

# **Building Information Modeling for Masonry**

**Phase II, Project 4, Tasks 1-7  
Contractor Input Project**

## **Phase II Final Report**

**Presented To:**

**David Biggs  
BIM-M Coordinator**

**Submitted By:**

**Fred A. Kinateder  
Contractor Input Project Manager**

**April 9, 2015**

## 1. Phase II Project Narrative

The primary focus of project four during Phases I and II has been contractor outreach. We needed a vehicle to contact the contractors for their input so we formed the Contractor Input Working Group (CIWG). In addition to the *bimformasonry.org* website we rolled out a site specifically for survey contact with the working group and contractors, *www.ciwg.weebly.com*.

We also developed a matrix that broke down our survey questions into specific categories that were laid out in a sequence that aligned itself with the work processes encountered by our contractors in the bidding and construction work flow.

The number of participants when we started the CIWG was about thirty, we have increased that number to about one hundred fifty since November. We were able to accomplish this by attending regional meetings and seminars hosted by the International Masonry Institute (IMI) and enlisting the contractors in attendance. We also have been participating in events sponsored by the Mason Contractor Association of America such as World of Masonry in Las Vegas where we made presentations and were able to add contractors to CIWG.

While we were increasing contractor participation there were also BIM-M tasks that needed to be reviewed and progress analyzed and charted. In order to accomplish this we attended the BIM-M Roadmap update meeting at Georgia Tech in January. While there we heard what was completed during Phases I & II by Georgia Tech and the other project managers. We reviewed goals for each project for Phase III and developed a plan on how to reach our Phase III goals moving forward. There were outside reviewers present who reviewed our progress and gave us feedback regarding Phases I and II. They also reviewed our plans for moving forward on Phase III and gave the group valuable insight on how we should be proceeding.

## 2. Contractor Surveys

We have sent out surveys S1 - S6 to the CIWG. I think the responses have increased in direct proportion to our involvement with the activities as noted above, i.e. the regional and national meetings. Attendance at these meetings has allowed us to broaden the base of our CIWG to include a larger geographic area. The contractor's awareness of BIM, and BIM-M have increased drastically since we started. This will be quite evident when we review the analysis of the survey results later in this report. This increased participation in the survey process clearly tell us what contractors expect BIM-M to accomplish and what kinds of tools they need to stay competitive with other materials and systems.

A matrix was developed to break contractor survey content into five stages, which match the typical work phases encountered on masonry projects. Survey questions were developed for each stage to elicit what information would be helpful to contractors and how the BIM process could develop that information so it would be available to the contractors in a timely fashion and become part of the work process. The matrix stages are *Bidding, Procurement, Start Up, Construction, and Close Out*.

## 3. Survey Data Samples

The following is a sampling of the contractor survey questions and responses. The complete data set from the contractor survey effort is located in Attachment A.

### Sample Survey Questions and Responses:

***Are you aware of the technology, Building Information Modeling, known as BIM?***

Yes	66%	
No	34%	S3A – Q1

**Would a 3D project model be helpful for procuring more work?**

Yes	33.3%
No	18.5%
Unknown	48.1%

S4 – A6

**If the model could provide up to date progress schedule information for all trades showing conflicts and impacts would this be helpful?**

Yes	91.3%
No	0.0%
Unknown	8.7%

S5 – C2

**Sample Survey Comment:**

*“The main thing I would like to see in a standardized software would be the ability to utilize a vectored model issued by the project Architect / Engineer that could be utilized by various competing software offerings without becoming a proprietary isolated model.”*

S6 – Part F

#### **4. Contractor Wish List by Stages**

The contractor input survey process led to the creation of a “contractor wish” list broken down into the same stages previously discussed. The list represents identified processes where augmented existing software, or future BIM related tools, would be helpful.

