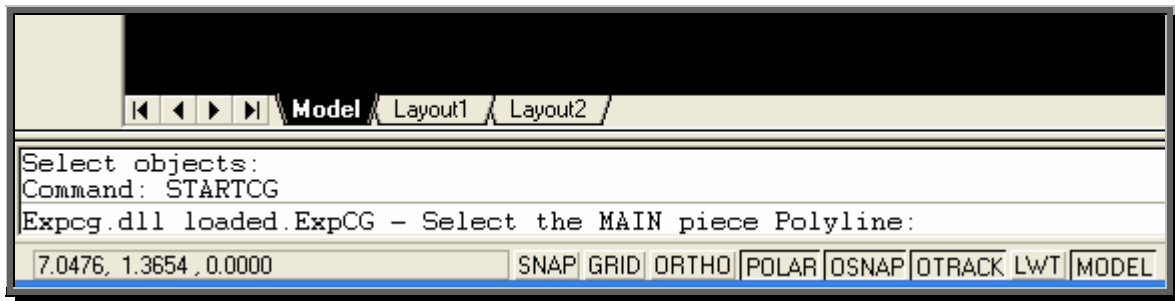


Introduction:

Express CG is an AutoCAD tool for calculating weight & center of gravity for precast concrete products then applying initial lifting points. It is intended as an aid to drafters when detailing precast. When detailing oddly shaped pieces with recesses and reveals the weight and CG of the 3D piece can be calculated quickly & accurately. The CG and some initial lift points will be displayed on the piece along with the weight and volume. The weight and volume will be pasted on the piece in MText so that it may be easily copied to the title block. The CG location will be shown as a cross hair to be utilized for finalizing the location of the lifting points. The lifting points will either be displayed as a cross hair, or the user can substitute any block from his library to be inserted automatically by Express CG. The utility of Express CG does not stop there however. When detailing a flat, rectangular panel, running Express CG will again output the weight and volume of the panel, but now the lift points input by Express CG will match the PCI suggested lift points for minimum stresses, eliminating the need for tedious manual calculations in everyday drafting (these default locations can also be edited if so desired). This is an incredible time saving tool, automating several time consuming, repetitive tasks and preventing costly errors.

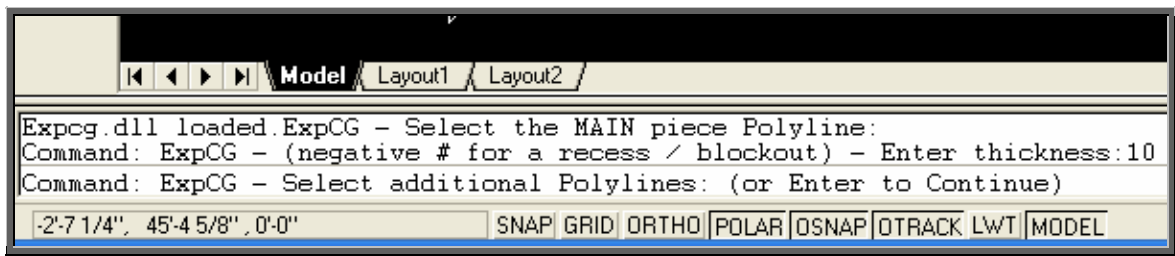
How to use:

When you initially start the Express CG program you will be prompted to select a MAIN polyline; it must be the outer most (main polyline). Do not select block outs or recess as the first polyline, block outs & recess must be selected as secondary items.



After you select the MAIN polyline, you will be prompted to enter the thickness for that polyline.

After you enter the thickness you can either press the enter key which will take you to the output form that will have the information for the piece or you can select another polyline.



After you finish selecting all of your polylines and inputting the thickness / recess press the enter key which will bring up the following form. This form contains all the information related to that object.

The screenshot shows the 'Express CG - (Trial Version: 29 days left.)' window. It is divided into two main sections: 'Piece Information' and 'Handling'.

