

# TALL ORDER

**As the tallest building in the world, Dubai's Burj Khalifa required suitably breath-taking lighting. Fisher Marantz Stone obliged with a scheme controlled by a Philips Dynalite system**



The 828m tall Dubai's Burj Khalifa has 160 floors and over 500,000 sqm of space for offices and apartments. Fisher Marantz Stone was responsible for the lighting design including the state-of-the-art home automation system from Philips Dynalite

*All pics courtesy of Emaar Properties*

For residents and guests of the Burj Khalifa in the United Arab Emirates, 'living the high life' will take on both figurative and literal meaning. The mixed-use tower - featuring bespoke residences, corporate suites, and the world's first Armani Hotel and Residences - is not only the world's tallest building and man-made structure, it sets new world standards for luxury living.

The emphasis on restrained elegance and sophistication in Burj Khalifa is uncompromising, with the use of light in all its forms playing a key role. The architecture of the building itself makes the most of the unique desert radiance, while the interior features a lighting scheme by New York-based Fisher Marantz Stone, carefully crafted to reflect a specific design philosophy.

"It's not meant to be a showy display of interior lighting, but a careful exposition of restrained and minimalist design," says Paul Marantz, co-founder and design principal at Fisher Marantz Stone.

Several floors of the Armani Hotel's hospitality and reception areas, guestrooms and

residences give way to multiple floors of serviced and private condominium apartments, and several floors of offices right at the top of the building. Underpinning Fisher Marantz Stone's lighting design, and simultaneously providing the ultimate in sophisticated home automation, is a state-of-the-art system from Philips Dynalite. According to Marantz, three key attributes were required of the lighting control system: it had to be distributed and modular; it had to be supremely intelligent to support sophisticated programming requirements; and it had to be virtually invisible and easy for the end-user to operate. "We knew Dynalite had the hardware and intelligence to meet these demands, and were happy to have them aboard," he says.

Local system integrator and engineering firm Tectronics provided system engineering and design, supply, testing, programming and commissioning of the Philips Dynalite system. "There were some highly specific system design criteria that needed to be met, both from a space and installation per-

spective," says Sleiman Bakouny, manager of the audio visual division of Tectronics. "Philips Dynalite was one of the few who could meet these requirements practically and economically."

The hundreds of guestrooms, residences and offices housed within Burj Khalifa each contain a lighting control and automation system founded on the same basic architecture.

Over 7,000 Philips Dynalite multipurpose controllers have been installed within the building, each one configured to a specific load schedule, thanks to the uniquely modular controller design that allows different output modules to be 'plugged' into the motherboard. This facilitates the use of mixed loads in the one controller - mainly leading and trailing edge dimming, ballast control, and relay control.

According to Bakouny, having the controller configurable down to the load-level meant that minor changes in the system design could be easily accommodated. "This is a great advantage in a project of this





Over 7,000 Philips Dyalite multipurpose controllers have been installed within the building, each one configured to a specific load schedule. Local system integrator Tectronics provided system engineering and design, supply, testing, programming and commissioning



scale. Designers can leave decisions about luminaires and termination types to the last minute and maintain flexibility," he says. Each suite also contains up to ten Philips Dyalite slim-line fascia-matched Revolution Series 2 operator interface panels, with more than 14,000 installed throughout the tower. In-built intelligence ensures the panels retain their programming when disconnected from the communications network, founded on Philips Dyalite's sophisticated peer-to-peer communications serial bus network, DyNet. This links each panel with the multipurpose controllers for that suite, and integrates an AMX audio visual solution into the system. Every suite is linked to a central control room via 13 separate DyNet riser trunks.

