BYE LAW APPLICATION FEES

REF. NO.: 92A/0047 CERTIFICATE NO.: 17231 B

PROPOSAL: Internal office Partition

LOCATION: Unit 3 Broomhill Terrace, Teeagh Industrial Estate

APPLICANT: Ceretech Ireland

Log 15/7/91

	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					
B	Domestic Ext. (Improvement/ Alts.)	@ £30					
C	Building for office or other comm. purpose	@ £3.50 per M^2 or £70		~~NIL~~			
D	Building or other structure for purposes of agriculture	@ £1.00 per M^2 in excess of 300 M^2 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	£70	Paid in full. NIC £70			

£70 Treasurer Fees
Many thanks CRT 27671

Column 1 Certified: Signed: _____ Grade: _____ Date: _____

Column 1 Endorsed: Signed: _____ Grade: _____ Date: _____

Columns 2,3,4,5,6 & 7 Certified: Signed: [signature] Grade: S.O Date: 17/1/92

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

LOCAL GOVERNMENT (PLANNING AND DEVELOPMENT) ACTS, 1963 TO 1982

ASSESSMENT OF FINANCIAL CONTRIBUTION

REG.REF.: 92A/047

CONT. REG.:

SERVICES INVOLVED: WATER/FOUL SEWER SURFACE WATER

AREA OF SITE:

FLOOR AREA OF PRESENT PROPOSAL: 3553 Ft² J.Y. 17/1/92.

MEASURED BY:

CHECKED BY:

METHOD OF ASSESSMENT:

TOTAL ASSESSMENT:

MANAGER'S ORDER NO: P/ / DATED

ENTERED IN CONTRIBUTIONS REGISTER:

DEVELOPMENT CONTROL ASSISTANT GRADE

PLANNING APPLICATION FEES

Reg. Ref....92A/0047 Cert. No....2+671.....

PROPOSAL.....Internal..office....development.....

LOCATION....Unit....3..Broomhill...Terrace,....Tallaght....Industrial..Estate

APPLICANT...Aratech..Ireland.....

CLASS	DWELLINGS/AREA LENGTH/STRUCT.	RATE	AMT. OF FEE REQ.	AMOUNT LODGED	BALANCE DUE	BALANCE PAID
1	Dwellings	@£32				
2	Domestic	@£16				
3	Agriculture	@50p per m2 in excess of 300m2. Min. £40				
4	Metres 330.0m²	@£1.75 per m2 or £40	£577.50	647.50	£70 Overpayment transferred to B/E law case 17231B.	
5	x .1 hect.	@£25 per .1 hect. or £250				
6	x .1 hect.	@£25 per .1 hect. or £40				
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				

Column 1 Certified:Signed:.....Grade..D.T.O...Date..17/1/92.....

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

Columns 2,3,4,5,6 & 7 Certified:Signed:.....Grade..S.O...Date..17/1/92.....

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

Geraldine Boothman.

SS only.

@

Register Reference : 92A/0047 Date : 21st January 1992

Development : Internal office development and ancillary services

LOCATION : Unit 3, Broomhill Terrace, Tallaght Industrial Estate
Co. Dublin

Applicant : Aritech Ireland

App. Type : PERMISSION/BUILDING BYE-LAW APPROVAL

Planning Officer : G.BOOTHMAN

Date Recd. : 15th January 1992

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
27 JAN 1992
SAN SERVICES

Date received in Sanitary Services .....

.....

FOUL SEWER

Available.
Any de effluent other than domestic effluent to be subject to the provisions of the Water Pollution Act.

PLANNING DEPT.
DEVELOPMENT CONTROL
Date 23.03.92
Time 11.00

.....

SURFACE WATER

Available.
Surface water run-off to be subject to the provisions of the Water Pollution Act.

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

E O'Sullivan 6/3/92.

J.F. 6/3/92

Register Reference : 92A/0047

Date : 21st January 1992

.....

ENDORSED_____ DATE_____

WATER SUPPLY... NOT APPLICABLE .....

R. J. Spain
19/2/92

17/2/92

Refer to C.F.O.

.....

ENDORSED [signature] DATE 9/3/92

PLANNING DEPT.
DEVELOPMENT CONTROL
Date 23.03.92
Time 11.00

P/934/92

CN 534 Dd 1150

CONTRIBUTION:
Standard: nil
Reduced: [illegible]
S.S. nil
Ord: [illegible]
Ord: [illegible]
SECURITY: [illegible]
Bond / C.I.F.:
Bond:

COMHAIRLE CHONTAE ÁTHA CLIATH

Record of Executive Business and Manager's Orders

BELGARD

Register Reference : 92A/0047 Date Received : 15th January 1992

Correspondence Name and Address : Dexion Ireland Limited, Unit 15, Clondalkin Industrial Estate, Clondalkin, Dublin 22

Development : Internal office development and ancillary services

Location : Unit 3, Broomhill Terrace, Tallaght Industrial Estate Co. Dublin

Applicant : Aritech Ireland

App. Type : Permission

Zoning : E "To provide for industry and related uses"

Floor Area : 370 Sq.metres

(RO'D/CM)

Report of the Dublin Planning Officer, dated 28th February, 1992.

This is an application for Permission for internal office development and ancillary services at Unit 3, Broomhill Terrace, Tallaght Industrial Estate, for Aritech Ireland Ltd.

The site is zoned 'E' - "to provide for industry and related uses" in the 1983 Development Plan.

PLANNING HISTORY:

Reg. Ref. 89A/456: Permission was granted for 4 no. factory or warehouse units with associated offices at Broomhill Road, Tallaght, for Streamstown Investments Ltd. on 11th May, 1989.

The current application proposes to convert 370sq. metres of warehouse space into Administration Offices. This involves the installation of ground floor and mezzanine level partitioning in the existing warehouse area. A suspended ceiling is proposed over the entire area and underneath the mezzanine level. On the upper mezzanine two offices are proposed with the remainder located at ground floor. The existing stores area which is approximately ~~1000sq. ft.~~ 330 m² is to be retained.

The applicant, Aritech Ireland Ltd. is the largest manufacturer of Burglar

COMHAIRLE CHONTAE ÁTHA CLIATH

Record of Executive Business and Manager's Orders

Reg.Ref: 92A/0047

Page No: 0002

Location: Unit 3, Broomhill Terrace, Tallaght Industrial Estate Co. Dublin

Alarm Equipment in the country. The firm employs 135 people in the Tallaght area and operates out of three buildings, two of which are located in Broomhill Drive while the third, the subject of the current application, is located in Broomhill Terrace. The factory and warehousing units are based in Broomhill Drive while the distribution and storage operation is conducted from the current site.

The applicant has been operating out of the site premises for approximately 4 years. During this period the building has been used for office and storage purposes to facilitate the distribution aspect of the business. The applicant now wishes to officially regularise this situation.

office development is not normally permissable in an industrial zone. However, given the particular nature of the applicants business, i.e. three inter-related units operating in close proximity to each other at Broomhill Estate, the size of the offices proposed and the significant area of storage which is to be retained in the building,

I recommend that a decision to Grant Permission be made under the Local Government (Planning and Development) Acts, 1963-1990, subject to the following (3) conditions:-

C O N D I T I O N S / R E A S O N S

01 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.
REASON:To ensure that the development shall be in accordance with the permission and that effective control be maintained.

02 That before development commences, approval under the Building Bye- Laws be obtained and all conditions of that approval be observed in the development.
REASON:In order to comply with the Sanitary Services Acts, 1878-1964.

03 That the requirements of the Chief Fire Officer be ascertained and strictly adhered to in the development.
REASON: In the interest of safety and the avoidance of fire hazard.

COMHAIRLE CHONTAE ÁTHA CLIATH

Record of Executive Business and Manager's Orders

Reg.Ref: 92A/0047

Page No: 0003

Location: Unit 3, Broomhill Terrace, Tallaght Industrial Estate Co. Dublin

Richard Cronin SEP
.....
for Dublin Planning Officer

28/2/92.

Endorsed:-.....
for Principal 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 : 5th March ~~FEBRUARY~~ 1992

.....
ASSISTANT COUNTY MANAGER/APPROVED OFFICER

to whom the appropriate powers have been delegated by order of the Dublin City and County Manager dated 18th January 1991.

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

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

NOTIFICATION OF DECISION TO GRANT PERMISSION
LOCAL GOVERNMENT (PLANNING AND DEVELOPMENT)ACTS 1963-1990.

Decision Order Number : P/ 0934 /92 Date of Decision : 5th March 1992

Register Reference : 92A/0047 Date Received : 15th January 1992

Applicant : Aritech Ireland

Development : Internal office development and ancillary services

Location : Unit 3, Broomhill Terrace, Tallaght Industrial Estate
Co. Dublin

Floor Area : Sq.Metres

Time Extension(s) up to and including :

Additional Information Requested/Received : //

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 in respect of the above proposal.

Subject to the conditions on the attached Numbered Pages.

NUMBER OF CONDITIONS:- 3 .....ATTACHED.

Signed on behalf of the Dublin County Council.....
for Principal officer

Date: 5/3/92

Dexion Ireland Limited,
Unit 15, Clondalkin Industrial
Estate,
Clondalkin,
Dublin 22

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

Reg.Ref. 92A/0047
Decision Order No. P/ 0934 /91

C O N D I T I O N S / R E A S O N S

01 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.
REASON:To ensure that the development shall be in accordance with the permission and that effective control be maintained.

02 That before development commences, approval under the Building Bye- Laws be obtained and all conditions of that approval be observed in the development.
REASON:In order to comply with the Sanitary Services Acts, 1878-1964.

03 That the requirements of the Chief Fire Officer be ascertained and strictly adhered to in the development.
REASON: In the interest of safety and the avoidance of fire hazard.

Cl/Sfb		
	22.3	Xh2

JUNE 1990

MASTER RANGE

L&D PARTITIONING SYSTEMS LTD

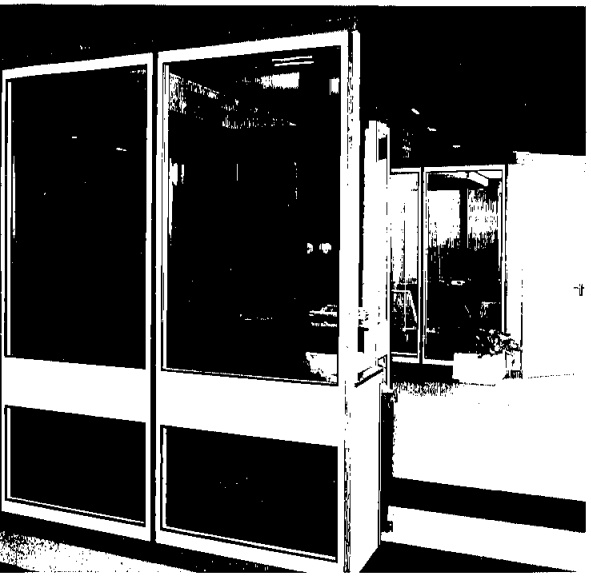
MASTER PARTITIONING SYSTEM

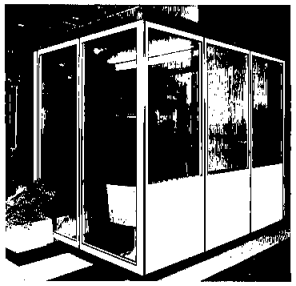
MASTER DOUBLE SKIN STEEL PANEL RANGE

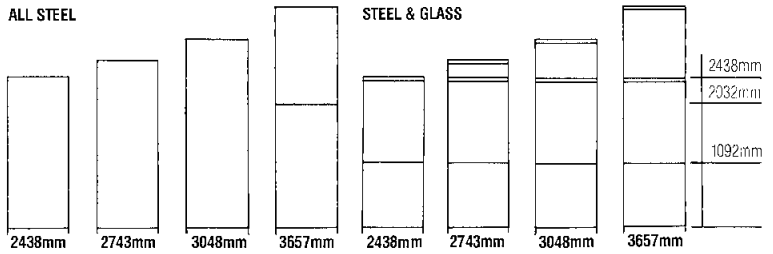
INTRODUCTION

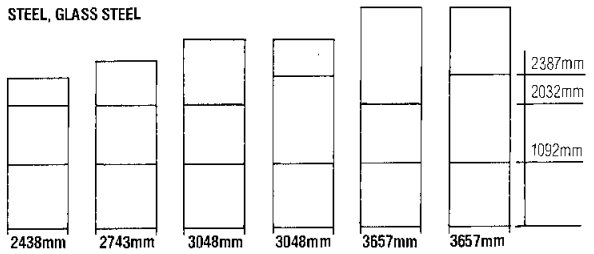
L & D Partitioning Systems Ltd, is one of the most established and successful manufacturers of steel monobloc partitioning in the UK. The name of L & D has long been associated with the virtues of quality and unparalleled service. These strengths have been enhanced further as the Company enters the opportunities of the 1990's. Rapidly expanding into Europe and worldwide markets, L & D guarantee that all product ranges are manufactured to quality assured procedures to ISO 9002/BS 5750 pt 2 1987.

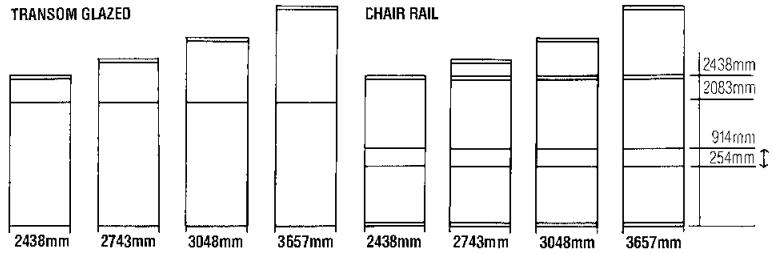
The Master Range is L & D's most popular steel monobloc partitioning system. Fully demountable and relocatable the insulated double skin steel panels offer a most comprehensive range of module variations to create a cost-effective and versatile system ideally suited for the working office environment.

