ENVIRONMENTAL PROTECTION ACT 1990, Part I
The Environmental Protection (Prescribed Processes and Substances) Regulations 1991
The Environmental Protection (Applications, Appeals and Registers) Regulations 1991

See Notes on pages 3 and 4 before completing this form.

APPLICATION FOR AUTHORISATION to carry out prescribed process
under section 6 of the Environmental Protection Act 1990

To(1) .....Huntingdonshire...District..... Council

1 Name and address of applicant (2) *(in the case of a registered Company, name, number and registered office)* DAVID SMITH ST. IVES LTD REG.No. 914878
MARLEY ROAD
ST. IVES HUNTINGDON CAMBS. Tel.No. 0480 462323

2 Name and address of premises where process is or will be carried on *(not applicable to mobile processes)*

AS ABOVE

Tel.No.

3 *In the case of mobile plant, name and address of the principal place of business*

N/A .

Tel.No.

Address for correspondence relating to the application

AS ABOVE

Contact name MICHAEL SMITH Tel.No. 0480 462323 .

5 List of maps or plans enclosed with the application showing the location of the premises where the process is or will be carried on.

TITLE	Reference No.
SITE LAYOUT	8721/100/D
EXTRACTION LAYOUT (1)	N1016/04
EXTRACTION LAYOUT (2)	N1016/05
MACHINE LAYOUT	DS/FP01 to 05
TREATMENT PLANT	DS/TP01
BOILER PLANT	C1158-104A
SILO	N1016/45

Where the process is or will be carried on on only part of the premises whose address is given at **2** above, describe which part of the premises and list the plan(s) which identif(y)(ies) this part or these parts.

6 Describe the prescribed process (3) *(use a continuation sheet if necessary)*

A TIMBER PROCESS CONSISTING OF :-

1. MANUFACTURING PROCESS
2. TREATMENT PROCESS
3. EXTRACTION PROCESS
4. COMBUSTION PROCESS

7 When was the plant first installed?

Please also give the details and dates of any major modifications or improvements which have been carried out.

THE PLANT FOR ALL THE PROCESSES WAS INSTALLED DURING THE MONTHS OF JULY TO OCTOBER 1993.

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8 List the prescribed substances (and any other substances which might cause harm) used in connection with or which might be released into the air resulting from the prescribed process.(4)

1. MANUFACTURING PROCESS	-	PARTICULATE MATTER
2. TREATMENT PROCESS	-	SOLVENT (WHITE SPIRIT)
4. COMBUSTION PROCESS	-	PARTICULATE MATTER OXIDES OF CARBON ORGANIC COMPOUNDS

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9 Describe the techniques to be used for preventing releases into the air of substances listed above, for reducing such substances to a minimum and for rendering harmless any such substances that are released.(5) ***(use a continuation sheet if necessary and attach drawings of plant and equipment, where appropriate)***

1. MANUFACTURING PROCESS	-	PARTICULATE MATTER-MINIMISED BY USE OF EXTRACTION SYSTEM
2. TREATMENT PROCESS	-	SOLVENT (WHITE SPIRIT)-CURRENTLY UNDER REVIEW AWAITING ISSUE OF PG6/3 AND ADVISE FROM SUPPLIER.
4. COMBUSTION PROCESS	-	PARTICULATE MATTER - MULTICYCLONE GRIT ARRESTOR. OXIDES OF CARBON -) MINIMISED BY VIRTUE OF OPTIMAL ORGANIC COMPUNDS -) COMBUSTION CONDITIONS.

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10 Give details of the source, nature and amount of current and/or anticipated emissions to air from the process. ***(use a continuation sheet if necessary)***

EMISSIONS TO AIR FROM THE PROCESSES ARE EXTREMELY SMALL AND ARE CONSISTENT WITH OTHER INDUSTRIAL USERS LOCATED ON THE ST. IVES INDUSTRIAL ESTATE.

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11 Give the assessment of the likely environmental consequences of the emissions to air. ***(use a continuation sheet if necessary)***

NO MATERIAL EFFECT.

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12 What monitoring is or will be carried out of emissions to air?

1. MANUFACTURING PROCESS	-	VISUAL INSPECTION COUPLED WITH MONITORING OF EXTRACTION SYSTEM.
2. TREATMENT PROCESS	-	USE OF FLAME IRONISATION DETECTOR.
3. EXTRACTION PROCESS	-	VISUAL INSPECTION AND AIR VOLUME CHECK TO ENSURE VOLUMES REMAIN CONSISTENT WITH INSTALLERS INITIAL TEST INSPECTION.
4. COMBUSTION PROCESS	-	VISUAL INSPECTION AND OPACITY MONITOR.

I enclose the fee of £ (8).
Cheques should be made payable to:

I HEREBY CERTIFY that all the information contained in this application is correct to the best of my knowledge and belief [and that I am authorised to sign on behalf of the Company].

Signature Michael Smith

Official title MICHAEL A. SMITH - MANAGING DIRECTOR.

Date 24-03-94

Please complete and return this form together with FOUR copies of each of the plans listed in the reply to question 5 and the required fee to:

Tel.No.

NOTES

1 This is the local authority in whose area the prescribed process will be carried on, or in the case of mobile plant, the local authority in whose area the applicant has his principal place of business.

2 Please state the person/Company who is operating or will operate the process, **not** an agent who may be completing the application on the operator's behalf.

3 A list of prescribed processes for local authority control is given in **Appendix A**, which accompanies this form. Further advice can be obtained if necessary from the local authority.

4 A list of prescribed substances for release into the air is given in **Appendix B**, which accompanies this form. "Harm" includes offence to the senses or harm to property.

5 Please list fully all pollution control measures for all stages of the process, from the receipt of raw materials to the despatch of wastes and finished products, including, for example, the height and location of any stacks or vents; the abatement technology; process control and operational data; arrangements for maintenance; the extent of supervision; the relevant qualifications and experience of the workforce; staff training; and contingency plans for breakdowns and emergencies.

All calculations should be shown, particularly for the chimney height(s). Justification for the selection of a particular abatement option should be given.

6 Section 7(2) and 7(4) of the Environmental Protection Act 1990 requires every operator of a prescribed process to use the best available techniques not entailing excessive cost for -

(i) preventing the release of prescribed substances, or where that is not practicable, for reducing the release of such substances to a minimum and rendering them harmless; and
(ii) rendering harmless any other substances which might be released.

7 Much of the information contained in the application form will be included in a register which the local authority is required to keep for public examination in accordance with section 20 of the Environmental Protection Act 1990 and the Environmental Protection (Applications, Appeals and Registers) Regulations 1991. Sections 21 and 22 provide for certain information (affecting national security, or commercial confidentiality) to be excluded from the register. Such information should be clearly identified in this application form.

8 ~~£800~~ 935. in the case of initial applications.
£530 in the case of applications for a substantial change.
£530 in the case of processes transferred from previous HMIP control.
£100 for small waste oil burners.

13 What monitoring will be carried out of the environmental consequences of emissions to air?

EMISSIONS SO SMALL THAT THIS IS NOT PRACTICLE/POSSIBLE.

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14 How will you monitor the techniques described in the answer to question 9?

REGULAR MAINTENANCE AND ROUTINE CHECKS IN LINE WITH INSTALLERS/MANUFACTURERS RECOMMENDATIONS.

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15 State how you will ensure that the objectives listed in section 7(2) of the Environmental Protection Act 1990 will be achieved and how the condition implied by section 7(4) of the Act will be complied with.(6)

DAVID SMITH ST. IVES LIMITED AS A COMPANY WILL EMPLOY BEST AVAILABLE TECHNIQUES NOT ENTAILING EXCESSIVE COST TO CONTROL AND MINIMISE EMISSIONS TO AIR.

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16 If you have any proposals for improvements which might prevent or reduce emissions, please give details. ***(use a continuation sheet if necessary)***

NONE

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17 Give any other additional information which you would like to be taken into account by the local authority in considering your application.

Official guidance on the best available techniques not entailing excessive cost is published by the Department of the Environment in the process guidance notes for specific industries, copies of which are available from HMSO or can be ordered from certain bookshops. YOU ARE ADVISED TO CONSULT THE PROCESS GUIDANCE NOTE FOR YOUR INDUSTRY BEFORE COMPLETING THIS FORM. YOU MIGHT ALSO FIND IT USEFUL TO READ THE GENERAL GUIDANCE NOTE GG3.(7)

If you require any further information or assistance in completing this form, please contact your local Council at the address shown below.

Please complete the final section of this form on page 4 overleaf.

280394 97501908 MISC CHQ 7424 11 001 BPAID 935.00

MISC DAVID SMITH

David Smith St Ives Ltd.,
Marley Road, St Ives, Huntingdon, Cambs. PE17 6EX.
Telephone 0480 462323 Fax 0480 494832

Ref: MAS/RN1357
Tuesday 21st March 1994.

DAVID SMITH ST IVES LIMITED - EPA Pt1 - APPLICATION

SUPPLEMENTARY INFORMATION TO QUESTION 6

1. MANUFACTURING PROCESS

David Smith St.Ives Limited manufactures timber products for the Construction industry, all products are made to order and can be classified into the following groups:

a. Roof Trusses
b. Staircases
c. Doors
d. Joinery (including windows, frames, linings)

Roof Trusses are manufactured in units 4 & 5, (please refer to site layout drawing No. 8721/100/D) with the raw material being stored on the hard standing to the west of unit 5, alongside the completed trusses. All material used to manufacture Roof trusses is softwood.

Unit 3 is utilized by the remaining product groups, Staircases Doors and Joinery. The raw material is stored in racks from which the operatives select the correct material, cut it to length and place on trollies to be pushed into units 1 & 2. All the machines in unit 3 are exhausted by the main extraction system.

Units 1 & 2 are utilized for the final machining and assembly of Stairs, Doors and Joinery. All machines in this area are exhausted via the main extraction system. All finished goods leave via the front loading door in unit 1, being loaded onto the lorries and delivered direct to site.

Stairs, Doors and Joinery are mainly produced using softwood, however, a small amount of hardwood is utilized.

Drawing numbers DS/FP01 to 05 detail the position of the machines and Appx 1 details the machine numbers, description and location.

2. TREATMENT PROCESS

The timber treatment plant is utilized to impregnate timber with preservative to prevent rot and decay. The majority of the timber that passes through the plant is associated with Roof Trusses, the remaining timber is associated with Joinery. Our drawing number DS/TP01 indicates the layout of the plant. The preservative that we use is Hicksons "Vascol 2612 WR ready to use" (yearly volume consumed is 20,000 litres see Appx 2 for data sheet).

David Smith St Ives Ltd.,
Marley Road, St Ives, Huntingdon, Cambs. PE17 6EX.
Telephone 0480 462323 Fax 0480 494832

The equipment utilized for this process is a mini vac vessel supplied by Hicksons. The method we use to treat the timber is known as the Double Vacuum Cycle which operates as follows:

1. Timber is loaded into the vessel and the vessel is sealed.
2. Air is extracted from the vessel creating a vacuum around the timber.
3. The vessel is flooded with the preservative.
4. The vacuum is released to normal atmospheric pressure.
5. The fluid is drained from the tank back to the bulk storage.
6. The air is extracted to create a further vacuum, which releases all excess preservative back to bulk storage.
7. The vessel is opened and the timber removed from the tank.

The cycle is controlled automatically and is carried out within the bunded area indicated on drawing number DSTP/01.

Once the timber is treated it is retained within the bunded area until sufficiently dry to handle, any preservative that falls from the timber is collected in trays and returned to the bulk storage tanks.

3. EXTRACTION PROCESS

The extraction process exhausts the individual machines in units 1, 2 and 3, separating the exhausted air from the particulate matter/shavings returning the clean air to the factory and delivering the particulate matter/shavings to the silo.

Drawing numbers N1016/04 and N1016/05 detail the extraction plant and the ductwork layout.

Filter A - NFK 2000 - exhausts 42,000 cubic ft per minute, using two main runs serving general woodworking machinery.

Filter B - DCS - exhausts 5,500 cubic ft per minute, from two sander units.

Filter C - Dustraction - exhausts 10,000 cubic ft per minute from the windowline machinery.

Each filter is connected to the transport fan run which deliveries the particulate matter/shavings to the silo via a cyclone which returns the excess air to the main filter 'A', thus ensuring a closed loop.

Appx 3, 4 & 5 detail the NFK filter.
Appx 6 shows the test results that indicate the air volumes required in the main pipe runs to ensure correct operation of the extraction system.

Registered in England No: 914878

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4. COMBUSTION PROCESS

All the particulate matter/shavings in the silo are delivered to the boiler via an automated feed system which is controlled by the water temperature within the boiler. The combustion process takes place within the boiler, heating water that is utilized to heat the factory and office areas. In the summer months a dissipator vented externally is used to ensure continued running of the boiler.

Drawing C11588 - 104A and N1016/45 detail the boiler/silo layout.

Appx 7, 8, 9 and 10 details the boiler system arrangement and contains specific information on the Multicyclone Grit Arrestor and the Smometa Smoke Alarm.

enc.

Company Brochure
1a - c
2a - b
3a - f
4a - g
5a - d
6a - b
7a - d
8a - d
9a - b
10a - g

Registered in England No: 914878

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Ref;MAS/RN1358
22.03.1994

DAVID SMITH ST IVES LIMITED

MACHINE TYPES AND NUMBERS BY BUILDING

UNITS 1 AND 2

M/C No.	MACHINE
1	BOERE SANDER
2	SNIP SAW
3	SPINDLE MOULDER
4	MORTISER
4A	MORTISER
5	UX ROUTER
6	PIN ROUTER
6A	STAIRS DRILL
7	WADKIN SANDER
8	RIP SAW
9	BANDSAW
10	PLANER
10A	PLANER
11	PIN ROUTER
12	SPINDLE MOULDER
12A	SPINDLE MOULDER
12B	SPINDLE MOULDER
12C	SPINDLE MOULDER
13	BANDSAW
14	SNIP SAW
14A	SNIP SAW
14B	SNIP SAW
15	TENONER EKA
16	BANDSAW
17	THICKNESSER
18	OSS MORTISER
19	MAKA MORTISER
20	PIN ROUTER
21	TENONER
22	TENONER
23	MAKA MORTISER
24	PLANER
25	MOULDER(WINDOW LINE)
26	WINDOW LINE PROFILE
27	SPINDLE MOULDER HEMAG
28	PLANER/MOULDER
29	MOULDER (LOGIC 23)
30	DOUBLE END TENONER
31	CROSS CUT TRENCHER
32	GANG MORTISER
33	SPINDLE MOULDER
34	CENTRE 4 MOULDER
35	STRAIGHT LINE EDGER
36	BANDSAW

David Smith St Ives Ltd.,
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UNITS 1 AND 2 CONTD..

M/C No.	MACHINE
37	SINGLE END TENONER
37A	SINGLE END TENONER
38	SPINDLE MOULDER
38A	SPINDLE MOULDER
39	STAIR TRENCHER
39A	STAIR TRENCHER
39B	STAIR TRENCHER
40	DIMENSION SAW
41	JKO TRIMMER
41A	JKO TRIMMER
42	*SCM SLIDING TABLE*
50	DRILL
51	FRAME PRESS UNIT ONE
51A	FRAME PRESS UNIT ONE
52	PILLAR MORTISER
53	COLD PRESS
54	RF GLUER
55	RF GLUER
56	LIPPING GLUER
57	HEATED PRESS
58	MITRE MACHINE
58A	MITRE MACHINE
58B	MITRE MACHINE
59	STAIR PRESS
59A	STAIR PRESS
60	UNDERPINNER
61	MITRE MACHINE
62	MOBILE LIP PRESS

Registered in England No: 914878

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UNIT 3

M/C No.	MACHINE
43	WADKIN XJ MOULDER
44	PAUL CROSS CUT
45	36" RESAW
46	CROSS CUT
46A	H.D. CROSS CUT
46B	CROSSCUT
47	WALL SAW
48	STRAIGHT LINE EDGER
49	GRANULATOR

UNITS 4 AND 5

M/C No.	MACHINE
46C	H.D. CROSS CUT
46D	CROSS CUT
51B	FRAME PRESS
63	IDACO SAW
64	ROBINSON SAW
65	BAND SAW
66	HOLTEC DOCKING SAW
67	MAKITA CHAIN SAW
68	SPRINT PRESS B/C1
69	SPRINT PRESS T/C1
70	SPRINT PRESS B/C2
71	SPRINT PRESS T/C2
72	SPRINT PRESS B/C3
73	SPRINT PRESS T/C3
74	STEEL BANDER
74A	STEEL BANDER
75	PLASTIC BANDER

PG 3.

HICKSON

HICKSON TIMBER PRODUCTS LTD **ISSUED NOVEMBER 1991**

SAFETY DATA SHEET NO. 2612

HICKSON VACSOL 2612 WR READY-TO-USE

VACSOL 2612 WR Ready-to-Use supplied by Hickson Timber Products Ltd., is an organic solvent timber preservative applied by double vacuum or vacuum/low pressure processes.

VACSOL 2612 WR is cleared under the UK Government's Control of Pesticides Regulations, 1986 for use as directed, i.e. FOR USE ONLY AS AN INDUSTRIAL WOOD PRESERVATIVE.

SPECIFICATION

2.9% w/w Zinc (as Zinc Versatate)	
Permethrin	0.1% w/w
Specific Gravity	0.844 g/cm^3

PACKAGE

VACSOL 2612 WR is normally supplied in bulk tanker volumes from 6 000 litres to 20 000 litres. It is also supplied in 200 litre drums.

IN THE EVENT OF FIRE

VACSOL 2612 WR is classed as flammable with a flash point of between 40°C and 56°C

Keep containers cool by spraying with water if exposed to fire.

Any fire should be extinguished with dry chemical, foam or a waterspray. DO NOT USE WATER JET. If involved in fire, the preservative will give off toxic fumes and personnel and emergency services in the near vicinity of the fire should wear breathing apparatus.

If there is any risk of contaminated water spreading outside the treatment area, ensure that all drains are blocked up and contain any further flow of the contamination.

IN THE EVENT OF SPILLAGE

Prevent liquid entering sewers, basements and workpits; vapour may create explosive atmosphere. Absorb in earth or sand and remove to safe place. Do not absorb in sawdust or other combustible materials.

If substance has entered a water course or sewer or been spilt on soil or vegetation advise Health and Safety Executive (HSE), Local Water Company and the National Rivers Authority immediately.

CONTROL OF PESTICIDES REGULATIONS 1986

VACSOL 2612 WR is an approved pesticide and is therefore subject to the conditions imposed by the Control of Pesticides Regulations 1986. For the user this means:

1. It shall be the duty of every employer to ensure that any person who may be required to use a pesticide during the course of that employment is provided with such instruction and guidance as is necessary to enable that person to comply with the requirements in and under the Regulations.
2. Any person who uses a pesticide shall take all reasonable precautions to protect the health of human creatures and plants, to safeguard the environment and in particular to avoid pollution of water.
3. No person who uses a pesticide shall use a pesticide in the course of business or employment unless he has received adequate instruction and guidance in the safe, efficient and humane use of pesticides and is competent for the duties which he is called upon to perform.

HEALTH HAZARDS AND FIRST AID

VACSOL 2612 WR contains hazardous compounds and it is important that the precautions and advice contained in this Data Sheet and Plant Operators Manual are strictly followed.

Guidance Note EH 40 issued by HSE gives advice on limits to which exposure to airborne substances hazardous to health should be controlled in workplaces. The limits specified for VACSOL 2612 WR components are as follows:

	Long Term Exposure Limit (8 hour TWA value)
	mg m^3
White Spirit	575.00 (or 100 ppm)

These limits apply only to airborne concentrations and good hygiene and operating techniques around the treatment area (in particular with reference to ventilation) should prevent the limits being approached.

In case of inhalation, a dry throat and tightness of the chest can occur. High concentrations may result in drowsiness. Congestion of the lungs may occur, producing severe shortness of breath.

VACSOL can be absorbed through the skin and therefore particular attention should be given to the precautions relating to protective clothing.

In the case of major skin contamination, the organic solvent carrier can cause severe irritation and medical treatment should be obtained immediately.

In case of accidental ingestion do not induce vomiting but give 2 to 3 teaspoonfuls of liquid paraffin, sipped slowly, followed by about half a pint of milk, also sipped slowly. Seek further medical treatment immediately and refer to the National Poison Information Centre.

PRECAUTIONS IN HANDLING

The (COSHH) Control of Substances Hazardous to Health Regulations 1988 may apply to the use of this product at work.
FOR USE ONLY BY INDUSTRIAL OPERATORS.
FLAMMABLE. AVOID naked flames and hot surfaces.
Engineering control of operator exposure must be used where reasonably practicable in addition to the following items of personal protective equipment.
WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), GAUNTLETS AND EYE PROTECTION when using the product and during maintenance of treatment equipment.
WEAR IMPERVIOUS GAUNTLETS, IMPERVIOUS FOOTWEAR AND AN IMPERVIOUS APRON when handling freshly treated timber.
AVOID EXCESSIVE CONTAMINATION OF COVERALLS AND LAUNDER REGULARLY.
DO NOT BREATHE FUME OR VAPOUR.
However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection.
WHEN USING DO NOT EAT, DRINK OR SMOKE.
EXTREMELY DANGEROUS TO FISH AND OTHER AQUATIC LIFE. Do not contaminate watercourses or ground.
WASH HANDS AND EXPOSED SKIN before eating, drinking, smoking and after use.
WASH SPLASHES from skin or eyes immediately.
KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDING STUFFS.
KEEP IN A SAFE PLACE.
KEEP OUT OF REACH OF CHILDREN.
DISPOSE OF SURPLUS PRESERVATIVE, CONTAMINATED MATERIAL (INCLUDING SAWDUST) AND THE EMPTY CONTAINER SAFELY using a method approved by the WASTE DISPOSAL AUTHORITY.
TREATED WOOD SHOULD BE HELD UNTIL DRY BEFORE DESPATCH.

HAZARDOUS GOODS CLASSIFICATION

HSE Number	4676	ADR	Marginal No. Class	2301 3,31°(c)
Substance Identification no. Packing Group (UK)	1306 III	IMO/IMDG	Page No. Class	3393 3.3
UN No. UN Hazard Class	1306 3	EEC Classification Risk Phrases		IRRITANT IRRITATING TO EYES AND SKIN FLAMMABLE
UK Road Transport Emergency Action Code	3W	Tremcard No.		U.K. 8

ENQUIRIES

Information on safety and environmental matters is continuously updated by Hickson Timber Products Ltd.
Enquiries should be made to HTP Technical & Environmental Services Department,
Wheldon Road, Castleford, WF10 2JT. Tel: (0977) 556565.