Philips Dyalite DLight III Server running MapView software acts as the system head-end in the control room, providing control, status and scheduling information. As part of the distributed architecture, the local room networks have been designed with appropriate levels of isolation to ensure that if the head-end goes down, operation at a room level remains unaffected. This complements the lighting designer's other 'smart' criteria, and results in a system that presents a lighting scheme appropriate to the time of day and the user's location within the apartment - at the simple press of a button. "The aim was to provide an intelligent system that wouldn't be confusing to use," Marantz says. The challenge of programming the system

to achieve this advanced functionality fell to Tectronics. Once the programs were finalised for the 50 or so different suite configurations, it was simply a matter of connecting a notebook computer and downloading the code into each room control system.

"The installation methodology used on the project was also rather revolutionary," says Bakouny. "There were two main issues. The first was to ensure that all the main wiring could be completed without any of the electronic circuitry in place; the second pertained to the use of unskilled labour on the project."

A two-stage installation scheme was envisaged, whereby the rack assemblies were installed while the environment was still

## JAPANESE

アラブ首長国連邦にあるブルジュ・ハリファは、居住者や滞在者に文字通り且つ比喩的な意味においても「ハイレベルな生活」を提供している。この多目的ビルはカスタムメイドの高級マンション、コーポレートオフィス、そして世界初のアルマーニホテル&マンションを特徴としており、世界で最も高い人工ビルであるだけでなく、世界でも新しい高級志向な生活スタイルのスタンダードを示している。

ブルジュ・ハリファは控えめな気品と精巧さを併せ持ち、それは鍵を握る照明装置にも徹底して反映されている。建物自体が他に例を見ない、砂漠の中の光輝的建築物である。またその内部装飾は、明確なデザイン志向を反映すべく慎重に且つ巧妙に作られている。この特徴高いスキームは、ニューヨークに拠点を置くFisher Marantz Stoneが手がけたものである。

アルマーニホテルのホスピタリティ&受付エリア、またそのゲストルーム、居住施設からなる数フロアは、サービス付またはプライベートのコンドミニアムへ、さらにはビルの上層部にあるオフィス施設へとつながっている。Fisher Marantz Stoneが手がけた基礎照明デザインにはPhilips Dyaliteの最先端システムが採用され、この上無い洗練したホームオートメーションが実現されている。

对于阿联酋哈利法塔(Burj Khalifa)的居民和客人来说,“高端生活”同时具有字面和比喻含义。这座包括了定制居所、办公套房以及世界首家阿玛尼酒店的多功能大厦,不仅是世界最高的人工建筑,而且重新定义了奢华生活标准。哈利法塔严格注重其婉约式优雅风格,并主要通过多角度光学设计实现这一点。大厦在建筑风格上充分利用了独有的沙

漠辉光,并且内部采用了纽约Fisher Marantz Stone的照明方案,体现了独特的设计理念。阿玛尼酒店的接待区、客房以及居所部分具有多层酒店式公寓和私人公寓,大厦顶部设有高层办公室,并采用Philips Dyalite的先进系统支持Fisher Marantz Stone照明设计以及实现完善的家电自动化。

## CHINESE

## FRANÇAIS

Pour les résidents et les invités du Burj Khalifa aux Emirats arabes unis, l'expression mener "la grande vie" prendra tout son sens, littéral et figuratif. Ce gratte-ciel, à la fois résidentiel et commercial - offrant des résidences sur mesure, des appartements de luxe ainsi que le tout premier Armani Hotel and Residences - n'est pas seulement le plus haut gratte-ciel et la plus haute structure construite par l'homme, il définit un nouveau standard mondial du luxe. Pour le Burj Khalifa, l'exigence d'élégance

discrète et de sophistication est un apport indiscutable, et l'éclairage dans toutes ses formes y joue un rôle clé. L'architecture du bâtiment utilise au mieux la luminosité unique du désert, et l'éclairage d'intérieur, dû à Fisher Marantz Stone, basé à New York, a été conçu de manière à refléter une philosophie de design spécifique.

Plusieurs étages sont dévolus aux zones d'accueil, à la réception, aux chambres et aux résidences de l'Hotel Armani, puis se trouvent plusieurs étages avec des appartements résidentiels privés avec des services, les derniers étages étant affectés à des bureaux. En complément du système d'éclairage de Fisher Marantz Stone, on trouve le système ultramoderne Philips Dyalite, qui fournit le dernier cri en domotique sophistiquée.

