5-7 CARLTON GARDENS
LONDON SW1

OPERATING & MAINTENANCE INSTRUCTIONS
for the
MECHANICAL SERVICES

VOLUME 1
1.4.4 – Section I

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MASTER INDEX

Volume 1 Mechanical Services

Book	Section	Title
1.1	A	General Details
	B	The Installation
	C	Schedules
	D	Operation of the Installation
	E	Maintenance of the Installation
	F	System Records
1.2	G	Record Drawings
		Manufacturers Literature
1.3.1	H1-16	A to Ho
1.3.2	H17-29	Hu to W
1.3.3	H23	Mcquay Chiller
1.3.4	H25	Preussag (Part 1)
1.3.5	H25	Preussag (Part 2)
		Inspection & Testing Records
1.4.1	I	Basement & Lower Ground
1.4.2	I	Ground & 1st Floors
1.4.3	I	2nd & 3rd Floors
1.4.4	I	4th & 5th Floors
1.4.5	I	Risers & Soil Systems
1.5	J	Commissioning File

MASTER INDEX – cont.

Volume 2 BMS

Book	Section	Title
2.1	A	General Details
	B	The Installation
	C	Schedules
	D	Operation of the Installation
	E	Maintenance of the Installation
	F	System Records
2.2	G	Record Drawings
2.3	H	Manufacturers Literature
2.4	I	Commissioning File

Volume 3 Electrical Services

Book	Section	Title
3.1	A	General Details
	B	The Installation
	C	Schedules
	D	Operation of the Installation
	E	Maintenance of the Installation
	F	System Records
3.2	G	Record Drawings
3.3	H	Manufacturers Literature
3.4	I	Commissioning File

MASTER INDEX – *cont.*

Volume 4 Lifts

Book	Section	Title
4.1		Lift 1 Integrated Instructions
4.2		Lift 2 Integrated Instructions
4.3		Lift 3 Integrated Instructions
4.4		Lift 4 Integrated Instructions
4.5		Lift 5 Integrated Instructions
4.6		Lift 6 Integrated Instructions
4.7		Lifts 7&8 Integrated Instructions

Volume 5 Building Fabric

Book	Section	Title
5.1	1	*Not Used*
	2	Sub/Superstructure
5.2.1	3, Part 1	Structural Steelwork
5.2.2	3, Part 2	Structural Steelwork
5.2.3	3, Part 3	Structural Steelwork
5.3	4	External Stonework
	5	Security Kiosk
5.4	6	Windows & Glazing
5.5	7	Dry Lining & Partitioning
5.6	8	Blockwork
	9	Roof Finishes
	10	Pergola
5.7	11	Suspended Cielings
	12	*Not used*
	13	Raised Floors
	14	Toilet Fit-out

MASTER INDEX *– cont.*

Volume 5 ***Building Fabric*** *– cont.*

Book	Section	Title
5.8	15	Marble Flooring & Screeding
	16	Soft Floor Finishes
	17	Door Sets & Joinery
	18	Standard Architectural Metalwork
	19	Bronze Architectural Metalwork
5.9	20	Residential Bridge
	21	General Decorations
	22	Compactor
	23	Façade Cleaning
5.10	24	Residential Fit-out
	25	Soft Landscaping
	26	Sculpture

VOLUME 1 - MECHANICAL SERVICES

VOLUME 1.1

INDEX

SECTION A GENERAL

1. How to Use the Manual
2. Health & Safety at Work
3. **Emergency Information & Procedures**
4. Contractural and Legal Details

SECTION B THE INSTALLATION

1. Purpose of the Installation
2. Design Criteria
3. Description of the Systems

SECTION C SCHEDULES

1. Schedule of Suppliers
2. Schedule of Boilers
3. Schedule of Chillers
4. Schedule of Pumps
5. Schedule of Pressurisation Units
6. Schedule of Air Handling Units
.7. Schedule of Fan Coil Units
8. Schedule of Fans
9. Schedule of Heaters
10. Schedule of Insulation
11. Schedule of Attenuators
12.1 Schedule of Fire Dampers
12.2 Schedule of Pressure Control Valves
13. Schedule of Grilles & Diffusers
14. Schedule of Tanks
15. Schedule of Booster Sets
16. Schedule of Water Conditioners
17. Schedule of Calorifiers
18. Schedule of Sump Pumps
19. A/C Split Unit

SECTION D OPERATION OF THE INSTALLATION

1. General Operating Instructions
    1. General Notes: Faults & Remedial Actions
    2. Recommendations For Monitoring
    3. Electric Motors: Faults & Remedial Works
    4. Air Conditioning Systems
    5. Ventilation System: Supply & Extract System
    6. Supply Air Systems: Faults & Remedial Actions
    7. Packaged Air Handling Units
    8. Ventilating Fans: Axial Type
    9. Ventilating Fans: Centrifugal Type
    10. Fans: Faults & Remedial Actions
    11. Air Filters: Frame Type
    12. Air Cooler Batteries: Chilled Water
    13. Air Conditioning Units
    14. Fan Coil Units
    15. Variable Air Volume Units: Electrically Powered
    16. Piped Systems: General Operating Procedures
    17. Pressurisation Units
    18. Circulating Pumps
    19. Pumps: Faults & Remedial Actions
    20. Water Treatment For Closed Circuit Heating and Cooling Systems: Chemical Dosing (manual)
    21. Air Venting
    22. Refrigeration Compressors: Reciprocating Type
    23. Refrigeration Condensers: Air Cooled
    24. Sprinkler System

2. **For each system and plant item**

    1. Normal Operation
    2. Starting Up
    3. Shut Down Procedure
    4. Emergency Procedures

SECTION E MAINTENANCE OF THE INSTALLATION

1. Introduction
2. Safety Procedures
3. Permit To Work
4. Recommendations for Monitoring
5. System Testing

SECTION E MAINTENANCE OF THE INSTALLATION CONT'D

6. Plant Maintenance Notes
   1. Bearings
   2. Belt Drives
   3. Electric Motors
   3. Fans: Axial Type
   4. Control & Control Panels
   5. Pumps
   6. Tanks: Cold Water Storage
   7. Pipework: Including Fittings & Valves etc.
   8. Insulation
   9. Strainers
   10. Air Filters
   11. Plumbing Systems
   12. Boilers
   13. Chillers
   14. Heat Exchangers
   15. Radiators & Convectors

7. Maintenance Schedules
   1. Daily Inspections
   2. Weekly Inspections
   3. Monthly Inspections
   4. Qurterly Maintenamnce
   5. 6 Monthly Maintenance
   6. Yearly Maintenance
   7. 3 Yearly Maintenance
   8. 15 Yearly Maintenance

8. Maintenance Programme
9. Spare Parts List
10. Tools List

SECTION F SYSTEM RECORDS

1. Expected Service Life
2. Disposal Instructions

VOLUME 1.2

SECTION G RECORD DRAWINGS

1. Schedule of Record Drawings
2. Record Drawings *(reduced to A3 size)*

VOLUME 1.3

SECTION H MANUFACTURERS LITERATURE

Supplier / Manufacturer	Plant/System/Item
Aquatanks	C.W.STORAGE TANKS
Armstrong Via Preussag	HOSEREEL BOOSTERS
Contract Components Ltd.	DUCT ACCESS DOORS
Diffussion Environmental Ltd.	FAN COIL UNITS
ACL Drayton	THERMOSTATIC RADIATOR VALVES
Estec Environmental Ltd.	CHLORINATION & WATER TREATMENT
F.E. Cole & Son Ltd.	DUCTWORK
Fire Protection Ltd.	FIRE DUCTS
Grundfos Pumps Ltd	SUMP PUMPS
Guntner UK	DRY COOLER
Hamworthy	BOILERS
Holden & Brooke Ltd	PUMPS, PRESSURISATION UNITS & COLD WATER BOOSTERS
Holmes	VALVES
Hudevad Britain	RADIATORS
IMI Rycroft Ltd	CALORIFIERS
Liff Industries	WATER CONDITIONERS
McQuay International AAF Ltd.	AIR HANDLERS &CHILLERS
Matthew & Yates	FANS
Minikin & Sons Ltd	FLEXIBLE CONNECTIONS
Noico Ltd.	INERTIA BASES
Preussag Fire Protection Ltd.	SPRINKLERS, HOSEREELS DRY RISERS
SPC	HEATING COILS
Stepspeed Ltd.	THERMAL INSULATION
Waterloo Air Management	DAMPERS, PRESSURE CONTROL VALVES
Woods Air Movement	FANS
Set Point	ROOM A/C UNIT

VOLUME 1.4

SECTION I INSPECTION RECORDS & TEST FILES

1. Lower Ground Floor
2. Basement
3. Ground Floor
4. First Floor
5. Second Floor
6. Third Floor
7. Fourth Floor
8. Fifth Floor
9. East Riser
10. South-West Riser
11. Plumbing Risers

SECTION J COMMISSIONING FILE

CROSS REFERENCE INDEX

ITEM	OPERATING INSTRUCTIONS General/Particular	GENERAL MAINTENANCE INSTRUCTIONS	SPECIFIC SUPPLIER LITERATURE
BEARINGS		E.6.1	
BELTS		E.6.2	
BOILERS (Hamworthy)	D.1.1.1 D.3.1.1.	E.6.12 / E.7.1.1.1 E.7.2.1.1/ E.7.3.1 E.7.5.1.1 / E.7.6.1	H.8
LPHW PUMPS (Holden & Brooke)	D.1.1.2 D.3.1.2	E.6.5 / E.7.2.1.2 E.7.5.1.2	H.9
LPHW PRESS. UNITS (H & B)	D.1.1.3	E.7.2.1.3 /E.7.5.1.3	H.9
LTHW PIPEWORK		E.6.7 / E.7.5.1.3 E.7.6.1	
INSULATION			
STRAINERS		E.6.9 / E.7.5.1.3	
WATER TREATMENT		E.7.4.1	H5
TRACE HEATING		E.7.6.1	
CHILLERS (McQuay)	D.1.2.1 D.3.2.1	E.6.13 / E.7.1.2 E.7.2.2 / E.7.3.2 E.7.4.2.1 / E.7.6.2	H.2
DRY COOLERS	D.3.2.1	E.7.4.2.1	H.7
CHW PUMPS (H&B)	D.3.2.2	E.6.5 / E.7.2.2.2 E.7.5.2.2	H.9
CHW PRESS. UNITS (H & B)	D.3.2.3	E.7.2.2.3 / E.7.5.2.3	H.9
CHW PIPEWORK		E.6.7 / E.7.5.2.3	
INSULATION		E.6.8	
STRAINERS		E.6.9 / E.7.5.2.3	
WATER TREATMENT		E.7.4.2	H5
AIR HANDLING UNITS (McQuay)	D.1.3.1	E.6.10(Filters) E.7.2.3.1 / E.7.3.3 E.7.5.3.1	
FAN COIL UNITS (Diffusion)	D.1.3.2 D.3.3.2	E.7.4.3 / E.7.6.3.3	H.4
FANS	D.1.3.3	E.7.2.3.4 / E.7.5.3.4 E.7.6.3.3	H.5
DAMPERS (Waterloo)	D.3.4	E.7.5.3.1	

CROSS REFERENCE INDEX CONT'D

ITEM	OPERATING INSTRUCTIONS General/Particular	GENERAL MAINTENANCE INSTRUCTIONS	SPECIFIC SUPPLIER LITERATURE
RADIATORS		E.6.15 / E.7.5.3.3 E.7.6.3.3	H.11
TANKS		E.6.6	H.2
CW BOOSTER SETS (Holden & Brooke)	D.1.4.3 D.3.4.3	E.7.4.4 / E.7.5.4.2/3	H.9
CALORIFIERS (IMI Rycroft)	D.1.4.4 D.3.4.4	E.6.14 / E.7.2.4.2 E.7.5.4.4 / E.7.6.4.4	
C&HWS PIPEWORK		E.6.7-11 / E.7.5.4.4 E.7.6.4.4	
INSULATION			
STRAINERS		E.6.9 / E.7.5.4.4	
WATER CONDITIONER	D.3.4.2 D.3.4.4	E.7.5.4.2/3	H.12
TRACE HEATING		E.7.6.4.5	
SUMP PUMP SETS	D.3.4.5		H.6
SPRINKLERS (Prussag)	D.1.5.1	E.7.1.5.1 / E.7.2.5.1 E.7.4.5.1 / E.7.5.5.1 E.7.6.5.1 / E.7.7.5.1 E.7.8.5.1	
HOSE REELS (Prussag & Armstrong)	D.1.5.2 D.3.5.2	E.7.2.5.2 / E.7.4.5.2 E.7.5.5.2 / E.7.6.5.2	H.3
DRY RISERS	D.1.5.3	E.7.5.3 / E.7.5.5.3 E.7.6.5.3	
CONTROLS & BMS (Synchronised Systems)	D.8	E.6.4 / E.7.2.8 E.7.5.8 / E.7.6.8	

7

MACE STANDARD PRO-FC (JOB SPECIFIC)
FOR FINAL SIGN OFF OF THE CEILING/FLOOR VOID

SAMPLE

FINAL VOID CLOSURE

BUILDING : S-7 CARLTON GDNS LEVEL : 4TH floor

CHECKLIST

		Trade Contractor		Mace Ltd.		Consultant		
		Initial	Date	Initial	Date	Initial	Date	Comments
1.	Mechanical Pipework	JS						
2.	Plumbing Pipework	JS						
3.	Electrical 1st Fix							
4.	PA 1st Fix							
5.	FA 1st Fix							
6.	Ductwork	JS						
7.	Security Carcass							
8.	Fire Damper R.A.							
9.	Modular Wiring Boxes							
10.	Valve Tags	JS						
11.	Lagging Pipework	JS						
12.	Pipework Testing	JS						
13.	Lagging Ductwork	JS						
14.	FA Cables Terminated							
15.	Ductwork and Pipework ID	JS						

Excluded items which will require access through ceiling/floor grid :-

Flexible Duct Connects to Fan Coils
Modular Wiring to Light Fittings
2nd Fix Fire Alarms
Chemical Flushing of Pipework

Water Balance of Heaters and Chilled Water Systems
Wiring to Door Contacts
Commissioning Lighting Control System
Air Balance of Ductwork System

Final Addressing and Commissioning of Fan Coils
Plugs to Fit to FCU Drain Valves After Flushing Activities Have Been Completed
IT Testing, Etc.
VESDA Installations

m|a|c|e

Second Fix Inspection Sign Off Sheet

Area / Floor: 4TH floor

Date: _____

1) Chilled Water, Heating and Condensate Installation ☑
   Exclusions:

2) Ductwork Systems Installation ☑
   Exclusions:

3) Sprinkler Installation ☑
   Exclusions: H/R DROPPERS TO FIT
   W/HOODS TO REMOVE

4) Thermal Insulation ☑
   Exclusions:

Signed and Inspected by DSE _____ Date _____

Signed and Inspected by Mace _____ Date _____

MACE STANDARD PRO-F[illegible] (JOB SPECIFIC) FOR FINAL SIGN OFF OF THE CEILING/FLOOR VOID

VOID CLOSURE

BUILDING : 5 - 7 CARLTON GRDS LEVEL : FOURTH FLOOR OFFICE AREA.

CHECKLIST

		Trade Contractor		Mace Ltd.				
		Initial	Date	Initial	Date			
1.	Mechanical Pipework	MLa	15/3/99					
2.	Plumbing Pipework	MLa	15/3/99					
3.	Electrical 1st Fix	—						
4.	PA 1st Fix	—						
5.	FA 1st Fix	—						
6.	Ductwork	CDJ.	15/3/99					(PRIMARY AIR SYSTEM → ONE NUMBER ATTENUATOR TO BE FITTED APPROX 1 DAY)
7.	Security Carcass	—						
8.	Fire Damper R.A.	MLa	12/3/99					
9	Modular Wiring Boxes	—						
10.	Valve Tags	* MLa						(NOTE VALVE TAGS TO BE ADDED 18/3/99)
11.	Lagging Pipework	MLa	12/3/99					
12.	Pipework Testing	MLa	12/3/99					
13.	Lagging Ductwork	MLa	12/3/99					
14.	FA Cables Terminated	—	—					
15.	Ductwork and Pipework ID							

Excluded items: [illegible]

- ✓ Flexible Duct Connects to Fan Coils
- Modular Wiring to Light Fittings
- 2nd Fix Fire Alarms
- ✓ Chemical Flushing of Pipework
- ✓ Water Balance of [illegible]
- Wiring to Door Contacts
- Commissioning Lighting Control System
- ✓ Air Balance of Ductwork System
- ✓ [illegible] and Commissioning of Fan Coils
- Plugs to Fitted FCU Drain Valves After Flushing Activities have Been Completed ✓
- IT Testing, Etc

m|a|c|e

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[illegible]

MACE STANDARD PRO-F[illegible] (JOB SPECIFIC) FOR FINAL SIGN OFF OF THE CEILING/FLOOR VOID

VOID CLOSURE

BUILDING : 5 - 7 CARLTON GRDS LEVEL : FOURTH FLOOR OFFICE AREA.

CHECKLIST

		Trade Contractor		Mace Ltd.				
		Initial	Date	Initial	Date			
1.	Mechanical Pipework	MLa	15/3/99					
2.	Plumbing Pipework	MLa	15/3/99					
3.	Electrical 1st Fix	—						
4.	PA 1st Fix	—						
5.	FA 1st Fix	—						
6.	Ductwork	CDJ.	15/3/99					(PRIMARY AIR SYSTEM → ONE NUMBER ATTENUATOR TO BE FITTED APPROX 1 DAY.)
7.	Security Carcass	—						
8.	Fire Damper R.A.	MLa	12/3/99					
9	Modular Wiring Boxes	—						
10.	Valve Tags	* MLa						(NOTE VALVE TAGS TO BE ADDED 18/3/99)
11.	Lagging Pipework	MLa	12/3/99					
12.	Pipework Testing	MLa	12/3/99					
13.	Lagging Ductwork	MLa	12/3/99					
14.	FA Cables Terminated	—	—					
15.	Ductwork and Pipework ID							

Excluded Items [illegible]

✓ Flexible Duct Connects to Fan Coils
Modular Wiring to Light Fittings
2nd Fix Fire Alarms
✓ Chemical Flushing of Pipework

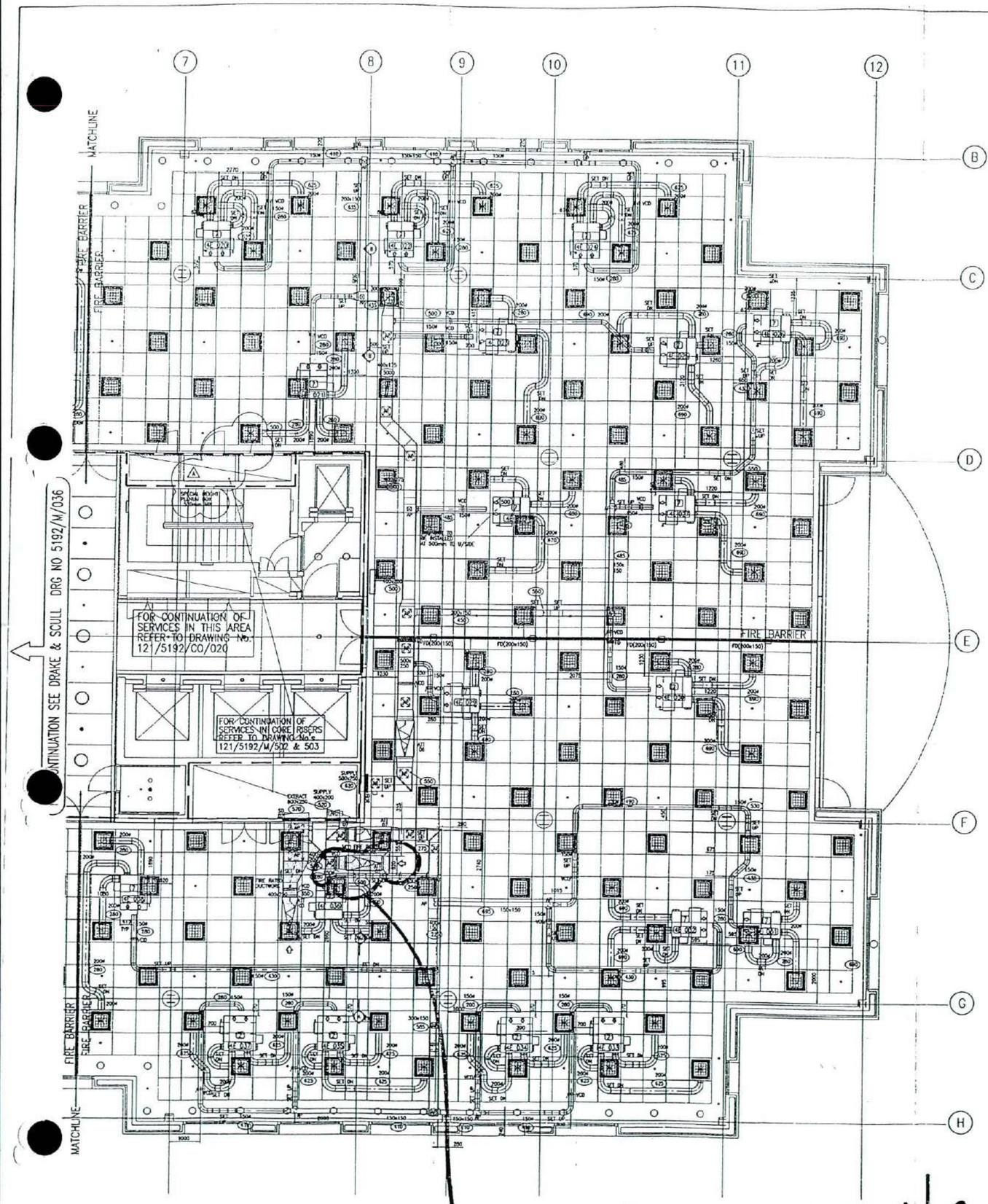
✓ Water Balancing Heating and Chilled Water Systems
Wiring to Door Contacts
Commissioning Lighting Control System
✓ Air Balance of Ductwork System

✓ Final Adjusting and Commissioning of Fan Coils
Plugs to Fit to FCU Drain Valves After Flushing Activities have Been Completed ✓
IT Testing, Etc

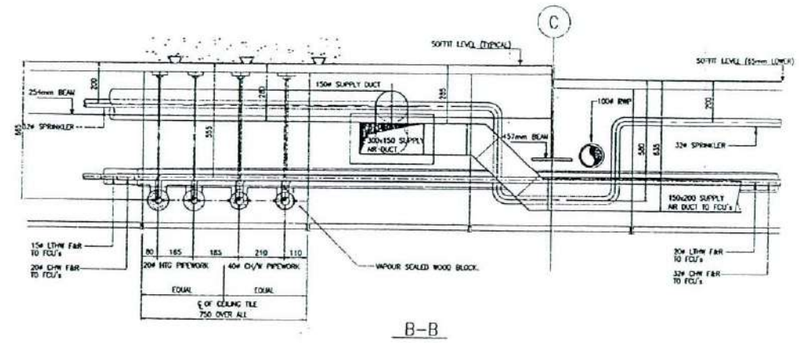
m|a|c|e

W:\ULWC (E)\CARLTON\WIRING\NOFF\HLS01507.DOC

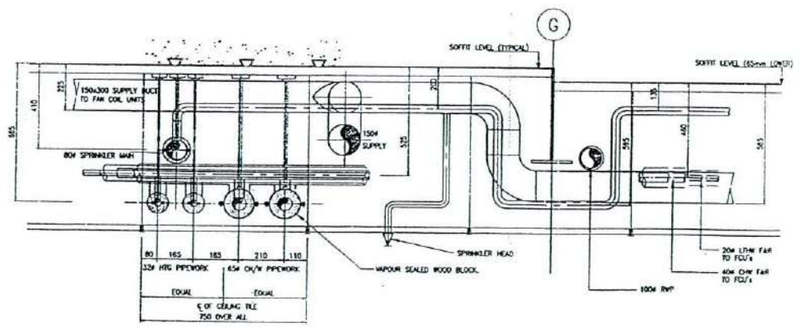
[illegible]



ATTENUATOR TO BE FITTED. MA



B–B



A–A

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NOTES

1. DO NOT SCALE FROM THIS DRAWING
2. ALL DIMENSIONS ARE IN MILLIMETRES
3. FOR DETAILS OF FAN COIL UNIT HANGING , FIRE DAMPER PENETRATIONS REFER TO DRG No. 121/5192/M/027
4. FOR DETAILS OF RETURN AIR STAT TYPICAL POSITION REFER TO DRG No. 121/5192/M/027
5. ALL SECONDARY AIR FLEXIBLE CONNECTIONS ARE 200# UNLESS OTHERWISE STATED , MAX LENGTH 400mm.
6. THIS DUCTWORK LAYER IS PRODUCED FOR CO-ORDINATION PURPOSES ONLY . FULL DETAILS OF TURNING VANES , FIRE DAMPER ACCESS , VOLUME CONTROL DAMPER ACCESS WILL BE ADDED WHEN REVIEWED BY DUCTWORK CONTRACTOR
7. ALL FAN COIL UNIT PLENUM BOX OUTLETS NOT USED WILL BE CAPPED AT WORKS.
8. FOR TYPICAL DETAILS OF PRIMARY SUPPLY AIR ONTO FAN COIL UNIT REFER TO DRG No. 121/5192/M/027
9. PRIMARY SUPPLY TO FAN COIL UNITS TERMINATES 150mm TYPICAL FROM FACE OF FAN COIL UNIT FILTER
10. FOR DETAILS OF REFLECTED CEILING SEE MICHAEL WILFORD & PARTNERS DRAWINGS

PLENUM BOX SCHEDULE

REF	DETAIL	No
*	SIDE ENTRY	16
!	UNUSABLE AS SUPPLY	3
UNMARKED	TOP ENTRY	73

ALL PLENUMS TO BE FITTED WITH BLADE DAMPER ON SPIGOT ENTRY

ATTENUATOR SCHEDULE

REF	SIZE
ATT 02	TBC
ATT 03	TBC
ATT 06	TBC
ATT 07	TBC

ATTENUATORS MANUFACTURED BY WATERLOO LTD

LEGEND

(250) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO
a) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK

NOTE
SLAB BETWEEN GRIDS B & C AND BETWEEN GRIDS G & H IS 65mm LOWER THAN THE MAIN SLAB .

SD	SMOKE DAMPER
VCD	VOLUME CONTROL DAMPER
FD	FIRE DAMPER
AD	ACCESS DOOR

27-11-98

FOR CONSTRUCTION

Rev	Date	Chg	Description	Appr
A	29/10/98	M.L	REVISED TO CONSTRUCTION ISSUE INCORPORATING DESIGN TEAM COMMENTS , SPECIAL GRILLE BOX HEIGHT INDICATED @ GRIDS 7,5/8 EXTRACT DUCT REVISED & FIRE RATED DUCT INDICATED	
	18/9/98	M.L	ISSUED FOR COMMENT	

Drake & Scull
DAE SHELLEY PAVILIONS
CHALKDELL DRIVE, SHELLEY WOOD
MILTON KEYNES, BUCKINGHAMSHIRE
MK5 8LX
Telephone 01908 506005
Facsimile 01908 506066

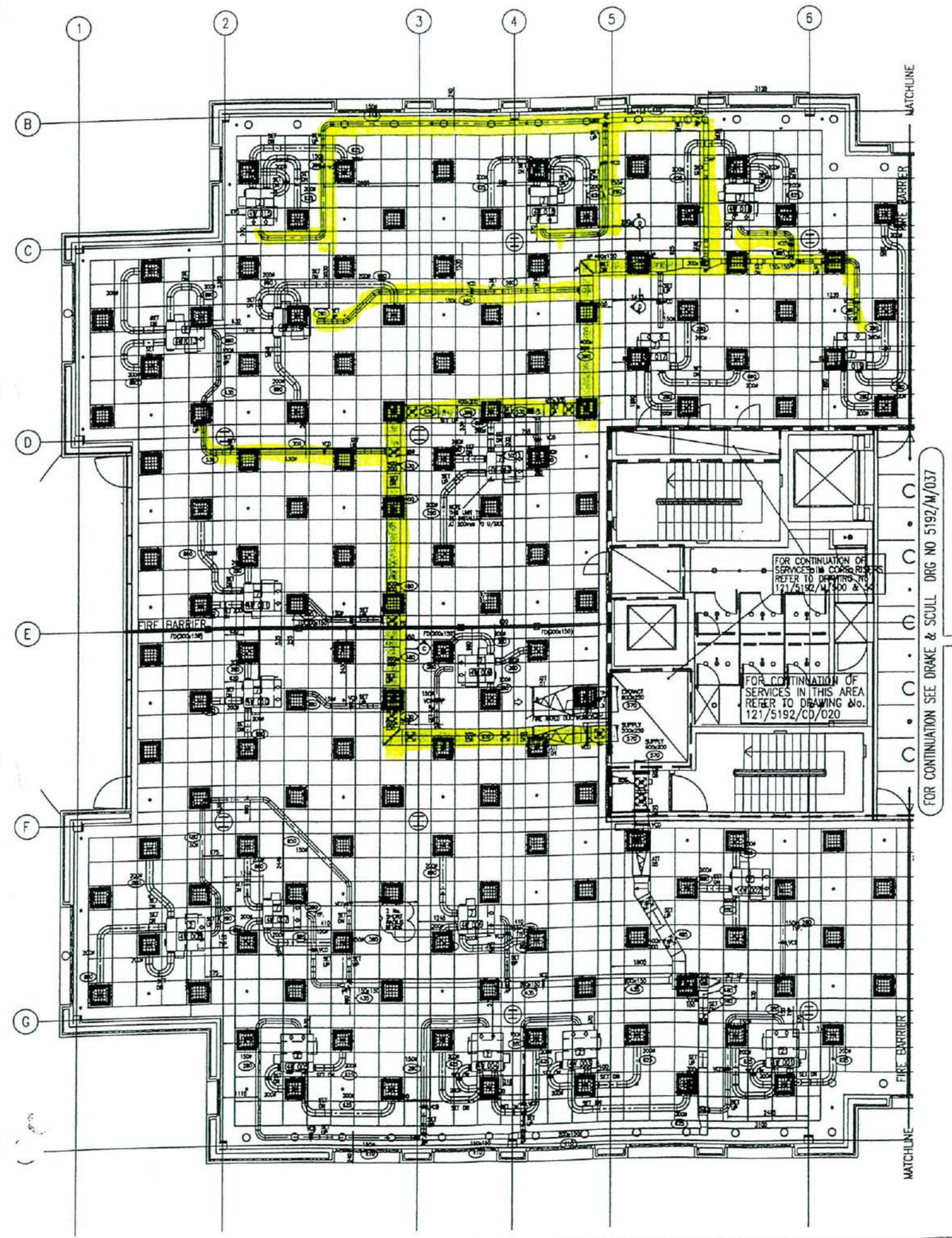
Discipline: MECHANICAL – VENTILATION
Drawn: JGM
Checked: MA
Scale: 1:50/1:10
Date: SEPT 1998

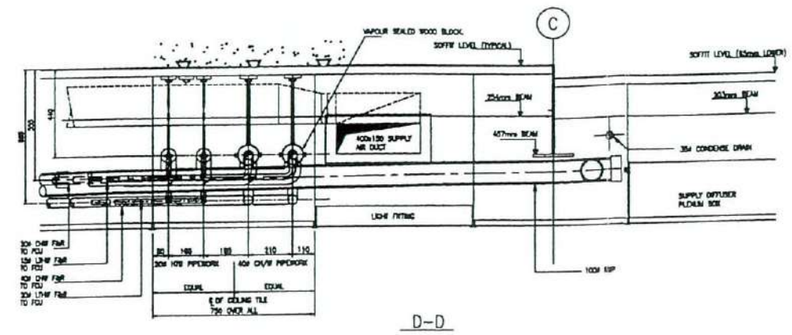
PROJECT
5 – 7 CARLTON GARDENS

CLIENT
BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

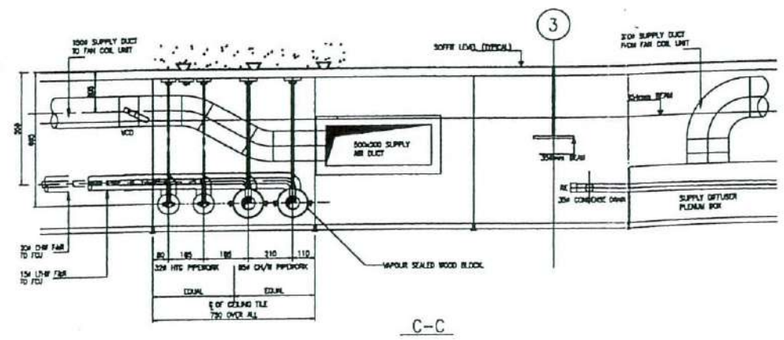
TITLE
OFFICE HIGH LEVEL
VENTILATION SERVICES LAYOUT
FOURTH FLOOR sht 2 OF 2

Drawing No. 121/5192/M/037
Rev A





D–D



C–C

PLENUM BOX SCHEDULE

REF	SIZE	No.
	300 SHORT	43
	300/600 AS SUPPLY	9
UNIFORM	TOP SHORT	81

ALL PLENUMS TO BE FITTED WITH BLADE DAMPER ON SPACE SHORT

ATTENUATOR SCHEDULE

REF	SIZE
ATT 01	TBE
ATT 01	TBE
ATT 01	TBE

ATTENUATORS MANUFACTURED BY WHISPERLINE LTD.

LEGEND

(300) SHOWS LEVEL FROM UNDER SIDE OF SOFFIT TO ⌀ UNDERSIDE OF RECTANGULAR / CIRCULAR DUCTWORK.

NOTE

SLAB BETWEEN GRIDS B & C AND BETWEEN GRIDS G & H IS 15mm LOWER THAN THE MAIN SLAB.

SD SHORE DAMPER

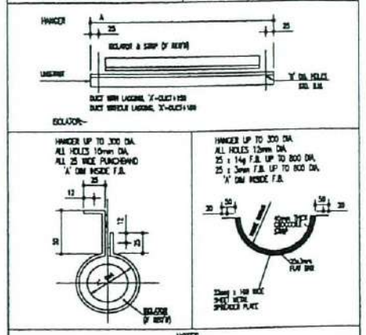
SPECIFICATION

DUCTWORK SYSTEM	CONSTRUCTION SPECIFICATION	LEAKAGE TEST SPECIFICATION

LEGEND

AD = ACCESS DOOR
BE = BLANKING
FD = FIRE DAMPER
FOT = FLAT ON TOP
FOB = FLAT ON BOTTOM
SD = SHORE DAMPER
SR = SPRUNG RAMPER
SD = SHORE DAMPER
TDS = TOP SET SHORE
TDH = TOP SET UP
VCD = VOLUME CONTROL DAMPER

BRD = BOND ON DIES
RCL = CONCENTRIC REDUCER
EL = ECCENTRIC REDUCER
TCR = CONICAL BRANCH CONNECTION
TC = TEE CONICAL
FSD = FACEMED SHAKE
SP = WALL COUPLING
SF = FEMALE COUPLING
CAP = CAP END (MALE/FEMALE)
MSD = SINGLE BLADE VOLUME DAMPER
—— = SUPPORT LOCATION



NOTES

1. ALL BEND 100mm RADIUS WITH 50mm LEAD-IN, UNO.
2. ALL RECTANGULAR FITTING TO HAVE 150mm LEAD-IN / THROAT, UNO.
3. ALL DATUMS NOTED ARE TO U/SIDE OF RECT. OR SPIRAL DUCTS FROM SOFFIT, UNO.
4. ALL STANDARD RECTANGULAR DUCTWORK LENGTHS ARE 1510 ½, UNO.

REFERENCE DRAWINGS

DRAWING NUMBER	REV

DRAWING STATUS

- PRELIMINARY ISSUE ☐
- FOR APPROVAL ■
- FOR RE-APPROVAL ☐
- FOR CO-ORDINATION ☐
- FOR CONSTRUCTION /IAWT. ☐
- RECORD DRAWING ☐

LEVELS

- FINISHED FLOOR =
- LOCAL DATUM =
- UNDERSIDE OF FALSE CEILING =

REV	BY	DESCRIPTION	DATE	CHKD.
A.	DB	ISSUED FOR APPROVAL / COMMENTS	10/12/98	

REVISION

F.E.COLE & SON LTD.
HEATING, VENTILATING & MECHANICAL SERVICES
74 RICHMOND STREET, COVENTRY CV2 4JB, TELEPHONE (01203)635665/FAX (01203)635643

CLIENT: DRAKE & SCULL LTD

PROJECT: 5-7 CARLTON GARDENS LONDON

TITLE: FOURTH FLOOR – WEST DUCTWORK LAYOUT

DRAWN BY: D.Bannister | SCALE: 1 : 50 | DATE: 8/12/98

DRAWING NUMBER: D192 / 18 / 4 – W | Rev A

5.0 MACE STANDARD PRO-FORMA (JOB SPECIFIC)
FOR FINAL SIGN OFF OF THE CEILING/FLOOR VOID

VOID CLOSURE

BUILDING : 5 + 7 CARLTON GRDS LEVEL : FOURTH FLOOR OFFICE AREA.

CHECKLIST

		Trade Contractor		Mace Ltd.				
		Initial	Date	Initial	Date			
1.	Mechanical Pipework	MLa	15/3/99					
2	Plumbing Pipework	MLa	15/3/99					
3.	Electrical 1st Fix	—						
4.	PA 1st Fix	—						
5	FA 1st Fix	—						(PRIMARY AIR SYSTEM → ONE NUMBER ATTENUATOR TO BE FITTED APPROX 1 DAY)
6.	Ductwork	CDJ	15/3/99					
7.	Security Carcass	—						
8.	Fire Damper R.A	MLa	12/3/99					
9	Modular Wiring Boxes	—						(NOTE VALVE TAGS TO BE ADDED 18/3/99)
10.	Valve Tags	* MLa						
11.	Lagging Pipework	MLa	12/3/99					
12.	Pipework Testing	MLa	12/3/99					
13.	Lagging Ductwork	MLa	12/3/99					
14.	FA Cables Terminated	—	—					
15.	Ductwork and Pipework ID							

Exceptional items [illegible]

✓ Flexible Duct Connects to Fan Coils
Modular Wiring to Lighting Fittings
2nd Fix Fire Alarms
✓ Chemical Flushing of Pipework

✓ Water Balance of Heating and Chilled Water Systems
Wiring to Door Contacts
Commissioning Lighting Control System
✓ Air Balance of Ductwork System

✓ Air Balancing and Commissioning of Fan Coils
Plugs to Fit to FCU Drain Valves After Flushing Activities Have Been Completed ✓
IT Testing Etc

m|a|c|e

4TH FLOOR. INSPECTIONS/TESTS.

• CARLTON GARDENS.

• NPF ENG LTD.

1 CONDENSATE FALL TEST. RAINWATER.
HTG. CHW. INSPECTIONS. TESTS.

• PRENSSAG LTD.

2 SPRINKLER. INSPECTIONS. TESTS.

• FE COLE LTD.

3 FAN COIL CHECK SHEET.
FIRE DAMPER DROP TEST.

• FE COLE LTD.

4 1ST FIX DUCTWORK INSPECTION TEST.
PRESSURE TEST CERTS.

• FIRE PROTECTION LTD.

5 1ST FIX FIRE RATED DUCTWORK INSTALLATION.
INSPECTION.

• STEPSPEED INSULATION.

6 PIPEWORK INSULATION. DUCTWORK INSULATION.
INDENTIFICATION. FIRE STOPPING.

• DSE LTD

7 SMOKE DAMPER CHECK INSPECTION.

• DOMESTICS.

8 HWS INSPECTION. SVP INSPECTION.
CWS INSPECTIONS. TESTS.

9

SPARE SHEETS.

10

niceday
No.277434

DRAKE & SCULL ENGINEERING LTD **5-7 CARLTON GARDENS**	
QUALITY ASSURANCE	Fan Coil Unit Condensate pipework running test
FLOOR AREA	4TH FLOOR
DATE	
DSE SIGNATURE	
CLIENT	
COMMENTS	

Drake & Scull

HYDRAULIC PRESSURE TEST
PIPEWORK

Project:: 5-7 CARLTON GARDENS

System: L.T. H.W. & CHILL WATER Sheet M19 of (B)

Location/drg nos: 4TH FLOOR WEST / M034

Instrument Type/No.: CALIBRATED PRESS GAUGE

Section Type:

Riser	
Suspended	✓
Wall fixed	
Floor supported	
Trench/duct	

Black mild steel	✓
Galvanised steel	
Copper	✓
Stainless steel	
U.P.V.C.	

Specified test pressure: 2 BAR AIR TEST - COPPER TAILS kPa Instrument Type: P/GAUGE

Actual test pressure: 2 BAR AIR TEST kPa Serial No. 0678046

Duration of test: 2 Hours — Minutes

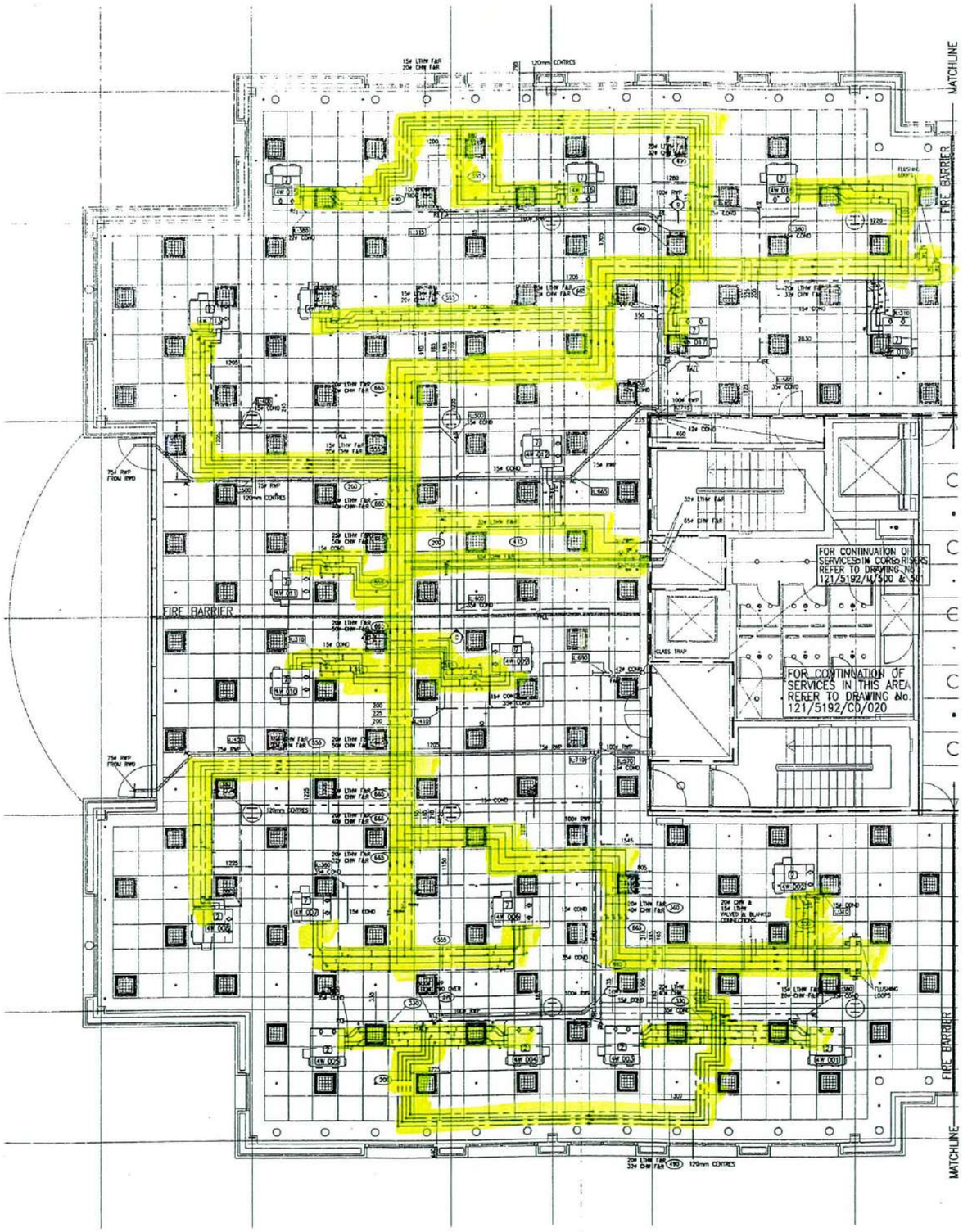
TEST ACCEPTABLE

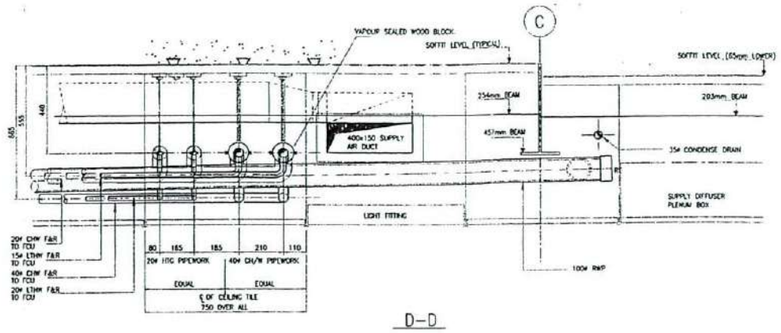
Signed:	for: DRAKE & SCULL	date: 1/3/99
Signed: (for C.J. Butler)	for: CML	date: 1/3/99

CHECKS	SIGNED	DATE
Bracket and anchor position, centres and installation		
Flange and bolt tightness, jointing material		
Line components installed correctly		
Drain, flushing, & test points installed		

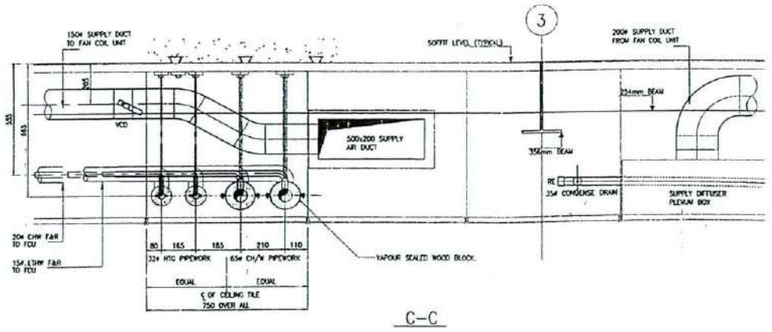
Signed:	for:	Date:
Signed:	for:	Date:
Signed:	for:	Date:

© Drake & Scull Engineering (UK) Ltd.





D–D



C–C

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NOTES

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. ALL HIGH POINTS TO BE FITTED WITH AIR VENTS.
4. ALL LOW POINTS TO BE FITTED WITH DRAIN COCKS.
5. CHW & LTHW CONNECTIONS TO FCU's ARE 20ø & 15ø RESPECTIVELY UNLESS OTHERWISE NOTED.
6. FOR TYPICAL DETAILS REFER TO DRAWING No. 121/5192/M/027.
7. FOR DETAILS OF CORE AREAS DRAINAGE LAYOUTS REFER TO DRAWING Nos. 121/5192/M/038.
8. FOR DETAILS OF DRAINAGE, DOMESTIC WATER SERVICES & FIRE PROTECTION LAYOUTS REFER TO DRAWING Nos. :-
   121/5192/TP005.
   121/5192/MF004.
   121/5192/P004.
9. THIS DRAWING SHOULD BE READ INCONJUNCTION WITH THE FOLLOWING SCHEMATIC DRAWING Nos. :-
   121/5192/P031, P032, P033, P034 & P035.
   121/5192/M028, M032, M033 & M038.
10. REFER TO TYPICAL DETAILS DRAWING FOR CONDENSATE ENTRIES TO RISER & CONNECTIONS TO FAN COIL UNITS.
11. FOR DETAILS OF PIPEWORK PENETRATIONS TO RISER & THROUGH FIRE BARRIERS REFER TO DRG Nº 121/5192/M/027
12. FOR FAN COIL MOUNTING DRG DETAILS REFER TO DRG No.121/5192/M/027
13. FOR DETAILS OF HEAT METERS SEE DRG No.121/5192/M/027
14. FOR DETAILS OF REFLECTED CEILING SEE MICHAEL WELFORD & PARTNERS DRAWINGS.
15. FAN COIL UNITS TO BE MOUNTED AT 300mm TO BOTTOM OF UNIT EXCEPT WHERE INDICATED OTHERWISE .

    15mmø CONDENSE DRAINS FROM UNITS HAVE AN INVERT OF APPROX 300mm . 15ø CONDENSE DRAINS THEN FALL BACK TO 35ø CONDENSE DRAINS @ 10mm PER METRE .

LEGEND

(990) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO:
   a) CENTRE LINE OF PIPEWORK
   b) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK.

(LT5) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO:
   a) BOTTOM OF INNER-DIA. OF PIPEWORK

NOTE

SLAB BETWEEN GRIDS B & C AND BETWEEN GRIDS C & H IS 65mm LOWER THAN THE MAIN SLAB .

IV	ISOLATING VALVE
LSV	LOCKSHIELD VALVE
DC	DRAIN COCK
FODRV	FIXED ORIFICE DOUBLE REGULATING VALVE
AV	AIR VENT
CHW	CHILLED WATER SERVICE
LTHW	LOW TEMPERATURE HOT WATER HEATING SERVICE
RC	RISING CYC
RWP	RAIN WATER PIPE
AC	ACCESS BEND

27.11.98

FOR CONSTRUCTION

Rev	Date	Eng	Description	App
A	29/10/98	W.L.	REVISED TO CONSTRUCTION ISSUE INCORPORATING DESIGN TEAM COMMENTS . NOTE 15 ADDED	
	18/9/98	W.L.	ISSUED FOR COMMENT	

Drake & Scull
ONE SHENLEY PAVILIONS
CHALFONT DRIVE, SHENLEY WOOD
MILTON KEYNES, BUCKINGHAMSHIRE
MK5 6LB
Telephone:01908 504005
Facsimile:01908 506066

Discipline: HVAC – PIPEWORK
Drawn: HW
Scale: 1:50/1:10
Checked: MDS
Date: SEPT 1998

PROJECT
5 – 7 CARLTON GARDENS

CLIENT
BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

TITLE
OFFICE HIGH LEVEL
LTHW , CH.W. , CONDENSATE & RWP
FOURTH FLOOR sht 1 OF 2

Drawing No: 121/5192/M/034
Rev: A

Drake & Scull

HYDRAULIC PRESSURE TEST
PIPEWORK

Project:: 5-7 CARLTON GARDENS

System: L.T.H.W & CHILL WATER Sheet M19 of

Location/drg nos: 4th FLOOR WEST / M 034

Instrument Type/No.: CALIBRATED PRESS GAUGE

Section Type:

Riser	
Suspended	✓
Wall fixed	
Floor supported	
Trench/duct	

Black mild steel	✓
Galvanised steel	
Copper	
Stainless steel	
U.P.V.C.	

