Education and Culture DG

Lifelong Learning Programme

LEONARDO DA VINCI

"ARCHI- Let's SOFT it!"

LLP-LDV/**IVT**/2012/RO/128

"The mother art is architecture"

"Without architecture of our own we have no soul for our own civilization"

PROJECT PARTNERS

COLEGIUL NAȚIONAL IAȘI

STEP SEVILLA

STAGE WITHIN EUROPEAN PROGRAMMES

JUAN RUESGA. ARQUITECTO Y ESCENÓGRAFO

Participants:

- AMARANDI LIDIA MARTA
- AMIRONESEI AURA ELENA
- APETROAEI DARIUS ŞTEFAN
- BĂRBULESCU ILINCA
- CĂUNEAC LOLA ELISA
- CIUPILAN CRISTIAN
- CIUPILAN ŞTEFAN
- CRISTEA ILINCA
- DRIŞCU IULIA TEODORA
- EŞANU ALEXANDRU
- GRAMATICU ECATERINA
- IACOBAN SORINA ANDREEA
- IONIŢĂ ALEXANDRU
- IOSEP DIANA GABRIELA
- MATCOVICI ŞTEFAN
- MATEIU RUXANDRA
- MAZUREAC BOGDAN ANDREI
- OUATU IUSTIN
- PETCOVICI VLAD
- PRISACARIU GEORGIANA SABINA
- PROFIRE BIANCA ŞTEFANIA
- PUIU CONSTANTIN OCTAVIAN
- PUIU IOAN ALEXANDRU
- PURICE IOANA ELENA
- RADU IOANA
- SOFICA PAULA NICOLETA
- TIBA ŞTEFANA ALEXANDRA
- TIFOR VLAD CONSTANTIN
- TRĂSNEA PETRU DĂNUŢ
- TUMURUG SABINA


Ripollés
14
Alexandru Ionita
2013

What is the project about?

Leonardo da Vinci is an ingenious project whose aim is to privide a basic knowledge of architecture through multiple trainings held in Seville, Spain for the best students in National College Iasi.

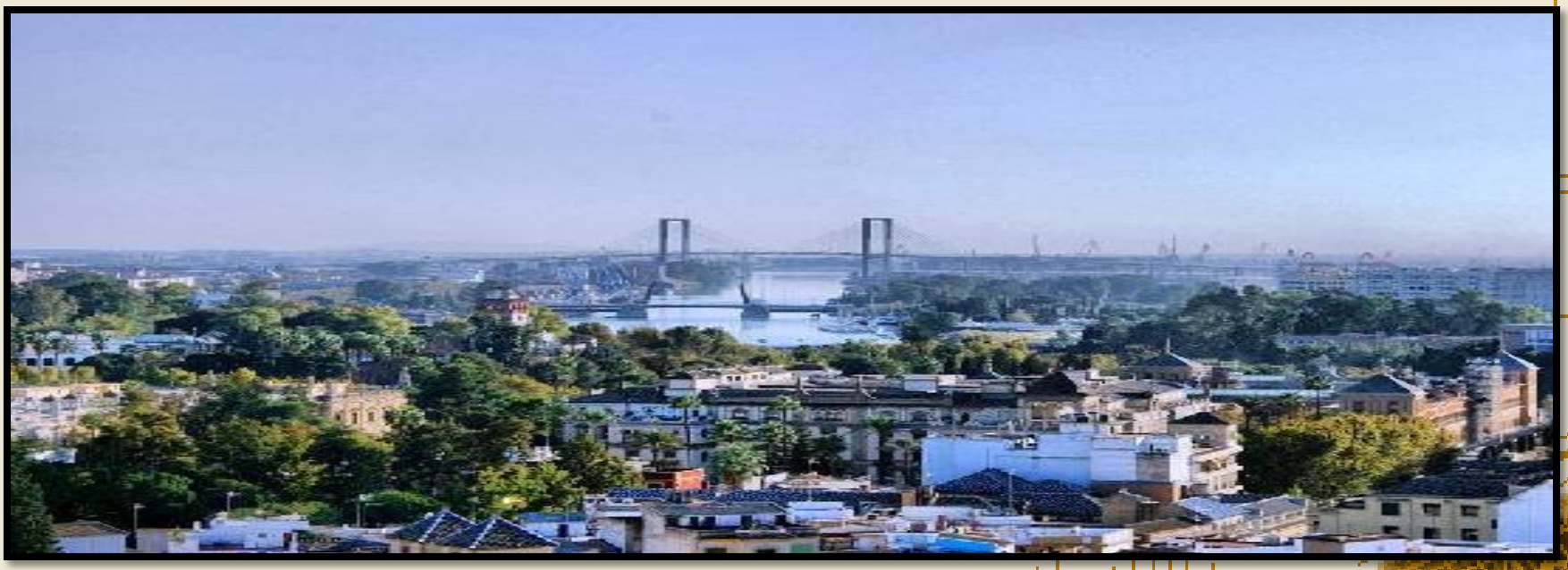
What makes this project worthwhile is the informal and highly modern way in which the courses are held, as well as the widely variated cultural programme where the participants have the occasion to get acquinted with new places, to visit historical sights and to meet international students.

Why Leonardo da Vinci?

There are many reasons why this projects stands out. **Firstly**, it allows you to gain basic architectural skills and develop your cultural heritage. Through the trainings, the participants not only find out if the studied subject can provide a future career for them, but they also achieve a helpful background for their following activities.

Secondly, getting accustomed to the sights, the traditions and the new language spoken in Spain, students enhance their abilities to communicate successfully and to handle complicated situations easily.

Finally, the project facilitates the international cooperation between a remarkable school and one of the best architectural companies in Spain.

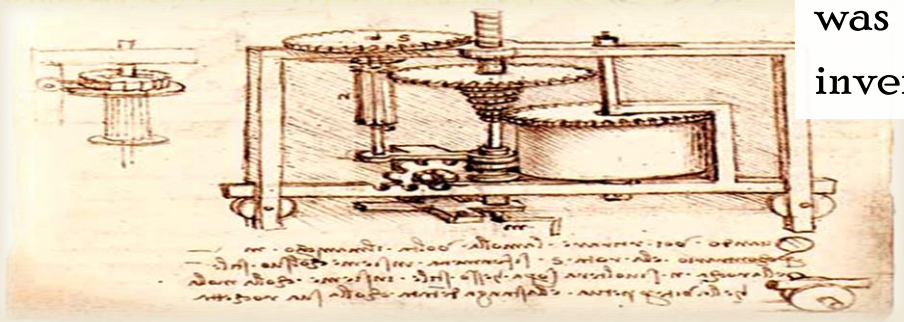


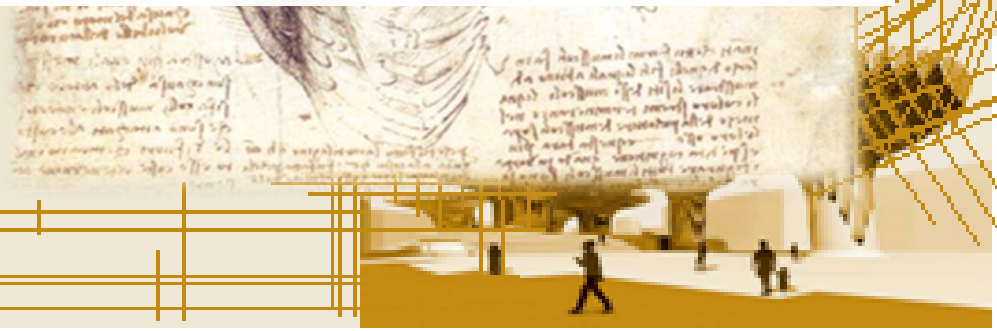
Technical drawing

Short History

From 1400 to 1600, technical drawing began emerging. Filippo Brunelleschi began incorporating linear perspective in his paintings about 1425, which gave his successors the ability to depict mechanical devices for the first time in a realistic manner.

Leonardo da Vinci (1452-1519) is considered to be one of the first graphic artists. By combining his scientific interest with his artistic ability, he was able to merge visual art with science and invention.





Three-Dimensional Perspective

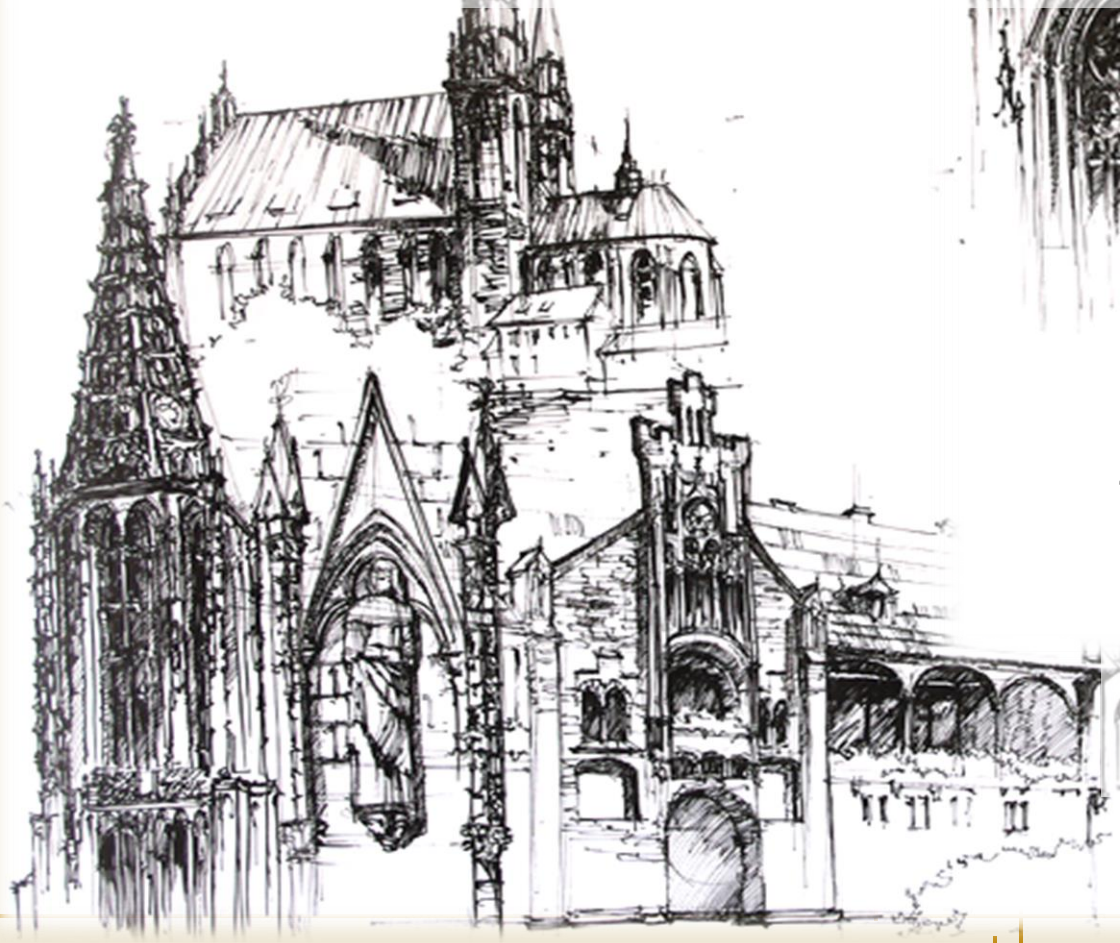
It was recognized in the Renaissance period that objects would appear smaller as the distance from the observer increased. Technical artists in this period almost always incorporated three-dimensional perspective in their drawings.

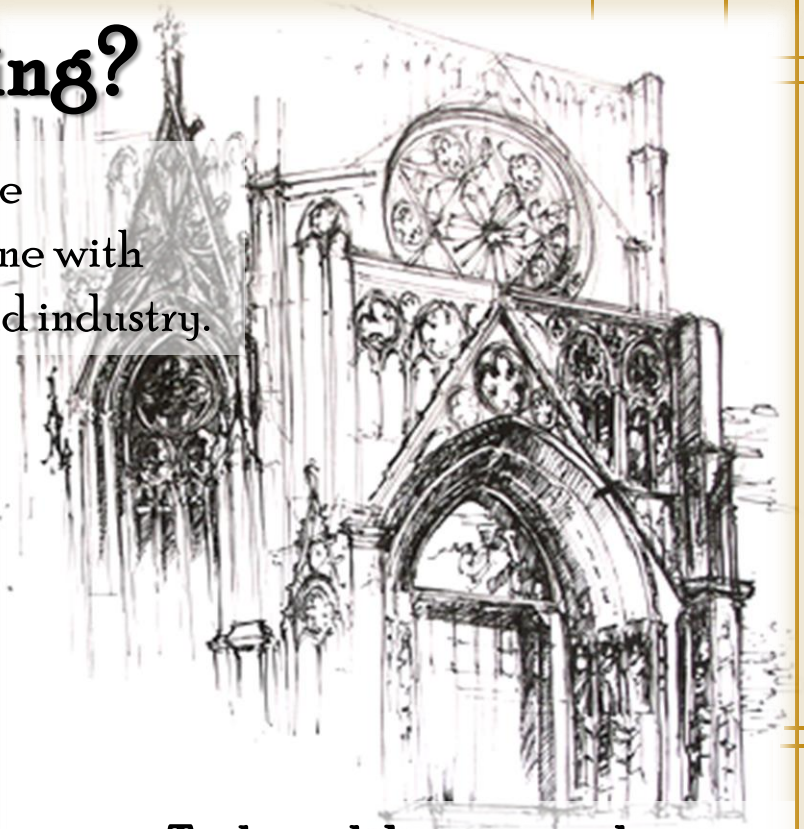
Perfecting the Technique

Raphael Sanzio (1483-1520) perfected the technique of three-dimensional perspective while studying architecture. He was able to translate the two-dimensional image that the eye creates into the three-dimensional image that the brain interprets onto paper.

What is technical drawing?

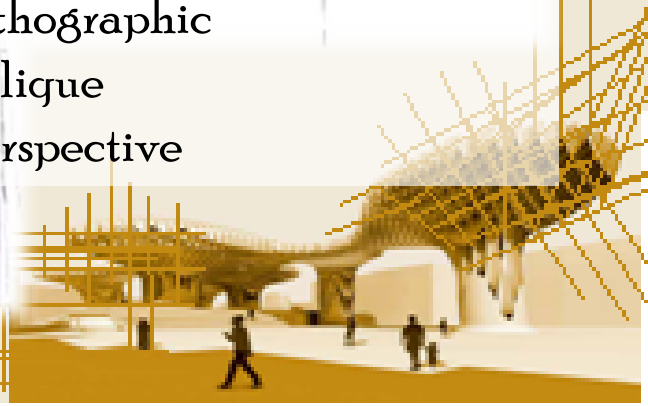
Technical drawing, also known as drafting, is the technique of creating engineering drawings done with compasses, rulers and computers for business and industry.





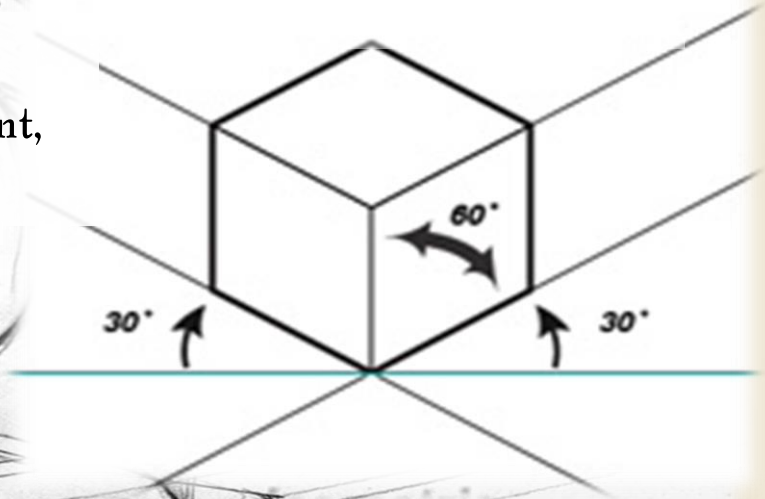
Technical draw ing styles:

- isometric
- orthographic
- oblique
- perspective



Isometric System

The axes form 120° angles.



It is also known as axonometric orthogonal.
Isometric drawings show the object from the front, right, and top in equal proportion.

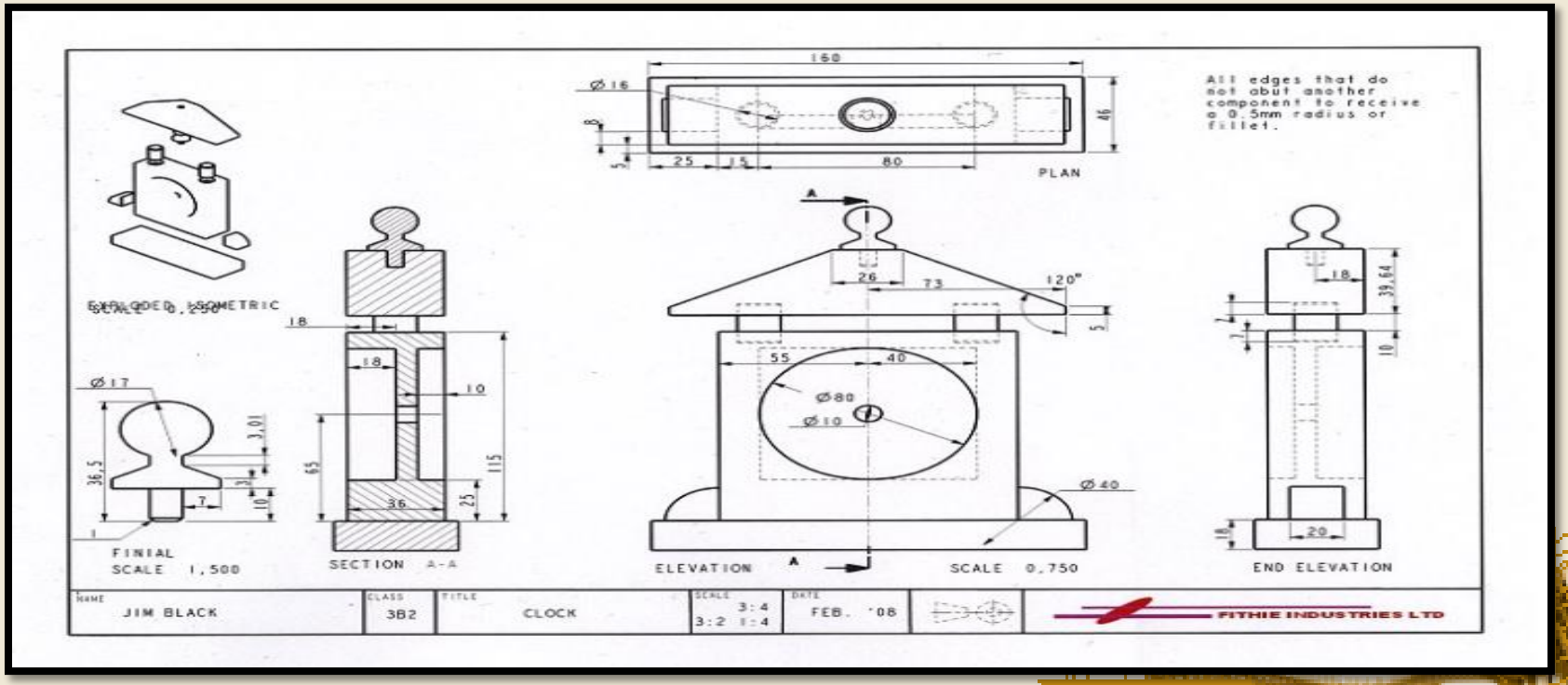
To represent an object we use **tree axes**:

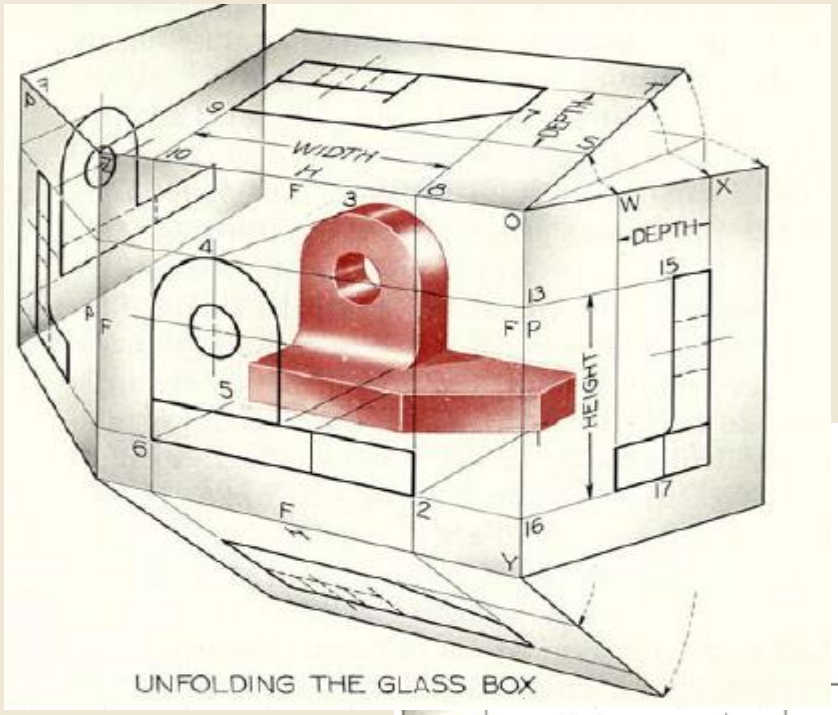
- X: width
- Y: depth
- Z: height

Orthographic drawings

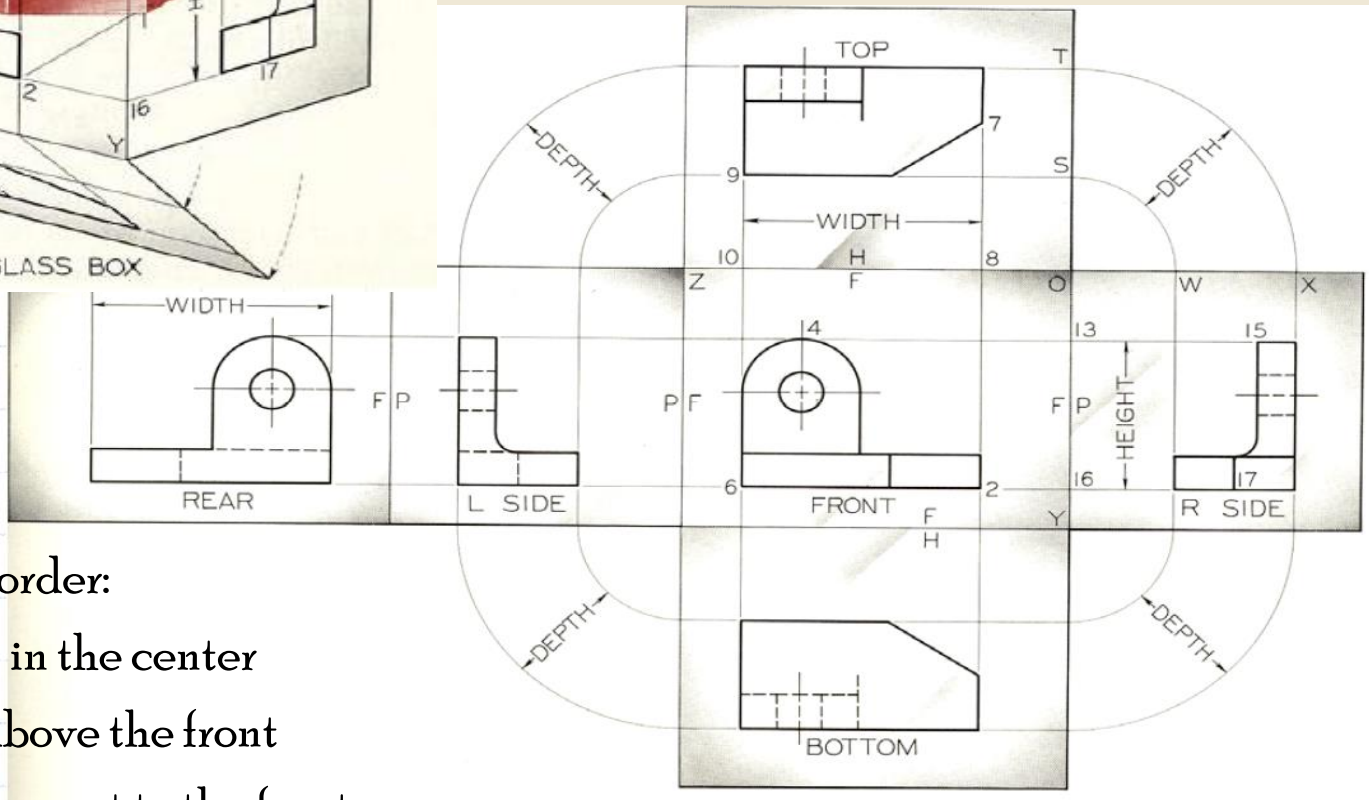
multi-view drawings

The Orthographic projection is derived from the principles of descriptive geometry and is a two-dimensional representation of a three-dimensional object. It is a parallel projection (the lines of projection are parallel both in reality and in the projection plane). It is the projection type of choice for working drawings.





By unfolding the box, **six views** of the object are possible: top, bottom, front, back, left side and right side.

