BYE LAW APPLICATION FEES

REF. NO.: 91A/1454 CERTIFICATE NO.: 16246B

PROPOSAL: Demolition, Reconstruction, alterations + extension + New SDP

LOCATION: 4 & 5 Main St, Lucan

APPLICANT: M. Toolan

	1	2	3	4	5	6	7
CLASS	DWELLINGS/AREA LENGTH/STRUCTURE	RATE	AMT. OF FEE REQUIRED	AMT. LODGED	BALANCE DUE	RED. FEE APPL.	AMT. OF RED. FEE
A	Dwelling (Houses/Flats)	@ £55	£55	£55	—		
B	Domestic Ext. (Improvement/ Alts.)	@ £30					
C	Building for office or other comm. purpose 206 m²	@ £3.50 per M² or £70	£721	£721			
D	Building or other structure for purposes of agriculture	@ £1.00 per M² in excess of 300 M² Min. £70					
E	Petrol Filling Station	@ £200					
F	Dev. of prop. not coming within any of the forgoing classes	£70 or £9 per .1 hect. whichever is the greater					

Column 1 Certified: Signed: J. Grade: DHC Date: 10/9/91

Column 1 Endorsed: Signed: Grade: Date:

Columns 2,3,4,5,6 & 7 Certified: Signed: Grade: S.O Date: 9/9/91

Columns 2,3,4,5,6 & 7 Endorsed: Signed: Grade: Date:

PLANNING APPLICATION FEES

Reg. Ref... 91A/1454 Cert. No... 26548

PROPOSAL.. demolition, reconstruction, alterations, extensions + new shop fronts

LOCATION.. 4 P.S. Main St. Lucan

APPLICANT... M. Toolan

CLASS	DWELLINGS/AREA LENGTH/STRUCT.	RATE	AMT. OF FEE REC.	AMOUNT LODGED	BALANCE DUE	BALANCE PAID
1	Dwellings	@£32	£32	£32		
2	Domestic,	@£16				
3	Agriculture	@50p per m2 in excess of 300m2. Min. £40				
4	Metres 206.0	@£1.75 per m2 or £40	£360.50	£360.50		
5	x .1 hect.	@£25 per .1 hect. or £250				
6	x .1 hect.	@£25 per .1 hect. or £40			£40 24/9 N5070	
7	x .1 hect.	@£25 per .1 hect. or £100				
8		@£100				
9	x metres	@£10 per m2 or £40				
10	x 1,000m	@£25 per £1000m or £40				
11	x .1 hect.	@£5 per .1 hect. or £40	£40	NIL	£40	

Column 1 Certified:Signed:.....Grade..S.T.I...Date..10/9/91..

Column 1 Endorsed:Signed:.....Grade.....Date.....

Columns 2,3,4,5,6 & 7 Certified:Signed:.....Grade...S.C.Date.9/9/91....

Columns 2,3,4,5,6 & 7 Endorsed:Signed:.....Grade.....Date.....

LOCATION GOVERNMENT (PLANNING AND [redacted]

ASSESSMENT OF FINANCIAL CONTRIBUTION

EG. REF.: 91A/1454

CNT. REF.:

SERVICES INVOLVED: WATER FOUL SEWER/SURFACE WATER

REA OF SITE:

LOOR AREA OF PRESENT PROPOSAL: 2218 FT²

J. Y. 10/9/91.

EASURED BY:

HECKED BY:

ETHOD OF ASSESSMENT: (1) Standard

OTAL ASSESSMENT 2218

WARDER'S ORDER NO: P / DATED

NTERED IN CONTRIBUTIONS REGISTER: 1000 (1)

£5 4½

11 6 3½

1663.50

EVELOPMENT CONTROL ASSISTANT GRADE

CN 9615

£600 per space

History:

(11) £1600 requested

Cashband G

Planner

MG.

DUBLIN COUNTY COUNCIL
22 OCT 1991
ENVIRONMENTAL HEALTH OFFICERS

Register Reference : 91A/1454

Date : 11th September 1991

Development : Demolition (front wall to be retained), reconstruction, alterations, extensions and new shop fronts

LOCATION : 4 and 5 Main Street, Lucan

Applicant : M. Toolan

App. Type : PERMISSION/BUILDING BYE-LAW APPROVAL

Planning Officer : M.GALVIN

Date Recd. : 5th September 1991

Attached is a copy of the application for the above development .Your report would be appreciated within the next 28 days.

Yours faithfully,

....

for PRINCIPAL OFFICER

The proposal is acceptable subject to
(1) Compliance with the Food Hygiene Regs 1950/89
(2) Compliance with the Health Safety + Welfare at Work Act 1989.
(3) Provision of suitable means of extract ventilation in the sanitary accommodation and intake ventilation to the lobbies leading thereto.
(4) Provision of suitable means of ventilation throughout the shops, store, tearoom and office.
(5) Provision of a sink and separate wash hand basin serviced with a supply of hot and cold water supply at the delicatessen counter

[illegible] for John O'Reilly
SUPER.ENVIRON. HEALTH OFFICER,
33 GARDINER PLACE,
DUBLIN 1.

30/10/91.

PLANNING DEPT.
DEVELOPMENT CONTROL SECT
Date 4-11-91
Time 4.30

Register Reference : 91A/1454 Date : 11th September 1991

Development : Demolition (front wall to be retained), reconstruction, alterations, extensions and new shop fronts

LOCATION : 4 and 5 Main Street, Lucan

Applicant : M. Toolan

App. Type : PERMISSION/BUILDING BYE-LAW APPROVAL

Planning Officer : M.GALVIN

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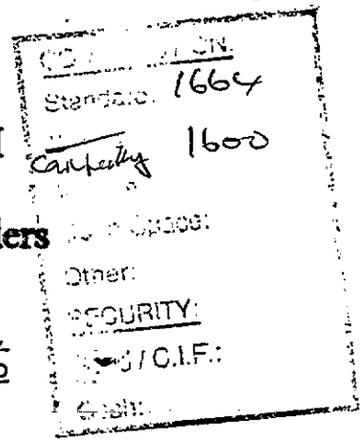
pp Devine for John O'Reilly
SUPER.ENVIRON. HEALTH OFFICER,
33 GARDINER PLACE,
DUBLIN 1.

30/10/91.

Order No. P/5036/91

COMHAIRLE CHONTAE ÁTHA CLIATH

Record of Executive Business and Manager's Orders



Proposed demolition (front wall to be retained), reconstruction, alterations, extensions and new shop fronts, at 4 and 5 Main Street, Lucan for M. Toolan.

Lynch O'Toole Martin,
Dodder Park Road,
Rathfarnham,
Dublin 14.

Reg. Ref. 91A/1454
App. Recd: 05.09.91
Floor Area:
Site Area: 236 sq.m.
Zoning: 'C1'

Report of the Dublin Planning Officer, dated 25 October 1991

This is an application for **PERMISSION** for demolition (front wall to be retained), reconstruction, alterations, extension and new shop fronts at 4 and 5 Main Street, Lucan for M. Toolan.

The proposed site is located in the centre of Lucan village in an area zoned 'C1' "to protect, provide for and/or improve local/neighbourhood centre facilities". It is also located within the area affected by the Lucan Conservation Area.

The proposed site has a stated area of 236 sq.m. It is bounded to the north by the Irish Permanent Building Society and to the south by a vacant dwelling. There is a narrow and badly surfaced laneway to the rear with access onto Main Street. This laneway is currently used for open storage for nearby public houses.

There are 2 existing buildings on site. These have a floor area of 323 sq.m. and comprise a supermarket (Spar), dry cleaners and florists at ground floor level with residential accommodation overhead (stated). From site inspection it was noted that yard areas to the rear have been covered in and there is c. 100% site coverage at this location.

There is no reference on the Planning Register of any previous grants of permission relating to this site. ~~Reg. Ref. No. 91A/262 refers~~.

Reg. Ref. No. 85A/0644 refers to a grant of permission for change of use of first-floor of adjoining building to north to office use.

Reg. Ref. No. 85A/0645 refers to a grant of permission for change of use of ground floor of adjoining building to north to branch office for Irish Permanent Building Society.

Reg. Ref. No. 91A/2103 refers to a recent grant of planning permission for improvements and extension to Londis food store to the south for T. Lynch.

(Continued)

COMHAIRLE CHONTAE ÁTHA CLIATH

Record of Executive Business and Manager's Orders

Proposed demolition (front wall to be retained), reconstruction, alterations, extensions and new shop fronts, at 4 and 5 Main Street, Lucan for M. Toolan.

(Continued)

The current application provides for the demolition, reconstruction, alterations and extension of nos. 4-5 Main Street. The front is to be retained and existing unsightly projecting box and hanging signs and canopies are to be replaced with 2 no. traditional style timber shop fronts (to later details).

The proposed shop fronts are to be almost flush with the front facade and roller shuttering is to be provided internally.

Lodged plans provide for the construction of a pitched roof two-storey building along the street frontage with a part two-storey/part single-storey extension to rear.

Drawings lodged identify a uniform roof profile for both Nos. 4 and 5. (At present the apex on No. 4 is slightly lower than No. 5). One chimney is to be removed. An existing chimney to the south is to be retained.

The proposed development involves the construction of a building of floor area 334 sq.m. total comprising shops 206 sq.m. and residential accommodation 128 sq.m. (stated) and would result in a level of site coverage of c. 87%. (A small yard area to the rear is proposed). This is in excess of that normally permitted in areas zoned C1 i.e. 50%. However it is considered acceptable in this instance given the existing high level of site coverage on site and the fact that the adjoining laneway is relatively inaccessible for parking/delivery purposes. In addition there are existing similarly high levels of site coverage at neighbouring buildings.

Roads Department report comments on the existing traffic congestion in Lucan Village and notes that no car parking is proposed to serve the current proposal. Report also refers to the fact that the proposed development provides for a reduction of shops from 3 to 2 and involves an increase in retail floor area of 25 sq.m.

Roads Department state that they are opposed to an increase in floor area and recommend financial contribution be sought (no amount specified). The proposed development provides for the rationalisation of the existing building reducing number of shops by 1 and increasing floor area only marginally. This is considered acceptable.

In addition it involves remodelling the front facade provide for 2 no. attractive shop fronts in keeping with the objectives of the conservation area.

(Continued)

COMHAIRLE CHONTAE ÁTHA CLIATH

Record of Executive Business and Manager's Orders

Proposed demolition (front wall to be retained), reconstruction, alterations, extensions and new shop fronts, at 4 and 5 Main Street, Lucan for M. Toolan.

(Continued)

I recommend that a decision to **GRANT PERMISSION** be made under the Local Government (Planning and Development) Acts, 1963-1990 subject to the following (//) conditions:-

(Conditions attached)

Endorsed:- _____
for Principal Officer

_____
For Dublin Planning Officer

Order:- A decision pursuant to Section 26(1) of the Local Government (Planning and Development) Acts, 1963-1990, to **GRANT PERMISSION** for the above proposal subject to the (//) conditions set out above is hereby made.

Dated: ~~October~~, 1991.
1st November.

_____
Asst. County Manager

to whom the appropriate powers have been delegated by Order of the Dublin City and County Manager, dated 23rd October, 1991.

COMHAIRLE CHONTAE ÁTHA CLIATH

Record of Executive Business and Manager's Orders

Proposed demolition (front wall to be retained), reconstruction, alterations, extensions and new shop fronts, at 4 and 5 Main Street, Lucan for M. Toolan.

CONDITIONS	REASONS FOR CONDITIONS
1. The development to be carried out in its entirety in accordance with the plans, particulars and specifications lodged with the application, save as may be required by the other conditions attached hereto.	1. To ensure that the development shall be in accordance with the permission and that effective control be maintained.
2. That before development commences, approval under the Building Bye-Laws be obtained, and all conditions of that approval be observed in the development.	2. In order to comply with the Sanitary Services Acts, 1878-1964.
3. That the requirements of the Chief Fire Officer be ascertained and strictly adhered to in the development.	3. In the interest of safety and the avoidance of fire hazard.
4. That the requirements of the Supervising Environmental Health Officer be ascertained and strictly adhered to in the development.	4. In the interest of health.
5. That the water supply and drainage arrangements, including the disposal of surface water, be in accordance with the requirements of the County Council.	5. In order to comply with the Sanitary Services Acts 1878-1964.
6. That all necessary measures be taken by the contractor to prevent the spillage or deposit of clay, rubble or other debris on adjoining roads during the course of the works.	6. To protect the amenities of the area.
7. That all public services to the proposed development, including electrical, telephone cables and equipment be located underground throughout the entire site.	7. In the interest of amenity.
8. That no advertising sign or structure including those which are exempted development be erected without the prior approval of the Planning Authority.	8. In the interest of the proper planning and development of the area.

7

COMHAIRLE CHONTAE ÁTHA CLIATH

Record of Executive Business and Manager's Orders

Proposed demolition (front wall to be retained), reconstruction, alterations, extensions and new shop fronts, at 4 and 5 Main Street, Lucan for M. Toolan.

CONDITIONS	REASONS FOR CONDITIONS
9. That details of the proposed fascia signs, including method of illumination (if any) be submitted and agreed with the Planning Authority prior to commencement of development. Fascia signs to comprise either (a) individually mounted lettering or (b) hand painted lettering on timber backboard.	9. In the interest of the proper planning and development of the area.
10. That a financial contribution in the sum of £ 1664 be paid by the proposer to the Dublin County Council towards the cost of provision of public services in the area of the proposed development and which facilitate this development; this contribution to be paid before the commencement of development on the site.	10. The provision of such services in the area by the Council will facilitate the proposed development. It is considered reasonable that the developer should contribute towards the cost of providing the services.
11. That a financial contribution in the sum of £1,600 be paid by the proposer to Dublin County Council towards the cost of traffic management in the area which will facilitate this development. This contribution to be paid prior to the commencement of development on site.	11. In the interest of the proper planning and development of the area.
Note: Applicant is advised that in the event of encroachment or oversailing of the adjoining property, the consent of the adjoining property owner is required.	

DUBLIN COUNTY COUNCIL

REG. REF: 91A/1454.

DEVELOPMENT: Demolition (front wall to be retained), reconstruction, alterations, extensions and new shop fronts.

LOCATION: 4 and 5 Main Street, Lucan.

APPLICANT: M. Toolan.

DATE LODGED: 5.9.91.

The proposal is for alterations and extensions to existing shops at Main Street, Lucan.

The survey plan enclosed with the lodged drawings does not clarify the existing retail area. However, from a site visit it would appear that the alterations will reduce the number of retail units from 3 to 2 but will result in a net increase in retail area of approximately 25 square metres. It may be desirable to determine this by way of additional information.

As the applicant proposes no additional parking and as the existing parking area in front of the shops has high usage the Roads Department would be opposed to an increase in retail area as it would lead to additional parking and turning movements in a congested area.

If additional information is being sought the applicant should clearly show the number of retail units proposed and the public retail area existing. Also he should demonstrate how he can comply with Development Standards Parking requirements, failing which a substantial contribution towards parking will be required.

PLANNING DEPT.
DEVELOPMENT CONTROL SECT
Date 17.10.91
Time 3.00

GC/BMcC
14.10.91.

SIGNED: Garrett Cuno **ENDORSED:** T. Brick

DATE: 14/10/91 **DATE:** 14/10/91

Mary Galvin. Ss + Cms.

P.

Register Reference : 91A/1454 Date : 11th September 1991

Development : Demolition (front wall to be retained), reconstruction, alterations, extensions and new shop fronts

LOCATION : 4 and 5 Main Street, Lucan

Applicant : M. Toolan

App. Type : PERMISSION/BUILDING BYE-LAW APPROVAL

Planning Officer : M.GALVIN

Date Recd. : 5th September 1991

Attached is a copy of the application for the above development .Your report would be appreciated within the next 28 days.

Yours faithfully,

for PRINCIPAL OFFICER

DUBLIN Co. COUNCIL
23 SEP 1991
SAN SERVICES

DUBLIN CO. COUNCIL
SANITARY SERVICES
18 OCT 1991
Returned

Date received in Sanitary Services .....

FOUL SEWER

No objection subject to the seperation of all surface water from the foul sewer system.

SURFACE WATER

No objection

PLANNING DEPT.
DEVELOPMENT CONTROL SECT
Date 23.10.91
Time 9.00

SENIOR ENGINEER,
SANITARY SERVICES DEPARTMENT,
46/49 UPPER O'CONNELL STREET,
DUBLIN 1

J. Rice
16/10/91

Register Reference : 91A/1454 Date : 11th September 1991

....

ENDORSED _______________ DATE _______________

WATER SUPPLY..

Water available. 24hr storage required for each unit. Separate metered supplies required for each unit. All connections etc by Dublin Co. Council personnel at applicants prior expense.

11/10/91

14/10/91

....

ENDORSED _______________ DATE 17/10/91

PLANNING DEPT.
DEVELOPMENT CONTROL SECT
Date 23.10.91
Time 9.00

AO'6

CONCEPTUAL *design*

"Comeragh"
41 Belmont Park,
Ballinlough,
Cork.

Tel./Fax.: 021 - 293112
Mobile.:087 - 543453

Mr. BOB MATHEWS
PLANNING DEPARTMENT
TALAGH
DUBLIN.

9th oct 1996

REF :12349 /91a-1454
Alterations to shop at main St. Lucan

Please find enclosed a copy of the final layout of the extent of the alterations carried out by Mr M. Toolan on the above site.

We would at this stage point out that the whole works were not carried out ,in particular the conversion of the up stairs .

Mr. Toolan's finances at present caused the contract to be curtailed, he understands that the restarting of a new project will involve the complete re-application of a new planning consent ,but felt that he had to inform yourself of the existing level of the development.

If this causes any major problems to the existing planning approval could you please notify me at your earliest convenience as Mr Toolan wishes to clear up the situation overall.

If you have any queries or require any further information on the above project please do not hesitate to contact the undersigned.

yours.

TIM O DONOVAN.

enclosed : GROUND FLOOR PLAN, FRONTAGE SKETCH.

Informed Mr. O Donovan that changes were notified and that an application for retention for the development as completed should be submitted.
7/11/96

MK 18/11/96.

DUBLIN COUNTY COUNCIL

PLANNING DEPARTMENT,
BLOCK 2,
IRISH LIFE CENTRE,
LR. ABBEY STREET,
DUBLIN 1.

Tel. 724755 (ext. 262/264)

Notification of Decision to Grant Permission/[redacted]

Local Government (Planning and Development) Acts, 1963-1983

Decision Order /5036/91 - 01.11.1991
Number and Date

91A-1454
Register Reference No.

05.09.1991
Planning Control No.

Application Received on

To Lynch O'Toole Martin,
Dodder Park Road,
Rathfarnham,
Dublin 14.

Applicant M. Toolan.

In pursuance of its functions under the above-mentioned Acts, the Dublin County Council, being the Planning Authority for the County Health District of Dublin, did by Order dated as above make a decision to grant Permission/[redacted] for:-

demolition (front wall to be retained), reconstruction, alterations, extensions and new shop fronts, at 4 and 5, Main Street, Lucan.

SUBJECT TO THE FOLLOWING CONDITIONS

CONDITIONS	REASONS FOR CONDITIONS
1. The development to be carried out in its entirety in accordance with the plans, particulars and specifications lodged with the application, save as may be required by the other conditions attached hereto.	1. To ensure that the development shall be in accordance with the permission and that effective control be maintained.
2. That before development commences, approval under the Building Bye-Laws be obtained, and all conditions of that approval be observed in the development.	2. In order to comply with the Sanitary Services Acts, 1878-1964.
3. That the requirements of the Chief Fire Officer be ascertained and strictly adhered to in the development.	3. In the interest of safety and the avoidance of fire hazard.
4. That the requirements of the Supervising Environmental Health Officer be ascertained and strictly adhered to in the development.	4. In the interest of health.
5. That the water supply and drainage arrangements, including the disposal of surface water, be in accordance with the requirements of the County Council.	5. In order to comply with the Sanitary Services Acts 1878-1964.

(Continued)

Signed on behalf of the Dublin County Council [redacted] for Principal Officer

Date 01.11.1991

IMPORTANT: Turn overleaf for further information

DUBLIN COUNTY COUNCIL

Tel. 724755 (ext. 262/264)

PLANNING DEPARTMENT,
BLOCK 2,
IRISH LIFE CENTRE,
LR. ABBEY STREET,
DUBLIN 1.

Notification of Decision to Grant Permission/[redacted]

Local Government (Planning and Development) Acts, 1963-1983

To Lynch O'Toole Martin,
Dodder Park Road,
Rathfarnham,
Dublin 14.

Decision Order Number and Date: 5036/91 - 01.11.1991
Register Reference No.: 91A-1454
Planning Control No.:
Application Received on: 05.09.1991

Applicant: M. Toolan.

In pursuance of its functions under the above-mentioned Acts, the Dublin County Council, being the Planning Authority for the County Health District of Dublin, did by Order dated as above make a decision to grant Permission/[redacted] for:-

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(Continued)

Signed on behalf of the Dublin County Council ..... For Principal Officer

01.11.1991
Date

IMPORTANT: Turn overleaf for further information

(Continued) CONDITIONS	REASONS FOR CONDITIONS
6. That all necessary measures be taken by the contractor to prevent the spillage or deposit of clay, rubble or other debris on adjoining roads during the course of the works.	6. To protect the amenities of the area.
7. That all public services to the proposed development, including electrical, telephone cables and equipment be located underground throughout the entire site.	7. In the interest of amenity.
8. That no advertising sign or structure including those which are exempted development be erected without the prior approval of the Planning Authority.	8. In the interest of the proper planning and development of the area.
9. That details of the proposed fascia signs, including method of illumination (if any) be submitted and agreed with the Planning Authority prior to commencement of development. Fascia signs to comprise either (a) individually mounted lettering or (b) hand painted lettering on timber backboard.	9. In the interest of the proper planning and development of the area.
10. That a financial contribution in the sum of £1,664.00 be paid by the proposer to the Dublin County Council towards the cost of provision of public services in the area of the proposed development and which facilitate this development; this contribution to be paid before the commencement of development on the site.	10. The provision of such services in the area by the Council will facilitate the proposed development. It is considered reasonable that the developer should contribute towards the cost of providing the services.
11. That a financial contribution in the sum of £1,600 be paid by the proposer to Dublin County Council towards the cost of traffic management in the area which will facilitate this development. This contribution to be paid prior to the commencement of development on site.	11. In the interest of the proper planning and development of the area.
(Continued)	

NOTE:

If there is no appeal to An Bord Pleanala against this decision PERMISSION/APPROVAL will be granted by the Council as soon as may be after the expiration of the period for the taking of such appeal. If every appeal made in accordance with the Acts has been withdrawn, the Council will grant the PERMISSION/APPROVAL after the withdrawal.

An appeal against the decision may be made to An Bord Pleanala. The applicant may appeal within one month from the date of receipt by him of this notification. ANY OTHER PERSON may appeal within twenty-one days beginning on the date of the decision.

An appeal shall be in writing and shall state the subject matter and grounds of the appeal. It should be addressed to:— An Bord Pleanala, Blocks 6 and 7, Irish Life Centre, Lower Abbey Street, Dublin 1.

(1) An appeal lodged by an applicant or his agent with An Bord Pleanala will be invalid unless accompanied by a fee of £36 (Thirty-six Pounds). (2) A party to an appeal making a request to An Bord Pleanala for an Oral Hearing of an appeal must, *in addition* to (1) above, pay to An Bord Pleanala a fee of £36 (Thirty-six Pounds). (3) A person who is not a party to an appeal must pay a fee of £10 (Ten Pounds) to An Bord Pleanala when making submissions or observations to An Bord Pleanala in relation to an appeal.

Approval of the Council under Building Bye-Laws must be obtained and the terms of the approval must be complied with the carrying out of the work before any development which may be permitted is commenced.

FUTURE PRINT LTD.

DUBLIN COUNTY COUNCIL

Tel. 724755 (ext. 262/264)

PLANNING DEPARTMENT,
BLOCK 2,
IRISH LIFE CENTRE,
LR. ABBEY STREET,
DUBLIN 1.

Notification of Decision to Grant Permission/[redacted]

Local Government (Planning and Development) Acts, 1963-1983

To Lynch O'Toole Martin,
Dodder Park Road,
Rathfarnham,
Dublin 14.

Decision Order Number and Date: P/5036/91 - 01.11.1991

Register Reference No.: 91A-1454

Planning Control No.:

Application Received on: 05.09.1991

Applicant: M. Toolan.

In pursuance of its functions under the above-mentioned Acts, the Dublin County Council, being the Planning Authority for the County Health District of Dublin, did by Order dated as above make a decision to grant Permission/[redacted] for:-

demolition (front wall to be retained), reconstruction, alterations, extensions and new shop fronts, at 4 and 5, Main Street, Lucan.

SUBJECT TO THE FOLLOWING CONDITIONS

CONDITIONS	REASONS FOR CONDITIONS
(Continued) **Note:** Applicant is advised that in the event of encroachment or oversailing of the adjoining property, the consent of the adjoining property owner is required.	

Signed on behalf of the Dublin County Council ..... For Principal Officer

Date: 01.11.1991

IMPORTANT: Turn overleaf for further information

CONDITIONS	REASONS FOR CONDITIONS

NOTE:

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Approval of the Council under Building Bye-Laws must be obtained and the terms of the approval must be complied with in the carrying out of the work before any development which may be permitted is commenced.

FUTURE PRINT LTD.

LYNCH·O'TOOLE·MARTIN
architects

Dodder Park Road,
Rathfarnham,
Dublin 14.
Tel: 900637/8
4 Lines

29 Laurence St.,
Drogheda,
Co. Louth.
Tel: 041-38146

1/2 Clanbrassil St.,
Dundalk,
Co. Louth.
Tel: 042-34158

3 Navan S.C.
Navan,
Co. Meath.
Tel: 046-28924

All correspondence to Dublin Office. FAX: 907633.

23rd September, 1991

Dublin County Council
Planning Department
Block 2
Irish Life Centre
Lr. Abbey Street
Dublin 1

24. SEPT 91

Register Reference - 91A/1454

Re: Demolition (Front Wall to be retained) Reconstruction, Alterations, Extensions & New Shop Fronts, 4/5 Main St. Lucan
M. Toolan

Dear Sirs,

further to your letter of the 12th Sept. 1991, we enclose herewith cheque for £40.00 being blance of Planning Fee in connection with the above.

Yours faithfully

Margaret Tanham
Lynch O'Toole Martin

JL/MT/12349

Dublin County Council Comhairle Chontae Atha Cliath **Planning Department**

Bloc 2, Ionad Bheatha na hEireann,
Block 2, Irish Life Centre,
Sraid na Mainistreach Iacht,
Lower Abbey Street,
Baile Atha Cliath 1.
Dublin 1.
Telephone. (01)724755
Fax. (01)724896

Register Reference : 91A/1454 Date : 12th September 1991

Dear Sir/Madam,

Development : Demolition (front wall to be retained), reconstruction, alterations, extensions and new shop fronts

LOCATION : 4 and 5 Main Street, Lucan

Applicant : M. Toolan

App. Type : PERMISSION/BUILDING BYE-LAW APPROVAL

Date Recd : 5th September 1991

Your application in relation to the above was submitted with a fee of 392.50 .

On examination of the plans submitted it would appear that the appropriate amount should be 432.50 .

I should be obliged if you would submit the balance of 40.00 as soon as possible as a decision cannot be made on this application until the correct fee is received.

