

## **5. Memorandum of Understanding (Explanation of the Draft)**


**MEMORANDUM OF UNDERSTANDING**  
**ON THE PROJECT FOR MEDICAL EQUIPMENT PROVISION**  
**FOR IMPROVING PUBLIC HEALTH CARE SERVICES**  
**AT THE NATIONAL, MUNICIPAL AND PROVINCIAL REFERRAL HOSPITALS**  
**IN THE KINGDOM OF CAMBODIA**

In November 2010, Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Preparatory Survey Team on the Project for Medical Equipment Provision for Improving Public Health Care Services at the National, Municipal and Provincial Referral Hospitals in the Kingdom of Cambodia (hereinafter referred to as "the Project") to the Royal Government of Cambodia, and through discussion, field survey, and technical examination of the study results in Japan, JICA elaborated the outline of the Project.

In order to explain and to consult the Royal Government of Cambodia on outline of the Project, JICA sent to Cambodia the Consultation Team (hereinafter referred to as "the Team"), which is headed by Mr. Seiji Kato, Advisor, Health Division 3, Human Development Department, JICA and scheduled to stay in the country from 13 to 19 February, 2011.

In the course of discussions, both parties confirmed the outline of the Project, mayor undertakings to be taken by both parties and main items described on the attached sheets. The Team will proceed to further works to implement the Project.

Phnom Penh, 16 February, 2011



Seiji Kato  
Leader, Consultation Team  
Advisor, Health Division 3  
Human Development Department  
Japan International Cooperation Agency




Professor Eng Huot  
Secretary of State  
Ministry of Health  
Kingdom of Cambodia

**MINUTES OF DISCUSSIONS  
ON THE BASIC DESIGN STUDY  
ON THE PROJECT FOR MEDICAL EQUIPMENT PROVISION  
FOR IMPROVING PUBLIC HEALTH CARE SERVICES  
AT THE NATIONAL, MUNICIPAL AND PROVINCIAL REFERRAL HOSPITALS  
IN THE KINGDOM OF CAMBODIA  
(EXPLANATION OF DRAFT REPORT)**

In November 2010, Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Preparatory Survey Team on the Project for Medical Equipment Provision for Improving Public Health Care Services at the National, Municipal and Provincial Referral Hospitals in the Kingdom of Cambodia (hereinafter referred to as "the Project") to the Royal Government of Cambodia, and through discussion, field survey, and technical examination of the study results in Japan, JICA prepared a draft report on the study.

In order to explain and to consult the Royal Government of Cambodia on the components of the draft report, JICA sent to Cambodia the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Seiji Kato, Advisor, Health Division 3, Human Development Department, JICA and scheduled to stay in the country from 13 to 19 February, 2011.

In the course of explanation of draft report, both parties confirmed the main items described on the attached sheets. The Team will proceed to further works to implement the Project.

Phnom Penh, 16 February, 2011 

---

Japan International Cooperation Agency

---

Professor Eng Huot  
Secretary of State  
Ministry of Health  
Kingdom of Cambodia

S. K



## ATTACHMENT

### 1. Components of the Draft Report

The Royal Government of Cambodia agreed and accepted in principle the components of the draft report explained by the Team.

### 2. Japan's Grant Aid scheme

The Royal Government of Cambodia understands the Japan's Grant Aid scheme and the necessary measures to be taken by the Royal Government of Cambodia explained by the Team and described in Annex-4 of the Minutes of Discussions signed by both parties on 26<sup>th</sup> November, 2010.

### 3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Royal Government of Cambodia by the end of March 2011.

### 4. Other Relevant Issues

#### 4-1. Confidentiality of the Project Cost Estimation

The Team explained the cost estimation of the Project as described in Annex-1. Both sides agreed that the Project Cost Estimation should never be duplicated or released to any outside parties before signing of all the Contract(s) for the Project. The Royal Government of Cambodia understands that the Project Cost Estimation described in Annex-1 is not final and is subject to change.

#### 4-2. Criteria for Equipment Provisions

Based on the result of the Preparatory Survey and the following analyses, the number and locations of equipment were decided.

Criteria for making decisions were: 1) Needs and effectiveness in using the equipment, 2) Number of patients who are benefitted from the equipment, 3) Reported experience in the use of equipment of the same or similar type, 4) Availability of necessary human resources, 5) Availability of space, 6) Availability of electric power, 7) Age or shortage of the equipment in current operations, 8) Budgetary capacity to operate and maintain the equipment, and 9) Relevance of provision as the subject of Japan's Grand Aid.

Support from other donor agency was also taken into consideration to avoid the overlap of equipment.

Both side agreed that the equipment specified in the Annex-2 are only minimum requisite and most required for improving medical services at the designated hospitals.

#### 4-3. Soft Component (Trainings on the use of equipment)

The Project includes the trainings on the use of equipment, for the appropriate and most use of the equipment by medical and health personnel from the listed hospitals in the Annex-3. Curriculum consists of the trainings on maintenance skills and clinical practices.

The Royal Government of Cambodia will make necessary arrangements to conduct the trainings, in terms of coordination of trainers, provision of training sites and logistics for the participants, as well as for the continuation of hospital operation in the absence of medical and health personnel during the trainings.

#### 4-4. Undertakings by the Royal Government of Cambodia

The Royal Government of Cambodia will take every necessary measure to conduct the following undertakings according to the estimation of expense borne by the Cambodia side in Annex-1, tentative schedule described in Annex-4, and the major undertakings described in Annex-5.

##### 4-4-1.

The hospitals, in which the X-ray units, general automatic film processor, protective prefabricated rooms, and X-ray protective sets are installed, are to remove the old equipment, clean and tidy up the designated rooms in advance.

##### 4-4-2.

Ministry of Health is to allocate the necessary budget for securing proper amount of electric power, to the hospitals in which the X-ray units are installed, for qualified development of X-ray films and stable operation of the equipment.

##### 4-4-3.

Ministry of Health instructs the hospitals to allocate the necessary budget for maintenance for effective and sustainable operations of the equipment.

Annex-1	Project Cost Estimation
Annex-2	Equipment List
Annex-3	Participant List of the Trainings
Annex-4	Tentative Schedule of the Project
Annex-5	Major Undertakings by each Government

## Annex-1 Project Cost Estimation

This part is closed due to the confidentiality.

### (2) Expense Obligations for the Kingdom of Cambodia

Project cost borne by the Cambodia side is estimated to be 4,807,692 riel (100,000 Japanese Yen).

Item	Estimated costs (million Riel/million Yen)	
	million Riel	million Yen
Bank commissions	4,807,692	100,000
Total	riel	yen

The exchange rate of 1 riel = 0.0208 yen was used.

### (3) Estimation Conditions

- ① Time of estimation : November 2010
- ② Foreign exchange rates : US\$ 1 = 88.00yen, 1 riel = 0.0208 yen
- ③ Implementation period : Approx. 12 months
- ④ Other conditions : Cost is estimated within the framework of Japan's Grant Aid scheme

S. K.

26

## Final Requested Equipment List

S. No.	No.	Hospital	X-ray Machine				Ultrasound Machine	Patient Monitor
			X-ray Unit	General Automatic Film Processor	X-ray Protective Prefabricated Room	X-ray Protective Set		
1	1	Kamput	1	-	1	-	-	-
2	2	Kampong Chhnang	1	1	1	1	1	3
3	3	Kampong Thom	1	1	-	1	-	3
4	4	Siem Reap	1	1	1	1	1	3
5	5	Battambang	1	1	-	1	1	4
6	6	Mongkul Borey	-	1	-	1	1	4
7	7	Stung Treng	1	1	-	1	-	-
8	8	Kampong Speu	-	1	-	1	1	1
9	9	Kratie	1	1	1	1	-	4
10	10	Kok Kong	-	1	-	1	-	1
11	11	Kandal	1	1	1	1	1	2
12	12	Takeo	-	1	-	1	1	1
13	13	Prey Veng	1	1	1	1	-	3
14	14	Svay Rieng	1	1	1	1	1	2
15	15	Sihanouk Vill	1	1	1	1	1	-
16	16	Pursat	-	1	-	1	-	-
17	17	PP. Municipal	1	1	1	1	2	1
18	1	K.S. Friendship	1	1	1	1	2	-
19	2	Preah Anduong	1	1	1	1	1	2
20	3	Preah Kossamak	-	1	-	1	1	5
21	4	National Paediatric	-	-	-	-	1	-
Total			14	19	11	19	16	39

S. K

26

### Annex-3 Participant List of Trainings

Those who engage in maintenance of the equipment and medical practice at the hospitals as follows are recommended to participate in the soft component trainings.

