NATIONAL HOUSING QUALITY

QUALITY ASSURANCE SYSTEM FOR WOOD FRAMING CONTRACTORS

PATH

PD&R

U.S. Department of Housing and Urban Development
Office of Policy Development and Research

HUD

PATH (Partnership for Advancing Technology in Housing) is a new private/public effort to develop, demonstrate, and gain widespread market acceptance for the "Next Generation" of American housing. Through the use of new or innovative technologies, the goal of PATH is to improve the quality, durability, environmental efficiency, and affordability of tomorrow's homes.

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Prepared for:

U.S. Department of Housing and Urban Development
Office of Policy Development and Research
Washington, DC

Prepared by:

NAHB Research Center, Inc.
Upper Marlboro, MD

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NATIONAL HOUSING QUALITY

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Notes on Version December 2000

This manual is based on the 2000 release of ISO 9000.

Customization Notes

Framing contractors can use this publication as a model for a customized company Quality Assurance Manual.

Text that appears in headline boxes like this are instructions for the preparation of a company-specific quality manual. Headline boxes should **not** appear in a customized company quality manual.

FOREWORD

In 1998 HUD and the NAHB Research Center hosted a Technology Roundtable for builders and manufacturers. Participants voiced a need for practical and effective methods to improve one of the most critical construction essentials — framing quality. It is one of the most challenging and potentially rewarding areas for the residential construction industry.

In response to this interest, HUD, in cooperation with the Partnership for Advancing Technology in Housing (PATH), commissioned the NAHB Research Center to develop a quality assurance system for framing trade contractors. The project involved government, industry associations, builders, and framers working together to develop the quality system and implement it in their construction operations.

Our collective experience resulted in this manual, *the Quality Assurance System for Wood Framing Contractors.* It is a model quality assurance system designed to be adapted by builders and framing contractors.

We hope that you find this manual a valuable tool for stimulating improvements to framing quality.

Susan M. Wachter
Assistant Secretary for Policy
Development and Research

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Introduction

Quality means different things to different people. We often hear terms like TQM, ISO-9000 and others to describe various aspects of quality programs in many different types of industries and organizations. Many of these programs sound either intimidating or bureaucratic. And it's not often clear how an organization, especially a small business, can benefit from them.

For the Home Building industry, quality can also mean a variety of things, but most importantly, it represents an opportunity to improve the way we do business on a continuous basis, from the smallest construction details to the largest management decisions. It represents a fundamental change in the perceptions we all have about how we function in our daily roles.

In short, Quality is about expecting people throughout your organization and those you do business with to take responsibility for their actions and the actions that go on around them. In other words, to really act like you are on the same team. Expectations of responsible behavior require upper management to not only introduce accountability into the job and give employees the freedom to take on responsibility, but also to do whatever it takes to support them in carrying out their responsibilities.

One of the central elements to any quality management approach is to develop a way of doing business that results in a continuous cycle of self-evaluation and improvement. The system should yield measurable results in a virtually unlimited number of areas, whether through improved compliance with specifications, improved customer satisfaction, or similar areas where performance improvements are always welcome.

This document is geared toward the framing activities of home building. It identifies a framework that a contractor can use to develop a quality management program that delivers maximum value. The approach is centered around a series of activities:

1. Identify people to take on certain roles related to your improvement program
2. Determine your goals for improvement and identify performance criteria such as code requirements and specifications
3. Determine a baseline of where you are now through an audit procedure designed to identify deficiencies or opportunities for improvement
4. Provide necessary improvements or training to address deficiencies or opportunities
5. Incorporate regular, periodic follow-up audits and training as a part of doing business.

Checklists, forms, procedures, and record-keeping activities are discussed in this document. But remember that these items are just tools to assist you in improving performance. You do not have to necessarily introduce new people into your company nor develop a complex management system to improve your performance. An effective quality program should be fitted to a specific company's business operation, size, and culture. For a small business, the owner, foreman, or superintendent might be the most effective quality manager. In a larger company, a separate function may be necessary. Keep in mind that even modest initial goals that start you on the road to continuous improvement will show up in measurable results.

Using This Manual

This manual provides wood framing contractors with a model quality assurance system that can be adapted to suit individual company needs. The body of the manual provides the basis for a customized Quality Assurance Manual. Customization Notes throughout the guide identify areas that may need special attention. In the appendix, form templates (Appendix A) and *Wood Framing Performance Guidelines* (Appendix B) can be used to create company-specific documents. The quality assurance system can also accommodate similar forms you may be using by simply referring to them rather than to the model forms provided.

Steps to Create and Customize Your Company's Quality Assurance System

This manual can help you implement and maintain a functional and practical quality assurance system by following a step-by-step approach.

Step 1: Review
Read through the manual to become familiar with the quality assurance system. Consider any needed customizations to adapt the system to your company.

