
USACE / NAVFAC / AFCEC UFGS-07 11 13 (August 2023)

Preparing Activity: NAVFAC

Superseding
UFGS-07 11 13 (August 2011)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated April 2025

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08/23

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SECTION 07 11 13

BITUMINOUS DAMPPROOFING
08/23

NOTE: This guide specification covers the requirements for bituminous dampproofing to resist passage of moisture/water in the absence of hydrostatic pressure. It is intended to be used where protection is required against ingress of water by capillary action resulting from occasional exposure to moisture or where reduced transfer of water vapor through the surface is necessary. Consider the use of bituminous dampproofing for conditions such as the following:

1. Exterior side of exterior concrete or masonry walls enclosing occupied spaces below grade where a head of water or unusually wet soil conditions are not present (use Section 07 12 00 BUILT-UP BITUMINOUS WATERPROOFING when head of water exists).
2. Backside of concrete or masonry retaining walls and stone facing where percolating of water through the wall or facing would produce objectionable staining.
3. Inside surface of single wythe, exterior, furred concrete or masonry walls above grade where reduction of transfer of water vapor through the wall is necessary.
4. Cavity face of interior wythe of masonry cavity walls.

Adhere to [UFC 1-300-02](#) Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

Remove information and requirements not required in
respective project, whether or not brackets are
present.

Comments, suggestions and recommended changes for
this guide specification are welcome and should be
submitted as a [Criteria Change Request \(CCR\)](#).

PART 1 GENERAL

1.1 REFERENCES

NOTE: This paragraph is used to list the
publications cited in the text of the guide
specification. The publications are referred to in
the text by basic designation only and listed in
this paragraph by organization, designation, date,
and title.

Use the Reference Wizard's Check Reference feature
when you add a Reference Identifier (RID) outside of
the Section's Reference Article to automatically
place the reference in the Reference Article. Also
use the Reference Wizard's Check Reference feature
to update the issue dates.

References not used in the text will automatically
be deleted from this section of the project
specification when you choose to reconcile
references in the publish print process.

The publications listed below form a part of this specification to the
extent referenced. The publications are referred to within the text by
the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM C208	(2022) Standard Specification for Cellulosic Fiber Insulating Board
ASTM C728	(2017a; R 2022) Standard Specification for Perlite Thermal Insulation Board
ASTM D41/D41M	(2011; R 2023) Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing
ASTM D226/D226M	(2017) Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing
ASTM D227/D227M	(2003; R 2018) Standard Specification for Coal-Tar-Saturated Organic Felt Used in Roofing and Waterproofing
ASTM D449/D449M	(2003; R 2021) Standard Specification for

	Asphalt Used in Dampproofing and Waterproofing
ASTM D1187/D1187M	(1997; R 2018) Standard Specification for Asphalt-Base Emulsions for Use as Protective Coatings for Metal
ASTM D1227/D1227M	(2013; R 2019; e1) Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing
ASTM D4263	(1983; R 2018) Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
ASTM D4479/D4479M	(2007; R 2018) Standard Specification for Asphalt Roof Coatings-Asbestos-Free

KOREAN INDUSTRIAL STANDARDS (KS)

KS F 4052	(2004; R 2024) Waterproofing Asphalts for Building Construction
KS M 2270	(2020; R 2025) Asphalt Primer Used in Roofing, Dampproofing and Waterproofing

1.2 SUBMITTALS

NOTE: Review Submittal Description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list, and corresponding submittal items in the text, to reflect only the submittals required for the project. The Guide Specification technical editors have classified those items that require Government approval, due to their complexity or criticality, with a "G". Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a "G" to an item if the submittal is sufficiently important or complex in context of the project.

For Army projects, fill in the empty brackets following the "G" classification, with a code of up to three characters to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy and Air Force projects.

The "S" classification indicates submittals required as proof of compliance for sustainability Guiding Principles Validation or Third Party Certification and as described in Section 01 33 00 SUBMITTAL PROCEDURES.

Choose the first bracketed item for Navy and Air
Force projects, or choose the second bracketed item
for Army projects.