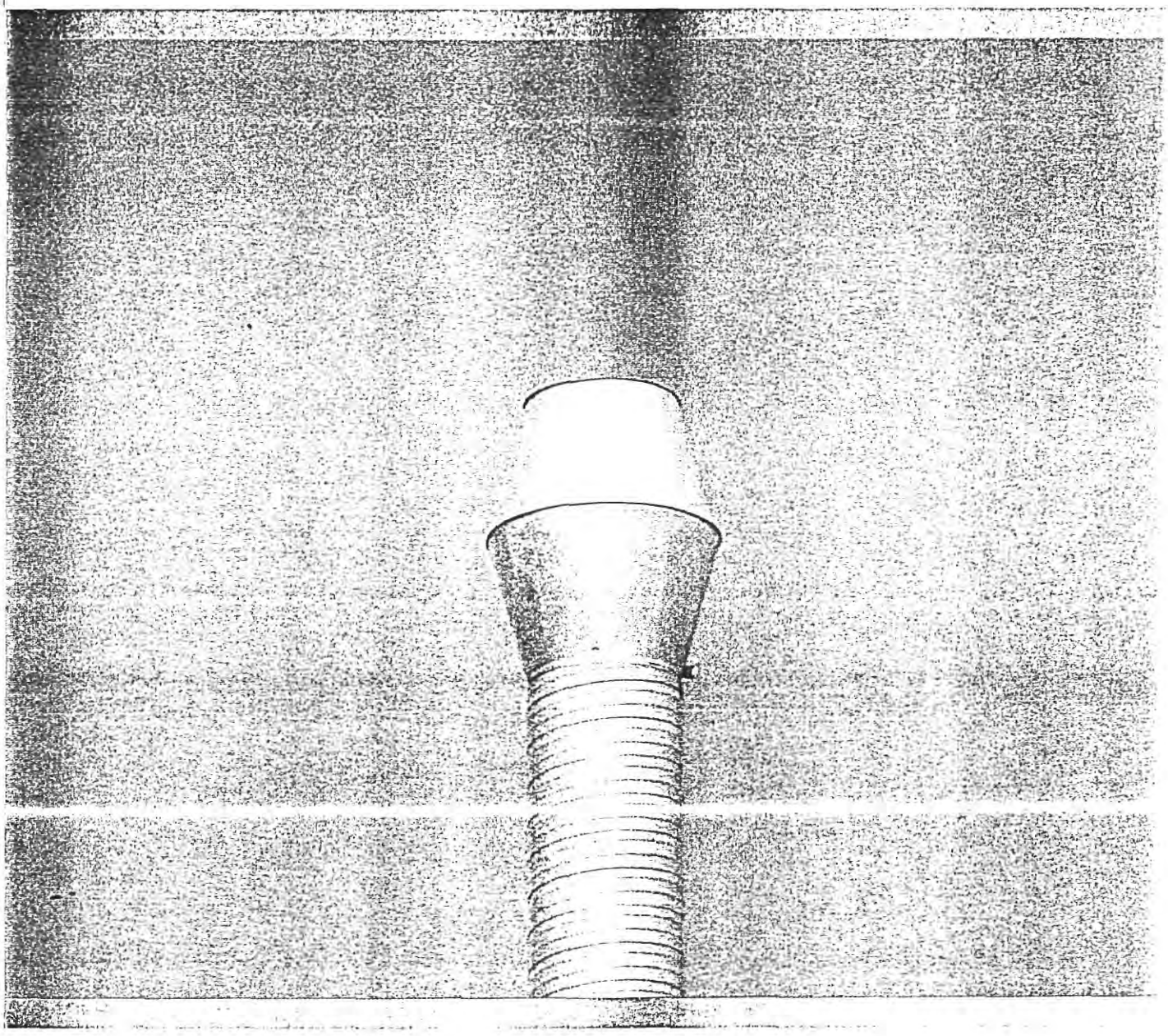
HICKSON TIMBER PRODUCTS LIMITED
WHELDON ROAD, CASTLEFORD
WEST YORKSHIRE. WF10 2JT
| TEL: (0977) 556565 | FAX: (0977) 512821

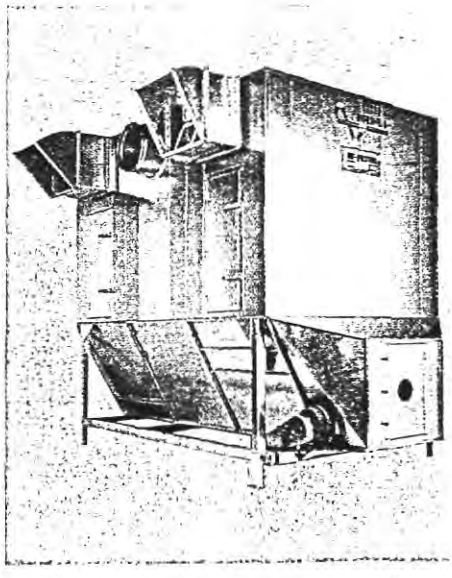
BS 5750 Part 1.
ISO 9001/EN 29001
FM1636
BS 5750 Part 2
ISO 9002/EN 29002
FM1780

(Code 2612)

Jim Tennant

NORDFAB





NF-FILTER 2000 AND SUPERBAG 2000

A pure revolution

The filter bag that cleans more efficiently

The SUPERBAG 2000 is not just a great innovation, it is also a pure revolution on the filter market.

More efficient. More robust. Easier to clean. Less pressure loss. Longer lifetime. The most reliable anti-static filter bag on the market.

The SUPERBAG 2000 outstrips all other available filters in every respect.

The production of filter bags is fully automated and includes automatic quality control to ensure a constant, high level of quality.

SUPERBAG® 2000

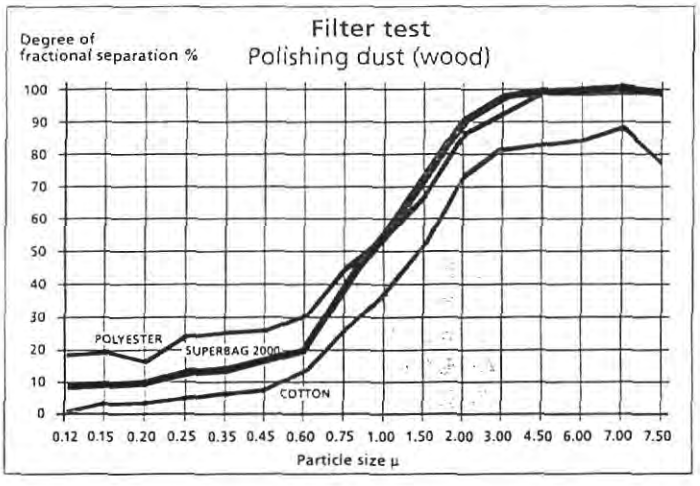
The filter material is 100% polyester which is knitted on a revolving needle cylinder to ensure maximum emission prevention by avoiding lateral seams.

Woven into the filter bag is an endless carbon fibre thread, which makes the SUPERBAG 2000 probably the most reliable anti-static filter in the world. The risk of explosions or fires is hereby reduced to a minimum.

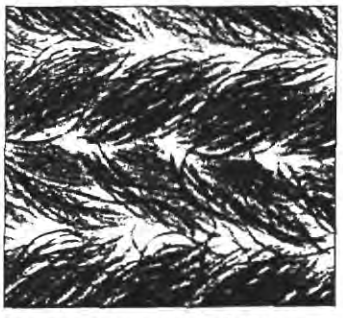
The SUPERBAG 2000 is based on experience with countless filter bags and many years' work on this special medium. The result is a progressive material with specially crocheted loops to provide efficient, in-depth filtering with far better filtering properties than those of traditional filter surfaces. This is clearly shown by tests carried out at a number of acknowledged, independent institutes.

It just can't be improved on.

NF-2000	Name	Type			
		EA	EH	JA	JH
		Filter area (m²)/Weight (kg) per section			
K	Chain filter	30/215	37/226	60/291	74/313
S	Silo filter	30/215	37/226	60/291	74/313
P	Bag emptying filter	30/215	37/226	60/291	74/313
G	Thro-flow	30/215	37/226	60/291	74/313

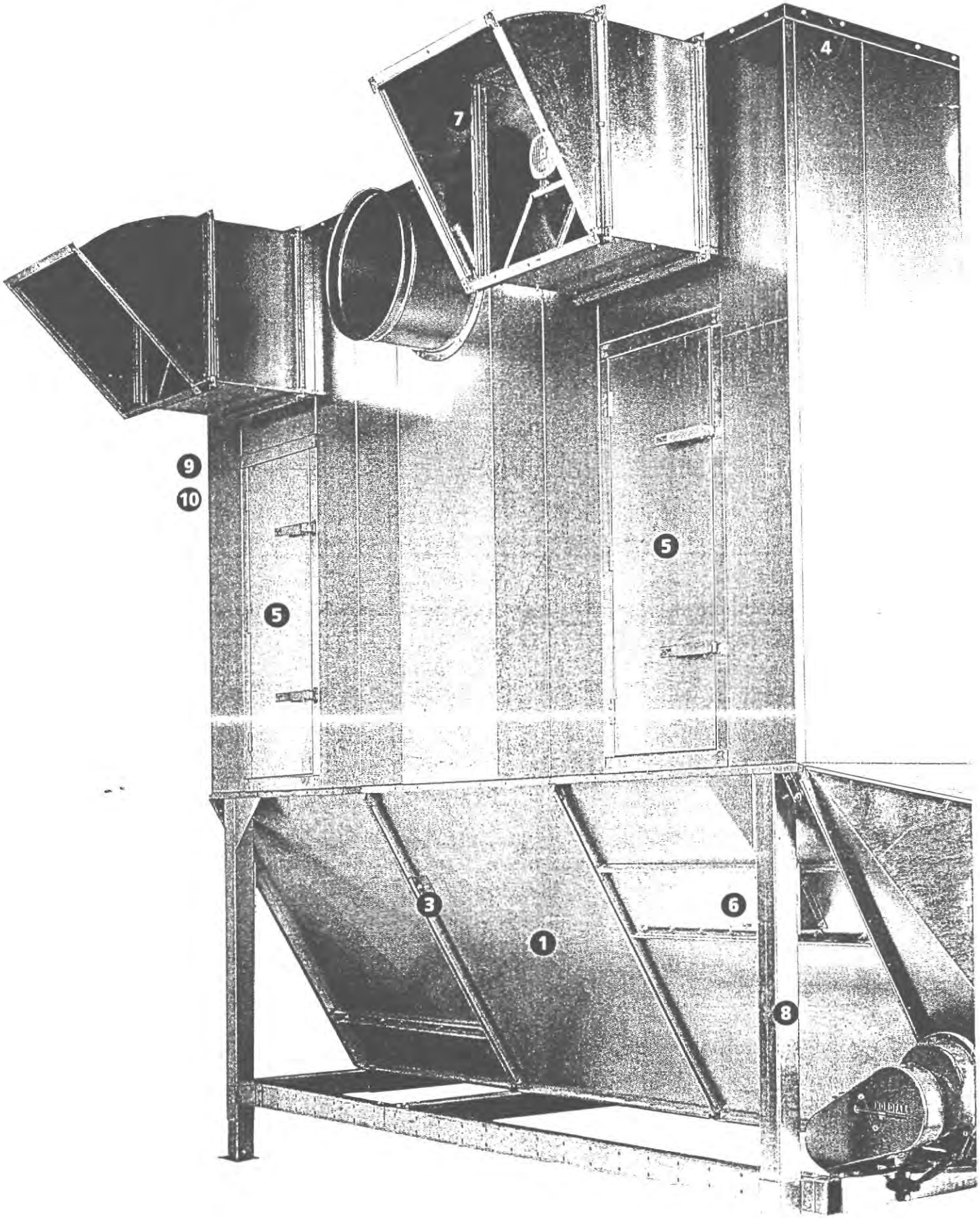


The filtering surface of the SUPERBAG 2000, enlarged 30 times.

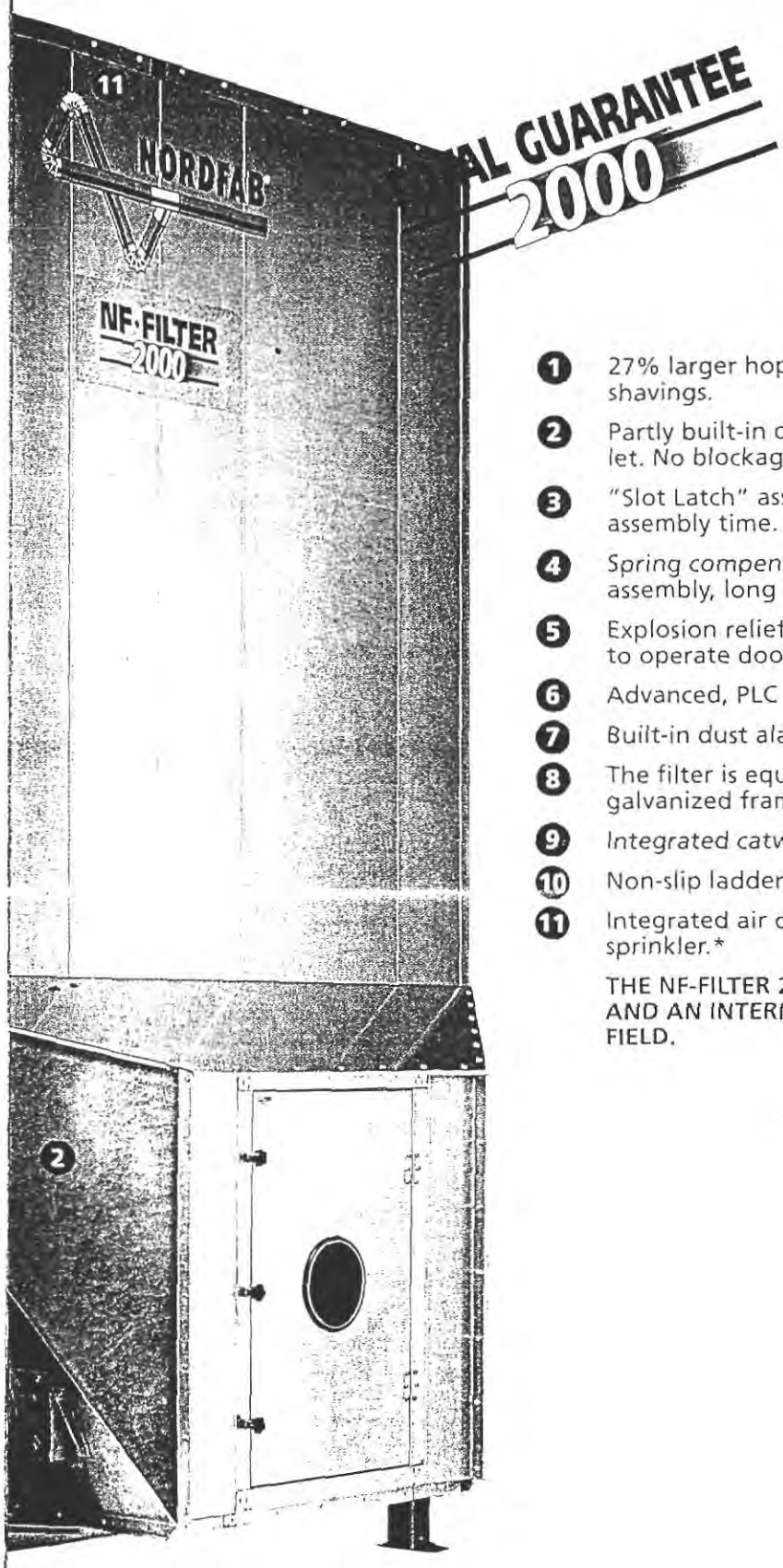


The clean air side of the SUPERBAG 2000, enlarged 30 times.

Superior technique and ne



w thinking in all respects



The NF FILTER 2000 has low energy consumption, low maintenance costs, long lifetime, it is easy to expand in step with increased requirements. Delivery reliability and service are second to none.

And in addition, NORDFAB not only offer an efficient emission guarantee, but also a new, unique 3 year Total Guarantee.

Weighs 30% less.
Takes up 40% less space.

1. 27% larger hopper section. Trouble-free removal of shavings.
2. Partly built-in driving section with full width at outlet. No blockages caused by shavings or similar.
3. "Slot Latch" assembly system saves up to 35% assembly time.
4. Spring compensated bag suspension ensures easy assembly, long lifetime and easier cleaning.
5. Explosion relief doors with specially-designed, easy to operate door handles.
6. Advanced, PLC control ensures optimum operation.
7. Built-in dust alarm.*
8. The filter is equipped with an adjustable, fully-galvanized frame.
9. Integrated catwalk.*
10. Non-slip ladder rungs.
11. Integrated air duct prepared for incorporating a sprinkler.*

THE NF-FILTER 2000 IS UNIQUE IN EVERY RESPECT AND AN INTERNATIONAL SENSATION WITHIN ITS FIELD.

*Can be supplied as extra accessories.

The compact filter with the amazing power reserves

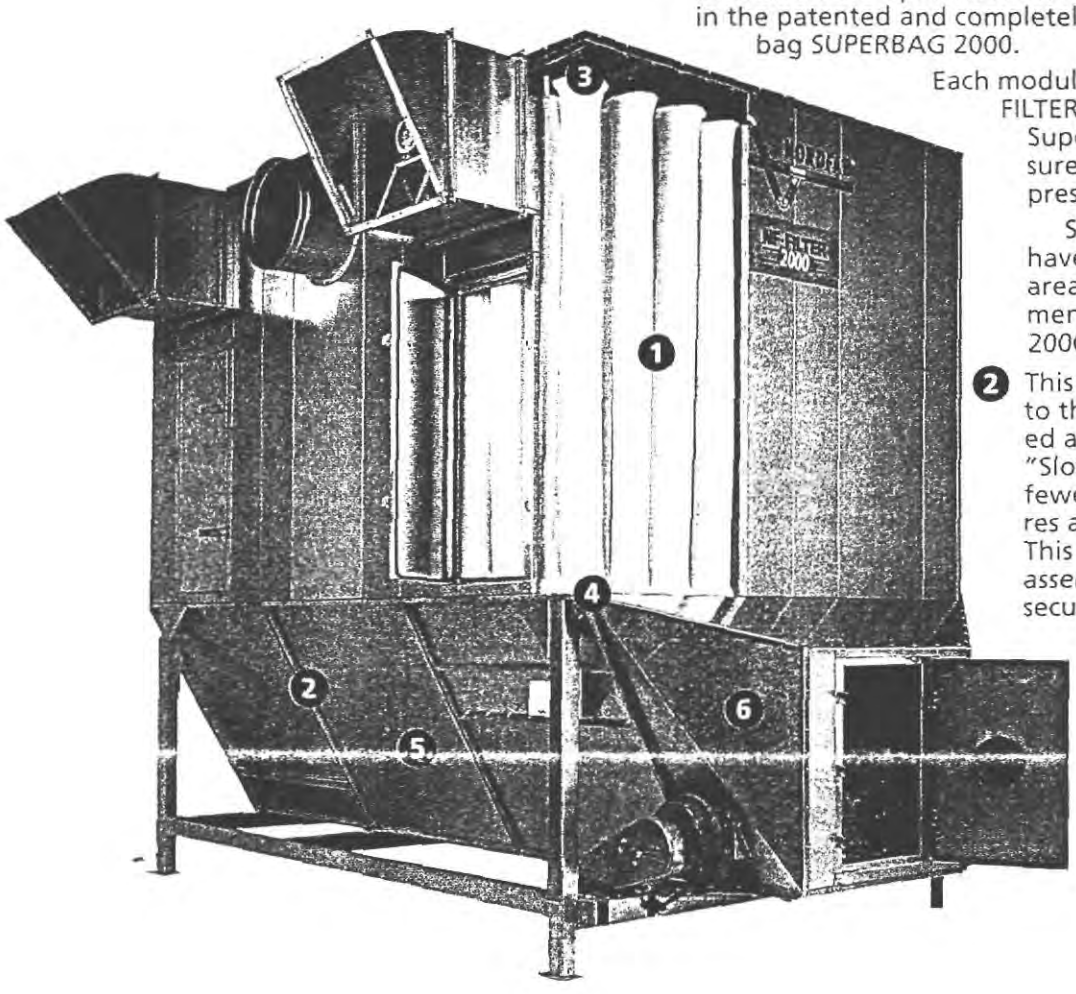
The NF-FILTER 2000 is the filter system of the future.

We have successfully developed a supreme filter which *is surprisingly compact and therefore takes up significantly less space, but at the same time has amazing reserves of power.*

1 Behind this technical breakthrough lies years of intensive development work which has resulted in the patented and completely new, special filter bag SUPERBAG 2000.

Each module in the new NF FILTER 2000 contains 25 Superbags which ensure extremely low pressure loss.

Significant gains have been made in all areas with the development of the NF FILTER 2000.



2 This is not least due to the newly-developed assembly method, "Slot Latch", which has fewer joints and requires almost no bolts. This means faster *assembly and more* secure joints.

3 Spring compensated bag suspension.

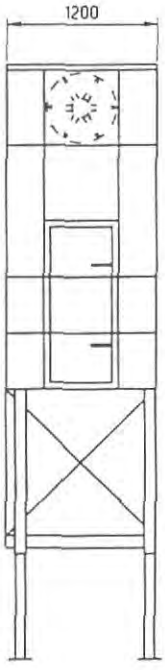
4 Bottom seam with double fold and hidden *stitching.*

5 The extra large hopper section is equal to the heaviest loads and the development of the new conveyor system is based on the experience and know-how we have gained over the years.

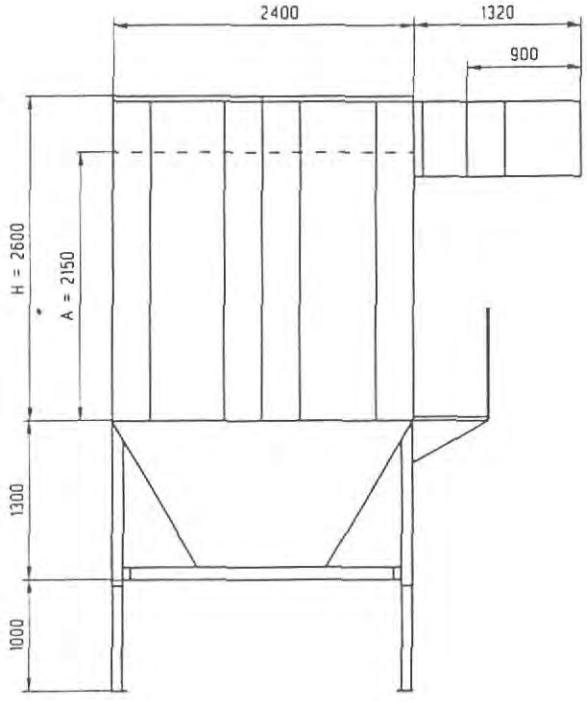
6 A recently developed driving section prevents blockages caused by shavings and similar materials and consequent costly interruptions in production.

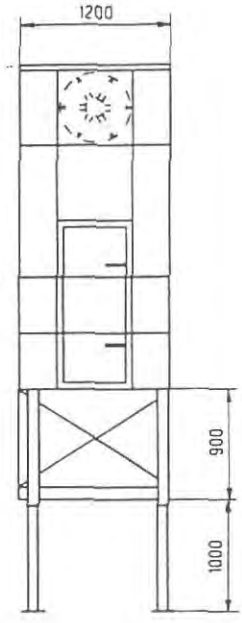
The new filter naturally also allows the incorporation of special equipment such as a catwalk and a sprinkler unit.

