

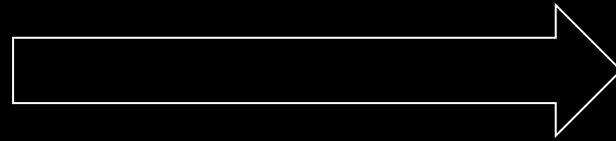
Examining the Efficacy of a Quality Program

Determining Metrics to Evaluate the Processes Adopted

Lecture Keynotes

Summary and History;

E X C U R S U S



At the beginning of each deck, as brief overview or abstract along with a brief history of its origin date, first presentation or generation

The big idea here is;

E X C U R S U S



Mid deck summaries of the main points for clarity & flow

Explainer

E X C U R S U S



Mid deck enhanced explanation of the details behind the main points for clarity and flow

E X C U R S U S

Summary and History;

After investing in a global Quality Program, many firms turn to the numbers to determine how well it is working....this program is set to define parameters that can be used to determine if the program is working....

- Establishing Quality as a key player for organizational success: How can you harness data from project misses and rework costs to underline the role of Quality in achieving the bottom line?
- Translating data and metrics into meaningful conversations to secure commitment and support for Quality messaging and maximize cultural impact throughout the organization
- Exploring how Quality leaders can communicate the value of preventative action more effectively with teams and discuss the realistic impact on the day-to-day work of various project stakeholders

E X C U R S U S

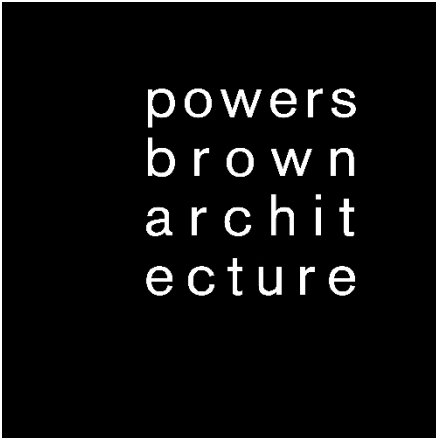
The big idea here is;

Quality Programs can INCREASE profits...

E X C U R S U S

Speaker

Jeanette Shaw, AIA, RID, LEED AP
Director of Quality and Sustainability
Powers Brown Architecture

The logo for Powers Brown Architecture, featuring the company name in a white, lowercase, sans-serif font centered within a solid black square.

powers
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Quality Programs

GENERATE PROFITS

Quality Programs should be established to help to ensure profits on projects

All firms should have a **systematic** way of doing things **globally**. These systems will help control project progress to keep everything running as expected

Keys to Creating a Quality Program

1. Integrate into the business plan
2. Consistent implementation and enforcement
3. Invest in global company standards

Company Standards

- Define design deliverables and aesthetics
- Use BIM drawing templates to control documentation standards
- Ensure drawing sheet numbers and scales are uniform
- Utilize standardized details where possible and logical
- Generate standards for CA processes

The Business of Quality

What is a Quality Program?

QAQC
IS NOT
ENOUGH!



Anatomy of a Quality Program

A Quality Control Program contains 3 basic components:

1. Proper staff training
2. Proper planning of documentation before work begins
3. Proper review of completed documents

Anatomy of a Quality Program

A Quality Control Program contains 3 basic components:

1. Proper staff training

Billable/Overhead

2. Proper planning of documentation before work begins

Billable

3. Proper review of completed documents

Billable

The Business of a Quality Program

Quality Programs can :

retain clients and turn them into repeat clients

reduce errors/omissions and insurance premiums

encourage proper mentorship which aides in retention of staff

prevent litigation

reduce costs for rework and improve profits

The Business of a Design Firm

Design firms create fees based on:

estimated number of hours it will take to complete a project

historical data for the project type

Design firms have a very **tight budgets** and **controlled profits**, so planning and efficiency are critical

Quality Programs should not impact your existing fees

Remember, the goal of the quality program is to increase profits, but your fees must stay competitive

Explainer

The next step is to analyze how each step of the Quality Program impacts the firm from a financial standpoint...is it necessary to raise fees to accommodate the new Quality Program?

