



Nepal Health Sector Support Programme III (NHSSP – III)

ORIENTATION TO CONSTRUCTION CONTRACTORS
ON
DESIGN AND BIDDING DOCUMENT FOR RETROFITTING
WORKS OF POKHARA ACADEMY OF HEALTH SCIENCES,
POKHARA
27 January 2020



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ON

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POKHARA

Venue:

TUKI RESORT, POKHARA

27 January 2020

INTRODUCTION

The third Nepal Health Sector Support Programme III (NHSSP) is an initiative of the Federal Ministry of Health and Population (FMoHP), financed by the UK Department for International Development (DFID). The NHSSP is intended to support the goals of Nepal's National Health Sector Strategy (NHSS) and assist the FMoHP in building a resilient health system to provide good quality health services for all. The programme has five work streams: health policy and planning, procurement and public financial management, service delivery, evidence and accountability, and health infrastructure.

The Health Infrastructure workstream has three Key Performance Areas (KPA):

KPA 1: Building a strong policy environment, to ensure that the FMoHP and the Department of Urban Development and Building Construction (DUDBC) adopt and implement relevant codes, standards, and guidelines for construction and maintenance of health facilities and infrastructure

KPA 2: Enhancing the capacity of the FMoHP, DUDBC, and the private sector (including contractors and construction professionals) to be efficient, technically competent, and capable of implementing a resilient design, construction, and maintenance

KPA 3: Building resilient and effective health infrastructure to ensure that health infrastructure is retrofitted, rehabilitated, maintained, and monitored in earthquake-affected and vulnerable districts and that facilities are resilient to future seismic shocks, environmental impacts, and other natural disasters.

Under KPA 3, Western Regional Hospital, Pokhara and Bhaktapur Hospital were selected for retrofitting and rehabilitation in line with the agreed selection criterion with MoHP and MoU signed between MoHP and DFID for the implementation in 18.07.2017. These two priority hospitals have been treated as demonstration models to inform the rollout of the retrofitting and rehabilitation programme and design work in future. The two hospitals offer an opportunity to document and record development in real-time case studies, providing a solid foundation and precedents for the design of remaining hospitals, which needs similar intervention. The case has

also been used for on-site skills transfer and learning by FMoHP and DUDBC technical staff, as well as private sector construction contractors and professionals in its design phases and will be a continuous ongoing activity throughout the implementation process till the completion and handover.

As part of broader involvement of the private sector professionals in the retrofitting programme a training need analysis (TNA) workshop was organised on February 2018 for the construction contractors and professionals in Nepal in coordination with DUDBC and Federation of Contractor Association of Nepal (FCAN). The training need identified orientation to the construction contractors (prospective bidders) after the publication of the tender on the details of the main retrofitting works as one of the major needs. The needs identified the aspects of all the engineering designs, retrofitting approaches, scope of the work, health and safety requirement and salient features of the bidding documents for better understanding of the retrofitting project by the contractors and make the bidding process fair and more competitive.

For the purpose a half day orientation program was organized by NHSSP in coordination with Federation of Contractor's Association of Nepal (FCAN) and Department of Urban Development and Building Construction (DUDBC), FPIU on Jan 27, 2020. This report summarizes the details of the orientation programme

Objectives

The overall objective of the programme was to enhance the level of understandings of prospective bidders on the retrofitting engineering designs, implementation approach and the salient features of the bidding documents and conditions of contract.

The specific objective of the programme were to:

1. Orient the prospective bidders on the design approach which includes mainly there types of retrofitting. Functional, structural and green retrofitting.
2. Orient the prospective bidders on the decanting strategies for WRH main retrofitting project.
3. Orient the prospective bidders on the major features of the bidding document including the employer's requirement and conditions of the contract (both general and special)

4. Orient Contractor's on health and safety issues, cordoning plans, route management plan, proposed activity schedule.
5. Collect feedbacks from the prospective contractors to conduct similar future capacity enhancement related activities.

Venue and Schedule

The program was organized in Pokhara at Tuki, Resort. The details schedule of the program is presented in Annex – 1

Participants

The list of participants in the orientation programme is presented in Annex IV. 24 participants which included contractor's representative, managing directors, project managers and engineers from different contractor's organization and engineers from Federal Project Implementation Unit (FPIU) of Department of Urban Development and Building Construction (DUDBC), Kaski District were present during the event.

The orientation programme

1.1. Session 1-Functional Interventions in main retrofitting project and decanting Strategies/Schedule

The programme started with introduction of the participants followed by the welcoming of the participants and highlights on the objective of the programme by Lead Adviser Health Infrastructure Mr Sunil Khadka.

The first session of the orientation discussed on proposed functional retrofitting interventions and designs for the Pokhara Academic of Health Sciences, Pokhara to improve the functionality of the building and create improved environment for delivering quality health services. The concept behind the decanting strategy and plans were also explained. The session also focused on the cross-cutting issues on GESI/LNOB, equal payment to the workers and the practice of zero tolerance to the corruption by DFID and its implementing agencies and the third-party monitoring mechanism.



