

# **Fort Homes Quality Assurance Handbook**

**Version:2.1 Document Owner: Arden de Villa**

**Applicability:** Modular structures manufactured by Fort Homes for installation in Grand Junction, Colorado, under F+H Developments.

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## 1. Introduction & Purpose

This **Quality Assurance (QA) Handbook** establishes Fort Homes' Quality Management System (QMS) to ensure modular structures meet or exceed Colorado Division of Housing (DOH) standards, contractual requirements, and customer expectations.

### Purposes:

- Define the QMS for modular construction under F+H Developments.
- Ensure compliance with Colorado regulations (8 CCR 1302-14).
- Achieve and maintain DOH Certified Manufacturer status.
- Support IHIP funding by demonstrating affordability and energy efficiency (e.g., Aspen Commons, R-30 SIPs).
- Provide clear guidelines for personnel.
- Facilitate DOH inspections, third-party audits, and internal reviews.

## 2. Scope

This handbook applies to all phases of modular construction for Fort Homes' units (*Cottage Series, Palisade Pod, Colorado Cottage, Denver Duo, Telluride Trio, Uptown Quad, Aspen Commons*) manufactured in Grand Junction, Colorado. It covers:

- Design review and control for single (12'-14' wide) and double-wide (24' wide) modules, stackable 2-3 stories [U.S. DOT Standards, 2025].
- Material procurement, receiving, and storage.
- Fabrication and assembly, including closed construction (concealed MEP systems requiring in-factory inspections).
- In-process and final inspections/testing.
- Record-keeping and DOH insignia processes.
- Handling, storage, and transport preparation.
- Coordination with on-site installation in Grand Junction/Mesa County.

## 3. References & Applicable Codes

Fort Homes complies with the latest adopted versions of:

- **Colorado Revised Statutes:** C.R.S. §24-32-3301 et seq. (Factory-Built Structures).
- **Colorado Code of Regulations:** 8 CCR 1302-14 (Factory-Built Structures Rules, 2023).
- **International & National Codes** (as adopted by Colorado/Grand Junction):
  - International Building Code (IBC) - 2021 Edition
  - International Residential Code (IRC) - 2021 Edition

- International Mechanical Code (IMC) - 2021 Edition
  - International Plumbing Code (IPC) - 2021 Edition
  - National Electrical Code (NEC) - 2023 Edition
  - International Energy Conservation Code (IECC) - 2021 Edition
- **ICC/MBI Standards:** 1200 & 1205 for Off-site Construction (as referenced by DOH).
- **Grand Junction/Mesa County Requirements:** **Roof Snow Load:** 30 psf (Colorado Statewide Minimum), **Wind Load:** 115 mph V(ult) (Colorado Statewide Minimum), Seismic (Category B), Frost Depth (per local), Ice Barrier (yes), Wildfire Risk (per local ordinances).
- **IHIP Criteria:** Energy efficiency (IECC+), affordability ( $\geq 10\%$  deed-restricted units for bonus) [OEDIT, 2025].
- **Approved Plans/Specifications:** DOH-approved designs for Fort Homes' units.

## 4. Definitions

- **Approved Plans:** DOH-approved design documents for factory-built structures.
- **Authorized Inspection Agency:** DOH or DOH-approved entity (e.g., ICC-certified firm) for production inspections.
- **Certified Manufacturer:** DOH status allowing reduced inspection frequency, requiring a robust QMS (Fort Homes' goal).
- **Closed Construction:** Concealed components (e.g., MEP systems) requiring in-factory inspections.
- **Date of Manufacture:** The date on which the DOH-issued insignia is affixed to the factory-built structure, signifying the completion of all factory construction and inspection processes.
- **DOH:** Colorado Division of Housing.
- **Factory-Built Structure:** Off-site assembled structures under C.R.S. §24-32-3301.
- **IHIP:** Innovative Housing Incentive Program, offering \$350K–\$450K operating grants, \$1.5K–\$6K/unit, \$50K affordable housing bonus.
- **Insignia:** DOH-issued label/seal certifying compliance (construction/installation).
- **Non-Conformance:** Deviation from approved plans, codes, or this handbook.
- **Quality Assurance (QA):** Systematic activities ensuring product quality.
- **Quality Control (QC):** Inspection, testing, and monitoring techniques.
- **Single Module:** 12'–14' wide, 30'–60' long,  $\leq 13'6"$  loaded height.
- **Double-Wide Module:** 24'–28' wide, joined onsite, requires permits.
- **Stackable Design:** Modules engineered for 2–3 story configurations.
- **Traveler:** Digital/physical documentation (inspection reports, checklists) accompanying each module.

## 5. Roles, Responsibilities & Organization

### 5.1 Executive Management

- **President (Jeff Zimmerman)**
  - **Role:** Maintains ultimate responsibility for all company operations and financial health.
  - **Responsibilities:** Provides final approval of the Quality Management System (QMS) and drives the company culture regarding quality commitments. He ensures resources are available to maintain compliance with DOH standards and customer expectations.
- **Chief Operating Officer (COO) (Marty Magill)**
  - **Role:** Acts as the executive "Integrator" for the organization, leading strategic operations and P&L management.
  - **Responsibilities:** Ensures the quality program is implemented effectively across all departments. He holds the authority to halt production to correct quality deficiencies and initiates high-level corrective actions. The COO ensures the Quality Department has the autonomy required to enforce standards without production pressure.

