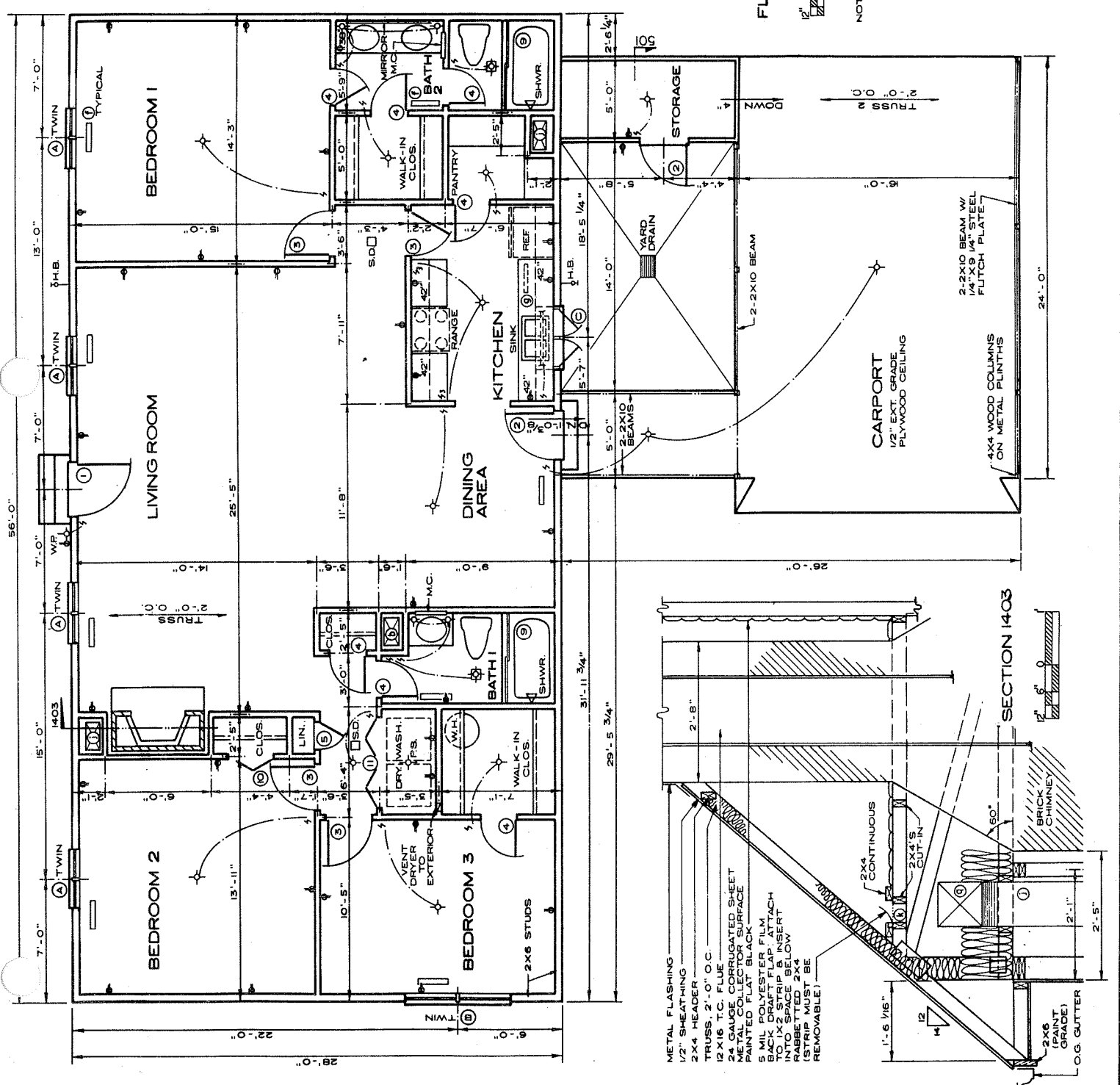
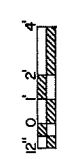


