



*National Housing Quality
NHQ Certified Residential
Construction Services Providers
Quality Assurance System
Requirements*

INTRODUCTION

These NHQ (National Housing Quality) Quality System Requirements were developed by the NAHB Research Center (www.nahbrc.org) based on ISO 9000 (www.iso.org) quality principles and adapted to those companies providing non-construction services to home builders including consulting; inspection; surveying; engineering; design; and site support services. These requirements do not meet all of the ISO 9000 requirements but this system could be augmented to comply with ISO 9000:2000 if an organization chooses to do that. These requirements, in some instances, are more prescriptive than ISO 9000.

As with any good quality system, this set of requirements is continually subject to improvements. As experience is gained on the effectiveness of this type of quality assurance system with these service provider organizations, it may be changed and improved. The overall intent is to provide a system that will provide effective quality assurance and continual improvement.

NOTES

The following notes may be used to clarify these requirements:

- The intent of these requirements is to define the major elements of a practical quality assurance system for residential construction services provider organizations. A service organization is generally defined as a business involved with supplying consultation; investigation; evaluation; planning; design; land surveying; supervision of construction inspection; OR site support services to a builder or trade contractor.
- Considerable latitude is allowed for the respective organization to develop and implement a quality assurance system customized to its organization's needs. The structure/format of the quality manual does not need to follow the structure of these requirements; however, a compliant system shall cover all the clauses of these requirements. If a different structure is used, the company should provide a cross reference matrix to correlate sections of these requirements to sections of their quality manual.
- The term "effective" should be interpreted to mean that evidence is available to show that the intent of the quality plan is being fulfilled.
- Undocumented procedures are common, but personnel in the organization needing to use them should clearly and uniformly understand them. Flow charts and brief process outlines are encouraged wherever practical. These requirements explicitly state when a retrievable document is required by the use of the terms "document"; "defined in"; "record"; or "written".
- "Product" is generally interpreted as the end result of a process or services delivered and may include, as appropriate, consultation; investigation; evaluation; planning; design; inspection; land surveying or construction; environmental; or sanitation services. Although "service" can be considered a product, the term "product and service" is used in these requirements to distinguish between general activities.
- "QA activities" in these requirements refers to those quality assurance (QA) activities which the organization carries out to ensure that their services are done properly. Note: This is in contrast to third-party inspection service where the organization may be providing QA services to a builder. In that case, a review or spot check of the inspection might constitute the QA activity for that work (third-party inspections).
- The term "customer" when used in these requirements will typically be the organization or person that receives a product/service. The intended understanding for "customer" may include client; builder; trade contractor; or home buyer. A customer can be internal or external to the organization.
- These requirements are intended to cover original work as well as customer service work. Customer service is defined as work done after the job has been completed and turned over to the customer/builder. This may include dealing with and resolving technical/engineering, or inspection issues; correcting design documents; service or inspect any engineering issues; or changes by the clients. This may also include on-going site support services such as security; recycling; cleaning; etc.

Some QA requirements may not be applicable to all service providers (e.g., consultation; investigation; evaluation; planning; design; land surveying; or supervision of construction inspection services). Application of the required QA requirements will be appropriate to the nature of the services provided.

