



VIE /85/019

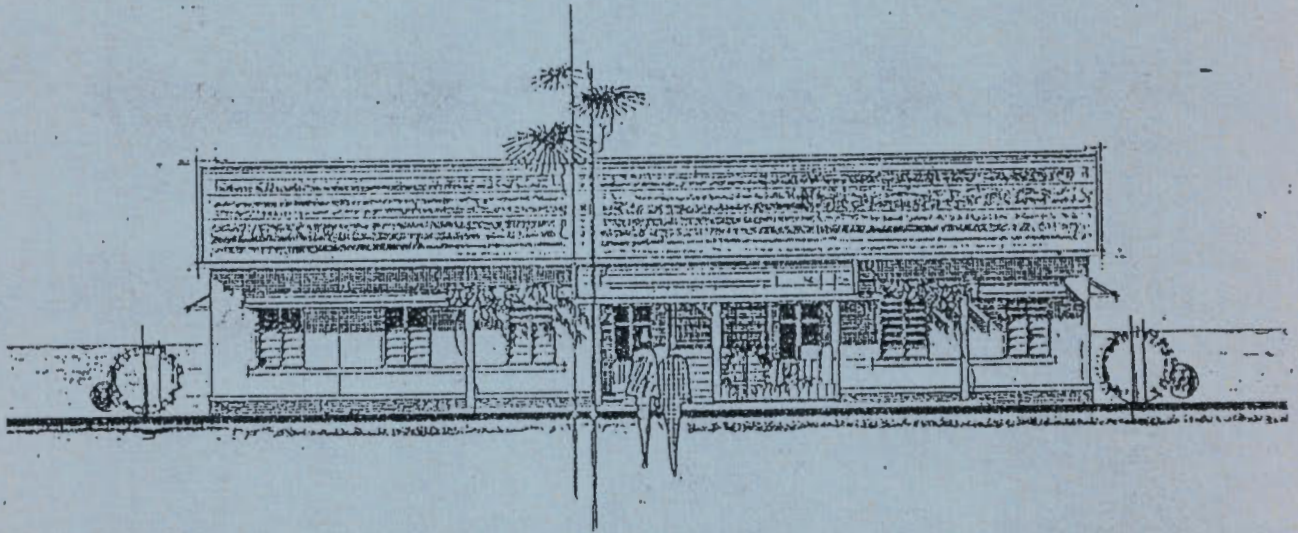
DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
CHUYÊN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO



23 bis

Session II Workshops

DECEMBER 1989



Overall presentation

Development
Workshop

Viện thiết kế Xây dựng Thừa thiên - Huế
Institute for Building Design , Thừa thiên - Hue province
Viện thiết kế nhà ở và công trình công cộng , Bộ Xây dựng
Institute for Housing and Public Building design , M C.

GRET



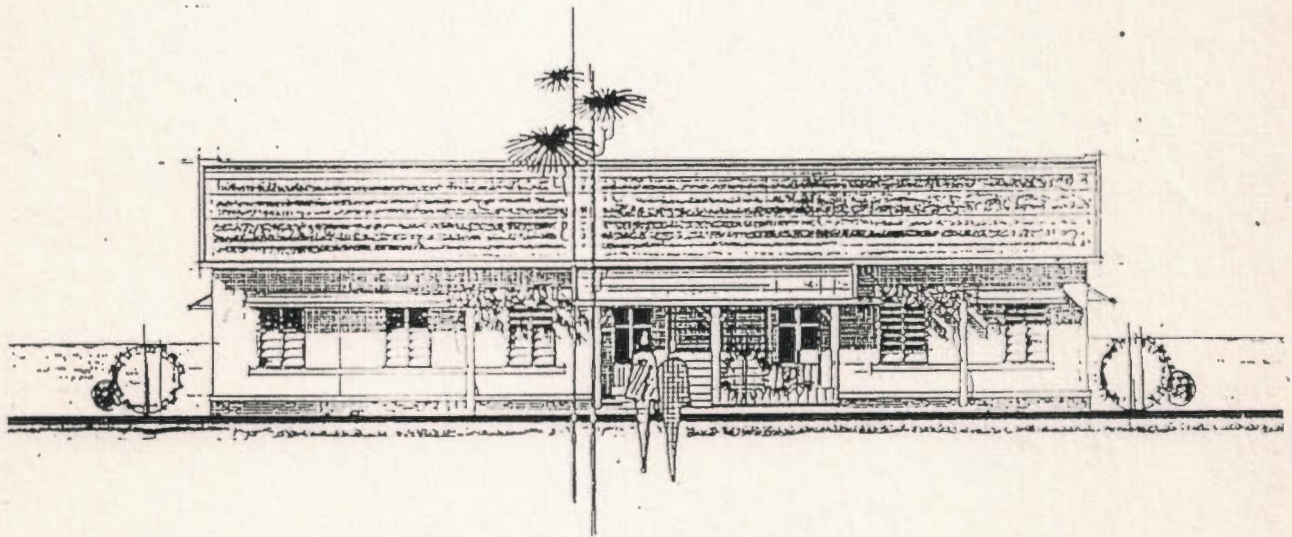
VIE /85/019

DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
CHUYÊN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO



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DICEMBER 1989



Overall presentation

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Institute for Building Design , Thua thien - Hue province
Viện thiết kế nhà ở và công trình công cộng , Bộ Xây dựng
Institute for Housing and Public Building design , H.C.

GRF



DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
CHUYÊN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO



Session II Workshops

SEPTEMBER 1989



Overall presentation

Institute for Housing and Public Building Development
Việt Nam
Institute for Building Design, Huế
Việt Nam

Development
Workshop

GRU

1 - SUMMARY :

1.1 - THE " INTERIM WORKSHOP " TRAINING :

The phase 1 activities have been run from 15 December to the 27 December 1985 . The "interim workshop " training session is to be run by the IBD Unit for cyclone resistant construction. The Unit has the responsibility for this phase of training , supported by the material provides by DW/GNET . The programme is running to the agreed schedule .

1.2 - RESULTS :

The phase 1 interim workshop have established a good working relationship between IBD and our counterparts in Hanôï DW/GNET expert only participated in the preliminary field analysis and the evaluation of the phase 1 .

A workshop for 9 technicians and 3 builders lasting 12 days has been completed in Trieu hai district, 60 Kms north from Hue .

At the end of the phase 1 "interim workshop " the results are appreciable :

+ Developing out of the work of the technician workshop , an Action plan has been drawn up and agreed , which defines the structure and actions necessary for disseminating information about CRC to the public and to local builders .

+ At the end of the phase 1 "interim workshop, the participants have produced comprehensive documents on :

- The characteristics of housing in the region and the cyclone resistant techniques with can be promoted .

- The cost of construction and the extra cost for different building types that is incurred by improving cyclone resistant .

- The most suitable methods of communicating information to the public, technician and decision makers .

- At Hailam village , a small health centre has been designed as a application of the key cyclone resistant building techniques in Trieu Hai district and Quang Tri province .

- Draft versions of leaflets have been prepared .

1.3 - OBSERVATIONS :

1.3.1 : CAPACITY TO TRAIN :

The IBID staff have worked extremely hard during the 1st workshop and now IBID becomes responsible for the majority the training work . The Unit for cyclone resistant construction which has been established by IBID , is able to carry into effect the project .

1.3.2 : FINANCIAL CONTROL :

Careful control of costs when demonstrating cyclone resistant building is important, so that the extra cost for strengthening the building is clearly distinguished . Real building cost need to go on being monitored carefully in future demonstration building so that the public can see the extra cost is incurred .

1.3.3 : THE DEMONSTRATION BUILDING :

The design of the health centre has been a positive process encouraging much debate about techniques and giving practical experience .

1.4 - PROGRAMMING :

1.4.1 : WORKSHOP DURATION :

The phase 1 workshop for technicians and ones builders occupied the participants for 12 days . This was probably suitable long, and in future a same period .

1.4.2 : PHASING THE CONSTRUCTION OF THE DEMONSTRATION BUILDING :

The design of demonstration building has been done by participants of technicians training workshop and will in future be built by participant in cyclone resistant construction workshop for builders . The construction duration will be 6 weeks .

1.4.3 : THE INTERIM FIBUAQA TRAINING WORKSHOP FOR BUILDERS :

The construction of Mai Lam health centre will carry on after the technicians workshop has finished . A member of the UN/CRET team will come to Viet nam almost immediately after the technicians workshop to evaluate the work with the experience of the interim workshop and discuss .

2 - CONTENT :

2.1 : GENERAL OBJECTIVES OF THE PROGRAMME :

The VIE/85/019C Sub-project has been developed as a response to the damage caused by cyclones in Binh Tri Thien zone (now include three province). The project's objectives are to define and launch a provincial and national action plan which will raise public awareness about the importance of reducing cyclone damage to buildings and demonstrate the action required to achieve this. Above all, the programme's main aim is to disseminate as widely as possible to builders and the general public alike cyclone resistant building methods which are within reach of the local population and adapted to local conditions .

To carry out this project, originally two workshop sessions we envisaged . The first took place in May - June 1989 Following this first training session, it was agreed that an additional "interim " workshop (session II) should be held . Session III remains programmed for February 1990 . At the same time as this "interim workshop" takes place, a trial period of public information will also be carried out in Phu Loc district in Thua Thiên-Hue province .

The purpose of the interim workshop is therefore twofold : to train more people in the second province (Quang Tri) and to test the communication material and the training process . The results of the "interim workshop " will then be evaluate in late January 1990 by DW/GRET with IBD and IHPDD team .

The " interim workshop " training session is to be run by the IBD Unit for cyclone resistant construction which has been established by IBID . The Unit has the responsibility for this phase of the training, supported by the material provided by DW/GRET.

The "interim workshop" has been conducted in Trieu Hai district Quang Tri province ~~for~~ from 15th to 25th December for technicians from this province .

2.2 : TRAINING ANH INPUTS :

The " interim workshop " for technicians in the Quang Tri province scheduled to begin on 6th November 1989, was pushed back by 5 weeks to the 15 December 1989 at the request of director of sub-project VIE/85/019C . The reason for this late start was effect of the 1989 typhoons, difficulties of budget and equipments (

(provided by UNCHS) . The other reason was replace of location where the 2nd demonstration building will be built . After the chandry 'S preliminary fiel analysis mission in November 1989 , a small health centre at Hai Lam village, Trieu Hai district, Quang Tri province (will be built in February 1990) was shoosed by DW/GRET expert, people 'S committee of Trieu Hai district and director of the sub-project VIE/85/019C (originally, a primary school at Haiam village Trieu Hai district was envisaged).

The training programme has been took without the presence of DW/GRET .

DW/GRET arrnged for training matericels and guidelines and the detailed programme to be delivered IBD before the start the workshop .

IBD will identyfy the number and names of the participants for this workshop as quickly as possible, & so that DW/GRET can calculate the per-diem budget necessary for running the workshop and request UNCHS for aproral .

2.3 . THE " INTERI. WORKSHOP" AT TRIEU HAI DISTRICT, QUANG TRI PROVINCE :

2.3.1 : TERMS OF REFERENCE :

The terms of rejcrence for the seecion II workshop have been defined as follow .

a) To arganize a training workshop for technicians in Quang Tri province .

b) To arganize theoretical and practical workshops for builders in Quang Tri province .

2.3.2 . OVERALL INTERI. WORKSHOP OBJECTIVES :

The overall objectives of session II are as follows :

2.3.2.1 : To train technicians in cyclone resistant building drawing on the experience, the method and the results of session I in Thua Thien - Hue (Phu loc) .

2.3.2.2 : To test the communication material prepared so far in Phu Loc (Vidio tape, leaflets, mamuals ...)

2.3.2.3 : To design the second demonstration building (small health centre) in Quang Tri province, whose construction will

begin in February 1990 in the third phase of the project .

2.3.2.4 : TEAMING :

A member of the DW/GRET ,Guillaume Chantry, Was in Thua Thiên Hue and Quang Tri province between 30th November and 3th Dicember 1989 and will come back these provinces later in January 1990 to evaluate the remlts of the "interim workshop" in Quang Tri province .

2.4 : PARTICIPANTS :

The interim workshop for technicians have been run by the unit for cyclone resistant construction include 5 people 'S .

- 4 peoples of the institute for building design of Thua Thiên - Hue province .
- 1 people of the institute for housing and public building design, minesty of construction .

participants are follow :

- 2 technicians from Ben Hai district, Quang Tri province .
- 6 technicians from Trieu Hai district, Quang Tri province
- 1 technician from Quang Tri institute for building Design.
- 3 builders from Trieu Hai district (see annexe 1 for a list of participants) .

2.5 : ORGANIZATION :

The interim workshop lasted 12 days from 15th to 27th Dicember 1989. During this time, work has been divided between.

- a) general course work, to explain concepts and theories to all the participants .
- b) Periods for field enquiries and case studies .
- c) Small group workshop sessions on specific aspects of the programme, the design of the demonstration building .
- d) The production of dossiens and communication material in VietNameese .Which summarise and present the work that has been undertaken . The detailed programme for the workshop for technicians is reproduced in arrexé .

3 : UNDERLYING CONSIDERATION :

The general couse work included the presentation and

discussion of "Ten key principles" for cyclone resistant building design .

- The basis for the analysis of local building practices and costs .
- A central part of the message that needed to be transmitted to the population .
- The underlying principles Used in the design of the demonstration building .

4: WORKSHOP STRUCTURE :

During the technicians workshop, apart from the general course work periods, the participants were divided into three groups, each responsible for a different aspect of the programme:

Group 1 : Analysis of the effects of cyclones on housing and public buildings and survey of construction costs .

Group 2 : The action plan and the dissemination of information .

Group 3 : Design of demonstration building .

This three-group structure provides a convenient way to present the workshop results . These results are fully presented in session II workshop - volume 2 .

5: WORKING METHODS :

5.1 . WORKING METHOD AND RESULTS OF GROUP 1 :

Group 1, comprising participants surveyed the different types of building in Trieu Hai district, and analyzed the effects of cyclones on each building element, material and joint .

Based on this survey, they then identified the key local features which are or have been used to achieve cyclone resistance, and assessed the possibility of applying these and other key cyclone resistant building techniques to the contemporary of Trieu hai district and Quang Tri province .

(Kem bang phân tích kiểu nhà)

This group , studied the cost of all the different building materials used in the Quang Tri province, and specifically Trieu Hai district (see Annexe ... for the material prices in December 1989). They went on to evaluate the cost of construction for each part (foundation, walls, opening...) of the variety of building types surveyed. They then proceeded to calculate the



Năm lá: Neo chặt các nơi;
Tường, kèo, kèo. Nhả chông rớt nhào ra.



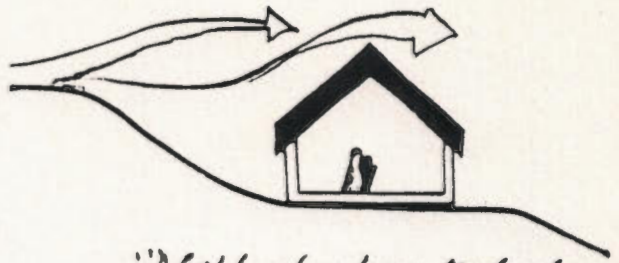
Sáu lá: Như là móng người nhào,
Thôn giồng bang giốc, thàn đá chông xôn.



Bảy lá: Cắm lợp bên trên;
Phải buộc cho chặt, phải bả chông bên.



Tám lá: Cột trôn, cột sọc,
Kính thước xấp xỉ bằng nhau, không thước.



Một lá: Lợp dưng địa hình
Cần hướng gió dưng công trình cửa ra.



Hai lá: Dưng dưng người nhào;
Giản đơn, hạn chế thò ra, thụt vào.



Ba lá: Độ dốc mái cao,
Kèo gió thổi vào, mái dư lúc lên.



Bốn lá: Cột mái, mái vắn,
Tránh đưa quã rộng; Mái hớt tách rời.



Chín lá: Cửa đóng khít, vữa
Đủ lợp, dưng chặt, nẹp nẹp chôn lợp.



Mười lá: Nền như trồng cây
Chanh rào dậu, Chín hớt ngang Bắc Kỵch.



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CHUYÊN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO
DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
VIE/85/019C

EM ĐÃ HIỂU RỒI.

Ai về Triệu Hải quê em.
Vườn xanh. Mái lợp nhà cheu mái lợp
An yên những chàng yêu lòng
Hàng nêu dồng bả vẫn thường trau võ
Thiên tai đâu phải bất ngờ
Mà khi bão đến xáo xổ cửa nhà
Tài trời những cũng tại ta
Quyết đi kinh nghiệm xây nhà ngàn xưa
Chứa "uá" kỹ thuật lợp gió
Chứa lo chuẩn bị phòng ngừa thiên tai
Chứa có cửa kín, theo Kai
Chàng lo neo giữ trong ngoài cho yên
Coi thường giăng đống chèo xiêu
Mọi phần liên kết chắc bền gió lay
Rui, mè, kéo cột, đòn tay
Tàu tầu vầu ngồi lâu nay kết hồ
Chứa lo xây chạch, xây bở
Không hần gió thốc ~~man~~ gió lùa mái tung
Trồng cây chắn bão lưng tung
Y tá xiêu nhà đổ còn mong di trời
Nợ anh, em đã hiểu rồi
Xây nhà chống bão nơi nơi phải lâu.

