

The Role of Building Information Modeling (BIM) in Education and Practice

Survey Results

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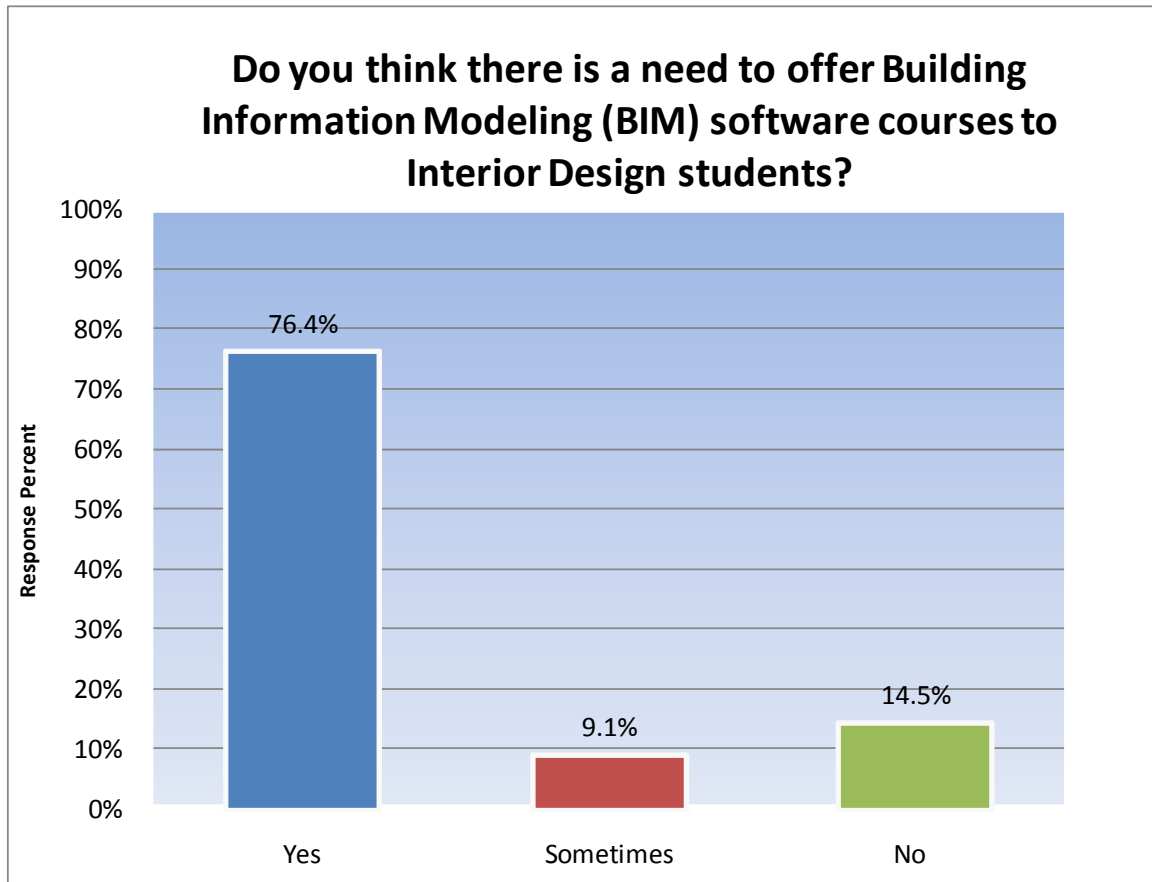
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BIM Questionnaire Results for Academia

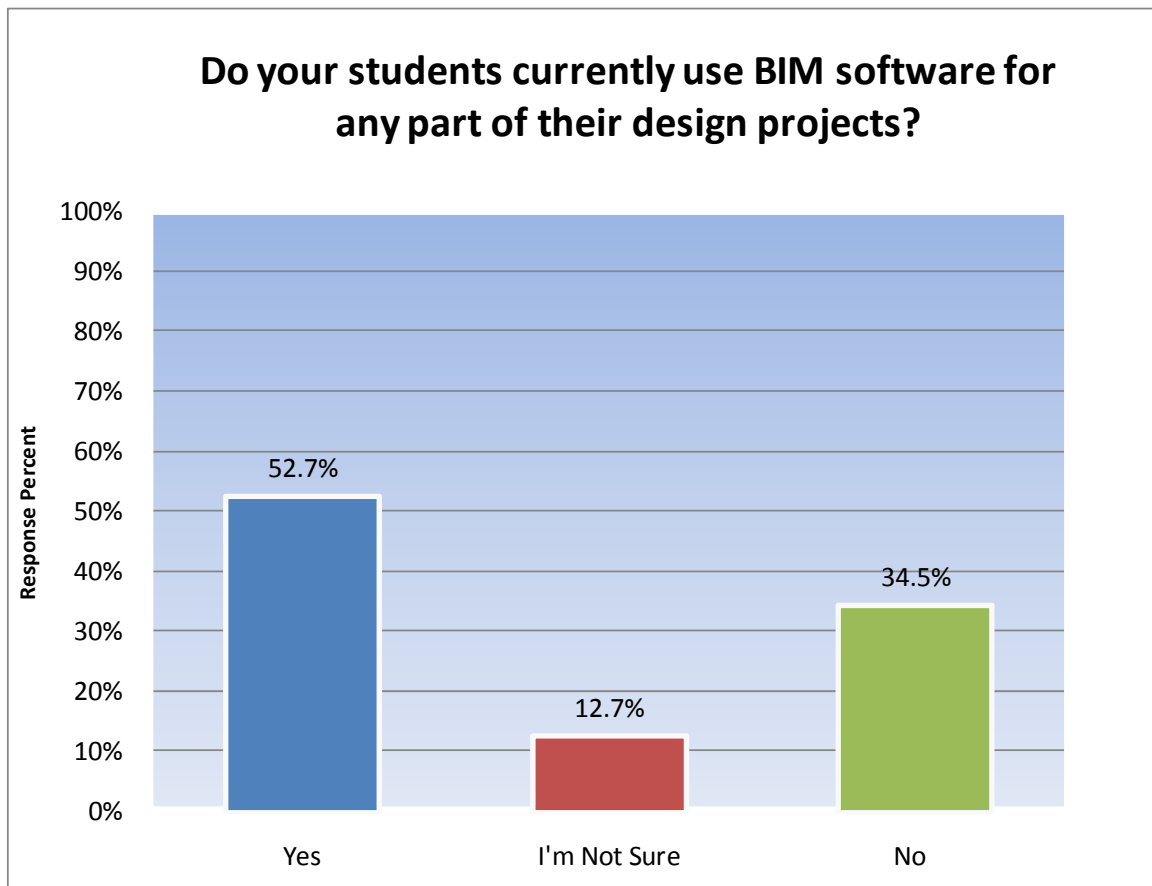
BIM Survey for Professors of Interior Design

Question 1. Do you think there is a need to offer Building Information Modeling (BIM) software courses to Interior Design students?		
Answer Options	Response Percent	Response Count
Yes	76.4%	42
Sometimes	9.1%	5
No	14.5%	8
Answered Question		55



BIM Survey for Professors of Interior Design

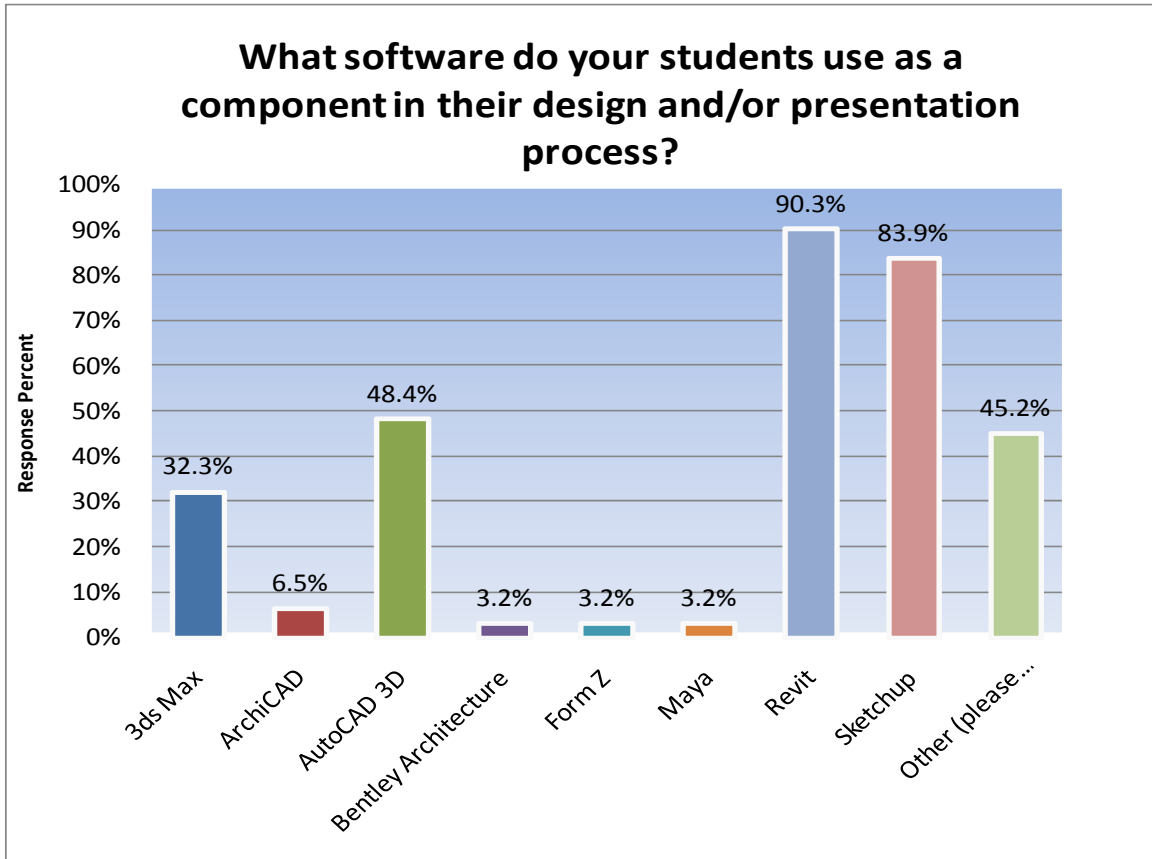
Question 2. Do your students currently use BIM software for any part of their design projects?		
Answer Options	Response Percent	Response Count
Yes	52.7%	29
I'm Not Sure	12.7%	7
No	34.5%	19
Answered Question		55



BIM Survey for Professors of Interior Design

Question 3. What software do your students use as a component in their design and/or presentation process? (Check all that apply)		
Answer Options	Response Percent	Response Count
3ds Max	32.3%	10
ArchiCAD	6.5%	2
AutoCAD 3D	48.4%	15
Bentley Architecture	3.2%	1
Form Z	3.2%	1
Maya	3.2%	1
Revit	90.3%	28
Sketchup	83.9%	26
Other (please specify)	45.2%	14
Answered Question		31

Others included Photoshop, Indesign, Illustrator, Artlantis, Rhino, AutoCad 2D, and Dreamweaver.

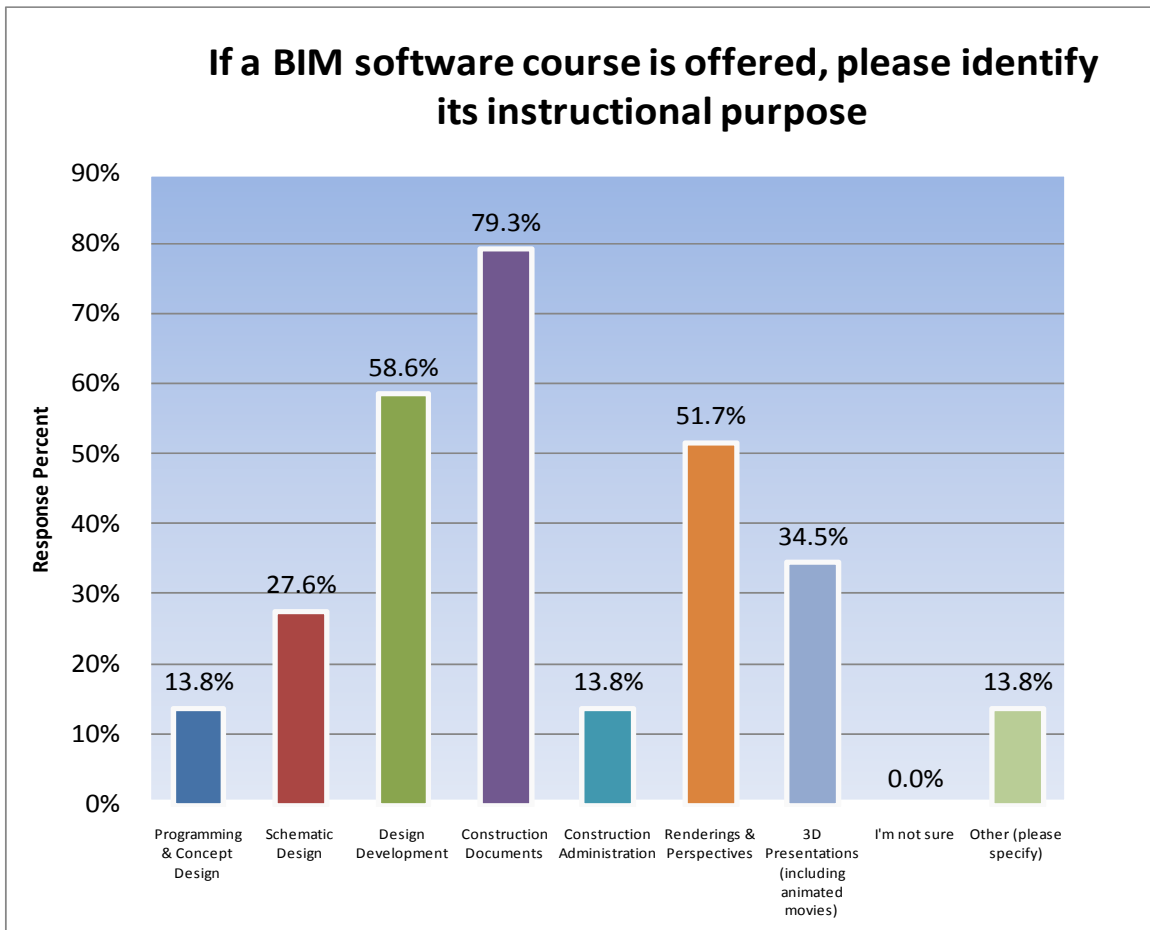


Question 3 “Other” category

1	photoshop, illustrator, acrobat
2	Indesign
3	Adobe Photoshop CS4
4	Photoshop Illustrator
5	AutoCAD 2010, Photoshop, illustrator, - you list only 3D programs here, but your question is not specific enough to only 3d software
6	AutoCAD (standard 2D)
7	AutoCAD 2D
8	Artlantis
9	photoshop
10	Adobe CS(photoshop,indesign, illustrator) Dreamweaver
11	what does this question have to do with BIM
12	Rhino
13	autocad 2d, podium
14	InDesign, Photoshop, PowerPoint, Illustrator

BIM Survey for Professors of Interior Design

Question 4. If a BIM software course is offered, please identify its instructional purpose. (Check all that apply)		
Answer Options	Response Percent	Response Count
Programming & Concept Design	13.8%	4
Schematic Design	27.6%	8
Design Development	58.6%	17
Construction Documents	79.3%	23
Construction Administration	13.8%	4
Renderings & Perspectives	51.7%	15
3D Presentations	34.5%	10
I'm not sure	0.0%	0
Other (please specify)	13.8%	4
Answered Question		29

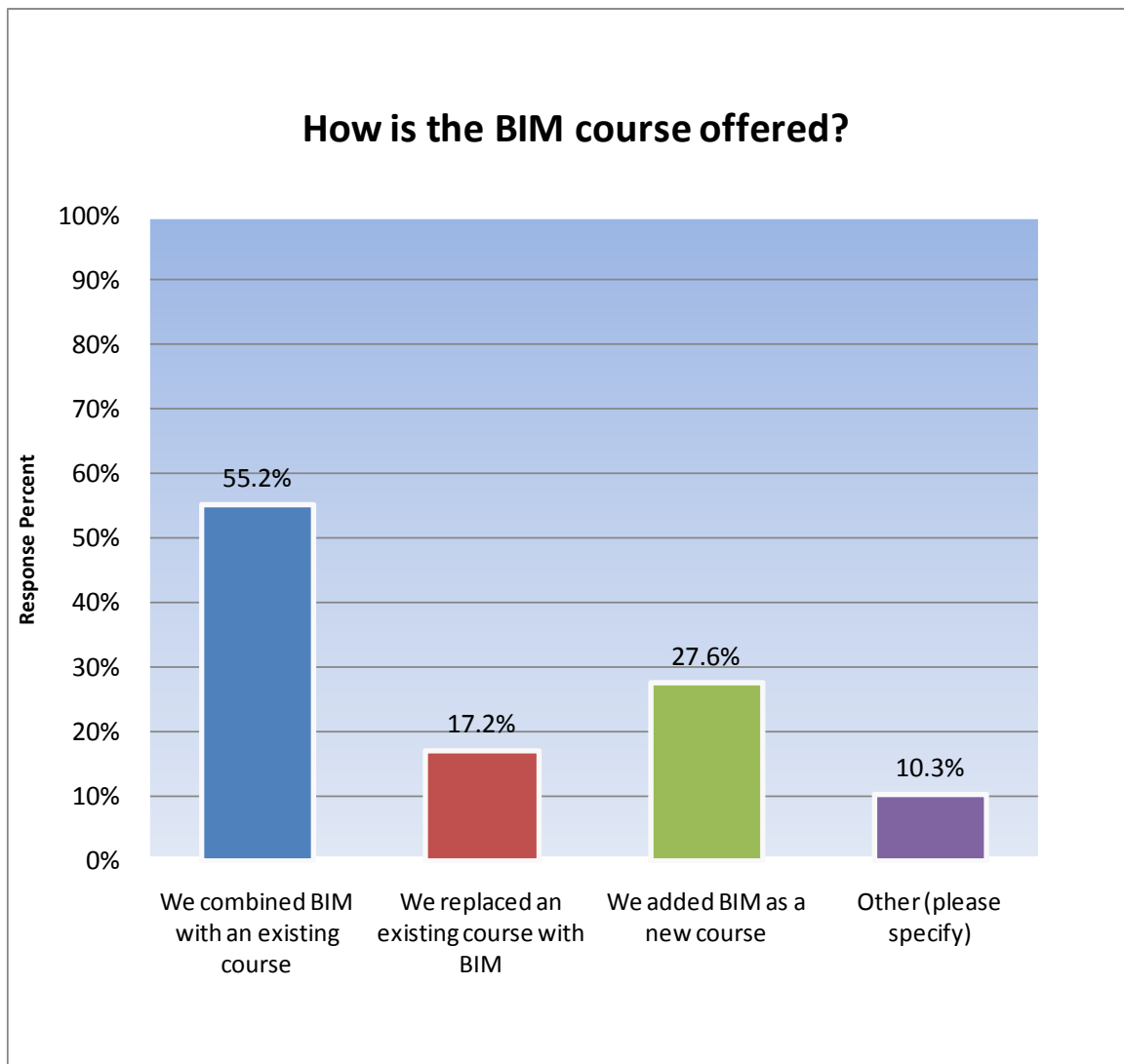


Question 4 “Other” category

1	We have been working BIM into our curriculum for a few months and will continue to integrate more into all stages of the design process moving forward.
2	IT IS NOT CURRENTLY OFFERED
3	skills course only. it is up to them to use it for various phases of the design process in their studio courses
4	Not offered

BIM Survey for Professors of Interior Design

Question 5. How is the BIM course offered?		
Answer Options	Response Percent	Response Count
We combined BIM with an existing course	55.2%	16
We replaced an existing course with BIM	17.2%	5
We added BIM as a new course	27.6%	8
Other (please specify)	10.3%	3
Answered Question		29

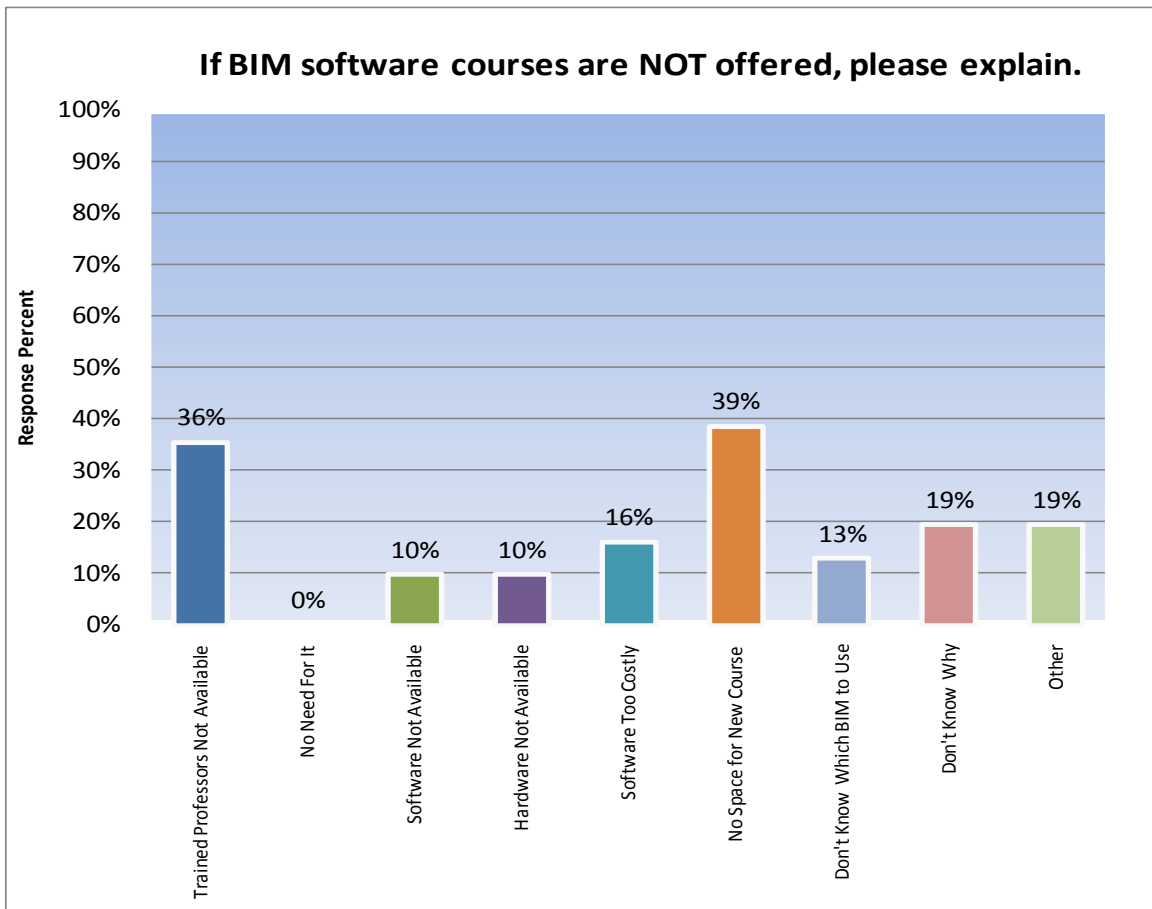


Question 5 “Other” category

1	We replaced our 3D CAD course with BIM and combined with our Advanced 3D CAD course.
2	I don't believe one is offered?
3	thru another school

BIM Survey for Professors of Interior Design

Question 6. If BIM software courses are NOT offered, please explain.		
Answer Options	Response Percent	Response Count
Trained professors proficient in the software are unavailable	36%	11
There is no need for it.	0%	0
Software for classes are NOT available	10%	3
Hardware for classes are NOT available	10%	3
Software is too costly	16%	5
No space in our curriculum to introduce a new course.	39%	12
Not know which BIM software the industry will adopt.	13%	4
I don't know why BIM courses aren't offered.	19%	6
Other (please specify)	19%	6
Answered Question		31

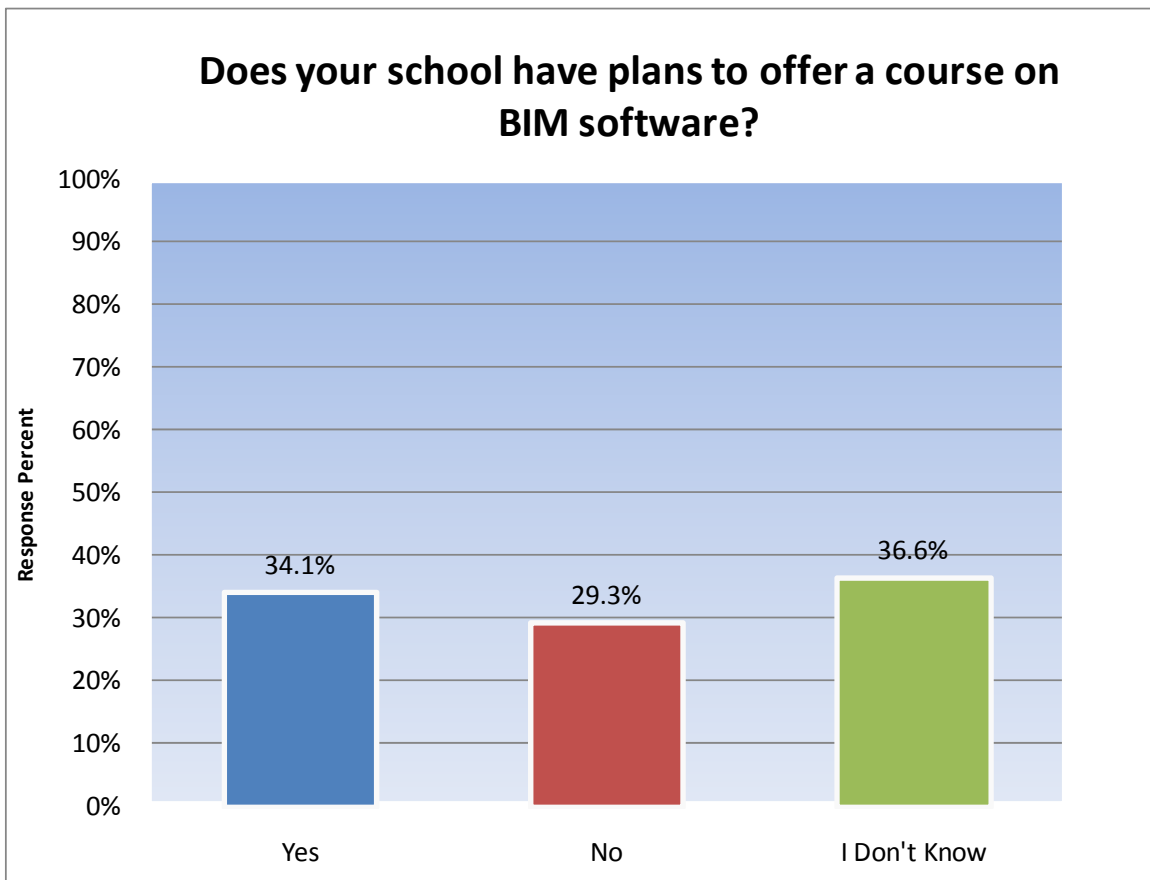


Question 6 “Other” category

1	In the limited time that we have to teach students to design and to educate them to become creative problem solvers, sometimes new software applications are difficult to incorporate into the curriculum. If it is so easy, then students should be able to learn the software in a non-academic or other professional setting.
2	We are currently using BIM.
3	in transition to BIM software - offered Spring 2010
4	We've only become aware of the need for such courses in the last year, and the administrative process to introduce BIM will be time-consuming.
5	WE HAVE NO EXCUSE
6	There's a slow progression from the local practitioners to adopt BIM and thus admin is also slow. Though the students are begging for it.
7	faculty are unfamiliar with need, not addressed by Advisory Council
8	As the Computer Aided Design Specialist in our program, I am currently evaluating Revit for possible inclusion in our curriculum. I suspect that it is necessary and inevitable given the course of the profession.