E X C U R S U S

Staff Training

Included in Current Fee Structure

- Inexperienced staff are properly mentored and provided lessons learned
- Inexperienced staff have proper guidance on coordination elements
- Staff understands the bid process and what documents are necessary for bid sets



Never in Fee Structure

- Company wide training on new processes or training on tasks everyone needs to know, like code analysis
- Onboarding of new employees

Documentation Planning

Included in Current Fee Structure

- Identify the critical design elements
- Indicate a focused effort on drawing what is most difficult and complex first
- Determine steps for documenting the critical design elements which were defined
- Create critical break-down of the documentation requirements as they relate to the schedule



Never in Fee Structure

Drawing Reviews

Included in Current Fee Structure

- Always review code compliance early on to ensure nothing is missed
- Drawing progress should be reviewed daily
- Coordination items should be reviewed
- Mistakes in detailing must be identified
- Proper time must be scheduled to allow drawing corrections prior to bidding and/or construction



Never in Fee Structure

- Depending on current processes, additional fee might need to be allotted for the drawing reviews by the Quality Managers
- Assume the hours needed for review by project type:
 - Small Interiors: 4-6 hours
 - Large Interiors: 8-24 hours
 - Ground-Up Shell: 8-16 hours
 - Large Complex Build-to-Suit: 40+ hours
 - Large High Rise: 40+ hours

In general, Quality Programs help improve fee efficiency

- Planning what you draw reduces rework and organizes workflow
- Training inexperienced staff reduces the involvement of higher-cost employees
- Company standards create easy to follow processes for all project types – using BIM as a tool allows all projects to start with basic items already done or easy to locate – no wasted time trying to figure out how to do things

