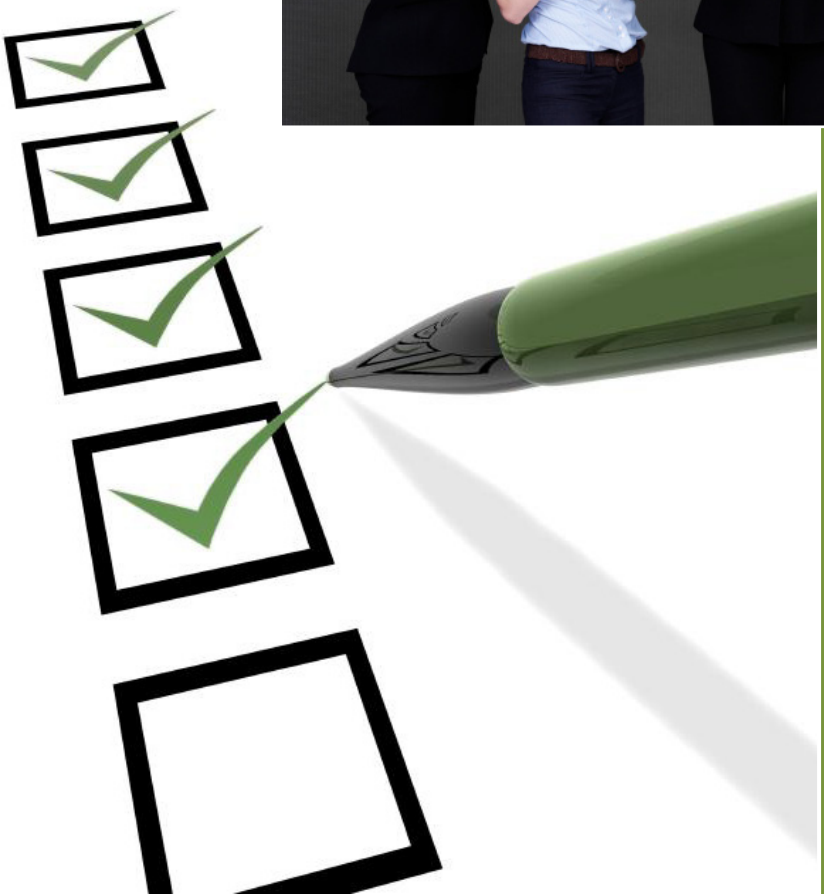
2010 BIM Support Survey Results



BIM SUPPORT SURVEY METHODOLOGY

I conducted the 2010 BIM Support Survey to assess how companies support the BIM transition and use within their office as well as the perception of whether the support is adequate. It is difficult in these economic times to justify additional BIM support even though many firms are implementing to increase efficiencies. However, I believe that you will not see the benefit of BIM until you develop experts and you cannot build up experts unless you have adequate support. There have been many discussions that I have been involved in about what the correct BIM support is for an office. Additionally, how does training, company implementation percentage and other issues affect or influence a company. The goal of this survey was to answer these questions as well as make additional observations based on the responses.

RESPONSES

There were a total of 135 responses to the survey. After reviewing the responses, it was determined that there were eleven duplicates from the same company and the information was compared for consistency. There were also four responses removed since their type of company would not fit well within the analysis. Of these four removed: two were resellers, one was a specialist support firm and one was a University. Therefore, the total number of responses used in this survey was 120.

WHO IS JASON GRANT?

Jason is the BIM Specialist at Payette in Boston, MA. His experience includes over 14 years in the architecture field, 5 years of Revit use on 62 projects at Colin Smith Architecture and 2 years managing Revit implementation, training, standards, API and content development at Payette. With his Revit experience including Healthcare, Labs, Commercial, Mixed-Use and Residential, he understands the challenges that both small and large projects face while utilizing and implementing Revit. Jason is also Co-Founder and Advisor to the Boston Revit Users Group with 200+ members, Co-Founder and Co-Leader of the BLUR Group (BIM Leaders Utilizing Revit), author for AUGI AEC EDGE and an avid blogger on BIM and Architecture at http://jasongrant.squarespace.com.

Do you have a question or comment?

Email me at: ContactJasonGrant@Gmail.com

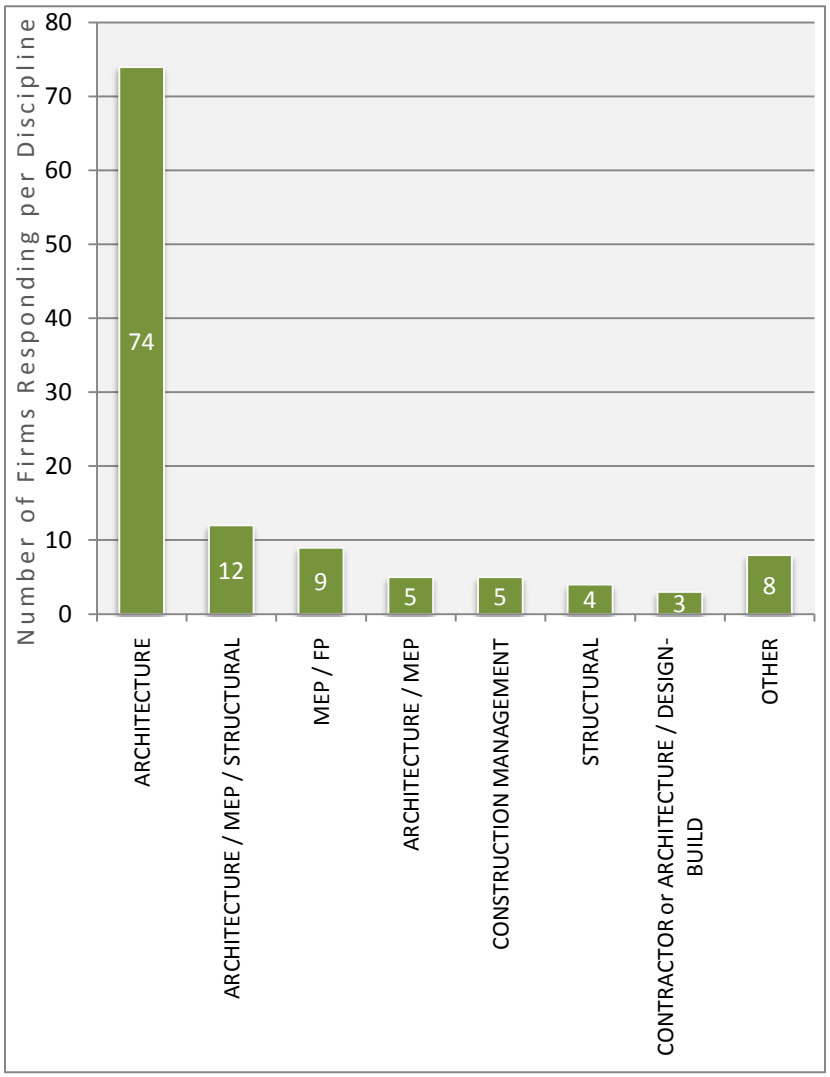
Building Information Modeling (BIM)
is the process of generating and managing building data during its life cycle. Typically it uses three-dimensional, real-time, dynamic building modeling software to increase productivity in building design and construction. The process produces the Building Information Model , which encompasses building geometry, spatial relationships, geographic information, and quantities and properties of building components.