Step 2: Plan
Determine which guidelines will benefit your company. You may choose to implement one or more guidelines or a series of guidelines.

Step 3: Develop a QA Manual
Develop a customized QA Manual for your company's quality assurance system. Use material in the manual that suits your organization. Select and customize the forms provided in the appendices as necessary. Review your Quality Assurance Manual with the appropriate personnel to ensure their commitment.

Step 4: Pilot
Test the customized manual and forms and make refinements as necessary.

Step 5: Implement
Follow the procedures in your manual as standard business practice.

Step 6: Update
Periodically review and update the Quality Assurance Manual and system to maximize effectiveness.

Certification

While this manual may be used to pursue NAHB Research Center Certified Framing Contractor status, certification is not a requirement. Companies seeking quality improvements may use the manual to develop and refine their own quality assurance system. Even without certification, following some or all of the guidelines should result in more consistent framing quality, cost reductions, and improved customer satisfaction.

Companies wishing to pursue ISO 9002 registration will need to follow these QA System guidelines and provide supplementary detail in their QA Manual. Company-specific procedures should be provided for Sections 2.0, 3.0, and 4.0, which document specific work steps, responsibility, timing, and record keeping. In addition, the scope of Section 4.6 should be expanded to include all quality documents, including work procedures and forms.

Additional Resources

Occasionally, it may be necessary to seek additional help and advice. To assist in this area, the NAHB Research Center's ToolBase Hotline (800-898-2842 or ToolBase@nahbrc.org) offers a free service that can answer questions on the application and use of the quality manual.

Customization Notes

Do not include this introductory section in your customized quality manual.

1.0 – General

1.1 Scope

This Quality Assurance Manual applies to all types of wood framing activities.

Customization Notes

Limit the manual's application to specific framing activities.

1.2 Purpose

The Quality Assurance Manual describes a quality assurance system that addresses

- Quality Plan (Section 2.0);
- Jobsite Quality Inspections (Section 3.0); and
- Quality System Management (Section 4.0).

The purpose of the manual is to demonstrate a system for

- Ensuring that qualified personnel perform framing work;
- Controlling materials, tools, work procedures, and equipment that affect quality;
- Verifying compliance with regulations, product specifications, safety procedures, and builder requirements;
- Taking action to prevent recurrence of defects; and
- Assessing and improving the effectiveness of the quality assurance system.

2.0 – Quality Plan

2.1 General Specifications

All framing must comply with the following:

- Federal performance regulations;
- State regulations;
- Applicable building codes, including local addendums; and
- Construction permit and associated architectural drawings.

Customization Notes

Edit the above list to include specific regulations or standards. Eliminate any items that do not apply.

2.2 Builder Specifications

Framing must comply with builder specifications as outlined in contracts, scopes of work, and construction plans and specifications, including

- Referenced codes and standards;
- Material and building product specifications;
- Manufacturer's installation instructions; and
- Specified workmanship and performance tolerances.

Construction drawings approved by local code authorities are required for each job before work can begin.

It is essential to comply with the most current version of construction drawings and specifications. When a new version is released, all previous versions must be recovered, destroyed, or marked obsolete.

The Quality Representative (see Section 4.4) must review drawings and contract specifications for completeness and for any incompatibilities between the specifications, regulations, and the QA system. The Quality Representative must notify the builder of any discrepancies before proceeding with work.

Customization Notes

Appendix A provides a sample *Standard Responsibilities* form.

2.3 Framer Specifications

To ensure quality, the framer may need to supplement builder specifications. If so, framer specifications must be set for all materials, work processes, and performance specifications that affect quality. By default, framer specifications require compliance unless the builder contract supersedes specific requirements.

The Quality Representative must approve all standard materials and related use instructions noted in the framer specifications. The Quality Representative must then list them on the *Approved Materials List* (Appendix A).

The following types of materials must be approved before use:

- Dimensional lumber;
- Fasteners (nails, bolts, and screws);
- Engineered lumber and systems;
- Interior and exterior sheathing;
- Preservative-treated wood;
- Connectors and ties;
- Structural supports (posts);
- Structural I-beams;
- Sill plate sealer;
- Adhesives, sealants, and caulk; and
- Draft and fire stop materials.

At least annually, the Quality Representative must determine if updated versions of standards or product installation instructions are available. If so, the representative must update the quality assurance system documentation accordingly.

The Quality Representative must define standard workmanship and performance tolerances and then list them in the *Framing Performance Guidelines* (Appendix B).

To define the responsibilities of the builder and framer, responsibilities must be identified for job-ready conditions, supply of specific materials, protection of completed work, and provisions for warranty service. The Quality Representative must list standard responsibilities on the *Standard Responsibilities* form (Appendix A) and provide the form to builders. Builder contact specifications supersede standard framer responsibilities.