NORDFAB®

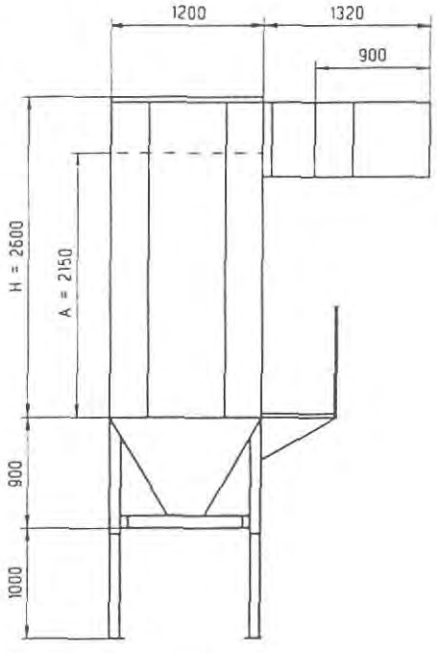


Type J





Type E

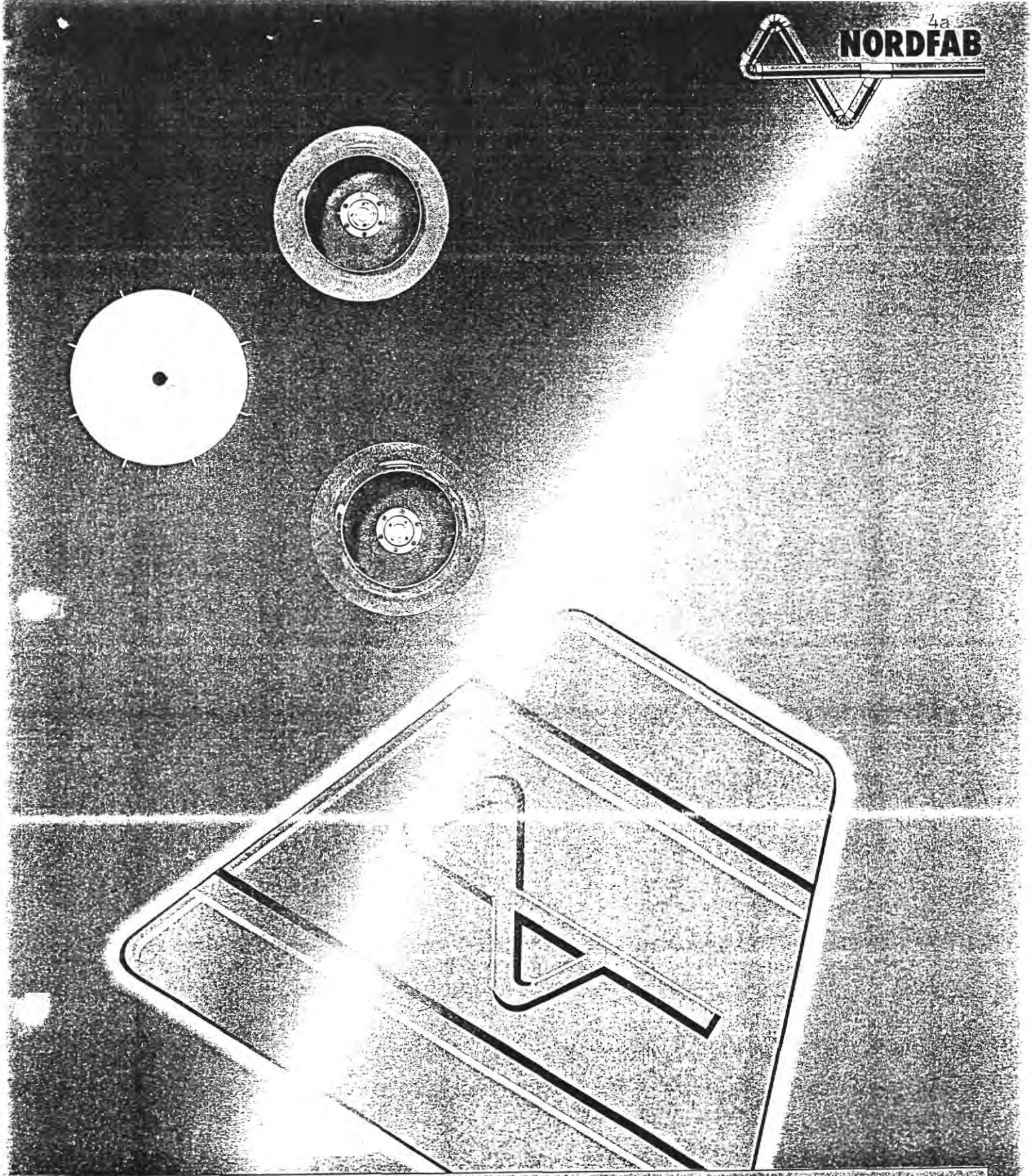


NF-Filter *2000* type	Filter Bottom	Filter Top						Filter bag cleaning	
		Filter bag height		Filter bag module width		Open filter	Closed filter	Reg. vent. 600x600	Bag vibrator
		1950 mm	2400 mm	1200 mm	2400 mm				
Chain filter	K	A	H	E	J	-	L	R	-
Silo filter	S	A	H	E	J	O	L	R	V
*Bag empty-*ing filter	P	A	H	E	J	O	L	R	V
Thro-flow	G	A	H	E	J	O	L	R	V

NORDFAB - D.P.E. Ltd.
Rosse Street, off Thorton Road • Bradford BD8 9AS
Tel.: 027 44 88 715 • Fax: 027 44 99 618

A NORDFAB Company

NORDFAB



COMBIFAB

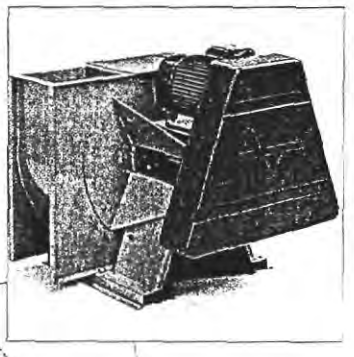
- the Fan System of tomorrow

COMBIFAB
- the new generation

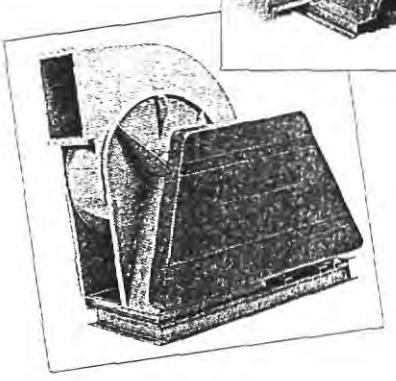
COMBIFAB is a new concept within ventilation, and a new generation of *energy saving fans. As regards efficiency, flexibility, range of avaliable* combinations, and operating economy, COMBIFAB sets a completely new standard in the market.

The COMBIFAB system effectively covers any need for ventilation within the industry. Therefore, COMBIFAB can be installed in new as well as in existing extraction plants.

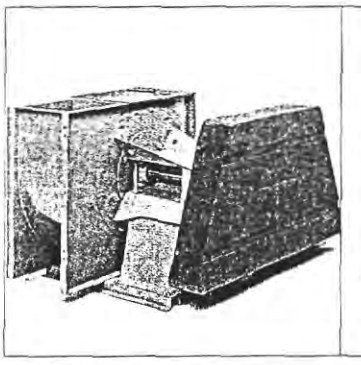
COMBIFAB offers a positive operating economy, and meets the highest demands for protection of the workers. COMBIFAB makes the future the present.



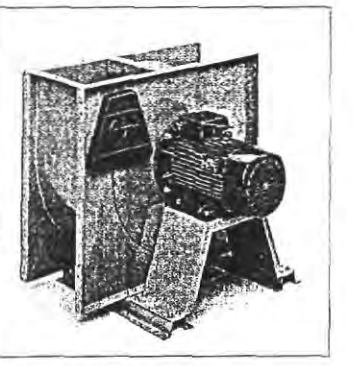
COMBIFAB mounted with belt drive Gear I



COMBIFAB mounted with belt drive



COMBIFAB mounted with belt drive Gear II

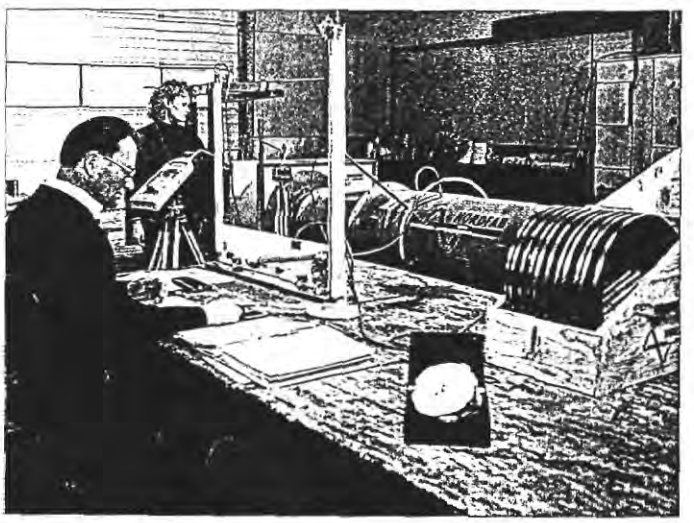


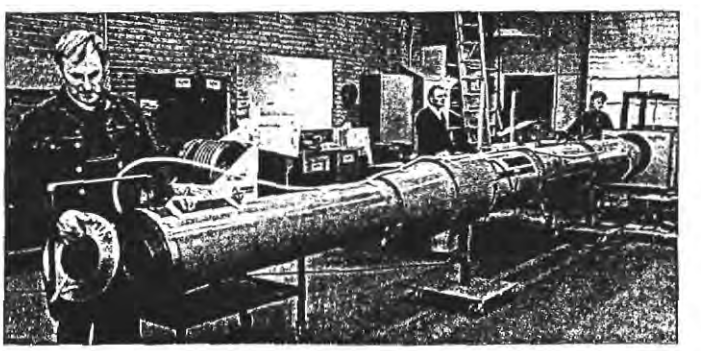
COMBIFAB mounted with direct driven motor

The result
of a persistent development work

COMBIFAB has been developed by NORDFAB A/S. The company's long experience within environmental technology, fans and ventilation has formed the basis of the development of the fan system of tomorrow.

The development has taken place in close cooperation between engineers and industrial designers, and much research has been put into this work. The result is a complete, flexible fan system, carefully adapted to the needs of the industry.





High efficiency saves energy

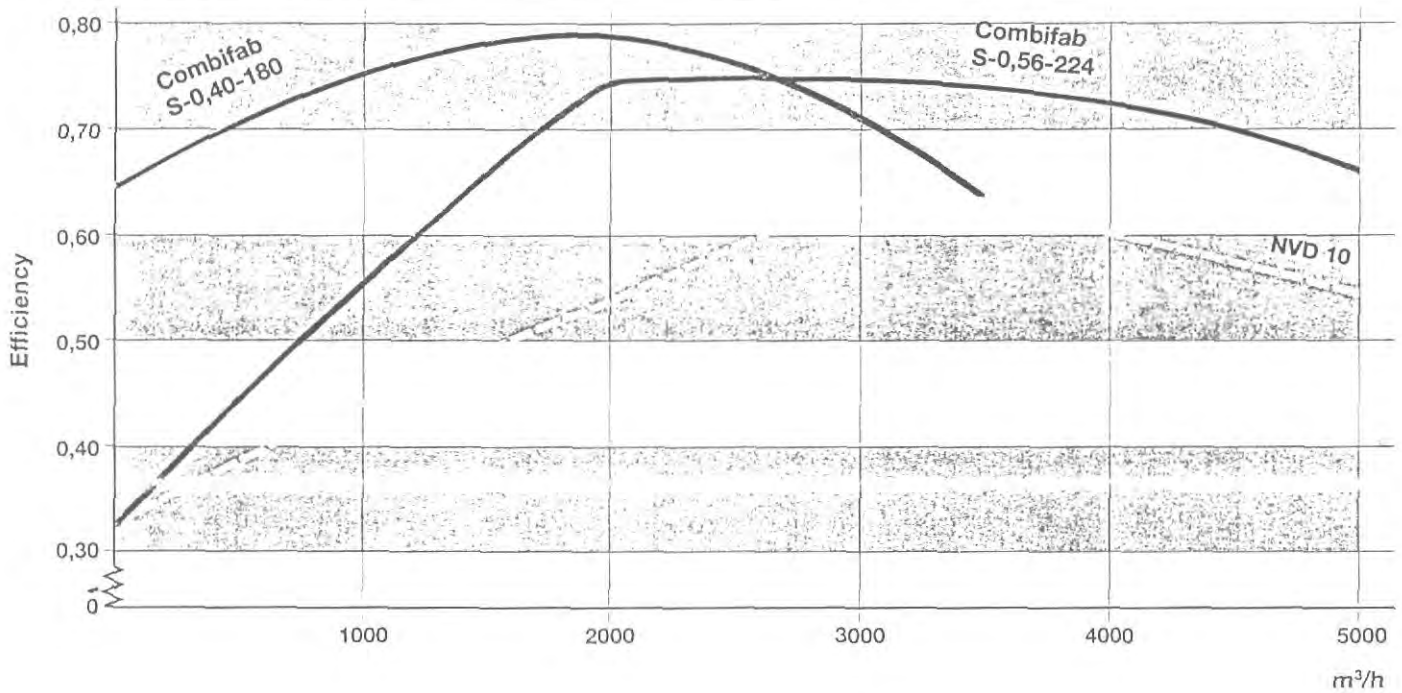
The operating economy of a fan is closely linked to its efficiency. The higher the efficiency, the smaller the motor needs to be. High efficiency fans need smaller motors, which reduces the energy demand.

Depending on the wheel type COMBIFAB offers efficiency up to 88%, which gives large savings as regards energy and operating costs.

The high efficiency makes COMBIFAB a must in all new extraction plants. However, economies can also be made by installing COMBIFAB in an existing plant, especially when the present fan is due for replacement.

It is possible to have a status and update report made for the existing plant, which indicates the exact amount saved.

The efficiency of COMBIFAB compared with the one of traditional fans.



3

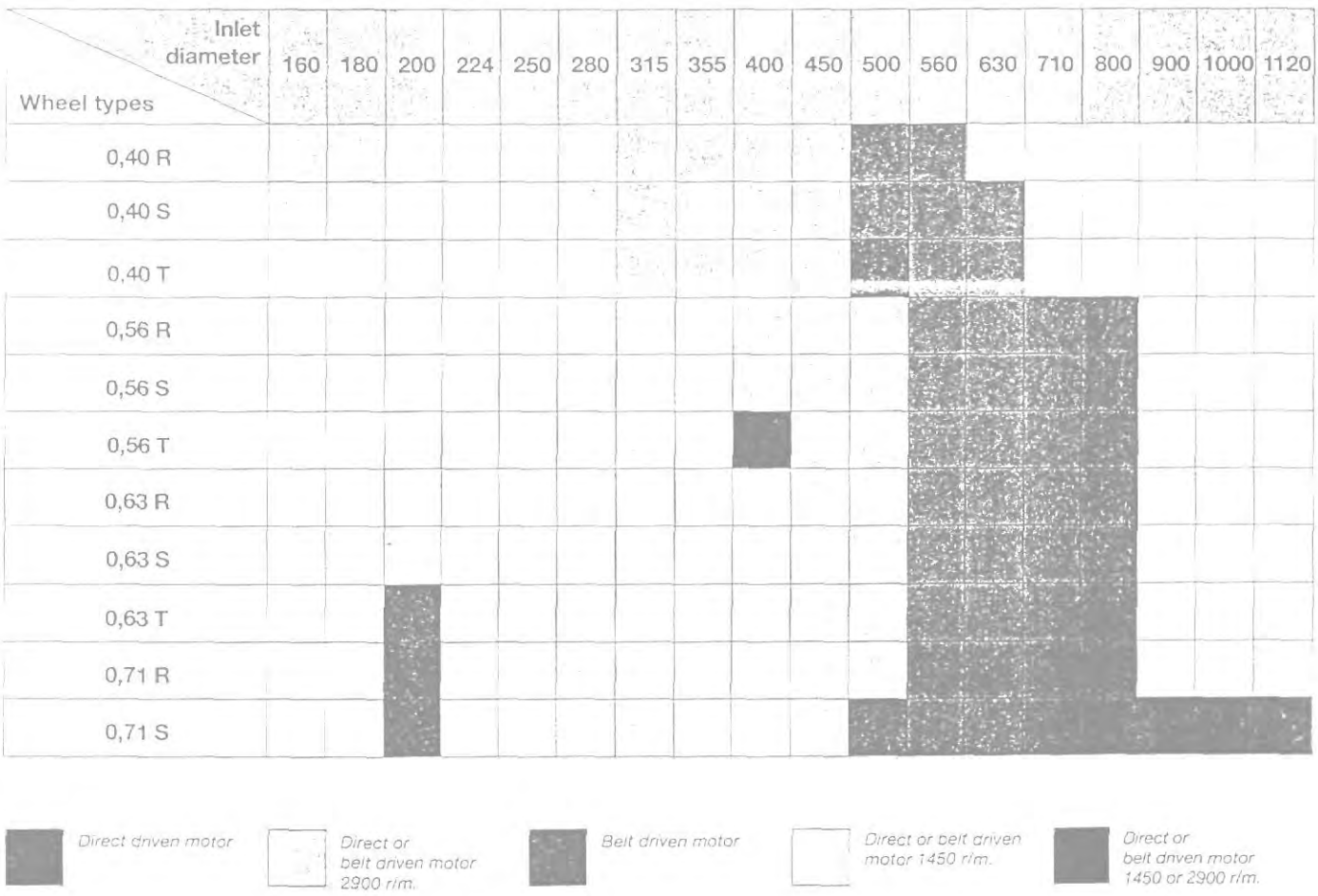
COMBIFAB grows with the job

The industry often needs to adapt or change the production, which also demands flexibility from the fan system. COMBIFAB fully meets this need. As the fan housings fit all wheel types, the wheels can easily be replaced and the fan adapted to a different use.

If the need for ventilation increases, the direct driven ventilator can be replaced by a belt drive with a larger or smaller motor.

When the need changes, it is far cheaper to modify the fan by changing single parts, than to replace the fan completely. A fact which stabilizes the investment in COMBIFAB.

A survey of the many available combinations in the COMBIFAB system.



THE COMBIFAB SYSTEM

COMBIFAB offers wheels for any use

COMBIFAB is a complete system that, with a minimum of components, can be combined to meet any need for ventilation.

A wide range of combinations can be made from the variated sizes of fan houses, direct driven or belt driven motors and the three different wheel types. The avaliable combinations appear from the survey on the opposite page.

There are three different COMBIFAB wheel types. The choice of wheel type is determined by the extraction air and its content of particles.

Clean Air Wheel - TYPE-R

The Clean Air Wheel is a closed bladed wheel with backward curved blades.

The wheel is intended for transport of clean air and also air with a smaller quantity of fine dust.

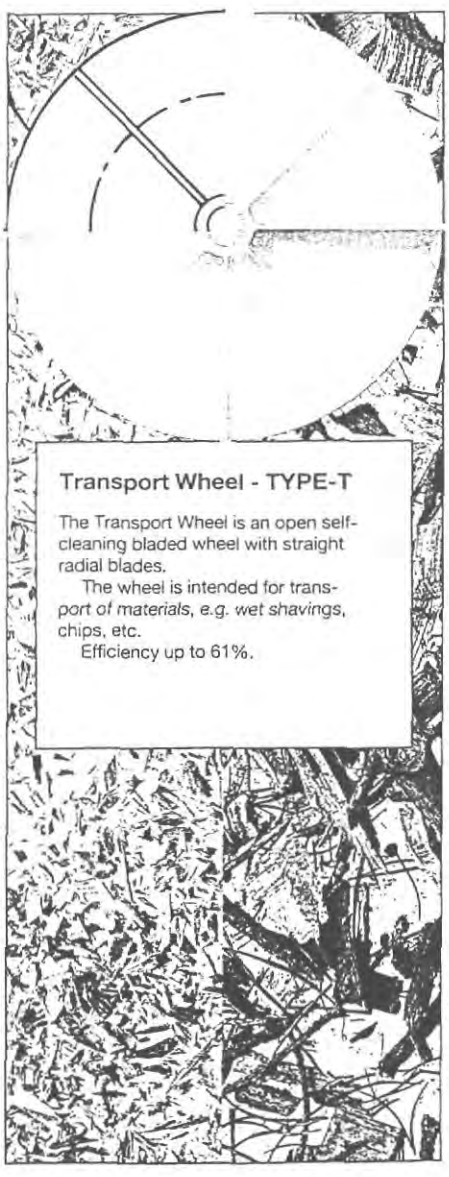
Efficiency up to 88%.

Chip Wheel - TYPE-S

The Chip Wheel is a closed, partly self-cleaning, bladed wheel with straight, backwards oblique blades.

The wheel is intended for transport of dry saw chips and shavings and also dust laden air.

Efficiency up to 81%.



Transport Wheel - TYPE-T

The Transport Wheel is an open self-cleaning bladed wheel with straight radial blades.

The wheel is intended for transport of materials, e.g. wet shavings, chips, etc.

Efficiency up to 61%.

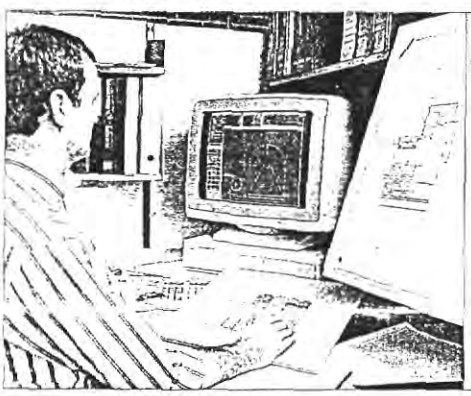
COMBIFAB
- designed for reliability

Traditionally fans have been a matter of function more than of design. But the COMBIFAB system has been developed in close cooperation between engineers and industrial designers, each of which has contributed with their expertise and know-how.

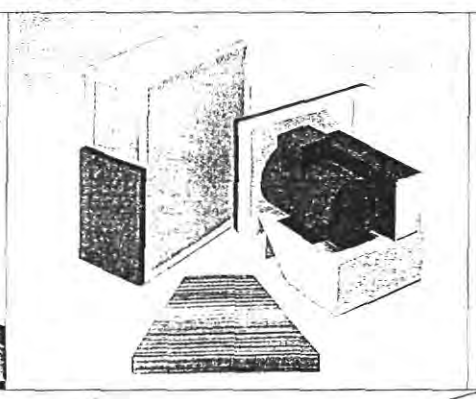
It has been a fascinating and demanding development process, in which the different expert groups have challenged each other in a creative interplay. The result is a fan system that combines the highest functional demands with a distinct, modern and easily recognizable design.

The thorough design is also seen from the solid choice of materials. The solid COMBIFAB construction has been proven by innumerous tests. A fact that secures reliability and low maintenance costs, as well as considerably reducing the risk of breakdown.

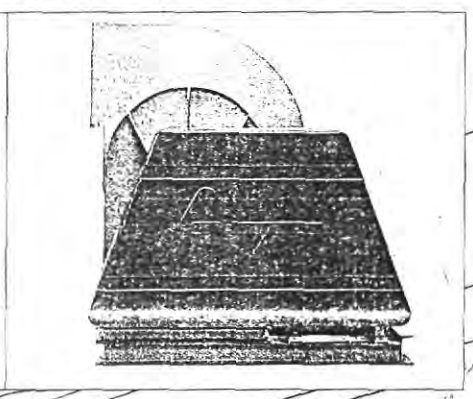
From the engineers' first technical calculations...

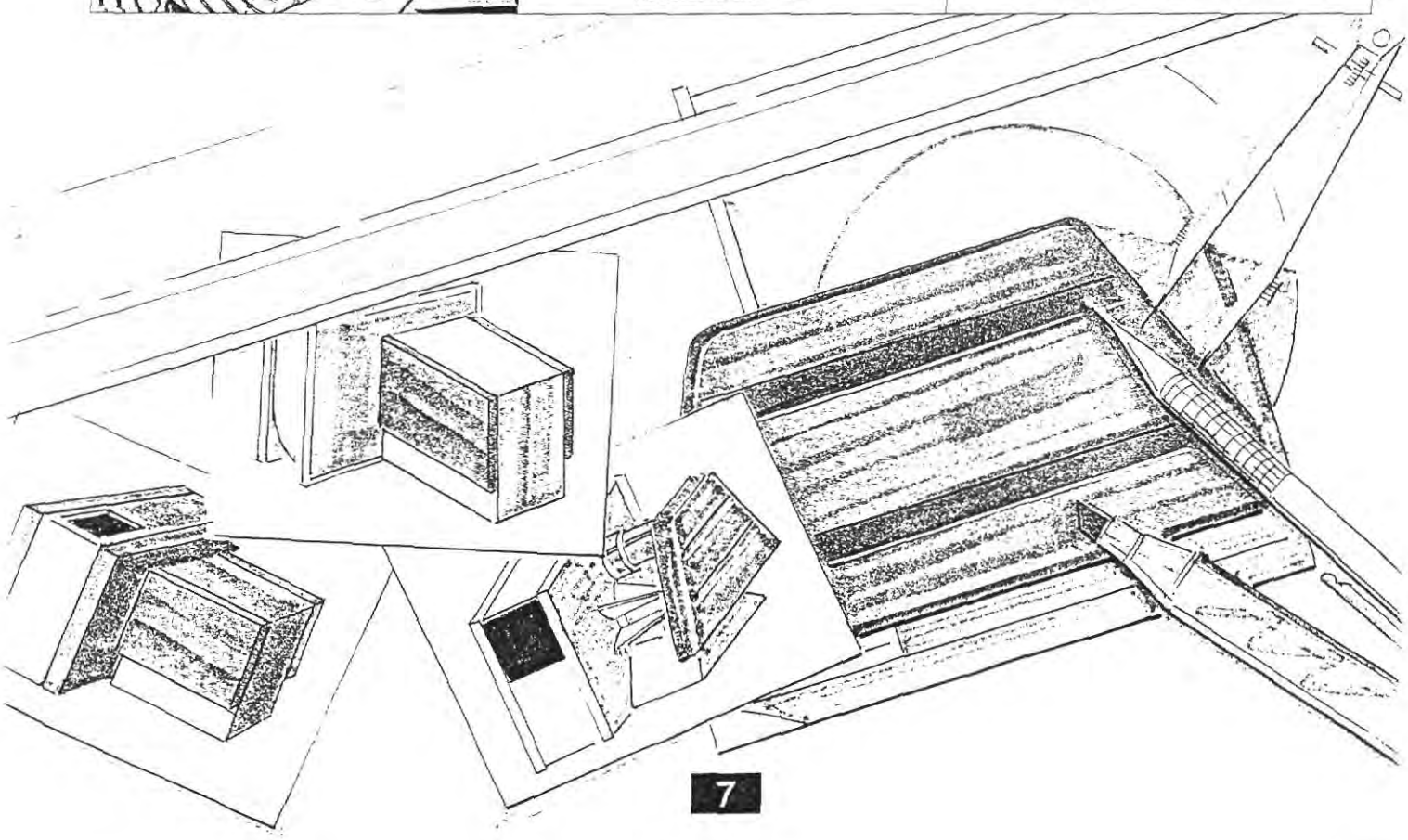


- through the designers' scale models...