### 5.2 Quality Assurance Department

- **Quality Assurance Manager (Richard "Zach" Lamont)**
  - **Role:** The designated owner of the Quality Management System (QMS) and the primary on-site executor of quality compliance.
  - **Responsibilities:**
    - **On-Site Execution:** Conducts daily in-process inspections and gateway verifications (e.g., framing, MEP rough-in, final finish) to ensure physical compliance with approved plans.
    - **NCR Management:** Identifies non-conforming materials or workmanship on the factory floor and initiates the Non-Conformance Report (NCR) process.
    - **Strategic Leadership:** Serves as the primary liaison with the Colorado Division of Housing (DOH) and the Third-Party Inspection Agency (TPIA), coordinating all plan reviews and plant certification inspections.
    - **Continuous Improvement:** Manages the internal audit program, leads Root Cause Analysis (RCA) for significant issues, and analyzes quality data to drive LEAN manufacturing initiatives.
- **Quality Specialist (Arden de Villa)**
  - **Role:** Remote Quality Administration & Document Control.
  - **Responsibilities:**

- **Digital Systems Management:** Maintains the structure and integrity of digital "Traveler" templates and forms in JobTread, ensuring they align with current inspection criteria.
- **Document Control:** Manages the versioning and distribution of the *Quality Assurance Handbook* and DOH-approved plans, ensuring digital access is restricted to the most current revisions.
- **Reporting & Compliance Support:** Generates quality reports (e.g., NCR summaries, Audit logs) based on data inputs from the floor and assists in drafting Corrective Action documentation.
- **Administrative Support:** Provides administrative backing to the Quality Manager for grant compliance documentation and DOH submissions.

## 5.3 Production & Operations

- **Production Manager (Greg Genho)**
  - **Role:** Oversees the daily manufacturing operations and factory floor execution.
  - **Responsibilities:**
    - Supervises production teams to ensure all work is performed in strict adherence to DOH-approved plans and the production schedule.
    - Monitors workmanship at each workstation and ensures "quality at the source" before calling for inspections.
    - Collaborates with the Quality Manager to resolve NCRs and implement rework procedures.
- **Head of Product and Brand Development (Sara Hugo)**
  - **Role:** Manages the design and regulatory approval phase.
  - **Responsibilities:**
    - Ensures all designs and specifications comply with applicable codes (IBC, IRC, NEC, etc.).
    - Prepares and manages plan submissions to the DOH and coordinates with Colorado-licensed professionals (e.g., structural engineers).
    - Manages the Engineering Change Order (ECO) process to ensure design revisions are communicated to Production and Quality.
- **Sourcing Manager (Cody Seaboldt)**
  - **Role:** Manages the supply chain and material integrity.
  - **Responsibilities:**
    - Responsible for sourcing all materials from the Approved Supplier List (ASL).
    - Ensures all specified materials possess required code-compliant certifications (e.g., ICC-ES reports for SIPs, lumber grade stamps) prior to purchasing.
- **Construction Field Manager (Greg Genho)**
  - **Role:** Manages the interface between the factory and the final installation site.
  - **Responsibilities:**
    - Ensures site readiness for module delivery, including foundation checks.
    - Coordinates on-site installation activities with DOH-registered installers and manages the final "stitch" work.

## 5.4 External Quality Verification

- **Third-Party Inspection Agency (TPIA)**
  - **Entity:** ICC NTA, LLC.
  - **Role:** Fort Homes' official agency for plan review, reduced-frequency in-plant inspections, and final product certification.
  - **Coordination:** All third-party activities are coordinated by the Quality Assurance Manager and performed under the direction of the NTA Colorado Region Inspection Manager, Brandy Watkins.

## 5.5 Quality Personnel Qualifications

The following personnel hold primary responsibility for the execution and management of the Fort Homes Quality Management System (QMS).

Name	Title	Qualifications & Relevant Experience
<b>Jeff Zimmerman</b>	President & CEO	<ul style="list-style-type: none"><li>• <b>Education:</b> B.B.A., Energy Management (Colorado Mesa University)</li><li>• <b>Experience:</b> 15+ years in real estate development, commercial construction management, and energy sector operations.</li><li>• <b>Focus:</b> Strategic vision, capital resource allocation, and final QMS accountability.</li></ul>
<b>Marty Magill</b>	Chief Operating Officer (COO)	<ul style="list-style-type: none"><li>• <b>Education:</b> Political Science (Villanova University), MBA Executive Management (University of Massachusetts Amherst)</li><li>• <b>Experience:</b> 30+ years in manufacturing operations, plant startups, and P&amp;L management.</li><li>• <b>Expertise:</b> Lean Manufacturing, Six Sigma methodologies, Cost Reduction strategies, and EOS Implementation.</li><li>• <b>Focus:</b> Operational integration, "Stop Work" authority, and high-level corrective action.</li></ul>