- *Wikipedia*

"I want to thank all of the professionals who filled out the survey and contributed their valuable time and knowledge. It is because of you that I was able to assemble this report."

TYPE OF COMPANY

Regarding the question of what is the type of company, there was a lot of variety even though the Architecture discipline has the majority. This is not surprising since Revit and other BIM applications have had an Architecture focus for many years. Only in the last few years has the software been in a position to include Mechanical, Electrical, Plumbing, Fire Protection and Structural disciplines. The chart below shows the number of responders per discipline category.



The "Other" category includes Electrical, Electrical/Fire Protection, Fire Protection, Interiors, Low Voltage and Communications, and Structural/MEP/FP.

KEY FINDINGS

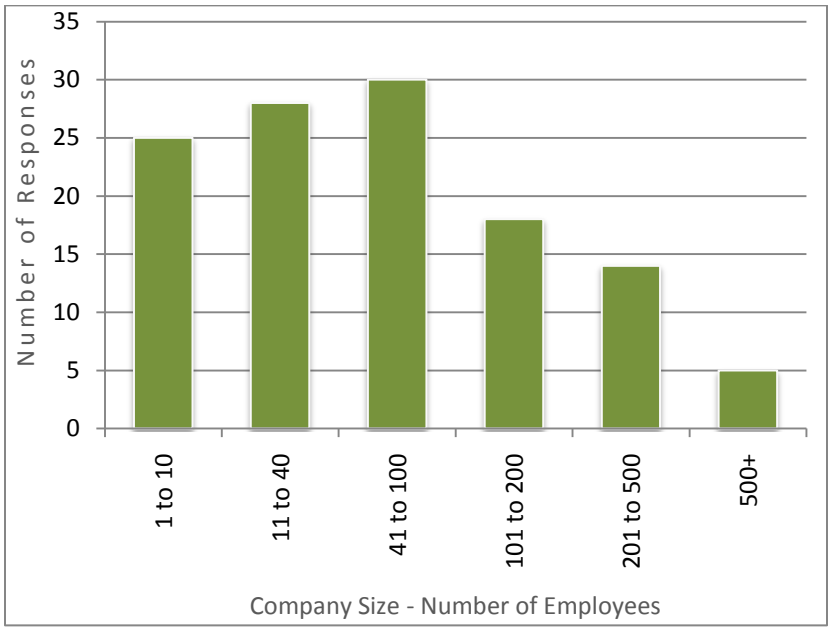
- → Firms that have some form of Architecture in their practice account for **77%** of the responses.
- → Firms that have MEP in their practice account for **28%** of the responses.
- → Firms that have Structural in their practice account for **4%** of the responses.
- → The Contractor and Construction Management companies account for **6%** of the responses.

OBSERVATIONS

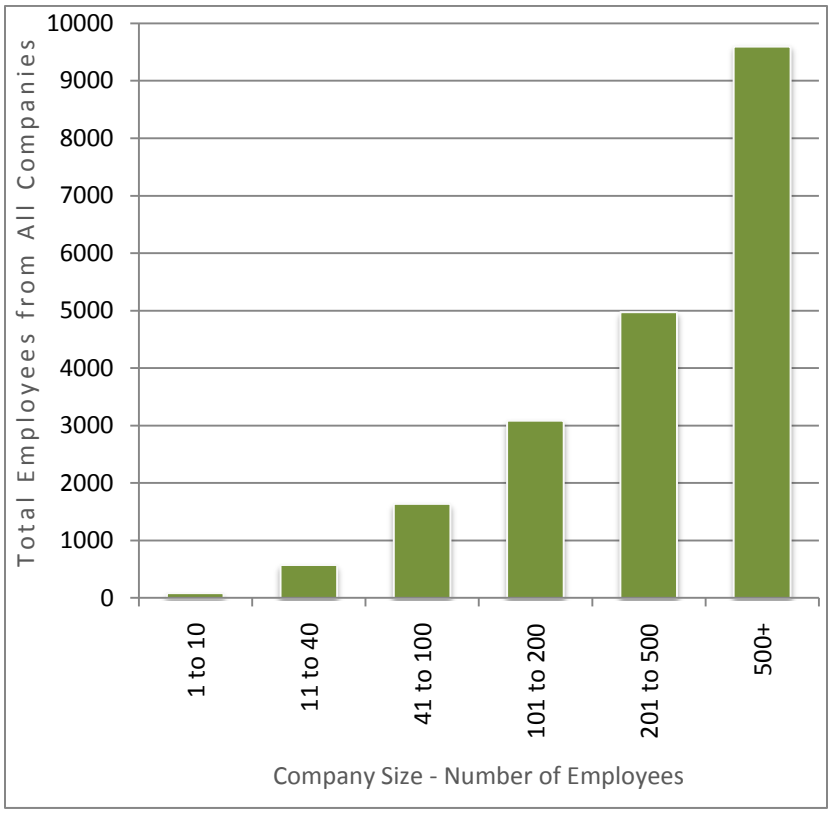
- As adoption of BIM software grows, we will most likely see the numbers balance more between Architecture and the other disciplines.
- The BIM process works best when you have as many disciplines as possible included on the data input into BIM. Otherwise, unless you are inputting all the trade information, you are just drafting in 3D.
- As we all grow in our use of BIM we can continue to capitalize more with the technology and see the promises of BIM come to fruition.

TOTAL EMPLOYEES

This category had a great variety that helped to diversify the comparisons. In the chart below, I have compared different groupings of company size and have shown the total responses based on the size.



The chart below shows the total employees of all the firms reporting their total employees in a specific size category.



