

FORMATIONS M210

THERMOFOIL MANUFACTURING STANDARD OPERATING PROCEDURES

SOP-003 INSERT PANEL ASSEMBLY

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Revision: Rev 0

Prepared By: Darren Miyagishima – Production Manager

Reviewed By: Insert Assembly Lead _____

Approved By: Phil Land – Production Supervisor

Department Overview

KPI

150-200 DOORS PER 8-HOUR SHIFT

OR

400-520 SQ FT OF INSERT PANELS PER 8-HOUR SHIFT

Production Measurement

Department performance shall be evaluated using both:

Door Count

- 150-200 completed doors per shift

Insert Square Footage

- 400-520 square feet of insert panels processed per shift

Square footage is used to better reflect actual workload when processing large inserts, oversized components, and varying panel configurations.

Primary Responsibilities

- Insert inspection
 - Pocket preparation
 - Glue application
 - Insert installation
 - Product curing
 - Documentation
 - Quality verification
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Downstream Customer

Sanding Department

Insert Assembly is responsible for providing products that are fully bonded, properly cured, and ready for sanding.

Quality Ownership

The Insert Assembly Department owns:

- Insert fit
 - Glue coverage
 - Insert bond quality
 - Proper curing
 - Glue squeeze-out control
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Critical Daily Checks

- Insert condition
- Pocket cleanliness

- Glue coverage
- Roller operation
- Insert seating
- Block condition
- Cure time

Revision Control

Revision	Date	Description	Approved By
Rev 0		Initial Release	Phil Land

1. Purpose

To ensure insert panels are properly inspected, glued, assembled, cured, documented, and transferred while maintaining Formations quality standards and production efficiency.

The Insert Assembly Department is responsible for producing properly bonded assembled doors that are ready for sanding and downstream processing.

2. Scope

This SOP applies to all employees responsible for:

- Insert inspection
- Door pocket preparation
- Glue application
- Insert installation
- Quality inspections
- Documentation

- Product curing
 - Material handling
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3. PPE Requirements

Required PPE:

- CSA Approved Safety-Toe Footwear
- Hearing Protection

Additional PPE may be required based on departmental tasks, maintenance activities, or equipment requirements.

4. Department KPI

Production Target

- 150-200 Doors per 8-hour shift
 - 400-520 Square Feet of Insert Panels per 8-hour shift
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Production Expectations

Production output will vary based on:

- Insert size
- Insert quantity
- Door style
- Panel thickness
- Material handling requirements
- Remakes
- Order complexity

The department shall prioritize:

1. Insert quality
2. Adhesive performance
3. Proper curing
4. Production throughput

Quality shall never be sacrificed to achieve production targets.

Performance Measurement

Department performance shall be evaluated using both:

Door Count

- 150-200 completed doors per shift

Insert Square Footage

- 400-520 square feet of insert panels processed per shift

Square footage is used to better reflect actual workload when processing large formats, oversized inserts, and varying panel configurations.

5. Responsibilities

The Insert Assembly Department is responsible for:

- Verifying paperwork
- Preparing routed pockets
- Inspecting insert panels
- Applying adhesive
- Installing inserts
- Monitoring glue quality

- Completing documentation
 - Reporting process concerns
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6. Department Scanning Requirements

Business Central Scanning

Insert Assembly is not required to scan orders into Business Central.

Traceability is maintained through:

- Shop Sheet
 - Assembly Order
 - Production Report
 - Deficiency Reports
 - Remake Forms
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7. Daily Schedule Review

At the beginning of every shift:

Review:

- Production priorities
- Due dates
- Remakes
- Rush orders
- Special instructions

Verify paperwork accompanies the order.

8. Documentation Verification

Before beginning work verify:

- TFO Number
- Customer information
- Quantity
- Door profile
- Insert requirements
- Special instructions

Verify all required paperwork is present.

Missing paperwork shall be reported immediately.

9. First-Off Inspection

A first-off inspection is required whenever:

- Starting a new order
- Starting a remake order
- Profile changes occur
- Insert type changes occur

Verify:

- Correct insert
- Correct insert dimensions
- Insert fit
- Pocket quality
- Glue coverage

No separate paperwork is required.

By initialing the Production Report, the operator confirms the first-off inspection was completed.

10. Door Pocket Preparation

Before glue application:

Block Sand Pocket

The routed insert pocket shall be block sanded.

