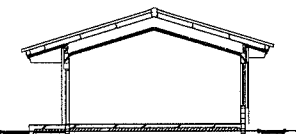
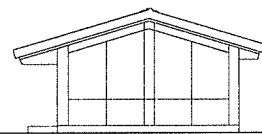
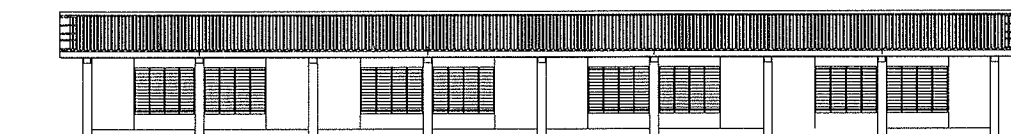


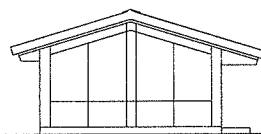
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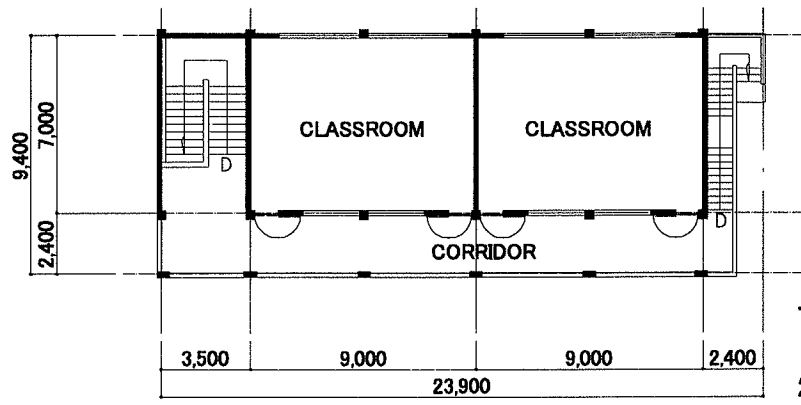


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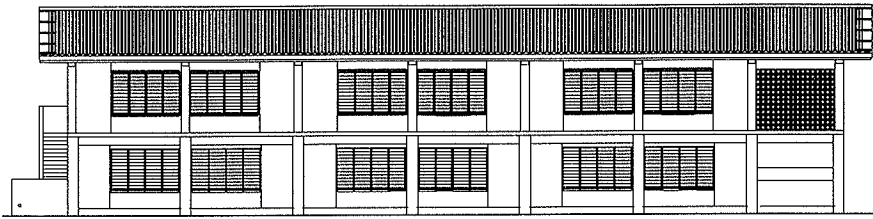


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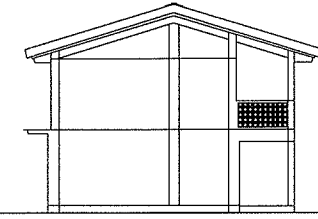




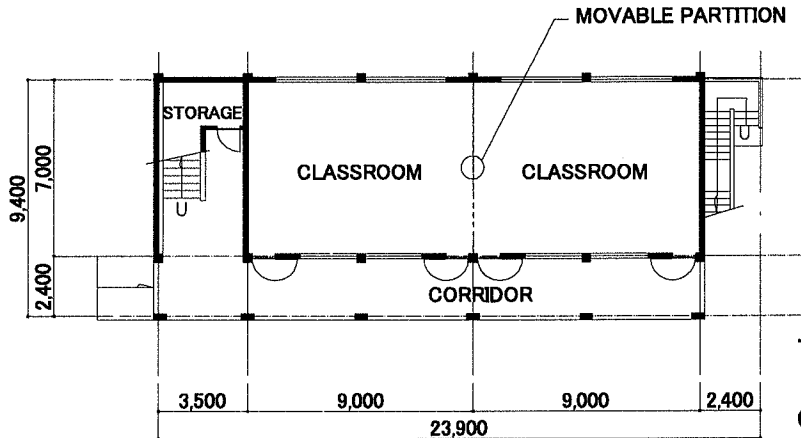
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2nd FLOOR PLAN