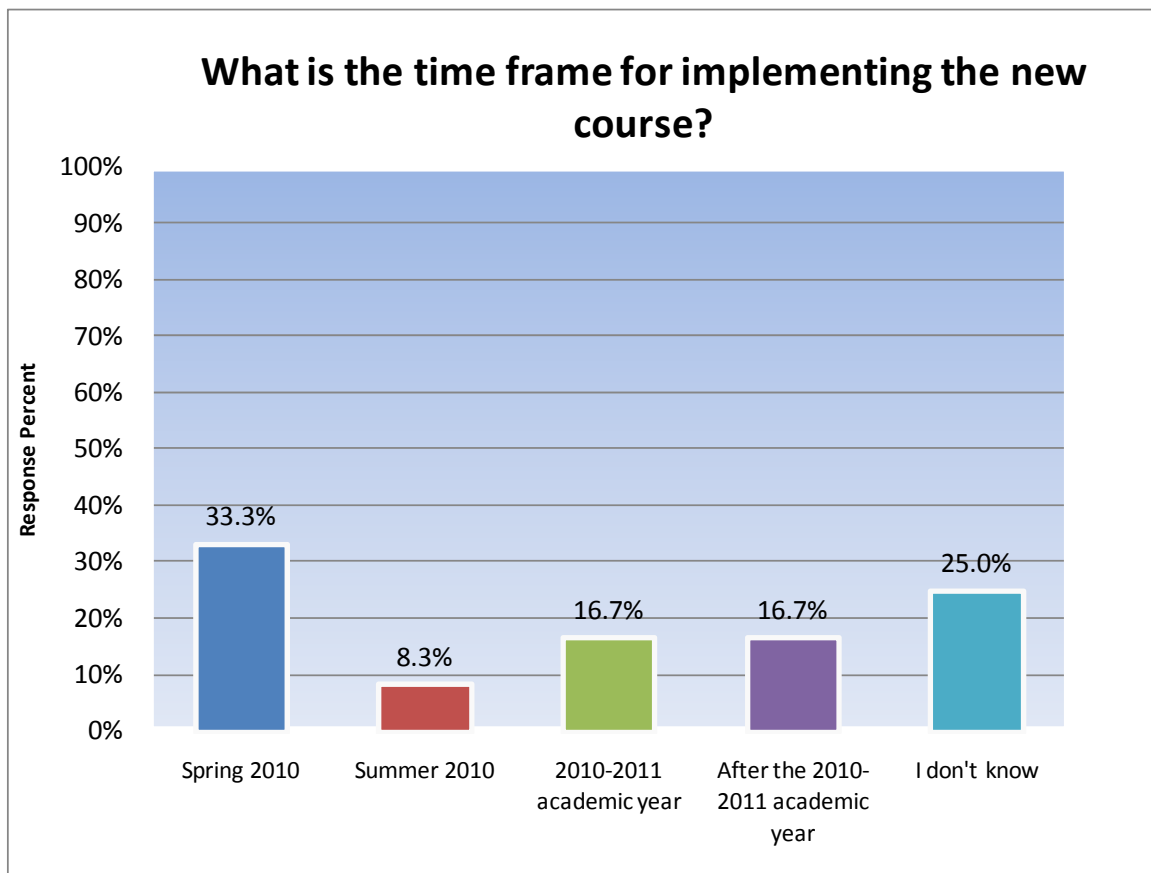
BIM Survey for Professors of Interior Design

Question 7. Does your school have plans to offer a course on BIM software?		
Answer Options	Response Percent	Response Count
Yes	34.1%	14
No	29.3%	12
I Don't Know	36.6%	15
Answered Question		41



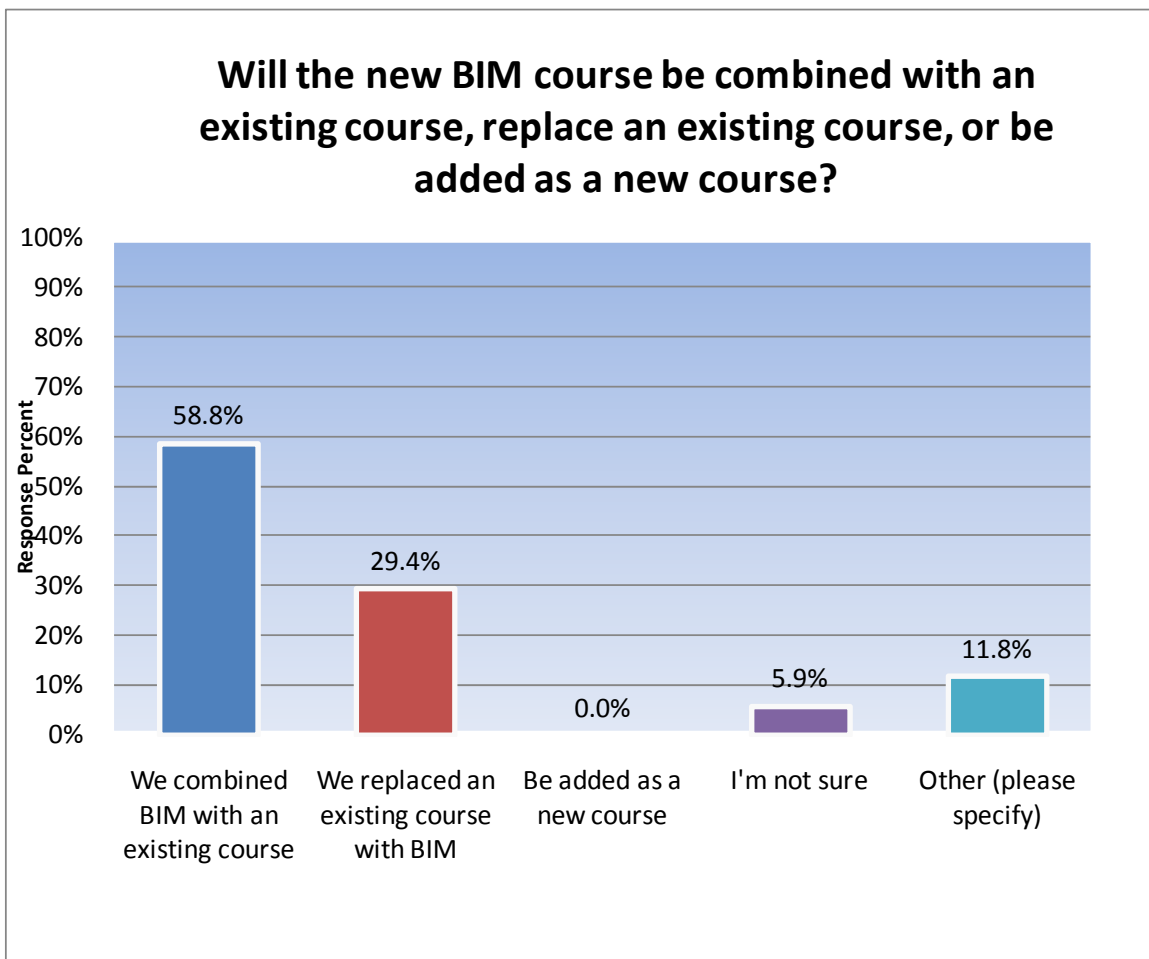
BIM Survey for Professors of Interior Design

Question 8. What is the time frame for implementing the new course?		
Answer Options	Response Percent	Response Count
Spring 2010	33.3%	4
Summer 2010	8.3%	1
2010-2011 academic year	16.7%	2
After the 2010-2011 academic year	16.7%	2
I don't know	25.0%	3
Answered Question		12



BIM Survey for Professors of Interior Design

Question 9. Will the new BIM course be combined with an existing course, replace an existing course, or be added as a new course?		
Answer Options	Response Percent	Response Count
We combined BIM with an existing course	58.8%	10
We replaced an existing course with BIM	29.4%	5
Be added as a new course	0.0%	0
I'm not sure	5.9%	1
Other (please specify)	11.8%	2
Answered Question		17

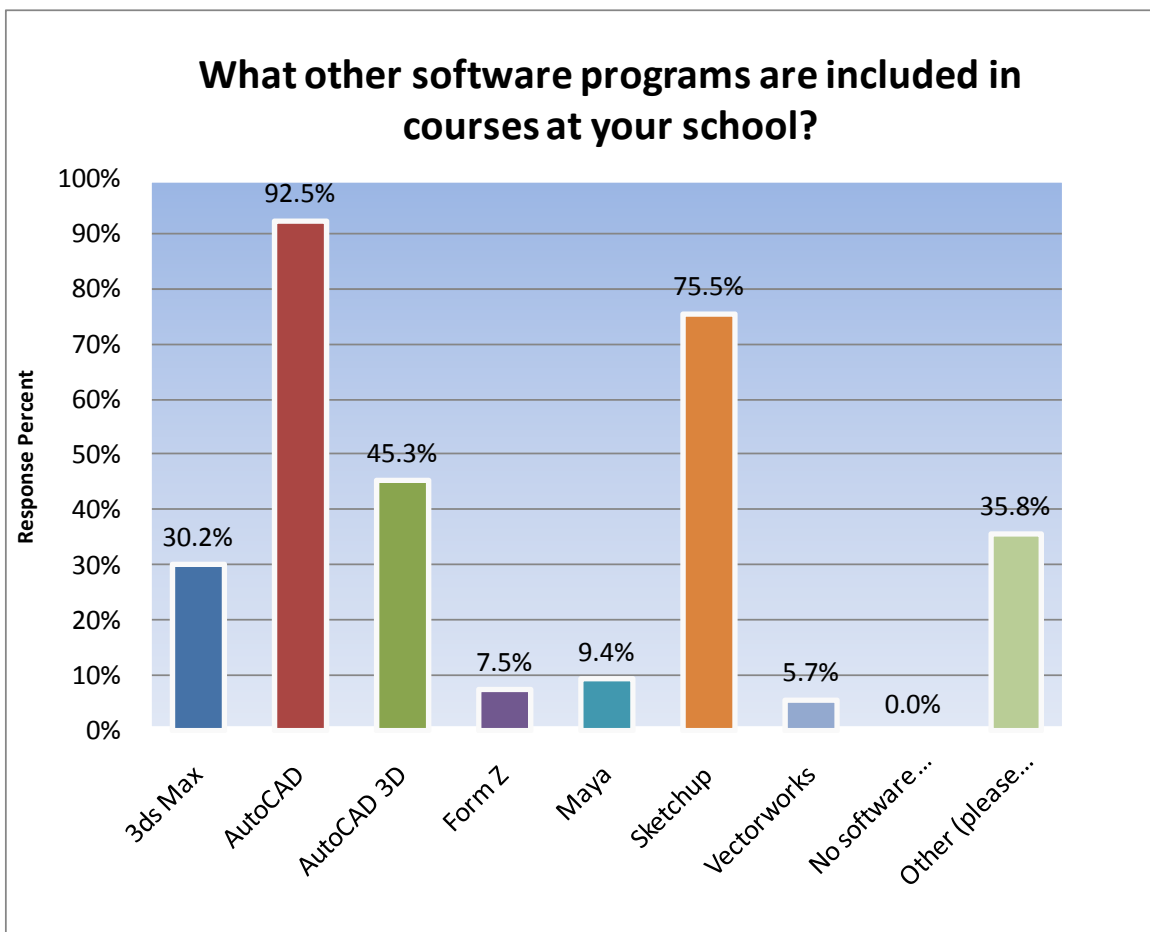


Question 9 “Other” category

1	It will probably be added into an existing course, but that is conjecture at this point.
2	We've integrated it in a couple of skill building courses and are looking toward requirements of applying it in some studios. Students are already voluntarily applying it in studios.

BIM Survey for Professors of Interior Design

Question 10. What other software programs are included in courses at your school? (Check all that apply)		
Answer Options	Response Percent	Response Count
3ds Max	30.2%	16
AutoCAD	92.5%	49
AutoCAD 3D	45.3%	24
Form Z	7.5%	4
Maya	9.4%	5
Sketchup	75.5%	40
Vectorworks	5.7%	3
No software courses are offered	0.0%	0
Other (please specify)	35.8%	19
Answered Question		53

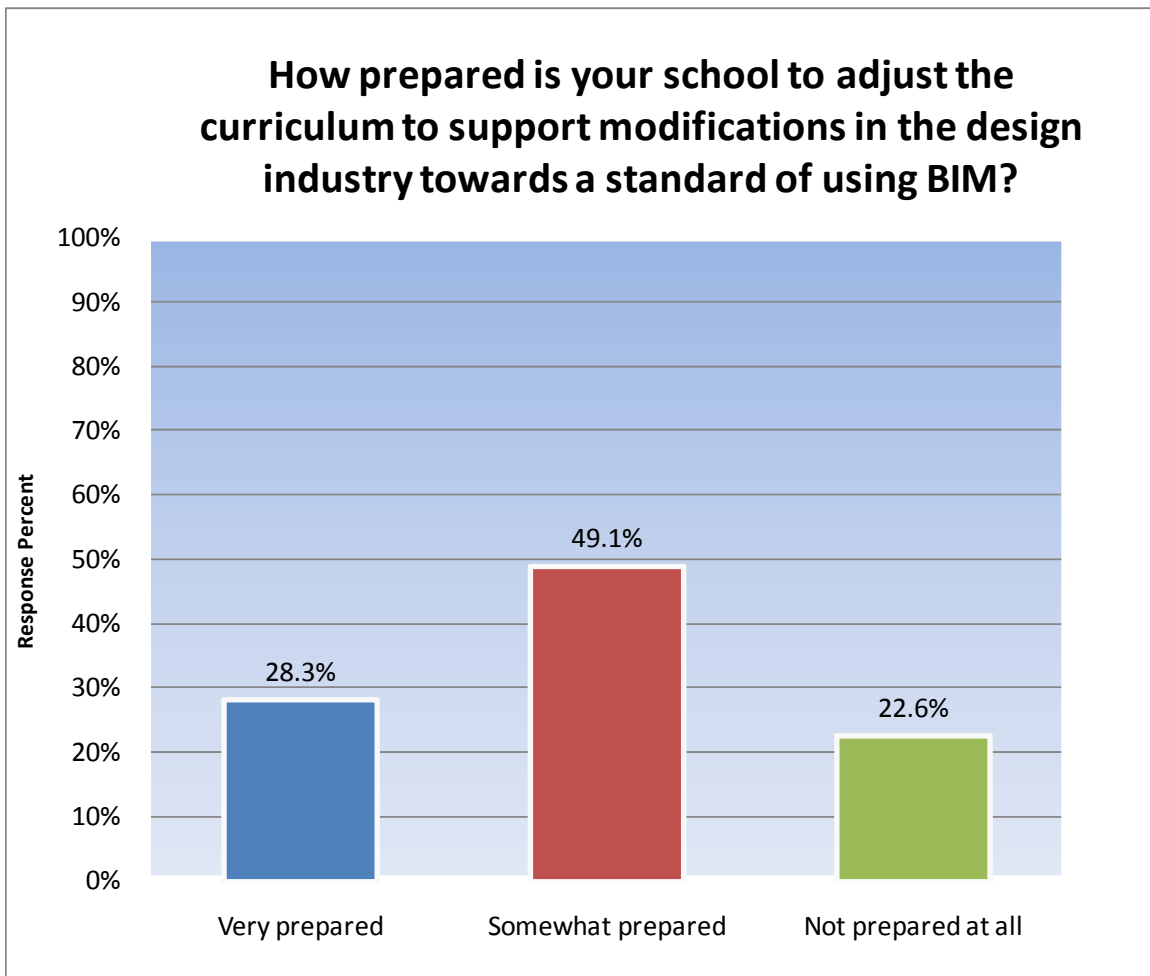


Question 10 “Other” category

1	In Design Photoshop
2	20.2
3	Photoshop
4	Introduction to Revit (depending on the teacher)
5	Indesign
6	Adobe Photoshop CS4
7	Photoshop
8	Photoshop, Second Life, Dreamweaver, 20/20
9	I believe Revit is covered briefly in the CAD course.
10	photoshop, illustator
11	Photoshop, Illustrator
12	PhotoShop, InDesign
13	Blender
14	podium, agi32
15	I am not sure what programs they have. I don't teach classes, currently that deal with this.
16	illustrator, photoshop, inDesign
17	Adobe Suite
18	Revit
19	Adobe Creative Suite (photoshop, InDesign), Microsoft Office: (PPT, Publisher, Excel...), and Masterspec

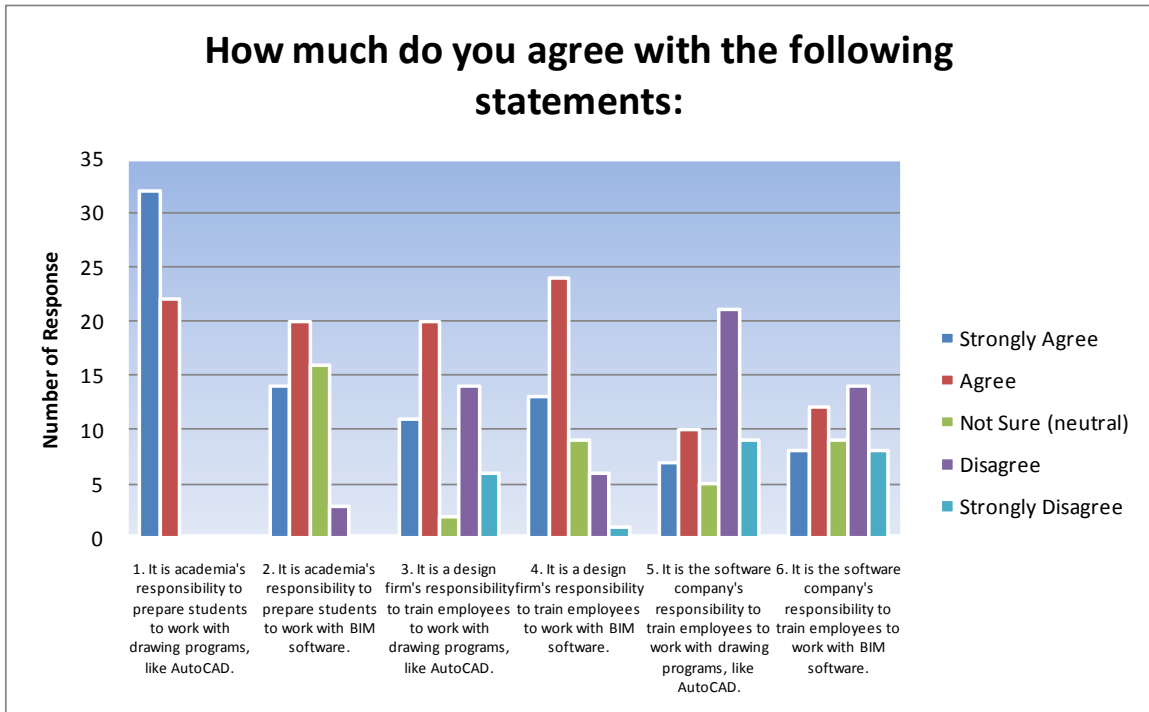
BIM Survey for Professors of Interior Design

Question 11. How prepared is your school to adjust the curriculum to support modifications in the design industry towards a standard of using BIM?		
Answer Options	Response Percent	Response Count
Very prepared	28.3%	15
Somewhat prepared	49.1%	26
Not prepared at all	22.6%	12
Answered Question		53



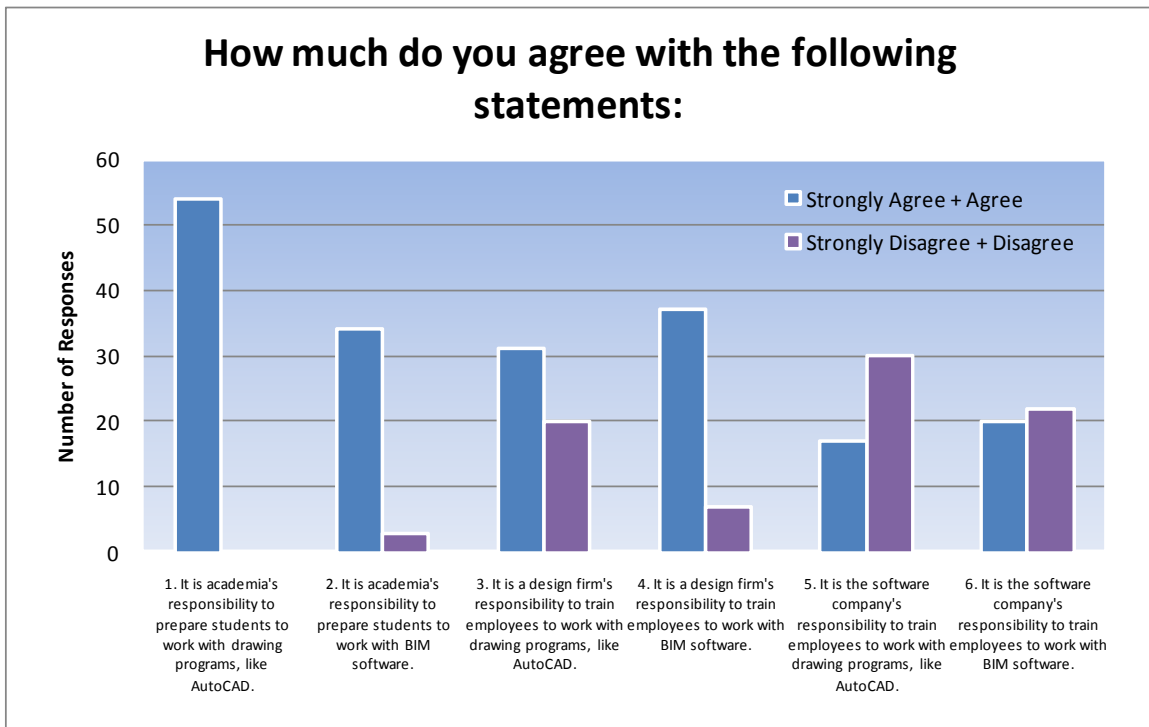
BIM Survey for Professors of Interior Design

Question 12. How much do you agree with the following statements:						
Answer Options (5 Categories)	Strongly Agree	Agree	Not Sure (neutral)	Disagree	Strongly Disagree	Response Count
1. It is academia's responsibility to prepare students to work with drawing programs, like AutoCAD.	32	22	0	0	0	54
2. It is academia's responsibility to prepare students to work with BIM software.	14	20	16	3	0	53
3. It is a design firm's responsibility to train employees to work with drawing programs, like AutoCAD.	11	20	2	14	6	53
4. It is a design firm's responsibility to train employees to work with BIM software.	13	24	9	6	1	53
5. It is the software company's responsibility to train employees to work with drawing programs, like AutoCAD.	7	10	5	21	9	52
6. It is the software company's responsibility to train employees to work with BIM software.	8	12	9	14	8	51
Answered Question						54



