08 Durability to static load

When furnitures or equipments are removed after they are left for a long time, we find indent in some cases. Durability to static loads indicates how resilient each floor coverings is.
In general, soft-surface floorings tend to have low resilient performance.

Durability to static loads of each vinyl floorings

Product Name				Overall Thickness (mm)	Indented Depth (mm)	Evaluation
Vinyl Sheets	NW	FS	NONWAXLEUM NW (TS7000 series)	2.0	0.04	A
			NONWAXLEUM NW (TS5000 series)	2.0	0.06	A
			MATURE NW	2.0	0.11	B
			DEODORANT NS TOWARE NW	2.0	0.05	A
			FLOORLEUM SOILUD NW	2.0	0.11	B
			FLOORLEUM LATTICE NW	2.0	0.11	B
			FLOORLEUM FLAKE NW	2.0	0.11	B
			FLOORLEUM NATTY NW	2.0	0.11	B
		HS	SF FLOOR NW	2.8	0.11	B
			SF FLOOR NW + UNDERLAY SHEET	7.3	0.20	C
			SF FLOOR NW 3.5MM (made-to-order product)	3.5	0.15	C
			SF FLOOR NW 3.5MM + UNDERLAY SHEET	8.0	0.20	C
			HOSPILEUM NW	2.0	0.10	B
			HOSPILEUM NW + UNDERLAY SHEET	6.5	0.18	C
		FS	FLOORLEUM PLAIN/MARBLE	2.0	0.12	B
			ANTIBACTERIAL FLOORLEUM PLAIN/MARBLE	2.0	0.12	B
			ANTIBACTERIAL FLOORLEUM PLAIN/MARBLE + UNDERLAY SHEET	6.5	0.16	C
			OPELEUM	2.0	0.09	A
			FLOORLEUM RITTI EMBOSS	2.0 (salient)	0.13	B
			SUPER K SHEET	2.0	0.04	A
			SUPER K SHEET EXCELLA	2.0	0.06	A
			NS4400 AQUATREAD	2.0	0.06	A
			NEW STANLOAD	2.0	0.04	A
		HS	NS FLATTY	2.0	0.08	A
			BATHNA ARTI	2.8	0.10	A
			BATHNA FLORE	3.5	0.13	B
			BATHNA REALDESIGN	4.0	0.11	B
Vinyl Tiles	NW	FT	E-CLEAN PREMIUM NW	3.0	0.04	A
			E-CLEAN NONS NW	3.0	0.09	A
			E-CLEAN ECONO NW	3.0	0.07	A
			ROYAL WOOD	3.0	0.07	A
		KT	MATICO V	2.0	0.10	A
			FASOL PLUS	3.0	0.08	A
	NW	FOA	LL FREE 40 NW-EX	4.0	0.08	A
			LL FREE EXCELLA (made-to-order product)	5.0	0.06	A
Others			Linoleum	2.5	0.09	A

FS heterogeneous vinyl sheet
HS heterogeneous vinyl sheet with foamed layer
FT heterogeneous vinyl tile
KT vinyl composition tile
FOA vinyl loose lay tile

[Criteria for Evaluation(mm)]

A - ≤ 0.1
B - 0.1 <, ≤ 0.15
C - 0.15 <, ≤ 0.3
D - 0.3 <

Guidelines for Evaluating the Data;

The less indented depth indicates the better durability to static loads.

Example of indentation

Test Method;

Indentation Test B (in accordance with JIS A 1454)

Use the residual indentation tester with the equipment (steel stick with φ19mm hemispherical tip which can put 222N load) and thickness measurement machine which can determine 0.01mm as minimum. After leaving the specimen for more than an hour in specified condition, measure the thickness (TO), then place on the testing stand with the surface upside. Put 222N load on the specimen for 5 minutes. Measure the thickness 60 minutes after removing the load (T1).

Indented depth = T0 - T1

T0: Thickness before testing (mm)
T1: Thickness after testing (mm)

Durability to static load of each carpet tiles

		Overall Thickness (mm)	Decreased Thickness (mm)	Rate of Decreased thickness (%)	Rank
Carpet tiles	GA-100	6.5	0.22	3.4	a
	GA-3600	6.8	0.49	7.2	a
	GA-8900	6.0	0.19	3.1	a
	GX-5200 RUSCELLO	7.5	0.56	7.5	a
	GX-9300V CORENTE V	6.5	0.22	3.4	a
	GA-100 + UNDERLAY SHEET FOR CARPET TILES	10.5	0.32	3.0	a
	GA-8900 + UNDERLAY SHEET FOR CARPET TILES	10.0	0.30	3.0	a

[Criteria for Evaluation (%)]

a - ≤ 15
b - ≤ 25
c - ≤ 35
d - 35 <

Guidelines for Evaluating the Data;

The less % of reduced thickness indicates the better durability to static loads.

Test Method;

Reduced thickness test by static loads (JIS L 1021-6 long time/heavy weight)

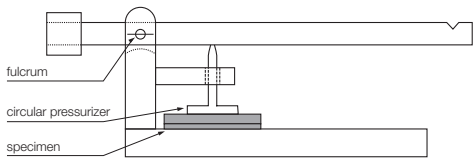
Measure the initial thickness before loading then put 700kPa load on the specimen by static loading machine for 24hours. Measure the thickness 24hours after removed. Following equipments are used for this testing.

Measuring instrument: Specified average pressure of 2.0kPa ±0.2kPa, ability to measure the thickness in accuracy of 0.1mm, with circular pressurizer sized from 300mm^2 to 1000mm^2 .

Testing stand: Made by metal, 6mm thickness, capable to measure the specimen sized 100mm x 100mm.

Test machine for indent load: Device with 2mm+ bigger than the pressurizer in radius, capable to put 700kPa on the specimen (Figure 1).

Figure 1



*All the testing was conducted by TOLI's in-house labs unless otherwise specified. The data shows actual test results, not guaranteed values.