Customization Notes

Add other material types that affect quality.

2.4 Material Purchasing and Use Requirements

Only materials listed on the *Approved Materials* form, specified by the builder, or required by regulations may be used in the construction process. Framing processes must follow the installation instructions specified on the approved materials list, in builder specifications, and in regulatory requirements.

Purchasing only approved materials is essential to prevent material substitutions. Only materials referenced on the *Approved Materials* form may be purchased for the intended use.

Sometimes the selection of suppliers affects the quality of purchased materials. The Quality Representative must approve suppliers when the selection of suppliers is necessary to ensure quality.

2.5 Qualified Crew Leaders and Inspectors

A Qualified Crew Leader must generally be available on the jobsite when work is being performed. A Crew Leader must understand and demonstrate acceptable workmanship practices. A Crew Leader must also understand applicable code, regulatory, and QA system requirements.

Only Qualified Inspectors may complete jobsite inspection forms. Qualified Inspectors must demonstrate inspection accuracy. They must also meet all Crew Leader qualifications.

Using the *Qualified Crew Leader's/Inspector's List* form (Appendix A), the Quality Representative must approve and maintain a list of Qualified Crew Leaders and Inspectors and the type of crew for which they are approved.

Independent contractors must meet all requirements for qualification and listing as employee Crew Leaders and Inspectors.

Customization Notes

Titles of Crew Leaders and Inspectors vary among regions and from company to company. Use titles that apply to your company.

Crew Leaders and Inspectors are not new positions. Crew Leaders lead framing crews on the jobsite. Inspectors inspect completed work. If qualified, a person may serve in the capacity of both Crew Leader and Inspector.

The Quality Representative will define qualified personnel at start-up of the quality assurance system. When skills and knowledge certifications are available, they may be used as requirements for qualification of Crew Leaders and/or Inspectors.

2.6 Access to Quality Documents

Quality assurance documents related to the work being performed must be available to personnel on the jobsite. Documents include

- Job specifications;
- Quality Assurance Manual;
- Installation instructions for materials being installed; and
- Construction drawings.

3.0 – Jobsite Quality Inspections

3.1 General Inspection Requirements

Jobsite inspections are necessary to verify that all QA requirements are met. A Qualified Inspector must perform jobsite inspections and record observations on a *Jobsite Inspection* form (Appendix A). Any quality problems encountered, even if corrected, must be recorded.

If working conditions are unsafe, work must not proceed until safe working conditions are restored.

The Crew Leader must verify all materials before use to ensure that they are approved and not defective. Materials that are unapproved, defective, deteriorated, or damaged must not be used. Such materials must be marked for nonuse or otherwise held aside.

When the builder supplies materials, all QA system requirements apply. When builder-supplied materials are lost, damaged, or otherwise found unsuitable for use, the Crew Leader must report this to the builder.

If the continuation of work adversely affects quality or hides a defect, work may not proceed in the affected area until the problem is corrected or the builder or company's Quality Representative approves the continuation of work. The Inspector must record both written and oral approvals on the *Jobsite Inspection* form.

Customization Notes

Typically, job inspections are performed by Crew Leaders or superintendents qualified as Inspectors.

3.2 Job Readiness Inspection

Before beginning work, a Qualified Inspector must perform an inspection. The Inspector must report the inspection information on the *Jobsite Inspection* form. Work must not start when existing conditions adversely affect quality.

3.3 Job Completion Inspection

At job completion, a Qualified Inspector will perform an inspection. The Inspector must report the inspection information on the *Jobsite Inspection* form. The Inspector must also record builder punch-out corrections and code inspection failure items, even if immediately corrected.

3.4 Control of Construction Defects

After final inspection, signage, paint, or floor markings must identify items for corrective action to prevent inadvertent cover-up by any following activities.

If a critical defect is observed, immediate action is in order to prevent recurrence.

Customization Notes

Add specific instructions for marking nonconformances. Typical methods include paint, tape, or signage.

4.0 – Quality System Management

4.1 Prevention of Construction Defects

To improve quality, a systematic approach is essential for preventing recurrent defects. Preventive actions must be initiated in accordance with consideration of the frequency and severity of the defects.

At least quarterly, the Quality Representative must review defect history and trends. More specifically, the representative must assess job records; code official and builder inspections; independent quality reviews; warranty callbacks; jobsite quality inspections; and builder satisfaction surveys. The representative must also analyze defect history to assess the quality performance of Qualified Crew Leaders and Inspectors.

The Quality Representative must record all preventive actions on the *Problem Report* form (Appendix A). The Quality Representative must follow up all preventive actions and assess their effectiveness.

4.2 Builder Satisfaction Feedback

Feedback on builder satisfaction is necessary to determine whether quality expectations are being met. The Quality Representative must survey all major customers at least annually to identify their level of satisfaction and dissatisfaction. The representative must use a *Builder Satisfaction Survey* form (Appendix A) to collect satisfaction ratings on product and service quality. Items of builder dissatisfaction must be treated as quality nonconformances and addressed accordingly.

