CheapTricks®

CHEAP TRICK of the MONTH

Escape From Flatland with o2c
based on material by Richard Morse, DATACAD LLC

[Editor: in a seminar presentation to DataCAD users last week in Avon, Richard Morse, A/E/C Project Manager for DataCAD Plus and co-author of the Official DataCAD User's Guide, presented the following ideas that he has graciously given us permission to print. The ideas and outline are to his credit; for any shortcomings in paraphrasing & grammar, you can blame Cheap Tricks.]

We are embarking on an exciting new time in the realm of communicating our architectural ideas to our clients, consultants and colleagues. With the latest released version of DataCAD 9.06, you are now able to both import and export 3D models in o2c format. o2c stands for *Objects to See*. It is a highly compressed 3D format which is optimized for Internet-based communication. What this development means is that you will now be able to "escape from flatland" and the world of 2D plans and elevations. Instead you can now communicate much more directly using dynamic 3D models, which can be sent to your clients via e-mail,
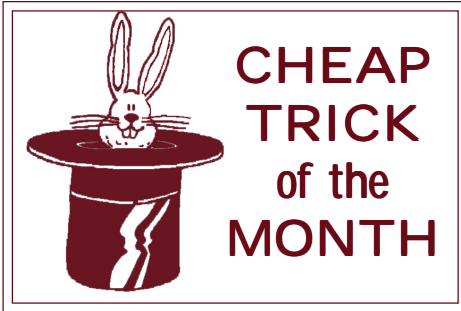
posted on your web page for viewing, or used in demonstrations on your clients computers. These models can remain with your clients to play with to their hearts content, since the o2c player/viewer/renderer is free for download or distribution. And it's very easy to use.

Selling your ideas. As we all know, selling your ideas is the key to winning over clients and securing commissions.

The traditional 2D presentation methods of floor plans, elevations, and sections are only effective for communicating with other designers and builders — and even that communication may be less than desirable much of the time. Words and plans, while perhaps demonstrating your facility at architectural technospeak, may otherwise fall short of illustrating your vision to the client.

Consider the contrasting two letters to a client in *Figure 1*. With the first (*Fig. 1a*), you can already see your client's eyes glaze over as they attempt to make sense of the obscure floor plan. Now contrast that standard mode of communication with *Fig. 1b*. using an o2c rotating model.

Dear Mr. Client,

We have reviewed your brief and prepared a design scheme that we think you will be most pleased with. It is a logical linear scheme, embraced by a dynamic roof structure, which dramatically informs the site. Sweeping views and southern exposure are enjoyed from an expansive terrace. Please refer to the plans (see below) and sketches we have just faxed you or take a look at the drawings on our project web site.
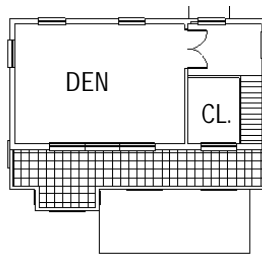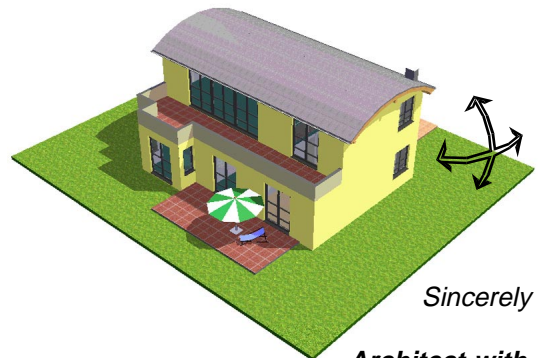
Sincerely Yours,

Flatland Architect

Figure 1a: above, trying to communicate the conventional way.

Figure 1b: right, using an o2c 3D animated object.

Dear Ms. Client,

We have designed an exciting solution in response to your project requirements. Please see the attached o2c model. We look forward to your comments on the design.

