

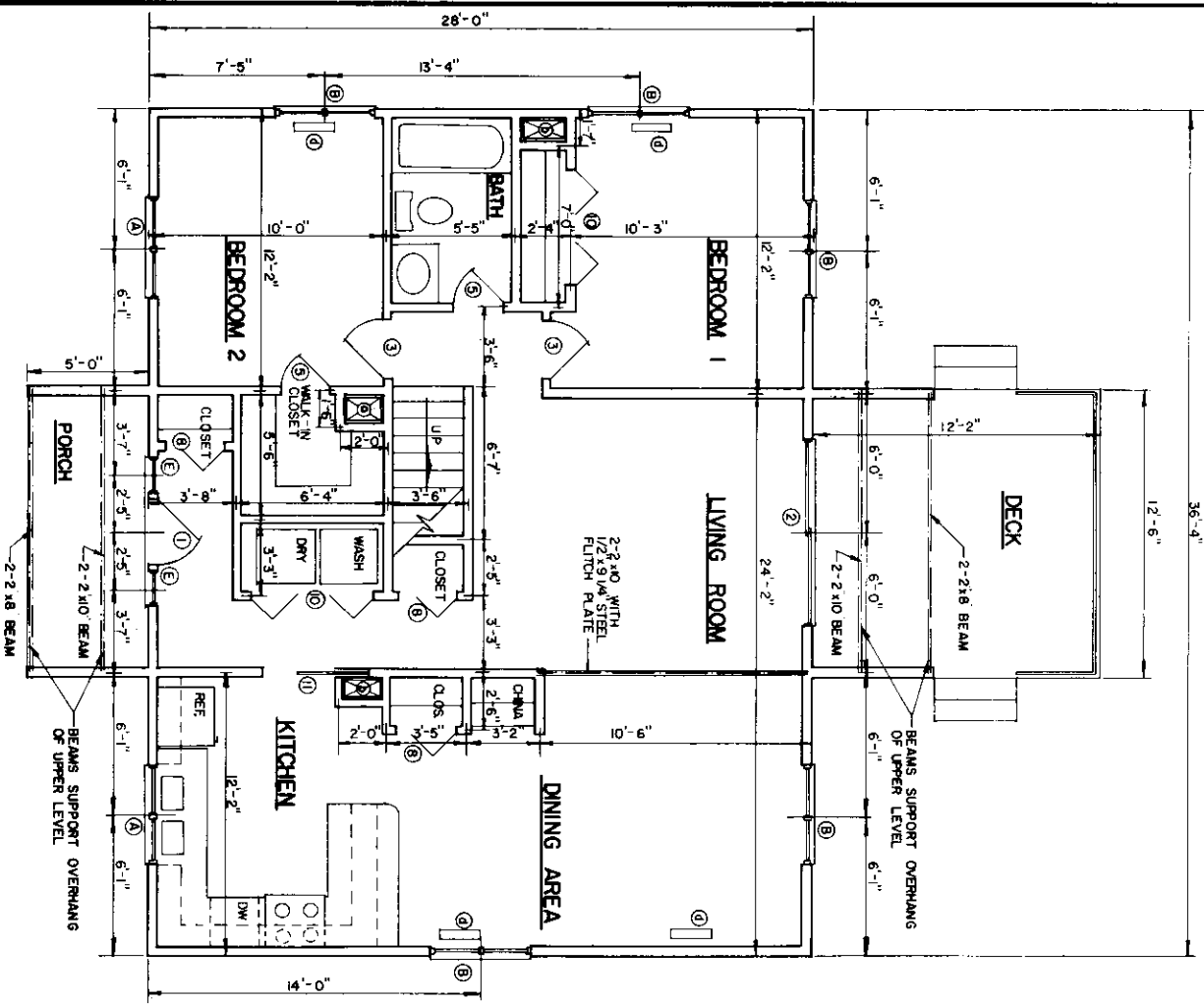
PERSPECTIVE

SEE SHEET 5 FOR OPTIONAL BASEMENT



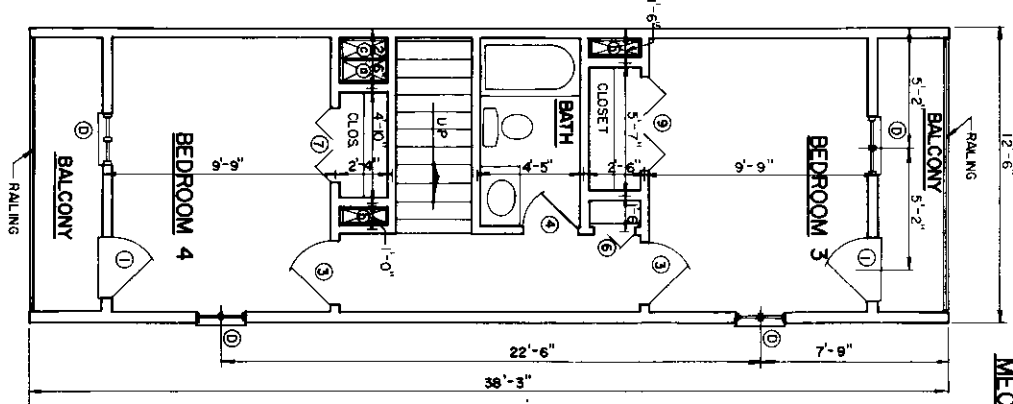
SCALE

COOPERATIVE EXTENSION SERVICE AGRICULTURE AND HOME ECONOMICS			
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING AND			
FOUR BEDROOM CONTEMPORARY SOLAR ATTIC			
USDA 84	7252	SHEET 1 OF 8	



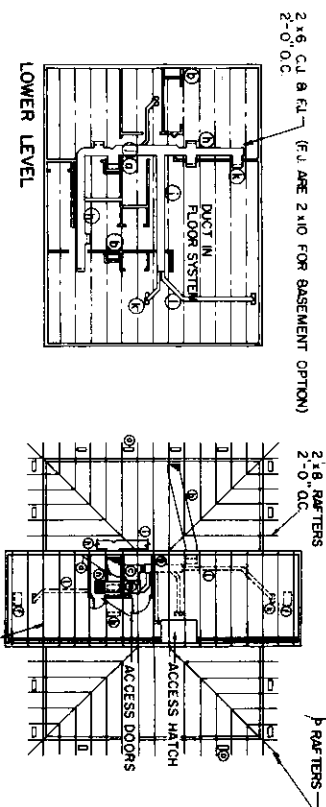
LOWER FLOOR PLAN

SCALE



UPPER FLOOR PLAN

SCALE



MECHANICAL PLANS

SCALE

CODE	SIZE	DESCRIPTION	# REQD.
A	4'-0" x 3'-0" 7/8"	C23 Casement	2
B	4'-0" x 4'-0"	C24 Casement	5
C	2'-8" 1/8" x 2'-9"	Basement Window	2
D	2'-0" x 4'-0"	C24 Casement	4
E	1'-6" x 6'-8"	Side-lite	2

