

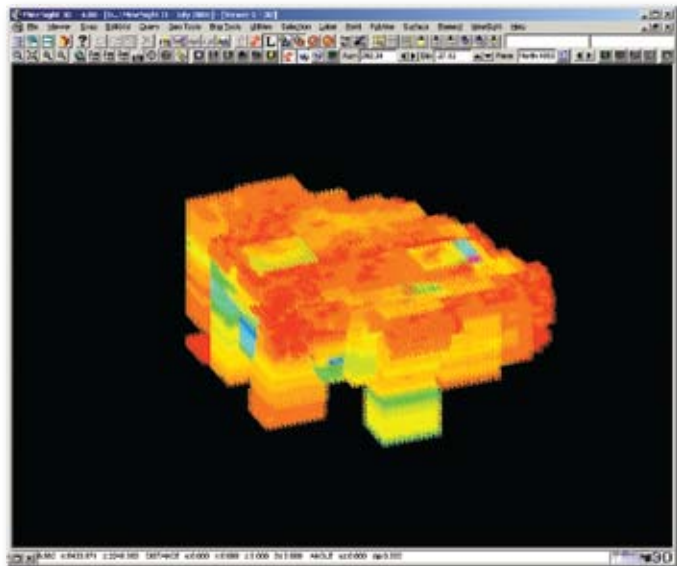


# How to Create Grade Shells

Grade Shells surfaces are a useful way to visualize a 3-D block model according to a particular grade value or a range of values. These grade values can be used to interpret and verify the model. If the transparency option is used, any abnormalities can easily be seen. Also, grade shells can be used for an above ground open pit mine or an underground mine.

A grade shell is generated with respect to a particular model. So, a **Model View** must be created. Any primary display item in the Block Model can be used as the primary item for the Grade Shell. Usually mineral, metal, or a rock type is chosen as the primary item. The model can be broken down into a series of grade shells. Each of these grade shells is saved as a unique Geometry Object.

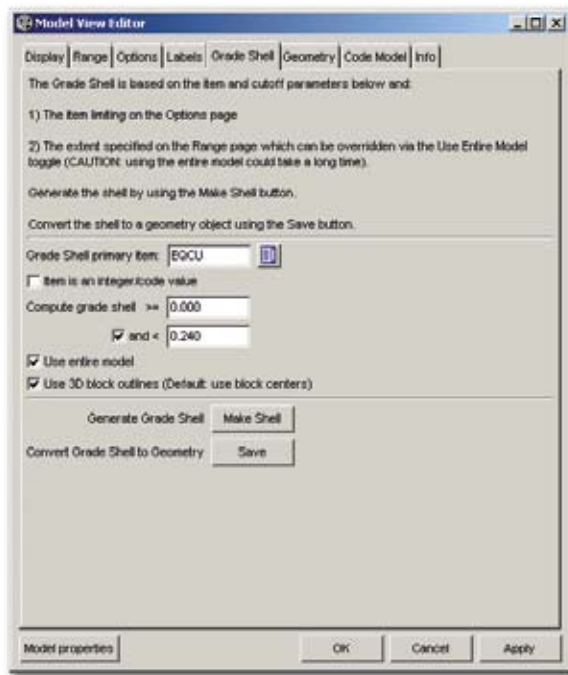
The steps for generating a grade are as follows;  
First, create the **Model View**.



Next, open the **Model View Editor** and go to the **Grade Shell** tab. Fill out the panel according to the specifications of the particular grade you want to generate. First, choose the Grade Shell primary item. In the panel below, the primary item used is EQCU. Next, decide which value(s) will be used to compute the grade. Is only one value or a range of values to

be used? The example below shows a range of values from 0 to 0.24. If you are creating a grade shell for a certain area, then define that region of interest on the **Range** tab. If using the entire model to compute the grade shell, check the toggle box. This will override whatever is specified on the **Range** tab. In the example, the entire model was used to compute the grade shell. If the Block Model is extremely large, a great deal of memory will be used. This can cause the program to run very slow and can be very time consuming.

Next, choose whether to use the block centers or the block outlines for creating the shell. The latter option is new in MineSight® v.4.0. The default uses the block centers. The block center method will create grade shells that are smoother and are useful in geological modeling. The block outlines method is useful for mine planners. The block outlines method uses the entire block unlike the block center method, in which part of the block can be missing or assigned to a different grade shell.

