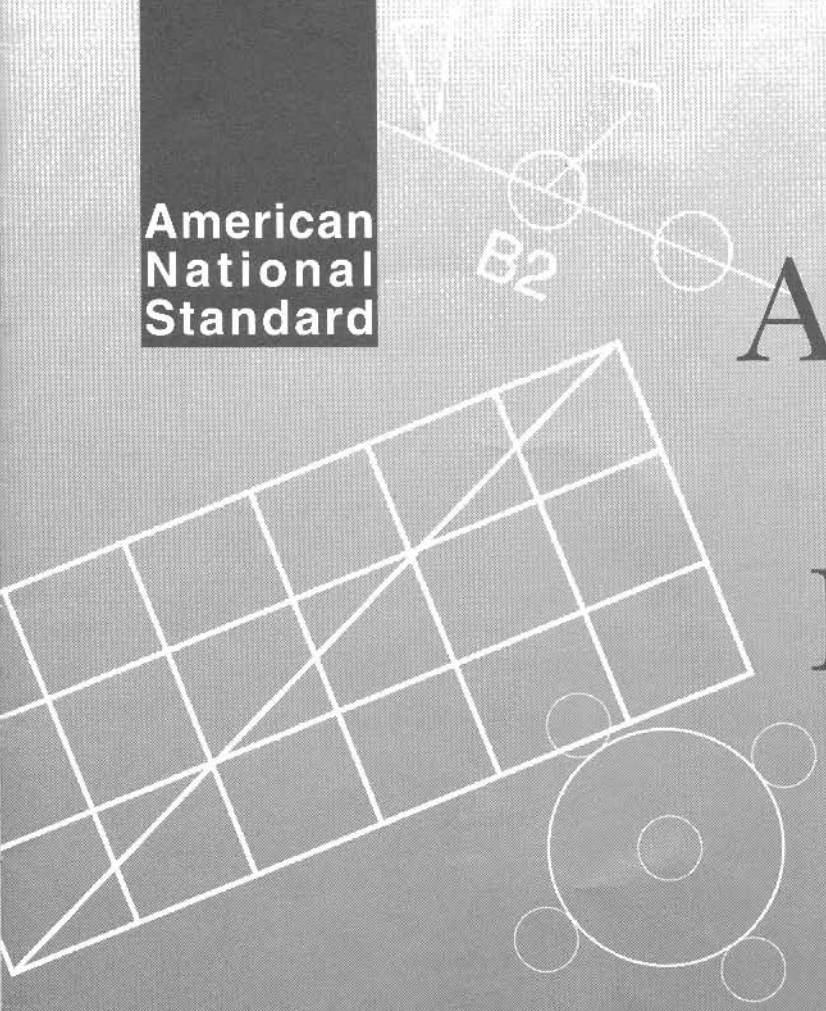
DG-3-00

American National Standard



Application *of* Luminaire Symbols *on* Lighting Design Drawing

IES

The LIGHTING AUTHORITY

Prepared by the Subcommittee on Luminaire Symbols
of the IESNA Computer Committee

IESNA Design Guide for Application of Luminaire Symbols on Lighting Design Drawings

Foreword

This Design Guide provides a consistent guideline for creating a symbology for luminaires represented on drawings. It is intended for use by lighting design professionals, code authorities, contractors, and manufacturers to express generalized luminaire types on printed and electronic design drawings. It replaces the previous edition, DG-3-94. However, this Guide is not intended to supersede the definitions and descriptions of the luminaire schedule or written specifications.

The changes in this latest version include clarification on the use of fill in emergency luminaire symbols; the need for a complete project symbol list on every project; clarification of the meaning of a Horizontal Zero Line, a Directional Arrowhead, and a Directional Aiming Line; insertion point recommendations; symbol list clarifications; and editorial revisions including **Annex A**.

1.0 OBJECTIVE

The objective of this Guide is to offer a set of symbols and modifiers that are standardized for use by the lighting design community in describing luminaires for lighting applications and design work. The intent is not to prescribe, but rather to describe a basic symbol set and establish certain guidelines that the lighting industry should use to make Computer Aided Design (CAD) application of lighting easier and more understandable for the user. Through the use of a base symbol set and modifiers, a symbol can be created for any type of luminaire.