KEY FINDINGS

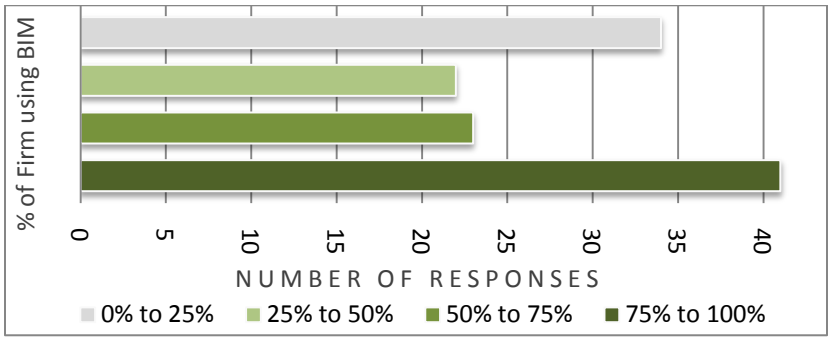
- → The average "Total Employees" based on all responses was **110** employees.
- → The results were evenly split between x-small, small, medium and large firms.
- → The largest firm responding reported **5000** employees with the next largest at **2000** employees.
- → To contrast the large firms, there were **seven** responses where the firm was a sole-practitioner with no other employees.
- → The total employees from all of the reporting responses is approximately **20,000** and of these approximately **8,200** are BIM users.

OBSTACLES

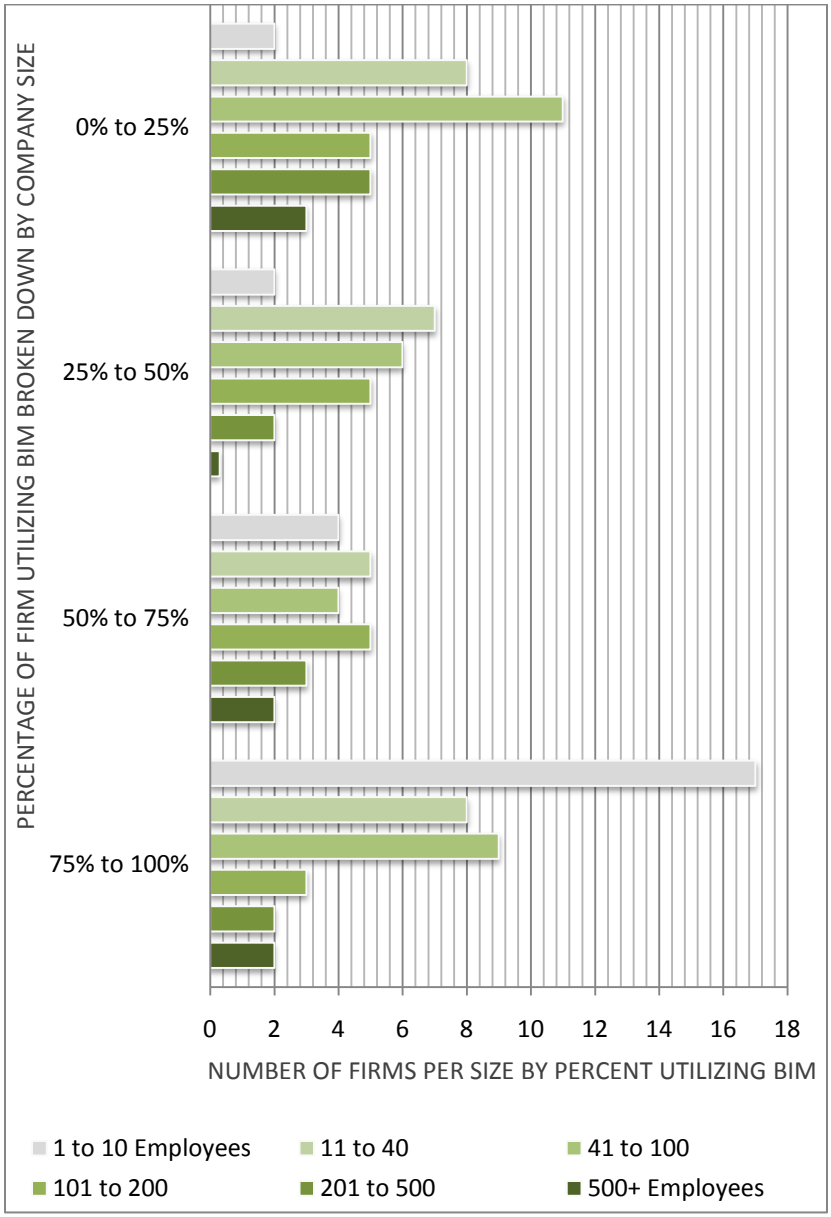
- Having worked in a small firm and now supporting a large firm, I found that both situations are equally difficult to implement BIM even though there are unique intricacies in each case.
- **Buy-In**
  No matter the size of your company, there needs to be buy-in from both the leadership and junior staff. Although, the middle management may receive the least focus in implementation buy-in and can sometimes cause the greatest difficulties.

PERCENTAGE OF COMPANY USING BIM

The graph below shows the number of responses from the survey regarding the question on percentage of the company use of BIM.



This graph below breaks down the percentage of company using BIM by the company size and lists the number of responses.