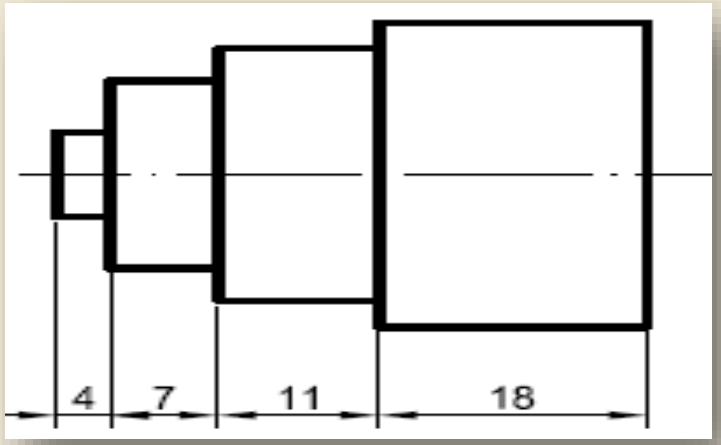


The conventional order:

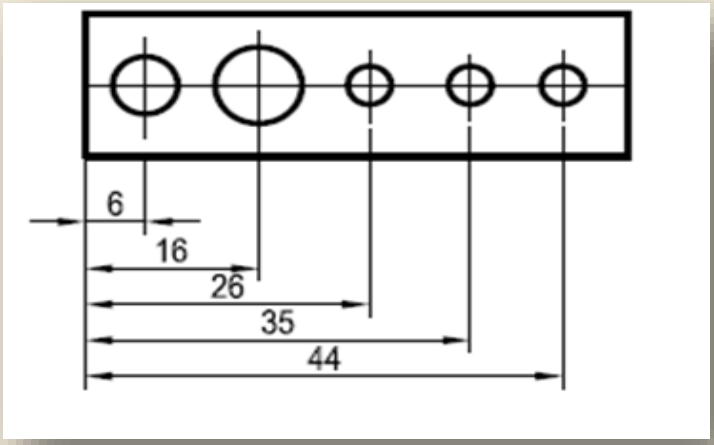
- The Front in the center
- The Top above the front
- The profile next to the front

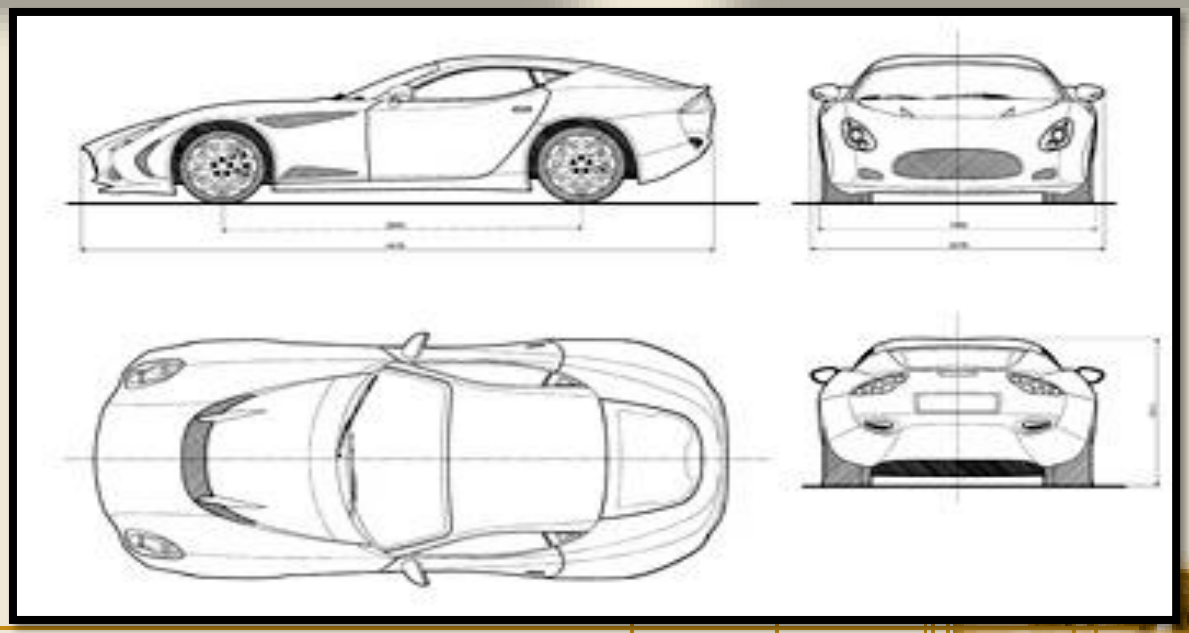
Dimensions

Collinear

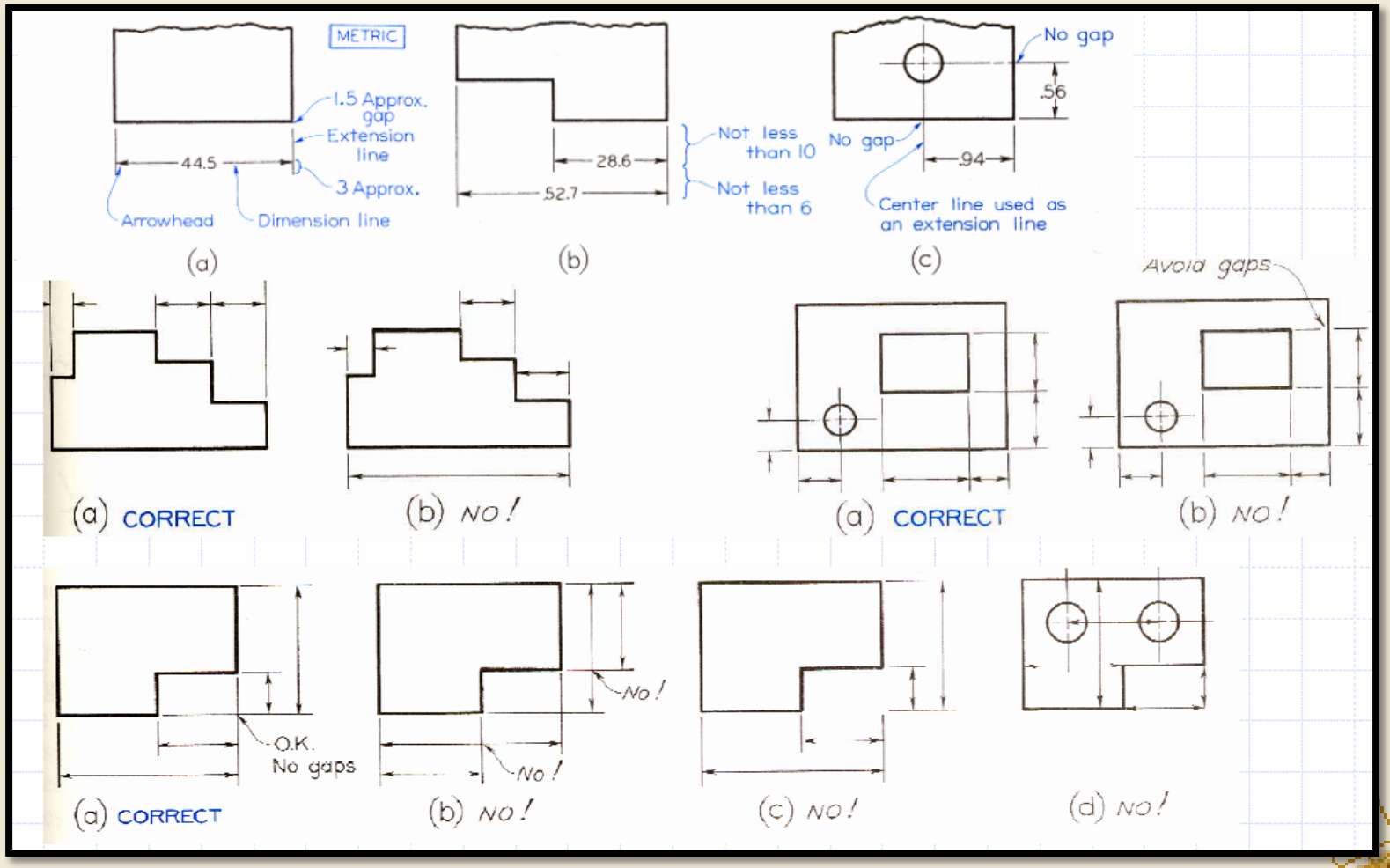


Linear





Proper dimensional placement

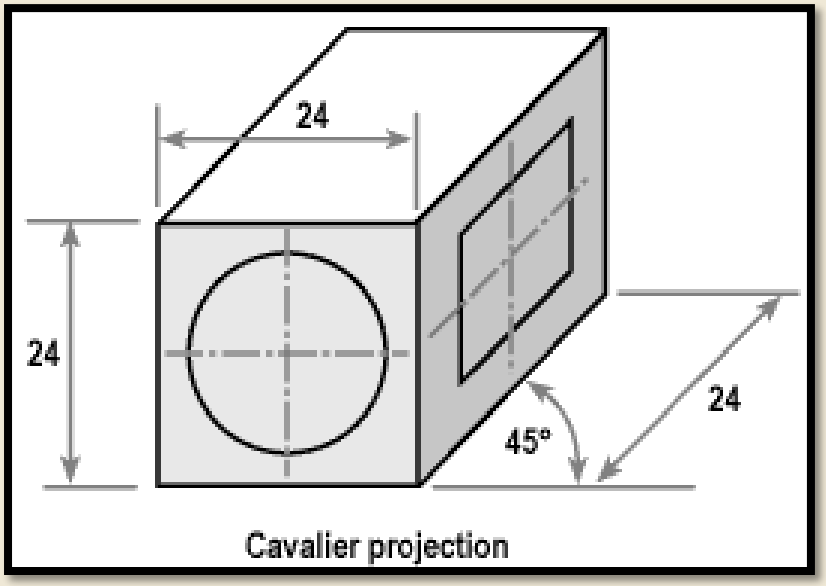


Oblique projection

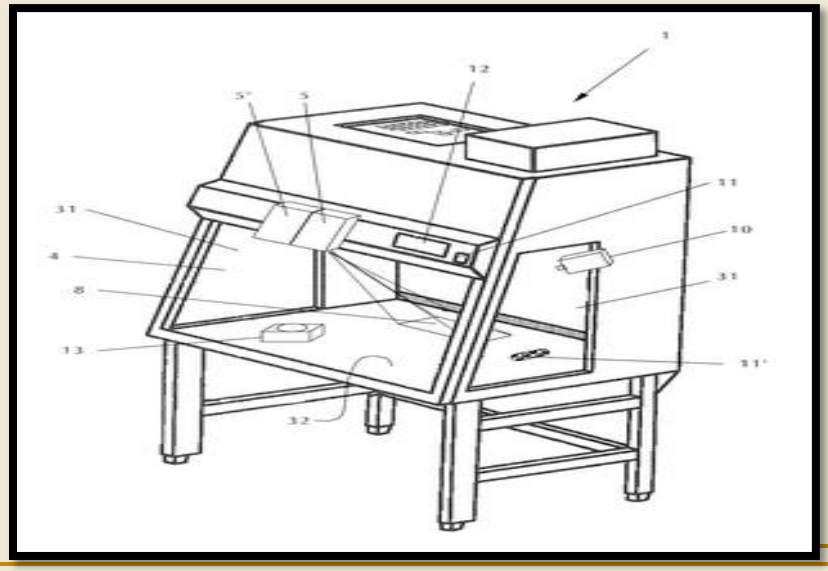
In oblique projections the parallel projection rays are not perpendicular to the viewing plane as with orthographic projection, but strike the projection plane at an angle other than ninety degrees.

Cavalier projection- high view point

In **cavalier projection** a point of the object is represented by three coordinates, *x*, *y* and *z*. On the drawing, it is represented by only two coordinates, *x* ″and *y* ″.



Cavalier projection

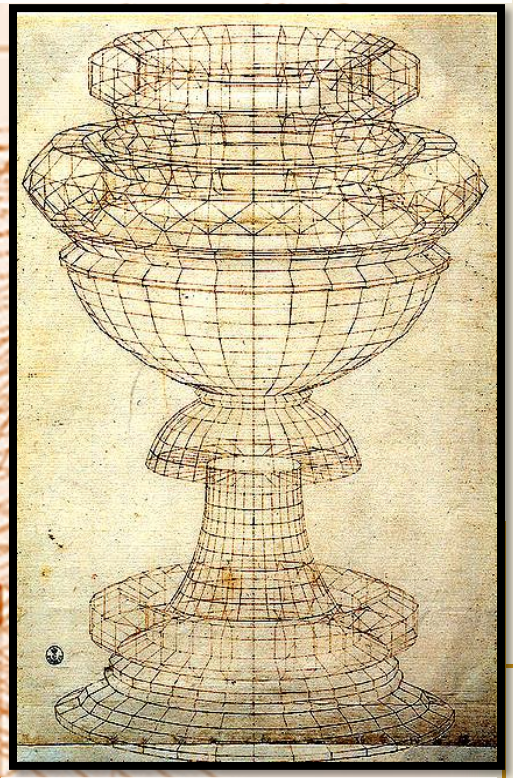


Cabinet projection

The term stems from its use in illustrations by the furniture industry. Unlike cavalier projection, where the third axis keeps its length, with cabinet projection the length of the receding lines is cut in half.

Perspective in the graphic arts, such as drawing, is an approximate representation, on a flat surface (such as paper), of an image as it is seen by the eye.

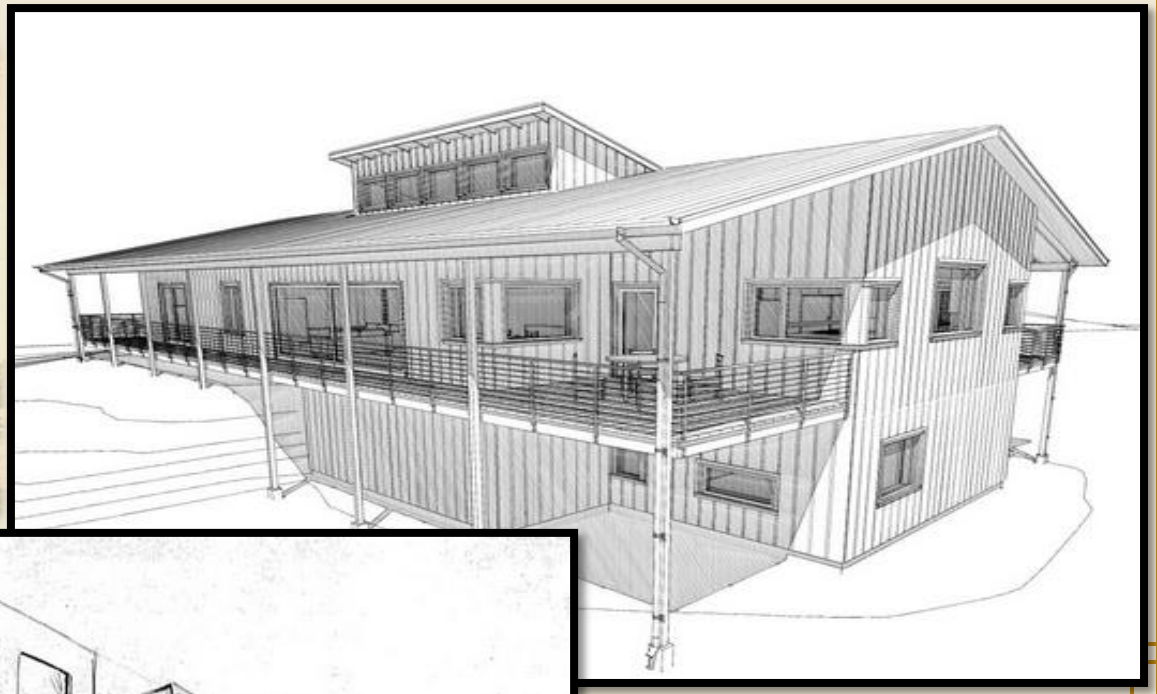
Perspective projection is a linear projection where three dimensional objects are projected on a *picture plane*. This has the effect that distant objects appear smaller than nearer objects.

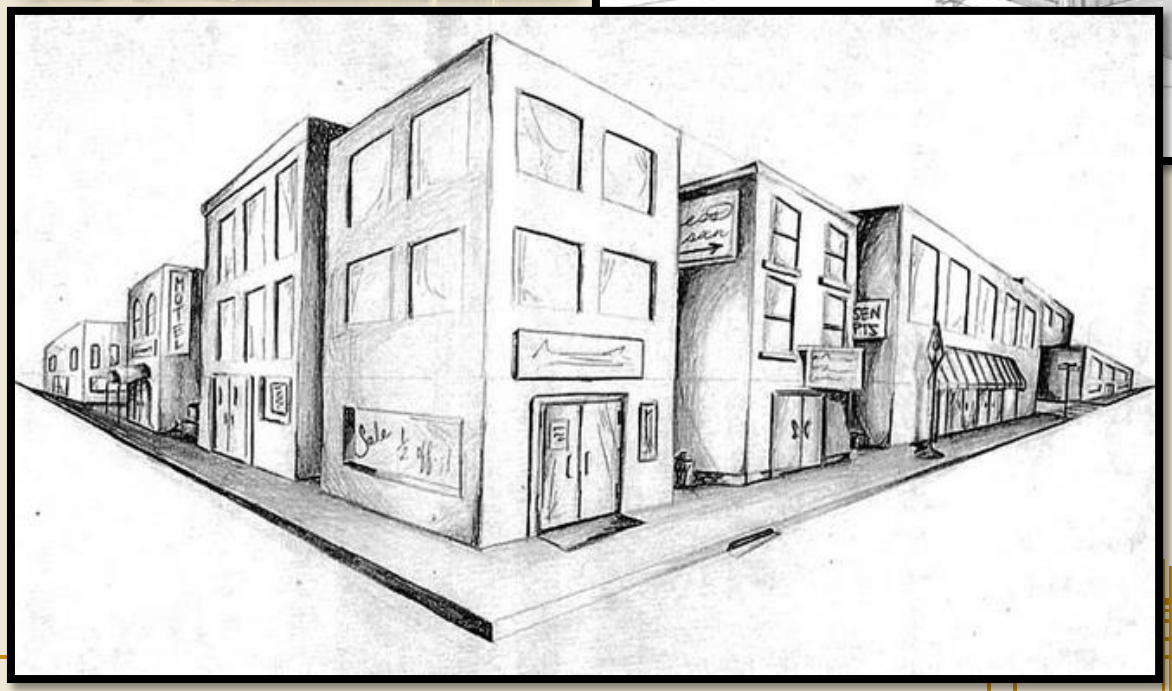


Perspective study of a vase by Paolo Uccello

One point perspective:

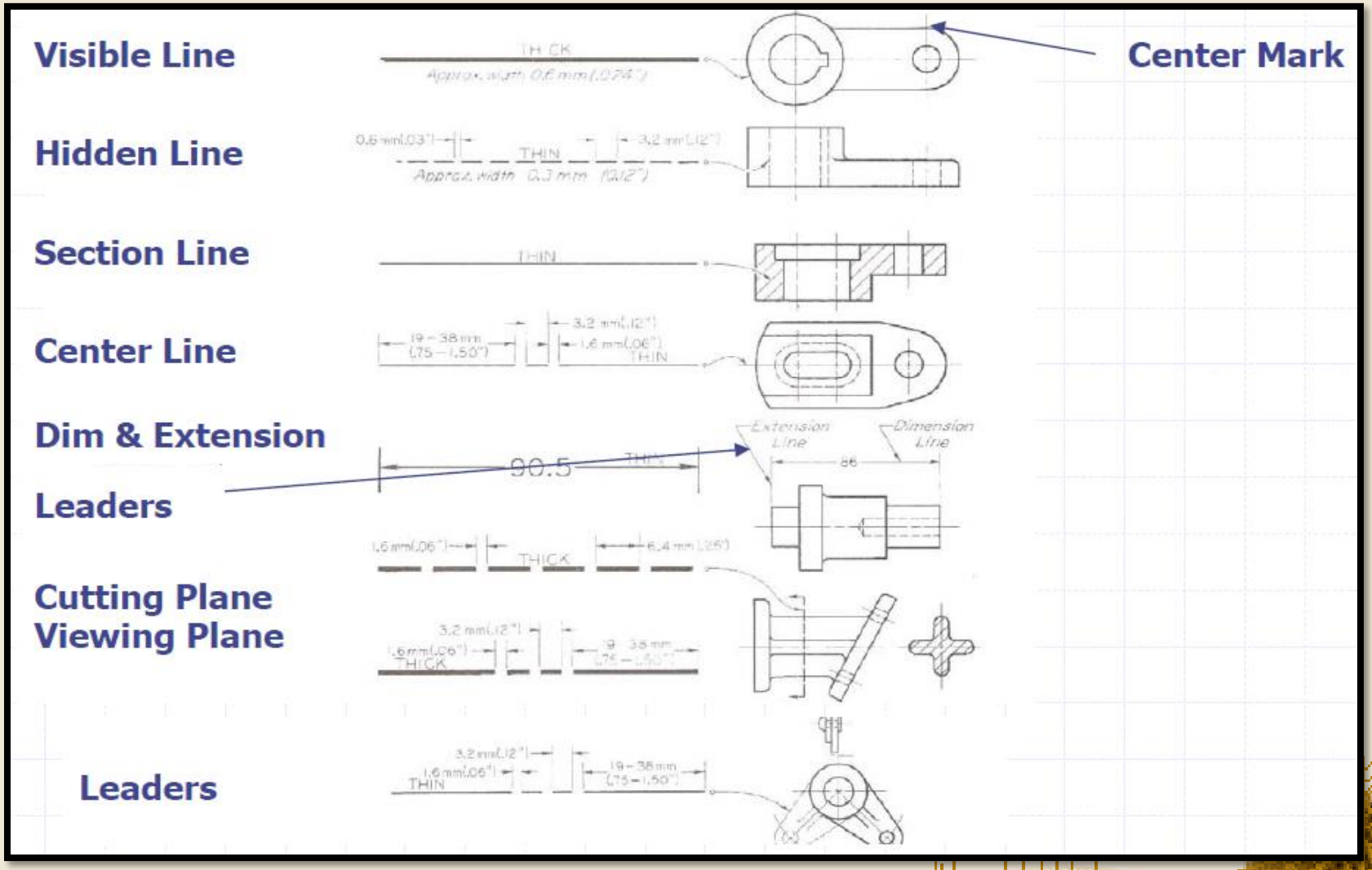
Two vanishing points





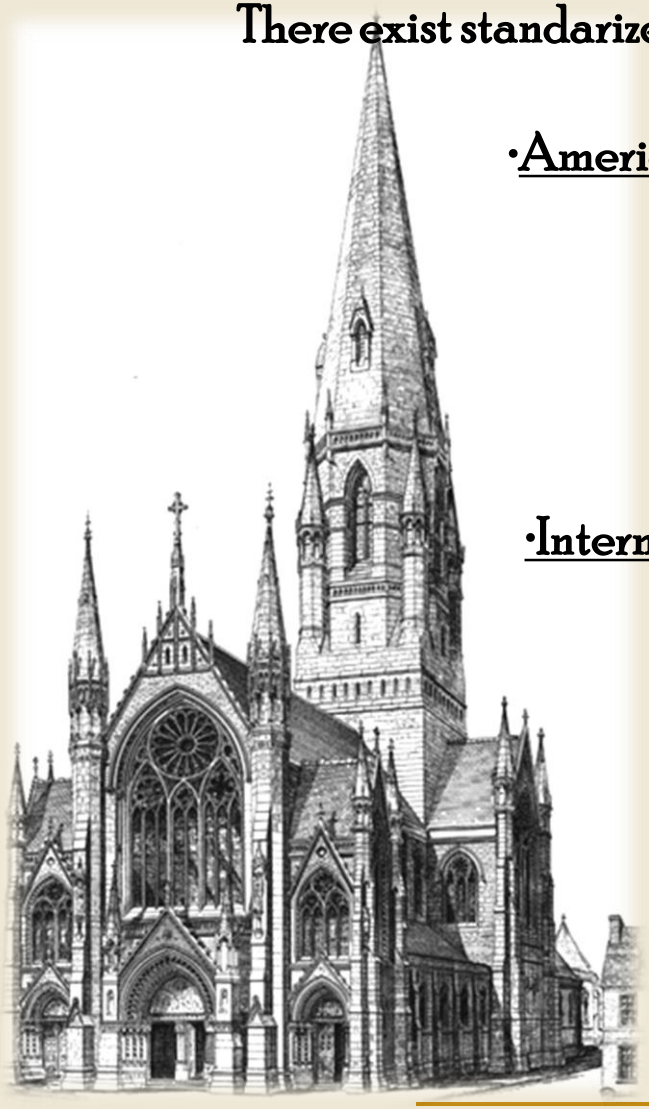
Perspective of a geometric solid using two vanishing points.

Line style and when we use it.

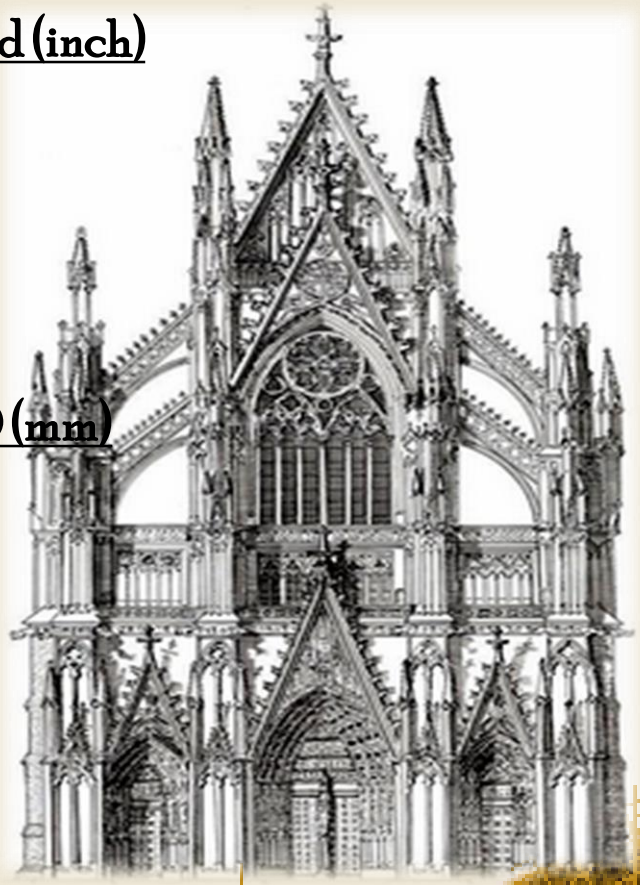


Drawing standars

There exist standarized sheet formats for creating engineering drawings

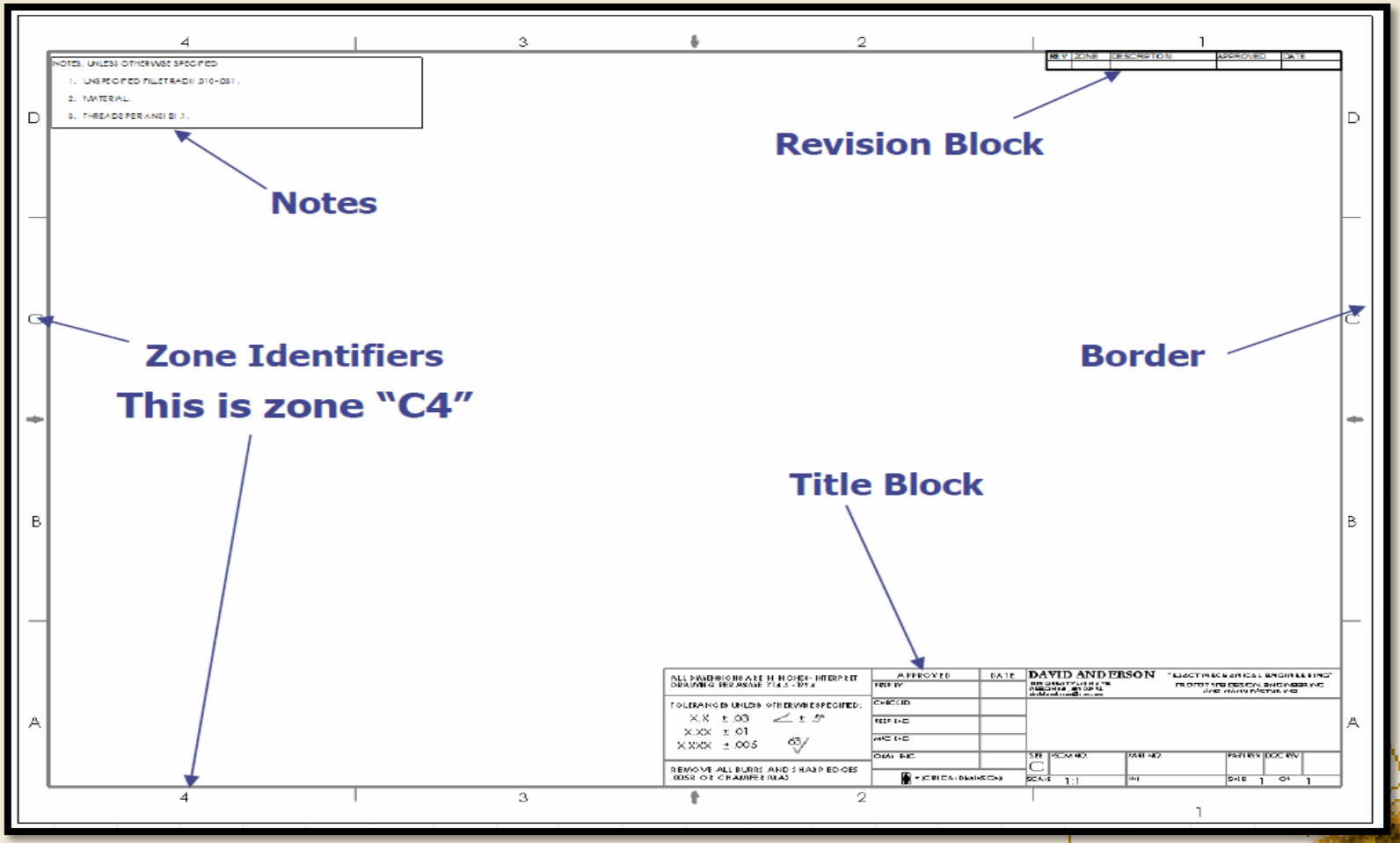


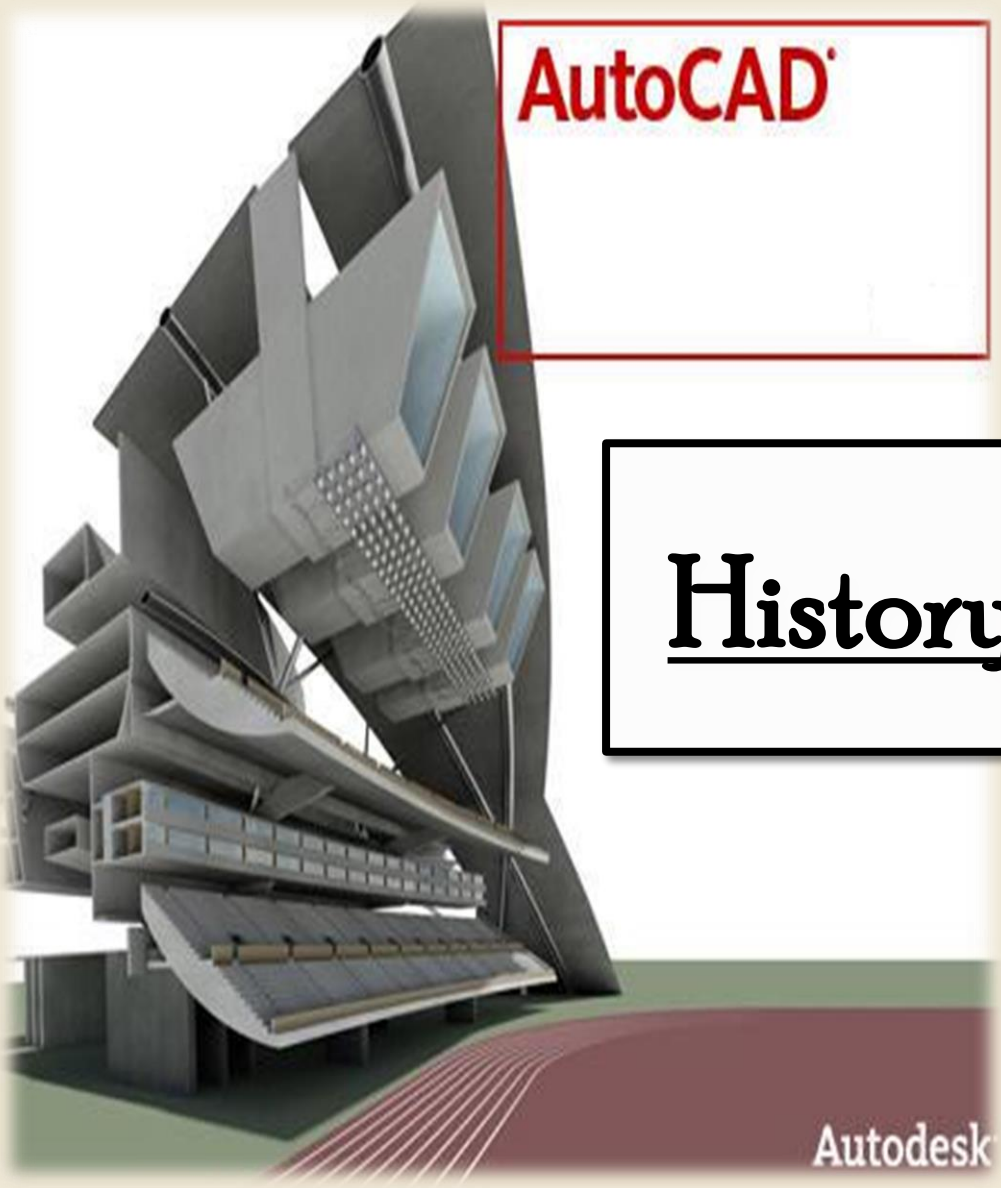
- American National Standard (inch)
  - A –8.5" x 11"
  - B –11" x 17"
  - C –17" x 22"
  - D –22" x 34"
  - E –34" x 44"
- International Standard ISO (mm)
  - A4 –210 x 297
  - A3 –297 x 420
  - A2 –420 x 594
  - A1 –594 x 841
  - A0 –841 x 1189