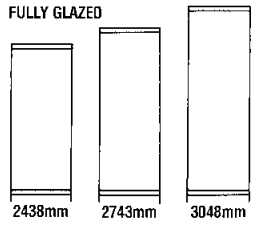












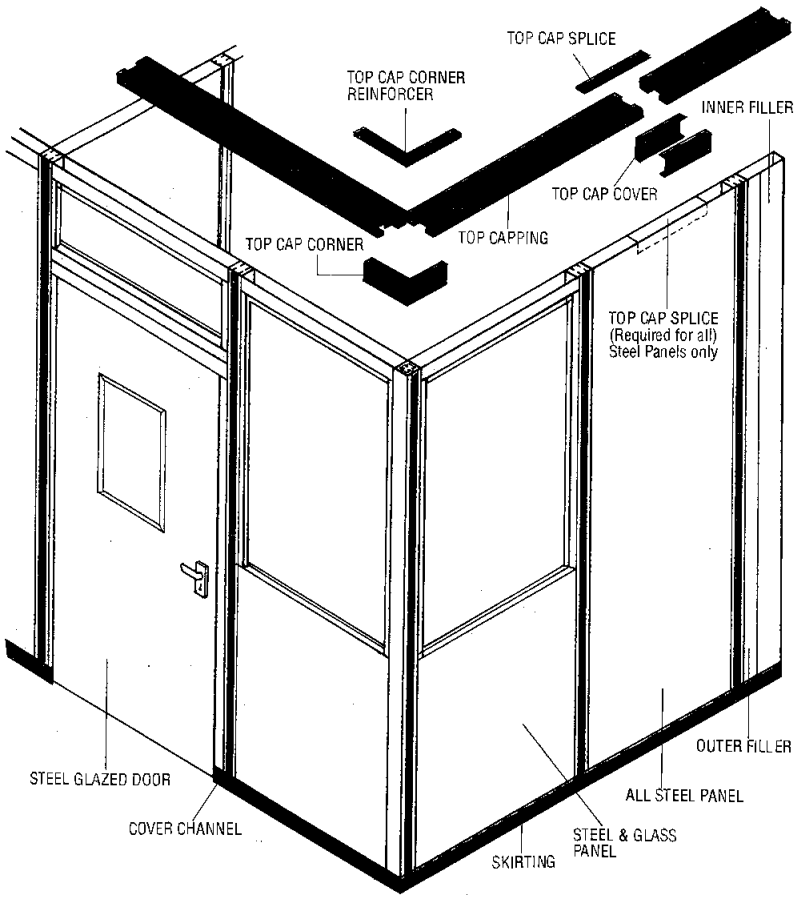
The Master range are constructed of cold-rolled double steel skins filled with an inert high density mineral wool insulation.

MASTER PARTITIONING SYSTEM

COMPOSITION AND MANUFACTURE

L & D's Master range of fully relocatable partitioning is available in solid and fully or part glazed elevations, and can either be ceiling fixed or free standing. The partitioning is manufactured from cold rolled steel sections, supporting two surface pressed steel panels, and the cavity between the panels is filled with inert high density mineral wool insulation.

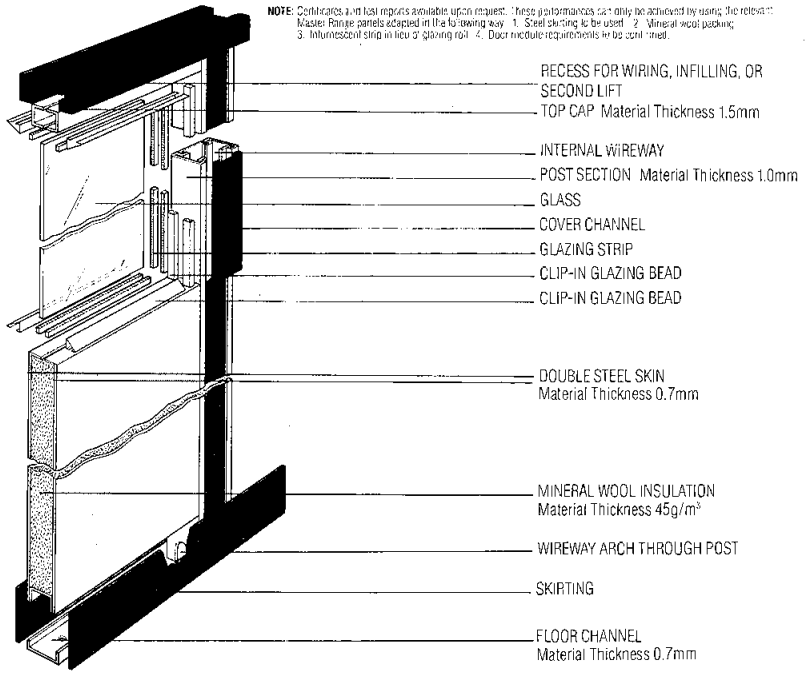
The panels are finished with an electrostatically applied epoxy powder coating.
The system is located and housed in a channel which is secured to the floor, and vertical panel posts providing rigidity and strength are securely locked together with specially designed cleats. The vertical posts extend below the panel base and are constructed in such a way as to provide the facility for a complete wirework management system both horizontally and vertically via the post sections. Detachable skirting and cover channels over the vertical posts provide easy access to wireways, and wiring can also be incorporated in the top capping of the system.

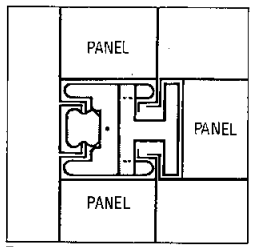


FIRE CERTIFICATION/PERFORMANCE

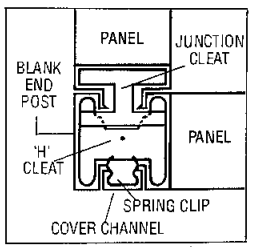
TYPE	RATING	TYPE	RATING	TYPE	RATING
All Steel Elevation With 14G steel skirting	BSW 476 Pt 8 30 Stab. 30 Integ. 12 Insul.	All Steel Elevation With steel double door solid leaf	BS 476 Pt 22 36 mins. Integ. 8 Insul.	All Steel Elevation 2 runs 50mm apart	BS 476 Pt 22 60 mins. Integ. 60 Insul.
All Steel Elevation With 22G steel skirting	BS 476 Pt 22 100 min. Integ. 12 Insul.	All Steel Elevation With single hinged door and GWPP glazed aperture	BS 476 Pt 22 53 mins. Integ. 8 Insul.	Fully Glazed Elevation (2 IGRs) Bottom aperture D/Glazed with GWPP and toughened glass remainder single glazed with GWPP	BS 476 Pt 22 30 mins. Integrity
Steel Glass Steel Elevation Steel to 1095 glass to 2032 steel 3048 and clip on skirting	BS 476 Pt 22 51 min. Integ. 5 Insul.	All Steel Elevation With steel double hinged doors and GWPP glazed apertures	BS 476 Pt 22 30 mins. Integrity	Fully Double Glazed Elevation 2500 high glazed with GWPP and filled with venitian blind between glass	BS 476 Pt 22 30 mins. Integrity

NOTE: Certificates and test reports available upon request. These performances can only be achieved by using the relevant Master Range panels adapted in the following way. 1. Steel skirting to be used. 2. Mineral wool packing. 3. Intumescent strip in lieu of glazing rail. 4. Door module requirements to be considered.

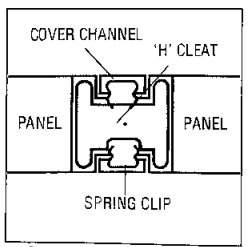




THREE WAY JUNCTION



TWO WAY CORNER JUNCTION



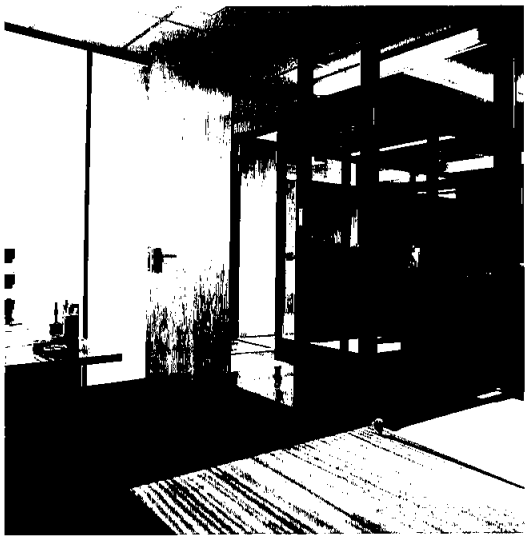
TWO WAY JUNCTION

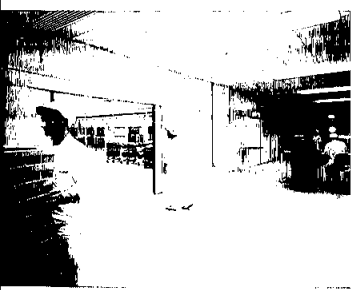
DOORS & ACCESSORIES

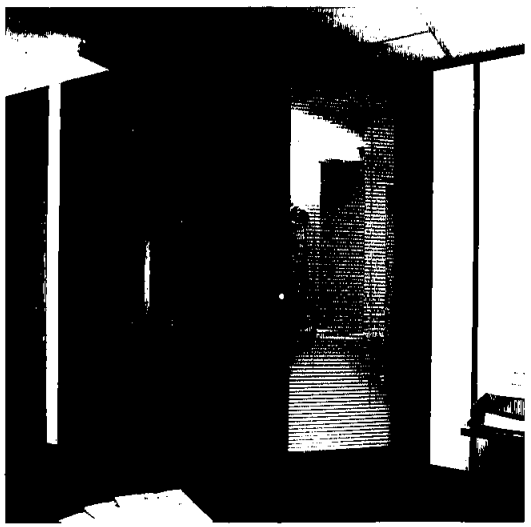
DOORS & ACCESSORIES

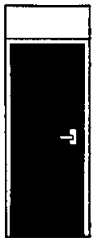
Versatile options within the Master range include full height doors constructed of double-skin steel, cellular or solid timber, and doors with matching overpanels to give a distinctive finishing touch. Good quality standard door furniture is provided as standard, and special level handles and knobsets are available to suit special requirements.

Easily accessible internal wireways are provided within the post sections, skirtings and heads for power and communication cables and built-in shelving systems to support various items of office equipment are available. Cut-outs for light switches, sockets, grills and air vents can be provided to order.

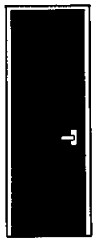




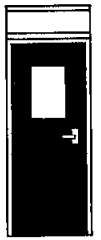




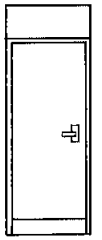
TIMBER SOLID



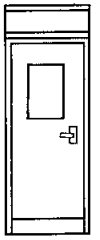
FULL HEIGHT TIMBER



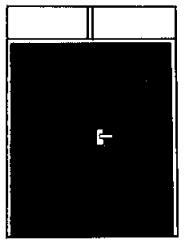
TIMBER GLAZED



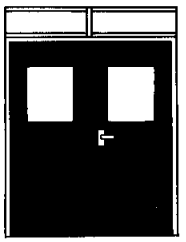
STEEL SOLID



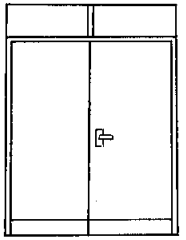
STEEL GLAZED



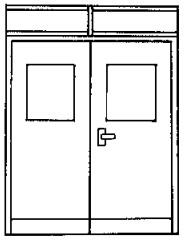
TIMBER SOLID



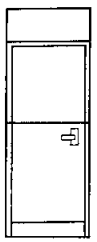
TIMBER GLAZED



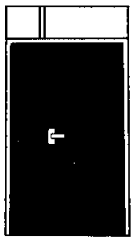
ALL STEEL



STEEL GLAZED



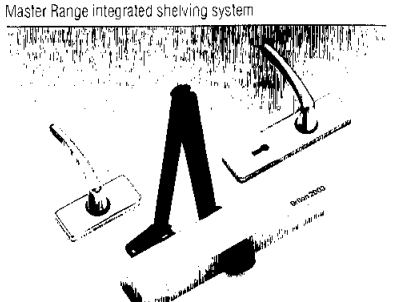
STABLE DOOR STEEL



HOSPITAL DOOR TIMBER

N.B. Door configurations shown above are only a small selection of designs available. Choice of material options for doors and overpanels or any other special requirements are available upon request.

Master Range integrated shelving system



Master Range standard door furniture

TECHNICAL SPECIFICATION

STEEL
Master range of partitioning is manufactured from high grade steel — BS1449 part 1:1972 grade CR4 or equivalent. Thickness of steel used in manufacture: vertical posts 1.0mm; panel skins 0.7mm; floor channel 0.7mm; top capping 1.5mm.

MODULES
Modules are constructed in standard widths decreasing from 900mm to 300mm in 100mm increments, and adjustable wall fillers are supplied to suit individual layouts. Special optimal module widths in increments of 1mm are available to order.

HEIGHT
Standard nominal heights are 2438mm, 2743mm, 3048mm and 3657mm. Purpose built panels can also be manufactured to suit individual requirements, and the system can be multi-tiered.

THICKNESS
Nominally 50mm.

INSULATION MATERIAL
Cavity between panels filled with inert high density mineral wool 45g/m^3

FINISH
Electrostatically applied epoxy powder coated to a thickness of between 50 and 75 microns. Ten production standard colours are now available. Special colours to British Standard or RAL colour range available upon request. Panels can also be supplied in Plastisol or Stelvetite finishes to the panel skin.

DOORS
Either steel or timber doors can be used with the system, and standard size doors match the panel module width exactly, thus enabling doors to be inter-changed or inserted in any standard 900mm panel width.
Special configured doors can also be supplied to individual requirements.
Cellular or solid core timber veneered doors can be supplied in either steel or matching timber frames, and full height doors and matching overpanels are also available.
Glazed apertures can be incorporated if required.

IRONMONGERY
Standard ironmongery is available but locks, lever handles and knobsets of choice may be specified. A variety of surface mounted door closers and panic exit hardware is available.

GLAZED PANELS
Panels can be partially or totally glazed, in single or double glazed arrangement, and as appropriate fire regulation requirements.

WEIGHT
18kg/sq metre average.

SPECIAL PANEL DETAILS
Panels can be custom manufactured to allow for on site cut-out details or any special display requirements.

SOUND
Partitions have been tested to BS5821 between 500 and 3150 Hz with average sound reduction indices as follows: all steel solid panels 35.1 dB; steel and double glazed panels 33.7 dB; steel and single glazed panels 26.8 dB.

THERMAL TRANSMISSION
Solid panels — U. value (nominal) 0.778 W/M²°C.
Single glazed — U. value (nominal) 3.45 W/M²°C.
Double glazed — U. value (nominal) 1.92 W/M²°C.

STRUCTURAL/MECHANICAL
Reference can be made to BS5234-1975 and Master range of partitioning is non load bearing and has been designed to withstand typical loadings and impacts as would be expected in normal use, without incurring damage or structural failure.

MAINTENANCE
The partitioning is easily maintained, and all surfaces should be periodically cleaned with a damp cloth and mild detergent solution, wiping dry afterwards.

L & D TECHNICAL SUPPORT
A complete technical, computer aided design, and sales service is provided with a national coverage of Distribution and Installation centres throughout the UK and Ireland.

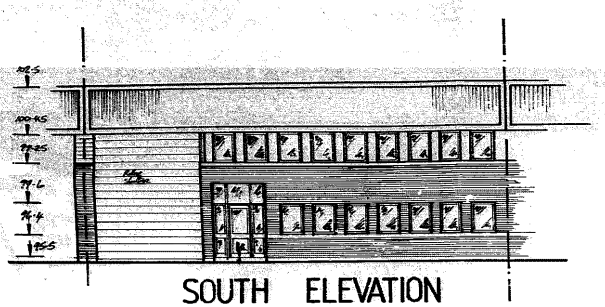
22.3 Xh2 JUNE 1990 L & D PARTITIONING SYSTEMS LTD MASTER RANGE

Due to continuous product innovation L & D reserve the right to change product specification without due notice.

