



Project Description

Project name	Seoul St.Mary Hospital & Student Hall
Location	505 Banpo-dong Seocho-Gu Seoul
Client	Catholic medical center
Building area	12,295.54 M ²
Gross floor area	189,967.46 M ²
Structure	SRC(upper) + RC(lower)
Construction period	Oct.2005~ Mar.2009(41.5months)
Scale of building	B6F~22F / 1,085 Beds
Construction management	Parsons Brinckerhoff Korea
Design/CS	SAMOO Architects
Contractor	Hyundai E&C
Facade & interior Design	RTKL

PARSONS BRINCKERHOFF KOREA

Development Plan



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Construction Project Scale



Seoul St.Mary Hospital

- Gross floor area : 189,967 M²
- Floors : B6F ~ 22F
- Construction period : 41.5months
- Construction amount : KRW 200 billion
- Beds : 1,085



Student Hall

- Gross floor area : 27,417 M²
- Floors : B2F ~ 14F
- Construction period : 22months
- Construction amount : KRW 38 billion

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PB Role in the Design Phase

Analysis of Healthcare
Environments

Forecasting the future

Trend Analysis of
Hospital Building

CM
Strategy

Respond to the Changes
of Healthcare Environments

Based on the past hospital related project experiences in domestically and internationally, reflected Client's intention on this particular project prior to construction stage, strived for the Client's best interest and protect their right

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PB Role in the Design Phase

Architectural Planning

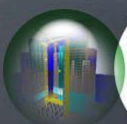


LAY OUT Consulting

- Operating Room
- Radiation Linear Accelerator / Main Supply Room
- Parking Area & System



Introduction of Elevator Consultant



Simulation Program



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PB Role in the Design Phase

M&E



Mechanical Facilities

- Chiller System
- Air-Conditioning System : VAV



Electric Facilities

- Stable Medical UPS
- Efficient Lighting
- Medical Facilities Error Prevention Filter



Technical Experts

- ▣ PB has 125-year history
- ▣ Multi-disciplined staff of over 13,000
- ▣ PB UK / PB HK / PB Korea



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PB Role in the Design Phase

CMC User Interview



1st: 04.Oct.04~06.Oct.04
 2nd 15.Nov.04~17.Nov.04
 3rd: 29.Mar.05~31.Mar.05
 Additional: 15.Apr.05~19.Apr.05
 Nonscheduled User Interview by
 Sector
 Endless User's Requests →
 Proceeding with difficulty

Guideline & Compromise Plan

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PB Role in the Design Phase

Façade Design Consultant

- Color**
 - Necessary to set up a colour schema plan for aesthetic purpose
 - Require colour differentiation and optimizing on information delivery
- Sign**
 - Inappropriate current location for signage and required to be reviewed when façade design in proceed
 - If electronic display considered, built-in type preferred (likely not be permitted by Seoul City Authority when installed for publicity)
- lighting**
 - After established an overall lighting plan, require to refine it in detail by parts
- Façade**
 - Due to the starkness of surrounding condition, approachable and intimate building design expected
 - Harmonious lower and higher part of the building (concern about confusion with the typical image of mixed use building by putting a various material)

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PB Role in the Design Phase Façade Design Consultant

Upper

- Emphasis on the curved surface for smooth and cozy feeling
- Dove figure would be hardly recognized by pedestrians

Lower

- Generally complicated and "closed concept" design, need to be changed into "opened concept" and friendly design
- Review a canopy at the entrance by taking the consideration of building design
- Adjust environment at Sanyeong road to be continued along Banpo road

Material

- Lack of coherence due to a various material usage (need to review exterior materials)
- Study on how to distinct the lower and higher part of building by separating application of materials running horizontally and vertically
- Friendly design and green materials (wood) need to be reviewed. (garden area for patients)

PB PARTNERS
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PB Role in the Design Phase