Richard "Zach" Lamont	Quality Assurance Manager	<ul style="list-style-type: none"> <li>• <b>Education:</b> B.S., Computer Science (Colorado Mesa University)</li> <li>• <b>Core Competencies:</b> Quality Systems Leadership, Technical Data Analysis, Process Improvement.</li> <li>• <b>Methodologies:</b> Lean/Six Sigma (Root Cause Analysis, 5S Implementation).</li> <li>• <b>Focus:</b> NTA Certification leadership, In-process inspections, KPI tracking (First Pass Yield), and Safety Compliance.</li> </ul>
<b>Greg Genho</b>	Production & Construction Manager	<ul style="list-style-type: none"> <li>• <b>Education:</b> University of Wyoming (Graduate)</li> <li>• <b>Experience:</b> Extensive background in General Contracting, Construction Management, and Carpentry.</li> <li>• <b>Focus:</b> "Quality at the Source" for production, site readiness, foundation inspections, and managing the factory-to-field interface.</li> <li>• <b>Certifications:</b> N/A (<i>Pending NTA/ICC coordination</i>)</li> </ul>
<b>Cody Seaboldt</b>	Sourcing Manager	<ul style="list-style-type: none"> <li>• <b>Experience:</b> Comprehensive purchasing strategy, vendor negotiation, and supply chain optimization.</li> <li>• <b>Focus:</b> Material integrity, Approved Supplier List (ASL) management, inventory modeling, and NetSuite WIP integration.</li> </ul>
<b>Sara Hugo</b>	Head of Product & Brand	<ul style="list-style-type: none"> <li>• <b>Education:</b> BS Interior Design (University of Nevada)</li> <li>• <b>Experience:</b> Product design, architectural project management, and brand strategy.</li> <li>• <b>Focus:</b> Design control, regulatory compliance (DOH submissions), and managing engineering partnerships (e.g., M-Integrated).</li> </ul>
<b>Arden de Villa</b>	Quality Specialist (Remote)	<ul style="list-style-type: none"> <li>• <b>Education:</b> World Citi Colleges</li> <li>• <b>Certifications:</b> Lean Six Sigma White Belt</li> <li>• <b>Focus:</b> Document control (JobTread/QAM), audit preparation, grant compliance documentation, and digital "Traveler" integrity.</li> </ul>

## 6. Quality Policy Statement

*“Fort Homes is committed to delivering high-quality, affordable, and energy-efficient modular structures that exceed customer expectations and comply with Colorado Division of Housing standards. Through continuous improvement, rigorous inspections, and a focus on sustainability—evidenced by R-30 SIPs and Aspen Commons’ co-living model—we empower every team member to ensure quality, supporting our IHIP grant goals and community impact.”*

— Jeff Zimmerman, President

## 7. Design Control & Plan Review

*Fort Homes will not begin construction or fabrication of any module or component thereof until the company is in possession of the current, approved plans and specifications from the Colorado Division of Housing (DOH)*

- Designs for Fort Homes’ units (*Cottages Series: 12' x 44', Palisade Pod: 12' x 42', Colorado Cottage: 14' x 50', Denver Duo: 12' x 62.5' x 2, Telluride Trio: 12' x 50' x 3, Uptown Quad: 14' x 50' x 4, Aspen Commons: 24' x 66.7' x 2*) comply with codes (Section 3) and Grand Junction requirements (\*\*Roof Snow Load:\*\* 30 psf, \*\*Wind Load:\*\* 115 mph V(ult), Seismic: Category B).
- Head of Product and Brand Development prepares plans, coordinating with Colorado-licensed professionals for foundations/structural elements.
- Plans are submitted digitally to DOH via the DOH portal, with 2–4 week review [DOH, 2025].

### 7.1.1 Change Request & Review

- Any employee can propose a change by submitting a DCR form to the Head of Product & Brand, detailing the proposed change and justification.
- The DCR is reviewed by a Change Control Board (CCB) consisting of the QA Manager, COO, Head of Product & Brand, and Production Supervisor.

### 7.1.2 Change Classification & Approval

- The CCB classifies the change as **Major** or **Minor**. A **Major** change affects code compliance, structural integrity, or life-safety systems. All other changes are considered **Minor**.
- **Major** changes require formal submission and approval from the DOH before implementation.
- **Minor** changes can be approved internally by the CCB.

### 7.1.3 Implementation & Documentation

- Once a DCR is approved, the Head of Product & Brand updates all master drawings and specifications.
- The QA Manager ensures that obsolete documents are removed from production workstations and that all relevant personnel are notified of the change.
- A complete log of all DCRs is maintained in JobTread.

## 8. Document & Data Control

- QA Manager maintains the handbook and QMS documents (procedures, checklists, forms) in a cloud-based system (e.g., JobTread), with a master list tracking revisions.
- Only current documents are accessible at workstations via digital tablets; obsolete documents are archived or marked “VOID.”
- Document changes are reviewed/approved by QA Manager within 48 hours, with version updates logged digitally.
- Records are retained for 7 years, per DOH requirements [DOH, 2025].