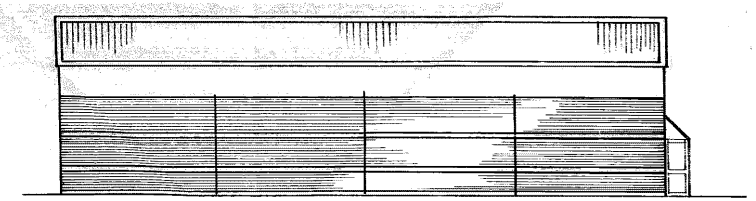
L&D PARTITIONING SYSTEMS LTD

Oxleasow Road, East Moons Moat, Redditch, Worcs B98 0RE. England
Telephone Redditch 0527 510015 Telex 335668 Fax 0527 517222

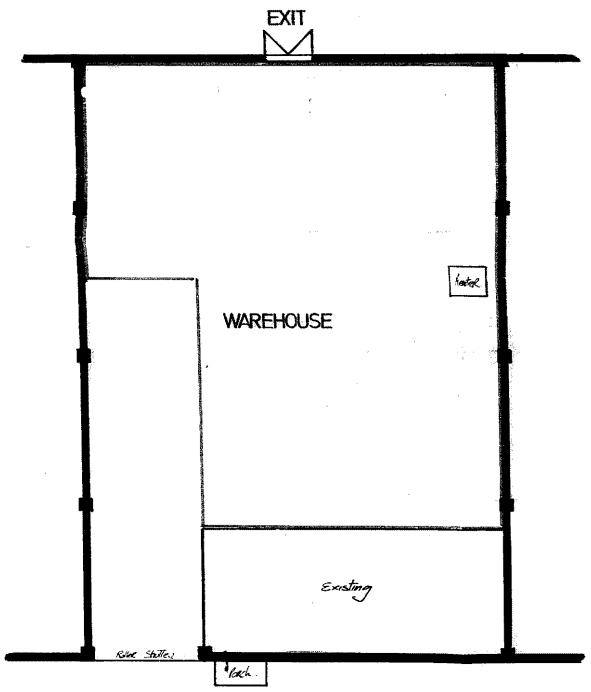
Where this installation causes increased loading to your premises we advise independent verification of the existing structures capability for supporting the given loads.



SOUTH ELEVATION

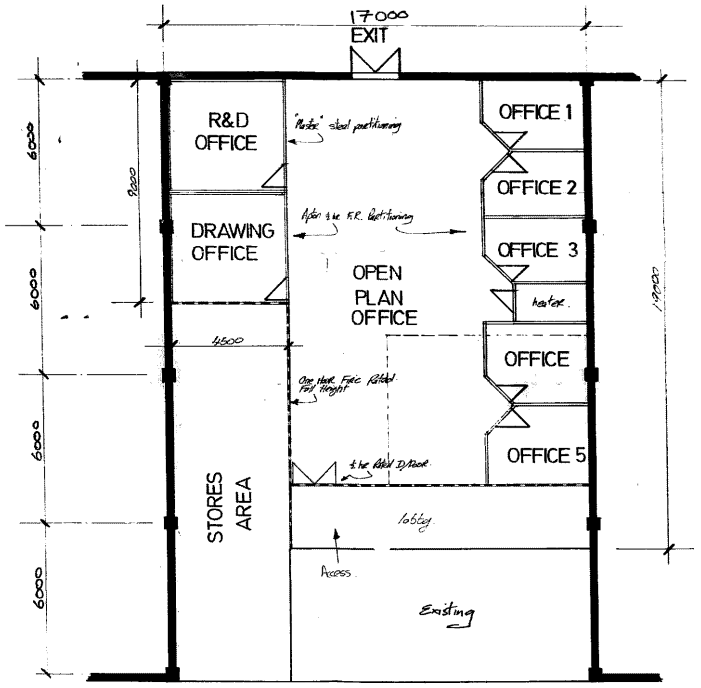


WEST ELEVATION

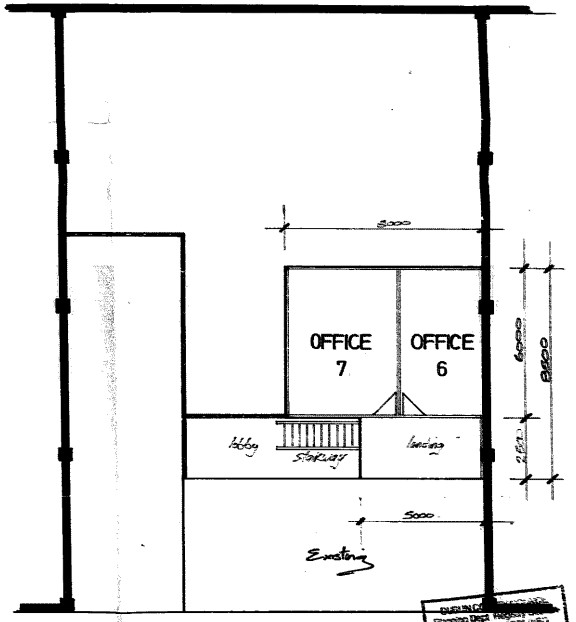


EXISTING GROUND FLOOR

NORTH



PROPOSED GROUND FLOOR



PROPOSED MEZZANINE

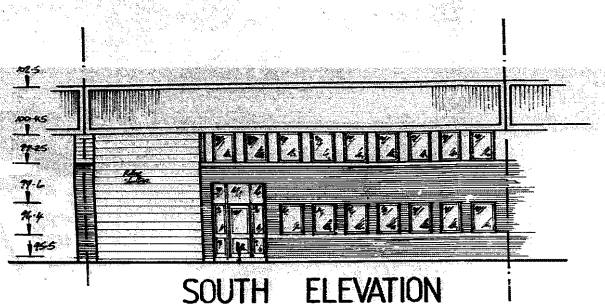
DUBLIN COUNTY COUNCIL
Planning Dept. Register Section
APPLICATION RECEIVED
15 JAN 1992
REG No. 92/0043

Drawn by S.C. on	Scale 1:100	Drawing No. 10-0192-C	Sheet No. 1
Checked if required by on	Reason		

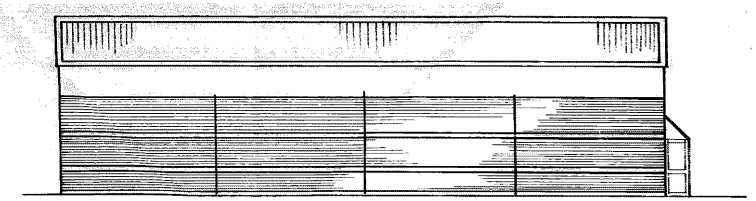
DEXION

Maylands Avenue Hemel Hempstead Hertfordshire England HP2 7EW
Telephone Hemel Hempstead 42261 Telex 825794

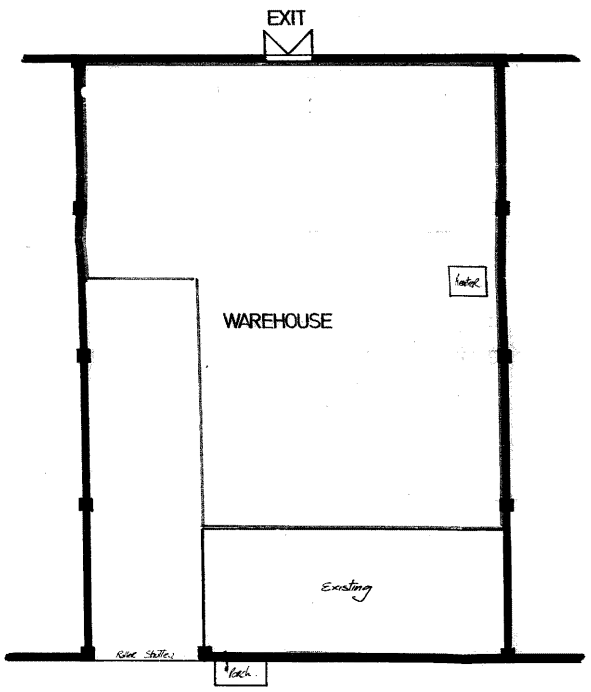
Where this installation causes increased loading to your premises we advise independent verification of the existing structures capability for supporting the given loads.



SOUTH ELEVATION

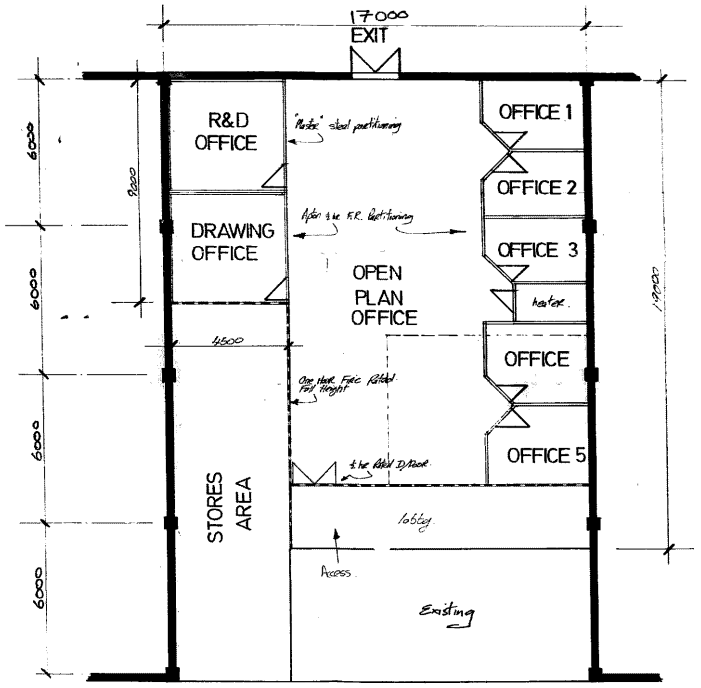


WEST ELEVATION

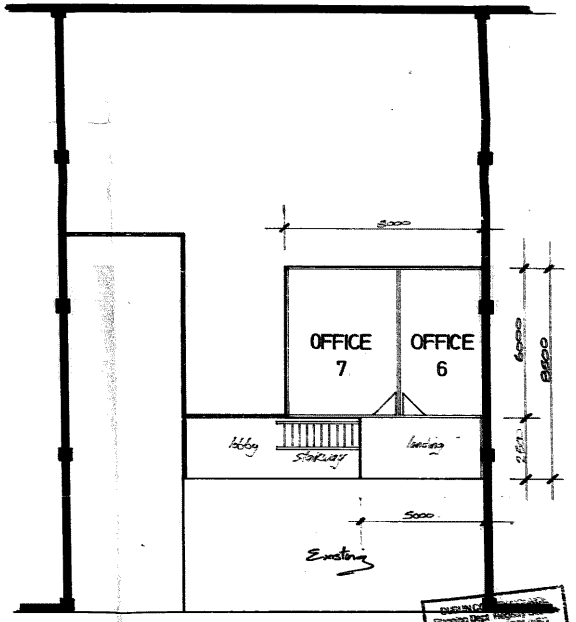


EXISTING GROUND FLOOR

NORTH



PROPOSED GROUND FLOOR



PROPOSED MEZZANINE

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Checked if required by on
Scale 1:100
Drawing No. 10-0192-C
Sheet No. 1
Revision

While the utmost care is taken to ensure the accuracy of the data and design details contained herein they are provided on the understanding that the company shall under no circumstances be liable for any incorrect statements or other losses which may in any way be attributed to the use or adoption of such data and or design details.

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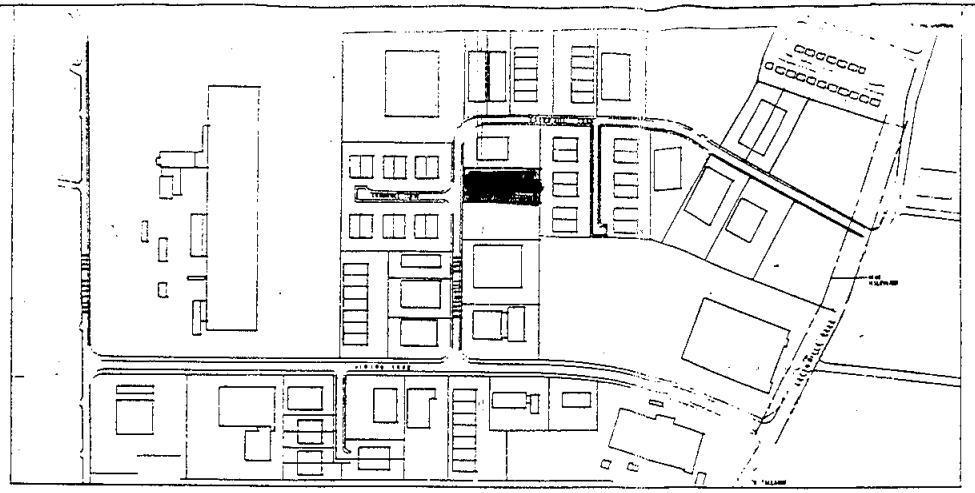
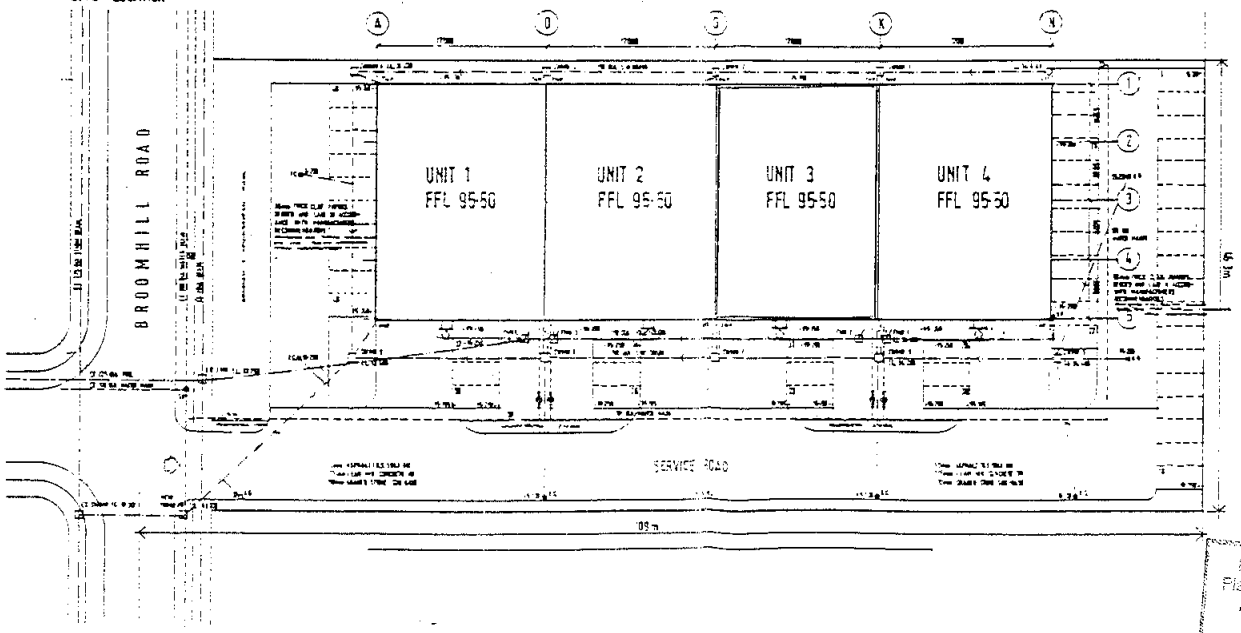
Telephone Hemel Hempstead 42261 Telex 825794