Drawing standars

Sheet format

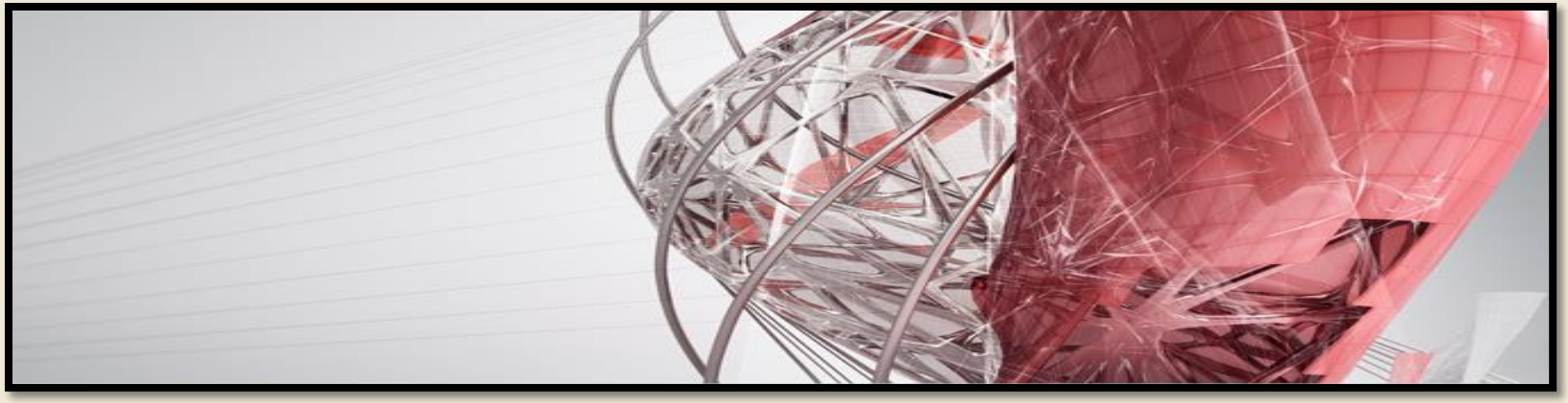




History of AutoCAD

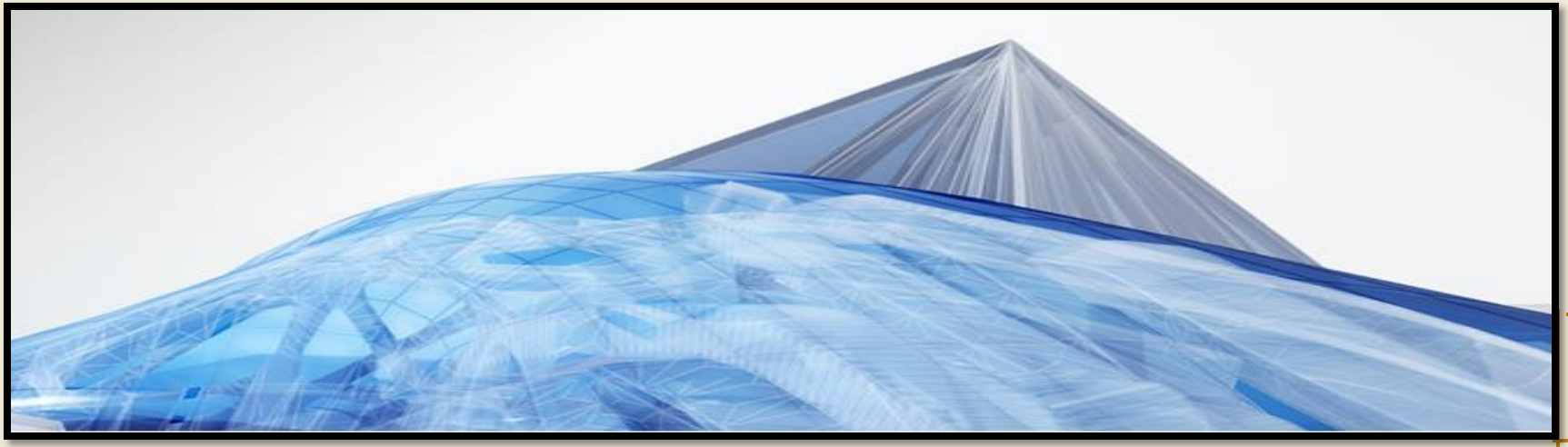
How and when AutoCad appeared

AutoCAD was derived from a 1977 program called Interact CAD, which was written in a proprietary language (SPL) by inventor Michael Riddle who later co-founded Autodesk to market AutoCAD.

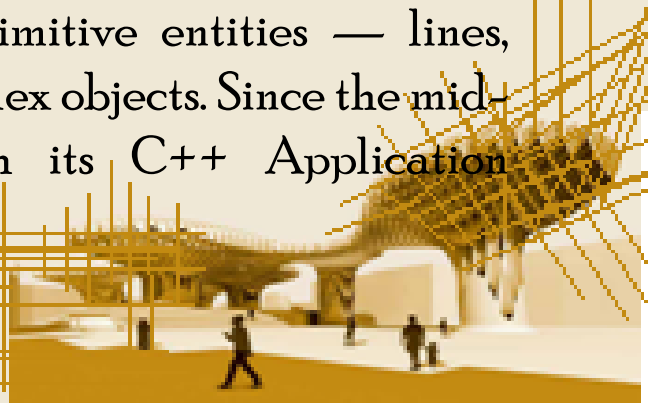


This early version ran on the Marinchip Systems 9900 computer (Marinchip Systems was owned by Autodesk co-founders John Walker and Dan Drake). Firstly, Walker and Riddle had a profits-sharing agreement for any product derived from Interact, but then Walker paid Riddle US$10 million for all the rights.

When **Marinchip Software** Partners (later known as Autodesk) took place, the founders decided to re-code *Interact* in C and PL/1.
They chose C because it seemed to be the biggest upcoming language.In the end, the PL/1 version was unsuccessful and useless. The C version became one of the most complex programs in that language.



Autodesk had to work with a compiler developer, Lattice, to update C, enabling AutoCAD to run.Early releases of AutoCAD used primitive entities — lines, polylines, circles, arcs, and text — to construct more complex objects. Since the mid-1990s, AutoCAD supported custom objects through its C++ Application Programming Interface (API).



Personalities in AutoCad History

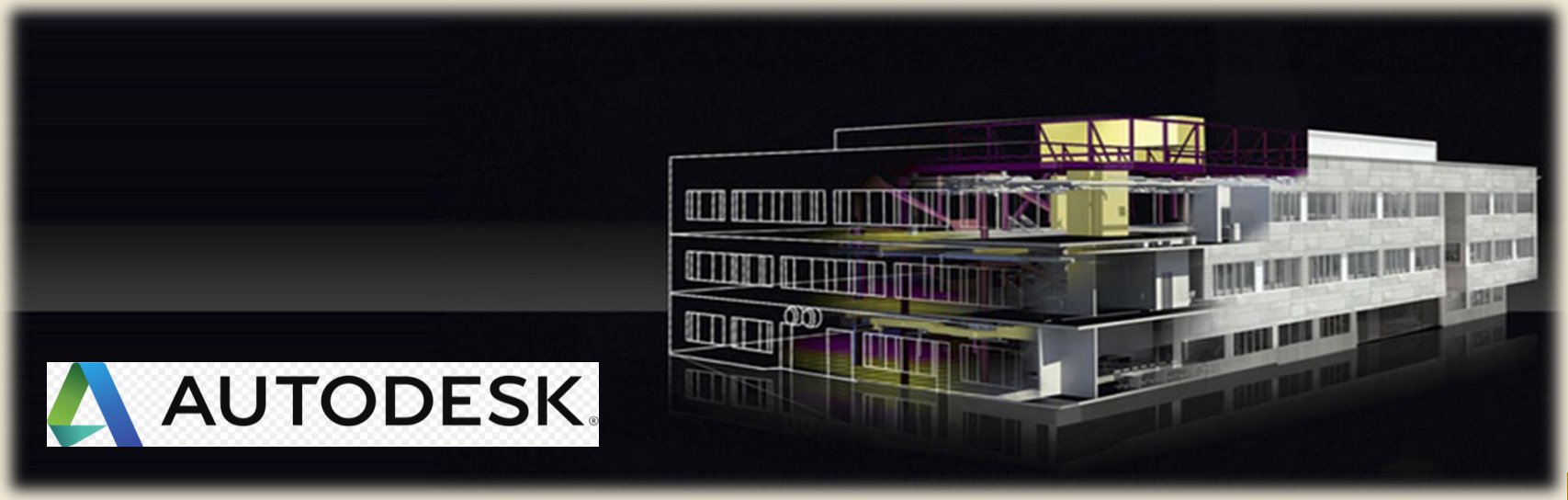
John Walker (born ca. 1950) is a computer programmer, co-founder of the computer-aided design software company Autodesk, and author.

In 1982, Walker and 12 other programmers pooled $59,000 to start Autodesk, and began working on several computer applications.

The first to be completed was AutoCAD, a software application for computer-aided design (CAD) and drafting. AutoCAD which had begun life as InteractCAD, written by programmer Michael Riddle in a proprietary language.

John Walker and Shaan Hurley

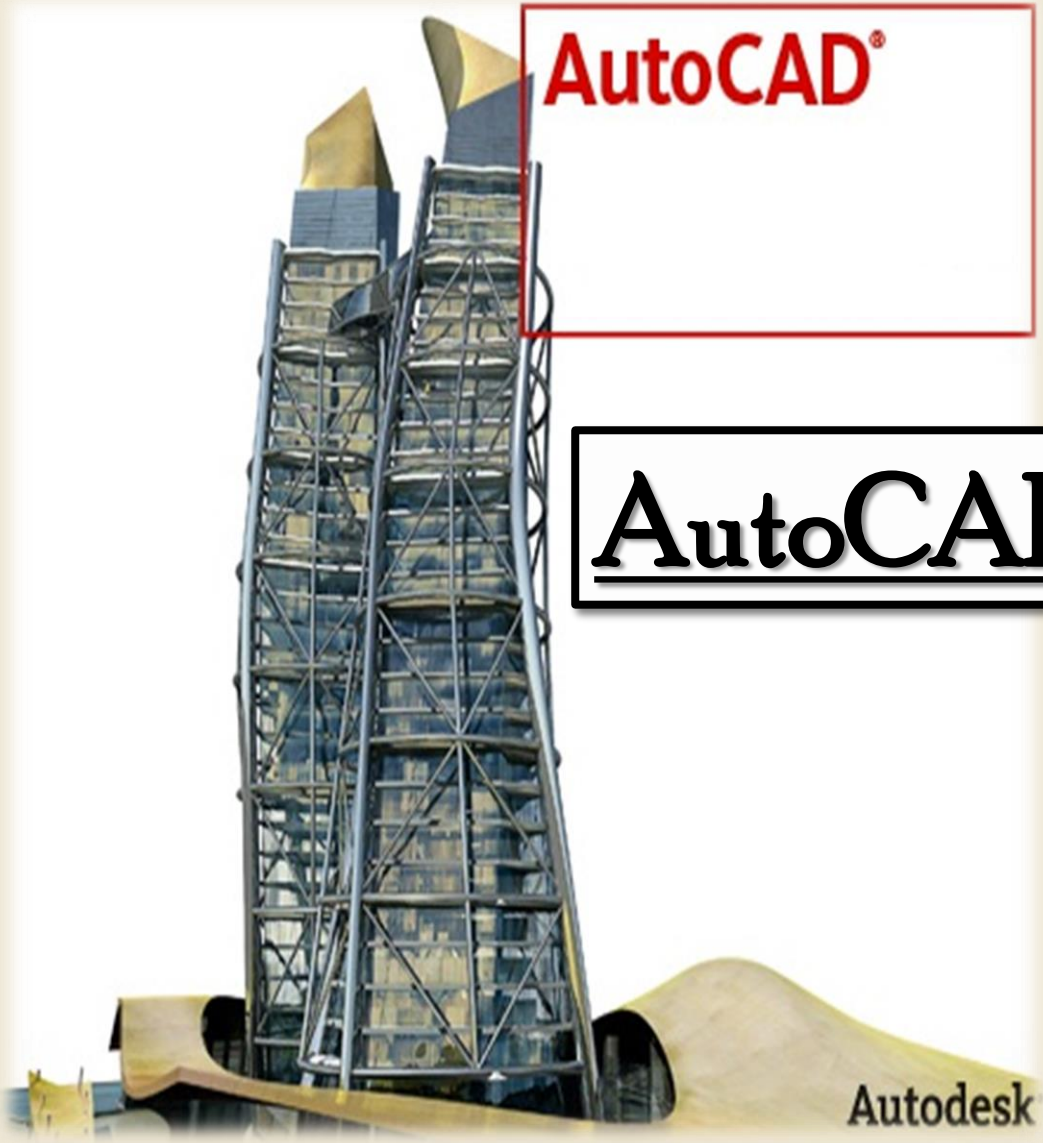
Walker and Riddle rewrote the program, and had a profit-sharing agreement for any product derived from InteractCAD.



By mid-1986, the company had grown to 255 employees with annual sales of over $40 million. That year, Walker resigned as chairman and president of the company, continuing to work as a programmer. In 1989, Walker's book, *The Autodesk File*, was published. It describes his experiences at Autodesk, based around internal documents (particularly email) of the company.

Then, Walker moved to Switzerland in 1991. By 1994, when he resigned from the company, it was the sixth-largest personal computer software company in the world, primarily from the sales of AutoCAD. John Walker owned about $45 million of stock in Autodesk at the time.

One of the first versions of AutoCAD



AutoCAD Presentation

Manual AutoCAD® 2007

AutoCAD is a software application for computer-aided design (CAD) and drafting. The software supports both 2D and 3D formats. The software is developed and sold by Autodesk, Inc.

AutoCAD is Autodesk's flagship product and by March 1986 had become the most ubiquitous microcomputer design program in the world, utilizing functions such as "polylines" and "curve fitting". Prior to the introduction of AutoCAD, most other CAD programs ran on mainframe computersor minicomputers, with each CAD operator (user) working at a graphical terminal or workstation.

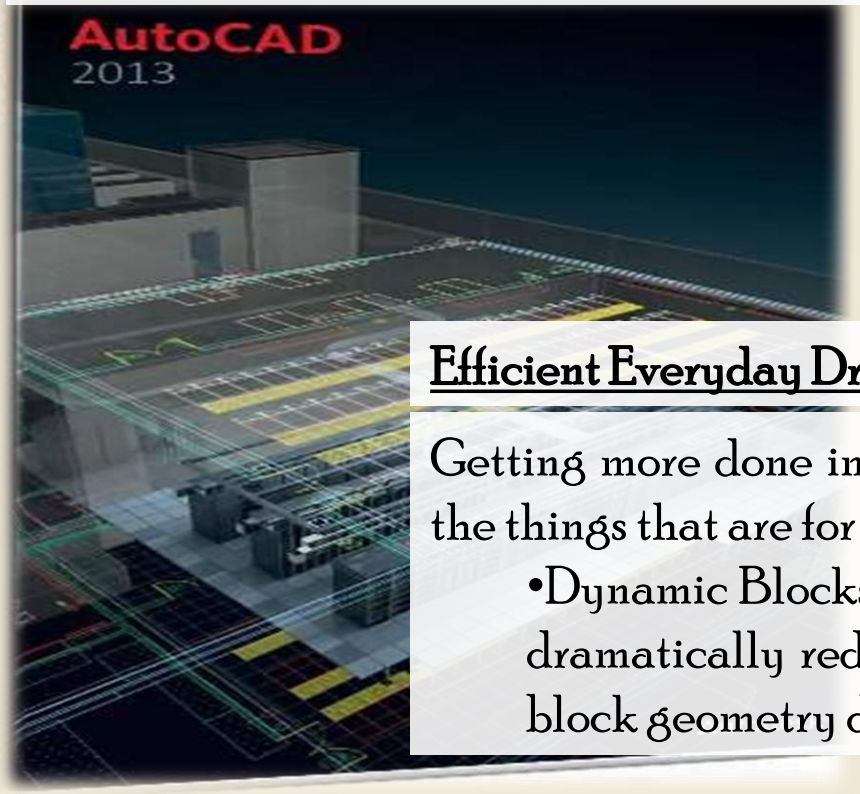
According to Autodesk company information, the AutoCAD software is now used in a range of industries, employed by architects, project managers and engineers, amongst other professions, and as of 1994 there had been 750 training centers established across the world to educate users about the company's primary products.

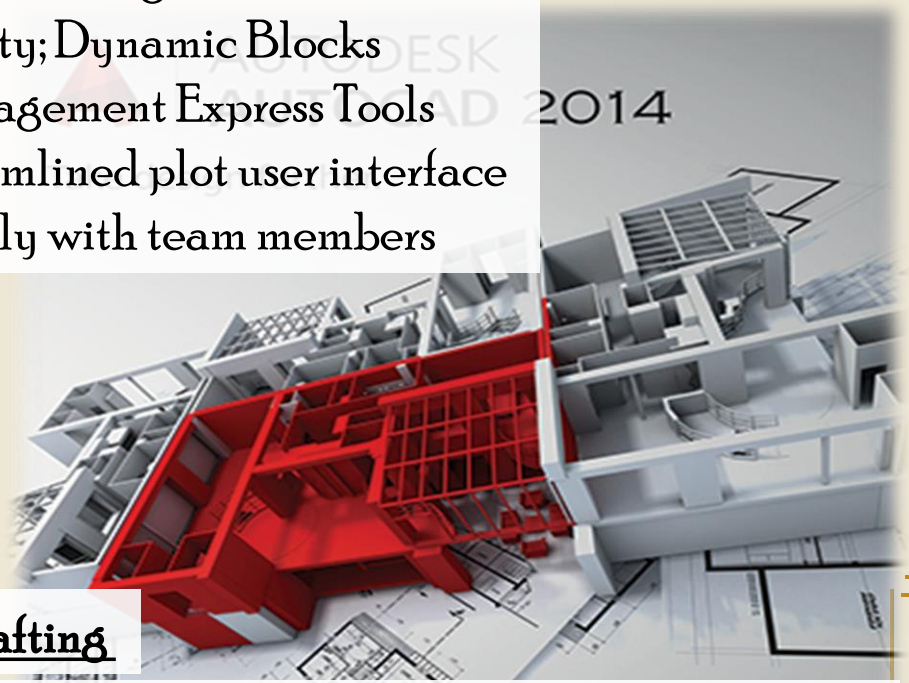
AutoCAD uses their own fork of the ACIS geometry modelling kernel.

Features

Streamline day-to-day tasks with this 2-D drafting software

- Native DWG file format compatibility; Dynamic Blocks
- Integration of the popular layer management Express Tools
- Get efficient plotting through a streamlined plot user interface
- Easily share information electronically with team members





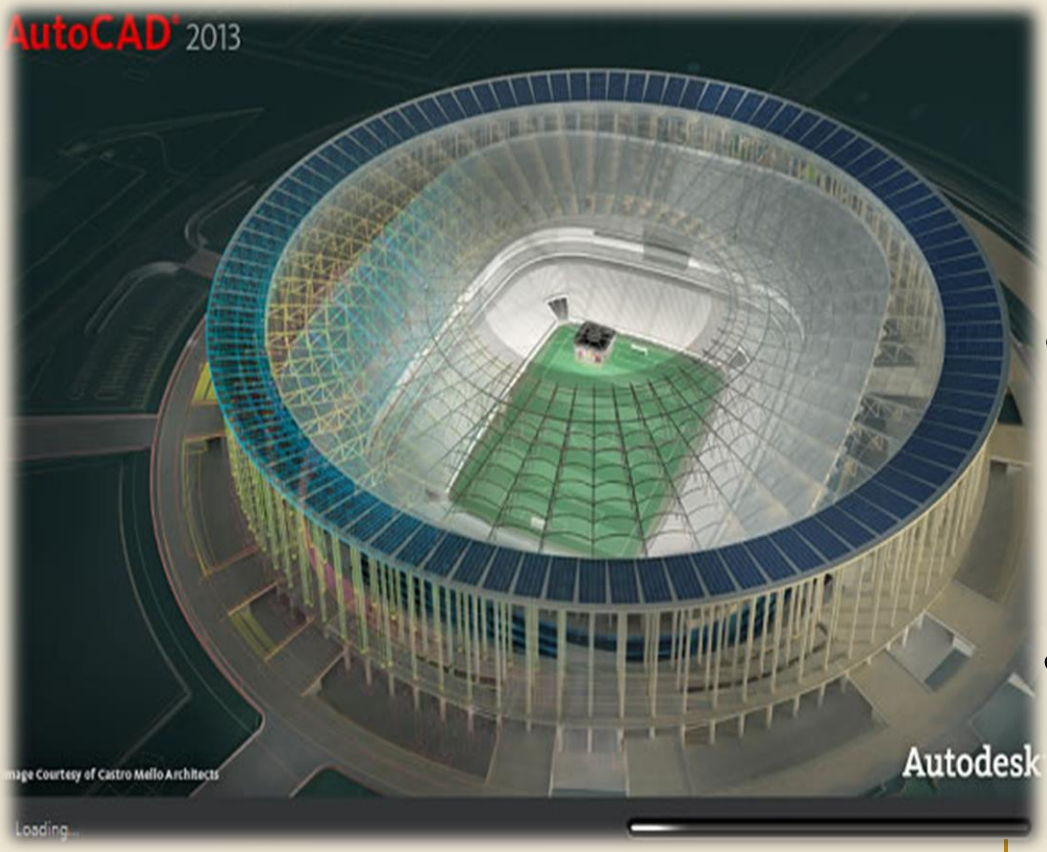
Efficient Everyday Drafting

Getting more done in less time with productivity tools focused on the things that are for every day use:

- Dynamic Blocks: access multiple variations on a single block, dramatically reduce cumbersome block libraries, and modify block geometry during and after insertion.

• Layer Express Tools: increase day-to-day productivity by using the popular AutoCAD Express Tools for layer management.

• Streamlined table creation and editing: insert standard WYSIWYG (what you see is what you get) tables with in-place editing, and save time and reduce errors by performing calculations in your tables.

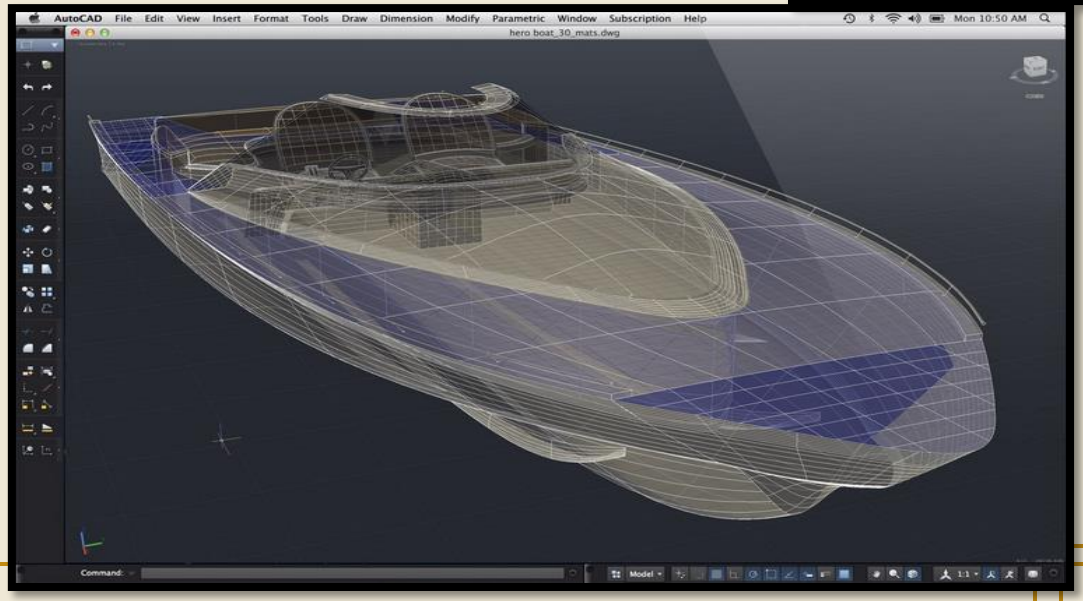


• Improved text manipulation: create and edit text in the same way it will appear in the drawing, and apply style, font, and other text properties to characters and words in the text object.

• Better hatching: hatch multiple continuous boundaries with a single command and easily calculate both individual and cumulative hatch areas.

• Customized tool palettes: store frequently used blocks and hatches in customized tool palettes, automatically apply preassigned tool properties as you insert content, and drag predefined content from your drawings.

•Enhanced user interface: Launch commands, read prompts, and enter values right at the graphics cursor. Perform calculations and derive values from drawing entities with Quick Calc, and select objects easier with dynamic highlighting.



•Efficient dimensioning: dimension the length of an arc and large radii curves, flip dimension arrows, and select varying dimension linetypes quickly and easily.

Languages

AutoCAD 2014 and AutoCAD LT 2014 are available for English, German, French, Italian, Spanish, Japanese, Korean, Chinese Simplified, Chinese Traditional and Brazilian Portuguese, Russian, Czech, Polish, Hungarian will be available later on. The extent of localization varies from full translation of the product to documentation only. The AutoCAD command set is localized as a part of the software localization.

Extensions

AutoCAD supports a number of APIs for customization and automation. These include AutoLISP, Visual LISP, VBA, .NET and ObjectARX. ObjectARX is a C++ class library, which was also the base for: (a) products extending AutoCAD functionality to specific fields; (b) creating products such as AutoCAD Architecture, AutoCAD Electrical, AutoCAD Civil 3D; or (c) third-party AutoCAD-based application.

Installation

Preparing the system for installation

•Before installing the Autodesk product it's important to prepare the system, which helps to ensure a smooth and successful installation.

•Check System Requirements

Confirm that the computer meets the minimum system requirements for that product by visiting Autodesk System Requirements.

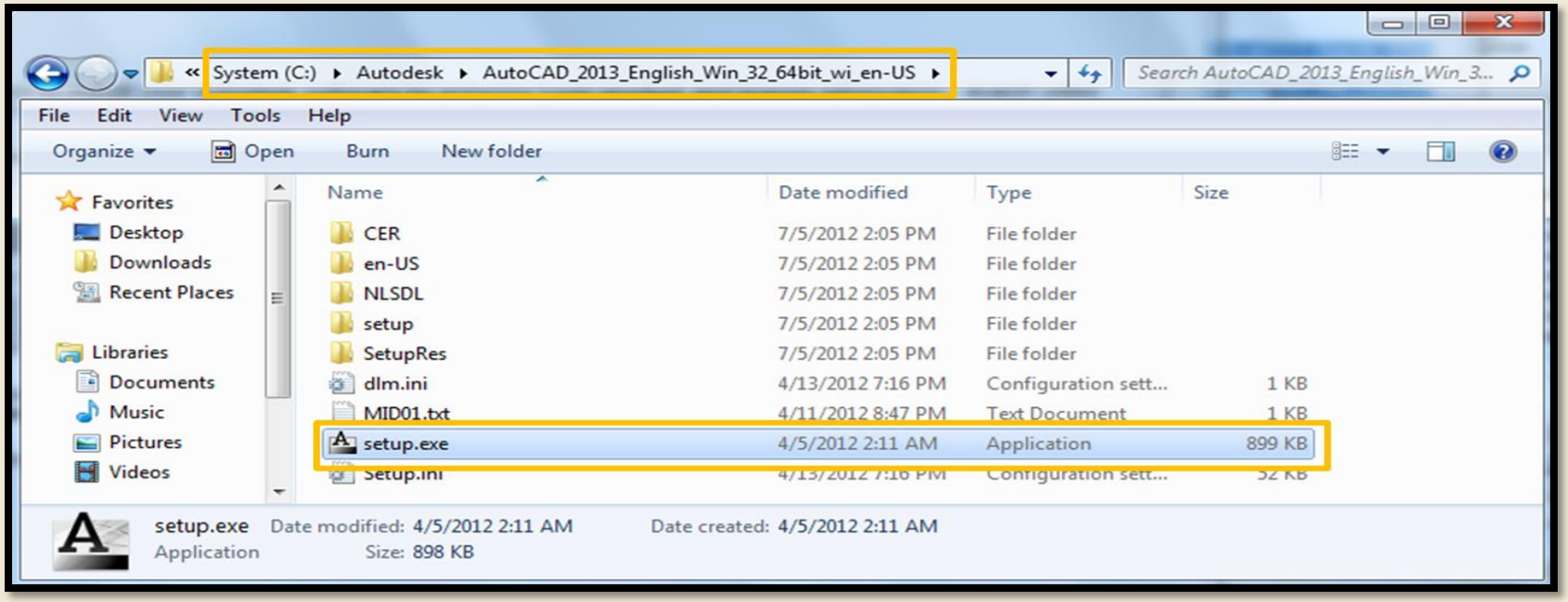
•Install System Updates and Exit Applications

Install all system updates and restart your computer. Make sure to exit all applications that may be running on the system before starting the installation process.

