Internal Quality Management:

Contractor Best Practices

Internal Quality Management (IQM) is the system of Quality Assurance activities undertaken by a contractor to ensure that work is performed in a manner that is safe and efficient, fulfills the conditions of the contract, meets program requirements, and maintains profitability.

Balancing these needs can be a challenge. To assist, here are a number of suggestions for effective IQM. These ideas come from Participating Contractors in NYSERDA's Home Performance with ENERGY STAR and EmPower New York programs, during the 2017 NY Residential Existing Homes Contractor Regional Meetings. There are also a few added suggestions from Program staff. While some of the suggestions may seem very basic and obvious to business owners and managers, having practices and policies in one place is a good way to ensure everyone on your team is on the same page about how your business operates and what your expectations are of your crews.

Not all of these strategies work for all contractors; choose the ones that help you succeed. Then create an Internal Quality Management plan that suits your needs.

Thanks to all who contributed their ideas and expertise!

Setting yourself up for success

- Ensure quality suppliers
    - Install materials and equipment with a proven track record, from suppliers with a demonstrated capability to respond to the needs of the customer, should a problem occur.
    - Review product literature carefully, and share relevant information with the customer.
    - Check product reviews.
    - Verify that technicians capable of servicing the equipment are available in the area to respond to the customer's needs in a timely manner.

- Make sure that your equipment is well maintained. Set up a regular schedule for calibration of all test equipment and make sure staff understand why it is important to stick to it.
- Review Program requirements and develop a standardized plan for collecting, reviewing and submitting required documentation.

Hiring

- Make a list of the core competencies of your business - the skills and certifications that you need to succeed and determine how they apply to each position in your organization.
- Job hunter Websites can be useful in finding prospective applicants.
- Some useful ways to evaluate skills before you hire:
    - Aptitude testing
        - Math problems similar to the math used in your work
        - Handing the job applicant a tape measure and a note pad and having them calculate the square footage of your building
    - Test a prospect's abilities by having them perform common tasks, such as caulking, or weather-stripping and insulating an attic hatch.
    - Collaborate with a training organization, and use one of the training pressure houses or another training facility to have the prospect perform skill testing, such as blower door diagnostics or identification of common ventilation issues.
    - On an application, include questions that might normally be taken for granted when someone applies for a job with your company, such as:
        - Do you own a hammer and a pry bar? (Or other tools that indicate some experience)
        - Are you comfortable working on ladders?
        - Are you comfortable working in confined spaces?
- In addition to calling listed references, look at online at ratings and customer feedback from places of prior employment. This is particularly useful if the candidate was previously self-employed.
- Consider multiple points of contact before hiring. One contractor does the following:
    - A preliminary screening phone interview
    - A follow-up informal lunch meeting, to get a sense of the interpersonal style of the applicant
    - A final meeting
- Establish a probation period for new hires. Some options for components:
    - An initial review after 30 days, to check in on work quality and offer corrections
    - An initial start at a lower salary, to be increased after a successful review
    - A final determination after 90-days
    - New hire shadows more experienced staff
    - New hire is asked what they learned each week
    - New hire completes a "self-review"
    - New hire proposes a work scope to be critiqued by more experienced staff

- Implement a mentor program until staff member is fully trained. Ensure mentors are open to questions, regardless of how fundamental they may be, and understand how being mentors also benefits them.
- If it is your policy, letting staff know that you typically promote from within the company can be a strong motivator for existing or potential new staff.