- to the finished product: COMBIFAB - the fan system of tomorrow!



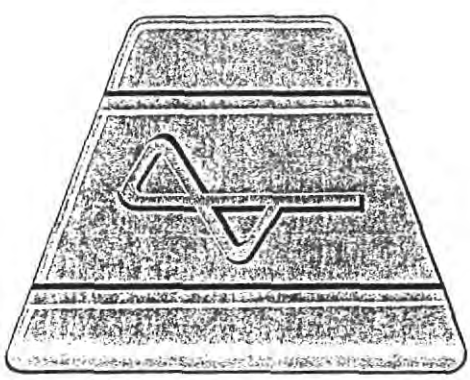


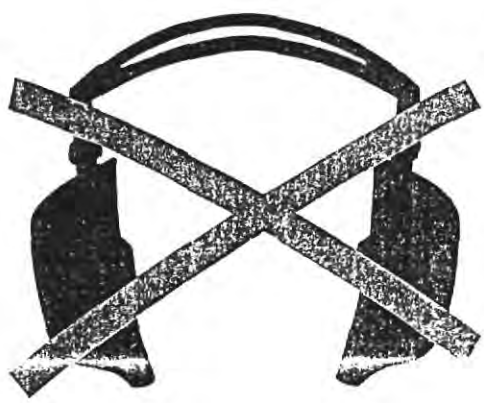
COMBIFAB -protects the workers

Today the importance of protecting the workers is clearer than ever, and the legislation in this area is not likely to be less strict in the future.

The industrial manufacturing processes often produce uncomfortable or even harmful substances. An adequate ventilation must be provided, firstly taking into consideration the industrial hygiene, and secondly the fact that comfortable working conditions promote motivation and effectiveness.

COMBIFAB is the solution that considers the demand for protection of the workers as well as the demand for positive operating economy.

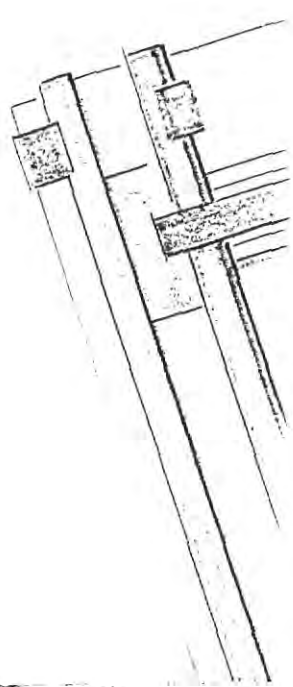




COMBIFAB works low-noise

Noise reduction also is an important fact in protecting the workers. From birth COMBIFAB takes this into consideration. All COMBIFAB fans have low noise, and therefore they do not interfere with the working environment - even at close working range.

This also means that normally it is not necessary to invest in supplementary noise reduction. For installation in rooms especially sensitive to noise, COMBIFAB can be supplied with a special acoustic enclosure.



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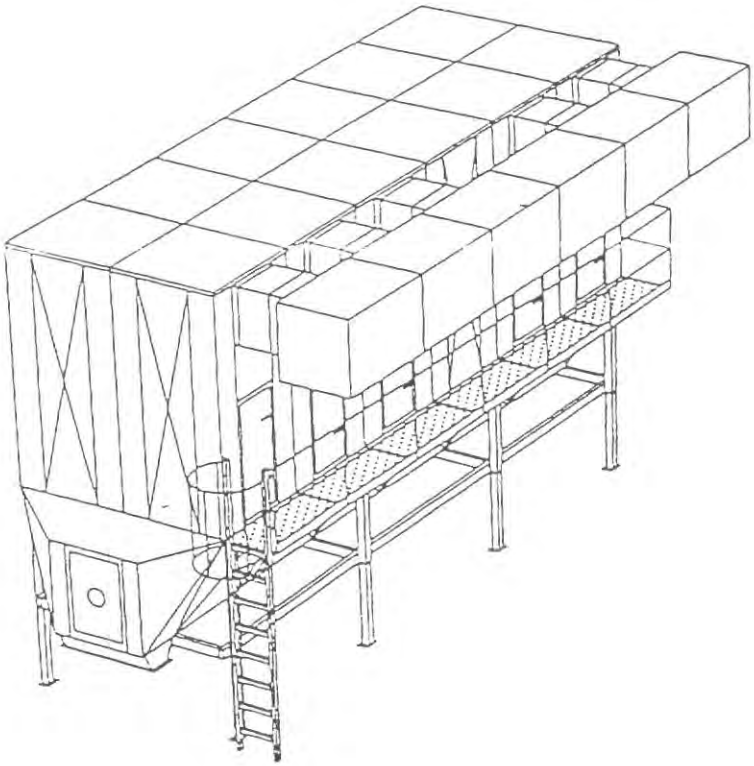
NORDFAB 5a

NF FILTER 2000



FUNCTION AND OPERATING INSTRUCTIONS

NFK 2000 WITH SUPERBAG 2000

NORDFAB

Customer: DAVID SMITH ST IVES LTD
MARLEY ROAD
ST IVES
CAMBRIDGE

Customer no. ISMI750

Order no.: N 10116

Main data of the plant

Waste type : WOOD WASTE

Waste volume	3200 CFM
Extraction total	42000 CFM
Return air total	42000 CFM
Transport air total	3200 CFM

Extraction system

Filter type NFK 2000 7+2 HILR with

7 pieces filter section type HILR

2 pieces top injection modules

47 & 5 Pieces filter bags type 2400 LG & 1950 LG total m^2 5211.5

ft^2 5611

Filter load during normal operation: N/A $m^3/m^2/h$

Filter load during regeration N/A $m^3/m^2/h$

7 pieces regeneration fans

4 pieces fire dampers 600 x 600 mm

4 pieces summer/winter dampers 600 x 600 mm

1 pieces rotary valve type NRS 10

Suction fans

No	Type	Effect kW	Rotor r/m	Air m^3/h	ΔPt Pa
2	S.0.163-710	75	—	21000	5500 H 3PH

Transport system

Filter type N/A

Cyclone type NC 1000

Transport fan type T.O. 56-31 , 18.5 kW, 3200 CFM N/A ΔPt N/A

Mounting drawing no.

Electric diagram no. SUPPLIED WITH CONTROL PANEL

FUNCTION DESCRIPTION

General description

NORDFAB filter type NFK 2000 is a bag filter used forfiltration of considerable quantities of air with content of fibrous material such as wood waste, paper waste, paper and the like.

The filter consists of standard filter modules and may easily be expanded to increase the filter capacity.

The filter is built for continuous operation.

Transport of material

The dust-laden air is blown into the inlet module of the filter via inlet bosses with automatic back pressure flaps which prevent the air from being led back into not operating duct connection.

Due to the considerable volume of the filter box the velocity of the blown-in air is immediately reduced, and big and heavy particles are separated directly down into the transport box of the filter.

The blown-in air is distributed via the transport box thus achieving an even load of all filter bags in the filter. The air flows up through the open filter bags and passes the bags from the internal to the external side. During the passage the particles are deposited on the internal side of the filter bag and will fall down into the transport box during the regeneration period.

Return air

The filtrated, clean air leaves the filter via return air outlets. The return air outlets are built as separate outlets from each filter module. Furthermore, a number of return air outlets may be joint together from more return air outlets in a common return air duct.

The quantity of return air blown into the produktion premises and out in the open respectively may be regulated by mounting a summer/winter damper in the return air duct.
Before the air is blown into the production premises, the return air duct may furthermore be provided with a fire damper equipped with a safety fuse with a breaker to the main switch of the system. For monitoring of the filtered air, a NORDFAB dust alarm may be mounted in the return air duct.

NORDFAB

SUBERBAG 2000
Cleaning of filter bags

Cleaning of the filter bags is carried out by means of regeneration fans which, at frequencies, blow air backwards through the bags.
During operation as well as during breaks.

The filter is delivered with separate regeneration fans for each filter module.

Start and stop of the regeneration fans are completely automatically controlled by the electric panel of the filter.
Consequently only one fan is operating at a time.

The regeneration fans blow air into the clean side of the filter box at a pressure slightly higher than the pressure in the bottom section of the filter. By this, the clean air is pressed through the filter from the external to the internal side causing the material to loosen and fall down into the transport box.

Handling of material

In the bottom section, the deposited material is lead towards the driving section on a conveyor, and is fed out without pressure via a rotary valve to a container or via a transport ducting to silo.

In connection with substantial quanties of air , the material may alternatively be sucked directly out of the driving section.

P E

NORDFAB®

LEV PLANT TEST REPORT

CLIENT:	David Smiths St. Ives Ltd
ADDRESS:	Marley Road St. Ives Huntingdon Cambs PE17 6EX
PLANT TYPE:	NFK 2000 7+2 HJLR
LOCATION:	External
MATERIALS EXHAUSTED:	Wood Waste
INITIAL TEST DATE:	01/08/93
DATE OF LAST TEST:	17/08/93
METHOD OF TEST:	Airflow & Pressure Measurement
SITE CONDITIONS:	Normal Production
DATE THIS TEST:	04/10/93

ALTERATIONS TO PLANT SINCE LAST TEST:

Replaced drive pulleys to Fans 1 and 2 to reduce volume.

TEST CARRIED OUT BY: C. Ioannou

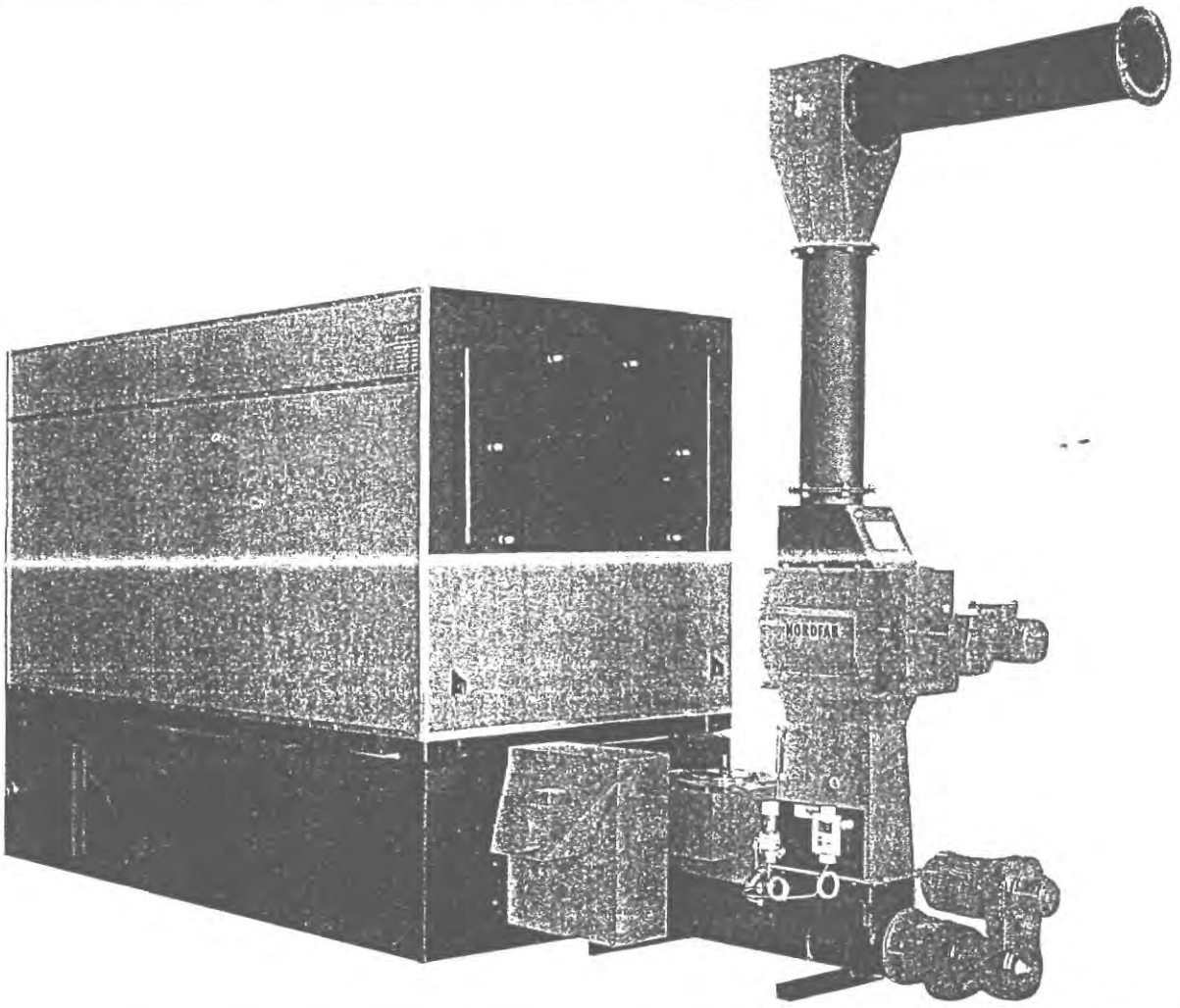
DATE: 04/10/93

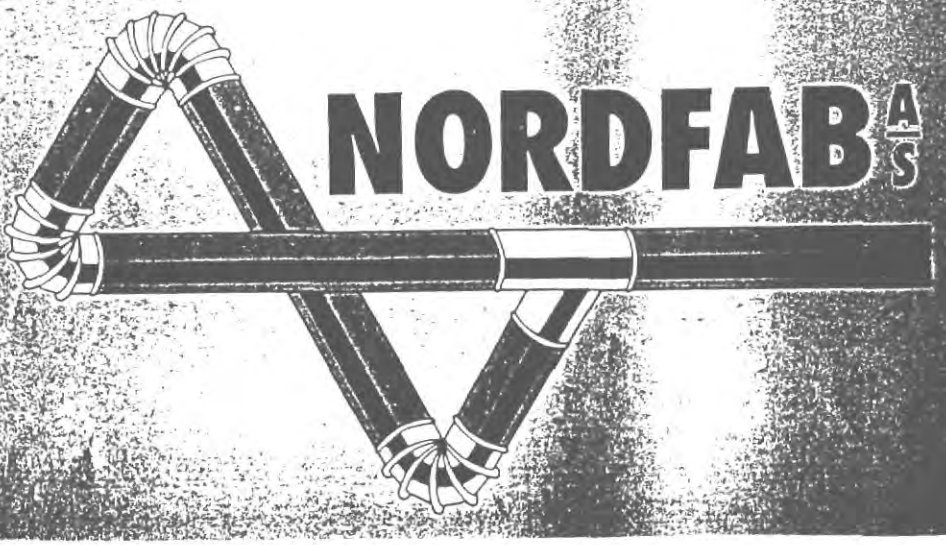
C. Ioannou.

NORDFAB - D.P.E. LTD.
16 Common Road · Low Moor · Bradford BD12 0EL · UK
Tel: 0274 - 691806 · Fax: 0274 691807 · Registered in England No. 1666696
A NORDFAB Company
Registered Office: Limewood Approach, Seacroft, Leeds LS14 1NG

FAN REF	DUTY	VOLUME CFM	+ PRESSURE	- PRESSURE	TOTAL STATIC PRESSURE
	DESIGN	21000			12"
FAN	INITIAL	26647	4.0"	11.3"	15.3"
NO	LAST TEST	23449	3.6"	5.7"	9.3"
1	THIS TEST	21317	3.8"	6.5"	10.3"
	DESIGN	21000			12"
FAN	INITIAL	28778	4.0"	10.7"	14.7"
NO	LAST TEST	22383	4.0"	5.3"	9.3"
2	THIS TEST	20784	4.6"	5.0"	9.6"
TRANS-PORT FAN (SILO)	TEST	2706	12.4"	6.5"	18.9"
BOX CART FAN	TEST	2706	4.0"	(+ 14.8")	10.8"
DCS FILTER	TEST	5593			5.7"
DUSTRAC-TION FILTER FAN	TEST	9576			7.8"

FULLY AUTOMATIC FURNACE SYSTEM





NORDFAB A/S

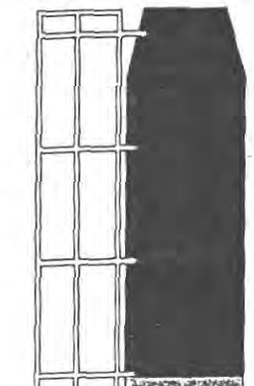
The fully automatic NORDFAB combustion system has been developed on the basis of many experience in the combustion of industrial waste.

The system has been designed for combustion of all kinds of wood waste, straw, waste from the cork, nut shells, peat, textile waste, briquettes etc.

The NORDFAB combustion system is constructed in the size 200-5,000 Mcal/hr (800,000 btu/hr-2 depending on type of fuel. The modular construction of the combustion systems with standard co enables individually constructed furnace systems to be assembled to suit specific applications.

NORDFAB also supply equipment for dealing with specific applications, for example outfeeding quantities of material, outfeeding and combustion of wet materials and briquetting plants.

Our technical engineers are at your service for solving your specific problems.



1 The NORDFAB silo programme includes round silos of approximately 15 to 500 m³ with diameters of 3000 to 6725 mm and square silos as required. The silos are designed especially to provide smooth internal surface, flexibility, and minimum maintenance requirement.

2 The outfeeding programme is well proven and characterised by excellent reliability. (Please see back of leaflet).

3 The transport system between silo and stoker is normally designed using an enclosed screw auger. Where large distances are involved a pneumatic transport system is used.

4 The systems are normally equipped with a rotary air lock, thus ensuring separation between the storage silo and the combustion equipment.

5 The metering bin is placed above the stoker worm screw but it can also be placed elsewhere as required, for example below outfeeder. A level switch in the metering bin controls the function of the outfeeder and transport system to ensure a consistant flow of material.

6 The stoker delivers the fuel into the boiler and is equipped with various safety devices preventing backburning, among these a water sprinkler system which is independent of electricity supply.

7 The retort is equipped with air-cooled heat resistant cast iron grates and fireproof secondary air jets. The programme includes both retorts for low ash as well as high ash fuels together with manual or automatic ash removal.

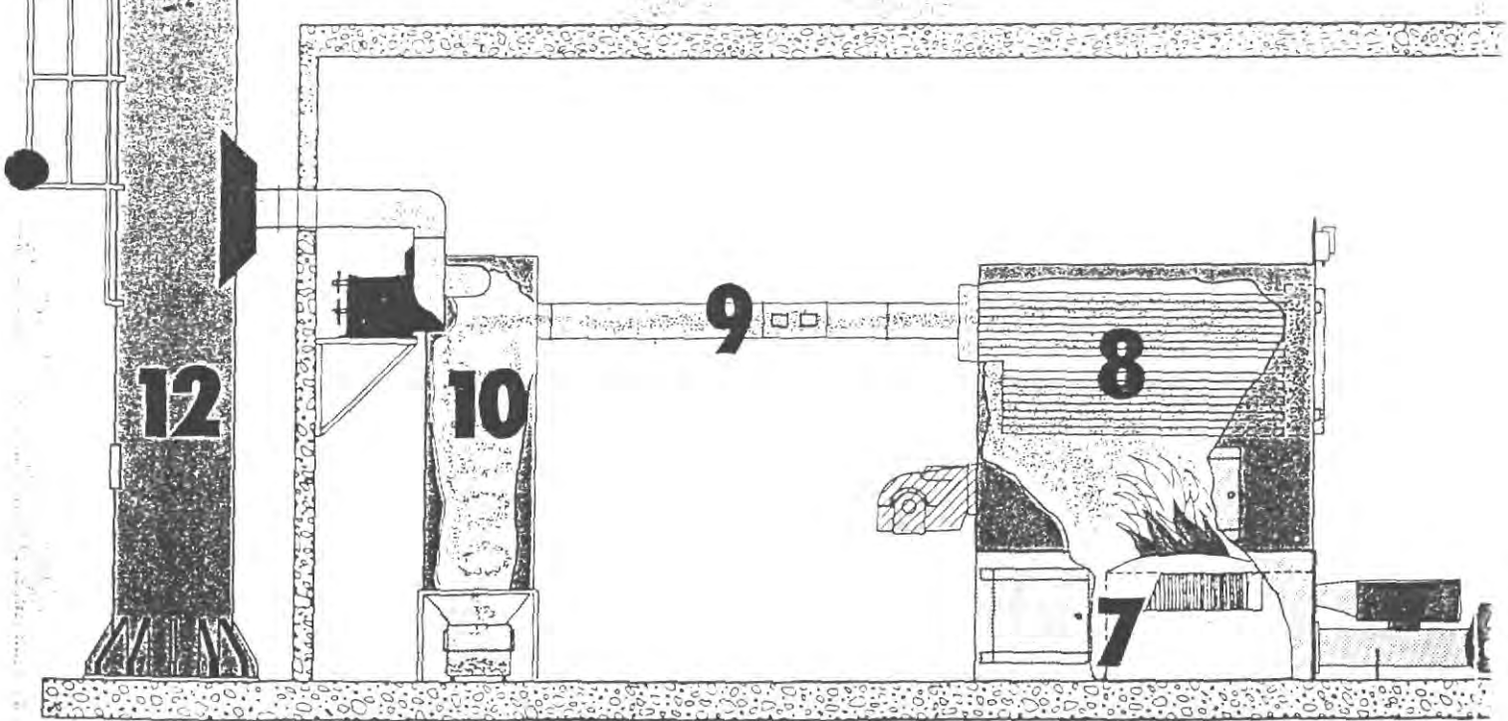
8 The boiler may be delivered for lphw, mphw, hphw, low pressure or high pressure steam. The boiler is a 3 pass fire tube boiler characterized by minimum heating surface load as well as low flue gas resistance. The efficiency varies between 80-85 %, dependent on the quality of the fuel.

9 The flue gas ducting is constructed as flange connected steel sheet pipes of appropriate dimensions and may be equipped with automatic flue gas damper which is operated directly from the vacuum within the combustion chamber. This secures continuos optimum combustion conditions.

10 The grit arrester separates most of the solid particles from the flue gases resulting in limited emission from the chimney and conforming to the clean air act. The flyash is normally collected in an ash bin underneath the grit arrester, but it may also be mechanically screwed to a container outdoors.

11 The electric panel is equipped with a main switch, fuses, relays, and contractors.
It is supplied completely ready for mains connection and site wiring of the various equipment. All functions of the system are indicated on a mimic diagram. The panel can be supplied with digital readings for flue gas temperature and flow and return line temperatures.

12 The chimney is of high specification, double skinned and self supporting. The good insulation value ensures that under normal operation, low temperature corrosion is avoided.



