WALK-THROUGH SURVEY REPORT
Contract #210-77-0096
Steelcraft Manufacturing Company
9017 Blue Ash Road
Cincinnati, Ohio 45242

DATE OF SURVEY

January 23, 1979

DATE OF REPORT

May 25, 1979

The Johns Hopkins University
Baltimore, Maryland

and

The National Institute for Occupational Safety and Health
Cincinnati, Ohio

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Steelcraft Manufacturing Company
9017 Blue Ash Road
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PURPOSE

To determine whether this site would be suitable for inclusion in an in-depth epidemiological, industrial hygiene, and medical study of health hazards in the painting trades.

PERSONS CONDUCTING SURVEY

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UNION CONTACT

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DESCRIPTION OF PLANT

This facility, located in the Northeastern suburbs of Cincinnati, consists of four separate buildings covering a total of approximately 600,000 square feet. Three of the buildings (Plants #1, #2, and #3) are the subject of this walk through report. Plant #4 is located some two miles from the others and is currently under construction. When completed, the operations conducted in Plant #3 will be transferred to the new plant and Plant #3 will be converted to warehouse use.

Steelcraft Manufacturing Company is the country's largest manufacturer of steel doors and steel door frames. Appendix 1 illustrates basic product specifications and the wide variety of door types manufactued. Production of steel doors and pre-fabricated steel buildings (discontinued in 1959) began in 1940. Since that time the facility has been expanded frequently and the number of employees has risen from less than 200 to 1,100 at the time of the walk-through. In 1969, the company was purchased by the American Standard Corporation of New York City and now operates as a division of that parent corporation.

Plant #1 is the site of virtually all of the painting operations involved in production. As such, it will be the focus of this walk-through report. In this plant the commercial doors and frames are fabricated, assembled, painted, and packed for shipping. In Plant #2 small hardware parts (such as hinges, latches, and internal reinforcement) are fabricated. These parts are not painted. There is, however, a rotogravure printing press located in the plant which is used to print simulated wood grain on some speciality doors. Less than 1% of total production is of this type so that printing is very infrequent. Air dried lacquer is used in this operation. At the time of the walk-through this press had not been used in approximately four months. In Plant #3 residential doors are manufactured in a process very similar to that in Plant #1. There are no painting operations (other than a very small amount of touch-up) at this plant because the flat steel stock used is purchased pre-painted.

PROCESS DESCRIPTION

Doors are manufactured on two identical assembly lines. One is a "high-speed" line on which large runs of the same type door are built. The other is used for smaller runs and one of a kind doors and, because of the consequent frequent need for set-up changes, is a "low-speed" line. The manufacturing process begins by trimming mild steel flats (16-24 gauge) to the proper dimensions. In a series of breaks, presses, and punches the two faces (and edges) of the doors are formed and spaces cut for lock, latch, and hinge assemblies. The lock and latch mounting/reinforcement box and hinge assembles are automatically resistance welded to the appropriate door face at this point.

The door faces are next degreased and cleaned in an automatic three stage washer. In the first stage the doors are sprayed with a detergent/Bonderite 690 mixture. They are then rinsed with cold water and in the third step sprayed with a mild chromic acid sealer. The doors are then oven dried. This entire process is enclosed and exhausted to the outside atmosphere.

The inside surfaces of the cleaned door faces are then sprayed with a two-part Neoprene-type epoxy adhesive. This is an entirely automatic, fully enclosed operation which is ventilated to the outside atmosphere. (A small amount of this epoxy is applied to strategic parts of the door through the use of one pint hand-held squeeze bottles in non-ventilated areas.) There is a small (approximately 7' x 5') hood located adjacent to this area in which a few specialty items are hand sprayed with this same adhesive. After this operation, a honeycomb core of phenolic resin impregnated kraft paper is placed on one of the door faces. The two faces are then mated to form the nearly finished door. Construction details of the door can be seen in Appendix 1. Occasionally a preformed polyurethane foam core is used in place of the paper honeycomb core. In either event the door is then run through a calendar press to bond the door faces and the core. Excess adhesive is removed by washing the doors (by hand) with 242 solvent. The down-draft ventilation for this operation does not appear to be entirely effective.

At this point the construction of the door is completed by resistance welding the door ends to the door. When required, closure reinforcements are also welded to the door at this point. The door ends and closure reinforcements are partially fabricated immediately adjacent to the assembly area. This process involves part degreasing (in perchlorethylene) and arc welding. There is only general ventilation in the area.

The completed door is then inspected and repaired if necessary. After another hand washing with 242 solvent (general ventilation only) the door is ready for the finishing process. This process is described in detail in the next section. After painting the door, edges are fitted with cardboard protection and the entire package wrapped in clear heat-shrink plastic.

The manufacture of door frames at this facility follows a set of very similar operations. Again there are separate high-speed and specialty lines. Mild steel coil stock (14-18 gauge) is purchased to width and through a series of breaks, presses, and punches bent to form the hinge jamb, strike jamb, and head parts of a door frame. Reinforcements, anchors, latches, and other hardware are then resistance welded to the frame as per specifications. These three main pieces of frame are then sent to the paint shop which is described in detail in the next section. After painting, the frame parts are packaged (unassembled) for shipping.

PAINTING OPERATIONS

Every door and frame produced by Steelcraft, with the exception of the few stainless steel doors and frames manufactured, is painted before shipping. Approximately 95% of all pieces are shipped with only a primer coat. The rest are primed and then topcoated with any of ten standard colors. Both primer and topcoat are alkyd baking enamels (see page 9). This same mono-bake painting system has been used for at least thirty years.

As stated earlier, the door components are cleaned in a three-stage wash before they are assembled and sent to the paint area. There the doors are hung on an overhead conveyor. A plan of this conveyor system and painting operations is included as Appendix 2 At this point there are approximately five workers who again hand wash the doors with copious quantities of 242 solvent. This area has only general ventilation.

A five-stage washer and drier similar to the one described earlier, (Bonderizing and chromic acid rinse) follows. This washer is, however, only used when Series 16 doors and frames are painted on this line. Otherwise the system is shut down. After drying (whether the washer is on or not), the overhead chain conveyor takes the doors to the first set of spray booths. In these booths (designated #1 and #2) the primer coat is applied automatically using an electrostatic spray paint system. The paint is piped in from a central store room. In this system each booth has a set of six air type spray guns mounted on a reciprocating frame. In this way an even coat of primer is applied to the door. In spray booth #1 one side of the door is painted, and immediately afterward, the other side is painted in spray booth #2. At the spray guns the paint is under a pressure of 10 lbs/in^2 and the air of 30 lbs/in^2.

Each set of spray booths (i.e. #1 and #2) measures approximately 15 feet x 40 feet and is 12 feet high. Makeup air is filtered and tempered. Laminar air flow (estimated at 125 feet per minute) flows across the conveyor line carrying overspray to a conventional water-wall scrubber. Exhaust volumes were not known but are calculated to be on the order of 35,000 cfm per booth. This type of booth, manufactured by deVilbiss, has been commonly seen throughout the industry in other walk-throughs. Because booth doors, etc. are often left open at this facility, control appears to be less than that possible. A rather heavy paint odor was noticed in the entire painting area during the walk-through by all participants.