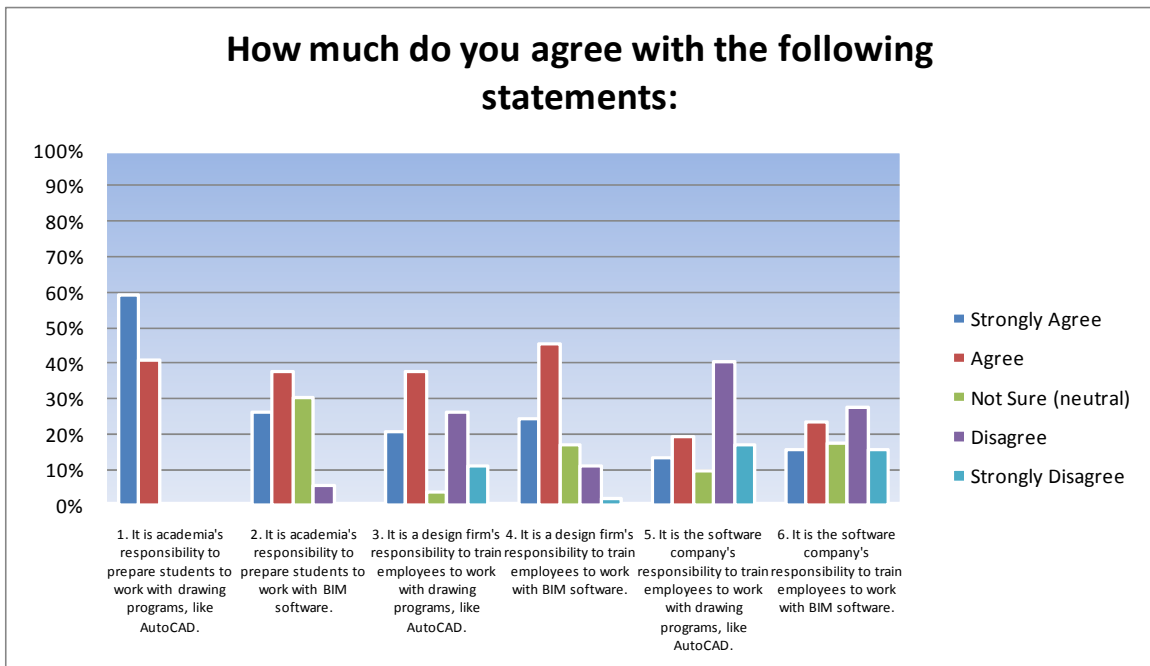
BIM Survey for Professors of Interior Design

Question 12. How much do you agree with the following statements:			
Answer Options (2 Categories)	Strongly Agree + Agree	Strongly Disagree + Disagree	Response Count
1. It is academia's responsibility to prepare students to work with drawing programs, like AutoCAD.	54	0	54
2. It is academia's responsibility to prepare students to work with BIM software.	34	3	37
3. It is a design firm's responsibility to train employees to work with drawing programs, like AutoCAD.	31	20	51
4. It is a design firm's responsibility to train employees to work with BIM software.	37	7	44
5. It is the software company's responsibility to train employees to work with drawing programs, like AutoCAD.	17	30	47
6. It is the software company's responsibility to train employees to work with BIM software.	20	22	42
Answered Question			54



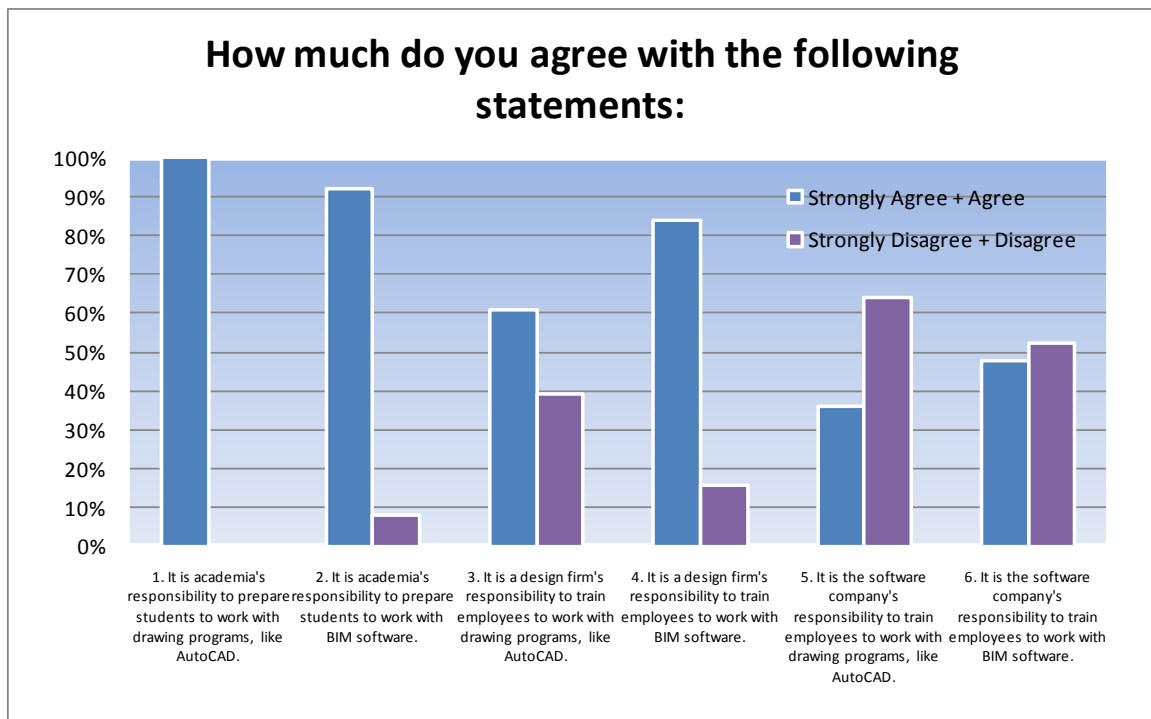
BIM Survey for Professors of Interior Design

Question 12. How much do you agree with the following statements:						
Answer Options (5 Category %)	Strongly Agree	Agree	Not Sure (neutral)	Disagree	Strongly Disagree	Response Count
1. It is academia's responsibility to prepare students to work with drawing programs, like AutoCAD.	59%	41%	0%	0%	0%	54
2. It is academia's responsibility to prepare students to work with BIM software.	26%	38%	30%	6%	0%	53
3. It is a design firm's responsibility to train employees to work with drawing programs, like AutoCAD.	21%	38%	4%	26%	11%	53
4. It is a design firm's responsibility to train employees to work with BIM software.	25%	45%	17%	11%	2%	53
5. It is the software company's responsibility to train employees to work with drawing programs, like AutoCAD.	13%	19%	10%	40%	17%	52
6. It is the software company's responsibility to train employees to work with BIM software.	16%	24%	18%	27%	16%	51
Answered Question						54



BIM Survey for Professors of Interior Design

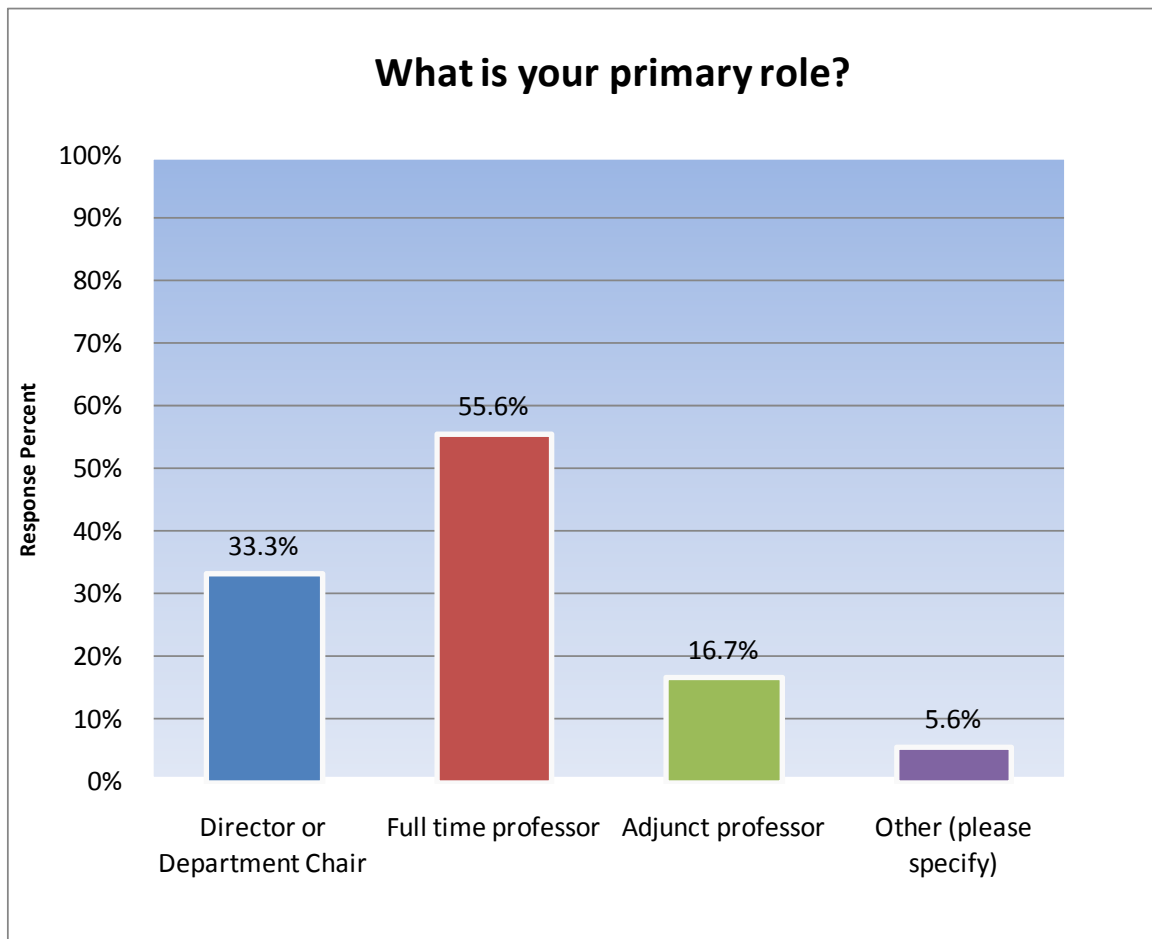
Question 12. How much do you agree with the following statements:			
Answer Options (2 Category %)	Strongly Agree + Agree	Strongly Disagree + Disagree	Response Count
1. It is academia's responsibility to prepare students to work with drawing programs, like AutoCAD.	100%	0%	54
2. It is academia's responsibility to prepare students to work with BIM software.	92%	8%	37
3. It is a design firm's responsibility to train employees to work with drawing programs, like AutoCAD.	61%	39%	51
4. It is a design firm's responsibility to train employees to work with BIM software.	84%	16%	44
5. It is the software company's responsibility to train employees to work with drawing programs, like AutoCAD.	36%	64%	47
6. It is the software company's responsibility to train employees to work with BIM software.	48%	52%	42
Answered Question			54



BIM Survey for Professors of Interior Design

Question 13. What is your primary role?		
Answer Options	Response Percent	Response Count
Director or Department Chair	33.3%	18
Full time professor	55.6%	30
Adjunct professor	16.7%	9
Other (please specify)	5.6%	3
Answered Question		54

Other included a Vice President and a Lower School Coordinator

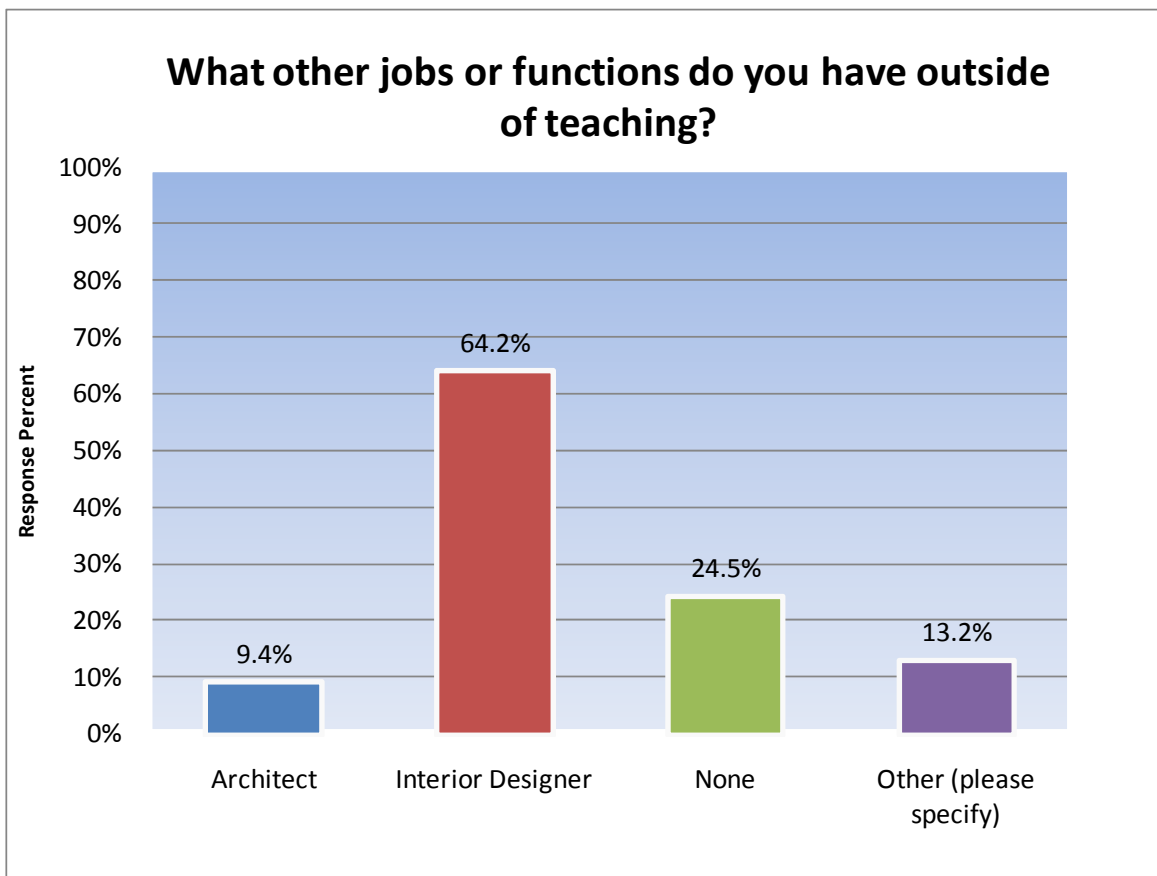


Question 13 “Other” category

1	Vice President
2	Lower School Coordinator
3	I don't know enough about BIM to say whether it should be included in school. The argument on training goes both ways... It is hard enough to teach AutoCAD, Revit, Sketchup, and other design programs with the limited room in curriculum... your questions are not a yes or no but a weighting of what you will cut out. We can't remove any more history classes to get more computer programs.

BIM Survey for Professors of Interior Design

Question 14. What other jobs or functions do you have outside of teaching? (check all that apply)		
Answer Options	Response Percent	Response Count
Architect	9.4%	5
Interior Designer	64.2%	34
None	24.5%	13
Other (please specify)	13.2%	7
Answered Question		53



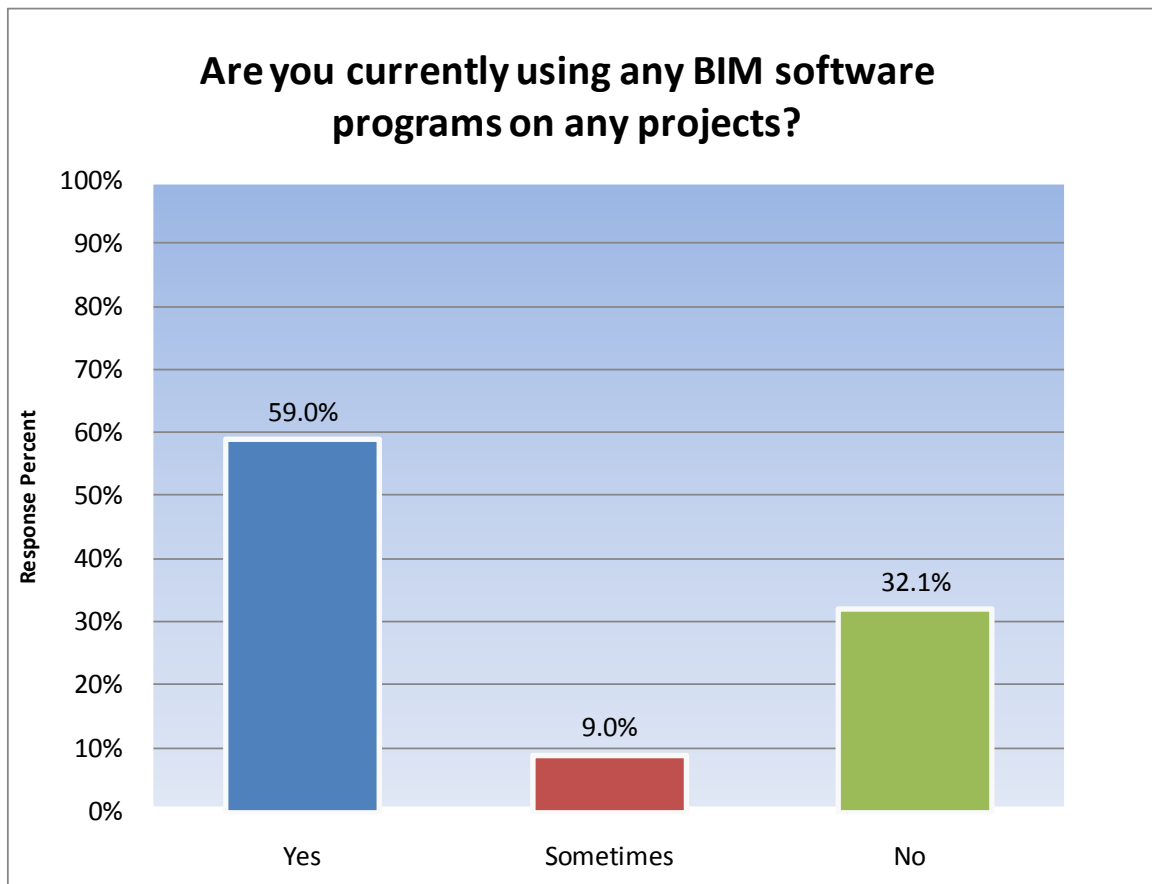
Question 14 “Other” category

1	Furniture design + fabrication
2	clean up after everyone else
3	CAD/Rendering/Visualization Consultant
4	president of the BOD for a non-profit organization that rehabs houses for the elderly
5	100% Administration
6	professional artist
7	Lighting Designer, LEED AP / consultant

BIM Questionnaire Results for Practitioners

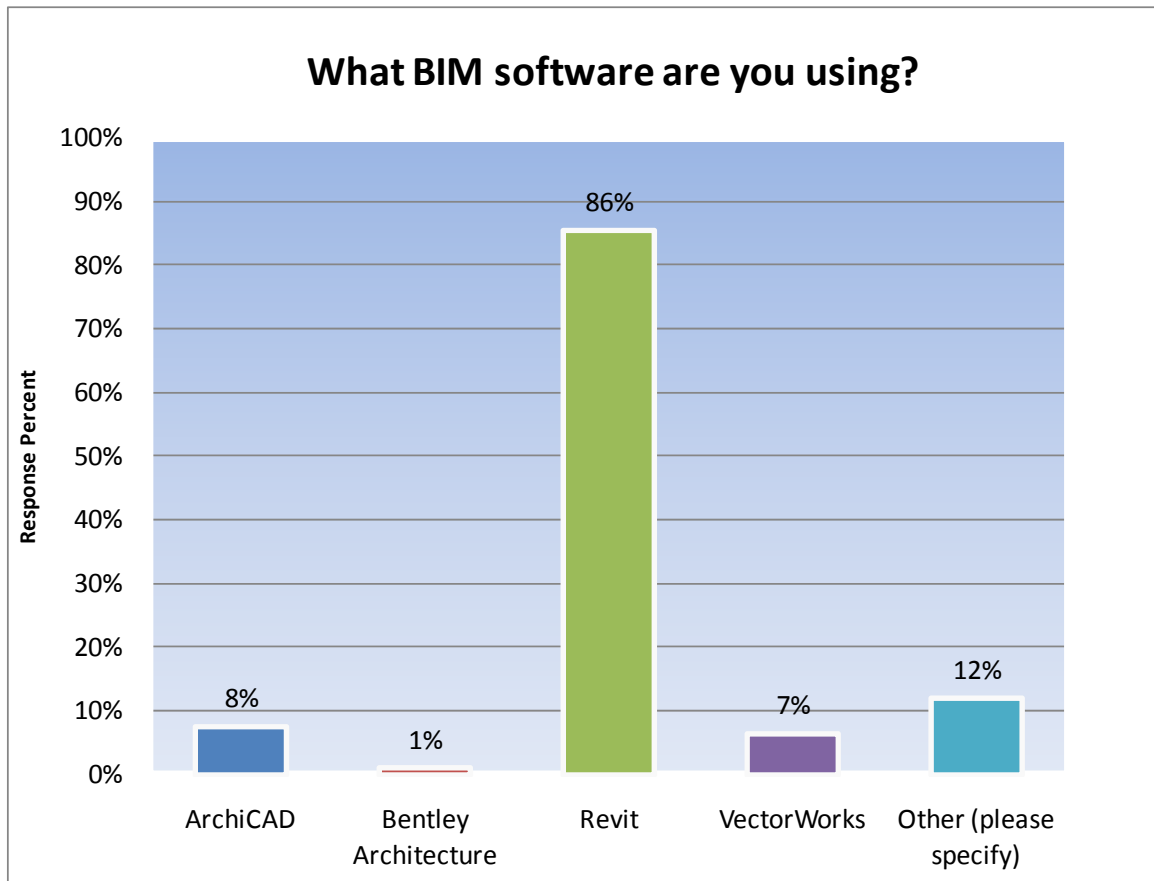
BIM Survey for Practitioners

Question 1. Are you currently using any BIM software programs on any projects?		
Answer Options	Response Percent	Response Count
Yes	59.0%	79
Sometimes	9.0%	12
No	32.1%	43
Answered Question		134



BIM Survey for Practitioners

Question 2. What BIM software are you using? (Check all that apply)		
Answer Options	Response Percent	Response Count
ArchiCAD	7.7%	7
Bentley Architecture	1.1%	1
Revit	85.7%	78
VectorWorks	6.6%	6
Other (please specify)	12.1%	11
Answered Question		91

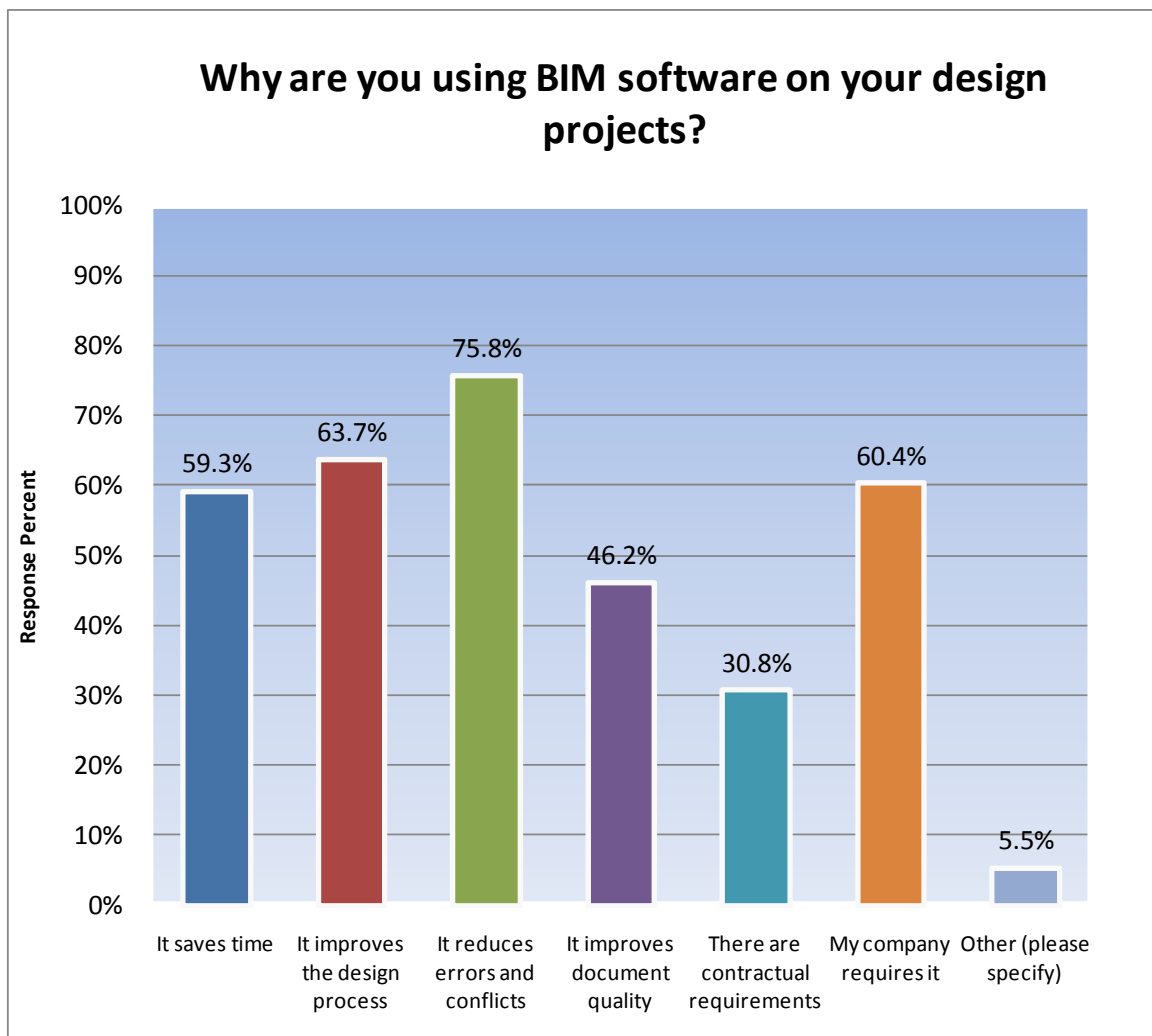


Question 2 “Other” category

1	VectorWorks
2	Vectorworks
3	Vectorworks ARCHITECT
4	Vectorworks Designer 2009 with Renderworks.
5	VectorWorks
6	Vectorworks, a fully BIM capable software solution.
7	Vectorworks Architect
8	SketchUp (Google)
9	Auto cad
10	ADT
11	AutoCAD MEP
12	AutoCad Architecture and AutoCad MEP
13	Vectorworks
14	ECOTECT AND GB STUDIO
15	AutoCAD Architecture, AutoCAD MEP
16	Vectorworks
17	Autocad ABS/MEP