Mr Sunil Khadka- HI lead advisor highlighting the functional retrofitting and NHSSP/DFID working modality

1.2. Session I1- NHSSP Retrofitting Approach, Structural Retrofitting and Green interventions

The second session was conducted by Dr. Santosh Shrestha Senior Earthquake Resilience Advisor from NHSSP. Presentation and interaction were made on approach adopted by NHSSP on design of structural retrofitting and Green Interventions for retrofitting of Pokhara Academy of Health Sciences (PAHS), Pokhara. The importance of retrofitting of existing hospitals/health buildings to withstand future seismic hazards and concept of green retrofitting to improve the environment with interventions such as provision of natural lights and ventilation, sewage treatments plants, rainwater harvesting and concept of zero waste management was discussed during the session. The technique of retrofitting using splint and bandage and shear wall method adopted for the retrofitting of PAH Pokhara. The session also discussed on complexity involved in the difficulty of management of high-rise health buildings from multi-hazard perspective such as earthquake and fire in the context of Nepal.



Dr. Santosh Shrestha, NHSSP highlighting the NHSSP-Retrofitting approach and green interventions on PAHS, Pokhara main retrofitting project

1.3. Session III- Major features of bidding document for main retrofitting works in PAHS, Pokhara

The third session of the orientation programme discussed in detail on the major features of the bidding document issued for the main retrofitting works in PAHS, Pokhara. The session was conducted by the Engr Subash Bhattarai (HI- Policy Development Advisor, NHSSP). The session highlighted on the legal provisions with regard to health and safety, environmental protection, labor laws, insurances including the instructions to the bidders, employer's requirement, provisional sum and conditions of the contract.

Discussions were also made on the eligibility and qualification requirement for the bidders and use of employers' master schedule and schedule of the service decanting contract to be followed by the bidder during the commencement of the works.



Er. Subash Bhattarai, NHSSP highlighting the salient features of WRH, Pokhara main retrofitting project bidding document

Note: The presentation materials attached in the Annex

1.4. Interaction Session and Closing of the Orientation Programme

Interaction session was organised at the end of the technical sessions. The interaction was mainly around the approaches to retrofitting, conditions of contract, roles and responsibilities of the prospective contractors.

The participants suggested that these kinds of orientation related to the technical knowhow and knowledge on procurement practices was very important for them and their engineers, project managers and organisation managers and this practice should be followed by other projects and the government as well. Also it was suggested by the participants that similar trainings on be organized in future as well in coordination with DUDBC FPIU and province and district FCAN to resolve different issues related to contract management for the improvement of in the performance in the construction sector.

The orientation programme was concluded after the closing remarks from the DUDBC FPIU Chief Senior Divisional Engineer (SDE) Mr Jhapad Thapa. He highlighted the need of coordination and cooperation between the different stakeholders for smooth completion of the projects in stipulated time. He further emphasized that understanding of their appropriate role and processes involved in the contract management by the contractor during the commencement of the works is very crucial in all projects and regular coordination between DUDBC FPIU, contractor and relevant stakeholders is very important for the proper management of the project.

Annex - I
Programme Schedule

Orientation programme for
the construction contractor on approach, design and Bidding
document for WRH, Pokhara main retrofitting construction contract

Venue: Tuki Resort, Pokhara
2076 Magh 13 (27th January 2020)

Programme Schedule

Time	Session	Descriptions	Resource Person
7:00 – 8:00	Registration and Breakfast		
8:00-8:15	Programme Objective		Sunil Khadka, Lead Advisor NHSSP-HI
8:15 – 9:15	Session - I	Functional Retrofitting and interventions, Decanting strategies	Sunil Khadka, Lead Advisor NHSSP-HI
9:15 – 10:15	Session - II	Retrofitting approach of NHSSP, Structural retrofitting	Santosh Shrestha, SERA, NHSSP
10:15 – 10:30	Tea Break		
10:30 - 11:30	Session - III	Major features incorporated in the bidding document of WRH, Pokhara	Subash Bhattarai PDA, NHSSP
11:30 – 12:00	Discussions		

12:00-12:15	Closing	Jhapad Thapa, DUDBC/FPIU Chief, Kaski
12:15 onwards	Closing with Lunch	