## DEUTSCH

Für Anwohner und Besucher des Burj Khalifa in den Vereinigten Arabischen Emiraten gilt "Living the high life" sowohl im übertragenen als auch im



dusty, and the circuit loads checked using a dummy bypass unit to pick up any shorts or overloads. Once the room was clean again, the electronics were installed into the racks with minimal risk of dust contamination and damage to the circuitry.

The second Philips Dyalite innovation was to introduce structured wiring for the Cat5 data cables connecting the 14,000-plus Revolution Series 2 panels into the control system. "The aim here was to avoid stripping wires on site," says Bakouny. "So the customary screw terminals were replaced with pre-terminated RJ12 connectors which simply click into place. Both these innovations sped up installation - a significant benefit when you're dealing with 160-plus floors!"

"This has certainly been a massive mission for us," says Laurence Coote, Philips Dyalite sales director. "To have such a high level of integrated systems included in a project this size is very significant." He adds that Philips Dyalite also supplied more than 800 relay controllers for switching of the external and common access lighting in the building, plus all the lighting control systems for the hotel public areas—including ballrooms, function rooms, meeting rooms, lobbies and restaurant areas.

Marantz emphasises that the key contribution of Philips Dyalite to this project was indeed the intrinsic distributed intelligence of the system, which allowed it to be programmed to achieve the advanced functionality his company envisaged, while remaining essentially invisible to the end-user. "We're really happy with what happened on site. Thanks and congratulations to Dyalite," he says.

[www.dyalite-online.com](http://www.dyalite-online.com)  
[www.fmsp.com](http://www.fmsp.com)



## ETC CONTROLS THE CELEBRATION LIGHTING

Designed by Speirs and Major Associates (SaMA), the scheme for the opening ceremony features over 800 Dataflash strobe lights and six Fineline searchlights controlled by an ETC Congo Light Server and triggered by an ETC Unison Paradigm system featuring touchscreens and automated astronomical timeclock events (supplied by Oasis Enterprises Professional Projects Division). The 'Celebration Lighting' system was used during the grand opening celebration in January 2010 and is designed to run various patterns on the building nightly with special shows on holidays and festival days. Programmed almost entirely offline using Capture visualisation software - with the designers in Scotland and a programmer in Germany - this project took long-distance collaboration to the limit. "We essentially programmed this show via Skype," says ETC Controls Product Manager and Congo programmer Sarah Clausen. "SaMA worked for weeks to create the model and get all the strobes inserted, focused and patched, while I worked to channel and group the strobes into usable chunks to create the effects we needed. Then they sent me a video mock up of the kinds of effects they wanted. I worked for ten days in our Germany office

to build up the effects in Congo. The v5 Effects were essential to this project - some of SaMA's ideas actually need 42 effect playbackers running simultaneously to create the right look. During the programming I had Capture, a Congo desk and a single Dataflash AF1000 strobe. Iain Ruxton at SaMA had a setup with Capture, a Congo Jr and another Dataflash. I could program something, send him the show file, he could load it and look at it with the team there. We could see the same thing running at the same time, discuss adjustments and then I could go on programming on my own. It worked very well. Once we were on site in Dubai we only had to adjust a few timings and then could get on with the business of creating the specific combinations of effects for the nightly shows." Says Iain Ruxton, Associate at SaMA: "We've envisaged working like this on dynamic architectural lighting projects ever since we first saw DMX visualiser packages more than a decade ago. Although it's intended as performance technology, we were keen to scale it up to big buildings. Quite simply, we could not have achieved this by programming on site only."

[www.etconnect.com](http://www.etconnect.com)  
[www.speirsandmajor.com](http://www.speirsandmajor.com)

wörtlichen Sinn. Der Turm mit gemischter Nutzung - darunter maßgeschneiderte Wohnsitze, Corporate Suites und das weltweit erste Armani Hotel and Residences - ist nicht nur das höchste Gebäude der Welt und eine von Menschenhand gebaute Struktur, er setzt auch neue globale Maßstäbe für Luxusleben.