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outfeeding of large
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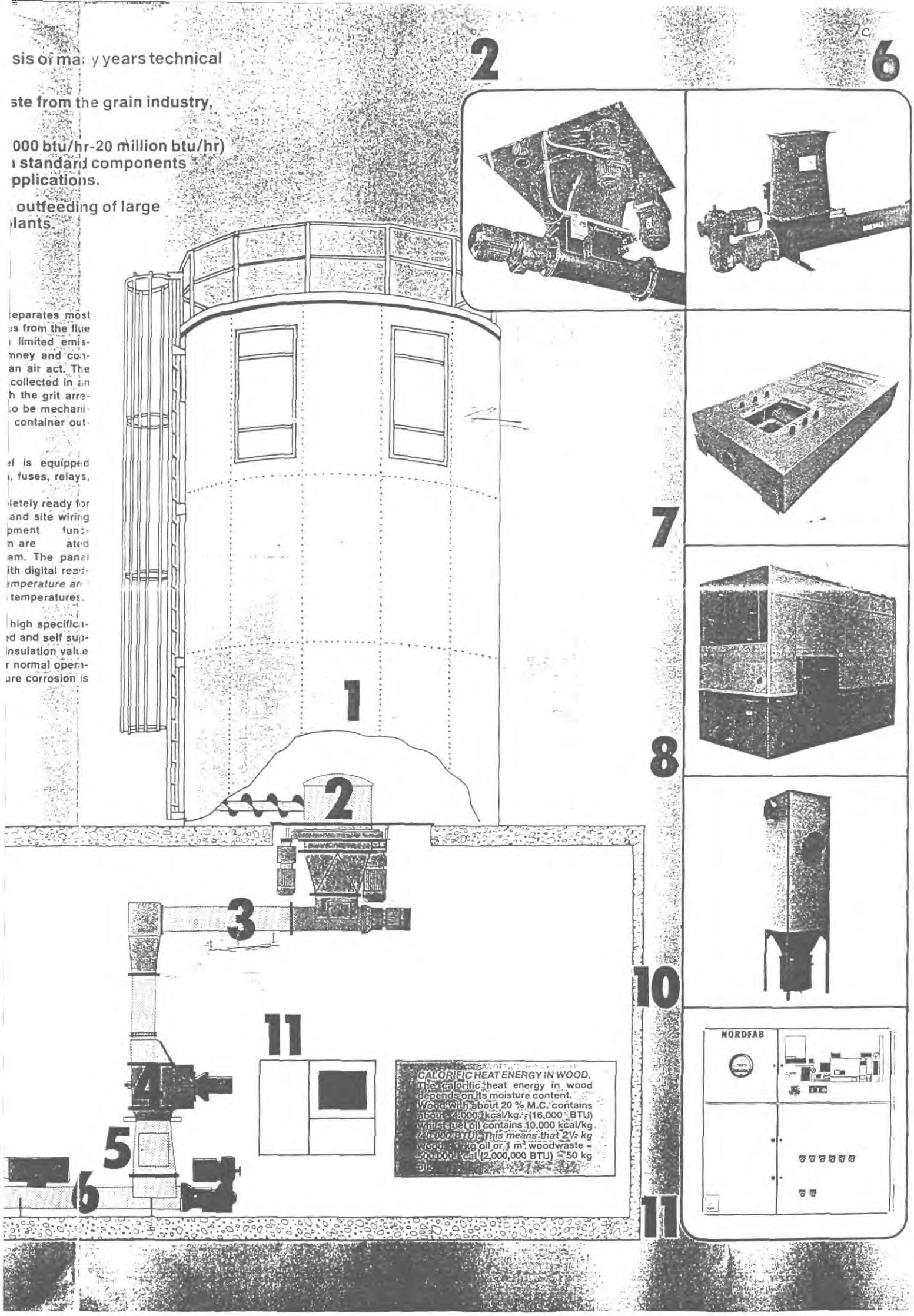
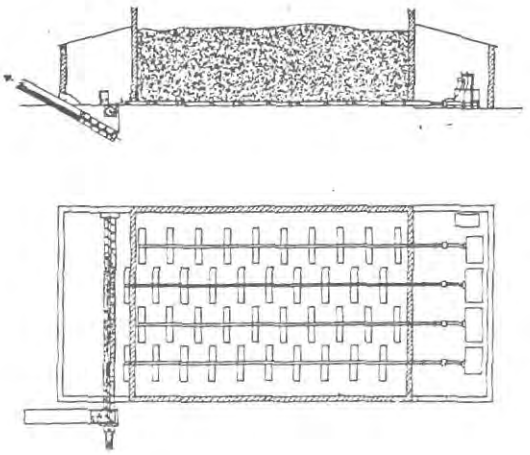
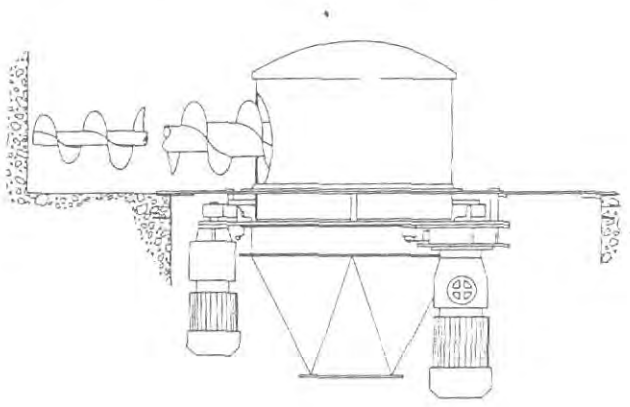


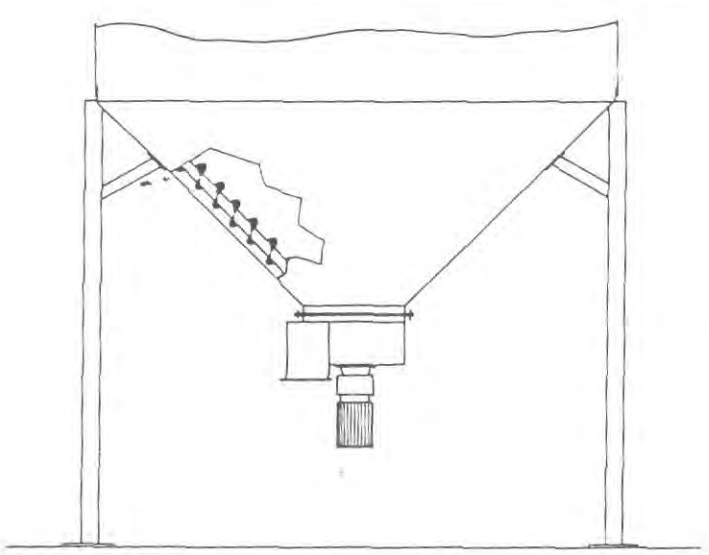
CALORIFIC HEAT ENERGY IN WOOD.
The calorific heat energy in wood depends on its moisture content. Wood with about 20 % M.C. contains about 4.000 kcal/kg. (16,000 BTU) whilst fuel oil contains 10.000 kcal/kg. (40.000 BTU). This means that 2½ kg wood = 1 kg oil or 1 m³ woodwaste = 500.000 kcal (2,000,000 BTU) = 50 kg oil.



NORDFAB push rod systems are primarily used for mounting within large silos for the purpose of outfeeding considerable quantities of material. Thus it is suitable for wet or granulated material such as shavings, briquettes, and bark.



NORDFAB outfeeders type NFU are used in round silos with a flat bottom construction, and they have a capacity of 0.3-10 m^3/h.



NORDFAB outfeeders type NFF are used in systems with limited silo capacity or smaller feed rates. These outfeeders are offered in the main to suit smaller boiler systems or to feed briquetting machines etc.

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Printed in Denmark by Aprintas ApS

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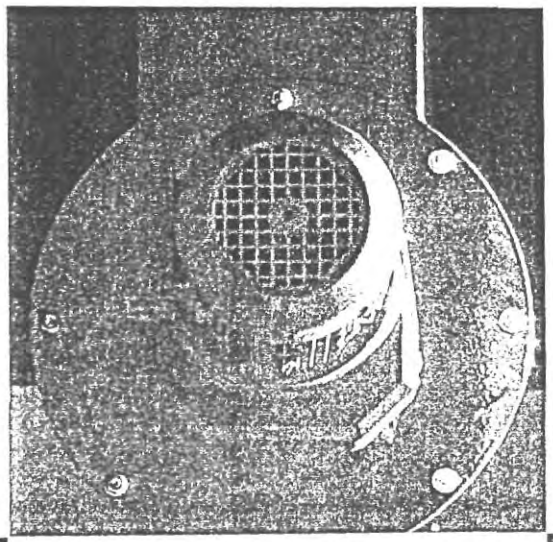
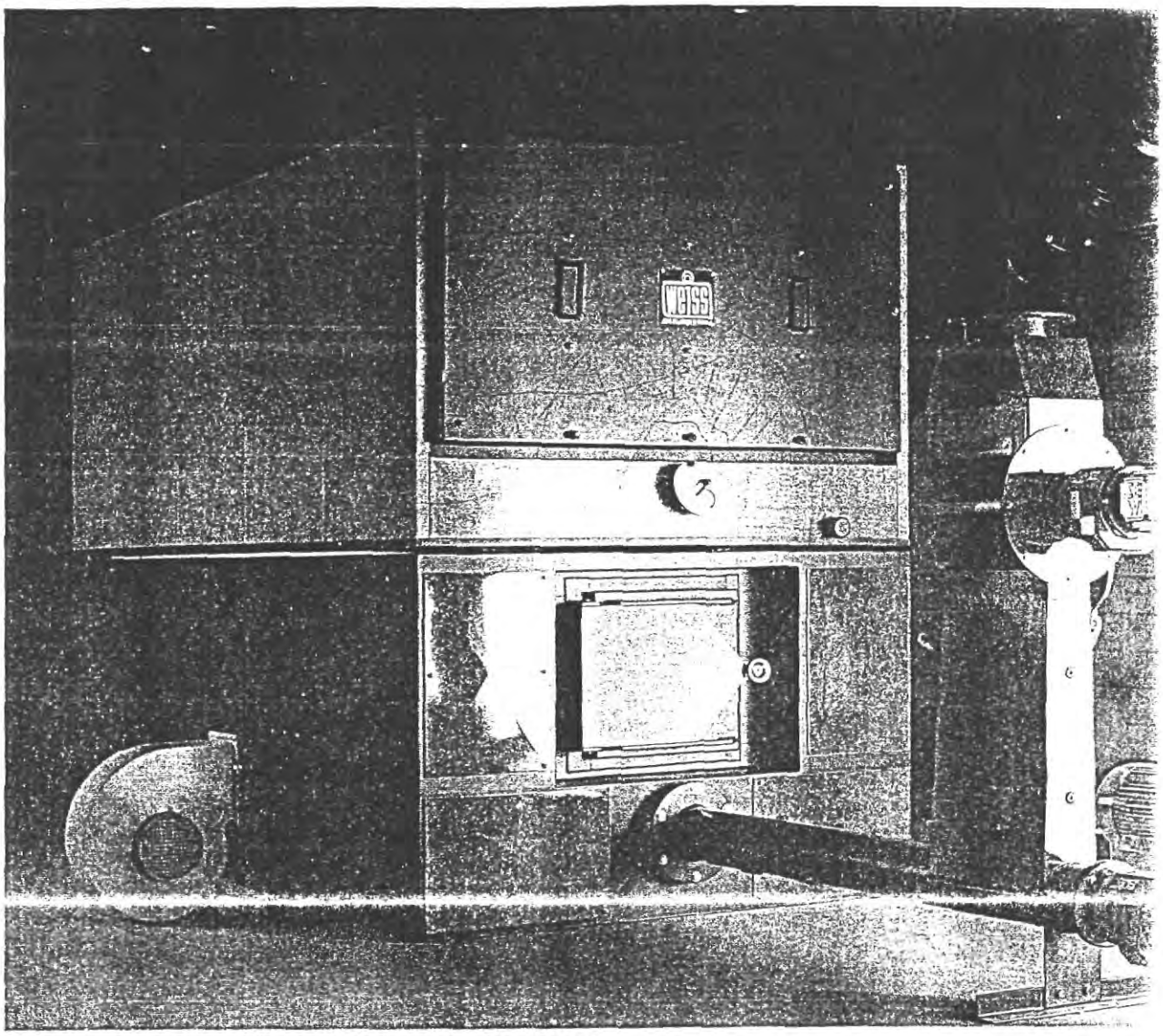


MULTI CRAT

WEISS

Printed in Germany 03-92



The Multicrat combines functional design with great economy.

Design

The Multicrat is a proven design containing over sixty years of expe-nence in the development of boilers and firing systems for wood. It has been designed for the generation of hot water 120°C, or low pressure steam with a maximum excess pressure of 1.0 bar and is especially suited for small to medium businesses.

The Multicrat is a threepass boiler in a horizontal position with fire tube, reversing chambe-, and welded-in smoke tubes. A high smoke velocity acts against the build-up of flue ash in the smoke tubes.

The boiler can be easily cleaned through large access and ash clean-out doors.

It is highly insulated and has very little loss of energy by radiation. The smoke is discharged via a multi-cyclone for flue gas cleaning which can be mounted on the right or left side of the boiler. For manual ash clean-out, an ash container will be mounted directly under the multi-cyclone system.

Firing

The Multicrat is equipped with a special burner, which is layed down to be the substructure of the To satisfy environmental reg. the fuel must be burnt awa maximum degree. This is ach using a concentric combustic ber. The secondary air neede burn the produced gas to C injected into the upper part combustion chamber throug required nozzles in order to good mixing and swirling.

Almost complete, ash-free stion is thus guaranteed.

The high quality lining is to withstand the high therm chemical stresses.

The construction plans and processes are designed and managed by CAD software.

Fuel

The Multicrat can combu wood remains such as shavi chippings and sawdust or an of these.

The wood remains are co automatically from the silo di

The fuel can be transporte matically using a ventilator, o nically using screw conveyor fuel material is fed through into the material dosage sha stoker screw.

The stoker screw possess continuously-adjustable drive guarantees the exact intake

and can be mounted on three different sides of the furnace. The unit is thereby flexible and can be adapted to local conditions

Safety and Control

A limiter monitors the low fuel level in the dosage shaft.

A further safety feature is the use of a thermostatically-controlled extinguisher on the stoker tube, as well as the rotary seal valve, which ensure that there is a depressurized connection between the conveyor unit and the dosage shaft.

A modern control/monitoring system ensures a logical, safe and correct switching sequence and mode of operation of the boiler and furnace.

Option

In addition to infeed burners, the Multicrat can also be equipped with oil or gas burners. The respective burners can be mounted on the back wall of the boiler, opposite the wood furnace. Alternative boiler heating with wood or oil/gas is therefore possible greatly enhancing the versatility of the unit.

Optional Pieces of Equipment

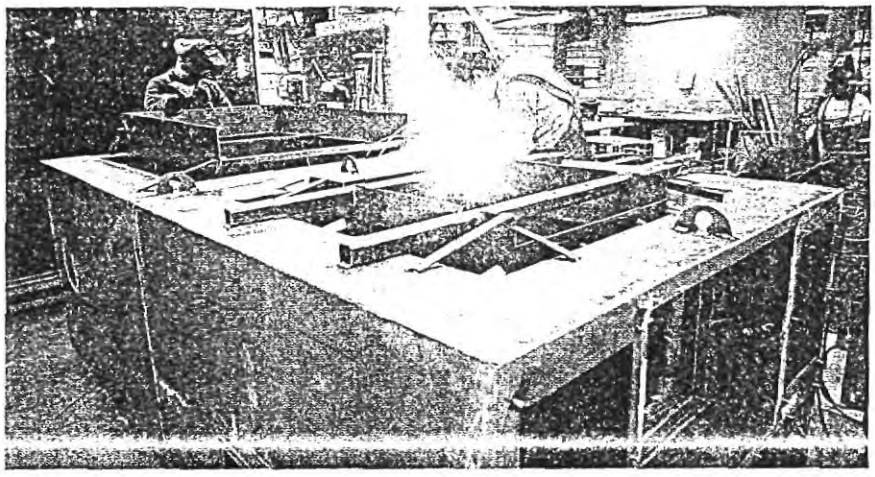
Mechanical ash removal
Ancillaries for floor-mounted expansion vessel

Service

As with all our units, the Multicrat is supported by our proven, mobile after-sales service. This service has a good range of spare parts at its disposal and can carry out simple repairs straight away.

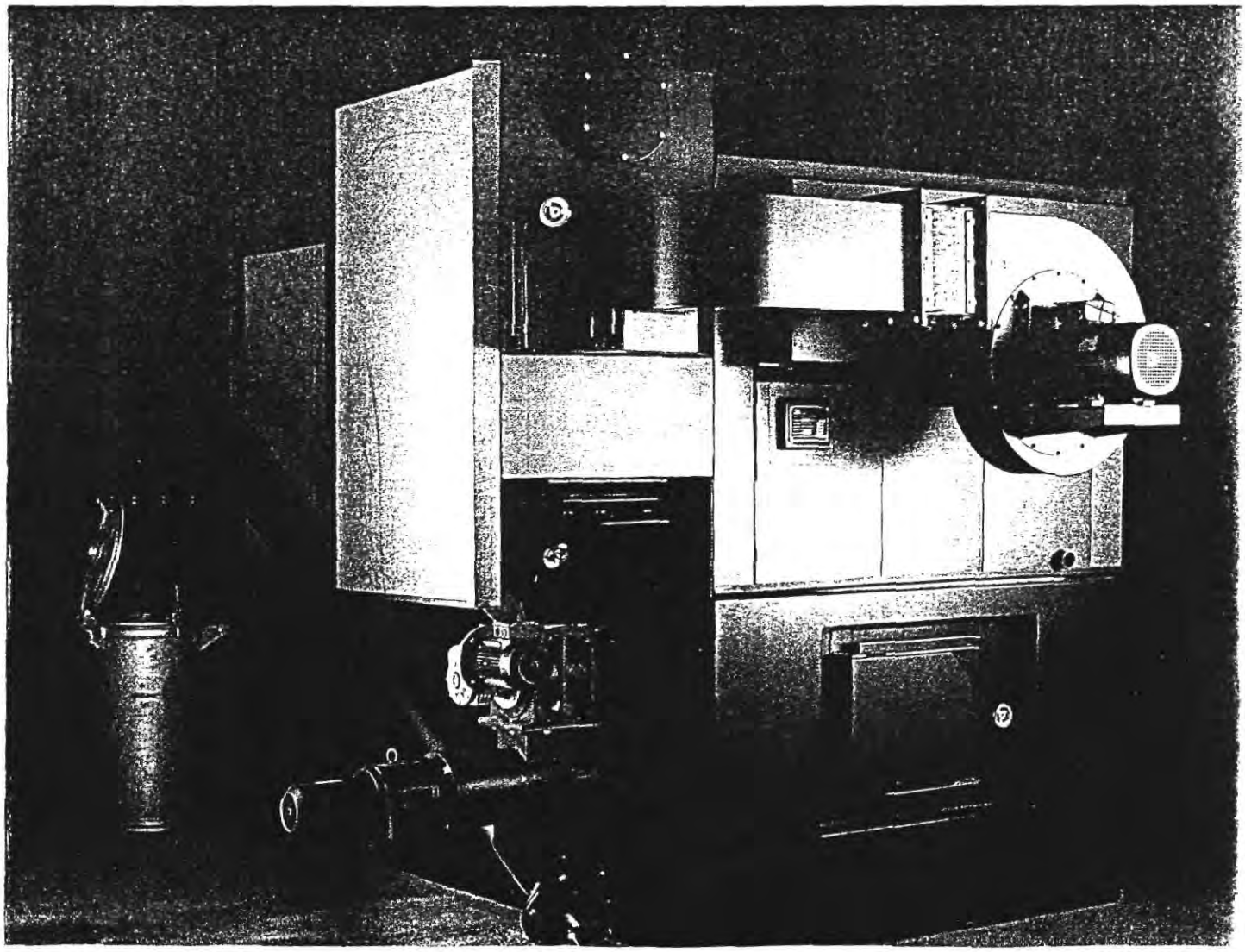
Conclusions

Through its modern, technical design and high combustion and operating efficiency, the Multicrat fulfils all requirements for economy and environmental protection.



The construction of unit parts, eg this furnace body, is carried out using the highest standards of manual skill.

The multi-cyclone designed for flue-gas cleaning can either be mounted on the right (as in photograph) or on the left side of the boiler.



Printed in Germany 03-92

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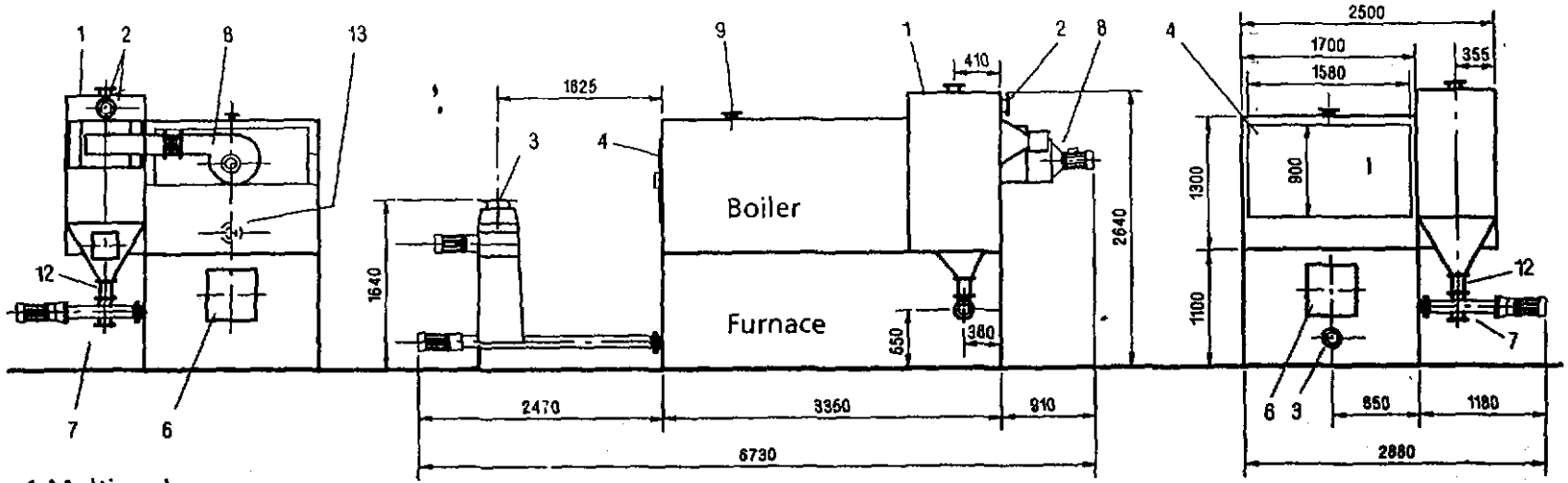
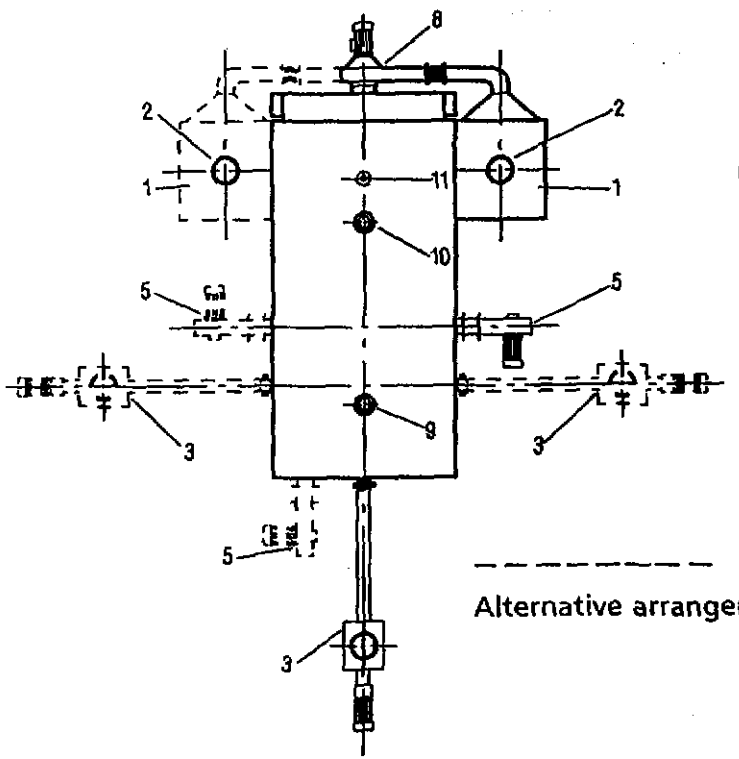


1 Multi-cyclone
2 Flue gas outlet
3 Stoker screw with rotary valve and material receiving shaft
4 Cleaning door
5 Primary/secondary air fan
6 Ash clean-out door
7 Mechanical de-ashing grate*
8 I. D. fan
9 Hot water flow connection
10 Hot water return connection
11 Safety valve connection
12 Ash sluice*
13 Oil/gas burner connection

* Optional equipment

Type Multicrat		500	630	840
Hot water boiler max. 120°C Output rating	kW	500	630	840
Flow/return connection DN/PN		100/6	100/6	100/6
Safety valve DN/PN		40/16	40/16	40/16
Water capacity	l	3020	2940	2800
Empty weight of boiler	kg	2980	3230	3470
Empty weight of furnace	kg	2830	2830	2830
Opening radius of clean-out door	mm	1580	1580	1580