Note: Anti-virus programs can sometimes interfere with the installation process. Temporarily disabling your anti-virus program may help if you're having trouble with your installation.

• Download Software or Insert Media

Download the software (for digital products) or insert the physical media (DVD/CD or USB) into the computer and click the setup executable file to launch the product installer.

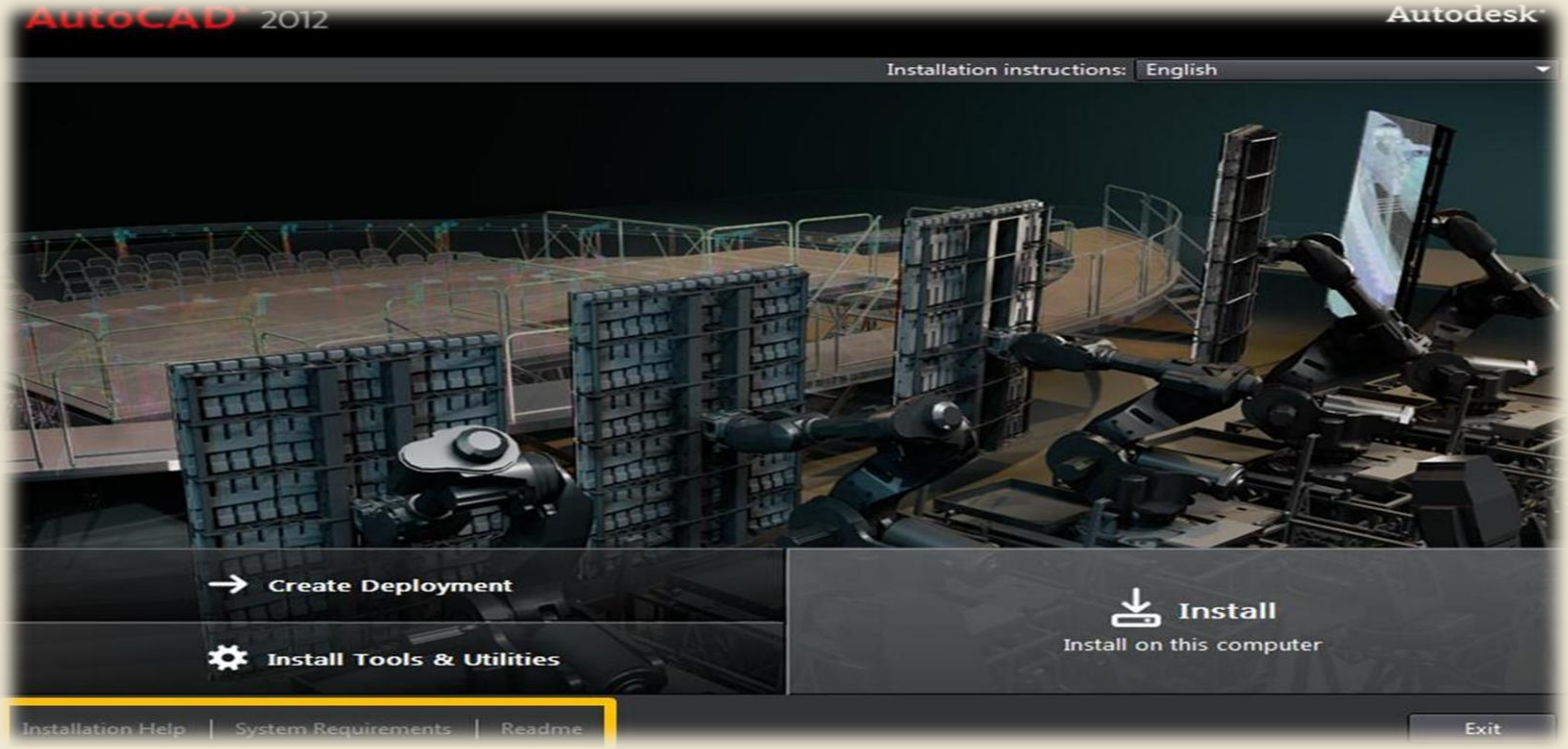


•For digital products, the location where the download is saved appears at the beginning of the download process. The default location is typically, System > Autodesk > ProductName_Version as seen in the below image.

For physical media, the product folder should appear on desktop when inserted.

• Review Documentation

Review the documentation links found on the bottom left corner of the main installation screen.



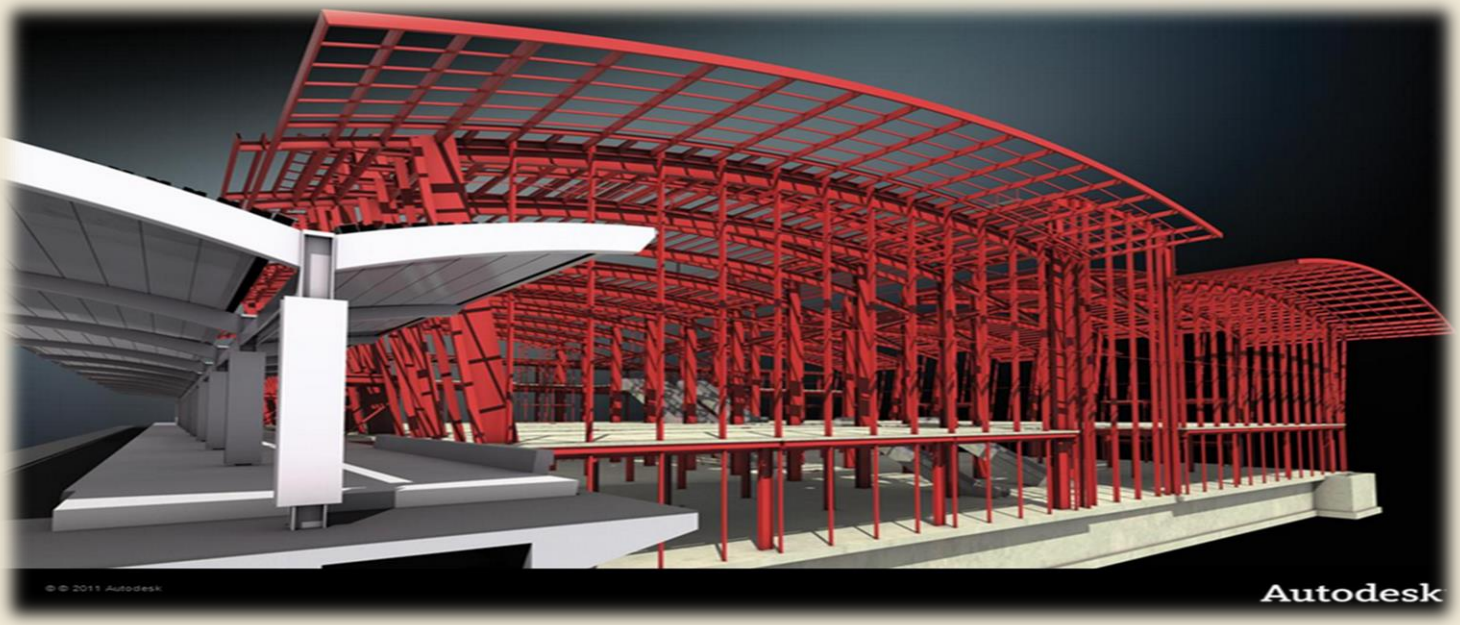
• Installation Help – installation types, licensing guides and other popular support resources

•System Requirements – Autodesk System Requirements Services & Support

• Readme file – contains important late-breaking information that may not have made it into the final documentation

Installing AutoCAD

1.

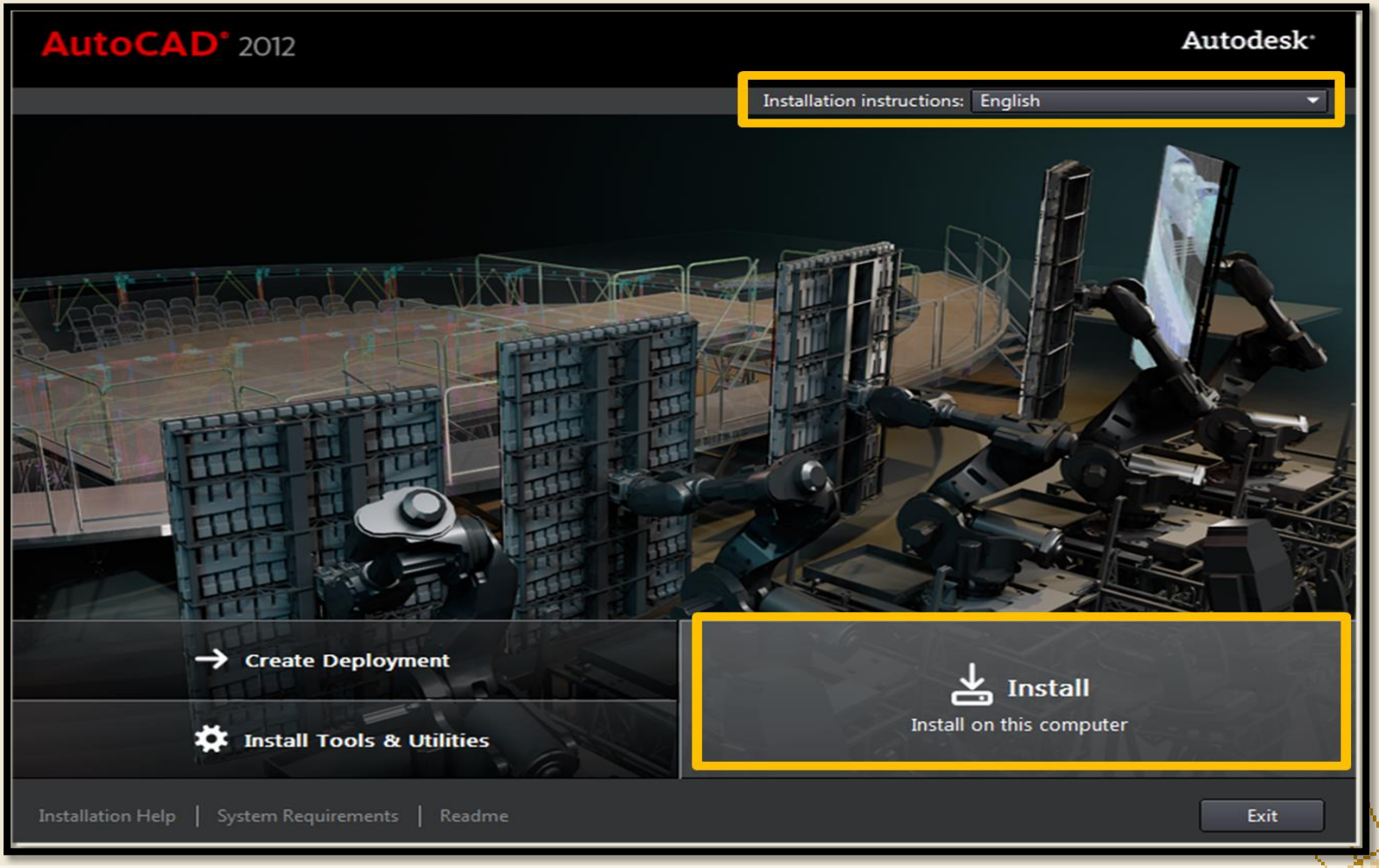


Launch the Product Installer by double-clicking the setup.exe file located in the system folder for that product.

For digital products, the default location of the product installer is typically System > Autodesk > ProductName_Version_Language_OS as seen in the below image.

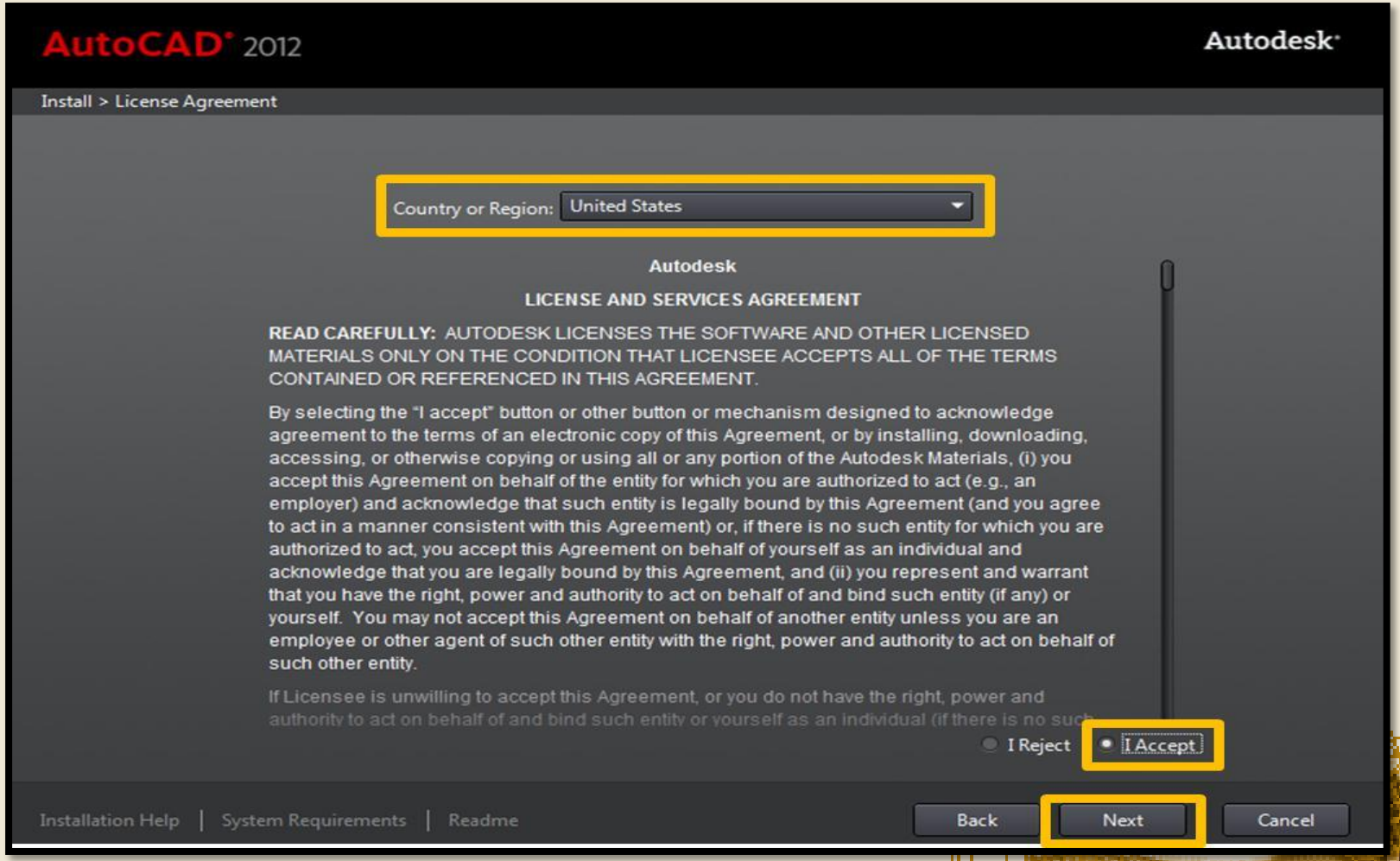
For physical media, this should appear on desktop after inserting the USB or DVD into your computer.

2. Click Install

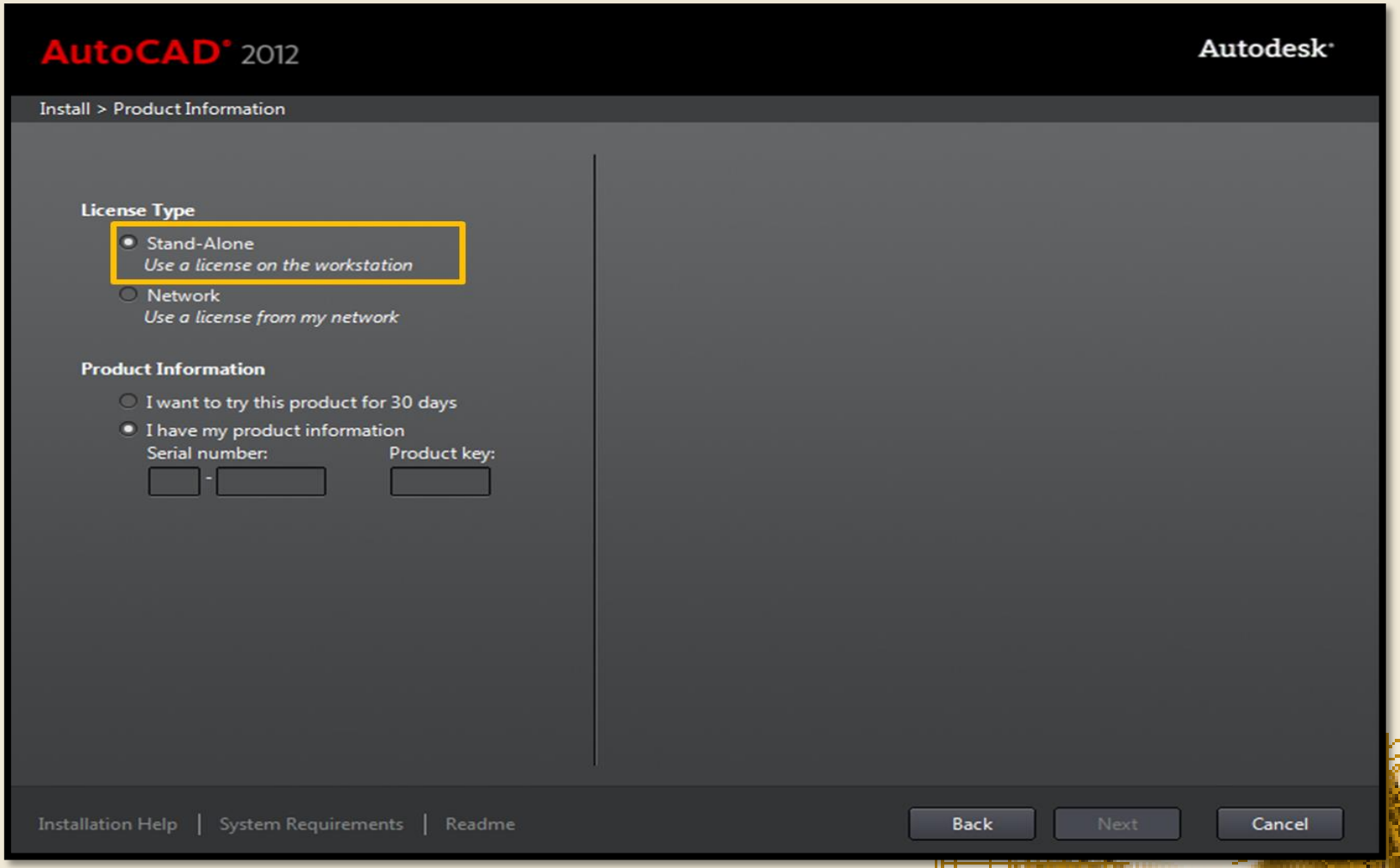


Note: You can change the Installer language by clicking the Installation Instructions drop down on the top right.

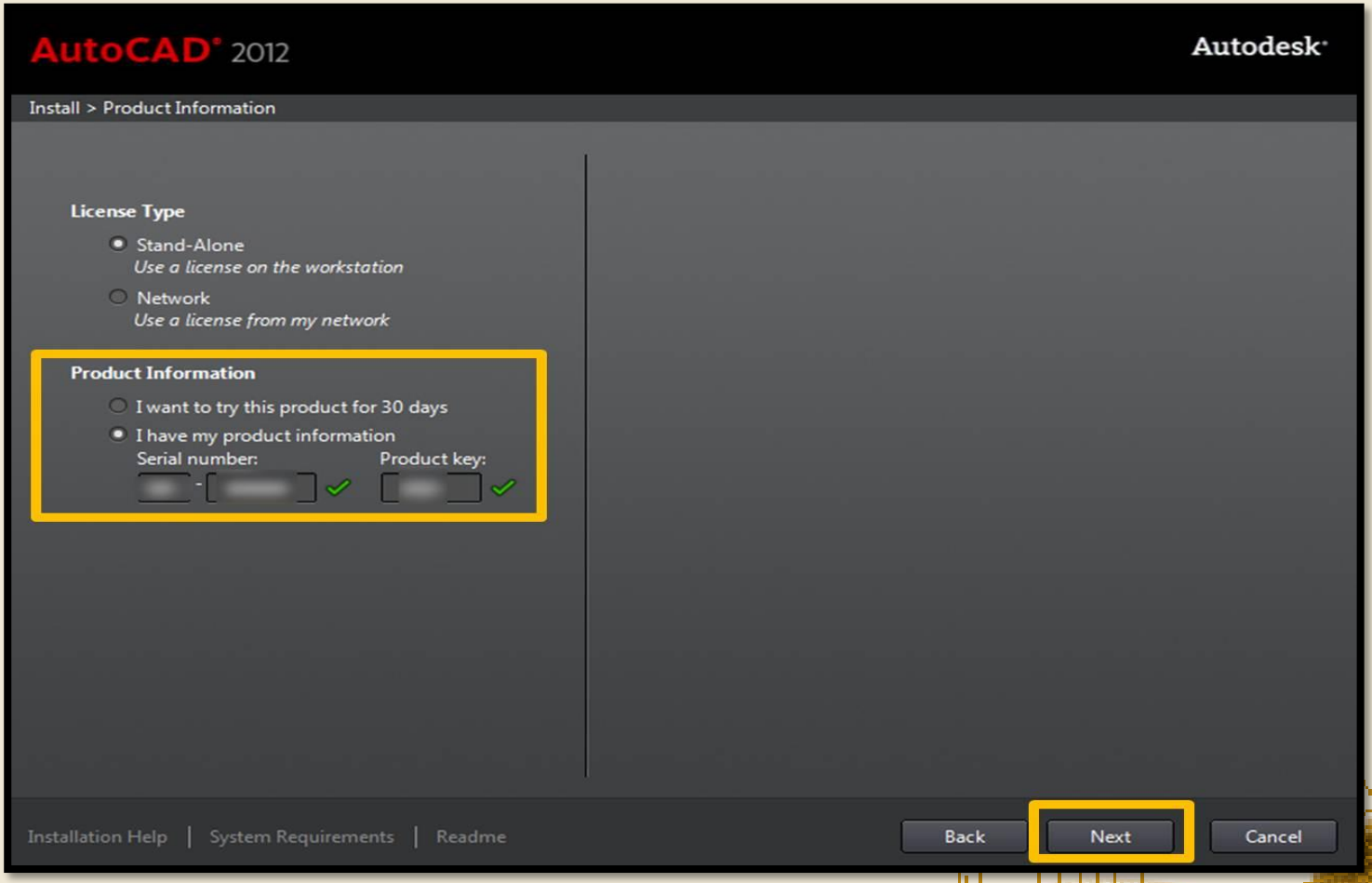
3. Read the License and Services Agreement for your Country or Region. Select I Accept and then click Next.



4. Select the license type that have been purchased. For installing on a single computer, select Stand-Alone.

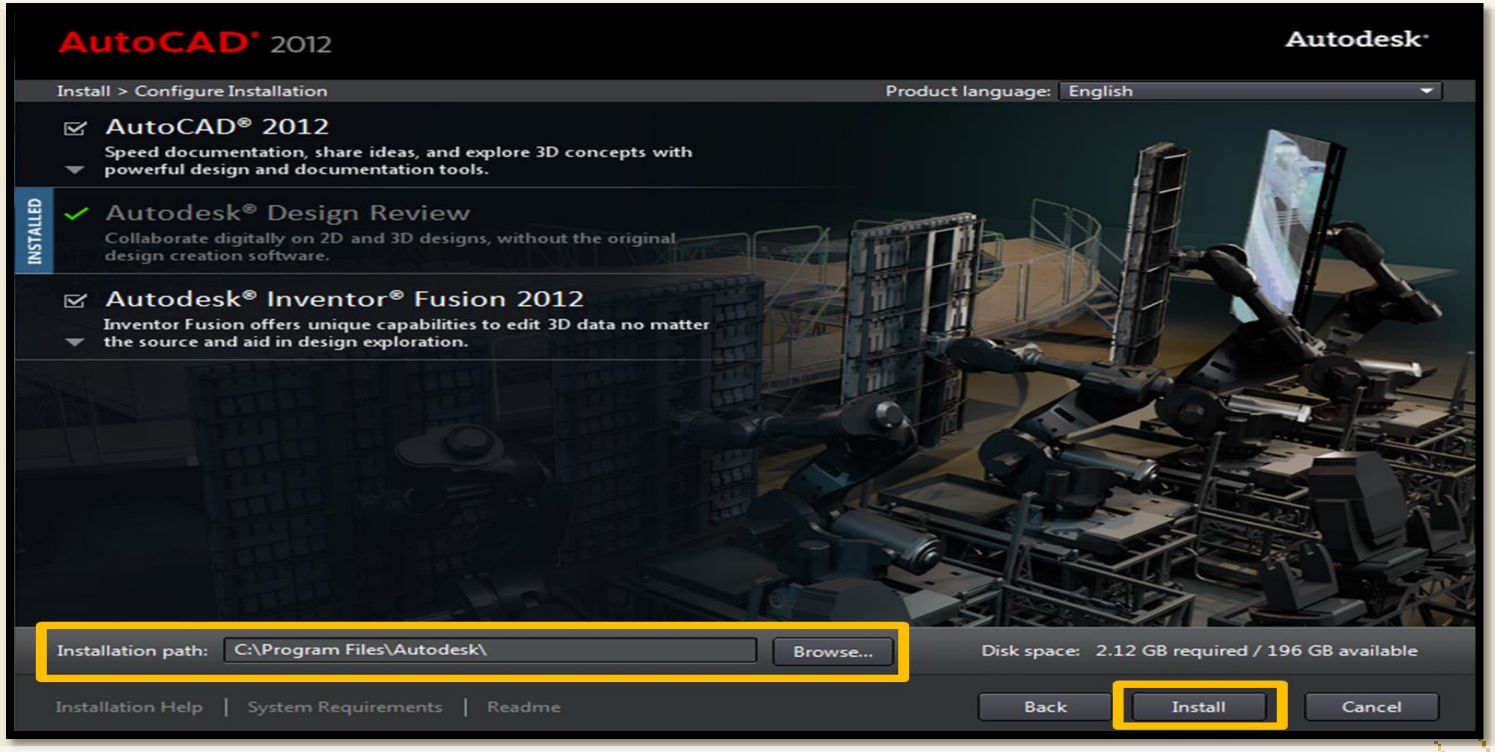


5. Enter your Serial number and Product key and then click Next.
If you're installing a Free Product Trial (and don't have a serial number and product key), select I want to try the product for 30 days and click Next.



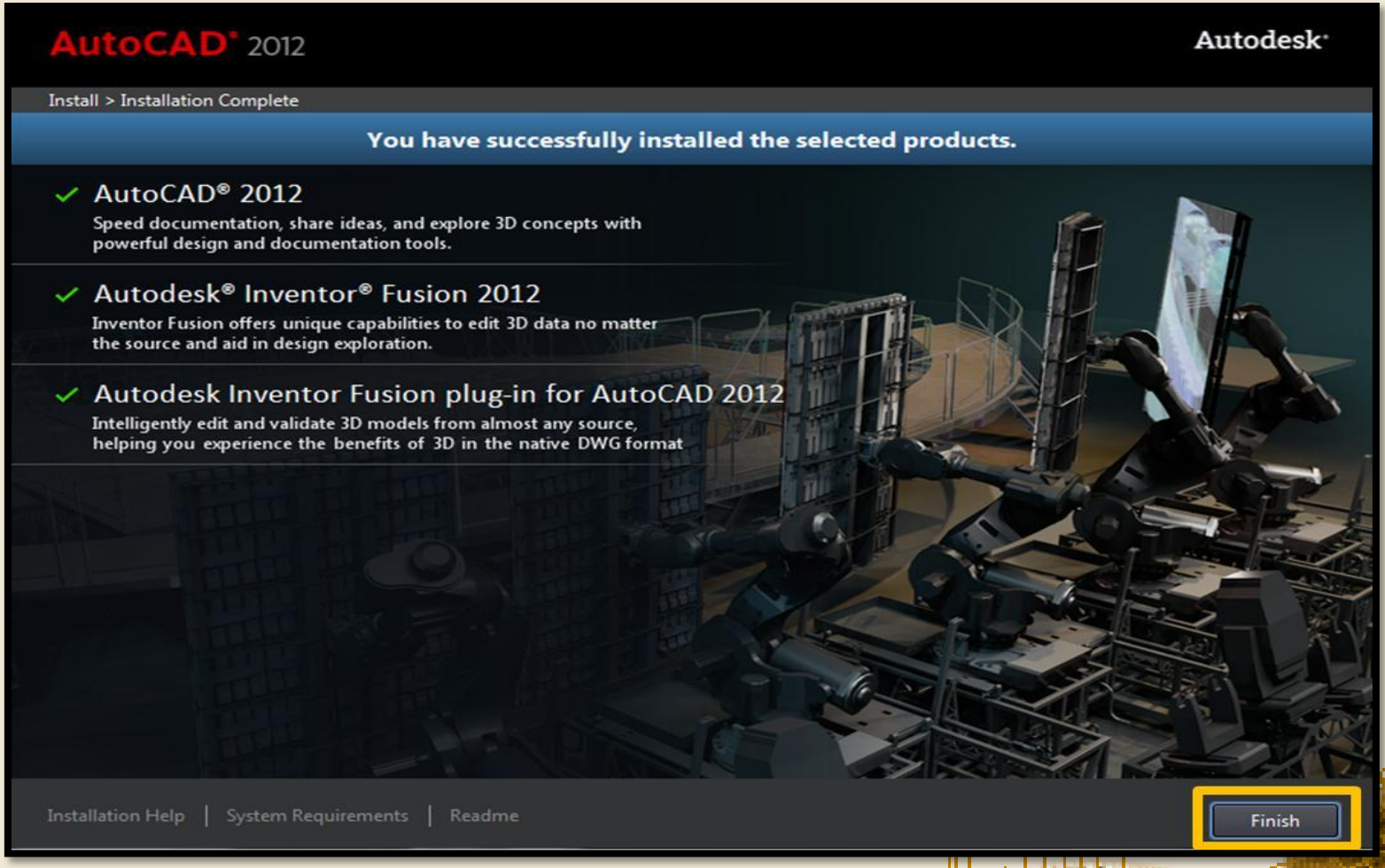
6. The default configuration pre-selects the components to be installed with your product. The Installation path indicates the location where your Autodesk product will be installed.