Specified test pressure: 10 BAR kPa Instrument Type: P/GAUGE

Actual test pressure: 10 BAR kPa Serial No. 067804/6

Duration of test: 2 Hours — Minutes

TEST ACCEPTABLE

Signed:	for: DRAKE & SCULL	date: 2/3/99
Signed: (for C.J. Butler)	for: CML	date: 2/3/99

CHECKS	SIGNED	DATE
Bracket and anchor position, centres and installation		
Flange and bolt tightness, jointing material		
Line components installed correctly		
Drain, flushing, & test points installed		

Signed:	for:	Date:
Signed:	for:	Date:
Signed:	for:	Date:

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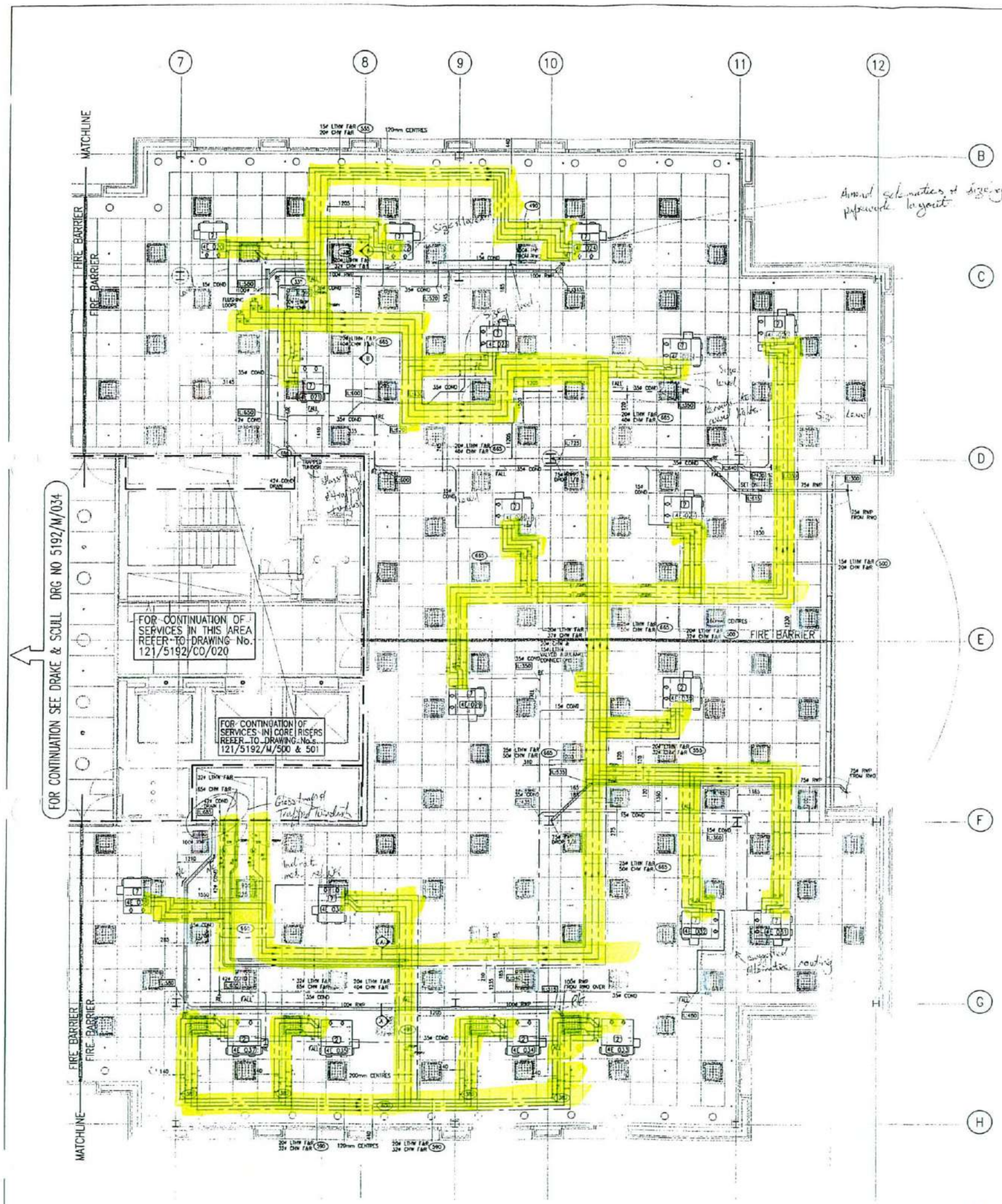
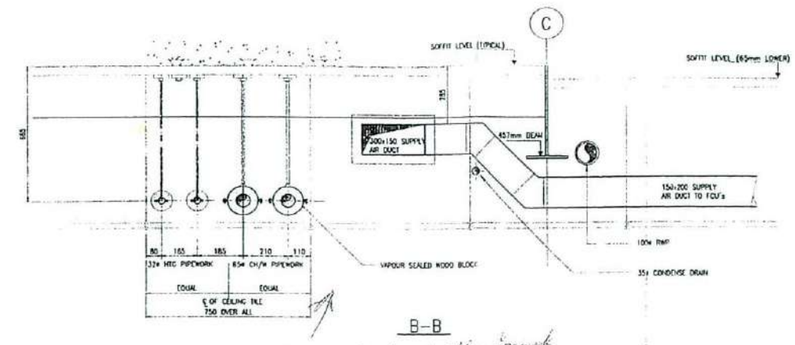
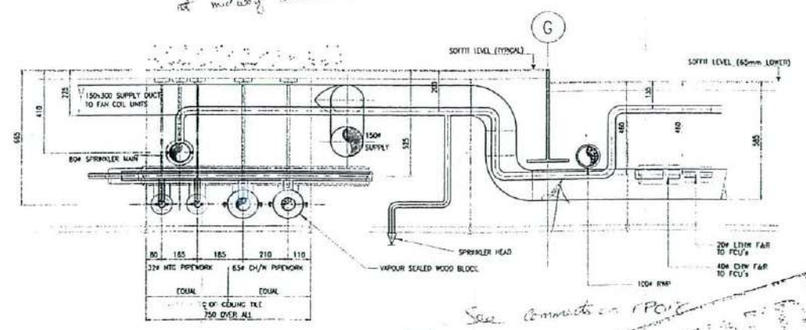




B–B

This section should indicate sprinkler pipework at midway between Grid 7/8.



A–A

See comments on report

SUBMITTED

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NOTES

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. ALL HIGH POINTS TO BE FITTED WITH AIR VENTS.
4. ALL LOW POINTS TO BE FITTED WITH DRAIN COCKS.
5. CHW & LTHW CONNECTIONS TO FCU's ARE 20# & 15# RESPECTIVELY UNLESS OTHERWISE NOTED.
6. FOR TYPICAL DETAILS REFER TO DRAWING No. 121/5192/M/027.
7. FOR DETAILS OF CORE AREAS DRAINAGE LAYOUTS REFER TO DRAWING Nos. 121/5192/M/038.
8. FOR DETAILS OF DRAINAGE, DOMESTIC WATER SERVICES & FIRE PROTECTION LAYOUTS REFER TO DRAWING Nos. :-
   121/5192/M/005,
   121/5192/M/004,
   121/5192/M/004.
9. THIS DRAWING SHOULD BE READ INCONJUNCTION WITH THE FOLLOWING SCHEMATIC DRAWING Nos. :-
   121/5192/M/031, M/032, M/033, M/034 & M/035.
10. REFER TO TYPICAL DETAILS DRAWING FOR CONDENSATE ENTRIES TO RISER & CONNECTIONS TO FAN COIL UNITS.
11. FOR DETAILS OF PIPEWORK PENETRATIONS TO RISER & THROUGH FIRE BARRIERS REFER TO DRG NO.121/5192/M/027
12. FOR FAN COIL MOUNTING DETAILS REFER TO DRG No.121/5192/M/027
13. FOR FOR DETAILS OF HEAT METERS SEE DRG No.121/5192/M/027
14. FOR DETAILS OF REFLECTED CEILING SEE MICHAEL WILFORD & PARTNERS DRAWINGS.

LEGEND

250▽ DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO:
a) CENTRE LINE OF PIPEWORK
b) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK

2.725 DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO:
a) BOTTOM OF INNER-DIA. OF PIPEWORK

NOTE

SLAB BETWEEN GRIDS B & C AND BETWEEN GRIDS G & H IS 65mm LOWER THAN THE MAIN SLAB.

IV	ISOLATING VALVE
LSV	LOCKSHIELD VALVE
DC	DRAIN COCK
FDDRV	FIXED ORIFICE DOUBLE REGULATING VALVE
AV	AIR VENT
CHW	CHILLED WATER SERVICE
LTHW	LOW TEMPERATURE HOT WATER HEATING SERVICE
RE	RODDING EYE
RWP	RAIN WATER PIPE

FOR COMMENT

No	Date	Drn	Description	Rev
	28/9/98	M.L.	ISSUED FOR COMMENT	

Drake & Scull

Discipline: MECHANICAL – PIPEWORK
Drawn: Scale: 1:50/1:10
Checked: Date: SEPT 1998

PROJECT
5 – 7 CARLTON GARDENS

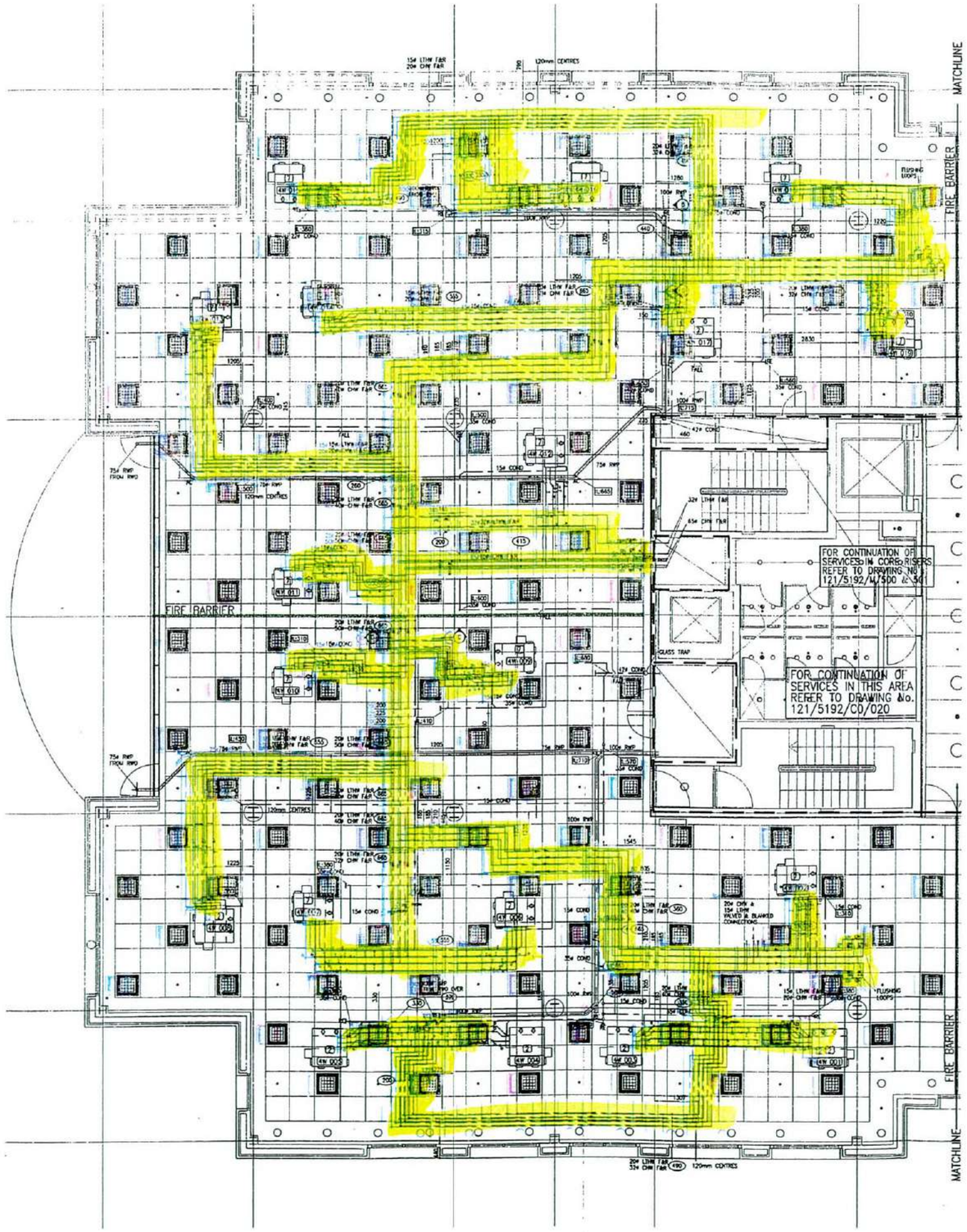
CLIENT
BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

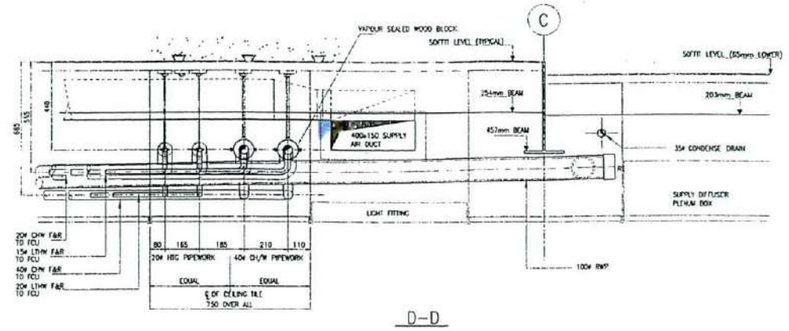
TITLE
OFFICE HIGH LEVEL
LTHW , CH.W. , CONDENSATE & RWP
FOURTH FLOOR sht 2 OF 2

Drawing No: 121/5192/M/035
Rev:

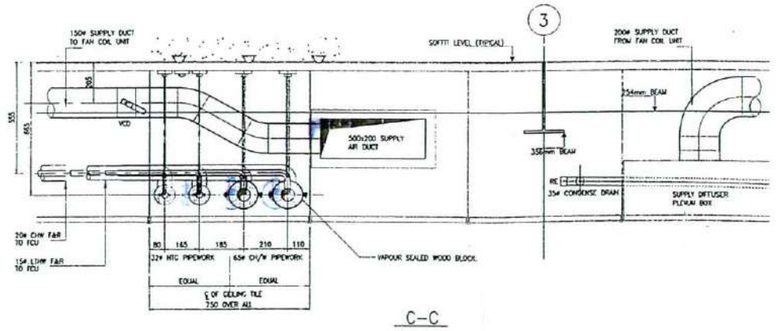
TRADE SIGN OFF

	SIGNATURE	DATE
M.A.C.E.		26/10/98
T. CLARKE		/ /
SYCH. SYSTEMS		/ /
DRAKE & SCULL		/ /





D–D



C–C

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NOTES

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. ALL HIGH POINTS TO BE FITTED WITH AIR VENTS.
4. ALL LOW POINTS TO BE FITTED WITH DRAIN COCKS.
5. CHW & LTHW CONNECTIONS TO FCU's ARE 20ø & 15ø RESPECTIVELY UNLESS OTHERWISE NOTED.
6. FOR TYPICAL DETAILS REFER TO DRAWING No. 121/5192/M/027.
7. FOR DETAILS OF CORE AREAS DRAINAGE LAYOUTS REFER TO DRAWING No. 121/5192/MC/28.
8. FOR DETAILS OF DRAINAGE, DOMESTIC WATER SERVICES & FIRE PROTECTION LAYOUTS REFER TO DRAWING Nos. :-
   121/5192/FP/005.
   121/5192/MP/004.
   121/5192/P/004.
9. THIS DRAWING SHOULD BE READ INCONJUNCTION WITH THE FOLLOWING SCHEMATIC DRAWING Nos. :-
   121/5192/PG31, PG32, PG33, PG34 & PG35.
   121/5192/MG28, MG32, MG33 & MG38.
10. REFER TO TYPICAL DETAILS DRAWING FOR CONDENSATE ENTRIES TO RISER & CONNECTIONS TO FAN COIL UNITS.
11. FOR DETAILS OF PIPEWORK PENETRATIONS TO RISER & THROUGH FIRE BARRIERS REFER TO DRG NO 121/5192/M/027
12. FOR FAN COIL MOUNTING DETAILS REFER TO DRG No.121/5192/M/027
13. FOR DETAILS OF HEAT METERS SEE DRG No.121/5192/M/027
14. FOR DETAILS OF REFLECTED CEILING SEE MICHAEL WILFORD & PARTNERS DRAWINGS.
15. FAN COIL UNITS TO BE MOUNTED AT 200mm TO BOTTOM OF UNIT EXCEPT WHERE INDICATED OTHERWISE .

    15mmø CONDENSE DRAINS FROM UNITS HAVE AN INVERT OF APPROX 300mm . 15ø CONDENSE DRAINS THEN FALL BACK TO 35ø CONDENSE DRAINS @ 10mm PER METRE .

LEGEND

(190) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO:
   a) CENTRE LINE OF PIPEWORK
   b) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK.

(0.175) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO:
   a) BOTTOM OF INNER-DIA. OF PIPEWORK

NOTE

SLAB BETWEEN GRIDS B & C AND BETWEEN GRIDS C & H IS 85mm LOWER THAN THE MAIN SLAB .

IV	ISOLATING VALVE
LSV	LOCKSHIELD VALVE
DC	DRAIN COCK
FODRV	FIXED ORIFICE DOUBLE REGULATING VALVE
AV	AIR VENT
CHW	CHILLED WATER SERVICE
LTHW	LOW TEMPERATURE HOT WATER HEATING SERVICE
RE	RODDING EYE
RWP	RAIN WATER PIPE
AC	ACCESS BEND

27.11.98

FOR CONSTRUCTION

Rev	Date	Dwg	Description	Appr
A	29/10/98	M.L.	REVISED TO CONSTRUCTION ISSUE INCOPORATING DESIGN TEAM COMMENTS , NOTE 15 ADDED	
	18/9/98	M.L.	ISSUED FOR COMMENT	

Drake & Scull
ONE SHEARLEY PAVILIONS
CHURCHILL DRIVE, SHEARLEY WOOD
MILTON KEYNES, BUCKINGHAMSHIRE,
MK5 8LB
Telephone 01908 506005
Facsimile 01908 506066

Discipline: HVAC – PIPEWORK
Drawn: HW
Checked: MJ
Scale: 1:50/1:10
Date: SEPT 1998

PROJECT
5 – 7 CARLTON GARDENS

CLIENT
BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

TITLE
OFFICE HIGH LEVEL
LTHW , CH.W. , CONDENSATE & RWP
FOURTH FLOOR sht 1 OF 2

Drawing No: 121/5192/M/034
Rev: A

Drake & Scull

HYDRAULIC PRESSURE TEST
PIPEWORK

Project:: 5-7 CARLTON GARDENS

System: L.T.H.W & CHILL WATER Sheet M20f (B)

Location/drg nos: 4th FLOOR EAST / M 035

Instrument Type/No.: CALIBRATED PRESS GAUGE

Section Type:

Riser	
Suspended	✓
Wall fixed	
Floor supported	
Trench/duct	

Black mild steel	✓
Galvanised steel	
Copper	✓
Stainless steel	
U.P.V.C.	

Specified test pressure: 2 BAR AIR TEST - COPPER TAILS kPa Instrument Type: P/GAUGE

Actual test pressure: 2 BAR AIR TEST kPa Serial No. 067804/6

Duration of test: 2 Hours — Minutes

TEST ACCEPTABLE

Signed:	for: DRAKE & SCULL	date: 9/3/99
Signed:	for: MKS	date: 9/3/99

CHECKS	SIGNED	DATE
Bracket and anchor position, centres and installation		
Flange and bolt tightness, jointing material		
Line components installed correctly		
Drain, flushing, & test points installed		

Signed:	for:	Date:
Signed:	for:	Date:
Signed:	for:	Date:

© Drake & Scull Engineering (UK) Ltd.

Drake & Scull

HYDRAULIC PRESSURE TEST
PIPEWORK

Project:: 5-7 CARLTON GARDENS

System: L.T.H.W. & CHILL WATER Sheet M20 of

Location/drg nos: 4th FLOOR EAST / M035

Instrument Type/No.: CALIBRATED PRESS GAUGE

Section Type:

Riser	
Suspended	✓
Wall fixed	
Floor supported	
Trench/duct	

Black mild steel	✓
Galvanised steel	
Copper	
Stainless steel	
U.P.V.C.	

Specified test pressure: 10 BAR kPa Instrument Type: P/GAUGE

Actual test pressure: 10 BAR kPa Serial No. 067804/6

Duration of test: 2 Hours — Minutes

TEST ACCEPTABLE

Signed:	for: DRAKE & SCULL	date: 10/3/99
Signed: S. Jeff	for: MRCS	date: 10/3/99

CHECKS	SIGNED	DATE
Bracket and anchor position, centres and installation		
Flange and bolt tightness, jointing material		
Line components installed correctly		
Drain, flushing, & test points installed		

Signed:	for:	Date:
Signed:	for:	Date:
Signed:	for:	Date:

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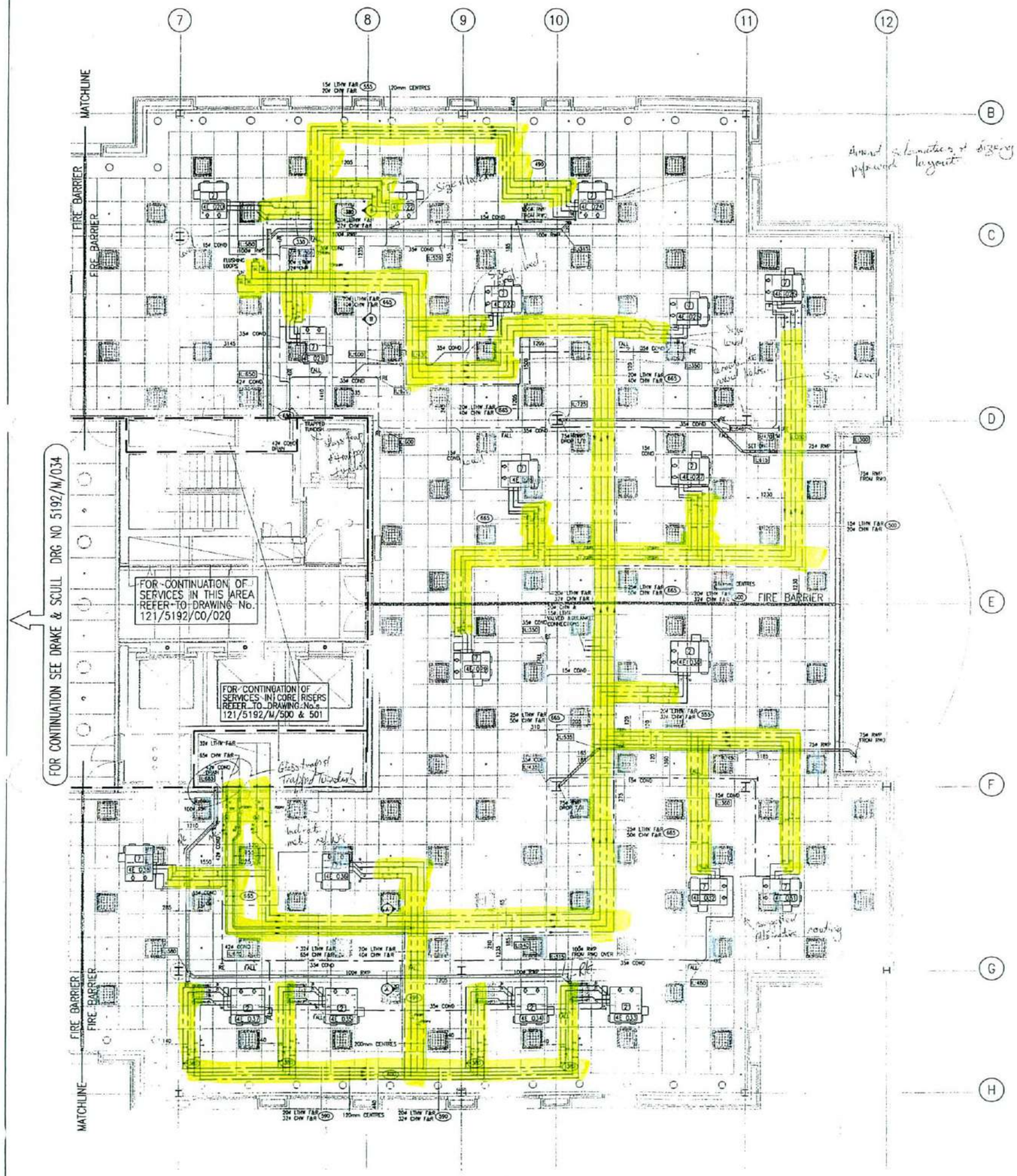

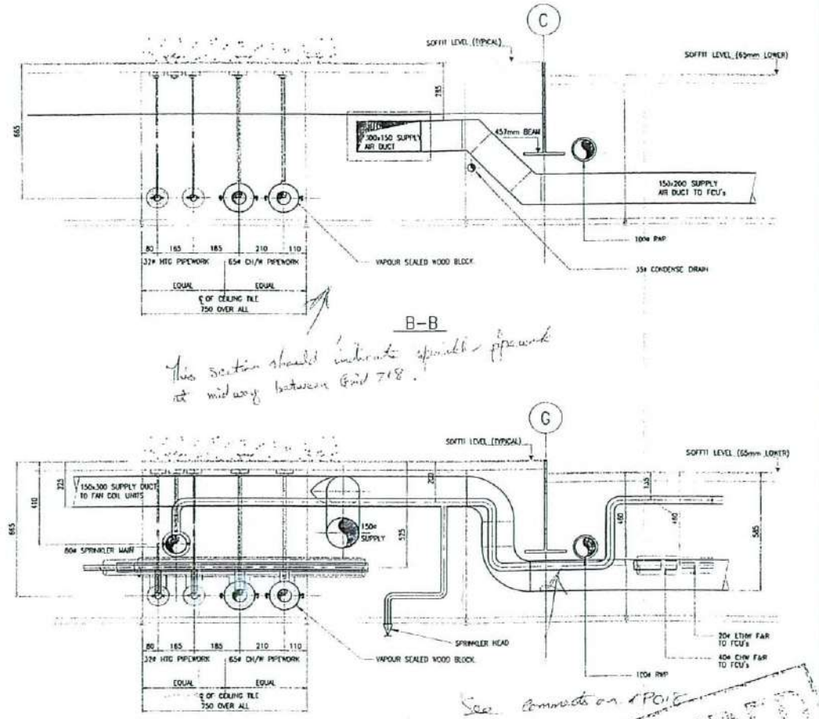

This section should indicate sprinkler pipework at midway between Grid 7/8.

See comments on 4 POINT

SUPERSEDED

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NOTES

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. ALL HIGH POINTS TO BE FITTED WITH AIR VENTS.
4. ALL LOW POINTS TO BE FITTED WITH DRAIN COCKS.
5. CHW & LTHW CONNECTIONS TO FCU's ARE 20# & 15# RESPECTIVELY UNLESS OTHERWISE NOTED.
6. FOR TYPICAL DETAILS REFER TO DRAWING No. 121/5192/M037.
7. FOR DETAILS OF CORE AREAS DRAINAGE LAYOUTS REFER TO DRAWING Nos. 121/5192/M036.
8. FOR DETAILS OF DRAINAGE, DOMESTIC WATER SERVICES & FIRE PROTECTION LAYOUTS REFER TO DRAWING Nos. :-
   121/5192/PT005.
   121/5192/MP004.
   121/5192/P004.
9. THIS DRAWING SHOULD BE READ INCONJUNCTION WITH THE FOLLOWING SCHEMATIC DRAWING Nos. :-
   121/5192/M031, M032, M033, M034 & M035.
   121/5192/M038, M037, M033 & M038.
10. REFER TO TYPICAL DETAILS DRAWING FOR CONDENSATE ENTRIES TO RISER & CONNECTIONS TO FAN COIL UNITS.
11. FOR DETAILS OF PIPEWORK PENETRATIONS TO RISER & THROUGH FIRE BARRIERS REFER TO DRG No.121/5192/M/027
12. FOR FDR FAN COIL MOUNTING DETAILS REFER TO DRG No.121/5192/M/027
13. FOR FDR DETAILS OF HEAT METERS SEE DRG No.121/5192/M/027
14. FOR DETAILS OF REFLECTED CEILING SEE MICHAEL WU/DRD & PARTNERS DRAWINGS.

LEGEND

(2900) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO:
a) CENTRE LINE OF PIPEWORK
b) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK

(2133) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO:
a) BOTTOM OF INNER-DIA. OF PIPEWORK

NOTE
SLAB BETWEEN GRIDS B & C AND BETWEEN GRIDS G & H IS 65mm LOWER THAN THE MAIN SLAB.

IV	ISOLATING VALVE
LSV	LOCKSHIELD VALVE
DC	DRAIN COCK
FDORV	FIXED ORIFICE, DOUBLE REGULATING VALVE
AV	AIR VENT
CHW	CHILLED WATER SERVICE
LTHW	LOW TEMPERATURE HOT WATER HEATING SERVICE
RE	RODDING EYE
RWP	RAIN WATER PIPE

FOR COMMENT

No.	Date	Trg	Description	Appr
	28/9/98	M.L.	ISSUED FOR COMMENT	

Drake & Scull

Discipline: MECHANICAL – PIPEWORK
Drawn: Scale: 1:50/1:10
Checked: Date: SEPT 1998

PROJECT
5 - 7 CARLTON GARDENS

CLIENT
BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

TITLE
OFFICE HIGH LEVEL
LTHW , CH.W. , CONDENSATE & RWP
FOURTH FLOOR sht 2 OF 2

Drawing No. 121/5192/M/035

TRADE SIGN OFF

	SIGNATURE	DATE
M.A.C.E.		22/10/98
T. CLARKE		/ /
SYCH. SYSTEMS		/ /
DRAKE & SCULL		/ /

Drake & Scull

PRESSURE TEST - DRAINAGE SYSTEMS

Project: CARLTON GARDENS

System: RAINWATER Sheet D4 of

Location/drg.nos: 4th FLOOR / M034 SHT 1 & M035 SHT 2

Instrument Type/No.: AIR TEST - 'U' TUBE

Section Type:

Riser	
Suspended	✓
Wall Fixed	
Trench	

Cast Iron	✓
Copper	
U.P.V.C.	
Polypropylene	
Galvanised	
Clay	
Glass	

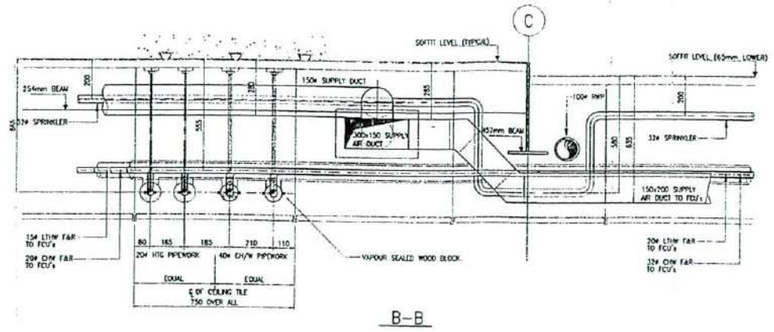
Specified test pressure: 100 mm (water)

Actual test pressure: 100 mm (water)

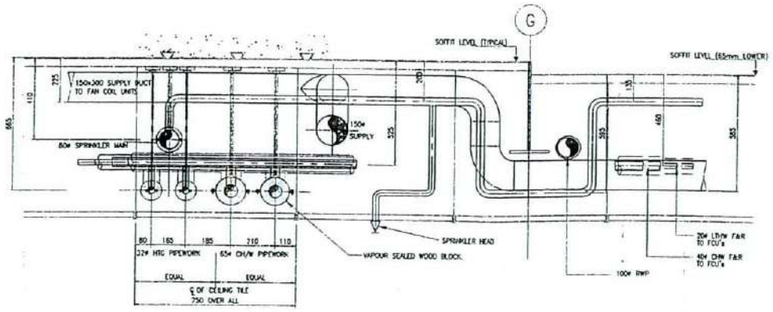
Duration of test: 5 minutes

Comments:

Signed		for	DRAKE & SCULL	date 18-2-99
Signed		for		date
Signed		for	CML	date 18-2-99



B–B



A–A

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NOTES

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. ALL HIGH POINTS TO BE FITTED WITH AIR VENTS.
4. ALL LOW POINTS TO BE FITTED WITH DRAIN COCKS.
5. CHW & LTHW CONNECTIONS TO FCU's ARE 20# & 15# RESPECTIVELY UNLESS OTHERWISE NOTED.
6. FOR TYPICAL DETAILS REFER TO DRAWING No. 121/5192/M027.
7. FOR DETAILS OF CORE AREAS DRAINAGE LAYOUTS REFER TO DRAWING Nos. 121/5192/M038.
8. FOR DETAILS OF DRAINAGE, DOMESTIC WATER SERVICES & FIRE PROTECTION LAYOUTS REFER TO DRAWING Nos :-
   121/5192/FP005,
   121/5192/WP004,
   121/5192/PD04.
9. THIS DRAWING SHOULD BE READ INCONJUNCTION WITH THE FOLLOWING SCHEMATIC DRAWING Nos. :-
   121/5192/M031, M032, M033, M034 & M035
   121/5192/M028, M030, M033 & M038.
10. REFER TO TYPICAL DETAILS DRAWING FOR CONDENSATE ENTRIES TO RISER & CONNECTIONS TO FAN COIL UNITS.
11. FOR DETAILS OF PIPEWORK PENETRATIONS TO RISER & THROUGH FIRE BARRIERS REFER TO DRG No.121/5192/M/027
12. FOR FOR FAN COIL MOUNTING DETAILS REFER TO DRG No.121/5192/M/027
13. FOR FOR DETAILS OF HEAT METERS SEE DRG No.121/5192/M/027
14. FOR DETAILS OF REFLECTED CEILING SEE MICHAEL WEFORD & PARTNERS DRAWINGS.
15. FAN COIL UNITS TO BE MOUNTED AT 300mm TO BOTTOM OF UNIT EXCEPT WHERE INDICATED OTHERWISE
    15mm# CONDENSE DRAINS FROM UNITS HAVE AN INVERT OF APPROX 300mm. 15# CONDENSE DRAINS THEN FALL BACK TO 35# CONDENSE DRAINS @ 10mm PER METRE

LEGEND

(FP00) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO
a) CENTRE LINE OF PIPEWORK
b) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK

(LT15) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO
a) BOTTOM OF INNER-DIA. OF PIPEWORK

NOTE

SLAB BETWEEN GRIDS B & C AND BETWEEN GRIDS G & H IS 65mm LOWER THAN THE MAIN SLAB .

IV	ISOLATING VALVE
LSV	LOCKSHIELD VALVE
DC	DRAIN COCK
FODRV	FIXED ORIFICE DOUBLE REGULATING VALVE
AV	AIR VENT
CHW	CHILLED WATER SERVICE
LTHW	LOW TEMPERATURE HOT WATER HEATING SERVICE
RE	RODDING EYE
RWP	RAIN WATER PIPE
AC	ACCESS BOND

27.11.98

FOR CONSTRUCTION

DEFER TO REGULATIONS ISSUE + CULL COMMENTS – NOT ALL HAVE BEEN ADDED

Rev	Date	Dwg	Description	Appr
A	29/10/98	M.L.	REVISED TO CONSTRUCTION ISSUE INCORPORATING DESIGN TEAM COMMENTS . NOTE 15 ADDED	
	18/9/98	M.L.	ISSUED FOR COMMENT	

Drake & Scull
ONE SHEARD PAVILIONS
OAKLEIGH DRIVE, SHERLEY WOOD
MILTON KEYNES, BUCKINGHAMSHIRE
MK5 6LB
Telephone:01908 506005
Facsimile:01908 506066

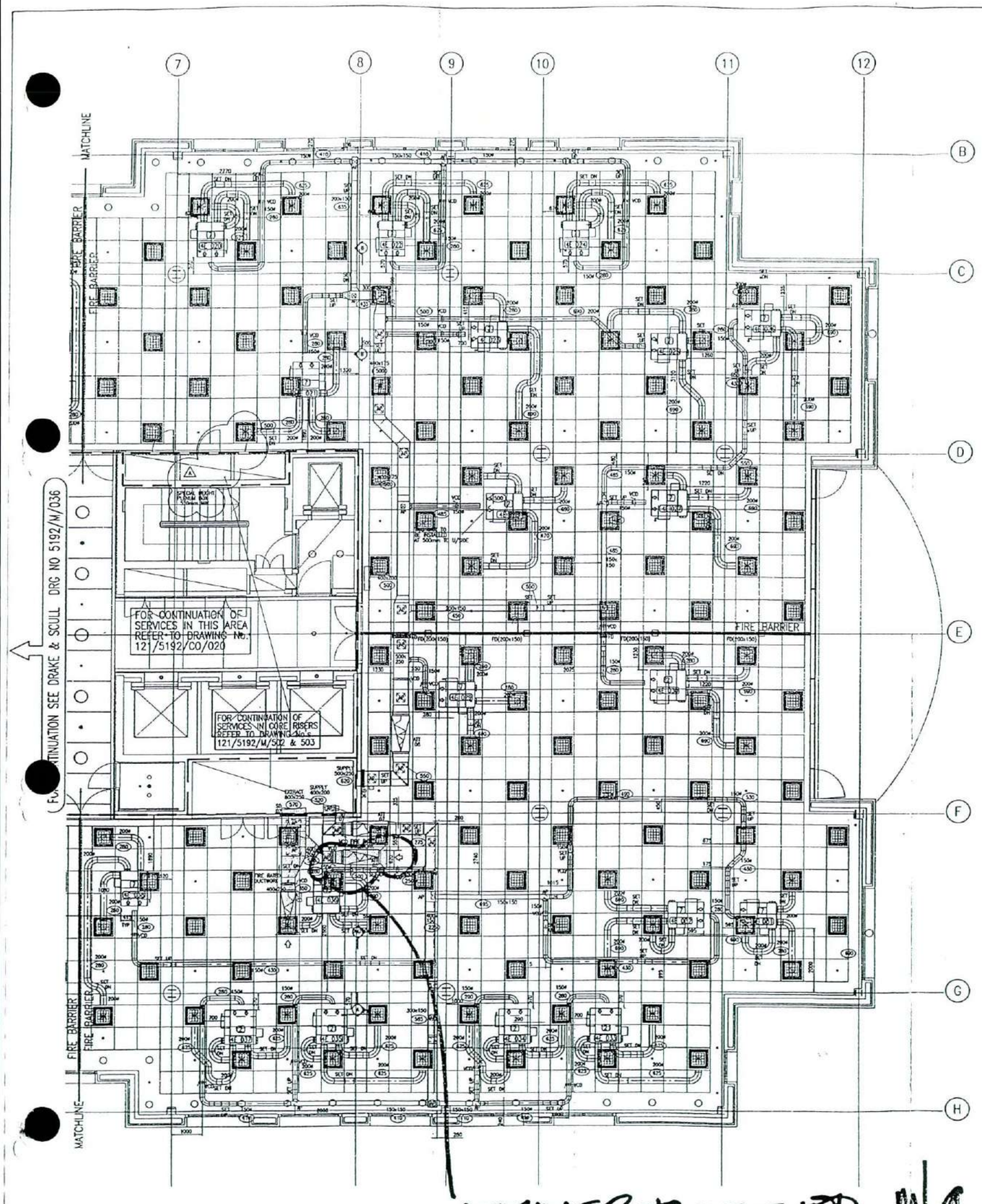
Discipline: MECHANICAL – PIPEWORK
Drawn: MW
Checked: MW
Scale: 1:50/1:10
Date: SEPT 1998

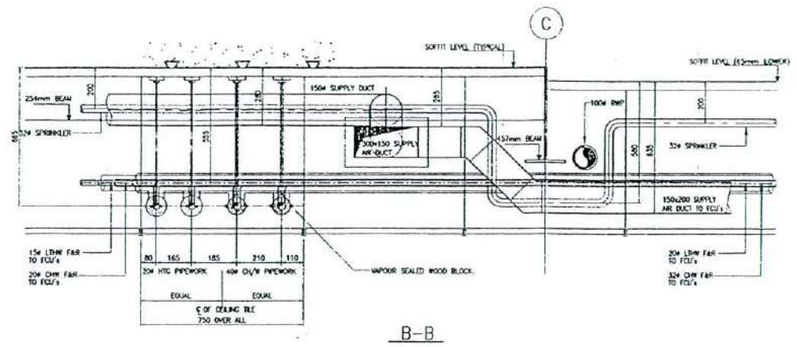
PROJECT
5 – 7 CARLTON GARDENS

CLIENT
BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

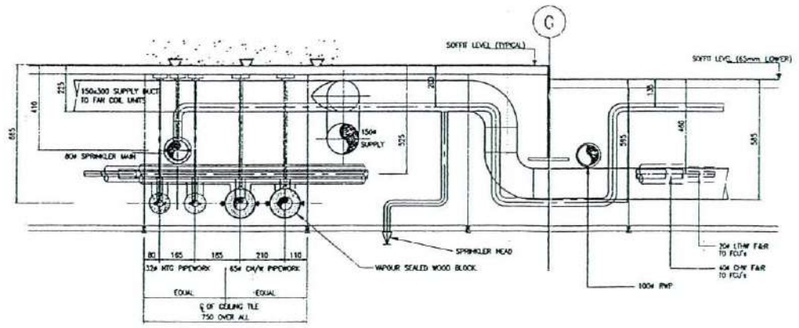
TITLE
OFFICE HIGH LEVEL
LTHW , CH.W. , CONDENSATE & RWP
FOURTH FLOOR sht 2 OF 2

Drawing No: 121/5192/M/035
Rev: A





B–B



A–A

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NOTES

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. FOR DETAILS OF FAN COIL UNIT HANGING , FIRE DAMPER PENETRATIONS REFER TO DRG No. 121/5192/M/027
4. FOR DETAILS OF RETURN AIR STAT TYPICAL POSITION REFER TO DRG No. 121/5192/M/027
5. ALL SECONDARY AIR FLEXIBLE CONNECTIONS ARE 200# UNLESS OTHERWISE STATED , MAX LENGTH 800mm.
6. THIS DUCTWORK LAYER IS PRODUCED FOR CO-ORDINATION PURPOSES ONLY , FULL DETAILS OF TURNING VANES , FIRE DAMPER ACCESS , VOLUME CONTROL DAMPER ACCESS WILL BE ADDED WHEN REVISED BY DUCTWORK CONTRACTOR.
7. ALL FAN COIL UNIT PLENUM BOX OUTLETS NOT USED WILL BE CAPPED AT WORKS.
8. FOR TYPICAL DETAILS OF PRIMARY SUPPLY AIR ONTO FAN COIL UNIT REFER TO DRG No. 121/5192/M/027
9. PRIMARY SUPPLY TO FAN COIL UNITS TERMINATES 150mm TYPICAL FROM FACE OF FAN COIL UNIT FILTER
10. FOR DETAILS OF REFLECTED CEILING SEE MICHAEL WELFORD & PARTNERS DRAWINGS.

PLENUM BOX SCHEDULE

REF	DETAIL	No
•	SIDE ENTRY	46
/	UNSUITABLE AS SUPPLY	3
UNMARKED	TOP ENTRY	73

ALL PLENUMS TO BE FITTED WITH BLADE DAMPER ON SPIGOT ENTRY

ATTENUATOR SCHEDULE

REF	SIZE
ATT 02	TBC
ATT 03	TBC
ATT 06	TBC
ATT 07	TBC

ATTENUATORS MANUFACTURED BY WATERLOO LTD

LEGEND

(750) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO
a) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK.

NOTE

SLAB BETWEEN GRIDS B & C AND BETWEEN GRIDS G & H IS 65mm LOWER THAN THE MAIN SLAB .

SD	SMOKE DAMPER
VCD	VOLUME CONTROL DAMPER
FD	FIRE DAMPER
AD	ACCESS DOOR

27-11-98

FOR CONSTRUCTION

Rev	Date	Eng	Description	App
A	25/10/98	M.L.	REVISED TO CONSTRUCTION ISSUE INCORPORATING DESIGN TEAM COMMENTS , SPECIAL GRILLE BOX HEIGHT INDICATED & GRDS 7.5/0.EXTRACT DUCT REVISED & FIRE RATED DUCT INDICATED	
	18/9/98	M.L.	ISSUED FOR COMMENT	

Drake & Scull
DAC SHENLEY PAVILIONS
CHALFONT DRIVE, SHENLEY WOOD
MILTON KEYNES, BUCKINGHAMSHIRE
MK5 6LZ
Telephone 01908 506005
Facsimile 01908 506066

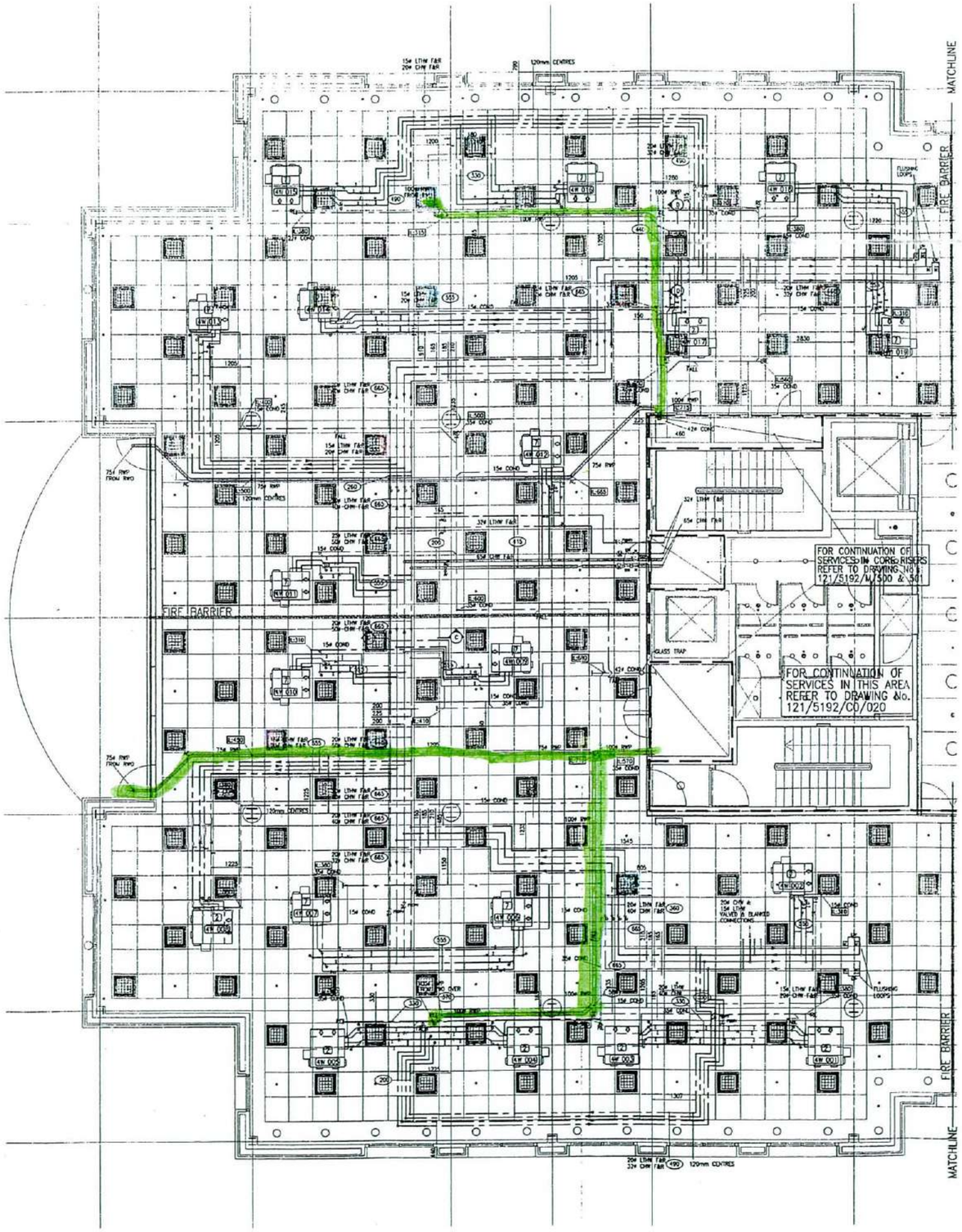
Discipline: MECHANICAL – VENTILATION
Drawn: MM | Scale: 1:50/1:10
Checked: MM | Date: SEPT 1998

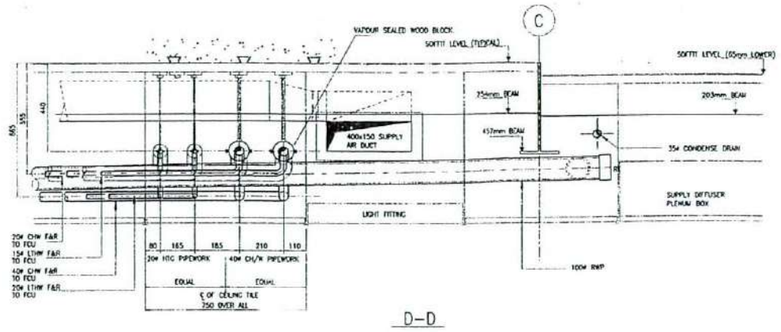
PROJECT
5 – 7 CARLTON GARDENS

CLIENT
BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

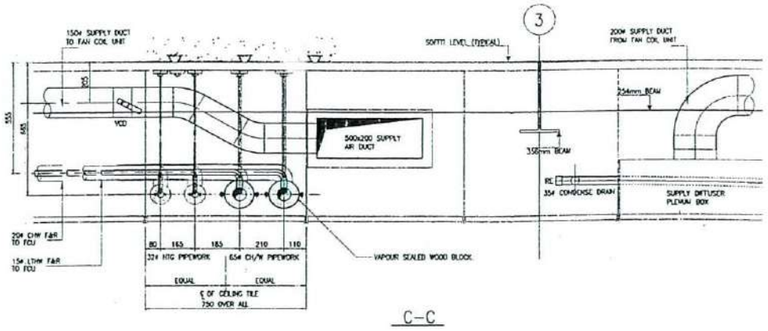
TITLE
OFFICE HIGH LEVEL
VENTILATION SERVICES LAYOUT
FOURTH FLOOR sht 2 OF 2

Drawing No: 121/5192/M/037 | Rev: A





D–D



C–C

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NOTES

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. ALL HIGH POINTS TO BE FITTED WITH AIR VENTS.
4. ALL LOW POINTS TO BE FITTED WITH DRAIN COCKS.
5. CHW & LTHW CONNECTIONS TO FCU's ARE 20ø & 15ø RESPECTIVELY UNLESS OTHERWISE NOTED.
6. FOR TYPICAL DETAILS REFER TO DRAWING No. 121/5192/M027.
7. FOR DETAILS OF CORE AREAS DRAINAGE LAYOUTS REFER TO DRAWING Nos. 121/5192/M038.
8. FOR DETAILS OF DRAINAGE, DOMESTIC WATER SERVICES & FIRE PROTECTION LAYOUTS REFER TO DRAWING Nos. :-
   121/5192/FP005.
   121/5192/MP004.
   121/5192/P004.
9. THIS DRAWING SHOULD BE READ INCONJUNCTION WITH THE FOLLOWING SCHEMATIC DRAWING Nos. :-
   121/5192/P031, P032, P033, P034 & P035.
   121/5192/M035, M037, M033 & M038.
10. REFER TO TYPICAL DETAILS DRAWING FOR CONDENSATE ENTRIES TO RISER & CONNECTIONS TO FAN COIL UNITS.
11. FOR DETAILS OF PIPEWORK PENETRATIONS TO RISER & THROUGH FIRE BARRIERS REFER TO DRG Nº 121/5192/M/027
12. FOR FAN COIL MOUNTING DETAILS REFER TO DRG No.121/5192/M/027
13. FOR DETAILS OF HEAT METERS SEE DRG No.121/5192/M/027
14. FOR DETAILS OF REFLECTED CEILING SEE MICHAEL WILFORD & PARTNERS DRAWINGS.
15. FAN COIL UNITS TO BE MOUNTED AT 300mm TO BOTTOM OF UNIT EXCEPT WHERE INDICATED OTHERWISE .

    15mmø CONDENSE DRAINS FROM UNITS HAVE AN INVERT OF APPROX 300mm . 15ø CONDENSE DRAINS THEN FALL BACK TO 35ø CONDENSE DRAINS @ 10mm PER METRE .

LEGEND

(290) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO:
   a) CENTRE LINE OF PIPEWORK
   b) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK.

(L.13) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO:
   a) BOTTOM OF INNER-DIA. OF PIPEWORK

NOTE

SLAB BETWEEN GRIDS B & C AND BETWEEN GRIDS G & H IS 85mm LOWER THAN THE MAIN SLAB .

IV	ISOLATING VALVE
LSV	LOCKSHIELD VALVE
DC	DRAIN COCK
FODRV	FIXED ORIFICE DOUBLE REGULATING VALVE
AV	AIR VENT
CHW	CHILLED WATER SERVICE
LTHW	LOW TEMPERATURE HOT WATER HEATING SERVICE
RE	ROODING EYE
RWP	RAIN WATER PIPE
AC	ACCESS BEND

27.11.98

FOR CONSTRUCTION

Rev	Date	Eng	Description	Appr
A	29/10/98	M.L.	REVISED TO CONSTRUCTION ISSUE INCORPORATING DESIGN TEAM COMMENTS . NOTE 15 ADDED	
	18/9/98	M.L.	ISSUED FOR COMMENT	

Drake & Scull
ONE SHEWLEY PAVILIONS
CHUDLEIGH DRIVE, BIDEFORD WOOD
MILTON KEYNES, BUCKINGHAMSHIRE
MK3 6LB
Telephone 01908 506600
Facsimile 01908 506066

Discipline: HVAC – PIPEWORK

Drawn: HW | Scale: 1:50/1:10

Checked: | Date: SEPT 1998

PROJECT
5 – 7 CARLTON GARDENS

CLIENT
BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

TITLE
OFFICE HIGH LEVEL
LTHW , CH.W. , CONDENSATE & RWP
FOURTH FLOOR sht 1 OF 2

Drawing No: 121/5192/M/034 | Rev: A

CERTIFICATE OF MICROBIOLOGICAL EXAMINATION

Oakland Calvert Consultants Ltd.