4.3 Quality System Reviews

Company wide reviews are necessary to evaluate how well the QA system is working. If necessary, the company must initiate changes to improve system effectiveness.

At least quarterly, the Quality Representative must perform quality assurance system reviews to determine whether the quality assurance system is operating on the jobsite. The representative must maintain a record by using the *Independent Jobsite Quality Review* form (Appendix A).

Annually, senior managers must evaluate the suitability and effectiveness of the quality assurance system. The Quality Representative must maintain a record of the annual review by using the *Annual Quality Systems Review* form (Appendix A).

Based on QA system reviews, the company must introduce needed improvements and assess their effectiveness.

4.4 Quality Representative

While everyone is responsible for quality, one person in the company, the Quality Representative, is ultimately responsible for operation of the QA system. The highest-ranking company official must issue a *Memorandum: Appointment of Quality Representative* (Appendix A) who, regardless of other job duties, is responsible for successful operation of the system.

Customization Notes

The Quality Representative is not a new position. It assigns quality responsibilities to existing personnel. In small firms, the Quality Representative is typically a senior manager or owner.

4.5 Quality Communications

All employees must understand their own quality assurance responsibilities and the companys quality policies.

The Quality Representative must review the company *Quality Statement* (Appendix A) with all employees at least annually.

A copy of the company's Quality Statement must be distributed to all employees and posted in all offices.

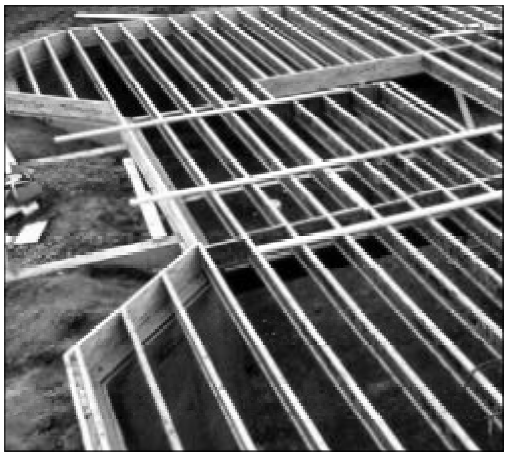
An organization chart must define company roles, authorities, responsibilities, and reporting relationships.

Customization Notes

A sample Quality Statement appears in Appendix A.

4.6 Quality Manual Version Control

It is essential to control distribution of Quality Manuals to prevent inadvertent use of obsolete versions.



Each new version of the Quality Manual must include a version date on the title page.

Each copy of the Quality Manual must be uniquely identified by the name of the person to whom it is issued. The recipient's name must appear on the title page.

A distribution list must be maintained by using the *Quality Manual Distribution List* form. When all or part of the quality manual is updated, the Quality Representative must distribute new versions to all persons listed on the *Quality Manual Distribution List* form (Appendix A). The representative must then update the form.

Documents clearly marked "DRAFT" or "Uncontrolled Copy" do not need to be updated.

4.7 Retention of Quality Records

Quality records are necessary to demonstrate conformance to and operation of the quality assurance system. The Quality Representative must ensure that records are retained for a minimum of three years.

The following quality records must be retained:

Job Records for each home, including

- Job specifications;
- Completed inspection forms;
- Records of nonconformances; and
- Warranty service and repair records.

Contracts, including

- Builder-trade contracts;
- Independent contractor contracts; and
- Purchase contracts.

Quality Management Records, including

- Training and test records;
- Preventive action records;
- Quality system audits and review records;
- All Quality Manual versions; and
- Builder satisfaction surveys.

Customization Notes

Revise retention period as necessary.

APPENDIX A: FORMS

The following forms are included:

Standard Responsibilities
Approved Materials List
Qualified Crew Leader/Inspector List
Jobsite Inspection
Problem Report
Builder Satisfaction Survey
Independent Jobsite Quality Review
Annual Quality Systems Review
Memorandum: Appointment of Quality Representative
Quality Statement
Quality Manual Distribution List

Customization Notes

Edit the forms that follow to meet company needs.

Caution! Form templates provide information required for proper documentation of the QA system and its operation. Be careful when customizing forms not to delete required information.

If you intend to continue using one or more of your current forms, insert the form in this section of the quality manual.

Standard Responsibilities

The following is our understanding of builder and trade contractor responsibilities unless superceeded by the contract.