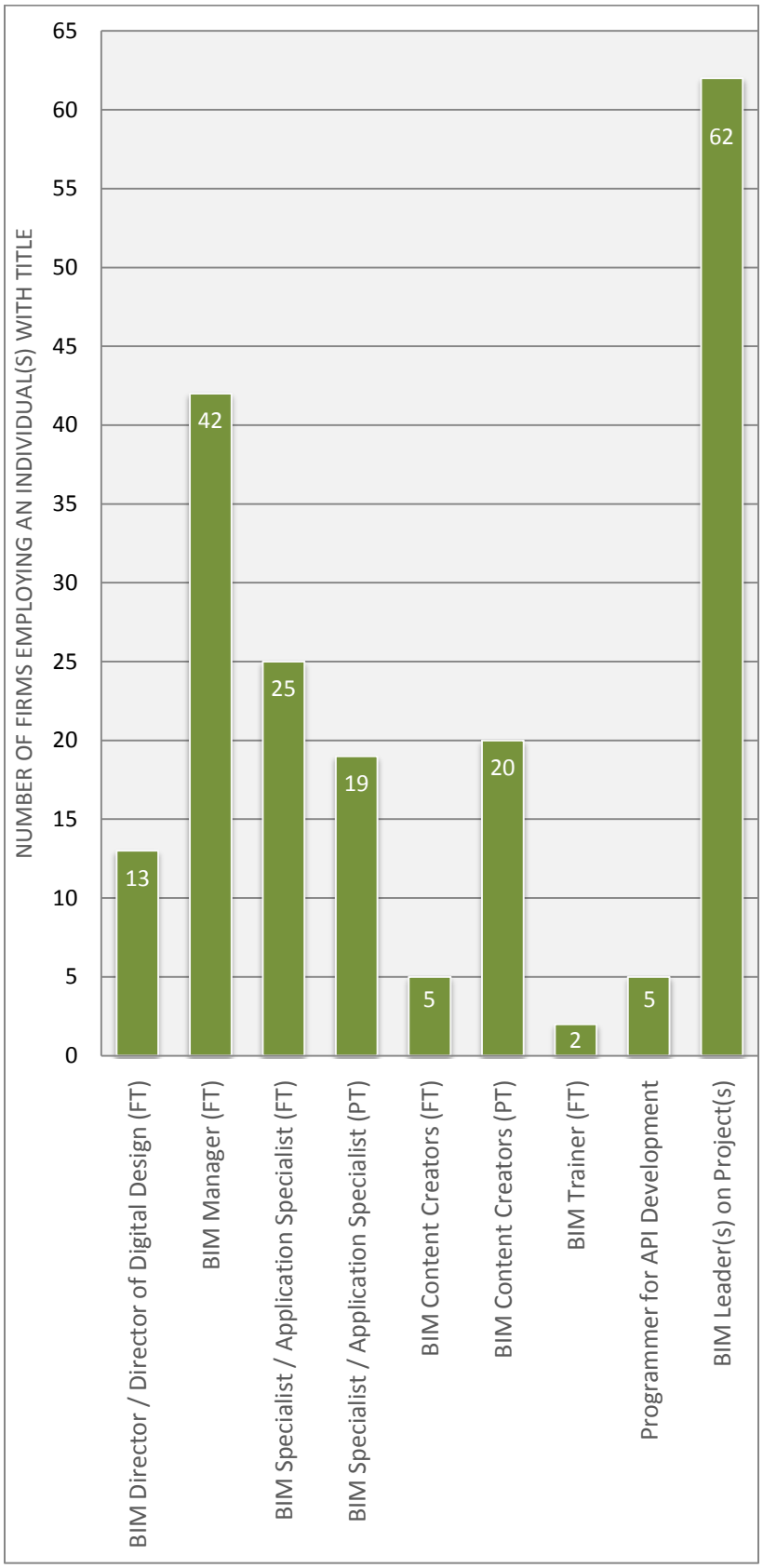
KEY FINDINGS

- → Companies that have 75% to 100% of their firm utilizing BIM account for **34%** of the responses.
- → Companies that have 0% to 25% of their firm utilizing BIM account for **28%** of the responses.
- → **68%** of 1 to 10 employee companies have 75% to 100% BIM implementation.

OBSERVATIONS

- It would be assumed that, like CAD, as a company that has implemented the use of BIM fully in their firm should then need less support and could be reduced. BIM is different than CAD as it is more than one piece of software. BIM is a process that utilizes software whereas CAD is only a piece of software that replaced hand drawing. As a firm grows closer to 100% use of BIM then they can start utilizing the efficiencies and other software to provide a full virtual building solution. Therefore, it is my understanding that as a firm becomes more comfortable utilizing BIM then there are more demands being placed on the users to utilize more functions. These need to be supported to genuinely provide a true BIM solution.

JOB TITLES FOR BIM SUPPORT + MANAGEMENT



KEY FINDINGS

BIM Director / Director of Digital Design

Of the 13 companies that have this type of position, there is a range of how many other BIM support individuals they manage. The top of this list was 14 other full-time BIM support individuals with an average management of 1 to 5 other individuals. There were also 5 companies that had someone with this title where that individual was the only full-time support of BIM in their office.

BIM Manager

Of the results where this was the senior title, this was the leading title for the sole BIM support for an office with 29 responses. In addition to that, 8 responses had the BIM Manager leading 1 other full-time member of BIM Support and there was one response that had this person leading 4 full-time individuals.

BIM Specialist / Application Specialist

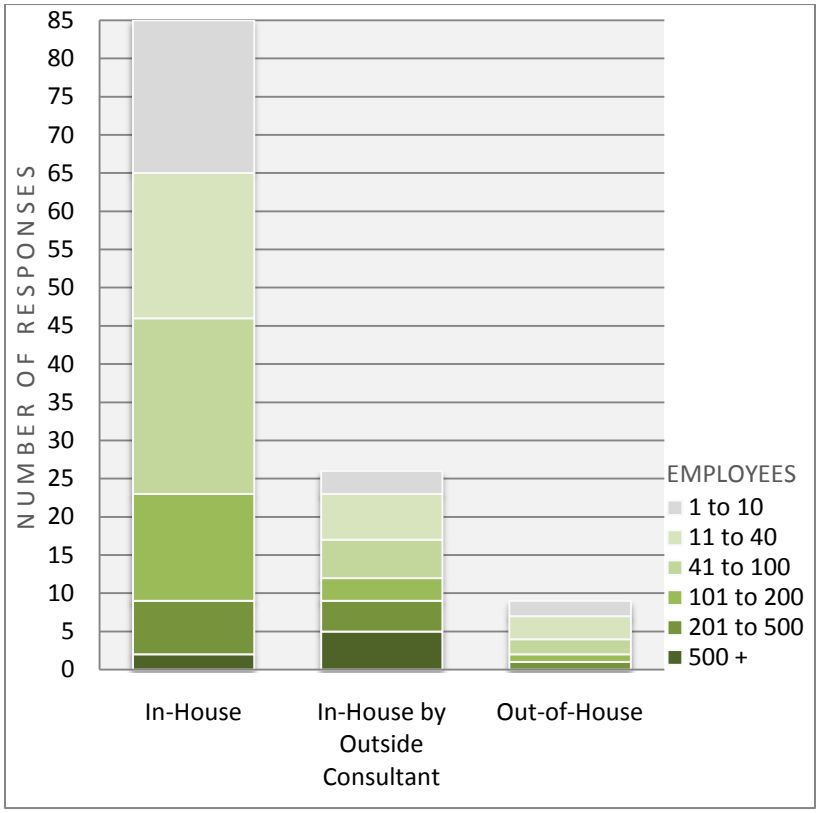
Out of the 25 responses in this category, 15 were the senior title for BIM Support. The sole BIM support for the office was this title for 11 of the responses. The other 4 responses managed 1 or 2 other full-time BIM support individuals.

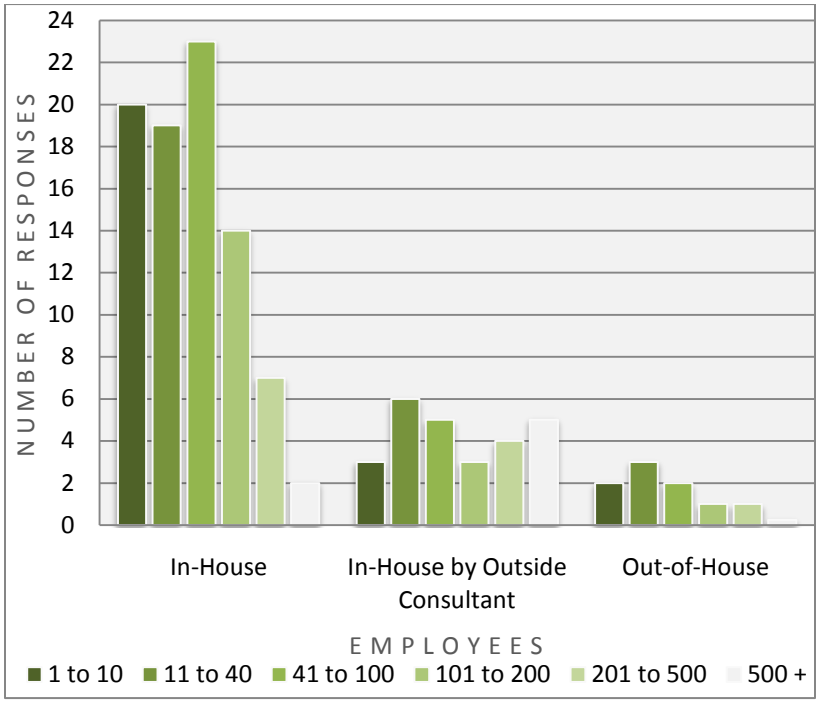
BIM Content Creators and Programmer for API Development

For these full-time categories, they were mostly for 100+ employee companies with only one exception each.

