Lesson

4

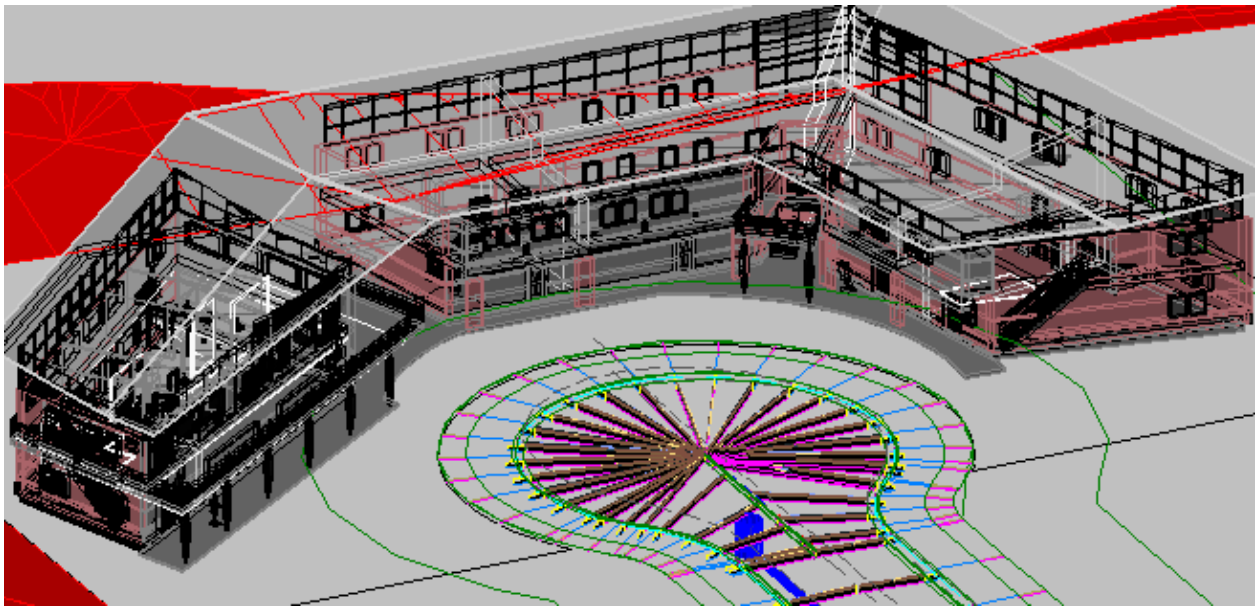
# Integrating Architectural and Site Design

## Overview

In this lesson, students learn how to combine building design data with civil engineering design data. In some circumstances it is helpful to be able to visualize both the architectural and civil engineering components of a project at the same time. Architectural data typically consists of information above the ground, and includes buildings as well as all of the components within buildings. Civil engineering data usually consists of information representing the ground surface and below, and can include roads, site grading, and sewers.

Large site development projects often involve a public participation process, where the public and other interest groups are given the opportunity to provide input on a proposed project. A very effective means to portray the intent of a project is to use 3D visualization techniques.

When you combine architectural and site design data, you get an accurate representation of the proposed works for both above ground and below ground construction. This is shown in the following illustration:



## Objectives

After completing this lesson, students will be able to:

- Describe the Autodesk® Revit® Architecture software application.
- Explain how to incorporate a Revit building model with a Civil 3D site design model.
- View a model in 3D.