Annex – II
Photographs of the Programme



Participants attending the Orientation Event



Participants attending the Orientation Event

Annex – III
Presentation (Resource) Materials

Annex – IV
List of Participants



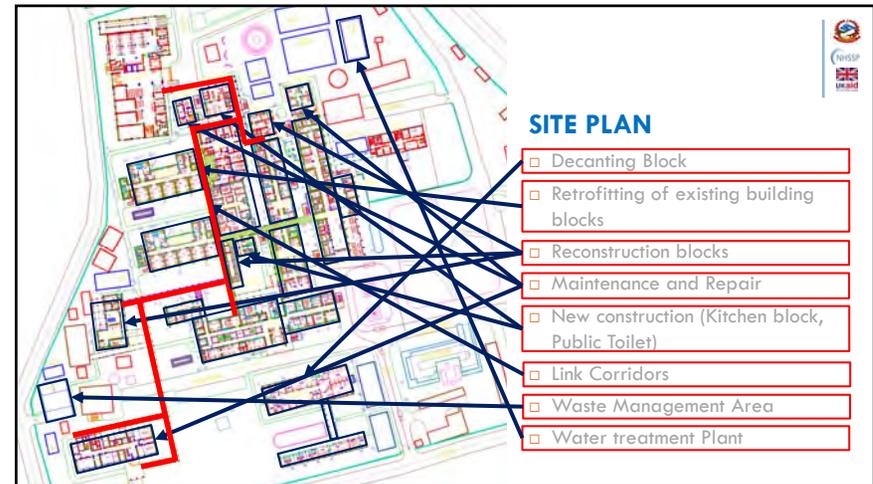



**PRESENTATION ON
RETROFITTING
OF
WESTERN REGIONAL HOSPITAL,
POKHARA**

**Interventions
&
Decanting Strategy**

Sunil Khadka, Lead Advisor, Health Infrastructure, NHSSP

1



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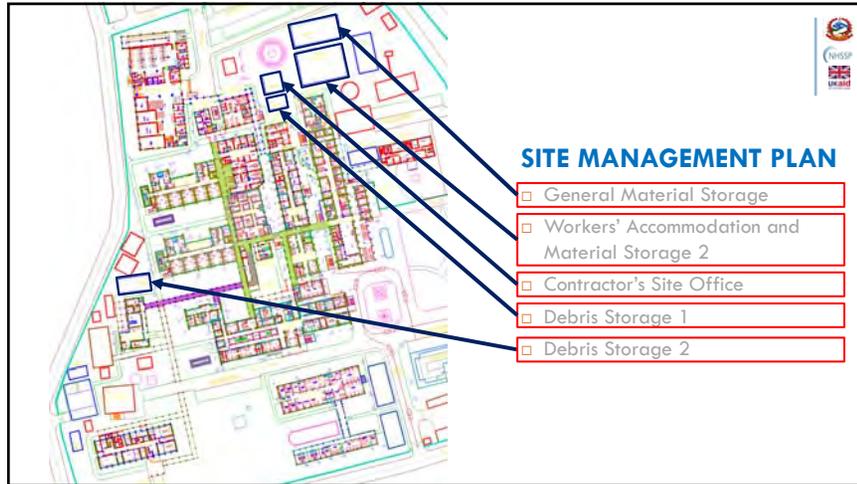
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Salient Features

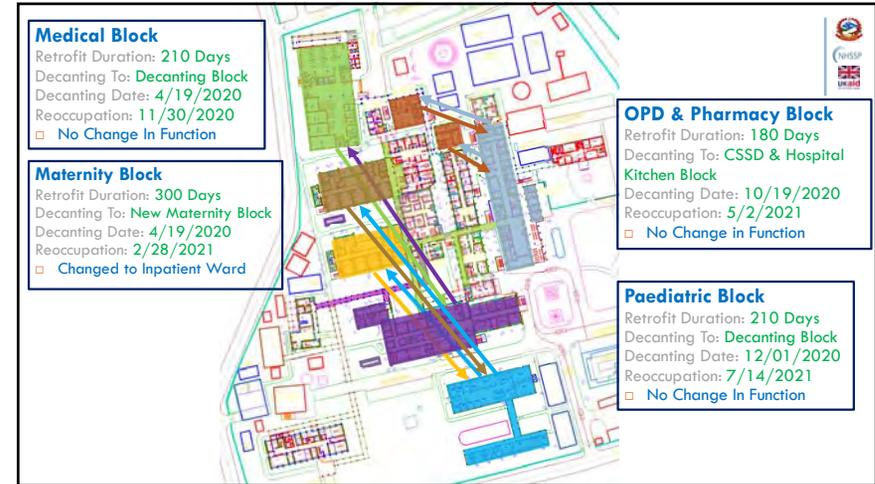
Functional and Green Retrofitting

- Creation of Atrium Space in Maternity Block
- Construction of Public Toilet in central location.
- Construction of CSSD Block and Hospital Kitchen Block.
- Addition and Improvement of Link Corridors.
- Provision of Water Treatment Plant and RO Treatment Plant.
- Provision of Oxygen Plant and Medical Gas Pipeline System.
- Replacement of All Electrical and Sanitary System.
- Additional Storey in OPD.
- Improvement of ICU.
- Segregation / Arrangement of Hospital Functions.
- Improvement of Emergency Ward.
- Improvement of Dialysis Ward.
- Improvement of Flooring and Finishing.

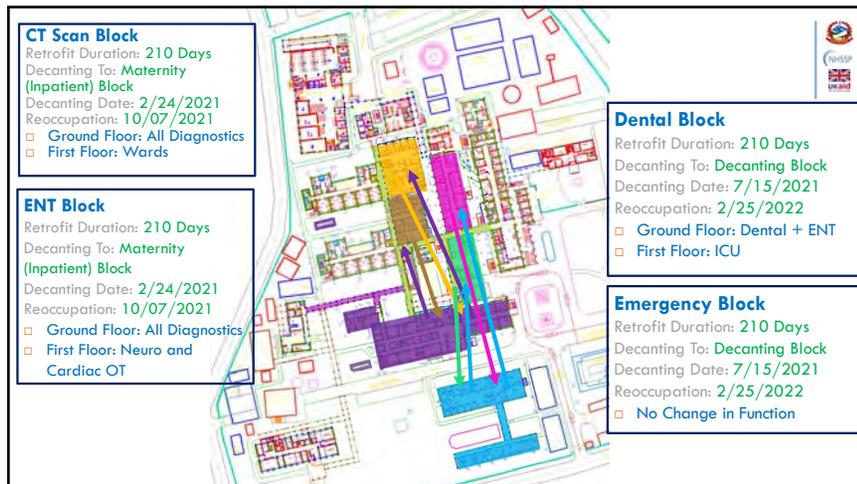
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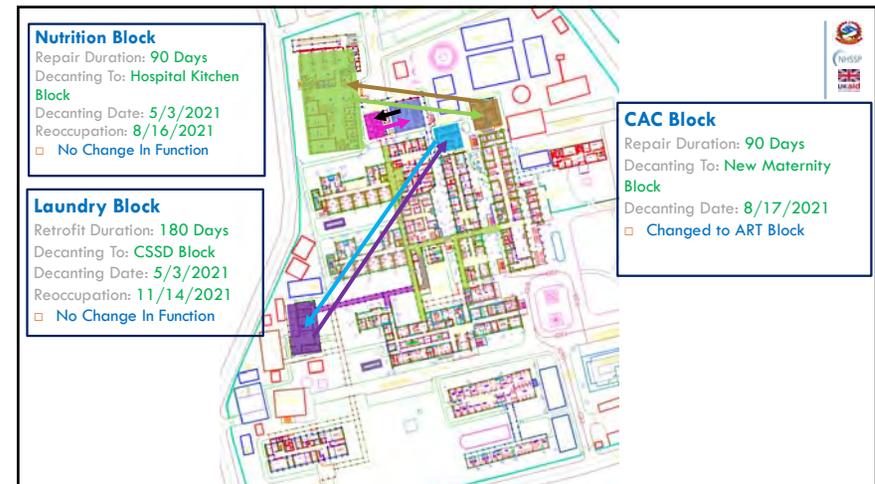
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8

