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MCI (P) 023/04/2018 PPS 1669/08/2013(022992)

## [COVER] **E&E Plays Key Role** **STORY At MGM COTA's Dynamic Theater**

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## E&E Plays Key Role Integrating the Audio and Visual Systems

# MGM COTAI Presents Asia's First Dynamic Theater

*MGM COTAI, a HK\$27 billion integrated resort opened in February 2018, creating first-of-its-kind entertainment experiences in Asia through the MGM Theater, Asia's first dynamic theater.*

*Designed by Scéno Plus, a world leading performance arts and entertainment design firm, the MGM Theater is the world's first theater to offer 28 million pixel of viewing pleasure to its audience by utilizing a giant 900-square-metre 4K (or ultra HD) LED screen, which is the size of three tennis courts combined and is now the world's largest permanent indoor LED screen.*

*Through utilizing ultra-high-resolution live video system, the Theater is able to capture the audience's reaction and virtually reflected at real life size onto the LED wall, giving the public an impression of looking into a mirror.*



Over two years in the making, the MGM Theater is an engineering and architectural masterpiece which can accommodate up to 2,000 people in more than 10 different configurations. Every detail has been carefully selected to ensure the greatest entertainment experience for all guests. The reconfigurable seating was developed by GALA Systems, the world's largest manufacturer of understage equipment and the leader in automated multipurpose halls, and will deliver prime sightlines for every guest. The seats are designed and manufactured by Poltrona Frau, one of the most esteemed Italian furniture makers with over 100 years of experience and the seat maker for Ferrari cars. Empowered by the latest in technology and engineering, the MGM Theater team can create custom arrangements for special events, from a traditional concert, fashion show or movie premiere layout to a 360-degree configuration for talk shows, product launches and international DJs.

"The MGM Theater at COTAI brings the future of events to Macau, today," said James Murren, Chairman & Chief Executive Officer of MGM Resorts International and Chairperson & Executive Director of MGM China Holdings Limited. "MGM is synonymous with entertainment and we have taken our deep knowledge and incorporated it with cutting-edge technology to create a setting that will redefine and elevate the way our guests experience entertainment."

"The intricacy of the MGM Theater is one of the most complex in the world and we have invested in training our local staff to learn how to use this leading entertainment technology. We sent a group of 10 local team members to Hollywood for an intensive two-week training program, helping them to familiarize themselves with the entertainment technology they will operate at MGM COTAI. The group has visited VER, the creative experience company that supplied the LED panels on the giant wall totalling 28 million pixels," said Murren. MGM Theater is home to three resident shows with two launching first, *The Experience* and *Destiny*. The Experience, inspired

by the soul of Macau, is a 10-minute mind-bending and harmonious technological symphony that showcases the Theater's engineering and architectural dexterity. Meanwhile, *Destiny* is an electrifying, action-packed immersive theatrical production that is inspired by the concept of TV game shows and adventure video games. Through the Theater's various configuration capabilities, guests can experience multiple types of entertainment events at the same location.

