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IES BRANDSTON SUBMISSION

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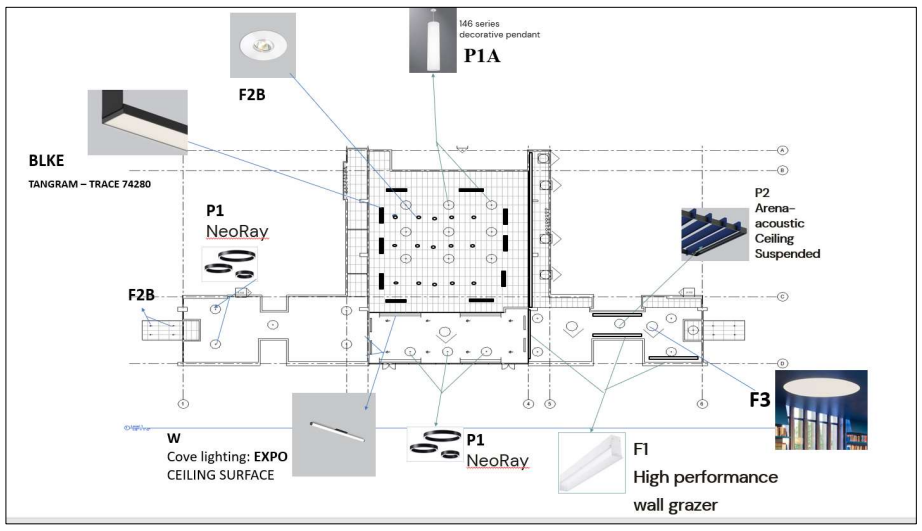
Project objectives, lighting design approach and concept.

This project aims to develop a lighting design to renovate a five-story office first-floor improvements in Sydney, reflecting values and company's innovative forward-thinking. The spaces to be lighted are: vestibules, general lobbies and executive, corridors, multipurpose, and lounge. It is aimed to set one cohesive operational control light system. Solutions of lighting should be aligned with the forward-thinking of the company while serving the diverse needs of company. The design will also facilitate smooth transitions from natural daylight to artificial lighting, especially within lobbies and lounge areas.

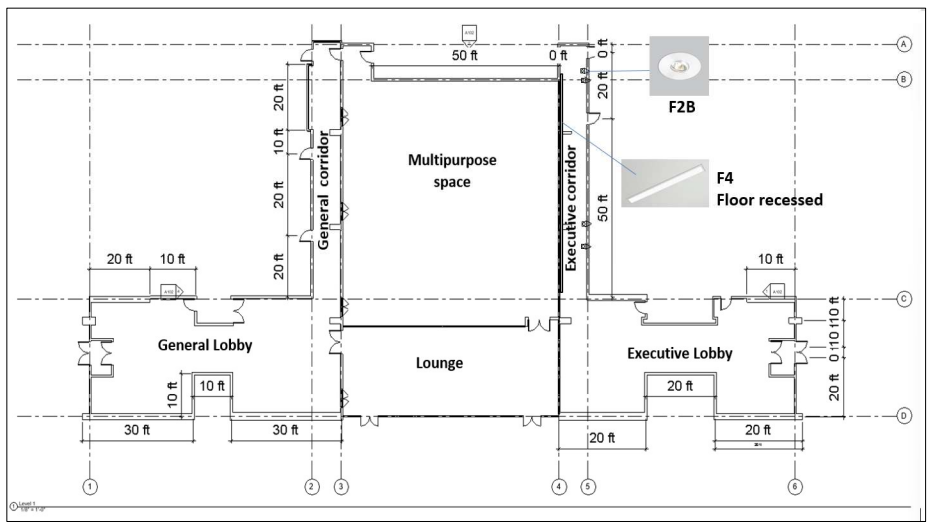
The approach focuses on the blend of aesthetic and functional aspects, with great adaptability. The high ambient and uniform lighting shall be installed in the lobbies and multi-purpose space to illustrate spaciousness as stipulated in John Flynn lighting concepts of spaces and meet the energy compliance as stated in the ASHRAE/IES Standard 90.1, while the corridors and lounge areas shall be relaxing and take them through with low ambient levels and non-uniform lighting. The design shall incorporate a layered lighting strategy: ambient, task, line of light, and accent lighting to improve the visual experience and accentuate the architectural and design elements throughout the space, including displays of art and awards.