WHERE IS YOUR TRAINING HELD?

The two graphs below show the results of where training is held and who administers the training. It is the assumption that the BIM Support administered the In-House training unless a BIM trainer was specified in the job titles section.





KEY FINDINGS

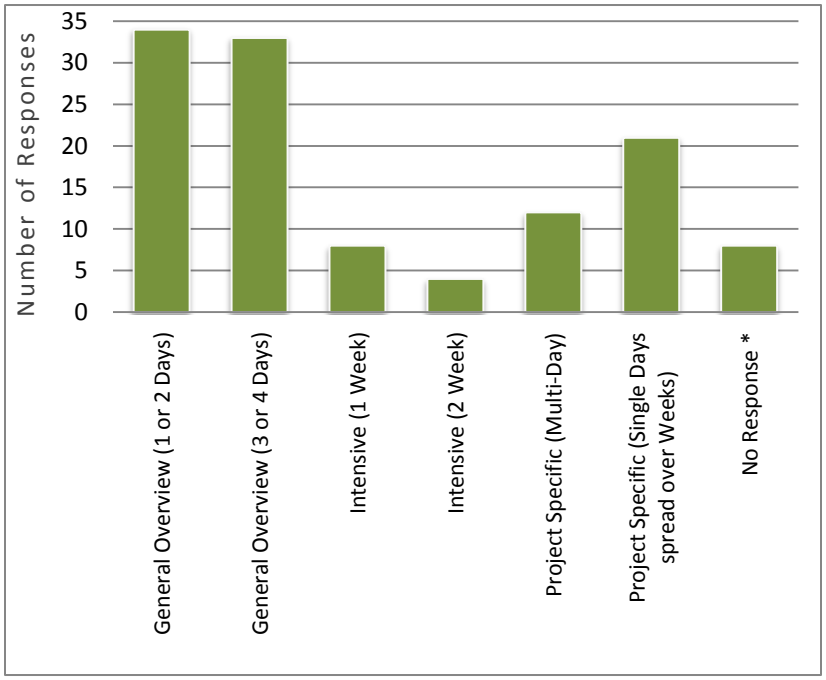
- → In-House training accounts for **71%** of the responses.
- → In-House training by an Outside Consultant accounts for **22%** of the responses.
- → Very large 500+ firms prefer In-House training by an outside consultant **3 to 1** over In-House training.
- → All firms less than 500 employees appear to prefer In-House training.

OBSERVATIONS

- With a strong majority that utilizes In-House training and only 2 firms reporting that they had a full-time trainer on staff, it is presumed that this is being done by one of the senior members of the BIM support. Although, with smaller firms it is most likely being done by the most experienced user in the office.
- There were a small number of responses that indicated that they were self-taught and their firm had no formal training. These were typically 5 or less employee firms.

TYPE OF TRAINING

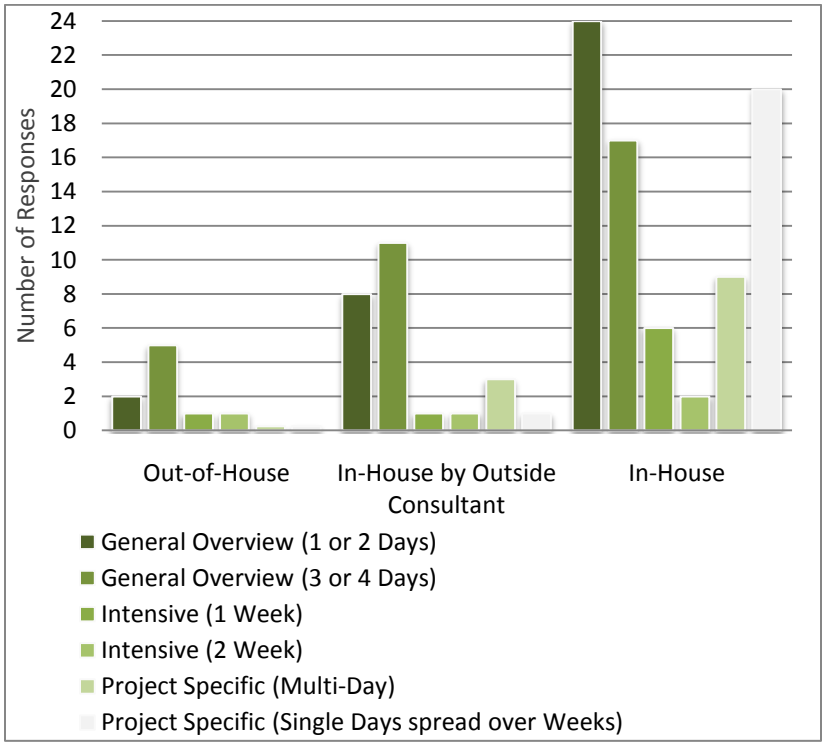
The graph below depicts the results of the responses for different type of training and length of training.



* See Observations in the bar for an explanation of No Responses.

WHERE IS THE TRAINING + TYPE OF TRAINING

The chart below compares the results of where the training is held against the type of training that the firm employs.



KEY FINDINGS

- → Firms tend to lean toward some length of General Overview training with a total of **56%** of the responses.
- → Project Specific training is used by **28%** of the responders.
- → **88%** of Project Specific training is used by firms that have training In-House and do not employ an outside consultant.
- → General Overview training is utilized almost equally among the three locations of training: Out-of-House, In-House by Outside Consultant and In-House.

OBSERVATIONS

- The no response category was typically from a firms that had 0% to 25% implementation (most implied that they have not had formal training yet) or small firms that provided a note that they are self-taught. The self-taught made notes about using AU (Autodesk University), online resources, books and other means to learn the program.

