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Muslin Wall Hanging Presentation Materials from the 1930s

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Muslin Wall Hanging Presentation Materials from the 1930s

Earlier this summer someone looking for oil rags at the Lester Larson Tractor Museum remembered there was a drawer of them in an old file cabinet. When unfolding one, and then many more, they discovered that the fabric pieces were actually hand-illustrated, fabric panels which had once been used in Extension presentations.

Much as speakers might use a PowerPoint presentation today, these are thought to have been hung at meeting sites and referenced during the course of the meeting/class.

Individuals from the Tractor Museum carefully photographed each of the panels and created a spreadsheet of information about them.

It is thought that these represent at least four presentations:

- 1) Housing, Heating, Ventilation;
- 2) Poultry Housing and Brooders;
- 3) Organization of the Blumer Farm in Otoe County; and
- 4) Farm Building Construction.

The right column of the spreadsheet includes the names for those panels that were signed.

William Splinter
Lou Leviticus
Institute of Agricultural and Natural Resources
University of Nebraska-Lincoln

The following document includes a spreadsheet listing of the materials and a compilation of low-resolution images. High-resolution photographs are attached on the main cover page as “**Additional Files**”.

		EXTENSION "WALL HANGINGS"	
MATERIAL - MUSLIN -Marked on material edge: "INDIAN HEAD PERMANENT FINISH"			
<i>(See Marking on edge of panel # 24).</i>			
SIZE	All panels 54" x 59" or 54" x 60"		
DATES	No dates. See Muslin History File.		
	Name	According to Rollie Schnieder this program was called "The Caravan" or Caravan"	
		Assembled by: Lou Leviticus and Jim Christ	
#	Sheet No.	Title/Subject/Text	Draftsman
		HOUSING, HEATING VENTILATION ETC.	
1	2A	FRONT: Ventilation of 20' x 20' House. Warm and cold Air Ventilation of a Single-Story House - Wood Frame, Clapboard Siding, Cold Air Vents about Windows; Cupalo (sic) vent in attic. REVERSE: "King Ventilation"	Whitty~00
2	#7	Psychometric Chart. Showing Wet/Dry Bulb Temperature to determine Grains of Moisture per Pound of dry Air	Whitty~33
3	2	Humidity Chart. Showing Grains of Water in Air at different Temperatures. 1 Grain = 1/7,000. Outside Air at 0° F & 65% relative humidity contains .3 grains of moisture per cu.ft. When heated with no moisture added relative humiditydrops to 3.7%	Wittfield
4	3	The Simplified Comfort Chart. Shows indoor temps fro 60 to 80° F. and relative humidity.....percent from 10 to 90% and comfort line.	Wittfield
5	#13	"Humidifier for a Warm Air Furnace" Showing fire box -Inlet/water reservoir, valve and evaporating pan	Univ. of Neb Ag Eng. Ext.
6	#12	How a detached room is heated with an extra Hot Air Pipe from Furnace. Showing Furnace in Basement with pipe leading from Furnace to Wall Register in Room.	Whitty~30
7	1	Infiltration through Window. Showing Felt Weatherstripping of Window sash & Storm Window	Wittfield
8	#11	"Air Leakage around Sash. Air Leakage around Door" Showing Weather Stripping.	Whitty~30 Univ. of Nebr. Ag Eng Ext
9	#10	Hot-Air Heating Plant Installations. Showing Heat Loss through Walls, Windows and Roof.	Whitty~30 Univ. of Nebr. Ag Eng Ext
10	#5	A Warm Air Furnace. Layout Showing Heat Ducts & Return. With Notations of labaled parts of the System.	No ID
11	#9	"Summer heat Enter House" "Winter cold and Heat leaning House" Showing how building paper to stop air movement	I.D.Wood Univ. of Nebr. Ag Eng Ext
12	#8	"Furnace Control" Shows wind-up clock controlling draft for furnace to bring heat up in home atomatically	No ID
13	#4	Typical Hot Water Heating System. Shows piping and components used to deliver Heat to Home.	Whitty~30 Univ. of Nebr. Ag Eng Ext
14	#3	Improvement for Pipeless Furnace. Showing Furnace with Floor Grate and Humidifier and Cold Air Returns.	No ID

15	#2	Comparison of heating Costs - Natural Gas, Coal, Oil. Cost of Fuel. Efficiency of Fuel Coal 50% - \$11.00/ton, Oil 65% - \$0.07/ton, Gas 70% - \$0.65/ton Cost per season - no insulation: Coal 128.10, Oil 126.2, Gas 145.00 Balsam Wool Insulation: Coal 89.25, Oil 87.70, Gas 100.90	No ID
16	#1	"Firing with lump or nut coal" "thin fire" & "thick fire"	Wittfield
17	#6	Firing with Slack Coal. "For Mild temperature" "For Winter Temperature. Showing Placement of Coal for Banking to Control Heat Output of Furnace. Edge marking: INDIAN HEAD-PERMANENT FINISH.	Whitfield~33
POULTRY HOUSING AND BROODERS			
1	#3	Portable Brooder House for 250 - 350 chicks. 8"x12' - 52" Brooder Stove - 2"x4"x14" skids - 6" Fir Floor - 6" siding - 8" shiplap prepared roofing	Barr Agr. Eng.
2	#2	20"x20" Nebraska type Poultry House. Floor slopes 5" in 20' 3" Concrete Floor. 4" Gravel under Floor. Row of Tile around inside of House. All Plates bolted to Floor/Foundation. Roofing Paper between Concrete and Gravel.	Whitty~30 Univ. of Nebr.
3	#1	Capacity 100 hens. Has Feeders, Roosts, Waterer, Nests, Grain Bins - Windows; Doors; Drooping (sic) Boards; Wood Building with Drop Siding	Whitty ~30 Univ. of Neb.
4	#4	Improvement in Existing Buildings "too High in Front" "too Narrow" "Barn made into Poultry House"	Barr Agr. Eng.
PLUMER FARM, OTOE COUNTY			
1	#2	Showing Farmstead with Legend "Present Building Arrangement Plumer Farm - Otoe County. E 1/2 section 7-8N-12E 6th p.m. & W 1/2 sec 7-8N 12E 6th pm	No ID
2	#2	"Proposed Building Arrangement" Plumer Farm Otoe County Sec 7 - T-8-N-r-12 E 6th pm. Showing Farmstead with Legend	No ID
FARM BUILDING CONSTRUCTION			
1	#2	Replacement Costs of Farm Buildings. . Shows costs in cents per cu.ft for Multi room residences, garage, barns and sheds. Cattle and Machinery sheds, posts in ground with concrete foundation	Whitty~32
2	#1	Building Costs & Profit. Profits: 1, By saving grain, hay and other feed from spoilage 2. Sheltering stock, machinery, supplies thereby preventing loss. 3. Increasing production by providing comfortable quarters 4, Saving time and labor to be expended elsewhere for profit 5, increasing interest and satisfaction of owner 6. Advertising owner's business Annual Costs 1. Interest 6% of 1/2 replacement cost 2. Repair \$1.03 per \$100 replacement cost 3. Annual Depreciation 4. Taxes 40 c per \$100 of present worth 5. Insurance 10 c per \$100 present worth	Whitty

3		Table 1 - Size of Joists required for Different Widths and Heights of Cribs. Table 2. Size and Spacing of Joists for Overhead Bins (with tables)	No ID
4	#3	Effect of Investment in Service Buildings on Labor costs from 20 Leased properties (with tables)	No ID
5	#1	Safe Depth of Shelled Corn in Ordinary Bins with Joists at Common Size and Spans (with tables)	No ID
6	#4	Large Combination Crib and Granary.	No ID
7	#3	Large Combination Crib and Granary of frame construction Capacity: 120 bu of corn per foot of length. 80 bu of small grains per foot of length. Drawing showing details of Design for construction of building with 11' Driveway -Overhead Grain Bin & Side Corn Cribs	No ID
8	#3A	Bracing and Ventilation details for Corn Cribs. Types of Ventilation. Hraphic showing of Bracing of x12 for Crib & Ventilation for interiors of cribs	No ID
9	#4	Shelled Corn storage Requirements under Federal Corn Loan Program	No ID

SAFE DEPTH OF SHELLLED CORN IN ORDINARY BINS WITH JOISTS OF COMMON SIZES AND SPANS

24 INCH SPACING

	Depth of corn for				
	6 foot span	7 foot span	8 foot span	9 foot span	10 foot span
	Feet	Feet	Feet	Feet	Feet
2 x 6 inches	3				
2 x 8 inches	4 ½	4	3		
2 x 10 inches	6	5	4	3 ½	3
2 x 12 inches	8	6 ½	5	4 ½	4

16 INCH SPACING

2 x 6 inches	4 ½				
2 x 8 inches	6 ½	6	4 ½	3 ½	3
2 x 10 inches	9 ½	8	7	5 ½	4 ½
2 x 12 inches	12	10	8	7	6

SAFE DEPTH OF SHELLLED CORN IN ORDINARY BINS WITH STUDS OF COMMON SIZES AND SPACINGS

Stud size	Spacing center to center	Depth of bin	Depth of corn	Stud size	Spacing center to center	Depth of bin	Depth of corn
	Inches	Feet	Feet		Inches	Feet	Feet
2 x 4 inches	24	8	4	2 x 6 inches	24	8	7
2 x 4 inches	16	8	6	2 x 6 inches	16	10	8
2 x 4 inches	12	8	7	2 x 6 inches	12	10	9

TABLE 1. SIZE OF JOISTS REQUIRED FOR DIFFERENT WIDTHS AND HEIGHTS OF CRIBS

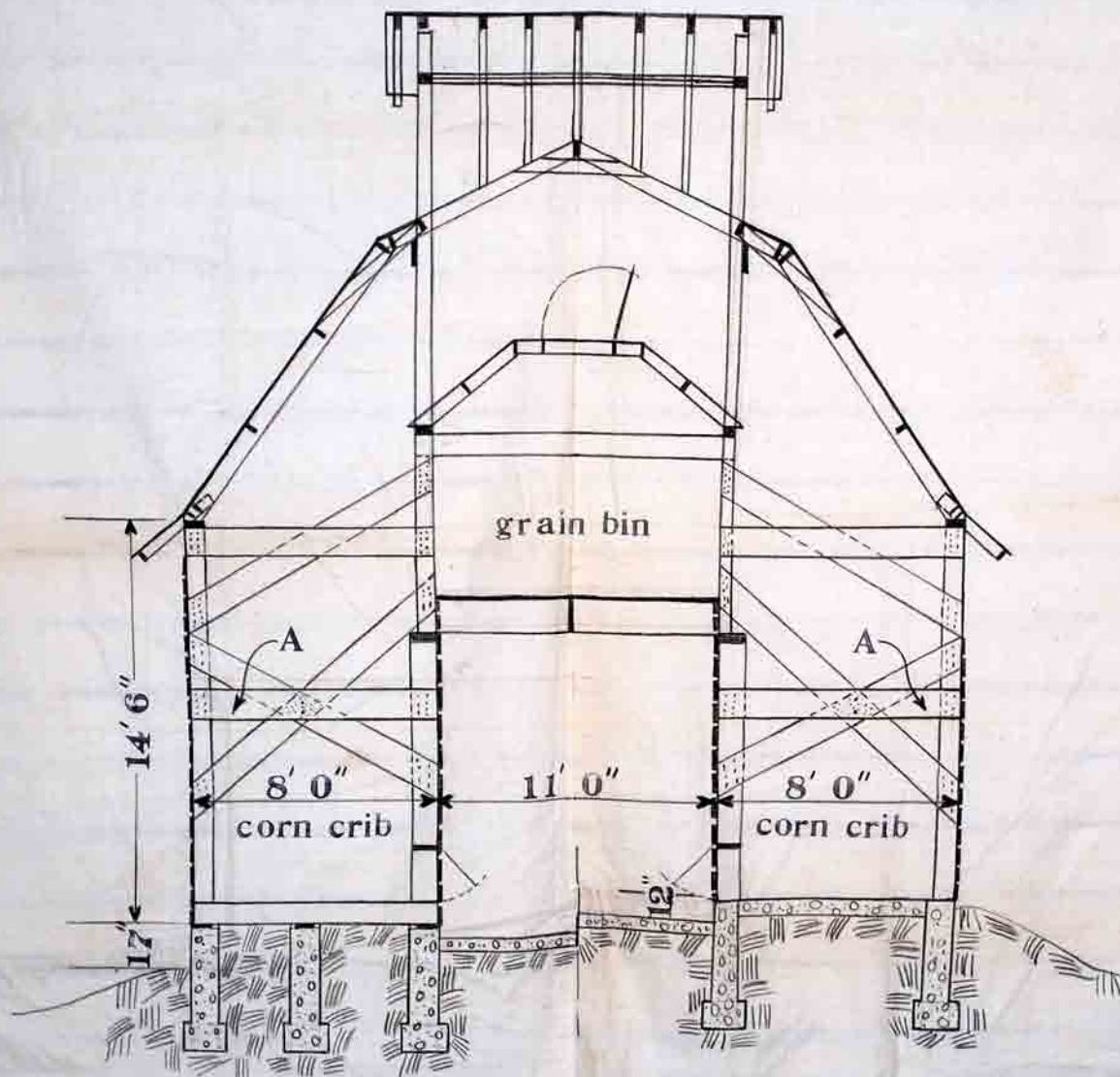
Length of joists Feet	Type of foundation	Height of Crib									
		8 feet		10 feet		12 feet		14 feet		16 feet	
		Size of joists Inches	Maximum spacing of joists Inches	Size of joists Inches	Maximum spacing of joists Inches	Size of joists Inches	Maximum spacing of joists Inches	Size of joists Inches	Maximum spacing of joists Inches	Size of joists Inches	Maximum spacing of joists Inches
6	2 walls	2x6	16	2x6	16	2x8	18	2x6	12	2x8	18
		2x8	18	2x8	18	2x10	24	2x10	24	2x10	24
8	2 walls	2x8	16	2x8	12	2x8	12	2x10	18	2x10	16
		2x10	24	2x10	18	2x10	18				
8	3 walls	2x6	24	2x6	24	2x6	24	2x6	18	2x6	18
								2x8	24	2x8	24
10	3 walls	2x6	24	2x6	18	2x8	24	2x8	18	2x8	18
								2x10	24	2x10	24

