

3D Drafting Training Course Overview

A. Description

Standard training is in five phases – 2 hours per day/2 days per week; this schedule may be adjusted to the clients specific needs and work scheduling structure.

1. Format – description of mechanisms to create standard defaults for CD sets, page organization, symbol and text annotation.
2. 2D Basics - a *brief* overview of the basic 2D tools and menus will initiate the training course or classroom.
3. 3D Basics - an introduction to the 3D drafting and presentation tools,
4. 2D to 3D conversion - Converting existing 2D drawings to 3D images
5. Advanced 3D Drafting - a complete survey of 3D commands, menus, resources and tools.
6. Viewport Drafting – a complete survey of the use of a single 3D drawing to create a COMPLETE set of Construction Documents.
7. Advanced 3D Presentation – creation of visually appealing and aesthetically pleasing images and illustration that meet the standards of the American Institute of Architecture’s 3D architectural drafting standards. (Requires Renderworks software)

B. Outcomes and Objectives upon completion of the training course:

Trainees will be able to:

1. Define and use Vectorworks CAD to design and render 3 dimensional representations of architectural designed spaces in Construction Drawing sets.
2. Comprehend the use of CAD to convert ideas into 3 dimensional study renderings of architectural design space planning.
3. Apply CAD render and print functions by using a variety of scales and projections and perspectives in all formats.

C. Recommended Course of Study in both classroom and individual follow-up

Tools

1. Drawing organization and management
 - a. Border & Title Block – 2 hours
 - b. Design Layers and design view control
 - c. Object Classes and class view control
 - d. Sheet management and Viewports
2. Drafting tools
 - a. straight lines
 - b. curved lines
 - c. double lines

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3. **Editing tools**
 - a. **reshaping tools**
 - b. **resizing tools**
 - c. **cut and paste tools**
 - d. **replication tools**
4. **Shape tools**
 - a. **polygon tools**
 - b. **oval tools**
5. **Dimensioning tools**
 - a. **constrained dimensioning tools**
 - b. **unconstrained dimensioning tools**
 - c. **loci, reference grids, and measurement units**
6. **Toolbox modification for client specific needs**
 - a. **access to Resource Palette**
 - b. **selection and placement of tools**
 - c. **removal and organization and saving of the selected tools**

Menus

1. **Document management menus**
 - a. **Page management**
 - b. **View management**
 - c. **Layer management**
 - d. **Object Class management**
 - e. **Viewport and Viewport Sections**
2. **Tool management menus**
 - a. **Creation tools**
 - b. **Editing tools**
 - c. **Dimensions & Measurement tools**
3. **Page and View menus**
 - a. **Page organization**
 - b. **View organization**
4. **Preference and Resource menus**
 - a. **Operation & Control Preferences**
 - b. **Resource Management**
 1. **Object symbol creation and available libraries**
 2. **Automated function control**
 3. **Drawing properties control**
5. **Output and file management menus**
 - a. **print/sheet management**
 1. **Preliminary viewing**
 2. **Print samples**
 3. **Adjustment and adapting to printer's requirements**
 - b. **drawing size**
 1. **Architectural default sheet sizes**
 2. **Personalized default sheet sizes**
 3. **Preliminary proofing**
 - c. **printer management**

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1. Printing for reprographics
2. Printing for client review
3. Printing for proofing
4. File management
6. Menu modification for client specific needs
 - a. access to Resource Palette
 - b. selection and placement of menus
 - c. removal and organization and saving of the selected menus

Business Information Modeling & Management (BIM)

VWX has internal code to create database input allowing for greater precision in costing and estimating. Learning the mechanism of creating a BIM database requires concentrated study. It is the cost analysis tool of Vectorworks.

The BIM information is derived by linking data from supplier or vendor to client specific symbols, and automatically “reading” that data to provide a simple facilitation of reporting.

Additionally, the drawing of spaces including that data will provide information where cost controls may be forecast, regulated and implemented.

Material cut sheets, cost and pricing databases, engineering and space planning databases all may be generated by the trained user of VWX.

Topography in 3D will be used to calculate cuts and fills.

Framing and other dimensioned materials for all of the trades may be calculated separately for cost containment.

1. Advanced BIM Training
 - a. Creating BIM Reports, Cut Lists, Bills of Materials
 - b. Creating BIM Cost Database Structures and Formats
 - c. Creating Linked Text
 - d. Linking Text to Symbols
2. Information Management
 - a. Creating and Using ID Labels
 - b. Creating and Using Custom Markers
 - c. Application of Database functions
 - d. Insertion of Data in Report Format on the Drawing

Training for BIM requires an additional minimum 5-10 hours per individual. Classroom technique decreases this time to 4-8 hours per individual.

BIM requires study.

It provides the knowing student with a tool that reduces the amount of business management of any project.

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Alternative Training and Support Programs

D. On-The-Job-Training

Each of the training modules outlined above may be applied to OJT. However, for full comprehension, and work efficiency, it is **STRONGLY** recommended that the integration of OJT be initiated **ONLY** after the student has completed at least an overview of Menus and Tools.

OJT will require a longer period of training, as both classroom and individual training and support will be totally integrated requiring a more individual focus on each of the participants.

OJT also allows focus on individual's specific obligations and responsibilities within any given project and its documentation. Documentation requirements for each job may differ from another. It is important to understand that not only do students comprehend at different rates, but different documentation require different skills for the application of the VWX Menus and Tools within each module.

For example, you may wish to have one given student more thoroughly trained in a certain design discipline than another student.

E. Continuing Consultation

SEARAILS offers optional and alternative training and support programs within a year's consultation agreement.

This agreement covers **ALL** functions available from SEARAILS and its association with The GUILD of Information, including; Training and Support, and all the disciplines mentioned within the cover letter. The consultation will require negotiation and planning.

The advantage of a consultation agreement is a full service relationship with no boundaries on available time or subjects or services. Its negotiated cost is usually less than a single full time employee.

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