WALK-THROUGH SURVEY REPORT
Contract #210-77-0096-3
Drexel Heritage Furnishings Inc.
Drexel, North Carolina 28619

DATE OF SURVEY
July 31 and August 1, 1978

DATE OF REPORT
July 10, 1979

The Johns Hopkins University
Baltimore, Maryland

and

The National Institute for Occupational Safety and Health
Cincinnati, Ohio

WALK-THROUGH SURVEY REPORT
Contract #210-77-0096
Drexel Heritage Furnishings Inc.
Drexel, North Carolina 28619

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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PLANT CONTACTS

Mr. Charles M. Carey, Vice President and Operating Officer
Mr. George Kalanzis, Vice President of Manufacturing
Mr. L. S. Inscoe, Vice President of Manufacturing, Case Goods
Mr. Haskell Reid, Director of Safety
Mr. Bill Parks, VP Engineering
Mr. Handley Fincher, Manager, Research & Testing
Mr. Frank Griffin, Manager, Finishing

UNION CONTACTS

No union

DESCRIPTION OF PLANT

Drexel-Heritage plants currently specialize in specific product lines. Variation in processes and materials are minimized to the extent that chairs from one plant are often part of a group built and finished in another plant. Production areas observed were chosen to represent different types of exposures encountered in all phases of manufacturing.

Drexel and Heritage Furniture Companies merged in 1960. Prior to the merger, both had expanded by buying small local factories. There are twelve Drexel-Heritage factories in North Carolina, but finishing operations are located in only ten of these plants:

Plant # 1: bedroom furniture and chairs
Plant # 2: bedroom and dining room furniture (except chairs)
Plant # 3: occasional and dining tables
Plant # 5: chairs
Plant # 6: dining room furniture
Plant #33: speciality decorated items
Plant #34: case goods and occasional furniture
Plant #37: upholstery
Plant #43: case goods, rotogravure process
Plant #45: church furniture

Plant numbers 1, 2, 3, 33, and 43 were visited as a part of the walk-through inspections.

PROCESS DESCRIPTION

The production process begins with the purchase of green, rough-cut hardwoods from various suppliers in North and South America and Africa. The wood is graded and stacked on arrival, allowed to air dry until needed, and kiln dried before use. Upon entry into the factory, the wood is rough-cut to length, fine-trimmed, and directed to the appropriate preparation area. Assembled furniture, usually affixed to pallets set on powered roller conveyors, then proceeds through the finishing and rubbing rooms before being shipped. Since 1965, production levels have been relatively constant, averaging between 650,000 and 700,000 units per year. Appendix 1 shows examples of one group of furniture currently in production. About a dozen other groups of equal size are also currently in production.

FINISHING OPERATIONS

The first finishing step is a light bleaching to remove pigments in the woods and to establish a uniform surface. The present bleaching method consists of spraying the furniture using a two nozzle gun with mixing occurring between gun and wood. The two components used in the spraying operation are Bufol-A-NS (H_2O_2) and Murol-B-NS (a perfumed ammonia solution). Previous bleaching systems also involved hydrogen peroxide but were premixed and reportedly less stable. The pieces are either air dried for a minimum of three hours (but usually overnight) or oven dried, then hand sanded as needed.

The specific staining and lacquering procedures depend upon the specifications for the final product. All spraying is done in booths, the design of which varies with the age of the plant. Generally, the first step is a "nongrain raising" stain which is usually followed by a vinyl sealer. The solvents present are listed in Appendix 2. Stain pigments are protected by the stain manufacturer as trade secrets. The piece is next lightly sanded, then either sprayed with a "filler" (a vehicle for depositing silicates in open pored woods), sprayed with a "wiping oil" (a filler without silicates), or sprayed with a second sealer coat. Normally, a filler or a stain would be applied with an air gun, while other materials can be delivered by airless spray. New equipment is usually airless when possible.

The first nitrocellulose-base sealer coat usually follows; this is hand sanded. An oil-based "glaze" is sprayed on, followed by a nitrocellulose clear lacquer. The next steps vary dependent upon the desired final appearance. Steps may include hand-padding, a technique which renders the finish uneven. Pads or "daubs" soaked in methanol and sometimes a stain are applied to the piece. The operation is done by hand usually using "rubber" gloves. Spattering, sometimes called "fly-specking," is done by spraying (with low air pressure) small volumes of stain droplike on the surface. The stains are usually darker than the base stain but otherwise identical. Various "antiquing" procedures may also be done at this time, usually involving variations of padding or "scratching" with crayons. At least two top coats of lacquer follow. Most quality furniture is rubbed with abrasives and then waxed to a deep sheen. Cheaper pieces are completed after the second lacquer except for finishing the insides of the work with a light stain and a lacquer.

Drexel applies a limited number of unique finishes. "Brush Mark" finishes are characterized by a white, painted appearance. The first step is the application by spray of a vinyl sealer which is sanded smooth. This is followed by a white water based, (latex-emulsion) primer & a water based, thick latex paint. The latex paint is brushed after application for the antique appearance. The brushings are covered by cellulose acetate-butyrate lacquer if no decals are to be applied, or a nitrocellulose lacquer if decals are to be used. The rest of the work-up is essentially identical to that described previously.