Triệu Hải 12 - 1984.

Nhóm II.

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Institute For Housing and Public Building Design, MC

CHUYÊN BIỂU KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO
DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
VIỆT BẢO ĐẢ

EM Ơ Ầ HI Ể Ụ R Ồ T

Ở địa điểm này, các nhà dân
vẫn xây dựng theo kiểu truyền thống
với mái dốc, tường dày và cửa sổ nhỏ.
Tuy nhiên, để chống lại tác động
của bão, cần áp dụng các kỹ thuật
xây dựng mới như: sử dụng bê tông
cốt thép, gia cố mái, và lắp đặt
các thiết bị chống gió bão.
Việc áp dụng các kỹ thuật này
sẽ giúp các ngôi nhà trở nên bền vững
và an toàn hơn trong mùa mưa bão.
Các chuyên gia khuyến cáo người dân
nên tham khảo các tài liệu hướng dẫn
để biết thêm chi tiết về các kỹ thuật
xây dựng nhà chống bão.

Ngày 12-12-1971
Nguyễn Văn II

Disaster preparedness and rehabilitation in Binh Tri Thien zone, Vietnam
Phòng chống thiên tai và khôi phục ở khu vực Bình Trị Thiên , Việt nam

CHUYÊN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO
DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
VIE/85/019C

**EVALUATION OF DWELLING HOUSES ACCORDING TO THE KEY CYCLONE -
RESISTANT PRINCIPLES .**

Trieu Hai is figured as a destroyed grave region caused by the war in Binh Tri Thien . Almost all complete traditional houses were destroyed . After the war, peoples have been constructed their house with private economic capacity . excepting some strong or semistrong morden houses constructed with new materials and techniques the majority of existant buildings there are " transition " buildings or adajted traditional houses, poor storm resistance .

Transition buildings have moved away from the traditional techniques , but have not achieved the strength of the well built morden house . Falling in between they mise old and new . materials techniques, with the interrupt process . Have some strong elements while the more others very weak, so that, reduce storm resistance of building . The investigation of damage caused by typhoons shows, transition houses become greater . (Adapted traditional house is unable to withstand strong storm but is easy to rehabilitate, cost is small) . Transition buildings at Trieu Hai district must be interected , especially according to point of view of cyclone resistance . During the interim workshop for techricians at Trieu Hai district group 1 surleyed and studied the different types of building , analysed the effects of cyclons on each building element following .

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DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
VIE/85/019C

KEY PRINCIPLES

BUILDING STATUS

PROPOSALS

1 Make use of topography	Conditions of selection limited - little attention paid. Chiefly paying attention to the good direction of wind, to the main artery, river bank, lagoon.	Fullest use of topography should be made to minimise wind speed and direction.
2 Give the house an uniform shape presenting minimum obstruction to the wind	Simple plan. One compartment with two wings. Three compartments without wings. Three compartments with a kitchen etc...Roof shape: sloping at gable. Vertical at gable. Flat roof.	Advisable to use traditional roof shape sloping at gable to minimise wind obstruction, not overhanging the wall. Advisable to use transition type (vertical gable with little overhangs). Reinforce hips with fascia boards etc.
3 Roof pitch	Main tile roof 30-45°. Iron sheet, fibre-cement roof 15-20°. Veranda : 10-15°.	Small house should not use iron sheets. Protect the veranda; use a ceiling.
4 Overhang	Gable : 20-25cm, with Fascia Board. Rear Roof : 50-60cm, keeping the rain water off. Beyond veranda column : 20-30 cm.	When overhang is thought necessary but it is not very large, and reinforcement protection is advisable.
5 Guarantee joints and fixings between all elements.	Durable and solid. Traditional and modern houses have good joints. Transition houses whose joints have weaknesses prone to damage: Foundation- columns, columns-trusses, trusses-purlins, purlins-secondary rafters, coverings.	Advisable to reinforce main joints, especially foundation-columns, columns-trusses, trusses-purlins, coverings. Attention should be paid when using mixed materials. Avoid strong joints between principal house and veranda.
6 Horizontal and vertical bracings (diagonal bracing)	In Phu Loc, dwelling houses have no diagonal and vertical bracings (for appearance) weak storm-resistance.	Use hangars instead of struts. Horizontal bracings combined with roof decoration.
7 Make sure roof covering elements can't be lifted off by wind.	On the roofs : the middle part is not protected, so easily can be lifted off. Under the roofs and veranda don't have ceilings.	Putting veranda ceiling close to the roof. If the main roofs have no ceiling, make sure the roof coverings are held down fast to the roof frame.
8 Balance the size of openings in opposing walls.	Windows of the same size, except the compartment with the altar in it which has no rear opening.	There must be outlets in case the wind enters into the house.
9 Make sure all openings can be closed.	Wooden windows and doors are well fitted and solid but temporary ones are often weak. Lots of ventilation openings.	Reinforce windows and doors, with strong bolts. Shield ventilation openings and cracks when a storm is coming.
10 Plant trees as windbreak	For old settlements: plant storm resistant trees such as bamboo, jack fruit, coconut trees. New economic zone : exposed to the wind or having trees prone to collapse such as phi lao, eucalyptus	Plant trees unlikely to collapse. Plant trees in such a way both to reduce wind speed and to resist to collapse when the cyclone is raging.

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Institute For Housing and Public Building Design, MC

DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
 VIE/85/019C

MATERIALS AND JOINTS OFTEN IN TRIEU HAI DISTRICT

PARTS HOUSE	MATERIALS USED	JOINTS
1. FLOOR	:- Earth (General use) :- Cement covering (General use) :- Brick	
2. FOUNDATION	:- mass concrete :- Brick , block :- Reinforced concrete	:- Mass concrete :- Building mortar :- Mass concrete
3. FRAME COLUMN	:- Timber , bamboo :- Used iron :- Reinforced concrete	:- Tenon (Not general) :- Bolt , string :- Mass concrete
4. ADOPTED TRUSS:	Wood	Tenon , bolt
5. TRUSS	:- Wood :- Bamboo :- Used ion	:- Tenon, bolt :- Bolt , string :- Bolt , solder
6. PURLIN	:- Wood , bamboo :- Used iron	:- Nailing , string :- String
7. WALL	:- Brick , block :- Bamboo wattle :- Thatch :- Wooden plank	:- Cement, sand, lime mortar :- Binding , knitting :- String :- Connecting
8. WINDOWS, DOORS:	:- Wood :- Thatch :- Wattle	:- Panlling :- Binding, supporting SUSPENSION
9. ROOF	:- Fired clay brick, cement :- Corrugated sheeting :- Fibro-cement :- Thatch	:- Hook :- Nail , fastener :- Fastener :- Binding
10. HOLDING DOWN THE COVERINGS	:- Brick ribs :- Bamboo, wood as ballast :- Sand bags	:- Cement, sand, lime mortar :- Binding :- Freely put critical points

MATERIALS AND JOINTS OTHER IN THIN WALL DISTRICT

JOINTS	MATERIALS USED	PARTS NUMBER
	= Brick = Cement covering (General use) = Earth (General use)	1. FLOOR
= Mass concrete = Binding mortar = Mass concrete	= Reinforced concrete = Brick, block = Mass concrete	2. FOUNDATION
= Mass concrete = Earth, string = Earth (General use)	= Reinforced concrete = Used iron = Timber, bamboo	3. FRAME COLUMN
= Iron, bolt	= Wood	4. ADDED TRUSS
= Earth, bolt = Earth, string = Earth, string	= Used iron = Bamboo = Wood	5. TRUSS
= Earth, string = Earth, string	= Used iron = Wood, bamboo	6. PURLIN
= Cement, sand, lime = Binding, string = Earth, string	= Brick, block = Masonry walls	7. WALL
= Earth, string = Binding, string = Earth, string	= Wooden plank = Earth, string = Wood	8. WINDOW, DOOR
= Hook = Nail, fastener = Earth, string = Earth, string	= Earth, string = Earth, string = Earth, string = Earth, string	9. ROOF
= Cement, sand, lime = Earth, string	= Brick pipe = Bamboo, wood as pillar	10. ROOFING COVERINGS

extra cost involved in making the different building types cyclone resistant, thus giving an indication of the proportionate additional cost for each type.

The key results of group 1 were as follow.

a) The group confirmed the original typology concerning traditional, "transition" and modern housing.

b) The traditional house forms which use heavy timber columns and mortise and tenon joints give good storm resistance, but are prohibitively expensive.

Some housing which uses different materials bambao and thatch with tied joints is cheap but is often too frail to resist the effect of strong winds.

c) The modern houses surveyed were considered strong or very strong, but at the same time expensive.

d) In between these two the transition house where the materials and techniques are a mixture of old and new, were found to be gradually losing the quality of the heavy traditional house but at the same time not reaching the quality of the modern house.

e) The findings of the survey were related by the group to the "ten key principles" of cyclone resistant construction, and the group commentary on the existing situation and their recommendation are shown in table 1. The conclusions of the group's work indicate a rich variety of good storm resistant building techniques which already exist in the district, but which are insufficiently used.

f) The results of surveys on typical houses in Trieu Hai indicating the relative economic viability of achieving a good degree of cyclone resistance in proportion to the basic cost of the building:

- For the cheapest and weakest of the building (built with a thatched roof, timber frame, bamboo wattle and earth floor), cyclone resistant features add 4% to the basis cost.

- Making the average transition house (with a tiled roof) more cyclone resistant adds 11% extra to the cost.

- The weaker of the traditional house only requires an extra of 7%.

These figures should help to support the promise that as investment in the house increases, not only does the need to protect the investment increase, but so too does the economic viability of doing so. This is particularly important in the design and construction of small scale public buildings.

g) From the survey, it emerges that the majority of people in the Trieu Hai district employ the services of a carpenter and a mason to help them with their construction. Training builders to raise their awareness and skill related to cyclone resistant building thus presents one realistic channel for communicating cyclone resistant construction techniques, their feasibility, and their importance to families building new houses.

h) At the end of the workshop, the group produced a dossier, showing the techniques and the typology with comments. The work of this group forms an important information resource for advising on and promoting in the future techniques which are already in use within the Trieu Hai district and Quang Tri province.

2.2 : WORKING METHOD AND RESULTS OF GROUP 2 :

Group 2, with 4 members, analysed the various available ways that information could be communicated to the different target groups - policy makers, technicians, builders and general public - concerned with the project on the basis of this analysis, the group then developed the draft versions of several ideas for communication.

The key results of this group's work are as follows :

- a) The participants identified 11 available communication methods and defined to which of the target groups they were best suited, and for communication what type of information (for example, Trieu Hai district has 15 mobile video projection units).
- b) Of these 11 methods they selected 9 to be developed in the context of the project. These are shown in table 3.
- c) The selection is strongly biased towards the public. They have 3 managers.

- Inform about the 10 key principles of cyclone resistant construction .

- Inform about last minute action to protect the house when the cyclone is coming .

- Inform the public that the advisor for cyclone resistant construction is available in the district .

d) They proceeded to produce a number of draft version of the communication material . These were presented at the end of the workshop, and include :

- A poem about cyclone resistant construction for radio and newspaper .

- A post, showing last minute action to protect the house when the cyclone is coming .

- A poem about 10 key principles of cyclone resistant construction .

5.3 : WORKING METHOD AND RESULTS OF GROUP 3 :

Group 3, with 3 participants, designed a building (health centre) serving as a demonstration of methods and ideas appropriate to local conditions (environment, climate, available materials and techniques, overall costs) and applying principles of cyclone resistant building .

With support of other two groups, (one day), they prepared 4 preliminary designs to show .

- Of these 4 preliminary designs, participants selected the best to complete building design dossier including detailed drawings, specifications and bill of quantities .

The key results of this group's work are as follows :

- a) The participants completed building design dossier by demonstration building which use in training builders and construct later, in february 1999 . This design of building appropriate to local conditions and applying principles of cyclone resistant building .

- b) Developed cyclone resistant building design skills and the benefit of working collectively to develop the best solutions .

- c) Put into practice the technical solutions put forward .

- Document for use in training builders which explain the cyclone resistant characteristics of the proposed building .

6/ - THE ACTION PLAN :

6.1 : OBJECTIVE : GENERAL :

Based on the ^{general} action plan (session I) the action plan is to provide advice and technical assistance to the people of Quang Tri province and Trieu Hai district, and through the private sector employment of masons and carpenters who are qualified in cyclone resistant construction techniques after completing a training workshop on the subject .

Parallel to putting in place this capacity, coordinated by the provincial building institute and district building sector there will be a public education programme to inform the population about the new services and to raise public awareness about cyclone ~~caused~~ damaged to buildings and what can be done .

The training of local masons and carpenters also contribute directly to improving the quality of public building work on which they are engaged .

6.2 : EXECUTION AND PARTIES ENVELOVED :

The execution of the action plan brings together activities at three levels in province , all aimed at the service of the public .

6.2.1 : PROVINCE (People's committee, building institute, department of construction)

- Document production .
- Training district CRCs and support (transition houses, houses roofed with thatch and walled with thatch joints) .

6.2.2 : DISTRICT (people's committee, district advisers for cyclone resistant construction)

- Prepare conditions and develop construction of demonstration building (Hai lam health centre) .
- Training commune level (decision makers, builders) .
- Advice to public in the district .
- The text of the radio announcement .

6.2.3 : COMMUNE :

- Inform about the 10 key principles of cyclone resistant construction .
- Inform about last minute action to protect the house when the cyclone is coming .
- check, advice and to raise public awareness about cyclone-caused damage to building and what can be done (and especially small public building) .

6.2.4 : GENERAL PUBLIC :

- Check themselves houses when the cyclone is coming .
- prepare materials for protection of the house .
- Plant

ANNEXE 1 : PARTICIPANTS IN THE TECHNICIANS' WORKSHOP .

Participants included architects, engineers, technicians and three builders and came from the districts : Trieu Hai , Ben hai , district capital Quang Tri and the institute for building plannification and design, Quang Tra province .

Participants were selected by IBD, peoples committee of district Trieu Hai, Ben Hai and department of construction of Quang Tra province .

Four technicians from IBD and one from IHPBD were present all time during the workshop .

A complete list of participants is included following .