Der Schwerpunkt auf zurückhaltende Eleganz und Raffinesse in Burj Khalifa ist kompromisslos, wobei das Licht in all seinen Formen eine Schlüsselrolle einnimmt. Die Architektur des Gebäudes selbst verschafft den meisten einzigartigen Wüstenglanz, während die Innenausstattung eine Beleuchtung durch das in New York ansässige Unternehmen Fisher Marantz Stone aufweist, sorgfältig gestaltet, um eine spezifische Designphilosophie widerzuspiegeln.

Mehrere Etagen der Hospitality- und Empfangsbereiche des Armani Hotels, Gästezimmer und Residenzen öffnen sich hin zu zahlreichen Etagen von Service und privaten Eigentumswohnungen und einige Etagen mit Büroräumen rechts oben im Ge-

bäude. Zur Unterstützung des Beleuchtungsdesigns von Fisher Marantz Stone wird ein hochmodernes System von Philips Dyalite eingesetzt, das darüber hinaus simultan das Nonplusultra an anspruchsvoller Haus-Automation bietet.

### ITALIANO

Per i residenti e gli ospiti del Burj Khalifa negli Emirati Arabi Uniti, vivere un "alto tenore di vita" ha non solo un aspetto figurativo ma anche un significato davvero letterale. La torre multi-uso, dalle residenze ad hoc, suite aziendali, e con il primo Hotel Armani e Residences, non è solamente l'edificio più alto al mondo, ma rappresenta un vero e proprio punto di riferimento del lusso a livello mondiale. L'entusiasmo attribuito all'eleganza e alla sofisticatezza nel Burj Khalifa non conosce compromessi, giocando quindi l'utilizzo delle luci al suo interno un ruolo chiave. Lo stesso architetto dell'edificio ha espresso il massimo della sua creatività con questo esemplare di radiosità del deserto, mentre

la parte interna della struttura presenta uno schema d'illuminazione che riflette una precisa filosofia di design e creato da Fisher Marantz Stone, residente a New York. Molteplici piani riservati all'Hotel Armani e alle sue aree di reception, stanze degli ospiti e residenze, danno spazio ad appartamenti di condominio privati dislocati su diversi piani, nonché a numerosi uffici presenti in cima all'edificio. Il design d'illuminazione di Fisher Marantz Stone viene rafforzato da un simultaneo, sofisticato e avanzato sistema di automazione della Philips Dyalite.

### ESPAÑOL

Para residentes y visitantes de Burj Khalifa en los Emiratos Árabes Unidos "vivir la vida de lujo" tendrá una connotación tanto emblemática como literal. La Torre, de uso variado, tiene unidades tales como residencias personalizadas, suites corporativas y el primer Hotel/Residencias de Armani; no sólo es el edificio y estructura, construida por el hombre, más alto del mundo, sino que establece nuevas normas

mundiales para vivir en opulencia. El énfasis en cuanto a la elegancia y sofisticación en la Burj Khalifa es inflexible; en relación a esto, la utilización de todas las formas de iluminación juega un papel preponderante. En el diseño de la edificación en sí, emerge el esplendor único del desierto; mientras que el interior (del edificio) tiene como característica un esquema de luces, cuidadosamente fabricado para reflejar una idea específica en el diseño, instalado por la firma Fisher Marantz Stone, basada en New York. Varios pisos de las áreas de hospitalidad y recepción, cuartos de huéspedes y residencias del Hotel Armani dan acceso a varios otros pisos de apartamentos con todos los servicios y apartamentos privados tipo condominio; y varios pisos de oficinas en la parte superior del edificio. Para servir de apoyo al diseño de luces de Fisher Marantz Stone, y simultáneamente proveer lo último en automatización casera, se instaló un sistema de avanzada tecnología de Philips Dyalite.