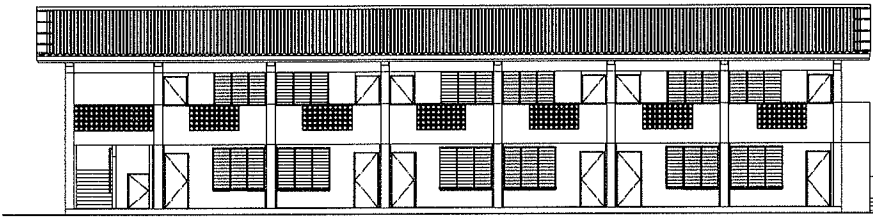
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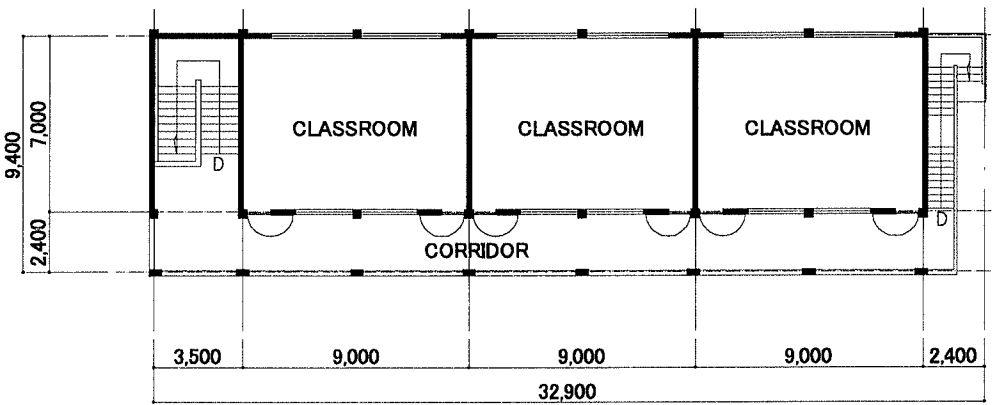
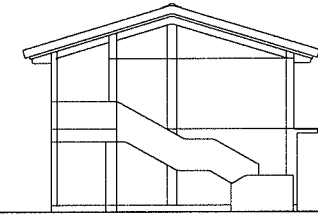
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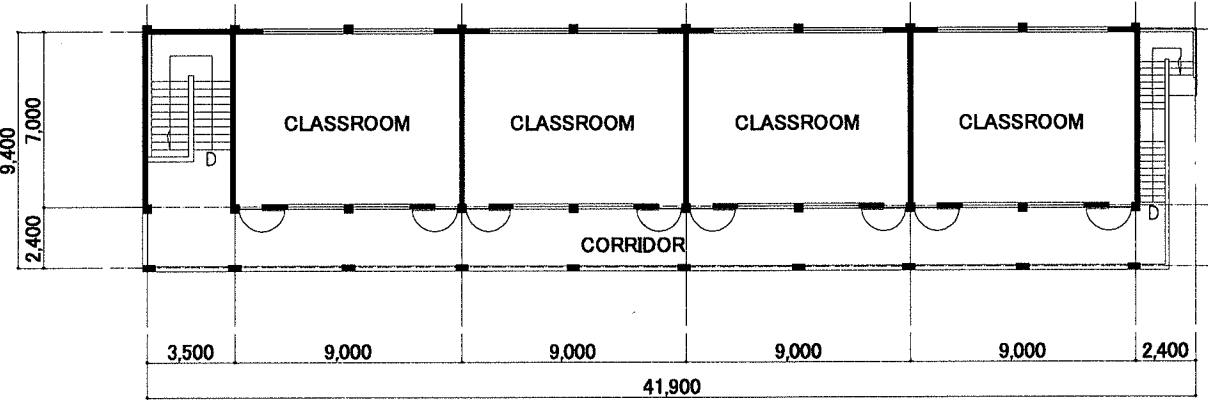
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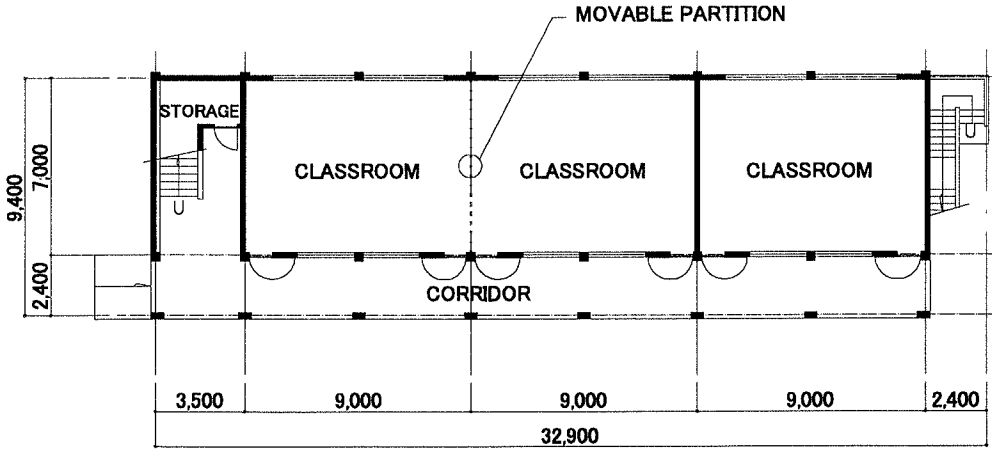
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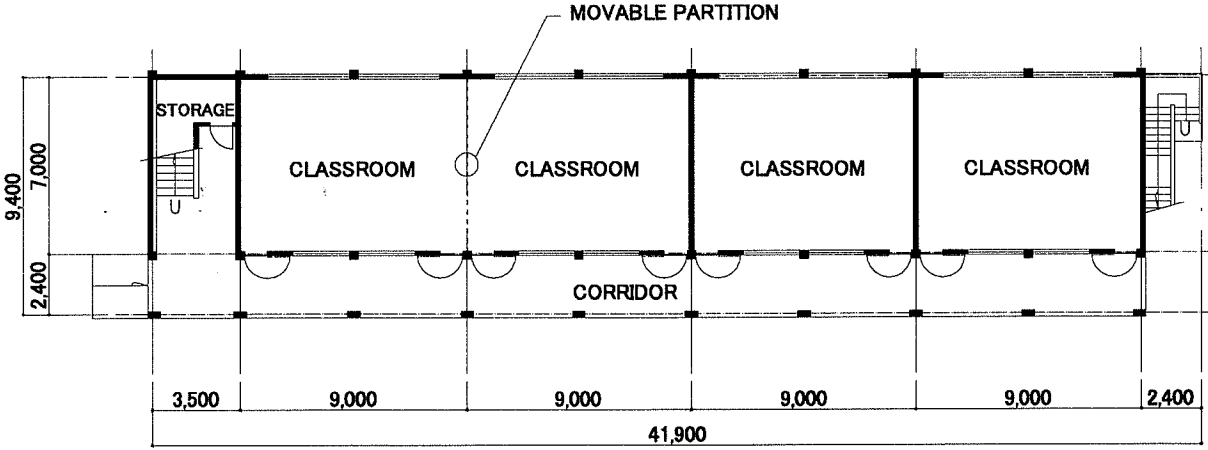
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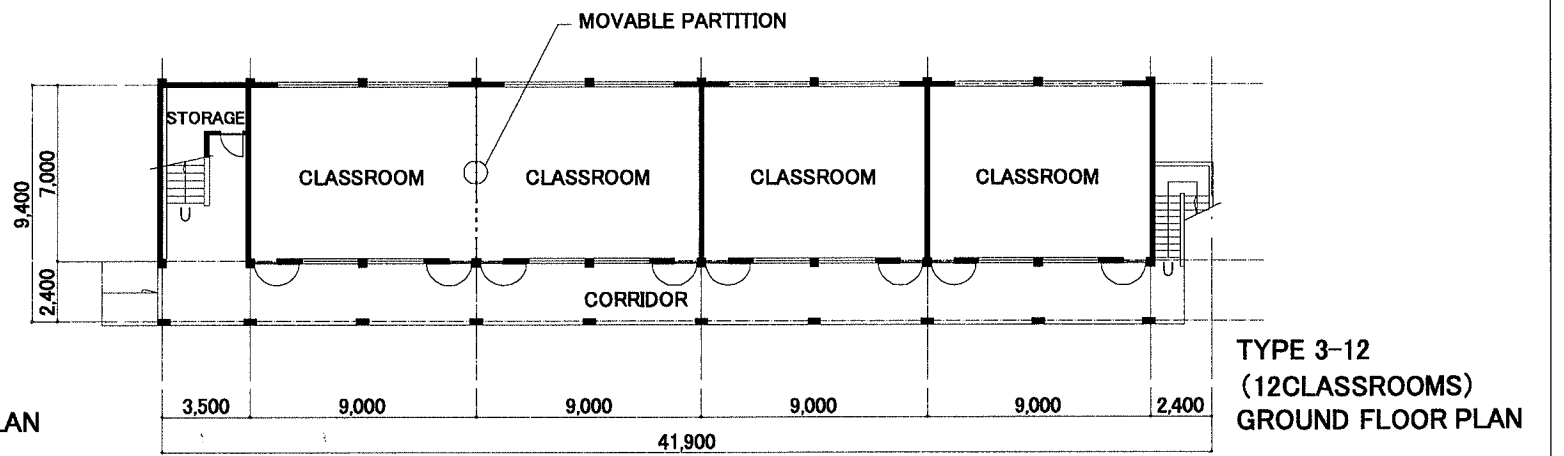
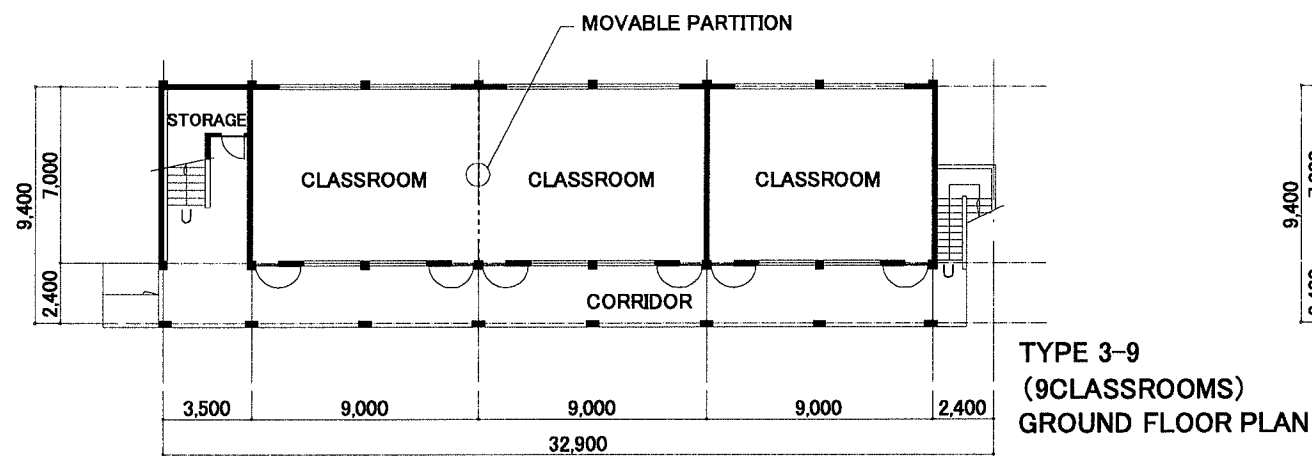
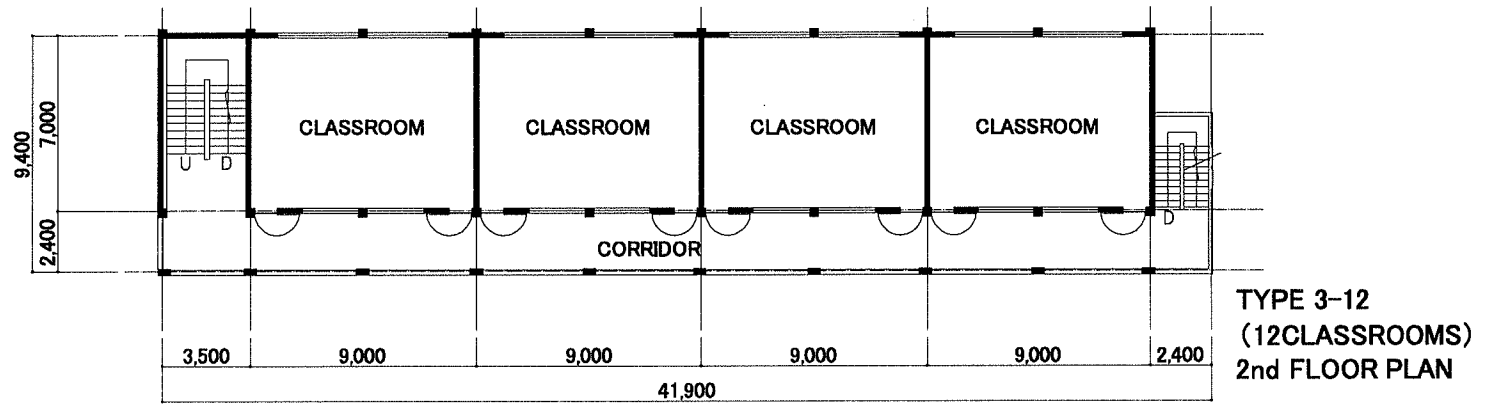
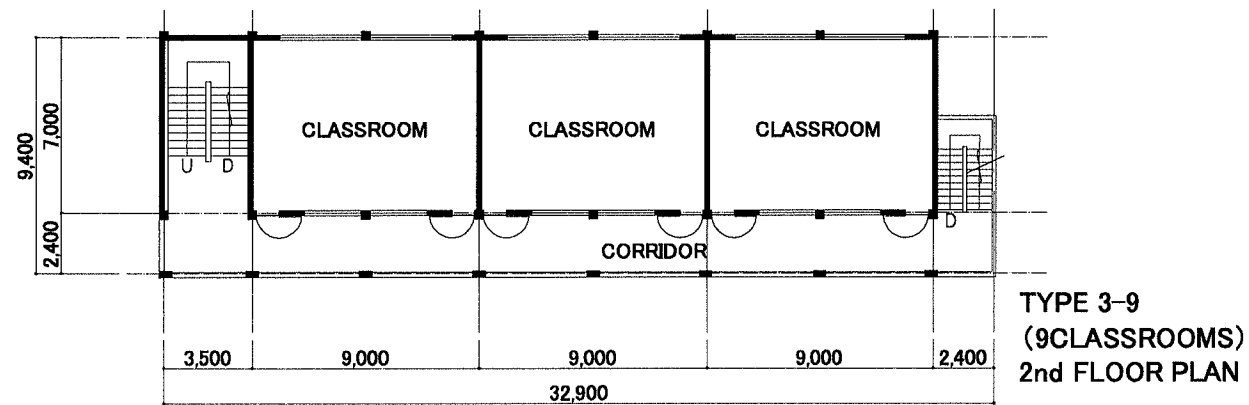
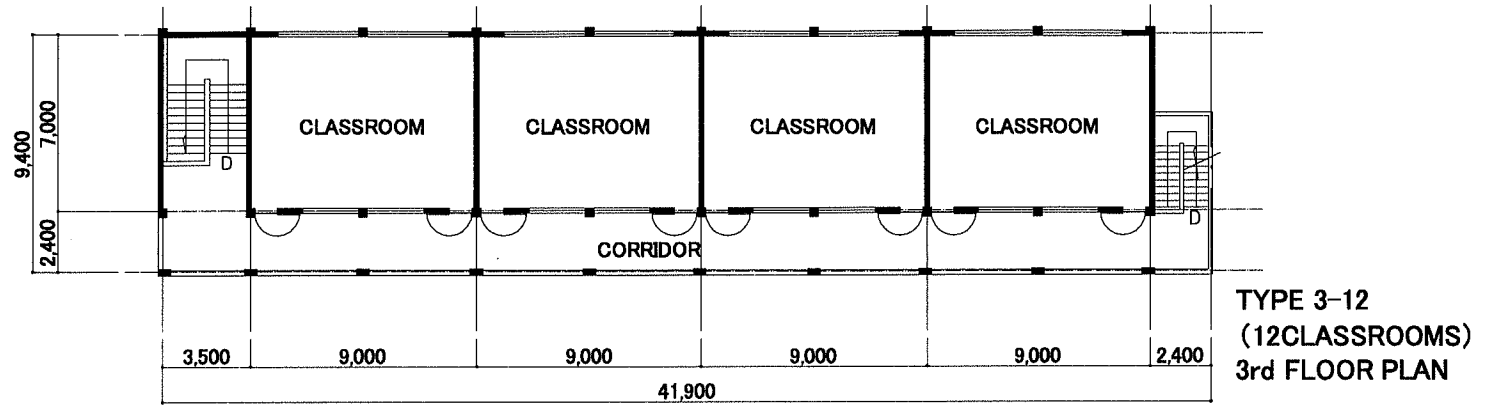
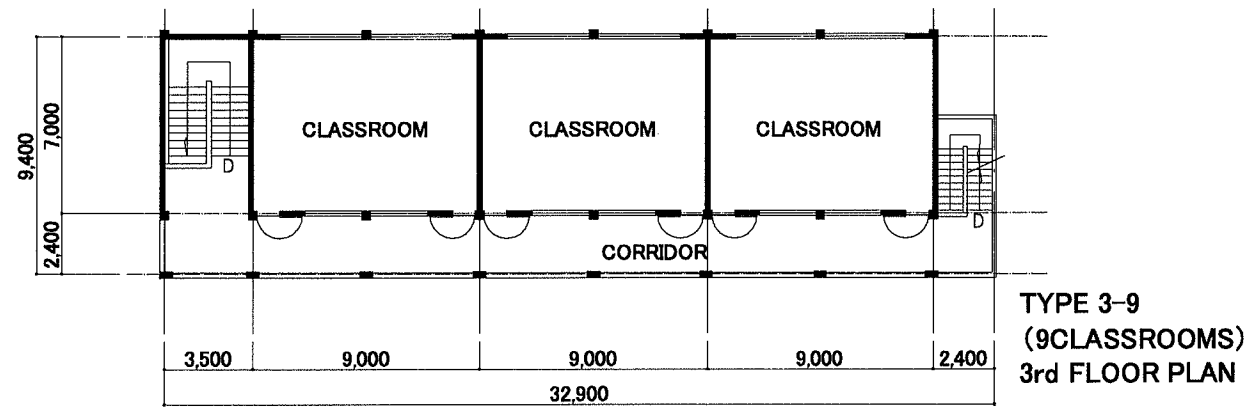
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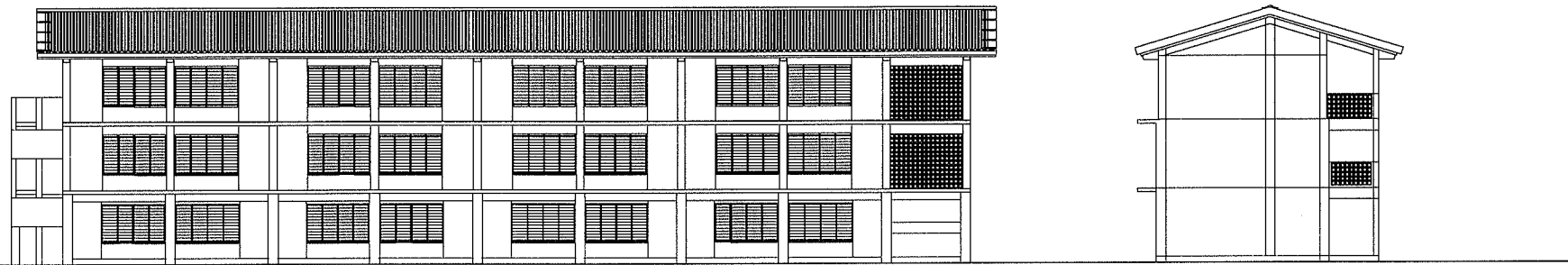