Piece Information:

- Weight: 48 lbs.
- Surface area: .4 sf.
- Volume: .01 cy
- CG along (z): 5 in.
- Dimensions: 7 5/8" x 7 1/4"
- Diagonal: 10 1/2"
- Density: 150 PCF
- CG from: Top left = x: 3 7/8" y: 3 5/8"

Handling:

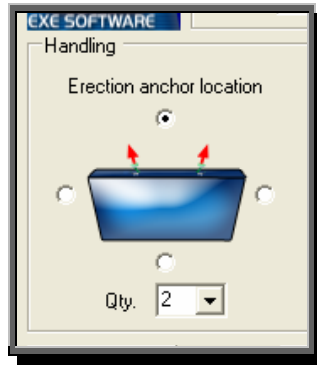
- Erection anchor location:** A diagram shows a blue trapezoidal object with two red arrows pointing upwards from its top edge. Below it, the quantity is set to 2.
- Stripping anchor layout:** A diagram shows a blue double-headed vertical arrow. Below it, the quantity is set to 4.

At the bottom of the window, there are three buttons: 'Select P-Lines', 'Apply Handling', and 'Exit'. The footer contains 'Copyright © ExE Software LLC 2006', 'Feedback', and 'Settings'.

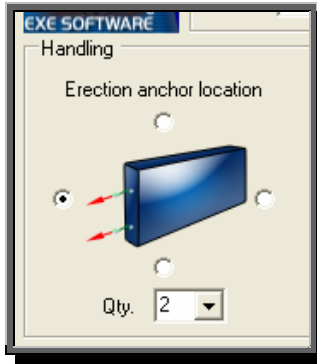
Definitions:

- **Weight** = the weight of the object in pounds.
- **Volume** = the volume of the object in cubic yards.
- **Dimensions** = the dimension of the object (x) x (y).
- **Diagonal** = the diagonal dimension of the object.
- **Surface area** = the surface area of the object minus any block out.
- **CG along (z)** = the center of gravity of the object along (z) or thickness of the object.
- **Density** = the density of the concrete. (Modify as needed).
- **CG from ...** = the dimension from the selected corner of the object to the CG of the object.
- **Select P-Lines** = this will clear your current selection and will prompt you for new polylines.
- **Apply Handling** = this will insert stripping & erection anchors at the suggested locations per your setting. It will also insert (as mtext) the information of the object next to the CG symbol.
- **Exit** = this will insert the CG symbol at the CG of the object and then exit the program.
- **Feedback** = Under feedback, you will find a form where you can provide feedback information such as improvement requests, etc.
- **Settings** = here you will be able to modify various program settings such as stripping and erection anchor spacing variables. You can also select your stripping and erection anchor CAD blocks to use when applying the handling.

This is a representation of the object and where the erection anchors will be placed.



TOP



LEFT SIDE

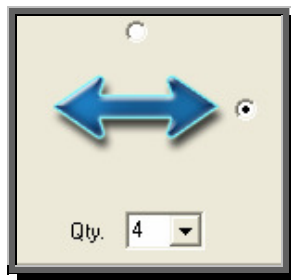


BOTTOM



RIGHT SIDE

This arrow indicates the direction of the center line for the stripping anchors.

