



# THE ULTIMATE POOL COVER

WHAT TO CONSIDER WHEN INSTALLING OR RENOVATING AN INDOOR POOL CEILING

By David Condello

The pool at the Highlander Hotel in Iowa City, renovated with a new thermoformed ceiling, an eye-popping psychedelic mural, and some comfortable furniture, became a destination for locals and an extra revenue stream that helped keep the hotel in business during the COVID-19 travel slump.

Photo courtesy  
The Highlander Hotel

**A**n indoor pool needs the right ceiling, and pool and spa companies need only look overhead for additional bottom-line profits.

A visually attractive ceiling has significant impact on the pool users' experience. Pool ceilings can be vast, uninterrupted surfaces and, because users look upwards while swimming on their backs, soaking in a hot tub/spa, or reclining on the deck, ceilings can be more conspicuous than in other types of spaces.

Ceilings are also the best option for reducing noise in an indoor pool environment. People splashing and playing make aquatic facilities noisy environments. The water surface plus the hard decks, walls, and glazing around the pool reflect sound to increase the intensity of the noise and create reverberations that interfere with speech and hearing. Some ceiling products, however, can absorb most of the sound impinging on them and are the best candidates to control noise.

The right ceiling must be compatible with a pool environment. It should be impervious to water and high humidity, the sagging and mould growth that often occurs in damp locations, stains caused by leaks and condensation, and the aggressive attack of pool chemicals.

## Product options

Suspended (drop) ceilings are widely used because they can economically cover the expanse of a pool and conceal mechanical services above the ceiling. They typically comprise a T-bar grid suspended by wires and populated with acoustic ceiling panels. Painted steel T-bar rusts all too easily in a humid environment. Better, more corrosion-resistant grid options include T-bars made of anodized aluminum, fiberglass composite, or extruded plastic.

Existing grid that has become discoloured can be repainted, but it is labour-intensive and time consuming. An alternative is to apply grid covers, thin plastic extrusions that snap onto the tees to

conceal the old, unsightly faces. They can usually be installed without removing the ceiling panels and are available in colours to match or contrast with the panels.

One of the most common types of ceiling panels are made from mineral fibre. Despite their popularity, they are not the best fit for indoor pool applications. Typical mineral fibre panels offer moderate-to-good control of noise, but are vulnerable to moisture-related damage, prone to staining, and are easily dented or broken by impacts such as a high-flying water-polo ball. Special grades of mineral fibre, suitable for humid conditions often found in indoor pool environments, are available for a premium price.

Metal panels are also available, although steel products are not recommended for pools because of corrosion potential. Some perforated aluminum panels with an anodized or painted finish are suitable for above-pool use. However, metal panels can have razor-sharp edges that could be hazardous if a panel got knocked out of the grid—by a ball used in pool sports, for example. To prevent accidents, all types of over-pool ceiling panels should be secured in place with hold-down clips.

Another appropriate option is a thermoformed ceiling: thin, lightweight, three-dimensional panels available in a wide variety of both contemporary and traditional styles and in a range of colours. Thermoformed panels are impervious to water, stain-resistant, washable, and durable. At least one brand of thermoformed panels has been specifically tested for staining by pool chemicals and found to be highly resistant. In standardized strength testing, the panels did not chip or abrade, and tend to flex upon impact instead of breaking.

### Sound and light

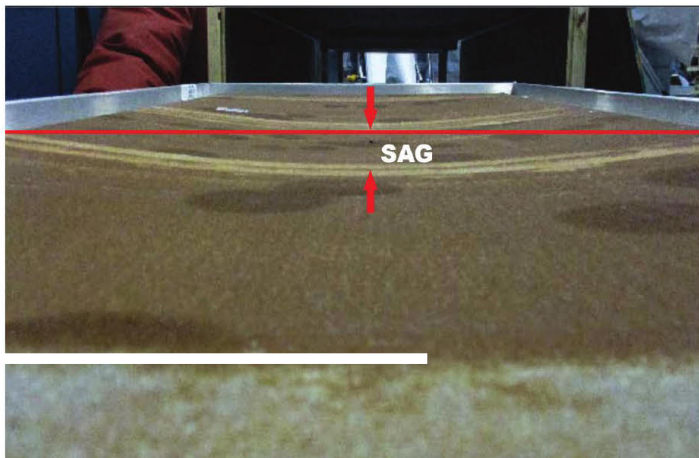
Thermoformed panels provide noise reduction in a different way than mineral fibre panels. The lightweight thermoformed ceiling uses the viscous mass of air above the suspended ceiling to dampen vibration. For situations where acoustic control is most needed, the panels can be micro-perforated and installed with a backing to absorb 85 per cent of the sound impinging on the surface (NRC 0.85).