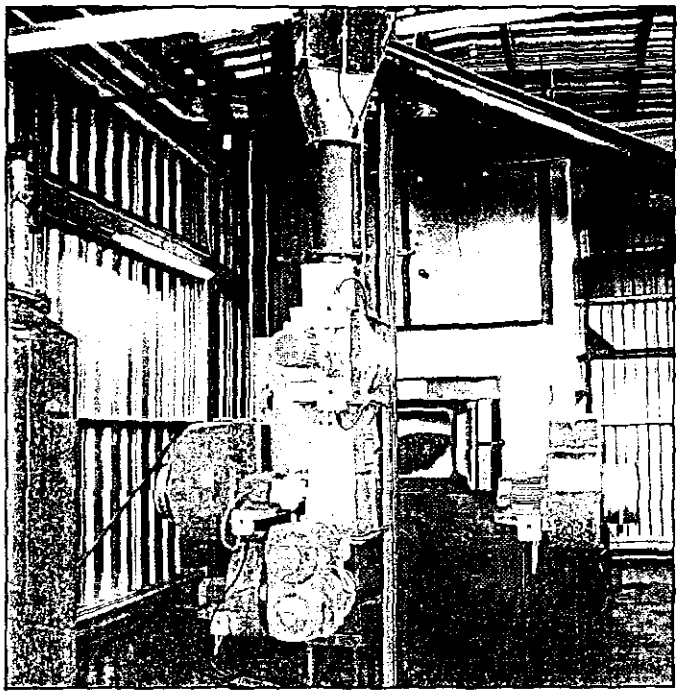


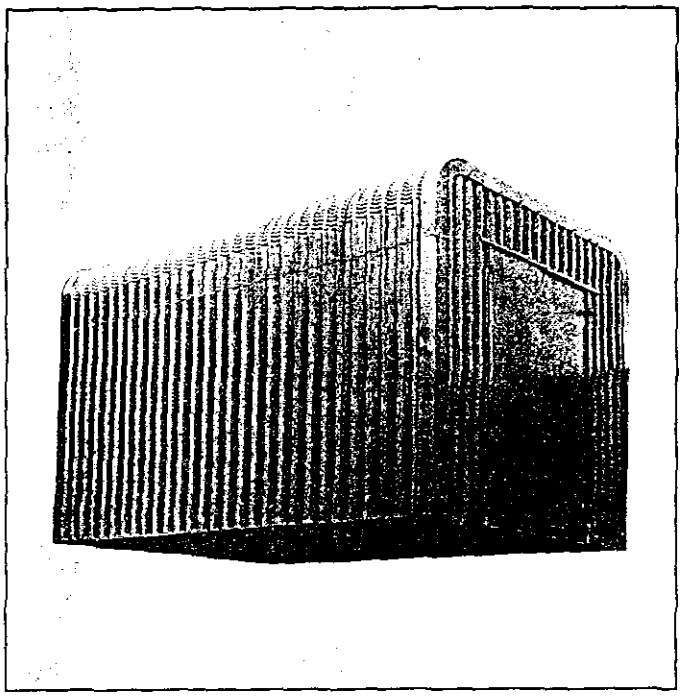
Alternative arrangement

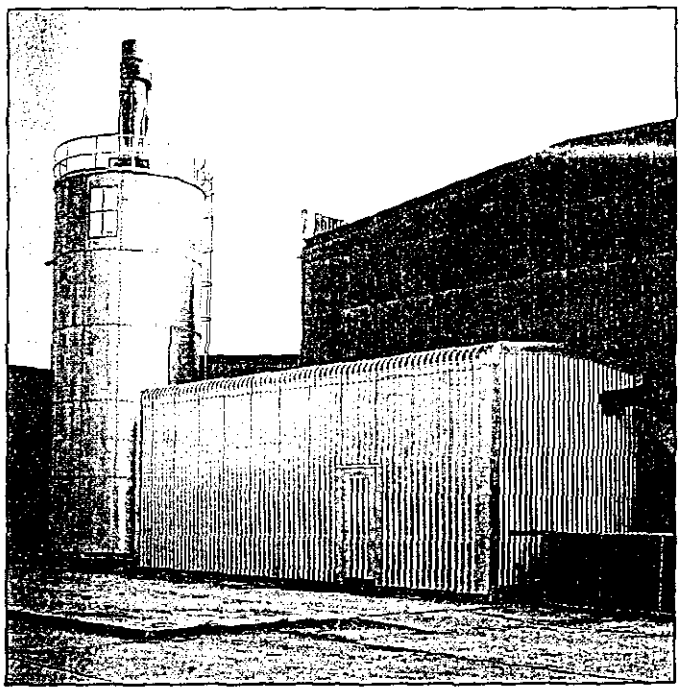
Alterations reserved

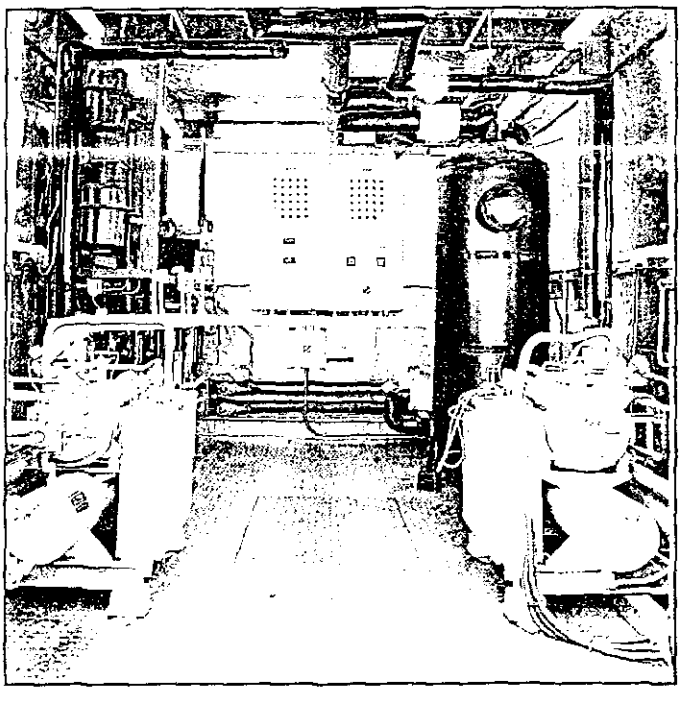
Packaged Plant Mechanical Services

NORDIST









- SPACE SAVING
- EASILY RELOCATED
- REDUCED ON-SITE LABOUR COSTS
- MULTI-USE
- AESTHETIC DESIGN

THE PACKAGED PLANT CONCEPT

The Nordist Packaged Plant is designed to meet today's demands for minimum occupation of mechanical services plant, together with reduced on-site labour costs.

The fully weathered plant room package may be used for a range of services, from the smallest chiller plant, for a small clean room facility, to major boiler plant.

The plant room positioning is totally flexible, such as roof locations, temporary supply adjacent to a factory, raised on legs within a car park, or similar area.

The plant also allows for alternative relocating with minimum downtime for future expansion of premises or site relocation.

As an alternative to a fully packaged plant, we also offer a skid mounted system of the same principal, but located within covered premises (eliminating the weathering cost).

We provide a standard specification, but stress that units can be built to client's specific requirements.

Typical Specification

Frame and Base

a fully welded platform base, manufactured in mild steel structural section with non-slip raised profile floor plates cut and folded to suit. Platform base and portal frame, complete with wind bracing adjustable diagonals, to be engineered for static internal and wind loadings, to structural engineer's calculations. The base and portal frame to be painted with two coats of corrosion prohibitor and final two coats of finish paint to complement interior decor.

Base and frame come complete with jacking points and lifting eyes. Galvanised cladding rails cleated to portal frames.

Cladding

External castellated mild steel profiled cladding to be plastisol coated and colour engineered to complement surroundings. Curved roof eaves detail complete with barge trim for effective weathering. All roof sheets sealed and fastened with plastic capped cadmium plated fasteners installed at each jointed trough.

Door and Louvres

One set of double doors mounted to structural frame via heavy duty custom hinges, mild steel frame painted as per previous spec., clad as exterior. Doors fitted with internal panic bar for ease of egress. Ventilation/combustion air provided via fully weathered louvred units complete with bird mesh screens.

Flashings

All door, louvres and frames to have purpose made flashings and fillers, and all other perforation (pipework, ductwork, etc) to be fitted complete with neatening plates.

Insulation

Internal polyester coated steel sheeting lining panels to Class 'O' fire rating and Class '1' surface spread of flame rating in accordance with BS 476 Part 7, complete with purpose manufactured spacers and mineral fibre insulation material.

Packaged Plant Dimensional Constraints

LENGTH	can be up to 12 metres long	Without Ministry of Transport permission
WIDTH	can be up to 4.4 metres wide	
HEIGHT	can be 3.9 metres max.	

Notes

Larger package – dimension can be achieved with Ministry of Transport permission.

If width exceeded, the package would need to be in two halves and joined on site.

Increased height up to 300mm may be achieved, but package would have to travel on non-motorway routes.

Increased height above max. of 4200mm can be achieved by having a modular design, whereby the top section is lowered in position on to the base on site and transported as two items.

Contact us for your specific requirements.

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SERVICE & MAINTENANCE INSTRUCTIONS

FOR

DAVID SMITH (ST IVES) LTD
MARLEY ROAD
ST IVES
HUNTINGDON
CAMBS

For enquiries please quote Job Ref: C11588

Company Registration No: 1513360

VAT No: 350 8713 58

INTRODUCTION

The installation consists of a Nordfab Weiss 840 Kw Multicrat boiler system fired with mainly softwood, plus some hardwood woodchips.

The boiler operates at 3 bar water pressure with a design flow of 115 deg.C maximum.

An air blast dissipator is located on the boiler house roof serving the factory via 3 No. independently controlled fans and dampers.

A 60 kW calorifier is located in the office plantroom to provide 82 deg.C water flow for the radiator heating system.

A single unit heater is located in Unit 3 for localised heating.

The water in the heating system is treated with Qualtreat type 782 corrosion inhibitor and is pressurised by a 2 pump expansion / spill tank system.

NORDFAB

Multicyclone

Operation and function manual

A multicyclone consists of more cyclones mounted in a steel cabinet. The function of the cyclones: The air is admitted a rotating movement and the dust particles are flung against the wall of the cyclone on account of their density. The dust drops to the bottom of the cyclone and the cleaned smoke passes from the middle of the cyclone to the top of the multicyclone, where it is suck into the chimney by means of the flue gas fan.

Ash container and ash funnel under the multicyclone are emptied and cleaned when necessary.

NORDFAB

Flue gas system with multicyclone

Operation and function manual

Generally

Solid combustion plants will normally emit smoke containing ashes, so that it is necessary with dust isolation by means of a multicyclone.

A multicyclone is made of more cyclones mounted in a steel cabinet. The function of the cyclones: The air is admitted a rotating movement and the dust particles are flung against the wall of the cyclone on account of their high density. The dust drops down into the bottom of the cyclone and the cleaned smoke passes from the middle of the cyclone to the top of the multicyclone, where it is suck into the chimney by means of the flue gas fan.

The flue gas fan sees to it that the generated smoke is removed from boiler regardless of weather conditions. The fan has been adjusted to the loss of pressure in boiler, multicyclone, flue gas pipe, chimney etc.

Flue gas pipes are steel pipes screwed together. The pipe system is equipped with a control valve by which the sub-pressure in the boiler can be adjusted. If the valve is opened, the sub-pressure is increased, and if the valve is closed, the sub-pressure is reduced. If the valve is continously closed an over-pressure in the boiler arises which results in smoke from flaws etc. This must absolutely be avoided.

For reasons of safety the flue gas fan system is equipped with a control device for correct operation so that the plant stops, if the flue gas is not removed. The control is a differential pressure control on the boiler.

Operation

When the quantity of material/combustion air is adjusted, the flue gas valve must also be adjusted, so that the sub-pressure is approximately 5 mmV.S.

By long periods between cleaning of the flue gas pipe of the boiler (which cannot be recommended) a need for adjustment of the flue gas valve may arise.

TECHNICAL MANUAL

INSTALLATION AND OPERATING INSTRUCTIONS
SMOMETA SMOKE ALARM and INDICATOR

General Description This equipment comprises : Light Beam Projector
Photocell Receiver
Control Unit

Light Beam Projector
This consists of two parts - a tube housing a solid state light source and optical system and a flange casting which is mounted onto the flue or stack. The flanged casting should be insulated against the flue or ducting by an asbestos gasket to reduce conduction of heat into the projector and receiver units. An adaptor for connecting flexible conduit is fitted to the units.

Photocell Receiver
This has a casting for mounting on the flue or stack similar to the projector unit. A second tube houses a photocell, and optical system which should be cleaned at regular intervals in order to prevent soot deposits causing incorrect operation. The cell should not be subjected to an ambient temperature in excess of 70 degrees Centigrade.

Control Unit
This is contained in a robust housing suitable for panel or wall mounting. Wiring should be carried out in accordance with the diagram.

Installation
2 - 2 inch Diameter holes have to be cut in the stack opposite each other so that the light beam can cross the centre of the flue. The castings are then fitted on the flue with bolts through their 1/4 inch fixing holes. The wiring should then be carried out in accordance with the diagram.

Terminals
Terminals 1, 2, 3 and 4 are provided for 110/240v AC 50/60Hz supply with earth.
Terminals 5 +ve and 6 -ve supply a 24v DC at 100 mA alarm output for connection to an external bell and/or light.
Terminals 7 +ve and 8 -ve are connected to the projector, which is polarised.
Terminals 9 and 10 are connected to the receiver, which is non-polarised.
Terminals 11, 12, 13, 14, 15 and 16 are two sets of voltage free changevoer contacts rated at 5A 30v DC or 250v AC. Either of the normally closed pairs, 11 and 12 or 14 and 15, can be used for connection to an Event Recorder.

Continued 2

Terminals 17 -ve, 18 -ve, 19 -ve and 20 -ve are for 24v DC/AC supply input and output loop, should the unit be required for 24v operation rather than mains.
Terminals 21 +ve and 22 -ve are for use with a continuous recorder or a remote 3-0 mA indicator. The link fitted across the terminals when the unit is supplied must be removed before connecting the meter/recorder.

Siting
The projector and receiver should be sited in a horizontal plane where a negative pressure exists in the flue or stack. Such a position can normally be found at the base of the stack or on the input side of an induced draught fan. When sited in this position, clean air from the atmosphere will be drawn into the units through the air orifices provided which will assist in keeping the optics clean.

Setting up

1) Turn the three potentiometers on the PCB fully anti-clockwise.

2) Ensure that toggle switch S1 is in the OFF position.

3) Switch mains supply on and leave for five minutes for the Control Unit to stabilise.

4) Adjust "Set 100%" potentiometer clockwise until indicator reads 100% obscuration.

5) Switch on toggle switch S1 and, if the projector and receiver are correctly aligned, the indicator will read below zero. If the reading is above zero adjust the projector/receiver alignment until a reading below zero is obtained.

6) Rotate "Set Zero" potentiometer clockwise until the indicator reads Zero.

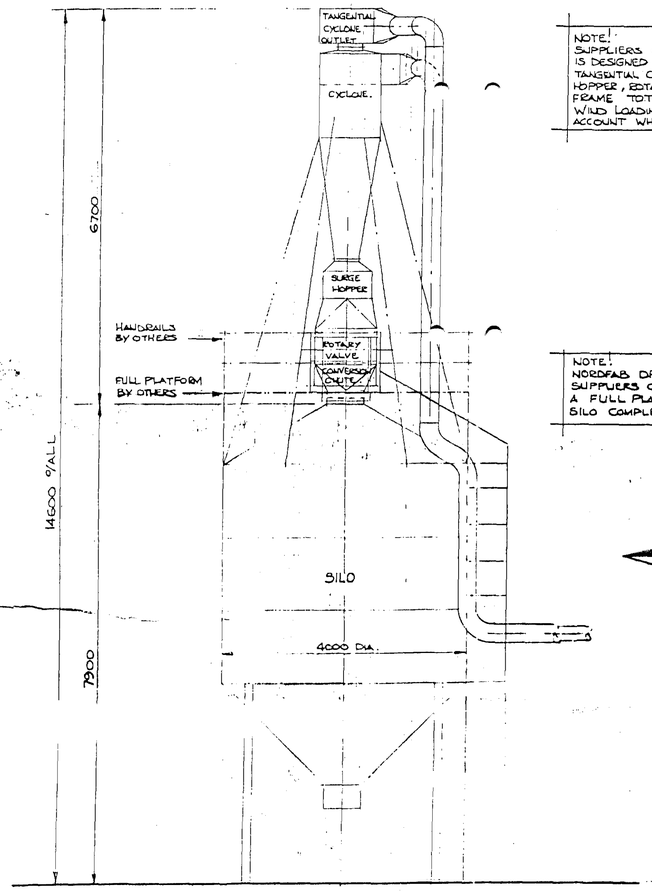
7) The "Alarm" potentiometer should be positioned at "Minimum" (fully anti-clockwise).

8) Make smoke to a point at which it is desired to sound the alarm. The meter will show the percentage obscuration of smoke being generated.

9) Rotate "Alarm" potentiometer until red light is extinguished and the green light is illuminated. The alarm set point has now been established and whenever smoke exceeds this point the lights will changeover and the alarm output will be energised.

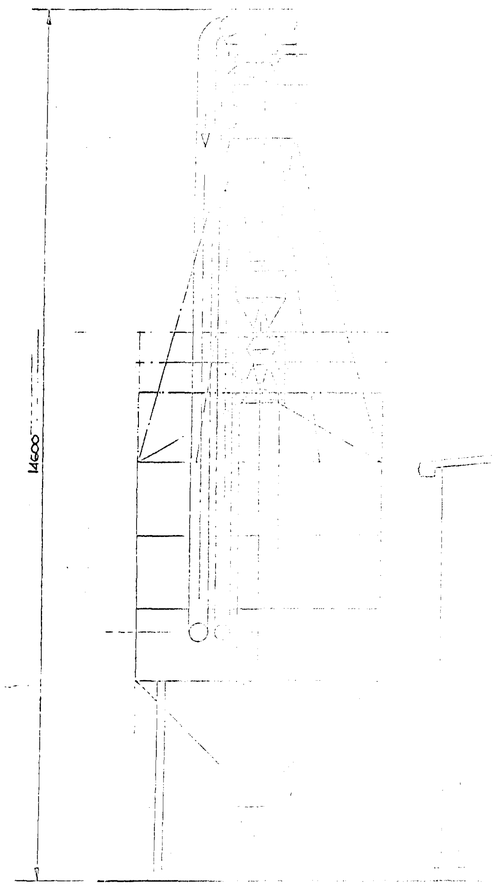
10) To cancel the alarm output press the Bell Mute Push Button on the front of the housing. The indicator lights will remain in the alarm condition and when smoke ceases to be made then the muting switch will automatically re-set.

Continued 3

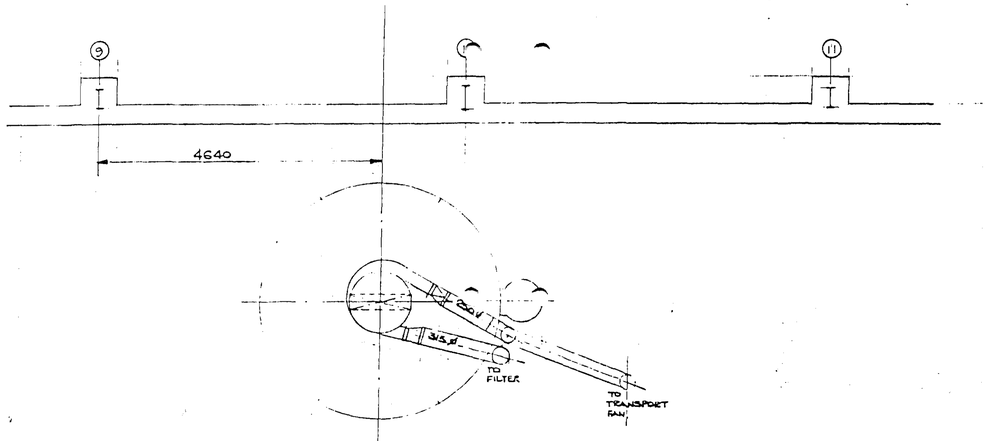


NOTE!
SUPPLIERS OF SILO MUST ENSURE, SILO IS DESIGNED TO ACCEPT THE WEIGHT OF TANGENTIAL CYCLONE OUTLET, CYCLONE, SURGE HOPPER, ROTARY VALVE & ROTARY VALVE SUPPORT FRAME. TOTAL STATIC WEIGHT 650 kg. WIND LOADINGS SHOULD ALSO BE TAKEN INTO ACCOUNT WHEN DESIGNING SILO

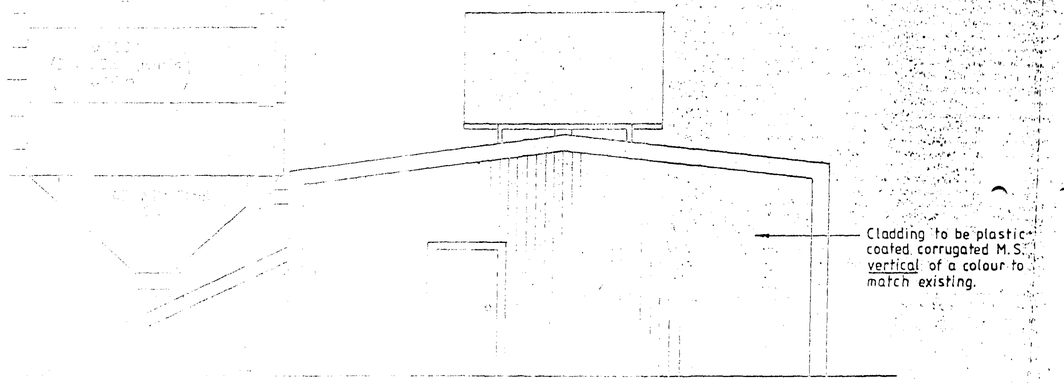
NOTE!
NORDFAB DPE RECOMEND THAT THE SUPPLIERS OF THE SILO INCLUDE A FULL PLATFORM ON TOP OF THE SILO COMPLETE WITH HANDRAILS

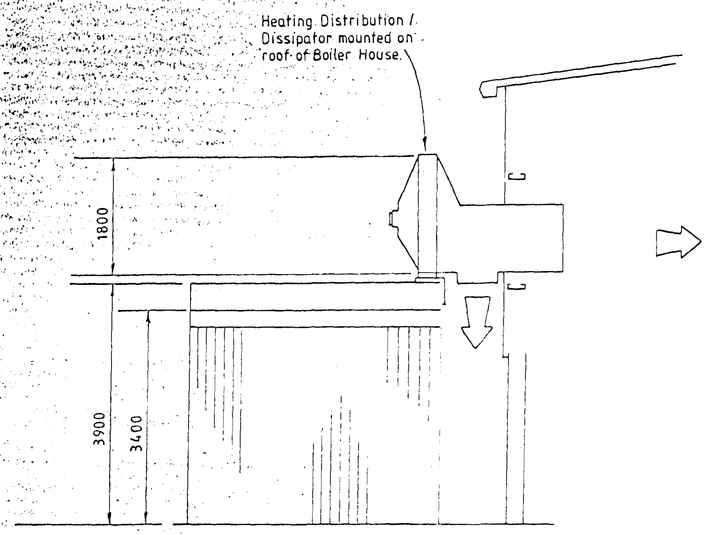


ELEVATION

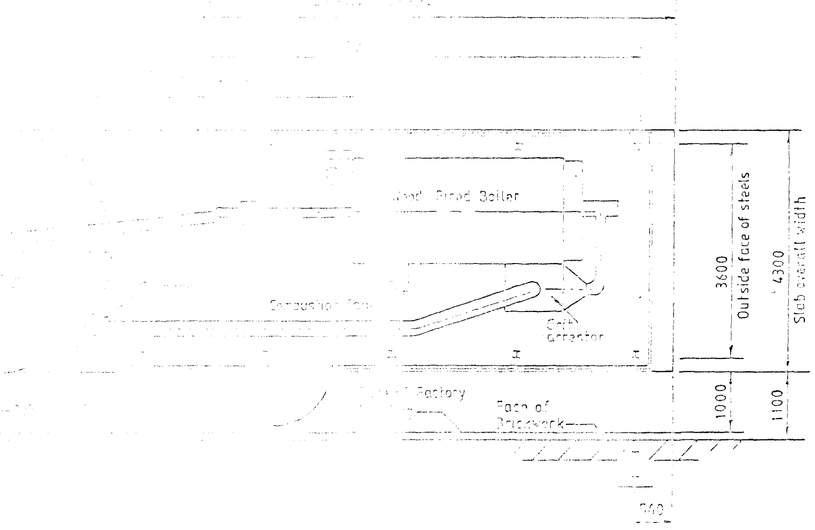


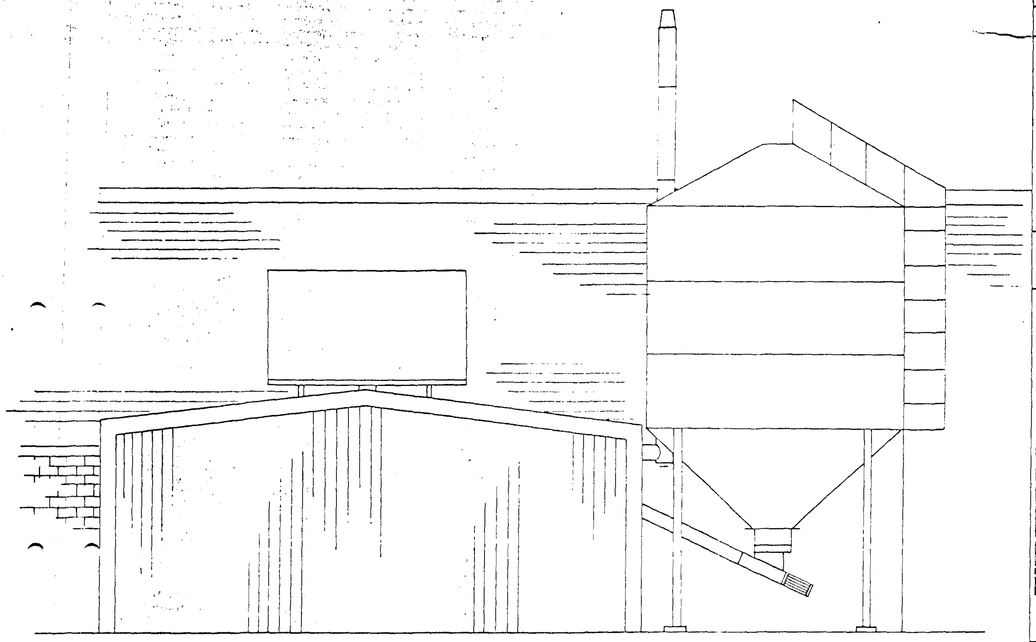
PLAN VIEW.