Sincerely Yours,

Architect with Vision

Figure 2: *the o2c player provides easy to use mouse controls that can be learned in a 2 minute lesson, so that anyone can give the Chryster Building a twirl.*

In receiving the second letter via e-mail, your client sees this 3D model of their design *rotating* slowly before their eyes. With a two minute lesson in mouse controls, they are able to control the movement themselves, moving the model around as easily as if it rested in their hands. Another click of the mouse, and they are doing a walk-through of the design, going inside the space and back out again. At any point, they can also stop the animation and perform a high resolution rendering of the model for output on their own printer. Now, no more glaze in their eyes as they try to decide if they trust you enough with their money. Instead, you have a very excited, involved and active client peppering you with questions about the design and its possibilities.

Are you ready for this escape from Flatland?

o2c as 3D PDFs. One might say that the first technical breakthrough in Internet communication was PKZIP (*see Apr 01*) which allowed compression of large digital files for convenient transport over the Internet. The next breakthrough was the proliferation of PDFs as a universal file format for desktop publishing documents. We like to think that o2c could very well be the 3D equivalent of PDFs as the universal standard for 3D modeling.

Like the Adobe Acrobat Reader, the o2c player is an absolutely free plug-in for your web browser (it can also function as a stand-alone viewer), which will display and allow dynamic viewing of o2c models. With Windows 98 (and up) operating systems, anybody receiving an e-mail with an o2c attachment will be prompted with a direct link to download the o2c player. The download for either the Netscape Navigator or Internet Explorer versions is about 500k. Once downloaded, the model will now display within the e-mail in all its glory — or alas, with all its faults exposed, of course.
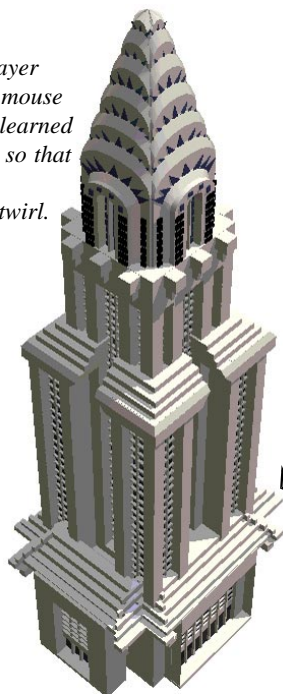
When the viewer places his or her mouse over the model, the special 3D cursor displays and these mouse controls are enabled:

Left click & drag to rotate
Rig*ht click & drag* to zoom
Right click to access Walk-thru and Render options.

The other amazing thing about o2c files is how compact they are. It is not unusual to have many models check in below 50k — smaller than many e-mail postings themselves. These files are flexible and can be imported into MS-Word documents (*see Q & A*) for hard copy printing or else for digital transport or storage. o2c files also support animation, so an object can show you how it goes together, or a patio doors can open to show you the interior space. Remember also that the o2c player is just a right-click away from being a high resolution rendering program. So, by sending your client the o2c model of your project, you are also giving your client the ability to generate and print any number of high quality renderings of the same model.

o2c as 3D symbols. With the release of DataCAD 9.06 as a free (yes, *free*) upgrade to DataCAD 9 users, you now have the ability to both import and export o2c files into and out of DataCAD drawings (*see Quick Tips for steps*). These files act much like symbols in that they can enlarged, rotated, or even exploded into their constituent polygons. With a growing list of manufacturers jumping on-board with o2c (Velux, Nokia, Ferrari), it looks like a promising

way that architects will be able to get highly detailed 3D symbols for manufacturer's products. Already, there are thousands of o2c objects available, including much of the Andersen window catalog. The web-searchable database (www.mb-America.com, then catalog) lists 1378 categories of o2c objects. Also, as a 3D symbol, this object is not limited to only geometry but can also include information on textures, annotated specification or pricing information, and even encompass optional configurations. With DataCAD 9.06, it is also a very easy way to convert your architectural designs into web or e-mail ready 3D objects.

The future of o2c. In the same way that Adobe Acrobat gives access to many features that the free Adobe Acrobat Reader does not, you will soon see enhanced java-based o2c programs, such as *eZ Conference*, or *o2c Designer* (see *Architips*), that allow for advanced features such as real-time collaboration, red-lining, and optional configurations for materials, colors, and even geometry.

