INDUSTRIALISED BUILDING SYSTEMS

IMPLEMENTATION OF IBS PROJECT

CONTENTS

COMPANY BACKGROUND

PEMBINAAN PUNCA CERGAS SDN BHD (PPC)

Corporate Information

- Started in 1990
- Class A bumiputra company registered with Pusat Khidmat Kontraktor
- Registered with CIDB (G7).
- Certified With ISO 9001:2008
- Completed projects of over **RM 2.2 billion**.

Scope of Services provided by PPC

- Main Contractor
- Property Developer
- Turnkey Contractor for Design & Build Projects (Design IBS Component and Costing for the Project)
- Production of Precast Component for own use

COMPANY BACKGROUND.. (continue)

Notable Projects

PROJECTS	COST (Million)	YEAR
North South Expressway (Sungkai-Slim River)	140	1991-1993
North South Expressway (Sungkai-Tg. Malim)	191	1991-1993
Construction of 23 Precast schools in Perak, Selangor and Negeri Sembilan	175	1998-2000
Bridge BR6 Putrajaya	55.43	1999-2002
512 Numbers of Single Storey Light Industrial Units	223	2004-2006
LKSA Highway	278	2007-2009
Bandar Sri Permaisuri Township Development	1000	2000-2016
Aman Putri Township Sg. Buloh Development	800	2011-
PR1MA Manjung (Affordable Home)	153	2016-

PPC INVOLVEMENT IN IBS PROJECTS UNDER JKR

History – Projects With JKR

Since 1998 PPC successfully completed a few precast projects under JKR

	PRECAST PROJECTS UNDER JKR	COST (Million)	CONTRACT DURATION	COMPLETION DURATION
1	Construction of 23 Precast schools in Perak, Selangor and Negeri Sembilan	175	1998-2000 (24 Months)	24 Months
2	Construction of Precast school SJK (C) Damansara Tropicana, Selangor (Design & Build)	10.4	Feb 2001-July 2001 (9 Months)	5 ½ Months
3	Construction of Precast School SMK Jelai, Bahau	23.8	2002-2003 (12 Months)	12 Months
4	Construction of Precast School SK Sentul, KL (Design & Build)	13.6	2003-2004 (10 Months)	9 Months
5	Construction of Precast Army Officer Mess Building Wisma Perwira Sg. Besi (Design & Build)	22.8	2008-2010 (24 Months)	24 Months
6	Construction of Precast Multi-storey Parking 'Park & Ride' Salak Tinggi Sepang (Design & Build)	25.9	19 May 2014 – 12 Sept 2016 (28 Months)	14 Months

ADUHAI…
Why IBS???

SAD PICTURE

TENDER KERAJAAN

CADANGAN PEMBINAAN SEKOLAH

10 TINGKAT SECARA

IBS

HAPPY PICTURE

JKR

TENDER KERAJAAN

CADANGAN PEMBINAAN SEKOLAH

10 TINGKAT SECARA

IBS

PPC's VIEW ON SUCCESSFUL IMPLEMENTATION OF IBS PROJECT

Advantages By Ranking

HIGH

LOW

Rankings	Advantages
1	Higher Project Success Rate
2	Cost Saving – In Totality
3	Systematic Planning – Early Anticipation Of Problems – Simplified Construction Process
4	Higher Quality Of Finishes
5	Faster Completion – Risk Reduction
6	Reduction of on Site Workers (30%)
7	Contribution to Green Environment – Wastage Reduction
8	Better Coordination Among Sub-trades