CODE	SIZE	DOOR SCHEDULE	#REQD.
1	2'-8" x 6'-8"	Exterior	3
2	8'-0" x 6'-8"	Sliding Glass	3
3	2'-6" x 6'-8" x 1 3/8	Interior	4
4	2'-4" x 6'-8" x 1 3/8	Interior	1
5	2'-0" x 6'-8" x 1 3/8	Interior	2
6	1'-6" x 6'-8" x 1 3/8	Folding	1
7	3'-0" x 6'-8" x 1 3/8	Folding	1
8	2'-6" x 6'-8" x 1 3/8	Folding	3
9	4'-0" x 6'-8" x 1 3/8	Folding	1
10	5'-0" x 6'-8" x 1 3/8	Folding	2
11	3'-0" x 6'-8"	Sliding Door	1
12	2'-8" x 6'-8" x 1 3/4	Exterior Basement	1

COOPERATIVE EXTENSION SERVICE
AGRICULTURE AND HOME ECONOMICS

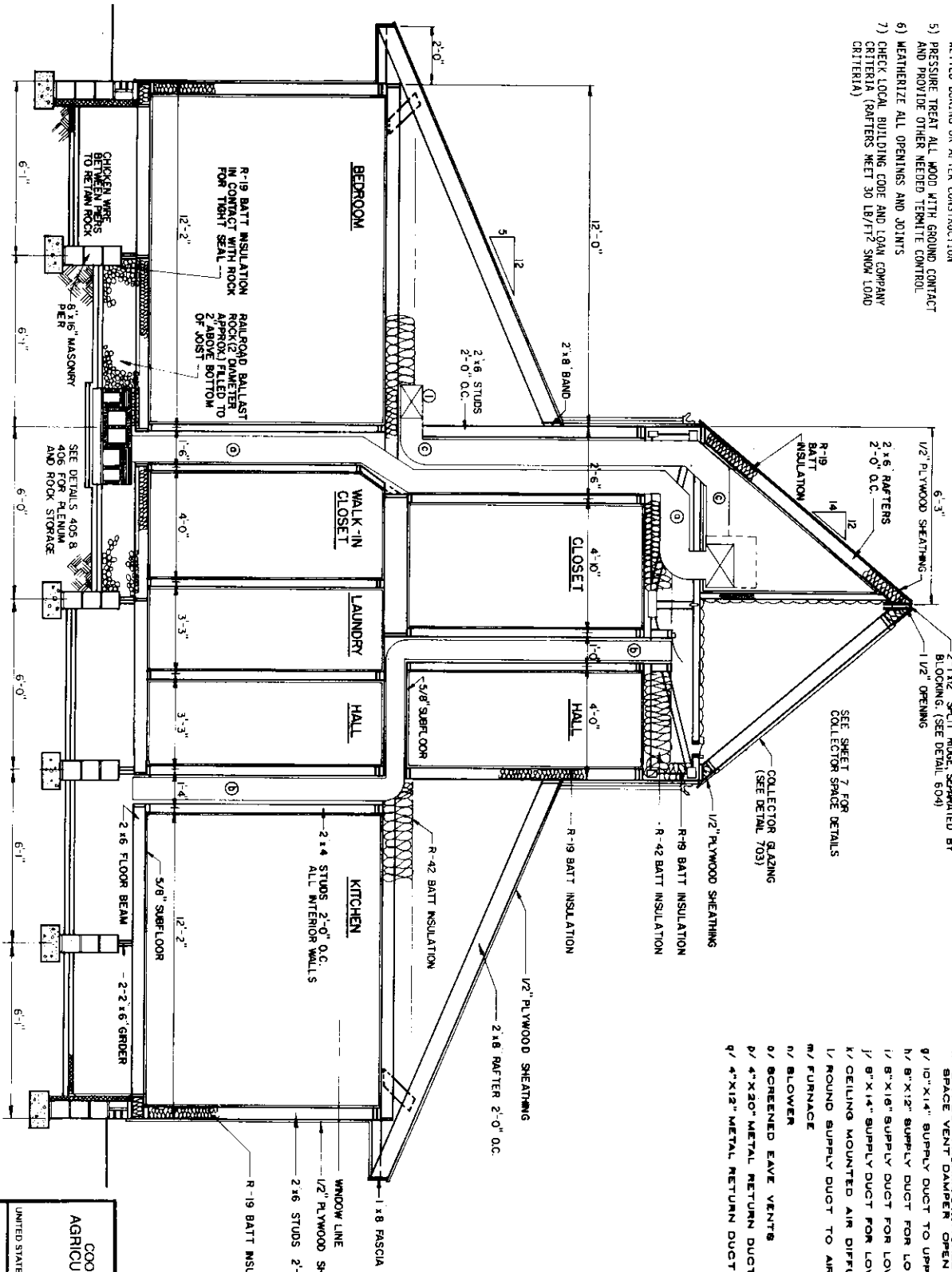
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING
AND
NATIONAL COOPERATIVE EXTENSION SERVICE

FOUR BEDROOM
CONTEMPORARY SOLAR ATTIC

USDA 84 7252 SHEET 2 OF 8

CONSTRUCTION CHECK LIST

- 1) ADEQUATELY NAIL AND ANCHOR JOINTS
- 2) DOUBLE JOISTS UNDER TUBS AND OTHER HEAVY LOADS
- 3) SHEATH CORNERS WITH 1/2" PLYWOOD OR HIGH DENSITY FIREBOARD OR USE DIAGONAL BRACING
- 4) USE EXTERIOR GRADED PLYWOOD WHEREVER IT MAY BE METTED DURING OR AFTER CONSTRUCTION
- 5) PRESSURE TREAT ALL WOOD WITH GROUND CONTACT AND PROVIDE OTHER NEEDED TERMITTE CONTROL
- 6) WEATHERIZE ALL OPENINGS AND JOINTS
- 7) CHECK LOCAL BUILDING CODE AND LOAN COMPANY CRITERIA (RAFTERS MEET 30 LB/FT² SNOW LOAD)