To proceed with the default configuration and location (recommended) click Install.



Note: If you customize the Installation path, make sure it does not exceed 260 characters or you will receive an error during installation.

7. When the installation completes you'll see a list of the products that have been installed on your computer. Click Finish to close the installer.



Purchase

The main source from where you can purchase Autocad 2007 is Autodesk (www.autodesk.com). The price is around 878 $.

You can use any of the following payment methods to purchase in the Autodesk Online Store:

- Visa
- Mastercard
- American Express
- PayPal
- Wire Transfer
- Click and Buy
- Online Banking

In addition Autodesk also offers a 30-day free trial ,which you can download from their website.After your trial version has expired if you decide you want you want yo purchase it you may not need to re-download. For trial conversions of many of our products, you will get a serial number in your confirmation email and can simply enter that serial number in the right space in your trial to activate your licence.

Yahoo! España | Autodesk | 3D Design, Engin | Autodesk - 3D Design & Engi

www.autodesk.com

www.autodesk.com quiere utilizar la ubicación de tu ordenador. Permitir Denegar Más información

SIGN IN | WORLDWIDE SITES | SEARCH

AUTODESK. PRODUCTS | SUPPORT | COMMUNITIES | BUY | STORE

OPTIONS
- Buy Online
- Find a Reseller

All Options

OTHER
- Buy with Subscription
- Education
- Financing
- Government
- Licensing

UPGRADE TO A SUITE AND SAVE

Save up to 20% when you upgrade to an Autodesk Design or Creation Suite.

Find out more

CLOSE

New, next generation industrial and mechanical design tool

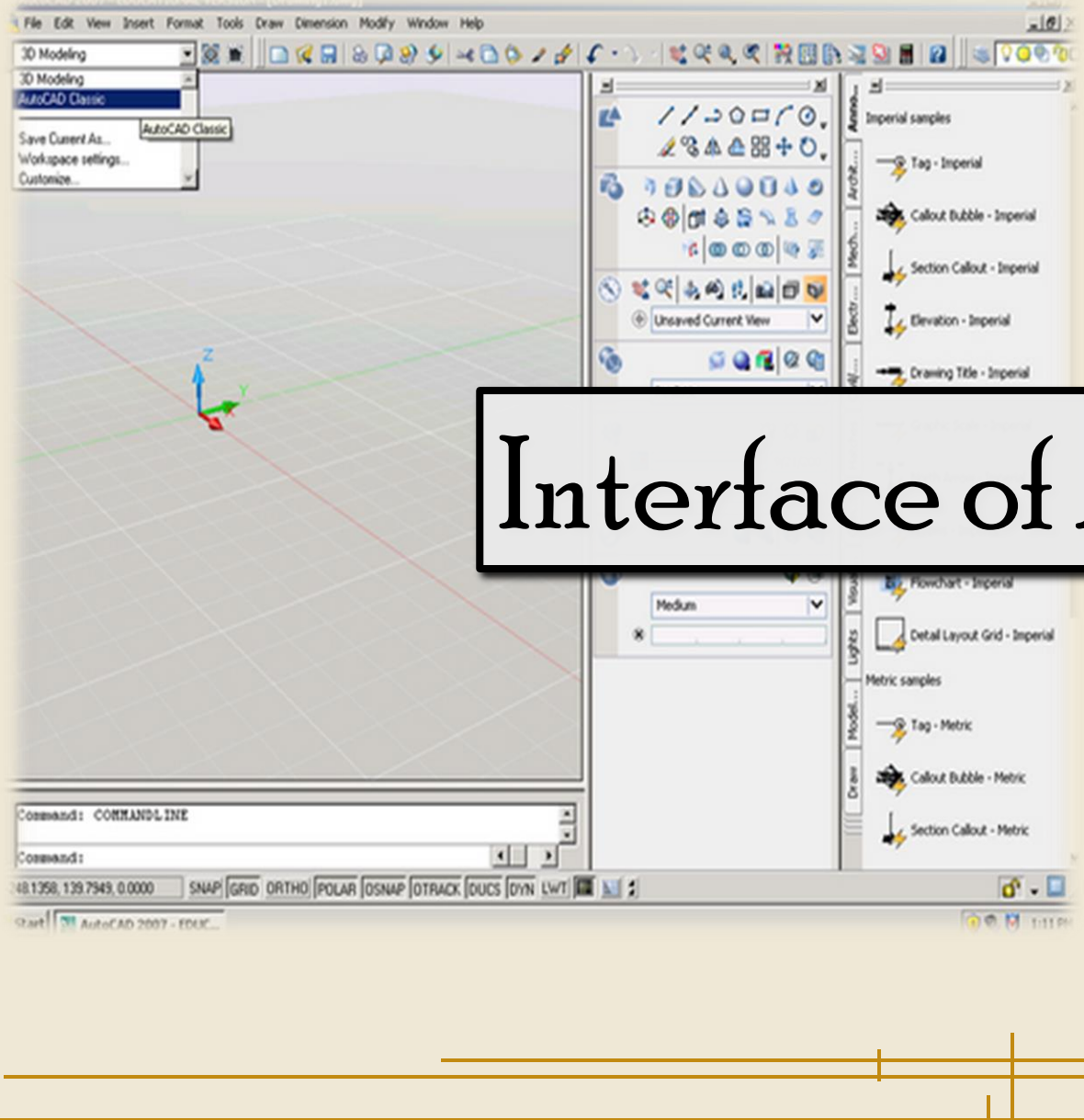
Design differently with Autodesk Fusion 360—a single tool that combines industrial and mechanical design with collaboration.

Try it now

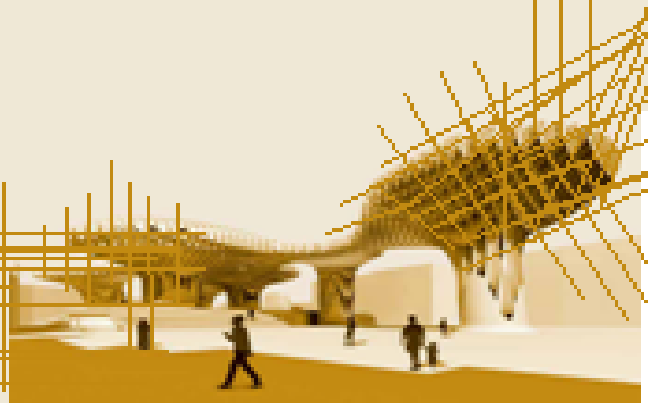
Browse products
A broad portfolio of 3D design software.

Find your suite
An expanded toolset in a single package.

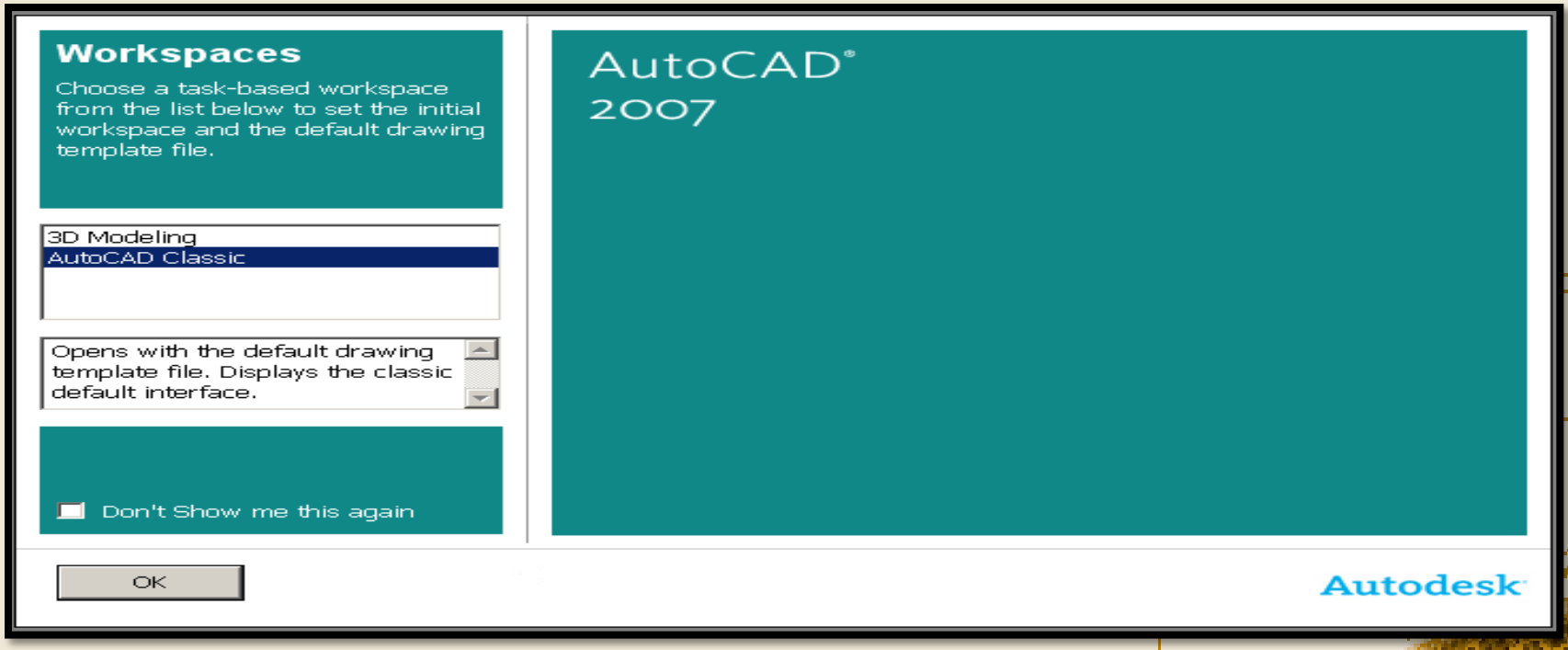
Work in the cloud
Autodesk 360 cloud services.



Interface of AutoCAD



Lauching AutoCAD 2007 – Start button on the toolbar Windows or through direct clicks on an icon or a file that was made in AutoCAD.
After starting the AutoCAD, a window will appear as in the picture below where you select the type of work in AutoCAD 2007.

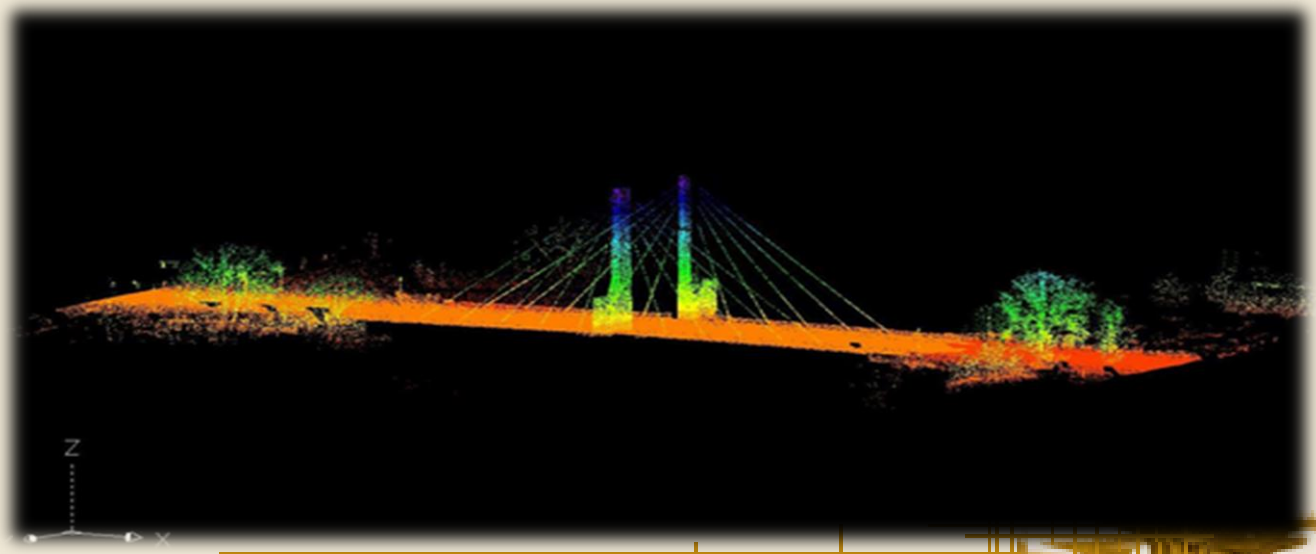


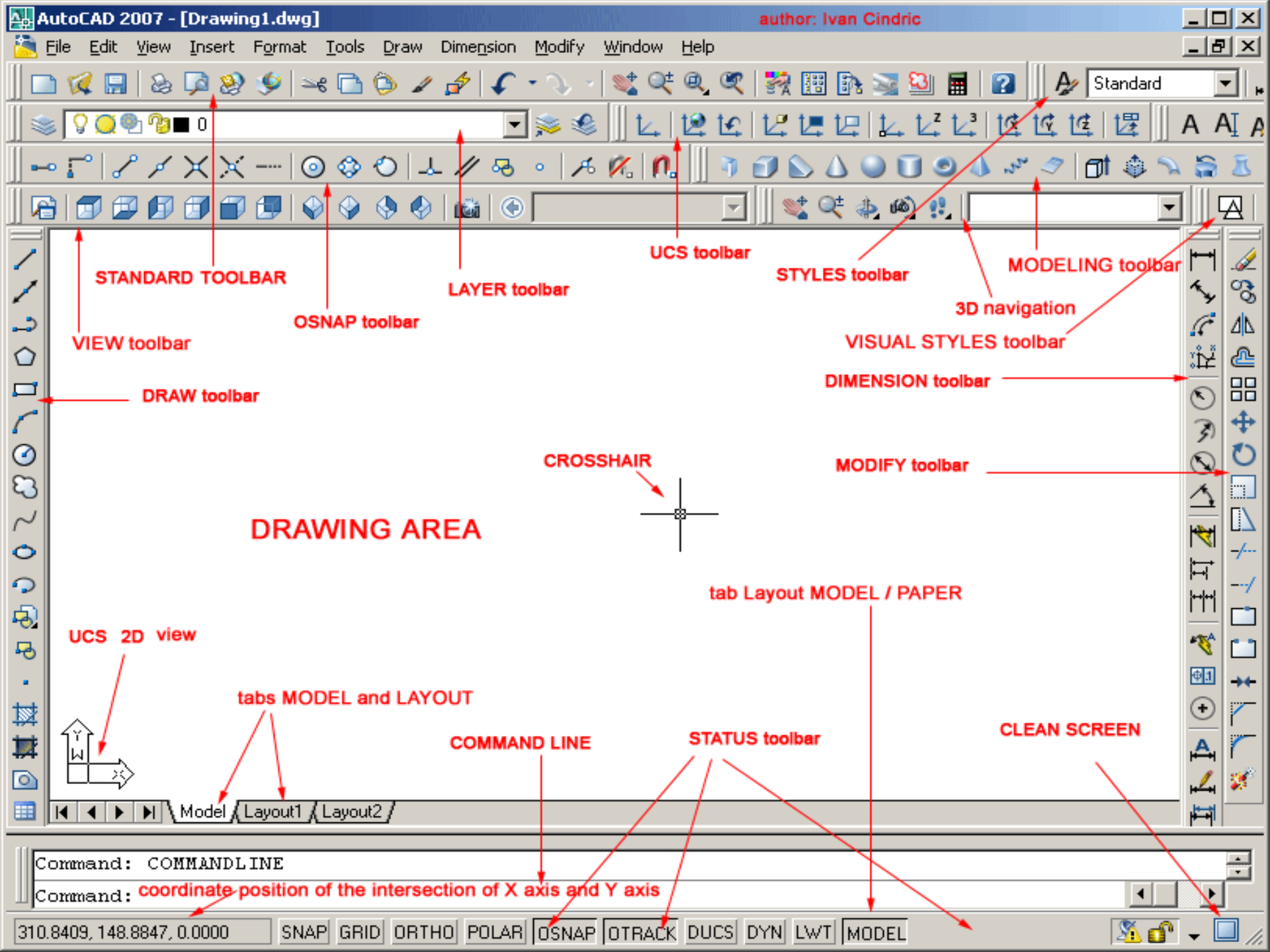
The appearance of the working window

AutoCAD 2007 window appears starting with toolbar this (toolbars) that are set by AutoCAD registers set the toolbar.

In the settings, AutoCAD drawing area is black, but it can be changed to any other colour.

Setting the background color is done via Tools => Options => Display tab => Colors button => select a color in the colour zone from the drop down menu (I chose black background color, because it seemed the best choice). If you manually add some of the toolbar's options, they will remain when you restart the same show.

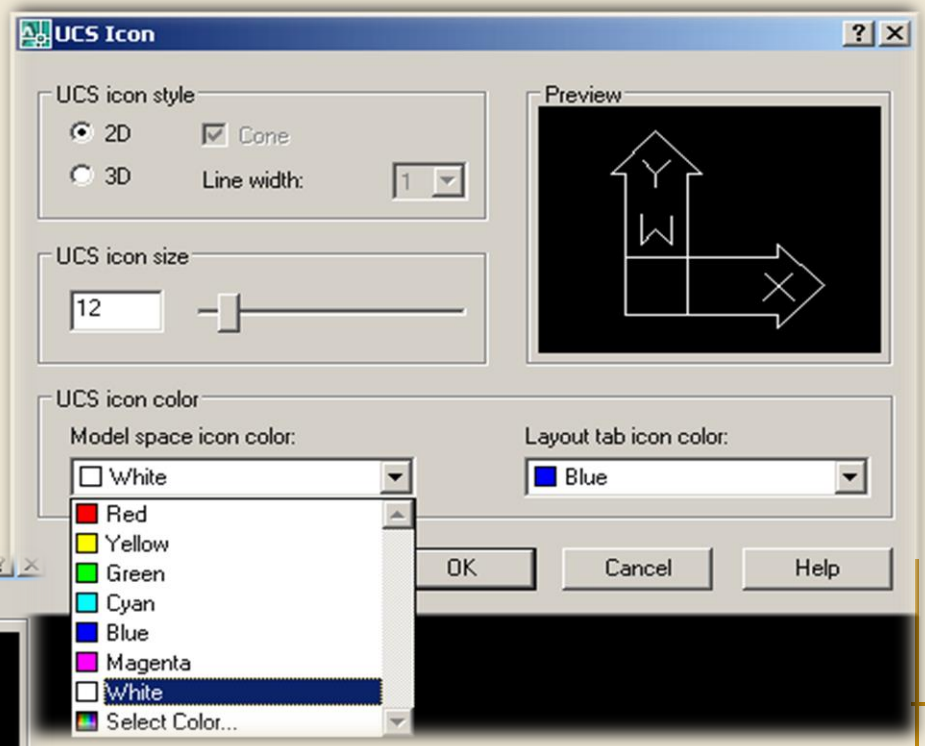


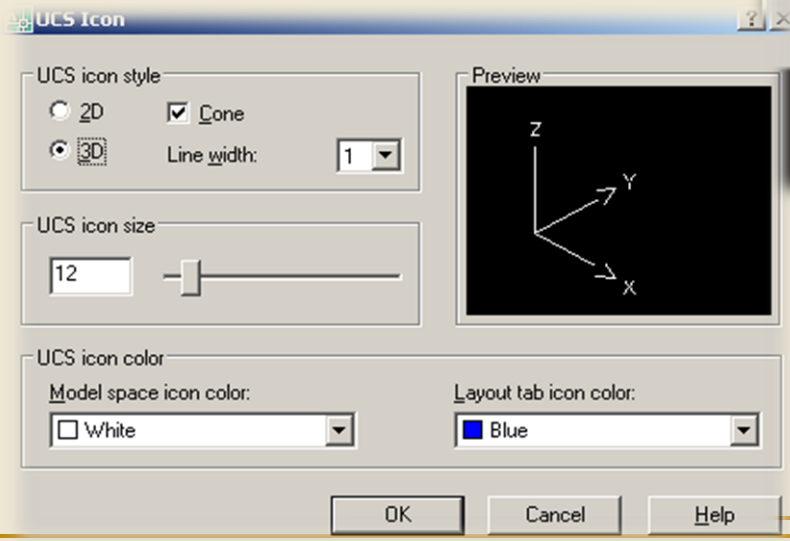

AutoCAD 2007 - [Drawing1.dwg]
author: Ivan Cindric
File Edit View Insert Format Tools Draw Dimension Modify Window Help
Standard
STANDARD TOOLBAR
LAYER toolbar
UCS toolbar
STYLES toolbar
MODELING toolbar
OSNAP toolbar
3D navigation
VIEW toolbar
VISUAL STYLES toolbar
DIMENSION toolbar
DRAW toolbar
CROSSHAIR
MODIFY toolbar
DRAWING AREA
tab Layout MODEL / PAPER
UCS 2D view
tabs MODEL and LAYOUT
COMMAND LINE
STATUS toolbar
CLEAN SCREEN
Model
Layout1
Layout2
Command: COMMANDLINE
Command:
coordinate position of the intersection of X axis and Y axis
310.8409, 148.8847, 0.0000
SNAP GRID ORTHO POLAR OSNAP OTRACK DUCS DYN LWT MODEL

Initial setting in AutoCAD

After running AutoCAD you can start to change some settings. Besides STARTUP settings at startup, things can be defined as follows:

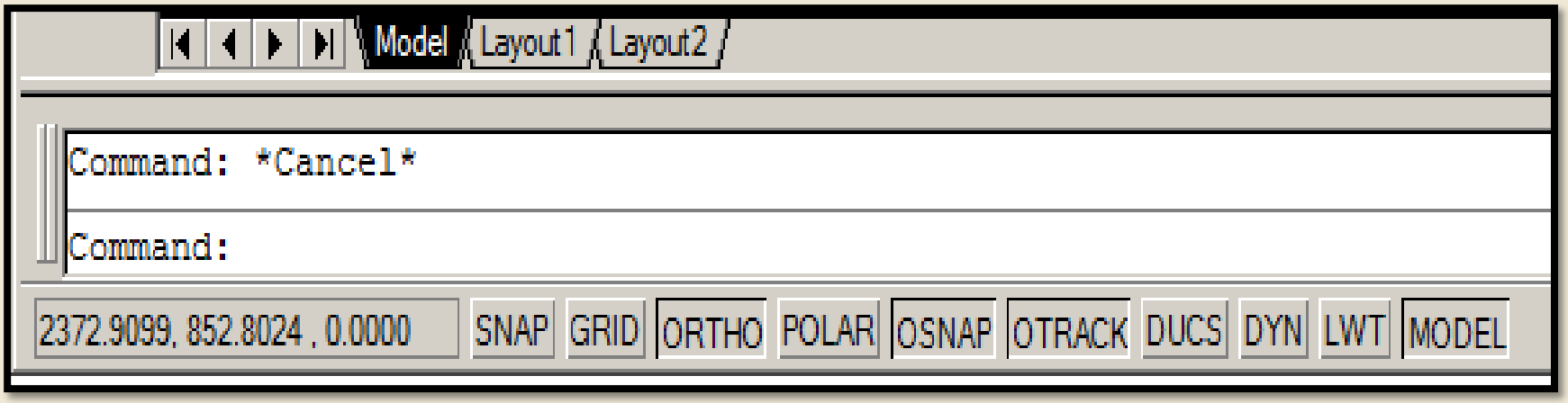
Then, we draw the line 2D or 3D which can be adjusted accordingly and displayed





with the UCS icon on your desktop.
View => Display => UCS Icon => Properties

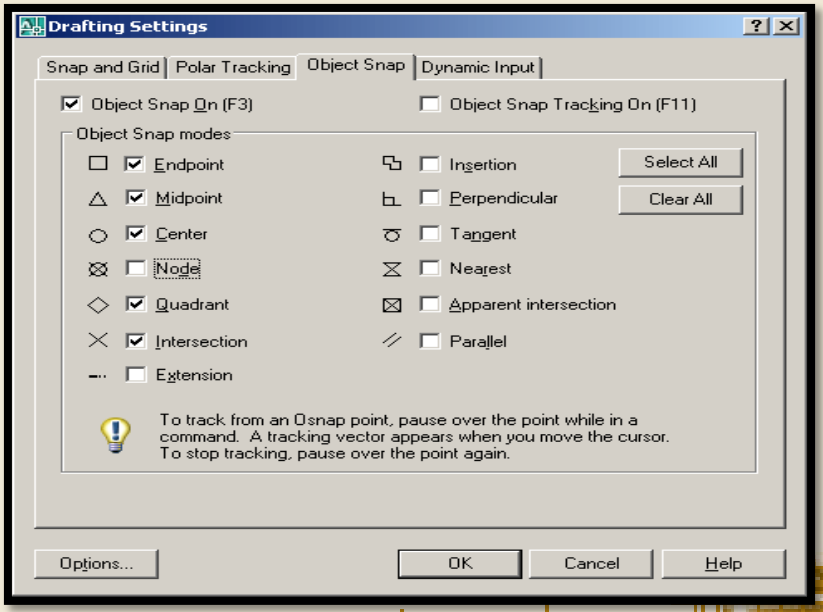
Status toolbar MOD's WORK



As part of the window AutoCAD , the status toolbar contains buttons for ON / OFF function groups for the drawing. When the button is pressed the active group functions to your preferences. The status bar contains buttons for the function: SNAP, GRID, ORTHO, POLAR, OSNAP, OTRACK, DUCS, DYN, LWT, MODEL.
I usually start with the following function buttons: Ortho, Osnap, Otrack and Model. While you draw a line, you can freely activate and deactivate some of the buttons in the status bar, without the fear that it will stop the action begun by drawing a line.

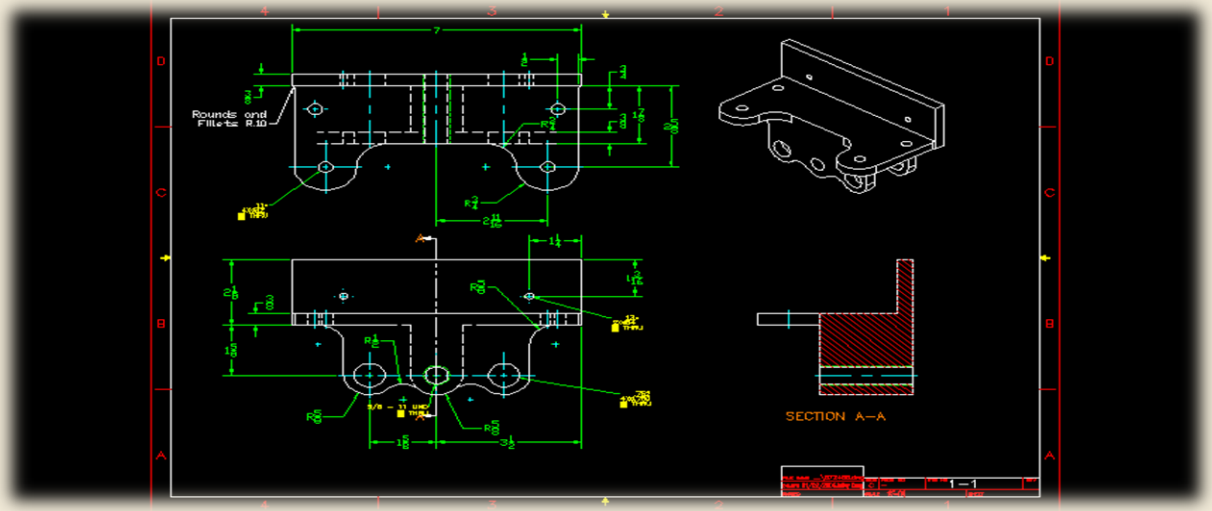
OSNAP - To aim at a particular point of a line derived from activated Osnap which contains some basic positions on the line, circle, image, etc. Endpoint, midpoint, and other sights for other points of attachment appear only when we turn Osnap mode (and turn on each target). All lines in the figure, circles, etc. have a connecting point for the target, in order to distinguish GRIP (grips) from the target.

