

Cleaning and planned servicing processes within MMG2017/TOTEM

Updated 15 January 2021

This document gives an overview of the assumed maintenance scenarios of materials/work sections, as included in the current version of TOTEM.

The environmental impact of a maintenance scenario is declared within life cycle stage/ information module B2 which is part of the use stage of a building. Within TOTEM, the maintenance scenario consist of the following sub-modules:

- B2.1 Maintenance: cleaning,
- B2.2 Maintenance: small planned servicing,
- B2.3 Maintenance: big planned servicing.

Cleaning

Cleaning processes are yearly processes and it is assumed that a building also needs to be cleaned in its final life cycle year (i.e. year 60) before being demolished (i.e. after year 60). Thus within a building life time of 60 years, an appointed cleaning process occurs 60 times and the environmental impact will be accounted 60 times for a complete life cycle. The frequency of cleaning within a year varies per cleaning process, which can be at least once a year as a yearly cleaning process up to 52 times per year at most, i.e. a weekly cleaning process.

Table 1: The general types of cleaning processes currently included in MMG2017/TOTEM

Name process	Details of process
No cleaning	Nothing/no environmental impact.
Dusting	Manual labour/no environmental impact.
Vacuuming	0,02 kWh of low voltage electricity use per m ² of floor area.
Cleaning with water	5 litre of tap water per 60 m ² of cleaned surface, which equates to 0.083 litre water per m ² of surface.
Cleaning with water and soap	5 litre of tap water per 60 m ² with 1.5 caps of 30 ml of all-purpose cleaner ¹ per 60 m ² of cleaned surface, which equates to 0.083 litre water and 0.009 litre cleaner per m ² of surface.
Cleaning with high pressure cleaner	330 litre of tap water and 1,5 kWh of low voltage electricity use per hour of using a high pressure cleaner.
Vacuuming and cleaning with water (and soap)	See details of the separate processes.
Lawn mowing	Diesel consumption and emissions to air from combustion and emissions to soil from tyre abrasion due to using a motor mower with a petrol engine of 8 kW and an operation time of 2 hours per ha mowed area.

The next table gives a detailed overview of the type of cleaning process and frequency of cleaning within a year per type of material/work section. In the overview only the relevant work sections that could be cleaned are included, e.g. foundations and other not visible work sections are not considered.

¹ Based on an average dosage of two different brands of all-purpose cleaners.

Table 2: Overview of the assumed cleaning processes and frequencies of work sections within MMG2017/TOTEM

Building			MMG2017/TOTEM			
Building part	Building element		Cleaning process	Frequency per year		
	Type	Composition				
Structure						
Façades	External wall finish	Plaster	No cleaning	-		
		Facing bricks				
		Ceramic tiles				
		Natural stone panels/tiles				
		Concrete facing blocks				
		Sandwich panel				
		Metal plates/tiles				
		Wooden boards				
		Timber cladding			Dusting	1
		Fibre cement board				
	Fibre cement slates					
	Stone wool panel					
		Synthetic panel	Cleaning with water and soap	6		
		Curtain wall				
	Sun blinds	Metal sun blinds	Cleaning with water and soap	4		
Fabric sun blinds						
Roller screens						
Sun breakers						
External wall openings	Window frames	Wood	Cleaning with water and soap	6		
		Wood-metal				
		PVC				
		Aluminium				
	Doors	Panel	Cleaning with water and soap	6		
		Frame				
		Garage door		4		
	Glazing	Double	Cleaning with water and soap	6		
		Triple				
	Window sill	Natural blue stone	Dusting	26		
Aluminium						
MDF + paint		Cleaning with water and soap	1			
Internal walls	Relocatable partition	Glass and full panels	Cleaning with water and soap	12		
	Internal wall finish	Plaster	No cleaning	-		
		Plasterboard				
		Spray fill				
		Wooden boards				
		Gypsum boards				
		Paint			Cleaning with water and soap	1 (and only 10% of the surface area)
		Wall paper				
Natural stone tiles						

Continuation of Table 2: Overview of the assumed cleaning processes and frequencies of work sections within MMG2017/TOTEM