##### **Bidding Stage**

- Material Take Off
- Site Logistics
- Schedule
- Equipment Requirements
- Manpower Requirements
- Proposed Schedule

## **Procurement Stage**

- Quantity Survey
- Generate Submittals
- Generate Shop Drawings
- Generate Material Purchase Orders
- Create Virtual Mock Ups
- Create Site Specific Safety Plan

## **Start Up Stage**

- Overall Preconstruction Schedule
- Durations by Model Area
- Manpower Requirements
- Equipment Requirements
- Scaffold Requirements
- Site Logistics/ Lay Down Area
- Quality Assurance Plan

## **Construction Stage**

- Progress Schedule
- LOD 450 Model
- Masonry Lift/ Setting drawings
- Clash Detection
- Manpower Requirements
- Schedule Material Deliveries
- RFI/CB generation, incorporation
- Production Tracking
- Ability to Track Indirect Costs

## **Close Out Stage**

- Create/ Generate as Built Drawings/ Model
- Generate Punch List
- Document Punch List Completion

## **5. Phase III and IV Discussion**

Contractor outreach will continue through Phase III. Our efforts will include additional surveys and regional meetings with IMI and Mason Contractor Groups. We will be presenting the progress of BIM-M to the contractors for further review and input. We will also look for case studies of mason contractors currently working in BIM and document their experiences and what works.

We also will be trying to identify “Best Practices” by non-masonry subcontractors. We have compiled some of this information through case studies presented at the BIM Forum. We will be attending future BIM Forum events and attempt to interact with individual subcontractors so we can continue this effort.

Interaction with GC/CM’s and the information we can get from them will be instrumental in BIM-M’s continued development. This interaction will continue through our participation in BIM Forum but we have already started to conduct interviews with individual GC/CM’s VDC departments to supplement what we find out at the BIM Forum. Each GC/CM has their own unique way of doing things and we want to make sure we are able address all of their requirements.

Project IV also has the task of developing “Scenarios of Use” as they apply to BIM-M. Those scenarios are defined by our “Wish List” as noted above. In Phase III we will be presenting that list to software and app suppliers to enlist their help in making the “Wish List” become reality for BIM-M. Throughout this process we will continue to validate our path by involving the contractor community. That will include the Mason Contractors to make sure the implementation is usable and

not too cumbersome as well as the GC/CM's to make sure what we will be proposing works in concert with systems they are currently using. This interaction will be accomplished through surveys, online discussions, webinars, conference calls and regional and national contractor meetings.

As the software community develops products that make our wish list a reality we will assist the implementation by developing an Educational Series for contractors. This will primarily be done through seminars and webinars with the help of the software and app providers.

Our final Project IV task is to develop a Work Process/ Work Flow model that will be usable by our contractors. This model will be developed by incorporating all of the information we have received through the processes as outlined above with special attention to our wish list information and the requirements of the GC/CM community as to their specific needs.

I look forward to next year when I can give detailed information on how we have progressed with our Phase III goals and I am certain we will begin to see some tangible results of the efforts of BIM-M between now and then.

Respectfully Submitted:

Fred A. Kinateder  
BIM M Contractor Input Project Manager

## ATTACHMENT A

*Note: Surveys S1 through S3 were for recruiting and organizing Contractor Input Work Group (CIWG) members and are not included. Survey S3A pre-dates the formation of the CIWG Input Matrix.*

### **Survey S3A Results**

15 Responders

Tabulated February 9, 2015

- 1) Are you aware of the technology, Building Information Modeling, known as BIM?**

Yes	66%
No	34%
  
- 2) Based on what you have heard, read or experienced, what is your overall impression of BIM?**

It is a useful tool here to stay	15%
General positive	13%
Good tool with qualifications	17%
Use will require training	9%
It doesn't apply to us	23%
Will disadvantage some contractors	11%
Not sure	11%
  
- 3) Have you worked on a project where BIM was utilized?**

Yes	57%
No	43%
  
- 4) Have you/your firm used BIM?**

Yes	44%
No	56%
  
- 5) Who created the model?**

In-house	20%
CM/GC	40%
Third party subcontractor	13%
Other	20%
Not sure	7%
  
- 6) Were you reimbursed for your participation in the modeling?**

Yes	47%
No	53%



**7) Would you create a model at your own expense?**

Yes	13%
No	80%
Not sure	7%

**8) When were you brought into the model process?**

Pre-construction	40%
After job was awarded	13%
When construction started	13%
Mid-construction	13%
Very late stages	13%
Not sure	8%

