

# DataCAD Boston Users Group

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<http://world.std.com/~eshu/dbug.htm>

A Committee of the Boston Society of Architects

## DBUG Meeting Notes

March 20, 2007

Host: *Evan H. Shu, FAIA/Shu Associates*  
BSA Bldg., Boston, Massachusetts

14 DBUGers convened at the Boston Society of Architect's Building and checked out the nice new furniture as well as good food and drinks, while enjoying the customary informal networking preceding each meeting.

Evan Shu starting the meeting off with introductions that went around the room and he announced tentative plans that the April meeting would also be at the BSA and held on April 24th. *[Now changed to April 25th with the locale to be at Milton High School hosted by DATACAD LLC.]*

**First Lesson: GIS.** Evan began the meeting by reviewing the information he had gathered on GIS, *Geographic Information Systems*. While many in the group would be familiar with sites such as *Google Earth* and *Windows Live* for site viewing, GIS data goes well beyond that. Very impressive is the sheer amount of data that is now available free online for such site data that includes everything from standard topographic contours, zoning, protected zones, and property lines to more "exotic" data like income levels, population demographics, and habitats for butterflies!

He passed out a reprint from the March 2007 issue of *Cheap Tricks* which covered this information, along with a listing of useful links to many GIS databases (ties to every US state and many countries). The PDF file version of *Cheap Tricks* is setup so that you can just click on the database table and it will open your browser to those sites.

As an example, he played a real time animation showing access to the Massachusetts GIS database. Basically, Massachusetts offers two ways to access the information: 1) via "Oliver," a specialized viewing program that uses Java script to act like a CAD program in giving you control to turn off and on layers of information, and 2) using your web browser itself to view GIS information via "Theme" links that provided common sets of data information that are frequently needed.

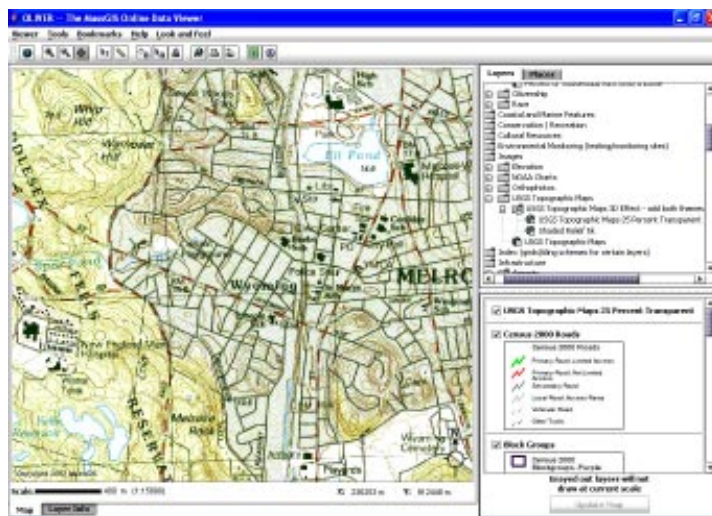
Evan showed how Oliver could be used to zoom in on a plot of land in Melrose, Massachusetts using a CAD-like procedure to turn layers on and off, then refreshing the data

to have it display onscreen. Next, he did the same thing using the Theme link (USGS Topographic Maps) to show the data from within his Mozilla Firefox browser window as well as showing a theme for "DEP Title 5 Setback Areas" to show various zones in the Norton community. The Oliver data can be downloaded as SHP format files or image files. The browser display can only be saved as image files.

The main difference in use is that the browser theme links will get you to an usable map much more quickly and easily — but once there, you will not have additional control, such as being able to turn an interfering layer off as you would be able to do using Oliver.

Once you get useful images that you want to use for your project, you can then import these into your CAD program for tracings or overlays. Evan cautioned that this type of imagery can never be relied on as totally accurate or current and must be followed up by real site visits and site surveys. Still, for preliminary analysis, such readily available site information is invaluable.

Finally, Evan showed a quick tour of the major GIS data-base links and demonstrated how you can use them to



*Figure: using the Mass. GIS Oliver viewer, a view of our local neighborhood with parcel information and USGS contour grade data layers turned on.*



Figure: Proposed cluster subdivision overlaid on GIS site imagery for HP Dewitt Road Project in Sutton, Mass. by Geller DeVellis Inc.