No	Name of hospital	Mechanical Engineer	Radiologist	Ultrasound Technologist	Physician/ Surgeon	Nurse
1	Kampot	X	X			
2	Kampong Chhnang	X	X	X	X	X
3	Kampong Thom	X	X		X	X
4	Siem Reap	X	X	X	X	X
5	Battambang	X	X	X	X	X
6	Mongkul Borey	X		X	X	X
7	Stung Treng	X	X			
8	Kampong Speu	X		X	X	X
9	Kratie	X	X		X	X
10	Kok Kong	X			X	X
11	Kandal	X	X	X	X	X
12	Takeo	X		X	X	X
13	Prey Veng	X	X		X	X
14	Svay Rieng	X	X	X	X	X
15	Sihanouk Vill	X	X	X		
16	Pursat	X				
17	PP. Municipal	X	X	X	X	X
18	K.S. Friendship	X	X	X		
19	Preah Anduong	X	X	X		X
20	Preah Kossamak	X		X		X
21	National Pediatric	X		X		

S. K

6



#### Annex-4 Tentative Schedule of the Project

The implementation schedule of the Project consists of three stages, design stage, procurement stage and soft component.

The table below shows the processes in the Project from the conclusion of E/N to completion.

Subject - Month	1	2	3	4	5	6	7	8	9	10	11	12
Design Stage	(Final Confirmation for Equipment Specs)	(Finalization of Tender Documents)	(Approval of Tender Documents)	(Tender Announcement)	(Tender Evaluation)						(Around 3 months)	
Procurement Stage				(Confirmation for Equipment Drawings)				(Equipment Procurement)	(Third Party Inspection prior to the Shipment)		(Around 8 months)	
									(Transportation)	(Installation and Inspection)		
Soft Component											(Around 2 months)	(Soft Component)

S.4

16

## Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To ensure prompt unloading and customs clearance of the products at ports of disembarkation in the recipient country and to assist internal transportation of the products		
	1) Marine (Air) transportation of the Products from Japan to the recipient country	●	
	2) Tax exemption and custom clearance of the Products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	●	
2	To ensure that customs, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services [be exempted] or [be borne by the Authority without using the Grant]		●
3	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
4	To ensure that the products be maintained and used properly and effectively for the implementation of the Project		●
5	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project; such as minor renovation to secure proper amount of electricity for the equipment, and allocation of maintenance fees to designated hospitals		●
6	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●

S.E. 16

## **6. Soft Component Plan**

PREPARATORY SURVEY  
ON  
THE PROJECT FOR MEDICAL EQUIPMENT PROVISION  
FOR IMPROVING PUBLIC HEALTH CARE SERVICES  
AT  
THE NATIONAL, MUNICIPAL AND PROVINCIAL  
REFERRAL HOSPITALS  
IN THE KINGDOM OF CAMBODIA

Plan of Technical Assistance (Soft Component)

January 2011

INTEM CONSULTING INC.

## CONTENTS

1. Background of Soft Component .....	1
2. Objective of Soft Component .....	2
3. Output of Soft Component .....	4
4. Method for Confirming the Degrees of Achievement .....	5
5. Activities of Soft Component (Input Plan) .....	5
6. Method for Procuring the Resources of Soft Component .....	8
7. Implementing Schedule of Soft Component .....	8
8. Deliverable of Soft Component .....	8
9. Responsibility of Implementing Agencies of Recipient Country .....	8

### Appendices

1. Curriculum
2. Implementation Schedule, Time Schedule

## **1. Background of Soft Component**

### **(1) Maintenance and Management System of the Equipment**

The Ministry of Health (hereinafter called "MOH") of the Kingdom of Cambodia (hereinafter called "Cambodia") has been considering the improvement of medical facilities and equipment across the country as a top priority issue of the country, and formulated various measures. It has set forth a standard list of medical equipment for provincial Referral Hospitals (CPA3 and 2, hereinafter called "RH") to tackle the issue proactively, and promoted the establishment of a maintenance and management system of the equipment supplied. The outputs of its efforts include the allocation of technicians in charge of maintenance and management of facilities at provincial top RHs, the introduction of equipment management registers, and the establishment of a reporting system to MOH concerning equipment management. At the same time, MOH has been also committed to improvement of techniques by, for example, conducting training programs on a regular basis to the technicians allocated.

Despite all of these, however, their technical level of the maintenance and equipment management is not necessarily sufficient enough in terms of the handling of specific types of equipment, although the technicians are well equipped with general and basic skills. Behind their insufficient technical level lie the following facts among other things:

- (i) Since a vast range of pieces of equipment need to be covered, it is difficult to secure time for training on each type of equipment;
- (ii) Since an extremely large number of hospitals need to be covered, it is difficult to conduct detailed training, such as training programs for individual hospitals;
- (iii) Since the technical levels of the technicians at each site are not uniform, it is difficult to conduct training effectively;
- (iv) Since it is necessary to have the technicians receive training while engaging in their daily duties, it is difficult to make an appropriate schedule of training; and
- (v) Since there is a shortage of technicians in Cambodia, it is difficult to secure the sufficient number of technicians with appropriate technical levels.

The technicians posted to the targeted hospitals will be in charge of the maintenance and management of the equipment procured under the Project. Thus, for appropriate maintenance and management of such equipment for a long term, it is fairly effective to provide the technicians with technical training specifically focusing on the equipment procured.

## **(2) Clinical Level of Provincial Hospitals**

Since all the targeted hospitals under the Project have experienced to use the equipment to be procured, there is considered to be basically no problem with the operation and management. In order to make effective use of these medical equipment, however, it is important for the users – that is, medical staff members – to have sufficient clinical knowledge and experience, which include the basic knowledge of functions, operating principles, characteristic and other features of each equipment; the clinical meanings of data obtained from the equipment; the diagnostic capability based on the data; and the capability to make decision on courses of treatment based on the findings of the diagnoses. MOH is well aware of the importance of such knowledge and experience, and thus constantly conducts training towards medical professions at medical facilities across the country. Even so, training is far from sufficient at provincial hospitals due to geographical conditions: the gap of the technical levels with hospitals in the central area certainly exists. Under these circumstances, in order to make effective use of the planned equipment, it is desirable to conduct training on diagnostic technique which specializes in the equipment to be procured.

## **2. Objective of Soft Component**

### **2-1. Objectives of Soft Component**

Considering the foregoing background, training will be provided through soft components in pursuit of the following two objectives.

- (1) Improvement in the skills to maintain and manage the procured equipment
- (2) Improvement in the skills of operation and diagnosis and treatment for effective use of the procured equipment

### **2-2. Specific Objectives to Support Soft Component**

#### **(1) Improvement in the skills to maintain and manage the procured equipment**

Training will be conducted towards technicians at the targeted hospitals in charge of maintenance and management of equipment, so that they will be able to engage in the following assignments.

- (i) Reorganizing and reviewing the basic knowledge, including the operating principles and intended use, of the equipment to be procured (general X-ray machines, automatic film processors, ultrasound machines and patient monitors) will enable the technicians to

ensure their abilities.

- (ii) In order to keep the equipment listed above in an appropriate condition for a long term, the technicians will learn the inspection and maintenance methods specifically for the equipment.
- (iii) The technicians will be able to improve their abilities to conduct troubleshooting and specify failure parts, and provide maintenance technicians of the central workshop of MOH or the relevant manufacturers with the accurate information about the breakdown.

**(2) Improvement in the skills of operation and diagnosis and treatment for effective use of the procured equipment**

**[X-ray machines]**

Training of the following contents will be conducted to staff members in charge of the operation of X-ray machines (such as radiological technologists) and doctors using X-ray films in diagnosis.

- (i) Reorganizing and reviewing the basic knowledge, including the significance of use of general X-ray machines, and body parts and diseases applicable to X-ray, will enable the trainees to ensure their abilities.
- (ii) This training will enable the trainees to reconfirm the necessity of protection against X-ray, and the knowledge and skills of the protection, and ensure the appropriate protective measures.
- (iii) The trainees will be able to improve their skills, such as appropriate positioning for filming.