A number of furniture lines are decorated with decalcomania to give the appearance of hand painting. The decals are silk-screened by Drexel in one plant. The printing area is in a large room in which a new ventilation system was under construction at the time of the walk-through. With completion of this ventilation system, solvent concentrations (and thus hazards) should be very low. Estimates of prior exposure are highly speculative. The screening is done by hand in stages (one color at a time) onto a backing which is soluble in the finishing lacquer. Some of the women in the room wore "rubber" gloves, but no other protective equipment was used. A cutting and baking line is installed but not now fully operative.

The decals are applied in a near-by plant. Partially finished furniture is wiped down with a diluted glue called a "bonding emulsion." The decal is applied on a turntable in a larger open room with good air supply and large "window fan" type exhausts. Some hand painting is done to edge the decal or raise some parts of the design. The hand painting is in the open, but otherwise unvented. Once the decal is applied, the decal is "floated" into the finish by spraying with a lacquer apparently identical to the other finish lacquer to dissolve the backing of the decal. The pieces are rubbed to a high finish in an adjacent building using a wax-based polish rubbed with a heavy rubbing machine.

The "metalizing" process is used to convert wood and aluminum frames into imitation headboards. The process is similar to the making of a mirror, with the backing applied first and "glass" last. All materials are hand sprayed in booths. The paints are supplied by Jema-American, Inc., (P.O. Box 236, Dunellen, N.J. 08812), and consist of a reducer coat, a sensitizer, and a silver (Ag NO3) buffer concentrate. The paints are mixed at the booth. Approximately 5 gallons per day are now used. The product is silver-colored, but easily tarnished. The brass appearance and protective coating are applied by spraying a yellow transparent lacquer. Some decorations on metalized products are hand-painted at small tables without local ventilation. No ducted air supply was apparent, but large volumes of air come through open doors at each end of the room. Production volume of metalized products is declining.

A rotogravure printing process is used at Plant #43 to give particle board the appearance of a grained wood. In this fully automated process, flat stock is sealed, cured, sanded, coated with a base color, printed with several different colors to give a grain effect, and then sealed. All of the finishes employed in this process are applied by printing press type rollers. Each roller unit is enclosed by a separate ventilation system. The finishing system that is applied is essentially the same as the nitrocellulose system described earlier except that a styrene-based sealer is used.

Drexel uses approximately 500,000 gallons of finishes per year, including less than 25,000 gallons for printing lines. The lists of solvents used is enclosed in Appendix 2. Glymes, alcohols and hydrocarbon cuts predominate. No acutely toxic solvents appear to be used in any volume. Styrene irritation was the only subjectively noted exposure during the tours. Methylene chloride is presently used for removal processes. Benzene does not appear on present supply lists. The materials currently used might not represent previous exposures.

Suppliers appear to vary, but most lacquers apparently come from Inmont, Reliance, Lily and Prillaman. Previous formulations are best obtained from the suppliers.

WORKFORCE AND PERSONNEL RECORDS SYSTEM

The total population at Drexel Heritage consists of approximately 5000 current employees with about 1,000 individuals working in the finishing operations. They are distributed among 10 plants all of which have some variation either in the duration of operation or in the processes which are used in that particular plant. The duration of employment will vary by plant as well. The turnover rate is approximately 37 percent per year in these plants and this figure is probably applicable for the finishing rooms as well.

The ratio of women to men is 34 percent at the present time with a range of about 20 to 62 percent depending on which plant is considered. This high ratio of females has been a recent development from the early 1960's. Before that time, few women were involved in the furniture manufacturing plants. At the present time, the percentage of blacks is 11% a figure which is about twice the proportion which existed about 15 years ago.

There are two sources of personnel records for Drexel. There is a centralized card file which includes index cards on all personnel since 1948 for all plants except two. The data on these cards include social security number, name, birthdate, current and previous jobs and dates of each job change and dates of rehire and termination. It is estimated that there are approximately 16,000 to 17,000 cards in this file system. These cards are alphabetically retained with a color code for the shop in which the employee worked. The individual in charge of this file is Mrs. Marie Hoyle in Central Employment, Morganton.

The second resource is the information kept at the individual plant sites. They keep a set of cards similar to those which are kept in central employment and a personnel folder. The individual plants keep a card which includes name, social security number, address, wife's name, each rehire and termination time, the jobs held and the times of the jobs, and a listing of previous schooling. Recent cards have no birthdate, race, or sex; older cards do. This may also be true of the cards in The Central Employment Office; only terminated employees' cards were reviewed. Race and sex are stated on health forms, however, which are in the patient folders and so the information can be obtained on all employees. The folder frequently has less information on job changes than do the cards on job changes. Each individual section of the industry may retain records locally for varying periods of time. In one where records were reviewed, the data were retained for the past 10 years in personnel files.

