STANDARD PERFORMANCE SPECIFICATION FOR NEWLY MANUFACTURED BASEBALL/SOFTBALL BATTER'S HELMET MOUNTED FACE PROTECTOR

NOCSAE DOC (ND) 072-21m23

Prepared By

NATIONAL OPERATING COMMITTEE
ON STANDARDS FOR ATHLETIC EQUIPMENT

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1. **Scope**

1.1. This standard specification establishes performance requirements for new baseball/softball batter's helmet face protectors intended to be mounted to batters helmets certified as meeting the NOCSAE standard for baseball/softball batters helmets as supplied by the manufacturer of the face protector. The face protector shall be supplied with the required hardware and instructions for mounting, along with required accessories (like a chin strap) if any are required for the face protector to function as designed. Face protectors for use with softballs must be clearly marked as such. The requirements of this standard shall be subject to Level 3 compliance criteria unless otherwise stated herein.

1.2. **All testing and requirements of this standard specification must be in accordance with NOCSAE DOC 001 and NOCSAE DOC 021, except where modified herein.**

1.3. This standard does not purport to address all of the safety problems, 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. NOCSAE DOC (ND) 001: *Standard Test Method and Equipment Used in Evaluating the Performance Characteristics of Headgear/Equipment*

2.2. NOCSAE DOC (ND) 021: *Standard Projectile Impact Test Method and Equipment Used in Evaluating the Performance Characteristics of Protective Headgear/Projectiles*

2.3. NOCSAE DOC (ND) 022: *Standard Performance Specification for Newly Manufactured Baseball/Softball Batter's Helmets*

3. **Test Sample Size**

3.1. See Sections 6 and 11, NOCSAE DOC 001, for QC/QA protocol testing.

3.2. Protectors may be submitted for testing with either baseballs or softballs or both.

3.3. For any standalone test report, at least five (5) samples of each face protector model in each of the sizes must be tested with the appropriate ball. Face protectors shall be mounted to a batters helmet that bears the NOCSAE logo and is listed by the protector manufacturer as being compatible with and in a size that is appropriate for the protector. The face protector may be installed by the manufacturer or may be installed by the test technician in accordance with supplied instructions. A different face protector is to be used for each test position at each temperature condition.

3.4. In cases where the protector is furnished in one size and fits more than one size of helmet, testing shall be conducted on the medium headform with a helmet that is intended to fit the medium headform. If more than one size helmet is intended to fit the medium headform, the critical size as defined in ND 021 shall be used. If more

than one critical helmet size intended to fit the medium headform is available, the critical size with minimal standoff between face protector and headform nose when the helmet is fitted according to instructions, with the face protector fitted according to instructions and including any required accessories such as a chin strap, shall be used.

3.4.1. In cases where the protector is furnished in one size and fits more than one size of helmet not intended to fit the medium headform, and testing on the medium headform is likely to result in erroneous results, testing shall be conducted on the appropriate headform with a helmet intended to fit that headform size. If more than one critical helmet size intended to fit the selected headform is available, the critical size with minimal standoff between face protector and headform nose when the helmet is fitted according to instructions, with the face protector fitted according to instructions and including any required accessories such as a chin strap, shall be used.

4. Helmet Preparation

4.1. See Sections 10 and 12, NOCSAE DOC 001.

4.2. Low Temperature: Expose product to conditioned temperature of 32º F + 0° F or - 3º F (0º C + 0° C or - 1º C) for at least four hours.

4.3. Face protectors of a given model that will only fit a helmet with a size smaller than 6 5/8 ***may*** not fit the smallest NOCSAE headform. In that event, testing of that size is waived so long as the other sizes of that model have been tested and meet all requirements.

5. Impact Attenuation Tests

5.1. Impact locations are illustrated and shown in Figure 1 (attached).

5.3. The baseball(s) used shall weigh 5 - 5 $^1/_4$ ounces (142 – 149 grams), have a circumference of 9 – 9.25 inches, and have a C-D at .25 inches of 200 – 300 lbs and be of the construction specified and used by Major League Baseball.