Builder Responsibilities:	
1. Materials supplied by the builder	• Lumber • Connectors • Engineered wood joists and beams • Sheathing
2. Specifications, requirement, and conditions for the job to be ready for work to begin	• Foundation level, flatness, and dimensions meet Framing Performance Guidelines
3. Protection of completed work	• Engineered joist penetrations must conform to allowable penetrations as stated in the product manufacturers instructions • Beams of engineered lumber not to be drilled, sawn, or notched • Holes in dimensional lumber studs or joists must not exceed allowable size per IBC 502.6 • Truss strongbacks must not be cut
4. Other	• Installation of additional anchor bolts required to secure sole plate to foundation
5. Provide the homeowner with applicable care and maintenance instructions	• Not Applicable
Trade Contractor Responsibilities:	
6. Materials supplied by the trade contractor	• Sill seal • Fasteners • Sheathing clips
7. Product traceability requirements, if any	• Not applicable
8. Warranty service responsibility	• Correction of workmanship defects

Customization Notes

Edit the *Standard Responsibilities* form to reflect typical builder/trade contractor responsibilities.

Approved Materials List

Type of Material or Equipment	Approved Use and Placement (List Restrictions)	Specification (List compliance standard, make, model, or specific restrictions)	Approved Installation Instruction (List document title and version number)

Customization Notes

Complete the Approved Materials List with framer specified materials and related use instructions.

Qualified Crew Leader / Inspector List

	Layout:		Framing:		Roof Truss:		Sheathing:		Blockout:	
Name:	Crew Leader	In-spector	Crew Leader	In-spector	Crew Leader	In-spector	Crew Leader	In-spector	Crew Leader	In-spector

Customization Notes

Edit the Qualified Crew Leader/Inspector List to reflect specific company crew types.

List names of Qualified Crew Leaders and Inspectors. Insert the approval date in the appropriate boxes.

Jobsite Inspection

Community:	Home/Unit/Lot:	Model:	Elevation:	Foundation: ❑ Slab ❑ Full ❑ English
Options:				
❑ 8'-ceiling – 1st floor ❑ 9'-ceiling – 1st floor ❑ 10'-ceiling – 1st floor ❑ Tray ceiling ❑ Cathedral ceiling ❑ 3-car garage ❑ Garage stairs	❑ Opt. garage door ❑ 4th bedroom ❑ 5th bedroom ❑ Bonus room ❑ Conservatory ❑ Den	❑ Ext. family room ❑ Fireplace-gas ❑ Fireplace-wood ❑ Greenhouse ❑ Opt. master bath ❑ Sitting room ❑ Sunroom	❑ # Bay wind___ ❑ # Box wind___ ❑ # Opt. wind___ ❑ # Skylights___ ❑ Attic platform ❑ # Dormers___	❑ Loft ❑ Ext. stairs ❑ Porch ❑ Sundeck___x___
Other options/workorders:				

Key Requirements: (for review)	Hotspots: (must be verified)
Job Ready: • Foundation dimensions • Foundation square • Foundation flat • Sill plate anchor spacing • Safe site conditions	Crew:_____ Insp:_____ Date:_____ Drawing Version Date:_____
Layout: • Wall lines snapped • Mark girder, window, door, point load locations • Mark header and liner sizes	Foundation/Name:_____ Date: _____ 1st floor/Name:_____ Date: _____ 2nd floor/Name:_____ Date: _____ 3rd floor/Name:_____ Date: _____
Floor Deck(s): • Joists • Steel columns plumb • Beams • Straps nailed • Anchors secured in plate • Sill seal continuous • Decking nailed and glued • Stair well covered and safety rails installed • Bridging	1st floor: Crew:_____ Insp:_____ Date:_____ 2nd floor: Crew:_____ Insp:_____ Date:_____ 3rd floor: Crew:_____ Insp:_____ Date:_____
Wall Frame(s): • Walls installed per layout • Headers and liner nailed • Opening positions • Walls braced and sited • Nailers • Safety rails • Clean-up • Hardhats worn	1st floor: Crew:_____ Insp:_____ Date:_____ 2nd floor: Crew:_____ Insp:_____ Date:_____ 3rd floor: Crew:_____ Insp:_____ Date:_____
Roof System: • Truss Layout • Permanent bracing • Sheathing nailers • Elevation and crickets • Exterior chimney chases frames • Core wall with clips • Hurricane clips • Girder truss nailing • Clean-up • Hardhats worn	Crew:_____ Insp:_____ Date:_____