Training

- Do not assume that a worker with years of experience and training is at the top of his game. Contractors have been known to say, "I did this work a certain way for years, and I thought I was doing the best work possible for my customers. Once I learned about building science, I realized I had been doing it wrong all this time, and I immediately changed my practices." One contractor even stated, "I even went back to previous customers to make some changes." In other words, while technicians may have received good training in the past, the performance of cutting-edge energy efficiency work requires a constant search for new and innovative approaches, and updating of skills.
- Crew members may not always understand the importance of the task that they are completing--especially in a hot attic on a summer day! Motivate staff by explaining:
    - The rationale for doing things in a specific way from a technical perspective
    - How their work will impact the home and those living there
    - The "big picture" of saving energy, fighting global warming, reduction carbon
- Hold weekly/bi-weekly/monthly meetings to provide training – include all staff (sales, installers, office and auditor) to make sure everyone is on the same page.
- Training options to consider:
    - Manufacturers
    - Building Performance Institute (BPI)
    - Trainings available through the Program
    - NYS Weatherization Director's Association (NYSWDA)
    - The Association of Energy Affordability (AEA)
    - Green Jobs Training Center
    - Community College building science programs
    - BOCES
    - Northeast Energy Efficiency Partnerships (NEEP)
    - Building Performance Contractors Association (BPCA)
    - Efficiency First of New York
    - Home Performance Coalition
    - On-line videos—often short and sometimes viewable in the field

- Create guidelines, with pictures and diagrams, that can be read from a tablet.
- Cross train staff so that they are knowledgeable in many areas. This can not only help ensure efficiency for your business, but also motivate crew members, and give them a break from routine.
- Support workers who improve skills through training by providing rewards, such as bonuses, recognition, pay raises, gift certificates, etc.
- Make sure that staff are familiar with standards and guidelines; give short quizzes of challenging areas.
- Train your staff in appropriate customer interactions. Some topics to consider:
    - Appropriate language, dress and decorum
    - Sensitivity to cultural differences
    - Active listening
- Make sure that your staff is trained not to make promises that will not be fulfilled.
- Some workers do excellent work but hate paperwork. If possible, consider aligning skills and preferences with worker capabilities.

Auditing/Selling

- Ensure that the proposal offers an answer to the concern that caused the customer to reach out to you. Look for their real need; it may not be exactly what they think they want. You may have a measure available that suits their needs better than the one they asked for, and you will need to explain why that is a better solution. If so, be sure to explain why it is a better solution in language that is clear to the customer.
- Ensure that savings estimates are realistic.
- Be sure to offer the customer a full range of options, but be sensitive when their need or desire is more selective. Suggest creating options for the customer, with a good explanation of the expected results each option.
- Be well versed in the impacts of your work on comfort, savings, property value, safety, and the environment.
- Prepare a thorough work order.
- Take pictures during the audit to print out for crew members and show what they will be working on. Create a map of where the pictures fit into the drawing of the jobsite.
- Review the Selling Efficiency Series offered through NYSERDA and developed by industry expert Mike Gorman.

Preparing for a Job

- Assess the likelihood and impact of risks to project objectives, both to the customer and to your business.
- Determine the necessary safety precautions
    - Identify possible jobsite hazards
    - Identify appropriate personal protective equipment (PPE), such as respirators or fall protection
- Familiarize yourself with all safety requirements and manufacturer's requirements related to equipment/materials to be installed and ensure that requirements are met.
- Ensure that work conforms to all appropriate guidelines, and obtain all permits required by law.
- Inform the customer BEFORE THE CONTRACT IS SIGNED of any long-term maintenance required on the equipment you install. Include the estimated cost. Provide the customer with a print-out of maintenance requirements.
- Clearly explain the use of any sub-contractor to the homeowner prior to signing a contract. Provide subcontractor name and contact information. Emphasize your role in ensuring the quality of the subcontractor's work.
- Consider a single point of contact with customer, such as the crew chief. This will reduce the risk of multiple staff members providing the customer with different information.
- Double check all calculations and ensure building specifications are correct.
- Create a visual timeline that you can use to plan tasks, and dates for completion of each step in the project, such as:
    - A spreadsheet
    - A blackboard for tracking each project
    - Software designed for project tracking
- Develop a checklist that can be used to monitor completion of specific tasks during and at the end of the project. Include sign-offs and photo requirements.