The health and insurance plans of this company consist of medical, disability, and retirement and life insurance benefits. There are no records of medical insurance claims at the local sites since these are all handled by Blue Cross and Blue Shield. Aetna insurance carries the disability policy which is elective. The company pays 60% of the cost and the employee 40%. At the time of disability, the worker is entitled to 50% of his base pay after being disabled for 3 days. Disability forms are retained for about 10 years and a review of these records revealed no remarkable problems. There seemed to be many cases of phlebitis and hematomas but I have no standard with which to compare this observation. Hematomas could undoubtedly be explained by trauma. Phlebitis could be due to the prolonged standing required for several jobs or it may be an artefact due to local diagnostic practices. The cost for disability insurance is low and the company is underwriting increasing insurance costs at the present time. It is not known, however, how many of the employees elect this insurance plan.

Individuals are eligible to participate in a retirement plan after 1 yr. employment and are vested after 10 years. American Home Sun Life holds the retirement benefits. Because of the retirement plan, there is a peculiar distribution with large numbers of individuals turning over before one year of employment and many turning over after 10 years of employment. Individuals are also entitled to life insurance after the second year of employment. They receive $3,500 paid-up life. At the time of termination, the worker may either continue the paid-up policy or claim the cash. At the present time, 80% or more claim cash. This life insurance is paid for by the employee. However, if the individual is under 60 years of age and disabled for longer than 6 months, the company will pay the insurance premium. If he is over 60 years of age and disabled for 6 months, he must take early retirement. The retirement and life insurance plans of this company would dictate that only among the retired will we be able to identify deaths through company records.

The retirement and vested records are kept in one central file. If retirement payments are terminated or if a life insurance claim is entered, there is a death certificate on file. The number of known deaths at the present time is relatively small.

MEDICAL PROGRAM

The medical department in each plant is staffed by the nurse. She is the individual who retains Workmen's Compensation records on-site for five years and then refers them to the central personnel file. There are no routine medical examinations provided for employees. The nurse keeps cards indefinitely on all individuals who have received first-aid in the plant. These cards are handled locally by each individual plant and it is not known whether the retention of records is the same in all

ten plants. The nurse also keeps a log daily on all first aid visits. These log sheets are retained for three years. In view of the difficulty in retrieving the information from the individual employees' cards and the probability that these records do not indicate serious illnesses, it is probably not worth the effort in trying to abstract these records at this time.

DESCRIPTION OF ENGINEERING CONTROL

Because the dozen plants in North Carolina have been constructed and renovated at various times over the last half century or more, a wide span of engineering control technology is in use. Generally stated, all finishing lines have been renovated since the late 1950's - most in the mid and late 1960's. These systems are all based on a design face velocity of 50 fpm. At the newest plant (#2) and in all future renovations, a face velocity of 100 fpm will be used to control exposure in all spray booths. In general, all spraying is accomplished within these booths, but inevitably some spraying occurs outside of these booths. Padding, rubbing, and accenting are done outside of the booths. In addition, flash off is not usually in a booth. Drying ovens are exhausted to the outside air.

Although Plant #2 has the most modern finishing room, the order in which the finishing operation is accomplished and, therefore, the order in which the spray booths are placed is typical:

Booth #1	first stain
	flash
Booth #2	sap stain
	flash
Booth #3	base stain
	wipe stain
	stain ovens
Booth #4	washcoat
	flash
	washcoat oven
Booth #5	sealer (custom only)
Booth #6	filler
	pad filler
	filler oven
Booth #7	sealer
	flash
	sealer oven
	sand sealer
Booth #8	glaze
	wipe glaze
Booth #9	glaze touch-up
	glaze oven

Booth #10	first lacquer
	flash
	lacquer oven
	pad and/or distress
Booth #11	spatter
Booth #12	shade
Booth #13	second lacquer
	flash
Booth #14	third lacquer
	flash
	lacquer oven
Booth #15	back coating

This modern assembly-line process uses raised powered, roller conveyors. Most spray booths are of the water trough design. Overhead, the booth covers the conveyor. Air flow at the booths appeared adequate. The area is designed for 110% make-up delivered through large rectangular ducts directed between booths. Make-up air is filtered (wire mesh) and heated but not chilled.

REPRESENTATIVE COATING COMPONENTS

These components judged to be representative were selected from lists of typical ingredients in Appendix 2. This summary includes, when known, the coating description, quantity of use, 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, and ingredients. The following figures represent the totals for ten Drexel-Heritage plants, although only five (#1, 2, 3, 33 and 43) were included in the walk-throughs.

STAINS AND SIMILAR COMPONENT PRODUCTS: 50,000 gal/yr; 26 finishers and 8 others exposed; air spray

Methanol
Toluene
Ethanol (Ethyl Alcohol)
Methyl Cellosolve
Butyl Cellosolve
iso-Propyl Alcohol
Mineral Spirits 66/3
140 Solvent 66/3
Butyl Acetate
Methyl Ethyl Ketone (2-Butanone)
VM&P 66/3
Acetone
Methyl Amyl Ketone
Ethylene Glycol Monomethyl Ether
Dyes

THINNERS AND SOLVENTS: 75,000 gal/yr; 95 finishers and 5 others exposed; air and airless spray

