

BUILDING QUALITY BUILDERS: LESSONS LEARNED FROM A COMPANYWIDE TRAINING ON BEHAVIOR-BASED QUALITY

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MAIN POINTS

- This paper describes the process of designing, testing, and adjusting a virtual workshop called Building Quality Builders (BQB) to train a DPR's employees on a Behavior-Based Quality (BBQ) approach with the purpose of increase implementation and reduce re-work.
- Started March 2019 and ramped up in 2020.
- Continuous improvement process and the lessons learned along the way.

Introduction

Throughout conducting the workshops, we learned:

1. How to engage diverse teams,
2. how to change the quality mindset from quality is something that happens after I do the work towards a proactive behavioral approach for quality, and
3. how to foster actions for implementing what was learned after taking the workshop.

Methodology

The methodology to develop and test the workshop followed Design Science Research (Hevner, 2007), where the artifact was the BQB workshop.

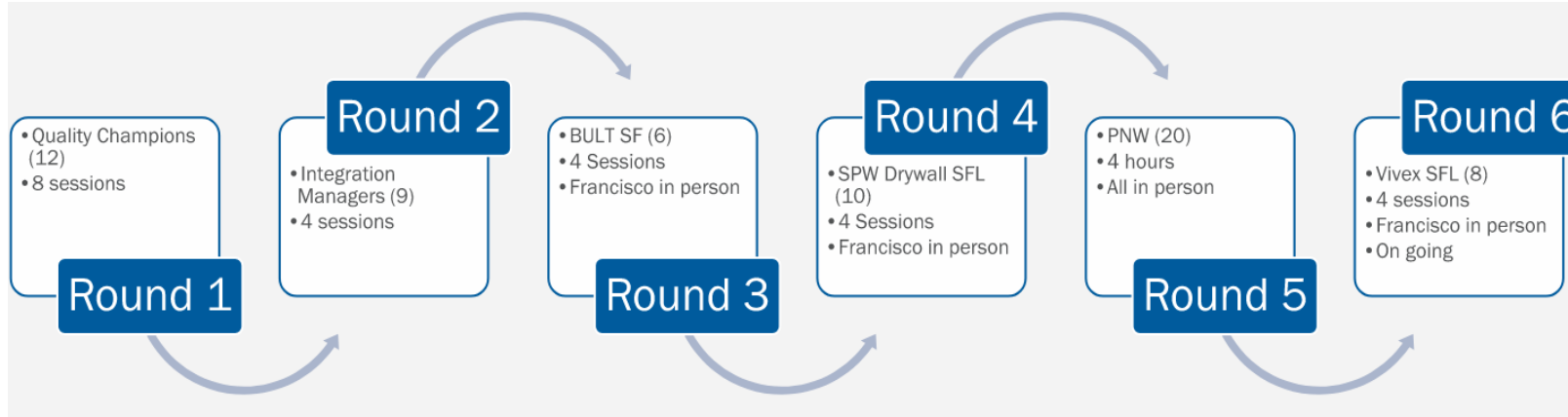


Figure 1: BQB Format Variation Changes

Note: Currently on round 29

BQB Development and Adjustments

1. From 8 weeks to 4 weeks (Pilot)
2. Diversify examples (Integration Managers)
3. More Action Oriented (BU in South Florida)
4. Compressed in person version did not had the same effect
5. Present to teams in early stages

Introducing PS

- The construct of psychological safety has been linked to teams' learning behaviors and better team performance in multiple industries ranging from manufacturing to product development (Edmondson 2012, Edmondson 2018).