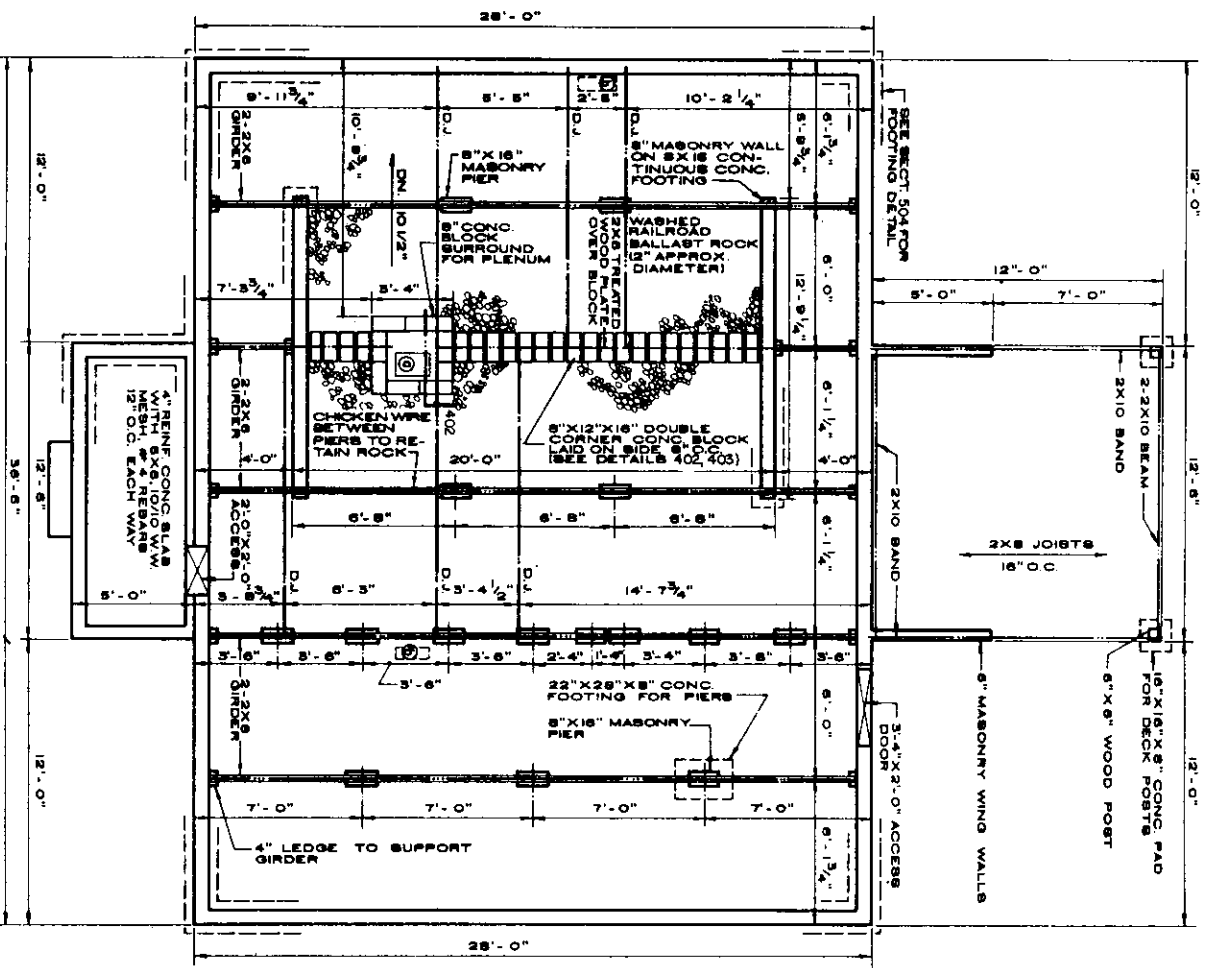
MECHANICAL PLANS

SCHEDULE

- a/ 12"x20" METAL SUPPLY DUCT TO ROCK STORAGE
 - b/ 8"x20" RETURN DUCT FROM AIR PLENUM TO COLLECTOR SPACE
 - c/ 10"x20" SUPPLY DUCT TO LOWER LEVEL DISTRIBUTION SYSTEM
 - d/ 4"x20" FLOOR REGISTER RETURN TO AIR PLENUM
 - e/ 4"x12" FLOOR REGISTER RETURN TO AIR PLENUM
 - f/ 12"x20" THERMOSTATICALLY CONTROLLED COLLECTOR SPACE VENT DAMPER OPEN AT 180°F CLOSE AT 140°F
 - g/ 10"x14" SUPPLY DUCT TO UPPER LEVEL
 - h/ 8"x12" SUPPLY DUCT FOR LOWER LEVEL
 - i/ 8"x16" SUPPLY DUCT FOR LOWER LEVEL
 - j/ 8"x14" SUPPLY DUCT FOR LOWER LEVEL
 - k/ CEILING MOUNTED AIR DIFFUSER (TYPICAL)
 - l/ ROUND SUPPLY DUCT TO AIR DIFFUSERS (8" TYPICAL)
 - m/ FURNACE
 - n/ BLOWER
 - o/ SCREENED EAVE VENTS
 - p/ 4"x20" METAL RETURN DUCTS
 - q/ 4"x12" METAL RETURN DUCT
- SEE BASEMENT OPTION, PAGE 5

301 TRANSVERSE SECTION
 1/8" = 1'-0"
 SCALE

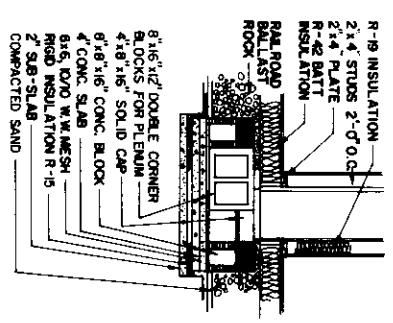
COOPERATIVE EXTENSION SERVICE
 AGRICULTURE AND HOME ECONOMICS
 UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING
**FOUR BEDROOM
 CONTEMPORARY SOLAR ATTIC**
 USDA 84 7252 SHEET 3 OF 8



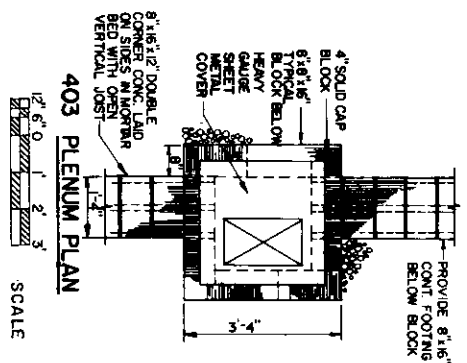
NOTE: SEE PLENUM/GRAVEL SPACE AREA FOR PLACEMENT OF ROCK STORAGE AREA. SEE SECT. 301