Butyl Acetate
Methyl Ethyl Ketone
Acetone
iso-Propanol
Xylene
Toluene
VM&P Naphtha
Methanol
Methyl Butyl Ketone
Butyl Ethanoate
Butyl Cellosolve
Ethyl Alcohol
Isobutyl Acetate
Kerosene
Methyl Alcohol
Methyl Cellosolve
Mineral Spirits 66/3
Naphtha, 1% Aromatic (Mineral Spirits)
140 Solvent 66/3
Turpentine
Pine Oil
Styrene
Styrene (Monomer)
Ethylene Glycol Monoiso Butyl Ether
Heptane
Isopropyl Alcohol
Diethylene Glycol Monoethyl Ether
Aromatic 100
Ethylene Glycol Monobutyl Ether
Stoddard Solvent
1,1,1 Trichlorethane
n-Butyl Alcohol

TONER BASE - STAIN - WASHCOAT - TONER (Color Addition or Equalization): 15,000 gal/yr; 125 finishers and 10 others exposed; air spray

Methyl Butyl Ketone
Methyl Ethyl Ketone
Naphtha -VM&P (Lactol Spirits)
Toluene
Xylene
iso-Propyl Alcohol
iso-Butyl-Propyl Acetate Mix
Butyl Acetate Mix
Butyl Alcohol (Butanol)
Methyl Alcohol
Butyl Cellosolve
Acetone
Methyl Amyl Acetate

SEALERS WASHCOATS AND CONCENTRATE:50,000 gal/yr; 92 finishers and 15 others exposed; air spray

Methyl Alcohol
iso-Propyl Alcohol
Butyl Alcohol (Butanol)
Butyl Acetate
Hexane
Toluene
Xylene Plus Vinyl
Xylene
VM&P Naphtha
Butyl Cellosolve
Methyl Ethyl Ketone
Methyl Amyl Ketone
Mixed Butyl Esters
iso-Propyl Cellosolve
iso-Propanol
Methanol
Propylene Oxide
Urea Resin
Nitrocellulose
Alkyd Resin

LACQUER COATING: 150,000 gal/yr; 103 finishers and 15 others exposed; airless spray

Naphtha VM&P
Naphthol Spirits
Toluene
Butyl Cellosolve
iso-Propanol
Butanol
Methyl Amyl Acetate
Methyl Amyl Ketone
Butyl Acetate
Dioctyl Phthalate
Methyl Alcohol
Cellosolve Acetate
Xylene
Methyl n-Butyl Ketone
Methyl Ethyl Ketone
Nitrocellulose
Acetone
Mixed Butyl Ester
iso-Propyl Alcohol
Alkyd Resin
Iron Oxide
Titanium Dioxide
Organic Yellow
Oxide Yellow

PRINTING INKS: 2,500 gal/yr; 14 finishers and 2 others exposed; rotogravure press

Cellosolve Acetate
iso-Propyl Alcohol
iso-Butyl - Propyl Acetate (Mix)
Naphtha (Mineral Spirits)

FILLER AND GLAZE (GRAIN FILLING): 50,000 gal/yr; 330 finishers and 20 others exposed; air spray and wipe

Naphtha Aromatic
Naphtha VM&P
Mineral Spirits
Kerosene
Xylene
Toluene
iso-Propyl Alcohol
Butyl Alcohol (Butanol)
Silicates
Butyl Carbitol
140 Solvent
Ethanol
Ester Gum
Bentone
Bone Black
Burnt Umber
Van Dyke Brown
Sylica

CONCLUSIONS

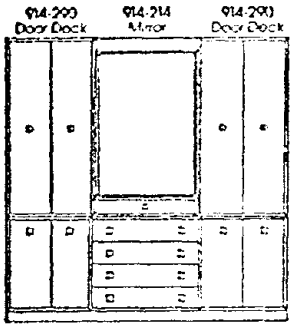
Industrial Hygiene: Manufacturing operations at the Drexel-Heritage plants visited seem to be representative of the entire industry. These operations are relatively unchanged over the last 30+ years. The basic finishing operations are unchanged over this same period with finish type and usage easily documented from purchase records. Control methods employed are common throughout the industry and represent, at different plants, a twenty-year range of engineering control technology.

Epidemiology: Epidemiologically, this company is appropriate for study. They have a large number of records located in a central file. However, finishers cannot be identified easily from these records except through a color code card system. There is a centralization of retirement and death records which would allow one to detect known deaths. The only difficulty that can be seen is an infrequent listing of job changes in the early 40's which may indicate either inadequate record-keeping or a lack of job changes and it is suspected that the latter is probably the case.

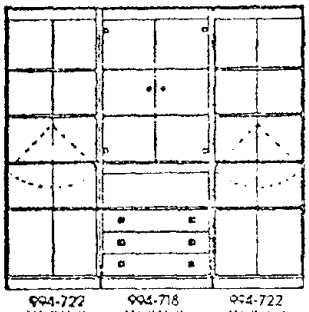
RECOMMENDATION

Because of the large number of identified finishers at Drexel-Heritage and because of the representativeness of exposure at the plants visited, it is recommended that the complex of Drexel-Heritage plants in North Carolina be the subject of further in-depth investigation.

