



# Confessions of an AutoCAD Evangelist who discovered BIM

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## Class summary

Do you use Autodesk AutoCAD software for your building design and documentation? Have you resisted the move to Autodesk® Revit®-based software because it's too different from AutoCAD? Do you have valuable data in DWG™ format that you don't want to lose? Do you think Building Information Modeling (BIM) is too complicated? Do you work exclusively in 2 dimensions, with no need for 3D? Is your time and budget tight? If you answered “yes” to any of these questions, join me, a dedicated AutoCAD evangelist, on my journey to BIM enlightenment.

# Key learning objectives

At the end of this class, you will be able to:

- Identify similarities and differences between AutoCAD and Revit
- Link and import AutoCAD drawings in Revit
- Explore the benefits of integrated 3D modeling
- Investigate the return on investment of moving from AutoCAD to Revit

I  AutoCAD

# Learning Resources

Autodesk Authorized Training Centers [www.autodesk.com/atc](http://www.autodesk.com/atc)

Revit WikiHelp <http://help.autodesk.com/view/RVT/2014/ENU/>

Revit LT WikiHelp <http://help.autodesk.com/view/RVTLT/2014/ENU/>

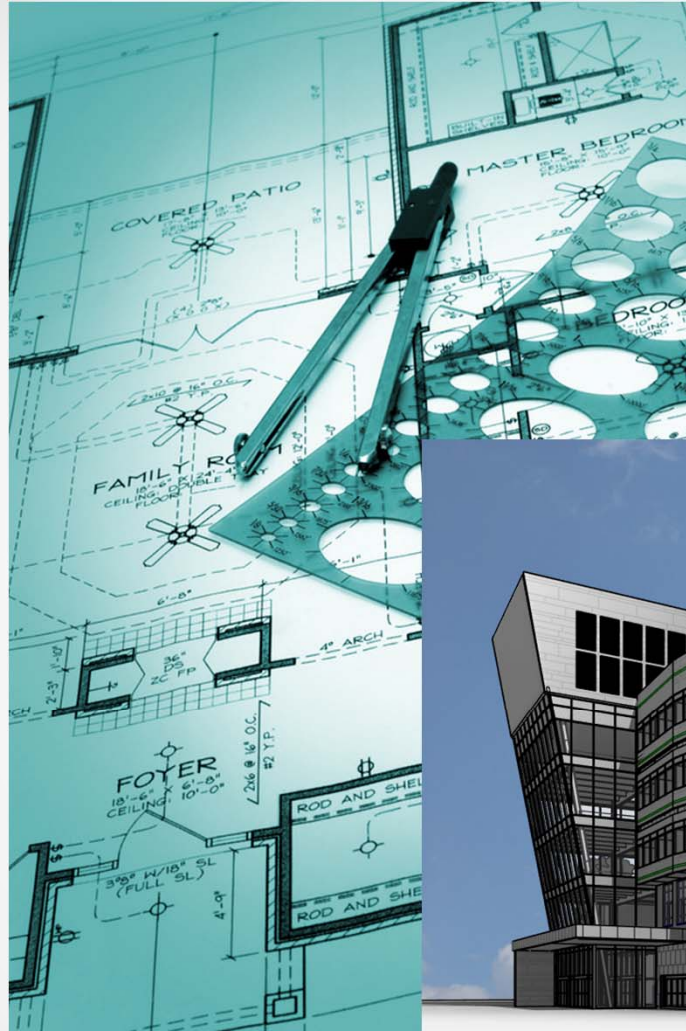
# Similarities and Differences



# History

AutoCAD 1982

Revit 2000





# Computer Aided Design/Drafting (CAD)

**CAD is a digital replacement for paper-based drafting.**

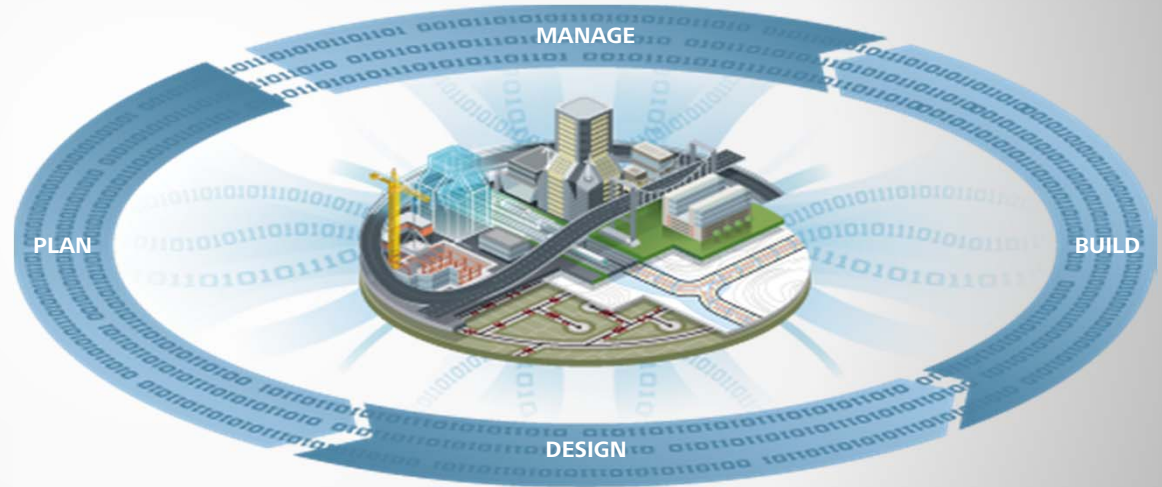
CAD, also known as computer-aided design and drafting (CADD), is the use of computer technology for the process of design and design-documentation. CAD software is a type of computer program that replaces tedious manual drafting with an automated process.