5.4. The softball(s) used shall weigh 5 $^7/_8$ to 6 $^1/_8$ ounces (166 -174 grams), have a circumference of 10.875 – 11.125 inches, and have a C-D at .25 inches of 300 – 400 lbs.

5.5. Each submitted sample face protector shall be impacted with a ball in accordance with Table 1 below and as illustrated in Figure 1.

5.5.1. The head model will be positioned with its impact site located within 24 inches (610 $\pm$ 6 mm) from the end of the muzzle (or from the point at which the ball is released).

5.6. See Section 5, NOCSAE DOC 021.

5.7. Each face protector to be tested shall be mounted on a batter's helmet according to the manufacturer's instructions. Face protectors shall be impacted at each of these positions:

5.7.1. Directly in front with the headform and helmet in an upright (vertical) position. [Barrel (line of ball travel) shall be perpendicular to the Coronal plane].

5.7.2. With the headform and helmet in an upright (vertical) position and rotated away from the Midsagital plane at a 45º angle from the direction of impact.

5.7.3. Random location: With the headform and helmet in an upright (vertical) position the headform may be located in a manner that allows the impact point to be within the "no contact area" as defined in Figure 2, attached. Pointer or other targeting means can be set within, or to any edge of, the "no contact" area. The center of ball contact must be at the edge of, or within the "no contact" area.

5.8. Impacts shall be aimed at each of the positions designated in 5.7 above according to the following:

5.8.1. At least one impact shall be at the center of the widest opening in the face protector.

5.8.2. At least one impact shall be aimed at the material structure of the face protector.

5.8.3. The random impact shall be selected to investigate any apparent weakness in the face protector which may allow contact to the face.

TABLE 1

LOCATION – MILES PER HOUR (m/sec)
(All speeds must be ± 3%)
Baseball Impact Speeds

	FRONT (90º)	**45º ANGLE**	**RANDOM**
Ambient Temperature	67 (30)	67 (30)	67 (30)
Low Temperature	67 (30)	67 (30)	N/A

Softball Impact Speeds

	FRONT (90º)	**AT A 45º ANGLE**	**RANDOM**
Ambient Temperature	56 (25)	56 (25)	56 (25)
Low Temperature	56 (25)	56 (25)	N/A

6. Test Requirements

6.1. Helmet repositioning during testing is anticipated. Any structural changes or other changes that take place during impact testing which result in un-restorable, loosening of the fit (see Section 20, NOCSAE DOC 001) shall be cause for failure. In the case of helmets "shimmed" as per section 3.2.1, the replacement or repositioning of shims is allowed. If the product is designed to be used with a retention system and said system becomes unfastened or unsecured during impact testing it is not cause for failure.

6.2. The peak severity index of any impact shall not exceed 1200 SI.

6.3. A passing helmet model is able to withstand all impacts at an acceptable SI and meets all other requirements when tested in accordance with this performance specification.

6.4. No contact to the ocular area is ever permitted. Limited contact to specific areas of the headform is allowed (limited contact area).♦ Contact occurring to the limited contact area must be restricted to those non-structural components of the headgear that are designed/intended to rest on or come in contact with the wearers face. (See Figure 2 attached).

6.4.1. Verification of ball contact: For verification of ball or protector contact with the face, cover the entire facial test area (limited contact/ocular area) from the frontal bone superiorly to the mandible inferiorly with Pressure Indicator paste. Contact of either ball or protector with any part of the face will leave paste at the point of contact and proof of contact on the headform. Inspect thoroughly both the ball and the protector to determine if they contain residue of paste. Also inspect the headform ocular area for evidence of contact.