Purpose:

- Remove router fuzz
 - Remove raised MDF fibres
 - Improve glue adhesion
 - Improve insert fit
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Pocket Inspection

Verify:

- Smooth routed surface
 - No raised fibres
 - No debris
 - No routing defects
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Blow Off Pocket

Using compressed air:

Clean:

- Pocket surfaces

- Pocket corners
- Door face surrounding the pocket

The pocket shall be completely free of dust before glue application.

11. Insert Inspection

Every insert panel shall be inspected before installation.

Special attention shall be given to:

3 mm Panels

Inspect for:

- Chips
 - Cracks
 - Delamination
 - Surface defects
 - Size issues
 - Handling damage
-

Pass Criteria

- Correct size
 - Correct thickness
 - Clean edges
 - No visible damage
-

Fail Criteria

- Chipping

- Cracking
- Delamination
- Incorrect dimensions
- Surface defects

Defective inserts shall not be installed.

12. Replacement Insert Procedure

If an insert is:

- Missing
- Damaged
- Incorrectly sized
- Unusable

The operator shall:

1. Verify insert dimensions from production paperwork.
2. Cut a replacement insert using the saw.
3. Verify replacement dimensions.
4. Install using standard procedures.

Production should continue without delay whenever possible.

13. Adhesive Requirements

Adhesive Type

- Kleiberit 1-Part Adhesive

The same adhesive used in the Sittex Glue Line shall be used in Insert Assembly.

14. Glue Application Procedure

Standard Insert Doors

Apply glue to:

- Routed insert pocket

Verify complete glue coverage.

Deep Panel Construction

For doors with:

9.5 mm Panel Depth

Apply glue to:

- Door pocket
- Insert panel

Both surfaces shall receive adhesive.

15. Glue Roller Verification

Before and throughout production:

Verify:

- Roller rotates freely
 - Roller applies glue consistently
 - Roller does not drag
 - Coverage remains uniform
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Purpose

A properly rotating roller:

- Works glue into MDF fibres
 - Improves bond strength
 - Creates consistent glue coverage
 - Prevents dry areas
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16. Glue Coverage Standards

Inspect throughout production.

Verify:

- Complete coverage
 - Consistent coverage
 - No missed areas
 - No dry spots
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Excess Glue Monitoring

Watch for:

Glue Squeeze-Out

Particularly around:

- Profiles
- Insert edges
- Corners

Excessive squeeze-out may indicate:

- Too much glue
- Incorrect roller selection
- Improper glue setup

Corrective Action

If excessive squeeze-out is observed:

- Adjust glue amount
- Change glue roller if necessary
- Continue monitoring results

Supervisor notification is not normally required unless the issue cannot be corrected.

17. Insert Installation

After glue application:

1. Install insert.
 2. Ensure insert is fully seated.
 3. Verify alignment.
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Inspection

Verify:

- Proper seating
 - Proper alignment
 - Proper fit
 - Consistent appearance
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Pass Criteria

- Fully seated insert
- Proper fit

- No visible gaps
 - Acceptable glue coverage
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Fail Criteria

- Visible gaps
 - Insert not fully seated
 - Poor fit
 - Insert misalignment
 - Missing adhesive
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18. Curing and Stacking Procedure

After assembly:

Doors shall be stacked to allow adhesive curing.

Blocking Procedure

Blocks shall be placed around the insert panel area to provide even clamping pressure during curing.

Block Placement Requirements

- Place blocks at all four corners of the insert panel area.
- Additional blocks shall be placed as required.
- Blocks shall be spaced no greater than 2–3 inches apart where continuous support is required.
- Blocking shall provide even pressure across the insert area.
- Blocking shall not create pressure points that could damage the door surface.

Objective

Proper block placement:

- Maintains insert position
 - Prevents insert movement
 - Promotes uniform glue bond strength
 - Reduces the risk of panel lift during curing
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Block Inspection

Before use, inspect all blocks for condition and cleanliness.

Verify:

- No dried glue buildup
- No adhesive contamination
- No damaged edges
- No loose debris
- No embedded material capable of damaging the door surface

Corrective Action

If a block contains:

- Dried glue
- Adhesive buildup
- Surface damage
- Embedded debris

The block shall be:

1. Cleaned and repaired, or
2. Removed from service and discarded.

Important Quality Requirement

Dried glue and debris on blocking can create:

- Surface dents
- Pressure marks
- Face damage
- Rework
- Remakes

Only clean, serviceable blocks shall be used.

Standard Stack Height

Recommended stack:

15 Doors

Doors shall be stacked evenly and safely.

Weighting Procedure

Place:

Five (5) 15" × 12" Doors

on top of each completed stack.

