UPDATE
ANUTONE NEWSLETTER FOR THE DESIGN & BUILD COMMUNITY

anutone®
Acoustics Drywalls Ceilings Panelling

Vol 6 # 22 | December 2017

Knowledge Series - Part 2 of 3

Performance by Design

An extract from the 300-page Reference Guide releasing January 2018

Anutone Update ends a successfu 2017 with a 3-part Knowledge Series on how the design of acoustical drywalls |ceilings | panelling must be primarily based on functional performance requirements of enclosed spaces apart from other secondary considerations. There are nine functional performance parameters (other than Acoustics) and we will elaborate on three in each part as below:

Part 1 (previous Update)
- Life Safety - Fire
- Life Safety - Siesmic
- Impact Resistance

Part 2 (this Update)
- Climate Control - Thermal|Humidity
- Climate Control - Hygiene
- Lighting

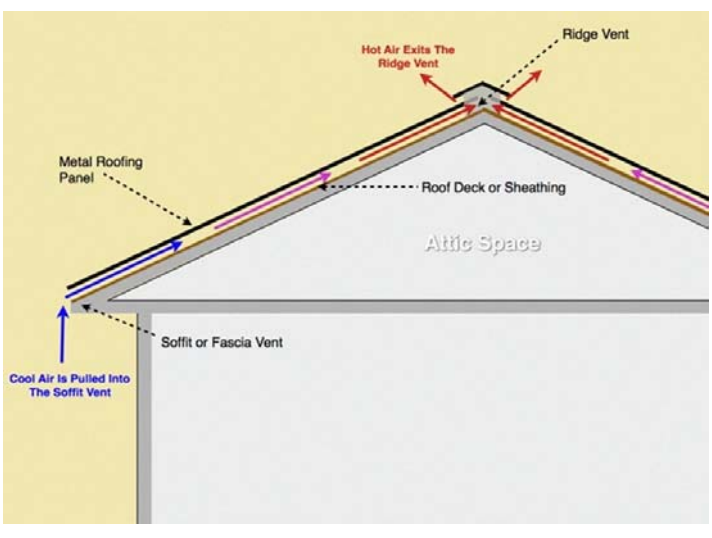
Part 3 (next Update)
- Indoor Air Quality
- Environment - Green
- Maintainability

Climate Control - Thermal | Humidity

India is a hot- tropical country with monsoons as the dominant season which means high humidity is prevalent for most part of the year. Even otherwise, indoor construction sites have wet civil works competing with powerful halogen lamps to create extremely high levels of humidity all around the year. Coupled with external high humidity it can lead to pressure cooker conditions.

Most acoustical drywall, ceiling and panelling products have been researched, developed and manufactured in advanced countries that enjoy dry, temperate climates all through the year. They are not tropicalised for India. For example, paper-lined gypsum board works very well in dry, cold weather and carpeted interiors. In India with hot, humid weather and wet-mopping the norm for tiled floors it is the paperless, monolithic Tufbloc that works best.

Similarly many buildings in India sport metal roofing on the top floor. A ceiling below such roofing in peak summer has a temperature gradient of >50°C above to <20°C below (at desk level 23°C) which is a phenomenal 30+°C. It is only naturally breathing and rugged ceilings like Mat Solo and Strand with SynthPF as a thermal barrier that can withstand such brutal, harsh climatic conditions.



Skelet suspension systems and Studd | Strut framing systems are hot dipped galvanised that ensures superior corrosion resistance in high humid conditions.

Hence products researched, developed and manufactured in India, as done by Anutone for 50 years, work best in typically Indian conditions of heat and humidity.

Climate Control - Hygiene

Fungus happens where conditions for its growth and sustenance exist. The construction industry's ecosystem of architects, consultants, installers, project managers, facility managers and space owners must identify and prevent conditions that could possibly encourage fungal growth right from product storage to its installation and subsequent maintenance during the lifecycle of the building.

Fungal spores have no significant impact on human health except for possible aggravation of allergies or respiratory illnesses like asthma in susceptible individuals, currently the subject of medical study.