PPC's VIEW ON SUCCESSFUL IMPLEMENTATION OF IBS PROJECT

IBS

2D

JIGSAW PUZZLE

3D

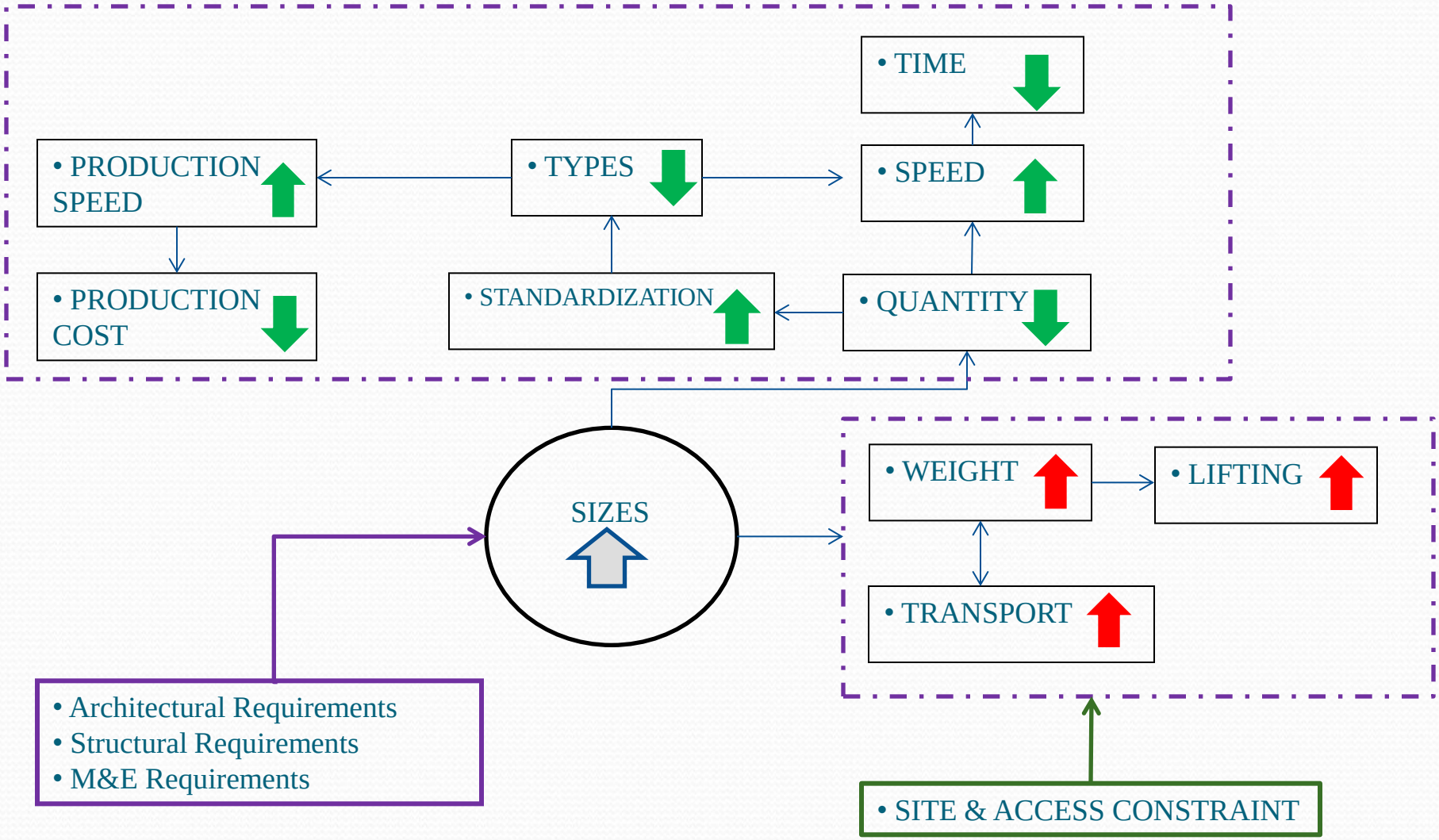
LEGO BLOCK

PPC's VIEW ON SUCCESSFUL IMPLEMENTATION OF IBS PROJECT

Key Factors

1	Design Cum Pre-Construction Planning	• *Basic Consideration*
2	Efficient Production & Delivery	• *Proper Scheduling* • *On time delivery* • *Holding area Management* • *Machinery Arrangement* • *Support/Propping*
3	Cycle Implementation	• *Maintaining cycle* • *Avoid multiple time lifting*
4	Quality Control	• *Method of staking to prevent damages* • *Alignment* • *Level* • *Verticality*
5	Ensured Safety	• *Temporary Support check* • *Lifting check*

PPC's VIEW ON SUCCESSFUL IMPLEMENTATION OF IBS PROJECT



PPC's VIEW ON SUCCESSFUL IMPLEMENTATION OF IBS PROJECT

SIZES Comparison

S1	S1	S1	S1
S1	S1	S1	S1
S1	S1	S1	S1
S1	S1	S1	S1

16 Pieces

S1.1	S1.1	S1.1	S1.1	S1.1	S1.1	S1.1	S1.1
S1.1	S1.1	S1.1	S1.1	S1.1	S1.1	S1.1	S1.1
S1.1	S1.1	S1.1	S1.1	S1.1	S1.1	S1.1	S1.1
S1.1	S1.1	S1.1	S1.1	S1.1	S1.1	S1.1	S1.1
S1.1	S1.1	S1.1	S1.1	S1.1	S1.1	S1.1	S1.1
S1.1	S1.1	S1.1	S1.1	S1.1	S1.1	S1.1	S1.1
S1.1	S1.1	S1.1	S1.1	S1.1	S1.1	S1.1	S1.1
S1.1	S1.1	S1.1	S1.1	S1.1	S1.1	S1.1	S1.1