# Building Information Modeling (BIM)

**BIM is an intelligent model-based process.**

Building Information Modeling (BIM) provides insight for creating and managing projects faster, more economically, and with less environmental impact.



# It's a 3D World!



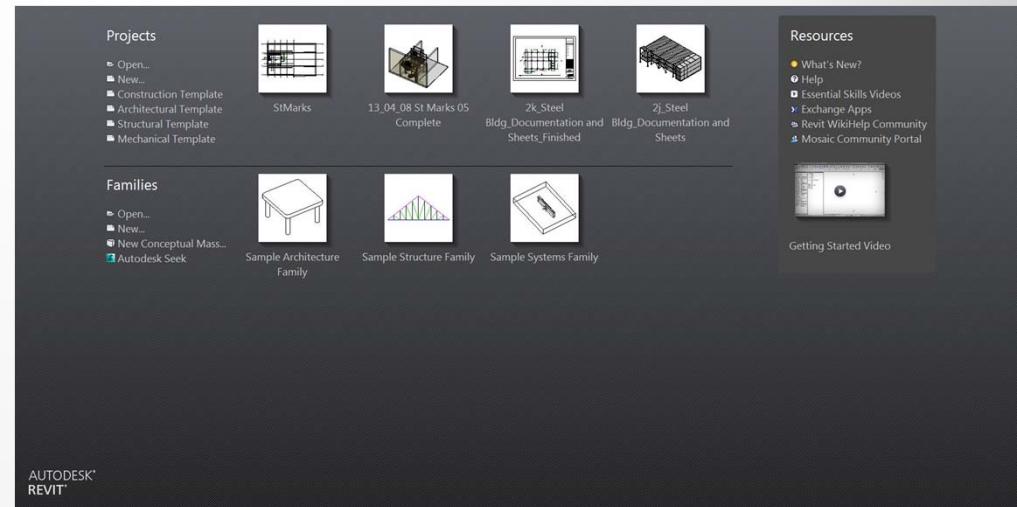
# File Format

## AutoCAD

- Drawing (.dwg)
- Drawing template (.dwt)
- Block definition (.dwg)