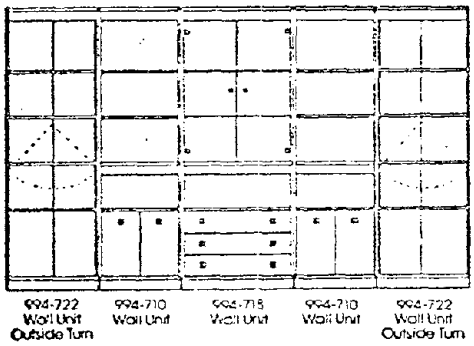
Appendix 1



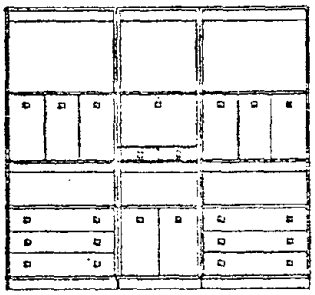
W78 (198cm.) D18 (46cm.) H79-1/4 (201cm.)



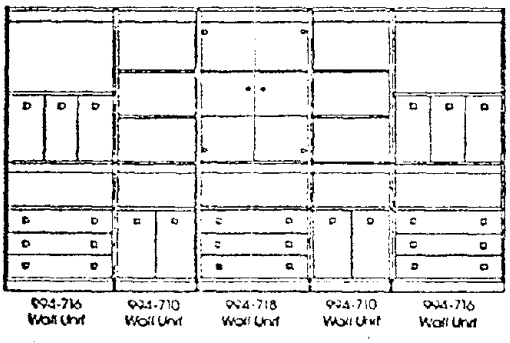
W66-1/2 (169cm.) D18 (46cm.) H79-1/4 (201cm.)



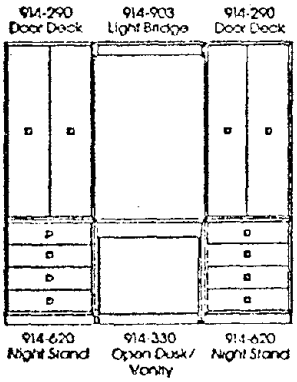
W111-1/2 (283cm.) D18 (46cm.) H79-1/4 (201cm.)



W83-1/2 (212cm.) D18 (46cm.) H79-1/4 (201cm.)



W136-1/2 (347cm.) D18 (46cm.) H79-1/4 (201cm.)



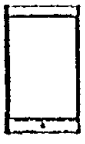
W79-1/2 (202cm.) D18 (46cm.) H79-1/4 (201cm.)

Bunching Dresser
914-120 Precedent Finish
W48-1/2 (123cm) D18 (46cm) H29-1/4 (74cm)
Adjustable glides
Pages 5, 7

Dresser
914-130 Precedent Finish
W78 (198cm) D18 (46cm) H29-1/4 (74cm)
Four tray drawers behind
each set of end doors
Adjustable glides
Page 6

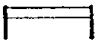
Mirror
914-210 Precedent Finish
W25 (64cm) H42 (107cm)
Page 7

Mirror
914-212 Precedent Finish
W29 (74cm) H50 (127cm)
Page 19

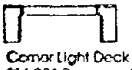


Mirror Unit
914-214 Precedent Finish
W29 (74cm) D18 (46cm) H50 (127cm)
Page 6

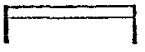
Light Deck
914-280 Precedent Finish with
Cordovan Back Panels
W24-1/2 (62cm) D10 (25cm) H14-1/2 (37cm)
One showcase light with
switch under top
Pages 4, 5



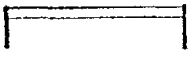
Light Deck
914-282 Precedent Finish with
Cordovan Back Panels
W30-1/2 (77cm) D10 (25cm) H14-1/2 (37cm)
Two showcase lights with
switch under top
Pages 4, 5



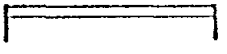
Corner Light Deck
914-283 Precedent Finish with
Cordovan Back Panels
W30-1/2 (77cm) D30-1/2 (77cm)
H14-1/2 (37cm)
Two showcase lights with
switch under top
Pages 4, 5



Light Deck
914-284 Precedent Finish with
Cordovan Back Panels
W48-1/4 (123cm) D10 (25cm) H14-1/2 (37cm)
Three showcase lights with
switch under top
Page 5



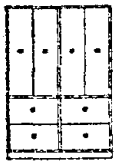
Light Deck
914-286 Precedent Finish with
Cordovan Back Panels
W62 (158cm) D10 (25cm) H14-1/2 (37cm)
Four showcase lights with
switch under top
Use with 914-572 Functional Bed
Page 4



Light Deck
914-288 Precedent Finish with
Cordovan Back Panels
W78 (198cm) D10 (25cm) H14-1/2 (37cm)
Four showcase lights with
switch under top
Use with 914-571 Functional Bed
Not shown

Door Deck
914-290 Precedent Finish
W24-1/2 (62cm) D18 (46cm) H50 (127cm)
Two adjustable shelves, one fixed
shelf, two shirt partitions and one
tray drawer behind doors
Pages 6, 8