Client	Estec Environmental		
Site	5-7 Carlton Gardens		
OCC Sample No		4795	4796
Client's Reference		A 3854	A 3854
Date Taken		25/03/99	25/03/99
Date Received		25/03/99	25/03/99
Sample Point		4th floor East	Fan Coil Basement
Type of Sample		Chilled Water	Chilled Water
Total Viable Count 1 day @ 37°C	cfu/mL	5	9
Total Viable Count 3 days @ 22°C	cfu/mL	<1	<1
Legionella spp	cfu/100mL	<1	<1
Pneumophila			
Pseudomonas spp	cfu/100mL	<1	<1
Aeruginosa	cfu/100mL	<1	<1
Flavobacterium	cfu/100mL	<1	<1
Nitrate reducing bacteria		Not detected	Not detected
Nitrite oxidising bacteria		Not detected	Not detected
Sulphate reducing bacteria		Not detected	Not detected

2

PREUSSAG
FIRE PROTECTION

PFP. 022

PRESSURE TEST CERTIFICATE

(1) SPRINKLER SYSTEM PIPEWORK TO BS 5306 PT 2: 1990 (SECTION 10)
(2) HOSEREELS TO BS 5306 PT 1: 1976 (SECTION 18. ITEM 18.1)
(3) HYDRANT & DRY RISER TO BS 5306 PT 1:1976 (SECTION 9, 31 & 32)

CONTRACT NO. 68210 DATE: 04.03.99
CLIENT DRAKE & SCULL
LOCATION: 5/7 CARLTON GARDENS – FOURTH FLOOR CORE. DRG. 019.

MAINS STANDING PRESSURE:
TEST PRESSURE / ~~H/R JET LENGTH~~ 15 BAR /
DURATION OF TEST 1 HOUR

WITNESSED BY: S JEFFERY.
PERFORMED BY: M. Cooper.

TEST PRESSURE GAUGE - RANGE: 0-16 BAR
SERIAL NO: 98/161106.
NEXT CALIBRATION DATE: 17.11.99.

GUIDANCE NOTES FOR TESTS:-

1. (a) Wet pipe sprinkler systems hydraulically to not less than 15 Bar, or 1.5 times working pressure, whichever is the greater for not less than one hour.
   (b) Dry pipe sprinkler systems, pneumatically to not less than 2.5 Bar for not less than 24 hours.
   (c) Existing old systems to be tested to a pressure as agreed with client / insurers.

2. As a minimum, the water supply to hosereels should be such that when the two top most reels in a building are in use simultaneously, each will provide a jet of approximately 6m in length and will deliver not less than 0.4 litre / second (24 litres / minute).

3. Hydrant and Dry Riser static pressure test to 10 Bar for 15 minutes. Minimum flow test of 25 L/S (1500 l/min), sufficient to serve three lines of hose from three landing valves simultaneously. A minimum running pressure of 4 Bar and a maximum of 5 Bar should be maintained at each landing valve when any number, up to three, are fully opened.

Any faults disclosed shall be corrected and test repeated.

GRA21S 10.11.94 (Rev 02)

PREUSSAG
FIRE PROTECTION

5 - 7 CARLTON GARDENS

DROP FLUSH CERTIFICATE

TO BE COMPLETED IN CONJUNCTION WITH PRESSURE TEST CERTIFICATE

CONTRACT NO: 68210 DATE:

CLIENT: DRAKE & SCULL.

LOCATION: 5/7 CARLTON GDNS – FOURTH FLOOR CORE DRG. 019.

WITNESSED BY DSE:

WITNESSED BY MACE/CML:

PERFORMED BY: M. Cooper.

COMMENTS:

ON DRAINING THE FLOORS ENSURE THE VALVE IS OPENED FULLY TO CREATE A DROP FLUSH.

FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

CONTRACT NUMBER : 68210

CONTRACT NAME : 5/7 CARLTON GARDENS

CUSTOMER : DRAKE & SCULL

SUPERVISOR: DATE:

DRAWING No. AC-68210-019 FLOOR FOURTH AREA CORE

QUALITY INSPECTION:- INSPECTION No PFP.QA.022

REMARKS:-

Sections 1, 2 & 3 Must be completed for each type of system. Then complete as required:
Sprinkler - 4, 5, 6, 7, 8, 9 & 15
Dry Riser & Hydrant - 10, 11, 12 & 15
First Aid Hosereel - 13, 9, 14 & 15

Item	Description	Yes/No N/A	Remarks
1 a)	Deviations from drawings (see marked up paper prints).		
b)	Effect deviations made to hydraulic calculations		
c)	Effect deviations made to positioning of inlets/outlets (dry riser/hydrant)		
2	PIPEWORK:- (above ground)		
a)	Is pipework laid to correct falls?		
b)	Have LPC welding techniques been used?		
c)	Is pipework to correct specification?		
d)	Fittings:-		
	i) Are fittings taper thread/have sweep fittings been used on dry riser?		
	ii) Have fittings been cleaned of excess jointing materials?		
	iii) Are fittings BS143, banded, galvanised? (Dry riser only)		
e)	Hangers:-		
	i) Are fittings to British Standard 5306: Part 1&2?		
	ii) Are hangers spaced correctly to British Standard 5306: Part 1&2?		
f)	Drain Valves:-		
	i) Are drain valves provided at trapped sections of pipework		
	ii) Locations? (see drgs)		
	iii) Are drain valves fitted with a plug?		
g)	Hydrostatic Test Carried Out:-		
	i) On:-		
	ii) Witnessed by:-		
h)	Is pipework earthed? Continuity clips on vict. joints etc.		
i)	Is pipework trace heated & lagged in areas subject to freezing?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
3	PIPEWORK:- (below ground)	N/A	THIS PAGE EXCEPT (4) & (7)
a)	Type of pipework & fittings?		
b)	Are thrust blocks fitted at all changes of direction or where necessary?		
c)	Is pipework denso wrapped (or similar)/		
d)	Hydrostatic tests:-		
	i) On:-		
	ii) Witnessed by:-		
4	SPRINKLER HEADS:-		
a)	Type:-		
b)	Are deflectors parallel with slope of ceiling/roof?		
5	MULTIPLE JET CONTROLS:-		
a)	Type:-		
b)	Is control readily removable for replacement when necessary?		
c)	Have non return valves been fitted on 'dry' side of control (electrical rooms only)?		
6	OPEN WATERSPRAYS/SPRINKLERS:-		
a)	Has the correct angle and orifice size been fitted in its designated location?		
7	ZONAL VALVE ARRANGEMENTS:-		
a)	Is the zone isolating valve in the open/closed position?		
b)	Is the zone isolating valve fitted with a tamper switch with the signal relayed back to an alarm panel?		
c)	What type of water flow alarm switch is fitted and is signal relayed back to an alarm panel?		
d)	What time delay has been set up on the water flow alarm switch?		
8	INSTALLATION CONTROL VALVES:-		
a)	What size & type of alarm valve is fitted?		
b)	Is the isolating valve fitted with an open/shut needle indicator?		
c)	Is the isolating valve fitted with a tamper switch and is signal relayed back to an alarm panel?		
d)	Are all stop and isolating valves fitted with a strap and padlock?		
e)	Is water motor alarm gong functioning correctly?		
f)	Is an air compressor fitted correctly to Preussag standard?		
g)	Is an air compressor fitted correctly to Preussag standard?		
h)	Is correct flow meter installed & functioning correctly?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

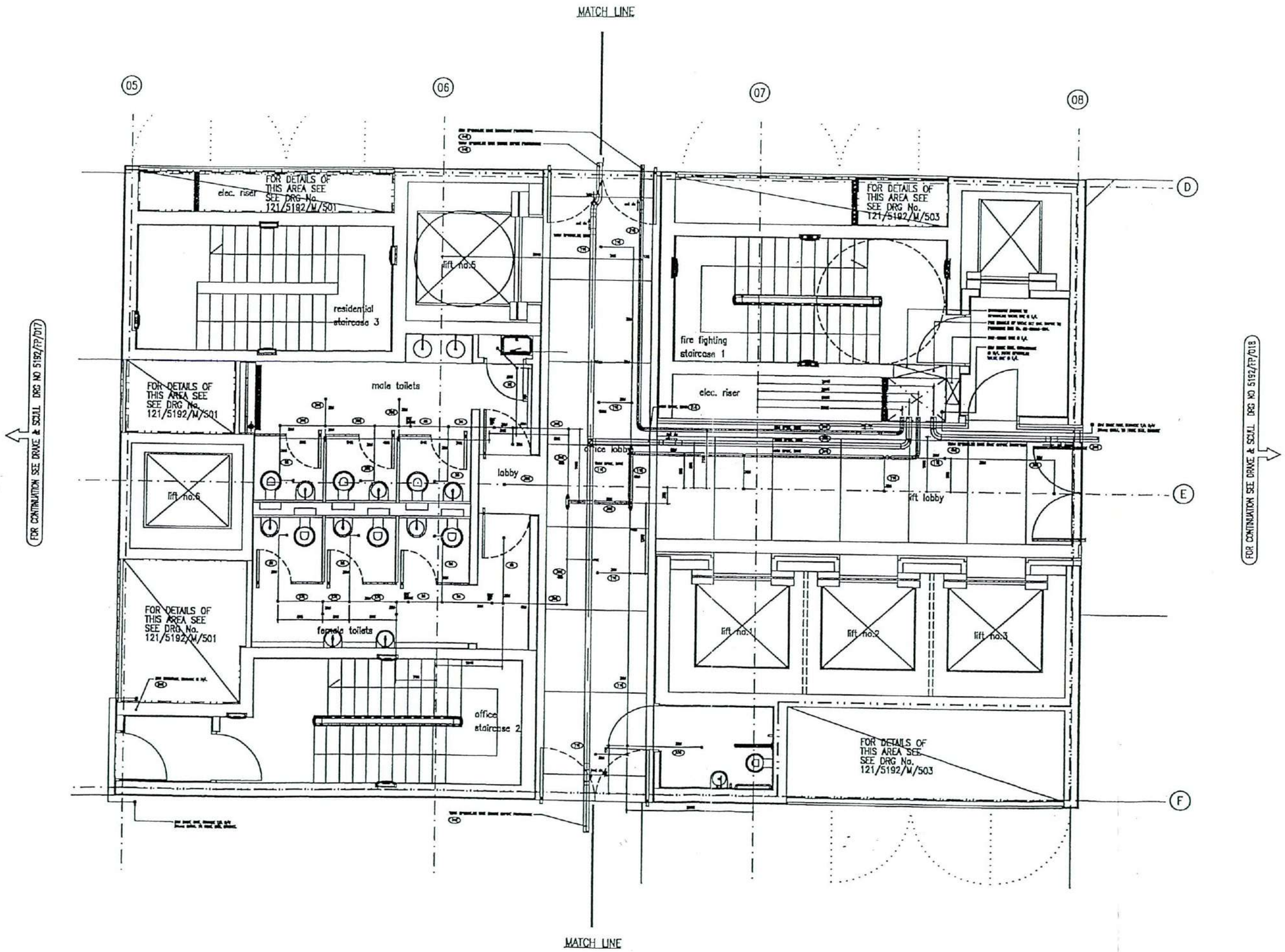
SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
9	WATER SUPPLIES:-	N/A	THIS PAGE
a)	Town main(s)		
b)	Water storage facility		
c)	Main Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
d)	Standby Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
e)	Pressure maintenance pump		
f)	Remote Alarm Panel		
g)	Initiation switch settings		
	i)		
	ii)		
	iii)		
h)	Proving Test Results (See table below)		
	MAIN PUMP	STANDBY PUMP	
	dm3 bars	dm3 bars	
	dm3 bars	dm3 bars	
	dm3 bars	dm3 bars	
i)	Are pumps mechanically & electrically independent?		
10	INLET BOX:-		
a)	Is inlet box vertical/horizontal pattern?		
b)	Is inlet box securely anchored?		
11	HYDRANT OUTLET:-		
a)	Type?		
b)	Is outlet fitted in box? Type?		
c)	Is isolating valve closed/strapped & padlocked?		
d)	Is dust cap fitted?		
12	TEST AT HYDRANT:-		
a)	Is Towns Main water supply capable of supplying minimum of 25 L/S (1500 L/M)?		
b)	Method of testing?		
13	FIRST AID HOSEREELS:-		
a)	Type?		
b)	Manual/Automatic?		
c)	Distance of hose?		
d)	Type of nozzle?		
e)	Is isolating valve open/closed?		
14	TEST AT HOSEREELS:-		
a)	Is distance of jet correct: 6m / 24L/M		
b)	Is nozzle free from debris after test?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
15	OBSERVATIONS & COMMENTS:-		



©

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. THIS ZONE IS PROVIDED FOR CO ORDINATION PURPOSES AND IS TO BE BOUNDED BY PERMANENT FIRE PROTECTION LINE FOR BURNING FLAMMABILITY DEPTHS, ELEVATIONS, ETC.
4. FIRE TAPPING SCHEDULE OF SPRINKLER HEADS REFER TO DWG No. 121/5192/M/501.
5. FIRE SCHEDULE OF FIRE BARRIER PERFORMANCE REFER TO DWG No. 121/5192/M/501.
6. FIRE PANEL POSITIONS OF SPRINKLER HEADS REFER TO REFLECTED CEILING LAYOUT.
ALL HOSES IN PLASTER BOARD WARRAN SECTIONS OR CEILINGS.
7. FIRE POSITIONS OF SPRINKLER HEADS SUBJECT TO ARC INT DWGS , 5/7/1/96.

LEGEND

"REMOVE LINES FROM WHICH SIDE OF DUCTS TO SIDE OF CENTRE LINE OF PIPECHOKE

FOR COMMENT

Rev	Date	Dwg	Description	Appr
-	6/12/96	M.L.	ISSUED FOR COMMENT	

Drawe & Scull

Discipline: FIRE PROTECTION

Drawn: M.DRINKWATER | Scale: 1 : 25

Checked: | Date: JULY 1996

PROJECT: 5-7 CARLTON GARDENS

CLIENT: BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

TITLE: CORE AREA DETAILS
FIRE PROTECTION SERVICES
FOURTH FLOOR

Drawing No. 121/5192/FP/019 | Rev

PREUSSAG
FIRE PROTECTION

PFP. 044

PRESSURE TEST CERTIFICATE

(1) SPRINKLER SYSTEM PIPEWORK TO BS 5306 PT 2: 1990 (SECTION 10)
(2) HOSEREELS TO BS 5306 PT 1: 1976 (SECTION 18. ITEM 18.1)
(3) HYDRANT & DRY RISER TO BS 5306 PT 1:1976 (SECTION 9, 31 & 32)

CONTRACT NO. 68210 DATE: _____
CLIENT DRAKE & SCULL
LOCATION: 5/7 CARLTON GARDENS - FOURTH FLOOR
GRIDS. 1-6.5. DRG. 016

MAINS STANDING PRESSURE: _____
TEST PRESSURE / H/R JET LENGTH _____ / _____
DURATION OF TEST _____

WITNESSED BY: _____
PERFORMED BY: _____

TEST PRESSURE GAUGE - RANGE: _____
SERIAL NO: _____
NEXT CALIBRATION DATE: _____

GUIDANCE NOTES FOR TESTS:-

1. (a) Wet pipe sprinkler systems hydraulically to not less than 15 Bar, or 1.5 times working pressure, whichever is the greater for not less than one hour.
   (b) Dry pipe sprinkler systems, pneumatically to not less than 2.5 Bar for not less than 24 hours.
   (c) Existing old systems to be tested to a pressure as agreed with client / insurers.

2. As a minimum, the water supply to hosereels should be such that when the two top most reels in a building are in use simultaneously, each will provide a jet of approximately 6m in length and will deliver not less than 0.4 litre / second (24 litres / minute).

3. Hydrant and Dry Riser static pressure test to 10 Bar for 15 minutes. Minimum flow test of 25 L/S (1500 l/min), sufficient to serve three lines of hose from three landing valves simultaneously. A minimum running pressure of 4 Bar and a maximum of 5 Bar should be maintained at each landing valve when any number, up to three, are fully opened.

Any faults disclosed shall be corrected and test repeated.

GRA21S 10.11.94 (Rev 02)

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

CONTRACT NUMBER : 68210

CONTRACT NAME : 5/7 CARLTON GARDENS

CUSTOMER : DRAKE & SCULL

SUPERVISOR: ..... DATE: .....

DRAWING No. A0-68210-016 FLOOR FOURTH AREA GRIDS 1-6:5

QUALITY INSPECTION:- ..... INSPECTION No P.F.P.QA.020

REMARKS:-

Sections 1, 2 & 3 Must be completed for each type of system. Then complete as required:
Sprinkler - 4, 5, 6, 7, 8, 9 & 15
Dry Riser & Hydrant - 10, 11, 12 & 15
First Aid Hosereel - 13, 9, 14 & 15

Item	Description	Yes/No N/A	Remarks
1 a)	Deviations from drawings (see marked up paper prints).		
b)	Effect deviations made to hydraulic calculations		
c)	Effect deviations made to positioning of inlets/outlets (dry riser/hydrant)		
2	PIPEWORK:- (above ground)		
a)	Is pipework laid to correct falls?		
b)	Have LPC welding techniques been used?		
c)	Is pipework to correct specification?		
d)	Fittings:-		
	i) Are fittings taper thread/have sweep fittings been used on dry riser?		
	ii) Have fittings been cleaned of excess jointing materials?		
	iii) Are fittings BS143, banded, galvanised? (Dry riser only)		
e)	Hangers:-		
	i) Are fittings to British Standard 5306: Part 1&2?		
	ii) Are hangers spaced correctly to British Standard 5306: Part 1&2?		
f)	Drain Valves:-		
	i) Are drain valves provided at trapped sections of pipework		
	ii) Locations? (see drgs)		
	iii) Are drain valves fitted with a plug?		
g)	Hydrostatic Test Carried Out:-		
	i) On:-		
	ii) Witnessed by:-		
h)	Is pipework earthed? Continuity clips on vict. joints etc.		
i)	Is pipework trace heated & lagged in areas subject to freezing?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
3	PIPEWORK:- (below ground)	N/A	THIS PAGE EXCEPT
a)	Type of pipework & fittings?		
b)	Are thrust blocks fitted at all changes of direction or where necessary?		(4) 8 - (7)
c)	Is pipework denso wrapped (or similar)/		
d)	Hydrostatic tests:-		
	i) On:-		
	ii) Witnessed by:-		
4	SPRINKLER HEADS:-		
a)	Type:-		
b)	Are deflectors parallel with slope of ceiling/roof?		
5	MULTIPLE JET CONTROLS:-		
a)	Type:-		
b)	Is control readily removable for replacement when necessary?		
c)	Have non return valves been fitted on 'dry' side of control (electrical rooms only)?		
6	OPEN WATERSPRAYS/SPRINKLERS:-		
a)	Has the correct angle and orifice size been fitted in its designated location?		
7	ZONAL VALVE ARRANGEMENTS:-		
a)	Is the zone isolating valve in the open/closed position?		
b)	Is the zone isolating valve fitted with a tamper switch with the signal relayed back to an alarm panel?		
c)	What type of water flow alarm switch is fitted and is signal relayed back to an alarm panel?		
d)	What time delay has been set up on the water flow alarm switch?		
8	INSTALLATION CONTROL VALVES:-		
a)	What size & type of alarm valve is fitted?		
b)	Is the isolating valve fitted with an open/shut needle indicator?		
c)	Is the isolating valve fitted with a tamper switch and is signal relayed back to an alarm panel?		
d)	Are all stop and isolating valves fitted with a strap and padlock?		
e)	Is water motor alarm gong functioning correctly?		
f)	Is an air compressor fitted correctly to Preussag standard?		
g)	Is an air compressor fitted correctly to Preussag standard?		
h)	Is correct flow meter installed & functioning correctly?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
9	WATER SUPPLIES:-	N/A	THIS PAGE
a)	Town main(s)		
b)	Water storage facility		-- -
c)	Main Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
d)	Standby Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
e)	Pressure maintenance pump		
f)	Remote Alarm Panel		
g)	Initiation switch settings		
	i)		
	ii)		
	iii)		
h)	Proving Test Results (See table below)		
	MAIN PUMP	STANDBY PUMP	
	dm3 bars	dm3	bars
	dm3 bars	dm3	bars
	dm3 bars	dm3	bars
i)	Are pumps mechanically & electrically independent?		
10	INLET BOX:-		
a)	Is inlet box vertical/horizontal pattern?		
b)	Is inlet box securely anchored?		
11	HYDRANT OUTLET:-		
a)	Type?		
b)	Is outlet fitted in box? Type?		
c)	Is isolating valve closed/strapped & padlocked?		
d)	Is dust cap fitted?		
12	TEST AT HYDRANT:-		
a)	Is Towns Main water supply capable of supplying minimum of 25 L/S (1500 L/M)?		
b)	Method of testing?		
13	FIRST AID HOSEREELS:-		
a)	Type?		
b)	Manual/Automatic?		
c)	Distance of hose?		
d)	Type of nozzle?		
e)	Is isolating valve open/closed?		
14	TEST AT HOSEREELS:-		
a)	Is distance of jet correct: 6m / 24L/M		
b)	Is nozzle free from debris after test?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

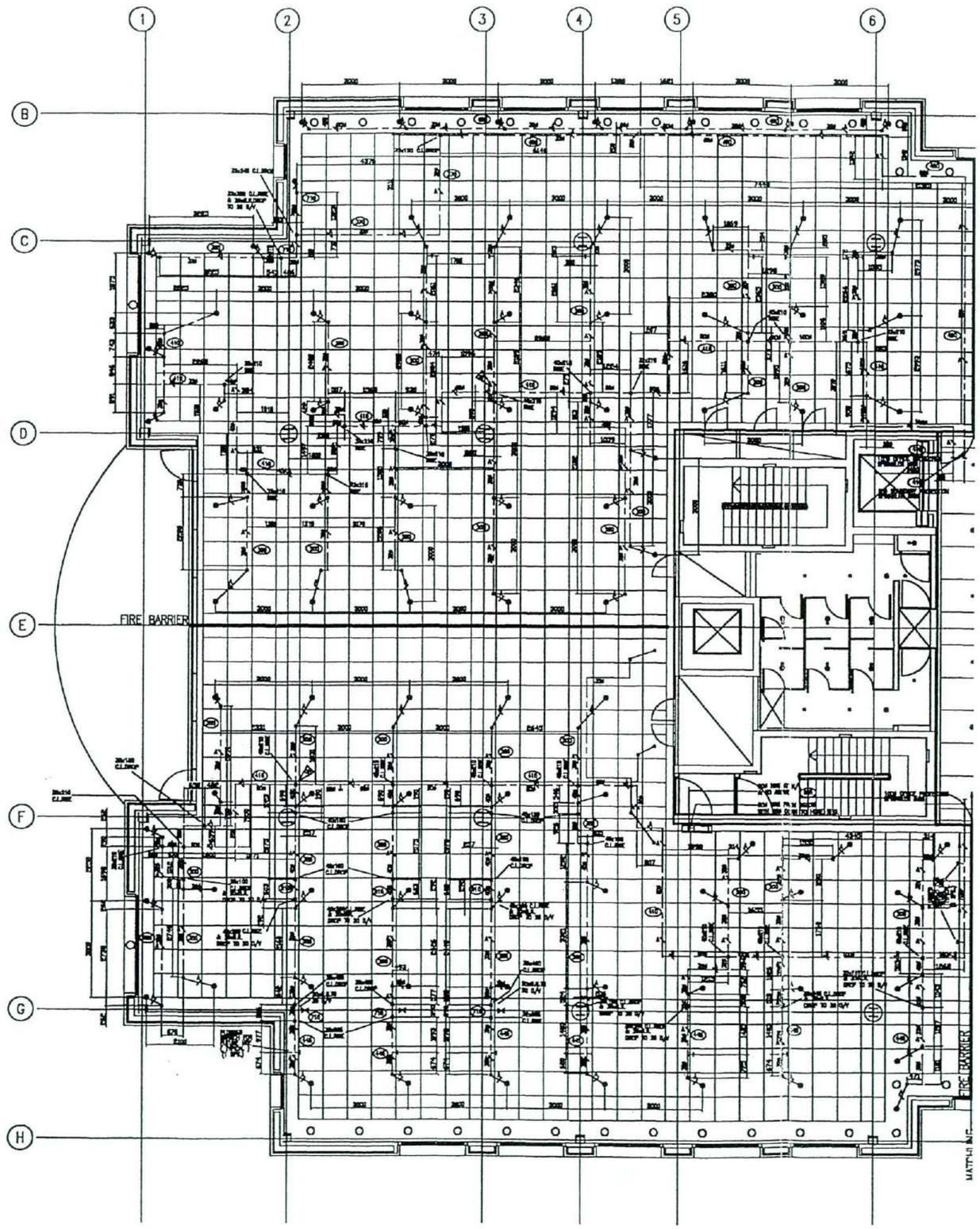
SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
15	OBSERVATIONS & COMMENTS:-		

DWG. No.	SHEET	PLOT CODE	PLOT SCALE
A0-68210-016	1 of 1		1 : 50

DO NOT SCALE

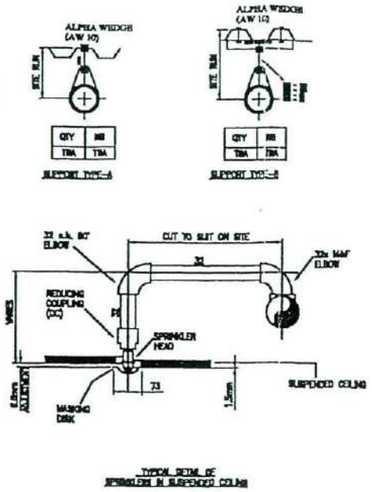
THIRD ANGLE PROJECTION



CONTINUED ON DRAWING No. 68218-016

FOR CONTINUATION & PROTECTION OF CORE AREA SEE DRG. No. 020

CONTINUED ON DRAWING No. 68218-016



REV	REVISION	CHECKED	DRAWN	DATE
0	ORIGINAL ISSUE		A.J.G	29/09/98

REFERENCE DRAWINGS — REV

DESIGN CLASSIFICATION

ORDINARY HAZARD

CATEGORY: 1

DESIGN DENSITY: 5.0mm/MIN

AMAO: 72m²

LPC RULEBOOK PART 2 – PRECALCULATED PIPE DIMENSIONS

SCHEDULE OF SPRINKLERS

AREA	N	CONSTRUCTION	TYPE	TEMP	RELIABLE
840m²	10m²	COMBUSTIBLE	ZX-1	74°C	84

DRAWING LEGEND

- SPRINKLER INSTALLED UPRIGHT
- SPRINKLER INSTALLED PENDENT
- SPRINKLER INSTALLED ON RISE
- SPRINKLER INSTALLED ON DROP
- OPEN SPRINKLER
- MULTI-JET CONTROL
- FLOW SWITCH
- DROP OR RISE IN PIPEWORK
- GROOVED COUPLING
- SCREWED SOCKET/COUPLING
- BLANK CAP
- FLANGE
- HANGER POSITION & TYPE
- DRAIN VALVE
- SLOPE OR DRAINAGE SLOPE
- TC — TO CUT PIPE LENGTH
- SSL — STRUCTURAL SLAB LEVEL
- FFL — FINISHED FLOOR LEVEL
- DATUM POINT

PIPEWORK LEGEND

- B — BUTT WELD
- FW — FILLET WELD
- WR — WELDED REDUCER
- S — SCREWED BRANCH
- G — GROOVED BRANCH
- P — WELDED SOCKET(MAP)
- SF — SCREWED FITTING
- SS — SCREWED SOCKET
- S/FLG — SCREWED FLANGE
- W/FLG — WELDED FLANGE
- M&F — MALE & FEMALE ELBOW
- BN — BARREL NIPPLE
- BC — BLANK CAP
- GT — GROOVED TEE
- GC — GROOVED BLANK CAP
- GB — GROOVED BEND
- GS — GROOVED SWEEP BEND
- DV — DRAIN VALVE
- GE — GROOVED ELBOW

PIPEWORK SPECIFICATION

ALL PIPEWORK UP TO AND INCLUDING 150mm DIAMETER TO BE GALVANISED TO B.S. 1387 UNLESS OTHERWISE STATED.

ALL PIPEWORK 200mm DIAMETER AND ABOVE TO BE GALVANISED TO B.S. 3601 UNLESS OTHERWISE STATED.

ALL SCREWED FITTINGS TO CONFORM TO B.S. 143

ALL WELDED FITTINGS TO CONFORM TO B.S. 1965

ALL PIPE THREADS TO CONFORM TO B.S. 21 TAPER THREADS

ALL WELDING TO CONFORM TO B.S. 2640 OR B.S. 2971

ALL VICTAULIC FITTINGS AS PER VICTAULIC COMPANY STANDARDS.

TO THE DIRECTOR – INSTALL PIPEWORK TO LEVELS AS SHOWN

~~DRY AND ALTERNATE PIPE SYSTEMS:~~
~~PIPEWORK UP TO AND INCLUDING 40mm TO SLOPE 12mm IN EVERY METRE.~~
~~PIPEWORK ABOVE 40mm TO SLOPE 4mm IN EVERY METRE.~~
~~ALL CONTROLS AND SPRINKLERS TO BE INSTALLED UPRIGHT UNLESS OTHERWISE SHOWN.~~

~~WET PIPE SYSTEMS:~~
~~PIPEWORK TO SLOPE 2mm IN EVERY METRE. CONTROLS AND SPRINKLERS TO BE INSTALLED EITHER UPRIGHT OR PENDENT AS SHOWN. MEDIUM AND HIGH VELOCITY SPRAYERS MUST BE ERECTED AS SHOWN.~~

TO THE CLIENT

PREMIERAG DO NOT ACCEPT ANY RESPONSIBILITY FOR DAMAGE CAUSED BY FROST. CLIENTS SHOULD TAKE ADEQUATE PRECAUTIONS AGAINST THE WATER IN THE VALVES AND PIPEWORK ABOVE AND BELOW THE CONTROL VALVES FROM FREEZING DURING SEVERE WEATHER.

HOLES IN WALLS, PARTITIONS, BEAMS OR COLUMNS THROUGH WHICH PIPES PASS, MUST NOT BE FILLED WITH MATERIALS WHICH HAVE A DELETERIOUS EFFECT ON THE PIPEWORK.

PIPES SCAFFOLDING OR ANY OTHER ITEMS OF PLANT MUST NOT BE AT ANY TIME BE ATTACHED TO OR SUPPORTED FROM ANY PART OF THE FIRE PROTECTION EQUIPMENT.

WARNING

CONTROLS, PROJECTORS, SPRAYERS AND SPRINKLERS MUST NOT BE PAINTED.

PREMIERAG FIRE PROTECTION

PREMIERAG FIRE PROTECTION LIMITED
Premierag House, Wolf Business Park, Alton, Hampshire GU34 2QJ
Tel: (01420) 541000 Fax: (01420) 541001

CONTRACT: 5 – 7 CARLTON GARDENS LONDON

CONTRACT No.: 68210

CLIENT: DRAKE & SCULL ENGINEERING (UK) LTD

CLIENT ORDER No.: T.B.A.

TITLE: SPRINKLER PROTECTION TO FOURTH FLOOR No. 1 INSTALLATION, 150mm WET

DRAWN	DATE	CHECKED	SCALE
A.J.GOOBY	29/09/98		1 : 50

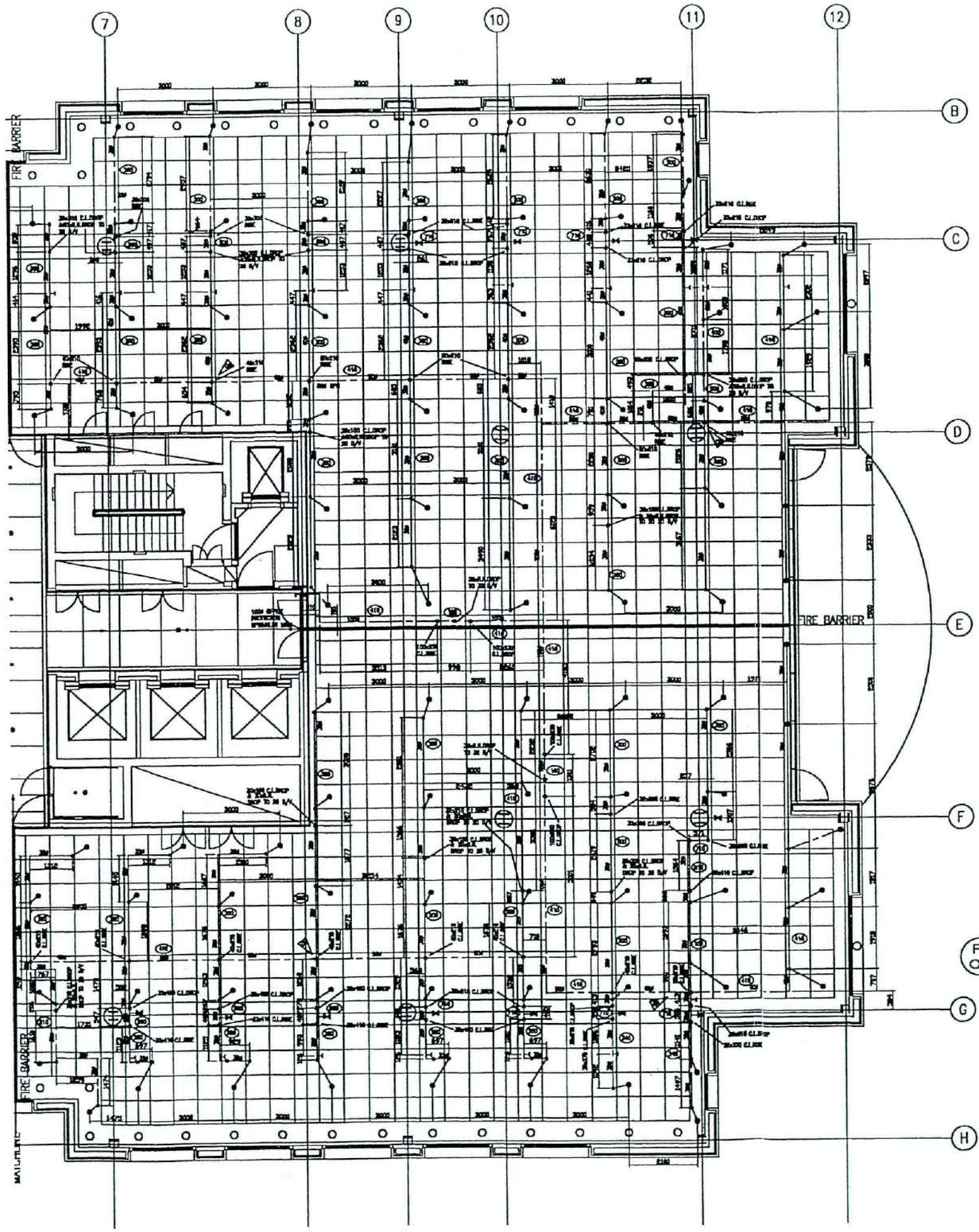
DWG. No.: A0-68218-016

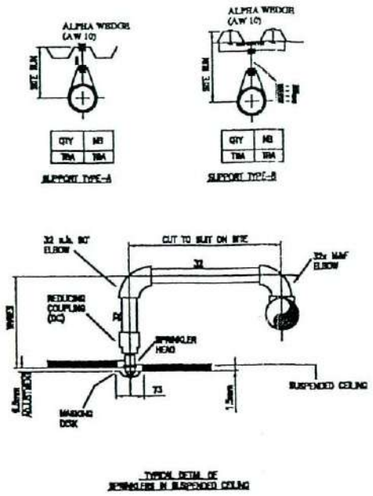
SHEET 1 of 1 | REV 0

DWG. No.	SHEET	PLOT CODE	PLOT SCALE
AO-68210-016	1 of 1		1 : 50

DO NOT SCALE

THIRD ANGLE PROJECTION





TYPICAL DETAIL OF SPRINKLERS IN SUSPENDED CEILING

REV	REVISION	CHECKED	DRAWN	DATE
0	ORIGINAL ISSUE		A.J.G	30/09/98

REFERENCE DRAWINGS | REV

HAZARD CLASSIFICATION

ORDINARY HAZARD

CATEGORY: 1

DESIGN DENSITY: 8.0mm/MIN

AREA: 72m²

UPC BS.5306 PART 2 – PRECALCULATED PIPE DIAMETERS

SCHEDULE OF SPRINKLERS

AREA	K	CONSTRUCTION	TYPE	TEMP	RELIABLE
846m²	10m²	COMBUSTIBLE	ZX-1	74°C	94

SYMBOL LEGEND

- SPRINKLER INSTALLED UPRIGHT
- SPRINKLER INSTALLED PENDENT
- SPRINKLER INSTALLED ON RISE
- SPRINKLER INSTALLED ON DROP
- OPEN SPRINKLER
- MULTI-JET CONTROL
- FLOW SWITCH
- DROP OR RISE IN PIPEWORK
- GROOVED COUPLING
- SCREWED SOCKET/COUPLING
- BLANK CAP
- FLANGE
- HANGER POSITION & TYPE
- DRAIN VALVE
- SLOPE OR DRAINAGE SLOPE
- TO CUT PIPE LENGTH
- STRUCTURAL SLAB LEVEL
- FINISHED FLOOR LEVEL
- DESIGN POINT

PIPEWORK LEGEND

B	BUTT WELD
FW	FILLET WELD
WR	WELDED REDUCER
S	SCREWED BRANCH
G	GROOVED BRANCH
P	WELDED SOCKET(PAP)
SF	SCREWED FITTING
SS	SCREWED SOCKET
S/FLG	SCREWED FLANGE
W/FLG	WELDED FLANGE
MAF	MALE & FEMALE ELBOW
BN	BARREL NIPPLE
BC	BLANK CAP
GT	GROOVED TEE
GC	GROOVED BLANK CAP
GB	GROOVED BEND
GS	GROOVED SWEEP BEND
DV	DRAIN VALVE
GE	GROOVED ELBOW

PIPEWORK SPECIFICATION

ALL PIPEWORK UP TO AND INCLUDING 150mm DIAMETER TO BE GALVANISED TO B.S. 1387 UNLESS OTHERWISE STATED.

ALL PIPEWORK 200mm DIAMETER AND ABOVE TO BE GALVANISED TO B.S. 3600 UNLESS OTHERWISE STATED.

ALL SCREWED FITTINGS TO CONFORM TO B.S. 143

ALL WELDED FITTINGS TO CONFORM TO B.S. 1965

ALL PIPE THREADS TO CONFORM TO B.S. 21 TAPER THREADS

ALL WELDING TO CONFORM TO B.S. 3640 OR B.S. 2971

ALL VICTAULIC FITTINGS AS PER VICTAULIC COMPANY STANDARDS.

TO THE INSTALLATION – INSTALL PIPEWORK TO LEVELS AS SHOWN

DRY AND ALTERNATE PIPE SYSTEMS:
PIPEWORK UP TO AND INCLUDING 40mm TO SLOPE 12mm IN EVERY METRE.
PIPEWORK ABOVE 40mm TO SLOPE 4mm IN EVERY METRE.
ALL CONTROLS AND SPRINKLERS TO BE INSTALLED UPRIGHT UNLESS OTHERWISE SHOWN.

WET PIPE SYSTEMS:
PIPEWORK TO SLOPE 2mm IN EVERY METRE. CONTROLS AND SPRINKLERS TO BE INSTALLED EITHER UPRIGHT OR PENDENT AS SHOWN.
BANKS AND HIGH VELOCITY SPRAYERS MUST BE ERECTED AS SHOWN.

TO THE CLIENT

PREUSSAG DO NOT ACCEPT ANY RESPONSIBILITY FOR DAMAGE CAUSED BY FROST. CLIENTS SHOULD TAKE ADEQUATE PRECAUTIONS AGAINST THE WATER IN THE VALVES AND PIPEWORK ABOVE AND BELOW THE CONTROL VALVES FROM FREEZING DURING SEVERE WEATHER.

HOLES IN WALLS, PARTITIONS, BEAMS OR CEILINGS THROUGH WHICH PIPES PASS, MUST NOT BE FILLED WITH MATERIALS WHICH HAVE A DELETERIOUS EFFECT ON THE PIPEWORK.

PIPES SCAFFOLDING OR ANY OTHER ITEMS OF PLANT MUST NOT BE AT ANY TIME BE ATTACHED TO OR SUPPORTED FROM ANY PART OF THE FIRE PROTECTION EQUIPMENT.

WARNING

CONTROLS, PROJECTORS, SPRAYERS AND SPRINKLERS MUST NOT BE PAINTED.

CONTRACT: 5 – 7 CARLTON GARDENS LONDON

CONTRACT No.: 68210

CLIENT: DRAKE & SCULL ENGINEERING (UK) LTD

CLIENT ORDER No.: T.B.A.

PREUSSAG FIRE PROTECTION

TITLE: SPRINKLER PROTECTION TO FOURTH FLOOR No. 1 INSTALLATION, 150mm WET

DRAWN	DATE	CHECKED	SCALE
A.J.GOOBY	29/09/98		1 : 50

DRG. No.: AO-68218-017 | SHEET 1 of 1 | REV 0

PREUSSAG
FIRE PROTECTION

PFP. 022

PRESSURE TEST CERTIFICATE

(1) SPRINKLER SYSTEM PIPEWORK TO BS 5306 PT 2: 1990 (SECTION 10)
(2) HOSEREELS TO BS 5306 PT 1: 1976 (SECTION 18. ITEM 18.1)
(3) HYDRANT & DRY RISER TO BS 5306 PT 1:1976 (SECTION 9, 31 & 32)

CONTRACT NO. 68210 DATE: _____
CLIENT DRAKE & SCULL
LOCATION: 5/7 CARLTON GARDENS – FOURTH FLOOR CORE. DRG. 019.

MAINS STANDING PRESSURE: _____
TEST PRESSURE / H/R JET LENGTH _____ / _____
DURATION OF TEST _____

WITNESSED BY: _____
PERFORMED BY: _____

TEST PRESSURE GAUGE - RANGE: _____
SERIAL NO: _____
NEXT CALIBRATION DATE: _____

GUIDANCE NOTES FOR TESTS:-

1. (a) Wet pipe sprinkler systems hydraulically to not less than 15 Bar, or 1.5 times working pressure, whichever is the greater for not less than one hour.
   (b) Dry pipe sprinkler systems, pneumatically to not less than 2.5 Bar for not less than 24 hours.
   (c) Existing old systems to be tested to a pressure as agreed with client / insurers.

2. As a minimum, the water supply to hosereels should be such that when the two top most reels in a building are in use simultaneously, each will provide a jet of approximately 6m in length and will deliver not less than 0.4 litre / second (24 litres / minute).

3. Hydrant and Dry Riser static pressure test to 10 Bar for 15 minutes. Minimum flow test of 25 L/S (1500 l/min), sufficient to serve three lines of hose from three landing valves simultaneously. A minimum running pressure of 4 Bar and a maximum of 5 Bar should be maintained at each landing valve when any number, up to three, are fully opened.

Any faults disclosed shall be corrected and test repeated.

GRA218 10.11.94 (Rev 02)

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

CONTRACT NUMBER : 68210

CONTRACT NAME : 5/7 CARLTON GARDENS

CUSTOMER : DRAKE & SCULL

SUPERVISOR: DATE:

DRAWING No. AO-68210-019 FLOOR FOURTH AREA CORE

QUALITY INSPECTION:- INSPECTION No P.F.P.QA.022

REMARKS:-

Sections 1, 2 & 3 Must be completed for each type of system. Then complete as required:
Sprinkler - 4, 5, 6, 7, 8, 9 & 15
Dry Riser & Hydrant - 10, 11, 12 & 15
First Aid Hosereel - 13, 9, 14 & 15

Item	Description	Yes/No N/A	Remarks
1 a)	Deviations from drawings (see marked up paper prints).		
b)	Effect deviations made to hydraulic calculations		
c)	Effect deviations made to positioning of inlets/outlets (dry riser/hydrant)		
2	PIPEWORK:- (above ground)		
a)	Is pipework laid to correct falls?		
b)	Have LPC welding techniques been used?		
c)	Is pipework to correct specification?		
d)	Fittings:-		
	i) Are fittings taper thread/have sweep fittings been used on dry riser?		
	ii) Have fittings been cleaned of excess jointing materials?		
	iii) Are fittings BS143, banded, galvanised? (Dry riser only)		
e)	Hangers:-		
	i) Are fittings to British Standard 5306: Part 1&2?		
	ii) Are hangers spaced correctly to British Standard 5306: Part 1&2?		
f)	Drain Valves:-		
	i) Are drain valves provided at trapped sections of pipework		
	ii) Locations? (see drgs)		
	iii) Are drain valves fitted with a plug?		
g)	Hydrostatic Test Carried Out:-		
	i) On:-		
	ii) Witnessed by:-		
h)	Is pipework earthed? Continuity clips on vict. joints etc.		
i)	Is pipework trace heated & lagged in areas subject to freezing?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
3	PIPEWORK:- (below ground)	N/A	THIS PAGE EXCEPT (4) & (7)
a)	Type of pipework & fittings?		
b)	Are thrust blocks fitted at all changes of direction or where necessary?		
c)	Is pipework denso wrapped (or similar)/		
d)	Hydrostatic tests:-		
	i) On:-		
	ii) Witnessed by:-		
4	SPRINKLER HEADS:-		
a)	Type:-		
b)	Are deflectors parallel with slope of ceiling/roof?		
5	MULTIPLE JET CONTROLS:-		
a)	Type:-		
b)	Is control readily removable for replacement when necessary?		
c)	Have non return valves been fitted on 'dry' side of control (electrical rooms only)?		
6	OPEN WATERSPRAYS/SPRINKLERS:-		
a)	Has the correct angle and orifice size been fitted in its designated location?		
7	ZONAL VALVE ARRANGEMENTS:-		
a)	Is the zone isolating valve in the open/closed position?		
b)	Is the zone isolating valve fitted with a tamper switch with the signal relayed back to an alarm panel?		
c)	What type of water flow alarm switch is fitted and is signal relayed back to an alarm panel?		
d)	What time delay has been set up on the water flow alarm switch?		
8	INSTALLATION CONTROL VALVES:-		
a)	What size & type of alarm valve is fitted?		
b)	Is the isolating valve fitted with an open/shut needle indicator?		
c)	Is the isolating valve fitted with a tamper switch and is signal relayed back to an alarm panel?		
d)	Are all stop and isolating valves fitted with a strap and padlock?		
e)	Is water motor alarm gong functioning correctly?		
f)	Is an air compressor fitted correctly to Preussag standard?		
g)	Is an air compressor fitted correctly to Preussag standard?		
h)	Is correct flow meter installed & functioning correctly?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

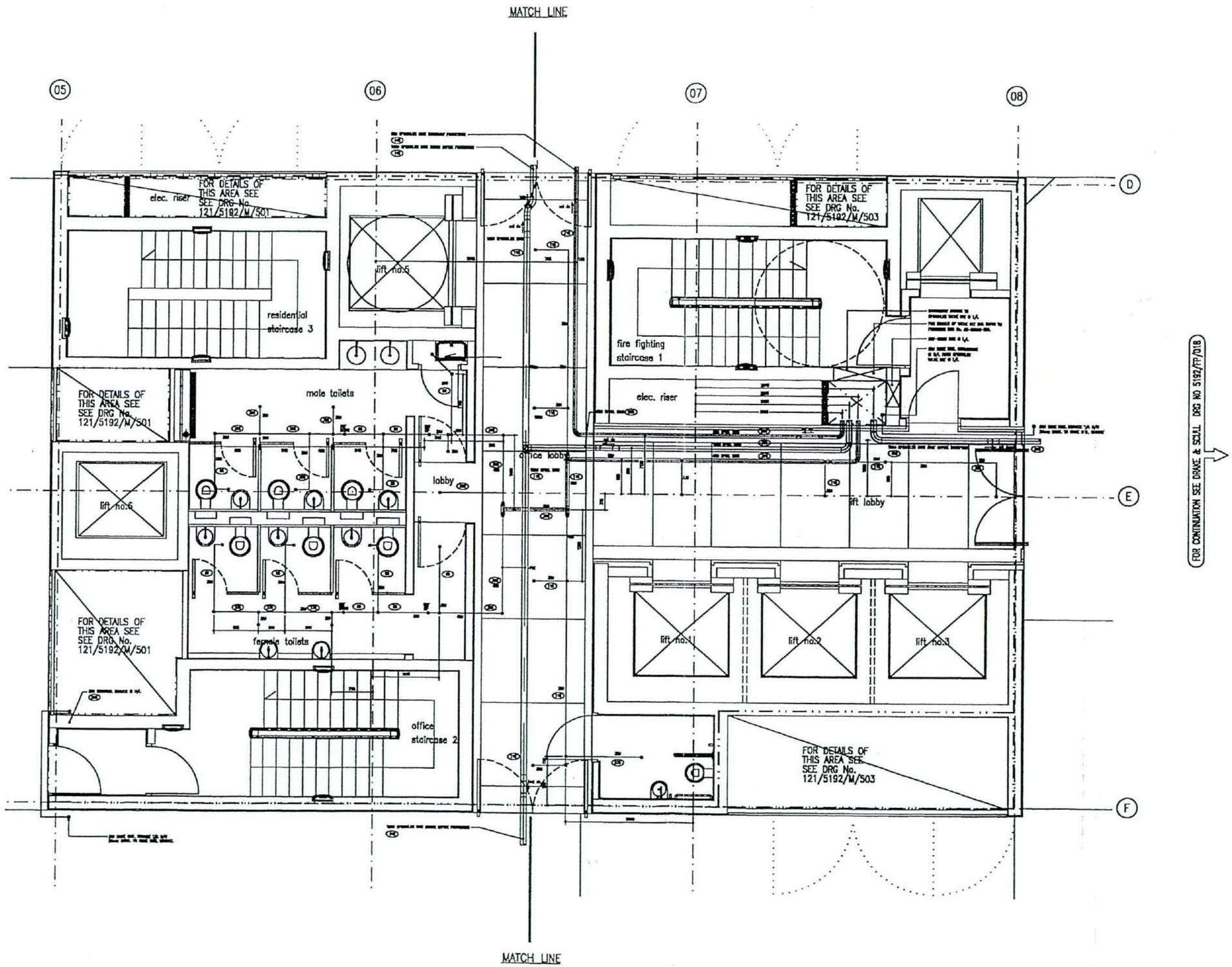
SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
9	WATER SUPPLIES:-	N/A	THIS PAGE
a)	Town main(s)		
b)	Water storage facility		
c)	Main Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
d)	Standby Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
e)	Pressure maintenance pump		
f)	Remote Alarm Panel		
g)	Initiation switch settings		
	i)		
	ii)		
	iii)		
h)	Proving Test Results (See table below)		
	MAIN PUMP	STANDBY PUMP	
	dm3 bars	dm3	bars
	dm3 bars	dm3	bars
	dm3 bars	dm3	bars
i)	Are pumps mechanically & electrically independent?		
10	INLET BOX:-		
a)	Is inlet box vertical/horizontal pattern?		
b)	Is inlet box securely anchored?		
11	HYDRANT OUTLET:-		
a)	Type?		
b)	Is outlet fitted in box? Type?		
c)	Is isolating valve closed/strapped & padlocked?		
d)	Is dust cap fitted?		
12	TEST AT HYDRANT:-		
a)	Is Towns Main water supply capable of supplying minimum of 25 L/S (1500 L/M)?		
b)	Method of testing?		
13	FIRST AID HOSEREELS:-		
a)	Type?		
b)	Manual/Automatic?		
c)	Distance of hose?		
d)	Type of nozzle?		
e)	Is isolating valve open/closed?		
14	TEST AT HOSEREELS:-		
a)	Is distance of jet correct: 6m / 24L/M		
b)	Is nozzle free from debris after test?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
15	OBSERVATIONS & COMMENTS:-		



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NOTES

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. THIS DWG IS PRODUCED FOR CO ORDINATION PURPOSES AND IS TO BE REVIEWED BY PARAMOUNT FIRE PROTECTION LTD FOR DRAWING FEASIBILITY BEFORE COMMENCING WORK.
4. FOR TYPICAL DETAILS OF SPRINKLER HEADS REFER TO DWG No. 121/A/198/A/001.
5. FOR DETAILS OF FIRE BARRIER PENETRATION REFER TO DWG No. 121/A/198/A/001.
6. FOR FINAL POSITIONS OF SPRINKLER HEADS REFER TO REFLECTED CEILING LAYOUT.
   ALL HEADS IN PLASTER BOARD WARRANT BOLSTERS OR CAPPING.
7. FINAL POSITIONS OF SPRINKLER HEADS SUBJECT TO THE APPROVAL , 24/11/98.