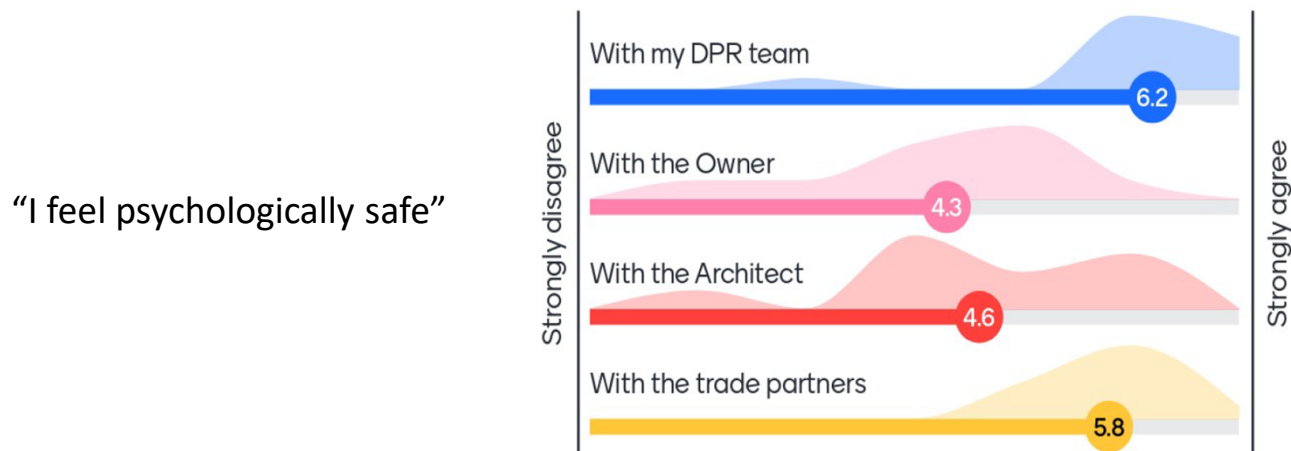


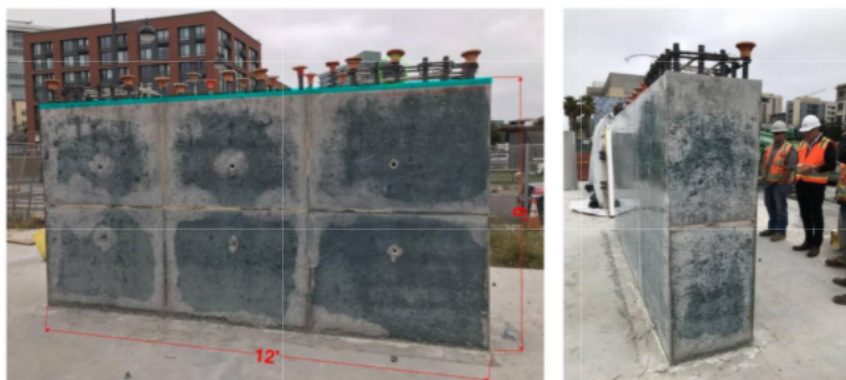
Figure 2: Participants Feeling of Psychological Safety with Different Stakeholders Groups from the Perspective of the General Contractor in BQB Round 20

Introducing Language Action

- Round 19 and 20 also introduced an exercise where participants were asked to describe a picture of an architectural shear wall and a stairs mock-up.

Facts and Stories

Sample



If you were to describe what you see in the picture, how would you describe it?