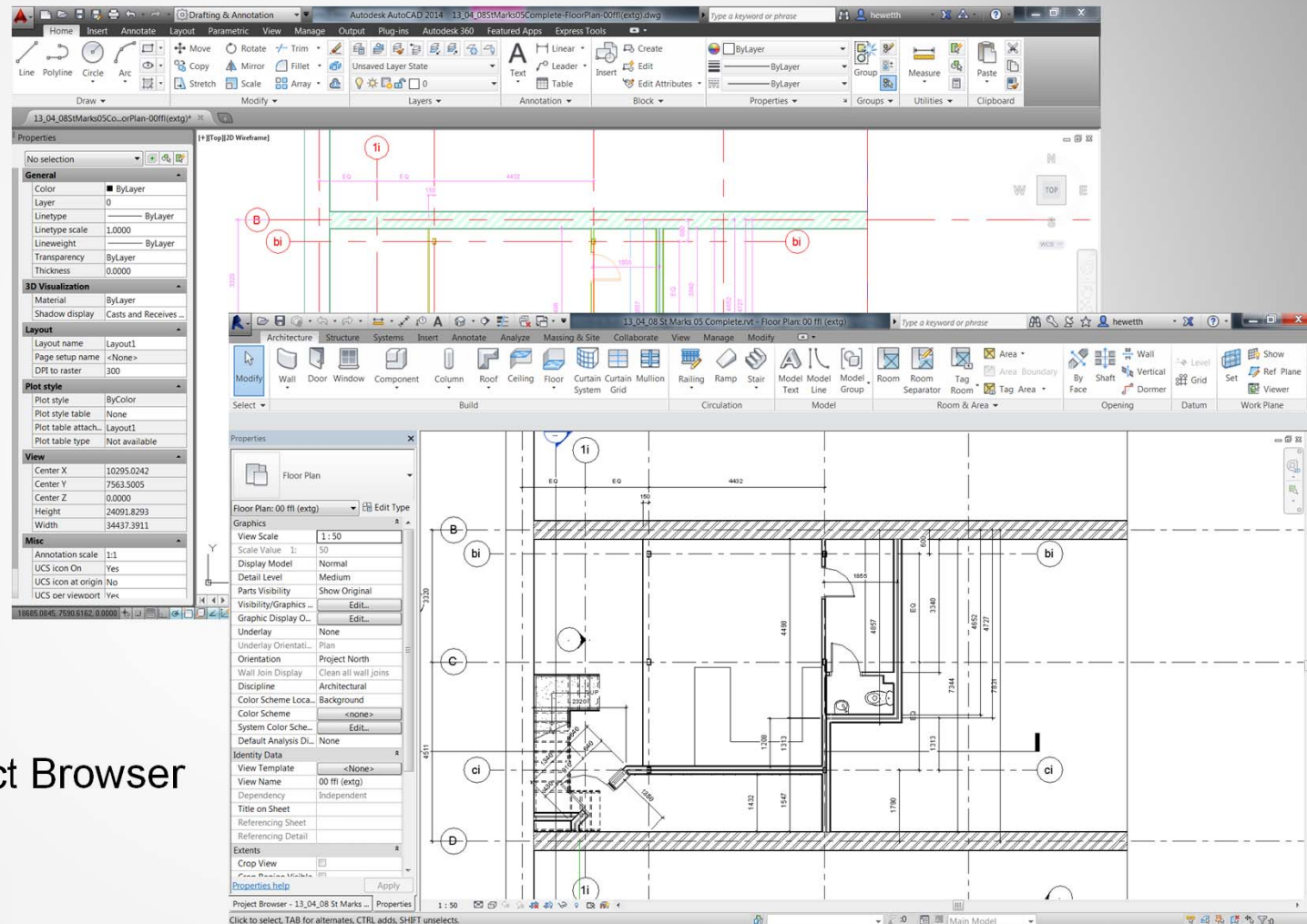
## Revit

- Project (.rvt)
- Project template(.rte)
- Family (.rfa)
- Family template (.rft)



# Similarities

Ribbon  
Properties palette  
Quick access toolbar  
Navigation bar  
ViewCube  
Draw/select/edit  
Implied window/crossing  
Command prompt  
Direct distance entry  
Object snaps  
Esc, Esc, Esc....  
Zoom  
Sheet Set Manager/Project Browser



# Differences

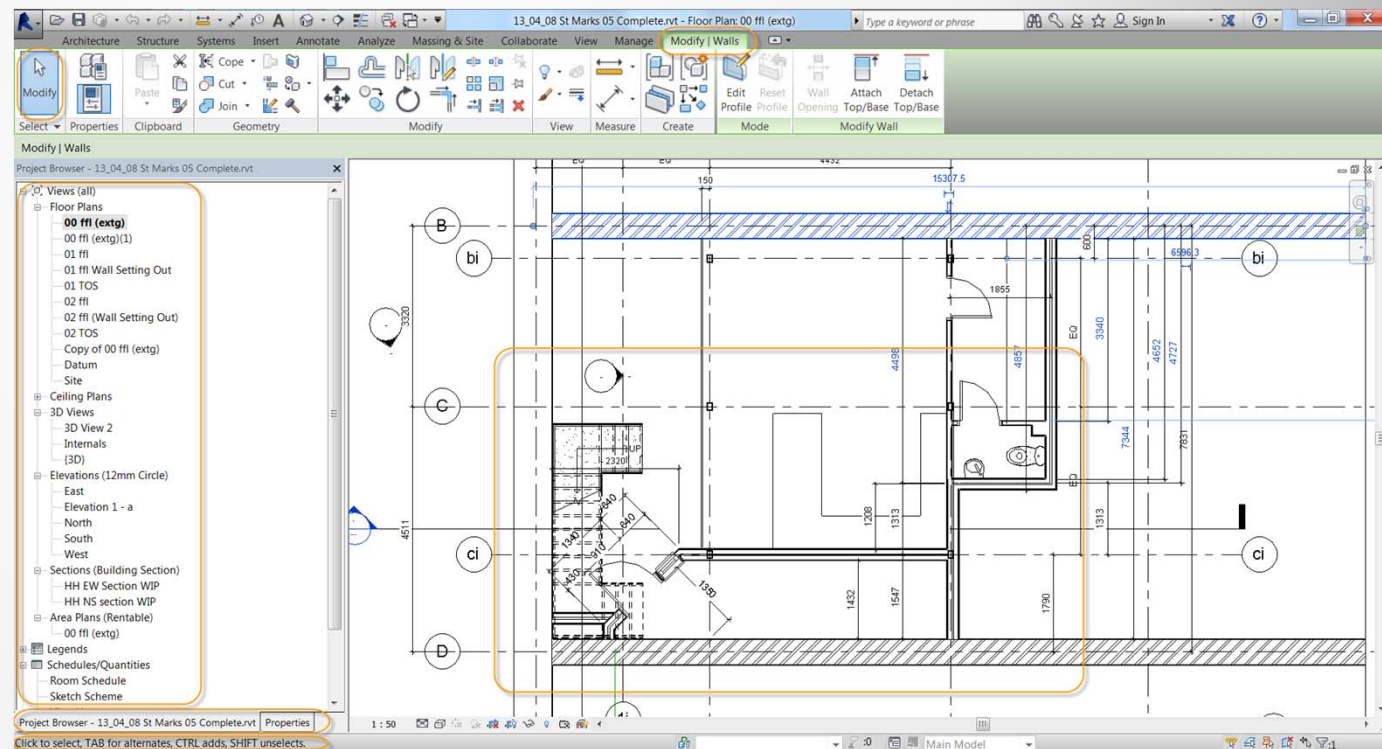
U, Undo, Units, UN, Ctrl Z  
Command line/Contextual ribbon