LEGEND

(SP) SPRINKLER LEVEL FROM UNDER SIDE OF ROFFE TO a) CENTRE LINE OF PIPEWORK

FOR COMMENT

-	6/12/98	ALL	ISSUED FOR COMMENT
Rev	Date	Dwg	Description

Drake & Scull

Discipline: FIRE PROTECTION

Drawn: M.DRINKWATER — Scale: 1 : 25

Checked: — Date: JULY 1998

PROJECT: 5-7 CARLTON GARDENS

CLIENT: BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

TITLE: CORE AREA DETAILS
FIRE PROTECTION SERVICES
FOURTH FLOOR

Drawing No. 121/5192/FP/019 — Rev

PREUSSAG
FIRE PROTECTION

PFP. 021

PRESSURE TEST CERTIFICATE

(1) SPRINKLER SYSTEM PIPEWORK TO BS 5306 PT 2: 1990 (SECTION 10)
(2) HOSEREELS TO BS 5306 PT 1: 1976 (SECTION 18. ITEM 18.1)
(3) HYDRANT & DRY RISER TO BS 5306 PT 1:1976 (SECTION 9, 31 & 32)

CONTRACT NO. 68210 DATE: _____
CLIENT DRAKE & SCULL
LOCATION: 5/7 CARLTON GARDENS - FOURTH FLOOR
GRIDS. 6-5-12. DRG. 017

MAINS STANDING PRESSURE: _____
TEST PRESSURE / H/R JET LENGTH _____ / _____
DURATION OF TEST _____

WITNESSED BY: _____
PERFORMED BY: _____

TEST PRESSURE GAUGE - RANGE: _____
SERIAL NO: _____
NEXT CALIBRATION DATE: _____

GUIDANCE NOTES FOR TESTS:-

1. (a) Wet pipe sprinkler systems hydraulically to not less than 15 Bar, or 1.5 times working pressure, whichever is the greater for not less than one hour.
   (b) Dry pipe sprinkler systems, pneumatically to not less than 2.5 Bar for not less than 24 hours.
   (c) Existing old systems to be tested to a pressure as agreed with client / insurers.

2. As a minimum, the water supply to hosereels should be such that when the two top most reels in a building are in use simultaneously, each will provide a jet of approximately 6m in length and will deliver not less than 0.4 litre / second (24 litres / minute).

3. Hydrant and Dry Riser static pressure test to 10 Bar for 15 minutes. Minimum flow test of 25 L/S (1500 l/min), sufficient to serve three lines of hose from three landing valves simultaneously. A minimum running pressure of 4 Bar and a maximum of 5 Bar should be maintained at each landing valve when any number, up to three, are fully opened.

Any faults disclosed shall be corrected and test repeated.

GRA218 10.11.94 (Rev 02)

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

CONTRACT NUMBER : 68210

CONTRACT NAME : 5/7 CARLTON GARDENS

CUSTOMER : DRAKE & SCULL

SUPERVISOR: DATE:

DRAWING No. A0-68210-017 FLOOR FOURTH AREA GRID: 6-5-12

QUALITY INSPECTION:- INSPECTION No P.F.P.QA. 021

REMARKS:-

Sections 1, 2 & 3 Must be completed for each type of system. Then complete as required:
Sprinkler - 4, 5, 6, 7, 8, 9 & 15
Dry Riser & Hydrant - 10, 11, 12 & 15
First Aid Hosereel - 13, 9, 14 & 15

Item	Description	Yes/No N/A	Remarks
1 a)	Deviations from drawings (see marked up paper prints).		
b)	Effect deviations made to hydraulic calculations		
c)	Effect deviations made to positioning of inlets/outlets (dry riser/hydrant)		
2	PIPEWORK:- (above ground)		
a)	Is pipework laid to correct falls?		
b)	Have LPC welding techniques been used?		
c)	Is pipework to correct specification?		
d)	Fittings:-		
	i) Are fittings taper thread/have sweep fittings been used on dry riser?		
	ii) Have fittings been cleaned of excess jointing materials?		
	iii) Are fittings BS143, banded, galvanised? (Dry riser only)		
e)	Hangers:-		
	i) Are fittings to British Standard 5306: Part 1&2?		
	ii) Are hangers spaced correctly to British Standard 5306: Part 1&2?		
f)	Drain Valves:-		
	i) Are drain valves provided at trapped sections of pipework		
	ii) Locations? (see drgs)		
	iii) Are drain valves fitted with a plug?		
g)	Hydrostatic Test Carried Out:-		
	i) On:-		
	ii) Witnessed by:-		
h)	Is pipework earthed? Continuity clips on vict. joints etc.		
i)	Is pipework trace heated & lagged in areas subject to freezing?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
3	PIPEWORK:- (below ground)	N/A	THIS PAGE EXCEPT (A) Q-(-7)
a)	Type of pipework & fittings?		
b)	Are thrust blocks fitted at all changes of direction or where necessary?		
c)	Is pipework denso wrapped (or similar)/		
d)	Hydrostatic tests:-		
	i) On:-		
	ii) Witnessed by:-		
4	SPRINKLER HEADS:-		
a)	Type:-		
b)	Are deflectors parallel with slope of ceiling/roof?		
5	MULTIPLE JET CONTROLS:-		
a)	Type:-		
b)	Is control readily removable for replacement when necessary?		
c)	Have non return valves been fitted on 'dry' side of control (electrical rooms only)?		
6	OPEN WATERSPRAYS/SPRINKLERS:-		
a)	Has the correct angle and orifice size been fitted in its designated location?		
7	ZONAL VALVE ARRANGEMENTS:-		
a)	Is the zone isolating valve in the open/closed position?		
b)	Is the zone isolating valve fitted with a tamper switch with the signal relayed back to an alarm panel?		
c)	What type of water flow alarm switch is fitted and is signal relayed back to an alarm panel?		
d)	What time delay has been set up on the water flow alarm switch?		
8	INSTALLATION CONTROL VALVES:-		
a)	What size & type of alarm valve is fitted?		
b)	Is the isolating valve fitted with an open/shut needle indicator?		
c)	Is the isolating valve fitted with a tamper switch and is signal relayed back to an alarm panel?		
d)	Are all stop and isolating valves fitted with a strap and padlock?		
e)	Is water motor alarm gong functioning correctly?		
f)	Is an air compressor fitted correctly to Preussag standard?		
g)	Is an air compressor fitted correctly to Preussag standard?		
h)	Is correct flow meter installed & functioning correctly?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
9	WATER SUPPLIES:-	N/A	THIS PAGE
a)	Town main(s)		
b)	Water storage facility		
c)	Main Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
d)	Standby Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
e)	Pressure maintenance pump		
f)	Remote Alarm Panel		
g)	Initiation switch settings		
	i)		
	ii)		
	iii)		
h)	Proving Test Results (See table below)		
	MAIN PUMP	STANDBY PUMP	
	dm3 bars	dm3	bars
	dm3 bars	dm3	bars
	dm3 bars	dm3	bars
i)	Are pumps mechanically & electrically independent?		
10	INLET BOX:-		
a)	Is inlet box vertical/horizontal pattern?		
b)	Is inlet box securely anchored?		
11	HYDRANT OUTLET:-		
a)	Type?		
b)	Is outlet fitted in box? Type?		
c)	Is isolating valve closed/strapped & padlocked?		
d)	Is dust cap fitted?		
12	TEST AT HYDRANT:-		
a)	Is Towns Main water supply capable of supplying minimum of 25 L/S (1500 L/M)?		
b)	Method of testing?		
13	FIRST AID HOSEREELS:-		
a)	Type?		
b)	Manual/Automatic?		
c)	Distance of hose?		
d)	Type of nozzle?		
e)	Is isolating valve open/closed?		
14	TEST AT HOSEREELS:-		
a)	Is distance of jet correct: 6m / 24L/M		
b)	Is nozzle free from debris after test?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
15	OBSERVATIONS & COMMENTS:-		

PREUSSAG
FIRE PROTECTION

PFP. 044

PRESSURE TEST CERTIFICATE

(1) SPRINKLER SYSTEM PIPEWORK TO BS 5306 PT 2: 1990 (SECTION 10)
(2) HOSEREELS TO BS 5306 PT 1: 1976 (SECTION 18. ITEM 18.1)
(3) HYDRANT & DRY RISER TO BS 5306 PT 1:1976 (SECTION 9, 31 & 32)

CONTRACT NO. 68210 DATE: 05-03-99.
CLIENT DRAKE & SCULL
LOCATION: 5/7 CARLTON GARDENS - FOURTH FLOOR
GRIDS. 1-6.5. DRG. 016

MAINS STANDING PRESSURE:
TEST PRESSURE / ~~H/R JET LENGTH~~ 15 BAR /
DURATION OF TEST 1 HOUR

WITNESSED BY:
PERFORMED BY: MARK COOPER

TEST PRESSURE GAUGE - RANGE: 0 - 16 BAR.
SERIAL NO: 98/161106.
NEXT CALIBRATION DATE: 17-11-99.

GUIDANCE NOTES FOR TESTS:-

1. (a) Wet pipe sprinkler systems hydraulically to not less than 15 Bar, or 1.5 times working pressure, whichever is the greater for not less than one hour.
   (b) Dry pipe sprinkler systems, pneumatically to not less than 2.5 Bar for not less than 24 hours.
   (c) Existing old systems to be tested to a pressure as agreed with client / insurers.

2. As a minimum, the water supply to hosereels should be such that when the two top most reels in a building are in use simultaneously, each will provide a jet of approximately 6m in length and will deliver not less than 0.4 litre / second (24 litres / minute).

3. Hydrant and Dry Riser static pressure test to 10 Bar for 15 minutes. Minimum flow test of 25 L/S (1500 l/min), sufficient to serve three lines of hose from three landing valves simultaneously. A minimum running pressure of 4 Bar and a maximum of 5 Bar should be maintained at each landing valve when any number, up to three, are fully opened.

Any faults disclosed shall be corrected and test repeated.

GRA21S 10.11.94 (Rev 02)

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

CONTRACT NUMBER : 68210

CONTRACT NAME : 5/7 CARLTON GARDENS

CUSTOMER : DRAKE & SCULL

SUPERVISOR: ..... DATE: .....

DRAWING No. A0-68210-016 FLOOR FOURTH AREA GRIDS 1-6:5

QUALITY INSPECTION:- ..... INSPECTION No P.F.P.QA.020

REMARKS:-

Sections 1, 2 & 3 Must be completed for each type of system. Then complete as required:
Sprinkler - 4, 5, 6, 7, 8, 9 & 15
Dry Riser & Hydrant - 10, 11, 12 & 15
First Aid Hosereel - 13, 9, 14 & 15

Item	Description	Yes/No N/A	Remarks
1 a)	Deviations from drawings (see marked up paper prints).		
b)	Effect deviations made to hydraulic calculations		
c)	Effect deviations made to positioning of inlets/outlets (dry riser/hydrant)		
2	PIPEWORK:- (above ground)		
a)	Is pipework laid to correct falls?		
b)	Have LPC welding techniques been used?		
c)	Is pipework to correct specification?		
d)	Fittings:-		
	i) Are fittings taper thread/have sweep fittings been used on dry riser?		
	ii) Have fittings been cleaned of excess jointing materials?		
	iii) Are fittings BS143, banded, galvanised? (Dry riser only)		
e)	Hangers:-		
	i) Are fittings to British Standard 5306: Part 1&2?		
	ii) Are hangers spaced correctly to British Standard 5306: Part 1&2?		
f)	Drain Valves:-		
	i) Are drain valves provided at trapped sections of pipework		
	ii) Locations? (see drgs)		
	iii) Are drain valves fitted with a plug?		
g)	Hydrostatic Test Carried Out:-		
	i) On:-		
	ii) Witnessed by:-		
h)	Is pipework earthed? Continuity clips on vict. joints etc.		
i)	Is pipework trace heated & lagged in areas subject to freezing?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
3	PIPEWORK:- (below ground)	N/A	THIS PAGE EXCEPT (4) & (7)
a)	Type of pipework & fittings?		
b)	Are thrust blocks fitted at all changes of direction or where necessary?		
c)	Is pipework denso wrapped (or similar)/		
d)	Hydrostatic tests:-		
	i) On:-		
	ii) Witnessed by:-		
4	SPRINKLER HEADS:-		
a)	Type:-		
b)	Are deflectors parallel with slope of ceiling/roof?		
5	MULTIPLE JET CONTROLS:-		
a)	Type:-		
b)	Is control readily removable for replacement when necessary?		
c)	Have non return valves been fitted on 'dry' side of control (electrical rooms only)?		
6	OPEN WATERSPRAYS/SPRINKLERS:-		
a)	Has the correct angle and orifice size been fitted in its designated location?		
7	ZONAL VALVE ARRANGEMENTS:-		
a)	Is the zone isolating valve in the open/closed position?		
b)	Is the zone isolating valve fitted with a tamper switch with the signal relayed back to an alarm panel?		
c)	What type of water flow alarm switch is fitted and is signal relayed back to an alarm panel?		
d)	What time delay has been set up on the water flow alarm switch?		
8	INSTALLATION CONTROL VALVES:-		
a)	What size & type of alarm valve is fitted?		
b)	Is the isolating valve fitted with an open/shut needle indicator?		
c)	Is the isolating valve fitted with a tamper switch and is signal relayed back to an alarm panel?		
d)	Are all stop and isolating valves fitted with a strap and padlock?		
e)	Is water motor alarm gong functioning correctly?		
f)	Is an air compressor fitted correctly to Preussag standard?		
g)	Is an air compressor fitted correctly to Preussag standard?		
h)	Is correct flow meter installed & functioning correctly?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
9	WATER SUPPLIES:-	N/A	THIS PAGE
a)	Town main(s)		
b)	Water storage facility		
c)	Main Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
d)	Standby Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
e)	Pressure maintenance pump		
f)	Remote Alarm Panel		
g)	Initiation switch settings		
	i)		
	ii)		
	iii)		
h)	Proving Test Results (See table below)		
	MAIN PUMP	STANDBY PUMP	
	dm3 bars	dm3	bars
	dm3 bars	dm3	bars
	dm3 bars	dm3	bars
i)	Are pumps mechanically & electrically independent?		
10	INLET BOX:-		
a)	Is inlet box vertical/horizontal pattern?		
b)	Is inlet box securely anchored?		
11	HYDRANT OUTLET:-		
a)	Type?		
b)	Is outlet fitted in box? Type?		
c)	Is isolating valve closed/strapped & padlocked?		
d)	Is dust cap fitted?		
12	TEST AT HYDRANT:-		
a)	Is Towns Main water supply capable of supplying minimum of 25 L/S (1500 L/M)?		
b)	Method of testing?		
13	FIRST AID HOSEREELS:-		
a)	Type?		
b)	Manual/Automatic?		
c)	Distance of hose?		
d)	Type of nozzle?		
e)	Is isolating valve open/closed?		
14	TEST AT HOSEREELS:-		
a)	Is distance of jet correct: 6m / 24L/M		
b)	Is nozzle free from debris after test?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

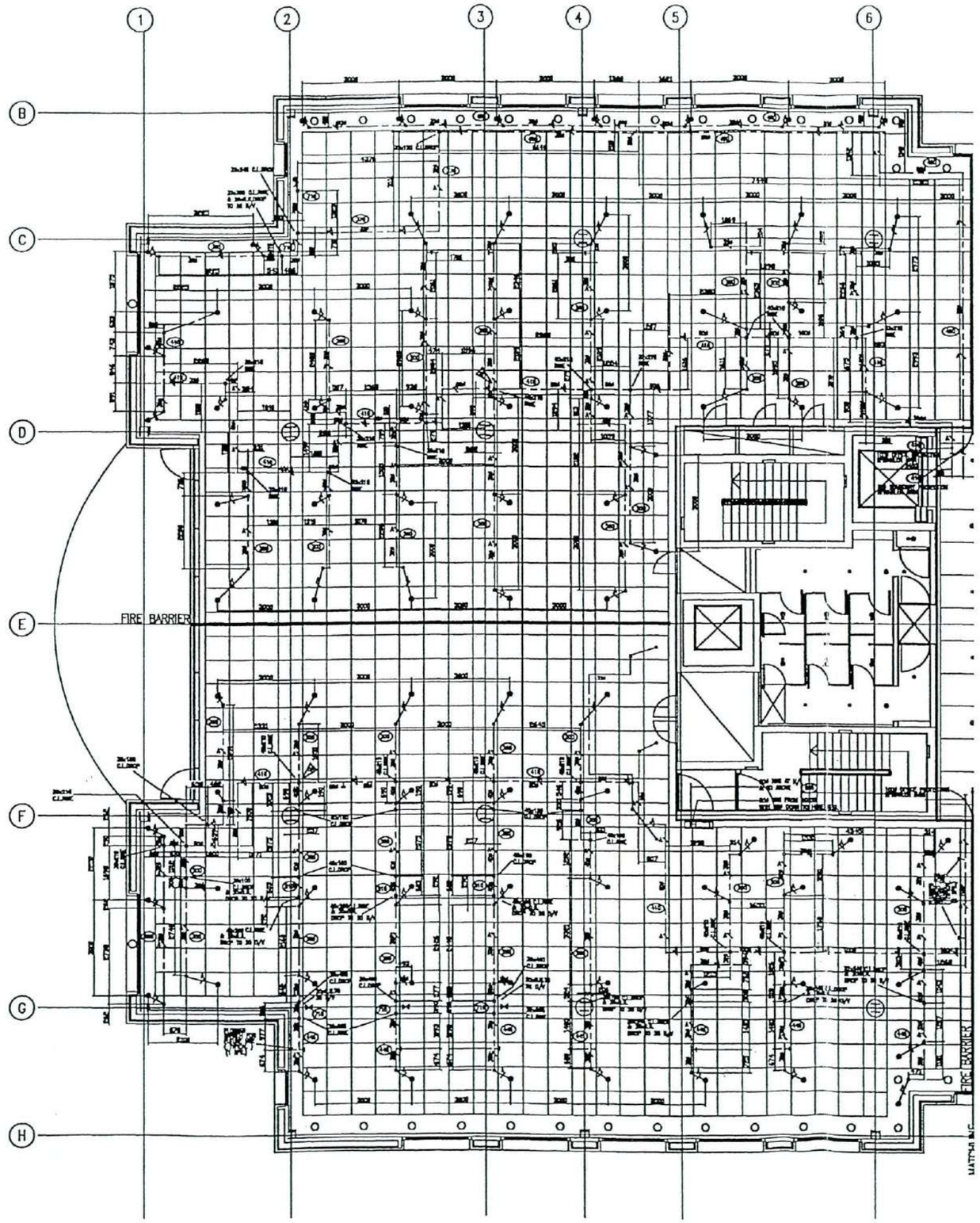
SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
15	OBSERVATIONS & COMMENTS:-		

DWG. No.	SHEET	PLOT CODE	PLOT SCALE
A0-68210-016	1 of 1		1 : 50

DO NOT SCALE

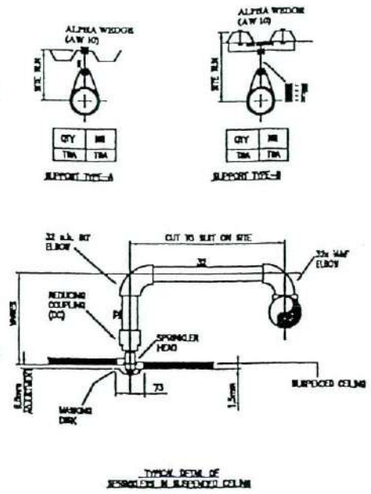
THIRD ANGLE PROJECTION



CONTINUED ON DRAWING No. 68218-016

FOR CONTINUATION & PROTECTION OF CORE AREA SEE DRG. No. 020

CONTINUED ON DRAWING No. 68218-016



REV	REVISION	CHECKED	DRAWN	DATE
0	ORIGINAL ISSUE		A.J.G	30/09/98

REFERENCE DRAWINGS | REV

DESIGN CLASSIFICATION

ORDINARY HAZARD

CATEGORY: 1

DESIGN DENSITY: 5.0mm/MIN

AMAC: 72m²

LPC RULEBOOK PART 2 – PRECALCULATED PIPE DIAMETERS

SCHEDULE OF SPRINKLERS — RELIABLE

AREA	N	CONSTRUCTION	TYPE	TEMP	RTI
5-6.0m²	10m²	COMBUSTIBLE	ZS-1	74°C	54

SCHEME LEGEND

- SPRINKLER INSTALLED UPRIGHT
- SPRINKLER INSTALLED PENDENT
- SPRINKLER INSTALLED ON RISE
- SPRINKLER INSTALLED ON DROP
- OPEN SPRINKLER
- MULTI-JET CONTROL
- FLOW SWITCH
- DROP OR RISE IN PIPEWORK
- GROOVED COUPLING
- SCREWED SOCKET/COUPLING
- BLANK CAP
- FLANGE
- HANGER POSITION & TYPE
- DRAIN VALVE
- SLOPE OR DRAINAGE SLOPE
- TC TO CUT PIPE LENGTH
- SOL STRUCTURAL SLAB LEVEL
- FFL FINISHED FLOOR LEVEL
- DP DESIGN POINT

PIPEWORK LEGEND

B	BUTT WELD
FW	FILLET WELD
WR	WELDED REDUCER
S	SCREWED BRANCH
G	GROOVED BRANCH
F	WELDED SOCKET(WP)
SF	SCREWED FITTING
SS	SCREWED SOCKET
S/FLG	SCREWED FLANGE
W/FLG	WELDED FLANGE
MAF	MALE & FEMALE ELBOW
BN	BARREL NIPPLE
BC	BLANK CAP
GT	GROOVED TEE
GC	GROOVED BLANK CAP
GS	GROOVED BEND
GS	GROOVED SWEEP BEND
DV	DRAIN VALVE
GE	GROOVED ELBOW

PIPEWORK SPECIFICATION

ALL PIPEWORK UP TO AND INCLUDING 150mm DIAMETER TO BE GALVANISED TO B.S. 1387 UNLESS OTHERWISE STATED.

ALL PIPEWORK 200mm DIAMETER AND ABOVE TO BE GALVANISED TO B.S. 3601 UNLESS OTHERWISE STATED.

ALL SCREWED FITTINGS TO CONFORM TO B.S. 143

ALL WELDED FITTINGS TO CONFORM TO B.S. 1965

ALL PIPE THREADS TO CONFORM TO B.S. 21 TAPER THREADS

ALL WELDING TO CONFORM TO B.S. 2640 OR B.S. 2971

ALL VICTAULIC FITTINGS AS PER VICTAULIC COMPANY STANDARDS.

TO THE DIRECTOR – INSTALL PIPEWORK TO LEVELS AS SHOWN

~~WET AND ALTERNATE PIPE SYSTEMS~~

PIPEWORK UP TO AND INCLUDING 40mm TO SLOPE 12mm IN EVERY METRE.

PIPEWORK ABOVE 40mm TO SLOPE 4mm IN EVERY METRE.

ALL CONTROLS AND SPRINKLERS TO BE INSTALLED UPRIGHT UNLESS OTHERWISE SHOWN.

~~DRY PIPE SYSTEMS~~

PIPEWORK TO SLOPE 25mm IN EVERY METRE. CONTROLS AND SPRINKLERS TO BE INSTALLED EITHER UPRIGHT OR PENDENT AS SHOWN.

~~MEDIUM AND HIGH VELOCITY SPRAYERS MUST BE ERECTED AS SHOWN.~~

TO THE CLIENT

PREFERMAG DO NOT ACCEPT ANY RESPONSIBILITY FOR DAMAGE CAUSED BY FROST. CLIENTS SHOULD TAKE ADEQUATE PRECAUTIONS AGAINST THE WATER IN THE VALVES AND PIPEWORK ABOVE AND BELOW THE CONTROL VALVES FROM FREEZING DURING SEVERE WEATHER.

HOLES IN WALLS, PARTITIONS, BEAMS OR COLUMNS THROUGH WHICH PIPES PASS, MUST NOT BE FILLED WITH MATERIALS WHICH HAVE A DELETERIOUS EFFECT ON THE PIPEWORK.

PIPE SCAFFOLDING OR ANY OTHER ITEMS OF PLANT MUST NOT BE AT ANY TIME BE ATTACHED TO OR SUPPORTED FROM ANY PART OF THE FIRE PROTECTION EQUIPMENT.

~~WARNING~~

CONTROLS, PROJECTORS, SPRAYERS AND SPRINKLERS MUST NOT BE PAINTED.

CONTRACT: 5 – 7 CARLTON GARDENS LONDON

CONTRACT No.: 68210

CLIENT: DRAKE & SCULL ENGINEERING (UK) LTD

CLIENT ORDER No.: T.B.A.

PREFERMAG FIRE PROTECTION

PREFERMAG FIRE PROTECTION LIMITED
Kettering, Corby, East Midlands NN16 9QZ
Tel: 01536 521 521
Fax: 01536 521 522

TITLE: SPRINKLER PROTECTION TO FOURTH FLOOR No. 1 INSTALLATION, 150mm WET

DRAWN	DATE	CHECKED	SCALE
A.J.GOOEY	28/09/98		1 : 50

DWG. No.: A0-68218-016

SHEET: 1 of 1 | REV: 0

PREUSSAG
FIRE PROTECTION

PFP. 021

PRESSURE TEST CERTIFICATE

(1) SPRINKLER SYSTEM PIPEWORK TO BS 5306 PT 2: 1990 (SECTION 10)
(2) HOSEREELS TO BS 5306 PT 1: 1976 (SECTION 18. ITEM 18.1)
(3) HYDRANT & DRY RISER TO BS 5306 PT 1:1976 (SECTION 9, 31 & 32)

CONTRACT NO. 68210 DATE:
CLIENT DRAKE & SCULL
LOCATION: 5/7 CARLTON GARDENS - FOURTH FLOOR
GRIDS. 6-5-12. DRG. 017

MAINS STANDING PRESSURE: ~~15 BAR~~.
TEST PRESSURE / ~~H/R JET LENGTH~~ 15 BAR /
DURATION OF TEST 1 HOUR.

WITNESSED BY: [signature] 4/3/99.
PERFORMED BY: M. COOPER.

TEST PRESSURE GAUGE - RANGE: 0-16 BAR.
SERIAL NO: 98/161106.
NEXT CALIBRATION DATE: 17-11-99

GUIDANCE NOTES FOR TESTS:-

1. (a) Wet pipe sprinkler systems hydraulically to not less than 15 Bar, or 1.5 times working pressure, whichever is the greater for not less than one hour.
   (b) Dry pipe sprinkler systems, pneumatically to not less than 2.5 Bar for not less than 24 hours.
   (c) Existing old systems to be tested to a pressure as agreed with client / insurers.

2. As a minimum, the water supply to hosereels should be such that when the two top most reels in a building are in use simultaneously, each will provide a jet of approximately 6m in length and will deliver not less than 0.4 litre / second (24 litres / minute).

3. Hydrant and Dry Riser static pressure test to 10 Bar for 15 minutes. Minimum flow test of 25 L/S (1500 l/min), sufficient to serve three lines of hose from three landing valves simultaneously. A minimum running pressure of 4 Bar and a maximum of 5 Bar should be maintained at each landing valve when any number, up to three, are fully opened.

Any faults disclosed shall be corrected and test repeated.

GRA218 10.11.94 (Rev 02)

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

CONTRACT NUMBER : 68210

CONTRACT NAME : 5/7 CARLTON GARDENS

CUSTOMER : DRAKE & SCULL

SUPERVISOR: ..... DATE: .....

DRAWING No. A0-68210-017 FLOOR FOURTH AREA GRID 6-5-12

QUALITY INSPECTION:- ..... INSPECTION No PFP.QA.021

REMARKS:-

Sections 1, 2 & 3 Must be completed for each type of system. Then complete as required:
Sprinkler - 4, 5, 6, 7, 8, 9 & 15
Dry Riser & Hydrant - 10, 11, 12 & 15
First Aid Hosereel - 13, 9, 14 & 15

Item	Description	Yes/No N/A	Remarks
1 a)	Deviations from drawings (see marked up paper prints).		
b)	Effect deviations made to hydraulic calculations		
c)	Effect deviations made to positioning of inlets/outlets (dry riser/hydrant)		
2	PIPEWORK:- (above ground)		
a)	Is pipework laid to correct falls?		
b)	Have LPC welding techniques been used?		
c)	Is pipework to correct specification?		
d)	Fittings:-		
	i) Are fittings taper thread/have sweep fittings been used on dry riser?		
	ii) Have fittings been cleaned of excess jointing materials?		
	iii) Are fittings BS143, banded, galvanised? (Dry riser only)		
e)	Hangers:-		
	i) Are fittings to British Standard 5306: Part 1&2?		
	ii) Are hangers spaced correctly to British Standard 5306: Part 1&2?		
f)	Drain Valves:-		
	i) Are drain valves provided at trapped sections of pipework		
	ii) Locations? (see drgs)		
	iii) Are drain valves fitted with a plug?		
g)	Hydrostatic Test Carried Out:-		
	i) On:-		
	ii) Witnessed by:-		
h)	Is pipework earthed? Continuity clips on vict. joints etc.		
i)	Is pipework trace heated & lagged in areas subject to freezing?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
3	PIPEWORK:- (below ground)	N/A	THIS PAGE EXCEPT (A) & (7)
a)	Type of pipework & fittings?		
b)	Are thrust blocks fitted at all changes of direction or where necessary?		
c)	Is pipework denso wrapped (or similar)/		
d)	Hydrostatic tests:-		
	i) On:-		
	ii) Witnessed by:-		
4	SPRINKLER HEADS:-		
a)	Type:-		
b)	Are deflectors parallel with slope of ceiling/roof?		
5	MULTIPLE JET CONTROLS:-		
a)	Type:-		
b)	Is control readily removable for replacement when necessary?		
c)	Have non return valves been fitted on 'dry' side of control (electrical rooms only)?		
6	OPEN WATERSPRAYS/SPRINKLERS:-		
a)	Has the correct angle and orifice size been fitted in its designated location?		
7	ZONAL VALVE ARRANGEMENTS:-		
a)	Is the zone isolating valve in the open/closed position?		
b)	Is the zone isolating valve fitted with a tamper switch with the signal relayed back to an alarm panel?		
c)	What type of water flow alarm switch is fitted and is signal relayed back to an alarm panel?		
d)	What time delay has been set up on the water flow alarm switch?		
8	INSTALLATION CONTROL VALVES:-		
a)	What size & type of alarm valve is fitted?		
b)	Is the isolating valve fitted with an open/shut needle indicator?		
c)	Is the isolating valve fitted with a tamper switch and is signal relayed back to an alarm panel?		
d)	Are all stop and isolating valves fitted with a strap and padlock?		
e)	Is water motor alarm gong functioning correctly?		
f)	Is an air compressor fitted correctly to Preussag standard?		
g)	Is an air compressor fitted correctly to Preussag standard?		
h)	Is correct flow meter installed & functioning correctly?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
9	WATER SUPPLIES:-	N/A	THIS PAGE
a)	Town main(s)		
b)	Water storage facility		
c)	Main Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
d)	Standby Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
e)	Pressure maintenance pump		
f)	Remote Alarm Panel		
g)	Initiation switch settings		
	i)		
	ii)		
	iii)		
h)	Proving Test Results (See table below)		
	MAIN PUMP	STANDBY PUMP	
	dm3 bars	dm3	bars
	dm3 bars	dm3	bars
	dm3 bars	dm3	bars
i)	Are pumps mechanically & electrically independent?		
10	INLET BOX:-		
a)	Is inlet box vertical/horizontal pattern?		
b)	Is inlet box securely anchored?		
11	HYDRANT OUTLET:-		
a)	Type?		
b)	Is outlet fitted in box? Type?		
c)	Is isolating valve closed/strapped & padlocked?		
d)	Is dust cap fitted?		
12	TEST AT HYDRANT:-		
a)	Is Towns Main water supply capable of supplying minimum of 25 L/S (1500 L/M)?		
b)	Method of testing?		
13	FIRST AID HOSEREELS:-		
a)	Type?		
b)	Manual/Automatic?		
c)	Distance of hose?		
d)	Type of nozzle?		
e)	Is isolating valve open/closed?		
14	TEST AT HOSEREELS:-		
a)	Is distance of jet correct: 6m / 24L/M		
b)	Is nozzle free from debris after test?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

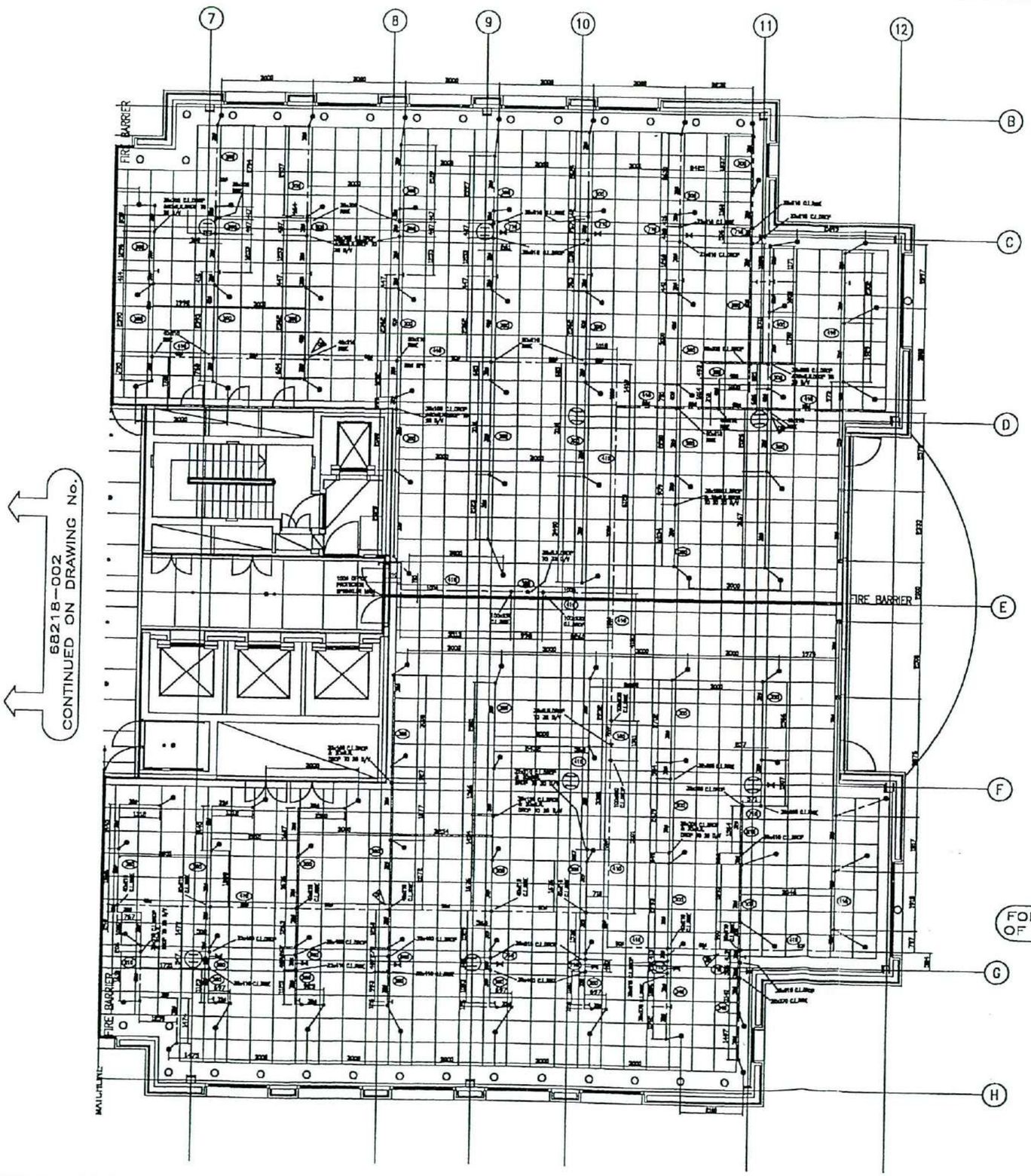
SITE WORKS COMPLETION REPORT

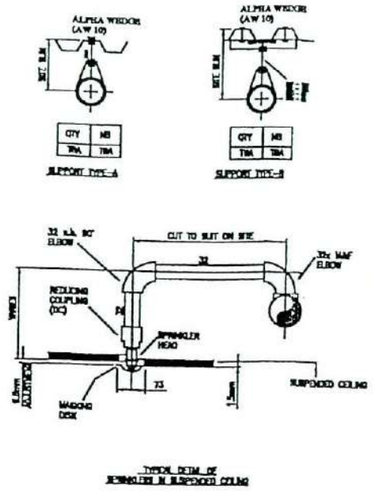
Item	Description	Yes/No N/A	Remarks
15	OBSERVATIONS & COMMENTS:-		

DWG. No.	SHEET	PLOT CODE	PLOT SCALE
A0-68210-016	1 of 1		1 : 50

DO NOT SCALE

THIRD ANGLE PROJECTION





REV	REMARKS	CHECKED	DRAWN	DATE
0	ORIGINAL ISSUE		A.J.G.	26/08/98

REFERENCE DRAWINGS

HAZARD CLASSIFICATION

ORDINARY HAZARD

CATEGORY: 1

DESIGN DENSITY: 8.0mm/MIN

AREA: 72m²

LPC RULES/08 PART 2 – PRECALCULATED PIPE DIAMETERS

SCHEDULE OF SPRINKLERS

AREA		CONSTRUCTION	TYPE	TEMP	
84m²	10m²	COMBUSTIBLE	ZS-1	74°C	84

SYMBOL LEGEND

- SPRINKLER INSTALLED UPRIGHT
- SPRINKLER INSTALLED PENDENT
- SPRINKLER INSTALLED ON RISE
- SPRINKLER INSTALLED ON DROP
- OPEN SPRINKLER
- MULTI-JET CONTROL
- FLOW SWITCH
- DROP OR RISE IN PIPEWORK
- GROOVED COUPLING
- SCREWED SOCKET/COUPLING
- BLANK CAP
- FLANGE
- HANGER POSITION & TYPE
- DRAIN VALVE
- SLOPE OR DRAINAGE SLOPE
- TO CUT PIPE LENGTH
- STRUCTURAL BEAM LEVEL
- FINISHED FLOOR LEVEL
- DESIGN POINT

PIPEWORK LEGEND

B	BUTT WELD
FW	FILLET WELD
WR	WELDED REDUCER
S	SCREWED BRANCH
G	GROOVED BRANCH
P	WELDED SOCKET(PAP)
SF	SCREWED FITTING
SS	SCREWED SOCKET
S/FLG	SCREWED FLANGE
W/FLG	WELDED FLANGE
M/F	MALE & FEMALE ELBOW
BN	BARREL NIPPLE
BC	BLANK CAP
RT	GROOVED TEE
GC	GROOVED BLANK CAP
GB	GROOVED BEND
GS	GROOVED SWEEP BEND
DV	DRAIN VALVE
GE	GROOVED ELBOW

PIPEWORK SPECIFICATION

ALL PIPEWORK UP TO AND INCLUDING 150mm DIAMETER TO BE GALVANISED TO B.S. 1387 UNLESS OTHERWISE STATED.

ALL PIPEWORK 200mm DIAMETER AND ABOVE TO BE GALVANISED TO B.S. 3601 UNLESS OTHERWISE STATED.

ALL SCREWED FITTINGS TO CONFORM TO B.S. 143

ALL WELDED FITTINGS TO CONFORM TO B.S. 1965

ALL PIPE THREADS TO CONFORM TO B.S. 21 TAPER THREADS

ALL WELDING TO CONFORM TO B.S. 2640 OR B.S. 2971

ALL VICTAULIC FITTINGS AS PER VICTAULIC COMPANY STANDARDS.

TO THE DIRECTOR – INSTALL PIPEWORK TO LEVELS AS SHOWN

DRY AND ALTERNATE PIPE INVERTS:

PIPEWORK UP TO AND INCLUDING 40mm TO SLOPE 12mm IN EVERY METRE.

PIPEWORK ABOVE 40mm TO SLOPE 4mm IN EVERY METRE.

ALL CONTROLS AND SPRINKLERS TO BE INSTALLED UPRIGHT UNLESS OTHERWISE SHOWN.

WET PIPE INVERTS:

PIPEWORK TO SLOPE 2mm IN EVERY METRE, CONTROLS AND SPRINKLERS TO BE INSTALLED EITHER UPRIGHT OR PENDENT AS SHOWN.

DENSE AND HIGH VELOCITY SPRAYERS MUST BE ERECTED AS SHOWN.

TO THE CLIENT

PREMISAS DO NOT ACCEPT ANY RESPONSIBILITY FOR DAMAGE CAUSED BY FROST. CLIENTS SHOULD TAKE ADEQUATE PRECAUTIONS AGAINST THE WATER IN THE VALVES AND PIPEWORK ABOVE AND BELOW THE CONTROL VALVES FROM FREEZING DURING SEVERE WEATHER.

HOLES IN WALLS, PARTITIONS, BEAMS OR COLUMNS THROUGH WHICH PIPES PASS, MUST NOT BE FILLED WITH MATERIALS WHICH HAVE A DELETERIOUS EFFECT ON THE PIPEWORK.

PIPES SCAFFOLDING OR ANY OTHER ITEMS OF PLANT MUST NOT BE AT ANY TIME BE ATTACHED TO OR SUPPORTED FROM ANY PART OF THE FIRE PROTECTION EQUIPMENT.

WARNING

CONTROLS, PROJECTORS, SPRAYERS AND SPRINKLERS MUST NOT BE PAINTED.

CONTRACT:
5 – 7 CARLTON GARDENS
LONDON

CONTRACT No.: 68210

CLIENT:
DRAKE & SCULL
ENGINEERING (UK) LTD

CLIENT ORDER No.: T.B.A.

PREMISAS FIRE PROTECTION

TITLE:
SPRINKLER PROTECTION
TO FOURTH FLOOR
No. 1 INSTALLATION, 150mm WET

DRAWN	DATE	CHECKED	SCALE
A.J.GOODEY	26/08/98		1 : 50

DWG. No.: A0-68218-017

SHEET: 1 of 1 | REV: 0

3

F E COLE & SON LTD

5 - 7 CARLTON GARDENS

FAN COIL UNIT INSTALLATION CHECK SHEET	
Fan Coil Reference:	4W 001 TO 4W 019
Location:	4TH FLOOR WEST
Level East-West:	Yes ✓ No*
Level North-South:	Yes ✓ No*
Invert Level:	280
Installed By:	T. MULLINGS T CRAWFORD B. TOOTH P. MAVACAW
Checked By: FAC COIL NO 4W 012 NOT FITTED DUE TO CRANE.	D HARRIS F E Cole & Son Ltd
Accepted By:	S. Jolly - MACS Drake & Scull Ltd
* Delete as applicable.	

F.E. COLE & SON LTD.
HEATING, VENTILATING &
MECHANICAL SERVICES
ENGINEERS
Established 1906

76 Richmond Street, Coventry CV2 4JB
Telephone:..... (01203) 635588
Fax:..... (01203) 635545

Date 5-3-99

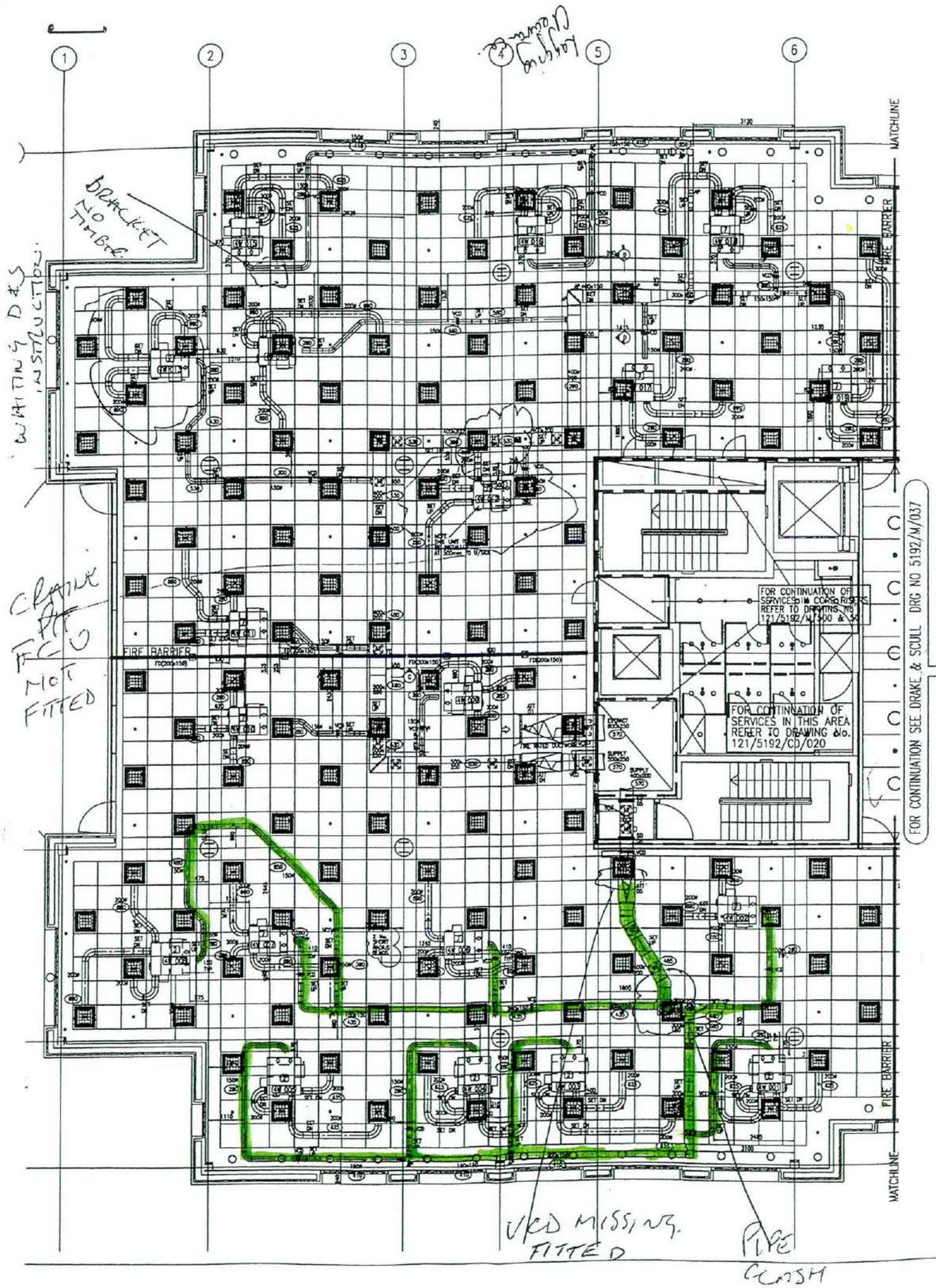
MECHANICAL SERVICES HANDOVER/ACCEPTANCE CHECKLIST

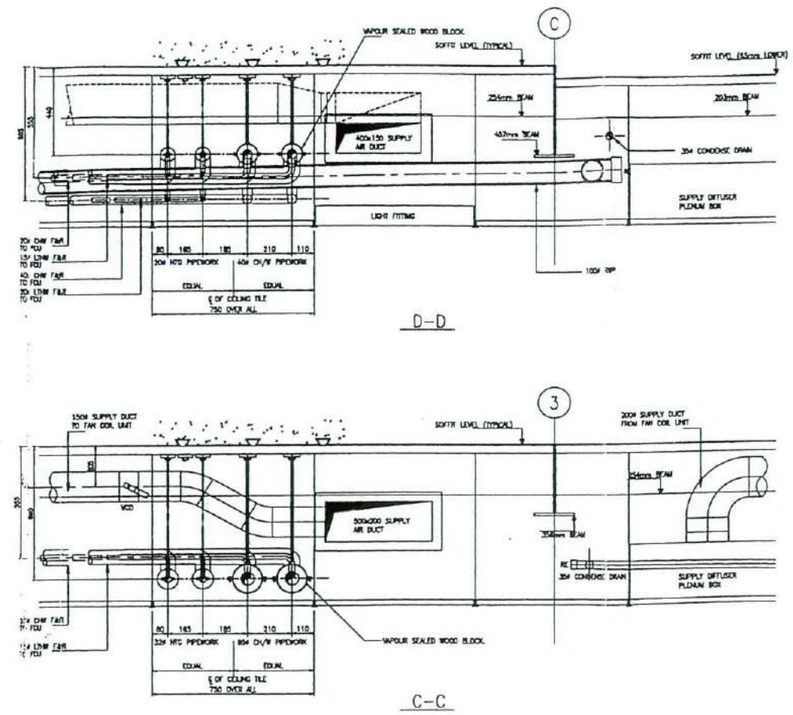
FLOOR 4TH AREA/ROOM WEST

ITEM NO	ACTIVITY	YES/NO
1	Ductwork installed in accordance with layout	YES
2	Bracketry correctly aligned and installed	YES
3	Drop rode cut back and repainted	YES
4	Fire dampers installed in fire barriers	YES
5	VCD's installed	YES ~~[illegible]~~
6	Access allowed to fire dampers and VCD's	YES
7	Flexibles complete	No
8	Grilles installed	N/A
9	Testing complete and passed	YES
10	Insulation complete	N/A
11	Ductwork identification complete	N/A
12	Ductwork internally cleaned	YES

Signed G. P. Simmons Date 5-3-99
For and on the behalf of F. E. Cole and Son Ltd

APPROVED
HVCA MEMBERS INSTALLERS
ESTABLISHED 1906
DIRECTORS: W J COLE . J A COLE & S J COLE REGISTERED IN ENGLAND No. 508030, REGISTERED OFFICE AS ABOVE





PLENUM BOX SCHEDULE

REF	SIZE	No.
1	300x 300mm	43
2	300x300x300 AS SUPPLY	6
3 (Unknown)	300x 300	21

(3) PLENUMS TO BE FITTED WITH BLADE DAMPER ON SPIGOT INLET

ATTENUATOR SCHEDULE

REF	SIZE
ATT 01	300
ATT 04	300
ATT 06	300

ATTENUATORS MANUFACTURED BY SHEROLD LTD.

LEGEND

(CD) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO UNDERSIDE OF RECTANGULAR / CIRCULAR DUCTWORK.

3 SIZE

3.40 BETWEEN GRIDS B & C AND BETWEEN GRIDS C & H IS 40mm LOWER THAN THE MAIN SLAB.

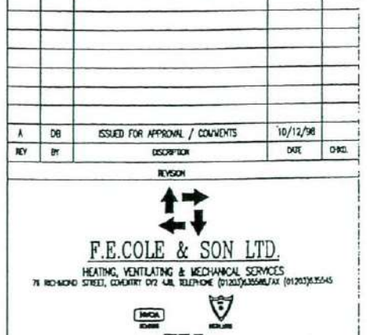
SD SMOKE DAMPER

SPECIFICATION

DUCTWORK SYSTEM	CONSTRUCTION SPECIFICATION	LEAKAGE TEST SPECIFICATION

LEGEND

AD = ACCESS DOOR
BG = BLANKING
FD = FIRE DAMPER
FOR = FLAT ON TOP
FOB = FLAT ON BOTTOM
IB = INS DAMPER
MD = MOTORIZED DAMPER
SD = SMOKE DAMPER
TDO = TOP SET DOWN
TRU = TOP SET UP
VCD = VOLUME CONTROL DAMPER
BRB = BOND BR DOR
RCL = CONCENTRIC REDUCER
RL = ECCENTRIC REDUCER
TSBC = CONICAL BRANCH CONNECTION
TC = TEE CONICAL
PSHB = PRESSED BRACKET
BF = BALL COUPLING
RF = FLANGE COUPLING
CLF = CAP END (BALL/FLANGE)
SBD = SINGLE BLADE VOLUME DAMPER
— — = SUPPORT LOCATION



NOTES

1. ALL BEND 100mm RADIUS WITH 50mm LEAD-IN, UNO.
2. ALL RECTANGULAR FITTING TO HAVE 150mm LEAD-IN / THROAT, UNO.
3. ALL DATUMS NOTED ARE TO U/SIDE OF RECT. OR SPIRAL DUCTS FROM SOFFIT, UNO.
4. ALL STANDARD RECTANGULAR DUCTWORK LENGTHS ARE 1510 lg. UNO.

REFERENCE DRAWINGS

DRAWING NUMBER	REV

DRAWING STATUS

- PRELIMINARY ISSUE ☐
- FOR APPROVAL ■
- FOR RE-APPROVAL ☐
- FOR CO-ORDINATION ☐
- FOR CONSTRUCTION /MAINT. ☐
- RECORD DRAWING ☐

LEVELS

- FINISHED FLOOR =
- LOCAL DATUM =
- UNDERSIDE OF FALSE CEILING =

REV	BY	DESCRIPTION	DATE	CHKD.
A	DB	ISSUED FOR APPROVAL / COMMENTS	10/12/98	

REVISION

F.E.COLE & SON LTD.