In addition,

- (iv) The doctors will be able to improve their skills to interpret radiograms.

**[Ultrasound machines]**

Training of the following contents will be conducted to staff members in charge of the operation of ultrasound machines (such as ultrasound technicians) and doctors using the machines in diagnosis.

- (i) Sufficient knowledge of the operating principles, characteristic features and applicable body parts of ultrasound machines will be well established.
- (ii) The trainees will be able to organize the basic knowledge of anatomical science, and understand the connection between the anatomical structures of internal organs under examination and those scanned and shown in photographed images.



- (iii) The trainees will be able to improve their skills to obtain appropriate tomography scanned images in accordance with the foregoing understanding.

In addition,

- (iv) The doctors will be able to improve their skills to diagnose with tomography images.

**[Patient monitors]**

Training of the following contents will be conducted to staff members in charge of handling of patient monitors (such as doctors and nurses).

- (i) Sufficient knowledge of intended use, operating principles and characteristic features of patient monitors will be well established.
- (ii) The trainees will be able to organize physiological knowledge and ensure the knowledge of the meanings of parameters gauged by patient monitors and the significance of use of the monitors.
- (iii) The trainees will be able to improve their skills to attach sensors appropriately.
- (iv) The trainees will be able to establish their knowledge of, for example, the relationship between the conditions of patients and the parameters, and abnormal parameters and their causes, and improve their skills to deal with such abnormalities.

### **3. Output of Soft Component**

**(1) Improvement in the skills to maintain and manage the procured equipment**

Implementation of the soft components will enable the counterparts to improve their maintenance and management system, so that the effects of the Project are expected to continue for a long term.

**(2) Improvement in the skills of operation and diagnosis and treatment for effective use of the procured equipment**

Implementation of the soft components will enable the counterparts to improve their treatment and diagnosis skills, and thus the medical and health services of the targeted hospitals and areas are expected to improve.

#### 4. Method for Confirming the Degrees of Achievement

The achievements of the soft components will be confirmed in the following manner.

Training	Training Item	Targeted Equipment	Targeted Staffs	Achievements	Method of Assessing the achievements
Equipment maintenance and management technique	Confirmation of maintenance skill	All	Maintenance technicians	Maintaining the supplied equipment appropriately	Assessment of skills before and after the training
	Skills for failure diagnosis				
Clinical technique	Overall understanding of the supplied equipment	All	Medical Doctors, nurses, X-ray technicians and ultrasound technicians	Understanding the supplied equipment appropriately	Assessment of skills before and after the training
		X-ray machines	X-ray technicians	Setting the appropriate mechanical conditions before shooting	Assessment of skills before and after the training
	Anatomy	X-ray machines	X-ray technicians	Shooting in appropriate position	Assessment of skills before and after the training
		Ultrasound machines	Medical Doctors and ultrasound technicians	Obtaining appropriate images.	Assessment of skills before and after the training
	Diagnostic technique	X-ray and ultrasound machines	Medical Doctors	Improving the accuracy of diagnosis.	Assessment of skills before and after the training
	Physiology	Patient monitors	Medical Doctors and nurses	Providing appropriate treatment to the patients in deteriorating condition	Assessment of skills before and after the training

#### 5. Activities of Soft Component (Input Plan)

Activities of soft components (Input Plan) are as follows.

##### (1) Lecturers

- (i) Technical expert of maintenance of X-ray machines: Japanese, 1 person
- (ii) Technical expert of maintenance of other equipment: Japanese, 1 person
- (iii) Diagnostic technical expert I: Japanese doctor, 1 person

(iv) Diagnostic technical Expert II: Cambodian doctor, 1 person

(Budget will be earmarked as the expenses of local employment)

(v) Training planner: Japanese, 1 person

For efficient implementation of training, careful preparation is necessary, including the drawing up of a training plan; preliminary discussions with MOH, targeted hospitals, relevant organization, etc.; arrangement of training venues; arrangement of transportation means; and coordination of schedules. In this regard, a staff member will be allocated to engage in these tasks. The person will administer the progress of the training as a whole and support the practical training while the training is in progress.

## **(2) (Proposed) Curricula**

(Proposed) curricula which are currently assumed will be presented in Attachment.

## **(3) (Proposed) Implementation Order**

As in the (proposed) curricula shown above, both types of the training consist of lectures and practical training. Lectures of basic knowledge and other topics will be held in meeting rooms of the hospitals, whereas practical training will be conducted using the equipment to be supplied to the hospitals under the Project.

As for training of maintenance skills, the trainees will be divided into two groups – that is, X-ray machine group, and ultrasound machine and patient monitor group. The training of the two groups will be conducted simultaneously. Since equipment maintenance technicians need to attend both types of training, a training schedule will be determined to provide the training courses of the same contents twice, so that all the technicians can attend all the courses.

Targeted trainees are expected to be the following persons. The schedule has been drawn up in consideration of the fact that it is effective to have X-ray and ultrasound technicians participate in training of both maintenance skills and knowledge of diagnostic technique.

[Training of Equipment Maintenance and Management]

- Equipment Maintenance Technician
- X-ray Technician
- Ultrasound Technician

[Training of Diagnostic Technique]

- Medical Doctor

- Nurse
- X-ray Technician
- Ultrasound Technician

The targeted hospitals and expected participants in training are listed in the following table. However, in addition to the targeted staffs, it would be effective to provide trainings to the staff members who belong to other departments in response to their request. (However, the cost incurred to train these extra members will be borne by the Cambodian side.)

Targeted Referral Hospitals and Participants						
No.	Hospital	Equipment Maintenance Technician	X-ray Technician	Ultrasound Technician	Doctor	Nurse
1	Kampot RH	○	○			
2	Kampong Chhnang RH	○	○	○	○	○
3	Kampong Thom RH	○	○		○	○
4	Siem Reap RH	○	○	○	○	○
5	Battambang RH	○	○	○	○	○
6	Mongkol Borey RH	○		○	○	○
7	Stung Treng RH	○	○			
8	Kampong Speu RH	○		○	○	○
9	Kratie RH	○	○		○	○
10	Kaoh Kong RH	○			○	○
11	Kandal RH	○	○	○	○	○
12	Takeo RH	○		○	○	○
13	Prey Veng RH	○	○		○	○
14	Svay Rieng RH	○	○	○	○	○
15	Sihanouk Ville RH	○	○	○		
16	Pursat RH	○				
17	PP. Municipal RH	○	○	○	○	○
18	K.S. Friendship NH	○	○	○		
19	Preah Anduong NH	○	○	○		○
20	Preah Kossamak NH	○		○		○
21	National Pediatric NH	○		○		



## **6. Method for Procuring the Resources of Soft Component**

Considering the shortage of appropriate specialists in Cambodia and the fact that the highly advance technical level is required, it seems appropriate to implement the soft components by Japanese specialists. However, since it is considered to be necessary to provide training of diagnostic technique in line with the local situations, Cambodian doctors shall be participated in the training as assistant lecturers.

## **7. Implementing Schedule of Soft Component**

The training courses will be put into practice by dividing all the targeted hospitals into two groups for the sake of the effectiveness and efficiency of the training (i.e., training courses, including practical exercises, will be designed to be small size).

The venue will be in Phnom Penh. The participants from the targeted hospitals will gather and have accommodations in the city in accordance with the schedule, and the training via the soft components will be intensively carried out.

The training of diagnostic technique will be planned separately from that of maintenance skills, in that the assumed trainees are different, and that the technical levels are considerably different between those from the national hospitals and those from the provincial ones. The training will be divided into three sessions (to be held in Phnom Penh).

A (proposed) schedule currently assumed is as shown in Attachment 2 "(Proposed) Schedule".

## **8. Deliverable of Soft Component**

Other than reports to the client and the Japanese side concerning the completion, the following documents are to be submitted.

- (i) Teaching materials (in Khmer)
- (ii) Reports

## **9. Responsibility of Implementing Agencies of Recipient Country**

MOH, the targeted hospitals and Provincial Health Department are required to coordinate the schedule of training, provide the venues, and have their trainees participate in the training, so that they can make appropriate use of the equipment to be supplied for a long term in accordance with the skills and techniques to be acquired. A suggestion will be made to these parties that they continue to provide the similar training after the implementation of the soft components so as to improve their skill levels.