Spray booths #5 and #6 are identical to #1 and #2. They are used to apply the topcoat when specified. As stated earlier, about 5% of the doors produced are topcoated.

Spray booths #3 and #4 are small water wash booths in which hand spraying is done. Hand spraying is evidently a rare occurrence however. During the walk-through only a portion of one door frame was painted in these booths. The work was done with a hand-held air type spray gun. The operator wore a respirator and control velocities appeared to be more than adequate.

The present automatic electrostatic painting system was installed on this line in 1970. Prior to that time a hand-held electrostatic system was used.

The doors are then baked in an oven to cure the paint. After baking they are inspected and packed for shipment. Doors that are rejected for paint defects are taken from the line and hand sanded to remove the defect. They are then sent back through the entire painting line.

Paint line #2 is used for finishing door frames. Almost all frames are shipped with only a primer. Line #2 is set up only for prime coating frames, with any topcoating done on line #1 previously described. The primer used is the same basic alkyd baking enamel as is used for doors, except that it is thinned with (mostly) xylol.

The frame sections are loaded by hand onto an overhead chain conveyor. The parts are then prepared for painting in a three-stage washer and drying oven very similar to the one earlier described. The dried sections are next conveyed to a flowcoater in which the paint is applied. The flowcoater and approximately 30 feet of the conveyor line following are entirely enclosed and ventilated. The coated pieces are then baked in an oven, inspected, and removed from the line for packing and shipment. Plans are currently well advanced to convert the flowcoater to use a water based paint.

During the walk-through a very heavy paint odor was noticed in the flowcoater area by all participants. This area is, however, completely separated from production areas of the plant and entrance into the area is rare as the system is fully automated. Appendix 3 includes a diagram of the layout of Paint Line #2.

DESCRIPTION OF WORKFORCE AND PERSONNEL RECORDS SYSTEM

Currently the Steelcraft Manufacturing Company employs approximately 1,100 employees, 900 of which work in the factory area. Manufacturing is carried out on a two shifts per day basis. Most of the paint process is automated and little hand held spraying is done, mostly as touch up. Two workers per shift are classified as spray painters for the electrostatic paint operation and one per shift for the flow-coating process. When spray painting is done, conventional air-type spray guns are used.

Overall turnover in plant personnel is estimated at 20-25% per annum. There is little seasonality in the size of the work force. Of the current employees 50% have worked for Steelcraft for 5 years or more. Seventeen percent of the work force is female and 8% are minorities.

Personnel records are kept on all current and past employees of Steelcraft. A typical personnel file contains the following information: the employee's application form, job changes, pay changes, absentee slips (with doctor's note if absence due to illness of more than one day's absence), clock number (this number is re-used for new employees), health insurance claim forms, accident reports, and termination information. Starting last year, a self-administered questionnaire on pre-existing disabilities has been given to all new employees. All information is stored loose in standard manila folders and filed alphabetically. Files for current and terminated employees are separated. Ten years after termination, employee files are moved to dead storage in the same area. As listing is alphabetical, it would be necessary to search each personal file separately to locate persons previously working as painters and who now have another job or have terminated their employment.

Payroll records are the only records that are computerized. They contain employee name, social security number, seniority date, birthdate, sex, job status and address. When an employee is terminated he is dropped from the computerized list.

Employee benefits include a non-contributory life insurance plan, benefits being paid if death occurs while employed or within five years after retirement. For such individuals, copies of death certificates are available. A noncontributory retirement plan is also available. There is no death benefit and thus no death certificates are required. The pension file is kept separately, also in the personnel office. There is also a health insurance plan for which the carrier is Travellers and as noted previously, records of payment for services under the plan are kept in each individual's personal file. See Appendix 3 for examples of employment forms.

DESCRIPTION OF MEDICAL PROGRAM

There are first aid facilities available on the site. A physician is on call 24 hours a day at a nearby medical facility. Two hospitals are located within two miles of the plant. There are no pre-placement physicals. A self administered disability questionnaire was instituted last year for new employees. There has been audiometric testing and testing of some employees exposed to 242 solvent.

INDUSTRIAL HYGIENE PROGRAM

Steelcraft Manufacturing does not have its own industrial hygienist but relies on its Worker's Compensation carrier for general industrial hygiene and safety audits of the facility and on consultants for special problems. The last general audit was "several years ago." OSHA has inspected the plant "many" times but, according to the Steelcraft officials, has never taken any measurements of vapor concentrations on either paint line.

There is a plant safety director, but the manager of manufacturing engineering appears to have more to do with the health-related hazards in the plant, especially in the painting areas.

On paper the company appears to have a vigorous health and safety program. Most of the recognized hazards in the plant were extremely well marked with signs and appropriate health and safety information and warnings. Worker compliance, however, appeared to be low despite a system which does exist in the union contract in which the company is empowered to force compliance.

DESCRIPTION OF ENGINEERING CONTROLS

Ventilation systems on both of the paint lines have been partially described in previous sections. The paint spray booths on line #1 (doors) potentially supply adequate control for painting operations. Makeup air is supplied at an adequate rate and linear air flow velocities also appear to be adequate. Sloppy work practices (leaving doors and shields open) considerably lessen the effectiveness of the system. Control at the flowcoater on line #2 (frames) similarly seems to be adequate. At this point the line is entirely enclosed and exhausted. Air velocities into the enclosure (at the entrance and exit of the overhead conveyor) also appear to be adequate for control of paint vapors. The flash-off area immediately following the flowcoater is only partially enclosed, however, and heavy solvent odors were noted by all participants during the walk-through.

Elsewhere in the plant ventilation appears to be generally good. The epoxy adhesive application area and all of the three or five stage washers are completely enclosed and exhausted. Control appears to be adequate. There are several areas in the plant (previously noted) in which 242 solvent is used for parts cleaning. Copious quantities (approximately 20,000 gallons per year) of the solvent are applied by hand in areas exhausted by general room ventilation only. In the absence of data it is difficult to judge exposure, but it is potentially high. Steelcraft Manufacturing has a written respirator program for those very few instances in the plant where respiratory protection is deemed necessary.

