Computer Application in Architecture

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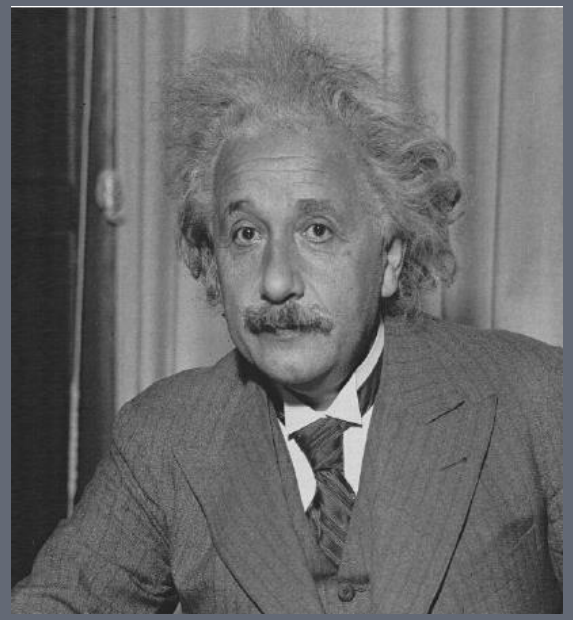
Think – Plan – Act!

- Think more.
- Think differently.
- Plan more.
- React less.
- Save more.
- Don’t fight the same fire over and over!



“We can not solve our problems using the same thinking we used when we created them.”

Vector vs Raster

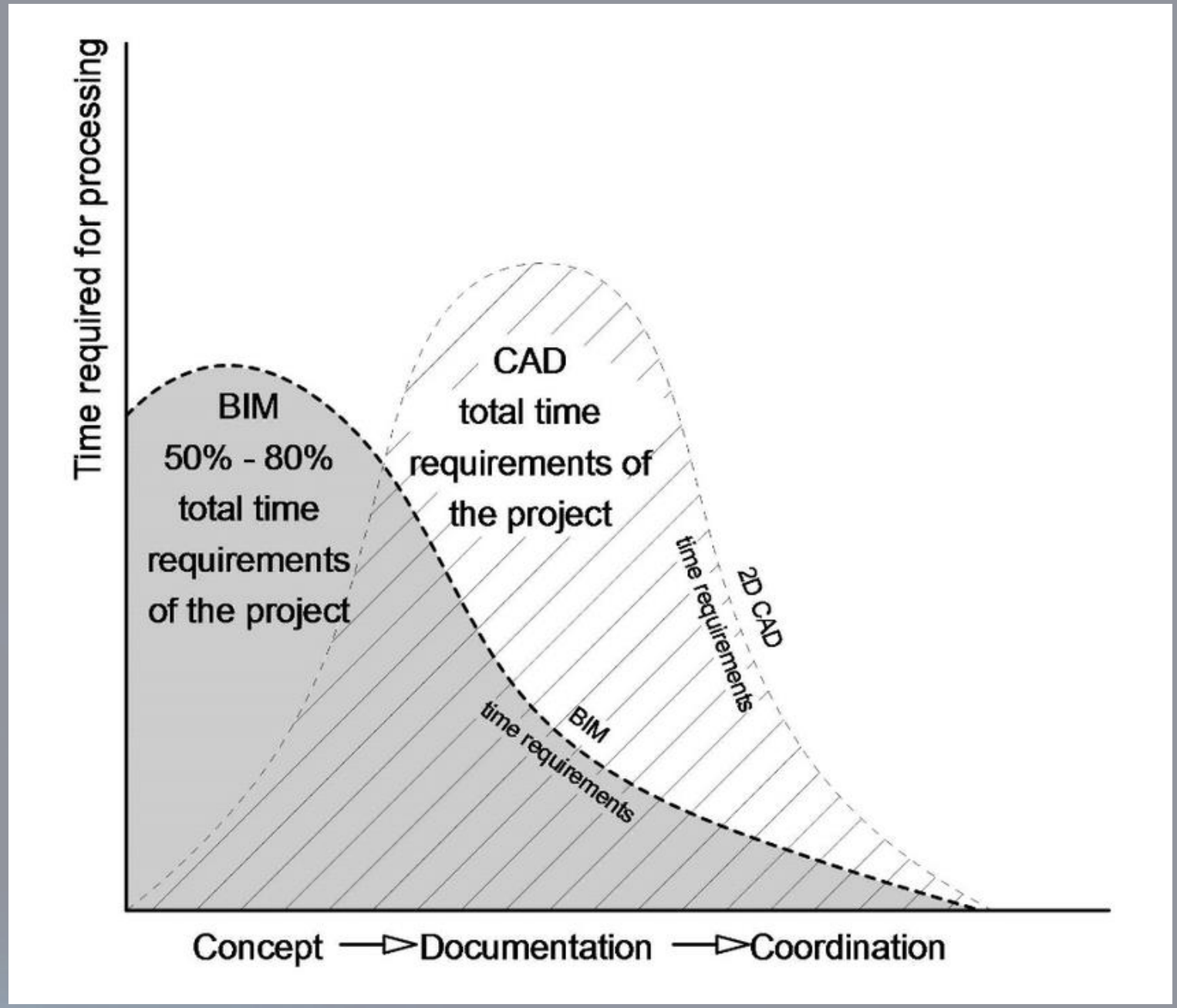
Vector graphics is the creation of digital Drawings through a sequence of commands or mathematical statements that place lines and shapes in a given two-dimensional or three-dimensional space.

