

# The Design Explorer

## The Ashlar-Vellum User Newsletter

First Quarter, 2009

### Reach for *Your Dream*

Ashlar-Vellum's new promotion *Reach for Your Dream* encourages entrepreneurial spirit among those who have been caught in the challenges of today's economy.

With a signed agreement and proof of unemployment, recent graduation, or the recent establishment of a new business, Ashlar-Vellum is offering a 3-month trial license to Cobalt along with a courtesy license to Graphite. After 3 months, with the submission of two drawings or models for the Ashlar-Vellum website Gallery, participants are

eligible for a 50% discount off the monthly rental price of any program for up to one year.

Ashlar-Vellum wants to inspire users to develop new businesses or bring new products of your own to market. "It's more than just helping someone get a job," says Robert Bou, president of

Ashlar-Vellum. "It's allowing all of us to help our economy grow." If you or someone you know qualifies for this new program, go to [www.ashlar.com](http://www.ashlar.com) for details and to download a special use agreement.



### Extended Hours for Customer Service

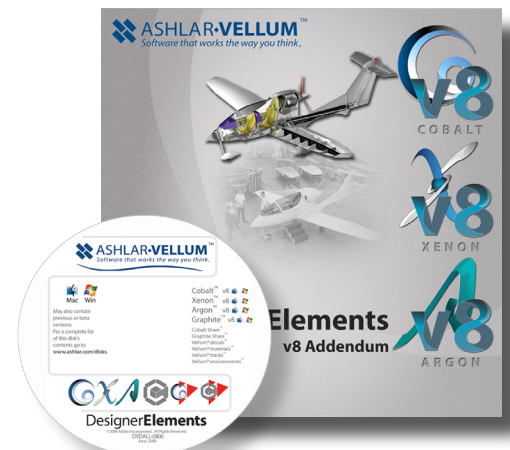
We're extending our customer service hours to include several hours on Saturdays and Sundays to provide "light" customer service and technical support. This will mostly be focused on reviewing requests for and sending demo codes to prospective customers.



### Cobalt, Xenon & Argon v8 Addendum and DVD Shipped

The long awaited Cobalt, Xenon and Argon v8 Addendum documentation and DVD were shipped in February to those who ordered the full materials for a new license or upgrade. iPod shuffles were also sent to those who took advantage of our brief preorder special promotion. If you did not receive your package and were expecting one, please contact us at:

[customer.service@ashlar.com](mailto:customer.service@ashlar.com).



## Rentals Offer New Possibilities for Today's Economy

In the current economic situation rentals are becoming a very popular licensing option for many customers. Recently Ashlar-Vellum adjusted our prices for both monthly and yearly rentals of Xenon and Cobalt.

Product	E-only Price
<u>Cobalt v8 e-only 1-yr rental</u>	<u>\$1195.00</u>
<u>Xenon v8 e-only 1-yr rental</u>	<u>\$ 995.00</u>
<u>Argon v8 e-only 1-yr rental</u>	<u>\$ 395.00</u>
<u>Graphite v8 e-only 1-yr rental</u>	<u>\$ 395.00</u>

### Yearly Rentals

Yearly rentals can be ordered through our normal sales channels including our VAR's, by calling Ashlar-Vellum directly or through our webstore using the links shown here.

Major upgrades are included in the rental price (electronic download only). Up to 50% of your total rental fees may be applied towards 50% of the permanent license price.

Boxed sets of full materials are available separately for \$129.00 plus shipping, or a DVD only for \$8.25, plus shipping.

### Monthly Rentals

Monthly rentals are handled through the webstore only. Monthly rentals are electronic download only, no physical materials will be shipped. Boxed sets of full materials are available separately for \$129.00 plus shipping, or a DVD only for \$8.25, plus shipping. First and last months rental are required to begin, then the monthly fee is automatically billed to your credit card. Major upgrades are included in the rental price

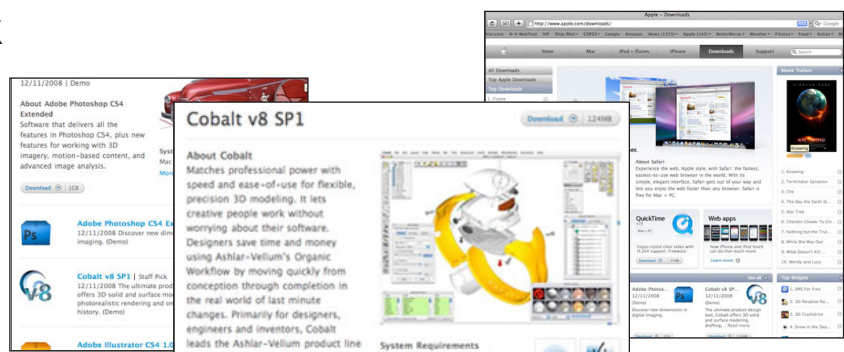
(electronic download only). You may cancel any time, but no refunds will be issued. Up to

50% of the total rental fees may be applied toward 50% of the permanent license price.