**GIS Directory Links**

- \* *GIS Pilot* <[www.gispilot.com/](http://www.gispilot.com/)>
- \* *Federal Geospatial Data Clearinghouse Search Engine* <[clearinghouse1.fgdc.gov/](http://clearinghouse1.fgdc.gov/)>
- \* *GIS Data Depot* <[www.gisdatadepot.com/](http://www.gisdatadepot.com/)>
- \* *The Geography Network* <[www.geographynetwork.com/data/index.html](http://www.geographynetwork.com/data/index.html)>
- \* *Geospatial One Stop* <[geodata.gov/](http://geodata.gov/)>
- \* *National Atlas of the United States* <[www-atlas.usgs.gov/](http://www-atlas.usgs.gov/)>
- \* *The National Map*, geospatial data from the USGS <<http://nationalmap.usgs.gov/>>
- \* *Guide To On-line U.S. Geospatial Data* <[libinfo.uark.edu/GIS/us.asp](http://libinfo.uark.edu/GIS/us.asp)>
- \* *USGS, United States Geological Survey* <[www.usgs.gov](http://www.usgs.gov)>
- \* *ESRI, Environmental Systems Research Institute* <[www.esri.com](http://www.esri.com)>
- \* *US Census Website* <[www.census.gov/geo/www/tiger/](http://www.census.gov/geo/www/tiger/)>
- \* *Alexandria Digital Library* <[webclient.alexandria.ucsb.edu/](http://webclient.alexandria.ucsb.edu/)>

access a database in an area you are interested in. In some cases, you can go directly to a local Assessor’s database which will usually provide more detailed and up-to-date information than the state database compilation will show. You can also go to many Assessor’s offices and ask for a CD copy of GIS data instead of the typical boatload of prints, maps, and booklets — since this material is mandated by law to be available to the public. Being aware of the availability of all this new GIS data can give any project of yours a big head start in site analysis.

**Second Lesson: Post Katrina Biloxi: Volunteer Workers and Casino Rebuilding** (not much in-between).

In the “now for something totally different” department, Mark Madura presented a slide show on a subject totally devoid of CAD and digital subject matter but still quite topical and arresting. He showed us a stunning look at the devastation that still plagues the US Gulf Coast, showing many of his slides from his mission work week in February down in Biloxi, Mississippi with the *Back Bay Mission* <[www.backbaymission.com/workcamps.html](http://www.backbaymission.com/workcamps.html)>.

It is feast or famine down there — or more accurately — casinos or nada, when it comes to active construction work. The only construction outside of casino work is being done by a small army of volunteers that transitions through week by week. In terms of debris alone, it is estimated by local leaders that a football field size pile the height of Mt. Everest has been removed in this area — and yet, still, many parts look just as ravaged as the week after the storm. 90% of the residents still live in trailers, so they are quite grateful to the volunteer work crews that are still trying to get this region back on its feet, now 19 months post-Katrina.

Over their one week there, their group was able to significantly improve the residences of 4 or 5 families in the area, which shows the power of real commitment on a personal level in an area where such contributions are vitally needed.

**Third Lesson: DataCAD 12 Update.** Mark Madura then gave the group the latest look at DataCAD 12 (BETA 84) which is now in its final stretch prior to release this spring. In particular, he gave us a primer on how the concept of “nodes” work in cleanup routines for smart walls in DataCAD 12. This issue has been one the trickiest issues to develop. For example, if you wanted one wall to go through and an intersecting wall to butt on each side of the first wall, how do you establish which wall is which? DATA CAD’s first approach was to allow the user to establish priorities for walls, such that in certain cases a “1” priority wall would never be broken by a “2” priority wall, etc.

As the various complexities of such a system started to mount, DATA CAD, probably wisely, decided to simplify things. As a first order of business, no smart wall/entity will clean with another smart wall/entity on a different layer.

