



TESTIMONIAL OF MyCREST Green Building

Vol. 2018



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Energy

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PROJECT INFO

CONTRACT DESIGN & BUILD

PROJECT IMPLEMENTOR
JABATAN KERJA RAYA

CLIENT
KEMENTERIAN KERJA RAYA

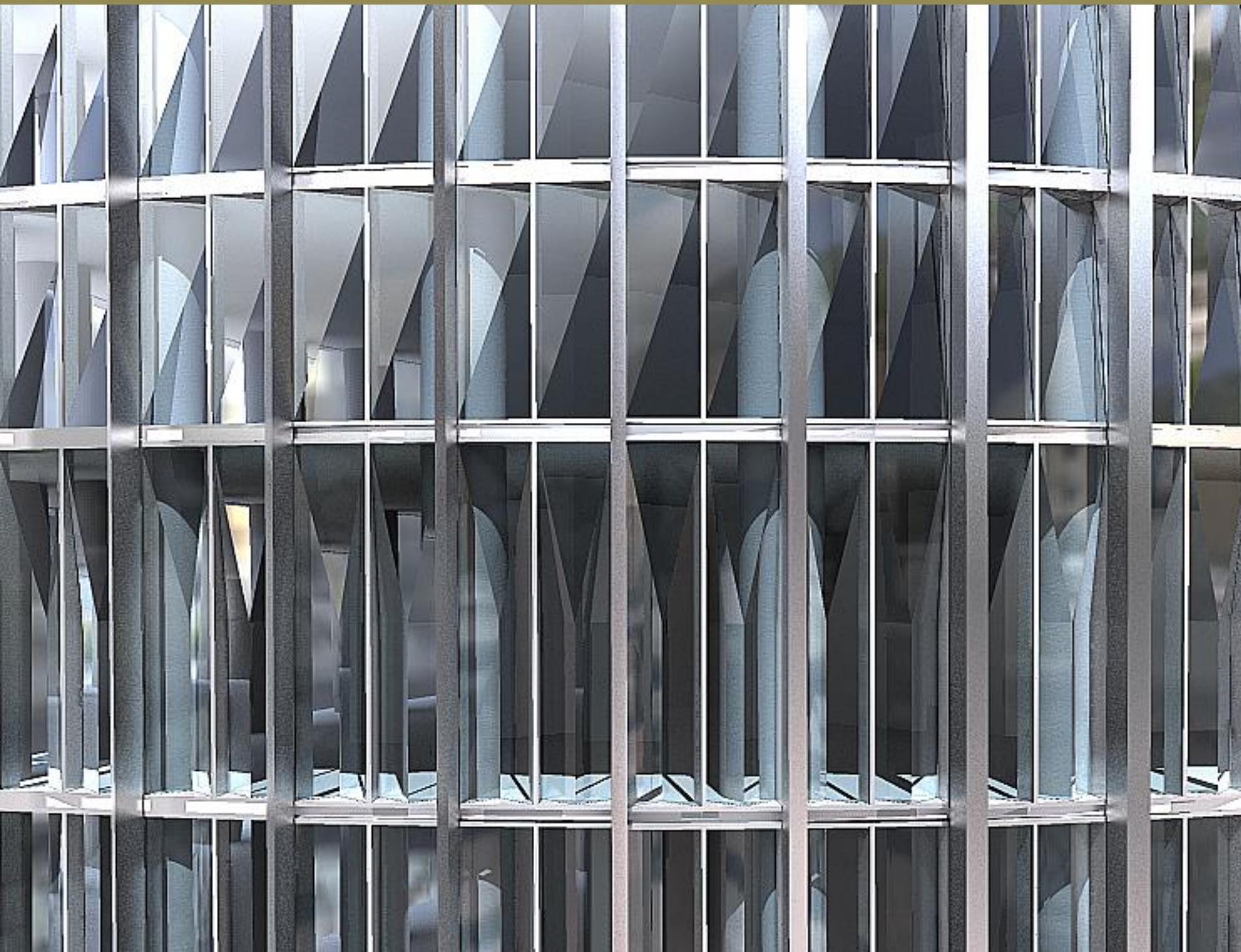
CONTRACTOR
AHMAD ZAKI SDN BHD

CONTRACT VALUE
RM 328,706,616.54

START DATE
1ST DEC 2009

COMPLETION DATE
15 APRIL 2015

PROJECT INFORMATION



CONSULTANTS TEAM

ARCHITECT

GDP

ENGINEER

ARUP

QS

NORTHCROFT

ICT

ZETTA

LANDSCAPE

MDC

BEI

IEN

FACADE

FENESTRA

ID

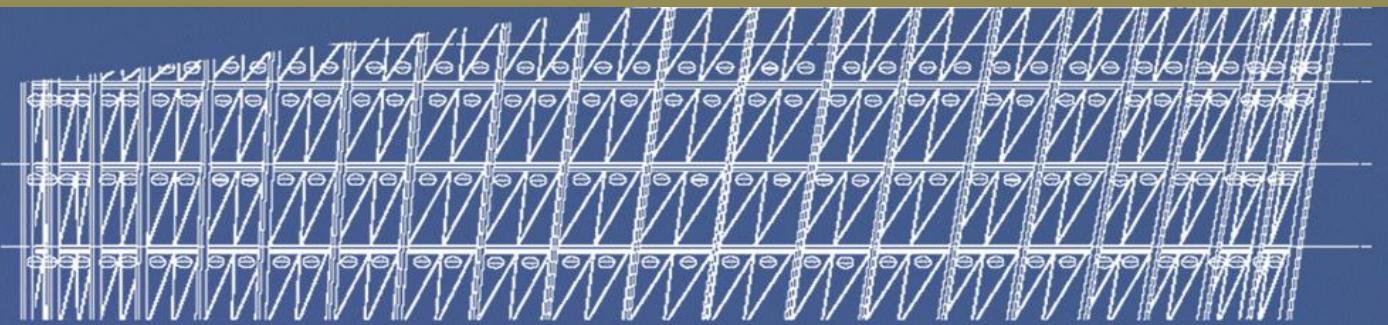