Work Process

- Keep work area as clean as possible during the project, and clean up after completion.
- Keep all employees in the loop on progress in the project, and notify them of any changes.
- Be on time at the start of every work day, and after breaks.
- Do your best to stay within the original budget.
- Customer Communication
    - Gauge customer satisfaction throughout the project, and inform the crew of your findings throughout
    - Give progress reports to customers and keep them involved in the process

  - Any changes to the contract should be identified in a field change order and signed by the homeowner
- Keep track of repeat mistakes or quality issues:
  - If a staff makes the same mistake more than once or twice discuss the issue. Explore why it is happening, and be clear on what they need to do to avoid making the mistake again.
  - If more frequent, reassign, or use repeated failures as training opportunities.
- Record the results to all diagnostic tests performed, including date-stamped photos of blower door readings.
- Keep a record of the calculations used to arrive at a price proposal. Be sure they are available to crew members, and adjusted as needed if changes in the workscope occur.
- Have senior staff drop by the job site whenever practical.
- Skype or facetime to the job site when you can't be there in person.
- Use sign off sheets: have crew members initial the tasks that they complete each day and have a senior staff member review it every day.
- Track what is done each day on a tablet or document.
- Have crews take lots of pictures. Give crews cameras rather than having them rely on their cell phones—this can be more reliable when it comes to storing/downloading photos.
- Look into photo storage systems, with a photo file for each project. One contactor reported a system that, once set up, saved uploaded photos to date- and location-stamped files automatically.
- Seek out an app that allows for storing video files, maps, diagrams, and photos.
- Use scheduling software to track changes in scope/contract, with date stamps for changes.
- Develop an internal communication system that ensures that the right information is getting to the right people. For example, create a general company email account that all appropriate staff have access to. Then, assign a single staff member to monitor staff responses, to ensure that all appropriate follow-up takes place. Or create a company-wide secure on-line discussion board that allows multiple workers on a project to see discussions related to the project.

Project Completion

- At the end of the project, perform a quality control inspection to evaluate the work and ensure that all components listed in the work order were actually installed.
  - If possible, have the inspection done by someone other than the crew members (who are sometimes very tired at the end of a project) such as a designated inspector, energy auditor or senior staff member.
  - Ensure that test out staff is able to make small repairs if needed. This will reduce sending the install crew back.

- To ensure a complete review, consider the use of a checklist, or a copy of the draft invoice in verifying that all work is done prior to billing. A sample checklist is provided below.
- Consider any missed opportunities for improvement.
- Repair any work-related damage you or your staff may have caused.
- Ensure all critical data regarding the project, such as contact data, project documents, photos, signoffs and critical communications is stored in an easily accessible database. Keeping a record can be invaluable in reducing future misunderstandings.
- Create a "lessons learned" log to be used as a guide for future projects or business policies.
- Host post completion staff meetings to highlight good work and learn from mistakes.
- Perform an internal audit - assign a person to look for discrepancies between how the company functions in comparison to your IQM plan. Is it being executed, or just a paper document? Make sure it is real. Stick to the strategies that help your work process, and discard the ones that get in the way.

Installed Measure Verification

Company name	**Customer Name**

Customer Address

Workscope Measure	Check if included	Units Proposed		Type/Detail	Check if installed	Crew member verifying	Date	Final Inspector verifying	Date	Notes/Corrections
Attic Insulation 1			Sq. Ft.							
Attic Insulation 2			Sq. Ft.							
Attic Insulation 3			Sq. Ft.							
Proper vents										
Other vents										
Attic air sealing										
Attic Hatch Ins & Seal										
Wall insulation			Sq. Ft.							
Rim Joist			L. Ft.							
Other insulation			Sq. Ft.							
			Sq. Ft.							
Basement air sealing										
Heating System										
DHW										
Duct sealing										
Weather stripping										
Smoke detectors										
CO detectors										
Filter slot covers										
LEDs										
Pipe wrap										
Shower heads										
Aerators										

CAZ testing completed? _____Y _____N If no, why not?_____

Cleanup completed? _____Y _____N If no, why not?_____

Post-Blower Door # _____

Project notes:

Project approved for completion/invoice processing: _____ _____

Project lead signature Date