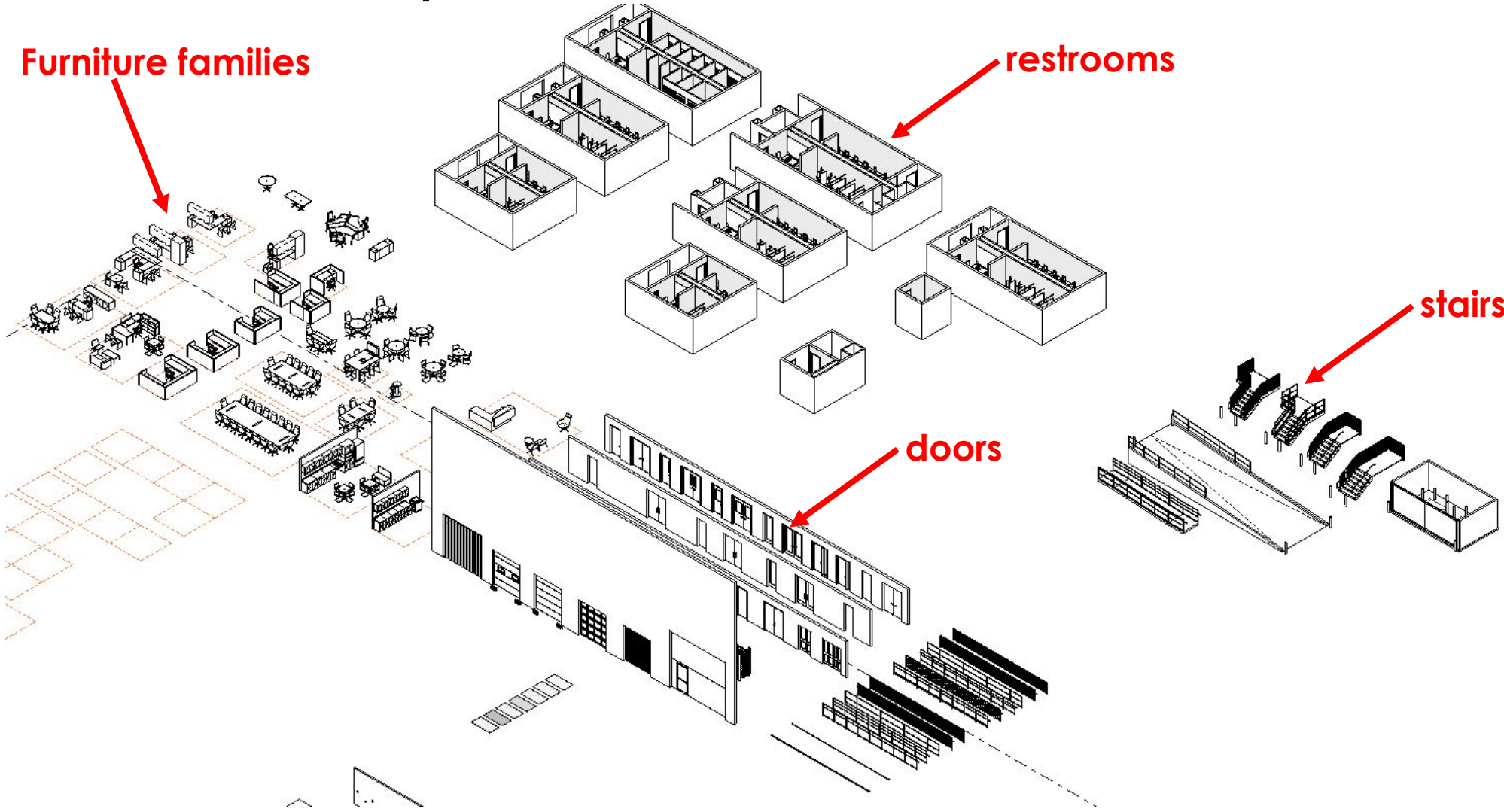
BIM Template

Furniture families

restrooms

stairs

doors



Explainer

What metrics can be used to test if the Quality Program is working? This is sort of a tough proposition to examine....but here are a couple of examples that work

E X C U R S U S

The Efficacy of Quality Programs

Examine Fee Allocation

- Step 1: Identify projects that go over man-hour budgets assigned by the fee

Project ID	Project Status	Hours Budget	Hours Worked	Hours Remaining
201013	Active	2,529.42	1,055.25	1,474.17
5 - CA		9,658.26	8,763.95	894.31
201020	Active	349.41	140.25	209.16
191145	Active	2,008.95	664.75	1,344.20
191150	Active	353.04	143.50	209.54
191054	Active	295.30	92.50	202.80
181199	Active	499.78	1,358.20	(858.42)
181216	Active	646.30	652.25	(5.95)
181179	Active	1,034.20	938.50	95.70
181194	Active	3,083.69	1,671.25	1,412.44
201153	Active	75.00	48.75	26.25

Examine Fee Allocation

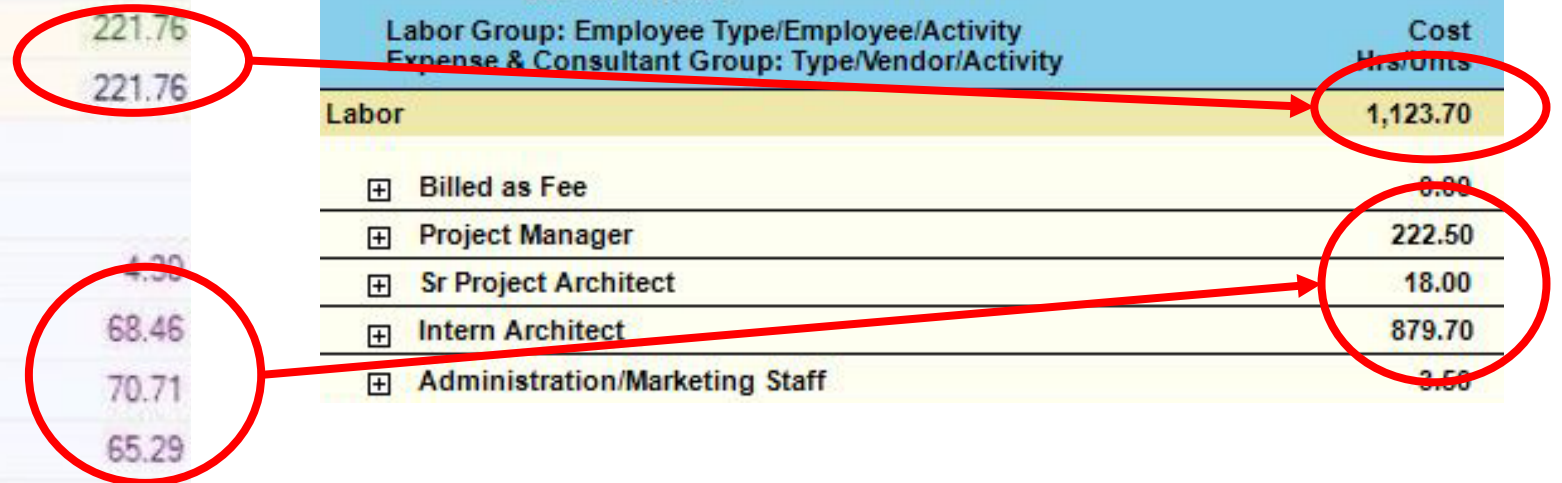
- Step 2: Examine hour break downs to determine where the overages are

Fee allocation - proposed

	Type	Hours / Units
[-] CD		221.76
[-] CD - Architecture		221.76
Expense	Filing Fees & Permits	
Expense	Filing Fees & Permits	
Labor	Principal	4.30
Labor	Project Manager	68.46
Labor	Intern Architect	70.71
Labor	Intern Architect	65.29
Labor	Project Manager	8.00
Labor	Sr Project Architect	5.00

