



## LIGHT SHELVES ANALYSIS

A light shelf is a solar shading solution that is set to maximize the amount of natural daylight entering a given space, while minimizing dependence on artificial lighting and cooling systems. The basic premise around this solution is that direct sunlight will hit the light shelf, bounce off, and hit the roof before being directed further into an area. Light Shelves are very functional for both large and small windows, but are the most effective when the window in which they are installed directly faces the sun, resulting in high thermal energy levels.

Installed as a horizontal element, light shelves are located on the interior portion of the window, dividing it into 2 sections; one third of the window glazing is located above the shelf and the other two thirds are below. This allows the reflection of both daylight and sunlight up onto the ceiling, without obstructing the view. Light shelves can either be operable or fixed. An operable system using special motorized control systems such as Nysan's Solarware™, allows the shelf's angle to be adjusted according to different light levels or time of day, which optimizes the use of available daylight. Light Shelves are opaque with a highly reflective upper surface, and a diffusing under surface (generally white). You also have the option to combine an interior or exterior shading solution to accommodate the light shelf system, which enhances the natural daylight, controls glare and reduces thermal gain.

When using an exterior shading device combined with a light shelf you will need to ensure that both systems are installed at the same level, otherwise the light shelf will not be fully effective. This is because if the exterior device is located above the shelf, than it will block the entry of useful sunlight that would penetrate the top of the shelf, and therefore getting extending further into the room. If the external device is below the shelf, this allows sunlight to penetrate though the gap resulting in unwanted glare. Internal Roller Shades and Light Shelves make a nice pair, maximizing on the use of natural daylight while controlling the amount of glare that a person receives.

Light Shelves are not a standard item they are generally designed to meet the specific project requirements. Overall, this solution will not result in more light inside a given space, but it will result in a more even light gradient which in return helps reduce energy costs.