HEATING, VENTILATING & MECHANICAL SERVICES
76 RICHMOND STREET, COVENTRY CV2 4JB, TELEPHONE (01203)635681/FAX (01203)635545

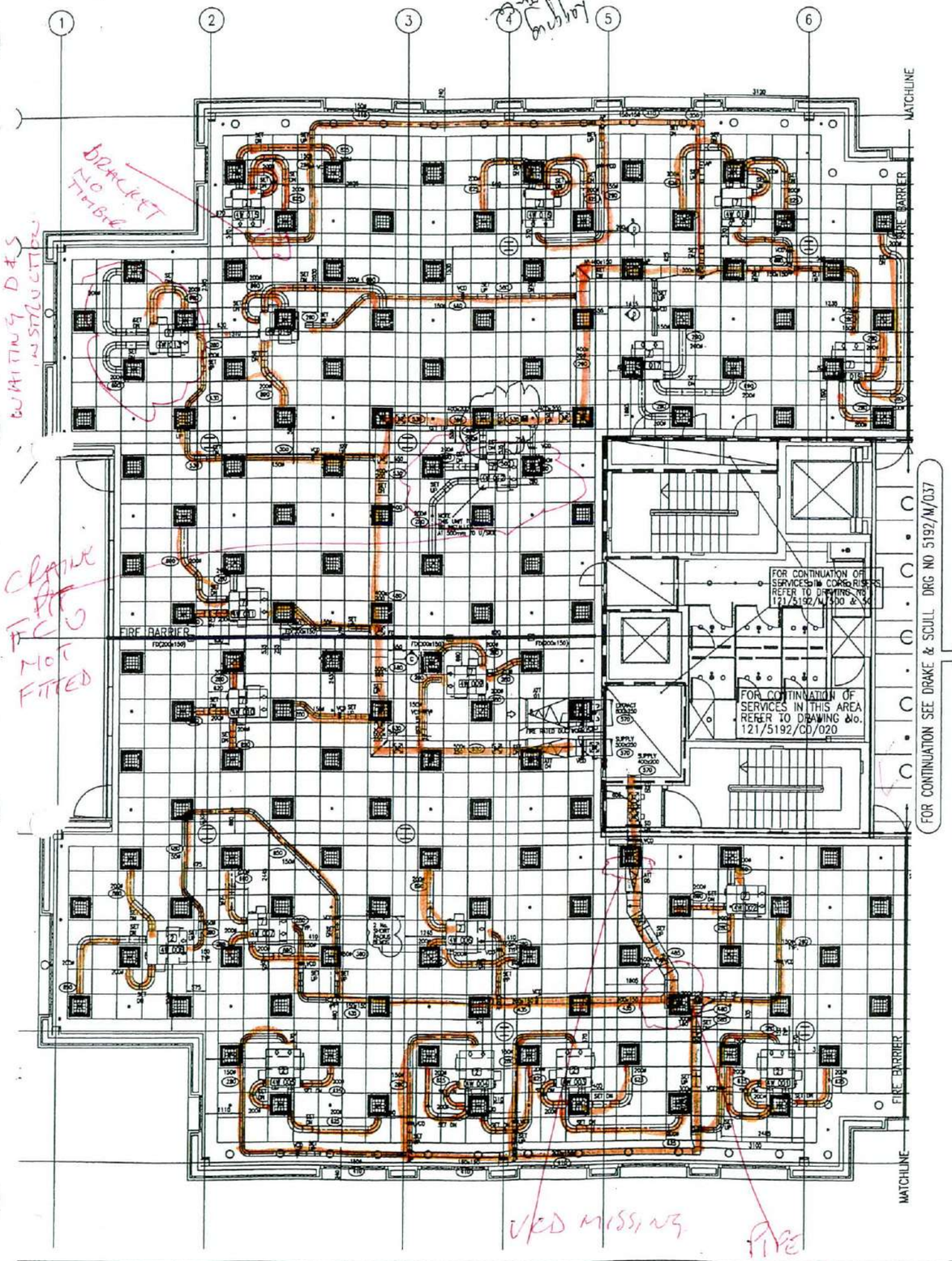
CLIENT: DRAKE & SCULL LTD

PROJECT: 5-7 CARLTON GARDENS LONDON

TITLE: FOURTH FLOOR – WEST DUCTWORK LAYOUT

DRAWN BY: D.Bannister | SCALE: 1 : 50 | DATE: 8/12/98

DRAWING NUMBER: D192 / 18 / 4 – W | Rev A



PLENUM BOX SCHEDULE

REF	SIZE	No.
	SEE CHART	13
	SUITABLE AS SUPPLY	5
	TOP CHART	11

ALL PLENUMS TO BE FITTED WITH BLOCK DAMPER ON SPIGOT OUTLET

ATTENUATOR SCHEDULE

REF	SIZE
ATT 01	TBC
ATT 04	TBC
ATT 05	TBC

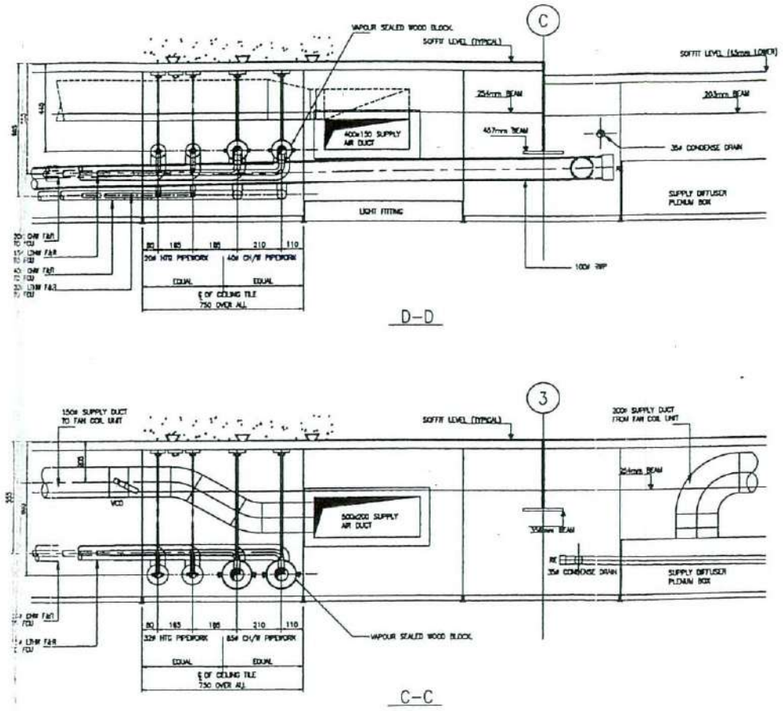
ATTENUATORS MANUFACTURED BY SOUNDCLOTH LTD.

LEGEND

(100) DIMENSIONS STEMS FROM UPPER SIDE OF SOFFIT TO
a) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK

) DIM
D.W. BETWEEN CROSS B & C AND BETWEEN CROSS C & H IS 85mm LOWER THAN THE MAIN SLAB.

SD SPIGOT DAMPER

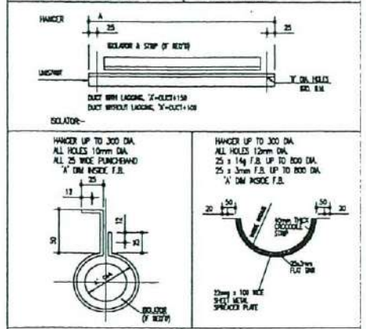


SPECIFICATION

DUCTWORK SYSTEM	CONSTRUCTION SPECIFICATION	LEAKAGE TEST SPECIFICATION

LEGEND

AD = ACCESS DOOR
BE = BLANKED
FD = FIRE DAMPER
FOT = FLAT ON TOP
FOB = FLAT ON BOTTOM
SD = FIRE DAMPER
MD = MOTORISED DAMPER
SD = SPIGOT DAMPER
TSD = TOP SET DOWN
TSU = TOP SET UP
VCD = VOLUME CONTROL DAMPER
BRB = BOXED IN BEAM
RCL = CONCENTRIC REDUCER
EL = ECCENTRIC REDUCER
TSBC = CONICAL BRANCH CONNECTION
TC = TEE CONICAL
PSHG = PRESSED SHOULD
WP = WALL DISPLUME
RF = FLOW/DISPLUME
DAF = DAP END (WALL/FLOWLT)
SBD = SINGLE BLADE VOLUME DAMPER
—— = SUPPORT LOCATION



NOTES

1. ALL BEND 100mm RADIUS WITH 50mm LEAD-IN, UNO.
2. ALL RECTANGULAR FITTING TO HAVE 150mm LEAD-IN / THROAT, UNO.
3. ALL DATUMS NOTED ARE TO U/SIDE OF RECT. OR SPIRAL DUCTS FROM SOFFIT, UNO.
4. ALL STANDARD RECTANGULAR DUCTWORK LENGTHS ARE 1510 lg. UNO.

REFERENCE DRAWINGS

DRAWING NUMBER	REV

DRAWING STATUS

- PRELIMINARY ISSUE ☐
- FOR APPROVAL ■
- FOR RE-APPROVAL ☐
- FOR CO-ORDINATION ☐
- FOR CONSTRUCTION /MANUF. ☐
- RECORD DRAWING ☐

LEVELS

FINISHED FLOOR =
LOCAL DATUM =
UNDERSIDE OF FALSE CEILING =

REV	BY	DESCRIPTION	DATE	CHKD.
A	DB	ISSUED FOR APPROVAL / COMMENTS	10/12/98	

REVISION

S. Bell
6/3/99
Remove all tape on the ductwork prior to insulation

F.E.COLE & SON LTD.
HEATING, VENTILATING & MECHANICAL SERVICES
76 RICHMOND STREET, COVENTRY CV2 4JB, TELEPHONE (01203)436680/FAX (01203)435545

CLIENT: DRAKE & SCULL LTD
PROJECT: 5-7 CARLTON GARDENS LONDON
TITLE: FOURTH FLOOR - WEST DUCTWORK LAYOUT
DRAWN BY: D.Bannister | SCALE: 1 : 50 | DATE: 8/12/98
DRAWING NUMBER: D192 / 18 / 4 - W | Rev A

F E COLE & SON LTD

5 - 7 CARLTON GARDENS

FAN COIL UNIT INSTALLATION CHECK SHEET	
Fan Coil Reference:	4E 020 TO 4E 037
Location:	4TH FLOOR EAST
Level East-West:	Yes ✓ No*
Level North-South:	Yes ✓ No*
Invert Level:	280
Installed By:	T. MULLINS T. CRAWFORD B. TOOTH P. HAVACON
Checked By:	M HARRIS F E Cole & Son Ltd
Accepted By:	S. JEFFERY Drake & Scull Ltd
* Delete as applicable.	

F.E. COLE & SON LTD.
HEATING, VENTILATING &
MECHANICAL SERVICES
ENGINEERS
Established 1906

76 Richmond Street, Coventry CV2 4JB
Telephone:..... (01203) 635588
Fax:..... (01203) 635545

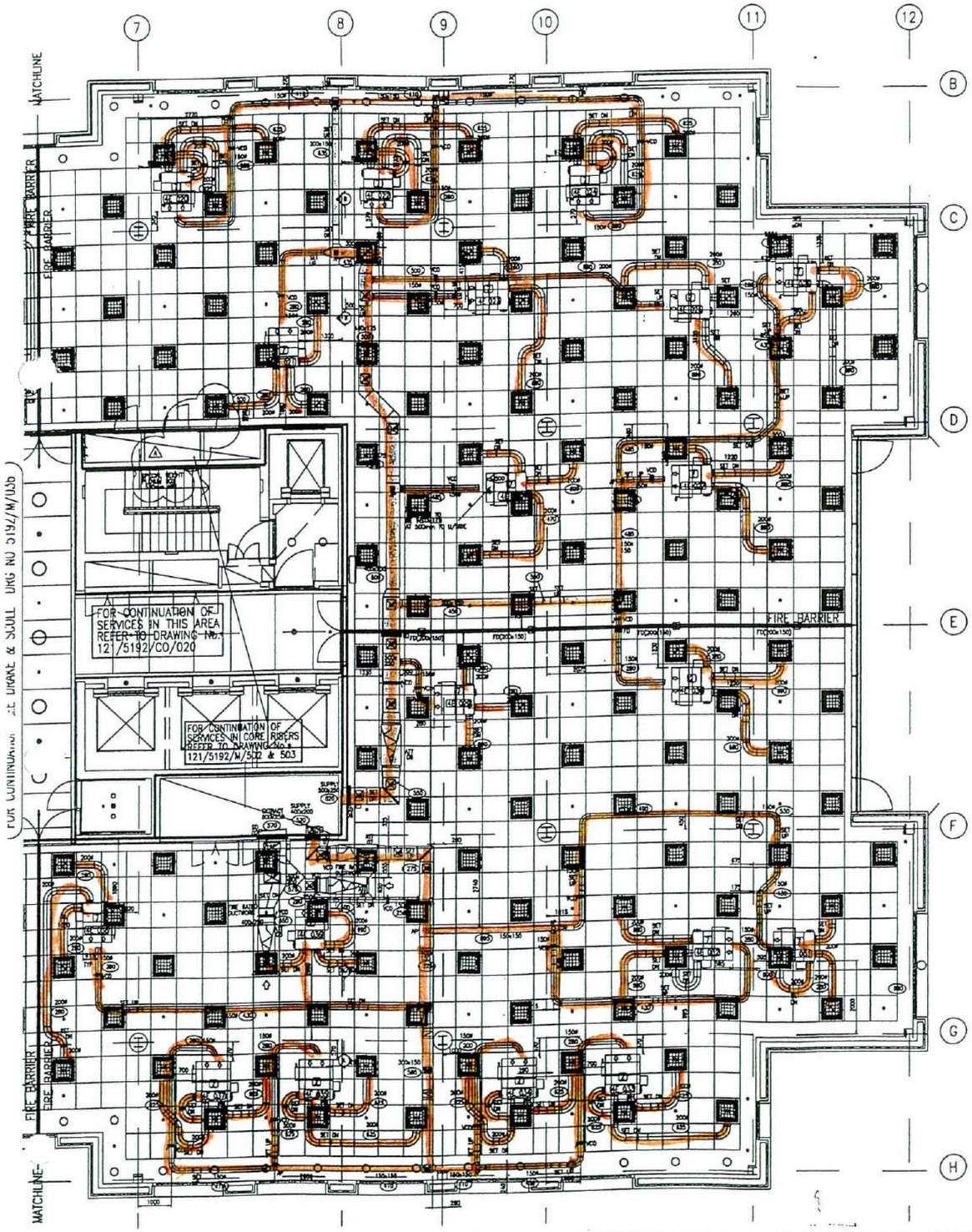
Date 5-3-99

MECHANICAL SERVICES HANDOVER/ACCEPTANCE CHECKLIST

FLOOR 4TH **AREA/ROOM** EAST

ITEM NO	ACTIVITY	YES/NO
1	Ductwork installed in accordance with layout	YES
2	Bracketry correctly aligned and installed	YES
3	Drop rode cut back and repainted	YES
4	Fire dampers installed in fire barriers	YES
5	VCD's installed	YES
6	Access allowed to fire dampers and VCD's	YES
7	Flexibles complete	No
8	Grilles installed	No
9	Testing complete and passed	~~YES~~ N/A
10	Insulation complete	N/A
11	Ductwork identification complete	N/A
12	Ductwork internally cleaned	YES.

Signed G. P. [illegible] **Date** 5-3-99
For and on the behalf of F. E. Cole and Son Ltd.



PLENUM BOX SCHEDULE

REF	DETAIL	No.
A	SIDE EXHAUST	45
B	VARIABLE AIR SUPPLY	5
SUPERSEDED	TOP EXHAUST	23

ALL PLENUMS TO BE FITTED WITH BLADE DAMPER ON SPIGOT EXCEPT

ATTENUATOR SCHEDULE

REF	SIZE
ATT 01	TBC
ATT 02	TBC
ATT 03	TBC
ATT 07	TBC

ATTENUATORS MANUFACTURED BY SIMPLEX LTD.

LEGEND

(DMCR) DENOTES LINE FROM LOWER SIDE OF SOFFIT TO U/SIDE OF RECTANGULAR /CIRCULAR ELECTRICAL

NOTE

SLAB HEADER CASING B & C AND BEAMER CASES C & H & 10mm LOWER THAN THE MAIN SLAB.

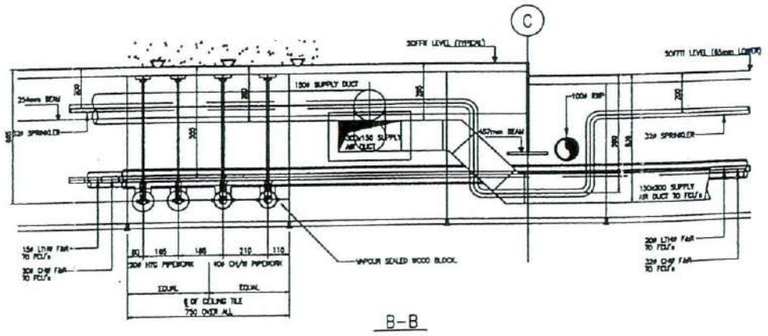
DD DUCT DAMPER

General

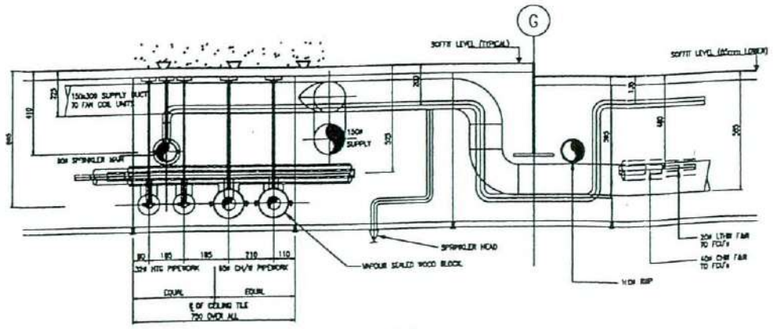
Remove all tapes prior to insulation!

S. Jeff

6/3/99



B-B



A-A

SPECIFICATION

DUCTWORK SYSTEM	CONSTRUCTION SPECIFICATION	LEAKAGE TEST SPECIFICATION

LEGEND

AD = ACCESS DOOR
BE = BLANKED
FD = FIRE DAMPER
FOT = FLAT ON TOP
FOB = FLAT ON BOTTOM
D = DUCT DAMPER
MD = MOTORISED DAMPER
SD = SMOKE DAMPER
TSD = TOP SET DOWN
TSU = TOP SET UP
VCD = VOLUME CONTROL DAMPER
SRD = ROUND SET DOWN
RCL = CONCENTRIC REDUCER
RL = ECCENTRIC REDUCER
TCK = CONNECTION WITHOUT CONNECTOR
TC = TEE CONNECTION
PSRS = PRESSURE SCALE
MP = MALE COUPLING
MF = FEMALE COUPLING
DAF = DUP DAD (MALE/FEMALE)
SVD = SINGLE BLADE VOLUME DAMPER
---- = SUPPORT LOCATION

NOTES

1. ALL BEND 100mm RADIUS WITH 50mm LEAD-IN, UNO.
2. ALL RECTANGULAR FITTING TO HAVE 150mm LEAD-IN / THOAT, UNO.
3. ALL DATUMS NOTED ARE TO U/SIDE OF RECT. OR SPIRAL DUCTS FROM SOFFIT, UNO.
4. ALL STANDARD RECTANGULAR DUCTWORK LENGTHS ARE 1510 lg. UNO.

REFERENCE DRAWINGS	
DRAWING NUMBER	REV

DRAWING STATUS

- PRELIMINARY ISSUE ☐
- FOR APPROVAL ■
- FOR RE-APPROVAL ☐
- FOR CO-ORDINATION ☐
- FOR CONSTRUCTION /MANT. ☐
- RECORD DRAWING ☐

LEVELS

- FINISHED FLOOR =
- LOCAL DATUM =
- UNDERSIDE OF FALSE CEILING =

REV	BY	DESCRIPTION	DATE	CHKD.
A	DD	ISSUED FOR APPROVAL / COMMENTS	10/12/98	

REVISION

F.E.COLE & SON LTD.

HEATING, VENTILATING & MECHANICAL SERVICES

76 RICHMOND STREET, CONCENTRY CV2 4JB, TELEPHONE (01203)639999, FAX (01203)639545

CLIENT: DRAKE & SCULL LTD

CONTRACT: 5-7 CARLTON GARDENS LONDON

TITLE: FOURTH FLOOR - EAST DUCTWORK LAYOUT

DRAWN BY: D.Bonnielar | SCALE: 1 : 50 | DATE: 8/12/98

DRAWING NUMBER: D192 / 19 / 4 - E | Rev A

4

F E COLE & SON LTD

PRESSURE TEST SHEET

*Test No. 33

NAME OF JOB 5 - 7 Carlton Gardens, London

B. Tender Reference Core Area Fourth Floor

Part 1 Physical details

a. Section of ductwork to be tested* Toilet Extract

b. Surface area of duct under test† 13m²

c. Test static pressure 500 pascals

d. Leakage factor 1.53 litres/sec/m²

e. Maximum Permitted Leakage (b x d) 19.89 litres/sec.

Part 2 Test particulars

a. Duct static pressure reading 500Pa

b. Type of flow measuring device HELT D

c. Range of measurement of flow measuring device 0-2000

d. Reading of flow measuring device 10 pa

e. Interpreted air flow leakage rate 20 L/s

f. Duration of test (normally 15 minutes) 15 mns

Date of test 16/9/99 Carried out by [illegible] Witnessed by [illegible]

Length metres	Width and depth or diameter millimetres	Periphery metres	Area square metres
	2000	785	2 355
	2000	628	1 884
	1500	565	1 695
	1500	471	1 413
	1000	314	5 338
		†TOTAL	12 685

F E COLE & SON LTD

PRESSURE TEST SHEET

*Test No. 32

NAME OF JOB 5 - 7 Carlton Gardens, London

Building Reference Cole Area Fourth Floor

Part 1 Physical details

a Section of ductwork to be tested* Toilet Supply

b Surface area of duct under test† 12m²

c Test static pressure 500 pascals

d Leakage factor 1.53 litres/sec/m²

e Maximum Permitted Leakage (b x d) 18.36 litres/sec.

Part 2 Test particulars

a Test static pressure reading 500pa

b Type of flow measuring device HLT D

c Range of measurement of flow measuring device 0-2000

d Reading of flow measuring device 10pa

e Measured air flow leakage rate 20 l/s

f Duration of test (normally 15 minutes) 15 mins

Date of test 16/3/99 Carried out by [illegible] Witnessed by [illegible]

Length metres	Width and depth or diameter millimetres	Periphery metres	Area square metres
[illegible]	250	785	3.14
[illegible]	1800	565	2.825
[illegible]	[illegible]	471	1.413
[illegible]	1000	314	4.396
		†TOTAL	11.774

F E COLE & SON LTD

PRESSURE TEST SHEET

*Test No. 42

NAME OF JOB 5 - 7 Carlton Gardens, London

Building Reference Fourth Floor

Part 1 - Physical details

a Section of ductwork to be tested* North East

b Surface area of duct under test† 64m²

c Test static pressure 500 pascals

d Leakage factor 1.53 litres/sec/m²

e Maximum Permitted Leakage (b x d) 97.92 litres/sec.

Part 2 - Test particulars

a Duct static pressure reading 500 pa

b Type of flow measuring device HOLT 'D'

c Range of measurement of flow measuring device 0 TO 2000

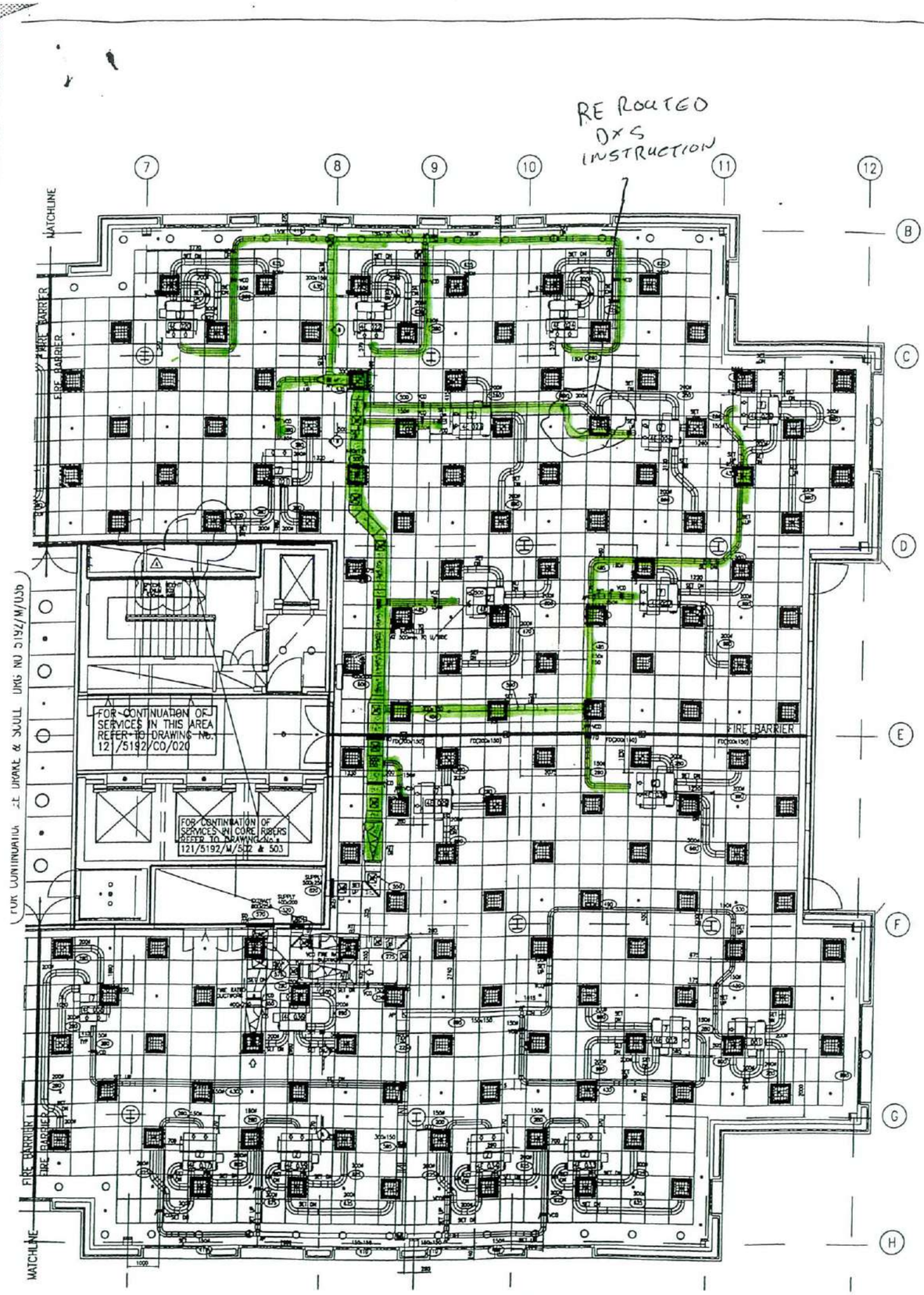
d Reading of flow measuring device 85 PA

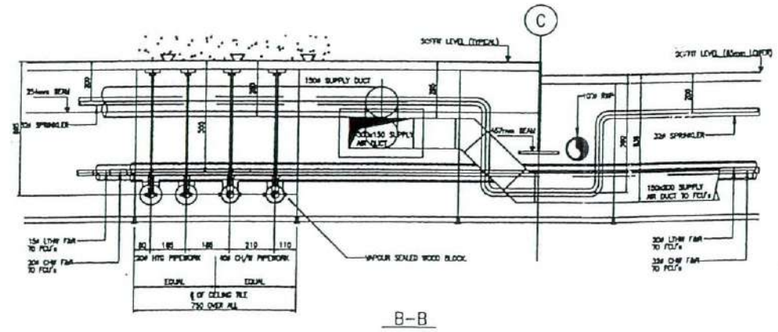
e Interpreted air flow leakage rate 73 LPS

f Duration of test (normally 15 minutes) 15 MINS

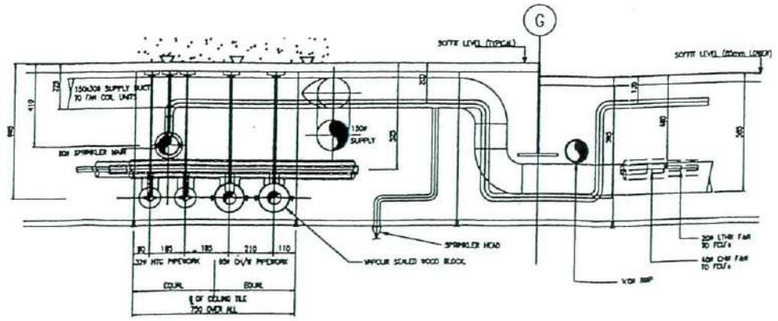
Date of test 5-3-99 Carried out by A HARRIS Witnessed by

Length	Width and depth or diameter	Periphery	Area
metres	millimetres	metres	square metres
8	500 x 250	1500	12
4	400 x 200	1200	4.8
7	400 x 175	1150	8.05
1	300 x 150	900	0.9
12	200 x 150	700	8.4
7	150 x 150	600	4.2
55	150Ø	471	25.905
		†TOTAL	64.255





B–B



A–A

PLENUM BOX SCHEDULE

REF	SIZE	No.
A	300 DIAM	48
B	VARIABLE AS SUPPLY	3
SPECIAL	TOP DIAM	33

ALL PLENUMS TO BE FITTED WITH BLADE DAMPER ON SPIGOT DIAM

ATTENUATOR SCHEDULE

REF	SIZE
AT 01	TBC
AT 02	TBC
AT 03	TBC
AT 04	TBC
AT 05	TBC

ATTENUATORS MANUFACTURED BY SUPPLIER LTD.

LEGEND

(300) SOFFITS LEVEL FROM LOWEST SIDE OF SOFFIT TO U/SIDE OF RECTANGULAR / CIRCULAR DUCTWORK.

NOTE
SUB SCHEMES CHECK S & C AND SCHEMES CHECK C & M
2 50mm LOWER THAN THE OVER ALL.

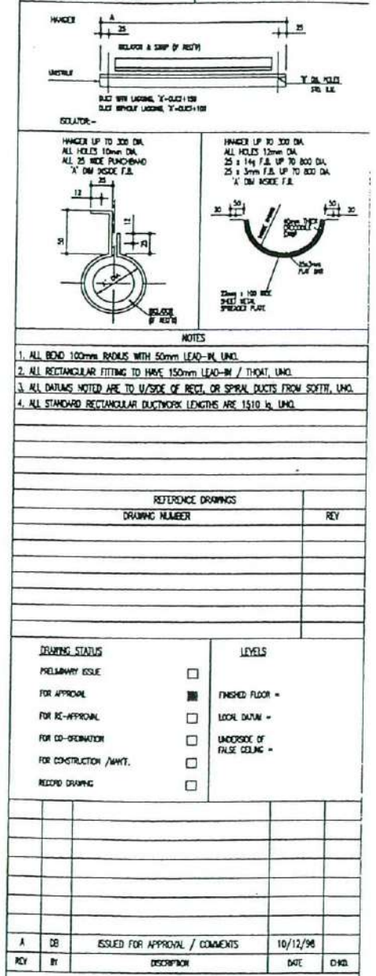
BD = BLADE DAMPER

SPECIFICATION

DUCTWORK SYSTEM	CONSTRUCTION SPECIFICATION	LEAKAGE TEST SPECIFICATION

LEGEND

AD = ACCESS DOOR
BE = BLANKED
FD = FIRE DAMPER
FOT = FLAT ON TOP
FOB = FLAT ON BOTTOM
GD = GRILLE DAMPER
MD = MOTORISED DAMPER
SD = SMOKE DAMPER
TD1 = TOP SIDE DOWN
TD2 = TOP SIDE UP
VCD = VOLUME CONTROL DAMPER
BRD = BOARD BE BOX
RCL = CONCENTRIC REDUCER
EL = ECCENTRIC REDUCER
TCC = CONICAL BRANCH CONNECTION
BC = BLE CONICAL
FSDS = FACEBOX SADDLE
NP = NIPPLE COUPLING
MF = FEMALE COUPLING
CMF = CAP END (MALE/FEMALE)
SBD = SINGLE BLADE VOLUME DAMPER
---- = SUPPORT LOCATION



NOTES

1. ALL BEND 100mm RADIUS WITH 50mm LEAD-IN, UNO.
2. ALL RECTANGULAR FITTING TO HAVE 150mm LEAD-IN / THOAT, UNO.
3. ALL DATUMS NOTED ARE TO U/SIDE OF RECT. OR SPIRAL DUCTS FROM SOFFIT, UNO.
4. ALL STANDARD RECTANGULAR DUCTWORK LENGTHS ARE 1510 lg. UNO.

REFERENCE DRAWINGS

DRAWING NUMBER	REV

DRAWING STATUS

- PRELIMINARY ISSUE ☐
- FOR APPROVAL ■
- FOR RE-APPROVAL ☐
- FOR CO-ORDINATION ☐
- FOR CONSTRUCTION /MANT. ☐
- RECORD DRAWING ☐

LEVELS

- FINISHED FLOOR =
- LOCAL DATUM =
- UNDERSIDE OF FALSE CEILING =

REV	BY	DESCRIPTION	DATE	CHKD
A	DB	ISSUED FOR APPROVAL / COMMENTS	10/12/98	

REVISION

F.E.COLE & SON LTD.
HEATING, VENTILATING & MECHANICAL SERVICES
76 RICHMOND STREET, COVENTRY CV2 4JB, TELEPHONE (01203)635985/FAX (01203)635645

CLIENT: DRAKE & SCULL LTD

BUILDING: 5-7 CARLTON GARDENS LONDON

TITLE: FOURTH FLOOR - EAST DUCTWORK LAYOUT

DRAWN BY: D.Bannister | SCALE: 1 : 50 | DATE: 8/12/98

DRAWING NUMBER: D192 / 19 / 4 - E | Rev A

F E COLE & SON LTD

PRESSURE TEST SHEET

*Test No. 40

NAME OF JOB 5 - 7 Carlton Gardens, London

Building Reference Fourth Floor

Part 1 - Physical details

a Section of ductwork to be tested* North West

b Surface area of duct under test† 74m²

c Test static pressure 500 pascals

d Leakage factor 1.53 litres/sec/m²

e Maximum Permitted Leakage (b x d) 113.22 litres/sec.

Part 2 - Test particulars

a Duct static pressure reading ..... 500 PA

b Type of flow measuring device ..... HUCT 'D'

c Range of measurement of flow measuring device .....

d Reading of flow measuring device ..... 65 PA

e Interpreted air flow leakage rate 62

f Duration of test (normally 15 minutes) ..... 15 MINS

Date of test 5-3-99 Carried out by A HARRIS Witnessed by .....

Length	Width and depth or diameter	Periphery	Area
metres	millimetres	metres	square metres
11	500 x 250	1500	16.5
20	400 x 200	1200	24
2	300 x 150	900	1.8
10	150 x 150	600	6
54	150Ø	471	25.434
		†TOTAL	73.734

F E COLE & SON LTD

PRESSURE TEST SHEET

*Test No. 43

NAME OF JOB 5 - 7 Carlton Gardens, London

Building Reference Fourth Floor

Part 1 - Physical details

a Section of ductwork to be tested* South East

b Surface area of duct under test† 52m²

c Test static pressure 500 pascals

d Leakage factor 1.53 litres/sec/m²

e Maximum Permitted Leakage (b x d) 79.56 litres/sec.

Part 2 - Test particulars

a Duct static pressure reading ..... 500 PC

b Type of flow measuring device ..... HOLT 'D'

c Range of measurement of flow measuring device ..... 0 TO 2000 PC

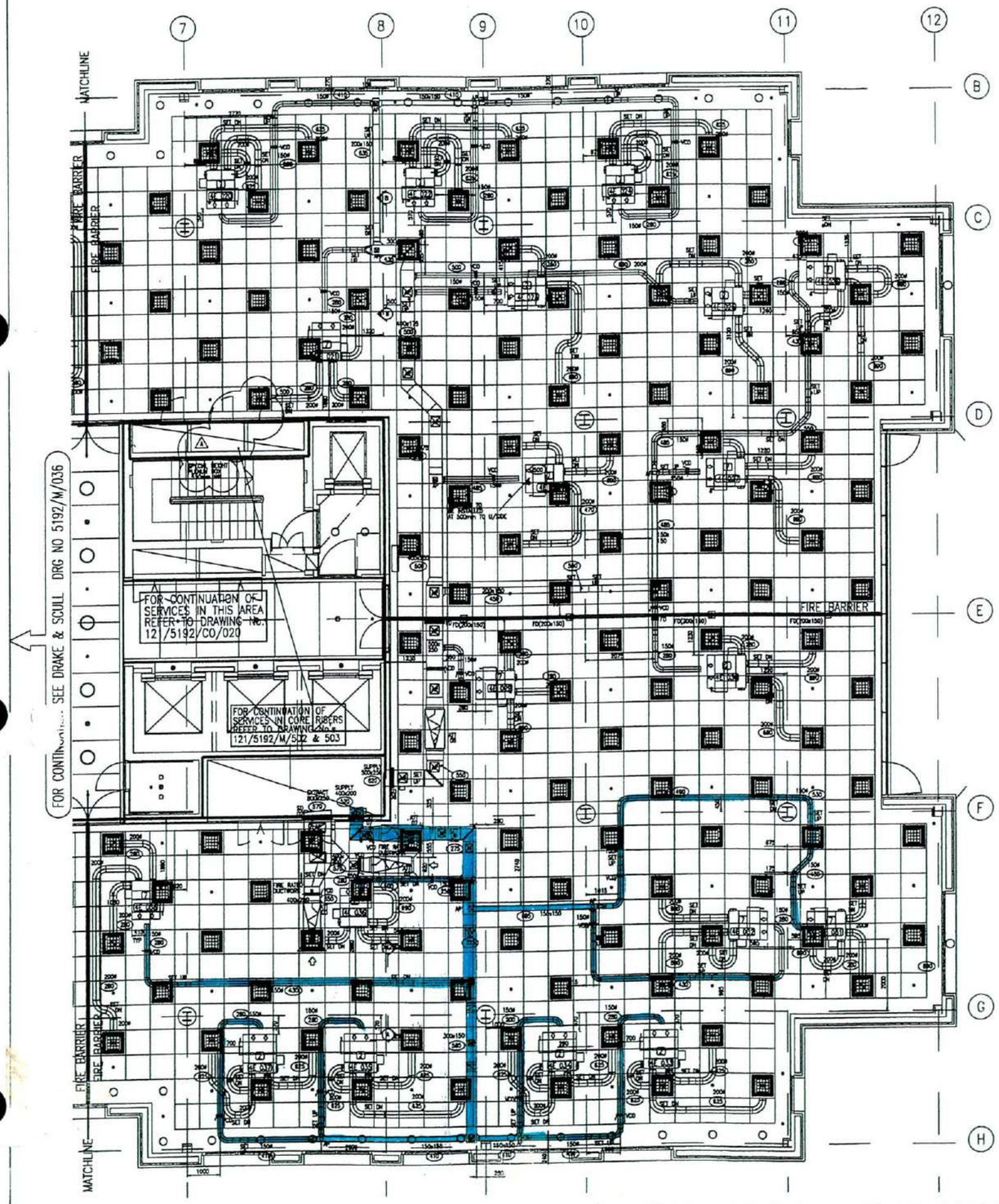
d Reading of flow measuring device ..... 50 PA

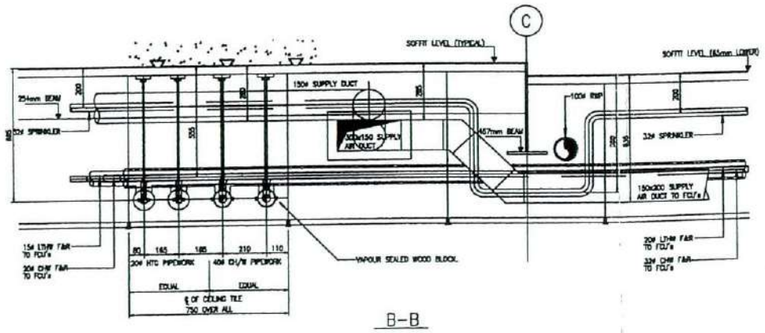
e Interpreted air flow leakage rate ..... 6.5 LPS

f Duration of test (normally 15 minutes) ..... 15 MINS

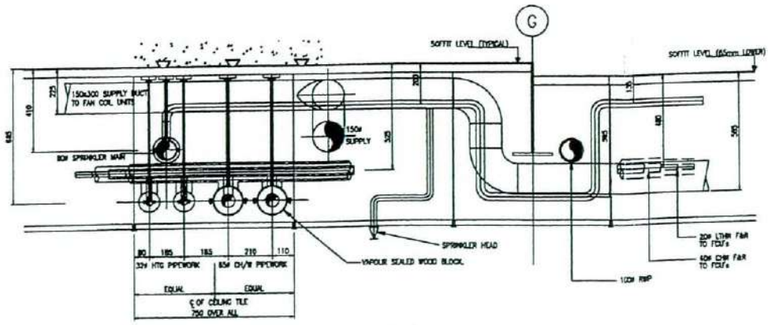
Date of test 5-3-99. Carried out by A. HARRIS Witnessed by

Length	Width and depth or diameter	Periphery	Area
metres	millimetres	metres	square metres
7	400 x 200	1200	8.4
3	400 x 150	1100	3.3
5	300 x 150	900	4.5
12	150 x 150	600	7.2
60	150Ø	471	28.26
		†TOTAL	51.66





B-B



A-A

PLENUM BOX SCHEDULE

REF	DETAIL	No.
1	SIDE ENTRY	48
2	VALVABLE AS SUPPLY	3
UNLISTED	TOP ENTRY	73

ALL PLENUMS TO BE FITTED WITH BLADE DAMPER ON SPIGOT ENTRY

ATTENUATOR SCHEDULE

REF	SIZE
ATT 08	TBC
ATT 13	TBC
ATT 08	TBC
ATT 07	TBC

ATTENUATORS MANUFACTURED BY WATERLOO LTD.

LEGEND

(XXX) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO:
a) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK.

NOTE
BLAD BETWEEN GRIDS 8 & C AND BETWEEN GRIDS 9 & H IS 40mm LOWER THAN THE MAIN SLAB.

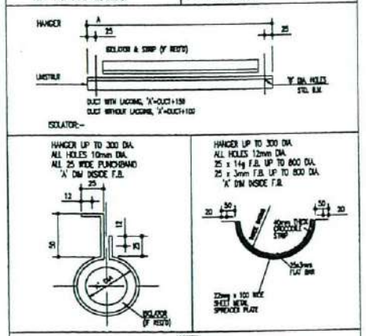
SD SMOKE DAMPER

SPECIFICATION

DUCTWORK SYSTEM	CONSTRUCTION SPECIFICATION	LEAKAGE TEST SPECIFICATION

LEGEND

AD = ACCESS DOOR
BE = BLANKED END
FD = FIRE DAMPER
FOT = FLAT ON TOP
FOB = FLAT ON BOTTOM
D = VCD DAMPER
MD = MOTORISED DAMPER
SD = SMOKE DAMPER
TSD = TOP SET DOWN
TSU = TOP SET UP
VCD = VOLUME CONTROL DAMPER
BRD = BEND 90 DEG
RCL = CONCENTRIC REDUCER
RL = ECCENTRIC REDUCER
TCC = CONICAL BRANCH CONNECTION
TC = TEE CONICAL
PSRD = PRESSED SADDLE
WP = WALE COUPLING
WF = FLANGED COUPLING
CAP = CAP END (WALE/FLANGE)
MBD = SINGLE BLADE VOLUME DAMPER
---- = SUPPORT LOCATION



NOTES

1. ALL BEND 100mm RADIUS WITH 50mm LEAD-IN, UNO.
2. ALL RECTANGULAR FITTING TO HAVE 150mm LEAD-IN / THOAT, UNO.
3. ALL DATUMS NOTED ARE TO U/SIDE OF RECT, OR SPIRAL DUCTS FROM SOFFIT, UNO.
4. ALL STANDARD RECTANGULAR DUCTWORK LENGTHS ARE 1510 lg, UNO.

REFERENCE DRAWINGS

DRAWING NUMBER	REV

DRAWING STATUS

- PRELIMINARY ISSUE ☐
- FOR APPROVAL ■
- FOR RE-APPROVAL ☐
- FOR CO-ORDINATION ☐
- FOR CONSTRUCTION /MANT. ☐
- RECORD DRAWING ☐

LEVELS

FINISHED FLOOR =
LOCAL DATUM =
UNDERSIDE OF FALSE CEILING =

REV	BY	DESCRIPTION	DATE	CHKD.
A	DB	ISSUED FOR APPROVAL / COMMENTS	10/12/98	

REVISION

F.E.COLE & SON LTD.
HEATING, VENTILATING & MECHANICAL SERVICES
76 RICHMOND STREET, COVENTRY CV2 4JB, TELEPHONE (01203)635586/FAX (01203)635645

CLIENT: DRAKE & SCULL LTD

BUILDING: 5-7 CARLTON GARDENS LONDON

TITLE: FOURTH FLOOR - EAST DUCTWORK LAYOUT

DRAWN BY: D.Bonnister | SCALE: 1 : 50 | DATE: 8/12/98

DRAWING NUMBER: D192 / 19 / 4 - E | Rev A

F E COLE & SON LTD

PRESSURE TEST SHEET

*Test No. 41

NAME OF JOB 5 - 7 Carlton Gardens, London

Building Reference Fourth Floor

Part 1 - Physical details

a Section of ductwork to be tested* South West

b Surface area of duct under test† 48m²

c Test static pressure 500 pascals

d Leakage factor 1.53 litres/sec/m²

e Maximum Permitted Leakage (b x d) 73.44 litres/sec.

Part 2 - Test particulars

a Duct static pressure reading ..... 500 PC

b Type of flow measuring device ..... HULT 'D'

c Range of measurement of flow measuring device ..... 0 TO 2000 PC

d Reading of flow measuring device ..... 75 LPA

e Interpreted air flow leakage rate ..... 68 LPS

f Duration of test (normally 15 minutes) .....

Date of test 5-3-99 Carried out by A. HARRIS Witnessed by .....

Length	Width and depth or diameter	Periphery	Area
metres	millimetres	metres	square metres
7	400 x 200	1200	8.4
4	300 x 150	900	3.6
12	200 x 150	700	8.4
1	300 x 200	1000	1.0
8	150 x 150	600	4.8
47	150Ø	471	22.137
		†TOTAL	48.337

5

FIRE PROTECTION LTD

MILLARS 3
SOUTHMILL ROAD
BISHOPS STORTFORD
CM23 3DH
TEL : (01279) 467077 FAX : (01279) 466994

CHECK LIST - DUCTWORK FIRST FIX

SITE : 5-7 CARLTON GARDENS

JOB No: FP1587

SHEET No:

AREA OFFERED PRIOR TO TEST : FOURTH FLOOR FIRE RATED DUCTWORK

DRG No: FP1587 /14

PIECES: ITEMS 1-7

DATE AREA / RUN SNAGGED :

		YES	NO	N/A
1.	CHECK FOR INSTALLED TURNING VANES.	✓		
2.	CHECK HANGER RODS ARE CUT TO LENGTH.	✓		
3.	CHECK DUCTING IS INSTALLED TO CORRECT LEVELS AND POSITIONS.	✓		
4.	CHECK THAT CROSS JOINTS ARE SEALED CORRECTLY.	✓		
5.	ALL FLANGES ARE CORRECTLY BOLTED , CLIPPED AND GASKETED.	✓		
6.	BRANCHES ARE CORRECTLY JOINTED TO MAIN RUN.	✓		
7.	TYPE OF BRACKET CORRECT FOR SYSTEM AS PER SPEC (ISOLATORS FITTED etc).	✓		
8.	BRACKETS CORRECTLY SPACED AS PER SPEC.	✓		
9.	ARE BRACKETS VERTICAL AND SUPPORTING DUCTWORK.	✓		
10.	ARE BRACKET FIXINGS CORRECT AND SECURE.	✓		
11.	FIRE DAMPERS FITTED CORRECTLY AND OPERATING CORRECTLY.	✓		
12.	ARE ACCESS DOORS FITTED ADJACENT TO ALL F/D'S AND V.C.D.'S.	✓		
13	ENSURE THERE ARE NO ROUGH EDGES ON DUCTWORK ADJACENT TO A/P'S	✓		
14.	ENSURE SITE BRACKETRY STEELWORK IS PAINTED	✓		
15.	ENSURE THAT TEST MEMBRANES ARE FITTED CORRECTLY			

INSPECTED FOR AND ON BEHALF OF :-

FIRE PROTECTION LTD :- SIGNATURE :- J. JM PRINT :- J. GILL

CLIENT :- SIGNATURE :- _____ PRINT :- _____

CONSULTANT :- SIGNATURE :- _____ PRINT :- _____

6

Stepspeed Thermal Insulation

QA Sign Off Form / Inspection Sheet

Area / Floor: 4TH

Date:

Thermal Insulation to Ductwork Complete and checked inc vapour barrier and wire netting 1st and 2nd fix (excluded final conns to Grilles). ☑

ID's to Ductwork complete and equally spaced. ☑

Thermal Insulation to HTG and CHW Pipework complete including vapour seal (Excluding vapour seal around Chilled valves to be cone after commissioning.) ☑

ID's to HTG and CHW Pipework complete and equally spaced and installed at each branch and change of direction. ☑

Thermal Insulation and ID's complete to Condensate Pipework and spacings of Id's correct. ☑

Signed On Behalf of Stepspeed:

Date:

Signed and Inspected by DSE:

Date:

Signed and Inspected by Mace:

Date:

7

Drake & Scull

5-7 Carlton Gardens

JOB NO: **121/5192**

SMOKE DAMPER INSTALLATION CHECK SHEET

AREA: office

FLOOR: 4TH.

DSE SMOKE DAMPER REF: SD.67-90 INC SD 39-41 INC

TOTAL NO. OF SMOKE DAMPERS: 7 No

REMARKS / ACTIONS: NA

NAME: J. STARLING

SIGNED:

DATE: 24/6/99

8

9

10

8

MACE STANDARD PRO-FORMA (JOB SPECIFIC) FOR FINAL SIGN OFF OF THE CEILING/FLOOR VOID

SAMPLE

FINAL VOID CLOSURE

BUILDING : 1 5-7 CARLTON GDNS LEVEL : 5TH FLOOR

CHECKLIST

		Trade Contractor		Mace Ltd.		Consultant		
		Initial	Date	Initial	Date	Initial	Date	Comments
1.	Mechanical Pipework	JS						
2.	Plumbing Pipework	JS						
3.	Electrical 1st Fix							
4.	PA 1st Fix							
5.	FA 1st Fix							
6.	Ductwork	JS						
7.	Security Carcass							
8.	Fire Damper R.A.							
9.	Modular Wiring Boxes							
10.	Valve Tags	JS						
11.	Lagging Pipework	JS						
12.	Pipework Testing	JS						
13.	Lagging Ductwork	JS						
14.	FA Cables Terminated							
15.	Ductwork and Pipework ID	JS						

Excluded items which will require access through ceiling/floor grid :-

Flexible Duct Connects to Fan Coils
Modular Wiring to Light Fittings
2nd Fix Fire Alarms
Chemical Flushing of Pipework

Water Balance of Heaters and Chilled Water Systems
Wiring to Door Contacts
Commissioning Lighting Control System
Air Balance of Ductwork System

Final Addressing and Commissioning of Fan Coils
Plugs to Fit to FCU Drain Valves After Flushing Activities Have Been Completed
IT Testing, Etc.
VESDA Installations

m|a|c|e

Second Fix Inspection Sign Off Sheet

Area / Floor: 5TH FLOOR

Date: _____

1) Chilled Water, Heating and Condensate Installation ☑
Exclusions:

2) Ductwork Systems Installation ☑
Exclusions:

3) Sprinkler Installation ☑
Exclusions:

4) Thermal Insulation ☑
Exclusions:

Signed and Inspected by DSE _____ Date _____

Signed and Inspected by Mace _____ Date _____

MACE STANDARD PRO-FORMA (JOB SPECIFIC) FOR FINAL SIGN OFF OF THE CEILING/FLOOR VOID

SAMPLE

VOID CLOSURE

BUILDING : CARLTON GARDENS. LEVEL : 5TH FLOOR.