ABBREVIATIONS & SYMBOLS

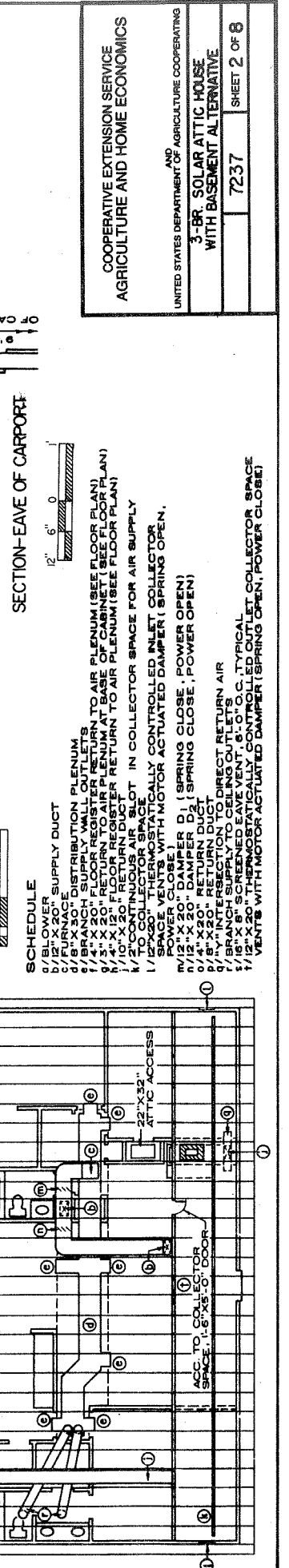
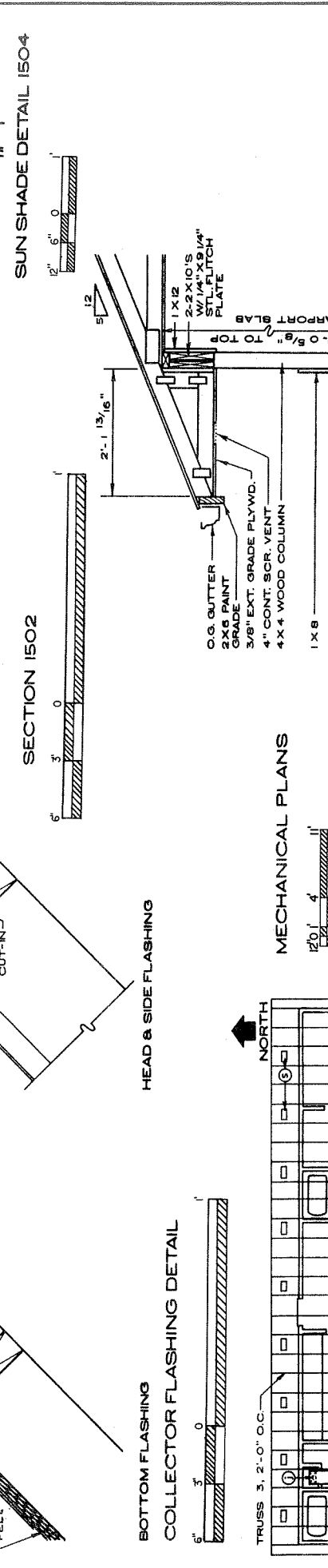
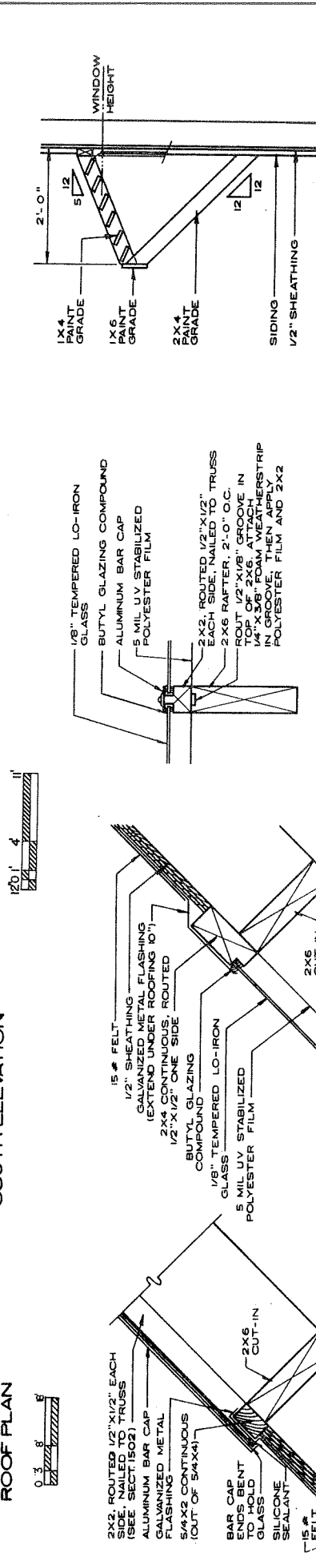
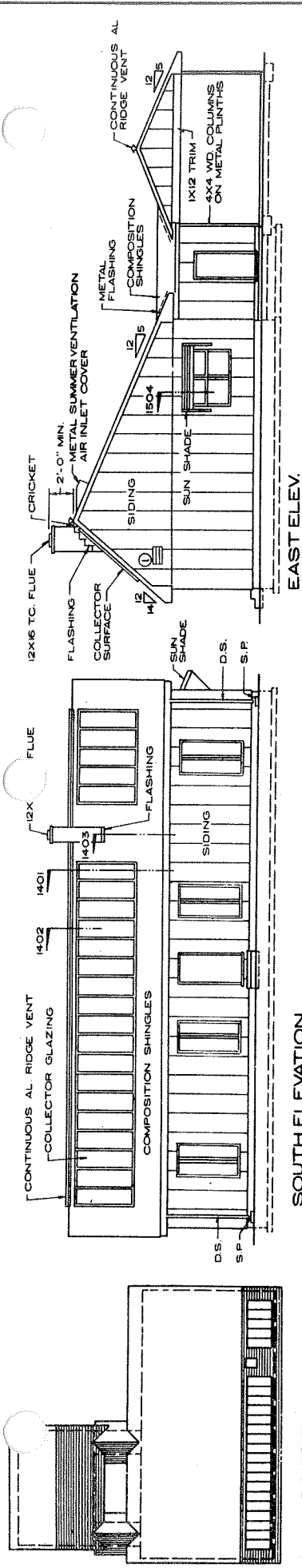
- ACC. = ACCESS
- AL. = ALUMINUM
- CAB. = CABINET
- C.O. = CASED OPENING
- C.J. = CEILING JOIST
- COL. = COLUMN
- COMP. = COMPOSITION
- CONC. = CONCRETE
- CONSTR. = CONSTRUCTION
- DET. = DETAIL
- DIA. = DIAMETER
- D.W. = DISHWASHER
- D.H. = DOUBLE HUNG
- D.U. = DOUBLE JOIST
- D.S. = DOWN SPOUT
- DN. = DOWN
- ELEV. = ELEVATION
- EXT. = EXTERIOR
- FIN. = FINISH(ED)
- FL. = FLOOR
- FL. J. = FLOOR JOIST
- HT. = HEIGHT
- H.B. = HOSE BIB
- INSUL. = INSULATION
- INT. = INTERIOR
- M.O. = MASONRY OPENING
- MAX. = MAXIMUM
- M.C. = MEDICINE CABINET
- MIN. = MINIMUM
- O.C. = ON CENTER
- PLYWD. = PLYWOOD
- POLY. = POLYETHYLENE
- P.S. = PULL SWITCH
- REF. = REFRIGERATOR
- REINF. = REINFORCED
- S.D. = SMOKE DETECTOR
- SCR. = SCREENED
- SECT. = SECTION
- SHWR. = SHOWER
- SLD. = SIDING
- S.P. = SPLASH PAD
- STL. = STEEL
- SUSP. = SUSPENDED
- SHLVS. = SHELVES
- THRU. = THROUGH
- H.H. = WATER HEATER
- W.P. = WATER PROOF
- W.D. = WINDOW
- W.W.M. = WELDED WIRE MESH
- ⊕ = LIGHT FIXTURE
- ⊕ = CONVENIENCE
- ⊕ = SWITCH
- ⊕ = 3-WAY SWITCH
- ⊕ = EXHAUST FAN W/LIGHT



