# Future ideas for Google SketchUp & Layout

Low hanging fruit....

Written by me; Andrew Carter [utiler]                                    25.10.2011

## My observation of SketchUp, its functionality and UI

I've been using SU now since just prior to the release of Version 4 and it's quite obvious, since then the program has continued to evolve from a conceptual 3D modeling design tool to a vital part of design exploration. What attracted me to it was no doubt what attracted you all to it:

1. The 'organic' way of exploring the environment in 3D.
2. Ease of use [Functionality]
3. The ability to produce flexible communication output

As it has evolved with every version and with the introduction of Layout in V7, it is becoming apparent that it is very close to satisfying many professionals as a primary tool for 3D concept modeling through to documentation.


## What is this 'low hanging fruit' all about?

Low hanging fruit….what's that?

During Basecamp 2010, John Bacus and Aidan Chopra lead an ideas forum where we were given the opportunity to offer up our suggestion. There were bucket loads!!! So much so that it had to be whittled down to the most popular ones and as John put it 'let's pick the low hanging fruit first' being the ideas that are easiest to implement. *[Please correct me if I'm wrong, John and Aidan…]*

So this started on the plane home; I did have 30 hours flying time back home to Australia so it gave me plenty of time to think back over where it was and where it is now…..

Why so long; I wanted to leave it as long as possible to post this so each time I find something that bugs me while I'm working or a light bulb moment I jotted it down in my task list.

 Although I have generated this list based on my own daily use of SU, I'm also mindful of how other disciplines use it so it will be interesting to hear from those who see these ideas as positive of negative would greatly enhance everyday users' experience of SketchUp.

*So this is my low hanging fruit….*

# SketchUp beyond 8.0 – *[not necessarily in order of cultivation…]*

## User Interface

1. Ability to nest Layers **NEW!!**

IMO, this is one of the main focuses of future releases should productivity be a priority.

I posted a few weeks ago about how Layers and the Outliner could be bought closer together.
http://forums.sketchucation.com/viewtopic.php?f=15&t=40338
I know there are users that might use Outliner and love it however it's only really useful in 'working' not setting out your presentation with scenes, export to Layout, etc..

Firstly, I use SU and LO for Architectural presentation so manipulation of geometry is paramount. For a long time now, I've tried many different ways of setting up my layer structure to try and facilitate the different ways of modeling / output for each project. It was only recently that I realized that this is the answer!!!!

Let's consider this:
   a. Leave Outliner as it is for those whose use it. Hiding a group in Outliner and then saving the currently scene means it is hidden, period. Try going to any other scene and it is not visible. This has no use for saving to and exporting scenes to layer.

   b. Re-work the Layer Manager UI to be similar to Outliner in that groups and components that are assigned a layer have the ability to be 'nested' to a parent layer.

See example below:
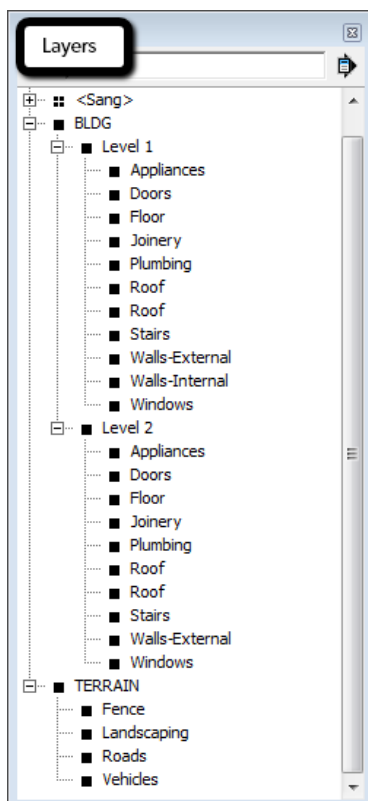
This allows the user to at least have some control over his / her layer/geometry structure visually as well as being a lot quicker to alter visually. Not to mention if I'm in a group, create another group and want to assign it to a new layer that I should be able to click ⊕ in the Layer drop down and do so. This automatically creates a new layered named as required and 'nested' within the parent layer group. You would even have the ability to move layers from group to group as required to be included in grouped visibility control.

Maybe as with Outliner double click on a nested layer and you're taken straight to the group/component on that layer and start working.

I'm sure you'll agree; this would change the way we work in SU significantly.