TABLE 2. SIZE AND SPACING OF JOISTS FOR OVERHEAD BINS

Width of driveway	Depth of Grain							
	4 feet		6 feet		8 feet		10 feet	
	Size of joists	Maximum spacing of joists	Size of joists	Maximum spacing of joists	Size of joists	Maximum spacing of joists	Size of joists	Maximum spacing of joists
	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches
9 feet	2x8	12	2x10	12	2x12	12	2½x12	12
			2x12	16	3x12	18	3x12	16
10 feet	2x8	12	2x12	12	2½x12	12	2½x12	12
	2x10	16	2½x12	18	3x12	16	2x12	18
11 feet	2x10	12	2x12	12	2½x12	16	3x12	12
	2x12	18	2½x12	16	3x12	12		

A LARGE COMBINATION CRIB AND GRANARY OF FRAME CONSTRUCTION

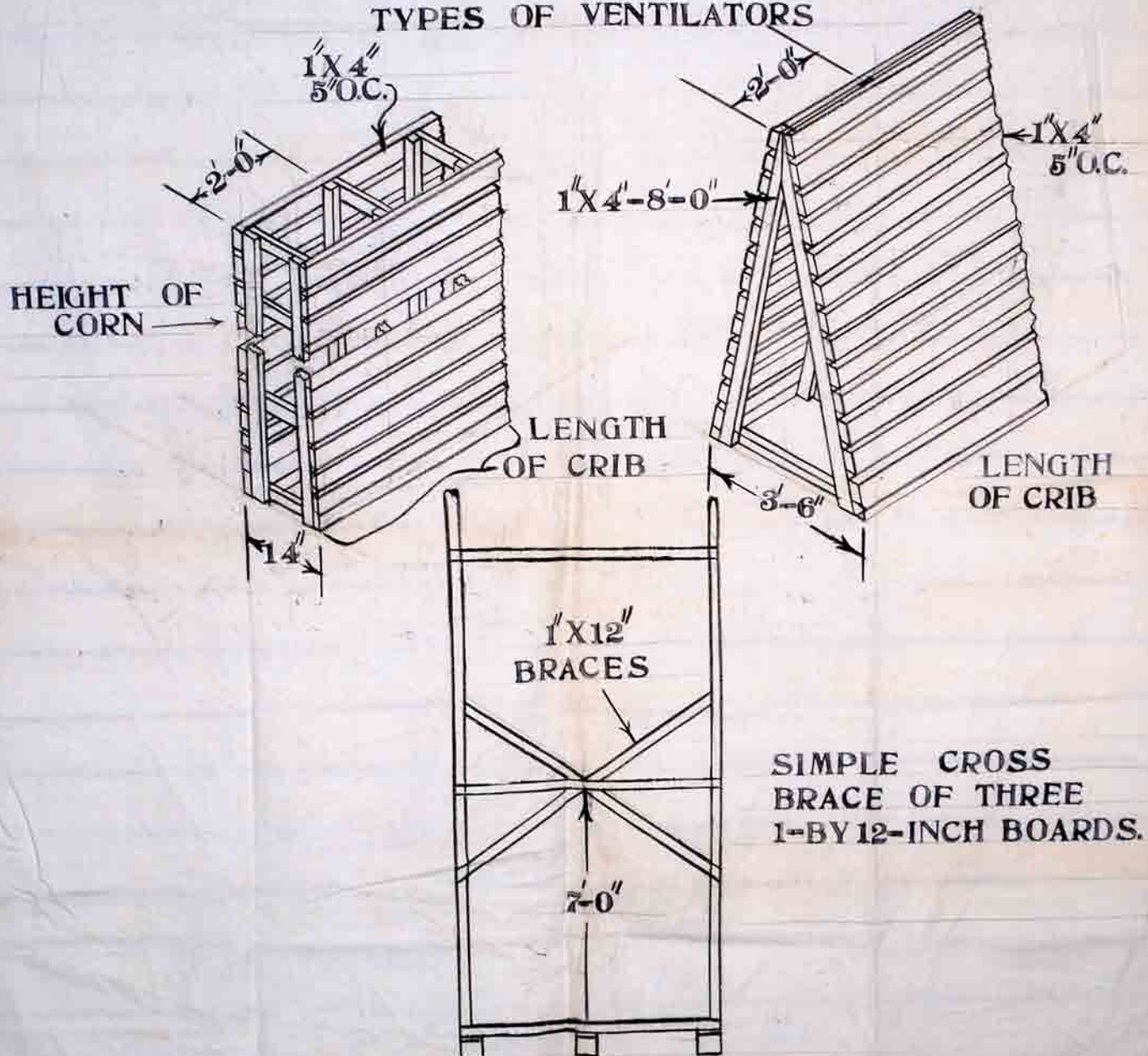
CAPACITY 120 Bu. of ear corn per foot of length
80 Bu. of small grain per foot of length



Note system of bracing studs. Horizontal tie "A" consists of two 1-by 12 inch boards (one on each side of studs), bolted at each end with six $\frac{1}{2}$ -inch bolts. All other parts of cross-brace and upper tie are 1-by 12 inch boards nailed at each end with 15 eightpenny nails. Braces are 4 feet apart.

BRACING AND VENTILATOR DETAILS FOR CORN CRIBS

TYPES OF VENTILATORS

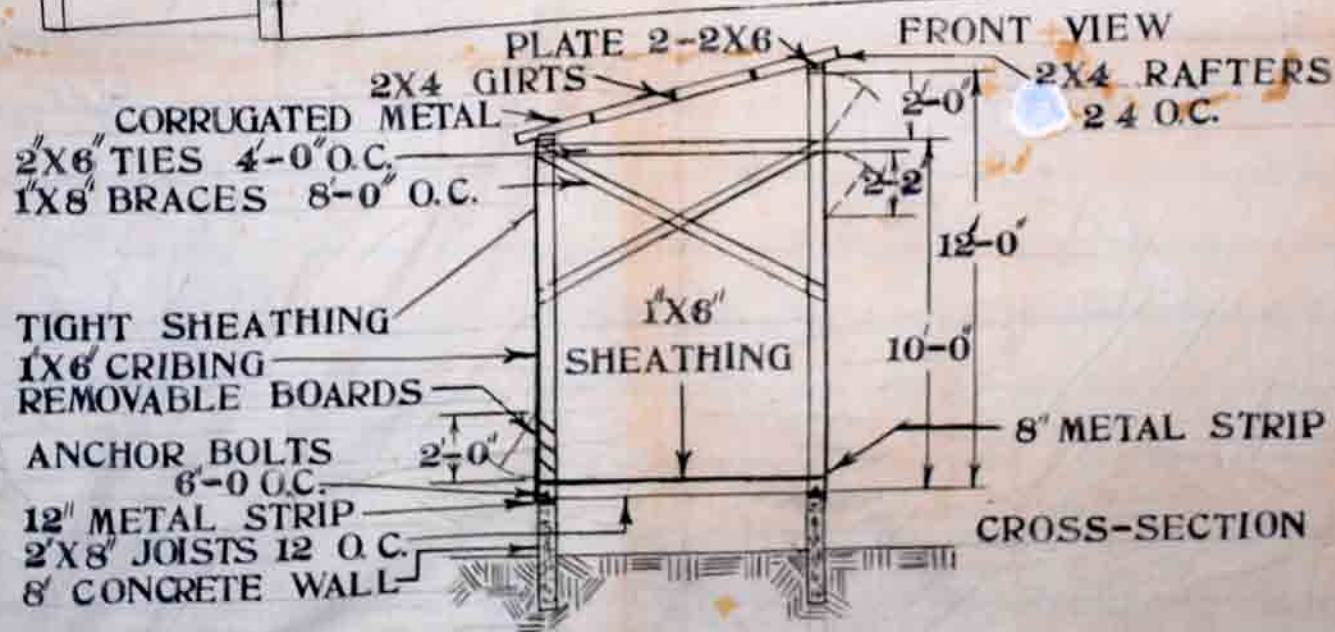
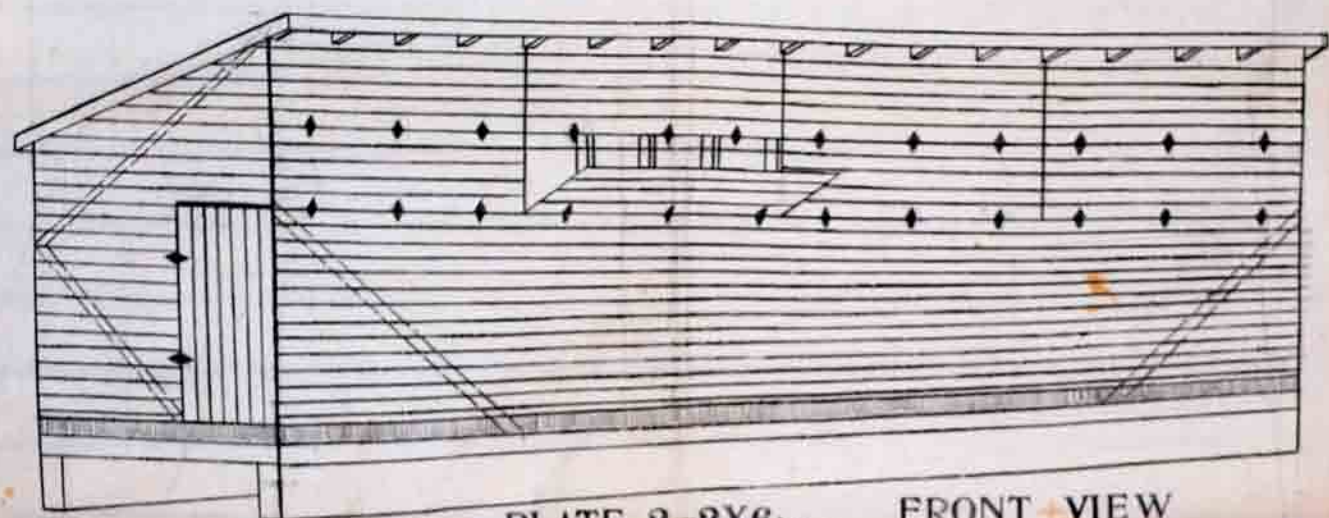


SHELLED CORN STORAGE REQUIREMENTS UNDER FEDERAL CORN LOAN PROGRAM

THE BIN OR GRANARY USED FOR FARM STORAGE OF SHELLED CORN SHOULD BE A SUBSTANTIAL AND PERMANENT STRUCTURE DESIGNED TO ACCOMPLISH THE FOLLOWING PURPOSES :

1. HOLD THE SHELLED CORN WITHOUT LOSS OF QUANTITY ;
2. PROTECT THE CORN AGAINST WEATHER CONDITIONS WHICH MAY CAUSE DETERIORATION IN QUALITY ;
3. AFFORD PROTECTION AGAINST THIEVES, BIRDS, RODENTS, POULTRY, AND LIVESTOCK ;
4. PERMIT FUMIGATION FOR THE DESTRUCTION OF INSECTS ;
5. PROVIDE REASONABLE PROTECTION AGAINST FIRE AND WIND ; AND
6. REQUIRE FORCEFUL BREAKING FOR ENTRY WHEN SEALED.

700 BUSHEL CORN CRIB (FRAME)



LEGEND

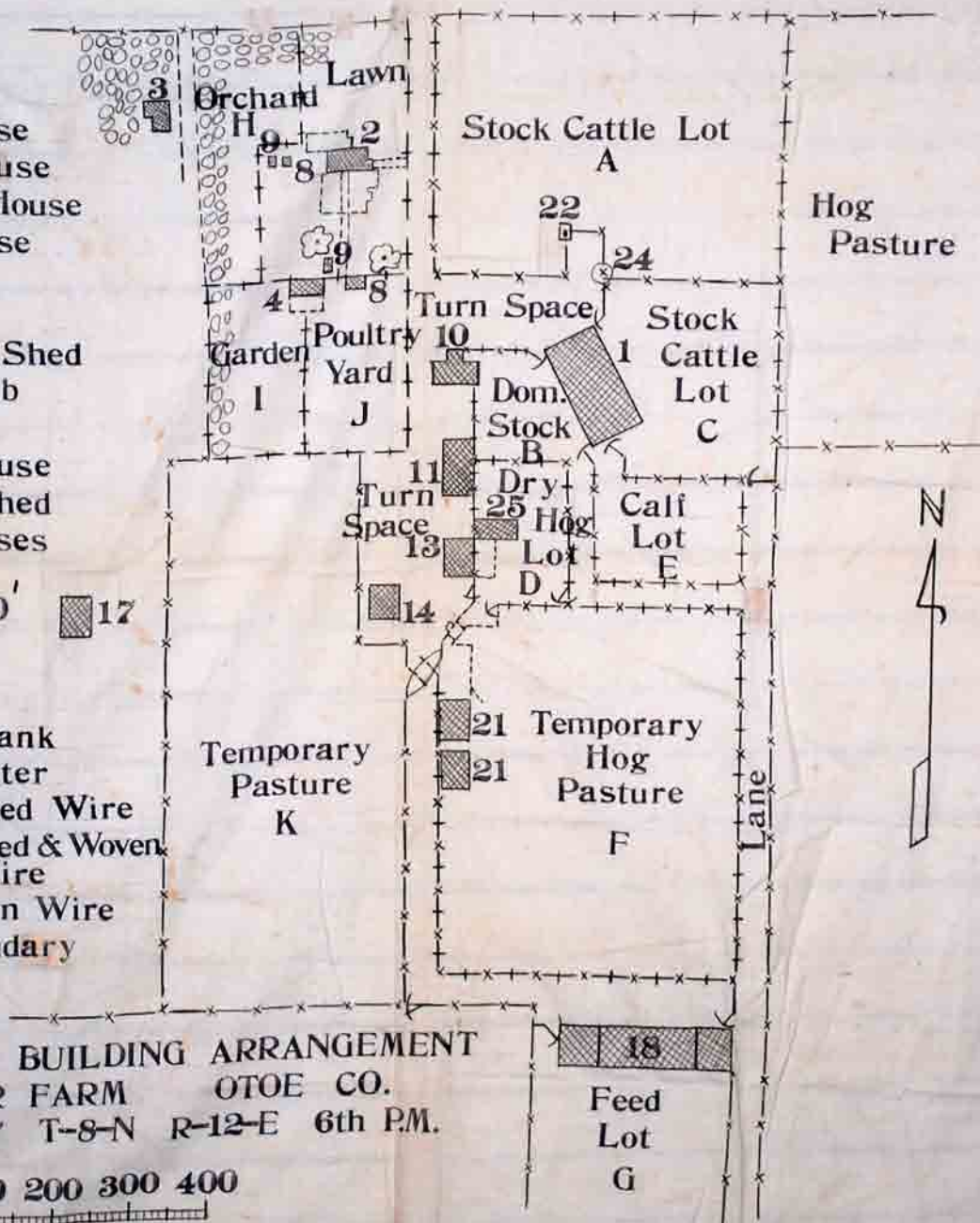
- 1 Barn
- 2 Main House
- 3 Small House
- 4 Poultry House
- 8 Fuel House
- 9 Privy
- 10 Garage
- 11 Machine Shed
- 13 Corn Crib
- 14 Granary
- 17 Well House
- 18 Cattle Shed
- 21 Hog Houses

