Medical Tourism

Case Study | Vietnamese American International Hospital

September 2011

HEALTHCARE FACILITIES SYMPOSIUM & EXPO

RTA ARCHITECTS

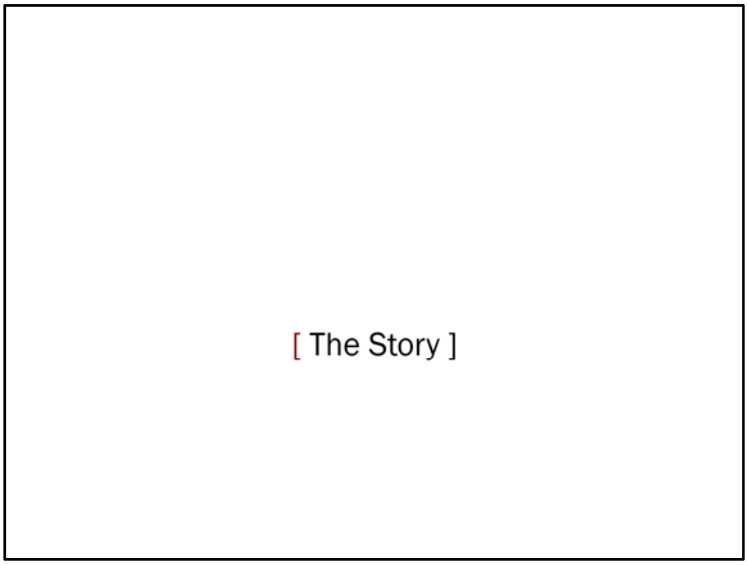
- General Introduction

  - ***Randy,*** Graduate of Kansas State 1979, Former Contractor, Hands on Principal. Very good with complex buildings and system

  - ***John;*** Graduate of Nebraska 1971, Focus on Healthcare for 28 yrs.
    Lectured in Vietnam; HCMC & Hanoi Arch. Universities

- Brief description of who we are and RTA

  Located in Colorado Springs – Founded in 1975
  23 person Architectural firm
  Focus on Healthcare & Education; K-12
  Practice mainly along front range
  Architecture & Interior Design



•We are here because we have a story to tell. It is the story of designing a hospital in Vietnam to Western standards. It is the story of how we approached Healthcare Design and Medical Tourism design. And we will talk about those components in a minute.

•But first you need to know that I never intended to design a hospital in Vietnam. I was there to lecture on Healthcare Design through an exchange program called ***REI Vietnam***. This program is designed to take professionals from the United States to help train young Vietnamese students.

•My story begins in November 2007.
I would like to share two journal entries from my November 2007 trip to Vietnam.

• ***Read from my Journal…..***

1. Understanding The Context

2. Selecting a Care Model

3. The Design Itself

[Three] Components of International Healthcare Design

1. UNDERSTAND THE CONTEXT

- Vietnam versus American Culture
- The State of Healthcare in Vietnam
- Mr. Hap's vision and
- ***The way of doing "business" in Vietnam.***

[Three] Components of International Healthcare Design

1. UNDERSTAND THE CONTEXT

2. SELECT A CARE MODEL

- Current Care Models in the United States
- Selecting or Creating a new care Model that is appropriate for Vietnam
- Medical Tourism and the program elements that are necessary

• One of our first challenges was how to ***communicate with Mr. Hap*** who spoke no English and did not have any experience with Western Medicine

• The design of the ***facility must represent contemporary Hospital Design*** principals and be ***sensitive to the Vietnamese culture, without using Vietnamese Icons***.

• ***Non traditional services*** that RTA needed to provide in order to complete the design.

1. UNDERSTAND THE CONTEXT

• The first element of context that we needed to understand was the ***cultural differences between Vietnam*** and what we were familiar with (the United States).

The Context

CULTURE

- Ancient Culture
- Respect for the Aged
- Strong adherence to Family and Community
- Characterized by simplicity of life style
- Sensitive to that which is lovely and graceful
- More sentimental than rational
- Adaptation
- Great imitators
- Passion for education

- Narrow Streets
- Reliance on mopeds, scooters, and bikes
- Poor infrastructure
- 50% of population under 25 – are not part of the Vietnam War Gen.
- Climate – hot, humid, polluted air
- Mixed use – Dense urban core
- High Cost of Land – Small lot sizes, vertical construction
- Low Cost of Labor
- 6.8% annual GDP growth since 1997

The Context

EXISTING HEALTHCARE

- The 2010 Population in Vietnam is approximately 89,000,000

- Life expectancy at Birth; Females 74.33 vs. 80.43 – Males 68.52 vs. 75.38

- Infant mortality 23.61 deaths / 1000 live births (U.S. 13.7)

- ***Primary Health Issues***
  - ***Acute Resp. infections*** (Influenza, Pneumonia, Bronchitis)
  - ***Diarrhea*** (1 mill Hosp cases/yr, 44% of pop. Round worms)

- ***Cancer;*** 75,000 new Cancer Cases / year, 12% of total deaths

- ***Trauma;*** 5th leading cause of death, 75% are motor cycle related

• Currently 1 bed per 1000 people

• Hospital Occupancy Rate in Hanoi; 118% - multiple patients per bed

• Different levels of Service based on ability to pay; “tip system”

• Best physicians work in the large city Hospitals

• Physicians are employed by Hospital; have after hours clinic in home

• Vietnam is transitioning from a single payer system (state) to a mix of private & state run system.

• Most westerners & wealthy Vietnamese leave the country for healthcare services ; International SOS

- Bangkok & Singapore

• Patient Laundry is often done by the family and ***dried on balconies*** outside of the patient dorms.

• It is very common to have 6 -8 patient beds in one room with ***two adult patients in each bed.***

• Family members often provide care such as meals, laundry, and sometimes administering medications.

• Very low nursing skills

- ***Crowding*** and ***cleanliness*** are sever problems

- Again cleanliness and ***infection control*** is a constant issue

- Very receptive to ***Eastern remedies***

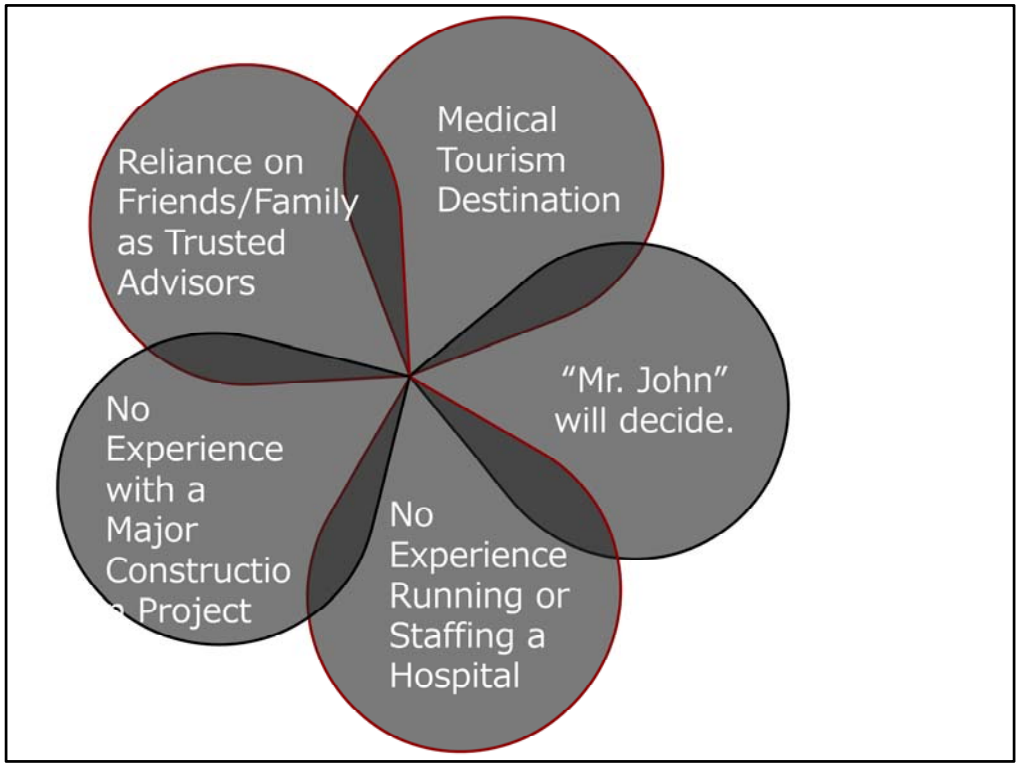
• The French Vietnamese Hospital in HCHC is the most modern facility that I have seen in Vietnam.

- Not JCI Certified

- Not an International SOS Destination

The Context

OWNER NEEDS



- Mr. Hap wanted his new Hospital to;
  - ***Be JCI Certified*** – currently none in Vietnam
  - ***Be an International SOS Destination***
  - ***Not utilize Vietnamese Icons***

- Mr. Hap has ***no experience in running a hospital*** – Needed an "Expert".

- Mr. Hap has ***no experience with a major construction project*** – Needed and "Expert".

- ***"Mr. John" will decide*** – I Became the "Expert" in all things healthcare.