CHECKLIST

		Trade Contractor		Mace Ltd.		Consultant		
		Initial	Date	Initial	Date	Initial	Date	Comments
1.	Mechanical Pipework	MLa	29/03					
2.	Plumbing Pipework *	*	*					* DUE TO ONGOING DESIGN RELATED ISSUE
3.	Electrical 1st Fix							WITH ABOVE FLOORS, CAST IRON CURRENTLY
4.	PA 1st Fix							IN PROGRESS.
5.	FA 1st Fix							
6.	Ductwork	MLa	29/03					
7.	Security Carcass							
8.	Fire Damper R.A.	MLa	29/03					
9.	Modular Wiring Boxes							
10.	Valve Tags *	MLa	29/03					TAGS TO BE COMPLETED 31/03/99.
11.	Lagging Pipework	MLa	29/03					AS MARKED UP DRG.
12.	Pipework Testing	MLa	29/03					
13.	Lagging Ductwork	MLa	29/03					
14.	FA Cables Terminated							
15.	Ductwork and Pipework ID	MLa	29/03					

Excluded items which will require access through ceiling/floor grid :-

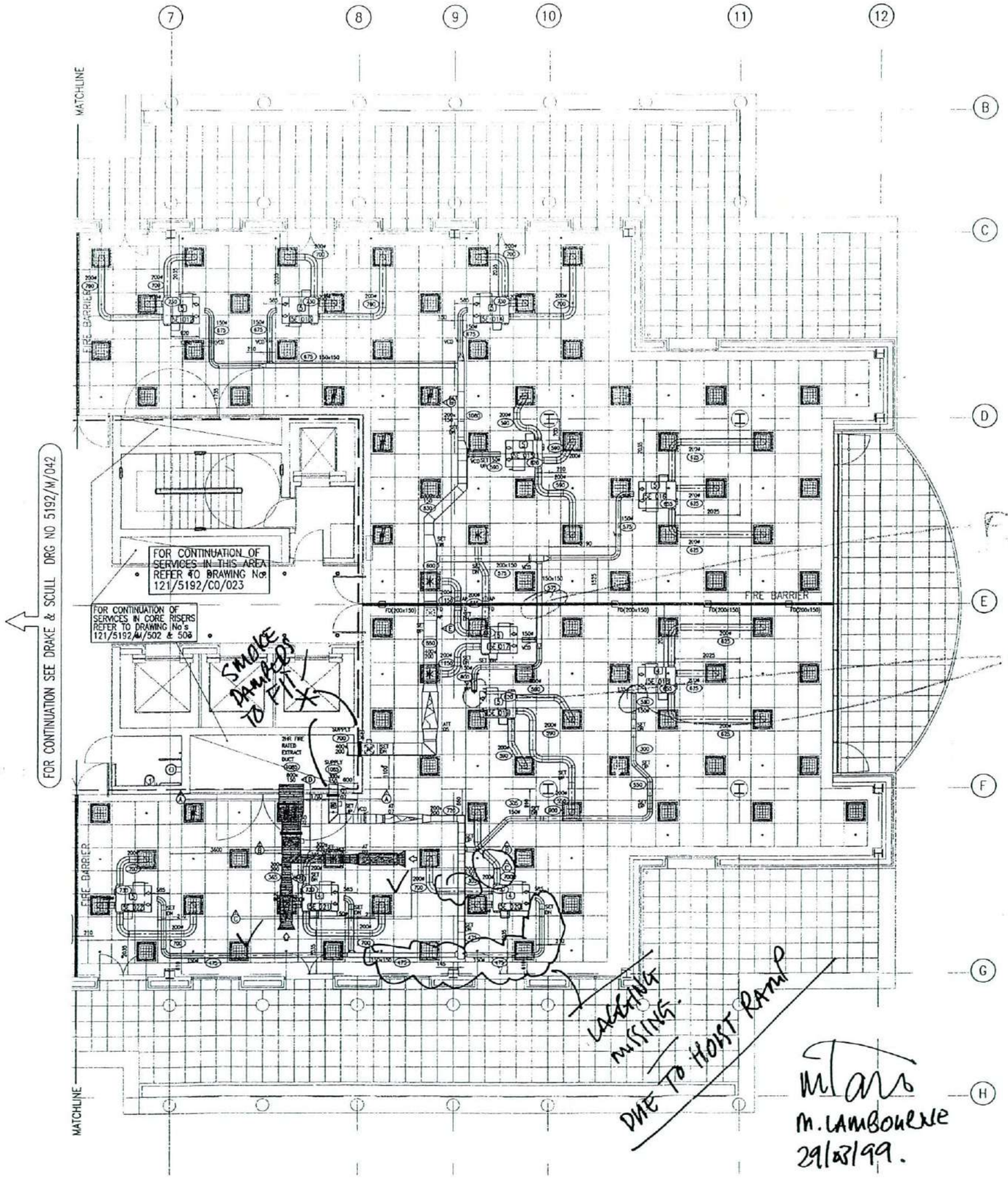
- ✓ Flexible Duct Connects to Fan Coils
- Modular Wiring to Light Fittings
- 2nd Fix Fire Alarms
- ✓ Chemical Flushing of Pipework
- ✓ Water Balance of Heaters and Chilled Water Systems
- Wiring to Door Contacts
- Commissioning Lighting Control System
- ✓ Air Balance of Ductwork System
- ✓ Final Addressing and Commissioning of Fan Coils
- ✓ Plugs to Fit to FCU Drain Valves After Flushing Activities Have Been Completed
- IT Testing, Etc.
- VESDA Installations

* VALVE TAGS TO BE FITTED THRU' GRID.
* SPRINKLER WET PRESSURE TEST. 29/03/99 PM.

\\ZULU\C (E)\CARLTON\WP\SIGNOFF\HLSO150798.DOC

m|a|c|e

COPIED ASTEL CEILINGS.



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NOTES

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. FOR DETAILS OF FAN COIL UNIT HANGING , FIRE DAMPER PENETRATIONS REFER TO DRG No. 121/5192/M027
4. FOR DETAILS OF RETURN AIR STAT TYPICAL POSITION REFER TO DRG No. 121/5192/M027
5. ALL SECONDARY AIR FLEXIBLE CONNECTIONS ARE 200# UNLESS OTHERWISE STATED , MAX LENGTH 600mm.
6. THIS DUCTWORK LAYER IS PRODUCED FOR CO-ORDINATION PURPOSES ONLY . FULL DETAILS OF BURNING WANES , FIRE DAMPER ACCESS VOLUME CONTROL DAMPER ACCESS WILL BE ADDED WHEN REVIEWED BY DUCTWORK CONTRACTOR.
7. ALL FAN COIL UNIT PLENUM BOX OUTLETS NOT USED WILL BE CAPPED AT WORKS.
8. FOR TYPICAL DETAILS OF PRIMARY SUPPLY AIR ONTO FAN COIL UNIT REFER TO DRG No. 121/5192/M027
9. PRIMARY SUPPLY TO FAN COIL UNITS TERMINATES 150mm TYPICAL FROM FACE OF FAN COIL UNIT FILTER.
10. FOR DETAILS OF REFLECTED CEILING SEE MICHAEL WILFORD & PARTNERS DRAWINGS.

PLENUM BOX SCHEDULE

REF	DETAIL	No.
*	SIDE ENTRY	1
ℓ	UNSUITABLE AS SUPPLY	6
UNMARKED	TOP ENTRY	80

ALL PLENUMS TO BE FITTED WITH BLADE DAMPER ON SPIGOT ENTRY

ATTENUATOR SCHEDULE

REF	SIZE
ATT 02	TBC
ATT 03	TBC
ATT 06	TBC
ATT 07	TBC

ATTENUATORS MANUFACTURED BY WATERLOO LTD.

LEGEND

(900) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO
a) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK
b) UNDERSIDE OF FAN COIL UNITS

SD	SMOKE DAMPER
VCD	VOLUME CONTROL DAMPER
FD	FIRE DAMPER
AD	ACCESS DOOR

FOR COMMENT

Rev	Date	Eng	Description	Appr
	20/11/98	M.L.	ISSUED FOR COMMENT	

Drake & Scull

DRAKE SCULL PAVILIONS
CHALKHILL DRIVE, SHENLEY WOOD
MILTON KEYNES, BUCKINGHAMSHIRE
MK5 6LB
Telephone:01908 506005
Facsimile:01908 506066

Discipline: MECHANICAL – VENTILATION

Drawn: HW | Scale: 1:50

Checked: | Date: NOV 1998

PROJECT: 5 – 7 CARLTON GARDENS

CLIENT: BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

TITLE: OFFICE HIGH LEVEL VENTILATION SERVICES LAYOUT FIFTH FLOOR sht 2 OF 2

Drawing No: 121/5192/M/043

Rev:

Please take note of comments on the RIBA boards for this level.

TRADE SIGN OFF

	SIGNATURE	DATE
M.A.C.E.		/ /
T. CLARKE		/ /
SYCH. SYSTEMS		/ /
DRAKE & SCULL		/ /

. CARLTON GARDENS. 5TH FLOOR. INSPECTIONS/TESTS.

1
- NPF ENG LTD.

CONDENSATE FALL TEST. RAINWATER. HTG. CHW. INSPECTIONS. TESTS.

2
- PRENSSAG LTD.

SPRINKLER. INSPECTIONS. TESTS.

3
- FE COLE LTD.

FAN COIL CHECK SHEET. FIRE DAMPER DROP TEST.

4
- FE COLE LTD.

1ST FIX DUCTWORK INSPECTION TEST. PRESSURE TEST CERTS.

5
- FIRE PROTECTION LTD.

1ST FIX FIRE RATED DUCTWORK INSTALLATION. INSPECTION.

6
- STEPSPEED INSULATION.

PIPEWORK INSULATION. DUCTWORK INSULATION. INDENTIFICATION. FIRE STOPPING.

7
- DSE LTD

SMOKE DAMPER CHECK INSPECTION.

8
- DOMESTICS.

~~HWS INSPECTION. SVP INSPECTION. CWS INSPECTIONS.~~ TESTS.

9

10

SPARE SHEETS.

niceday
No.277434

DRAKE & SCULL ENGINEERING LTD **5-7 CARLTON GARDENS**	
QUALITY ASSURANCE	Fan Coil Unit Condensate pipework running test
FLOOR AREA	5TH floor.
DATE	
DSE SIGNATURE	
CLIENT	
COMMENTS	

Drake & Scull

HYDRAULIC PRESSURE TEST
PIPEWORK

Project:: 5-7 CARLTON GARDENS

System: L.T.H.W. & CHILLED WATER Sheet M21 of

Location/drg nos: 5TH FLR. EAST / M.041

Instrument Type/No.: CALIBRATED PRESS GAUGE

Section Type:

Riser	
Suspended	✓
Wall fixed	
Floor supported	
Trench/duct	

Black mild steel	✓
Galvanised steel	
Copper	
Stainless steel	
U.P.V.C.	

Specified test pressure: 10 BAR kPa Instrument Type: P/GAUGE

Actual test pressure: 10 BAR kPa Serial No. 067804/6

Duration of test: 2 Hours — Minutes

TEST ACCEPTABLE

Signed:	for: DRAKE & SCULL	date: 19/3/99
Signed:	for: C.W.C.	date: 19/3/99

CHECKS	SIGNED	DATE
Bracket and anchor position, centres and installation		
Flange and bolt tightness, jointing material		
Line components installed correctly		
Drain, flushing, & test points installed		

Signed:	for:	Date:
Signed:	for:	Date:
Signed:	for:	Date:

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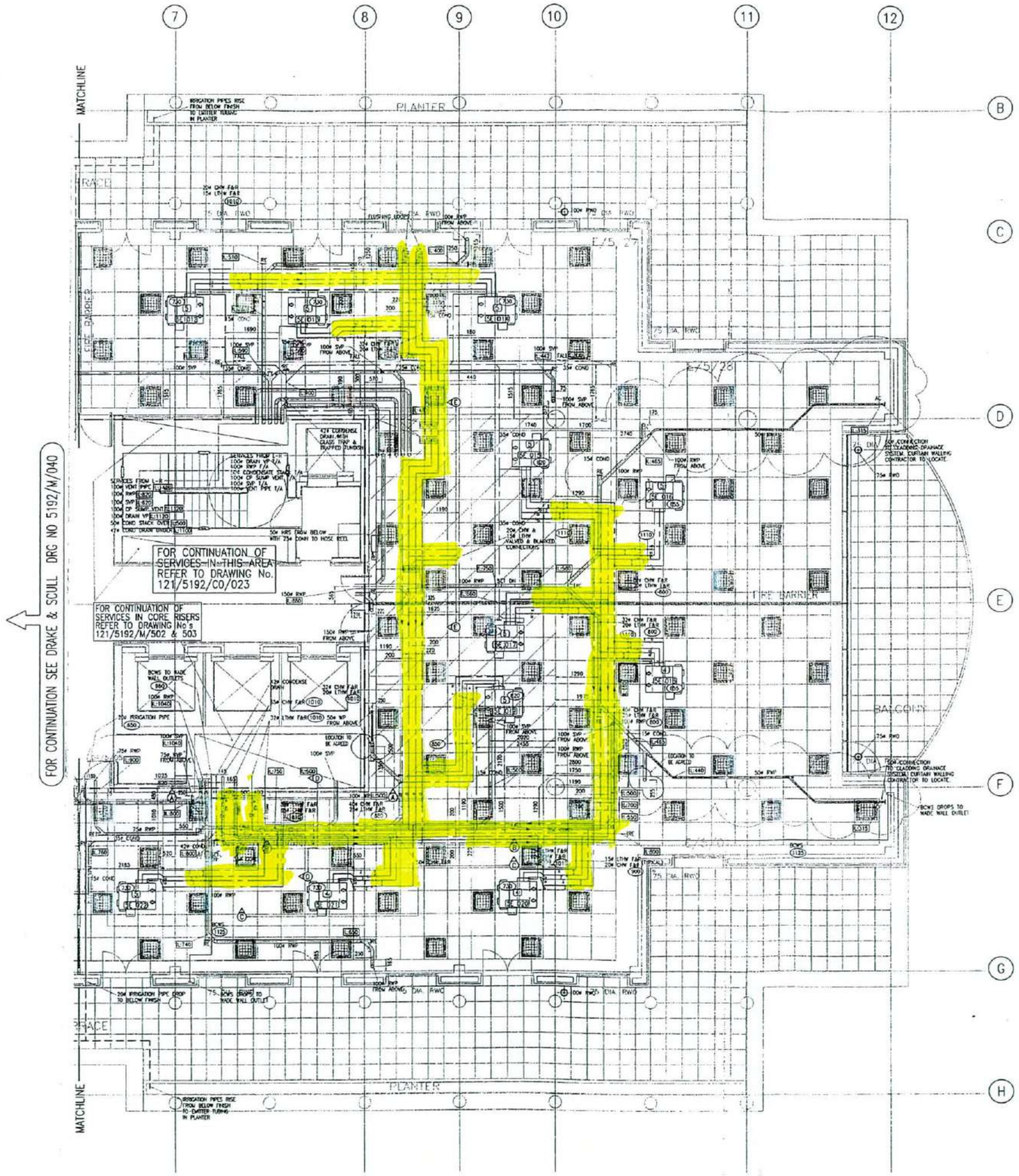

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NOTES

1. DO NOT SCALE FROM THIS DRAWING
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. ALL HIGH POINTS TO BE FITTED WITH AIR VENTS.
4. ALL LOW POINTS TO BE FITTED WITH DRAIN COCKS
5. CHW & LTHW CONNECTIONS TO FCU's ARE 20# & 15# RESPECTIVELY UNLESS OTHERWISE NOTED.
6. FOR TYPICAL DETAILS REFER TO DRAWING No. 121/5192/M027.
7. FOR DETAILS OF CORE AREAS DRAINAGE LAYOUTS REFER TO DRAWING No. 121/5192/M038.
8. FOR DETAILS OF DRAINAGE, DOMESTIC WATER SERVICES & FIRE PROTECTION LAYOUTS REFER TO DRAWING Nos :-
   121/5192/FP005.
   121/5192/MP004.
   121/5192/P004
9. THIS DRAWING SHOULD BE READ RECONJUNCTION WITH THE FOLLOWING SCHEMATIC DRAWING Nos :-
   121/5192/M031, M032, M033, M034 & M035.
   121/5192/M038, M032, M033 & M038.
10. REFER TO TYPICAL DETAILS DRAWING FOR CONDENSATE EXITRES TO RISER & CONNECTIONS TO FAN COIL UNITS.
11. FOR DETAILS OF PIPEWORK PENETRATIONS TO RISER & THROUGH FIRE BARRIERS REFER TO DRG N) 121/5192/M/027
12. FOR FAN COIL MOUNTING DETAILS REFER TO DRG No.121/5192/M/027
13. FOR FOR DETAILS OF HEAT METERS SEE DRG No.121/5192/M/027
14. FOR DETAILS OF REFLECTED CEILING SEE MICHAEL MILFORD & PARTNERS DRAWINGS.
15. FAN COIL UNITS TO BE MOUNTED AT 300mm TO BOTTOM OF UNIT EXCEPT WHERE INDICATED OTHERWISE .
    15mm# CONDENSE DRAINS FROM UNITS HAVE AN INVERT OF APPROX 300mm . 15# CONDENSE DRAINS THEN FALL BACK TO 35# CONDENSE DRAINS @ 10mm PER METRE .

LEGEND

(100) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO
a) CENTRE LINE OF PIPEWORK
b) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK.

(L.13) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO
a) BOTTOM OF INNER-DIA. OF PIPEWORK

IV	ISOLATING VALVE
LSV	LOCKSHIELD VALVE
DC	DRAIN COCK
FODRV	FIXED ORIFICE DOUBLE REGULATING VALVE
AV	AIR VENT
CHW	CHILLED WATER SERVICE
LTHW	LOW TEMPERATURE HOT WATER HEATING SERVICE
RE	RODDING EYE
RWP	RAIN WATER PIPE
AC	ACCESS DEND

10.2.99

FOR COMMENT

Rev	Date	Eng	Description	Appr
A	01/02/99	M.L	RWP MODIFIED TO SUIT REVISED HOLE POSITIONS & SIZE.	
	20/11/98	M.L	ISSUED FOR COMMENT	

Drake & Scull

DSC SHENLEY STUDIOS
CHURCHILL DRIVE, SHENLEY RIDGE
MILTON KEYNES, MK5 6LB, ENGLAND
Telephone: 01908 505005
Facsimile: 01908 506066

NOT ALL PREVIOUS COMMENTS ACTIONED

Drawing	MECHANICAL - PIPEWORK
Drawn	MW
Scale	1:50
Checked	MJ
Date	NOV 1998

PROJECT
5 - 7 CARLTON GARDENS

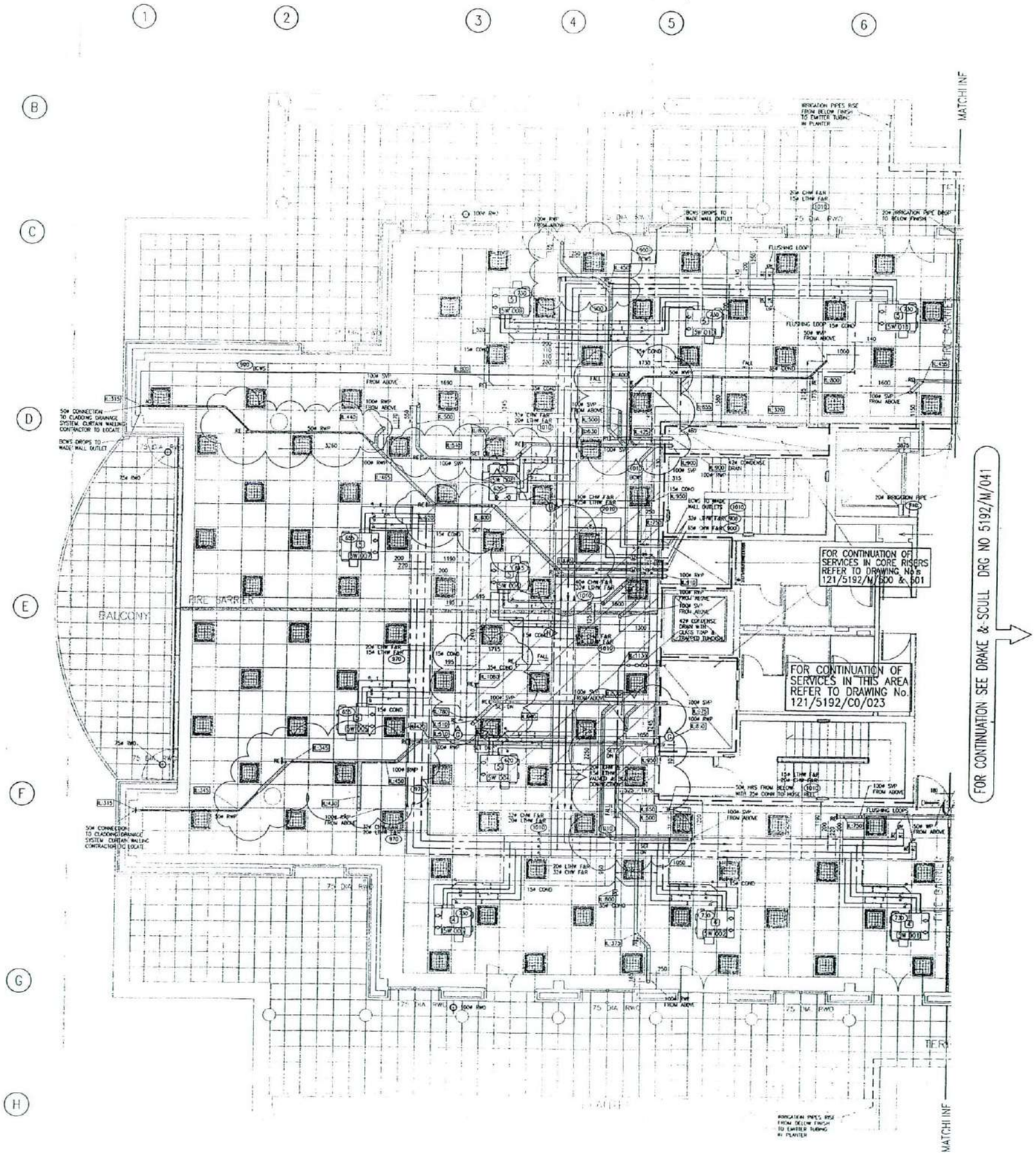
CLIENT
BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

TITLE
OFFICE HIGH LEVEL
LTHW,CHW,COND,SVP,RWP,BCWS
FIFTH FLOOR sht 2 OF 2

Drawing No. 121/5192/M/041 Rev. A

TRADE SIGN OFF

	SIGNATURE	DATE
M.A.C.E.		/ /
T. CLARKE		/ /
SYCH. SYSTEMS		/ /
DRAKE & SCULL		/ /



Previous comments not actioned.

TRADE SIGN OFF

	SIGNATURE	DATE
M.A.C.E.		
T. CLARKE		
SYCH. SYSTEMS		

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NOTES

1. DO NOT SCALE FROM THIS DRAWING
2. ALL DIMENSIONS ARE IN MILLIMETRES
3. ALL HIGH POINTS TO BE FITTED WITH AIR VENTS
4. ALL LOW POINTS TO BE FITTED WITH DRAIN COCKS
5. CHW & LTHW CONNECTIONS TO FCU's ARE 20# & 15# RESPECTIVELY UNLESS OTHERWISE NOTED
6. FOR TYPICAL DETAILS REFER TO DRAWING No. 121/5192/M/027
7. FOR DETAILS OF CORE AREAS DRAINAGE LAYOUT REFER TO DRAWING Nos. 121/5192/M/035
8. FOR DETAILS OF DRAINAGE, DOMESTIC WATER SERVICES & FIRE PROTECTION LAYOUTS REFER TO DRAWING Nos. -
   121/5192/P/005
   121/5192/M/004
   121/5192/P/004
9. THIS DRAWING SHOULD BE READ INCONJUNCTION WITH THE FOLLOWING SCHEMATIC DRAWING Nos. -
   121/5192/P/031, P/032, P/033, P/034 & P/035
   121/5192/M/028, M/032, M/033 & M/038
10. REFER TO TYPICAL DETAILS DRAWING FOR CONDENSATE ENTRIES TO RISER & CONNECTIONS TO FAN COIL UNITS
11. FOR DETAILS OF PIPEWORK PENETRATIONS TO RISER & THROUGH FIRE BARRIERS REFER TO DRG No 121/5192/M/027
12. FOR FAN COIL MOUNTING DETAILS REFER TO DRG No 121/5192/M/027
13. FOR DETAILS OF HEAT METERS SEE DRG No 121/5192/M/027
14. FOR DETAILS OF REFLECTED CEILING SEE MICHAEL WILFORD & PARTNERS DRAWINGS.
15. FAN COIL UNITS TO BE MOUNTED AT 300mm TO BOTTOM OF UNIT EXCEPT WHERE INDICATED OTHERWISE

    15mmø CONDENSE DRAINS FROM UNITS HAVE AN INVERT OF APPROX 300mm. 15# CONDENSE DRAINS THEN FALL BACK TO 25# CONDENSE DRAINS @ 10mm PER METRE

LEGEND

(960) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO:
a) CENTRE LINE OF PIPEWORK
b) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK

[L.133] DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO:
a) BOTTOM OF INNER-DIA. OF PIPEWORK

IV	ISOLATING VALVE
LSV	LOCKSHIELD VALVE
DC	DRAIN COCK
FODRV	FIXED ORIFICE DOUBLE REGULATING VALVE
AV	AIR VENT
CHW	CHILLED WATER SERVICE
LTHW	LOW TEMPERATURE HOT WATER HEATING SERVICE
RE	RODDING EYE
RWP	RAIN WATER PIPE
AC	ACCESS BEND

FOR INFORMATION
10.2.99

FOR COMMENT

Rev	Date	Drg	Description
A	01/02/99	M.L	RWP & SVP MODIFIED TO SUIT REVISED HOLE POSITIONS & SIZES
	20/11/98	M.L	ISSUED FOR COMMENT

Drake & Scull
Telephone 01908 506005
Facsimile 01908 506066

Discipline HVAC - PIPEWORK
Drawn HW
Checked MTOH
Scale 1:50
Date NOV 1998

PROJECT
5 - 7 CARLTON GARDENS

CLIENT
BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

OFFICE HIGH LEVEL
LTHW,CHW,COND,SVP,RWP,BCWS
FIFTH FLOOR sht 1 OF 2

Drake & Scull

HYDRAULIC PRESSURE TEST
PIPEWORK

Project:: 5-7 CARLTON GARDENS

System: L.T.H.W. & CHILLED WATER Sheet M22 of

Location/drg nos: 5TH FLR WEST / M.040

Instrument Type/No.: CALIBRATED PRESS GAUGE

Section Type:

Riser	
Suspended	✓
Wall fixed	
Floor supported	
Trench/duct	

Black mild steel	✓
Galvanised steel	
Copper	
Stainless steel	
U.P.V.C.	

Specified test pressure: 10 BAR kPa Instrument Type: P/GAUGE

Actual test pressure: 10 BAR kPa Serial No. 067804/6

Duration of test: 2 Hours / Minutes

TEST ACCEPTABLE

Signed:	for: DRAKE & SCULL	date: 19/3/99
Signed:	for: C.M.L.	date: 19/3/99

CHECKS	SIGNED	DATE
Bracket and anchor position, centres and installation		
Flange and bolt tightness, jointing material		
Line components installed correctly		
Drain, flushing, & test points installed		

Signed:	for:	Date:
Signed:	for:	Date:
Signed:	for:	Date:

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Drake & Scull

PRESSURE TEST - DRAINAGE SYSTEMS

Project: CARLTON GARDENS

System: RAINWATER Sheet D6 of

Location/drg.nos: 5TH FLOOR / M040 SHT 1 & M041 SHT 2

Instrument Type/No. : AIR TEST - 'U' TUBE

Section Type:

Riser	
Suspended	✓
Wall Fixed	
Trench	

Cast Iron	✓
Copper	
U.P.V.C.	
Polypropylene	
Galvanised	
Clay	
Glass	

Specified test pressure: 100 mm (water)

Actual test pressure: 100 mm (water)

Duration of test: 5 minutes

Comments:

Signed	for DRAKE & SCULL	date 24-2-99
Signed (for C.J Butler)	for CML	date 24-2-99
Signed	for	date

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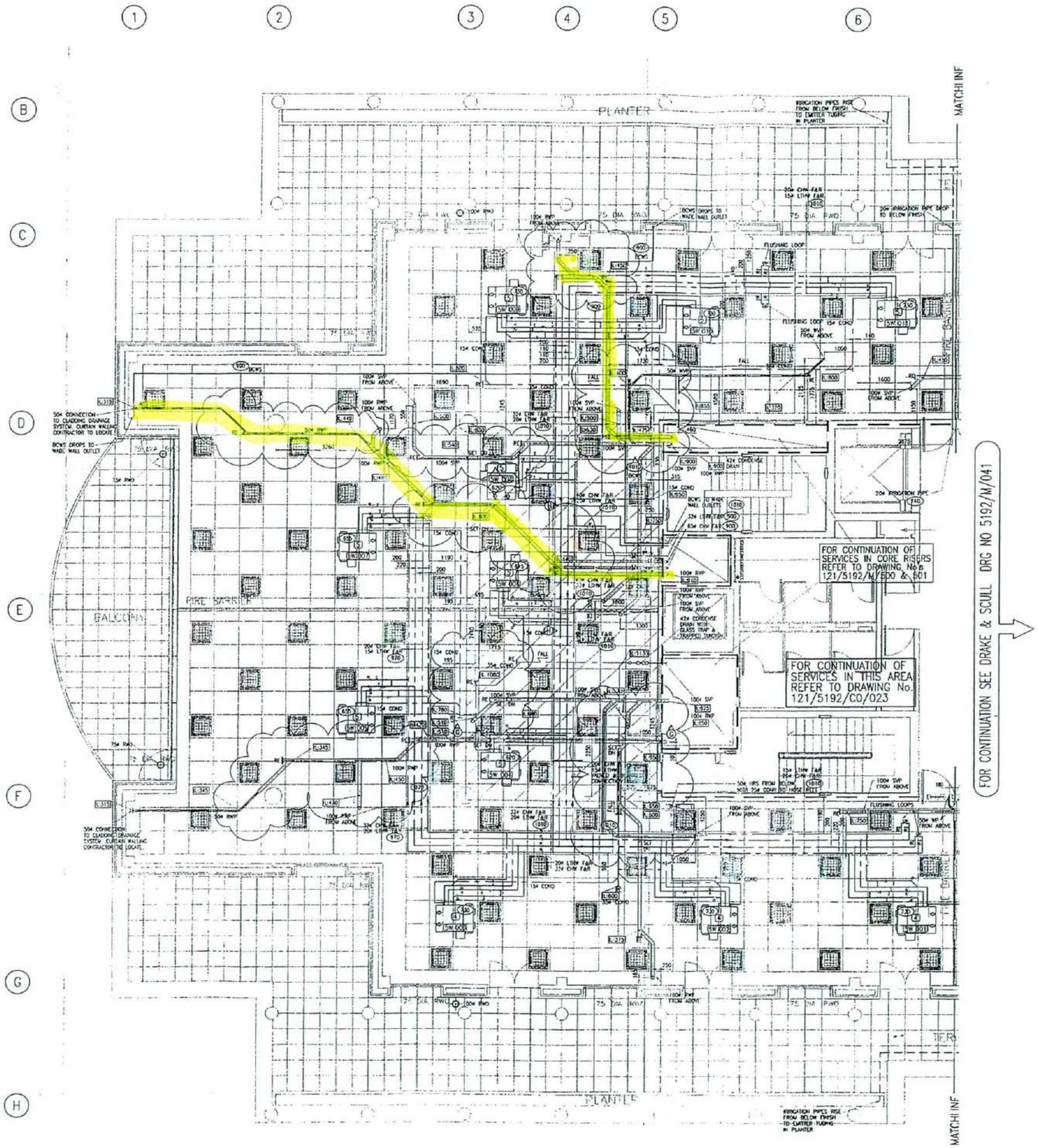

Previous comments not actioned.

TRADE SIGN OFF	SIGNATURE	DATE
M.A.C.E.		/ /
T. CLARKE		/ /
SYCH. SYSTEMS		/ /
DRAKE & SCULL		/ /

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NOTES

1. DO NOT SCALE FROM THIS DRAWING
2. ALL DIMENSIONS ARE IN MILLIMETRES
3. ALL HIGH POINTS TO BE FITTED WITH AIR VENTS.
4. ALL LOW POINTS TO BE FITTED WITH DRAIN COCKS.
5. CHW & LTHW CONNECTIONS TO FCU's ARE 20H & 15H RESPECTIVELY UNLESS OTHERWISE NOTED.
6. FOR TYPICAL DETAILS REFER TO DRAWING No. 121/5192/M/023
7. FOR DETAILS OF CORE AREAS DRAINAGE LAYOUT REFER TO DRAWING Nos 121/5192/M/038.
8. FOR DETAILS OF DRAINAGE, DOMESTIC WATER SERVICES & FIRE PROTECTION LAYOUTS REFER TO DRAWING Nos :-
   121/5192/P/005
   121/5192/MP004.
   121/5192/P/004
9. THIS DRAWING SHOULD BE READ INCONJUNCTION WITH THE FOLLOWING SCHEMATIC DRAWING Nos :-
   121/5192/M/031, M/032, M/033, M/034 & M/035
   121/5192/M/028, M/032, M/033 & M/038
10. REFER TO TYPICAL DETAILS DRAWING FOR CONDENSATE ENTRIES TO RISER & CONNECTIONS TO FAN COIL UNITS
11. FOR DETAILS OF PIPEWORK PENETRATIONS TO RISER & THROUGH FIRE BARRIERS REFER TO DRG No 121/5192/M/027
12. FOR FAN COIL MOUNTING DETAILS REFER TO DRG No 121/5192/M/027
13. FOR DETAILS OF HEAT METERS SEE DRG No 121/5192/M/027
14. FOR DETAILS OF REFLECTED CEILING SEE MICHAEL WILFORD & PARTNERS DRAWINGS.
15. FAN COIL UNITS TO BE MOUNTED AT 300mm TO BOTTOM OF UNIT EXCEPT WHERE INDICATED OTHERWISE.

    15mm CONDENSE DRAINS FROM UNITS HAVE AN INVERT OF APPROX 300mm. 15H CONDENSE DRAINS THEN FALL BACK TO 35H CONDENSE DRAINS @ 10mm PER METRE.

LEGEND

(900) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO
a) CENTRE LINE OF PIPEWORK
b) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK

(L.123) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO:
a) BOTTOM OF INNER-DIA. OF PIPEWORK

IV	ISOLATING VALVE
LSV	LOCKSHIELD VALVE
DC	DRAIN COCK
FODRV	FIXED ORIFICE DOUBLE REGULATING VALVE
AV	AIR VENT
CHW	CHILLED WATER SERVICE
LTHW	LOW TEMPERATURE HOT WATER HEATING SERVICE
RE	RODDING EYE
RWP	RAIN WATER PIPE
AC	ACCESS BOND

10.2.99

FOR COMMENT

No.	Date	Drn	Description	Appr
A	01/02/99	M.L.	RWP & SVP MODIFIED TO SUIT REVISED HOLE POSITIONS & SIZES.	
	20/11/98	M.L.	ISSUED FOR COMMENT	

Drake & Scull

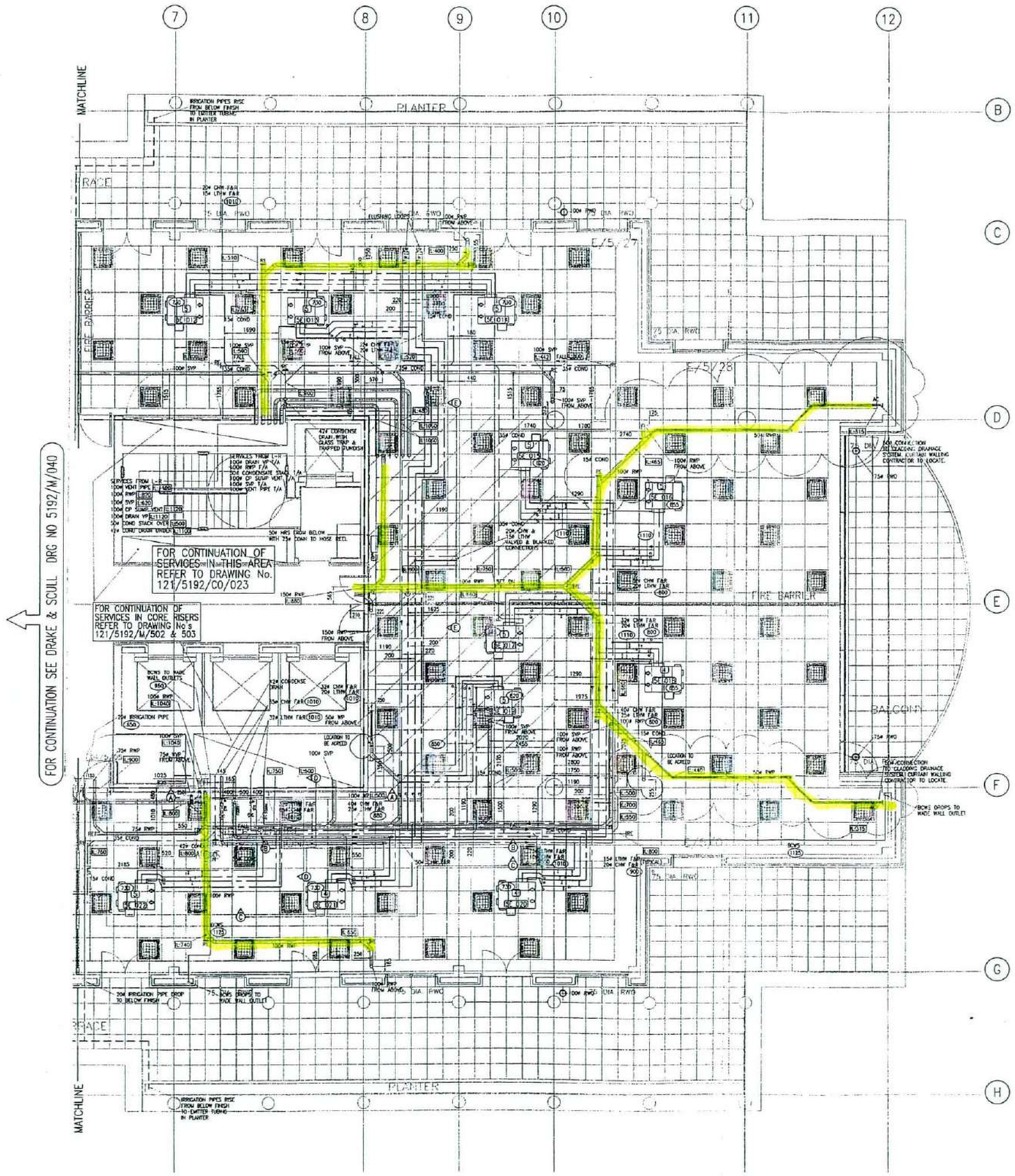
Drawing: HVAC - PIPEWORK
Drawn: HW
Scale: 1:50
Checked: MJDh
Date: NOV 1998

Project: 5 - 7 CARLTON GARDENS

Client: BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

Title: OFFICE HIGH LEVEL
LTHW,CHW,COND,SVP,RWP,BCWS
FIFTH FLOOR sht 1 OF 2

Drawing No: 121/5192/M/040
Rev: A



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NOTES

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3. ALL HIGH POINTS TO BE FITTED WITH AIR VENTS.
4. ALL LOW POINTS TO BE FITTED WITH DRAIN COCKS
5. CHW & LTHW CONNECTIONS TO FCU's ARE 20# & 15# RESPECTIVELY UNLESS OTHERWISE NOTED.
6. FOR TYPICAL DETAILS REFER TO DRAWING No. 121/5192/M/027.
7. FOR DETAILS OF CORE AREAS DRAINAGE LAYOUTS REFER TO DRAWING Nos. 121/5192/M/030.
8. FOR DETAILS OF DRAINAGE, DOMESTIC WATER SERVICES & FIRE PROTECTION LAYOUTS REFER TO DRAWING Nos :-
   121/5192/FP005.
   121/5192/WP004.
   121/5192/P004.
9. THIS DRAWING SHOULD BE READ INCONJUNCTION WITH THE FOLLOWING SCHEMATIC DRAWING Nos :-
   121/5192/FN031, P032, P033, P034 & P035.
   121/5192/M028, M032, M033 & M038.
10. REFER TO TYPICAL DETAILS DRAWING FOR CONDENSATE ENTRIES TO RISER & CONNECTIONS TO FAN COIL UNITS.
11. FOR DETAILS OF PIPEWORK PENETRATIONS TO RISER & THROUGH FIRE BARRIERS REFER TO DRG N).121/5192/M/027
12. FOR FOR FAN COIL MOUNTING DETAILS REFER TO DRG No.121/5192/M/027
13. FOR FOR DETAILS OF HEAT METERS SEE DRG No.121/5192/M/027
14. FOR DETAILS OF REFLECTED CEILING SEE MICHAEL WILFORD & PARTNERS DRAWINGS.
15. FAN COIL UNITS TO BE MOUNTED AT 300mm TO BOTTOM OF UNIT EXCEPT WHERE INDICATED OTHERWISE .
    15mmø CONDENSE DRAINS FROM UNITS HAVE AN INVERT OF APPROX 300mm . 15# CONDENSE DRAINS THEN FALL BACK TO 35# CONDENSE DRAINS @ 10mm PER METRE .

LEGEND

(900) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO.
a) CENTRE LINE OF PIPEWORK
b) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK.

(L.15) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO
a) BOTTOM OF INNER-DIA. OF PIPEWORK

IV	ISOLATING VALVE
LSV	LOCKSHIELD VALVE
DC	DRAIN COCK
FODRV	FIXED ORIFICE DOUBLE REGULATING VALVE
AV	AIR VENT
CHW	CHILLED WATER SERVICE
LTHW	LOW TEMPERATURE HOT WATER HEATING SERVICE
RC	RODDING EYE
RWP	RAIN WATER PIPE
AC	ACCESS BEND

10.2.99

FOR COMMENT

Rev	Date	Drn	Description	Appr
A	01/02/99	M.L.	RWP MODIFIED TO SUIT REVISED HOLE POSITIONS & SIZE.	
	20/11/98	M.L.	ISSUED FOR COMMENT	

Drawing Office Use Only
Drawn
Checked
Date

Not all previous comments actioned

Drake & Scull

CHP SHEETS PRAVINS
CHALFONT DRIVE, SHENLEY ROAD
WILTON REVELS, BUCKINGHAMSHIRE
MK3 5LD
Telephone:01908 506005
Facsimile:01908 506006

Description: MECHANICAL - PIPEWORK

Drawn: LDW | Scale: 1:50
Checked: MJ | Date: NOV 1998

PROJECT
5 - 7 CARLTON GARDENS

CLIENT
BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

TITLE
OFFICE HIGH LEVEL
LTHW,CHW,COND,SVP,RWP,BCWS
FIFTH FLOOR sht 2 OF 2

Drawing No: 121/5192/M/041
Rev: A

TRADE SIGN OFF	SIGNATURE	DATE
M.A.C.E.		/ /
T. CLARKE		/ /
SYCH. SYSTEMS		/ /
DRAKE & SCULL		/ /

Drake & Scull

PRESSURE TEST - DRAINAGE SYSTEMS

Project: CARLTON GARDENS

System: RAINWATER Sheet D5 of

Location/drg.nos: 5TH FLR SOUTH-WEST & SOUTH-WEST RISER / M040 SHT 1 & / SCH 010

Instrument Type/No.: AIR TEST - 'U' TUBE

Section Type:

Riser	✓
Suspended	✓
Wall Fixed	
Trench	

Cast Iron	✓
Copper	
U.P.V.C.	
Polypropylene	
Galvanised	
Clay	
Glass	

Specified test pressure: 100 mm (water)

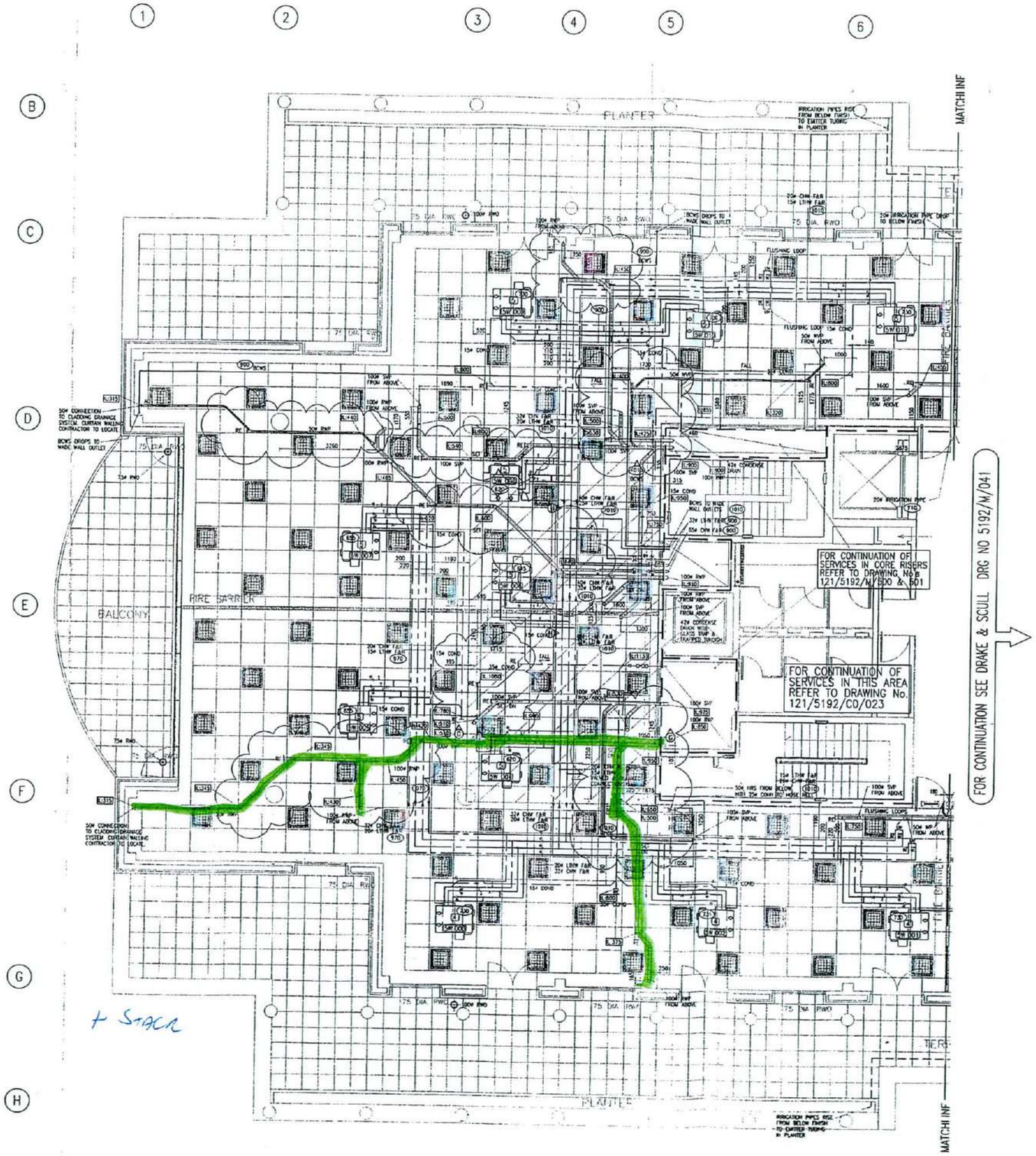
Actual test pressure: 100 mm (water)

Duration of test: 5 minutes

Comments:

Signed		for	DRAKE & SCULL	date 18-2-99
Signed		for		date
Signed		for	CMC	date 18-2-99

© Drake & Scull Engineering (UK) Ltd.



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NOTES

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. ALL HIGH POINTS TO BE FITTED WITH AIR VENTS.
4. ALL LOW POINTS TO BE FITTED WITH DRAIN COCKS.
5. CHW & LTHW CONNECTIONS TO FCU's ARE 20# & 15# RESPECTIVELY UNLESS OTHERWISE NOTED.
6. FOR TYPICAL DETAILS REFER TO DRAWING No. 121/5192/M/027.
7. FOR DETAILS OF CORE AREAS DRAINAGE LAYOUTS REFER TO DRAWING Nos. 121/5192/M/038.
8. FOR DETAILS OF DRAINAGE, DOMESTIC WATER SERVICES & FIRE PROTECTION LAYOUTS REFER TO DRAWING Nos :-
   121/5192/FP005.
   121/5192/MP004.
   121/5192/P004.
9. THIS DRAWING SHOULD BE READ INCONJUNCTION WITH THE FOLLOWING SCHEMATIC DRAWING Nos :-
   121/5192/M031, M032, M033, M034 & M035
   121/5192/M028, M032, M033 & M038
10. REFER TO TYPICAL DETAILS DRAWING FOR CONDENSATE ENTRIES TO RISER & CONNECTIONS TO FAN COIL UNITS.
11. FOR DETAILS OF PIPEWORK PENETRATIONS TO RISER & THROUGH FIRE BARRIERS REFER TO DRG NO 121/5192/M/037
12. FOR FAN COIL MOUNTING DETAILS REFER TO DRG No.121/5192/M/027
13. FOR DETAILS OF HEAT METERS SEE DRG No 121/5192/M/037
14. FOR DETAILS OF REFLECTED CEILING SEE MICHAEL WILFORD & PARTNERS DRAWINGS.
15. FAN COIL UNITS TO BE MOUNTED AT 300mm TO BOTTOM OF UNIT EXCEPT WHERE INDICATED OTHERWISE.

    15mm# CONDENSE DRAINS FROM UNITS HAVE AN INVERT OF APPROX 300mm. 15# CONDENSE DRAINS THEN FALL BACK TO 35# CONDENSE DRAINS @ 10mm PER METRE.

LEGEND

(FWD) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO:
a) CENTRE LINE OF PIPEWORK
b) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK.

(L.173) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO:
a) BOTTOM OF INNER-DIA. OF PIPEWORK

IV	ISOLATING VALVE
LSV	LOCKSHIELD VALVE
DC	DRAIN COCK
FODRV	FIXED ORIFICE DOUBLE REGULATING VALVE
AV	AIR VENT
CHW	CHILLED WATER SERVICE
LTHW	LOW TEMPERATURE HOT WATER HEATING SERVICE
RE	RODDING EYE
RWP	RAIN WATER PIPE
AC	ACCESS DOND

10.2.99

FOR COMMENT

Rev	Date	Eng	Description	Appr
A	01/02/99	M.L.	RWP & SVP MODIFIED TO SUIT REVISED HOLE POSITIONS & SIZES.	
	20/11/98	M.L.	ISSUED FOR COMMENT	

Previous comments not actioned.