(Co bang danh sach kem theo)

ANNEXE 2 :Detailed programme for "phase 1" (technicians' interim workshop)

Disaster preparedness and rehabilitation in Binh Tri Thien zone, Viet nam
 Phong chong thien tai va xay dung lai o khu vuc Binh Tri Thien , Viet nam

DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
 CHUYEN GIAO KY THUAT XAY DUNG NHA CHONG GIO BAO
 VIE/85/019C

LIST OF PARTICIPANTS
 THE 2 nd TECHNICIANS' WORKSHOP
 TRIEU HAI DISTRICT , QUANG TRI PROVINCE

N	NAME	OCCUPATION	LOCATIO OF WORK
1	LE THANH HUNG	Engineer	Head of the Section of Construction Trieu hai district
2	TRAN NGOC TAM	Technician	Section of Construction, Trieu hai
3	NGUYEN THANH TAM	Technician	Section of Construction, Trieu hai
4	NGUYEN THAI CU	Technician	Section of Construction, Trieu hai
5	TRAN DUC CANH	Technician	Construction Company, Trieu hai
6	NGUYEN DUY THANG	Technician	Construction Company, Trieu hai
7	TRAN THANH HUONG	Architect	Sub-head of the Section of Constr- uction, Trieu hai Ben hai district
8	LE VAN THIEN	Technician	Construction Company, Ben hai distr
9	HOANG LE DUNG	Architect	Institute for Planification and Building Design, Quang tri province
10	PHAN VAN THEM	Mason 4/7	Construction Company, Trieu hai
11	NGUYEN THANH DONG	Carpenter 4/7	Construction Company, Trieu hai
12	NGUYEN NGOC DONG	Mason 4/7	Construction Company, Trieu hai

IBD UNIT FOR CYCLONE RESISTANT CONSTRUCTION

1	NGUYEN SI VIEN	Engineer	Director of the institute for building Design, Thua thien-Hue prov. Director of the Sub-project No 3 VIE/85/019 C
2	DANG MON	Engineer	Coordinator
3	VO VAN BINH	Technician	Designer
4	NGUYEN NGUYEN	Architect	Designer
5	NGUYEN TAN VAN	Architect	Coordinator

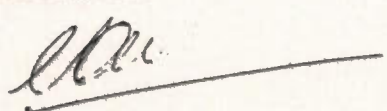
SERVICES

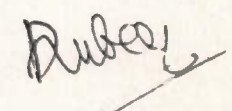
1	NGUYEN DUC THANG	Architect	Planification and adm. IBD TT-U
2	VO TRONG THUONG	Accountant	Accountant , IBD Thua thien-Hue
3	DANG KIM TA	Driver	IBD Thua thien-Hue province

TRIEU HAI, 15 th December 1989

Director of the Sub-project
 VIE/85/019 C -

Listmaker


 Nguyen si Vien


 Dang Mon

Vien thiet ke xay dung tinh Thua thien-Hue (IBD)
 Vien thiet ke nha o - Cong trinh cong cong, Bo xay dung (IHPBD)

Phone chong thien hai va xay dung lai o khu vuc Binh Tri Thien ngay, Viet Nam
 Diseases programmes and rehabilitation in Binh Tri Thien zone, Viet Nam

IMPLEMENTATION OF STONE RESISTANT BUILDING TECHNOLOGIES
 CHUYEN GIAO KY THUAT XAY DUNG NHA CHONG GIO SAG
 VIS/85/019C

LIST OF PARTICIPANTS
 THIS 2nd TECHNICAL WORKSHOP
 TRUNG HAI BI TRUNG, CUANG TRI PROVINCE

NO	NAME	OCCUPATION	LOCATION OR WORK
1	LI THUAN HUNG	Engineer	Head of the Section of Construction Trien hai district
2	TRAN NGOC TAN	Technician	Section of Construction, Trien hai
3	NGUYEN THANH TAN	Technician	Section of Construction, Trien hai
4	NGUYEN THAI CU	Technician	Section of Construction, Trien hai
5	TRAN THU DAI	Technician	Construction Company, Trien hai
6	NGUYEN TUY THANG	Technician	Construction Company, Trien hai
7	TRAN THANH HUNG	Architect	Sub-head of the Section of Construction, Sai Gon - Binh Trien hai district
8	LE VAN THINH	Technician	Construction Company, Binh Trien hai district
9	HOANG LE THAI	Architect	Institute for Rehabilitation and Building Design, Cuang Tri Province
10	TRAN VAN THINH	Mason V/T	Construction Company, Trien hai
11	NGUYEN THANH DUNG	Carpenter V/T	Construction Company, Trien hai
12	NGUYEN NGOC DUNG	Mason V/T	Construction Company, Trien hai

THE UNIT FOR CYCLE RESISTANT CONSTRUCTION

1	NGUYEN SI VIEN	Engineer	Director of the Institute for Building Design, Cuang Trien Province
2	LANG HON	Engineer	Coordinator Director of the Sub-project No 2 VIENHONG C
3	VO VAN MINH	Technician	Designer
4	NGUYEN NGUYEN	Architect	Designer
5	NGUYEN TAN VAN	Architect	Designer


SERVICES

1	NGUYEN NGOC THANG	Architect	Rehabilitation and etc. THE TRIEN
2	VO THONG THUNG	Accountant	Accountant, THE TRIEN PROVINCE
3	LANG KIM TA	Driver	THE TRIEN PROVINCE

TRUNG HAI, 15th December 1985

Director

 Lang HON

Director of the Sub-project
 VIS/85/019 C

 Nguyen Si Vien

Vien thiet ke nha o - Cuang trien cong xang, Bo xay dung (HUBP)
 Van thiet ke xay dung tinh Trien thien cong (LUD)

Disaster preparedness and rehabilitation in Binh Tri Thien zone, Viet nam
 Phong chong thien tai va xay dung lai o khu vuc Binh Tri Thien, Viet nam

DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
 CHUYEN GIAO KY THUAT XAY DUNG NHA CHONG GIO BAO

MATERIAL PRICES IN DICEMBER 1989

Nº	MATERIALS	TYPE	UNIT	ORIG. COST		TRANSP. COST	TOTAL COST	BUYING PLECES
				STATE	PRIVATE			
1	SAND		M ³		4 500	8 500	13 000	TAN DUC - T. HAI
2	GRAVEL	1-2 CM	M ³		20 000	9 000	29 000	
3	GRAVEL	2-4 CM	M ³		17 000	9 000	26 000	
4	CEMENT	P400	KG	260	270	9	269	TRIEU HAI DIST.
5	CEMENT	P200	KG	120		9.5	169.5	
6	STEEL	φ6	KG	1300		8.5	1308.5	
7	STEEL	φ8	KG	1250		8.5	1258.5	
8	STEEL	φ10	KG	1240		8.5	1245.5	
9	BRICK	4 HOLES	UNIT		80	20	100	HAI QUI - T. HAI
10	BRICK	2 HOLES	U		45	10	55	
11	TILE W	1 HOLE	U		170	12	182	HAI QUI - T. HAI
12	CEMENT BLOCK	15x20x30	U		500	140	640	
13	CEMENT BLOCK	12x20x30	U		400	110	510	
14	WOOD	GROUP 2	M ³		660 000	10 000	670 000	TRIEU HAI
15	WOOD	G. 3	M ³		600 000	10 000	610 000	TRIEU HAI
16	WOOD	G. 4	M ³		550 000	10 000	560 000	"
17	WOOD	G. 5	M ³		450 000	10 000	460 000	"
18	WOODEN BOARD	3cm	M ³		350 000	9 500	359 500	
19	IRON SHEET	800x2000	M ²		10 000	300	10 300	
20	FIBROCEMENT	800x1400	M ²		10 000	400	10 400	
21	THATCH	1000x2000	U		500	100	600	TRIEU HAI MARKET
22	BAMBOO	φ60-100	TREE		2 500	416	2 916	HAI QUI - T. HAI
23	OIL PAPER		M ²		2 500	285	2 785	
24	GLASS	3MM	M ²		35 000	800	36 300	QUANG TRI MARKET
25	LIME WASH		KG		300	15	315	
26	COLOUR POWDER		KG		46 000	15	46 015	
27	STEEL STRING	φ1-2	KG	2100	2100	15	2115	

Demerit proceedings and rehabilitation in the field. This was the first time that the government had taken such a step.

DEMONSTRATION OF STONE RESISTANT BUILDING TECHNIQUES
CHUEN CHAO KY THUT XAY HUNG HUA CHONG HIO SAO

MATERIAL PRICES IN DECEMBER 1989

No	MATERIALS	TYPE	UNIT	GRS. COST		BRAND COST	TOTAL COST	BUYING PRICES
				STATE	PRIVATE			
1	SAND		M ³		4700	2500	12000	TAN DUC THAI
2	GRAVEL	1-2CM	M ³		50000	9000	39000	
3	GRAVEL	1-4CM	M ³		17000	2000	19000	
4	CEMENT	P400	KG	250	170	9	289	TRUONG DINH
5	CEMENT	P200	KG	120		92	182	
6	STEEL	φ6	KG	1300		82	43082	
7	STEEL	φ8	KG	1220		82	12882	
8	STEEL	φ10	KG	1240		82	12482	
9	BRICK	4 holes	unit	80		20	100	THAI ANH T. HAI
10	BRICK	2 holes	unit	42		10	22	
11	TILE W	THOLE	unit	170		12	182	THAI ANH T. HAI
12	CEMENT BRICK	12x12x6	unit	200		140	640	
13	CEMENT BRICK	15x10x6	unit	400		110	210	
14	WOOD	GROUP I	M ³	42200	40000	40000	214000	TRUONG HAI
15	WOOD	G. 3	M ³	60000	40000	40000	240000	TRUONG HAI
16	WOOD	G. 4	M ³	220000	40000	40000	270000	"
17	WOOD	G. 2	M ³	420000	40000	40000	460000	"
18	WOODEN BOARD	3CM	M ²	320000	3200	3200	323200	
19	IRON SHEET	800x200	M ²	10000	300	300	10300	
20	REINFORCEMENT	800x400	M ²	40000	400	400	40400	
21	THATCH	100x200	unit	200	100	100	600	TRUONG HAI
22	BAMBOO	φ60-100	unit	2200	410	410	2310	THAI ANH T. HAI
23	OIL PAPER		M ²	2200	282	282	1782	
24	GLASS	3MM	M ²	32000	800	800	32800	QUANG TRI MARKET
25	LIME WASH		KG	200	42	42	312	
26	COAL POWDER		KG	40000	12	12	40112	
27	STEEL STRIKE	φ12	KG	2100	12	12	2112	

Disaster preparedness and rehabilitation in Binh Tri Thien zone, Viet nam
 Phong chong thien tai va xay dung lai o khu vuc Binh Tri Thien, Viet nam

DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
 CHUYEN GIAO KY THUAT XAY DUNG NHA CHONG GIO BAO

MATERIAL PRICES IN DICEMBER 1989

(CONTINUATION)

No	MATERIALS	TYPE	UNIT	ORIG. COST		TRANSP. COST	TOTAL COST	BUYING PLACES
				STATE	PRIVATE			
28	DRIVED NAIL	3CM	KG		3500	15	3565	TRIEU HAI
29	NAILS	6-10CM	KG		1600	15	1615	
30	NAILS	3-5CM	KG		2000	15	2015	
31	PAINT		KG	3500	4600	15	3515	
32	LAMP	75WT	V	1400		30	1430	
33	ELECTRIC WIRE	SOFT	M	180		8	188	
34	ELECTRIC WIRE	HARD	M	350		8	358	
35	SWITCH		V	900		5	905	
36	FUSE		V	300		5	305	
37	PADLOCK		V	300		5	305	
38	HOOK		V	150		2	152	
	STEE TRIANGLE		V	90		5	95	

Disaster preparedness and rehabilitation in Binh Tri Thien zone, Viet Nam
 Hong chong chien tai va xay dung tai o khu van Binh Tri Thien, Viet Nam

DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
 CHUYEN GIAO KY THUAT XAY DUNG KHA CHUNG GIO BAO

MATERIAL PRICES IN DECEMBER 1989

(CONTINUATION)

No	MATERIALS	TYPE	UNIT	ORIG. COST		TOTAL COST	BRVING PLACES
				STATE	PRIVATE		
28	DRIVES NAIL	5CM	KG		2585	12	3242
29	NAILS	6-10CM	KG		1850	12	1842
30	NAILS	3-5CM	KG		2000	12	2012
31	PAINT		KG	2500	4500	12	2212
32	LAMP	75W	N	1400		30	1430
33	ELECTRIC WIRE	SOFT	M	180		8	188
34	ELECTRIC WIRE	HARD	M	350		8	328
35	SWITCH		N	900		2	902
36	FUSE		N	300		2	302
37	PADLOCK		N	300		2	318
38	HOOK		N	120		2	122
	STEEL RIVETS		N	80		2	82

CHUYEN GIAO KY THUAT XAT DUNG NHA CHONG GIO BAO
DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
VIE/85/019C

PROGRAMME OF THE OPENING
THE TECHNICIANS' WORKSHOP (SESSION II) AT TRIEU HAI DISTRICT
QUANG TRI PROVINCE

15 th December 1989

8 : 00

Formal opening of the "interim workshop" ,
Speech by :

1. Mr NGUYEN SI VIEN , vice-director of Department of Construction
Thua thien Hue province , Director of Institute for Building Design,
Director of the Sub-project VIE/85/019C :

-Explain the aims, signification and overall content of the project's
programme and this session of workshop.

-Explain the UNDP/IED/IRPD/DW-GRET programme .

2. Mr NGUYEN HIEN , vice-president of People's Committee of Trieu
hai District :

-The effects of cyclones in Trieu hai district and problems for
attention paid.

The local authorities programme to support the sub-project .

3. Mr NGUYEN XUYEN , Director of Department of Construction,
Quang tri province ;

Problems of Cyclone resistant construction and participant's duties
during the interim "workshop".

4. Mr LE THANH HUNG , head of Construction sector of Trieu hai
District .

-About the preparation and investigation for Interim workshop at
Trieu hai district.

-Proposals of Trieu hai technicians during the workshop and in
the future .

5. Mr DANG MON , Institute for Building Design of Thua thien-Hue province
coordinator of sub-project's director , about :

-The experience acquired in the Phu loe training workshops,

-The detailed of the Overall interim workshop objectives, at
Trieu hai District.

-Programme of the interim workshop.

9:30

Breaker- for refreshment .

10:00

-A questionnaire at the starting of the interim workshop.

10:30

- Give documents to all participants.

-Explain the afternoon actions.

11:00

Break.

VIEN THIET KE XAY DUNG TINH THUA THIEN-HUE
Institute for Building Design ,Thua thien-Hue province
VIEN THIET KE NHA O VA CONG TRINH CONG CONG ,BO XAY DUNG
Institute for Housing and Public Building Design, Ministry of Construction

Disaster preparedness and rehabilitation in Binh Tri Thien zone, Viet nam
 Phong chong thien tai va xay dung lai o khu vuc Binh Tri Thien , Viet nam

DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
 CHUYEN GIAO KY THUAT XAY DUNG NHA CHONG BAO
 VIE/85/019C

PROGRAMME OF CLOSE OF SESSION
 TECHNICIANS' INTERIM WORKSHOP AT TRIEU HAI DISTRICT
 QUANG TRI PROVINCE
 Dicember 1989

* * *

: STARTING TIME	: SPEED	: SPEED BY	: LASTED T.:
: 13:30	: Programme presentation	: Nguyen si Vien	: 5 minutes
: 13:35	: Overall presentation, results : of working groups .	: Nguyen Si Vien	: 10 m.
: 13:45	: Presentation of each group		
	: -Group 1	: Tran Duc Canh	: 10 m
	: -Group 2	: Fran Thanh Huong	: 10 m
	: -Group 3	: Hoang Le Dung	: 10 m
: 14:15	: The Action Plan of the Sub- : project VIE/85/019C in : Quang tri province	: Dang Mon	: 5 m
: 14:20	: Break; see exp ^o ssion		: 15 m
: 14:35	: Speed by representatives :		
	: -People's committee of : Quang tri province		: 10 m
	: -People's committee of : Trieu hai district	: Nguyen Hien	: 10 m
	: -Director of Department	: Nguyen Xuyen	: 10 m
	: -a participant	: Tran Ngoc Tam	: 5 m
: 15:10	: Conclusion; proposals of the : project's programme to the : authorities .	: Nguyen Si Vien	: 15 m
: 15:25	: Give certificant to participant	Province Repres.	: 10 m
: 15:35	: clouse of session		
	: diner party for participants		
	: (by director of sub-project : VIE/85/019C		

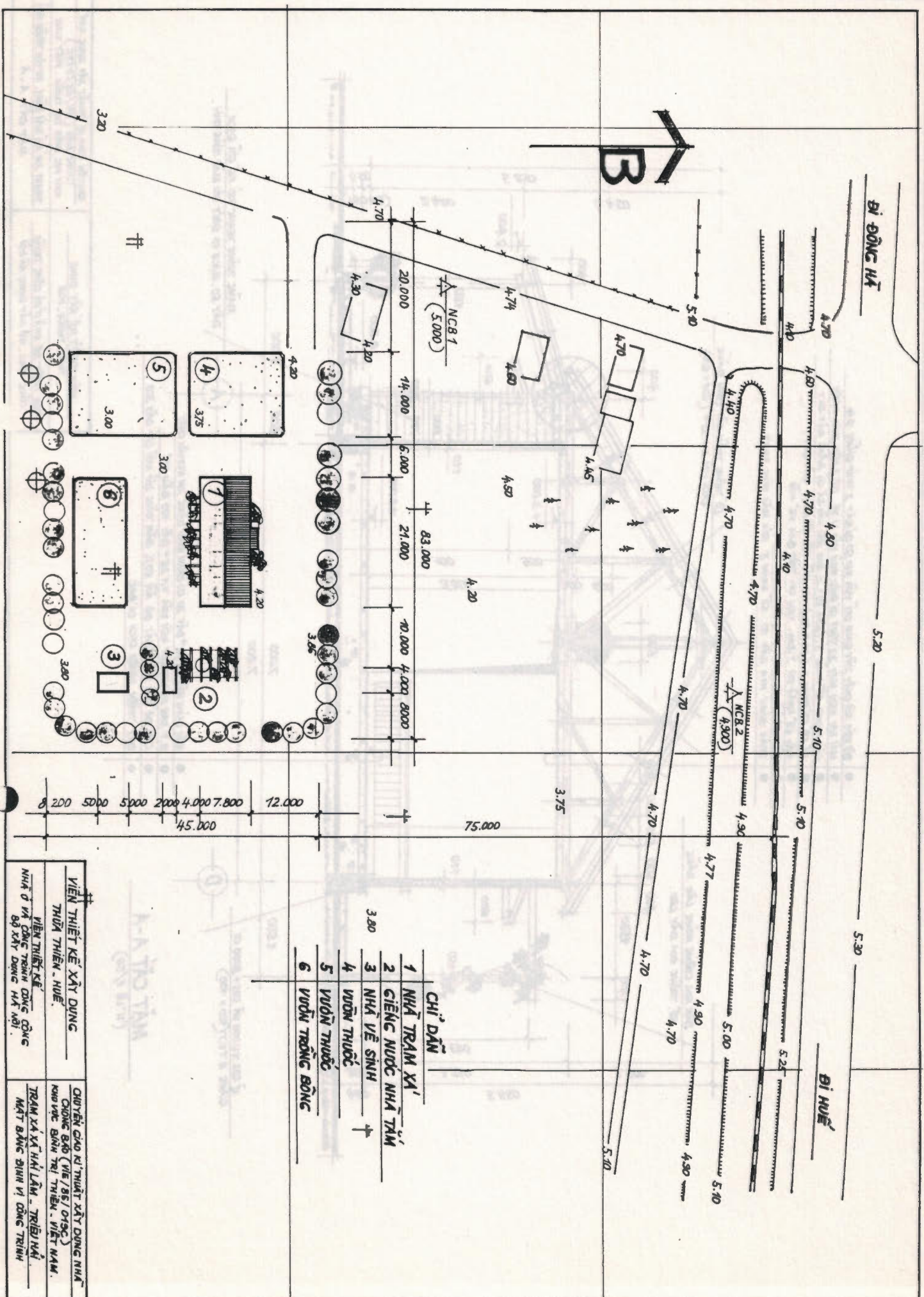
THE INTERIM WORKSHOP'S UNIT FOR CRC
 Dicember 1989

Diğer programlar ve rehabilitasyon için bir plan yapıldı. Bu planın uygulanması için bir komisyon kuruldu. Komisyonun görevi, bu planın uygulanmasını sağlamak ve gerekli raporları hazırlamaktır.