FLOOR PLAN



NOTE: DIMENSIONS TO EXTERIOR WALLS UNLESS OTHERWISE NOTED



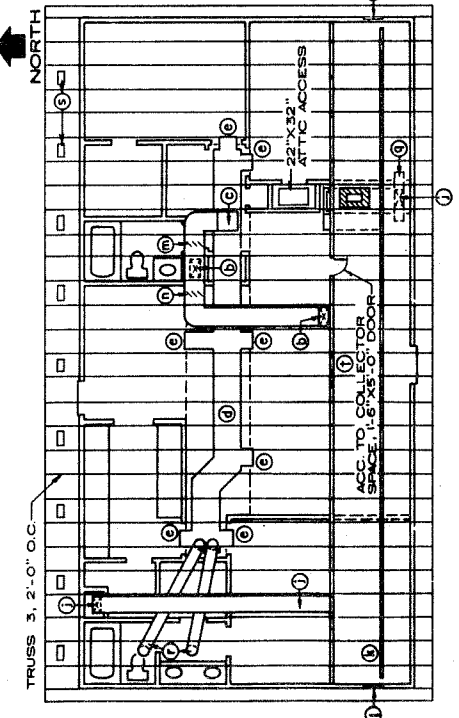
COOPERATIVE EXTENSION SERVICE
 AGRICULTURE AND HOME ECONOMICS

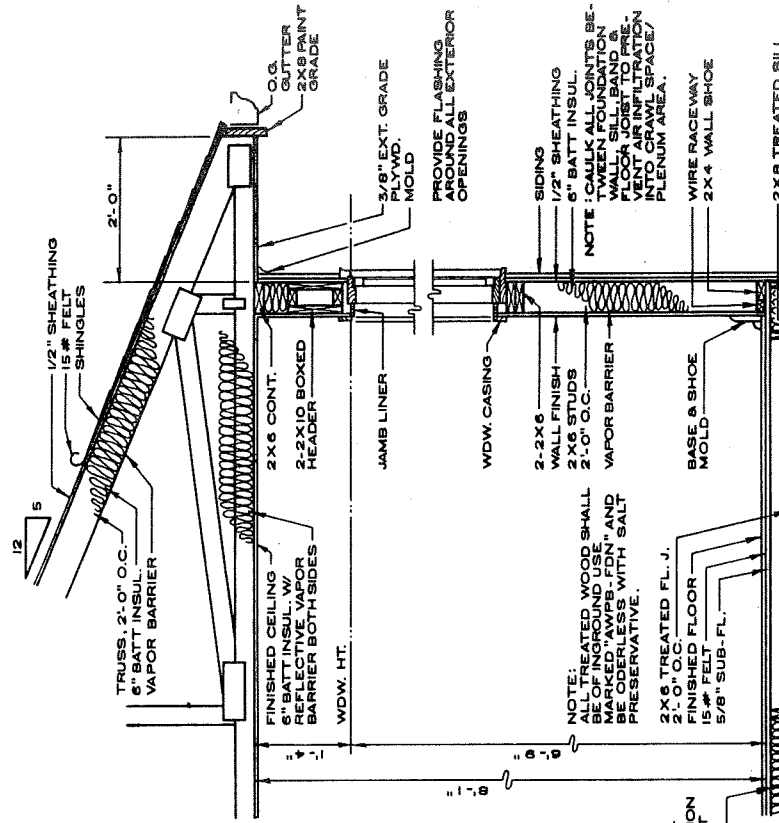
AND
 AGRICULTURE COOPERATING

3-BR. SOLAR ATTIC HOUSE
 WITH BASEMENT ALTERNATIVE

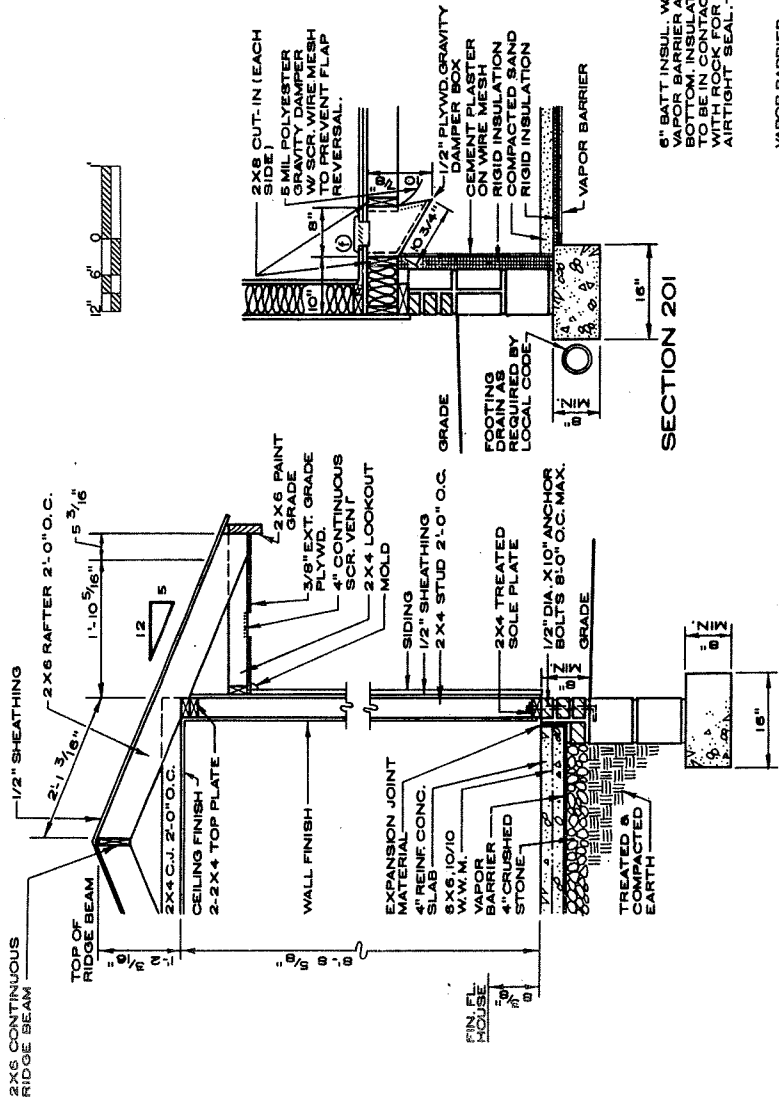
7237 SHEET 2 OF 8

- SCHEDULE**
- 0/ BLOWER SUPPLY DUCT
 - 1/2" X 20" SUPPLY DUCT
 - 0/ 6" X 20" DISTRIBUTION PLENUM
 - 0/ BRANCH SUPPLY WALL OUTLETS
 - 1/2" X 20" FLOOR REGISTER RETURN TO AIR PLENUM (SEE FLOOR PLAN)
 - 1/2" X 20" RETURN TO AIR PLENUM AT BASE OF CABINET (SEE FLOOR PLAN)
 - 1/2" X 20" RETURN TO AIR PLENUM (SEE FLOOR PLAN)
 - 1/10" X 20" RETURN DUCT
 - 1/2" CONTINUOUS AIR SLOT IN COLLECTOR SPACE FOR AIR SUPPLY TO COLLECTOR SPACE
 - 1/1" COLLECTOR SPACE
 - 1/1" SPACE VENTS WITH MOTOR ACTUATED DAMPER (SPRING OPEN, POWER CLOSE)
 - 1/12" X 20" DAMPER D1 (SPRING CLOSE, POWER OPEN)
 - 1/4" X 20" RETURN DUCT
 - 0/ 8" X 20" RETURN DUCT
 - 0/ 1/4" INTERSECTION TO DIRECT RETURN AIR
 - 1/1" X 8" SPRING TO OPEN AT 1/2" O.C. TYPICAL
 - 1/12" X 20" THERMOSTATICALLY CONTROLLED OUTLET COLLECTOR SPACE VENTS WITH MOTOR ACTUATED DAMPER (SPRING OPEN, POWER CLOSE)