Yours faithfully,

.....

for PRINCIPAL OFFICER

Lynch O'Toole Martin,
Dodder Park Road,
Rathfarnham,
Dublin 14.

Dublin County Council Comhairle Chontae Atha Cliath **Planning Department**

Building Control Department,
Liffey House,
Tara Street,
Dublin 1.
Telephone:773066

Bloc 2, Ionad Bheatha na hEireann,
Block 2, Irish Life Centre,
Sraid na Mainistreach Iacht,
Lower Abbey Street,
Baile Atha Cliath 1.
Dublin 1.
Telephone. (01)724755
Fax. (01)724896

Register Reference : 91A/1454 Date : 9th September 1991

LOCAL GOVERNMENT (PLANNING AND DEVELOPMENT) ACTS, 1963 TO 1990

Dear Sir/Madam,

DEVELOPMENT : Demolition (front wall to be retained), reconstruction, alterations, extensions and new shop fronts

LOCATION : 4 and 5 Main Street, Lucan

APPLICANT : M. Toolan

APP. TYPE : PERMISSION/BUILDING BYE-LAW APPROVAL

With reference to the above, I acknowledge receipt of your application received on 5th September 1991.

Yours faithfully,

.....

for PRINCIPAL OFFICER

Lynch O'Toole Martin,
Dodder Park Road,
Rathfarnham,
Dublin 14.

Our Ref: 12349HM/JL/BM

Dublin County Council
Comhairle Chontae Atha Cliath

Planning Application Form/ Bye -Law Application Form

PLEASE READ INSTRUCTIONS AT BACK BEFORE COMPLETING FORM. ALL QUESTIONS MUST BE ANSWERED.

1. Application for Permission ■ Outline Permission ☐ Approval ☐ Place ✓ in appropriate box.
Approval should be sought only where an outline permission was previously granted. Outline permission may not be sought for the retention of structures or continuances of uses.

2. Postal address of site or building 4&5 Main Street, Lucan, Co. Dublin (SPAR) £392.50 5/9
(If none, give description sufficient to identify)

3. Name of applicant (Principal not Agent) Michael Toolan N 42724
Address 4&5 Main Street, Lucan, Co. Dublin. Tel. No. 6280332

4. Name and address of person or firm responsible for preparation of drawings Lynch O'Toole Martin, Dodder Park Road, Rathfarnham, Dublin 14 Tel. No. 900637

5. Name and address to which notifications should be sent Lynch O'Toole Martin, Dodder Park Road, Rathfarnham, Dublin 14 BYE £776 N 42723

6. Brief description of proposed development Proposed demolition (front will be retained), re-construction, alterations, extension and new shop fronts - 4/5 Main St., Lucan

7. Method of drainage Mains. 8. Source of Water Supply Mains.

9. In the case of any building or buildings to be retained on site, please state:-
(a) Present use of each floor or use when last used. GRFL - Commercial Shop, 1st Floor - Residential
(b) Proposed use of each floor GRFL - Commercial Shop. 1st Floor - Residential

Grid Ref 28/9/91

10 Does the proposal involve demolition, partial demolition or change of use of any habitable house or part thereof? Yes partial demolition to be reconstruced

11.(a) Area of Site 236.00 Sq. m.

(b) Floor area of proposed development Shops - 206.00Sq.M. Residential 128.00=334 Sq. m.

(c) Floor area of buildings proposed to be retained within site None/Original floor area 323.00 Sq. m. approx.

12. State applicant's legal interest or estate in site (i.e. freehold, leasehold, etc.) Freehold Owner

CO. DUBLIN permission sought for demolition (front wall to be retained), reconstruction, alterations, extensions and new shop fronts, at 4 and 5, Main St., Lucan. Signed M. Toolan

13. Are you now applying also for an approval under the Building Bye Laws? Yes ■ No ☐ Place ✓ in appropriate box.

14. Please state the extent to which the Draft Building Regulations have been taken in[illegible] proposal:
"It is the practise of this office to take account of the DBR as issued by the Min for Env in the design of buildings but this is not to be interpreted as a guarantee that the provisions of the DBR have been implemented in full or in any particular respect in this proposal.

15. List of documents enclosed with application.
Architects drawings 1234I/1,6,7 & 8, Specification
Cheque T.P. Notice Engineers drawings I1158/1,2,3 & 4, Struc. Calculations&Struc Spec.

16. Gross floor space of proposed development (See back) 334.00 Sq. m.

No of dwellings proposed (if any) One Class(es) of Development One and Four

Fee Payable £1,168.50 Basis of Calculation Shops - Planning Permission = £360.50/BBL = £721.00
If a reduced fee is tendered details of previous relevant payment should be given Residential- P/P = £32.00 BBL = £55.00

Signature of Applicant (or his Agent) [signature] Date 5th Sept '91

FOR OFFICE USE ONLY

Application Type P/B
Register Reference 91A/1454
Amount Received £ 1,32.44
Receipt No 17/6
Date

RECEIVED
-5SEP 1991
REG. SEC.

RECEIPT CODE

COMHAIRLE CHONTAE ATHA CLIATH

PAID BY

CASH

CHEQUE ✓

M.O.

B.L.

I.T.

DUBLIN COUNTY COUNCIL

46/49 UPPER O'CONNELL STREET, DUBLIN 1.

BYE LAW APPLICATION

REC. NO. N 47223

£ 476.00

Received this 7th day of September 19

from Toolans of Lucan
4/5 Main St.
Lucan

the sum of four hundred and seventy six — Pounds

Pence being

bye-law application at

Cashier

S. CAREY
Principal Officer

RECEIPT CODE

COMHAIRLE CHONTAE ATHA CLIATH

DUBLIN COUNTY COUNCIL
46/49 UPPER O'CONNELL STREET
DUBLIN 1

PAID BY:
CASH
CHEQUE
P.O.

Issue of this receipt is not an acknowledgement that the fee tendered is the prescribed application fee

N 47724

Received this .... day of .... 19....

from ....

the sum of .... Pounds

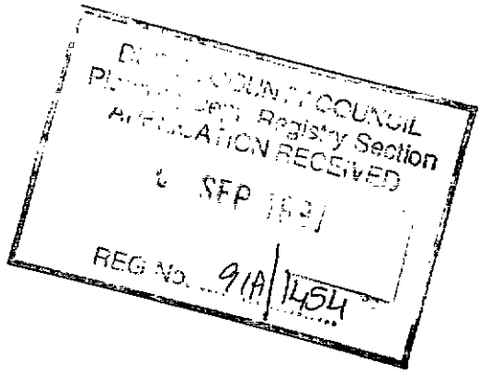
.... Pence, being ....

.... Cashier

S. CAREY
Principal Officer

S P E C I F I C A T I O N

Alterations and Extensions at
No's 4 and 5 Main St., Lucan, Co. Dublin
for Michael Toolan



ARCHITECTS

Lynch O'Toole Martin
Dodder Park Road
Rathfarnham
Dublin 14

Telephone: 900637

Drogheda - Navan - Dundalk

JOT/AOC/12349
August 1991

GENERAL

1. This proposal involves partial demolition (retention of front and side walls), general re-construction and replanning internally to provide one large and one small retail unit, together with toilets, office, store and yard on the ground floor, with residential accommodation on first floor (comprising living room, kitchen/dining area, 3 bedrooms, two bathrooms).

FOUNDATIONS

2. All foundations to be in accordance with DBFL Structural Drawing No. 91158-1 (Foundation Plan). Reference also to be made to DBFL Structural Specification Item 1 - Concrete Work.

STRUCTURAL COLUMNS

3. Provide and install 9 no. steel columns being 152 x 152 UC columns generally as indicated on DBFL Drawing 91158-2 (Ground Floor Plan). Reference also to be made to DBFL Structural Specification Item 4 - Structural Steel.

STEEL BEAMS

4. Provide and fit 203 x 203 UC. Steel Beams generally as indicated on DBFL Drawing NO. 91158-3 (First Floor Plan).

Provide and fit steel supports to roof structure being 254 x 146 x 43 kg UB. and 203 x 203 UC. generally as indicated on DBFL Drawings 91158-4 (Roof Plan).

WALLS

5. Construct block walls in 215 or 100 solid concrete blocks as indicated on Architectural Drawing No. 6 and DBFL Drawing No. 2 in accordance with best building practice. Reference to be made to DBFL Structural Specification Item 2 - Blockwork.

Internal timber stud partitions on first floor generally as indicated on Architectural Drawing No. 6. Reference to be made to DBFL Structural Specification Item 5 - Structural Timber.

FLOORS

6. Ground floor to be 200 power floated concrete slab on 1000 gauge visqueen DPM on well consolidated hardcore.

First floor to be 200 deep hollow care pre-cast concrete units generally as indicated on DBFL Drawing No. 3 and DBFL Structural Specification Item 3 - Pre-cast Concrete Units. Units to be covered with 50 min. screed.

Infill strip between steel supporting beam and adjoining walls to be cast in matching depth reinforced concrete set into wall pockets at approximately 750 centres.

ROOF

7. Flat roofed extension to rear to be in pre-cast concrete units as before specified, generally at outlined on DBFL Drawing No. 3.

High level flat roof to have approved torch-on felt on 50 rigid insulation on vapour barrier on plywood decking on furring pieces on 44 x 175 SCB joists at 300 centres fixed into 203 x 203 UC. at one end and by 'Batt type' angle fixings into concrete filled U-Block course at exterior wall.

Pitched roof to have front slope covered with re-used existing slates. Rear slope covered with re-used existing slates augmented with asbestos-cement slates if required.

Slating to be fixed to 50 x 25 pressure treated timber batons on roofing felt on 35 x 150 SCB grade rafters at 400 centres.

Ceiling joists to be 44 x 174 SCB grade joists at 400 centres supported by 'Batt type' joist hangers fixed to 200 x 75 timber bolted to the web of 254 x 146 x 33 kg UB. as before mentioned.

Roof structure generally as outlined on Architectural Drawing No. 7 and DBFL Drawing No. 4.

WINDOWS

8. New windows on front and rear elevation First Floor and from Ground Floor office to yard to be generally as indicated in uPVC material DIN 7748 and in accorance with BS 6375 Part 1 1983 Performance of Windows. Frame depth to be approximately 70mm and with a material wall thickness of minimum 3mm.

Openings should have stainless steel friction hinges and all handles should be lockable. All openings to have 1.25 inch pine window boards and shall be glazed with first class sealed unit double glazing.

The Contractor will be required to produce typical window sample and state name of supplier for approval by Client and Architect before processing.

DOORS

9. Internal doors generally to be approved flush veneer doors with hardwood slip all round hung on 100 x 50 rebated frames and complete with 75 x 25 double rounded architraves. Doors to be hung on one and a half pairs of steel butt hinges and complete with locks and handles as later selected.

Gates to rear yard to be ledged, framed, braced and sheeted both sides and hung on frames as before specified.

SHOP FRONTS

10. Form new shop fronts as indicated on the front elevation of Architectural Drawing No. 6.

General construction to be painted hardwood with fascia in marine plywood.

Store board to be formed against 450 high solid blockwork on DPC as indicated.

Abuttment of fascia to existing wall to have lead flashing properly tucked into chase and completely watertight on completion.

Glazing to be 6mm polished plate.

DRAINAGE

11. Drainage to be carried out in accordance with best building practice on a separate system, generally as indicated on Architectural Drawing No. 6.

100 uPVC pipework to be used and encased in 150 concrete minimum all round where passing under building.

All pipe runs to have cleaning and inspection facilities in all required locations and any manholes or AJs inside the building to have double sealed covers.

All work to be carried out to the satisfaction of the County Council Building Surveyor.

VENTILATION

12. Ventilation of premises to be carried out generally in accordance with Architectural Drawing No. 6A.

It is propsed to air condition the shop areas by means of four high level units with condenser units located on the flat roof at the rear.

Each of the four units shall be ceiling mounted air conditioning units with roof mounted condensing unit each rated at 24,000 BTUs per hour.

Extract Ventilation (E.F.) shall be as follows:-

EF1	6" inline centrifigral fan fitted and rated at 200 CFM against .25" WG capable of at least 15 air changes per hour.
EF2	As EF1
EF3	8" Roof mounted fan unit and speed control rated at 200 CFM against free air. Minimum 20 air changes per hour.
EF4	12" roof mounted fan and speed control rated at 500 CFM against free air. Minimum 20 air changes per hour.
EF5	8" wall mounted fan unit with speed control capable of providing a minimum of 20 air changes per hour.

VENTILATION (Cont.)

Supply Air (S.F.) as follows:-

SF1 Roof mounted 450/4 rated at 18 air changes per hour. Supply air.

SF2 Roof mounted 400/4 supply air fan unit rated at 18 air changes per hour.

Fire dampers will be fitted on both supply air ducts and in all other places where ducts pass through fire rated walls and ceilings.

Sheet metal ducts of appropriate sizes as indicated in the drawings will be provided.

Grills to double deflect or eggcrate complete with dampers.

PLUMBING

13. Provide and locate three no. separate 100 gallons uPVC water storage tanks in attic roof space adequately supported on heavy timber boards resting on steel roof supports as previously specified.

Take three no. separate supplies from the main in half inch piping. Each supply to have separate external and internal stopcock positions as later agreed.

Each supply will be for the use of three separate elements being (a) large shop, (b) small shop, and (c) first floor residents.

In each case the rising mains shall be tapped supply of drinking water to the sink in each of the shop areas and the sink in the residential kitchen.

All other sanitary and plumbing fittings shall be supplied from the storage tanks by main three quarter inch drop with half inch branches to all fittings.

Sinks and wash hand basins in shop toilets and tea-room shall have individual electric under-sink water heaters. The residential system shall be on electric emersion group 30 gallon copper cylinder located in hot press.

All sanitary fittings as indicated to be fitted with trap and waste and connected into the waste drain system in accordance with best practice and complying with all draft building regulations, County Council Bye-Laws and to the satisfaction of the Council Building Surveyor.

ROOF LIGHT

14. Supply and fit Velux roof light size 908 x 550 over stair well. Form light shaft in timber framing and slab and skin level with ceiling.

INSULATION

15. Fit 100 fibre-glass insulation on foil-backed plasterboard to first floor ceilings as indicated on section AA.

PLASTERING

16. All walls with the exception of the store and yard to be studded, rendered, floated and finished in hardwall. Block walls on first floor to be studded, rendered, floated and finished in hardwall.

Interior of first floor rear 115 concrete blocks to be dry lined with foil backed plasterboard on timber batons with 50 fibreglass insulation between.

External walls to be studded, rendered and floated and wet dashed to later approved samples.

All ceilings to be slabbed and skinned.

STAIRS

17. Form concrete stairs generally as indicated and in accordance with later engineering details. Fit handrail to one side bracketed from wall.

FIREPLACE

18. Reopen existing fireplace and make good ready to receive insert and mantle-piece by owner.

SHOPFITTING

19. Internal shopfitting, shelving, counters, etc. will be carried out under separate specialist contract.

TILING

20. All toilets, tea-room, cleaners room, area around sink in small shop, shall be finished in white ceramic glazed tiles with matching impervious pointing from floor to doorhead height.

FLOORING

21. All ground floors to be covered in vinyl asbestos tiles in colours and patterns as later selected with skirting tiles to match.

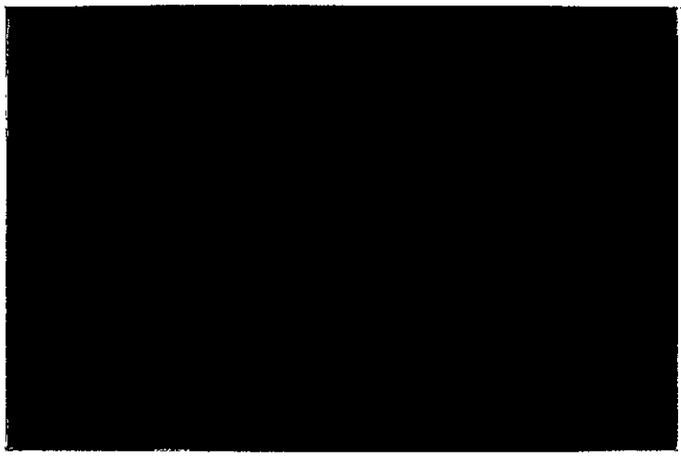
ELECTRICAL

22. Each of the two shops and the residential unit shall be separately wired and serviced in accordance with ESB and IE regulations under separate contract which shall include emergency lighting and smoke alarm system in the shop areas.

DECORATION

23. All timbers shall be stopped, knotted, prepared, receive two undercoats and one finishing coat oil paint in selected shades.

All walls to be prepared, sealed and receive two coats of emulsion in selected shades.



DBFL

CONSULTING
CIVIL & STRUCTURAL
ENGINEERS

DEVELOPMENT AT
MAIN STREET, LUCAN

STRUCTURAL CALCULATIONS

DEVELOPMENT AT MAIN STREET, LUCAN

FOR MR. MICHAEL TOOLAN JOB NO.: 91158

STRUCTURAL CALCULATIONS

CONTENTS

CALCULATION SHEET	Page No. 1	Project No.
Project Development at Main St. LUCAN	By JM	Chd.
Section Roof – Loadings	Date July 91'	Date

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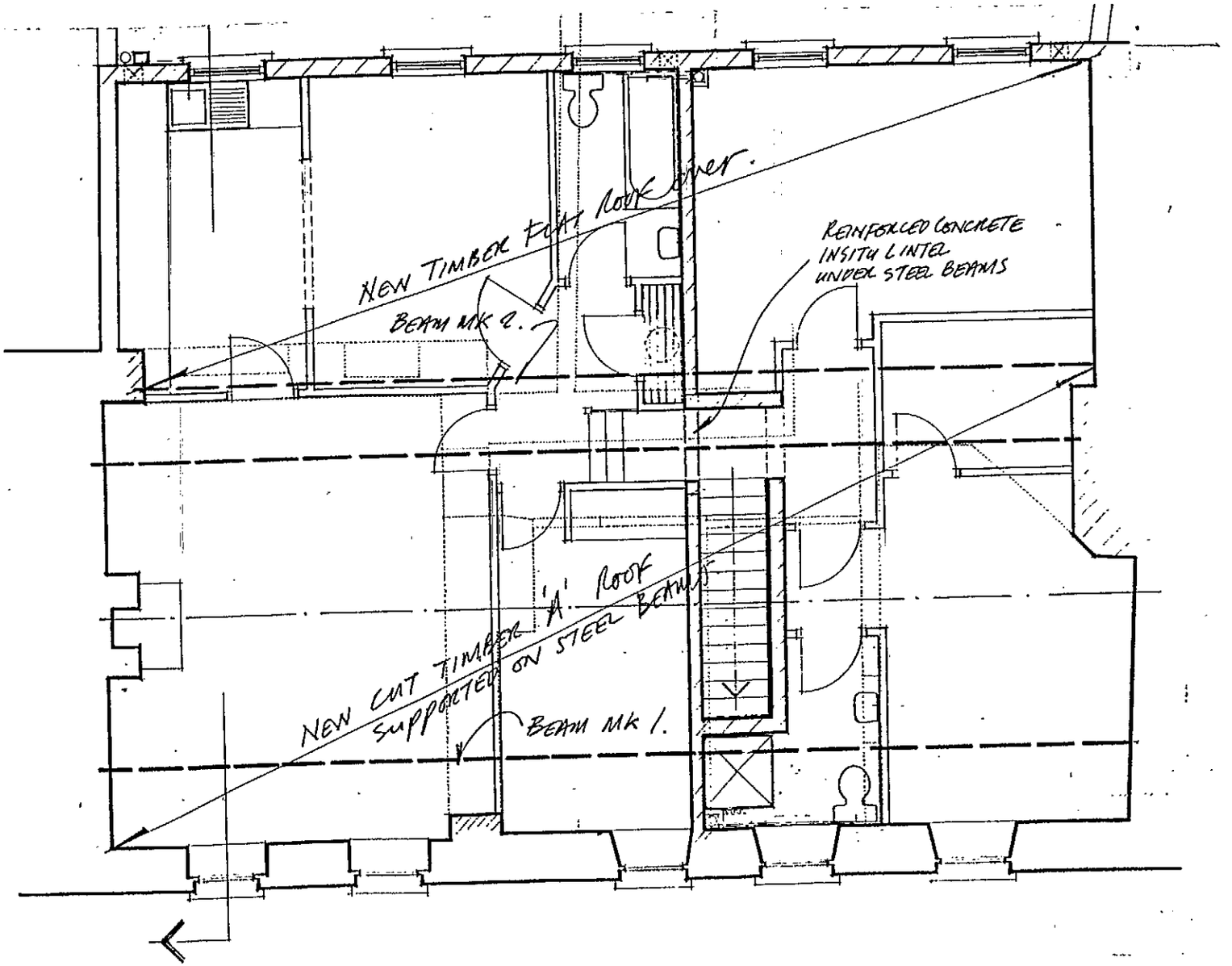
Roof Loadings :–

(1) PITCHED ROOF AT FRONT ($\alpha = 37.5°$)

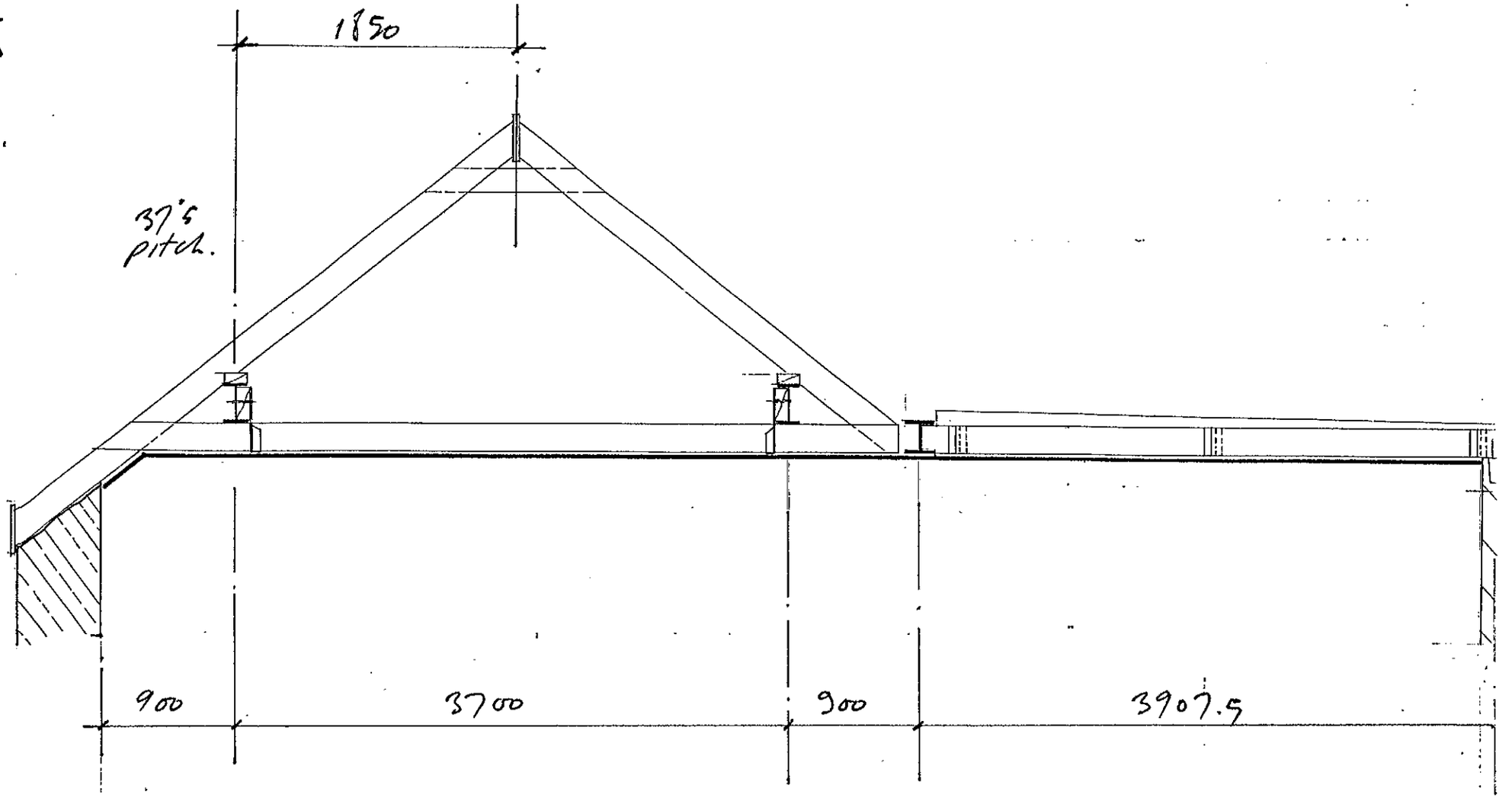
Concrete tiles	0.6/Cos37.5	0.756	(Tiles an.)
FELT + BATTENS	0.05/Cos37.5	0.063	
RAFTERS		0.152	
		0.971	
Ceiling Joists		0.121	
Insulation		0.020	
Ceiling		0.180	
		0.321	
IMPOSED			
Roof	0.75		
Attic	0.25		
TOTAL FOR ROOF	(0.971 + 0.75) =	1.721	
TOTAL FOR ATTIC	(0.321 + 0.25) =	0.571	
TOTAL OVERALL		2.293	

(2) FLAT ROOF AT REAR

20 ASPHALT	0.48	
Timber Sheeting	0.13	
FIRRINGS	0.04	
Joists	0.121	
Insulation	0.02	
Ceiling	0.18	
	0.971	
IMPOSED	0.75	
	1.721	


NEW TIMBER FLAT ROOF OVER.
BEAM MK 2.
REINFORCED CONCRETE
INSITU LINTEL
UNDER STEEL BEAMS
NEW CUT TIMBER 'A' ROOF
SUPPORTED ON STEEL BEAMS
BEAM MK 1.

3.



TYPICAL CROSS SECTION THRO PROPOSED ROOF.

CALCULATION SHEET	Page No. 4	Project No.
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Section	Date	Date

DBFL CONSULTING CIVIL & STRUCTURAL ENGINEERS

ROOF DESIGN. :—

FOR RAFTERS and CEILING JOISTS TO PITCHED ROOF WILL USE STANDARD RECOMMENDATION SR11.

RAFTERS

Table 9 — USE 35 X 150 SCB grade @ 400 crs
Permissible span 2610 > 1950 ✓

CEILING JOISTS

Table 6 — USE 44 X 175 SCB grade @ 400 crs
permissible span 4370 > 3700 ✓

Ceiling Joists for Flat Roof.

Using SCB grade timber

K8 = 1.1 K3 = 1.25 δ_{mll} = 5.6 δ = 0.64

Assuming joists @ 300 crs
Load per m = 1.721(0.3) = 0.516

MAX BM = $0.516 \times 3.907^2 \times 0.125 = 0.985$ KNM

$Z_{xx\,reqd} = \frac{0.985 \times 10^6}{5.6 \times 1.1 \times 1.25} = 1.279 \times 10^5$

Taking: B = 44 $D_{reqd} = \sqrt{\frac{6 \times 1.279 \times 10^6}{44}}$

= 132 mm

Try 175 x 44 SCB @ 300 crs.

DEFLECTION

$$\delta u = \frac{1.2 \times 0.985 \times 10^6}{175 \times 44 \times 0.0625 \times 8000} = 0.307 \text{ mm} \qquad t = 8000$$

$$\delta m = \frac{5 \times 516 \times 5.907 \times 3907^3}{384 \times 8000 \times 19651042} = 9.958 \text{ mm}$$

TOTAL $\Delta = 0.307 + 9.958 = 10.26 \text{ mm}$

Permissible = $3907 \times 0.003 = 11.72$ mm OK ✓.