Phase 1
Construction of Hospital Kitchen, Escalator and Link Corridor
Phase 10
Renovate of Laundry Block,
Phase 7
Pharmacy Block, Dental Block and CAC Block
Phase 5
Renovate of Medical Block,
Maternity Block, OPD & Pharmacy Block
Phase 4
Renovate of Maternity Block, OPD & Pharmacy Block and Pediatrics Block
Phase 3
Renovate of OPD & Pharmacy Block and Pediatrics Block
Phase 6
Renovate of OPD & Pharmacy Block and Pediatrics Block
Phase 2
Renovate of Pediatrics block, ENT Block and CT Scan Block,
Phase 8
Renovate of ENT Block and Nutrition Block & Laundry Block
Phase 9
Renovate of ENT Block and CT Scan Block, Nutrition Block & Laundry Block, Emergency Block, Dental Block

9





THANK YOU 😊

10



Hospital Retrofitting in Nepal:

Western Regional Hospital, Pokhara & Bhaktapur District Hospital

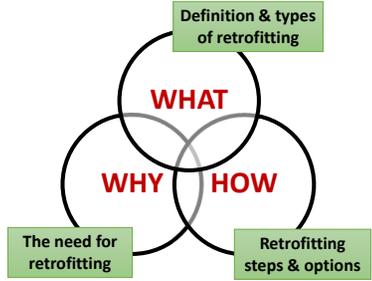
Santosh Shrestha, PhD
Senior Earthquake Resilient Advisor
NHSSP-III, Ministry of Health



1

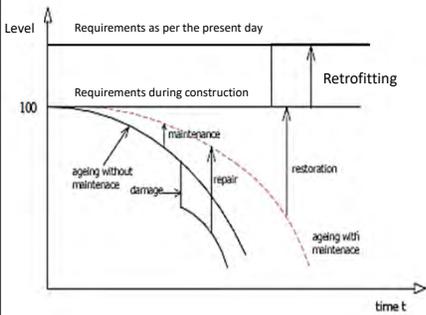


Summary



2

What is Retrofitting ?



- **Repair/ Restoration**
 - Non-structural/Architectural Repairs
 - Structural Repairs/Restoration for restoration of original strength
 - restoration of the strength the building had before the damage occurred
- **Seismic Strengthening**
 - upgrade the seismic resistance of a damaged building so that it becomes safer under future earthquake occurrences
- **Seismic Retrofitting**
 - upgraded to the level of the seismic strength requirements as per the present day codes
- **Reconstruction**
 - Replacement of damaged buildings or existing unsafe buildings by reconstruction

3

Types of Retrofitting

- **Seismic Retrofitting**

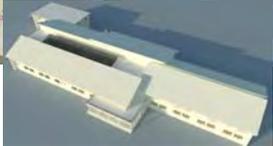
Upgrading of building systems both structural and non-structural in existing structures to make them more resistant to seismic activity

 - **Structural Retrofitting**
 - **Non-structural Retrofitting**
- **Functional Retrofitting**

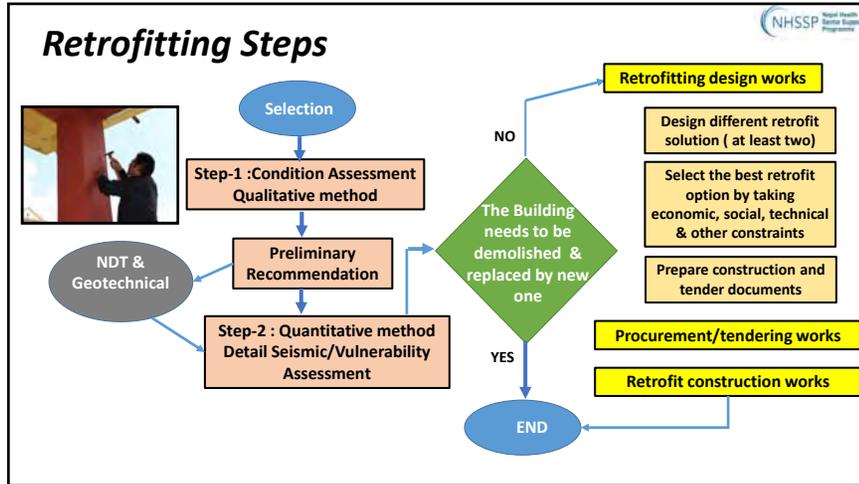
Upgrading of building functions in existing structures to make them more usable and effective in services


- **Green Retrofitting**

Upgrade at an existing building that is wholly or partially occupied to improve energy and environmental performance, reduce water use, and improve the comfort and quality of the space in terms of natural light, air quality, and noise—all done in a way that it is financially beneficial to the owner