Project Browser

Palette docking

Modify/Esc

Layers/Categories





# Demo

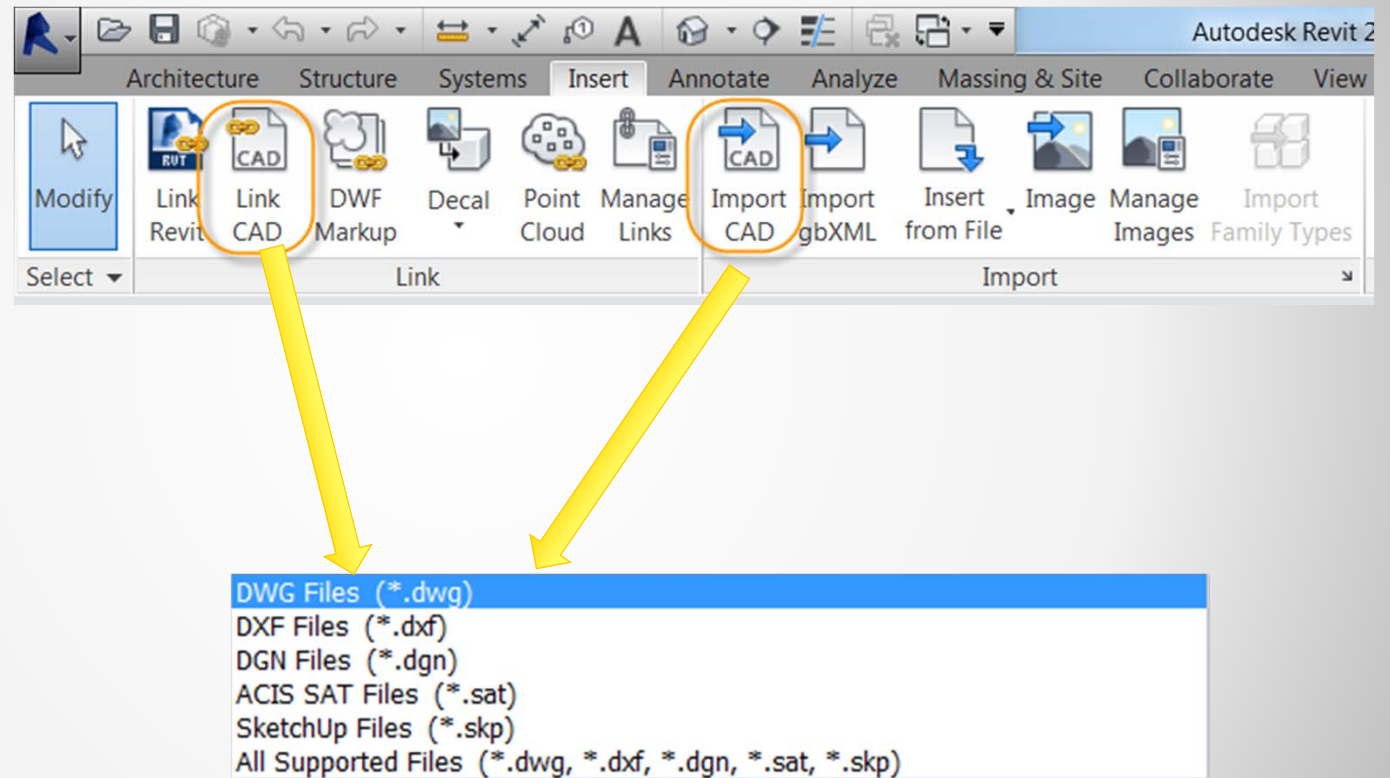
# Link and Import AutoCAD Drawings



# Link vs Import

Link CAD

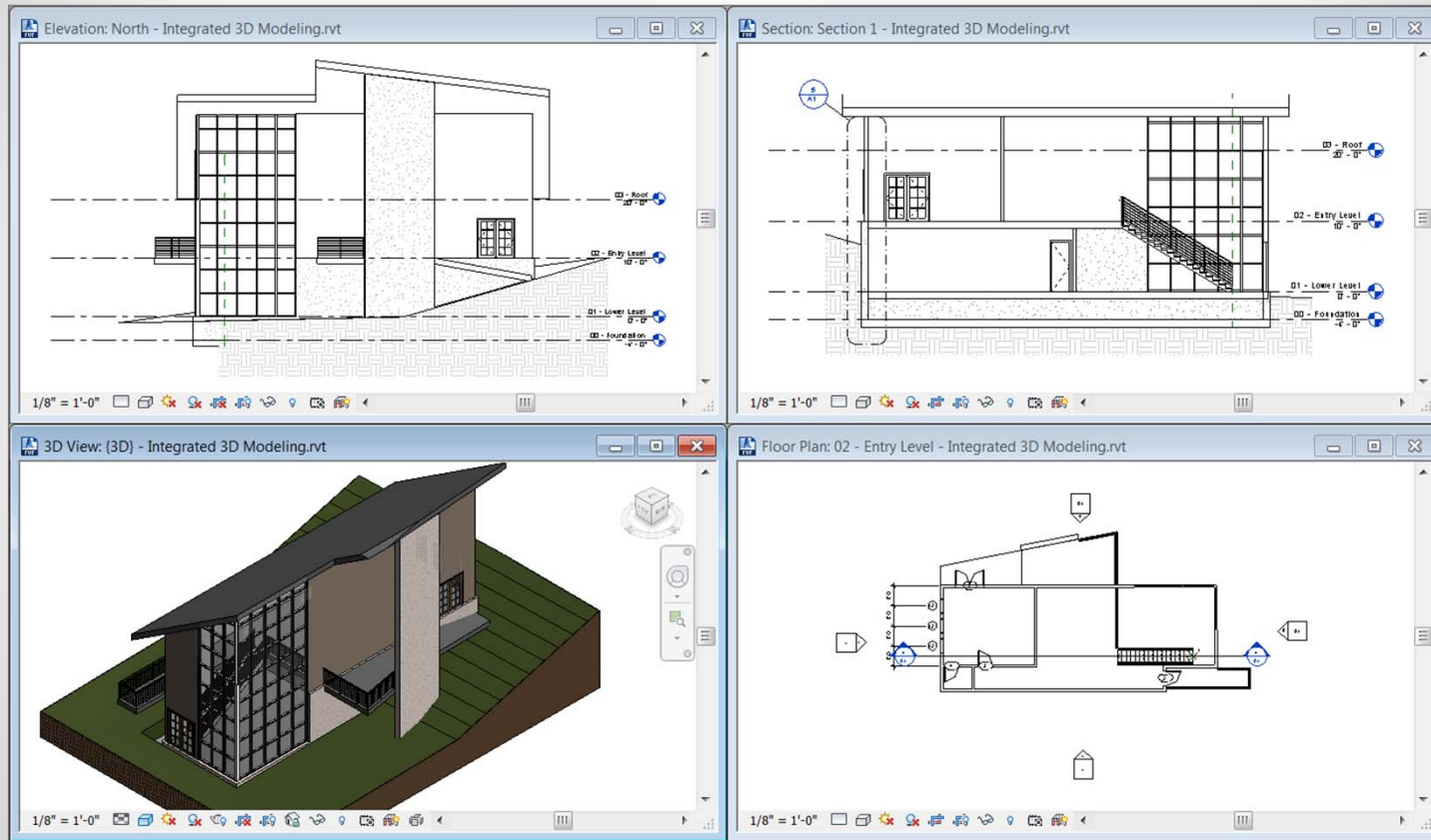
Import CAD



# Demo

# Integrated 3D Modeling

# Ch Ch Ch Changes...



# Demo

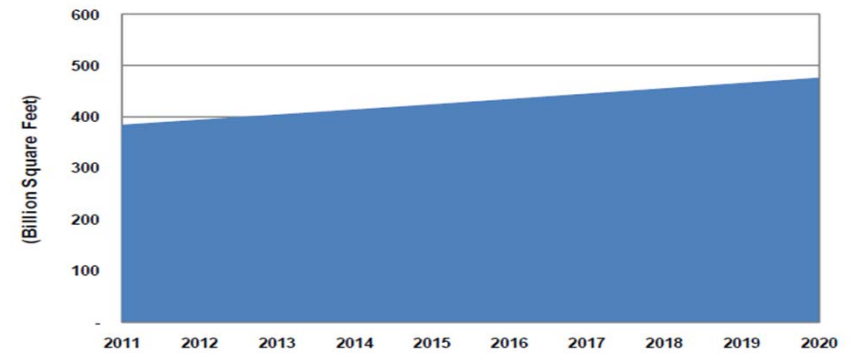
# Return on Investment

# BIM and Building Industry Trends

The AEC industry is going through a period of change related to the use of BIM technology & processes