64 Pieces

PPC's VIEW ON SUCCESSFUL IMPLEMENTATION OF IBS PROJECT

STANDARDIZATION Comparison

S1	S1	S1	S1
S1	S2	S2	S2
S1	S2	S3	S3
S1	S2	S3	S3

Type S1 – 7 pcs
Type S2 – 5 pcs
Type S3 – 3 pcs

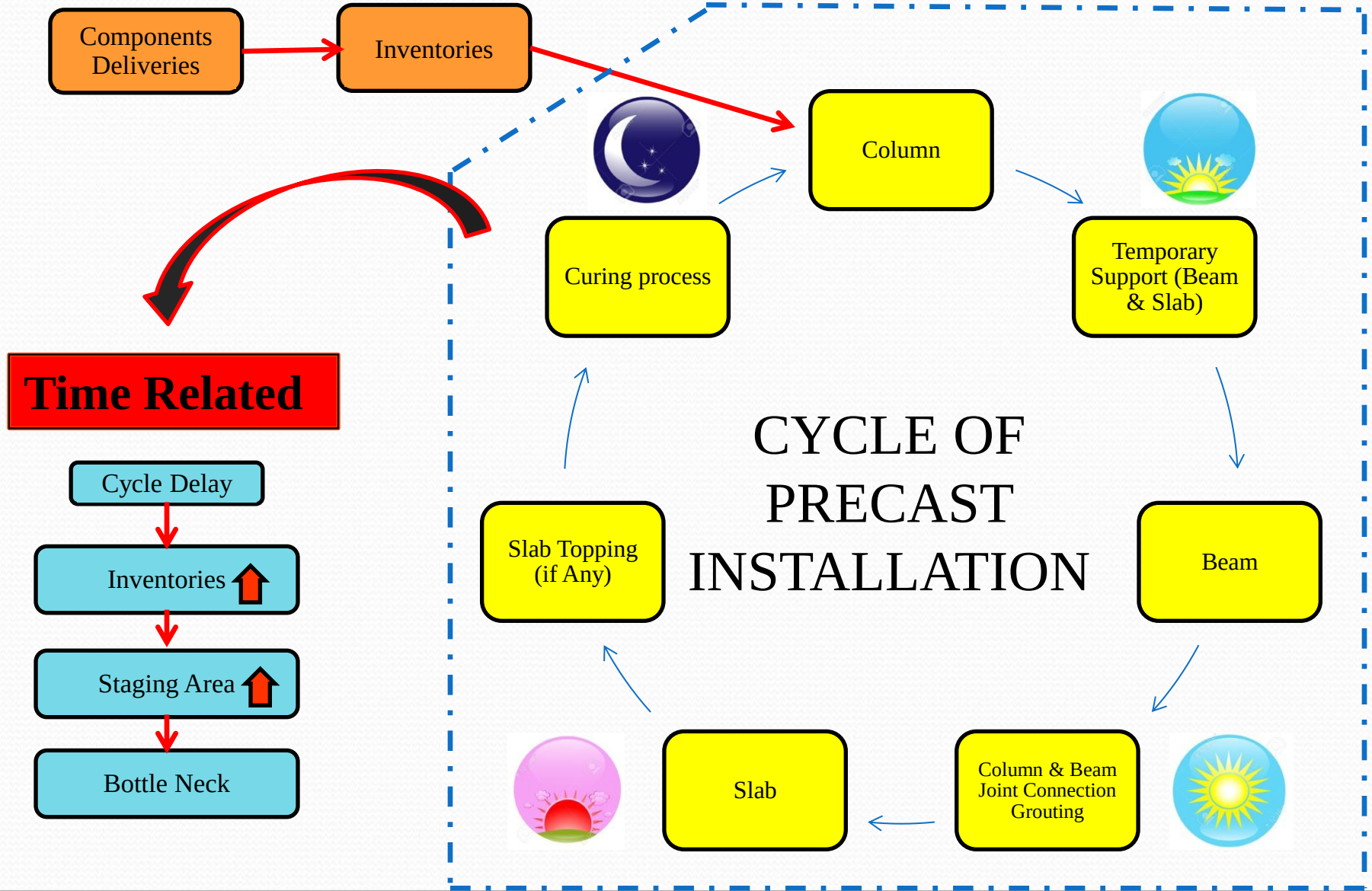
Total – 16 pcs

S1	S1	S1	S6
S1	S2	S2	S4
S1	S2	S3	S3
S6	S4	S3	S5

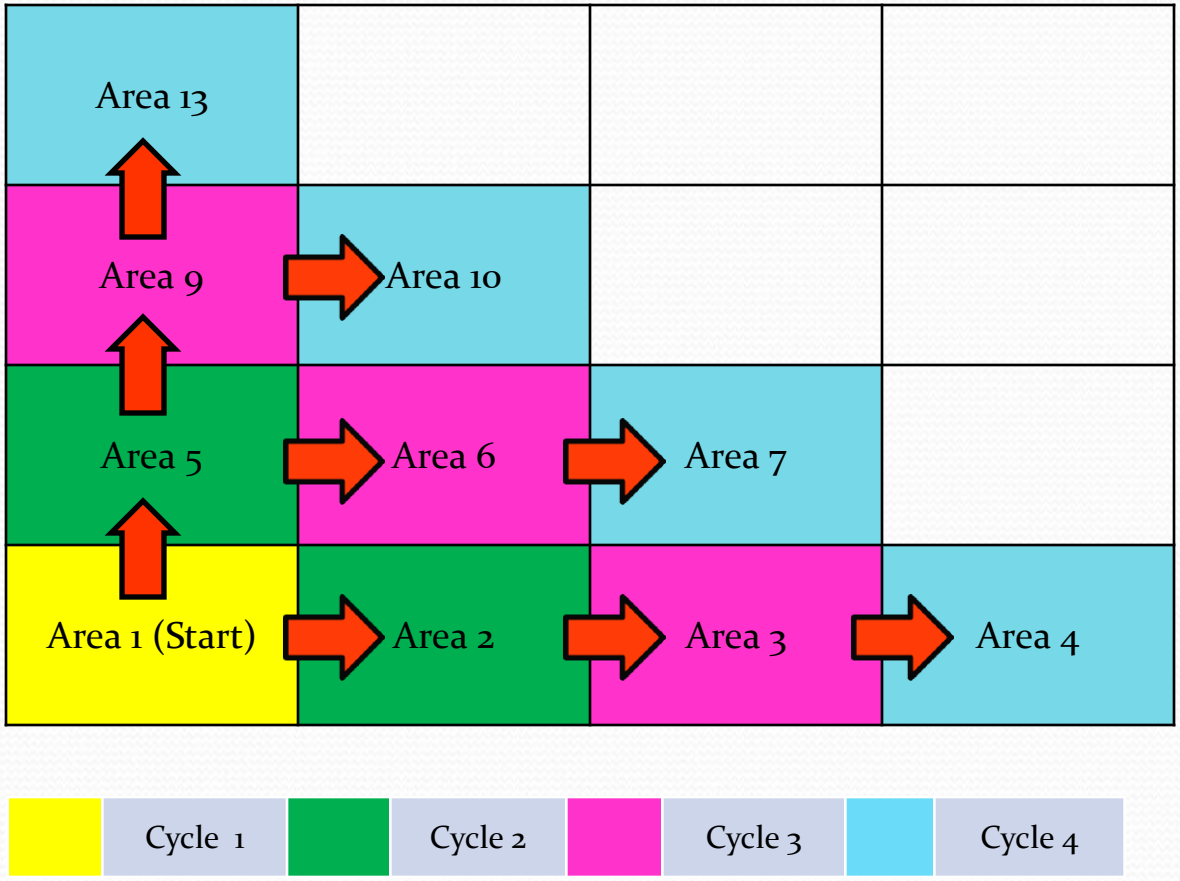
Type S1 – 5 pcs
Type S2 – 3 pcs
Type S3 – 3 pcs
Type S4 – 2 pcs
Type S5 – 1 pcs
Type S6 – 2 pcs

Total – 16 pcs

PPC's VIEW ON SUCCESSFUL IMPLEMENTATION OF IBS PROJECT



PPC's VIEW ON SUCCESSFUL IMPLEMENTATION OF IBS PROJECT



Single Cycle can develop into Multiple Cycle to enhance speed but subject to :

- Adequate Inventories
- Manpower
- Lifting Capacity
- Temporary Support

DESIGN AND BUILD CONCEPT
SK SENTUL 1

Project Briefing

- Construction of four (4) blocks of four storey attached buildings, which comprise of administrative, classroom and lab inclusive of Demolition Work of the existing building. The project was awarded on tender process.