The concept is how daylight and artificial light could both be integrated into the same lighting environment, making that area continuous and immersive. Thus, daylight will pour inside through the east and west glass curtain walls in the lobbies and south of the lounge, which is supplemented by soft indirect artificial lighting that. Versatility lies in how the multi-purpose space has been designed to adapt to various configurations and uses through dynamic lighting control. Lighting will highlight the wood-paneled executive spaces, highlighting glass elements of vestibules and integrating GYP-paneled walls of general spaces to create one cohesive identity that is modern, looking toward the future.

Lighting plan (within project scope line indicated) with all light fixtures clearly labelled.



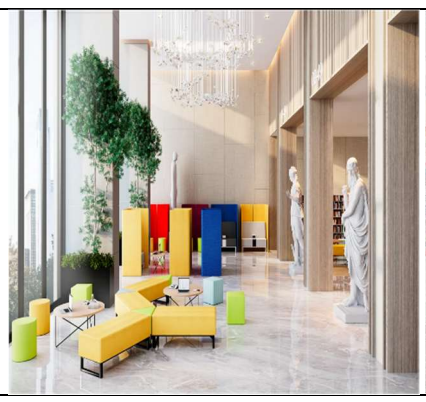
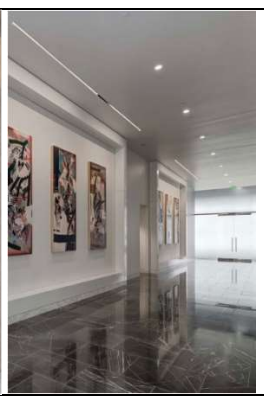
Ceiling plan with all the luminaires layout