OSNAP mod : F3 => Endpoint, Midpoint, Center, Node, Quadrant, Intersection, Extension



Orthogonal drawing in AutoCAD

Orthogonality – In mathematics, **orthogonality** is the relation of two lines at right angles to one another (perpendicularity). In geometry, two Euclidean vectors are **orthogonal** if they are perpendicular (they form a right angle). Just draw a background for rendering (ORTHO mode) using a mouse. It makes it easier to just draw and it provides a rectangular relationship between the two lines that make the intersection of the coordinate system.



To conclude, orthogonal drawing using AutoCAD in three-dimension (3D) in one plane has the option to change views on other planes at 90 °. Turn on the 3D Orbit View and try to rotate the drawing and see the different views.

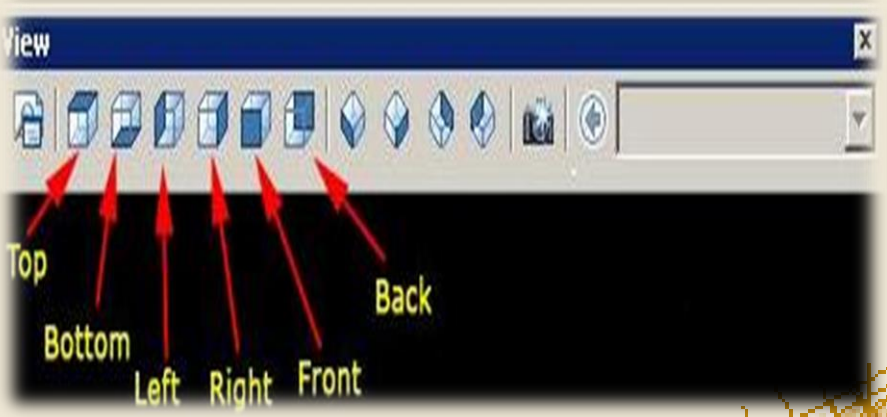
If you want to make an orthogonal drawing , you can also use the Ortho mode for drawing lines in the right position.

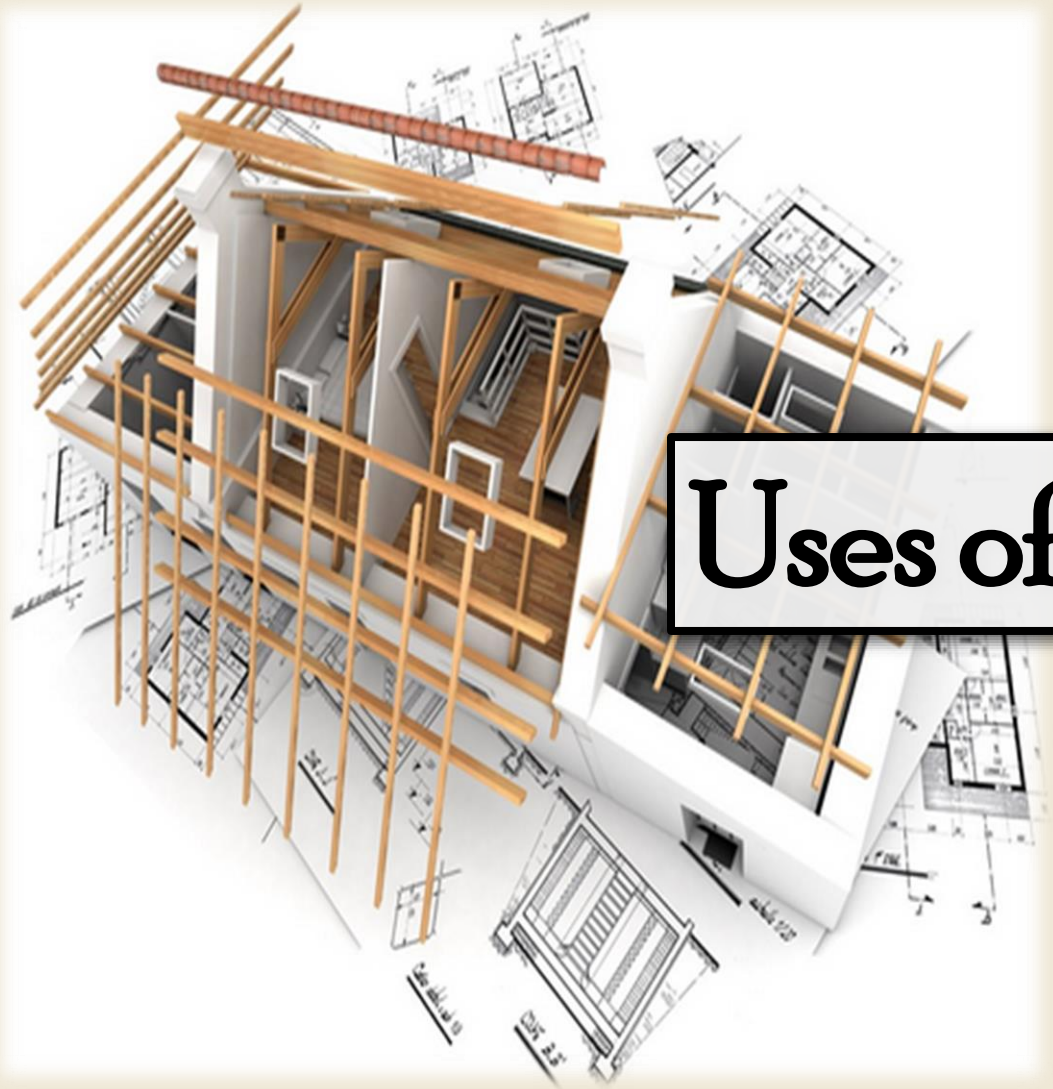
To draw a background , it is necessary to activate the function button for **ORTHO** mode.

Orthogonal drawing is linked to the orthographic projection views of the drawing. When making a project in 3D you'll be using the toolbar on the VIEW that contains buttons (icons) for different views of the drawings in a particular plane.

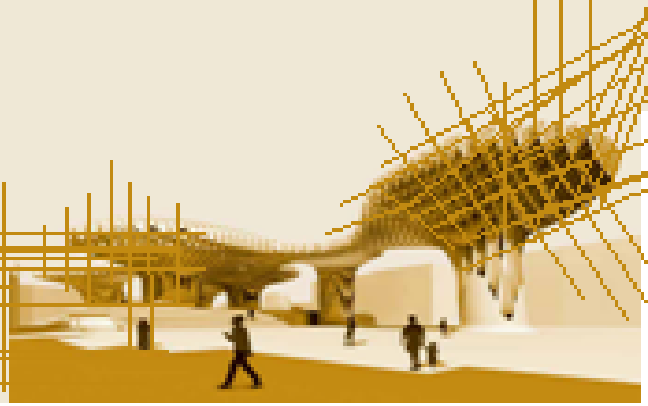
<u>These views have titles</u>:

1. Top - top view (plane X-Y)
2. Bottom - view of bottom (X-Y plane)
3. Left - View from the Left (Y-Z plane)
4. Right - view from right (plane Y-Z)
5. Front - front view (X-Z plane)
6. Back - back view (the plane Y-Z)



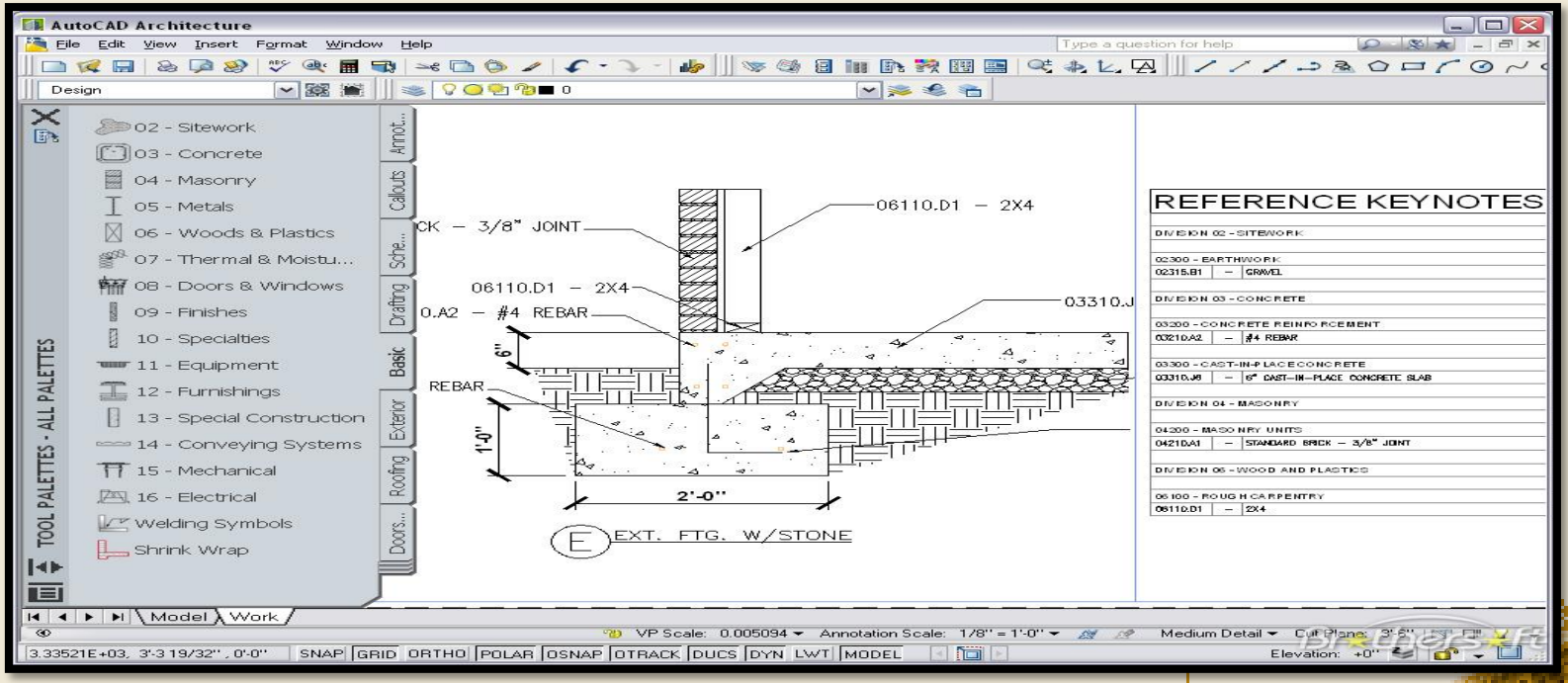


Uses of AutoCAD

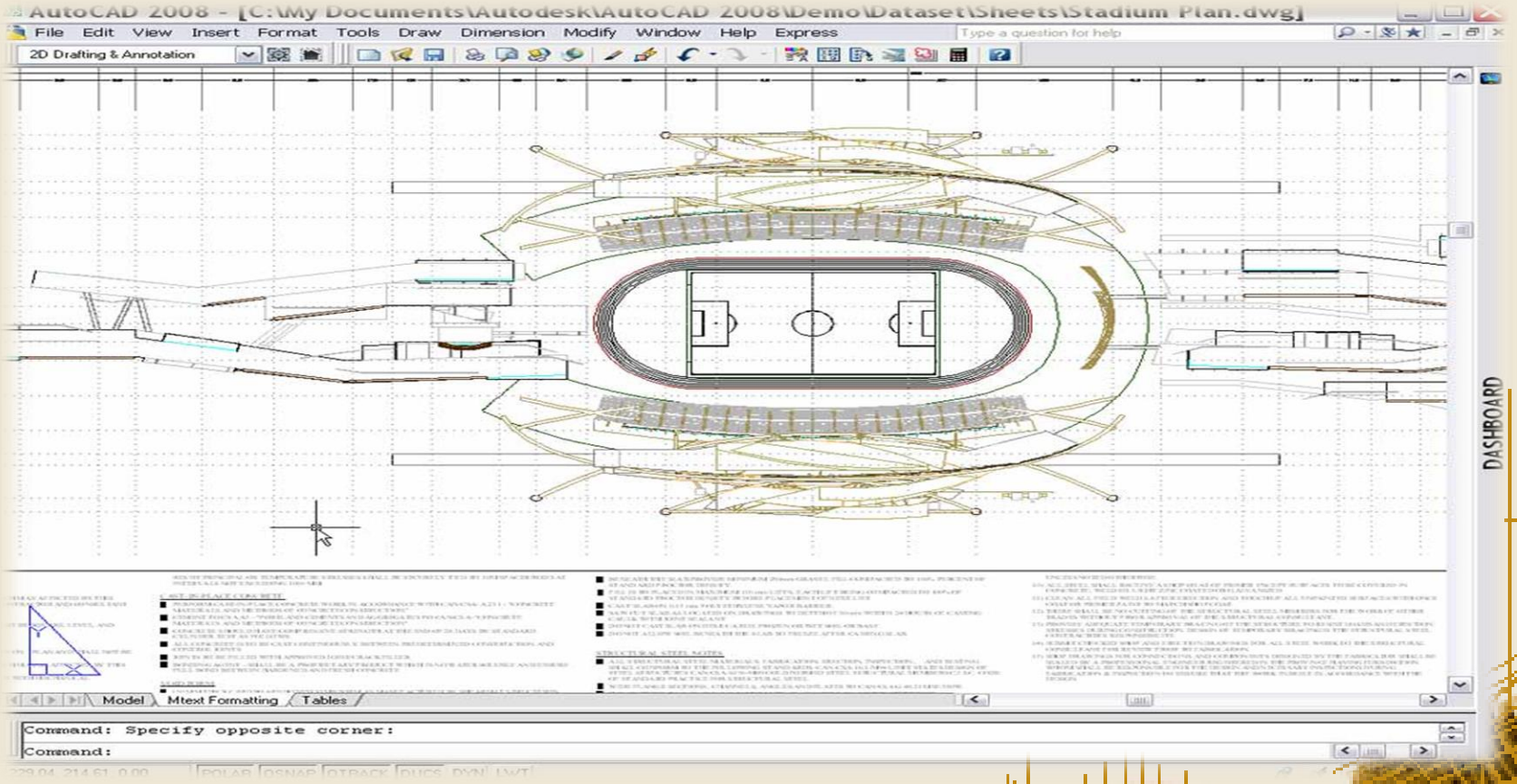


Early releases of AutoCAD used primitive entities : lines, polilines, circles, arcs, and text — to construct more complex objects. Since the mid-1990s, AutoCAD has supported custom objects through its C++ Application Programming Interface (API). Modern AutoCAD includes a full set of basic solid modeling and 3D tools. With the release of AutoCAD 2007 came improved 3D modeling, which meant better navigation when working in 3D. Moreover, it became easier to edit 3D models. The mental ray engine was included in rendering, it was now possible to do quality renderings.

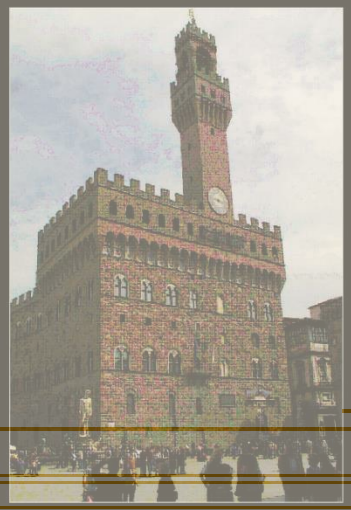
AutoCAD supports a number of APIs for customization and automation. These include AutoLISP, Visual LISP, VBA, .NET and ObjectARX. ObjectARX is a C++ class library, which was also the base for products extending AutoCAD functionality to specific fields, to create products such as AutoCAD Architecture, AutoCAD Electrical, AutoCAD Civil 3D, or third-party AutoCAD-based applications.



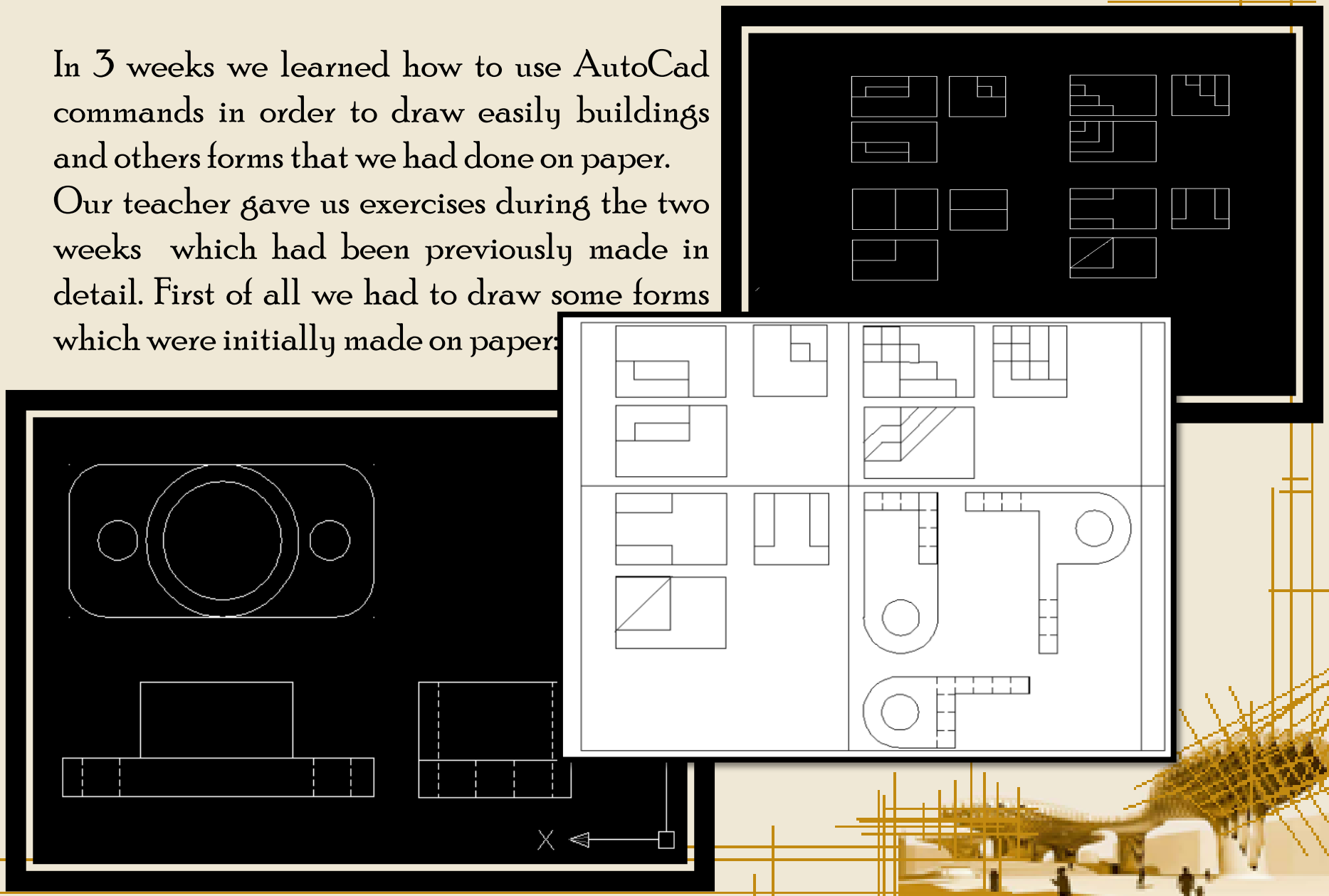
According to Autodesk company information, the AutoCAD software is now used in a range of industries, employed by architects, project managers and engineers, amongst other professions, and as of 1994 there had been 750 training centers established across the world to educate users about the company's primary products.



AutoCAD Applications



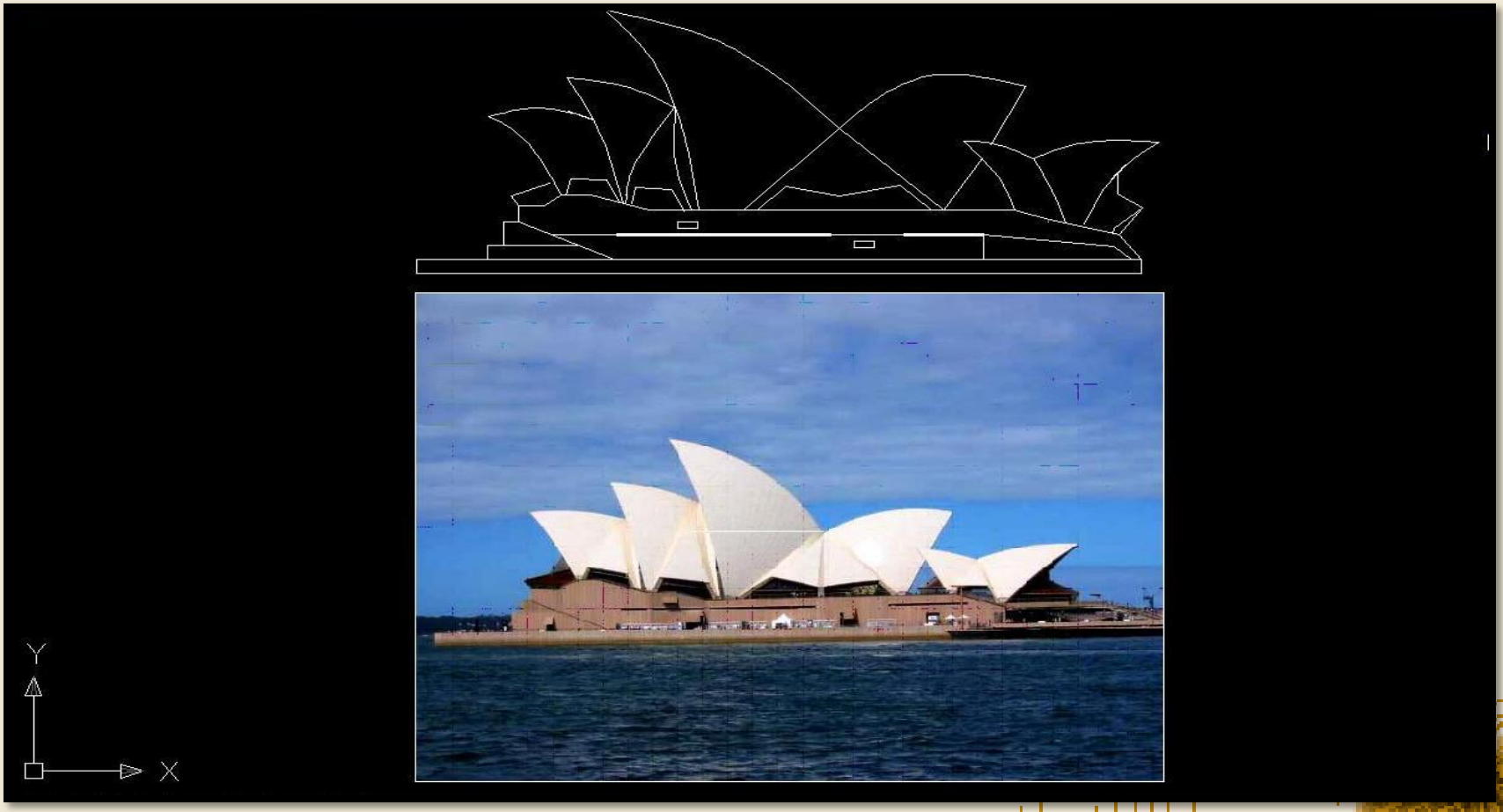
In 3 weeks we learned how to use AutoCad commands in order to draw easily buildings and others forms that we had done on paper.
Our teacher gave us exercises during the two weeks which had been previously made in detail. First of all we had to draw some forms which were initially made on paper:



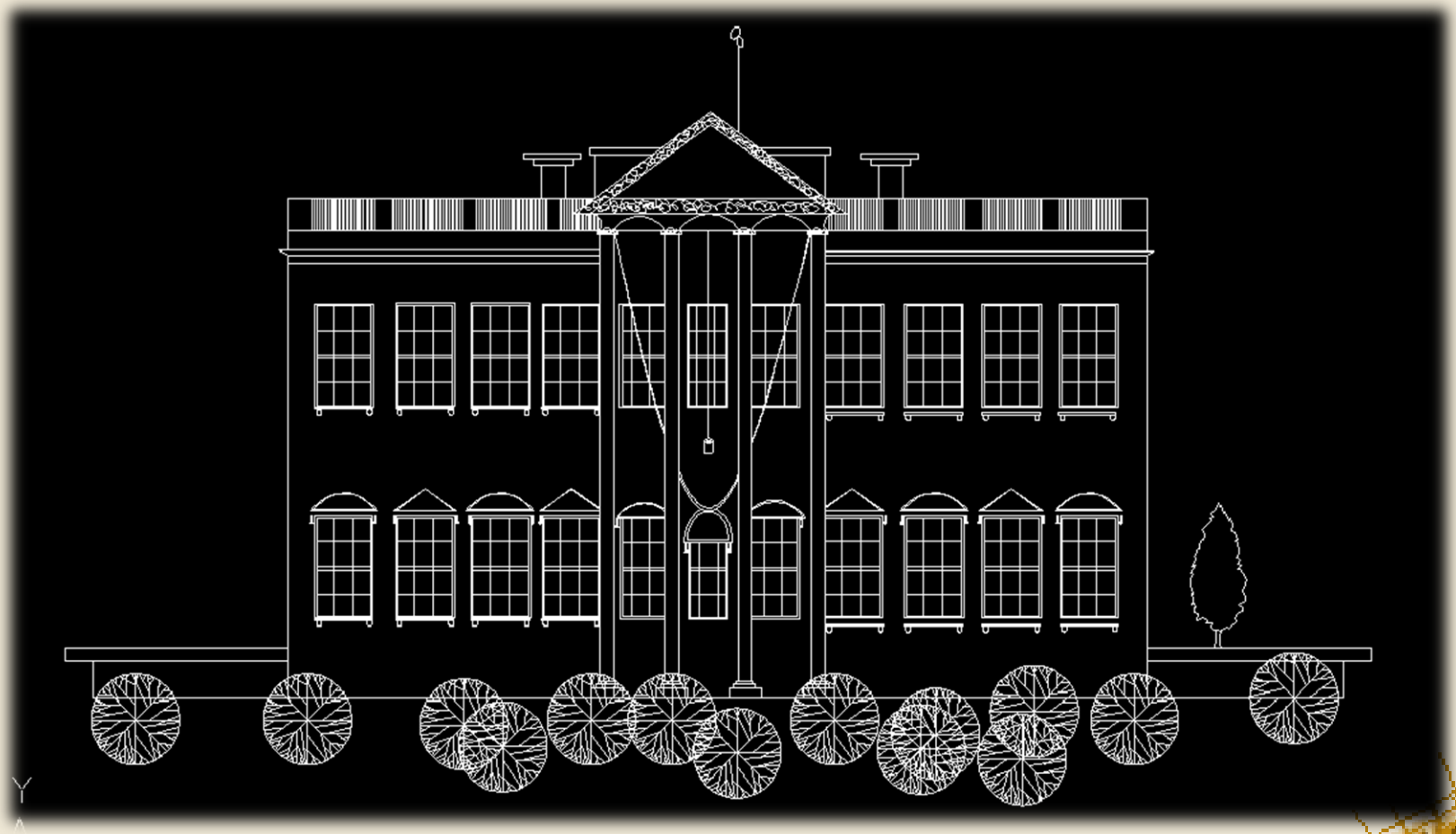
Secondly, we drew our imaginary rooms which were our homework during the weekend:

Another activity we made was to draw an important building; for example :