Now let's put it into workflow:

Say I have modeled a project on a site and want to export a ground floor plan. I cut sections where required and create a new scene called same and save. Now I want to create a first floor layout. If I don't want my site to show beneath in the first floor layout I can turn off the parent 'SITE' layer....**BAM!** No scrolling through the layer dialogue clicking here and clicking there to isolate geometry. The fact that the nested layer function avoids a global alphabetical search of the layers list it is much easier to see how your model is layered as well as a much quicker way to manipulate visibility.

I would love to hear from any of the Googlers' about their thoughts on this.

BTW, obviously I have used the Outliner Manager to communicate this idea so no toggles for visibility, current active, color [never used it], etc are shown. These would be as they are I assume.

Another idea I had is for the Section Cut tool which I will cover a little further on.

2. Add layer button to Entity info box

A ⊕ would be nice also in the Entity Info Box [Yep, I'm still harping on that one!!!] ;)

3. Ability to dock toolbars [Outliner, Layer toolbars] rather than float

As with Layout it would be nice to be able t dock such windows as Scenes Tab, Layer, Styles, Outliner, Materials, Components, etc…

4. Materials Dialogue box color wheel to have % as does Layout – consistency

It appears that this is the only color wheel not to have a sliding % bar. Often I don't have actual RGB colors that I want to assign and want to rely on saturation and this is the best way to achieve consistency across your drawing out that.

## **Drawing Tools**

1. Extended arc tools as in Layouts Centre, 2 points        3 point arc

These are much needed I believe and could simply be incorporated into a cascaded toolbar to house all three options.

2. Inscribed / circumscribed polygon tool

As with the extended arc tools it would be great to have the option of an inscribed and circumscribed polygon.

3.  Extend / Trim / Chamfer / Fillet tool

As with many CAD programs, it would great to have these tools embedded in standard SU. Yes, there are a number of plugins our there but these really are essential basics that form part of a generating linework. [and yes, I know SketchUp is not CAD!!!]

# Construction Tools

1.  Section Cut tool

Currently the Section Cut tool cuts anything bound by a group or component. Often we may want to cut only part of the model which means opening the particular group / component creating a section slice and exiting which leaves all geometry on the outside as it is. [good example; cutting a building to create a floor plan and leaving terrain, landscaping as is…]
I thought maybe if we could 'nest' our layers in the Layer Manager [as suggested above] then we would double click on the parent layer [say BLDG] and cut the section.

In addition to this an option to apply a fill to solids in section would be neat!! Not sure how but I thought if an toggle or context click option were available to be able to select the layers you want to assign either a texture to [hatch pattern, solid fill, etc] prior to cutting the section then this may solve the fill option in sections. BTW these solid fill options would 'live' each time you moved the section plane which ties into you next idea.

I know there is TIG's Section Cut Face plug-in which is great and a few other attempts at filling section cuts but I thought it if we could go 'live' with everything SU, the flexibility of the program would grow exponentially!!!

# Camera tools

1.  Photo Match – ability to fix horizon.

Often I have had to provide photomontages of projects and will always start with Photomatch however at times I think that if we could lock the horizon line [as is the case in reality] then move our two red and two blue set up lines into place this would work so much easier….

2.  Photo match - Measure and scale photo to fit model as with SU

Currently the only way to scale a model to a photo is by setting the grid size and approximate the vertical scale to the model. To be able to measure vertically I believe would be a much more accurate way…

3.  Photo Match – ability to fix vertical axis

I know there have been many questions about why the vertical axis distorts off vertical in some cases. Setting up the photo with the subject as close to the centre of the photo is optimum but not always achievable so maybe a way to force the vertical axis vertically as with the idea above to setting the horizon horizontally.

# Solid Tools

1.  Negative Solids that have 'live' properties  **NEW!!**

Solid tools have been a neat addition to SU in version 8 however I believe we now need them to be dynamic. EG: say I create a window, insert it into a wall.

Similar tools have been tried:
http://forums.sketchucation.com/viewtopic.php?t=30846
http://forums.sketchucation.com/viewtopic.php?f=323&t=14394
http://forums.sketchucation.com/viewtopic.php?t=15927
http://forums.sketchucation.com/viewtopic.php?p=156120#p156120
http://forums.sketchucation.com/viewtopic.php?f=323&t=30729&hilit=cut+two+planes

And countless threads on cutting two planes…….