SHEAR

$$V_{act} = \left(\frac{1.008 \times 1000}{44 \times 175} \right) 1.5 = 0.196 \text{ N/mm}^2$$

$V_{adm} = 0.64 \times 1.25 \times 1.1 = 0.88 \text{ N/mm}^2$

44 x 175 SCB GRADE JOISTS @ 300 CTS

Satisfactory

CALCULATION SHEET	Page No. 6	Project No.
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Section ROOF	Date	Date

DBFL CONSULTING CIVIL & STRUCTURAL ENGINEERS

DESIGN OF STEEL BEAMS

BEAM MK 1.

Span = 7.5M.

Take length of roof supported = 2.750

Load per m run

2.75 × 2.293 — 6.3

add sw — 0.5

6.8

MAX BM = $6.8 \times 7.5^2 \times 0.125 = 47.8$

≈ 50 kNM.

BEAM LATERALLY RESTRAINED BY RAFTERS

∴

$$Z_{reqd} = \frac{50 \times 10^6}{165 \times 10^3} = 303\ cm^3$$

$$I_{reqd} = \frac{360 \times 5 \times 6800 \times 7.5 \times 7500^2}{384 \times 210000 \times 10^4} = 6403\ cm^4$$

USE 254 × 146 × 43 KG UB.

$Z = 505\ cm^3$ $I = 6558\ cm^4$

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DBFL CONSULTING CIVIL & STRUCTURAL ENGINEERS

BEAM MK2.

SPAN = 7.0M

Length of roof supported = 1.954 m

Load per m

1.954 x 1.721	3.36
add sw	0.50
	4.362

MAX BM = $4.362 \times 7^2 \times 0.125 = 26.7$

$\simeq$ 27 KNM.

Try 203 x 203 UC

$l/r_y = 7000/51.1 = 136$ $D/T = 18.5$

$p_{bc} = 130$ $f_{bc} = 27 \times 10^6 / 449 \times 10^3 = 60$

$60 < 130$ satisfactory for bending

$$\Delta = \frac{5 \times 4.362 \times 7 \times 7000^3}{384 \times 210000 \times 4564 \times 10^4} = 14.22$$

$7000/360 = 19.44$ satisfactory for deflection

Use 203 x 203 UC.

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LINTEL UNDER STEEL BEAM

Take reaction from beams as

$6.8 \times 6.25 = 42.5$ kN.

Ultimate $= 41.5 \times 1.5 = 63.75$ kN. ult

Assuming 900 block work over lintel

wt $= 0.2 \times 0.215 \times 22 \times 1.4 = 5.96$ kN/m ult
Lintel S.W. $= 0.215 \times 24 \times 1.4 = 1.55$ kN/m ult. } 7.51

MAX SPAN $= 1.1$ m

MAX BM

$\frac{63.75 \times 1.1}{2} + \frac{7.51 \times 1.1^2}{8} = 18.66$ kNm
$= 19$ kNm

SECTION DESIGN:

$K = 19 \times 10^6 / 215 \times 174^2 \times 35 = 6.083$

l.a. $= 0.8944$

As reqd $= 19 \times 10^6 / 0.87 \times 460 \times 174 \times 0.8944$
$= 305$ mm^2

USE 3T16 As $= 603$ mm^2

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DBFL CONSULTING CIVIL & STRUCTURAL ENGINEERS

SHEAR

$$V = \frac{36 \times 1000}{215 \times 174} = 0.962$$

$V_c = 1.018$

$V_c + 0.4 > V$

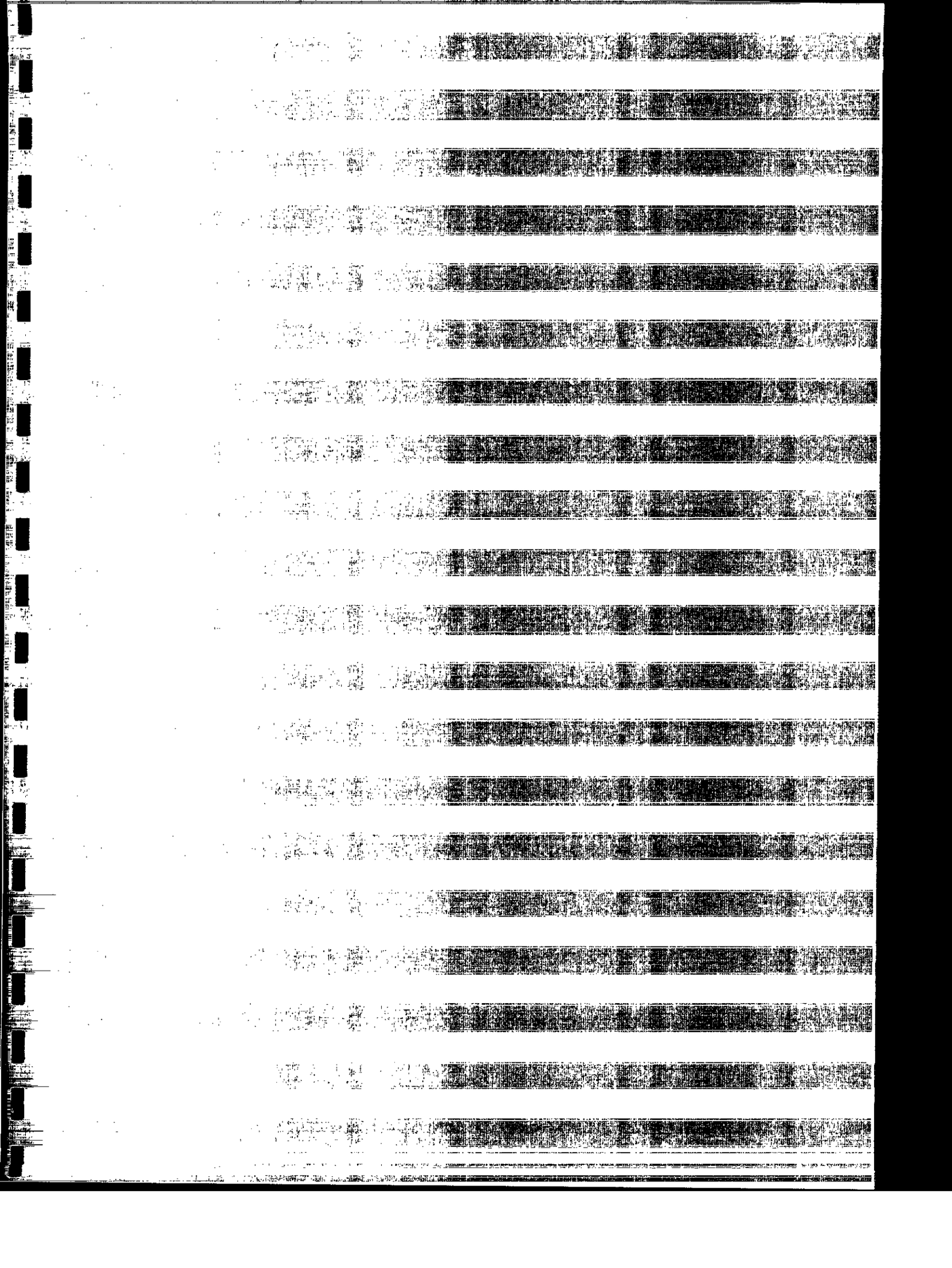
min links

using 2 Tf legs $A_{sv} = 101$

$$S_v = 0.87 \times 460 \times 101 / 0.4 \times 215$$

$= 470$ (min d).

Use 2 Tf legs @ 125 crs.



CALCULATION SHEET	Page No. 10	Project No.
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DBFL CONSULTING CIVIL & STRUCTURAL ENGINEERS

Floors and Flat roof areas at first floor level

It is proposed to use prestressed Hollow core units with 50 min screed spanning between steel beams and walls.

The two storey area at the front shall be designed for imposed loading of 2.5 KN/m² + 1 KN/m² for partitions giving a total of 3.5 KN/m²

The maximum span in this area = 7.3M approx.

The flat roof area at the rear shall be designed for an imposed load of 1.5 KN/m² + additional screeding for falls of 60 mm ave thickness = 1.44 KN/m² giving a total of 2.94 KN/m²

The maximum span in this area = 7.3M approx.

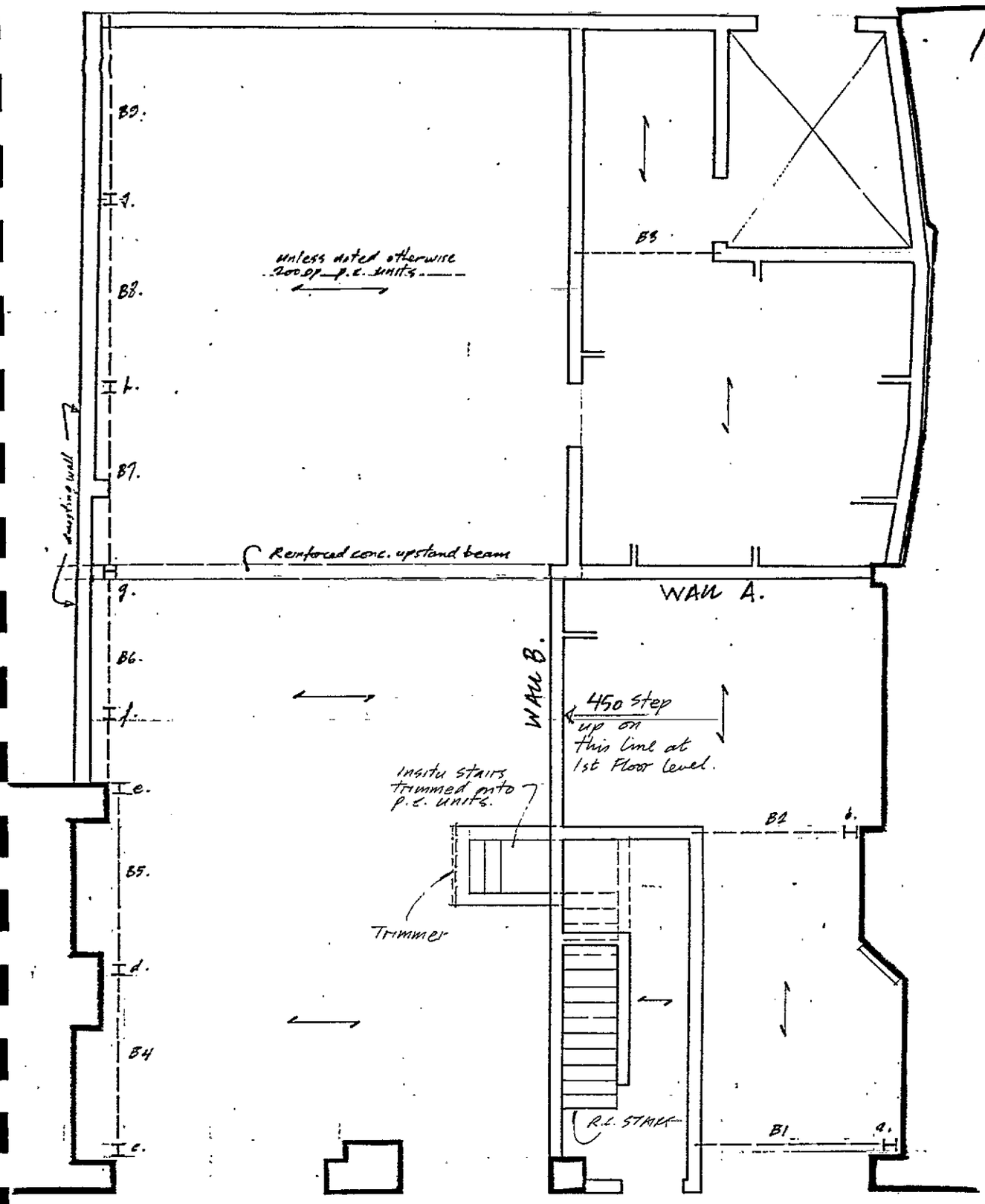
∴ Worst case = 3.5 KN/m² + 50 screed
= 4.7 KN/m² (Imposed on unit)
for a 7.3M span

A 200 Deep Prestressed Hollow core unit will be adequate for all cases. (SW = 2.56)

TOTAL LOADS ∴ PER M²

FRONT (2 STOREY) = 4.7 + 2.56 = 7.26 KN/m²

REAR (FLAT ROOF) = 2.94 + 1.2 + 2.56 = 6.70 KN/m²



NOTE: FRONT FACADE AND SIDE WALLS RETAINED.

LAYOUT OF BEAMS WALLS and COLUMNS SUPPORTING FIRST FLOOR LV.

CALCULATION SHEET	Page No. 12.	Project No.
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DESIGN OF MAIN FLOOR BEAMS.

BEAMS B4 → B9 inclusive max span = 3000

MAX Load per m

= 7.26 KN x 7.5/2 = 27.5 KN
add sw 0.5
29 KN

MAX BM = $29 \times 3^2 \times 0.125$ = 32.625 KNM

BEAM LATERALLY RESTRAINED by Floor

$Z_{reqd} = 32.625 \times 10^6 / 165 \times 10^3$ = 197 cm^3

$I_{reqd} = \frac{360 \times 5 \times 29000 \times 3 \times 3000^2}{384 \times 210000 \times 10^4}$ = 1747 cm^4

203 x 203 x 46KG UC SATISFACTORY

Z = 449 cm^3 I = 4564 cm^4

BEAM B1

SPAN = 3000 MAX Load per m =

7.26 x 5/2 = 18.15
add sw = 0.5
18.65

less than above ∴ 203 x 203 x 46 UC
Satisfactory ✓

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BEAM B3

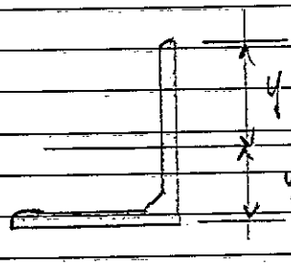
SPAN = 2.2M
MAX Load =
6.7 x 4.35 = 29.145
add SW = 0.5
29.645 kN/M

Bm less than previous one
203 x 203 uc satisfactory

BEAM B2

Will use R.S.A. 2-No Back to Back.

Try 200 x 150 x 15 RSA.



Load per M = 7.26 x 2.5 = 18.15 kN

MAX Bm = $18.15 \times 2.3^2 \times 0.125$ = 11.00 kNM

D/T = 200/15 = 13.33 1/r-yy = 52.27

$Cs = (A + K_2 B)\, yc/yt$ N/mm²

A = 1376 B = 1033 K_2 = -1.0

$Cs = (1376 + (-1)1033)\frac{137.9}{62.1} = 761.66$

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$p_{bc} = 146 N/mm^2$

$Z_c = 2022 \times 10^4 / 137.9 = 1.4663 \times 10^5$

$f_{bc} = 12 \times 10^6 / 1.4663 \times 10^5 = 81.83 N/mm^2$

∴ 200 X 150 X 15 RSA SATISFACTORY.

Check DEFLECTION

$$= \frac{5 \times 11150 \times 2.3 \times 2300^3}{384 \times 210000 \times 2022 \times 10^4} = 1.557 mm$$

satisfactory

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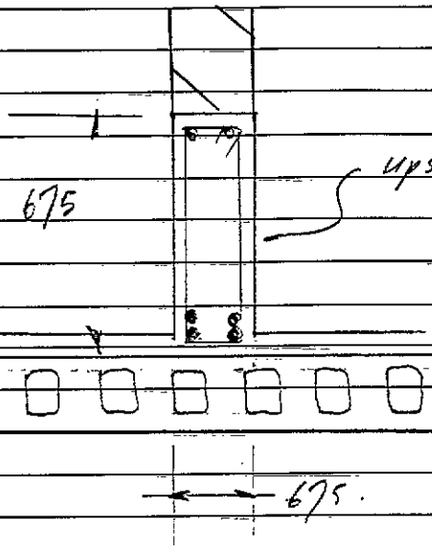
DESIGN OF R.C. BEAM UNDER REAR WALL.



Loading per m. kN/m

Roof
1.92 x 3.90/2 x 1.55 (ult) 5.21

Rear wall (take as solid

12 x 0.215 x 2.025 x 1.4 13.41

Self wt.

24 x 0.675 x 0.215 x 1.4 4.87

23.49

Max Bm = 23.49 x 7.2² x 0.125 = 152.2 kNm

END REACTIONS = 23.49 x 7.2 x 0.5 = 85.56 kN

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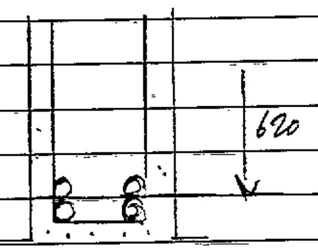
$K = 153 \times 10^6 / 215 \times 620^2 \times 35 = 0.052$ (d =)

$la = 0.9384$

$As\ reqd = 153 \times 10^6 / 0.87 \times 460 \times 620 \times 0.938$
$= 657$

USE 4T20 $As = 1260\ mm^2$ in 2 layers.



SHEAR

$$v = \frac{85.56 \times 1000}{215 \times 620} = 0.641$$

$v_c = 0.69 \quad v_c + 0.4 > v$ (based on 2T20 anchored)

min links

using 2 T10 legs ASV = 157

$$S_v = \frac{0.87 \times 460 \times 157}{0.4 \times 215} = 730$$

USE 2T10 legs @ 250 crs.

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DEFLECTION.

$M/bd^2 = 153 \times 10^6 / 215 \times 620^2 = 1.851$

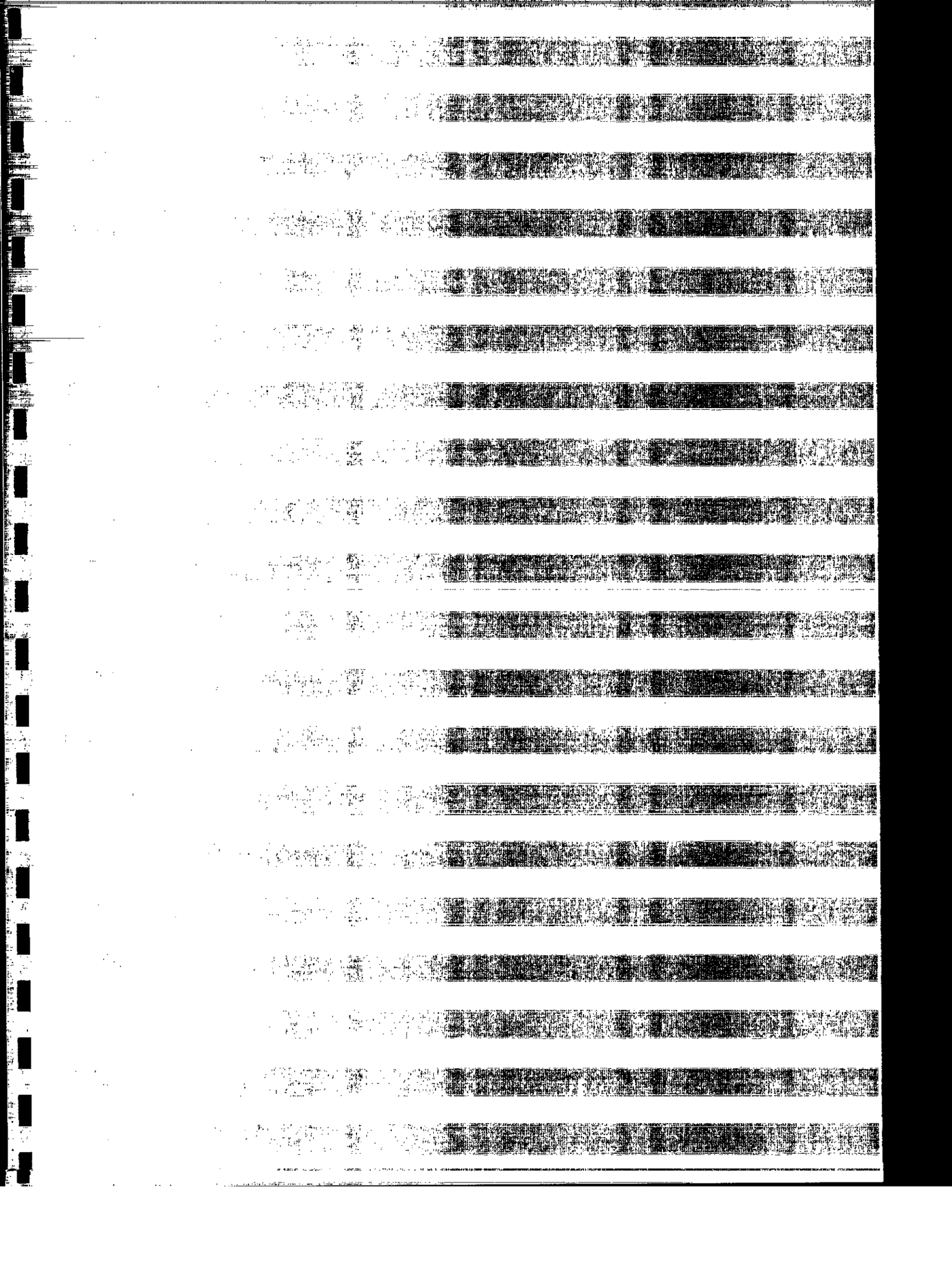
$f_s = \frac{5 \times 460 \times 657}{8 \times 1260} = 149.7$

$M.F. = 1.55 + \frac{(477 - 149.9)}{120(0.9 + 1.851)} = 1.54$

Allowable span

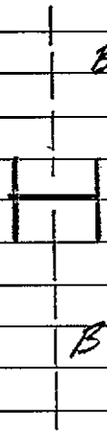
$= 20 \times 620 \times 1.54 = 19.106\ m > 7.2M$

Ok ✓



Columns

Consider Column J.



B6 and B7 TOTAL REACTION

= 3.0 × 29 = 87 kN

R.C. upstand beam Reaction

= 85.56 / 1.4 = 61.1 kN (service)

TOTAL LOAD = 87 + 61.1 = 148.1 ≈ 150 kN

Try 159 × 152 × 23 UC.

Take BM due R.C Beam Reaction

= 61.1 × 0.1762 = 10.76 kNm

TOTAL Load = 150 kN.

EFFECTIVE HEIGHT = 2.9m

l/r = 2900 / 36.8 = 78.8 D/T = 22.3

pbc = 165 pc = 105.

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$f_{bc} = 10.76 \times 10^6 / 165.7 \times 10^3 = 64.9\ N/mm^2$

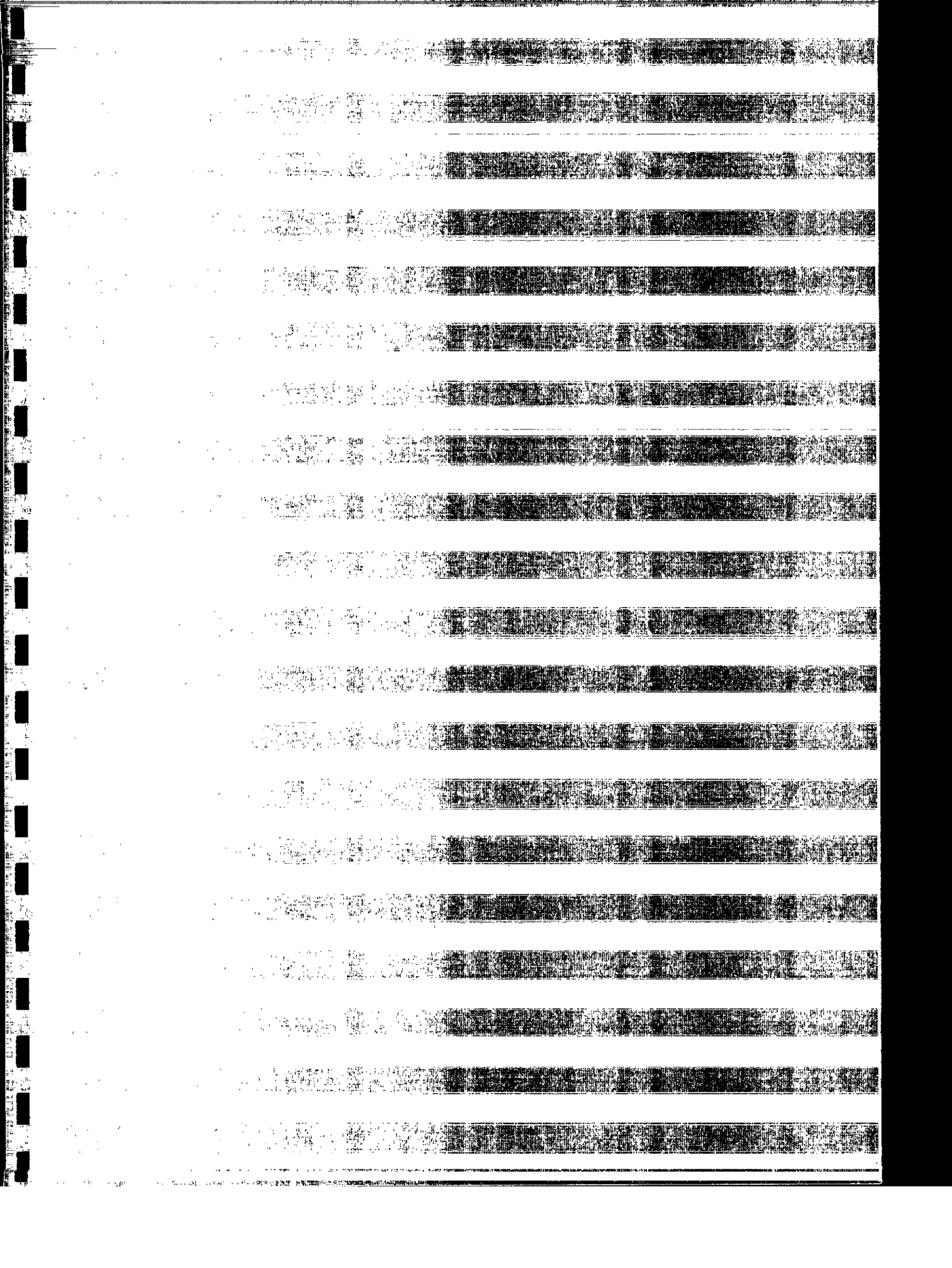
$f_c = 150 \times 10^3 / 29.8 \times 10^2 = 50.3$

$64.9/165 + 50.3/105 = 0.87 < 1$ ok ✓

152 X 152 X 23 UC STANCHION.

SATISFACTORY

By inspection no other column as heavily loaded ∴ 152 X 152 UC columns will suffice throughout.



