

DELTA Snapshots

Issue 4 Office Lighting

Indirect lighting for open-plan offices is an effective approach to providing a comfortable, low-glare office environment. This application features a creative solution that is flexible and functional.

Application Profile

Siegel & Gale is a corporate communications firm located at 10 Rockefeller Plaza in New York City. The design concept for the office focused on creating an environment that would build community and teamwork among employees. The design team faced several challenges in renovating this historic building for modern office use—preserving the appearance of tall ceilings in spite of exposed mechanical ducts and sprinkler pipes, and providing uniform illuminance throughout the open offices where ceiling heights varied from 9'-6" (2.9 m) to 13'-0" (4.0 m).

A 9' X 9' (2.7 m X 2.7 m) cable-mounted power grid was installed to create a consistent pattern and provide flexibility to attach luminaires as needed. The channel acts as an electrical raceway, avoiding additional ceiling clutter. A white acoustical coating was sprayed onto the ceiling (reflectance of 72%).

Task lighting at each workstation allows individual control of desktop lighting. Wall washers attached to the grid illuminate pin-up space and highlight artwork along perimeter walls.



Wall washers highlighting perimeter wall

© Edward Ardeco



Siegel & Gale open plan office
(Task lights off)

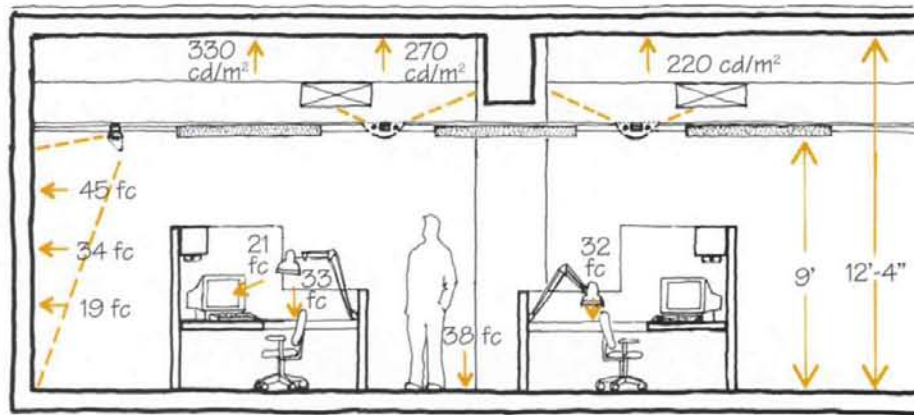
© Edward Ardeco

Lighting Objectives

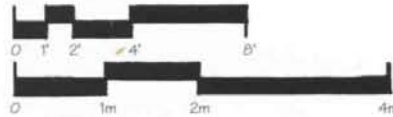
- Provide uniform illumination throughout the open office area.
- Provide good color quality for graphic layout work and long-life lamps (20,000 hours) for reduced maintenance.
- Provide a consistent visual design element that ties all the work areas together.

Luminaires, Lamps, and Energy

The 9' X 9' power grid supports 5' (1.5 m) long indirect luminaires placed in a square pattern. Each luminaire contains (2) F40T8/RE735 lamps. Wall washers, 18" (450 mm) long, each lamped with (1) FT39T5/RE835 long twin-tube fluorescent lamp, draw energy from the same grid. All luminaires on the power grid have electronic ballasts for quiet, flicker-free operation. The lighting power density for the office is 1.3 W/ft² (14 W/m²), not including task lights.



Section through open office area



Design Highlights

Architecture/Lighting Integration: The power grid, suspended from the ceiling, provides a place to mount indirect lighting and serves as an alternative to a suspended ceiling. The clutter of exposed ductwork, painted white, seems to disappear above the power grid.

Uniformity and Flexibility: Uniform illuminance throughout the open office area enables furniture arrangement to be flexible. Indirect lighting provides consistent light levels, irrespective of furniture or partition placement, as well as the nondirectional light that allows people in work groups to see each other's faces easily. Maintaining visual contact among different work groups was an important design consideration for the Siegel & Gale office.

Visibility and Visual Comfort: The indirect lighting system provides low-glare general lighting throughout the office with a good luminous quality for VDT and paper tasks. Undershef fluorescent task lighting, built into each workstation, and incandescent swing-arm task lamps provide necessary additional desktop lighting and allow employees to customize their work environments to their individual lighting needs.

DELTA Snapshots • Issue 4 • November 1997

Siegel & Gale, New York

**Sponsors: Consolidated Edison Company of New York, Inc.
New York State Energy Research and Development Authority**

Architect: JJ Lee Falk, The Phillips Janson Group

Luminaires: Zumtobel Staff Lighting, Inc.

Photography: Edward Addeo

Graphic Design: JSG Communications

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 Corporation

Lighting Research Center

Rensselaer

For publications ordering information contact:

Lighting Research Center, Rensselaer Polytechnic Institute, Troy, New York 12180-3590 • FAX (518) 276-2999

Phone: (518) 276-8716 • 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.