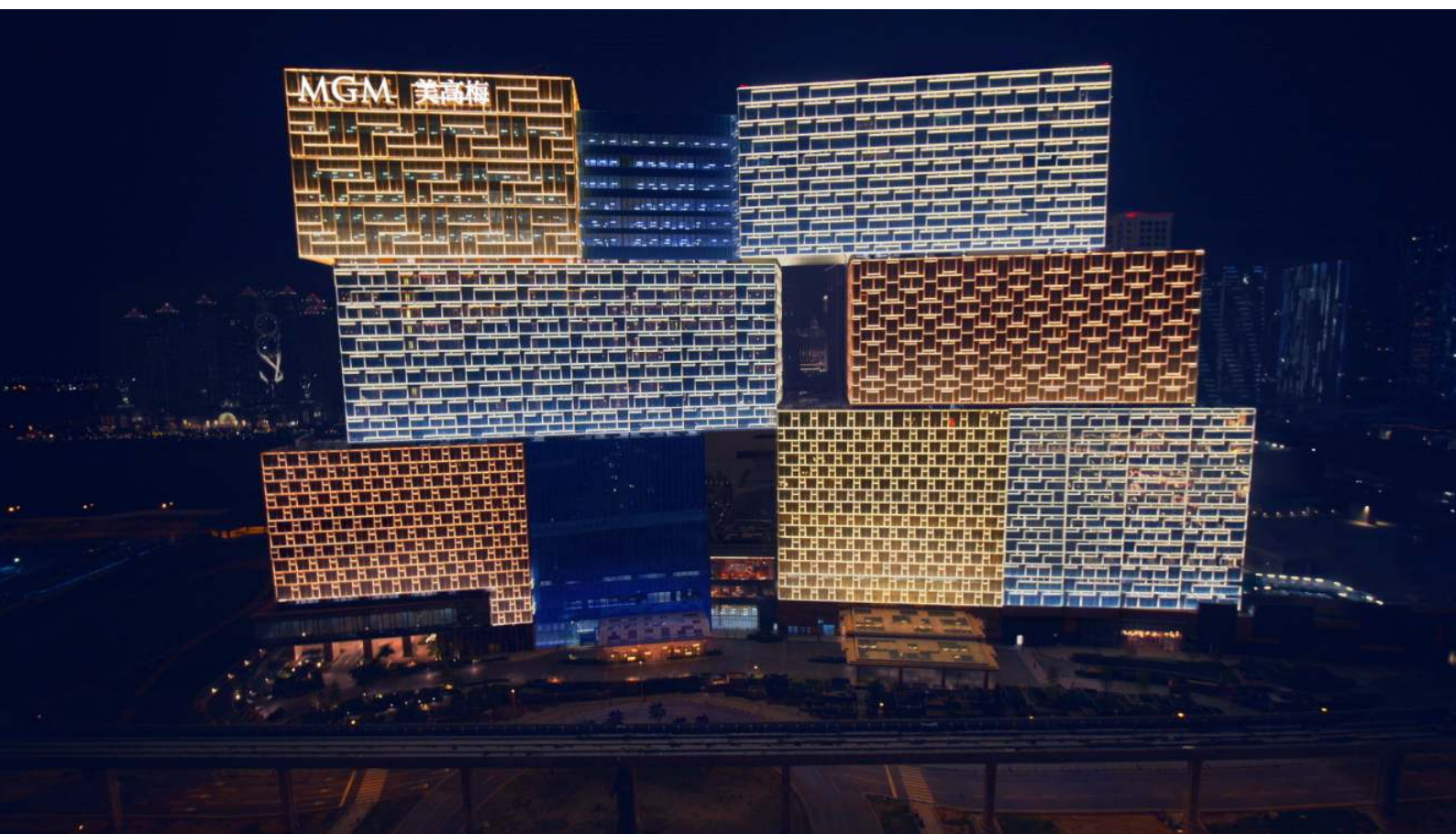
### E&E plays its part

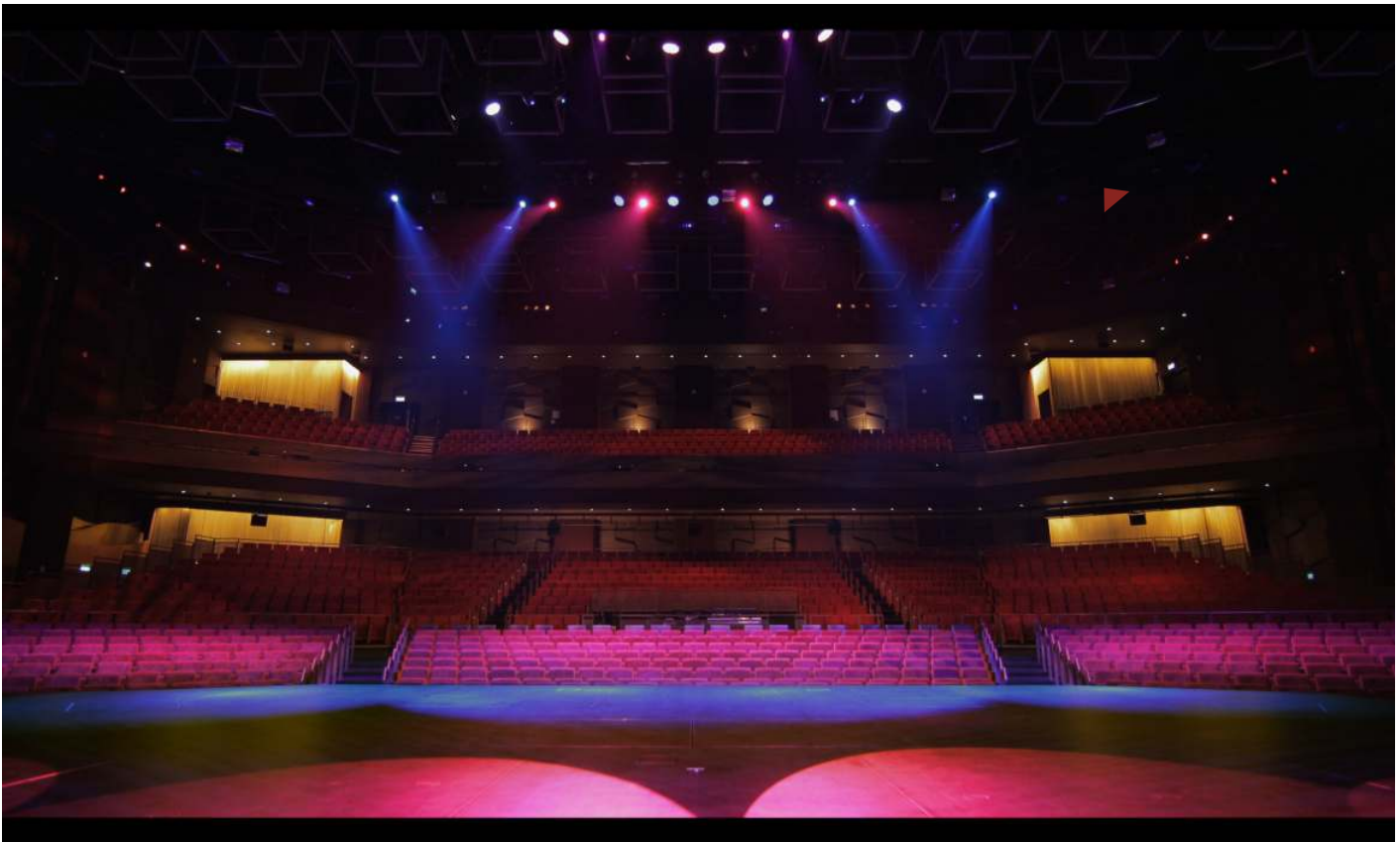
Electronics & Engineering Pte Ltd (E&E), the Singapore based systems integrator was awarded the contract to integrate and commission the audio and video systems that included Intercom systems, Loudspeakers, Audio signal processing systems, Wireless microphone Systems, Audio Console, Video media player systems, Video mixing system and Cameras.