## 9. Material Control (Purchasing, Receiving, Storage)

**9.1 Supplier Evaluation and Approval** To ensure all materials meet or exceed design specifications, a formal system for supplier evaluation, approval, and monitoring is established. The Quality Assurance (QA) Manager is responsible for overseeing this process and maintaining an **Approved Supplier List (ASL)** within JobTread.

- **9.1.1 Initial Supplier Assessment** Potential suppliers must complete the Fort Homes "[Supplier Quality Assessment Questionnaire](#)" (See Appendix E). The questionnaire requires documentation including business licenses, quality certifications (e.g., ISO 9001), and product data sheets (e.g., ICC-ES reports for SIPs).
- **9.1.2 Technical Qualification** Product samples and technical specifications are reviewed by the Engineering and QA teams to verify compliance with Fort Homes standards.
- **9.1.3 On-Site Audit (As Required)** For critical component suppliers, the QA Manager may conduct an on-site audit to assess the supplier's quality control systems and production capacity.
- **9.1.4 Ongoing Performance Monitoring & Annual Review** All approved suppliers are subject to continuous performance monitoring and are re-evaluated annually. Key metrics tracked in JobTread include on-time delivery, quality conformance based on receiving inspections, and responsiveness to corrective action requests. A supplier may be removed from the ASL for failing to meet performance standards.

**9.2 Receiving Inspection** Materials are inspected within 24 hours of receipt, verifying certifications and specs (e.g.,  $\pm 1/16"$  SIP thickness). Accepted/rejected materials are tagged digitally in JobTread.

### 9.2.1 Initial Verification

- The Receiving Inspector will verify that the delivered materials match the information on the **Purchase Order** and the **packing slip**.
- The shipment will be visually inspected for any obvious signs of **transit damage** (e.g., torn packaging, dents, water damage). Any damage must be photographed and immediately noted on the bill of lading before the carrier leaves.

### **9.2.2 Quality & Specification Check**

- A sample of the materials will be inspected according to the criteria on the relevant **Material Inspection Checklist** (See Appendix B).
- This includes, but is not limited to:
  - **Dimensional Verification:** Confirming physical measurements against specifications (e.g.,  $\pm 1/16"$  thickness for SIPs) using calibrated equipment.
  - **Certification & Labeling:** Verifying that materials have the required certifications or labels (e.g., UL-listed for electrical components, grade stamps for lumber, ICC-ES for SIPs).
  - **Cosmetic Finish:** Checking for unacceptable scratches, finish defects, or other cosmetic flaws.

### **9.2.3 Status Identification & Segregation**

- **Accepted Materials:** Materials that pass inspection are tagged as "Accepted" in JobTread, and physical "QA Accepted" tags are affixed. They are then released to be moved to their designated storage location.
- **Rejected Materials:** Materials that fail inspection are immediately segregated in a designated "Hold Area" to prevent accidental use. A **Non-Conformance Report (NCR)** is initiated in JobTread by the inspector, and the materials are tagged physically and digitally as "Rejected." The QA Manager and Purchasing Lead are automatically notified by the system to determine disposition (e.g., return to supplier, scrap).

**9.3 Storage** Materials are stored indoors ( $\leq 70\%$  humidity, 40–80°F) to prevent damage, with traceability via lot numbers for critical components (e.g., steel, lumber grades).

**9.4 Substitution** Any proposed material or component substitution must be approved by the QA Manager and the Head of Product & Brand. All substitutes shall be equivalent or better in compliance with applicable codes, standards, quality, and material properties and must be documented via a formal change request.

## **10. Production & Fabrication Process Control**

- Production follows DOH-approved plans and unit-specific work instructions (e.g., Palisade Pod framing, Aspen Commons MEP rough-in).
- Workstations access digital drawings/procedures via tablets, with serialized travelers (QR-coded) tracking each module.
- Processes (e.g., welding, fastener torque) are monitored daily by the Production Supervisor, with  $\pm 1/8"$  tolerances for structural elements.

- Completed stages are verified via inspections before proceeding (Section 11).

## **11. Inspection & Testing Procedures**

**11.1 In-Process Inspection Plan** All modules undergo a series of mandatory inspections at critical hold points during production. No work shall proceed to the next stage until a successful inspection is completed. This traveler form, in either digital (JobTread) or physical format, must accompany its assigned module throughout every stage of the production process, from initial chassis fabrication to final inspection. All inspections are performed using DOH-approved plans and the checklists in Appendix B.

### **11.1.1 Stage 1: Chassis & Floor Framing**

- **Inspection Points:** Main frame welds and steel quality, dimensional accuracy of frame ( $\pm 1/8"$ ), floor joist spacing and connections, subfloor sheathing installation and fastening.
- **Acceptance Criteria:** Welds must be free of cracks and undercut. Framing dimensions must match approved plans. Fasteners must be installed at the specified type and spacing.

### **11.1.2 Stage 2: Wall & Roof Framing**

- **Inspection Points:** Wall stud and header placement, structural sheathing and shear wall fastening, roof truss/rafter installation, and connections to wall plates.
- **Acceptance Criteria:** Framing element locations must be within  $\pm 1/8"$  of plan dimensions. Fastener patterns must match the approved shear wall schedule. All structural connections must be complete.

