フィジー国稲作研究開発計画

パイロットインフラ整備事業施工監理業務

総合報告書

平成２年７月

国際協力事業団

フィジー国稲作研究開発計画

パイロットインフラ整備事業施工監理業務

総合報告書

平成２年７月

国際協力事業団

主要関係者リスト

フィジー国政府

第１次産業省	次官補	S.T. Cavuilati(Project Head)
	〃	V. Nath
研究局	局　長	R.N. Duve(Project Manager)
排水かんがい局	〃	A.Karumela
	技師長	N.S. Swami
	農務官（北部）	L.Mudaliar
普及局	北部地域事務所長	J.Singh

日本大使館

	二等書記官	仁田　知樹
	〃	中島　敏

ＪＩＣＡ事務所

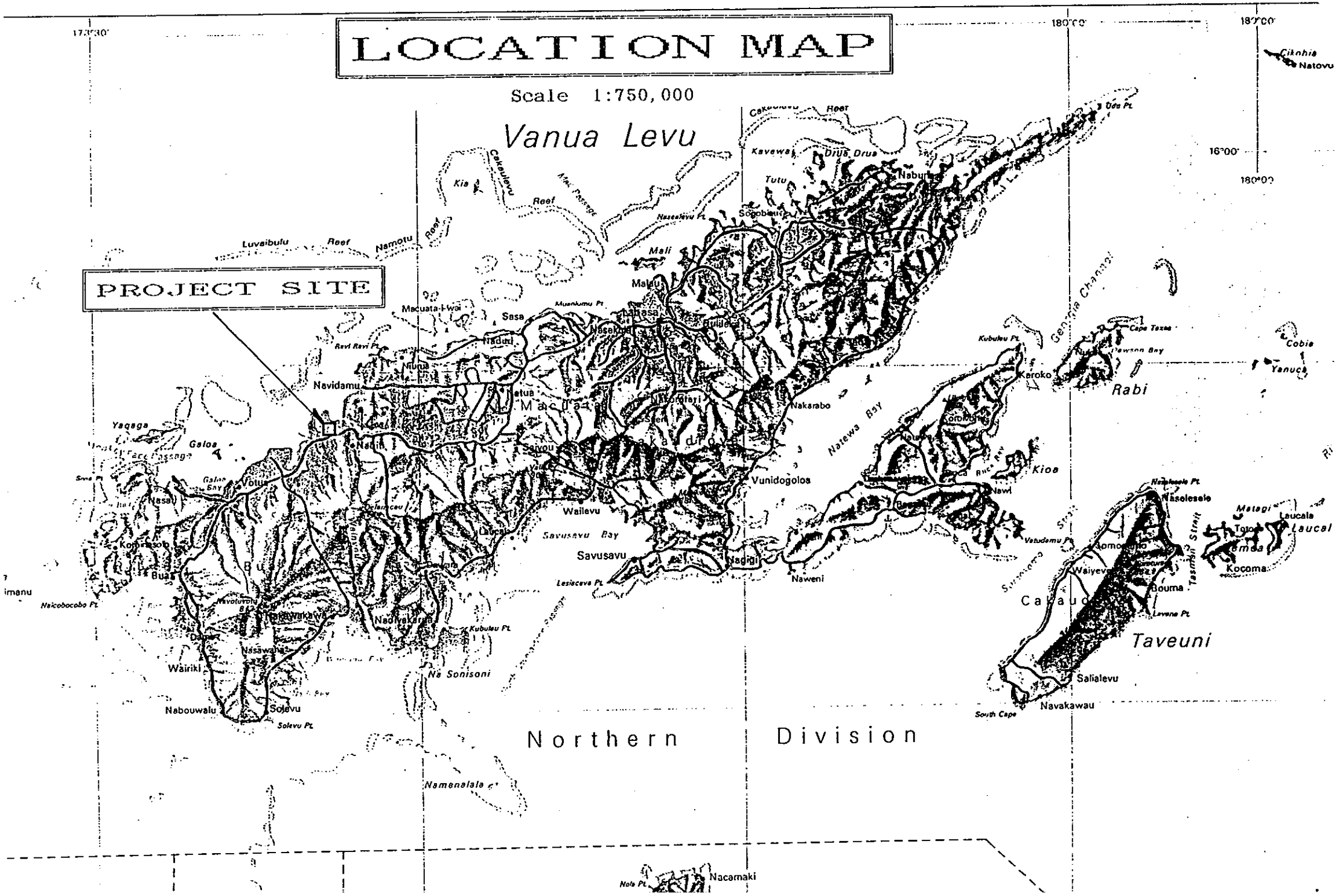
	所　長	吉田芳夫
	副所長	水落俊一

稲作研究開発プロジェクト専門家

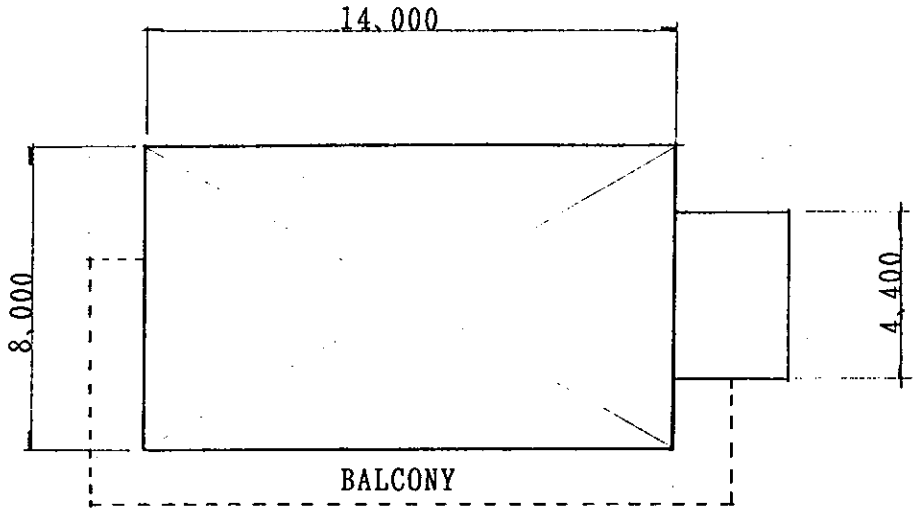
	リーダー代行	増見国弘
	栽　培	難波輝久
	普及計画	佐藤　巴
	農業機械	山本育男
	調整員	大泉泰雅

LOCATION MAP

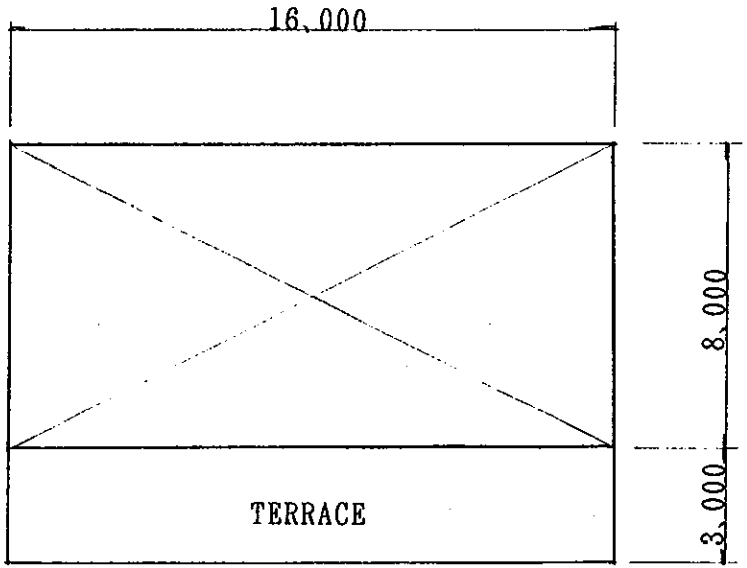
Scale 1:750,000



GENERAL PLAN



LABORATORY & EQUIPMENT HOSE



TRAINING CENTER

目　　次

第1章　概　　要

1.1　業務の目的と基本方針

フィジー国における米増産に資することを目的として、1985年 4月18日に本プロジェクトに対する R/Dが署名され、フィジー国における稲作研究開発計画が開始された。1986年にはコロニビア農業試験場内に、15haの試験圃場がモデルインフラ整備事業により整備され、1988年には稲作技術の試験・研究から新技術の展示・普及の圃場として、ナブア地区に16haのかんがい水田とナウソリ地区に14haの天水田がパイロットインフラ整備事業の圃場として整備された。

更に、プロジェクト活動が Vanua Levu 島に拡大されることになり、1989年に稲作研究開発パイロットインフラ整備事業実施設計調査団が派遣され、普及・展示圃場をタンビア地区とコロカンディ地区の２ヶ所に、普及・訓練施設をレケティ地区に建設するパイロット圃場整備計画が策定された。

本業務は、このインフラ整備事業計画に基づき、レケティ地区の普及・訓練施設建設工事に対する請負契約締結の協力・補助及び施工監理を実施したものであり、ここに総合報告書として報告するものである。

1.2　専門家の派遣と業務内容

(1) 専門家の派遣

工事の契約及び施工監理業務の実施に当たり、1990年 2月14日から 3月30日までの45日間にわたり石戸谷実（太陽コンサルタンツ株式会社）が、同年 3月18日から 7月 6日までの111 日間にわたり岩本彰（太陽コンサルタンツ株式会社）が派遣された。当初、岩本彰の派遣期間は、 6月15日までの90日間であったが、以下の理由により派遣期間が21日間延長された。

派遣期間延長理由

1)　殆どの建築資材の単価が、実施設計調査時より10% ～15% 上昇した事により工事費の積算のやり直しが必要となり、このため契約業務に予定以上の時間がかかり、工事着工が遅れたため。

2) フィジー側から実験資材棟の回廊の設置等、追加工事が強く要請されたため部分的に設計変更が必要となり、このため契約業務に予定以上の時間がかかり、工事着工が遅れたため。

(2) 業務内容

業務内容を具体的に示せば次のとおりである。

1) 工事請負契約締結に関する協力・補助
   a．工事金額積算の見直し
   b．契約書、仕様書、特別仕様書、設計図面、数量調査等各案の検討
   c．工事請負業者の選定に係る検討

2) 施工監理業務
   a．工事の工程・期間の管理
   b．設計図面に基づく工事施工の管理及び指示
   c．その他工事施工に付随する監督者の協力及び助力

3) 工事変更に伴う設計変更等の業務の処理

4) 検査業務に関する補助

5) 必要となる工事関係図書の作成

6) 総合報告書の作成

1.3 工事概要

本工事は、レケティプロジェクト事務所東側に隣接する丘陵地に訓練棟（以下研修棟とする）、及び実験・機材棟（以下実験資材棟とする）を建設するもので、各建物の概要は以下に示すとおりである。

(1) 研修棟

研修等は、20名の研修生を主要可能な講義室、講師控室、備品室等から成る。

建築面積： 128㎡ (16m× 8m ／テラス含まず)
構　　造：木造及びブロック壁構造併用平屋建（壁高80cmまでブロック構造）
内部構成：講義室、講師控室、備品室、他

(2) 実験資材棟

実験資材棟は、稲作に関連する栽培試験、土壌試験等を行うための実験室及び研究の成果を示す展示室、さらにこれらに供するための資機材管理室等から成る。

建築面積： 224㎡ (14m× 8m ×２階建／ギャラリー含まず)
構　　造：鉄筋コンクリート柱、ブロック壁構造併用２階建
内部構成：実験室、成果展示室、資材保管室、湯沸室、講師控室、他

1.4　資料の提出

等業務実施期間中に現地にて、JICAフィジー事務所長に提出した資料は以下に示すとおりである。なお、これらの資料の一部を第６章に添付する。

(1) 契約書、仕様書、数量書、設計図等、工事請負契約関係資料
(2) 業務状況報告書
(3) 出来高確認及び支払い申請書
(4) その他

第２章　工事請負契約

2.1　入札準備

(1)　詳細設計及び入札書類の作成

入札に当たっては詳細設計が必要であるため、実施設計調査における計画を基に詳細設計を、コロニビア試験場内の圃場管理棟建設の実績を持つ Begg Construction Ltd. に委託した。　また、工事積算書及び仕様書の調査・作成を建設コンサルタンツの　Shan & Associates Ltd. に委託した。　　添付資料６―１、２参照

(2)　工事業者の選定

入札は第１次産業省（以下 M.P.I. と表す）が通常実施している指名競争入札とした。指名業者は M.P.I. 推薦により２社を、これに加えて過去にコロニビア試験場内の圃場管理棟建設の実績を持つ１社の計３社を選定した。　以下に指名業者を示す。

1) Labasa Builders Ltd.(M.P.I.推薦)
2) Jaduram Industries Ltd.(M.P.I. 推薦)
3) Begg Construction Ltd.(過去JICA実績)

2.2　入札と契約

(1)　入札書類の配布

フィジー事務所長にこれまでの経過報告し承認を得た後、上記の３社に対し1990年 3月9日に入札書類を郵送の形で配布した。　　添付資料６－３参照

(2)　入札の結果

３社の応札書類が１９日までに届いた。開封の結果は以下のとおり。

業　者　名	応札金額	優先順位
Labasa Bilders Ltd.,	F$255,280.00	2
Jaduram Industries Ltd.,	F$274,072.00	3
Begg Construction Ltd.,	F$154,120.00	1
予定工事費	F$122,000.00	

(3) 契約交渉

Begg Construction Ltd., が交渉優先順位第１位となったが、予定価格との差がF$ 30,000以上あるため、契約交渉をBegg Construction Ltd., との間で実施するとともに、プロジェクトのリーダー始め各専門家及びフィジー側受入機関であるM.P.I.排水潅漑部（以下 D&I）との打ち合せを行なった。その結果、構造材以外の一部部材の変更、実験資材棟の回廊の後方（南側）半分を削除する等の調整を行なった。調整事項は以下のとおり。

削除項目	減額高（F$）
1)共通	
a. Contingency sum	10,000.00
b. Door Looks	4,000.00
c. Selected Lights	900.00
d. Plywood from 6mm to 4mm	5,240.00
e. Quarry tiles	2,340.00
Sub Total	22,480.00
2)研修棟	
a. Floor Height from 600mm to 300mm	400.00
b. Timber railing	500.00
c. Footpath from conc. to gravel and width to 600mm	500.00
d. Reduction of partition & doors	2,500.00
e. Change of rainforcement for slab from 665 mesh to Φ6 bars at 300mm c/c borthways	500.00
f. Reduction and price of mosaic tile and hight for glazed tile	500.00
Sub Total	4,900.00

3) 実験資材棟

a. Partition for storage room and beside shower and toilet area.	350.00
b. Provision for waste pipe, 5 only handbasins deleted and additional a handbasin. for glazed tile	200.00
c. 9 nos. of louver windows (W1,W15,W18-21,W24-26)	260.00
d. Footpath conc.⇒ Gravel with 600mm width	500.00
e. Toilet & shower wall glazed 1800mm ⇒ 1350mm also reduction of mosaic tail in the area	400.00
f. Change of rainfrcement for slab 665 mesh ⇒ Φ6 bars at 300mm c/c both ways	500.00
g. Half the portion of Gallery(Hill side)	1,250.00
Sub Total	3,460.00

4) その他

a. Profit,and transportation	1,280.00
Grand Total	32,120.00

5) 契約金額

F$154,120.00－F$32,120 ＝ F$122,000.00

(4) 契　約

契約交渉後、契約金額 F$122,000.00 、工事期間90日間で Begg Construction Ltd.,と契約について合意に達したため、3 月27日にJICA事務所において、吉田所長（発注者）と Mr.Begg（受注業者／Begg Construction Ltd.,）の間で契約書に署名がなされ契約が成立した。　　添付資料６－4 参照

(5) 工事開始手続き

契約手続き終了後、フィジー事務所長名で工事着手許可書を発行した。これを受け 4月2日より工事が開始され、工事完了予定日は 6月30日となった。　なお、工事開始に当たり施工業者に対し工程表を提出させた。添付資料６－５　参照

(6) 追加工事の発注

施工期間の７割を経過した段階で、予備費の保留が不要となったため、契約交渉の際に工事項目から削除した洗面設備（５個）について、追加工事として際発注した。

添付資料６－6 参照

2.3 工事の検定と工事費の支払い

(1) 前渡金の支払い

工事実施に先立ち、契約書第６条に従って施工業者から前渡金の請求があった。請求金額は25%であり、材料の早期確保等を考えると妥当な額であるため、JICA事務所長に支払いを申請した。　添付資料６－7 参照

(2) 中間払い

契約書第６条に従って、工事期間中に２回の出来高中間払いの請求が行われた。これを受けて、出来高の検査をした結果、出来高と金額は次のようになった。ただし、支払い金額は工事完了の 1ヵ月後に支払われる保留金（10%）を除いた分が支払われた。

第１回中間払い：支払い金額 F$24,400（20 %）

第２回中間払い：支払い金額 F$24,400（20 %）

添付資料６－8 、9 参照

(3) 完了検査

1990年 6月30日に請負業者からの工事完了報告を受け、 7月 5日にM.P.I.主要関係者の立合のもとで検収を実施した結果、契約に従ってすべての工事が完了していることを確認した。このため、保留分10%を除く工事費残額のF$30,500.00 の支払いをフィジー事務所長に申請した。

添付資料６－10参照

第３章　設計変更

整地工実施の際にフィジー側より丘陵地緩斜面から丘陵頂部への建設地点移動の要請があり、フィジー事務所長、プロジェクト専門家の了解を得たので、その要請に応じた。

また、着工に当たり設計変更を要する箇所があったため、以下のように設計変更を実施した。

3.1 研修棟の変更

入札用の詳細設計に先立ちＦＩＪＩ側と打合せした結果、研修室に隣接して教材準備室（コピー、スライド等の準備）が必要であるため、研修棟の中の部屋割りについて変更して欲しいとの要請があった。このことについて、プロジェクトＪＩＣＡ専門家とも協議した結果、予算的に大きな変更が無い範囲で対応することとし、設計変更を行った。その結果、床面積の計は120 ㎡から128 ㎡と８㎡増となった。

また、研修室の窓は、西側のみに設置する計画となっているが、ＦＩＪＩ側より採光を考慮し、北側にも窓を設置して欲しい旨の要請があった。ＦＩＪＩ側が窓に係る資材を提供するという条件でこの要請を了承し、北側ドアの両側に窓を増設することにした。

尚、この変更に伴う工事費及び工期の増加はなし。

3.2 トイレの位置

実験棟及び研修棟の棟方向は東西棟であり、北側がカーポートに接する（建物の前面に当たる）計画となっているが、どちらの建物も北側に位置しており、建築計画上好ましくないため、建物の後方、南側にシフトした。

尚、この変更に伴う工事費及び工期の増加はなし。

3.3 内壁用ブロック

計画では内壁用ブロックとして100mm 厚のものを用いることとなっているが、現地で入手可能な100mm 厚ブロックは鉄筋を通すための穴がなく、構造上危険であるため外壁に用いている150mm 厚ブロックを内壁にも用いることとした。ブロックの厚さが変わったことにより、トイレの間仕切りの位置及び窓の位置についても変更した。

尚、この変更に伴う工事費の増加に対応するため、プロジェクトＪＩＣＡ専門家の了解を得て、貯蔵室の間仕切りをキャンセルした。また、この変更に伴う工期の増加はなし。

3.4 実験資材棟実験室のドア枚数の増加

実験室の外壁に位置するドアは、計画では900mm 幅１枚となっているが、１時に10名以上の研修受講者が出入りすることを考慮すると、狭いため１枚増設し、２枚ドアの1800mm 幅に変更した。

尚、これに伴う工事費及び工期の変更はなし。

第４章　施工監理

4.1 工程管理

各工事項目別に工事期間を示したバーチャートを用いると同時に、週単位で前週の工事実績と当該週の工事計画を施工業者に提出させ、工事計画と工事実績を比較することによって、工程を管理した。

90日間という短期間で工事を完了させるためには、厳密な工程管理が必要である。特に柱、梁等の構造部材に係る工事におけるミスは、大幅な工期の遅延を招く恐れがあるためこれらの工事項目について特に留意し工程管理を実施した。

また、工事開始当初に雨により工事を中止させられることがあったため、屋根工事を工事期間の早い時期に実施するよう、施工業者に指示した。

4.2 出来高管理

巻尺やレベルにより、寸法、水平等を測定すると伴に、各工事項目毎に撮影記録を実施し出来高管理を行い、不十分な工事については修正もしくはやり直しを命じた。特にコンクリート工事においては、コンクリート打設前に鉄筋の組立状況を撮影記録することとした。また、特に品質管理の面からも鉄筋の被りについて十分に注意して施工するよう、施工業者に指示した。

4.3 品質管理

コンクリートは、ミキサーを用いて現場で練ったが、Vanua Leve島では川砂の入手が困難なため、細骨材には砕石ダストを使用させ、モルタルには海砂を淡水で洗浄したものを篩にかけ貝殻等を除去した後用いた。　ブロック積については４段毎に水平方向に配力筋を設置し、柱と接合させるように指示すると伴に、モルタルの配合に注意した。

第５章　工事出来高

本工事における実施設計時（1989年 6月）と出来高工事（1990年 6月）との対比は以下のとおりである。

工　種	実施設計	出来高	備　考
・研修棟	120㎡（平屋建）	128㎡（平屋建）	
・実験資材等	224㎡（２階建）	224㎡（２階建）	

第６章　添付資料

6.1　工事関係添付資料

６－１　詳細設計の委託
６－２　積算業務の委託
６－３　指名通知
６－４　契約関係書類
６－５　工事着手許可書
６－６　追加工事発注書
６－７　前渡金支払い
６－８　第１回中間払いと検査
６－９　第２回中間払いと検査
６－10　完了検査

6.2　業務状況報告書

P

7 March 1990

JICA Suva office
吉田所長殿

太陽コンサルタンツ
Suva駐在
石戸谷実

業務(設計)完成報告

27. February 1990付で契約した下記業務について、請負者 Begg Construction Ltd., より成果品の提出があり、審査の結果適当と認めたので受領致しました。

記

業務名　Detail Design Work
for
Training Center and
Laboratory & Equipment House
in
The pilot Infrastructure Improvement Works on the Improvement of Rice Cultivation Technology Project.

JICA Suva office

27 Feb 1990

吉田所長殿

太陽コンサルタンツ
Suva駐在
石戸谷実

建築設計の契約について

22. February 1990 付で依頼した Dreketi 地区 Training Center と Laboratory & Equipment House の設計見積りが別紙のとおり提出あったので検討したところ妥当と思われるので下記に報告します。

記

1. 見積者　Begg Construction Ltd.,
P.O Box 6132 Nasinu.

2. 見積額　F$ 2.600.00.

3. Engineer Estimation

(1) Design	200.00
(2) Drawings	1.200.00
(3) Specification	300.00
(4) Calculation	300.00
(5) Engineer's check	400.00
(6) Transportation	100.00
(7) profit	300.00
Total	2.800.00

22 February 1990

Mr Alim BEGG
Begg Construction Limited
P O Box 6132
NASINU

Dear Sir

RE : Invitation To Present A Quotation For Detail Design Work For The Training Centre And The Laboratory And Equipment House In the Pilot Infrastructure Improvement Works On The Improvement Of Rice Cultivation Technology Project

Japan International Cooperation Agency (JICA) Suva Office hereby invites quotation for the above-mentioned Project which is situated at Dreketi in a compound of Ministry of Primary Industries (MPI).

The condition of the work is as follows:-

Nature of Work

Detail Design of
(1) Training Center : 16m x 8m size with timber bungalow
(2) Laboratory and Equipment House : 14m x 8m size with two (2) story of concrete column and block wall.

Specification of the Work

(1) The work shall include Drawings and Specifications for the construction of the two buildings.
delete ~~(2) Bill of Quanities of the work.~~
(3) The design criteria shall be in accordance with law.
(4) The design engineer shall be qualified in accordance with Law.
(5) The size of drawings shall be prepared for the construction and for the tender document.

...2/

(6) Preparation of necessary documents for Authorities concerned if any.
(7) The works above mentioned shall be supervized by the Engineer JICA appointed to do so.
(8) Completion of the Work
    (i) Interim Report March 05, 1990
    (ii) Final Report March 07, 1990

Quotation documents shall be arrived for JICA, Suva Ofice on 27 February 1990, at 10.00am.

Thank you.

Yoshio YOSHIDA
RESIDENT REPRESENTATIVE
of JICA Suva Office

28 February, 1990.

Begg Construction Ltd.,
P.O. Box 6132,
Nasinu,
SUVA.

Dear Sir,

RE : QUOTATION FOR DETAIL DESIGN WORK FOR TRAINING CENTER AND LABORATORY AND EQUIPMENT HOUSE IN THE PILOT INFRASTRUCTURE IMPROVEMENT WORKS ON THE IMPROVED OF RICE CULTIVATION TECHNOLOGY PROJECT

I refer to your Quotation for the above-mentioned in the sum of TWO THOUSAND AND SIX HUNDRED DOLLARS ($2,600.00) and advise of its acceptance by Japan International Cooperation Agency (JICA).

Please proceeed the said works with our appointed Engineer,
Mr. Minoru ISHIDOYA, at Japan International Cooperation Agency (JICA).

Thank you.

Mr. Yoshio YOSHIDA
RESIDENT REPRESENTATIVE of JICA
Suva Office

BEGG CONSTRUCTION LIMITED

PHONE: 393981
RES: 392122

Managing Director: ALIM BEGG

P.O. BOX 6132
NASINU.

27th February, 1990.

Mr Yoshio YosiHida,
President Representative,
J,I.C.A
SUVA.

Dear Sir,

Re: QUOTATION FOR DETAILS DESIGN WORK FOR TRAINING CENTRE AND THE LABORATORY AND EQUIPMENT HOUSE IN THE PILOT INFRASTRUCTURE IMPROVEMENT WORKS ON THE IMPROVEMENT OF RICE CULTIVATION TECHNOLOGY PROJECT.

Our quotation price for the above mention detail designwork is for the sum of F$2,600.00 (TWO THOUSAND SIX HUNDRED DOLLARS).

Nature of Work will be as follows:-

DETAIL DESIGN OF

1. Training centre : 16mm x 8m size with timber bungalow.
2. Laboratory and equipment house : 14mm x 8m size with two (2) story of concrete column and block wall.
3. Detail specifications for the construction of two buildings.
4. The design criteria will be in accordance with law.
5. The above both building structures will be checked by the qualified engineer for soundness and safety in accordance with law.

The Completion time shall be on the 6th day of March, 1990.
We thank you for inviting us to present our quotation and hoping to do further business with you.

Yours faithfully,

.....

M. S. Begg
MANAGER

BEGG CONSTRUCTION LIMITED

PHONE: 393981
RES: 392122

Managing Director: ALIM BEGG

P.O. BOX 6132
NASINU.

28th March, 1990.

Mr. Yoshio Yoshida,
President Representative,
J.I.C.A,
SUVA.

Dear Sir,

Re: APPLICATION FOR THE ADVANCED PAYMENT FOR THE TRAINING CENTRE AND THE LABORATORY AND EQUIPMENT HOUSE IN THE PILOT INFRASTRUCTURE IMPROVEMENT WORKS AT DREKETI.

I would like to apply for the advanced paymentof 25% of the above work which is in the sum of $30500.00 (THIRTY THOUSAND FIVE HUNDRED DOLLARS ONLY).

Your early assistance in this matter will be highly appreciated.

Thanking you.

Yours faithfully,

.....

M.S.BEGG
MANAGER

BEGG CONSTRUCTION LIMITED

PHONE: 393981
RES: 392122

Managing Director: ALIM BEGG

P.O. BOX 6132
NASINU.

14th March, 1990.

Mr. Yoshida Yosihida,
President Representative,
J.I.C.A,
SUVA.

Dear Sir,

Re: QUOTATION FOR DETAIL DESIGN WORK FOR TRAINING CENTRE AND THE LABORATORY AND EQUIPMENT HOUSE IN THE PILOT INFRASTRUCTURE IMPROVEMENT WORKS ON THE IMPROVEMENT OF RICE CULTIVATION TECHNOLOGY PROJECT.

As per our quotation dated the 27th day of Feb., 1990, we request for the payment in the sum of F$2,600.00 (TWO THOUSAND SIX HUNDRED DOLLARS for the above mentioned detail designwork which as was completed on the 6th day of March, 1990.

Your co-operation will be highly appreciated.

Thanking You.

Yours faithfully,

S.BEGG
MANAGER

BEGG CONSTRUCTION LTD

Phone: 393981
A/H: 392255

P.O. Box 6132
Valelevu, Nasinu.

Suva, Fiji 14:3:1990 No 737

Received from M/S J.I.C.A by ~~Cash~~/Cheque

the sum Two Thousand six Hundred dollars

Cents:

on account of Detailed designwork. With Thanks

For
Per

$ 2,600:00

General Builders & Contractors Electrici

6－2　積算業務の委託

10 March 1990

JICA FIJI Office

吉田所長殿

稲作研究開発計画パイロット
インフラ整備事業施工監理業務
JICA Expert　石戸谷　実

見積り業務の契約について

9.March 1990　付けで依頼した下記業務の返答が、Shan & Associates よりあり検討したところ妥当と認められるので報告いたします。

記

1. Scope of Work

Bill of Quantities for Training Center and Laboratory & Equipment House at Dreketi .

2. Name of Project

The Pilot Infrastructure Improvement Works on the Improvement of Rice Cultivation Project

Shan & Associates

Architectural Designers & Building Consultants.
48 High Street, G.P.O.Box 14505, Suva.
Phone 313625, FIJI ISLANDS

9th. March, 1990.

Mr. Minoru Ishidoya,
J.I.C.A.,
Suva Office.

Dear Sir,

As per your request, our breakdown of fees is as follows:-

a)	Taking off of material and labour	- $1,000-00
b)	Pricing material and labour	- $ 500-00
c)	Photocopy & overhead	- $ 500-00
	TOTAL	$2,000-00

Our total fees shall be $2,000-00 (Two Thousand Dollars Only).

Yours faithfully,

.....
Shan Mohammed.

Shan & Associates

Architectural Designers & Building Consultants.
48 High Street, G.P.O.Box 14505, Suva.
Phone 313625, FIJI ISLANDS

9th. March, 1990.

Mr. Yoshio Yoshida,
J.I.C.A.,
Suva Office,

Dear Sir,

RE: BILL OF QUANTITIES FOR TRAINING CENTRE AND LABORATORY AND EQUIPMENT HOUSE AT DREKETI.

As per your letter dated 9-03-90, we wish to quote our fees for the preparation of the above as F$2,000-00 (Fijian Dollars Two Thousand only)

Thanking you, we hope this is acceptable to you.

Yours faithfully,

.....
Shan Mohammed.

Shan & Associates

Architectural Designers & Building Consultants.
48 High Street, G.P.O.Box 14505, Suva.
Phone 313625, FIJI ISLANDS

Shan M
積算名...

16th.March, 1990.

Mr. Minoru Ishidoya,
C/-J.I.C.A.

Dear Sir,

As requested, please find two sets of Bill of Quantities for Training Centre, Laboratory and Equipment House and Balcony for Lab House.

We would be greatful to receive the payment of our fees for the sum of $2,000-00 (two thousand dollars only) as agreed.

Thanking you.

Yours faithfully,

.....
Shan Mohammed.

Received from... 49
23-03 1990
M/s Japan International
Cooperation Agency
The sum of Two Thousand dollars
being for Bill of Quantities cents

Cheque	2000	00
Cash		
TOTAL $	2000	00

per

COLLINS CASH RECEIPT 45DL

19 March 1990

JICA FIJI Office

吉 田 所 長 殿

稲作研究開発計画パイロット

インフラ整備事業施工監理業務

JICA Expert 石戸谷 実

委託業務（見積り）完成報告について

12. March 1990 付けで発注した下記業務の成果品が、Shan & Associates より提出あり検査したところ適当と認めたので報告いたします。

記

1. Scope of Work

Bill of Quantities for Training Center and Laboratory & Equipment House at Dreketi .

2. Name of Project

The Pilot Infrastructure Improvement Works on the Improvement of Rice Cultivation Project .

Fax: 302452
Telex: FJ2449
Telephone: 301829
302522

Japan International Cooperation Agency

3rd Floor
Dominion House
Private Mail Bag
Suva, Fiji.

12 March, 1990.

Shan And Associates,
Architectural Designers &
Building Consultants,
48 High Street,
G.P.O. Box 14505,
SUVA.

Dear Sir,

RE : ACCEPTANCE OF THE QUOTATION OF BILL OF QUANTITIES FOR THE TRAINING CENTRE AND THE LABORATORY AND EQUIPMENT HOUSE IN PILOT INFRASTRUCTURE IMPROVEMENT WORKS ON THE IMPROVEMENT OF RICE CULTIVATION TECHNOLOGY PROJECT

Japan International Cooperation Agency (JICA) Suva Office hereby accepts your Quotation dated on 12 March, 1990.

Please proceed the said work under the supervision of Mr. M. ISHIDOYA the JICA appointed Engineer.

Thank you.

JAPAN INTERNATIONAL COOPERATION AGENCY ★ JICA IN FIJI

Mr. Yoshio YOSHIDA
RESIDENT REPRESENTATIVE of JICA
Suva Office

PROPOSED LABORATORY AND EQUIPMENT HOUSE

AT DREKETI

BILL OF QUANTITIES

Shan & Associates
Architectural Designers &
Building Consultants.
74 Suva St.,P.O. Box 14505, Suva.
Phone: 22428, Fiji Islands.

GENERAL SUMMARY

1.00	Preliminary and general	–	$27,700-00
2.00	Excavator	–	1,052-80
3.00	Concretor	–	35,308-75
4.00	Blockwork	–	6,060-00
5.00	Carpentry	–	24,667-09
6.00	Joinery	–	7,078-20
7.00	Roofer	–	5,898-34
8.00	Plasterer	–	3,135-25
9.00	Plumbing	–	4,362-45
10.00	Electrical	–	2,464-01
11.00	Painter	–	6,856-92
12.00	Tiler	–	11,091-00
	TOTAL	–	$135,674-81

1.00	PRELIMINARY AND GENERAL	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
1.01	Site shed	/						300	00
1.02	Temperory services							200	00
1.03	Sign board							50	00
1.04	Insurance							600	00
1.05	Transportation		ITEM					4000	00
1.06	Contingency sum							5000	00
1.07	Door lock supply (P.C. sum)							2000	00
1.08	Shower rose supply (P.C.sum)							100	00
1.09	Selected lights supply (P.C.sum)							450	00
1.10	Overhead and profit	/						15000	00
	TOTAL							$27,700	00

		UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
2.00	EXCAVATOR								
2.01	Excavation general	m^3	31	10/-	—	310	00	—	
2.02	Backfill to excavation	m^3	16	2/-	—	32	00	—	
2.03	Hardcore fill	m^3	20	5/-	10/-	100	00	200	00
2.04	Sand blinding	m^3	26	4/-	8/-	104	00	208	00
2.05	POlythene dpc	m^2	260	-/13	-/25	33	80	65	00
						$579	80	$473	00
	TOTAL							$1052	80

		UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
3.00	CONCRETOR								
3.01	Mass conc (general) Ø	m^3	65	70/-	150/-	4550	00	9750	00
3.02	12 dia reinf bars Ø	m	2900	-/60	-/99	1740	00	2871	00
3.03	10 dia bars Ø	m	4284	0.35	0.69	1499	40	2955	96
3.04	665 M. mesh	m^2	220	2.30	4.60	506	00	1012	00
3.05	16 dia bars Ø	m	780	0.88	1.76	686	40	1372	80
3.06	20. dia bars Ø	m	1600	1.365	2.73	2184	00	4368	00
3.07	Binding wire	Kg	65	0.80	1.6	52	00	104	00
3.08	24 dia bars	m	18	1.985	3.97	35	73	71	46
3.09	Formwork	S^1	2000	20.00	40.00	400	00	800	00
3.10	Nails	Kg	20	—	2/50	—		50	00
3.11	Concrete testing	—	ITEM	—	—	—		100	00
3.12	PLants and equipment	—	ITEM	—	—	—		200	00
						$11653	53	$23655	22
	TOTAL							$35308	75

		UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
4.00	BLOCKWORK								
4.01	150 mm standard conc block	EACH	1650	0.28	0.70	462	00	1155	00
4.02	150 mm bond block	EACH	530	0.40	1-00	212	00	530	00
4.03	100 mm standard conc block	✓	750	0.26	0.65	189	80	487	50
4.04	100 mm bond block	✓	290	0.30	0.75	87	00	217	50
4.05	Mortar – cement	BAG	18	4-50	9-00	81	00	162	00
4.06	– sand	m^3	12	4-00	10-00	48	00	120	00
4.07	Grout	m^3	11	70-00	140-00	770	00	1540	00
						$1849	00	$4211	00
	TOTAL							$6060	00

5.00	CARPENTRY	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
5.01	100 mm galv. nails	Kg	15	0.80	3.20	12	00	48	00
5.02	75 mm galv. nails	Kg	30	0.80	3.20	24	00	96	00
5.03	Wire nails	Kg	25	0.375	1.50	9	30	37	50
5.04	50 mm galv. nails	✓	50	0.87	3-46	43	50	173	00
5.05	Panel pins	✓	10	1.10	4.40	11	00	44	00
5.06	30 x 3.15 B.H. nails	✓	30	0.39	3.90	11	70	117	00
5.07	150 x 12 dia anchor bolts	ESCH	186	0.40	0.80	74	40	148	80
5.08	Multi - grip	✓	280	0.75	1-50	210	00	420	00
5.09	37 -x 1.2 galv. strap	COIL	18	20-00	40-00	360	00	720	00
5.10	125 x 12 dia galv bolt	ESCH	300	1.80	3.60	540	00	1080	00
5.11	12 NW nail plate	No.	96	1.05	5.25	100	80	504	00
5.12	12 dia 'U' bolts with washers	No.	32	3.25	6.50	104	00	208	00
5.13	8 blade louvre frames	PAIRS	55	6-68	16-70	367	40	918	50
5.14	6 blade louvre frames	✓	2	5-70	14-25	11	40	28	50
5.15	4 blade louvre frames	✓	5	4.62	11-55	23	10	57	75
5.16	louvre blades (clear)	ESCH	464	0.26	1-30	120	64	603	20
5.17	louvre blades (obscure)	✓	20	0.33	1.65	6	60	33	00
5.18	32 x 8 BWg screws	pkt.	7	3.50	7.00	24	50	49	00
5.19	100 mm brass butt hinges	PAIRS	32	2.50	10.00	80	00	320	00
5.20	32 x 9 g brass screw	ESCH	400	0.08	0.20	32	00	80	00
5.21	75 x 50 Purlins, railings	S'	1200S	34.00	85/100	408	00	1020	00
5.22	25 x 25 ms tubing	ℓ	3	10.00	20.00	30	00	60	00
5.23	50 - 6 ms flat	ℓ	2	12.50	25.00	25	00	50	00
5.24	Welding rod NO 12	pkt	2	2.20	5.50	4	40	11	00
5.25	Cutting disc (300mm)	ESCH	1	4.00	10.00	4	00	10	00
5.26	100 x 50 nogs studs brace O	S'	2800	34.00	85/100	952	00	2380	00
5.27	150 x 50 rafters, joist	S'	2100	34.00	85/100	714	00	1785	00
5.28	50 x50 nogs	S'	900	✓	✓	306	00	765	00
5.29	6 mm int ply O	m^2	525	2.53	8.69	1328	25	4562	25
5.30	250 - 37 fascia board	S'	340	60.00	150.00	204	00	510	00
5.31	75 x 20 eaves batten	S'	360	34.00	85/100	122	40	306	00
5.32	125 x 25 T & G flooring	S'	1400	38.00	95/100	532	00	1330	00
						$6695	59	$17971	50
	TOTAL							$24667	09

6.00	JOINERY	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
6.01	Architraves	m	95	1/20	3/-	114	00	285	00
6.02	225 x 25 pelmets	S'	150	34/-	85/-	51	00	127	50
6.03	Shutters (50 x 25)	S'	650	34/-	85/-	221	00	552	50
6.04	Brackets	No.	144	-/24	-/60	34	50	86	40
6.05	50 x 6 dia dyna bolts	No.	288	-/25	-/50	72	00	144	00
6.06	Glazed timber door	No.	4	50/-	150/-	200	00	600	00
6.07	flush panel door	No.	17	50/-	120/-	850	00	2040	00
6.08	Ex 150 x 50 door frame	No.	4	7/-	20/-	28	00	80	00
6.09	Ex 100 x 50 door frame	No.	17	5/-	15/-	85	00	255	00
6.10	Ex 100 x 50 window frame	No.	22	6/-	18/-	132	00	396	00
6.11	Ex 50 x25 door stopper	m	105	-/20	-/60	21	00	63	00
6.12	Window stopper	m	71	-/20	-/60	14	20	42	60
6.13	Skirting	m	145	-/20	1/-	29	00	145	00
6.14	Cornice	m	145	-/20	-/35	29	00	50	75
6.15	50 mm galv. nails	Kg	45	-/87	3/46	39	15	155	70
6.16	37 mm galv. nails	Kg	18	-/87	3/60	15	66	64	80
6.17	Wood putty	Kg	8	-/68	1/70	5	44	13	60
6.18	Sandpaper	m	13	-/80	2/-	10	40	26	00
						$1950	35	$5127	85
	TOTAL							$7078	20

7.00	ROOFER	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
7.01	Cyclonic screws &washers	No.	2700	13/50	-/27	364	50	729	00
7.02	0.55 colorsteel corr. iron	m	265	4/60	9/20	1219	00	2438	00
7.03	0.55 colorsteel ridge cap	m	18	4/13	8/25	74	34	148	50
7.04	400 sisalation foil	Roll	3	11/-	10/-	33	00	330	00
7.05	Pryda strap brace	m	38	-/67	1/33	25	46	50	54
7.06	0.55 Colorsteel flashing	m	45	3/60	7/20	162	00	324	00
						$1878	30	$4020	04
	TOTAL							$5898	34

		UNIT	QTY	L/R	M/R	LABOUR	MATERIAL
8.00	PLASTERER						
8.01	Rubbing stone	No.	3	30/-	30/-	90 00	90 00
8.02	Plaster	m^3	12.69	75/-	150/-	951 75	1903 50
8.03	Timber battening	m^2	4	10/-	15/-	40 00	60 00
						$1081 75	$2053 50
	TOTAL						$3135 25

9.00	PLUMBING	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
9.01	Double bowl sink	ESCH	1	37.00	185.00	37	00	185	00
9.02	Faucet set	✓	1	19.00	95.00	19	00	95	00
9.03	37 mm combination sink waste	✓	1	2.50	12.50	2	50	12	50
9.04	37 mm PVC P trap	✓	1	0.75	12.00	0	75	12	00
9.05	Hand basin	✓	5	12.00	120.00	60	00	600	00
9.06	Pillar cock	✓	5	3.00	20.00	15	00	100	00
9.07	37 mm S trap	✓	5	0.75	12.00	3	75	60	00
9.08	Toilet suite	✓	2	37.00	148.00	74	00	296	00
9.09	12 mm stop cock	✓	7	0.50	20.00	3	50	140	00
9.10	12 mm valve socket	✓	6	0.4	0.85	2	40	5	10
9.11	Urinal with cisten	✓	1	42.00	420.00	42	00	420	00
9.12	75 mm downpipe	l	8	8.38	33.50	67	04	268	00
9.13	50 mm shower grating	ESCH	2	0.70	3.50	1	40	7	00
9.14	37 mm PVC waste pipe	l	4	6.84	27.35	27	36	109	40
9.15	37 mm PVC bend	ESCH	12	0.75	2.35	9	00	28	20
9.16	37 x32 mm reducer	ESCH	5	0.35	1.95	1	75	9	75
9.17	100 mm gully trap	✓	3	1.50	17.25	4	50	51	75
9.18	100 mm C.I. grating	✓	3	1.50	6.00	4	50	18	00
9.19	100.mm PVC bend	✓	5	0.55	8.30	2	75	41	50
9.20	100 mm square junction	✓	3	0.55	11.65	1	65	34	95
9,21	100 mm PVC cowl	✓	1	0.25	2.40	0	25	2	40
9.22	100.mm PVC soil pipe	l	8	16.00	64.00	128	00	512	00
9.23	12 mm PVC pipe	l	5	2.80	7.00	14	00	35	00
9.24	12 mm PVC tee	ESCH	12	0.40	0.85	4	80	10	20
9.25	12 mm PVC elbow	✓	18	0.40	0.85	7	20	15	30
9.26	PVC glue	g	1000	0.01	0.02	10	00	20	00
9.27	PVC gutter	l	15	7.78	15.55	116	70	233	25
9.28	PVC JOINER	ESCH	7	0.55	1.60	3	85	11	20
9.29	Rainwater head	✓	5	1.00	8.45	5	00	42	25
9.30	Gutter bracket	✓	70	0.35	1.25	24	50	87	50
9.31	Plastic dowel	m	1	0.75	1.50	0	75	1	50
9.32	32 x 8g screw	pkt	1	2.00	8.00	2	00	8	00
9.33	Downpipe clips	ESCH	25	0.35	1.65	8	75	41	25
9.34	75 dia pvc elbow	✓	15	1.00	4.50	15	00	67	50
	CONTINUED :								

	continued	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
9.35	75 mm pvc bend	EACH	10	1.00	4.50	10	00	45	00
9.36	Left hand stop end	✓	1	0.65	2.00	0	65	2	00
9.37	Right hand stop end	✓	1	0.65	2.00	0	65	2	00
						$731	95	$3630	50
	TOTAL							$4362	45

						LABOUR		MATERIAL	
10.00	ELECTRICAL	UNIT	QTY	L/R	M/R				
10.01	40 Watts flourescent light	EACH	6	14.00	28.00	84	00	168	00
10.02	20 Watts ditto	✓	12	12.50	25.00	150	00	300	00
10.03	Batten holder with bulb	✓	10	3.25	6.50	32	50	65	00
10.04	Lamp Shade	✓	10	2.50	5.00	25	00	50	00
10.05	Single GPO	✓	7	1.75	3.50	12	25	24	00
10.06	16 mm earth clip	✓	4	0.75	1.50	3	00	6	00
10.07	Single gang switch	✓	9	2.10	4.20	18	90	37	80
10.08	16 mm earth rod	ℓ	1	2.25	9.00	2	25	9	00
10.09	3 gang switch	EACH	1	5.275	10.55	5	28	10	55
10.10	2 gang switch	✓	1	4.325	8.65	4	33	8	65
10.11	No. 3 clip	pkt	2	3.50	7.00	7	00	14	00
10.12	No. 2 clip	pkt	2	3.25	6.50	6	50	13	00
10.13	20. dia conduit	ℓ	20	3.50	7.00	70	00	140	00
10.14	20 dia pvc pipe	ℓ	22	3.80	7.60	83	60	167	20
10.15	20 mm saddle	EACH	12	0.175	0.35	2	10	4	20
10.16	8 amps fuse	✓	4	3.00	6.00	12	00	24	00
10.17	25 mm saddle	✓	12	0.225	0.45	2	70	5	40
10.18	15 amps fuse	✓	4	3.00	6.00	12	00	24	00
10.19	35 amps main switch	✓	2	5.50	11.00	5	50	11	00
10.20	6-hole neutral link	✓	2	4.80	9.60	9	60	19	20
10.21	450 x 400 Zelmite board	✓	1	11.95	23.90	11	95	23	90
10.22	450 x400 Switch board	✓	1	14.40	28.80	14	40	28	80
10.23	50 x 4 mm m/s/nut	✓	48	0.10	0.20	4	80	9	60
10.24	20 x 8g wood screw	✓	48	0.10	0.20	4	80	9	60
10.25	20 x 8g self-tapping screw	✓	48	0.10	0.20	4	80	9	60
10.26	6 mm mains	m	30	1.375	2.75	41	25	82	50
10.27	Clamp	EACH	2	9.00	18.00	18	00	36	00
10.28	16 mm bolts amd nuts	✓	1	2.50	5.00	2	50	5	00
10.29	glue	g	1000	0.01	0.02	10	00	20	00
10.30	20 mm one way junction box	EACH	4	6.25	12.50	25	00	50	00
10.31	20 mm two way ditto	✓	4	8.125	16.25	32	50	65	00
10.32	20 mm three way ditto	✓	4	9.75	19.50	39	00	78	00
10.33	20 mm four way ditto	✓	4	11.375	22.75	45	50	91	00
10.34	Par 38 spot light	✓	2	8.50	17.00	17	00	34	00

continued ....

	UNIT	QTY	L/R	M/R	LABOUR	MATERIAL
Continued					$820 01	$1644 00
TOTAL						$2464 01

11.00	PAINTER	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
11.01	POLISH	ℓ	45	13.20	33.00	594	00	1485	00
11.02	Paint	ℓ	380	3.20	8.00	1216	00	3040	00
11.03	Roller refil with handle	EACH	10	6.00	15.00	60	00	150	00
11.04	Brush	✓	12	1.80	4.50	21	60	54	00
11.05	Turpentine	ℓ	30	0.80	2.00	24	00	60	00
11.06	Poly filler	Kg	4	1.20	3.00	4	80	12	00
11.07	Putty	Kg	4	0.68	1.70	2	72	6	80
11.08	Stain	ℓ	15	2.40	6.00	36	00	90	00
						$1959	12	$4897	80
	TOTAL							$6856	92

		UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
12.00	TILER								
12.01	Vinyl tiles (PC sum)	m²	85	7/50	15/-	637	50	1275	00
12.02	Vinyl tile glue	Kg	25.50	3/50	7/-	89	25	178	50
12.03	Mosaic tiles (P.C. sum)	m²	19	17/50	35/-	332	50	665	00
12.04	Quarry tiles (P.C. sum)	m²	102	17/50	35/-	1785	00	3570	00
12.05	Glazed tiles (P.C.sum)	m²	25	15/-	30/-	375	00	750	00
12.06	Grout	Kg	8	1/50	3/-	12	00	24	00
12.07	Ceramic tile fix	Bag	8	12/50	25/-	100	00	200	00
12.08	Bull-noze tiles	No.	133	2/75	5/50	365	75	731	50
						$3697	00	$7394	00
	TOTAL							$11091	00

PROPOSED TRAINING CENTRE

AT DREKETI

BILL OF QUANTITIES

Shan & Associates
Architectural Designers &
Building Consultants.
74 Suva St.,P.O. Box 14505, Suva.
Phone: 22428, Fiji Islands.

GENERAL SUMMARY

1.00	Preliminary and General	–	$15,920–00
2.00	Excavator	–	1,686–20
3.00	Concretor	–	16,943–60
4.00	Blockwork	–	3,176–60
5.00	Carpentry	–	18,860–10
6.00	Joinery	–	2,961–98
7.00	Roofer	–	6,884–12
8.00	PLasterer	–	1,405–00
9.00	Plumbing	–	3,202–74
10.00	Electrical	–	1,531–65
11.00	Painter	–	3,376–14
12.00	Tiler	–	8,961–00
	TOTAL		$84,909–13

1.00	PRELIMINARY & GENERAL	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
1.01	Site Shed	1						300	00
1.02	Temporary Services							200	00
1.03	Sign board							50	00
1.04	Insurance							320	00
1.05	Transportation		ITEM					3000	00
1.06	Contingency Sum							3000	00
1.07	Door Locks supply (P.C. Sum)							1000	00
1.08	Shower rose (P.C. sum)							50	00
1.09	Overhead and Profit	1						8000	00
	TOTAL							$15,920	00

		UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
2.00	EXCAVATOR								
2.01	Excavate for trench footing	m^3	30	10/-	–	300	00	–	
2.02	Backfill trench excvn	m^3	16	2/-	–	32	00	–	
2.03	Earthfill	m^3	27	3/-	6/-	81	00	162	00
2.04	Hardcore fill	m^3	25	5/-	10/-	125	00	250	00
2.05	Sand blinding	m^3	25	4/-	8/-	100	00	200	00
2.06	Polethene dpc	m^2	240	-/13	-/25	31	20	60	00
2.07	Coral	m^3	4	20/-	40/-	80	00	160	00
2.08	Granular fill	m^3	2	17/50	35/-	35	00	70	00
						$784	20	$902	00
	TOTAL							$1686	20

3.00	CONCRETOR	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
3.01	Mass conc to footings (strip)	m^3	6·10	75/-	150/-	457	50	915	00
3.02	Mass conc to edge beam	m^3	2.62	75/-	150/-	196	50	393	00
3.03	Mass conc to floor	m^3	25·70	75/-	150/-	1927	50	3855	00
3.04	12 mm dia r/steel	m	1758	-/60	-/99	1054	80	2109	60
3.05	6 mm dia reinf steel	m	780	-/75	-/29	585	00	1170	00
3.06	16 mm dia reinf steel	m	300	-/88	1/76	264	00	528	00
3.07	10 mm dia reinf steel	m	265	-/35	-/69	182	85	92	75
3.08	655 m mesh	m^2	357	2/30	4/60	821	10	1642	00
3.09	Formwork to edge of floor	m^2	23	5/-	8/-	115	00	184	00
3.10	Nails	kg	18	-	2/50	-		45	00
3.11	Binding wire	kg	70	-	1/50	-		105	00
3.12	Concrete testing	-	item	-	-	-		100	00
3.13	Plants & equipment	-	item	-	-	-		200	00
						$5604	25	$11 339	-35
	TOTAL							$16943	-60

4.00	BLOCK WORK	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
4.01	150 mm Standard conc. block	No.	720	-/28	-/70	201	60	504	00
4.02	100 mm Standard conc. block	No.	400	-/26	-/65	104	00	260	00
4.03	150 mm bond block	No.	250	-/40	1/-	100	00	250	00
4.04	100 mm bond block	No.	140	-/30	-/75	42	00	105	00
4.05	Grout	m^3	7	70/-	140/-	490	00	980	00
4.06	Mortar - cement	Bags	7	4/50	9/50	31	50	66	50
4.07	sand	m^3	3	4/-	10/-	12	00	30	00
						$ 981	10	$ 2195	50
	TOTAL							$ 3176	60

5.00	CARPENTRY	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
5.01	50 dia. galv. pipe post	ℓ	4	45/-	90/-	180	00	360	00
5.02	150x6mm m.s. plate	ℓ	7	36/75	73/50	257	25	514	50
5.03	Welding rod No. 12	pkt	2	2/20	5/50	4	40	11	00
5.04	Grinding disc. (175mm)	No.	1	2/-	5/-	2	00	5	00
5.05	Cutting disc. (300mm)	No.	1	4/-	10/-	4	00	10	00
5.06	Drilling bit	No.	2	4/40	44/-	8	08	88	00
5.07	6mm m.s. U bracket	No.	7	10/-	20/-	70	00	140	00
5.08	100x 12 dia galv bolts	No.	42	1/20	2/40	50	40	100	80
5.09	150 x 12 dia anchor bolt	No.	76	-/40	-/80	30	40	60	80
5.10	100.x50 Nogs,studs,brace,rails O	s/ft.	1800	34/-	85/-	612	00	1530	00
5.11	150x50 rafter,chords,frame O	s/ft.	1500	34/-	85/-	510	00	1275	00
5.12	150x75 beam	✓	110	34/-	85/-	37	40	93	50
5.13	75 x 50 Purlins, rails	✓	800	34/-	85/-	272	00	680	00
5.14	150 x 25 capping	✓	40	34/-	85/-	13	60	34	00
5.15	2.10 x 0.90 x 4mm int ply	m^2	8	2/95	5/90	23	60	47	20
5.16	150 x 25 T&G Lining	s/ft.	50	47/50	95/-	23	75	47	50
5.17	8 blade louvre frame	Prs.	22	6/68	16/70	146	96	367	40
5.18	4 blade louvre frame	Prs.	4	4/62	11/55	18	48	46	20
5.19	Screw 32 x 8 BWG	pkt.	2	3/50	7/-	14	00	7	00
5.20	Louvre blade clear	No.	176	-/26	1/30	45	76	228	80
5.21	Louvre blade obscure	No.	16	-/33	1/65	5	28	26	40
5.22	Clear glass (4mm)	m^2	5	3/04	7/60	15	20	38	00
5.23	100 mm brass butt hinges	Prs.	15	2/50	10/-	37	50	150	00
5.24	Screw 9 x 32mm	No.	250	-/08	-/20	20	00	50	00
5.25	2.40 x1.20x6mm int ply O	m^2	346	2/53	8/69	875	38	3006	74
5.26	225 x 25 pine pelmet	s/ft.	50	34/-	85/-	17	00	42	50
5.27	900 x 600 x6mm mirror	m^2	0.54	13/-	130/-	7	02	70	20
5.28	150 x 25 T&G Lining O	s/ft.	1000	38/-	95/-	380	00	950	00
5.29	37 x 1.2 gal strap	Coil	12	20/-	40/-	240	00	480	00
5.30	30.x 3.15 dia. b.h. nails	kg	30	-/39	3/90	11	70	117	00
5.31	12n nail plate	No.	40	-/72	3/60	28	80	144	00
5.32	4n nail plate	No.	600	-/24	1/20	144	00	720	00
5.33	10 nw nail plate	No.	80	-/95	4/75	76	00	380	00
5.34	50 x 50 nogs	s/ft.	700	34/-	85/-	238	00	595	00
	continued.....								

	continued.....	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
5.35	250 x 37 fascia board	s/ft	350	60/-	150/-	210	00	525	00
5.36	75 x 20 eaves	✓	380	34/-	85/-	129	20	323	00
5.37	25 mm panel pins	kg	10	1/10	4/40	11	00	44	00
5.38	75 mm galv nails	kg	25	-/80	3/20	20	00	80	00
5.39	50 mm galv. nails	kg	30	-/87	3/46	26	10	103	80
5.40	400 sisalation foil	Roll	4	11/-	110/-	44	00	440	00
5.41	25 x 25 ms. tubing	ℓ	1	10/-	20/-	10	00	20	00
5.42	50 x 6 mm ms. flat	ℓ	1	12/50	25/-	12	50	25	00
						$4882	76	$13977	-34
	TOTAL							$18,860	-10

6.00	JOINERY	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
6.01	Glazed timber door	No.	4	50/-	150/-	200	00	600	00
6.02	Solid timber door	No.	1	50/-	120/-	50	00	120	00
6.03	FLush panel door	No.	4	30/-	100/-	120	00	400	00
6.04	Ex 150x50 door frame	No.	5	7/-	20/-	35	00	100	00
6.05	Ex 100x50 door frame	No.	4	5/-	15/-	20	00	60	00
6.06	Exx100x50 window frame	No.	11	6/-	18/-	66	00	198	00
6.07	Ex 50x25 door stopper	m	45	-/20	-/60	9	00	27	00
6.08	Architraves	m	30	1/20	3/-	36	00	40	00
6.09	Window stopper	m	37	-/20	-/60	7	40	22	20
6.10	Skirting	m	115	-/20	1/-	23	00	115	00
6.11	Cornice	m	115	-/20	-/35	23	00	40	25
6.12	50 mm galv nails	kg.	15	-/87	3/46	13	05	51	90
6.13	37 mm galv nails	kg.	8	-/87	3/60	6	96	28	80
6.14	Wood Putty	kg.	3	-/68	1/70	2	04	5	10
6.15	Shutters (50x25)	s/ft	300	34/-	85/-	102	00	255	00
6.16	Shutter brackets	No.	72	-/24	-/60	17	28	43	20
6.17	Sand paper	m	6	-/80	2/-	4	80	12	00
6.18	50x6 dia dyna bolts	No.	144	-/25	-/50	36	00	72	00
						$771	-53	$2190	-45
	TOTAL							$2,961	-98

		UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
7.00	ROOFER								
7.01	0.55 colorsteel corr iron	m	360	4/60	9/20	1656	00	3312	00
7.02	Type 17 screws & washers	No.	3000	13/50	-/27	405	00	810	00
7.03	0.55 colorsteel ridge cap	m	24	4/13	8/25	99	12	198	00
7.04	0.55 colorsteel flashing	m	30	3/60	7/20	108	00	216	00
7.05	Pryda strap brace	m	40	7/67	1/33	26	80	53	20
						$2294	92	$4589	20
	TOTAL							$6884	12

8.00	PLASTERER	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
	Rubbing stone	No.	3	30/-		90	00	90	00
	Plaster	m^3	5	75/-		375	00	750	00
	Timber battening	m^2	4	10/-		40	00	60	00
						$505	00	$900	00
	TOTAL							$1405	00

		UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
9.00	PLUMBING								
9.01	Toilet pan &cisten	No.	2	37/-	148/-	74	00	296	00
9.02	Urinal with cisten	No.	1	42/-	420/-	42	00	420	00
9.03	C.P. stop cock (shower)	No.	2	-/50	20/-	1	00	40	00
9.04	ditto (toilet)	No.	2	-/50	20/-	1	00	40	00
9.05	Regend 500 hand basin	No.	1	12/-	120/-	12	00	120	00
9.06	Pillar cock	No.	1	3/-	20/-	3	00	20	00
9.07	12 mm pvc staight tap con	No.	6	-/50	8/-	3	00	48	00
9.08	12 mm pvc valve socket	No.	10	-/40	-/85	4	00	8	50
9.09	12 mm pvc pipe	ℓ	6	2/80	7/-	42	00	16	80
9.10	12 mm pvc tee	No.	6	-/40	-/85	2	40	5	10
9.11	12 mm pvc elbow	No.	12	-/40	-/85	4	80	10	20
9.12	50 mm c.l.grating	No.	1	-/70	3/50		-70	3	50
9.13	50 mm pvc pipe	ℓ	1	7/47	29/90	7	47	29	90
9.14	50 mm pvc elbow	No.	4	-/75	2/35	3	00	9	40
9.15	37 mm pvc 'P' trap	✓	1	-/75	12/-		-75	12	00
9.16	37 mm pvc 'S' trap	✓	1	-/75	12/-		-75	12	00
9.17	50 x 37 reducing bushing	✓	2	-/35	1/95		-70	3	90
9.18	100 pvc 90 bend	✓	4	-/55	8/30	2	20	33	20
9.19	100 mm pvc junction	✓	4	-/55	11/65	2	20	46	60
9.20	100.mm pvc connertor	✓	2	1/20	9/35	2	40	18	70
9.21	100 mm pvc gully trap	✓	1	1/50	17/25	1	50	17	25
9.22	100 mm c-1 grating	✓	1	1/50	6/-	1	50	6	00
9.23	100 dia pvc soil pipe	ℓ	3	16/-	64/-	48	00	192	00
9.24	V-drain	ℓ	27	5/-	20/-	135	00	540	00
9.25	pvc gutter	ℓ	15	7/78	15/55	116	70	233	25
9.26	pvc jointer	No.	7	-/55	1/60	3	85	11	20
9.27	Left-hand stop end	No.	2	-/65	2/-	1	30	4	00
9.28	Right -hand stop end	No.	2	-/65	2/-	1	30	4	00
9.29	External corner	No.	1	-/65	5/95		-65	5	95
9.30	Internal corner	✓	1	1/-	5/95	1	00	5	95
9.31	Rainwater head	✓	5	1/-	8/45	5	00	42	25
9.32	Gutter brackets	✓	70	-/35	1/25	24	50	87	50
9.33	100 mm pvc cowl	✓	1	-/25	2/40		-25	2	40
9.34	Plastic dowell	m	1	-/75	1/50		-75	1	50

continued.....

	continued.....	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
9.35	32 x 8g screw	pkt	1	2/-	8/-	2	00	8	00
9.36	PVC glue	g	500	-/01	-/02	5	00	10	00
9.37	D.P. clips	No.	15	-/35	1/65	5	25	24	75
9.38	75 dia PVC downpipes	l	4	8/38	33/50	33	52	134	00
9.39	75 mm PVC elbow	No.	10	1/-	4/50	10	00	45	00
9,40	75 mm PVC bend	No.	5	1/-	4/50	5	00	22	50
						$611	44	$2591	30
	TOTAL							$3202	74

10.00	ELECTRICAL	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
10.01	20 watt flourescent light	No.	7	12/50	25/-	87	50	175	00
10.02	40.watt flourescent light	✓	3	14/-	28/-	42	00	84	00
10.03	60 watt blub with holder	✓	10	3/25	6/50	32	50	65	00
10.04	Single power point	✓	7	5/-	10/-	35	00	70	00
10.05	5 gang switch	✓	3	7/-	14/-	21	00	42	00
10.06	Lamp shade	✓	10	2/50	5/-	25	00	50	00
10.07	No.3 clip	pkt	2	3/50	7/-	7	00	14	00
10.08	No.2 clip	✓	2	3/25	6/50	6	50	13	00
10.09	PVC tape black	roll	1	-/35	-/70		+35		+70
10.10	PVC tape red	✓	1	-/35	-/70		+35		+70
10.11	2.5 mm T.P.S.	m	60	-/75	1/50	45	00	90	00
10.12	1 mm TPS (single)	m	30	-/50	1/-	15	00	30	00
10.13	1 mm T.P.S. (twin of earth)	m	40	-/65	1/30	26	00	52	00
10.14	8 amps fuse	No.	1	3/-	6/-	3	00	6	00
10.15	15 amps fuse	No.	1	3/-	6/-	3	00	6	00
10.16	35 amps m/switch	✓	1	5/50	11/-	5	50	11	00
10.17	6 hole neutral link	✓	1	4/80	9/60	4	80	9	60
10.18	50.x4mm m/s / nut	✓	18	-/10	-/20	1	80	3	60
10.19	1 mm red/black TPS	m	20	-/50	1/-	10	00	20	00
10.20	20.8g wood screws	No.	12	-/10	-/20	1	20	2	40
10.21	20 x8 g self-tapping screws	No.	12	-/10	-/20	1	20	2	40
10.22	300 x300 zelmate board	No.	1	7/-	14/-	7	00	14	00
10.23	Par 38 spot light	No.	2	8/50	17/-	17	00	34	00
10.24	350 x 300 S/board	✓	1	17/50	35/-	17	50	35	00
10.25	16 mm earth clip	✓	1	-/75	1/50		75	1	50
10.26	16 dia rod	ℓ	1	2/25	9/-	2	25	9	00
10.27	16 mm bolts and nuts	No.	1	2/50	5/-	2	50	5	00
10.28	6 mm PVC red wire	m	5	-/50	1/-	2	50	5	00
10.29	6 mm PVC black wire	✓	5	-/50	1/-	2	50	5	00
10.30	2.5 mm earth wire	✓	5	-/45	-/90	2	25	4	50
10.31	20 dia PVC conduit	ℓ	2	3/50	7/-	7	00	14	00
10.32	25 dia PVC conduit	ℓ	1	3/80	7/60	3	80	7	60
10.33	20.mm saddle	No.	12	-/175	-/35	2	10	4	20
10.34	25 mm saddle	No.	12	-/225	-/45	2	70	5	40
	continued...								

	continued.....	UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
10.35	Entry box	No.	1	6/25	12/50	6	25	12	50
10.36	6 mm mains	m	30	1/375	2/75	41	25	82	50
10.37	Clamp No 1	No.	2	9/-	18/-	18	00	36	00
						$509	05	$1022	60
	TOTAL							$1531	65

		UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
11.00	PAINTER								
11.01	Stain	litre	15	2/40	6/-	36	00	90	00
11.02	Primer	✓	60	2/40	6/-	144	00	360	00
11.03	Paint	✓	200	3/20	8/-	640	00	1600	00
11.04	Sand paper	m	6	-/80	2/-	4	80	12	00
11.05	Putty	Kg	3	-/68	1/70	2	04	5	10
11.06	Polly Filler	Kg	2	1/20	4/-	2	40	8	00
11.07	Roller refill with handle	No.	8	6/-	15/-	48	00	120	00
11.08	Brush	No.	10	1/80	4/50	18	00	45	00
11.09	Turpentine	litre	20	-/80	2/-	16	00	40	00
11.10	Undercoat	✓	22	2/40	6/-	52	80	132	00
						$964	04	$2412	10
	TOTAL							$3376	14

12.00	TILER	UNIT	QTY	L/R	M.R	LABOUR		MATERIAL	
	Vinly tiles (P.C.sum)	m^2	120	7/50	15/-	900	00	1800	00
	Mosaic tiles	m^2	15	17/50	35/-	262	50	525	00
	Glazed tiles	m^2	46	15/-	30/-	690	00	1380	00
	Quarry tiles	m^2	50	17/50	35/-	875	00	1750	00
	Ceramic tile fix	Bags	9	12/50	25/-	112	50	225	00
	V.T. glue	Kg	36	3/50	7/-	126	00	252	00
	Grout	Kg	10	1/50	3/-	15	00	30	00
	50 x 12g screws	No.	30	-/20	-/40	6	00	12	00
						$2987	00	$5974	00
	TOTAL							$8961	00

PROPOSED LABORATORY AND EQUIPMENT HOUSE

AT DREKETI

BILL OF QUANTITIES

(BALCONY ONLY).