BIM Survey for Practitioners

Question 3. Why are you using BIM software on your design projects? (Check all that apply)		
Answer Options	Response Percent	Response Count
It saves time	59.3%	54
It improves the design process	63.7%	58
It reduces errors and conflicts	75.8%	69
It improves document quality	46.2%	42
There are contractual requirements	30.8%	28
My company requires it	60.4%	55
Other (please specify)	5.5%	5
Answered Question		91



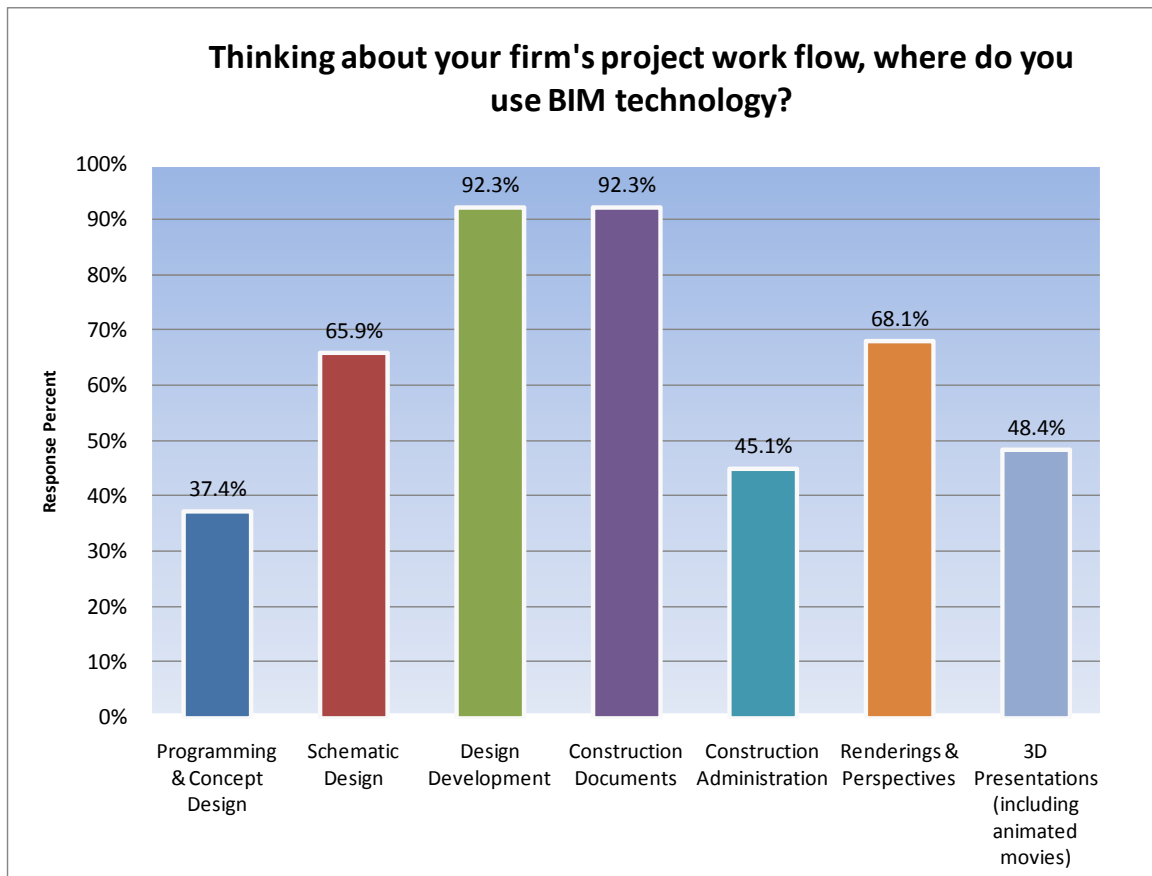
Question 3 "Other" category

1	As interior designers that coordinate with Architects and Engineers, we only use Revit if the other consultants use it. At this time, it is to time consuming and difficult to coordinate without all disciplines using the same system on a project.
2	Opportunities for performance modeling in the design process
3	It gives us an edge over competitors who do not use BIM
4	GOOD PRACTICE - LONGEVITY
5	With the exception of "My company requires it", these should be qualified with a "most of the time"

BIM Survey for Practitioners

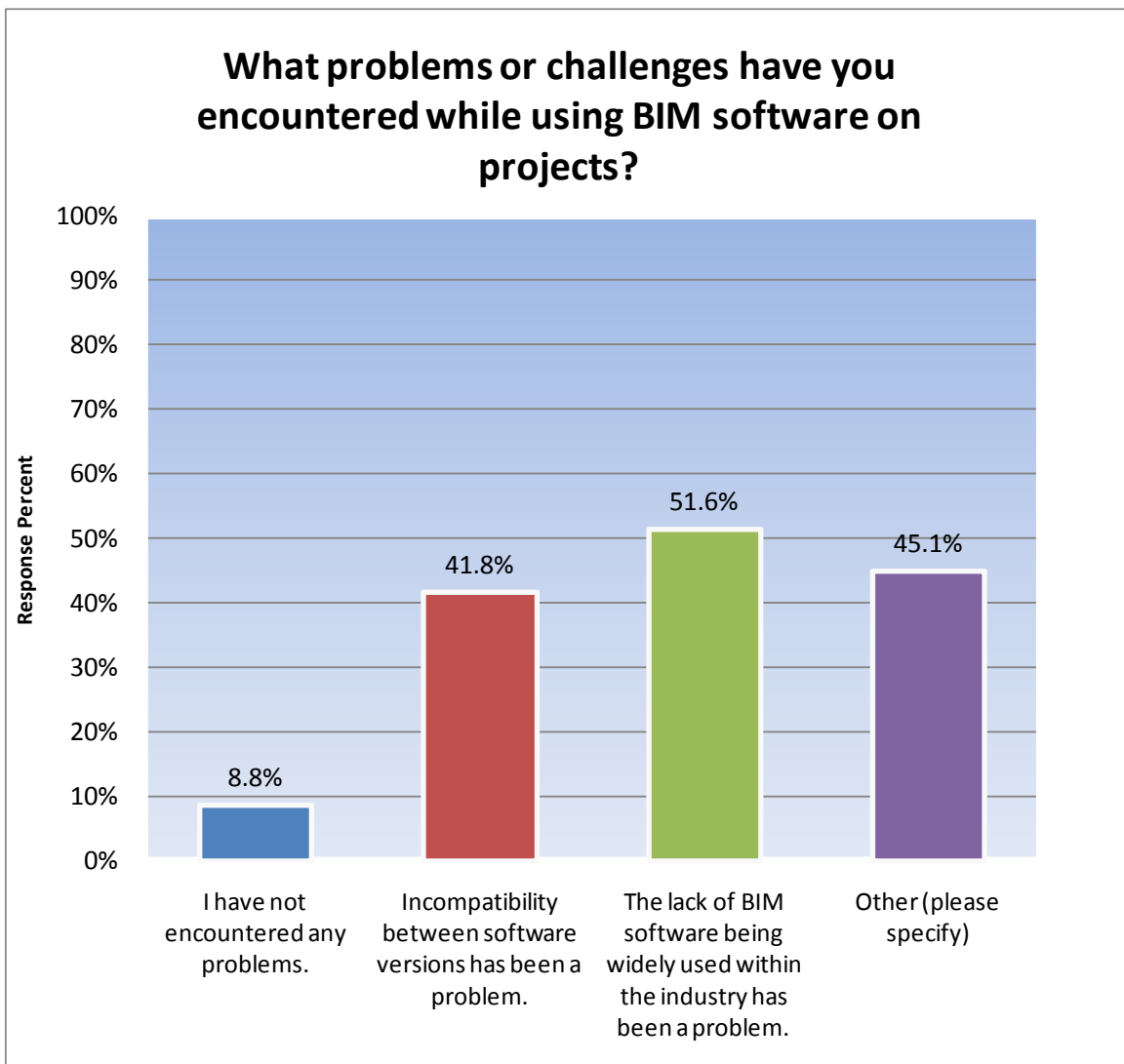
Question 4. Thinking about your firm's project work flow, where do you use BIM technology? (Check all that apply)

Answer Options	Response Percent	Response Count
Programming & Concept Design	37.4%	34
Schematic Design	65.9%	60
Design Development	92.3%	84
Construction Documents	92.3%	84
Construction Administration	45.1%	41
Renderings & Perspectives	68.1%	62
3D Presentations (including animated movies)	48.4%	44
I'm not sure	0.0%	0
Other (please specify)	0.0%	0
Answered Question		91



BIM Survey for Practitioners

Question 5. What problems or challenges have you encountered while using BIM software on projects? (Check all that apply)		
Answer Options	Response Percent	Response Count
I have not encountered any problems.	8.8%	8
Incompatibility between software versions has been a problem.	41.8%	38
The lack of BIM software being widely used within the industry has been a problem.	51.6%	47
Other (please specify)	45.1%	41
Answered Question		91



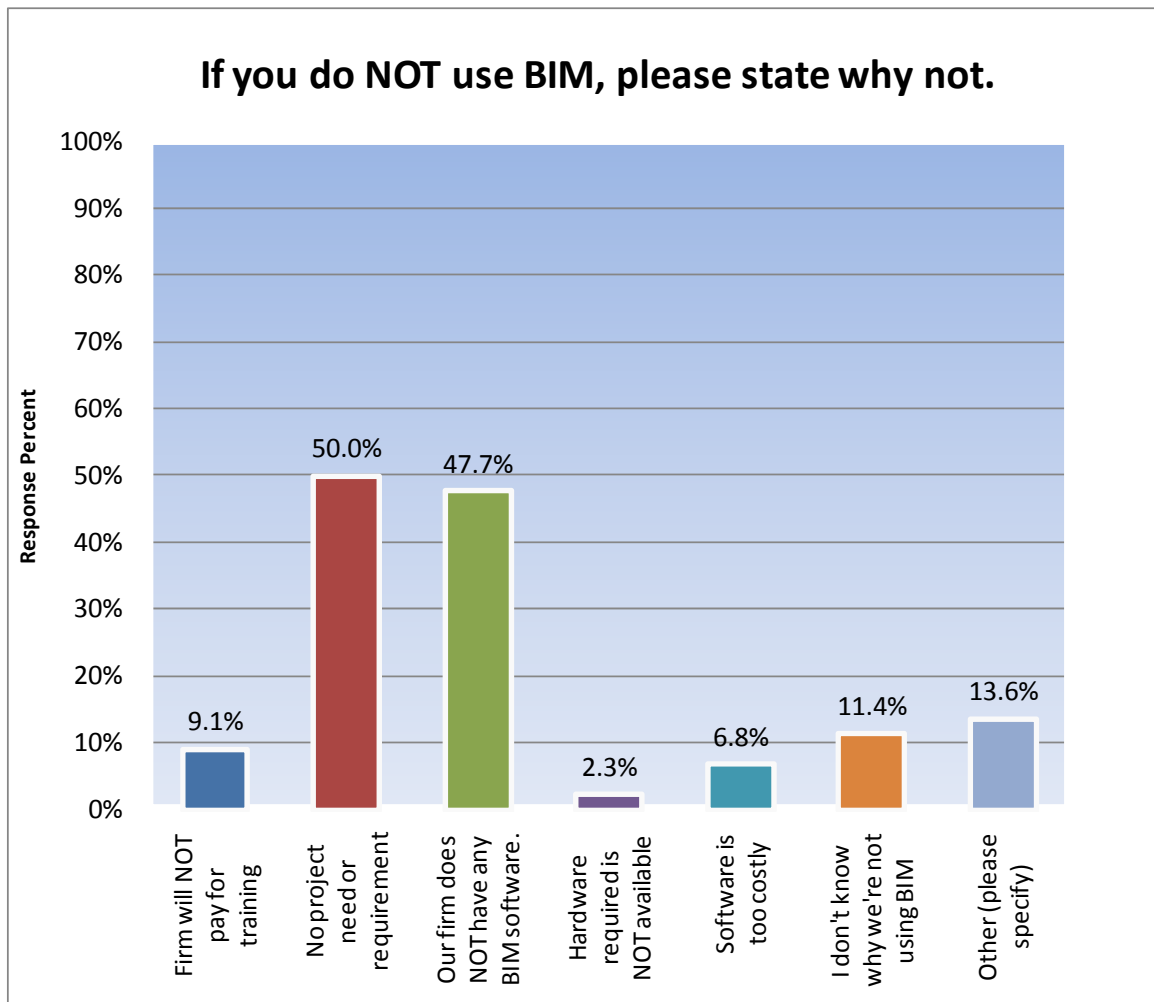
Question 5 "Other" category

1	Evolving software products sometimes requires workarounds to achieve documentation goals
2	problems with bringing schematic design (conceptual massing) into design development in Revit
3	Lack of understanding how to use the software by the other designers. Transfer of information between outside firms on the project.
4	Projects need a bail-out point where continuing the model in full 3D form is counterproductive to the needs of production. The software must allow for the conversion of the model into working drawings which may leave some elements of the model unfinished.
5	For us to completely reap the benefits of BIM, manufacturers need to pre-load parametric objects with information. As a small firm, we cannot afford to do this ourselves. As a consequence, much of our work does not use BIM completely. We have 3D models, but the BIM information really isn't there.
6	employees not being properly trained - all members of a project team need to be well versed before using Revit on a project
7	Variance in the level of understanding of BIM in most project teams.
8	computer hardware keeping up with the software's needs
9	Reluctance of colleagues to learn a new way to work.
10	Interoperability between various BIM software.
11	LEARNING CURVE OF USERS. BIM REQUIRES A PARADIGM SHIFT THAT SOME CANNOT MAKE
12	Lack of consistency of annotation, reference symbols and text styles with CAD software.
13	Getting the people using the software to utilize its full potential
14	Computer Capabilities - moving all to 64bit OS
15	The learning curve for users
16	Availability of people that understand construction and software is very limiting.
17	Lack of training provided by employer
18	Large learning curve. It is so different than what we are used to that it is time consuming and challenging to make the switch. Hopefully it will be worth it in the long run.
19	IGNORANCE
20	Detailing
21	Lack of content modeled object to use with the software
22	learnign curve
23	adaquate trining, independent "work arounds", lack of continued infrastructure development
24	the learning curve associated with the program and the lack of years of resources that were already developed in Cad
25	It's restraints for design. It is difficult to do small design details; therefore, we sometimes use CADD, sketching, or Sketchup for design studies. Revit is then just documentation.
26	Learning curve with tight deadlines. We end up not following the rules.
27	There is a lach of content, causing me to use a great deal of time to create families and other interior content.
28	The files are very large and sometimes crash. It takes a lot of coordination if you are link models such as structural, mechanical or architectural if and they come from

	other firms.
29	Not everyone knows it
30	Most problems have to do with lack of training, different versions loaded on different machines working on the same documents and overall coordination regarding who is working on what.
31	BIM software requires that those involved in drafting/modeling be familiar with construction processes and requirements. However, those involved with drafting tend to be lower-level/intern/less experienced designers who are not knowledgeable of construction procedures and processes, as design schools tend to not address this aspect of design sufficiently. Those more experienced designers who review the work tend to be less adept at using the BIM software, and as a result they may not address the modeling issues but rather only the output (which may not be synonymous).
32	file size gets too big to be efficient (open, save changes, sometimes even just to make changes take a long time to accomplish)
33	It takes time when the models get complicated and large
34	There are still minor kinks in the system.
35	Problems with computer hardware being able to support the Revit Program.
36	Hardware issues
37	it cannot be used efficiently in the preliminary phases of design (programming, concept, schematic)
38	it's typically slower
39	Internal glitches within the software
40	Requires additional electrical devices and electrical equipment.
41	coordination in a large group of team members poses a problem, esp STC

BIM Survey for Practitioners

Question 6. If you do NOT use BIM, please state why not. (Check all that apply)		
Answer Options	Response Percent	Response Count
Firm will NOT pay for training	9.1%	4
No project need or requirement	50.0%	22
Our firm does NOT have any BIM software.	47.7%	21
Hardware required is NOT available	2.3%	1
Software is too costly	6.8%	3
I don't know why we're not using BIM	11.4%	5
Other (please specify)	13.6%	6
Answered Question		44

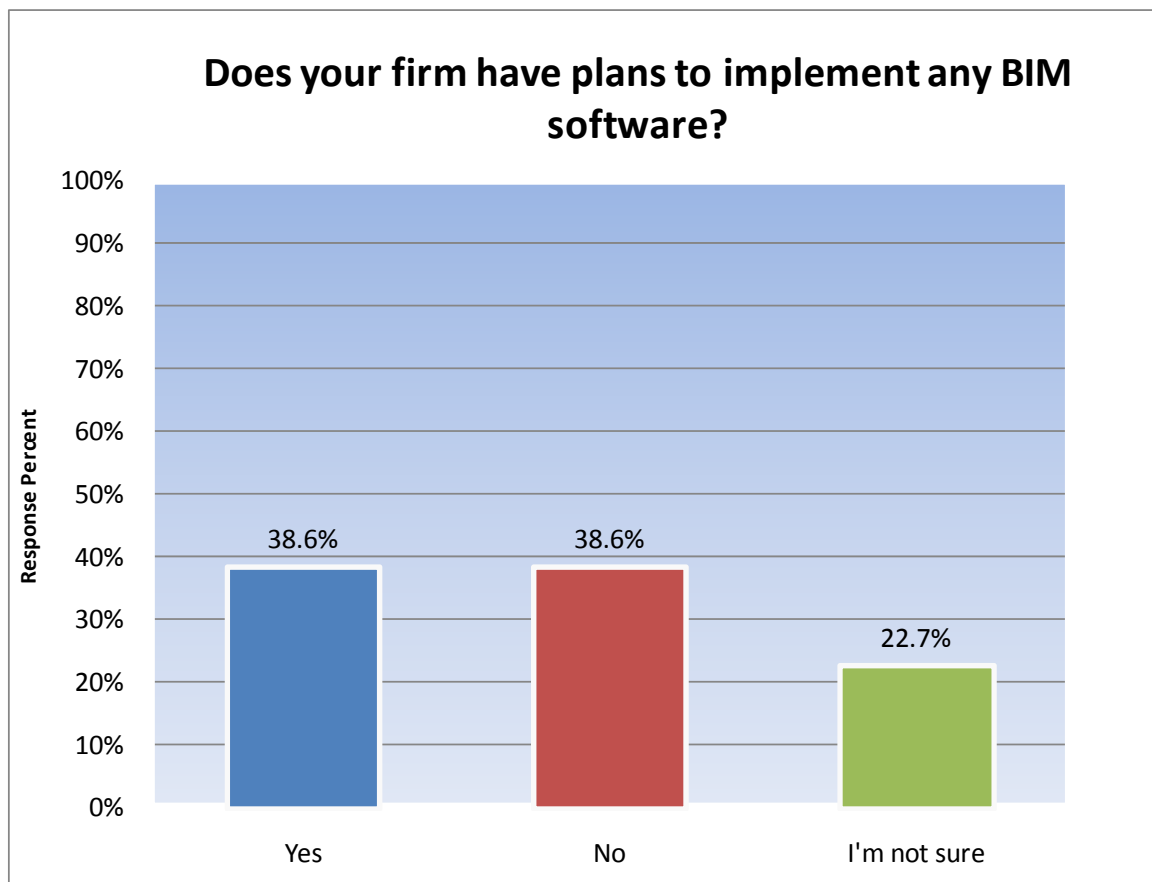


Question 6 "Other" category

1	Our firm went through the process of switching from one CAD software to the next. Unfortunately, because of a poorly planned out transition, it has been hard for our firm to get the confidence to move to a BIM software.
2	Our client's don't require this yet. I work in residential interiors.
3	Projects are currently too small to fully benefit from BIM. As a small office, we need parametric object information to be pre-loaded. We cannot afford the time to do this ourselves.
4	I have had BIM training for a specific project that is starting soon. All of the other projects I am working on currently were started prior to BIM introduction at our firm.
5	For a lot of smaller projects, the set up for BIM will burn through a lot more fee than we would like. Also, since we have teams of people working on a project, sometimes not everyone knows how to utilize BIM software, so we need to work with something that everyone understands. We are currently trying to transition into everyone using BIM, and our architectural groups use it on just about all of their projects.
6	We are in transition now and my team is going out for training at the end of October. All new projects from them on will be in Revit.

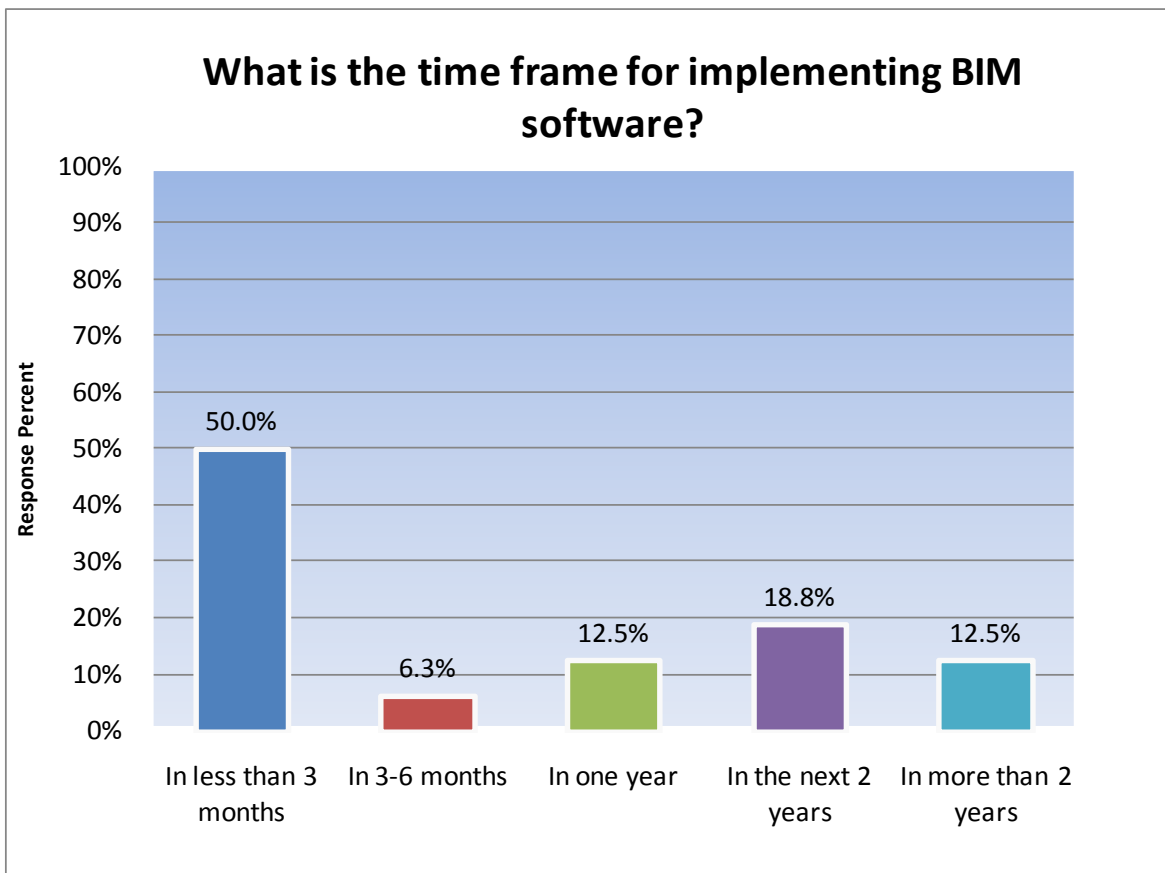
BIM Survey for Practitioners

Question 7. Does your firm have plans to implement any BIM software?		
Answer Options	Response Percent	Response Count
Yes	38.6%	17
No	38.6%	17
I'm not sure	22.7%	10
Answered Question		44



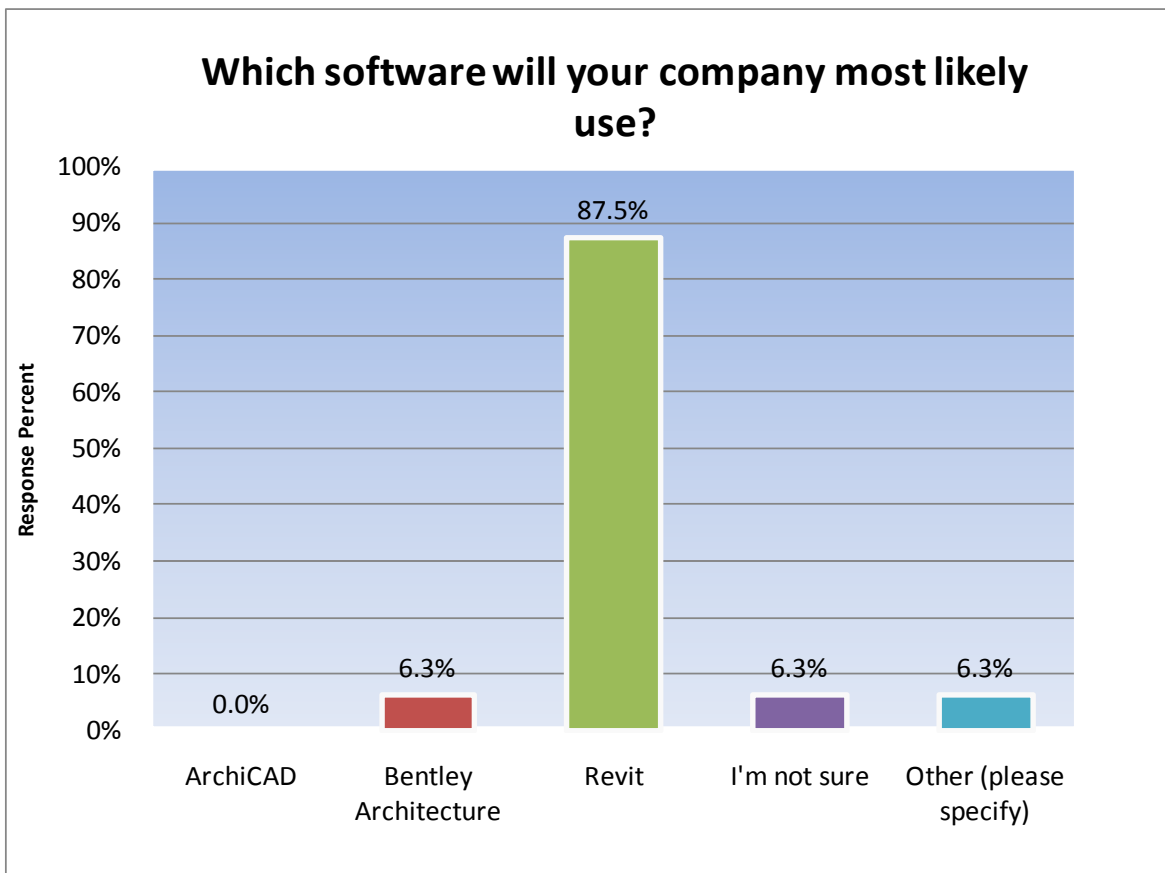
BIM Survey for Practitioners

Question 8. What is the time frame for implementing BIM software?		
Answer Options	Response Percent	Response Count
In less than 3 months	50.0%	8
In 3-6 months	6.3%	1
In one year	12.5%	2
In the next 2 years	18.8%	3
In more than 2 years	12.5%	2
Answered Question		16