SKALA

DESIGN CONCEPT

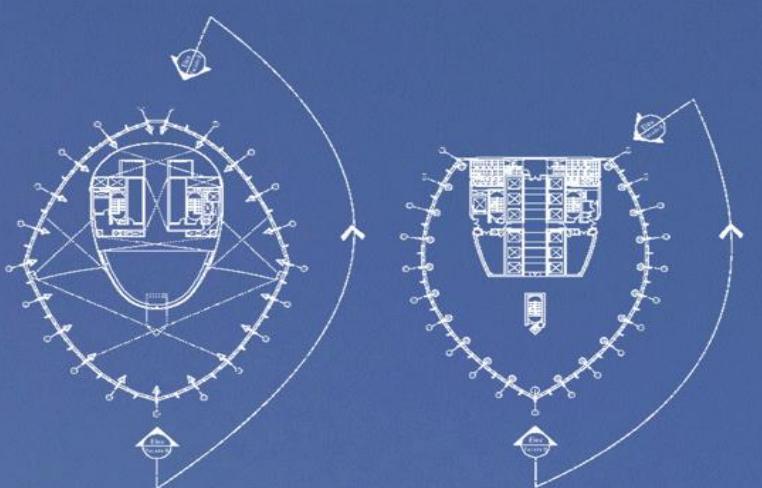
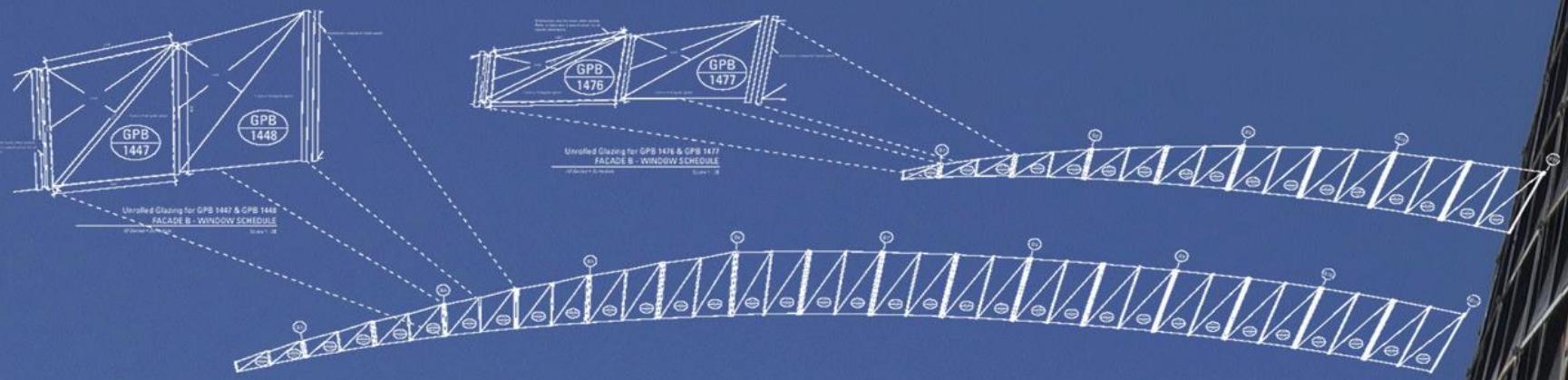
UNIQUE
TRIANGULATED GLASS WITH
DIFFERENT RELECTIVE
QUALITY TO CREATE A
DIAMOND/ JEWEL EFFECT



PROJECT INFORMATION



Part elevation of Facade B







PLAN OVERLAY

BUILDING FEATURES

VARYING FLOOR PLATES

20 SLANTING COLUMNS

UNIQUE TRIANGULATED GLASS FAÇADE





BUILDING FACTS

JKR HEADQUATERS

**SLANTING CONCRETE COLUMN STRUCTURE
WITH PRECAST SLABS ON BEAMS**

STEEL ROOF TRUSS

51,516 SQM GFA

175M HIGH

37 STOREY INCLUDING PLAZA AND MEZZANINE

2 BASEMENT FLOORS AND 7 STOREY PODIUM PARKING

4 LEVELS OF ROOF TERRACED LANDSCAPE

2 BLOCK OF CAFETERIA ON PODIUM ROOF

The background image shows an aerial view of a city skyline during sunset or sunrise. In the foreground, there are several modern buildings, including a prominent blue skyscraper and a white building with a distinctive curved facade. The city extends into the distance, with more buildings and green spaces visible under a sky with warm, orange and yellow hues.

MyCREST CONCEPT

- | Infrastructure and Sequestration
- | Energy Performance
- | Occupant and Health
- | Embodied Carbon
- | Water Efficiency
- | Social and Cultural
- | Innovation