continued on the next page

Sheathing, Walls: • Sheathing spaced • Nailing depth and pattern • Clean-up • Hardhats worn	Crew:_____ Insp:_____ Date:_____
Sheathing, Roof: • Plywood clips • Nailing pattern and depth • Side guards in place • Crickets • Gables straight • Trusses straight • Roof vents • Clean-up • Hardhats worn	Crew:_____ Insp:_____ Date:_____
Fascia: • Rakes and fascia • Returns and porkchops • Frieze boards • Framing of round windows • Chimney wraps	Crew:_____ Insp:_____ Date:_____
Windows and Doors: • All windows and doors installed • Plumb and level W&D • Hardware • Screws and shims • Flash windows and doors • Caulk windows and doors • Safety rails reinstalled • Clean-up • Hardhats worn	Crew:_____ Insp:_____ Date:_____
Blockout: • Stair platforms • Bracing removed • Bowed studs checked and replaced • Garage jambs • Whirlpool platforms • Attic access and platforms • Safety rails installed • Walls squared • Bathtub firestopped • Whirlpool draftstopped • Medicine cabinet blocked • Firestops installed • Fire block mechanicals • Knee walls secured • Pin-up in cathedral • Clean-up • Hardhats worn	Crew:_____ Insp:_____ Date:_____
Final Inspection: • All corrections complete • Builder punchlist complete • HotSpots checked • Clean-up	Foreman:_____
Notable Problems:	
Builder punch-out items (even if corrected):	
Work to be completed at a later date:	

Customization Notes

Edit theJobsite Inspection Record to organize key requirements by type of crews.

Edit the options section to reflect common options.

Add HotSpot items to address current problem areas.

Problem Report

Reported by:	Date:
Description and Cause:	
Actions planned:	
Follow-up performed by: Date: Follow-up observations:	
The above report has been resolved and no further action is necessary. Closed by: _____ Date: _____	

Builder Satisfaction Survey

Builder:	Name:	Location:	Date:

Please rate your recent experience in each of the following areas. Most questions require only that you check the appropriate box. Feel free to add your comments to any question.

	Strongly Disagree	Disagree	Slightly Disagree	Neither	Slightly Agree	Agree	Strongly Agree	
1. Contract and job specifications are consistently met	☐	☐	☐	☐	☐	☐	☐	n/a
2. Building codes and regulations are consistently met	☐	☐	☐	☐	☐	☐	☐	n/a
3. Safety regulations are consistently met	☐	☐	☐	☐	☐	☐	☐	n/a
4. Schedule promises are consistently kept	☐	☐	☐	☐	☐	☐	☐	n/a
5. Specified materials are always used	☐	☐	☐	☐	☐	☐	☐	n/a
6. Contractor selected materials are a good balance of quality and price	☐	☐	☐	☐	☐	☐	☐	n/a
7. There is good quality workmanship with attention to detail	☐	☐	☐	☐	☐	☐	☐	n/a
8. The construction process usually goes smoothly with minimal mistakes or surprises	☐	☐	☐	☐	☐	☐	☐	n/a
9. Production problems, should they occur, are corrected quickly and effectively	☐	☐	☐	☐	☐	☐	☐	n/a
10. Problems are prevented from recurring	☐	☐	☐	☐	☐	☐	☐	n/a
11. Warranty service is responsive and effective	☐	☐	☐	☐	☐	☐	☐	n/a
12. The contractor is well organized and managed	☐	☐	☐	☐	☐	☐	☐	n/a
13. Homeowners are satisfied with the quality of the contractor's work	☐	☐	☐	☐	☐	☐	☐	n/a
14. Other trade contractors are satisfied with the quality of the contractor's work	☐	☐	☐	☐	☐	☐	☐	n/a
15. Overall, the contractor has good quality controls	☐	☐	☐	☐	☐	☐	☐	n/a
16. I am satisfied with this contractor	☐	☐	☐	☐	☐	☐	☐	n/a

Comments:

Customization Notes

Insert fax number into box at bottom of the page and print on company letterhead paper. Send with a cover letter to builder clients.

Please fax this form directly to [insert fax number here]. Thank you for taking the time to make your comments – they are greatly appreciated!

Independent Jobsite Quality Review

Community:	Home/Unit:	Model:	Elevation:	Drawing Version:
Job Status:	❑ Framing	❑ Roof truss	❑ Sheathing	❑ Fascia ❑ Block-out

Key Requirements:	Notes:
Review Items for All Jobs • Job ready and layout • Job readiness • Material handling and storage • Material type, grade, manufacturer, and supplier • Construction procedures and workmanship • Site cleanliness and material disposal • Jobsite inspection form is filled out and accurate • Jobsite inspection is performed by a Qualified Crew Leader	Crew Type: _____ Crew Leader: _____
Review Items for Work-in-process • Equipment, tools, and measuring devices are available and in good condition • Safety procedures • Job specifications are available • Quality Manual is available	
Review Items for Completed Work • Nonconformances are properly marked	
Observed nonconformances:	
Improvement recommendations:	
Reviewer/date:	

Customization Notes

Amend the Independent Jobsite Quality Review form to reflect specific company needs for verification checkpoints.