CAD vs BIM

BIM is *Building Information Modeling*. It is an integrated workflow built on coordinated, reliable information about a project from design through construction and into operation.

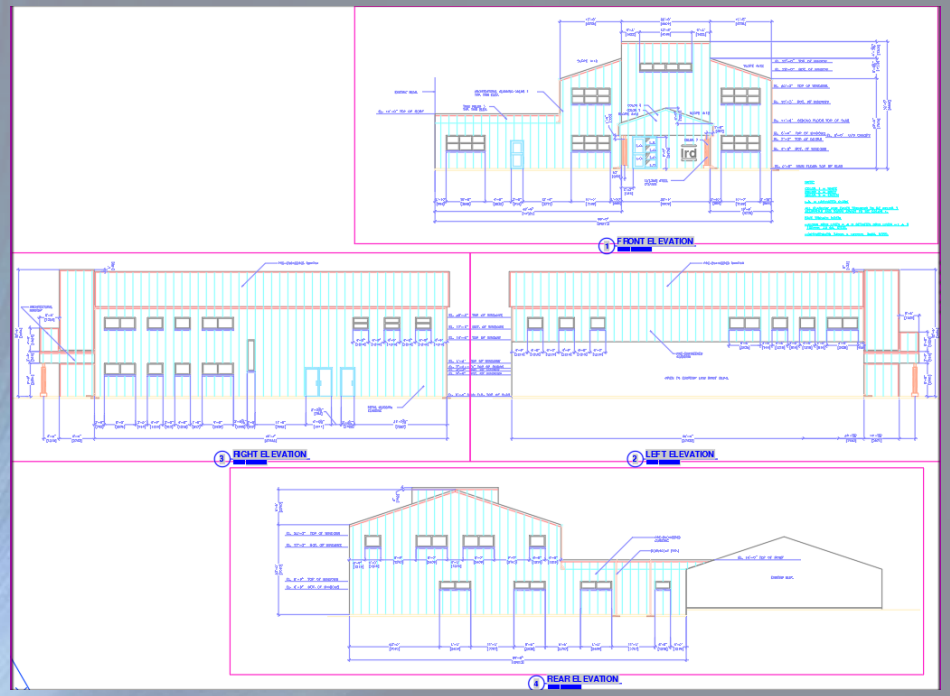
CAD is *Computer-Aided Design*. You can also add another D and have *Computer-Aided Design and Drafting*. CAD is simply the use of computer systems to assist with design.