Building			MMG2017/TOTEM	
Building part	Building element		Cleaning process	Frequency per year
	Type	Composition		
		Ceramic tiles	Cleaning with water and soap	26 (and only 10% of the surface area)
Floors	Floor finish	Carpet	Vacuuming	52
		Cork		
		Parquet, waxed		
		Cast floor	Vacuuming and cleaning with water and soap	52
		Ceramic tiles		
		Linoleum		
		Natural stone tiles		
		PVC		
		Polished concrete		
		Laminate	Vacuuming (every week) and cleaning with water and soap (biweekly)	52
		Parquet, varnished		
Ceilings	Ceiling finish	Plaster	No cleaning	1 (and only 10% of the surface area)
		Plasterboard		
		Paint		
		Boards on wooden or metal support structure		
	Suspended ceiling	Acoustic panel		
		Stone wool panel		
Roof				
Flat roof	Ballast layer	Gravel	No cleaning	-
		Slate chips		
		Ceramic tiles	Cleaning with water and soap	
		Concrete tiles		
	Roof edge	Aluminium	Cleaning with high pressure cleaner	2
Circulation				
Stairs	Internal staircase	Concrete	Cleaning with water and soap	52
		Steel, straight		
		Steel, spiral	No cleaning	
		Wooden stair post		
	Finish	Open wooden steps	Vacuuming	52
		Closed wooden steps		
		Carpet		
		Open steel steps	Cleaning with water and soap	
		Open glass steps		
		Tiles		
Plaster	No cleaning	-		

Continuation of Table 2: Overview of the assumed cleaning processes and frequencies of work sections within MMG2017/TOTEM

Building			MMG2017/TOTEM			
Building part	Building element		Cleaning process	Frequency per year		
	Type	Composition				
	Staircase railing	Wood	Cleaning with water and soap	52		
		Steel				
		Concrete				
		Aluminium				
		Aluminium + glass				
		Glass				
	Balcony and gallery railing	Concrete	No cleaning	-		
		Steel				
		Wooden				
		Aluminium	Cleaning with water and soap	4		
		Aluminium + glass				
	Paint finishing					
	Balcony structure	Concrete	No cleaning	-		
		Steel	Dusting	1		
		Wood				
	Balcony finish	Screed	No cleaning	-		
		Bitumen sealing				
		Separating layer				
		Steel grid	Cleaning with water and soap	4		
Ceramic tiles						
Concrete tiles						
Wooden planks						
Coating						
Paint						
Lifts	Lift		Cleaning with water and soap			
Ground facility						
Pavement	Finish	Concrete	No cleaning	-		
		Ceramic tiles				
		Ceramic paving clinker				
		Coble stone				
		Natural stone paving clinker				
		Gravel				
		Sand				
		Broken dolomite				
		Concrete grass split tiles			Lawn mowing	5
		PE grass split tiles				
	Concrete paving tiles	Cleaning with water and soap	1			
	Natural stone paving tiles					
	Ceramic paving tiles					
Wooden terrace	Cleaning with water	1				

Small and big planned servicing

Planned servicing processes are reoccurring preventative and regular maintenance processes, such as polishing or repainting a work section, and repairs or replacements of parts of a work section. The frequency of planned servicing varies per process, which can be yearly (e.g. polishing parquet, or removing mosses from drives and terraces) or multiple years (e.g. repairing small parts of plaster every five years, or replacing the bitumen top layer every 30 years). Not every work section is coupled with a maintenance process, and if a work section needs maintenance this can be a small, a big, or a small and a big servicing process. Due to the large variety in types of planned servicing processes, it is not possible to derive a general overview of the planned servicing process like the tables included in this document regarding the cleaning processes.

In section 2.4.1 of the updated publication of the MMG assessment framework², the principle of suspension period has been explained in detail for replacements (life cycle stage/information module B4). This principle also applies to planned servicing processes:

- A big planned servicing process will never happen in the suspension period of the big planned servicing before a replacement of the work section. E.g. the replacement frequency i.e. life span of linoleum is set at 15 years, if the frequency of the big planned servicing assigned to is every 10 years and the suspension period of the big planned servicing is set to 5 years, the big planned servicing will not be executed. If the suspension period is set to 2 years, the big planned servicing will be organised.
- A small planned servicing process will never happen in the suspension period of the small planned servicing before the organisation of a big planned servicing. E.g. the small servicing of parquet happens on a yearly basis with no suspension period, the big servicing every 15 years with a suspension period of 7 years, and the life span of parquet equals to the building life span, i.e. 60 years. In this example it means that the big planned servicing will occur in year 15, 30 and 45 and the small planned servicing in every year except for year 15, 30, 45 and 60.

² Environmental profile of building elements (update 2017), January 2018, can be downloaded from: <https://www.totem-building.be/services/rest/downloads/download?id=1&lang=EN&transId=1>