Infrastructure and Sequestration

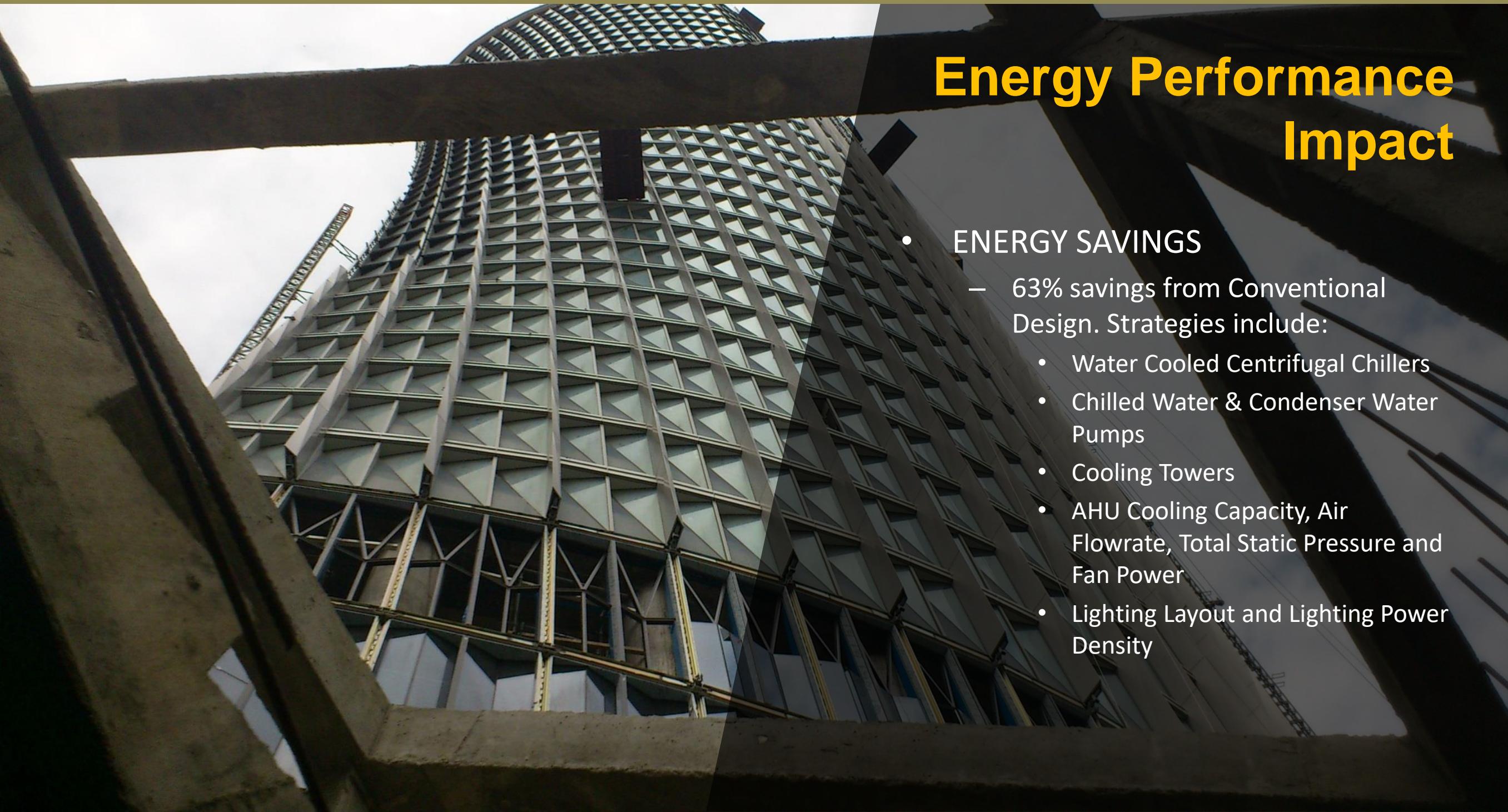
- NEW PLANTING OF TREES
 - 30% of Site Area
- STORMWATER MANAGEMENT
 - Grasscrete at Parking Lots
 - Harvesting Stormwater for Irrigation
- LOW CARBON TRANSPORT
 - Covered Pedestrian Walkway to Bus stop
 - 6% dedicated Low Emission Vehicle Parking Lots
 - Near LRT and Commuter Station

Energy Performance Impact

- OVERALL THERMAL TRANSFER VALUE
 - Reduction of 7.5 W/m²
- LIGHTING
 - Lighting Zoning
 - Motion Sensors
 - Natural Lighting Admission
 - High Efficiency Light
- RENEWABLE ENERGY
 - 2.25 % yield of Energy from Total Energy Usage from Solar Panel