Project Timeline



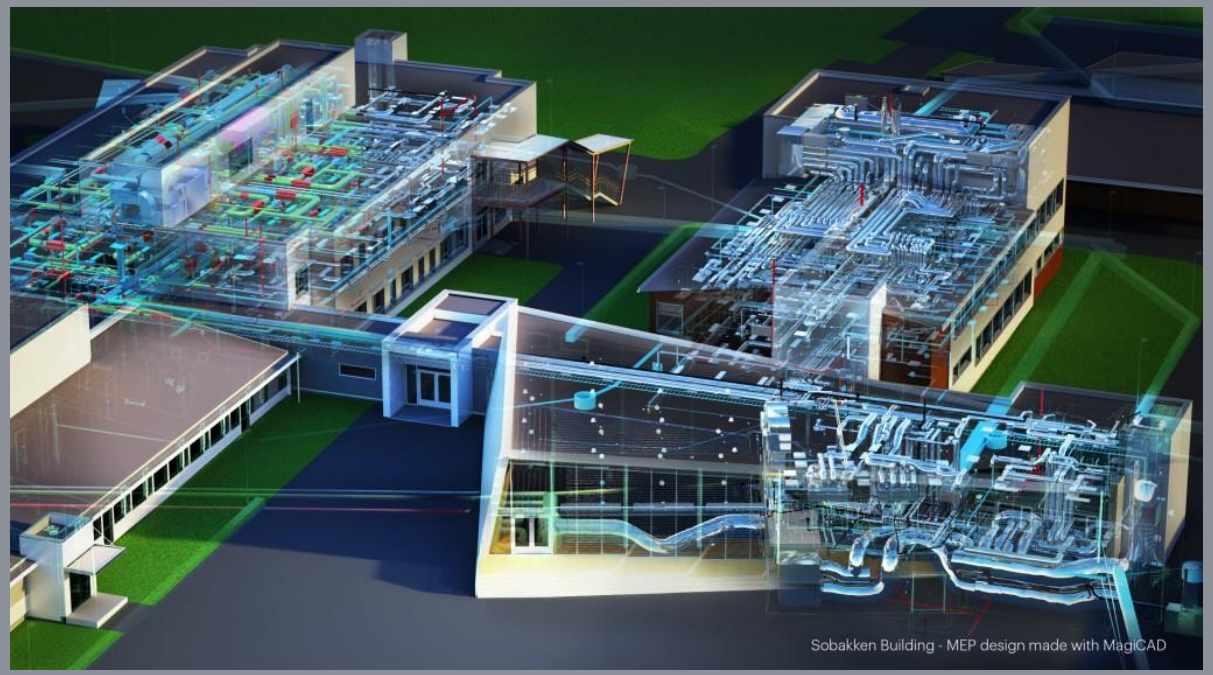
CAD

- Primary 2D



BIM

3D, 4D (time), 5D(cost), and beyond



CAD

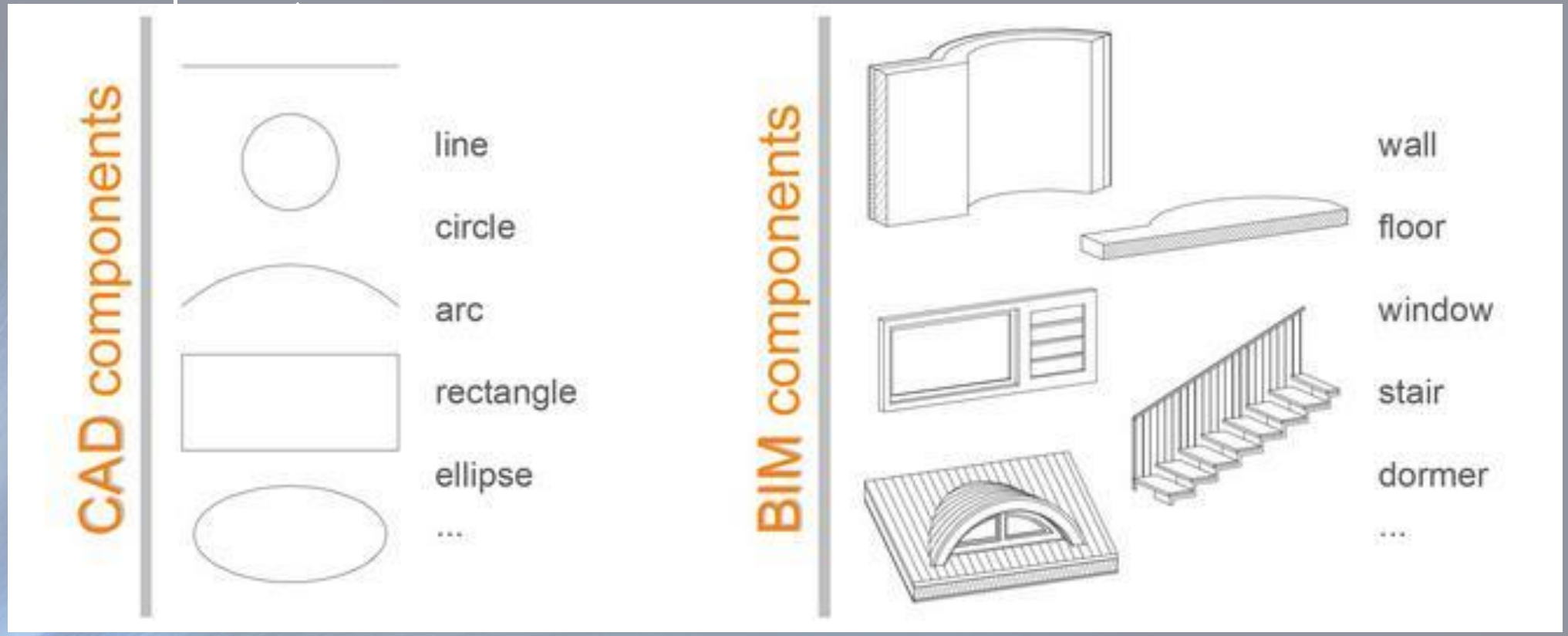
- **Dumb graphics**

(lines, arcs, circles, polylines)