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WALLS. – VERTICAL LOADING

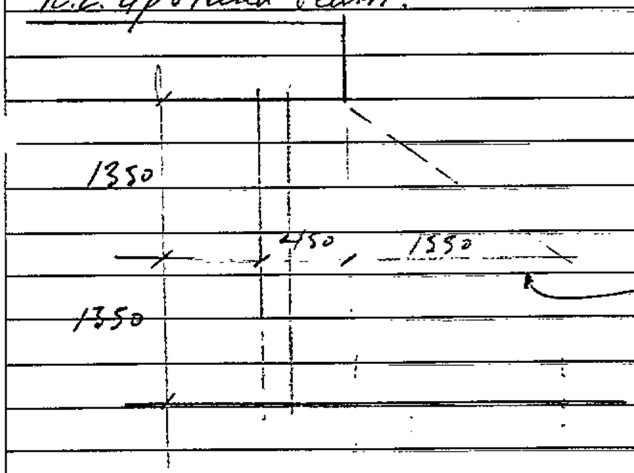
CONSIDER WALL A. (SEE PAGE 11)

Loading

	kN/m
Roof	
1.721 × 3.907/2 × 1.55 (ult)	5.21
Wall (Take as Solid)	
22 × 0.215 × 5.4 × 1.4	35.75
Floors	
7.26 × (5.0 + 4.2) 0.5 × 1.55	51.76
	92.72

Take Reaction from R.C. upstand beam at mid height.

R.C. upstand beam.



wot = 85.26 / 1.8 = 47.36 kN/m

DESIGN WALL FOR A LOAD OF

92.72 + 47.36 = 140 kN/m.

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Taking $l_{ef} < 0.05t$

$SR = 2700/215 = 12.55$

$\beta = 0.919$

f_k reqd $= \dfrac{140 \times 1000 \times 3.5}{1000 \times 215 \times 0.919} = 2.47 N/mm^2$

5N Hollow Block in Mortar (iii) $f_k = 3.2$
satisfactory.

Consider wall 'B'

ROOF BEAM REACTION

63.75/3.4 — 26.5 kN/m.

Wall take as Solid
22 x 6.5 (m to attic) x 0.215 x 1.4 — 43. kN/m

Floor
7.26 x 7.5/2 x 1.55 — 42.19 kN/m

111.69 kN/m

Take $l_{ef} = 0.166t$ $\beta = 0.7256$

$SR = 2700/215 = 12.55$

f_k reqd $= \dfrac{111.69 \times 1000 \times 3.5}{1000 \times 215 \times 0.7256} = 2.5$

5N Hollow Block in mortar (iii) $f_k = 3.2$
satisfactory.

Walls – wind loading

Consider Rear wall in 2nd storey

SITE LOCATION – LUCAN VILLAGE Co. DUBLIN

S2 FACTOR CATEGORY 3 CLASS B

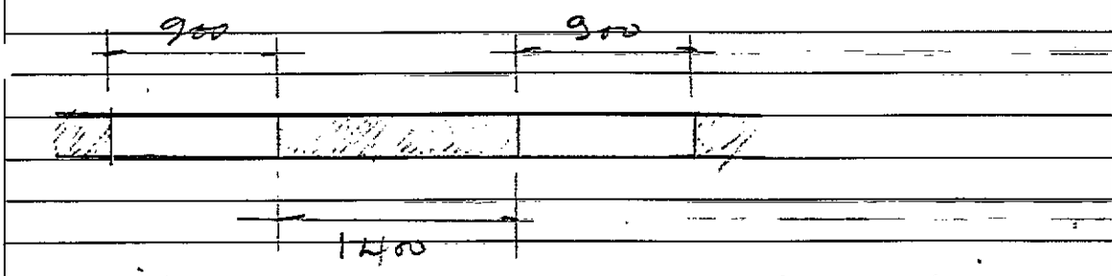
BASIC WIND SPEED = 46 M/S

S2 FACTOR = 0.65 (CAT 3 CLASS A7 = 5.0)

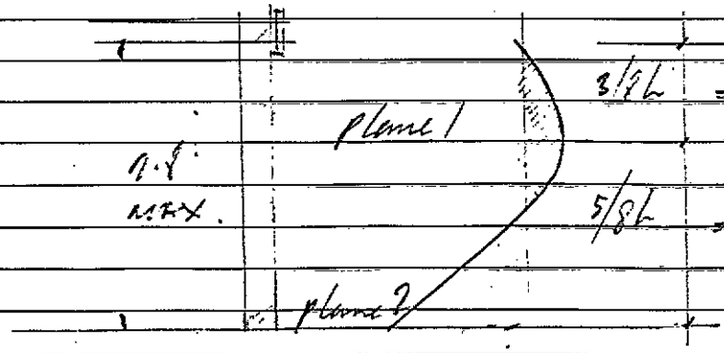
PRESSURE ON WALLS WILL BE TAKEN AS 1.0 x q_p

$q_p = (46 \times 0.65)^2 \times 0.613 \times 10^{-3} = 0.548 \text{ kN/m}^2$

PIER IN REAR WALL (SMALLEST)



Consider wall as a propped cantilever



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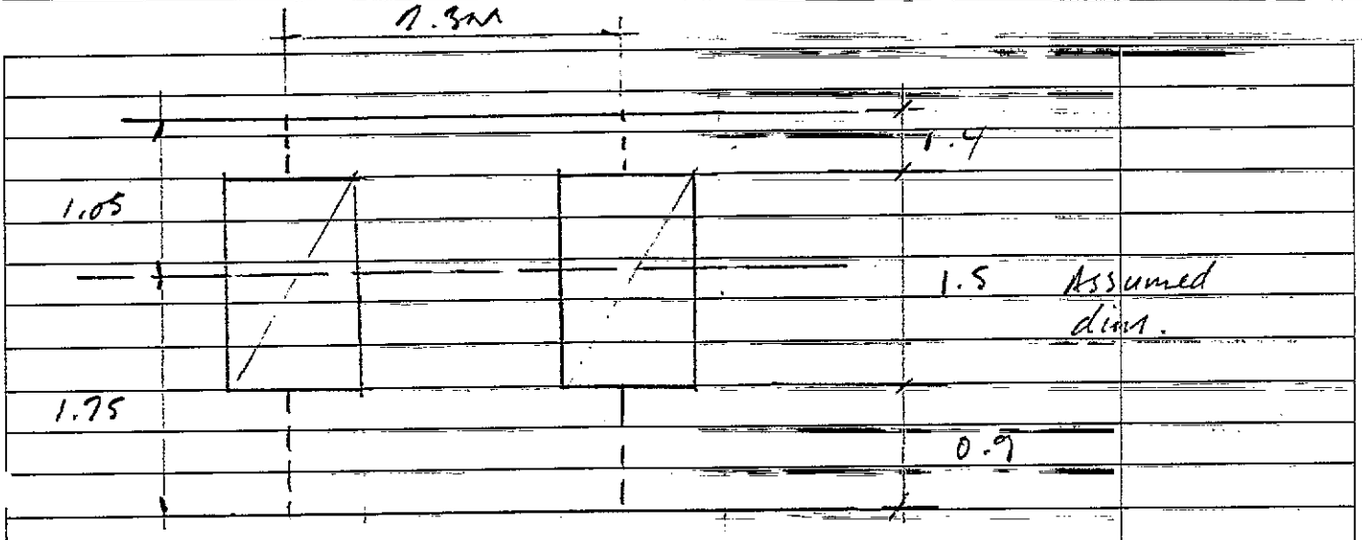

Area of wall above plane 1 = 1.83 m²

Area of wall above plane 2 = 5.09 m²

CHECK WALL AT PLANE 1.

Min Roof Load

= 0.971 x 0.9 x 3.96 kN/m x 1.3 = 3.926 kN

Min wall wt

= 3.1 x 1.83 x 0.9 = 5.10 kN. (Hollow Blocks) 3.1 kN/m²

$q_d = \frac{(5.10 + 3.926) \times 1000}{215 \times 1400} = 0.0299$

$Z = 1400 \times 215^2/6 = 10.786 \times 10^6$

$f_{kx} = 0.25$

$M_r = \left(\frac{0.25}{3.5} + 0.0299\right) 10.786 = 1.092$ kNm $\quad f_m = 3.5$

DESIGN MOMENT $= \frac{9 \times (0.3 \times 0.54) \times 2.8^2 \times 1.4}{16}$

= 0.694 kNm

< 1.092 OK.

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CHECK WALL AT BASE (PLANE 2)

ROOF LOAD = 3.926

WALL LOAD = $3.1 \times 5.07 \times 0.9 = 14.20$

$$q_d = \frac{(3.926 + 14.20) \times 1000}{215 \times 2300} = 0.0366$$

$Z = 2300 \times 215^2/6 = 17.72 \times 10^6$

$f_{kx} = 0.25$

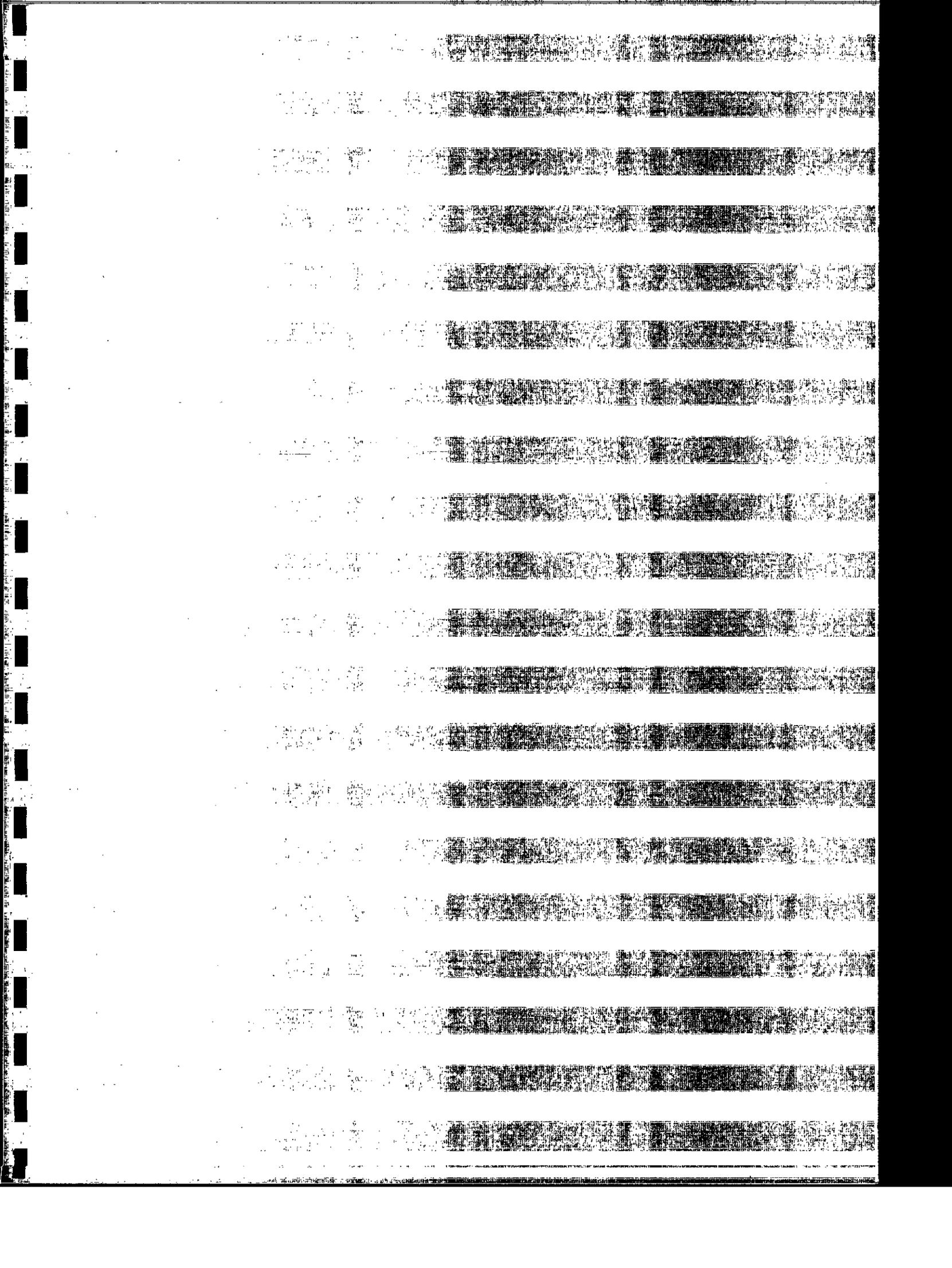
$M_r = (0.25/3.5 + 0.0366)\, 17.72 = 1.914$ KNM

DESIGN MOMENT

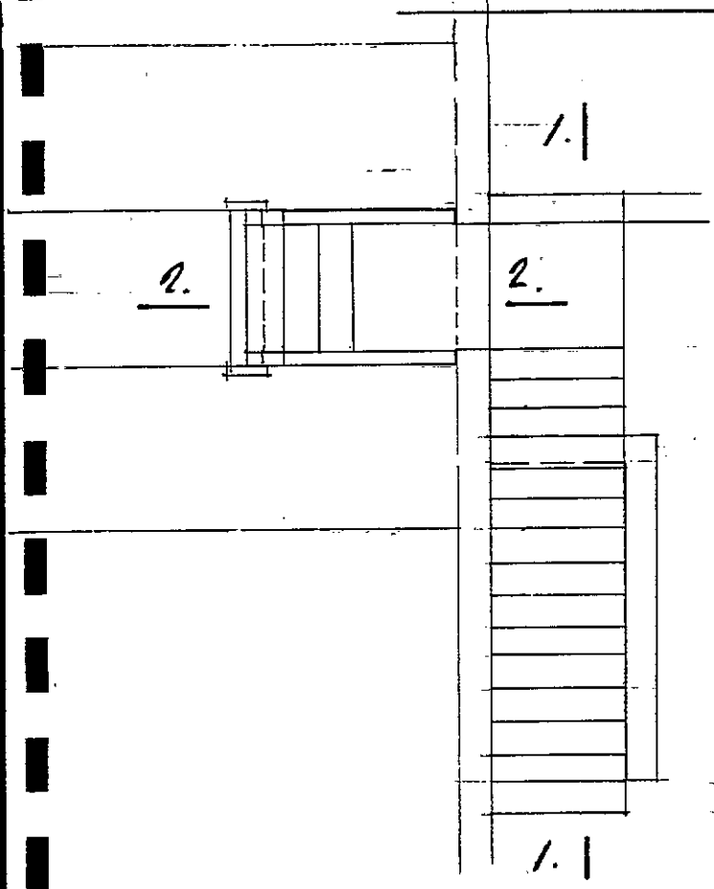
$$= \frac{(2.3 \times 0.548) \times 2.8^2 \times 1.4}{8} = 1.729 \text{ KNM}$$

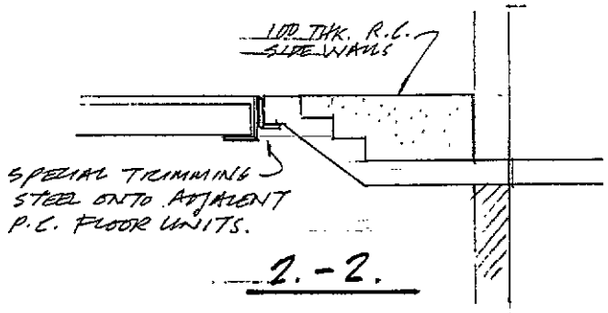
$1.729 < 1.914$ OK ✓

215 Hollow Block WALL SATISFACTORY FOR TWO STOREY AT REAR.

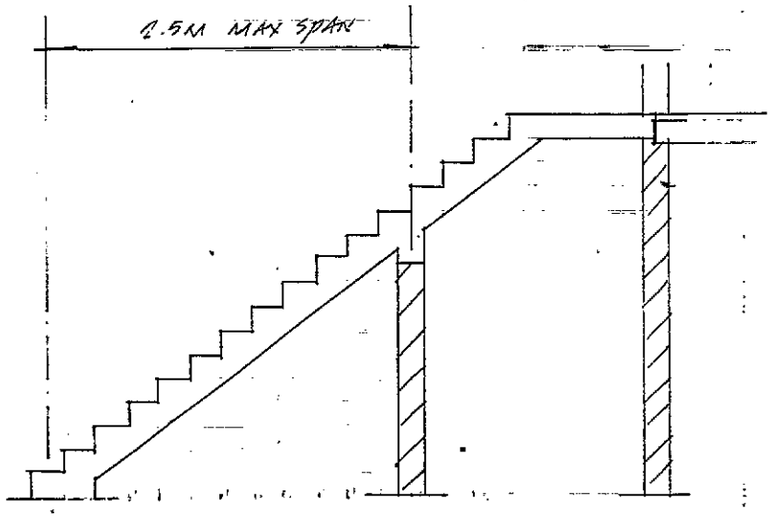


STAIRS


1.
2.
2.
1.


100 THK. R.C. SIDE WALLS
SPECIAL TRIMMING STEEL ONTO ADJACENT P.C. FLOOR UNITS.

2. - 2.


2.5M MAX SPAN

1. — 1.

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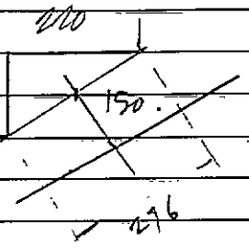
STAIRS.



$\alpha = 37.36°$

AREA OF 1 STEP =

$0.15 \times 0.276 + 0.168 \times 0.220/2 = 0.0598$

WT = $0.0598 \times 0.9 \times 24 = 1.293$

No. STEPS PER M = $1000/220 = 4.545$

WT OF STAIRS PER M

= $4.545 \times 1.293 \times 1.4 = 8.22$ kN

IMPOSED LOAD =

$2.5 \times 0.9 \times 1.6 = 3.6$ kN

TOTAL LOAD = $8.22 + 3.6 = 11.82$

MAX BM = (allow for continuity)

$= 11.82 \times 2.5^2/10 = 7.3875$

$K = 7.38 \times 10^6/900 \times 119^2 \times 35 =$

$= 0.016$

$\alpha_f = 0.95$ A_s reqd $= 7.38 \times 10^6/0.87 \times 460 \times 0.95 \times 119$

$= 163$

$163/0.9 = 181$

USE T12 @ 200 A_s = 566 mm²

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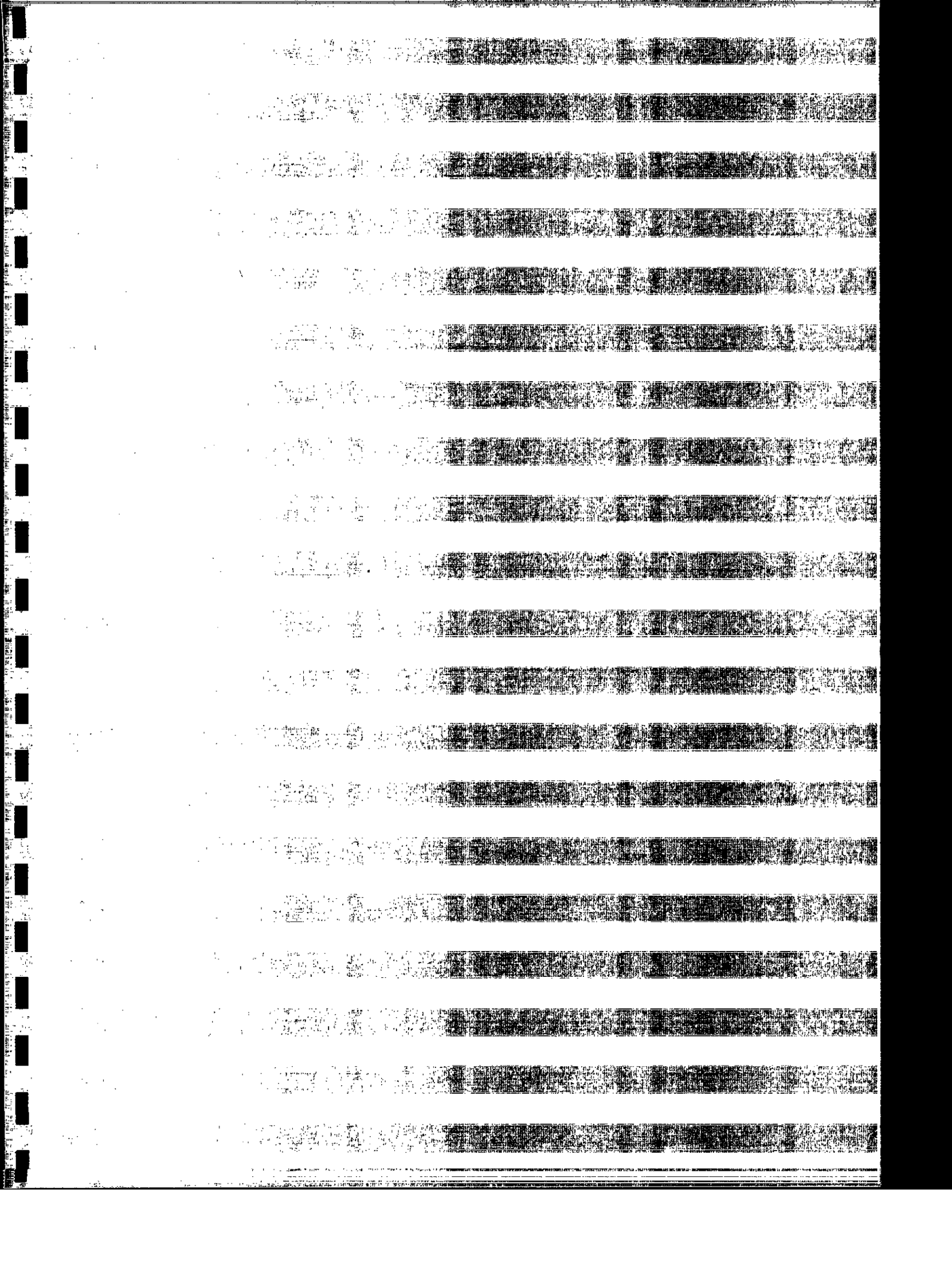
Deflection ok by inspection

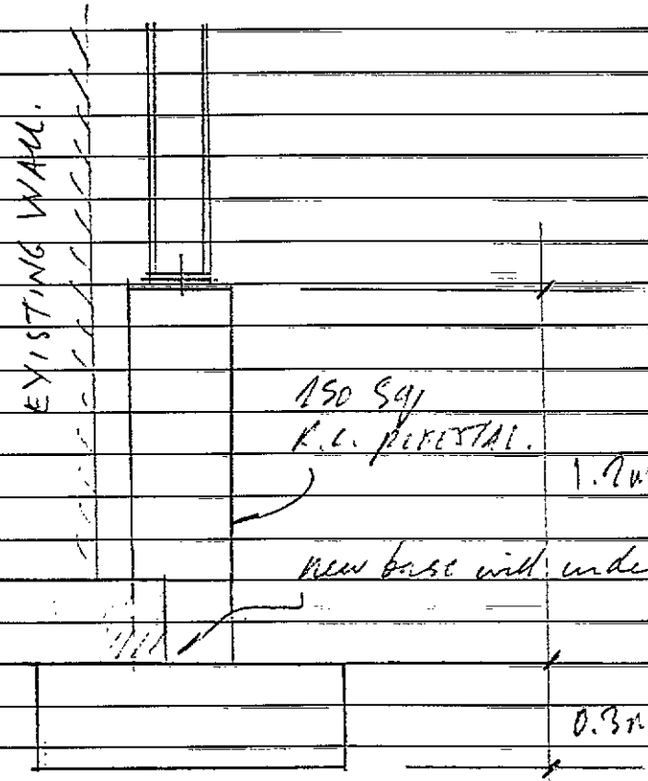
BASIC SPAN = 26 X 119 = 3094 > 2500 .with
No M.F. for Reinfmt.



FOUNDATIONS.

Typical CASE

Column 9



Assuming A.C.B.P. = 125 KN/m²

Total Column Reaction = 150 KN

Base Area Reqd. = 150/125 = 1.2 m²

∴ 1.1 m x 1.1 m Square Base adequate.

By Inspection T16 @ 200 c/c is satisfactory in Base.

Foundations Typical Cases Continued

Founds under Walls A + B.

MAX LOAD per M = 140 kN

service = 140/1.5 = 93.3

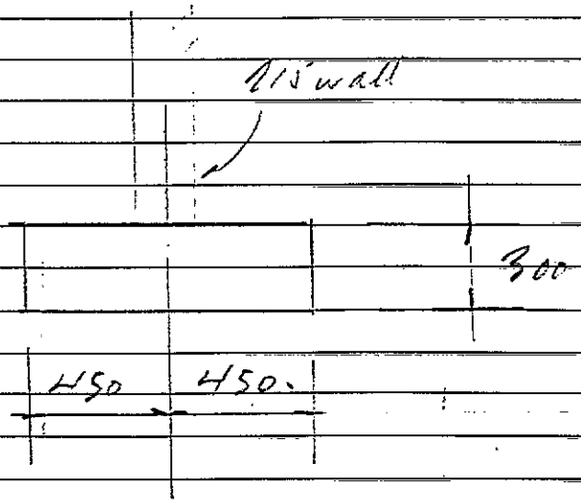
add say 10kN for ring wall

= 103.3 kN/m

A.L.B.P. = 125

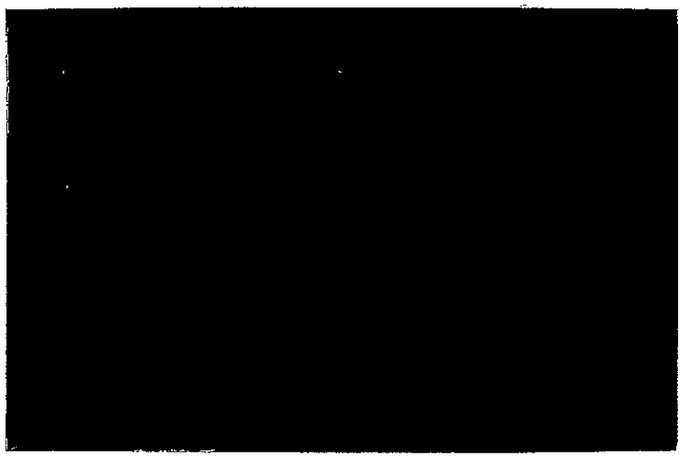
Strip width reqd: 103.3/125

= 0.8M ≈ 900 mm



USE 900 x 300 strips under all

Main walls.



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PROPOSED ALTERATIONS

AT MAIN STREET,

LUCAN, CO. DUBLIN.

STRUCTURAL SPECIFICATIONS

STRUCTURAL SPECIFICATIONS

1. Concrete Work
2. Blockwork
3. Precast Concrete Hollowcore Units
4. Structural Steel
5. Structural Timber

CONCRETE WORK

SPECIFICATION FOR CONCRETE WORK

01 General

1. The materials, labour and workmanship in and connected with the execution of the concrete work shall be the best of their kind without regard to any trade terms. The Contractor shall employ a duly qualified person experienced in reinforced concrete construction to supervise the work. The quality of materials and the standard of workmanship for the reinforced concrete shall comply with the relevant Clauses of BS8110 with regard to all requirements not otherwise described in this preamble.

   The Architect shall be afforded all reasonable opportunity and facility to inspect the materials and the manufacture of concrete and to take samples or to make any test.

2. The term "formwork" shall be deemed to include falsework.

3. References herein to Irish, British or other National Standards of Practice do not give the year of issue or dates of amendment. The latest relevant published version including any relevant amendments at date of invitation to tender shall apply.

   Where a Standard or Code of Practice has been superseded the latest edition of the superseding publication shall apply.

4. The preambles to the Bills of Quantities shall take precedence over the Standards and Codes of Practice referred to where those documents are at variance.

5. Do not scale the drawings. Use dimensions figured on the drawings for setting out the works.

02 Tolerances for Finished Work

Where more than one tolerance may be applied, the more stringent tolerance shall be adhered to.