Shan & Associates
Architectural Designers &
Building Consultants.
74 Suva St.,P.O. Box 14505, Suva.
Phone: 22428, Fiji Islands.

GENERAL SUMMARY

1.00	Preliminary and general	–	$1040-00
2.00	Concretor	–	4768-00
3.00	Tiler	–	4719-75
	TOTAL	–	$10527-75

		UNIT	QTY	L/R	M/R	LABOUR	MATERIAL	
1.00	PRELIMINARY AND GENERAL							
1.01	Overhead and profit	1	ITEM				1000	00
1.02	Insurance	1					40	00
	TOTAL						$1040	00

		UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
..00	CONCRETOR								
2.01	Concrete mass 0	m^3	13	70/-	150/-	910	00	1950	00
	10 dia bars 0	m	840	-/35	-/69	294	00	579	60
	12 dia bars	m	456	-/60	-/99	273	60	451	44
	Formwork	s^1	500	20/-	40/-	100	00	200	00
	Nails	Kg	4	—	2/50	—		10	00
						$1577	60	$3191	04
	TOTAL							$4768	64

		UNIT	QTY	L/R	M/R	LABOUR		MATERIAL	
3.00	TILER								
3.01	Bull-nose tiles o	No.	133	2/75	5/50	365	75	731	50
3.02	Quarry tiles o	m^2	80	17/50	35/-	612	50	2800	00
3.03	Ceramic tile fix	B&C	5	12/50	25/-	62	50	125	00
3.04	Grout	Kg	5	1/50	3/-	7	50	15	00
						$1048	25	$3671	50
	TOTAL							$4719	75

Fax: 302452
Telex: FJ2449
Telephone: 301829
302522

6 — 3 指名通知

Japan International Cooperation Agency

3rd Floor
Dominion House
Private Mail Bag
Suva, Fiji.

業者への指名通知(許可社以外)

7 March 1990

LABASA BUILDERS Ltd.
P O Box 95
LABASA

Dear Sir

Re : Invitation to Bid for the Construction of the Training Centre and Laboratory & Equipment House in the Pilot Infrastucture Improvement Works on the Improvement of Rice Cultivation Technology Project.

Japan International Cooperation Agency (JICA) Suva Office hereby invites bids for abovementioned project which is situated at Dreketi in a compound of Ministry of Primary Industries (MPI). The conditions of the works are as follows:

Training Centre : Size 16m(L) x 8m(W) with timber bungalow
Laboratory & Equipment House : Size 14m(L) x 8m(W) with two (2) stories of concrete column and block wall

Bids documents shall be available at JICA, Suva Office on 9 March 1990 at 9:00am.

Thank you

Mr Yoshio YOSHIDA
RESIDENT REPRESENTATIVE of JICA
Suva Office

JAPAN INTERNATIONAL COOPERATION AGENCY ★ JICA IN FIJI

BEGG CONSTRUCTION LIMITED

PHONE: 393981
RES: 392122

Managing Director: ALIM BEGG

P.O. BOX 6132
NASINU.

23rd March, 1990.

Mr. Yoshio Yoshida,
President Representative,
J.I.C.A,
SUVA.

Dear Sir,

Re: QUOTATION FOR THE TRAINING CENTRE AND THE LABORATORY AND EQUIPMENT HOUSE IN THE PILOT INFRASTRUCTURE IMPROVEMENT WORKS AT DREKETI.

Our revised quotation price for the above mention project is for the sum of F$ 122000.00 (ONE HUNDRED TWENTY TWO THOUSAND DOLLARS ONLY).

(A) The following items will be deleted as discussed :-

(a) Contingency sum	$10,000.00
2) Door Locks	4,000.00
3) Selected Lights	900.00
4) Plywood from 6mm to 4mm	5240 .00
5) Quarry tiles	2,340.00
Total Sum	$130360 .00

(b) IN TRAINING CENTRE

1) Floor height 600mm→300mm	400.00
2) Timber railing	500.00
3) Footpath from conc to gravel and width to 60cm except entrance area	500.00
4) Partition & doors	2,500.00
5) Change reinforcement slab 665 to Ø6 bars at 300 c/c bothways	500.00
6) Reduction and price of mazaic tile and height for the glazed tile	500.00

(c) LABORATORY AND EQUIPMENT HOUSE

1) Storage partition and beside shower and toilet area also doors	350.00
2) Provision for waste pipe, 5 only handbasin deleted and additional handbasin	200.00
3) 9 nos. of louver windows from (W1,W15,W18 to W21, W24 to W26)	260.00

4) Footpath conc → Gravel with 60cm width except entrance area — Manager	$500-00
5) Toilet & Shower wall glazed 180cm → 135cm also reduction in the area of mazaic tile	400.00
6) Slab reinforcement 665 mesh→Ø6 bars at 300c/cs bothways	500.00
7) Half the portion of balcony	1,250.00
TOTAL	$122000 .00

We thank you for allowing us to give quote.

Yours faithfully,

.....

M.S.BEGG

MANAGER

Japan International Cooperation Agency

3rd Floor
Dominion House
Private Mail Bag
Suva, Fiji.

CONTRACT
OF
THE TRAINING CENTER AND LABORATORY & EQUIPMENT HOUSE WORK
OF
THE PILOT INFRASTRUCTURE IMPROVEMENT WORKS
FOR
THE IMPROVEMENT OF RICE CULTIVATION TECHNOLOGY PROJECT

CONTENTS

CONTRACT AGREEMENT

THIS AGREEMENT is made entered into this 27th day of March 1988 at the JICA Fiji office between Japan International Cooperation Agency , Fiji Office by YOSHIO YOSHIDA, Title Resident Representative as its authorized representative of Fiji Office, hereinafter called "The JICA" of the one part, and Begg Construction Ltd., whose office is situated at P.O.Box 6132 NASINU Represented by ALIM BEGG, Title Managing Director hereinafter called "The Contractor" of the other part WHEREAS The JICA is desirous that certain Works should be constructed, viz : TRAINING CENTER AND LABORATORY & EQUIPMENT HOUSE WORK of The Pilot Infrastructure Improvement Works for the Improvement of Rice Cultivation Technology Project and has accepted a Tender by the Contractor for the construction and completion and maintenance of such works.

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS :-

1. In this Agreement words and expressions shall have the same meaning as are assigned to them in the Conditions of Contract hereinafter referred to.

2. The following Documents shall be deemed to form and be read and construed as part of this Agreement viz :
   (a) The Postscript Tender
   (b) Instruction for Tendering
   (c) Terms and Conditions
   (d) The Specification of Annex I
   (e) The Drawings of Annex II
   (f) The Bill of Quantities

3. In consideration of the payments to be made by the JICA to the Contractor as hereinafter mentioned, the Contractor hereby covenants with JICA to construct, complete and maintain the Works in conformity in all respects with the provisions of the Contract.

4. The JICA here by covenants to pay the Contractor of the construction, completion and maintenance of the Works, the Contract price at the times and in the manner prescribed in the Contract.

AS WITNESS The hands of the parties here to the day and year above written.

Signed by ALIM BEGG

on behalf of the Contractor BEGG CONSTRUCTION LTD

in the capacity of MANAGING DIRECTOR

in the presence of (M. ISHIDOYA)

AND

Signed by Yoshio Yoshifa

on behalf of Japan International Cooperation Agency in the capacity of The Resident Representative in the presence of (Y. WATANABE)

Signed by Witness M. SHAFIK BEGG.

THE COMMON SEAL OF BEGG CONSTRUCTION LTD DIRECTOR

JAPAN INTERNATIONAL COOPERATION AGENCY JICA IN FIJI

x: 302452
ax: FJ2449
ephone: 301829
302522

Japan International Cooperation Agency

3rd Floor
Dominion House
Private Mail Bag
Suva, Fiji.

Letter of Agreement

Ref. No. PIWD-03-001

24 March ,1990

Begg Construction Ltd.,
P.O.Box 6132 NASINU.

Dear Sir,

RE : THE TRAINING CENTER AND LABORATORY & EQUIPMENT HOUSE WORK OF THE PILOT INFRASTRUCTURE IMPROVEMENT WORKS FOR THE IMPROVEMENT OF RICE CULTIVATION TECHNOLOGY PROJECT

I refer to your tender for the above mentioned in the sum of F$ 122,000.00 and advise of its acceptance by Japan International Cooperation Agency (JICA).

Please realized with my Engineer (JICA), 3rd.Floor,Dominion House, Suva, for the signing of the formal Agreement and attending to other matters pertaining to this Contract.

Thank you.

Mr.Yoshio YOSHIDA
Resident Representative of JICA.
Fiji Office

JAPAN INTERNATIONAL COOPERATION AGENCY ★ JICA IN FIJI

cc : Project Engineer (JICA)

CONDITIONS OF TENDER

Tender Documents for the Bids of Training Centre and Laboratory & Equipment House work are as follows.

3. Nature of Work.

(1) The construction or the completion of construction of Training Centre and Laboratory & Equipment House located in the compond of the Ministry of Primary Industries (MPI) at Dreketi Northern Division.

4. Instruction for Tendering.

(1) The Tenderer is to complete the annexed Tender, the Bill of Quantities and the schedule appended with the whole of the prices and information called for thereon and is to sign and date each of the Documents in the spaces provided for the purpose. The rates and prices must be shown both in writing and in numerals whereever so required in the Tender Documents. The Bill of Quantities must be priced and totalled in ink with no blank spaces left; every item must be either priced or provided with a reference to the other item or items, therefore under which the cost has been included. No unauthorised alterations or addditions are to be made to the Form of Tender, to the Bill of Quantities or to any other of the Contract Documents. If any such additions or alterations is made, or if the Bill of Quantities is not properly completed, or these instructions are not fully complied with, the Tender will be rejected.

(2) The rates and prices entered against each item in the Bill of Quantities are to be the full inclusive value of the finished work for that particular item, and are to cover profit and all obligations of every kind borne by the Contractor under the terms of the contract.

3) If our Tender is accepted we will obtain either the guarantee of an insuarance company or a Bank (to be approved by you) to be jointly and severally bound with us in a sum not exceeding 10percent of the above named sum or furnish a Performance Bond in an amount equal to 10 percent of the above named sum for the due performance of the contract.

4) We agree to abide by this Tender for the period of 60 days from the date fixed for receiving the same and it shall remain binding on us and may be accepted at any time before the expiration of the period.

5) Unless and until a formal Agreement is prepared and executed this Tender, together your written acceptance thereof shall constitute a binding contract between us.

6) We understand that the quantities set out in the Bill of Quantities are only estimates and their accuracy will in no way effect the validity of the Tender of the Contract based thereon. The actual sum paid shall be determined by measuring the works executed in accordance with the Contract and valuing it at the rates and prices inserted in the Bill Bill of Quantities.

7) We understand that you are not bound to accept the lowest or any tender you may receive, and will no refund any cost incurred by the Tenderer in the preparation and the submission of the Tender.

8) If our tender is accepted then in order to prepare a formal Agreement for the execution of this tender, we will provide insuarance cover including cyclone cover over the constructionand maintenance period for the sum of the contract for the construction period plus the maintenance period and public liability insuarance for the tendered sum for the construction period.

AB

5. Form of Tender

Notes: The appendices form part of the Tender. Tenderers are required to fill all blank spaces in this Tender Form and Appendix 'A' and complete Appendix 'B'

To : Resident Representative, Japan International Cooperation Agency.

Dear Sir,

1) Having examined the Drawings, Terms of Conditions, Specifications and with Bill of Quantities for the Construction of Training Centre and Laboratory & Equipment House in Pilot Infrastructure Improvement Works or the Improvement of Rice Cultivation Technology Project. We the undersigned, offer to construct, complete and maintain the whole of the works comprised in the said "The Pilot Infrastructure Improvement Works for The Improvement of Rice Cultivation Technology Project Contract" in conformity with the said Drawings, Terms of Conditions, Specification and Bill of Quantities for the sum of:

ONE HUNDRED & TWENTY TWO THOUSAND DOLLARS ONLY (F)$122000.00)

or such other sum as may be ascertained in accordance with the said conditions.

2) We undertake if our Tender is accepted to commence works within 7 days of receipt of the Engineer's order to commence, and to complete and deliever the whole of the works comprised in the Contract within 100 days calculated from the last day of the aforesaid period in which the works are to be commenced.

(3) The quantities set out in the Bill of Quantities are estimates only and their accuracy will in no way affect the validity of the contract based thereon. The rates, prices and totals are required for the comparison of tenders received and will not necessarily represent the sum paid to the Contractor for the execution of the work. The actual sum shall be paid will be determined by measuring the work executed in accordance with the Contract and valuing it at the rates or prices inserted by the Contractor in the Bill of Quantities.

(4) The Contractor whose tender is accepted will also be required to enter into a Bond in the specified in the Form of Tender/Appendix 'A' for the due performance of the Contract.

(5) Validity of Tender shall be 60 days from the date of submission of Tender.

(6) If when called upon the Tenderer fails, neglects or refuses to execute Contract Agreement and Bondwithin fourteen days after being required to do so in writing by the Employer and the Contractor will have no claim against the Employer in respect of such acceptance and withdrawal.

(7) The Tenderer should visit the site and obtain for himself on his own responsibility and at his own expense all information which be necessary for him to complete the Tender Documents and entre into a Contract.

(8) The Tender Documents are to be accompanied by a programme showing the Tenderer's proposal for carrying out the works in the time entered in the Appendix 'A' to the Form of Tender.

(9) The Employer reserves the right to reject to any tender without disclosing his reasons and does not bind himself to accept the lowest or any tender unreasonable in his view.

(10) Tender should be sent by registered post, recorded delievery service or delievered by hand in a plain sealed envelope with no indication of the identity of the Tender thereon clearly marked "**Tender for THE TRAINING CENTRE AND LABORATORY & EQUIPMENT HOUSE IN THE PILOT INFRASTRUCTURE IMPROVEMENT WORKS FOR THE IMPROVEMENT OF RICE CULTIVATION TECHNOLOGY PROJECT**" and addressed to:

Mr Yoshio YOSHIDA
JICA Resident Representative
Fiji Office
Japan International Cooperation Agency
Dominion House
SUVA

To arrive not later than 16:00 on Friday 16 March

Appendix 'A'

Amount of Bond or Guarantee	10% of total tender sum
Minimum Amount of Third Party Insuarance	Tender sum
Period of Commencement from Engineer's order to commence	7 days
Time for Completion in calendar days	90 days
Amount of Liquidated damages	0.1% perday of total tender sum
Period of Maintenance	120 days
Limit of Retention Money	10% of total tender sum throughout

Dated this 16th day of March 1990

Signiture _____ in the capacity of

Manager duly authorised to sign tenders

for and on behalf of Begg Construction Ltd, P O Box 6132,

Valelevu, Nasinu.

Address:

APPENDIX "B"

BEGG CONSTRUCTION LIMITED

PHONE: 393981
RES: 392122

Managing Director: ALIM BEGG

P.O. BOX 6132
NASINU.

16th March, 1990.

Mr. Yoshio Yoshida,
President Representative,
J.I.C.A,
SUVA.

Dear Sir,

Re: QUOTATION FOR THE TRAINING CENTRE AND THE LABORATORY AND EQUIPMENT HOUSE IN THE PILOT INFRASTRUCTURE IMPROVEMENT WORKS AT DREKETI.

Our quotation price for the above mention project is for the sum of F$154,120.00 (ONE HUNDRED FIFTY FOUR THOUSAND AND ONE HUNDRED TWENTY DOLLARS ONLY). Training Centre : Size 16m (L) x 8m (W) with timber bungalow Laboratory & Equipment House : Size 14m (L) x 8m (W) with two (2) stories of concrete column and block wall.

The above quotation price is including the menetary allowance which is as follows :-

(a)	Contigency Sum	-	$10,000.00
(b)	Door Locks	-	4,000.00
(c)	Selected Lights	-	900.00

The completion time shall be 100 days subject to good weather conditions, The above price is negotiable on deleting upon unrequired items.

We assure you for our best of workmanship at all times.

We thank you for allowing us to give quote.

Yours faithfully,

.....

M.S.BEGG
MANAGER

Bill of Quantity for the Training House	Items	Quantity	Unit	L/Rate	M/Rate	Labour	Material
	Excavasion	5	m^3	14	-	70.00	-
	100mm Compected Hardcore fill	219	m^2	1.00	-	219.00	-
	Gravel fill 50mm	11	m^3	2.50	16.00	27,50	176.0(
	50mm thick sand bedding	11	m^3	2.50	50.00	27.50	550.0(
	0.005 plyothine D.P.C	219	m^2	30	2.00	65.70	438.0(
	20 mpa filling	39	m^3	15.00	123.00	585.00	4797.00
	665 mesh	224	m^2	.50	4.16	112.00	931.84
	Reinforcement 12Ø bars	480	kg	.25	1.20	120.00	576.0(
	Reinforcement 6Ø bars size 500	150	kg	.25	1.20	37.50	180.
	Reinforcement 10Ø bars	500	kg	.25	1.20	125.00	600.0(
	20mm plaster.	4.5	m^3	15	123.00	67.50	553.5(
	150mm concrete block wall& Plaster with bond beam fillings	80	m^2	14	25	1120.00	2000.(
	Ditto 100mm concrete block wall & plaster with bond beam filling	35	m^2	14	25	490.00	875.0(
	Reinforcement 16 Ø bars	150	kg	.25	1.20	37.50	180.0(
	Reinforcement 12Ø Anchor bolt	60	Nos.	.20	1.00	12.00	60.00
	100x50mm timbers framing works	850	m	1.40	2.00	1190.0	1700.00
	Ditto shapped to stud with 37 x 1,2mm galvenized shapped nacled with as 30x 3.15 Ø bugle headed nails in each leg of10 in each studs of 600 centres.	80	Nos.	1.00	2.50	80.00	200.0(
	6mm Interior plywall lovering & ceiling	430	m^2	2.00	12.00	860.00	5160.(
	50x50 Noggings	180	m^2	1.00	3.15	180.00	567.0(
	3 coats of painting interior and exterior	550	m^2	.80	1.60	440.00	880.0(
12	Timber railings 100x50 long nails	50	m	1.40	2.00	70.00	100.0(
13	Ditto cross rails 75x50 at 150 c/c of 900mm on height	150	m	1.00	1.50	150.00	225.0(
14	50Ø galvanized pipe post	8	Nos.	1.00	25.00	8.00	200.0(
15	150x150 x6mm thick M.S plate butt welded to pipe post & Last in concrete.	8	Nos	1.50	9.00	12.00	72.0(
16	Ditto 75 wide x 6mm thick M'S'V' bracket plate bolted to timber beam with 2-12 Ø bolts and butt welded to pipe post	8	Nos	1.50	9.00	12.00	72.00
17	75x20mm Eaves battern at 12mm apart by 600mm over hang	480	m	.50	.70	240.00	336.0(

	Items	Quantity	Unit	L/Rate	M/Rate	Labour	Material
28	250x37mm fascia	65	m	3.00	5.00	195.00	325.0(
	standard P.V.C gutter	34.4	m	.20	5.00	6.88	172.0(
0	Ditto gutter joiners	10	Nos	.20	2.00	2.00	20.0(
1	Ditto gutter brackets at 450 c/cs	80	Nos	th1.30	1.20	24.00	96.0(
2	Ditto 75mm down pipe of 6m with bracket with elbows.	2	Nos	1.00	35.00	2.00	70.00
3	100mm waste pipe with filting and Vent pipes	3	Nos	2.00	55.00	6.00	165.0(
4	0.55mm colour bond steel corr iron roof	215	m^2	1.00	9.80	215.00	2107.(
5	150 x 75 mm timber beam	17	m	2.00	5.00	34.00	85.0(
6	Ditto stap 2 rafter with 37x1.2mm thick galvernised shapped nail with 5-30 x 3.25ø bugle headed in each leg	7	Nos	1.00	2.50	7.00	17.50
7	150x50 top chord	600	m	2.00	2.60	12.00	1560.(
8	Ditto 10n nail both sides	76	Nos	.30	3.00	22.80	228.0(
9	75x50mm purlins	320	m	.80	1.30	256.00	416.0(
0	Ditto shapped with 37x1,2mm thick galvernized shaped nailed with 3-30 x1.15ø bugle headed nails in each leg	342	Nos.	.80	2.00	273.60	684.0
41	Ditto fixed with 4n nail plate, 1 on each side	304	Nos.	.20	3.00	60.80	912.0
42	150x50mm top chord fixed together with 12N nail plate on both sides	38	Nos	.20	3.00	7.60	114.0
43	Last rafter bolted tocon with 12ø anchor bolt	8	Nos.	.50	1.50	4.00	12.00
44	Ditto 250mm anchor bolt at 900 centre	8	Nos	.50	1.50	4.00	12.00
45	Type 17 cyclone screws	2500		.10	.25	250.00	625.0
46	Ditto 1.25 x 50 x 6m thick M.S washer with 12ø 'V' bolt size 500mm	12	Nos	1.00	6.00	12.00	72.00
47	Timber cyclone shutters 50x25mm	20	m^2	1.50	7.50	30.00	150.0
48	Archihaves	20	m^2	1.00	2.00	20.00	40.0
49	Standard flush doors	4	Nos	10.00	40.00	40.00	160.0
50	Standard penals	6	u	20.00	80.00	120.00	480.0
51	225x25mm perlimat	27	m	2.00	2.80	54.00	75.60
52	Pans & listern complete	2	Nos	5.00	115.00	10.00	230.0

Items	Quantity	Unit	L/Rate	M/Rate	Labour	Material
Urinal complete	1	Nos	10.00	90.00	10.00	90.00
Shower complete	1	"	-	100.00	-	100.00
Btand basins complete	1	"	5.00	35.00	5.00	35.00
Plastered Vinyl tiles 300x300	122	m^2	1.50	15.00	183.00	1830.00
plastered mozaic tiles	10.5	m^2	3.00	35.00	31.50	367.50
Plastered glazed tiles 180 High and painted	40	m^2	10.00	30.00	400.00	1200.00
900x600m	1	Nos	20.00	100.00	20.00	100.00
Quarry tiles 150x100	52	m^2	10.00	35.00	520,00	1820.00
Plumbing	2000		-	-	-	2000.00
Prycla Brase on top of rafter	70	m	.20	1.00	14.00	70.00
Contingency monetary allowance	-	-	-	-	-	5000.00
Door locks	-	-	-	-	-	2000.00
Electrical selected lights only	-	-		450.00	-	450.00
Electrical others						1200.00
L/Frames 8 blades complete	22	Nos.	2.00	24.00	44.00	528.00
Ditto 4 blades complete	4	"	2.00	16.00	8.00	64.00
Penal doors	4	"	20.00	80.00	80.00	320.00
Ditto flush doors	5	"	10.00	40.00	50.00	200.00
Profit, office work and transportation						5255.80
TOTAL					$ 9392.38	52887.74
					$ 62,280.00	

Item Laboratory and House Equipment. Items	Quantity	Unit	L/Rate	M/Rate	Labour	Material
Rein forcement 10Ø Bars	2450	kg	.25	1.20	612.50	2940.0
Excavation	30	m^3	14	-	420.00	-
20 mpa concrete filling	70	m^3	15.00	123.00	1050.00	8610.00
Reinforcement 12Ø Bars	800	kg	.25	1.20	200.00	960.00
Reinforcement 6Ø Bars	150	kg	.25	1.20	37.50	180.00
100mm compacted Hardcoarte fill	205	m^2	1.00	-	205.00	-
25mm sandbedding	5	m^3	2.50	50.00	12.50	250.00
50mm Gravel fill	10	m^3	2.50	16.00	25.00	160.00
Polythene Vasqueen Ø P.C.	205	m^2	.30	2.00	61.50	410.00
Reinforcement 20Ø Bars	3000	kg	.25	1.20	750.00	3600.00
665 mesh 20mm top cover	205	m^2	.60	4.20	123.00	861.00
150mm concrete blockwall with 1-16Ø Bars in Bond Beam at every 4th coarse and starter bars at 600 C/Cs Including painting and plaster.	264	m^2	14	30.00	3696.00	7920.00
Ditto 100mm concrete blockwall with 10Ø bars at 600 c/c including plastering and painting.	60	m^2	14	28.00	840.00	1680.00
12Ø 'V' Bolts cast 300mm min into cone beam bolted to joist with M.S Washers over at 900 c/c with 125x50x6mm washer.	25	Nos.	1.00	8.00	25.00	200.00
Reinforcement 24Ø Bars	350	kg	.25	1.20	87.50	420.00
Ditto Reinforcement 16Ø bars	350	kg	.25	1.20	87.50	420,00
100x50mm framing timber	1600	m	1.40	2.00	2240.00	3200.00
150x50mm framing	1000	m	2.00	2.60	2000.00	2600.00
125x25 T&G Flooring	1000	m	.60	1.40	600.00	1400.00
Joist fixed with 1-12 Ø V. bolts 1200c/c in size 250mm	45	Nos	.25	2.00	11.25	90.00

...s						
...fixed with bottom and top chord	240	Nos	1.00	2.50	240.00	600.00
...strapping all around	230	m	.80	1.30	184.00	299.00
...50 purlins at 750 c/c	450	m	.50	.70	225.00	315.00
...x20mm Eave batterns at 600mm over ...g	60	m	2.80	4.50	168.00	270.00
250x37mm facia board	150	m^2	.30	2.25	45.00	337.50
400 Double sided sisalation	150	m^2	1.00	9.80	150.00	1470.00
Colorbond roofing iron 0.55	15.5	m	.10	4.00	.55	62.00
0.55 Ridge cap color bond	20	m	.10	4.00	2.00	80.00
0.55 flushing color bond	260	Nos	.25	2.00	65.00	520.00
Purlims 75x50 strapping size 500mm	550	m^2	1.00	12.00	550.00	6600.00
6mm Interior plywood	112	Nos	.10	3.00	11.20	336.00
Top chord fixed with 12N nail plate	150	m	.10	.66	15.00	99.00
D.P.C 100mm	112	m^2	1.00	3.15	112.00	5352.80
50x50 noggings	-	-	-	-	-	600.00
Allow ¼ round & Skirting	3000	Nos	.10	.25	300.00	750.00
Cyclonic screws						
250mm anchor bolts for bottom plate fixing size 250mm at 900C/C	60	Nos	.20	1.00	12.00	60.00
Standard P.V.C gutter with joiners.	31	m	.20	5.00	6.20	155.00
Ditto P.V.C gutter brackets	145	Nos	.30	1.20	43.50	174.00
Ditto downpipe with brackets	24	m	.50	6.20	12.00	148.80
Windows 8 blade complete	59	Nos	2.00	24.00	118.80	1416.00
Windows 4 blade complete	5	Nos	2.00	16.00	10.00	80.00
Flush doors	17	Nos	10.00	40.00	170.00	680.00
Penal doors	4	Nos	20.00	80.00	80.00	320.00
Hand basins complete	5	Nos	5.00	40.00	25.00	200.00
Pan& Gstern	2	Nos	5.00	115.00	10.00	230.00
Urinal Complete	1	Nos	10.00	90.00	10.00	90.00
Shower	2	Nos	-	-	-	100.00
Double bowl sink	1	No	10.00	90.00	10.00	90.00
Mozic tiles 300x300	15	m^2	3.00	35.00	45.00	525.00
Glazed tiles 150x150	35	m^2	10.00	30.00	350.00	1050.00
Vinyl tiles 300x300	100	m^2	1.50	15.00	150.00	1500.00

Items	Quantity	Unit	L/Rate	M/Rate	Labour	Material
allow for waste pipe septic & tank and soakage	-	-	-	-	-	1500.0
Electrical	-	-	-	-	-	1500.0
Formwork	250	m^2	1.20	4.50	300.00	1125.0
Contigency sum for monentery allowance	-	-	-	-	-	5000.0
Door locks	-	-	-	-	-	2000.0
Electrical Selected lights only	-	-	-	-	-	450.00
Profit, Transportation and others	-	-	-	-	-	834908
					16504.70	75335.1
						$ 91,840.00

6. Terms and Conditions

1) The contractor will for such prize execute and complete the said works at contractors cost with materials and workmanship of the best quality and in a substantial and workman like manner and in accordance with the said drawings and specifications (Work are the property of the owner) to the reasonable satisfaction of the owner.

2) The contractor shall pay all workman and provide all materials and everything necessary in and for the perfect construction of work.

3) All materials bought on the premises by the contractor shall be deemed to be property of the owner but the owner shall be under no liability for loss thereof or damage thereto arising from any cause whatsoever. Any materials left over after the completion of the said works shall belong to the contractor.

4) The contractor shall conform to the provision of all ordinances, regulations and by-laws relating to the said works and shall pay all necessary fees to all Government, Departments and Local Authorities chargeable in respect of the said works except any building fee.

5) The Contractor shall be given possession of the site on the day Contract signed and shall commence and complete fully the said works in accordance with Appendix 'A' of this clause (Form of Tender) with all reasonablespeed, due care and diligence provided that however if the work be delayed by force inevitable or reasons of execeptionally inclement weather or other authorized extras or additions or strikes or lockouts, reasonable extension of time shall be allowed if the contractor shall without delay expressly in writing request an extension.

6) The contractor shall forthwith make good any defects, shrinkage or other faults which may appeal within 28 days after completion of the work.

7) If the contractor cannot finish the work in the price agreed the owner has full authority to take legal action on the contractor.

8) The contractor shall clean all the dirt and waste materials from the site before handing over the premises to the owner.

9) The owner shall pay the said contract sum in stages of progress and discuss with the contractor for the progress payments on stages.

10) Any extra works other than mentioned in drawings and specifications the owner shall pay extra sum for the additional works.

11) The stages of payment will be as follows:

a) Advance Payment (Within few days after contract signing)

b) Interim Payment I

c) Interim Payment II

d) Final Payment

7. Specifications (Annex I)

1) Specifications for Training Centre and Laboratory and Equipment House.

8. Drawings (Annex II)

1) Drawings for Training Centrew Four Sheets (A1, A2, A3, S1)

2) Drawings for Laboratory & Equipment House Eight Sheets (A1, A2, A3, A3, A5, S1, S2, S3)

Annex I

SPECIFICATION

PROPOSED TRAINING CENTER AND LABORATORY & EQUIPMENT HOUSE AT DREKLTY

Shan & Associates
Architectural Designers &
Building Consultants.
48 High St., P.O. Box 14505, Suva.
Phone: 313625 Fiji Islands.

INDEX TO SPECIFICATION

CONTENTS

AR

NOTICE TO TENDERERS

Scope of work

This contract comprises the construction of a one storey Training Centre and a two storey Labotatory and Equipment House in Dreketi, Labasa. The building is to be completed with associated drainage and earthworks, electrical services and all other works as mentioned in the accompanying drawings and this specification and to the reasonable satisfaction of the consultant.

Time of possession and completion

Tenderer to state his overall completion time when submitting his tender. The site is available for immediate possession.

Conditions of tender

References to General Conditions of Contract and to the Appendices are to the Fiji Standard form of Building Contract and appendices.

Nature of Contract

The contract for which a tender is required in accordance with these conditions area FIXED LUMP SUM with no provisions for labour and material fluctuations in prices.

Sub-Contractors

Prior to any acceptance of tender, the Consultant may require a list of proposed sub-contractors to be supplied for approval.

Tender acceptance

The lowest or any tender may not necessarily be accepted.

SCHEDULE OF MONETARY ALLOWANCE

The following P.C. sums shall be allowed:

1.	Mosaic tiles supply only	-	30.00 per sq.m.
2.	Vinyl tiles supply only		10.00 per sq.m.
3.	Glazed tiles supply only	-	30-00 per sq.m.
4.	Shower rose supply only	-	100-00

Note

Contractor to allow for installation of all supply items.

GENERAL CONDITIONS
The contractor shall comply with the applicable Fiji Standard Form of Building Contract which forms part of this specification and may be viewed at the office of the consultant.

TENDER DOCUMENTS
Conditions relating to tendering procedure are covered by the General Conditions of Tender and appendices attached to this specification.

TENDER TO INFORM HIMSELF FULLY
All tenderers shall inspect and examine the site, its surrounding, and shall satisfy himself before submitting his tender, and as to the nature of the ground and subsoil, the quantities and nature of work and materials necessary for the site, the method of transportations of building materials to the site, the accomodation he may require, the availability conditions and necessary information as to risks contingencies and other circumstances which may influence or affect his tender.
In particular each tenderer shall make all allowance he deems necessary to ensure the works are completed within the contract time, including all over time double time, weekend work and other incidential allowances as required including any delays in transportations of building materials to the site.

CURRENCY
Tender shall only be submitted in Fiji Currency and payments by the employer to the contractor in terms of this contract will be the same.

SCHEDULE OF QUANTITIES
If required by the consultant, the contractor shall forward to the consultant fully priced schedule of quantities within 14 days from the date of request.

CONTINGENCY SUMS
Allow a Contingency sum as set out in the schedule of monetary allowance. The expenditure of this amount being solely at the discretion of the Consultant. Any unexpended balance from this sum shall be deducted from the contract sum.

LIQUIDATED & ASCERTAINED DAMAGES FOR DELAY IN COMPLETION
Liquidated and ascertained damages for delay in completion in accordance clause 22 of the conditions shall be as set out in the appendix. Tenderers shall undertake to complete all works included herein plus any additional authorised work to a value of not more than 10 percent of the contract sum before the date of completion.

EXTENSION OF TIME
Claims for extension of time in respect to additional works may be claimed when pricing the variation. Extensions of time not claimed at that stage will not be recognised.

WET WEATHER
Extensions of time due to wet weather as herein specified should be applied for within 7 days stating parts of the works affected and man-hour losses.

DELAY FOR INCLEMENT WEATHER
The contractor shall allow for average wet weather to be anticipated during the contract period. Unless extra-ordinary circumstances arise in the opinion of the consultant, extension of time shall be granted only according to the number of wet days in that quarter in excess of the average number of wet days shall be determined from the figures recorded by the Meteorology Bureau.

A wet day shall be 24 hours period during normal working days when rainfall exceeds 12mm as recorded by the Meteorology Office.

DRAWINGS AND SPECIFICATIONS

The drawings and specifications shall be carried out to the letter and are intended to be co-operative,ie any works shown in the drawings and not mentioned in the specification or work or material herein specified or described but not shown on the drawings will be executed by the contractor as if specifically shown of mentioned by both.Figured dimensions take preference over scaled dimensions and large scale dimensions take preference over small.

OWNERSHIP OF DRAWINGS

The drawings and specifications are considered solely as instruments of service and must be returned to the Consultantat completion of the contract.

AMBIGUITY

Any errors or discrepancies between drawings and specifications shall be notified by the contractor to the consultant.

INFERRED WORK

All work reasonably to be included as fundamentally necessary for the proper erection and completion of the works shall be deemed to be included, and no variation to the contract sum will be allowed for any such items.

MATERIALS,WORKMANSHIP AND PLANTS

Materials in all trades shall be new and the best of their respective kinds specified and where necessary complying with relevant standards mentioned herein and subject to approval or rejection by the consultant.
Supply all materials ,labour,plant and tools as necessary for the works.The work shall be carried out in a first class tradesman like manner in all respects to the reasonable satisfaction of the consultant in accordance with relevant standards mentioned herein and with the plans and specifications,and such further drawings and detailed drawing as may be provided and in accordance with such instructions,directions and explanations as from time to time may be given by the consultant,and subject to approval and rejection by him.

PERMITS

The consultant,on behalf of the employer will arrange for the building permit. The contractor shall pay all other fees and obtain other permits and give all notices required.The whole of the works shall be carried in accordance with the by-laws and regulations of the local authorities.

INSURANCES

Refer to clauses 18,19,20 of conditions and appendix for insurances that the contractor shall effect.
Cover notes or policies shall be lodged with the consultant for approval prior to issuance of the first progress payment.In lieu of the policy as referred to in the Fiji Standard Form of Building Contract,a "Contractors All Risk" policy may be accepted only with approval of the consultant.The policies shall include the following special risks.

1) Aircraft and articles dropped there from .
2) Damage to works by windstorm.
3) Damage by concussion,whether fire ensures or not.
4) Riots,strikes,civil coremotion and vandalism.
5) Water damage.
6) Storm and/or tempest.

HOARDING,SECURITY AND DUST SCREENS

Allow for all necessary general hoardings as required to keep the general public clear of works ,and to maintain the building secure and burglar proof at all times.

TILER

PROTECTION:

All dressed woodwork finished surfaces, glass, etc. shall be effectively protected against dropping or damage.

APPLICATION:

Wherever possible tiling shall be done after other trades have completed their work to avoid damage to tiles.

MATERIALS:

All materials shall be the best of their respective kinds and styles, be stored on the site protected from damage.

WORKMANSHIP:

The whole off this work under this section shall be caried out by experienced tradesman and shall be guaranteed. Cover and protect the work of other trades from any damage. Inspect all surfaces, before applying all finish. Finished surfaces shall be left free from stain, blemishes and clean on completion. Finish all platering to allow different floor materials to finish flush with one another, Where floor finish changes at a doorway a division strip shall occur under the center of the closed door. Improper laying of tiles will be rejected and shall be refixed by the contractor at his expense.

EXTENT OF WORK:

This section of work includes the supplying and laying of tiles in accordance with the Schedule of Finishes. All tiles and grout colour shall be selected by the Consultant or the client.

POINTING:

Use approved pointing coloured to match the perimeter colour of the tile. Obtain Consultant's approval of colour before proceeding with pointing of tiles.

TILES:

Allow the PC SUm as stated in the Schedule of Monetary Allowances for supply of vinyl, Mosaic and Quarry tiles.

AB

Allow to keep all areas free from dust and debris throughout the works.Ensure that accesses are kept clean at all times and make good of any damage.At least once a week clean down access to consultants satisfaction.

PROTECTION AND STORAGE

The main contractor shall be responsible for all protection and shall provide and fix all necessary temporary protection and adequate weatherproof storage for all components of sub-contractors.Loss through accident,damage or theft shall be the contractor's resposibilities.
Separate sub-contractors shall be responsible for protection of their products during delivery,storage and erection.Upon completion of their respective works the main contractor shall inspect and when approved shall accept all responsibility for protection from date of their acceptance to completion of the contract.

DAMAGE TO ADJOINING PROPERTIES

The contractor shall be responsible for and make good any damage to adjoining properties,fences,streets,footpaths,etc.and shall indemnify the owner against any claims from the local bodies,adjoining owners or others arising out of his operations.The contractor will not assume any rights of access over adjoining property unless approvals are given by the consultant or specified to the contrary at the end of the section.

PROGRESS PAYMENTS AND RETENSIONS

Refer to clause 30 of the conditions for payments,
A retension of 5 percent shall be held upon progress payments up to the issue of the practical completion certificate.The retension will then be reduced to 2.5 percent to cover the defects liability period.

PAYMENTS WITHHELD

The consultant may decline to approve an application for payment and withhold his certificate in whole or in part,or nullify the whole or any part of any certificate for payment previously issued to such an extent as may be necessary in his opinion to protect the owner from loss because of :

a) Defective work not remedied.
b) Claims filed or reasonable evidence indicating probable filing of claims.
c) Failure of the contractor to make payments properly to sub-contractors,or for labour,materials or equivalent.
d) Reasonable doubt that the work can be completed for the unpaid balance of the contract sum.
e) Reasonable indication that the work will not be completed within the contract time.
f) Unsatisfactory execution of the work by the contractor.

When the above grounds have been removed,payments will be made for amounts withheld because of them.

SUBSTITUTION

The contractor may make written request to the consultant for approval of the substitution of materials or construction other than those shown in the specification or drawings.Substitution shall not be made without approval.

INSTALLATIONS BY OUTSIDE WORKMEN

The contractor is to permit access to the premisses by outside workmen employed directly by the owner for installation of equipment,as may be convenient,as portions of the structure become ready.

PROJECT MANAGEMENT

GENERAL

The main contractor shall be responsible for all work, executed under the Contract including the work, executed under the Contract including the work of sub-contractor nominated or otherwise. The main contractor shall be responsible for the proper supervision of all works for which he is responsible and shall take all necessary measures to ensure quality control and faithful workmanship.

PROJECT MANAGER (where applicable)

Immediately after signing the contract the contractor shall appoint an experienced Project Manager. The appointment shall be confirmed in writing with details of his experience and the authority delegated to him.

GENERAL FOREMAN

The contractor shall appoint a competent General Foreman who shsll be constantly on the works during the progress of same, to whom instructions may be given by the Consultant. Instructions given to him shall be deemed to have been given the Contractor. The Foreman must be able to speak English and be able to understand fully the drawings, specification and instructions he has to administer.

The Consultant may require the Contractor to dismiss the General Foreman or any other person employed on the site if such General Foreman or other person shall be incompetent or shall mis-conduct himself for any other good reason to be assigned by the Consultant to the Contractor.

REPLACEMENT

Once approved the contractor shall not replace or withdraw these appointments without the consent of the Consultant.

SETTING OUT

The contractor shall be responsible for the correct detailed setting out of the works as indicated in the contract documents or to provide everything necessary for that purpose and shall, at his own cost, amend any errors during the progress of the works arising from inaccurate setting out. The contractor shall inform the Consultant who shall check and approve setting and final levels before further work is commenced. All measurements and dimensions must be checked prior to setting out. The contractor shall co-ordinate the work of all sub-contractors and will be responsible for all items fitting accurately into place.

POSITION OF FITTINGS

The Consultant or the authorised representative of the employer shall at all time during progress of works have full access to all phases of the work. Contractor shall provide adequate means to facilitate inspection by the Consultant.

SPECIFICATION SECTIONS

This specification is written in section for convenience only, and it is not guaranteed that all works is included solely within one trade section.

The "Preliminary and General" clauses applies fully to all trade sections in this specification.

TEMPORARY FACILITIES

Buildings: The contractor will provide all necessary temporary buildings required for his own use, and that of sub-contractors and specialist contractors. Adequate area shall be set aside specially for perusing the contract documents. Location of Buildings shall be approved by the Consultant.

Temporary toilet facilities shall be provided and kept in a sanitary state, by the Contractor. Remove on completion of the works.

Where required by Local Authorities, hoardings, crossing protection, walkways,

handrails, night lighting will also be provided. If noted at the end of this section that Clerk of Works, Project Manager and/or Consultants facilities are required then these offices shall be at least 3.00 mx3.00m suitable for the purpose required of them

Temporary Services: The contractor will provide and maintain all temporary water, electrical telephone supplies unless noted to the contrary at the end of this section. He shall make available to all sub-contractors and separate sub-contractors. The Contractor shall pay for sll temporary services charges and shall arrange meter reading on the date of practical completion.

SAMPLES & TESTS
All materials proposed or furnished for use shall be subject to inspection and testing by the Consultant either on site, or the shop where such material may be in the course of fabrication. Allow to submit all samples as directed. All costs concerned with tests are to be borne by the Contractor.

HOISTING & SCAFFOLDING
The main contractor will be responsible for the supply instalation, maintenance and operation of all hoisting and scaffolding gear and make available to all sub-contractors and any separate sub-contractors engaged by the Employer.

SUB-CONTRACTORS

GENERAL
No sub-contract shall be let without the approval of the Consultant who shall have power to object to any sub-contractor or to any work being sub-let.

Sub-contractors ether nominated by the Consultant or by the main Contractor shall be the main Contractor's responsiblity, who must order, co-ordinate pay for and direct the works of all sub-contractors and take responsibility for the quality of and materials and time for completion.
The Contractor shall enter into a written agreement with all sub-contracts to the works, such agreements to be to the general approval of the Consultant.

The contractor shall provide a list of proposed sub-contractors within 7 days from reqest by some from the Consultant.

ATTENDENCE & MAKING GOOD
The contractor shall attend upon, cut awy for building in etc., and make good after all trades where and when required and shall make good any damage to existing works, cables, services or other works caused by or attributable in any way to the carrying out of the works.

RUBBISH & CARTAGE
The Contractor shall, when directed by the Consultant clean any areas that are considered by the Consultant to be noticeably dirted or damaged by reason of the contractor carrying out the works eg any public or private road or any area of drain, watercourse or canal, or any area of private land.

SEPARATE CONTRACTS
The owner reserves the right to award contracts in connection with other portions of the Progect under these or similar conditions of the Contract.

When separate contracts are awarded for diffrent portions of the Project, "the Contractor" in the contract documents in each case shall be the Contractor who signs each separate contract.

The contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work and shall properly connect and coordinate his work with theirs.

AB

If any part of the Contractors work depends on proper execution or results upon the work of any other separate contractor, the contractoer shall inspect and promptly report to the Consultant any apparant discrepancies or defects in such work that render it unsuitable for such proper execution and results. Failure of the Contracto so to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper to receive his works, except as to defects which may develop in the other separate contractor's work after the execution of the Contractor's work.

DEFECTS LIABILITY PERIOD

Maintin the works specified in this contract including preventive maintenance as required by this specification for a period as stated in appendix to the Fiji Standard of Building Contract and which shall apply from the date of certificate of practical completion in accordance with Clause 15 of the Fiji Standard Form of Building Contract.

MATERIALS

DEFECTIVE MATERIAL AND/OR WORKMANSHIP

Should materials be used or work done contrary and/or not up to standard herein specified then the Consultant may instruct that this work be dismantled and rebuilt at the expense of the Contractor. However should the material used or work done in accordance with this specification, but which the Consultant do not feel expedient to have corrected the Consultant shall have the power to deduct such sum or sums of money as they shall consider a proper equivalent from the amount due for the Contractor.

MATERIAL ON SITE

Any material delivered to the site for this contract are to be considered as part of the construction and shall not be removed unless approved by the Consultant However the contractor has the right upon completion of the works to remove all his surplus materials.

ORDERING OF MATERIALS

All materials including those to be impo-rted must be ordered within 21 working days of acceptance of the tender. Materials not ordered within this period shall not be used for extension of time claims.

PROCEDURE FOR VARIATIONS

Reference shaould also be made to Clause 11 of the Fiji Standard-Form of Building Contract.

COMPLETION

GENERAL

At practical completion of the works clean all floors sanitary fittings, glass inside and out, remove all paint and putty marks, replace any cracked or broken items. The site both inside and out shall be left thoroughly clean and fit for immediate occupation, weatherproof and to the approval of the Consultant. The All services shall be tested and left in perfect working order.

SIGN BOARD: Provide as per detail

EXCAVATOR

1. GENERAL

Standards: All excavation shall be carried out in accordance with the current Labour Department Regulations.

WORKMANSHIP

All work to be carried out in a safe and competent manner by capable workman.

All building foundation shall be inspected by the Consultant prior to placing of reinforcing steel. Give at least 24 hours notice to consultant.

SCOPE

The scope of this section includes the excavation of all footings, foundations and trenches, etc., and the filling and backfilling necessary to the perimeter of the building and to the floor slab areas includind hardfill, sand, etc., as specified herein or shown on drawings.

2. SETTING OUT

The Contractor shall be responsible for all setting out of all setting out all excavations necessary for the work to be carried out accurately. Prior to proceeding with construction submit to the consultant a registered Surveyor's Certificate and diagram indicating the true location of the works in relation to boundary lines and adjacent existing buildings and building setout.

3. EXCAVATION

(a) Excavate for all foundations, footings, etc., to the level shown. Minimum dept shall be in accordance with the structural drawings, into solid natural ground unless specified otherwise but should satisfactory bearing not be found at this depth excavations shall be carried further down until satisfactor ground is reached. All subsoil from the foundations, etc., shall be removed from the building platform area. Excess material from excavations and back fil shall be distributed on the site where directed by the consultant. Any surplus shall be removed from the site. For wet, muddy areas provide 50mm "Weak Mix" concrete at the base of the foundation excavation.

(b) Timbering: Provide all necessary timbering, shoring, sheet piling, etc., necessary to keep the excavation open and safe for workinf at all times.

(c) Pumping: It is the Contractor's responsibility to keep excavations free of water during building operations.

4. BACKFILLING

(a) General: Backfilling where required shall be carried out neatly to the levels indicated. Sound granular material shall be used for this purpose. All materi used shall be used for thispurpose. All material used shall not contain silt o clay and topsoil. Thoroughly compact in 100 layers using vibrating roller or other approved method.

(b) Retaining Walls: Where indicated on the drawings retaining walls shall be back-filled with sound granular graded material after the application of 3 coatd Flintkote DPC and project from damage with second grade pinex softboard or similar. Behind such walls, lay where indicated "Novaflow" or similar approved field drains of the sizes and positions indicated on the drawings. Surround "Novaflow" with metal for 150mm depth.

5. HARDFILL

(a) Lay consolidated hardfill to a minimum depth of 100 mm or as shown on the drawings, graded hardfill consisting of clean sizes between 9.5mm x 38mm. Thoroughly compact with an approved compactor with particular with particular attention being given to the outside edges.

(b) Blinding: After compaction cover all hardfill with sand. Ensure that the adequately covers all hardfill and that any protruding rocks, etc., are removed or adequately covered with sand.

6. TOPSOIL (where applicable)

Prior to commencing all work topsoil shall be stripped from the building site and stockpiled as shown.

At completion of the works, stockpiled selected topsoil shall be spread around the building area as directed by the Consultant and as necessary to provi even surrounding ground areas by rolling if required. The remainder shall be removed from the site.

7. DEWATERING

The Contractor shall be responsible for any dewatering required to allow him to excavate the areas necessary for the construction of foundations.

BATTERS

All batters shall be clean of all loose or unstable material immediately prior to backfilling.

CONCRETOR

1. General

(a) Concrete

(i) Generally the materials and workmanship for reinforced concrete works shall conform to the requirements of NZS 3109: 1980 unless specified otherwise.

(ii) All concrete work shall be carried out under the constant supervision of an approved person qualified and experienced in the excution of quality concrete work.

Sufficient notice shall be given to the consultant to inspect the different structural work and excavations prior to pouring of any concrete.

(b) Aggregates

(i) Fine and coarse aggregates shall conform to the requirements of NZ,S 3121.

(ii) Dirty aggregates to be washed clean in runing water at builders expense and to the consultant satisfaction.

(iii) Standard material testing to be done at P.W.D. Laboratories unless specified otherwise. Supply samples for preliminary tests of water, cement and aggregates in quantities and containers as laboratory requires. After preliminary tests the approved source and nature of the aggregate supply is not to be altered except by the written permission of the consultant. If the sources is changes new tests are required. Tests made on the aggregates shall be kept on the site and made available. Submit samples of graded aggregate to the consultant before commencing work.

2. MATERIALS

(a) Cement
Ordinary portland cement to NZS 3122 or locally manufactured "Pacific" brand from Fiji Industries Ltd., Suva conforming to A.S.T.M. standards. It shall be delivered fresh to the site in the manufacturers original sealed bags.

(b) Fine Aggregate
Clean natural sand or fine gravel screenings all passing through a 5mm B.S. seive free from salinity, silt organic or other deleterious matter.

(c) Coarse Aggregate
In all cases coarse aggregate shall be crushed metal free from organic or earthy matter and crusher dust. The nominal maximum size of coarse aggregate used shall not exceed 20mm and shall be such that it will pass through a 20mm B.S. seive but will be retained on a 5mm B.S. seive and graded evenly between these limits.

(d) Water
Mixing water shall be clean drinking water conforming to requirements of N.Z.S.S1051: 1953.

3. STORAGE

(a) Cement
(i) Store cement on raised wooden floors on properly constructed dry boards in a weather-proof shed and shall be used in strict rotation of delivery to the site to prevent deterioration. Allow to be sampled 10 days before use in construction. Any cement which has become caked or otherwise

deteriorated or imperfect in any way shall be removed from the site of the works.

(ii) The builder shall ensure that sufficient cement is stored on site to ensure proper progress of the works but excess storage which might result in deteriaration of the cement and the possible and consequent rejection by the consultant should be avoided.

3. CONCRETE STRENGH

Unless otherwise specified the characteristic strengh of the cement shall be 20 MPa cylinder strengh at 28 days. Any concrete which does not conform with the above strengh required shall be cut and removed from the job.

Mix concrete in the following proportions by volume. 3 parts of coarse aggregate: 1½ parts of fine aggregate: 1 part cement.

4. SITE MIX

(a) Proportions

Where mixing of the concrete is allowed the quantity of cementsball be measured by weight at the rate of .033m^3 to 50 kg (1 cu to 94 lbs) the quantities in each batch shall be such that a whole bag of cement is used. The quantities of fine and corse aggregate shall be measured by volume in approved measuring boxes and due allowances for surface moisturing of both fine and coarse aggregates shall be made from the time to time. The builder shall ensure by experiments that the fine and coarse aggregate provide a mixture of maximum density to the approval of the consultant and if necessary at his own expense adgust there proportions as directed by the concultant.

Records of the concrete mixes used shall be kept on the site and made available The proportions of aggregate and cement shall be such that when mixed with an amount of water will produce a mix readily workable into corners and angles of the forms and around reinforcement without segregate or excessive free water to collect on the surface . The resultant concrete will be dense, sound durable and of the required mimmum strengh.

(b) Trial Mix

Prior to the manufacturer of the concret for use in the works, the builder shall prepare suitable trial mixes using the plant, materials and procedures to be adopted in the execution of the works. After checkng the slump the builder shall take sufficient samples from not less than five well distributed positions of sufficient quality to enable the manufacter of three 150mm diameter test cylinders. These shall be tested at an age of seven days and shall achive a crushing strengh of 30% in excess of the specified for works tested cylinders for concrete of the same quality. In the event of any change of source or grading of aggregates, manner of making of the concrete or other deviations from the trial mix procedures, the consultant may order fresh trial mixes to be made at the builders expense.

When trial mix proportions have been tested and approved the builder shall exercise every precaution to ensure that the manufacture of concrete for the works proceed in identical manner to that used in making the selected trial mix. The quality of water shall be varied only as necessary to take due account of the the moisture content of the aggregate and to achieve the slumps specified.

PLACING

No concrete shall be placed under wet weather or other conditions except with such precautions as the consultant may approve.

Immediately before any concreting is commerced all formwork shall be carefully examined to ensure that all dirt, shaving, sawdust and other refuse has been removed by brushing or washing with a hose or other approved means. Traps and temporary doors shall be provided in formwork in suitable positions to enable this to be done.

The inside of timber forms shall be wetted with clean water immediately prior to the placing of concrete unless the forms have been coated with an approved form dressing. No form dressing other than water shall be applied after placing reinfocement in the forms. In the cases surplus water (or form dressing) shall be removed before concrete is placed.

The concrete shall be placed so that the coarse aggregate will not separated from the rest of the material and it shall be thoroughtly worked and consolidated around the steel reinforcement and into all parts of the formwork so that the steel is thoroughly coated and so that no voids or caveties are left. Porous, segregated or honey combed concrete is not accepted and will be rejected.

Concrete shall be placed vertically and as near as possible to its final position. Jolting and vibration of the transporters shall be minimized particulary over long hauls.

If spreading is necessary it shall be done with shovels and not by causing the concrete to flow laterally using a vibration. Use hand spade at form edges to prevent bubbles forming.

Concrete shall not be dropped from an excessive height. The height of fall shall be kept to a minimum and not exceed 2m.

The placing of concrete shall start from the corners of the formwork and from the lowest level if the surface is sloping.

Each load of concrete shall be placed into the face of the previosly deposited concrete not away from it.

Dry mixes shall be used near the top of any lift to help reduce bleeding.

In long wall pours where horizontal layers create cold joints the concrete shall be placed to full depth with a sloping face.

All concrete shall be handled from the mixer or in the case of ready mix concrete from the the agitator truck to the place of final deposit as rapidly as practicably by methods which shall prevent segregatio-. Concrete shall be deposited in place within 30 minutes of delivery from the mixer or truck vechicle or lesser period as may be directed by the consultant. Remixing with or without further addition of water, cement or aggregate to concrete which has partially hardened ie is more than 2 hours old well not be permitted and under no circu-stances shall be placed in the works.

Concrete shall be deposited in horizontal layers and each layer compacted before the next is placed. Each layer should be place in one continous operation. In the case of concrete compacted by vibration a fresh layer may not be placed upon a proceeding layer of concrete unless revibration of the lower layer causes the concrete to become plastic.