RTKL

- Reflect floor plan, façade, special character (function)
- Late involvement
 - construction commence with incomplete drawings
 - occurrence of a factor for construction delay
 - Keep Fast Track System (applied initially)

View from the intersection



DESIGN CONCEPT - Façade

- Distinguish the hospital building and lower building by using difference materials
- Clarify façade design
- Unity in architectural language with the help of simple and logical façade design
- Green materials (terracotta & stone) for exterior of lower building which gives a sense of security
- Emphasis on the unity in architectural language

PB PARTNERS
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PB Role in the Design Phase

RTKL

- With standard module application, ensure the efficiency of nursing
- Combination of sickrooms, flexibility in layout, providing west- side Day Room

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BIRCKENHOFF KOREA

PB Role in the Design Phase

RTKL



Bird's-eye view (before)

PB PUSONG
BIRCKENHOFF KOREA

PB Role in the Design Phase

RTKL

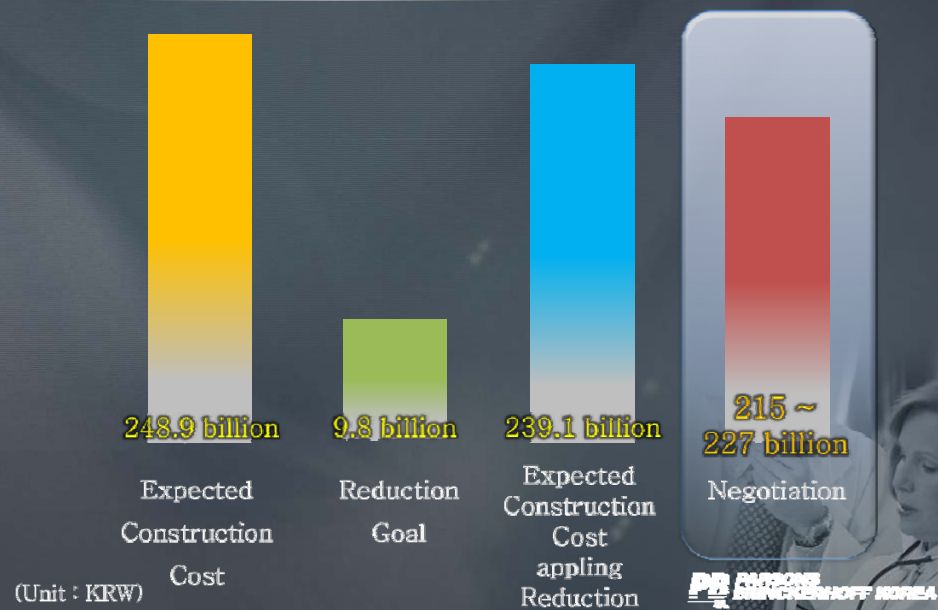


Bird's-eye view (after)

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PB Role in the Design Phase

Cost



PB Role in the Design Phase

Cost

Cost Management



- Budget analysis with the construction amount from similar hospitals (Severance /Samsung Hospital New Building /Konkuk University Hospital/Jeju University Hospital)
- Interlocking Cost management for designer (control the estimation of construction cost)
- Advise the Client on the changes in cost
- Estimate construction cost based on BCWS, Report how the construction schedule and cost affect on design, Review drawings and specifications, time management

Value Engineering



- Construction cost review followed by GFA reduction from module study (-118 Million KRW)
- Delete concrete with no steel bar for underground parking (-10 Million KRW)
- Steel Deck System(-6 Million KRW)
- Saving from separate contract for civil works (-30 Million KRW)
- Change in excavation method for civil works (-14 Million KRW)
- Mechanical system (-14 Million KRW)
- Electrical & Communication system (-5 Million KRW)

