Good lighting in a supermarket is critical for showing the freshness and quality of food. This installation features a new T8 fluorescent lamp with enhanced color rendering, higher lumen maintenance, and longer life than conventional T8 lamps.

**Application Profile**

BI-LO, Inc. renovated its Mauldin, South Carolina, store to reduce energy costs and modernize its appearance. It now serves as a model for BI-LO supermarkets in four states. Shoppers are drawn to the produce department, where a perimeter cove with fluorescent striplights illuminates signage. Recessed 2’ X 4’ fluorescent luminaires with deep-cell parabolic louvers provide general lighting. The produce is highlighted by lamps built into perimeter cases and by suspended rectangular luminaire rings downlighting the central displays. Each of the ring luminaires houses three lamps in cross section and 1” tall white baffles that shield the view of the lamps.

**Lamps, Luminaires, and Energy**

This installation uses enhanced F32T8 lamps, redesigned for higher maintained light output, longer life, and higher color rendering index (CRI). Rated at 24,000 hours average life, these lamps last 20% longer than standard T8s. An alumina coating inside the glass tube improves lumen maintenance to 0.95 at 40% of life, compared to 0.90 for conventional T8 lamps. Electronic ballasts are installed for energy efficiency and reduced flicker.

**Lighting Objectives**

- Draw shopper’s attention to the produce area
- Highlight produce so that it looks appealing to customers
- Provide excellent color rendering to help shoppers select fruits and vegetables based on appearance
- Reduce frequency of lamp replacements
Design Highlights

Color: The T8 fluorescent lamps have a correlated color temperature (CCT) of 3500 K (neutral) and a CRI of 86. The produce manager comments that the lighting seems bright and crisp, and that fruits and vegetables of all color ranges appear vivid.

Balance between accent and general lighting: The produce is highlighted with special luminaires, but the general lighting is sufficiently high for produce to be easily seen and examined in the shopper’s cart. Food display illuminances are no more than two to three times the general illuminances.

Comfort: Light sources are concealed from the customer’s view using baffles, louvers, and shields. The brightness of the produce (rather than the lamps) draws the attention.

Maintenance: The BI-LO stores use regularly scheduled group relamping to maintain high light levels and minimize interference with shoppers. The longer lamp life helps reduce relamping frequency and cost.

DELTA Snapshots • Issue 2 • April 1997
BI-LO Supermarket, Mauldin, South Carolina
Sponsor: GE Lighting

BI-LO, Incorporated
Design Engineer: David Ward
Design Assistance: James Watson, The Murphy Co.
Luminaires: Litecontrol (Pendants), Lithonia
Lamps: GE Lighting
Photography: Wendy Wood, International Exposure
Graphic Design: JSG Communications, Inc.

DELTA Program:
Director: Naomi Miller
Research Specialist: Rita Koltai
Publication: Judith Block

DELTA Members:
Bonneville Power Administration
Consolidated Edison Company of New York, Inc.
New York Energy Research and Development Authority
Northeast Utilities System
Rochester Gas & Electric Corp.
Lighting Research Center

For publications ordering information contact:
Lighting Research Center, Rensselaer Polytechnic Institute, Troy, New York 12180-3590 • FAX (518) 687-7120
Phone: (518) 687-7100 • e-mail: lrc@rpi.edu • World Wide Web: http://www.lrc.rpi.edu

Copyright © 1997, Rensselaer Polytechnic Institute. All rights reserved. Neither the entire publication nor any of the information contained herein may be duplicated or excerpted in any way in any other publication, database, or other medium and may not be reproduced without express written permission of Rensselaer Polytechnic Institute. Making copies of all or part of this publication for any purpose other than for undistributed personal use is a violation of United States copyright law.