[Three] Components of International Healthcare Design

2. SELECT A CARE MODEL

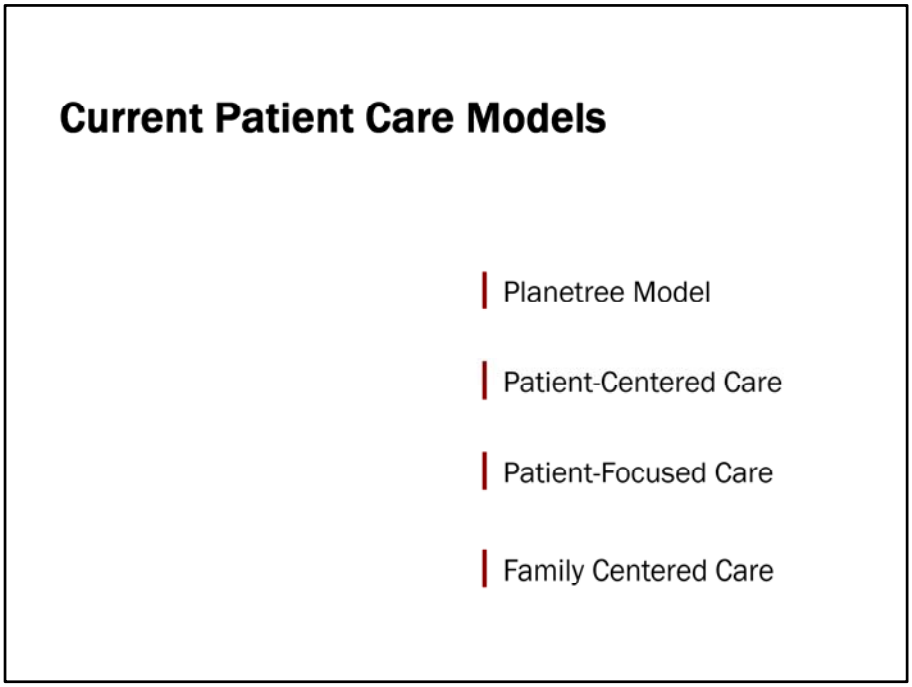
• One of our main challenges was in the selection of the appropriate care model for the new facility.

• The model selected had to represent ***the best in Western care*** but also recognize the unique opportunities presented by the ***Vietnamese Culture and life style***.

• Vietnam currently has a ***loosely defined*** Healthcare system.

• The ***role of the Physician*** seemed to us to be critical.

• Vietnam is very ***open to alternative treatments.***



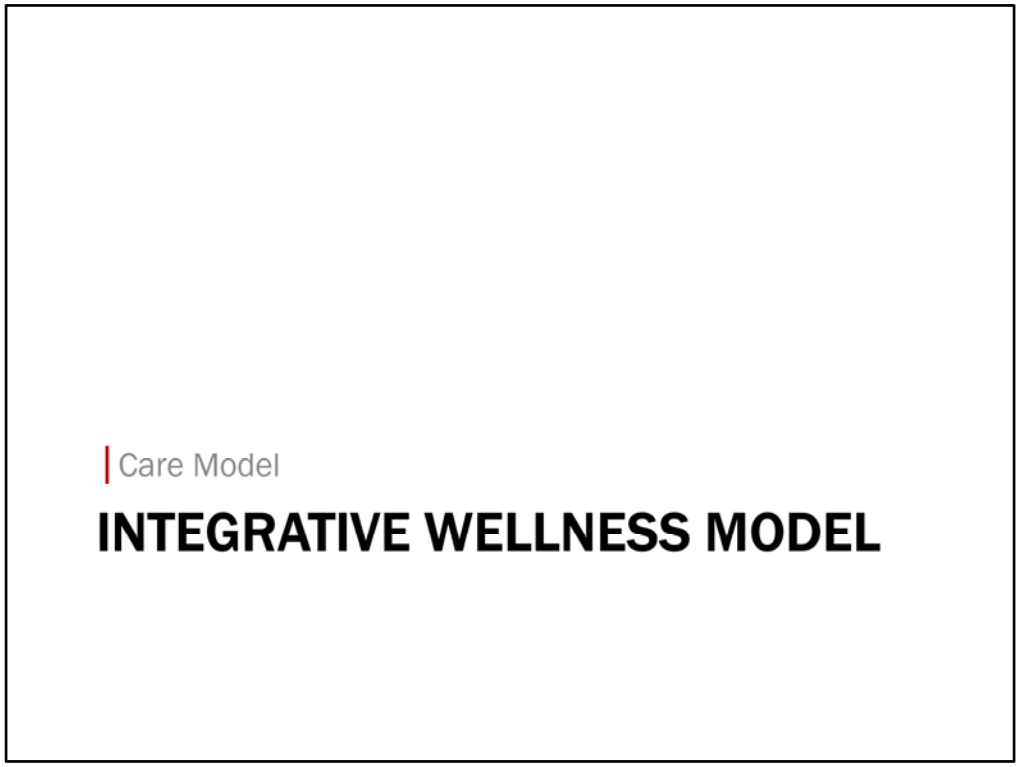
• ***Planetree;*** is a patient-centered acute care model that empowers patients and families through education healing partnership w/caregivers. The holistic care model ***encourages healing in all dimensions*** (mental, emotional, spiritual, social and Physical) and ***integrates complimentary therapies with conventional medical treatments***.

Enhanced roles for patients, Family and Friends

• ***Patient – Centered Care;*** based on evaluating all ideas in terms of what is most ***convenient and comfortable for patients.*** Recognize the patient as the source of control and full partner in providing compassionate and coordinated are based on respect for patient's preferences, values, and needs.

• ***Patient – Focused Care;*** an approach to ***re-engineering hospitals to achieve higher performance;*** is often defined by what it is not, technology centered, doctor centered, hospital centered, and disease centered. (communication, partnerships, health promotion, physical care)

• ***Family – Centered Care;*** an expression of patient – centered care, both respect ***collaboration between families, patients, & professionals***



• All of the previous models focus on providing ***care in a traditional hospital setting,*** and work to achieve;

- 1. Better Patient Outcomes
- 2. More Productive Staff
- 3. Satisfied Patient & Families
- 4. Happy CFO's (bottom line)

• Our current acute care system focuses on ***"fee for Service";*** we are now beginning to move to new models that focus more on ***avoiding care***

- ACO's & Patient Centered Medical Homes
- Partnerships between Hospitals & Providers

• The VAIH project has given our office the opportunity to step back from our National Healthcare debate and consider a ***new model*** focused on ***"Integrative Wellness".***

Optimal Health through the restoration and balance of **six** dimensions.

Integrative Wellness

1 Physical

2 Intellectual

3 Emotional

4 Environmental

5 Social

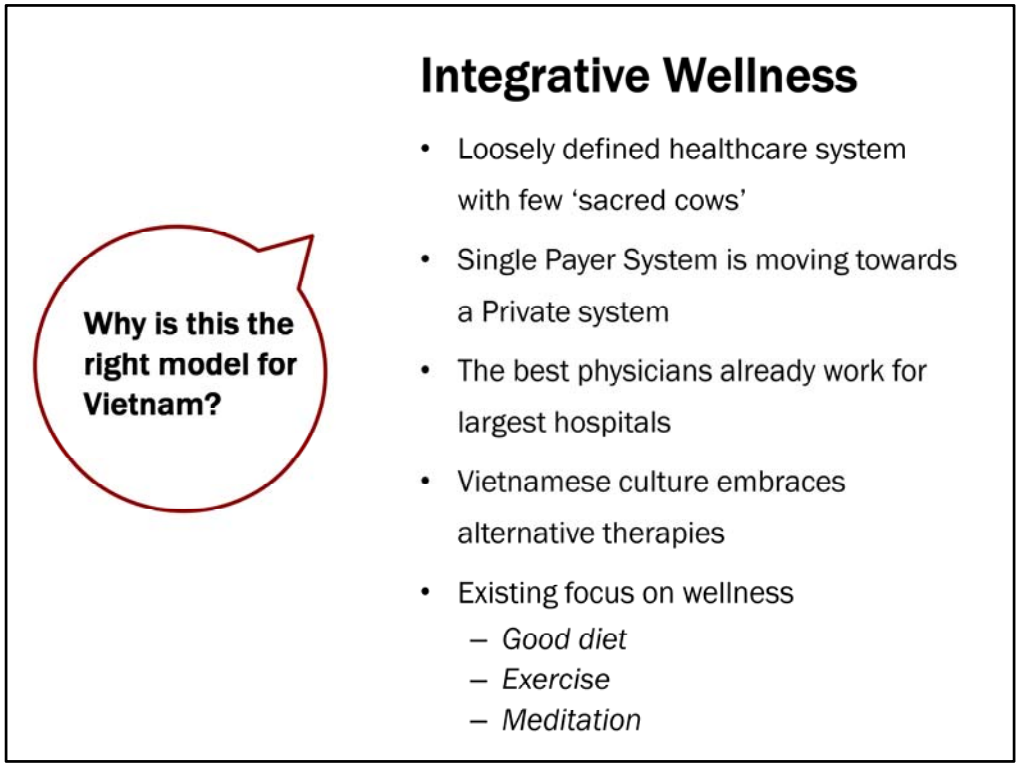
6 Spiritual

• The focus of integral wellness medicine is on ***keeping people healthy,*** <u>not treating episodic illnesses as "sick care"</u> models do

• The Key is to ***design a facility*** specifically to support an ***integrative wellness approach to care.***

• ***Builds on the Planetree Model*** but with an emphasis on ***avoiding "sickness"*** through an aggressive partnership with physicians and other non traditional therapies.

• ***Wellness is all about prevention*** and achieving the greatest health a person can achieve.