E&E worked with Canadian consultant Scéno Plus to install and commission the audio system. The system was to adapt to various seating configurations and provide adequate coverage in each scenario. In order to achieve this, E&E installed 6 clusters of L-Acoustics speakers excluding 4 sound effect speaker zones. The system was optimized by Andre Pichette, the L-Acoustics Head of Applications, Install, USA.

The loudspeaker system configuration is as follows:

- Main Left, Right & center cluster each consists of 12 X L'acoustics Kara with 4X L'acoustics SB18.
- Upstage Left & Right cluster each consists of 12 X L'acoustics Kara with 4X L'acoustics SB18, while the upstage centre cluster consist of 8X L'acoustics Kara.
- In-a-round speakers consist of 6 units of L'acoustics ARCS II
- Ground floors subwoofers consist of 12 X L'acoustics SB28





- Balcony Rear Channel clusters consist of 8 X L'Acoustics 8XTI
- Orchestra Channel Cluster consist of 8 X L'acoustics 12 XTl
- Stage monitors consists of 8 X L'acoustics 115XTHIQ
- SFX Left & Right Clusters each consist of 8 X L'acoustics Kara-i and a L'acoustics Arcs II
- All speakers are powered by 46 units of L'acoustics LA4X & 3 units of L'acoustics La8

E&E also installed the **Meyer Sound D-Mitri system** which performs audio routing, show cues and features the innovative SpaceMap software. The system allows the sound designer to save scene-specific parameters and allows these scenes to be recalled automatically over time code. The SpaceMap software allows the sound designer to dynamically pan sound effects throughout the theater affording the designers unparalleled flexibility.

The Meyer sound D'mitri systems consists of one unit of Meyer DCP, Meyer DWTRX, Meyer DAIO, Meyer DGPIO and three units of Meyer DDIO.

Scéno Plus specified a **Digico mixing system** featuring 4 consoles, 2 Units of Digico SD 10 and 2 units of Digico SD11 and 6 remote input and output nodes connected in a ring topology. 4 Units of Digico SDrack and 2 Units of Digico SDmini. The set-up features signal redundancy and over 300 simultaneous channels of processing.

The video LED wall which spans 70 by 12 meters at 5.33333mm pitch size is one of the key features of the theatre. The video wall consists of movable parts, which allows it to transform into multiple configurations and at the same time display a Background layer covering the entire wall and having multiple PIPs on it. The video

system had to achieve a resolution of 16384 x 2160 @50p resolution and the design called for various routing and cable infrastructure. E&E provided the video backbone to support these configurations consisting of disguise media servers and **Barco E2s** for video wall management.

Four units of **disguise 4x4pro media server** were installed to feed the full Background layer to the video wall with enough redundancy and load balancing to sustain the heavy processing required to achieve the output resolution. Two Barco E2s were installed in order to manage the 4x4pro content as well as to allow other video sources to be displayed. This is the first install where 2 Barco E2s were linked together in order to achieve the canvas resolution for the LED wall.

#### Up to Mark

"The theater was designed so that it can be configured for different purposes and layouts, from concerts, fashion shows and movie premieres to talk shows, product launches and international DJ sessions. The challenge was in ensuring whatever the seating configuration, the audio and video systems must perform to its optimum ensuring a great experience for the audience," said Gary Goh, Deputy Managing Director, Electronics and Engineering Pte Ltd.

"We are elated and pleased that we were able to be involved in this unique project and together with the other key companies and people involved, delivered to MGM COTAI what they had envisioned," added Gary.

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