1. Pad Foundations, Strip Footings : the permissible deviation for concrete foundations shall be -

Plan Dimensions	+75mm -25mm
Vertical Dimensions	±15mm

2. Elements below ground level : The permissible dimensional deviations for structural concrete elements below ground level shall be as follows:-

i Level - For any nominally horizontal surface when measured from the nearest reference level ±10mm.

ii Position on Plan - For the position of any nominally vertical surface at the lower edge when measured from the nearest reference line ±5mm.

iii Plumb - The permissible deviation from plumb of the upper and lower edges of any nominally vertical length of the surface whichever is the smaller.

iv Cross-Section of Elements - The permissible deviation of cross-sectional dimensions of elements from those shown on the drawings shall be ±5mm.

v Deviations at Junctions - the permissible deviation for abrupt changes in a nominally continuous surface at the junction of two concrete elements shall be ±5mm. The permissible deviation from the specified relationship of any two surfaces at a junction shall be ±5mm.

vi Bow, Bulging and Local Irregularities - The Permissible for bow, bulging and local irregularities in the surface of elements shall be 10mm measured from a 4m straight edge or 1 in 400 of the length of the element whichever is the smaller.

3. Elements above ground level : The permissible deviation for structural concrete elements above ground level shall be as follows:-

i Level - For any nominally horizontal surface when measured from the nearest reference level ±3mm.

In the particular case of floor slabs the deviation measured from a 3m straight edge shall not exceed this tolerance of 3mm.

ii Position on Plan - For the position of any nominally vertical surface at the lower edge when measured from the nearest reference line ±3mm.

iii Plumb - The permissible deviation from plumb of the upper and lower edges of any nominally vertical surface shall be ±10mm or 1 in 400 of the vertical length of the surface whichever is the smaller.

iv Cross-Section of Elements - The permissible deviation of cross-sectional dimensions of elements from those shown on the drawings shall be ±3m.

v Deviations at Junctions - The permissible deviation for abrupt changes in a nominally continuous surface at the junction of two concrete elements shall be ±3mm.

The permissible deviation from the specified relationship of any two surfaces at a junction shall be ±5mm.

vi Bow,Bulging and Local Irregularities - The permissible deviation for bow, bulging and local irregularities in the surface of elements shall be ±8mm measured from a 4m straight edge of 1 in 500 of the length of the element whichever is the smaller.

03 Cement

1. The cement shall be ordinary Portland Cement complying in all respects with either Irish Standard No.1 or BS 12. The Contractor shall provide details of proposed cements for approval and shall not under any circumstances use unapproved cements. Manufacturer's test certificates shall be provided by the Contractor as required.

2. Cement delivered in standard bags shall be properly stored in a weatherproof shed with the floor raised above ground level and having a clear space of at least 225mm between the underside of the floor beams and the ground surface. Cement delivered in bulk in a tanker shall be properly stored in a silo of BS or IS approved design. Each consignment shall be kept separate, identified and used in order of delivery.

3. Cement damaged in storage or handling shall not be used in the manufacturer of white concrete..

04 Aggregates

1. The aggregates for concrete shall consist of naturally occuring material complying in all respects with BS882 and IS No.5 (Note: the use of 'all-in' aggregates shall not be permitted). All aggregates shall be free from laminated, and/or flaky particles, dust, silt, clay and other impurities.

2. The fine aggregates shall be washed natural pit or river sand, passing a 6mm sieve and shall be graded from the largest to the smallest particles sizes to the Architect's satisfaction.

3. The coarse aggregate shall be retained on a 6mm sieve and shall be composed of clean washed gravel or clean crushed hard stone. It shall be delivered to site in two sizes up to 19mm when maximum aggregate size of 19mm is used, and three sizes up to 38mm when a maximum aggregate size of 38mm is used.

4. The use of marine aggregates shall be excluded .

5. The chloride content of the aggregate shall be such that the total chloride content of the concrete mix shall not exceed 0.35% expressed as a percentage of chloride ion by weight of cement.

6. The aggregates used for prestressed concrete shall be free from chloride.

7. Aggregates shall be chosen such that the drying shrinkage of the concrete is minimised and conforms to the requirements of BS1881 Part 2.

8. Special attention shall be given to the selection of aggregates to all exposed and waterproof concrete.

9. Before concreting operations are begun, samples of the aggregate shall be submitted to a laboratory, chosen by the Architect, for testing and approval. The weight of samples shall not be less than 15Kg for each size of coarse aggregate and 5Kg for the fine aggregate.

10. The quality of all aggregates delivered to the site shall be equal or superior to that of the approved samples.

11. Separate storage facilities with adequate provision for drainage shall be provided for each different size of aggregate used.

05 Water

1. Water shall be clean and free from harmful matter and shall be of potable quality.

06 Admixture

1. Admixtures other than those herein specified shall not be used without the written consent of the Architect. Under no circumstances shall calcium chloride be used as an additive in the concrete mix.

07 Mixing

1. The quantity of cement, the quantity of fine aggregates and the quantities of the various sizes of coarse aggregate shall be measured by weight only. A separate weighing device shall be provided for weighing the cement.

2. The amount of water shall be measured by volume or weight. Any solid admixture to be added shall be measured by weight only, but liquid or paste admixtures shall be measured by volume or weight.

3. The batch weight of aggregates shall be adjusted for the moisture content of the aggregate being used. The quantity of water contained in the aggregates shall be determined by the Contractor in accordance with a method approved by the Architect, and the quantity of water to be added to the mix shall be reduced by the quantity of water contained in the aggregates being used.

4. The accuracy of all measuring equipment shall be within 3% of the quantity of cement, water or total aggregates being measured and within 5% of the quantity of any admixture being used. All measuring equipment shall be maintained by the Contractor in a clean, serviceable condition.

5. The mixer shall comply with the requirements of BS1305 or BS4251. The mixing time shall not be less than two minutes or the time necessary to ensure compliance with the required strength. When the mixer is a lorry mounted mixer complying with BS4251 no water shall be added at the batching plant or in transit to site.

08 Concrete Mixes

1. The responsibility for producing concrete to the required strength is entirely that of the Contractor and he shall vary the cement content to achieve this strength. The minimum cement contents given in Table A are to provide a durable concrete for the various mixes.

   NOTE : Mix C35/20 is Grade 35 concrete with a minimum aggregate size of 20mm.

09 Ready-mixed Concrete

1. Ready-mixed concrete may be used on the basis of a designed mix, subject to the Architect's approval to the manufacturer and supplier. It shall be the Contractor's responsibility to ensure that his supplier shall fully comply with the specification and shall provide the Architect or his representative full co-operation and facilities for carrying out all inspection and testings that may be required.

2. Deliveries shall be accompanied by delivery dockets for each batch of concrete and they shall contain the following information.

(i) Name of the Ready-Mix Plant.
(ii) Serial number of the delivery docket.
(iii) Date.
(iv) Delivery Truck Number.
(v) Name of Purchaser.
(vi) Name of Contract.
(vii) Specified Grade of Concrete.
(viii) Specified Workability.
(ix) Maximum Aggregate Size.
(x) Time of Loading at Ready-Mix Plant.

10 Testing of Concrete

1. The quality of the concrete shall be verified by 28 day cube tests carried out in accordance with BS1881. Each cube shall be made from a single sample taken from a batch of concrete, Compliance with the specified strength may be assumed if ...

(a) The average strength determined from any group of four consecutive cubes exceeds the specified strength by not less than 7.5N per sq.mm.

(b) Each individual test is greater than 85 per cent of the specified characteristic strength grade (Table A).

11 Action to be taken in the event of Failure of Test Cubes

1. When the average strength of four consecutive test cubes fail to meet the first requirement, the mix proportions shall be adjusted to provide the specified strength. The responsibility of providing concrete which attains the specified strength is entirely that of the Contractor, and no adjustment of rates shall be permitted if additional cement is required to provide concrete with the specified strength.

2. In the event of cube failures the cost of additional test and/or the replacement of any portions of concrete deemed to be defective by the Architect shall be borne by the Contractor.

12 Concrete Blinding

1. The surface of the ground or hardcore under foundations and other concrete in contact with the ground or with hardcore shall be sealed with a layer of concrete Grade 10 (mix B Table A) average 50mm thick unless specified otherwise.

13 Jointing New Concrete

1. Treat the surface of the existing concrete at the joint before placing new concrete as follows ...

(a) When the concrete is between 2 and 4 hours old, wet the surface with a fine spray (not a jet) and at the same time brush the mortar from the face of the joint without disturbing the coarse aggregate.

(b) When the concrete is between 4 and 24 hours old and (a) has not been carried out, remove the mortar from the face of the joint with a wire brush or water jet without disturbing the coarse aggregate.

(c) When the concrete is between 1 and 3 days old and (a) or (b) has not been carried out, remove the mortar from the face ofthe joint by grit blasting or with a needle gun without disturbing the coarse aggregate and wash off any dust from the surface. Do not hack or hammer the surface.

14 Construction

1. All vertical construction joints shall be formed with well braced timber stop ends holed or slotted where necessary to allow the reinforcement to pass through the joints. The concrete shall be compacted against the stop end of the full height of the lift.

2. The Contractor shall if required prepare a detailed layout of the construction joints for each section of the work, including details of all waterbars, which shall be submitted to the Architect for approval before any work commences.

3. The construction sequence shall be planned so as to minimise the number of construction joints as far as is practicable while limiting the shrinkage of the concrete.

4. The vertical joints shall be stepped and staggered in approved positions and such joints shall not be located at or adjacent to quoins.

5. Except where otherwise directed, the joints in ribbed floors shall be formed in the slab parallel to the ribs. The joints in floors shall be located in such positions as will minimise the number of joints required and shall run where possible parallel with the direction of span. In beams and suspended slabs an approved splayed or halving joint shall be provided.

6. Additional reinforcement shall be provided at joints where so directed by the Architects.

7. All kickers shall be cast monolithically with the base concrete.

16 Frost

1. Concreting work shall be suspended when the air temperature falls below 2 deg. celsius or when frost is expected.

2. Frozen aggregate shall be thawed out before use by the aid of approved equipment.

3. Concrete placed in cold weather shall be protected from damage by frost or other weather conditions until such time as it has achieved sufficient strength. Any damaged or weathered concrete shall be cut out and replaced by fresh concrete at the Contractor's expense.

4. The Contract shall provide a minimum and maximum thermometer of approved design for the purpose measuring the shade temperature of the outside air.

17 Curing

1. Horizontal and vertical slabs and other large areas of concrete shall be prevented from drying out for at least 7 days after the concrete has been placed. Precautions shall be taken during the initial period of at least 7 days to protect all reinforced work from exposure to sun, wind, rain and frost. Longer periods of curing and protection may be required during periods of low temperatures.

18 Traffic over Concrete

1. No traffic or temporary load of any kind will be allowed over any concrete until the following minimum time after casting, unless approved protective methods are adopted to the Architect's satisfaction.

(a) Foundations, ground floor slabs and other concrete in contact with the ground: 28 days

(b) Columns: 10 days

(c) Suspended slabs: 10 days

(d) Suspended beams: 14 days

These times are given for guidance only and do not relieve the Contractor of any responsibility for protecting the concrete work against damage from any cause whatsoever.

19 Horsing

1. The Contractor if requested shall submit dimensioned drawings of the systems of falsework which he proposed to adopt for the various sections of the work. This falsework shall be suitably proportioned and braces to withstand the weight of the freshly placed concrete, together with the weight of the workmen and materials.

2. Where supported on the ground the sole piece carrying the vertical supports shall be bedded on a solid base and shall have an area sufficiently large to ensure that there shall be no settlement under the full load. Adjustable screws or hardwood folding wedges shall be used for adjusting and striking the vertical supports.

3. When supported on the ground floor slab a system of timber spreaders shall be used to distribute the load. Unless a screed is to be subsequently applied to the slab, special precautions shall be taken to protect the surface from any damage.

4. All shuttering shall be removed without shock or vibration. Before the shuttering is stripped the concrete shall be exposed in order to ascertain that the concrete has sufficiently hardened.

5. Shuttering to vertical sufaces may be removed whenever the concrete will not be damaged by so doing. Shuttering and supports under slabs, beams, girders, arches and structures carrying the loads, shall not be removed without the Architect's approval. The striking of the horsing shall be carried out in an approved sequence of operations so that no undue shock or other damage is caused to the permanent work.

6. The Contractor shall be responsible for any injury to work and any consequential damage caused or arising from the removal of striking of formwork, centering and supports, and any advice, permission or approval given relative to their removal shall not relieve the Contractor from the responsibility here defined.

20 Removal of Formwork

1. The Contractor shall give the Architect no less than 24 hours notice of his intention to strike any formwork.

2. The time at which formwork is struck shall be the Contractor's responsibility but the minimum periods between concreting and the removal of forms, unless otherwise approved, shall be as stated in Table B. Days during which the average temperature is below 2 deg.C shall be disregarded in calculating the minimum time which shall elapse before forms are removed.

3. The stability of the structure and the protection of the concrete after striking the formwork shall remain the responsibility of the Contractor.

21 Formwork Generally

1. The design, erection and removal of formwork shall be the responsibility of the Contractor.

2. The formwork and supports and foundations shall be sufficiently rigid to resist without distortion or overstress all dead loads and incidental loads resulting from placing, vibration, etc. and they shall be designed taking into account the surface finish and tolerances required for the concrete.

3. The Contractor shall prepare full size setting-out sketches of the formwork for approval.

22 Mould Oil and Grease

1. All formwork shall be treated with approved mould oil or grease before use and shall be carefully cleaned down and further oiled or greased before re-use.

2. The type of mould oil or grease and its method of application to be used for shuttering for exposed surfaces shall be as recommended by the manufacturer for this kind of work and shall be suject to the Architect's approval. The use of specially faced boards of plywood shall not be permitted except with the approval of the Architect.

23 Holes and Chases in Concrete

1. Holes, chases and other openings required for the passage of pipes, conduits, etc, shall be formed by inserting suitable sleeves, cores and sinkings before placing the concrete. The Contractor shall ensure that the Sub-Contractors furnish him full information in regard to the position of such opes and chases, that their size and position have been checked by the Sub-Contractor before concreting commences, and that they are adequately fixed in position to ensure that they do not move during the concreting operation.

2. The position of bolts, clips, holes or other openings in the finished work shall not be permitted without the sanction of the Architect. Such holes and chases shall be made only in approved locations and shall be cut with approved tools.

24 Classification of Finishes

1. Type A finish shall be used below ground level where the element is covered on each side by earth or filling.

2. Type B finish shall be used for all beam, columns, walls, slabs, stairs not exposed to view. It shall also apply to both the inside and outside faces of lift pit walls and ducts.

3. Type E finish shall be used for all beams, columns, walls, slabs, stairs and other concrete elements exposed to view.

4. Where a rendered or plastered finish is specified the concrete surfaces shall have a Type B finish and be treated to provide an adequate key. Alternatively the formwork may be coated with an approved retarding compound which shall be removed with water and wire brush as soon as possible after concreting. Precautions shall be taken to ensure that the retarding compound does not come in contact with reinforcement.

25 Quality of Finish

1. The same type of formwork, formwork surface, release agent and curing compound shall be used throughout the entire area of any one specified finish. Individual plywood sheets, timber sections or small areas of formwork in large panels shall not be replaced in any location unless Type A finish has been specified. Formed surfaces of concrete not exposed in the completed works and not specified otherwise shall be free from honeycombing and excessive lipping and grout leakage.

2. Type A finish shall be achieved using closely-jointed sawn boards or patent steel forms as formwork. Formwork ties shall not remain in the finished concrete. Recesses left at ties shall be filled with a paste of cement and fine aggregate. The finished surface shall be free from voids, honeycombing, excessive grout loss or other large blemishes. Small blemishes caused by entrapped air or water may be expected.

3. Type B finish shall be achieved using closely-jointed wrought boards, plywood or metal panels in good condition arranged in a uniform pattern as formwork. Foam sealing strips fully compressed between formwork and concrete shall be used at all construction joints. Formwork ties shall not remain in the finished surface. The finished surface shall be free from voids, honeycombing, excessive grout loss or other large blemishes. Small blemishes caused by entrapped air or water may be expected. Recesses left at ties shall be filled with a paste of cement, white cement and fine aggregate to match the colour of the concrete.

4. Type E finish shall be achieved using plywood with a hard smooth surface without defects, in 'as new' condition and arranged in large sheets. Construction and day joints and all formwork joints shall be located and aligned to the satisfaction of the Architect.

   Loose hardwood tongues shall be used between all plywood sheets and foam sealing strips fully compressed between formwork and concrete shall be used at all construction joints.

   Formwork shall be effectively watertight. Formwork ties shall be arranged in a uniform pattern as directed by the Architect and shall be provided with rubber cones against the formwork so that a neat recess about 50mm diameter x 40mm deep is at the tie after stripping. The recess shall be treated as a minor surface blemish.

28 Reinforcement

1. Rolled mild steel bars, cold twisted bars and high tensile fabric reinforcement shall comply with the requirements of BS4449, 4461 and 4483 respectively. The Contractor shall deliver, free of charge, samples of the various reinforcements for testing as directed. Any consignment or reinforcement failing to comply with the tests shall be removed from site.

2. The sizes and other dimensions of the reinforcement shall be checked against the drawings and site dimensions before the material is ordered.

3. The reinforcement shall be cut, cold bent and hooked to the dimensions shown on the drawings and schedules or to such other dimensions as may be directed.

4. No alteration of substitution shall be made in the lengths, sizes or arrangement of the reinforcement, without the prior written approval of the Architect.

5. Annealed iron tying wire not less than 1.4mm diameter shall be used.

29 Fixing Reinforcement

1. The Contractor shall provide at his own expense all spacers and stools necessary to support the reinforcement in position. These spacers shall not crush or deform and shall maintain the correct cover to the reinforcement at all times. Special spacers to support reinforcement shall be used where such are shown on the drawings and schedules.

2. The type of spacer for concrete exposed to view must be approved by the Architect before fixing commences and such approval may not be given until a test sample of cast concrete has been examined.

3. Galvanised reinforcement shall be fixed with galvanised tying wire.

4. No metal part of any device for fixing reinforcement shall remain within the concrete provided for cover to the reinforcement, unless otherwise shown on the drawings.

30 Cutting and Bending

1. Reinforcement shall be cut and bent in accordance with BS4466 and the schedule provided.

2. High yield reinforcement shall not be cold bent when the air shade temperature is below 5 deg.C. Mild steel reinforcement shall not be cold bent whent he air temperature is below 0 deg.C.

3. Cold worked steel reinforcement shall not be heated.

31 Waterproof Concrete Construction

1. The following locations, and elsewhere as indicated by the Architect, shall be considered as waterpoof concrete construction and in these cases compliance with BS5337 in addition to CP110 and this specification shall be maintained -

   (i) Any underground service ducts.

2. Formwork ties in these area shall be of a type and quality suitable for use in water retaining work.

3. All horizontal and vertical construction joints shall include an approved waterbar as shown on the drawings unless specifically indicated otherwise.

32 Watertightness Testing

1. Tests shall be carried out on all waterproof concrete elements as directed by the Architect.

2. Accessible faces of concrete elements including roofs shall show no sign of leakage when the structure is tested for watertightness and at any subsequent stage.

3. The drop in the surface level of water retained by concrete elements with inaccessible faces shall not exceed 10mm in seven days when the structure is tested for watertightness.

4. Should any element prove to be unsatisfactory when tested for watertightness or at any subsequent stage they shall be made good at the Contractor's own expense to the satisfaction of the Architect.

33 Services through Walls and Floors of Waterproof Structures

1. When it is necessary for a pipe or other duct to pass through a wall or floor these shall be cast into the panel when it is concreted unless otherwise approved by the Architect. Puddle flanges shall be provided on all such penetrations.

2. If approval to pass the pipe through the construction at a later stage has been obtained then these opes shall be boxed out and the sides of the opening shall be treated as construction joints. The pipes which are later passed through the opening shall be fitted with puddle flanges. The side of the ope shall not coincide with any construction joints.

34 Inspection of Concrete Work

1. The Contractor shall provide the Architect full facilities for the inspection of the horsing, formwork and reinforcement at all times throughout the duration of the contract.

2. Due notice shall be given to the Architect so that each element can be inspected to the satisfaction of the Architect.

3. No Concreting shall commence until the formwork and reinforcement have been approved by the Architects.

4. Any additional work to be done to the horsing, formwork and reinforcement to satisfy the Architect shall be carried out at the Contractor's expense. No claims for delay or disruption due to such additional work shall be entertained.

35 Sequence of Construction

1. The sequence of concrete construction shall be subject to the approval of the Architect. It shall be arranged in such a way as to minimise the effects of differential shrinkage, deflection, settlement and thermal effect. The Contractor shall therefore arrange his concreting programme as far as possible in such a way that the structural elements and foundations are uniformly loaded and the load is uniformly increased. Particular attention shall be given to junctions of blocks and expansion joints.

TABLE A

MIX REF.	MIX	MINIMUM CEMENT CONTENT	SLUMP	LOCATION
A	C20/40	220	25-75	Bedding & Surround to Sewers.
B	C10/20	180	25-75	Blinding Generally
C	C35/20	330	25-75	Foundations, Rising walls walls and insitu superstructure. Supsended insitu floor slabs. Generally including Ground Floor Slabs.
D	C25/20	275	25-75	Manholes, Arches to Sewers Anchor Blocks.
E	C35/10	350	25/125	Blockwork Filling
F	C35/10	350	25/75	Structural Screeds
G	C40/20	350	25/75	Precast Concrete Elements

TABLE B

LOCATION	MINIMUM PERIOD	
	Surface Temperature of Concrete	
	Cold Weather 2 deg. - 5 deg.C	Normal Weather 16 deg.C
	DAYS	DAYS
Sides of Beams Walls and Columns	2	1
Slab soffit forms (props left under)	10	4
Beam soffit forms (props left under)	14	8
Props to slabs	21	11
Props to beams	28	16

BLOCKWORK

SPECIFICATION FOR BLOCKWORK

GENERAL:

References herein to Irish, British or other National Standards of Practice do not give the year of issue or dates of amendment. The latest relevant published version including any relevant amendments at date of invitation to tender shall apply.

Where a Standard or Code of Practice has been superseded the latest edition of the superseding publication shall apply.

The preambles to the Bills of Quantities shall take precedence over the Standards and Codes of Practice referred to where those documents are at variance.

BLOCKWORK:

01. General

1. All blockwork shall be carried out in accordance with IS325 & BS5628 unless otherwise specified herein or directed by the Architect.

02. Concrete Blocks

1. All blocks shall be in accordance with I.S.20 and shall be obtained from an approved manufacturer. They shall have a co-ordinating size of 450mm x 225mm and shall be as described on the Architect's drawings.

03. Dense Masonry

1. The dense masonry blocks shall be waterproofed dense concrete masonry blocks as manufactured by Messrs. Clondalkin Concrete Ltd., or other equal similar and approved complying with the requirements of I.S.20. The blocks shall be to selected colour or colours as directed by the Architect.

04. Handling and Storage

1. The blocks shall be off-loaded and moved to laying position mechanically. They shall be stored off the ground and covered to protect from rain and dirt.

05. Certificates

1. A manufacturer's certificate of the quality of the blocks shall be produced for all batches of blocks delivered to site.

06. Cement

1. The cement used in mortars shall be either Portland Cement to I.S.1. "Portland Cement", or Portland blast furnace cement to B.S.146, or sulphate resisting cement to B.S.4027. The use of high alumina cement is forbidden. Where masonry cements are permitted by the Architect in lieu of cement and lime they shall comply with the draft British Standard "Methods of Testing Mortars" and in any event they will not be permitted for mortar mixes stronger than 1:1:6 cement:lime:sand.

07. Lime

1. Lime used in mortars shall be non-hydraulic (calcium) limes or semi-hydraulic (calcium) and magnesium limes to conform to the requirements of I.S.8.

08. Sand

1. The sand shall be free from deleterious substances and shall comply with the requirements for quality and grading of sand for mortar given in B.S.1200.

09. Water

1. Water shall be free from impurities harmful to the mortar. Where the quality of supply is doubtful the water shall be tested in accordance with B.S.3148.

10. Admixtures

1. Admixtures, may be used subject to the Architect's approval in writing.

11. Mortars

1. A 1:1:6 (Cement:Lime:Sand) mortar shall generally be used in the superstructure. However where special conditions, either constructural or environmental prevail, attention must be given to the requirements of C.P.121, Clause 3.6 and Table 4.

2. The mortar mixes referred to in Table 4 are given in Table 6 of this Code. Any alternative mortar mix is subject to the Architect's written approval.

3. The mortar shall be water proofed and tinted if so required by the Architect. Special care shall be taken to maintain consistency of mortar.

12. Batching and Mixing of Mortars

1. The material for the mortar shall be measured accurately to conform with the specified mix proportions by weigh batching or by the use of gauge boxes.

2. The mortars shall be mixed by machine.

3. Mortars containing cements shall be used within two hours of the mixing of the cement and water and any mortar not then used shall be discarded and not re-tempered.

13. Filling of Cores, Etc

1. Where the cores of block walls are to be filled with concrete a 10mm aggregate concrete as elsewhere specified shall be used.

2 These cores shall be accurately lined up and be clean and clear of all protruding mortar etc.

3. The concrete shall be well tamped around the reinforcement to ensure that it is fully compacted.

14. Wall Ties

1. Cavity wall ties shall be approved vertical twist dovetail stainless steel straps with stainless steel restraining pin to retain the insulation unless otherwise directed by the Architect.

2. Internal collar jointed walls shall be tied together with flat stainless steel ragged ended ties of cross sectional area over 200mm x 3mm at centres not exceeding those in the attached table.

15. Handling and Storage of Materials

1. Cement shall be stored to ensure that it is not affected by dampness prior to use.

2. Sand shall be stored separately according to type where it will not be contaminated.

3. Reinforcement and ties shall be protected from becoming contaminated.

4. Facing blocks shall be carefully unloaded so as to avoid damage to the units. All blocks shall be stacked on prepared level areas to ensure that the stack is stable. Blocks used for fairfaced work shall be protected to prevent the exposed faces from becoming stained or marked. Precautions shall be taken to ensure that the manufacturer's recommended moisture content is not exceeded at the time of laying.

16. Testing of Blocks

1. Independent testing of blocks shall be carried out in accordance with clause 17 of I.S.20.

17. Workmanship

1. All blockwork shall be set out and built to the respective dimensions, thickness and heights shown upon the drawings.

2. All perpends, quoins, joints, etc., shall be kept strictly true and square, other angles shall be plumbed and the whole properly bonded or tied together and the bed joints levelled as the work proceeds.

3. The blockwork shall be built to the bond indicated, on the drawings. Where no bond is indicated, the units shall be laid in stretcher bond.

4. Blocks used for facing shall be cut with a masonry saw. Where it is necessary to cut the blocks wet they shall be dried to the manufacturer's recommended moisture content before being built into the wall.

5. The positions and size of the chasings shall be as indicated on the drawings and shall be carried out neatly using a chasing tool.

6. Concrete blocks should be used at a moisture content not exceeding the manufacturer's reoommendations.

7. All painting of blockwork shall be carried out to the detail agreed with the Architect.

8. No block laying shall be carried out when the temperature is at or below 3 deg.C unless precautions are taken to ensure a minimum temperature of 4 deg.C in the work when laid and thereafter to maintain the temperature above freezing point until the mortar has hardened. Should any block wall be damaged by frost it shall be pulled down and made good at the contractor's expense. Walls shall, where necessary, be adequately braced during construction to prevent damage by winds or other causes.