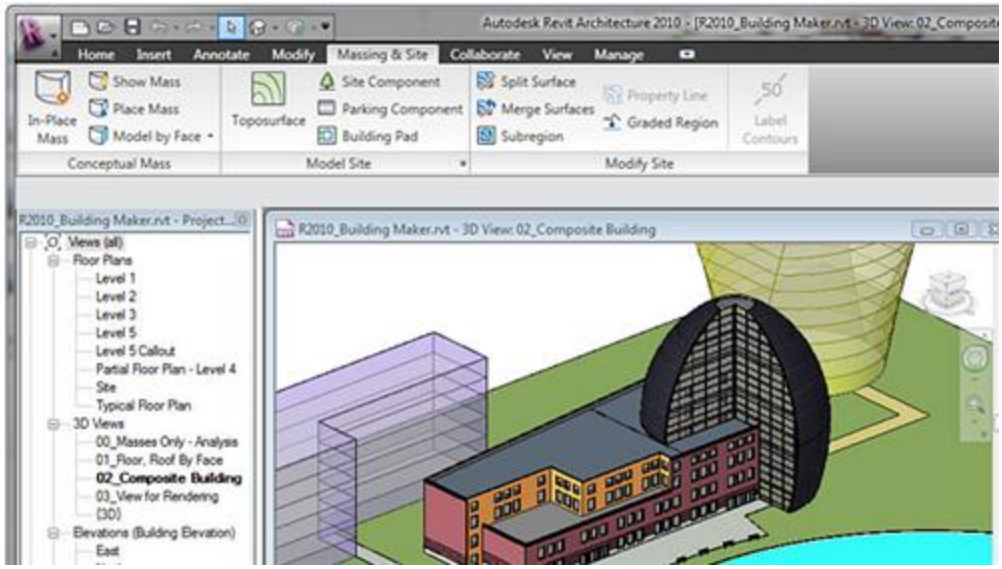
## Exercises

The following exercise is provided in a step-by-step format in this lesson:

1. Insert a Revit Model

## About Autodesk Revit Architecture

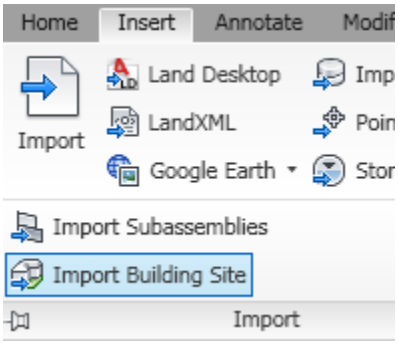
Autodesk Revit Architecture is a model-based architectural design software used to design buildings. Revit Architecture takes into consideration building components such as foundations, structural members, windows, doors, roofs, and all other building details.




Architects use Autodesk Revit Architecture to generate building design options, final designs, details, construction scheduling, quantity material takeoff, and design visualization. Revit Architecture data files are in a completely different format from AutoCAD® Civil 3D® data files. You can export data from Revit Architecture and import it to Civil 3D.

## Import a Building Site

To insert a Revit Architecture building to a Civil 3D drawing, you use the Import Building Site command. This command can be found on the ribbon, Insert tab, Import panel.

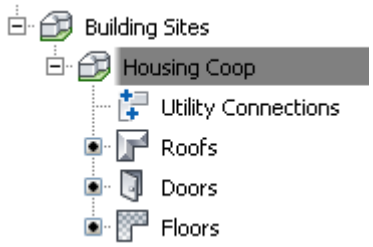



When you import a building site you need to:

- Specify the file: a Revit building site is contained in a file with an adsk (*.adsk) extension.
- Specify a name for the Civil 3D building site.
- Specify the insertion coordinates (if necessary).

If the architect uses the same coordinate system as the civil engineer, then there is no need to specify insertion coordinates.

The Civil 3D Building Site appears as an expandable tree in Prospector, and shows the building components. These are shown in the following illustration:

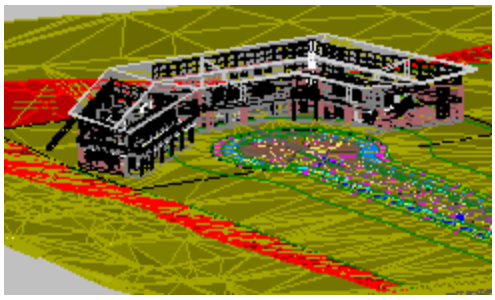



## Key Terms

| | |
|---|---|
| Revit Architecture | An Autodesk software application used for designing buildings. |
| Building Site | A Civil 3D object used to store the Revit building model. |

## Exercise 1: Insert a Revit Model

In this exercise, students insert a Revit architectural model containing a building to your Civil 3D drawing.



For this exercise open *…\M_InsertRevitModel_EX1.dwg.*

# Assessment

## Challenge Exercise

Instructors provide a master or challenge exercise for students to do based on this lesson.

## Questions

1. What is the Autodesk Software application used to create architectural and building designs?
2. What is the Import Building Site command used for?
3. Why is it important to view architectural data in conjunction with civil engineering data?
4. What is the Civil 3D object used to show architectural data?

## Answers

1. Revit Architecture
2. The Import Building Site command is used to import an Autodesk Revit building model to AutoCAD Civil 3D.
3. Many projects involve a participation process with special interest groups. This process makes use of 3D models that show the project plans for both above and below ground conditions. It is important to visualize how the building interacts with the civil engineering aspects of the site.
4. A Building Site.

# Lesson Summary

In this lesson, students learned how to combine architectural data and civil engineering data into a single model. Students imported a Revit Architecture model to a Civil 3D Building Site, and reviewed the data in 3D and in Prospector.