Energy Performance Impact

- ENERGY SAVINGS
 - 63% savings from Conventional Design. Strategies include:
 - Water Cooled Centrifugal Chillers
 - Chilled Water & Condenser Water Pumps
 - Cooling Towers
 - AHU Cooling Capacity, Air Flowrate, Total Static Pressure and Fan Power
 - Lighting Layout and Lighting Power Density



Occupant & Health

- INDOOR SMOKING RESTRICTION
 - No Smoking Regulation
- INDOOR AIR QUALITY
 - Low Volatile Organic Compound usage for Paints, Coatings, Sealants, and Adhesives
- CARBON DIOXIDE LEVEL CONTROL
 - CO₂ sensors monitoring through Building Automation System



Lowering Embodied Carbon

- MATERIALS AND PRODUCT
 - High Recycle Content materials used in Project
 - Steel Reinforcement & Wire Mesh, Steel Members, Plasterboard, External Glazing, Aluminum Composite Panel
- SOLID WASTE MANAGEMENT
 - Proper management of Waste during construction included.
- SALVAGED AND REUSED MATERIAL
 - CO2 sensors monitoring through Building Automation System





Lowering Embodied Carbon

Industrialised Building System (IBS)

- Reusable formwork
- Lightweight concrete block
- Prefabricated steel trusses
- Precast half slab

IBS Score 68.54%

Water Efficiency Factors

- REDUCTION OF POTABLE WATER
 - 84.1% reduction from conventional design.
- WATER FOR LANDSCAPE
 - NO portable water usage. Strategies to use Rainwater and Greywater
- SUBMETERING
 - Installation of Sub-Meters to monitor usage and leakages.
- RECYCLED GREY WATER
 - Wastewater collected from Toilets (wash Basins, Floor Traps and Ablution) and treated to be use for landscape.





Social and Culture

- SOCIAL RESPONSIBILITY
 - Disabled-Friendly Amenities for Toilets and Ramps
- ACCESS OF VIEWS
 - Full height glass partition to ensure maximum views for all occupants

Innovations

- Heat Recovery Wheel
- Water Recycling for All Fire Testing Water
- Refrigerant Leak Detection & Recovery Facility
- Electronic Air Filter
- Non-Chemical Water Treatment System
- Auto Condenser Tube Cleaning System
- AHU Condensate Recovery



MyCREST

Carbon Reduction

Carbon Sequestration
Energy
Water
Material

Total Carbon Reduction

Menara KKR2 reduce CO2 of 34%



Conventional Design
38,359.8603 tCO₂e

34% Reduction



MyCREST Design
25,313.2612 tCO₂e

IS2.2: Carbon Sequestration - Preservation / Restoration / New Planting

Building and Site Area	
Total site area within the project boundary (m ²)	11,578 m ²
New Planting Landscape Area	
Total green roof area (m ²)	1,106.0 m ²
Total green wall area (m ²)	m ²
Total grass paved carpark (m ²)	900.0 m ²
Total other landscape area (m ²)	3,531.0 m ²
Total new planting landscape area, within project boundary (m ²)	5,537.0 m ²
New planting landscape area expressed as a percent of total site area including building footprint:	47.8 %

Carbon Sequestration - Preservation / Restoration / New Planting

For Grass, Turf and Groundcovers	
Total Grass Area	3,501 m ²
Total Dry Weight (TDW)	1,960.56 kg
Total Carbon Weight (TCW)	837.16 kg
Carbon Sequestration, tCO2e	3.0693 tCO2e