Say a wall is a group as is the window. When inserted the window cuts the solid that is the wall and maintains the ability to cut the wall should you want to move the window along the wall. If deleted the wall heals itself. This function would work perfectly for in the architectural industry [doors, windows, niches, sinks, baths, swimming, pools, etc, etc] and I suspect it would have similar benefits in other disciplines….

The other 'main focus' I think for productivity should be the ability of Solid tools to be 'Live' and also be 'hidden' [or negative solids]
Assume you want to create a window in a wall. [Yes, I'm thinking about myself here but it crosses all disciplines..] Create a Group to define the wall; create a Group to define the window with a nested solid group that would be made 'negative'. Now make a Component out of it and call it 'window'

With the ability to trim solids now you could insert that window component into the wall and the negative solid would trim the wall to create an opening.

Now for the 'Live' thing.

Seeing the negative solid is unique it could have the ability to be 'live' [buggered if I know how; I'm just throwing out ideas here…] so that when you move the component with a nested 'negative' solid inside it the negative re-cuts its opening….

2. Extend Solid tools to include 'Extend' and 'Trim' for solids that do not touch **NEW!!**

I'd love to see this happen; below are the visual steps:
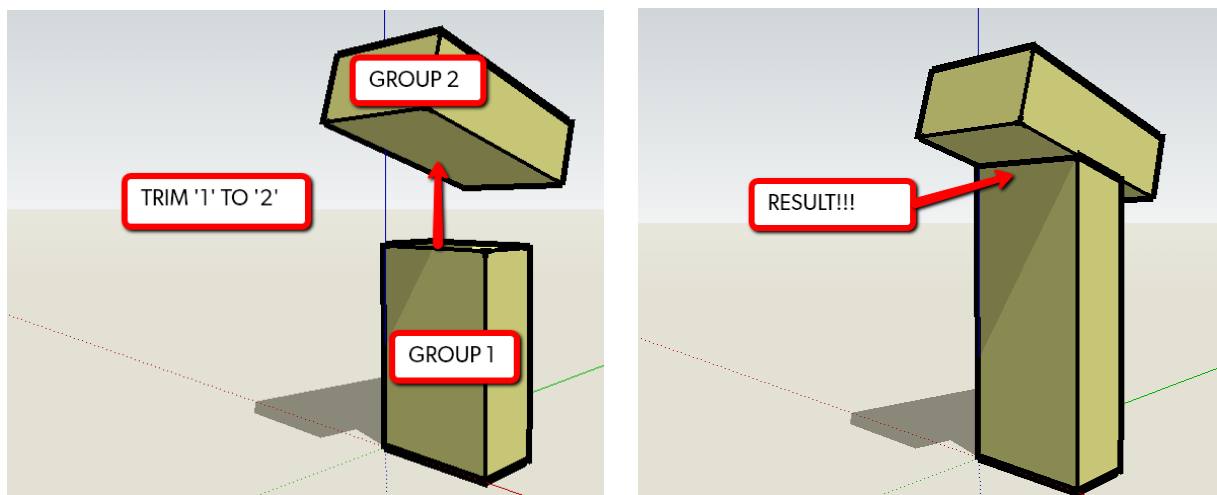
Currently the solid tools only work for solids that are associated [or touching]. The process could be the same:

"Trim this to that", as Aidan explained it at BaseCamp 2010....

Also, it should work in reverse; if group 1 is taller than group 2's underside face and you want the same result then selecting group 1's top face and group 2's bottom face would give you want you want...

How cool would that be....?

## **Model Settings & Managers**

    1.   North point tool – set north angle globally in SketchUp file; not for each scene.

I don't know why this changed in V8.0 but there is no way of setting a north direction for a model. Each scene that is created requires user input to manually set the angle. If we want to view a model from each side [front back, side and top then obviously the model doesn't change the viewing angle does which means the north direction doesn't either.
It is a real pain when each scene is created to have to manually set the north direction for that scene in order to achieve correct shading...

That's it for SU. Next let's look at Layout......

# Layout beyond 3.0

## User Interface

1. Shape Style Dialogue box renamed to Line tool

I know it's not a big deal but seems shapes are only shapes if they are filled….. even when they're closed lines they appears still lines…. Just being pedantic!!

2. Save custom toolbars

This is a must!!! So many time [especially during beta testing] when you re-load the program I have to re-set up my toolbars…..

3. Save custom trays

Same as above; this quite a pain to have to re-build all your tool trays back to your preferred UI.