In the case of concrete compacted by hand fresh concrete shall not be place upon the preceeding layer after an interval exceeding 45 minutes unless otherwise required by the consultant. Where delays have been too great for the foregoing to be compilied with the surface of the concrete shall be treated as for a construction joint. Concrete shall be placed in layers not exceeding 300mm.

Before fresh concrete is placed upon or against any which has already hardened the surface of the hardened concrete shall be thoroughly roughened, cleaned and washed off with a stiff brush to reveal clean but unloosened aggregate and covered with fresh made approved motar composed of 1 part by volume of cement to not more than 2 parts of sand to a depth of 12mm or with a freshly made cement paste to a depth of 6.5mm immediately before the new concrte is placed against it.

beams, girders, bracket, colums capitals and haunches shall be considered as part of the floor system and shall be placed monolithically therewith.

Unless shown otherwise slab on ground shall be cast in panels on a chequerboard pattern, maximum size of any panel not more than 4800mm. No new concrete shall be cast against panels less than 2 days old.

6. COMPACTION

Unless approved otherwise, compact of concrte shall be carried out principally by use of mechanical vibrators of approved size and type of 5000 c.p.m. minimum frequency. The vibrator is not to be attached to or touch the reinforcement and is to be used for vertical settlement and compaction of positioned concrete only and not to force flow along the framework. Use vibrators to carefully work around reinforcement and embedded fixtures and into all corners of the framework to ensure honey-combing, pitting or places of weakness are eliminated.

7. CONSTRUCTION JOINTS

Construction joints in beams, slabs and columns shall be formed at approximately right angles to their lenght by inserting a temporary board and shall be located where shown on the drawing or as directed by the consultants. Joints in suspended slabs unless approved otherwise shall be formed in positions approved by the consultant as described below. Floor slabs shall be poured in "hit and miss" sections in rectangular panels not exceeding 4800mm in either direction. No new concrete slab shall be cast against panels less than 2 days old. In walls, construction joints shall be made horizontally or vertically unless otherwise approved. In all cases staal shall continued throughout the construction joints. See Fig. 1

Unless otherwise approved construction joints shall not be stripped and prepared for adjoining pours for at least 24 hours in which they occur.

Conreting shall be carried out continuously in sections between indicated or approved construction joints. If in an emergency it is necesary to stop placing conrete before a section is completed bulkheads shall be placed at right. angles to the long axis of the section and the conrete shall be squared up to this bulkhea and the resulting joint treated as a construction as a constructin joint.

8. CURING

The work shall be adequadely protected from the direct rays of the sun and drying winds. After the concrete has set i.e. not more than one hour after the concrete has been placed the exposed surfaces and all concrete and formwork shall be continually damp for not less then 7 days by the use of an approved curing compound or wet bags or hosing, followed by occassional spraying for a futher 7 days

All floor slabs shall be kept moist in accordance with the above by the use of approved airing compound or by covering with 25mm of sand kept wet for 7 days. Ponding of water on slabs will be permitted as an alternative provided the complete surface is covered for the full 7 days.

All other concrete and formwork shall be kept moist in accordance with the above by the use of wet bags.

9. TESTS OF CONCRETE

(a) General

The sampling and testing of concrete shall be in accordance with NZSS 1980.

Tests shall be arranged and carried out by the Builder under direction of the consultant. The Builder shall (except where specified to the contrary) provide all appratus and materials and labour necessary for the execution of the following tests;-

(b) CONSISTENCY

Slups tests shall be made throughout the days as directed by the consultant to check for uniform consistency of the concrete. For ready-mix concrete a slup test shall be made from each truck. The builder shall provide slup cones of 22 gauge P.G.Iron 300mm high, 100mm diameter at the top and 200mm diameter at base. The slup for different parts of the work shall be within the range of 38mm to 75mm. Permission slups within this range shall be in accordance with the consultants instructions but will be approximately as follows:-

For slabs & Footings	50mm ± 12mm
Walls, beams & columns & other confined areas	75mm ± 12mm
Blinding concrete	65mm ± 12mm
Masonry infill	75mm ± 12mm

Consistency Cont.

Should any test disclose a slup greater than directed for that particular part of the work, the concrete in that condition shall not be used in the work but the quantity of mixing water shall be reduced until the proper consistency is attained. Approval to use concrete of any slup doesn't releive the Builder from his responsibility in complying with the requirements of the clause hereunder.

(c) COMPRESSION TEST

The builder shall cast 150mm concrete test cylinders three at a time during a days pour of $4m^3$ and over, and shall provide at least three (3) steel moulds of standard approved design for casting of the cylinders. The cylinders shall be carefully stripped after 48 hours and shall then be immediately placed into a water bath or fog room where the temperature is maintained at 23°c.

Test speciments shall be properly identified as to job site, date and time concrete supplier, batch number, location of sample, slup and cylinder number. The specimens shall be transported to the P.W.D. testing lab in an approved manner and the endorsed test certificates shall be forwarded to the consultant.

The builder shall allow in his tender for delivering tests specimens to the laboratory. The minimum values for concrete test cylinders tested destruction shall be:

14 MPa @ 7 days
20 MPa @ 28 days

Concrete represented by the samples shall be deemed to comply if the average strengh of all three or ant cylinders exceeds the specified compressive strength and neither of the individual strengh vary more than 10% of the average. Where the individual strengh of any two cylinders differ more than 10% from the overall average, the Consultant may at his descretion require further tests to substantiate quality of concrete at Builders expense. Further tests at Builders expense shall also be carried out if any doubt shall arise regarding the strengh of the concrete in the work owing to concrete bing improperly cured or formwork being stripped too early, or accidental overloading or other circumstance attributable to alleged negligence on the part of the builder.

Any concrete which does'nt comply with the above requirements shall be demolished.

10. REINFORCEMENT

(a) Materials

Reinforcement bars shall be free from loose mill scale, rust and any extraneous material which may adversly affect their bonding properly with concrete.

Reinforcing steel for all structural works shall be of mild steel and conform

to NZS 3402 1973 and have a guranteed minimum yeild point of 275 MPa. Deformed bars of pattern to A.S.T.M. A305 shall be used for sizes of mild steel 10mm diameter and over. Weld wire fabric shall conform to NZS 3422 1975. Hard drawn wire reinforcement shall conform to NZS 3421 1975.

Any reiforcing bars that show cracks at bends shall be rejected. Splice length shall be at least 40 x bar diameter if not specifically shown.

Tolerances are as follws:

Lengh and Hook	± 25mm
Heigh of crank	+ 0mm and −10mm
Stripps & tiles	± 12mm

Bends in main bars shall have an internal radius of not less than 4 times the bar diameter. Welding up of main rods will be with the approval of the Consultant only and at the positions indicated by him and shall conform to NZS 4702 1982. These welds shall be made by the flash-butt process. Any other welding of the reinforcement shall be with the a-proval of the Consultant.

(b) GENERAL Placing & Fixing

The Builder is responsible for the accurate cutting, bending, setting out and fixing of reinforcement according to the drawings. Should it be absolutely necessary to substitute different sizes of reinforcement from those shown, the Consultant must first be consulted and he will, if practicable give approval to and full instructions upon such substitutions. The Builder must however arrange to order the correct lenghs required at the beginning of the Contract to minimise the likehood of substitutions being necessary.

Reinforcement shall be accurately fixed and maintained in position with hangers, spacers or stools of metal, plastic or concrete taking into account construction traffic. Unless otherwise detailed support slab reinforcement at maximum 1m centers, except reinforcement 10mm and smaller at maximum 600 centers. All rods shall be secured at laps and intersections with not less than 1.25mm annealed soft iron tying wire or alternatively tack weld after obtaining approval from the consultant. Support foundation steel on concrete cubes and not block pieces or stones.
Bundle bars shall be tied together at 500 centers with 2.65 soft wire.

The Consultant is to be adivised prior to placing of concrete at least 24 hours in order that the steelwork shall be inspected. Work done without his approval will be rejected. Formwork preventing proper inspection of the steel shall be removed.

The Builder shall take great care in setting out steel so to pass through and to ensure that each rod is properly embedded and bonded into concrete. This is particulary necessary at column heads where beam steel crosses. See Fig. 3

Fabric reinforcement to have -50mm side labs and 300mm and laps - all sheets to be laid flat and security wire tied.

(c) STEEL COVER

The cover to reinforcement in a reinforced concrete member shall be measured as the minimum distance between the outside of any reinforcement embedded in the concrete (includind fitments) and the nearest permanent surface of the concrete member excluding plaster render or other surface finishing materials. Concrete cover shall be as scheduled hereunder except where specified otherwise.

	Cover in millimeters			
Against Natural ground	Below Ground level and against approved boxing	Exposed to weather and unplastered	Exposed to weather plastered	Not exposed to weather
Foundations 75	50	-	-	

ntinued.

Cover in millimeters

	Against Natural ground	Below Ground Level and against approved boxing	Exposed to weather and unplas-tered	Exposed to weather and plastered	Not exposed to weather
eams & Columns	75	50	50	40	40
labs	50	30	30	20	20
alls	50	40	40	25	25

11. FORMWORK

(a) General

The contractor shall be entirely responsible for the sufficiency of the whole of the formwork and shall give at least 24 hours notice to the consultant when it is ready for inspection.

Formwork shall consist of suitable material with all joints close enough to to prevent undue leakage of liquid from the concrete.

(b) Workmanship

Formwork shall be so constituted that it accurately conforms to the true concrete shape, level and plumb without excessive plaster thickness and with sufficient strengh and supports to adequately retain its shape during and after placing concrete. Design of all formwork must receive the consultants approval. Work which does not comply or is defective shall be removed and remedied as directed by the consultant. Should the formwork be displaced during concreting or within the period specified for its retention, the concrete shall be removed between such limits ss the consultant may determine a construction joint formed and the section of the work reconstructed to the satisfaction of the consultant,

Formwork for slabs shall be laid with an upward camber to ensure a level ceiling.

Clamps, wedges and bolts shall be used where possible and in preference to nails. Bolt holes within the concrete shall be filled with dry pack.

The use of oil non-staining (non-mineral) on boxing will not be permitted except with approval of the consultant. Proprietary surface retarders or special form release oils may be permitted after approval from the consultan Formwork shall be provided with suitable clean out points to ensure the removal of all foreign matter from the interior before each pour.

(c) Stripping

Formwork to all slabs shall be so constructed as to permit removalof props as directed. Shuttering shall be removed without shack or vibration to the concrete. The minimum time for removal of forms after placing of concre under normal conditions shall be as follows:

Foundation sides	1 day
Walls, columns & beams side	3 days
Suspended slabs & stairs with props left under	10 days
Removal of slab & stairs props	21 days
Sofit of beams	21 days

Provided that the concrete of any floor immediately above shall not be placed until the floor below has attained the required strengh and at least after 28 days.

12. Bolts, Lugs & Tie Rods

Build in holding down bolts, the rods lugs and other fittinfs for wall plates bearers, timber roof ceiling etc. as described in various section of the specification and drawings.

All hooks, bends and lapping reinforcement all shall be done to conform with NZSS 1900 Cnp 9.3A.

13. Damp Proof Course

Where shown on drawings. Lay under floor slabs on grond, 0.2mm polythene D.P.C. over sand blinding on minimum 100mm thick approved hardfill. Carefully check blinding for any protrusions likely to puncture the D.P.C.

Take all joints, protrusions, around pipes, tears etc. with pressure senstive tape. Carry D.P.C. under thickening in slabs and seal D.P.C. to foundation walls. It is essential that the D.P.C. is continous so that dampness cannot penetrate. Prior to pouring of concrete the whole of the DPC shall be checked for any puncture which shall there be treated. The consultant shall be notified prior to the pouring of concrete so that it may be inspected.

BLOCKLAYER

GENERAL

Relevant provisions under "concrete", "reinforcrement" and "formwork" shall apply.

All masonry work shall comply with
(i) NZS 4210 : 1981 Materials and workmanship.
(ii) NZS 3102 : 1983 Concrete masnry units.

2. MATERIALS

All concret blocks shall be Grade A modular units: 200mm, 150mm and 100mm, metric sizes complete with all necessary supplementary units. All blocks shall be true to size square, with clean arises and even and consistent surface texture. Blocks that have chips, cracks or other defects shall be rejected.

Store the blocks clean off ground protect from wet situations. For all cells filled construction use open end bond beam units throught, unless otherwise specified. For intermitentl- filled construction where the vertical reinforcement is placed prior to laying of units, use open units at vertical reinforcement and standard units elsewhere. Where vertical reinforcement is plced after laying, open and units do not to be used.

The minimum compressive block strengh shall be 14 MPa over gross area tested 28 days after manfature.

The contractor shall as and when directed by the consultant have the blocks tested at an approved laboratory at the contractors cost to ascertain the stated required strengh.

3. MOTAR

Motar shall be mixed in the proportion of 1 part cement to one quarter part of lime to three parts of sand provided that the lime may be replaced by an approved plasticiser and water proofing agent in the proportions recommended by the manufacturer. The lime shall be finely ground, clean, fully slaked and seived and free from all foreign matter. It shall not exceed 10% of the cement content. Cement motar mixed more than 20 minutes shall not be used.

Motar shall have a minimum compressive cylinder strengh of 12 MPa at 28 days. Motar must be trowelled to the blockwork to give a full continuous motar bed on each face, tamped to give 10mm even motar joints both horizontally and vertically. Motar must also be trowelled onto the end of each block prior to laying and not laid and the perpends pointed after. Where indicated as fairface, blockwork joints shall be finished concave. When blockwork is plaster joints shall be left raked suitable for plaster finish.

4. GROUT

Blockwork containing reinforcement shall be filled with grout. The grout shall be of 1; 1½; 3 mix with minimum compressive cylinder strengh of 15 MPa at 28 day Use 12mm maximum size crush metal for coarse aggregate.
Before filling clean out all debris and remove projecting motar to obtain a clean and uninterrupted void. Filling shall occur as the walls are built. Fill all cores of block to party walls including unreinforced cores.

Place grout in lifts not exceeding 4 block courses and stop the pour 25mm below course line to form key. Compact thoroughly by means of hand methods.

5. BLOCKLAYING

Concrete blocks shall be laid by experienced tradesman in accordance with the best trade pratice and approved by the consultant. Unless specified otherwise blocks in running bond. Use full blocks thoroughout except where clsers are

required. Material and/or workmanship that does not reach an acceptable standard, or is out of line, or incorrectly laid, etc. will be dismantled and rebuilt at the contractors expense. A tolerance of 3mm in 3m from the vertical and horizontal shall be allowed. Motar joints must be constantly even in thickness and alternate perpends must be in line vertically. Care shall be taken to ensure that control joints maintain a vertical line.

Blocks are not to be laid in wet weather. Blocks shall be wetted but free of surface water before laying. If work that is already laid is exposed to wet weather it shall be covered over with polythene sheets. Wall tops shall be covered with polythene sheets until sill course is filled with concrete. Do not raise any part of a continuous wall more than 800mm above another at onetime.

All work necessarily left at differnt levels shall be raked back.

Lay motar on face shells (ie longtudinal surfaces) or exterior wall units only and not on middle or end webs. Make provisions for and provide all blackout or recessess and build in all fixings or services required by other trades. All block cavities shall be kept clear of motar droppings as work proceeds.

Unless otherwise shown on the drawings terminate all wall panels at top with knockout bond beam or in situ bond.

5. REINFORCEMENT

Unless otherwise shown reinforce blockwall as follows:

(a) Vertically

200mm blockwork - 12mm ϕ @ 600 cts
150mm blockwork - 12mm ϕ @ 600 cts
100mm blockwork - 10mm ϕ @ 600 cts

Starter rods for vertical reinforcement shall be not less than 1000" cast in 500mm for 12ϕ; 400mm for 10ϕ to floor or underside of beam. At all intersections, corners, junctions ends etc. reinforce with 3 - 120

At opening stiffen with 1 - 160 along each side extending from foundation to floor to roof beam.

(b) HORIZONTALLY

200 blockwall 16mmϕ @ 800 cts
150 blockwall 16mmϕ @ 800 cts
100 blockwall 12mmϕ @ 800 cts

Horizontal reinforcement shall be provided in knockout bond beam.

Starter rods for bond beams shall be not less than 1000mm long and continous through the column where possible otherwise bend into column "or at ends. see fig. 2"

7. EXPANSION JOINTS

Where indicated on the drawings all masnry expansion joints are to be constructed with a preformed joint filler consisting of selected impregnated fibres, such as Expandise Joint Filler. The filler is to be the same thickness as the joint width and is to extend through the full thickness of the masnry except where specified otherwise. Ordinary insulation board dipped with creosote will not be accepteble.

8. BUILDING-IN:

(a) Frames: Build in timber door and window frames where fairface blockwork is specified and if requested to do so by themain Contractor. Frames will be set out

complete with fixing by the Carpenter. Protect frames from damage during construction.

(b) Bolts, Plates, etc. Build in all bolts, straps, ground, slap holders, etc. provided by the Carpenter. Ends must be [illegible]

(c) Pipes, etc: Build in pipes, conduits, electrical switch boxes, swicthboard, etc., provided by others.

9. CLEANING DOWN

On completion clean down walls and remove all mortar projections and irregularities. Make good damaged corners, arrises, on surface of fairface blockwork. Patch and make good around pies, etc., penetrating blockwork. Leave walls to be plastered suitable for theapplication of plaster.

10. DEFECTS

Before decorative finishes are applied to a face blockwork all surfaces shall be properly cleaned down; the work will then be inspected and the Architect will direct what attention is required if any defects exist. Generally minor defects may be carefully patched but faulty blocks or damaged blocks will be condemned and must be cut out and replaced. Where blockwork is to recieve paint or other decorative treatment, minor defects may be patched provided that such patching will be completely concealed by the paint, etc., Allow to make good w-ere pipes, e: penetra te the block walls.

11. FAIRFACE BLOCKWORK (where applicable)

All fairface blockwork shall be laid in accordance with the relevant clauses of NZS 1900 Chapter 9.2 (1964)

Block walls shall be perfectly true and plumb. Joints shall be even thickness and shall not vary beyound the tolerance of plus or minus 2mm but shall average out at 10mm over walls. Any blockwork which shows more than 6mm under patt of a 800mm long straight edge placed anywhere across the blockwork surface or more than 3mm under a 600mm straight edge placed anywhere across the blockwork surface will be condemned, broken down Contractor's expense.

Point up with mortar on all faces as the laying proceeds and build in all fixings required and provided by other trades. Generally stretcher bond shall be used and no continous vertical joints will be accepted on sucessive course.

12. CONCEALED PIPEWORK

It is most important that the Blocklayer study the provisions of pipework, wastes and vents which are required to be concealed in the Concrete Blockwork. No allowance will be made for any pipes not treated as specified and will be required to be concealed at the Contractor's expense.

CARPENTER

1. GENERAL

Wait upon all trades, cut or bore timbers as they may require. Provide and fix all blocks, supports and the like. The whole of the carpentary work shall be properly framed together in accordance with best trades practice and be securely nailed., bolted, screwed or strapped. Select timber with care and carefully straighten and level all ceilings, walls, etc, before fixing linings.

2. WORKMANSHIP

Workmanship shall be of the highest standard in accordance with best trade practice. The whole of the work shall be properly framed and the various sections securely spiked and/or strapped together to withstand hurricane and conditions (ie basic wind speed of 65 mps). All finished or partly finished work shall be protected from discolouration, surface injury or other damage from exposure to weather or other causes.

All roof structural framing shall be inspected and approved by the Consultant pri to being covered. The Contractor shall at his own cost remove any lining covering roof framing which has not been inspected by the consultant.

All timber and joinery upon arrival at the site shall be immediately fillet stacked. All joinery, kiln dried timber and all dressed timber shall be protected from the weather and from damage continously before and after instalation.

Between all faces of framing timbers in contract with concrete or concrete block-work place a 3 ply bitumenous fabric.

Reduce to a minimum the cutting of structural members and in no circumstances cut into or check rafters, beams and purlins without approval from the Consultant.

Attachments to concrete and concrete blocks shall be made by means of screws and plate and plugs, bolts either built in or engaging and expanding sockets of the approved design or as detailed.

3. MATERIALS

(a) TIMBER - General

All timber shall be of best quality of the various kinds specified, free from defects making it unsuitable for its particular purpose and shall comply wit the Department of Forestry Grading Rules for Framing No.1, for Joinery No.1 and No.1 Dressing Grade.

All framing timber must be structurally sound, and joinery free from knots and other defects, and be thoroughly sessoned and shall be gauged to depth and/or width. All joinery timber shall be selected in straight long clear lenghs free from knots or other defects and be thoroughly seasoned,

All timber shall be air or kiln dried to18% approx. maximum Equilibrium Moisture Content. Timber for air conditioned areas shall be 12% EMC .

All timber shall be treated against decay and insect attack, in accordance with the "Guide to the Use of PreservativeTreated Timbers", issued by the Deparment of Forestry, 1971.

Treatment shall be by the pressure method using Tanalith process.

(b) Perservative Treatment.

Perservative retentions shall be as folows:-

(1) For timbers out of ground contact and continously protected from the Weather, s

as generally wall, ceiling and roof framing, 3.5kg/cubic meter retention of Boliden K3, or Tanalith NCA and 4.2kg/cubic meter Tanalith C.A.

(ii) For timber out of ground contact but not continuously protected from weather frames such as posts, fascias, doors and windows including frames, barge boards and alith moulds, etc., 6.9kg/cubic metre of Boliden K33 or Tanalith NCA, and 8kg/cubic coremetre Tanalith C.A. both subject to the achievement of core loadings.

(iii) For timber in ground contact situiations in normal conditions prevailing in either wet or dry zones in Fiji,10 - 18 kg/cubic metres,as approved by ed Forestry Department.The contractor shall supply certified documents on the consultants request certifying timber complying with above.

(iv) Marine usses exposed to marine boring organisms 48kg/cubic metre.

TIMBER SPECIES

All timbers shall be treated as stated above except where specified provisions is made in the guide for the non-treatment of heart wood.
Timber species shall be: (Tr.= treated).

Unless specified in drawings the following timbers shall be used (exposed timbers shall be of one species only).

General roof framing	Tr.Kauvula Tr.Damanu Local hardwood.
Floor framing,joists etc.	Tr.Kauvula.
Flooring	Damanu.
Balustrades(exterior and interior)	Dakua makadre Dakua salusalu Tr.Kauvula.
Frames	Hardwood,dakua.

Substitution of alternative species shall be done only after obtaining the written approval of the consultant.and no extra will be allowed for any substitution.The moisture content of the timbers shall be strictly adhered to.The consultant reserves the right to submit any timber to a recognised testing authority for,testing and report at the contractors expense.
The contractor shall replace at his own expense any timber which has been damaged or shrunk on finished work caused through the use of imperfectely seasoned timber.All dimensions on the plan are relative to rough sawn sizes unless stated otherwise.

NAILS,SCREWS,BOLTS,JOINTING,ETC.

All nails shall be galvanised and in exposed work punched 3mm past finish. They shall be long enough to enter the second timber for atleast ½ their length before being punched. All screws exposed to outside shall be solid brass.Bolts,nuts,washers,etc.shall be galvanised .

SPACING

The distance between timbers and to the centres of framing are to be required as maximum,and where spacing works out differently,the distance between centres shall be lessened by the insertion of extra timbers.

PRIMING

Remove all arises, rough and uneven patches, hammer marks machine marks and other surfaces defects to the satisfaction of the consultant before any finishing medium is applied.

The carpenter shall be responsible for priming with genuine pink primer before erection all surfaces of wood and all joints to interior work in contact with plaster or blockwork and painted exterior woodwork, including joinery. All rafters beams and sarking which are exposed shall have a primimg coat applied before erection.

NOTE: Do not prime timber which are to be clear finished or stained. It is the contractors responsiblity to ensure that timber being finished with oil stain or vanish shall receive their correct first coat.

JOINERY & HARDWARE

STANDARDS

The following standards shall form part of this specification.

NZS 3601: Metric dimension for timber
NZS 632 : The Kiln drying og timber.

WORKMANSHIP:

GENERAL:

All joinery and finishings shall be made, framed and finished in accordance with best trade practice. All timber machine dressed and hand finished, sanded to perfect surface.

All joinery and cabinet work shall not be installed until roof are on. Protect surfaces from weather and damage.

Frame and finish using methods of practice with mortice, and tenon, dove tail, tongue and groove, mitre, etc. Secret fix and clear finished work from the inside, where these impractical heads of screws and bolts shall be counterbored and plugged with matching timbers.

Build all plugs, ground, etc. for adequte fixing of joinery and cabinet work.

Remove all sharp arrisses, and rough and uneven surfaces, harmer marks and other defects before painting or staining is commenced.

Site meas-re all works.

Skirting, moulding, architrave, etc. shall be mitred and scribed at angles. Running joints shall be at minimum and to the Consultant approval for position.

Finished work showing wraping, twistng or shrinkage shall be replaced.

PRIMING

Exterior joinery shall have meeting faces and joints primed dusring assembly. All joinery shall have the first coat if finish applied immediately after manufacture and before leaving the Joiner's shop.

MATERIALS

GENERAL

All timber shall be of best quality of the various kinds specified, free from defects, making it unsuitable for the its particular purpose and shall comply with Department of Forestry Standard grading Rules for Joinery No. 1.

Moisture content for exterior use timbers: shall be maximum of 17% plus or minus 3% of the figure stated for the applicable zone in the follwing schedule.

Moisture content for interior use timbers shall be within plus or minus 3% of the stated figure for the applicable zone in the following schedule:

Wet zone : (Suva, Nausori, Lami, deuba, Korovou, Savusavu, Taveuni)
17 Percent

Intermediate : (Labasa, Sigatoka, Vatukola, Rakiraki)
15 Percent

Dry zone : (Lautoka, Nadi, Ba)
14 Percent

PREPARATIONS FOR HANDING OVER:

Before handing over the building to the Owner, the Contractor shall properly prepare the building for occupation and use. He shall remove all rubbish and gear, check and adjust all hardware, present all keys and in all areas where linings are applied employ an approved firm of commercial cleaners to wash down all washable surfaces and polish all floor coverings. All glass throughout the building shall be washed and free of marks, paint spots, etc., and all floors where no floor coverings are applied will be swept and hosed down after which all floor channels, traps, floor drains and sumps shall be cleaned out. All foreign materials, nails, silt, etc., to be removed from all gutters.

INTERIOR FINISHING:

Provide and fix all architraves, window boards, conice moulds, cover beads, quadrants etc. as may be required whether specifically mentioned or not to ensure a neatly finished job.

The Consultant may require the contractor to submit timber for testing by the Forestry Department. The engineer may require the contractor to replace joinery in which defects occur through improper.

EXTENT OF WORK

This includes all joinery items mentioned herein or shown on the drawings.

Supply all finishing timbers to the Carpenter for fixing.

FRAMES

WINDOW FRAMES

Shall be of the sizes and profiles indicated on the drawings and window schedule.

DOOR FRAMES

Shall be of the size and profile indicated on drawings and door schedule. Frame shall be completed with 12 min thickness planted stop glued and nailed.

SASHES

Sashes shall be of the sizes, profiles and details indicated on the drawings. Complete with all rebates grooves as detailed. Construct sashes complete with complete with mortice and tenon joints at corners.

DOORS

General: All hardware will be provided and fitted by the Carpenter unless otherwise specified. Supply all doors to the Carpenter for hanging in frames. Refer to drawings and door schedule.

WINDOWS

General: All hardware will be supplied and fitted by the Carpenter unless otherwise specified.

Supply windows to the carpenter for hanging on frames refer to drawings and window schedule.

FINISH

All dressing grades shall be machine dressed and in addition all finishing timbers shall be scraped and sandpapered by hand to a smooth even surface, ready to receive painting and polishing. No machine marks, hammer marks or surface defects shall be visible in finishing work. Punch all nails and remove all arises. Where polished work is specified, the timber shall be carefully matched for uniformity of colour grain and texture to ensure a uniform finish.

CYCLONE SHUTTERS: (where stated)

Provide timber cyclone shutters made ex 50x25 battens spaced maximum 20mm apart and ex 50x25 bracing. Fix 50x3mm MS Brackets onto frame for shutters and number all brackets and shutters. (Allow to paint shutters and brackets)

HARDWARE

All hinged doors unless otherwise specified will be hung on 3/100mm butt hinges.

Door furniture shall be positioned:

Knob furniture	800 off floor
Lever & Furniture	1250 off floor

Refer to Consultant for any other hardware used.

See Monetary allowance for supply of other hardware items.

PREPARATIONS FOR HANDING OVER:

ROOFER

STANDARDS:

All roofing shall be applied strictly in accordance with the manufacture's instructions by specialist firms approved by the Consultant. Any discrepency between the manufacturer's instructions and the specification shall be refered to the Consultant for decision.

GUARANTEES:

Written guarantees for the periods as noted in Section 3 shall be provided against defects in the materials and workmanship and handed to the Consultant on the completion of the works.

CO-OPERATION:

Allow to co-operate with the Plumber in the installation of all flashing, location of pipes, downpipes, spouting, vents, etc.

MATERIALS:

All materials shall be the best of their respective kinds free from defects and suitable for the job they have to perform . Allow to store materials in such a manner as to prevent damage. Leave the roof surface completely water-tight at completion of the work.

WORKMANSHIP:

Workmanship shall be of the highest standard and in accordance with manufacturer's recommendation to the satisfaction of the manufacturer and the Consultant.

SCOPE:

This section of the work includes the laying of all roofing types, downpipes, gutters, spoutings, flashings, skylights, etc. mentioned in the following clauses and indicated on the drawings.

ROOF INSULATION:

To all roofs lay singles sided Sisalation 400 foil, lapped 150mm at joints and well stapled to the top of purlins.

FLASHINGS, CAPPINGS, ETC.

All flashings, etc., shall be formed using 0.8 mm soft zinc sheet with 1½ oz. zinc coating. All exposed cappings, flashings, etc., to main roof fascia shall be formed out of Zincalume steel.

Flashing and gutters shall be jointed rivetting, bolting and seal with G.E. silgaze silicone rubber sealer with mechanical fasteners in accordance with manufacturer's instructions. Sealer shall be Selleys building sealant 790 or other approved sealer.

SOLDERING WILL NOT BE PERMITTED:

Make provision for expansion joints at 9000mm centres.
Flashings set into concrete or blockwork shall be painted one coat bituminous paint. Elsewhere prime flashings all around before fixing with one full coat of approved galvanised iron zinc rich primer.

Provide flashings, etc., to parapets, down side of walls at junction with roofs etc., and wherever required to leave building fully water-tight whether specifically mentioned or not.

FIXING METAL FLASHINGS, CAPPING, ROOFING, ETC.

As recommended by roofing manufacturer to withstand a basic wind velocity of 65 metres per second. Lap all flashings 100mm with roofing. Do not use pop

riverting for fixing flashings, coppings, etc. Use self taping galvanished screws.

PIPES & VENTS:

Flash all pipes and vents through roof in zinc.

CLEAN UP:

Use soft broom.
Sweep roofs and gutters, clean up all debris, (nuts screws, cuttings, fillings, etc.) at least at the end of each day's work.

COMPLETION :

At completion leave all roofs free of debris, clean all gutters, downpipes, ensure all flashings are securely fixed and leave the works all waterproof and in perfect condition.

PLASTERER

GENERAL:

Only best trade practices shall be followed. Unless instructions are given for special finish all surfaces shall be trowelled to smooth, even and true surface and left free from any blemishes, stains, or joint marks. Plaster shall be used within 30 minutes after adding water. No plaster which has begun to set shall be knocked up and re-used. Any portion of the work rejected or found damaged or washed off by rain shall be removed and re-done at contractors expense. Plaster droppings on the floor must be collected and re-used for plastering. Plaster work should only commence after all chases, holes and services pipes, electric conuits, etc., are in place for the particular area to be plastered. All plaster work shall be properly protected and cured by spraying water for at least 7 days after hardening.

STANDARDS:

The following standards shall form part of this specification:

NZS 2129 1967 Class A NZSS 1844

PROTECTION:

All dressed woodwork, finished surfaces, windows, glass, etc. shall be effectively protected against droppings or damages caused by plasterwork or mortar.

MATERIALS:

CEMENT:

All approved brand of grey cement to conform with the above standards shall be used unless otherwise specified.

SAND:

Sand shall be river or pit sand, coarse grained sharp and free from saline, vegetable or earthy matter to pass through a 6 seive for finishing coat and a 4.8 seive for other coats.

LIME:

Lime shall be best quality hydrated lime run 24 hours before use. Other approved plasticiser may be used.

WORKMANSHIP:

The whole of the plastering shall be carried out by experienced and skilled tradesman only and the whole of the work shall be done after carpentary work is completed to avoid vibration. All mouldings drips, weathering etc, shall be run into detail with clear cut angle quirks. On completion work shall be left free from cracks blisters or marks, even in colour free from drumminess to the satisfaction of the Consultant. Where necessary make good after other trades. Any plasterwork which has cracked or drummy shall be chipped back and replastered at the Contractor's expense.

PROPORTION OF MIXING:

All plaster shall be throughly mixed andeach batch shall be used within 20 minutes of being mixed. Re-tempering -r re-mixing after the initial set shall not be allowed. Where approved the porportions specified herein may be varied to suit the grading of sand available. Approved additives for water-proofing shall be used for all plaster mix in full compliance with manufacturer's instructions.

PREPARATION OF SURFACES:

GENERAL:

Concrete and blockwork to be plastered shall be wire brushed to remove laitence and well chipped. All surfaces shall be throughly wetted with a hose half anhour

AB

before each coat. It is the Contractor's responsibility to ensure that the base on which is to be plastered is up to standard. Check blockwork prior to plastering to ensure that the shrinkage has occured in the mortar joints that these joints are raked our 6mm and repointed. Co-operate with the wetting shall be given a slurry dash coat 1:1 sand and cement and kept wet immediately before plastering.

Any drummy or weak surface shall be neatly chipped out and re-done and carefully blended into surrounding plasterwork.

EXTERIOR:

All exterior concrete block, unless otherwise stated, surfaces shall be plastered in two coats of Portland Cement and sand 1:3 mix with plaster or other approved plasticiser used strictly according to manufacturer's instructions.

First coat shall be 10mm thick, well scratched and kept wet for 7 days, before second coat is applied.

Second coat shall be minimum 6mm thick.

All exterior plaster shall be brought to a smooth regular wood float finish, cure with the fine water spary for 7 days after application. To concrete roof allow water-proofed plaster to be laid to falls as indicated. Waterproof additive of approved brand to be used in accordance with manufacturer's instructions.

INTERIOR:

Plaster all concrete and concrete block surfaces. Plaster shall be one coat of Porland cement and sand in the porportion 1:3. Coat shall be composed as above approx. 10mm thick and finished with a smooth and regular wood float. Rub down with a carbonundum stone to give an even mixture.

FLOORS:

Concrte slabs shall be rough screeded for later topping, unless specified otherwise on drawongs.

Before applying topping well hack, brush and wash off free of dust. Allow to dry-

Brush on to cleaned 1:½ liquid mixture Cemstik and water and allow to dry to clear film at least 1 hour.

Plaster floor single coat work nominally 19mm thick using 1:3 cement and sand with cemistik added to gauging water in 1:3 ratio.

Finish lightly with steel towel. Avoid over trowelling.

Floors to toilets and washrooms shall fall towards floor drains.

All plaster toppings to be laid to ensure final floor finishers are at the same level.

CONCEALMENT OF PIPEWORK:

All pipes including supply pipes, waste pipes and vent pipes shall be concealed in walls or floors unless otherwise specified.

RESPONSIBILITY OF PIPEWORK:

The Plumber shall be responsible for all pipework until the end of maintenance period. Should leakages occur the Plumber shall be reponsible for making good the s leakages together with repair of adjacent surfaces and finishes.

POST CONTRACT DOCUMENTS:

Upon completion of the contract the following documents shall be supplied to the Consultant;-

(a) Copies of guarantees as called for in the specification.

(b) Test certificate from the Local Authorities certifying plumbing works comply with the requirements.

(c) Plan showing exact location of underground services.

PIPE TESTING:

On completion and before concealing all pressure pipe work shall be tested 3 times the working pressure.
Waste drains shall be tested to withstand a 2 metre head of water.

Not withstanding the above all pipework and drains shall be tested to the approval of the Local Authorities and the Consultant.

TRAPS AND FITTINGS:

Install grated trapped floor wastes to all wet areas including W.C. compartments, shower compartments, and any other applicable wet areas.

WASTES & VENTS:

All wastes shall be in PVC in accordance with the above mentioned standards. Where pipes pass through concrete they shall be below if not shown otherwise on the drawings. Lay wastes to even falls complying with the above mentioned standard Joining of the pipes shall be by the socket and solvent cement, junction method.

Vent pipes shall be S'Lon PVC to a similar standard as the wastes. All vent pipes shall be carried up within partitions, shall be of the sizes shown and extend to 450 above finished roof level and be fitted with a PVC dome.

Supply and install all necessary bends, swan, necks, branches, cleaning eyes and inspection plates, to ensure easy clearance of blocked piping. Soil terminal vent where shown shall be carried up through roof and terminated with bird proof PVC vent cap.

For connecting pedestal WC pans to PVC piping use 100mm purpose made pan collars. Provide all necessary fittings including bends, inspection elbows, tees, inspecton tees, cleaning eyes, etc., in accordance with best trade pract ice. Provide all necessary PVC support straps and brackets to supprot pipes. Provide adequate inspection and cleaning points to the satisfaction of the Consultant for easy clearnace of blocked pipes. Provide expansion joints as required. Wastes shall discharge where shown and as directed over gully traps, or into inspection chamber connected to soil drainage system. All wastes shall be trapped using PVC approved brand patent deep seal antisyphonage traps of appropriate diameter. Floor traps shall have removable gratings and have a c.p. finish.

SIZES OF WASTES & VENTS:

Unless otherwise shown waste pipes and vents shall be as listed below:

PLUMBER

STANDARDS:

All sanitary plumbing shall conform to the New Zealand Plumbing and Drainage Regulationd 1959 and shall be carried out by a licenced plumber and be in a strict accordance with the drawings and this specification and to the satisfaction of the respective authrity inspectors and the Consultant.

MATERIALS:

The work shall include a-l materials and fittings necessary for the complete execution of the plumbing works although same way not be specifically shown or specified herein.

WORKMANSHIP:

The plumbing work shall be commenced as the progress of the trades will permit and the Plumber shall arrange for all openings, chases, etc., for pipes and wastes to be made as the work proceeds. Fit flanges to all visible pipes where they pass through walls floors, and ceilings. Tape all pipes where they pass through concrete with denotape. All piping shall be adequadely secured to the building to prevent vibration. Any pipework exposed shall be chrome plated.

The plumber shall allow to test the various installations from time to time and the complete installation before occupation by the Employer. All pipes shall be set out in straight runs with even gradients avoiding all places where air locks are likely to occur. Easy bends shall be used in preference to elbows. Copper piping shall be securely supported and fixed with proper copper saddles and pipe clips to entirely prevent sagging. All joints shall be formed without reduction in pipe size. All pipe work especially hot w-ter service pipes shall be run to service points in the shortest and most direct manner possible. All waterpipes shall have at least one disconnecting union in their lenghs at convenient accesible points. All waterpipes at fittings shall emerge from walls not less than 550mm above the floor. All pipes at taps, valves etc., shall be firmly secured to prevent movement when operated. All orifices shall be sealed against vermin, birds and leaves including vents, downpipes, etc., with PVC vent caps. No exposed threads or other unslightly arrangements shall mar the appearance of the completed work.

EXTENT OF WORK:

Carry out all plumbing work as shown or indicated on the drawings and specified herein. This shall include all flashings to windows, doors and other junctions necessary to render the building watertight, all water services, supply and fittings, of all sanitary fitting, special fittings, connections to wastes and vents etc. The contractor shall obtain all permits and pay any inspection fees, etc., required by Local Authority in connection with all the necessary drainage work. Allow for all necessary works, including making good all damaged areas to Local Authorities and Consultant satisfaction, for connecting waste pipes to existing sewer lines and for connecting storm water to existing road gutters, where applicable.

FLASHINGS:

Work in with the CARPENTER IN THE INSTALLATION AND CO ORDINATION OF THE FITTINGS of flashings. Supply the carpenter with galnaised iron flashings to all windows and door frames where shown on the drawings. Flashings shall be neatly folded to the profiles indicated so that a neat true edge results. All flashings shall be machin bent to ensure neat profiles.

Co-opera with the Painter in the priming of the backs of all flashings with calciu plumbate or other approved prior to installation.. Flashings shall be machined bent and in as long lenghs as possible and fixed to ensure perfect watertightness. Flash pipe projections through roof making a weathertightness. Flash pipe project ion through roof making a weather-proof joint.

FITTING	WASTE PIPE	MIN.PERMISSIBIBLE VENT SIZE
WC	100mm diameter	50mm diameter
Vanity unit	32	32
Urinal	50	50
Shower	38	38
Handbasin	32	32
Cleaners sink	38	38
Kitchen sink	38	38

Where more than 2 similar fittings are connected to one wastevent the pipe sizes shall be increased accordingly.
Terminal vents shall be 100mm diameter.

COLD WATER SERVICES:

Allow to connect 12mm cold water services pipe to water external tank situated beside services area. Allow for pressure testing the whole system before plastering Unless othrwise mentioned all taps, outlet spouts, etc, shall be finished in chrome plate. Plumber to obtain Consultants approval as to position of all taps, etc., before proceeding with Consultanta approval as to position of all taps, etc., before proceeding with the work.

METAL FRAMING:

Provide and build in where shown heavy duty gatic metal removable gratings to stormwater and drainage sumps.

SANITARY FITTINGS:

Supply and install sanitary fittings as marked on plan including cold water suply connections as follows:

SEPTIC TANK: (if applicable)

Excavate as shown in the drawings for septic tank soakage trench and pits. Obtain 16-25 persons capacity septic tank drawings from local authority. Plaster all internal and exposed manhole in 1:3 cement, sand mix. Plaster in single cost approximately 12mm thick to a smooth wood float finish. The top of the manhole to the septic tank to be finish level with the finished ground level.

ELECTRICAL

STANDARDS:

The following standards form part of the specification:
S.A.A. Wiring Rules
Fiji Government Electricity Regulations
F.E.A. Supplementary Regulations, where aplicable.

MATERIALS:

All materials shall bomply with the relevant standard specification and be the best of their respective kind of British or Australian or New Zealnd manufacture unless specified to the contrary.

WORKMANSHIP:

GENERAL:

The whole of the installation shall be carried out as set out in this specification and according to the drawings. All work shall be in accordance with the above regulations and to the satisfaction of the Consultant. Any work or materials specified and not being in contravention to the regolations is to be carried out as specified. The whole of the work shall be concealed and nothing but first class workmanship and material will be allowed. Any or materials which may be necessary and whichis usual for the full and proper completion of the contract shall be supplied without extra charge whether expressedly mentioned or not in this specification.

The Electrical sub-contractor shall co-ordinate with the Building Contractor for the full requirements of this contract so that the job may proceed satisfactorily for all concerned. The Consultant reserves the right to supply any articles for the nett sum alowed.

DRAWINGS:

The electrical services shall be as shown on the drawings, in the position shown. All electrical fittings shall be as shown and specified herein. No work shall be done contrary to the drawings and specificaton unless such is authorised by the Consultant.

EXTENT OF WORK:

For the supply and installation of all electrical services to and within the project, all mains, switches, switchboards and installation of all lightenings, power and ancillary circuits as shown on the drawings and in this specification.

COOPERATION:

The electrician shall cooperate with all trades so that work can be carried out with the atmost expedition. Cooperate with the main contractor in the provision of all holes, conduits, and the like and make good after installation. It shall be the responsibility of the Electrician to advise the the main contractor as to the exact locaton of such holes requiring to be cut.

SWITCHBOARD:

The switchboard shall be factory built Gael or similar flush type metal clad unit into the wall and set.

The switchboard shall be complete with busbars, fuses and circuit breakers as required. Also circuit breakers and fuses be identified to show the equipment they control. Provide neatly lettered adhesive embossed tape for such purposes.

ACCESSORIES:

All swiches, switch plugs, etc., shall be PDL of the new design type and white in colour on blockwork and brown or black on timber.

FITTINGS:

FLUORESCENTS:

Where shown supply and install fluorescent light fittings in the positions indicated on plan. Fluorescent shall be fitted with premium class ballasts 'E' class installation, power factor, correction and individual built in fuses and have an unconditional five year gurantee.

POWER POINTS AND LIGHT SWITCH LOCATION:

All light switches shall be positioned at 1400 from the finished floor level. All power points shall be poditioned 300 from the floor level except in the following circumstances where applicable or as otherwise shown on the drawings.

NOTE: It is extremely important that the electrical sub-contractor arrange a meetng on site with thw owner and the Consultant (which construction has reached the correct stage), and mark positions of all switches, power points, wall lights, fluorescent and pendants. Any chamges at this stage will not be a contract variation. This is the electrical sub-contractor's responsibility and any of the above mentioned fittings installed incorrectly will have to be relocated at his own expense if the meeting has not been arranged.
All switches by doors to be arhitrave switches.

EXCAVATION:

This shall be carried out to a depth of 750 and trench backfilled with 75 sand before laying cable pipe. Cover with a further 75 of sand and protect with 50 concrete blocks. Complete backfilling and make good any damage to owner or others properly.

Low voltage cables may be installed within the same trench provided they are also enclosed in approved pipes, (e.g. separate pipes for each type of circuit TV radoi/music-telephone, etc.) and kept 100 away from the power cables.

WIRING:

All wiring shall be concealed and on the sizes shown and of the following types:

(a) Within false ceilings or timber partitions. T.P.S.

(b) Within concrete or blockwork.

(c) T.P.S. or PVC in steel or pvc conduit.

Switch and switch plug boxes shall be cut out neatly and fixed into the blockwork. Where such boxes are fixed into timber partitions, they shall be dwanged behind. Where bracket or ceiling lights occur within the concrete or block, fit a round conduit box at each outlet to provide firm fixing for the light fittings.

EARTHING:

Install all earthing as required by the supply authority. Carry wire to every outlet, whether required or not at this stage.

The contractor must take adequate precautions during and after painting operations to protect work from dirt, dust and disfigurement whatsoever. Wash down all plaster, concrete and blockwork with a solution recommended by manufacturer of paint and fresh water. Allow to stand for 48 hours and wash again with fresh water-

All woodwork shall be rubbed down to a smooth surface cleaned off of dirt grease etc., before painting. All woodwork to be properly primed and stopped.

All rust and scales, and oil dirt, etc., to be entirely removed from all metal work to be painted by means of steel wire brushes. All concrete must be cured for 28 days.

All surfaces shall be dry before painting is commenced. Preparation of various surfaces shall be performed in accordance with the following.

TIMBER:

Sandpaper smooth, remove all traces of wax, grease, dirt and grime. Surface must be thoroughly dry. Apply priming coat, then fill all nail holes, cracks, etc., eith linseed oil putty. Sanpaper smooth, dust off, then apply specified coatings.

Cement Render, Masonry, Fibro, Fibrous Plaster:

Fill holes and other imperfectons with a quality filler or patching compound. Sandpaper smooth, dust off, then apply specified coatings.

PRIMING AND SEALING:

If more than four weeks elapse before the next coat of primer to external work is applied, the work shall be re-primed. All joinery shall be primed or otherwise sealed by the Painter at the time of manuf acture and again after installation. After priming or sealing all nail holes, cracks, shrinkage and other cavities shall be filled in and stopped where necessary with colour stopping and match the finished colour. Particular care shall be taken in matching stopping to surfaces being varnished. Any that do not match shall be removed and reputtied.

ROOF PAINT:

Any grease and dirt on the roof shall be cleaned off with detergent. The roof shall be washed down with water to remove excess oxidation on the surface. Prime with etch primer folowed by one coat enamel undercoat and apply two coats of aaproved alkyd roof paint, unless manufactures instruction is otherwise in which case Consultant to make decision.

SCHEDULE OF PAINT:

INTERNAL PAINTING:

HARDIFLEX AND GIBRALTAR BOARD:

Preparation	- Clean down, dust off
First coat	- Sealer undercoat
Second coat	- Semi Gloss Enamel
Third coat	- Semi Gloss Enamel

PLASTER/ALL CONCRETE SURFACES:

Preparation	- Clean down, dust off, fill excessive cracks hole, etc. with plaster to match adjacent texture.
First coat	- Acrylic Undercoat
Second Coat	- Semi Gloss Acrylic
Third Coat	- Semi Gloss Arcylic

PAINTER

STANDARDS:

The following standards shall form part of the specifications:

NZSS 521 NZSS 1056 [illegible] 2239

MATERIALS:

Deliver all paints in sealed tins, labelled by manufacturers. Use all paints without additives other than material and quantities recommended by manufacturer and then only on Consultants' approval. All paint used shall be of a fugus resistan type.

The materials used throughout this contract shall be Berger or as selected by Consultant who reserves the right to call for the use of any other locally or overseas manufactured paints including appropriate primers and undercoats. Allow to set up sampleswhere required.

All materials shall be the best of their respective kinds of the various brands specified and shall be delivered to the job in unbroken packages bearing the makers name. All paints shall be of premium quality.

WORKMANSHIP:

All materials shall be applied strictly in accordance with manufacturer's instructions. Any discrepency between them and this specification shall be reported immediately to the Consultant.

Where work is specified to be finished in particular material and manner it shall mean the provision of all work necessary to ensure a proper finish to minimise exposure to extremes of temperature and be thoroughly mixed before use. Paint shall be not be applied to damp surfaces unless specially made for the purpose. External painting shall not be done during unsuitable weather. Where paint or vanish work of two colours meet particular care will be taken to finish a clean line. All floor, fittings and etc., shall be covered while painting and every precaution taken to keep dust down.

The contractor shall allow access to thie site for any representatives of the paint manufacturer's who are approved by the Consultant for the purpose of inspection testing and advice concerning the use and application of his products, and the contractor shall also allow the manufacturer's representatives at the discretion of the Consultant to take samples of paint for the purpose of analysis.

At completion clean of all marks. Clean both sides os glass. Renove all debris and leave clean and tidy .

EXTENT OF WORK:

This section of the work includes the priming painting, staining, varnishing, etc., as schedules on the Schedule of Finishes and specified herein.c. Include for painting, varnishing all surfaces usually painted or varnished whether specially mentioned or not. The contractor is also called for in this section to allow to do samples of all colours and stains used on the contract.

PREPARATION:

GENERAL:

All surfaces to be painted shall be prepared according to approved practices, wash and thoroughly clean wall before painting if necessary. All metal fittings and fastenings (door and window hardware,swtich plates etc.,) shall be removed where possible cleaned and refixed in position on completion of painwork.

All holes and surface imperfections in concrete blockwalls, concrete, plastered surfaces shall be filled and rubbed off smooth before commencing paintwork.

TIMBER (INCLUDING TIMBER DOORS):

Preparation	- Sand down smooth, dust off.
First coat	- Pink Primer.
Second coat	- Undercoat
Third & Forth coat	- Gloss Enamel Finish

EXTERNAL:

CONCRETE/PLASTER:

Preparation	- As for internal works.
First coat	- Acrylic undercoat
Second coat	- 100% Arcylic Gloss.
Third coat	- 100% Acrylic Gloss

EXPOSED GALVANISHED METAL:

Preparation	- Remove dirt, oil, etc., clean off
First coat	- Etch Primer
Second coat	- Epoxy primer
Third & forth coat	- 2 pack polyurenthane finish

COMPLETION:

On completion of all painting, work should be checked to ensure that all surfaces are left clean and tidy from surface marks during the carrying out of this section of work.

Thoroughly clean both faces of windows and doors from all paint and clean all floors, etc. Leave the place clean and tidy for occupation.

Clear away all debris, make good all areas of ground affected during construction and leave in good condition to Consultants satisfaction.

GLAZIER

STANDARDS:

The following standards shall form part of this specification:

NZSS SR2

MATERIAL:

GENERAL:

All glass used shall be of good quality manufacture free from all blemishes and sizes suitable for each location. Refer to the window and door schedule for the sizes of respective glazing. Refer Schedule of Safe Glazing sizes for thickness.

MIRRORS:

5mm selected glazing quality polished plate. Supply and fix mirrors to dimensiona and where shown on the drawings. Fix mirrors as detailed or directed. Arise all edges back with 4.9mm (3/16") plywood. Fit rubber washers between the backing and the wall.

WORKMANSHIP:

All work in this section shall be carried out by competent tradesman in a skilful workmanship like manner according to Pilkingtons glazing standards. Glaze all windows and doors with good quality glass of approved manufacture and of the types and weights indicated on the drawings or herein specified. Check all timber frames, sashes and reprime any not highly primed. Check glass sizes on the job Allow for expansion as required. Back putty, sprig and face putty, fully flush and trim off surplus. Putty shall be best quality linseed oil putty coloured to match stain when in stained frames. Where indicated fix glazing shall be secured by timber glazing beads. Ensure that all glazing is fully back puttied and that putty also extends between the glass and the frames and glass and the glazing beads.

BREAKAGES:

The Glazier shall make good any reasonable amount of breakages from workmanship accidents, etc. Any large breakage shall be adjusted with the trade responsible. Contractor to protect all windows against damage.

CLEANING:

The contractor shall allow to properly clean down all glazing at the completion of his work.

GLAZING SIZES:

150 m.p.h. winds (240 k.p.h.) - Refer to Consultant for location type;-

(a) For 2MPA loading (e.g. exposed, open locations);

Minimum Thickness	Maximum Area (m^2)
3mm	0.8
4mm	1.2
5mm	1.8
5.5mm	2.1
6mm	2,5

(b) For 1.5MPA loading (e.g. medium exposure)

Minimum Thickness	Maximum Area (m^2)
3mm	1.0
4mm	1.6
5mm	2.2
5.5mm	2.7
6mm	3.2

OBSCURE GLASS:

Unless otherwise specified windows and doors, all bathrooms and showers and WC's must be glazed using Spotwood.

DRAINAGE

STANDARDS:

All drainage work shall conform to the New Zealnd Plumbing and Drainage Regulations 1959 and shall be carried out by a licenced drainlayer, be strictly in accordance with the drawings and this specification and to the satisfaction of the Local Authority Inspector and the Consultant.

Code of Pracice for the installation of unplassticised PVC pipe system March 1959.

MATERIALS:

All materials shall be the best of their respective kinds and if necessary are to be submitted for approval before installation.

WORKMANSHIP:

Allow work shall be carried out in a neat and careful manner in accordance with the best trade practice and only experienced registered tradesman shall be employed. Joints in pvc pipes shall be with solvent cement or O rubber rings. Interior of pipes and fittings shall be thoroughly cleaned as the work proceeds. Mains under buildings shall be bedded and encased in concrete.
PVC Pipes are to be wrapped in polythene before being encased.

EXTENT OF WORK:

Carry out all drainage work as indicated on the drawings and specified herein and as necessary to complete the full system of drainage envisaged.

TRENCHES:

Excavate for trnches for all underground drains inspection cambers etc. Thoroughly ram floor of trenches, carefully backfill and ram. No trenches shall be backfilled before the pipeline has been completed and approved.

PVC DRAINAGE:

Bed pipes into 100mm layer compacted sand and completely surround with sand to same thichness.

Lay and joint drains in strict accordance with the manufacturer's specifications.

CONCRETE DRAINS:

Where shown on the drawings supply and lay Humes precast concrete pipe drains in strict accordance with the manufacturer;s specifications.

SURFACE DRAINS:

Where shown on the drawings construct open concrete drains.

GULLEY TRAPS:

Gulley traps shall be set on and be encased in concrete and shall finish 75mm above ground level and be complete with cast iron gratings. Gulley pipes shall be discharge below the gratings, Gulley traps shall be glazed earthware, pvc or similar.

INSPECTION CHAMBERS & MANHOLES:

Where shown on drawings construct inspection chambers and manholes to Local Authority's approval. Neatly bed discharging pipes into the inspection chambers at the correct levels. Neatly bench plaster at 1 in 6 slope around channels and interior of inspection chamber. Fit with approved air-tight cast iron covers complete with perimeter frame and recessed handles or pre-cast concrete covers. Check with Consultant.

GRATED STORMWATER & GRATED DRIVEWAY CROSSING:

Construct where shown on the drawings and to standard detail included at end of this specification section.

SITEWORKS:

WORKMANSHIP:

The work shall be carried out in a competent manner by approved workman who have demonstrated their ability to do first class job.

SCOPE OF WORK:

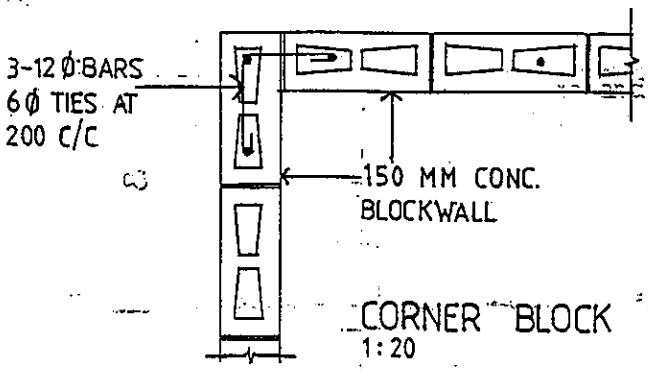
The work in this section includes all excavations, carting away of surplus excavated material required for the proper execution of the work as shown or specified. It includes backfilling to grades as shown around new construction below new grades and elsewhere as required on the drawings. It includes general drainage around building site to Consultant.

TOPSOIL:

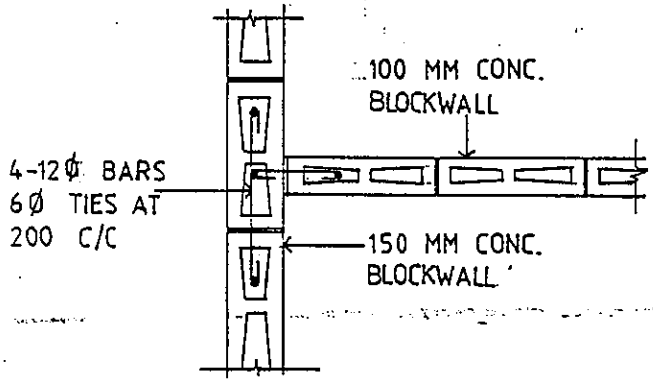
From stockpile provided by Excavator, distribute topsoil as directed by the Consultant in a layer of 100mm minimum thickness.