REPRESENTATIVE COATING COMPONENTS

The components shown were selected from Material Safety Data Sheets judged to be representative. The lists include the coating description, number of painters estimated to be directly exposed, plus nearby halo or peripheral groups who might be presumed to be exposed at some level, method of application (conventional compressed air, high pressure airless, hand held, electrostatic, machine applied or hand held), and ingredients listed as hazardous:

FLO COAT PRIMER: 1 painter occasionally exposed (automatic system); flo coating; (MSDS. A)

- xylene
- butyl
- mineral spirits

ELECTRO SPRAY PRIMER: 2 painters and 5 others exposed; air spray (automatic); (MSDS B)

- xylene
- ethylene glycol mono ethyl ether acetate
- methyl ethyl ketone
- butanol
- isobutanol
- butyl acetate
- toluene
- mineral spirits
- (xylene sub.) exempt aliphatic

ELECTRO SPRAY BAKING ENAMEL: 2 painters and 5 others exposed; air spray (automatic); (MSDS C)

- xylene
- ethylene glycol mono ethyl ether acetate
- methyl tehyl ketone
- 66X xylene substitute aliphatic
- butanol
- mineral spirits
- butyl acetate
- toluene

CONCLUSION

Industrial Hygiene

The technology employed in this plant, the coating material used, and the employee exposures received, appear to be representative of the metal furniture industry. In addition, the high volume of production on a two shift basis makes this a potential site for an in-depth industrial hygiene survey.

Epidemiology

This plant has currently only six workers directly involved in the painting operations, and perhaps another 25 to 30 people work near to the electrostatic painting area. In addition, as the plant has only been in operation since 1940 and as of 1959 had only 200 employees, the number of long-term and retired workers available for study (particularly a mortality study) is extremely limited.

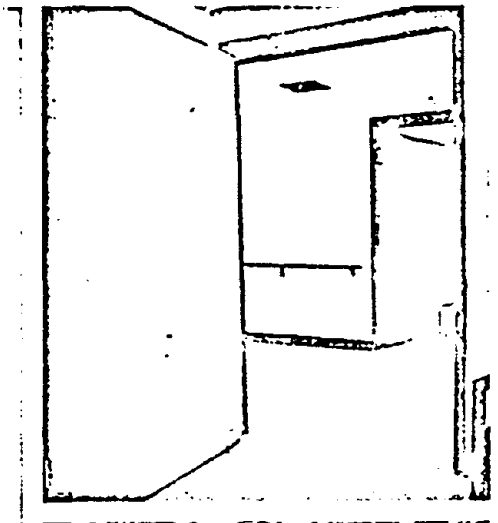
Medical

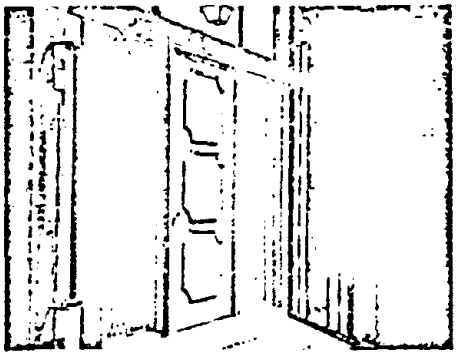
Due to the small number of painters at this plant, and the automated nature of the painting operations, this would not appear to be an ideal site for a medical study.

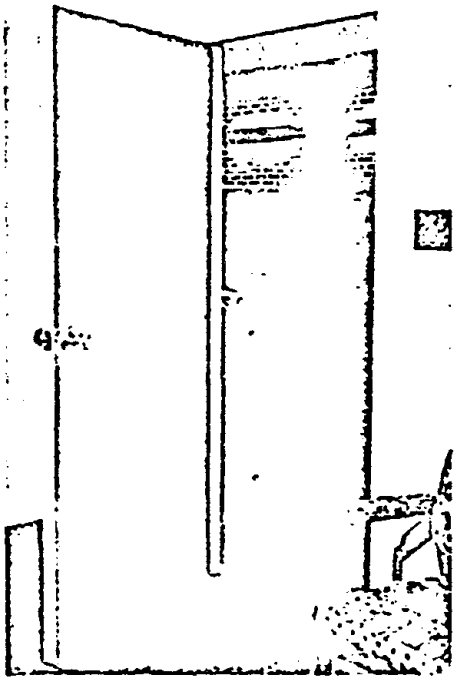
RECOMMENDATION

The Steelcraft Manufacturing Company is not recommended as a site for either an epidemiological or medical investigation of health hazards associated with painting operations. This plant is a potential site for an industrial hygiene survey as the technology and exposures appear representative of the industry.

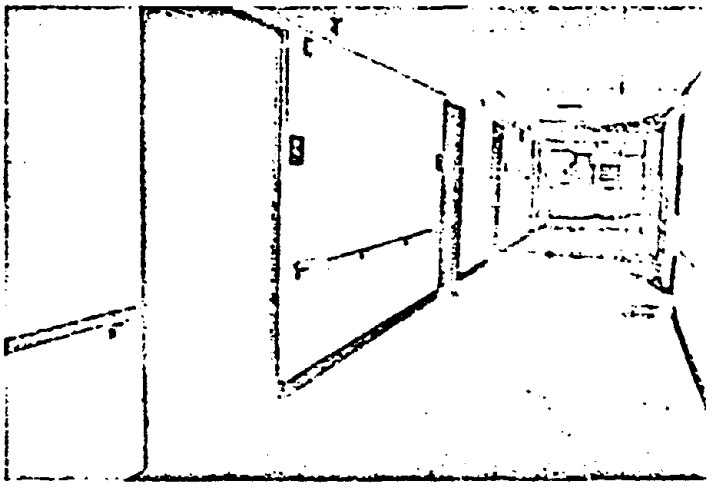
Appendix 1







PERMA-DOOR
DEALER PRODUCTS
STANDARD STEEL DOORS AND FRAMES



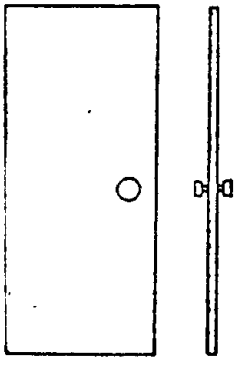
HERE ARE THE ADVANTAGES OF DEALER PRODUCTS STANDARD® STEEL DOORS AND FRAMES...

- Rugged construction—heavy gage steel
- Ideal for high use openings—6′ 8″ and 7′ 0″ high
- Extra Security Protection
- Designed for panic devices and other commercial type hardware.
- Underwriters' Laboratories fire doors and frames
- Bonded honeycomb core assures:
  - Flat faces—No weld dimples
  - High impact resistance
  - Low thermal conductivity
  - Sound resistance
- Factory weatherstripped frames
- Carton Packed frames—complete with anchors
- Individually shrink-packed doors
- Popular sizes stocked for quick delivery, backed up by factory inventory.

HERE ARE THE BASIC ELEMENTS OF DEALER PRODUCTS STANDARD® STEEL DOORS AND FRAMES...

THE STEEL DOOR...

is identified by gage of steel, thickness, size, direction of door swing (handing) and required preparations for hardware. For example, an "*L20-8 3068 RH Gov't 160-4*" means the door is made of 20 gage steel, is 1⅜" thick, is 3'0" wide x 6'8" high, is a right hand door and is prepared for a cylindrical lockset that has a 2¾" Backset.