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PB Role in the Design Phase

Prepare
Site Office
Before Construction

Fast Track is essential for
management reason

Contribute for construction
schedule saving

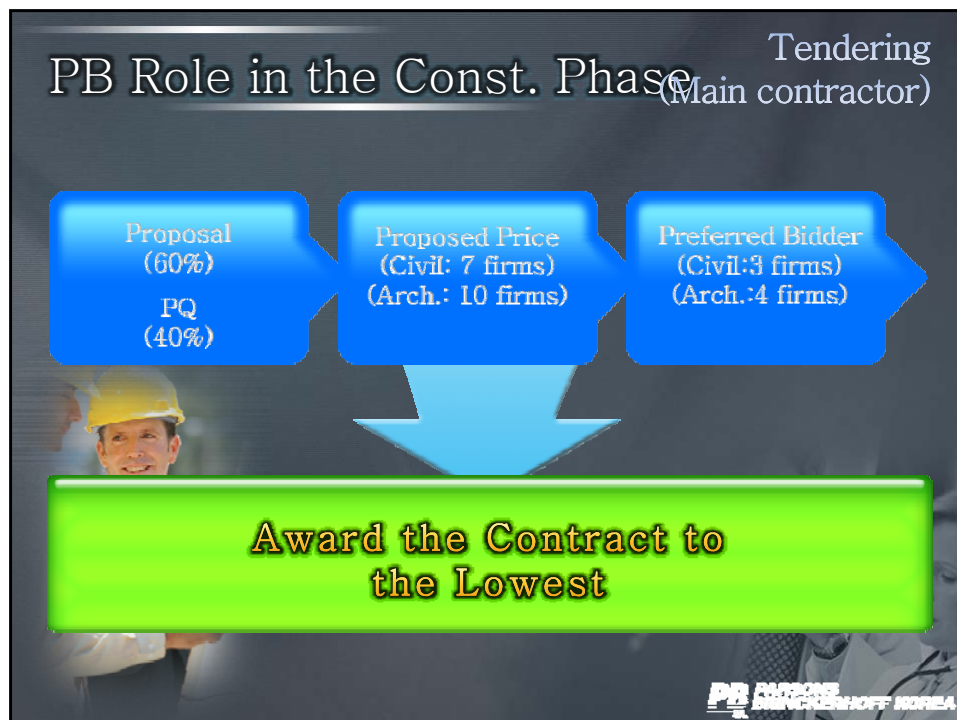
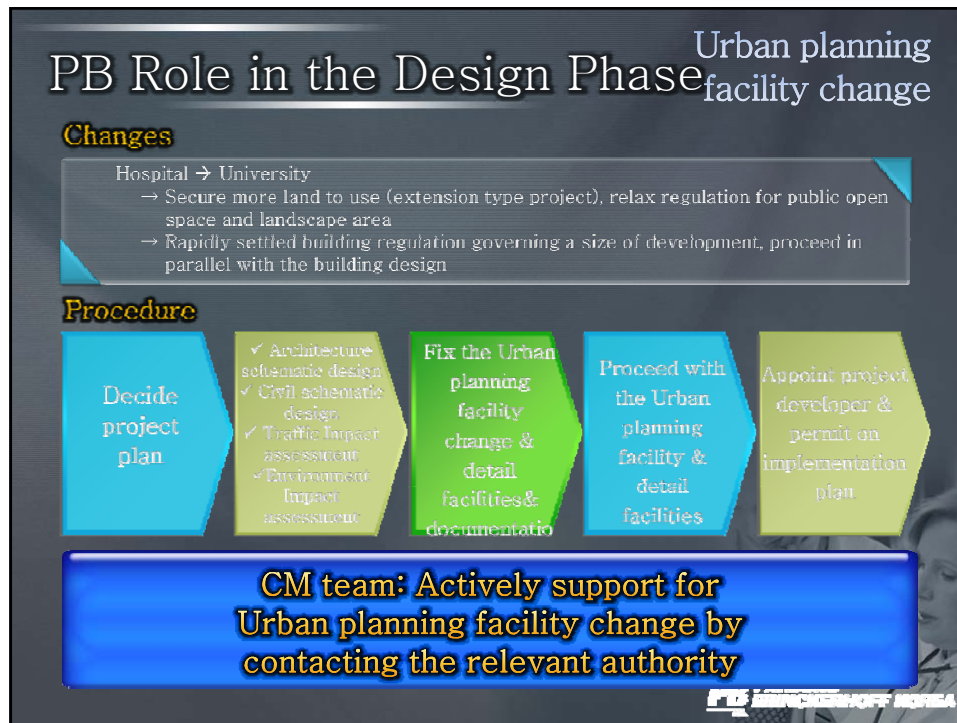
Increasing efficiency in
construction administration