TRADE SIGN OFF

	SIGNATURE	DATE
M.A.C.E.		/ /
T. CLARKE		/ /
SYCH. SYSTEMS		/ /
DRAKE & SCULL		/ /

Drake & Scull

Discipline: HVAC - PIPEWORK

Drawn: HW | Scale: 1:50

Checked: MJdh | Date: NOV 1998

PROJECT: 5 - 7 CARLTON GARDENS

CLIENT: BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

TITLE: OFFICE HIGH LEVEL
LTHW,CHW,COND,SVP,RWP,BCWS
FIFTH FLOOR sht 1 OF 2

Drawing No: 121/5192/M/040 | Rev: A

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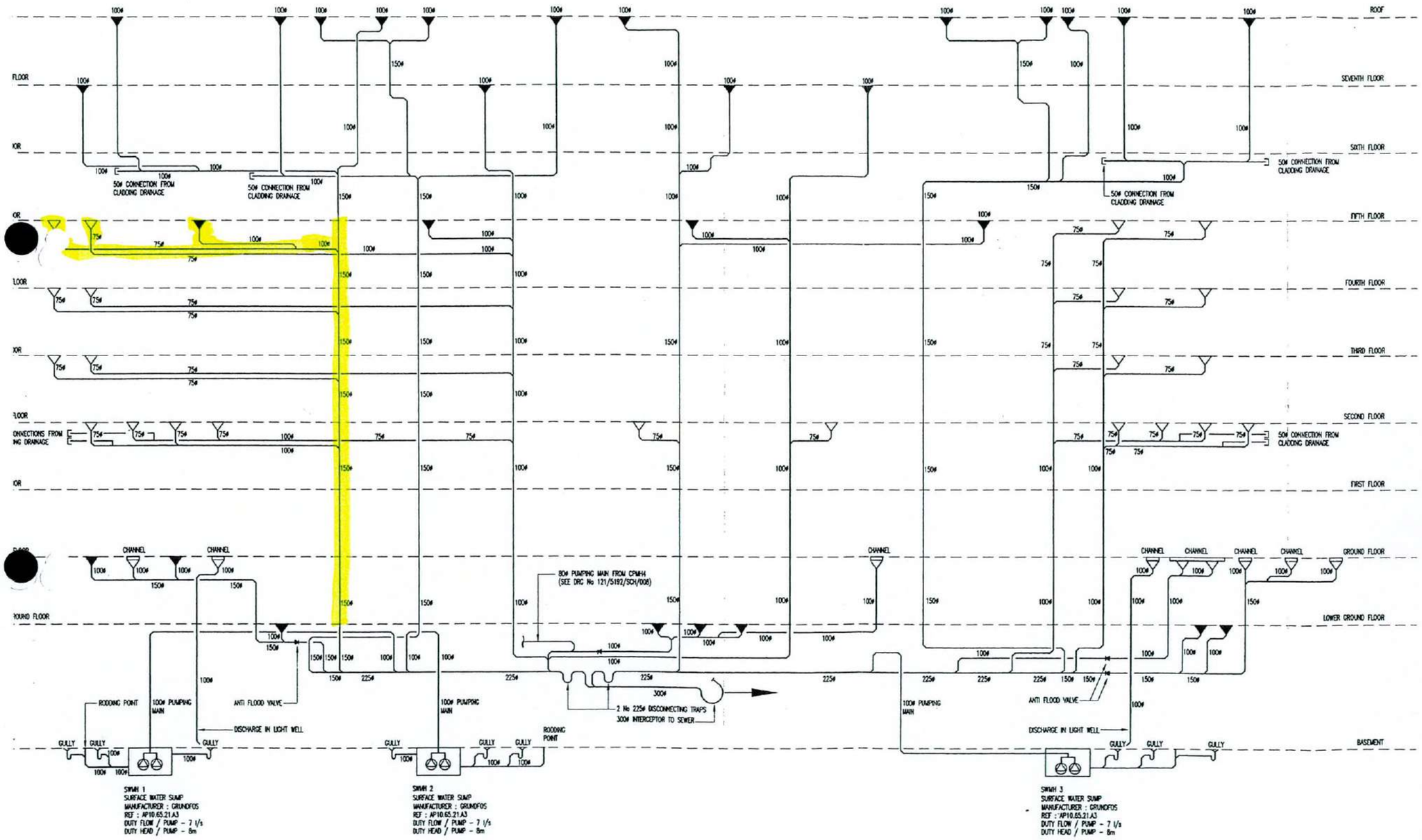
NOTES

LEGEND

- 75# RAINWATER OUTLET
- 50# RAINWATER OUTLET
- 100# RAINWATER OUTLET
- 100# DRAINAGE CHANNEL



OVE ARUP & PARTNERS BG2

For Construction

This information has been released for construction with the understanding that it has been checked by the originator. Arup accepts no responsibility for any changes made after the issue of this document.

Issued for	Initial	Date	Initial	Date
Arup				
Mech.				
Elect.				
F.P.				
Client				

Date issued: 16 SEP 1998 Job No. 14015

Notes/Revisions
1. Re-commenced
2. Revised
3. Provisional

A	Rm 6·10·98	
B	COMMENTS INCORPORATED	
C	RESUBMIT	

FOR COMMENT

Description	Date	Drawn	Checked
PRELIMINARY ISSUE			
PRELIMINARY ISSUE			
PRELIMINARY ISSUE			

CERTIFICATE OF MICROBIOLOGICAL EXAMINATION

Oakland Calvert Consultants Ltd.

Client	Estec Environmental		
Site	5-7 Carlton Gardens		
OCC Sample No		4797	4798
Client's Reference		A 3854	A 3854
Date Taken		25/03/99	25/03/99
Date Received		25/03/99	25/03/99
Sample Point		Basement Heat Rejection	5th floor East
Type of Plant		Chilled Water	LTHW
Total Viable Count 1 day @ 37°C	cfu/mL	1	45
Total Viable Count 3 days @ 22°C	cfu/mL	<1	320
Pseudomonas spp.	cfu/100mL	<1	<1
Ps type			
Bacillus spp	cfu/100mL	<1	<1
Microfungi	cfu/100mL	<1	<1
Flavobacterium	cfu/100mL	<1	<1
Nitrate reducing bacteria		Not detected	Not detected
Nitrite oxidising bacteria		Not detected	Not detected
Sulphate reducing bacteria		Not detected	Not detected

2

3

PREUSSAG
FIRE PROTECTION

CONTRACT ADVICE DOCUMENT 01539 /

FROM : W. FREEN
TO : J. STARKIN
RE : INSPECTION of 5TH FLOOR 1ST FIX.
DATE : 25.03.99

REASON FOR ISSUE

Design change	☐	Instigated by
Attendance request	☐	Attendance reqd by
Information request	☐	Information reqd by
Notification of delay	☐	Programme items affected
Other	☑	Specify INSPECTION of 5TH FLOOR 1ST FIX.

NOTE – WHEN ISSUED AS CONFIRMATION OF VERBAL INSTRUCTION, PROVIDE DETAILS OF WHO, WHEN, WHERE, WHAT AND WHY INSTRUCTION WAS ISSUED.

PLEASE FIND ATTACHED, INSPECTION REQUEST FOR 5TH FLOOR SPRINKLER SYSTEMS 1ST FIX DRG No's 020, 021, 031

WITH THE EXCEPTION OF PLUGS WHICH ARE CURRENTLY BEING FITTED.

Issuers Signature: Date: 25.03.99
Receivers Name: D Beverort Date: 25/3/99
Receivers Signature: Date: 25/3/99

1st (White) copy Addressee

PREUSSAG
FIRE PROTECTION

PFP. 023

PRESSURE TEST CERTIFICATE

(1) SPRINKLER SYSTEM PIPEWORK TO BS 5306 PT 2: 1990 (SECTION 9)
(2) HOSEREELS TO BS 5306 PT 1. 1976 (SECTION 18. ITEM 18.1)
(3) HYDRANT & DRY RISER TO BS 5306 PT 1.1976 (SECTION 9, 31 & 3.)

CONTRACT NO. 68210 DATE: 31.03.99
CLIENT: DRAKE & SCULL
LOCATION: 5/7 CARLTON GARDENS - FIFTH FLOOR
GRIDS 1 - 6.5. DRG. 020

MAINS STANDING PRESSURE:
TEST PRESSURE / H/R JET LENGTH 15 BAR. / -
DURATION OF TEST 1 HOUR.

WITNESSED BY: Jeff MDCG
PERFORMED BY: D. SKADE.

TEST PRESSURE GAUGE - RANGE 0 - 16 BAR.
SERIAL NO. 98/161106.
NEXT CALIBRATION DATE: 17.11.99

GUIDANCE NOTES FOR TESTS:-

1. (a) Wet pipe sprinkler systems hydraulically to not less than 15 Bar, or 1.5 times working pressure, whichever is the greater for not less than one hour.
   (b) Dry pipe sprinkler systems, pneumatically to not less than 2.5 Bar for not less than 24 hours.
   (c) Existing old systems to be tested to a pressure as agreed with client / insurers.

2. As a minimum, the water supply to hosereels should be such that when the two top most reels in a building are in use simultaneously, each will provide a jet of approximately 6m in length and will deliver not less than 0.4 litre / second (24 litres / minute).

3. Hydrant and Dry Riser static pressure test to 10 Bar for 15 minutes. Minimum flow test of 25 L/S (1500 l/min), sufficient to serve three lines of hose from three landing valves simultaneously. A minimum running pressure of 4 Bar and a maximum of 5 Bar should be maintained at each landing valve when any number, up to three, are fully opened.

Any faults disclosed shall be corrected and test repeated.

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

CONTRACT NUMBER : 68210

CONTRACT NAME : 5/7 CARLTON GARDENS

CUSTOMER : DRAKE & SCULL

SUPERVISOR: DATE:

DRAWING No. A0-68210-020 FLOOR FIFTH AREA GRIDS 1-6.5

QUALITY INSPECTION:- INSPECTION No PFP.QA.023

REMARKS:-

Sections 1, 2 & 3 Must be completed for each type of system. Then complete as required:
Sprinkler - 4, 5, 6, 7, 8, 9 & 15
Dry Riser & Hydrant - 10, 11, 12 & 15
First Aid Hosereel - 13, 9, 14 & 15

Item	Description	Yes/No N/A	Remarks
1 a)	Deviations from drawings (see marked up paper prints).		
b)	Effect deviations made to hydraulic calculations		
c)	Effect deviations made to positioning of inlets/outlets (dry riser/hydrant)		
2	PIPEWORK:- (above ground)		
a)	Is pipework laid to correct falls?		
b)	Have LPC welding techniques been used?		
c)	Is pipework to correct specification?		
d)	Fittings:-		
	i) Are fittings taper thread/have sweep fittings been used on dry riser?		
	ii) Have fittings been cleaned of excess jointing materials?		
	iii) Are fittings BS143, banded, galvanised? (Dry riser only)		
e)	Hangers:-		
	i) Are fittings to British Standard 5306: Part 1&2?		
	ii) Are hangers spaced correctly to British Standard 5306: Part 1&2?		
f)	Drain Valves:-		
	i) Are drain valves provided at trapped sections of pipework		
	ii) Locations? (see drgs)		
	iii) Are drain valves fitted with a plug?		
g)	Hydrostatic Test Carried Out:-		
	i) On:-		
	ii) Witnessed by:-		
h)	Is pipework earthed? Continuity clips on vict. joints etc.		
i)	Is pipework trace heated & lagged in areas subject to freezing?		

PREUSSAG
FIRE PROTECTION

DROP FLUSH CERTIFICATE

TO BE COMPLETED IN CONJUNCTION WITH PRESSURE TEST CERTIFICATE

CONTRACT NO: 68210 DATE: 31.03.99

CLIENT: DRAKE & SCULL

LOCATION: 5TH FLOOR 5/7 CARLTON GDNS.

WITNESSED BY: MACE.

WITNESSED BY: D.S.E

PERFORMED BY: D. SKADE.

COMMENTS:

ON DRAINING THE FLOORS ENSURE THE VALVE IS OPENED FULLY TO CREATE A DROP FLUSH.

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
3	PIPEWORK:- (below ground)	N/A	THIS PAGE EXCEPT
a)	Type of pipework & fittings?		(4) & (7)
b)	Are thrust blocks fitted at all changes of direction or where necessary?		
c)	Is pipework denso wrapped (or similar)/		
d)	Hydrostatic tests:-		
	i) On:-		
	ii) Witnessed by:-		
4	SPRINKLER HEADS:-		
a)	Type:-		
b)	Are deflectors parallel with slope of ceiling/roof?		
5	MULTIPLE JET CONTROLS:-		
a)	Type:-		
b)	Is control readily removable for replacement when necessary?		
c)	Have non return valves been fitted on 'dry' side of control (electrical rooms only)?		
6	OPEN WATERSPRAYS/SPRINKLERS:-		
a)	Has the correct angle and orifice size been fitted in its designated location?		
7	ZONAL VALVE ARRANGEMENTS:-		
a)	Is the zone isolating valve in the open/closed position?		
b)	Is the zone isolating valve fitted with a tamper switch with the signal relayed back to an alarm panel?		
c)	What type of water flow alarm switch is fitted and is signal relayed back to an alarm panel?		
d)	What time delay has been set up on the water flow alarm switch?		
8	INSTALLATION CONTROL VALVES:-		
a)	What size & type of alarm valve is fitted?		
b)	Is the isolating valve fitted with an open/shut needle indicator?		
c)	Is the isolating valve fitted with a tamper switch and is signal relayed back to an alarm panel?		
d)	Are all stop and isolating valves fitted with a strap and padlock?		
e)	Is water motor alarm gong functioning correctly?		
f)	Is an air compressor fitted correctly to Preussag standard?		
g)	Is an air compressor fitted correctly to Preussag standard?		
h)	Is correct flow meter installed & functioning correctly?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

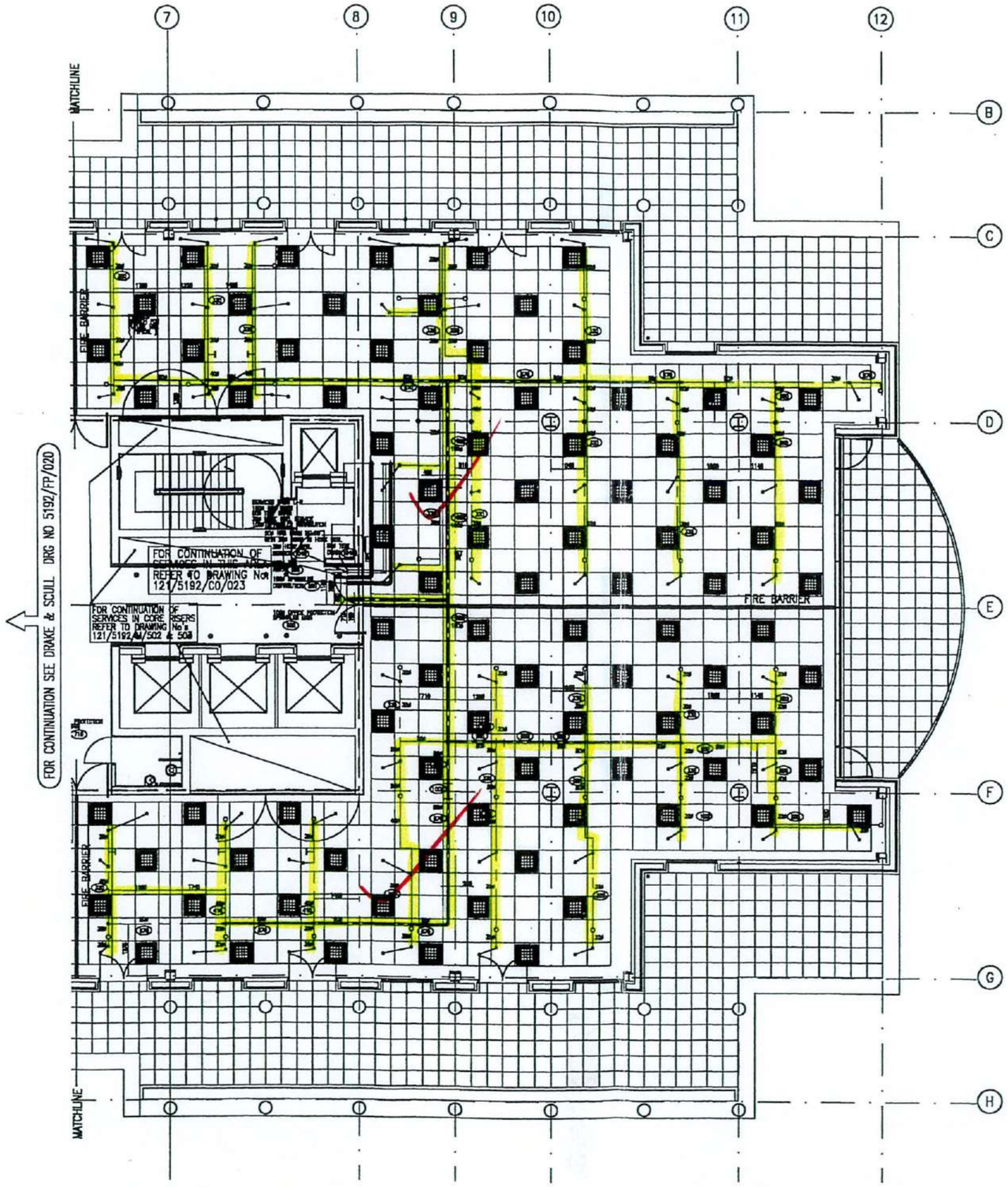
SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
9	WATER SUPPLIES:-	N/A	THIS PAGE
a)	Town main(s)		
b)	Water storage facility		
c)	Main Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
d)	Standby Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
e)	Pressure maintenance pump		
f)	Remote Alarm Panel		
g)	Initiation switch settings		
	i)		
	ii)		
	iii)		
h)	Proving Test Results (See table below)		
	MAIN PUMP	STANDBY PUMP	
	dm3 bars	dm3	bars
	dm3 bars	dm3	bars
	dm3 bars	dm3	bars
i)	Are pumps mechanically & electrically independent?		
10	INLET BOX:-		
a)	Is inlet box vertical/horizontal pattern?		
b)	Is inlet box securely anchored?		
11	HYDRANT OUTLET:-		
a)	Type?		
b)	Is outlet fitted in box? Type?		
c)	Is isolating valve closed/strapped & padlocked?		
d)	Is dust cap fitted?		
12	TEST AT HYDRANT:-		
a)	Is Towns Main water supply capable of supplying minimum of 25 L/S (1500 L/M)?		
b)	Method of testing?		
13	FIRST AID HOSEREELS:-		
a)	Type?		
b)	Manual/Automatic?		
c)	Distance of hose?		
d)	Type of nozzle?		
e)	Is isolating valve open/closed?		
14	TEST AT HOSEREELS:-		
a)	Is distance of jet correct: 6m / 24L/M		
b)	Is nozzle free from debris after test?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
15	OBSERVATIONS & COMMENTS:-		



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NOTES

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. THIS DRAWING IS PREPARED FOR CO-ORDINATION PURPOSES AND IS NOT TO BE USED FOR CONSTRUCTION UNTIL IT IS THE PROFESSIONAL CIVIL TO PRODUCE CONSTRUCTION RISK ASSESSMENT AND CALCULATIONS FOR SCHEME TEAM COMMENTS.
4. FOR TYPICAL DETAILS OF SPRINKLER HEADS REFER TO DRG No. 121/5192/DET
5. FOR DETAILS OF FIRE BARRIER PENETRATION REFER TO DRG No. 121/5192/DET
6. FOR TYPICAL POSITIONS OF SPRINKLER HEADS REFER TO REFLECTED CEILING DRAWING.
   ALL HEADS IN PLASTER BOARD SHOWN BEARING ON CHECKED.
7. FOR DETAILS OF REFLECTED CEILING BOX MOUNTED VALVES & PRESSURE SWITCHES.
8. NOT SHOWN PIPEWORK TO FALL 5mm PER METRE.
9. WORK TRAPPED ALL LOW POINTS TO BE INSTALLED WITH DRAIN COCKS, ACCESS TO WHICH SHALL BE FROM ADJACENT CEILING TILES.

LEGEND

[illegible] DISTANCE LINES FROM NORTH SIDE OF BOTTOM TO [illegible] CENTRE LINE OF PIPEWORK

FIT ALL PLATES & DOX FOR TEST

28/8/95

TRADE SIGN OFF

	SIGNATURE	DATE
M.A.C.E.		-/-/-
T. CLARKE		-/-/-
SYCH. SYSTEMS		-/-/-
DRAKE & SCULL		-/-/-

FOR COMMENT

Rev	Date	Dwg	Description	Appr
	28/11/95	M.L.	ISSUED FOR COMMENT	

Drake & Scull

Discipline: FIRE PROTECTION

Drawn: HW | Scale: 1:50

Checked | Date: NOV 1995

PROJECT: 5 – 7 CARLTON GARDENS

CLIENT: BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

TITLE: OFFICE HIGH LEVEL
FIRE PROTECTION SERVICES
FIFTH FLOOR sht 2 OF 2

Drawing No: 121/5192/FP/021

Rev

PREUSSAG
FIRE PROTECTION

PFP. 024

PRESSURE TEST CERTIFICATE

(1) SPRINKLER SYSTEM PIPEWORK TO BS 5306 PT 2: 1990 (SECTION 10)
(2) HOSEREELS TO BS 5306 PT 1: 1976 (SECTION 18. ITEM 18.1)
(3) HYDRANT & DRY RISER TO BS 5306 PT 1:1976 (SECTION 9, 31 & 32)

CONTRACT NO. 68210 DATE: 31.03.99.
CLIENT DRAKE & SCULL
LOCATION: 5/7 CARLTON GARDENS - FIFTH FLOOR
GRIDS. 6-5-12. DRG. 020

MAINS STANDING PRESSURE:
TEST PRESSURE / H/R JET LENGTH 15 BAR. / —
DURATION OF TEST 1 HOUR.

WITNESSED BY: S. Jeff (MDCS.)
PERFORMED BY: D. SKADE.

TEST PRESSURE GAUGE - RANGE: 0 - 16 BAR.
SERIAL NO: 98/161106
NEXT CALIBRATION DATE: 17.11.99.

GUIDANCE NOTES FOR TESTS:-

1. (a) Wet pipe sprinkler systems hydraulically to not less than 15 Bar, or 1.5 times working pressure, whichever is the greater for not less than one hour.
   (b) Dry pipe sprinkler systems, pneumatically to not less than 2.5 Bar for not less than 24 hours.
   (c) Existing old systems to be tested to a pressure as agreed with client / insurers.

2. As a minimum, the water supply to hosereels should be such that when the two top most reels in a building are in use simultaneously, each will provide a jet of approximately 6m in length and will deliver not less than 0.4 litre / second (24 litres / minute).

3. Hydrant and Dry Riser static pressure test to 10 Bar for 15 minutes. Minimum flow test of 25 L/S (1500 l/min), sufficient to serve three lines of hose from three landing valves simultaneously. A minimum running pressure of 4 Bar and a maximum of 5 Bar should be maintained at each landing valve when any number, up to three, are fully opened.

Any faults disclosed shall be corrected and test repeated.

GRA21S 10.11.94 (Rev 02)

PREUSSAG
FIRE PROTECTION

DROP FLUSH CERTIFICATE

TO BE COMPLETED IN CONJUNCTION WITH PRESSURE TEST CERTIFICATE

CONTRACT NO: 68210 DATE: 31.03.99

CLIENT: DRAKE & SCULL

LOCATION: 5TH FLOOR CARLTON GDNS.

WITNESSED BY: MACE.

WITNESSED BY: D.S.E.

PERFORMED BY: D. SKADE.

COMMENTS:

ON DRAINING THE FLOORS ENSURE THE VALVE IS OPENED FULLY TO CREATE A DROP FLUSH.

FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

CONTRACT NUMBER : 68210

CONTRACT NAME : 5/7 CARLTON GARDENS

CUSTOMER : DRAKE & SCULL

SUPERVISOR: ..... DATE: .....

DRAWING No. A0-68210-~~030~~ 021 FLOOR FIFTH AREA GRIDS 6-5-12

QUALITY INSPECTION:- ..... INSPECTION No P.F.P.Q.A. ~~024~~ 02H

REMARKS:-

Sections 1, 2 & 3 Must be completed for each type of system. Then complete as required:
Sprinkler - 4, 5, 6, 7, 8, 9 & 15
Dry Riser & Hydrant - 10, 11, 12 & 15
First Aid Hosereel - 13, 9, 14 & 15

Item	Description	Yes/No N/A	Remarks
1 a)	Deviations from drawings (see marked up paper prints).		
b)	Effect deviations made to hydraulic calculations		
c)	Effect deviations made to positioning of inlets/outlets (dry riser/hydrant)		
2	PIPEWORK:- (above ground)		
a)	Is pipework laid to correct falls?		
b)	Have LPC welding techniques been used?		
c)	Is pipework to correct specification?		
d)	Fittings:-		
	i) Are fittings taper thread/have sweep fittings been used on dry riser?		
	ii) Have fittings been cleaned of excess jointing materials?		
	iii) Are fittings BS143, banded, galvanised? (Dry riser only)		
e)	Hangers:-		
	i) Are fittings to British Standard 5306: Part 1&2?		
	ii) Are hangers spaced correctly to British Standard 5306: Part 1&2?		
f)	Drain Valves:-		
	i) Are drain valves provided at trapped sections of pipework		
	ii) Locations? (see drgs)		
	iii) Are drain valves fitted with a plug?		
g)	Hydrostatic Test Carried Out:-		
	i) On:-		
	ii) Witnessed by:-		
h)	Is pipework earthed? Continuity clips on vict. joints etc.		
i)	Is pipework trace heated & lagged in areas subject to freezing?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
3	PIPEWORK:- (below ground)	N/A	THIS PAGE EXCEPT
a)	Type of pipework & fittings?		
b)	Are thrust blocks fitted at all changes of direction or where necessary?		(4) & (7)
c)	Is pipework denso wrapped (or similar)/		
d)	Hydrostatic tests:-		
	i) On:-		
	ii) Witnessed by:-		
4	SPRINKLER HEADS:-		
a)	Type:-		
b)	Are deflectors parallel with slope of ceiling/roof?		
5	MULTIPLE JET CONTROLS:-		
a)	Type:-		
b)	Is control readily removable for replacement when necessary?		
c)	Have non return valves been fitted on 'dry' side of control (electrical rooms only)?		
6	OPEN WATERSPRAYS/SPRINKLERS:-		
a)	Has the correct angle and orifice size been fitted in its designated location?		
7	ZONAL VALVE ARRANGEMENTS:-		
a)	Is the zone isolating valve in the open/closed position?		
b)	Is the zone isolating valve fitted with a tamper switch with the signal relayed back to an alarm panel?		
c)	What type of water flow alarm switch is fitted and is signal relayed back to an alarm panel?		
d)	What time delay has been set up on the water flow alarm switch?		
8	INSTALLATION CONTROL VALVES:-		
a)	What size & type of alarm valve is fitted?		
b)	Is the isolating valve fitted with an open/shut needle indicator?		
c)	Is the isolating valve fitted with a tamper switch and is signal relayed back to an alarm panel?		
d)	Are all stop and isolating valves fitted with a strap and padlock?		
e)	Is water motor alarm gong functioning correctly?		
f)	Is an air compressor fitted correctly to Preussag standard?		
g)	Is an air compressor fitted correctly to Preussag standard?		
h)	Is correct flow meter installed & functioning correctly?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
9	WATER SUPPLIES:-	N/A	THIS PAGE
a)	Town main(s)		
b)	Water storage facility		
c)	Main Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
d)	Standby Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
e)	Pressure maintenance pump		
f)	Remote Alarm Panel		
g)	Initiation switch settings		
	i)		
	ii)		
	iii)		
h)	Proving Test Results (See table below)		
	MAIN PUMP	STANDBY PUMP	
	dm3 bars	dm3	bars
	dm3 bars	dm3	bars
	dm3 bars	dm3	bars
i)	Are pumps mechanically & electrically independent?		
10	INLET BOX:-		
a)	Is inlet box vertical/horizontal pattern?		
b)	Is inlet box securely anchored?		
11	HYDRANT OUTLET:-		
a)	Type?		
b)	Is outlet fitted in box? Type?		
c)	Is isolating valve closed/strapped & padlocked?		
d)	Is dust cap fitted?		
12	TEST AT HYDRANT:-		
a)	Is Towns Main water supply capable of supplying minimum of 25 L/S (1500 L/M)?		
b)	Method of testing?		
13	FIRST AID HOSEREELS:-		
a)	Type?		
b)	Manual/Automatic?		
c)	Distance of hose?		
d)	Type of nozzle?		
e)	Is isolating valve open/closed?		
14	TEST AT HOSEREELS:-		
a)	Is distance of jet correct: 6m / 24L/M		
b)	Is nozzle free from debris after test?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
15	OBSERVATIONS & COMMENTS:-		

S2

PREUSSAG
FIRE PROTECTION

PFP. 025

PRESSURE TEST CERTIFICATE

(1) SPRINKLER SYSTEM PIPEWORK TO BS 5306 PT 2: 1990 (SECTION 10)
(2) HOSEREELS TO BS 5306 PT 1: 1976 (SECTION 18. ITEM 18.1)
(3) HYDRANT & DRY RISER TO BS 5306 PT 1:1976 (SECTION 9, 31 & 32)

CONTRACT NO. 68210 DATE: 01.04.99
CLIENT DRAKE & SCULL
LOCATION: 5/7 CARLTON GARDENS - FIFTH FLOOR CORE. DRG. 031

MAINS STANDING PRESSURE:
TEST PRESSURE / H/R JET LENGTH 15 BAR / —
DURATION OF TEST 1 HOUR.

WITNESSED BY: S. JOLD (MDGE)
PERFORMED BY: D. SKADE.

TEST PRESSURE GAUGE - RANGE: 0 - 16 BAR.
SERIAL NO: 98/161106.
NEXT CALIBRATION DATE: 17.11.99

GUIDANCE NOTES FOR TESTS:-

1. (a) Wet pipe sprinkler systems hydraulically to not less than 15 Bar, or 1.5 times working pressure, whichever is the greater for not less than one hour.
   (b) Dry pipe sprinkler systems, pneumatically to not less than 2.5 Bar for not less than 24 hours.
   (c) Existing old systems to be tested to a pressure as agreed with client / insurers.

2. As a minimum, the water supply to hosereels should be such that when the two top most reels in a building are in use simultaneously, each will provide a jet of approximately 6m in length and will deliver not less than 0.4 litre / second (24 litres / minute).

3. Hydrant and Dry Riser static pressure test to 10 Bar for 15 minutes. Minimum flow test of 25 L/S (1500 l/min), sufficient to serve three lines of hose from three landing valves simultaneously. A minimum running pressure of 4 Bar and a maximum of 5 Bar should be maintained at each landing valve when any number, up to three, are fully opened.

Any faults disclosed shall be corrected and test repeated.

GRA218 10.11.94 (Rev 02)

PREUSSAG
FIRE PROTECTION

DROP FLUSH CERTIFICATE

TO BE COMPLETED IN CONJUNCTION WITH PRESSURE TEST CERTIFICATE

CONTRACT NO: 68210 DATE: 01.04.99.

CLIENT: DRAKE & SCULL

LOCATION: 5TH Floor 5/7 CARLTON GDNS.

WITNESSED BY: MACE.

WITNESSED BY: D.S.E

PERFORMED BY: D. SKADE

COMMENTS:

ON DRAINING THE FLOORS ENSURE THE VALVE IS OPENED FULLY TO CREATE A DROP FLUSH.

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

CONTRACT NUMBER : 68210

CONTRACT NAME : 5/7 CARLTON GARDENS

CUSTOMER : DRAKE & SCULL

SUPERVISOR: DATE:

DRAWING No. A0-68210-031 FLOOR FIFTH AREA CORE

QUALITY INSPECTION:- INSPECTION No PFP.QA.025

REMARKS:-

Sections 1, 2 & 3 Must be completed for each type of system. Then complete as required:
Sprinkler - 4, 5, 6, 7, 8, 9 & 15
Dry Riser & Hydrant - 10, 11, 12 & 15
First Aid Hosereel - 13, 9, 14 & 15

Item	Description	Yes/No N/A	Remarks
1 a)	Deviations from drawings (see marked up paper prints).		
b)	Effect deviations made to hydraulic calculations		
c)	Effect deviations made to positioning of inlets/outlets (dry riser/hydrant)		
2	PIPEWORK:- (above ground)		
a)	Is pipework laid to correct falls?		
b)	Have LPC welding techniques been used?		
c)	Is pipework to correct specification?		
d)	Fittings:-		
	i) Are fittings taper thread/have sweep fittings been used on dry riser?		
	ii) Have fittings been cleaned of excess jointing materials?		
	iii) Are fittings BS143, banded, galvanised? (Dry riser only)		
e)	Hangers:-		
	i) Are fittings to British Standard 5306: Part 1&2?		
	ii) Are hangers spaced correctly to British Standard 5306: Part 1&2?		
f)	Drain Valves:-		
	i) Are drain valves provided at trapped sections of pipework		
	ii) Locations? (see drgs)		
	iii) Are drain valves fitted with a plug?		
g)	Hydrostatic Test Carried Out:-		
	i) On:-		
	ii) Witnessed by:-		
h)	Is pipework earthed? Continuity clips on vict. joints etc.		
i)	Is pipework trace heated & lagged in areas subject to freezing?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
3	PIPEWORK:- (below ground)	N/A	THIS PAGE EXCEPT (4) & (7)
a)	Type of pipework & fittings?		
b)	Are thrust blocks fitted at all changes of direction or where necessary?		
c)	Is pipework denso wrapped (or similar)/		
d)	Hydrostatic tests:-		
	i) On:-		
	ii) Witnessed by:-		
4	SPRINKLER HEADS:-		
a)	Type:-		
b)	Are deflectors parallel with slope of ceiling/roof?		
5	MULTIPLE JET CONTROLS:-		
a)	Type:-		
b)	Is control readily removable for replacement when necessary?		
c)	Have non return valves been fitted on 'dry' side of control (electrical rooms only)?		
6	OPEN WATERSPRAYS/SPRINKLERS:-		
a)	Has the correct angle and orifice size been fitted in its designated location?		
7	ZONAL VALVE ARRANGEMENTS:-		
a)	Is the zone isolating valve in the open/closed position?		
b)	Is the zone isolating valve fitted with a tamper switch with the signal relayed back to an alarm panel?		
c)	What type of water flow alarm switch is fitted and is signal relayed back to an alarm panel?		
d)	What time delay has been set up on the water flow alarm switch?		
8	INSTALLATION CONTROL VALVES:-		
a)	What size & type of alarm valve is fitted?		
b)	Is the isolating valve fitted with an open/shut needle indicator?		
c)	Is the isolating valve fitted with a tamper switch and is signal relayed back to an alarm panel?		
d)	Are all stop and isolating valves fitted with a strap and padlock?		
e)	Is water motor alarm gong functioning correctly?		
f)	Is an air compressor fitted correctly to Preussag standard?		
g)	Is an air compressor fitted correctly to Preussag standard?		
h)	Is correct flow meter installed & functioning correctly?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
9	WATER SUPPLIES:-	N/A	THIS PAGE
a)	Town main(s)		
b)	Water storage facility		
c)	Main Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
d)	Standby Fire Pump		
	Is pump fully automatic/automatic on - manual off?		
e)	Pressure maintenance pump		
f)	Remote Alarm Panel		
g)	Initiation switch settings		
	i)		
	ii)		
	iii)		
h)	Proving Test Results (See table below)		
	MAIN PUMP	STANDBY PUMP	
	dm3 bars	dm3 bars	
	dm3 bars	dm3 bars	
	dm3 bars	dm3 bars	
i)	Are pumps mechanically & electrically independent?		
10	INLET BOX:-		
a)	Is inlet box vertical/horizontal pattern?		
b)	Is inlet box securely anchored?		
11	HYDRANT OUTLET:-		
a)	Type?		
b)	Is outlet fitted in box? Type?		
c)	Is isolating valve closed/strapped & padlocked?		
d)	Is dust cap fitted?		
12	TEST AT HYDRANT:-		
a)	Is Towns Main water supply capable of supplying minimum of 25 L/S (1500 L/M)?		
b)	Method of testing?		
13	FIRST AID HOSEREELS:-		
a)	Type?		
b)	Manual/Automatic?		
c)	Distance of hose?		
d)	Type of nozzle?		
e)	Is isolating valve open/closed?		
14	TEST AT HOSEREELS:-		
a)	Is distance of jet correct: 6m / 24L/M		
b)	Is nozzle free from debris after test?		

PREUSSAG
FIRE PROTECTION
Preussag Fire Protection Ltd.,
Mersey House, 220 Stockport Road,
Cheadle Heath, Stockport. SK3 0LX

SITE WORKS COMPLETION REPORT

Item	Description	Yes/No N/A	Remarks
15	OBSERVATIONS & COMMENTS:-		

4

F E COLE & SON LTD

PRESSURE TEST SHEET

*Test No. 35

NAME OF JOB 5 - 7 Carlton Gardens, London

(Ref. Drawing Reference) Core Area Fifth Floor

(Ref. Physical details)

(a) Section of the ductwork to be tested* Toilet Extract

(b) Surface area of duct under test† 13m²

(c) Test static pressure 500 pascals

(d) Leakage factor 1.53 litres/sec/m²

(e) Maximum Permitted Leakage (b x d) 19.89 litres/sec.

(Test particulars)

(a) Test static pressure reading 500 Pa

(b) Type of flow measuring device HOT D

(c) Range of measurement of flow measuring device 0 - 2000

(d) Reading of flow measuring device 100

(e) Expected air flow leakage rate 20 L/S

(f) Duration of test (normally 15 minutes) 15 MINS

(Date) 6/3/99 Carried out by [illegible] Witnessed by [illegible]

Length metres	Width and depth or diameter millimetres	Periphery metres	Area square metres
	2500	785	2.355
	2000	628	1.884
	1800	565	1.695
	1500	471	1.413
	1000	314	5.338
		†TOTAL	12.685

F E COLE & SON LTD

PRESSURE TEST SHEET

*Test No. 34

NAME OF JOB 5 - 7 Carlton Gardens, London

Building Reference Core Area Fifth Floor

Part 1 - Physical details

a Section of ductwork to be tested* Toilet Supply

b Surface area of duct under test† 12m²

c Test static pressure 500 pascals

d Leakage factor 1.53 litres/sec/m²

e Maximum Permitted Leakage (b x d) 18.36 litres/sec.

Part 2 - Test particulars

a Duct static pressure reading 500PC

b Type of flow measuring device HOLT TYPE 'D'

c Range of measurement of flow measuring device 0 TO 2000PC

d Reading of flow measuring device 10 Pa

e Interpreted air flow leakage rate 20 LS

f Duration of test (normally 15 minutes) 15 MINS

Date of test 7/4/99 Carried out by A. HARRIS Witnessed by [signature]

Length	Width and depth or diameter	Periphery	Area
metres	millimetres	metres	square metres
4	250Ø	785	3.14
5	180Ø	565	2.825
3	150Ø	471	1.413
14	100Ø	314	4.396
Total length of duct measured		TOTAL	11.774

F E COLE & SON LTD

PRESSURE TEST SHEET

*Test No. 34

NAME OF JOB 5 - 7 Carlton Gardens, London

Building Reference Core Area Fifth Floor

Part 1 - Physical details

a Section of ductwork to be tested* Toilet Supply

b Surface area of duct under test† 12m²

c Test static pressure 500 pascals

d Leakage factor 1.53 litres/sec/m²

e Maximum Permitted Leakage (b x d) 18.36 litres/sec.

Part 2 - Test particulars

a Duct static pressure reading 500 PC

b Type of flow measuring device HOLT TYPE 'D'

c Range of measurement of flow measuring device 0 TO 2000 PC

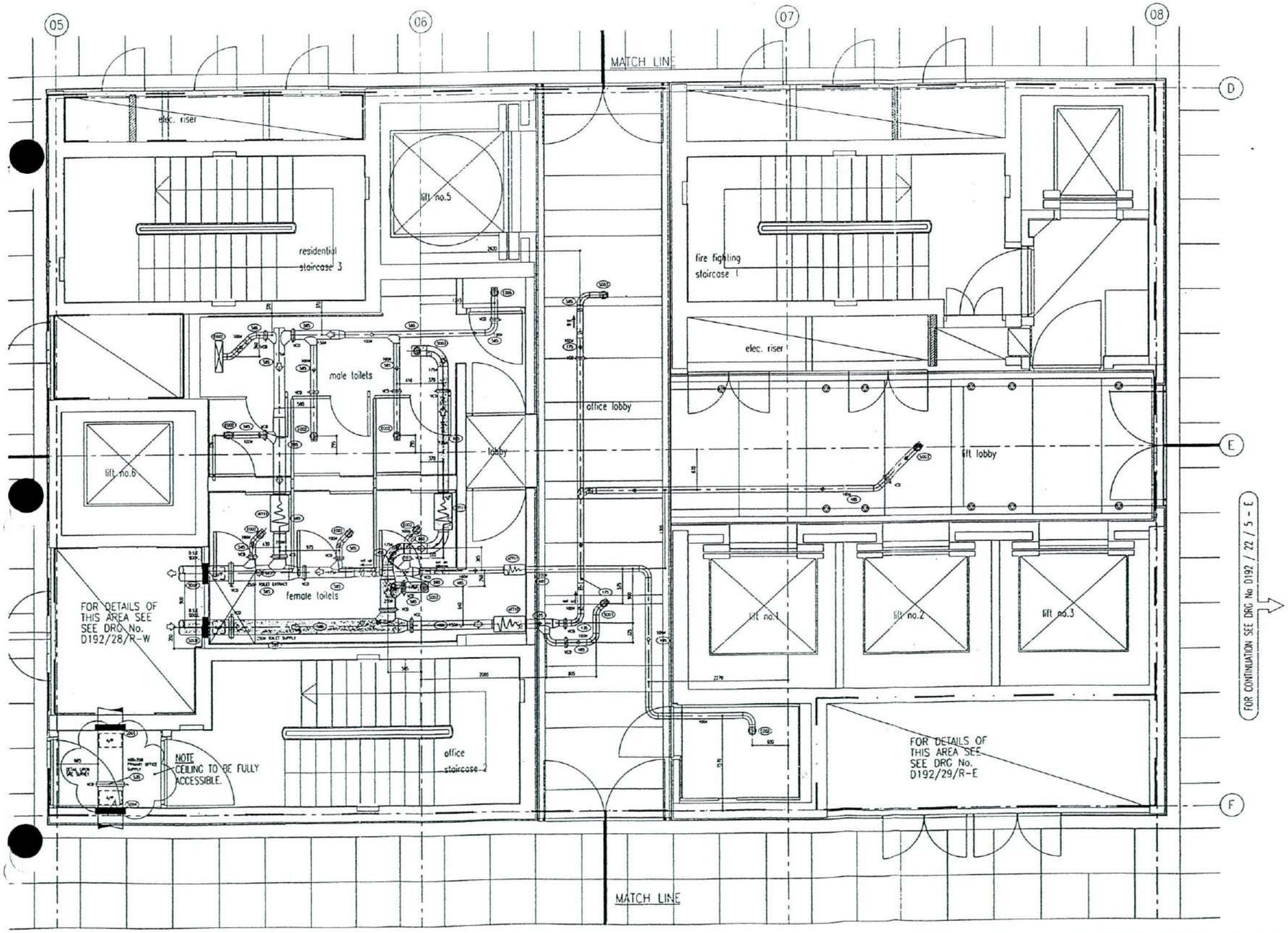
d Reading of flow measuring device 10 pa

e Interpreted air flow leakage rate 20 L/S

f Duration of test (normally 15 minutes) 15 MINS

Date of test 7/4/99 Carried out by A. HARRIS Witnessed by [signature]

Length	Width and depth or diameter	Periphery	Area
metres	millimetres	metres	square metres
4	250Ø	785	3.14
5	180Ø	565	2.825
3	150Ø	471	1.413
14	100Ø	314	4.396
Total length of duct under test		TOTAL	11.774



LEGEND

(A.N) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO
a) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK

SD SMOKE DAMPER

GRILLE SCHEDULE

GRILLE REF	SIZE	No.
SG02 LG	150W	6
SG03 LG	150W	5

GRILLE MANUFACTURED BY TROX LTD.

ATTENUATOR SCHEDULE

REF	SIZE
AT 10	200W x 800L
AT 11	100W x 800L

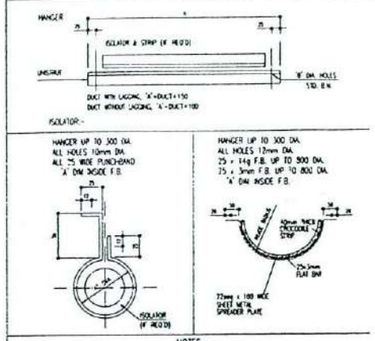
ATTENUATORS MANUFACTURED BY WATERLOO Ltd

SPECIFICATION

DUCTWORK SYSTEM	CONSTRUCTION SPECIFICATION	LEAKAGE TEST SPECIFICATION

LEGEND

AD = ACCESS DOOR
BE = BLANKING
FD = FIRE DAMPER
FOT = FLAT ON TOP
FOB = FLAT ON BOTTOM
IB = IRIS DAMPER
MD = MOTORISED DAMPER
SD = SMOKE DAMPER
TSD = TOP SET DOWN
TSU = TOP SET UP
VCD = VOLUME CONTROL DAMPER
BND = BEND 90 DEG
RED = CONCENTRIC REDUCER
RE = ECCENTRIC REDUCER
TCC = CONICAL BRANCH CONNECTION
TC = TEE CONICAL
PTSD = PRESSED SADDLE
MF = MALE COUPLING
FF = FEMALE COUPLING
CAP = CAP END (BULLETNOSE)
SBD = SINGLE BLADE VOLUME DAMPER
- - - - SUPPORT LOCATION



NOTES

1. ALL BEND 100mm RADIUS WITH 50mm LEAD-IN, UNO.
2. ALL RECTANGULAR FITTING TO HAVE 150mm LEAD-IN / THOAT, UNO.
3. ALL DATUMS NOTED ARE TO U/SIDE OF RECT. OR SPIRAL DUCTS FROM SOFFIT, UNO.
4. ALL STANDARD RECTANGULAR DUCTWORK LENGTHS ARE 1510 lg, UNO.
5. ALL GRILLE CONNECTIONS ARE TO BE MADE USING APPROX. 300mm OF FLEX.
6. ACCESS PANELS WILL BE REQUIRED WITHIN TOILET CEILING FOR VCD ACCESS.

REFERENCE DRAWINGS

DRAWING NUMBER	REV

DRAWING STATUS

- PRELIMINARY ISSUE ☐
- FOR APPROVAL ■
- FOR RE-APPROVAL ☐
- FOR CO-ORDINATION ☐
- FOR CONSTRUCTION /MANF. ☐
- RECORD DRAWING ☐

LEVELS

- FINISHED FLOOR =
- LOCAL DATUM =
- UNDERSIDE OF FALSE CEILING =

REV	BY	DESCRIPTION	DATE	CHKD.
A	DB	ISSUED FOR APPROVAL/COMMENTS/MANUFACTURE	9/12/98	

REVISION

F.E.COLE & SON LTD.
HEATING, VENTILATING & MECHANICAL SERVICES
76 RICHMOND STREET, COVENTRY CV2 4JB. TELEPHONE (01203)635586/FAX (01203)635545

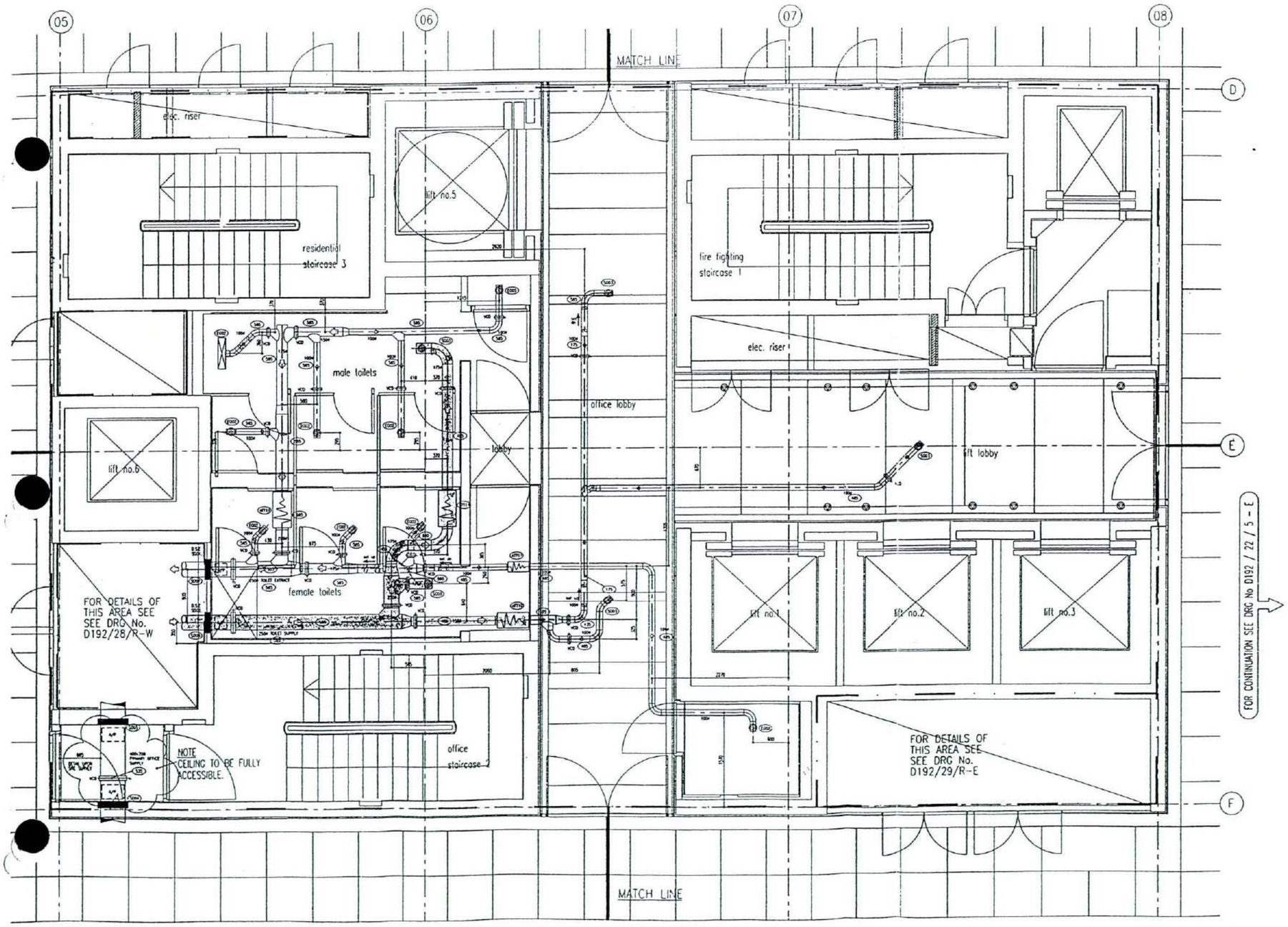
CLIENT:- DRAKE & SCULL LTD

CONTRACT:- 5-7 CARLTON GARDENS LONDON

TITLE:- FIFTH FLOOR - CORE AREA DUCTWORK LAYOUT

DRAWN BY:- D.Bannister | SCALE:- 1:25 | DATE:- 9/12/98

DRAWING NUMBER:- D192 / 23 / 5 - C rev A



LEGEND

(450) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO
a) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK

SD SMOKE DAMPER

GRILLE SCHEDULE

GRILLE REF	SIZE	No.
SD08 LC	150Ø	8
SD03 LC	150Ø	5

GRILLE MANUFACTURED BY TROX LTD.

ATTENUATOR SCHEDULE

REF	SIZE
AT 10	200Ø x 800L
AT 11	150Ø x 800L

ATTENUATORS MANUFACTURED BY WATERLOO LTD

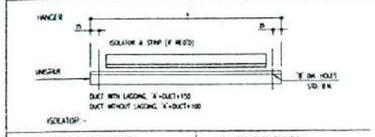
SPECIFICATION

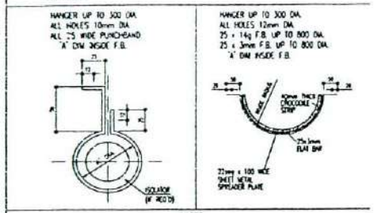
DUCTWORK SYSTEM	CONSTRUCTION SPECIFICATION	LEAKAGE TEST SPECIFICATION

LEGEND

AD = ACCESS DOOR
BE = BLANKED END
FD = FIRE DAMPER
FOT = FLAT ON TOP
FOB = FLAT ON BOTTOM
B = MVS DAMPER
MD = MOTORISED DAMPER
SD = SMOKE DAMPER
TSD = TOP SET DOWN
TSU = TOP SET UP
VCD = VOLUME CONTROL DAMPER

BMD = BEND 90 DEG
RCL = CONCENTRIC REDUCER
AL = ECCENTRIC REDUCER
TSPC = CONICAL BRANCH CONNECTOR
R = 112 CONICAL
PTSD = PRESSED SADDLE
MF = MALE COUPLING
FF = FEMALE COUPLING
EW = CAP END (WELDED TYPE)
SBD = SHEET BLADE VOLUME DAMPER
---- = SUPPORT LOCATOR





NOTES

1. ALL BEND 100mm RADIUS WITH 50mm LEAD-IN, UNO.
2. ALL RECTANGULAR FITTING TO HAVE 150mm LEAD-IN / THROAT, UNO.
3. ALL DATUMS NOTED ARE TO U/SIDE OF RECT. OR SPIRAL DUCTS FROM SOFFIT, UNO.
4. ALL STANDARD RECTANGULAR DUCTWORK LENGTHS ARE 1510 lg, UNO.
5. ALL GRILLE CONNECTIONS ARE TO BE MADE USING APPROX. 300mm OF FLEX.
6. ACCESS PANELES WILL BE REQUIRED WITHIN TOILET CEILING FOR VCD ACCESS.