ONGOING TRAINING

Below is a list of some interesting comments entered on the open response regarding how individuals are handling ongoing training:

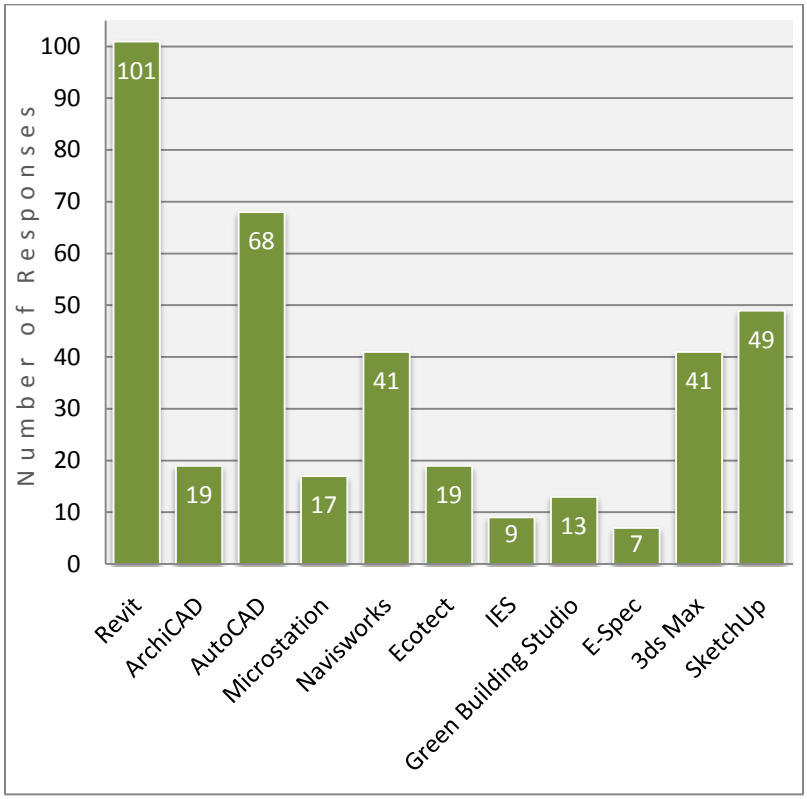
- Webinars and a company policy mandating a minimum number of annual education credits.
- We have training approximately 1 to 2 days a month.
- Annual mandatory training.
- Training sessions twice a month during lunch and video tips on network.
- Lunch and Learns were reported by about ¼ of the responders.
- Ongoing Revit sessions by our users for our users on intermediate topics. These are registered for AIA credit and class handouts are posted on our Revit Sharepoint site. We offer approximately 2 per week, loosely based on AU.
- Autodesk University (AU) was listed by many responders for continuing education.
- 1 on 1 Mentoring sessions once a month.
- Miscellaneous online support including training videos, forums and Blogs. (Multiple mentions)
- Company Intranet Sites seem to be widely used to share information.
- Yearly updates for new releases & Monthly Tips & Tricks.
- Staff must attend specific training classes on BIM procedures and processes during the year. Must attend a specific number in order to supplement their year-end bonus.

One for entertainment…

- Keep harassing friends who know more than me...

PROGRAMS USED

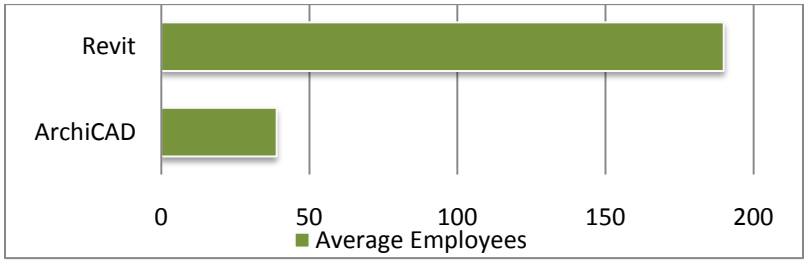
The graph below shows the number of responses for each software that was reported as being supported by the respective firms.



Other software listed that had three or less responses include in no particular order: Rhino, Maxwell Render, Photoshop, Kerkythea, Podium, Map 3D, LandCAD, COBIE, Vela Systems, Bentley, Autodesk Building Systems, Newforma, Truss and Wall Design, EcoDesigner, MEP Modeler, Autosketch, QTO, Synchro, Artlantis, Solibri, Cinema 4D, PowerCADD, Vico Suite/Office, Synchro, Civil 3D, CADD Duct, CADD Pipe, Equest, Trace, PDMS, Tekla and Allplan.

AVERAGE COMPANY SIZE COMPARED TO REVIT AND ARCHICAD

The graph below depicts the average number of employees based on the responses for each of the two respective programs.



KEY FINDINGS

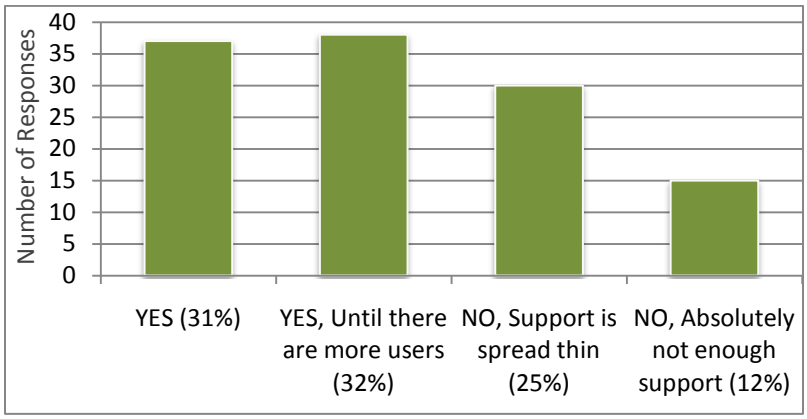
- → **65%** of Firms using Revit still state that AutoCAD is managed by the BIM Staff and probably used by the general design staff.
- → Responses that included Microstation also included Revit for **95%** of the cases.
- → Responses that included ArchiCAD only also included Revit for **ONE** firm.

OBSERVATIONS

- **Revit**
  Out of the 101 responses for Revit use, **12** were for companies 10 or less employees, **50** were for companies up to 100 employees, **32** were for companies up to 500 employees and **7** were for companies larger than 500 employees. The largest company reporting was 5000 employees with 0% to 25% implementation and the 2nd largest reporting company was 2000 employees with 75% to 100% of the company using Revit.
- **ArchiCAD**
  Out of the 19 responses for ArchiCAD use, **13** were companies of 5 or less employees and **6** companies had between 40 and 280 employees.