← 270' 17

- 22 Well
- 24 Water Tank
- 25 Hog Shelter
- x—x— Barbed Wire
- x—x—x Barbed & Woven Wire
- +—+— Woven Wire
- - - - - Boundary

PROPOSED BUILDING ARRANGEMENT
PLUMER FARM OTOE CO.
Sect. 7 T-8-N R-12-E 6th P.M.

0 100 200 300 400
SCALE



LEGEND

1. Barn
2. House
3. House
4. Chicken House
5. Store House
6. Ice House
7. Ice Box
8. Cob House
9. Privy
10. Garage
11. Machine Shed
12. Tool Shed
13. Corn Crib
14. Elevator
15. Corn Crib
- 17
16. Water Tank
17. Well House
18. Cattle Shed
19. Old Well
20. Corn Crib
21. Hog Houses
22. Well

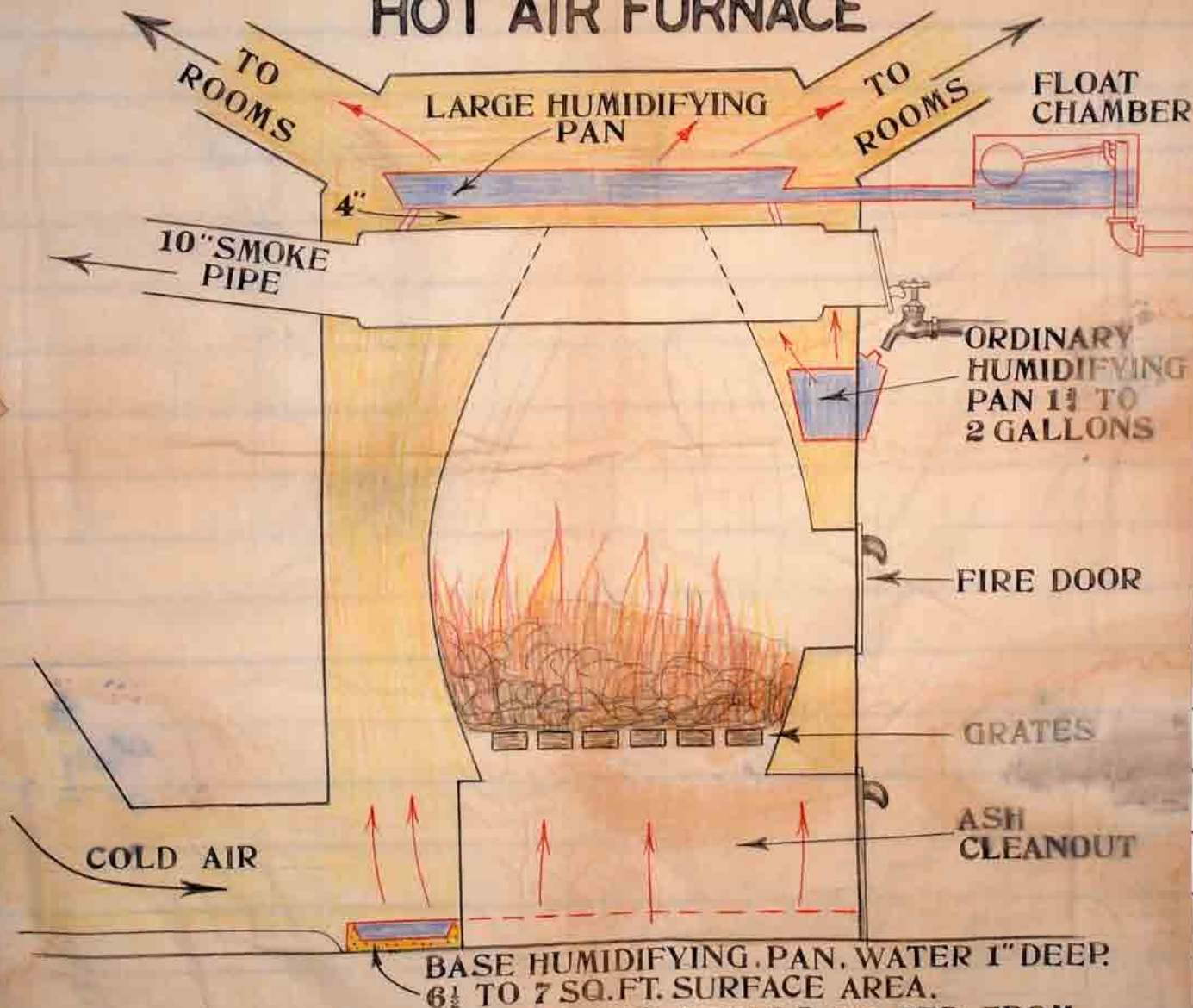
House and corn crib 3000'

PRESENT BUILDING ARRANGEMENT
 Plumer Farm - Otoe County
 E 1/2 Section 7-8N-12E 6th P.M.
 & W 1/2 Section 7-8N-12E
 6th P.M.

25 100
 50 200
Scale - feet

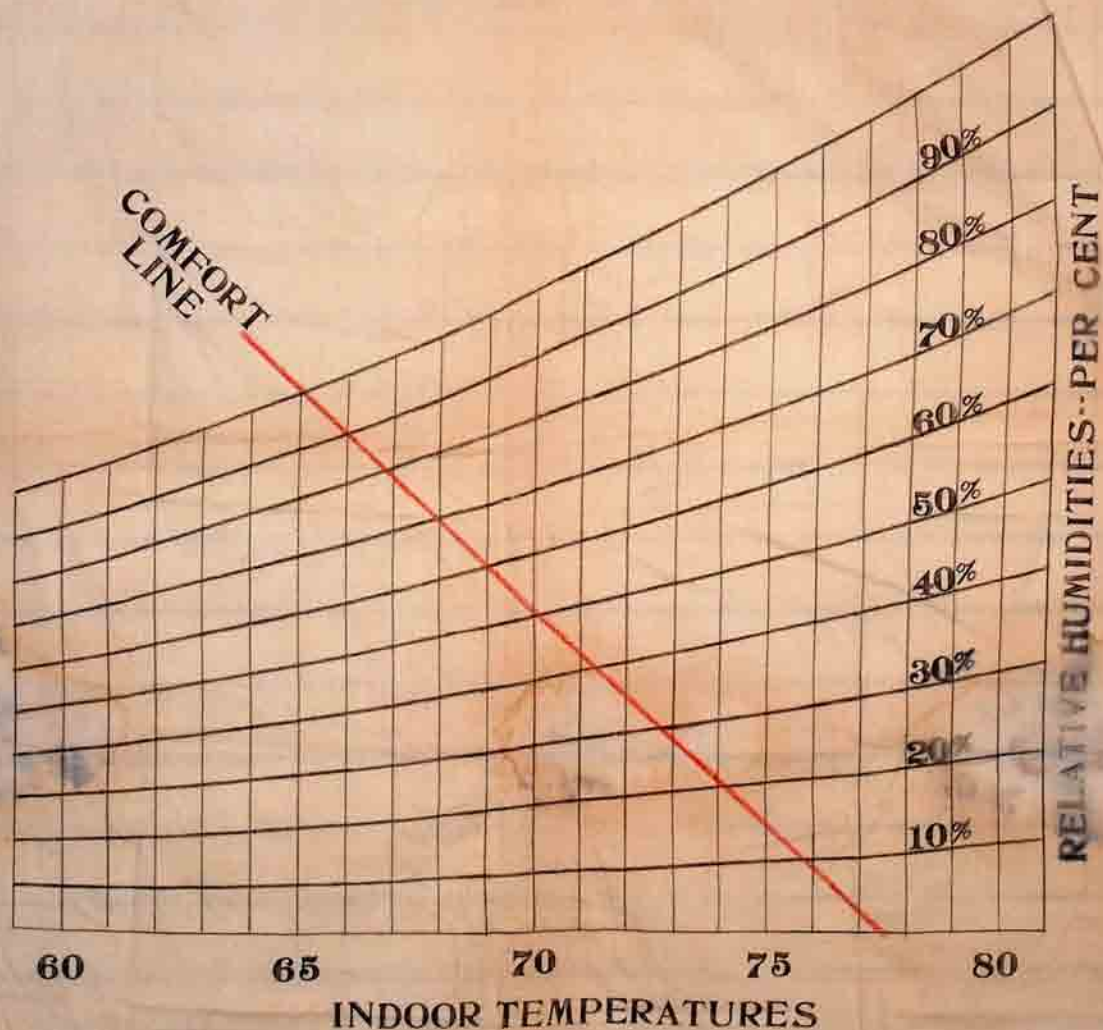
19 100'S
 20 150'S

EVAPORATING PANS ADDED TO HOT AIR HOT AIR FURNACE

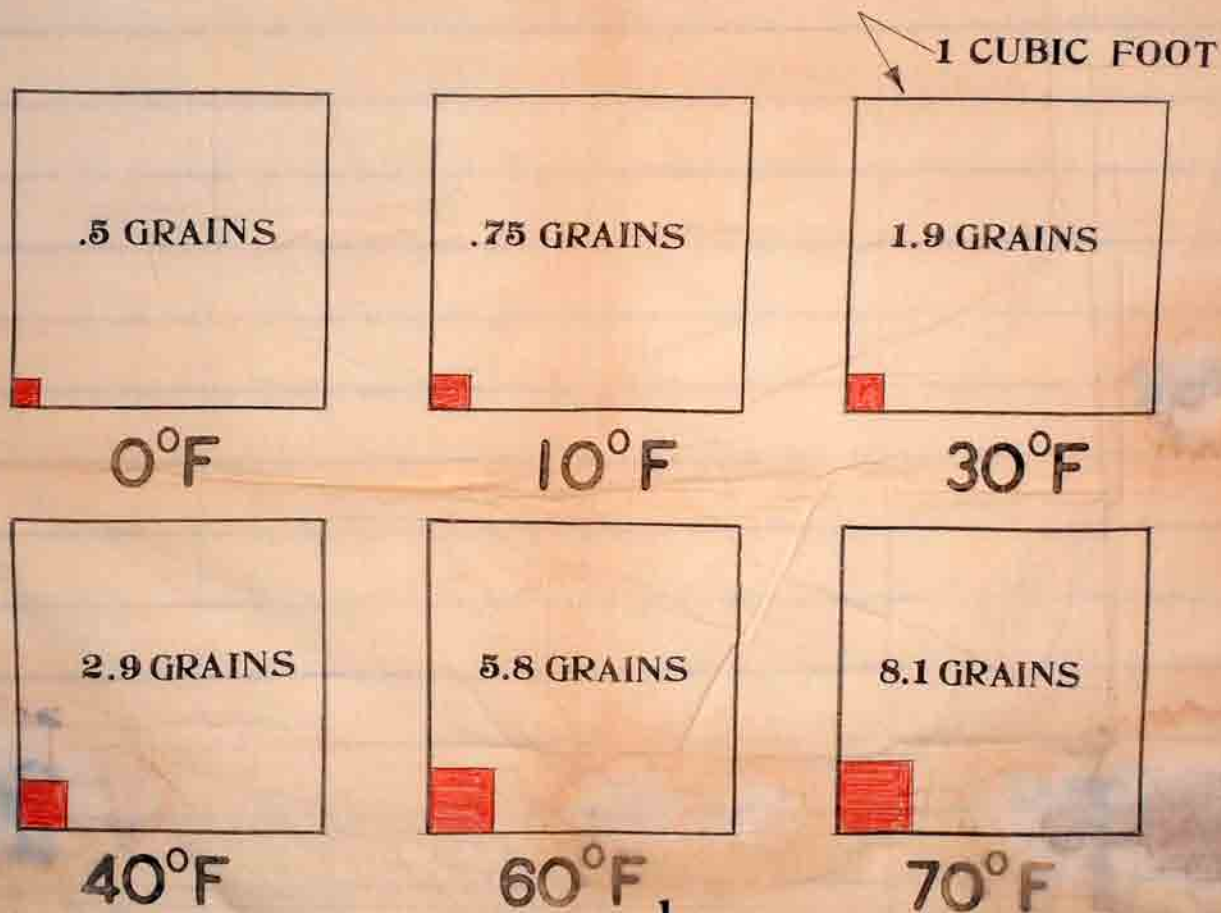


1. TOP AND BASE HUMIDIFYING PANS SHOULD BE FED FROM FLOAT CHAMBERS.
2. METHODS FOR CLEANING BOTH PANS SHOULD BE PROVIDED.