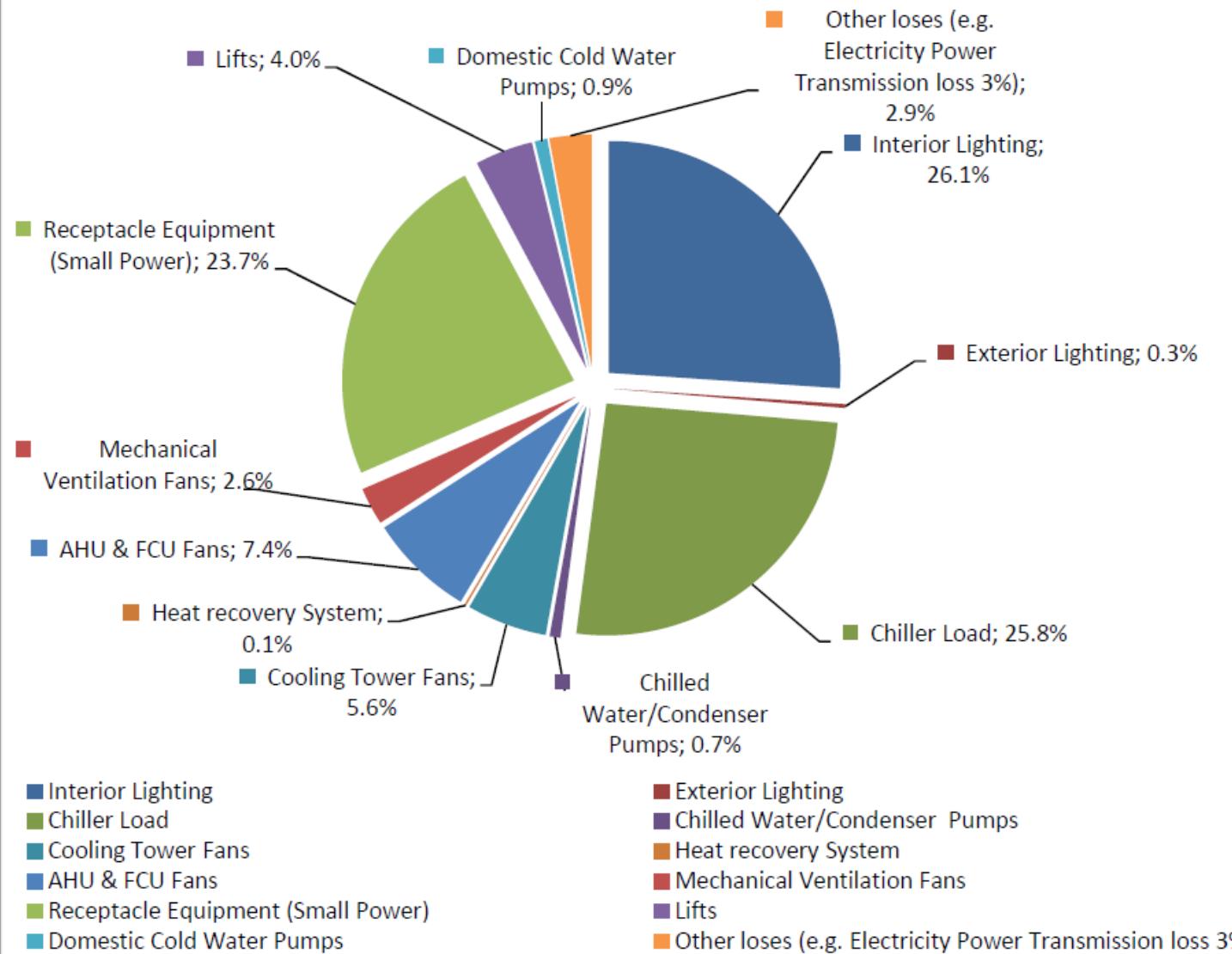
For Water Bodies	
Total Water Bodies Area	0 m ²
*Carbon Sequestration, tCO2e	0.0000 tCO2e

Trees with diameter LESS than 28 cm			
Diameter ¹ (cm)	Height (m)	Age (years)	Number of Trees
3.5	4	0.55118	9
3.5	3	0.55118	88
2.5	1.5	0.3937	48
2.5	2	0.3937	13
	0		
	0		
	0		
	0		
	0		
Total Dry Weight (TDW)		412.56 kg	
Total Carbon Weight (TCW)		206.28 kg	
Carbon Sequestration, tCO2e		0.7563 tCO2e	