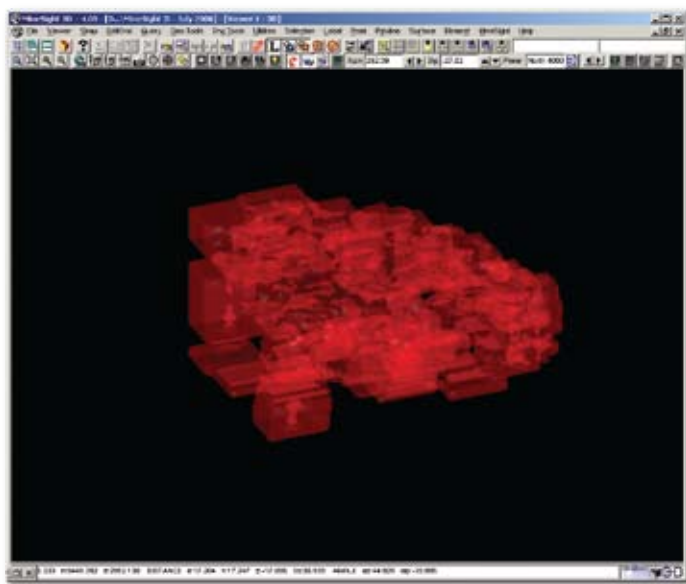


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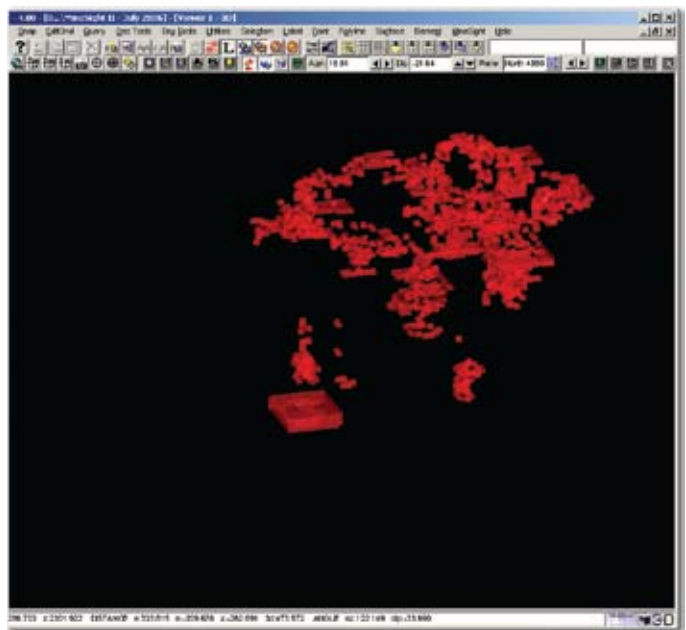
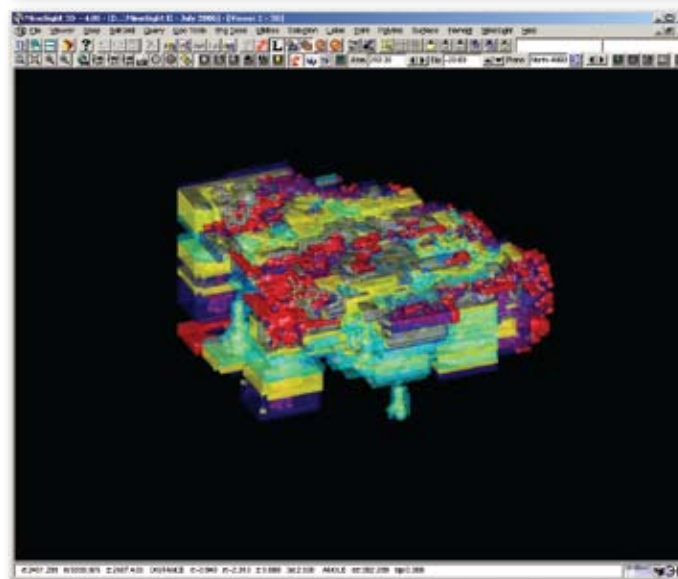
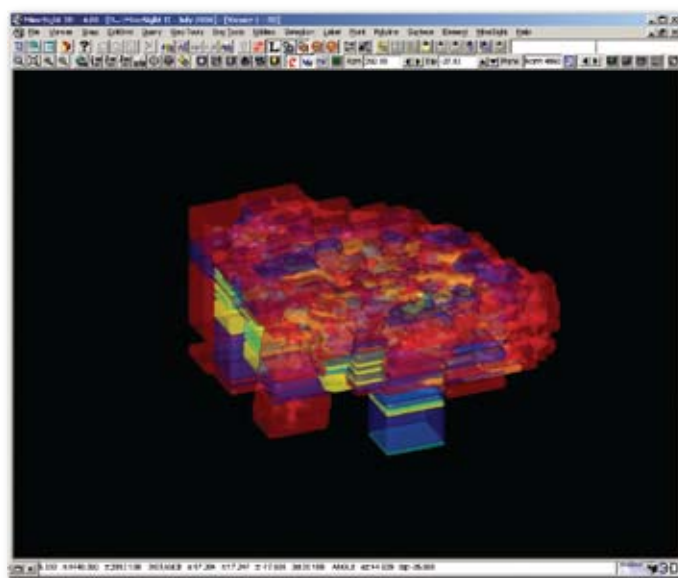
(How to Create Grade Shells continued from page 8)

Click on the **Make Shell** button, then click on the **Save** button. This will convert the grade shell to a Geometry Object. In the **Object Properties** of the newly created Grade Shell Geometry Object, set the global color, the transparency, etc.

As mentioned earlier, a series of grade shells with ranges of values can be generated from a block model.



The image above was created using the block centers option.



The image above was created using the block outlines option.

In order to visualize the inside of the grade shell, adjust the **Transparency** option under the **Surface** tab of the **Object Properties** window. If this option is grayed out, it is because your computer is using the msw video rendering mode. Transparency only works in OpenGL rendering. To switch to OpenGL, go to the %MEDEXE%\Support folder and select **Hoops\_opengl.reg**.

In both images above, four different grade shells were generated from the block model. The image on the top was created using the block centers option and the image on the bottom was generated with the block outlines option. Each grade shell was saved as an individual geometry object with its own unique properties. As the number of grade shells is increased and their properties such as transparency are varied, more memory is used. With more detail, you lose speed. A tip to minimize the amount of memory being used is to reduce the area being viewed. This can be done on the **Range** tab. Also, on the **Display** tab, change the **3-D Display Type** to **Standard View** and change the **Display Style** to **Contours**.

Should you need additional help creating Grade Shells, contact Mintec Technical Support.