Perhaps even more important than the objects themselves in the context of the growing connectivity of the Internet is the tie that can be established between o2c objects and their database. For example, in the future, o2c objects may be "checked out" of a manufacturers library and into your design project. Since the object "knows" where it came from, over the course of the project and even eventual life cycle of the building, it can provide you with important up-to-date information about itself, such as: product availability and delivery lead times, available colors, styles and options, details and specifications, maintenance procedures and replacement parts. Once you get beyond the visual impact of o2c, you begin to realize that even more revolutionary is the data that can be attached to it.

But as for the basics of using o2c for enhanced communications both within and without your office, the future is now. All the tools you need to escape from Flatland are ready and at your disposal. ⌷

COMPUTERESE

Will o2c become the 3D PDF?

Whether o2c will become the 3D equivalent of PDF is a question that will not be answerable for some time. Those of you who spend time on the Internet are probably aware that the PDF file format is now an indispensable part of that life on the Internet. Format-crucial documents, such as IRS tax forms, catalogs, online publications and yes, architectural drawings, are now routinely posted in that format on the Internet for viewing and download on web browsers. It has achieved that threshold for browser universality along with such file formats as HTM & HTML, GIF, JPG, and ZIP --along with other contenders such as QuickTime, RealPlayer, and of course, MP3.

Apart from the fact that PDF works and works well, it is crucial to understand that it has not been an overnight success. It has been a slow-growing (in computer terms) phenomenon that just in the last year has clearly become a universal standard. It gained converts byte by byte (the IRS was a biggie) that gave it the credibility that, in turn, led to more and more PDF formatted documents being posted on the Internet. This momentum grew to the point that it has now clearly reached such critical mass that everyone wants to jump on the PDF bandwagon.

mB America Inc., the designers of the o2c format, hope that the same story will repeat itself with the o2c format. (FYI: mB America Inc with President & CEO, Dieter Heimlich, has its roots in Data-CAD-Spirit & ArCon, and is a major investing partner in DATACAD LLC.) You may be asking yourself "What does the o2c file format have going for it that VRML, DXF, DWG and 3D GIF file formats do not? (Or how does it compare with other contemporary competitors for 3D objects?) Why should we consider betting our time, energy, and symbol libraries on o2c in the first place? Here are some reasons.

Small file size. It doesn't seem very long ago that many of us were equally excited by VRML as a universal 3D format. While it certainly has achieved a certain popularity, there is no denying that large file sizes and a cumbersome control interface have held it back from further advance. Very efficient compression make o2c files extremely small for the amount of information they carry. For example, complete o2c house model may only be 100k! In comparison to VRML, equivalent models which may be 5 to 10 times the size, it makes for much more efficient reading off the internet and less cumbersome as an e-mail attachment. Other competitor's compression techniques fall short as well. Knowledgeable sources express amazement at the level of compression o2c is able to achieve.

Easy interface. You may recall those VRML interfaces that look like a pilot's cockpit. The effects produced were similarly dizzying unfortunately. With o2c, it is the same click-drag mouse movements that have become second nature after similar experience with other Windows programs:

> *Left click & drag* to rotate;
> *Right click & drag* to zoom;
> *Right click* for Walk thru/Render
> (See *Quick Tips* for *more* options.)

The ever-useful *right click* accesses a surprisingly comprehensive menu of options that include: optional background color, display options in wireframe or shaded or textured modes, animation, automatic rotation, raytrace (i.e. render with shadows), and even the source code, so you can clipboard your model into a web page directly. We will soon see software that will allow a collaborative interface as well with multiple parties reviewing the same o2c model. Consultants will be able to redline and make commentaries on the same o2c model while viewing it in real time.