401 FOUNDATION PLAN

SEE PLAN 301 FOR BASEMENT OPTION



402 PLENUM SECTION



403 PLENUM PLAN

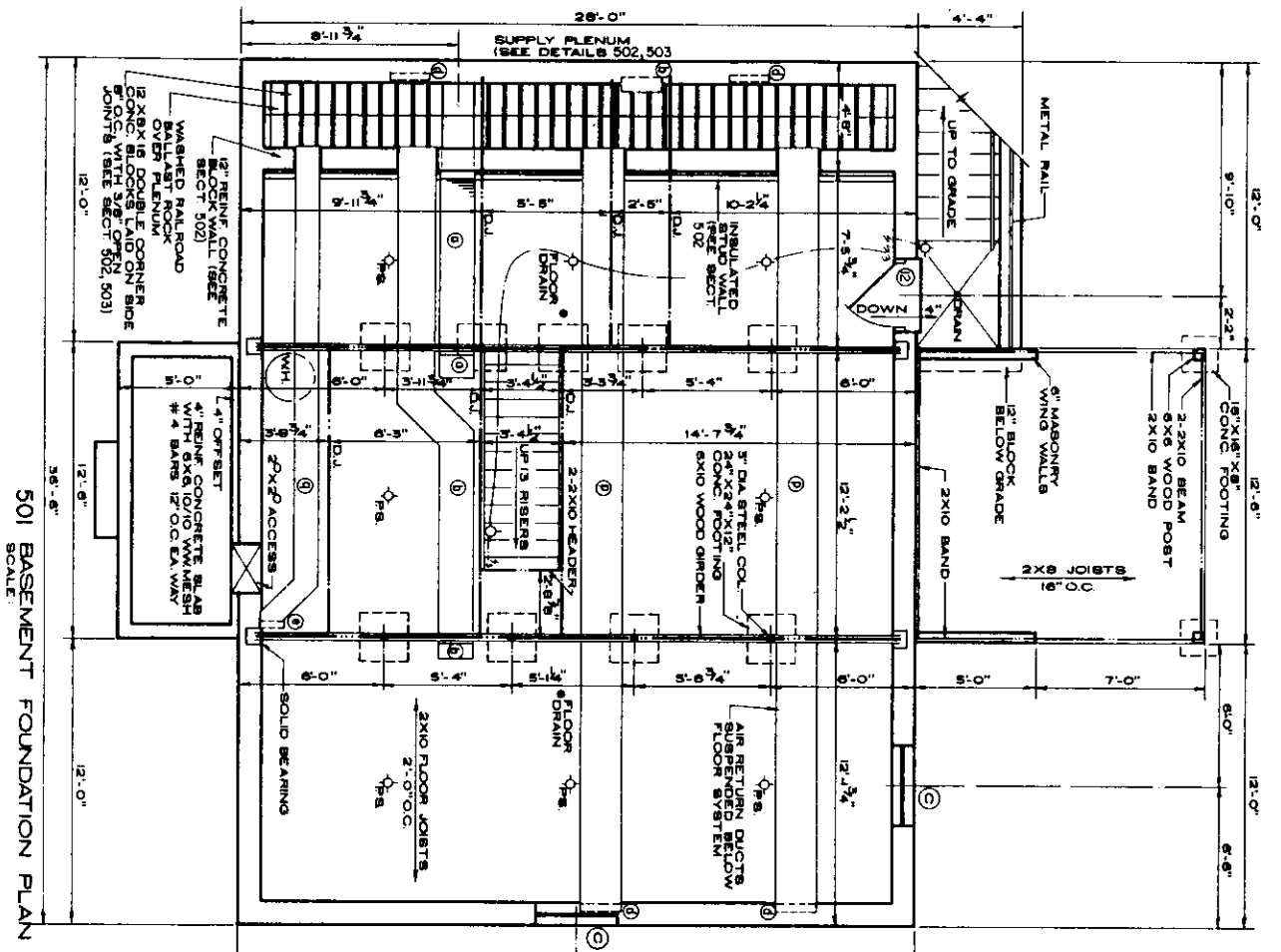
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COOPERATIVE EXTENSION SERVICE
AGRICULTURE AND HOME ECONOMICS

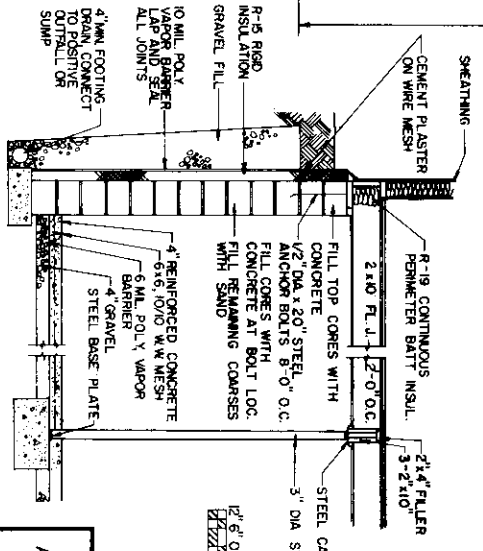
AND
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

