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ESR-3765

Reissued 05/2017
This report is subject to renewal 05/2018.

DIVISION: 03 00 00—CONCRETE
SECTION: 03 41 00—PRECAST STRUCTURAL CONCRETE
SECTION: 03 48 00—PRECAST CONCRETE SPECIALTIES

REPORT HOLDER:

MUSCO SPORTS LIGHTING, LLC

**100 1ST AVENUE WEST
OSKALOOSA, IOWA 52577**

EVALUATION SUBJECT:

PRESTRESSED CONCRETE BASES



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DIVISION: 03 00 00—CONCRETE
Section: 03 41 00—Precast Structural Concrete
Section: 03 48 00—Precast Concrete Specialties

REPORT HOLDER:

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EVALUATION SUBJECT:

PRESTRESSED CONCRETE BASES

1.0 EVALUATION SCOPE

Compliance with the following codes:

2015 and 2012 *International Building Code*® (IBC)

Property evaluated:

- Structural
- Durability

2.0 USES

Musco Sports Lighting's (MUSCO) prestressed concrete bases (bases) described in this report are used as embedded pole foundations for hollow tapered steel poles which support light fixtures.

3.0 DESCRIPTION

The bases are manufactured prestressed concrete hollow cylinders produced by a spinning process in a controlled factory environment. Their construction and manufacturing is in accordance with ASTM C1804-14. The base has a tapered end protruding above finish grade, to allow for the placement of a hollow steel pole with a matching taper. See Figure 1 for an illustration of a typical base. The base ends are sealed with an epoxy coating. The concrete used for the bases complies with the requirements shown in Table 19.3.2.1 of ACI 318-14 or Table 4.3.1 of ACI 318-11 for exposure classes F2 and C1, defined in Table 19.3.1.1 of ACI 318-14 or Table 4.2.1 of ACI 318-11, as applicable.

4.0 DESIGN AND INSTALLATION

The bases must be installed in accordance with MUSCO's published installation instructions, the applicable code, the approved plans, and this report. If there is a conflict between the plans submitted for approval and this report, this report governs.

The base must be placed directly into the ground with the tapered end protruding above finish grade and the hole backfilled. See Table 1 of this report for base sizes, protrusion above finished grade, design moment strength, and design axial strength. The design moment strength applies to the bottom diameter section at the top of the backfill.

5.0 CONDITIONS OF USE

The prestressed concrete bases described in this report comply with, or are a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** The bases must be installed in accordance with the applicable code, the approved plans and this report.
- 5.2** Complete plans and calculations demonstrating compliance with this report must be submitted to the code official for approval when required. The calculations and details must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.3** The adequacy of the soil and backfill to resist the bearing pressure and overturning moment applied by the bases is outside the scope of the report and must be justified to the satisfaction of the code official.
- 5.4** The adequacy of the hollow steel pole and other materials attached to the bases to resist applied loads is outside the scope of this report.
- 5.5** The bases must not be field modified (e.g. cut, drilled, torched, etc.) in any way.
- 5.6** The bases are manufactured under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

- 6.1** Design calculations in accordance with ACI 318.
- 6.2** Quality documentation in accordance with ICC-ES Acceptance Criteria for Quality Documentation (AC10), dated June 2014.

7.0 IDENTIFICATION

The prestressed concrete bases bear the name of the report holder (Musco Sports Lighting, LLC), bottom diameter, date of manufacture, and the evaluation report number (ICC-ES ESR-3765).

TABLE 1—PRESTRESSED CONCRETE BASES¹

BOTTOM DIAMETER (inches)	TIP DIAMETER (inches)	BASE LENGTH (ft-in)	TAPER LENGTH (in)	PROTRUSION ABOVE FINISHED GRADE (inches)	DESIGN MOMENT STRENGTH ² (ft-kips)	AXIAL DESIGN STRENGTH ² (kips)
9 ⁹ / ₁₆	8 ¹ / ₂	15-2	92	86	42	145
12	10 ¹⁵ / ₁₆	17-3	92	87	82	213
13 ³ / ₈	12 ¹ / ₄	20-0	100	96	115	274
15 ³ / ₄	14 ⁹ / ₁₆	22-0	101	96	159	361
18 ¹ / ₄	17 ¹ / ₁₆	23-11	101	95	264	435
20 ⁹ / ₁₆	19 ³ / ₈	26-1	101	97	379	647
23 ³ / ₄	22 ⁹ / ₁₆	27-10	101	94	545	907

For SI: 1 inch = 25.4 mm, 1 ft = 305 mm, 1 kip = 1,000 lbf = 4,448.2 N, 1 ft-kip = 1360 Nm

¹The prestressed concrete bases covered by this report are limited to those listed in this table.

²For combined moment loads and axial loads; $\frac{m_a}{M_a} + \frac{a_a}{A_a} \leq 1$

Where: m_a = Actual moment. a_a = Actual axial load.
 M_a = Design moment strength. A_a = Design axial strength.

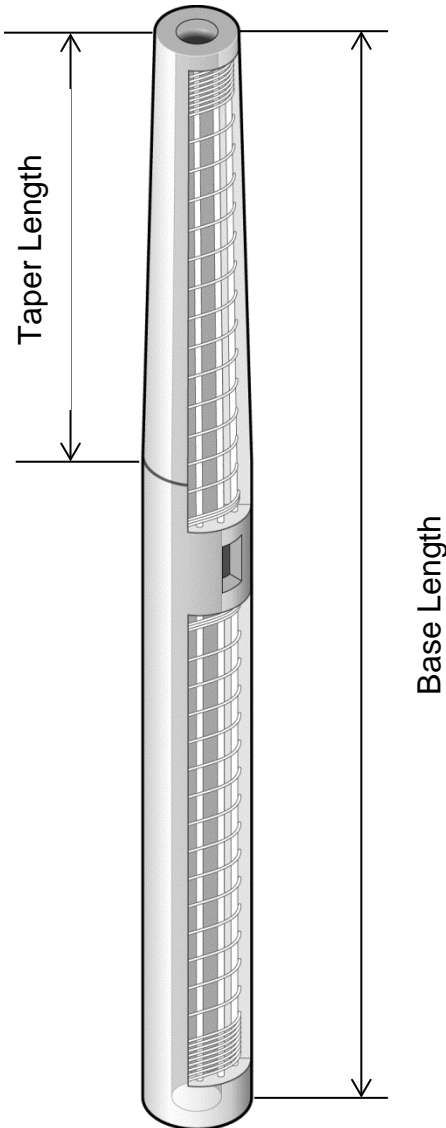


FIGURE 1—PRESTRESSED CONCRETE BASE

ICC-ES Evaluation Report

ESR-3765 CBC Supplement

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EVALUATION SUBJECT:

PRESTRESSED CONCRETE BASES

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that Musco Sports Lighting's prestressed concrete bases for specialty lighting structures (bases), recognized in ICC-ES master evaluation report ESR-3765, have also been evaluated for compliance with Chapters 19 and 19A of the code noted below.

Applicable code edition:

2013 *California Building Code* (CBC)

2.0 CONCLUSIONS

The Musco Sports Lighting's prestressed concrete bases, described in Sections 2.0 through 7.0 of the master evaluation report ESR-3765, comply with CBC Chapters 19 and 19A, provided the design and installation are in accordance with the 2012 *International Building Code*® (IBC) provisions noted in the master report and the additional requirements of the CBC Chapters 16, 16A, 17, 17A, 18, 18A, 19 and 19A, as applicable.

This supplement expires concurrently with the master report, reissued May 2017.