Product	E-only Price
<u>Cobalt v8 e-only monthly rental</u>	<u>\$119.95 (\$239.90 first/last months on inception)</u>
<u>Xenon v8 e-only monthly renta</u>	<u>\$ 99.95 (\$ 199.90 first/last months on inception)</u>
<u>Argon v8 e-only monthly rental</u>	<u>\$ 39.95 (\$ 79.90 first/last months on inception)</u>
<u>Graphite v8 e-only monthly rental</u>	<u>\$ 39.95 (\$ 79.90 first/last months on inception)</u>

## Cobalt Named Staff Pick

Just like Graphite, Cobalt v8 SP1 was named as a Staff Pick by Apple Computer on the OS X Software website for the *Imaging & 3D* category. Our demo downloads have increased and we're hoping that the added exposure will bring new customers.



## What's Driving Your Model?: Associative vs. Constraint-driven Parametric Modeling

We're often asked what's the difference between Xenon and Cobalt. When we say that Xenon has associative parametric modeling but Cobalt also includes geometric and equation-driven parametric constraints, most people's eyes glaze over and they do one of two things, usually for the

wrong reasons. Either they buy Xenon because they're sure they'll never use whatever it is we just said, or they buy Cobalt because they're scared they might be missing something for the slight difference in price. Neither response makes a good business decision, and since our customers are some of the

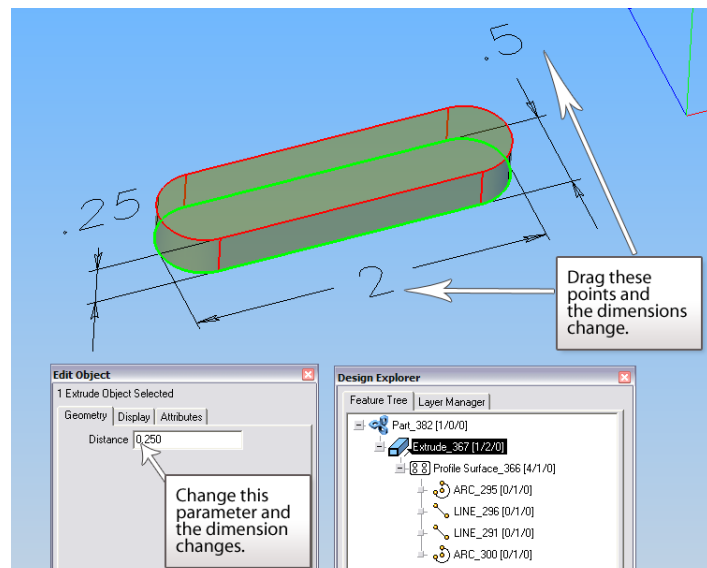
best informed designers and engineers in the business, it's important to understand the distinction and what makes the most sense for your needs. Let's talk about the differences and where the real value lies in each product.

### Associative Parametric Modeling

Associativity is found in both Xenon and Cobalt. This is the technology that allows you to use a curve to build a part, then, several steps later, jump back to that base curve, update it, and watch the change ripple through the entire model.

**Associative parametric modelling uses geometry and feature parameters to drive the dimensions of a model.**

#### Both Xenon & Cobalt

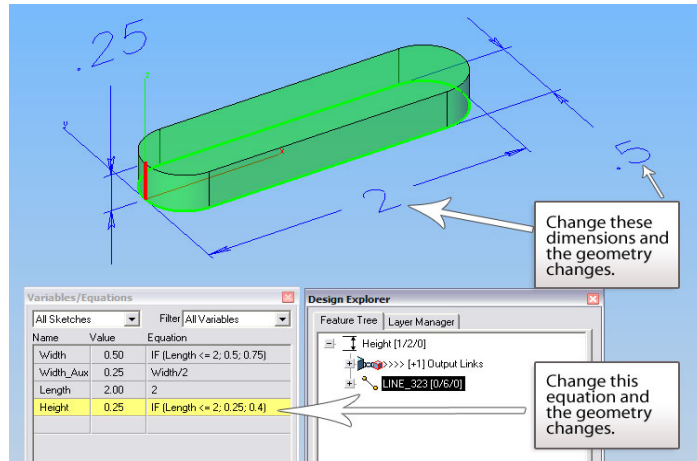


*Both Xenon and Cobalt have associative parametric modeling, which uses geometry and feature parameters to drive dimensions.*