## Tools

1. Precise move tool – clumsy, needs an easier user process

I know there was a lot of work to be able to move elements in Layout by way of the select tool but it is still quite clumsy. The problem comes mostly when you want to move and inference a selection outside the viewing area. You have to make selection, grab the centre grip and move. If your destination is outside the viewing area you have to try and 'scroll wheel' out while holding the centre grip… try that a few times!!!! I thought maybe move this function to its' own tool 'move tool'. That way we select the entity, select move and the centre grip glues to the cursor so it's a single click and hold to move something whether a snap point was selected or general point is the drawing.

I think this has been discussed before on the beta forum during the release of V8 and I recall having a discussion with Trisha and Millard at that Mexican Restaurant in Boulder when we all went out for a meal on the first night of Basecamp.

2. Rotate tool – needs to be able to rotate precisely

It would be nice if we could grab the centre grip and input manually into the VCB a specific angle

3. Text anchoring – anchor top should be anchor the bottom of the text

I would think in most cases text is required to be justified by it baseline not it's top. When formatting text of varying heights I always want to line-up the baseline as you would see in writing generally…. It would be nice to be able to select a text string, select 'move' [that new one!!] and snap to its baseline insertion point and move / inference to the other larger text's insertion point then put in place.

4. Arrows – multi-step segments

Often the user requires a multi-segmented leader. Maybe simply activate the labels tool, select first point then hold down Ctrl, Shift or Alt for intermediate vertical or horizontal segments then release holdown and pick last arrow point.

5.   Line point size should not be linked to line type scale

The line [or Shape Style manager] works in points; is it possible to have the option of units, either metric or imperial? Just make it easier…
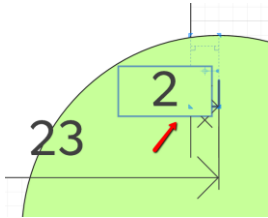
6.   Lines – actual measurements rather than 'points' so we can know what size line is drawn.

As with Shape Style manager… for consistency.

7.   Custom Arrow types

It would be nice to have more control over leader arrows like angle of arrow, thickness, etc.

8.   Dimension text seems 'filled' – it covers dim leaders and the model below.



You'll see in the image above that when text is too small to fit within the dimension lines it appears 'filled'… can this be sorted?

Pick N Go tool  **NEW!!**

This is what I'd like to see for Layout in the future. An 'eyedropper' like tool  that when selected you can match the properties of entity on Layout and put you in the mode ready to go.

Say you want to write some 2.5mm text. Pick N Go tool first than select some 2.5mm text on the screen. What the tool would do is inherit all data like text style and the layer it resides on and switches you to that layer then all you have to do is select the start point and GO!!!

Currently the Styles tool allows us to match one style to another which is nice but this could be incorporated into such a tool.

## Model Settings and Managers

1.   Ability to edit locked text [Context click locked layer]

We used to be able to edit an element on a locked layer but it was removed in the last release… I'm not sure why but it is a tedious exercise each time you want to edit something that is locked to have to go to the layer dialogue manager and unlock, do the edit then lock it again…. Why do I always lock layers? Because when you have masses on information on the page and you want to make a selection window you pick up everything within [as well as the imported model window!!!!!]

2.   Layer retention of elements when moved.

In addition to the idea of the Pick N Go tool above can elements within the drawing retain their layer characteristics when copied? Currently any copying of objects gets dropped onto the current layer……

3.   Hybrid mode – does it identify depth que?

Not sure if it does but it would be nice if it could….

4. Hybrid mode – SU Back Edges mode doesn't show

Is it possible to get back edges to show in hybrid mode? I like to have a sharp vector line showing in Layout rather than raster especially if I am producing Design Drawings.

5. Scrapbook elements – import into the layout file with pre-set layers

I can't stress how important this is!!! Having a scrapbook of preset elements is great because you can set up all repetitive data with layers assigned [text on text layer / symbols on symbols layer, etc…] but currently when they come into Layout they are dropped on the current Layout layer. Doesn't seem logical….

6. Snap to Clip mask

Currently we can't snap to the clip mask…. Is it possible? It would be good.

7. Update option for toolbar / Shortcut option

I have tried to set a shortcut to update my reference file in Layout but it won't allow it… is it possible?

So there; my basket is full so enough from the orchard for now. I hope these ideas generate constructive dialogue among you all and help to keep building on this wonderful piece of software.

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