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USACE / NAVFAC / AFCEA / NASA           UFGS-31 31 16.20 (April 2006)  
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Preparing Activity: NAVFAC           Replacing without change  
                                  UFGS-02362 (August 2004)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UML dated October 2009

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### SECTION 31 31 16.20

#### BASALTIC TERMITE BARRIER 04/06

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NOTE: This guide specification covers the requirements for a basaltic termite barrier.

Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable items(s) or insert appropriate information.

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

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 \(CCR\)](#).

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NOTE: This specification consists of furnishing and placing of graded basaltic sand as a physical barrier, below the concrete slab or foundation of a structure to prevent the entry of Formosan ground termites into wood components of the structure, similar to laying down a chemical barrier of soil termiticide treatments. The use of this preventive measure does not preclude the use of other preventive measures such as chemical treatment, physical termite mesh control barrier system and and pressure treated lumber for construction to provide maximum protection to the structure. In fact, it is recommended that this material be used in conjunction with chemical treatments of vulnerable areas such as around electrical conduits, plumbing pipes that penetrate the slab, and the shoulder portions of the barrier and with pressure treated lumber to provide maximum protection to the

structure.

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NOTE: TO DOWNLOAD UFGS GRAPHICS

Go to <http://www.wbdg.org/ccb/NAVGRAPH/graphdoc.pdf>.

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## PART 1 GENERAL

### 1.1 REFERENCES

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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 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.

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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 128 (2007a) Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate

ASTM C 131 (2006) Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

ASTM C 136 (2006) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates

ASTM C 289 (2007) Standard Test Method for Potential Alkali-Silica Reactivity of Aggregates (Chemical Method)

### 1.2 SUBMITTALS

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NOTE: Review submittal description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list to reflect only the submittals required for the project. Submittals should be kept to the minimum required for adequate quality control.

A "G" following a submittal item indicates that the submittal requires Government approval. Some submittals are already marked with a "G". Only delete an existing "G" if the submittal item is not complex and can be reviewed through the Contractor's Quality Control system. Only add a "G" if the submittal is sufficiently important or complex in context of the project.

For submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation 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, Air Force, and NASA projects.

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

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Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are [for Contractor Quality Control approval.][for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

#### SD-06 Test Reports

#### Basalt Sand

### 1.3 STORAGE AND HANDLING

Store and handle the material so as to prevent contamination by dirt, water, and organic material.

## PART 2 PRODUCTS

### 2.1 BASALT SAND

Clean, dry sand material manufactured from crushed basalt rock meeting the following requirements.

- a. Material gradation, ASTM C 136.

<u>Sieve Size</u>	<u>Percent Passing</u>
4.75 mm	100
2.36 mm	95 - 100
2.00 mm	75 - 95
1.70 mm	35 - 50
1.18 mm	0 - 10

<u>Sieve Size</u>	<u>Percent Passing</u>
No. 4	100
No. 8	95 - 100
No. 10	75 - 95
No. 12	35 - 50
No. 16	0 - 10

- b. Specific gravity, **ASTM C 128**, 2.80.
- c. Silica (SiO2) content, **ASTM C 289**, 45 percent.
- d. Abrasion loss, after 500 revolutions, 20 percent, when tested in accordance with **ASTM C 131**.

### PART 3 EXECUTION

#### 3.1 PREPARATION

Prior to placing material, remove visible plant roots and standing water from the excavated area. Inspect utility trenches to ensure they are sufficiently wide to permit adequate cover under, around, and over pipes and conduit that will be encapsulated with the basaltic termite barrier (BTB). Also inspect the foundation perimeter to ensure that there is sufficient room between the sides of excavations and edges of foundations to provide the required barrier depth and width.

#### 3.2 PLACEMENT

- a. General. Place material in one lift for thicknesses of **150 mm 6 inches** or less and in successive lifts of **100 to 150 mm 4 to 6 inches** where the indicated thickness is greater than **150 mm 6 inches**. Compact each lift prior to placing successive lifts. Use power driven, vibrating-plate type tampers for large areas and rod-and-plate type hand tampers for small areas such as utility trenches and foundation and walk edges.

##### 3.2.1 Slab-on-Grade

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**NOTE: Show the required depths on the drawings.**  
**100 mm Four inch depth is the minimum required. For**  
**areas where capillary action is a problem, consult a**  
**soils engineer if the depth should be increased or**  
**other capillary prevention measures are required.**  
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Provide a barrier of the depth indicated. Rake smooth and machine tamp,

giving at least three passes over the entire area. Hand tamp around pipe and conduit risers.

#### 3.2.1.1 Utility Trenches

Place the required depth of material for bedding in trenches prior to placing pipes and conduits. Hand tamp. For pipes 75 mm 3 inches and larger in diameter: After placing pipe, bring material up to the top of the pipe and carefully hand tamp the material. Then, bring material up to the top of the trench and tamp. For pipes smaller than 75 mm 3 inches in diameter and for conduit: Bring material up to the top of the trench and tamp.

#### 3.2.1.2 Edges

After concrete placement and form removal, remove dirt, loose concrete, and other debris and hand place and tamp additional material to existing grade.

#### 3.2.2 CMU Block Walls

Place the material in ungrouted cells at a height of at least one course above grade of the wall.

#### 3.2.3 Fence Posts and Utility Poles

- a. Line the designated hole with a geotextile or similar material before proceeding with the work.
- b. Once the geotextile is in place, put a 100 to 150 mm 4 to 6 inch layer of the BTB at the bottom of the hole. Hand tamp. After positioning the fence post or utility pole in the middle of the hole, fill around the sides, compacting the material after successive lifts of 150 to 300 mm 6 to 12 inches until the hole is completely filled. Ensure that a 100 to 150 mm 4 to 6 inch BTB barrier exists around the perimeter of the post or pole.

#### 3.2.4 Retaining Walls

Place the required amount of material below the footing and up to the grade level of the wall. Place lifts of 100 to 150 mm 4 to 6 inches with compaction of each lift prior to placing successive lifts.

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