### **11.1.3 Stage 3: MEP Rough-In**

- **Inspection Points:** Location and securement of all plumbing, electrical wiring, and mechanical ductwork. Verification of proper materials (e.g., wire gauge, pipe type). Protection of wires and pipes from puncture.
- **Acceptance Criteria:** All systems must be installed per code and approved plans before being concealed. Electrical boxes must be securely mounted. Plumbing lines must be properly supported and sloped.

### **11.1.4 Stage 4: Insulation & Air Barrier**

- **Inspection Points:** Full and continuous installation of insulation in all cavities without compression or gaps. Integrity of the air barrier, with all seams, joints, and penetrations properly sealed.
- **Acceptance Criteria:** Insulation must meet specified R-values. The air barrier must be continuous, verified via a visual inspection and a qualitative blower door test if required.

**11.2 Final Inspection Procedure** Before a DOH insignia can be requested, a comprehensive final inspection is performed by the QA Manager. This inspection verifies that all previous in-process inspections have been completed and that the module is 100% compliant with approved plans.

#### **11.2.1 Scope of Final Inspection:**

1. **Documentation Review:** Confirm the digital traveler is complete with all passed in-process inspections.
2. **Exterior Finish:** Inspect siding, roofing, windows, and doors for proper installation, sealing, and damage-free finish.
3. **Interior Finish:** Inspect drywall, paint, flooring, trim, and cabinetry for quality workmanship and adherence to specifications.
4. **MEP Systems:** Verify the installation of all plumbing fixtures, electrical devices, and mechanical equipment.
5. **Final Function Test:** Confirm the proper operation of all doors, windows, and installed appliances.
6. **Final Cleanliness:** Ensure the unit is free of debris and construction materials.

**11.2.2 Approval:** Upon successful completion, the QA Manager signs the Final Inspection Report in JobTread, authorizing the module for shipment. Any non-conformances identified must be resolved and re-inspected before approval is granted.

**11.3 Testing Procedures** All required life-safety and building system tests are performed by certified personnel after the MEP Rough-in stage and are documented in the module's traveler.\*\*Specify equipment, calibration process and maintenance req for the equipment..

- 11.3.1 Plumbing System Pressure Test
  - Procedure: The water distribution system is filled with potable water or air and pressurized using a calibrated pressure gauge. The system is isolated and must hold the specified pressure for the required duration.
  - Acceptance Criteria: The system must hold 100 psi for a minimum of 15 minutes with no leaks or loss of pressure.
- 11.3.2 DWV (Drain, Waste & Vent) System Test
  - Procedure: The DWV system is tested by filling the system with water to a head of at least 10 feet or by pressurizing the system with air.
  - Acceptance Criteria: The system must hold the water or 5 psi of air pressure for a minimum of 15 minutes with no leaks.  
\*\*Add gas testing process and testing process for fire suppression.
- 11.3.3 Electrical Systems Tests
  - Procedure: All electrical circuits are tested for continuity, polarity, and proper grounding using a multimeter and circuit tester. GFCI and AFCI breakers and outlets are tested for proper function.
  - Acceptance Criteria: All circuits must be free of shorts and open connections. Polarity must be correct at all outlets. All safety devices must trip and reset correctly.

## **12. Control of Inspection, Measuring & Test Equipment**

- Equipment (e.g., torque wrenches, pressure gauges, tape measures) is calibrated quarterly (torque/pressure) or annually (tapes) against NIST-traceable standards.
- Calibration records and equipment inventory are maintained in JobTread, with out-of-calibration equipment removed and prior measurements assessed within 24 hours.

## **13. Control of Non-Conforming Product**

- Non-conformances are documented via NCR forms (Appendix C), identifying issue, root cause, and disposition (rework/repair/scrap/use-as-is), segregated physically or digitally.
- QA Manager approves dispositions within 24 hours; code-related NCRs are reported to DOH within 48 hours [8 CCR 1302-14, 2023].
- Reworked/repaired modules are re-inspected; production halts for NCRs affecting >10% of a module, with President approval to resume.
- NCR records are stored in JobTread for 7 years.

## **14. Corrective & Preventive Action**

- Significant/recurring NCRs trigger root cause analysis (5-Whys/Fishbone) within 48 hours, documented in Corrective Action Reports (Appendix C).
- Preventive actions are identified via monthly NCR trend reviews, logged in JobTread.
- Effectiveness is verified after 30 days, reported to QA Manager and President.

## **15. Handling, Storage, Packaging, Preservation & Delivery**

- Modules are handled via cranes/forklifts, stored indoors or under UV-resistant tarps to prevent weather damage.
- Transport prep includes securement (4-point ratchet straps) and weatherproof wrapping, with \$4K/unit (single modules) or \$12K/unit (Aspen Commons) shipping costs [U.S. DOT Standards, 2025].
- Delivery damage is reported within 24 hours, linked to the NCR process.

## **16. Control of Quality Records & Documentation**

**16.1 Record Retention Policy** All records generated as part of the Quality Management System shall be securely maintained to provide evidence of conformance to requirements and of the effective operation of the QMS. All quality records, including material certifications, traveler documents, inspection and test reports, NCRs, and audit reports, shall be retained for a minimum of **seven (7) years**.