4



5

Hospital Selection

- Existing Knowledge**: 1-3
- Geographic Location**: 1-3
- Accessibility**: Max 3
- Hub Hospital**: Yes - 3 & No - 0
- Hospital Services**:
 - Nos of Services provided: 15 -11 services - 3 points ; 10 - 6 services - 2 points; 0 - 5 services - 1 point
 - CEONC Services: Yes - 1 & No - 0
 - Orthopadic Surgery: Yes - 1 & No - 0
 - General Surgery: Yes - 1 & No - 0
- Utilization**: 1-4
- Location and Catchment Area**:
 - Score based on strategically Located: 1-3 (market center, agglomeration affect, service center)
 - Score based on accessibility: 1-3
- Strategical Important**: Secondary, tertiary and central and higher-3; Primary A type - 2, Primary B type-1; Specialised-0

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Selection Criteria

The table lists various hospital selection criteria across different categories. The criteria include: Existing Knowledge and History, Geographic Location, Hub Hospital, Hospital Services, Utilization, and Location and Catchment Area. Each criterion is evaluated on a scale from 1 to 5.

Name of Hospital	1 Existing Knowledge and History					2 Geographic Location				3 Hub Hospital			4 Hospital Services				5 Utilization			6 Location and Catchment Area				Weighted Score		
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3		4	5
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Detailed Vulnerability Assessment

Tier 3 : Quantitative method

- NDT & DT
- Geotechnical Investigation

Detailed numerical analysis

Identify Potential Structural Weakness and Relative Vulnerability

Retrofitting structural pre-design



9

Detailed Seismic Assessment

Destructive and Non-Destructive Tests

RCC Structures

- Ferro Scan Test
- Schmidt Hammer Rebound Test
- Ultrasonic Pulse Velocity Test
- Concrete coring and compression tests

Load Bearing Masonry Structures

- Penetrometer Test
- Flat Jack Test
- Bed joint shear test
- Brick/stone test

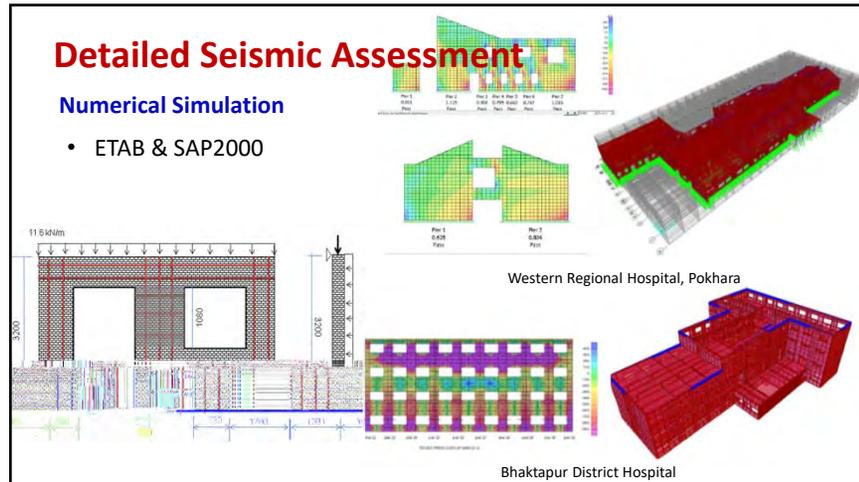


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Detailed Seismic Assessment

Numerical Simulation

- ETAB & SAP2000



11

Intervention Strategy : Decision Parameters

- Seismic hazard at the site
- Condition of the building
- Age of the building
- Intended function/ Occupancy
- Cost
- Building typology and vulnerability
- Performance expectation
- Technological capacity available at the site
- Policy



12

Retrofitting Options

13

Retrofitting Options

Once the decision is made, seismic retrofitting can be performed through several methods with various objectives such as increasing the load, deformation, and/or energy dissipation capacity of the structure (FEMA, 2000)

14

Retrofitting Options

Masonry Building Retrofitting

Global

Adding Shear Wall
(Concrete or Solid masonry wall)

