

## *Structural Desktop March Newsletter*

### **“Object Translation” Software**

Many times we are asked: “What does your software do, and what is unique about your software?” The phrase that we have come up with to describe our software is “Object Translation.” The main function of our software is translating intelligent objects from one object-oriented program to another.

Many software packages are made more effective by the incorporation of intelligent, object-oriented design. Some examples are AutoCAD, with attributes, or Architectural Desktop and Revit with intelligent structural and architectural objects. Each of these programs is designed around a concept of providing a draftsman with the most effective representation of an object to insert into a document. The actual insertion, or drawing process, is still very manual. The draftsman is given tools to make a drawing piece-by-piece, and many different ways to modify or edit objects already in the drawing.

Structural Desktop, on the other hand, is primarily concerned with the automation of the process of creation contract documents. Structural Desktop is less about manual manipulation of intelligent objects, more about translation of objects that you already have...the analytical objects created in your design program.

Structural Desktop has three tiers of operation that reflect the learning curve for the program. The simplest use of Structural Desktop is to import an analytical file and generate drawings and material reports. This use includes offsetting the analytical model into a real-world construction model that represents the actual locations of objects relative to each other so that the 2D drawings are accurate.

As an object translator, SDT takes the “object information” from the analytical file and creates all the structural elements in seconds within AutoCAD as SDT objects, and provides tools to quickly manipulate groups of members to set true lengths, elevations, and other necessary manipulations. After the adjustments are complete, Structural Desktop can translate the SDT Model into AutoCAD Drawings. You have your choice of plan views, elevations in “X-Z” or “Y-Z” planes, or a 3D model made from AutoCAD Solids. We also provide a tool to translate your SDT model into an Architectural Desktop model.

When a user is comfortable with this, they are ready to use the full power of AutoCAD to create their original model in AutoCAD. Starting with an existing drawing or from a blank slate, you can create lines to represent members and transform this model into a Structural Desktop model, and then create an analytical file. As one of the premier CAD engines in existence, AutoCAD provides many tools for copying, aligning, trimming, extending, and in general creating a model very, very quickly AND with a high degree of precision.

Creating a model in the AutoCAD environment can be much faster than building a model in an analytical program. Structural Desktop has the ability to create intelligent objects

(i.e. members or elements) and therefore analytical models by changing AutoCAD lines and 3dfaces into Structural Desktop members and elements respectively. These objects can be given properties such as shape, densities, modulus of elasticity, etc. Structural Desktop allows its users to enter or alter many of the object properties through its various commands. We have an extensive library of sections for our Structural Desktop members. [Click here to see a list of current member sections.](#) Structural Desktop will create 3 and 4 point elements. Once the model is created then our program starts the work of “Object translation.”

Another “Translational” capability of SDT is the ability to turn a STAAD model into a RISA 3D model, or a STAAD model into a GT STRUDL model or a SAPS2000 model into a STAAD model. When Structural Desktop reads an analytical file, it turns that file into a neutral format that is the same regardless of the analytical program used. When you write the file back out, you have the option of creating any format that SDT supports. This is the third tier of SDT usage, where multiple analytical programs (either in-house or in collaboration) can be used and where the files can be created in SDT, used for analysis, used to create drawings, and then the model can be changed, the analysis re-run, and the drawings can be updated in part or in full.

To recap, SDT translates the objects of a model and thus the whole model collectively from SDT to the analytical and back, or from the analytical to SDT, or from one analytical to another. SDT is your “Object translational” tool. It takes information from one program and turns it into an input file for another. The possibilities are amazing when one thinks about SDT capabilities to interpret between so many different programs.

What is it about Structural Desktop that makes so different from the rest? It is our ability to automate this translation between so many programs. SDT has created a seamless transition between programs that need to talk to one another in order to speed up the engineering process. It deletes the endless task of taking one program’s output and inputting that information into another program. Structural Desktop has built a bridge between programs to enable information sharing that makes each program more efficient, and uses the strengths of each program to its fullest. While Object Oriented software presents you with many ways to do things manually, and may “argue” with you about how to do those things, SDT translates a Beam to a Beam and a Plate to a Plate...2D, 3D, Material Report, etc. Since the final drawings created in 2D by SDT are straightforward and simple AutoCAD drawings, you can finish your drawings any way you wish. Structural Desktop translates for you, then gets out of your way and lets you get your work done. That is why we call our program “Object Translation” Software.