**16.2 Record Management** Records are primarily maintained in their digital format within **JobTread**, which serves as the central repository. The system is backed up weekly to a secure off-site cloud server to prevent data loss. Access to quality records is controlled by the QA Manager to ensure integrity.

- Records (material certs, inspection reports, test results, NCRs, insignia logs) are digitized in JobTread, with access controls and weekly backups.
- Travelers include serialized module data, inspection/test records, and DOH insignia details, retained for 7 years [DOH, 2025].
- Records are audit-ready for DOH/third-party reviews.
- Control of DOH Insignia: *Once Fort Homes achieves Certified Manufacturer status, all DOH-issued insignias will be kept under lock and key. The QA Manager will be the sole individual responsible for their control, logging, and application.*

## 17. Interface with On-Site Installation

- Fort Homes provides a DOH-approved modular installation manual (crane setup, module joining, foundation specs) with each unit.
- Construction Field Manager coordinates with Grand Junction/Mesa County for foundation inspections, using pre-installation checklists.
- Only DOH-registered installers are used, verified by QA Manager; installation insignia is separate from factory construction [8 CCR 1302-14, 2023].
- Site-discovered issues (e.g., shipping damage) trigger NCRs within 24 hours.

## 18. Personnel Training

- Personnel are trained for competence: inspectors require ICC Residential Building Inspector certification, production staff require OSHA-10, completed by Q2 2025 [DOH, 2025].
- A 6-month training program covers code compliance, SIP assembly, QA procedures, and IHIP-related topics (affordable housing, IECC), with quarterly refreshers.
- Training records (Appendix C) are maintained in JobTread, updated bi-annually.

## 19. Internal Quality Audits

- Quarterly audits (annual comprehensive audit) start Q3 2025, led by QA Manager or external consultant, covering all QMS areas.
- DOH audit preparedness checklists (Appendix C) ensure compliance.
- Audit reports are issued within 7 days, with corrective actions completed within 14 days, reviewed by the President.

## 20. Manual Review & Updates

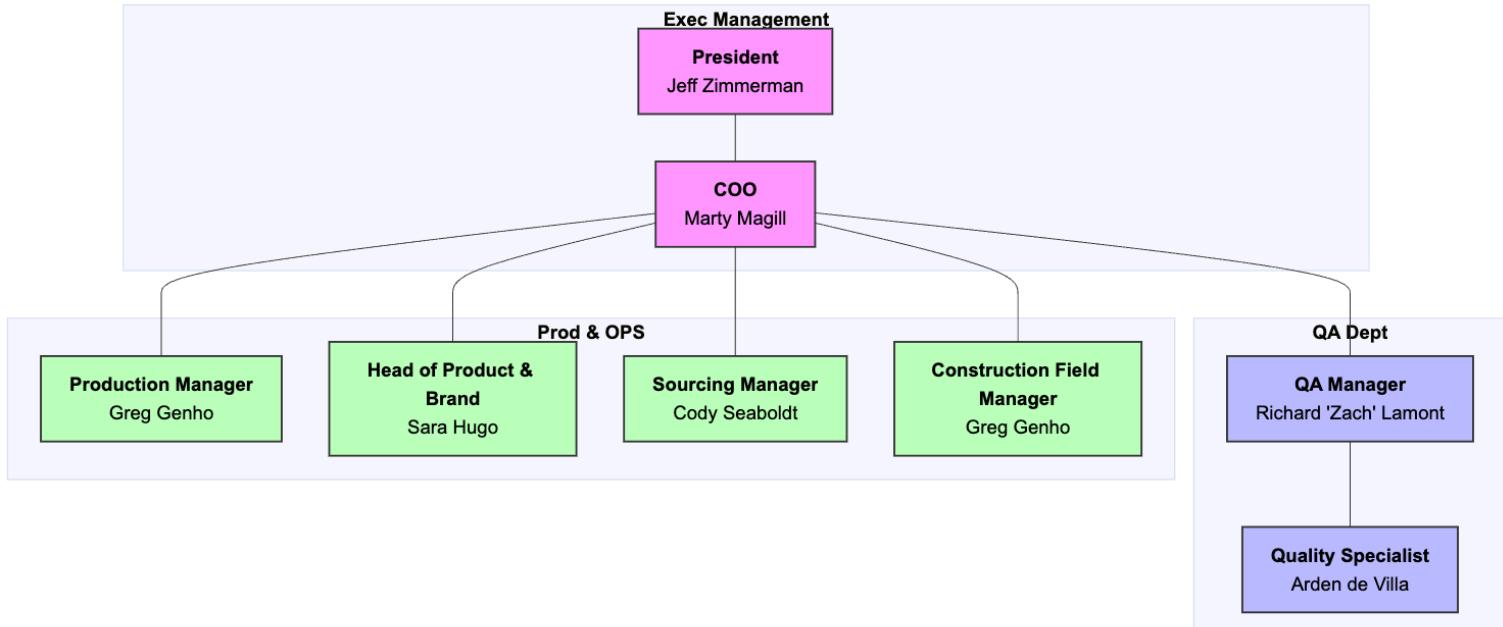
- Annual review in Q1, led by QA Manager, with DOH notification of major updates within 10 business days [DOH, 2025].
- Revisions are logged in a digital version control sheet (JobTread), with history maintained in the handbook.