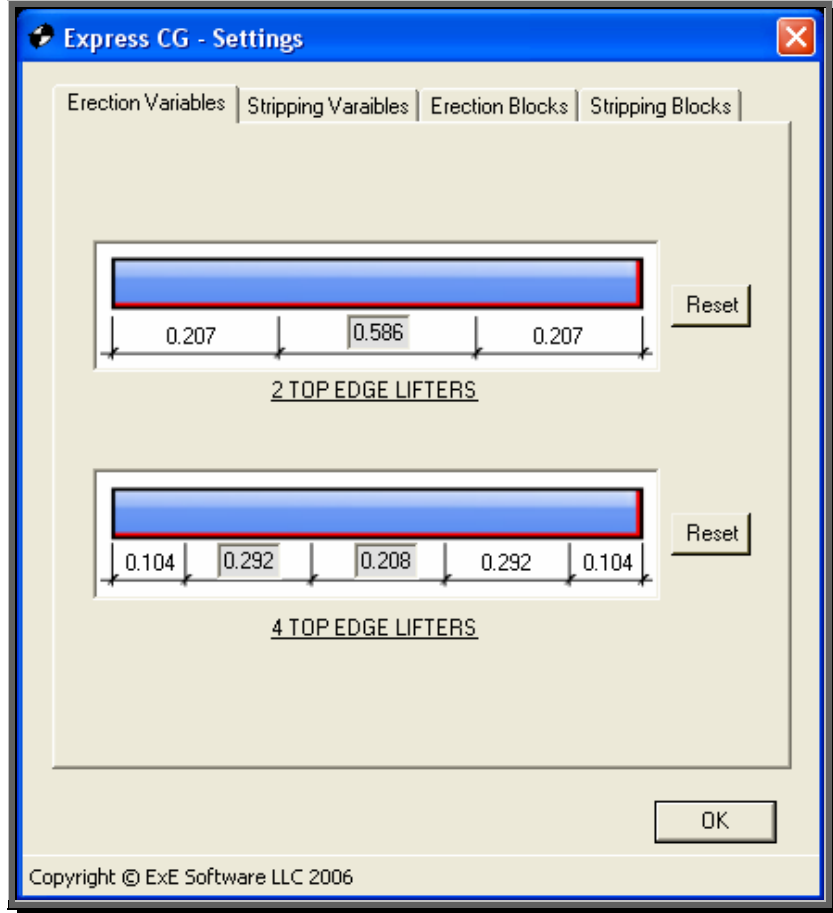


LEFT TO RIGHT

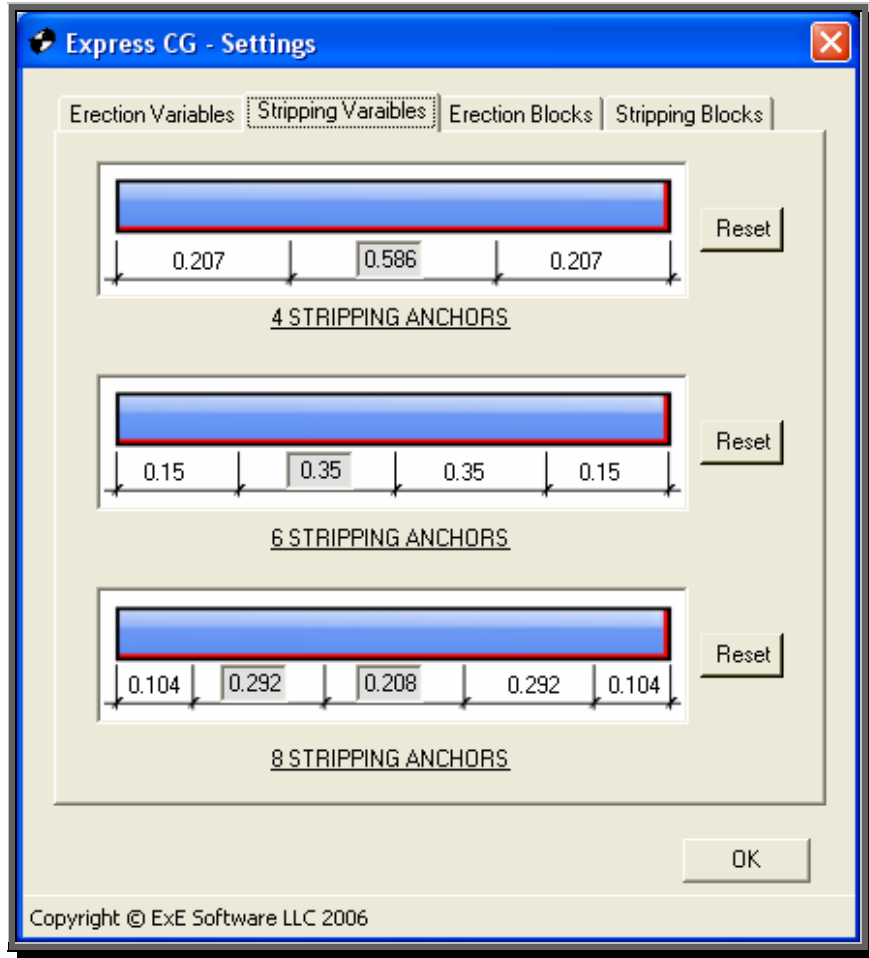


TOP TO BOTTOM

Here you can modify the **Erection** anchor spacing variable. Clicking the reset button will set it back to its default setting.