BIM

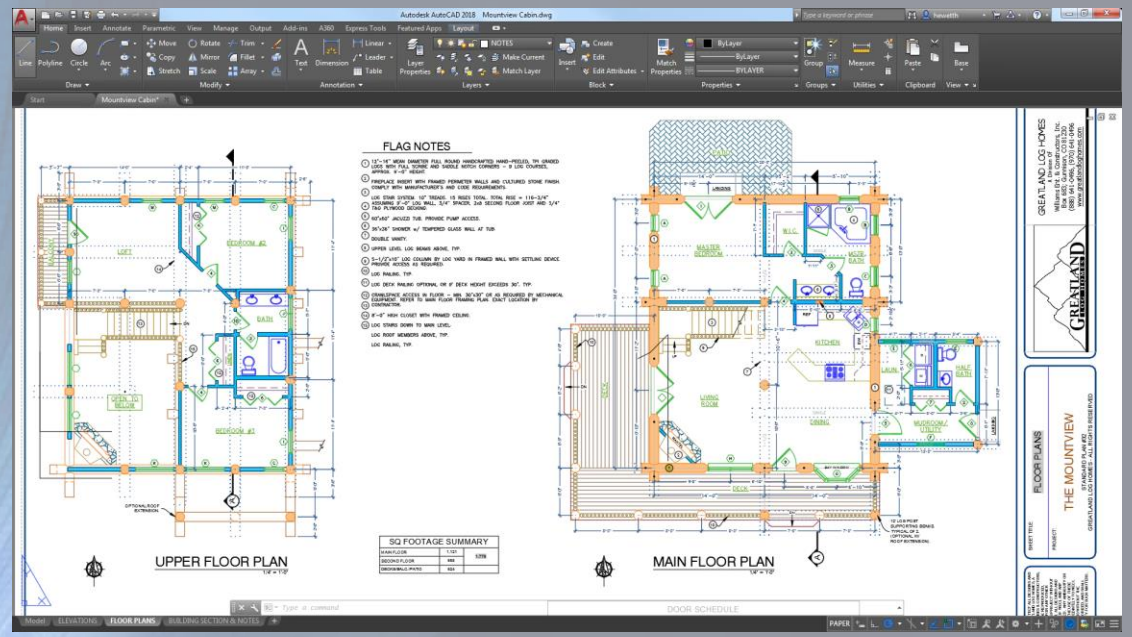
Intelligent objects

(Walls, floors, doors, windows,



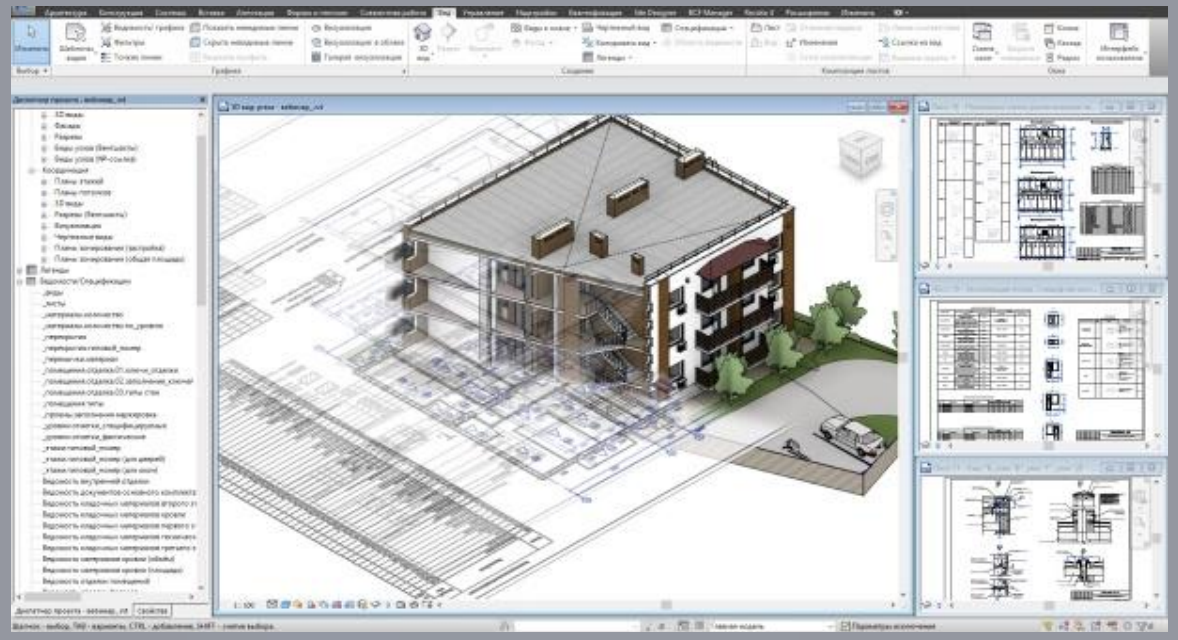
CAD

- Electronic drafting



BIM

