

## Westin Lagunamar, Cancún: a TRICOIL fan coil pilot in a guest villa

A TRICOIL fan coil unit, with all three coils in one factory fin pack and no pump, was installed in one villa and logged side by side with the old unit next door. Overnight: 61% RH against 73%.

### Cancún, Mexico

Westin Lagunamar resort villas,  
for ILG

### 400 cfm

Per guest room fan coil unit

### 61% vs 73% RH

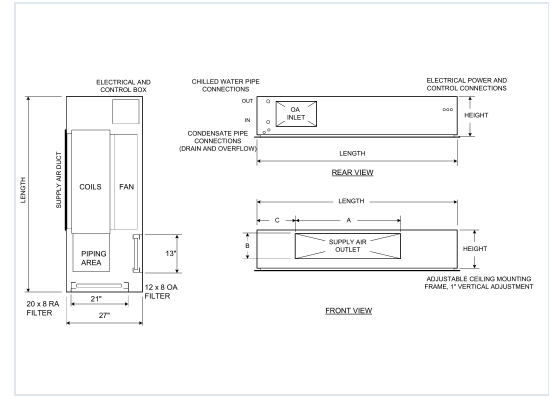
TRICOIL room vs old unit room,  
overnight

### 2017–2018

Demo Aug 2017, side-by-side  
test June 2018



A one-bedroom villa. Its living room fan coil supplies through the grille above the kitchen; a second unit serves the bedroom.



The TRICOIL fan coil unit for the resort: 11 inches tall, with a hinged bottom access door and a filtered outdoor air inlet.

### THE CHALLENGE

The resort's villa fan coils sit above the ceilings, one in a studio and two in a one-bedroom villa, with the bedroom unit above the bathroom. Cancún's ocean air is hot and wet year round, and a fan coil sized for cooling cycles off once the room is cool, leaving the room damp. ILG asked whether a replacement unit could dry the air without electric reheat and still fit the same 18-inch ceiling space, with filters and service reachable from the room below.

### THE SOLUTION

Eiermann Engineering designed a TRICOIL fan coil for the resort with precool, cooling and reheat coils built as **one continuous fin pack** at the coil factory, two rows each, 26 by 8.75 inches. No pump: building chilled water drives it all. Water from the cooling coil continues through the precool coil, where it picks up heat from the entering room air, then on to the reheat coil. A room thermostat runs a two-position valve for cooling, and a **room dehumidistat** sends water through the reheat coil only when the room needs drying. A demonstration unit, logged in August 2017, held a steady 53.6°F average dew point; in June 2018 a pilot unit in one villa was logged against the old unit next door.

### THE RESULT: MEASURED SIDE BY SIDE

| June 21, 2018, 12:20–6:35 am                    |  | Old unit · TRICOIL              |
|-------------------------------------------------|--|---------------------------------|
| Room temperature                                |  | 75.0°F · 73.4°F                 |
| <b>Room relative humidity</b>                   |  | <b>73% · 61%</b>                |
| Room dew point                                  |  | 66°F · 59°F                     |
| Design, per unit · 400 cfm · 44°F chilled water |  |                                 |
| TRICOIL precool, 75°F to 62.9°F                 |  | 0.48 ton                        |
| TRICOIL reheat, no new energy                   |  | 0.50 kW                         |
| Chilled water return                            |  | 52.8°F, not 49.6°F              |
| Coils · pumps                                   |  | 3 × 2 rows, one fin pack · none |

Measured: neighboring villa living rooms, 26 matched readings (ILG's logger in the old unit room, a 10-second logger in the TRICOIL room). The TRICOIL room stayed drier while running cooler. Design figures from the September 2018 coil selections and drawing WCR-001.

**Why it carries over.** Hotels, barracks, dormitories and senior housing have hundreds of rooms with small fan coils and tight ceilings. TRICOIL scales down to a single room unit with no pump to maintain.