**FOUR BEDROOM
CONTEMPORARY SOLAR ATTIC**

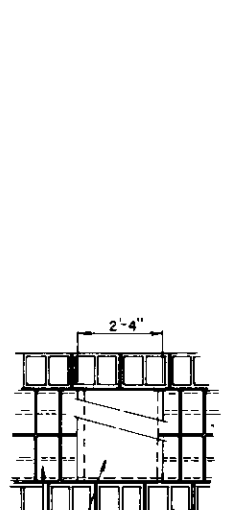
USDA 94 7252 SHEET 4 OF 8



501 BASEMENT FOUNDATION PLAN
SCALE

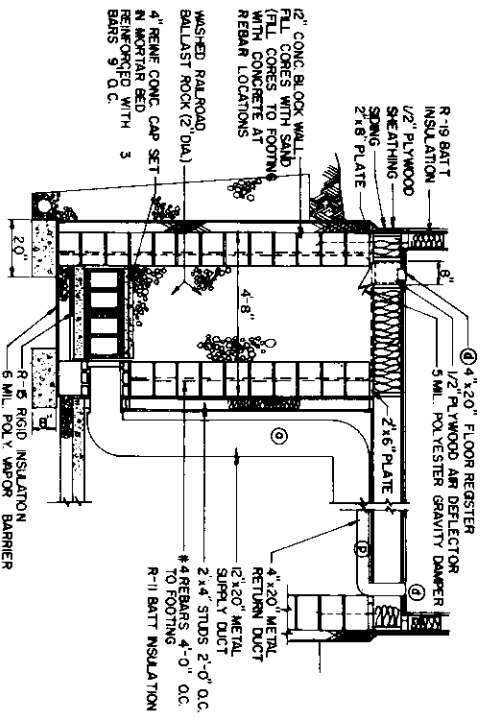


504 TYPICAL BASEMENT WALL SECTION



503 PLENUM PLAN

502 SECTION THRU ROCK STORAGE

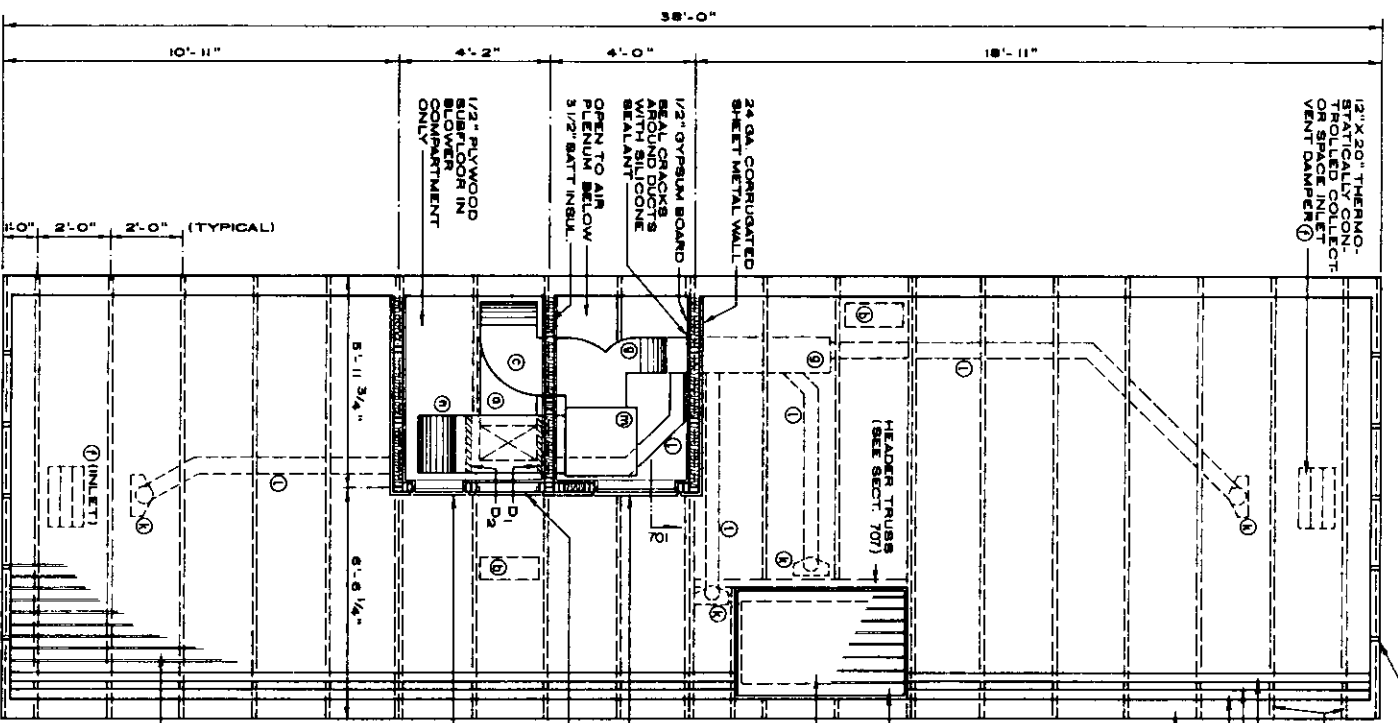


COOPERATIVE EXTENSION SERVICE
AGRICULTURE AND HOME ECONOMICS

UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

FOUR BEDROOM
CONTEMPORARY SOLAR ATTIC

USDA 84 7252 SHEET 5 OF 8



2x4x2x10" DEEP FLOOR (BELOW SHEET METAL FLOOR)

2x4 CONTINUOUS

2" AIR SLOT FLAP DAMPER OVER 2x4 CONTINUOUS

2x8 RAFTER BEARING PLATE

DISAPPEARING STAIR BELOW HATCH

METAL COVERED PLYWOOD HATCH (SEE SECT. 707)

HEADER TRUSS (SEE SECT. 707)

24 GA. CORRUGATED SHEET METAL WALL

1/2" GYPSUM BOARD SEAL CRACKS AROUND DUCTS BEYOND CONE SEALANT

OPEN TO AIR PLENUM BELOW 3/2" BATT INSUL.

1/2" PLYWOOD SUBFLOOR IN COMPARTMENT ONLY

2x4x2x10" DEEP FLOOR (BELOW SHEET METAL FLOOR)

2x4 CONTINUOUS

2" AIR SLOT FLAP DAMPER OVER 2x4 CONTINUOUS

2x8 RAFTER BEARING PLATE

DISAPPEARING STAIR BELOW HATCH

METAL COVERED PLYWOOD HATCH (SEE SECT. 707)

HEADER TRUSS (SEE SECT. 707)

24 GA. CORRUGATED SHEET METAL WALL

1/2" GYPSUM BOARD SEAL CRACKS AROUND DUCTS BEYOND CONE SEALANT

OPEN TO AIR PLENUM BELOW 3/2" BATT INSUL.

1/2" PLYWOOD SUBFLOOR IN COMPARTMENT ONLY

ACCESS DOOR TO BLOWER COMPARTMENT PROVIDE 1/6" SQUARE OPENING FOR DOOR (SIMILAR TO 701 B)

NOTE: DOUBLE TRUSSES EACH SIDE PROVIDE SUPPORT FOR FURNACE & BLOWER.

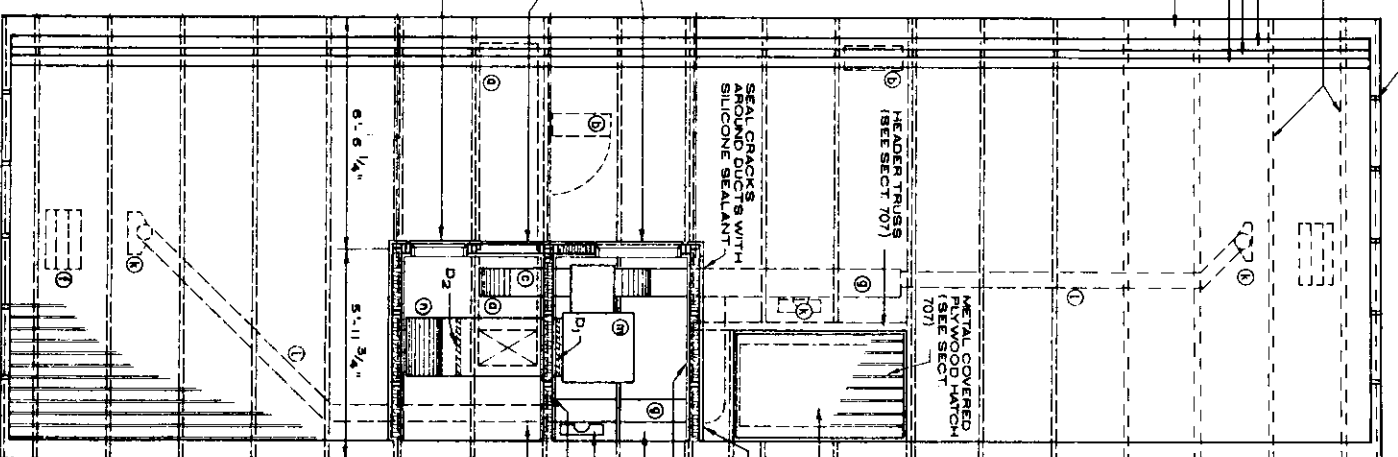
AIR DEFLECTOR PANEL OPENING (SEE DETAIL 701)

