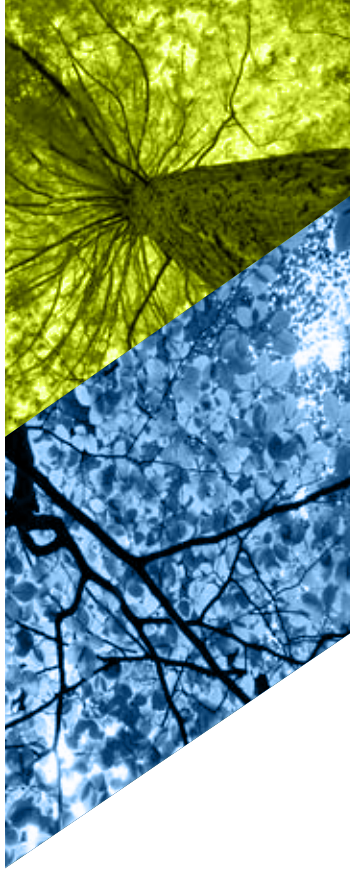

Buildings near trees

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Buildings near trees

It is possible to construct new buildings near trees, without adversely affecting their health, if care is taken in the design and installation. This is most commonly achieved by supporting the base of the building just above ground level with a framework of narrow diameter piles that require very little excavation into the soil.

Piles are good because they can either be drilled or banged into the soil with very little disturbance to existing roots, which is why this is a preferred method. The building base is then constructed above ground level, which allows the roots to keep growing and the tree to be retained.

It is essential that the framework for the base of the building is above the existing ground level so that air and water can get to the soil surface and the roots below.

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Buildings near trees

Ringwood case study

This property was built in the late 1990s on a heavy clay soil, but without a garage. The soil in the rear garden had been heavily compacted during the construction and the new owner wanted a double garage. The only place to put it was about 4m from a mature oak, which had a root protection area requirement of about 8m. The planning conditions required that remedial work was undertaken to the soil near the tree to improve the rooting environment and that the garage was built on piles to minimise any further disturbance. The new garage was completed in 2002 and the tree is still present with no obvious signs of decline.

The oak in the foreground with the completed double garage about 4m away.

Close up of the floor slab showing the biodegradable void-former layer, resting on the soil surface, which supported the poured concrete of the floor until it had set.

The newly installed piles stick up out of the ground ready for the temporary shuttering that the concrete base will be poured into.

A similar view from the entrance off the public road with the void-former stacked beneath the green sheet ready for use as a temporary floor base.

Wooden pegs and boards are the shuttering used to form the temporary side framework for the concrete floor, which will be eventually supported by the piles that can be seen sticking out of the ground.

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With the shuttering in place and the void-former acting as the temporary base, the reinforcing steel links the top of each pile to the main floor ready for pouring the concrete. Note the drain in the foreground that will redirect rainwater from the roof beneath the floor through a pre-installed drainage distribution loop.

The completed garage and tree in 2002.

Five years after completion, the tree shows no signs of any adverse impact.

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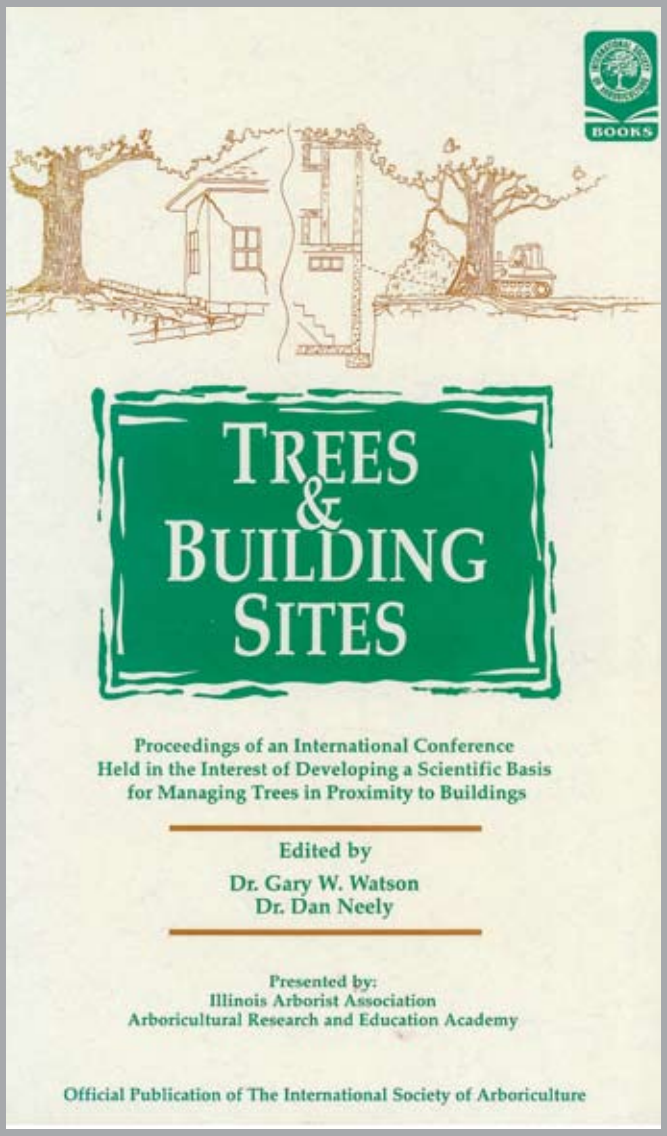
Buildings near trees