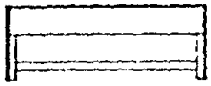
Open Desk/Vanity
914-330 Precedent Finish
W30-1/2 (77cm) D18 (46cm) H29-1/4 (74cm)
Adjustable glides
Pages 5, 18



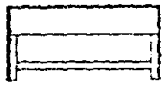
Door Chest
914-420 Precedent Finish
W40-1/4 (102cm) D18 (46cm) H60 (152cm)
Top left has two adjustable shelves
behind bifolding door
Top right has one adjustable shelf,
one fixed shelf and two tray
drawers behind bifolding doors
Four drawers at bottom
Adjustable glides
Page 7

Drawer Bachelor Chest
914-470 Precedent Finish
W30-1/2 (77cm) D18 (46cm) H29-1/4 (74cm)
Adjustable glides
Removable base (2-3/4 inches 7cm)
Pages 5, 9, 15, 19

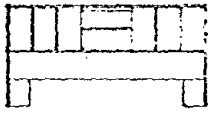
Door Bachelor Chest
914-480 Precedent Finish
W30-1/2 (77cm) D18 (46cm) H29-1/4 (74cm)
One adjustable shelf behind
bifolding doors
Adjustable glides
Removable base
Pages 4, 15, 19



Functional Bed
914-571 Precedent Finish
King Size
W:78 (198cm) D:12 (25cm) H:29-1/4 (74cm)
Adjustable glides
Use with optional metal frame or either of the king size bedding platforms
Not shown

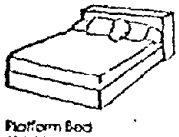


Functional Bed
914-572 Precedent Finish
Queen Size
W:62 (158cm) D:12 (25cm) H:29-1/4 (74cm)
Adjustable glides
Use with optional metal frame or either of the queen size bedding platforms
Page 4

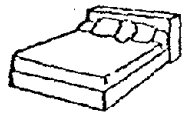


Bookcase Bed
914-574 Precedent Finish
King Size
W:78 (198cm) D:12 (31cm) H:40 (102cm)
One adjustable shelf
Hole for lamp cord in back panel
Use with optional metal frame or either of the king size bedding platforms
Page 9

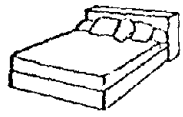
Bookcase Bed
914-575 Precedent Finish
Queen Size
W:62 (158cm) D:12 (31cm) H:40 (102cm)
One adjustable shelf
Hole for lamp cord in back panel
Use with optional metal frame or either of the queen size bedding platforms
Page 8



Platform Bed
914-590 Precedent Finish
Queen Size
W:62 (158cm) D:82 1/4 (209cm) H:9 3/4 (25cm)
Accommodates mattress and box springs
Page 8

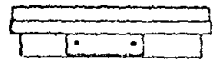


Platform Bed
914-597 Precedent Finish
King Size
W:78 (198cm) D:82 1/4 (209cm) H:9 3/4 (25cm)
Accommodates mattress and box springs
Not shown

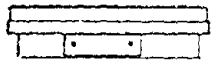


Platform Bed
914-598 Precedent Finish
California King Size
W:74 (188cm) D:86 1/4 (219cm) H:9 3/4 (25cm)
Accommodates mattress and box springs
Not shown

Bedding Platform
914-591 Precedent Finish with Cordovan Base
King Size
W:78 (198cm) D:82 (208cm) H:4 3/4 (37cm)
Two hundle drawers in base
Accommodates mattress and platform only
Page 9



Bedding Platform
914-592 Precedent Finish with Cordovan Base
Queen Size
W:62 (158cm) D:82 (208cm) H:4 3/4 (37cm)
Two hundle drawers in base
Accommodates mattress and platform only
Not shown



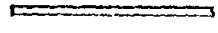
Bedding Platform
914-594 Precedent Finish with Cordovan Base
California King Size
W:74 (188cm) D:86 (218cm) H:4 3/4 (37cm)
Two hundle drawers in base
Accommodates mattress and platform only
Not shown

Night Stand
914-620 Precedent Finish
W:24 1/2 (62cm) D:18 (46cm) H:29 1/4 (74cm)
Adjustable glides
Page 4

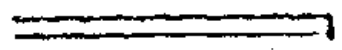
Night Stand
914-630 Precedent Finish
W:24 1/2 (62cm) D:18 (46cm) H:29 1/4 (74cm)
One adjustable shelf behind doors
Adjustable glides
Page 8

Open Bookcase
914-640 Precedent Finish
W:24 1/2 (62cm) D:18 (46cm) H:29 1/4 (74cm)
Two adjustable shelves
Adjustable glides
Removable base for stacking (2-3/4 inches, 7cm)
Page 5

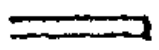
Corner Unit
914-650 Precedent Finish
W:44 (112cm) D:30 1/2 (77cm) H:29 1/4 (74cm)
Width is 30-1/2 from the corner of the wall to each end of the unit
Two adjustable shelves
Adjustable glides
Pages 4, 5