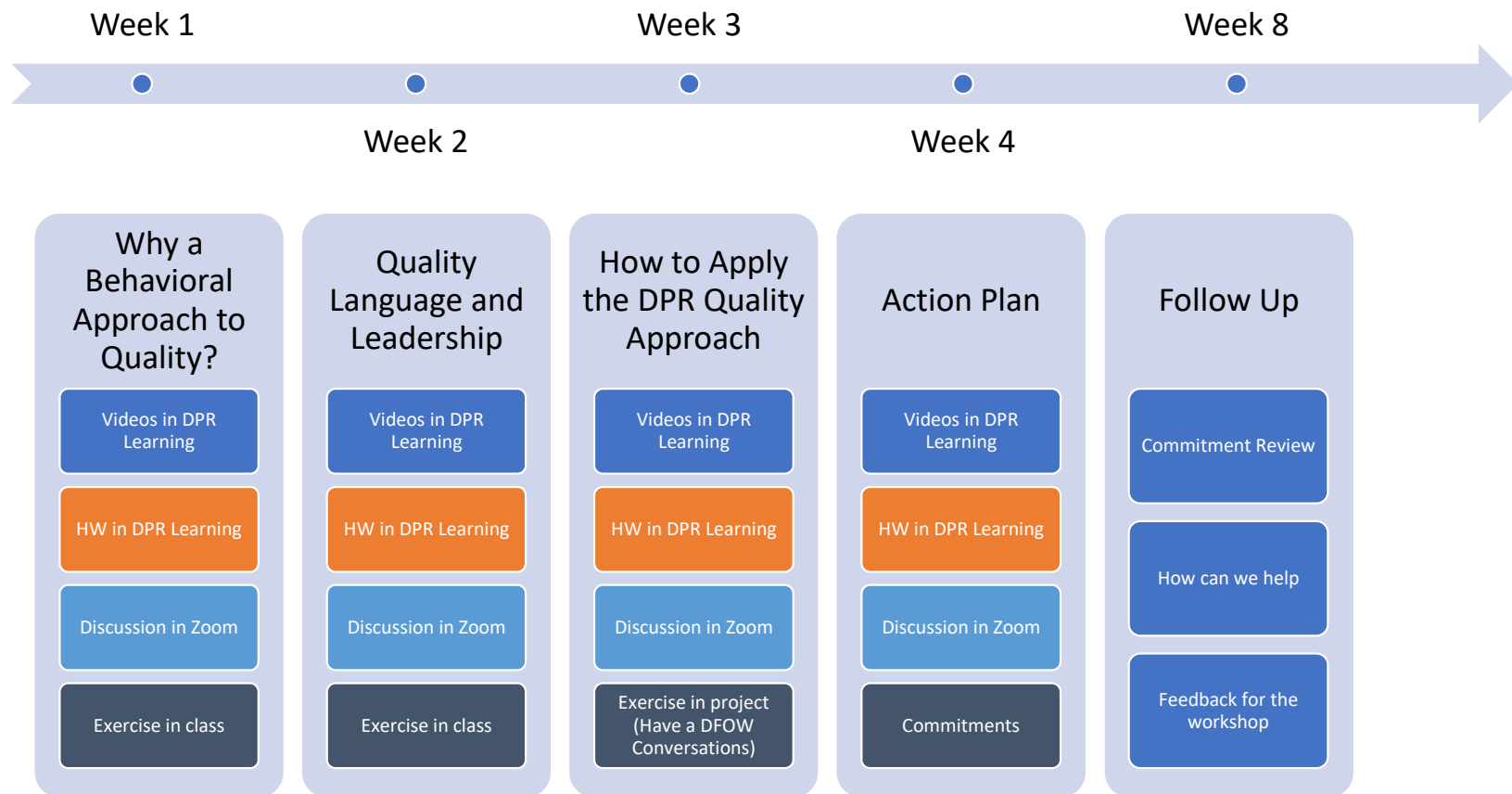
Facts and Stories

Sample

FACTS	STORIES
6' x 12'	The wall looks good!
There's only 1 wall	It is glossy
There're 4 people	It has a mirror-like surface
Reveal strips (2 vertical, 1 horizontal)	It has a dark color
It is a reinforced concrete wall	Looks splashy and it's too green

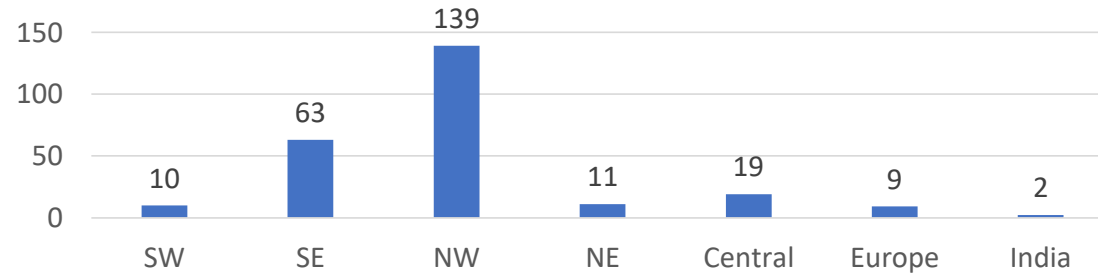
- Round 23- 26 we kept the exercise on identifying facts and stories using the wall and stair examples.