BIM Survey for Practitioners

Question 9. Which software will your company most likely use?		
Answer Options	Response Percent	Response Count
ArchiCAD	0.0%	0
Bentley Architecture	6.3%	1
Revit	87.5%	14
I'm not sure	6.3%	1
Other (please specify)	6.3%	1
Answered Question		16

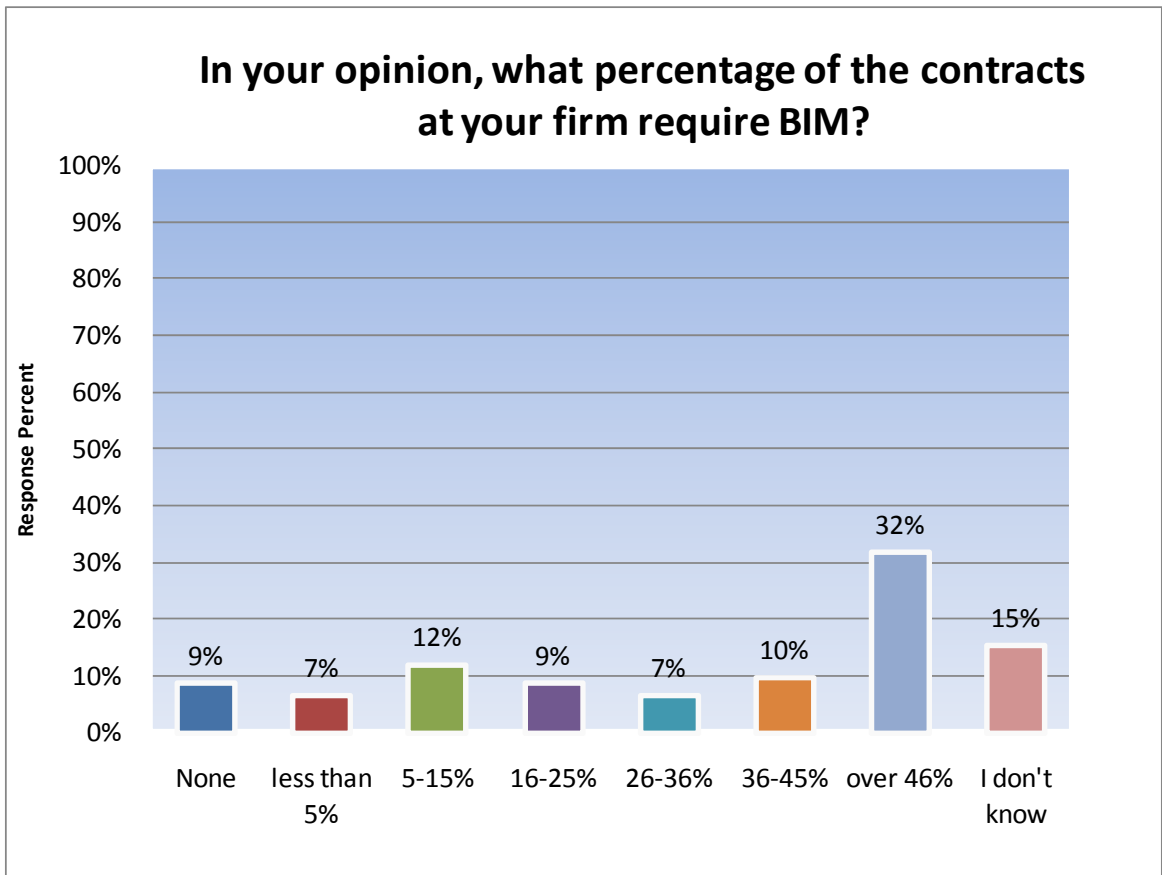


Question 9 "Other" category

1	Vectorworks
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BIM Survey for Practitioners

Question 10. In your opinion, what percentage of the contracts at your firm require BIM?		
Answer Options	Response Percent	Response Count
None	8.8%	8
less than 5%	6.6%	6
5-15%	12.1%	11
16-25%	8.8%	8
26-36%	6.6%	6
36-45%	9.9%	9
over 46%	31.9%	29
I don't know	15.4%	14
Answered Question		91

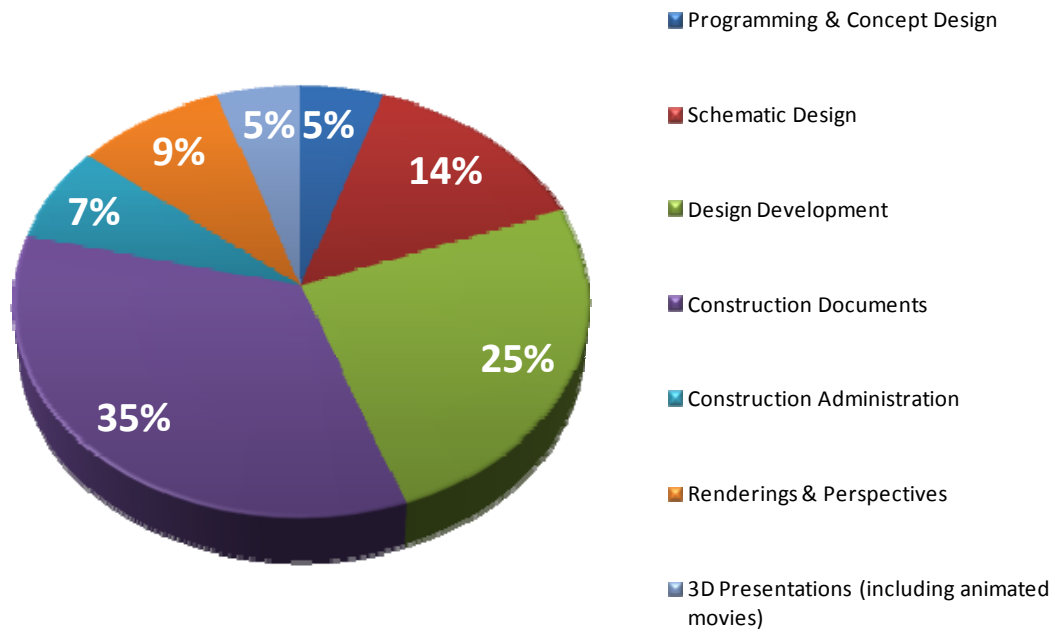


BIM Survey for Practitioners

Question 11. According to the following design areas, how much of your time do you use BIM software for your projects? For example, Renderings 25%, Schematics 25%, Construction Documents 50%.

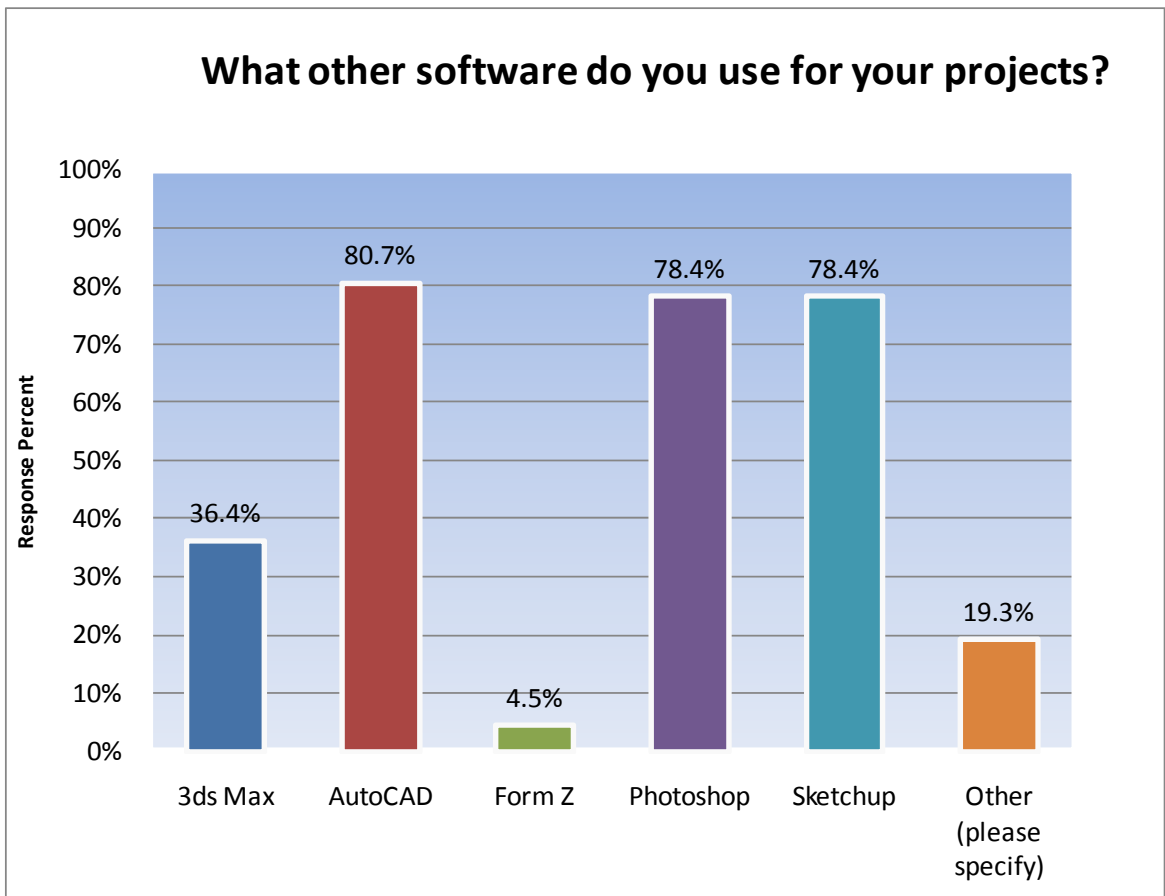
Answer Options	Percent Time	Response Count
Programming & Concept Design	5.0%	59
Schematic Design	14.0%	72
Design Development	25.0%	81
Construction Documents	34.0%	78
Construction Administration	7.0%	52
Renderings & Perspectives	9.0%	60
3D Presentations (including animated movies)	5.0%	49
Answered Question		83

According to the following design areas, how much of your time do you use BIM software for your projects?



BIM Survey for Practitioners

Question 12. What other software do you use for your projects?		
Answer Options	Response Percent	Response Count
3ds Max	36.4%	32
AutoCAD	80.7%	71
Form Z	4.5%	4
Photoshop	78.4%	69
Sketchup	78.4%	69
Other (please specify)	19.3%	17
Answered Question		88

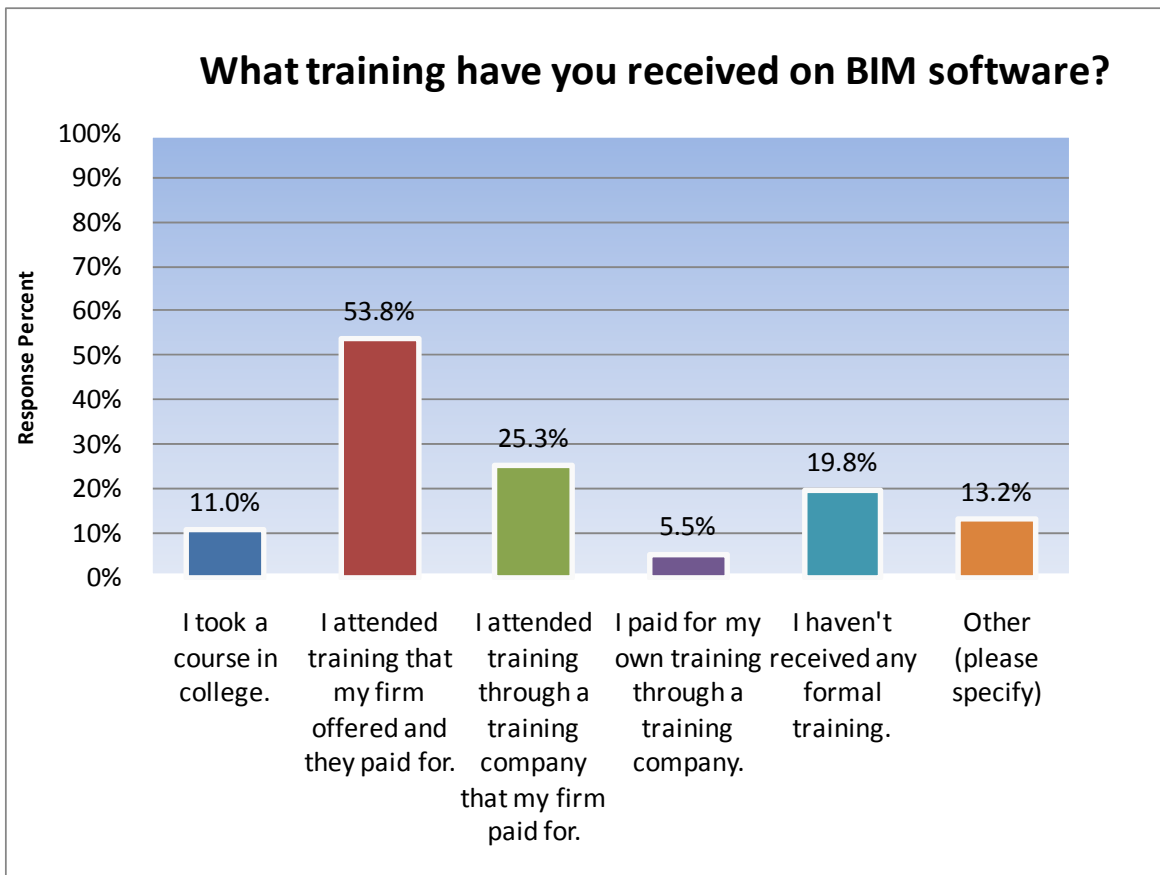


Question 12 “Other” category

1	VectorWorks
2	Chief Architect
3	Structural design, energy calculations, other miscellaneous purposes.
4	Navisworks
5	Rhino
6	ADOBE, NAVISWORKS,
7	Architectural Desktop
8	All of Adobe Creative suite
9	Anyone of the programs in the Adobe suite.
10	The revit model is typically brought into the other programs as a starting point. Also Illustrator and InDesign for presentations.
11	Microstation (2D)
12	Microstation
13	InDesign, Illustrator
14	microstation
15	Engineering Calculation Software
16	Rhino
17	AGi32, Visual, COMcheck

BIM Survey for Practitioners

Question 13. What training have you received on BIM software?		
Answer Options	Response Percent	Response Count
I took a course in college.	11.0%	10
I attended training that my firm offered and they paid for.	53.8%	49
I attended training through a training company that my firm paid for.	25.3%	23
I paid for my own training through a training company.	5.5%	5
I haven't received any formal training.	19.8%	18
Other (please specify)	13.2%	12
Answered Question		91

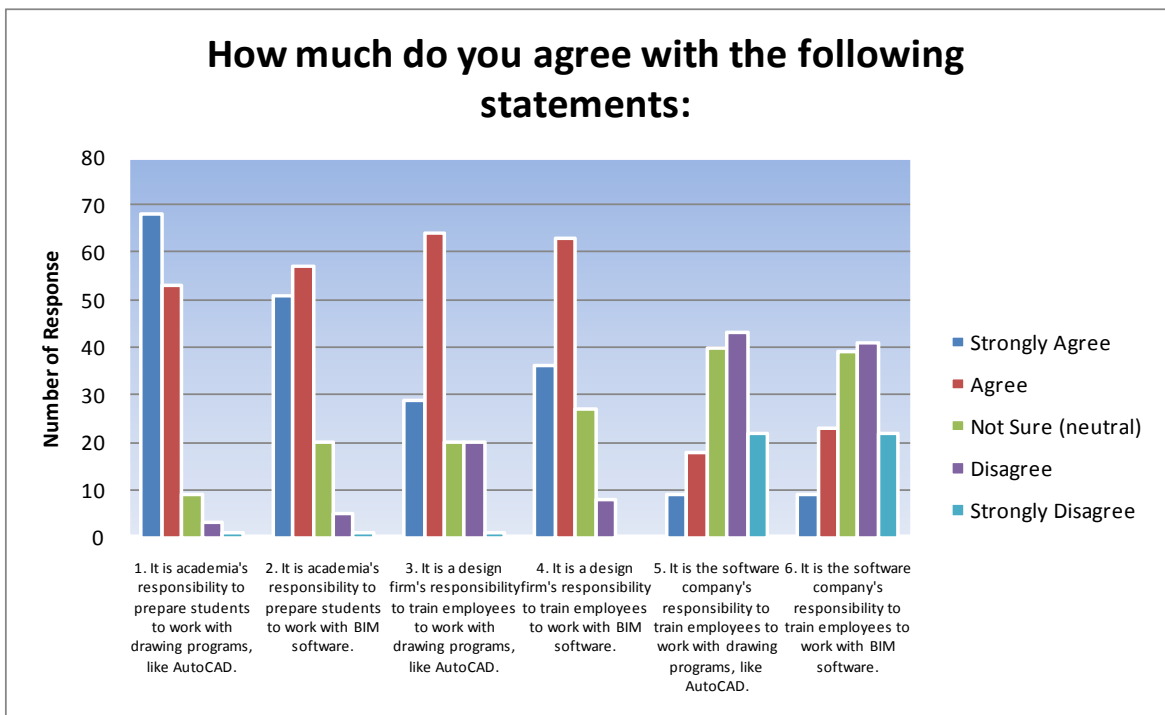


Question 13 “Other” category

1	Combination of: self-trained, engagement in a community of users, learning through beta testing, occasional use of training manuals and videos. I am a trainer.
2	Courses attended at Autodesk University
3	free online training through AutoDesk
4	Self taught
5	Self taught
6	Tutorials & Training Manuals provided by Vectorworks
7	TRIAL AND ERROR, PLAY TIME
8	The BIM manager worked with me to get started. Since then I ask her or her assistants, or other architects or designers for help.
9	MY firm has new employees take the Revit tutorials included with the software, as well as offering occasional 1-hour training sessions focusing on specific topics.
10	In-house training
11	My firm has BIM leaders that coordinate internal training sessions/discussions & lectures on the use of BIM in our offices and across disciplines.
12	RevitDC

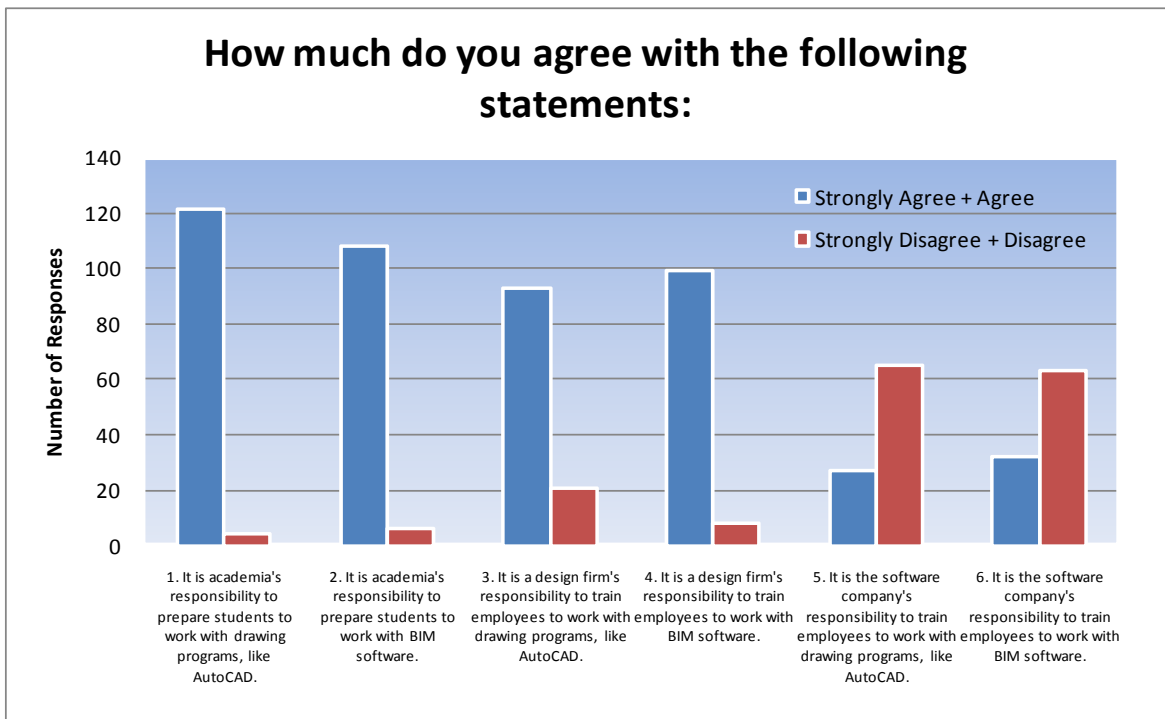
BIM Survey for Practitioners

Question 14. How much do you agree with the following statements:						
Answer Options (5-Category)	Strongly Agree	Agree	Not Sure (neutral)	Disagree	Strongly Disagree	Response Count
1. It is academia's responsibility to prepare students to work with drawing programs, like AutoCAD.	68	53	9	3	1	134
2. It is academia's responsibility to prepare students to work with BIM software.	51	57	20	5	1	134
3. It is a design firm's responsibility to train employees to work with drawing programs, like AutoCAD.	29	64	20	20	1	134
4. It is a design firm's responsibility to train employees to work with BIM software.	36	63	27	8	0	134
5. It is the software company's responsibility to train employees to work with drawing programs, like AutoCAD.	9	18	40	43	22	132
6. It is the software company's responsibility to train employees to work with BIM software.	9	23	39	41	22	134
Answered Question						134



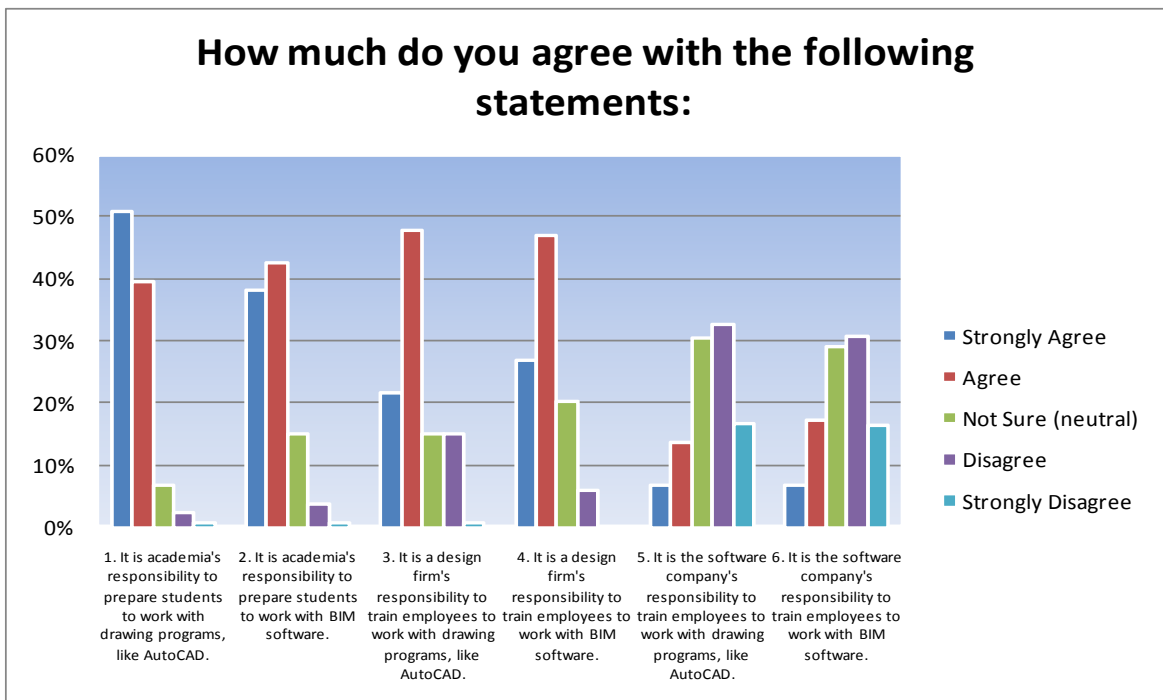
BIM Survey for Practitioners

Question 14. How much do you agree with the following statements:			
Answer Options (2-Category)	Strongly Agree + Agree	Strongly Disagree + Disagree	Response Count
1. It is academia's responsibility to prepare students to work with drawing programs, like AutoCAD.	121	4	125
2. It is academia's responsibility to prepare students to work with BIM software.	108	6	114
3. It is a design firm's responsibility to train employees to work with drawing programs, like AutoCAD.	93	21	114
4. It is a design firm's responsibility to train employees to work with BIM software.	99	8	107
5. It is the software company's responsibility to train employees to work with drawing programs, like AutoCAD.	27	65	92
6. It is the software company's responsibility to train employees to work with BIM software.	32	63	95
Answered Question			134