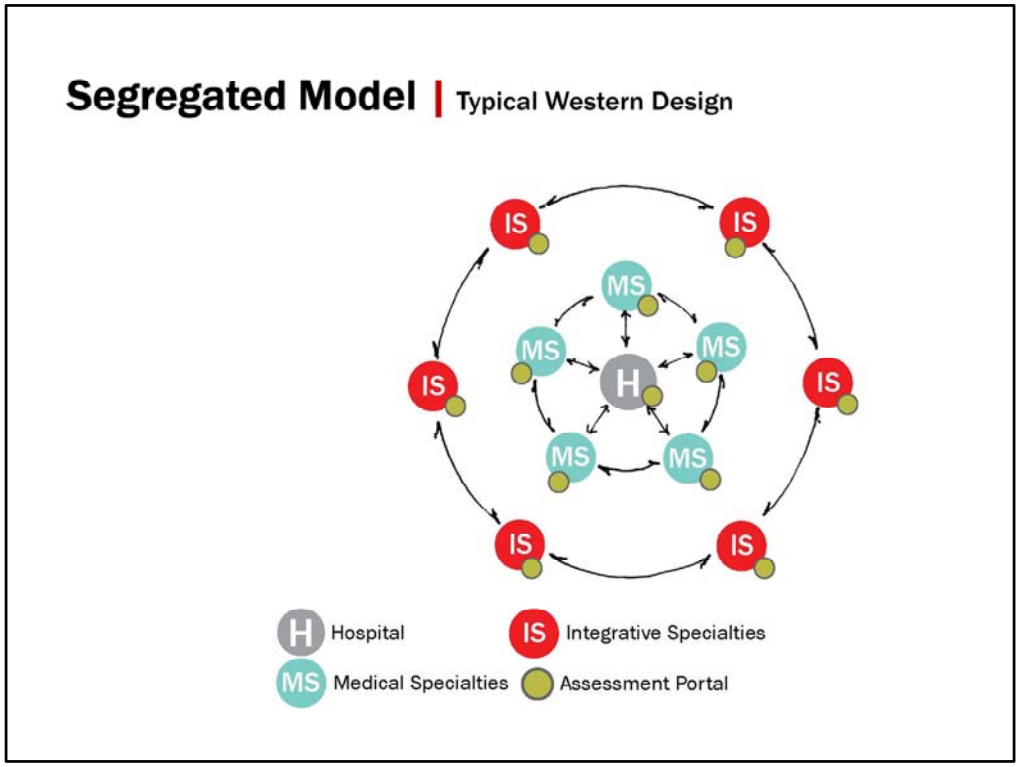


• The ***Physicians will be the key***, they already work for the major hospitals and have a very loosely defined private practice. (after hours clinics in their homes) *This eliminates the fight for the patient fee dollars that we see in the U.S.*

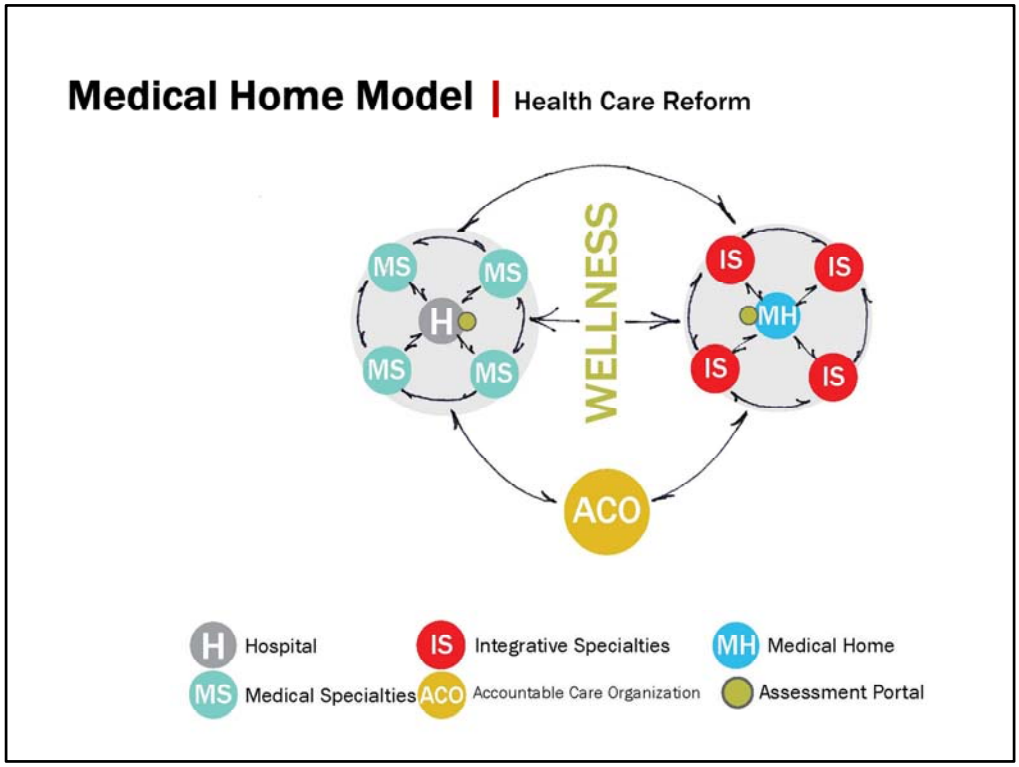
• The major Hospitals are ***managed by Senior physicians*** not "Hospital Administrators" with business background.

• Developing a ***structured partnership between the hospital and the physician*** that allows the physician to have a private practice inside a hospital will be a step forward for them ($'s).

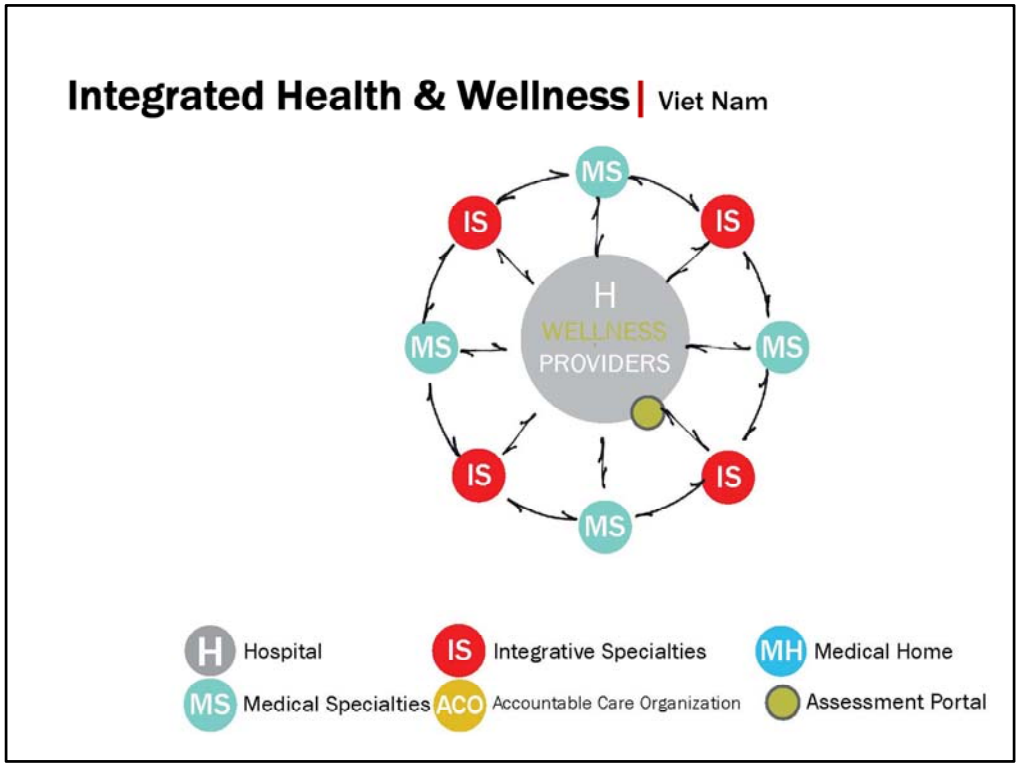
• The new facility will have a major ***focus on patient education*** stressing wellness.



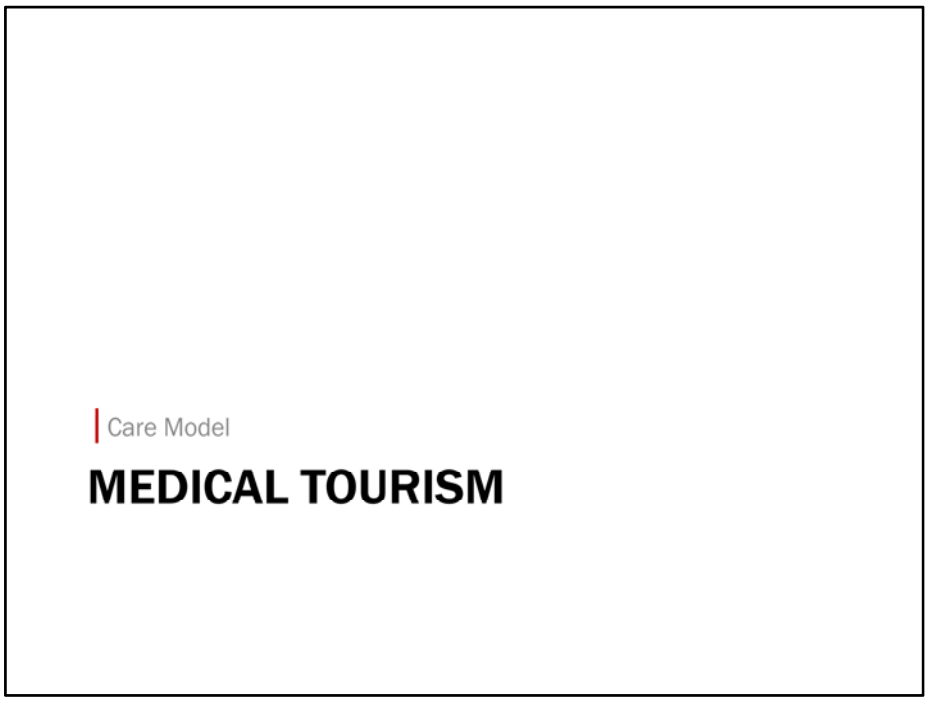
Silo Model
No Integrative Assessment, Multiple Points
Treats Episodic Events
No Incentive for wellness & preservation (practioner or patient)
Does not promote integrative care and wellness
Little patient/practitioner partnership
Integration specialties exist largely outside of care model



Controls cost
More integrative assessment
Forces integration through financial incentive
Incentivizes wellness
Increases wellness
Increases patient/practitioner partnership
Increased adoption of integrative specialties & protocol
Suggests an early crisis/wellness feedback loop



Integrative/Centralized assessment (singular assessment portal)
Culturally Inclined
Promotes prevention and wellness
Reduces episodic events and crisis mentality
Increases individual health care responsibility and engagement
Establishes deeper patient/practitioner partnerships
Diminishes boundaries between medical and integrative specialties
A cultural “fit” in Vietnam



- In Vietnam if you are really sick you ***fly out of the country for treatment***
  - Mr. Hap to China for Cancer Treatment – Alternative treat.
  - John Troha, head trauma
  - Travel Insurance