SITE POSSESSION : 1 JANUARY 2003

COMPLETION DATE : 3 OCTOBER 2003

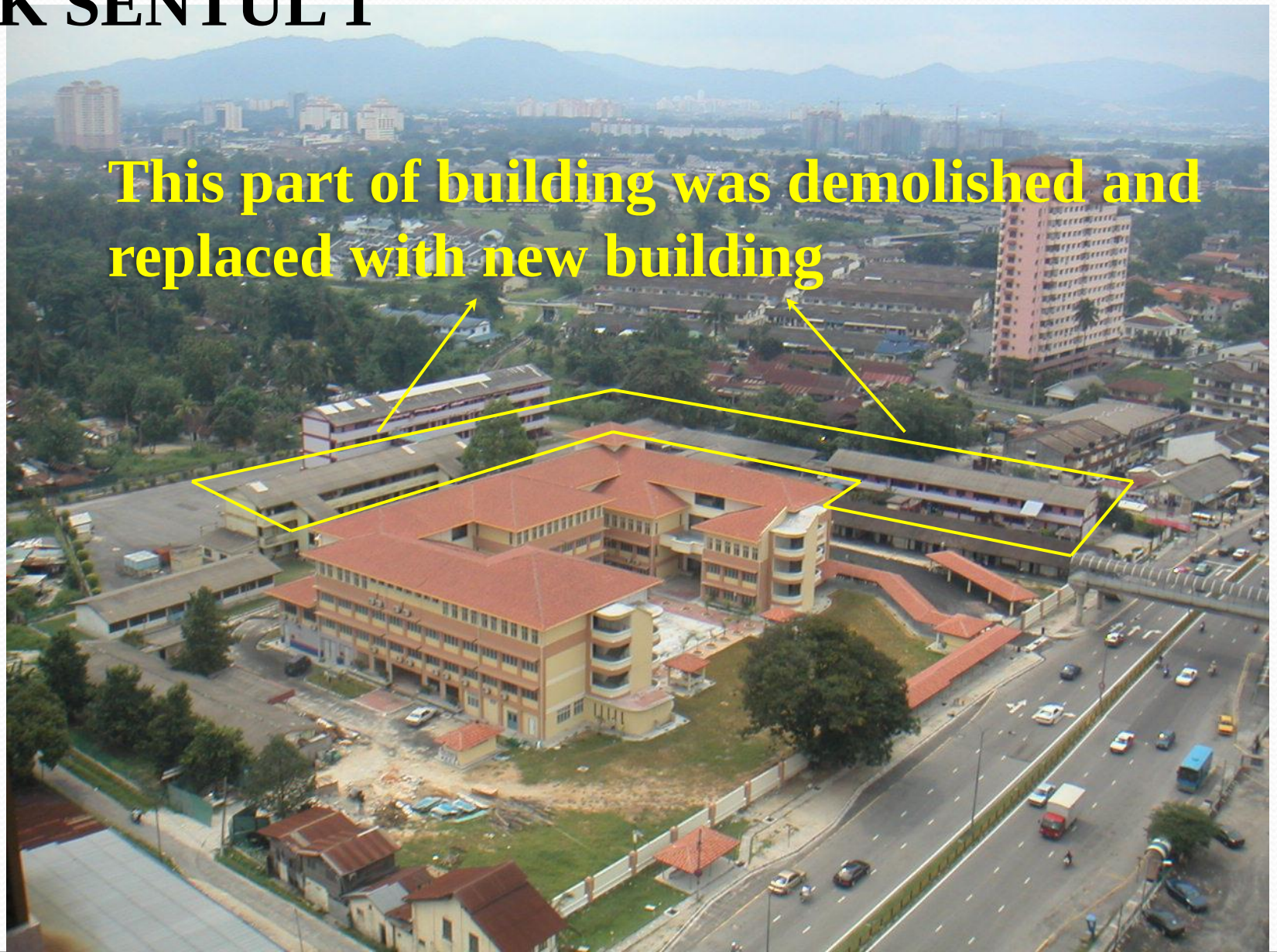
CONTRACT PERIOD : 10 months (We finished in **9 Months**)