The intent is to provide a set of building blocks, rather than a package of symbols that stand alone. Eventual adoption of these symbols as CAD blocks, which each level of the industry can apply to any luminaire, will allow all data pertaining to that luminaire to be automatically defined and inserted into a CAD lighting design drawing.

It is not intended that this Guide replace or supercede a complete project symbol list tailored to the specific project. All projects should have a project-specific symbol list limited to only those symbols actually used on the project.

2.0 CRITERIA

The symbol lists show a Base Luminaire Symbol Set to describe lighting sources and two types of modifiers, basic and extended. The base symbol should represent the approximate shape of the luminaire as shown in **Figure 1**.

If information about mounting, optic orientation, or an emergency designation is desired, the Basic Luminaire Modifiers shown in the symbol list of **Figure 2** shall be used. These Basic Modifiers shall

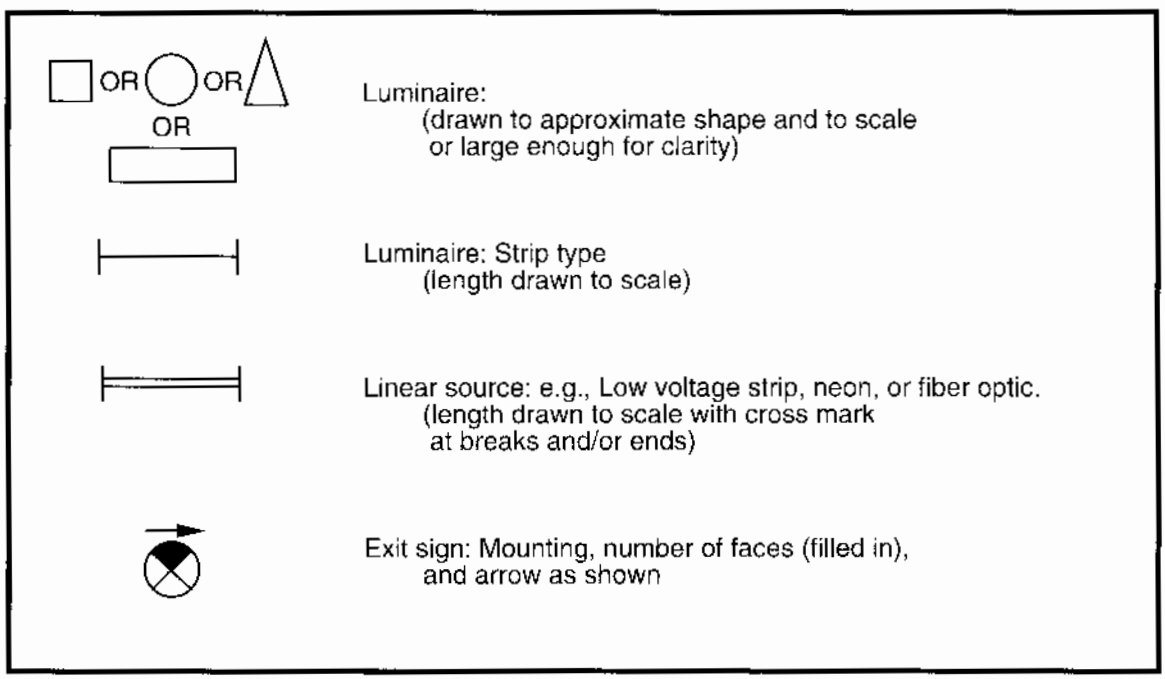


Figure 1. Symbols shown comprise the base luminaire symbol set.

be restricted to conveying only mounting, optic orientation, or emergency information.

If further information or refinements to the description of the luminaire being applied are desired, the Extended Luminaire Symbol Modifiers in the symbol list of **Figure 3** should be used. However, there are no conventions or restrictions placed on the use of the Extended Modifiers.

If the distinction between recessed and surface mounting is to be shown, then all recessed luminaires shall use the base symbol shape and the single cross hatch line modifier.

To identify a luminaire that provides emergency illumination, it shall be shown filled in (see the "emergency" portion of **Figure 2** and the discussion of emergency luminaires in **Section 3.3**). The fill shall be as complete as possible without obscuring the modifiers (if used). Single-line symbols shall have a filled element added to indicate an emergency application.