- Mr. Hap wanted to reverse this trend and build a Hospital that was;
  Joint Commission International Certified
  International SOS Destination

- Needed Board Certified Physicians & skilled staff
  Recruit English Speaking Staff
  Apartments for visiting Physicians and families

- Needed Hospital ***Administrative Team with Western Medical Experience***
  John Hopkins
  Parkway – Singapore
  AMI – Boston

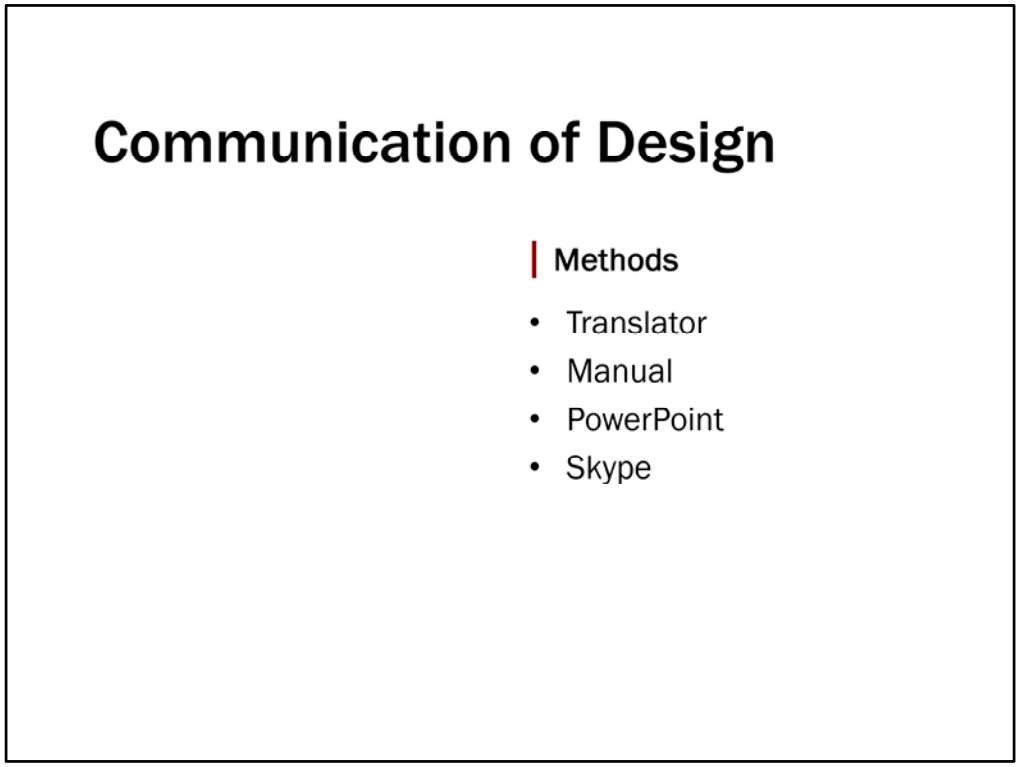
- Needed Hotel Facilities for ***patients and families to stay;*** Rooms, Concierge Services, Restaurant, Meeting rooms, Lecture Halls & Classrooms, Business Center***.***

• There are ***three aspects*** of the Hospital Design that I would like to talk about today.

1.How to ***communicate*** the Design.

2. How it responded to the ***program requirements***.

3. The ***non-traditional Services*** that were needed to execute the project



• We needed to develop a method of describing for Mr. Hap and his investors what we were designing. They did not have a good grasp of the elements of a modern healthcare facility.

1.Utilized photos from built projects for illustrative purposed
2. Prepare Manual/Booklet format in lieu of traditional dwgs
3. Had a Vietnamese Architect come to our off. to translate

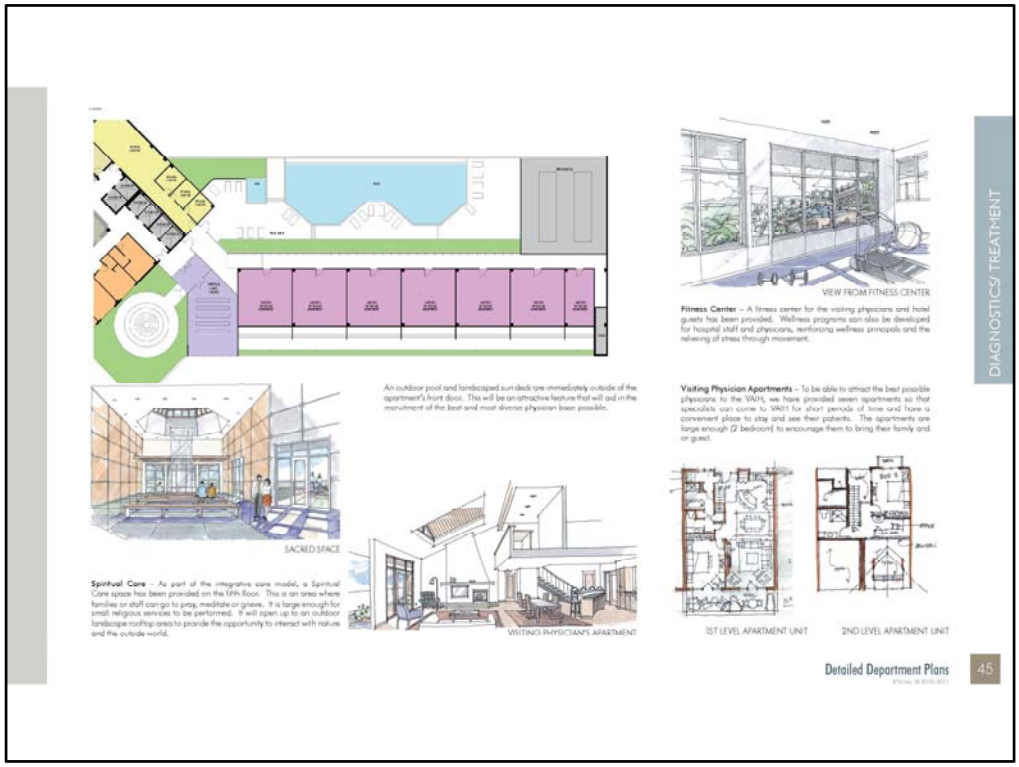
• Utilized Skype to communicate with Mr. Hap during conceptual design

• Prepared simple PowerPoint presentations for Mr. Hap to use with his investors, in Vietnamese.

• This is an example from the Manual that illustrates how we tried to communicate design concepts.

1. Build Projects, Nurse Station / Corridor
2. Free hand architectural sketches to show character

• Another example of showing what a modern PACU space and preoperative cubicle would look like, along with a dietary scramble area.



• This is the fifth floor apartments for visiting physicians and their families; floor plan layouts & cross section of apartment

• Sacred space cross section

• View from Fitness Center/ Gym area

- Typical Hotel Floor plan with Narrative

• Main Lobby & registration area

• Sample of registration area from a built project showing character and level of finish anticipated

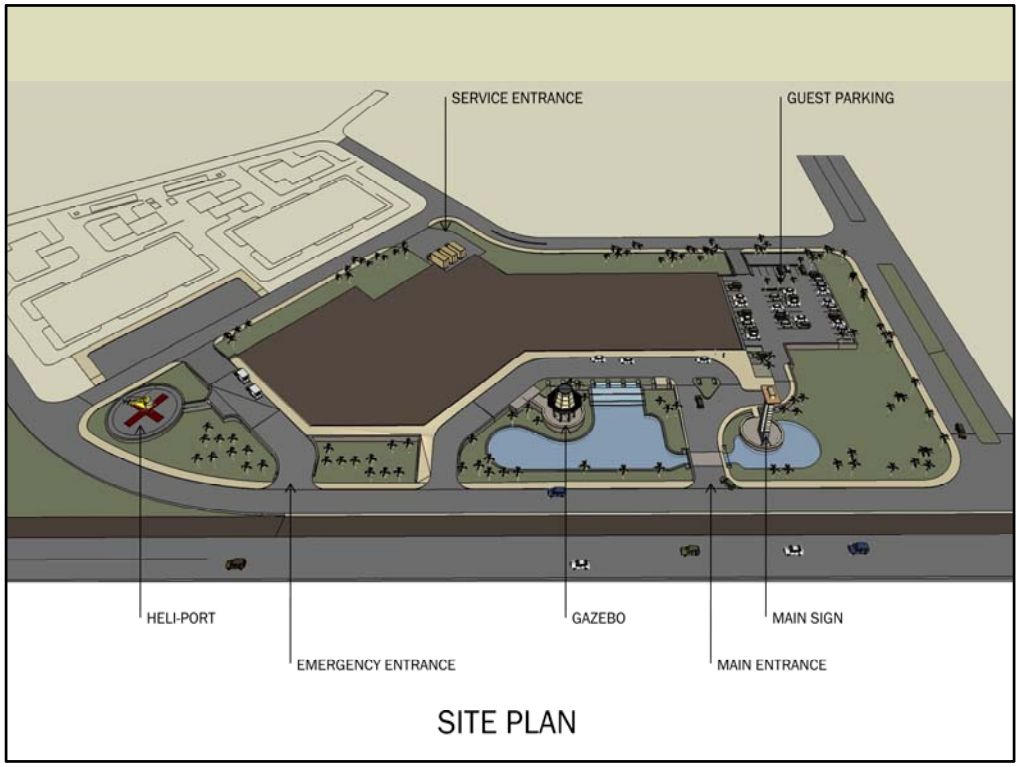
Hospital Design

THE VAIH DESIGN

• The first element of context that we needed to understand was the cultural differences between Vietnam and what we were familiar with (the United States).