**9) Was the model updated during the construction phase?**

Yes	64%
No	29%
Not sure	7%

**10) Were updates shared with the whole team?**

Yes	100%
No	0%

**11) Were updates used to build documentation?**

Yes	100%
No	0%

<b>12) Benefits of BIM</b>	<b>Benefit</b>	<b>Drawback</b>	<b>Neither</b>
Communication of design intent	93%	7%	0%
Detecting clashes	79%	7%	14%
Coordinating change orders	79%	7%	14%
Requests for information	72%	14%	14%
Workflow between trades	72%	14%	14%

**13) Would it be useful to have access to the latest BIM technology for masonry?**

Yes	79%
No	21%

**14) Are you aware of the BIM for Masonry Initiative?**

Yes	34%
No	66%

**15) Importance of BIM-M to the work that you do?**

Extremely important	32%
Somewhat important	29%
Not too/not at all	35%
Not sure	4%

**16) What overall effect would new BIM technologies have on masonry contractors/materials?**

Positive	53%
Negative	13%
Neither/other	28%
Not sure	6%

**17) Possible effects of future BIM-M tools for incorporating the following into BIM processes?**

	<b>Positive</b>	<b>Negative</b>	<b>Neither</b>
Properties of masonry systems	68%	15%	17%
Masonry structural properties	77%	6%	17%
Masonry scheduling	72%	6%	22%

**End of Survey S3A responses**

**Survey S4 Results**

27 Responders

Tabulated March 26, 2015

**S4 - Part A - Bidding Phase**

**A1) Besides material take off, what information would be helpful during the bidding phase?**

*Ability to implement a scaffold plan*

*Time of season project is expected to commence, Laydown areas assigned, and the distance from work area, Availability of water and power, Trade coordination (who goes first?)*

*Man Hours, equipment needs*

*Drawings provided by design team actually matching up perfectly, to many time there are walls on the archs that are not shown on the structural.*

*Reading Specifications  
Understanding Schedule*

*Better dimensions, masonry layout and masonry coursing.*

*Overall site logistics, including how to access the building (for very tight sites), how to get materials vertical (ie. will a tower crane or hoist be provided and where will it be located), etc. It would also be helpful if a basic schedule of the building's structure is included in the BIM process in order to properly gauge the time needed to do the job. The better the detail at bid time, the less change orders or conflicts during construction.*

*Scheduling and conflicts with other trades.*

*Being able to figure the necessary man power and equipment as it relates to the Construction Managers overall project schedule.*

*Labor breakdown, equipment costs, wall specific durations*

*(I represent a masonry trade association)*

*Schedule, site logistics*

*Materials interface detailing*

*Locations of material (production) Schedule*

*Being able to review if all wall top elevations make sense.  
Speaking with our estimators, it would be helpful if we could see potential conflicts/interference that may impact our production.*

*Schedule and sequence of work in relation to other trades. Specifications/submittal information of materials selected*

*Sequencing*

*Ability to see MEP penetrations and other obstacles*

*Project Schedule. This way we can know what size crew to estimate for.*

*Material type, Sometime it is nice to see complicated structures, how they join together.  
Walls that are hidden on elevations drawings.*

*Site details for access of materials*

*Logistic conflicts review...i.e. scaffolding issues and clearances*

*Labor, schedule, equipment costs*

*labor cost*

*Speaking from the restoration side, incorporated as built that show sections and elevations and as many details as possible*

*Material cost escalation forecasts.*

**A2) Conflict resolution, scheduling, and safety, these are the three main areas that our customers (GC/CM) use BIM. Are you having issues with any of these?**

*Scheduling has been the most important concern*

*-Scheduling*

*-Conflict resolution*

*Yes, finding conflicts, lintels not working in even courses, Steel joist in the middle of a masonry wall, flashing and air barrier issues.*

*Yes and no, we perform a lot of design build projects.*

*Scheduling demands continue to be more aggressive. Less time to build, more manpower needed*

