

BIRD INCORPORATED

Memo To: C. E. Stapley - BRPT
Subject: QUALITY AUDIT - MARTINEZ

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From: R. J. Carlson - BBQ
Date: November 27, 1984

A Quality Audit was conducted at the Martinez Plant on November 13-15. The following conclusions are drawn from this audit.

1. The average shipping weight for Firescreens was 0.5 lb. above target at 208.5#/sq. The average shipping weights for PRC 240 and Fireline were well below target at 230.6#/sq. and 273.8#/sq. respectively.
2. A visible overpress condition was evident on 8 of the 39 Firescreens, 4 of the 10 Fireline, and 1 of the 12 PRC 240 bundles sampled.
3. Talc transfer was evident on 7 of the 39 Firescreens, 5 of the 12 PRC 240, and 2 of the 10 Fireline bundles samples.
4. Cut-out "chips" were found embedded between shingles in 3 of the 39 Firescreens, 4 of the 12 PRC 240, and 4 of the 10 Fireline bundles sampled.
5. The average scrub loss was good, but the range and scatter were wide. For instance on Firescreens, 10 of the 39 samples showed a scrub loss of greater than or equal to 1.0 gm., and 9 samples showed less than or equal to 0.3 gm. This indicates a high probability for shading complaints.
6. Length control showed improvement since the previous audit with nothing found out of tolerance. There is up to 1/8" variation within a bundle, but this does not present a problem with local application methods.
7. The smoothness and integrity of the back coating again showed much improvement since the previous audit. The average amount of back coating was low on Firelines however, where it is needed most to maintain acceptable handling characteristics.

8. The Wind Seal adhesive and release tape were both located higher than standard (carry-over from Mark 80 set-up?), but the alignment between the two was excellent.
9. Storage (asphalt) staining of white granules was observed on both Firescreens and Firelines.
10. The QC Department does an excellent job of keeping all levels, operator, supervisory, and management informed of current product quality, test results, and trouble areas. As with all our plants, there is an insufficient amount of raw material testing.

Based on these findings, the following recommendations are made.

1. Use the information and tools available (Toledo Scale, inspection results) to run the premium products (PRC 240 and Fireline) to the established standard shipping weight.
2. Work to reduce degree of embedding variation, with particular attention to avoiding overpress on the darker colors which is not readily noticeable during production.
3. The talc transfer condition appears to be the result of a combination of overpressing and excess application at the surfacing section. The backing material application should be studied for methods to reduce initial application.
4. Operator awareness and reaction would be the key elements to eliminating the cut-out "chips" found in all three shingle product lines. This is a nuisance type complaint which is completely controllable. Proper die maintenance should be investigated as well.
5. At some point in time an analysis should be done to determine the cost "effectiveness" of building large inventories and leaving them for months on end exposed to the elements with the resulting damage, rework, rewrap, rebagging (all labor and materials) and product degradation due to storing in sun (faded wraps, sticking, deteriorated polybags) storing wet (rotting of wraps, blistering, granules loss) and repeated handling (spills, stabs, mixed stock), not to mention the packaging distortions, pallet marks, storage

staining, and material that is eventually downgraded to seconds or scrapped for any of the above reasons. This situation exists to some degree at all of our plants, but was particularly evident during this visit to Martinez.

6. With the good alignment capabilities of the seal down and release systems, it would be possible to reduce the release tape width to 1-1/2" without incurring sticking in bundle problems due to misalignment.

The following data is summarized from the finished stock inspections:

<u>Product</u> (No. Sampled)	<u>Weight</u> Average (Range)	<u>Back Coating</u> Average (Range)	<u>Embedding</u> Average (Range)
Firescreen (39)	208.5#/Sq. (192.0-223.0)	14.0#/100 (9.9-20.0)	0.64 Gm. (0.0-1.6)
Fireline (10)	273.8#/Sq. (254.0-284.0)	10.0#/100 (7.4-13.5#/Sq.)	0.47 (0.2-0.9)
PRC 240 (12)	230.6#/Sq. (220.5-246.0)	13.4#./100 (10.8-16.9)	1.1 Gm. (0.3-2.2)

The ranges for each product and category are the actual high and low values measured in the inspection. Statistically, approximately 95% of all the inventory will fall within these values.

Comments and Observations:

This Audit revealed a number of potentially serious quality problems, among them being embedding variation, overpress, talc transfer, and cut-outs within the bundle. More seriously is that production and plant management are apparently aware of these conditions, yet have not responded with corrective actions.

Most disturbing is what can only appear to be the deliberate running of Fireline and PRC 240 well below standard card weight. In the audit conducted by Mr. Clark, May 1984, the shipping weight of Firelines was found and reported to be 9.0 lbs. below standard. The shipping weight from this audit remains 7.2 lbs. below standard. The PRC 240 inventory ought to be relabeled as PRC 230, weighing in 9.4 lbs. under standard. This great a deviation from standard which is consistent and ongoing cannot be blamed on operational problems or equipment failures. Product weight information is available as running, and must be used to correct this situation.

Also disturbing was the overall quality, or lack of it, of the PRC 240. In addition to being light, over 40% of the bundles sampled showed talc transfer, another 33% contained "chips", and the average scrub loss exceeded 1.0 Gm. Not a good start with a new specialty product.

On the positive side, significant improvement was found in the areas addressed by the previous audit. Specifically, length control is now within our tolerance limits, the back coating is being applied much more uniformly with few voids, and the problem with shingle wrap sticking to the adhesive on top shingle was not in evidence.

Based on this response to recommendations of the last audit, and based on the interest and concern demonstrated during the discussion of the results of this audit, I anticipate that actions will be taken to correct or eliminate the conditions noted. I will follow-up on the progress of corrective actions.

RJC/cm

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