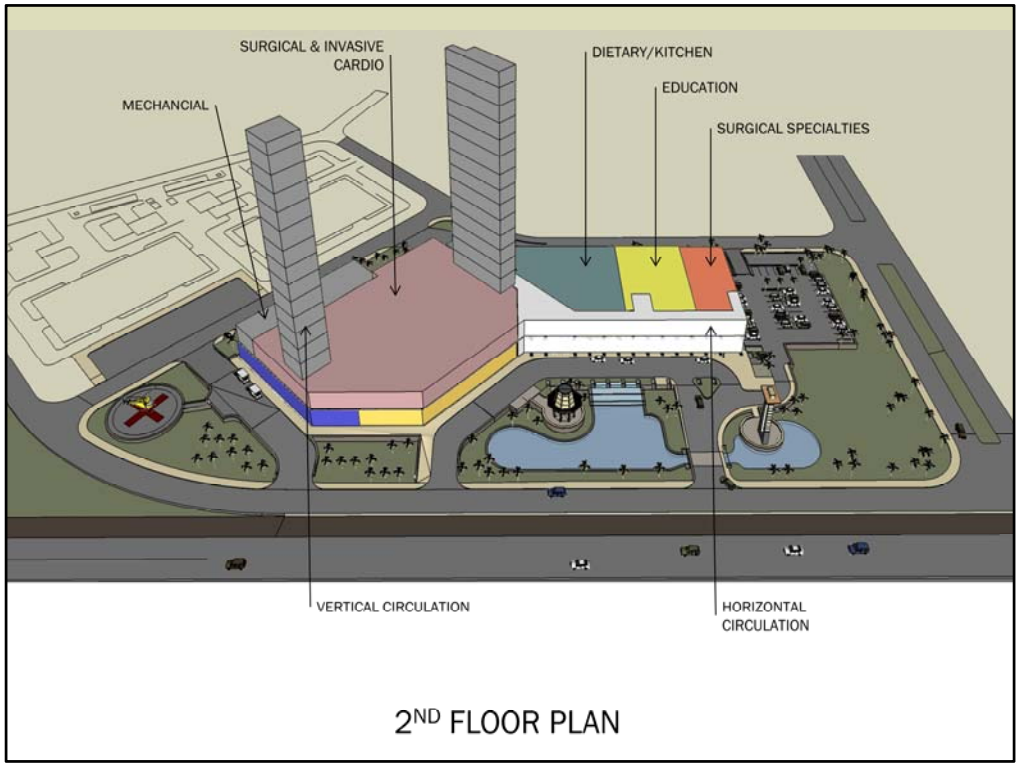
• The first element of context that we needed to understand was the cultural differences between Vietnam and what we were familiar with (the United States).

Very small site for a project of this size……5.44 aces….normally 25-30 acres
Immediately adjacent to major highway
Simple building concept plan
Clinical and outpatient services midrise building
Technical services and inpatient care high-rise building
Common entrance circulation path visible to primary traffic flows
Separate dropoff locations for in-patient, outpatient, hotel, emergency, staff and service arrivals
Rice patties = no basement space = raise the building 6’ to avoid flooding – Red River
Feng Shui issues for entrance, orientation, healing environments
East entrance orientation = appropriate for Chi’
Entry water feature/passive cooling pond = healing welcoming feature
Meditation gazebo at water feature = audible and visual support
Green roofs = reduce cooling load = healthy building
Parking requirements – 40 cars (limos mostly), 1100 mopeds
Future parking structure location – 4 stories
Future Hotel site above future parking structure – allows expansion of beds in hospital


SERVICE ENTRANCE
GUEST PARKING
HELI-PORT
EMERGENCY ENTRANCE
GAZEBO
MAIN ENTRANCE
MAIN SIGN

SITE PLAN

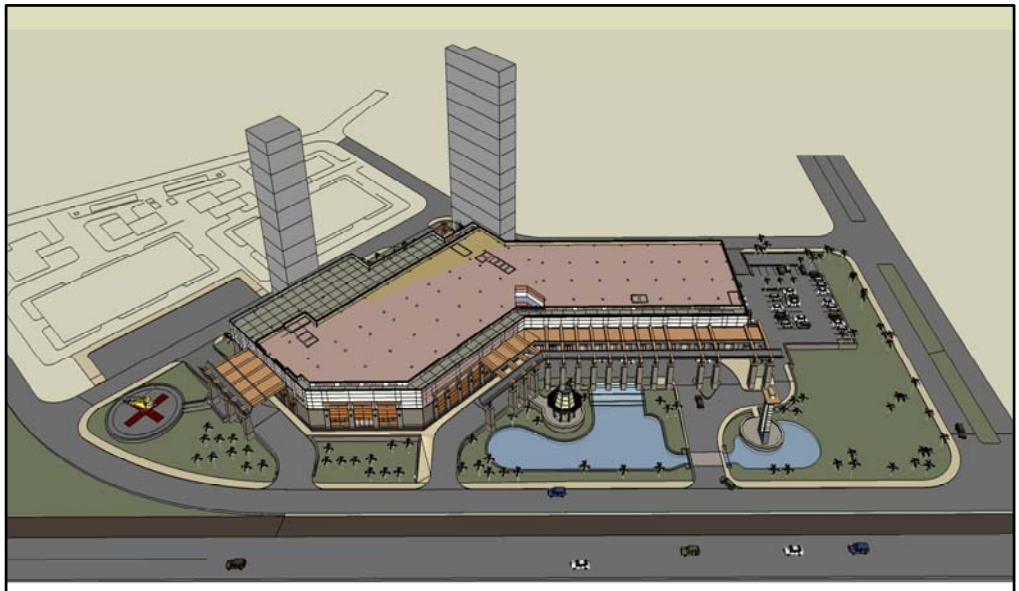
1ST FLOOR PLAN



2ND FLOOR PLAN

Midrise

Surgical specialties
Education
dietary/kitchen
inpatients and hotel guests
Surgical and Invasive cardiology
Mechanical



1ST & 2ND EXTERIOR SKIN

Create a Base for the building

- Warm finishes – metal wood paneling, teak beams, etc.
- Water features provide visual and audible clues to ground to the landscape
- Canopies to shelter and welcome to the facility

Oncology
Medical specialties
Lab and Pharmacy for in-patients
Intensive care

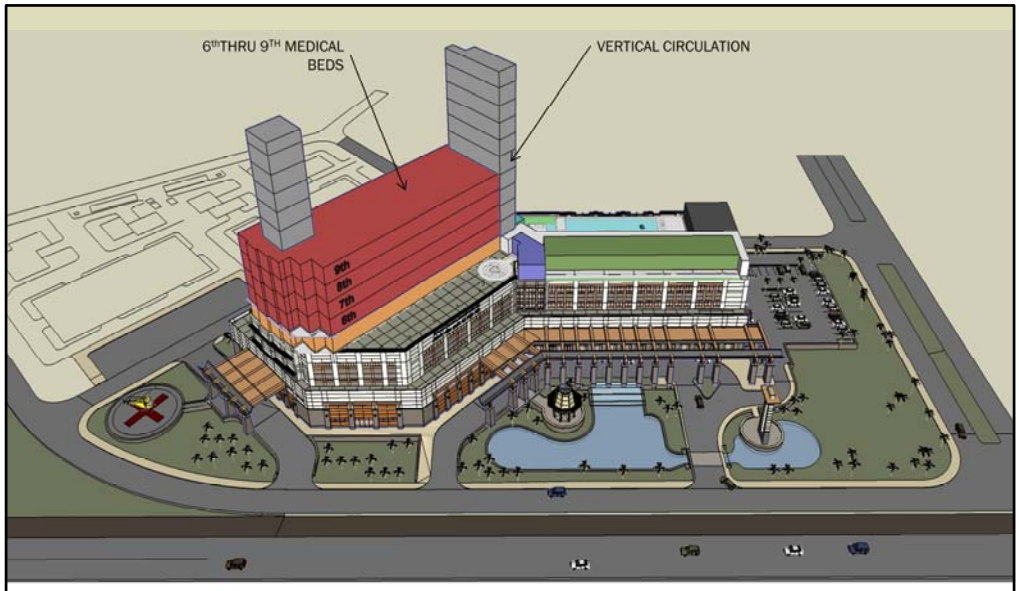
Ophthalmology
Childrens Health
Womens Health
Human Resources
Birthing Center

3RD & 4TH FLOOR EXTERIOR SKIN

Visual midsection for the Midrise structure
Extension of the Base for the High Rise structure

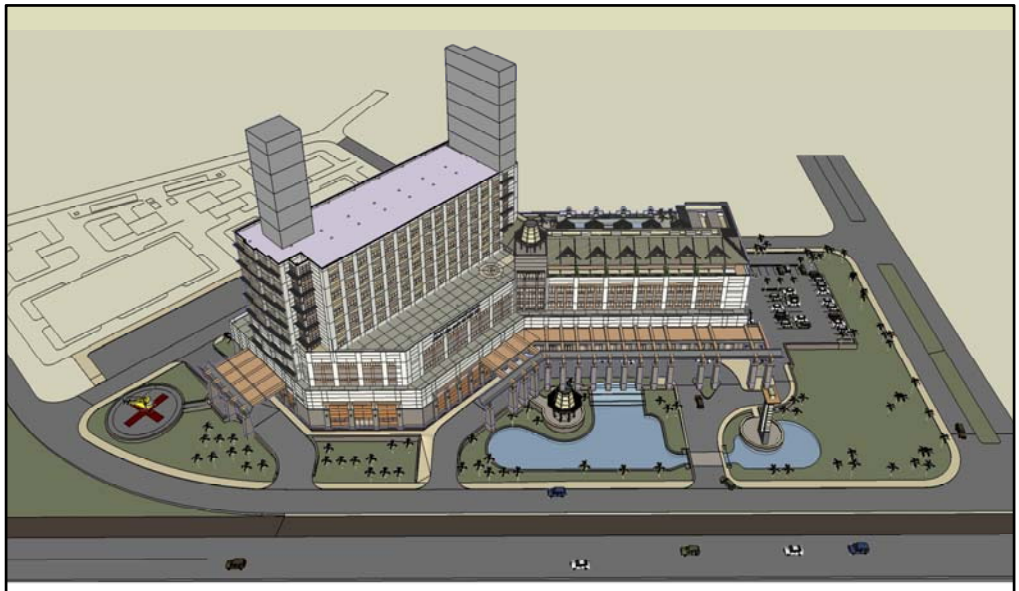
5TH FLOOR PLAN

Visiting Physicians apartments
Spiritual Care Chapel
Pediatrics
Fitness Center
Serve Hotel, visiting Docs, Rehab, etc.