CARPARKING & ACCESS WAY:

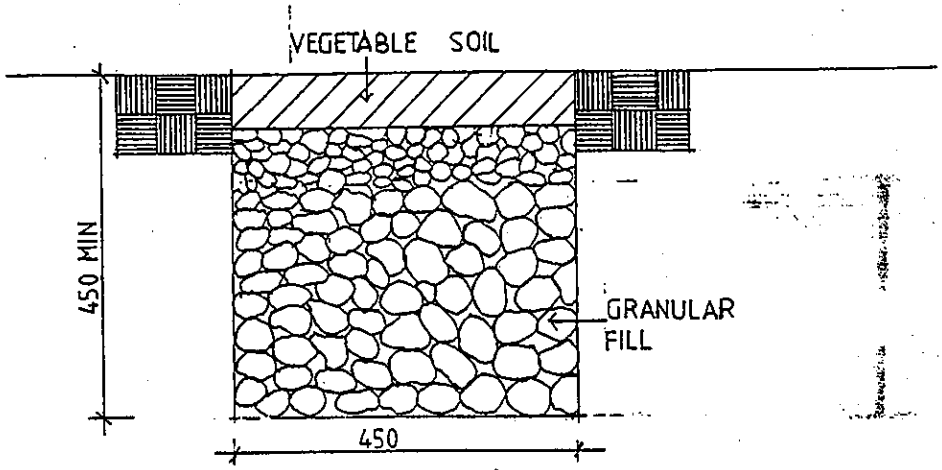
Form to grade areas to be specified by Consultant for access roadway and carparking and proper site drainage around this area to Consultants satisfaction



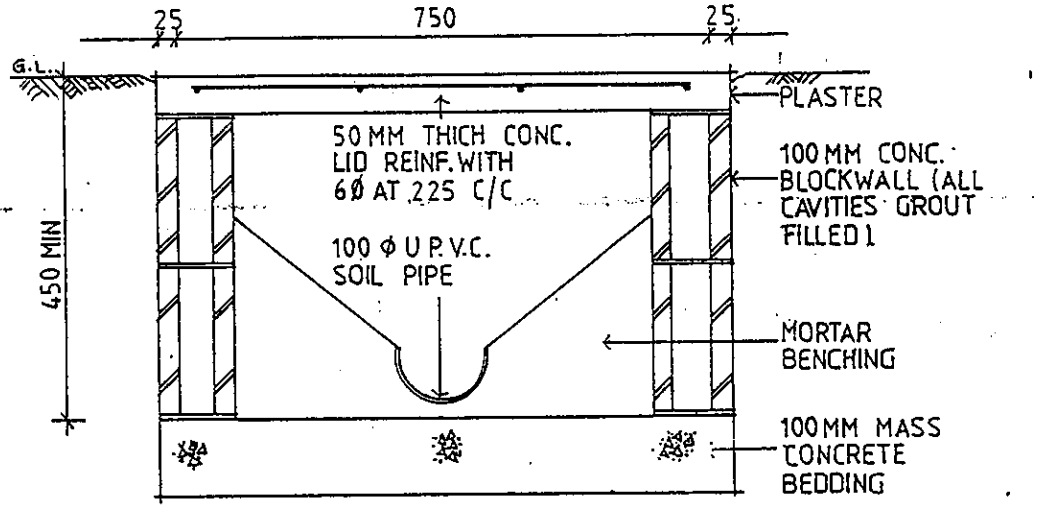
CORNER BLOCK BINDING DETAIL.
1:20



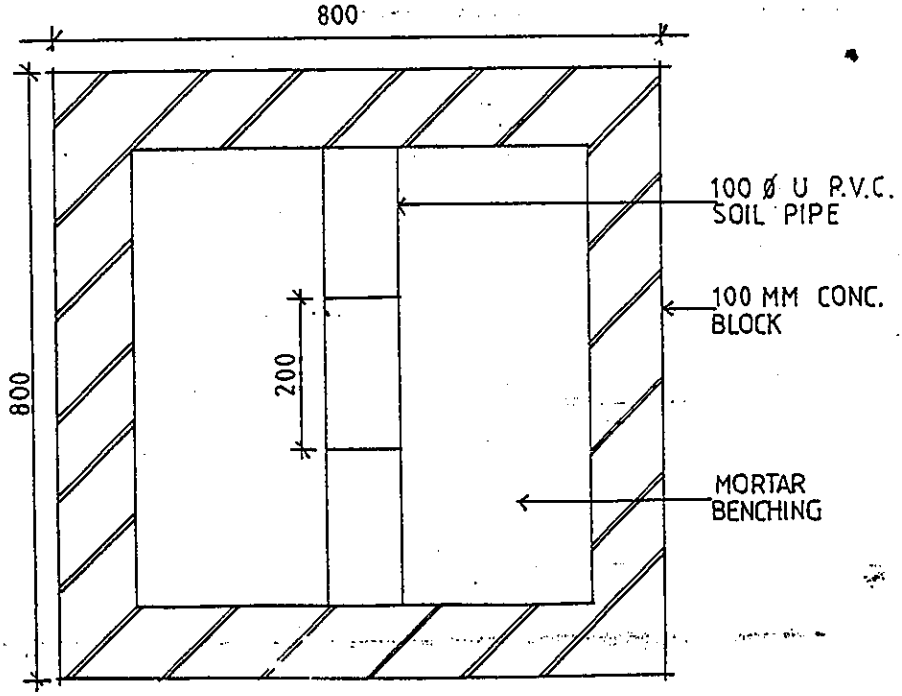
JUNCTION BLOCK BINDING DETAIL.
1:20



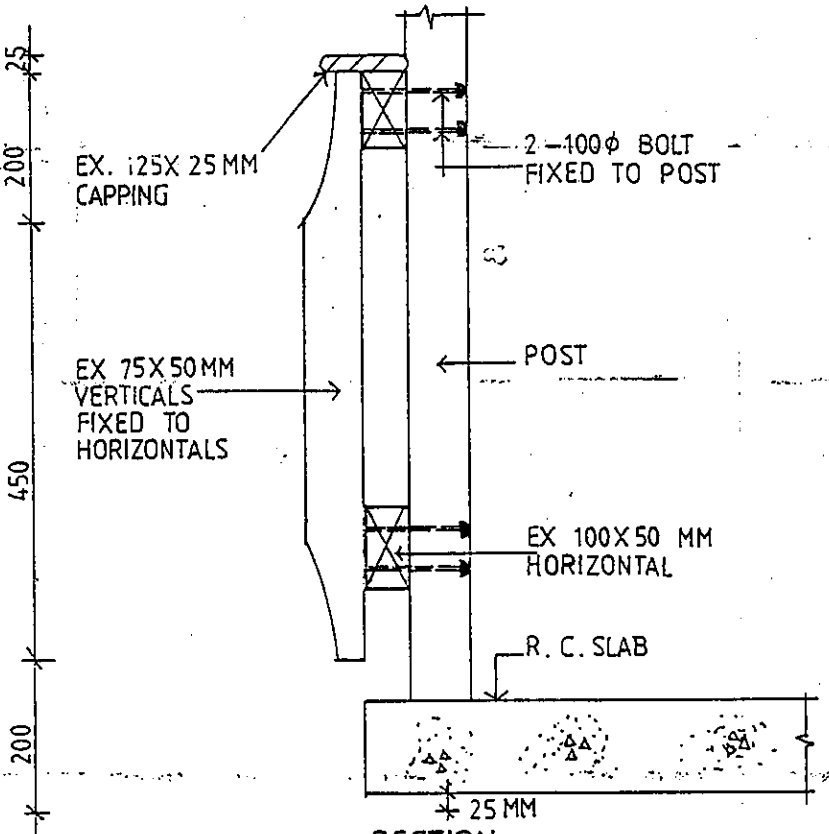
SECTION THRU' RUBBLE DRAIN
1:10



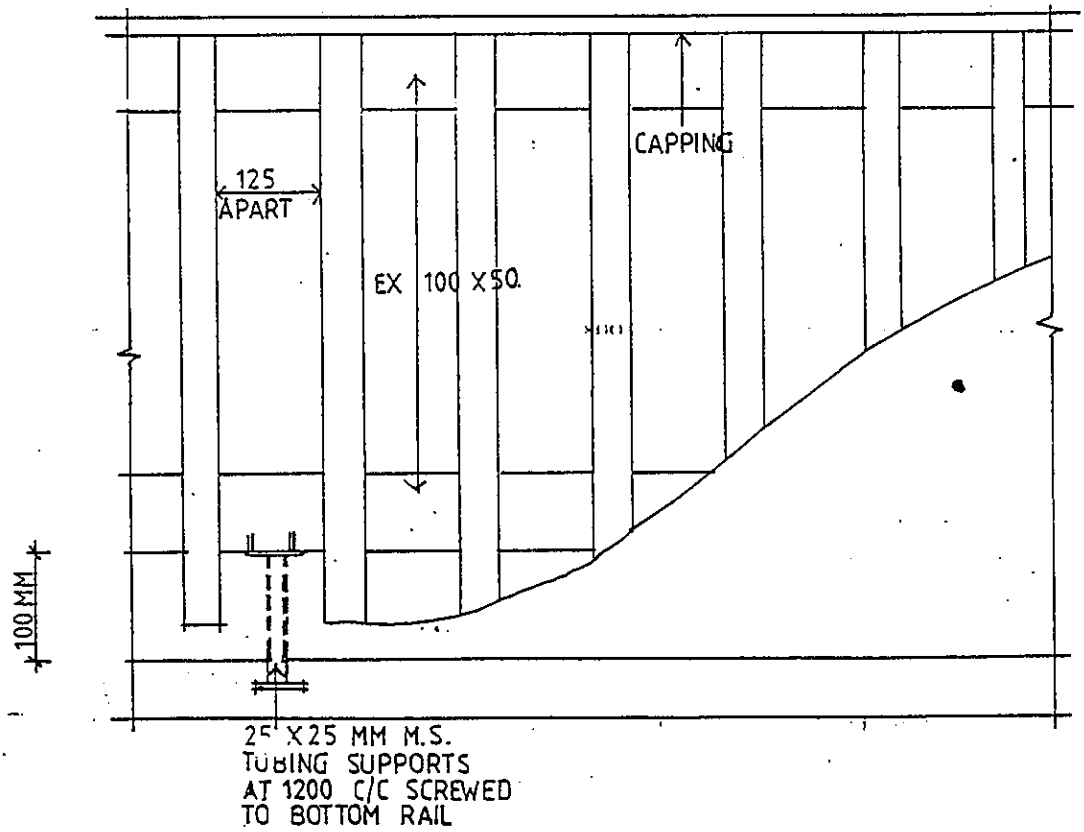
SECTION THRU' INSPECTION CHAMBER
1:10



PLAN INSPECTION CHAMBER
1:10

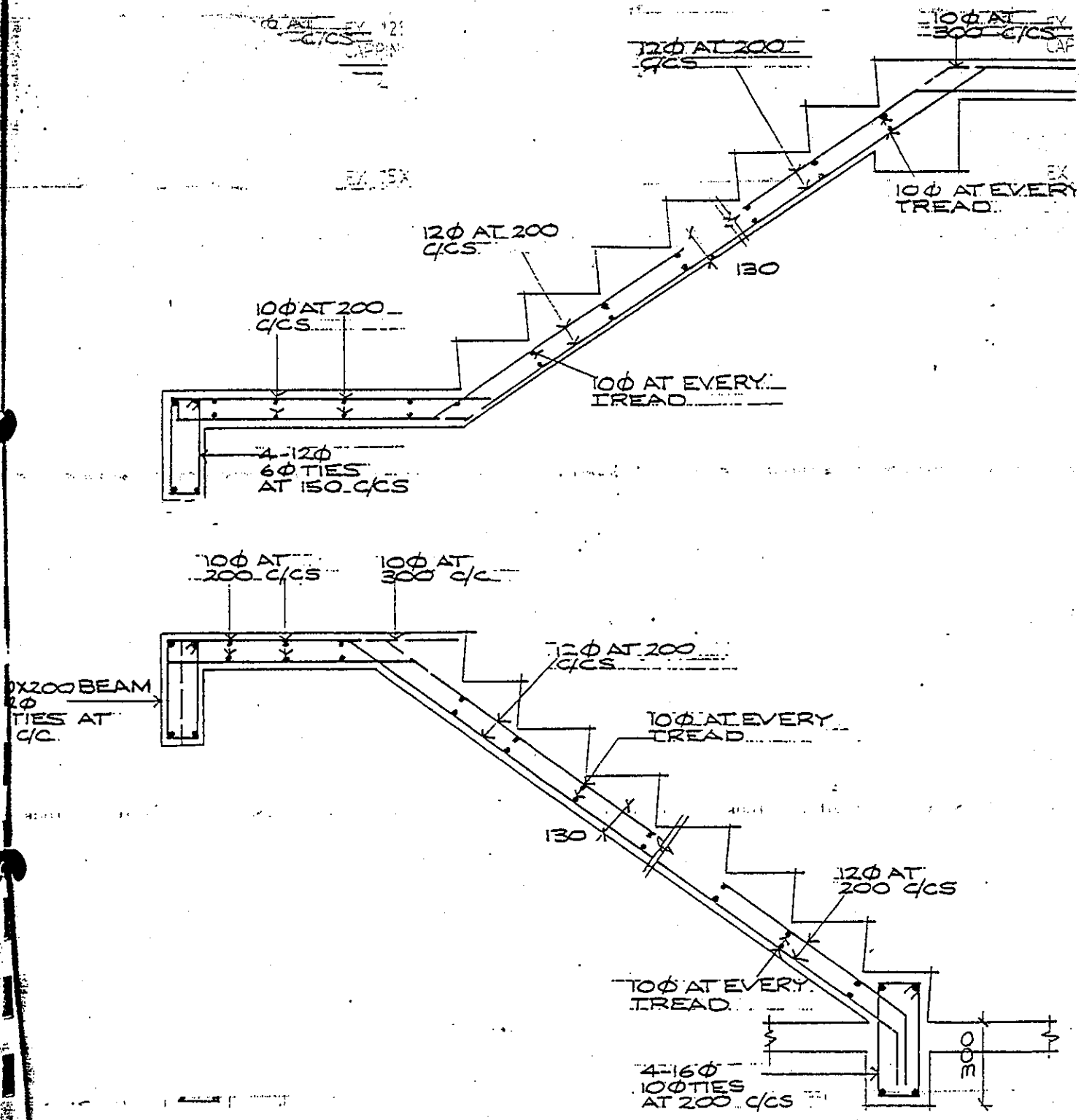


SECTION
1:10

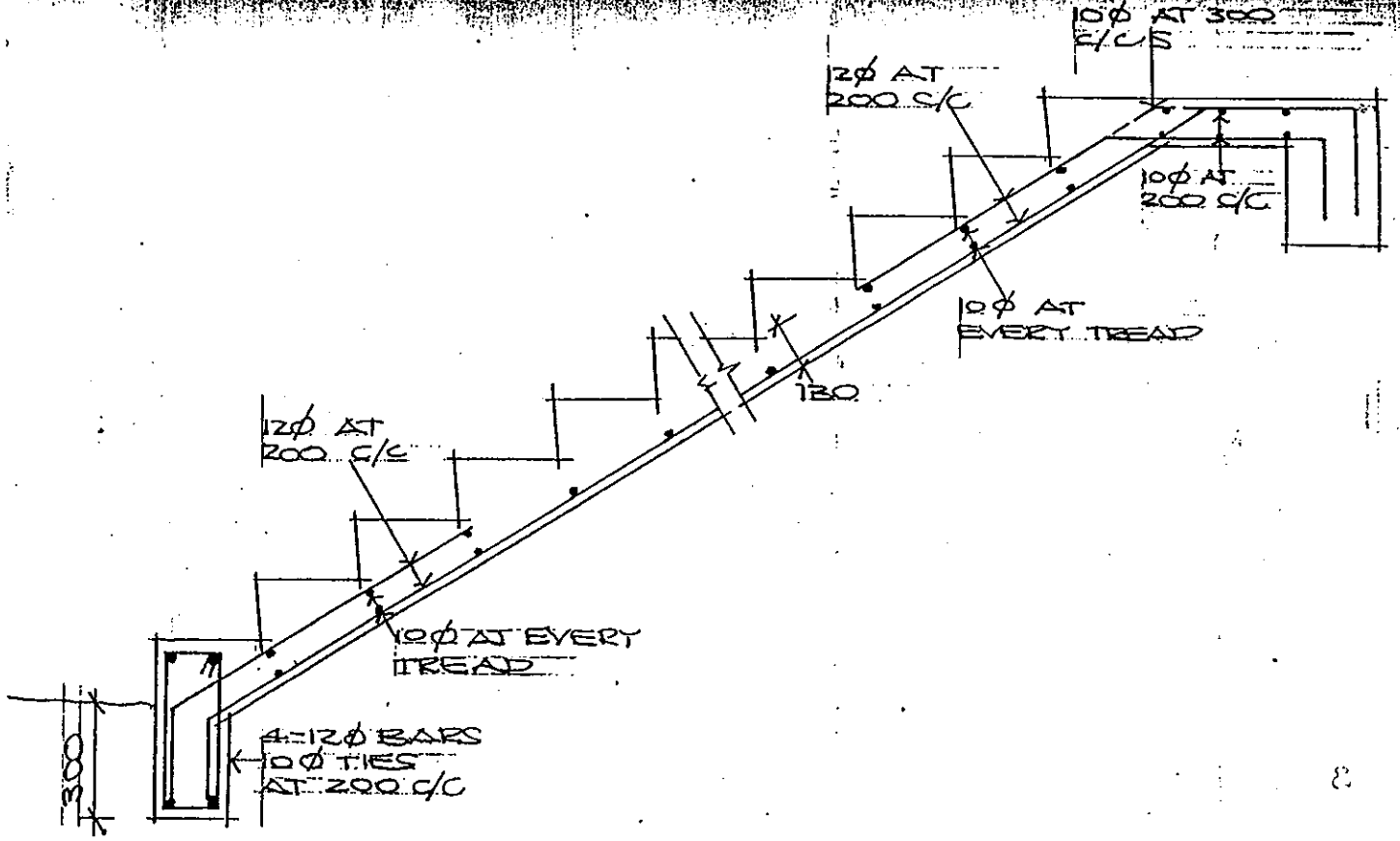


ELEVATION
1:10

RAILING DETAIL

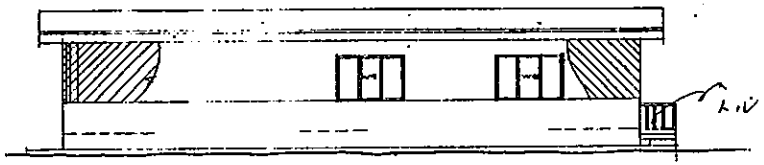


STAIR DETAIL

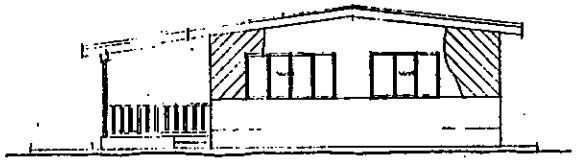


STAIR DETAIL

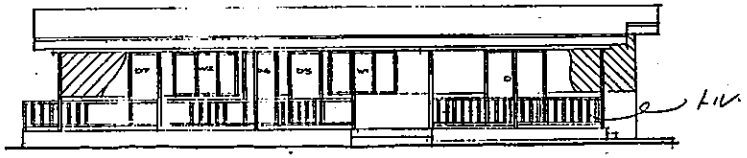
120



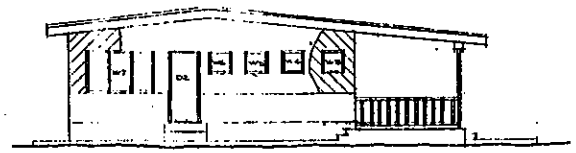
ELEVATION THREE
1:100



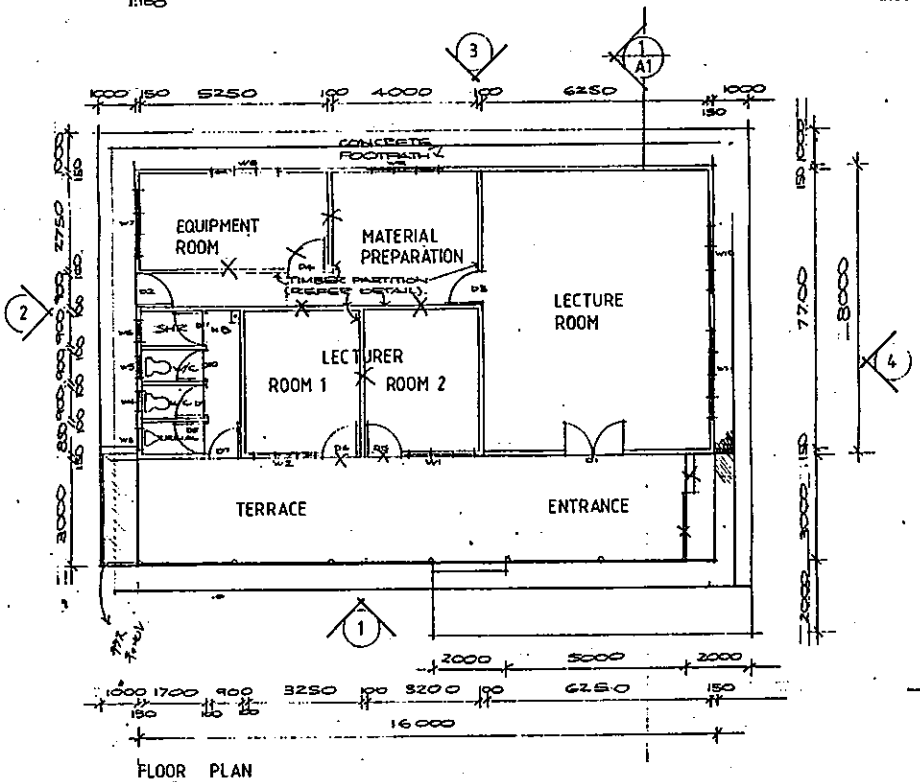
ELEVATION FOUR
1:100



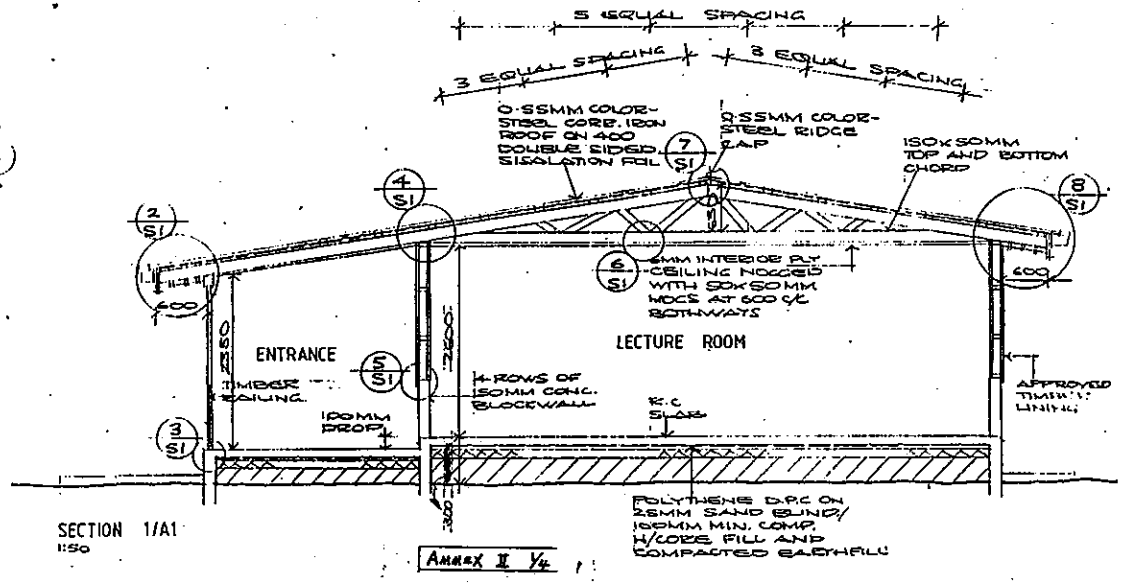
ELEVATION ONE
1:100



ELEVATION TWO
1:100



FLOOR PLAN
1:100



SECTION 1/A1
1:50

Annex II 1/4

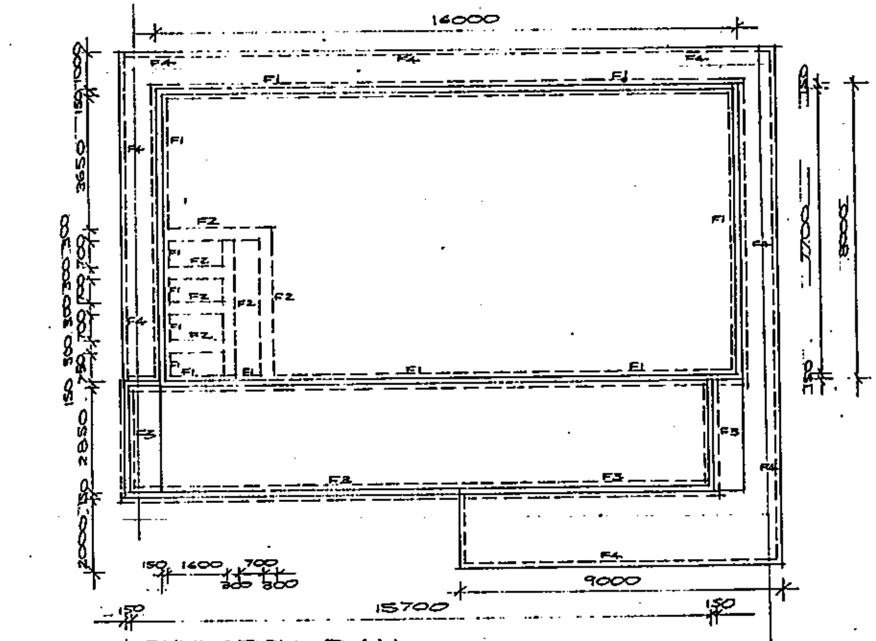
PROPOSED TRAINING CENTRE AT DREKETI

Structures Checked by Soundness and Safety by

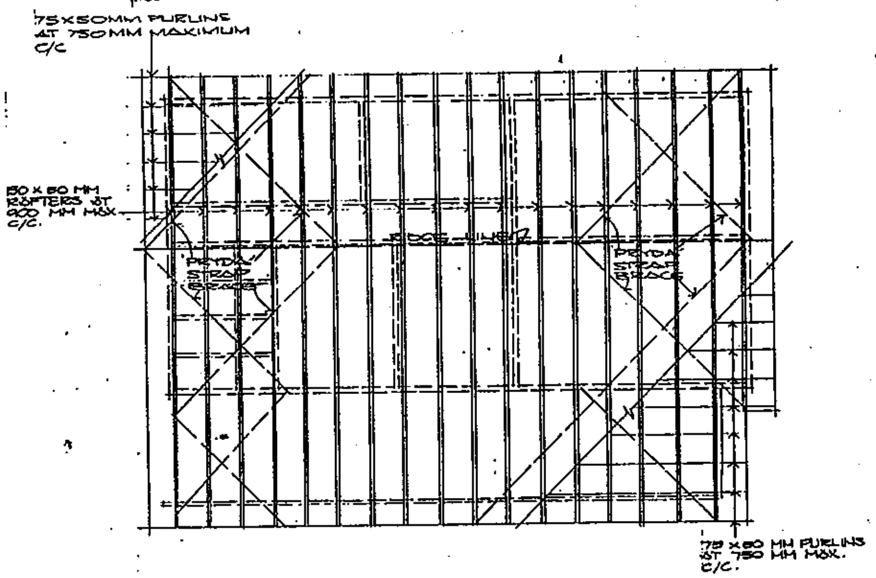
Shan & Associates
ARCHITECTURAL DESIGNERS AND BUILDING CONSULTANTS
48 HIGH ST, G.P.O. BOX 14505, SUVA.
PHONE 313625 FIJI ISLANDS.

SCALE	
AS	NOTED
DATE	
FEB	'90
DRAWN -	RAKESH
DESIGN -	SHAN

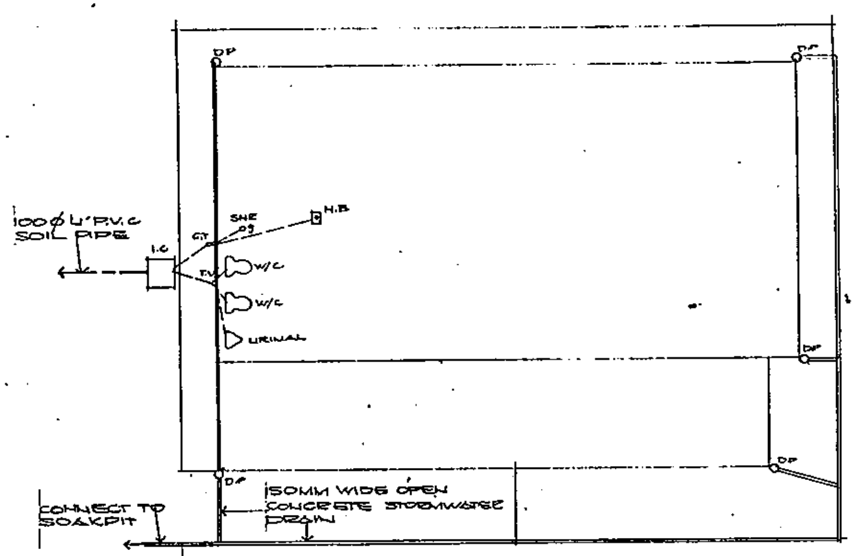
A1



FOUNDATION PLAN
1:100



ROOF FRAMING PLAN
1:100



DRAINAGE PLAN
1:100

PLUMBING LEGEND

H.B	HANDBASIN
D.P	DOWNPIPE
g	GRATING
SHR	SHOWER
G.T	GULLY TRAP
W/C	WATER CLOSET
T.V	TERMINAL VENT
I.C	INSPECTION CHAMBER

NOTE:
- ALL WASTE WATER TO BE TRAPPED BEFORE DISCHARGING.
- ALL STORMWATER TO BE CONNECTED TO SOAKPIT.

Annex II 2/4

PROPOSED TRAINING CENTRE AT DREKETI

DEGG CONSTRUCTION LIMITED — THE COMMON SEAL OF

Structure Checked for Soundness and Safety By

Shan & Associates
ARCHITECTURAL DESIGNERS
AND BUILDING CONSULTANTS
69 HIGH ST, G.P.O. BOX 14505, SUVA.
PHONE 313625 FIJI ISLANDS.

SCALE AS	NOTED
DATE FEB	'90
DRAWN	RAKESH
DESIGN	SHAN

A2

ELECTRICAL LEGEND

- 1200 MM FLUORESCENT TUBE LIGHT
- 1200 " " "
- 60 WATT BATTEN HOLDER WITH SHADE
- POWER POINT
- SWITCH
- MSB MAIN SWITCH BOARD
- FBE 38 (100 WATTS) SPOT LIGHT

NOTE:
- ALL LIGHTS AND FITTINGS SHALL BE TO OWNERS CHOICE
- ALL LIGHTS AND FITTINGS SHALL BE POSITIONED AS SHOWN OR AS DIRECTED BY THE CONSULTANT

NOTE:

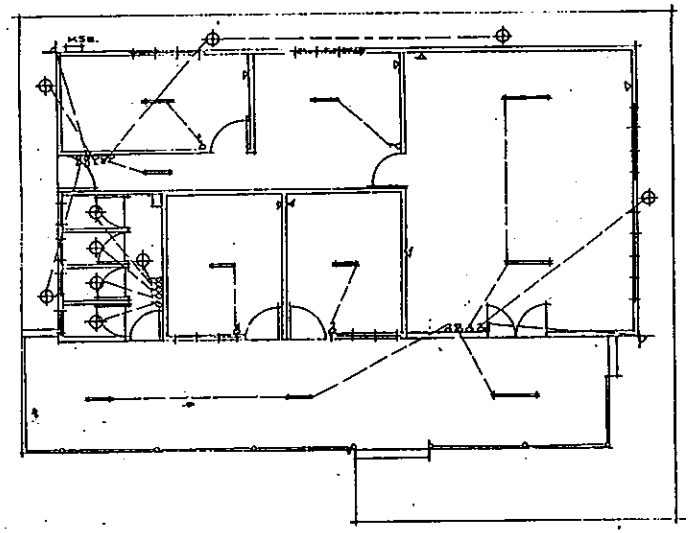
- CONFIRM ALL DIMENSIONS ON SITE PRIOR TO ANY FABRICATION OF WINDOWS AND DOORS
- ALL TIMBER EXTERNAL DOORS TO BE STAINED FINISH
- PROVIDE ARCHITRAVES IN ALL INTERNAL DOORS
- PROVIDE TIMBER CYCLONE SHUTTER TO ALL WINDOWS
- PROVIDE EX. 225 X 25 MM PINE BEADETS TO ALL WINDOWS AND EXTERNAL DOORS
- ALL PANS AND CISTERNS SHALL BE 'PACIFIC' TRIO DUAL FLUSH (FOWLER WARE) (COLOUR TO BE SELECTED)
- ALL TILES SHALL BE TO OWNERS CHOICE OR AS APPROVED BY THE CONSULTANT
- PROVIDE 900 X 600 MIRROR OVER HANDBASIN
- HANDBASIN SHALL BE 500 KEROUND POWERWARE (COLOUR TO BE SELECTED BY CONSULTANT)
- GLAZED TILES - $30.00 PER m²
  MOSAIC TILES - $35.00 PER m²
  QUARRY TILES - $55.00 PER m²
  VINYL TILES - $10.00 PER m²

WINDOW AND DOOR SCHEDULE

WINDOW/ DOOR No.	TYPE	HEIGHT	WIDTH	No. OF PANELS	PANEL TYPE	FRAME	COMMENTS
W1, W2, W7, W8, W9, W10	LOUVRE	1200	1800	3	CLEAR GLASS	100 X 50 MM TIMBER FRAME	NIL
W11	"	"	2400	4	"	"	"
W3, W4, W5, W6	"	600	600	1	OBSCURE GLASS	"	"
D1	HINGED	2000	1800	2	GLAZED TIMBER	EX. 150 x 50	20$ LOCKWOOD DEADLOCK
D2, D5, D6	"	"	850	1	"	"	"
D7	"	"	"	"	SOLID TIMBER	"	"
D8, D9, D10, D11	"	"	800	"	4MM INT. PLY FLUSH PANEL	EX. 150 x 50	532 LOCKWOOD DEADLATCH

SCHEDULE OF FINISHES

ROOMS	FLOOR	WALLS	CEILING
LECTURE, LECTURER ROOMS 1&2, EQUIP. ROOM, MATERIAL PREPARATION	PLASTERED VINYL TILES	PLASTERED PAINTED/ INTERIOR PLY PAINTED	INTERIOR PLY PAINTED
SHR/W/C INSIDE ONLY	PLASTERED MOSAIC TILES	PLASTERED GLAZED TILES HIGH AND PAINTED.	"
ENTRANCE, TERRACE	PLASTERED ~~GLAZED TILES~~	PLASTERED PAINTED	"
FOOTPATH	PLASTERED WOOD FLOAT FINISH	"	"



ELECTRICAL PLAN
1100

BEGG CONSTRUCTION LIMITED

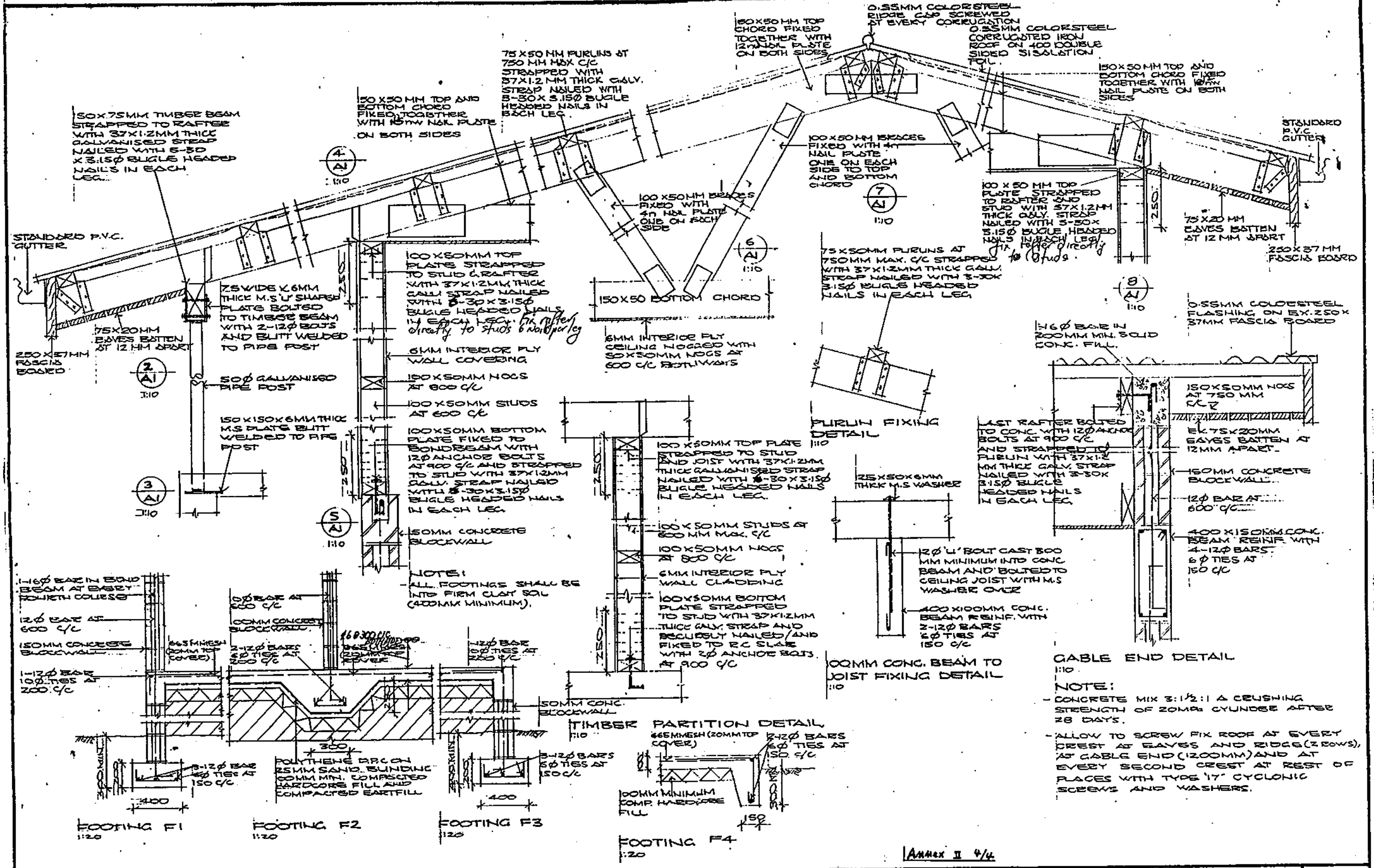
PROPOSED TRAINING CENTRE AT DREKETI

ANNEX II 3/4

Shan & Associates
ARCHITECTURAL DESIGNERS AND BUILDING CONSULTANTS
48 HIGH ST, G. P. O. BOX 14505, SUVA.
PHONE 313625 FIJI ISLANDS.

SCALE	AS NOTED
DATE	FEB 90
DRAWN	RAKESH
DESIGN	SHAN

A3



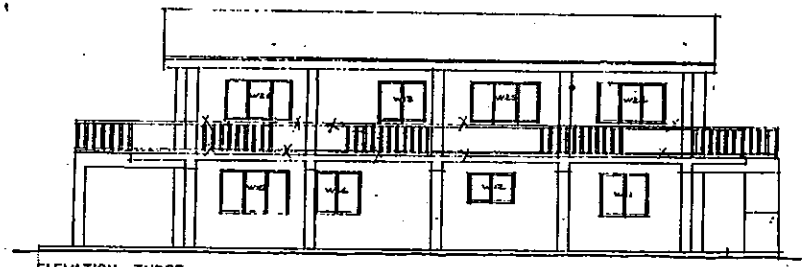
PROPOSED TRAINING CENTRE AT DREKETI

Structures Checked Soundness and Safety

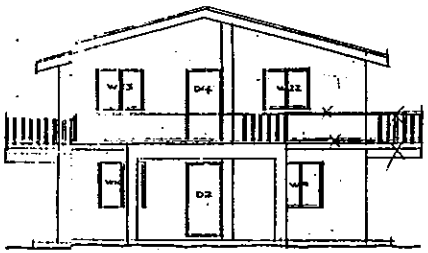
Shan & Associates
ARCHITECTURAL DESIGNERS AND BUILDING CONSULTANTS
48 HIGH ST. G.P.O. BOX 14505, SUVA.
PHONE 313625 FIJI ISLANDS.

SCALE	AS NOTED
DATE	FEB '90
DRAWN	RAKESH
DESIGN	SHAN

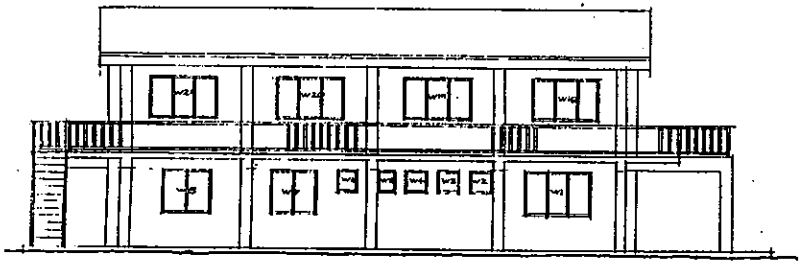
S1



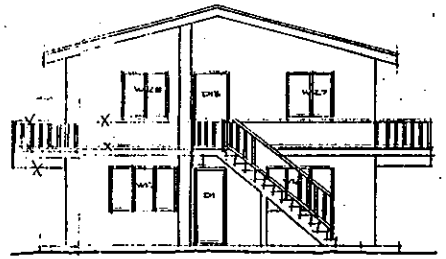
ELEVATION THREE
1:100



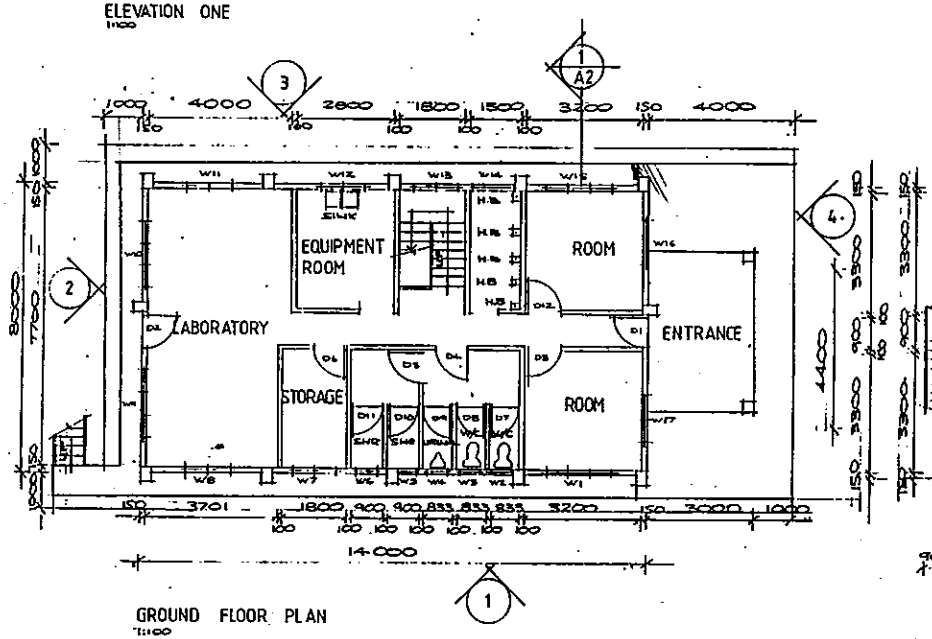
ELEVATION FOUR
1:100



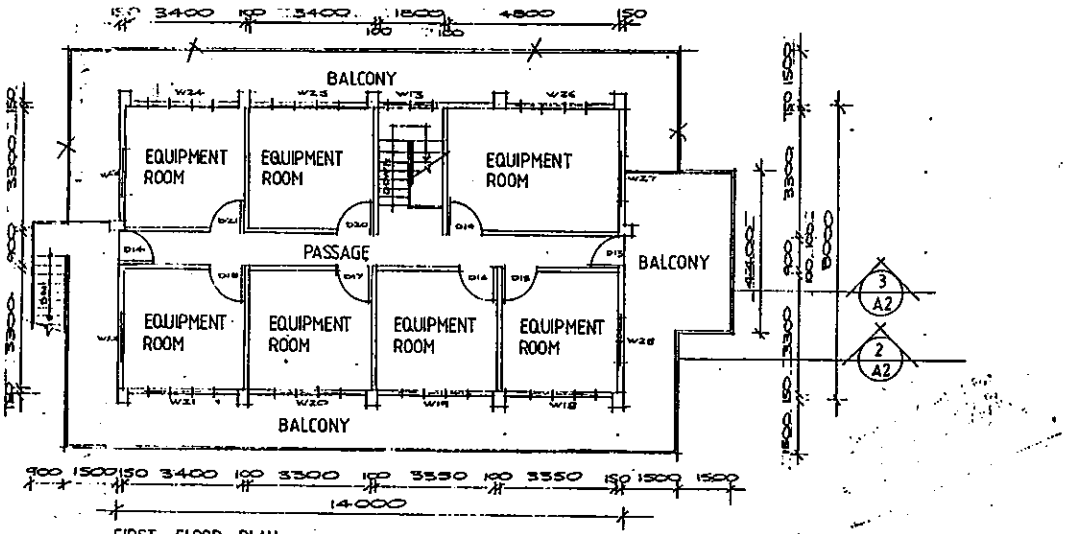
ELEVATION ONE
1:100



ELEVATION TWO
1:100



GROUND FLOOR PLAN
1:100



FIRST FLOOR PLAN
1:100

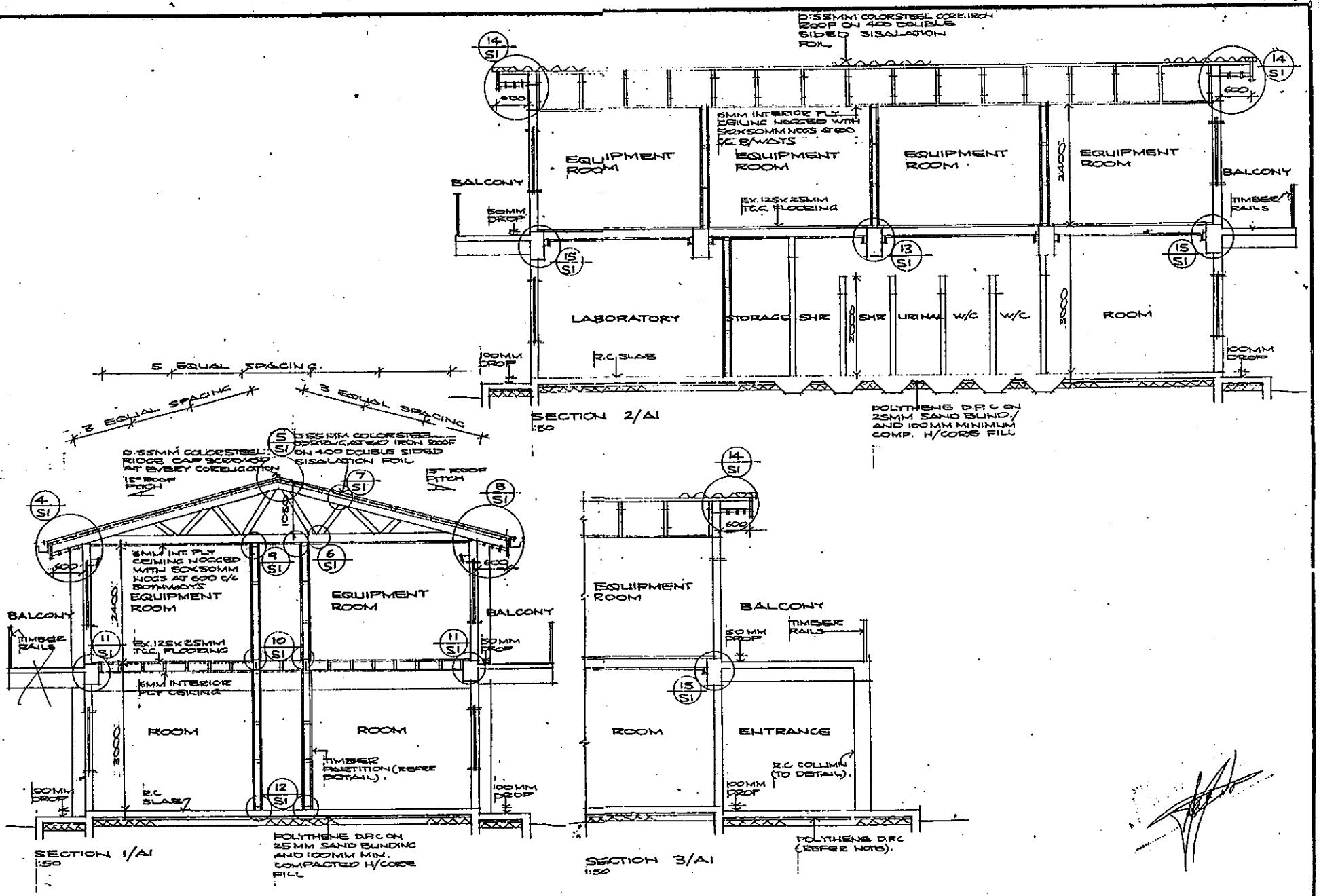
PROPOSED LABORATORY AND EQUIPMENT HOUSE AT DREKETI

Annex II 10

Shan & Associates
ARCHITECTURAL DESIGNERS AND BUILDING CONSULTANTS
68 HIGH ST, G.P.O. BOX 14505, SUVA
PHONE 313625 FIJI ISLANDS.

SCALE	AS NOTED
DATE	FEB '90
DRAWN	RAKESH
DESIGN	SHAN

A1



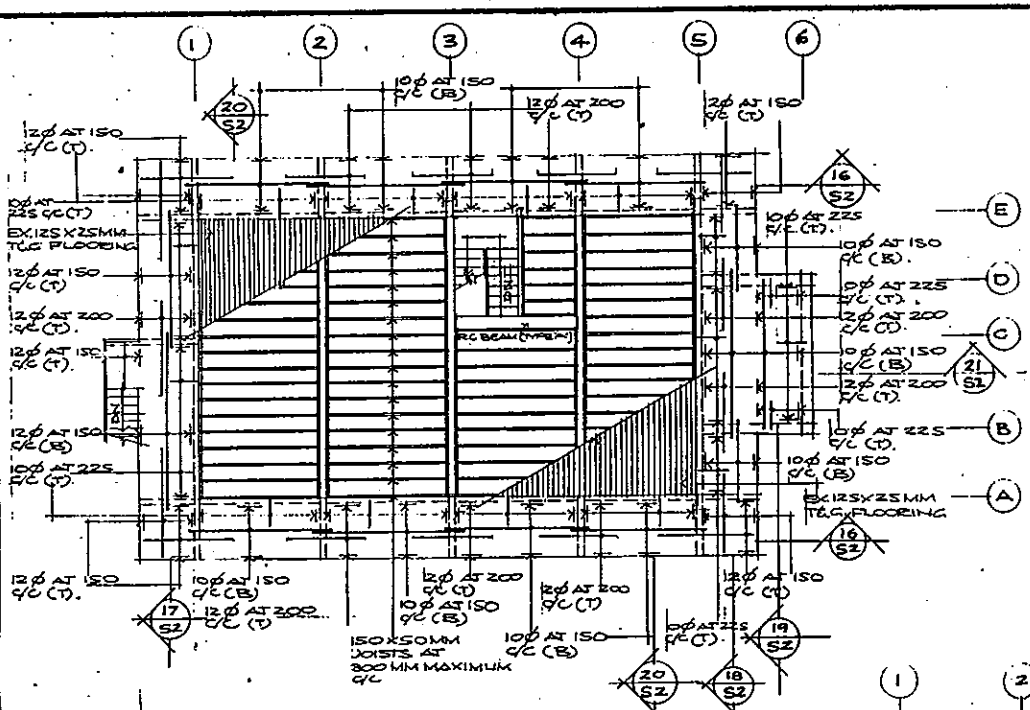
PROPOSED LABORATORY AND EQUIPMENT HOUSE AT DREKETI

Annex II 3/8

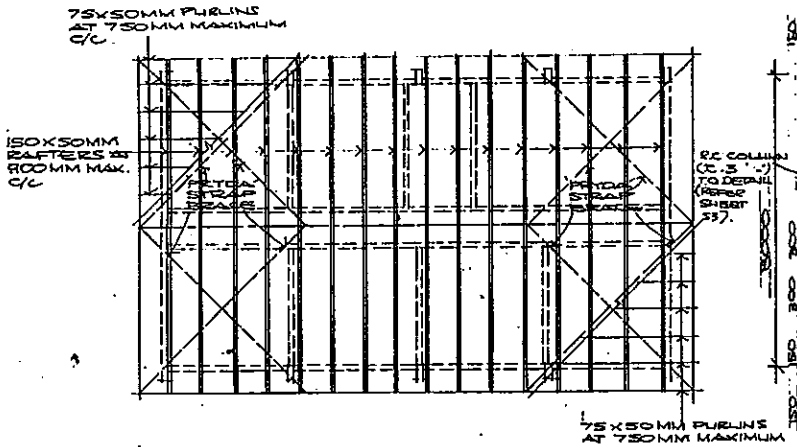
Shan & Associates
ARCHITECTURAL AND BUILDING DESIGNERS CONSULTANTS
48 HIGH ST, G. P. O. BOX 14505, SUVA.
PHONE 313625 FIJI ISLANDS.

SCALE	AS NOTED
DATE	FEB '90
DRAWN	RAKESH
DESIGN	SHAN

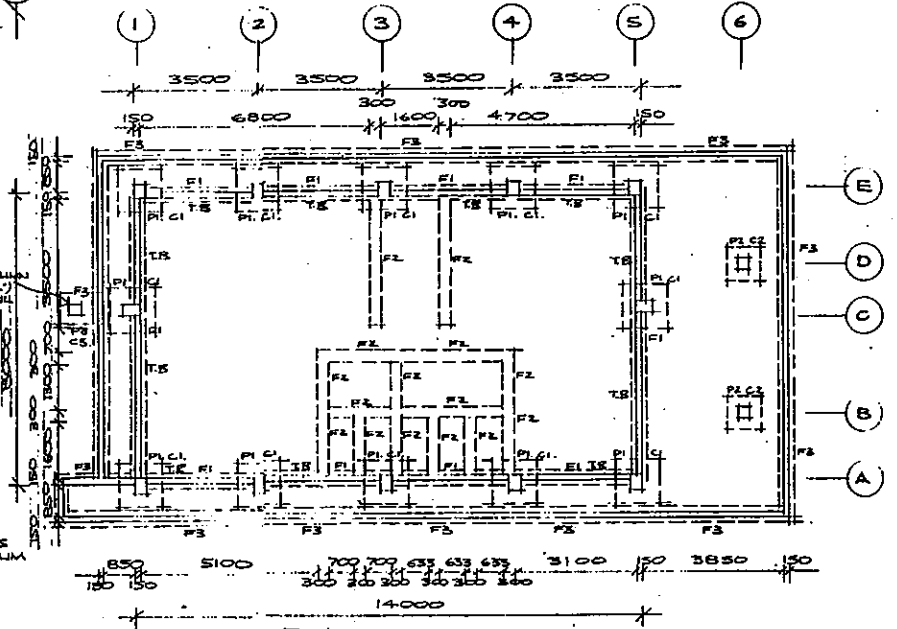
A2



FLOOR FRAMING AND SLAB REINFORCEMENT PLAN
1:100



ROOF FRAMING PLAN
1:100



FOUNDATION PLAN
1:100

EGGC CONSTRUCTION THE COMMON SEAL OF

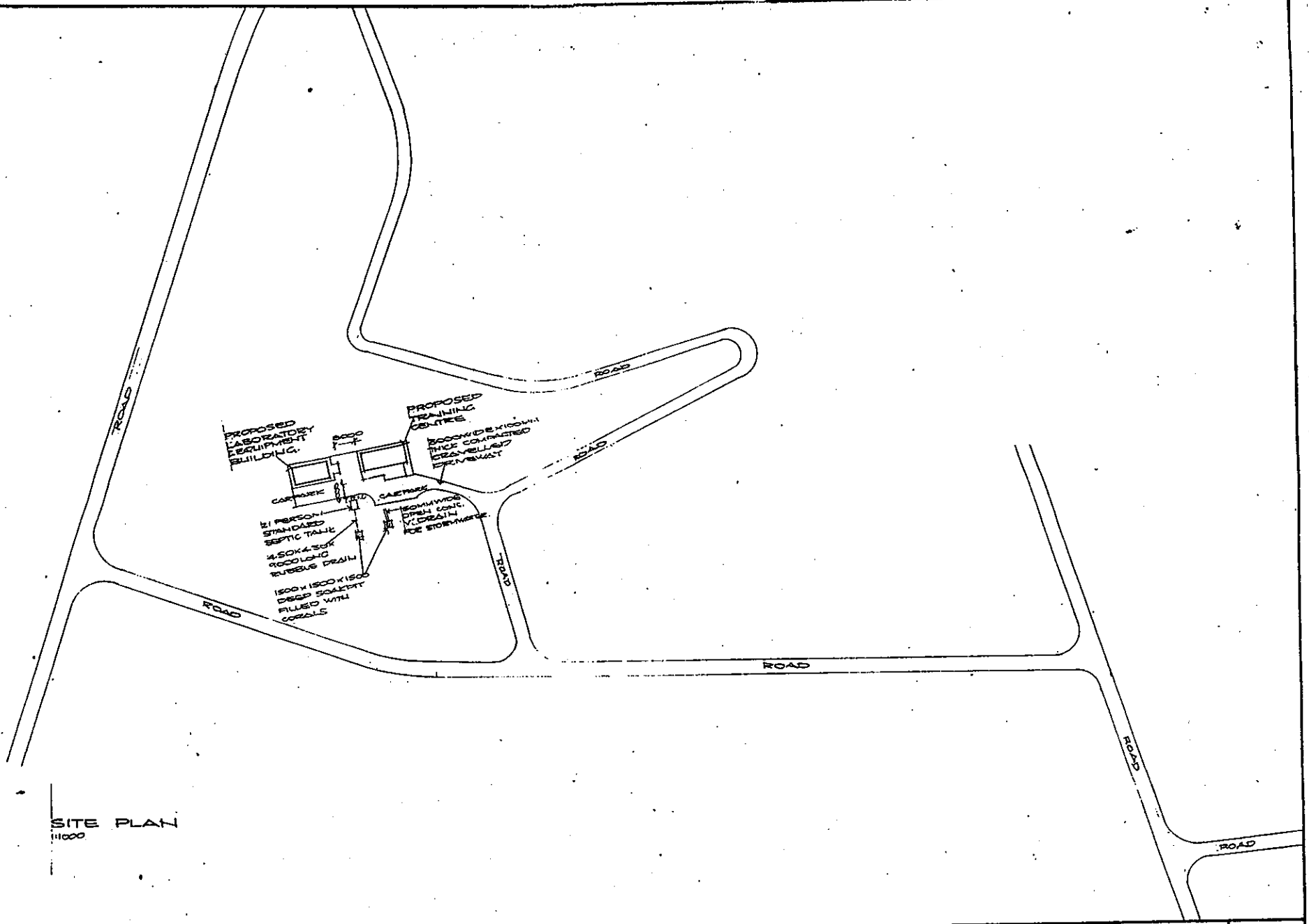
PROPOSED LABORATORY AND EQUIPMENT HOUSE AT DREKETI

Annex II 3/a

Shan & Associates.
ARCHITECTURAL DESIGNERS AND BUILDING CONSULTANTS
48 HIGH ST, G.P.O. BOX 14505, SUVA.
PHONE 313625 FIJI ISLANDS.

SCALE	AS NOTED
DATE	FEB '90
DRAWN	RAKESH
DESIGN	SHAN

A3



SITE PLAN
1:1000

REGD. ARCHITECTS THE COUNCIL OF FIJI

PROPOSED LABORATORY AND EQUIPMENT HOUSE AT DREKETI

Annex II 4/a

Shan & Associates
ARCHITECTURAL DESIGNERS AND BUILDING CONSULTANTS
68 HIGH ST. G.P.O. BOX 14505, SUVA.
PHONE 313625 FIJI ISLANDS.

SCALE	AS NOTED
DATE	FEB '90
DRAWN	RAKESH
DESIGN	SHAN

A4

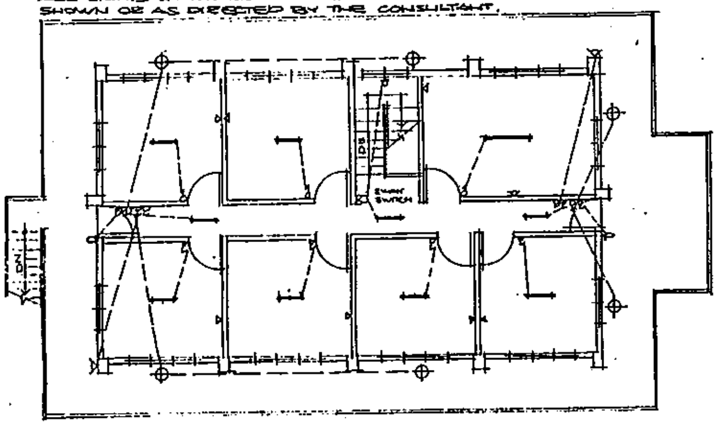
ELECTRICAL LEGEND

- 600MM FLUORESCENT TUBE LIGHT
- 1200MM " "
- 60W. BATTEN HOLDER WITH SHADE
- SELECTED WALL MOUNTED LIGHT
- POWER POINT
- SWITCH
- MAIN SWITCH BOARD
- PAR 38 (100 WATTS) SPOT LIGHT

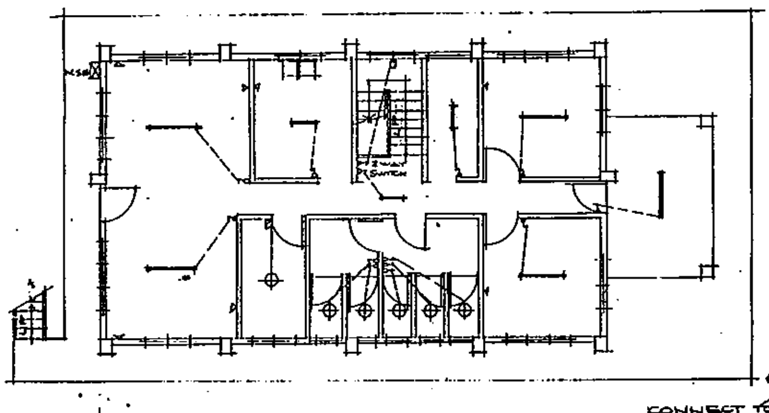
NOTE:
- ALLOW P.C SUM OF $450-00 FOR THE SUPPLY OF SELECTED LIGHTS ONLY.
- ALL LIGHTS AND FITTINGS SHALL BE TO OWNERS CHOICE.
- ALL LIGHTS & FITTINGS SHALL BE POSITIONED AS SHOWN OR AS DIRECTED BY THE CONSULTANT.

NOTE:

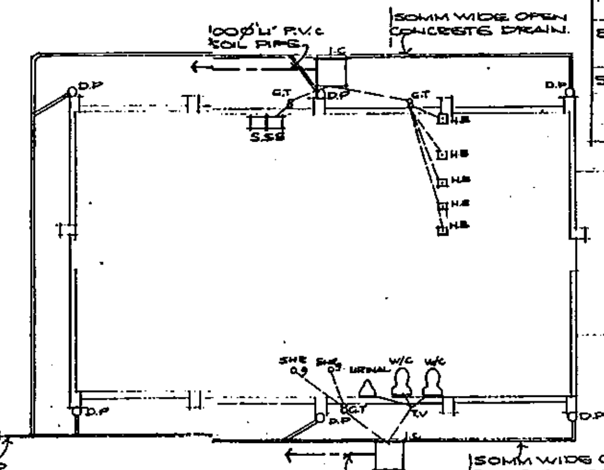
- CONFIRM ALL DIMENSIONS ON SITE PRIOR TO ANY FABRICATION OF WINDOWS AND DOORS.
- ALL TIMBER EXTERNAL DOORS TO BE STAINED FINISH.
- PROVIDE ARCHITRAVES IN ALL INTERNAL DOORS.
- PROVIDE TIMBER CYCLONE SHUTTER TO ALL WINDOWS.
- PROVIDE EX.225X25MM PINE PELMETS TO ALL WINDOWS AND EXTERNAL DOORS
- ALL PANS AND CISTERNS SHALL BE PACIFIC TRIO DUAL FLUSH (FOWLER WARE). (COLOUR TO BE SELECTED)
- ALL TILES SHALL BE TO OWNERS CHOICE OR AS APPROVED BY THE CONSULTANT.
- PROVIDE 900 X 600 MIRROR OVER ALL HANDBASINS.
- ALL HANDBASINS SHALL BE 500 REGEND FOWLERWARE (COLOUR TO BE SELECTED BY CONSULTANT)
- GLAZED TILES - $50.00 PER m²
- MOSAIC TILES - $35.00 PER m²
- QUARRY TILES - $35.00 PER m²
- VINYL TILES - $15.00 PER m²



FIRST FLOOR ELECTRICAL PLAN
1:100



GROUND FLOOR ELECTRICAL PLAN
1:100



DRAINAGE PLAN
1:100

WINDOW AND DOOR SCHEDULE

WINDOW/ DOOR No	TYPE	HEIGHT	WIDTH	No OF PANELS	PANEL TYPE	FRAME	COMMENTS
W1, W3, W10, W15, W18, W19, W20, W21, W24, W25, W26	LOUVRE	1200	1800	3	CLEAR GLASS	100X50MM TIMBER FRAME	NIL
W7, W8, W11, W13, W14, W16, W17, W22, W23, W27, W28	✓	✓	1200	2	✓	✓	✓
W12	✓	800	✓	✓	✓	✓	✓
W2, W3, W4, W5, W6	✓	600	600	1	OBSCURE GLASS	✓	✓
D1, D2, D13, D14	HINGED	2000	850	1	GLAZED TIMBER	EX.150X50	205 LOCKWOOD DEADLOCK
D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D15, D16, D17, D18, D19, D20, D21	✓	✓	800	✓	4MM INT. PLY FLUSH PANEL	EX.100X50	532 LOCKWOOD DEADLATCH

SCHEDULE OF FINISHES

ROOMS	FLOOR	WALLS	CEILING
GRD.FLOOR-ROOM, LABORATORY, EQUIPMENT ROOM, STORAGE, WASH.	PLASTERED VINYL TILES	PLASTERED PAINTED/ INTERIOR PLY PAINTED.	INTERIOR PLY PAINTED
ENTRANCE	PLASTERED QUARRY TILES	PLASTERED PAINTED	PLASTERED PAINTED
SHOWER/W/C	PLASTERED MOSAIC TILES	GLAZED TILES ~~1800~~ 1500 HIGH	INTERIOR PLY PAINTED
FOOTPATH	PLASTERED WOOD FLOAT FINISH	—	—
FIRST FLOOR - EQUIPMENT ROOM, PASSAGE	POLISHED	PLASTERED PAINTED/ INT. PLY. PAINTED	INTERIOR PLY PAINTED.
BALCONY	PLASTERED QUARRY TILES	PLASTERED PAINTED	—
STAIRS	PLASTERED QUARRY TILES/ BULL-NOSE TILES ON BOOBS	✓	✓

PLUMBING LEGEND

SSS	STAINLESS STEEL SINK
H.B	HANDBASIN.
SHR	SHOWER
g	GRATING
D.P	DOWN PIPE
T.V	TERMINAL VENT
I.C	INSPECTION CHAMBER
G.T	GULLY TRAP
W/C	WATER CLOSET

NOTE:
- ALL WASTE WATER TO BE TRAPPED BEFORE DISCHARGING.
- CONNECT ALL STORMWATER INTO SOAKPIT.