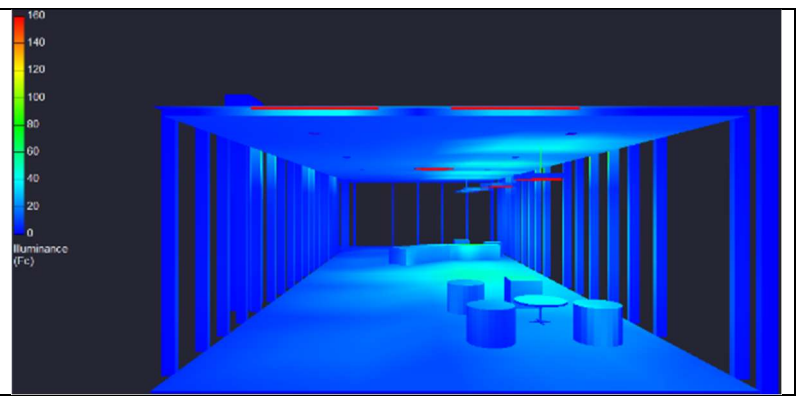
Floor Plan

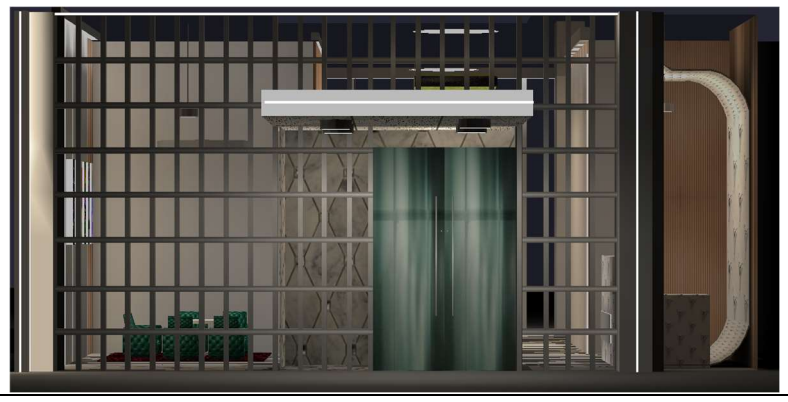
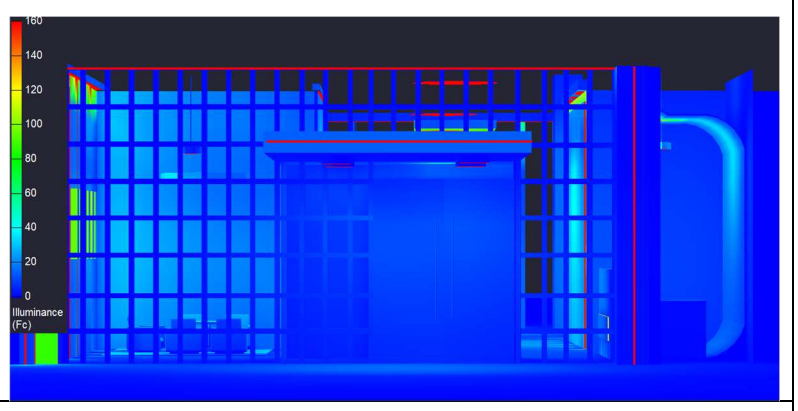
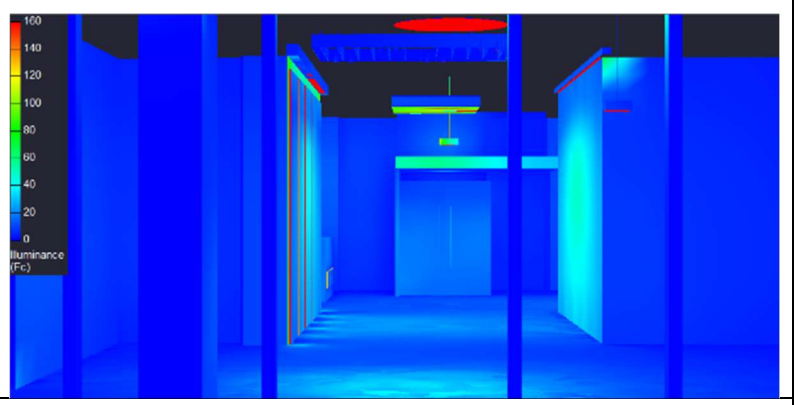
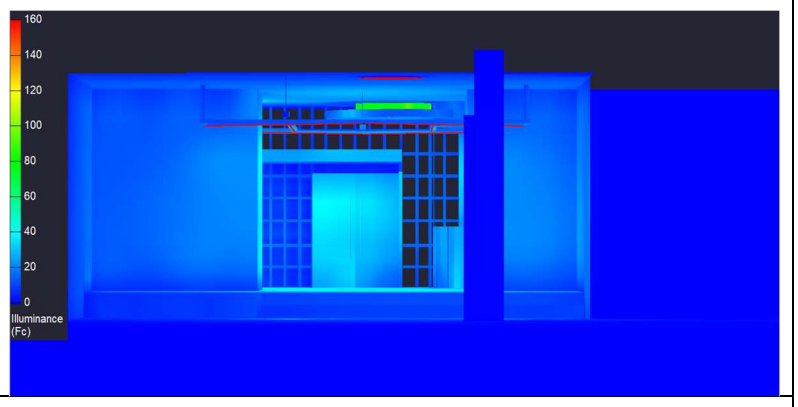
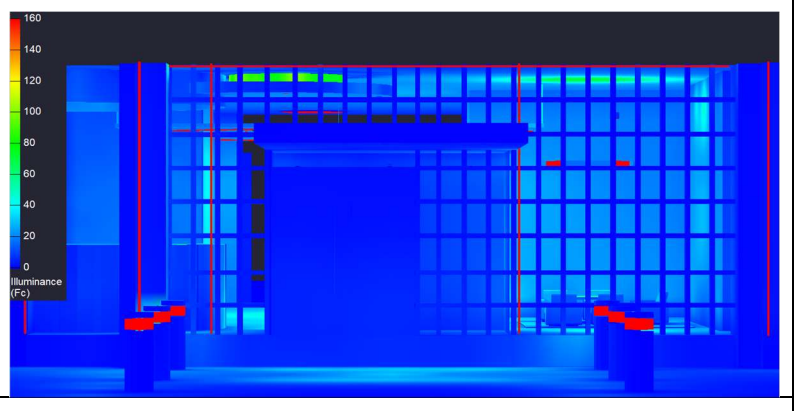
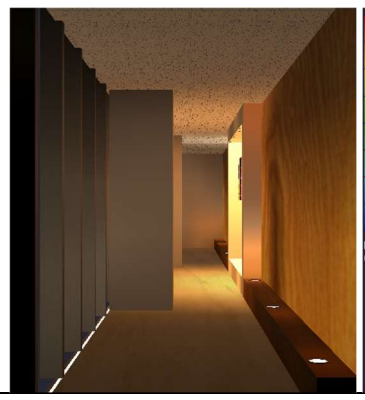
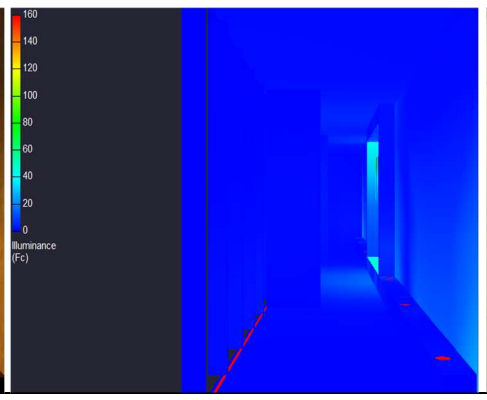
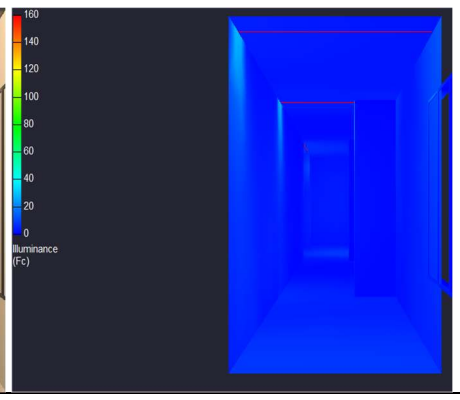
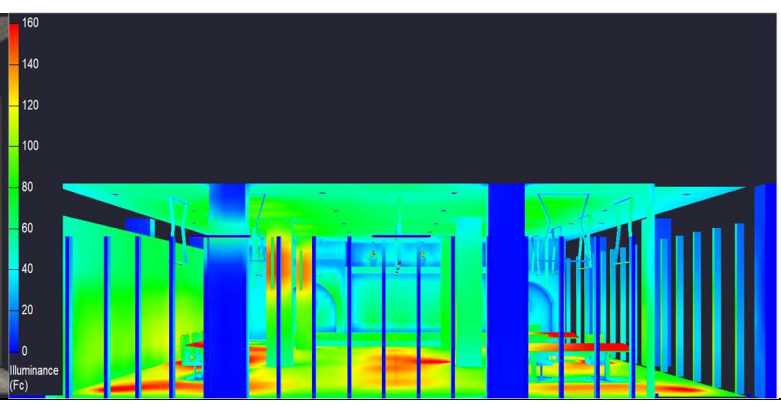
Illustrative materials demonstrating the lighting concepts.

