refilled weekly during the period for which the sidewalk shed is erected.

**Supporting Information**

**Issue – Expanded**
Sidewalk sheds are a regular feature of the New York City streetscape due to construction activity and façade inspections. Each year, the Department of Buildings issues tens of thousands of building permits for new construction and building renovations and Local Law 11 requires erection of scaffolding and sidewalk sheds to perform façade inspections and maintenance. As of February 2008 there were 4500 sidewalk sheds in place throughout the 5 boroughs.

Unfortunately, sidewalk sheds can damage and even kill trees. Sidewalk sheds cast shade over sidewalk trees, prevent rainwater from reaching tree roots and damage tree crowns. The installation of sidewalk sheds or construction activity sometimes damage tree leaders (main vertical limb), resulting in permanent deformation of trees so that the tree no longer grows vertically. Broken side branches that are not removed with clean cuts provide avenues for diseases and can eventually cause the demise of trees.

**Environmental & Health Benefits**
Tree survival and growth will increase shading around the city, lowering the street temperature in the summer and reducing the demand for air conditioning in buildings. Trees also absorb air pollutants and carbon (NYC trees absorb 42,300 tons per years), which helps to counteract the urban heat island effect.

This proposal was found to have a low, positive environmental impact per building and to impact a large number of buildings. It was thus given an environmental score of 2.

This proposal was found to have no significant positive health impact.

**Cost / Savings**
As described in the Executive Summary, Bovis Lend Lease prepared cost estimates for each Task Force proposal in the context of well-defined construction projects in specific buildings. Where possible, members of the Technical Committees prepared savings estimates for some of these projects and buildings. These cost and savings estimates are presented in the February 1st draft version of Appendix A. The innate uncertainty in how construction and operation will vary from one building to another, the complexity of the Task Force proposals, and the wide range of applications in which the proposals may be realized mean these figures are truly estimates.

This proposal was estimated to increase first capital costs by 0.0% to 0.01%, depending on building type. It was thus categorized as incurring no to a low capital cost increment.

**Precedents**
The City of Hayward, California has a Tree Preservation Ordinance that requires a permit to disfigure or remove a protected tree. The ordinance defines protected trees as certain species, trees of certain height and width, street trees, memorial trees, and trees that are planted to replace protected trees. Several jurisdictions around the world also require protection of tree during construction, including the United Kingdom and the City of Sidney, Australia.

**LEED**
For new construction projects, this proposal may facilitate achieving LEED NC-SS Cr.5.1 Protect or Restore Habitat. Though LEED pertains to the property itself, if adjacent sidewalks are deemed part of a “site”, then street tree protection could become part of the 50% “protected” area under Option 2. LEED 2009 allows a 20% protected region for the total site (including building footprint) if that total site area exceeds the site area with the building footprint excluded.

For existing building projects, this proposal may facilitate achieving LEED EB-SS Cr.1 & 1.2 Green Site and Building Exterior Management. This credit requires developing a plan to preserve ecological integrity. Tree protection could be included as one component of such management plan.

This proposal may also facilitate achieving LEED for Homes SS Cr. 1.2 Site Stewardship, which refers specifically to a tree or plant preservation plan; and LEED ND GCT Cr.7 Option 3, Minimize Site Disturbance During Construction, which relates entirely to tree protection.
UE 5: PROTECT STREET TREES FROM CONSTRUCTION ACTIVITIES

IMPLEMENTATION & MARKET AVAILABILITY
The region has many ISA certified arborists that are very competitively priced. Hourly rates in the NYC area range from $16.50 to $23.50 per hour. Drip irrigation bags (gator bags) cost $16.50 per 20-gallon bag and are manufactured by many companies.

NOTES
Drip irrigation bags must be sized according to tree caliper. A 20 gallon-capacity bag (standard size) is recommended for a 1” – 4” caliper tree; a 50 gallon-capacity bag is recommended for a 4” – 8” caliper tree.

ENDNOTES:

2 Id. at § 10-15.12 (defining "certified arborist," "cutting," "damage" and "disfigurement").