Virtual construction



CAD

- Basic measuring

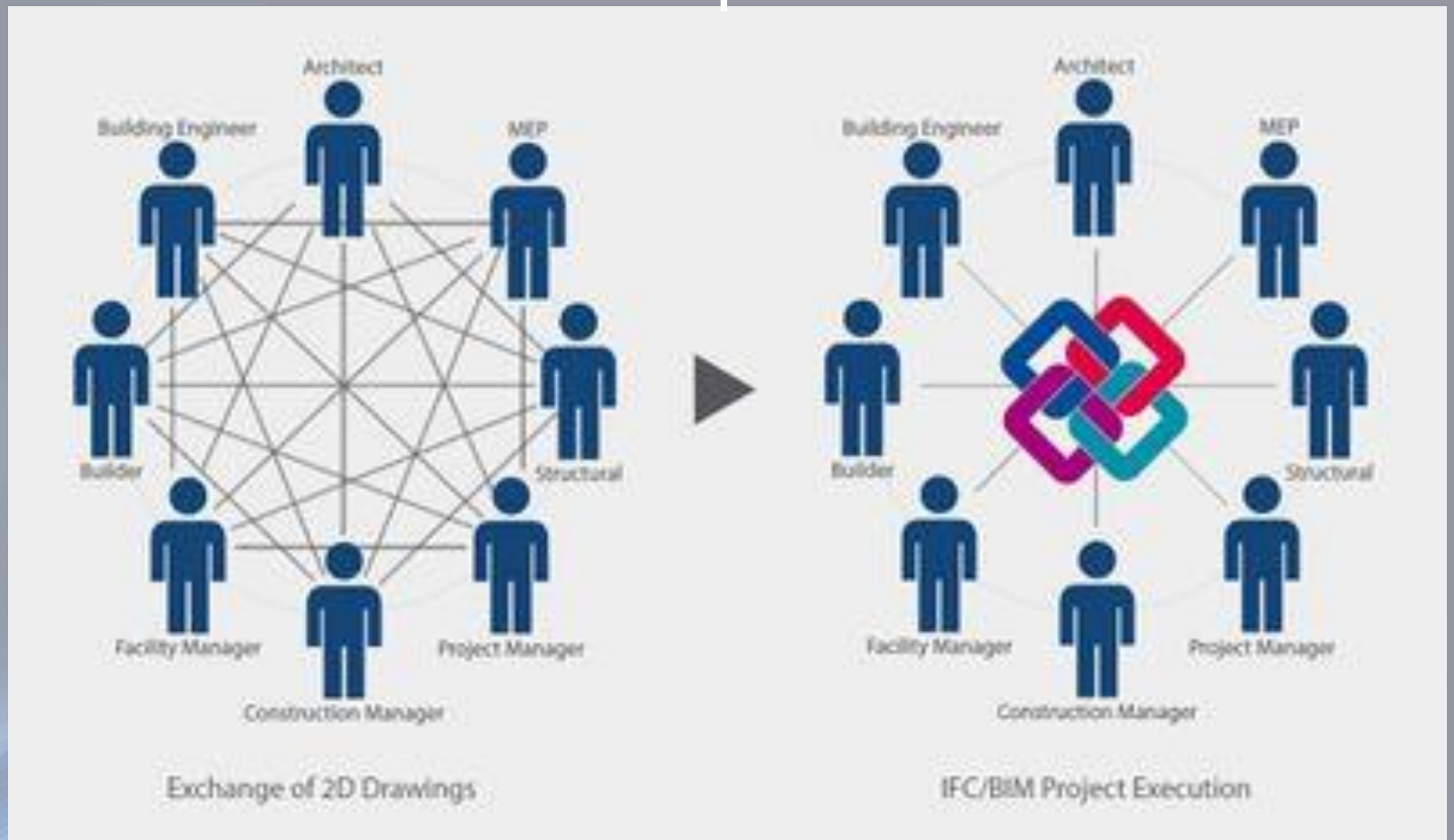
BIM

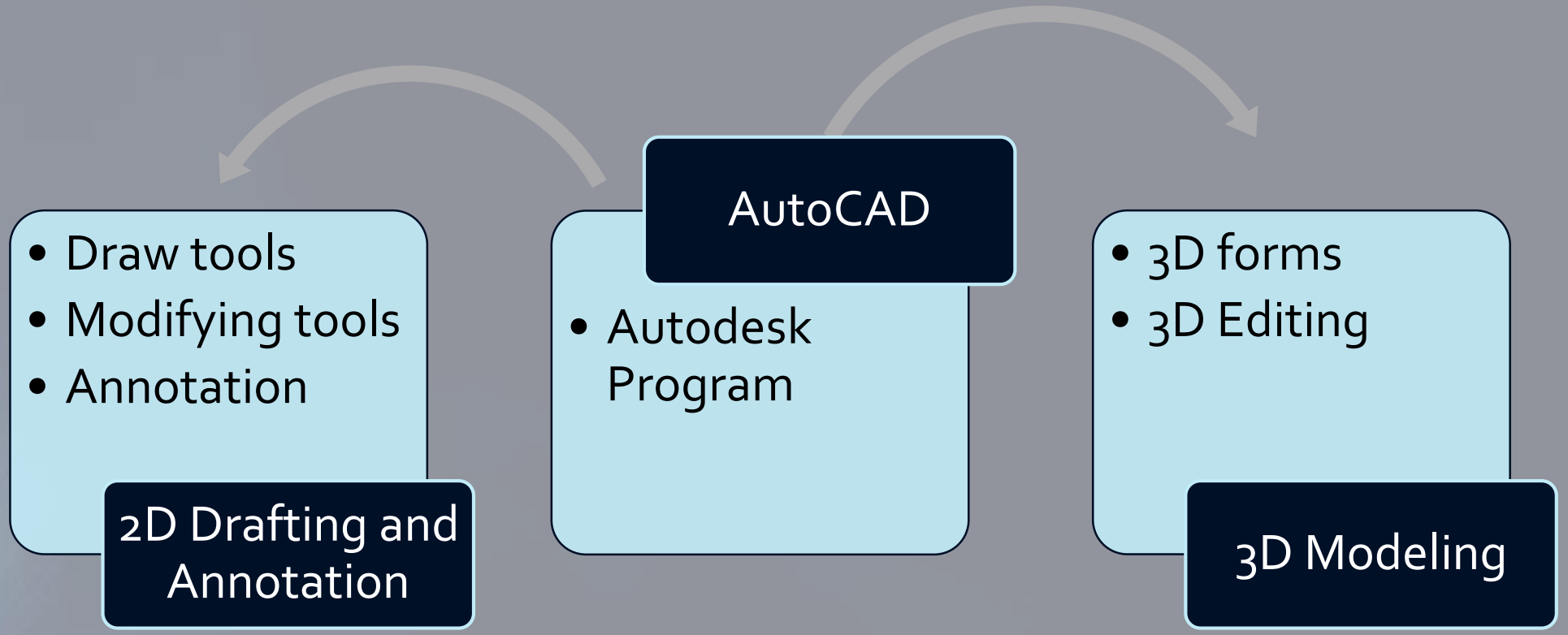
'One-click' bill of quantities

AUTODESK
REVIT
Architecture

CAD BIM

- Coordination of multi disciplines




AutoCAD
• Autodesk Program
• Draw tools
• Modifying tools
• Annotation
2D Drafting and Annotation
• 3D forms
• 3D Editing
3D Modeling