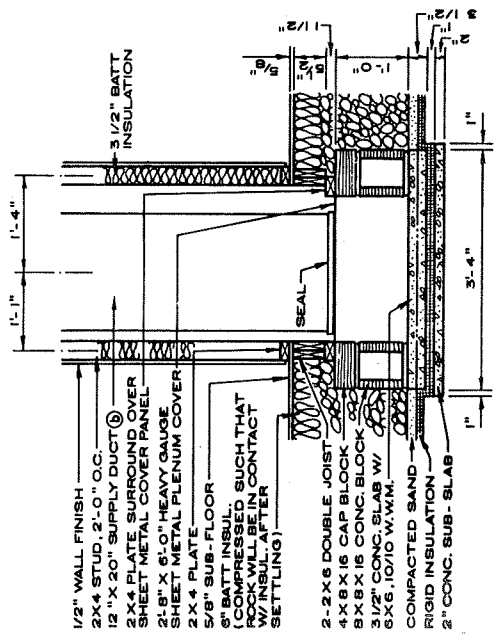




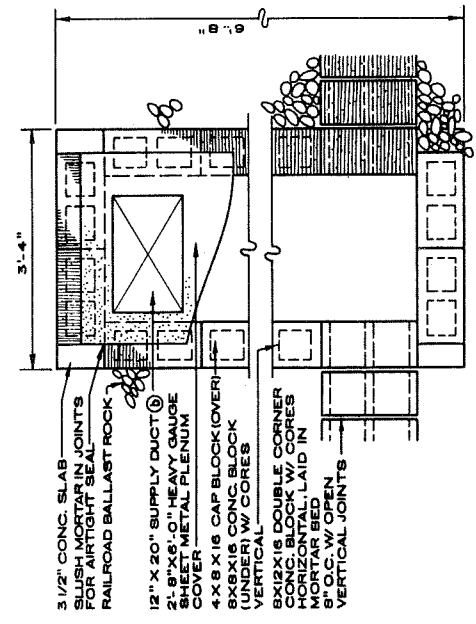
SECTION 201



SECT. THRU STORAGE 501

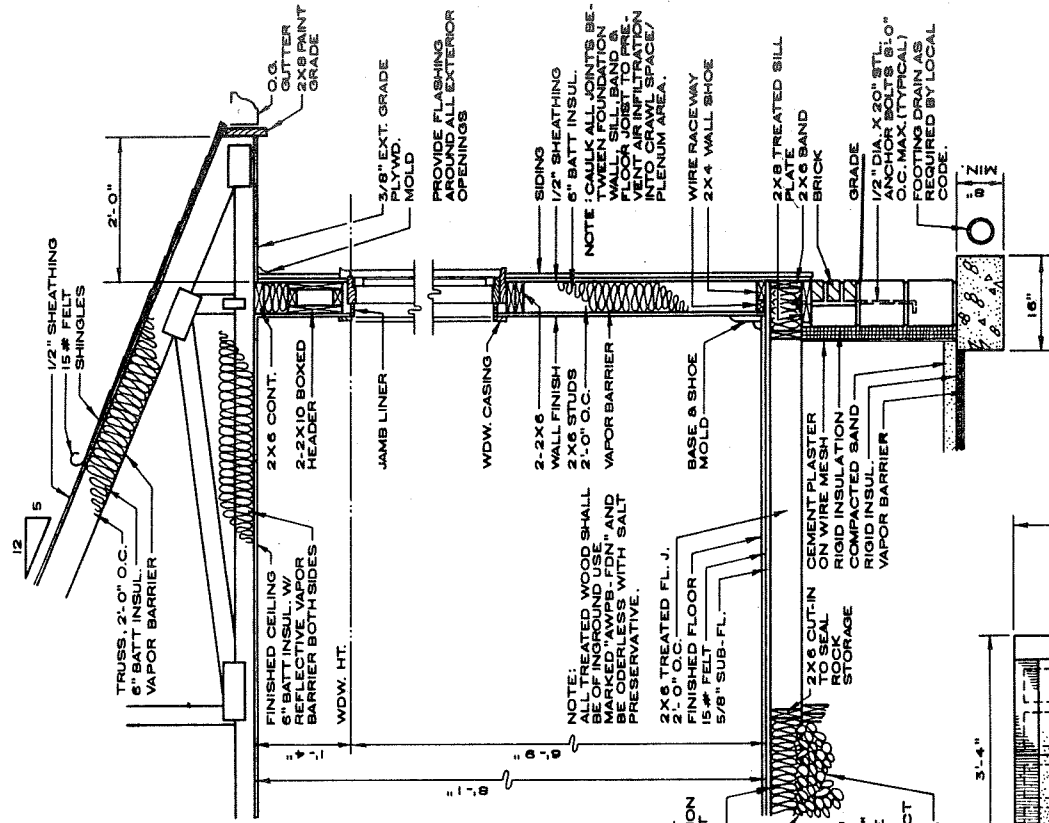


ELEVATION OF SECTION 402

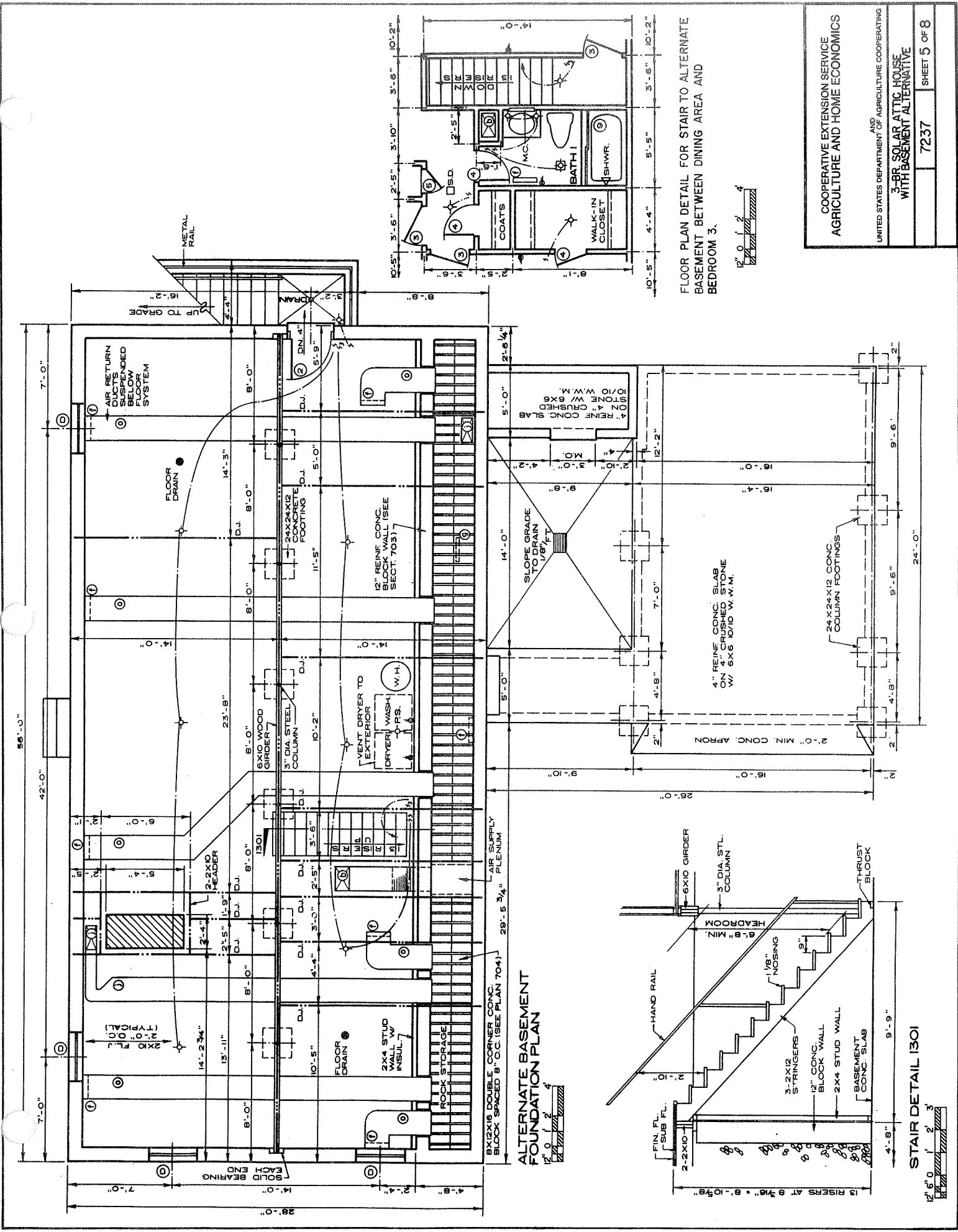


PLENUM PLAN 402

TYPICAL WALL SECTION 302



COOPERATIVE EXTENSION SERVICE AGRICULTURE AND HOME ECONOMICS
AND UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING
3-BR. SOLAR ATTIC HOUSE WITH BASEMENT ALTERNATIVE
7237
SHEET 4 OF 8