## Appendix-1 Curriculum

### (Training of Equipment Maintenance Technique)

Schedule	Contents		Participants	
	X-ray machines	Ultrasound machines	X-ray machines and automatic processing machines	Other machines
1	Reconfirmation of equipment maintenance methods		Equipment maintenance technicians (all)	
2	Reconfirmation of basics of X-ray machines	Reconfirmation of basics of ultrasound machines	Equipment maintenance technicians (Group A)	Equipment maintenance technicians (Group B)
3	Routine and regular inspections of equipment procured	Routine and regular inspections of equipment procured	ditto	ditto
4	Failure diagnosis and troubleshooting of equipment procured	Failure diagnosis and troubleshooting of equipment procured	ditto	ditto
5	ditto	Reconfirmation of basics of patient monitors	ditto	ditto
6	Basics of automatic developing machines	ditto	ditto	ditto
7	Routine and regular inspections of equipment procured	Routine and regular inspections of equipment procured	ditto	ditto
8	Failure diagnosis and troubleshooting of equipment procured	Failure diagnosis and troubleshooting of equipment procured	ditto	ditto
9	Reconfirmation of basics of X-ray machines	Reconfirmation of basics of ultrasound machines	Equipment maintenance technicians (Group B) and X-ray technicians	Equipment maintenance technicians (Group A) and X-ray technicians
10	Routine and regular inspections of equipment procured	Routine and regular inspections of equipment procured	ditto	ditto
11	Failure diagnosis and troubleshooting of equipment procured	Failure diagnosis and troubleshooting of equipment procured	ditto	ditto
12	ditto	Reconfirmation of basics of patient monitors	ditto	ditto
13	Basics of automatic developing machines	ditto	ditto	ditto
14	Routine and regular inspections of equipment procured	Routine and regular inspections of equipment procured	ditto	ditto
15	Failure diagnosis and troubleshooting of equipment procured	Failure diagnosis and troubleshooting of equipment procured	ditto	ditto

(Training of Clinical Technique)

Schedule	Contents	Participants
1	Review of anatomical science	Doctors, nurses, X-ray technicians, and ultrasound technicians
2	ditto	ditto
3	Reconfirmation of technique for X-ray diagnoses	ditto
4	Diseases applicable to X-ray diagnoses and practice of interpretation of radiograms	ditto
5	Practice of X-ray photographing with equipment procured	ditto
6	Reconfirmation of basics of ultrasound machines	ditto
7	Review of anatomical science and knowledge of ultrasonic images	ditto
8	Practice of ultrasonic inspections with equipment procured	ditto
9	ditto	ditto
10	Reconfirmation of basics of physiology	ditto
11	ditto	ditto
12	Review of physiology and knowledge of physiological information	ditto
13	Practice using procured equipment	ditto
14	ditto	ditto
15	ditto	ditto

## Appendix-2 Implementation Schedule, Time Schedule

### Implementation Schedule (Whole Project)

Month		1	2	3	4	5	6	7	8	9	10	11	12
Implementation Schedule	Design Stage	[Bar]											
	Procurement Stage				[Bar]								
	Soft Component												
	1.Preparatory Stage	[Dashed Bar]											
	2.Implementation	[Dashed Bar]										[Solid Bar]	
Submission of Deliverables												△	▲

Progress report

Completion report

### Time Schedule (Soft Component)

[illegible]