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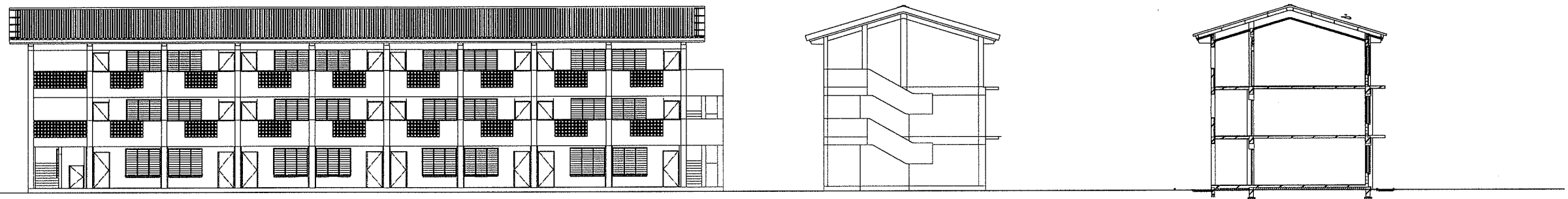


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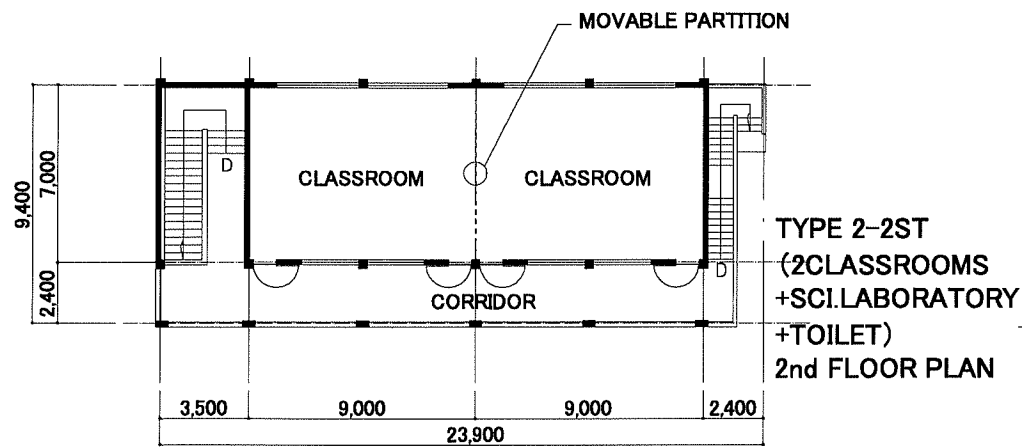


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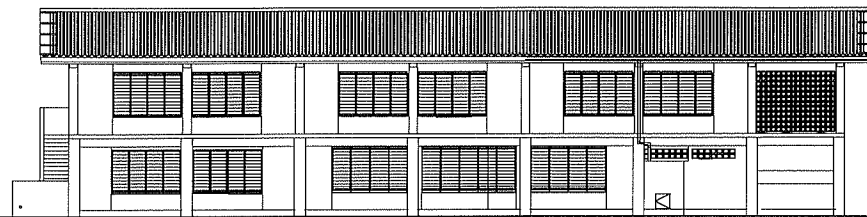


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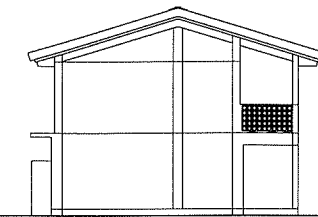
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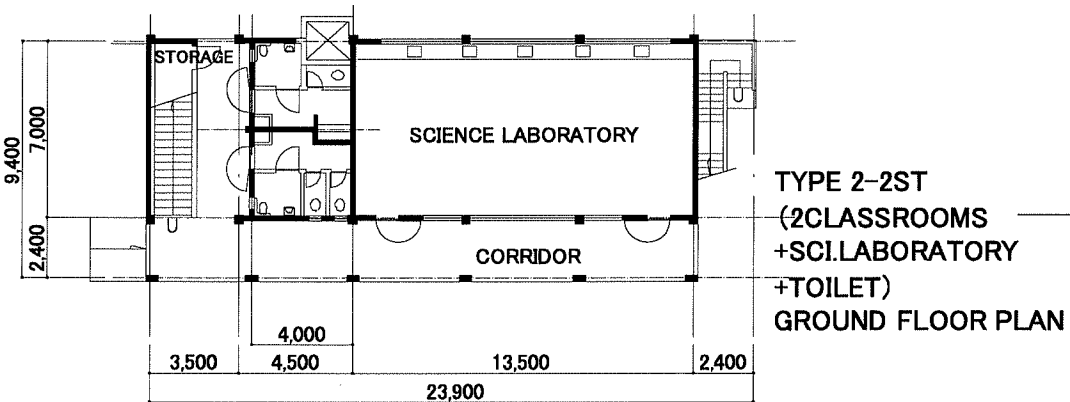
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+TOILET)
2nd FLOOR PLAN



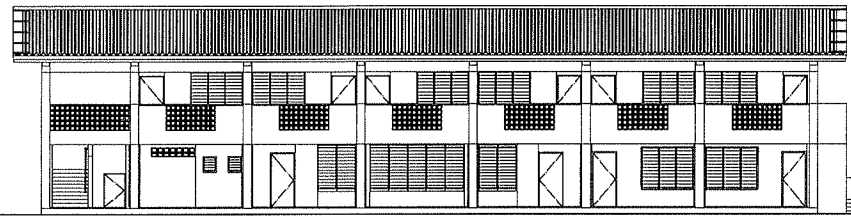
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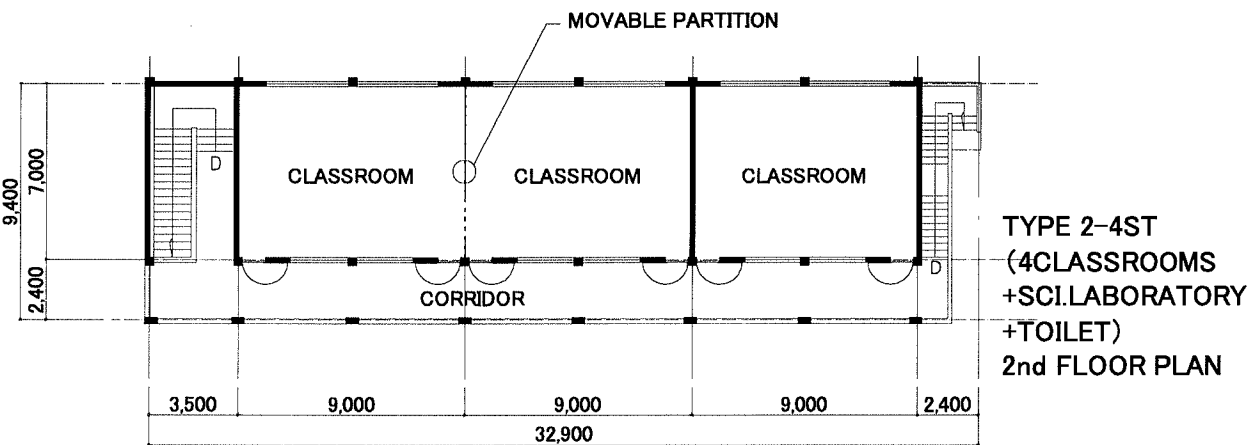
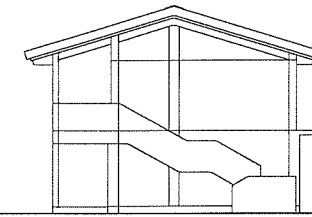
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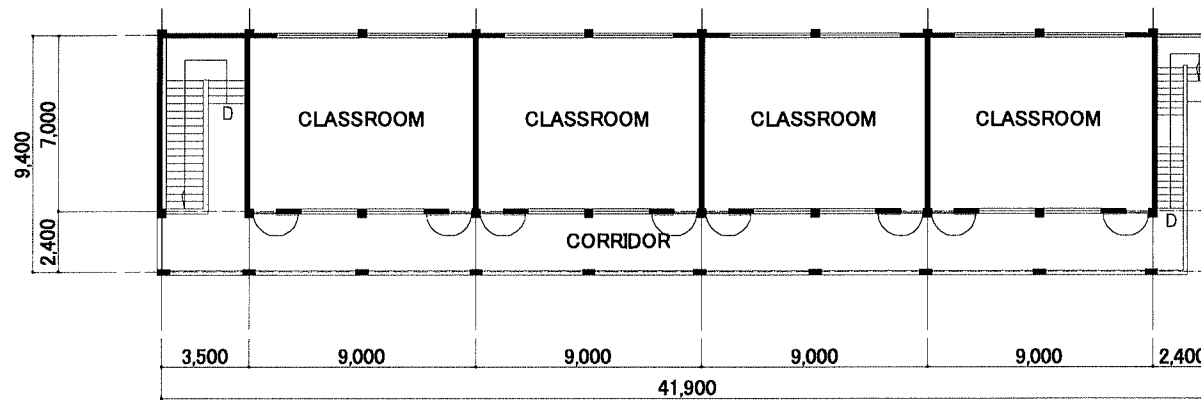
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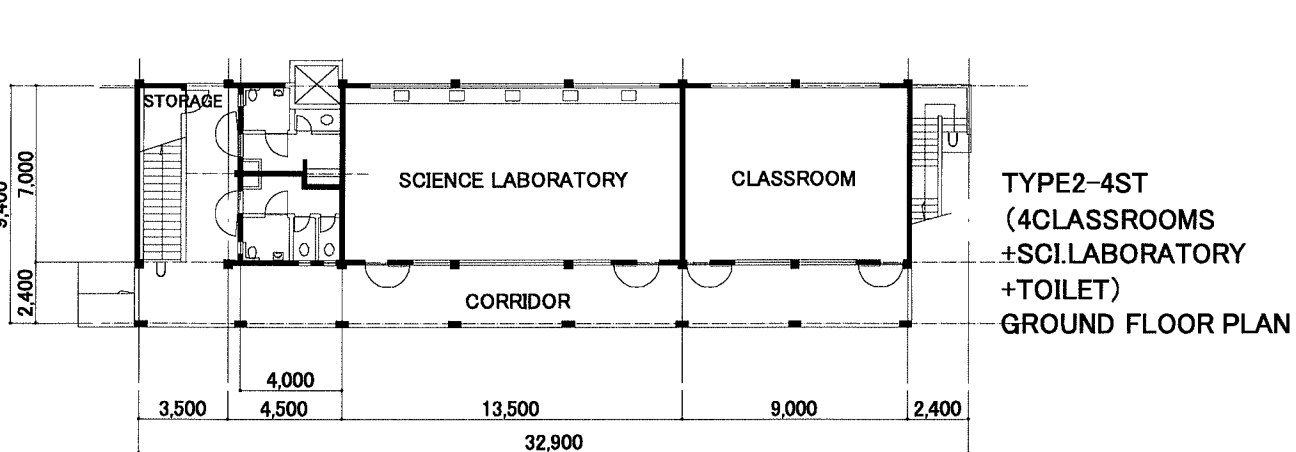
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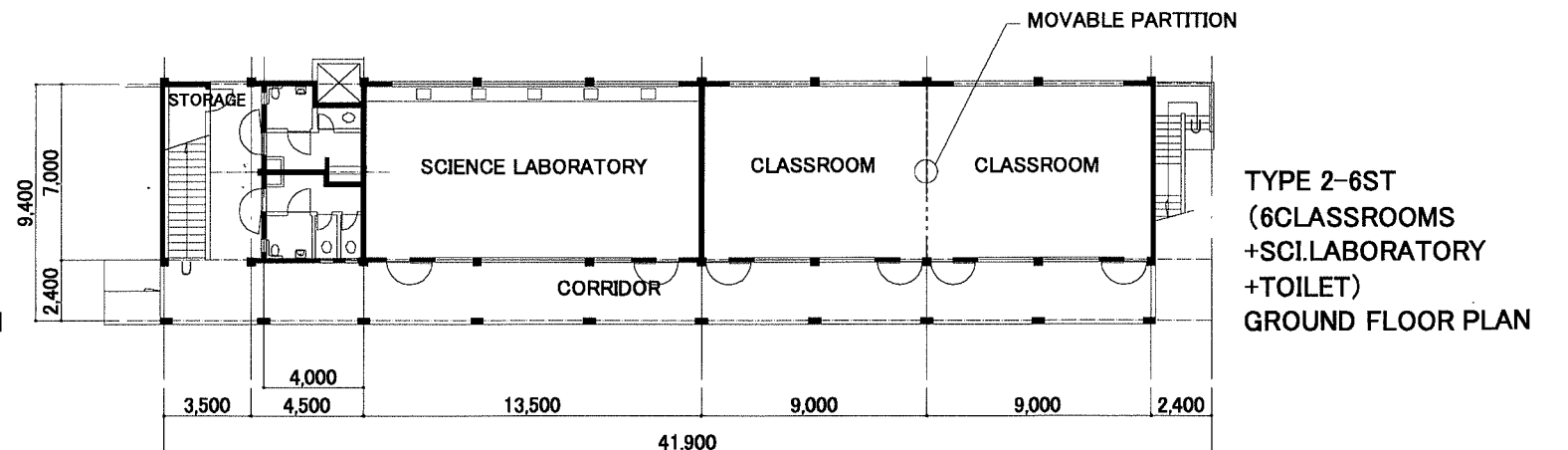
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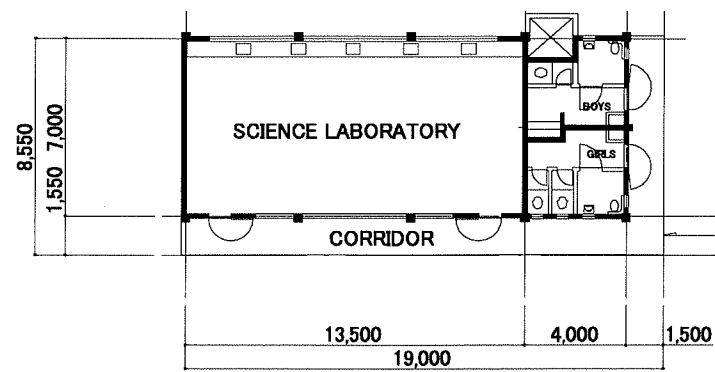
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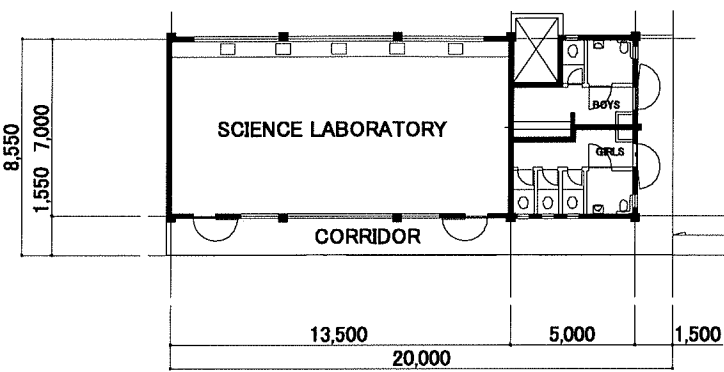
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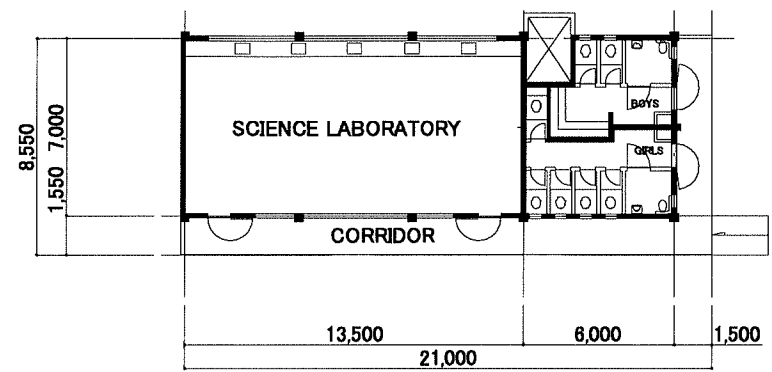
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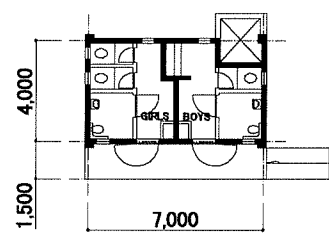
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PLAN