MECHANICAL SPACE ACCESS (SEE DETAIL 701)

24 GA. CORRUGATED SHEET METAL FLOOR, WALLS & CEILING, PAINTED FLAT BLACK

601 ATTIC PLAN

1/2" = 6' 0"
1" = 12' 0"
3" = 36' 0"
SCALE



2x4x2x10" DEEP FLOOR (BELOW SHEET METAL FLOOR)

2x4 CONTINUOUS

2" AIR SLOT FLAP DAMPER OVER 2x4 CONTINUOUS

2x8 RAFTER BEARING PLATE

DISAPPEARING STAIR BELOW HATCH

METAL COVERED PLYWOOD HATCH (SEE SECT. 707)

HEADER TRUSS (SEE SECT. 707)

24 GA. CORRUGATED SHEET METAL WALL

1/2" GYPSUM BOARD SEAL CRACKS AROUND DUCTS WITH SILICONE SEALANT

OPEN TO AIR PLENUM BELOW 3/2" BATT INSULATION

1/2" PLYWOOD SUBFLOOR IN BLOWER COMPARTMENT ONLY

NOTE: DOUBLE TRUSSES EACH SIDE OF FURNACE SPACE TO PROVIDE SUPPORT FOR FURNACE & BLOWER.

24 GA. CORRUGATED SHEET METAL WALL

1/2" GYPSUM BOARD SEAL CRACKS AROUND DUCTS WITH SILICONE SEALANT

OPEN TO AIR PLENUM BELOW 3/2" BATT INSULATION

1/2" PLYWOOD SUBFLOOR IN BLOWER COMPARTMENT ONLY

NOTE: DOUBLE TRUSSES EACH SIDE OF FURNACE SPACE TO PROVIDE SUPPORT FOR FURNACE & BLOWER.

DISAPPEARING STAIR BELOW HATCH

METAL COVERED PLYWOOD HATCH (SEE SECT. 707)

HEADER TRUSS (SEE SECT. 707)

24 GA. CORRUGATED SHEET METAL WALL

1/2" GYPSUM BOARD SEAL CRACKS AROUND DUCTS WITH SILICONE SEALANT

OPEN TO AIR PLENUM BELOW 3/2" BATT INSULATION

1/2" PLYWOOD SUBFLOOR IN BLOWER COMPARTMENT ONLY

NOTE: DOUBLE TRUSSES EACH SIDE OF FURNACE SPACE TO PROVIDE SUPPORT FOR FURNACE & BLOWER.

602 ATTIC (OPTIONAL)

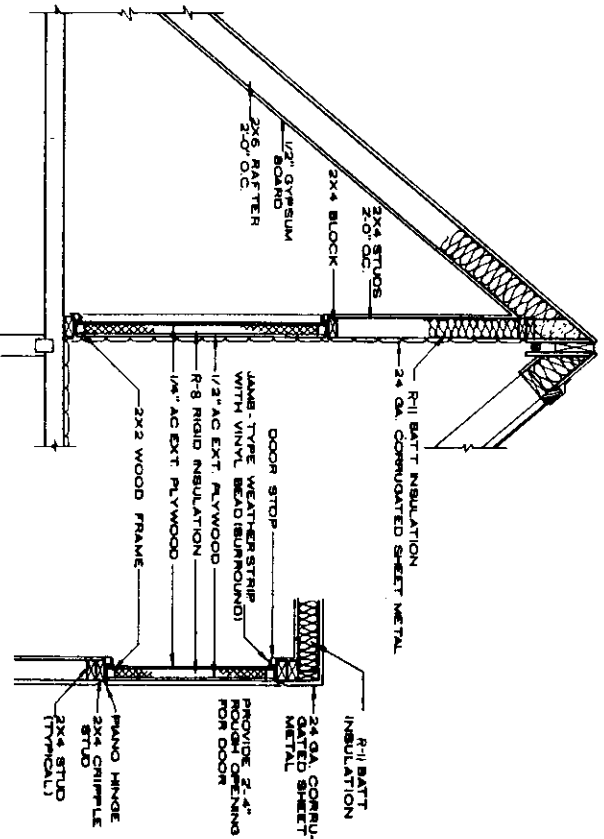
1/2" = 6' 0"
1" = 12' 0"
3" = 36' 0"
SCALE