REHABILITATION OF STORM RESISTANT BUILDING TECHNIQUES
 CHUEN GIAR KI THAI XAY THAI HIA CHON BAO
 VI\02\0190

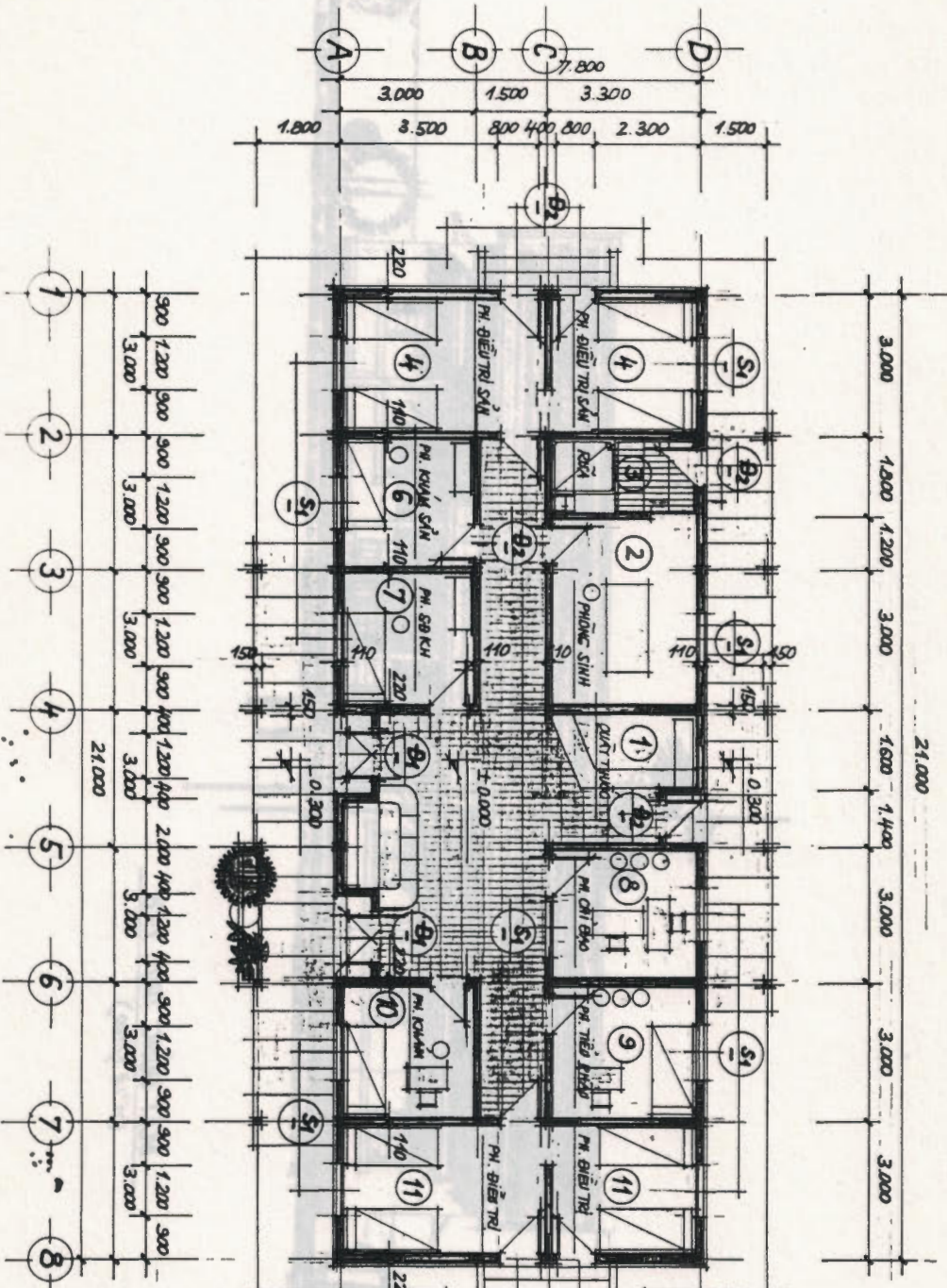
PROGRAMME OF CLUSE OF SESSION
 TECHNICALS' INTERIM WORKSHOP AT THAI HAI PROVINCE
 QUANG TRI PROVINCE
 December 1989

STARTING TIME	TOPIC	LEADER BY	LASTED Y.
13:30	Program presentation	Huyen Si Vien	2 classes
13:35	Overall presentation, results of working groups & presentation of each group	Huyen Si Vien	10 m
13:45	-Group 1	Tran Thi Hung	10 m
	-Group 2	Tran Thi Hung	10 m
	-Group 3	Huyen Si Vien	10 m
14:15	The Action Plan of the Sub-project VI\02\0190 in Quang Tri province	Dary Non	10 m
14:30	Business expansion		10 m
14:35	Speed by representatives of people's committee of Quang Tri province		10 m
	people's committee of Quang Tri province	Huyen Si Vien	10 m
	Tran Hai district		10 m
	Director of Department -a participant	Huyen Si Vien	10 m
	Tran Thi Hung		10 m
15:10	General introduction of the project's programme to the authorities	Huyen Si Vien	10 m
15:25	Give certificate to participant		10 m
15:35	Close of session		
	dinner party for participants		
	(by director of sub-project VI\02\0190)		



- CHỈ DẪN**
- 1 NHÀ TRAM XÁ'
 - 2 GIẾNG NƯỚC NHÀ TÂM
 - 3 NHÀ VỆ SINH
 - 4 VƯỜN THUỐC
 - 5 VƯỜN THUỐC
 - 6 VƯỜN TRỒNG BÔNG

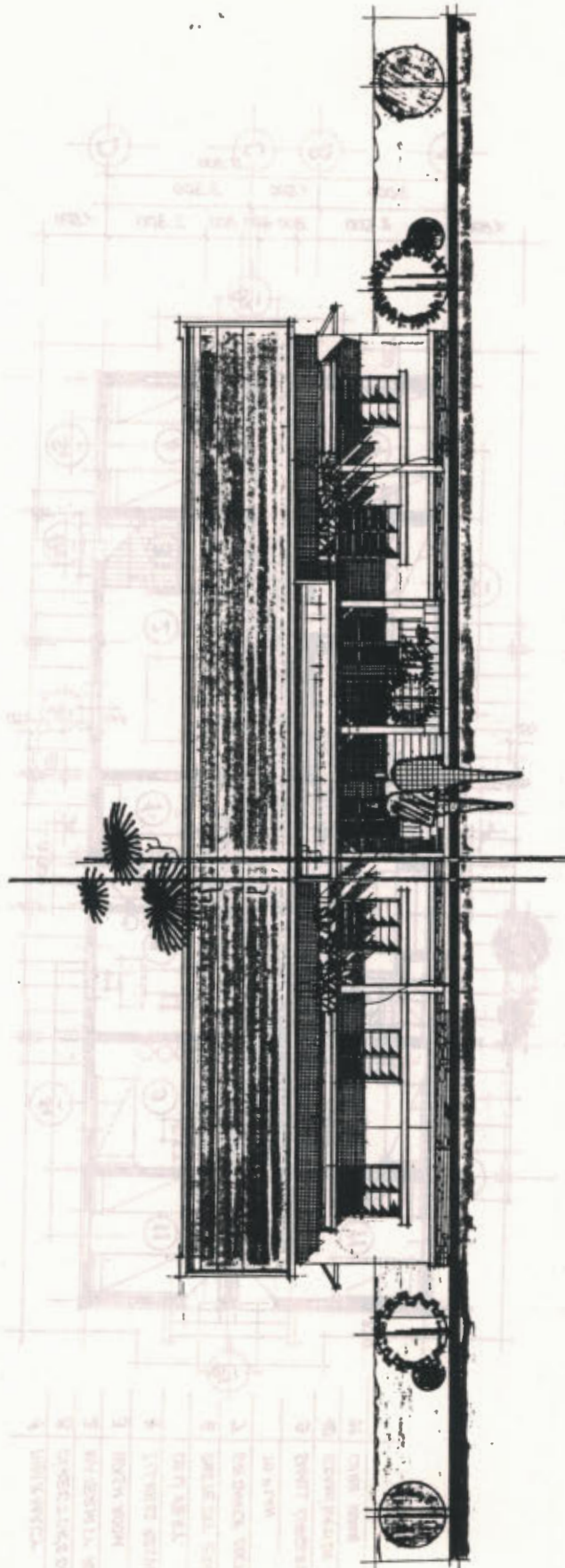
VIỆN THIẾT KẾ XÂY DỰNG THIÊN - HIỆ	CHUYÊN GIAO KÍ THIẾT XÂY DỰNG NHÀ CẤP BẬC (VỊE / SỔ / DỊNG)
VIỆN THIẾT KẾ NHÀ Ở VÀ CÔNG TRÌNH CÔNG CỘNG BỘ XÂY DỰNG HẢI PHÒNG	TRẠM XÁ XÁ NHÀ LÂM - TRIỆU HẢI MẶT BẰNG BÌNH VỊ CÔNG TRÌNH



MẶT BẰNG TRẠM XÁ'
(TỈ LỆ 1/100)

- 1 PHARMACY
- 2 DIRECTOR'S OFFICE
- 3 MATERNITY ROOM
- 4 WASH ROOM
- 5 ILLNESS RESULTING FROM DELIVERY
- 6 OBSTETRY EXAMINATION ROOM
- 7 GUILDANCE BIRTH ACCORDING TO PLAN
- 8 SMALL SURGERY ROOM
- 9 EXAMINATION ROOM
- 10 CURIE ROOM
- 11

VIỆN THIẾT KẾ XÂY DỰNG TRUNG TÂM KHUẨN	QUYỀN SỞ HỮU THIẾT XÂY DỰNG NHÀ
VIỆN THIẾT KẾ NHÀ Ở VÀ CÔNG TRÌNH CÔNG CÔNG BỐ XÂY DỰNG NHÀ NỮ	CHỨC NĂNG (M/Đ/S/O/S/C) KHU VỰC BÌNH TRƯ THIÊN VIỆT NAM
	TRẠM XÁ XÁ KHẢ LÂM HUYỆN TRƯỜNG HẢI MẶT BẰNG TRẠM XÁ'



MẶT ĐẲNG TRƯỚC 1-8
(TỈ LỆ 1/100)

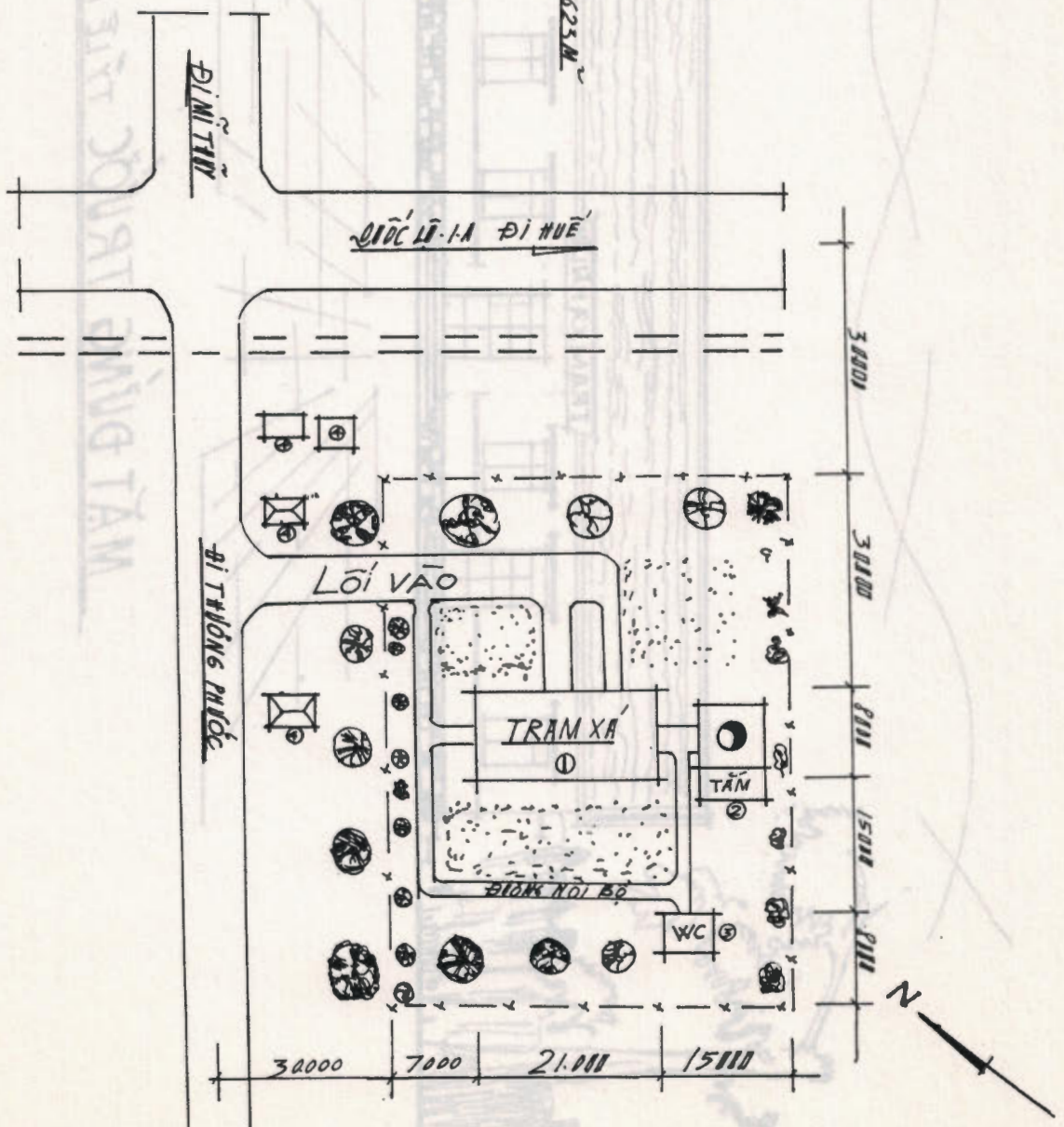
CHUYÊN GIAO KÍ THẬT XÂY DỰNG NHÀ CƯỜNG BẢO (VIE/AS/O/SC) KHU MỘC BÌNH TRÍ THIÊN - VIỆT NAM	VIÊN THIẾT KẾ XÂY DỰNG THIÊN THIÊN HUE
TRAM XÁ XÃ HẢI LÂM - HUYỆN TRIỀU HẢI MẶT ĐẲNG TRƯỚC 1-8	VIÊN THIẾT KẾ NHÀ Ở VÀ CÔNG TRÌNH CÔNG CỘNG BỘ XÂY DỰNG HÀ NỘI