Adding Seismic bands
Splint & bandage

Adding cross /Wing Wall

Adding Seismic gap

Opening Reduction

Dampers

Base Isolation

Local

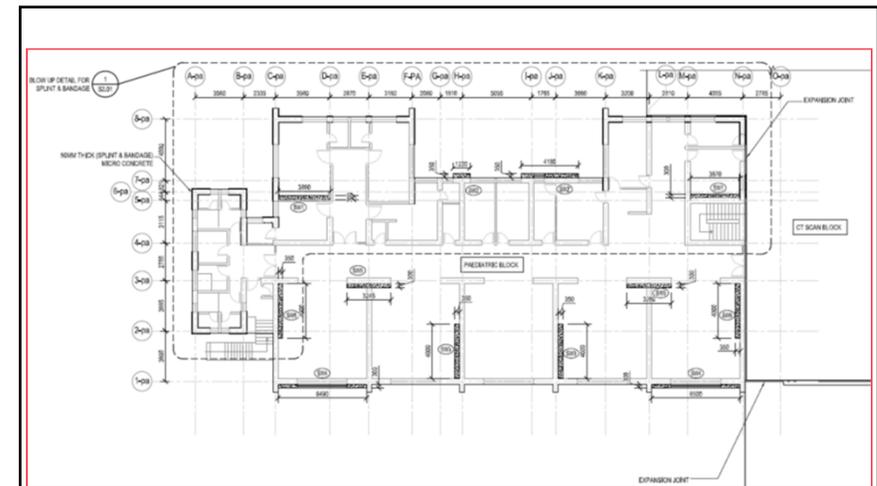
Jacketing of Pier

Jacketing of Columns

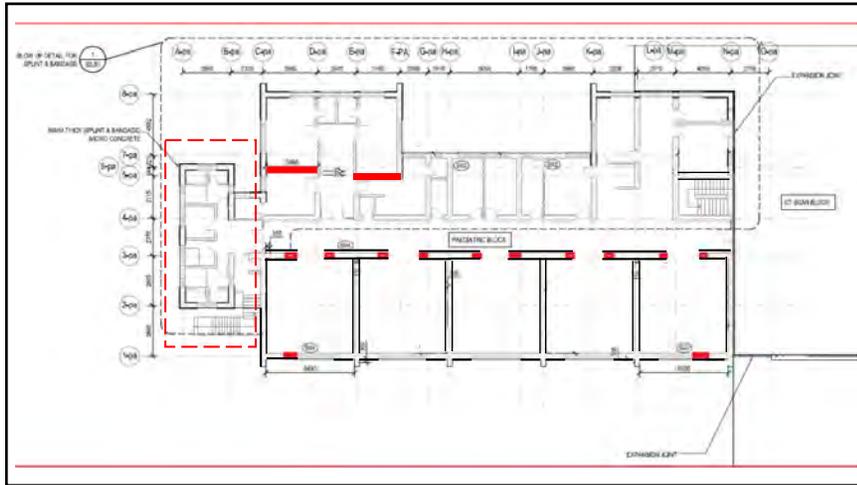
Jacketing of Beam-
Columns Joints

Strengthening of
Individual Footings

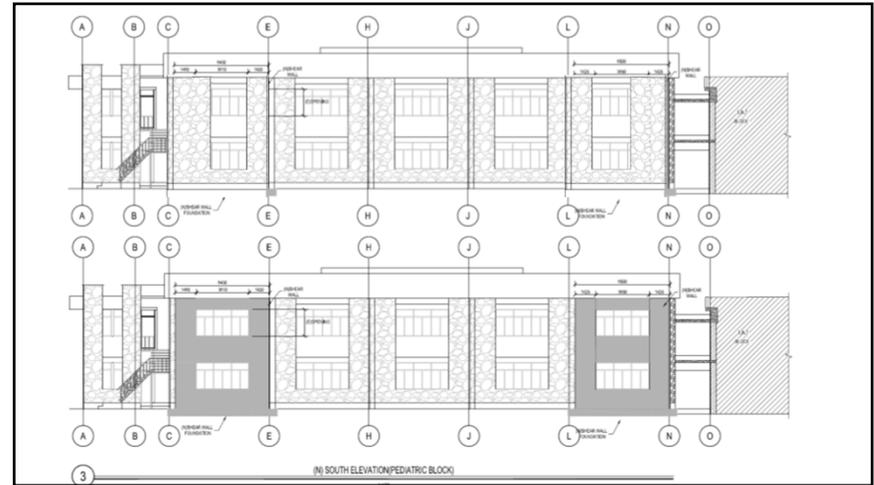
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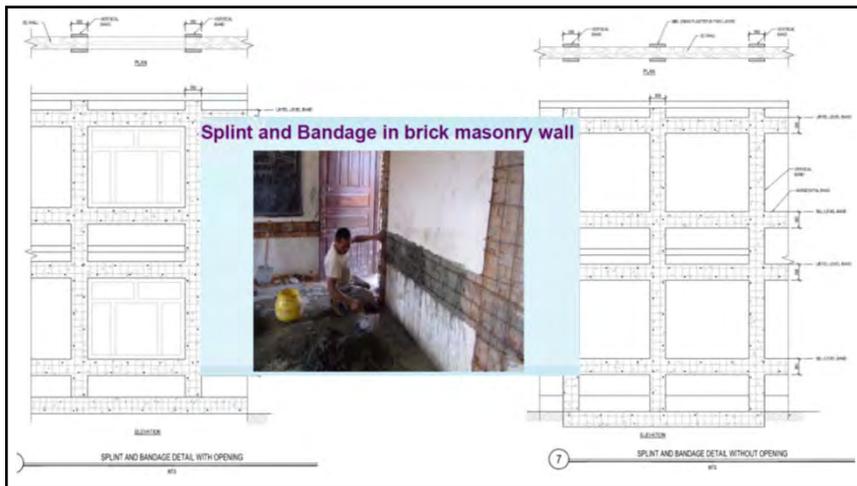
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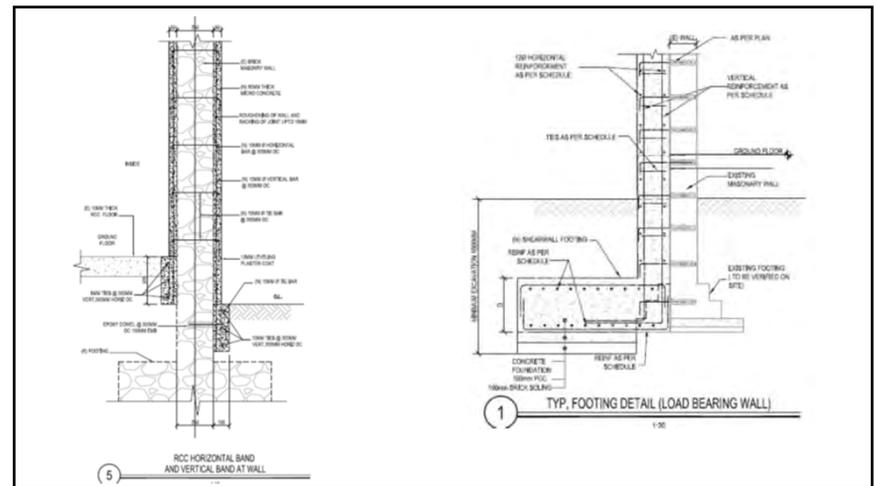
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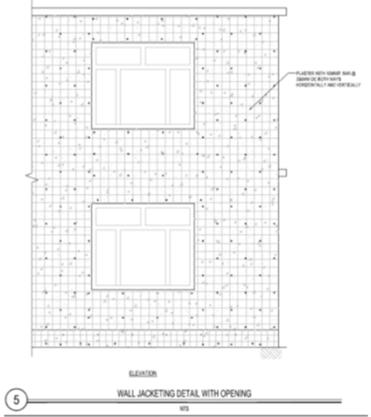