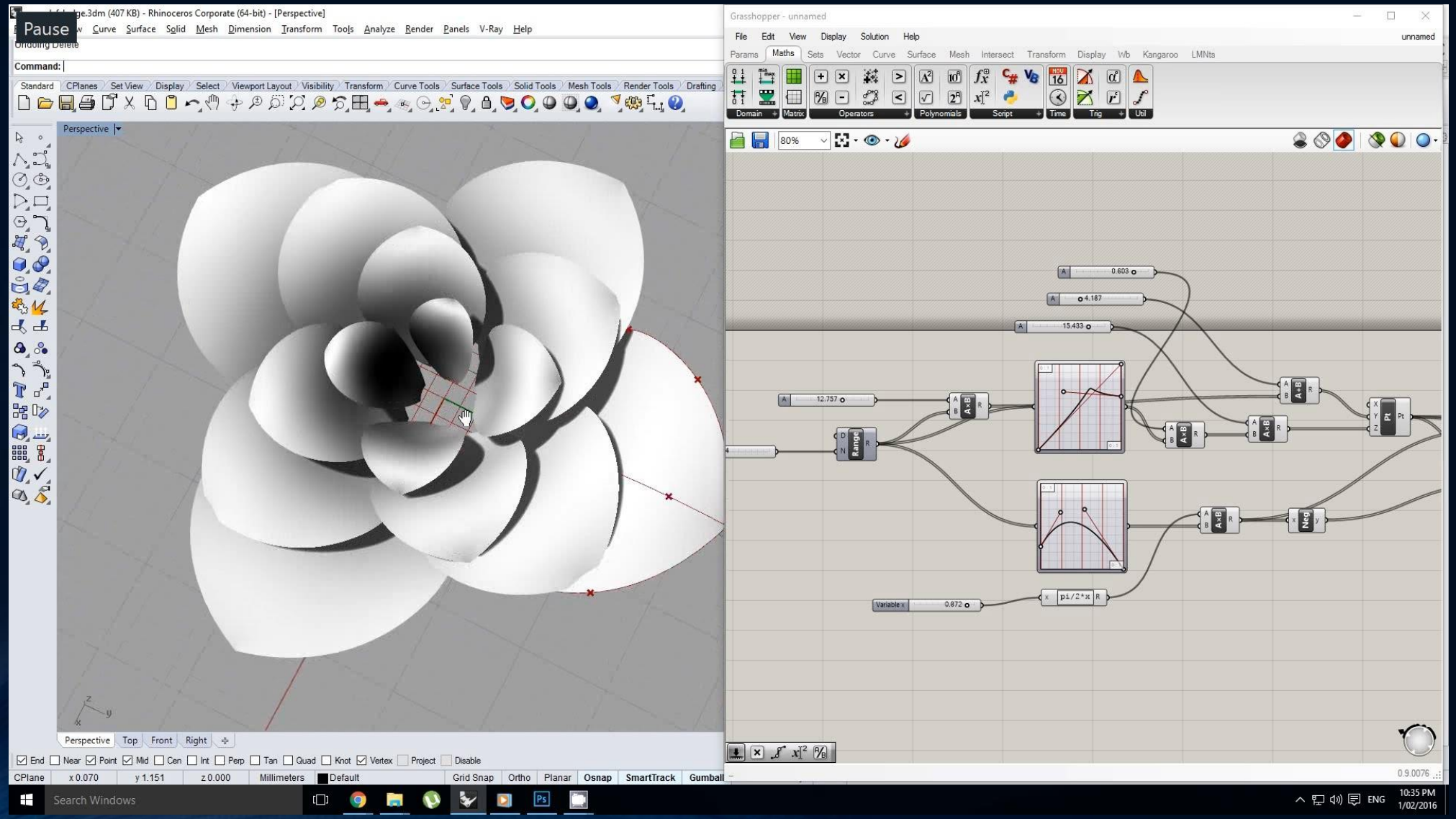
Todays Goals are to Know

- Starting a New Drawing
- Setting up the workspace
- Command toolbar
- Units
- Status toolbar
- Object snap
- Mouse usage
- Space bar
- Layers creation
- Zoom
- Selection control

Lecture 2

What is the maximum number of points of intersection of 4 distinct lines?