Versatility. o2c provides ample versatility options. Although, a DataCAD user will not be able to perform these functions
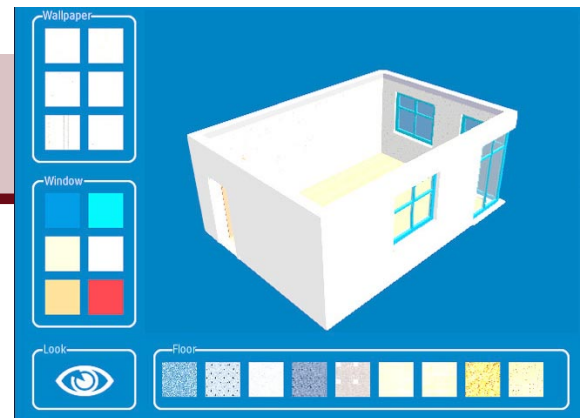
(yet), an o2c model is able to hold a host of annotated information, such as manufacturer, model, price, specification link, etc. It can have animated actions (picture a window or door opening and closing), and it can come pre-configured to allow a number of optional colors, materials and even geometries. Imagine sending a room design to your client, along with the note, "Please select via the optional buttons your choice of cabinet finish, floor material and finish, wall finish, and lighting option." *(See Figure 3 above)*. Amazingly, it ain't that far away.

Heavy hitters. Like the IRS was for PDF, o2c wouldn't have snowball's chance in the nether regions if it didn't have some heavy hitters who were incorporating compatibility with o2c. Major manufacturers are now getting onboard by providing their products in o2c format. None other than Microsoft has integrated use of o2c with both *MS Word* and *Powerpoint*. *Velux* is already onboard and many Andersen window symbols are already available—see *Cheap Tricks Ware* or the PDF version of *Cheap Tricks*!

e-Commerce is the hot word these days. IBM is one of those banking on the fact that o2c has huge potential in the Internet marketplace to display products as well as provide annotated information about that product, along with the ability to display optional features etc. As mentioned in our cover article, note also the huge potential for linkability. o2c objects can remember which database they can from, and thus can refer back to those manufacturer's databases for updates. At the website <http://www.o2c.de/englisch>, check the "special" category to see an example of how a whole virtual shopping mail inhabited by o2c products might be created.

Now it's up to you. It would appear that the building blocks are in place for o2c to indeed become the next PDF, but it is still up to all of you out there. Will you find o2c's features compelling enough for you to start using o2c for your design presentations and communications? Will you find it convenient enough to start collecting and using the o2c format for your 3D symbol libraries? Will you demand o2c objects from your trade manufacturers? Will o2c's sheer impressiveness make other CAD architects pressure their vendors to follow suit, once they see you stealing their clients with it? Only the future will tell, but we would recommend that for the present, you definitely check it out for yourself. ▱

From the Editor:
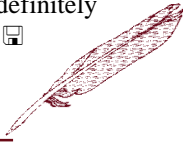
About 100 people gathered in Avon, Connecticut on April 20th for the *5th annual DataCAD Users Conference*. In contrast to the dramatic surprises of conferences in past years, the mood this year was more of quiet excitement as more and more quality enhancements to the DataCAD product line were introduced and demonstrated to the assembly. As well-documented in other parts of this issue, the exciting virtues of o2c as a universal 3D object symbol were extolled. DATACAD LLC staffers call o2c, the "3D PDF", in hopes that it too will become that universal (see *Computerese*).

DataCAD 9.06 (another in an impressive line of free web updates to DataCAD 9 users) was released that very same day. It includes the ability for *o2c import/export*, the new *Command Line Alias* feature (*see DataCAD Tutor*), import/export compatibility for *associative hatching in DWG/ DC5* conversions, showing symbol inserts in either isometric or plan views, and a nice improvement in the *Tangents (B key)* menu to allow "ortho off" when in a rotated cursor orientation. (Hats off to new DATACAD programming consultant, *Patrick McConnell*, for his primary role in programming the *Command Line Alias* function and the new symbol view function! *Keep it going, Patrick!*)