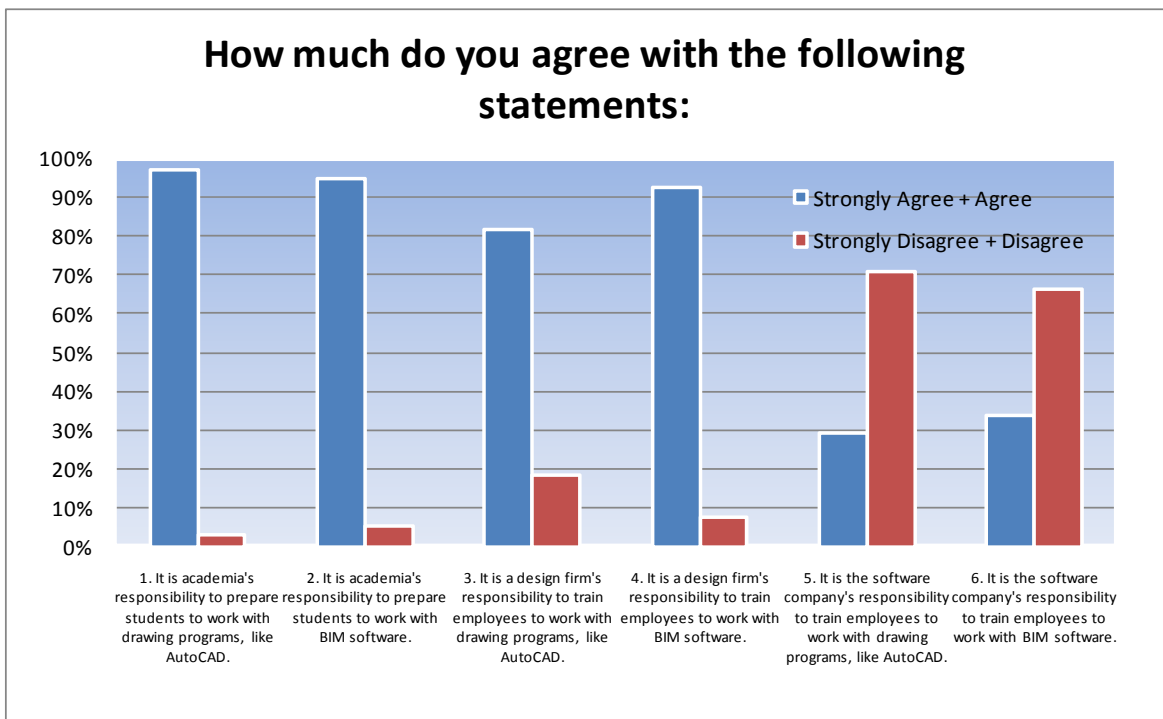
BIM Survey for Practitioners

Question 14. How much do you agree with the following statements:						
Answer Options (5-Category)	Strongly Agree	Agree	Not Sure (neutral)	Disagree	Strongly Disagree	Response Count
1. It is academia's responsibility to prepare students to work with drawing programs, like AutoCAD.	51%	40%	7%	2%	1%	134
2. It is academia's responsibility to prepare students to work with BIM software.	38%	43%	15%	4%	1%	134
3. It is a design firm's responsibility to train employees to work with drawing programs, like AutoCAD.	22%	48%	15%	15%	1%	134
4. It is a design firm's responsibility to train employees to work with BIM software.	27%	47%	20%	6%	0%	134
5. It is the software company's responsibility to train employees to work with drawing programs, like AutoCAD.	7%	14%	30%	33%	17%	132
6. It is the software company's responsibility to train employees to work with BIM software.	7%	17%	29%	31%	16%	134
Answered Question						134



BIM Survey for Practitioners

Question 14. How much do you agree with the following statements:			
Answer Options (2-Category)	Strongly Agree + Agree	Strongly Disagree + Disagree	Response Count
1. It is academia's responsibility to prepare students to work with drawing programs, like AutoCAD.	97%	3%	125
2. It is academia's responsibility to prepare students to work with BIM software.	95%	5%	114
3. It is a design firm's responsibility to train employees to work with drawing programs, like AutoCAD.	82%	18%	114
4. It is a design firm's responsibility to train employees to work with BIM software.	93%	7%	107
5. It is the software company's responsibility to train employees to work with drawing programs, like AutoCAD.	29%	71%	92
6. It is the software company's responsibility to train employees to work with BIM software.	34%	66%	95
Answered Question			134



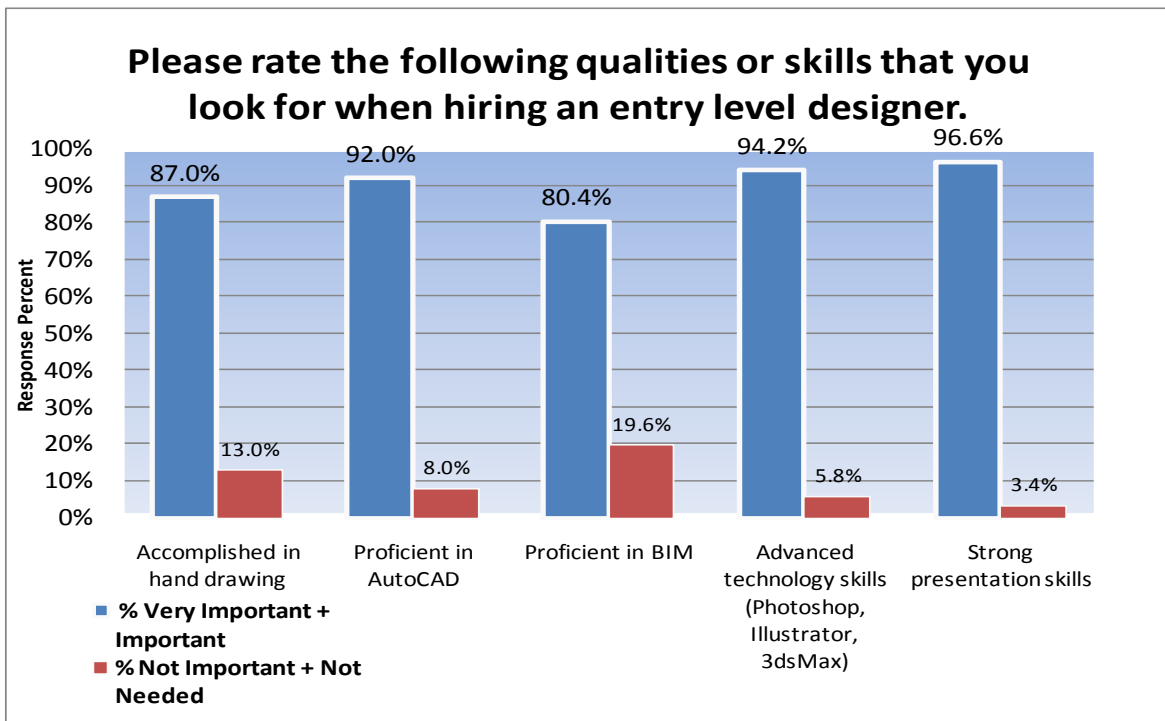
BIM Survey for Practitioners

Question 15. Please rate the following qualities or skills that you look for when hiring an entry level designer.

Answer Options	Very Important	Important	Not Sure (neutral)	Not Important	Not needed	Response Count
Accomplished in hand drawing	23	64	31	9	4	131
Proficient in AutoCAD	62	53	8	6	4	133
Proficient in BIM	23	63	26	19	2	133
Advanced technology skills (Photoshop, Illustrator, 3dsMax)	34	63	29	5	1	132
Strong presentation skills	44	68	15	4	0	131

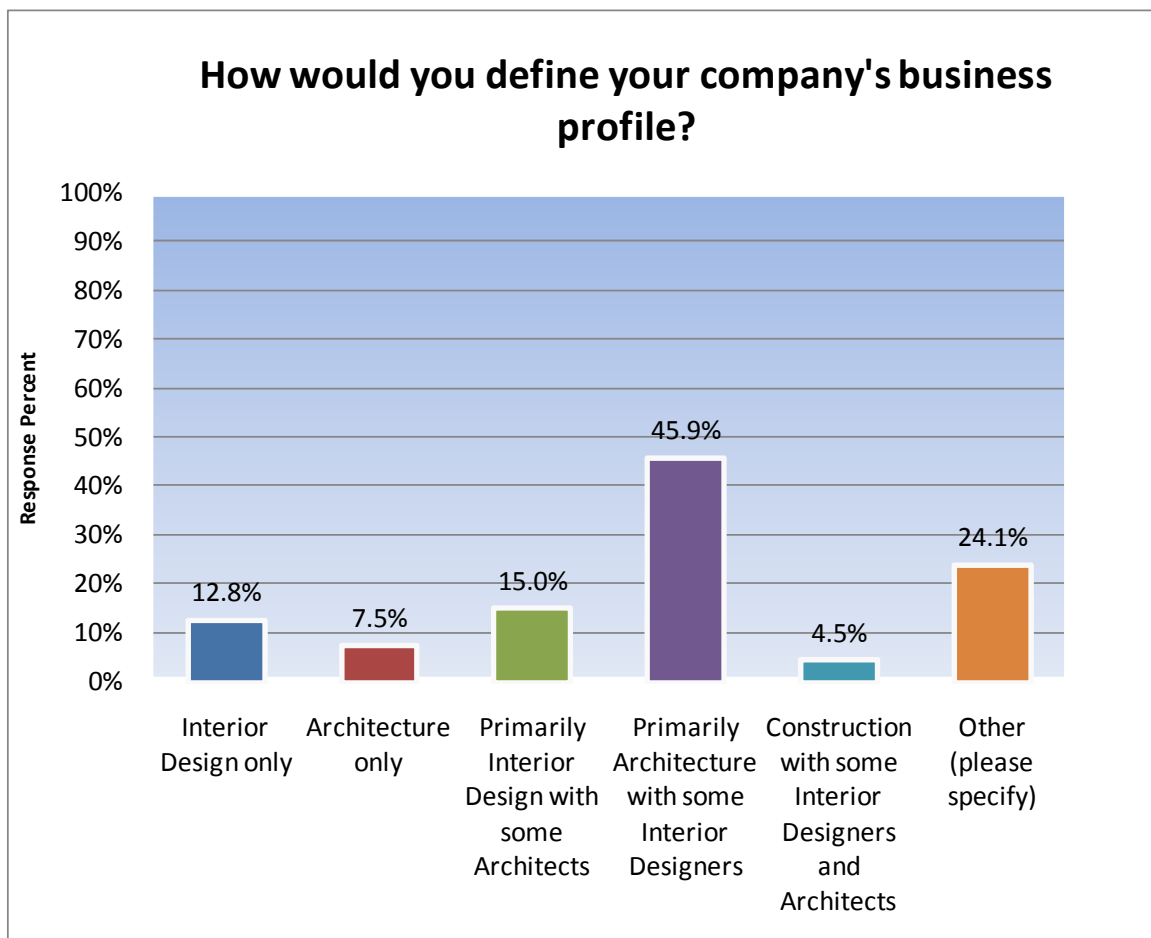
Answered Question **134**

Answer Options	% Very Important + Important	% Not Important + Not Needed	Very Important + Important	Not Important + Not Needed	Response Count - Not Sure
Accomplished in hand drawing	87.0%	13.0%	87	13	100
Proficient in AutoCAD	92.0%	8.0%	115	10	125
Proficient in BIM	80.4%	19.6%	86	21	107
Advanced technology skills (Photoshop, Illustrator, 3dsMax)	94.2%	5.8%	97	6	103
Strong presentation skills	96.6%	3.4%	112	4	116



BIM Survey for Practitioners

Question 16. How would you define your company's business profile?		
Answer Options	Response Percent	Response Count
Interior Design only	12.8%	17
Architecture only	7.5%	10
Primarily Interior Design with some Architects	15.0%	20
Primarily Architecture with some Interior Designers	45.9%	61
Construction with some Interior Designers and Architects	4.5%	6
Other (please specify)	24.1%	32
Answered Question		133

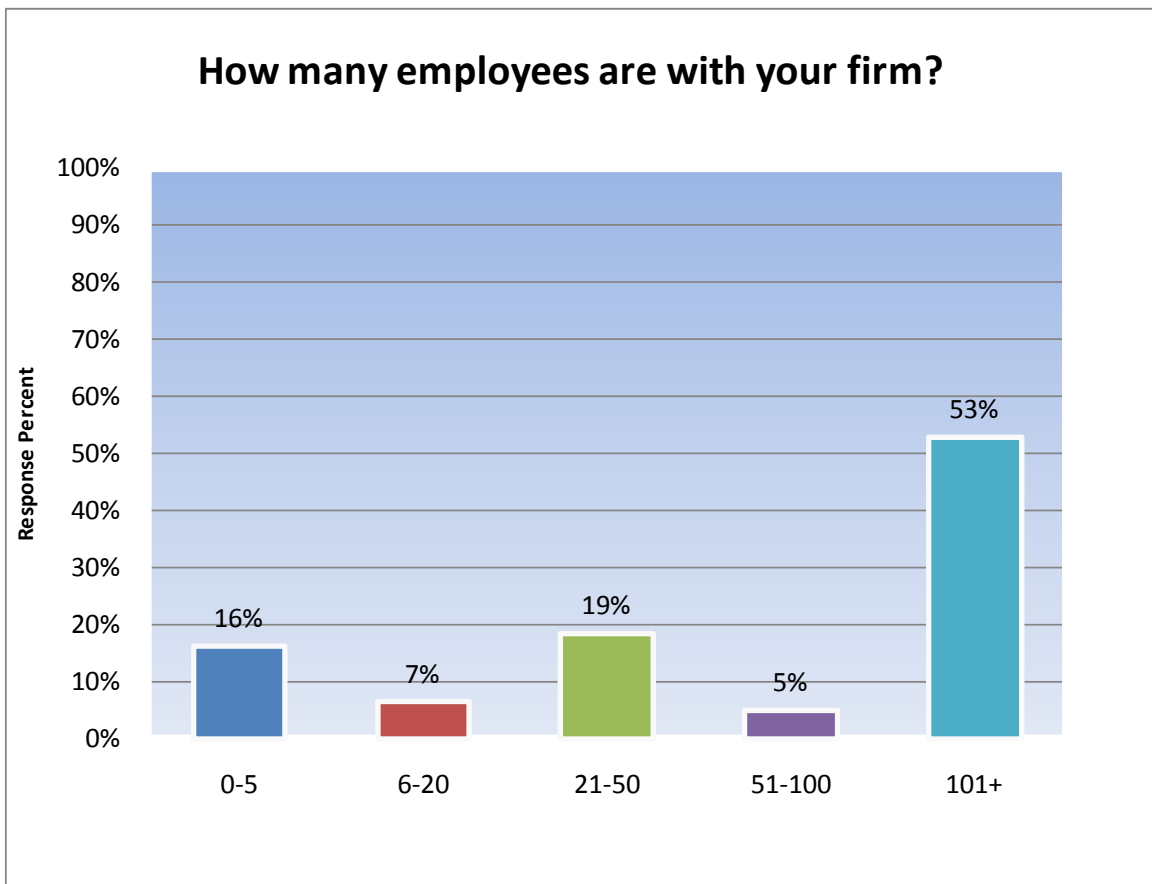


Question 16 "Other" category

1	Photographer for Interior Designers and Architects
2	50/50 architecture and interiors
3	Law Firm
4	Entertainment Design
5	Architecture, Engineering, Consulting - Multi-discipline
6	Interior Design and Interior Architecture
7	Architecture and Engineering
8	Full service AEC: A, S, M, E & P
9	Full design service, Architecture, Interiors, Equipment, MEP, Structural, Civil/Landscaping
10	Full Service A/E
11	Architects, Interior Designers, Construction Managers for government agency
12	MEP also
13	Architecture, and Engineering
14	AECM
15	Mechanical and Electrical Engineering
16	AEP
17	Architecture, Engineering, Interiors, Lighting, Site Planning, facilities and Lab Planning
18	Government
19	arch, interiors, master planning, graphics/ print
20	Multidisciplinary firm
21	We have everything from railroad engineers to interior designers.
22	Primarily engineering with some architects and designers.
23	Also Transportation Engineering
24	Full Service A/D/E firm with equal distributions of architects, designers, and engineers.
25	Architecture and interior architecture
26	architecture, interiors, planning
27	Fairly even mix of architects and interior designers
28	primarily arch. and eng. and int.
29	architecature, interior design, and engineering
30	fully integrated architecture, engineering, & interior design
31	Fully integrated design firm with Architecture, Interiors, MEP, Structural, ect.
32	Architecture/MEP Engineers

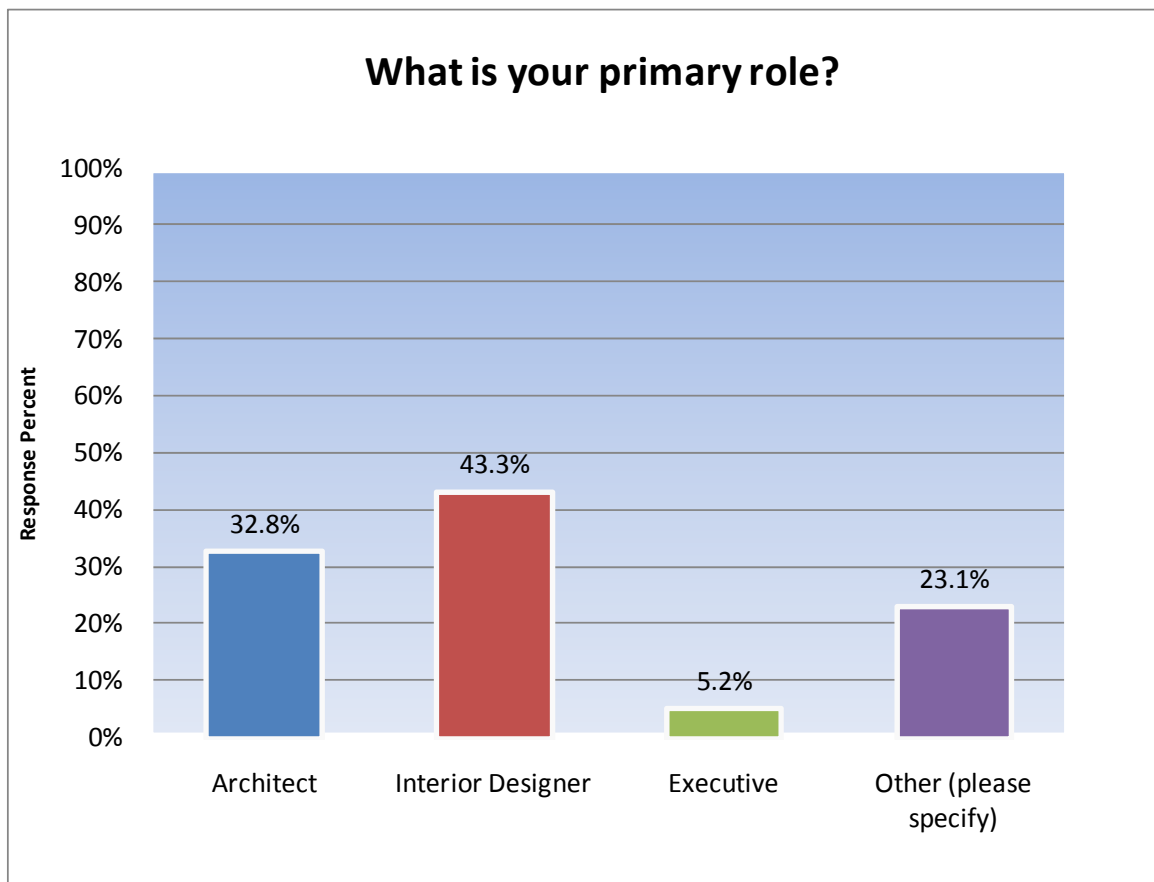
BIM Survey for Practitioners

Question 17. How many employees are with your firm?		
Answer Options	Response Percent	Response Count
0-5	16.4%	22
6-20	6.7%	9
21-50	18.7%	25
51-100	5.2%	7
101+	53.0%	71
Answered Question		134



BIM Survey for Practitioners

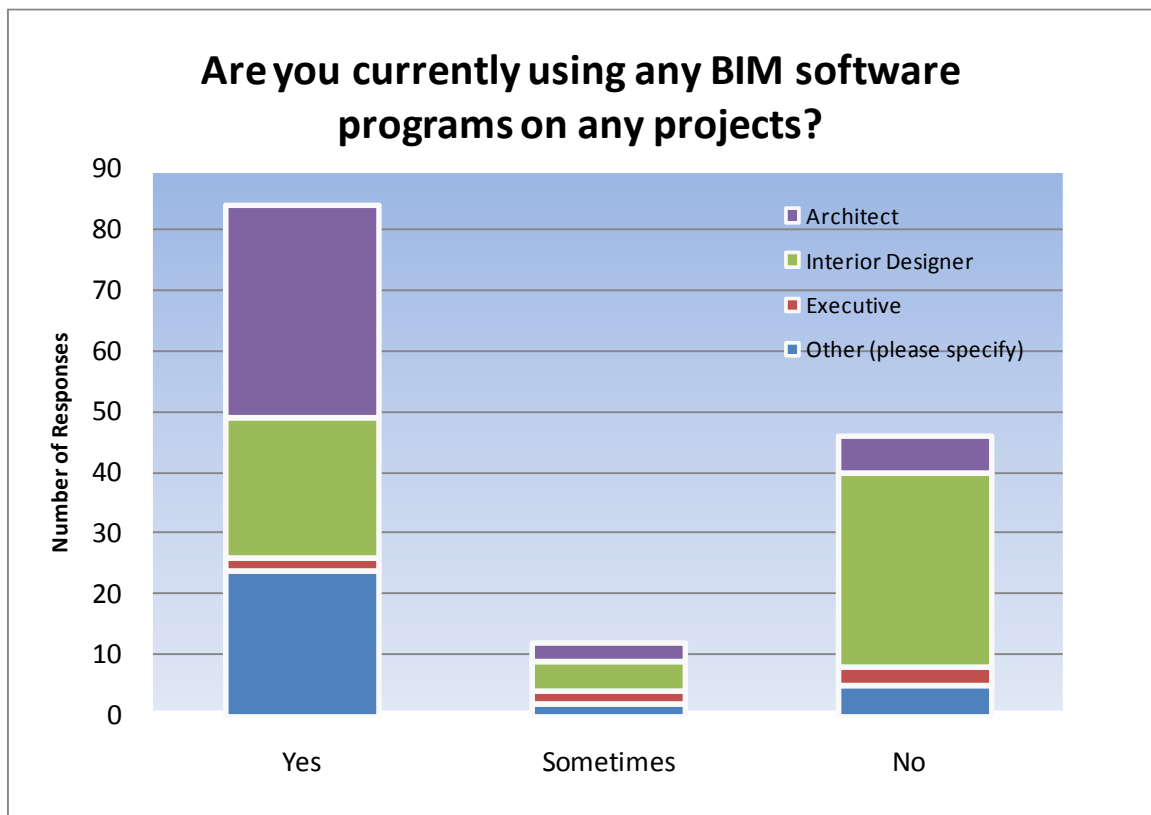
Question 18. What is your primary role?		
Answer Options	Response Percent	Response Count
Architect	32.8%	44
Interior Designer	43.3%	58
Executive	5.2%	7
Other (please specify)	23.1%	31
Answered Question		134



BIM Questionnaire Results for Practitioners, By Occupation

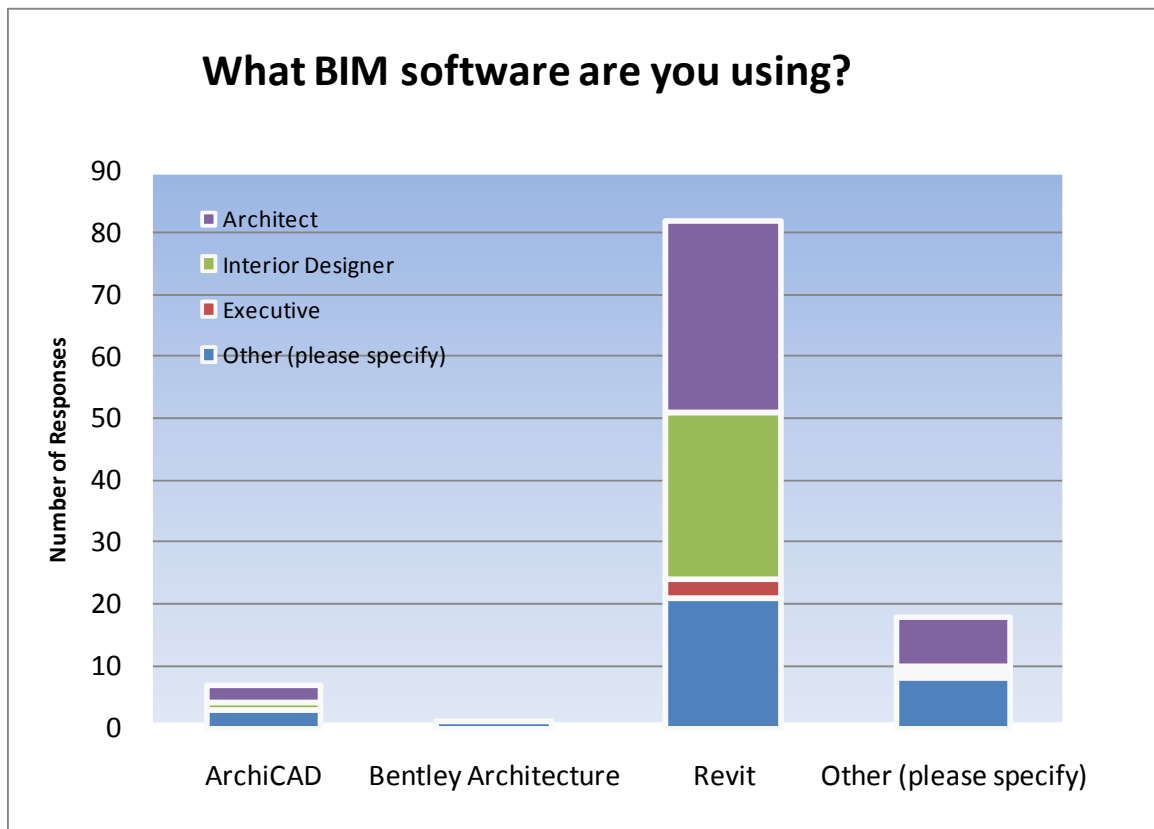
BIM Survey for Practitioners, By Occupation