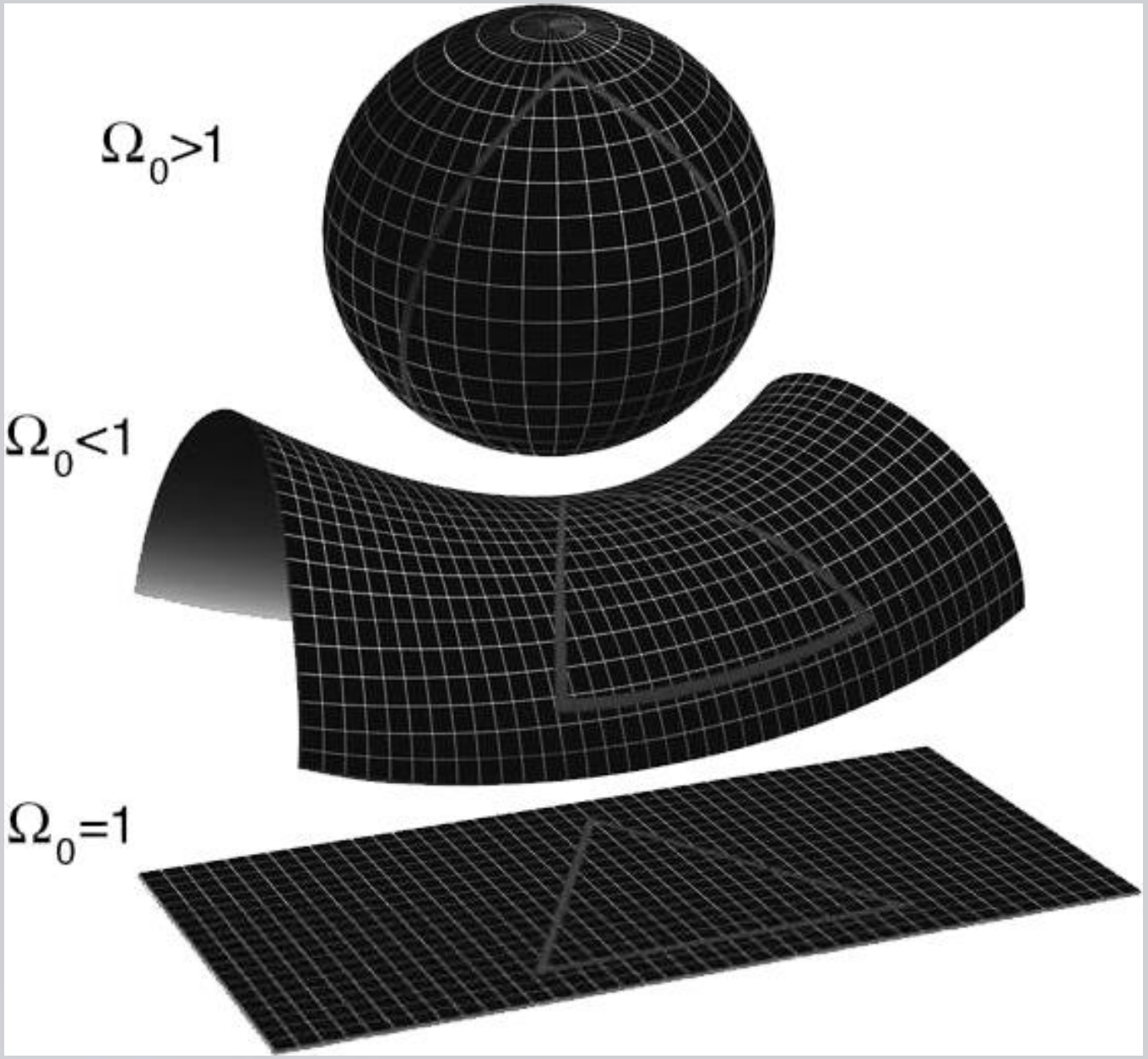
To Draw


Pause
Rhinoceros Corporate (64-bit) - [Perspective]
Grasshopper - unnamed
Search Windows

Lecture 2

Creating Drawings

- Pure Forms (Rob Krier)
- Non Euclidean geometry



Todays Goals are to Know

Drawing of 2d forms

- Point
- Donuts
- Line, Ray, Construction line
- Polyline, pedit
- Rectangle
- Circle

Lecture 3: Todays Goals are to Know

Drawing of 2d forms (continued)

- Arcs
- Ellipse
- Polygon
- Hatches and fills
- zoom
- Spiral/Region/Revcloud/Wipeout

Lecture 4: Todays Goals are to Know

Modifying tools

- Erase
- Move
- Copy
- Trim / extend
- Break
- Fillet / chamfer

Lecture 5: Todays Goals are to Know

Modifying tools (continued)

- Align
- Mirror
- Offset
- Rectangular / polar Array
- Stretch
- Scale
- Explode

Lecture 6: Todays Goals are to Know

Annotation, Blocks and References

- **Text** (manage text style)
- **Dimension** (manage dimension style) (linear, aligned, angular, length, radius, diameter)
- **Block definition** (create, edit, insert)
- **Attribute definition**
- **References** (insertion, edition)

Lecture 7: Todays Goals are to Know

Sheet preparation and printing

- Viewport creation
- Sheet preparation
- Printing with Scale

Lecture 8: Todays Goals are to Know

3D modeling (solids vs surface)

- Pre defined Solids (Box, cylinder, sphere, etc.)
- Extrude
- Presspull, revolve, and sweep
- Surface modeling
- Visual styles
- UCS
- Orbit

Lecture 9: Todays Goals are to Know

3D modeling editing

- Union
- Subtract
- Intersect
- Slice
- Extrude face
- Revolve
- Sweep
- Loft

Thank You