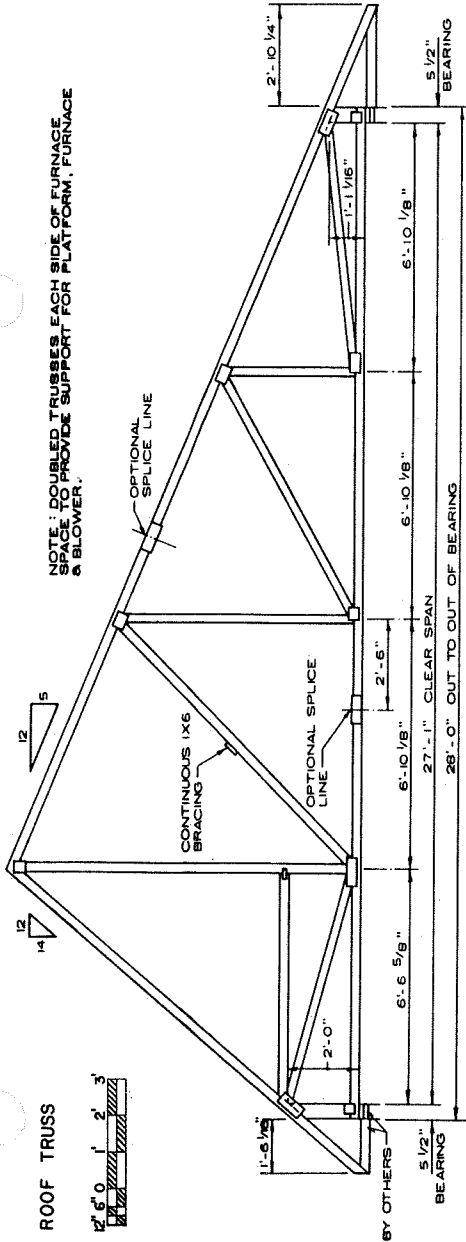
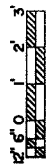
ALTERNATE BASEMENT FOUNDATION PLAN

FLOOR PLAN DETAIL FOR STAIR TO ALTERNATE BASEMENT BETWEEN DINING AREA AND BEDROOM 3.

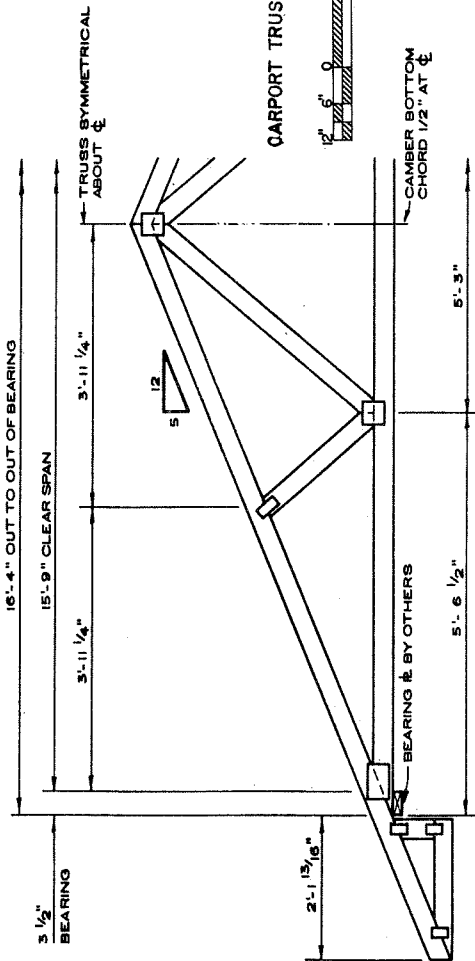
STAIR DETAIL 1301

COOPERATIVE EXTENSION SERVICE AGRICULTURE AND HOME ECONOMICS	
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING	
3-BR. SOLAR ATTIC HOUSE WITH BASEMENT ALTERNATIVE	
7237	SHEET 5 OF 8

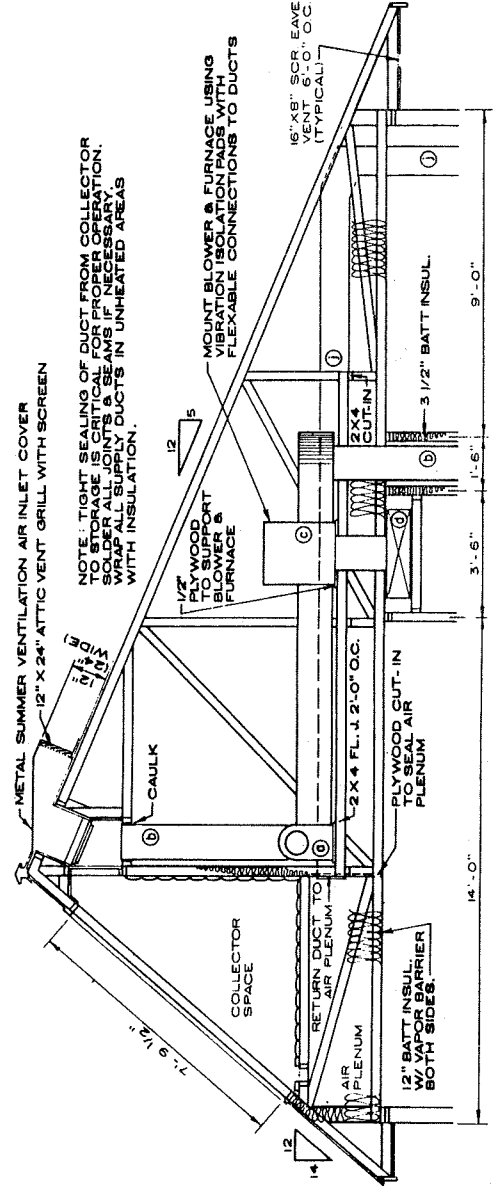
ROOF TRUSS



NOTE: DOUBLED TRUSSES EACH SIDE OF FURNACE. PROVIDE SUPPORT FOR PLATFORM, FURNACE & BLOWER.



GARPORT TRUSS

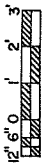


NOTE: TIGHT SEALING OF DUCT FROM COLLECTOR TO STORAGE IS CRITICAL FOR PROPER OPERATION. SOLDER ALL JOINTS & SEAMS IF NECESSARY. WRAP ALL SUPPLY DUCTS IN UNHEATED AREAS WITH INSULATION.

