Cochrane Building 150 Production Application

Summary User Guide

NCFI / GulfWest Solutions

Cochrane Building 150 Production

Production • Quality Control • Testing • Traceability

Current Development Guide

For buoys selected for documented process and quality testing

1. Purpose of the Application

The application is being developed as the central repository for production, quality-control, testing, photographic documentation, and traceability information for **buoys selected for documented process and quality testing** at the Cochrane Building 150 facility .

- The application is **not intended to create a detailed Digital Traveler for every buoy produced**.
- Selected buoys are entered according to the established production and QC sampling plan.
- Sampling may be one buoy per hour, one per shift, one per day, after a material-lot change, after a machine/process adjustment, or whenever an abnormal condition or investigation warrants additional documentation.

2. Starting a Selected Test Buoy

From the Home screen, select **+ START NEW BUOY**. The operator creates the record for the buoy selected for documentation/testing.

- Buoy ID
- Jig ID
- Formulation
- A-Side Lot
- B-Side Lot
- Operator

3. Production Workflow

For each buoy entered into the system, the controlled production sequence is:
New Buoy → **Pre-Shot** → **Machine/Shot** → **Cure** → **Demold**.

The purpose is to capture the production conditions for the selected test buoy so its eventual QC and testing results can be correlated with the conditions under which it was manufactured.

4. Pre-Shot

The operator records applicable pre-shot conditions and confirms the required checklist items.

- A-Side temperature
- B-Side temperature
- Shell temperature
- Ambient temperature
- Required pre-shot checks
- Notes and observations
- Exceptions
- Supporting photographs when appropriate

5. Machine / Shot

The Machine/Shot section records the applicable RIM production information for the selected buoy. The application uses the **shot time reported by the RIM 200**, rather than using the phone as a separate shot stopwatch.

- A-Side pressure
- B-Side pressure
- Machine output
- Target shot weight
- Actual shot weight
- RIM 200 machine-reported shot time
- Ramp time
- Required machine/shot checks
- Notes, exceptions, and supporting photographs

6. Cure

Selecting **SHOT COMPLETE - START CURE** records completion of the shot and begins tracking the cure period. Multiple selected buoys can be active simultaneously; each maintains its own cure record and timer.

7. Demold

During Demold, the operator records applicable cure/demold information, finished weight, checklist results, observations, exceptions, notes, and photographic documentation. When Demold is completed, the production portion is complete and the buoy enters the **QC Queue**.

8. QC Queue

The QC Queue separates production from the QC operation. After Demold, the selected buoy remains **AWAITING QC** until QC personnel are ready to inspect it. The application records when the buoy entered the queue and can display how long it has been waiting.

9. QC Inspection

QC personnel open the selected buoy from the QC Queue and complete the inspection. Available dispositions are **PASS | HOLD | REWORK | REJECT**.

- PASS clears the selected buoy for subsequent final/destructive testing and moves it to the Final Testing Queue.
- HOLD, REWORK, or REJECT prevents the buoy from advancing until the applicable issue is resolved and the buoy is appropriately cleared through QC.

10. Machine Repairs and Adjustments

The application provides a specific area to document machine repairs or adjustments identified during the process. Notes and supporting photographs can be associated with the adjustment record.

- This creates a traceable relationship between machine condition, process conditions, selected test buoys, QC results, and final testing results.

11. Photographic Documentation

Photographic evidence is incorporated throughout the selected buoy record. Where applicable, the application provides separate controls for **CAMERA** and **PHOTO ALBUM**.

- Pre-Shot
- Machine/Shot
- Production exceptions
- Demold
- QC and QC exceptions
- Machine repairs/adjustments
- Final/destructive testing
- General observations

> **Documentation principle: Observation → Written Note → Photographic Evidence**

12. Final Testing Queue

Final/destructive testing is intentionally separated from the initial QC inspection:
QC PASS → Final Testing Queue → Final/Destructive Testing → Final Testing Complete.

A selected buoy can remain in the queue until the required test interval, personnel, or testing schedule is reached.

13. Final / Destructive Testing

The testing section is designed to capture the final quality and process-verification information for the selected buoy.