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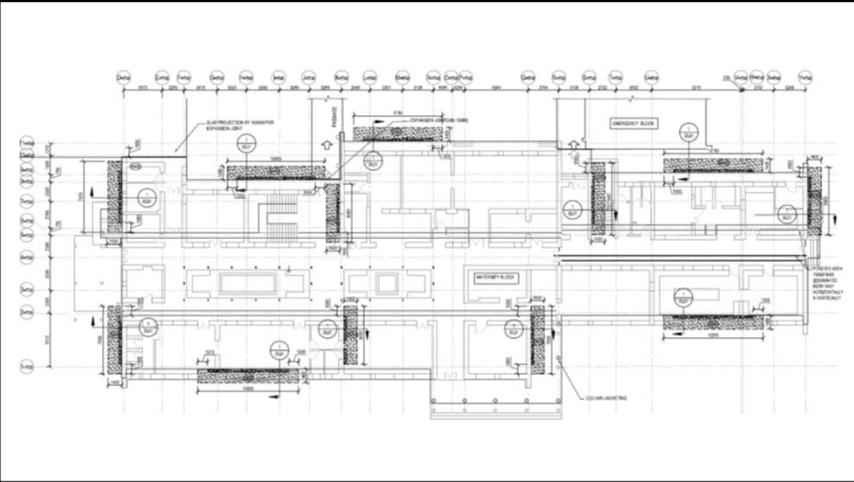


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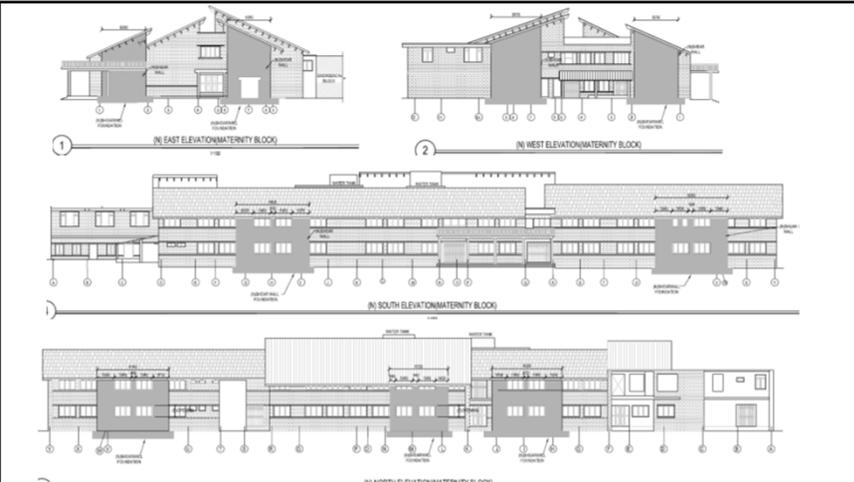
Wall Jacketing



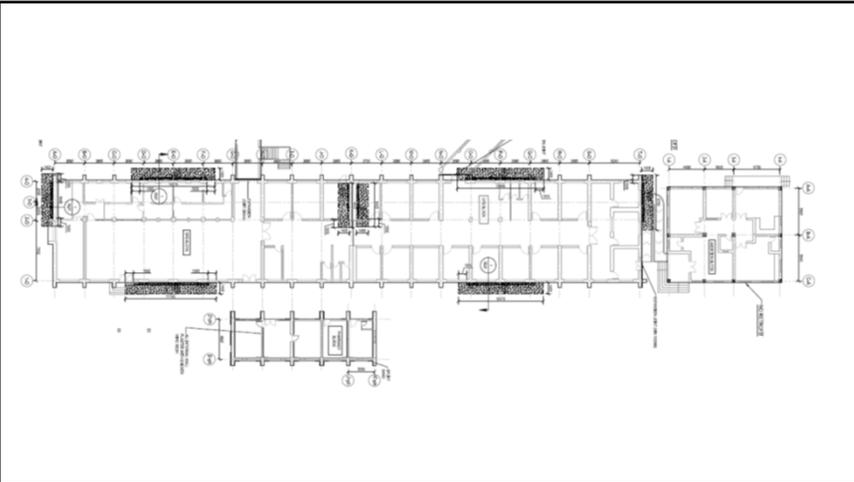
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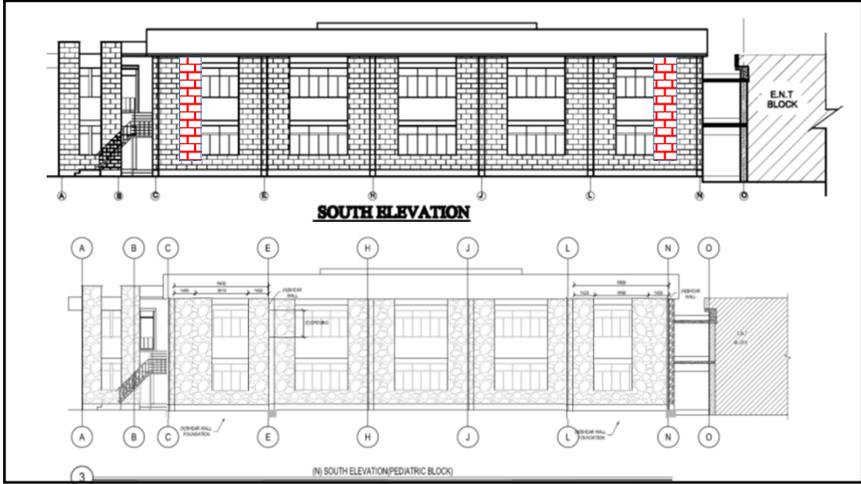
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24