## 21. Grant Compliance

- **IHIP Alignment:** The QMS supports IHIP goals by ensuring ≥10% deed-restricted units (Aspen Commons targets 20%), IECC+ energy efficiency (R-30 SIPs), and robust QA for scalability, aligning with \$5M+ awards to Colorado factories [OEDIT, 2025].
- **Documentation:** QA records (inspections, material certs, training) are maintained for IHIP audits, with energy performance data (e.g., HERS ratings) tracked for grant reporting.
- **Affordability:** Aspen Commons' \$100–150/sq ft pricing and \$600–\$1,200/month/room rentals meet IHIP affordability criteria [PadSplit, 2025].

## Appendices

### Appendix A: Organizational Chart



**Appendix B: Compliance Inspection Checklist (Traveler Form) \*\*\*to be improved based on feedback**

F O R T + H O M E

**Build in Place  
Process**

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Module Serial #:      Model Name:      Start Date:

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Work Stations	Stage / Inspection	Key Inspection Points & Acceptance Criteria	Inspector Sign-off	Date
Bay 1 & Kitting Station	Chassis & Floor Framing	<b>Criteria:</b> Frame dimensions are accurate to plan ( $\pm 1/8"$ ). Floor joist spacing and connections match plans. Subfloor sheathing is installed with correct fastener type and spacing.		
Bay 2 & Kitting Station	Wall Framing & Sheathing	<b>Criteria:</b> Wall stud/header placement is accurate ( $\pm 1/8"$ ). Shear wall fastening patterns match approved schedule. All structural connections are complete and correct per plans.		
Bay 3 & Kitting Station	Roof Framing & Installation	<b>Criteria:</b> Roof truss/rafter installation and connections to wall plates match plans. Structural sheathing is properly fastened. Screw inspection prior to tape.		

Bay 4 & Kitting Station	<b>MEP Rough-In &amp; System Tests</b>	<p><b>Criteria:</b> All plumbing, electrical, and mechanical systems are located and secured per code and plans before concealment.</p> <p>Plumbing Test: Water system holds 100 psi for 15 mins with no leaks.</p> <p>DWV Test: System holds 10 ft water head or 5 psi air for 15 mins.</p> <p>Electrical Test: All circuits show correct continuity, polarity, and grounding; GFCI/AFCI devices function correctly.</p> <p>Licensed plumber sign off</p> <p>Licensed electrician sign off</p>		
Bay 5 & Kitting Station	<b>Insulation &amp; Air Barrier</b>	<p><b>Criteria:</b> Insulation is installed continuously without gaps or compression, meeting specified R-values. Air barrier is continuous, with all seams and penetrations sealed.</p>		
Station 6 (Finishing Bay 2)	<b>Final Inspection</b>	<p><b>Criteria:</b> Digital traveler is 100% complete. Exterior and interior finishes are free of damage and meet quality standards. All doors, windows, fixtures, and appliances are installed and functional. Unit is clean and ready for DOH Insignia application.</p>		***Add 4 more rows to add offline stations-wall framing, back paneling and adhesive station, SIPs station and plumbing pre assembly.

## Appendix C: Quality Forms

- **Non-Conformance Report (NCR)**: Fields: Date, Module ID, Issue, Root Cause, Disposition, QA Manager Approval, DOH Notification (if applicable).
- **Corrective Action Report**: Fields: Date, NCR Reference, Root Cause (5-Whys), Action, 30-Day Follow-Up, President Approval.
- **Training Record**: Fields: Employee, Training (e.g., ICC, OSHA-10), Date, Trainer, Certification.
- **Audit Report**: Fields: Date, Auditor, Scope, Findings, Corrective Actions, Due Date.



## Appendix D: Sample Data Plate



### DATA PLATE 10-2

Due Days 30

DRAFT

#### PREPARED BY

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3199 D Road, #D100, Grand Junction, CO

#### PREPARED FOR

Test

#### DATA PLATE DETAILS

Fort Homes Facility

3199 D RD

\*FORT HOMES, LLC\*

\*Manufacturer:\* Fort Homes, LLC, 3199 D Road, #D100, Grand Junction, CO

\*Plant ID:\* 5434

\*Model Name / Number:\* [Insert Here]

\*Module Serial Number:\* [Insert Here]

\*Date of Manufacture:\* [MM/DD/YYYY]

\*Third-Party Inspection Agency:\* NTA

\*DOH Insignia Number:\* [Insert Here]

\*Construction Type:\* [Insert Type – Modular / Manufactured / Site-Built Hybrid]

\*Occupancy Classification:\* [Insert – R-3, R-2, etc.]