Annual Quality Systems Review

Date:

Agenda topics reviewed for compliance, suitability, and effectiveness

- ❑ Quality Statement
- ❑ Crew Leader Qualification
- ❑ Approved Work Procedures
- ❑ Subcontracted Crew Leader Approval
- ❑ Builder Specifications
- ❑ Material Purchasing Requirements
- ❑ Availability of Qualified Crew Leaders
- ❑ Access to Quality Documents
- ❑ Use of Approved Materials
- ❑ Jobsite inspection
- ❑ Control of Nonconformances
- ❑ Warranty Service and Repair
- ❑ Jobsite Quality Reviews
- ❑ Builder Satisfaction Feedback
- ❑ Prevention of Quality Nonconformances
- ❑ Annual Quality System Review
- ❑ Quality Document Control
- ❑ Retention of Quality Records
- ❑ Completeness and Accuracy of the Company Quality Records
- ❑ Effectiveness of Quality Controls to Prevent Defects
- ❑ Training Effectiveness and Needs
- ❑ Follow-up Actions From Earlier Management Reviews

Overall Evaluation of Quality System Effectiveness:

Planned Improvements:

Training Needs:

Notes:

Improvement Follow-up Date and Observations:

Participants in the Quality Review:

Memorandum: Appointment of Quality Representative

MEMORANDUM

TO: Employees, Customers, and Suppliers

FROM: (Company President)

SUBJECT: Appointment of Quality Representative

In a continuing commitment to workmanship, quality, performance, and durability of constructed product we are pleased and proud to announce that (Name) has been appointed Quality Representative with the responsibility to:

- Ensure overall effectiveness of the quality system.
- Ensure company-wide conformance to quality system requirements.
- Report to senior management on performance of the quality management system, including needs for improvement.
- Act as company liaison with parties outside the company on matters relating to quality.

Customization Notes

Print memorandum on company letterhead.

Quality Statement

Quality Statement

Our company is committed to the quality workmanship, performance, and durability of the constructed product. To this end, we pledge:

- Quality Assurance system policies and procedures will be followed at all times.
- Compliance with applicable construction codes, regulations, safety requirements, and good workmanship practices.
- Fulfillment of contract requirements in their entirety.
- All crews will work under the direction of Qualified Crew Leaders.
- All inspections will be performed by a Qualified Inspectors.
- Continual improvement toward the prevention of defects.

Quality Responsibilities

Quality is everyone's responsibility. All employees have a personal responsibility to ensure their own safety and the safety of others. All employees have a personal responsibility for the quality of their work and to:

- Use only approved materials and construction procedures.
- Ensure that materials and equipment are in good condition.
- Prevent potential problems that may adversely affect safety or quality.
- Stop work if conditions are unsafe.

The Crew Leaders have additional responsibilities to ensure that:

- Employees are capable of performing assigned tasks.
- Work activities comply with approved practices.
- Only approved materials and equipment are used.
- Each job meets good workmanship practices and meets contract, code, regulatory, and quality assurance system requirements.

Inspector responsibilities include all of the above plus:

- Conducting job inspections and producing records that accurately record job activity.
- Taking action to correct nonconformances.
- Notifying the builder of any unresolved nonconformances remaining at the completion of the job.

Senior Executive

Date

Quality Representative

Date

Customization Notes

Edit Quality Statement, job titles and quality responsibilities to reflect specific company needs.

When all crew leaders are qualified as inspectors, inspector responsibilities can be combined with that of the crew leader.

Print on a certificate suitable for display.

Quality Manual Distribution List

For Controlled Copies Only

Name:	Version:	Date Issued:	Location:	Recovery Date:

NATIONAL HOUSING QUALITY

FRAMING PERFORMANCE GUIDELINES

These guidelines are intended to help
set framing specifications
that are not addressed by building codes,
industry standards, lumber grading rules, and
manufacturers' installation instructions.

December 2000

Customization Notes

Select performance standards that apply. Modify specification units of measure as necessary. Insert specification tolerances as appropriate.

Sources of performance specifications to consider include: **NAHB Performance Guidelines,** licensed contractor warranty requirements for your state, and builder scopes of work in your area.

Job Ready and Layout

Performance Standard	Specification Tolerance Not to Exceed
Foundation dimension variation from drawing in length and width	_____ in. per _____ ft.
Foundation squareness	_____ in. deviation in the diagonal of a 3-4-5 ft. triangle
Foundation level	_____ in. per _____ ft.
Foundation evenness	_____ in. per _____ ft.
Foundation wall plumb measured from base to top	_____ in. per _____ ft.
Foundation slab crack maximum width	_____ in. width
Foundation slab crack vertical displacement	_____ in. vertical displacement