7. Labels and Warnings

7.1. See Section 9, NOCSAE DOC 001 with the exception of sections 9.1.3, 9.2, 9.5 and 9.9.

7.2. The phrase, "SEI Certified, Meets NOCSAE Standard®" shall be permanently affixed.

NOTE: You must have an executed, valid license agreement with NOCSAE to use any of the NOCSAE logos at any time. NOCSAE, the NOCSAE seals/logos, and the National Operating Committee on Standards for Athletic Equipment are registered marks and the exclusive property of the Committee. Use of the marks in any manner is prohibited without prior written permission of the NOCSAE Board of Directors.

7.3. Packaging and/or instructional literature for face protectors shall be permanently and legibly labeled in a manner such that the following information can be easily read:

7.3.1. A list of helmets certified as meeting the NOCSAE standard for baseball/softball batters helmets, on which the face protector has been tested

♦ This requirement shall be subject to Level 2 compliance criteria.

and certified as meeting this Standard Performance Specification.

7.3.2. A warning that the face protector may be penetrated if non-standard or non-type specific balls are used.

7.3.3. **WARNING:**
DO NOT USE THIS FACE PROTECTOR IF IT IS CRACKED OR DEFORMED, OR IF THE MATERIAL OR COATING IS DETERIORATED. SEVERE HEAD OR NECK INJURY, INCLUDING PARALYSIS OR DEATH, MAY OCCUR TO YOU DESPITE USING THIS FACE PROTECTOR. NO HELMET FACE PROTECTOR SYSTEM CAN PREVENT ALL HEAD INJURIES OR ANY NECK INJURIES A PLAYER MIGHT RECEIVE WHILE PARTICIPATING IN BASEBALL OR SOFTBALL.

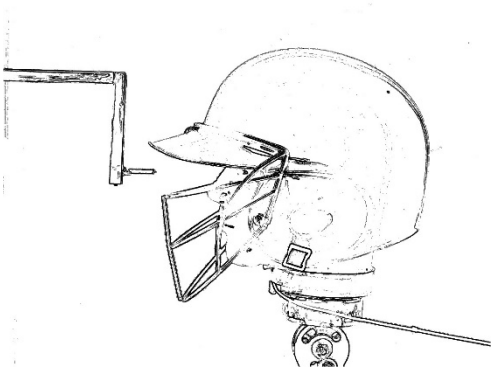
THIS FACE PROTECTOR DOES NOT COMPLY WITH NOCSAE REQUIREMENTS UNLESS PROPERLY ATTACHED TO A BATTER'S HELMET SPECIFICALLY LISTED BY THE MANUFACTURER.

7.4. Protectors that have been tested and certified with softballs only must carry the following additional warning permanently affixed to the protector:

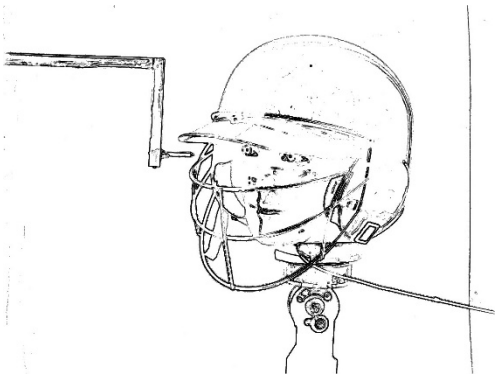
WARNING: NOT FOR USE WITH BASEBALLS. USE ONLY WITH 11 INCH SOFTBALLS OR LARGER.

7.5. In addition, softball only protectors must have a warning that is attached to the protector in the eye opening area in such a way that the protector is functionally unusable until the warning is removed. This warning shall convey the following information and be visible without removal of the warning:

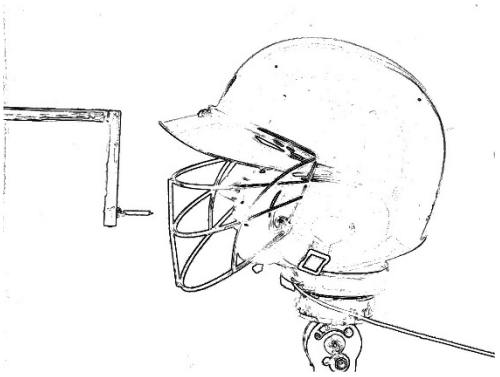
READ THIS BEFORE USE:
WARNING: NOT FOR USE IN BASEBALL. THIS PROTECTOR IS TO BE USED ONLY WITH 11 INCH SOFTBALLS OR LARGER. DO NOT USE THIS PROTECTOR FOR BALLS SMALLER THAN 11 INCHES OR ANY BASEBALL.