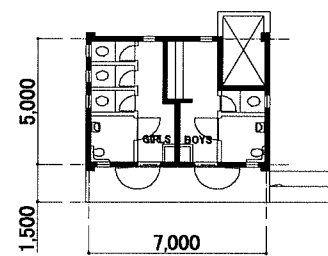
TYPE ST(M)(SCI. LABORATORY+TOILET)
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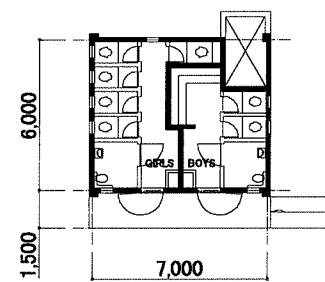
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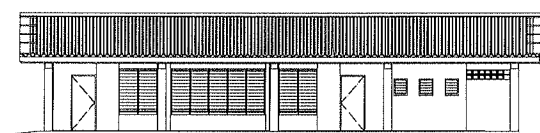
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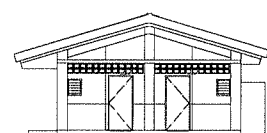
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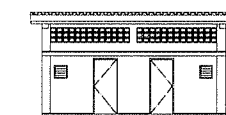
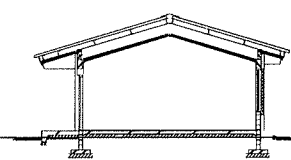
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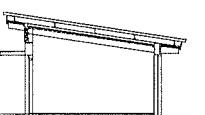
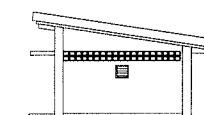
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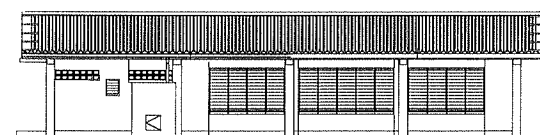
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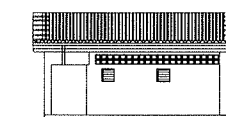
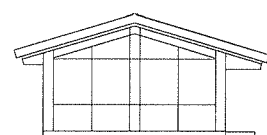
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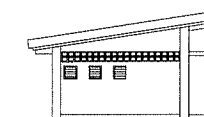
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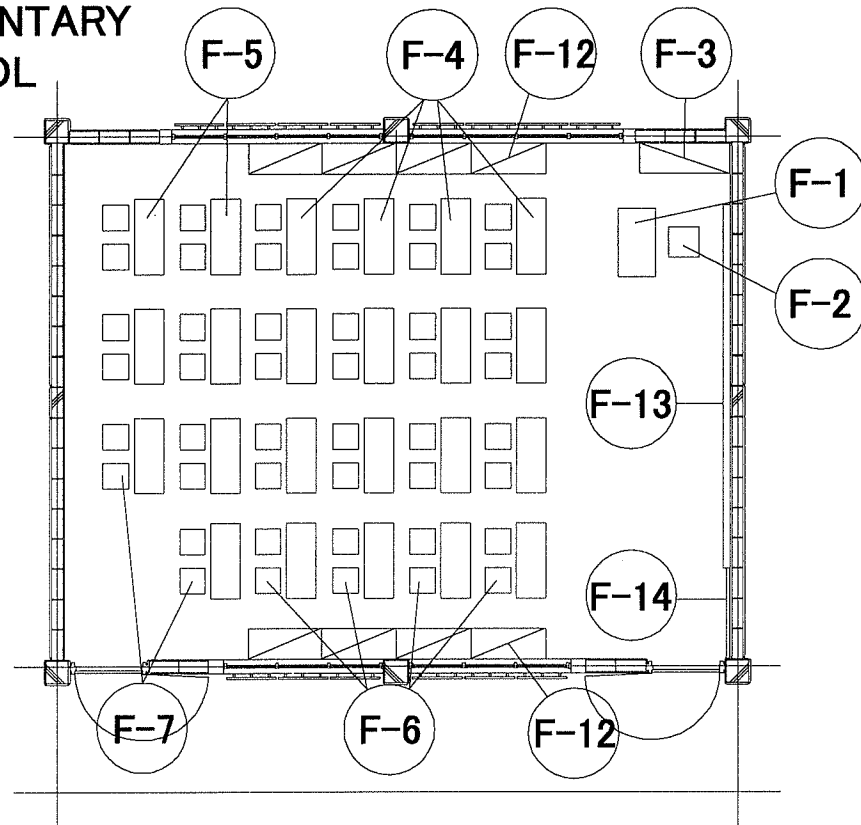
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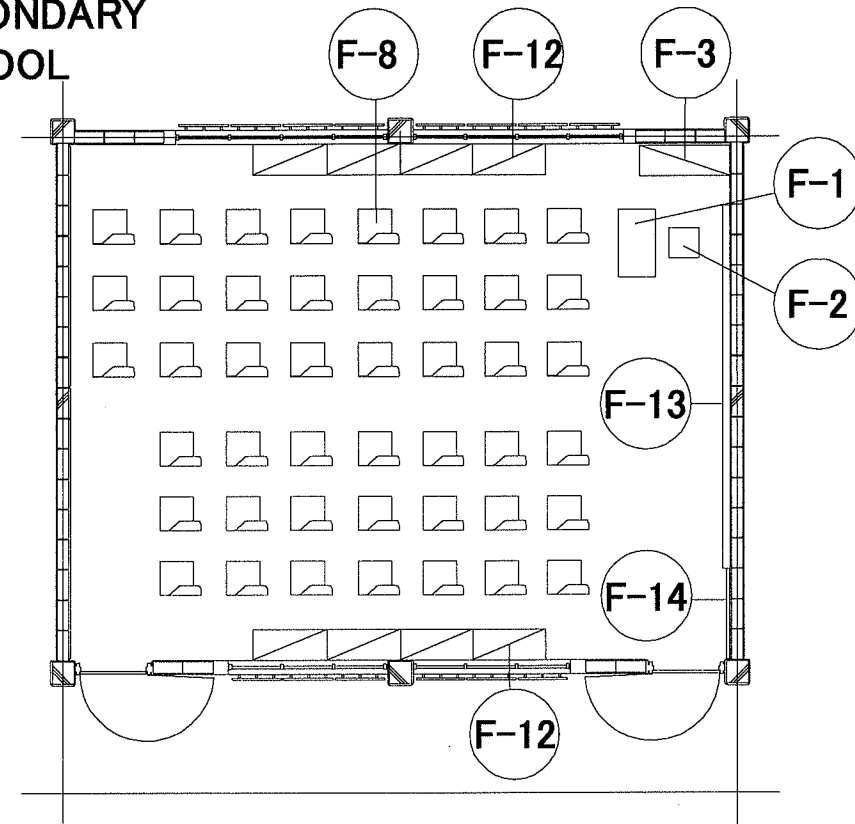
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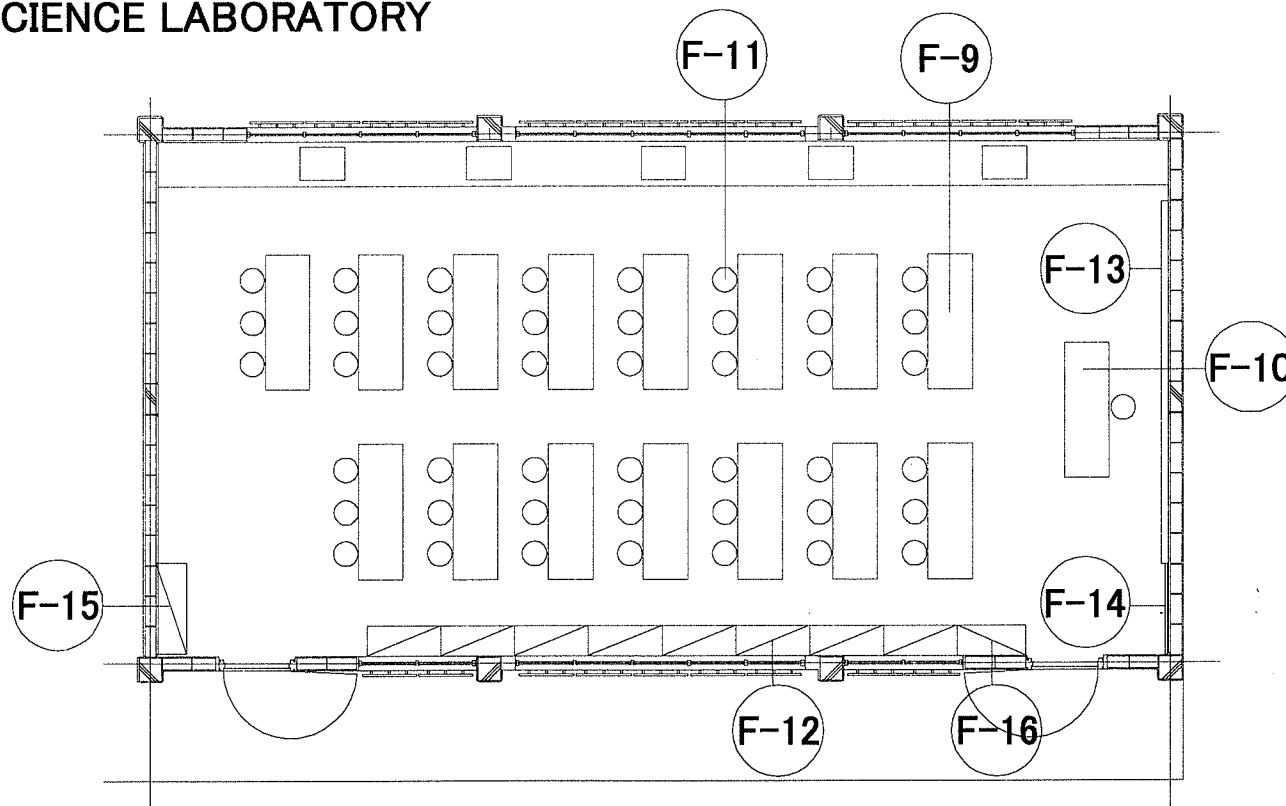
ELEMENTARY SCHOOL



