CLEANING LABORATORY EVALUATION SUMMARY

SCL #:	2005
DateRun:	06/05/2005
Experimenters:	Jason Marshall
ClientType:	Environmental Service Firm
ProjectNumber:	Project #1
Substrates:	Wood
PartType:	Coupon
Contaminants:	Coatings
Cleaning Methods:	
Analytical Methods:	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 slightly drier, 40% relative humidity, but the temperature was within the given temperature range ~70 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. Some pieces of the flooring had to be sanded prior to making initial thickness readings to remove residual packing tape adhesive.

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, two independent assessments were made by lab personnel to rank the finishes for its ability to withstand small area loading.

Results:

Visual analysis made by two observers for the level of damage to the coated wood boards. Rankings were made independent of each other.

Observer 1			
Product	Observations	ASTM Classification	Rank
Polyurethane Gloss	Several long scratches. Some Short scratches. Chipping of coating.	Severe	4
WB Polyurethane	No major damage, some light scratches.	Minor	1
WB Sanding Sealer	Some long scratches. Some short scratches. No chipping.	Moderate	3
Aqua Deva Metro	No major damage,	Minor/ Moderate	2

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	some light scratches.		
Uncoated	Deeper divots than coated samples.	N/A	N/A

Observer 2

Product	Observations	ASTM Classification	Rank
Polyurethane Gloss	Lots of damage, easy to see.	Severe	4
WB Polyurethane	Still shiny. Hard to see marks.	Minor	1
WB Sanding Sealer	Dents easy to see.	Moderate	3
Aqua Deva Metro	Some damage. Not as shiny.	Minor	2
Uncoated		N/A	N/A

Summary:

Conclusion: Both observers scored the water based polyurethane from Pro Finishers as the product that had the least amount of damage. The polyurethane from Capitol was the most damaged for both observers.