Attendees were relieved to hear that DATACAD LLC was sticking by its promised late spring/early summer release of *DataCAD Plus 10* — again,

which will be a free update to all current registered users of DataCAD Plus. They are taking care this time to build Data-CAD Plus 10 on top of the core engine for DataCAD for Windows, so that Plus 10 will truly be "Plus" and will include any and all features now included in DataCAD 9, such as multi-scale plotting and XREFs. In addition, we saw the following features previewed for Data-CAD Plus 10: a) *True Type* fonts for use not only as pure text but also for exploding/extruding for 3D signage; b) *import of bitmaps* (BMP/JPG), which will be mappable to flexible polyline boundaries (even with voids) — so as to easily trace those company logos or import digital photographs for tracing/printing in combination with drawing data; c) polyline boundaries which allow *solid fills* and scale-independant bitmap *pattern fills* (vs. vector hatch patterns); d) a new *symbol tagging* function & *Schedule Wizard* that will allow custom, auto-generated window, door, and equipment schedules; e) *enhanced hyperlink ability* to assign multiple GoToViews or web addresses to the same entity; and f) *right-click* access to a *Properties Manager* to allow quick changes of entity attributes, such as layer, linetype, spacing, color, etc.

In addition, DataCAD Plus 10 will include more sophisticated 3D tools. The *TIN Modeler* (Triangulated Irregular Network) will do more accurate site construction and can utilize any surveyor data (even a set of points). A new *Color Slice* feature gives USGS topo type effects to emphasize terrain changes. *Cut/Fill* tools to create roads, parking lots, building footprints, lakes, etc. will also be available. A new function called "ruled surface" will create a complex surface defined by 3D polylines or contours — imagine the surface defined between two 3D contours on a surveyor's map. Finally, the tool we've all been waiting for is a fully functional *Sectioning Tool*. As our creation of architectural designs becomes more truly 3D oriented using tools such as ZAC, we will now be able to take advantage of sectioning tools that can cut through such 3D models. This tool can be set to create polyline outlines of the "cut" which can be hatched or solid-filled. It is flexible enough to support "wandering" cut-lines, which can then be "unfolded" for very instructive structural views.

As we discussed in this month's *Architips* column, *Dieter Heimlich* of *mb America Inc.*, also demonstrated a lot of sophisticated tools for modeling and conferencing that are in the works for future versions in the DataCAD product line. It was a very useful and impressive showing of present, near-future, and future scenarios for DataCAD users and made us salivate to get our hands on many of these new tools.

To (Fresno-area) Californians: if you are reading the *Early Bird* or PDF edition of this column, it may not be too late to catch the May 1st inaugural meeting of the *San Joaquin Valley DataCAD Users Group* to be held at *Wald, Ruhnke & Dost Architects*. Contact *Alan Hendry* <athendry@netzero.net> or 559-325-2038 for details. Otherwise, give him a holler to let him know you want to come to the next meeting. We salute Alan for having the initiative to get a users group going as we know firsthand that it is probably the best educational mode available. It is also a great way to get to know a lot of fellow travellers in the path.

To start the ball rolling on sharing items for this new file type, we are starting a new o2c section in the *Cheap Tricks Ware* listing. In addition to some nice new 3D vehicles donated by Dwight Brennfoerder, we have harvested some of the files now freely available through mb America's search site <www.O2Cworld.com> such as *Velux Roof Windows, Andersen Windows* and *Building Classics*. Those of you who get the PDF version of Cheap Tricks will find these available as extra freebie zip files with this issue at the eProject download site. Those of you who get your Cheap Tricks the snail mail way can also get them sent to you via Cheap Tricks Ware (see next page), which you may find easier than going to <www.mb-america.com> to download each individually. With *John Lindsay's* excellent new tutorial in this issue on adding to ZAC databases and with the new o2c frontier ahead of us, it is clear that we all have a lot of extra homework to do. But it promises to be fun and well worth the trouble. *'Till we meet again.* — E.S. ☙

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Same as above but in o2c format. Includes browser "template viewer" file for handy viewing. **$5.00**

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by *Dwight Brennfoerder*. High quality 3D vehicles collected from freeware modeling sites and organized in handy DataCAD template file. Great for quickshading or modeling/modeling. Includes various tractor trailers, delivery truck and even a school bus. 7 symbols total. **5.00**

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S121 *(Internet Deliverable)*
Classic Buildings I in o2c.
As freely available from o2c World site, here are 7 nice architectural models of icon structures such as the Chrysler Bldg, Corbu's Villa Savoye, the US Capitol, & the Golden Gate Bridge. Includes browser "template viewer" file for handy viewing.Free w/5 disk order, $5 CTW Dollars or **$5.00**.

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