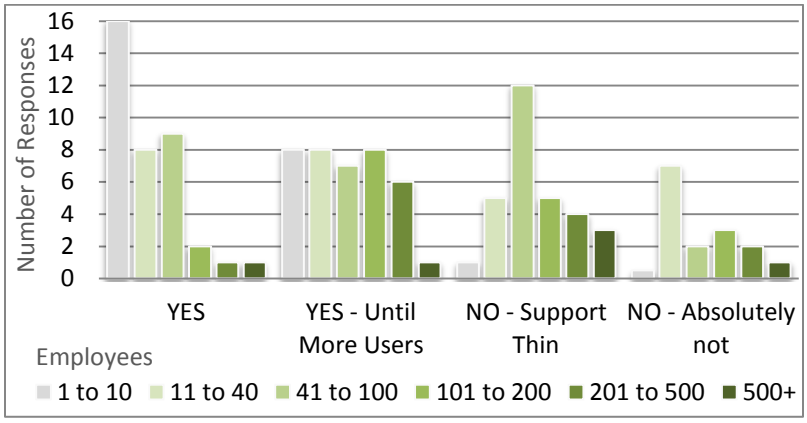
ADEQUATE SUPPORT - INVESTIGATION

When asked *"do you believe your support is adequate for the firm size?"*,the answers were split between the four possible responses.



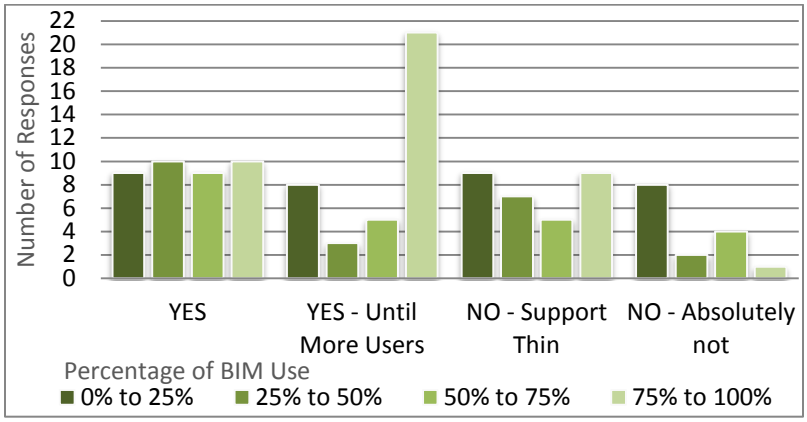
SUPPORT RESPONSE COMPARED TO FIRM SIZE

The graph below shows the number of responses based on their support effectiveness response compared to their firm size.



SUPPORT RESPONSE COMPARED TO IMPLEMENTATION

The graph below shows the number of responses based on their support effectiveness response compared to their percentage of BIM.



KEY FINDINGS

→ **63%** of the responders believe their BIM Support is adequate (in a yes category) while **37%** of the responders think they are not adequately supported (in a no category).

OBSERVATIONS

This was a difficult category to determine the results. Why did one person believe that they had adequate BIM support and another individual believe that they were short staffed? I examined the results in many ways including using the variables below with each analysis proving to not be effective.

- Total Firm Size
- Percentage of Implementation
- Number of Full-Time and Part-Time Support
- Type of Training
- Type of Company
- Number of Offices
- Type of BIM Support

While none of these by themselves contributed to a clear understanding of the results a combination of Total Firm Size, Percentage of Implementation and figuring the percentage of BIM Support to size provided the results on the next page.

ADEQUATE SUPPORT - RESULTS

The final determination that demonstrated an accurate comparison was utilizing the "Total Firm Size", "Percentage of Company Using BIM", and the "Number of BIM Support".

The graph below is the result of the analysis on adequate BIM support. The resulting numbers is the percentage of the staff that provides BIM support based on different axis variables.

	% of Company Using BIM	YES	YES, Until there are more users	NO, Support is a little thin	NO, Absolutely not enough support
Percentage of Full-Time Support to Total Employees	0% to 25%	1.1%	0.7%	0.3%	0.1%
	25% to 50%	2.4%	1.0%	0.7%	0.5%
	50% to 75%	2.3%	1.0%	0.6%	0.3%
	75% to 100%	1.5%	1.4%	0.9%	
	AVERAGE	**1.8%**	**1.0%**	**0.6%**	**0.4%**
Average ratio of BIM support for Yes and No categories to number of Employees		**1 full-time BIM support per 72 Employees**		**1 full-time BIM support per 200 Employees**	
Percentage of Full-Time Support to Approximate* BIM Users	0% to 25%	7.3%	3.0%	1.8%	0.3%
	25% to 50%	6.8%	2.9%	2.0%	1.5%
	50% to 75%	3.9%	1.6%	1.0%	0.5%
	75% to 100%	1.8%	1.6%	1.0%	
	AVERAGE	**4.9%**	**2.3%**	**1.4%**	**0.6%**
Average ratio of BIM support for Yes and No categories to number of BIM Users		**1 full-time BIM support per 28 BIM Users**		**1 full-time BIM support per 100 BIM Users**	
Percentage of All Support** to Total Employees	0% to 25%	2.9%	1.9%	1.1%	0.3%
	25% to 50%	7.1%	2.8%	4.4%	3.2%
	50% to 75%	8.3%	2.6%	1.8%	0.9%
	75% to 100%	4.9%	3.7%	1.8%	3.1%
	AVERAGE	**5.8%**	**2.8%**	**2.3%**	**1.9%**

* Approximate users is calculated by utilizing the selected field of "% of Company Using BIM" against the number of "Total Employees" that was entered by each responder.

**All Support includes Full-Time BIM Support and ½ of all Part-Time BIM Support to get full-time equivalent. In general, it is assumed that most part-time BIM support is comprised of BIM Leaders on projects.

While this will not be the case for every company and is not an exact science, I believe it is an accurate benchmark based on the number of responses collected with this survey. While the examples on the side bar show the ideal "YES" response percentages, I believe every firm should at least strive for the "YES, Until there are more users" percentages. I believe if your users have more support then they will in return be more productive.

EXAMPLE 1

50 Employee Firm

25% to 50% of Firm using BIM

With this example, the reviewer would compare the total number of employees against the 2.4% and 1.8% results. This would be done with the following calculation:
50 x 2.4% = 1.2 and 50 x 1.8% = 0.9
This would mean you need approximately 1 full time BIM support.

I would not stop there in determining BIM support. If you have 15 users, then you can do additional comparisons against 6.8% and 4.9%. This would be done with the following calculation:
15 x 6.8% = 1.0 and 15 x 4.9% = 0.7
Again, this implies that you should have about 1 full-time BIM support.

Since there is not a need to go above 1 BIM support individual, then you probably do not need to compare against the final category.