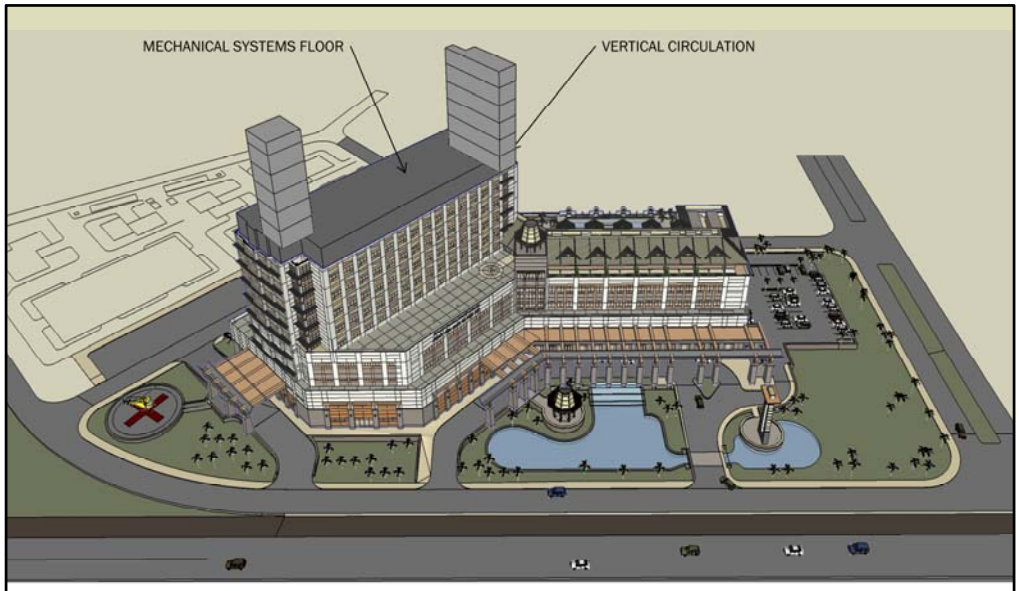
6TH THRU 9TH FLOOR PLANS

Medical inpatient beds



6TH THRU 9TH EXTERIOR SKIN

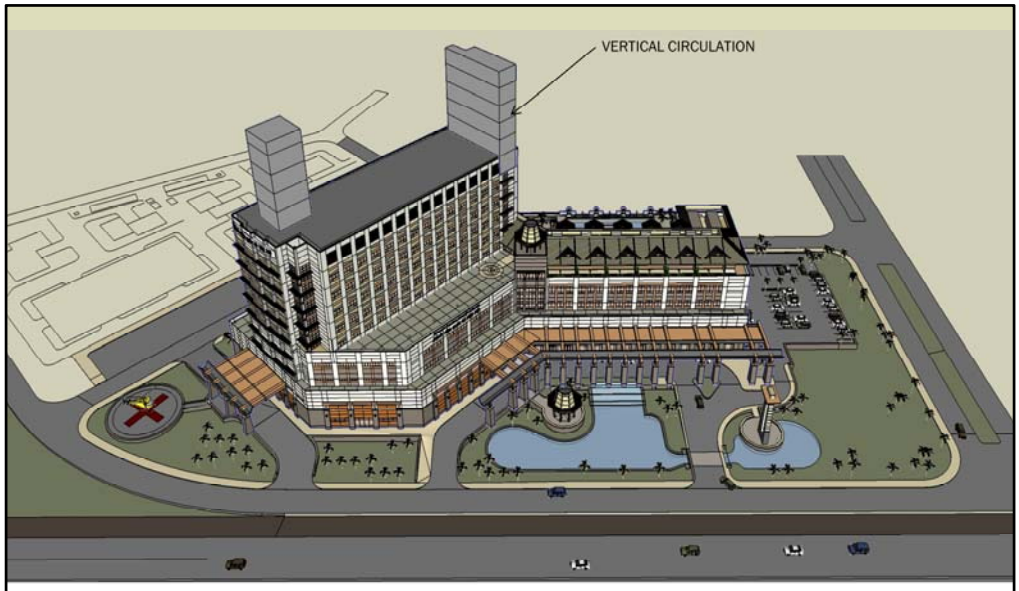
Roof Cap for Midrise
Begin the Midsection for the Tower



10TH FLOOR PLAN

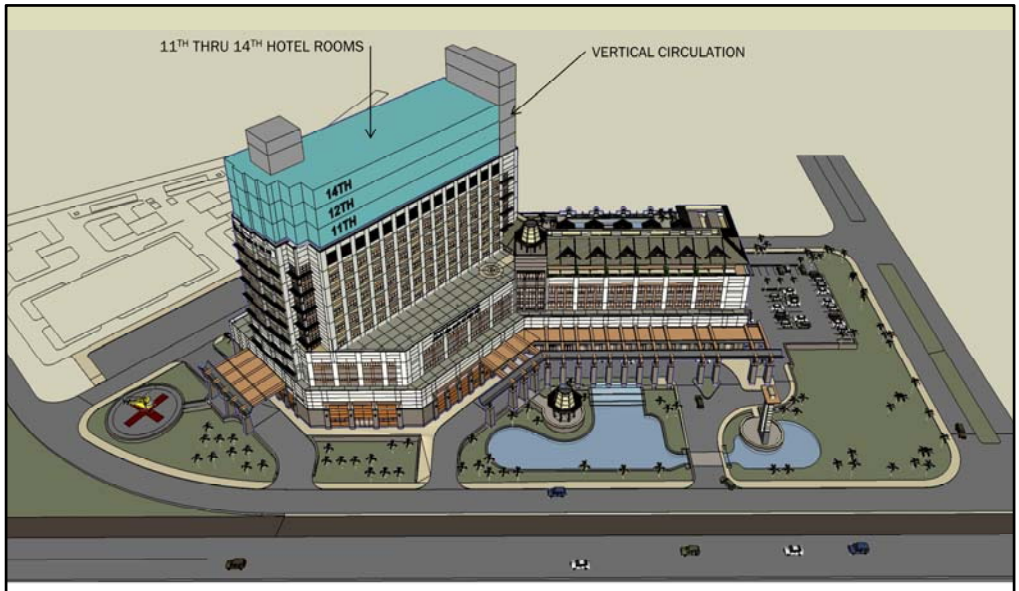
10th floor Mechanical level

- Optimizes duct and piping sizes up and down in tower
- Allows separation of intake and exhaust to opposite sides of building
- Boilers, Air handlers for facility
- Chillers, generators, fire pump on the ground in the mechanical farm



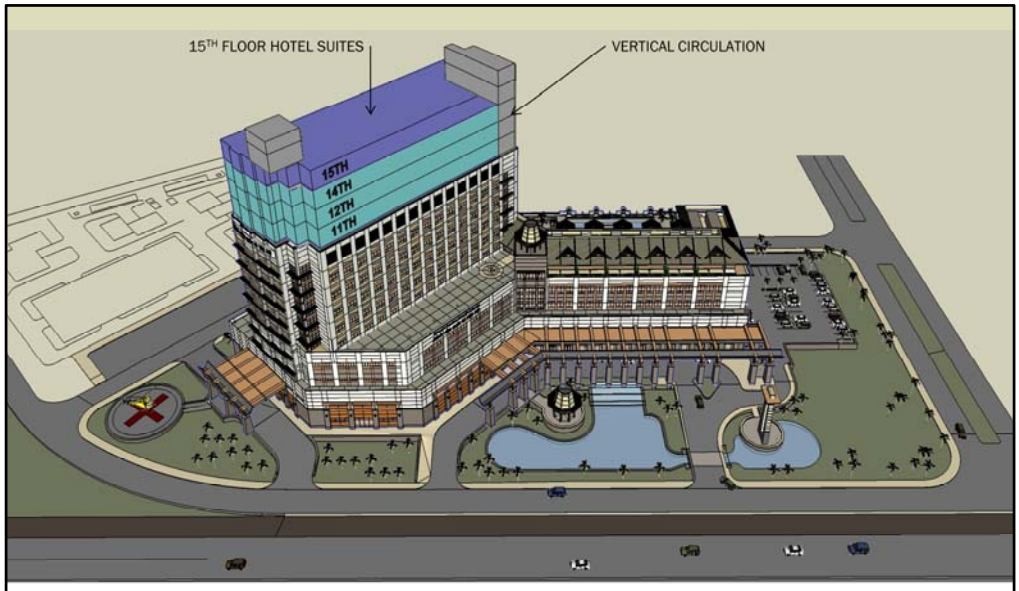
10TH FLOOR EXTERIOR SKIN

Maximize opportunities for intake and exhaust
Provides visual middle for the tower



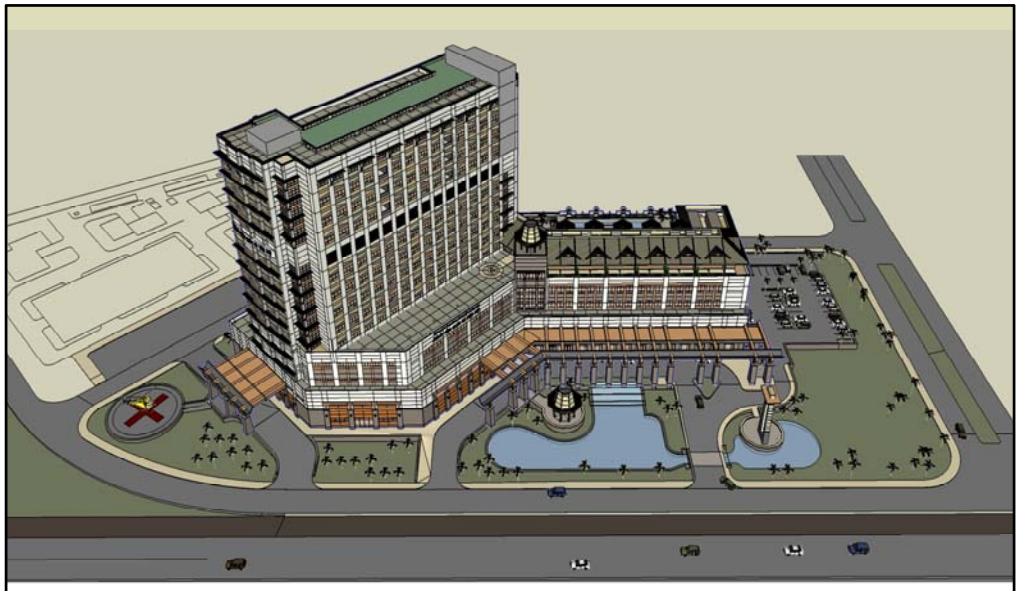
11TH THRU 14TH FLOOR PLANS

Hotel rooms designed on same footprint as patient rooms
allows expansion of patient rooms as market grows.
future location on site for hotel development to replace rooms