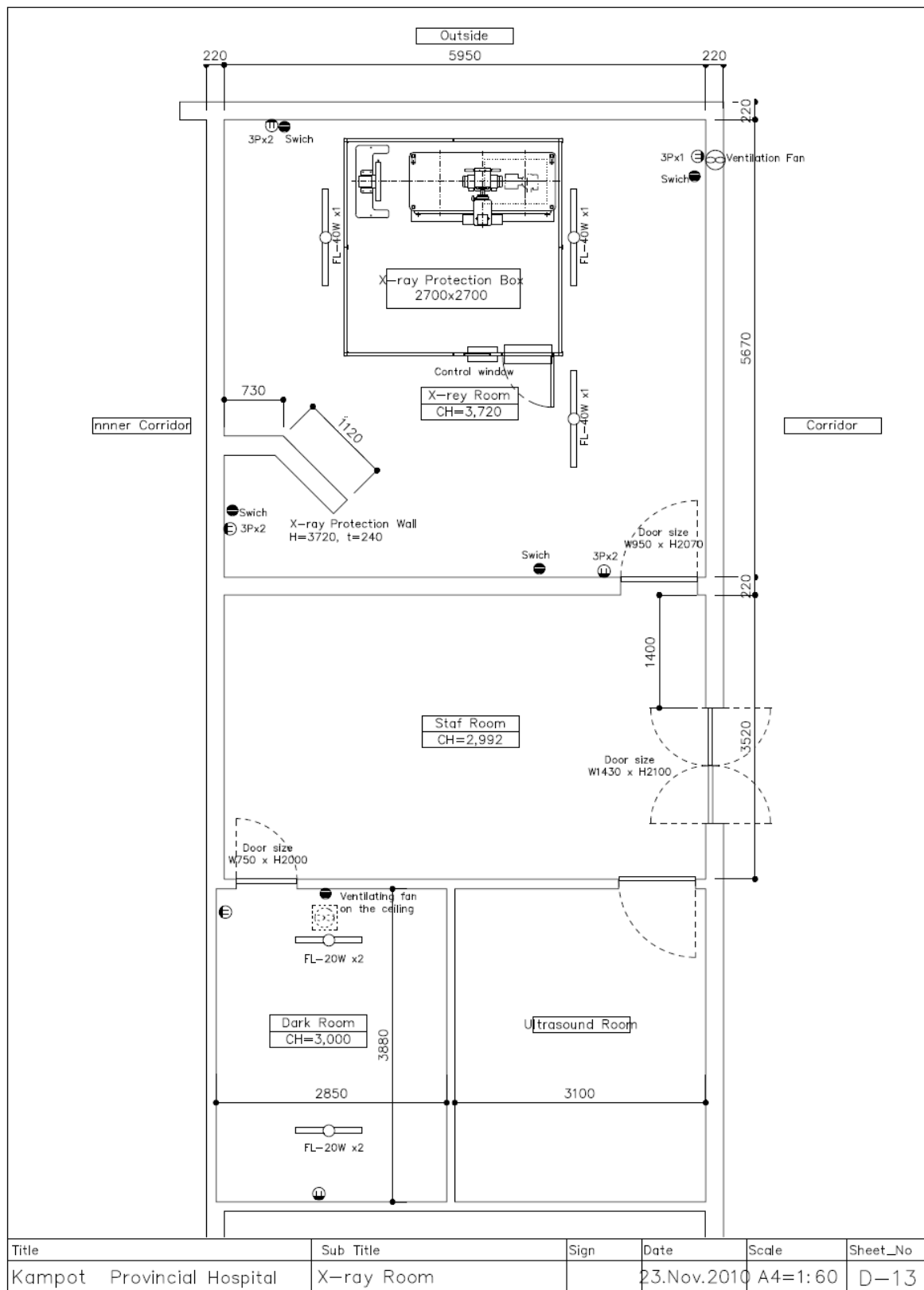


## **7. List of References**

	<b>Documents</b>	<b>Issued by</b>	<b>Year</b>
1	Health Strategic Plan 2008-2015 (HSP2)	MOH	2008
2	National Health Statistics Report	MOH	2008
3	National Strategic Development Plan 2006-2010	GOC	2006
4	Operation Manual Second Health Sector Support Program, 2009-13	MOH	2009
5	Complementary Package of Activities Building Brief-Referral Hospital	MOH	2003
6	National Guidelines on Complementary Package of Activities for Referral Hospital Development from 2006 to 2010	MOH	2006
7	Medical Equipment Standard FOR CPA3 Referral Hospital First Edition	MOH	2004
8	Medical Equipment Standard for CPA3 Referral Hospital (Revised Items)	MOH	2006
9	Medical Equipment Existing Number	MEDEM 2	2010
10	Manual of Medical Equipment Management for National and CPA3 Referral Hospital	MOH	2010
11	Medical Equipment Maintenance Guidebook PART A	MOH	2008
12	Medical Equipment Maintenance Guidebook PART B Edition 5	MOH	2008
13	Medical Equipment Maintenance Guidebook Part B Supplement	MOH	2010
14	CPA3 Survey Report	MEDEM 2	2009
15	Monitoring and Update of ME Condition Year 2010 1st Semester	MEDEM 2	2010
16	Result of Evaluation on ME Management Report 2009	MEDEM 2	2009
17	Result of Evaluation on ME Management Report 2010	MEDEM 2	2010
18	Result of Evaluation on ME Maintenance Technician 2010	MEDEM 2	2010
19	Study on Medical Equipment Management Working Group in CPA 3 RH_NH	MEDEM2	2010
20	HSSP I Equipment List for Pursat/St.Treng/ Kampot RH	MOH (HSSP I)	-
21	GA Baseline Survey Report	MEDEM 2	2010
22	List of Selected 3 Equipments	MEDEM 2	-
23	HSSP Project Completion Report Loan 1940-CAM(SF)	MOH (HSSP2)	2010
24	HSSP Semi-annual Report	MOH (HSSP2)	2008
25	WB documents on supporting HSSP2	WB	2010
26	HSSP2 Financial Policies & Procedures Manual	MOH (HSSP2)	2008
27	Service Delivery Grants – Operational Manual	MOH	2008
28	HSSP Updated Environmental Management Plan	MOH (HSSP2)	2008
29	2008 Census Cambodia (Community profile System)	MOH (HSSP2)	2010
30	GTZ Project Material (Equipment List for Kampot RH)	MOH (HSSP2)	2008

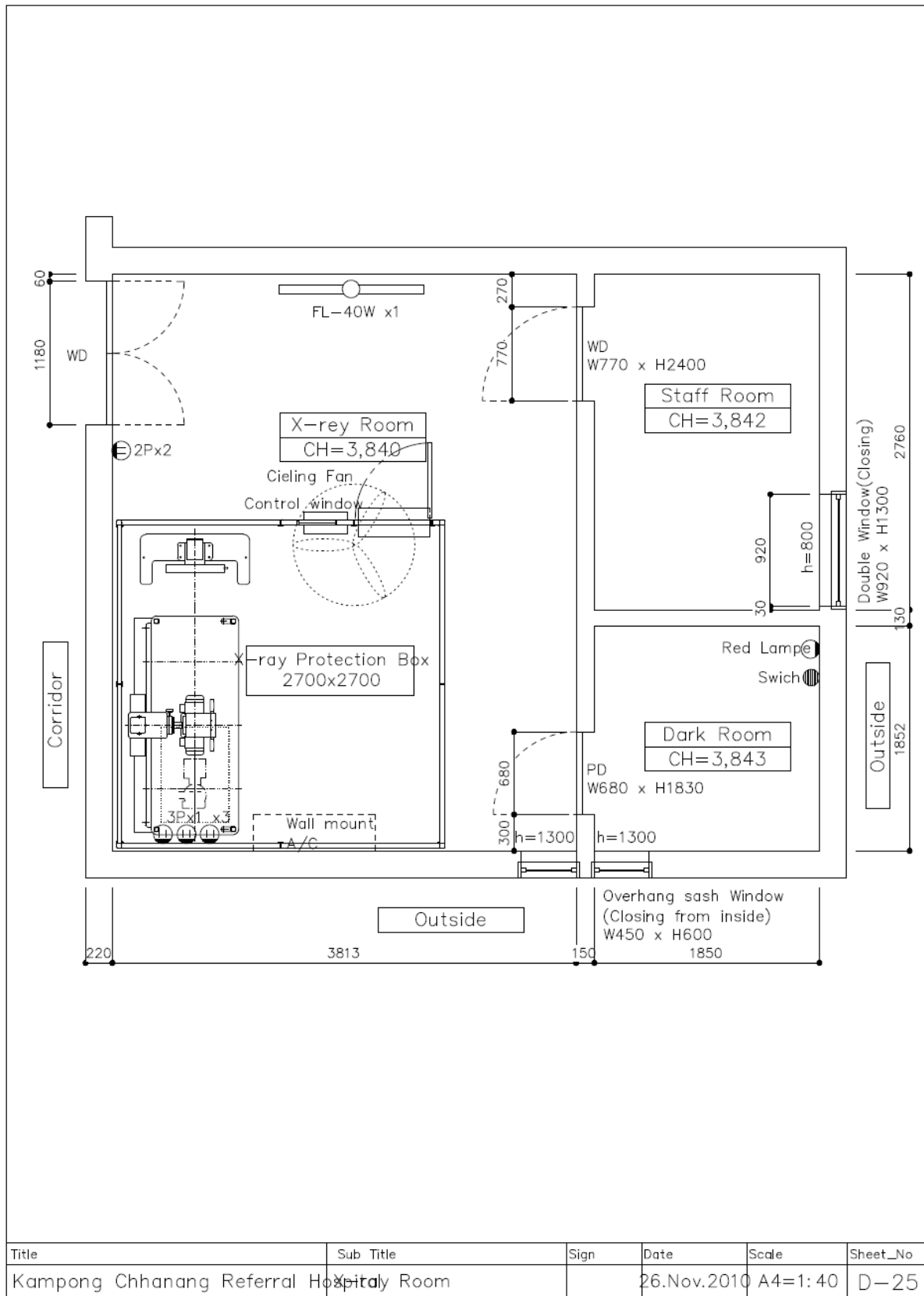
## **8. Layout Planning of X-ray Room**

## Layout1 1.Kampot RH

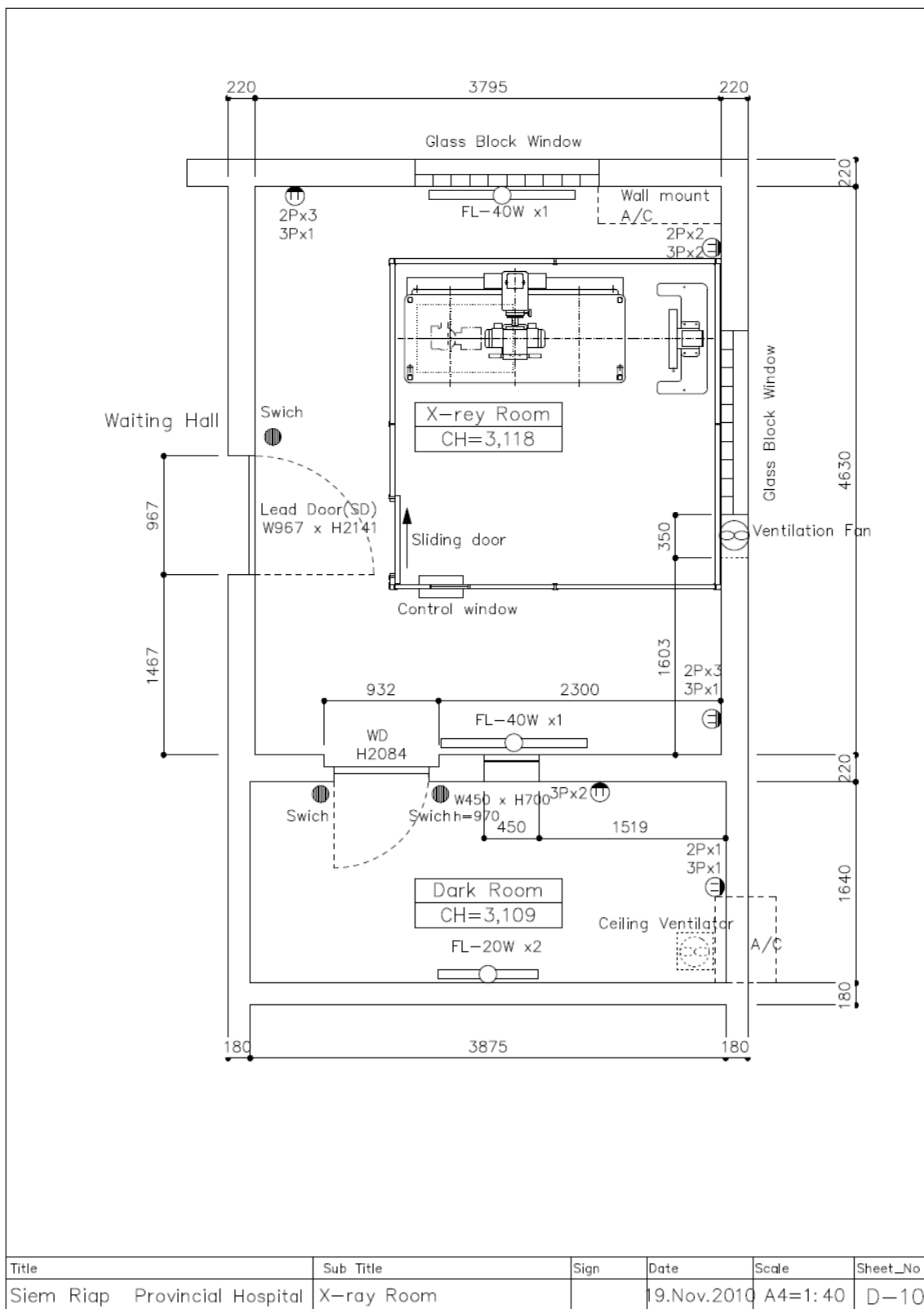


Title	Sub Title	Sign	Date	Scale	Sheet_No
Kampot Provincial Hospital	X-ray Room		23.Nov.2010	A4=1:60	D-13