BEGG CONSTRUCTION LIMITED THE COMMON SEAL OF

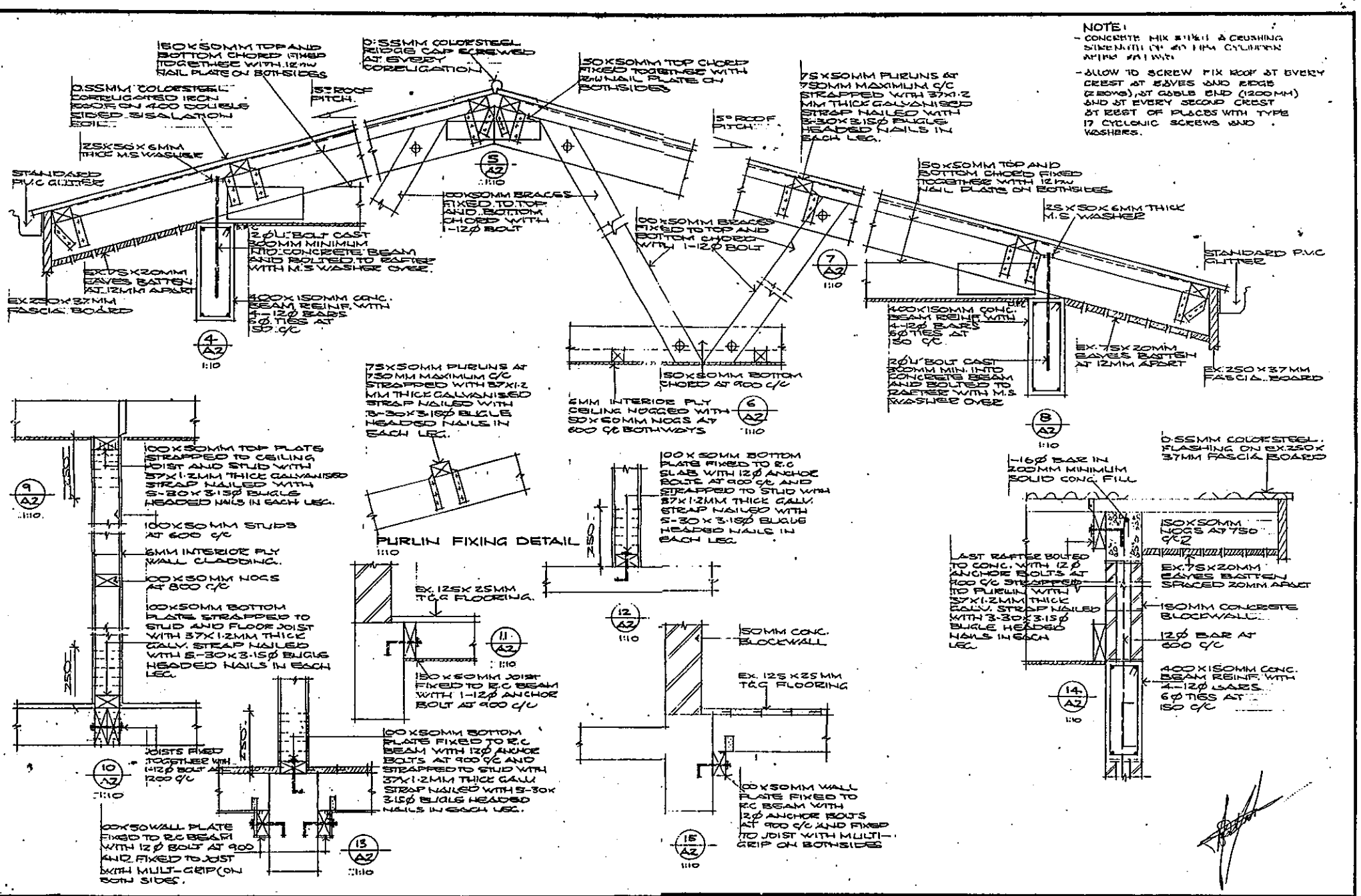
PROPOSED LABORATORY AND EQUIPMENT HOUSE AT DREKETI

Annex II 5/8

Shan & Associates
ARCHITECTURA: DESIGNERS AND BUILDING CONSULTANTS
48 HIGH ST. G.P.O. BOX 14505, SUVA. PHONE 313625 FIJI ISLANDS.

SCALE AS NOTED
DATE FEB '90
DRAWN - RAKESH
DESIGN - SHAN

A5

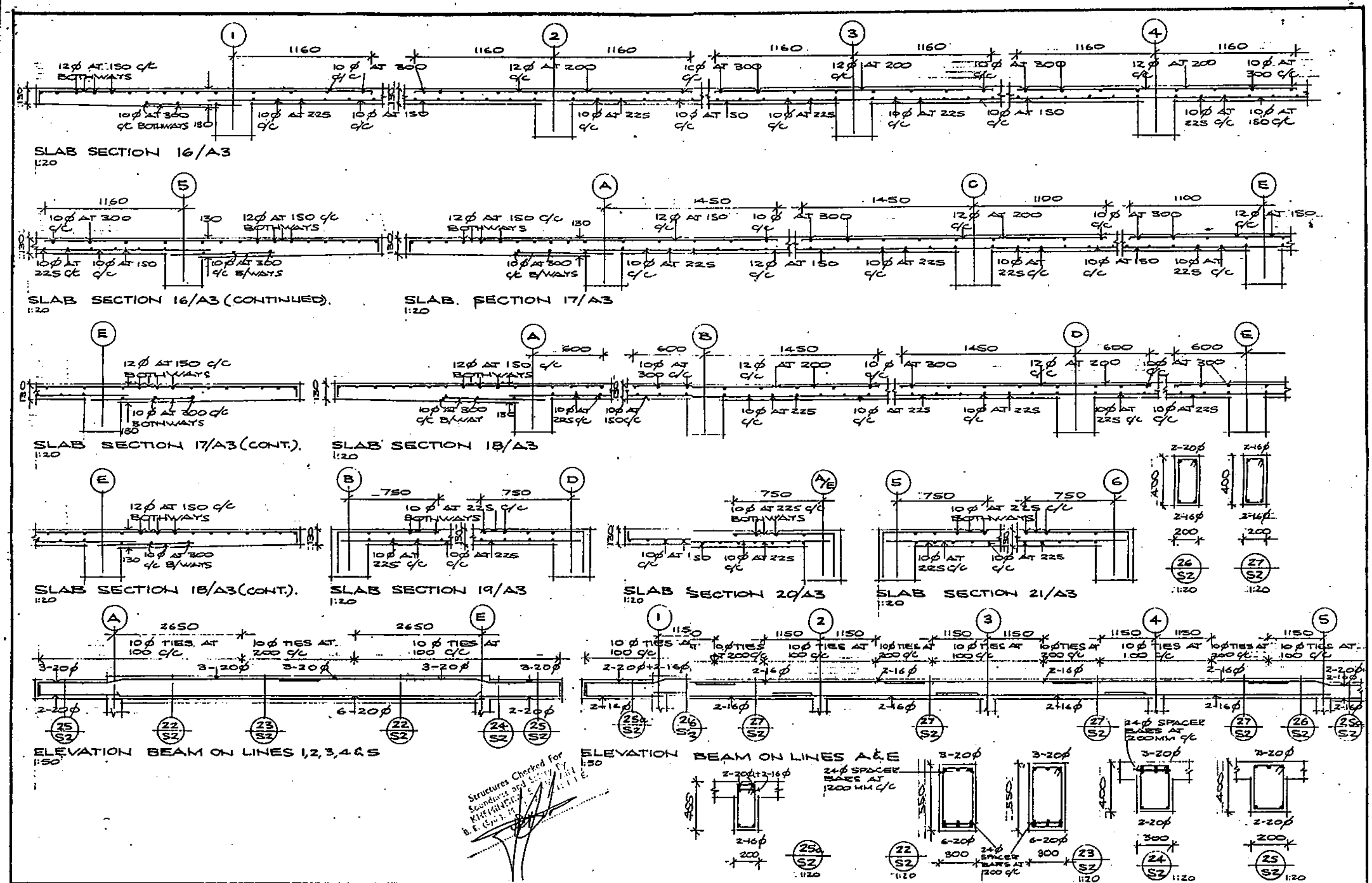


PROPOSED LABORATORY AND EQUIPMENT HOUSE AT DREKETI

Shan & Associates
ARCHITECTURAL DESIGNERS AND BUILDING CONSULTANTS
48 HIGH ST, G.P.O. BOX 14505, SUVA
PHONE 313625 FIJI ISLANDS.

SCALE	AS NOTED
DATE	FEB '90
DRAWN	RAKESH
DESIGN	SHAN

S1



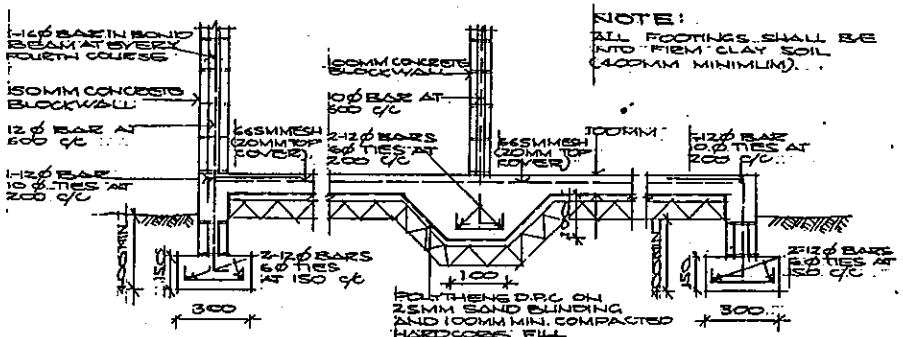
PROPOSED LABORATORY AND EQUIPMENT HOUSE AT DREKETI

Annex II 7/8

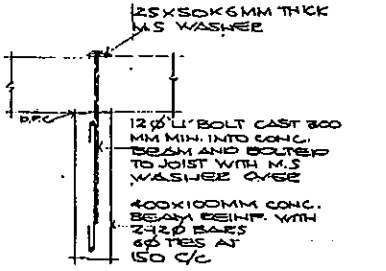
Shan & Associates
ARCHITECTURAL DESIGNERS AND BUILDING CONSULTANTS
18 HIGH ST, G.P.O. BOX 14505, SUVA.
PHONE 313625 FIJI ISLANDS.

SCALE	AS NOTED
DATE	FEB '90
DRAWN	RAKESH
DESIGN	SHAN

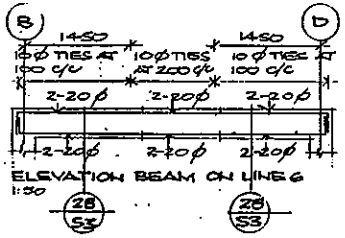
S2

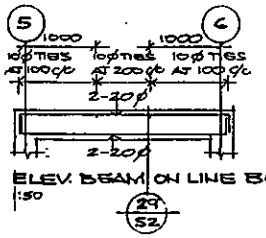


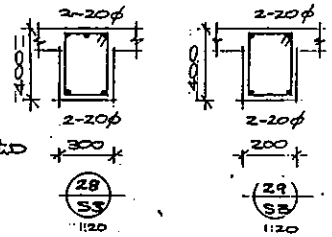
NOTE:
ALL FOOTINGS SHALL BE INTO FIRM CLAY SOIL (400MM MINIMUM).

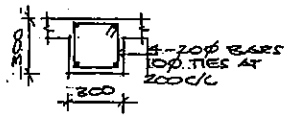


100MM CONC. BEAM TO JOIST FIXING DETAIL.
1:10

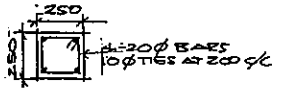




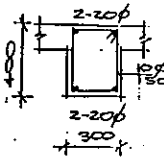




TYPICAL PERIMETER TIE BEAM DETAIL
1:20

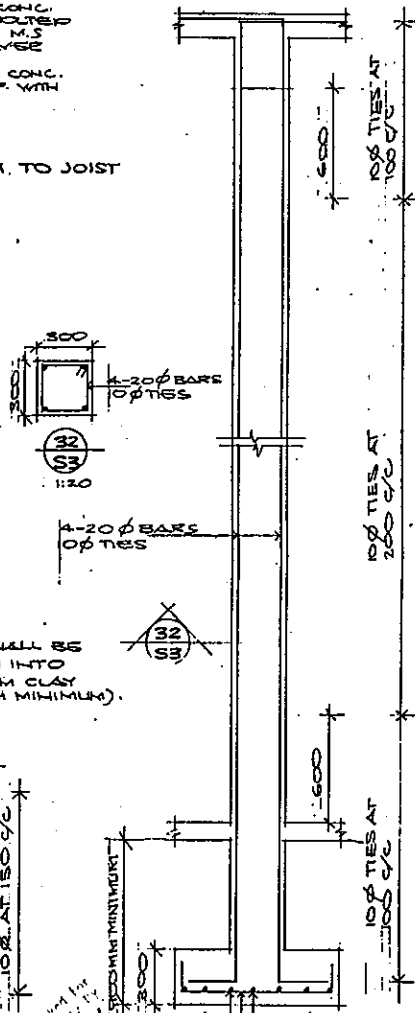


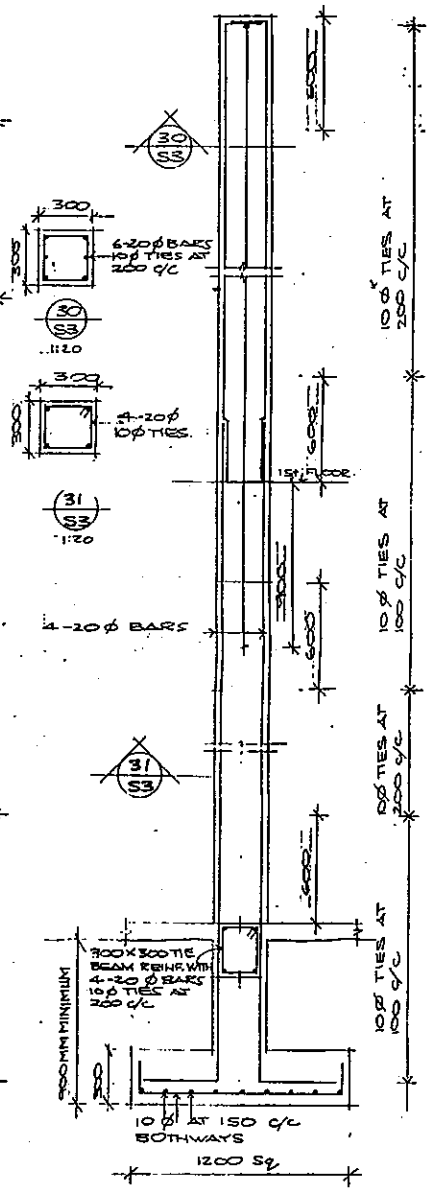
TYPICAL SECTION COLUMN A-A
1:10

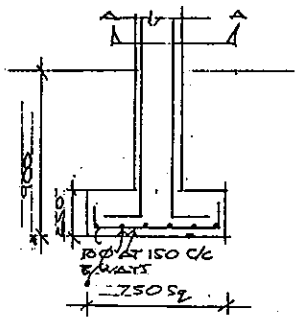


SECTION: BEAM (TYPE 'A').
1:20

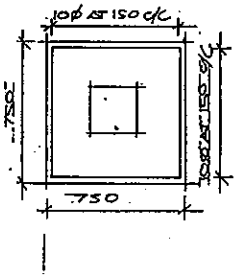
NOTE:
- ALL PADS SHALL BE TAKEN DOWN INTO NATURAL FIRM CLAY SOIL (900MM MINIMUM).



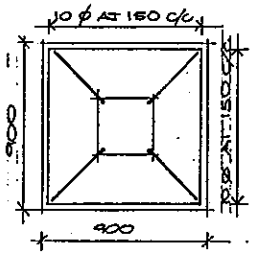




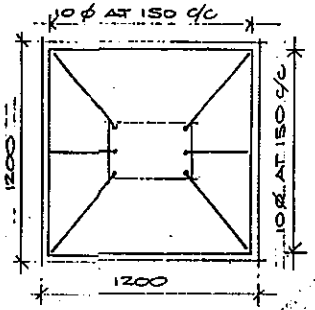
SECTION: COLUMN C3
1:20



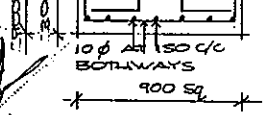
PLAN: POD P3.
1:20



PLAN: PAD P2
1:20



PLAN: PAD P1
1:20



SECTION: COLUMN C2
1:20

SECTION: COLUMN C1
1:20

PROPOSED LABORATORY AND EQUIPMENT HOUSE AT DREKETI

Annex II 8/6

Shan & Associates
ARCHITECTURAL DESIGNERS AND BUILDING CONSULTANTS
68 HIGH ST, G.P.O. BOX 14505, SUVA.
PHONE 313625 FIJI ISLANDS.

SCALE	AS NOTED
DATE	FEB '90
DRAWN	RAKESH
DESIGN	SHAN

S3

Fax: 302452
Telex: FJ2449
Telephone: 301829
302522

6－5　工事着手許可書

Japan International Cooperation Agency

3rd Floor
Dominion House
Private Mail Bag
Suva, Fiji.

27 March, 1990

Begg Construction Ltd.,
P.O.Box 6132 NASINU,

Att: Mr.Alim Begg

Dear Sir,

Re: Letter of Commencement - Pilot Infra-Structure Construction Work on the Improvement of Rice Cultivation Technology Project

Location : Dreketi, Northern Division

Please accept this letter as the Engineer's order to commence for the above.

All work is to be carried out as per the conditions and specifications of contract stipulated in the completion time stated by the 30th of June, 1990.

Any variation to the contract will have to be first approved by the Engineer, JICA.

The project supervision will be done by Mr. Akira IWAMOTO administration by the JICA.

As required by the contract please notify JICA and the project/supervisor in advance of all operations requiring inspection.

Yours faithfully,

Yoshio YOSHIDA
Resident Representative

JAPAN INTERNATIONAL COOPERATION AGENCY ★ JICA IN FIJI

C.C. Project Team Leader
Project Engineer

Fax: 302452
Telex: FJ2449
Telephone: 301829
302522

6－6 追加工事発注書

Japan International Cooperation Agency

3rd Floor
Dominion House
Private Mail Bag
Suva, Fiji.

7 June, 1990

Begg Construction Ltd.,
P.O.Box 6132 NASINU,

Att: Mr.Alim Begg

Dear Sir,

Re: Additional Work for Pilot Infra-Structure Construction Work on the Improvement of Rice Cultivation Technology Project

Location : Dreketi,Northern Division

According to your estimated cost for the following additional work on above mentioned project, JICA will order this work to your company.

Scope of work

1. Additional of 5 only hand basins in Laboratory and Equipment house

Period for Work

12th June, 1990 - 13th June, 1990

Estimation Cost

(1) Labor Rate		25.00
(2) Material Rate		200.00
	Total	F$225.00

Yoshio YOSHIDA
Resident Representative

C.C. Project Team Leader
Project Engineer

平成２年７月５日

国際協力事業団
フィジー事務所
吉田芳夫所長殿

フィジー国稲作研究開発
パイロットインフラ整備事業
施工監理担当　　岩本　彰

件名：フィジー国稲作研究開発計画パイロットインフラ整備事業レケティ地区
研修棟及び実験資材棟工事における追加工事の支払いの申請について

標記件名の工事について、施工業者の BEGG CONSTRUCTION LTD. より、６月１５日付けで追加工事の払いに対する請求がありました。

よって追加工事の支払いとして、発注書に基づく下記の金額の支払いを、お願い致します。

追加工事支払い金額　：　Ｆ＄２２５．００

以下に施工業者からの請求書を添付致します。

BEGG CONSTRUCTION LIMITED

PHONE: 393981
RES: 392122

Managing Director: ALIM BEGG

P.O. BOX 6132
NASINU.

63

15 June 1990

Mr.Akira Moto
C/- J.I.C.A
Suva

Dear Sir

RE : APPLICATION FOR THE ADDITIONAL WORK PAYMENT OF THE TRAINING AND LABORATORY AND EQUIPMENT HOUSE AT M.P.I COMPOUND

Iwould like to apply for the additional work payment which is 225.00 (TWO HUNDRED TWENTY FIVE DOLLARS) only.

I hope you will take my application in your consideration.

Thank you

Yours faithfully

ALIM BEGG.
(MANAGING DIRECTOR)

6－7　前渡金支払い

平成２年３月２８日

国際協力事業団
フィジー事務所
吉田芳夫所長殿

ﾌｨｼﾞｰ国稲作研究開発ﾊﾟｲﾛｯﾄ
ｲﾝﾌﾗ整備事業施工監理担当

件名　：　フィジー国稲作研究開発パイロットインフラ整備事業
　　　　　Dreketi 地区工事における前渡金支払いについて

標記プロジェクトの工事について、施工業者の Begg Construction Ltd. より、契約書　6－11）に基づく前渡金の支払い請求が３月２８日付でありました。

よって前渡金として、契約金額の２５％に当たる下記の金額の支払いをお願いいたします。

前渡金金額　：　F＄30，500．00

以下に施工業者からの請求書を添付いたします。
（Dreketiにcopyマシンが無いので、後日、コロニセアにお伺い致します折に持参致します。）

BEGG CONSTRUCTION LIMITED

PHONE: 393981
RES: 392122

Managing Director: ALIM BEGG

P.O. BOX 6132
NASINU.

28th March 1990

Mr. Akira Moto
C/- J.I.C.A
Suva

Dear Sir

RE: APPLICATION FOR THE ADVANCE PAYMENT OF THE TRAINING AND LABORATORY AND EQUIPMENT HOUSE AT M.P.I COMPOUND

I would like to apply for the ADVANCE payment of 25% which is 30,500.00(THIRTY THOUSAND FIVE HUNDRED DOLLARS).only .

I hope you will take my application in your consideration .

Thank you

Yours faithfully

.....

M. S. BEGG
(MANAGER)

6－8　第１回中間払いと検査

7日　　平成２年５月１７日

国際協力事業団
フィジー事務所
吉田芳夫所長殿

フィジー国稲作研究開発
パイロットインフラ整備事業
施工監理担当　岩本　彰

件名：フィジー国稲作研究開発計画パイロットインフラ整備事業レケティ地区
研修棟及び実験資材棟工事における第１回中間払いの申請について

標記件名の工事について、施工業者の BEGG CONSTRUCTION LTD. より、契約書第６項－ 11)に基づき、５月１５日付けで第１回中間払いに対する請求がありました。　これを受け、５月１５日に工事に対する中間検査を実施したところ工事の出来高は約５０％であり、設計書、仕様書に基づいて施工されたものであることを確認致しました。
施工業者からの請求金額は３０％Ｆ＄３６，６００．００でしたが、部分払い限度額は出来高より前渡金の２０％と保留金の5％（出来高の１０％）を差引いた２０％であるため、第１回中間払いとして、契約金額の２０％に当たる下記の金額の支払いを、お願い致します。

第１回中間払い金額　：　Ｆ＄２４，４００．００

以下に施工業者からの請求書を添付致します。

BEGG CONSTRUCTION LIMITED

PHONE: 393981
RES: 392122

Managing Director: ALIM BEGG

P.O. BOX 6132
NASINU.

15th May 1990

Mr. Akira Moto
C/- J.I.C.A.
Suva

Dear Sir

RE: APPLICATION FOR THE 1ST INTERIM PAYMENT OF THE TRAINING AND LABORATORY AND EQUIPMENT HOUSE AT DREKETI IN M.P.I COMPOUND

I would like to apply for the 1st interim payment of 30% which is $36,60 0.00 (THIRTY SIX THOUSAND SIX HUNDRED DOLLARS) only .

I hope you will take my application in your consideration .

Thank you

Y ours sincerely

.....

M. S. BEGG
(MANAGER)

6－9　第２回中間払いと検査

平成〃＋０月４日

国際協力事業団
フィジー事務所
吉田芳夫所長殿

フィジー国稲作研究開発
パイロットインフラ整備事業
施工監理担当　　岩本　彰

件名：フィジー国稲作研究開発計画パイロットインフラ整備事業レケティ地区
　　研修棟及び実験資材棟工事における第２回中間払いの申請について

標記件名の工事について、施工業者の BEGG CONSTRUCTION LTD. より、契約書第６項－ 11)に基づき、５月３１日付けで第２回中間払いに対する請求がありました。

よって第２回中間払いとして、契約金額の２０％に当たる下記の金額の支払いを、お願い致します。

第２回中間払い金額　：　Ｆ＄２４，４００．００

以下に施工業者からの請求書を添付致します。

BEGG CONSTRUCTION LIMITED

PHONE: 393981
RES: 392122

Managing Director: ALIM BEGG

P.O. BOX 6132
NASINU.

31st May 1990

Mr. Akira Moto
C/- J.I.C.A
Suva

Dea r Sir

RE: APPLICATION FOR THE 2ND INTERIM PAYMENT OF THE TRAINING AND LABORATORY AND EQUIPMENT HOUSE AT DREKETI IN M.P.I COMPOUND ;

I would like to apply for the 2nd interim payment of 20% which is $24,400.00 (TWENTY FOUR THOUSAND FOUR HUNDRED DOLLARS) only .

I hope you will take my application in your consideration .

Thank you

Yours sincerely

.....
M.S. BEGG
(MANAGER)

6－10　完了検査

平成２年７月５日

国際協力事業団
フィジー事務所
吉田芳夫所長殿

フィジー国稲作研究開発
パイロットインフラ整備事業
施工監理担当　　岩本　彰

件名：フィジー国稲作研究開発計画パイロットインフラ整備事業レケティ地区
研修棟及び実験資材棟工事における完工時払いの申請について

標記件名の工事について、施工業者の BEGG CONSTRUCTION LTD. より、契約書第６項－ 11)に基づき、７月２日付けで完工時払いに対する請求がありました。

よって完工時払いとして、契約金額の２５％に当たる下記の金額の支払いを、お願い致します。

完工時払い金額　：　Ｆ$３０，５００．００

以下に施工業者からの請求書を添付致します。

BEGG CONSTRUCTION LIMITED

PHONE: 393981
RES: 392122

Managing Director: ALIM BEGG

P.O. BOX 6132
NASINU.

2nd July 1990

Mr. Akira Moto
C/- J.I.C.A
Suva

Dear Sir

RE: APPLICATION FOR THE 3RD INTERIM PAYMENT OF THE TRAINING AND LABORATORY AND EQUIPMENT HOUSE AT M.P.I COMPOUND

I would like to apply for the 3rd Interim payment of 25% which is 30,500.00(THIRTY THOUSAND FIVE HUNDRED DOLLARS).only .

I hope you will take my application in your consideration .

Thank you

Yours faithfully

.....

M. S. BEGG
(MANAGER)

Fax: 302452
Telex: FJ2449
Telephone: 301829
302522

Japan International Cooperation Agency

3rd Floor
Dominion House
Private Mail Bag
Suva, Fiji.

DATE: 10/07/90

Dr R N Duve
Director of Research &
Project Manager IRCTP
Ministry of Primary Industries
Koronivia

Dear Dr Duve

I would like to report that construction work for
the Training Center and Laboratory & Equipment House
at Dreketi are compreted.

I am deeply indebted to your cooperation for the abovementioned.

A. IWAMOTO
JICA IRCTP EXPERT

CC: JICA Representative
Japanese Act.Team Leader IRCTP/JICA

THE IMPROVEMENT OF RICE CULTIVATION TECHNOLOGY PROJECT

MINISTRY OF PRIMARY INDUSTRIES

Koronivia Research Station
PO Box 77,
Nausori.
Telephone: 47044

REF. NO.

DATE :

10 July 1990

Mr Y Yoshida
Resident Representative
Japan International Cooperation Agency
SUVA

Dear Mr Yoshida

I would like to acknowledge with pleasure the completion of construction for the Training Centre, Laboratory and Equipment House at Dreketi, Northern Division from Mr Akira Iwamoto, JICA/IRCTP Short-Term Engineering Expert.

The construction of the buildings are of high quality and completed within 90 days. Hoping that those buildings will be implemented for Project Activities in the Northern Division as soon as possible.

Furthermore, we would like to request if you could provide the following necessities, much needed for the implementation of the buildings.

1. Water Tank
2. Mosquito Nets
3. Generator

Looking forward to your continued cooperation and assistance.

Sincerely yours

R N Duve
Director of Research &
Project Manager IRCTP

cc: Mr K Masumi Acting Japanese Team Leader IRCTP/JICA

1990年７月６日

JICA　FIJI　事務所

吉田　芳夫　所長殿

稲作研究開発計画パイロット
インフラ整備事業施工監理業務
施工監理担当　岩本　彰

業務完了報告書

フィジー国稲作研究開発計画パイロットインフラ整備事業施工監理業務

（レケティ地区）の業務が７月６日付けで完了したことを報告致します。

6.2 業務状況報告書

事業団：本部				プロジェクト		
	部長	課長	担当	リーダー	調整員	報告者

業務状況報告書

（平成2年2～3月分）

国際協力事業団

総裁殿

フィジー国稲作研究開発パイロット
インフラ整備事業施工監理

石戸谷 実

件名　フィージー国稲作研究開発パイロットインフラ整備事業 Dreketi 地区施工監理業務の平成2年3.4月の業務報告書の提出に関して.

内容

1. 設計について.
2. 入札について
3. 入札結果
4. Negociation 経過
5. 其他
6. 業務日誌
7. 添付資料

1. Training Center and Laboratory & Equipment House の設計について.

K.R.S 渡辺リーダー他プロジェクト Member の同 Center 活用の意見を求め, 又将来の利用管理(維持)である M.P.I の意見を徴して Basic plan を樹て, 詳細設計は Koromivia の project building に実績のある Begg Construction Ltd に委託した。

2. 入札について,

1) 入札は指命競争とし次の三者で行った。

① Labasa Builders Ltd., (M.P.I. 推薦)
P.O. Box 95 Labasa

② Jaduram Industries Ltd., (〃)
P.O. Box 7 Labasa

③ Begg Construction Ltd., (過去JICA実績)

2) 指命通知と同時に Bill of Quantities の調査作成を建築コンサルタント. Sham & Associates に委託した。(Specification 含む)

3 入札結果

1位 F$ 154,120.00 Begg Construction Ltd.,

2位 F$ 255,280.00 Labasa Builders Ltd.,

3位 F$ 274,072.00 Jaduram Industries Ltd.,

予定価格 F$ 122,000.00

4. Negociation 経過

三者共に予定価格を上廻っているが、予定価格の上、下30%を限度に最低価格の者と Negociation に入り、下記の交渉調整を行ったところ予定価格内で合意した。

記

調整事項

A). 共通

1) Contingency sum	10,000.00
2) Door Locks	4,000.00
3) Selected lights	900.00
4) plywood from 6mm to 4mm	5,240.00
5) Quarry tiles	2,340.00
Sub total	22,480.00

B) Training Center.

1) Floor height 600mm → 300mm	400.00
2) Timber railing	500.00
3) Footpath from conc to gravel and width to 60cm except entrance	500.00
4) partition & doors	2,500.00
5) Change reinforcement slab 665 to φ6 bars at 300mm c/c bothways	500.00
6) Reduction and price of mosaic tile and height for glazed tile	500.00
Sub total	4,900.00

C). Laboratory and Equipment House.

1) Storage partition and beside shower and toilet area.	350.00

2) provision for waste pipe, 5 only hand basin deleted and additional hand basin ---------- 200.00

3) 9 Nos. of louver windows from (W, W15 W18~21 W24~26) ---------- 260.00

4) Footpath conc → Gravel with 60 cm width except entrance ---------- 500.00

5) Toilet & shower wall glazed +80 cm → 135 cm also reduction in the area mosaic tile ---------- 400.00

6) Slab reinforce 665 mesh → 6 ϕ bars at 300 mm c/c both ways ---------- 500.00

7) Half the portion of gallery (Hill side) 1,250.00

sub total 3,460.00

D) Others

1) profit, and transportation 1,280.00

Grand total 32,120.00

三) 契約金額

下半 154,120.00 − 32,120.00 = 122,000.00

5. 其他.

1). 入札、結果バラツキが出たのはTender期間が7日で短期のせいか数量明細まで検討したの一社だけて他社は概算で提出したのでNegoが不可能とした。

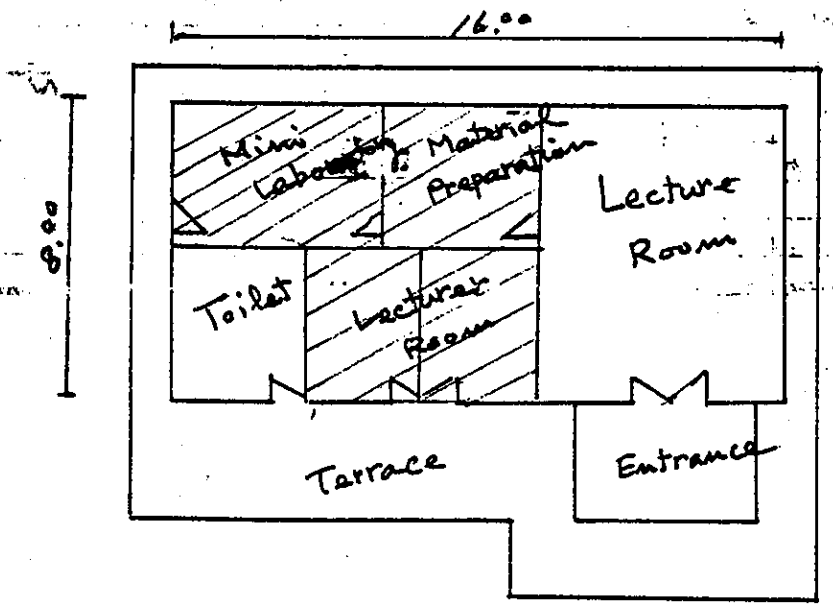
2). 最低入札価格でも予定価格を上廻ったのはFIJI国の物価上昇率が高く、設計時と実施時の長期間が影響大きい。

3) Negociationでcontingency等の削除可能と思われるものはcutした。

4) 建物内部の一部間仕切りを削除したが将来の利用に備えて窓は残してある。

5) 外廊下の半分を残したのはM.P.1の強い希望もあって処理した。

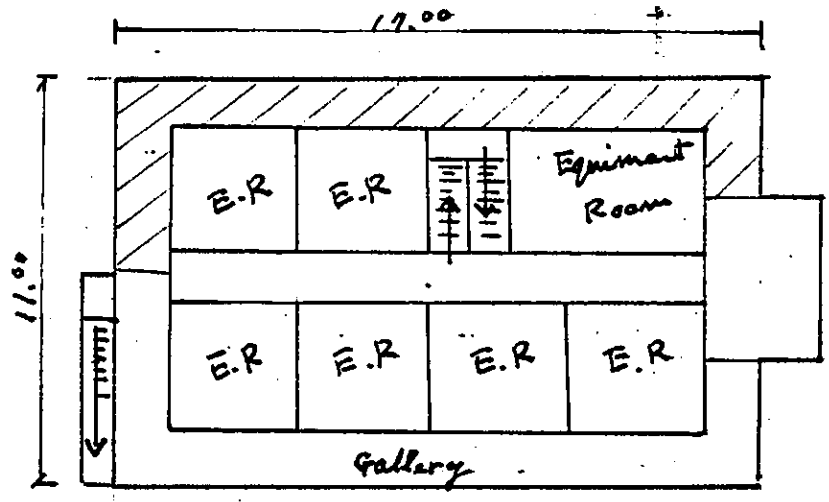
6). 給水源より建物までの水供給はM.P.1に申し入れてあるが、乾季に水不足があるから対策を講ずるよう話があり。その時になって相談したらどうかと話した。



Training Center.

S 1:200

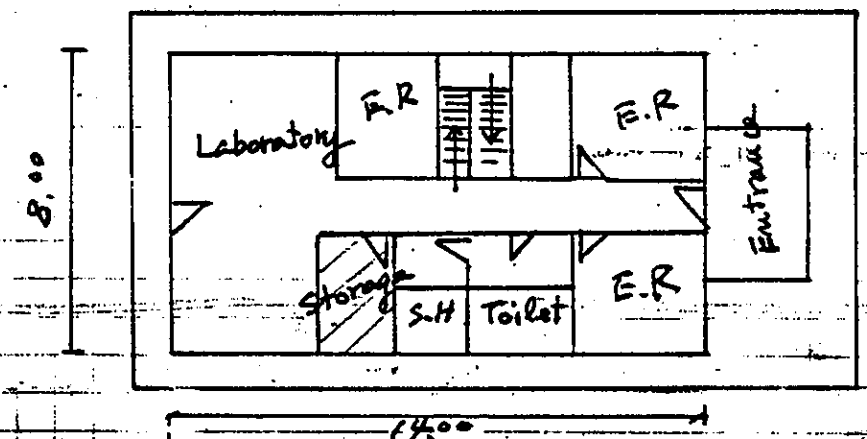
Grand Floor.



Laboratory & Equipment House

S 1:200

First Floor



Grand Floor

事業団本部				プロジェクト		
	部長	課長	担当	リーダー	調整員	報告者

業務状況報告書

（平成２年３月分）

国際協力事業団

総　裁　殿

フィジー国稲作研究開発パイロット
インフラ整備事業施工監理担当
岩　本　彰

件　名：フィジー国稲作研究開発パイロットインフラ整備事業
Dreketi 地区施工監理業務平成２年３月分の
業務報告書の提出について

標記業務における平成２年３月分の業務報告書を以下のとおり提出致しますので、ご査収の程宜しくお願い致します。

１．契約業務の補助

２．施工開始準備

３．施工監理担当者の現地派遣期間の変更

４．翌月の予定

５．プロジェクト業務日誌

６．添付資料

1．契約業務の補助

契約／施工監理担当の石戸谷により実施された入札によりBegg Construction Ltd.,が第１位となったが、予定価格との差が F$ 30,000以上あるため契約交渉をBegg Construction Ltd.,との間で実施するとともに、プロジェクトのリーダー始め各専門家及びフィジー側受入機関である第１次産業省排水潅漑部との打ち合せを行なった。その結果、構造材以外の一部部材の変更、実験器材棟の回廊の後方半分を削除する等の調整を行ない、F$ 122,000で契約に至った。

2．施工開始準備

４月２日を着工日とすることで施工業者と合意したため、工程表の提出を指示し、受領した。

３月２８日付けで施工業者より総工事費の25% に当たる F$ 30,500の前渡金支払い請求があった。建設資材の多くをスバから現場まで輸送する経費等を考慮した結果、前渡金請求額は妥当であると考えられるため、吉田所長に上記金額の支払いをお願いし、前渡金が支払われた。

また、ランバサの第１次産業省北部事務所及びレケティのProject Officeにおいて、施工に関する打ち合せを実施するとともに、施工期間中の協力を要請した。

3．施工監理担当者の現地派遣期間の変更

当初の見込みよりも契約業務に時間を要したため、工事完了予定日が６月３０日となった。岩本施工監理担当の現地派遣期間は、６月１５日までとなっているため、工事の進捗を眺め、派遣期間の変更を早めに事業団本部に要請することとした。尚、本件については専門家派遣契約時の契約金額の変更は行わず、期間のみの変更とすることで、事業団本部及びコンサルタンツは了承済みである。

4．翌月の予定

工事着工

施工予定項目

基礎掘削、基礎及び柱の鉄筋組み立てとコンクリート打設、床スラブのコンクリート打設、梁の鉄筋組み立てとコンクリート打設、一部外内壁のブロックの設置

以上

5．プロジェクト業務日誌

平成２年３月分のプロジェクト業務日誌を以下に付す。

6．添付資料

(1) 工程表（バーチャート）
(2) 前渡金支払い請求書

プロジェクト業務日誌

リーダー	調整員	報告者
		（印：岩本）

プロジェクト名：フィジー国稲作振興計画パイロットイリゲーション建設業務、
施工監理担当／　岩本　彰

1990 年 3月分　　No. 1

日＼業務	主要業務動向
3/19 雨（月）	（3月18日 JL8771便にて成田からシドニーへ） FJ913便にて シドニーから Nadi に到着後 国内線 FJ575便にて Suva へ移動。 目的地到着時刻 23:50
3/20 雨（火）	JICA Fiji 吉田所長表敬。 日本大使館日田書記官に挨拶 K.R.P プロジェクト渡辺リーダー 増見専門家に着任の挨拶及び打合せ 第一次産業省（以下 M.P.I） 排水かんがい部（以下 D&I） Mr. Satya Swami 及び Mr. Sharman 表敬及び打合せ
3/21 雨（水）	入札にて1位となった Begg. Construction Ltd. と第1回契約交渉 当方の予定金額とは F$ 50,000 以上の差があり 建物の構造材以外で変更できる 箇所の検討を行う。
3/22 雨（木）	Begg. Construction Ltd. と第2回契約交渉 M.P.I 次官 Mr. Nath 表敬。 Dreketi での Accomodation 及び Counterpart に対する協力を要請（K.R.P 渡辺リーダーからこの件に対する要請書を提出）
3/23 雨/曇（金）	Begg Construction Ltd. と第3回契約交渉。 大枠で合意に達す。
3/24 曇（土）	Begg Construction Ltd. と工事数量等を変更、調整し、総工事費 F$ 122,000.00 で合意に達す。
備考	3/25（日）曇り　契約書類作成 ランバサへ移動。

プロジェクト業務日誌

リーダー	調整員	報告者
		(岩本)

プロジェクト名：フィジー国稲作技術開発パイロットインフラ整備事業

施工監理担当／ 岩本 彰

1990 年 3月分 No. 2

日＼業務	主 要 業 務 動 向
3/26 晴 (月)	・テンバサ D/I North Div. Mr. Mudilliar と打合せた後、レケティーへ移動 レケティにて M.P.I North 責任者 Mr. Jaghat Shin と打合せ 建築地盤確認 ・スバへ移動
3/27 曇り (火)	契約内容を K.R.P 派遣リーダー及び弾員専門家と打合せ。 JICA Fiji 事務所にて吉田所長及び Bagg. Const. Ltd との間で契約書取り交わし。 (以下施工業者)
3/28 雨/曇 (水)	施工業者より前渡金 F$30,500 (契約金額の25%)の請求あり。吉田所長より支払い指示。 石谷 帰国挨拶 D&I Mr. Atu 局長と打合せ。
3/29 雨/晴 (木)	K.R.P 派遣リーダーと打合せ。 資料整理
3/30 雨/晴 (金)	テンバサへ移動 D&I. Mr Gunalingam, Mr Mudillia, M.P.I. Mr Jaghat Shin と打合せ
3/31 晴 (土)	レケティーへ移動 レケティー周辺のプロジェクト視察。 資料整理
備考	

事業団本部				プロジェクト		
	部長	課長	担当	リーダー	調整員	報告者
				留見		

業務状況報告書

（平成２年４月分）

国際協力事業団

総　裁　殿

フィジー 国稲作研究開発パイロット
インフラ整備事業施工監理担当
岩　本　彰

件　名：フィジー国稲作研究開発パイロットインフラ整備事業
Dreketi 地区施工監理業務平成２年４月分の
業　務　報　告　書　の　提　出　に　つ　い　て

標記業務における平成２年４月分の業務報告書を以下のとおり提出致しますので、ご査収の程宜しくお願い致します。

１．施工監理業務状況

２．設計変更箇所

３．翌月の予定

４．プロジェクト業務日誌

５．施工状況写真

1．施工監理業務状況

2日（月曜日）に開始された工事は、途中二日間の雨による中断と、イースター休暇による建築資材到着の遅れなどにより、現在四日間程の遅れが出ている。

4月30日現在、施工完了及び施工中の工事項目は以下のとおり。

		研修棟	実験資材棟
基礎掘削	:	完　了	完　了
基礎鉄筋配置	:	完　了	完　了
基礎コンクリート打設	:	完　了	完　了
梁鉄筋配置	:	完　了	未着工
床鉄筋配置及びコンクリート打設	:	完　了	完　了
柱鉄筋配置及びコンクリート打設	:	――	50%(1階部分完了)
壁工事	:	50%	40%
屋根工事	:	未着工	未着工

2．設計変更箇所

着工に当たり設計変更を要する箇所があったため、以下のように設計変更を実施した

1）トイレの位置

実験棟及び研修棟の棟方向は東西棟であり、北側がカーポートに接する（建物の前面に当たる）計画となっているが、どちらの建物も北側に位置しており、建築計画上好ましくないため、建物の後方、南側にシフトした。

尚、この変更に伴う工事費及び工期の増加はなし。

2）内壁用ブロック

計画では内壁用ブロックとして100mm厚のものを用いることとなっているが、現地で入手可能な100mm厚ブロックは鉄筋を通すための穴がなく、構造上危険であるため、外壁に用いている150mm厚ブロックを内壁にも用いることとした。

ブロックの厚さが変わったことにより、トイレの間仕切りの位置及び窓の位置についても変更した。

尚、この変更に伴う工事費の増加に対応するため、プロジェクトＪＩＣＡ専門家の了解を得て、貯蔵室の間仕切りをキャンセルした。また、この変更に伴う工期の増加はなし。

3）実験資材棟実験室のドア枚数の増加

実験室の外壁に位置するドアは、計画では900mm幅1枚となっているが、1時に10名以上の研修受講者が出入りすることを考慮すると、狭いため1枚増設し、2枚ドアの1800mm幅に変更した。

尚、これに伴う工事費及び工期の変更はなし。

4）研修棟研修室の窓の増設

研修室の窓は、西側のみに設置する計画となっているが、ＦＩＪＩ側より採光を考慮し、北側にも窓を設置する旨の要請があった。ＦＩＪＩ側が窓に係る資材を提供するという条件でこの要請を了承し、北側ドアの両側に窓を増設することにした。

尚、この変更に伴う工事費及び工期の変更はなし。

4．翌月の予定

翌月末には研修棟が完成し、実験資材棟の主要構造部材の施工も完了する予定。また施工の進捗状況によって、施工業者から第１回目の中間払いの請求が予想される。翌月の施工予定工事項目は以下に示すとおり。

1）研修棟

壁工事（木構造部及びモルタル仕上げ）、屋根工事（小屋組及びカラー鉄板設置）、設備工事（配管）、建具工事（窓及びドアの設置）、塗装及びタイル工事、仕上げ工事　以上

2）実験資材棟

梁鉄筋配置及びコンクリート打設（１、２階）、床鉄筋配置及びコンクリート打設（２階部分）、壁ブッロック積み上げ（２階部分）、屋根工事　以上

5．プロジェクト業務日誌

平成２年４月分のプロジェクト業務日誌を以下に付す。

6．工事写真

４月に実施した工事に対する写真を巻末に添付する。

プロジェクト業務日誌

プロジェクト名：フィジー国 稲作研究開発 パイロットインフラ整備事業

施工監理担当／ 岩本 彰

リーダー	調整員	報告者
		（岩本印）

1990 年4月分 No. 1

日	主要業務動向
4/2 晴（月）	休日前は施工準備 ・研修棟及び実験棟の位置を決定し仮杭を打ち込む ・仮設小屋の建設
4/3 曇/雨（火）	・建設資材の調達と工事用水供給用ホースの接続
4/4 晴（水）	・研修棟の線出し、レベルチェック
4/5 晴（木）	・研修棟基礎の堀削 ・実験棟の線出し、レベルチェック及び基礎の堀削
4/6 晴（金）	・研修棟及び実験棟基礎堀削 ・基礎（フーティング、パッド）鉄筋組立て ・MPI 北部事務所にて打合せ（トイレの位置、資材について）
4/7 晴（土）	・実験棟柱の鉄筋組立て
備考	

プロジェクト業務日誌

リーダー	調整員	報告者
		岩本

プロジェクト名：フィジー国 稲作研究開発 パイロットインフラ整備事業

施工監理担当／ 岩本 彰

1990 年 4月分 No. 2

業務日	主要業務動向
4/9 曇/雨 (月)	・研修棟 基礎フーティングの鉄筋配筋、コンクリートの打設 及び ブロック1段目設置
4/10 雨 (火)	・風雨の為工事中止 ・資料整理
4/11 雨 (水)	・同上
4/12 曇り (木)	・実験棟基礎（パッド）のコンクリート打設 ・研修棟 床面までのブロック積上げ
4/13 曇 (金)	・研修棟床の盛土 ・骨材の納入が遅れているため、コロニティーに調査に行く。
4/14 曇/雨 (土)	・研修棟 テラスの盛土 ・実験棟 柱の鉄筋組立て
備考	

プロジェクト業務日誌

リーダー	調整員	報告者

プロジェクト名：フィジー国 稲作研究開発 パイロットインフラ整備事業

施工監理担当／ 岩本 彰

1990 年 4月分 No.3

業務 / 日	主要業務動向
4/16 晴 (月)	・インスター休日の為工事は休み。
4/17 晴 (火)	・実験棟 柱の鉄筋組立て ・研修棟 床スラブの鉄筋配筋
4/18 晴 (水)	・実験棟基礎(フーチング)コンクリート打設。
4/19 晴 (木)	・スバに移動。 JICA吉田所長及び増員専門家に施工状況報告。 ・研修棟 床スラブのコンクリート打設。 ・実験棟 床の盛土
4/20 晴 (金)	・レケティーに移動。 ・実験棟 床盛土のしめ固め及び鉄筋の配筋。
4/21 晴/曇 (土)	・実験棟 床スラブコンクリート打設
備考	

プロジェクト業務日誌

リーダー	調整員	報告者

プロジェクト名：フィジー国 稲作研究開発 パイロットインフラ整備事業

施工監理担当／ 岩本 彰

1990 年 4 月分 No. 4

業務日	主要業務動向
4/23 晴 (月)	・施工業者と施工進捗状況，及び今後の施工予定の打合せ ・実験棟及び研修棟のテラスのコンクリート打設 ・研修棟外壁ブロック積上げ
4/24 晴 (火)	・実験棟及び研修棟外壁ブロック積上げ ・実験棟，パーティション等内壁ブロック積上げ
4/25 晴 (水)	・実験棟及び研修棟内壁ブロック積上げ
4/26 晴/雨 (木)	・実験棟北側柱（1階部分）の型枠設置及びコンクリート打設 ・研修棟，トイレ上部梁の鉄筋組立て
4/27 晴 (金)	・研修棟，梁の型枠設置及び鉄筋配筋
4/28 晴 (土)	・研修棟梁のコンクリート打設 ・実験棟南側柱（1階部分）の型枠設置及びコンクリート打設
備考	

プロジェクト業務日誌

リーダー	調整員	報告者
		（印）

プロジェクト名：フィジー国　稲作研究開発パイロットインフラ整備事業

施工監理担当／　岩本　彰

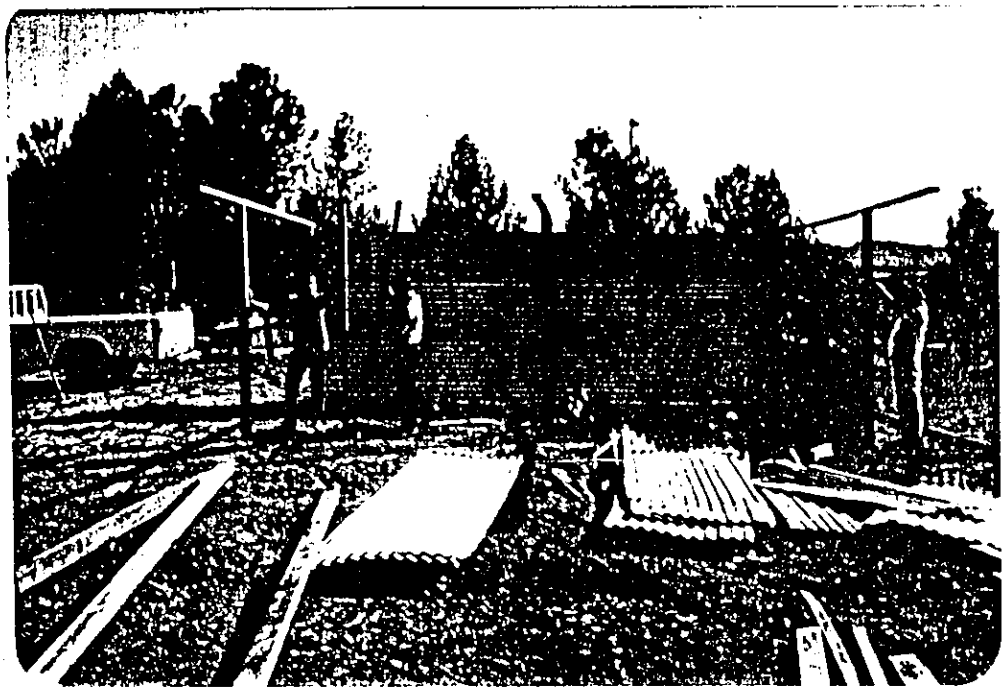
1990 年 4 月分　No. 5

日＼業務	主要業務動向
4/30（月）	・移動 from ランバサ to スバ ・コロニビアにて施工進捗状況打合せ
／（火）	
／（水）	
／（木）	
／（金）	
／（土）	
備考	