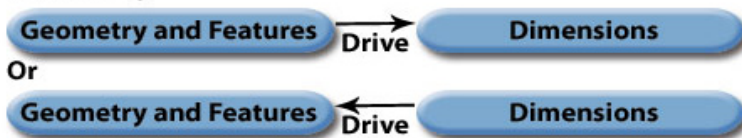
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## Constraint-driven Parametric Modeling

Only Cobalt can be driven by parametric constraints and equations. Like Xenon, Cobalt uses geometry and feature parameters to drive model dimension, but **Cobalt has the additional power to use dimensions to drive geometry and the parameters of a feature.** In other words, things can be designed both ways.



### Cobalt only

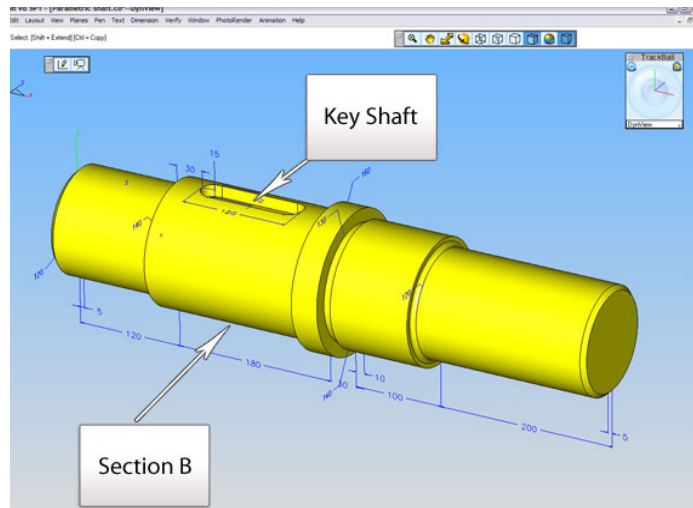


Only Cobalt features constraint-driven parametrics, which use dimensions to drive geometry and feature parameters.

## The Joy and Headaches of Constraints

Parametric constraints are sophisticated mathematical equations that allow you to solve for variables automatically, as shown in the example on the right.

While dimensional constraints are incredibly powerful for automatically calculating appropriate design variations, you can see from this example how they can also be very difficult to set up. Constraints can be especially cumbersome when simply exploring the initial concept of a design. So when should they be used? We'll discuss that next.



The key slot on the shaft above is currently 120mm, within Section B which is 180mm. If I adjust Section B, say to some length between 25-300mm, I want Cobalt to automatically adjust the key slot so that it is approximately 2/3 of the section length but only in 10mm increments, unless by using 10mm increments, the offset from the edge would be less than 10mm. If so, then use 2mm increments. At all times, however, the slot must be centred as near to the centre of the section as possible, but on an even 2mm increment.

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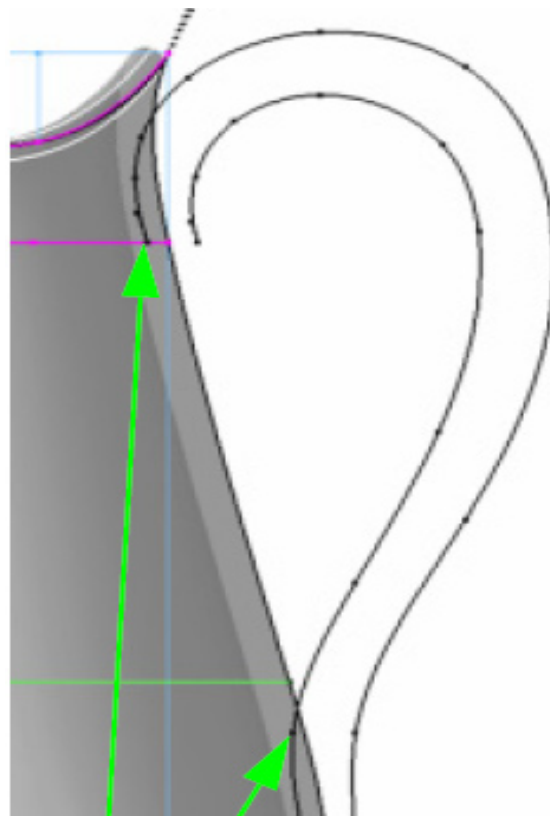
## When to use Constraints

Constraints are extremely valuable when used for the right purposes. But because they can be time consuming to set up, they are only worth the investment when designing something that will have a high number of non-random variations. In other words, it's not worth the effort to set up the parametric equation and constraints if:

1. There are only two minor variations of the same thing.
2. The variable cannot easily be solved with an equation, such as a random curve whose shape is determined more by what looks right than by what is mathematically calculated.