1	TRẦN VĂN HỮU
2	TRẦN VĂN HỮU
3	TRẦN VĂN HỮU
4	TRẦN VĂN HỮU
5	TRẦN VĂN HỮU
6	TRẦN VĂN HỮU
7	TRẦN VĂN HỮU
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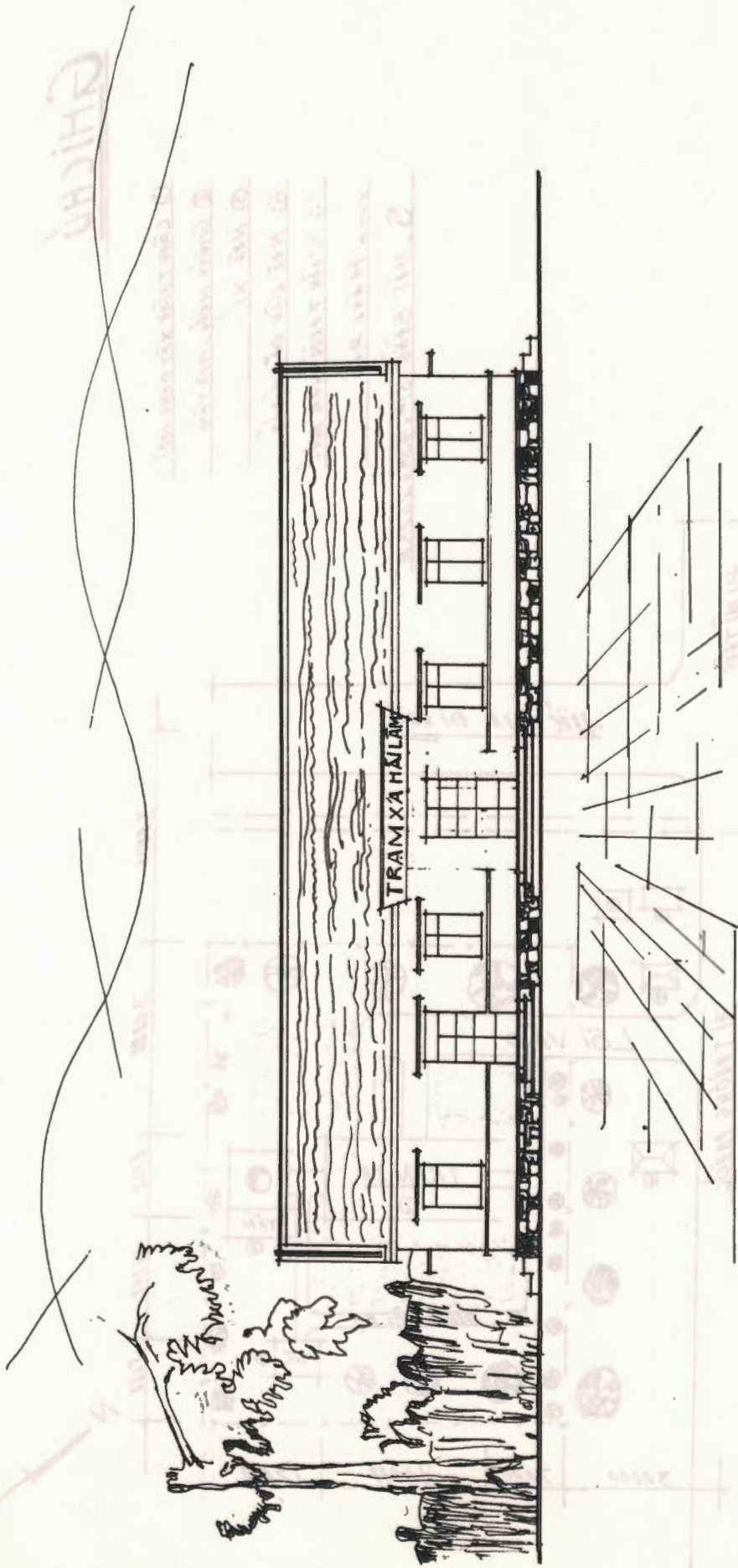
BẢN VẼ NÀY CHỈ DÙNG ĐỂ THỰC HIỆN VIỆC XÂY DỰNG VÀ KHÔNG ĐƯỢC SỬ DỤNG CHO MỌI MỤC ĐÍCH KHÁC. VIỆC SỬ DỤNG BẢN VẼ NÀY CHO MỌI MỤC ĐÍCH KHÁC SẼ GÂY RA HẬU QUẢ. VIỆC SỬ DỤNG BẢN VẼ NÀY CHO MỌI MỤC ĐÍCH KHÁC SẼ GÂY RA HẬU QUẢ. VIỆC SỬ DỤNG BẢN VẼ NÀY CHO MỌI MỤC ĐÍCH KHÁC SẼ GÂY RA HẬU QUẢ.

GHICHU'

- ① CÔNG TRÌNH XÂY DỰNG MỚI
- ② GIẾNG NƯỚC - NHÀ TẮM
- ③ NHÀ XÍ
- ④ NHÀ DÂN DỮ CỎ SỎI
- ⑤ YÊN THƯỚC NAM BẮC
- ⑥ HĂNG RĂNG
- S. MẶT BẰNG 01M x 33M = 2025M²



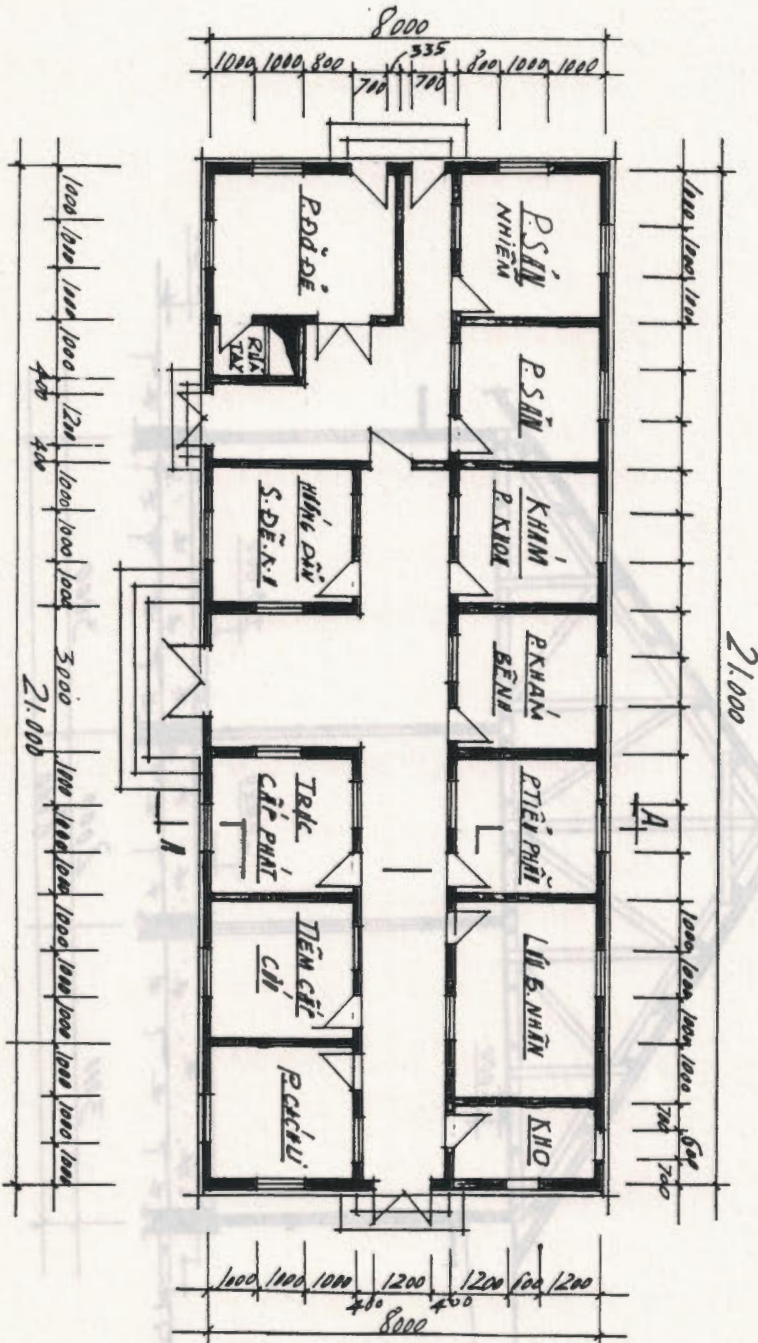
MẶT BẰNG BỐ TRÍ XDC-TRÌNH
 PHƯỜNG AN NHOM-I
 TỶ LỆ 1:500