Current BQB Content

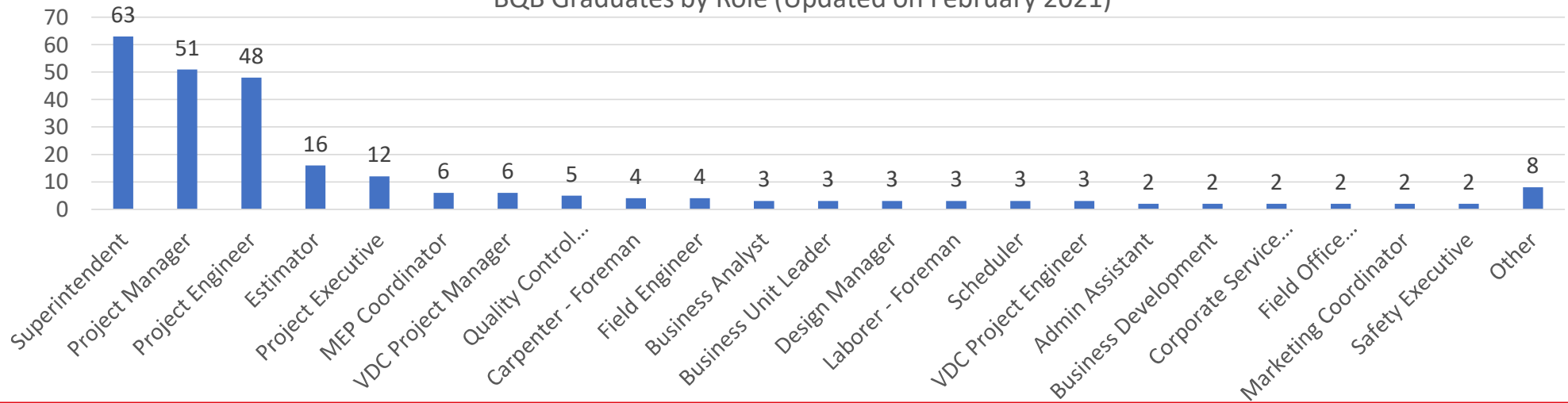


Results

BQB Graduates by Region (Updated Feb 2021)



BQB Graduates by Role (Updated on February 2021)



Commitment to Action

- AI applications should follow society's values and norms as they evolve. There is a risk that AI cannot adjust to ethical norms

Table 1: BQB Group 24 Strategic Action Items

	Strategic Action	Responsible
1	Create DFOW log	Project Manager (PM)
2	Creating Visuals for Stairs	Project Engineer) & PM
3	Taking the visuals and making sure they are part of Foreman meetings and post them on the field in the areas.	Superintendent
4	Provide support in the process, be engaged in quality conversations. Provide input on problem areas.	Precon
5	Ensure Quality approach gets implemented in next projects. GMP. Planting seed in proposals.	Project Executive

