CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2006

DateRun: 06/29/2006

Experimenters: Jason Marshall

ClientType: Consultant

ProjectNumber: Project #1

Substrates: Wood

PartType: Coupon

Contaminants: Coatings

Cleaning Methods:

Analytical Methods: Performance Test, Visual

Purpose: To evaluate small load impact for various floor finishes

Experimental Procedure: The moisture content at the time of testing will influence results due to the hydroscopic nature of the base materials. Therefore, efforts must be taken to ensure that the moisture content and temperature remain constant during the evaluation period. Ideally, the sample floor should be kept at 65+/-1% relative humidity and 68+/-6 F.

During laboratory testing, conditions were 64% relative humidity and the temperature was ~74 F.

The flooring material supplied was Hardwood flooring made from Red Oak. The boards were ¾" thick, 2 ¼" wide and cut into 8" sections.

According to the ASTM method, coupons will be subjected to the indentation damage from small area loads to obtain a measure of the resistance to sharp-edged small area loadings. Results obtained from this test are qualitative in nature. Relative finish performance will be compared among the various tested products.

Testing deviated from the ASTM method for sample size and test directions. This was due to the quantity of wood coupons that would be needed for testing.

The small area load apparatus was constructed using a wooded rolling pin that was implanted with metal trim nails with a 0.15 inch head. The nails were placed 1" apart along an 8" line. Subsequent lines were off-set by ½" from the previous row of nails. The rows were spaced at ¾" around the rolling pin. See Figure 1 for the small area load apparatus.

Figure 1. Small Load Apparatus

Each coupon was clamped between two boards so that the coupon would be held in place during the small area load testing. The superimposed load was provided by the experimenter pushing with a uniform force onto the rolling pin (unknown level but approximately equal for all products). The small load apparatus was rolled across the surface of the coupon for 100 trips (50 cycles). At the end of the 100 trips, the damage to the coupon was classified according to the ASTM method as having none-minor, moderate, severe and complete damage. In addition, three independent assessments were made by lab personnel to rank the finishes for its ability to withstand small area loading.

Results: Two of three reviewers assessed the modified current process to have suffered the least amount of damage followed by the Bona water based coating mix. The third reviewer placed the Bona water mix as the product with the least damage. The current process was considered on average to be the most damaged of the coated boards.

Product	Observations	ASTM Classification	Rank 1	Rank 2	Rank 3	Average	Adjusted Rank
Current Process	Long scratches in surface	Moderate	4	3	5	4.0	4
Modified CP		Minor	1	1	2	1.3	1
Bona - Oil	Similar to Bona-Water	Minor	2	4	4	3.3	3
Bona - Water	Similar to Bona-Oil	Minor	2	2	1	1.7	2
Blank	Damage to end of board	Moderate	5	5	3	4.3	5

Summary:

Conclusion: The modified current practice was the considered to have the best resistance to small loads and the current practice was found to be the least effective.