To establish criteria for roadway luminaires, the base symbol shall be that of a point source and it shall have modifiers consisting of an arm and pole. Symbols for area luminaires having light distributions intended for roadway use may be modified at the discretion of the user to be round, square, rectangular, or cobra-head style. Many variations of "local standard" symbols are used for roadway projects. Symbols shall be defined clearly in the project symbol list.

3.0 APPLICATION

3.1 Rendering Luminaire Symbols Clearly in Drawings

The luminaire symbols in the symbol lists of **Figure 1**, **Figure 2**, and **Figure 3** should be drawn to scale whenever possible in their appropriate proportions, orientation, and shape (see **Figure 4**). When a symbol drawn to scale is too small to be easily read (when reproduced), the symbol may be enlarged to an appropriate size while maintaining proportion and orientation.

Luminaire symbols shall be drawn in a line weight and/or color to make them stand out on reproduced lighting and electrical drawings. The entire symbol shall be drawn at a consistent line weight.

Symbols with double lines shall be drawn with lines sufficiently separated to be recognized as double lines on reproduced drawings.

A Luminaire Identifier, referring to the luminaire description and type in the luminaire schedule, should accompany each luminaire symbol on a drawing. Identifiers shall be drawn to a legible size either on the symbol or near it, to the lower right whenever possible (see **Figure 3**).

3.2 Applying Directional and Orientation Modifiers

With directional luminaires, the addition of optic orientation modifiers should be used when they help to clarify the intended orientation. The orientation modifiers are the "Horizontal Zero Line," the "Directional Arrowhead," and the "Directional Aiming Line" (see **Figure 2**). These modifiers may be omitted if the directional intent is not lost. Care must be exercised to not cause confusion between aiming lines and architectural background elements. The optic orientation modifiers have specific meanings, and the users of these modifiers must be aware of the photometry of the luminaire and its intended application.

The Horizontal Zero Line indicates the zero degree horizontal plane direction of the luminaire's photometric data. It shall be drawn from the photometric center with the length as long as necessary for clarity. It may be contained within the symbol, if clear.

The Directional Arrowhead indicates the primary lumen orientation of the luminaire [hereby defined as the horizontal zone(s) containing the most lumens]. Typical application would be for wall washers and luminaires with an asymmetric distribution. Multiple arrowheads should be used to indicate multiple zones of maximum lumen output. The Directional Arrowhead may be combined with the Horizontal Zero Line if the zero degree horizontal plane and the primary lumen orientation coincide.

The Directional Aiming Line shall be used if the actual aiming point is intended to be shown. The Aiming Line shall be drawn from the luminaire photometric center and shall extend to a small filled circle at the aiming point. Directional Aiming Lines are commonly used for outdoor accent lighting or for sports lighting.

3.3 Drawing Exit Signs and Emergency Luminaires

Exit signs shall be drawn as shown with one or two sides filled in indicating a single- or double-faced sign and in which direction the faces are oriented. If it is desired to indicate face arrows, an arrow shall be placed next to either (or both) faces and shall indicate which direction the arrow is pointing (see **Figure 1**).

The filled-in portion of emergency luminaires may have to be reduced in order to minimize conflicts with other modifiers such as those for recessed or pendant mount. Optionally, the fill may be done at a 50 percent (or appropriate) screen to allow the overlapping modifiers to show through.

3.4 Drawing Electrical Symbols; Describing Mounting Height

Electrical symbols such as junction boxes, switches, and wiring may be drawn on (or adjacent to) luminaire symbols.

The mounting height modifier (see **Figure 3**) shall be used to indicate the height to the light center of the luminaire (or to the bottom of the luminaire if it is suspended). For interior spaces, the height shall be *above finished floor* (AFF). For exterior areas, the height shall be *above finished grade*.

4.0 COMPUTER REPRESENTATION

When using luminaire symbols with a CAD system, each symbol should be treated as a block, allowing for attributes such as the Luminaire Identifier (discussed in **Section 3.1**).

When using luminaire symbols with lighting design software, the insertion point for the symbol block should correspond to the photometric center. If not inserted at the photometric center, an offset from the insertion point to the photometric center should be electronically incorporated into the symbol structure.