THE SIMPLIFIED COMFORT CHART



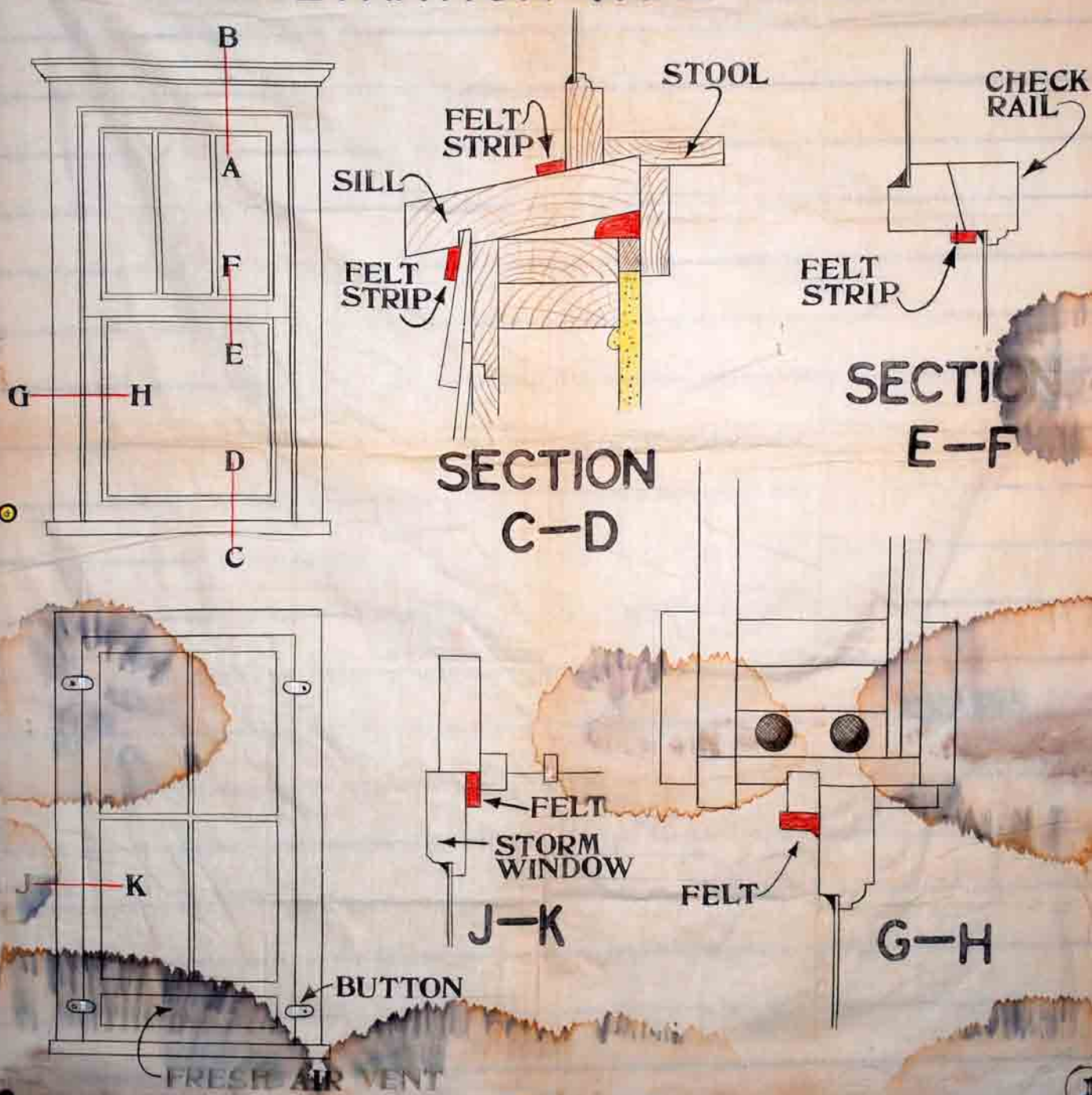
HUMIDITY CHART



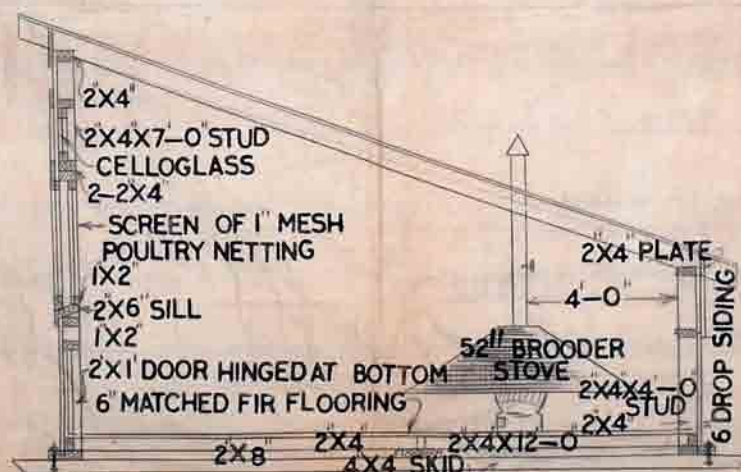
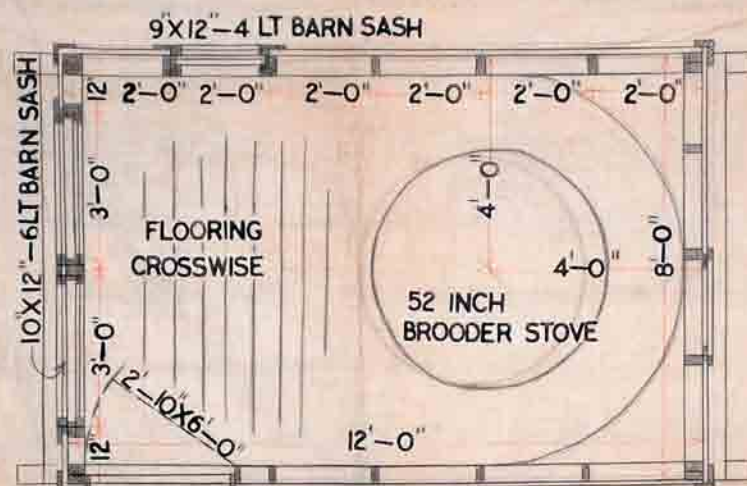
1 GRAIN = $\frac{1}{7000}$ POUND

OUTSIDE AIR AT 0°F AND 65% RELATIVE HUMIDITY CONTAINS .3 GRAINS OF MOISTURE PER CU. FT. WHEN HEATED TO 70°F AND NO MOISTURE ADDED RELATIVE HUMIDITY DROPS TO 3.7%.

INFILTRATION THRU WINDOWS

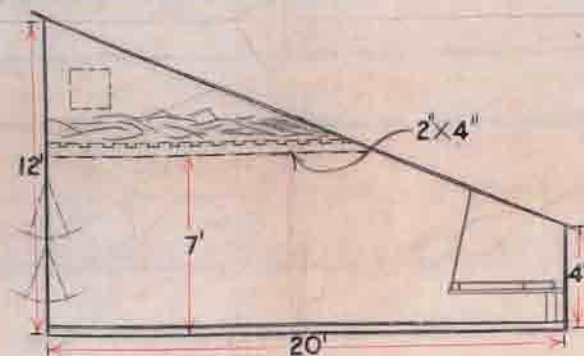


PORTABLE BROODER HOUSE

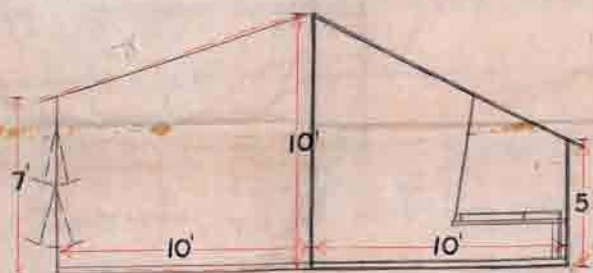


1. SKIDS - 2-4x6x14'-0" FLOOR 6" FIR
2. SIDING 6" DROP ROOF - 8" SHIPLAP & PREPARED ROOFING
3. CAPACITY 250 TO 350 CHICKS

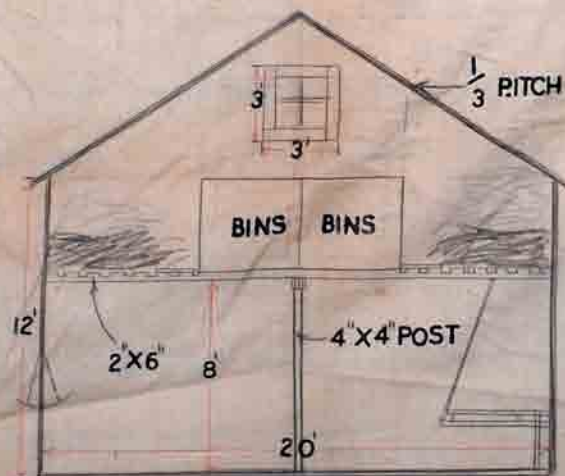
IMPROVEMENT OF EXISTING BUILDINGS



TOO HIGH IN FRONT



TOO NARROW



BARN MADE INTO A POULTRY HOUSE

20' x 20' NEBRASKA TYPE POULTRY HOUSE



FLOOR SLOPES 5 IN 20'

3 CONCRETE FLOOR

4 GRAVEL UNDER FLOOR

ROW OF TILE AROUND INSIDE OF HOUSE UNDER FLOOR

ALL PLATES BOLTED TO FOUNDATION

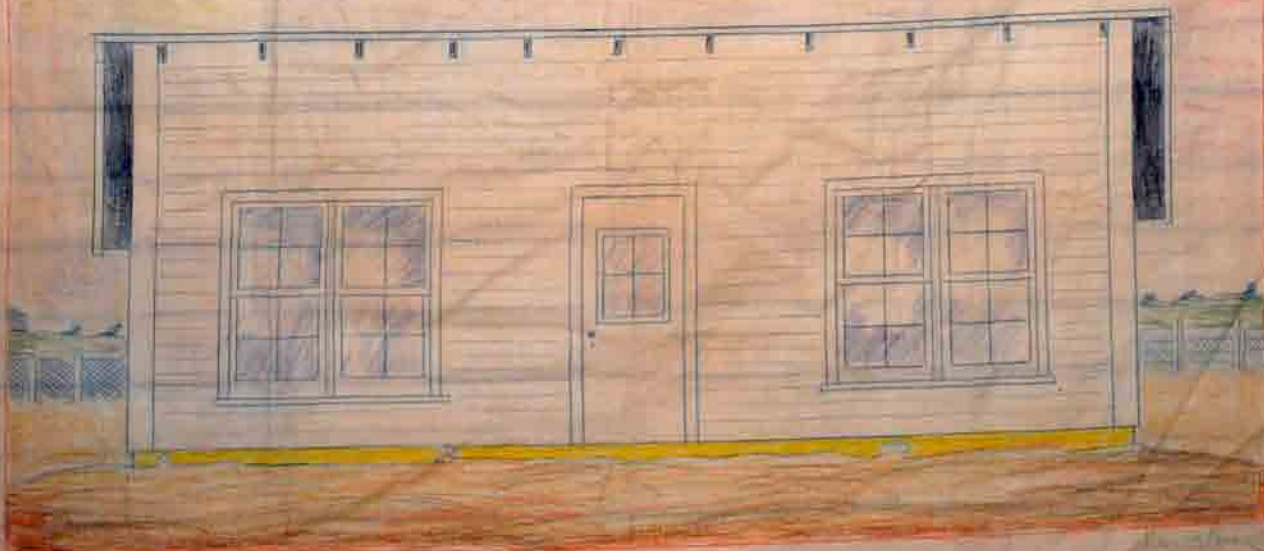
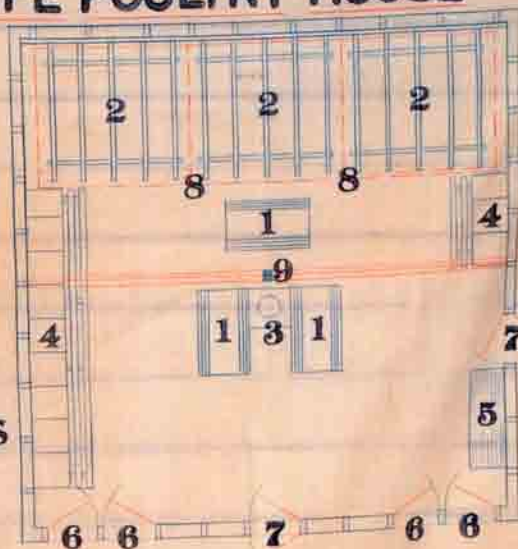
ROOFING PAPER BETWEEN CONCRETE AND GRAVEL

20'x20' NEBRASKA TYPE POULTRY HOUSE

TOTAL FLOOR SPACE 400 SQ.FT.