It is assumed the building envelope is an effective moisture shield and if any water does enter to excessive rains then there is a backup system for quick drain and dry. Moisture being the primary growth engine for fungus, the HVAC system needs to be operational, especially in monsoons, for the storage, installation and long-term maintenance of interior finishing products like Anutone's acoustical walls and ceilings.

If HVAC is not sequenced and commissioned and it's a low humid region | climate then there needs to be adequate ventilation and fresh air exchanges.

Fungus on Mineral Fibre Tile

Most of Anutone's products do not encourage the growth of fungus if allowed to revert to low humidity conditions within a reasonable period of time. Products accidently dampened due to moisture ingress must be allowed to dry. Serge metal series, Ekcel magnesia series are anti-fungal naturally. Only the Sisoli series and Salon wood series, especially Slats Surco, are sensitive to high humidity conditions.

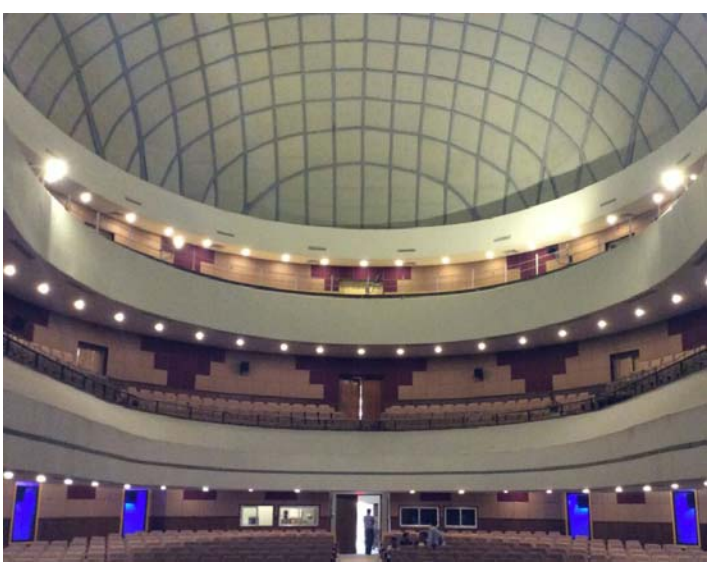
Lighting

With the advent of LED-based lighting systems, energy efficiency is now a reality. While lux levels is the domain of lighting consultants, the use of

- Soft
- Diffused
- Glare-free
- Shadowless

uniform indirect lighting on the well-being of space users is a no-brainer. It enhances visual comfort and minimises eye fatigue.

Lighting is primarily of four kinds
- Downlighting or direct
- Uplighting or indirect
- Backlighting or translucence
- Task lighting or speciality



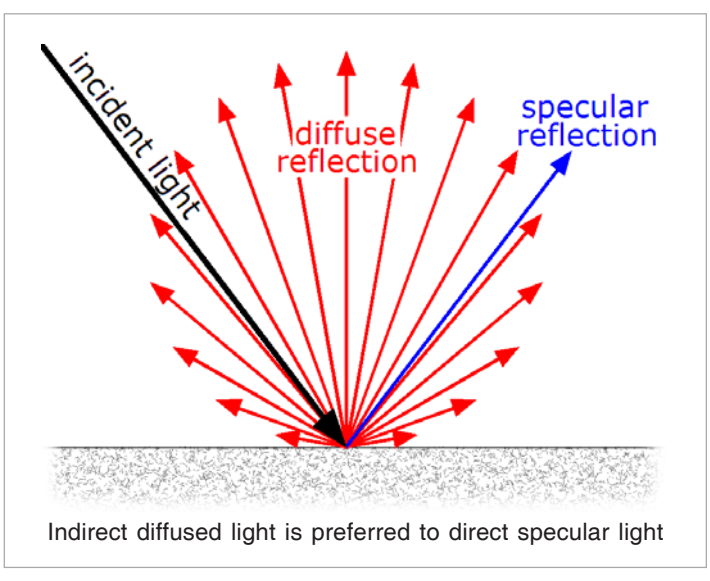
Indirect lighting on Anutone's Hi-LR Subtex Nubby on the vaulted ceiling of Kolkata's famous Mahajati Sadan softly lights up the entire auditorium

Earlier downlighting or direct lighting was the only option given the limitations both in lighting and in ceiling | panelling surface finishing systems. This led to visual discomfort and user fatigue due to specular reflection. But evolution in both fields, surface finishes and lighting, has led to uplighting or indirect lighting yielding the best results in modern habitats.