CONTRACT SUM : RM 13,692,000.00

DESIGN AND BUILD CONCEPT
SK SENTUL 1

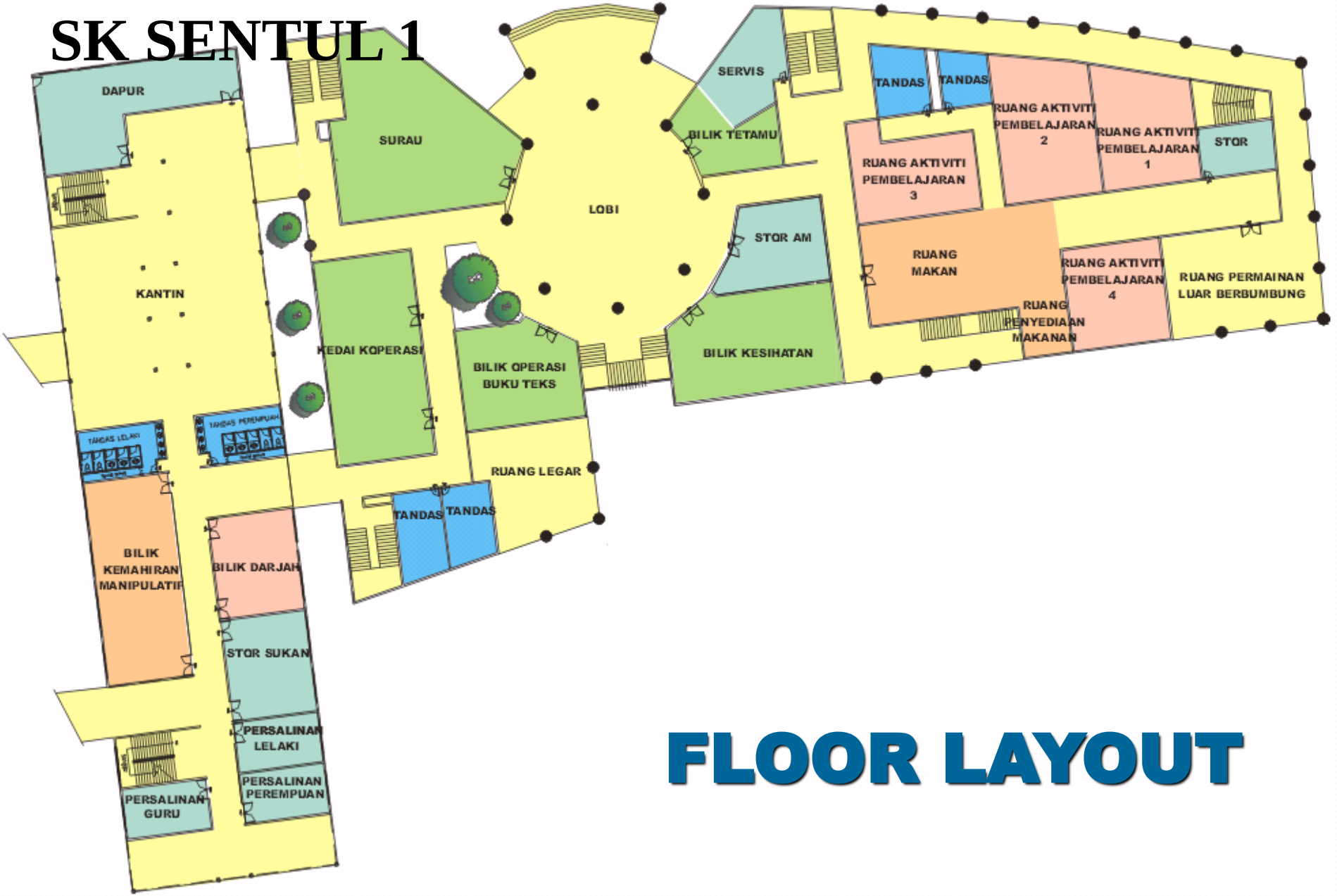
- Project Challenges
  - Not a conventional school design.
  - Layout is irregular (14000m2) with a dome-shape roof.
  - Short construction period of **9 months**.
  - Space constraint at site.
  - Intense planning and coordination required