9. Each block shall be laid and adjusted to its final position while the mortar is still plastic.

10. All blocks shall be laid on a full mortar bed. Vertical joints shall be filled. All joints are to be nominally 10mm thick.

11. Any mortar which extrudes from the joint of fairfaced units shall be cut away and on no account is mortar to be smeared on to the face of the block.

12. The junctions of all walls shall be block bonded unless specified or directed otherwise by the Architect.

18. Control Joints

1. Control joints shall be constructed as indicated on the drawings or as directed by the Architect. Expansion joints shall be cleaned out to ensure that mortar does not bridge the joint.

19. Double Leaf (Cavity) Walls

1. The walls shall be built with cavities of the width shown on the drawings and tied together with wall ties as specified embedded in the mortar at least 50mm. Unless otherwise detailed the wall ties shall be staggered in alternate courses and spaced in accordance with the following table.

MAXIMUM SPACING OF TIES

Least Leaf Thickness mm	Cavity Width mm	Horizontally mm	Vertically mm
75	50-75	450	450
90 or more	50-75	900	450
90 or more	75-100	675	450
90 or more	100-150	450	450

2. The spacing may be varied provided that the number of ties per unit area is maintained subject to the Architect's approval.

3. Additional ties shall be provided in every course within 225mm of openings and on each side of control joints. Ties shall be laid falling to the external leaf.

4. Where a wall is constructed of two separate leaves with a 10mm vertical joint between them the spacing of the ties shall be 450mm both horizontally and vertically and the vertical joint shall be filled with mortar as the work proceeds.

5. The cavity, ties and cores (where they are to be filled with concrete) shall be kept clear and clean of mortar droppings or other materials during construction and any extruding mortar shall be struck off flush. No cavity shall be sealed off until inspected and approved by Architect.

6. Weepholes 10mm wide by 75mm high, spaced at centres not exceeding 900m and extending through the vertical mortar joints of the outer leaf shall be provided at ground level and at positions where the cavity is bridged or at locations indicated on the drawings.

7. Vent holes shall be of the dimension as for weepholes and shall be positioned at locations indicated on the drawings.

20. Partitions

1. Partitions shall not be built on suspended slabs until after the props have been removed.

21. Lintels

1. Concrete block lintels shall be positioned and reinforced in accordance with the details shown on the drawings and shall have cavities filled with concrete as specified. The lintels are to be propped during construction to the satisfaction of the Engineer. All lintels shall have a minimum bearing length of 200mm unless otherwise detailed.

22. Protection

1. Where necessary walls shall be temporarily braced to prevent damage from backfilling operations.

2. The tops of constructed walls shall be protected from rain and in addition fairfaced work shall be protected against staining from construction activities.

3. At the completion of the work all temporary holes in mortar joints of fairfaced work shall be filled with mortar and suitably tooled. Any damaged blockwork shall be repaired with approved materials or replaced to the satisfaction of the Architect.

23. Sealing

1 Joints around door and window frames, control joints, abutting joints at external columns and other joints where sealing is indicated or required shall be brush painted with an approved primer and filled with an approved sealant of colour specified by the Architect, the whole of which shall be carried out in accordance with the manufacturer's recommendations.

24. Flashings

1. Wall flashings shall be built into or secured to the blockwork in accordance with the details shown on the drawings. Care shall be taken to ensure that the flashing has adequate laps.

25. Chases

1. No chases shall be provided or cut in the blockwork without the prior approval of the Architect. Where chases have to be cut, suitable power tools which do not operate by heavy impact should be used. The depth of chase should not exceed one-sixth of the thickness of a single leaf.

26. Damp Proofing

1. Horizontal damp-proof courses shall be provided at positions shown on the drawings and be positioned so as to fully cover the leaf thickness. All horizontal damp-proof courses shall be laid on an even bed of fresh mortar and eventually covered by mortar so as to maintain regular coursing and joint thickness and while exposed shall be protected from damage while the building is processing. Stepped damp-proof courses at openings shall extend beyond the end of the lintel by at least 100mm. All horizontal damp-proof courses shall protrude 10mm from the external face of the wall and be turned downwards. Vertical damp-proof courses shall be of adequate width and be fixed so as to separate the inner and outer leaves of the wall.

27. Backfilling

1. Backfilling shall not be placed against concrete masonry walls within 14 days of completion of the construction unless otherwise directed by the Engineer. Vehicles shall not be operated closer to the wall than a distance equal to the height of the wall below ground level.

28. Stability During Construction

1. Walls in the course of construction shall be propped by the contractor to ensure stability and to resist all lateral forces until such time as they have been adequately braced by the completed or partially completed structure.

29. Pointing of Blockwork

1. Pointing should be carried out from the top of the wall downwards. The joints shall be well brushed to remove dust and loose material and should be lightly wetted using a brush. The type of pointing shall be as directed by the Architect.

30. Damp Proof Course

1. Damp proof course shall be bitumen with hessian base and shall comply with I.S.57 or equivalent unless otherwise directed by the Architect.

31. Sample Panels

1. Sample panels of walling, if required by the Architect, shall be constructed in accordance with this specification at the commencement of work. These panels shall remain on site for the duration of the Contract unless otherwise directed by the Architect.

32. Tolerances for Blockwork

1. The following tolerances shall apply to blockwork except specified by the Architect.

Level ±10mm for dimensions to any nominally horizontal surface measured from the nearest reference level but not more than ±3mm under a 3m straight edge.

Position on Plan ±10mm for dimensions to any nominally vertical surface at the lower edge measured horizontally from the nearest reference line.

Plumbness ±5mm in any 1m but not more than 10mm except at window, door and other formed opes where a tolerance of ±5mm in the height of the ope on any nominally vertical face shall not be exceeded.

Cross-Section of Elements ±5mm unless otherwise indicated on the drawings or in this specification.

Straightness ±10mm measured horizontally at any level but not more than ±3mm under a 3m straight edge except where otherwise specified.

Joint Thickness (1) Horizontal joints - ±3mm but not more than ±10mm for the combined thickness in any 1m height for normal work. For unplastered blockwork exposed to view this tolerance shall be ±1.5mm but not more than ±5mm for the combined thickness in any 1m height.
(2) Vertical joints - ±3mm but not more than ±10mm in any 3m length for normal work. For unplastered blockwork exposed to view this tolerance shall be ±1.5mm but not more than ±5mm for the combined thickness in any 3m length.

Openings in Blockwork Notwithstanding the tolerances stated elsewhere, the permissible deviation in the specified dimension of the opening shall be ±5mm.

Tolerance for Blocks

1. The tolerance applying to individual blocks shall be as follows :

Length	±3mm
Height	±3mm
Thickness	±2mm

PRECAST CONCRETE HOLLOWCORE UNITS

SPECIFICATION FOR PRECAST CONCRETE HOLLOWCORE UNITS

PRECAST CONCRETE ELEMENTS: All precast concrete work shall comply in all respects with the requirements of BS8110.

LOADING: As specified by the Engineers

CONCRETE MIX: Concrete in precast units shall have a minimum characteristic strength of 40N/sq.mm.

STRUCTURAL CALCULATIONS: The General Contractor shall provide detailed calculations showing the stresses in the steel and concrete for all combinations of loading and prestressing and the deflections of the units under service loads.

The factors for live load, dead load and service load shall be as set out in BS8110.

UPWARD CAMBER OF UNITS: The upward camber of the units when erected in position but before screeding shall not exceed a/300 of the span and when screeded shall not exceed 1/400 of the span.

VARIATION OF UPWARD CAMBER: The variation in camber between closely associated units laid side by side shall not be greater than 6mm.

SCREEDING OF UNITS AND FILLING OF JOINTS BETWEEN UNITS: The screeding of units and the filling of joints between units shall be carried out by the General Contractor in a single operation using concrete mix C35/10 as specified. The joints should all be fully filled before the topping screed is laid. The joints between the units shall be carefully washed out with a power hose before filling and screeding commences.
Reinforcing steel fabric shall be laid on the units with a specified lap of 150mm and a spacer lath shall be laid on the units with a specified lap of 150mm and a spacer lath shall be moved ahead of the concrete screed to raise the fabric 25mm from the top of the units. The screeding shall be finished to the falls specified.

SHOP DRAWINGS:

The General Contractor shall submit in duplicate for approval all shop drawings and no manufacture shall commence until he has received back from the Architect or his representative one copy of the relevant drawing marked "approved".

INSPECTION OF THE UNITS DURING MANUFACTURE:

The General Contractor shall permit and provide all assistance for the inspection of the work during all stages of manufacture and for the testing of the steel reinforcing and concrete.

No units shall be delivered to the site until inspected and approved by the Architect or his representative.

Any units which are rejected will be replaced by The General Contractor at his own expense.

DIMENSIONAL TOLERANCES:

Length of Unit	± 5mm
Width of Unit	± 2mm
Deviation of edge of unit from a straight edge	± 3mm
Squareness of unit	Permissible difference in length of the diagonals of any unit shall be ± 10mm of 1 in 100 of the normal diagonal length whichever is the smaller.

TEST LOADING OF UNITS:

The General Contractor shall at his own expense test load nay element if ordered by the Architect or his representative.

The General Contractor shall provide kentledge, scales, level, staff and deflectometers for the use of the Architect or his representative. The element shall be loaded as specified in BS8110.

ERECTION PROCEDURE:

The General Contractor shall prepare for approval a detailed scheme for the erection of the units and shall specify the type of plant he proposes to use for erection.

HOLES FOR SERVICES:

No holes shall be cut or punched in the units without the approval of the Architect or his representative. Where holes are necessary they shall be formed in accordance with the recommendations of the Precast Concrete Contractor.

FINISHES:

Precast concrete units shall have a Type E finish as described under the "Insitu Concrete Work" on surfaces exposed to view using G.R.P. or polypropylene or the like moulds or liners.

Surfaces not exposed to view shall have at least a Type B finish as described under "In-Situ Concrete Work".

SURFACES TO BE ROUGHENED:

Surfaces described on the drawings as "to be roughened" shall be brush hammered, or treated with a retarding agent and subsequently wire brushed, to expose the aggregate.

CONDITIONS OF CONTRACT:

The General Contractor shall name the Precast Concrete Contractor he proposes to use in the Form of Tender. The Precast Concrete Contractor shall be a Sub-Contractor, approved by the Architect or his representative, to the General Contractor.

STRUCTURAL STEELWORK

SPECIFICATION FOR STRUCTURAL STEELWORK

01 Steelwork Generally

1. All steelwork shall be in accordance with the requirements of B.S. 5950: Part 2: 1985.

2. Steelwork generally shall comply with BCSA Publication No.1/89 National Structural Steelwork Specification for Building Construction. It shall be assumed that the Steelwork Contractor is familiar with this publication.

02 Workshop and Erection Drawing

1. The Structural Steelwork Contractor shall prepare all the necessary workshop drawings and shall submit for approval all drawings in duplicate to the Architect or his representative for checking. One oopy of each drawing will be returned to the Structural Steelwork Contractor. The Structural Steelwork Contractor shall, before commencing fabrication, provide two sets of the approved drawings for the Architect or his representative.

2. The Structural Steelwork Contractor shall not commence the fabrication of any part of the work until approval to the workshop drawings have been given.

03 Programme of Supply

1. The Structural Steelwork Contractor shall arrange his programme of fabrication, delivery and erection in consultation and agreement with the General Contractor and shall be prepared to amend this programme if required to do so by the General Contractor.

04 Cladding

1. The Structural Steelwork Contractor shall throughout the fabrication and erection period co-operate and consult with the Roofing Contractor.

05 Site Connections

1. All site connections shall be bolted unless noted otherwise on the drawings. The Structural Steelwork Contractor shall arrange to have an adequate supply of electric power where site welding is necessary.

06 Welding

1. All welding practice shall conform to the standards of B.S. 5135 : 1974.

07 Welding Electrodes

1. Rutile electrodes to B.S. 639 Classification E.21 - or E.31 - or low hydrogen electrodes to B.S. 639 Classification E.616 can be used. The electrodes should conform to B.S. 639:1976 Sections 1 and 2.

2. All electrodes shall be handled and stored with care to avoid damage; electrodes with damaged coatings must not be used and the manufacturer's instructions regarding protection and storage must be followed.

3. Where low hydrogen electrodes are being used, they must be oven dried immediately prior to use in the manner recommended by the electrode manufacturer. The manufacturer's instructions regarding current (AC or DC) and polarity should be followed.

08 Specification

1. The Structural Steelwork Contractor shall provide for the Architect's or his representative's approval a written specification of the type of electrodes and welding procedure he proposes to adopt.

09 Testing of Welders

1. Every welding operator, before he carries out any welding in this Contract, shall pass or have passed such qualifying tests which in the opinion of the Architect or his representative will prove his competence in carrying out the welding. Welders shall be tested to meet the requirements of B.S. 4872 : Part 1.

10 Testing and Examination of Welds

1. The Architect may appoint a specialist representative to supervise and check the welding and fabrication and the Contractor shall provide all the necessary facilities for the examination of the welding.

2. Any welding considered by the Architect to be unsatisfactory shall be rejected and the cost of replacing any such rejected material will be borne by the Contractor.

11 Splices

1. No splices of any description shall be used in any member without the written approval of the Architect.

12 Arrangement of Members to be Welded

1. All members to be welded shall be held in their correct position by jigs, bolts or clamps. The assembly of work to be welded shall be arranged so that whenever possible the work shall be done in a downhand position.

13 Preheating

1. The requirements of B.S. 5135 : 1974 shall apply to all welded joints in this Contract, wherever they may be made. The minimum area over which local preheating shall be effective shall in all cases be an area extending at least three inches or four times the thickness of the thicker part to be joined.

14 Inspection of Fabricated Steelwork

1. The Architect or his representative shall have access at all times to the Structural Steelwork Contractor's workshop for the purpose of inspecting the steelwork. Any steelwork found to be unsatisfactory at workshop inspection or subsequent inspection shall be rejected and replaced at the Structural Steelwork Contractor's expense.

15 Surface Preparation of Steelwork

1. All Steelwork shall be shot-blasted to B.S. 4232 : Second Quality or Swedish Standard Sa 2.5 (maximum surface profile 100 microns).

2. After shot-blasting remove all traces of loose rust, grit etc. by compressed air hose or careful clean dry brushing. Remove all laminations by careful grinding leaving the surface smooth.

16 Blast Priming

1. Priming of the clean blast steel should be carried out within 2 hours of shot-blast. The blast primer shall be a 2-pack epoxy zinc rich primer applied by airless spray to give a minimum dry film thickness of 20 microns.

17 Site Holding Primer

1. After fabrication carefully remove all weld spatter, rough edges etc. by grinding, chipping and scraping, and grind to a smooth surface. Remove any unsound primer around weld areas.

2. The site holding primer shall be a 2-pack epoxy zinc rich primer applied by airless spray to give a minimum dry film thickness of 30 microns for interior steel and 50 microns for exterior steel.

18 Patch Priming after Erection

1. After erection all site contaminants shall be removed and the steelwork shall be patch primer if required with the specified primer. All nuts and bolts shall be degreased and coated with one coat of the primer.

19 Holding Down Bolts

1. The Structural Steelwork Contractor shall provide all necessary holding down bolts as shown on the drawings and the rates shall include for the supply and delivery of these bolts in advance of the delivery of the steelwork.

20 Erection of Steelwork

1. The Structural Steelwork Contractor shall check the position, setting out and levels of all holding down bolts before erection has commenced and any difference in level or levels from those shown on the Contract Drawings shall be brought to the immediate notice of the Architect.

2. The Structural Steelwork Contractor shall provide all the plant necessary for the erection of the steelwork but he shall submit a list and description of the plant he proposes to use to the Architect.

21 Bolting

1. Unless specified otherwise all bolts and nuts shall be electrogalvanised 8.8 Grade Black Bolts to B.S. 3692. All threads shall comply with B.S. 84 - "Screw Threads of Whitworth Form". Washers shall be tapered whenever necessary to give the head and nut a true bearing.

2. All bolts shall be provided with steel washers under the nut and sufficient washer shall always be used to have the threaded portion of the bolt clear of the parent metal.

3. All bolt shanks shall project at least one thread beyond the nut.

4. All nuts shall be Grade 8.8.

22 Temporary Bracing

1. The Structural Steelwork Contractor shall provide all necessary temporary bracing and strutting to resist erection forces and wind forces and any other temporary bracing or strutting as required by the Architect until the roof covering has been completely erected.

23 Additional Holes

1. Any additional holes required shall be drilled on site. Burning holes in steelwork is not permitted. No holes will be drilled until approval for such holes has been given by the Architect.

24 Stacking of Steelwork

1. When stacking the fabricated steelwork before delivery the Structural Steelwork Contractor shall ensure that sufficient timber shims are placed between members to avoid undue bowing of the members. He shall also ensure that the steelwork is carefully unloaded and stored on site prior to erection.

STRUCTURAL TIMBER

SPECIFICATION FOR STRUCTURAL TIMBERWORK

01 CODES OF PRACTICE

1. Unless otherwise specified where reference is made to standards and codes of practice, the current version as published on the date of this Bill, including any amendments, shall apply.

2. Structural timber shall comply with C.P.112, Part 2 and laminated rafters shall in addition comply with B.S. 4169.

02 SPECIALIST SUPPLIERS

1. The contractor shall nominate specialist suppliers for the laminated members. The appointment of these suppliers shall be subject to the Architect's approval.

03 FUNCTIONS OF THE MAIN CONTRACTOR AND SUPPLIER OF LAMINATED MEMBERS

1. The supplier of the laminated members shall supply and deliver all timber sections in plain pieces of adequate length.

2. The main contractor shall erect these members on site in accordance with this specification.

04 TERMINOLOGY AND SPECIES NAMES

1. Timber terms are those of B.S. 565 and timber species are the standard names in B.S. 881 and 589.

05 TYPE AND GRADE OF TIMBER TO BE USED

1. General structural timber shall fall within group species S2 in accordance with Table 9 C.P. 112 and shall be stress graded to SS Grade in accordance with B.S. 4978 "Timber Grades for Structural Use" irrespective of any other grading carried out at source.

2. Laminated beams shall be formed with laminations graded LB in accordance with B.S. 4978 or Appendix A, C.P. 112 : Part 2, and each member shall be manufactured from single grade laminations.

06 MARKING OF TIMBER

1. The species group and stress grade shall be marked on all timber. All timber re-sawn from stress graded stock shall be regraded before use.

07 DIMENSIONS

1. Timber dimensions in general, which are shown on the drawings or referred to elsewhere, shall be basic sawn sizes unless otherwise indicated or where the details dictated otherwise. In particular member sizes shown for all laminated beams are finished sizes.

08 TOLERANCES

1. The permissible dimensional deviations for timber work generally shall be as specified in C.P. 112: Part 2, Clause A4, and B.S. 4471 : Part 1.

09 PLANE AND REGULARISED TIMBER

1. Reductions from basic sawn sizes and permissible deviations shall be as given in B.S.4471.

2. After planing, softwood already graded to B.S. 4978 shall be re-marked in accordance with paragraph 12 of that standard.

10 FINISH TO TIMBER

1. All timber exposed to view shall be planed and sanded on four sides prior to fabrication. In the case of laminated beams all machining is to be done after gluing. No cutter or sanding marks are permissible. In exposed surfaces voids shall be filled, glued inserts shall be selected with care to match grain and colour.

2. Outside laminations shall be free from loose knots and open knot holes. The timber for outside laminations shall be selected with reasonable care to match colour and grain at edge points.

11 LIMITS TO DEFECTS FOR CONSTRUCTIONAL PURPOSES

1. In the process of assembly and construction, the appropriate stress graded softwood shall be selected so that no defect permitted by such grading prejudices the strength of the completed structure at bearing joints and other assemblies.

12 LIMITS TO DISTORTION

1. Any piece which is bowed, sprung, twisted or cupped in excess of the limits set out in B.S. 4169 shall be rejected.

13 PRESERVATIVE TREATMENT

1. Timber members shall be pressure impregnated with an approved preservative applied in accordance with the recommendations of B.S. 5268 : Part 5 "Preservation Treatment for Construction Timbers".

2. In the case of laminated beams and other exposed timbers, the Architect's approval shall be obtained before the application of the preservatives.

3. Where further cutting is required to previously treated compounds, preservative shall be applied to those ares so cut to ensure that the entire member is treated before incorporation in the works.

14 COMPATIBILITY OF PRESERVATIVE AND GLUE

1. The contractor shall ensure the compatibility of the preservative, glue and structural timbers retardant coating and he shall also ensure that no corrosive effects to metal plates, connectors or bolts shall result from their use.

15 MOISTURE CONTENT

1. The moisture content at the time of fabrication of the laminated beams shall not exceed 18% and shall comply with the glue manufacturer's recommendations. Adequate measures shall be taken to ensure that the moisture content of the laminated beams does not rise above 20% during transportation, storage or erection.

16 JOINTING OF LAMINATIONS

1. End jointing of individual laminations shall be carried out using finger-joints or scarf-joints. No butt jointing of laminations shall be used. The jointing shall be staggered so that coinciding joints shall be separated by two full laminations.

2. The efficiency rating of the joint should be at least 0.75.

17 GLUE

1. The glue to be used shall be of Type WBP in accordance with B.S. 1204 : Part 1. Care shall be taken to ensure that the glue is stored, mixed and spread strictly in accordance with the glue manufacturers' instructions.

18 SURFACES TO BE GLUED

1. All surfaces to be glued shall be clean and free from dirt, dust, sawdust, oil and any other contaminating substances. Surfaces should be glued as soon as possible after they have been prepared. The surfaces to be joined shall be flat and any unevenness on them should not exceed 0.4mm in depth or height.

19 CURING PERIOD

1. All laminated member shall be stored at a suitable temperature for the curing period in accordance with the glue manufacturers' instructions.

20 WORKS APPLIED PROTECTIVE COAT

1. After curing, the laminated beams should be given one protective coat of varnish, to be approved by the Architect.

21 PROTECTION AND STORAGE OF STRUCTURAL TIMBER

1. Timber members shall at all times, be protected from damage, staining, decay, insect attack and avoidable exposure to the weather.

22 PROTECTION AND STORAGE OF STRUCTURAL TIMBER

1. The contractor shall prepare a level clean site for the storage of the timber members.

2. The members shall be stacked on timber shims such that no bowing or damage takes place and they shall be protected against exposure to rain and extremes of temperature.

23 PROTECTION AND STORAGE OF LAMINATED BEAMS

1. All steel plates required in the roof construction shall be hot dip galvanised to B.S. 729.

2. All steel bolts shall be electrogalvanised to B.S. 3383 : Part 2 unless specified otherwise.

24 INSPECTION OF TIMBER MEMBERS

1. The contractor shall afford the Architect or his representative every assistance in the inspection of timber members during all stages of fabrication and erection. Any member found to be, or suspected of being defective, shall be replaced or test loaded to the Architect's satisfaction at the contractor's own expense.

2. The contractor shall keep an approved type of moisture meter in his works for the control of the moisture content and for the use of the Architect at the time of inspection.

25 TESTING OF MEMBERS

1. The Architect may require sample members to be test loaded to confirm the adequacy and compliance with specification. Such testing where required shall be carried out by the contractor, or approved testing authority, in accordance with the relevant code of practice and to the Architect's satisfaction.

26 HANDLING OF MEMBERS

1. Care shall be taken at all times to ensure that the members suffer no damage or overstressing while they are being loaded, unloaded or lifted into position. Special care shall be taken to avoid damage to the sides and arrisses of members by lifting slings.

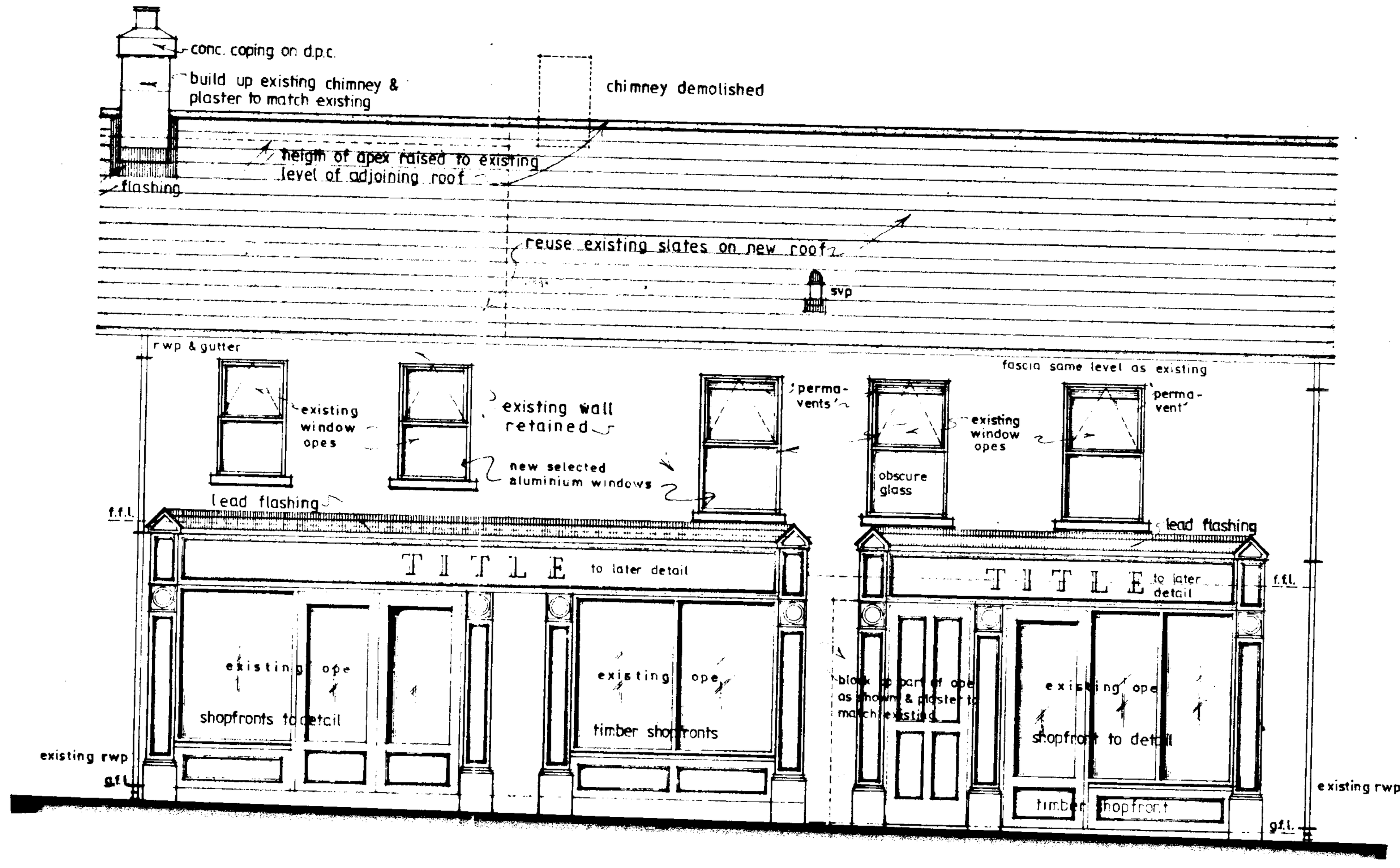
2. In all cases the suppliers' recommendations shall be sought and complied with as a minimum precaution.