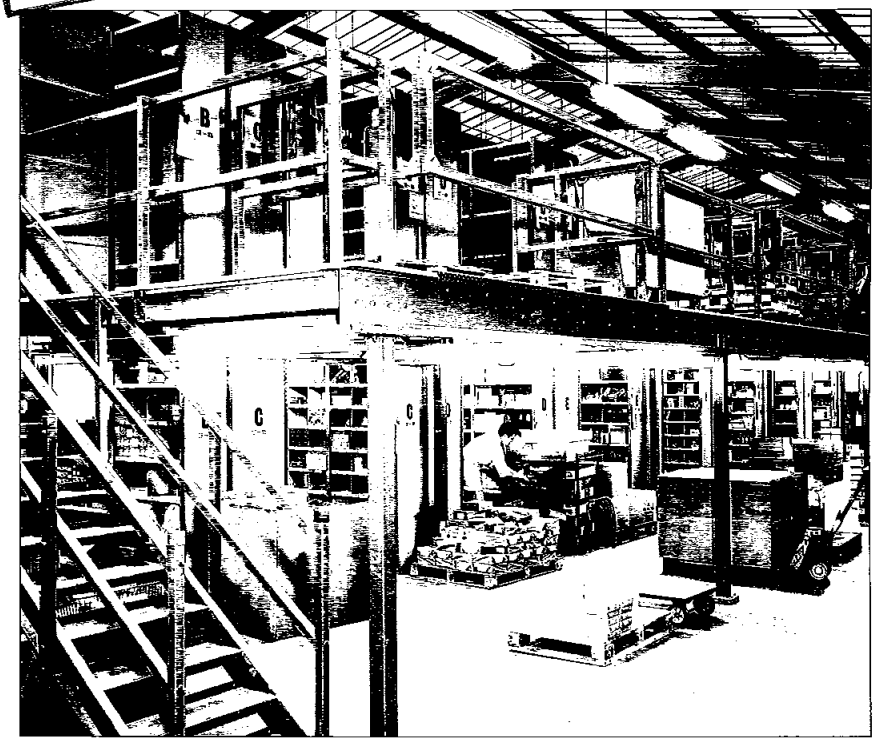
SITE LOCATION



SITE PLAN

DEXION

Stordex



Mezzanine floors with higher standards.

DEXION®

Dexion Limited

Apton relocatable partitioning

GENERAL

Introduction A system of high quality relocatable office partitioning which has been specially designed to keep on-site work to a minimum. Pre-formed windows and door frames, already fitted with glazing and factory-hung doors, are supplied with factory finished panels, to cut down installation labour and ensure consistent quality. The stove-enamelled *steel* framing provides exceptional rigidity and durability. Specific acoustic and fire resistance options are available.

Applications The wide range of standard panel configurations and finishes makes Apton partitioning suitable for office environments from basic offices on the shop floor to prestigious board rooms. Its well engineered design makes it particularly suitable for applications where changes or extensions to the initial layout are anticipated. Apton partitioning can also be used where irregular or unusually high ceilings have to be accommodated.

COMPOSITION, MANUFACTURE

Apton partitioning consists of a steel framework supporting plasterboard panels and modular windows and door units. The frame is made from vertical studs fixed at the base into a channel section floor track at 600 mm horizontal centres.
Both studs and floor track are made from galvanised, rolled steel. Tops of studs are attached with special locators to stove enamelled steel ceiling track, which is also used at wall abutments. Galvanised steel channel section transoms are fitted between studs, above doors, above and below windows and where a transom line is to be featured on solid panels.

Window and door frames are of prefabricated steel. Windows are pre-glazed with trims fitted over the beads, and doors are pre-hung on lift-off butts. The plasterboard factory-finished panels are fitted with their lower edges resting in the L section pvc skirting. Top edges are located within ceiling track.
Clamping strips fix panels and window and door frames back into the framework with self tapping screws passing between panels into the framework, and clip-on pvc cover strips complete the structure.

Customer:- Aritech Itec
Site :- Broomhill DUBLIN.

Ref:- 5476

<<<<PLEASE NOTE>>>>
Where the sign "^" is used in these calculations it signifies "TO THE POWER OF"
For example Y^3 is equal to Y cubed.

1. DESIGN LOADING

Imposed load 4.5 kN/sq.m (from BS 6399 : Part 1 : 1984)

Dead load 0.5 kN/sq.m

2. FLOOR DECKING DESIGN

Try 15mm Finnish birch plywood

Section modulus per metre width = 34100 mm^3
Permissible bending stress = 16.90 N/sq.mm

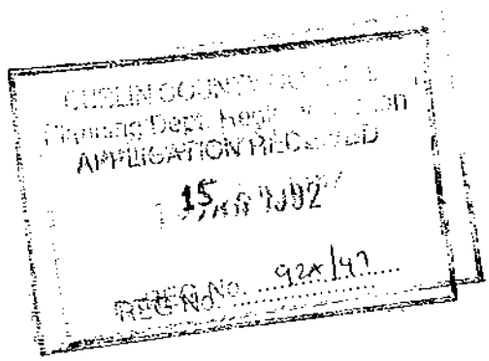
Joist centres = 525.0 mm

Design for IMPOSED load only
Load per metre width W = 4.5 x 1.0 x 0.525 = 2.362 kN

$$\text{Bending Moment } \frac{W.L}{8} = \frac{2363 \times 525.0}{8} = 155039 \text{ N.mm}$$

$$\text{Actual stress } \frac{M}{Z} = \frac{155039}{34100} = 4.55 \text{ N/sq.mm}$$

Actual stress = 4.55 < Permissible stress = 16.90



Customer:- Aritech Itec
Site :- Broomhill DUBLIN

Ref:- 5476

3. STEEL JOIST (MARK J1) DESIGN

Design to BS 5950 : Part 5 : 1987
Joist type:- 165mm Standard Joist
Yield strength of steel Ys = 300 N/sq.mm
Design strength of steel py = 300 N/sq.mm

Section properties taking account of the effective widths of flange and lip in compression.

Ixx = 2153800 mm^4 : Zxx = 26107 mm^3 : Area = 550 mm^2
ryy = 17.6 mm : Depth D = 165 mm : Thickness t = 2.0 mm

Joist centres = 375.0 mm Joist span = 3000.0 mm

Load factors used are from BS 5950,
for IMPOSED load = 1.6
for DEAD load = 1.4

(a) Bending limit

$$pc = \left[1.13 - 0.0019 \times \frac{D}{t}\left(\frac{Ys}{280}\right)^{0.5}\right] \times py <= py$$

Limiting compressive stress in a flat web pc = 290.3 N/sq.mm

Factored TOTAL joist loading
v = (4.5 x 1.6 + 0.5 x 1.4) x 0.375 = 2.963 kN/m

$$\text{Bending Moment } \frac{wL^2}{8} = \frac{2.963 \times 3000.0^2}{8} = 3332810 \text{ N.mm}$$

$$\text{Factored Stress } \frac{M}{Zxx} = \frac{3332810}{26107} = 127.7 \text{ N/sq.mm}$$

Factored stress = 127.7 < Design stress = 290.3

Customer:- Aritech Itec
Site :- Broomhill DUBLIN Ref:- 5476

3. STEEL JOIST (MARK J1) DESIGN (Continued)

(b) Deflection limit

The maximum allowable deflection due to unfactored IMPOSED load is SPAN/200.

IMPOSED joist loading w = 4.5 x 0.375 = 1.688 kN/m

$$\text{Deflection} = \frac{5wL^4}{384EI} = \frac{5 \times 1.688 \times 3000.0^4}{384 \times 205000 \times 2153800} = 4.031 \text{ mm}$$

Permissible deflection = SPAN/200 = 3000.0/200 = 15.000mm

(c) Web crushing limit

Web crushing not critical, as joist is web fixed.

See Appendix for detailed calculations.

(d) Maximum shear stress limit

pq = 0.7py = 0.7 x 300.0 = 210.0 N/sq.mm

$$Pq = \frac{2.pq.Ixx.t}{A.y} = \frac{2 \times 210.0 \times 2153800 \times 2.0}{550 \times 56.7} = 58.015 \text{ kN}$$

Factored end load = wL/2 = 4.444 kN

(e) Average shear stress limit

pv is the minimum of 0.6py or (1000t/D)^2

Therefore, pv = 146.9 N/sq.mm

Pv = pv.D.t = 146.9 x 165 x 2.0 = 48.485 kN

Factored end load = wL/2 = 4.444 kN

Customer:- Aritech Itec
Site :- Broomhill DUBLIN Ref:- 5476

4. STEEL JOIST (MARK J2) DESIGN

Design to BS 5950 : Part 5 : 1987
Joist type:- 178mm Heavy Joist
Yield strength of steel Ys = 300 N/sq.mm
Design strength of steel py = 300 N/sq.mm

Section properties taking account of the effective widths of flange and lip in compression.

Ixx = 3199590 mm^4 : Zxx = 35950 mm^3 : Area = 717 mm^2
ryy = 17.5 mm : Depth D = 178 mm : Thickness t = 2.5 mm

Joist centres = 375.0 mm Joist span = 4800.0 mm

Load factors used are from BS 5950,
for IMPOSED load = 1.6
for DEAD load = 1.4

(a) Bending limit

$$pc = \left[1.13 - 0.0019 \times \frac{D}{t}\left(\frac{(Ys)^{0.5}}{(280)}\right)\right] \times py <= py$$

Limiting compressive stress in a flat web pc = 297.0 N/sq.mm

Factored TOTAL joist loading
w = (4.5 x 1.6 + 0.5 x 1.4) x 0.375 = 2.963 kN/m

$$\text{Bending Moment } \frac{wL^2}{8} = \frac{2.963 \times 4800.0^2}{8} = 8532000 \text{ N.mm}$$

$$\text{Factored Stress } \frac{M}{Zxx} = \frac{8532000}{35950} = 237.3 \text{ N/sq.mm}$$

Factored stress = 237.3 < Design stress = 297.0

Customer:- Aritech Itec
Site :- Broomhill DUBLIN Ref:- 5476

4. STEEL JOIST (MARK J2) DESIGN (Continued)

(b) Deflection limit

The maximum allowable deflection due to unfactored IMPOSED load is SPAN/200.

IMPOSED joist loading w = 4.5 x 0.375 = 1.688 kN/m

$$\text{Deflection} \quad \frac{5wL^4}{384EI} = \frac{5 \times 1.688 \times 4800.0^4}{384 \times 205000 \times 3199590} = 17.783 \text{ mm}$$

Permissible deflection = SPAN/200 = 4800.0/200 = 24.000mm

(c) Web crushing limit

Web crushing not critical, as joist is web fixed.

See Appendix for detailed calculations.

(d) Maximum shear stress limit

pq = 0.7py = 0.7 x 300.0 = 210.0 N/sq.mm

$$Pq = \frac{2.pq.Ixx.t}{A.y} = \frac{2 \times 210.0 \times 3199590 \times 2.5}{717 \times 60.3} = 77.705 \text{ kN}$$

Factored end load = wL/2 = 7.110 kN

(e) Average shear stress limit

pv is the minimum of 0.6py or (1000t/D)^2

Therefore, pv = 180.0 N/sq.mm

Pv = pv.D.t = 180.0 x 178 x 2.5 = 80.100 kN

Factored end load = wL/2 = 7.110 kN

Customer:- Aritech Itec
Site :- Broomhill DUBLIN Ref:- 5476

5. MAIN BEAM (MARK B1) DESIGN

Design to BS 5950 : Part 1 : 1990
Beam type:- 305 x 127 x 37kg/m U.B. in grade 43 steel

Design strength of steel py = 275 N/sq.mm

Section properties

Ixx = 7160 cm^4 : Zxx = 472 cm^3 : Sxx = 540 cm^3
ryy = 2.67 cm : u = 0.871 : x = 29.6

Main beam span, L = 5900.0 mm
Main beam cantilever, M = 150.0 mm

Load factors used are from BS 5950,
for IMPOSED load = 1.6
for DRAD load = 1.4

CHECK FOR LOAD ON MAIN SPAN ONLY

(a) Bending limit

Moment capacity, MC = py.Sxx = 275 x 540 = 149 kN.m

Factored TOTAL beam load
w = (4.5 x 1.6 + 0.5 x 1.4) x 3.850 = 30.415 kN/m

$$\text{Bending moment } \frac{wL^2}{8} = \frac{30.415 \times 5900.0^2}{8} = 132 \text{ kN.m}$$

Bending moment 132 kN.m < Moment capacity 149 kN.m

(b) Deflection limit

The maximum allowable deflection due to unfactored IMPOSED load is SPAN/200.

IMPOSED beam loading, w = 4.5 x 3.850 = 17.325 kN/m

$$\text{Deflection } \frac{5wL^4}{384EI} = \frac{5 \times 17.325 \times 5900.0^4}{384 \times 205000 \times 71600000} = 18.623 \text{ mm}$$

Allowable deflection = SPAN/200 = 5900.0/200 = 29.500 mm

Customer:- Aritech Itec
Site :- Broomhill DUBLIN Ref:- 5476

5. MAIN BEAM (MARK B1) DESIGN (Continued)

(c) Shear capacity limit

Shear capacity, Pv = 0.6.py.Av

where For rolled I sections, Av = tD
t = web thickness
D = section depth

Pv = 0.6 x 275 x 7.2 x 303.8 = 361 kN

Factored end load = wL/2 = 90 kN

(d) Web bearing limit

Bearing capacity, Pb = (b1 + n2)t.pyw

where b1 = stiff bearing length
= 48.0mm (minimum)

n2 = dispersion through flange
= 2.5(D-d)/2

pyw = design strength of web

Pb = [48.0 + 2.5(303.8 - 264.6)/2] x 7.2 x 275 = 192 kN

Factored end load = wL/2 = 90 kN

(e) Web buckling limit

Web buckling capacity, Pw = (b1 + n1)t.pc

where n1 = dispersion at 45 degrees through
half section depth D

pc = compressive strength using table 27(c)
for a slenderness ratio of 2.5d/t

Pw = [48.0 + (303.8/2)] x 7.2 x 139 = 200 kN

Factored end load = wL/2 = 90 kN

5. MAIN BEAM (MARK B1) DESIGN (Continued)

CHECK FOR LOAD ON CANTILEVER ONLY

(f) Bending limit

The buckling resistance moment Mb, may be obtained from BS 5950 : Part 1 : 1990 Appendix B.

$$Mb = \frac{ME.MP}{Ob + (Ob^2 - ME.MP)^{0.5}}$$

Effective length LE for the main span is 1.0L = 5900.0 mm
with a slenderness correction factor, n = 0.770
Effective length LE for the cantilever is 0.7M = 105.0 mm
with a slenderness correction factor, n = 0.870

Therefore, buckling resistance moment, Mb = 62 kN.m

Factored TOTAL beam loading
w = (4.5 x 1.6 + 0.5 x 1.4) x 3.850 = 30.415 kN/m

$$\text{Bending moment } \frac{wM^2}{2} = \frac{30.415 \times 150.0^2}{2} = 0 \text{ kN.m}$$

Factored moment = 0 kN.m < Buckling moment 62 kN.m

(g) Cantilever deflection limit

The maximum allowable deflection due to unfactored IMPOSED load is CANTILEVER/180.

