

## Technologies for Creating Efficient Workflow Between 2-D AutoCAD Drawings and 3-D SketchUp Models in the Preparation of Planting Plans<sup>®</sup>

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Landscape planting designs are commonly created in two-dimensional plan view using AutoCAD or other similar software applications. Drawings produced by these programs provide detailed information on horizontal placement of site elements, but offer little to designers or clients regarding the three-dimensional spatial relationships that are critical to successful designs. Three-dimensional models created using Google SketchUp or similar applications provide designers and clients with realistic virtual images that can be viewed from an infinite number of viewpoints. Both AutoCAD and SketchUp can be used for landscape design development, but each has a unique user interface and output. AutoCAD and SketchUp both have their strengths and weaknesses, but by integrating the two together, we can improve upon both applications and increase our understanding of spatial relationships between the design elements.

Traditionally, when designing a landscape, the process is completed using a two-dimensional view. While the client may have a good understanding of the horizontal placement of site objects, they can have a difficult time visualizing what the design looks like in the third dimension. While traditional design methods have relied on horizontal placement of site elements, there are several benefits to building virtual 3D models in SketchUp. With the incorporation of this 3rd dimension, two-dimensional line work is translated into models with realistic spatial relationships. Size, scale, and proportion can be analyzed, not only in terms of length and width, but also in terms of height.

Drafting software remains an important part of the design process. Students in landscape design classes, utilizing these workflow applications, can produce 2-D AutoCAD drawings for landscape construction documents and plans, which in turn can be used to construct virtual models. Landscape design faculty, implementing workflow between these platforms, can potentially enhance the design process beyond simply representing 2-D design output. Anecdotal evidence indicates that students who employ this process have a better understanding of spatial relationships, scale, and proportion between the site elements.