In the past, general lighting fixtures had to be located around the pool perimeter where they



A pool-compatible ceiling should be impervious to water and resistant to staining by pool chemicals, such as this thermoformed panel, which is stain-resistant and fully washable.

Photo by Ryan Bent



Common types of mineral fibre ceiling panels sag in humid environments such as natatoriums and spas. Tests such as ASTM C367, *Strength Properties of Prefabricated Architectural Acoustical Tile or Lay-in Ceiling Panels* should be used to compare the performance of various products.

Photo courtesy PRI Construction Materials Technologies LLC

could be easily accessed for frequent replacement. Light was often directed upward to reflect off the ceiling to create uniform, glare-free lighting. For energy efficiency, ceiling surfaces should have a light reflectance value (LRV) over 90 per cent.

Some designers are rethinking this approach now that light-emitting diode (LED) fixtures can last for decades before replacement is required. They are installing light-transmitting ceiling panels (instead of opaque panels) beneath



Installing a hot tub can lead to a complete room make-over including new flooring, painting, and ceiling. Photos courtesy Ceilume

economical LED strip lights, thus creating luminous ceilings. Translucent and frosted panels create an even, diffused light that minimizes glare. The LEDs can be programmed to change colours to suit the mood of pool and spa parties or other events.

Light fixtures above pools and near pool decks need to be rated for wet or damp environments. In some jurisdictions, however, this requirement is waived if the fixtures are high enough above the water level. In these instances, putting the light fixtures above a luminous ceiling increases their height and may allow use of lower-cost fixtures rated for drier environments. A qualified engineer or electrician should be consulted before taking this approach.

#### Installation challenges

Pools can present a special challenge for ceiling installation or renovation. Over the pool deck, ceilings can be installed using ladders or lifts. Ceilings directly over the pool, however, can be difficult to get to, especially if the pool is full. Even if the pool is empty, a sloping bottom can interfere with ladder stability, and taller ladders are needed to reach the height of the ceiling from the depth of the pool. For relatively narrow pools, a platform or a scaffold spanning its width can be engineered.

The new owner of the Highlander Hotel in Iowa City, Iowa, found another solution for installing new ceiling panels over its indoor pool.

The pool renovation plan included removing the windows along one side of the natatorium and replacing them with garage-style glazed doors that would allow indoor-outdoor activities. During construction, while the wall was opened, they brought a bucket lift truck alongside the building. It extended the bucket through the garage door openings and over the pool so the installer could easily pop the lightweight thermoformed panels into the grid. Check with the ceiling manufacturer, however, to make sure they will warrant panels that are installed before the building is completely enclosed and ambient conditions stabilized.

The renovated pool has become the hotel's biggest attraction. With its decorative thermoformed ceiling and a two-storey tall psychedelic-style mural by a local artist, the pool area has become an attractive venue to relax and recreate. The hotel has been successfully selling day-passes to local families—use of the pool and a room to change in—for birthday parties and celebrations, and just plain getaway days. As a result, the hotel has become a resort destination for locals. With travel business so brutally impacted by the COVID-19 pandemic, the extra revenue stream became a welcome supplement to the hotel's bottom line.

#### Business considerations

On many projects, pool and spa firms can add to their revenue stream by contracting to provide ceiling finishes. It may be prudent to subcontract the installation of the suspension grid, at least until some experience is gained. But installing thermoformed ceiling panels can be so simple it is often done by do-it-yourself (DIY) home and business owners.

But why stop with the pool? The characteristics that make a ceiling suitable for use over a pool or hot tub/spa are also important for adjacent areas such as locker rooms, gyms, showers, and snack bars. This is especially useful during winter months as it enables crews to stay busy with interior jobs. ♦



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