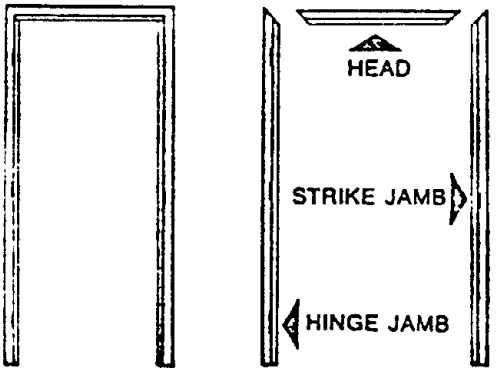
There are basically two types of standard hardware preparations in steel doors. One is for a key-in-knob cylindrical type lockset (Gov't 160-4 or Gov't 161). The other is for a mortise type lock used in commercial applications (Gov't 86) — per illustrations below.

Cylindrical lock cutout in face of door panel.

Mortise lock cutout in face of door panel.

THE STEEL FRAME...

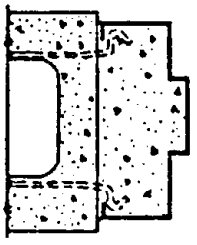
is identified by type of frame, gage of steel, thickness of door hung in frame, Jamb Depth (usually one inch larger than wall thickness) size, handing and preparation for strike. For example, an "*FTEP-4 5¾ 3068 RH ASA*" identifies a Flush series frame that is made of 16 gage steel, for a 1¾" thick door, with a 5¾" Jamb Depth, that is 3'0" wide x 6'8" high, has a right hand swinging door and is prepared for a 4⅞" high strike.



A steel frame is furnished knocked down (KD) in three pieces consisting of:
1. Strike Jamb
2. Hinge Jamb
3. Head

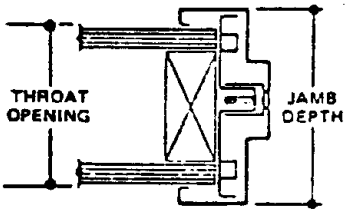
THERE ARE TWO BASIC TYPES OF STEEL FRAMES:

F SERIES



1. FOR MASONRY CONSTRUCTION (or wood and steel studs)

DW SERIES

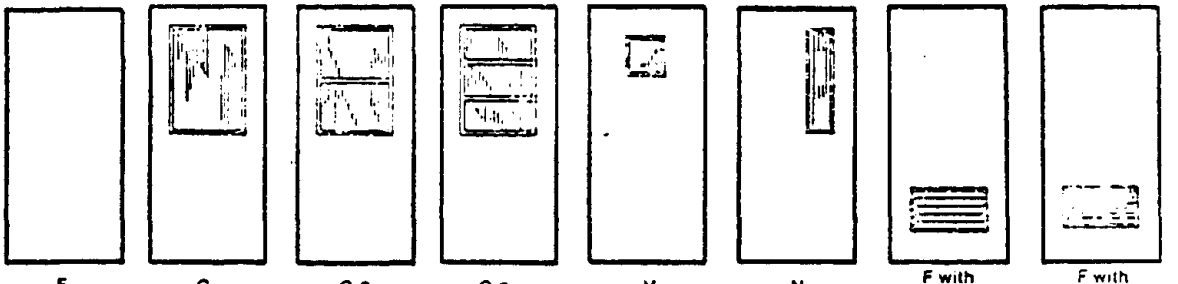


2. FOR DRYWALL CONSTRUCTION (goes in after wall is built)

STANDARD STEEL FLUSH DOORS

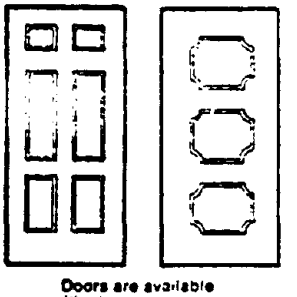
TYPE:			
	L20-8	1⅜" thick	20 gage
	L20-4	1¾" thick	20 gage
	L18-4	1¾" thick	18 gage

DOOR SELECTION L-SERIES



F | G | G-2 | G-3 | V | N | F with Louver | F with Grille

DECORATIVE DOOR DESIGNS



Doors are available with plastic plant-ons.

SPECIFICATIONS...

Doors shall be full flush design as manufactured by Steelcraft Manufacturing Co., Cincinnati, Ohio; An American-Standard Company.

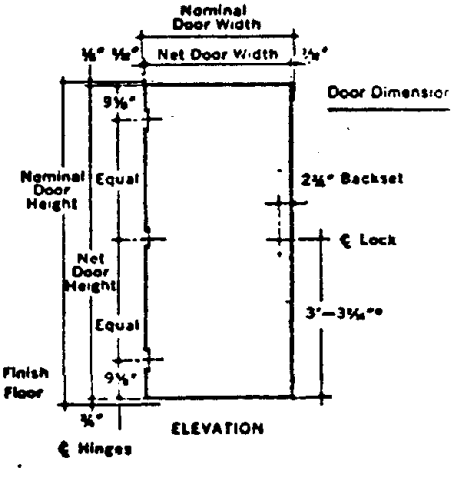
L Full Flush — Doors shall be of flush construction. Doors shall be made of cold-rolled steel, 20 gage for 1⅜" doors, 20 or 18 gage for 1¾" doors.

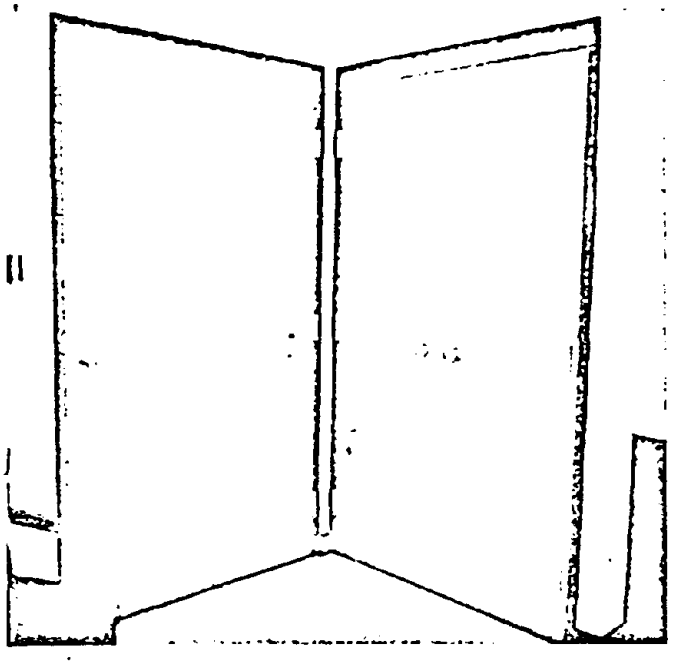
Doors shall be reinforced, stiffened, sound-deadened and insulated with impregnated kraft honeycomb core completely filling the inside of the doors and laminated to both inside faces of the panels. Doors shall have continuous vertical mechanical interlocking joints at lock and hinge edges with visible edge seams.

Doors shall have beveled (⅛" in 2") hinge and lock edges.