SECTION 1402



TRANSVERSE SECTION 1401



TRUSS GENERAL NOTES

1. ALL TRUSSES SHALL BE FACTORY BUILT TO MEET THE REQUIREMENTS OF LOCAL CODES. CLIMATIC CONDITIONS AND AGENCIES INVOLVED.
2. LUMBER: ALL LUMBER SHALL BE STRESS GRADED AND SO MARKED. OF A DIMENSION TO CARRY ALL DESIGN LOADS SAFELY ACCORDING TO SOUND ENGINEERING PRACTICE.
3. CONNECTIONS: SAFE WORKING LOAD SHALL BE DETERMINED BY TRUSS MANUFACTURER.
4. DESIGN: MANUFACTURER SHALL PROVIDE A TRUSS IN WHICH THE ALLOWABLE WORKING STRESSES HAVE BEEN INCREASED 33% FOR SHORT TERM LOADING CONDITIONS.
5. CONNECTION PLATES: SHALL BE 20 GA. (MIN.) GALVANIZED STEEL. OF SUCH DESIGN AND CONNECTION BETWEEN TWO OR MORE TRUSS MEMBERS AND TO SAFELY CARRY ANY COMBINED LOADS IMPOSED ON SAID JOINT. TRUSS PLATES SHALL BE APPLIED ON BOTH SIDES OF JOINT.
6. FABRICATION: ALL JOINTS SHALL BE ACCURATELY CUT IN PER FULL BEARING AND MADE TIGHT. ARE IMBEDDED IN WOOD. WOOD WITH KNOTS THAT WOULD REDUCE DESIGN CAPACITY WILL NOT BE USED FOR WEB MEMBERS. TOP AND BOTTOM CHORDS SHALL BE MADE TRUE TO LINE WITH A MINIMUM OF TWIST OR WARP. TOP AND BOTTOM CHORD SPLICES, WHEN REQUIRED, SHALL BE DESIGNED TO CARRY ALL DESIGN LOADS. SPLICES AT TOP AND BOTTOM CHORD SPLICES SHALL NOT OCCUR IN THE SAME PANEL.
7. NAILS: WHEN USED SHALL BE 1 1/2" X 11 GA. SCOTCH" NAILS OR EQUAL.

NOTE: APPLY TWO COATS OF ALUMINIZED WHITE PAINT TO ALL EXPOSED WOOD IN COLLECTOR SPACE.

CONTINUOUS AL. RIDGE VENT
SEE SECT. 1401 FOR SUMMER VENT COVER DETAIL
NOTE: SUMMER VENT & AIR DEFLECTOR REQUIRED PRIMARILY FOR USE IN DRY CLIMATE AREAS.

COOPERATIVE EXTENSION SERVICE
AGRICULTURE AND HOME ECONOMICS

UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING
3-88 SOIL AIR ATTIC HOUSE
WITH BASEMENT ALTERNATIVE

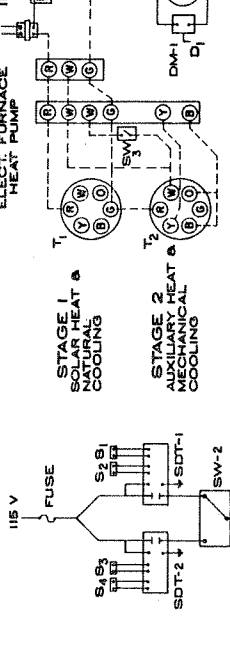
7237 SHEET 7 OF 8

MANUAL CHANGE-OVER FROM SOLAR COOLING TO HEATING

- CLOSE ALL SOFFIT VENTS.
- CHANGE BOTH HOUSE THERMOSTATS TO HEAT.
- POSITION HEAT-COOL SWITCH SW-1 & SW-2 TO HEAT.
- POSITION HEAT-COOL SWITCH SW-1 & SW-2 TO HEAT. CLOSE RIDGE VENT IN COLLECTOR SPACE.

WIRING DIAGRAM

DISTRIBUTION SYSTEM



COLLECTION SYSTEM

115 V FUSE

S₁ S₂ S₃ S₄

SDT-1

SW-2

DM-1

DM-2

B-1

DM-3

DM-4

DM-5

115 V ELECT. FURNACE HEAT PUMP

T₁ T₂

STAGE 1 SOLAR HEAT NATURAL COOLING

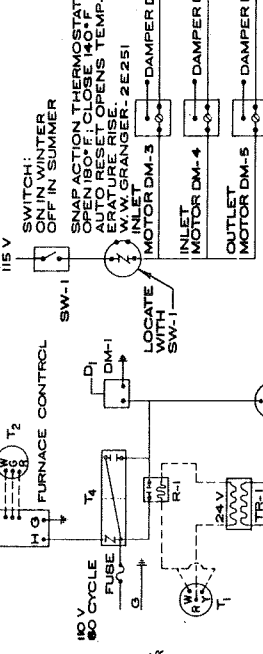
STAGE 2 AUXILIARY HEAT MECHANICAL COOLING

T₁ AND T₂ - 24 V SYSTEM SWITCH HEAT OFF. COOL AUTOMATIC FAN IN BOTH HEATING AND COOLING MODES. HONEYWELL THERMOSTAT TBTF EQUAL

SW-3 - ON-OFF MANUAL SWITCH FOR AUXILIARY HEAT. OPERATE MANUALLY FOR DEFERRED ACTION. HEAT PUMP

DM-1 AND DM-2 - DAMPER VOLTAGE TO BE THE VOLTAGE OF AIR HANDLER FOR HEAT PUMP OR ELECTRIC FURNACE.

COLLECTOR SPACE VENTILATORS



DISTRIBUTION SYSTEM FOR WARM AIR OIL OR GAS FURNACE

115 V

SW-1

DM-1

DM-2

DM-3

DM-4

DM-5

B-1

LOCATE WITH SW-1

115 V SWITCH: ON IN WINTER OFF IN SUMMER

SNAP ACTION THERMOSTAT OPEN (100°F); CLOSE (140°F). AUTO RESET OPENS TEMP. 10°F. WAX CHANGE: 2E251 INLET MOTOR DM-3

INLET MOTOR DM-4

OUTLET MOTOR DM-5

ALL COLLECTOR SPACE VENTILATORS WIRED IN PARALLEL FOR SIMULTANEOUS ACTION.