## Layout 2 2.Kampong Chhnang RH

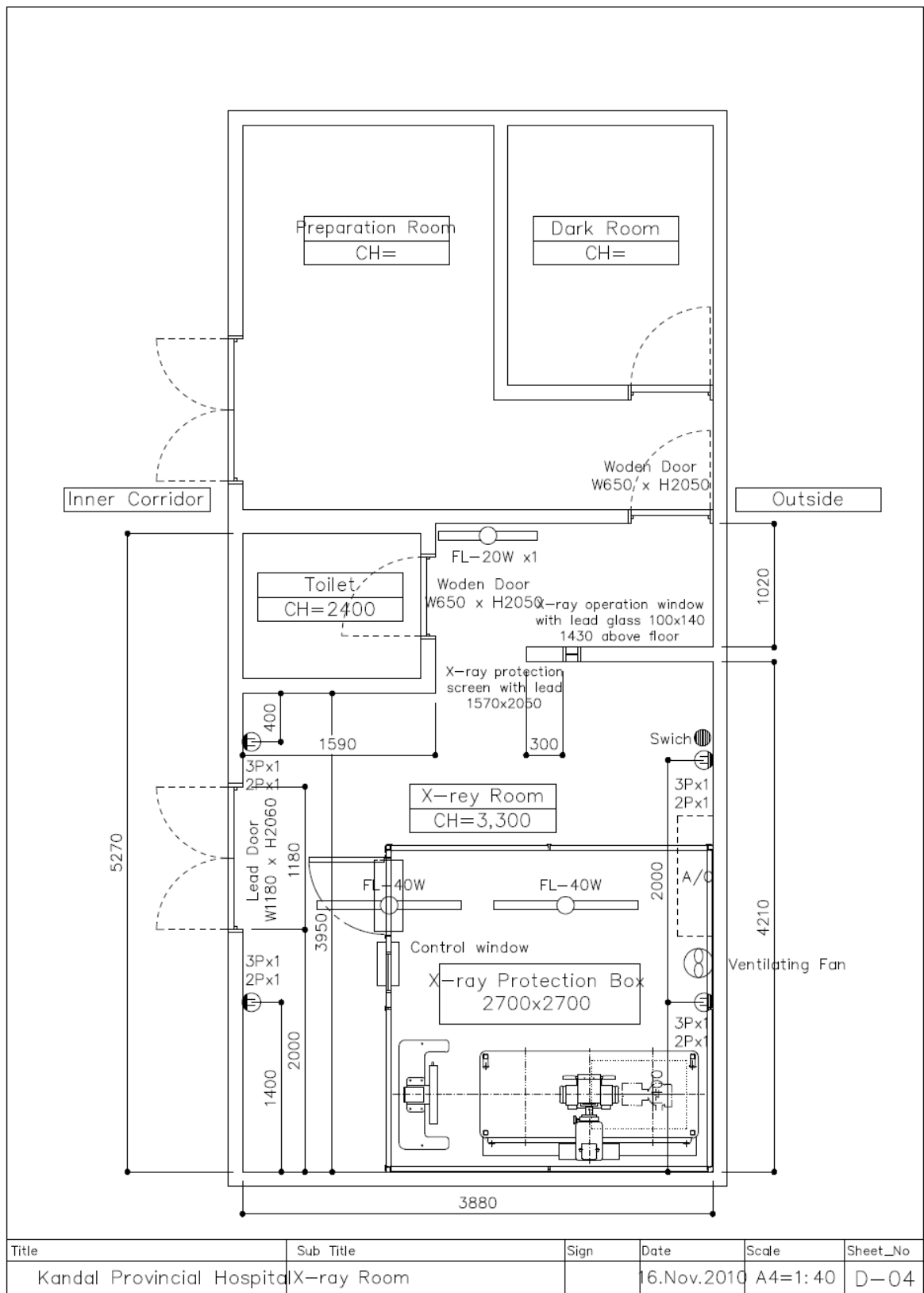


### Layout 3 4.Siem Reap RH



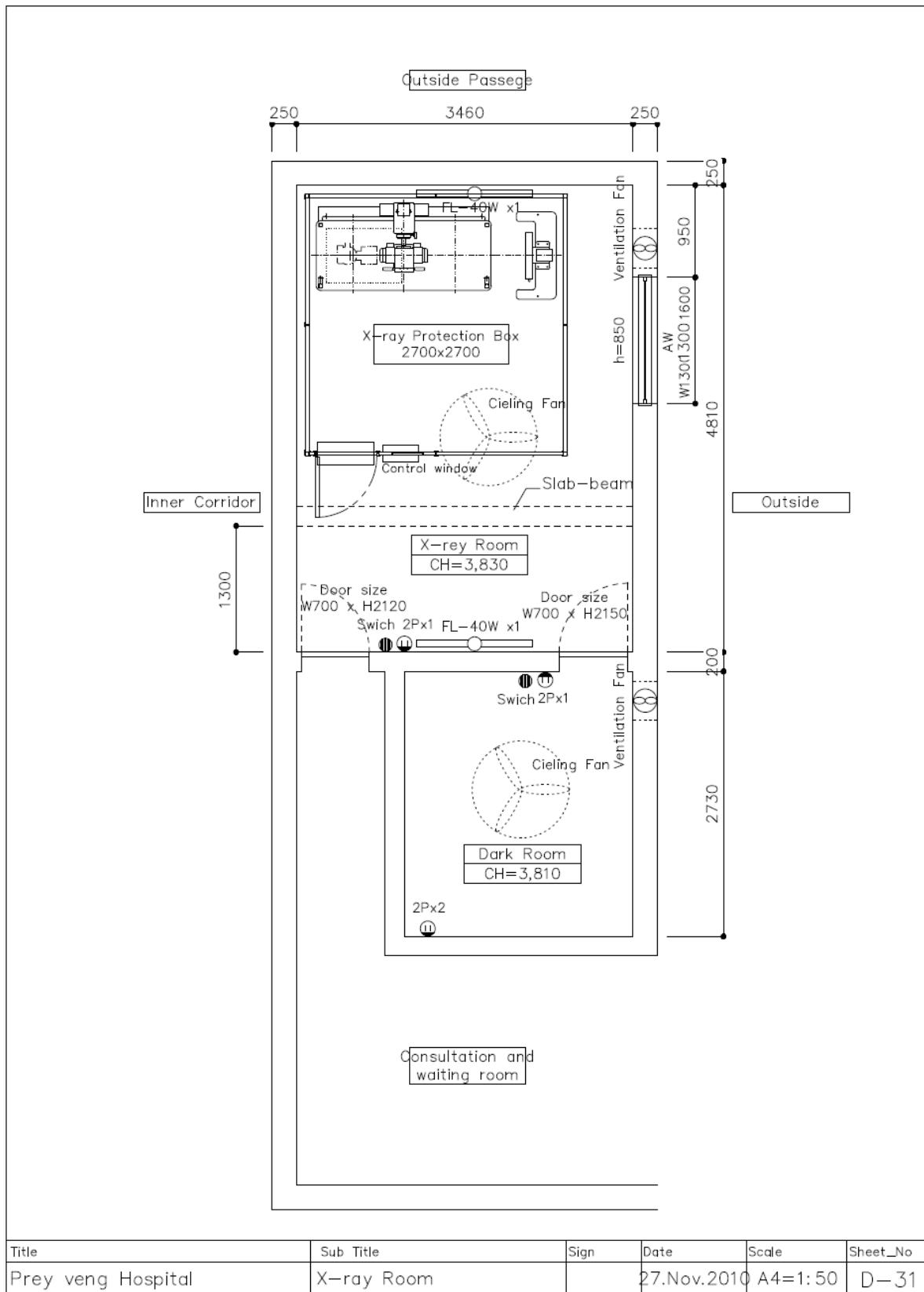
### Layout 4 9.Kratie RH



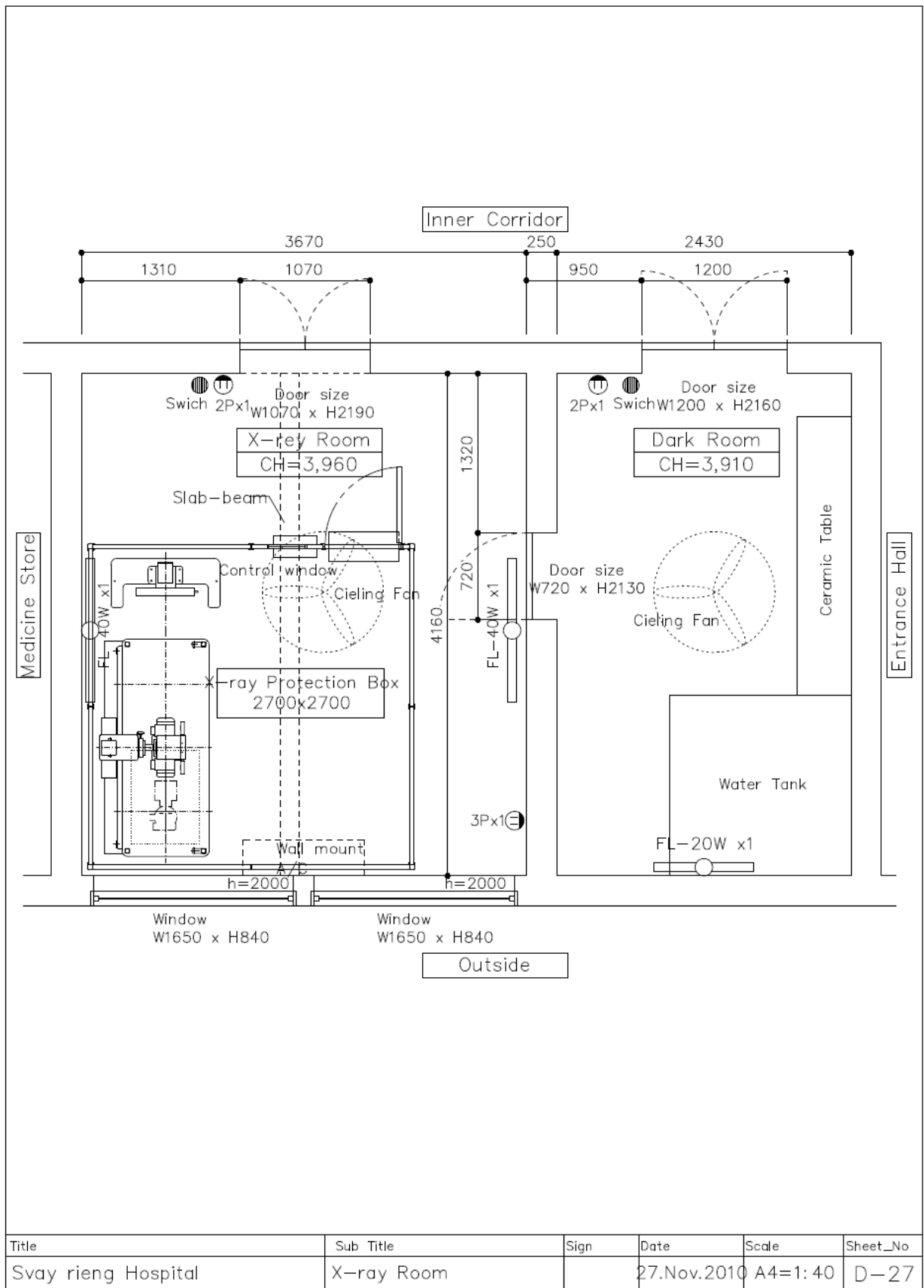