Carbon Sequestration

- Menara KKR2 able to sequestrate 0.7563 tCO2e

Predicted Energy Breakdown percentage-wise



Energy - Consumption

CONVENTIONAL DESIGN

Total Energy = 12,805,750 kWh/year

Total CO2 = 9,565.8953 tCO2/year

MyCREST DESIGN

Total Energy= 4,663,533 kWh/year

Total CO2 = 3,483.6592 tCO2/year

REDUCTION OF 63.6% CO2 or
6.082.2361 tCO2

Energy - Offset

TECHNOLOGY USED – Solar Panel

Total Annual Energy Offset =
104,991.60 kWh/year

Total Percentage of Renewable Energy
used = 2.3%

Total CO2 Offset = 78.428 tCO2

Water

Daily Occupancy		
Building Occupancy		1,600 people
Annual Work Days		254 days

Baseline Case

Flush Fixture Data				
Flush Fixture	Fixture Type	Total Daily Uses	Flowrate (LPF)	Water Consumption (l)
Water-Closet	Conventional	3,200	6.0	19,200.00
Urinal	Conventional	1,600	2.5	4,000.00
Total Calculated Flush Fixture Water Use Volume (l)				23,200.00

Flow Fixture Data					
Flush Fixture	Fixture Type	Total Daily Uses	Flowrate (LPF)	Duration (second)	Water Consumption (l)
Lavatory	Conventional	4,800	8.0	15	9,600.00
Kitchen Sink	Conventional	1,600	8.3	15	3,332.00
Bidet	Conventional	1,600	8.0	15	3,200.00
Ablution Tab	Conventional	640	8.0	300	25,600.00
Shower	Conventional	240	10.0	300	12,000.00
Total Calculated Flow Fixture Water Use Volume (l)					53,732.00

Proposed Case

Flush Fixture Data				
Flush Fixture	Fixture Type	Total Daily Uses	Flowrate (LPF)	Water Consumption (l)
Water-Closet	Ultra Low-Flow	3,200	3.5	11,200.00
Urinal	Ultra Low-Flow	1,600	0.53	848.00
Total Calculated Flush Fixture Water Use Volume (l)				12,048.00

Flow Fixture Data					
Flush Fixture	Fixture Type	Total Daily Uses	Flowrate (LPF)	Duration (second)	Annual Water Consumption (l)
Lavatory	Low-flow	4,800	0.0	15	30.00
Kitchen Sink	Low-flow	1,600	0.0	15	12.80
Bidet	Low-flow	1,600	0.1	20	43.73
Ablution Tab	Low-flow	640	0.1	30	21.44
Shower	Low-flow	240	0.1	300	74.40
Total Calculated Flow Fixture Water Use Volume (l)					182.37

Total Calculated Flow Fixture Water Use Annual Volume, Baseline Case (l)	19,540,728.00
Total Calculated Flow Fixture Water Use Annual Volume, Proposed Case (l)	3,106,514.83
Percent Reduction of Water Use (%)	84.10%

WE1: Water Conservation Strategies

	Carbon Emission (tCO2e)
Total Calculated Annual Carbon Emission for Water Use, Baseline Case (l)	8,187.565
Total Calculated Annual Carbon Emission for Water Use , Proposed Case (l)	1,301.630
Carbon Emission Reduction compare to baseline (%)	84.1%

CONVENTIONAL DESIGN

Total Water Usage = 19,540,728 l/year

Total CO2 = 8,187.565 tCO2/year

MyCREST DESIGN

Total Water Usage= 3,106,514.83 l/year

Total CO2 = 1,301.630 tCO2/year

REDUCTION OF 84.1% CO2



Embodied Carbon

TOTAL GFA = 51,516 m²

CONVENTIONAL DESIGN

Total CO₂ = 20,606.40 tCO₂

MyCREST DESIGN

Total CO₂ = [NO DATA PROVIDED]

REDUCTION OF XX CO₂