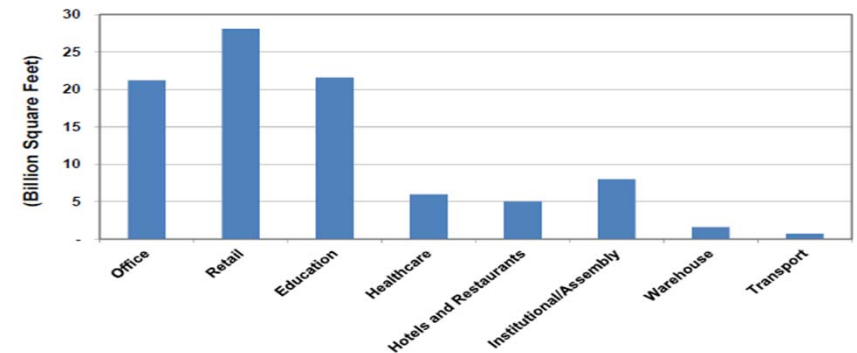
Significant growth in commercial buildings worldwide will create a strong long-term market for BIM technologies

Chart 2.1 Commercial Building Stock Growth, World Markets: 2011-2020



(Source: Pike Research)

Chart 2.2 Commercial Building Stock Growth by Building Type, World Markets: 2011-2020

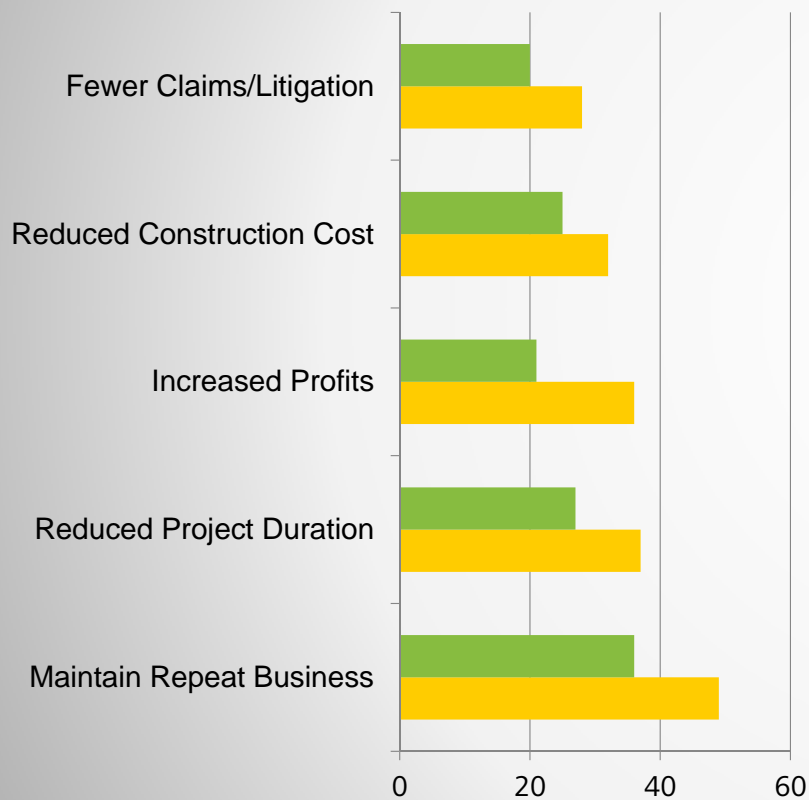


(Source: Pike Research)