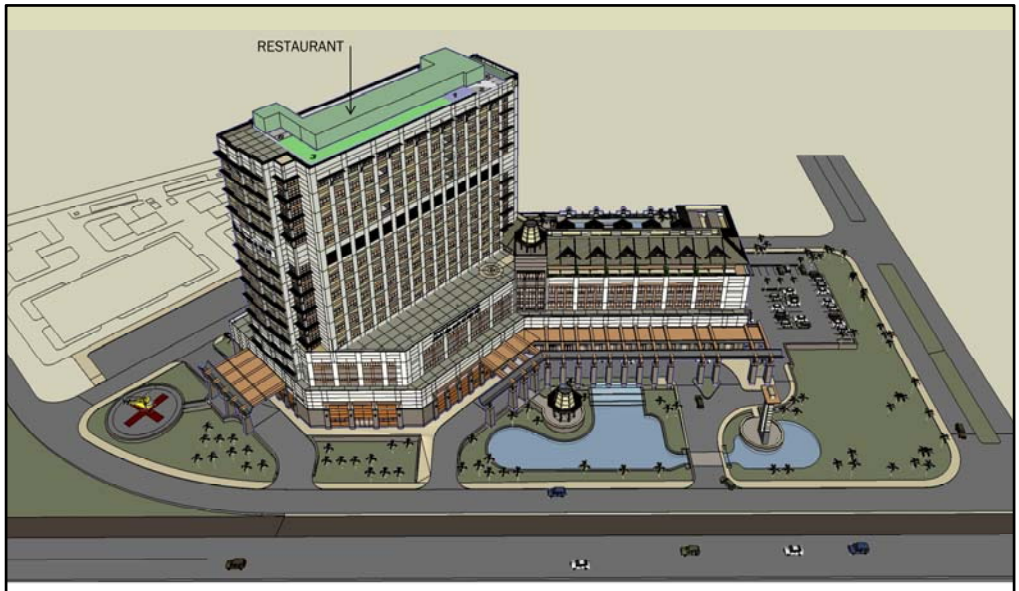
15TH FLOOR PLAN

Provides larger Suites for Family/VIP markets



11TH THRU 15TH EXTERIOR SKIN

Terminate the tower mass with a visual cap

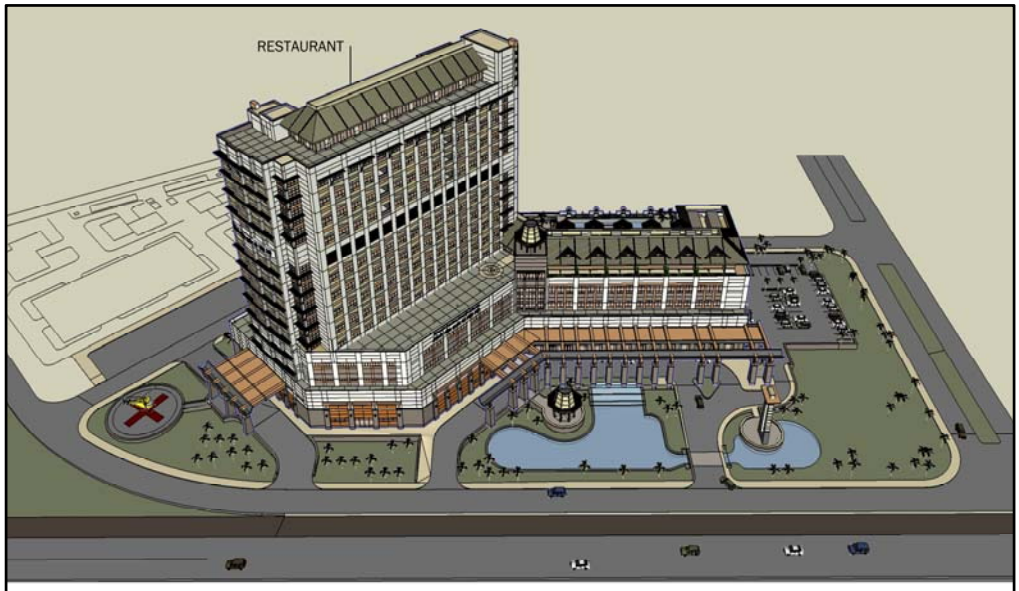


16TH FLOOR PLAN

Restaurant
- inpatient families and visitors, visiting docs, outpatient families

Patient/family business center
- Conference rooms
- Internet café /work center

Out door gardens and dining areas



FINAL BUILDING MODEL

Outdoor pool/therapy tub
Fitness center
Roof top gardens
Service entrance
Utility farm
Moped shelter

VAIH

Phasing Model

Phasing, Expansion and Future Development

Hospital facility is envisioned as a multi-phased project. Phase 1 would include all site development, parking for 45 cars and construction of the primary hospital tower (actually 15 stories with no level 13 used), centralized atrium and adjoining (5) story, Out-Patient Clinical Wing. General Phase 1 functional program area distribution would be as follows:

PHASE I

(Model Shows)16 Story Hospital Tower and Adjoining 5 Story Out- Patient Clinical Wing

Hospital Tower: Outpatient Clinics & Services Wing:

Levels 1- 4: Medical Departments

Level 1: Arrival, Records, Administration,
Pharmacy and Radiation Therapy

Levels 5 - 9: Patient Rooms (30/ level)

Levels 2 - 4: Outpatient Clinics & Education

Level 10: Mechanical Equipment Level

Level 5: Visiting Physician Apartments, Chapel,
Fitness Center, Roof Gardens and Pool

Levels 11 -15: Phase 1 Hotel (no 13th Level)

Level 16: Restaurant, Conference Facility & Garden

Phase 1 Hotel component includes an 11th Level Lobby and a combination of standard and large suites constructed on a typical patient room module and plumbing layout for future conversion.

PHASE 2

When additional patient room floors are required in the Phase 1 Hospital Tower, a Phase 2 Hotel Tower and (3) level parking structure would be constructed, adjoining the North façade of the Phase 1, (5) Story Outpatient Clinical Wing. At this time, the Phase 1 Hotel floors in the Hospital Tower would be converted to additional patient room floors, supporting the hospital operation and business as it expands.

PHASE I
16 STORY TOWER

PHASE I
5 STORY MID-RISE

PHASE 2
14 STORY TOWER
3 STORY PARKING STRUCTURE

PHASE I
16 STORY TOWER

PHASE I
5 STORY MID-RISE

PROPOSED PHASE I
3 STORY OFFICE

OPTIONAL PHASE 2
MULTI -LEVEL PARKING STRUCTURE

Phasing Alternatives

1. To accommodate initial Phase 1 taxi, limousine and shuttle parking in an orderly manner, it is recommended that a concerted effort takes place to secure additional parking. With the current site already severely under-parked, the impact of numerous vehicles parked haphazardly on adjacent roadways and in surrounding neighborhoods will become increasingly problematic. As anticipated driving patterns and car ownership increases in Vietnam, this problem will only worsen. Additional structured parking may be one solution to the potential problem.
2. The desired 3 level office building, indicated in early client correspondence, would reside, if constructed, in the eastern half of the Phase 1 hospital parking lot. The location of office building limits the future expansion of hotel tower and parking structure, resulting in the need to demolish the structure as the hospital becomes successful and requires expansion capabilities.
3. An option is shown for Phase II as a multi-story parking structure that can be phased as more parking is required. This design assumes an efficient layout of approximately 90 cars per level and that the 3 level office building is not constructed.

VAIH

Hospital Design

NON-TRADITIONAL SERVICES

Non-Traditional Services

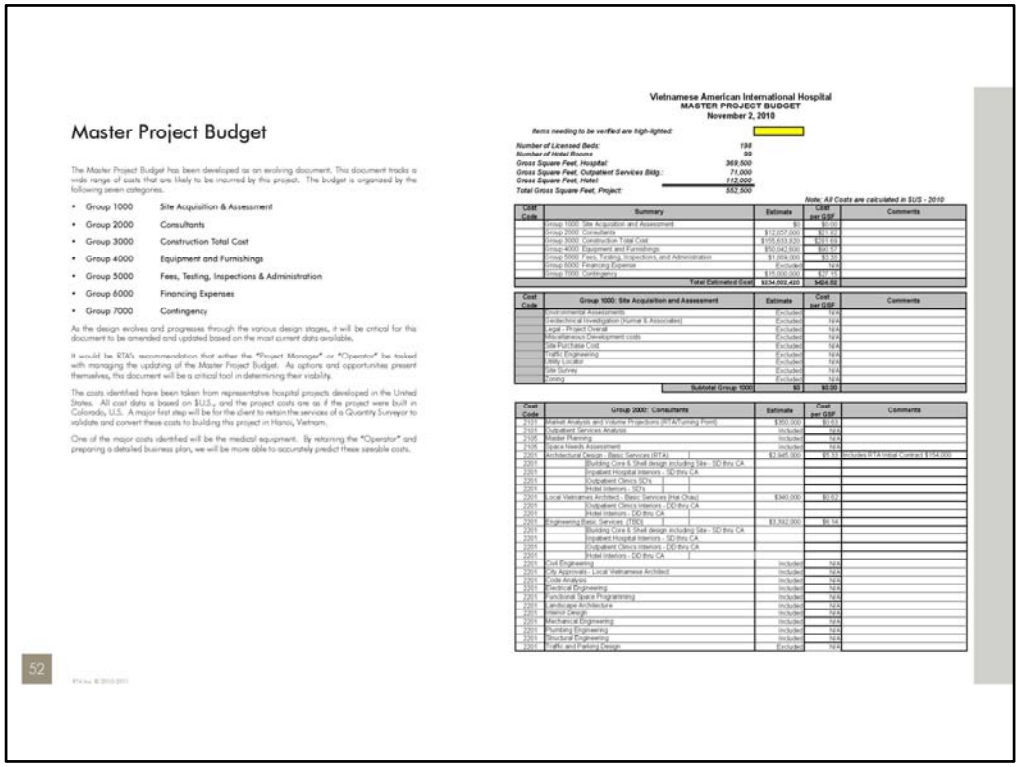
- Demand/Market Analysis
- Operator

  (with cultural experience)
- Program Analysis
- Construction Manager

  (Blend of western & Vietnamese)

  "Vehicle Specialist"

  "Culinary Expert"



Master Project Budget

The Master Project Budget has been developed as an evolving document. This document tracks a wide range of costs that are likely to be incurred by this project. The budget is organized by the following seven categories.