5．施工状況写真

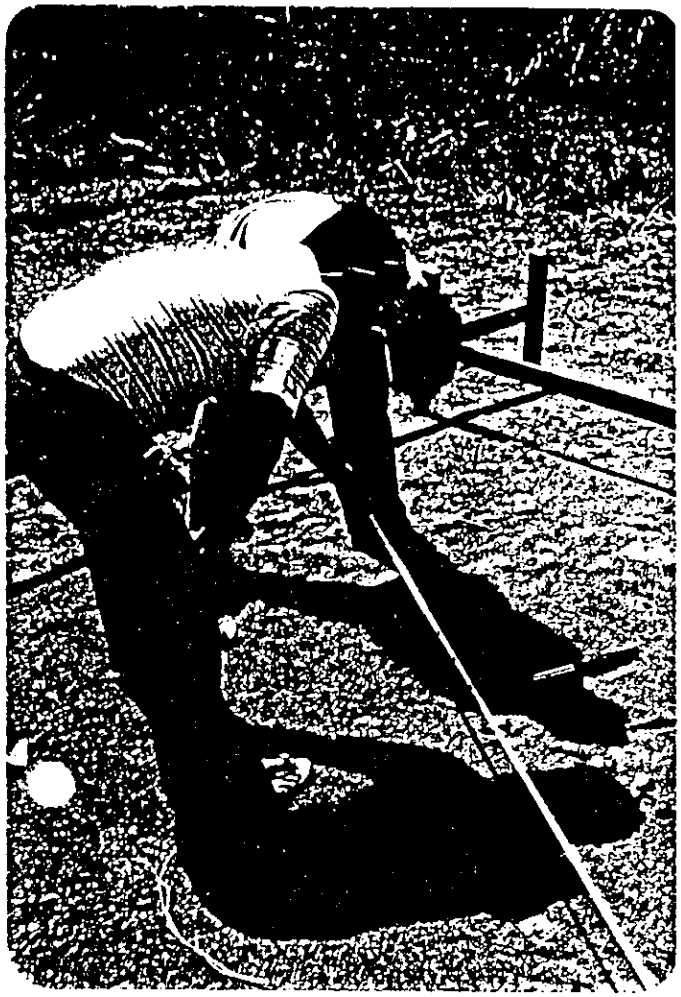
（１）研修棟

仮杭の設置



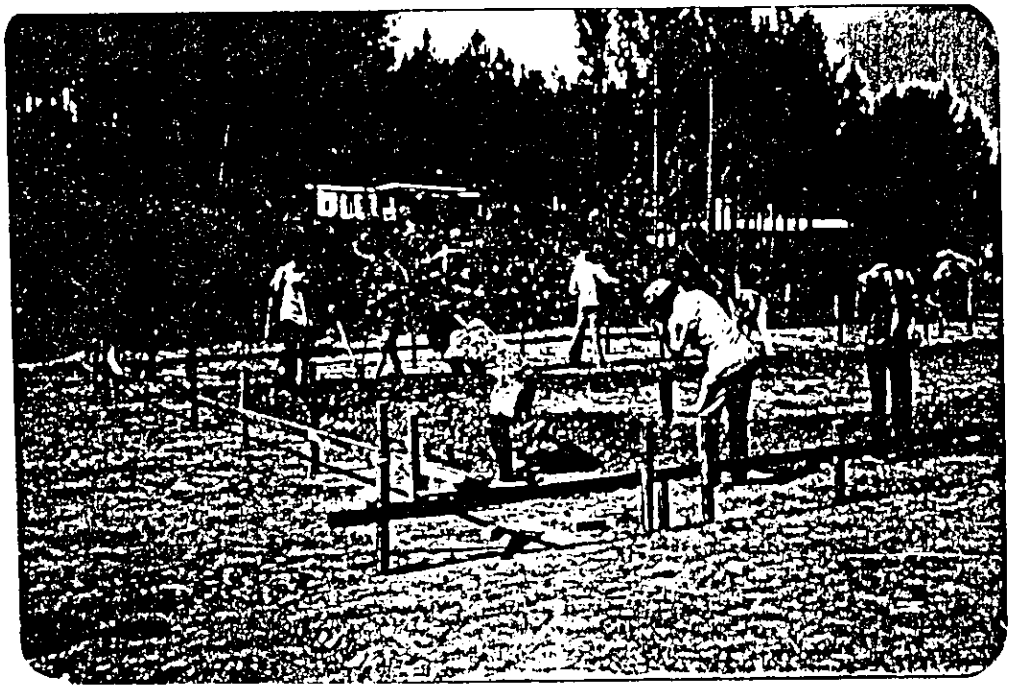
仮設小屋の建設

レベルによる水平確認

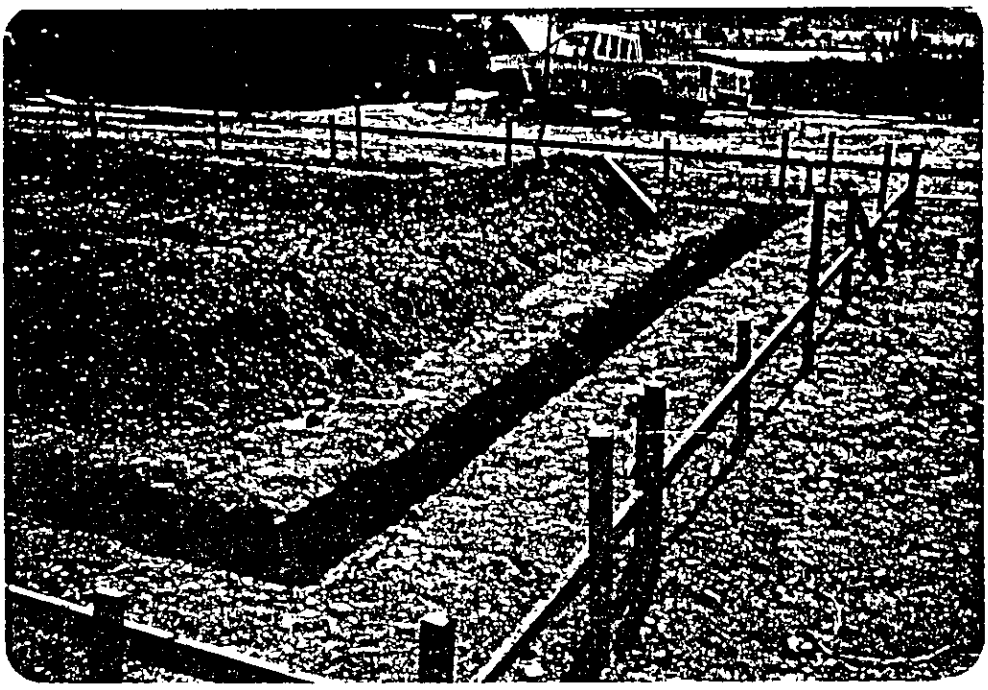


杭交点の直角確認

基礎掘削



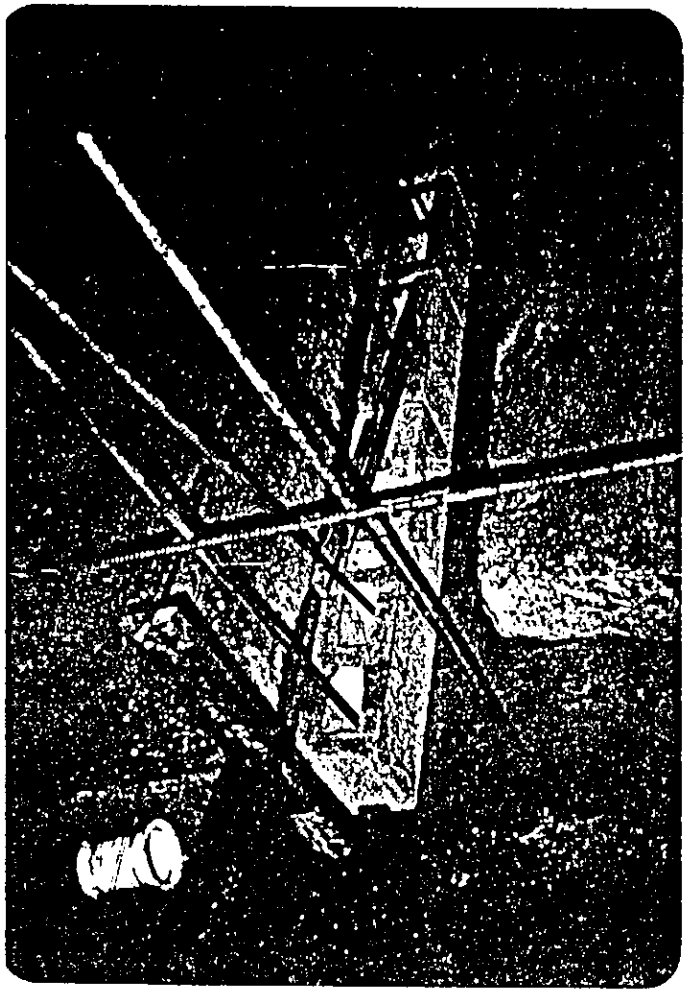
基礎掘削



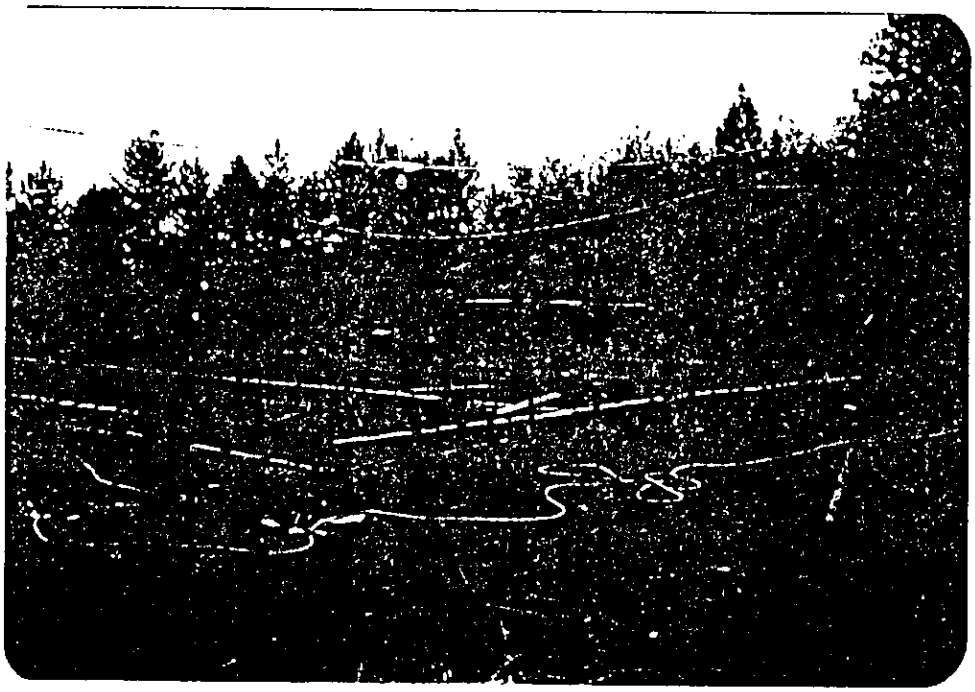
基礎掘削完了

基礎フーティング鉄筋配置

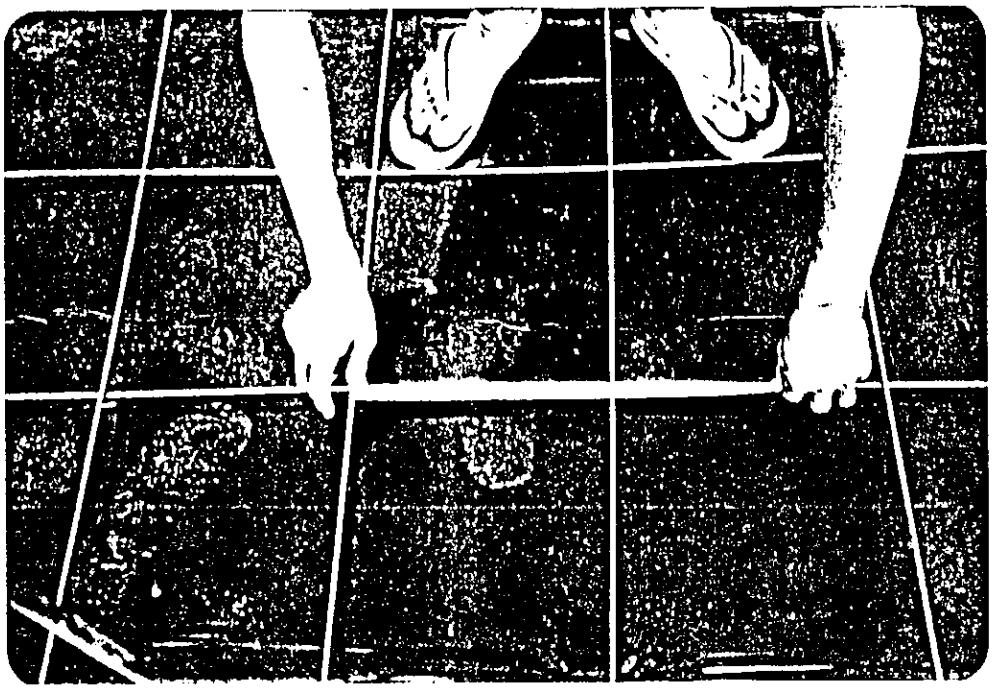
基礎コンクリート打設



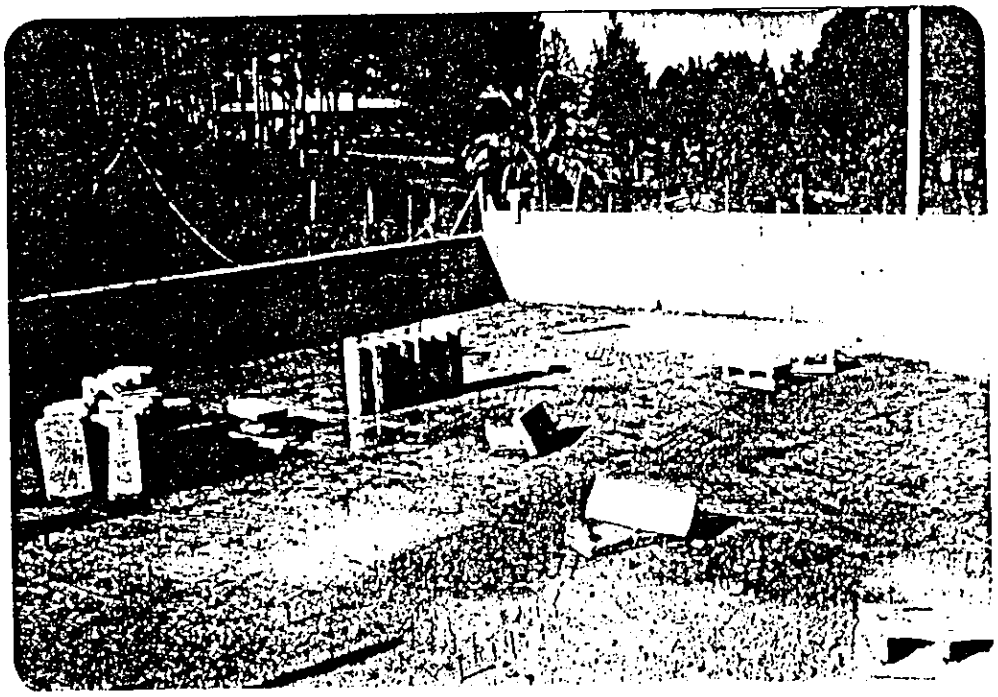
床ブロック設置状況



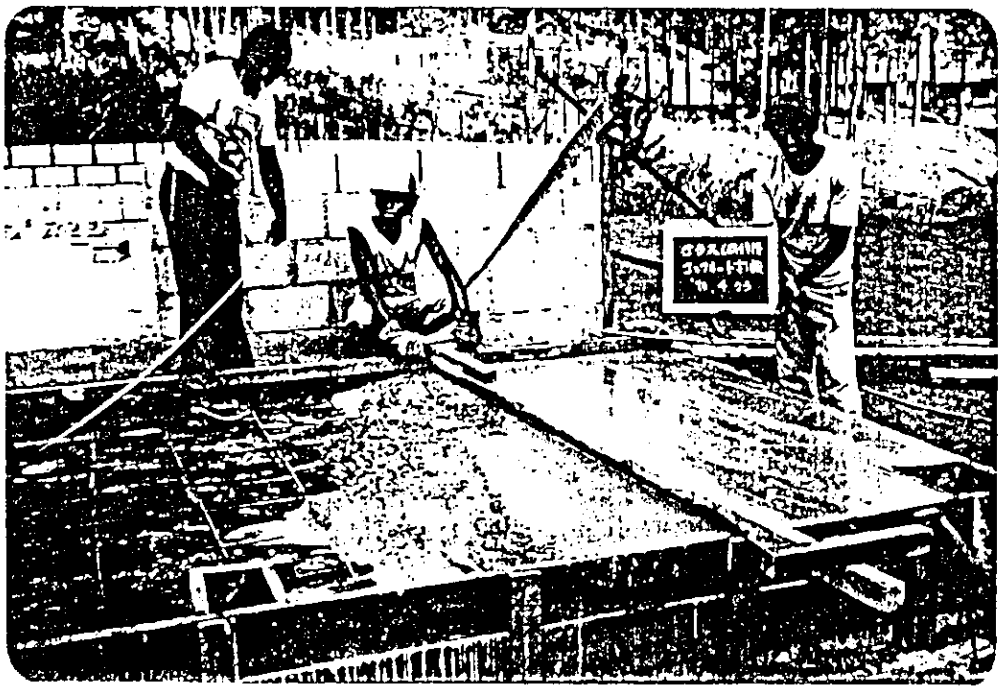
床ブロック設置完了



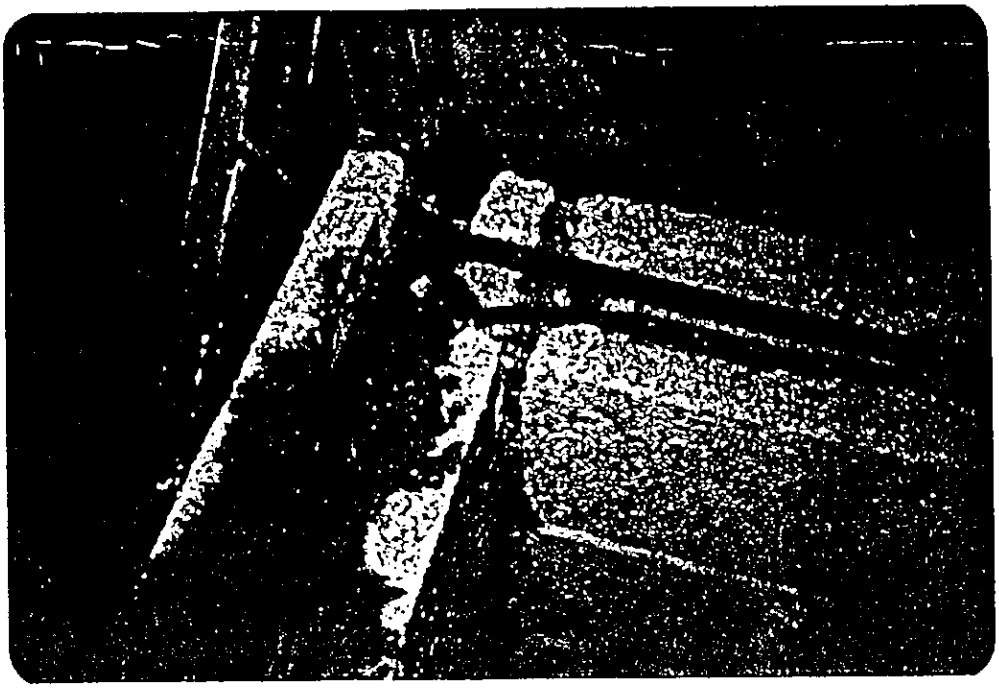
床スラブ鉄筋配置



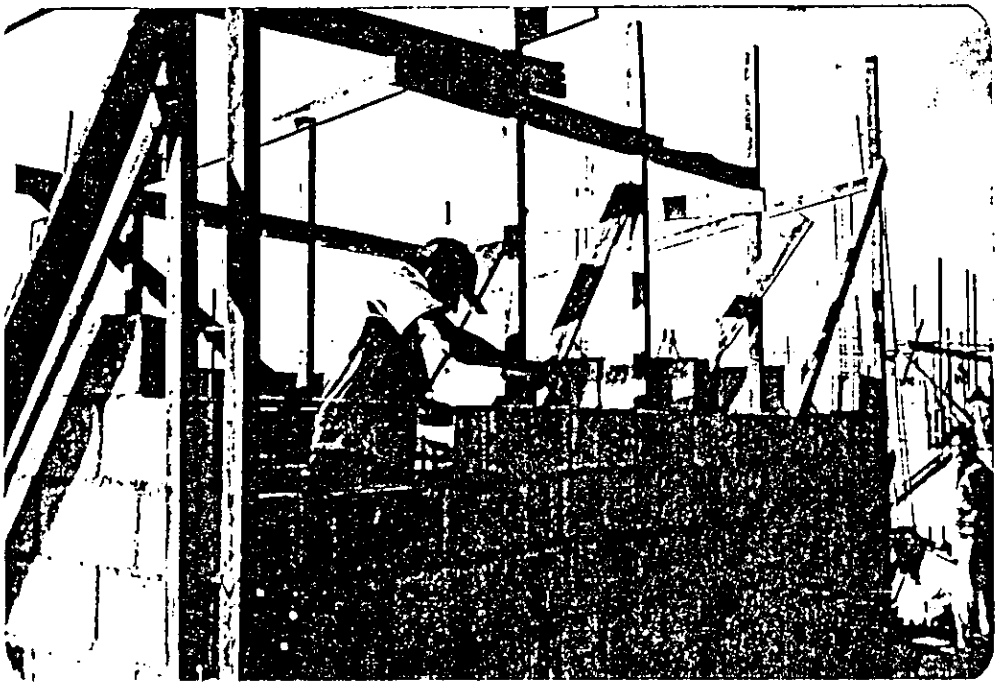
壁ブロック積上げ



テラス
コンクリート打設

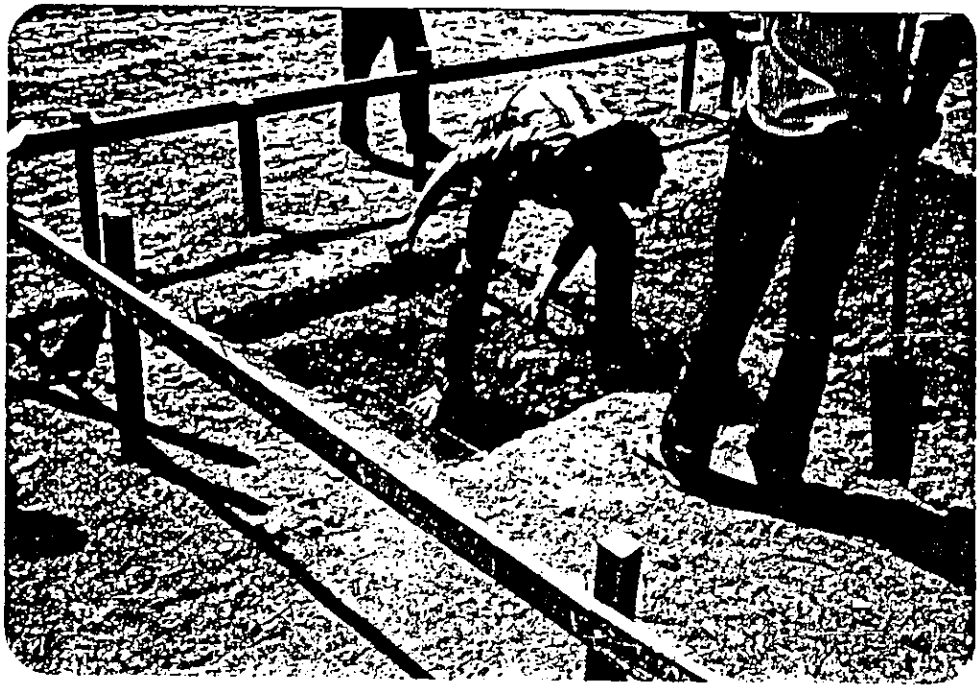


ブロック水平鉄筋設置状況



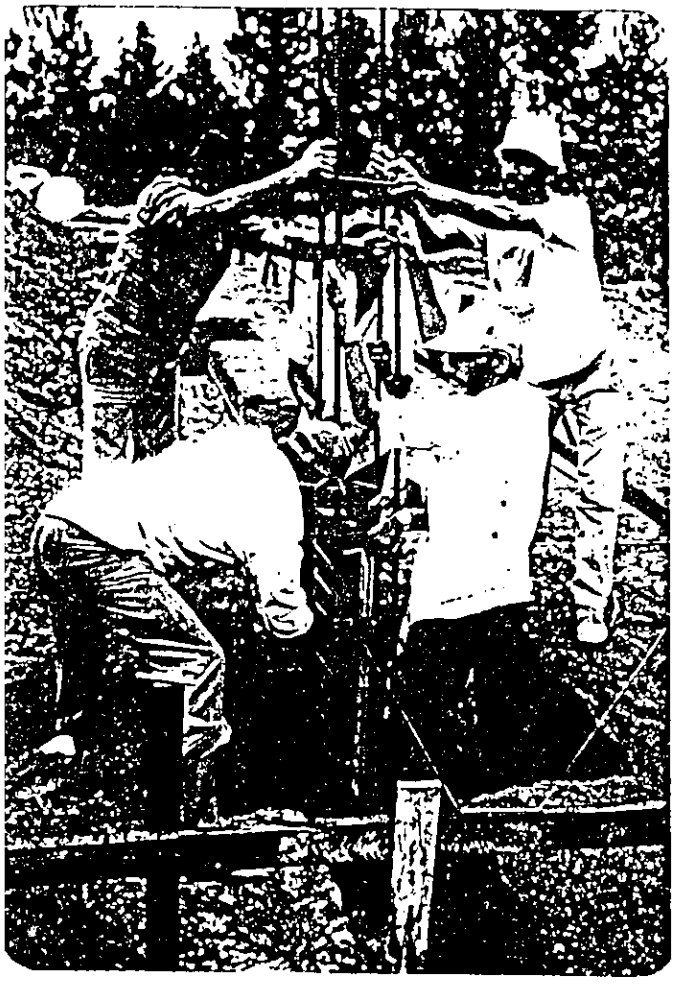
トイレ外壁ブロック積上げ状況

（２）　実験資材棟

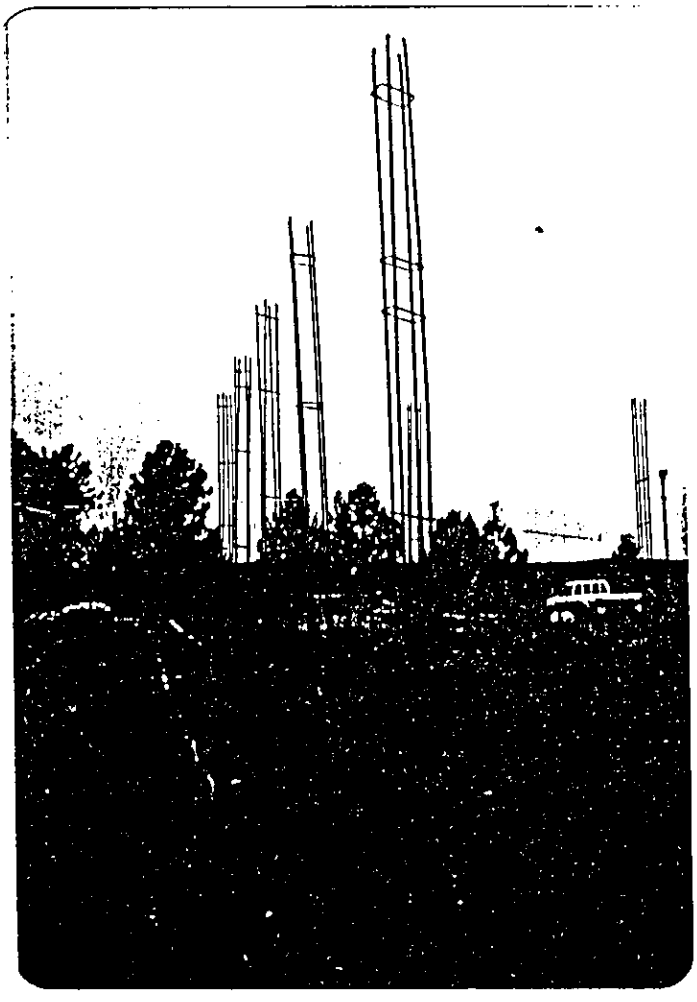


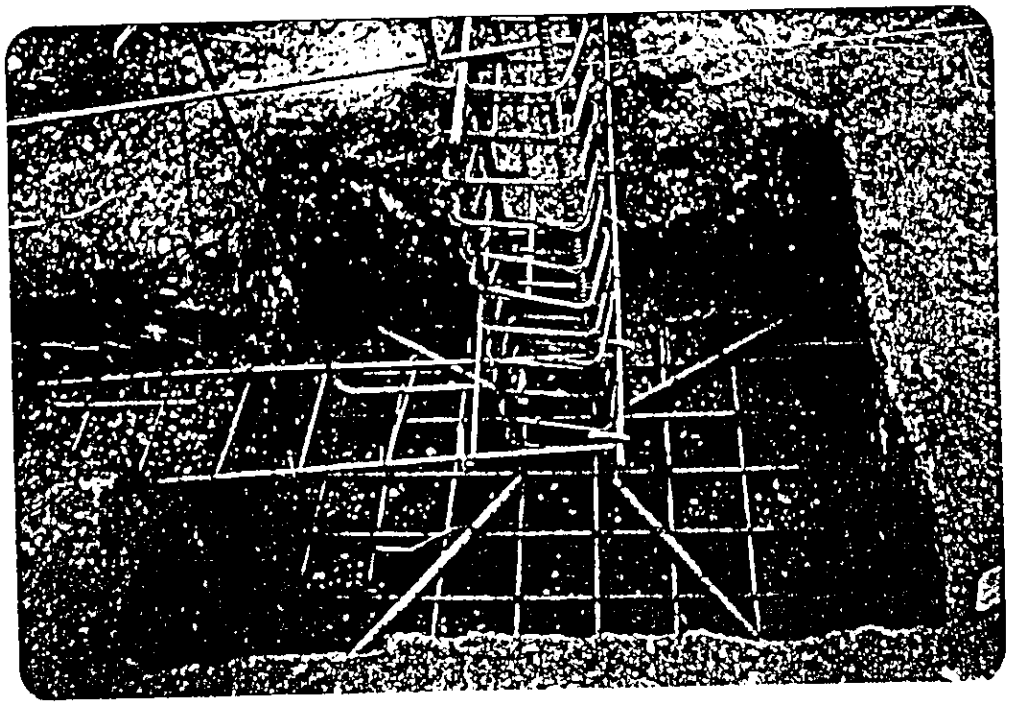
基礎パッド掘削

柱鉄筋設置状況



柱鉄筋設置完了

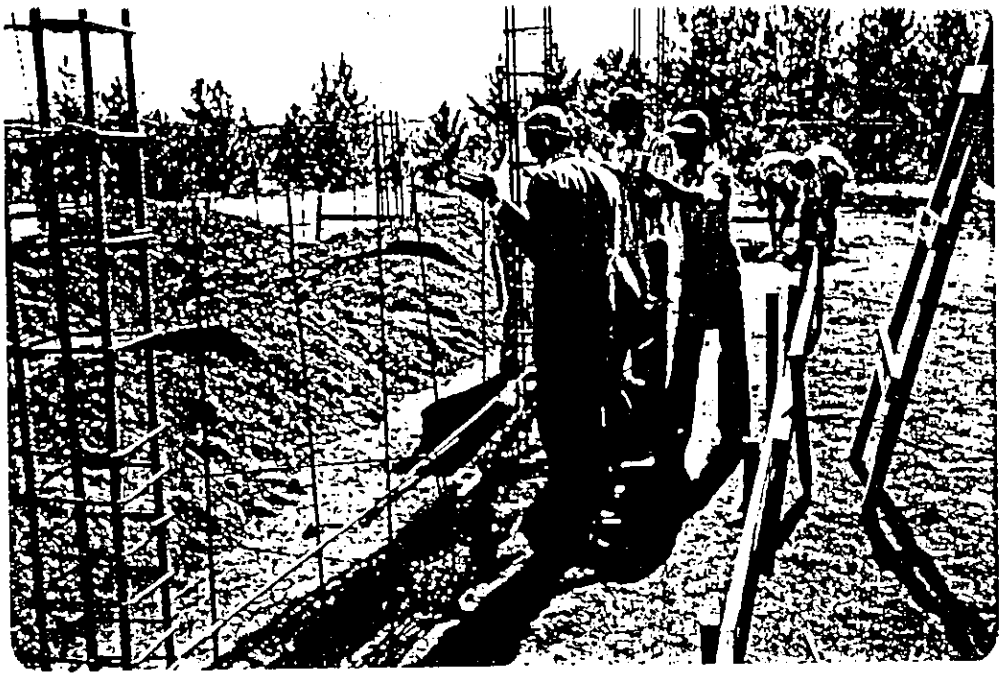


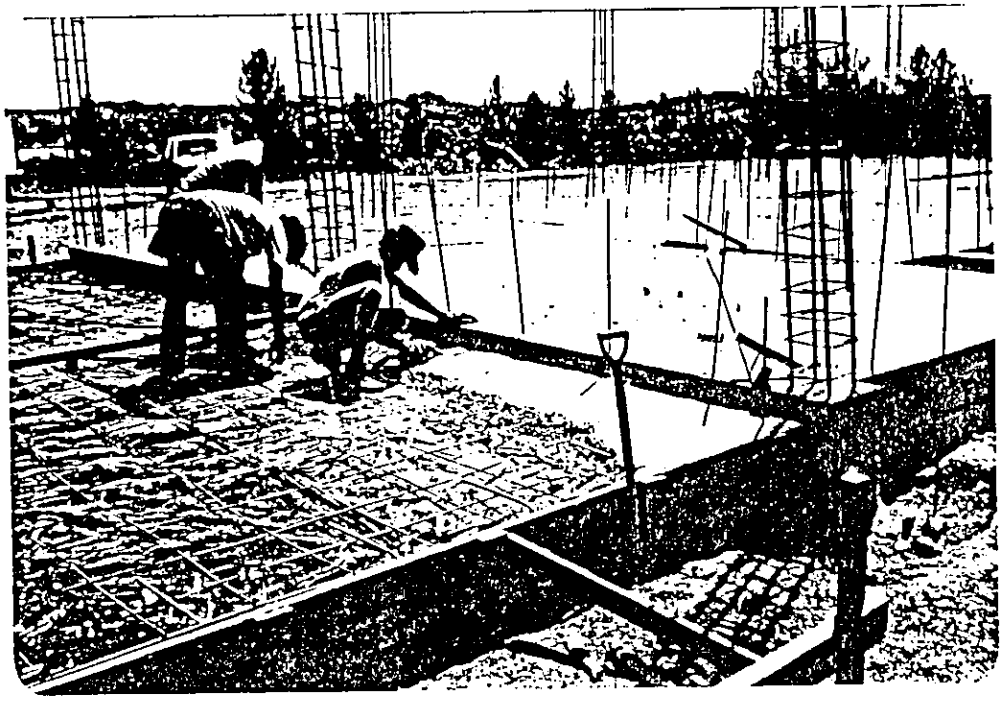


基礎鉄筋配置状況

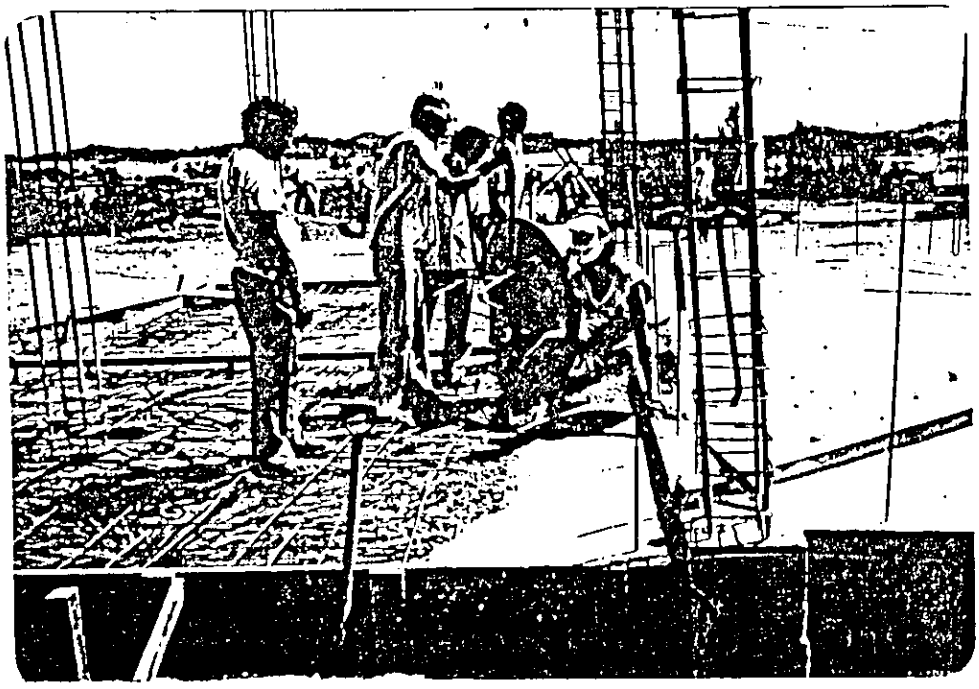
基礎コンクリート打設状況

基礎コンクリート打設状況

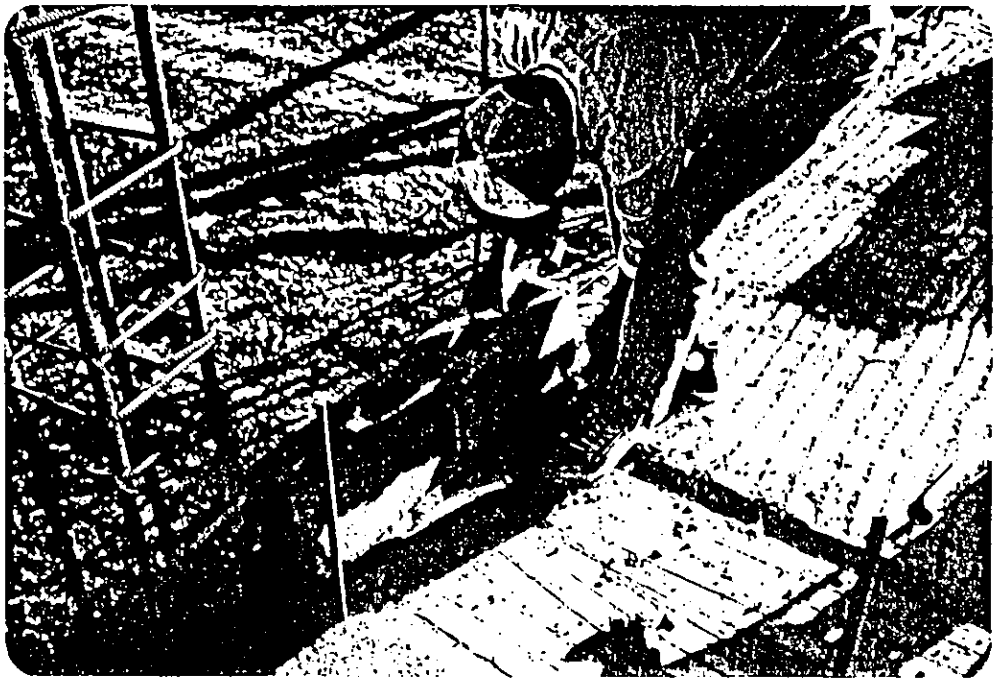




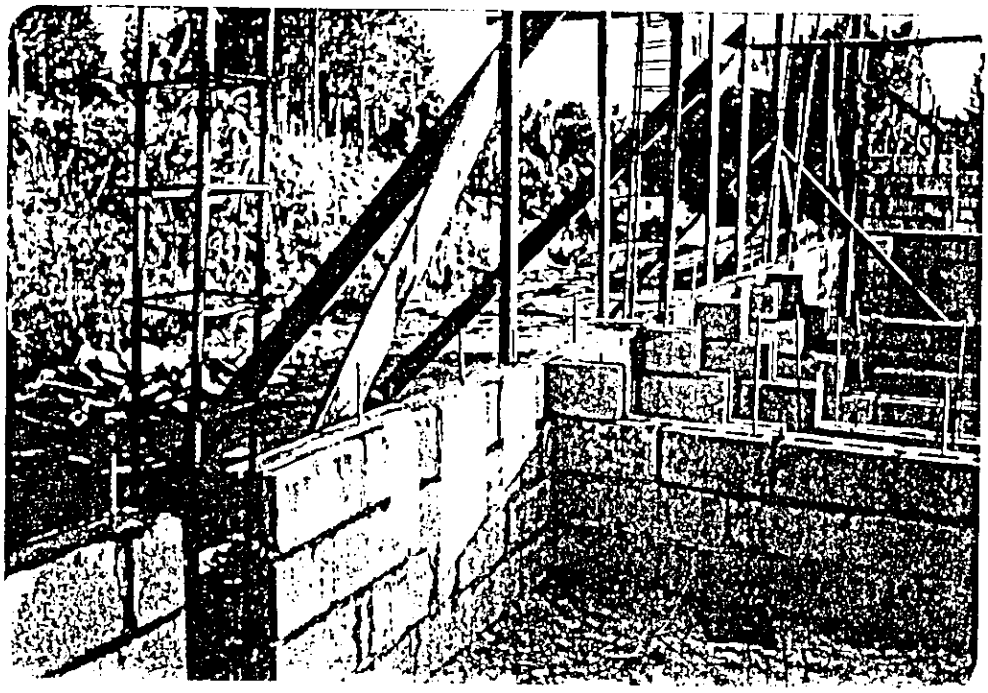
テラス
コンクリート打設



テラス
コンクリート打設

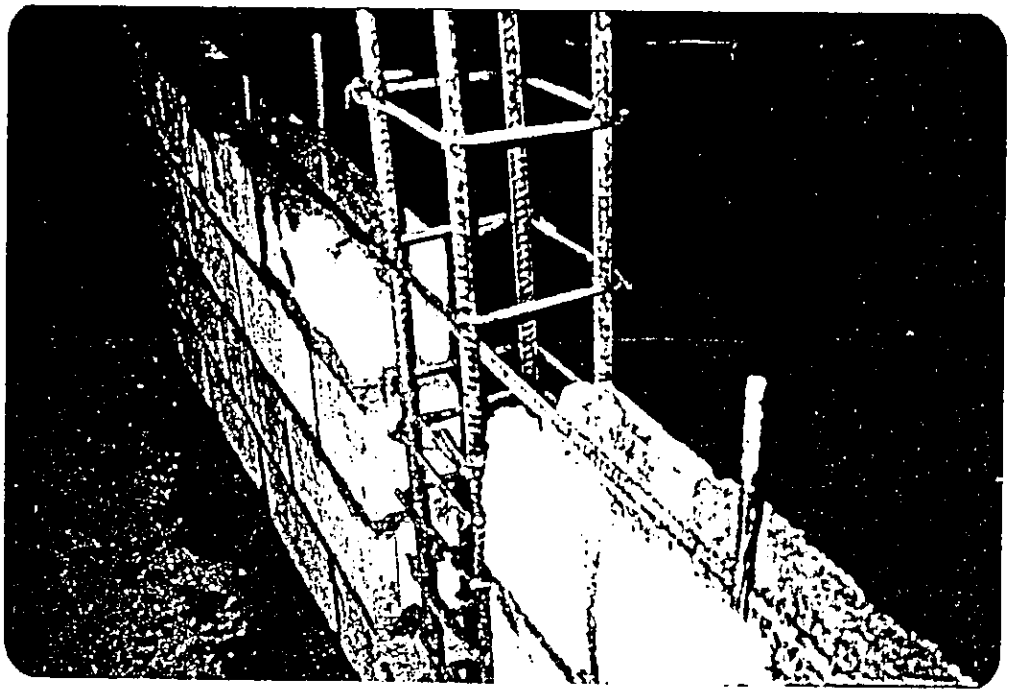


外壁ブロック
積上げ状況

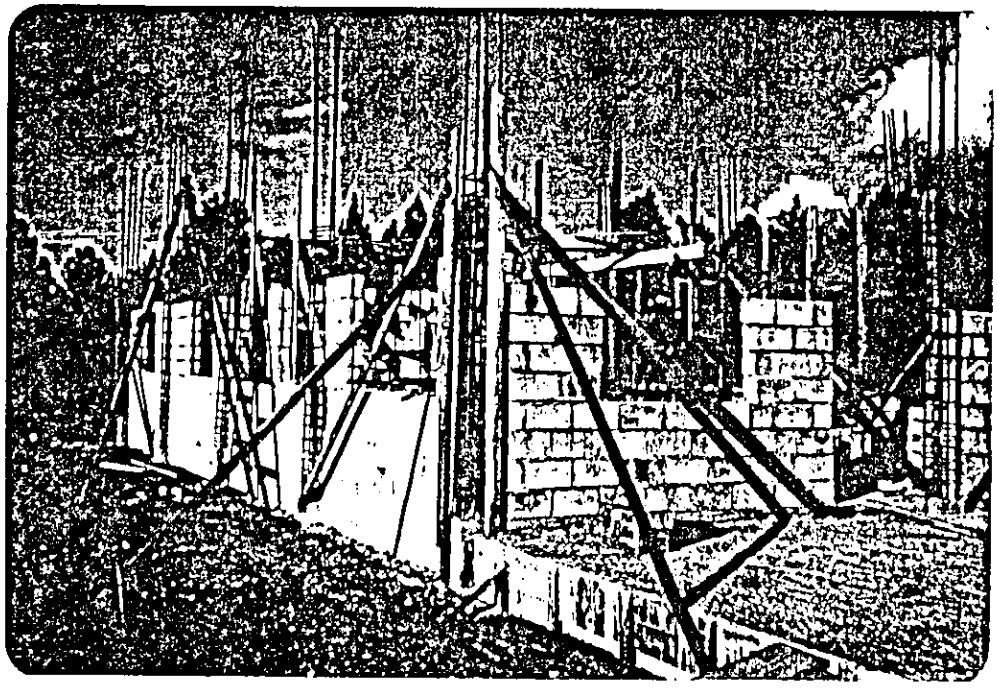


ブロック
水平鉄筋設置状況

ブロック
水平鉄筋設置状況



外壁ブロック積上げ状況



事業団本部				プロジェクト		
	部長	課長	担当	リーダー	調整員	報告者
				稲田	稲田	岩本

業務状況報告書

（平成２年５月分）

国際協力事業団

総　裁　殿

フィジー 国稲作研究開発パイロット
インフラ整備事業施工監理担当
岩　本　彰

件　名：フィジー国稲作研究開発パイロットインフラ整備事業
Dreketi 地区施工監理業務平成２年５月分の
業務報告書の提出について

標記業務における平成２年５月分の業務報告書を以下のとおり提出致しますので、ご査収の程宜しくお願い致します。

１．施工監理業務状況

２．第１回中間払い

３．派遣期間延長の申請

４．プロジェクト業務日誌

５．施工状況写真

１．施工監理業務状況

５月３１日に予定通り研修棟が、ほぼ完工した。研修棟の残工事は床のタイル貼りとテラスのモルタル仕上げであるが、これは実験資材棟の施工中に傷や汚れを受けることを防ぐために施工を見合わせているもので、実験資材棟の同一工種施工時に併せて実施する予定である。

５月３１日現在、施工完了及び施工中の工事項目は以下のとおり。

		研修棟	実験資材棟
基礎掘削	:	完　了	完　了
基礎鉄筋配置	:	完　了	完　了
基礎コンクリート打設	:	完　了	完　了
梁鉄筋配置	:	完　了	完　了
床鉄筋配置及びコンクリート打設	:	完　了	完　了
柱鉄筋配置及びコンクリート打設	:	―　―　―	完　了
外壁工事	:	完　了	完　了
屋根工事	:	完　了	未着工
プラスタリング工事	:	完　了	未着工
階段工事	:	―　―　―	未着工
配管・配線工事	:	完　了	２５％
バルコニー工事	:	―　―　―	２０％
内壁・天井工事	:	完　了	未着工
タイル工事	:	５０％	未着工
塗装工事	:	完　了	未着工
仕上げ工事	:	未着工	未着工

２．第１回中間払い

５月１５日付けで施工業者の Begg Construction Ltd より第１回中間払いとして契約金額の３０％に当たる F$ 36,600 の支払い請求があった。これを受け、５月１５日に中間検査を実施したところ出来高は約５０％であり、今回の部分払い限度額は添付書類のとおり２０％であるため、これに当たる F$ 24,400 の支払いを吉田フィジー事務所長に申請した。業者からの請求書及び中間払いの申請書を巻末に添付する。

３．派遣期間延長の申請

契約業務に予定以上の時間がかかり工事着工が遅れたため、５月４日付けで３週間の派遣期間の延長要請がフィジー側から提出された。　変更前後の派遣期間は以下のとおり。

当初　　３月１８日　～　６月１５日　　９０日間

変更後　3月18日　～　7月　6日　111日間

フィジー側からの要請書を巻末に付す。

4．プロジェクト業務日誌

平成2年5月分のプロジェクト業務日誌を以下に付す。

5．施工状況写真

5月に実施した工事に対する写真を巻末に添付する。

4．プロジェクト業務日誌

プロジェクト業務日誌

リーダー	調整員	報告者

プロジェクト名：フィジー国　稲作研究開発パイロットインフラ整備事業

施工監理担当／　岩本　彰

1990 年 5月分　No. /

業務日	主要業務動向
/（月）	
5/1 晴れ（火）	スバより ラバサへ移動 Drainage and Irrigation Dep. Act. Agricultural Officer Mr. Mudalian と打合せ
5/2 曇/雨（水）	藤田，増見，佐藤，難波 の4専門家と共に タビア現地調査 レバティーに移動後，施工状況をサイトにて説明
5/3 晴れ（木）	JICA専門家 4氏と共に ブア他，稲作プロジェクト視察 派遣期間延長申請に対する打合せを 藤田，増見 両専門家と行う
5/4 晴れ（金）	実験棟梁の鉄筋配置 研修棟 小屋組工事
5/5 雨（土）	雨のため工事中止
備考	

プロジェクト業務日誌

リーダー	調整員	報告者

プロジェクト名：フィジー国 稲作研究開発 パイロットインフラ整備事業

施工監理担当／ 岩本 彰

1990 年 5月分 No. 2

業務日	主要業務動向
5/7 晴/雨 (月)	実験棟：梁鉄筋組立て 研修棟：小屋組工事及び壁プラスターリング (トラスのストラッピング)
5/8 晴/雨 (火)	実験棟：梁鉄筋組立て 研修棟：小屋組工事及び壁・プラスタリング (トラスのストラッピング)
5/9 晴/雨 (水)	実験棟：梁鉄筋組立て及び型枠工事 研修棟：天井の根太設置
5/10 晴 (木)	研修棟：トイレ上部の梁の鉄筋加工と型枠工事
5/11 晴/雨 (金)	実験棟：トイレ内壁のプラスタリング及び梁の型枠工事 研修棟：屋根カラー鉄板設置
5/12 晴 (土)	実験棟：梁の型枠工事及び配管用チッピング作業 研修棟：天井板設置及び小屋組ボルト止め
備考	

プロジェクト業務日誌

リーダー	調整員	報告者

プロジェクト名：フィジー国 稲作研究開発 パイロットインフラ整備事業

施工監理担当／ 岩本 彰

1990 年 5 月分 No. 3

業務日	主要業務動向
5/14 晴 (月)	実験棟：梁の型枠工事 研修棟：小屋組ボルト占め
5/15 晴 (火)	実験棟：梁のコンクリート打設 研修棟：天井ベニヤ板設置、電気配線工事
5/16 晴 (水)	実験棟：梁へのコンクリート打設 研修棟：外壁工事
5/17 晴/雨 (木)	スバへ移動 JICA フィジー事務所にて施工業者に第1回中間払い実施 Mr. R.T CABOLATI 次官補に業務進捗報告
5/18 晴/雨 (金)	K.R.P にて増員リーダー代行と打合せ JICA 吉田所長に 4月分 業務進捗状況報告書提出
5/19 晴/雨 (土)	資料整理
備考	

プロジェクト業務日誌

プロジェクト名：
施工監理担当／ 岩本　彰

リーダー	調整員	報告者

1990 年5月分　No.4

日	主要業務動向
5/21 晴/雨 (月)	Del. M.A.tu 局長に業務進捗状況報告 スバ → ラッバサへ移動 M.P.I Northern にて Mr Jaghat 及び Mr Mukhtar と打合せ
5/22 晴 (火)	ラッバサ → レケティ 移動 実験棟：2階部分 ブロック積上げ，下水貯留槽工事 研修棟：内壁塗装作業
5/23 晴 (水)	実験棟：2階外壁上部梁、鉄筋配置 及び形枠工事，配管工事 研修棟：内壁塗装作業，天井板設置
5/24 晴 (木)	実験棟：2階外壁ビーム コンクリート打設 研修棟：内壁塗装作業，天井板設置，トイレ・タイル工事及び配管工事
5/25 晴 (金)	実験棟：屋根小屋組工事，妻面ブロック積上げ 研修棟：内壁塗装工事，天井板設置 配管工事
5/26 晴 (土)	実験棟：ラフター設置， 研修棟：内外壁塗装工事，
備考	

プロジェクト業務日誌

リーダー	調整員	報告者
[illegible]		

プロジェクト名：

施工監理担当／ 岩本 彰

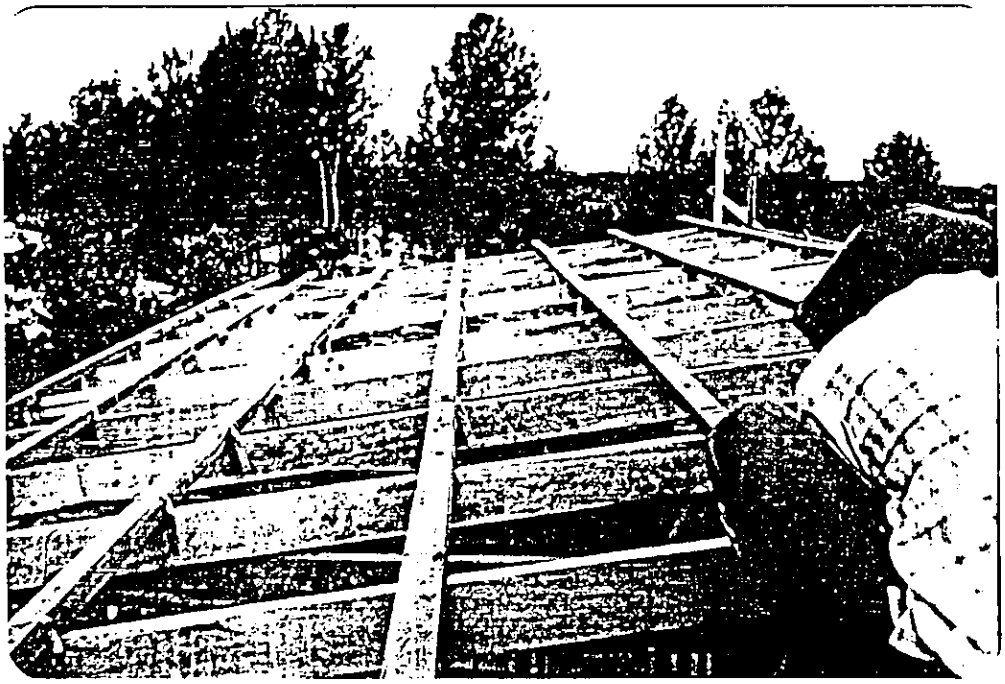
1990 年 5月分 No. 5

某日	主要業務動向
5/28 晴/曇 (月)	実験棟：壁面上部形枠工事 研修棟：天井塗装作業，トイレタイル設置
5/29 晴 (火)	実験棟：壁面コンクリート打設，屋根鉄板設置，配管工事 研修棟：窓ルーバーフレーム及びガラス設置，内壁塗装，電気配線工事
5/30 晴 (水)	実験棟：バルコニー形枠工事，トイレ配管工事，外壁プラスター工事 研修棟：雨樋の設置，ドアの設置，トイレタイル目地埋め
5/31 晴 (木)	実験棟：バルコニー鉄筋配置，配管工事 研修棟：トイレ内壁塗装，外壁塗装
/ (金)	
/ (土)	
備考	DBT Principal Engineer の Mr. Satya Swami が施工状況視察 (5/30 ~ 5/31)