IMPOSED beam loading, w = 4.5 x 3.850 = 17.325 kN/m

$$\text{Deflection} = \frac{wLM^3}{24EI}\left(4 + \frac{3.M}{L}\right)$$

$$\frac{17.325 \times 5900.0 \times 150.0^3}{24 \times 205000 \times 71600000}\left(4 + \frac{3 \times 150.0}{5900.0}\right) = 0.004 \text{ mm}$$

Permissible deflection = CANTILEVER/180 = 150.0/180 = 0.833 mm

5. MAIN BEAM (MARK B1) DESIGN (Continued)

CHECK FOR LOAD ON MAIN SPAN AND ONE CANTILEVER

(h) Maximum support reaction

Factored TOTAL beam loading
w = (4.5 x 1.6 + 0.5 x 1.4) x 3.850 = 30.415 kN/m

$$Ra = \frac{w(L+M)^2}{2L} = \frac{30.415(5900.0+150.0)^2}{2 \times 5900.0} = 94 \text{ kN}$$

(i) Shear capacity limit

Pv is the same as for simply supported beam, Pv = 361 kN

(j) Web bearing limit

Bearing capacity, Pb = (b1 + n2)t.pyw

where b1 = stiff bearing length
= 100.0mm (minimum)

n2 = dispersion through flange
= 2.5(D-d)/2 x 2 = 2.5(D-d)

pyw = design strength of web

Pb = [100.0 + 2.5(303.8 - 264.6)] x 7.2 x 275 = 392 kN

(k) Web buckling limit

Web buckling capacity, Pw = (b1 + n1)t.pc

where n1 = dispersion at 45 degrees through
half section depth D

pc = compressive strength using table 27(c)
for a slenderness ratio of 2.5d/t

Pw = [100.0 + 303.8] x 7.2 x 139 = 404 kN

Customer:- Aritech Itec
Site :- Broomhill DUBLIN

Ref:- 5476

6. INTERNAL COLUMN (MARK I1) DESIGN

Try a 100mm x 100mm x 5.0mm SHS

Design strength of steel py = 275 N/sq.mm

Section properties
Square section therefore, Ixx = Iyy = 283 cm^4
Zxx = Zyy = 56.6 cm^3 : Sxx = Syy = 67.1 cm^3
Area = 18.9 cm^2 : rxx = ryy = 3.87 cm

Column height, H = 2350 mm

Load factors used are from BS 5950,
for IMPOSED load = 1.6
for DEAD load = 1.4

CHECK COLUMN STRENGTH - SIMPLIFIED APPROACH

$$\frac{K\,H}{rxx} = \frac{1.5 \times 2350}{38.7} = 91.09$$

Therefore, pc from table 27(a) = 177.9 N/sq.mm

COLUMN LOADING

Total unfactored vertical load
W = (4.5 + 0.5) x (11.358 + 2.760) = 70.588 kN

Factored vertical load
WA = (4.5 x 1.6 + 0.5 x 1.4) x 11.358 = 89.724 kN
WB = (4.5 x 1.6 + 0.5 x 1.4) x 2.760 = 21.804 kN

As required by clause 2.4.2.3 of BS 5950, for sway stability, a notional horizontal of 0.5% of the dead and imposed vertical loads must be considered in the design of the columns and their base fixings.

Total floor area = 60.50 m^2

Total stiffness factor, EI/H^3, for ALL columns, 357.624
Stiffness factor for THIS column, 44.703
Based on stiffness ratio, floor area for column = 7.563 m^2

Factored notional horizontal force
Q = (4.5 x 1.6 + 0.5 x 1.4) x 7.563 x 0.5% = 0.299 kN

Customer:- Aritech Itec
Site :- Broomhill DUBLIN

Ref:- 5476

6. INTERNAL COLUMN (MARK I1) DESIGN (Continued)

(a) Fully loaded limits

Local capacity check

$$\frac{F}{Ag.py} + \frac{Mx}{Mcx} + \frac{My}{Mcy} = \frac{(WA+WB)}{Ag.py} + \frac{e(WA-WB)}{Sxx.py} + \frac{H.Q}{Syy.py} <= 1.0$$

$$\frac{111528}{1890x275.0} + \frac{50x\ 67920}{67100x275.0} + \frac{299x2350}{67100x275.0} = 0.437$$

Overall buckling check

$$\frac{F}{Ag.pc} + \frac{m.Mx}{Mb} + \frac{m.My}{py.Zyy} = \frac{(WA+WB)}{Ag.pc} + \frac{1.0e(WA-WB)}{Sxx.py} + \frac{0.57H.Q}{Zyy.py} <= 1.0$$

$$\frac{111528}{1890x177.9} + \frac{1.00x\ 50x\ 67920}{67100x275.0} + \frac{0.57x\ 299x2350}{56600x275.0} = 0.542$$

(b) Part loaded limits

Local capacity check

$$\frac{F}{Ag.py} + \frac{Mx}{Mcx} + \frac{My}{Mcy} = \frac{WA}{Ag.py} + \frac{e.WA}{Sxx.py} + \frac{H.Q}{Syy.py} <= 1.0$$

$$\frac{89724}{1890x275.0} + \frac{50x\ 89724}{67100x275.0} + \frac{299x2350}{67100x275.0} = 0.454$$

Overall buckling check

$$\frac{F}{Ag.pc} + \frac{m.Mx}{Mb} + \frac{m.My}{py.Zyy} = \frac{WA}{Ag.pc} + \frac{1.0\ e\ WA}{Sxx.py} + \frac{0.57\ H\ Q}{Zyy.py} <= 1.0$$

$$\frac{89724}{1890x177.9} + \frac{1.00x\ 50x\ 89724}{67100x275.0} + \frac{0.57x\ 299x2350}{56600x275.0} = 0.536$$

Customer:- Aritech Itec
Site :- Broomhill DUBLIN

Ref:- 5476

6. INTERNAL COLUMN (MARK I1) DESIGN (Continued)

CHECK COLUMN BASEPLATE STRENGTH

Baseplate size D = 250 mm : B = 250 mm : t = 20.0 mm

(c) Concentric forces

$$t = \left[\frac{2.5}{pyp} w(a^2 - 0.3b^2)\right]^{0.5}$$

where a = greater projection = 75.0 mm
b = lesser projection = 75.0 mm

$$w = \text{pressure} = \frac{(WA+WB)}{DxB} = \frac{111528}{62500} = 1.78 \text{ N/sq.mm}$$

pyp = design strength of plate = 265 N/sq.mm

Required thickness = 8.1 mm < actual thickness = 20.0 mm

(d) Eccentric forces

Fully loaded column

P = WA + WB = 111.528 kN
M = e(WA-WB) + Q.H = 4098000 N.mm

$$ex = \frac{M}{P} = \frac{4098000}{111528} = 36.7 \text{ mm which is} < \frac{D}{6}$$

Maximum pressure at edge of plate, f1 = 3.358 N/sq.mm
Maximum pressure at edge of column, f3 = 2.414 N/sq.mm

$$\text{Applied moment } \frac{f3.a^2}{6} + \frac{f1.a^2}{3} = 8559 \text{ N.mm}$$

$$\text{Limiting moment } 1.2\,\frac{pyp.t^2}{6} = 21200 \text{ N.mm}$$

Customer:- Aritech Itec
Site :- Broomhill DUBLIN

Ref:- 5476

6. INTERNAL COLUMN (MARK I1) DESIGN (Continued)

Part loaded column

P = WA = 89.724 kN
M = e.WA + Q.H = 5188200 N.mm

$$ex = \frac{M}{P} = \frac{5188200}{89724} = 57.8 \text{ mm which is} > \frac{D}{6}$$

Maximum pressure at edge of plate, f1 = 3.562 N/sq.mm
Maximum pressure at edge of column, f3 = 2.236 N/sq.mm

$$\text{Applied moment } \frac{f3.a^2}{6} + \frac{f1.a^2}{3} = 8775 \text{ N.mm}$$

$$\text{Limiting moment } 1.2\,\frac{pyp.t^2}{6} = 21200 \text{ N.mm}$$

CHECK COLUMN DEFLECTION

COLUMN LOADING

Unfactored notional horizontal force
5.0 x 7.563 x 0.5% = 0.189 kN

(e) Deflection limit

The maximum allowable deflection due to unfactored IMPOSED load is HEIGHT/300.

Taking a simplified approach, assume the column acts as a cantilever with force Q at one end.

$$\text{Deflection } \frac{QH^3}{3EI} = \frac{189 \times 2350^3}{3 \times 205000 \times 2830000} = 1.410 \text{ mm}$$

Allowable deflection = HEIGHT/300 = 2350/300 = 7.833 mm

Customer:- Aritech Itec
Site :- Broomhill DUBLIN

Ref:- 5476

7. EXTERNAL COLUMN (MARK E1) DESIGN

Try a 100mm x 100mm x 5.0mm SHS

Design strength of steel py = 275 N/sq.mm

Section properties

Square section therefore, Ixx = Iyy = 283 cm^4
Zxx = Zyy = 56.6 cm^3 : Sxx = Syy = 67.1 cm^3
Area = 18.9 cm^2 : rxx = ryy = 3.87 cm

Column height, H = 2350 mm

Load factors used are from BS 5950,
for IMPOSED load = 1.6
for DEAD load = 1.4

CHECK COLUMN STRENGTH - SIMPLIFIED APPROACH

$$\frac{K\,H}{rxx} = \frac{1.5 \times 2350}{38.7} = 91.09$$

Therefore, pc from table 27(a) = 177.9 N/sq.mm

COLUMN LOADING

Total unfactored vertical load
W = (4.5 + 0.5) x 11.942 = 59.711 kN

Factored vertical load
WF = (4.5 x 1.6 + 0.5 x 1.4) x 11.942 = 94.344 kN
WP = (4.5 x 1.6 + 0.5 x 1.4) x 11.358 = 89.724 kN

As required by clause 2.4.2.3 of BS 5950, for sway stability, a notional horizontal of 0.5% of the dead and imposed vertical loads must be considered in the design of the columns and their base fixings.

Total floor area = 60.50 m^2

Total stiffness factor, EI/H^3, for ALL columns, 357.624
Stiffness factor for THIS column, 44.703
Based on stiffness ratio, floor area for column = 7.563 m^2

Factored notional horizontal force
Q = (4.5 x 1.6 + 0.5 x 1.4) x 7.563 x 0.5% = 0.299 kN

7. EXTERNAL COLUMN (MARK E1) DESIGN (Continued)

(a) Fully loaded limits

Local capacity check

$$\frac{F}{Ag.py} + \frac{Mx}{Mcx} + \frac{My}{Mcy} = \frac{WF}{Ag.py} + \frac{0}{Sxx.py} + \frac{H.Q}{Syy.py} <= 1.0$$

$$\frac{94344}{1890 \times 275.0} + \frac{0}{67100 \times 275.0} + \frac{299 \times 2350}{67100 \times 275.0} = 0.220$$

Overall buckling check

$$\frac{F}{Ag.pc} + \frac{m.Mx}{Mb} + \frac{m.My}{py.Zyy} = \frac{WF}{Ag.pc} + \frac{0}{Sxx.py} + \frac{0.57H.Q}{Zyy.py} <= 1.0$$

$$\frac{94344}{1890 \times 177.9} + \frac{0}{67100 \times 275.0} + \frac{0.57 \times 299 \times 2350}{56600 \times 275.0} = 0.306$$

(b) Part loaded limits

Local capacity check

$$\frac{F}{Ag.py} + \frac{Mx}{Mcx} + \frac{My}{Mcy} = \frac{WP}{Ag.py} + \frac{e.WP}{Sxx.py} + \frac{H.Q}{Syy.py} <= 1.0$$

$$\frac{89724}{1890 \times 275.0} + \frac{50 \times 89724}{67100 \times 275.0} + \frac{299 \times 2350}{67100 \times 275.0} = 0.454$$

Overall buckling check

$$\frac{F}{Ag.pc} + \frac{m.Mx}{Mb} + \frac{m.My}{py.Zyy} = \frac{WP}{Ag.pc} + \frac{1.0\ e\ WP}{Sxx.py} + \frac{0.57\ H\ Q}{Zyy.py} <= 1.0$$

$$\frac{89724}{1890 \times 177.9} + \frac{1.00 \times 50 \times 89724}{67100 \times 275.0} + \frac{0.57 \times 299 \times 2350}{56600 \times 275.0} = 0.536$$

Customer:- Aritech Itec
Site :- Broomhill DUBLIN Ref:- 5476

7. EXTERNAL COLUMN (MARK B1) DESIGN (Continued)

CHECK COLUMN BASEPLATE STRENGTH

Baseplate size D = 250 mm : B = 250 mm : t = 20.0 mm

(c) Concentric forces

$$t = \left[\frac{2.5}{pyp} w(a^2 - 0.3b^2)\right]^{0.5}$$

where a = greater projection = 75.0 mm
b = lesser projection = 75.0 mm

$$w = \text{pressure} = \frac{WF}{DxB} = \frac{94344}{62500} = 1.51 \text{ N/sq.mm}$$

pyp = design strength of plate = 265 N/sq.mm

Required thickness = 7.5 mm < actual thickness = 20.0 mm

(d) Eccentric forces

Fully loaded column

P = WF = 94.344 kN
M = Q.H = 701989 N.mm

$$ex = \frac{M}{P} = \frac{701989}{94344} = 7.4 \text{ mm which is} < \frac{D}{6}$$

Maximum pressure at edge of plate, f1 = 1.779 N/sq.mm
Maximum pressure at edge of column, f3 = 1.617 N/sq.mm

$$\text{Applied moment } \frac{f3.a^2}{6} + \frac{f1.a^2}{3} = 4852 \text{ N.mm}$$

$$\text{Limiting moment } 1.2\,\frac{pyp.t^2}{6} = 21200 \text{ N.mm}$$

7. EXTERNAL COLUMN (MARK E1) DESIGN (Continued)

Part loaded column

P = WP = 89.724 kN
M = e.WP + Q.H = 5188200 N.mm

$$ex = \frac{M}{P} = \frac{5188200}{89724} = 57.8 \text{ mm which is} > \frac{D}{6}$$

Maximum pressure at edge of plate, f1 = 3.562 N/sq.mm
Maximum pressure at edge of column, f3 = 2.236 N/sq.mm

$$\text{Applied moment } \frac{f3.a^2}{6} + \frac{f1.a^2}{3} = 8775 \text{ N.mm}$$

$$\text{Limiting moment } 1.2\,\frac{pyp.t^2}{6} = 21200 \text{ N.mm}$$

CHECK COLUMN DEFLECTION

COLUMN LOADING

Unfactored notional horizontal force
5.0 x 7.563 x 0.5% = 0.189 kN

(e) Deflection limit

The maximum allowable deflection due to unfactored IMPOSED load is HEIGHT/300.