- Density measurements at multiple sample locations
- Calculated average density
- Current target density of approximately 2.3 lb/ft³
- Thumb-split/cell-quality observations
- Dimensional measurements
- Testing observations and notes
- Photographs
- Final testing status

14. Digital Traveler / Test Record

Each **selected test buoy entered into the application** receives an individual Digital Traveler. This record becomes the repository for the relevant history of that selected buoy.

- Buoy and Jig IDs; date/time; operator; formulation
- A-Side and B-Side material lots
- Material, shell, and ambient temperatures
- Machine pressures, output, shot weight, shot time, and ramp information
- Cure, Demold, and finished-weight information
- Production exceptions, notes, observations, and photographs
- QC results and machine repairs/adjustments
- Density, cell-quality, dimensional, and final/destructive-testing results

> **The objective is to be able to return to a selected test buoy later and determine how it was manufactured, what materials and process conditions were involved, what was observed during QC, and how it ultimately performed during testing.**

15. Reports and Traceability

The Reports section is being developed to analyze information across the population of **selected test buoys entered into the system**.

- Production Summary
- QC Summary
- Exception Report
- Material Lot Traceability
- Machine Adjustment Report
- Density/Testing Report
- Jig performance/history
- Individual Buoy History

16. Important Sampling Distinction

The application's detailed records represent the **buoys selected for documentation and testing**, not necessarily the entire population of buoys manufactured. Reports such as pass/fail rates, density averages, dimensional results, or exception frequencies therefore represent the recorded test/sample population unless 100% inspection is specifically being performed.

17. Current Prototype Data Storage

The current development prototype stores production records and photographs in the individual web browser. This is why several large photographs can eventually produce a browser storage-limit warning. This limitation is temporary and is **not the intended production architecture**.

18. Planned Centralized Production System

Before permanent production use, records should move to centralized storage:

Phone / Tablet / Computer → Cochrane Building 150 Web Application → **Secure Central Database + Photograph/File Storage**.

- Structured measurements, material lots, QC results, timestamps, and notes will reside in the central database.
- Photographs and other files will reside in centralized file/object storage and be linked to the appropriate test buoy, stage, note, or exception.
- Authorized production, QC, testing, technical, and management personnel will be able to work from different devices against the same central record.

19. Overall Operating Principle

Every buoy selected for testing or detailed quality documentation should have **one complete, traceable record** containing all relevant production, process, QC, photographic, and testing information.

- The system connects: **Material** → **Machine** → **Process Conditions** → **Operator** → **Jig** → **Selected Test Buoy** → **QC** → **Final Testing** → **Result**.
- Whether the sampling plan is one buoy per hour, one per shift, one per day, or another frequency, the application serves as the centralized repository for the selected test population.

> **Purpose: Preserve enough information to understand not only whether a selected test buoy passed or failed, but also what production, material, machine, or process conditions may have contributed to its measured performance.**

Version 12.0 | Building 150 QC workflow

This supplement supersedes the earlier demold/QC sequence and sampling language for Building 150. Record every buoy during startup and ramp-up as directed by the production team. Final destructive testing remains subject to the separate sampling plan.

1. Start a buoy: record its unique ID, jig, machine number and empty weight before foaming.
2. Complete the existing pre-shot, shot and cure stages.
3. At physical demold, record finished weight and existing demold checks. Select MARK DEMOLDED - OPEN QC. The demold timestamp is saved and the QC form opens. A pending inspection can be resumed from the QC queue.
4. Enter width (29-32; unit to be confirmed), and Pass/Fail for cavity inspection, cone deformation, side deformation, radius deformation, surface deformation, cone damage and parting line damage.
5. Confirm empty weight (115-130 lb) and full weight (209-228 lb). Net foam weight is calculated automatically (94-98 lb).
6. Complete the existing QC checklist. Failed new inspection criteria require comments and prevent PASS; an attempted PASS is saved as HOLD. HOLD, REWORK and REJECT remain available. Reopen QC from the buoy record after corrective action.
7. QC PASS releases the record to the existing final testing queue. Reports show net foam weight and inspection result; the traveler and JSON export retain the detailed results.

Storage: the existing browser storage key is unchanged. Export a JSON backup before deployment and retain the same production URL. Records remain device/browser specific; no central database is added.