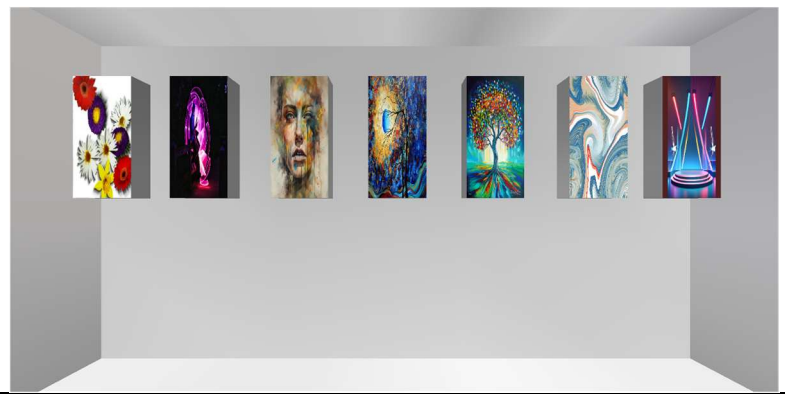
Precedent (Inspirational Pictures)

				
Lounge	**General Corridor**	**General lobby**	**Executive Corridor**	**Executive entrance**

Rendered images

Lounge		

The executive lobby East view		
The executive lobby West View from interior		
General lobby East View		
General Lobby Entrance from the East		
Executive Corridor left and General Corridor right	 	 
Multipurpose room Public Setting	 	

artwork	

Lighting fixture schedule.