Top and bottom steel reinforcing channel shall be spot welded within the doors. Hinge reinforcings shall be 8 gage for 1¾" doors and 10 gage for 1⅜" doors. Lock reinforcings shall be 16 gage and closer reinforcings 12 gage.

All doors shall be phosphatized and finished as standard with one coat of baked on rust inhibiting prime paint capable of passing a 200 hour salt spray and 500 hour humidity test, in accordance with Federal Standard 141 or ASTM Specification B117 as certified by an independent laboratory.





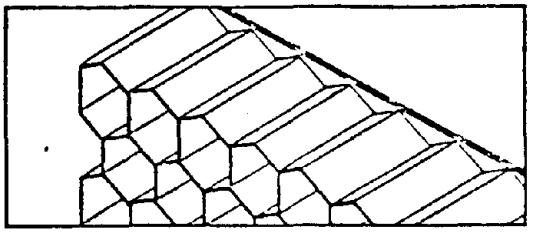
TO HAND A DOOR — FACE IT FROM THE OUTSIDE OR KEYSIDE	
LEFT HAND Hinges on Left Opens Inward	**RIGHT HAND** Hinges on Right Opens Inward
LEFT HAND REVERSE Hinges on Left Opens Outward	**RIGHT HAND REVERSE** Hinges on Right Opens Outward

STANDARD DOOR SIZES

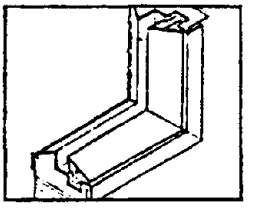
WIDTHS	HEIGHTS L-20 x 1¾" 6'-8" 7'-0"	HEIGHTS L-20 & L-18 x 1¾" 6'-8" 7'-0"
2'-6"	●	●
2'-8"	●	●
2'-4"	●	●
2'-8"	●	●
2'-10"	●	●
3'-0"	●	●
3'-4"	●	●
3'-6"		●
3'-8"		●
3'-10"		●
4'-0"		●

Double doors can be made by pairing two similar leaves.

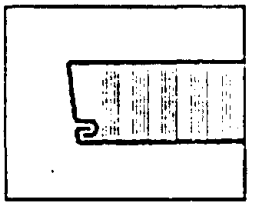
CONSTRUCTION FEATURES



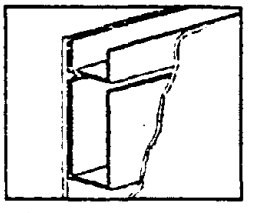
Full honeycomb core of phenolic resin-impregnated kraft paper reinforces the door every 1 inch. Provides superlative resistance to impact, and assures a smooth flat surface.



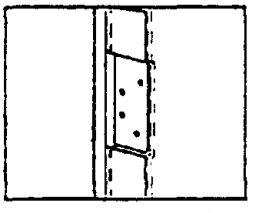
Aluminum glass trim (snap-in).



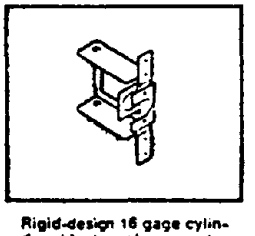
Continuous interlocking edge, beveled ⅛" in 2".



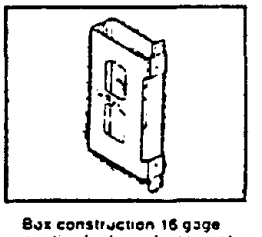
Steel top and bottom reinforcing channels. 12 gage closer reinforcement when required.



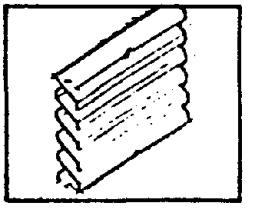
Hinge Reinforcement. 8 gage on 1¾" doors. 10 gage on 1⅜" doors.



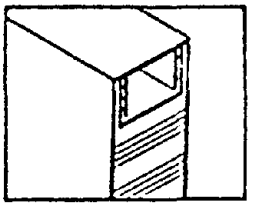
Rigid-design 16 gage cylindrical lock reinforcement.



Box construction 16 gage mortise lock reinforcement.



Fixed slat louvers — free air 45% of total area. Grill for interior — 81% free air area.



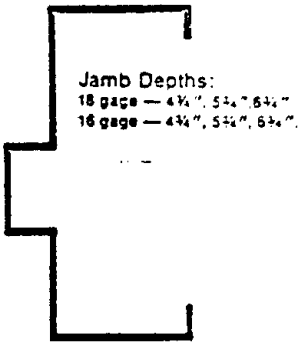
Snap-in vinyl top cap* for exterior openings. Galvanized steel top cap also available.

*patented

STANDARD® STEEL FLUSH FRAMES

TYPE:

F18P-8	18 gage frames — for 1⅜" doors
F18P-4	18 gage frames — for 1¾" doors
F16P-4	16 gage frames — for 1¾" doors

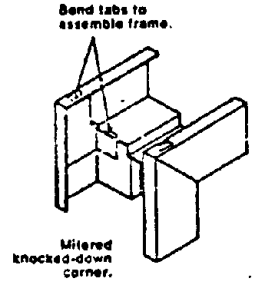


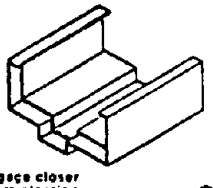
DESIGN FEATURES

Flush frames are furnished K-D (knocked-down), and manufactured from 18 and 16 gage cold-rolled steel. Available for 1⅜" and 1¾" thick doors. Heights of 6'8" and 7'0". Widths from 2'6" to 6'0".

RECOMMENDED USAGE

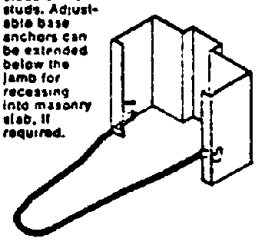
F-18P for 1⅜" and 1¾" thick hollow core wood and 20 gage steel doors only. F-16P for 1¾" thick 18 gage steel doors.

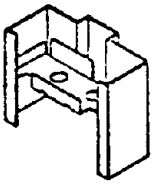


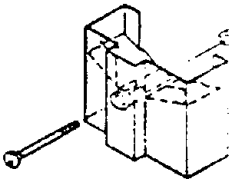


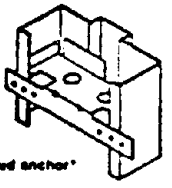
ANCHORS

Specially designed wall anchors for masonry, wood studs and steel studs. Adjustable base anchors can be extended below the jamb for recessing into masonry slab, if required.





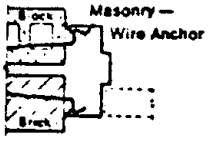




*Patented

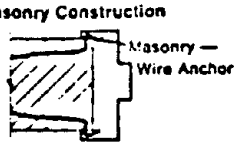
TYPICAL WALL CONDITIONS

Butted Masonry Construction



4¾" and 5¾" Jamb Depth with 6" or Larger Block.
6¾" Jamb Depth with 8" or Larger Block.