SIDE ELEVATION





FRONT ELEVATION

Notes:
DO NOT SCALE. All dimensions must be checked/verified on site.

	Date	Revisions

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Client
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NUFFIELD ROAD, ST IVES,
HUNTINGDON, CAMBS. PE17 4LX

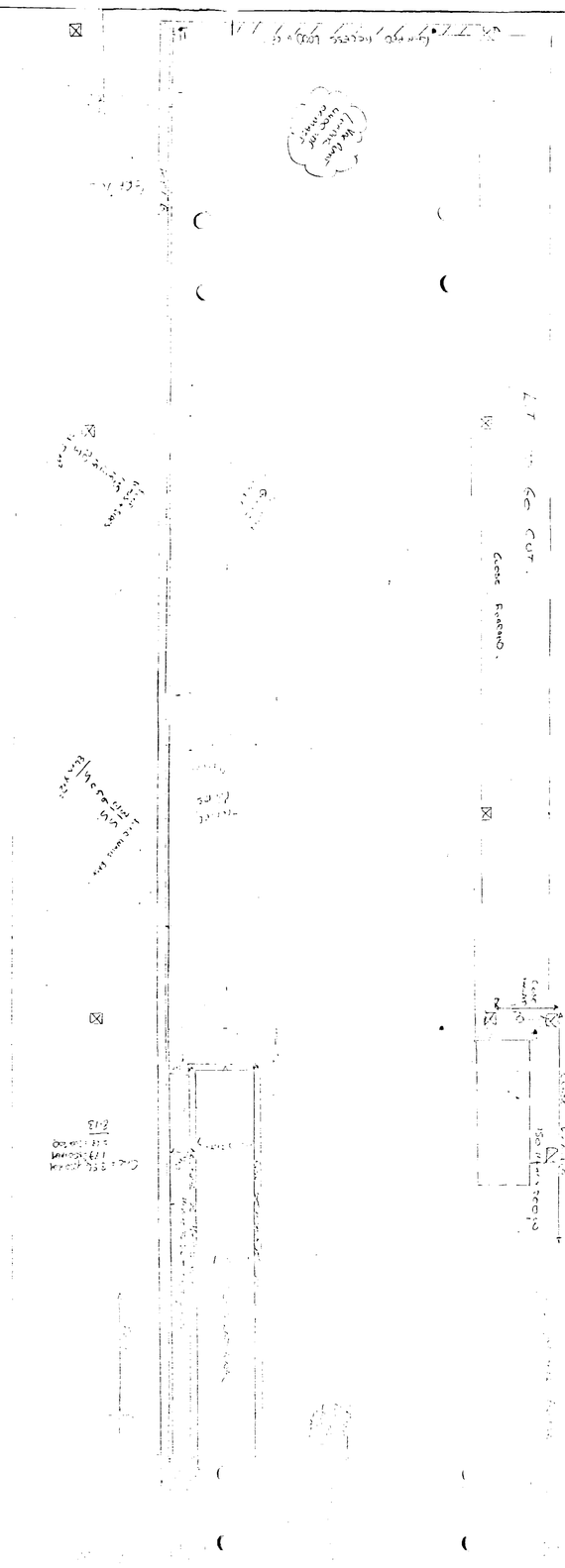
Job Title
PROPOSED WOOD FIRED COMBUSTION SYSTEM BOILER PLANT AND HEATING DISTRIBUTION

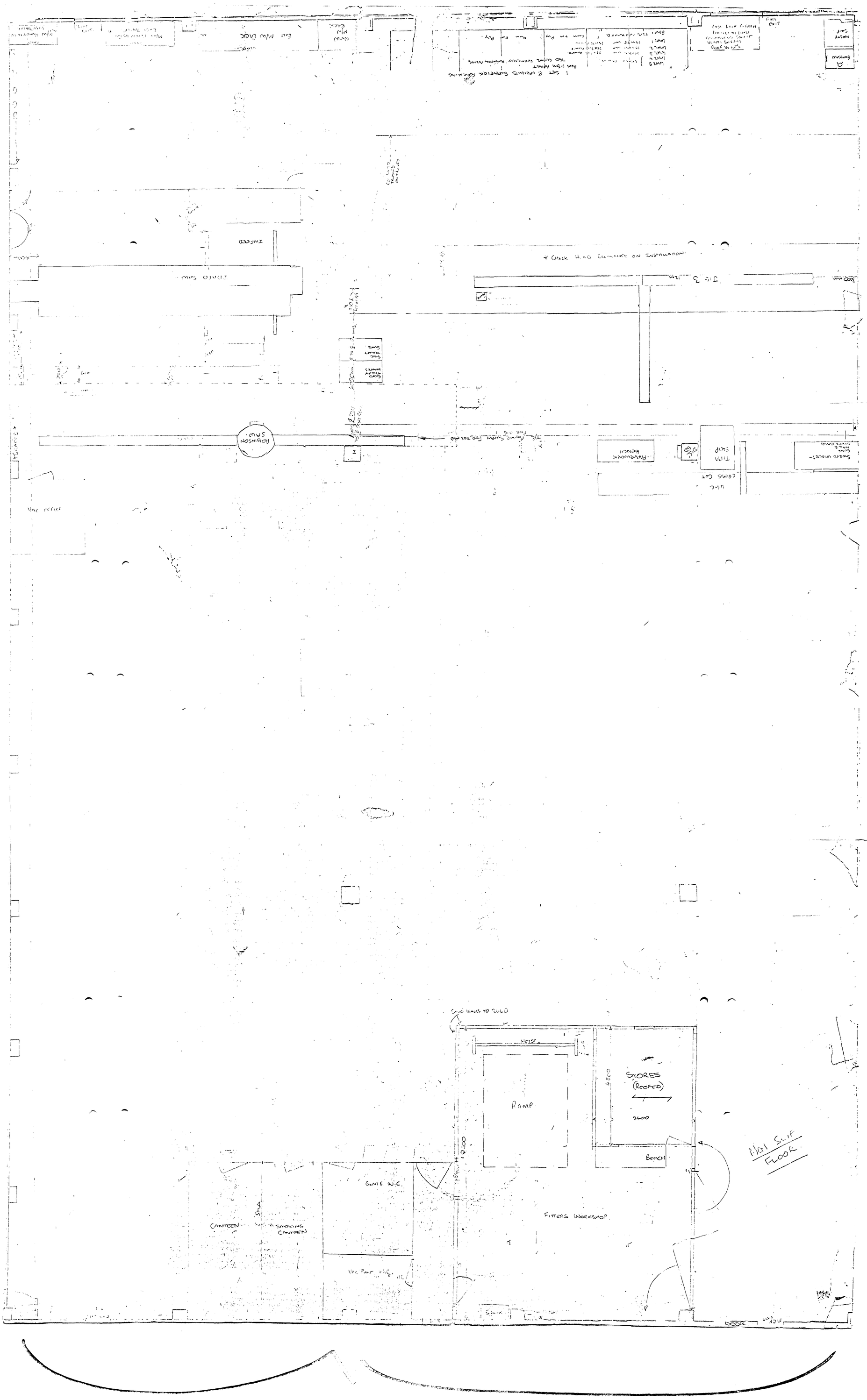
Drawing Title
ELEVATIONS & PLAN OF PROPOSED NEW PLANT ROOM & SILO.

Scale	Date	Drawn by
1:50	JULY '93	

Drg. No.	Rev.
C 11588 - 104A	

Dec: Bs/TPOI.





UNIT 5

Drg: DS/FP05

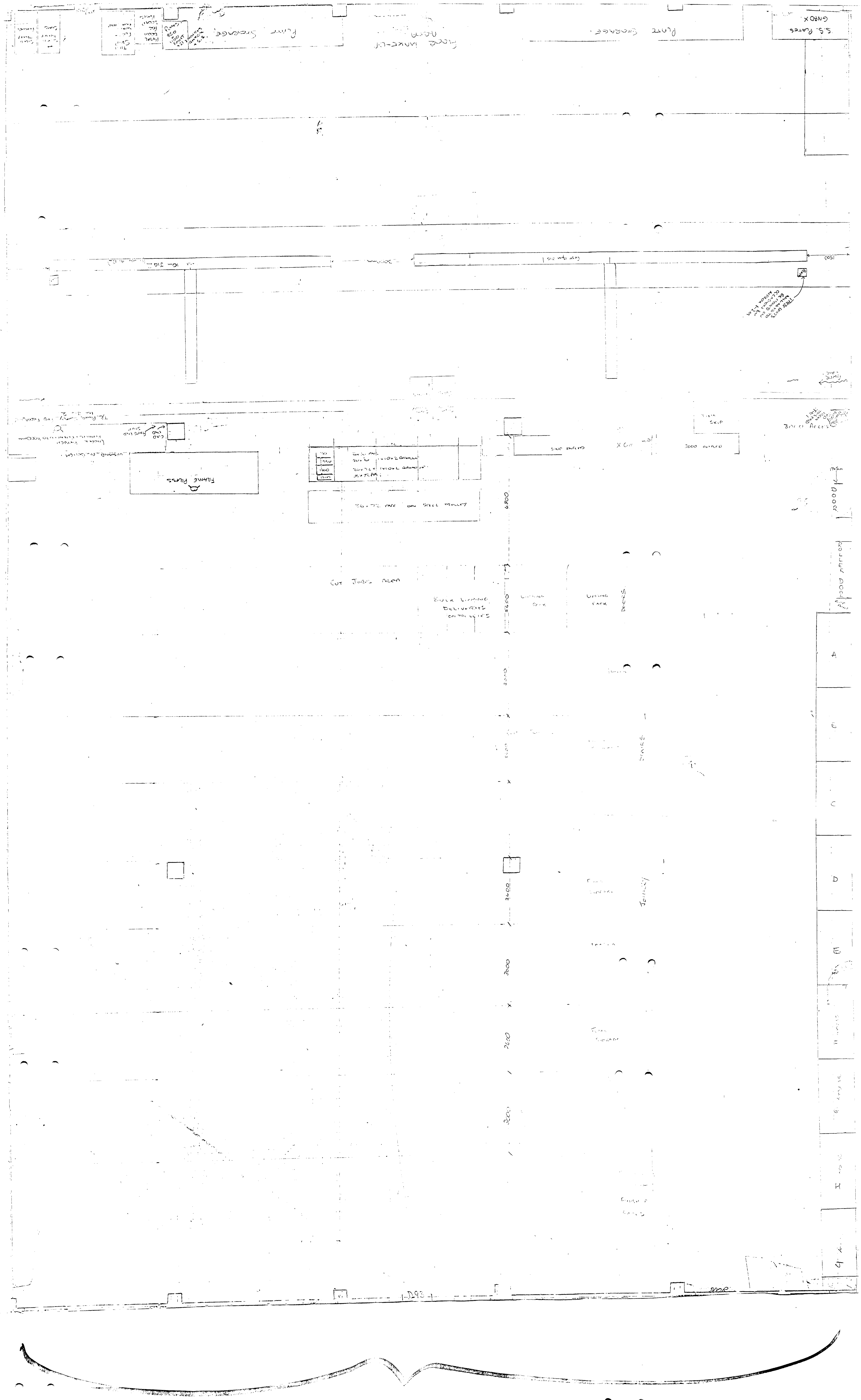
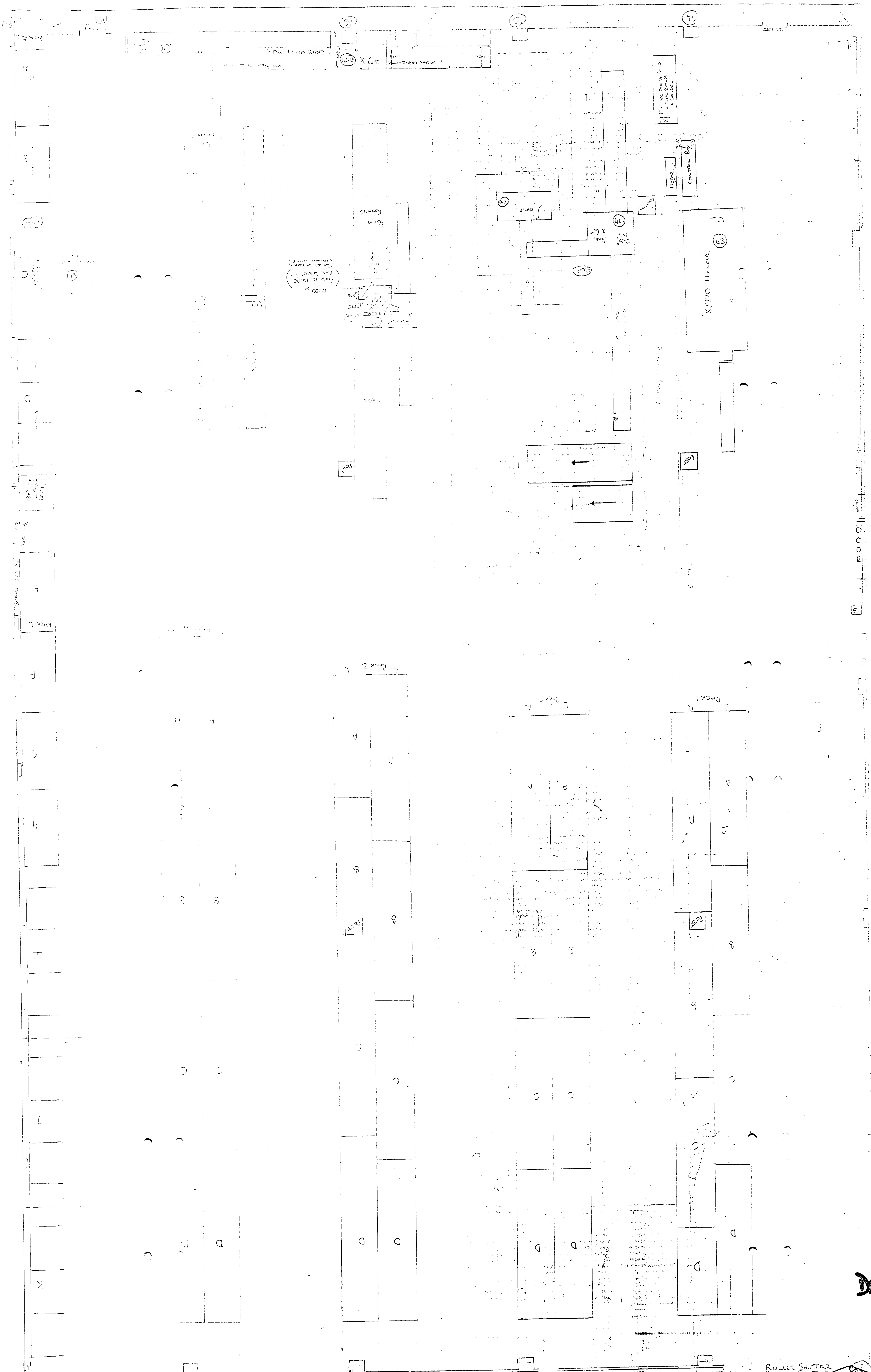


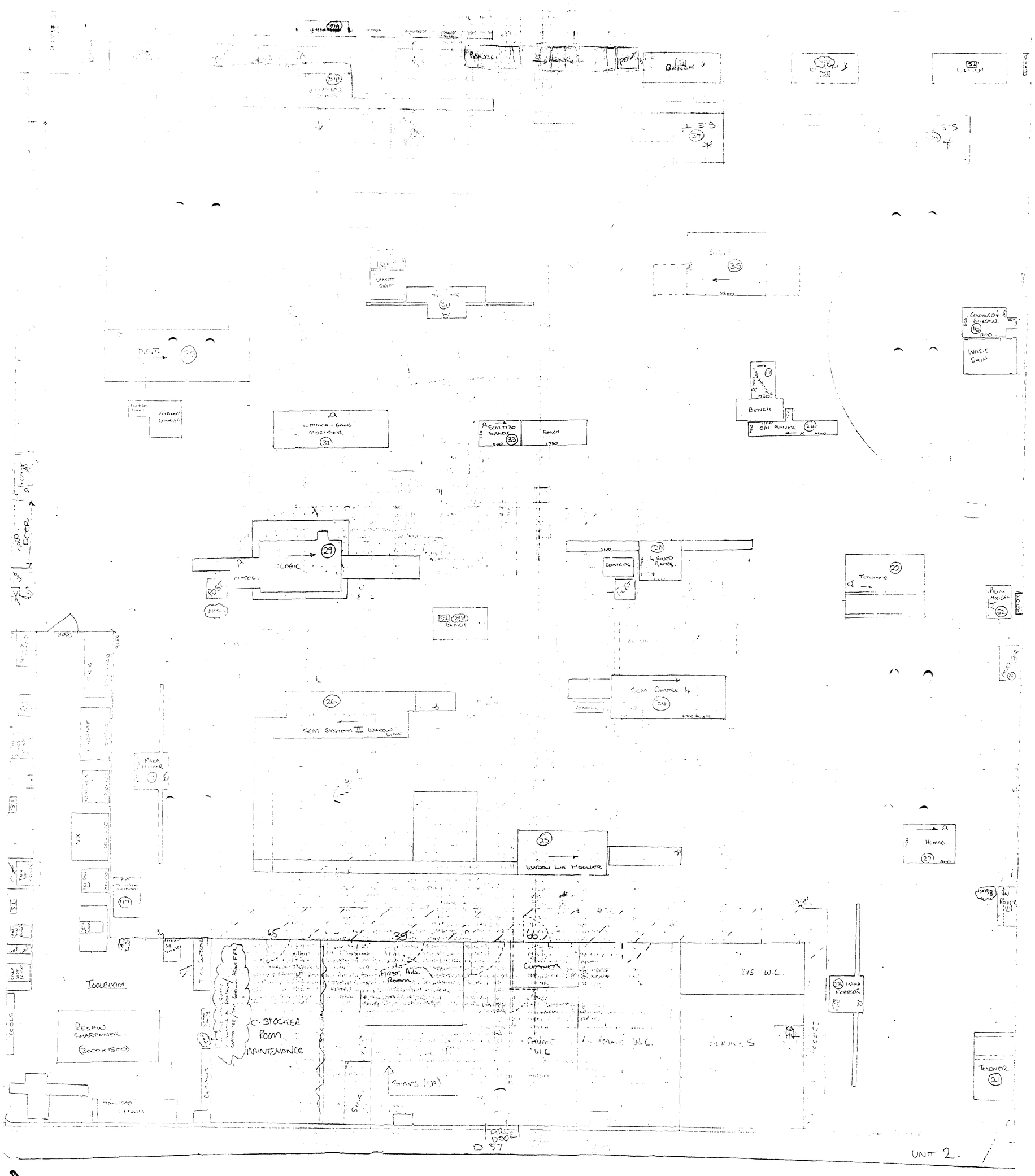
Plate Storage.
Plate Storage.
S.S. Plates
Frame Press
Cut Jobs Area
36 x 72 PARK ON STEEL TROLLEY
X Cut
3000 OUTFEED
Skip
Roller Door
4800
3000
2400
3200
Stairs
A
C
D
E
H
D93

DRG DS/FP04.



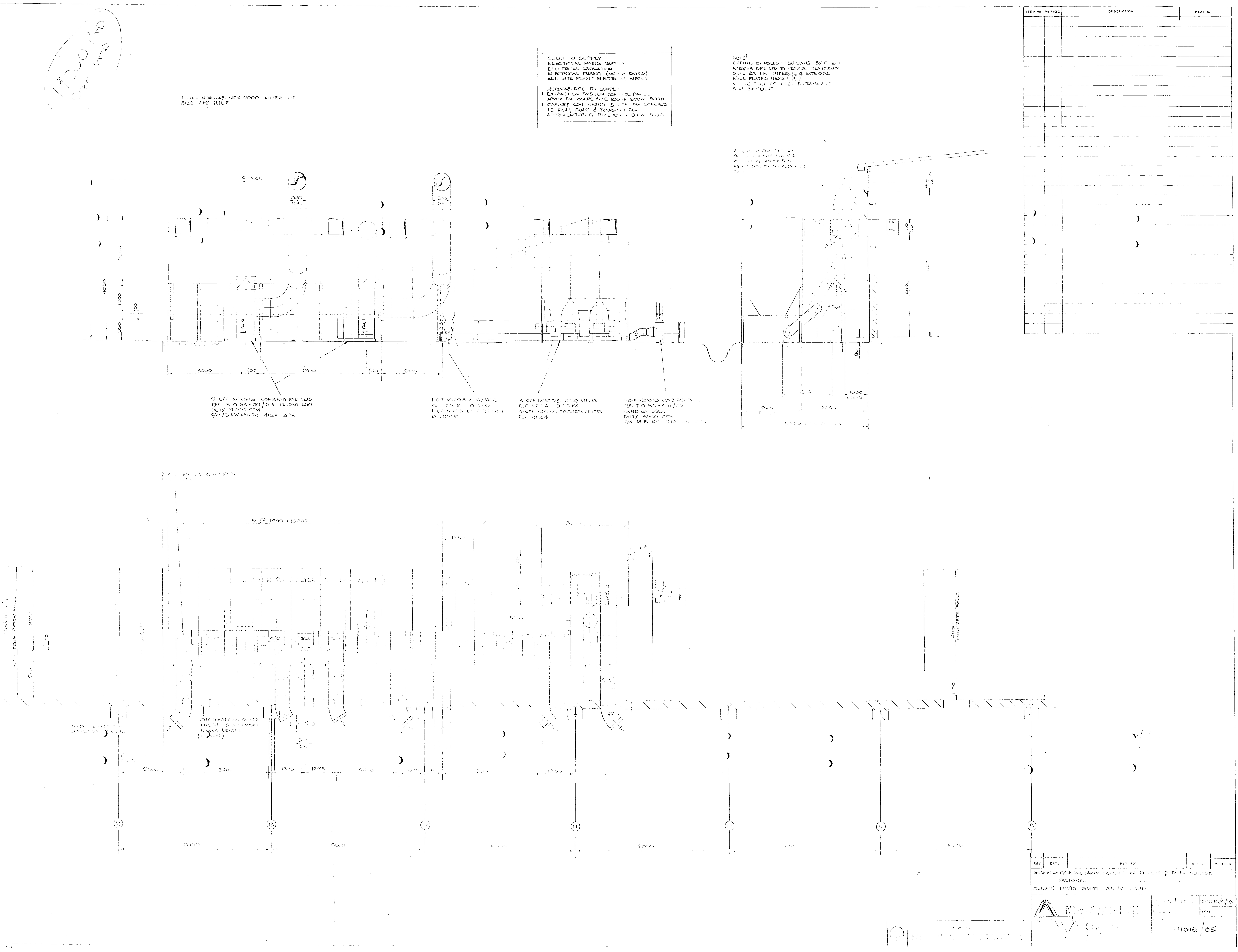
44B X CUT
3000 MOULD
Fire Exit
Motor
Control Box
Control
Paul X Cut
2"x6" 1x4
Sup
XJ220 Moulder
R000
Rack 1
Rack 3
Rack 5
Roller Shutter

