

**Table 21.9** Room surface maintenance factor (RSMF) for direct, direct/indirect and indirect luminaires in rooms of different room indices, for a range of cleaning intervals, in dirty environments

Room index	Luminaire type	Interval between cleaning (years)					
		0.5	1.0	1.5	2.0	2.5	3.0
0.7	Direct	0.95	0.93	0.92	0.90	0.89	0.88
0.7	Direct/indirect	0.84	0.82	0.80	0.78	0.75	0.74
0.7	Indirect	0.80	0.73	0.69	0.66	0.63	0.59
2.5 to 5	Direct	0.96	0.95	0.95	0.94	0.94	0.94
2.5 to 5	Direct/indirect	0.86	0.85	0.83	0.81	0.79	0.78
2.5 to 5	Indirect	0.83	0.77	0.74	0.70	0.67	0.64

## 21.8 Determination of maintenance factor for exterior lighting

The maintenance factor (MF) for an outdoor lighting installation is a multiple of three factors:

$$MF = LLMF \times LSF \times LMF$$

where: LLMF is the lamp lumen maintenance factor

LSF is the lamp survival factor

LMF is the luminaire maintenance factor.

Typical values of LLMF are given in Table 21.2. Typical values of LSF after different hours of operation are given in Table 21.3. Typical values of luminaire maintenance factor (LMF) for luminaires with different levels of dust proofing installed in different levels of atmospheric pollution and with different luminaire cleaning intervals are given in Table 21.10. The level of dust proofing is given by the IP class to which the luminaire belongs (see Table 4.10). Low atmospheric pollution occurs in rural areas. Medium atmospheric pollution occurs in semi-urban, residential and light industrial areas. High atmospheric pollution occurs in large urban areas and heavy industrial areas.

**Table 21.10** Typical luminaire maintenance factor (LMF) for luminaires of different IP classes, in different levels of atmospheric pollution over a range of cleaning intervals

Luminaire IP class	Atmospheric pollution	Luminaire cleaning interval (years)			
		1.0	1.5	2.0	3.0
IP2X	Low	0.82	0.80	0.79	0.78
IP2X	Medium	0.62	0.58	0.56	0.53
IP2X	High	0.53	0.48	0.45	0.42
IP5X	Low	0.92	0.91	0.90	0.88
IP5X	Medium	0.90	0.88	0.86	0.82
IP5X	High	0.89	0.87	0.84	0.76
IP6X	Low	0.93	0.92	0.91	0.90
IP6X	Medium	0.92	0.91	0.89	0.87
IP6X	High	0.91	0.90	0.88	0.83