Taking a simplified approach, assume the column acts as a cantilever with force Q at one end.

$$\text{Deflection } \frac{QH^3}{3EI} = \frac{189 \times 2350^3}{3 \times 205000 \times 2830000} = 1.410 \text{ mm}$$

Allowable deflection = HEIGHT/300 = 2350/300 = 7.833 mm

PERSONAL EXTRA

IRISH LIFE
BUILDING SOCIETY
MORTGAGE RATES

Irish Life Building Society wishes to announce that the rate of interest for qualified applicants for new loans with effect from 9th January 1992 will be:

Annuity—11.70% APR—12.7%

Endowment—11.95%

APR—12.8%

Basic rates for existing loans will be increased by .5% and borrowers will be advised individually of their revised repayments in accordance with the terms of their mortgage deeds.

Irish Life
BUILDING SOCIETY

Irish Life Centre
Lower Abbey Street
Dublin 1
Tel.: (01) 724055
Cork (021) 273010
Galway (091) 67859

PLANNING APPLICATIONS

DUBLIN 24 — Planning permission sought from Dublin County Council for internal office development and ancillary services at Unit 3, Broomhill Terrace, Tallaght Industrial Estate, Co. Dublin for Aritech Ireland.

DUBLIN 9 — Permission sought for alterations and extensions to provide magnetic resonance imaging facility and ancillary accommodation at Beaumont Hospital for the Beaumont Hospital Board and Diagnostic Systems Ltd. by Martin Ryan Architects.

EDUCATIONAL COURSES

AUDIO TYPEWRITING COURSE — Irish Times Training 6792522/6792670.

EVENING TYPEWRITING COURSES Irish Times Training 6792522/6792670.

REFRESHER PART-TIME COURSE — Irish Times Training 6792522/6792670.

A.A. ACADEMY — Interior design courses for beginners. 7843531/784673.

ACCA. Level 2, Ian. R.F.A., day courses, very small classes. ISA 780344.

ANDRIAN SCHOOL of Design — Professional interior design courses leading to recognised qualifications, commencing shortly. Tel: (01) 943303.

BILINGUAL French/English Secretarial Course. 12 weeks duration. All skills taught through French. Course will commence January 1992. Limited places available. Contact: Irish Times Training 6792522/6792670

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DAILY English lesson available from TEFL trained tutor. Ph. 280 9512.

FRENCH GRINDS by native university lecturer. 960205.

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TERMINAL TIME AVAILABLE — DEC VAX/VMS, UNIX Multiuser system, COBOL, Basic, UNIX, C, ORACLE. Advanced Technology Training. Phone 781677.

TYPEWRITING COURSE, 4 weeks part-time, morning, afternoon or evening. Contact Irish Times Training. 6792522.

UNIX AND C PROGRAMMING — Evening course commencing February 24th. Advanced Technology Training. Phone 781677.

UNIX Foundation course 3 days duration — Irish Times Training. Tel: 6792522.

UNIX — Foundation, Shell Programming and Utilities course, 5 days duration, designed for experienced programmers who are approaching Unix on a daily basis — Irish Times Training. Tel: 6792522.

UNIX Strategic and Technical Awareness 1 day seminar suitable for managers who are responsible for making investment decisions related to information technology systems — Irish Times Training. Tel: 6792670.

WORDPERFECT TRAINING. Call Catherine on 2840285.

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LEAVING CERT. — Maths grind, teacher required immediately. Tel: 608179.

NATIVE FRENCH Teacher. Part-time, Bray area. Ph. 616240.

TELE-COMMUNICATIONS Technician Course Co. Galway course, lecturer required. Apply immediately with a current c.v. to Advanced Technology Training, 58 Harcourt Street, Dublin 2.

MEDICAL PHARMACEUTICAL

PHARMACY requires a self-motivated person with pleasant appearance and good communitive skills. Experience not proven, sales ability an advantage. Ph. 534282.

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ADVANTAGE — Hospital Representative. Oncology products. 1-2 yrs. hospital sales exp. required, ideally with some knowledge of this area. Tel: (01) 778877.

ADVANTAGE — Computer Sales Manager. Min. 3-5 yrs exp. selling IT solutions into Government accounts/major accounts. This is a senior management position. Reporting directly to the Chief Executive. Age 30-35. Superb package. Contact Mark Mitchell on (01) 778877.

ADVANTAGE — Career opportunities for business grad with 1/2 yrs sales exp. for international FMCG company. This position offers excellent career opportunities for the successful candidate. Flexibility to relocate a prerequisite. Contact (01) 778877.

ADVANTAGE — Tele Marketing Supervisor. 2 yrs exp. in similar role. Must have very good supervisory skills, 3rd level qual. etc., not essential. Must be self-starter, computer literate and exc. command of English. This position offers superb career opportunities. Sal. £12k. Tel. (01) 778877.

DOMESTICS

COOK GENERAL/HOUSEKEEPER required for elderly lady in country house near Sallins, Co. Kildare. Must be responsible person and car driver. Lover of dogs essential. Car available for weekend off once a month. Excellent wages and outings. Good reference necessary. Please reply in confidence, stating age and experience to the Secretary, 33 Leeson Park, Dublin 6.

HOUSEMAN/DRIVER/HANDYMAN required for elderly lady in country house near Sallins, Co. Kildare. Must be responsible person capable of working on own initiative. Lover of dogs essential. Excellent wages and conditions. Good reference necessary. Car available for weekend off once a month. Interviews in Dublin. Please reply in confidence, stating age and experience to the Secretary, 33 Leeson Park, Dublin 6.

COMPUTER TRAINING

APPLE Macintosh — Day and evening courses. Contact Paul Smyth of Typetec, 6796011, 33 Dame St., D.2.

COMPUTER LEARNING CENTRE. The Right Number for Computer Education and Training. Tel: 619725. Fax: 780392.

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VOLVO ESTATES AT HUET MOTORS
1991 740 GL Est. £18,650
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Tel: (01) 6796466.

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VOLVO 480 wanted for cash. Ph. 2867290.

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ASHMORE RYDER, Motor Body Repair Centre. Open throughout December. Tel. 583267.

COMPUTER STAFF

A SOFTWARE Support person required for prestigious computer company. 2 years experience with all major software applications. Network and windows experience essential. Communication skills important. Apply with c.v. to Stephen Bailey, Mem Technology Ltd. 9/12 High St., D.8.

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SYSTEM MGR. c.£20K. PC LAN/WAN dev/support in IBM m/frame site. Top co. Interstaff 684344.

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INSURANCE

AT MARY B CREMIN — Senior Pensions Administrator, 6/8 yrs exp. on top/individual pension schemes (broker background), £35K. Grafton Arcade 711315. Walkinstown Branch 502288.

SITUATIONS VACANT

DOUGLAS NEWMAN GOOD requires a residential negotiator with minimum 3 years experience for their city office. All inquiries treated in strictest confidence. Very attractive terms offered for the right applicant. Contact: Ref. P.N. 6794065.

FAS — Tennis Instructors. Full-time course starts Feb. for good tennis players 16-25 years. Approved by National Body of Tennis. Ph: 2 8711.

OFFICE STAFF

ADVERTISING agency requires receptionist with typing experience. Replies to Box Z 592.

LEGAL VACANCIES

SOLICITOR required for busy Dublin firm. At least 2 years post qualification experience in Litigation/Conveyancing essential. Apply in writing with c.v. to: Declan Tunney, Europa Business Centre, Europa House, Harcourt Street, Dublin 2.

RECRUITMENT SERVICES

CV CONSULTANT — Latest format. Interview and target strategy. 604193.

TECHNICAL/ ENGINEERING

AT MARY B CREMIN — Science Grads (Food) with min. 1-2 yrs. exp. in food industry, to £15k. Grafton Arcade, 711315. Walkinstown Branch, 502288.

AT MARY B CREMIN — Production Engineer (Mech. Mech. Eng.) 3 yrs. exp. food or allied. £20K neg. plus super benefits. Grafton Arcade 711315, Walkinstown Branch 502288.

A PROCUREMENT ENGINEER is required by a major electronics company in Dublin. Degree plus mech/elec or materials background essential for this interesting position. Call/write C.V. to Bryan Bell, 44 Westland Row, Dublin 2. Tel: 610644. Fax 610645.

A TEST TECH. c. £10k. Dip. plus 1 yrs test/repair in mfring. environ. Interstaff, 684344.

CHURCH SERVICES

St. Ann's, Dawson Street — 1.45-1.05, H.C.

TECHNICAL/ ENGINEERING

AN ELECTRICAL INSTRUMENTATION Draughtsman is required by Munster based multinational. Must have 7/10 yrs C.A.D. experience (AUTOCAD). C.V. to Bryan at IRC, 44 Westland Row, Dublin 2. Tel 610644. Fax 610645.

AT SKILLBASE — Several requirements exist for experienced buyers with a background in the electronics or software industry. These are career opportunities with major organisations. Please call Ian Bewick or Paula Lager on 01-972966.

MFRING./PROCESS ENG. (2), £20k., S/East. Sr. vol. elec/mech assembly company. Interstaff, 684344.

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AT McCULLOUGH PIGOTT — The Upright Pianos Sale continues. Great reductions. Steinberg WAS £4,625, NOW £3,499. Yamaha P116 WAS £3,350, NOW £2,999, and 5 more. Contact Piano Department, McCullough Piggot Ltd., 11/13 Suffolk St., D.2. Tel: 778338.

AT WALTONS — Piano sale now on. New Broadway pianos from £1,195 with 10 Stools free. Reconditioned pianos from £1,650. 10% off all Roland digital pianos and keyboards. Incredible sales now on. 5 North Frederick St., Ph: 747805. Dun Laoghaire S.C. Ph: 2807352.

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COMPLETE gardening and landscaping service. Garden design, patios, planting, grounds. Quotations free. Ring Damien Carroll. 2877775.

DAVID AUSTIN ROSES now in stock. Excellent range of top quality roses to choose from. Harry Byrne's Garden Centre, Castleknock Road, Sandycove, Co. Dublin. 2805887.

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ARMCHAIRS, Chesterfield suites, fireside chairs, etc., recovered and reupholstered like new. Keenest prices. Distance no object. Roberts Furniture. Tel: 2562302/562132.

THE IRISH TIMES APPOINTMENTS REGISTER

Vacancy	Company	Salary	Contact	Date Advertised
Manufacturing Engineer	Client Company	Attractive	Trident Management Consultants 66 Lr. Leeson Street, Dublin 2. Tel. 619796	Dec. 13th
Actuarial Student	Craig Gardner	Excellent	Donal O'Connor, Financial Services Group.	Jan. 3rd.

What's on Today

Items for What's on Today must be submitted, in writing, four days in advance of publication. Publication cannot be guaranteed. There is no telephone service for this column.

CORK

Watercolours" exhibition by Rose Farrell and Rita O'Connell, Douglas Library.

Artworks "Christmas" exhibition, Granary House, Rutland Street.

DOWN

Original Paintings, Oils and Watercolours, Victorian and Contemporary by Irish, English and Continental artists, Newcastle Art Gallery, 18-22 Main Street, Newcastle, noon-5.30 pm.

DUBLIN

Irish Language Classes for Adults — all levels, Connradh na Gaeilge, 6 Harcourt Street.

Irish Pen talk: "Pathways to Successful Writing", by Margaret Neylon, 3 Upper Fitzwilliam Street, 8 pm, all welcome.

National Gallery Schools Art Course: "Megalithic Art", by Dr. Muirie O'Sullivan, Lecture Theatre, Merrion Square West, 5 pm.

Video showing: "The story of Saint Vincent de Paul", 1 pm; German/English conversation exchange, 6 pm; Exhibition: "Womans Voice", by the Women's Art Action Group, Central Library, Ilac Centre.

Dublin Toastmasters Club meeting, Power's Hotel, 8 pm.

Co-Anon group, for family and friends of people with an eating disorder, Dublin Central Mission, Lower Abbey Street, 8 pm.

Stage Theatre Company presents "The Witches", by Roald Dahl, 3 pm; "The Mystery Of Irma VEP", by Charles Ludlam, 8 pm, Ebiana Theatre, Busaras, Store Street.

Dolphin Company presents "Fairytales Fairytales 1-2-3", Project Arts Centre, East Essex Street, 8 pm.

"Moving Crib", St. Martin Apostolate, 42 Parnell Square, 2-8 pm, admission free.

Kilmainham Geol, Kilmainham: 2-8 pm.

Ice Skating, Dolphin's Barn, 2.30-5 pm; 7.30-10.30 pm.

"The Flame on the Hill" (an audio-visual show depicting Ireland before the Vikings), St. Audeon's Church, High Street, 10 am-4.30 pm (hourly).

Work by John Macdiarmid, Nikoli Antolovic, Basement Art Gallery, 14 Bachelors Walk, 10 am-5 pm.

"Project 12", an exhibition of nearly 200 works of art by disabled artists from all over the European Community, Guiness Hop Store.

Christmas exhibition of Small Works by a variety of artists, Rubicon Gallery, 11 Upper Mount Street, 11 am-6 pm.

Gallery Artists Christmas exhibition, Oliver Dowling Gallery, 19 Kildare Street.

Paintings by Liz Fearon and Herrie McManus, Gallery Temp, Sutton Cross, Sutton, 9 am-9 pm.

CO DUBLIN

Mount Merrion Historical Society exhibition of Framed Embroidery by Seamus McGuinness and Porcelain by Vivienne Foley, Lucy Erridge Fashion Gallery, Birdhill, 10 am-6 pm, admission free.

Newpark Adult Education Centre enrolments for Thursday courses, Newtownpark Avenue, Blackrock, 7-8 pm.

"Landscape in Collage", by Treacy O'Donovan, De Selby's Restaurant, Patrick Street, Dun Laoghaire.

Oils and Watercolours by various artists, Southside Framing, 112 Rock Road, Booterstown.

"Christmas Group Show", of Watercolours on Silk by Mary Pickering, Hangman Gallery, 2 Westbourne Terrace, Quinsboro Road, Bray, 11 am-5.30 pm.

Irish Ceramics and Ironcraft exhibition, Marrinan Design, 53 Main Street, Blackrock.

"Art X Change" — A Culturally Capital Art Project. Cumberland Street Employment Exchange, Dun Laoghaire.

Modern Irish Artists exhibition, Paintings in Oils and Watercolours, the Victor Hotel, Rochestown Avenue, Dun Laoghaire.

Gallery artist's exhibition, Howth Harbour Gallery, 6 Abbey Street, Howth, 1-7 pm.

FERMANAGH

Lakeland Players presents "Ali Baba And The Forty Thieves", Ardhowen Theatre, Dublin Road, Enniskillen, 8 pm.