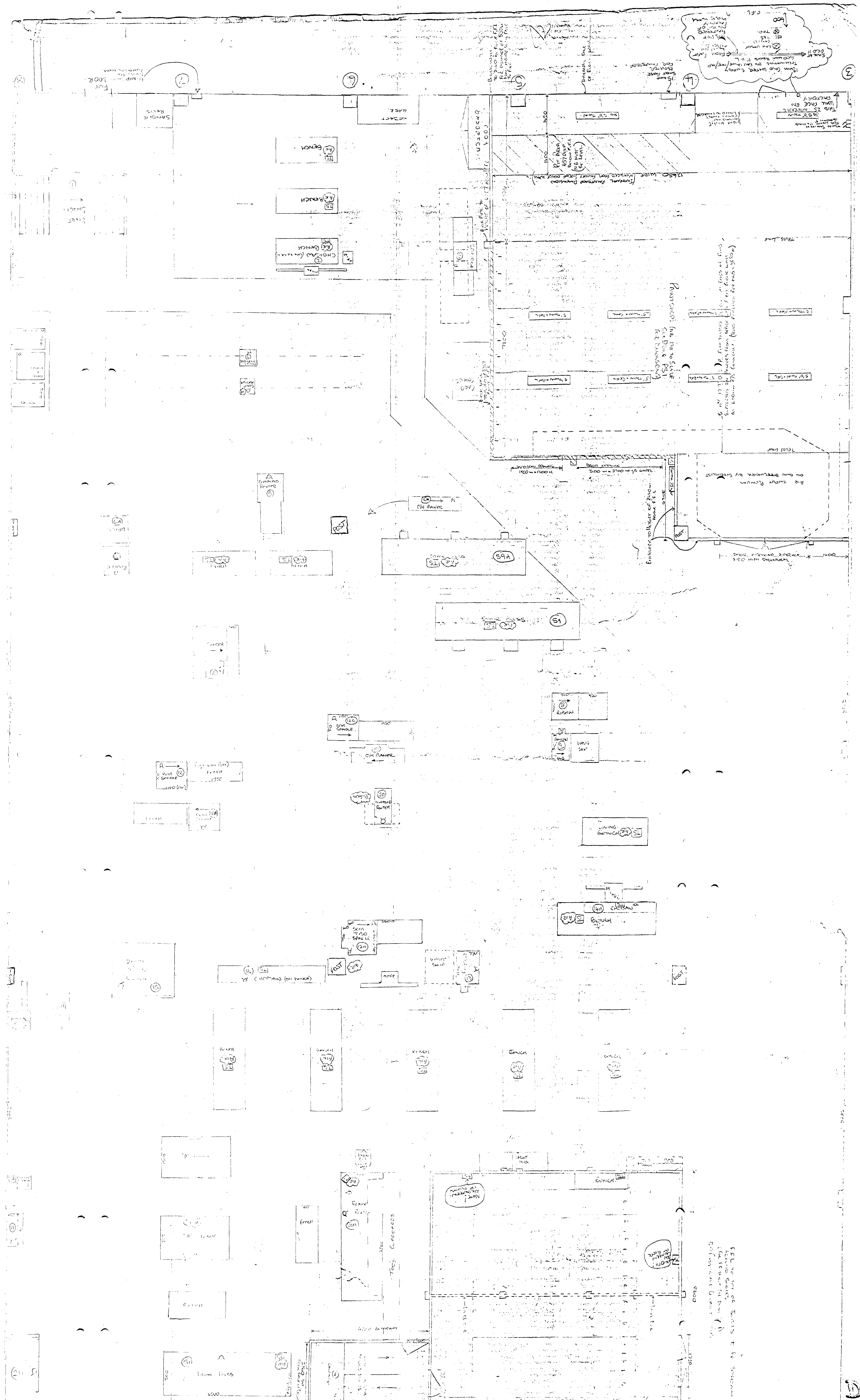
DRG: DS/FP03



UNIT 2.

DRG - DS/FP02.


1-OFF NORDFAB NFK 2000 FILTER UNIT
SIZE 7+2 HJLR
CLIENT TO SUPPLY :-
ELECTRICAL MAINS SUPPLY
ELECTRICAL ISOLATION
ELECTRICAL FUSING (MOTOR RATED)
ALL SITE PLANT ELECTRICAL WIRING
NORDFAB DPE TO SUPPLY -
1-EXTRACTION SYSTEM CONTROL PANEL
APROX ENCLOSURE SIZE 1000H 800W 300D
1-CABINET CONTAINING 3-OFF FAN STARTERS
I.E. FAN1, FAN2 & TRANSPORT FAN
APPROX ENCLOSURE SIZE 1000H 800W 300D
NOTE!
CUTTING OF HOLES IN BUILDING BY CLIENT.
NORDFAB DPE LTD TO PROVIDE TEMPORARY
SEAL I.E. INTERNAL & EXTERNAL
WALL PLATES ITEMS
SEAL BY CLIENT.
2-OFF NORDFAB COMBIFAB FAN SETS
REF S.O 63-710/G3 HANDING LGO
DUTY 21000 CFM
C/W 75 KW MOTOR 415V 3PH.
3-OFF NORDFAB ROTARY VALVES
REF NRS 4 0.75 KW
3-OFF NORDFAB DISCHARGE CHUTES
REF NDR 4
1-OFF NORFAB COMBIFAB
REF. T.O 56-315/G5
HANDING LGO.
DUTY 3200 CFM
C/W 18.5 KW
9 @ 1200 = 10800
CONCRETE BOARD
REV
DATE
VERIFIED
DESCRIPTION
FACTORY.
SCALE.
11016/05



BENCH
CHOPSAW (ON BENCH)
SANDING RACKS
RACK
FIRE DOOR
PAINTSHOP (NB. NOT TO SCALE SEE DWG PS1 FOR DIMENSIONS)
TRUSS LINE
THIS IS INTERNAL WALL FACE IN FACTORY
15mm COLD WATER SUPPLY TERMINATING IN BALL VALVE/TEE/CAP
12650 WIDE (INTERNAL PAINTSHOP DIMENSION)
PIT AREA 457 DEEP BELOW F.F.L (NB MUST BE LEVEL)
WINDOW OPENING 1800 W x 1200 H
DOOR OPENING 3100 W x 2700 TO U/S LINTEL
AIR INPUT PLENUM ON OWN STEELWORK BY SPECIALIST
DOOR OPENING 3100 W x 3100 HIGH STRUCTURAL
POST
COMBINED ROUTER
O/H PLANER
STAIR PRESS
RIPSAW
WASTE SKIP
LINING BENCH
SCM T130 SPINDLE
CHOPSAW (ON BENCH)
TOOL CUPBOARDS
FRAME PRESS
ROLLER SHUTTER

DRG DS EP01

ITEM No	QUAN	DESCRIPTION
1	1	BRANCH. 800 ø FLG - 400 ø [illegible] - [illegible] ø FLG
2	1	" 800 ø FLG - 200 ø [illegible] - 800 ø FLG.
3	1	" 800 ø FLG - 125 ø [illegible] - 710 ø FLG.
4	1	" 710 ø FLG - 125 ø [illegible] - 710 ø FLG.
5	1	BRANCH IDENTICAL TO ITEM (4) ABOVE
6	1	BRANCH 710 ø FLG - 250 ø [illegible] - 710 ø FLG
7	1	" 710 ø FLG - 180 ø [illegible] - 710 ø FLG
8	1	" 710 ø FLG - 450 ø [illegible] - 500 ø QF
9	1	" 500 ø QF - 250 ø [illegible] - 450 ø QF
10	1	" 450 ø QF - 125 ø [illegible] - 450 ø QF
11	1	" 450 ø QF - 160 ø [illegible] - 400 ø QF
12	1	" 400 ø QF - 125 ø [illegible] - 400 ø QF
13	1	" 400 ø QF - 125 ø [illegible] - 350 ø QF
14	1	" 350 ø QF - 250 ø [illegible] - 315 ø QF
15	1	" 315 ø QF - 125 ø [illegible] - 250 ø QF
16	1	" 250 ø QF - 160 ø [illegible] - 200 ø QF
17	1	" 200 ø QF - 125 ø [illegible] - 160 ø QF
18	1	BRANCH 800 ø FLG [illegible] ø [illegible] - 800 ø FLG

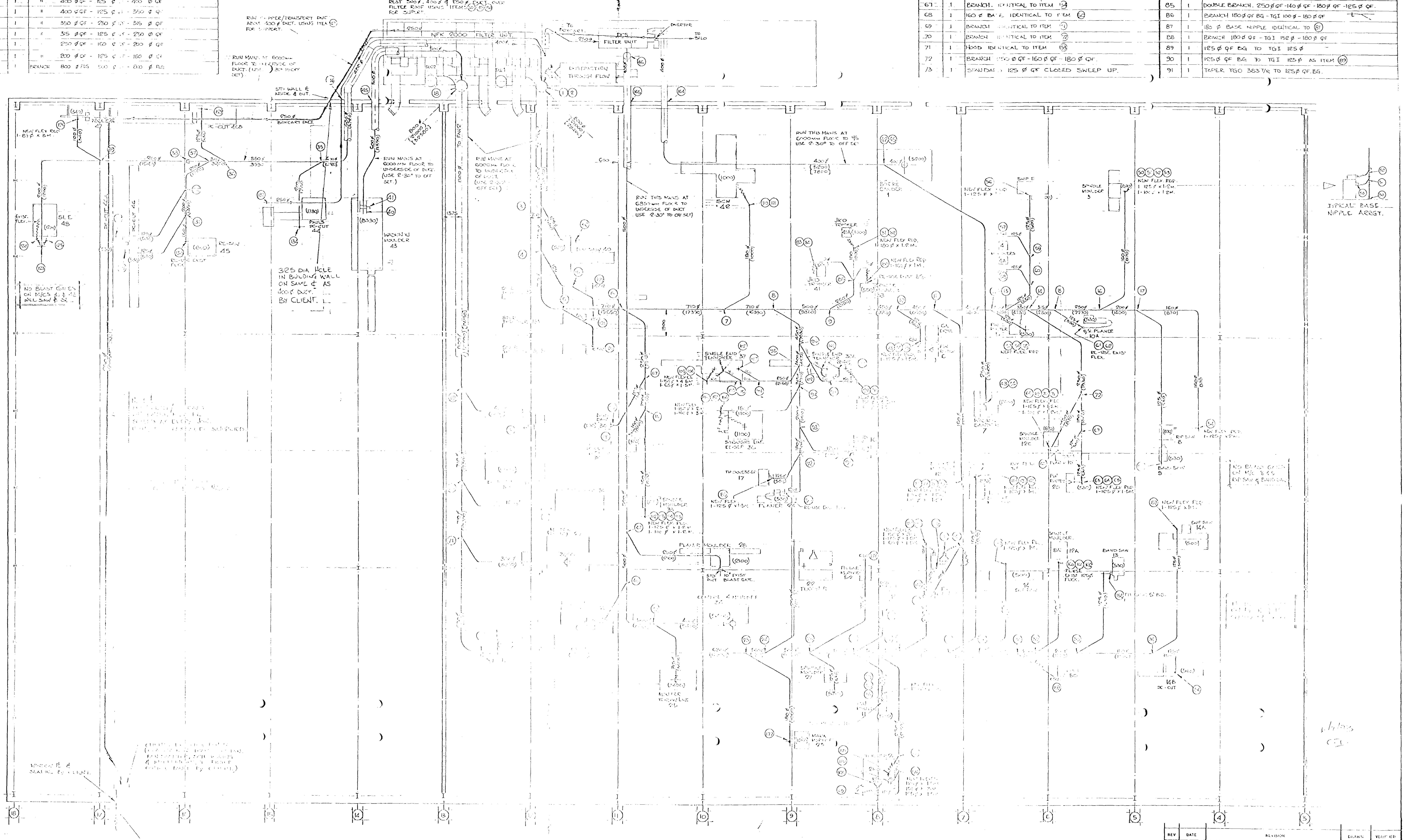
ITEM No	QUAN	DESCRIPTION
19	1	BRANCH 800 ø FLG - 450 ø QF - 710 ø FLG.
20	1	[illegible]ANCH IDENTICAL TO ITEM (4)
21	1	BRANCH 710 ø FLG - 350 ø QF - 630 ø FLG.
22	1	" 630 ø FLG - 180 ø QF - 630 ø FLG
23	1	" 630 ø FLG - 180 ø QF - 560 ø FLG.
24	1	" 560 ø FLG - 250 ø QF - 500 ø QF
25	1	DOUBLE BRANCH 500 ø QF - 125 ø QF - 500 ø QF - 125 ø QF
26	1	DOUBLE BRANCH IDENTICAL TO ITEM (25) ABOVE.
27	1	BRANCH 500 ø QF - 250 ø QF 400 ø QF
28	1	" 400 ø QF - 250 ø QF 350 ø QF
29	1	" 350 ø QF - 160 ø QF 315 ø QF
30	1	BRANCH IDENTICAL TO ITEM (15)

ITEM No	QUAN	DESCRIPTION
31	1	BRANCH [illegible] QF - 125 ø QF - 250 ø QF.
32	1	[illegible] TO ITEM (16)
33	1	BRANCH [illegible] - 125 ø QF - 180 ø QF.
34	1	" [illegible] - 125 ø QF - 125 ø QF.
35	1	" [illegible] - 200 ø QF - 350 ø QF.
36	1	[illegible] - 315 ø QF
37	1	" [illegible] - 250 ø QF - 250 ø QF
38	1	TAPER [illegible] QF TO 200 ø QF
39	1	BRANCH [illegible] QF - 160 ø QF - 200 ø QF.
40	1	TAPER [illegible] T/R TO 500 ø QF
41	1	STD [illegible] BLAST GATE 500 ø QF ND1024 (FROM STOCK)
42	1	BRANCH 400 ø [illegible] - 250 ø [illegible] - 400 ø QF.

ITEM No	QUAN	DESCRIPTION
43	1	TAPER TGO 815 T/R TO 250 ø QF
44	1	BLAST GATE 250 ø QF. BOTH ENDS
45	1	STD ELIPTICAL BLAST GATE 400 ø QF ND1024 (TO [illegible])
46	1	TAPER TGI 1670 T/R TO 500 ø QF
47	1	BRANCH 500 ø QF - 250 ø QF - 500 ø QF
48	1	" 500 ø QF - 315 ø QF - 500 ø QF
49	1	" 500 ø QF - 315 ø QF - 400 ø QF
50	1	160 ø QF BASE NIPPLE TO DRG No N1016/18
51	1	BRANCH. 160 ø QF - TGI 100 ø - 160 ø QF
52	1	BRANCH. 160 ø QF BG. - TGI 125 ø - 160 ø QF.
53	1	HOOD TO DRG No N1016/19
54	1	TAPER 160 ø QF TO TGI 125 ø (MAX. LG. 225)

ITEM No	QUAN	DESCRIPTION
55	1	TAPER 12[illegible] ø QF TO TGO 100 ø (MAX LENGTH 225)
56	1	TAPER TGO 65 ø TO TGI 125 ø
57	1	STANDAR[illegible] 125 ø QF CLOSED SWEEP UP
58	1	" " " " " " " AS ITEM (57)
59	1	BRANCH 125 ø QF - 125 ø QF - 125 ø QF.
60	1	" " " " " " " " " AS ITEM (59)
61	1	BRANCH [illegible] ø QF - 125 BG. TGI 125 ø - 125 ø QF
62	1	125 ø QF BASE NIPPLE TO DRG No N1016/20
63	1	BRANCH [illegible] 125 ø QF - 125 BG. TGI 125 FLEX - 125 ø QF
64	1	125 ø QF BASE NIPPLE IDENTICAL TO ITEM (62)
65	1	MAGNETI[illegible] HOOD TO DRG No N1016/21
66	1	TAPER T[illegible]O 400 T/R TO 125 ø QF. BG.
67	1	BRANCH. IDENTICAL TO ITEM (54)
68	1	160 ø BA[illegible]E IDENTICAL TO ITEM (50)
69	1	BRANCH IDENTICAL TO ITEM (51)
70	1	BRANCH IDENTICAL TO ITEM (52)
71	1	HOOD IDENTICAL TO ITEM (53)
72	1	BRANCH [illegible] ø QF - 160 ø QF - 180 ø QF.
73	1	STANDAR[illegible] 125 ø QF CLOSED SWEEP UP.

ITEM No	QUAN	DESCRIPTION
74	1	BRANCH IDENTICAL TO ITEM (61)
75	1	MAGNETIC HOOD IDENTICAL TO ITEM (65)
76	1	160 ø BASE NIPLE IDENTICAL TO ITEM (50)
77	1	BRANCH IDENTICAL TO ITEM (51)
78	1	BRANCH IDENTICAL TO ITEM. (52)
79	1	HOOD IDENTICAL TO ITEM (53)
80	1	TAPER TGO 400 T/R TO 125 ø QF
81	1	180 ø QF BASE NIPPLE TO DRG No N1016/22
82	1	BRANCH 180 ø QF - 180 ø BG TGI 180 ø - 180 ø QF.
83	1	DOUBLE BRANCH. 140 ø QF BG - TGI 52 ø - 140 ø QF - TGI 52 ø
84	1	140 ø QF BASE NIPPLE TO DRG. No N1016/23
85	1	DOUBLE BRANCH. 250 ø QF - 140 ø QF - 180 ø QF - 125 ø QF.
86	1	BRANCH 180 ø QF BG - TGI 100 ø - 180 ø QF
87	1	180 ø BASE NIPPLE IDENTICAL TO (81)
88	1	BRANCH 180 ø QF - TGI 152 ø - 180 ø QF
89	1	125 ø QF BG TO TGI 125 ø
90	1	125 ø QF BG TO TGI 125 ø AS ITEM (89)
91	1	TAPER TGO 383 T/R TO 125 ø QF. BG.



REV	DATE	REVISION	DRAWN	VERIFIED

DESCRIPTION PLAN LAYOUT OF FACTORY EXTRACTION. (INSIDE)

CLIENT DAVID SMITH ST. IVES LTD.

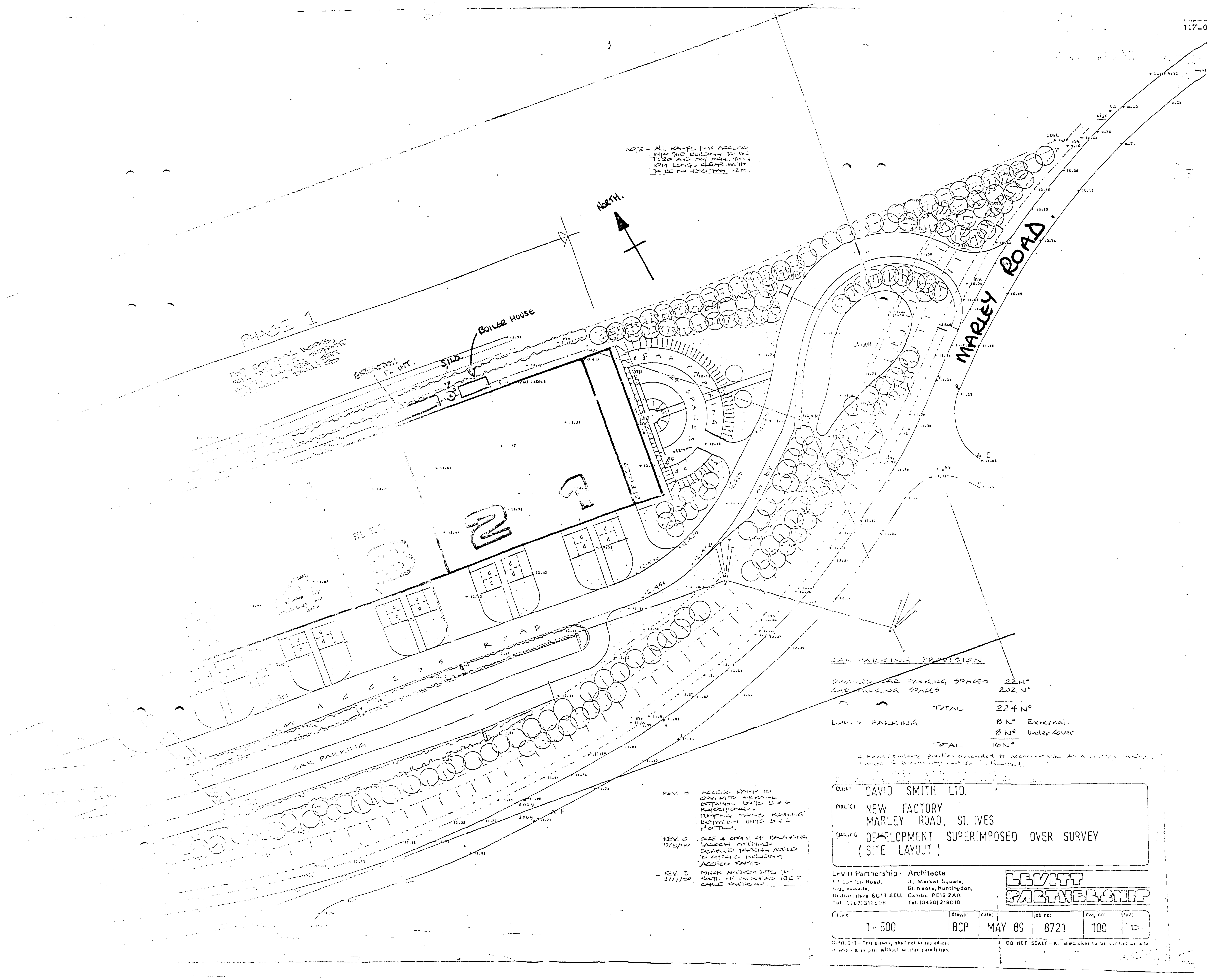
NORDFAB - DPE
ROSSE STREET
OFF THORNTON ROAD
BRADFORD BD8 [illegible]
TEL: 0274 4[illegible]715
FAX: 0274 4[illegible]

DRAWN C. IOANNOU. DATE 14.6.93

VERIFIED [illegible] SCALE 1:100

DRG No. N1016/04

SHEET 1 OF 2



NOTE - ALL RAMPS FOR ACCESS INTO THE BUILDING TO BE 1:20 AND NOT MORE THAN 10M LONG. CLEAR WIDTH TO BE NO LESS THAN 1.2M.
NORTH.
PHASE 1
BOILER HOUSE
SILO
CAR PARKING SPACES
LAGOON
MARLEY ROAD.
ACCESS ROAD
CAR PARKING
CAR PARKING PROVISION
DISABLED CAR PARKING SPACES 22 N°
CAR PARKING SPACES 202 N°
TOTAL 224 N°
LORRY PARKING 8 N° External.
8 N° Under Cover
TOTAL 16 N°
CLIENT DAVID SMITH LTD.
PROJECT NEW FACTORY
MARLEY ROAD, ST. IVES
DRAWING DEVELOPMENT SUPERIMPOSED OVER SURVEY
(SITE LAYOUT)
Levitt Partnership · Architects
67 London Road,
Biggleswade,
Bedfordshire SG18 8EU.
Tel: 0767 312808
3, Market Square,
St. Neots, Huntingdon,
Cambs. PE19 2AR
Tel: (0480) 219019
LEVITT PARTNERSHIP
scale: 1-500
drawn: BCP
date: MAY 89
job no: 8721
dwg no: 100
rev: D
COPYRIGHT - This drawing shall not be reproduced in whole or in part without written permission.
DO NOT SCALE - All dimensions to be verified on site.

Remote Meter Output

The output to a remote meter an/or recorder (terminals 21 and 22) is 3 mA at zero obscuration and zero at 100% obscuration. If no remote device is fitted then these terminals must be linked together.

Maintenance

The optics of the projector and receiver should be cleaned at regular intervals to prevent them from being covered with soot and thus giving incorrect operation. The zero setting on the indicating meter should be checked from time to time when the optics are clean and with a clear stack or flue. The 100% setting of the meter should also be checked by putting switch S1 to OFF position and and adjusting the set 100% potentiometer. Then switch S1 to ON and reset Zero if necessary.

Fault finding

To ensure that the projector and receiver are correctly connected, the following readings should be obtained.

Projector :- Voltage at terminals 7 +ve and 8 -ve with the projector correctly connected = 2.0v DC.
With reversed or disconnected wiring = approx. 12v DC.

Receiver :- Voltage at terminals 9 +ve and 10 -ve = approx. 4v DC.