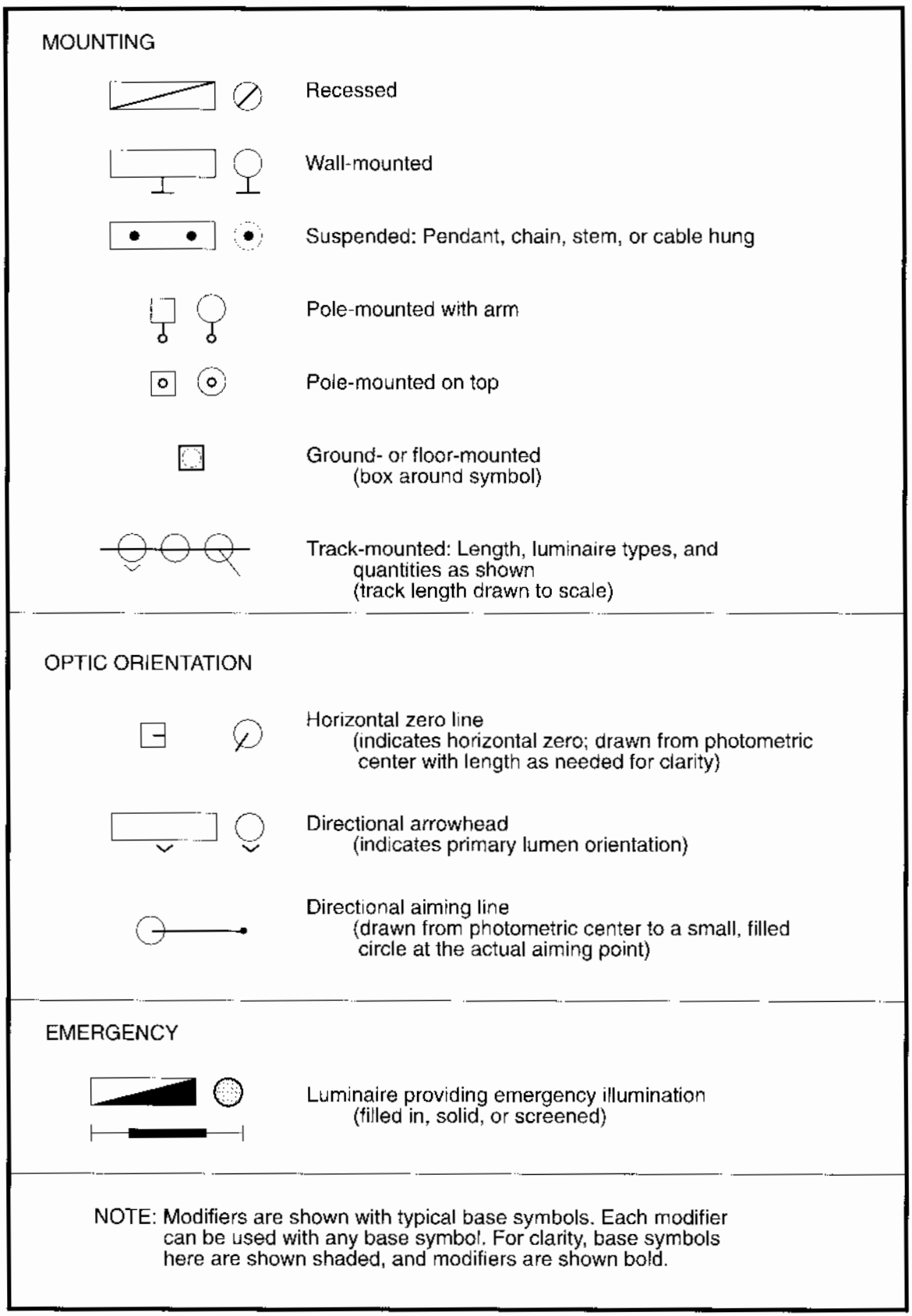


Figure 2. These basic luminaire symbol modifiers convey only mounting, optic orientation, or emergency information.

