

Below Ground Waterproofing Levels Of Dryness

Grades of Waterproofing Protection

BS 8102:2022 provides guidance on Grades of waterproofing protection, based on the intended use of the below ground structure and performance levels required for that use. Previously BS 8102:1990/8102:2009 provided guidance on four levels of protection – the additional grade 4 differentiated between habitable use and archive storage in relation to the internal environment and the control thereof. CIRIA 139 Provides guidance on levels of dryness which relate to habitable use (grade3) and archive storage (Grade 4).

BS 8102:2022 Grades

Table 2 Grades (A) of Waterproofing Protection	Performance Level
1a	Seepage ^(B) and Damp ^(C) areas from internal and external sources are tolerable, where this does not impact on the proposed use of below ground structure. Internal drainage might be necessary to deal with seepage.
1b	No Seepage ^(B) . Damp ^(C) areas from internal and external sources are tolerable.
2	No Seepage ^(B) is acceptable. Damp ^(C) areas as a result of internal air moisture/condensation are tolerable; measures might be required to manage water vapour/condensation.
3	No Water Ingress or Damp areas ^(C) is acceptable. Ventilation, dehumidification, or air conditioning necessary; appropriate to the intended use ^(D) ^(E) .

- (A) The agreed grade should meet with the client's expectations for the intended use of the below ground space. Reducing the grade could increase the risk of not meeting the expectations of the client for the intended use of the below ground space.
- (B) Seepage (sometimes referred to as weeping) is defined in BS 8102:2022, section 3.1.5. If there is seepage, there is a possibility of mineral deposits forming.
- (C) Damp area is defined in BS 8102:2022, Section 3.4.
- (D) The scope of BS 8102:2022 is limited to detailing the process and best practices that can be followed when creating a waterproof or water-resistant structure below ground. The additional considerations that are required to achieve the required environment are beyond the scope of BS 8102:2022.
- (E) Refer to BS 5454 for recommendations for the storage and exhibition of archival documents.

Levels of Dryness (CIRIA 139)

Grade	Relative Humidity	Temperature	Performance Level	
			Dampness	Wetness
3	40-60%	Offices: 21-25°C		
		Residential: 18-22°C	None acceptable	None acceptable
		Leisure Centres:		
		18°C for Spectators		
		10°C for Squash Courts		
		22°C for Changing Rooms		
		24-29°C for Swimming Rooms		
	55-60% for a restaurant in summer	Restaurants: 10-25°C Kitchens: 29°C max	Active measures to control humidity may be necessary	
4	50% for art storage	Art storage: 18-22°C	Active measures to control humidity probably essential	None acceptable
	> 40% for microfilms/tapes			
	35% for books	Book archives: 13-18°C		