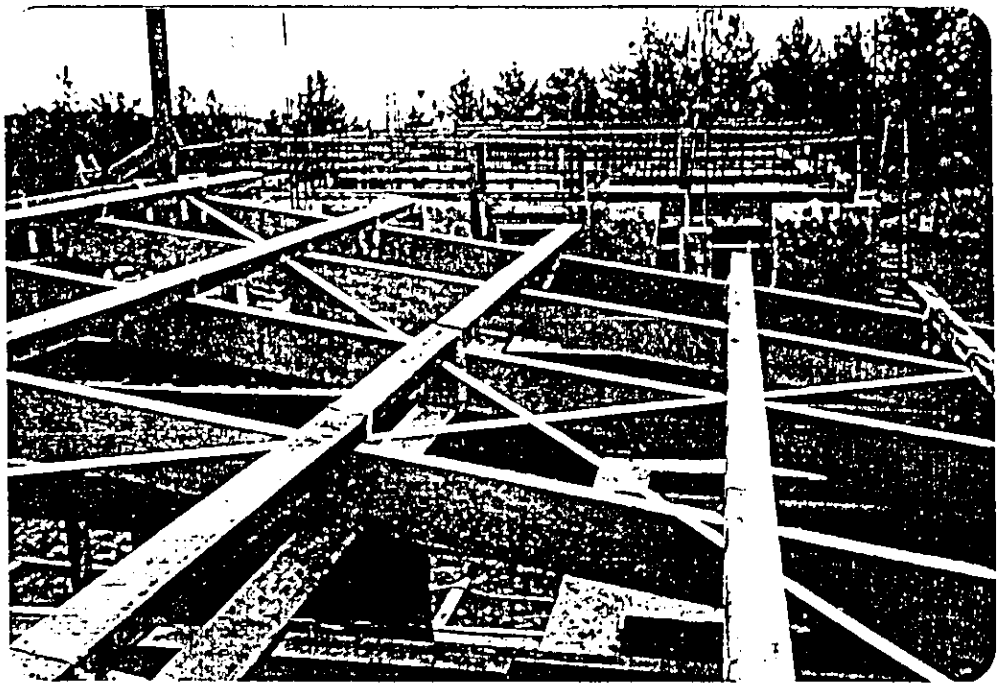
5．施工状況写真

1）．研修棟

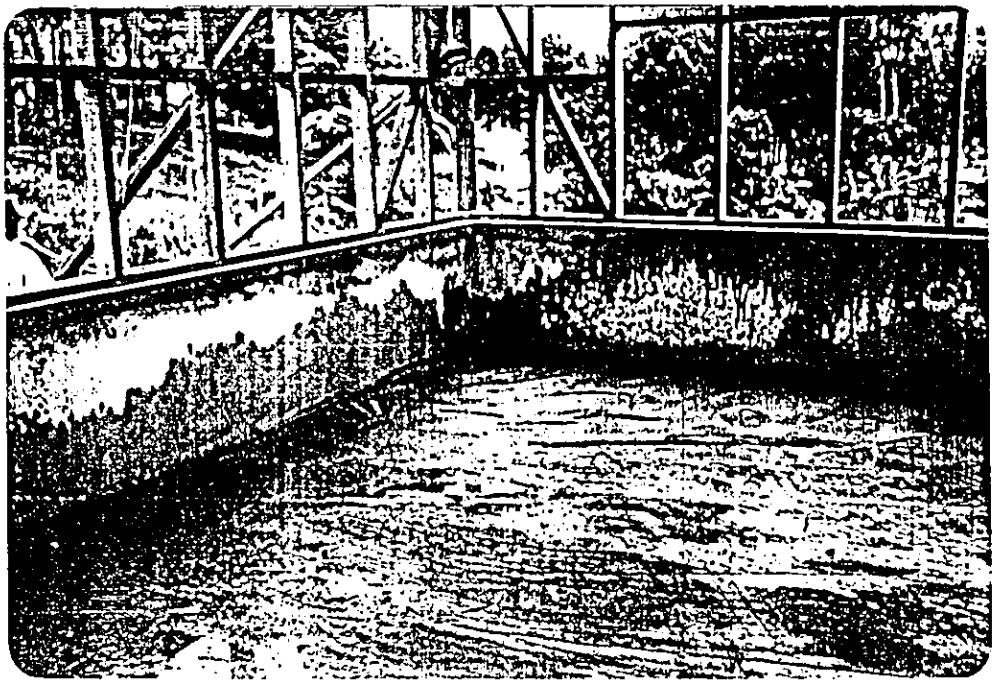
壁工事（２×４）



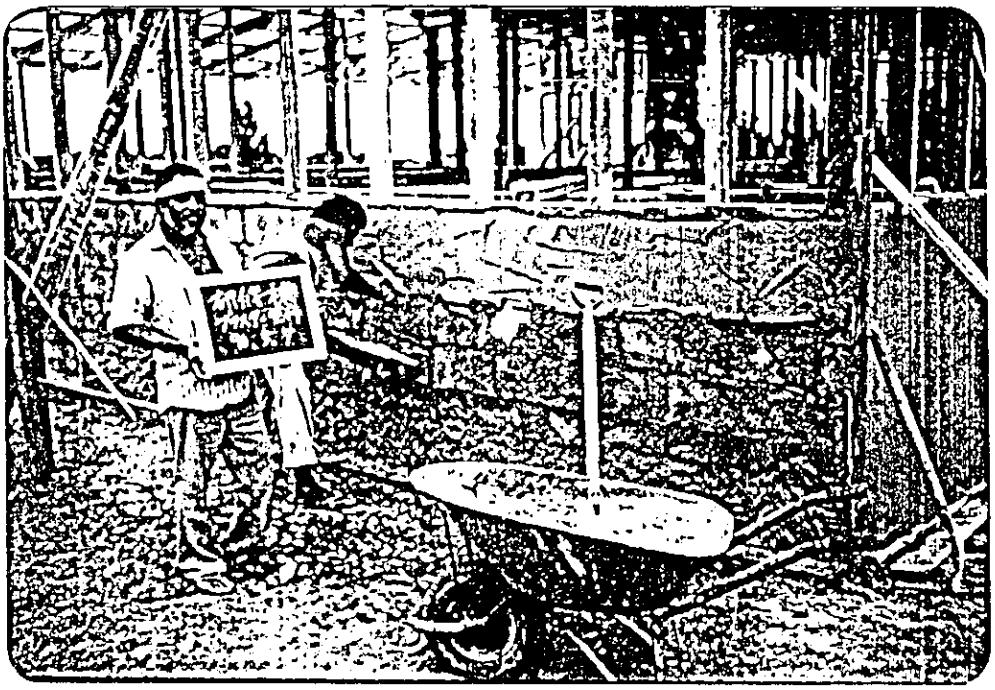
小屋組工事



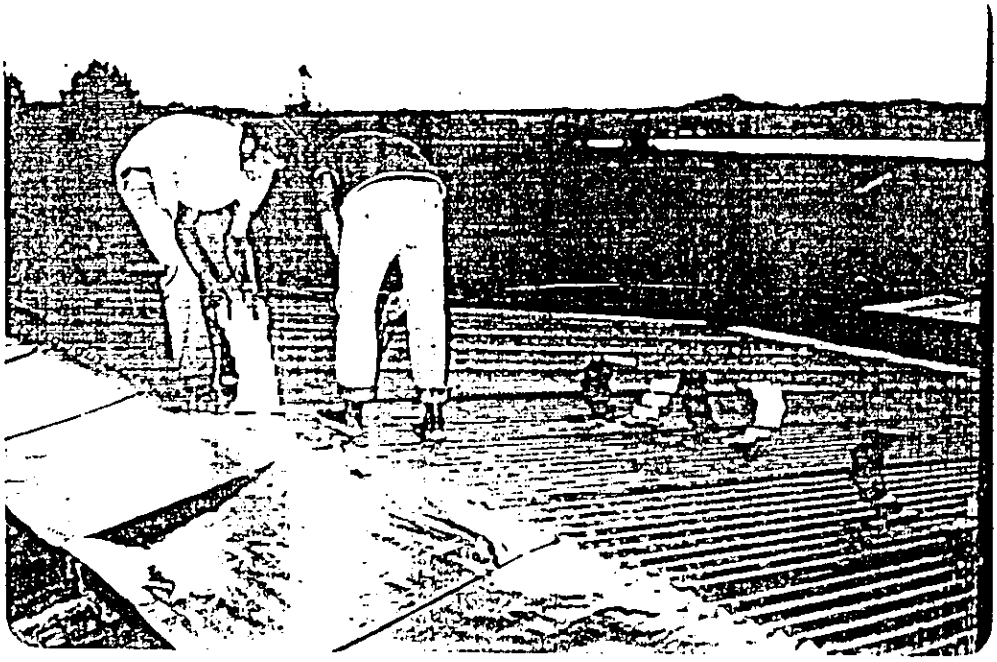
床プラスタリング



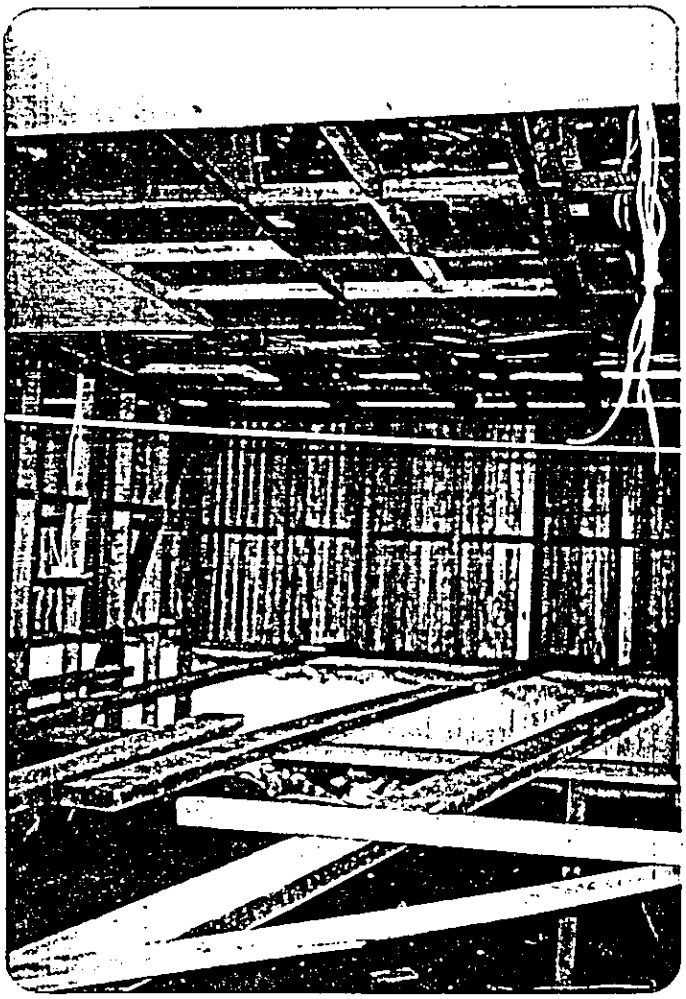
外壁モルタル塗り付け



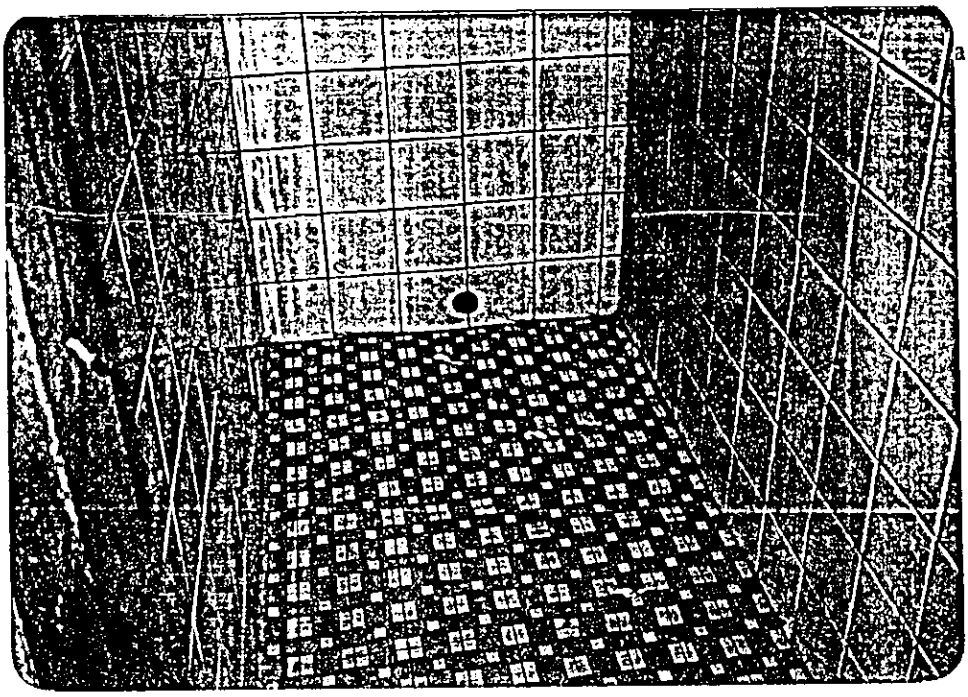
屋根カラー鉄板設置



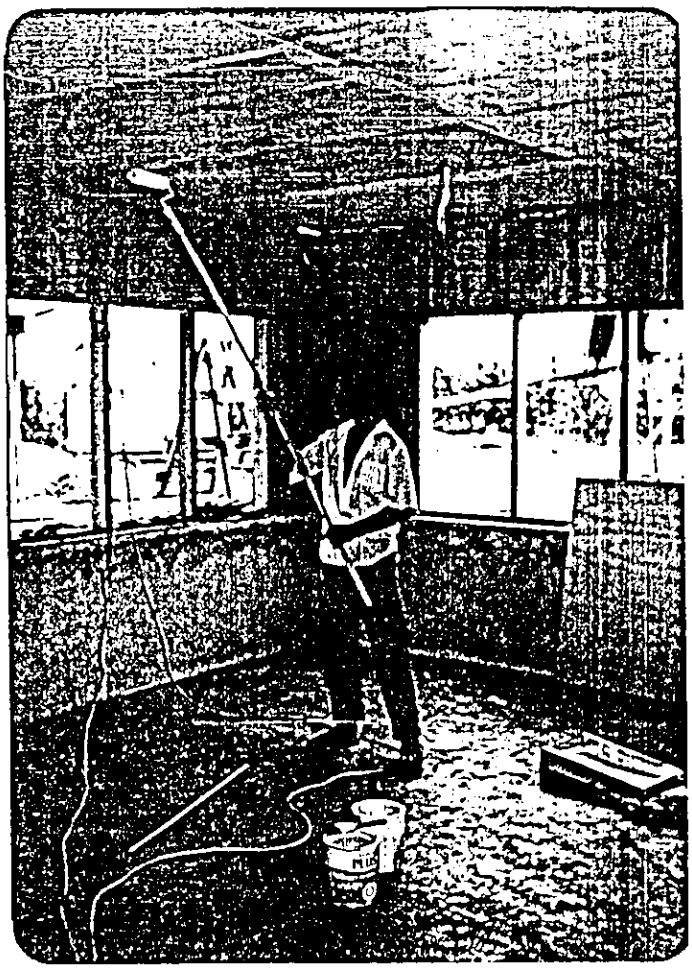
電気配線及び天井工事



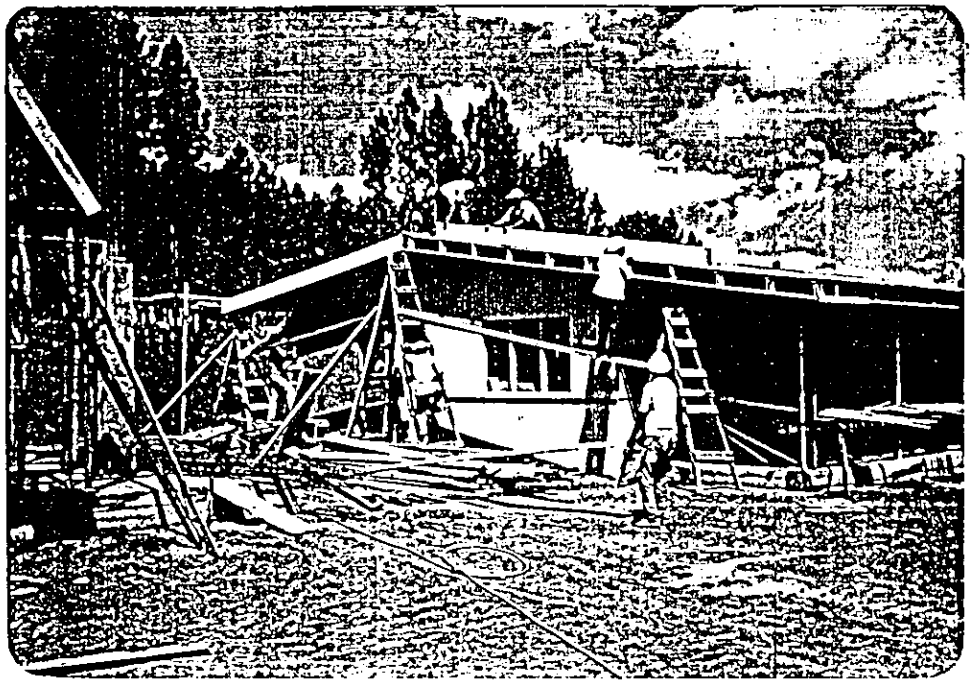
外壁（木構造部）工事



トイレタイル工事

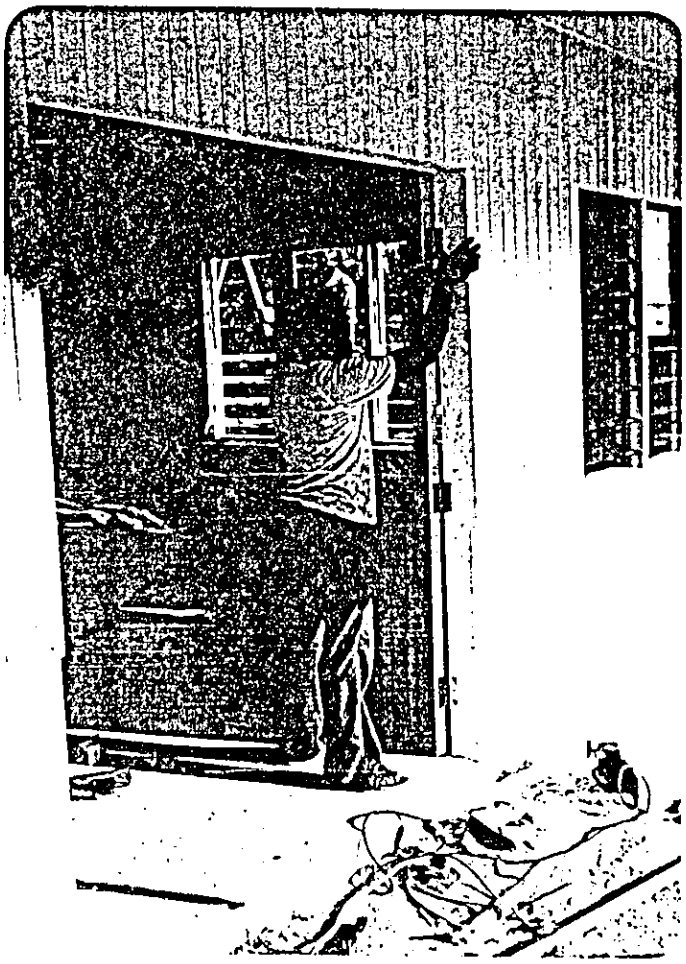


内装塗装工事

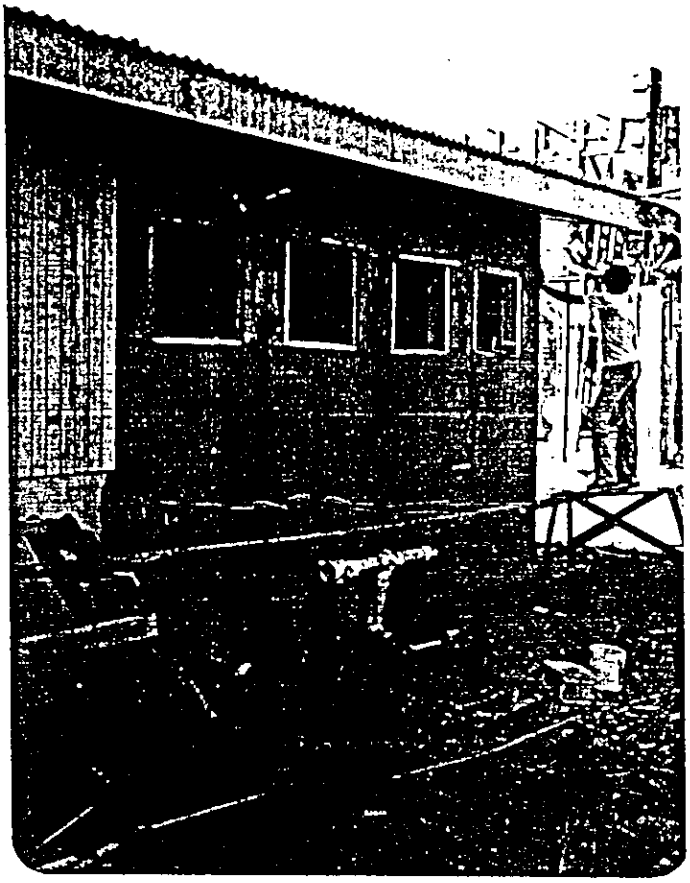


妻面ラフターボード設置

窓ルーバーガラス据え付け

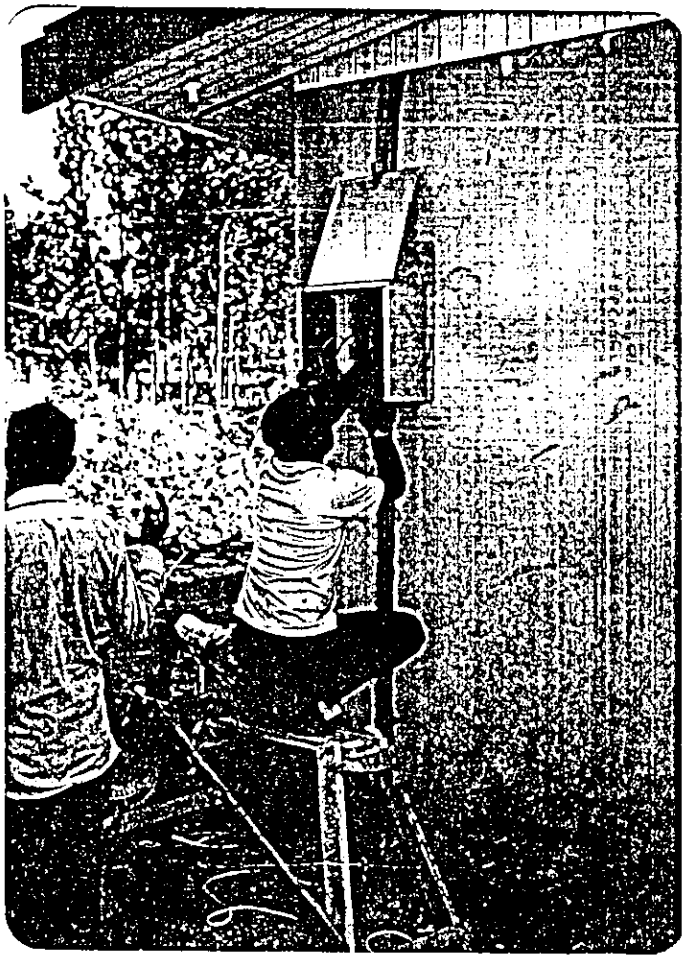


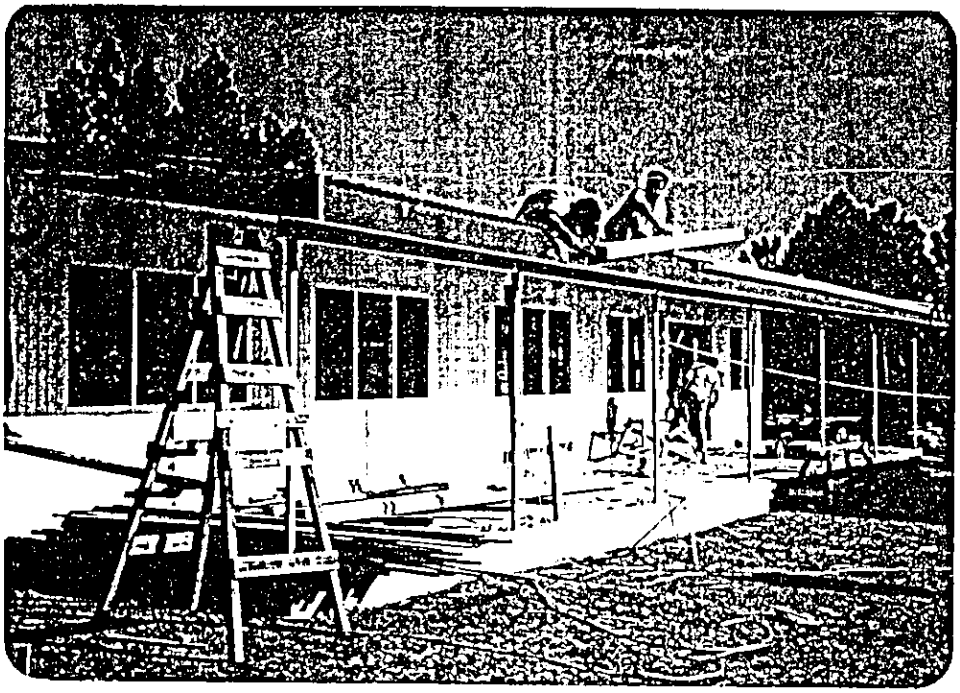
ドアー据え付け



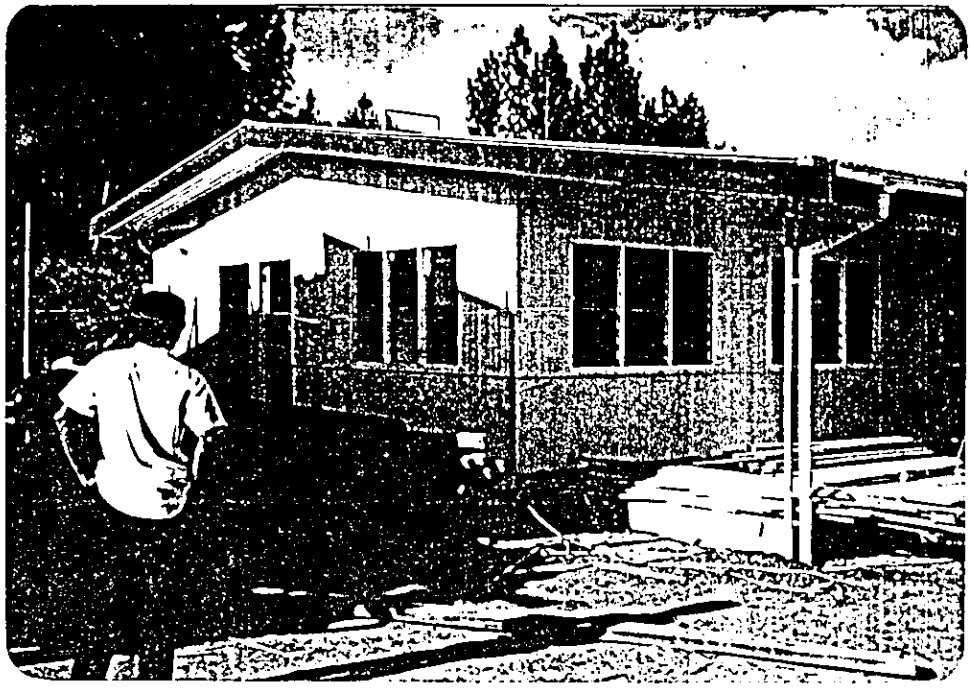
トイレ配管工事

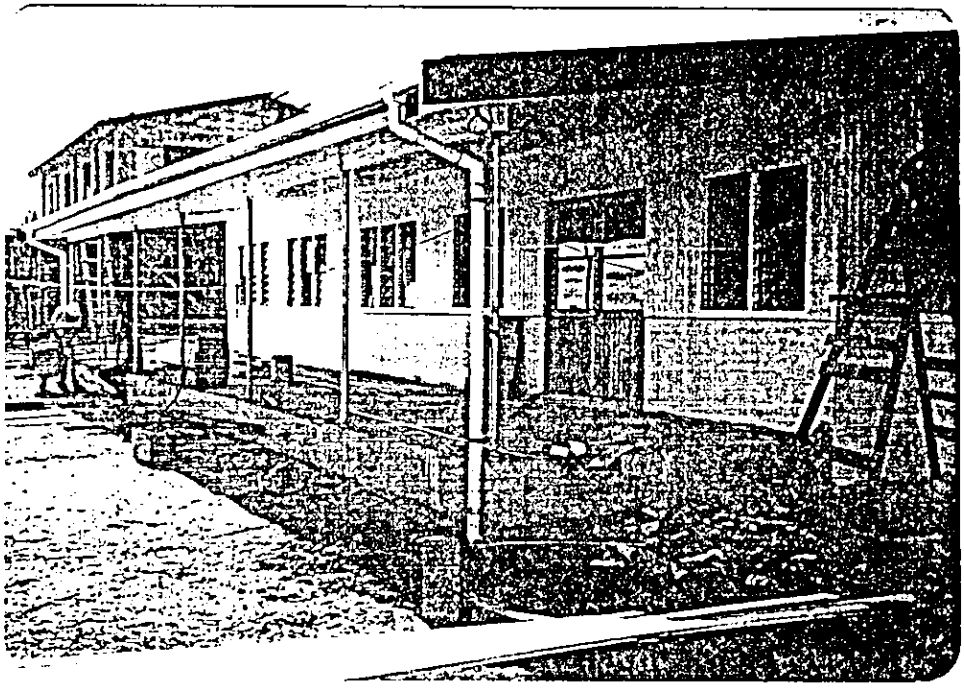
電気配線（メインボックッス）設置



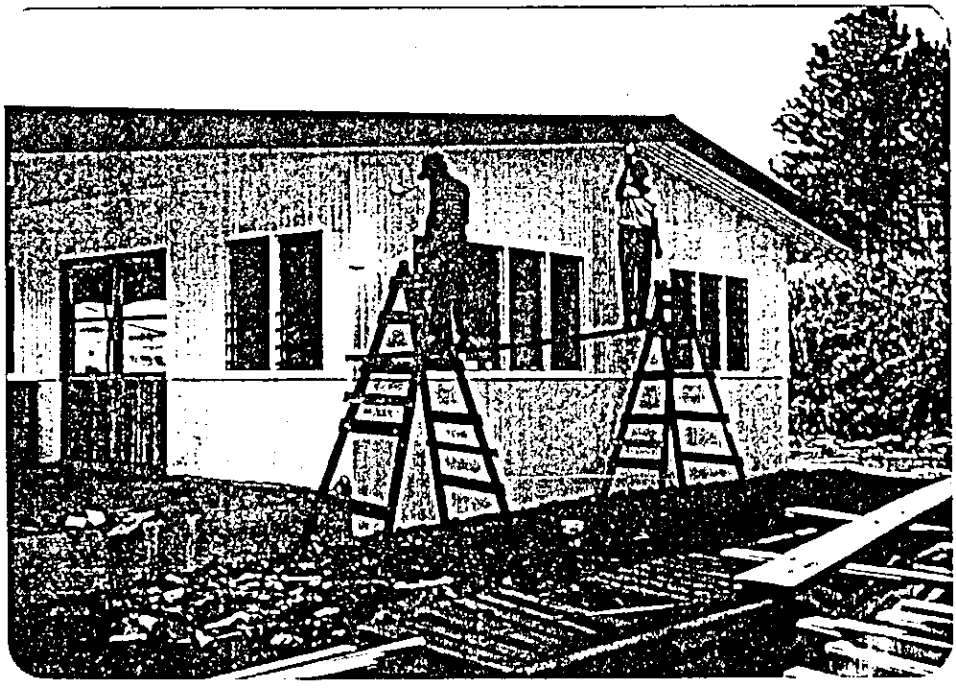


雨樋設置作業

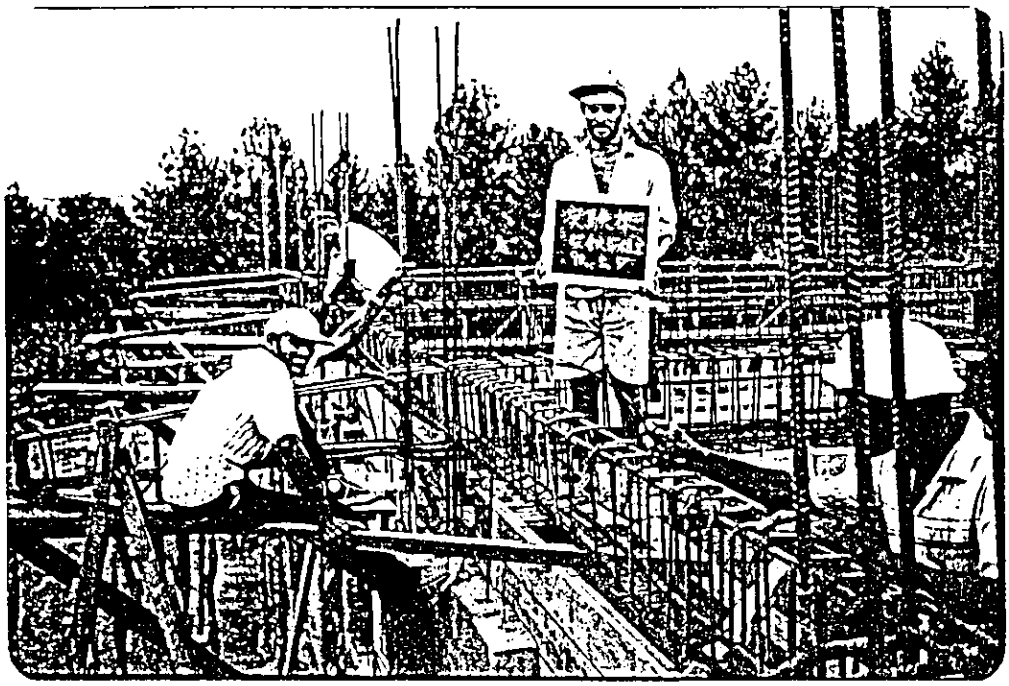




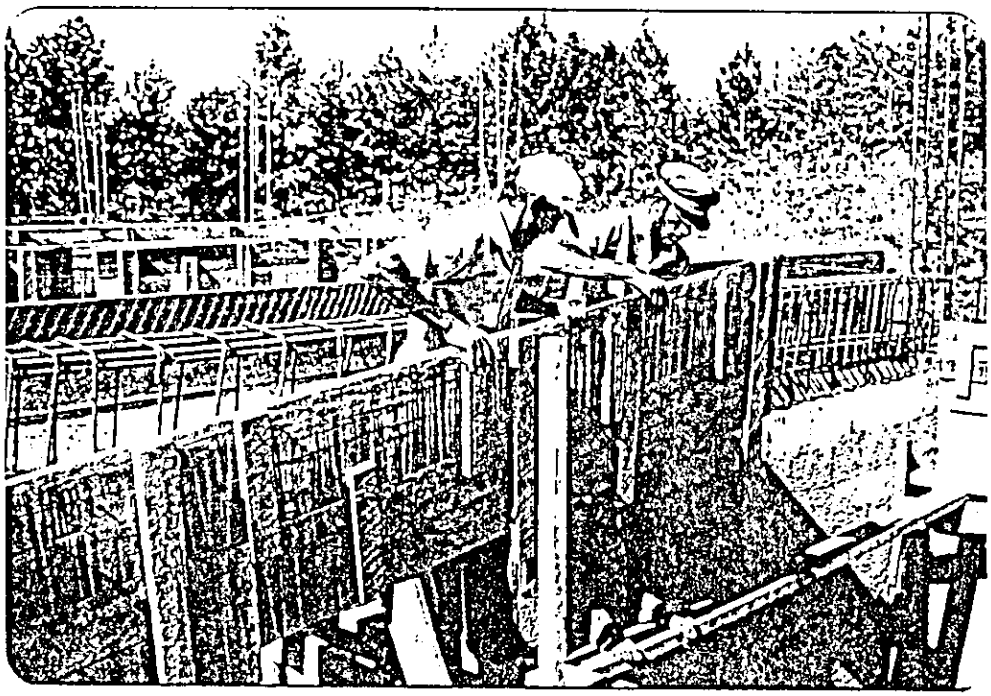
外装塗装完了状況



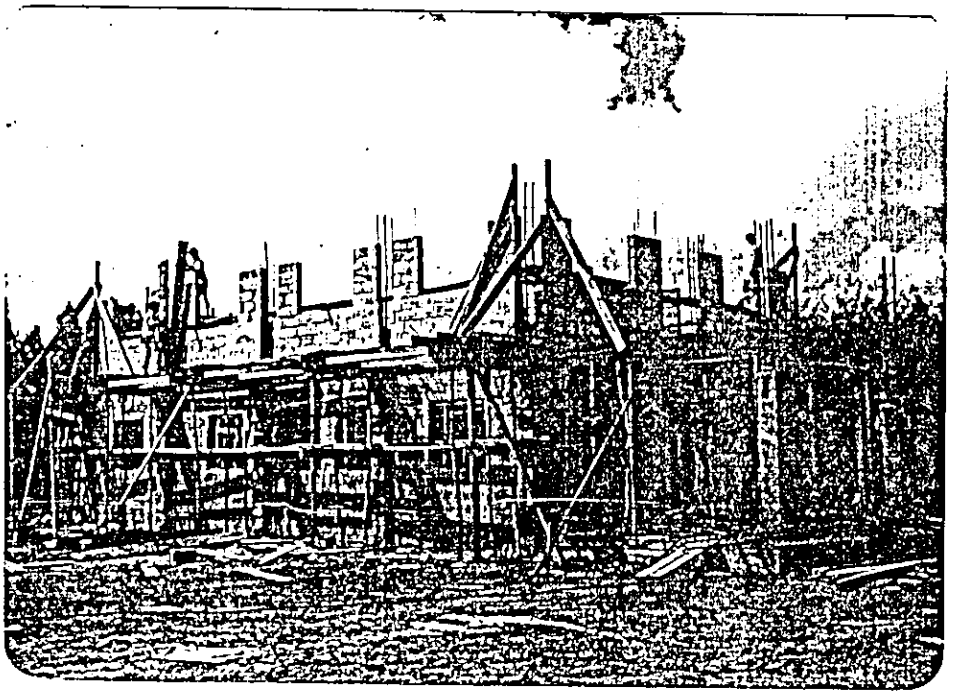
2）．実験資材棟



梁鉄筋配置状況

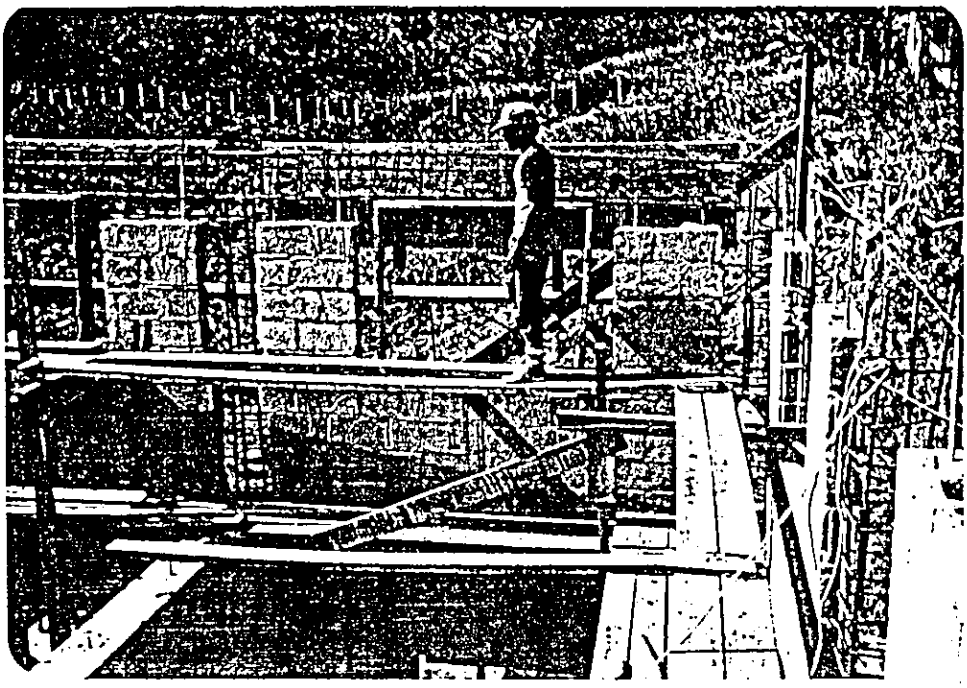


梁形枠工事

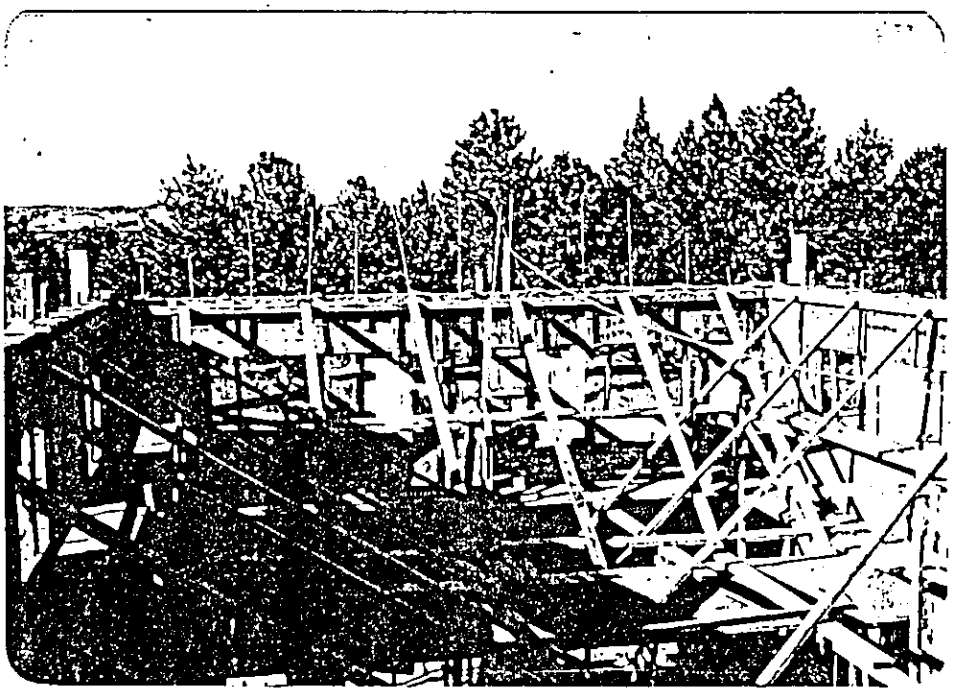


2階部分ブロック積み上げ

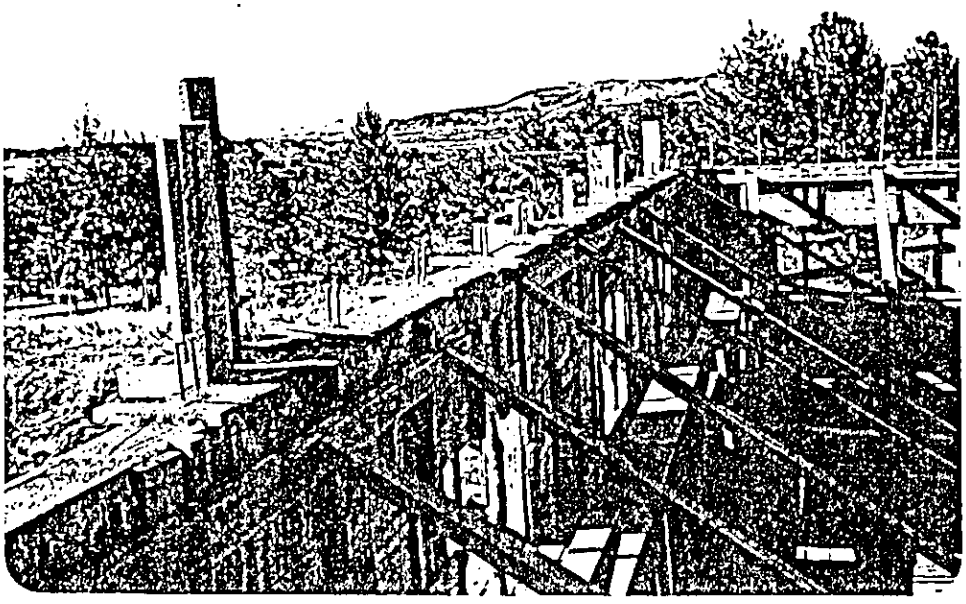
梁（２階部分）鉄筋配置状況



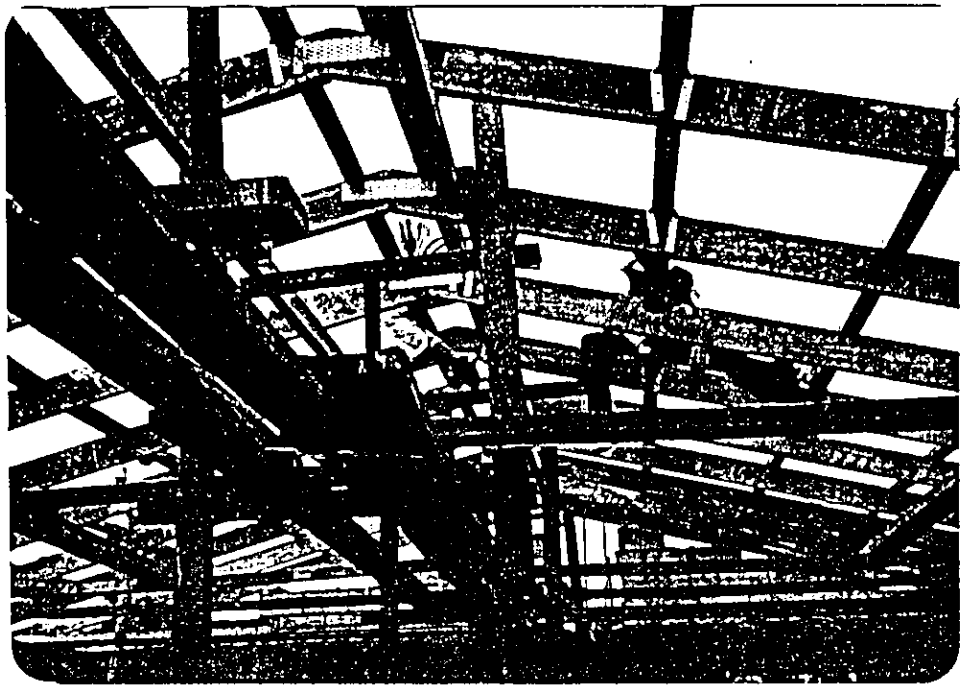
同形枠工事

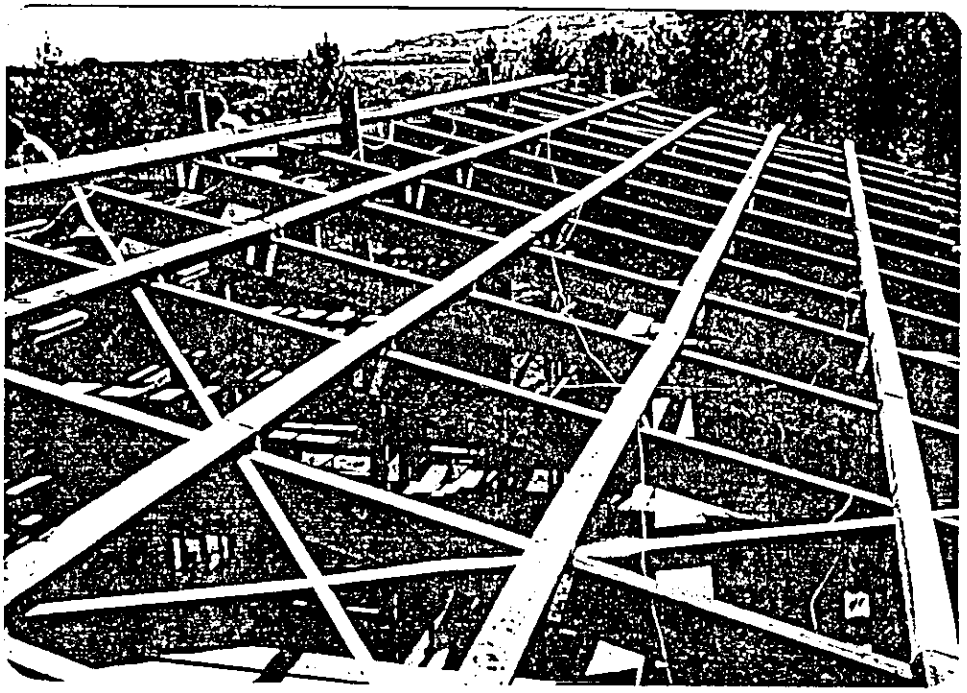


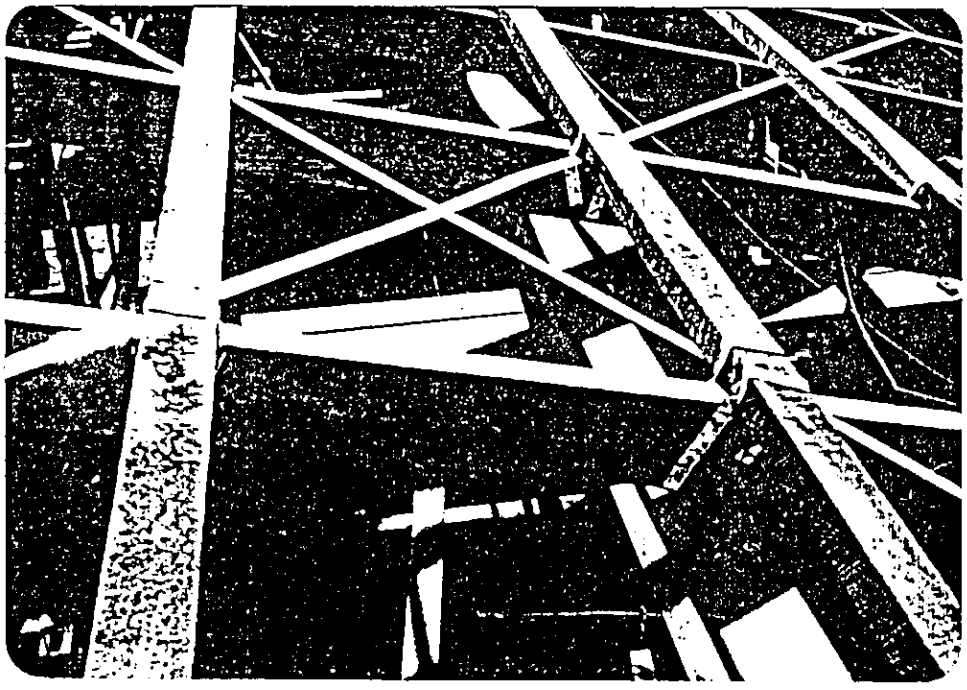
同コンクリート打設状況



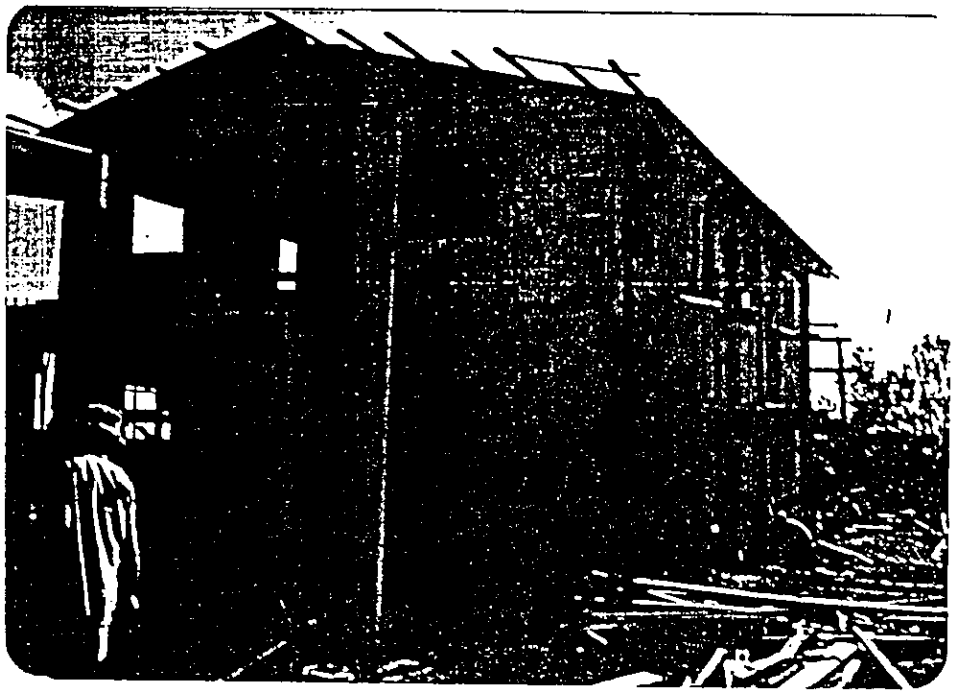
小屋組工事

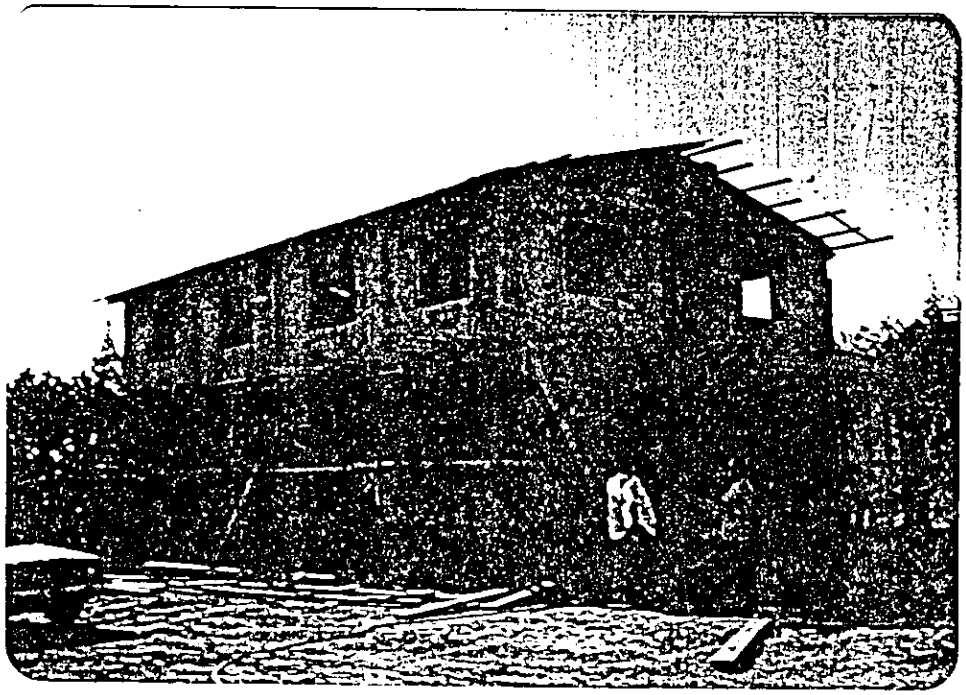




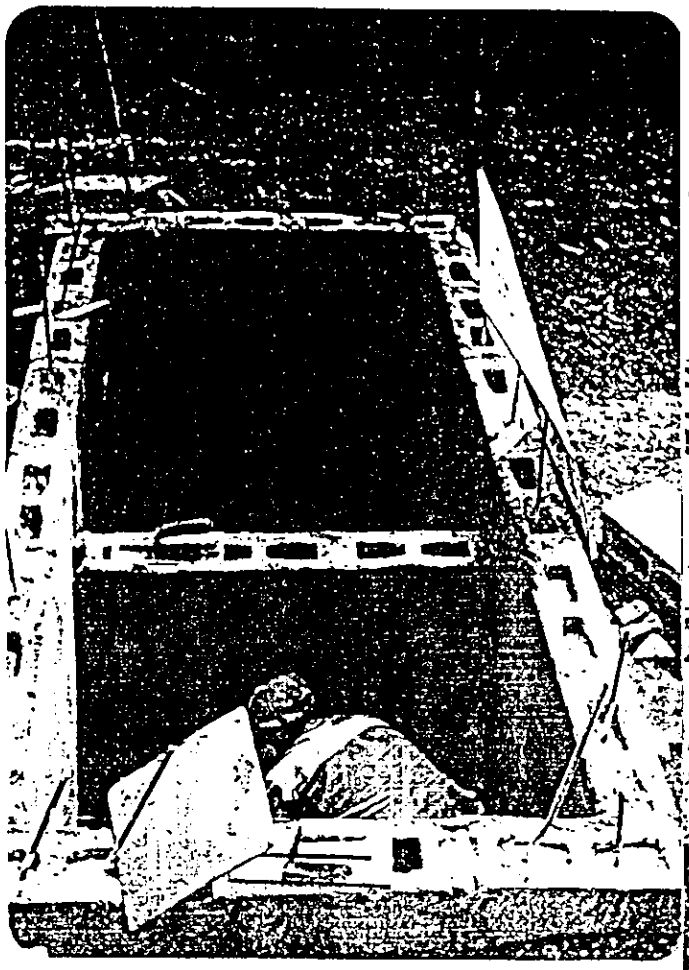


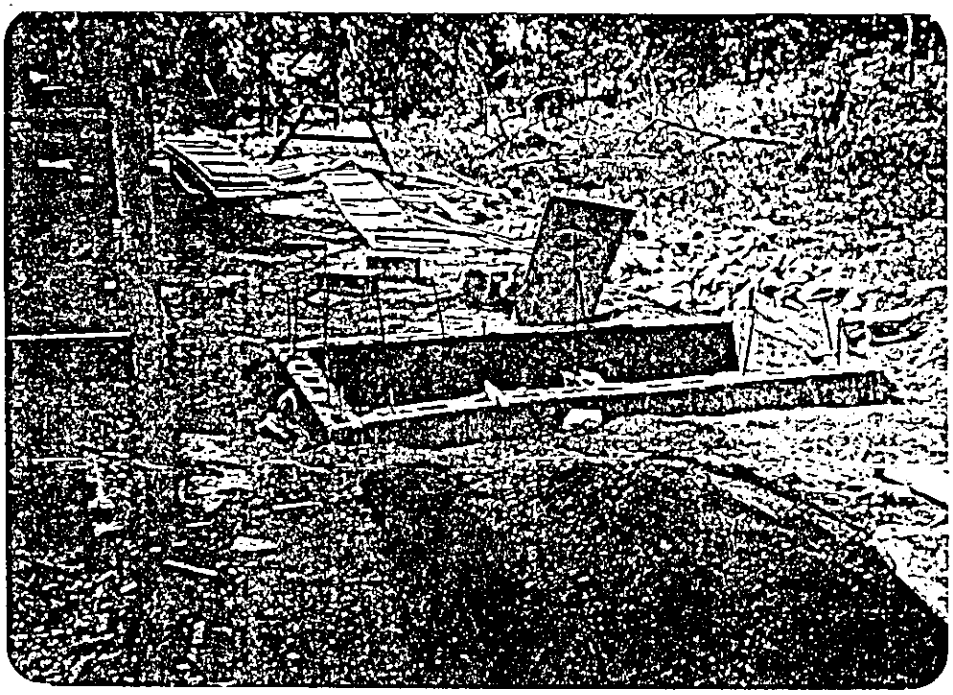
5月末日現在における施工状況





3）．下水貯留槽工事状況





事業団本部				プロジェクト		
	部長	課長	担当	ﾘｰﾀﾞｰ	ｺﾒﾝﾄ	報告者

業務状況報告書

（平成２年６～７月分）

国際協力事業団

総　裁　殿

フィジー 国稲作研究開発ﾊﾟｲﾛｯﾄ
ｲﾝﾌﾗ整備事業施工監理担当
岩　本　彰

件　名：フィジー国稲作研究開発パイロットインフラ整備事業
Dreketi 地区施工監理業務平成２年６～７月分の
業　務　報　告　書　の　提　出　に　つ　い　て

標記業務における平成２年６～７月分の業務報告書を以下のとおり提出致しますので、ご査収の程宜しくお願い致します。

１．施工監理業務状況

２．第２回中間払い

３．追加工事の発注及び支払い

４．最終検査の実施及び完工時払い

５．プロジェクト業務日誌

６．施工状況写真

1．施工監理業務状況

6月30日に予定通り実験資材棟が、完成した。5月末に研修棟の工事が完了したのを受け、労力を実験資材棟に集中できたことから、施工は順調に進み施工計画どおりに工事が完了した。6月分の工事項目を以下に示す。

	研修棟	実験資材棟
屋根工事	： 完　了	未着工⇒完　了
プラスタリング工事	： 完　了	未着工⇒完　了
階段工事	： ーーー	未着工⇒完　了
配管・配線工事	： 完　了	25％⇒完　了
バルコニー工事	： ーーー	20％⇒完　了
内壁・天井工事	： 完　了	未着工⇒完　了
タイル工事	： 50％⇒完　了	未着工⇒完　了
塗装工事	： 完　了	未着工⇒完　了
仕上げ工事	： 未着工⇒完　了	未着工⇒完　了

2．第2回中間払い

5月31日付けで施工業者の Begg Construction Ltd より第2回中間払いとして契約金額の20％に当たる F$ 24,400 の支払い請求があった。これを受け、6月1日に中間検査を実施したところ出来高は約75％であり、今回の部分払い限度額は添付書類のとおり20％であるため、これに当たる F$ 24,400 の支払いを吉田フィジー事務所長に申請した。業者からの請求書及び中間払いの申請書を巻末に添付する。

3．追加工事の発注及び支払い請求

施工期間の7割を経過し予備費の保留が必要なくなったため、契約交渉の際に工事項目から削除した洗面設備（5個）について、6月7日付けで追加工事として発注した。

6月15日付けで追加工事の支払い請求があり、検査を実施したところ発注書に基づいて履行されたものであることを確認したため、F$ 225 の支払いを吉田フィジー事務所長に申請した。発注書、業者からの請求書及び追加工事の支払い申請書を巻末に添付する。

4．最終検査の実施及び工事完了時払い（第3回中間払い）

7月2日付けで施工業者の Begg Construction Ltd より工事完了時払いとして、契約金額の10％に当たる保留金を除く残額の F$ 30,500（契約金額の25％）の支払い請求があった。これを受け、7月5日にかんがい排水部 Mr.Atu 局長立ち会いの元、最終検査

を実施したところ、契約書に従いすべての工事が完了していることを確認したため、F$ 24,400 の支払いを吉田フィジー事務所長に申請した。業者からの請求書及び工事完了時払いの申請書を巻末に添付する。

5．プロジェクト業務日誌

平成2年6～7月分のプロジェクト業務日誌を以下に付す。

6．施工状況写真

6月に実施した工事に対する写真を巻末に添付する。

５．プロジェクト業務日誌

プロジェクト業務日誌

プロジェクト名：フィジー国稲作研究開発パイロット・インフラ整備計画
施工監理担当／　岩本　彰

リーダー	調整員	報告者
	—	(岩本)

1990 年 6 月分　No. 1

曜日	主　要　業　務　動　向
／（月）	
／（火）	
／（水）	
／（木）	
6/1 晴れ（金）	スバへ移動　JICA吉田所長 及び プロジェクト 増見リーダー代行と打合せ 第2回中間払いの申請
6/2 晴れ（土）	報告書（5月分）作成
備考	

プロジェクト業務日誌

リーダー	調整員	報告者

プロジェクト名：[illegible]

施工監理担当／ 岩本 彭

1990 年 6月分 No.2

業務 / 日	主要業務動向
6/4 晴/雨 (月)	プロジェクト専門家との打合せ
6/5 晴/雨 (火)	スパーランバサーレイテへ移動 実験棟．トイレプラスタリング　バルコニー鉄筋配筋
6/6 晴 (水)	2階．床の根太設置　バルコニー枠材工事
6/7 晴 (木)	バルコニーコンクリート打設
6/8 晴/雨 (金)	2階床板設置及び同仕切り工事
6/9 晴/雨 (土)	同上
備考	

プロジェクト業務日誌

リーダー	調整員	報告者

プロジェクト名：フィジー国 稲作[illegible] パイロットインフラ整備事業

施工監理担当／ 岩本 彰

1990 年 6月分 No.3

業務日	主要業務動向
6/11 雨/くもり (月)	2階 床板設置，間仕切り工事　　外壁プラスタリング
6/12 くもり/晴れ (火)	同上 内部階段の形状工事 及び コンクリート打設
6/13 晴れ (水)	窓枠設置，トイレ プラスタリング・床板設置 ラバサにて Senir Engineer Northon の Mr. Gunalingame と打合せ. (ナンビア，コロカーティ パイロット プロジェクトについて)
6/14 晴れ/くもり (木)	内壁プラスタリング，間仕切工（1階部分）
6/15 晴れ (金)	同上.
6/16 雨 (土)	梁の プラスタリング 及び 内部塗装工事
備考	

プロジェクト業務日誌

リーダー	調整員	報告者

プロジェクト名：フィジー国 稲作研究開発 パイロットインフラ整備事業

施工監理担当／ 岩本 彰

1990 年 6月分 No. 4

業務日	主要業務動向
6/18 晴れ (月)	2階 間仕切り工事，電気配線工事（壁内部及び天井内側） 配管工事，トイレ内壁タイル工事
6/19 晴れ (火)	同上
6/20 晴れ (水)	配管工事（雨樋），外壁プラスタリング，外部階段型枠工事 JICA事務所 水谷副所長 現場視察
6/21 晴れ (木)	外部階段コンクリート打設，内外壁プラスタリング，天井板設置（2階）
6/22 晴れ (金)	1階 間仕切部 ベニヤ板設置，天井板設置（1階）
6/23 雨後晴れ (土)	1階 間仕切部 ベニヤ板設置，外壁塗装工事
備考	

プロジェクト業務日誌

リーダー	調整員	報告者

プロジェクト名：[illegible]

施工監理担当／ 岩本 彰

1990 年 6月分 No. 5

日付	主要業務動向
6/25 晴れ (月)	・バルコニーの端部，窓枠のエッジ，柱のプラスタリング ・外壁，間仕切り，天井の塗装 ・バルコニーの手すり設置工事
6/26 晴れ (火)	・バルコニー手すり設置工事 ・柱，梁，の端部及び階段のプラスタリング ・間仕切り，天井(2階部分)の塗装 ・階段手すりの設置 ・ドアの設置及び塗装(内部)
6/27 晴れ (水)	・床のプラスタリング ・ドアの設置及び塗装 ・内壁の塗装 ・シンクの設置 ・
6/28 晴れ (木)	・フロアタイル工事 ・2階床の仕上げ工事(サンダーマシンによる仕上げ) ・窓，ルーバーの設置
6/29 晴れ (金)	・塗装(床を除く)仕上げ工事 ・ドアの設置及び塗装(外部) ・バルコニー及び階段の塗装工事 ・現場の清掃，片づけ
6/30 晴れ (土)	・2階床の塗装工事 ・仮設小屋の撤収 ・現場周辺及び建物内部の清掃 ・完工
備考	7/1 スバに引っ越し

プロジェクト業務日誌

リーダー	調整員	報告者

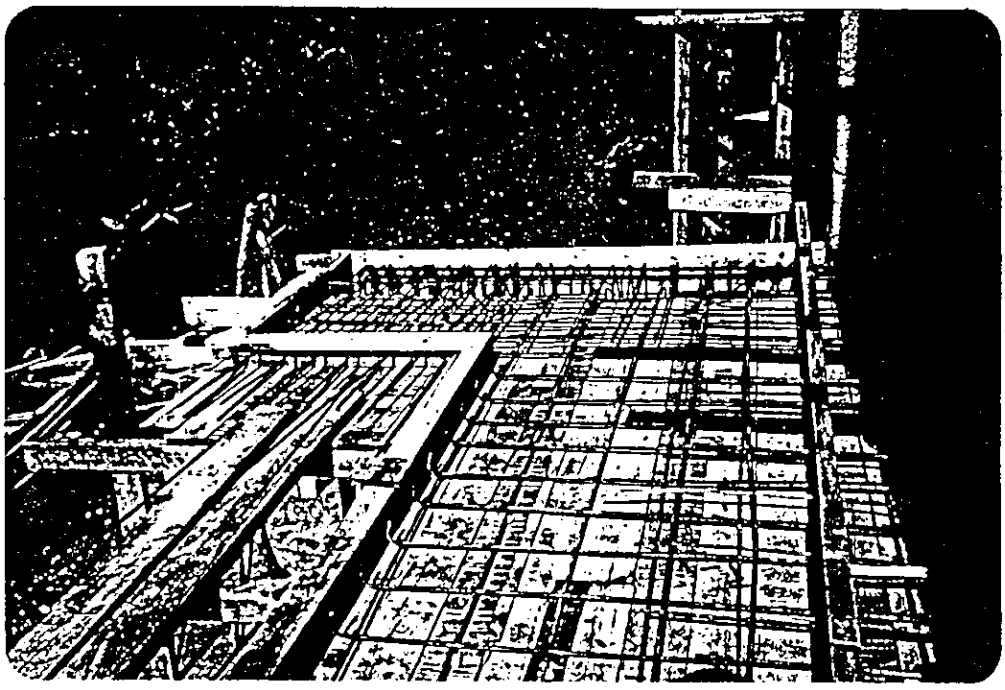
プロジェクト名：フィジー国稲作振興開発パイロットセンター整備計画、
施工監理担当／ 岩本 彰

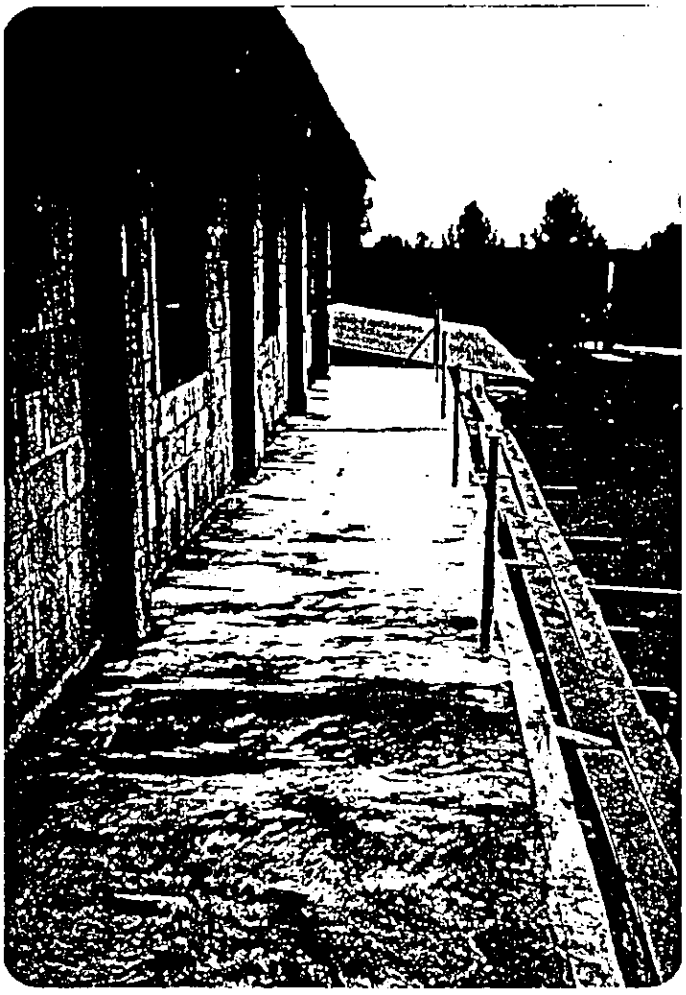
1990 年 7月分 No. 1

日＼業務	主要業務動向
7/2 晴れ (月)	・JICA 吉田所長 及び プロジェクトに完工の報告
7/3 晴れ (火)	・M.P.I. Drainage and Irrigation Mr. Atu 局長に完工の報告
7/4 雨り (水)	・テントサイト撤収. ・M.P.I 北部事務所 Mr. Jagat Shin に完工の報告.
7/5 晴れ (木)	・現地に M.P.I Mr. Nemani 次官補 Mr. Atu 局長 来訪. 庁舎棟、実験機材棟 案内、説明より JICA に対し 感謝の意を表す.
7/6 晴れ (金)	・報告書作成.
/ (土)	
備考	