1.0 GENERAL

- 1.1 SCOPE - The organization shall have a written definition in its quality manual of the scope of the services provided by the organization (or division of the organization) and governed by the quality system defined in the quality manual. The scope shall define the types of services offered and the geographic region served by the organization. (Note: The implementation of the quality management system must cover all services associated with residential construction work for all builders the organization does work for.)
- 1.2 QUALITY POLICY - The quality policy shall be relevant to the service provider's organizational goals and shall state the organization's commitment to quality, safety, and to meeting customer's requirements. The statement will also commit the organization to safely achieving quality results and shall involve the entire organization. The organization shall ensure that this policy is understood, implemented and maintained within the organization.
- 1.3 QUALITY RESPONSIBILITIES - The organization's employees shall be responsible for adhering to the quality system policies and procedures. Specific quality responsibilities shall be defined and documented for key positions affecting quality. These positions include organization management, (the manager with overall responsibility for the quality system), a safety officer, and as appropriate, key consulting/inspection personnel; supervisory personnel; technical personnel; and quality assurance personnel.
 - 1.3.1 SENIOR MANAGEMENT - Management responsibilities shall include demonstrating commitment to quality, providing resources to support the operation of the quality system, and ensuring that all employees are aware of the quality system and quality commitment and are effectively following those portions of the system appropriate to their job.
 - 1.3.2 QUALITY REPRESENTATIVE - The organization shall appoint a quality representative (however titled) who shall report directly to a senior manager. The quality representative shall be responsible for the overall operation, effectiveness, and continual improvement of the quality system.
 - 1.3.3 SUPERVISORS - Personnel with supervisory responsibilities shall also be responsible for ensuring that assigned staff is capable of performing the assigned tasks, and that all provided services comply with the applicable codes/regulations and meets the customer/builder expectations and organization quality standard. Supervisors shall also be responsible for ensuring compliance with applicable quality assurance system requirements and procedures by those under their supervision.
 - 1.3.4 QUALITY ASSURANCE PERSONNEL - Personnel carrying out quality assurance activities shall be responsible for providing oversight and review of work according to the quality plan to verify that products/services have been done in accordance with the client expectations; company standards; specifications; generally accepted practices documenting significant non-conformances; and verifying these non-conformances have been corrected. (Note: Quality assurance personnel are defined as any person inspecting/reviewing work to verify conformance with various parts of the quality plan, regardless of job title.)
- 1.4 ORGANIZATION CHART - The organization shall maintain a documented organization chart that shows reporting/connecting relationships between various key position titles.

2.0 QUALITY ASSURANCE PLAN

- 2.1 **CODES, REGULATIONS, & INDUSTRY STANDARDS** - The organization shall ensure compliance with applicable building codes; governmental/jurisdictional regulations; safety regulations; and industry standards that pertain to the services provided by the organization. The quality manual will reference the applicable sections of the codes, regulations, and industry standards and the organization shall have access to those documents. The organization shall have a process for keeping current on these codes, regulations, and standards.
- 2.2 **CUSTOMER REQUIREMENTS** - The organization shall implement a review process to ensure that the customer requirements (e.g., scope of work) and contract are clearly understood and communicated. The review will verify that the organization is able to supply the product or service to meet customer requirements. The organization shall ensure that any areas needing clarification are addressed and all changes to the customer requirements/contracts are appropriately negotiated, reviewed, and approved. The organization shall implement a process for ensuring that only the most current documents, drawings, and specifications are used for performing work.
- 2.3 **SERVICES** - For each type of service provided, the company shall document the following elements of a plan to provide those services:
 - 2.3.1 **WORKMANSHIP** - The organization shall document their workmanship practices to be used on all work unless otherwise specified by the builder/customer. These standards, practices, and specifications shall, at a minimum, meet generally accepted industry practices and industry standards. Design work, calculations, and other analysis shall be based on sound engineering judgment; scientific principles; applied mathematics; and applicable codes and standards.
 - 2.3.2 **WORK FLOW** - The organization shall document the sequence of activities for each type of service including all major activities related to determining customer requirements; planning; execution of the contract/work; and quality assurance activities involved in a project from contract review through job completion. The sequence shall also identify the appropriate function, department, or unit responsible for each activity.
 - 2.3.3 **TRAINING AND PERSONNEL QUALIFICATIONS** - The organization shall document the training and qualifications required for key positions. This shall include supervisory personnel; positions requiring professional licensure; design personnel; inspectors; and trainers performing work affecting product/service quality. The organization shall document those persons qualified for each key position. The organization shall ensure that only competent personnel perform each activity. Records of qualified personnel shall be kept for key positions. Training/qualifications for positions requiring professional licenses, certificates, or other specialized training shall be documented. The organization shall document the process of training and qualifying new hires and individuals given new responsibilities.

(Note: Examples of various services to be addressed in this section are surveying; design; third-party inspection; site security; recycling; sanitation; cleaning; etc.)