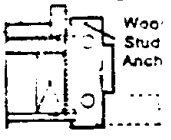
Wrap-Around Masonry Construction



4¾" Jamb Depth with 4" Block — 5¾" Jamb Depth with 6" Block.
6¾" Jamb Depth with 8" Block.

Wood Frame Construction

Beveled Wood Siding

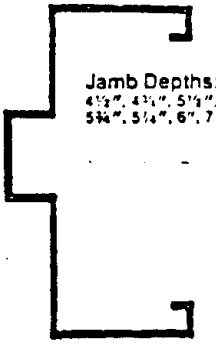


6¾" Jamb Depth With 2" 4" Wood Stud. Drywall Sheathing & Bevel Siding

STANDARD STEEL DRYWALL FRAMES

TYPE:

DW18P-8 18 gage frames — for 1⅜" doors
DW18P-4 18 gage frames — for 1¾" doors
DW16P-4 16 gage frames — for 1¾" doors



Jamb Depths:
4½", 4¾", 5¼", 5⅜"
5¾", 5⅞", 6", 7⅜"

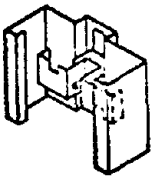
DESIGN FEATURES

Drywall frames are specifically designed for drywall construction using steel studs, wood studs, or laminated boards. Made to be installed after the wall is up, they are solidly installed into the opening in just minutes. Yet, if necessary, they may be relocated and used again without damaging the frame in any way. DW frames are available in either 16- or 18-gage cold rolled steel for 1⅜" or 1¾" doors.

RECOMMENDED USAGE

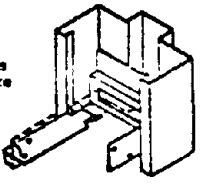
DW-18P for 1⅜" and 1¾" thick hollow core wood and 20-gage steel doors. DW-16P for 1¾" thick doors.

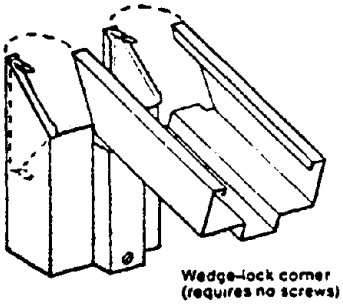
ANCHORS



Adjustable jamb anchor

Lock in base anchors — adjusts to stud size



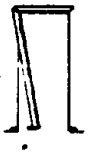


Wedge-lock corner (requires no screws)

EASY 3-STEP INSTALLATION FOR DRYWALL CONSTRUCTION

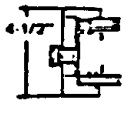
1. Apply drywall board leaving rough openings. Notch drywall for base clips (for later attachment direct to floor plate).

2. Push head into place. Interlock jambs to head and pivot into place.

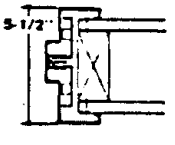


3. Place removable spreader at bottom to assure proper opening width. Attach base clip to floor plate. Adjust screws at top of jamb to plumb and firmly set frame.

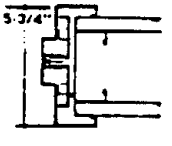
TYPICAL WALL CONDITIONS



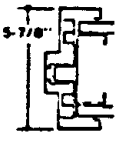
4½" JAMB DEPTH for 2½" steel stud with ½" gypsum board



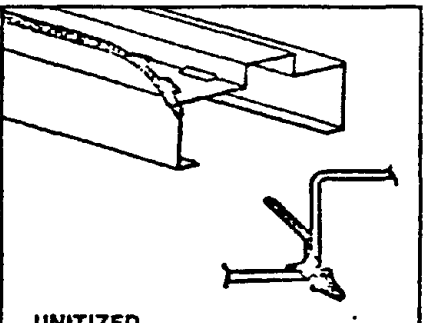
5½" JAMB DEPTH for 3½" wood stud with ½" gypsum board



5¾" JAMB DEPTH for 3½" wood stud with ⅝" gypsum board



5⅞" JAMB DEPTH for 3⅝" steel or wood stud with ⅝" gypsum board

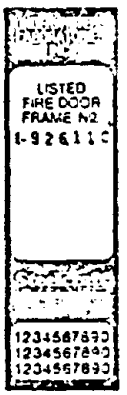


UNITIZED WEATHERSTRIP (optional)

Designed as an integral part of the frame. Unitized weatherstrip is a most effective weatherseal, and also ideally suited for openings that require dustproof seals, and noise reduction.

Weatherstrip is made of a black synthetic rubber impervious to the elements, capable of withstanding extreme temperatures and will not take a permanent set.

FIRE RATED DOORS AND FRAMES



U.L. Label — Frames

U.L. Label — Doors

UNDERWRITERS' LABEL SERVICE . . .

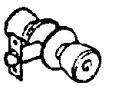
U.L. doors and frames are offered as an option, and meet every requirement for fire protection. Doors are available in both 1¾" and 1¾" thicknesses for 'A' and 'B' label classifications. All frames are KD (knocked down) and have the proper anchors for wall types specified.

All UL label doors and frames are manufactured in strict accordance with the specifications and procedures of Underwriters' Laboratories, Inc. Adherence to these specification and procedures is checked by UL through their in-plant inspection service.

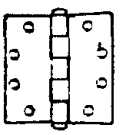
CERTIFIED DOORS and FRAMES . . .

Certified doors and frames are available at no extra charge for those locations where the local codes permit their use in lieu of UL classified products.

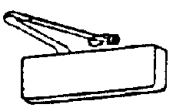
HARDWARE PREPARATIONS



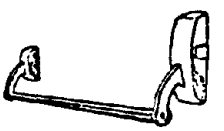
STANDARD LOCK PREPARATIONS:
1¾" doors — Gov't 161 Cylindrical, Gov't 85 Mortise (includes deadlock) 2¾" backset.
1⅜" doors — Gov't 160 cylindrical with 2¾" backset.



STANDARD HINGE PREPARATION:
1¾" doors — 1½ pair 4½ x 4½ standard weight template hinges on 6 8" and 7 0" doors.
1⅜" doors — 3½ x 3½ standard weight template hinges. 1 pair on 6 8" high doors, 1½ pair on 7 0".



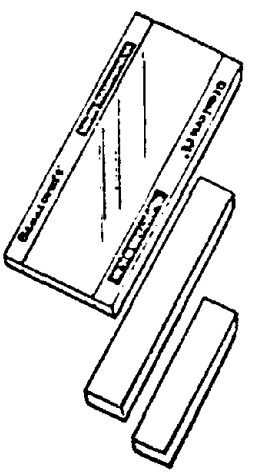
DOOR CLOSERS — Surface Mounted:
Use full length sex bolts (not through bolts) for doors that are not factory reinforced for closers.