GALWAY

"Outside the Pale: wall to wall", outdoor Sculpture exhibition, Carraroe, Sculpture Park.

KERRY

"The Muse and the Making 1", an exhibition of Painting, Sculpture and Prints by Sean McSweeney, Vivienne Bogan, Mick Mulcahy and others: Craft exhibition by Sarah Ryan, Liam Flynn, Tim Jenkinson and others, Siamsa Tire Theatre/Arts Centre, Tralee.

"Land and Sea", photographic exhibition by Michael Diggin and sculptures by Alan Hall, 5 Castle Street (over Hurley's Bookshop), Tralee, 11 am-6 pm.

Paintings exhibition, Peninsula Arts, Lough Gill, Castlegregory.

Paintings by Gallery artists, Helens Gallery/Work Shop, Clogherbrian Cross, Tralee, 9.30 am-6 pm.

KILDARE

Paintings by Cill Dara Art Group, Ambassador Hotel, Kill, 4-9 pm.

LIMERICK

Paintings and Drawings by Cecily Brennan and Shoreline by Liam Blake, Limerick City Gallery of Art.

Limerick Panto Society presents "Robineon Crusoe", Belltable Arts Centre, O'Connell Street, 8 pm.

Irish and International artists exhibition, Willow Gallery, Georges Quay, 12.15-5.15 pm.

"Limerick Faces of the Nineties", an exhibition by William Miller, First National, 40, O'Connell, Street, 9.30-5.15 pm.

"People of Limerick 1930s-1970s", a Photographic exhibition compiled by William Quinn of his father's work for over 40 years in the locality, AIB Bank, 9/11 Upper William Street.

LOUTH

Paintings, Prints and Drawings, Liam O Broin Gallery and Studio, Millmount Craft Centre, Drogheda, 10 am-7 pm.

MAYO

Still Life and Landscape Paintings in Watercolour, Oils and Pastels by Sr. Finnoula Keveny, the First National Bank, Ballina.

"Quiescence", an exhibition by Gina Burns, An Oige Youth Hostel, Killala.

Country Markets — fresh home and farm products and local crafts, Town Hall, Westport, 10.30 am-1.30 pm.

OFFALY

Offaly Community Arts Group Christmas exhibition of Local Art, the Courtyard Restaurant.

ROSCOMMON

Paintings by contemporary Irish artists, the Old Court House Art Gallery, Frenchpark, 10 am-7 pm.

TIPPERARY

"The Rough with the Smooth", an exhibition of Framed Embroidery by Seamus McGuinness and Porcelain by Vivienne Foley, Lucy Erridge Fashion Gallery, Birdhill, 10 am-6 pm, admission free.

"Holy Wars — Centuries of Religious Controversy", an exhibition, GPA-Bolton Library, John Street, Cashel, 9.30 am-5.30 pm.

Art and photographic exhibition, the Heritage Centre, Main Street, Carrick-on-Suir, 10 am-1 pm; 2-6 pm.

Bru Beo group presents: Irish traditional music, song and dance, Rock of Cashel, 9 pm.

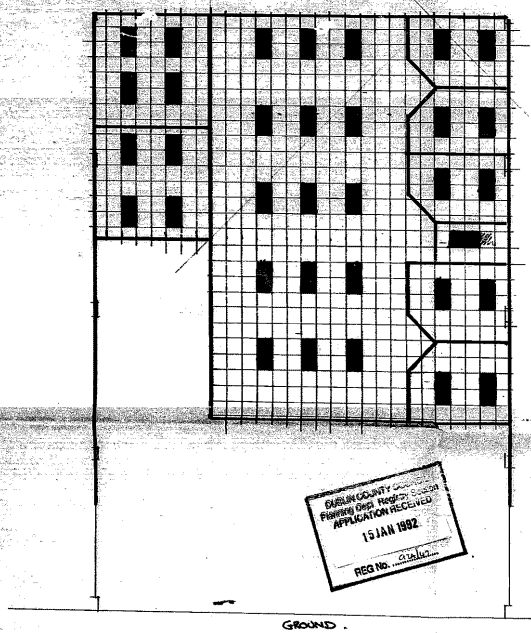
Roecres Heritage Centre, G.P.A. Damer House, Roscrea: 10 am-1 pm; 2-5 pm.

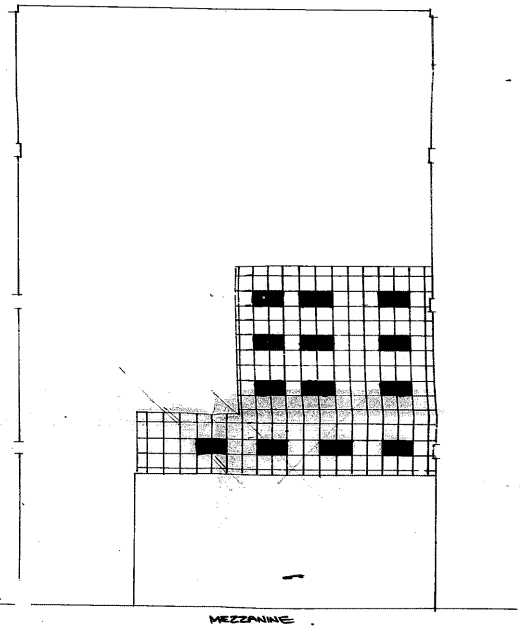
Exhibitions: "Lifetime Products": display of Tipperary Crystal; Sean Kelly Sports Centre Plans, Bank of Ireland, Main Street, Carrick-on-Suir.

WEXFORD

"Kleinkunst", an exhibition of Watercolours by Seamus O'Rourke, the Granary Restaurant, Westgate.

Where this installation causes increased loading to your premises we advise independent verification of the existing structures capability for supporting the given loads.





DUBLIN COUNTY COUNCIL
Planning Dept. Register Section
APPLICATION RECEIVED
15 JAN 1992
REG No. 0216/92

GROUND.

MEZZANINE

CEILING GRID LAYOUT

LIGHT UNIT

Drawn by SC on
Checked if required by on

Scale 1:100

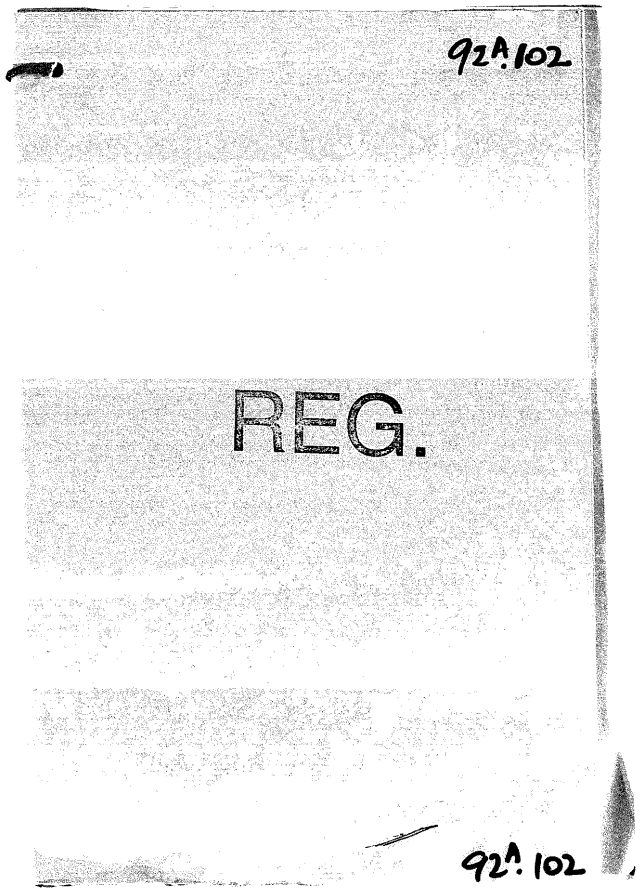
Drawing No. 11-0192-C

Sheet No. 1/2

Revision

Whilst the utmost care is taken to ensure the accuracy of the data and design details contained herein they are provided on the understanding that the company shall not be responsible for any errors or for any action taken in reliance thereon or interpretation placed thereon unless specifically stated to the contrary in writing and attributable to the loss or adoption of such data and or design details.

DEXION
Maylands Avenue, Hemel Hempstead,
Hertfordshire, England, HP2 7EW
Telephone: Hemel Hempstead 42261 Telex 825784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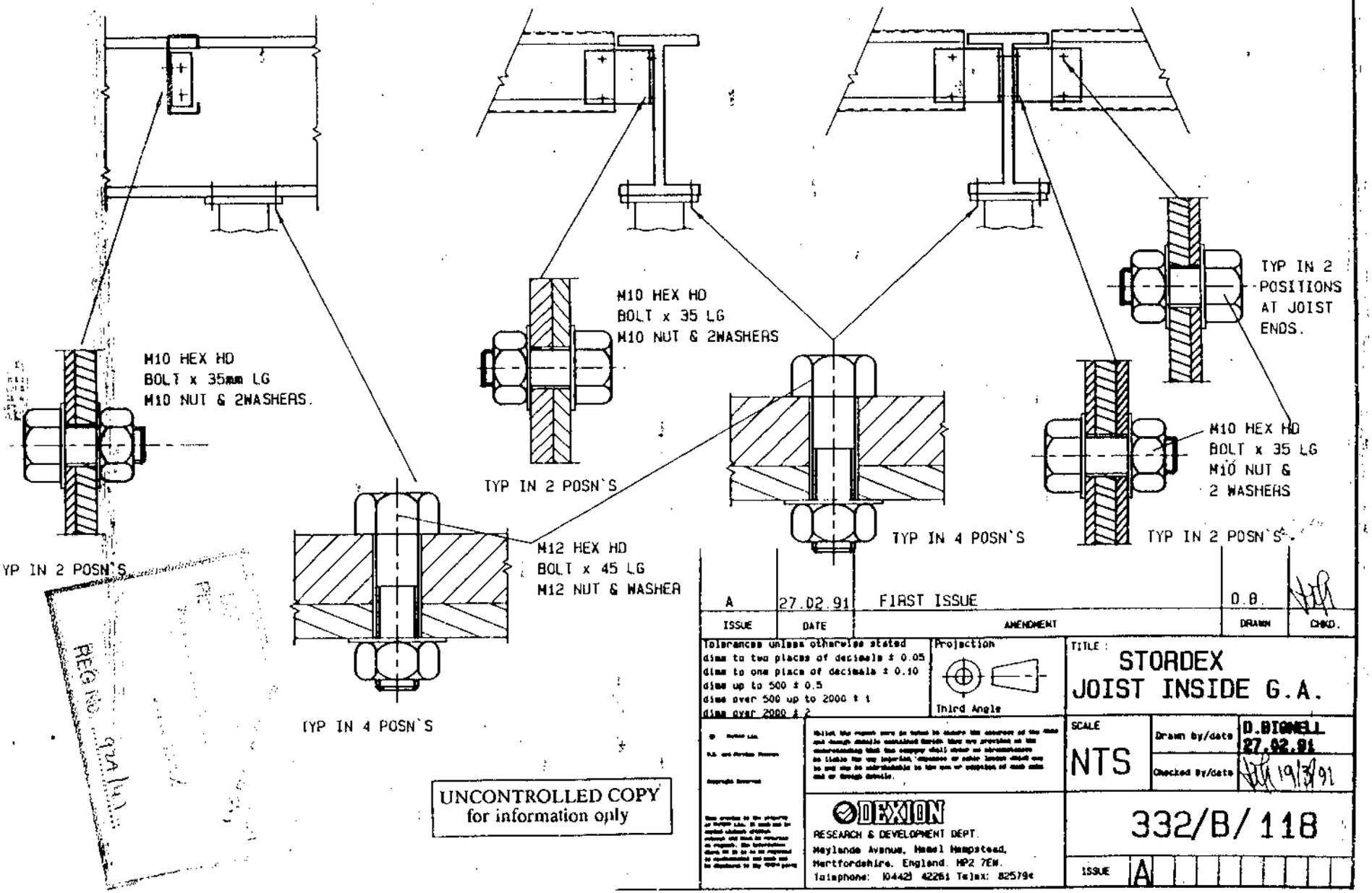


ISSUE	DATE	AMENDMENT	DRAWN	CHKD.
A	27.02.91	FIRST ISSUE	D.B.	

Tolerances unless otherwise stated
dims to two places of decimals ± 0.05
dims to one place of decimals ± 0.10
dims up to 500 ± 0.5
dims over 500 up to 2000 ± 1
dims over 2000 ± 2

Projection: Third Angle

TITLE : STORDEX
JOIST INSIDE G.A.

SCALE: NTS

Drawn by/date: D.BIGNELL 27.02.91

Checked by/date: 19/3/91

DEXION
RESEARCH & DEVELOPMENT DEPT.
Maylands Avenue, Hemel Hempstead,
Hertfordshire, England. HP2 7EW.
Telephone: 01442 42261 Telex: 825796

332/B/118

ISSUE A

UNCONTROLLED COPY
for information only

REG NO 92/1/1

C l i e n t :	A R I T E C H I T E C. BROOMHILL TERRACE BROOMHILL ROAD DUBLIN 24.
P r o p o s a l :	INTERNAL OFFICE DEVELOPMENT AND ANCILLARY SERVICES.
P r e p a r e d B y :	DEXION IRELAND LIMITED 15, CLONDALKIN IND. EST. CLONDALKIN. DUBLIN 22.
C o n t a c t :	M r . J o h n C u m m i n s
P h o n e :	01-571016
Fax:	01-571236.

DEXION®

PROPOSAL

The proposal involves the installation of ground floor and mezzanine level partitioning in the existing warehouse area.

This project involves the installation of a mezzanine floor as shown on the drawing, complete with access stairway.

Under the mezzanine level the ground floor area of the warehouse will be fitted with office partitioning as per the layout drawing.

A suspended ceiling will be placed over the entire area and underneath the mezzanine level.

On the upper mezzanine two offices will be formed as per our layout drawing, a suspended ceiling will be fitted to this area and to the lobby area as shown on the drawing.

All offices will be fitted with electrical power supply as detailed below and lighting, again as detailed below.

Generally, all partitioning will be constructed from the Apton Demountable Partitioning Range, with the exception of the R&D office area, which will be constructed from Double Skin Steel Partitioning, Master Range or similarly approved.

Partitions will be all solid throughout, all doors will be half hour fire rated, complete with door closers intumescent door seals.

Adjacent to each doorway, a vision panel window will be fitted, this will measure 2.1 mtrs high X 300mm wide and will be contructed from Apton standard components. Glass will be 6mm georgian wire polished plate.

All doors will be fitted with union cylinder door locks with panic bolts and union door furniture in aluminium.

1. PARTITIONING.

Partitioning generally throughout the installation will be Apton Demountable Steel Stud System. These partitions will be built in aocordance with the manufacturers instructions to achieve to ½ hour fire ratings throughout. The exception to this would be the full height 1 hour fire rated partition as shown on the drawing.