MẶT ĐỨNG TRƯỚC TỶ LỆ 1:100

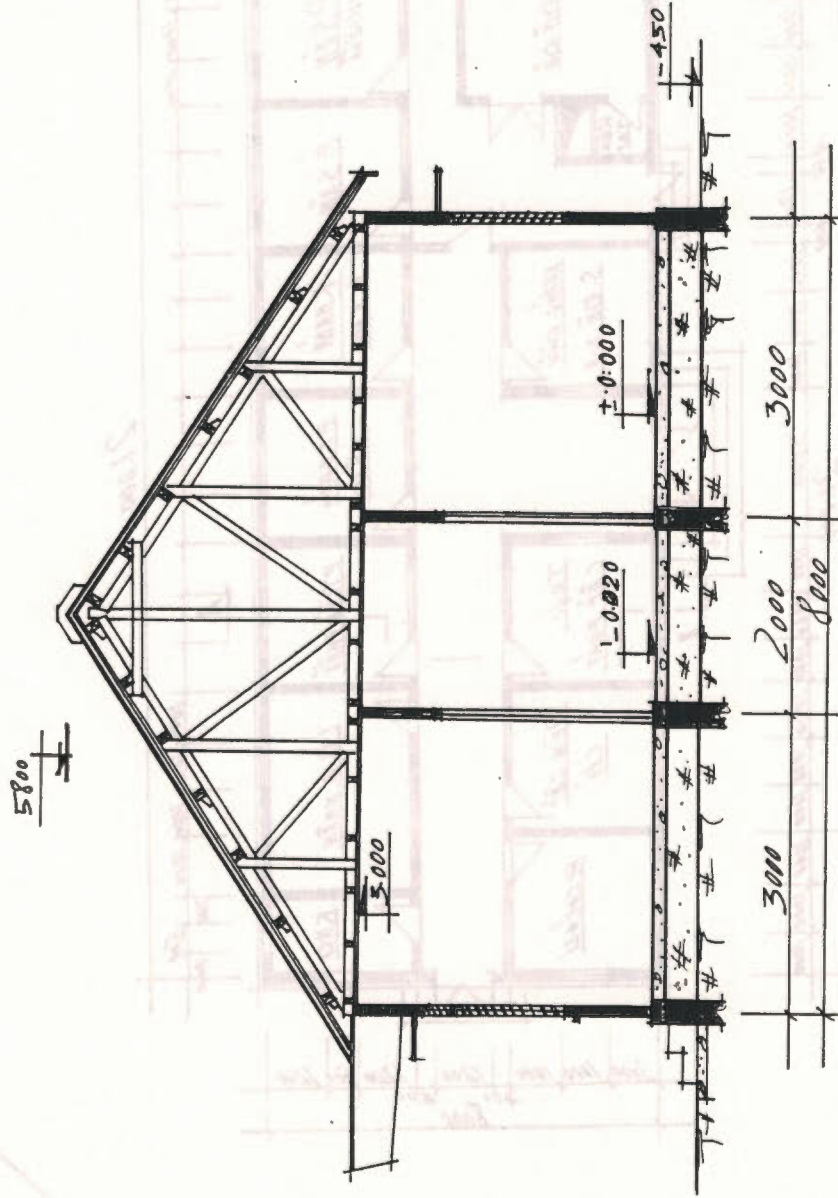
PHƯƠNG ÁN-NHÓM-I

ІМОНІ ВАЖІЛІНІЯ



МАТ БАНГ ТІЛІ 1:110

PHƯƠNG AN NHOM-I



PHƯƠNG AN NHOM-I

CẮT A-A
TỶ LỆ 1:50

PHƯƠNG AN NHOM-I

ĐI ĐÔNG HÀ

QUỐC LỘ 1A

ĐI HUẾ

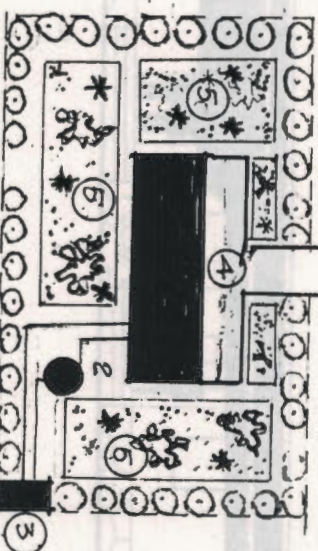
ĐI TRƯỜNG PHƯỚC

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13.500

23.100

13.500



12.500 7.800 12.500 55.000

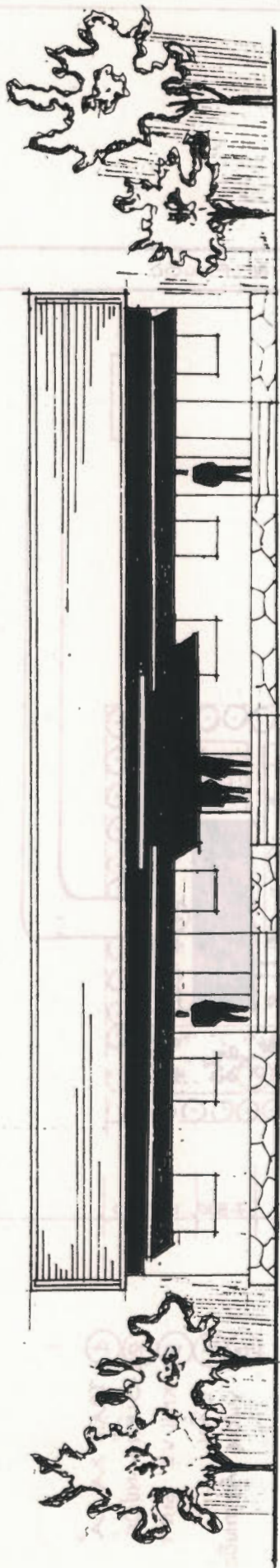


- ① TRẦN XÀ XÀ
- ② GIẾNG NƯỚC
- ③ KHU VỆ SINH
- ④ SÂN
- ⑤ VƯỜN CÂY THUỐC

MẶT BẰNG TỔNG THỂ

TỶ LỆ: 1/500

Phường An
Thôn 2

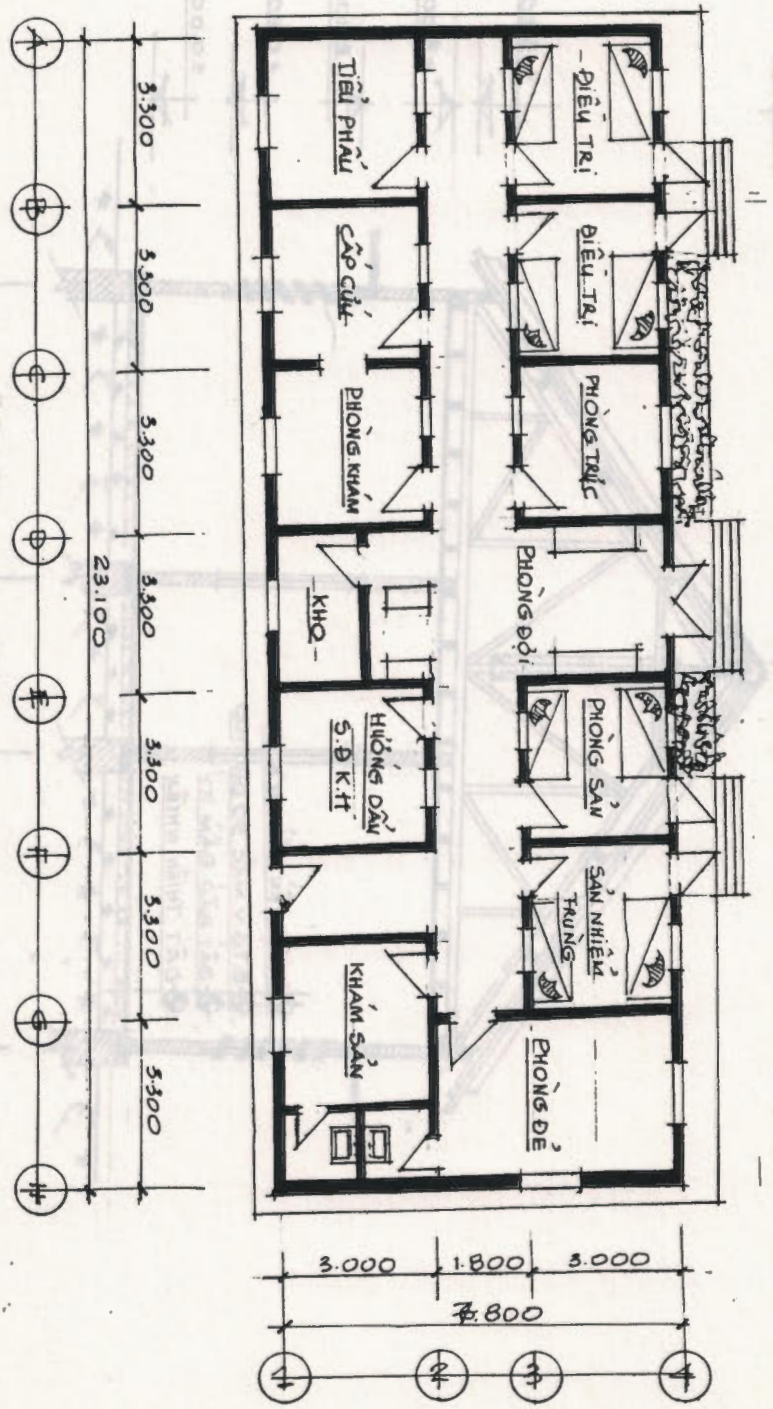


MẶT ĐÚNG

TỶ LỆ 1:100

Phường An
Nhóm 2

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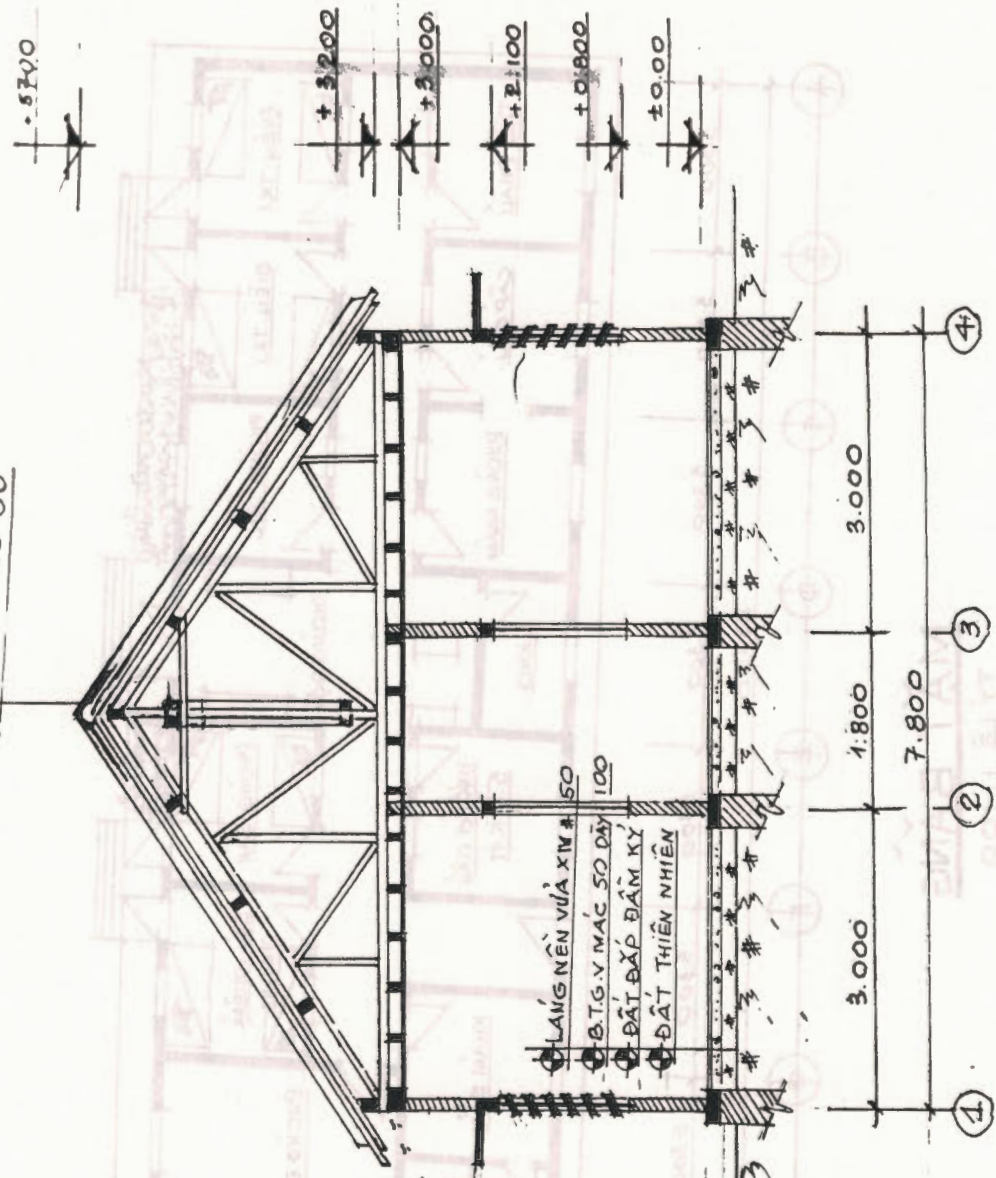
MẶT BẰNG
TỶ LỆ 1:100

Phòng an
Khuôn: 2

Handwritten notes and stamps on the right side of the page, including a date stamp: NGÀY 02/03/2003.

Đường ống
 Thôn 2

- BỐ NÓC UP NGÔI BỐ
- MÀI LỚP NGÔI 22 MIỀN / M²
- LỈ TỖ 30 x 20 ĐẶT THEO NGÔI
- CẦU FONG 50 x 70 C @ 500
- XÀ GỖ 80 x 120
- VỊ KẸO GỖ