- Group 1000 Site Acquisition & Assessment
- Group 2000 Consultants
- Group 3000 Construction Total Cost
- Group 4000 Equipment and Furnishings
- Group 5000 Fees, Testing, Inspections & Administration
- Group 6000 Financing Expenses
- Group 7000 Contingency

As the design evolves and progresses through the various design stages, it will be critical for this document to be amended and updated based on the most current data available.

It would be RTA's recommendation that either the "Project Manager" or "Operator" be tasked with managing the updating of the Master Project Budget. As options and opportunities present themselves, this document will be a critical tool in determining their viability.

The costs identified have been taken from representative hospital projects developed in the United States. All cost data is based on $U.S., and the project costs are as if the project were built in Colorado, U.S. A major first step will be for the client to retain the services of a Quantity Surveyor to validate and convert these costs to building this project in Hanoi, Vietnam.

One of the major costs identified will be the medical equipment. By retaining the "Operator" and preparing a detailed business plan, we will be more able to accurately predict these assetable costs.

52

Vietnamese American International Hospital
MASTER PROJECT BUDGET
November 2, 2010

Items needing to be verified are high-lighted:

Number of Licensed Beds:	*198*
Number of Hotel Rooms	*99*
Gross Square Feet, Hospital:	*369,500*
Gross Square Feet, Outpatient Services Bldg.:	*71,000*
Gross Square Feet, Hotel	*112,000*
Total Gross Square Feet, Project:	*552,500*

Note: All Costs are calculated in $US - 2010

Cost Code	Summary	Estimate	Cost per GSF	Comments
	Group 1000: Site Acquisition and Assessment	$0	$0.00	
	Group 2000: Consultants	$12,057,000	$21.83	
	Group 3000: Construction Total Cost	$155,633,820	$281.73	
	Group 4000: Equipment and Furnishings	$50,042,600	$90.59	
	Group 5000: Fees, Testing, Inspections, and Administration	$1,869,000	$3.38	
	Group 6000: Financing Expense	Excluded	N/A	
	Group 7000: Contingency	$15,000,000	$27.15	
	Total Estimated Cost	$234,602,420	$424.68	

Cost Code	Group 1000: Site Acquisition and Assessment	Estimate	Cost per GSF	Comments
	Environmental Assessments	Excluded	N/A	
	Architectural Investigation (Kumar & Associates)	Excluded	N/A	
	Legal - Project Overall	Excluded	N/A	
	Miscellaneous Development costs	Excluded	N/A	
	Site Purchase Cost	Excluded	N/A	
	Traffic Engineering	Excluded	N/A	
	Utility Locator	Excluded	N/A	
	Site Survey	Excluded	N/A	
	Zoning	Excluded	N/A	
	Subtotal Group 1000:	$0	$0.00	

Cost Code	Group 2000: Consultants	Estimate	Cost per GSF	Comments
2101	Market Analysis and Volume Projections (RTA/Fuming Yiwei)	$350,000	$0.63	
2102	Outpatient Services Analysis	Included	N/A	
2106	Master Planning	Included	N/A	
2105	Space Needs Assessment	Included	N/A	
2201	Architectural Design - Basic Services (RTA)	$2,945,000	$5.33	Includes RTA Initial Contract $ 154,000
2201	Building Core & Shell design including Site - SD Bhy CA			
2201	Inpatient Hospital Interiors - SD Bhy CA			
2201	Outpatient Clinics SDs			
2201	Hotel Interiors - SDs			
2201	Local Vietnamese Architect - Basic Services (Hai Chau)	$340,000	$0.62	
2201	Outpatient Clinics Interiors - DD Bhy CA			
2201	Hotel Interiors - DD Bhy CA			
2201	Engineering Basic Services (TBD)	$3,332,000	$6.04	
2201	Building Core & Shell design including Site - SD Bhy CA			
2201	Inpatient Hospital Interiors - SD Bhy CA			
2201	Outpatient Clinics Interiors - DD Bhy CA			
2201	Hotel Interiors - DD Bhy CA			
2201	Civil Engineering	Included	N/A	
2201	City Approvals - Local Vietnamese Architect	Included	N/A	
2201	Code Analysis	Included	N/A	
2201	Electrical Engineering	Included	N/A	
2201	Functional Space Programming	Included	N/A	
2201	Landscape Architecture	Included	N/A	
2201	Interior Design	Included	N/A	
2201	Mechanical Engineering	Included	N/A	
2201	Plumbing Engineering	Included	N/A	
2201	Structural Engineering	Included	N/A	
2201	Traffic and Parking Design	Excluded	N/A	

• Mr. Hap did not have anyone to prepare the overall "Master Project Budget" which would include;

1. Site Acquisition and Assessment Costs $0

2. Consultants - $12,057,000

3. Construction Total Costs - $155,633,820 ($282 US/SF)

4. Equipment & Furnishings - $50,042,600 ($91 US/SF)

5. Fees, Testing, Inspections, and Admin. - $1,869,000

6. Financing Expenses - $0

7. Contingency - $15,000,000 ($27 US/SF)

Total Estimated Cost - $234,602,420 ($425 US/SF)


How did a 22 person firm in Colorado get involved in an international healthcare project?

Conclusion

TWO PATHS

Two Paths

Strategic Marketing Approach

- Dollar Driven
- Investment Oriented

Open to Sincere Relationship

- Exchange of Ideas
- Building Trust
- Develop lasting friendships

Mr. Hap

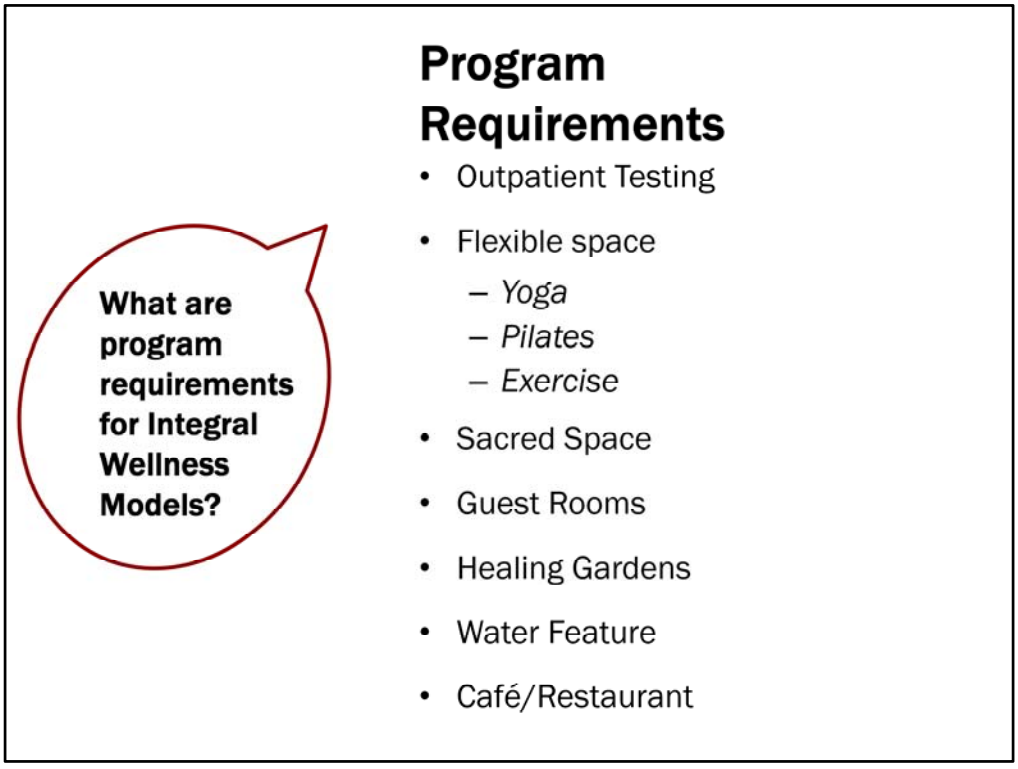
For a copy of this presentation, visit our website:
www.rtaarchitects.com

QUESTIONS ?

Appendix

QUESTION RESPONSES


What are program requirements for Integral Wellness Models?
Program Requirements
• Hospital/Physician Partnership
• Non-traditional Therapies
• Flexible space
– Yoga
– Pilates
– Exercise
• Assessment Interview Center
• Non-traditional Therapies
– Acupuncture
– Massage Therapy
– Nutritional Counseling


What are program requirements for Integral Wellness Models?
Program Requirements
• Outpatient Testing
• Flexible space
– Yoga
– Pilates
– Exercise
• Sacred Space
• Guest Rooms
• Healing Gardens
• Water Feature
• Café/Restaurant