EXAMPLE 2

175 Employee Firm

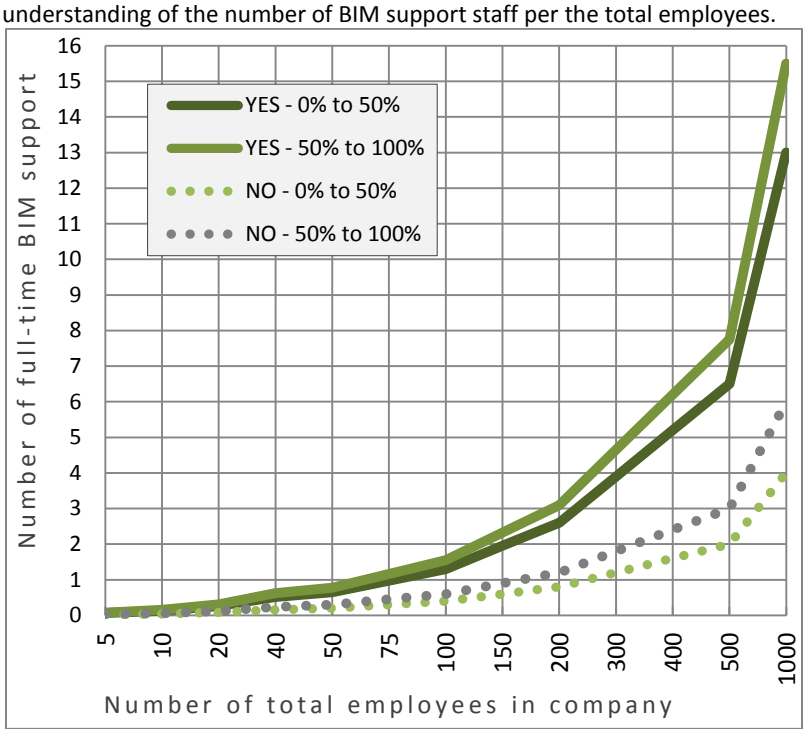
50% to 75% of Firm using BIM

The following would be the calculations for this scenario:
175 x 2.3% = 4.0 and 175 x 1.8% = 3.1
Result is 3 to 4 Full Time BIM support
If the number of users was 90, then:
90 x 3.9% = 3.5 and 90 x 4.9% = 4.4
Result is 3 to 4 full-time BIM support

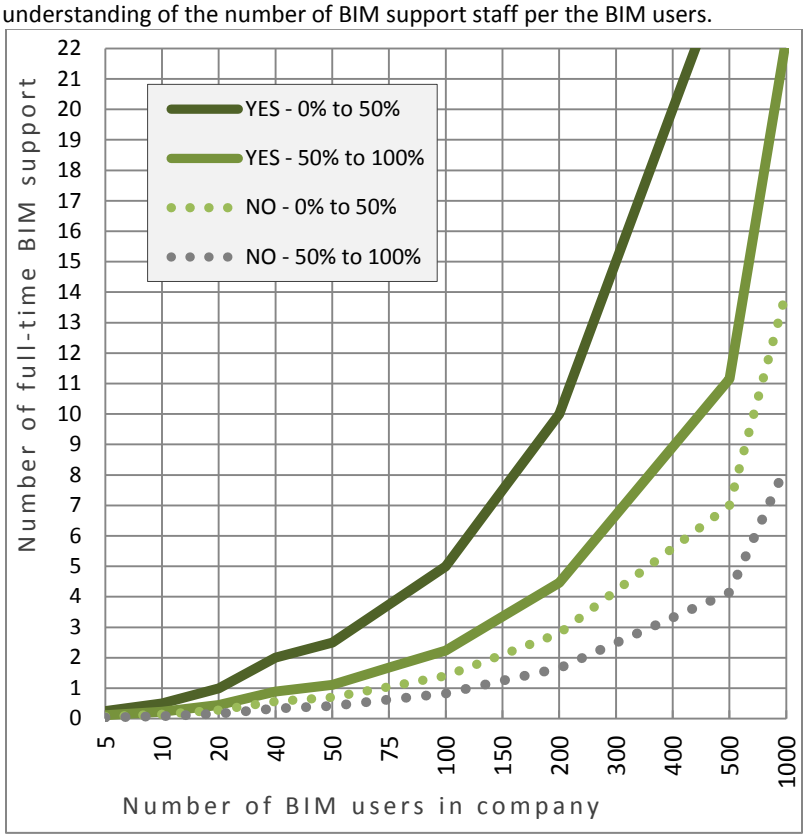
The results of the last category would be up to interpretation.
175 x 8.3% = 14.5 and 175 x 5.8% = 10
In this category, you could say that if you did have 3 Full Time BIM support individuals, then you should also have 14 to 22 BIM leaders on projects or some part-time staff supporting the day to day assistance.

ADEQUATE SUPPORT - RESULTS CONTINUED

The data on the previous page is aggregated into a graph to provide a visual understanding of the number of BIM support staff per the total employees.



The data on the previous page is aggregated into a graph to provide a visual understanding of the number of BIM support staff per the BIM users.



GRAPH EXPLANATION

For the purpose of visually displaying the information on the previous page, these graphs show the number of BIM support on the vertical axis and the number of "Total Employees" or "Number of BIM Users" on the horizontal axis. The numbers are from the aggregated resulting percentages on the previous page. To reduce confusion, these results were also grouped by yes or no on the "Adequate Support" responses and by the percentage of the company utilizing BIM.

The first graph shows for instance, that if one has 200 employees and 60% of the firm uses BIM then the average number of full-time BIM support for firms that believe they had adequate support was **3** BIM support individuals. Likewise, the average number of full-time BIM support for responders that did not believe they had adequate support was 1 BIM support individual.

The second graph shows for instance, that if one has 100 BIM users and 60% of the firm uses BIM then the average number of full-time BIM support for firms that believe they had adequate support was **2** BIM support individuals. Likewise, the average number of full-time BIM support for responders that did not believe they had adequate support was 1 BIM support individual.

CONCLUSION

No matter how you feel about the results of this survey. Each company needs to decide how dedicated they are to genuinely creating projects utilizing BIM and what the motivation is for implementing or expanding their use of BIM. Many individuals believe that simply using a BIM software will make you more efficient, have perfectly coordinated buildings and be able to do more with less. These BIM promises can be achieved, but without proper support, one will most likely be replacing a company's CAD solution with a BIM solution which the company is attempting to use similarly to CAD. As a result, one will most likely not see any of the major benefits marketed with BIM. Processes change, training is needed, coordination changes, collaboration needs are heightened and there are numerous programs that if interfaced correctly with your BIM software would open up enormous possibilities for improving how you work, design and visualize. With a difficult economy, it is extremely challenging to justify or even broach the subject of additional "overhead" BIM support staff. Unfortunately, this survey did not cover the return on investment aspect of BIM. However, it has been shown with other surveys that as experience levels grow with BIM utilization, so does the return on investment. An indispensable BIM support individual or team, would empower your employees to do what they do best - design and document buildings. Do not leave your users to fend for themselves... support them so that they can grown in their experience level.

"Part of the passion is having the persistence and resilience to change both your art and the way you deliver it."

Linchpin by Seth Godin