27 ERECTION OF MEMBERS

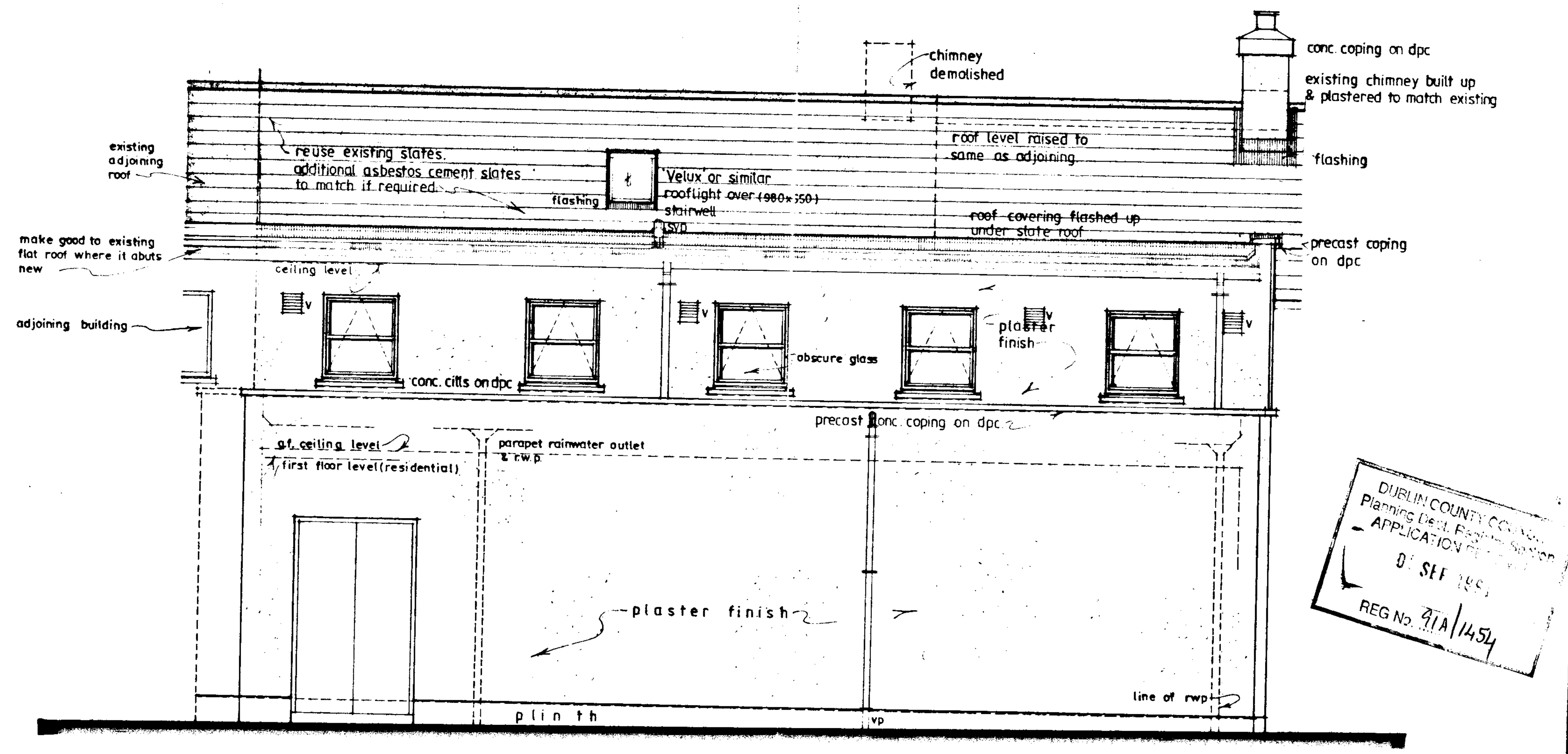
1. The contractor shall at all times have a competent foreman in charge of the erection of the timber members who shall ensure that the work is carried out in accordance with the drawings, the aforementioned specifications and the suppliers recommendations. Any irregularities or inconsistencies shall be brought to the Architect's attention.

28 TEMPORARY BRACING

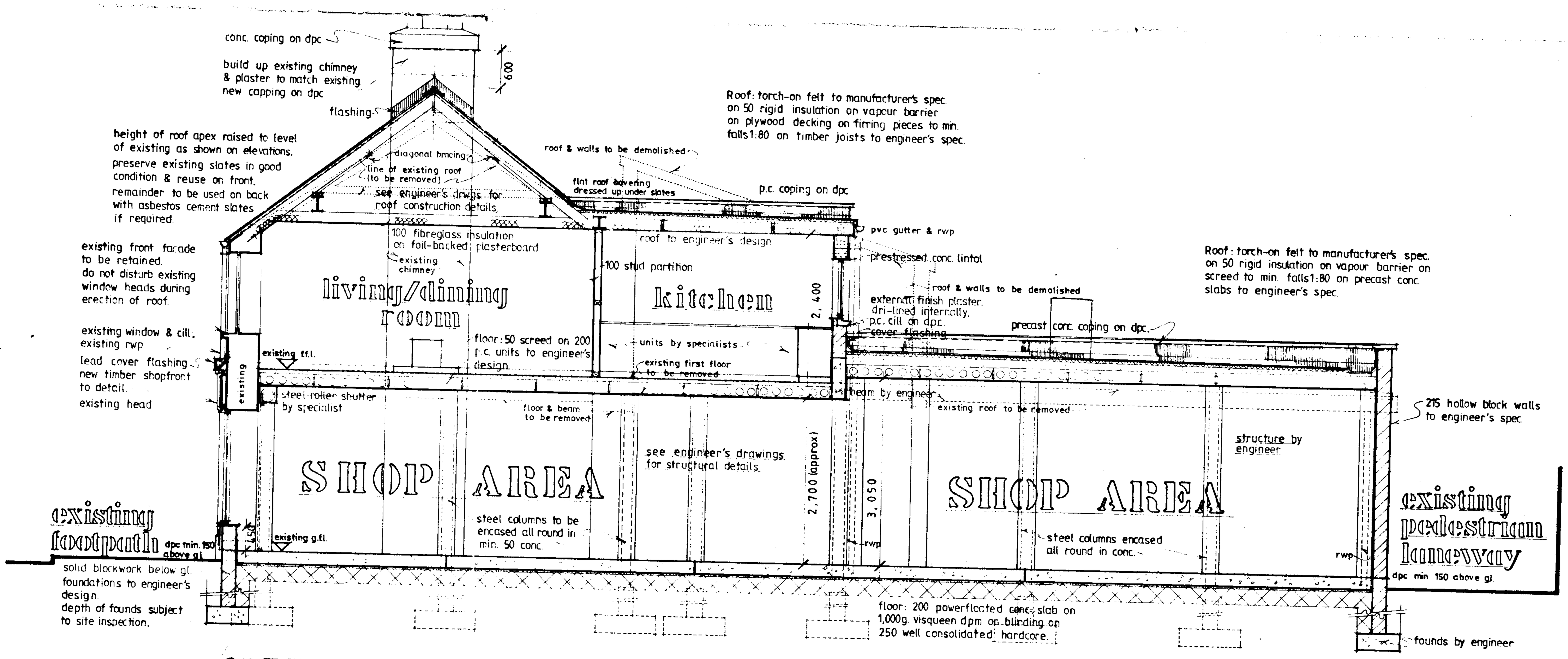
1. The contractor shall be responsible for the stability of the partially completed structure. He shall provide and fix, in addition to the permanent bracing, any temporary bracing necessary for the stability of the partially completed structure. He shall arrange his programme of erection so that no part of the structure is unduly exposed to possible loading in an unpropped or partially propped state.



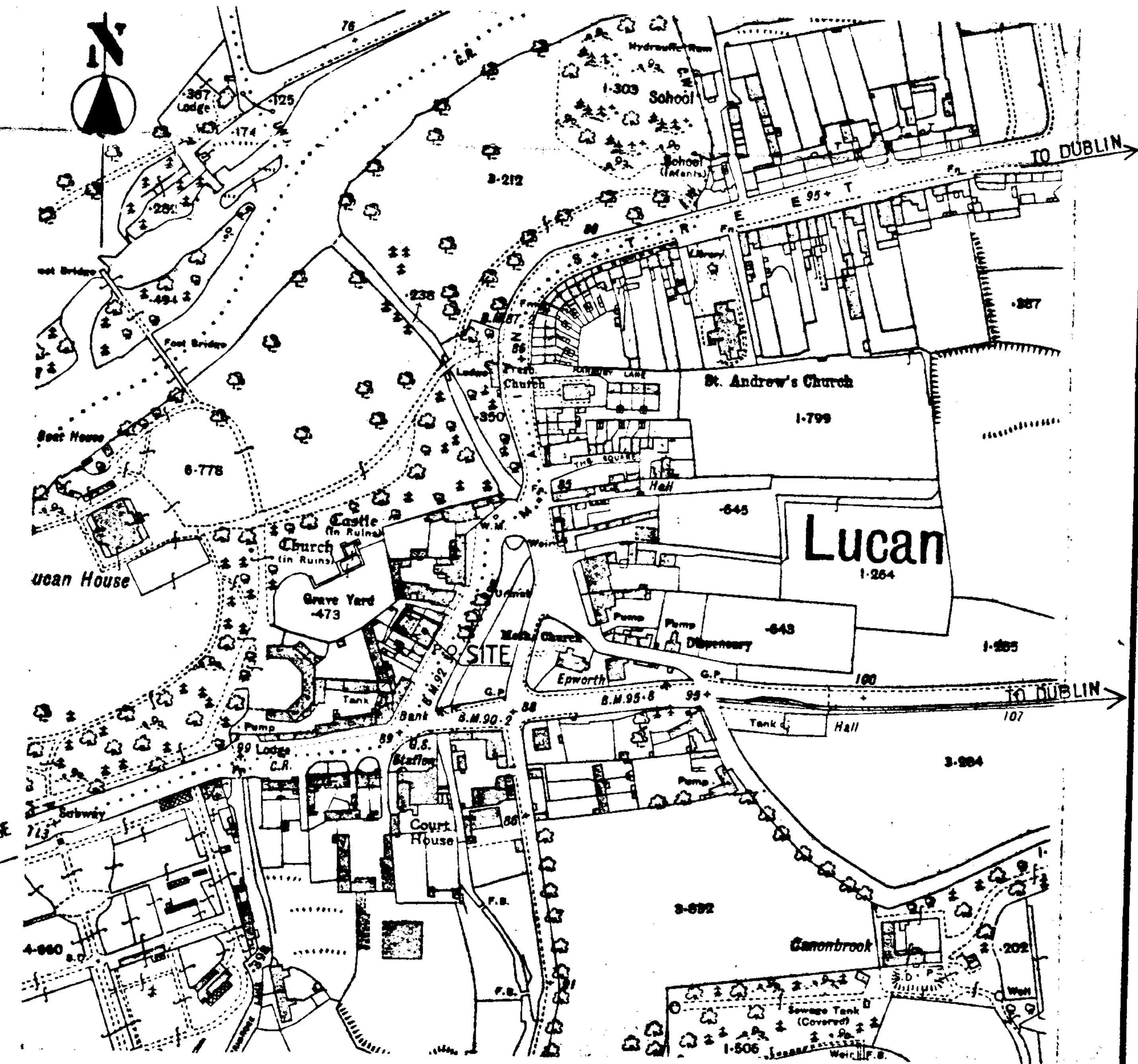
FRONT ELEVATION



BACK ELEVATION



SECTION A-A



LOCATION MAP

Scale 1: 2,500

CO. DUBLIN O.S. SHEET NO. 17-6

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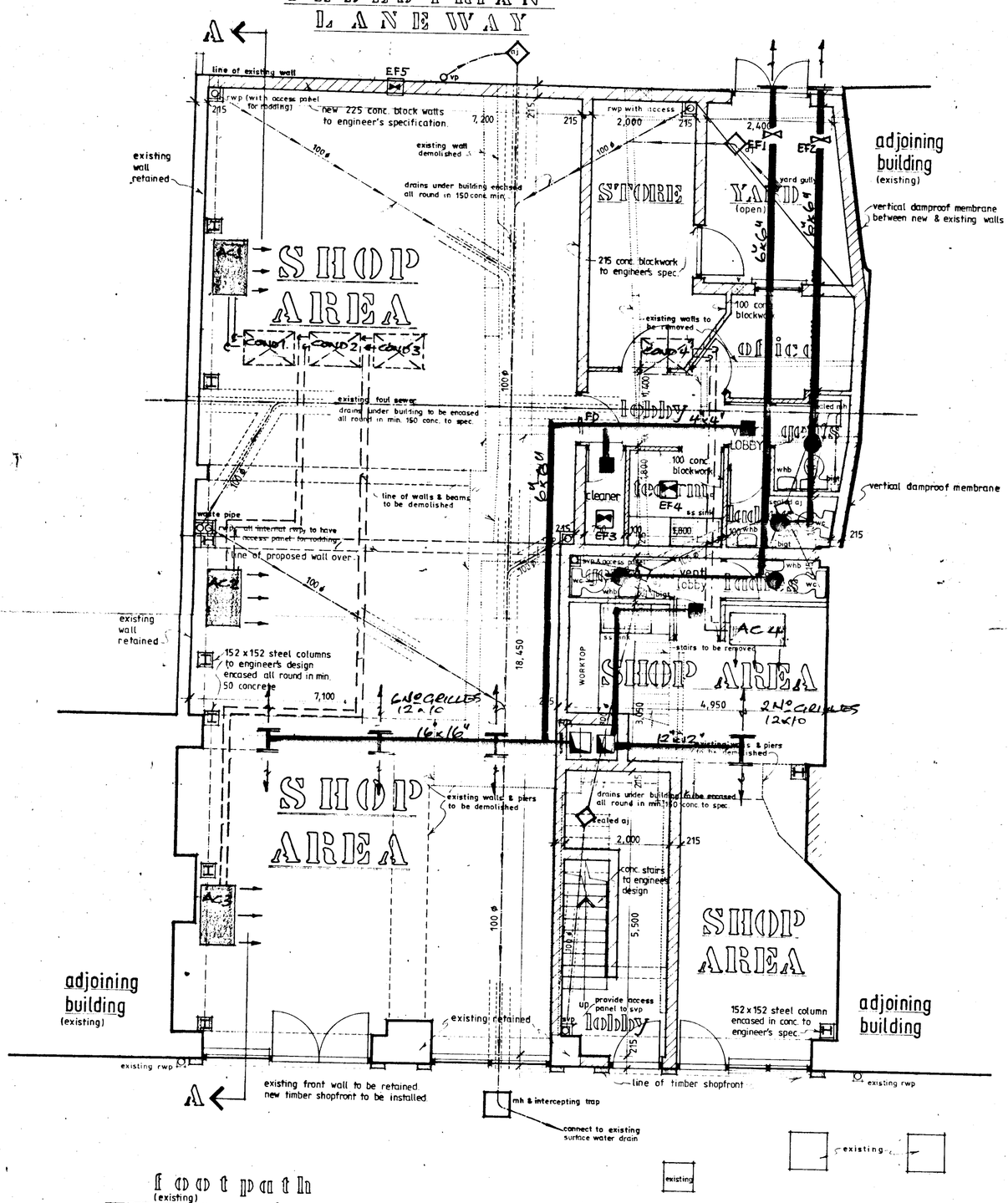
ARCHITECTS & CONSULTANTS
Dodder Park Road, Rathfarnham, Dublin 14. Tel. 900637-8
DROGHEDA · DUNDALK · NAVAN · Fax. 907633

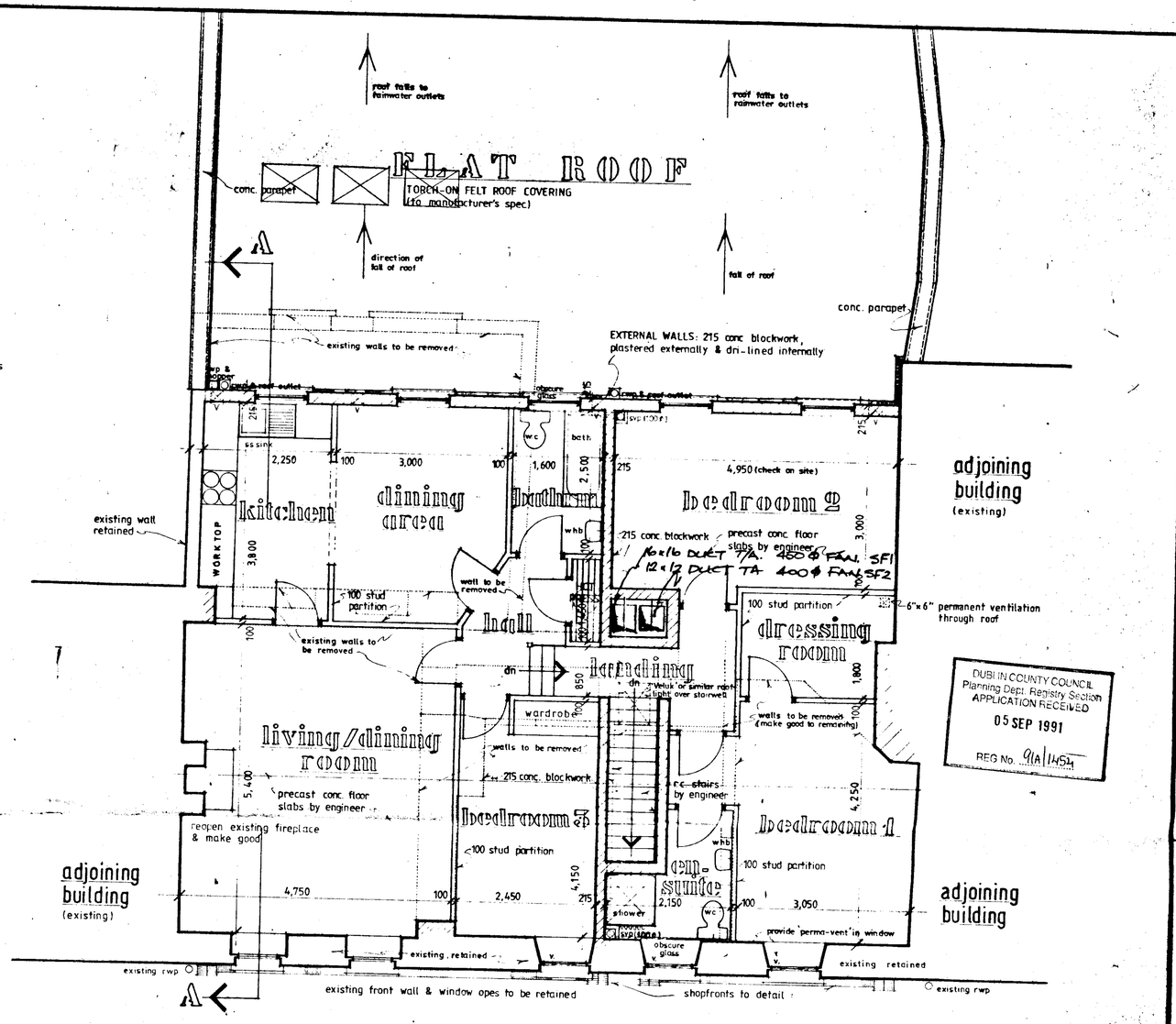
Figured dimensions only to be taken from this drawing.
All dimensions to be checked on site before work commences.

No	Revision	Date

Client	MICHAEL TOOLAN
Project	PROPOSED ALTERATIONS TO PREMISES, MAIN STREET, LUCAN, CO. DUBLIN
Title	WORKING DRWGS.-SECTION, ELEVATIONS, LOCATION MAP
Scale	1:50, 1:2,500
Date	AUGUST '91
Drawn	BM
Job No.	12349
Drawing No.	7



GROUND FLOOR PLAN



FIRST FLOOR PLAN

DUBLIN COUNTY COUNCIL
Planning Dept. Registry Section
APPLICATION RECEIVED
05 SEP 1991
REG No. 91A/1454

Figured dimensions only to be taken from this drawing
All dimensions to be checked on site before work commences

No	Revision	Date
A	DUCTING LAYOUT	

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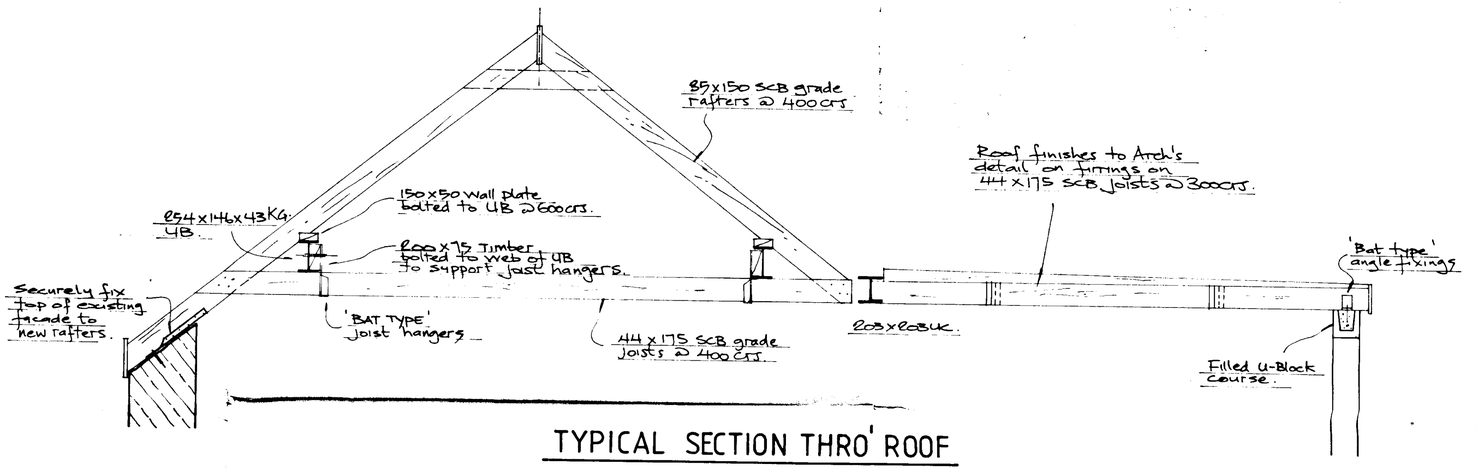
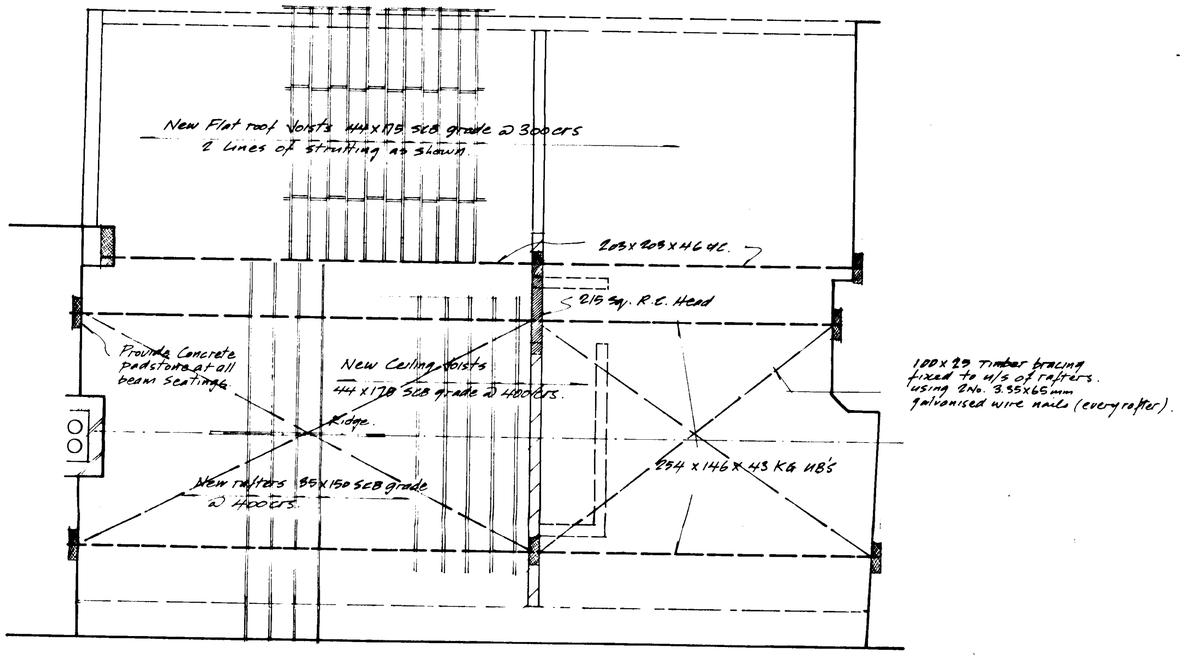
DROGHEDA · DUNDALK · NAVAN Fax. 907833

Client: MICHAEL TOOLAN	Scale: 1:50
Project: PROPOSED ALTERATIONS TO PREMISES, MAIN STREET, LUCAN, CO DUBLIN.	Date: AUGUST '91
Title: AIR CONDITIONING & VENTILATION	Drawn: BM
	Job No. 12349
	Drawing No. 8



TYPICAL SECTION THRO' ROOF



ROOF PLAN.