6．施工状況写真

バルコニー鉄筋組立





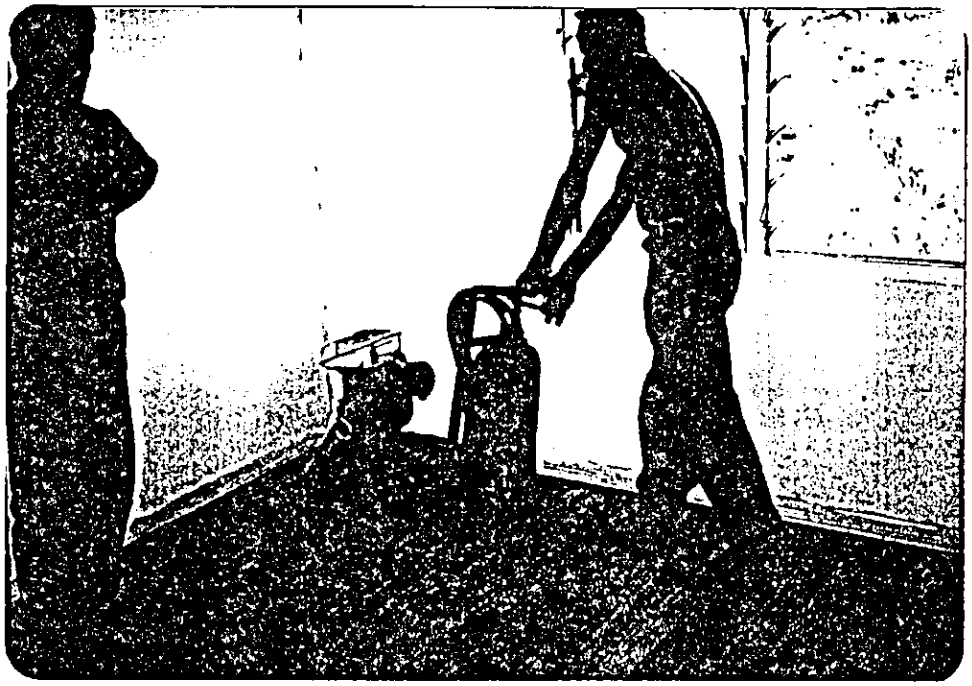
バルコニースラブ完成状況

外部階段コンクリート打設

バルコニー手摺り組立

フロアタイル工事状況

内部ドア設置状況



床研磨状況（サンダーマシン）

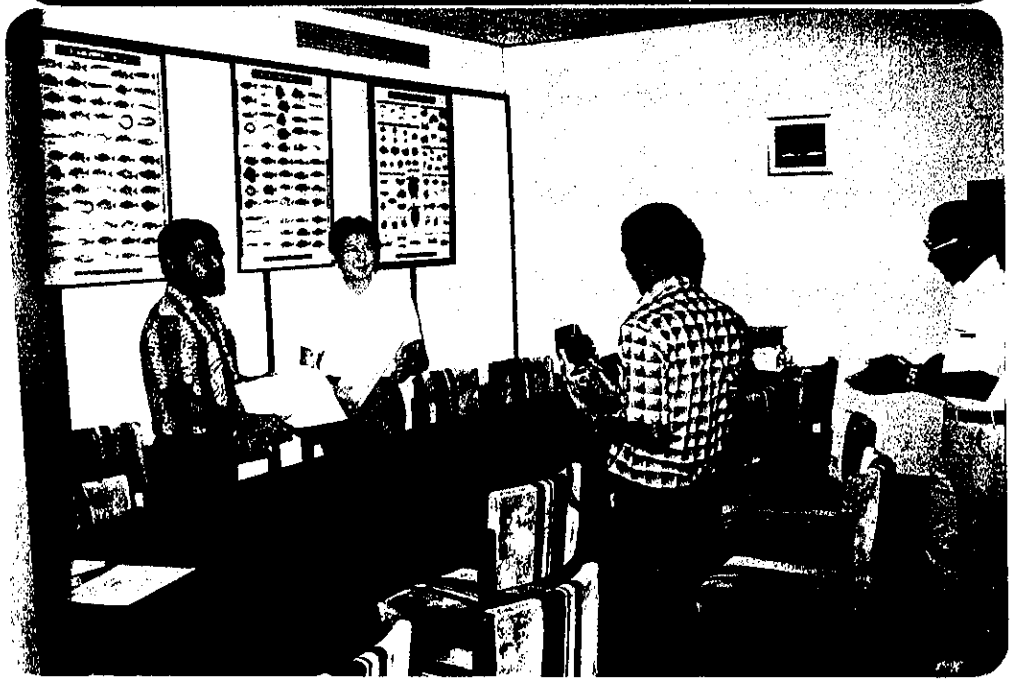
研修棟仕上げ工事

実験資材棟仕上げ工事

第７章　工事写真

7．1 共通事項

契約書署名状況

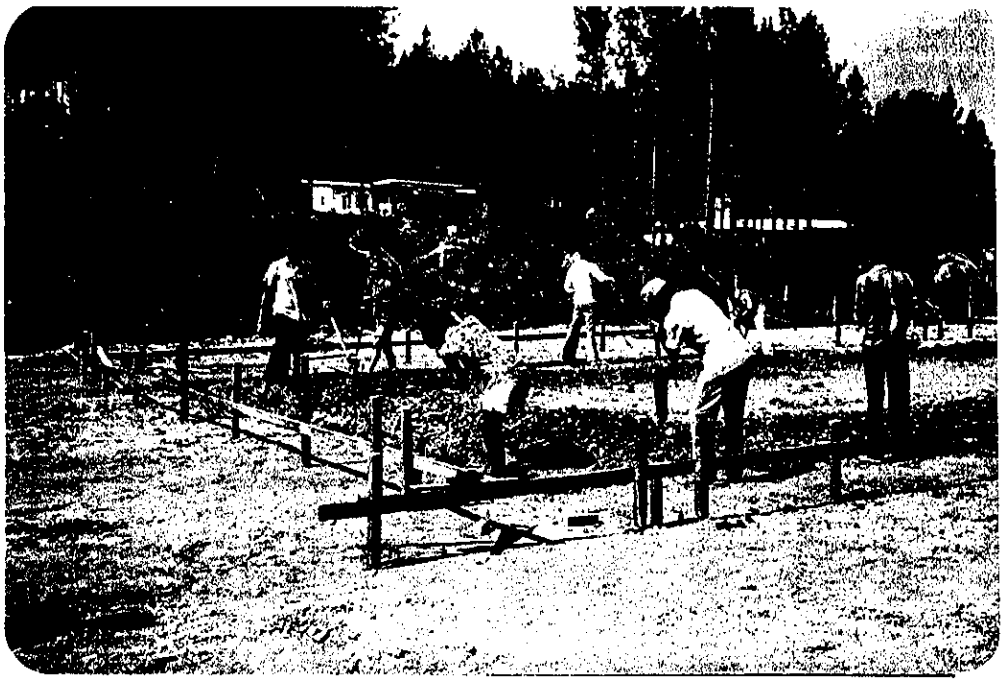


仮杭の打ち込み

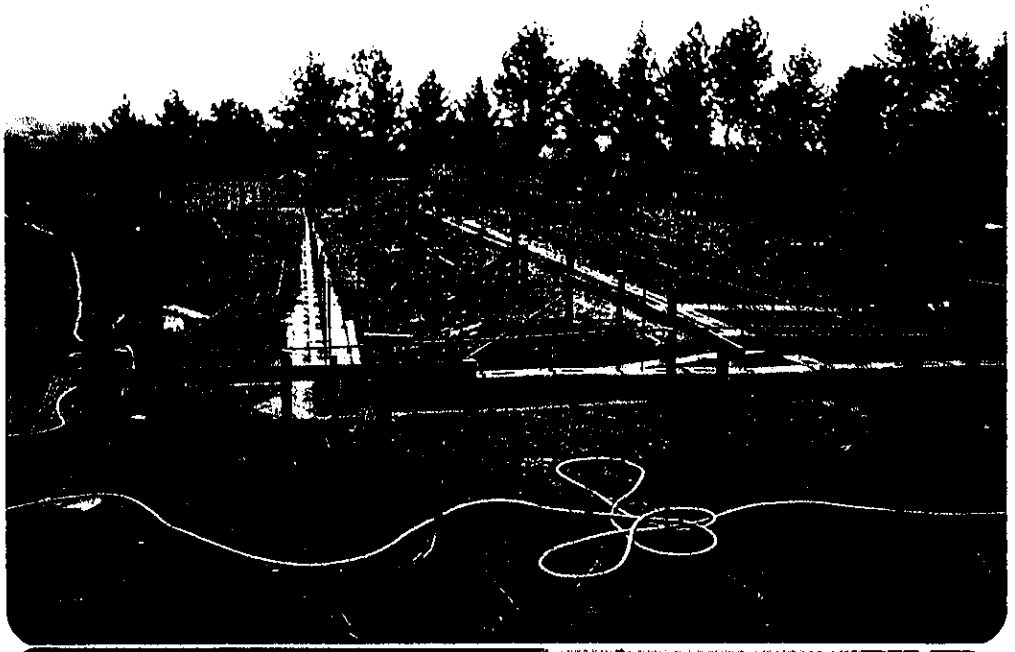
本杭のレベリング

7．2　研修棟

基礎工事状況

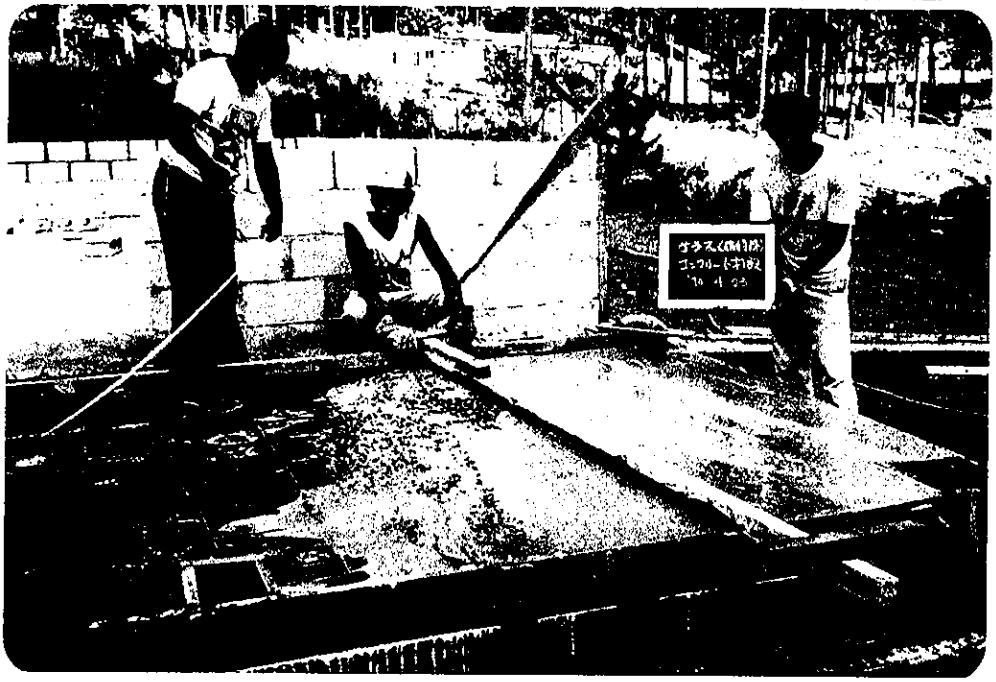


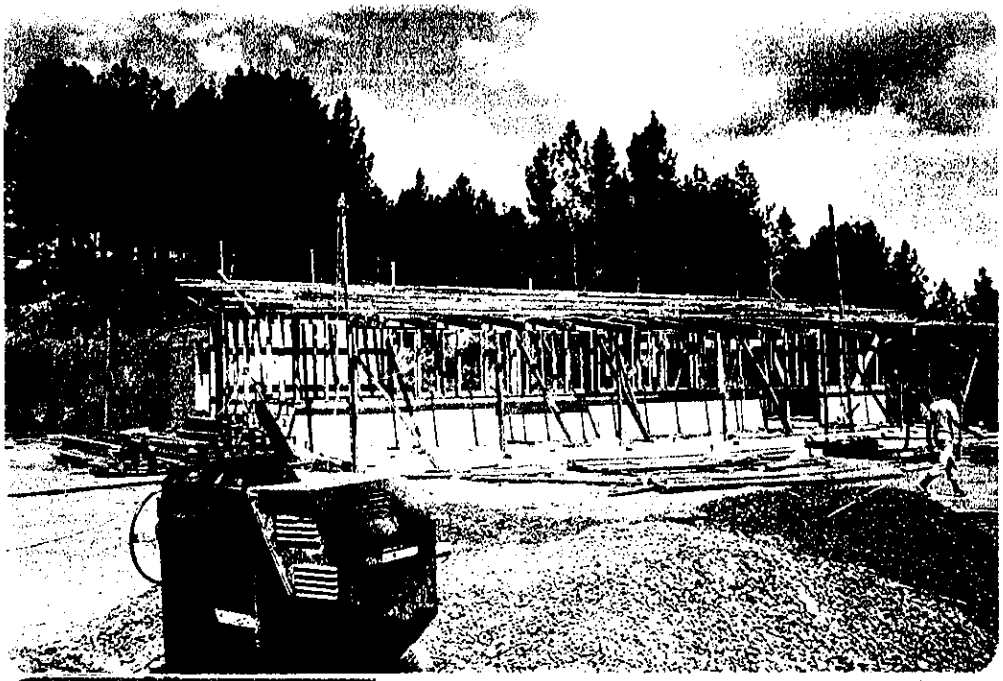
基礎工事完了



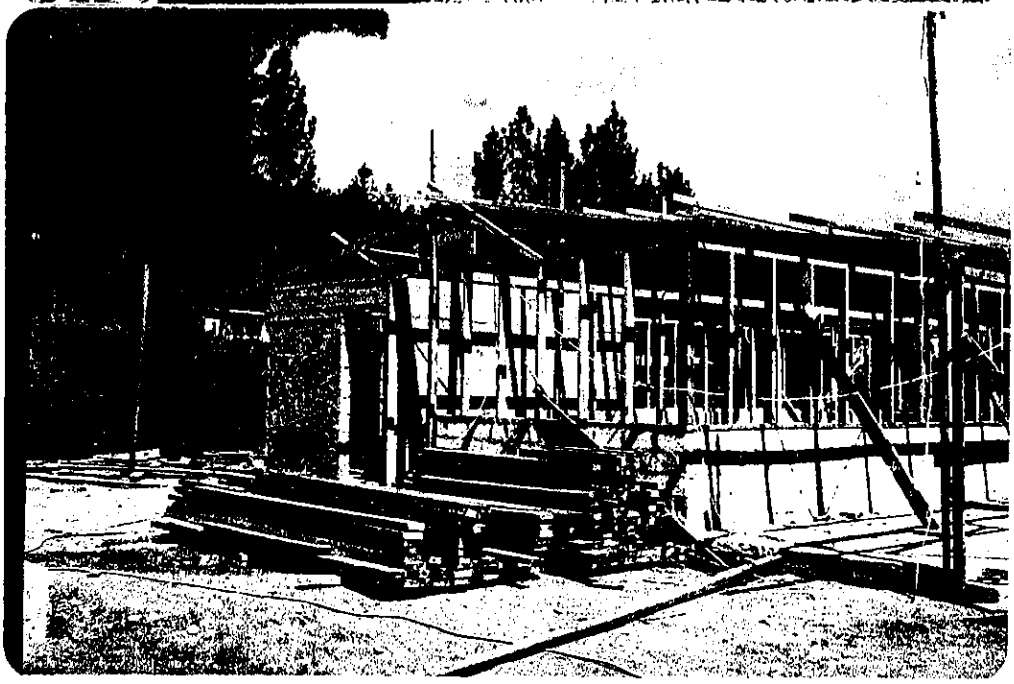
ブロック積状況

テラスコンクリート打設状況





外壁及び小屋組工事

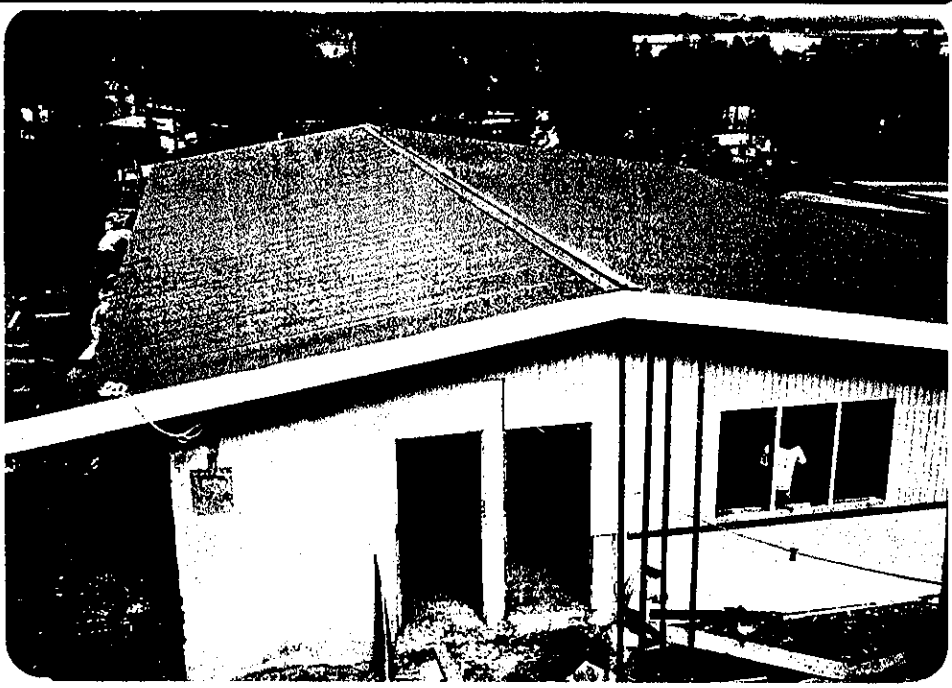


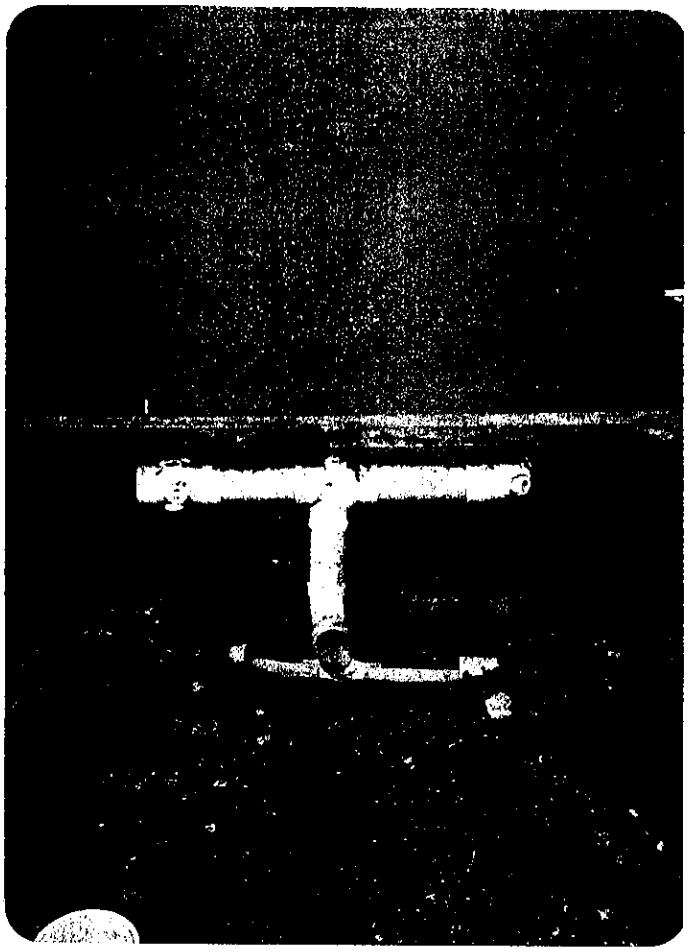
屋根工事（断熱材敷設）

外壁モルタル塗布状況

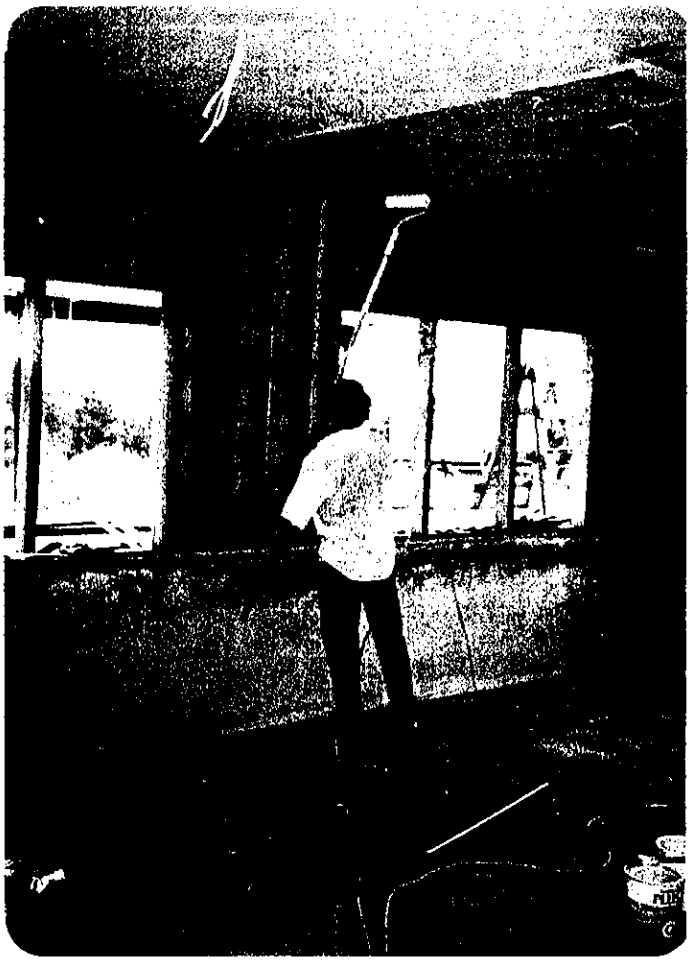
外壁用化粧板設置状況

窓枠工事状況

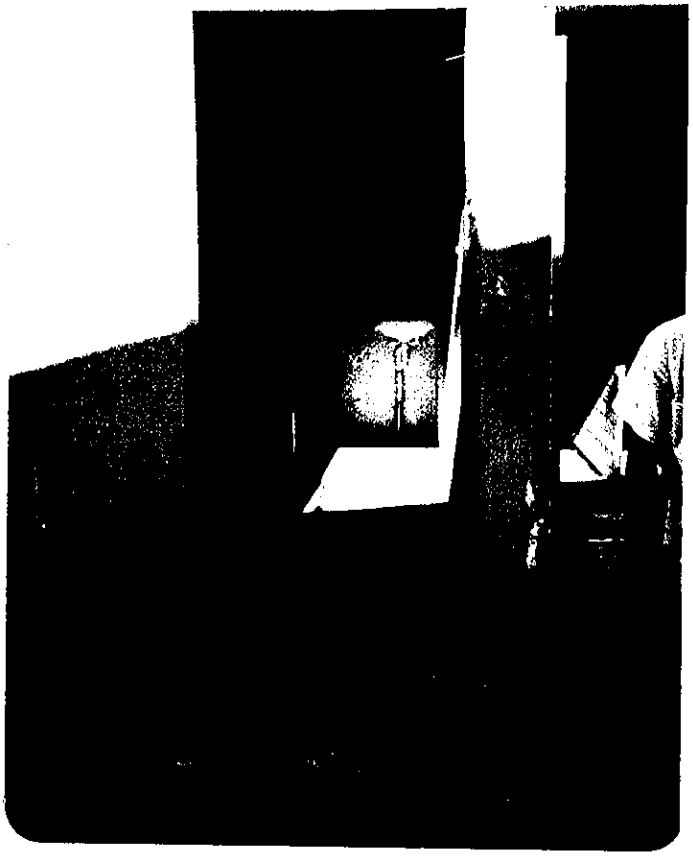




トイレ配管工事



内部塗装工事



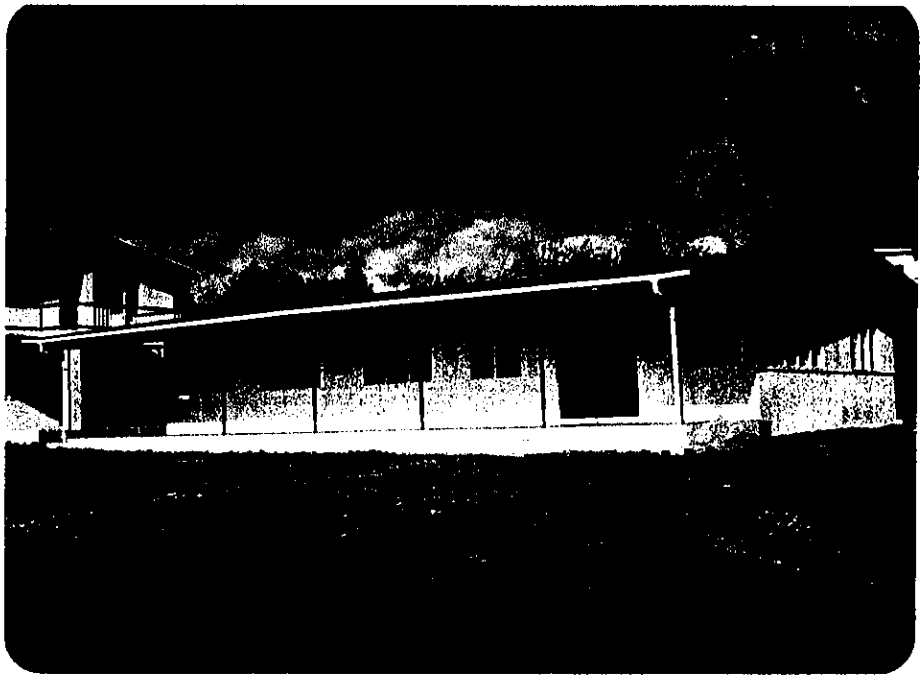
トイレモザイクタイル工事

配電ボックス

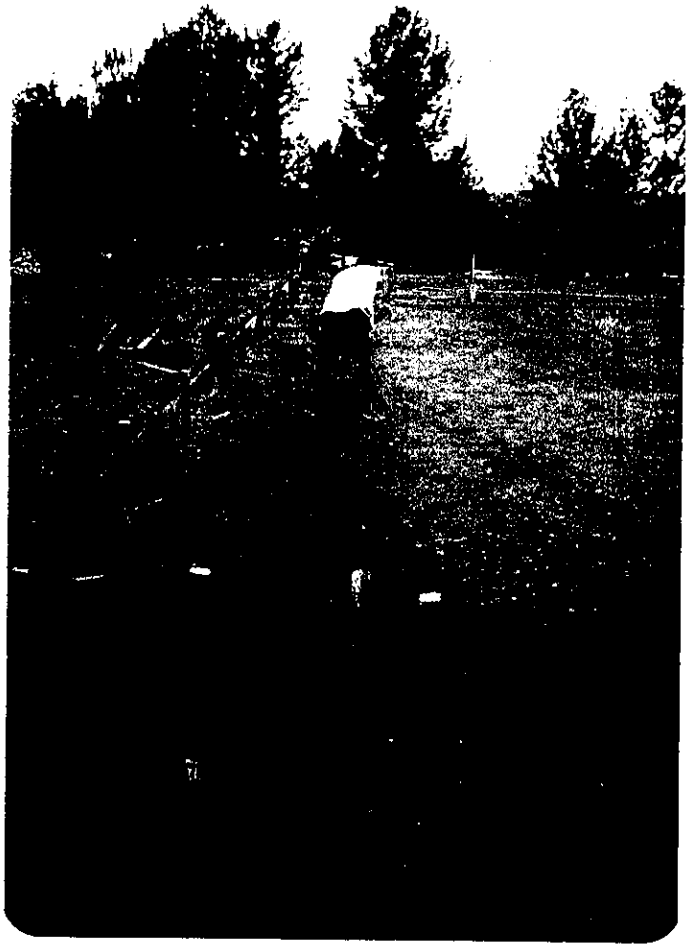
内部塗装完了

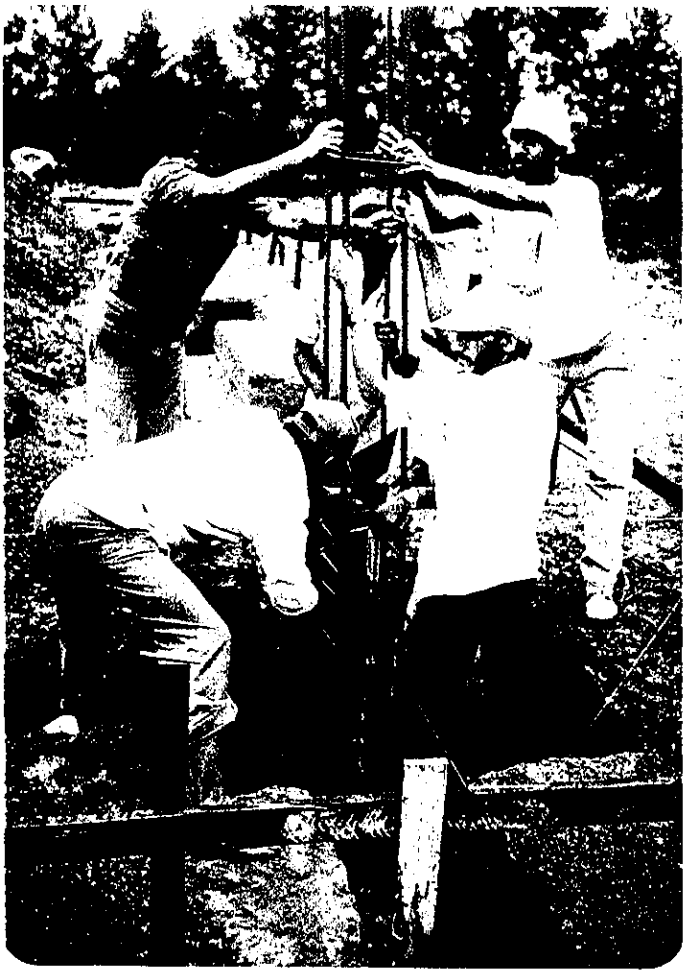
外壁塗装工事状況

完成状況

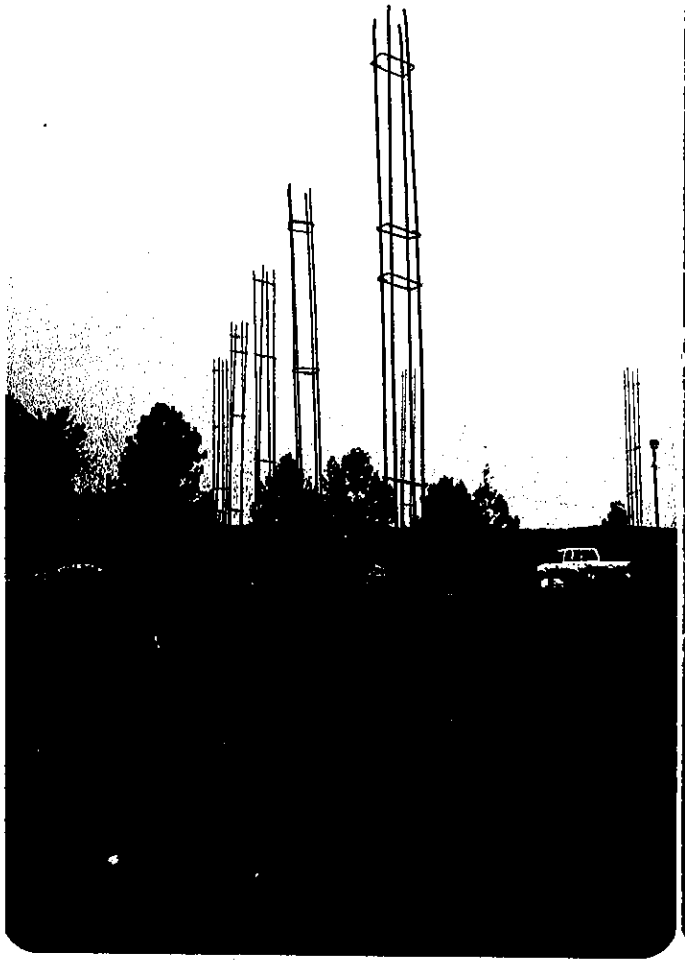


7．3　実験資材棟

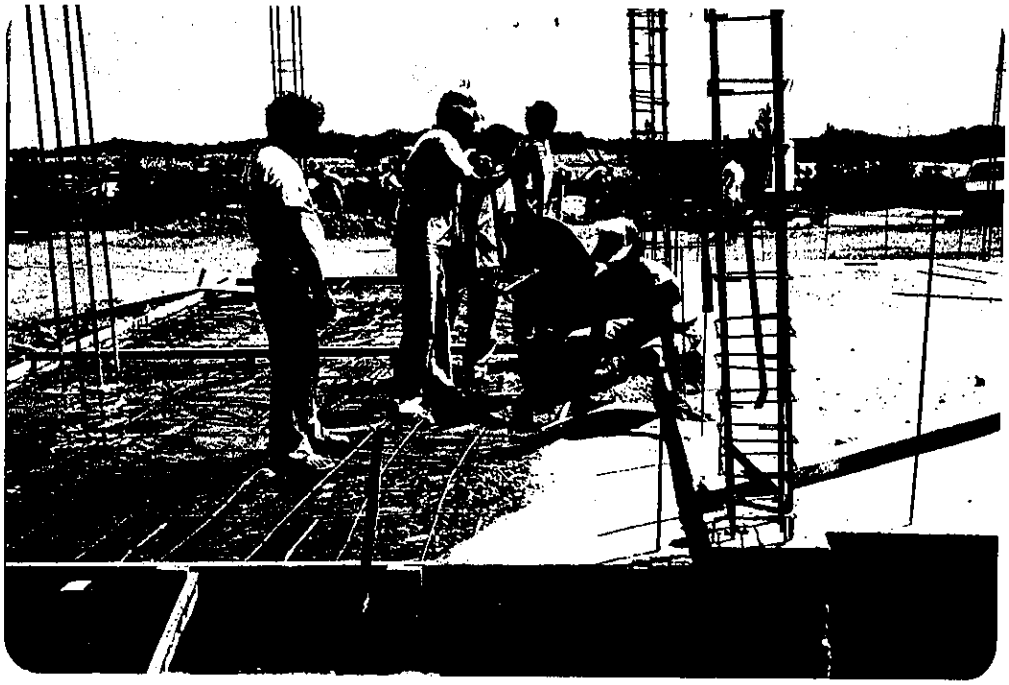


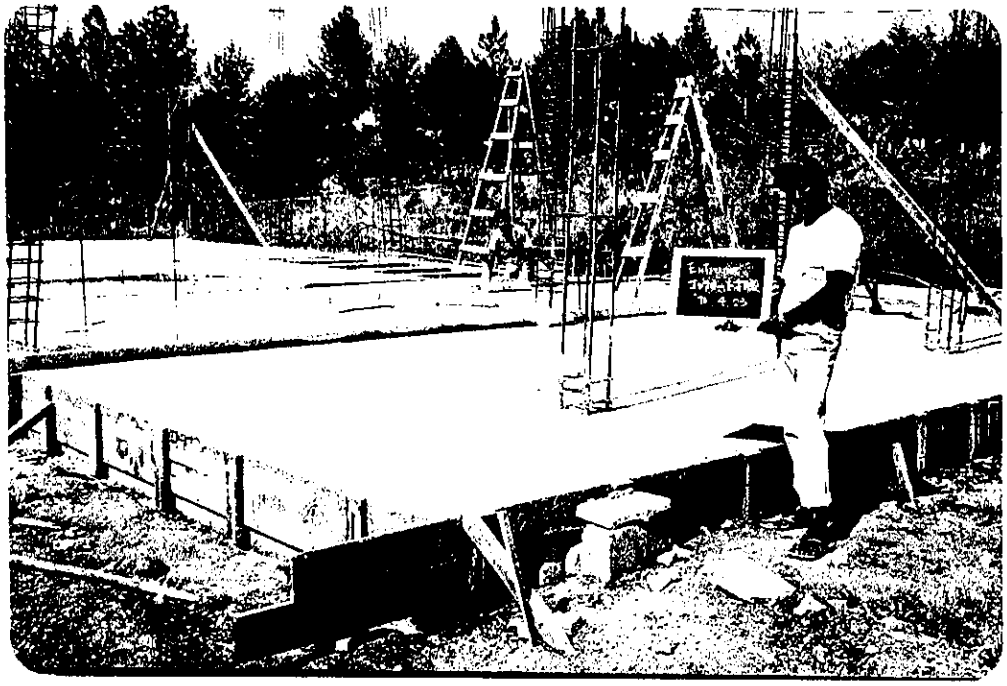


基礎工事状況



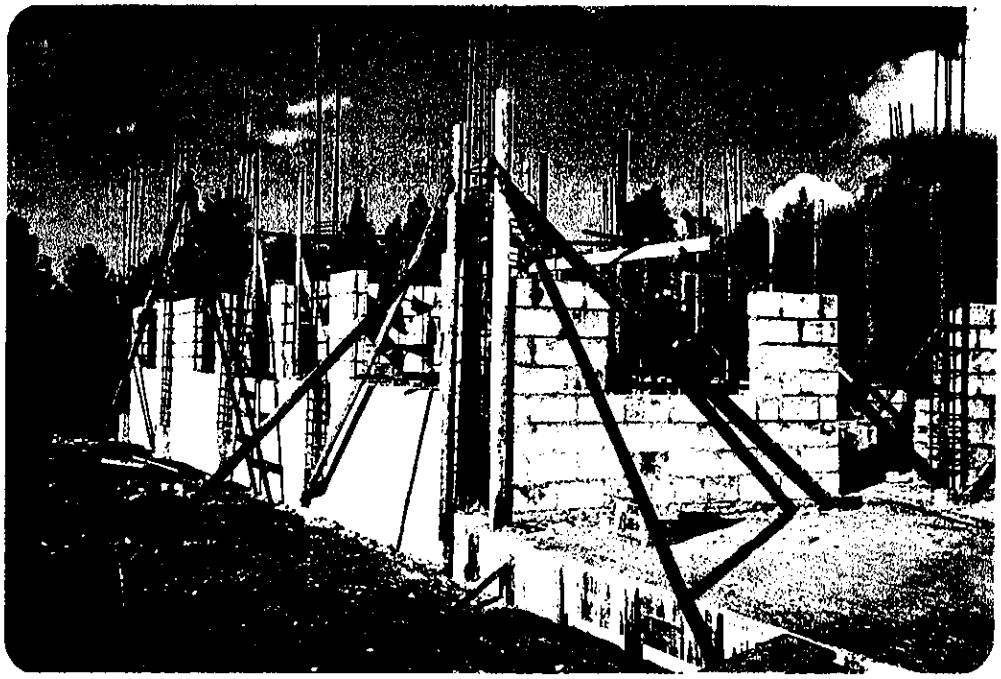
床スラブ工事





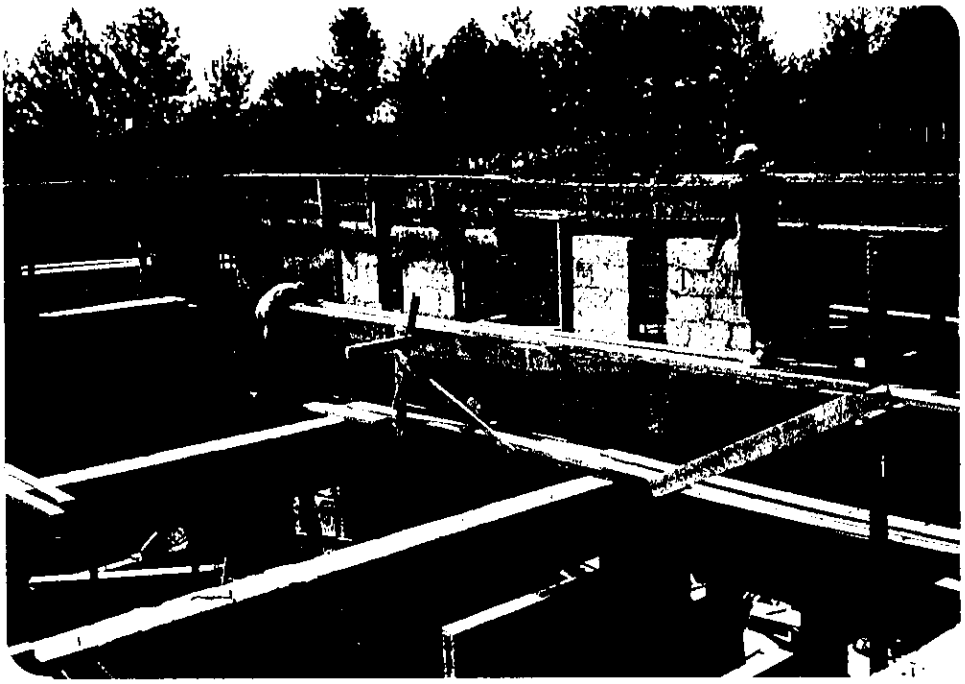
ブロック積工事

ブロック積工事

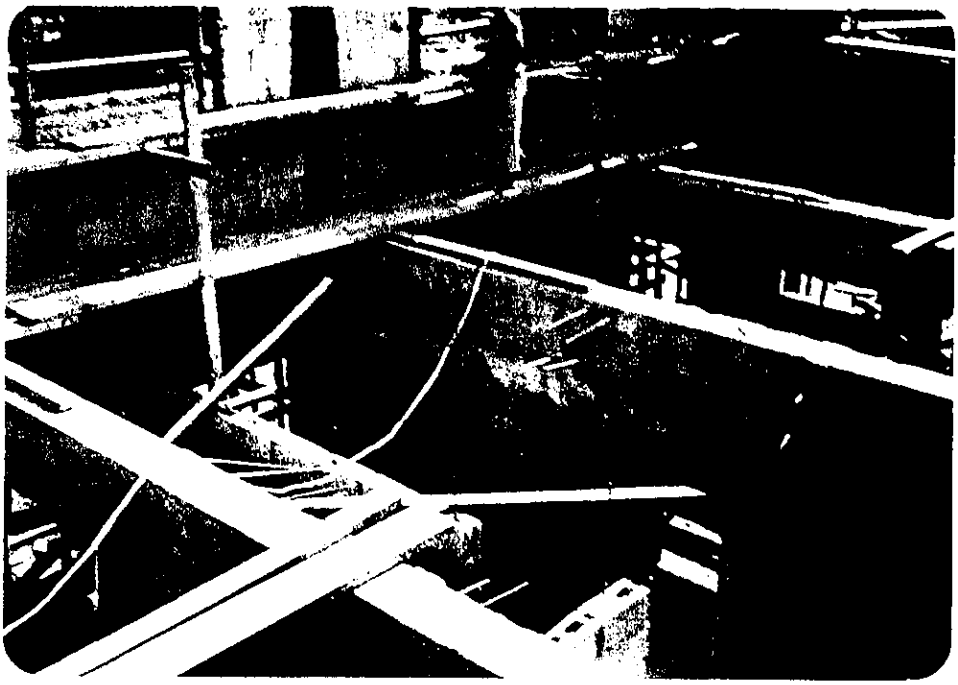


梁鉄筋組立

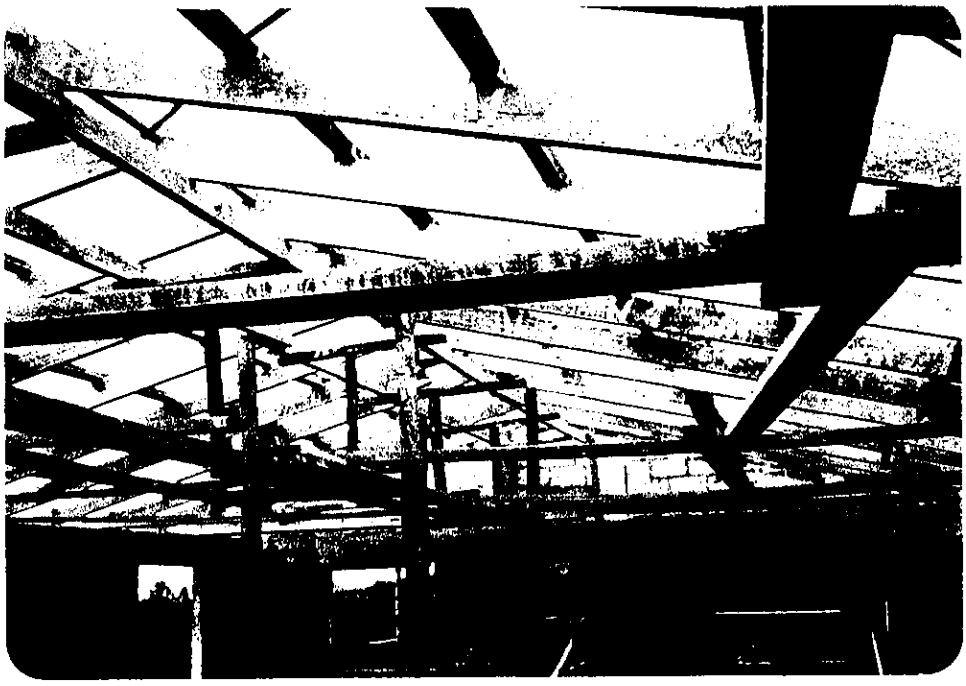
梁鉄筋組立



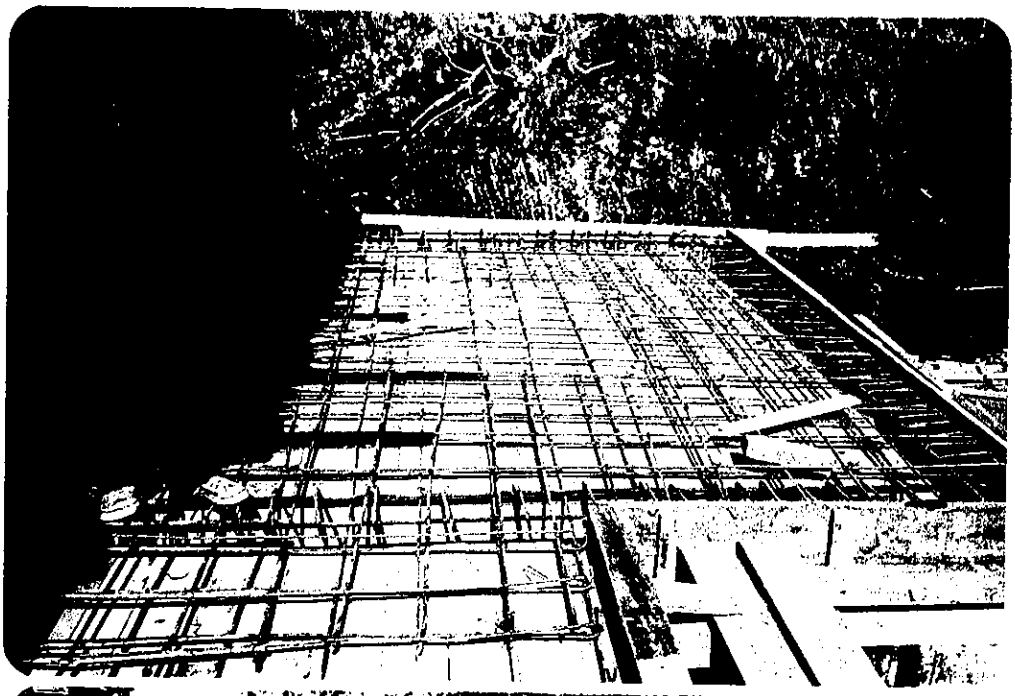
妻方向梁の状況

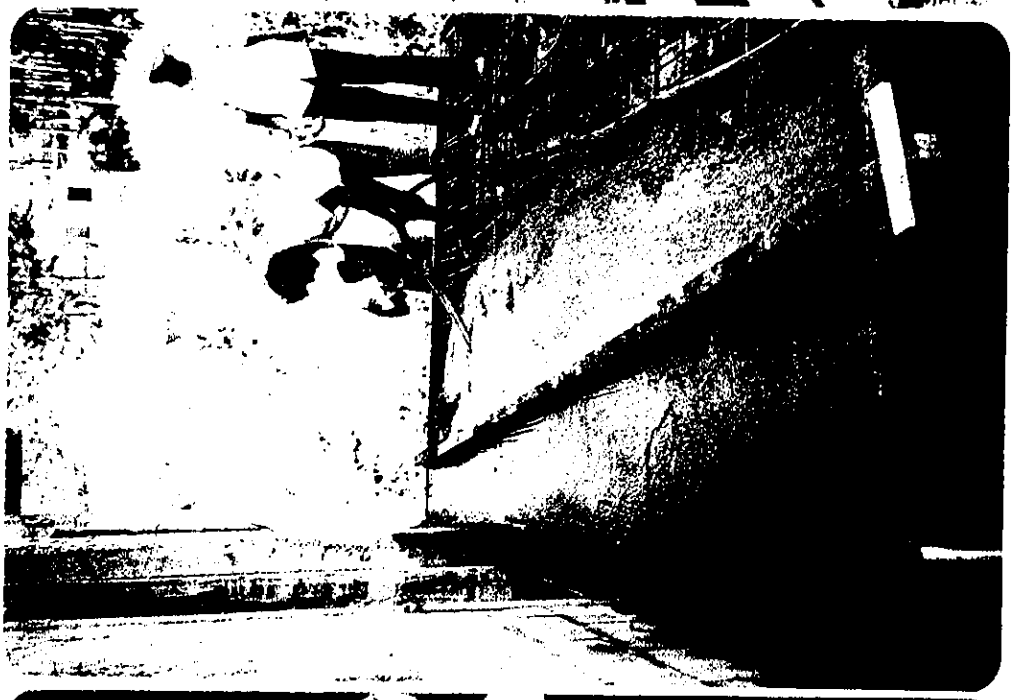


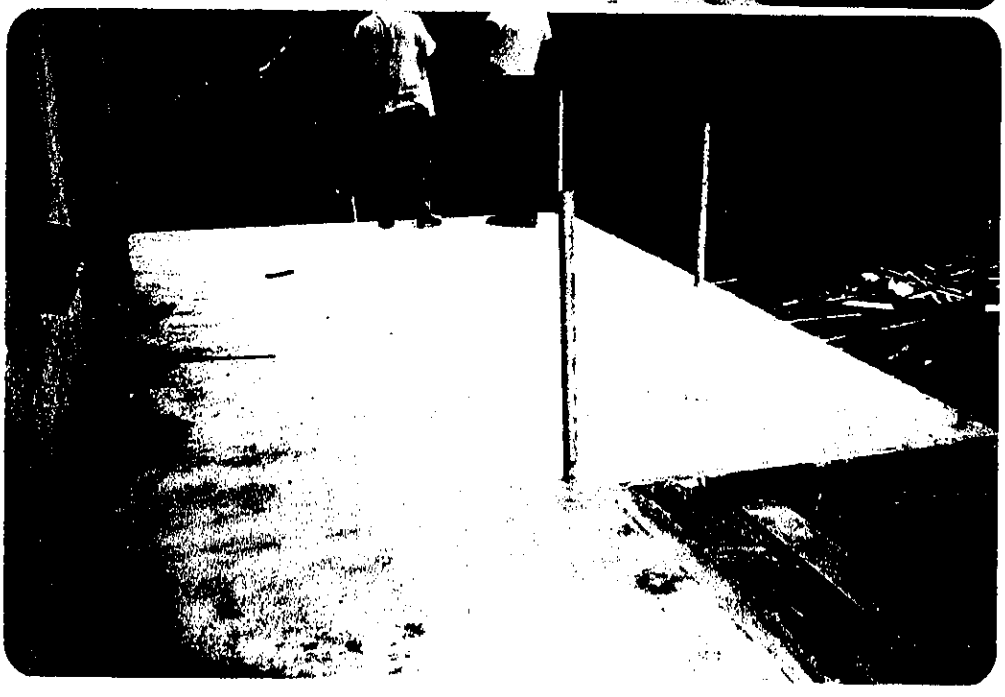
小屋組工事



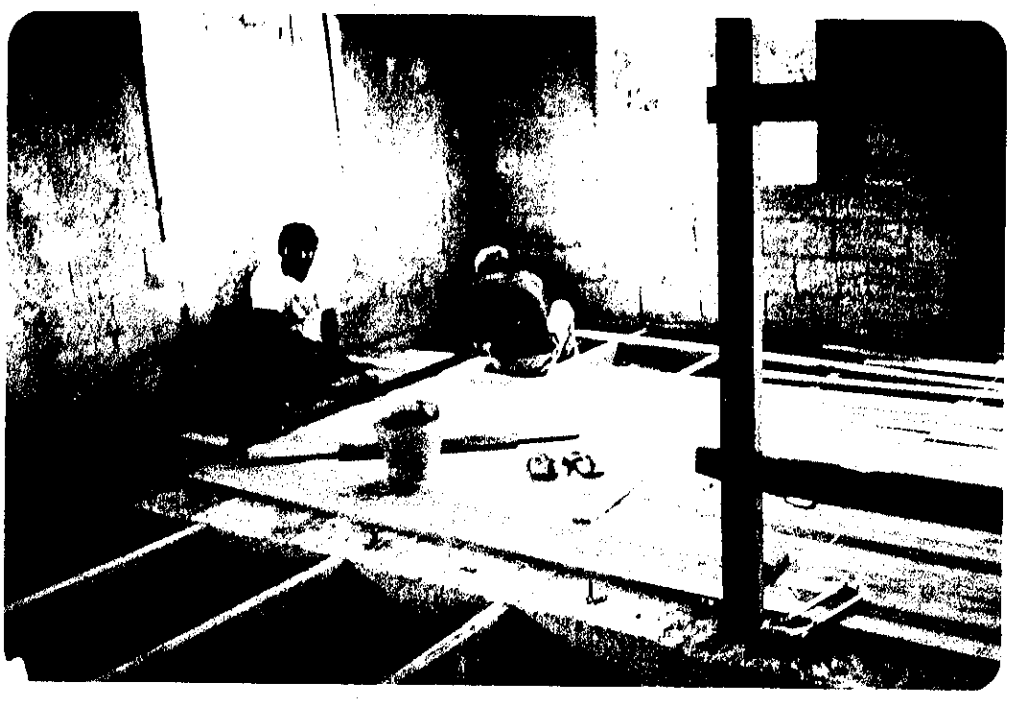
回廊工事状況

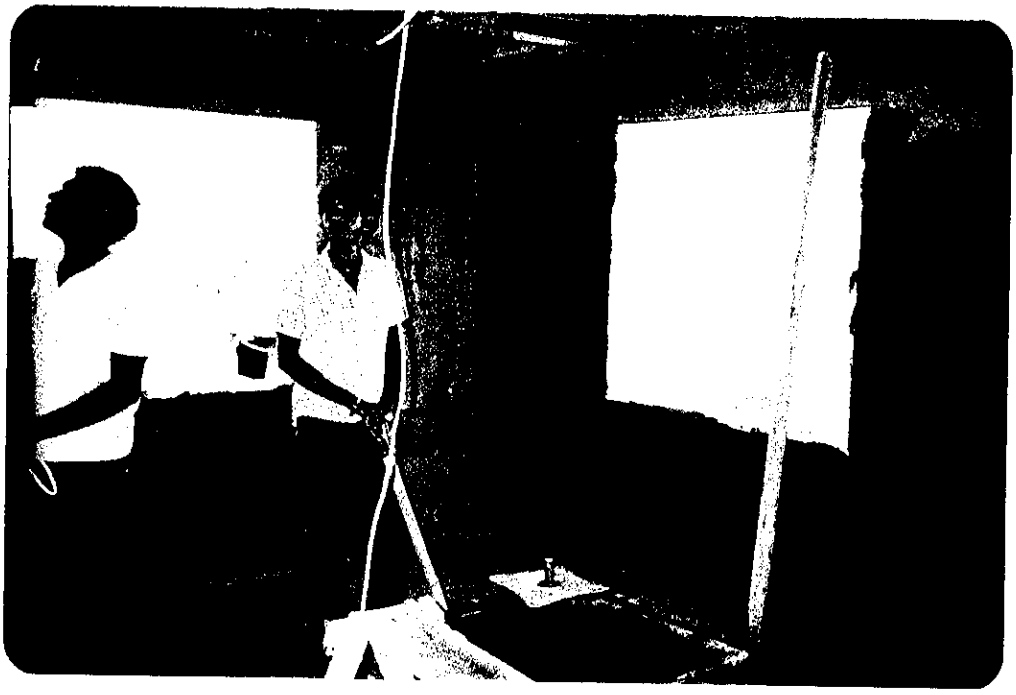


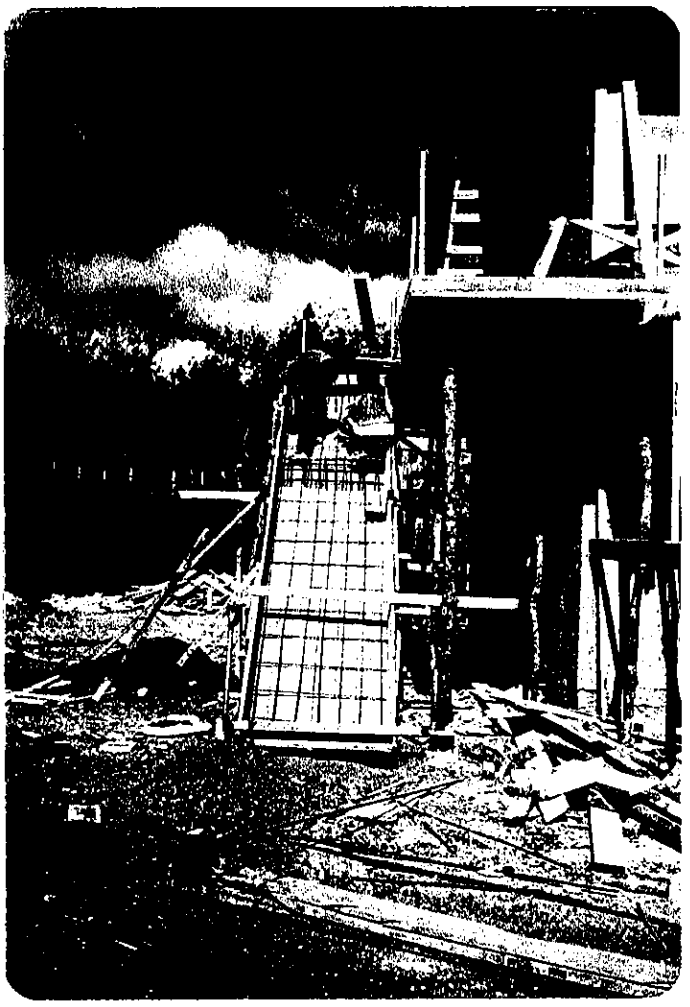




2階床及び配線工事





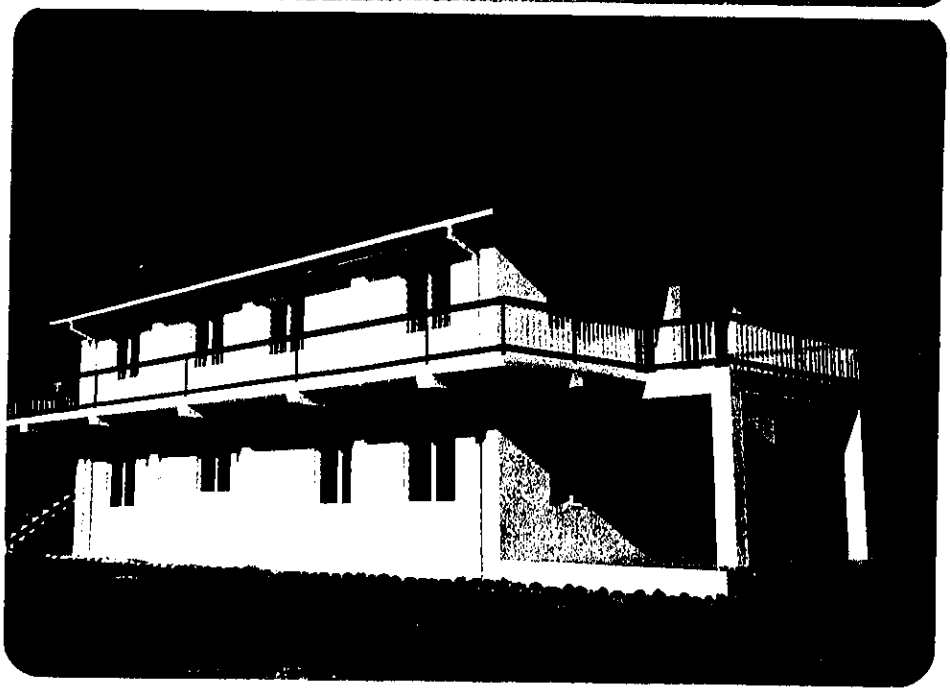


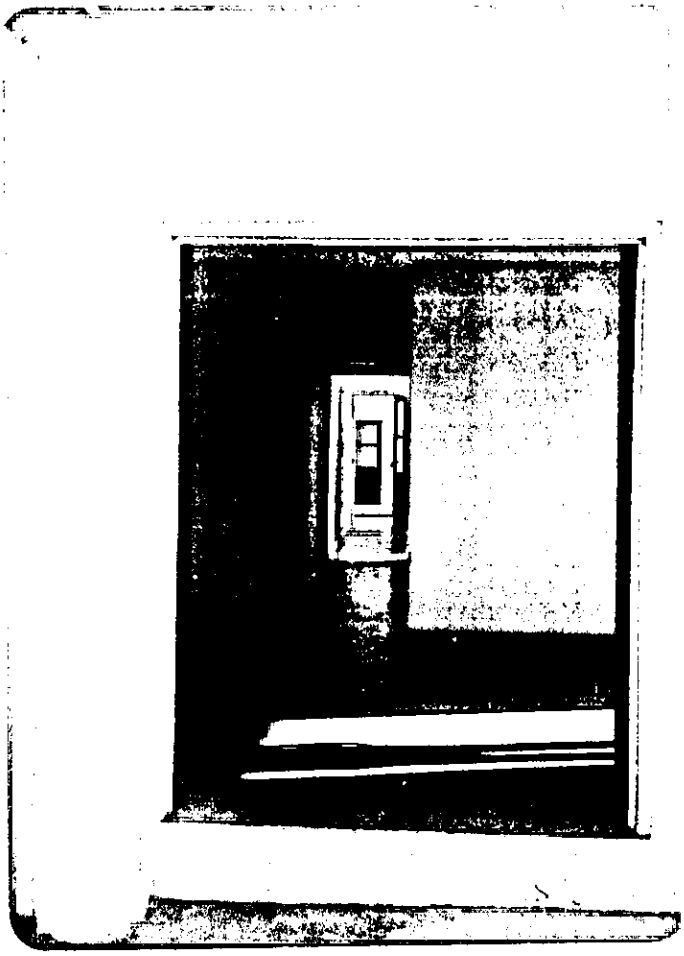
外部階段工事状況

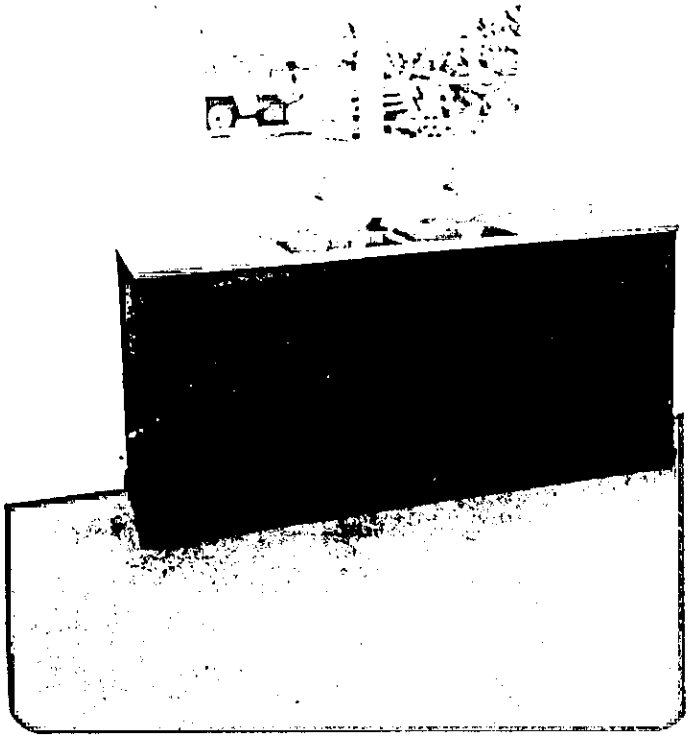
回廊手摺り設置工事

外部塗装工事

完成状況







内装及び設備関係