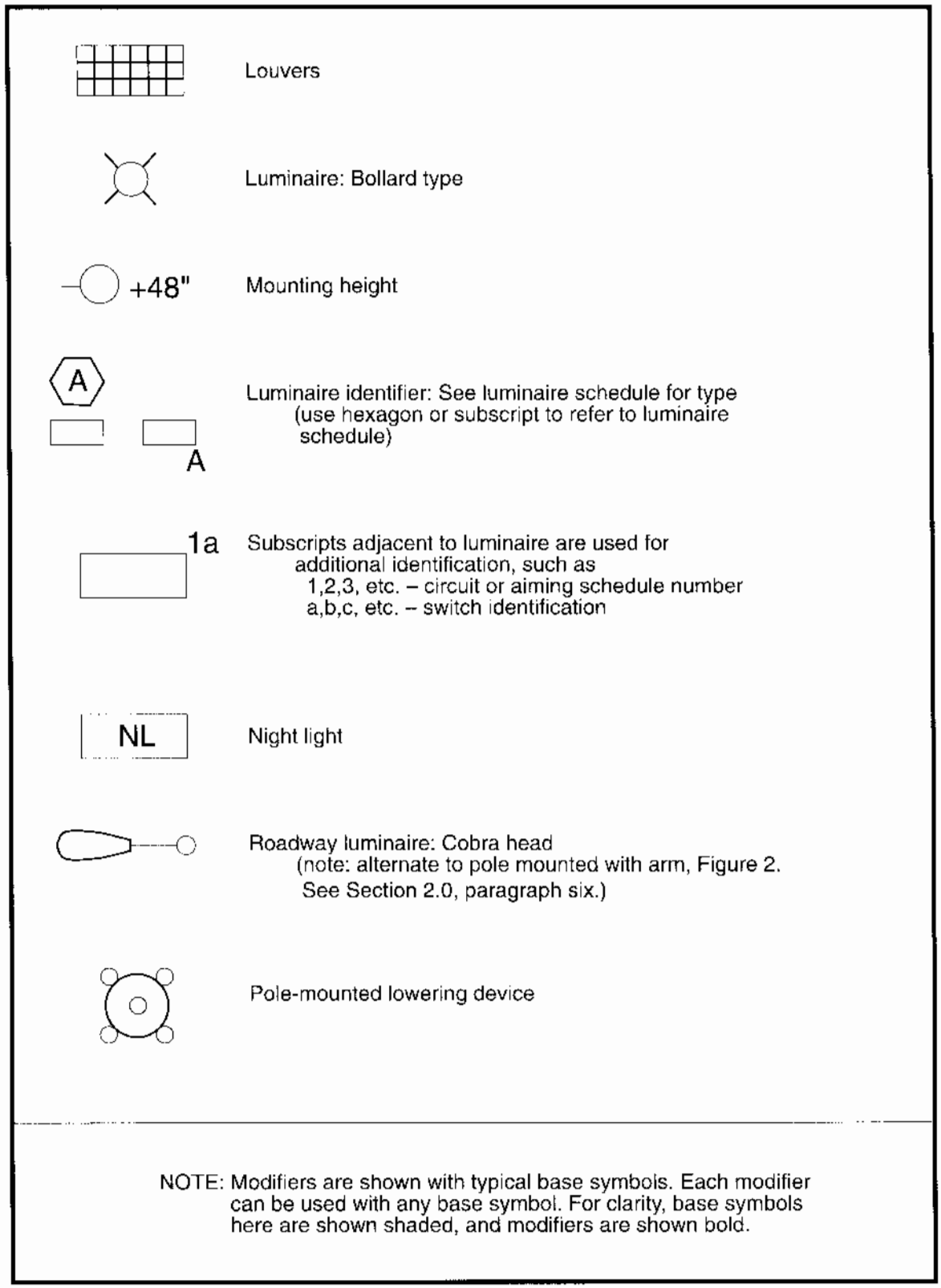


Figure 3. These extended luminaire symbol modifiers provide further information about the luminaire.