Uplighting has also gained maximum traction because modern **ceilings** like Anutone's
- Subtex Nubby
- Pixel Smery (site painted white)
- Pixel Taper, Pixello (site painted white)
- Pixel Square
- Slats Surco Blanco
- Mat Solo
- Strand Plus
- Tufbloc (site painted white)
- Tufbloc Vin
- Stretch SLS

act as top-notch lighting reflectors.

The entire ceiling reflects diffused light back to the occupant and the floor. This means fewer, low-power LED-based lighting systems focussed upwards on ceilings yield maximal outputs due to high light reflectivity from the ceilings. And not just ceilings but **panelling** too.
- Subtex NRC Vit | Hush Snowwhite | KSL Snow
- Pixel Smery (site painted white)
- Pixel Taper, Pixello (site painted white)
- Slats Surco Blanco
- Mat Solo
- Strand Plus
- Tufbloc (site painted white)
- Stretch SLS | NRC Vit | Hush Snowwhite
- Slim Blanco



Indirect diffused light is preferred to direct specular light

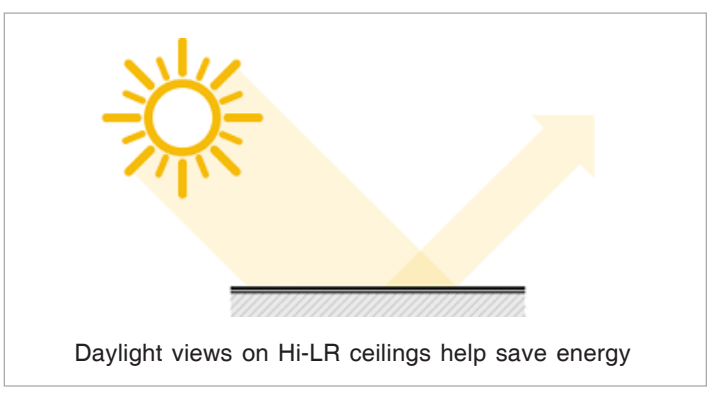
act as lighting reflectors when wall washers are aimed at them.

This avoids specular or direct reflection and helps in the desired goal of soft, diffused, glare-free, shadowless, uniform lighting at reduced energy costs. Energy savings can be achieved either by lesser number of lighting fixtures per 100m2 of floor plate or lesser wattage of luminaries.

Light Reflectance (LR) is the reflectivity index of a surface finish, ceiling | panelling, that is indicated from 0.0 to 1.0 and denotes the % of light reflected. Hence LR 0.8 denotes 80% light reflected off the ceiling | panelling. As per ISO 7724 (withdrawn)

An increase in LR from 0.75 to 0.85 can result in a 10% increase in luminance with uplighting or in other words a 10% saving in energy costs which is significant for modern workplaces. This has a multiplier effect in reduced load on HVAC which can result in a further ~10% savings on HVAC energy costs.

Hi-LR ceilings and panelling also extend natural daylighting to spaces at the perimeter of the building with windows and therefore contribute to the indoor environment quality for LEED points (Daylight and Views).



Daylight views on Hi-LR ceilings help save energy

Interior architects now have the option of leveraging Hi-LR ceilings and panelling from Anutone as a design strategy for reduction in energy spends of a building thus contributing to green practices and a more intelligent, sustainable design in architecture and construction.

Uplighting is the smartest way to leverage the high reflectivity of modern ceilings and save energy

The 300-page Limited Edition Reference Guide from Anutone on Acoustical Walls & Ceilings releases January 2018. For the first time one book has it all that you need to know on the subject. A true treasure trove! Reserve your free advance copy* with the local Anutone representative or write to Shobha at info@anutone.com **eligibility criteria applies*

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