Maximizing space use on
site (operate management)

Secure space for CMC
student cafeteria and
administrative building by
demolishing the Maria Hall



PB PARSOM
MUNCKENHOFF KOREA



PB Role in the Const. Phase

Construction Cost

	Contract	Division	Direct Cost	Pure Construction Cost
Civil	Initial		84.6	94.1
	Amendment #2	Additional construction works, Phase 1	12.5	13.6
	Amendment #3	Additional construction works, Phase 2	2.2	2.5
	Total		99.3	110.2
Arch.	Initial	Initial design	1,424.8	1,521.5
		Additional underground	21.2	22.7
	Amendment #2	Additional interior work	61.8	66.1
		Including additional 2 stories	159.1	195.7
	Amendment #3	Report status, phase 2	110.4	118.2
	Amendment #4	Report status, phase 3	40.4	43.2
	Total		1,817.7	1,970.4
	Separate Contract	Improvement	15.0	16.1
	Total		1,832.7	1,986.5
				Unit: 100 million KRW
Civil + Arch.	Total		1,932.0	2,096.7

Unit: 100 million KRW

PB PROJECT MANAGEMENT KOREA

PB Role in the Const. Phase

Construction Cost

Analysis on the construction cost increase	Addition	Additional 2 stories	91.0
		Connecting pathway	18.2
	Drawing Change	Floor plan change	17.6
		Int. Grade-Up	91.2
	Design Change	Mechanical Grade-Up	11.5
		Electrical Grade-Up	24.8
		Miscellaneous Change	100.8
		Total	355.1

(Unit: Million KRW)

PB PROJECT MANAGEMENT KOREA

PB Role in the Const. Phase

Construction Cost

Design Change Review

Seoul St. Mary Hospital

Compared with CS team : 67.1 Million KRW

Compared with Constructor : 164.9 Million KRW

Student Hall

Compared with CS team : 132.3 Million KRW

Compared with Constructor : 137.7 Million KRW

구분	시공사 제출	관리자 검토	비고
신라호텔	연방의 설계	369.3	369.3 (시공사)
	실시안도	22.9	17.5
합 계		369.2	369.3
			251.5
서울대학교	연방의 설계	109.5	109.5
	연방의 설계	25.4	25.4
	연방의 설계	34.9	18.2
	연방의 설계	104.4	104.4 (시공사)
	연방의 설계	249.8	164.7
합 계		529.0	422.2

(Unit: Million KRW)



PB Role in the Const. Phase

Schedule

Design Change Review

- Check mile stone
- Patrol to check construction process
- Weekly report / check performance
- Remove construction delay factors
- Weekly meeting with client and CS team
- Patrol to inspect quality and process
- Weekly scheduling
- Nonscheduled inspection



PB Role in the Const. Phase

Quality &
Safety

Quality

Special inspection (2 times per week)

MOCK UP & Sample construction

Experts (Curtain wall, steel frame, ELEV. & ESCAL., TAB, etc.)