CAPACITY 100 HENS

- | | |
|------------|--------------------|
| 1. FEEDERS | 5. GRAIN BIN |
| 2. ROOSTS | 6. WINDOWS |
| 3. WATERER | 7. DOORS |
| 4. NESTS | 8. DROPPING BOARDS |
| | 9. 4x4 POST |



BUILDING COSTS AND PROFITS

- 1 BY SAVING GRAIN, HAY AND OTHER FEED FROM SPOILAGE
- 2 SHELTERING STOCK, MACH., SUPPLIES THEREBY PREVENTING LOSS
- 3 INCREASING PRODUCTION BY PROVIDING COMFORTABLE QUARTERS
- 4 SAVING TIME AND LABOR TO BE EXPENDED ELSEWHERE AT A PROFIT
- 5 INCREASING INTEREST AND SATISFACTION OF OWNER
- 6 ADVERTISING OWNERS BUSINESS

ANNUAL COST

- 1 INTEREST 6% OF $\frac{1}{2}$ REPLACEMENT COST
- 2 REPAIR \$1.03 PER \$100 REPLACEMENT COST
- 3 ANNUAL DEPRECIATION
- 4 TAXES 40¢ PER \$100 PRESENT WORTH
- 5 INSURANCE 10¢ PER \$100 PRESENT WORTH

REPLACEMENT COSTS OF FARM BUILDINGS

RESIDENCE

	CTS. PER CU. FT.	
4 ROOM FRAME-NOT MODERN	11.5 TO 15	
4 " " SEMI-MODERN	15	17
5 " " BASEMENT-MODERN	17	20
6 " " " "	22	25
6-8 " BRICK " "	25	30

GARAGES

1-2 CAR FRAME-CONCRETE FLOOR	6	9
------------------------------	---	---

BARNs

HAY-FEEDING-POSTS IN GROUND	2.5	4
BEEF-FRAME-CONCRETE FOUNDATION	3	6
DAIRY-FRAME-STEEL EQUIPMENT	4	6.5
GENERAL PURPOSE-TILE	5	6.5

SHEDS

CATTLE-MACHINERY-POSTS IN GROUND	2	4
" " CONC. FOUNDATION	4	6

POULTRY HOUSES

LAYING-FRAME-CONC. FOUND. \$2.50 BIRD	7	9
BROODER HOUSE	10	13

HOG HOUSES

CENTRAL-\$50-\$60 PER SOW	9.5	11
INDIVIDUAL \$10-\$14 " "	10	14

GRANARIES

	CTS. PER BUSHEL	
STEEL BINS-SMALL-PER BU.	16	22
" " LARGE " "	13	15
FRAME-NO EQUIP. " "	12	15

CORN CRIBS

FRAME-POSTS IN GROUND-PER BU.	8.5	15
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COMBINATION CRIBS & GRANARIES

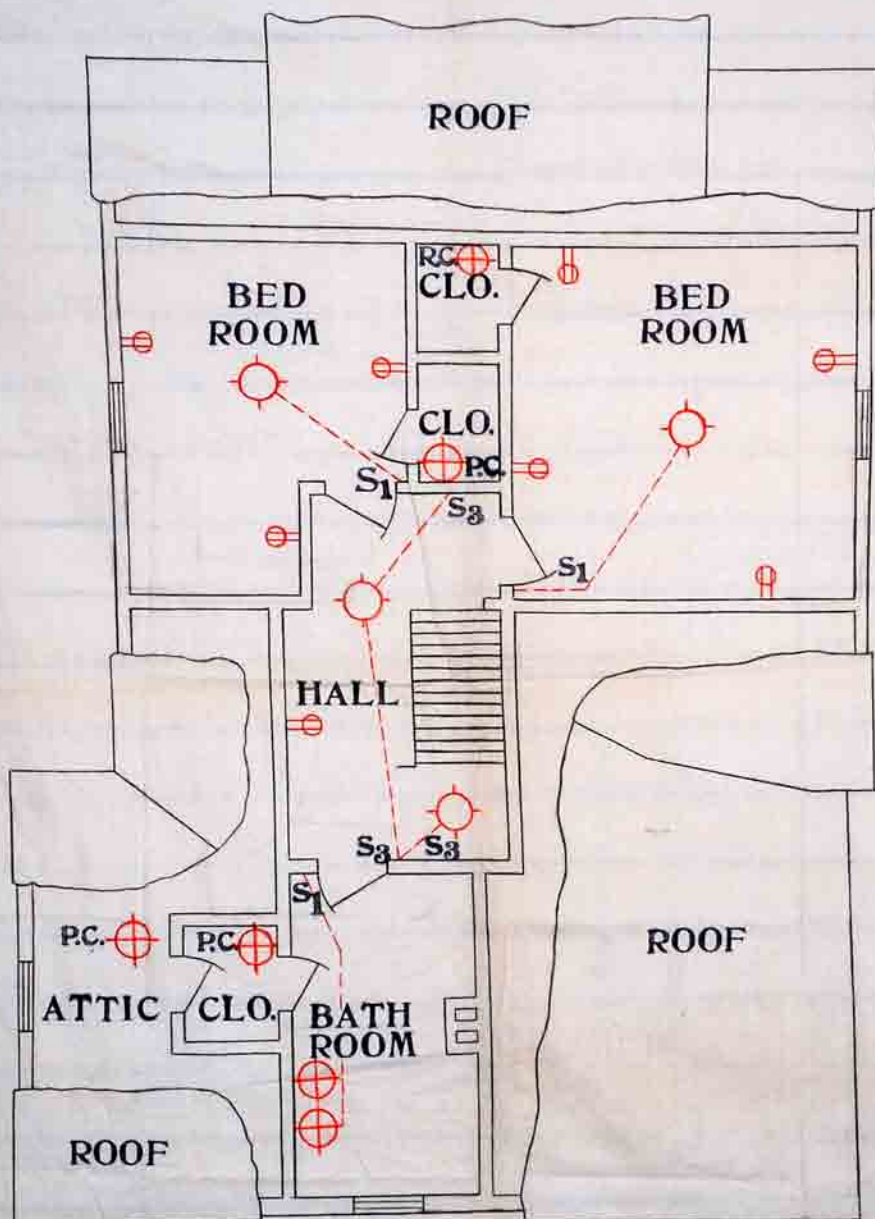
FRAME-COMP.EQUIP-PER BU.	30	40
TILE OR CONCRETE-PER BU.	40	45

EFFECT OF INVESTMENT IN SERVICE BUILDINGS ON LABOR INCOME

	20 LEAST PROFITABLE FARMS	20 MOST PROFITABLE FARMS	AVERAGE FOR ALL FARMS	HIGHEST LABOR INCOME
REPRESENTATIVE COST	\$3078.91	\$4709.08	\$3694.86	\$8553.30
PRESENT WORTH REPLACEMENT COST PER ACRE	1631.15	2526.65	2405.07	6510.00
PRESENT WORTH PER ACRE	23.46	21.00	22.38	35.63
	10.57	11.30	11.31	27.12

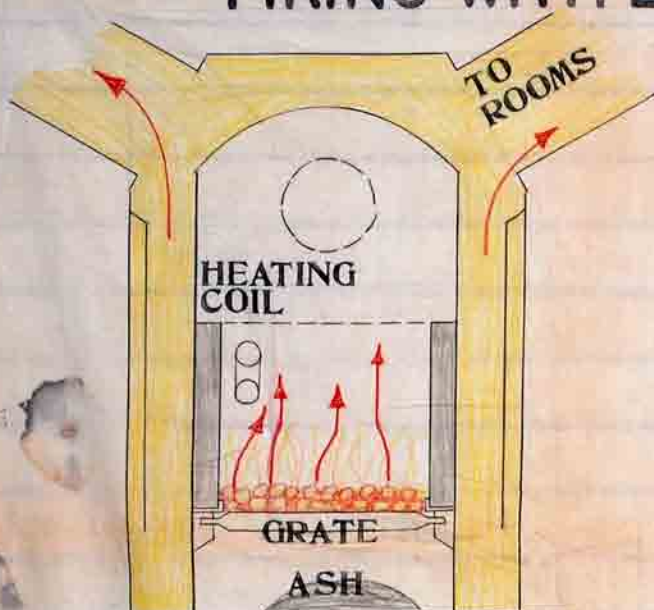
ANNUAL COST OF SERVICE BUILDINGS

FARM NUMBER	TOTAL ANNUAL COST	ANN. COST PER ANIMAL UNIT	ANN. COST PER ACRE	ANN. COST ALL BUILDINGS	ANN. COST ALL BLDGS PER ACRE
68	153.31	6.98	.53	463.85	1.60
29	189.99	6.87	1.36	403.82	2.88
12	302.62	12.76	1.89	576.45	3.60
36	216.58	11.13	2.71	334.69	4.31
50	197.13	9.85	2.46	402.81	5.04
16	343.04	2.25	1.07	591.40	1.84
5	301.80	3.83	1.16	601.43	2.31
23	517.76	11.01	2.45	699.01	3.31
15	259.06	2.47	.84	340.84	.98
2	668.30	3.05	2.78	1248.52	5.20
AV. 60 FARMS	277.83	7.99	1.54	497.57	2.98
AV. 20 LEAST PROFITABLE	222.75	9.03	1.46	443.32	2.94
AV. 20 MOST PROFITABLE	333.18	6.39	1.52	559.86	3.06

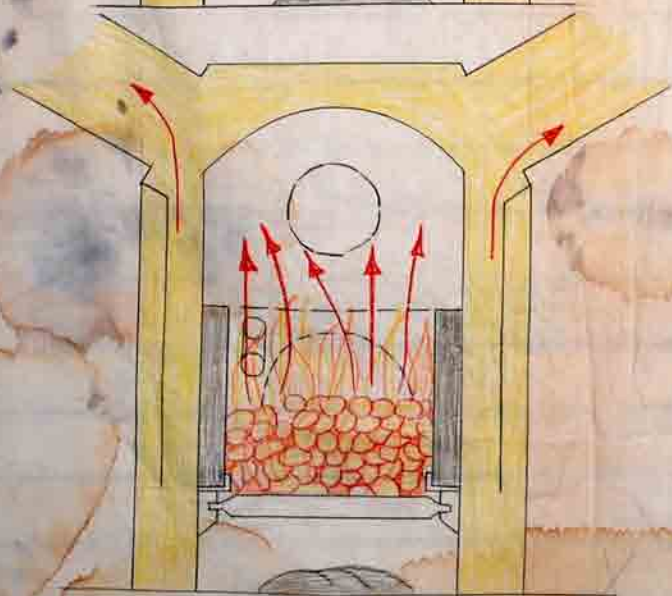


SECOND FLOOR PLAN
SKETCH OF HOUSE

FIRING WITH LUMP OR NUT



THIN FIRE



THICK FIRE

COMPARISON OF HEATING COSTS-NATURAL GAS, COAL AND OIL

SAME HOUSE, SAME LENGTH OF HEATING SEASON, SAME TEMPERATURES USED FOR ALL TYPES OF HEAT

EFFICIENCY OF FUEL		B.T.U.	
COAL	50% \$11.00 PER T	HEAT VALUE	13,700 PER LB.
OIL	65% .07 PER G		19,660 PER LB.
GAS	70% .65 PER M CU. FT.		1,025 PER CUFT

COST FOR HEATING SEASON

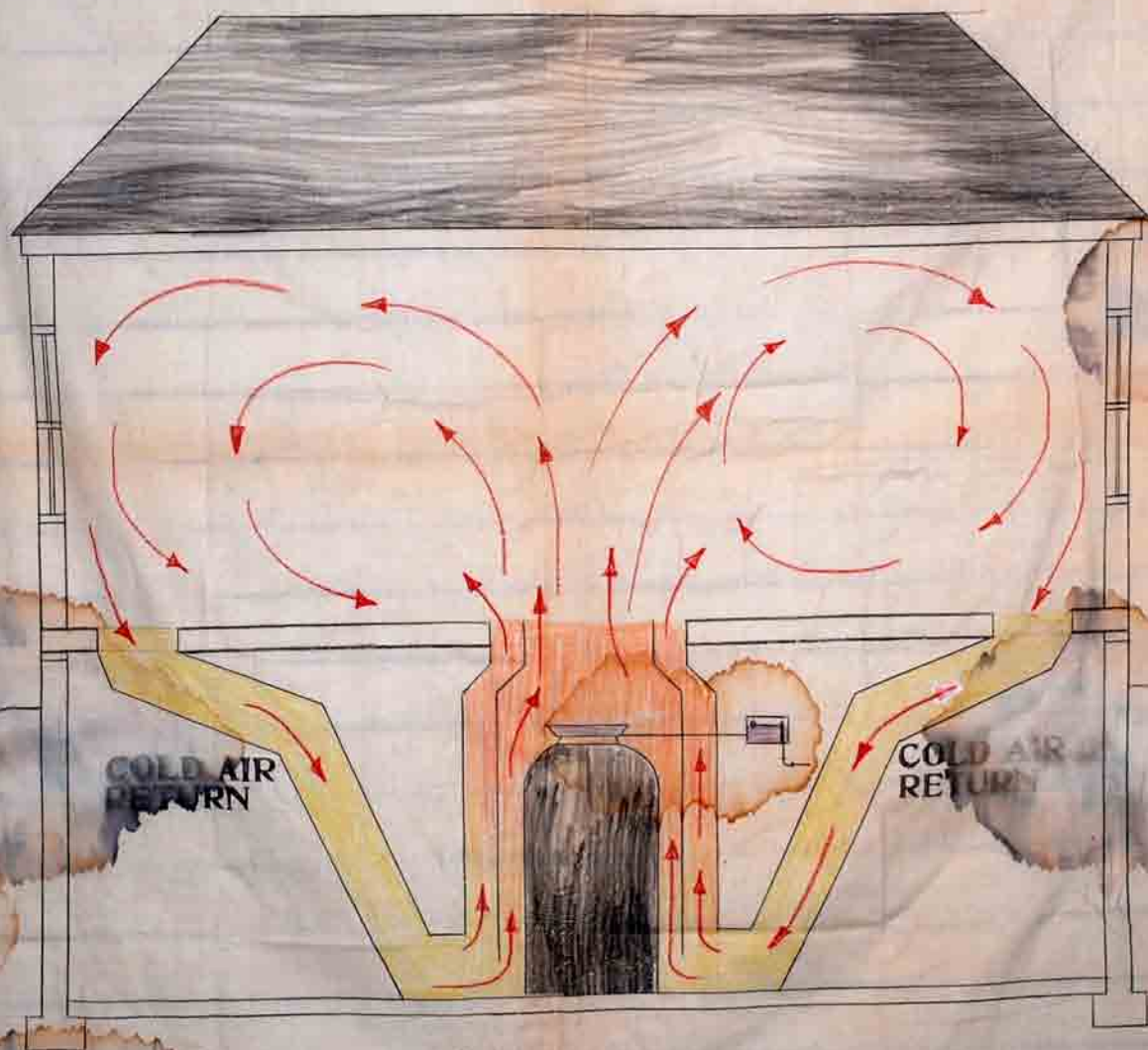
	FRAME CONST	BALSAM WOOL INSTALLATION	BALSAM WOOL & WEATHER STRIP
COAL COST PER SEASON	\$128.10	\$89.25	\$81.00
OIL	\$126.20	\$87.70	\$79.80
GAS	\$145.00	\$100.90	\$91.50