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TELEPHONE 766343+762398
FACSIMILE 610825

PROJECT
Development at Main st. Lucan for Michael Toolan

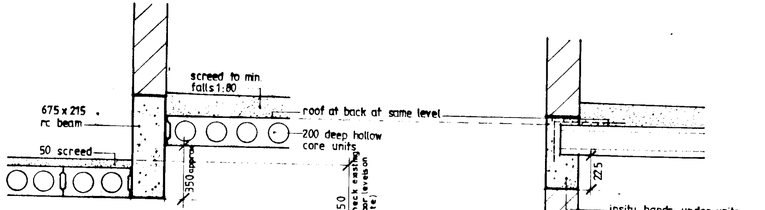
DRG TITLE
ROOF PLAN

ARCHITECT
LYNCH • O'TOOLE • MARTIN

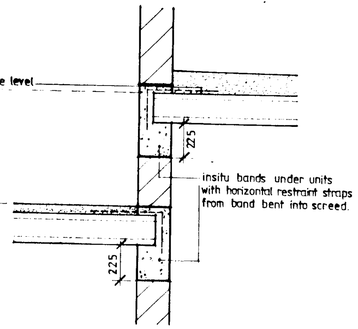
SCALE 1:50 1:25

DATE JULY 1991

91158 — 4



Revised section 6-6



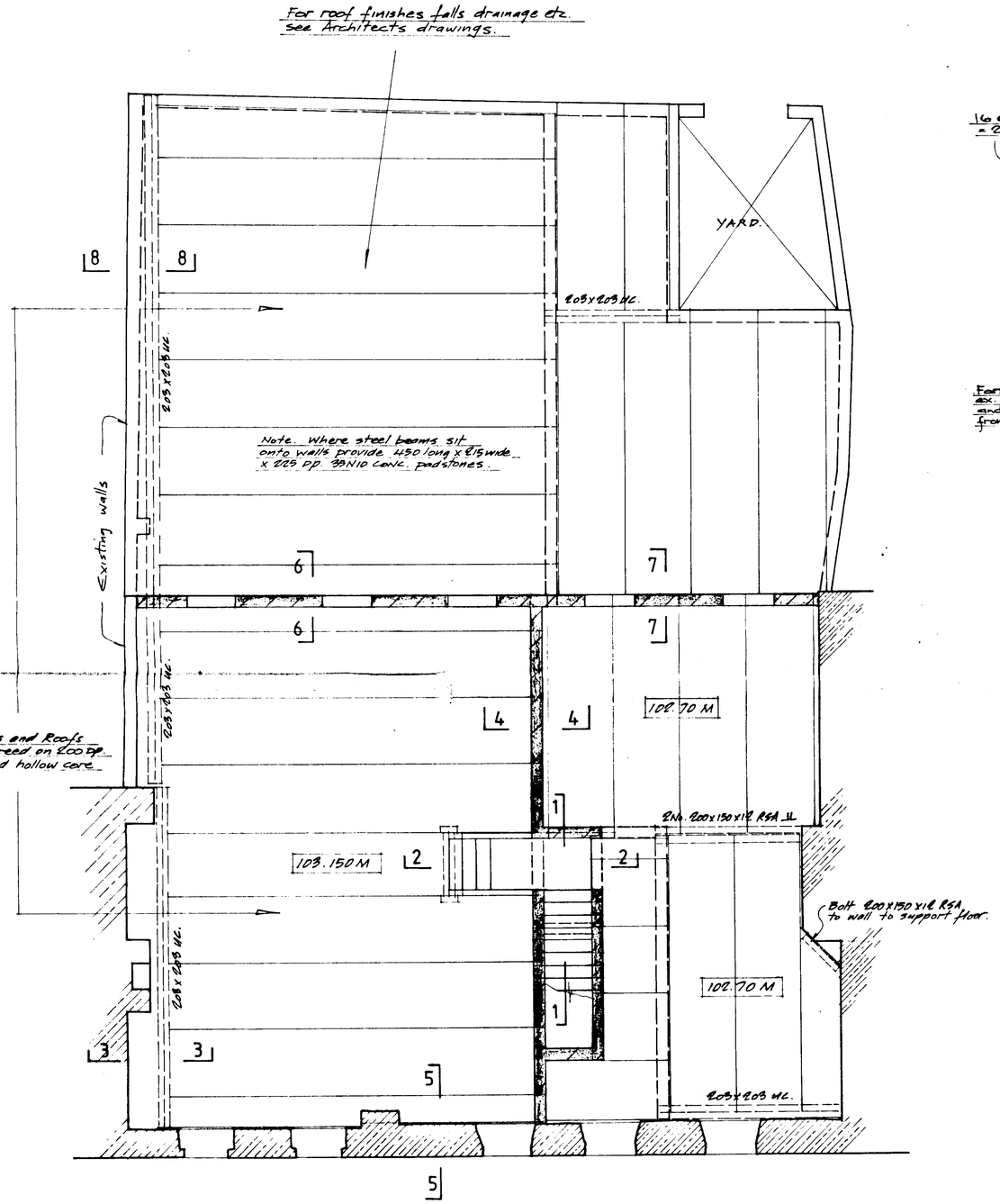
Revised section 7-7

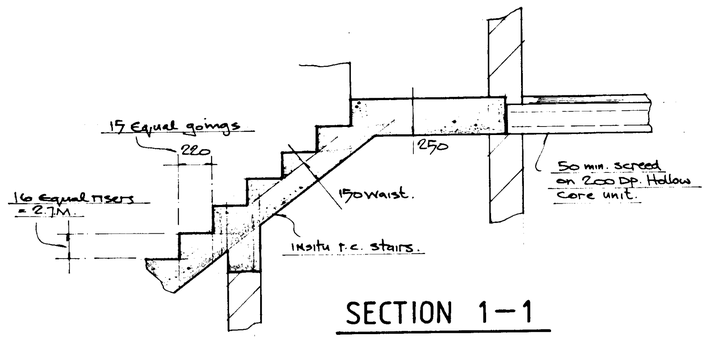
Note: this drawing to be read in conjunction with architects' drawing no. 12349-7 & engineers' drawing no. 91158-3.

All dimensions to be checked on site before work commences.

DEVELOPMENT AT MAIN ST.
LUCAN FOR MICHAEL TOOLAN.

Scale 1:20
Date AUGUST '91
Drawn BM





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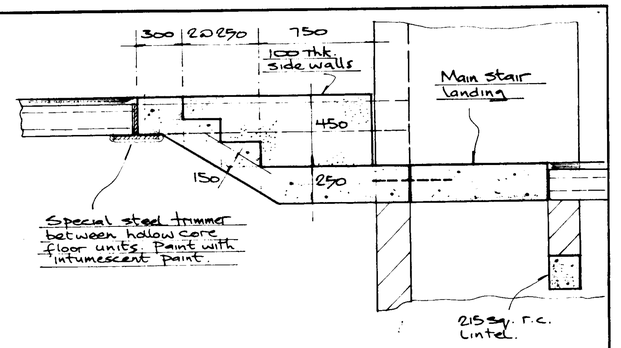
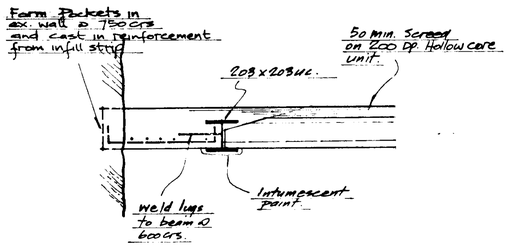


SECTION 2 – 2



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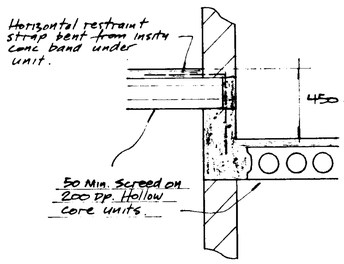
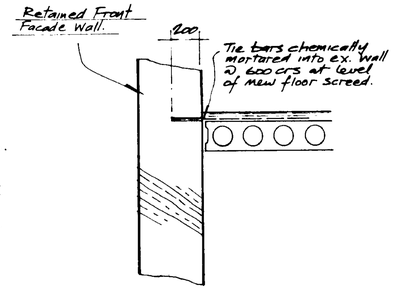
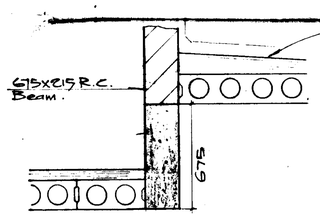


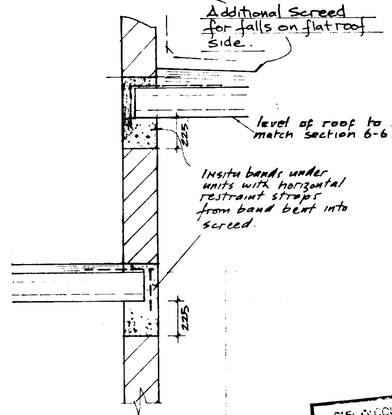
SECTION 4 – 4



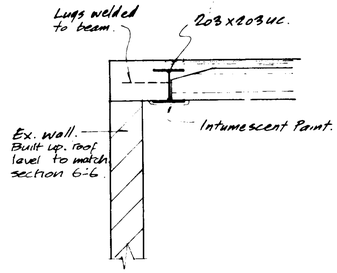
SECTION 5-5



SECTION 6-6



SECTION 7-7



SECTION 8-8

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PROJECT
Development at Main st. Lucan for Michael Toolan

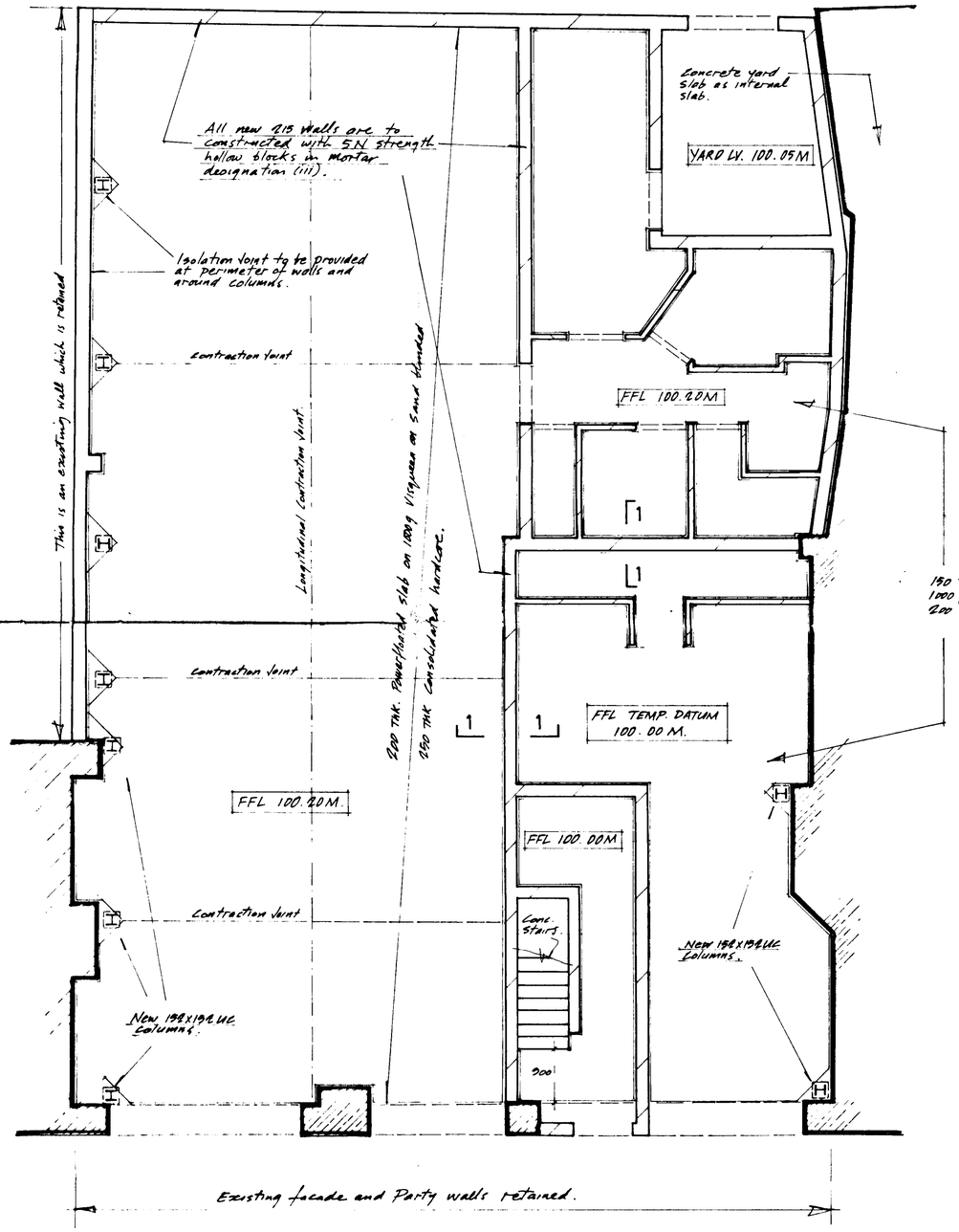
DRG TITLE
First Floor Plan.

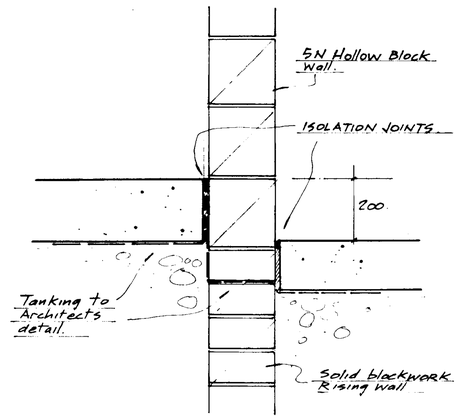
ARCHITECT
LYNCH• O'TOOLE •MARTIN

SCALE 1:50 1:20

DATE JULY 1991

91158 – 3





SECTION 1 – 1

150 Thk Power-floated slab on 1000 g Visqueen on Sand blinded 200 thk Consolidated hardcore.

DBFL CONSULTING
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TELEPHONE 766343 • 762398
FACSIMILE 610825

PROJECT
Development at Main st. Lucan for Michael Toolan

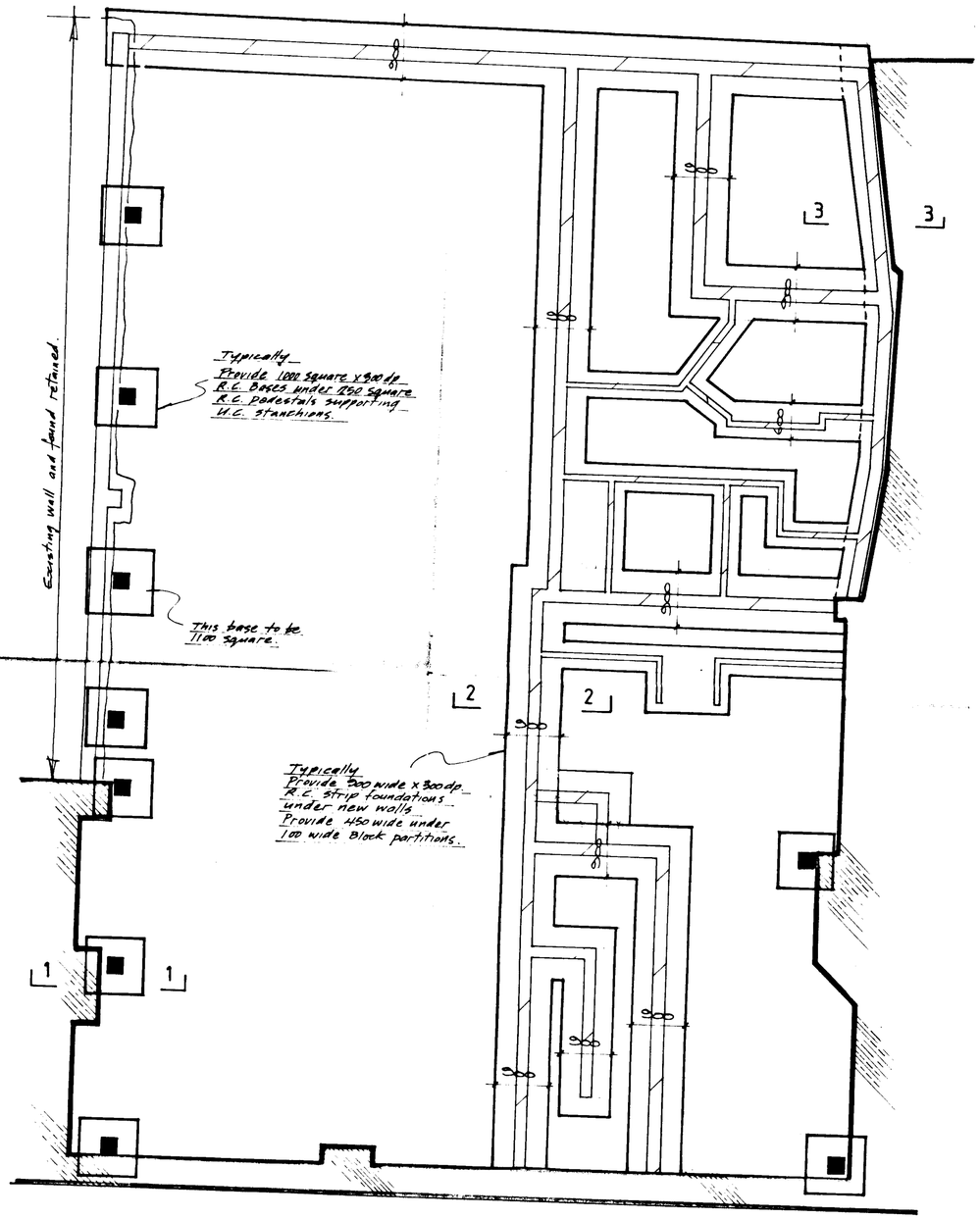
DRG TITLE
Ground Floor Plan

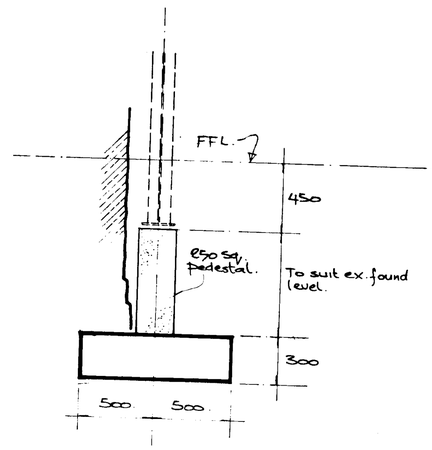
ARCHITECT
LYNCH • O'TOOLE • MARTIN

SCALE 1:50 1:10

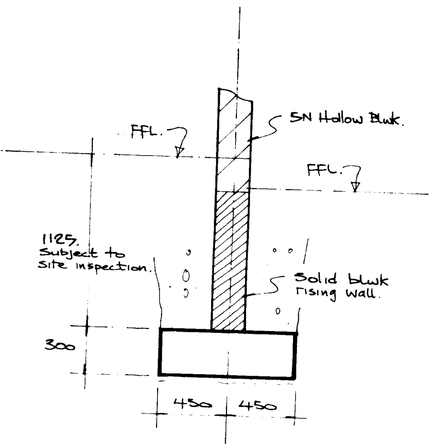
DATE JULY 1991

91158 – 2

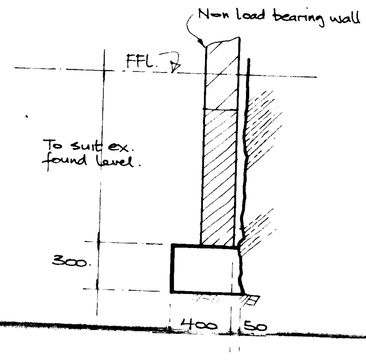




SECTION 1 1



SECTION 2 2



SECTION 3–3

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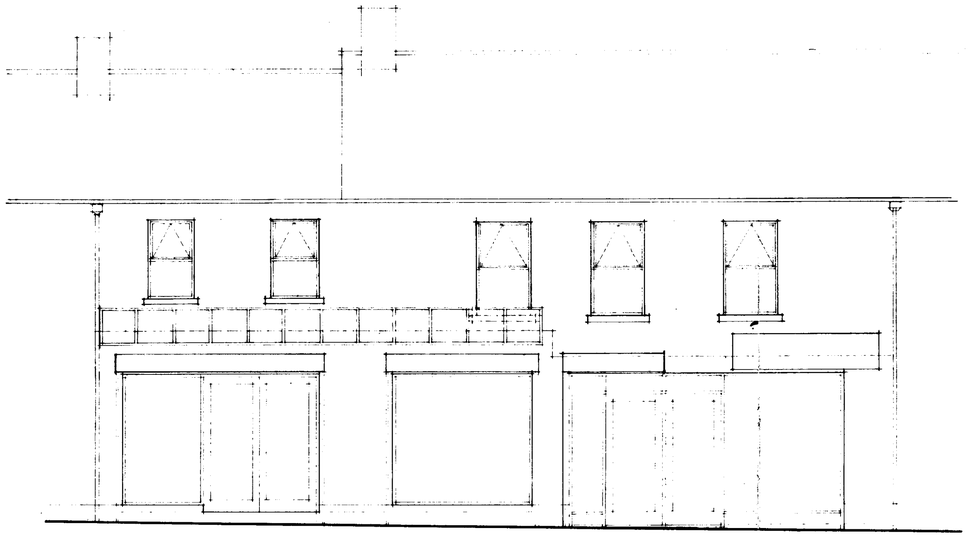
PROJECT
Development at Main st.
Lucan for Michael Toolan

Foundation Plan

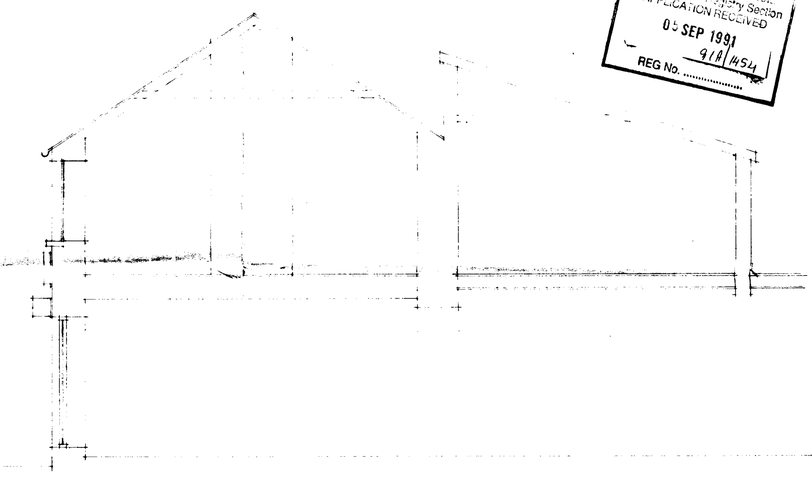
ARCHITECT
LYNCH • O'TOOLE • MARTIN

1:50 1:20
DATE JULY 1991

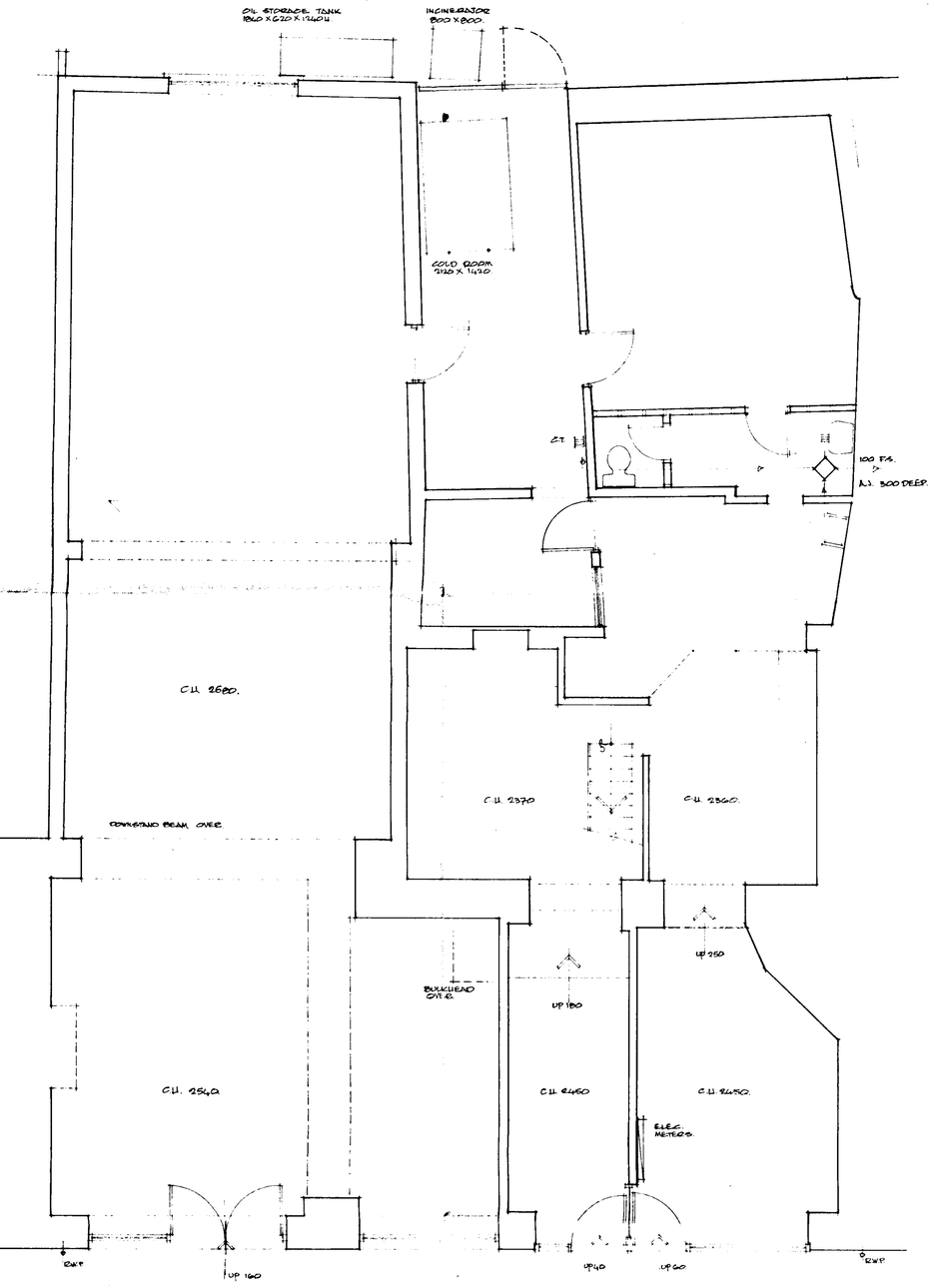
91 158 – 1



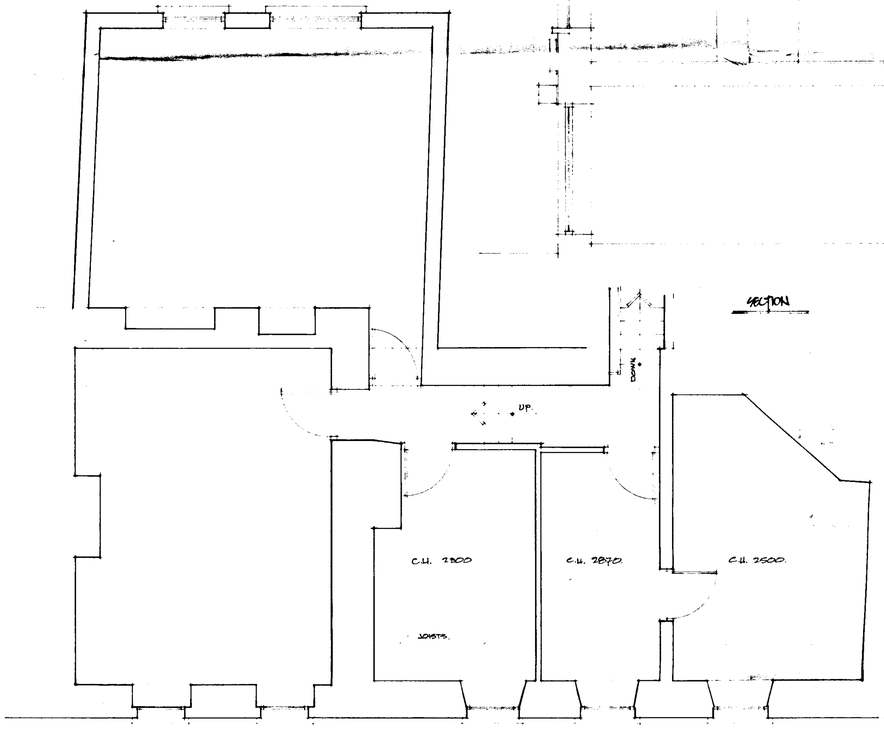
FRONT ELEVATION



SECTION



SECOND FLOOR PLAN



FIRST FLOOR PLAN

Figured dimensions only to be taken from this drawing.
All dimensions to be checked on site before work commences.

No	Revision	Date

LYNCH · O'TOOLE · WALSH
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1 Woodside Drive, Rathfarnham, Dublin 14. Tel. 900637-8
DROGHEDA DUNDALK NAVAN

Client: MICHAEL TOOLAN	Scale 1/50.
Project: PROPOSED ALTERATIONS AT MAIN STREET LUCAN	Date SEPT. 1990.
	Drawn E.M.O.
Title: SURVEY PLAN.	Job No. 1334
	Drawing No. 101