Sydneypera house

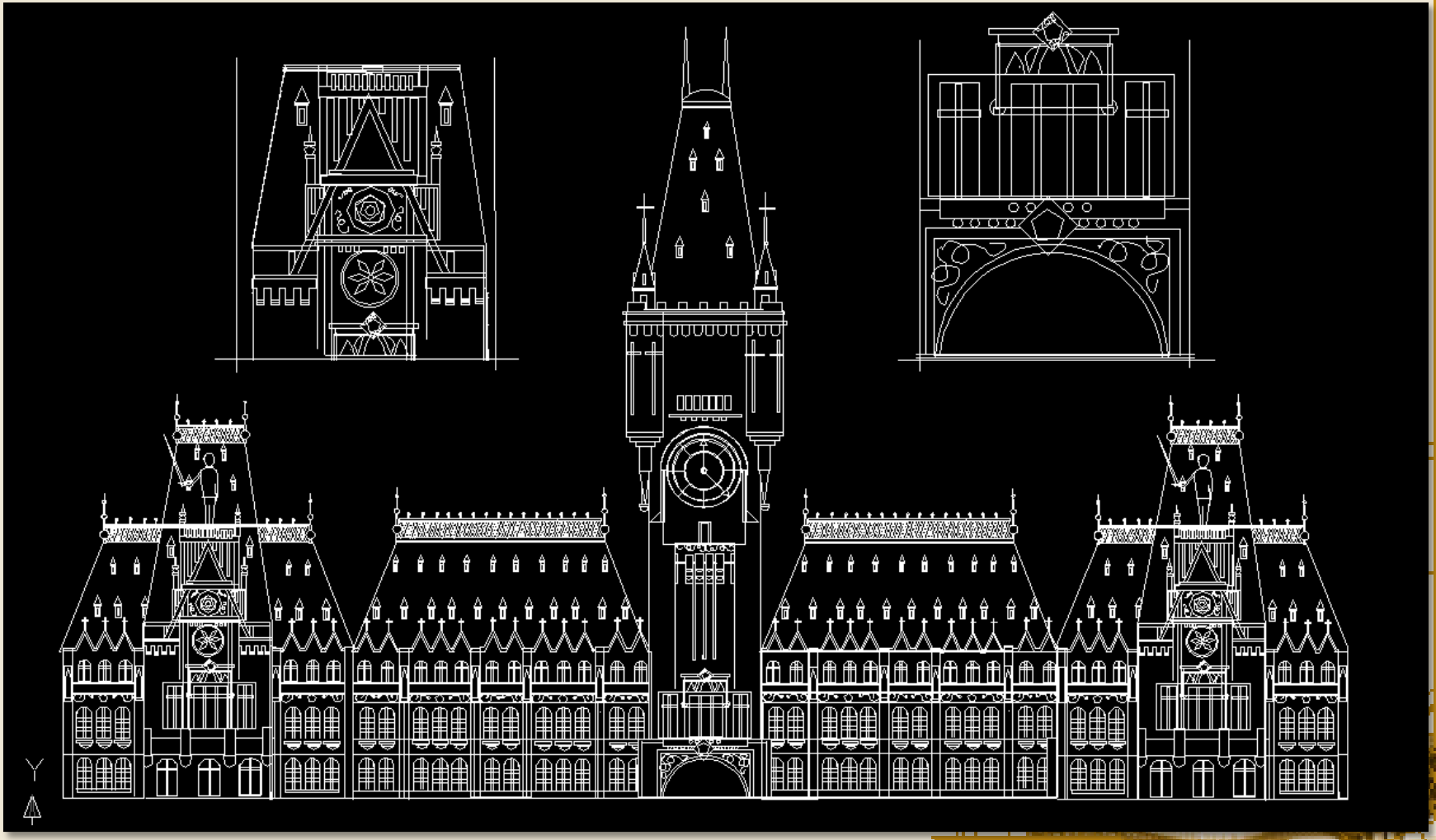


White house



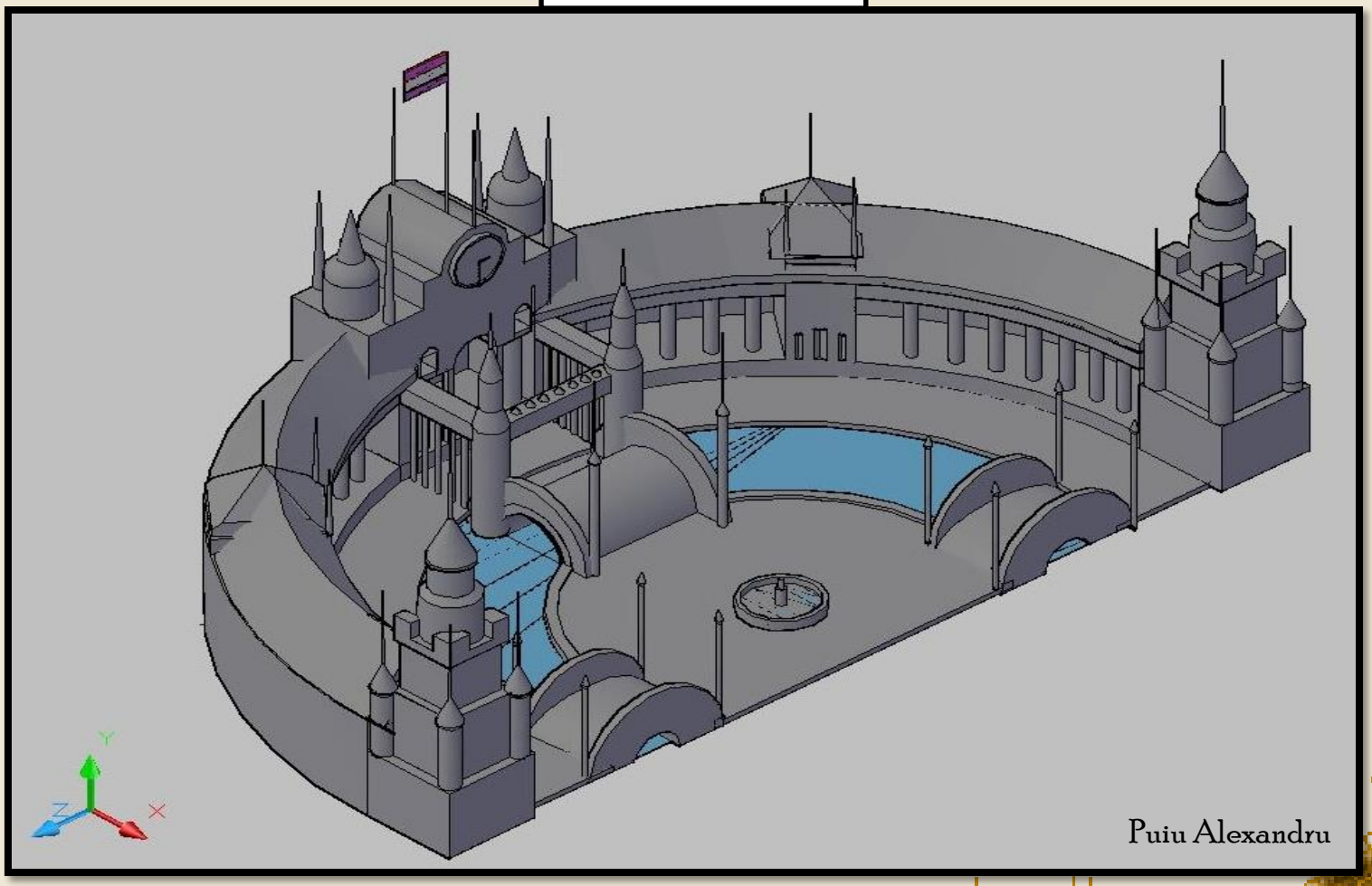
Grand Hotel Traian

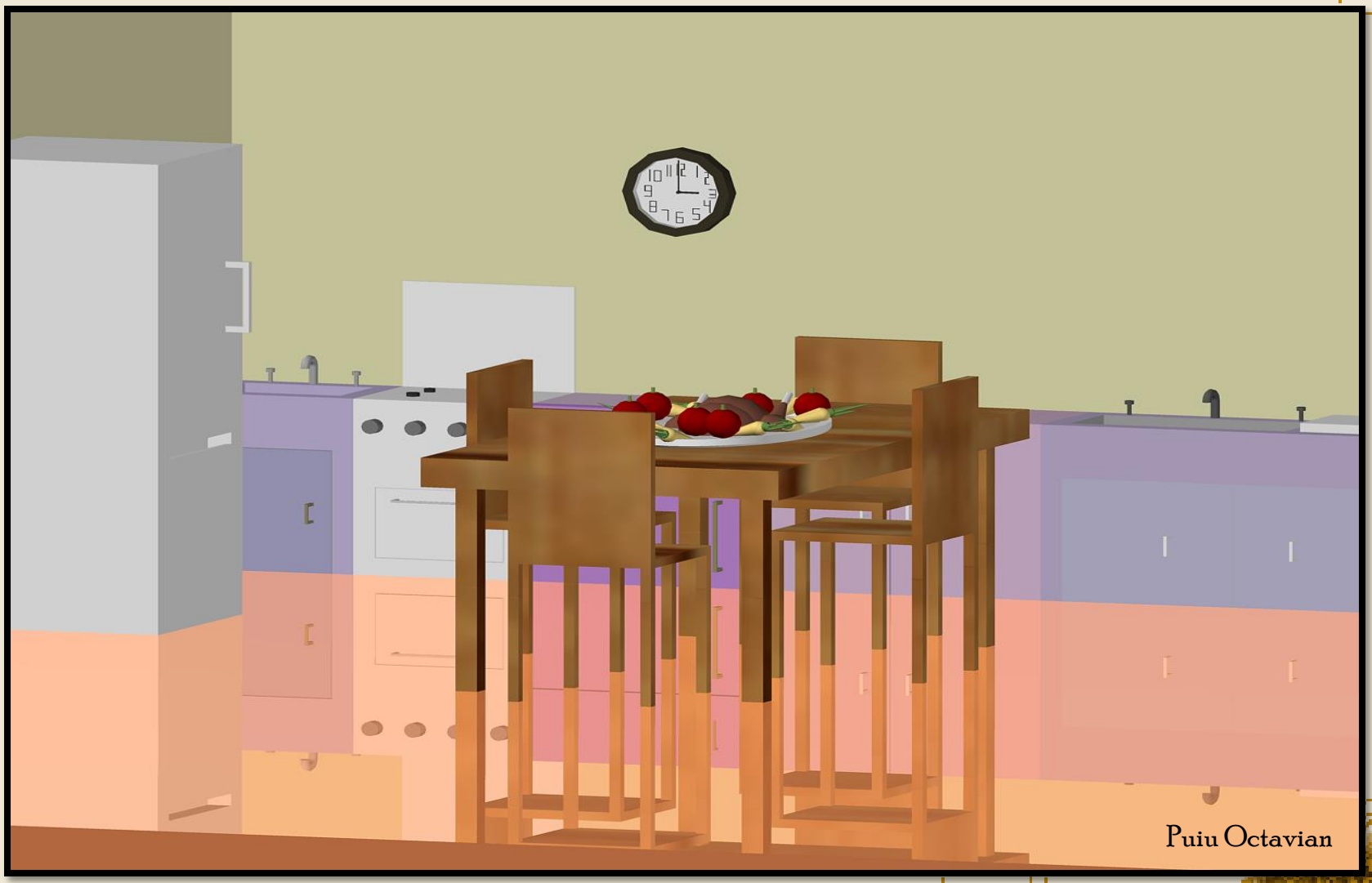
With hard work, one of us succeeded in finishing a masterpiece in 3 days, which showed exactly the beauty of our city, Iasi.



Finally, we managed to make 3D shapes and drawings with hard work.

Plaza de Espana




Puiu Octavian

AutoCAD variants and ports

As of now, AutoCAD runs successfully on 4 different operating systems : Windows, Mac OS, IOS and Android. While there isn´t any official version for Linux on the market yet, clones such as DraftSight implement many of the original program´s functions. The most developed and efficient version is still widely considered to be the Microsoft Windows one, taking into account the relative youth of the other ports, which are no more than three years old.

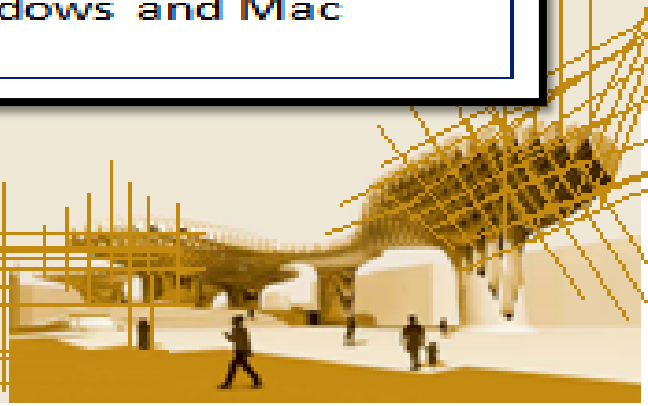
Microsoft Windows

The Windows version of AutoCAD is regared as the most complete and technically advanced program for computer-aided design. In its 31 years history, both the program and the operating system have come to know many different versions. Actually, the 26th day of March, current year, marked the launching of the 28th AutoCAD major rendition for the Windows operating system, AutoCAD 2014. The latest AUTODESK release runs on Windows® 8 Standard, Enterprise, or Professional edition, Windows® 7 Enterprise, Ultimate, Professional, or Home Premium edition, or Windows XP® Professional or Home edition, underlining the high adaptability the software presents. AutoCAD for Windows also has two other variants, called AutoCAD LT and AutoCAD – Student Version.

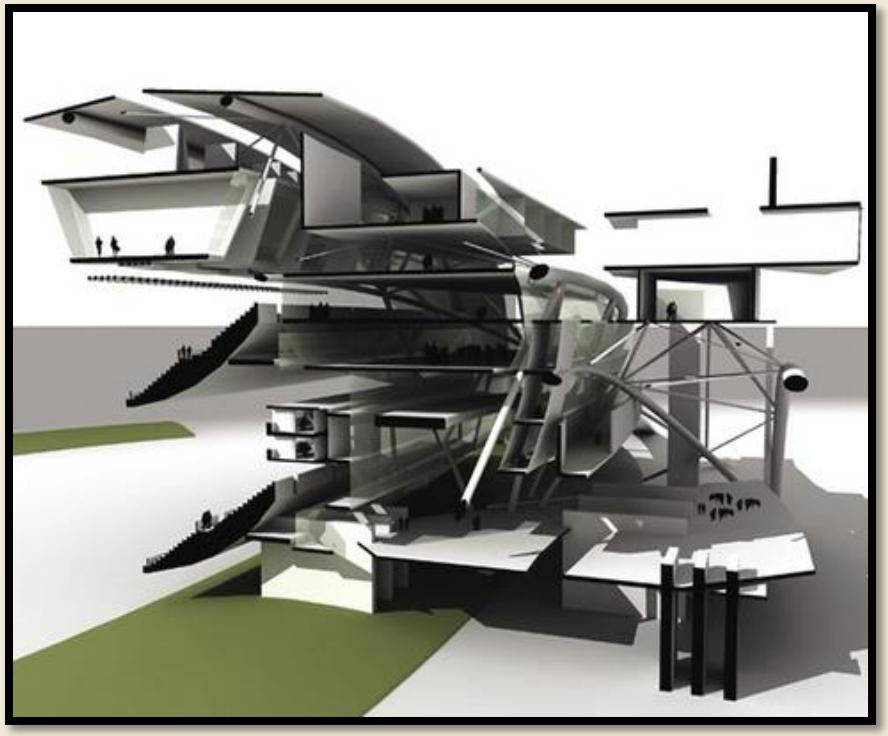
AutoCAD LT

AutoCAD LT is the lower cost version of AutoCAD, with reduced capabilities, first released in November 1993. Autodesk developed AutoCAD LT to have an entry-level CAD package to compete in the lower price level. Despite some major differences, 1200 euros is still just about the fourth part of 4000 euros, which is the current price of the AutoCAD program. AutoCAD LT is best suited to designers and drafters, while AutoCAD can also be used by architects and engineers. Here is a list of the Most significant software differences between the two versions of the program:

AutoCAD®	AutoCAD LT®
Design and documentation	Drafting and detailing
3D design Drafting productivity Concept through completion	Drafting productivity
3D design capabilities	2D design
Customizable - AutoCAD Exchange app store	Use as released
Network licensing	Standalone license
For Windows and Mac	For Windows and Mac

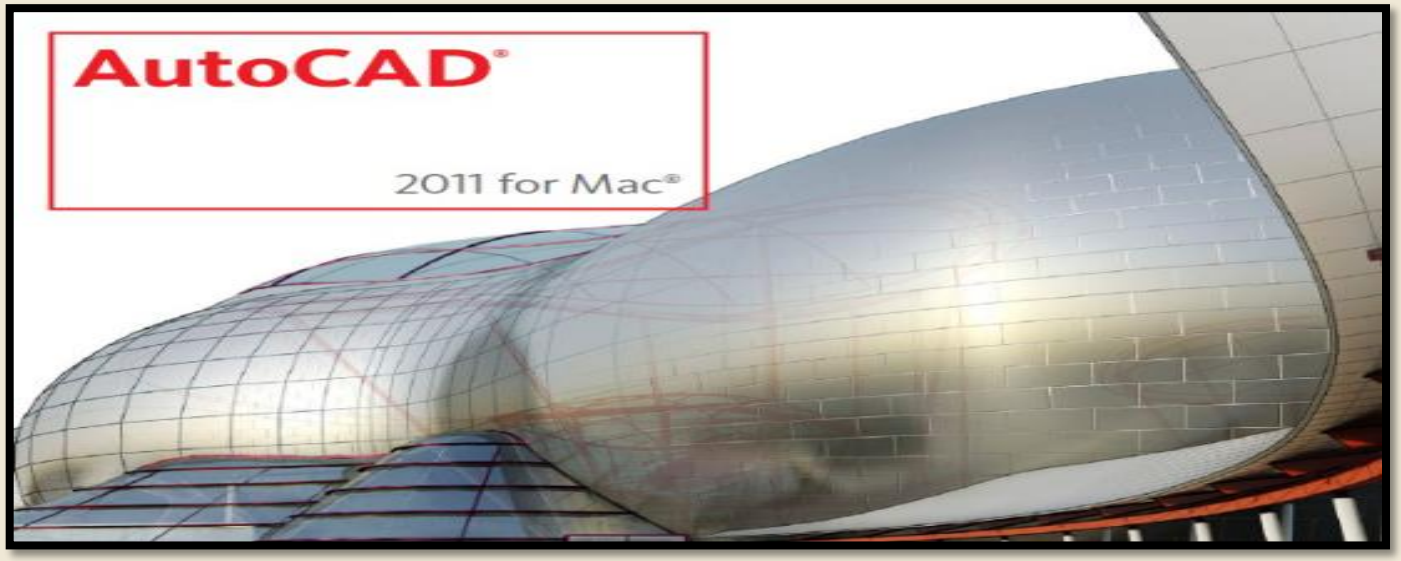


AutoCAD – Student Edition



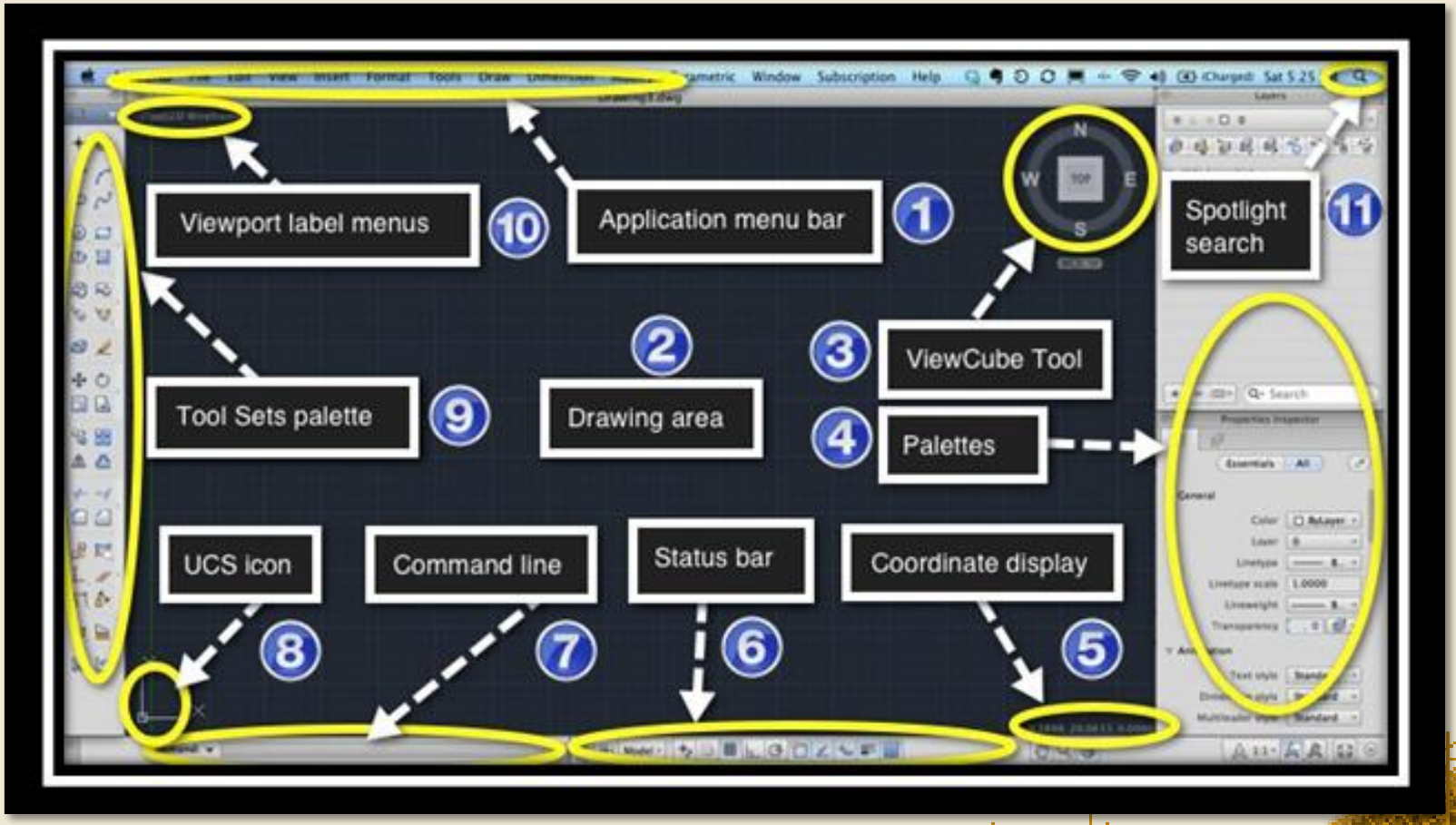
AutoCAD is licensed at a significant discount over commercial retail pricing to qualifying students and teachers, with a 36-month license available. The student version of AutoCAD is functionally identical to the full commercial version, with one exception: DWG files created or edited by a student version have an internal bit-flag set (the "educational flag"). When such a DWG file is printed by any version of AutoCAD (commercial or student), the output includes a plot stamp / banner on all four sides. Objects created in the Student Version cannot be used for commercial use. Student Version objects "infect" a commercial version DWG file if it is imported.

AutoCad for Mac

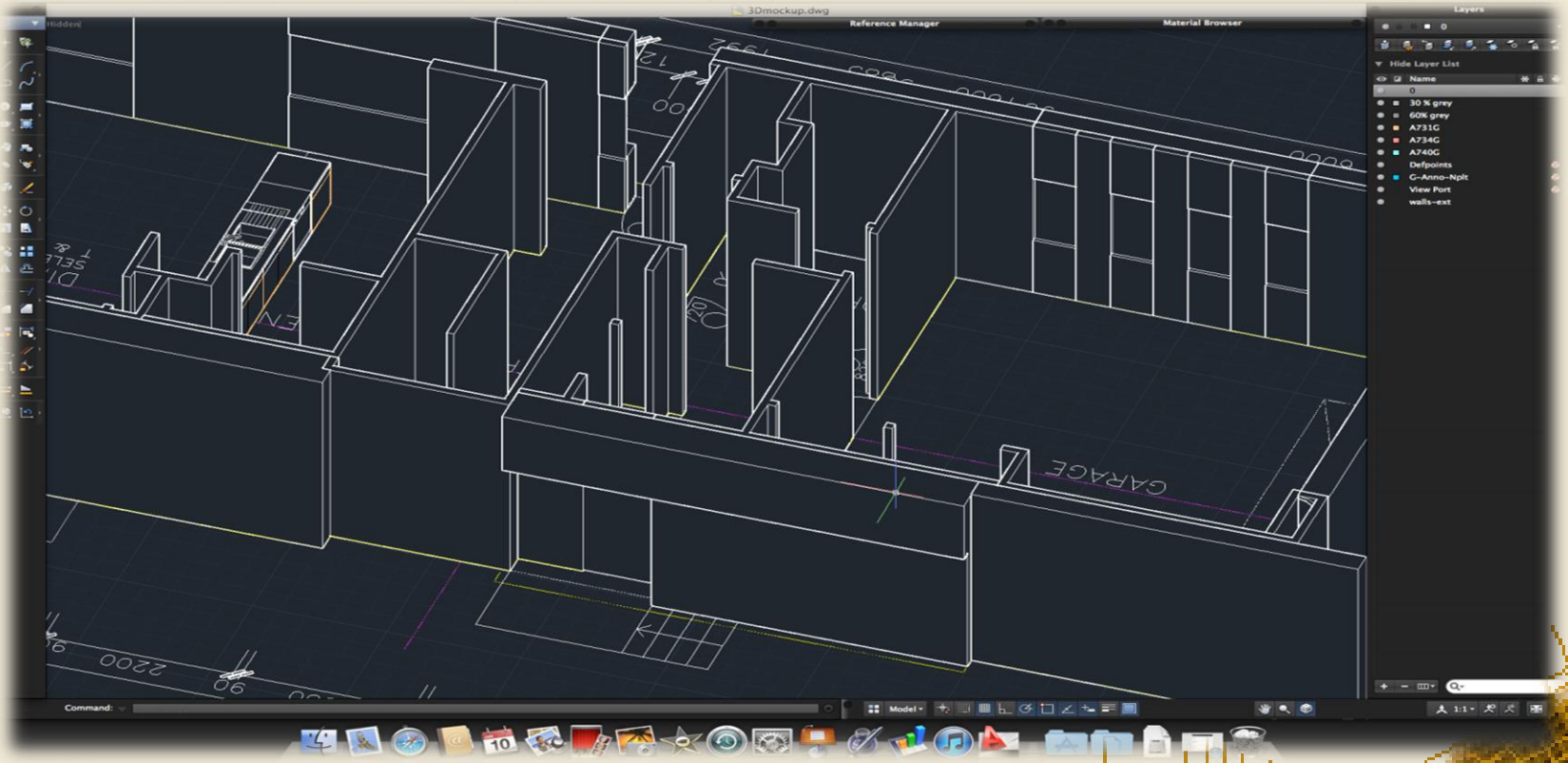


In 2010 Autodesk announced that it would once again support Apple's Mac OS X software in the future. Most of the features found in the 2012 Windows version can be found in the 2012 Mac version. The main difference is the user interface and layout of the program. The interface is designed so that users who are already familiar with Apple's OS X software will find it similar to other Apple applications. Autodesk has also built in various features in order to take full advantage of Apple's Trackpad capabilities as well as the full-screen mode in Apple's OS X Lion.

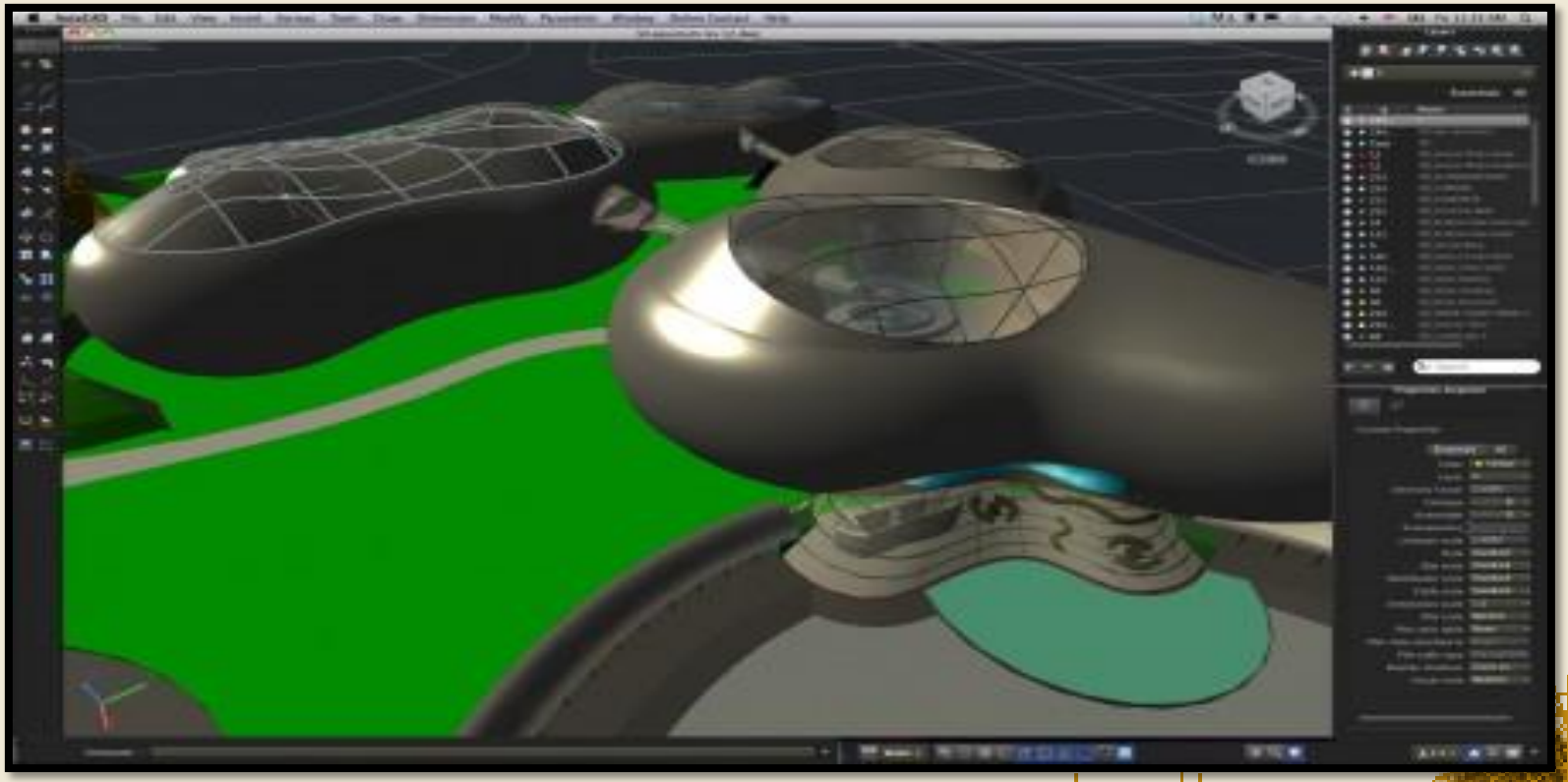
The intuitive interface and context-sensitive help function in AutoCAD for Mac can help smooth out your learning curve.