CẮT NGANG
 TỶ LỆ 1/50

ĐI ĐÔNG HÃ

QUỐC LỘ 1A

ĐI HUẾ

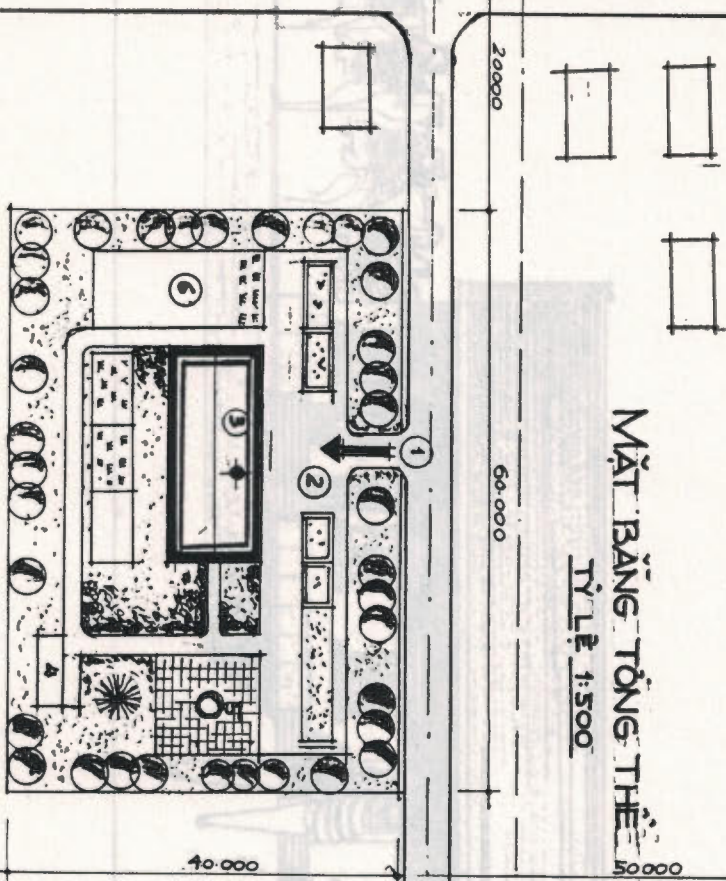
ĐI TRƯỜNG PHƯỚC

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60.000

MẶT BẰNG TỔNG THỂ

TỶ LỆ 1:500



40.000

GHI CHÚ

- ① CÔNG CHỨNG
- ② SÂN VƯỜN - CÂY CẢNH
- ③ NHÀ TRÀM XÃ
- ④ NHÀ KHU VỆ SINH
- ⑤ GIẾNG NƯỚC
- ⑥ CÂY THƯƠNG

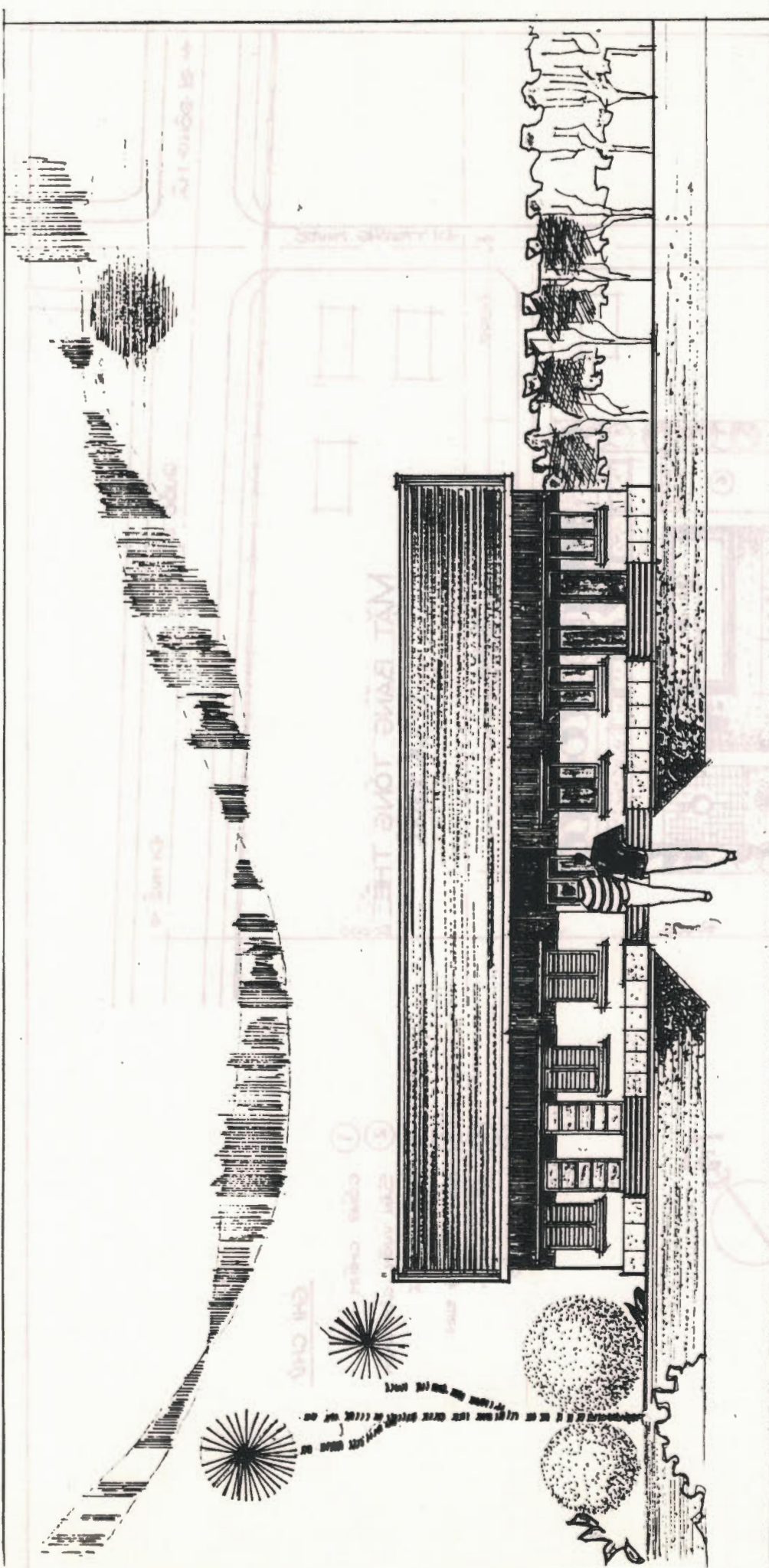


PHƯƠNG ÁN 1

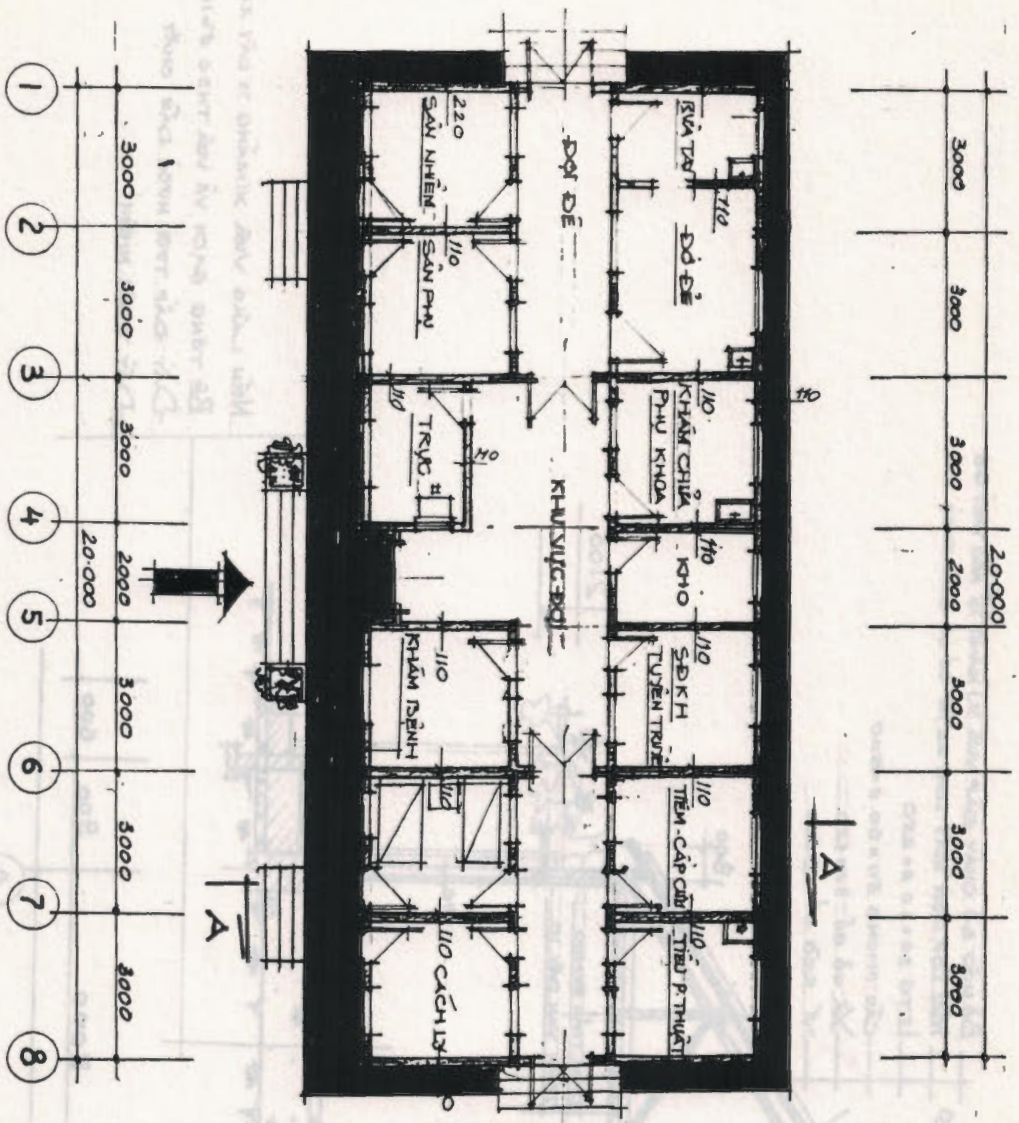
NHÓM THIẾT KẾ II

001 DT B1 JUST SPACE TAMI

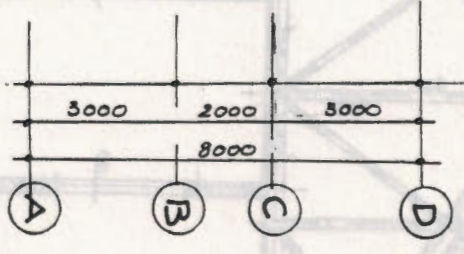
22/10/2021



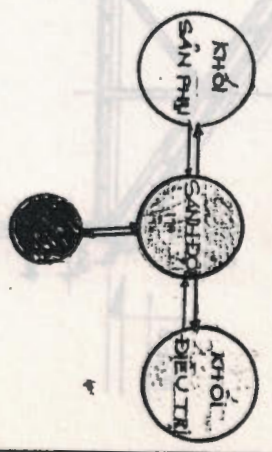
MẶT ĐŨNG TRỰC 1-8 TL:100



MẶT BẰNG TỶ LỆ 1:100



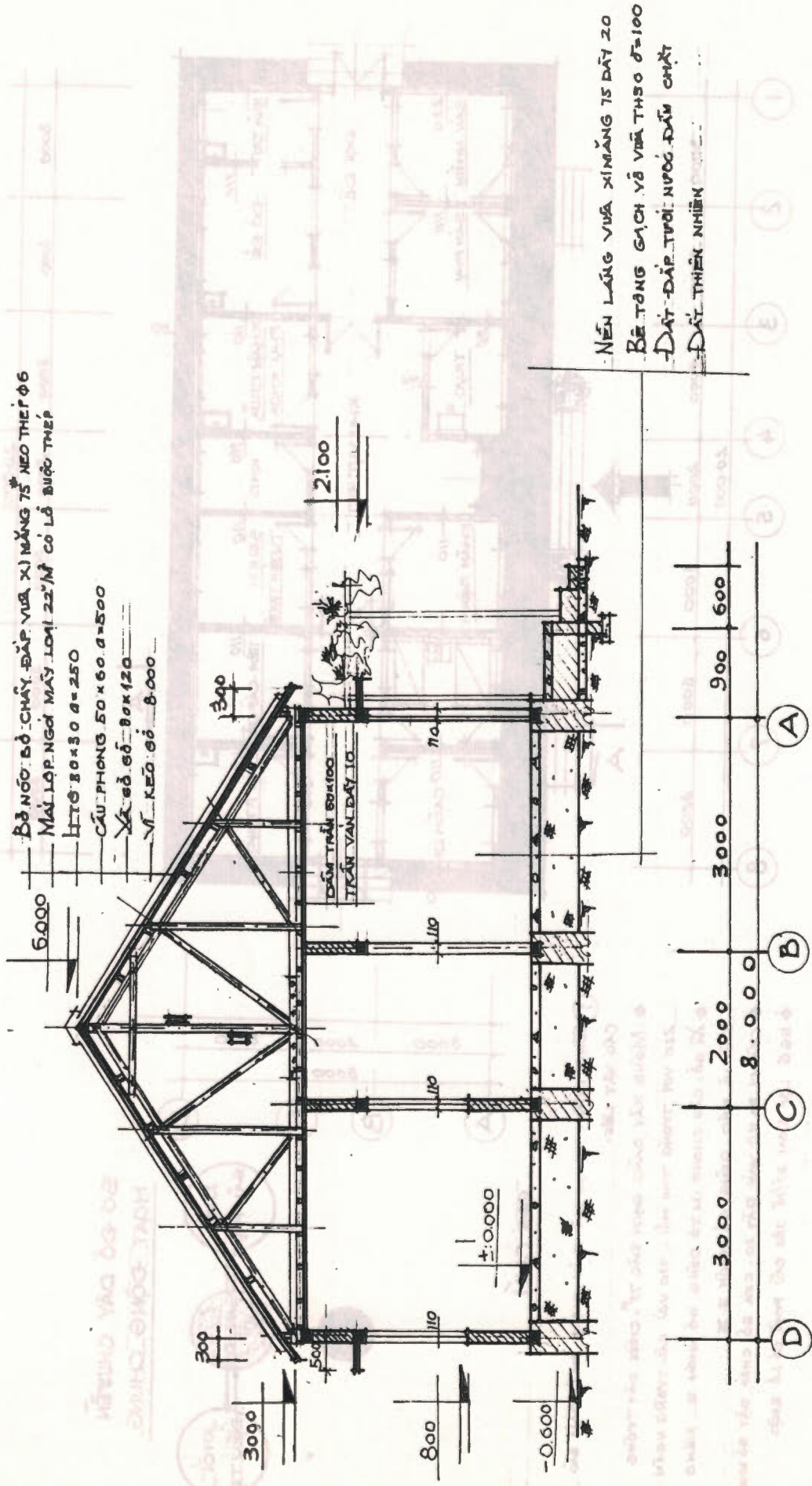
SƠ ĐỒ DÂY CHUYỀN
HẠT ĐỘNG CHUNG



GHI CHÚ

- ① CÔNG TRÌNH TRẠM XÃ XÂY DỰNG PHẢI DÂY BẢO CỐ VẬT LIỆU:
 ♦ Móng xây bằng gạch đặc 75[#]. Chiều dày tường 220 với tường thu hồi 190 với các tường ngăn.
 ♦ Xi măng, cát, phôi, đá, sỏi. Đá 1x2. Đá 1x3. Đá 1x4.
 ♦ Các vữa kéo dùng để nhồi xi măng.
 ♦ Cửa đi ra vào và dây 20 - cửa sổ nhôm, dây nhôm.
 ♦ Ngõ lại 22/1[#] làm cầu phà có lối đi.
- ② Diện tích xây dựng 160m².
 Diện tích sử dụng 120m².

BỐ NỐC BỐ CHÁY ĐẬP VUA XI MĂNG TỶ NẸO THÉP Ø6
 MẶT LỚP NGỒI MÁI LOẠI 22/M² CÓ LỖ BUỘC TẠP
 HỘ TỶ 80x30 a=250
 CẦU PHONG 50x60 a=500
 XÀ BỐ BỐ 80x120
 M. KÉO ỐP 8.000



NỀN LĂNG VUA XI MĂNG TỶ DÂY 20
 BÊ TÔNG GẠCH Vữa Vữa TH30 Ø=100
 ĐÁY ĐẬP TỶ: NƯỚC ĐÁU CHẤY
 ĐÁY THIÊN NHIÊN

MẶT CẮT A-A TL: 1:50

Disaster preparedness and rehabilitation in Binh Tri Thien zone, Vietnam
Phòng chống thiên tai và khôi phục ở khu vực Bình Trị Thiên, Việt Nam

CHUYÊN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO
DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
VIE/85/019C

TECHNICIANS AND BUILDERS FROM TRIEU HAI DISTRICT



LE THANH HUNG



TRAN DUC CANH



NGUYEN QUY THANG



TRAN NGOC TAM



NGUYEN THANH TAM



NGUYEN MINH DONG



PHAN VAN THEM



NGUYEN NGOC DONG



NGUYEN ... CU

Viện Thiết Kế Xây Dựng Thừa Thiên-Huế
Institute For Building Design, Thua Thien-Hue Province

Viện Thiết Kế Nhà ở-Công Trình Công Cộng, Bộ Xây Dựng
Institute For Housing and Public Building Design, MC

Disaster preparedness and rehabilitation in Binh Tri Thien zone, Vietnam
Phòng chống thiên tai và khôi phục ở khu vực Bình Trị Thiên, Việt Nam

CHUYÊN BIỂU KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO
DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
VIỆTBANQUC

TECHNICIANS AND BUILDERS FROM THE PARTICIPATING



NGUYỄN VĂN THƯỜNG



TRẦN THỊ HỒNG



ĐO THÁI HÙNG



NGUYỄN VĂN HỮU



NGUYỄN VĂN THÁI



TRẦN THỊ HỒNG



NGUYỄN VĂN THƯỜNG



TRẦN THỊ HỒNG



TRẦN VĂN THƯỜNG

Viện Khoa Học Xây Dựng Miền Trung
Institute for Building Design, Trung Vietnam Province
Viện Khoa Học Nhà Ở-Công Trình Công Cộng, Bộ Xây Dựng
Institute for Housing and Public Building Design, H.C.

Disaster preparedness and rehabilitation in Binh Tri Thien zone, Vietnam
Phòng chống thiên tai và khôi phục ở khu vực Bình Trị Thiên, Việt Nam

CHUYÊN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO
DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
VIE/85/019C

TECHNICIANS FROM BEN HAI DISTRICT



TRAN THANH HUONG



LE VAN THIAN

TECHNICIAN FROM QUANG TRI IBPD



HOANG LE DUNG

Viện Thiết Kế Xây Dựng Thừa Thiên-Huế
Institute For Building Design, Thua Thien-Hue Province

Viện Thiết Kế Nhà Ở-Công Trình Công Cộng, Bộ Xây Dựng
Institute For Housing and Public Building Design, MC

Phòng chống thiên tai và khôi phục ở khu vực Bình Trị Thiên, Miền Nam
Disaster preparedness and rehabilitation in Bình Trị Thiên zone, Vietnam

CHUYÊN GIA KỸ THUẬT XÂY DỰNG NHÀ CHỐNG BÃO
DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
VIEᅤN THỰC KỸ VÀ CÔNG TRÌNH CÔNG CỘNG

TECHNICIANS FROM THE HAI PROVINCES



TRẦN VĂN THÁI



TRẦN VĂN THÁI

TECHNICIANS FROM QUANG BINH PROVINCE



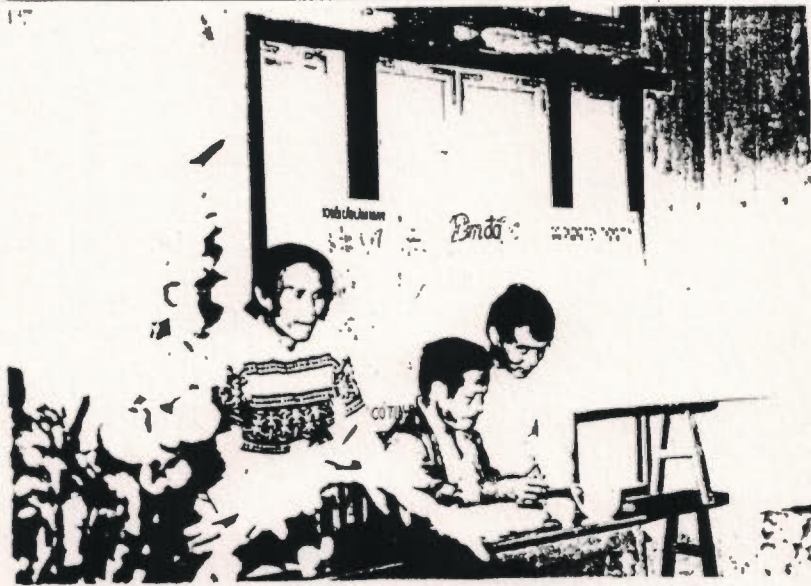
TRẦN VĂN THÁI

Vieᅤn Thực Kỹ và Công Trình Công Cộng, Bộ Xây Dựng
Institute for Housing and Public Building Design, II
Vieᅤn Thực Kỹ Xây Dựng Thành Thị
Institute for Building Design, Town Urban-Hue Province

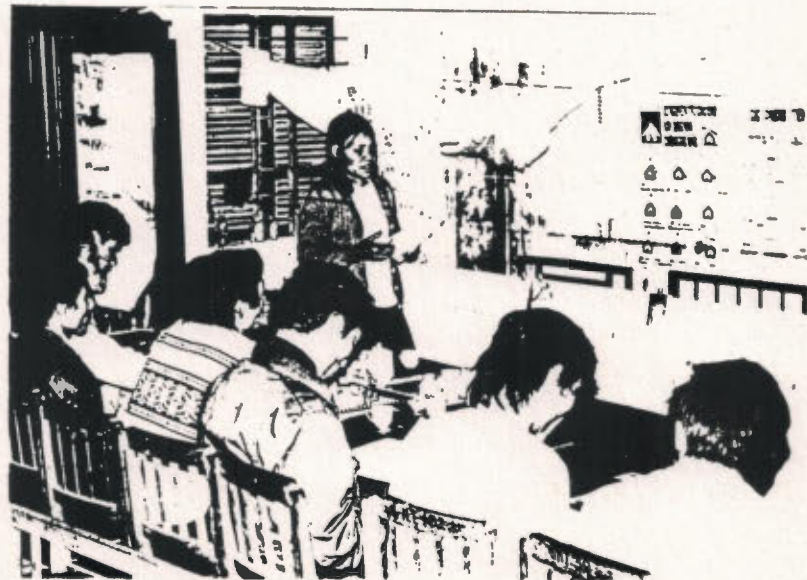
Disaster preparedness and rehabilitation in Binh Tri Thien zone, Vietnam
Phòng chống thiên tai và khôi phục ở khu vực Bình Trị Thiên, Việt Nam

CHUYÊN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO
DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
VIE/85/019C

WORKING METHOD



THE UNIT FOR CYCLONE CONSTRUCTION (IBD AND IHPBD)



WORKING GROUP

Viện Thiết Kế Xây Dựng Thừa Thiên-Huế
Institute For Building Design, Thua Thien-Hue Province

Viện Thiết Kế Nhà ở-Công Trình Công Cộng, Bộ Xây Dựng
Institute For Housing and Public Building Design, MC

Chương trình nghiên cứu và tái thiết lập là một dự án của Viện Thiết Kế Kiến Trúc và Công Tác Xây Dựng, Viện Khoa Học và Công Nghệ Xây Dựng, Bộ Xây Dựng, Hà Nội.

CHUYÊN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES VIỆT-NAM

HOẠT ĐỘNG HỌC TẬP



THIẾT KẾ VÀ XÂY DỰNG NHÀ CHỐNG GIÓ BÃO (1 VÀ 2)



HOẠT ĐỘNG HỌC TẬP

Viện Thiết Kế Kiến Trúc và Công Tác Xây Dựng, Viện Khoa Học và Công Nghệ Xây Dựng, Bộ Xây Dựng, Hà Nội.
Institute for Building Design, The Institute for Science and Technology of Building, Ministry of Construction, Hanoi.

Disaster preparedness and rehabilitation in Binh Tri Thien zone, Vietnam
Phòng chống thiên tai và khôi phục ở khu vực Bình Trị Thiên , Việt nam

CHUYÊN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO
DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
VIE/85/019C

PRESENTATION OF RESULTS



GROUP II



AND GROUP III

Viện Thiết Kế Xây Dựng Thừa Thiên-Huế
Institute For Building Design, Thua Thien-Hue Province

Viện Thiết Kế Nhà ở-Công Trình Công Cộng , Bộ Xây Dựng
Institute For Housing and Public Building Design , MC

Disaster preparedness and rehabilitation in Binh Tri Thien zone, Vietnam
Phòng chống thiên tai và khôi phục ở khu vực Bình Trị Thiên . Việt Nam

CHUYÊN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES VIỆT NAM

PRESENTATION OF RESULTS



GROUP 11



AND GROUP 121

Viện Thiết Kế Xây Dựng Tỉnh Thừa-Huế
Institute for Building Design, Thừa Thiên-Hue Province
Viện Thiết Kế Nhà Ở-Công Trình Công Cộng, Bộ Xây Dựng
Institute for Housing and Public Building Design, MO

Disaster preparedness and rehabilitation in Binh Tri Thien zone, Vietnam
Phòng chống thiên tai và khôi phục ở khu vực Bình Trị Thiên , Việt nam

CHUYỂN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO
DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
VIE/85/019C

PRESENTATIO OF RESULTS



GENERAL RESULTS



GROUP I

Viện Thiết Kế Xây Dựng Thừa Thiên-Huế
Institute For Building Design, Thua Thien-Hue Province

Viện Thiết Kế Nhà ở-Công Trình Công Cộng , Bộ Xây Dựng
Institute For Housing and Public Building Design , MC

Research preparedness and rehabilitation to bring the entire country, Vietnam
Phong công trình tại và khôi phục ở khu vực phía Bắc Việt Nam

CHUYÊN BIÊN KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO
DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
VIỆTSOVIET

PRESENTATION OF RESULTS



EXPERIMENT RESULTS



GROUP 1

Viện Thiết Kế Xây Dựng Tỉnh Thừa Thiên Huế
Institute For Building Design, Huế Thien-Hue Province
Viện Thiết Kế Nhà Ở-Công Trình Công Cộng, Bộ Xây Dựng
Institute For Housing and Public Building Design, MOC

CHUYÊN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO
DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
VIE/85/019C

LIST OF THE PARTICIPANTS
IN THE CLOSE OF SESSION II TECHNICIANS' INTERIM WORKSHOP
TRIEU HAI DISTRICT , QUANG TRI PROVINCE
Dicember 1989

I. QUANG TRI PROVINCE

1. NGUYEN XUYEN , Director of Department of Construction.
2. NGUYEN HUU THANG , Director of the Institute for Building Planification and Design .
3. Representatives of Quang tri Radio and Newspaper

II. TRIEU HAI DISTRICT

4. NGUYEN HIEN , vice-president of People's Committee
2. PHAM DINH PHUNG , Secretary of People's Committee
3. NGUYEN VU BINH , functionary.
4. NGUYEN THANH BINH , Director of Construction Company of Trieu hai District.
5. Representative of Trieu hai Radio .

III. HAI LAM VILLAGE

1. TRAN VINH QUANG , President of People's Committee ,
2. Ms NGUYEN THI HUONG , Director of the Health centre,

IV. THE UNIT FOR CYCLONE CONSTRUCTION

1. NGUYEN TAN VAN , Head architect , Institute for Housing and Public Building Design , Ministry of Construction.
2. NGUYEN SI VIEN , Director of the Institute for Building Design, Thua thien Hue province; Director of Sub-project VIE/85/019C
3. DANG MON , coordinator , Sub-project VIE/85/019C .
4. VO VAN BINH , technician , Institute for Building Design , Thua thien Hue province.
5. NGUYEN NGUYEN , architect , IBD Thua thien Hue province.