SECONDARY SCHOOL



SCIENCE LABORATORY



FURNITURE LISTS

NO.	CODE NO.	ITEM	DESCRIPTION	QTY.
ELEMENTARY SCHOOL				
1	F-1	TEACHER'S DESK	900 × 500 × 760	1
2	F-2	TEACHER'S CHAIR	410 × 410 × 860	1
3	F-3	TEACHER'S CABINET	1200 × 400 × 1800	1
4	F-4	STUDENT'S DESK S	1000 × 400 × 550	16
6	F-5	STUDENT'S DESK L	1100 × 400 × 600	7
7	F-6	STUDENT'S CHAIR S	370 × 330 × 700	32
9	F-7	STUDENT'S CHAIR L	400 × 370 × 740	14
10	F-12	STUDENT'S CLOSET	980 × 400 × 650	8
11	F-13	BLACKBOARD	4800 × 1200	1
12	F-14	BULLETIN BOARD	1200 × 1200	1
SECONDARY SCHOOL				
1	F-1	TEACHER'S DESK	900 × 500 × 760	1
2	F-2	TEACHER'S CHAIR	410 × 410 × 860	1
3	F-3	TEACHER'S CABINET	1200 × 400 × 1800	1
4	F-8	STUDENT'S ARMCHAIR	460 × 455 × 800	45
5	F-12	STUDENT'S CLOSET	980 × 400 × 650	8
6	F-13	BLACKBOARD	4800 × 1200	1
7	F-14	BULLETIN BOARD	1200 × 1200	1
SCIENCE LABORATORY				
1	F-9	DEMONSTRATION TABLE	1800 × 600 × 850	15
2	F-12	STUDENT'S CLOSET	980 × 400 × 650	8
3	F-10	EXPERIMENT TABLE	1800 × 600 × 850	1
4	F-11	STOOL	330 φ × 600	46
5	F-13	BLACKBOARD	4800 × 1200	1
6	F-14	BULLETIN BOARD	1200 × 1200	1
7	F-15	STORAGE SHELF	1200 × 400 × 1800	1
8	F-16	STEEL SHELF	900 × 400 × 1830	1

2-2-4 Implementation Plan

2-2-4-1 Implementation Policies

(1) Structure for Project Implementation

The Japanese consulting firm(s) will conduct the supervision of the Japanese side work and the coordination between the Japanese side and the Philippine side; and the Japanese contractor(s) will be in charge of construction and procurement for the Japanese side.

The implementing agency for the Project on the Philippine side is EDPITAF (Educational Development Projects Implementing Task Force). Their responsibility is not only to implement the Philippine side work, but also, as a representative of the client, to support the Japanese side and their work for smooth implementation of the Project.

At the local level, DepEd Regional Office III and the 11 (eleven) DepEd Division offices in Region III are responsible for project implementation work mainly on the Philippine side. At the school level, the school principals are responsible.

(2) Use of Local Consultants and Contractors

For the sake of safe and smooth Project implementation and supervision at the Project sites scattered throughout Region III, local staff, who are well acquainted with the social and local construction conditions, should be employed as much as possible.

(3) Implementation Plans

The Project aims to construct, within a limited period of time, a number of school buildings in a wide area (6 Provinces of Bataan, Bulacan, Nueva Ecija, Tarlac, Pampanga and Zambales) which stretches approximately 180 km north to south and 150 km east to west. From information obtained on the existing conditions at each site, an appropriate construction plan has been made. The main principles of the implementation plan are described below:

The construction plan should consider the availability of local laborers, construction methods and other related customs and practices of the Philippines;

Since construction work will be done at more than one Project school simultaneously, a construction implementation plan that will need no re-scheduling should be made. This should be decided in advance through the holding of several meetings with persons in charge at each school;

As construction work will be done on existing school properties, effects on school activities and the security of students will be sufficiently considered;

Adequate security should be ensured throughout the construction period to prevent problems like theft, etc. at the construction sites;

The detailed implementation schedule will be regularly reported on, to DepEd, JICA Philippine office, and Embassy of Japan during the construction period to assure smooth implementation of the Project.

(4) Dividing Construction Stages

The construction of Project schools are to be divided into two stages based on the following principles:

The first and second stages of construction should have appropriately equal construction volume.

One province should not extend over two stages.

Special attention shall be paid to the convenience of transportation of materials and supplies.

The sites which require relatively larger items of work to be undertaken by the Philippine side should be included in the second stage. Site S-19 (S-24) Paradise Farms HS, Bulacan, and S-36 (S-87) Carranglan HS, Nueva Ecija need a large-scale retaining wall to be built to secure a safe construction site. Also several Project schools in Bulacan have experienced floods in the past and require reclamation at their construction sites. For these reasons, the Project schools in the Nueva Ecija and Bulacan Provinces should be included in the second stage of the construction.

Based on the above conditions, the number of Project schools, and number of facilities to be constructed in each of the construction stages are shown in Table 2-24, and 2-25.

Table 2-24 Number of Project Schools for each Construction Stage

Stage	Province	Elementary Schools	Secondary Schools	Total
First Stage	Bataan	2	7	9
	Pampanga	2	10	12
	Tarlac	1	7	8
	Zambales	2	1	3
	Sub-total	7	25	32
Second Stage	Bulacan	7	13	20
	Nueva Ecja	17	16	33
	Sub-total	24	29	53
Total		31	54	85

Table 2-25 Project Components of each Stage

	Classrooms	Toilets	Science Laboratories	Science Equipment
First Stage	189	31	12	14
Second Stage	236	53	10	12
Total	425	84	22	26

2-2-4-2 Implementation Conditions

(1) General Conditions Regarding Local Construction

Concrete batch plants exist in most parts of Region III. To obtain a uniform quality of concrete, these batch plants should be utilized as much as possible. When selecting batch plants, various factors such as supply capacity, experience, quality of cement and aggregates, water quality and time of delivery to construction sites should be carefully examined. In order to construct facilities at all Project schools with the same uniform quality, the setup of a model school, or a mock-up of part of a building should be made prior to the start of work, and so that all the local consultants and contractors possess the same knowledge of building techniques, their training shall be carried out from time to time at the model sites. To effectively use the science equipment, it is absolutely necessary for teachers to fully understand how they function. Therefore, the science teachers shall be provided with technical training from equipment specialists when handing over equipment to the Philippine side.

(2) Schedule Management

Considering the capability and efficiency of local contractors, and because the number of Project sites is large and they are scattered over a wide area, it is recommended not to begin

construction at all Project sites simultaneously. Project construction should proceed in stages by dividing the sites into several groups with each group starting its building construction in intermittent succession according to a sliding time scale. The sites with two or three storied buildings should begin construction earlier than those with single storied buildings because of the longer construction period required. Strict schedule control of work to be undertaken by the Philippine side is key for smooth Project implementation. In particular, if site preparation work at a Project site is not adequately carried out on time, building construction cannot start. For this reason, it is absolutely necessary for the Philippine side to understand that their part of the site preparation work must begin and complete without delay.

2-2-4-3 Scope of Works

Table 2-26 shows the division of work between the Philippine and Japanese sides.

Table 2-26 Scope of Works

Work Item	Japanese side	Philippine side
1 . Site clearing, cut and fill, and retaining walls before school building construction takes place		
2 . Removal/demolishing of existing facilities at school sites before school building construction takes place		
3 . Removal of rocks, obstructions, and trees at school sites before school building construction takes place		
4 . Associated exterior works such as landscaping, fencing, and school gates		
5 . Preparation of access roads to Project sites before school building construction takes place		
6 . Construction of classrooms, science labs, and toilets		
7 . Water supply work up to the cistern tanks covered by Japanese side		
8 . Electric power connection up to electric poles covered by Japanese side		
9 . Furniture and science equipment		

Figure 2-5 and 2-6 show boundary of works between Japanese and Philippine side for electrical work and water supply work respectively.

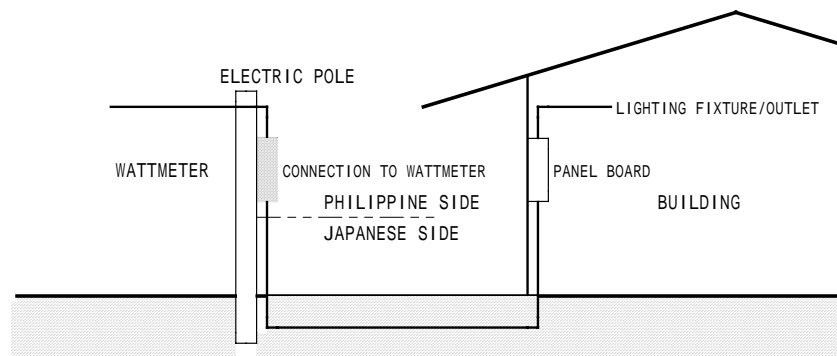


Figure 2-5 Scope of Electric works between Japanese and Philippine Sides

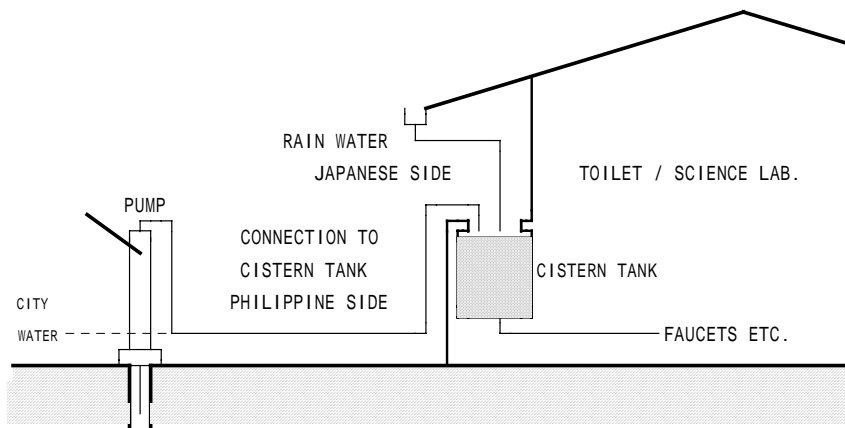


Figure 2-6 Boarder Line of Water Supply Work Between Japanese and Philippine Sides

2-2-4-4 Consultant Supervision

The Project's many construction sites are widely scattered over Region III. In addition, the number of classrooms to be constructed and the size of the Project area is very large. Thus, in order to sufficiently maintain the required construction schedule and work quality, two types of supervision shall be conducted simultaneously: (1) General supervision - to be carried out in Japan with periodic travel to the Philippines, and (2) Site supervision - to be carried out by the resident architects or engineers.