With AutoCAD® for Mac® software, you have the ability to go big with bold designs. Experience the power, flexibility, and accuracy of AutoCAD on your platform of choice. AutoCAD for Mac takes full advantage of the Mac OS® X platform—the intuitive, graphical user interface makes it easier to bring your ideas to life.

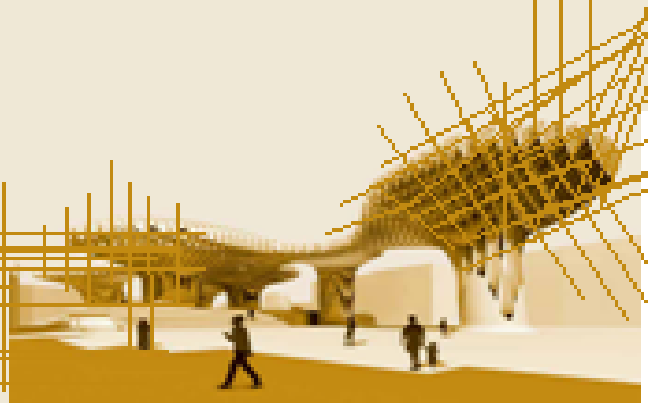


AutoCAD® for Mac® let you explore your design ideas with intuitive tools that help you transform concepts into reality. Simply push and pull faces, edges, and vertices to model complex shapes. Refine mesh surfaces and create high-precision NURBS curves and surfaces to actualize anything you can imagine.



System Requirements

- Mac OS® X 10.6.4 or later; Mac OS X 10.7 or later; OS X 10.8.*x*; 64-bit Intel® processor
- Apple® Mac® Pro 4,1 or later; MacBook® Pro 5,1 or later (MacBook Pro 6,1 or later recommended); iMac® 8,1 or later (iMac 11,1 or later recommended); Mac® mini 3,1 or later (Mac mini 4,1 or later recommended); MacBook Air® 2,1 or later; MacBook® 5,1 or later (MacBook 7,1 or later recommended)
- 3 GB of RAM (4 GB recommended)
- 2.5 GB free disk space for download and installation (3 GB recommended)

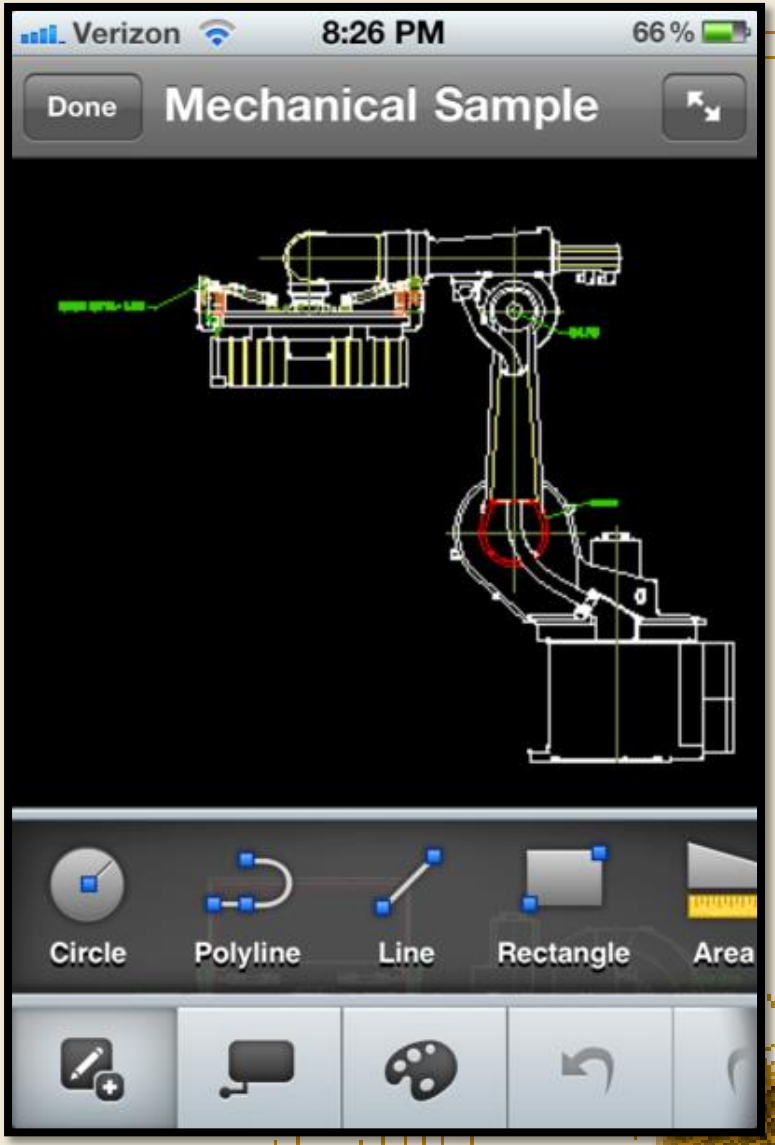


Autocad 360 Mobile

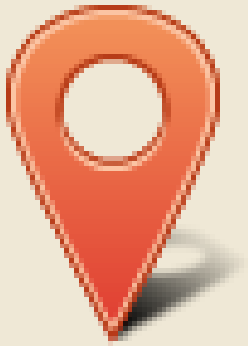
Formerly marketed as AutoCAD WS, Autocad 360 is an account-based mobile and web application enabling registered users to view, edit, and share Autocad files via mobile device and web using a limited Autocad feature set — and using cloud-stored drawing files. The program, which is an evolution and combination of previous products, uses a freemium business model with a free plan and two paid levels — marketed as Pro ($4.99 monthly or $49.99 yearly) and Pro Plus ($99.99 yearly) — including various amounts of storage, tools, and online access to drawings. The application also includes new features such as a "Smart Pen" mode and linking to third-party cloud-based storage such as Dropbox.

In its initial iOS* version, Autocad WS supported drawing of lines, circles, and other shapes; creation of text and comment boxes; and management of color, layer, and measurements — in both landscape and portrait modes.The latest realised versions added support of unit typing, layer visibility, area measurement and file management. Both Android and iOS versions allow the user to save files on-line — or off-line in the absence of an Internet connection.

*iOS is a mobile operating sistem designed by Apple

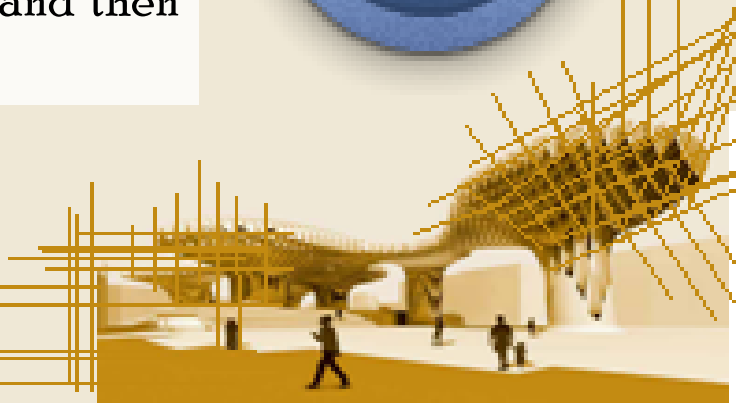


New features and functions



GPS Support

The new GPS function lets you position yourself within your design leveraging the built-in GPS functionality of your smartphone or tablet to add contextually relevant comments at precise geographic locations. You can establish a point and then manually adjust the x, y and z coordinates of that pointwithin your drawing. Similarly, you can use the GPS function to identify your specific longitude, latitude and altitude and then manually adjust if necessary.

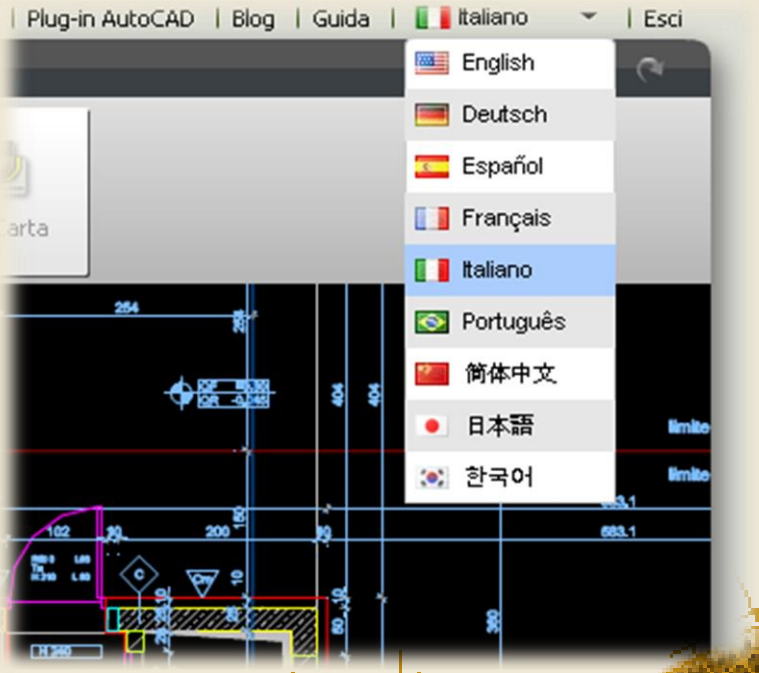


Plot from Mobile

This latest release has added the ability to plot your drawings directly from the AutoCAD WS mobile app. There are two ways for you to do this this. You can plot your drawing as a PDF file and email it to any address in the world.

Multi Language

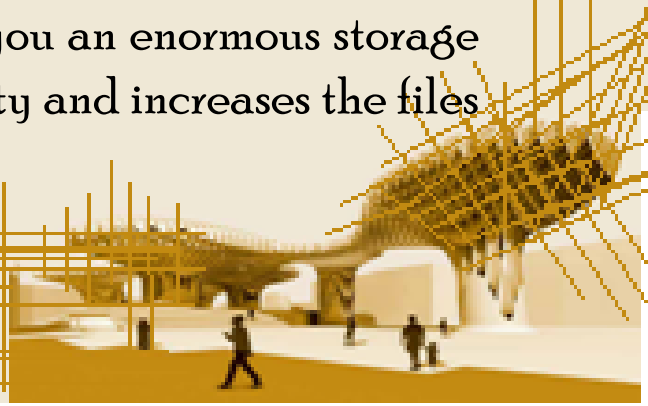
The AutoCAD WS mobile and web apps now support nine additional languages. The choice of languages was determined by the countries where AutoCAD WS has had the greatest presence.



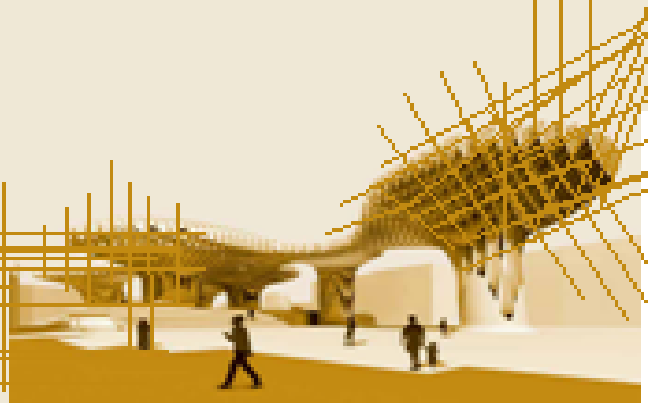
Go Pro or Proplus?

FEATURES	FREE	PRO (BEST VALUE) $4.99 per month | $49.99 per year	PRO PLUS $99.99 per year
Storage capacity	5GB	25GB	100GB
Maximum supported file size	10MB	30MB	40MB
Third-party storage connectivity (Dropbox, Box, etc.)	View	View & Edit	View & Edit
Online and offline access to drawings	✓	✓	✓
Secured communication	✓	✓	✓
Geolocation tools	✓	✓	✓
Basic editing and measuring tools	✓	✓	✓
Basic layers management	✓	✓	✓
Create new drawings		✓	✓
Advanced drawing and editing tools		✓	✓
Advanced measuring and dimension tools		✓	✓
Advanced layers management		✓	✓
Blocks palette		✓	✓
Drawing coordinates		✓	✓
Properties and attributes		✓	✓
Priority support		✓	✓

AutoCAD 360 Pro plans expand the power of the Autodesk AutoCAD 360 mobile application with additional tools to simplify drawing creation, editing, and sharing.In comparison with the freemium business model, the PRO version allows a wider applicability, including all features.Moreover, PRO PLUS offers you an enormous storage capacity and increases the files size.



Opinions . . .



"From the very first day I was estremely impressed by Sevilla, by the town itself with its tiny streets which seemed to be a labirinth, by the sun´s reflection in the river´s sparkling waves and by the wonderful arhitecture that hides thousands of pages of history. Well, I had a few problems with the heat, but slowly I got used to it and now I actually love the warm touch of the sun. The classes were interesting and funny, especially because I love drawing and I am passionate of design. It was an amazing experience because I visited many monumets and great places of Seville, Alhambra and Alcazar Palace and I went to a traditional dance named flamenco!"

Amarandei Lidia Marta

"I didn´t expect that this project would be such a great experience. Spending time in Spain, Sevilla with other people and visiting other cities and great places were the best parts of the project. The architecture classes were exciting – we learned the basic architecture in AutoCAD and technical drawing. English classes, watching movies, singing and playing games were also extremely interesting. I hope that my colleagues felt the same and enjoyed the time here as much as I did."

Amironesei Aura Elena

"The Leonardo project is a once in a lifetime opportunity that no one should miss. During our stage we learned a lot of interesting new things about technical drawing in the isometric system but also AutoCAD in 2D and 3D. In our free time we made cultural visits here in Seville, to places such as the Cathedral, the Golden Tower or the famous Triana neighbourhood. On the weekends we went to Granada where we saw the Alhambra fortress and to Cadiz, one of the oldest city in southwestern Europe and the principal home port of the Spanish Navy."

Apetroaiei Darius Stefan

"The project was incredibly useful, providing me with a great introduction to the bases of the AutoCAD platform, technical drawing and architecture in general. I am very pleased that I have decided to take part in this project and I absolutely recommend it to other students, as it is a one in a lifetime experience."

Barbulescu Ilinca

"Being a participant in this project was , for me, like setting a bird free for the first time.
I have always said that I would be an architect but I've always done it with a bit of incertitude- I had no idea about what technical drawing or isometric system means until I came here. Now, the foundation is already built and the further project is in progress and I can't wait to see the true architect entirely constructed. Looking back at this experience, I remember the curiosity from the beginning, the struggle of working, the disappointment of being mistaken and, finally, the joy, release, pride of having a job well-done...oh, and the never absent element: sweat."

Cauneac Lola Elisa

"My experience during these 3 weeks in Seville was an unexpected and amazing part of my life that i will never forget. The architecture classes, the Spanish culture and tradition and our daily activities here had impressed me a lot and now at the end of the project i am so glad to say ¨muchas gracias!¨ for the time spent here. "

Ciupilan Cristian

"Firstly, I thought that the cultural part of this project would not be so enjoyable, but then it became very interesting. During the training session, I had the chance to visit some amazing places and monuments and I really managed to gain important cultural knowledge. What´s more, every day I practiced English and improved my skills, and I also learned some words in Spanish. That was great! I easily entered in this people´s environment and discovered their world. Then, another important fact in this project is the support of the teachers, who helped us every time we needed and brought us to many interesting cultural places. The architecture teacher taught us well and I hope she also enjoyed herself during the classes."

Ciupilan Stefan

"Right before the departure, I was pessimistic about how I would be able to work three weeks in front of a computer at the international project Leonardo da Vinci. After a few days I realized that everything was better than I could have ever imagined. Besides the useful lessons that developed my 3D view, this time spent with people of my age, far away from my parents proved me that I can be independent and, despite the big responsabilities that came with being on your own, not having to lean upon your relatives brings you a special self-confidence that I'm sure will help me in the future."

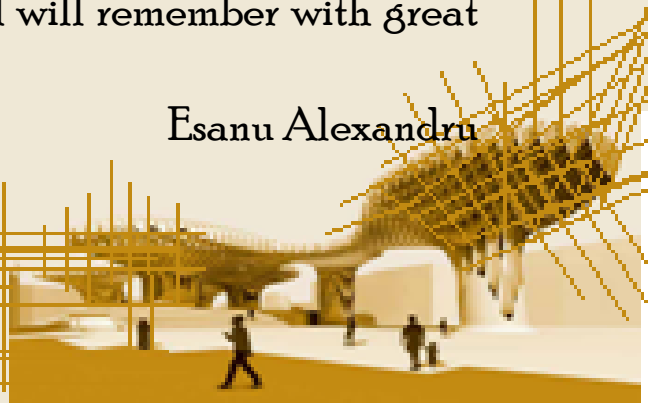
Cristea Ilinca

Spending three weeks in Spain, doing architectural courses was an outstanding experience as it not only taught me some basic architectural notions, but it also gave me a sense of independence. The experience of handling complicated situations on your own, of having full responsability of your actions made me act more maturely and I feel that Seville was a great host for us, as it had a lot to offer. We visited many beautiful places, learned how to do 3D projections and had a nice time together in the hot sun of Spain.

Driscu Iulia Teodora

As far as I am concerned, the Leonardo da Vinci project was a life-changing experience, which I will certainly never forget. By studying technical drawing and working in AutoCAD I have learned things valuable for my professional future, while the English courses have improved my linguistic abilities. The cultural activities and the visits to Cadiz and Granada were highly entertaining and I am glad to carry with me back home memories I will remember with great joy.

Esanu Alexandru



"The Leonardo daVinci project was very useful and I found out a lot of interesting things about the AutoCAD platform and about technical drawing. Apart from being a great introduction to architecture, this project accustomed me with the Spanish culture and civilisation. Seville is an breathtaking city, with amazing monuments and very kind people. I enjoyed my time here and I am looking forward to coming back some time. "

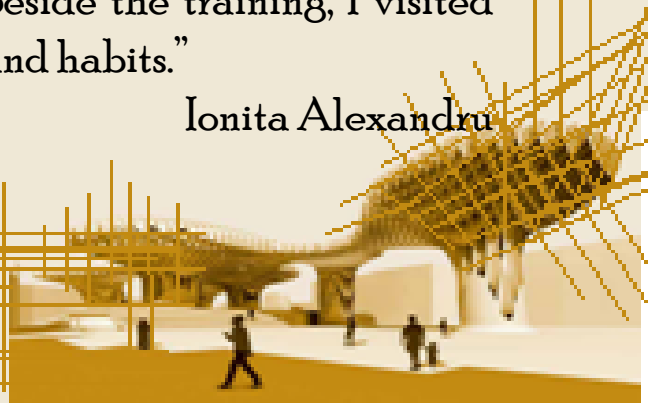
Gramaticu Ecaterina

"There was a very relaxing atmosphere in and outside the classroom, permanently encouraging teaching in a semi-formal environment. I'm certain that in the time spent in the marvellous city of Seville I have gathered knowledge that will prove to be extremely useful for my future career and also unforgettable memories."

Iacoban Sorina Andreea

"For me, the Leonardo project was a life experience that taught me how to adapt in a foreign country and live by my own. Also, I have learned many things that will help me in the future, such as creating 3D models of different objects in AutoCAD. Beside the training, I visited many historical monuments, and I learned the Spanish traditions and habits."

Ionita Alexandru



"I deeply enjoyed my time during the stage in Seville. The city was astonishing, the teachers were great, and the classes were extremely rich in information. All in all, it was one of the best experiences of my life!"

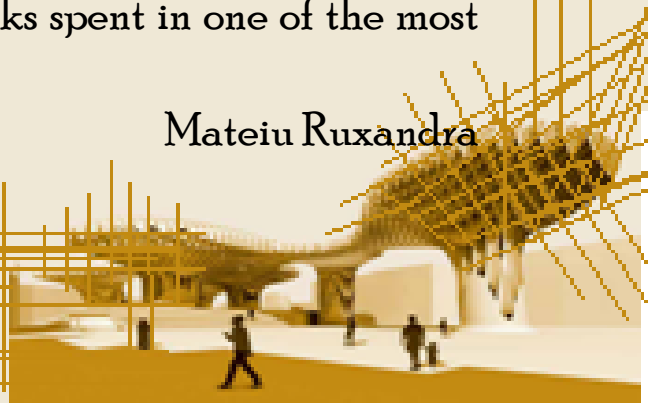
Iosep Diana Gabriela

"It was one of the best experiences I have ever tried and I would come back as soon as possible to Spain because it is a very beautiful country with pleasant people. The stage was very useful for those who want to become architects but also for students who will choose different careers. Seville is an wonderful city with lots of great places to visit and to contemplate. The Leonardo da Vinci project offered me a unique opportunity and I am glad I have taken part in it."

Matcovici Stefan

"Being here in Seville with the international project Leonardo da Vinci was a wonderful and interesting experience that gave me the opportunity to learn, travel and visit many touristic objectives. I won't ever forget those three special weeks spent in one of the most beautiful cities in Europe."

Mateiu Ruxandra



"Even if you follow or not architecture further , Leonardo Da Vinci programme offers you high- quality studies and broadens your future possibilities, in order for you to have more options to choose from. Also, I think that I improved my communication skills and the ability to work in a team."

Mazureac Bogdan

"To my mind, the participation in the Leonardo daVinci programme has had a greatly beneficial effect. First and foremost, having had to take part and integrate in a foreign enivornment, I have developed extensive communicative skills and I am far more confident in my ability to express ideas not only in English but also in Spanish, being also aided by our language classes where my vocabulary and grammar command has improved. My specialised AutoCAD skills will be of great help in the future, should I decide to follow a career in that area. Moreover, through the technical drawing classes I have developed and refined my analytic geometry abilities. I do think that this stage will be of help through my professional development in the future and I hope this programme can be accessible to as many european citizens as possible. "

Petcovici Vlad

"The Leonardo daVinci programme offered me an experience which blended the useful with the interesting, enriching me academically, socially and culturally, as the interaction with the Spanish culture was fascinating most of the times."

Ouatu Iustin

"For me, the Leonardo da Vinci project represented a very important educational programme, as well as an unforgettable cultural experience. I was impressed by how many things I was able to learn in just three weeks about technical drawing and AutoCAD: 3D projections, for example how to design a house from the beginning and the many tools of this software that can transform a simple line into something very intricate. During the various cultural activities we have take part in, I discovered the vast Spanish and Andalusian civilization and had a memorable time."

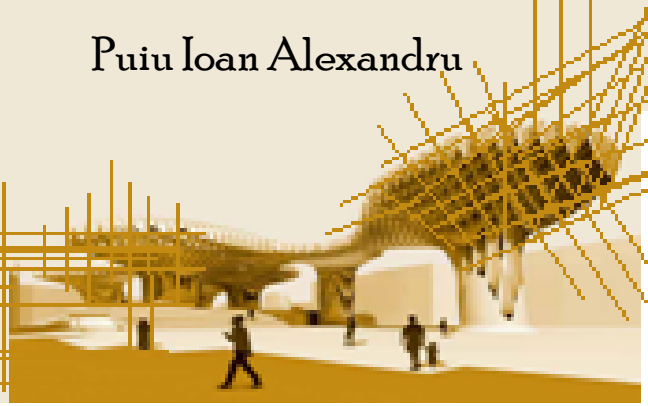
Profire Bianca Stefania

"Three weeks of learning architecture and 3D graphics in AutoCAD have proven to be interesting and quite useful since I have learned how to draw nearly every object I wanted to. I have also learned how to imagine an object in 3D even if I see it in two dimensions. We had English courses as well which helped us improve our languages skills. I am grateful to our teachers for their effort, help and patience."

Puiu Constantin Octavian

"Although I did not know much about the AutoCAD platform at the beginning of the programme, the Leonardo daVinci project has helped me learn a lot about this software and I enjoyed its practicallity and ease of use. Moreover, I found it very fulfilling to design 3D shapes."

Puiu Ioan Alexandru

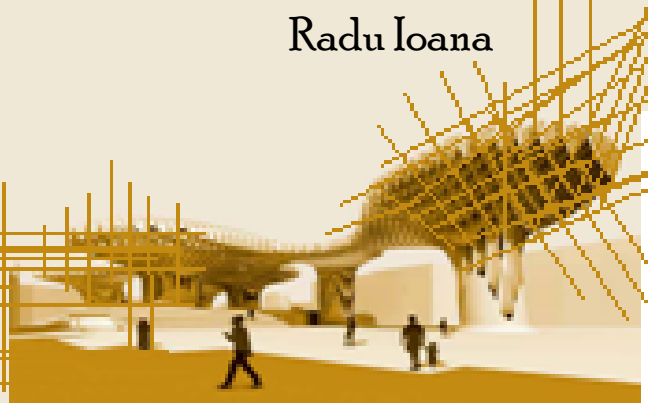


"I find that this project has given me the opportunity to see how an arhitect´s life would be like.With the Autocad software I was able to let my imagination run free and create veridic,freehand sketches.
Regarding the city of Seville ,where I lived for the past three weeks, I find that it has an unique charm that makes it hard not to fall in love it."

Purice Ioana Elena

"From my point of view, the experience I have gained during the Leonardo da Vinci project is invaluable! While making our first steps in technical drawing and learning the basics of the AutoCAD programme, we have also enjoyed ourselves visiting the amazing sights of Seville and Andalusia. Language courses and many cultural activities have also improved our knowledge regarding the exciting Hispanic world. All things considered, the moments I have experienced during these three weeks were some of the best I have ever had!"

Radu Ioana

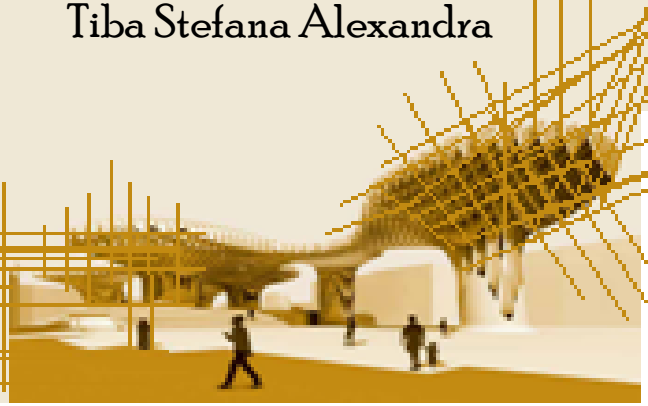


"Being in this project in Seville was an amazing experience which I will always remember. It helped me to draw buildings better and to work on AutoCAD. Moreover, this city revealed the culture of Spain and how beautiful this country really is. I met new people, made new friends and discovered places that I have never seen before. It was a wonderful time and I hope I will see Spain again."

Sofica Paula Nicoleta

"Going to Leonardo Da Vinci project was a wonderful experience. I have learn some great things during those three weeks spent in Spain. At the beginning I have not enjoyed the classes, but after the first days drawing became more interesting then expected. This project has not only taught me technical drawing and AutoCAD, but working in a team too. I really hope that I will have another chance like this to learn new things."

Tiba Stefana Alexandra



"I think that this project represents a extraordinary step for me, especially for my future, because nowadays, architecture is one of the most important professions as you can combine art with real life using your creativity. The project Leonardo da Vinci was an entirely new experience for me and it was amazing. Visiting great places from different cities such as Seville, Granada and Cadiz, we learned more about the Spanish culture and its beautiful traditions."

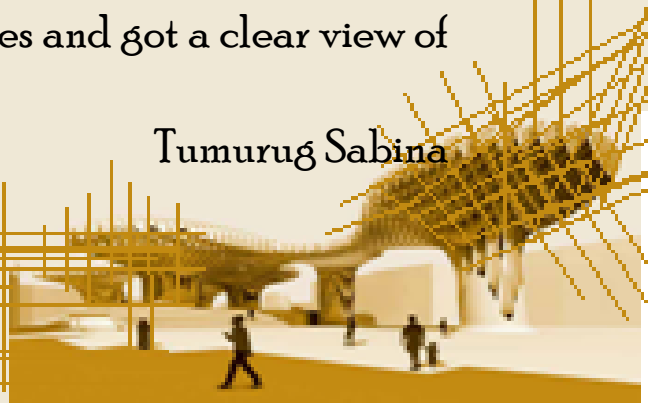
Tifor Vlad Constantin

"I think Leonardo da Vinci project was a great opportunity for me to learn about tehnical drawing, AutoCAD and Spanish culture and traditions. I learned a lot of things about architecture and I saw some of the greatest places in Seville."

Trasnea Petru Danut

"Through the programme I've realised many things about our future and our job possibilities, as I have considered being an architect many times and got a clear view of what architecture means."

Tumurug Sabina



I left the country looking forward to meeting these new amazing people that I haven't met before, to working in a field that someday could be my earning space and to learning about a country that I have previously just seen once, and briefly. On a sunny Sunday afternoon, with tired eyes and yawns, we managed to scroll our luggage all the way to the place that for three weeks some of us called "home".

Those three weeks brought us excitement, adventure, peace and even some sealed friendships. We learned how to make the sketch, different from the one lined during biology, we saw Seville's pearls pointed out by our friendly guide and we taught ourselves and each other how to "survive" an unknown world without our parent's close protection.

Leaving was heartbreaking, saying goodbye to a city that we thought of as a "shelter" for three weeks, to its gorgeous people and it's wordless allure.

Prisacariu Georgiana Sabina

"Architecture is life, or at least it is life itself taking form and therefore it is the truest record of life as it was lived in the world yesterday, as it is lived today or ever will be lived."