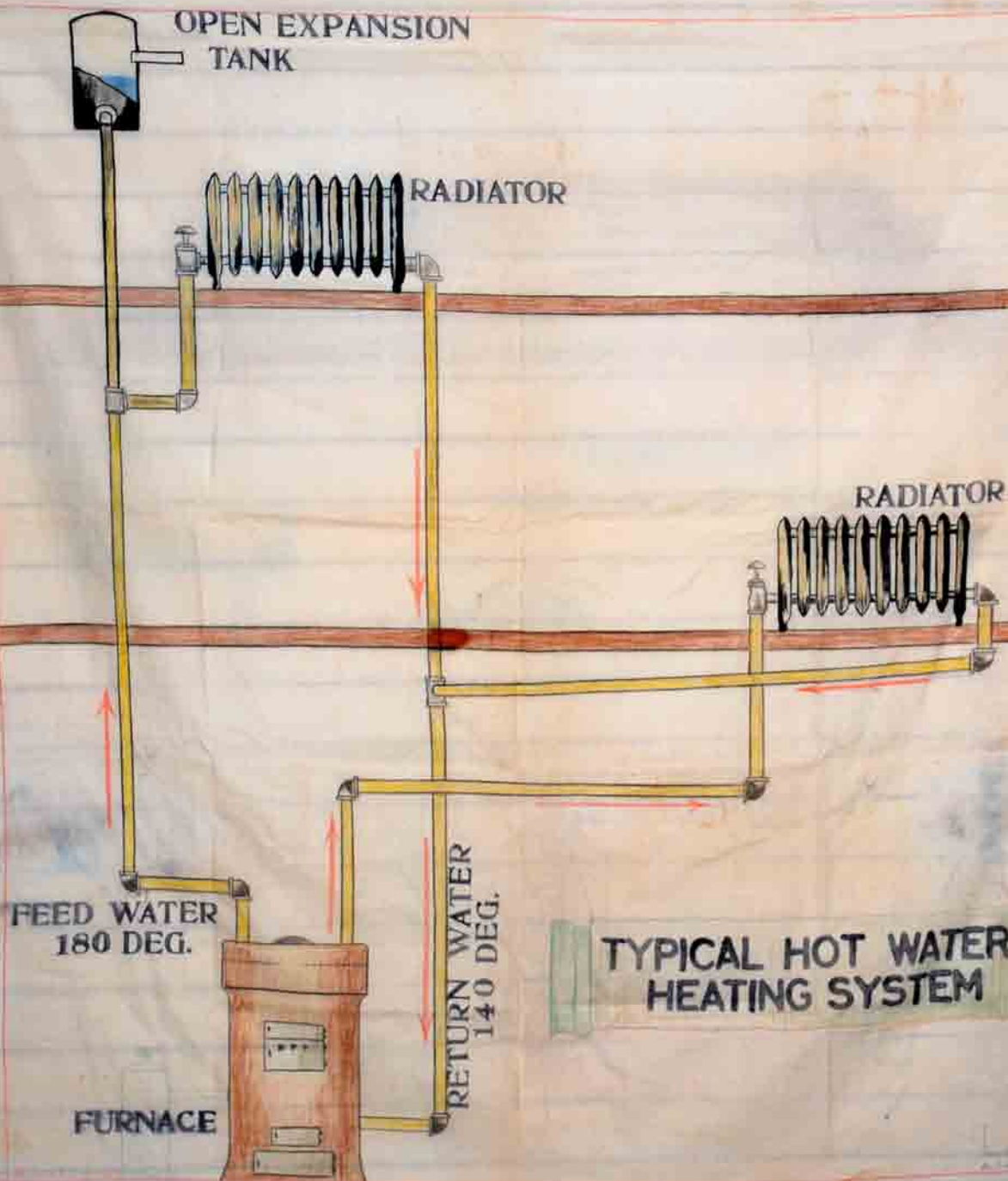
TIME REQUIRED TO PAY FOR INSTALLATION

COAL	0	2.71 YRS.	4.08 YRS.
OIL	0	2.71 "	4.15 "
GAS	0	2.36 "	3.60 "

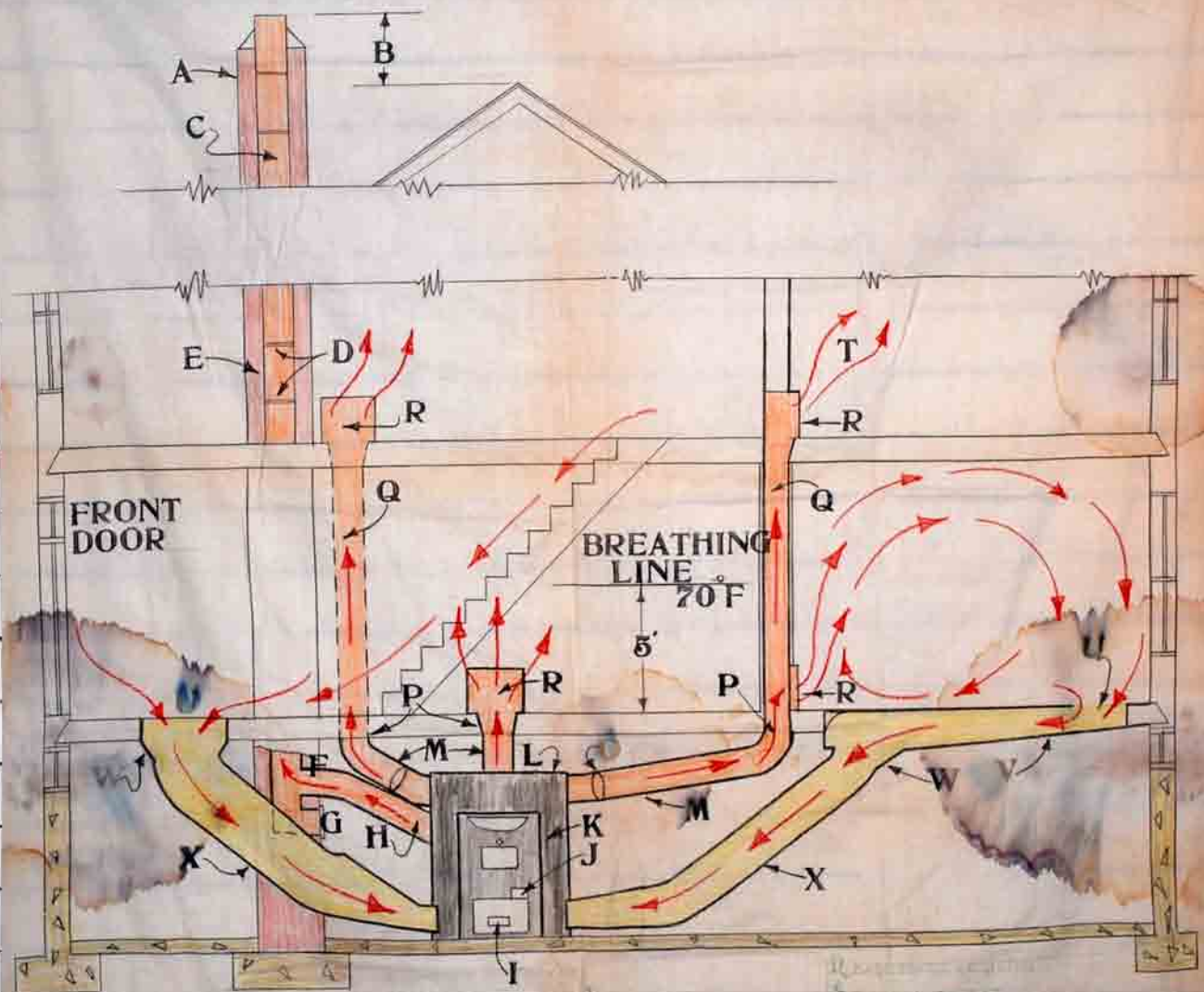
CLEANLINESS AND CONVENIENCE ARE NOT TAKEN INTO
CONSIDERATION IN MAKING THESE COMPARISONS