Purpose

- Apply consistent pressure
 - Improve bond quality
 - Prevent insert movement during cure
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Curing Quality Verification

Before transferring product:

Verify:

- Inserts remain seated
- No panel movement is visible
- No gaps are present
- No dents or pressure marks from blocking are visible
- Cure time requirements have been met

Only fully cured product meeting quality requirements shall be transferred to Sanding.

19. Curing Time

Approximate curing time:

20 Minutes

Actual cure time may vary based on:

- Temperature
- Humidity
- Glue condition

Operators shall ensure sufficient cure time before transfer.

20. Transfer to Sanding

Standard workflow:

1. Complete first stack.
2. Complete second stack.
3. Allow first stack to cure approximately 20 minutes.

4. Remove blocking.
5. Load cured doors onto sled.
6. Transfer sled to Sanding Department.

This process maintains continuous production flow.

21. Quality Control Requirements

Throughout production verify:

Door Quality

- Correct profile
- Correct rail size
- Correct dimensions

Insert Quality

- Correct insert
- Correct fit
- Correct dimensions

Glue Quality

- Proper coverage
- Proper bond
- Controlled squeeze-out

22. Defect Escalation

Notify the Production Supervisor if:

Insert Issues

- Multiple defective inserts

- Recurring sizing issues
- Material quality concerns

Glue Issues

- Adhesion concerns
- Consistent squeeze-out issues
- Coverage issues that cannot be corrected

Documentation Issues

- Missing paperwork
- Incorrect paperwork
- Missing quantities

23. Deficiency Reports

A Pink Deficiency Report is required whenever:

- Inserts are missing
- Doors are missing
- Quantities are incomplete
- Product will follow later

Attach report to the front of the production package.

24. Remake Procedure

If a remake is required:

1. Complete Yellow Remake Form.
2. Record appropriate remake code.
3. Attach labels.

4. Submit paperwork to Programming Office.

Remake Codes

- BD – Board Defect
- 3D – Vinyl Defect
- ME – Machine Error
- HE – Human Error

Remakes receive production priority.

25. Production Reporting

Before releasing an order:

Record:

- Date
- Initials

By initialing the Production Report, the operator confirms:

- First-off inspection completed
 - Glue application verified
 - Insert installation verified
 - Quality checks completed
 - Product ready for Sanding
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26. Daily Housekeeping

Final 10 minutes of shift:

- Clean glue station
- Clean rollers

- Remove excess glue
 - Organize materials
 - Dispose of waste
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27. Friday Deep Clean

Final 30 minutes of shift:

- Deep clean workstations
 - Clean adhesive equipment
 - Organize materials
 - Review equipment condition
 - Report maintenance concerns
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28. Release Checklist

- ☐ Paperwork verified
- ☐ First-off inspection completed
- ☐ Pocket block sanded
- ☐ Pocket blown clean
- ☐ Insert inspected
- ☐ Replacement insert cut if required
- ☐ Glue roller verified
- ☐ Glue coverage verified
- ☐ Excess glue addressed
- ☐ 9.5 mm procedure followed (if applicable)
- ☐ Insert fully seated

- ☐ Blocking inspected
 - ☐ Cure time achieved
 - ☐ Product transferred to sled
 - ☐ Production Report completed
 - ☐ Date recorded
 - ☐ Initials recorded
 - ☐ Deficiency Report attached if required
 - ☐ Remake Form completed if required
 - ☐ Housekeeping completed
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Appendix A – Insert Assembly Training Record

Employee Name: _____

Trainer: _____

Date: _____

Competencies Verified

- ☐ Pocket Preparation
- ☐ Insert Inspection
- ☐ Glue Application
- ☐ Roller Verification
- ☐ Insert Installation
- ☐ Blocking Procedure
- ☐ Cure Verification
- ☐ Quality Inspection
- ☐ Documentation

☐ Housekeeping

Employee Signature: _____

Trainer Signature: _____

Appendix B – Monthly Insert Assembly Audit

Documentation Compliance: ☐ Pass ☐ Fail

Insert Inspection Compliance: ☐ Pass ☐ Fail

Glue Application Compliance: ☐ Pass ☐ Fail

Blocking Compliance: ☐ Pass ☐ Fail

Quality Compliance: ☐ Pass ☐ Fail

Housekeeping Compliance: ☐ Pass ☐ Fail

KPI Review Completed: ☐ Yes ☐ No

Auditor: _____

Date: _____

Appendix C – Warranty Reference

All insert assemblies shall be fully bonded and capable of meeting final warranty requirements and quality standards prior to thermofoil processing.