PANIC DEVICES: For simple rim type installation, over standard cylindrical lock preparation, the following makes of panic devices will do the job:
- Monarch — (W/2 ¾" B.S.) #11 Series.
- Russwin — (W/2 ¾" B.S.) # 736, 736½, NT736
- Sargent — #9300 Series
- Von Duprin — #33 Series
- Corbin — #2826 NT, 2 3728, 3726½, 3728 N.T.
- Precision — G310 Series, 810 Series G310 Series

For other panic preparations, consult factory.

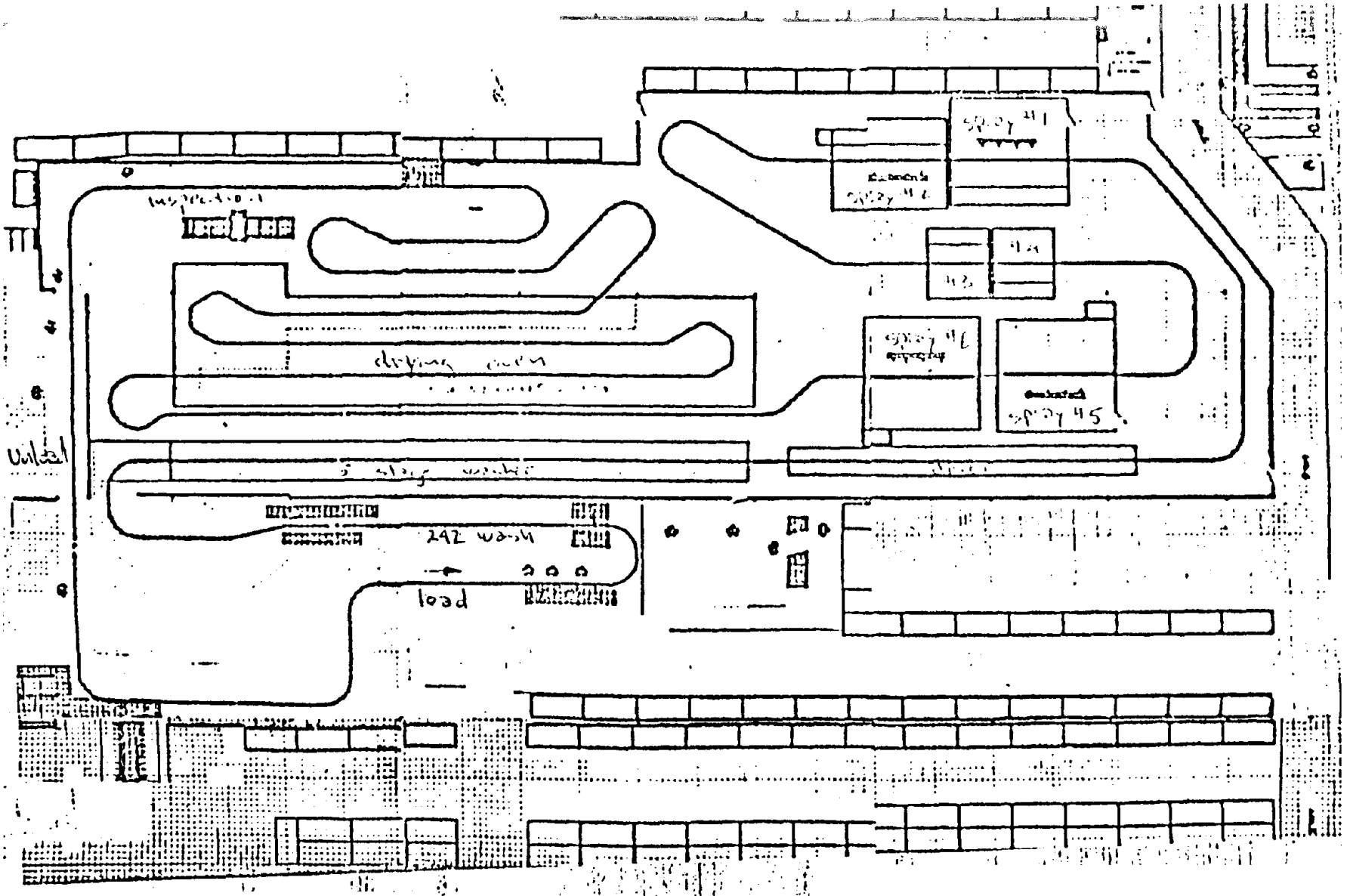
STANDARD DOOR AND FRAME PACKAGING



Doors have cardboard edge protectors applied before door is shrink wrapped. Size, hand and type are shown on edge.

Frames are packed in two cartons. Hinge and strike jamb in one carton. Head plus necessary anchors, etc., in other. Size, hand and type are shown on carton end.