2.4 PURCHASING

- 2.4.1 **VENDORS** - When the quality of the supplied service/product can be affected by selection of the manufacturer or vendor, the organization shall implement a procedure for selecting its sources based on their ability to meet their customers' established requirements, the capability to supply required products/services efficiently within schedule, as well as any support service required. When the customer explicitly specifies products (including subcontractors) that the supplier knows may negatively impact quality, the supplier shall have a process to provide feedback and alternate recommendations to the customer. The organization shall implement procedures to ensure that only products or services meeting customer specifications are purchased and delivered.

- 2.4.2 MATERIALS - The organization shall implement a process for evaluating and approving the use of all equipment and software before their use. The organization shall ensure these items are appropriate for the intended use in the process being used. The approved materials; software; specifications; and suppliers will be documented.
- 2.4.3 EQUIPMENT - The organization shall ensure that proper equipment, including safety equipment and personal protective equipment, when appropriate, (fit for purpose, appropriately maintained, and in good working condition) is available for use by their personnel. The organization shall be responsible for providing personnel that are properly trained in the use of the equipment, including software, and ensuring that the equipment/software is used properly. (Note: This requirement pertains only to equipment/software that impacts the quality of the end service/product.)
- 2.5 CALIBRATIONS & MAINTENANCE - When equipment, instruments and/or measuring devices critical to providing a quality service and which requires regular maintenance and/or calibration are used, the organization shall ensure the devices are properly maintained and/or calibrated according to manufacturer's instructions and appropriate records of this maintenance/calibration are kept. When applicable, consideration should also be given to computer software (maintenance and updating) used in providing the service to assure that information presented is correct.
- 2.6 Document Control - The organization shall establish and implement procedures to ensure that only the most recent documents; procedures; codes; standards; and specifications are used.
- 2.7 SUBCONTRACTING - When any work is subcontracted, the organization will have a process for ensuring only competent subcontractors are used. The organization shall retain the responsibility for the quality of the work done by subcontractors and have processes in place to assure the quality of the product/service.
- 2.8 CUSTOMER SERVICE - The organization shall have a process for responding to customer service requests that occur during or after completion of the job. Satisfactory resolution of each request shall be verified and recorded. At least quarterly, the cause and frequency of customer service requests shall be considered in the identification of opportunities improvement for improvement (see Section 4.1).
- 2.9 SAFETY - The organization shall have an active safety program. The program shall define the safety responsibilities of employees; provide for competent (in hazard recognition and prevention) personnel; safety inspections; and management commitment and review. Appropriate records shall be kept to show the safety program is effective and to meet federal, state, and local regulations. (Note: If the organization has a separate safety program meeting this requirement, the quality manual only needs to reference that safety program.)

3.0 QUALITY ASSURANCE ACTIVITIES

- 3.1 **QUALITY ASSURANCE ACTIVITIES** - For each service/product provided, the quality manual shall define the reviews, inspections, and other processes that are intended to verify that the work has been done properly according to customer requirements and company procedures. The quality manual shall define who; when; how; applicable criteria; and the documentation requirements of each review, inspection, or other verification process. As applicable, these reviews, inspections, and other activities shall include job ready (including safety when applicable), in-process, and job complete assessments. The quality manual shall define the information to be recorded for each quality assurance activity and shall include, at a minimum, who completed the review/inspection, date, and overall acceptance or rejection. When traceability is appropriate, these quality assurance activities shall include documentation to provide the necessary traceability.
- 3.2 **CORRECTION OF NON-CONFORMANCES** - When the quality assurance activities of Section 3.1 identify an item or service of significance needing correction, the issue needing correction shall be documented. Appropriate action shall be taken to fix the problem including, as needed, providing appropriate indicators of inspection status/results by means of markings; stamps; tags; labels; routing cards; inspections records; test data; physical location; or other suitable means. The correction of this issue shall be documented. Appropriate action shall also be taken to find the root cause of the problem and prevent re-occurrence. The quality manual shall outline the process of this corrective action and who is responsible for final disposition of any issue.
- 3.3 **SELF INSPECTIONS** - When reviews or inspections are done by individuals directly involved with the function or delivery of the respective service, the organization shall have a process for verifying that these reviews or inspections are being done accurately and timely.
- 3.4 **EVALUATION OF IMPROVEMENTS** - When improvement opportunities are identified (see Section 4.1) and improvements are implemented the quality assurance activities of Section 3.1 shall be such that information is gathered regarding the effectiveness of those improvements.