*Conflict resolution and particularly material interface are big issues. Scheduling and sequence of work is also an issue. Safety, not so much.*

*Conflict resolution and scheduling are definitely a big concern. Safety is of course paramount to our industry, but I'm not sure that the BIM model needs to address this in minute detail. I do not think for example BIM modeling of scaffolding which has to be moved and adjusted frequently is needed. Let the BIM model show the walls/structure in the sequence of the schedule and let the contractors determine the best plan from there. If there is a specific safety concern on a complex project, such as how to hang off the side of a skyscraper, then yes, BIM modeling of the plan (tie off points, etc) would be helpful in planning.*

*Yes, conflict resolution and scheduling.*

*Yes, conflict resolution and scheduling.*

*Yes, conflict resolution and scheduling*

*(I represent a masonry trade association)*

*The GC/CM seem to have issue with putting together competent schedules that can be met*

*We encounter those issues on almost every project.*

*Yes, coordination of scheduling the work.*

*No*

*I'm not familiar with safety being a part of the BIM process-the other topics we've had little or no problems.*

*Yes*

*Conflict resolution.*

*Yes*

*Yes, at times*

*yes*

*Yes, all three areas at one time or another*

*We currently have no issues with the way we approach these topics now but I am sure the use of a building model will expedite the process.*

*No*

*yes*

*No*

*No*

***Would a 3D project model that incorporated the following tools be helpful?***

**A3) Site logistics**

% Yes	81.5%
% No	14.8%
% Unknown	3.7%

**A4) Project schedule**

% Yes	88.9%
% No	3.7%
% Unknown	7.4%

**A5) Site specific safety**

% Yes	63.0%
% No	11.1%
% Unknown	25.9%

*If the tools of Questions A3, A4 and A5 were available to you, would they help you to:*

**A6) Procure more work?**

% Yes	33.3%
% No	18.5%
% Unknown	48.1%

**A7) Improve profitability?**

% Yes	81.5%
% No	0.0%
% Unknown	18.5%

**A8) Assess and avoid risk?**

% Yes	88.9%
% No	3.7%
% Unknown	7.4%

**S4 - Part B - Procurement Phase**

*Assuming that any type of modeling software is going to give you an accurate quantity take off, please respond to the following questions regarding possible other advantages during the setup/procurement phase:*

**B1) Would you be able to better manage and anticipate manpower needs?**

% Yes	81.8%
% No	0.0%
% Unknown	18.2%

**B2) If you knew your manpower need could you manage your scaffold and equipment more efficiently?**

% Yes	70.4%
% No	18.5%
% Unknown	11.1%

<b>B3)</b>	<b>Would you be able to manage material purchases better?</b>	
	% Yes	77.8%
	% No	7.4%
	% Unknown	14.8%
<b>B4)</b>	<b>In many cases a site specific safety plan is required, should this information be attainable from the project model?</b>	
	% Yes	33.3%
	% No	22.2%
	% Unknown	44.4%
<b>B5)</b>	<b>Would virtual (computer generated) mock ups help during the submittal phase?</b>	
	% Yes	77.8%
	% No	7.4%
	% Unknown	14.8%

#### **S4 - Part C - Construction Phase**

<b>C1)</b>	<b>Based on BIM examples you have seen to-date, do you think this tool will improve the overall construction process?</b>	
	% Yes	88.9%
	% No	0.0%
	% Unknown	11.1%
<b>C2)</b>	<b>Would you be interested in modeling if you could use it to create virtual mock ups?</b>	
	% Yes	81.5%
	% No	0.0%
	% Unknown	18.5%
<b>C3)</b>	<b>Would you use virtual mock ups to generate RFI's?</b>	
	% Yes	72.0%
	% No	0.0%
	% Unknown	28.0%
<b>C4)</b>	<b>Would it be helpful for the model to have the capability to create field drawings for each masonry wall to be constructed?</b>	
	% Yes	88.0%
	% No	0.0%
	% Unknown	12.0%