Fixture Type	Description	Fixture (Manufacturers and Models)	Light Source	Total Delivered Lumens	Fixt. Load (W)	Driver	Location / Use
RDP P RFL T W F2	Round dot pendant Pendant (usually a discreet unit) Recessed Flush Track Wall mounted Miniature adjustable recessed					Integral or Remote	
P1	Circular LED direct Pendant, Diameter 47”	Cooper lighting NeoRay DFN2DIP-RG4F0-040D050US940-FL	CCT: 3500K, 90+ CRI	8852 lm x 2	101.3 W x2	• 0-10V dimming to 1% standard • WaveLinx sensor compatible for IoT capability	Decorative lighting
P1A	Circular LED direct/indirect Pendant, Diameter 47”	Cooper lighting O-40-LED4-HO-D9	CCT: 4000K, 90+ CRI	9362 lm x 4	181 W x 4	• 0-10V dimming to 1% standard • WaveLinx sensor compatible for IoT capability	Decorative lighting
P2	Rectangular acoustic LED direct Pendant	Eureka ARENA – ACOUSTIC 8297 3545-48 EXPO 3545 X545-48-WHE-LED LO	CCT: 4000K, 90+ CRI	1391 lm X 10 pieces	9.4 W X 10	3981E REMOTE EMERGENCY BOX KIT - IOTA EM DRIVER	Provide linear luminaire
W	Cove Lighting, Linear downlight, variable length.	Eureka, EXPO 3545 X545-48-WHE-LED LO WG-20LPR-RBT-S48_-P3-935-X-OD-W	CCT: 3500K, 90+ CRI	3792 lm x 8 pieces	80 W	L1 DALI, remote	perimeter lighting
WA	Cove Lighting, Recessed Linear downlight, variable length.	PRULITE BionicPro2 | BIO-PSTD-FLSH-LED3-SO-04-AWL	CCT: 3400K, 90+ CRI	3187 lm x 4	39 W x 4	ND Non-Dimming DM01 0-10v, 1% Dimming SOLO 0.1% 0-10v, Eldo LED	Cove Lightning
F1	Linear Wall wash of 29ft, 21ft and 23 ft This length was modified based on requirement. Initial length is 89”	Prulite P43 Cove & Perimeter 4″ Perimeter P43-PSTD-FLSH-LED4-LO-AWW-D1G	CCT: 4000K, CRI: 80+	1594 lm	16 W	205WattStopper PIR Occupancy	Wall wash for peripheral lighting
F2	Miniature adjustable recessed 4-Inch fixed Slope	Cooper lighting LDA4A 4L Housing LDA6A10930D010TE LARL15SP 6LF	CCT: 3500K, 90+ CRI	1910 lm	13.84 W x 20	WaveLinx LITE - WLST Tilemount Sensor	Directional lighting to provide shadow in the multipurpose room
F2A	Miniature adjustable recessed 4-Inch Adjustable Slope, Wall Wash	Cooper lighting LDA4A 4L Housing LDA4A18835D010TE Trim LAR35SP 4LA1 LDA6A10930D010TE LAR35FL 6LAL1 30° Tilt	CCT: 3500K, 90+ CRI	1750 lm	9 W x 16	WaveLinx LITE - WLST Tilemount Sensor	Highlight biophilic plant in multipurpose room
F2B	Miniature adjustable recessed 4-Inch Adjustable Slope, Wall Wash	Cooper lighting LDA4A 4L Housing LDA6A10930D010TE LARL15SP 6LAL1 30° Tilt	CCT: 2700K, 90+ CRI	1611 lm	13.84 WX13	WaveLinx LITE - WLST Tilemount Sensor	Wall grazing and highlighting the artwork in the corridors