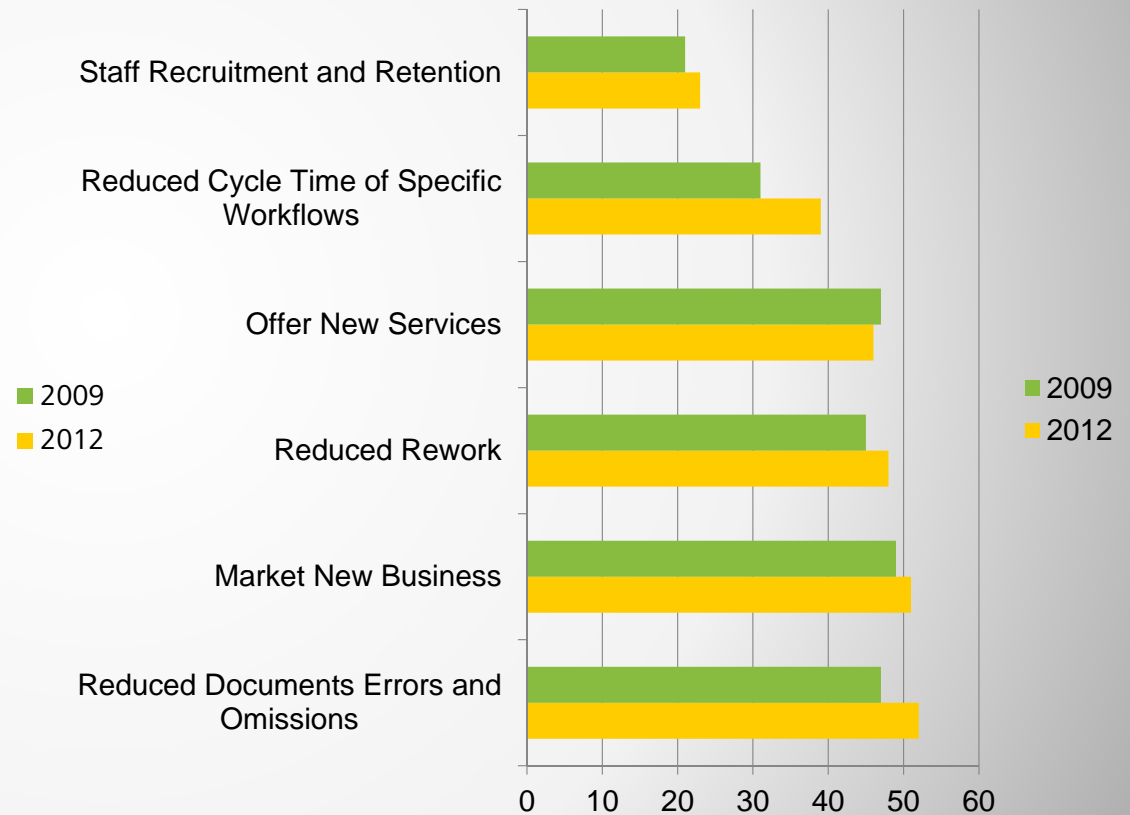


# Short and Long-term BIM Benefits

## Long-term BIM Benefits (2009 & 2012)

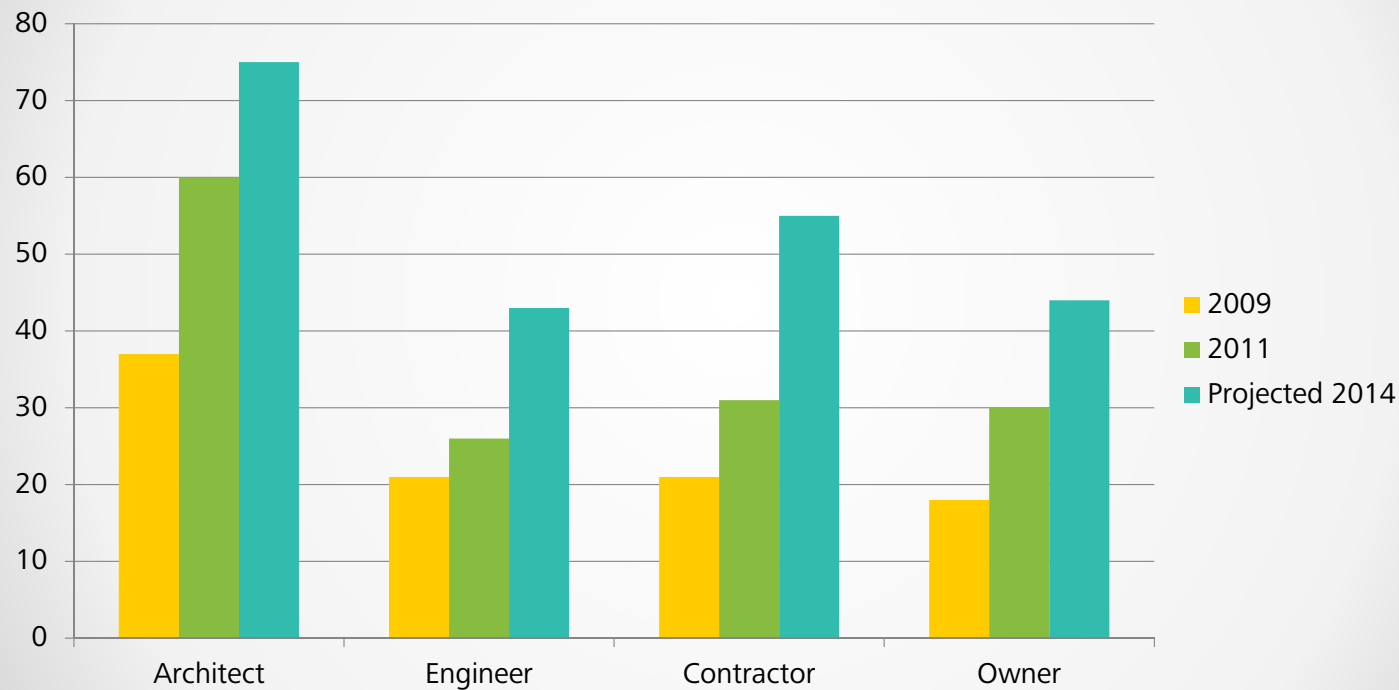


## Short-term BIM Benefits (2009 & 2012)



# BIM Adoption Level by Discipline

Percentage of professions using BIM on more than 60% of their projects



## What if you could...

- Broaden your services and win new work
- Meet owner and government mandates for BIM
- Better support the project lifecycle from design, build, and operate
- Collaborate with stakeholders more effectively