DESIGN AND BUILD CONCEPT
SK SENTUL 1



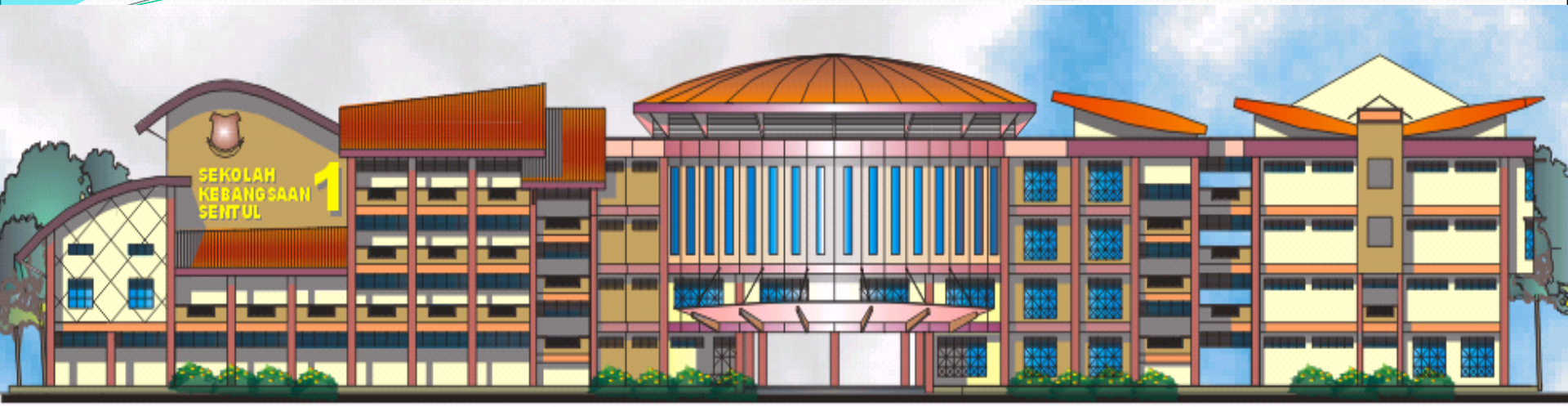
DESIGN AND BUILD CONCEPT

SK SENTUL 1



FLOOR LAYOUT

DESIGN AND BUILD CONCEPT - AN EXAMPLE



FRONT ELEVATION

BACK ELEVATION

DESIGN AND BUILD CONCEPT
SK SENTUL 1

STRUCTURAL ELEMENTS

- COLUMN : PRECAST
- BEAM : PRECAST
- STAIRCASE : PRECAST
- SLAB : Precast With Topping
- WALL : Combination of Shearwall and Block Walls
- Roof Trusses : Prefab Steel Roof

COMPLETED SENTUL SCHOOL PHOTOS

LATEST COMPLETED PRECAST PROJECT

- PARK & RIDE SALAK TINGGI SEPANG
  - CONTRACT VALUE : RM 26,800,000.00
    - CONTRACT PERIOD : 19 MAY 2014 – 12 SEPT 2016

- 6 STOREY CARPARK WITH TOTAL GFA OF 38225 m²
  - Total Parking Bays

OKU : 11 unit Ladies : 206 units Normal : 831 units

LATEST COMPLETED PRECAST PROJECT

- Project Challenges
  - Space constraint at site.
  - Near railway line and operating existing ERL Station.
  - Implementation using 2 tier column.
  - Non-Corbel system hence lot of usage of temporary support.

LATEST COMPLETED PRECAST PROJECT

LATEST COMPLETED PRECAST PROJECT

The overall design concept is modern and simple within the site constraint. Materials and finishes proposed for external wall of the building are easily maintained and durable.

The main entrance with covered foyer is located at the centre of the front façade. The overhanging roof signals the main entrance and it is distinctive in terms of design to give clear direction to the visitor. Simple design of covered pedestrian walkway is situated along the front façade as well as covered bus stop for bus lay-by.

SALAK TINGGI PARK AND RIDE

LATEST COMPLETED PRECAST PROJECT

STRUCTURAL ELEMENT :

- COLUMN : PRECAST
- BEAM : PRECAST
- STAIRCASE : PRECAST
- SLAB : HCS With Topping
- WALL : Combination of 1.2 m height Parapet Wall and Steel Railing
- Roof Trusses : Prefab Steel Roof

LATEST COMPLETED PRECAST PROJECT

- PARK & RIDE SALAK TINGGI SEPANG
  - CONSTRUCTION STAGE
    - INSTALLATION PRECAST MEMBER (Column)