REFERENCE DRAWINGS

DRAWING NUMBER	REV

DRAWING STATUS

- PRELIMINARY ISSUE ☐
- FOR APPROVAL ■
- FOR RE-APPROVAL ☐
- FOR CO-ORDINATION ☐
- FOR CONSTRUCTION /MANF. ☐
- RECORD DRAWING ☐

LEVELS

FINISHED FLOOR =
LOCAL DATUM =
UNDERSIDE OF FALSE CEILING =

REV	BY	DESCRIPTION	DATE	CHKD
A	DB	ISSUED FOR APPROVAL/COMMENTS/MANUFACTURE	9/12/98	

REVISION

F.E.COLE & SON LTD.
HEATING, VENTILATING & MECHANICAL SERVICES
75 RICHMOND STREET, COVENTRY CV2 4JB. TELEPHONE (01203)625586/FAX (01203)635545
HVCA MEMBER
DIRECTORS: M. TONE, M. COLE & D. COLE. REGISTERED IN ENGLAND NO. 1000000. REGISTERED OFFICE AS ABOVE

CLIENT:- DRAKE & SCULL LTD

CONTRACT:- 5-7 CARLTON GARDENS LONDON

TITLE:- FIFTH FLOOR - CORE AREA DUCTWORK LAYOUT

DRAWN BY:- D.Bannister | SCALE:- 1:25 | DATE:- 9/12/95

DRAWING NUMBER:- D192 / 23 / 5 - C rev A

F E COLE & SON LTD

PRESSURE TEST SHEET

*Test No. 44

NAME OF JOB 5 - 7 Carlton Gardens, London

Building Reference Fifth Floor

Part 1 - Physical details

a Section of ductwork to be tested* North West

b Surface area of duct under test† 41m²

c Test static pressure 500 pascals

d Leakage factor 1.53 litres/sec/m²

e Maximum Permitted Leakage (b x d) 62.73 litres/sec.

Part 2 - Test particulars

a Duct static pressure reading 500 pa

b Type of flow measuring device HOCT "D"

c Range of measurement of flow measuring device 0 - 2000 pa

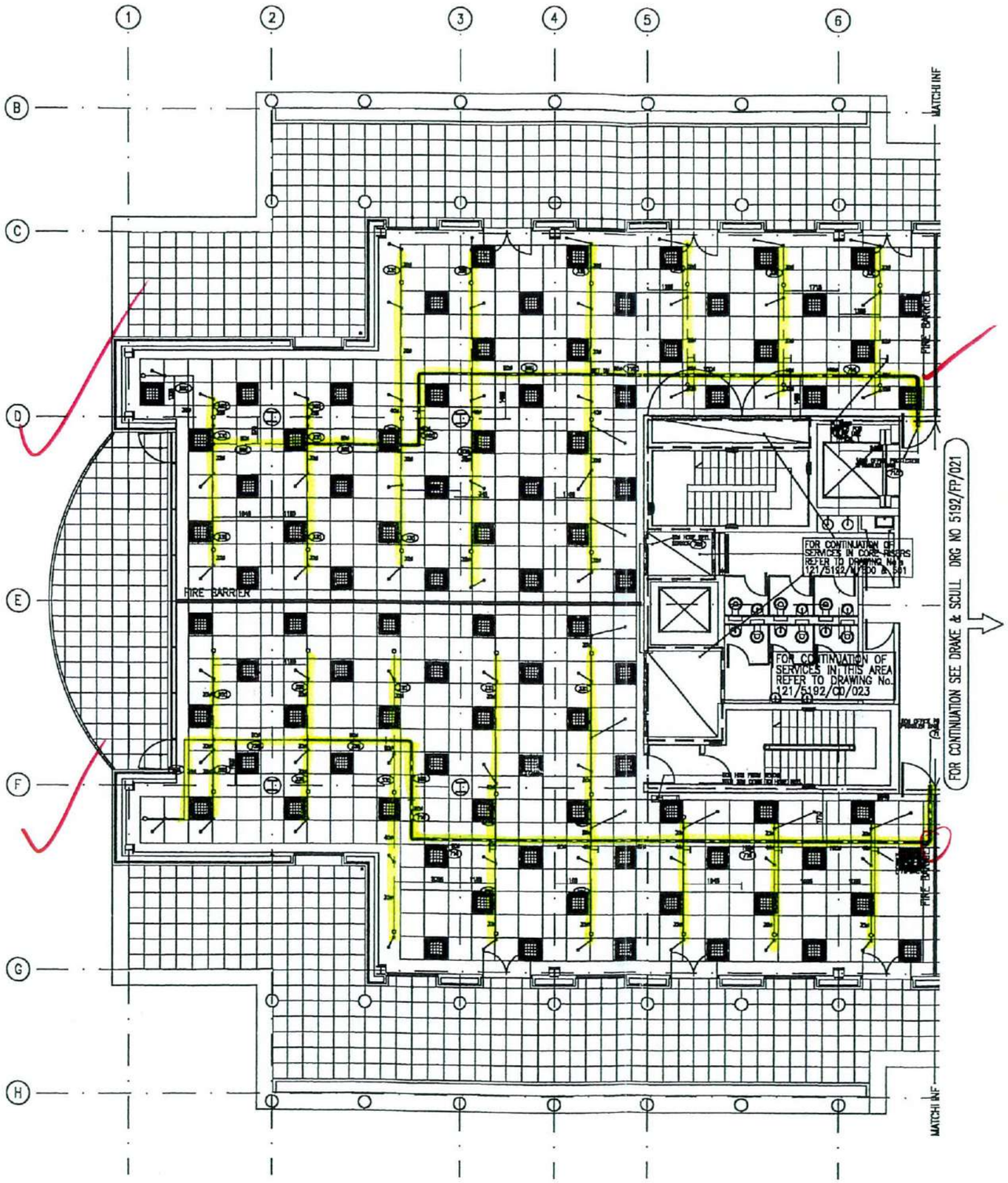
d Reading of flow measuring device 30 pa

e Interpreted air flow leakage rate 55 LLS

f Duration of test (normally 15 minutes) 15 MINUTES

Date of test 12.3.99. Carried out by [signature] Witnessed by [signature] CHLI.

Length	Width and depth or diameter	Periphery	Area
metres	millimetres	metres	square metres
6	600 x 200	1600	9.6
2	400 x 200	1200	2.4
9	200 x 200	800	7.2
5	200 x 150	700	3.5
5	150 x 150	600	3.0
32	150Ø	471	15.072
		†TOTAL	40.772



FIT ALL PUMPS & DC's

Mitch 25/3/95

TRADE SIGN OFF	SIGNATURE	DATE
M.A.C.E.		--/--/--
T. CLARKE		--/--/--
SYCH. SYSTEMS		--/--/--
DRAKE & SCULL		--/--/--

THIS DRAWING IS COPYRIGHT AND MAY NOT BE REPRODUCED OR MADE USE OF UNLESS EXPRESSLY ISSUED BY DRAKE AND SCULL ENGINEERING LIMITED ©

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. THIS DRAWING IS TYPICAL FOR CONSTRUCTION PURPOSES AND IS TO BE READ TECHNICALLY WITH CONTRACT DRAWINGS, PRIOR TO PROCEEDING WITH THE PROVISIONS LTD TO PROVIDE COORDINATION WORK DRAWINGS AND CALCULATIONS FOR SCHEME TEAM COMMENTS.
4. FOR TYPICAL DETAILS OF SPRINKLER HEADS REFER TO DWG No. 121/5192/CD/
5. FOR DETAILS OF FIRE BARRIER PENETRATION REFER TO DWG No. 121/5192/CD/
6. FOR TYPICAL PLACEMENT OF SPRINKLER HEADS REFER TO REFLECTED CEILING PLANS. ALL HEADS IN PLASTER BOARD BEAMS DELIVERED ON CONDUIT.
7. FOR DETAILS OF REFLECTED CEILING PLANS REFER TO DWG No. 121/5192/ & PROJECTION DRAWINGS.
8. NOT SPACING PIPEWORK TO FULL 3mm FOR HEIGHT.
9. TO AVOID TRAPPED AIR LOW POINTS ARE TO BE INSTALLED WITH DRAIN DOCKS, ACCESS TO WHICH SHALL BE FROM ADJACENT CEILING VOID.

LEGEND

(24) DENOTES LINE FROM INNER SIDE OF BOFFE TO c/l CENTRE LINE OF PIPEWORK

FOR COMMENT

Rev	Date	Dwg	Description	Appr
	28/11/94	M.L.	ISSUED FOR COMMENT	

Drake & Scull

Discipline: FIRE PROTECTION

Drawn: HW | Scale: 1:50

Checked: | Date: NOV 1994

PROJECT: 5 – 7 CARLTON GARDENS

CLIENT: BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

TITLE: OFFICE HIGH LEVEL
FIRE PROTECTION SERVICES
FIFTH FLOOR sht 1 OF 2

Drawing No: 121/5192/FP/020

Rev:

F E COLE & SON LTD

PRESSURE TEST SHEET

*Test No. 45

NAME OF JOB 5 - 7 Carlton Gardens, London

Building Reference Fifth Floor

Part 1 - Physical details

a Section of ductwork to be tested* South West

b Surface area of duct under test† 14m²

c Test static pressure 500 pascals

d Leakage factor 1.53 litres/sec/m²

e Maximum Permitted Leakage (b x d) 21.42 litres/sec.

Part 2 - Test particulars

a Duct static pressure reading ..... 500 PC

b Type of flow measuring device ..... HOLT 'D'

c Range of measurement of flow measuring device ..... 0 TO 2000 PC

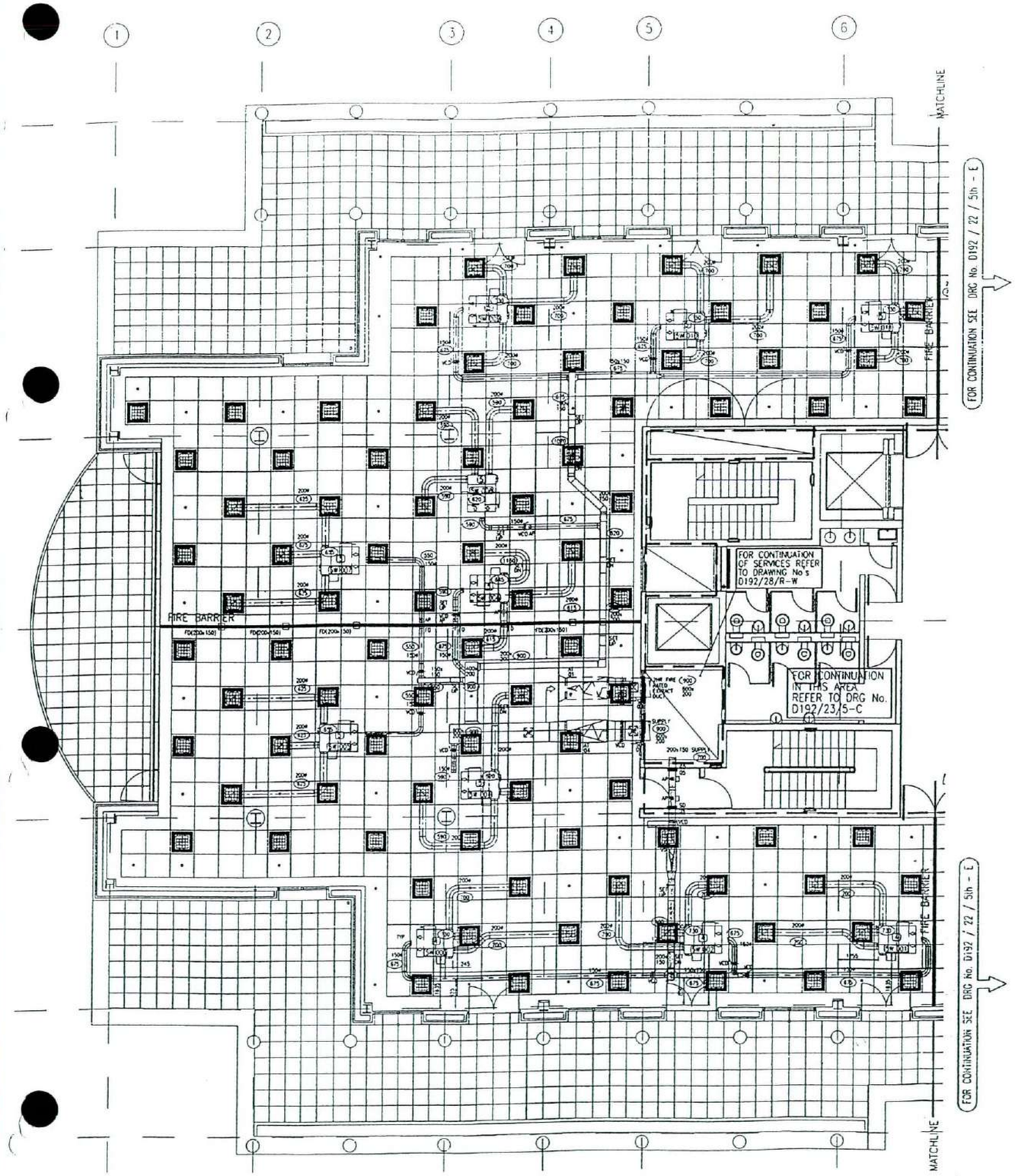
d Reading of flow measuring device 10.79

e Interpreted air flow leakage rate 20.45

f Duration of test (normally 15 minutes) ..... 15 MINS

Date of test 12-3-99 Carried out by A HARRIS Witnessed by [signature] EMW

Length	Width and depth or diameter	Periphery	Area
metres	millimetres	metres	square metres
7	200 x 150	700	4.9
2	150 x 150	600	1.2
17	150Ø	471	8.007
		†TOTAL	14.107



PLENUM SIZE SCHEDULE

REF	METAL	No.
1	TOP DWN	36
UNNUMBERED	TOP DWN	46

ALL PLENUMS TO BE FITTED WITH BLADE DAMPER ON SPIGOT ENTRY. (BOXES) . AVAILABLE TO SUPPLY UNITS.

ATTENUATOR SCHEDULE

REF	SIZE
ATT1	1410 x 750 x 1200
ATT4	1410 x 1000 x 1200
ATT5	1410 x 1000 x 1200

ATTENUATORS WHALE/KOMFLEX OR MACKWOOD LTD.

LEGEND

(250) 300MM'S LEVEL FROM UNDER SIDE OF SOFFIT TO U/SIDE OF RECTANGULAR /CIRCULAR DUCTWORK.

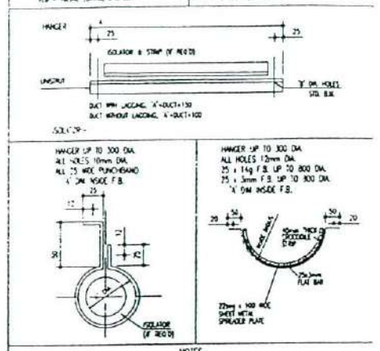
SD SLOPE DAMPER

SPECIFICATION

DUCTWORK SYSTEM	CONSTRUCTION SPECIFICATION	LEAKAGE TEST SPECIFICATION

LEGEND

AD - ACCESS DOOR
BE - BLANKING END
FD - FIRE DAMPER
FSU - FLAT ON TOP
FSD - FLAT ON BOTTOM
G - ARS DAMPER
MD - MOTORISED DAMPER
SD - SLOPE DAMPER
FSU - TOP 2" DOWN
FSU - TOP 2" UP
VCD - VOLUME CONTROL DAMPER
BND - BEND 90 DEG
RCD - CONCENTRIC REDUCER
RE - ECCENTRIC REDUCER
TCC - CONICAL BRANCH CONNECTION
TE - TEE CONICAL
PTSD - PRESSED SADDLE
MP - MALE COUPLING
MF - FEMALECOUPLING
EMF - CAP (NO SMALL/FEMALE)
SBD - SINGLE BLADE VOLUME DAMPER
- SUPPORT LOCATION



NOTES

1. ALL BEND 100mm RADIUS WITH 50mm LEAD-IN, UNO.
2. ALL RECTANGULAR FITTING TO HAVE 150mm LEAD-IN / THOAT, UNO.
3. ALL DATUMS NOTED ARE TO U/SIDE OF RECT. OR SPIRAL DUCTS FROM SOFFIT, UNO.
4. ALL STANDARD RECTANGULAR DUCTWORK LENGTHS ARE 1510 to, UNO.
5. PRIMARY SUPPLY TO FCU's TO TERMINATES APPROX. 150mm FROM FCU INLET.

REFERENCE DRAWINGS

DRAWING NUMBER	REV

DRAWING STATUS

- PRELIMINARY ISSUE ☐
- FOR APPROVAL ■
- FOR RE-APPROVAL ☐
- FOR CO-ORDINATION ☐
- FOR CONSTRUCTION /IMPT. ☐
- RECORD DRAWING ☐

LEVELS

- FINISHED FLOOR =
- LOCAL DATUM =
- UNDERSIDE OF FALSE CEILING =

REV	BY	DESCRIPTION	DATE	CHKD.
A	DB	ISSUED FOR APPROVAL / COMMENT	10/12/98	

REVISION

F.E.COLE & SON LTD.

HEATING, VENTILATING & MECHANICAL SERVICES
76 RED HOUND STREET, COVENTRY CV2 4JB. TELEPHONE (01203)635588 FAX (01203)635545

BWCA MEMBER

CLIENT: DRAKE & SCULL LTD

PROJECT: 5-7 CARLTON GARDENS LONDON

TITLE: FIFTH FLOOR - WEST DUCTWORK LAYOUT

DRAWN BY: D Bannister | SCALE: 1 : 50 | DATE: 8/12/98

DRAWING NUMBER: D192 / 21 / 5th - W | Rev A

F E COLE & SON LTD

PRESSURE TEST SHEET

*Test No. 46

NAME OF JOB 5 - 7 Carlton Gardens, London

Building Reference Fifth Floor

Part 1 - Physical details

a Section of ductwork to be tested* North East

b Surface area of duct under test† 32m²

c Test static pressure 500 pascals

d Leakage factor 1.53 litres/sec/m²

e Maximum Permitted Leakage (b x d) 48.96 litres/sec.

Part 2 - Test particulars

a Duct static pressure reading 500 pa

b Type of flow measuring device HOLT 'D'

c Range of measurement of flow measuring device 0 - 2000 pa

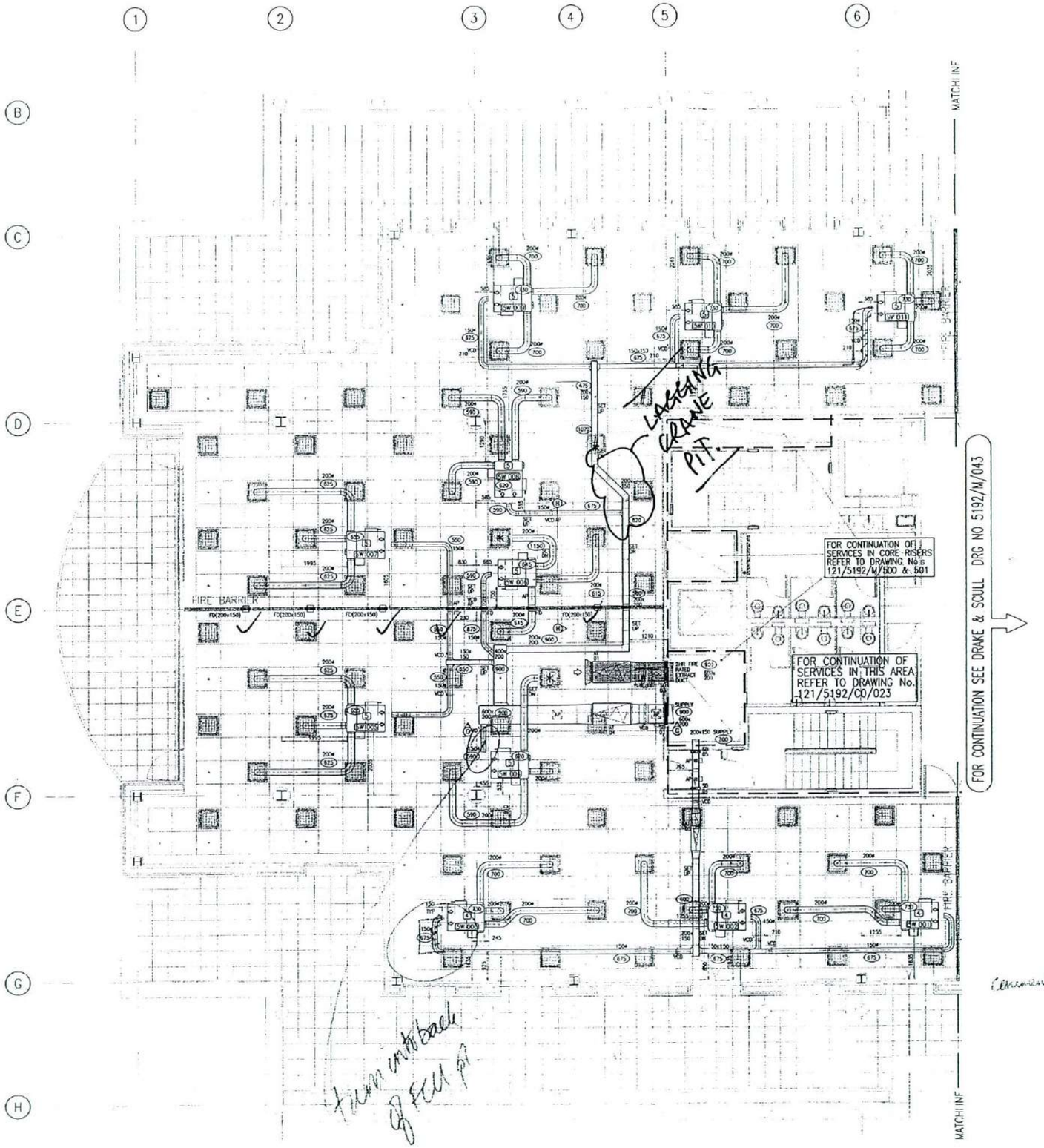
d Reading of flow measuring device 25 pa

e Interpreted air flow leakage rate 35 LS

f Duration of test (normally 15 minutes) 15 minutes

Date of test 12-3-99 Carried out by A HARRIS Witnessed by [illegible] CMLI

Length	Width and depth or diameter	Periphery	Area
metres	millimetres	metres	square metres
10	400 x 200	1200	12
3	300 x 150	900	2.7
6	200 x 150	700	4.2
9	150 x 150	600	5.4
16	150Ø	471	7.536
		†TOTAL	31.836



Please take note of Sheet comments on the BWIC drwgs for this level

M. LAMBOURNE
29/03/99.

TRADE SIGN OFF

	SIGNATURE	DATE
M.A.C.E.		/ /
T. CLARKE		/ /
SYCL SYSTEMS		/ /
DRAKE & SCULL		/ /

NOTES

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. FOR DETAILS OF FAN COIL UNIT HANGING , FIRE DAMPER PENETRATIONS REFER TO DRG No. 121/5192/M027
4. FOR DETAILS OF RETURN AIR STAT TYPICAL POSITION REFER TO DRG No. 121/5192/M027
5. ALL SECONDARY AIR FLEXIBLE CONNECTIONS ARE 200M UNLESS OTHERWISE STATED , MAX LENGTH 600mm.
6. THIS DUCTWORK LAYER IS PRODUCED FOR CO-ORDINATION PURPOSES ONLY . FULL DETAILS OF TURNING VANES , FIRE DAMPER ACCESS VOLUME CONTROL DAMPER ACCESS WILL BE ADDED WHEN REVIEWED BY DUCTWORK CONTRACTOR.
7. ALL FAN COIL UNIT PLENUM BOX OUTLETS NOT USED WILL BE CAPPED AT WORKS.
8. FOR TYPICAL DETAILS OF PRIMARY SUPPLY AIR DWTO FAN COIL UNIT REFER TO DRG No. 121/5192/M027
9. PRIMARY SUPPLY TO FAN COIL UNITS TERMINATES 150mm TYPICAL FROM FACE OF FAN COIL UNIT FILTER.
10. FOR DETAILS OF REFLECTED CEILING SEE MICHAEL WILFORD & PARTNERS DRAWINGS.

PLENUM BOX SCHEDULE

REF	DETAIL	No.
	SIDE ENTRY	2
	UNUSABLE AS SUPPLY	3
UNMARKED	TOP ENTRY	B5

ALL PLENUMS TO BE FITTED WITH BLADE DAMPER ON SPIGOT ENTRY

ATTENUATOR SCHEDULE

REF	SIZE
ATT 01	TBC
ATT 04	TBC
ATT 05	TBC

ATTENUATORS MANUFACTURED BY WATERLOO LTD

LEGEND

(2900) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO.
a) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK
b) UNDERSIDE OF FAN COIL UNIT

SD	SMOKE DAMPER
VCD	VOLUME CONTROL DAMPER
FD	FIRE DAMPER
AD	ACCESS DOOR

FOR COMMENT

Rev	Date	Drn	Description	Appr
	20/11/98	M.L.	ISSUED FOR COMMENT	

Issue note 13/78

Drake & Scull

Title: HVAC - VENTILATION

Drawn: HW | Scale: 1:50

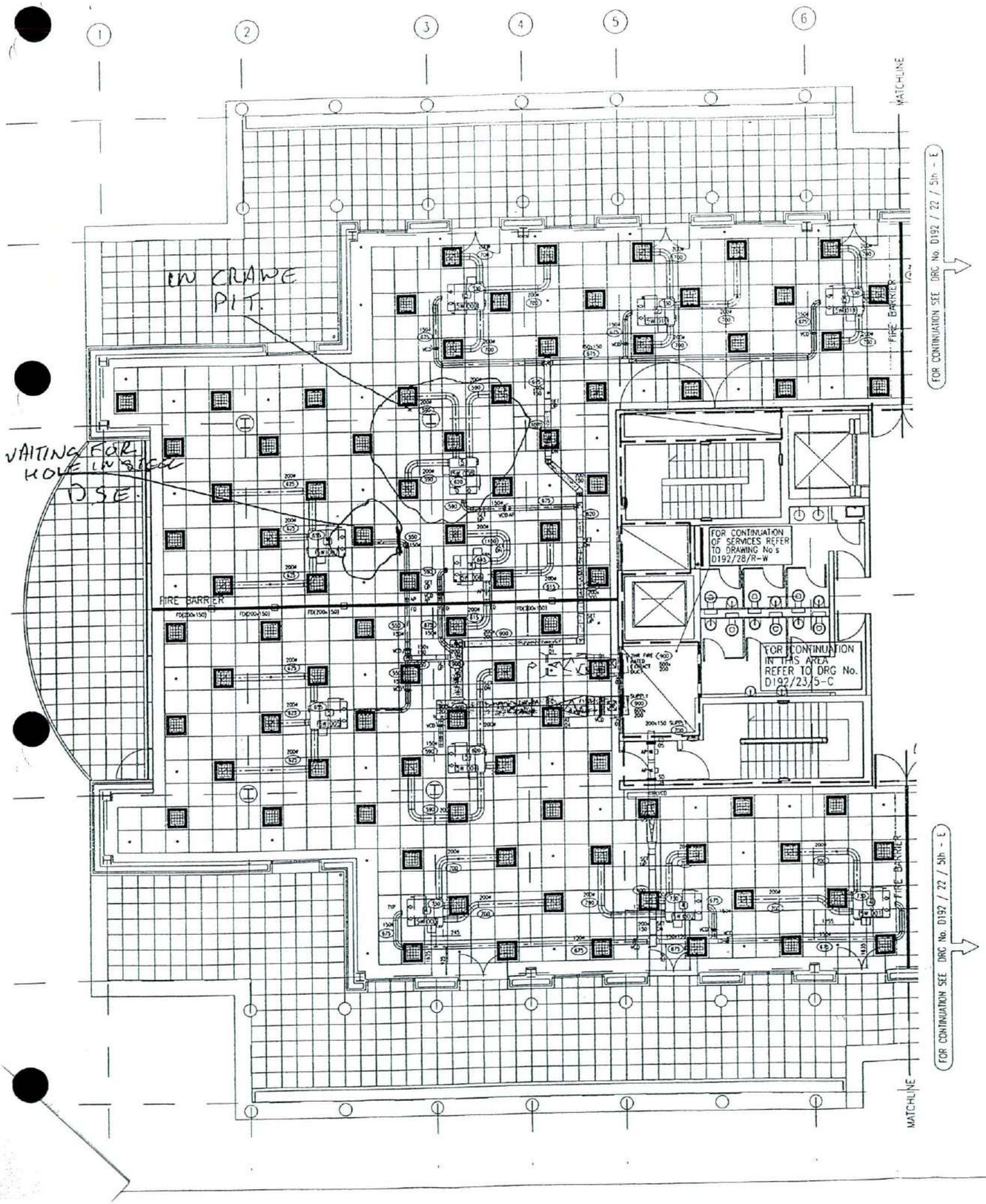
Checked: MDR | Date: NOV 1998

Project: 5 - 7 CARLTON GARDENS

BENCHMARK GROUP PLC
25 SACKVILLE STREET , LONDON

OFFICE HIGH LEVEL
VENTILATION SERVICES LAYOUT
FIFTH FLOOR sht 1 OF 2

Drawing No. 121/5192/M/042 | Rev.



PLENUM BOX SCHEDULE

REF	DETAIL	No
9 (AMMAN CO)	SIDE ENTRY TOP ENTRY	20 40

ALL PLENUMS TO BE FITTED WITH BLADE DAMPER ON SPIGOT ENTRY / DUCTS. UNLESS IS SUPPLY GRILLE.

ATTENUATOR SCHEDULE

REF	SIZE
4271	800 x 250 x 1700
4274	800 x 300 x 1700
4275	400 x 300 x 1700

ATTENUATORS MANUFACTURED BY WADDLOO LTD.

LEGEND

2950 DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO
a) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK.

SD SIGNAL DAMPER

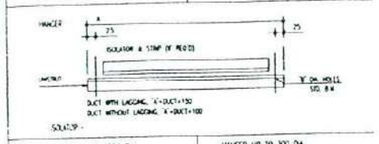
SPECIFICATION

DUCTWORK SYSTEM	CONSTRUCTION SPECIFICATION	LEAKAGE TEST SPECIFICATION

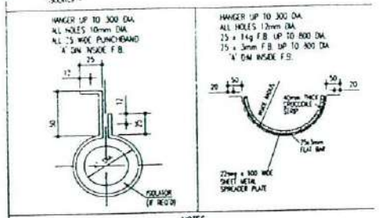
LEGEND

AD = ACCESS DOOR
BI = BLANKING
FD = FIRE DAMPER
FDT = FLAT ON TOP
FDB = FLAT ON BOTTOM
D = MVD DAMPER
MD = MOTORISED DAMPER
SD = SMOKE DAMPER
FSD = TOP SET DOWN
FSU = TOP SET UP
VCD = VOLUME CONTROL DAMPER

BND = BEND 90 DEG
RCL = CONCENTRIC REDUCER
RL = ECCENTRIC REDUCER
RSC = CONICAL BRANCH CONNECTION
SC = 45 CONICAL
PSND = PRESSED SADDLE
WP = WELD COUPLING
WF = FLANGED COUPLING
EWF = CAP (NO SWEL/FLANGE)
SBD = SINGLE BLADE VOLUME DAMPER
— SUPPORT LOCATION



SOLATRP -



NOTES

1. ALL BEND 100mm RADIUS WITH 50mm LEAD-IN, UNO.
2. ALL RECTANGULAR FITTING TO HAVE 150mm LEAD-IN / THROAT, UNO.
3. ALL DATUMS NOTED ARE TO U/SIDE OF RECT. OR SPIRAL DUCTS FROM SOFFIT, UNO.
4. ALL STANDARD RECTANGULAR DUCTWORK LENGTHS ARE 1510 to, UNO.
5. PRIMARY SUPPLY TO FCU's TO TERMINATES APPROX. 150mm FROM FCU INLET.

REFERENCE DRAWINGS

DRAWING NUMBER	REV

DRAWING STATUS

- PRELIMINARY ISSUE ☐
- FOR APPROVAL ■
- FOR RE-APPROVAL ☐
- FOR CO-ORDINATION ☐
- FOR CONSTRUCTION / MANF. ☐
- RECORD DRAWING ☐

LEVELS

- FINISHED FLOOR =
- LOCAL DATUM =
- UNDERSIDE OF FALSE CEILING =

REV	BY	DESCRIPTION	DATE	CHKD.
A	DB	ISSUED FOR APPROVAL / COMMENT	10/12/98	

REVISION

F.E.COLE & SON LTD.

HEATING, VENTILATING & MECHANICAL SERVICES
75 RICHMOND STREET, COVENTRY CV2 4JR. TELEPHONE (01203)635586/FAX (01203)635545

ESTABLISHED 1948

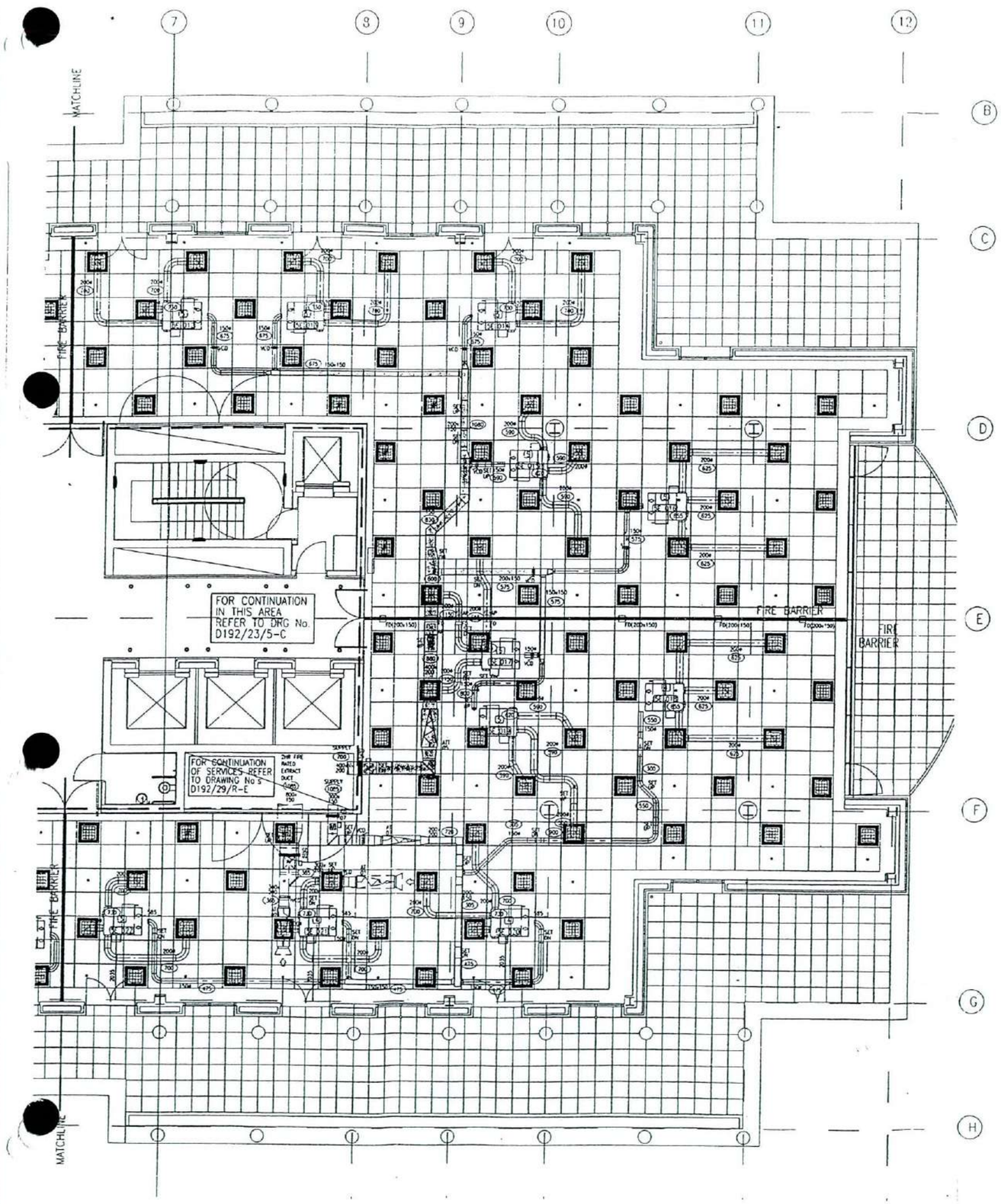
CLIENT:- DRAKE & SCULL LTD

SITE:- 5-7 CARLTON GARDENS
LONDON

TITLE:- FIFTH FLOOR - WEST
DUCTWORK LAYOUT

DRAWN BY: D Bannister | SCALE: 1 : 50 | DATE: 8/12/98

DRAWING NUMBER:- D192 / 21 / 5th - W | Rev A



PLENUM BOX SCHEDULE

REF	METAL	No.
9	900 DWN	20
UNNAMED	1/2 DWN	46

ALL PLEN NS TO BE FITTED WITH BLADE SHAPER ON SPIGOT EXTRY & DELIVERY. UNSUITABLE AS SUPPLY GRILLE.

ATTENUATOR SCHEDULE

REF	SIZE
ATT1	800 + 750 x 1200
ATT4	600 + 750 x 1200
ATT5	600 + 750 x 1200

ATTENUATORS MANUFACTURED BY NOISEALCO LTD.

LEGEND

(250) 2X NOTES LEAD FROM UNDER SIDE OF SOFFIT TO

(1) INDICATE OF RECTANGULAR /CIRCULAR DUCTWORK.

SD SMOKE DAMPER

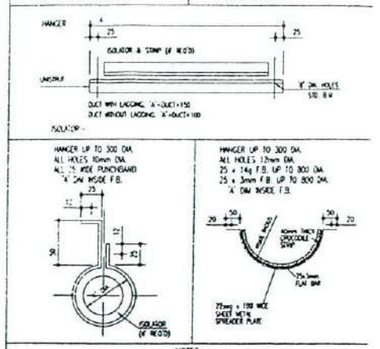
SPECIFICATION

DUCTWORK SYSTEM	CONSTRUCTION SPECIFICATION	LEAKAGE TEST SPECIFICATION

LEGEND

AD = ACCESS DOOR
BE = BLANKING
FD = FIRE DAMPER
FOT = FLAT ON TOP
FOB = FLAT ON BOTTOM
ID = MD DAMPER
ND = NORMALS DAMPER
SD = SMOKE DAMPER
TSD = TOP SET DOWN
TSU = TOP SET UP
VCD = VOLUME CONTROL DAMPER

MRD = BEND RD DEC
MCL = CONCENTRIC REDUCER
RL = ECCENTRIC REDUCER
TCC = CONICAL BRANCH CONNECTION
TE = TEE CONICAL
PCSD = PRESSED SADDLE
WF = WALL COUPLING
WF = FEMALE COUPLING
EWF = CAP END (MALE/FEMALE)
SBVC = SHORT BLADE VOLUME DAMPER
---- = SUPPORT LOCATION



NOTES

1. ALL BEND 100mm RADIUS WITH 50mm LEAD-IN, UNO.
2. ALL RECTANGULAR FITTING TO HAVE 150mm LEAD-IN / THOAT, UNO.
3. ALL DATUMS NOTED ARE TO U/SIDE OF RECT. OR SPIRAL DUCTS FROM SOFFIT, UNO.
4. ALL STANDARD RECTANGULAR DUCTWORK LENGTHS ARE 1510 lg. UNO.
5. PRIMARY SUPPLY TO FCU's TO TERMINATES APPROX. 150mm FROM FCU INLET.

REFERENCE DRAWINGS	
DRAWING NUMBER	REV

DRAWING STATUS

- PRELIMINARY ISSUE ☐
- FOR APPROVAL ■
- FOR RE-APPROVAL ☐
- FOR CO-ORDINATION ☐
- FOR CONSTRUCTION /MANT. ☐
- RECORD DRAWING ☐

LEVELS

FINISHED FLOOR =
LOCAL DATUM =
UNDERSIDE OF FALSE CEILING =

REV	BY	DESCRIPTION	DATE	CHKD.
A.	DB	ISSUED FOR APPROVAL / COMMENT	10/12/98	

REVISION

F.E.COLE & SON LTD.
HEATING, VENTILATING & MECHANICAL SERVICES
76 RICHMOND STREET, COVENTRY CV2 4JB. TELEPHONE (01203)635508/FAX (01203)635545

HVCA MEMBER

COMPANIES ACT 1985 — DIRECTORS: M. COLE, A. COLE & D. COLE. REGISTERED IN ENGLAND No. 1188635. REGISTERED OFFICE AS ABOVE

CLIENT:- DRAKE & SCULL LTD

CONTRACT:- 5-7 CARLTON GARDENS LONDON

TITLE:- FIFTH FLOOR - EAST DUCTWORK LAYOUT

DRAWN BY:-	SCALE:-	DATE:-
O.Bannister	1 : 50	8/12/98

DRAWING NUMBER:- D192 / 22 / 5th - E Rev A

F E COLE & SON LTD

PRESSURE TEST SHEET

*Test No. 47

NAME OF JOB 5 - 7 Carlton Gardens, London

Building Reference Fifth Floor

Part 1 - Physical details

a Section of ductwork to be tested* South East

b Surface area of duct under test† 22m²

c Test static pressure 500 pascals

d Leakage factor 1.53 litres/sec/m²

e Maximum Permitted Leakage (b x d) 33.66 litres/sec.

Part 2 - Test particulars

a Duct static pressure reading 500 pa

b Type of flow measuring device HOLT "D"

c Range of measurement of flow measuring device 0 - 2000 pa

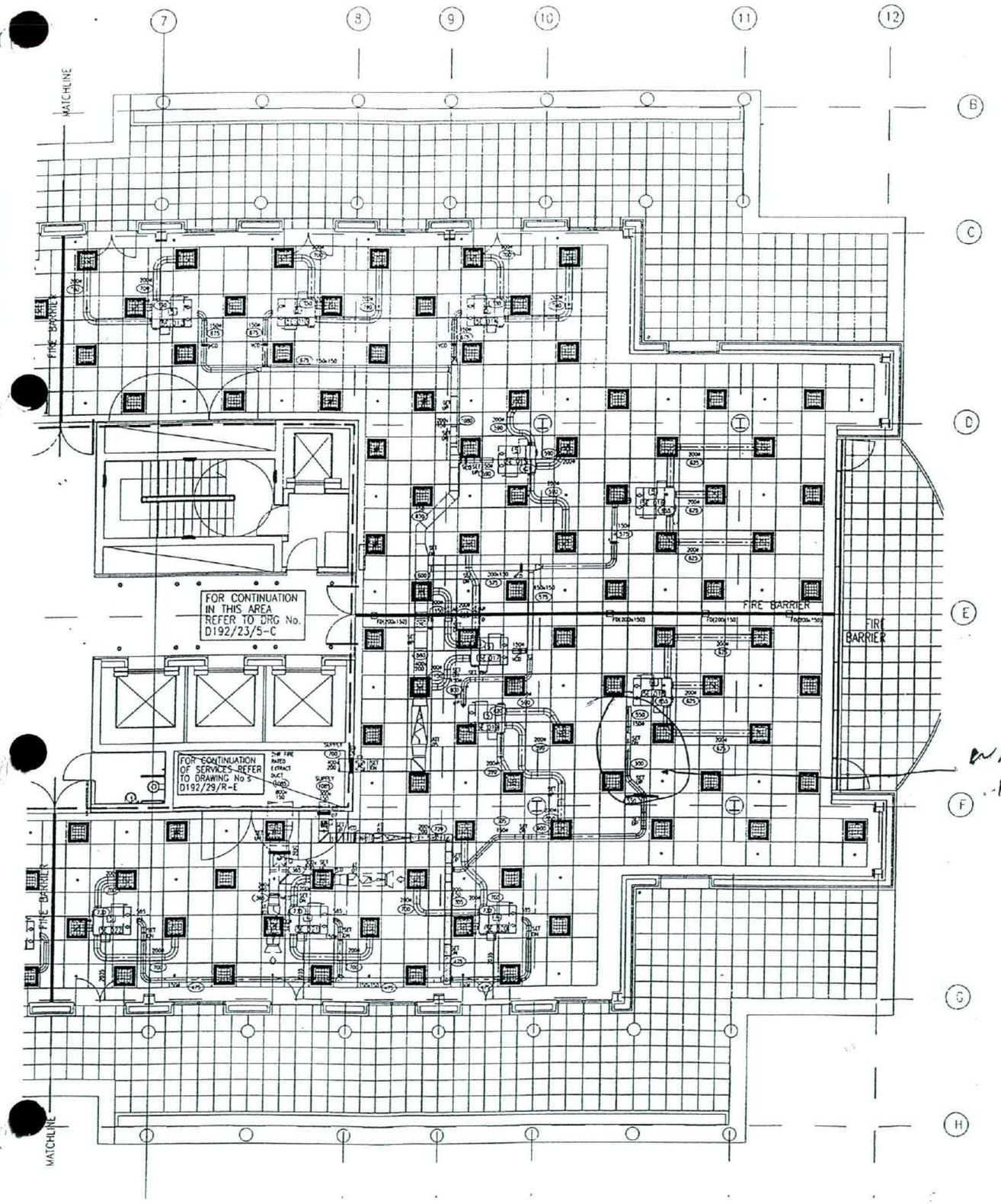
d Reading of flow measuring device ~~500 pa~~ 10 pa

e Interpreted air flow leakage rate 20 LS

f Duration of test (normally 15 minutes) 15 MINUTES

Date of test 12.3.99 Carried out by A. [illegible] Witnessed by [illegible] CMLI.

Length	Width and depth or diameter	Periphery	Area
metres	millimetres	metres	square metres
4	300 x 150	900	3.6
6	200 x 200	800	4.8
4	150 x 150	600	2.4
24	150Ø	471	11.304
		†TOTAL	22.104



PLENUM BOX SCHEDULE

REF	DETAIL	No.
9	SIDE DAMPER	20
	TOP DAMPER	16

ALL PLENUMS TO BE FITTED WITH BLADE DAMPER ON SPIGOT EXPT. / DIFFUSERS, UNLESS NO SUPPLY DUCT.

ATTENUATOR SCHEDULE

REF	SIZE
ATT1	800 x 750 x 1200
ATT4	900 x 300 x 1200
ATT5	400 x 300 x 1200

ATTENUATORS MANUFACTURED BY NOISEAID LTD.

LEGEND

(900) DENOTES LEVEL FROM UNDER SIDE OF SOFFIT TO

a) UNDERSIDE OF RECTANGULAR /CIRCULAR DUCTWORK.

SD SMOKE DAMPER

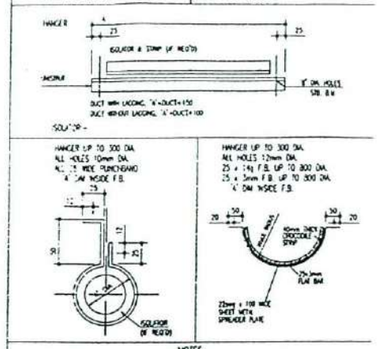
SPECIFICATION

DUCTWORK SYSTEM	CONSTRUCTION SPECIFICATION	LEAKAGE TEST SPECIFICATION

LEGEND

SD - SECTION DOWN
SU - SUPPLIED
FD - FIRE DAMPER
FSU - FLAT ON TOP
FDB - FLAT ON BOTTOM
D - VCD DAMPER
VCD - VOLUMETRIC DAMPER
SD - SMOKE DAMPER
TSD - TOP SET DOWN
TSU - TOP SET UP
VCD - VOLUME CONTROL DAMPER

PRD - BEND 90 DEG
RCS - CONCENTRIC REDUCER
RE - ECCENTRIC REDUCER
TLR - CONICAL BRANCH CONNECTION
TC - TEE CONICAL
PSDC - PRESSED SADDLE
MP - MALE COUPLING
FP - FEMALE COUPLING
FMP - CAP END (MALE/FEMALE)
SBD - SINGLE BLADE VOLUME DAMPER
SUPPORT LOCATION



NOTES

1. ALL BEND 100mm RADIUS WITH 50mm LEAD-IN, UNO.
2. ALL RECTANGULAR FITTING TO HAVE 150mm LEAD-IN / THOAT, UNO.
3. ALL DATUMS NOTED ARE TO U/SIDE OF RECT. OR SPIRAL DUCTS FROM SOFFIT, UNO.
4. ALL STANDARD RECTANGULAR DUCTWORK LENGTHS ARE 1510 ½, UNO.
5. PRIMARY SUPPLY TO FCU's TO TERMINATES APPROX. 150mm FROM FCU INLET.

REFERENCE DRAWINGS

DRAWING NUMBER	REV

DRAWING STATUS

- PRELIMINARY ISSUE ☐
- FOR APPROVAL ■
- FOR RE-APPROVAL ☐
- FOR CO-ORDINATION ☐
- FOR CONSTRUCTION /MANUF. ☐
- RECORD DRAWING ☐

LEVELS

- FINISHED FLOOR =
- LOCAL DATUM =
- UNDERSIDE OF FALSE CEILING =

REV	BY	DESCRIPTION	DATE	CHKD.
A	DB	ISSUED FOR APPROVAL / COMMENT	10/12/98	

REVISION

F.E.COLE & SON LTD.
HEATING, VENTILATING & MECHANICAL SERVICES
75 RICHMOND STREET, COVENTRY CV2 4JEL TELEPHONE (01203)635585 FAX (01203)635545

FLOOR: DRAKE & SCULL LTD

PROJECT: 5-7 CARLTON GARDENS LONDON

TITLE: FIFTH FLOOR - EAST DUCTWORK LAYOUT

DRAWN BY: D.Bannister | SCALE: 1 : 50 | DATE: 8/12/98

DRAWING NUMBER: D192 / 22 / 5th - E Rev A

5

FIRE PROTECTION LTD

MILLARS 3
SOUTHMILL ROAD
BISHOPS STORTFORD
CM23 3DH
TEL : (01279) 467077 FAX : (01279) 466994

CHECK LIST - DUCTWORK FIRST FIX

SITE : 5-7 CARLTON GARDENS	JOB No: FP1587	SHEET No:
AREA OFFERED PRIOR TO TEST : FIFTH FLOOR FIRE RATED DUCTWORK.	DRG No: FP1587/15	
	PIECES: ITEMS 1-7	

DATE AREA / RUN SNAGGED :		YES	NO	N/A
1.	CHECK FOR INSTALLED TURNING VANES.	✓		
2.	CHECK HANGER RODS ARE CUT TO LENGTH.	✓		
3.	CHECK DUCTING IS INSTALLED TO CORRECT LEVELS AND POSITIONS.	✓		
4.	CHECK THAT CROSS JOINTS ARE SEALED CORRECTLY.	✓		
5.	ALL FLANGES ARE CORRECTLY BOLTED , CLIPPED AND GASKETED.	✓		
6.	BRANCHES ARE CORRECTLY JOINTED TO MAIN RUN.	✓		
7.	TYPE OF BRACKET CORRECT FOR SYSTEM AS PER SPEC (ISOLATORS FITTED etc).	✓		
8.	BRACKETS CORRECTLY SPACED AS PER SPEC.	✓		
9.	ARE BRACKETS VERTICAL AND SUPPORTING DUCTWORK.	✓		
10.	ARE BRACKET FIXINGS CORRECT AND SECURE.	✓		
11.	FIRE DAMPERS FITTED CORRECTLY AND OPERATING CORRECTLY.	✓		
12.	ARE ACCESS DOORS FITTED ADJACENT TO ALL F/D'S AND V.C.D.'S.	✓		
13.	ENSURE THERE ARE NO ROUGH EDGES ON DUCTWORK ADJACENT TO A/P'S	✓		
14.	ENSURE SITE BRACKETRY STEELWORK IS PAINTED	✓		
15.	ENSURE THAT TEST MEMBRANES ARE FITTED CORRECTLY	✓		

INSPECTED FOR AND ON BEHALF OF :-

FIRE PROTECTION LTD :- SIGNATURE :- J. GM PRINT:- J. GILL

CLIENT :- SIGNATURE :- _____ PRINT:- _____

CONSULTANT :- SIGNATURE :- _____ PRINT:- _____

6

Stepspeed Thermal Insulation

QA Sign Off Form / Inspection Sheet

Area / Floor: 5TH

Date: _____

Thermal Insulation to Ductwork Complete and checked inc vapour barrier and wire netting 1st and 2nd fix (excluded final conns to Grilles). ☐ ✓

ID's to Ductwork complete and equally spaced. ☐ ✓

Thermal Insulation to HTG and CHW Pipework complete including vapour seal (Excluding vapour seal around Chilled valves to be cone after commissioning.) ☐ ✓

ID's to HTG and CHW Pipework complete and equally spaced and installed at each branch and change of direction. ☐ ✓

Thermal Insulation and ID's complete to Condensate Pipework and spacings of Id's correct. ☐ ✓

Signed On Behalf of Stepspeed:

Date:

Signed and Inspected by DSE:

Date:

Signed and Inspected by Mace:

Date:

7

Drake & Scull

5-7 Carlton Gardens

JOB NO: **121/5192**

SMOKE DAMPER INSTALLATION CHECK SHEET

AREA: Office

FLOOR: 5TH

DSE SMOKE DAMPER REF: SD 71-74 inc SD 42-44 IN

TOTAL NO. OF SMOKE DAMPERS: 7 No

REMARKS / ACTIONS: N/A

NAME: J. STARKEY

SIGNED:

DATE: 17/5/99

8

9

10