
USACE / NAVFAC / AFCEA UFGS-07112N (September 1999)

Preparing Activity: NAVFAC Replacing without revision
NFGS of same number and date

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated 22 December 2004

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SECTION 07112N

BITUMINOUS DAMPPROOFING 09/99

NOTE: This guide specification covers the requirements for bituminous dampproofing and 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.

Comments and suggestions on this guide specification are welcome and should be directed to the technical proponent of the specification. A listing of technical proponents, including their organization designation and telephone number, is on the Internet.

Recommended changes to a UFGS should be submitted as a Criteria Change Request (CCR).

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.

NOTE: Use of bituminous dampproofing should be considered 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 07121N 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.

PART 1 GENERAL

1.1 REFERENCES

NOTE: Issue (date) of references included in project specifications need not be more current than provided by the latest guide specification. Use of SpecsIntact automated reference checking is recommended for projects based on older guide specifications.

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 C 208	(1995; R 2001) Cellulosic Fiber Insulating Board
ASTM C 728	(1997e1) Perlite Thermal Insulation Board
ASTM D 226	(1997a) Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing
ASTM D 227	(2003) Coal-Tar-Saturated Organic Felt Used in Roofing and Waterproofing
ASTM D 41	(1994; R 2000e1) Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing
ASTM D 4263	(1983; R 1999) Indicating Moisture in Concrete by the Plastic Sheet Method
ASTM D 43	(2000) Coal Tar Primer Used in Roofing, Dampproofing, and Waterproofing
ASTM D 4479	(2000) Asphalt Roof Coatings - Asbestos-Free
ASTM D 449	(2003) Asphalt Used in Dampproofing and Waterproofing
ASTM D 450	(1996; R 2000e1) Coal-Tar Pitch Used in Roofing, Dampproofing, and Waterproofing

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1926	Safety and Health Regulations for Construction
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1.2 DELIVERY AND STORAGE

Deliver materials in sealed containers bearing manufacturer's original labels. Labels shall include date of manufacture, contents of each container, performance standards that apply to the contents and recommended shelf life.

1.3 SAFETY AND HEALTH REQUIREMENTS

If coal-tar pitch materials are used, the Contractor shall conform to all OSHA 29 CFR 1926 and General Industry Health Standards as well as state and local standards.

PART 2 PRODUCTS

NOTE: Where dampproofing would be exposed to temperatures of more than 50 degrees C 122 degrees F after application, paragraph entitled "Asphalt" should be modified to specify Type III in lieu of Type II; paragraph entitled "Coal-Tar Pitch" should be deleted, and paragraph entitled "Fibrous Asphalt" should be retained without modification. Paragraph entitled, "Coal-Tar Pitch" should be used when high resistance to acids or salts is required or when hydrostatic pressure below grade is high.

2.1 ASPHALT

ASTM D 449, Type I or Type II.

2.2 ASPHALT PRIMER

ASTM D 41.

2.3 CREOSOTE PRIMER

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

ASTM D 43.

2.4 COAL-TAR PITCH

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

ASTM D 450, Type II or Type III.

2.5 FIBROUS ASPHALT

ASTM D 4479, Type I for horizontal surfaces, Type II for vertical surfaces.

2.6 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. Dampproofing material where protective covering is used must be limited 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.

2.6.1 Saturated Felt

ASTM D 226, Asphalt Saturated, Type I, 6.8 kilogram 15 pound; ASTM D 227, Coal-Tar Saturated.

2.6.2 Protection Board

Wood Fiber Board, ASTM C 208, or Perlite Board, ASTM C 728.

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. Particular attention should be directed to 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 all surface defects as required in Section 03300N 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 D 4263. If test indicates moisture, allow a minimum of 7 additional days after test completion for curing. If moisture still exists, redo test until substrate is dry.

3.2 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 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 40 degrees F.

3.2.1 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 coal-tar pitch dampproofing with creosote primer.] [Prime surfaces to receive [asphalt or] [fibrous asphalt dampproofing with asphalt primer].] Apply primer when ambient temperature is above 4 degrees C 40 degrees F and at rate of approximately four liters per 10 square meters one gallon per 100 square feet, fully covering entire surface to be dampproofed.

3.2.2 Hot-Application Method

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

Apply two mop coats of hot coal-tar pitch or two mop coats of hot asphalt to surfaces. Apply mop coats uniformly using not less than 12.2 kilograms 25 pounds of coal-tar pitch or 9.8 kilograms 20 pounds of asphalt per 10 square meters 100 square feet for each coat. Do not heat asphalt above 232 degrees C 450 degrees F. Do not heat coal tar pitch above 204 degrees C 400 degrees F. Have kettlemen in attendance at all times during heating to ensure that maximum temperature specified is not exceeded. Apply hot asphalt bitumen or coal tar pitch and fully bond to primed surface. Provide finished surface that is smooth, lustrous, and impervious to moisture. Recoat dull or porous spots.

3.2.3 Cold-Application Method

**NOTE: When cavity walls are to be dampproofed,
include bracketed requirement.**

Apply two coats of fibrous asphalt to surfaces to be dampproofed. Apply each coat uniformly using not less than four liters one gallon fibrous asphalt per 5 square meters 50 square feet. 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 PROTECTIVE COVERING

Protect dampproofed surfaces against which backfill will be placed with [one layer of 6.8 kilogram 15 pound saturated felt conforming to the requirements specified herein. 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 one inch] [13 mm 1/2 inch thick wood fiberboard or perlite board].

-- End of Section --