



THE HOMEBase STORE IN BREa IS VERY BRIGHT AND WELL LIT. THE 30-FOOT-HIGH CEILINGS CONTRIBUTE TO A SENSE OF AIRINESS, AND ALLOW THE LIGHT FROM THE SKYLIGHTS TO DISTRIBUTE EVENLY. THE SHADED, COVERED ENTRANCE TO THE STORE CREATES A SUBTLE VISUAL TRANSITION BETWEEN THE INTENSELY SUNNY PARKING LOT AND THE INTERIOR OF THE STORE, GIVING CUSTOMERS' EYES A MOMENT TO ADJUST TO THE CHANGE IN LIGHT LEVELS. AS A RESULT, WHEN THEY ENTER THE STORE, THE INTERIOR SEEMS AS BRIGHT AND AIRY AS THE OUTDOORS.



A Retailer Makes a Commitment to Daylight

Headquartered in Irvine, HomeBase operates 83 home improvement warehouses, averaging 103,000 square feet, in 10 western states. The corporation made a commitment to daylight in a major remodeling campaign of all of their stores, so that all of their sites now feature extensive skylights, along with photocontrols for the general lighting.

"Our first reason is improved sales. Saving energy is a secondary consideration," says the HomeBase corporate energy manager. Customers seem to agree. While not all customers are aware of the skylights, many interviewed at the site were enthusiastic about the bright, airy feeling in the store. "It feels clean and healthy," commented one customer. "I like coming to shop here because I don't feel so crowded," commented another.



PHOTO COURTESY OF HOME BASE, INC.

PRODUCTS INEVITABLY SEEM MORE VIBRANT UNDER THE DAYLIGHT. PLANTS IN THE INDOOR GARDEN AREA LOOK STRIKINGLY HEALTHY AND ATTRACTIVE. CUSTOMERS MAY NOT KNOW IT, BUT THE COLORS THAT THEY SELECT FOR FLOORING MATERIALS OR PAINT CHIPS WILL HAVE ESPECIALLY TRUE COLOR RENDITION UNDER THE DAYLIGHT. THUS, THEY ARE LESS LIKELY TO BE DISSATISFIED WITH THEIR COLOR CHOICES WHEN THEY GET HOME.

The Skylighting System

The stores are designed with five percent of gross roof area in 4x8 double-glazed bubble skylights. Skylights are located based on the structural design of the roof, which makes their placement slightly irregular. They tend to be located above two out of three rows of shelving. The walls of the store, the truss work at the ceiling and the fire curtains are all painted white, helping to diffuse the daylight down to the store below. The central open areas receive 120 to 150 horizontal footcandles of daylight on a bright sunny day.

Those aisles with skylights directly overhead are somewhat brighter, at 80 to 150 horizontal footcandles down the center of the aisle at midday in the summer, providing a very even illumination of 30 to 60 vertical footcandles on the product shelves. Even the aisles without skylights directly overhead still



maintain 30 to 50 vertical footcandles on the product, with 40 to 50 horizontal footcandles down the center of the aisles. This variation is entirely within the average person's visual comfort range, and it adds some visual interest to the store's appearance—making it seem natural and relaxed.

The Electric Lighting System

The metal halide light fixtures are on a three-level circuit system. There are separate photocontrols for each circuit, so that at modest illumination from the skylights, one-third of the lights turn off, and at full skylighting illumination, two-thirds of the lights turn off. The remaining one-third of the store lights are committed to emergency power backup so that the store can never go completely dark. The lighting around the perimeter of the store always has at least half of the lights on at full power.

The 400-Watt metal halide lamps are on 16' o.c. spacing for a lighting power density of 1.8 Watts per square foot (W/sf). Some key products are highlighted with strip fluorescents recessed under the shelves, adding perhaps another 0.1 W/sf, for a total installed lighting load for the stores of about 1.9 W/sf. During the day, the store typically operates at 1.3 W/sf with one-third of the lights turned off, or at .7 W/sf with two-thirds of the lights off.

The one area of the store with a dropped ceiling is the lighting fixture display, so that the fixtures can be shown in a natural ceiling setting at about a 12' height, without shadowing or glare from the skylights when customers look up.

Getting Used To the Controls

At first, working with a lighting system on photocontrols can be a bit puzzling to a building occupant. One new store manager figured that only the lights directly under a skylight would go off. Then he realized that the lights were controlled on a checkerboard pattern, independent of their proximity to a skylight. That took a little getting used to. Then he realized that he couldn't tell which lights had burned out during the daytime when store lights were switched off by the photocontrols. He assumed he had to wait until dark to be sure that a lamp needed to be replaced, until the contractor explained how to override the controls. Fortunately, these kinds of confusions, typical of any automated control system, are quickly overcome with a little information.

GIVEN HIS EXPERIENCE OF INSTALLING SKYLIGHTS IN OVER 80 STORES, THE CORPORATE ENERGY MANAGER HAS OBSERVED THAT HE TENDS TO SEE ABOUT TWO PERCENT OF THE SKYLIGHTS LEAK BRIEFLY WITHIN THE FIRST SIX MONTHS OF INSTALLATION. HE CONSIDERS THIS A SMALL, AND VERY MANAGEABLE, PROBLEM. "WE HAVE GOOD SPECS THAT GET THE CONTRACTOR BACK IN HERE TO FIX THEM IMMEDIATELY. END OF PROBLEM. PERIOD. I HAVE LOTS OF BIGGER PROBLEMS DURING THE SHAKE-OUT PERIOD FOR ANY BIG STORE."

THE MANAGER AT THE BREA STORE CONFIRMED THAT HE'D HAD NO PROBLEMS WITH THE SKYLIGHTS. HE HAS FOUND THE SKYLIGHTS TO BE A NO-MAINTENANCE FEATURE, AND EVEN TO BE SELF-CLEANING, AS DUST AND DIRT TENDS TO WASH OFF EASILY WITH THE RAIN. "MY BIGGEST CONCERN WITH THE ROOF IS THE NUMBER OF GOLF BALLS THAT ACCUMULATE FROM THE NEIGHBORING GOLF COURSE," HE LAUGHS.