4.0 CONTINUOUS IMPROVEMENT

- 4.1 IMPROVEMENT OPPORTUNITIES - At least quarterly, the quality representative (or designee) shall review the various processes, activities, and records for each service provided to look for improvement opportunities. This review shall be documented.
- 4.2 TRAINING - When an improvement opportunity has been identified (see Section 4.1) training shall be conducted and/or process change shall be implemented to address the opportunity. Records of this training or process change shall be kept. The organization shall implement procedures for verifying the effectiveness of this training or process change. The effectiveness of this shall be evaluated and documented.
- Training shall also be initiated, when appropriate, to address new products, equipment, technologies, etc.
- 4.3 CUSTOMER FEEDBACK - The organization shall implement procedures to evaluate customer satisfaction with their service(s). This assessment shall be conducted at least annually to include feedback from all residential home construction customers for whom the organization works. This feedback shall identify overall satisfaction as well as specific issues. The results of this assessment shall be considered in analyzing the effectiveness of the quality system and initiating changes to the system. Significant issues identified from the feedback shall be addressed and documented. When an organization provides multiple services, this assessment should seek to identify customer satisfaction with each type of service.
- 4.4 Quality PERFORMANCE - The organization shall define and track key quality performance measures and statistics indicative of the overall effectiveness of the quality system and the quality of its products and services. These statistics and progress toward goals shall be calculated, documented, and distributed to management at least once a quarter.

5.0 QUALITY ASSURANCE SYSTEM MANAGEMENT

- 5.1 INDEPENDENT QUALITY ASSURANCE SYSTEM AUDIT - The organization shall, at least once a month, conduct a random independent audit of at least one key "activity" or "process" that affects customer satisfaction and meeting customer requirements (e.g., planning; design; inspection; service delivery; or other quality assurance activities involved in providing a service from contract review through completion and delivery of that service) to verify the implementation and effectiveness of the quality system in that process. These audits and any corrective actions initiated as a result of the audit shall be documented. During the course of one year, these audits shall be sufficient in number to assure the effective operation of the quality system and to cover the key process for each type of service offered, and generally represent the organization's scope of operation. To the extent practical, this audit should be conducted by individual(s) who do not have immediate supervisory responsibility for the function being reviewed. (Note: In small organizations where this independent review is not practical and where the owners/senior management are intimately involved with the actual service, this monthly assessment of the quality system may be done as a general review documenting observations about the quality system from daily observations made of operations/services being provided throughout the month.)
- 5.2 ANNUAL MANAGEMENT REVIEW - At least annually the senior management shall review the operation and effectiveness of the quality system and safety program. This review shall include the issues noted in the independent quality assurance system audits; customer feedback; complaints/rework; and customer service. The annual review shall also include assuring compliance with these requirements, assessing quality performance statistics and trends, setting goals, and addressing needed changes to the system. Quality system improvement opportunities shall be identified and appropriate action initiated. Records shall be maintained for each review. The records shall be in sufficient detail to disclose the participants; significant issues; conclusions; improvement opportunities; and planned changes.
- 5.3 QUALITY MANUAL - The organization shall have a documented quality manual which shall describe or reference all the organization's top-level policies; processes; procedures; and documents that assure that these NHQ requirements, customer requirements, and organization standards are met. The quality manual shall make reference to appropriate supporting documents when applicable.
- 5.4 RECORD RETENTION - The organization shall maintain appropriate records to provide evidence that the processes and procedures of the quality system are being followed. The organization shall document and adopt a policy for record retention. This policy shall specify which records shall be kept and for how long. Records reflecting customer requirements; quality assurance; work processes (e.g., calculations and analyses; engineering reports; design output; design changes and design verification activities; inspection records; etc.), training records; and reviews shall be kept for at least three years. Safety records shall be retained for the period required by federal and state safety agencies.