Orientation and Interaction Programme for Construction Contractors

Salient Features of Bidding document and CoC of WRH, Pokhara Main retrofitting
project

Er. Subash Bhattarai , NHSSP

27 January 2020
Pokhara

1

नयाँ निर्माण र प्रवलिकरण विच भिन्नता

- खरिद प्रक्रिया
- करार व्यवस्थापन
- वातावरण व्यवस्थापन

2

खरिद प्रक्रिया

- निर्माण व्यवसायीबाट खरिदमा भाग लिदा ध्यान दिनुपर्ने
 - यूनिट प्राईस
 - BOQ को राम्रोसङ्ग अध्ययन
 - Specification को अध्ययन , विशेष गरि Particular Specification
 - Drawings and Design

3

करार व्यवस्थापन

A. General

- GCC 14. Schedule of other contractor
- GCC.20. Site Investigation Reports
- GCC 23. Design by contractor and Approval by the Project Manager
- GCC24. Safety, Security and Protection of the Environment
- GCC26. Possession of the Site

4

करार व्यवस्थापन

B. General

- GCC 31. Forced Labor
- GCC 32. Child Labor
- GCC 33. Non-discrimination and Equal Opportunity

5

करार व्यवस्थापन

C. Quality Control

- GCC 41. Tests
- GCC 42. Defect Liability Period

6

करार व्यवस्थापन

C. Quality Control

- GCC 41. Tests

7

Special Conditions of Contract

- **GCC 14.1 Schedule of other contractors:**
 1. Service Decanting Schedule
 2. Master Construction Schedule provided by the employer
 3. Schedule as prepared in coordination with hospital authorities
- Contractor has to cooperate and coordinate with above schedules during the construction works.

8

Special Conditions of Contract

GCC 20.1 Site Investigation Reports are:

- Geological Site Investigations Report
- Non-Destructive Test and Destructive Test Report
- Information from the employer or from site visit

9

Special Conditions of Contract

GCC 23.1 The following shall be designed by the Contractor:

- Temporary Works like shoring, props, labor accommodations, site offices as required

10

Special Conditions of Contract

GCC 24.1 Add after the sub-clause GCC 24.1 (h)

- The contract shall have to develop detailed **Environment Management Plan, Health & Safety Plan and provisions and Job layout plan**. These plans need to be **submitted and presented in the stakeholder's meeting** before commencement of the work and shall take the approval from the project manager.
- Environment Management Plan should be prepared considering the Environment, Social and Safety Measures for WRH, Pokhara Hospital Retrofitting Works for probable impact mitigation measures.
 - Air/Dust Pollution
 - Noise Pollution : built-in BOQ
 - Land and water pollution
 - Disturbance to the hospital visitors and hospital staff
 - Vibration
 - Traffic and Pedestrian Road Congestion: built-in PS
 - Impacts due to the disposal of waste materials
 - Impacts on the existing public utilities near to the Hospital buildings
 - Social Concerns

11

Special Conditions of Contract

GCC 26.1 The Site Possession Date(s) shall be:

GCC 26.1 has been deactivated for this contract and following condition apply.

- *The employer shall give possession of a part of site as per the employer's master schedule within 7 days after issue of work order. Contractor has to agree and shall be allowed to possess the whole or part of the site as per the master schedule of the Employer during the construction works.*

12

Special Conditions of Contract

GCC 41. Tests : Built-in PS

- If the Project Manager instructs the Contractor to carry out a test not specified in the Specification

13

Special Conditions of Contract

- **GCC 42.1 The Defects Liability Period** is: 365 days which starts only after the completion of the whole project

14

Nepal Health Sector Support Programme
An orientation programme to the construction contractors
List of participants

Date: 27 January, 2020

Venue: Tuki Resort, Pokhara

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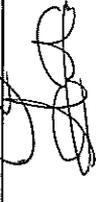
Nepal Health Sector Support Programme
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15.	Harip. Panaji	Contractor			98216047817	
16.	SHRIDHAR PUN	" "			9856081630	
17.	Kestav Raj Shrestha	Contractor			9856021622	
18.	Alisha Bzwal				9861394932	
19.	Amuna Bawal	M D			9856021013	
20.	Min Prasad Poudel	Contractor			9896032341	

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Venue: Tuki Resort, Pokhara

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Nepal Health Sector Support Programme
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List of participants

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Date: 27 January, 2020

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