Fee allocation - actual

181199		Cost
CD		Hrs/Units
CD - Architecture		
Labor Group: Employee Type/Employee/Activity		
Expense & Consultant Group: Type/Vendor/Activity		
Labor		1,123.70
⊕	Billed as Fee	0.00
⊕	Project Manager	222.50
⊕	Sr Project Architect	18.00
⊕	Intern Architect	879.70
⊕	Administration/Marketing Staff	3.50



Examine Fee Allocation

- Step 3: Evaluate the reasons on this project for the discrepancies between fee allocated and fee utilized
 - Interview the project team to see if there are any insights that can be used
 - Are there owner concerns or difficulties that led to rework or changes?
 - Are there issues with the GC that led to hour overages? Perhaps the GC was inexperienced in this building type or had inexperienced staff?
 - The goal here is to identify issues OUTSIDE of the quality program that led to project inefficiencies

Items of note from interview with project team:

- Intern was a recent graduate working on his first project
- Project Manager was new to the company and was not mentoring properly
- Project Owner had their own standard details that were not in the company BIM template

Examine Fee Allocation

- Step 3: Evaluate the reasons on this project for the discrepancies between fee allocated and fee utilized

- Determine if the project followed all of the Quality Program steps

- Project Kick-Off Checklist Completed? **NO**

- Cartoon Set Completed? **NO**

- DD Review Completed? **NO**

- QAQC Review Completed? **YES**

- QAQC Review Comments Implemented? **NO**

Remember that with new and inexperienced staff that the documentation planning phase is CRITICAL – and it was skipped here!

It is important to note that a **FEE OVERAGE** in the CD phase does not equate to better documents!!

Examining the **Construction Administration** phase is another way to determine if the Quality Program is working

Review CA Hours

The amount of hours spent in CA can be used as a good gauge of the quality of the documents

- Design firms typically allocate a smaller percentage of their fee to the CA phase
- Drawings that are poorly developed, incorrect, incomplete, and missing information would require additional time in CA to:
 - Address RFI's
 - Create drawing revisions, which lead to permit revisions and additional time responding to permit comments
 - Increase stressful situations – stopping everything to put out fires in the field
 - Could even lead in the extreme to full-time staff during CA documenting details and missing information

Review CA Hours

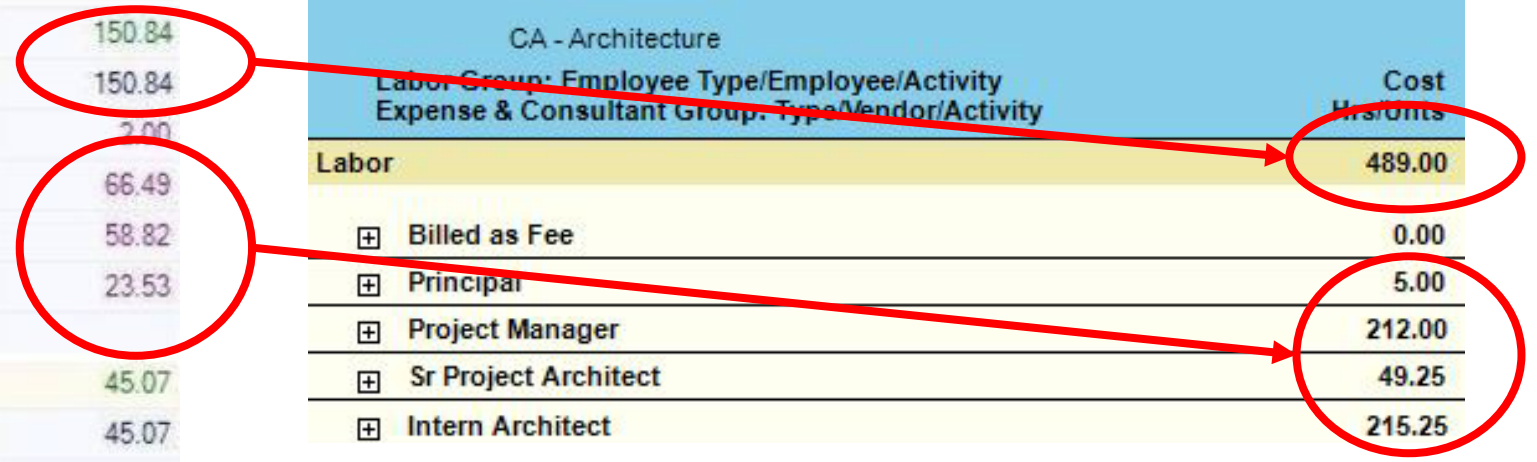
- Examine hour break downs to determine how efficiently the CA was used