1. Are you currently using any BIM software programs on any projects?						
Answer Options	What is your primary role?				Response Percent	Response Count
	Architect	Interior Designer	Executive	Other (please specify)		
Yes	35	23	2	24	59.6%	81
Sometimes	3	5	2	2	8.8%	12
No	6	32	3	5	31.6%	43
Answered Question						136



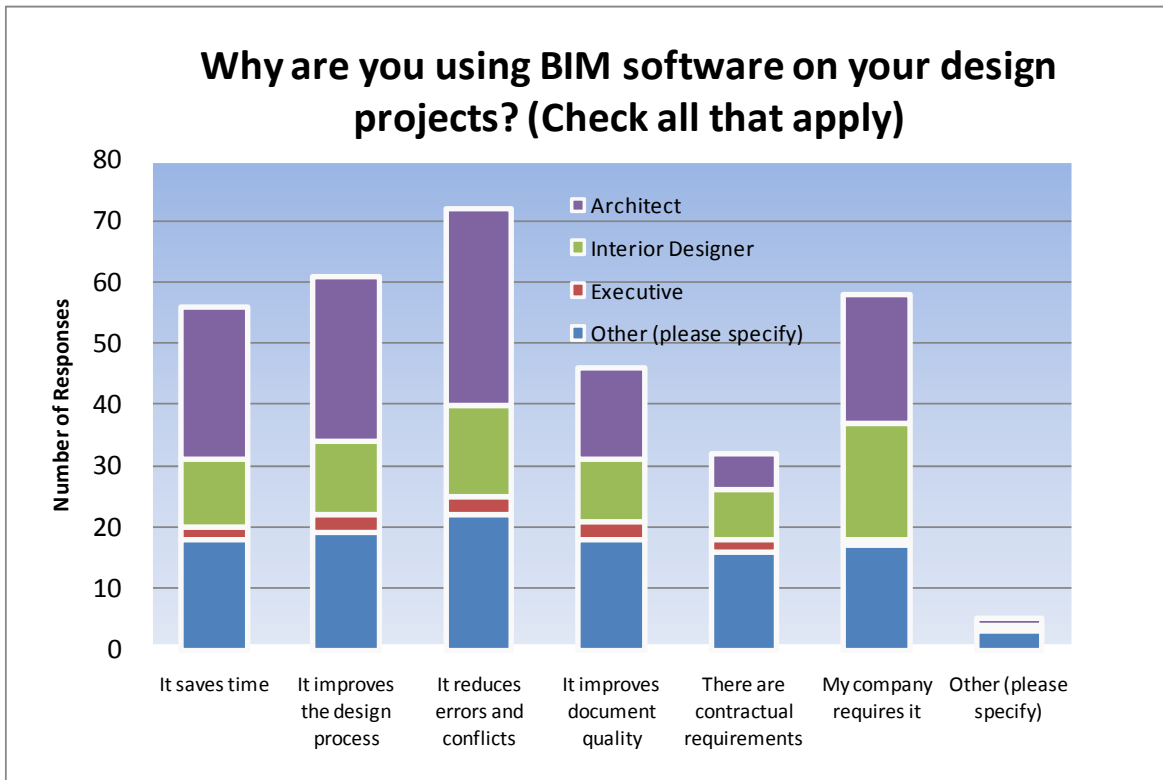
BIM Survey for Practitioners, By Occupation

2. What BIM software are you using?						
Answer Options	What is your primary role?				Response Percent	Response Count
	Architect	Interior Designer	Executive	Other		
ArchiCAD	3	1	0	3	7.5%	7
Bentley Architecture	0	0	0	1	1.1%	1
Revit	31	27	3	21	86.0%	80
Other (please specify)	8	1	1	8	18.3%	17
Answered Question						93



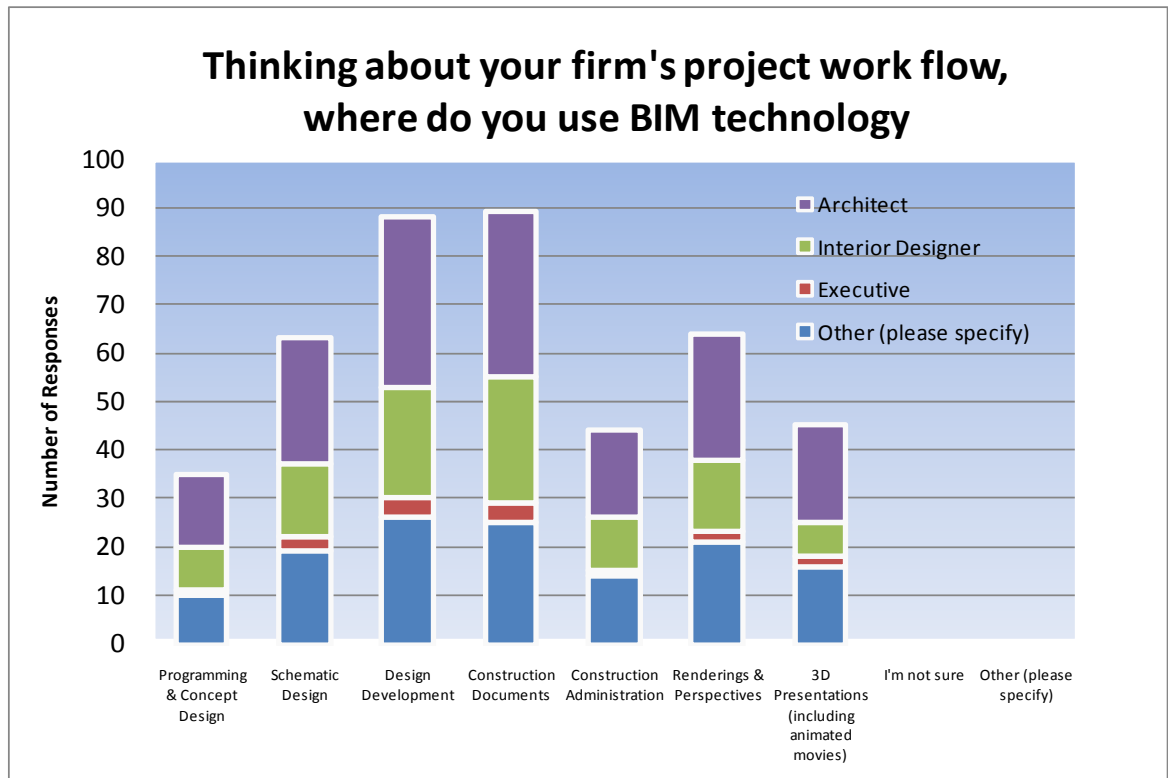
BIM Survey for Practitioners, By Occupation

3. Why are you using BIM software on your design projects?						
Answer Options	What is your primary role?				Response Percent	Response Count
	Architect	Interior Designer	Executive	Other		
It saves time	25	11	2	18	58%	54
It improves the design process	27	12	3	19	62%	58
It reduces errors and conflicts	32	15	3	22	74%	69
It improves document quality	15	10	3	18	46%	43
There are contractual requirements	6	8	2	16	32%	30
My company requires it	21	19	1	17	60%	56
Other (please specify)	1	0	1	3	5%	5
Answered Question						93



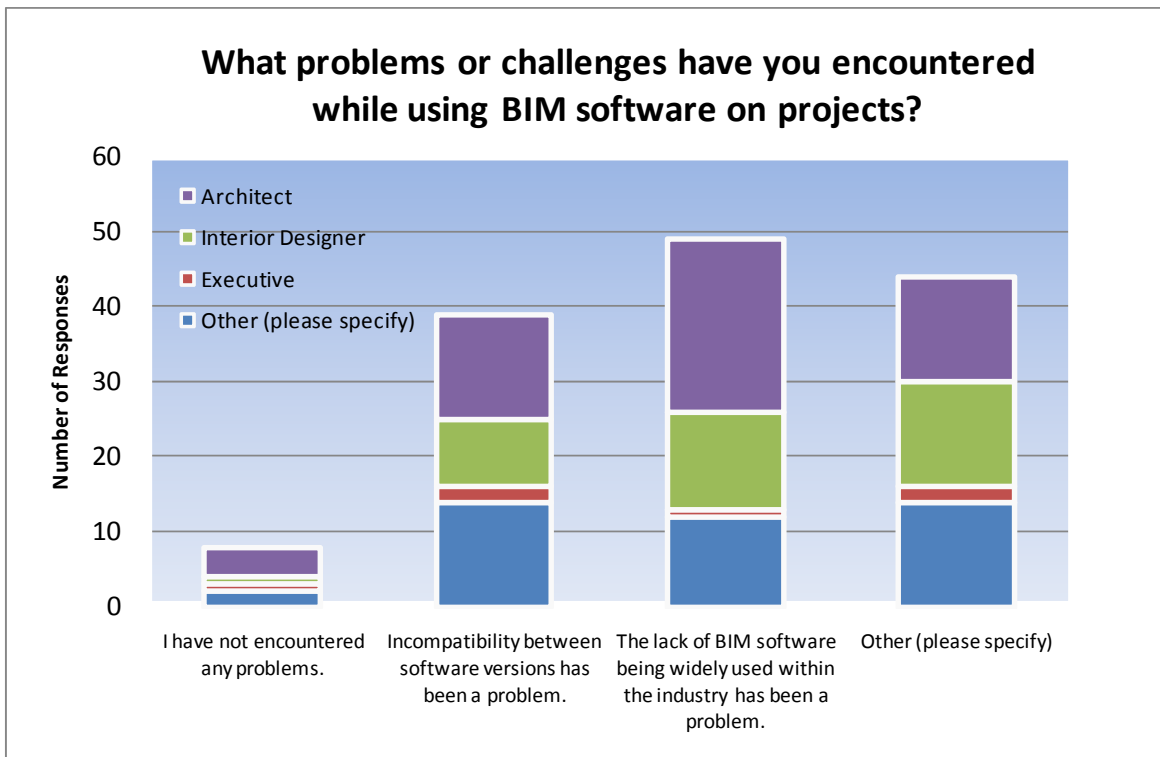
BIM Survey for Practitioners, By Occupation

4. Thinking about your firm's project work flow, where do you use BIM technology?						
Answer Options	What is your primary role?				Response Percent	Response Count
	Architect	Interior Designer	Executive	Other		
Programming & Concept Design	15	9	1	10	37%	34
Schematic Design	26	15	3	19	65%	60
Design Development	35	23	4	26	91%	85
Construction Documents	34	26	4	25	93%	86
Construction Administration	18	11	1	14	45%	42
Renderings & Perspectives	26	15	2	21	67%	62
3D Presentations (including animated movies)	20	7	2	16	47%	44
I'm not sure	0	0	0	0	0%	0
Other (please specify)	0	0	0	0	0%	0
Answered Questions						93



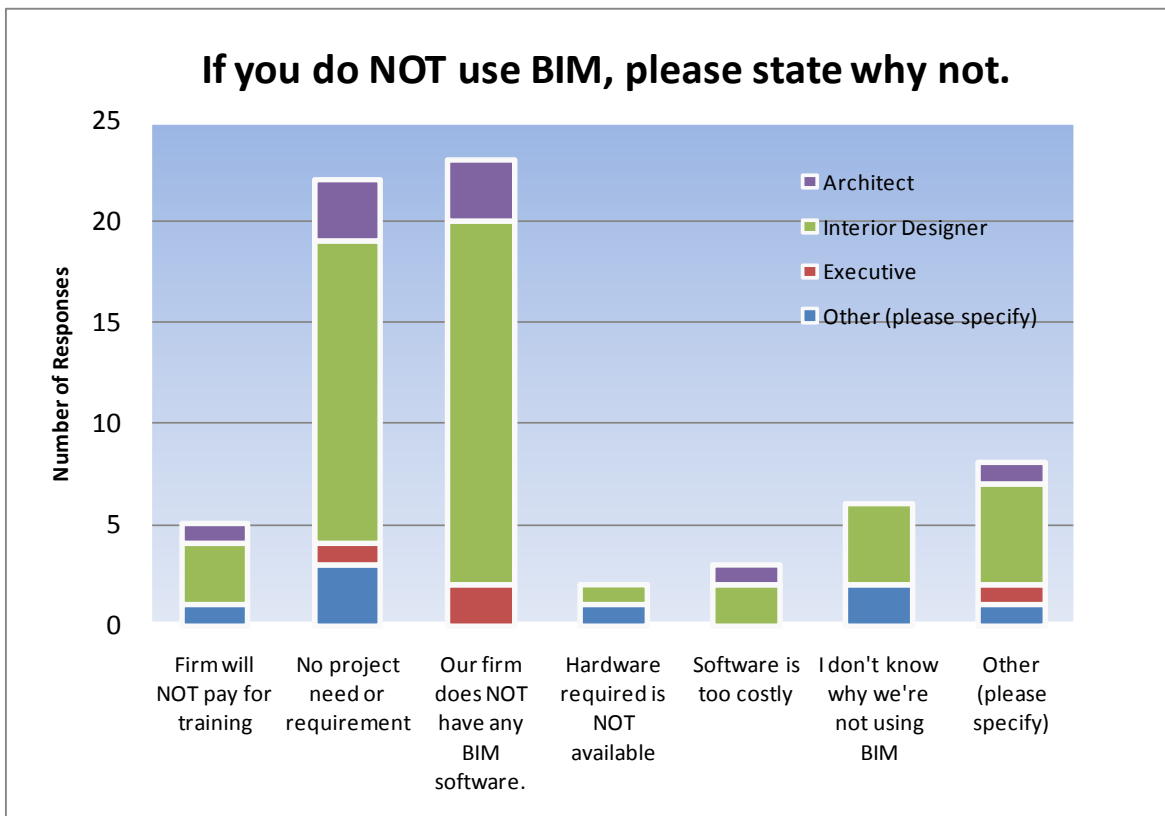
BIM Survey for Practitioners, By Occupation

5. What problems or challenges have you encountered while using BIM software on projects?						
Answer Options	What is your primary role?				Response Percent	Response Count
	Architect	Interior Designer	Executive	Other		
I have not encountered any problems.	4	1	1	2	9%	8
Incompatibility between software versions has been a problem.	14	9	2	14	41%	38
The lack of BIM software being widely used within the industry has been a problem.	23	13	1	12	52%	48
Other (please specify)	14	14	2	14	45%	42
Answered Question						93



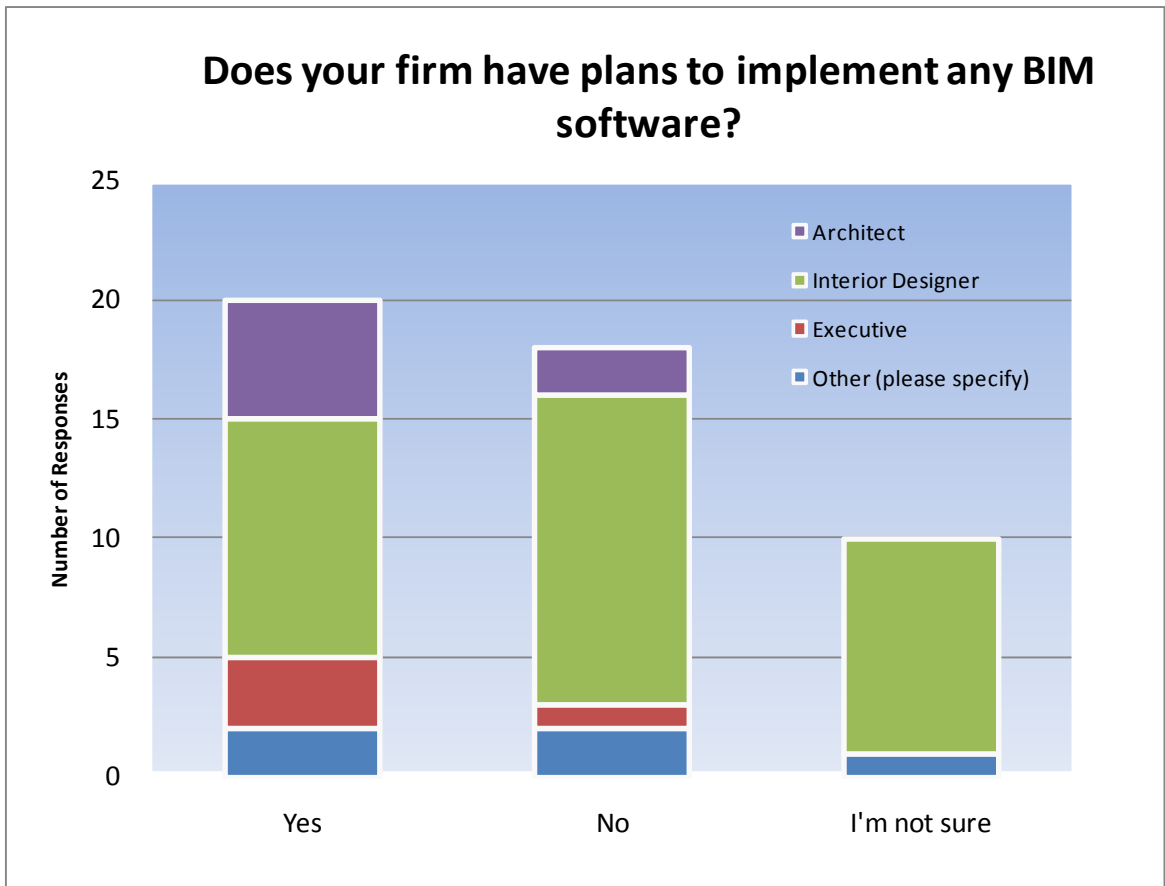
BIM Survey for Practitioners, By Occupation

6.If you do NOT use BIM, please state why not. (Check all that apply)						
Answer Options	What is your primary role?				Response Percent	Response Count
	Architect	Interior Designer	Executive	Other		
Firm will NOT pay for training	1	3	0	1	9%	4
No project need or requirement	3	15	1	3	50%	22
Our firm does NOT have any BIM software.	3	18	2	0	48%	21
Hardware required is NOT available	0	1	0	1	2%	1
Software is too costly	1	2	0	0	7%	3
I don't know why we're not using BIM	0	4	0	2	11%	5
Other (please specify)	1	5	1	1	14%	6
Answered Question						44



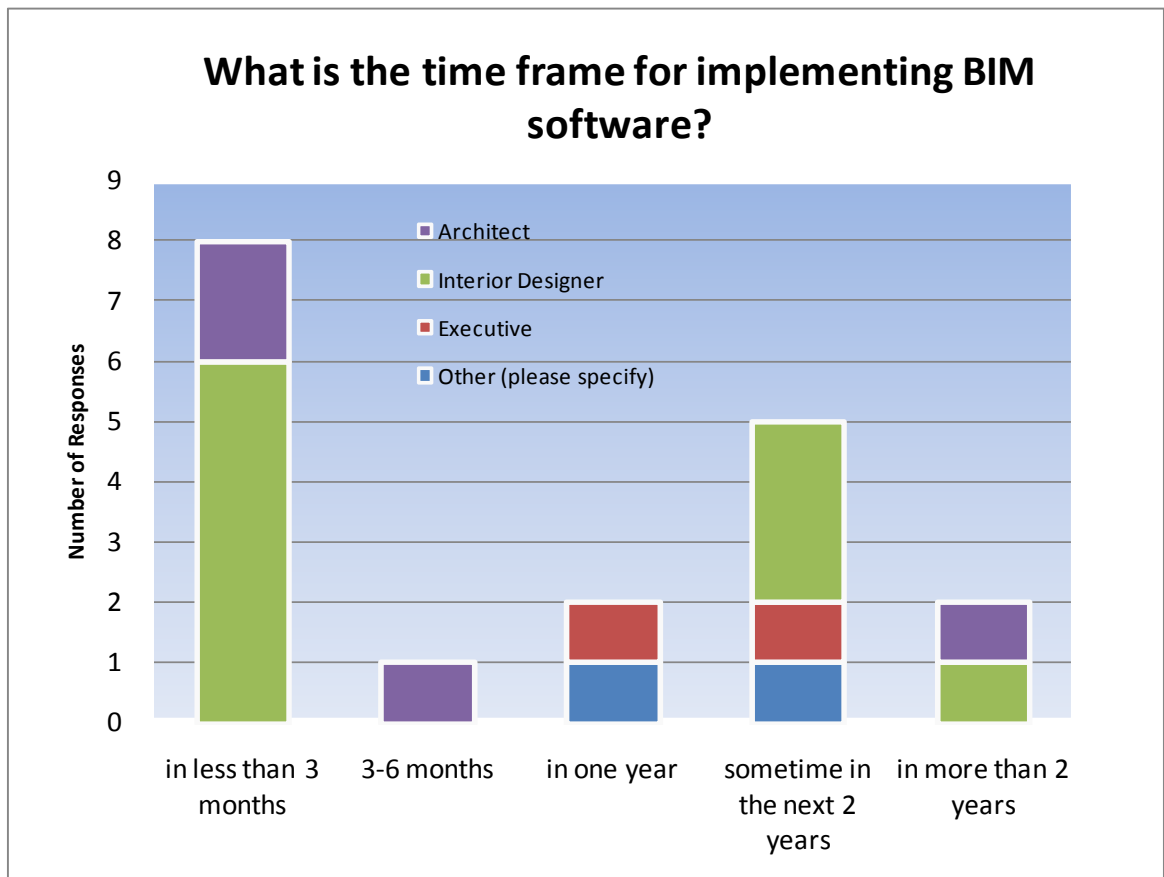
BIM Survey for Practitioners, By Occupation

7. Does your firm have plans to implement any BIM software?						
Answer Options	What is your primary role?				Response Percent	Response Count
	Architect	Interior Designer	Executive	Other		
Yes	5	10	3	2	39%	17
No	2	13	1	2	39%	17
I'm not sure	0	9	0	1	23%	10
Answered Question						44



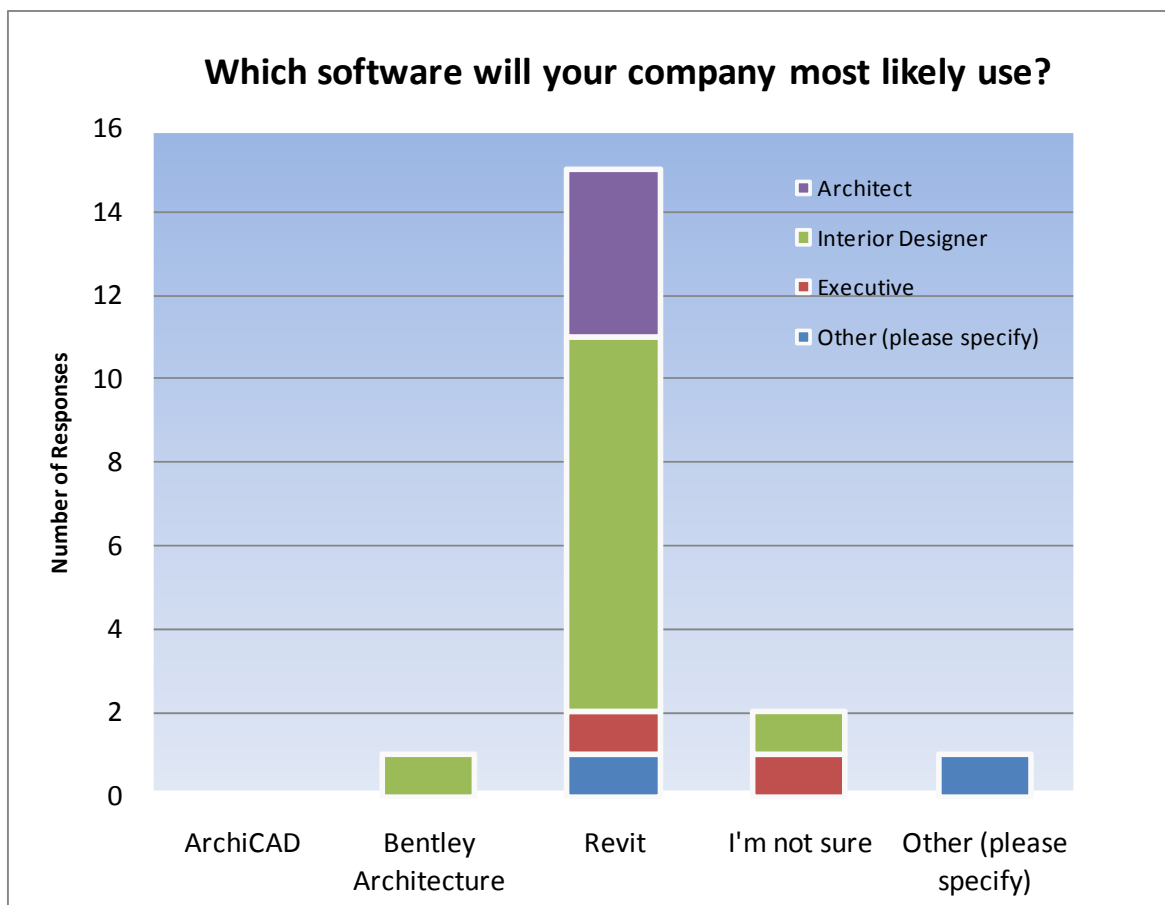
BIM Survey for Practitioners , By Occupation