Typical Front Location: aimed at widest location or material of guard.



Typical 45 Degree Location: aimed at widest location or material of guard.



Typical Random Location: aimed at no contact zone (see figure 2).

Figure 1

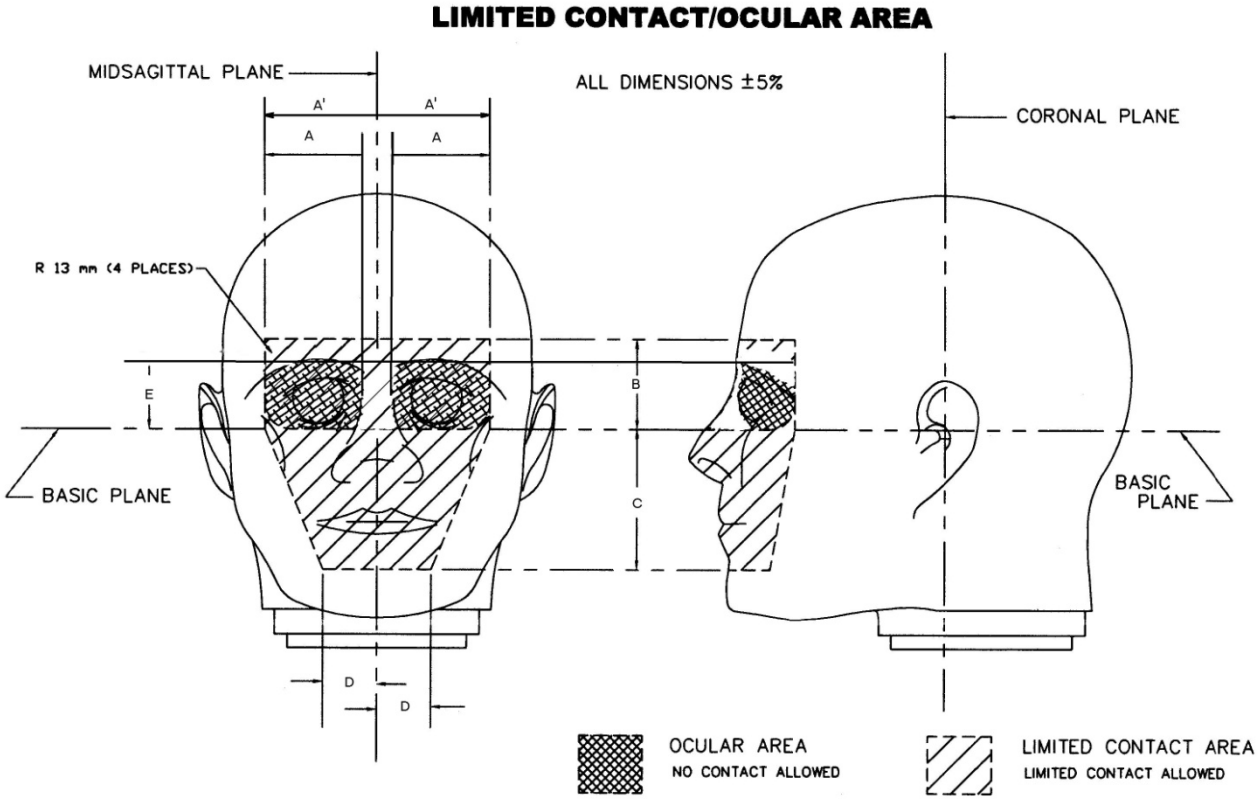


Figure 2

TABLE 2

Headform	Label	A	A'	B	C	D	E
Small	**Dimension, mm (in)**	44 (1.736)	54 (2.113)	41 (1.619	64 (2.518)	26 (1.019)	32 (1.259)
Medium	**Dimension, mm (in)**	46 (1.811)	56 (2.205)	45 (1.772)	70 (2.756)	27 (1.062)	35 (1.378)
Large	**Dimension, mm (in)**	51 (1.989)	62 (2.421)	50 (1.969)	78 (3.063)	30 (1.167)	39 (1.532)

MARCH 2004 MODIFICATIONS/REVISIONS

- Change requirement in section 6.2 to allow the use of the specific manufacturer's name.

SEPTEMBER 2004 MODIFICATIONS/REVISIONS

- Corrected typographical errors, figure and section references. Added document reference. Allowed use of a chin and/or neck strap for helmet stability. Defined random impact location headform positioning.

DECEMBER 2004 MODIFICATIONS/REVISIONS

- Modified section 6.4 to reflect reduced language to the on guard warning
- Added Figure 1.
- Modified range of balls that can be used to reflect what is readily available

FEBRUARY 2005 MODIFICATIONS/REVISIONS

- Modified section 5.2 to clarify retention system use.
- Added Low Temperature specification to Table 1.
- Modified section 6.5 to clarify warning visibility.

JUNE 2005 MODIFICATIONS/REVISIONS

- Modified Figure 2.
- Added Table 2.
- Modified NOCSAE contact information
- Added Note to section 6.2

DECEMBER 2006 MODIFICATIONS/REVISIONS

- Modified sections 5.3 and 5.4 to specify weight in ounces of baseball and softballs used

DECEMBER 2008 MODIFICATIONS/REVISIONS