COOPERATIVE EXTENSION SERVICE
AGRICULTURE AND HOME ECONOMICS

UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

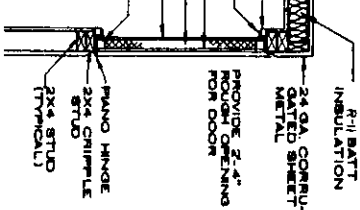
FOUR BEDROOM
CONTemporary SOLAR ATTIC

USDA 84 7252 SHEET 6 OF 8

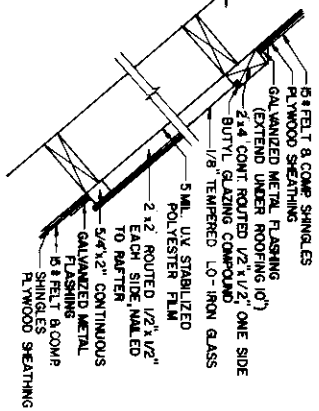


701 MECHANICAL SPACE ACCESS

SCALE

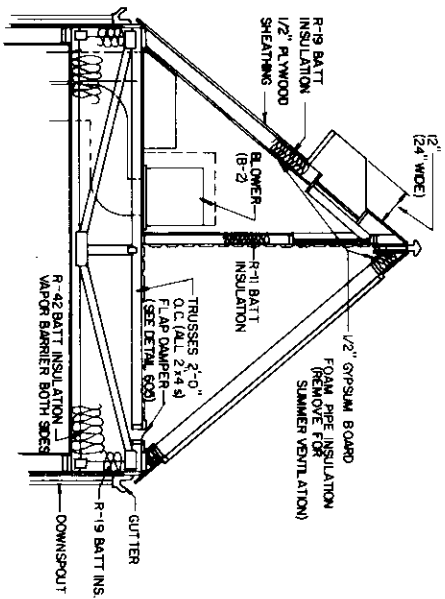


701-B PLAN



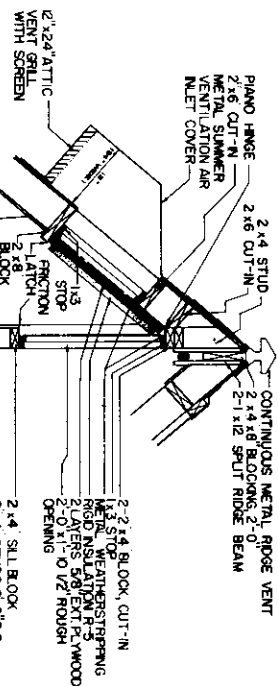
703 COLLECTOR DETAIL

SCALE



706 ATTIC SECTION THRU BLOWER COMPARTMENT

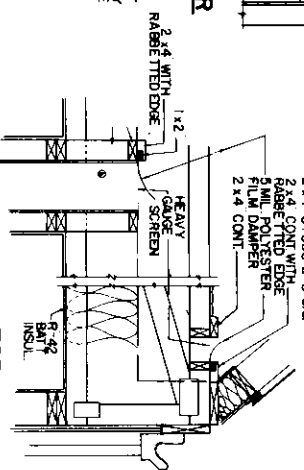
SCALE



704 AIR DEFLECTOR

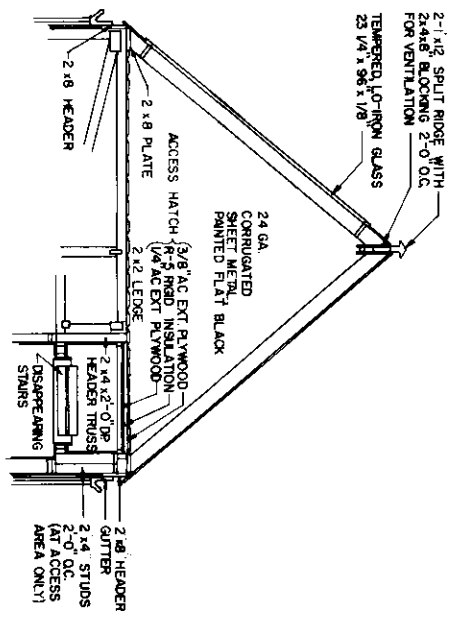
NOTE:
AIR DEFLECTOR AND VENT ARE OPTIONAL. PRIMA-RI-ARY USE IN DRY CLIMATE AREAS.

SCALE



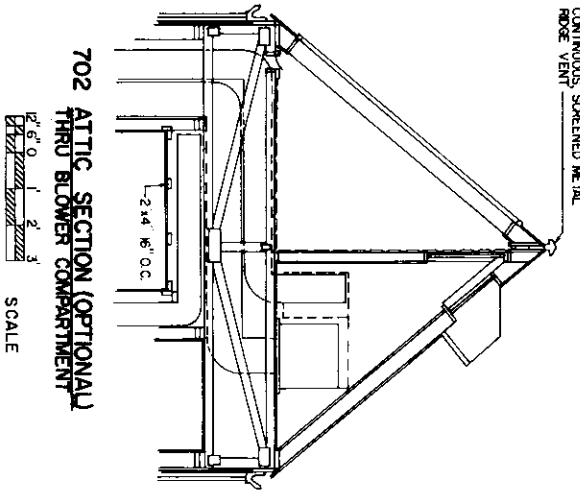
705 FLAP DAMPER DETAIL

SCALE



707 ATTIC SECTION

SCALE



702 ATTIC SECTION (OPTIONAL) THRU BLOWER COMPARTMENT

SCALE

COOPERATIVE EXTENSION SERVICE AGRICULTURE AND HOME ECONOMICS UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING			
FOUR BEDROOM CONTEMPORARY SOLAR ATTIC			
USDA '84	7252	SHEET 7 OF 8	

SYMBOLS AND SPECIFICATIONS

- T₁ & T₂ : 24 V HEATING AND COOLING THERMOSTATS, HEAT-OFF, COOL SELECTION.
- HONEYWELL - T87F AND Q539 A SUBBASE
DAYTON - 2E09B AND 2E151 SUBBASE
MONTICELLO - T87F AND Y510G01 SUBBASE
WHITE ROVERS - IF 86-810 AND 920-1 SUBBASE
- T₃ : TWO - SPEED BLOWER THERMOSTAT, SPOT LINE VOLTAGE, RATED TEMPERATURE RANGE, 20° TO 150° F.
PENN. CONTROLS - A19BAC-1
DAYTONWELL - 1831C103A
- T₄ : FAN AND LIMIT CONTROL SUPPLIED WITH FURNACE. USE FURNACE MANUFACTURER'S SUGGESTED SETTINGS.
- DM-1 : SPRING RETURN DAMPER MOTOR, TWO POSITION, OPEN-CLOSE.
- DM-2 : BARBER COLMAN - MA-405
- DM-3 : HONEYWELL - M436A116
- DM-4 : PENN. CONTROLS - M611ACB-1 AND 24 V TRANSFORMER
- DM-5 : DAMPERS, (SEE AIR FLOW DIAGRAMS), LOW LEAK QUALITY SPECIFY END AND BLADE SEALS, FULL OPEN AND FULL CLOSED USE.
- D₁ : AMERICAN WARNING AND VENTILATING CO. DAA-P-10
- D₂ : AMERICAN WARNING AND VENTILATING CO. DAA-P-10
- D₃ : SOLAR CONTROL CORPORATION
- D₄ : SOLAR CONTROL CORPORATION
- D₅ : HONEYWELL
- D₆ : JOHNSON SERVICE CO. - 0-1300

- SOT-1 : DIFFERENTIAL THERMOSTAT AND SENSORS FOR SUMMER NOCTURNAL HEATING SPECIFY 18 1/2° F TURN-ON DIFFERENTIAL AND 53 1/2° F TURN-OFF DIFFERENTIAL, RATED 1/2 HP 115 V.
- SOT-2 : DIFFERENTIAL THERMOSTAT AND SENSORS FOR SUMMER NOCTURNAL COOLING OF ROCK STORAGE SPECIFY 53 1/2° F TURN-ON DIFFERENTIAL AND 3 1/2° F TURN-OFF DIFFERENTIAL, RATED 1/2 HP 115 V. (OPTIONAL, PRIMARILY FOR DRY CLIMATE AREAS.)
- SOLAR ENERGY RESEARCH CORPORATION
RHO SIGMA
DEKOR-179
SOLAR CONTROL CORPORATION
HONEYWELL
JOHNSON SERVICE CO. - 0-1300
- B-1 : FURNACE BLOWER - 115 V 60 CYCLE, MULT. OR TWO-SPEED, AREA AT 1/2 INCHES WATER COLUMN AT 100° F AIR TEMPERATURE. SUGGEST PERMANENT SPLIT CAPACITOR MOTOR.
SIMILAR TO DAYTON 4 C088
- B-2 : COLLECTION BLOWER - 115 V 90 CYCLE, MULT. OR TWO-SPEED, MORE EFFICIENT THAN SHARED FOR MOTOR, SAME 1/2 HP 60 CYCLE, BLOWER OUTPUT SHOULD BE 2 TO 3 CFM/FT² OF COLLECTOR SURFACE AT 1/8 INCHES WATER COLUMN & AT 102° F AIR TEMPERATURE. HIGH SPEED BLOWER OUTPUT SHOULD BE 4 TO 5 CFM/FT² OF COLLECTOR SURFACE AT 1/8 INCHES WATER COLUMN & AT 110° F AIR TEMPERATURE.
SIMILAR TO DAYTON 4 C088
- SW-1 : SWITCH SPST RATED 1/2 HP AT 115 V.
- SW-2 : HEAT-COOL SWIT. 24 V, DPDT RATED 1/2 HP AT 115 V.
- SW-3 : SWITCH SPST 24 V FOR CONTROL CIRCUIT.
- TR-1 : SPDT RELAY, 24 V COIL, RATED 1/2 HP AT 115 V.
- TR-2 : 24 V TRANSFORMER.