## S4 - Part D - Question & Comments

**Please use this box to type any comments or questions you may have regarding Survey S4, or BIM-M in general.**

*Currently we us Tradesmen and we do make 3D mock ups for sample panels and RFIs. It does help people understand concerns when they can see a picture. BIM- lets start by standardize material colors and codes for different masonry items. Example 8" CMU Medium weight would be yellow and have a code of M08."*

*We are currently using Tradesman software, and are trying to incorporate it into Navisworks models*

*I think we need to be careful in trying to make BIM-M too complex at first. At the very basic level BIM-M needs to help avoid conflicts in the field and help architects get the buildings drawn correctly. Trying to incorporate safety and site logistics are a nice idea, but perhaps better incorporated in future iterations of the BIM-M modeling process. Other trades who have been doing BIM for years may be at that point, but at this stage, the masonry industry is still an infant and trying to add too much at once can be overwhelming. We needs to ask ourselves, "who is going to be doing all of this BIM input for bidding purposes?" Masonry contractors are not going to provide the time and energy to go into that level of detail for BIM prior to bidding, because there is no guarantee of doing the work. Even now, one of the most basic construction processes is scheduling. Architects and/or general contractors may put together a schedule prior to a bid, but how often is that information accurate or even reasonable to a mason who is bidding the job? more often that not, a schedule consultant is used to generate a schedule, without much knowledge about how masonry goes up. Producing a BIM model available for bidding falls to the designers and architects, and they are not the best resource for determining, say, a mason's safety needs on a given project. Those items will inevitably fall to the contractors who are contracted for a given project. Getting BIM-M to clearly define the masonry walls and materials for a project, and using it to avoid conflicts with other trades' work at bid time is key. I apologize if this seems counter productive to the ideas which BIM-M is trying to establish. I'm looking at this from a mason's perspective at bid time. Yes, I believe all of these concepts if properly incorporated into a BIM model would be very useful at bid time. I just don't think the proper people will be ultimately providing the input, and if the input is not accurate, then how reliable is the BIM model in the end?*

*Have there been any successful case studies in which a Masonry Subcontractor (not a Construction Manager that self performs masonry) has utilized BIM and seen an increase in productivity or found it helpful throughout the construction process? As a company we like the idea of modeling our work and are looking forward to the development of the BIM Process as it relates to masonry. We are currently looking for a project that we can use it on to better familiarize ourselves with the process.*

*We use tradesemens software for our masonry estimating. It is extremely useful when we are pre-planning the projects.*

**End of Survey S4 responses**



## **Survey S5 Results**

23 Responders

Tabulated March 26, 2015

### **S5 - Part A - Bidding Phase**

**A1) If you have worked on a BIM project did you...**

Work from the designer's model?	47.8%
Work from a model created by the CM/GC	43.5%
Create your own model and furnish it to the CM/GC?	8.7%

**A2) If you have worked on a BIM project did the CM/GC have a BIM Coordinator or act as their own coordinator?**

Yes	82.6%
No	0.0%
Unknown	17.4%

**A3) During the bidding phase if there was a design model available were addenda and clarifications incorporated onto the model?**

Yes	8.7%
No	33.9%
Unknown	52.2%

### **S5 - Part B - Procurement Phase**

**B1) If you had a model during the bidding phase would it allow you to streamline your material purchasing process?**

Yes	65.2%
No	4.3%
Unknown	30.4%

**B2) In your opinion, could virtual mockups supplement or replace shop drawings?**

Yes	60.9%
No	26.1%
Unknown	13.0%

**B3) Would modeling allow you to preplan resource allocation better?**

Yes	66.7%
No	14.3%
Unknown	19.0%

**B4) Could information gained from modeling be used to speed up the submittal process?**

Yes	71.4%
No	14.3%
Unknown	14.3%

**S5 - Part C - Construction Phase**

**C1) If the model had the capability to provide information to help you track your production would this be beneficial?**

Yes	91.3%
No	0.0%
Unknown	8.7%

**C2) If the model could provide up to date progress schedule information for all trades showing conflicts and impacts would this be useful?**

Yes	91.3%
No	0.0%
Unknown	8.7%

**C3) Many CM/GC's require some sort of quality assurance plan, would modeling and virtual mockups be helpful in developing such a plan?**