- Updated Table 2 to include dimensions for Limited Contact/Ocular Area on small and large headforms

FEBRUARY 2011 MODIFICATIONS/REVISIONS

- Moved test requirements to section 6. Clarified test requirements.

AUGUST 2011 MODIFICATIONS/REVISIONS

- Modified requirements for softball projectile

MAY 2012 MODIFICATIONS/REVISIONS

- Clarified section 3 for standalone test report
- Moved requirements to section 4 from section 3 for clarity

JULY 2013 MODIFICATIONS/REVISIONS

- Corrected typo in Labeling and Warnings section 7.1.

OCTOBER 2014 MODIFICATIONS/REVISIONS

- Updated document to include level of compliance requirements.
- Added Date specification becomes effective
- Updated title name of NOCSAE DOC 001
- Added SEI Certification NOCSAE Logo to Section 7, “Labels and Warnings”

FEBRUARY 2015 MODIFICATIONS/REVISIONS

- Removed “Manufacturer Certifies” from section 7**,** “Labels and Warnings”

JUNE 2015 MODIFICATIONS/REVISIONS

- Updated NOCSAE seal/logo artwork

DECEMBER 2015 MODIFICATIONS/REVISIONS

- Added sections 3.4 and 3.4.1 to clarify headform selection

JUNE 2017 MODIFICATIONS/REVISIONS

- Changed Section 7.1 to reference the appropriate sections of ND 001 instead of ND 021
- Updated formatting

FEBRUARY 2018 MODIFICATIONS/REVISIONS

- REVISION: Removed COR requirement for baseball projectile section 5.3.
- Moved low temperature conditioning to section 4
- Added reference to section 12 NOCSAE DOC 001 to section 4
- Updated formatting

JANUARY 2021 MODIFICATIONS/REVISIONS

- REVISION: Added a compression deflection upper limit of 400 lbs to the softball projectile specification

JUNE 2023 MODIFICATIONS/REVISIONS

- Clarified number of samples required for testing per ball type.