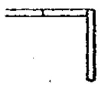
Light Bridge
914-901 Precedent Finish
W:78 1/2 (199cm) D:17 1/2 (44cm) H:4 1/4 (11cm)
Three concealed lights with dimmer switch on the cord
Use with king size bed
Not shown



l Bridge
902 Precedent Finish
(156cm) D17-1/2 (44cm) H4-1/4 (11cm)
star set lights with dimmer
witch on line cord
with queen size bed
ge 8

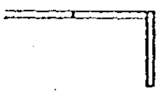


ht Bridge
-903 Precedent Finish
0-1/2 (77cm) D17-1/2 (44cm) H4-1/4 (11cm)
e star set light with dimmer
witch on line cord
with 994-330 Vanity between
wo tall wall units
ge 18



quare Dining Table
4-344 Precedent Finish
42 (107cm) D42 (107cm) H29 (74cm)
tends to 63 inches (160cm) with
one 21-inch (53cm) aproned leaf

lso available with two leaves as
54-345 Precedent Finish
tends to 84 inches (213cm)
age 12



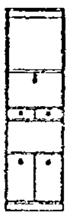
ectangular Dining Table
64-346 Precedent Finish
63 (160cm) D42 (107cm) H29 (74cm)
tends to 84 inches (213cm) with
one 21-inch (53cm) aproned leaf

lso available with two leaves as
964-347 Precedent Finish
xtends to 105 inches (267cm)
Page 13

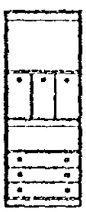
Arm Chair
964-632 Precedent Finish
W21-1/2 (55cm) D22-1/4 (57cm) H41 (104cm)
Pages 12, 13

Side Chair
964-633 Precedent Finish
W18-3/4 (47cm) D22-1/4 (57cm) H41 (104cm)
Pages 5, 12, 13, 18

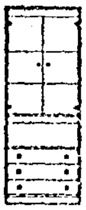
Wall Unit
994-710 Precedent Finish
W22-1/2 (57cm) D18 (46cm) H79-1/4 (201cm)
Top has two adjustable shelves
Fixed shelf has one showcase
light underneath
One adjustable shelf behind doors
Adjustable glides
Pages 16, 17



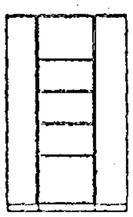
Wall Unit
994-712 Precedent Finish
W22-1/2 (57cm) D18 (46cm) H79-1/4 (201cm)
Top has drop front with lock,
black high pressure laminate
surface on inside of lid and
shelf behind drop front
One drawer and showcase
light underneath
One adjustable shelf behind doors.
Adjustable glides
Pages 16, 17



Wall Unit
994-716 Precedent Finish
W30-1/2 (78cm) D18 (46cm) H79-1/4 (201cm)
Top has one adjustable shelf
behind bi-folding doors with two
showcase lights underneath
Adjustable glides
Pages 16, 17, 18



Wall Unit
994-718 Precedent Finish
W30-1/2 (78cm) D18 (46cm) H79-1/4 (201cm)
Top has two showcase lights and
two adjustable glass shelves
behind bronze glass doors
Two showcase lights beneath
door section
Adjustable glides
Pages 14, 17



Wall Unit-Inside Turn
994-720 Precedent Finish
W48 (122cm) D20 (51cm) H79-1/4 (201cm)
Width is 34 inches (86cm) from corner
of wall to each end of unit
Two adjustable shelves, two fixed
shelves and two showcase lights
Adjustable glides
Pages 16, 17

Wall Unit-Outside Turn
994-722 Precedent Finish
W18 (46cm) D18 (46cm)
H79-1/4 (201cm)
Two adjustable shelves and
two fixed shelves
Adjustable glides
Pages 14, 16, 17

Appendix 2

TYPICAL INGREDIENTS

SILVER SOLUTIONS

Silver
Ammonia

TYPICAL INGREDIENTS

COLORING STAIN

Methanol
Toluene
Ethanol (Ethyl Alcohol)
Methyl Cellosolve
Butyl Cellosolve
iso-Propyl Alcohol

TYPICAL INGREDIENTS

THINNER

Butyl Acetate
Methyl Ethyl Ketone
Acetone
iso-Propanol
Xylene
Toluene
VM&P Naphtha
Methanol
Methyl Butyl Ketone

TYPICAL INGREDIENTS

SOLVENTS AND SIMPLE SOLVENT COMPOUNDS

Butyl Ethanoate
Butyl Cellosolve
Ethyl Alcohol
Isobutyl Acetate
Kerosens
Methyl Alcohol
Methyl Cellosolve
Mineral Spirits 66/3
Methanol
Naphtha, 1% Aromatic (Mineral Spirits)
140 Solvent 66/3
Turpentine
Pine Oil
Styrene
Styrene (Monomer)
Ethylene Glycol Monoiso Butyl Ether
Heptane
Acetone
Isopropyl Alcohol
Diethylene Glycol Monoethyl Ether
Aromatic 100
Ethylene Glcol Monobutyl Ether
Stoddard Solvent
1,1,1 Trichlorcethane
n-Butyl Alcohol
Xylene