(1) General Supervision

The Japanese Project Manager at the consulting firm's headquarters will oversee the overall construction schedules, make comprehensive technical judgments and support the resident architects or engineers in the Philippines regarding general matters. The Japanese consultants involved in the detailed design of the Project will assist in this work, especially in areas of technical knowledge that may be out of the expertise of the resident architects or engineers.

(2) Supervision by the Resident Architects and Engineers

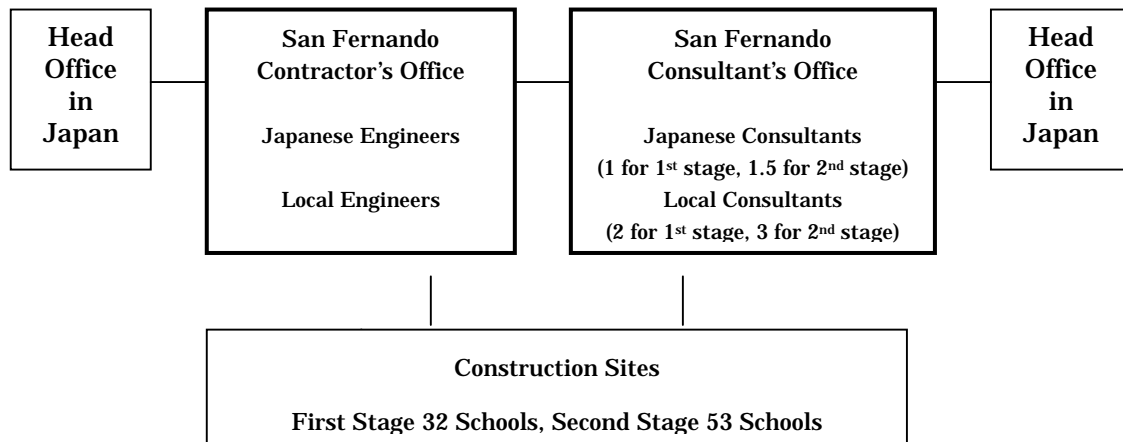
The resident architects and engineers who conduct construction supervision in the Philippines will be selected from the consultants with sufficient experience for architectural design and construction supervision. They will carry out the following tasks by instructing the local consultants:

Controlling the detailed construction schedule, Attending the various tests such as slump tests, concrete compression tests, etc, Checking of shop drawings, Approving construction materials, Examining construction methods, Conducting mid-term and final inspection, Gathering information related to construction, Preparing monthly construction supervision reports, Reporting to the DepEd officials from time to time, Conducting construction committee meetings, Confirming the progress of work to be undertaken by the Philippine side, Reporting construction status to the Japanese Embassy and the JICA office in the Philippines, etc.

Under the resident Japanese architects or engineers, the local consultants will carry out construction supervision work. The number of Japanese consultant for the supervision is 1 for the first stage and 1.5 for the second stage (1 for 12 months, and 1 for 6 months). The number of local consultant is 2 for the first stage and 3 for the second stage.

The contractors' construction offices and consultants' supervision offices shall be located in San Fernando due to its convenient access to all the Project sites in Region III for both the first and second stages of the Project construction, so that Project construction can be comprehensively managed. Figure 2-7 is the organization chart for construction supervision by the consultant and construction management by the contractor.

Figure 2-7 Project Construction Management Organization Chart



2-2-4-5 Quality Control Plan

Quality control for the Project's construction shall be based on those items specified in the design documents and the construction supervision plan. Quality control during the construction period includes: Checking the shop drawings and construction plans and documents, Evaluating the various samples of materials, Conducting the various tests and, Attending the various site inspections. Table 2-27 shows the major items of quality control during structural works' stage of construction.

Table 2-27 Major Quality Control Items During Structural Work Stage

Work	QC Item	Method of Examination	Frequency of Examination
Earth Work	Confirmation of soil condition of finish grade	Observation	Once per site
Re-bar and Form Works	Re-bar material	Checking Mill sheets	Upon procurement
	R-bar arrangement	Inspection for re-bar arrangement	Before concrete casting
	Form work	Inspection for form work	Before concrete casting
Concrete Work	Materials	Cement : Quality test results Aggregates : Sieve analysis test Water : Quality test result	At every batch plant
	Mixing	Trial mixing	At every batch plant
	Casting	Slump test, Concrete temperature measurement, Air content test, Chloride test	Upon concrete casting
	Concrete Strength	Compression test for test pieces	Once per concrete casting
Concrete Hollow Blocks	Materials and Capacity of factory	Factory inspection	Every factory
	Strength	Compression test	Every factory

As there are many tests in a large number of the Project sites every day, the highly-experienced Japanese architects or engineers may not be able to attend all of them. Because of this, the use of a checklist may be useful. A checklist for each job task, based on the construction supervision plan, should be prepared for each construction stage. For example, for the concrete works following checklists shall be provided;

Confirming aggregates, cement, water quality and trial mixing tests either at a batch plant or at a construction site;

Checklists for slump tests, air amount tests, test piece sampling, chloride tests and temperature measuring during concrete placing work;

Checklists for the results of compression tests of test pieces at a public laboratory.

Either the consultants or contractors' site managers should make the rounds at the construction sites or manufacturing plants and complete the checklists according to the tasks and timetables set up. Through the use of this kind of checklist method, the quality of various materials, etc for construction can be uniformly controlled. As mentioned in 2-2-4-2 (1), it is very effective for good quality control to have all the local consultants and contractors trained at model schools or building mock-ups so that everyone possesses the same knowledge, techniques and skill levels.

2-2-4-6 Procurement Plan

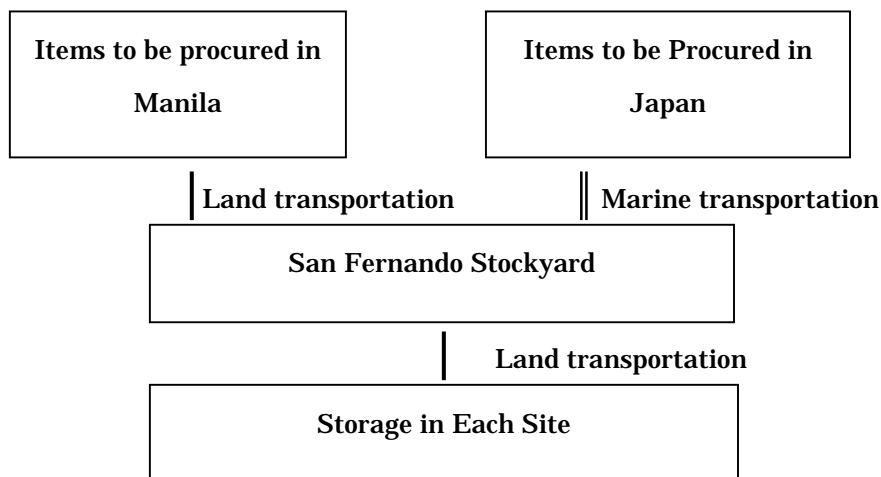
(1) Material and Equipment Procurement

Construction materials and educational equipment like furniture, should be procured locally for cost reduction purposes and ease of maintenance of the Project facilities after implementation is complete. Most construction materials can be procured in the major cities of each Province. However, since the location of Region III is close to Metro-Manila, the purchases of most materials in Manila including their delivery to the sites is deemed as effective cost saving. Science equipment for the Project should also be procured locally, but some items which may have quality problems shall be procured in Japan and transported by sea.

(2) Transport of Materials and Storage Plans

Some science equipment items will be procured in Japan and shipped to Manila. After customs clearance in Manila, they will be transported and stored in a stockyard near the Project construction offices in San Fernando, together with other materials procured locally. After that, they will be directly transported by land to storage facilities at the Project sites. The main roads are well maintained, but the road surfaces of some access roads are not very good, and might flood during the rainy season which would adversely affect schedules. Because of this, alternative access to the sites should be examined and a detailed shipping-transportation plan should be made. The procurement and transportation plan of materials is shown in Figure 2-8.

Figure 2-8 Transportation Plan for Procured Equipment and Materials



2-2-4-7 Implementation Schedule

Project implementation, which is within the framework of Japan's Grant Aid System, will become effective after the demarcation of work and other necessary procedures have been completed by the Government of Japan and the Government of the Philippines. The Project will commence following the signing of the E/N by the two countries. After the signing, the Project will be implemented in 4 steps for each stage: (1) Detailed Design, (2) Tender, (3) Procurement of materials, and (4) Construction. Approximately 18 months are required for each stage of the Project.

(1) Detailed Design

After the approval of the consultant agreement, the consultants will prepare the tender documents based on the Basic Design, consulting with the representatives of DepEd to decide on and set up the various specifications including the construction budget and management system. The specific demarcations of the work between the Japan and Philippine sides must be cleared at the beginning of the detailed design process and according to the policies of the E/N and Japan's grant aid system. Once these items are completed, work on the Detailed Design will commence. The Detailed Design will take approximately 3.5 months per stage of the Project.

(2) Tender

The tender period includes announcement, qualification examination of companies, opening of the tender, tender results evaluation and the construction contract. The methods for determining the type of contract between the client (DepEd) and the construction company, and the tender shall be decided in advance of the tender period through sufficient consultation. Approximately 2.5 months are required to complete all of the tender processes.

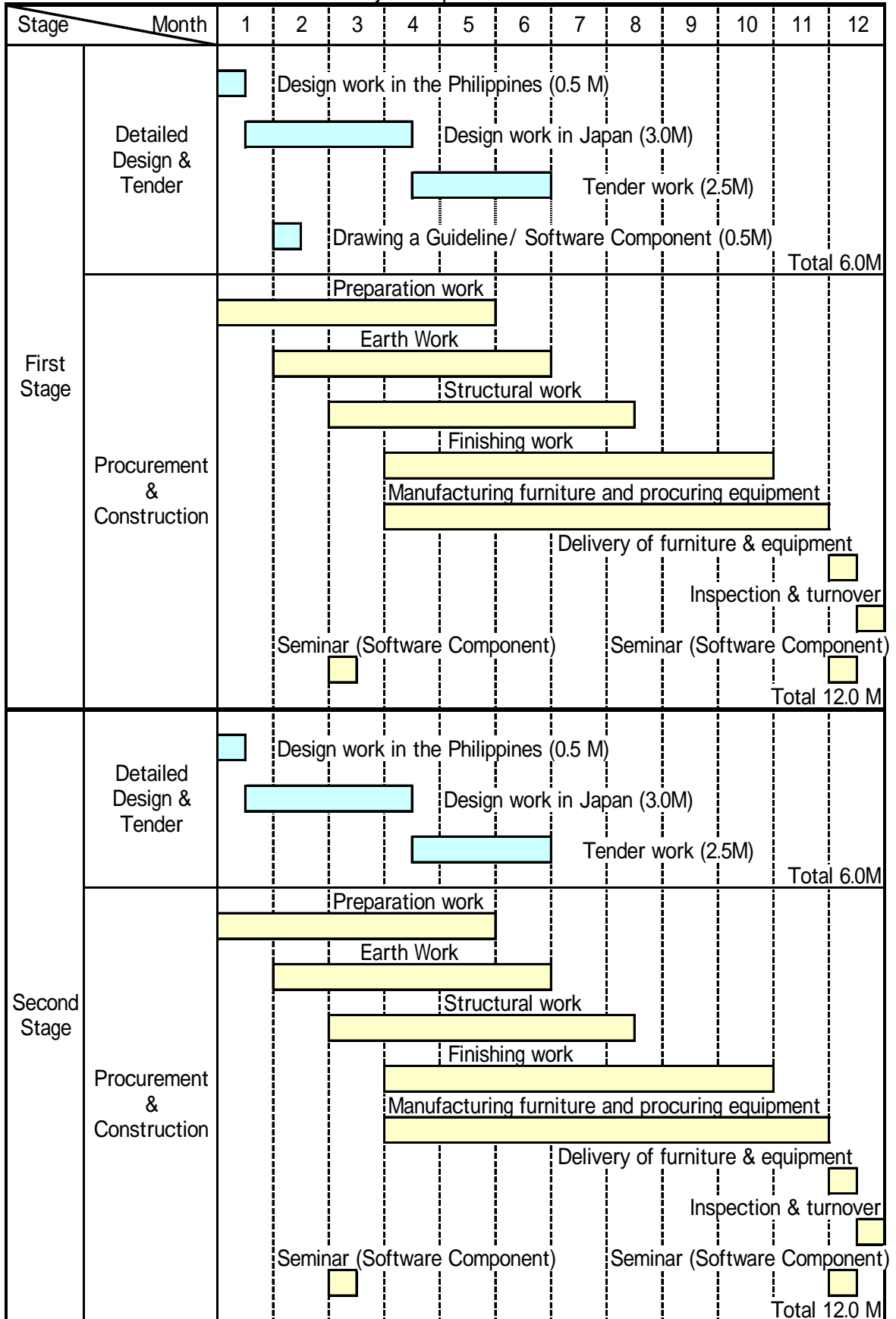
(3) Procurement of Construction Materials and Equipment

Following the signing of the construction contract, preparation of shop drawings should be started immediately. Procurement of materials and equipment will start after the approval of the shop drawings. The delivery of the first equipment can be expected to arrive at the site about one month after the conclusion of the contract.