Safety

Monthly Safety inspection

Weekly safety inspection

Daily fire inspection / worker training

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PB Role in the Const. Phase

Performance
by PB

Reduction of Duration

- Seoul St. Mary Hospital (6months)
- Basement extension(B5F) – within expected duration
- 7th, 8th floors extension – within expected duration
- Connection with existing facilities –within expected duration
- Student hall – within expected duration
- Graduated medical school extension-within expected duration

Save Cost from Reduction of Duration

- Site management expense(contractor)/ 150 million KRW
- Materials cost increase / 2.7 billion KRW
- Exchange rate increase(imported materials) / 3 billion KRW
- Other service cost / 200 million KRW
- Grand open sales / 1.5 billion KRW

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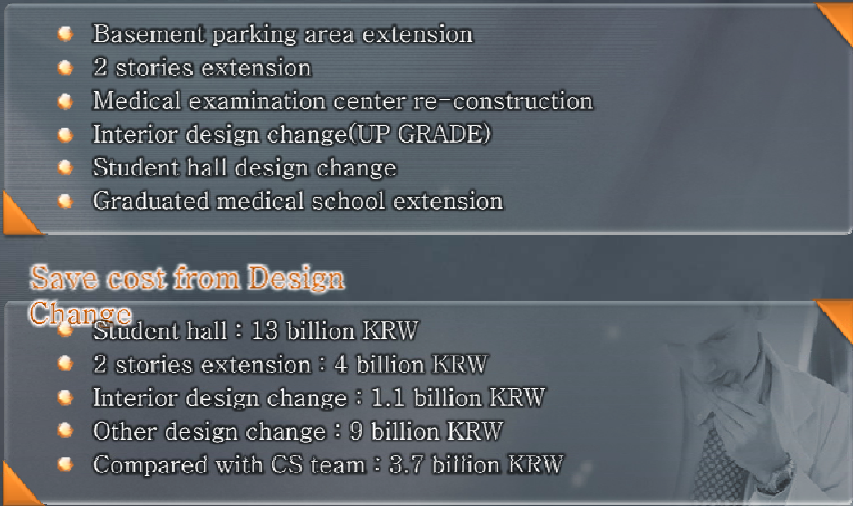
PB Role in the Const. Phase Performance by PB

Strategic Design Change

- Basement parking area extension
- 2 stories extension
- Medical examination center re-construction
- Interior design change(UP GRADE)
- Student hall design change
- Graduated medical school extension

Save cost from Design Change

- Student hall : 13 billion KRW
- 2 stories extension : 4 billion KRW
- Interior design change : 1.1 billion KRW
- Other design change : 9 billion KRW
- Compared with CS team : 3.7 billion KRW



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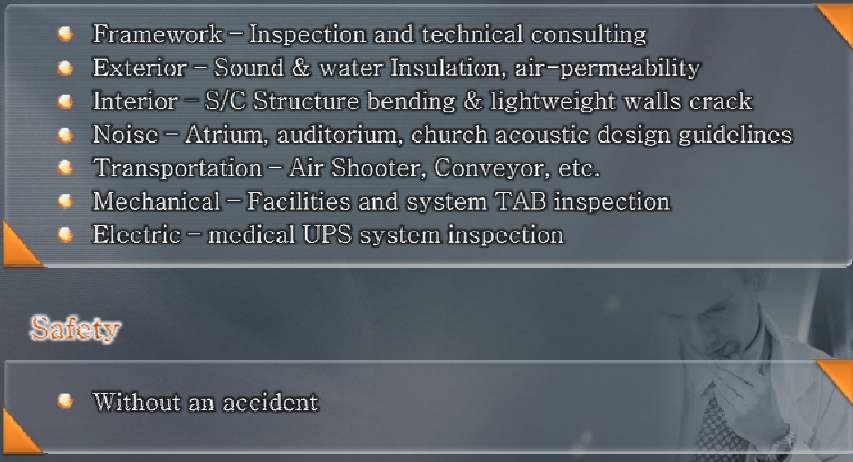
PB Role in the Const. Phase CM실적