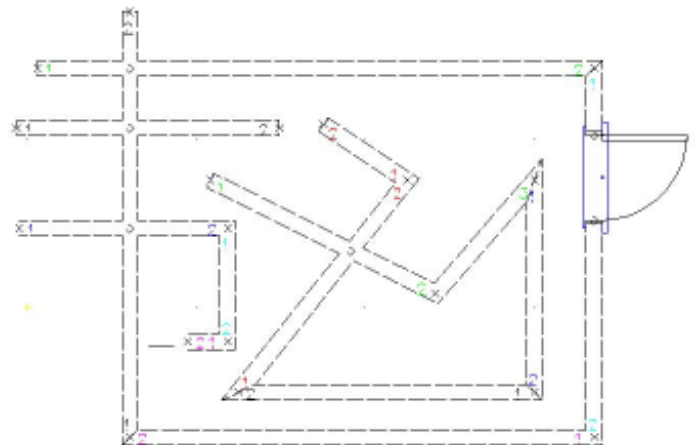
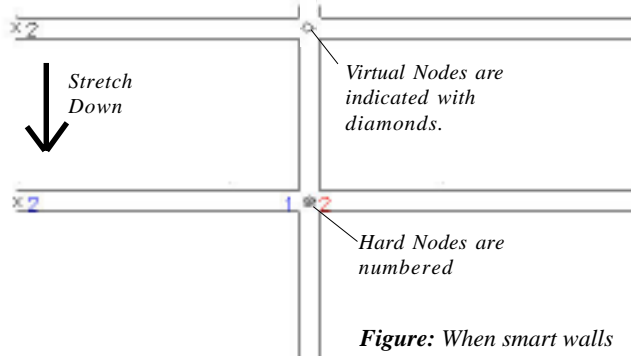
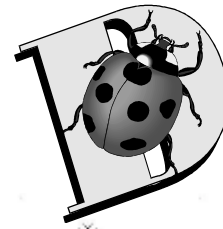
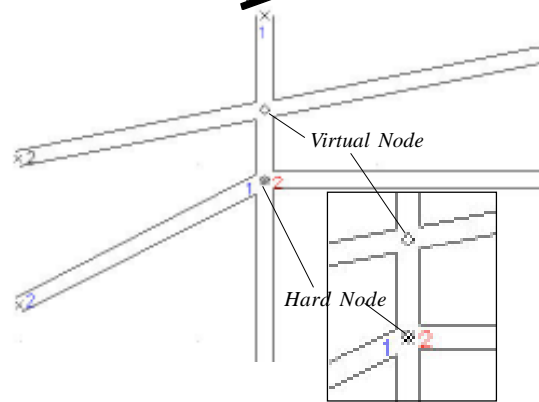


Figure: Smart Walls retain cleaned intersections.



**Figure:** When smart walls are stretched (right), the type of wall node makes a big difference.



While, that layer search capability might be desirable in certain cases, it now functions as a clear cut control item for the user. Not same layer? No clean.

The other complexity came in walls that intersected one another. When you move one end of such a wall, does the whole wall move accordingly or does it break as if it had a joint at the wall intersection? (See Figures above.) Clearly, the first possibility is the more likely one, although the second will come up from time to time. DataCAD's solution to the matter was to create differences between what they call "hard" nodes and "virtual" nodes.

A hard node is just like a vertex in a polyline. It is a joint that will always act like a joint unless it is deleted. Whenever you draw a smart wall and manually indicate a start, corner, or end, a hard node is created. However, when an intersection occurs between walls where no hard node has been designated, a "virtual" node is created instead.

The virtual node allows all cleanup functions to occur between two walls (X, T, butt/pass through) while still allowing the full wall to move when necessary. When you have virtual nodes in your smart walls, you will see little diamond shapes appear at that intersection to tell you that it is a virtual node. Another situation for virtual nodes is when you insert a smart window or door. The smart wall cleans around the window or door by inserting smart nodes at each jamb. Now, if the window or door size changes or if the window or door changes in location, the virtual node allows the wall to move with it.

Now, that all works very nicely, but say you do have a condition, where you want one part of your wall to stay put but you want another segment of it to move or stretch

accordingly. From you walls menu, you now can pick *Edit Walls* and you are given a choice to *Add Node* or *Delete Node*. With this option, you can now insert a hard node where there was a virtual one before or insert a node wherever you like — in the very same fashion you would add a vertex to a polygon. As soon as you click in a new location for your node, your wall becomes like Gumby allowing you to locate this new vertex exactly where you want it. In addition, when you pick *Edit Walls*, you will see numbered nodes that show you where the hard nodes are, with each separate wall entity having its nodes in a different color.

When you CTRL-right click on any smart wall, and pick *Wall Properties*, you can actually control the cleanup condition at different nodes separately. You can choose to have a cap at Node 1, and then change to Node 2 to have a "clean" condition instead.

This "node" approach should probably be fairly straightforward and intuitive for most DataCAD users, particularly for those who have had experience using polylines (and hatch boundaries, etc.).

[NOTE: DATACAD has now further simplified its smart walls process by removing its multilink wall that would allow a continuous wall drawn in one operation to remain a functioning group. While this option may make it back in for future updates, the process of linking and unlinking wall segments added another area for potential bugginess. So, for now, when you draw a smart wall, each side will be its own entity.]

With another full evening's program complete, DBUG closed up shop at the BSA at around 9:30 pm.