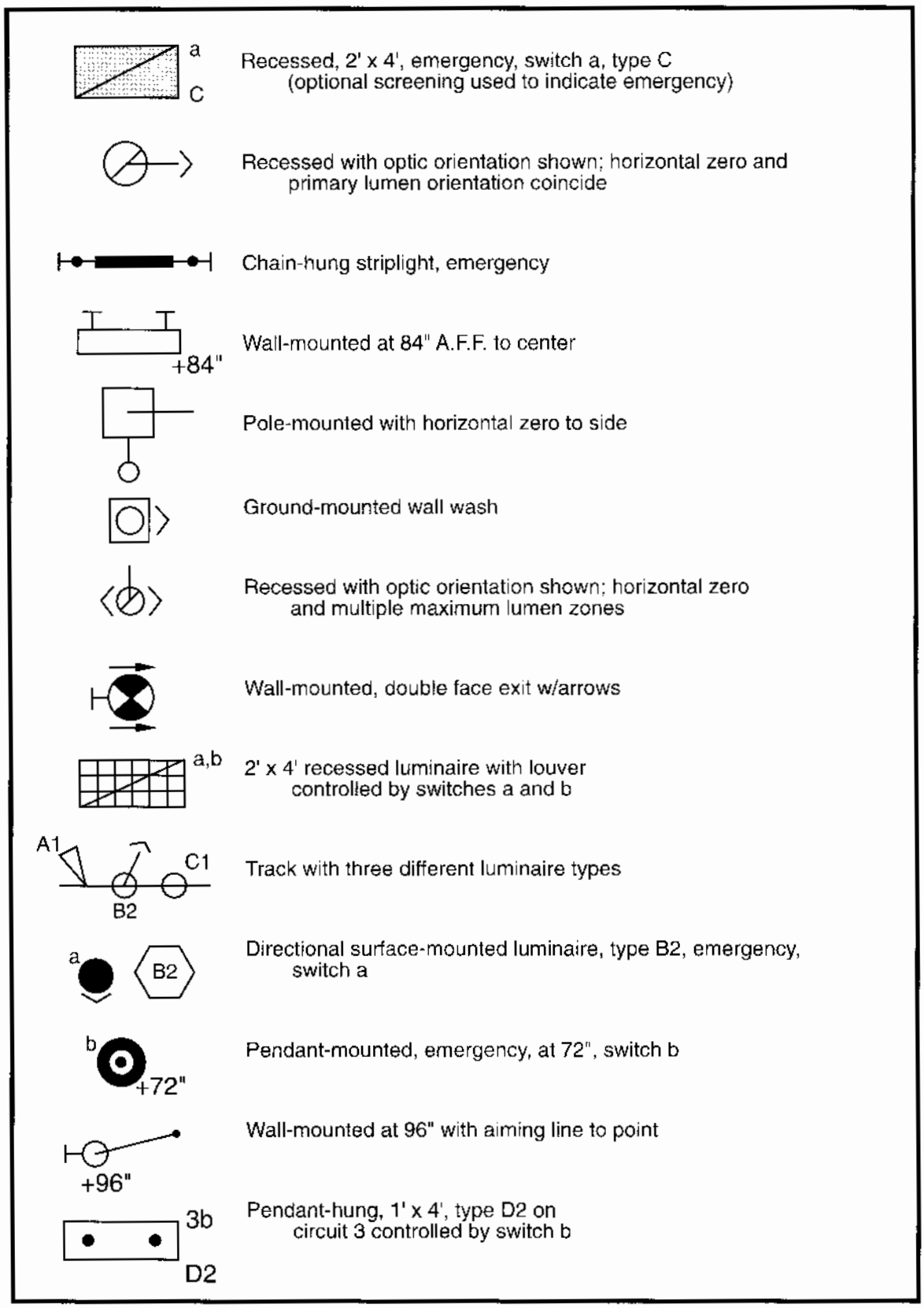


Figure 4. Sample luminaire symbols built from the basic luminaire symbols of Figure 1 and the symbol modifiers of Figure 2 and Figure 3.

Annex A – Verbs Intended to Convey Specific Direction

The following verbs are used throughout DG-3-00. The use of these verbs is based on the following descriptions as defined by the IESNA:

shall used to convey a strict requirement, from which the reader/user may not deviate in order to be considered in conformance with the publication.

should used to convey a recommendation.

may used to show that the publication is giving the reader/user permission to follow a certain course of action.

can used to convey possibility or capability, whether material, physical, or causal.

The negative forms of these verbs (shall not, should not, may not, and cannot) carry equal weight and meaning as the positive forms just listed.