Cobalt is the only software that allows you to use dimensional constraints on demand, only when you need them. Competitive programs, such as SolidWorks or ProEngineer, demand that all design be done with parametric constraints. This means that every feature is driven by an equation. This is fine if you're able to think four or five moves ahead, planning for all possible design contingencies, like a master chess player. But it is an incredible handicap to free flow conceptualization, where the basic shapes are determined by "what if" thinking. On the other hand, typical history-free modelling programs such as

Rhino, Space Claim or CAD Key offer some of the conceptualization flow, but none of the parametric control. This is just one more way that Ashlar-Vellum's paradigm of Organic Workflow delivers exactly what you need right when you need it.



*A random curve determined mostly by what looks right is not usually a good candidate for parametric constraints.*

## New Access to Outer Space

*Orbital Expeditions® makes access to outer space easier than ever before. They provide support services and consulting for manned and unmanned payloads for government, research and commercial clients. As third-party integrators they bring together scientists requiring payload integration with civilian rocket launch producers creating low-cost spaceflights.*

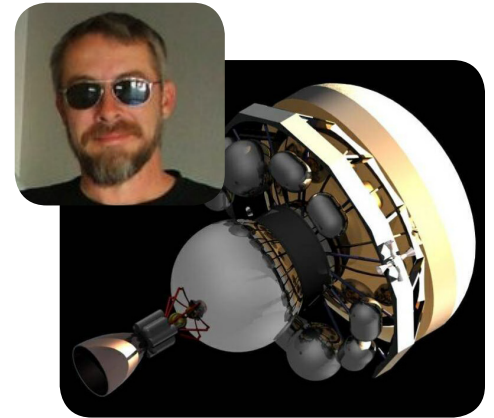
According to Greg Jones, Chief Technical Officer of OrbEx, scientists can build hardware for their experiments but don't know how to design for standard minimal spacecraft hookups such as power, thermal protection and pressurization. Rocket builders can build something that flies but don't know how to incorporate all of the needs of the scientists' experiments. The team at Orbital Expeditions brings together the needs of both sides, creating a standard buss, for what Greg refers to as a "plug and play spacecraft."

Jones designs the concept hardware for these system integrations in Ashlar-Vellum Graphite™ and Cobalt™. Using a 3D model they can turn it around and see what's going to work in conjunction with mechanical and aerodynamic engineers. Then astrophysicists run simulations with the basic design. After the concept is approved, Jones designs the mechanical

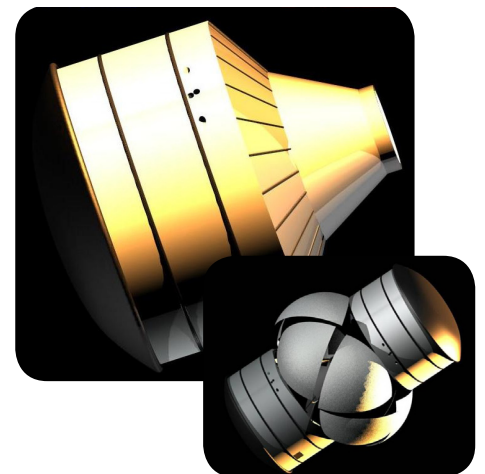
***"The beauty is the interaction between Graphite and Cobalt. I start everything in Graphite usually, just a rough wireframe figure of a concept. Then I've found it's really easy to open that same file in Cobalt and start modelling right from what's already laid out. Also Cobalt is great for the rendering. The new library gives me a lot of variables. When we get down to the actual mechanical CNC lathe and water jet, it reads my drawings in native Ashlar-Vellum file format."***

Another of the key reasons why Jones uses Cobalt is because of its true ability to draw in 3 dimensions. He comments, "For a craft you have to take into account all three dimensions at one time when you're designing. Other 3d modeling programs are too awkward for what we use here. You cannot go from concept to mechanical drawings easily in them."

By integrating the needs of payload specialists with the technology of civilian rocket engineers Orbital Expeditions is making the concept of low-cost space launches a very practical and sustainable business of the future.



*Jones designed the truss structure for the Instrument Deployment and Return Vehicle (IDRV) starting with a rough concept in Graphite, then brought that file into Cobalt to create and render a full 3D model.*



*Concept renderings of the Payload Transportation Module (PTM) for safely carrying research and commercial experiments into space and lunar orbit.*

### **Background/Contact:**

For more details on this project contact:

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[www.orbex.biz](http://www.orbex.biz)