Yes	71.4%
No	4.8%
Unknown	23.8%

**C4) Would having a model showing the progress of the project and schedule allow you to track your indirect costs more accurately?**

Yes	47.6%
No	4.8%
Unknown	47.6%

**S5 - Part D - Project Close Out**

**D1) If the model had the capability to replace "as built drawings" would you find this helpful?**

Yes	82.6%
No	4.3%
Unknown	13.1%

**D2) If the punch list could be generated by the model and completion could be incorporated into the model would this speed up the close out process?**

Yes	52.2%
No	8.7%
Unknown	39.1%

### **S5 - Part E - Comments or Questions**

*Any projects we have worked on that used BIM, normally only had BIM for the MEP trades only so we were not involved or provided models so it was hard to answer questions 1-3*

*I have not worked on a project using BIM but I had to supply an answer in Part A to submit the survey. Please disregard my answers in Part A.*

*Hoping to see a uniform modeling system emerge that can flow from the bidding stage through to the closeout.*

*It should be painful to generate a punchlist rather than easy.*

*Trades men's estimating software takes care of a lot of these issues. Clash detection for lintels, steel structure, windows, etc. would be ideal.*

### **End of Survey S5 responses**

### **Survey S6 Results**

31 Responders

Tabulated March 26, 2015

### **S6 - Part A - Bidding Phase *For software you are currently using...***

**A1) Can it do on screen material take off?**

Yes	74.2%
No	12.9%
Unknown	3.2%
Software not used for this item	9.7%

**A2) Does it have project management capabilities?**

Yes	29.0%
No	58.1%
Unknown	6.5%
Software not used for this item	6.5%

**A3) Does it tie into or export to your accounting software?**

Yes	26.9%
No	53.8%
Unknown	3.8%
Software not used for this item	15.4%

**A4) Does it have 3D modeling capabilities?**

Yes	69.1%
No	26.9%
Unknown	0.0%
Software not used for this item	3.8%

**A5) Does it have scheduling capabilities?**

Yes	12.9%
No	61.3%
Unknown	6.5%
Software not used for this item	19.4%

**S6 - Part B - Procurement Phase**

*For software you are currently using...*

**B1) Does it generate material purchase orders?**

Yes	25.8%
No	61.3%
Unknown	3.2%
Software not used for this item	9.7%

**B2) Can it coordinate critical delivery dates?**

Yes	6.5%
No	71.0%
Unknown	9.7%
Software not used for this item	12.9%

**B3) Can it forecast scaffold and equipment needs?**

Yes	22.6%
No	61.3%
Unknown	9.7%
Software not used for this item	6.5%

**S6 - Part C - Start Up Phase***For software you are currently using...*

<b>C1)</b>	<b>Can it determine project manpower requirements?</b>	
	Yes	41.9%
	No	38.7%
	Unknown	6.5%
	Software not used for this item	12.9%
<b>C2)</b>	<b>Can it create site logistic plans?</b>	
	Yes	25.8%
	No	61.3%
	Unknown	6.5%
	Software not used for this item	6.5%
<b>C3)</b>	<b>Can it create project specific safety plans?</b>	
	Yes	3.8%
	No	80.8%
	Unknown	11.5%
	Software not used for this item	3.8%
<b>C4)</b>	<b>Can it produce project work flow diagrams?</b>	
	Yes	15.4%
	No	73.1%
	Unknown	3.8%
	Software not used for this item	7.7%

**S6 - Part D - Construction Phase***For software you are currently using...*

<b>D1)</b>	<b>Can it create virtual mock ups?</b>	
	Yes	38.7%
	No	38.7%
	Unknown	12.9%
	Software not used for this item	9.7%
<b>D2)</b>	<b>Can it create "setting" or "lift" drawings?</b>	
	Yes	9.7%
	No	64.5%
	Unknown	19.4%
	Software not used for this item	6.5%