TYPICAL INGREDIENTS

ENAMELS/PAINTS

Naphtha (Lactol Spirits)
Butanol/Butyl Alcohol
sec-Butyl Acetate
n-Butyl Acetate
Methyl Ethyl Ketone
Methyl Butyl Ketone
Dibutyl Phthalate
Xylol
iso-Propyl Alcohol
iso-Propanol
Methyl Amyl Acetate
Toluol
Heptane
Toluene
iso-Butyl Acetate
Carbon Black
Titanium Dioxide
Xylene
Methanol

TYPICAL INGREDIENTS

PRE/PRIMER

Lactol Spirits
VM&P Naphtha
Butyl Cellosolve
Ethanol (Ethyl Alcohol)
iso-Propanol
Methyl iso-Butyl Ketone
Butanol
Acetone
Dioctyl Phthalate
Nitrocellulose

TYPICAL INGREDIENTS

STAIN AND SIMILAR COMPONENT PRODUCTS

Methanol
Ethyl Alcohol
Mineral Spirits 66/3
140 Solvent 66/3
Butyl Cellosolve
Methyl Cellosolve
iso-Propyl Alcohol
Butyl Acetate
Methyl Ethyl Ketone (2-Butanone)
VM&P - 66/3
Toluene
Acetone
Methyl Amyl Ketone
Ethanol
Ethylene Glycol Monomethyl Ether
Dyes

TYPICAL INGREDIENTS

TONER BASE - STAIN - WASHCOAT - TONER
(Color Addition or Equalization)

Methyl Butyl Ketone
Methyl Ethyl Ketone
Naphtha - VM&P (Lactol Spirits)
Toluene
Xylene
iso-Propyl Alcohol
iso-Butyl - Propyl Acetate Mix
Butyl Acetate Mix
Butyl Alcohol (Butanol)
Methyl Alcohol
Butyl Cellosolve
Acetone
Methyl Amyl Acetate

TYPICAL INGREDIENTS

SEALER AND CONCENTRATE

Methyl Alcohol
iso-Propyl Alcohol
Butyl Alcohol (Butanol)
Butyl Acetate
Hexane
Toluene
Xylene Plus Vinyl
Xylene
VM&P Naphtha
Butyl Cellosolve
Methyl Ethyl Ketone
Methyl Amyl Ketone
Mixed Butyl Esters
iso-Propyl Cellosolve
iso-Propanol
Methanol
Propylene Oxide
Urea Resin
Nitrocellulose
Alkyd Resin

TYPICAL INGREDIENTS

ADHESIVES/CONTACT CEMENT

Synethetic Rubber, Resins
Cyclohexane
Methylene Chloride
Methyl Ethyl Ketone
Acetone
Toluol (Toluene)
Petroleum Distillate
Aliphatic Petroleum Distillate
Hexane
Petroleum Naphtha
1,1,1 Trichloroethane

TYPICAL INGREDIENTS

FILLER & GLAZE (GRAIN FILLING)

Naphtha Aromatic
Naphtha VM&P
Mineral Spirits
Kerosene
Xylene
Toluene
iso-Propyl Alcohol
Butyl Alcohol (Butanol)
Silicates
Butyl Carbitol
140 Solvent
Ethanol
Ester Gum
Bentone

PIGMENTS

Bone Black
Burnt Umber
Van Dyke Brown
Sylica

TYPICAL INGREDIENTS

NITROCELLOSE LACQUER

CLEAR RESIN COATING

iso-Propyl Alcohol
iso-Propyl Acetate
Toluol
Amyl Acetate
sec-Butyl Alcohol
Alphatic Lactic Spirits
Solids
Ethyl Alcohol
Butyl Alcohol
Acetone
Xylol

TYPICAL INGREDIENTS

MOULDMAKING

Stoddard Solvent
Xylene
Dibutyltindilaurate

TYPICAL INGREDIENTS

BASECOAT & PRIMERS (COLOR COATING)

Toluol
sec-Butyl Acetate
iso-Butyl Alcohol
Methyl Ethyl Ketone
Lactol Spirits
iso-Propanol
Acetone
Naphtha VM&P
Butyl Acetate Mix
Butanol
Methyl Butyl Ketone

TYPICAL INGREDIENTS

LACQUER COATING

Naphtha VM&P
Naphthol Spirits
Toluene
Butyl Cellosolve
iso-Propanol
Butanol
Methyl Amyl Acetate
Methyl Amyl Ketone
Butyl Acetate
Dioctyl Phthalate
Methyl Alcohol
Cellosolve Acetate
Xylene
Methyl n-Butyl Ketone
Methyl Ethyl Ketone
Nitrocellulose
Acetone
Mixed Butyl Ester
iso-Propyl Alcohol
Alkyd Resin

PIGMENT ADDITIONS

Iron Oxide
Titanium Dioxide
Organic Yellow
Oxide Yellow

TYPICAL INGREDIENTS

PRINTING INKS

Cellosolve Acetate
iso-Propyl Alcohol
iso-Butyl - Propyl Acetate (Mix)
Naphtha (Mineral Spirits)

CLEARING BASE

140 Solvent 66/3
Butyl Cellosolve
Toluene
iso-Propyl Alcohol