# Bronson Healthcare Group

## CAD

- 2.6% (\$80K) under budget
- Contingency value spend 7.4%
- MEP field coordination 3%
- 19 change order requests
- No reduction in construction time

## BIM

- 9.2% (\$160K) under budget
- Contingency value spend 1.9%
- MEP field coordination 0.01%
- 5 change order requests
- Completed 3 weeks early

	Cath Lab (Trad.)	Cath Lab (by %)	PRU (BIM)	PRU (by %)	Results (PRU v. CL)
Contract Value (under)	\$79,330 Under GMP	2.6%	\$159,234 Under GMP	9.2%	↑ 71.7%
Cont. Value	\$231,107	7.44%	\$31,942	1.88%	↓ 74.7%
MEP Field Coord.	\$94,456	3.04%	\$1,700	.01%	↓ 96.7%
Change Orders	19	N/A	5	N/A	↓ 73.4%
Timeline Reduction	0	N/A	3/wk	11.5%	↓ 11.5%
Revenue Impact	0	N/A	1.41M	N/A	↑ 5.77%

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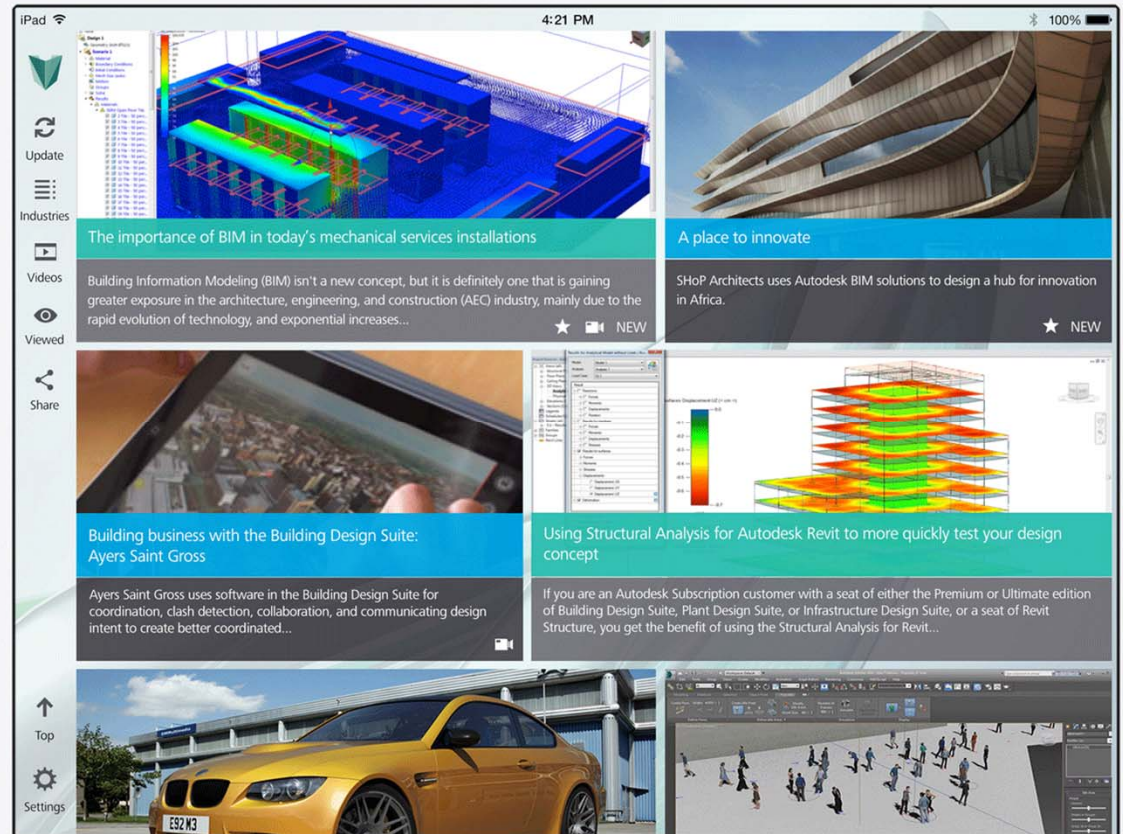
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