Fee allocation - proposed

	Type	Hours / Units
[-] CA		150.84
[-] CA - Architecture		150.84
Labor	Principal	2.00
Labor	Project Manager	66.49
Labor	Intern Architect	58.82
Labor	Intern Architect	23.53
Labor	Project Manager	
[-] CA - Shop Drawing		45.07
[-] CA - Architecture		45.07
Labor	Principal	
Labor	Project Manager	11.54
Labor	Intern Architect	17.65
Labor	Intern Architect	15.88

Fee allocation - actual

CA		
CA - Architecture		
Labor Group: Employee Type/Employee/Activity	Expense & Consultant Group: Type/Mendor/Activity	Cost Hrs/Units
Labor		489.00
⊕	Billed as Fee	0.00
⊕	Principal	5.00
⊕	Project Manager	212.00
⊕	Sr Project Architect	49.25
⊕	Intern Architect	215.25



Review of RFI's?

Note that we have found that examining RFI's is a very difficult method to use in evaluating if the Quality Program is effective

- RFI's would need to be examined in great detail to see what generated the RFI and if the answer is in the drawings and was just missed by the GC
- RFI's might also be representative of an Owner requested change and would need to be removed from the count of RFI's generated from incomplete or incorrect

Review of Change Orders

Reviewing the change orders on a project are a very effective way to determine if a set of documents is high quality

- Remove any change orders from the total amounts that are owner generated
- Evaluate the overall project cost vs the change order amounts and determine the percent cost change overall

Review of Change Orders

Project Number	Change Orders	Cost Before CO's	CO % Construction Cost
161294	\$67,345.00	\$14,321,000.00	0.47%
161127	\$0.00	\$2,344,000.00	0.00%
161293	\$49,026.00	\$11,176,000.00	0.44%
161204	\$0.00	\$2,218,000.00	0.00%
171302	\$85,693.00	\$10,316,000.00	0.83%
171242	\$77,450.00	\$19,273,000.00	0.40%
171173	\$50,952.00	\$5,469,000.00	0.93%
141192	\$84,589.00	\$76,400,000.00	0.11%
141216	\$427,878.00	\$37,667,000.00	1.14%
161101	\$0.00	\$11,649,000.00	0.00%
171273	\$0.00	\$8,836,722.00	0.00%
171271	\$0.00	\$12,031,592.00	0.00%
151257.5	\$0.00	\$4,963,929.00	0.00%
151257.6	\$0.00	\$18,342,263.00	0.00%
161274	\$0.00	\$19,620,930.00	0.00%
161200	\$0.00	\$1,323,155.00	0.00%
171249	\$105,775.00	\$22,455,550.00	0.47%
171251	\$49,215.00	\$1,765,762.00	2.79%
171255	\$0.00	\$7,486,524.00	0.00%
171264	\$0.00	\$19,290,155.00	0.00%
171211	\$72,281.00	\$5,800,000.00	1.25%

The acceptable industry standard for change orders is no more than 10% of the project budget

- Include the cost of the project before the change orders (this amount can be easily archived from the pay application)
- Include the total amount of change orders that are NOT Owner generated (these can be easily removed by the project team)
- Any projects that have a percentage of change orders that is at or near 10% should be evaluated for quality issues and concerns

Explainer

Now you have some metrics...but how do you use them to make your teams better? How do you ensure that your employees value the quality program and are practicing the systems and processes?

E X C U R S U S

Accountability

Accountability

- Firm leadership should be open with employees about project goals
 - Explain how the fee structure works – that teams have an allotted number of hours to complete projects
 - Make all employees accountable for mistakes by involving them with client feedback
- Share quality issues with the employees and clearly explain their impact to the firm – this could include sharing there are claims for errors, loss of future work with clients, or even relate that rework was caused by their mistakes

Keys to a Quality Program's Success

- 1.** Consistency – program must be the way you do business always
- 2.** Enforcement – you cannot let any project, team, or staff member be an exception to the program rules
- 3.** Education – the program goals and standards must be shared with every employee

Questions ?

Contact Information

[Jeanette Shaw](#), AIA, RID, LEED AP

Director of Quality and Sustainability

[Powers Brown Architecture](#)

shaw@powersbrown.com

Thank you!