IMPROVEMENT FOR PIPELESS FURNACE





A WARM AIR FURNACE LAYOUT



FIRING WITH SLACK COAL

TO
ROOMS

HEATING
COIL

FURNACE
DRUM

FIRE BRICK
LINING

INNER
LINING

CASING

FUEL

GRATE

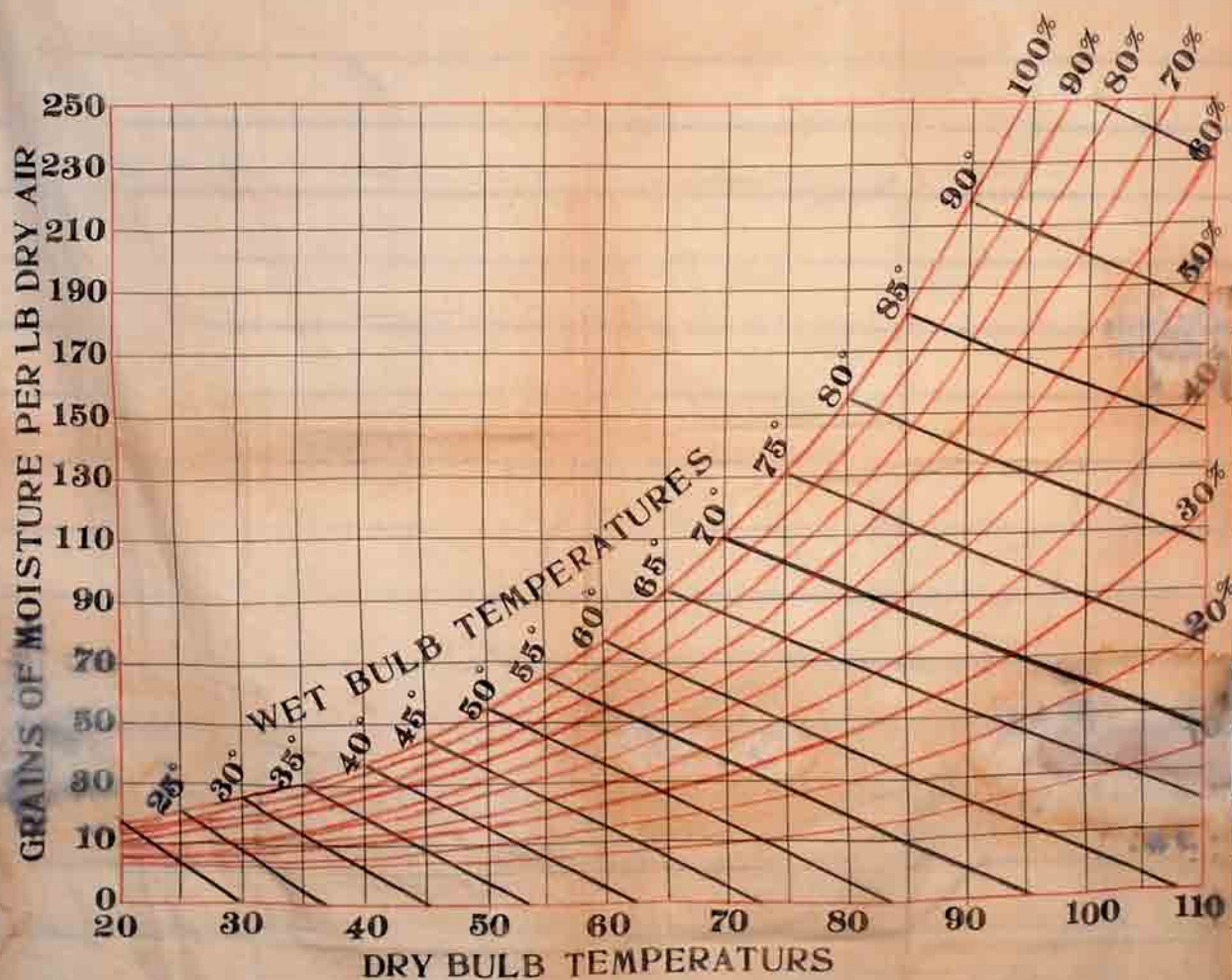
ASHES

FOR MILD
TEMPERATURES

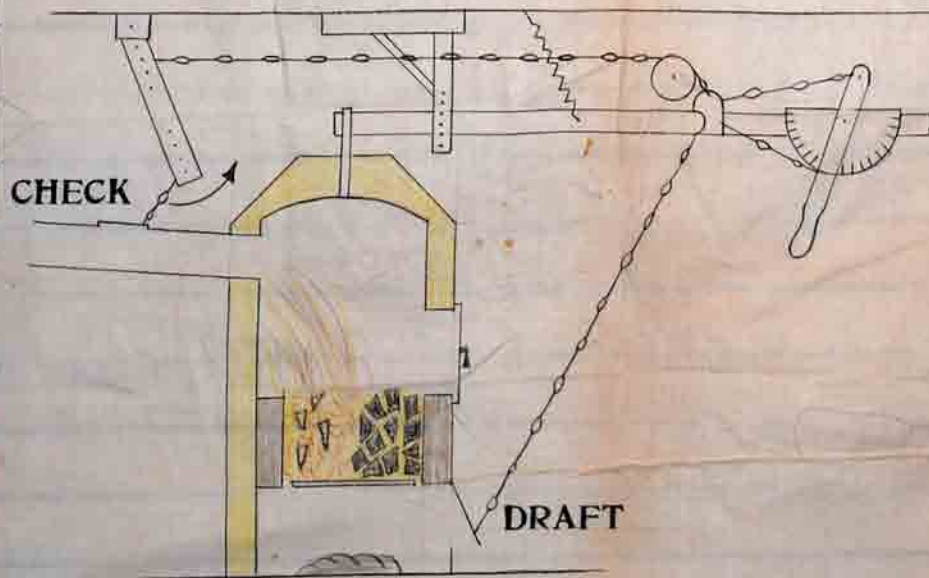
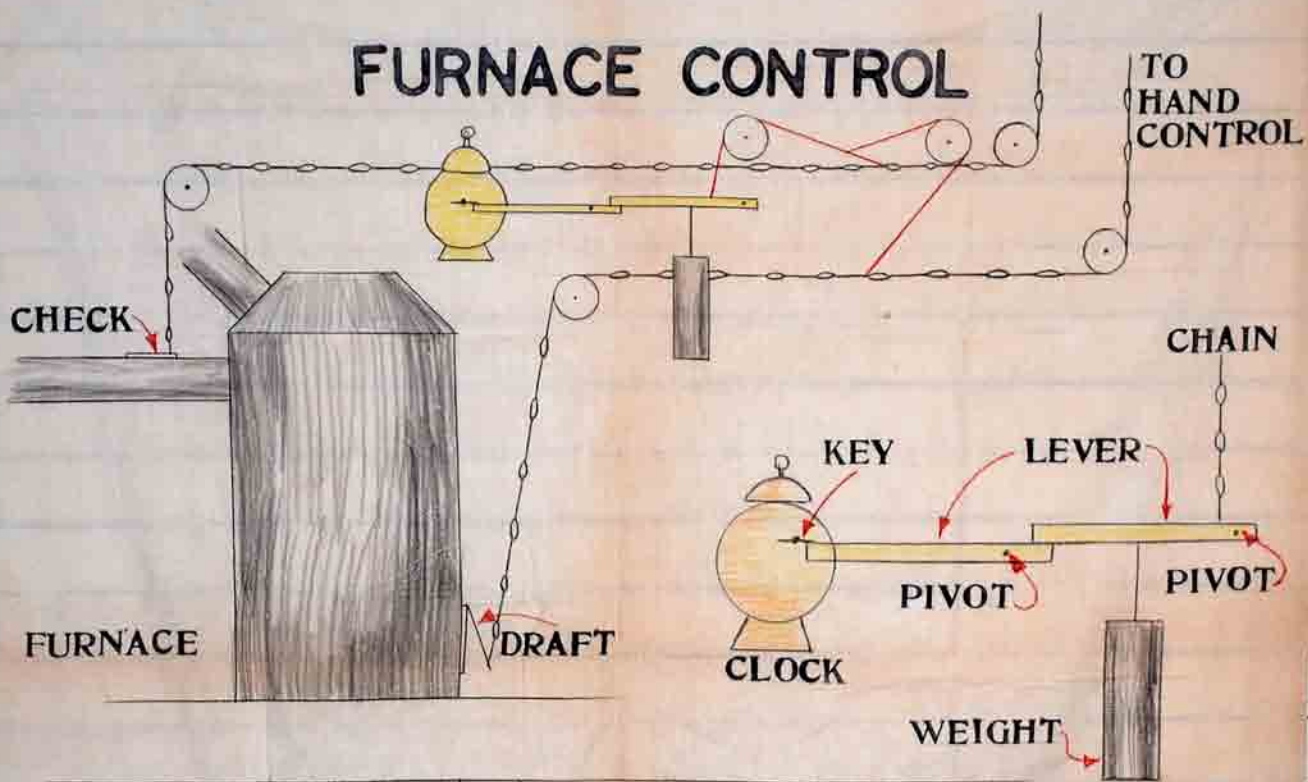
FOR COLD
WEATHER

FUEL

PSYCHROMETRIC CHART

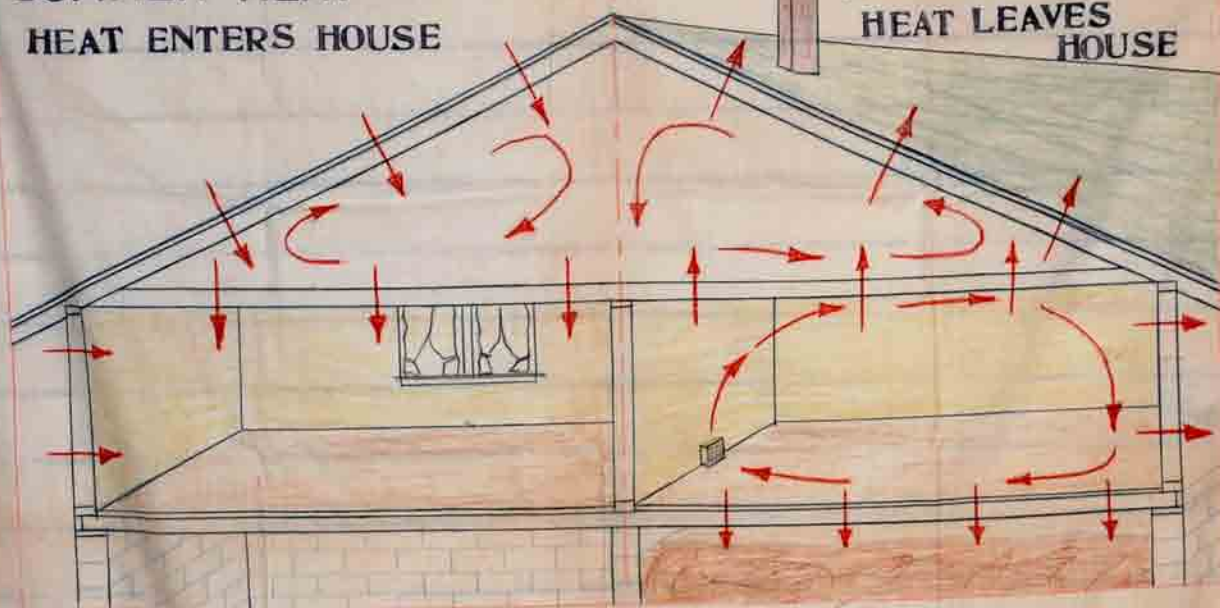


FURNACE CONTROL



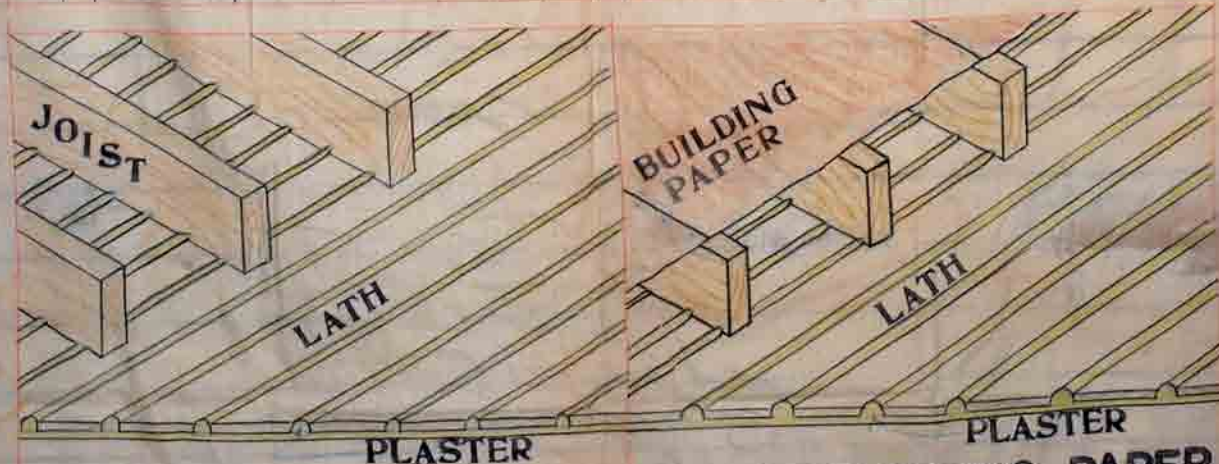
SUMMER HEAT

HEAT ENTERS HOUSE



WINTER COLD

HEAT LEAVES HOUSE



JOIST

LATH

PLASTER

ORDINARY
CONSTRUCTION

BUILDING
PAPER

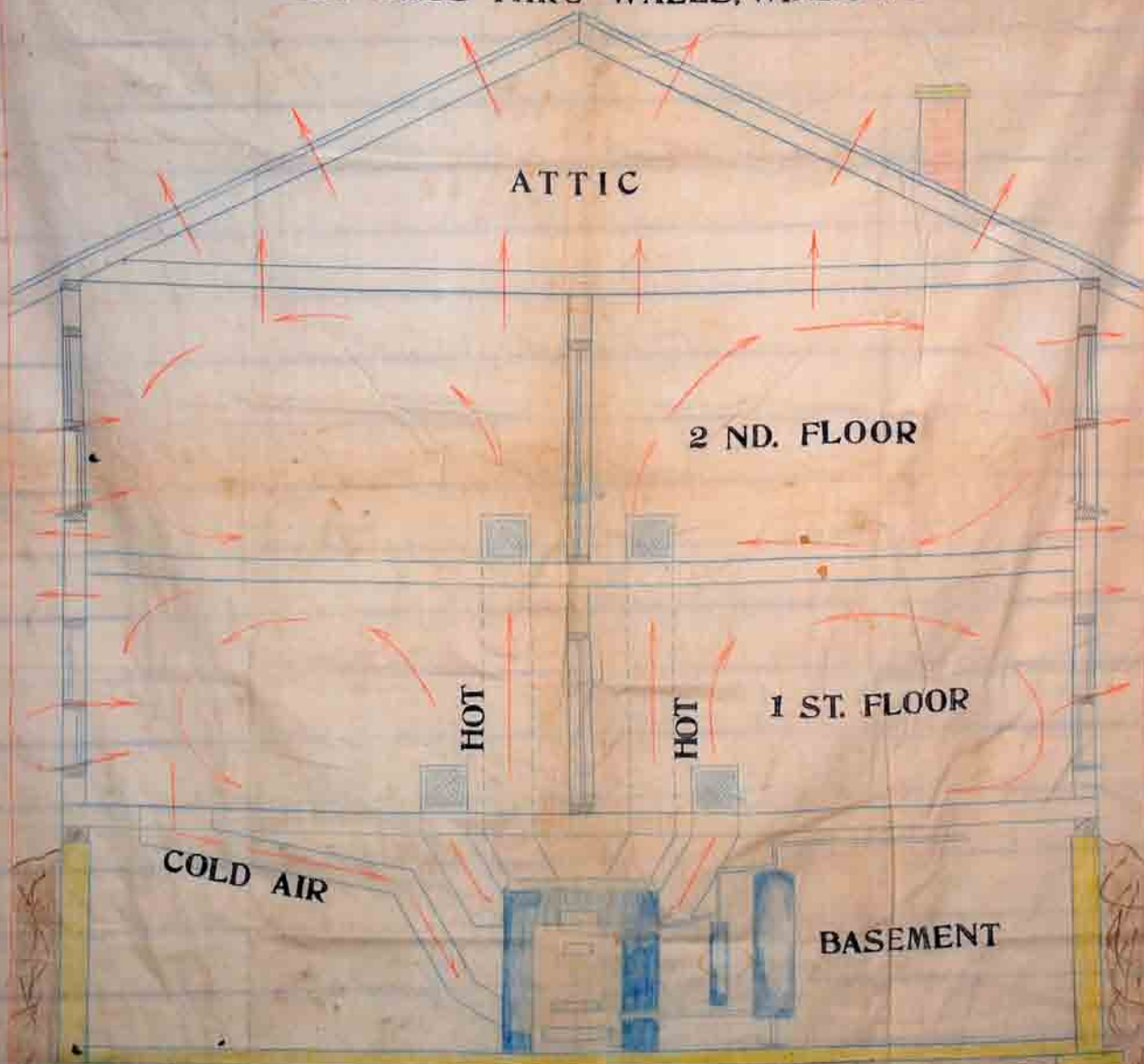
LATH

PLASTER

USE OF BUILDING PAPER
OVER JOIST

HOT AIR HEATING PLANT INSTALLATION

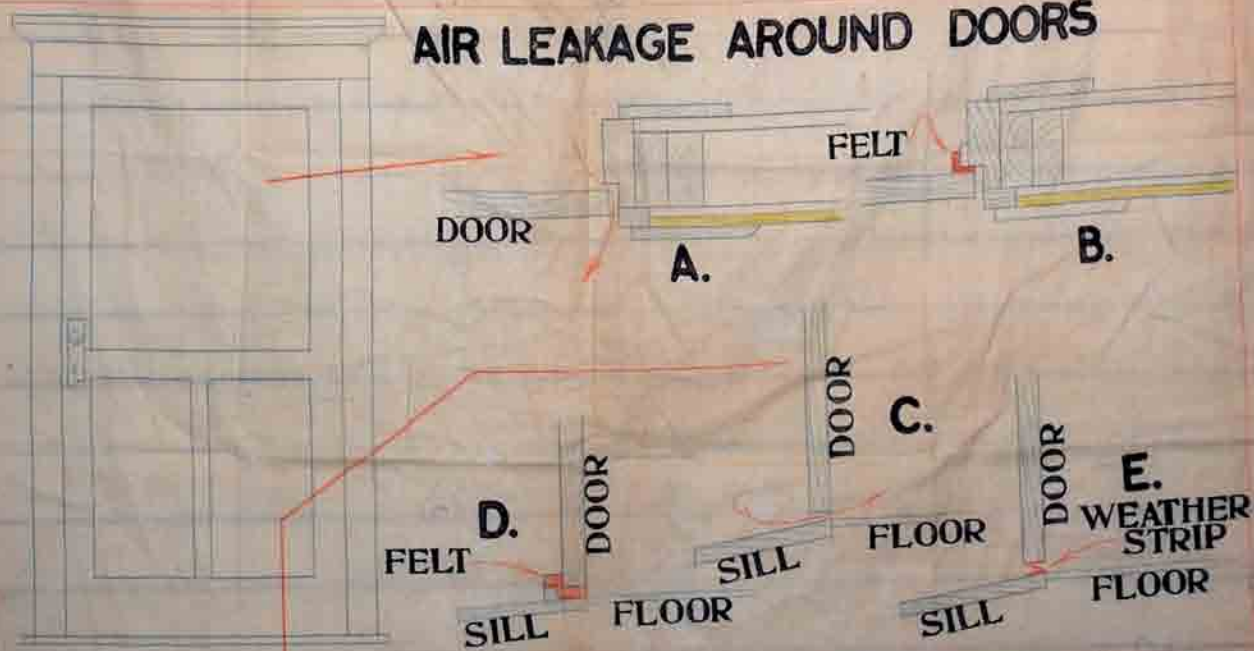
SHOWING HEAT LOSS THRU WALLS, WINDOWS & ROOF