Commitment to Action

- Implementation with Architects and Owners for a Healthcare Project

- Top of Stair Landing; 4/A701:**
DESCRIPTION:
 There is an misalignment/offset where the tube steel stringer lands at top of stair with the railing shoe from top of stair because the stringer ends proud of the FFE.
ACCEPTANCE CRITERIA:
Ranger Glass to detail a condition where the top of the break metal covering the shoe at the landing will align with the top of the break metal over the tube steel for Design Team review/approval.
- Tile Grout Lines at Landing**
DESCRIPTION:
 CB Flooring's reviewed shop drawings (096000-004R1) shows grout lines in T-2 with a stacked bond pattern and the center grout line running longitudinally is off-center.
ACCEPTANCE CRITERIA:
CB Flooring to install the tiles at the landing in a running bond pattern with the center tile closest to the exterior of the staircase being centered longitudinally. Additionally, center the longitudinal grout line within the width of the landing.
 Note: CB flooring to revise submittal to show change.
- Handrail at Landings:**
DESCRIPTION:
 In accordance with Architectural review comment in submittal 057313-001 and IBC:
 a) at the bottom of stairs, the handrail shall extend one tread depth past the riser in the same downward angle, and
 b) at the top of the stairs, the handrail shall extend 12" horizontally past the last riser.
- Handrail at East Side of First Run on L1:**
DESCRIPTION:
 The tube steel stringer at the East side of the first run of stairs at L1, does not abut to a wall for the first few risers. The handrail will attach to the wall where the stringer abuts to a wall and will have to attach to the glass railing for the remainder of the run.
ACCEPTANCE CRITERIA:
 The glass railing and finished face of the wall needs to be in the same plane to allow for a straight run of the handrail.

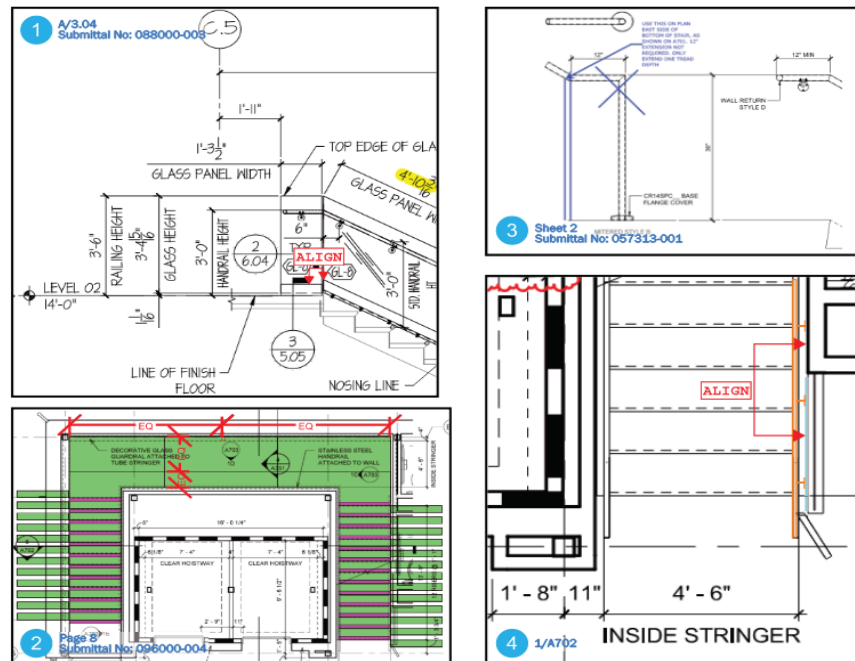


Figure 5: Example of Visual explanation of Distinguishing Features for a Stair.

Participants Feedback

- Results show that 98% (47 out of 48) of the participants would recommend this program to their co-workers. When participants were asked who should go through the training the answers point out to PEs, Superintendents, PMs, PXs, Pre-construction, and BULT, many said everyone in the company.

“The class significantly changed my view of quality and how awesome no rework can be, by being on the top of our game. I completely believe that anyone executing work should go through this training” – DPR Superintendent

“The class reinforced to me the reality that we are a service industry. Most of our competition can build. We set ourselves apart when we have a process for capturing what's important to our clients and we deliver consistently. I think DFOW is a game-changer.” - SPW Drywall Team Member

“When engaging the client, I will continue the conversation of what is important to them and how we incorporate quality.” – Business Development

Conclusions

- Lessons Learned of virtual BQB Workshop, continuous improvement.
 - Psychological Safety to understand how psychological safety can impact their work of delivering quality
 - language action perspective basics to differentiate assessment versus assertions aimed to increase clarity.
- Participants who took the workshop highly recommend taking this workshop to their peers, business unit leaders, and some recommended everyone in the company taking it.
- The BQB workshop has helped participants understand ways for how to better deliver quality in any type of work they do.

THANK YOU!

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