LATEST COMPLETED PRECAST PROJECT

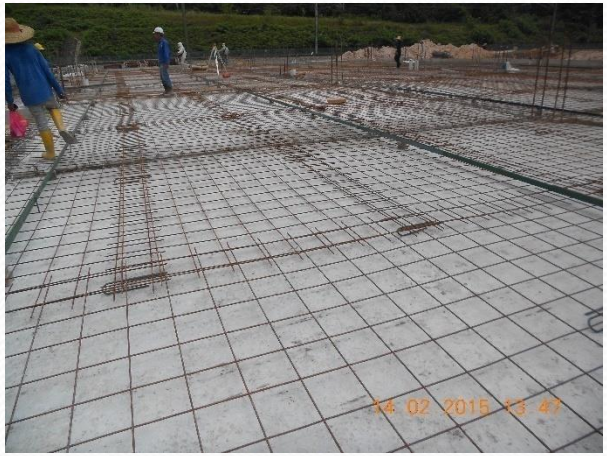
- PARK & RIDE SALAK TINGGI SEPANG
  - CONSTRUCTION STAGE
    - INSTALLATION PRECAST MEMBER (Beam & HCS)

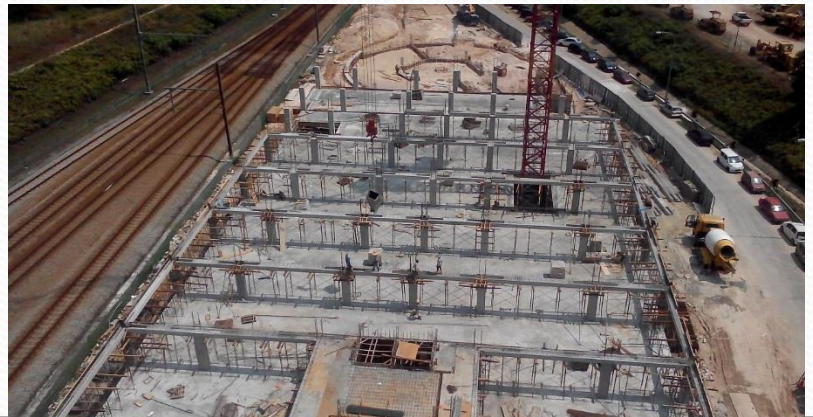





LATEST COMPLETED PRECAST PROJECT

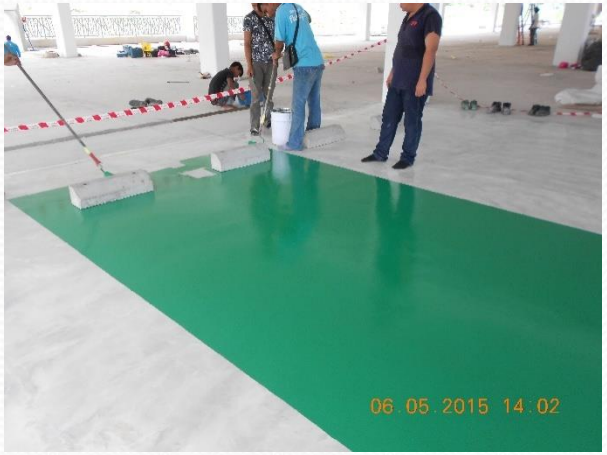
- PARK & RIDE SALAK TINGGI SEPANG
  - CONSTRUCTION STAGE
    - TOPPING HOLLOW CORE





LATEST COMPLETED PRECAST PROJECT

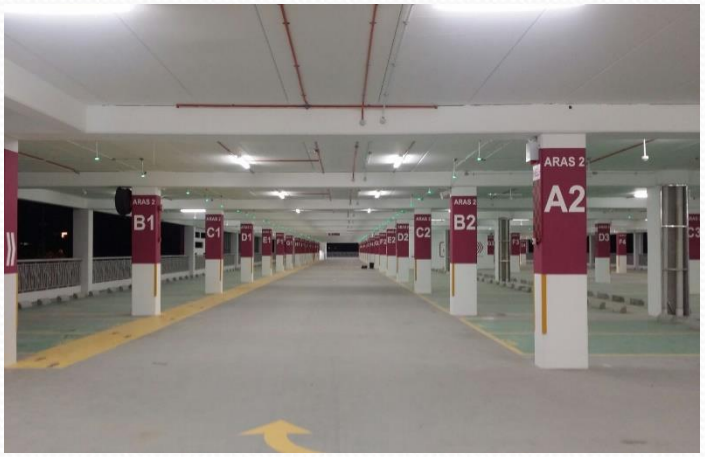
- PARK & RIDE SALAK TINGGI SEPANG
  - CONSTRUCTION STAGE
    - EPOXY FLOORING



LATEST COMPLETED PRECAST PROJECT

NIGHT VIEW

LATEST COMPLETED PRECAST PROJECT



IBS FUTURE IN MALAYSIA

THANK YOU