**D3) Can it export a masonry model for clash detection purposes?**

Yes	22.6%
No	48.4%
Unknown	25.8%
Software not used for this item	3.2%

**D4) Can it create daily, weekly, monthly reports related to production?**

Yes	29.0%
No	45.2%
Unknown	16.1%
Software not used for this item	9.7%

**D5) Can it create daily, weekly, monthly reports related to job cost?**

Yes	48.4%
No	29.0%
Unknown	12.9%
Software not used for this item	9.7%

**D6) Can it produce progress schedules?**

Yes	19.4%
No	61.3%
Unknown	6.5%
Software not used for this item	12.9%

**S6 - Part E - General Software Information**

**E1) Do you currently use Excel spreadsheets for construction operations?**

Yes	87.1%
No	12.9%

**E2) Do you currently use Tradesmen's Software for construction operations?**

Yes	61.3%
No	38.7%

**E3) Do you currently use computer aided drafting (CAD) software for construction operations?**

Yes	45.2%
No	54.8%

**E4) Do you currently use Autodesk REVIT for construction operations?**

Yes	22.6%
No	77.4%

**E5) Do you currently use SketchUp for construction operations?**

Yes	22.6%
No	77.4%

**E6) Please list/describe other software you are currently using for construction operations:**

*Sage/Timberline for AP, AR, General Ledger, Cost Reporting, HR*

*Timberline estimating, Sage accounting, Plan swift on screen take off*

*Tradesman Estimating software, Self-designed Take-off program that ties directly into our pricing mechanism, Nuance Draftsman System (simplistic CAD)*

*Timberline Accounting and Tradesmen Software for Estimating*

*PC draft, AutoCAD, Acrobat, Bluebeam*

*MS Project, Win Estimator, Revit, Navisworks, SketchUp*

*Sage/Timberline Software*

*1) Navisworks 2) SketchUp, & Onscreen Take-Off are utilized in our offices*

*Navisworks, InSite, Carlson Software*

*Timnerline*

*Project Doc Control (formerly Constructware) for Project Management*

*ComputerEase Software, Inc.*

*Access*

*TUT (The Ultimate Tool for Masonry Contractors) estimating & accouting, Planswift (on screen takeoffs)*

*Project Doc Control (Auto Desk)*

*Bluebeam Revu*

*Bluebeam*

*OnCenter onscreen takeoff, Timberline, Tradesmens*

*Acrobat Pro XI, Excell, Autocad 14, Tradesmen, Word, Outlook, Sage*

*Builders Exchange (Online Take Off and Plan access). Bluebeam (PDF Take Off, Studio for plan storage collaboration). Tradesmens (Estimate, Material Order, 3D printouts for crews). Sketchup w/ Layout (BIM Modeling, Shop Drawings, 3D Drawing plans, material orders,*

*material flow, details, piece CAD drawings which are converted to from CAD/Sketchup) .  
Excel, Outlook, Word, Adobe, PowerPoint, Office 365 SharePoint.*

*SAGE 100*

## **S6 - Part F - Comments or Questions**

*No comments*

*Because there is no standardized software environment that would create a path from Architect to me back to project management / gen. contractor, there is no interest in specialized software like Tradesman. The main thing I would like to see in a standardized software would be the ability to utilize a vectored model issued by the project Architect / Engineer that could be utilized by various competing software offerings without becoming a proprietary isolated model.*

*Focus of my business is as a consultant for Construction Managers.*

*The majority of our masonry work is Restoration-Repair. BIM requirements are not as critical as they are in new construction/additional etc. BIM is an excellent tool for presentation purposes in Restoration when demonstrating site logistics, scheduling progress and associated activities.*

*I have recently compared 4 different software programs to handle parts of your survey in A,B,C and D. Foundation, ComputerEase, Sage100 and JobPower and found JobPower to offer everything I am looking for and will be purchasing. Their product offers accounting, scheduling, material costs and procurement, job hours and budgets. They are also reasonably priced.*

*Looking to have a standardized color codes for different masonry materials. Example: 4" CMU = Green, 6" CMU = Purple, 8" CMU = Yellow, 10" CMU = Blue, 12" CMU = Pink, Modular size brick = Red, Utility Size = Orange. This way you can look at a plan and tell what materials go where.*

**End of Survey S6 responses**

**End of Attachment A**