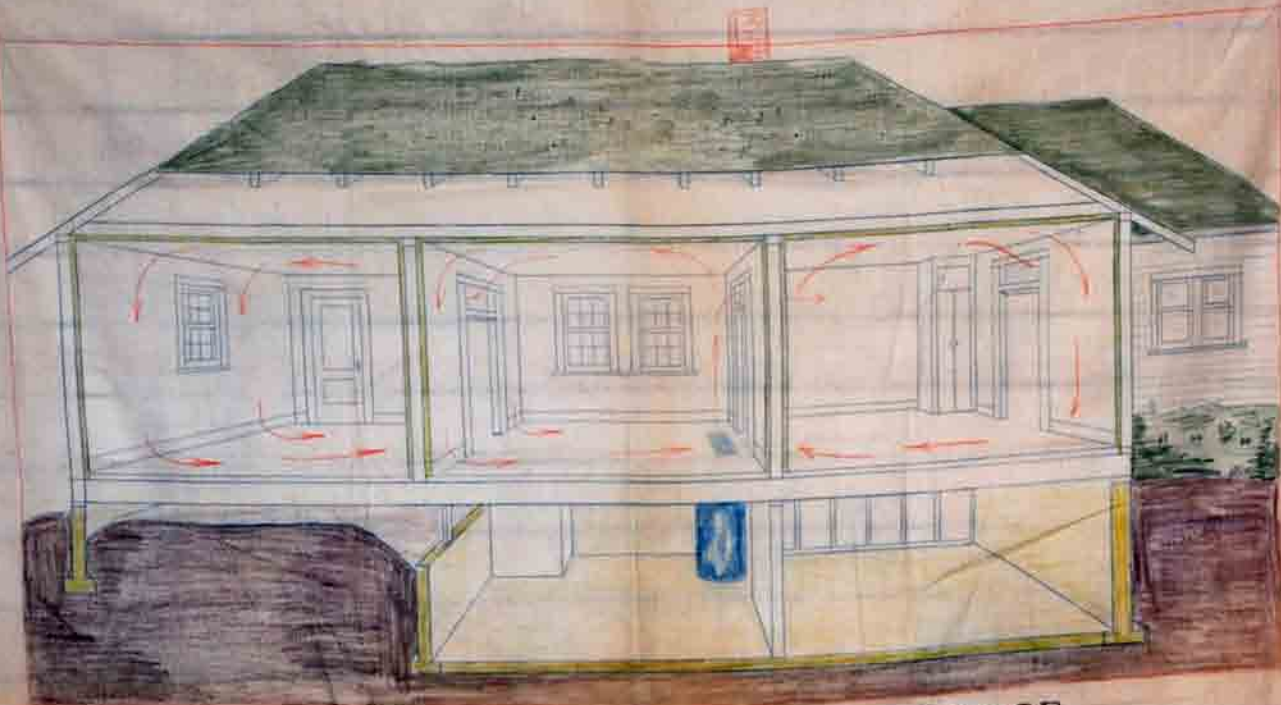


AIR LEAKAGE AROUND SASH

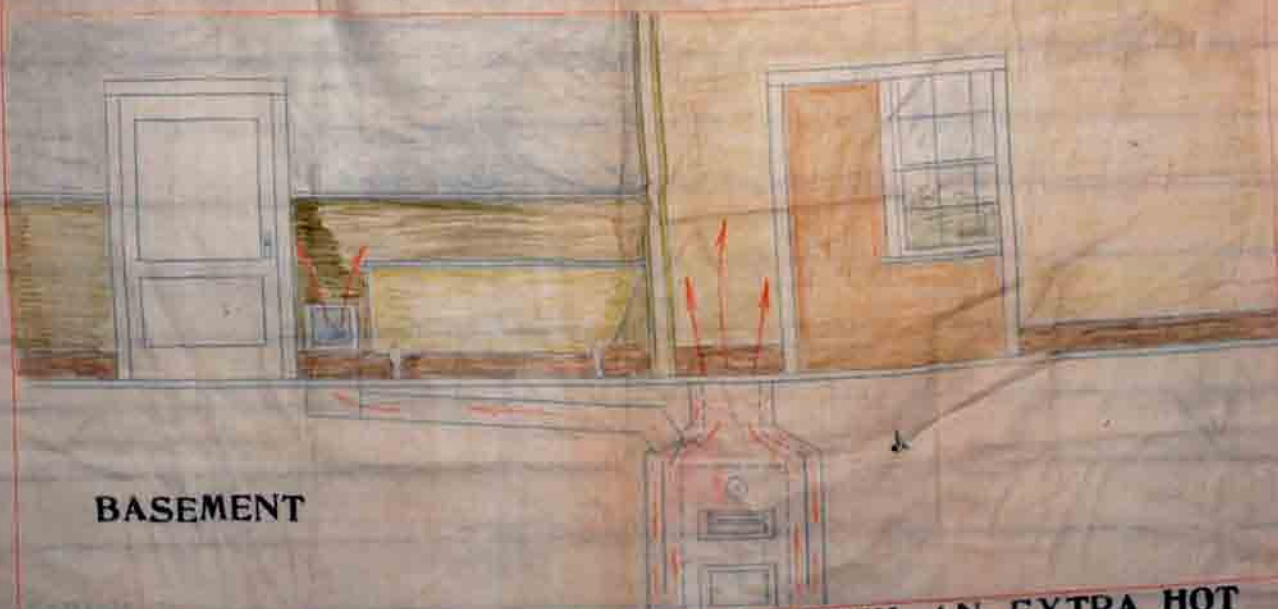


AIR LEAKAGE AROUND DOORS



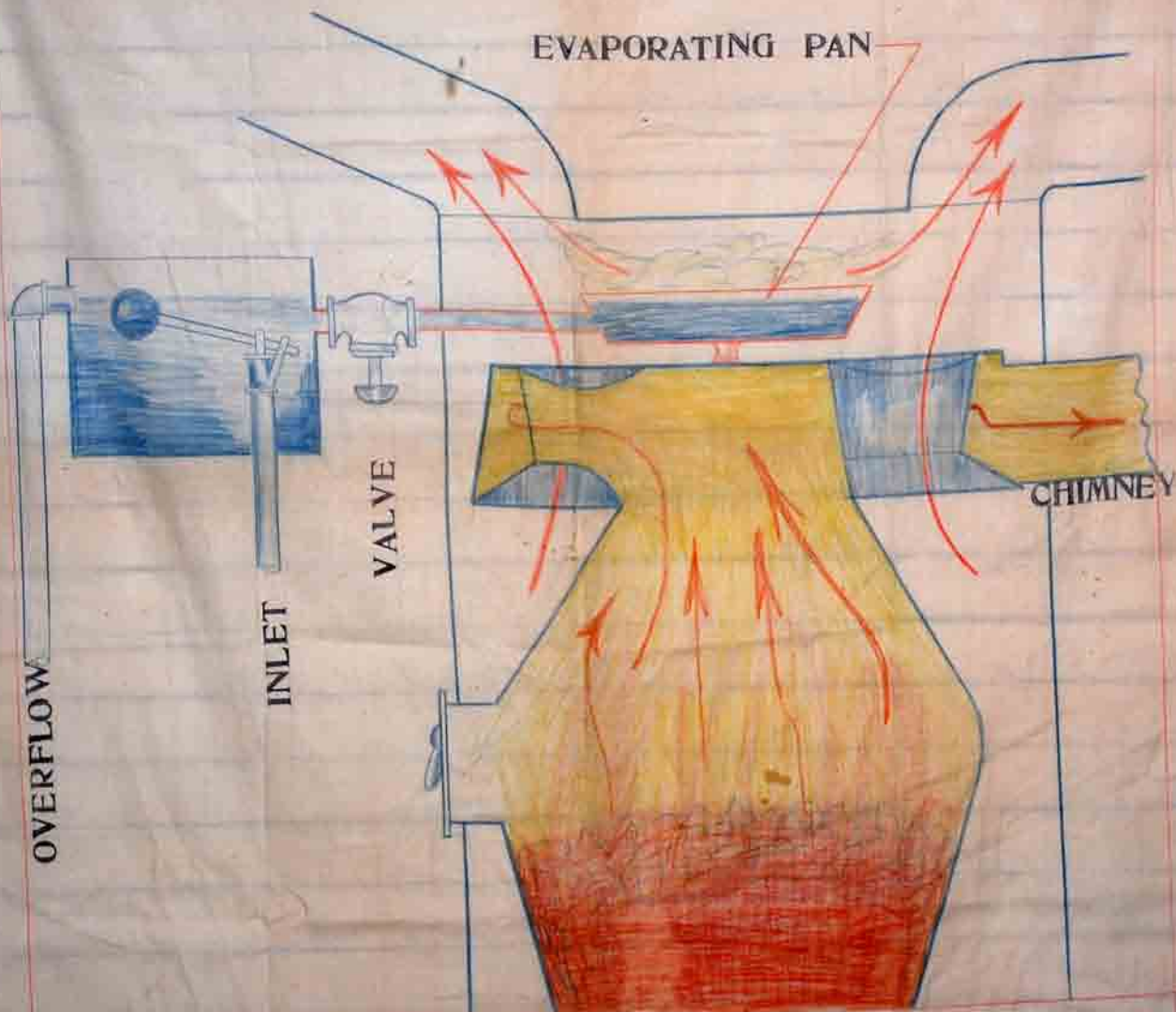


CIRCULATION OF AIR FROM PIPELESS FURNACE



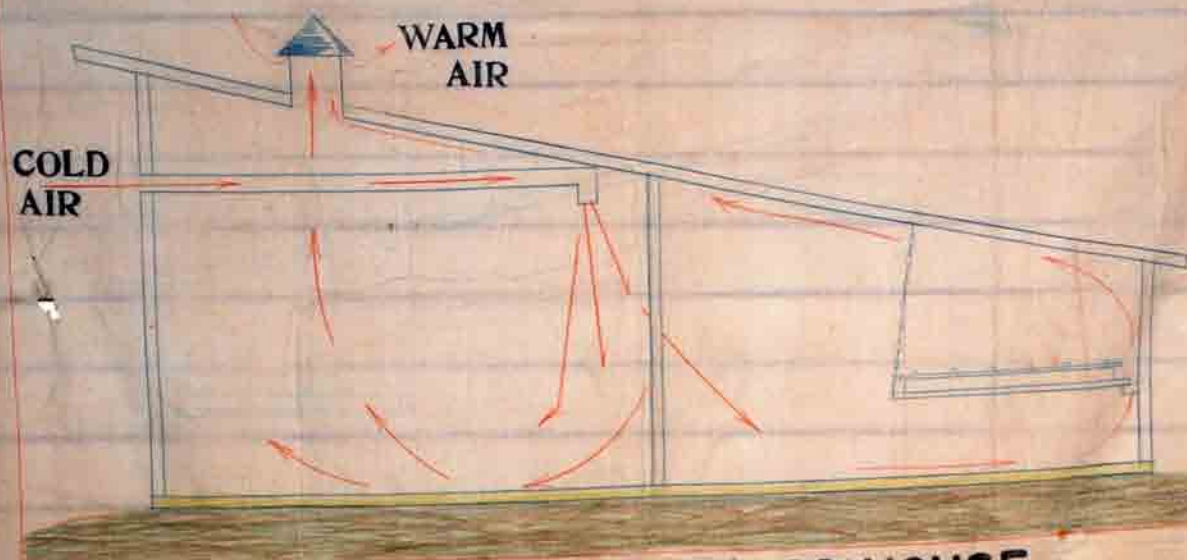
BASEMENT

HOW A DETACHED ROOM IS HEATED WITH AN EXTRA HOT AIR PIPE FROM FURNACE



HUMIDIFIER FOR A WARM AIR FURNACE

Wm. H. Smith
Eng. Notes 1911



VENTILATION OF 20' x 20' HOUSE