Case study for the Waucanda Bank, Chicago, USA

There are numerous international examples of buildings being placed very close to existing trees. In 1995, Jeremy Barrell was speaking at a Conference in Chicago and visited the Waucanda Bank, where Larry Hall, an eminent US arborist, had overseen an extension project very close to mature trees. As Larry's more recent photos show, the trees survived and are doing very well after 10 years.



Read the full story of this project from the account published in this ISA book.

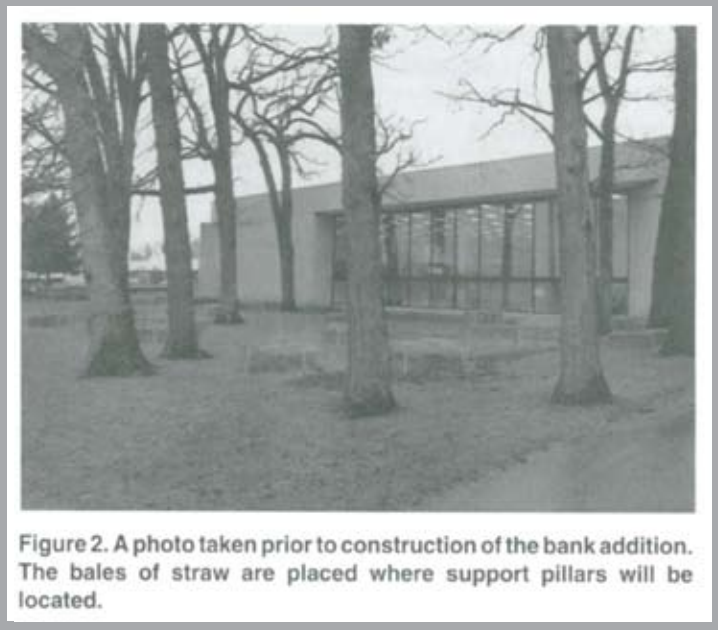


Figure 2. A photo taken prior to construction of the bank addition. The bales of straw are placed where support pillars will be located.

Extract from the article showing the site before the building extension.

The completed building in 1995 with mature trees within the building footprint.

The void beneath the building with its floor supported above the undisturbed soil surface.

The whole structure is supported above ground level by foundation pads, which caused relatively little damage to roots and the rooting environment.

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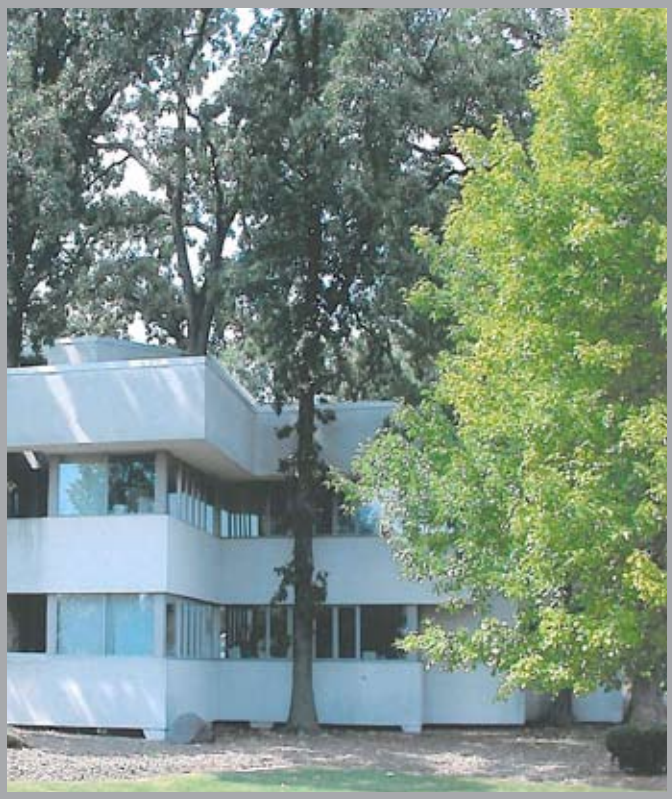
Building near trees



A large oak extends up through the building in 1995 with the same tree (far left of left photo) still flourishing in 2003.