Government approval is required for submittals with a "G" or "S"
classification. Submittals not having a "G" or "S" classification are for
information only. When used, a code following the "G" classification
identifies the office that will review the submittal for the Government.
Submit the following in accordance with Section 01 33 00 SUBMITTAL
PROCEDURES:

SD-07 Certificates

Materials

1.3 DELIVERY AND STORAGE

Deliver materials in sealed containers bearing manufacturer's original
labels. Labels must include date of manufacture, contents of each
container, performance standards that apply to the contents and
recommended shelf life. While in storage, do not allow water based
bituminous damproofing to freeze.

PART 2 PRODUCTS

NOTE: When requiring the hot-application method for
damproofing, use the following paragraph for
asphalt. Where damproofing would be exposed to
temperatures of more than 50 degrees C after
application, modify paragraph ASPHALT to specify
Type III in lieu of Type II; delete paragraph
COAL-TAR PITCH, and retain the paragraph FIBROUS
ASPHALT without modification. Use paragraph
COAL-TAR PITCH when high resistance to acids or
salts is required or when hydrostatic pressure below
grade is high.

[2.1 ASPHALT

ASTM D449/D449M or KS F 4052, Type I or Type II.

]2.2 ASPHALT PRIMER

ASTM D41/D41M or KS M 2270.

[2.3 FIBROUS ASPHALT

NOTE: Use fibrous asphalt for the cold-application
method of damproofing when applied to the masonry
or concrete interior wall wythe surfaces of exterior
cavity walls.

ASTM D4479/D4479M, Type I for horizontal surfaces, Type II for vertical

surfaces.

][2.4 EMULSION-BASED ASPHALT DAMPPROOFING

2.4.1 Fibrated Emulsion-Based Asphalt

NOTE: Type II, Class 1 fibrated emulsion-based asphalt is typically used as a protective coating against dampness on interior surfaces above grade and exterior surfaces of concrete, metal and wood above or below grade. Type II, Class 1 is also used as a vapor barrier when applied to interior surfaces.

Provide cold-applied fibrated emulsion-based asphalt dampproofing conforming to [ASTM D1227/D1227M](#) Type II, Class 1, asbestos-free, manufactured of refined asphalt, emulsifiers and selected clay, fibrated with mineral fibers. For spray or brush application, emulsion must contain a minimum of 59 percent solids by weight, 56 percent solids by volume. For trowel application, emulsion must contain a minimum of 58 percent solids by weight, 55 percent solids by volume.

2.4.2 Non-Fibrated Emulsion-Based Asphalt

NOTE: Non-fibrated emulsion-based asphalt is typically used as a protective coating against dampness on interior surfaces of concrete, metal and wood above or below grade.

Provide cold-applied non-fibrated emulsion-based asphalt dampproofing conforming to [ASTM D1187/D1187M](#) Type II or [ASTM D1227/D1227M](#) Type III, manufactured of refined asphalt, emulsifiers and selected clay. Asphalt must contain a minimum 58 percent solids by weight, 55 percent solids by volume.

][2.5 SURFACE PROTECTION

NOTE: Use these paragraphs only when dampproofed surface against which backfill is to be placed will be exposed for an extended period of time or will be otherwise subjected to physical damage. Limit dampproofing material where protective covering is used to those materials which are applied hot. Heavier felt or mineral-surfaced roofing sheets, fiberboard, or perlite board may be specified as the protective covering where a higher degree of protection is necessary.

2.5.1 Saturated Felt

[ASTM D226/D226M](#), Asphalt Saturated, Type I, 6.8 kilogram; [ASTM D227/D227M](#), Coal-Tar Saturated.

2.5.2 Protection Board

Wood Fiber Board, **ASTM C208**, or Perlite Board, **ASTM C728**.

]PART 3 EXECUTION

3.1 SURFACE PREPARATION

NOTE: Coordinate the requirements of this paragraph with other applicable sections, to assure that patching of holes and other operations necessary for providing a suitable base for dampproofing are adequately covered. Edit the concrete section to assure that concrete surfaces to be dampproofed are specified to be cured by water methods.