Fixture Type	Description	Fixture (Manufacturers and Models)	Light Source	Total Delivered Lumens	Fixt. Load (W)	Driver	Location / Use
F3	Circular Recessed luminaire, Housing: Die-formed 20-gauge steel, >20% PC recycled, 100% recyclable, 48” X48”	Prulite P9040-TU-LO-FWA	CCT: 3500K, 90+ CRI	7017 lm x 4	88 W x 4	DM01 LED drivers are 0-10V dimmable	General ambient lighting in the Executive lobby and lounge
F3A	Circular LED Recessed LED 4” Farallon Glass Downlight	Cooper lighting 340-4C Series SMX14RLSFS010-1300LM-5000K	CCT: 5000K, 90+ CRI	1500 lm x 4	16W x 4	D5LT = Fifth Light® (DALI) Dimming, 0%-100%, 120V-2177V	Ambient light at the entrance
F3B	Circular LED Recessed LED 4” Farallon Glass Downlight	Cooper lighting HLB305950EMW	CCT: 5000K, 90+ CRI	574 lm	9 W x		Uniform light at the counter desk
F4	Slot 4 LED Recessed Linear, varying length was used 66’ and 8’. Initial length is 8’	Mark Architectural lighting FCL STR Linear FCLED 2FT FLP 80CRI 40K 400LMF	CCT: 4000K, 80 CRI	400 lm x 3	10.8822 W x 3	Eldo LED constant current driver options deliver ultra-smooth dimming resolution from 100% to 0.1%	Guided circulation in the corridor
F4A	iO LED recessed luminaire, various length was used	Cooper lighting CS-SL-9SCT-120-ID-UNV-W-SA-ST	CCT: 4000K, 80 CRI	2740 lm X 16	20.6W x 16	Integral dimming to 10% (0-10V, 100% - 10%)	Framing the award display area with linear line of light in the wall
P3	Pendant Light, Decorative Pendant, indirect diameter, Diameter: 28”	Cooper lighting 146-52-L5-835 146 SERIES	LED4 4000K, 90 CRI	2947 lm x 1 piece	39.7 W X 12	SODA 0.1% DALI, Eldo LED (Dim-to-dark, Logarithmic dimming std)	Directional lighting in the multipurpose space
BLKE	Surface mounted, 74280-L07 72" fixture. One 24" spacer at the middle of the total height. Shown with a REC5-72 CANOPY	Eureka TANGRAM – TRACE 74280	CCT: 4000K, 90+ CRI	3402 lm x 16	35.5 W x 16	PHASE DIMMING (120V ONLY) 24" (LOW, REG & HO), 48" (LOW, REG & HO), 72" (LOW	Provide some directional and ambient luminescence in the multipurpose space

Conceptual lighting control intent.

Control Strategy

The lighting scenes and schedules were thoughtfully designed by applying lumen multipliers to the luminaires, thus creating renderings that simulate dimmed states. This was applied to the multipurpose room for private setting like the employees dinning, it is required to have non-uniform lighting. In contrast, public event like conference and board meeting needs some uniform lighting that will provide visual clarity and visual comfort. Moreover, there is a need of lighting control system that will adjust the light level as per occupancy using vacant and occupancy sensors. The sensors should be able to detect the presence of an occupant in the space and adjust the light level accordingly. DALI control system is used it many such application because it helps to control light independently in the same room. Zoning will be helpful for this effect as the space is large, only the occupy section should be illuminated.

In the lobbies, since the East and West façade is made of glass curtain wall, a sensor is required to detect the ambient light in the spaces according to the amount of illuminance received through the glass. The design should be made such that the transition should be seamless or unnoticeable by the duelers to avoid discomfort glare. Therefore, daylight harvesting system is required. A dynamic daylight control system (DDCS) can be attached to the glass curtain wall to dynamically tuned to the sun’s positions to adjust the daylight in the lobbies.

The lounge area requires control system to switch the light scene between the activities. If the occupants want to relax, non-uniform light can be desired, while during the collaboration activity, ambient bright luminescence is required.

References

1. The project description and project drawings as published by IES is available for download from www.ies.org.
2. John E. Flynn, 1972, The Psychology of Light
3. RP-2-20: Recommended Practice for Lighting Retail Spaces
4. IES RP-1-20: Recommended Practice for Office Lighting
5. IES RP-10-20: Recommended Practice for Office Lighting
6. ASHRAE/IES Standard 90.1, LEED v4.1
7. WELL Building Standard
8. IES TM-30-18