\*Number of Modules:\* [Insert Total]

\*Module Dimensions (L x W x H):\* [Insert in feet or inches]

\*Gross Weight per Module:\* [Insert lbs]

\*Roof Pitch:\* [Insert Degrees or Ratio]

\*Foundation Type:\* [Insert – Permanent / Non-Permanent / Pier / Crawlspace]

\*Electrical Service Rating:\* [Insert Amperage, e.g., 200A]

\*Plumbing System Type:\* [Insert – PEX / PVC / CPVC / Copper]

\*Heating/Cooling System:\* [Insert System Type, e.g., Mini-split / Furnace / Heat Pump]

\*This factory-built structure was constructed in accordance with the DOH-approved plans and the following codes and design loads:\*

Applicable Codes: IBC, IRC, IMC, IPC, IECC (2021 Editions), \*NEC (2023 Edition)\*

\*Design Loads:\*

- Roof Snow Load: 30 psf (Colorado Statewide Minimum)
- Wind Load: 115 mph V<sub>ult</sub> (Colorado Statewide Minimum)

**\*FORT HOMES, LLC\***

- Seismic Design Category: B
- Thermal Zone: [Insert Zone, e.g., Zone 7]
- Roof Load Zone: [Insert Zone, if applicable]
- Heating Degree Days: [Insert Number, if applicable]

**\*Quality Assurance / Compliance Review:\***

- Prepared By: [Name]
- Reviewed By: [Name]
- QA Sign-Off Date: [MM/DD/YYYY]

**\*Notes / Remarks:\*** [Insert any additional information or special approvals]

## Appendix E: Factory Layout Diagram



## **22. Product Recall Procedures**

### **22.1 Purpose**

This section outlines the systematic procedure for managing the recall of any Fort Homes product or component. A recall may be initiated in response to the discovery of a defect or non-conformance that poses a potential risk to health and safety, or a significant deviation from Colorado Division of Housing (DOH) approved plans and codes. This procedure ensures timely notification, effective corrective action, and meticulous documentation to uphold our commitment to quality, safety, and regulatory compliance.

### **22.2 Recall Identification & Initiation**

A condition requiring a recall may be identified through several channels:

- Internal QA audits or trend analysis of Non-Conforming Reports (NCRs).
- Notification from the Colorado Division of Housing (DOH) or a third-party inspection agency (TPIA).
- Notification from a material or component supplier regarding a defective part.
- Analysis of warranty claims or direct feedback from property owners.

The final decision to initiate a product recall rests with the company President and the QA Manager. The decision will be based on the severity of the non-conformance and the potential risk to occupants or the public.

### **22.3 Recall Procedure Steps**

Once a recall is initiated, the QA Manager will oversee the following steps:

#### **Step 1: Immediate DOH Notification**

- Within 24 hours of the decision to initiate a recall, the QA Manager will formally notify the Colorado Division of Housing via email at [dola\\_manufacturedbuildings@state.co.us](mailto:dola_manufacturedbuildings@state.co.us).
- The initial notification will include:
  - A clear description of the defect or non-conformance.
  - The range of model and serial numbers of the affected units.
  - The total number of units affected.
  - A preliminary assessment of any potential safety risks.
  - A proposed timeline for submitting a formal Corrective Action Plan (CAP).

#### **Step 2: Owner Notification**

- Concurrent with DOH notification, Fort Homes will issue a formal recall notice to the owner of record for each affected unit.
- Notification will be sent via both email and certified mail to ensure receipt.
- The notice will contain:

- A clear and concise explanation of the issue in non-technical terms.
- The specific model and serial number of their unit.
- A description of the corrective action that will be taken.
- Instructions on how to schedule the corrective work with Fort Homes.
- A commitment that all corrective work will be performed at no cost to the owner.

### **Step 3: Corrective Action Plan (CAP) Development & Execution**

- The QA Manager, in conjunction with the Production Supervisor and relevant engineers, will develop a detailed Corrective Action Plan (CAP) for the recall.
- The CAP will be submitted to the DOH for review and approval and will include:
  - Detailed, step-by-step instructions (SOPs) for the required repair or replacement.
  - A list of all materials and components needed for the correction.
  - QA inspection and testing procedures to be performed post-correction.
- Upon DOH approval of the CAP, Fort Homes will deploy a trained service team or an authorized contractor to perform the corrective work on all affected units.

### **Step 4: Verification and Closure**

- All corrective work performed on a unit must be inspected and verified by the QA Manager or a designated inspector.
- The inspection results, including photographic evidence, will be documented and appended to the recall case file for that specific unit.
- Once all affected units have been corrected and verified, the QA Manager will submit a final report to the DOH to formally close the recall.

#### **22.4 Record Keeping**

A dedicated recall case file will be created and maintained for each recall event. This file will be retained for a minimum of seven (7) years and will include:

- All correspondence with the DOH and unit owners.
- The approved Corrective Action Plan (CAP).
- Service and inspection reports for each corrected unit.
- The final recall closure report.

## 23. Document Control

Document Title	<i>Fort Homes Quality Assurance Handbook</i>
Document Number	1
Revision Number	6
Revision Date	<i>Dec 11, 2025</i>
Author/Prepared By	<i>Arden de Villa, QA Specialist</i>
Reviewed By	<i>Marty Magill (COO)</i>
Approved By	<i>Marty Magill (COO)</i>
Approval Date	
Change Description	<i>Update Org Chart and Personnel details, add missing appendix</i>
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Next Review Date	<i>Annually in Q1</i>
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Controlled Copy No. *** for physical distribution	

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