[Remove or cut form ties and repair surface defects as required in Section **03 30 00** CAST-IN-PLACE CONCRETE.]Clean [concrete and]masonry surfaces to receive dampproofing of foreign matter and loose particles. Apply dampproofing to clean dry surfaces. Moisture test in accordance with **ASTM D4263**. If test indicates moisture, allow a minimum of seven additional days after test completion for curing. If moisture still exists, redo test until substrate is dry.

[3.1.1 Metal Surfaces

Ensure metal surfaces are dry and free of rust, scale, loose paint, oil, grease, dirt, frost and debris.

]3.2 Protection of Surrounding Areas

Before starting the dampproofing work, protect the surrounding areas and surfaces from spillage and migration of dampproofing material onto other work.[Protect drains and conductors from clogging with dampproofing material.]

3.3 APPLICATION

NOTE: When cavity walls are to be dampproofed, delete first bracketed requirements and include second bracketed requirements.

[Use either hot-application or cold-application method. Use cold-application method in confined spaces where hot bitumen would be hazardous.][Prime surfaces to receive fibrous asphaltic dampproofing unless recommended otherwise by dampproofing materials manufacturer.]Apply dampproofing after priming coat is dry, but prior to any deterioration of primed surface, and when ambient temperature is above **4 degrees C**.

3.3.1 Surface Priming

NOTE: When cavity walls are to be dampproofed, delete first bracketed sentence and bracketed

reference to asphalt in second sentence.

Prime surfaces to receive [asphalt or] [fibrous asphalt dampproofing with asphalt primer]. Apply primer when ambient temperature is above 4 degrees C and at rate of approximately 4 liters per 10 square meters, fully covering entire surface to be dampproofed.

[3.3.2 Hot-Application Method

NOTE: When cavity walls are to be dampproofed,
delete this paragraph in projects.

Apply two mop coats of hot asphalt to surfaces. Apply mop coats uniformly using not less than 12.2 kilograms of coal-tar pitch or 9.8 kilograms of asphalt per 10 square meters for each coat. Do not heat asphalt above 232 degrees C. Have kettlemen in attendance at all times during heating to ensure that maximum temperature specified is not exceeded. Apply hot asphalt bitumen and fully bond to primed surface. Provide finished surface that is smooth, lustrous, and impervious to moisture. Recoat dull or porous spots.

]3.3.3 Cold-Application Method

NOTE: When cavity walls are to be dampproofed,
include bracketed requirement in the paragraph for
fibrous asphalt.

[3.3.3.1 Fibrous Asphalt

Apply two coats of fibrous asphalt to surfaces to be dampproofed. Apply each coat uniformly using not less than 4 liters fibrous asphalt per 5 square meters. Apply first coat by brush or spray to provide full bond with primed surface. Brush or spray second coat over thoroughly dry first coat[unless recommended otherwise by dampproofing materials manufacturer]. Provide finished surface that is of uniform thickness and impervious to moisture. Recoat porous areas.

]3.3.3.2 Emulsion-Based Asphalt

Do not perform emulsion-based asphalt dampproofing work in temperatures below 4 degrees C. Emulsions must have a smooth and uniform consistency at time of application. Apply dampproofing materials in accordance with manufacturer's published instructions to produce a smooth uniform dry film of not less than 0.3 mm thick without voids or defects. Recoat any dull or porous spots. Seal dampproofing materials tightly around pipes and other items projecting through dampproofing. Apply materials at rates as follows:

- a. Primer: 0.2 liters per square meter, cold-applied.
- b. Fibrated Dampproofing: 0.8 liters per square meter, cold-applied with spray, brush or trowel.
- c. Non-fibrated Dampproofing: 0.8 liters per square meter, cold-applied

with spray, brush or trowel.

] [3.4 PROTECTIVE COVERING

NOTE: Use this paragraph only when dampproofed
surface against which backfill is to be placed will
be exposed for an extended period of time or will be
otherwise subjected to physical damage.

Protect dampproofed surfaces against which backfill will be placed with
[one layer of 6.8 kilogram saturated felt. Use asphalt-saturated felt
where the dampproofing material is asphalt and use coal-tar-saturated felt
where the dampproofing material is coal-tar pitch. Embed felts in the
second coating of bitumen and lap edges and ends not less than 25 mm] [13
mm thick wood fiberboard or perlite board].

] -- End of Section --