(4) Construction

After the signing of the contract, the Project sites shall be divided into groups and the determination of when each group will start its building construction and in what order shall be decided. Since two and three story buildings need a longer construction period, they should be included in the first group as much as possible. It takes about 1 month of preparation time after signing the contract before excavation of the ground can start. After completion of the building construction it will take one month for delivery of furniture and equipment to transfer to the sites and for the final inspection to take place by the consultant. It will take 12 months for each construction stage. The Project schedule is shown in Table 2-28.

Table 2-28 Project Implementation Schedule



2-3 Obligations of the Government of the Philippines

2-3-1 Obligations of the Government of the Philippines

As a basic principle, The Japanese Grant Aid requests the recipient country to share some of the obligations of the Project, and this principle applies equally to all recipient countries in the world. After the Government of Japan decides to provide grant aid for implementation of this Project in the Philippines, the Government of the Philippines will undertake the following obligations:

- (1) To provide the Japanese side with information and data pertinent to the Project.
- (2) To prepare the land necessary for the Project, and obtain the rights for DepEd to construct the Project facilities, then leave the land as vacant spaces until construction commences.
- (3) To secure, level, cut and/or reclaim the land, construct wall protections (retaining walls) and remove existing buildings, objects and trees, etc. prior to construction at the below listed schools, as follows:

(Note: The ID in parenthesis are old school ID used during site survey.)

Wall protection

S-19 (S-24) Paradise Farms HS

S-36 (S-87) Carranglan HS (Annex A- Digdig)

Cutting, filling, and leveling of the land

E-01 (E-01) Mambog ES

S-08 (S-10) Alex G. Santos NHS

E-02 (E-03) Orani ES

S-10 (S-13) Taliptip HS

E-06 (E-08) Sibul ES

S-16 (S-20) Marcelo H. Del Pilar HS

E-07 (E-09) Obando CS

S-17 (S-21) San Marcos HS

E-08 (E-10) Bagongbuhay East CS

S-20 (S-25) Sapanpalay HS

E-11 (E-16) Vega ES

S-22 (S-28) Bago HS

E-13 (E-19) San Felipe ES

S-24 (S-31) Rizal NHS

E-16 (E-30) Macapsing ES

S-27 (S-36) Juan R. Liwag Memorial HS

E-18 (E-32) Santa Rosa CS

S-36 (S-87) Carranglan HS (Annex A- Digdig)

E-20 (E-34) Soledad ES	S-40 (S-59) San Vicente-San Francisco HS
E-21 (E-36) Baloc ES	S-42 (S-63) Angeles City National Trading School
E-22 (E-38) Zaragoza CS	
E-26 (E-42) Magsalisi ES	S-43 (S-64) Pmpanga HS
E-30 (E-54) Baloganon ES	S-49 (S-73) Benigno S Aquino Mem HS
S-01 (S-01) Don Pablo R. Roman MHS	S-50 (S-77) Santo Domingo HS (Capas HS)
S-07 (S-09) Orani NHS	S-51 (S-81) Padapada HS
	S-52 (S-84) Maliwalo HS
	S-53 (S-85) Victria HS

Demolition of all concerned buildings in the proposed construction site

E-02 (E-03) Orani ES	S-15 (S-19) Maguinao- Cruz Na Daan HS
E-04 (E-05) Bunsuran ES	S-21 (S-27) General Tino NHS
E-20 (E-34) Soledad ES	S-27 (S-36) Juan R. Lieag Mem. HS
E-22 (E-38) Zaragoza CS	S-30 (S-41) Agbannawag HS
E-31 (E-55) Subic ES	S-41 (S-62) Angeles City NHS
S-01 (S-01) Don Pablo R. Roman Memorial HS	S-45 (S-68) Balitucan NHS (Annex)
	S-49 (S-73) Benigno S Aquino Mem HS
S-04 (S-05) Pagalanggang NHS	S-50 (S-77) Sto. Domingo HS
S-12 (S-16) Felizardo C. Lipana Mem. HS	S-52 (S-84) Maliwalo HS
S-13 (S-17) Meycauayan HS	S-54 (S-86) Gordon Heights HS

Removal of existing foundations, concrete objects, pavement, etc. obstructing construction

E-04 (E-05) Bunsuran ES	S-24 (S-31) Rizal NHS
E-09 (E-11) San Rafael ES (BBH ES)	S-30 (S-41) Agbannawag HS
E-18 (E-32) Santa Rosa CS	S-41 (S-62) Angeles City NHS
E-29 (E-48) Moriones ES	S-45 (S-68) Balitucan NHS (Annex)
E-31 (E-55) Subic ES	S-48 (S-71) Guevarra NHS

Removal of existing trees, school gardens, etc. obstructing construction

E-02 (E-03) Orani ES	S-04 (S-05) Pagalanggang NHS
E-03 (E-04) Bustos ES	S-05 (S-07) Hermosa HS
E-05 (E-06) Matias B. Salvador Mem. ES	S-08 (S-10) Alex G. Santos NHS
E-07 (E-09) Obando ES	S-09 (S-11) Bunsuran HS

E-13 (E-19) San Felipe ES	S-18 (S-22) San Miguel HS
E-15 (E-28) Cabucbucan ES	S-24 (S-31) Rizal NHS
E-16 (E-30) Macapsing ES	S-25 (S-32) Cabiao HS
E-18 (E-32) Santa Rosa CS	S-26 (S-34) Nueva Ecija NHS
E-19 (E-33) Pag-Asa ES	S-27 (S-36) Juan R. Liwag MHS
E-21 (E-36) Baloc ES	S-28 (S-37) Guimba NHS
E-22 (E-38) Zaaragoza CS	S-38 (S-57) Mauaque Resettlement HS
E-23 (E-39) Aliaga CS	S-39 (S-58) Camotchiles Resettlement HS
E-26 (E-42) Magsalisi ES	S-40 (S-59) San Vicente-San Francisco HS
E-27 (E-45) Santa Ana CS	S-41 (S-62) Angeles City NHS (Main)
E-30 (E-54) Baloganon ES	S-44 (S-65) Sindalan HS
E-31 (E-55) Subic CS	S-48 (S-71) Guevarra NHS
S-01 (S-01) Don Pablo R. Roman Memorial HS	S-52 (S-84) Maliwalo HS
S-02 (S-03) Bonifacio Camacho HS	S-54 (S-86) Gordon Heights HS

Others

E-07 (E-09) Obando ES	(Relocation of gate)
E-08 (E-10) Bagongbuhay East CS	(Additional drainage pipe)
E-16 (E-30) Macapsing ES	(Relocation of flagpole)
E-30 (E-54) Baloganon ES	(Relocation of flagpole)
S-07 (S-09) Orani NHS	(Relocation of drainage canal)
S-11 (S-15) Guiguinto National Vocational HS	(Relocation of flagpole)
S-17 (S-21) San Marcos HS	(Relocation of plant box)
S-25 (S-32) Cabiao HS	(Relocation of the school gate)

(4) To connect the electric power line to the electric pole provided by the Japanese side, and to provide and connect the water source to the toilet cistern tank before completion of construction. And to provide of all necessary electric water pumps to the sites.

(5) To undertake any landscaping, constructing of boundary fences, and other incidental outdoor work, if necessary.

- (6) To secure of teachers and administrative staff; to secure of sufficient funds for the necessary operation and maintenance of the completed Project facilities, including all equipment procured by funds from the grant.
- (7) To bear all commissions and/or fees for banking services based on the banking arrangement.
- (8) To ensure the expeditious unloading and prompt inland transportation of Project materials and equipment purchased by funds from the grant. Also, to ensure that all grant aid materials are exempt from taxes, customs clearance fees, etc at the port of disembarkation.
- (9) To exempt all Japanese juridical and physical nationals engaged in the Project from any Philippine customs duties, and all other levies on products and services that come under the verified contracts. Especially, to allocate necessary budget for Value Added Taxes in advance to pay the equivalent amount for all Japanese juridical and physical nationals engaged in the Project.
- (10) To provide every convenience to all Japanese nationals engaged in the Project when they enter into or stay in the Philippines to perform work that comes under the verified contracts.
- (11) To grant all approvals, permission, and other authorizations that may be necessary for project implementation.
- (12) To use adequately and effectively and to maintain the Project facilities and equipment under the responsibility of DepEd.
- (13) To bear all necessary costs for implementation of the Project, including costs for land preparation, access road construction, infrastructure connections, and other incidental work; excluding those costs that are to be borne by the Japanese side.
- (14) To provide expeditious assistance, decisions, and judgments for smooth project implementation whenever requested by the consultants.

(15) To monitor the security conditions in the Project area(s) and take any and all necessary safety measures and precautions in regards to all persons concerned with the implementation stage of the Project.

2-3-2 Cost Estimation Borne by the Government of the Philippines

Cost estimation for the works to be covered by Government of the Philippines is summarized in the Table 2-29, and breakdown of estimation is listed in Appendix 5.

Table 2-29 Cost Estimation Borne by the Government of the Philippines (1,000 pesos)

	Items	Stage 1	Stage 2	Total
	Cleaning, Cutting and Filling Sites	1,877	2,305	4,182
	Wall Protection Works	0	856	856
	Demolition of Existing Buildings, Removal of Trees and Other Objects.	3,548	2,568	6,116
	Electrical and Plumbing Works (Including Electric Water Pumps)	2,638	4,067	6,705
	VAT allocation	28,949	35,409	64,358
	Total	37,012	45,205	82,217

2-4 Project Operation Plan

2-4-1 Maintenance Plan

In the Philippines, Division Office is responsible for the major rehabilitation of the building at public elementary and secondary schools. Each school submits an application form to the Division Office for the Capital Outlay (CO) and the Division office allocates the CO to each schools. However, the facilities constructed by the Project will not need the major repair or rehabilitation in a short term.

On the other hand, as for the regular maintenance of facilities and equipment, such as checking and repairing, PTCA (Parents Teachers Community Association) is responsible at each school, sometimes done by employed janitors or by external agencies. As for cleaning, students clean their own classrooms and toilets. Thus at Project schools, as there are already implementing bodies and systems for the maintenance, establishing any new maintenance system or organization is unnecessary. However, although the degree of maintenance activities varies among Project schools, some schools need to improve their present conditions. Therefore, software component will be introduced with the objectives to establish the appropriate maintenance measures and to inform the concerned parties of those measures.