V. PARTICIPANTS

1. From Institute for Building Planification and Design , Quang tri province, 1 people .
2. From Ben hai district : 2 technicians .
3. From Trieu hai district : 6 technicians and builders .

Viện Thiết Kế Xây Dựng Thừa Thiên-Huế
Institute For Building Design, Thua Thien-Hue Province

Viện Thiết Kế Nhà ở-Công Trình Công Cộng , Bộ Xây Dựng
Institute For Housing and Public Building Design , MC

CHUYÊN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES VIỆT NAM

LIST OF THE PARTICIPANTS
IN THE COURSE OF SPECIAL II TECHNIQUES' TECHNICAL WORKSHOP
TRẦN HAI GIỚI, QUẢNG TRỊ DISTRICT,
December 1983

I. QUẢNG TRỊ PROVINCE

- 1. NGUYỄN XUÂN, Director of Department of Construction, Identification and Design.
- 2. NGUYỄN HỮU TRĂNG, Director of the Institute for Building
- 3. Representatives of Quang Tri Radio and Newspaper.

II. TRẦN HAI GIỚI

- 1. NGUYỄN HỮU, Vice-president of People's Committee
- 2. PHAN ĐÌNH HÙNG, Secretary of People's Committee
- 3. NGUYỄN VĂN BÌNH, Faculty
- 4. NGUYỄN THẠCH BÌNH, Director of Construction Company of Trần Hai Giới.
- 5. Representative of Trần Hai Radio.

III. BÀI LAM VILLAGE

- 1. TRẦN VĂN QUANG, President of People's Committee
- 2. NGUYỄN VĂN HỒNG, Director of the health center.

IV. THE UNIT FOR DESIGN CONSTRUCTION

- 1. NGUYỄN VĂN AN, Head architect, Institute for Design and Public Building Design, Ministry of Construction
- 2. NGUYỄN BÍ VINH, Director of the Institute for Design and Construction, Sub-project Vietnam
- 3. ĐINH BỒN, Coordinator
- 4. NGUYỄN VĂN BÌNH, Architect, Institute for Design and Construction, Sub-project Vietnam

Thus there are province:

- 1. NGUYỄN VĂN BÌNH, architect, IED Thus Thien Long province.

V. PARTICIPANTS

- 1. from Institute for Building Identification and Design, Quang Tri province, 1 people.
- 2. from Trần Hai district: 2 technicians.
- 3. from Trần Hai district: 6 technicians and 1 architect.

CHUYÊN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO
DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
VIE/85/019C

GROUP I

ANALYSIS OF THE EFFECTS OF CYCLONES ON THE BUILDINGS OF QUANG TRI PROVINCE
AND STUDY OF THE ECONOMIC IMPACT OF CYCLONE RESISTANT CONSTRUCTION

I. GENERAL PRESENTATION

Cyclone damage to building varies according to the type of building and the choice and the way that the materials are used. In Binh tri Thien zone, in general and in Quang tri province in particular, there is often only slight damage to building constructed using traditional architectural design where the structure and the choice of materials give the building strength and similarly in "modern" buildings where concrete provides stiffness. "Tradition" buildings have moved away from the traditional techniques, but not achieved the strength of the well built modern house. Falling in between they mix old and new materials. In the process, knowledge of how to build well is disappearing, and these buildings often have poor cyclone resistance.

It is important to know what the effect of a cyclone is on these different buildings, to show why damage happens, and to learn from this so that basic rules of cyclone resistant building can be adapted to really suit the local conditions of Quang tri. We need to find out and define how to design, build and maintain cyclone resistant buildings using the materials and skill of the region, and yet always keeping the costs as low as possible.

One serious implication of applying cyclone resistant building methods and of following the key rules so that damage is reduced, is that the cost of building could rise Quang tri - and this may make them unattractive to users even though the cost of maintenance and repair is likely to be reduced.

That cyclone resistant building techniques can be accepted, it is essential to ascertain that each proposed material and technique is really in keeping with the local production capabilities and building skills, and of great importance, in keeping with the economic capacity to invest in safer building. This concerns the public organizations - national and provincial government and the local communes and private families.

II. AIMS

1. Identify the different types of building in the region, and study the effect of cyclone on each building element;
2. Identify the key local design and construction details for cyclone resistant building.
3. Evaluate the potential for applying the principal cyclone resistant building techniques to construction Quang tri province.
4. Study cost for each type of construction (public, domestic...) and examine the detail costs for each element of the building, including foundations, floor, windows, walls, roof and coverings.
5. Make a comparative analysis of the costs and time involved for each part of the building; and thus identify which cyclone resistant building features will significantly raise the overall building costs.
6. Study the modifications that need be made to building materials so that they reach an acceptable "cyclone resistant" standard - and investigate how

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the se modifications may be realistically adopted by the producers.

III. WORKING METHOD

1. Work will begin by clarifying the principles of cyclone resistant construction - planning and siting, building form and construction details.
2. Identify the strengths and weakness of buildings in Trieu hai district and Quang tri province.
3. This process will then form the basis for establishing an easily used method of evaluating the cyclone resistance of building in other areas, and of selecting the strongest features.
4. Work will start with a explication of techniques for building and materials production cost analysis. The group will then gather necessary information on recent buildings and operating production sites using surveys and interviews which will result in an analysis of costs in Quang tri.

IV. EXPECTED RESULTS

1. A compendium of building types and techniques in the region, with a classification of their cyclone resistant qualities.
2. A checklist of realistic key point in cyclone resistant building which should be widely adopted.
3. A dossier on building costs and the cost impact of specific cyclone resistant design features.
4. A building guide linking material and technical choice to cost and the degree of cyclone resistance achieved.

II. AIM

1. Identify the different types of building in the region.
2. Identify the key local design and construction features.
3. Evaluate the potential for applying the principal design features in construction in Quang tri province.
4. Study cost for each type of construction (material, labor, etc.) and examine the detail costs for each element of the building (foundations, floor, windows, walls, roof and coverings).
5. Make a comparative analysis of the costs and time involved for each type of building, and then identify which cyclone resistant features are most cost-effective.
6. Study the relationships that need to be made to building design and they reach an acceptable "cyclone resistant" standard - the "cyclone resistant" standard.

Disaster preparedness and rehabilitation in Binh Tri Thien zone, Vietnam
Phòng chống thiên tai và khôi phục ở khu vực Bình Trị Thiên, Việt Nam

CHUYÊN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO
DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
VIE/85/019C

PROGRAMME
THE INTERIM WORKSHOP FOR TECHNICIANS IN TRIEU HAI DISTRICT
QUANG TRI PROVINCE, VIET NAM
December 1989

FRIDAY 15 - 12 - 1989

- 8 : 00** Official opening, speech by :
- Director of the sub-project VIE/85/029C
- Vice-president of People's committee of Trieu hai district
- Director of Department of Construction, Quang tri province
- IBD staff and other representatives .
- 9 : 30** Break for refreshment
- 10 : 00** - A questionnaire at the starting of the interim workshop
- 10 : 30** - Give documents to all participants .
- Explain the afternoon actions .
- 11 : 00** - Break
- 13 : 30** - Practical explanations : the programme presentation .
- Organize participants into main working groups .
- 14 : 00** - Visit and analysis of site for Demonstration building .

SATURDAY 16 - 12 1989

- 7 : 00** - Presentation and discussion : Principles of cyclone resistant building ; 10 principles of cyclone resistant construction (CRC) .
- 9 : 30** - Break for refreshment .
- 10 : 00** - Discussion (continuation)
- 11 : 00** - Conclusion ; Explain about questionnaire .
- 11 : 30** - Break .
- 13 : 30** - Example of the application of cyclone resistant construction techniques in the primary school at Loc Tan, Phu loc .
- 14 : 30** - Break for refreshment .
- 14 : 40** - Show the video " My husband builds our home " , "The 1985 typhoon hit Binh Tri Thien province " and " The 1989 typhoons hit Nghe tinh province " : slide video .
- 16 : 00** - Rest

SUNDAY 17 - 12 - 1989

- 7 : 00** - Organization of field survey .
- Group 1 : analysis of the effects of cyclone on housing-construction costs .
- Group 2 : Action plan and the dissemination of information .
- Group 3 : The design of the demonstration building .
- 11 : 30** - Break
- 13 : 30** - Continuation of field studies .
- 16 : 30** - Rest

MONDAY 18 - 12 - 1989

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MONDAY 18 - 12 - 1989

7 : 00 Groups work : survey of the field according to the group's work .
11 : 30 Break for refreshment .
13 : 30 Continuation of field surveys
16 : 30 Rest

TUESDAY 19 - 12 - 1989

7 : 00 All participants : Exchange and review of field survey and group work ; identify in each group the key point of the work .
9 : 30 Break for refreshment .
9 : 40 Continuation .
11 : 30 break .
13 : 30 Groups work
16 : 30 Rest .

WEDNESDAY 20 - 12 - 1989

7 : 30 Groups work
9 : 30 Break for refreshment .
9 : 40 Groups work
11 : 00 Reunite all participants .
11 : 30 Break
13 : 30 Guidance of evaluation of results .
Exchange and review , discussion ; groups work .
16 : 30 Rest

THURSDAY 21 - 12 - 1989

7 : 00 Presentation of the preliminary designs ; choice of the best design .
9 : 30 Break for refreshment .
9 : 40 Groups work
11 : 30 Break
13 : 30 Groups work
16 : 30 Rest (Evening : see the video about cyclone in Australia)

FRIDAY 22 - 12 - 1989

8 : 00 Preparation of dossier ;
9 : 30 Break for refreshment .
9 : 40 Preparation of dossier
11 : 30 Break
13 : 30 Preparation of dossier
16 : 30 Rest .

SATURDAY AND SUNDAY 23 and 24 - 12 - 1989

Two days for producing the finished workshop dossiers

MONDAY 25 - 12 - 1989

Rest all day

TUESDAY 26 - 12 - 1989

Finish dossiers ; interim presentation of results ; a questionnaire at the end of the session II.

WEDNESDAY 27 - 12 - 1989

Presentation by:
Groups 1 ; 2 ; and 3 .
Speech by : Representatives of Quang tri province , Thanh hai district , IFC and other Organizations concerned.
Dinner for participants and representatives by Director of the sub-project V/15/019 C

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GROUP II

THE ACTION PLAN AND THE DISSEMINATION OF INFORMATION

I. GENERAL PRESENTATION

As a central activity of the project we must define which are the best way to communicate practical information and innovative ideas about cyclone resistant building to the target groups of the project :

* The local and national decision makers who define construction policy initiate public building work , and who have the responsibility for actions to protect the public from natural disasters .

*The technicians , who design the buildings , define the standard and supervise the work .

* The builders , who do the building work , and who are the key people for passing on innovative building ideas to the general public .

For each of these groups , and through them . the project aims to rise the capacity to cope with the risk and the effect of cyclones - making use of plan for action , of better design features and building techniques , and when necessary , ways to improve existing buildings . In each case , to communicate efficiently to the different people concerned requires finding the right sort of communication media- and these will differ in each case, ranging from ;

- Visual material - manual , posters ...
- Audio-visual material - slides , video film , theatre , puppets ,...
- Material for active participation and meetings - models, construction work .
- Passive communication - demonstration buildings ...

II. AIMS

1. Keeping strongly in mind the real context of Viet nam and the target groups of the project , we will evaluate the different existing methods of communicating practical knowledge - traditional communication techniques ; media such as technical manuals and films ; and the products of similar projects elsewhere in the world .

2. Prepare the preliminary designs for communication material adapted to the local conditions .

III. WORKING METHOD

Based on a comparative analysis of communication media suited to the different subjects and target groups , the groups will carry out a study of the efficiency of existing communication methods which can be adapted to storm resistant building techniques and associated subjects .

This analysis will then form the basis for developing new media .

IV. EXPECTED RESULTS

1. Classification of communication techniques usable in Quang tri by type, purpose and target group ;

2. One preliminary examples of new material .

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VIỆT NAM DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES CHUYÊN BIÊN KỸ THUẬT XÂY DỰNG NHÀ CHỐNG BÃO VÀ CHỐNG CHÁY

GROUP II THE ACTION PLAN AND THE DISSEMINATION OF INFORMATION

I. GENERAL INTRODUCTION

As a central activity of the project we must define which are the best way to communicate practical information and innovative ideas about storm resistant building to the target groups of the project:

* The local and national decision makers who define construction policy initiate public building work, and who have the responsibility for actions to protect the public from natural disasters.

* The technicians, who design the buildings, define the standards and supervise the work.

* The builders, who do the building work, and who are the key people for passing on innovative building ideas to the general public.

For each of these groups, and through them, the project aims to raise the capacity to cope with the risk and the effect of cyclones - making use of his action, of better design features and building techniques, and also necessary, ways to improve existing buildings. In each case, the communication will be to the different people concerned regarding building for the right sort of communication media - and these will differ in each case.

Working with:

- Visual material - manuals, posters, ...
- Audio-visual material - slides, video film, tapes, ...
- Material for active participation and meetings - models, construction work, ...
- Personal communication - demonstration buildings, ...

II. AIMS

1. Working strongly in mind the real context of Viet Nam and the target groups of the project, we will evaluate the different existing methods of communicating practical knowledge - traditional communication techniques and media such as technical manuals and films; and the progress of similar projects elsewhere in the world.

2. Prepare the preliminary designs for communication material adapted to the local conditions.

III. WORKING METHODS

Based on a comparative analysis of communication media suitable to the different subjects and target groups, the groups will carry out a study of the efficiency of existing communication methods which will be adapted to storm resistant building techniques and associated subjects.

This analysis will then form the basis for developing new media.

IV. EXPECTED RESULTS

1. Dissemination of communication techniques suitable to target groups, by films, posters and target groups.

2. One preliminary example of new material.

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GROUP III

DESIGN OF DEMONSTRATION BUILDING (HEALTH CENTRE)

I. GENERAL PRESENTATION

Parallel different activities of project like analysis of the effects of cyclones on housing and public buildings; survey of construction costs; survey of materials and techniques used in Quang tri province , construction of prototype is very important to demonstrate the techniques for cyclone resistant building. The expected results of this work help the education and dissemination of information purposes. the Health centre demonstration building needs achieve the following principles :

- Define how to design, build and maintain cyclone resistant buildings using the materials and skills of the region;
- Keepign the costs as low as possible;
- As part of the training workshops.
- Apply the principal cyclone resistant building techniques to construction in Trieu hai district and Quang tri province.

II. OBJECTIVES

1. Design of a building (village health center) serving as a Demohstration of methods and ideas appropriate to local conditions (environment , climate , available materials and techniques , overall costs) and applying principles of cyclone resistant building ;
2. to develop cyclone resistant building design skills , and the benefit of working collectively to develop the best solutions ;
3. to put into practice the technical solutions put forward.
4. the construction costs will be accepted by local people .

III. WORKING METHOD

1. Based on a survey of conditions in Trieu hai district , apply principles of cyclone resistant building.
2. Analysis sufficiently the effects of cyclones on building and discuss the expected results to achieve .
3. Design in site ; material and workmanship quantities - calculation according to surveyed costs .
4. Working collectively and select the best design .

IV. EXPECTED RESULTS

1. Complete building design dossier including detailed drawings , specifications and bill of quantities .The cost analysis must relate to real local costs so that an accurate evaluation of the extra cost of cyclone resistant building can be made for this province. the dossier will include an analysis of the cyclone risk on this site, and of the ways that the new building demonstrates cyclone resistant construction features (choice of materials ; detailing ...)
2. A specific summary document for use in training builders which explain the cyclone resistant characteristics of the proposed building.

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GROUP III SECTION ON DEMONSTRATION BUILDING (TRAINING CENTER) I. GENERAL INFORMATION

The following information is provided for the purpose of the demonstration building project. The information is intended to provide a general overview of the project and to provide a basis for the design and construction of the building. The information is intended to provide a general overview of the project and to provide a basis for the design and construction of the building. The information is intended to provide a general overview of the project and to provide a basis for the design and construction of the building.

II. OBJECTIVES

1. Demonstrate the construction of a building (training center) which is resistant to storms and other natural disasters.
2. Provide a basis for the design and construction of buildings in other areas of the country.
3. Provide a basis for the design and construction of buildings in other areas of the country.
4. Provide a basis for the design and construction of buildings in other areas of the country.

III. WORKING METHOD

1. Based on a survey of conditions in the district, apply principles of storm resistant building.
2. Analyze and determine the effect of wind on building and discuss the expected results to achieve.
3. Design in site: material and construction - calculation according to surveyed data.
4. Working collectively and select the best design.

IV. EXPECTED RESULTS

1. Complete building design dossier including detailed drawings, specification and bill of quantities. The cost analysis and bill of material cost so that an accurate evaluation of the extra cost of storm resistant building can be made for this area.
2. A specific summary document for use in training which explain the storm resistant characteristics of the design building.