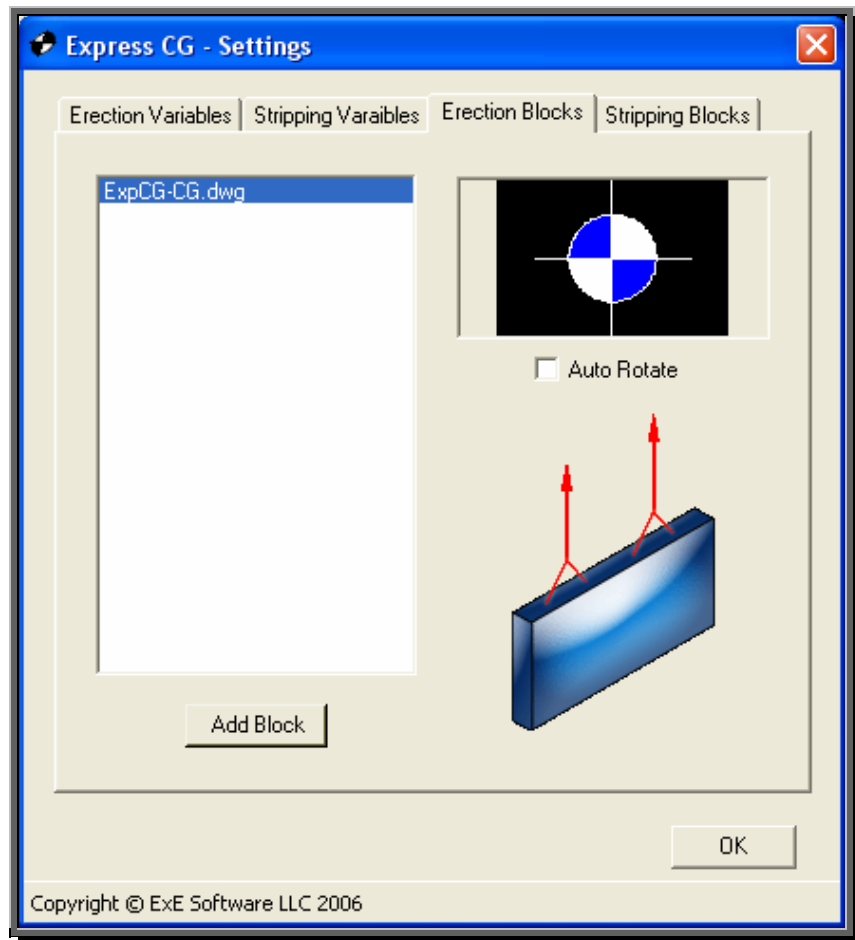


Here you can modify the **Stripping** anchor spacing variable. Clicking the reset button will set it back to its default setting.



To add your own **Erection** anchor CAD block, click on the Add Block button, browse to the location of the block that you want to add and then click on the open button. This will put it on the block list and will always be available until you delete it from the "program folder\blocks". (*Before deleting any CAD blocks, make sure the one you're going to delete is not set as your default.*)

- **Auto Rotate** = when this feature is selected, the program will rotate the Erection anchors perpendicular to the face you selected to place them. For this to work properly, your Erection anchor CAD block must be created with the insertion point on top (north).



To add your own **Stripping** anchor CAD block, click on the Add Block button, browse to the location of the block that you want to add and then click on the open button. This will put it on the block list and will always be available until you delete it from the “program folder\blocks\”. *(Before deleting any CAD blocks, make sure the one you’re going to delete is not set as your default.)*