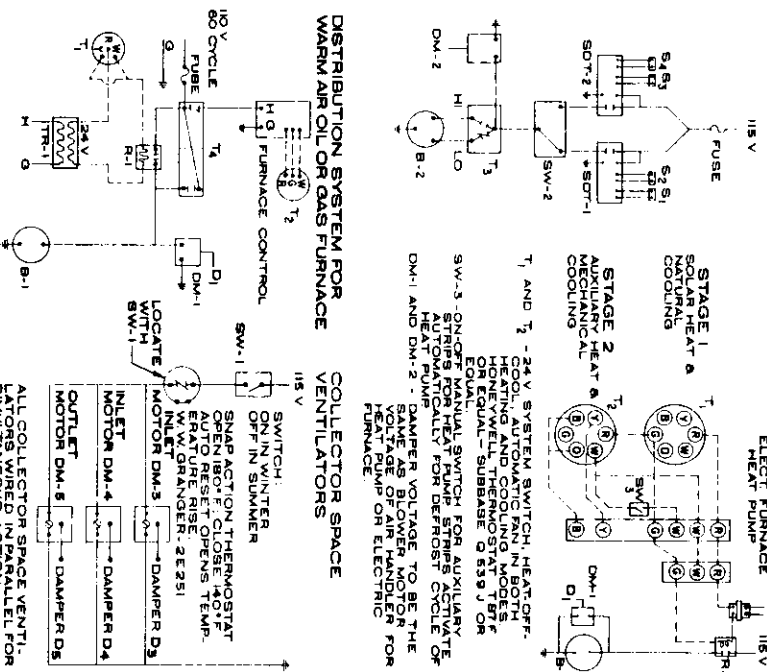
NOTE: MENTION OF PROPRIETARY ITEMS DOES NOT IMPLY ANY GUARANTEE OF PERFORMANCE AND IS NOT INTENDED TO EXCLUDE OTHER SUITABLE PRODUCTS.

- OPERATIONS**
- A. TWO STANDARD HEAT-COOL THERMOSTATS, LOCATED IN HALLWAY CONTROL ELECTRIC FURNACE OR HEAT PUMP.
 - 1. T₁ CONTROLS BLOWER B-1 AND IS SET AT 68° F WINTER AND 75° F SUMMER.
 - 2. T₂ CONTROLS AUXILIARY HEAT OR COOL AND IS SET AT 65° F WINTER AND 78° F SUMMER.
 - NOTE: AUXILIARY FURNACE OR HEAT PUMP SHOULD BE SIZED BY LOCAL SUPPLIER.
 - B. DAMPER OPERATION
 - 1. DAMPER MOTOR DM-1 IS ENERGIZED WHEN BLOWER B-1 IS ON AND IS COOLING THE BLOWER.
 - 2. DAMPER MOTOR DM-2 IS ENERGIZED WHEN B-2 IS ENERGIZED AND IS CONTROLLED BY THE COLLECTION CONTROL SYSTEM.
 - C. TWO DIFFERENTIAL THERMOSTATS CONTROL COLLECTION BLOWER B-2.
 - 1. SOT-1 CONTROL BLOWER B-2 DURING SOLAR HEAT CYCLE.
 - 2. SOT-2 CONTROL BLOWER B-2 DURING COOLING AND SHADING.
 - 3. SENSOR S₁ IS LOCATED AT THE NEAR PROBE AND SHADERS.
 - a. WHEN S₁ IS 15° F HOTTER THAN S₂ BLOWER STARTS AT LOW SPEED.
 - b. WHEN S₁ IS 5° F HOTTER THAN S₂ BLOWER STARTS AT LOW SPEED.
 - c. TYPICAL SPEED OPERATOR T₃ IS SET AT 100° F FOR HIGH SPEED.
 - 4. SENSOR S₂ IS LOCATED WITHIN ATTIC INTAKE VENT, SENSOR S₄ IS LOCATED NEAR S₂ IN ROCK.
 - 5. SENSOR S₃ IS LOCATED WITHIN ATTIC INTAKE VENT, SENSOR S₄ IS LOCATED NEAR S₂ IN ROCK.
 - 6. SENSOR S₅ IS LOCATED WITHIN ATTIC INTAKE VENT, SENSOR S₄ IS LOCATED NEAR S₂ IN ROCK.
 - 7. SENSOR S₆ IS LOCATED WITHIN ATTIC INTAKE VENT, SENSOR S₄ IS LOCATED NEAR S₂ IN ROCK.
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 - 42. SENSOR S₄₁ IS LOCATED WITHIN ATTIC INTAKE VENT, SENSOR S₄ IS LOCATED NEAR S₂ IN ROCK.
 - 43. SENSOR S₄₂ IS LOCATED WITHIN ATTIC INTAKE VENT, SENSOR S₄ IS LOCATED NEAR S₂ IN ROCK.
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MANUAL CHANGE-OVER JM SOLAR COOLING TO HEATING

A CLOSE ALL SOFFIT VENTS.
B CHANGE BOTH HOUSE THERMOSTATS TO HEAT.
C CLOSE ROOF VENT TO BLOWER B-2 AND OPEN ATTIC TO BLOWER.
E CLOSE RIDGE VENT IN COLLECTOR SPACE.

WIRING DIAGRAM



SITE PLANNING

ORIENT HOUSE WITH COLLECTOR FACING SOUTH FOR OPTIMUM SOLAR ENERGY. SHADING DEVICES SHOULD BE SIZED AND LOCATED TO PREVENT OVERHEATING OF THE HOUSE. USE OF EXISTING ASSETS SUCH AS NATURAL SHADE, OPEN EXPOSURE TO SUMMER BREEZES, SHUTTER FROM COLD WINTER WINDS, AND GOOD AIR FLOW THROUGH THE HOUSE ARE POSITIVE HIGH PRIORITY ITEMS. MAKE SURE AIR PLenums AND ROCK STORAGE UNDER FLOOR OR OTHERWISE HIGH DEGREE OF HUMIDITY DISCOMFORT WILL RESULT WITHIN THE DWELLING.

AIR FLOW DIAGRAMS & CONTROL LOCATIONS FOR SIX OPERATING MODES

NOTE: DIAGRAMATIC AIR HANDLING EQUIPMENT DOES NOT REPRESENT ACTUAL OPERATING LOCATION.