8.What is the time frame for implementing BIM software?						
Answer Options	What is your primary role?				Response Percent	Response Count
	Architect	Interior Designer	Executive	Other		
in less than 3 months	2	6	0	0	50%	8
3-6 months	1	0	0	0	6%	1
in one year	0	0	1	1	13%	2
sometime in the next 2 years	0	3	1	1	19%	3
in more than 2 years	1	1	0	0	13%	2
Answered Question						16



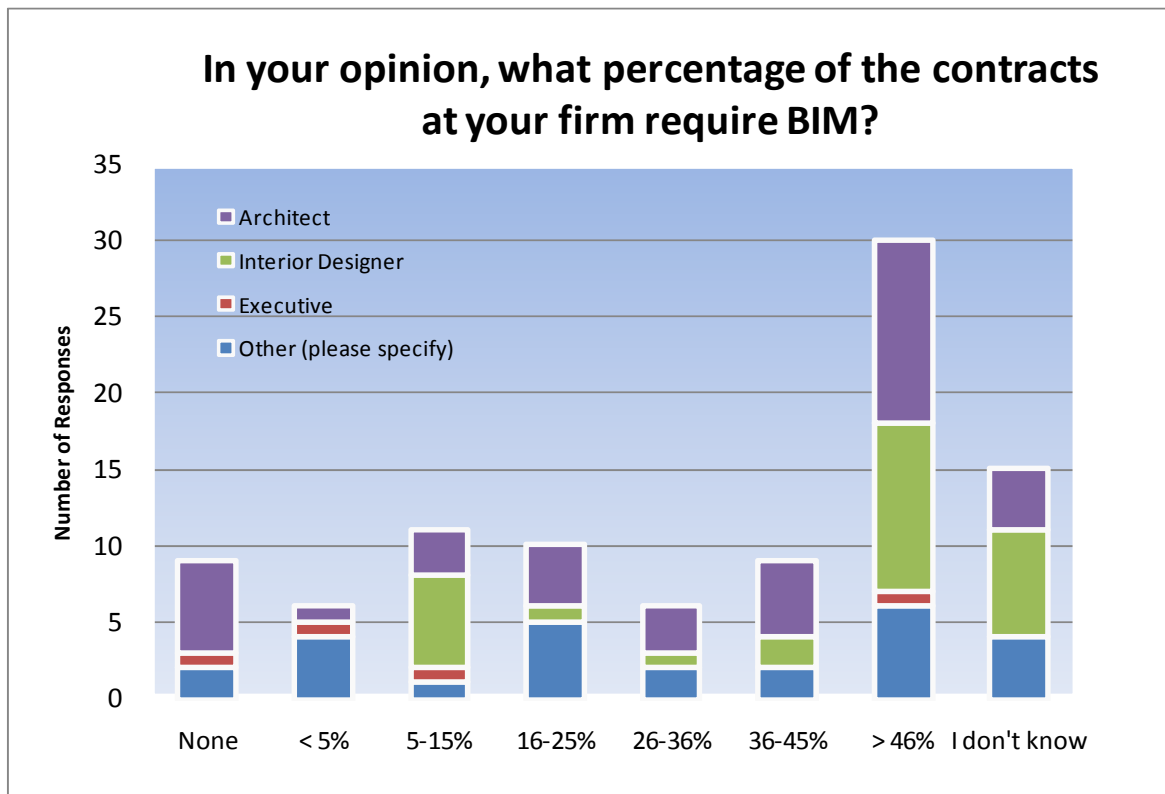
BIM Survey for Practitioners , By Occupation

9. Which software will your company most likely use?						
Answer Options	What is your primary role?				Response Percent	Response Count
	Architect	Interior Designer	Executive	Other		
ArchiCAD	0	0	0	0	0%	0
Bentley Architecture	0	1	0	0	6%	1
Revit	4	9	1	1	88%	14
I'm not sure	0	1	1	0	6%	1
Other (please specify)	0	0	0	1	6%	1
Answered Question						16



BIM Survey for Practitioners, By Occupation

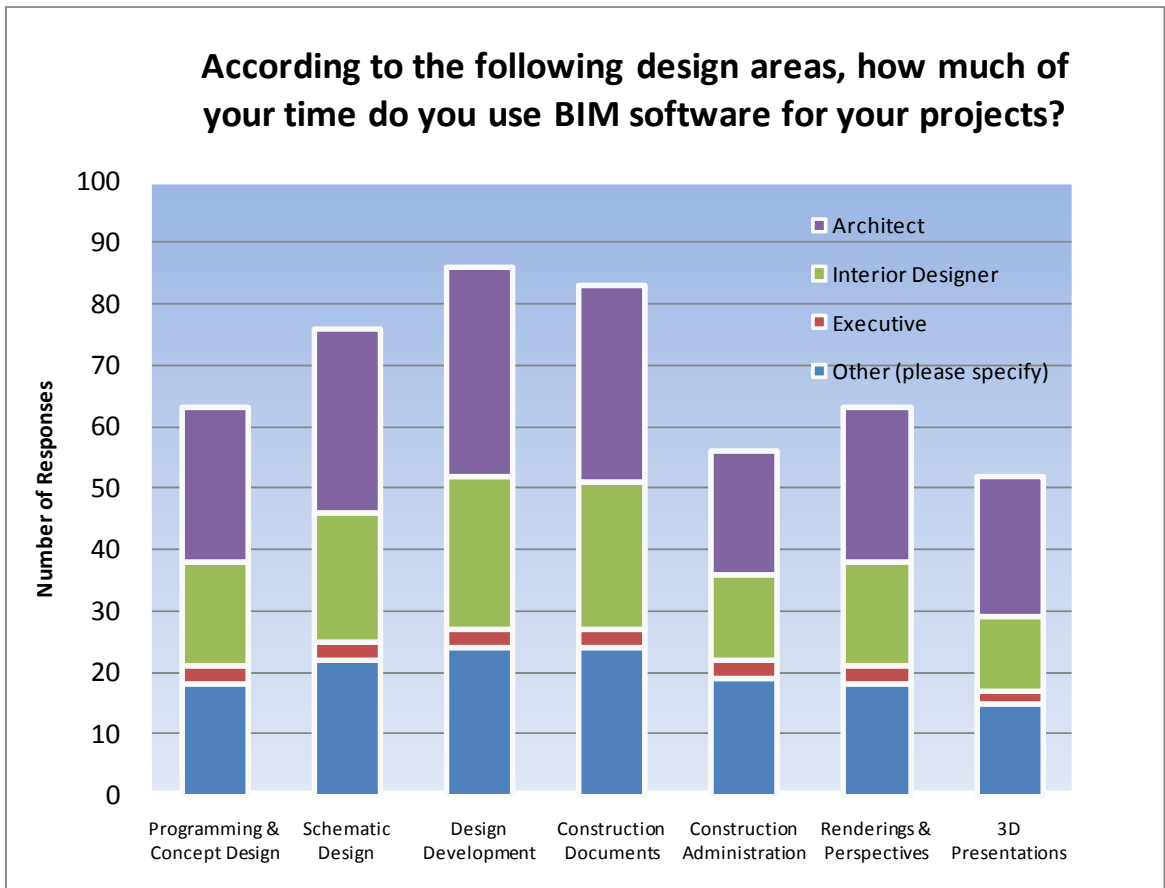
10. In your opinion, what percentage of the contracts at your firm require BIM?						
Answer Options	What is your primary role?				Response Percent	Response Count
	Architect	Interior Designer	Executive	Other		
None	6	0	1	2	9%	8
< 5%	1	0	1	4	7%	6
5-15%	3	6	1	1	12%	11
16-25%	4	1	0	5	9%	8
26-36%	3	1	0	2	7%	6
36-45%	5	2	0	2	10%	9
> 46%	12	11	1	6	32%	30
I don't know	4	7	0	4	16%	15
Answered Question						93



BIM Survey for Practitioners, By Occupation

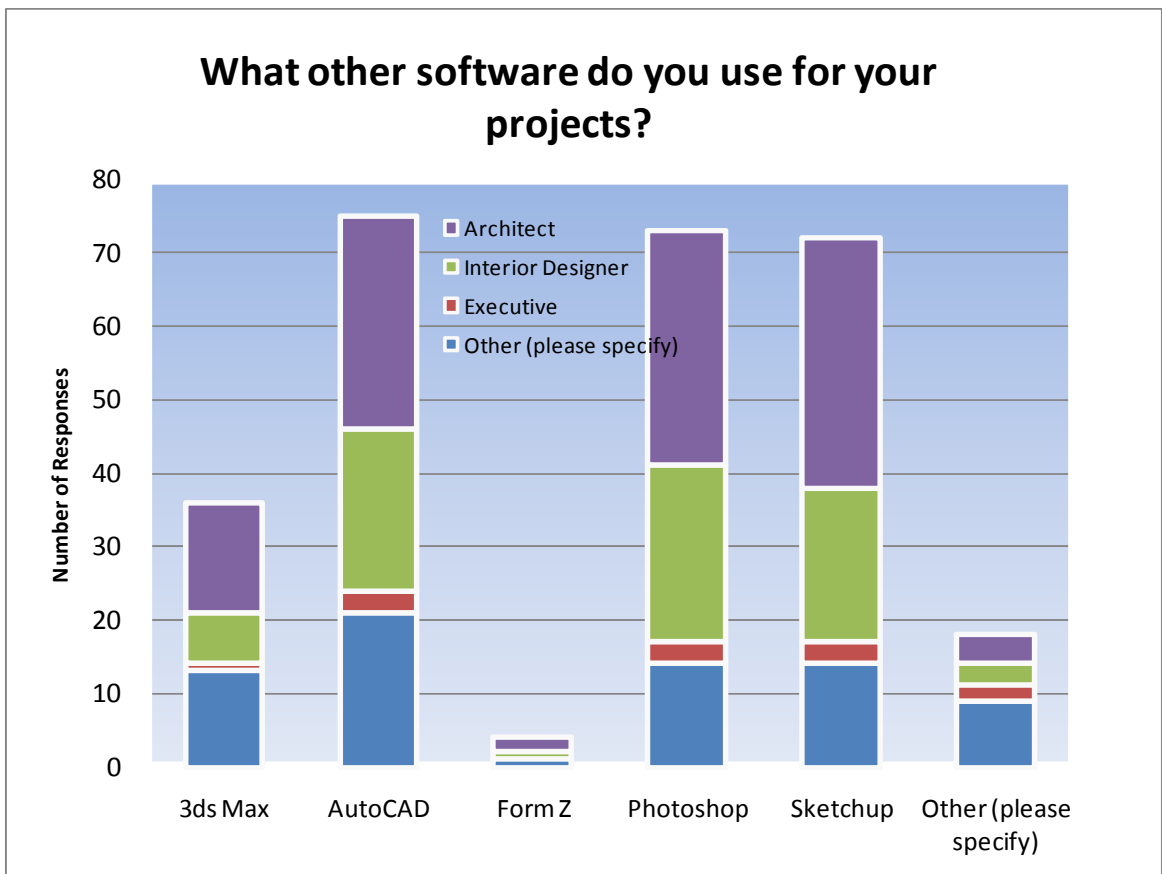
11. According to the following design areas, how much of your time do you use BIM software for your projects? For example, Renderings 25%, Schematics 25%, Construction Documents 50%.

Answer Options	What is your primary role?				Response Percent	Response Count
	Architect	Interior Designer	Executive	Other		
Programming & Concept Design	25	17	3	18	71%	60
Schematic Design	30	21	3	22	86%	73
Design Development	34	25	3	24	98%	83
Construction Documents	32	24	3	24	94%	80
Construction Administration	20	14	3	19	62%	53
Renderings & Perspectives	25	17	3	18	71%	60
3D Presentations	23	12	2	15	58%	49
Answered Question						85



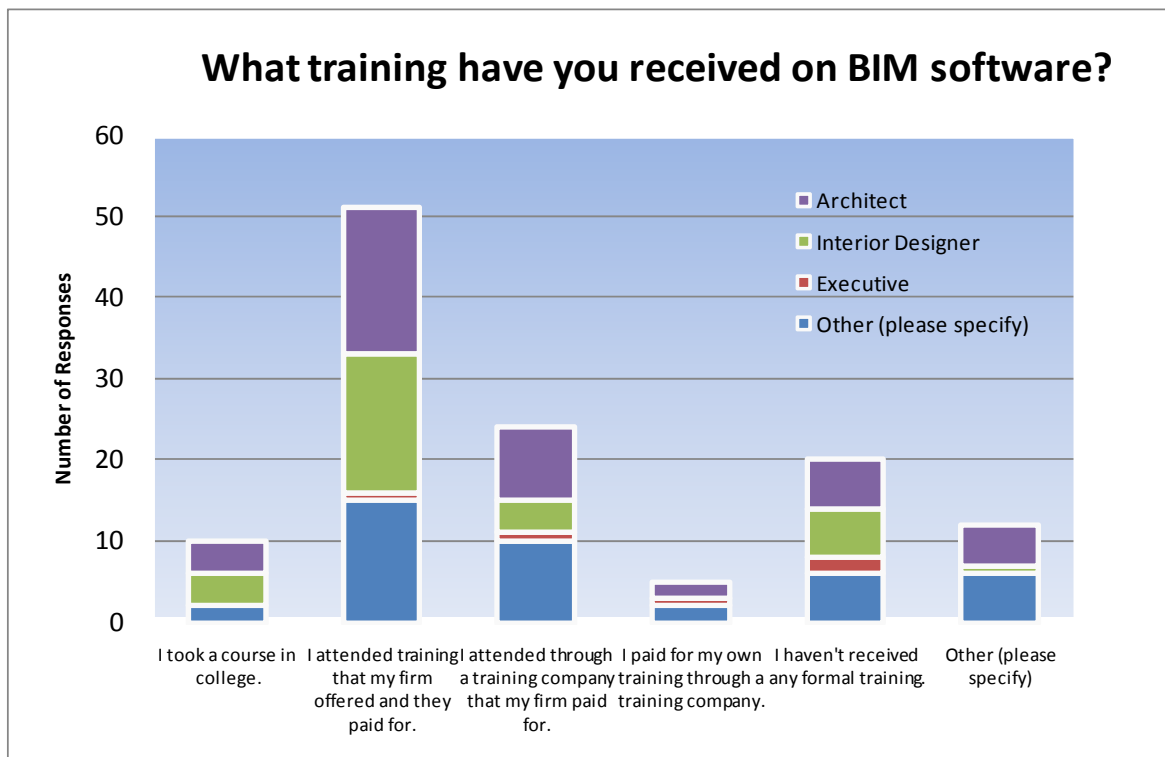
BIM Survey for Practitioners, By Occupation

12. What other software do you use for your projects?						
Answer Options	What is your primary role?				Response Percent	Response Count
	Architect	Interior Designer	Executive	Other (please specify)		
3ds Max	15	7	1	13	38%	34
AutoCAD	29	22	3	21	81%	73
Form Z	2	1	0	1	4%	4
Photoshop	32	24	3	14	79%	71
Sketchup	34	21	3	14	77%	69
Other (please specify)	4	3	2	9	19%	17
Answered Question						90



BIM Survey for Practitioners, By Occupation

13. What training have you received on BIM software?						
Answer Options	What is your primary role?				Response Percent	Response Count
	Architect	Interior Designer	Executive	Other		
I took a course in college.	4	4	0	2	11%	10
I attended training that my firm offered and they paid for.	18	17	1	15	54%	50
I attended through a training company that my firm paid for.	9	4	1	10	26%	24
I paid for my own training through a training company.	2	0	1	2	5%	5
I haven't received any formal training.	6	6	2	6	19%	18
Other (please specify)	5	1	0	6	13%	12
Answered Question						93



BIM Survey for Practitioners, By Occupation

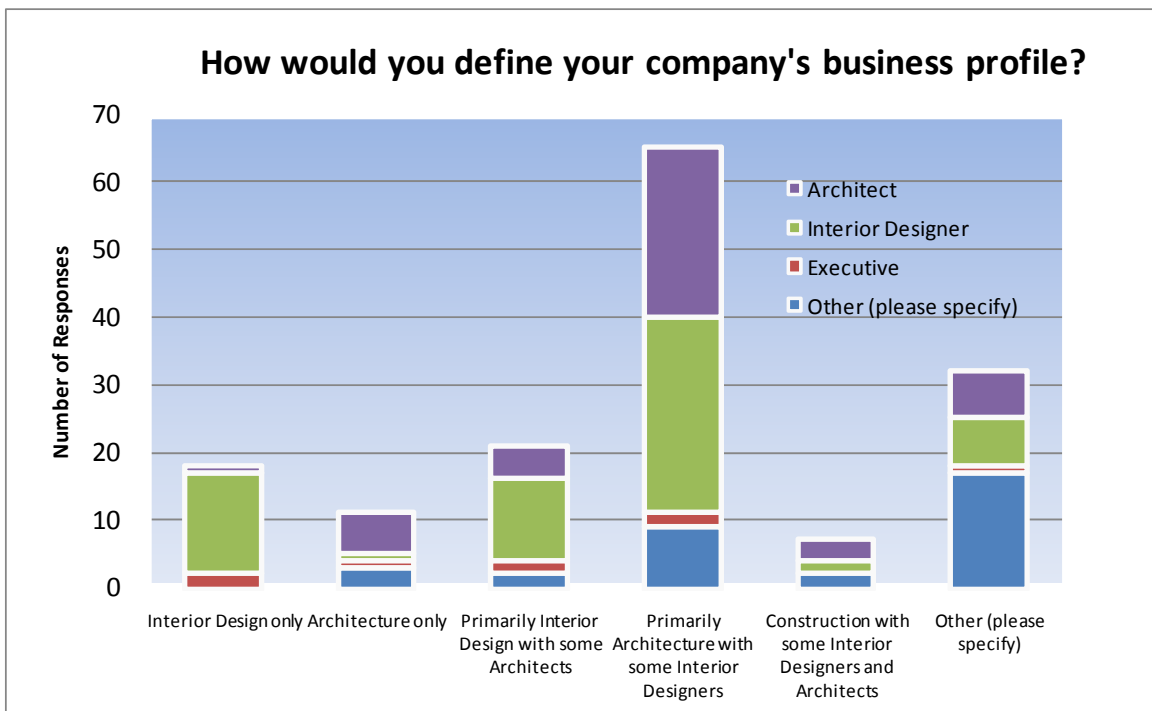
14. How much do you agree with the following statements:				
Answer Options	What is your primary role?			
	Architect	Interior Designer	Executive	Other (please specify)
1. It is academia's responsibility to prepare students to work with drawing programs, like AutoCAD.				
Strongly Agree	13	45	5	8
Agree	22	15	1	19
Not Sure (neutral)	6	0	1	3
Disagree	2	0	0	1
Strongly Disagree	1	0	0	0
2. It is academia's responsibility to prepare students to work with BIM software.				
Strongly Agree	15	23	3	11
Agree	21	25	3	14
Not Sure (neutral)	4	11	1	5
Disagree	3	1	0	1
Strongly Disagree	1	0	0	0
3. It is a design firm's responsibility to train employees to work with drawing programs, like AutoCAD.				
Strongly Agree	10	12	2	9
Agree	25	27	3	11
Not Sure (neutral)	8	5	0	8
Disagree	1	15	2	3
Strongly Disagree	0	1	0	0
4. It is a design firm's responsibility to train employees to work with BIM software.				
Strongly Agree	10	18	1	10
Agree	27	22	6	12
Not Sure (neutral)	7	12	0	9
Disagree	0	8	0	0
Strongly Disagree	0	0	0	0
5. It is the software company's responsibility to train employees to work with drawing programs.				
Strongly Agree	4	3	1	1
Agree	7	6	1	4
Not Sure (neutral)	14	16	0	11
Disagree	12	22	3	9
Strongly Disagree	7	12	2	5
6. It is the software company's responsibility to train employees to work with BIM software.				
Strongly Agree	4	3	1	1
Agree	8	8	1	6
Not Sure (neutral)	12	17	0	11
Disagree	13	20	3	8
Strongly Disagree	7	12	2	5
Answered Question 136				

BIM Survey for Practitioners, By Occupation

15. Please rate the following qualities or skills that you look for when hiring an entry level designer.				
Answer Options	What is your primary role?			
	Architect	Interior Designer	Executive	Other
Accomplished in hand drawing				
Very Important	8	7	3	6
Important	22	32	3	10
Not Sure (neutral)	9	15	1	9
Not Important	1	5	0	4
Not needed	3	0	0	1
Proficient in AutoCAD				
Very Important	13	38	3	10
Important	21	20	2	13
Not Sure (neutral)	3	1	1	5
Not Important	3	1	0	2
Not needed	3	0	1	1
Proficient in BIM				
Very Important	9	9	1	4
Important	24	24	1	18
Not Sure (neutral)	5	13	3	7
Not Important	5	12	2	2
Not needed	1	1	0	0
Advanced technology skills (Photoshop, Illustrator, 3dsMax)				
Very Important	12	16	3	3
Important	19	35	2	13
Not Sure (neutral)	11	5	2	13
Not Important	1	3	0	1
Not needed	1	0	0	0
Strong presentation skills				
Very Important	14	20	3	9
Important	19	36	3	13
Not Sure (neutral)	8	3	0	6
Not Important	2	0	1	2
Not needed	0	0	0	0
Answered Question 136				

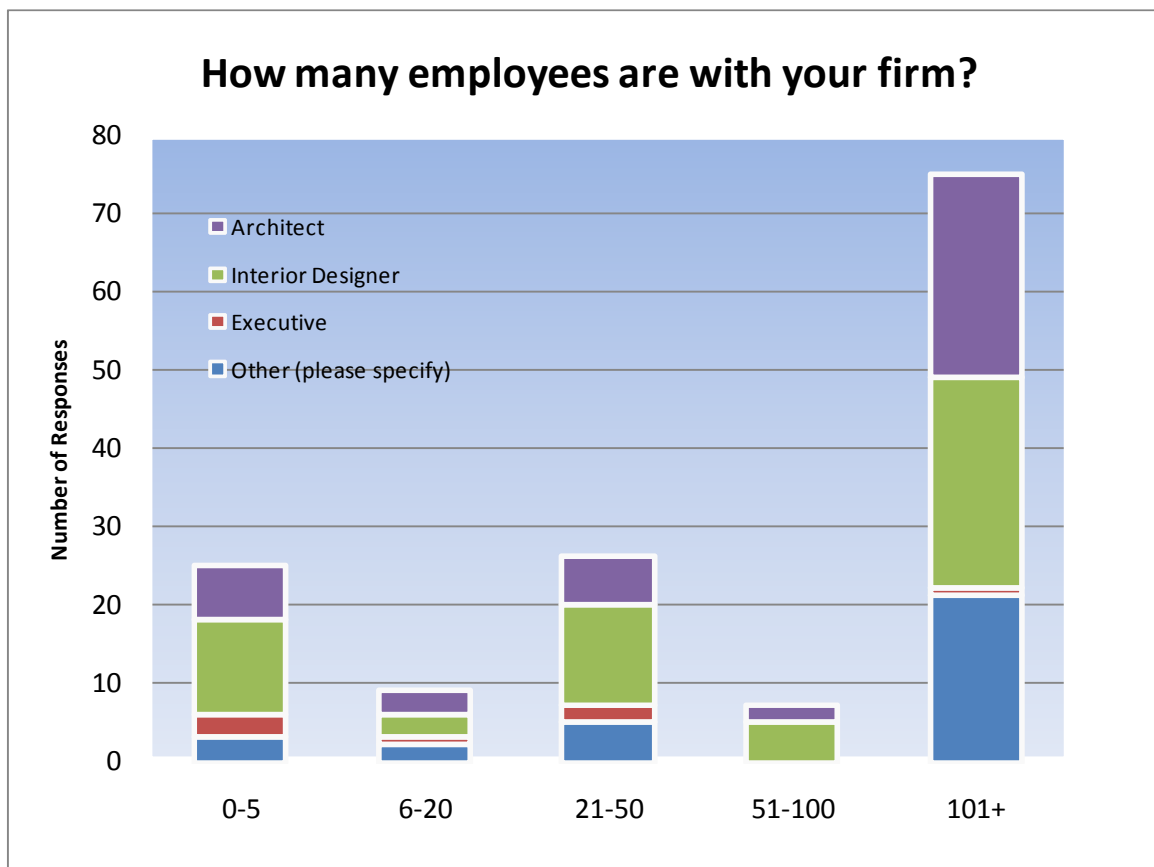
BIM Survey for Practitioners, By Occupation

16. How would you define your company's business profile?						
Answer Options	What is your primary role?				Response Percent	Response Count
	Architect	Interior Designer	Executive	Other		
Interior Design only	1	15	2	0	13%	17
Architecture only	6	1	1	3	7%	10
Primarily Interior Design with some Architects	5	12	2	2	15%	20
Primarily Architecture with some Interior Designers	25	29	2	9	47%	63
Construction with some Interior Designers and Architects	3	2	0	2	4%	6
Other (please specify)	7	7	1	17	24%	32
Answered Question						135



BIM Survey for Practitioners, By Occupation

17. How many employees are with your firm?						
Answer Options	What is your primary role?				Response Percent	Response Count
	Architect	Interior Designer	Executive	Other (please specify)		
0-5	7	12	3	3	16%	22
6-20	3	3	1	2	7%	9
21-50	6	13	2	5	18%	25
51-100	2	5	0	0	5%	7
101+	26	27	1	21	54%	73
Answered Question						136



BIM Survey for Practitioners, By Occupation

18. What is your primary role?						
Answer Options	What is your primary role?				Response Percent	Response Count
	Architect	Interior Designer	Executive	Other (please specify)		
Architect	44	0	2	2	32%	44
Interior Designer	0	60	1	1	44%	60
Executive	2	1	7	0	5%	7
Other (please specify)	2	1	0	31	23%	31
Answered Question						136