Floor	
Performance Standard	Specification Tolerance Not to Exceed
Wood column plumb measured from the base to the top of the column	_____ in. per _____ ft.
Wood column bow	_____ in. per _____ ft.
Steel column plumb measured from the base to the top of the column	_____ in. per _____ ft.
Floor deck length and width dimension	_____ in. per _____ ft.
Floor deck level in any direction	_____ in. per _____ ft.
Floor deck evenness in any direction	_____ in. per _____ in.
Floor deck squareness	_____ in. deviation in the diagonal of a 3-4-5 ft. triangle
Floor deck opening placement in reference to variation from drawing as measured from corner	_____ in.
Floor deck opening dimension in reference to variation from drawing	_____ in.
Floor deck squeaks resulting from loose subflooring	_____
Floor deck beam level	_____ in. per _____ ft.
Floor deck beams plumb	_____ in. per _____ in.
Floor deck beam placement variation from drawing as measured from corner	_____ in.
Floor deck truss level	_____ in. per _____ ft.
Floor deck truss plumb	_____ in. per _____ in.
Floor deck truss placement variation from drawing as measured from corner	_____ in.
Floor deck truss straightness	_____ in. per _____ ft.
Bottom chord bracing installed per truss design drawings	Locate per drawing within _____ in.
Strongbacks installed per truss design drawings	Locate per drawing within _____ in.
Floor deck joists level	_____ in. per _____ ft.
Floor deck joists plumb	_____ in. per _____ in.
Floor deck joist placement variation from drawing as measured from corner	_____ in.
Floor deck joist gap measured from rim joist	_____ in.

continued on the next page

Floor continued	
Performance Standard	Specification Tolerance Not to Exceed
Floor deck joist gap measured from base of hanger	_____ in.
Floor deck sheathing gap between individual panels	_____ in.
Ceiling level	_____ in. per _____ ft.
Ceiling evenness	_____ in. per _____ ft.
Fastener placement variation from drawing or installation instruction	_____ in. on the edge _____ in. in the field

Walls	
Performance Standard	Specification Tolerance Not to Exceed
Window sill level	_____ in. per _____ in.
Window opening dimension variation	_____ in.
Window opening plumb of jack stud	_____ in. per _____ in.
Window opening placement variation from drawing as measured from corner	_____ in.
Window opening twist in jack studs	_____ in. per _____ in.
Window sill twist	_____ in. per _____ in.
Window header level	_____ in. per _____ in.
Window header plumb	_____ in. per _____ ft.
Door opening dimension variation	_____ in.
Door opening plumb of jack studs	_____ in. per _____ in.
Door header level	_____ in. per _____ in.
Door header plumb	_____ in. per _____ in.
Door opening placement variation from drawing as measured from corner	_____ in.
Door opening twist in jack studs	_____ in. per _____ in.
Wall stud spacing variation as measured from corner	_____ in.
Wall placement variation from drawing as measured from corner	_____ in.
Wall dimension variation from drawing as measured from corner	_____ in.
Wall opening placement variation from drawing as measured from corner	_____ in.
Wall opening dimension variation from drawing	_____ in. per _____ in.
Wall plumbness	_____ in. per _____ in.
Wall height variation from drawing	_____ in. per _____ in.
Wall bow in the horizontal direction	_____ in. per _____ in.
Wall bow in the vertical direction	_____ in. per _____ in.
Wall squareness	_____ in. deviation in the diagonal of a triangle 3-4-5 ft.

continued on the next page

Walls continued	
Performance Standard	Specification Tolerance Not to Exceed
Wall top plate level	_____ in per _____ ft.
Wall openings plumb	_____ in. per _____ in.
Wall sheathing minimum and maximum gap between individual panels	_____ in. ≤ _____ in.
Braced per plans	Locate within _____ in. of plan
Location of shear walls	Locate within _____ in. of location of wall length
Sheathing fastener placement variation from drawing or installation instruction	_____ in. on the edge _____ in. in the field

Roof	
Performance Standard	Specification Tolerance Not to Exceed
Roof ridge beam deflection	_____ in. per _____ ft.
Roof sheathing evenness	_____ in. per _____ ft.
Roof truss plumb	_____ in. per _____ ft.
Roof rafter bow	_____ in. per _____ ft.
Roof sheathing gap minimum and maximum between sheets of roof sheathing	_____ in. ≤ _____ in.
Roof sheathing gap at ridge minimum and maximum values	_____ in. ≤ _____ in.
Bottom chord bracing installed per truss design drawings	Locate per drawing within _____ in.
Web member brace(s) installed per truss design drawings	Locate per drawing within _____ in.
Sheathing fastener placement variation from drawing or installation instruction	_____ in. on the edge _____ in. in the field

Block-out and Trim	
Performance Standard	Specification Tolerance Not to Exceed
Stair tread maximum deflection	_____ in. under _____ lbs.
Stair squeaks caused by loose riser or tread	_____
Sun deck level	_____ in. per _____ ft.
Sun deck board spacing maximum variation between gaps at time of construction	_____ in.
Sun deck nail head protrusion above deck boards	_____ in.
Sun deck nail bleeding or stain	_____

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