Quality Management

- Framework – Inspection and technical consulting
- Exterior – Sound & water Insulation, air-permeability
- Interior – S/C Structure bending & lightweight walls crack
- Noise – Atrium, auditorium, church acoustic design guidelines
- Transportation – Air Shooter, Conveyor, etc.
- Mechanical – Facilities and system TAB inspection
- Electric – medical UPS system inspection

Safety

- Without an accident



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PB Role in the Const. Phase

Oct.2005 ~ Mar.2009
(41.5months)

April 2007 (+ M. 19)



Completion: 30%

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PB Role in the Const. Phase

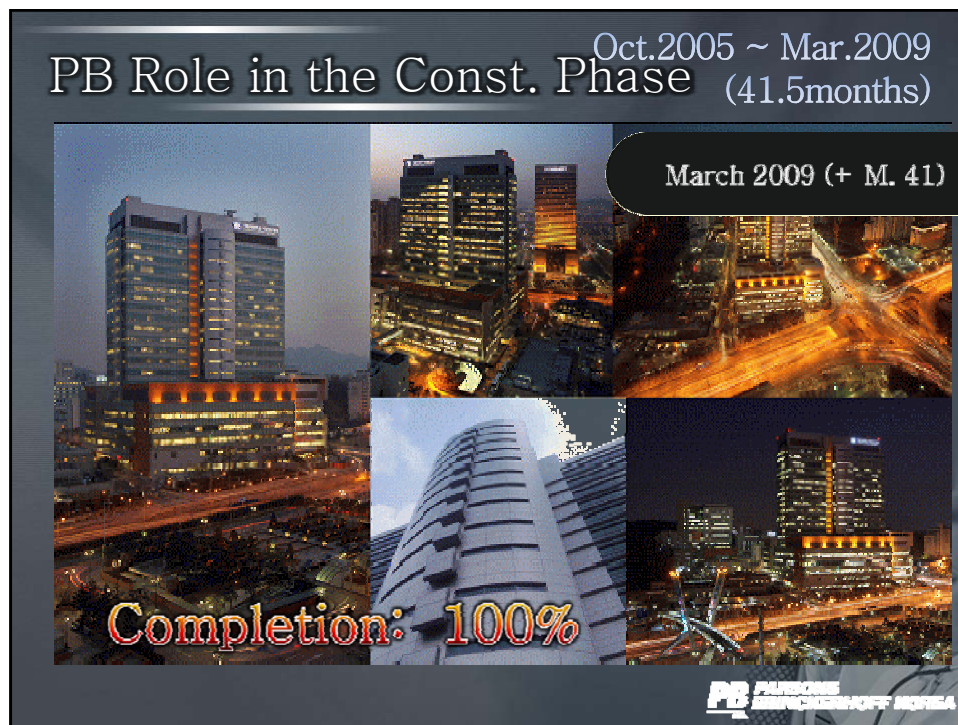
Oct.2005 ~ Mar.2009
(41.5months)

March 2009 (+ M. 41)



Completion: 100%

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INTERIOR PHOTO

1st Floor – Church



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ARCHITECTS KOREA

INTERIOR PHOTO

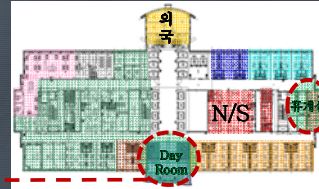
3rd Floor Outpatient clinic – Plastic surgery/ Dermatology



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ARCHITECTS KOREA

INTERIOR PHOTO

Ward – Day Room



PR PROJECTS
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INTERIOR PHOTO

Ward – Nurse Station



PR PROJECTS
MUNCKENHOFF KOREA

INTERIOR PHOTO

Ward – Nurse Station



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INTERIOR PHOTO

Ward – Surgery Room



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INTERIOR PHOTO Ward – Robotics Surgery Room



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INTERIOR PHOTO Ward – Meeting Room



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INTERIOR PHOTO

Patient's room – VIP



INTERIOR PHOTO

Patient's room
for 5 people







