



Designation: C 120 – 06

# Standard Test Methods of Flexure Testing of Slate (Breaking Load, Modulus of Rupture, Modulus of Elasticity)<sup>1</sup>

This standard is issued under the fixed designation C 120; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the Department of Defense.*

## INTRODUCTION

Due to the unique properties of slate, the flexure test is better adapted to use for strength and elasticity determinations than either compression or tension tests. Furthermore, several uses of slates are such that these determinations are of special interest and value, besides furnishing comparative data.

The property of slate termed “grain” causes a slab of the material to break transversely in one direction somewhat more readily than at right angles to this direction. For this reason it is desirable to test the strength and elasticity both parallel and perpendicular to the grain.

Breaking load test results for samples of roofing slate are only valid for the commercial supply of slates of that thickness or greater. For the commercial supply of thinner roofing slates, testing on samples of the minimum specified thickness must be conducted.

When comparing slates of equal thickness, but from various sources, slates which meet the required breaking load at the lowest specimen thickness will yield the best performance on the roof in terms of resistance to impact damage.

## 1. Scope

1.1 These test methods cover determination of the breaking load, modulus of rupture and modulus of elasticity of slate by means of flexure tests.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

## 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

C 99 Test Method for Modulus of Rupture of Dimension Stone

C 119 Terminology Relating to Dimension Stone

## 3. Terminology

3.1 *Definitions*—All definitions are in accordance with Terminology C 119.

## 4. Significance and Use

4.1 These test methods are useful in indicating the differences in flexure (breaking load, modulus of rupture, modulus of elasticity) between various slates. These test methods also provide one element in the comparison of slates.

## 5. Sampling

5.1 Select the sample to represent a true average of the type or grade of stone under consideration and of the quality supplied to the market under the type designation to be tested. The sample may be selected by the purchaser or his authorized representative from the quarried stone or taken from the natural ledge and shall be of adequate size to permit the preparation of the desired number of test specimens. When perceptible

<sup>1</sup> These test methods are under the jurisdiction of ASTM Committee C18 on Dimension Stone and are the direct responsibility of Subcommittee C18.01 on Test Methods.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.