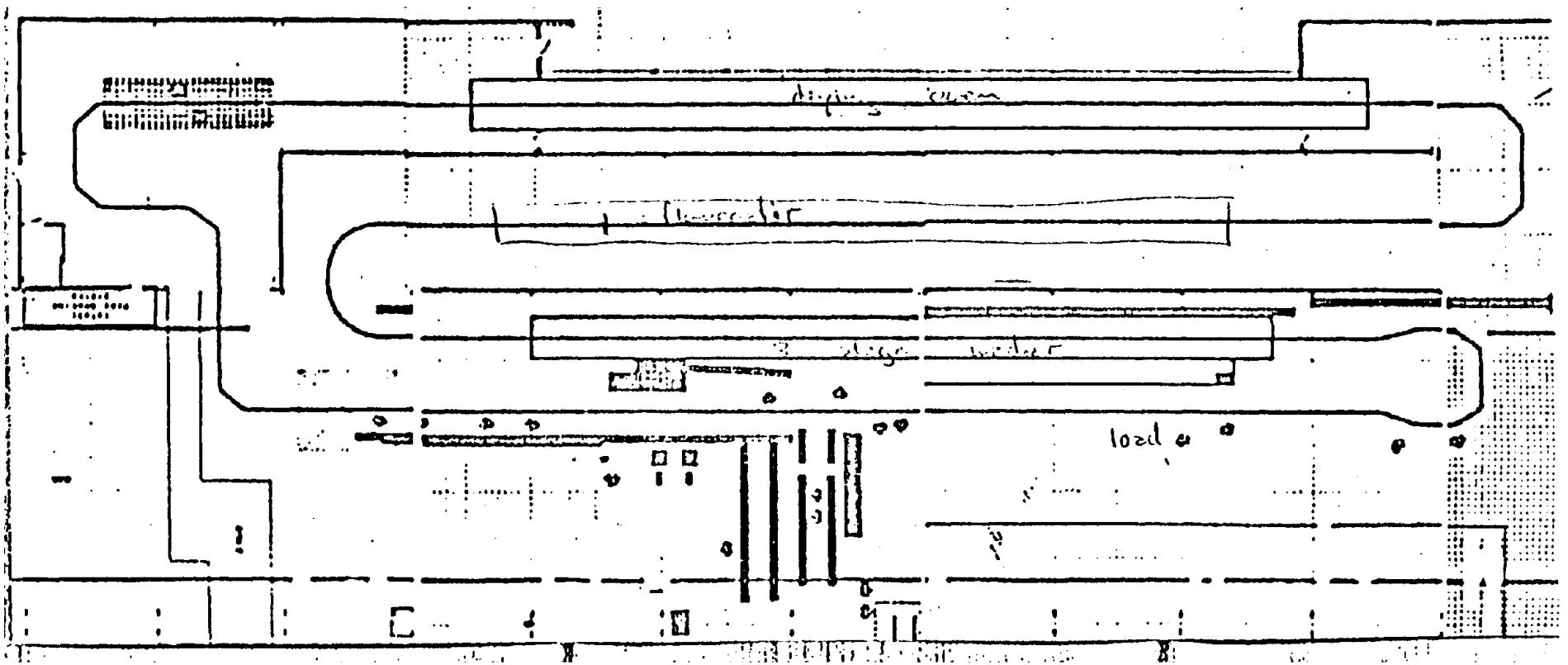
Appendix 2



Finish line for doors

Steelcraft MFG

Finish line for frames
Steelcraft MFG
Cincinnati, Ohio



Appendix 3

Employees Name _____ Clock # _____

Present Dept. _____ Effective Date _____ AM PM

CHANGE CLASSIFICATION		CHANGE HOURLY RATE		
From:		From:		
To:		To:		
	Award – Job Bid	CHANGE	SHIFT	DEPT
	2nd Vacancy	From:		
	Temp. Transfer	To:		
Employee's Signature		Employee's Request		

REMOVE FROM PAYROLL		STATUS CHANGE	
	Quit w/ Notice		To Sick Leave
	Quit w/o Notice		Ret. from S/L
	Discharged (Explained)		Ret. from Layoff
	Laid Off		To Direct
	Excess. Absent.		To Indirect

EVALUATION:	Ex.	Good	Fair	Poor	Rehire? Yes	No
Ability					Approved:	
Conduct						
Attendance						
Quality of Work						
Production						

Remarks: _____

AS 2356 – 10/73

Steelcraft

An American-Standard Company

9017 BLUE ASH ROAD, CINCINNATI, OHIO 45242

APPLICATION FOR EMPLOYMENT

Please Print

NAME (Last) (First) (Middle)		SOCIAL SECURITY NO.	DATE
STREET ADDRESS		POSITION DESIRED	
CITY STATE ZIP NO.			
HOW LONG AT THIS ADDRESS	PHONE NUMBER	NUMBER OF DEPENDENTS	
HAVE YOU EVER BEEN REFUSED FIDELITY BOND? IF SO, BRIEFLY GIVE DETAILS.	EVER EMPLOYED BY THIS COMPANY? LOCATION SUPERVISOR DATE LEFT	NAMES OF RELATIVES EMPLOYED BY US	
IN CASE OF EMERGENCY NOTIFY	NAME	ADDRESS	PHONE

If you served in the U.S. Armed Forces list below any special training or any other experience while you were in U.S. Military Service which would be helpful placing you in the right kind of work or which would be helpful in the position for which you are applying: _____

EDUCATION

	NAME AND ADDRESS OF SCHOOL	CIRCLE LAST GRADE COMPLETED	MAJOR SUBJECTS	DATE LEFT	DID YOU GRADUATE
GRAMMAR SCHOOL		1 2 3 4 5 6 7 8			
HIGH SCHOOL		9 10 11 12			
COLLEGE		1 2 3 4			
BUSINESS, TRADE OR OTHER SCHOOL					
ANY PRESENT COURSES, GIVE DETAILS					

HEALTH DATA

HAVE YOU ANY PHYSICAL DEFECTS	IF SO, DESCRIBE
WHAT IS THE GENERAL CONDITION OF YOUR HEALTH	HOW MUCH TIME HAVE YOU LOST DURING THE LAST TWO YEARS ON ACCOUNT OF ILLNESS OR INJURY
GIVE DETAILS OF ANY RECENT ILLNESS YOU HAVE HAD	

(See Other Side)

ARE YOU PRESENTLY EMPLOYED _____ WHY DO YOU DESIRE TO MAKE A CHANGE _____

WAGES WHEN LEAVING LAST PERMANENT POSITION $ _____ PER _____ WAGES DESIRED $ _____ PER _____

WERE YOU EVER DISCHARGED FROM ANY POSITION _____ GIVE DETAILS _____

PREVIOUS EMPLOYMENT (List Present and Last Five Positions)

FROM Mo.	FROM Yr.	TO Mo.	TO Yr.	NAME AND ADDRESS OF EMPLOYER	IMMEDIATE SUPERVISOR & DEPARTMENT IN WHICH EMPLOYED	KIND OF WORK PERFORMED	SALARY OR RATE	REASON FOR LEAVI

REFERENCES

Give the names of three persons who know you well, and who are not former employers or relatives and to whom we may refer as to your character, habits and ability.

NAME	ADDRESS	OCCUPATION

REMARKS

Describe any special qualifications you possess, e.g., languages, special training, typing, etc.

CERTIFICATION

I certify that my answers to the foregoing questions are true and correct. I authorize investigation of all matters contained in this application. I release references, former employers or others from liability for damages due to providing information regarding me. I understand any misstatement on this applica may result in withdrawal of an offer for employment or termination if I am employed.

I understand such offer of, or continuation of, employment is contingent upon my passing the Company's physical examination, my ability to be bonded, s satisfactory reference checks to the extent these conditions of employment may be required.

It is our practice to make routine inquiries for information regarding the character, reputation, personal characteristics and mode of living of applicants employment. If such an inquiry is made, more information as to its nature and scope will be supplied upon your written request.

It is American Standard's basic policy to provide equal opportunity in all of its operations and in all areas of employment practice and to assure that there sh be no discrimination against any employee or applicant for employment because of race, color, religion, sex, national origin, or age.

APPLICANT'S SIGNATURE _____

Labor Grade	Classification
1	General Shop
2	Porter
3	Porter (paint room)
4	Grinder
5	Punch Press Operator
6	Punch Press Operator (Large)
7	General Machine Operator
8	Spotwelder
9	Power Lift Operator (Mat'l Handler)
10	Tool Crib Attendant
11	Honeycomb Machine Operator (Lam)
12	Arc Welder
13	Spray Painter (Electrostatic or Foam) Spray Painter (Hand)
14	Assembler
15	Rework
16	Shipper
17	Truck Driver
18	Arc Welder (Layout)
19	Shipping Clerk
20	Marker
21	Brake Operator
22	Shear Operator
23	Sheet Metal Layout
24	Storekeeper
25	Expeditor and Production Clerks
26	Die Setter (Machine & Line Setup)
27	Warehouseman
28	Inspector
29	Receiving Clerk
30	Rolling Machine Operator Rolling Machine Setup
31	Roadman
32	Maintenance Machinery Repairman Building Maintenance
33	Electrician
34	Research
35	Tool & Die Repairman
36	Electronic Mechanic