2. R. & D. OFFICE.

The R & D Office will be formed from Master Range Double Skin Steel Partitioning. This will be built in accordance with manufactures instructions and will be all solid in elevation, complete with one access doorway half hour fire rated.

3. MEZZANINE FLOOR.

The Mezzanine floor will be constructed from the Stordex Range. The structure will have a design loading of 5 kn/m² and will be accessed by one access steel staircase, built in accordance with design calculations and building regulations. Support columns to the Mezzanine floor will be clad to achieve 1 hour fire rating.

4. SUSPENDED CEILING.

Suspended Ceilings will be fitted on the upper Mezzanine Offices, the Stairway Lobby and the Warehouse area over the new offices. Ceilings will be 600 X 600, exposed grid type, with fissured white ceiling panels. Ceilings will be installed to manufacturers instructions and will be constructed using the Armstrong System or similarly approved.

5. CARPET.

Carpet and underlay will be fitted throughout the new ground floor offices and mezzanine level offices complete with underlay to clients specification.

6. LIGHTING.

Lighting will be provided throughout using 600 X 1200 modular light fittings. Fittings will be 4 tube floresant type, fitted with presmatic defusers.

7. ELECTRICAL POWER SUPPLY.

Each office will be fitted with 4, 13 amp, sockets and one switch spur heater outlet, with a 1.5 kw rating. All electical wiring will conform to the statuary regulations. Electrical heaters will be Dimplex or similarly approved, 1 kw heaters fitted with thermostat. Heaters will be supplied and fitted by client at a later stage.

8. ELECTRICAL INSTALLATION.

Electrical installation will be complete with main supply swith, all necessary MCB's labelled clearly and fitted in an enclosure in the specified area.

APTON PARTITIONING SPECIFICATION

1. CONSTRUCTION

The partition shall be erected in standard 1200mm modules with make-up pieces as necessary. It shall comprise of ceiling, floor and wall track with vertical studs clad on both sides with 12.7mm plasterboard held in position by steel fixing strips and plastic cover trims. Pre-formed door and window frames fit into the basic framework as required.

2. FRAMING

The framework shall consist of 0.6mm zinc plated cold rolled steel floor track and studs, and 0.6mm mild steel stove enamelled (colour Ral 8019) ceiling track and wall track overall 86mm wide x 33mm deep with outer flanges 23mm deep. The floor track is screwed to the floor by the appropriate screws. The wall and ceiling tracks are similarly screwed to their abutments. The studs fit into the floor track and are pop- rivettted to same. A connector unit is fitted to the top of the stud and clipped and pop-rivetted onto the ceiling track. Studs supplied in standard lengths of 3000mm are fixed at 600mm centres to enable services to be passed within. Where the window frames and door frames are to be fitted, transoms are pop-rivetted to studs with transoms spanning 1200mm.

3. PANELS

The steel framework shall be clad on both sides with 12.7mm square edged plasterboard sheet conforming to BS 1230, Gypsum Plasterboard, Part 2, 1970, and consisting of an aerated Gypsum core encased in and firmly bonded to specially prepared durable paper liners. The sheets 1200mm x 3000mm high are cut on site to required heights.

The plasterboard panels shall be fitted under the lip edge of the ceiling and wall tracks and rest against the floor track. The panels are held in position by vertical and horizontal steel section strips fixed with self tapping screws at 300mm centres to the studs and transoms. Where horizontal strips are fitted along the transom, these shall be cut to fit below and above the horizontal strip. A PVC cover strip shall be clipped into the steel strip to cover screw heads and act as a feature.

The bottom edge of the plasterboard panels shall be encased in a 'J' shaped PVC skirting, 48mm high, which clips onto the plasterboard edge. The skirting shall be supplied in lengths of 3000mm and cut to length on site.

4. DECOR

The plasterboard panels shall be delivered to site pre-decorated. The fabric shall be stuck to the board with an approved adhesive.

5. DOORS

The doors shall be 2040mm x 826mm x 40mm hollow core, or solid core in fire rated partitions, painted for sapele veneer finish, and shall be pre-hung on 3 No. standard hinges, screwed into the threaded sockets incorporated in the doorframe.

The frame shall be constructed of .8mm zinc plated steel channel section enamelled, colour Brown RAL 8019. The frame shall be fitted into the stud framework and the stiles shall be located by means of 2 floor fixed brackets.

The doors shall be fitted with a standard SAA level handle, mortice latch, and lock, and a striking plate shall be mounted separately on the doorframe (or type specified).

6. WINDOWS

The window frames shall be constructed of 0.8mm thick electrically zinc plated steel sheet enamelled, colour Brown. The frames shall be pre-glazed with the required glass which is held in position by steel glazing beads and glazing gasket.

Where fire rated partition is required 6mm Georgian Wired Glass to be used.

7. TRIMS

The retaining strips shall be steel with Brown PVC snap-on cover strip. Internal and external corners shall be in steel, stove enamelled, colour Brown.

8. ACCUSTIC INFILL

Mineral wool slabs (density 20kg/m3) x 50mm thick, shall be inserted inside the partition in order to further improve the acoustic insulation properties, or where half hour fire rating is required.

9. ACOUSTIC RATING

The partitioning will give the following sound attenuation over a range of 400-2500 Hz under test conditions, defined as a mean sound reduction index (to BS 2750).

		(dB)
a)	Solid Panel - without acoustic infill	- 35 - 36
b)	Solid Panel - with acoustic infill	- 41 - 42
c)	Centre Glazed Panel	- 26 - 27
d)	Transom Glazed Panel	- 27 - 28
e)	Half Glazed Panel	- 24 - 26

10. FIRE RATING

The system does provide a half hour fire rating as defined in Building Regulations, when acoustic infill is used, in conjunction with solid core doors and Georgian Wired Glass.

11. SPREAD-OF-FLAME

The system without the decorative fabric finish complies with CLass 'O' Spread of Flame rating as defined in BS 467, Part 4.

The standard decorative fabric applied to the plasterboard panels complies with Class 'O' Spread of Flame.

****

PRODUCT SPECIFICATION

APTON PARTITIONING

Partitions will be installed as per the layout drawing and fire rated as stated on the drawing.

****

STORDEX RAISED STORAGE AREA

GENERAL INFORMATION

Stordex Raised Storage Areas are designed with the use of the latest computer technology. Design and manufacture conforms to British Standards 449:Part 2:1969 'Specification for the Use of Structural Steel in Building',and Addenum No.1 (April 1975) 'Specification for the Use of Cold Formed Steel Sections in Building'.

Structures built in this way satisfy the requirements of Section D8 of the main Building Regulations 1976 relating to structural integrity. The main beams are manufactured to BS4:Part 1:1972 'Structural Steel Sections - Hot Rolled Sections'. The columns are manufactured in compliance with BS4848:Part 2 - Hollow Sections using material Grade 43 to BS4360:1979 'Specification for Weldable Structural Steel'.

The stairways and handrails comply with Building Regulations (Section H), and relate to the British Standard Code of Practice. The handrail, in fact, meets the higher standard required for public buildings 740 N/M whilst the handrailing generally offered by suppliers of this type of installation only meets the lower private use standard.

The steel stair treads have a hard-wearing non-slip finish as standard. The general safety feature of the Cat Ladder are based on the recommendations of BS4211.

All bolts in the structural connections are to BS3692:1976 'ISO Metric Precision Hexagon Bolts', and have a bright Zinc passivated finish.

The Stordex system comprises steel joists sections laid over structural steel main beams. These beams are supported by R.H.S. steel stanchions. Once the columns have been levelled, each one is secured to the concrete floor by four 12mm x 125mm high tensiles steel studs, resin bonded to the concrete.

Any air space below the baseplate, caused by an uneven floor, is then filled with a pourable cementitious structural grout to ensure that all loads transferred to the floor are spread over a consistant predetermined area.

Stordex is completely free-standing and imposes no additional load on the above ground structure of the building.

In addition to being functional, the Stordex system has been designed to be good looking and pleasing in appearance. All steel components are finished with a smooth, hard-wearing paint finish prior to leaving our factory therefore eliminating site finishing after installation. A number of the components, including the stairways, handrailing, joists and stanchions are stove enamelled to British Standards for a long maintenance-free operational life.

Floor Material:	15mm Finly Birch Plywood.
Joists:	165 std duty/178 E/Heavy Duty.
Main Beam:	305 X 127 X 37 U.B.
Columns:	100 X 100 X 5 RHS
Design Load:	5.0 kn/per mtr sq.
Client:	Aritech Itec.

****

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,
Bloc 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 : 92A/0047

Date : 16th January 1992

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

Dear Sir/Madam,

DEVELOPMENT : Internal office development and ancillary services

LOCATION : Unit 3, Broomhill Terrace, Tallaght Industrial Estate Co. Dublin

APPLICANT : Aritech Ireland

APP. TYPE : PERMISSION/BUILDING BYE-LAW APPROVAL

With reference to the above, I acknowledge receipt of your application received on 15th January 1992.

Yours faithfully,

.....

for PRINCIPAL OFFICER

Dexion Ireland Limited,
Unit 15, Clondalkin Industrial Estate,
Clondalkin,
Dublin 22

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 ARITECH IRELAND
(If none, give description sufficient to identify) Unit 3, Broomhill Terrace, Tallaght Ind. Est. Tallaght, Dublin 24

3. Name of applicant (Principal not Agent) Aritech Ireland
Address Unit 3, Broomhill Terrace, Tallaght, Dublin 24 Tel. No. 521055

4. Name and address of person or firm responsible for preparation of drawings Dexion Ireland Limited, Unit 15, Clondalkin Ind. Est., Clondalkin, Dublin 22. Tel. No 571016

5. Name and address to which notifications should be sent Dexion Ireland Limited.
Unit 15, Clondalkin Ind Est. Clondalkin, Dublin 22

6. Brief description of proposed development Internal Office Development.

7. Method of drainage N/A 8. Source of Water Supply N/A

15/1/92

647.50

N 54372

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. Warehouse Space
(b) Proposed use of each floor Administration Offices

Irish Lines 9/11/92

10 Does the proposal involve demolition, partial demolition or change of use of any habitable house or part thereof? NO

N/A

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

(b) Floor area of proposed development 370 Sq. m.

(c) Floor area of buildings proposed to be retained within site ..... Sq. m.

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

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 account in your proposal:

15. List of plans, particulars, specifications and drawings submitted with this application

DUBLIN 24 — Planning permission sought from Dublin County Council for internal office development and ancillary services at Unit 3, Broomhill Terrace, Tallaght Industrial Estate, Co. Dublin for Aritech Ireland.

4 X Specification Ref: 1319
4 X Drawing No: 10 - 0192 - C.
4 X Drawing No: 11 - 0192 - C.

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

No of dwellings proposed (if any) N/A Class(es) of Development .....

Fee Payable £ 647.50 Basis of Calculation 370 X £1.75

If a reduced fee is tendered details of previous relevant payment should be given

Signature of Applicant (or his Agent) ..... Date 13/11/92

FOR OFFICE USE ONLY

Application Type P/B
Register Reference 92A/0047
Amount Received £ 21 — 8
2.20.4.12
Receipt No .....
Date .....

RECEIPT CODE

COMHAIRLE CHONTAE ÁTHA CLIATH

PAID BY —

CASH

CHEQUE ✓

M.O.

B.L.

I.T.

£647.50

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

Issue of this receipt is not an acknowledgment that the fee tendered is the prescribed application fee. ✓ N 54372

Received this 15th day of June 1992

from Devlon Ireland ltd
Unit 15 Clondalkin Industrial Estate

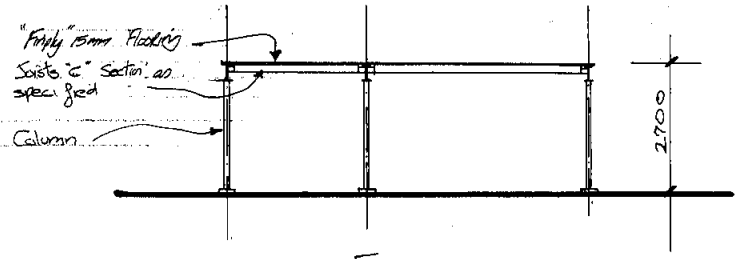
the sum of six hundred and forty Seven ——— Pounds

——— Pence, being fee for dangerous application at Unit 3 Broomhill Tower, Tallaght Dublin 24 Class 4

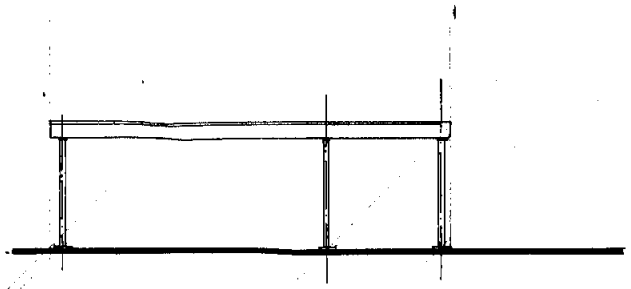
Muriel O'Hara Cashier

S. CAREY
Principal Officer

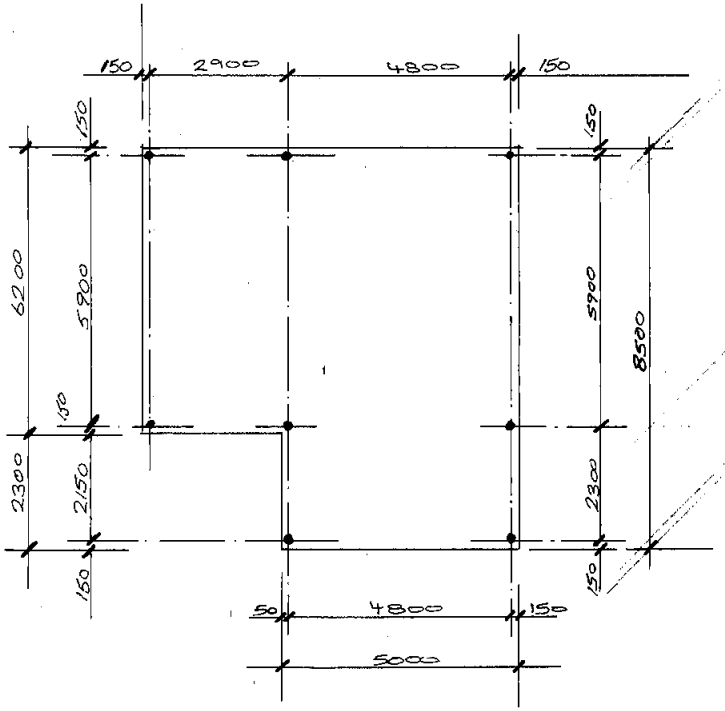
Where this installation causes increased loading to your premises we advise independent verification of the extisting structures capability for supporting the given loads.



ELEVATION



SIDE VIEW



PLAN 2

Drawn by S.C. on

Checked by on

Scale 1:100

Drawing No. 11-0192-C

Sheet No. 2/2

Revision

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DEXION
Maylands Avenue, Hemel Hempstead,
Hertfordshire, England. HP2 7EW
Telephone: 0442 242261 Fax: 0442 217145 Telex: 825794