CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2006

DateRun: 06/29/2006

Experimenters: Jason Marshall

ClientType: Consultant

ProjectNumber: Project #1

Substrates: Wood

PartType: Part

Contaminants: Coatings

Cleaning Methods:

Analytical Methods: Performance Test

Purpose: To evaluate rolling load resistance 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 measured at 64% relative humidity, and the temperature was 74.8 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.

Three coupons were coated with a supplied floor finish according to the manufacturers' specifications. The finish was applied using a 1" Pure Bristle 1500 paint brush. To ensure proper coating application rates, the coatings were applied via pipettes to surface. Three coats were used for each floor finish as this was common number of coating layers suggested by the various manufacturers.

The first two coatings were allowed to dry for 2 hours prior to the application of the next coat. The second coat for the current process was allowed to dry overnight before the application of final coat. The Completed coupons were allowed to sit for a minimum period of 24 hours before performance evaluations were conducted.

Rolling Load
Measurements made during the rolling load will reveal damage to the coupon surface from repeated rolling forces, simulating heavy castored loads such as beds, desks and appliances. Coupons were placed into a holding device and clamped to restrict movement of the coupon. A load sled was constructed using a wood plank and three castor wheels. The round, hard wheels were 2" in diameter and 1" wide. The sled was loaded with 200 pounds. Figure 3 shows the sled passing over the surface of the finished coupon.

Figure 3. Rolling Load Apparatus
Ten passes (5 cycles) were completed and the three measurements were made along the path of the sled wheel. An additional 15 passes were made with three more measurements made. Following the 25 passes, another 25 passes were made with the deformation measurements. The averages for the three sets of passes were calculated. Any notable surface changes were recorded. The results for each floor finish were compared to the other finishes.

Results: Rolling Load Resistance

Coating	Coupon	# passes	Middle	End 1	End 2	Ave Microm	Middle	End 1	End 2	Ave Microm
CP	46	10	0.7634	0.7602	0.7646	0.7627	0.7564	0.7486	0.7572	0.7541
		25					0.7536	0.7469	0.7524	0.7510
		50					0.7501	0.7426	0.7513	0.7480
	47	10	0.7647	0.7642	0.7645	0.7645	0.7498	0.7596	0.7570	0.7555
		25					0.7472	0.7501	0.7509	0.7494
		50					0.7452	0.7497	0.7487	0.7479
	48	10	0.7550	0.7551	0.7550	0.7550	0.7524	0.7532	0.7507	0.7521
		25					0.7496	0.7517	0.7504	0.7506
		50					0.7513	0.7497	0.7494	0.7501
MCP	49	10	0.7663	0.7676	0.7601	0.7647	0.7527	0.7609	0.7552	0.7563
		25					0.7500	0.7573	0.7531	0.7535
		50					0.7499	0.7567	0.7517	0.7528
	50	10	0.7574	0.7604	0.7632	0.7603	0.7567	0.7540	0.7581	0.7563

CLEANING LABORATORY EVALUATION SUMMARY

		25					0.7552	0.7535	0.7581	0.7556
		50					0.7510	0.7522	0.7578	0.7537
	51	10	0.7626	0.7647	0.7628	0.7634	0.7580	0.7613	0.7600	0.7598
		25					0.7550	0.7606	0.7523	0.7560
		50					0.7521	0.7591	0.7577	0.7563
BO	52	10	0.7663	0.7638	0.7647	0.7649	0.7607	0.7592	0.7606	0.7602
		25					0.7591	0.7576	0.7566	0.7578
		50					0.7573	0.7565	0.7556	0.7565
	53	10	0.7599	0.7607	0.7607	0.7604	0.7557	0.7565	0.7578	0.7567
		25					0.7525	0.7547	0.7566	0.7546
		50					0.7512	0.7533	0.7562	0.7536
	54	10	0.7569	0.7598	0.7644	0.7604	0.7464	0.7526	0.7571	0.7520
		25					0.7449	0.7500	0.7544	0.7498
		50					0.7441	0.7479	0.7532	0.7484
BW	55	10	0.7684	0.7610	0.7680	0.7658	0.7507	0.7516	0.7525	0.7516
		25					0.7497	0.7504	0.7510	0.7504
		50					0.7494	0.7500	0.7509	0.7501
	56	10	0.7684	0.7600	0.7656	0.7647	0.7592	0.7558	0.7548	0.7566
		25					0.7552	0.7523	0.7506	0.7527
		50					0.7550	0.7512	0.7498	0.7520
	57	10	0.7671	0.7710	0.7642	0.7674	0.7576	0.7580	0.7599	0.7585
		25					0.7550	0.7574	0.7590	0.7571
		50					0.7539	0.7563	0.7589	0.7564

Summary Rolling Load Resistance

Floor Coating	10	25	50	Total Depression Depth	Rank
CP	0.0089	0.0036	0.0016	0.0141	4
MCP	0.0072	0.0024	0.0008	0.0104	1
BO	0.0086	0.0022	0.0012	0.0121	2
BW	0.0102	0.0022	0.0006	0.0130	3
Pro Finisher Water Based Sanding Sealer & Polyurethane					
	0.0041	0.0058	0.0084	0.0084	

Summary:

Conclusion: The modified current practice resulted in the best resistance to the rolling load followed by the Bona Oil mix, then the Bona Water mix and lastly by the current practice.