Layout 6 13.Prey Veng RH

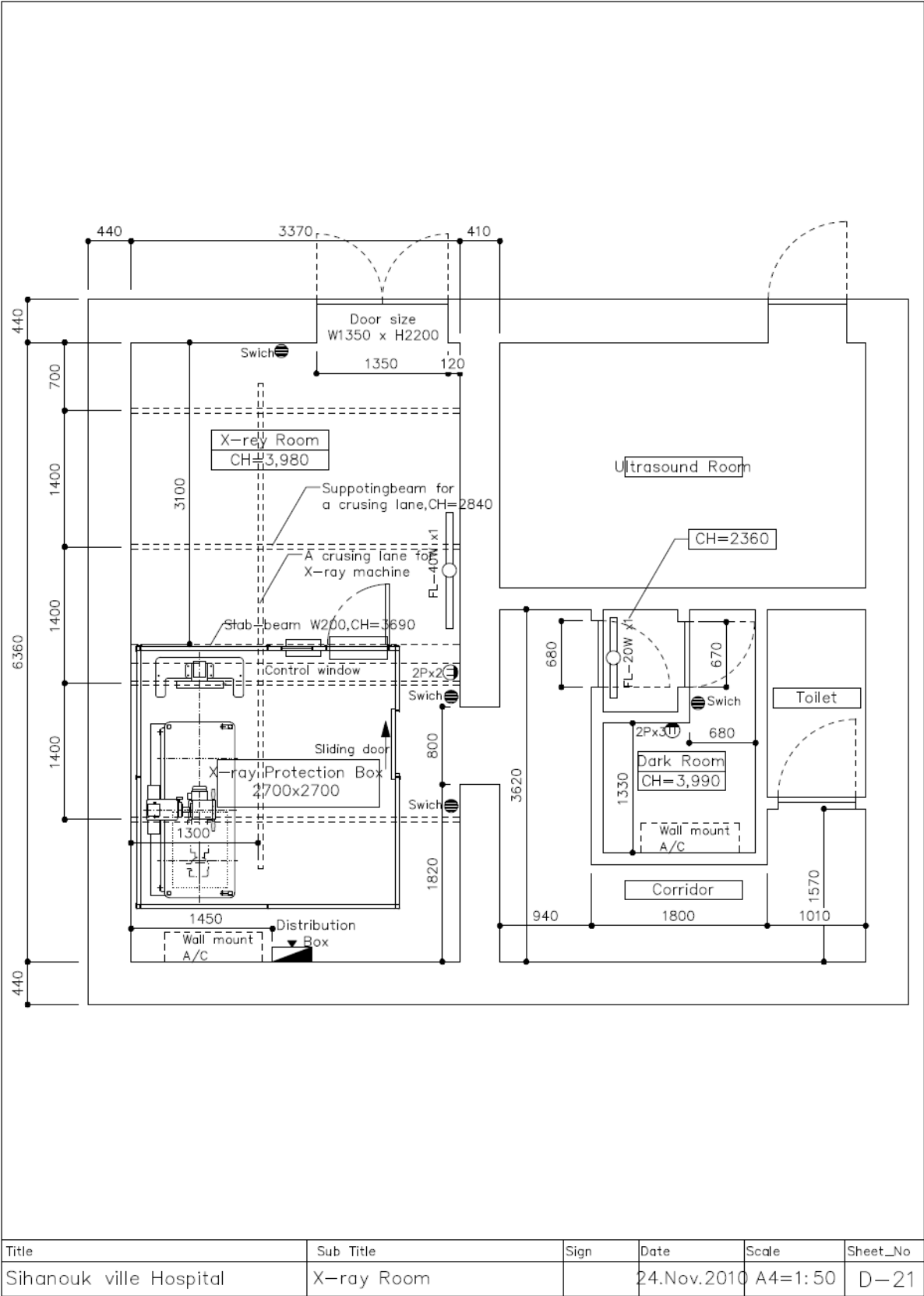




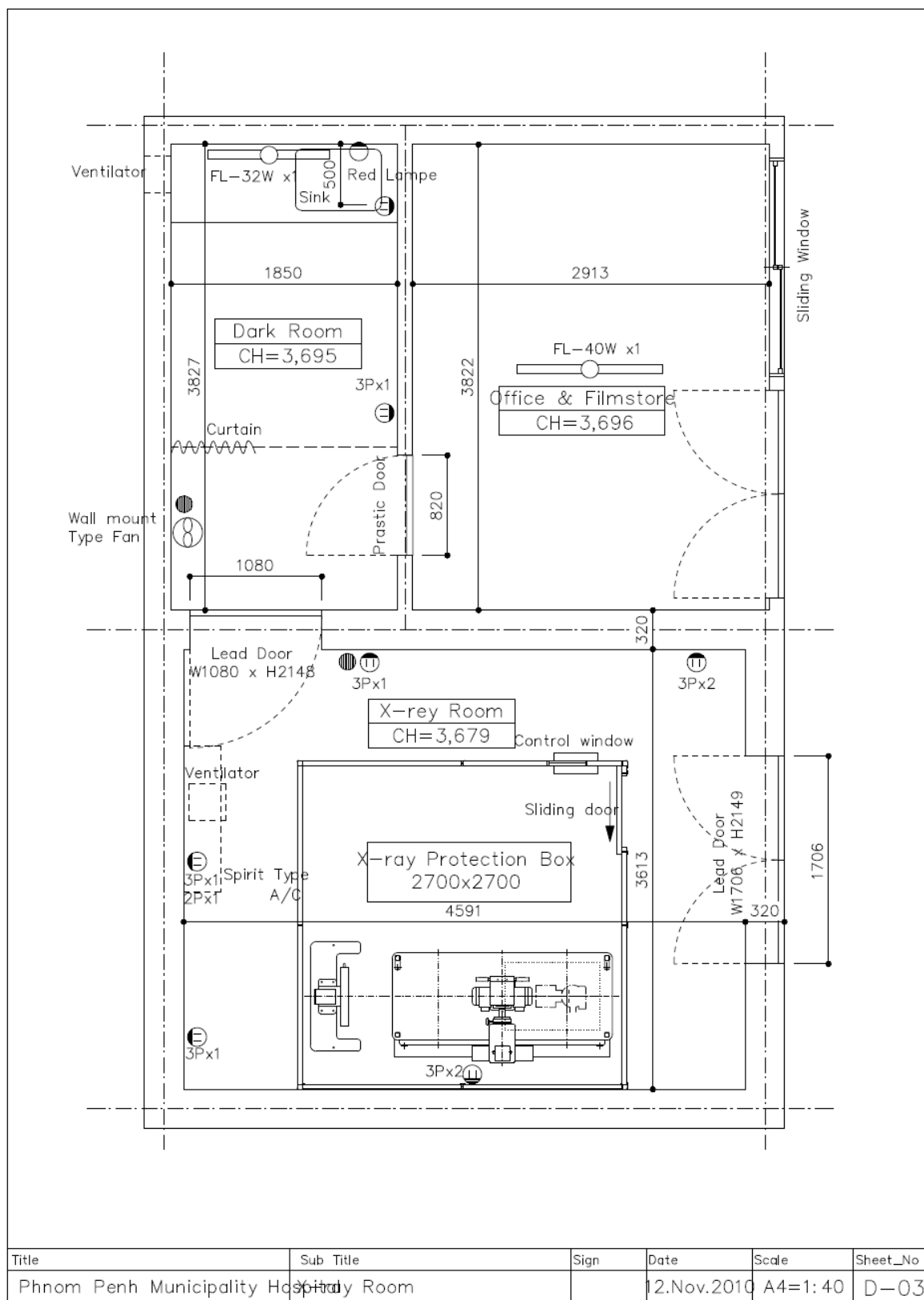
Layout 7 14. Svay Rieng RH



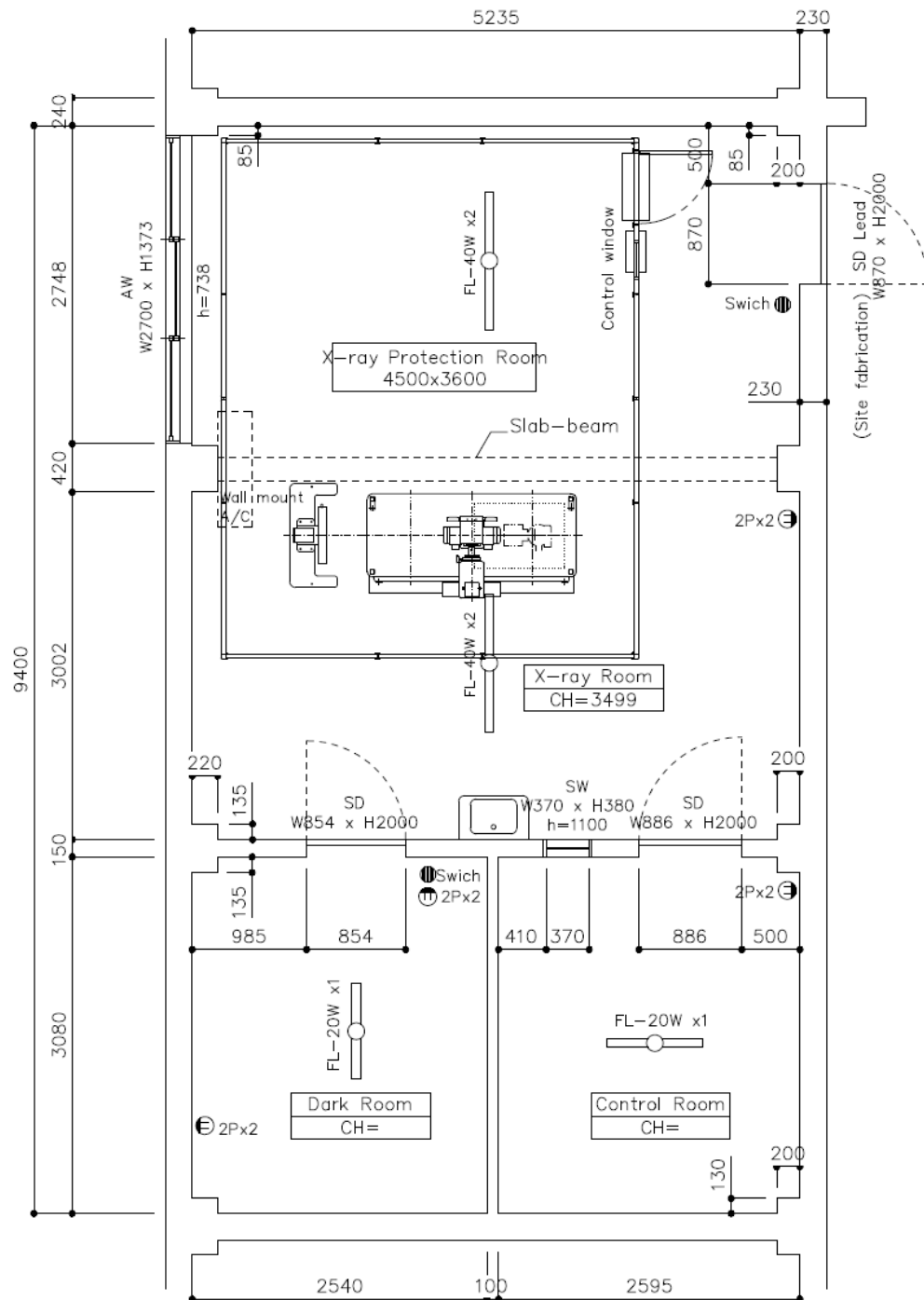
Layout 8 15.Sihanouk Ville RH



## Layout 9 17.Phnom Penh Municipal RH



# Layout 10 18.K.S. Friendship NH



Title	Sub Title	Sign	Date	Scale	Sheet_No
Khmer Soviet Friendship Hospital	X-ray Room (Radiographie 2)		28.Nov.2010	A4=1: 50	D- 36

# Layout 11 19.Preah An Duong NH