The money necessary for those maintenance activities is supposed to be allocated from the MOOE (Maintenance and Other Operating Expenditure), but the amount is never sufficient as MOOE is used not only for maintenance but also for all the expenses necessary for the school operation, such as electricity and water supply, communication, or purchase of materials. Furthermore, the compulsory collection of PTCA fees from parents to make up for the lacking MOOE is now prohibited by the order of DepEd. Therefore, it is important for the Government of the Philippines to secure the necessary amount of fund for the Project school in order to carry out the appropriate maintenance activities.

2-4-2 Breakdown of Maintenance Costs

After completion of the Project, new school costs will be divided into two categories: maintenance costs and operational costs; and are calculated in the following way:

(1) Maintenance Costs

There are two types of facility maintenance costs: 1) regular maintenance costs, for periodic activities like the painting of classrooms, etc, and 2) irregular maintenance costs, for the repair of minor damage like those to window jalousies and wooden doors, etc. Usually, general maintenance costs are estimated at around 0.6-1.4% of the annual direct construction costs. However, because these Project buildings are new and have been designed to be virtually maintenance-free, the yearly maintenance costs are estimated to be around 0.4% of the annual direct construction cost. Thus, expenditures for facility maintenance are estimated at 1,820,000 pesos/year (direct construction cost 450,000,000 pesos × 0.4%).

(2) Operation Costs

1) Personnel Costs

Just as the needs at each school for solving its classroom shortage problems were different, so are the needs at each Project school for new teachers different after the completion of the Project. For example, those schools that kept adding students to a limited number of classrooms will need additional teachers according to the number of new classrooms constructed by the Project. Those schools that used temporary classrooms or other rooms as ordinary classrooms will not need additional teachers after completion of the Project, and neither will those schools that used classrooms in double shifts, once those schools bring back the single classroom shift system after Project construction of additional classrooms. However, in cases where new science classrooms are constructed, there may be a need for additional teachers; or where "special subject" rooms (used as ordinary classrooms) go back to their original use, there might be a need for "special subject" teachers. In short, because there are so many unclear factors involved and the need for additional teachers depends on the policy of each Project school, it is very difficult at this stage to precisely estimate any cost increases for additional personnel.

As for the teacher allocation, the Department of Education sets the mark of teacher allocation as a teacher-pupils ratio of 1 to 50. 26 out of 85 Project schools have a teacher-pupils ratio more than 1 to 50, but the Department of Education plans to allocate 1,009 teachers in Region III for school year 2002 with those 26 schools prioritized for allocation. Upon the completion of

the Project, there are only 3 schools that would have more classrooms than the number of teachers. For those 3 schools, 5 teachers are necessary in order to fully utilize the Project classrooms. Since the teacher allocation would not decrease after 2003, including 5 teachers for the teachers allocation between 2003 and the completion of the Project is judged to be feasible. (Average teacher annual salary 143,000 pesos times 5=715,000 pesos)

2) Electricity, Water and Sewage Disposal Costs

Electricity

In this Project, the only electrical related equipment covers light bulbs, fluorescent tubes, wall outlets and switches. At some schools, there will be an additional electricity cost to operate the new water pumps that will be installed by the Government of the Philippines. A study clearly indicates that there is a difference in electricity costs between schools that do and do not have pumps for their water wells. Table 2-30 shows the estimate of additional annual electricity costs per student for both types of schools.

Table 2-30 Estimate of Electricity Costs Accrued Through Project Construction

School Type	Average annual electric cost per student (Peso)	The number of classrooms	The number of students	Total electric cost (Peso/ Year)
Without Pumps	41	251	11,295	463,095
With Pumps	115	174	7,830	900,450
Total		425	19,125	1,363,545

Water

Schools that connect to the public city water supply will have to pay additional water fees. There are 25 Project schools (142 new classrooms/6,390 students) that will connect to the city water. According to the Basic Design Study, the average annual water fee per student where the school uses the public city water is 34 pesos per year. After Project completion, the approximate additional annual costs for water will give a total of 217,260 pesos (6,390 X 34=217,260).

Sewage Disposal

There are no Project schools that will connect to the public sewage disposal system, so no additional fee for the sewage disposal cost shall be considered.

3) Miscellaneous Costs

Within the category of school operation costs, there are miscellaneous expenses for examination and expendable supplies such as stationery and chemicals for science equipment. However, as these expenses are relatively small compared to the whole amount of maintenance costs, they will not be taken into account in the calculation.

2-4-3 Total Maintenance and Operation Costs

As a result of Project implementation, newly required maintenance and operation costs are shown in Table 2-31.

Table 2-31 Annual Operation and Maintenance Costs

Items		Increased Costs by the Project per Year (1,000pesos)	Educational budget of Region III for 2001 (1,000pesos)	Increase rate
Personnel Costs		715	6,770,000	0.011 %
MOOE	(Facility maintenance costs)	(1,820)	390,000	0.872%
	(Electric Costs)	(1,363)		
	(Water Costs)	(217)		
	Sub total	3,400		
Total		4,115	7,160,000	0.057%

2-5 Other Relevant Issues

2-5-1 Software Component Plan

(1) Background

Some facilities and equipment of schools, which were constructed and supplied by the grant aid project of the Phase I to V, are found not being in a good condition because of the lack of appropriate maintenance such as repairing and cleaning. Some Project schools (of this Phase) are also having problems in maintenance of the existing facilities and equipment. If these schools keep the existing maintenance condition, the same kind of problems might happen to the both existing and Project buildings.

Therefore, for the sake of the effective and sustainable use of the facilities and equipment of the Project, it is necessary to improve the present maintenance system. Thus, utilizing the software component, the activities are carried out to establish the know-how and to inform the principals and other stakeholders regarding the matter.

(2) Direct Effect

Through the implementation of this software component, the following effects are expected.

Those in charge of maintenance at Project schools will improve the knowledge and skills on maintenance.

The appropriate maintenance activities will be carried out at Project schools.

(3) Activities

The following activities are carried out in the Project.

Making a Guideline at Project schools

The items necessary for maintaining the facilities, equipment, and furniture, both in terms of technical and managerial, will be covered in the Guideline.

Explanation of the Guideline

Seminars will be held targeting those in charge of the maintenance activities at each Project school. Along with the explanation of the Guideline, the case studies in the previous phases of the Project will be introduced. The seminars encourage Project schools to establish the maintenance system during the construction period, and Project schools will report its progress regularly to the Division office of DepEd. The seminars will be held before

construction, together with explanation of the items to be prepared by the Project schools before and during the construction.

Explanation of the maintenance activities and the usage of the Guideline

At the Project schools, the joint seminars will be held in order to explain the maintenance of the facilities and the use of the Guideline. The joint seminars will be held at schools selected from the schools constructed in the early period. The seminars will be held in the way that it will not disturb the completion of the whole construction period.

Table 2-32 Detailed Activities Plan

Activities	Type of Activities	Days of Work	Outcomes
1. Making a Guideline	Work done in Japan	1 st Stage: 15 days	Guideline on Maintenance
2. Explanation of the Guideline	Holding Seminars	1 st Stage: 1 day × 2 places 2 nd Stage: 1 day × 2 places	Report
3. Explanation of the maintenance activities and the use of the Guideline	Holding Seminars	1 st Stage: 1 day × 2 places 2 nd Stage: 1 day × 2 places	Report

Chapter 3 Project Evaluation and Recommendations

Chapter 3 Project Evaluation and Recommendations

3-1 Project Effect

(1) Direct Effects

1) Improvement of the Educational Environment

Because the public schools do not regulate the number of students who wish to attend, each school has to make its own efforts to accommodate a continuously increasing number of students. For example, the use of overcrowded classrooms, temporary classrooms, special rooms as ordinary classes and in the worst case, even the outdoors as classrooms. Also, holding multiple-shift classes and using badly deteriorated school buildings is not uncommon. As a result of implementing the Project, 425 classrooms will be built for elementary and secondary schools in Region III, so an additional 19,215 students will be able to study in these new classrooms under an improved educational environment. In short, the schools will be able to conduct classes under much better conditions.

2) Improvement of Sanitary Conditions

In addition to the classroom shortages, it is evident there is also an extreme shortage of the number of toilets at the Project schools. The toilets that do exist are in very unsanitary conditions due to inadequate water supply facilities and poor cleaning and maintenance organization, and as such, are not fully used. The Project will construct, according to the number of classrooms built, an adequate number of toilets with the appropriate plumbing facilities, resulting in significantly alleviating the toilet shortages at each Project school. In addition, by implementing a software component to promote adequate facility maintenance, the toilets will be appropriately and fully utilized thereby improving the general sanitary environment for the students.

3) Conducting Appropriate Science Experiments

The Philippines' educational curriculum specifies that laboratory experiments will be conducted in the science classes. Obviously, however, it is extremely difficult for schools without laboratories to conduct experiments, so they have to conduct either very limited and simple experiments or have the teachers only demonstrate experiments, and in ordinary classrooms, not science classrooms. This situation hinders any achievements in science education. As a result of the Project providing laboratories and equipment to certain secondary schools, there can be science classes with science experiments, as the curriculum states. Thus, a more student-focused education can be promoted and the level of science education improved.

4) Acquiring the Skills for Facility Maintenance and Operation

Through the introduction of a software component into the Project, the basic knowledge and skills for continuous maintenance and operation of school facilities will be improved at each Project school. In addition, by establishing adequate facility management and maintenance practices, not only will the service life of the Project facilities be extended, but so will the service life of older existing facilities also be extended. Thus, in the long run, the financial burden of the Philippine side for school facility repair and maintenance will be lightened.

(2) Indirect Effects

1) Beneficial Effects to the Surrounding Communities

The Project facilities will be used not only for basic education but also for other social-educational activities, such as adult or anti-illiteracy education, as well as for non-educational purposes, such as community activities and as a refuge during natural disasters. In this way, the Project facilities will greatly contribute to the surrounding communities.

3-2 Recommendations

1) Conducting Appropriate Facility Maintenance and Operation

The plan calls for introducing a software component at the Project schools for the purpose of establishing the necessary know-how for appropriate facility maintenance and operation, and also for the promotion and dissemination of this know-how to the concerned personnel at each Project school. Through the utilization of this component, it is expected that the Project facilities will be appropriately maintained and operated.

In general, the degree of facility maintenance and operation activities varies from school to school at present. It was learned from the site surveys that the maintenance and operating activities for school facilities are performed at the discretion of each school's principal.

The one concern is that the first principal or staff members in charge of facility maintenance and operation under the software component who have accumulated a high level of management knowledge and maintenance skills may not hand this knowledge over to the next generation of persons who will eventually succeed and replace them in the future, and those next generation people will be without this know-how.

So, for this not to happen, it is absolutely necessary for DepEd, after the implementing of the software component, to conduct periodic monitoring to see and confirm that facility maintenance and operation activities are sufficiently and continuously being conducted at each school, and whether or not those activities are the same or different at each of the schools. Then, from the evaluation of the results of this monitoring, DepEd must appropriately provide any necessary adjustments, guidance and/or assistance as needed to the school principals or personnel in charge, if deemed necessary.

Presently, as the mandatory collection of PTCA fees is prohibited, DepEd must guarantee the appropriation of sufficient and necessary budgetary funds to sustain the school facility maintenance and operation program activities.

2) Effective Use of Science Equipment

In order to effectively make the best use of the science equipment provided by the Project, teacher training, and/or brush-up classes will be necessary. Also necessary will be to

provide the appropriate guidance from qualified staff members on how to perform science experiments using this equipment, in accordance with the science education curriculum.

Besides a lack of science equipment, the Study Team learned that some teachers hesitate to use the science equipment for fear they might damage or break it. Thus, it is strongly recommended that DepEd periodically monitor the use of said equipment at each school, as well as promote and encourage use of the equipment by securing a sufficient amount of budgetary funds for those necessary consumable items such as chemicals and fuel.

3) Multiple Use of the Project Facilities

Several considerations, like electrical installation, movable partitions, securing of building durability, etc, have been taken into account and included in the basic design so that the Project facilities can also be used by the community for other purposes, such as a shelter in an emergency or as a place for meetings or other non-formal education classes, etc.

It is required that DepEd and the Project schools promote frequent use of the Project facilities to the community, informing them of the openness and flexible characteristics of the facilities for their use, and that they should actively and effectively utilize the facilities.