FOUNDATION INSULATION TABLE

HOUSE ZONE	1	2	3
POLYSTYRENE IN FOUNDATION WALL	1 1/2"	3"	4"
POLYSTYRENE BELOW ROCK	1"	2"	3"
SAND IN CRAWL SPACE: 2" COVERAGE			
POLYSTYRENE AT AIR PLENUM	0"	1"	2"

FOUNDATION INSULATION TABLE

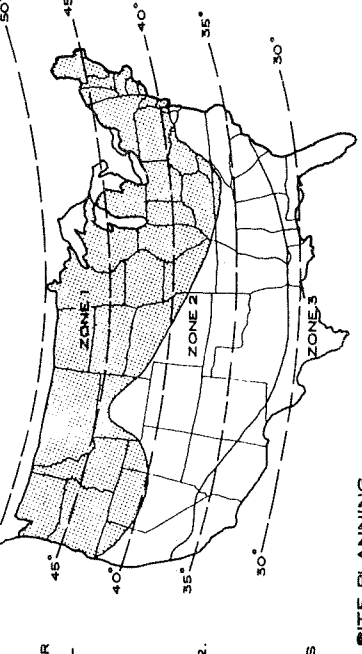
HOUSE ZONE

POLYSTYRENE IN FOUNDATION WALL

POLYSTYRENE BELOW ROCK

SAND IN CRAWL SPACE: 2" COVERAGE

POLYSTYRENE AT AIR PLENUM



SITE PLANNING

ORIENT HOUSE WITH COLLECTOR FACING SOUTH FOR OPTIMUM SOLAR ENERGY GAIN. MAKE SURE NO OBSTRUCTIONS SUCH AS HIGH TREES OR BUILDINGS ARE BETWEEN COLLECTOR AND SKY. USE OF EXISTING ASSETS SUCH AS NATURAL SHADE OR WINDY SUMMER BREEZES, SHIELDS FROM COLD WINTER WINDS, AND GOOD DECAYING AWAY FROM SLOTTED HIGH WATER TABLE EXISTS. MAKE SURE AIR PLENUMS AND ROCK STORAGE UNDER FLOOR; OTHERWISE HIGH IN THE DEGREE OF HUMIDITY DISCOMFORT WILL RESULT WITHIN THE DWELLING.

SYMBOLS AND SPECIFICATIONS

- T₁ & T₂: 24 V HEAT AND COOLING THERMOSTATS, HEAT OFF-COOL
- HONEYWELL T87K AND Q538A SUBBASE
- DAYTON - 2E026 AND 2E181 SUBBASE
- PENNY CONTROLS - T-SIACG-1 AND V-BICG-1 SUBBASE
- WHITE ROGERS - IF 36-910 AND S20-1 SUBBASE
- T₃: TWO-SPEED BLOWER THERMOSTAT, SPOT LINE VOLTAGE, RATED 1/2 HP, SET FOR 100°F, 2" TO 7" DIFFERENTIAL, AMBIENT TEMPERATURE RANGE, 0° TO 150°F.
- PENNY CONTROLS - A18BAC-1
- DAYTON - 2E206
- HONEYWELL - T631C1103A
- 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: POWER OPEN, SPRING RETURN, 115 V CONTROL VOLTAGE.
- DM-3: BARBER COLMAN - MA-405
- DM-4: HONEYWELL - M436A1116
- DM-5: PENNY CONTROLS - MB11ACB-1 AND 24 V TRANSFORMER
- D₁: DAMPERS (SEE AIR FLOW DIAGRAMS) LOW LEAK QUALITY SPECIFY END AND BLADE SEALS, FULL OPEN AND FULL CLOSED USE.
- D₂: AMERICAN WARMING AND VENTILATING - DAA-P-10
- D₃: LOUVER AND DAMPERS, INC. - CD-500
- D₄: DOBRIN ENGINEERING CORPORATION
- D₅: SOLAR CONTROL CORPORATION
- JOHNSON SERVICE CO. - D-1300
- SDT-1: DIFFERENTIAL THERMOSTAT AND SENSORS FOR WINTER SOLAR HEATING AND COOLING, RATED 1/2 HP 115 V.
- SDT-2: DIFFERENTIAL THERMOSTAT AND SENSORS FOR SUMMER NOCTURNAL COOLING OF ROCK STORAGE, SPECIFY 5 1/2" F THERM. ON DIFFERENTIAL AND 3 1/2" F THERM. OFF DIFFERENTIAL, RATED 1/2 HP
- SDT-3: DIFFERENTIAL THERMOSTAT AND SENSORS FOR DRY CLIMATE AREAS, 1 1/2 HP (OPTIONAL), PRIMARILY FOR DRY CLIMATE AREAS.)

SOLAR ENERGY RESEARCH CORPORATION

RHO SIGMA

DELCO LABS

SOLAR CONTROL CORPORATION

COLLECTION BLOWER - 115 V 60 CYCLE MULTI-OR TWO-SPEED, MORE EFFICIENT THAN SHADED POLE MOTORS, LOW SPEED 1/2 HP, HIGH SPEED 1 HP. WATER COLUMNS AT 100°F AIR TEMPERATURE SURFACE AT 3/8 INCHES WATER COLUMNS AT 100°F AIR TEMPERATURE SURFACE AT 3/8 INCHES WATER COLUMNS AT 110°F AIR TEMPERATURE SURFACE AT 3/8 INCHES WATER COLUMNS AT 110°F AIR TEMPERATURE.

SIMILAR TO DAYTON 4 C058

B-1: FURNACE BLOWER - 115 V 60 CYCLE, ONE CFM/FT² OF FLOOR AREA AT 1/2 INCHES WATER COLUMN AT 100°F AIR TEMPERATURE. SUGGEST PERMANENT SPLIT CAPACITOR MOTOR.

SW-1: HEAT-COOL SWITCH, DPDT RATED 1/2 HP AT 115 V.

SW-2: HEAT-COOL SWITCH, DPDT RATED 1/2 HP AT 115 V.

SW-3: SWITCH SPST, 24 V FOR CONTROL CIRCUIT.

R-1: SWITCH RELAY, 24 V COIL, RATED 1/2 HP AT 115 V.

TR-1: 24 V TRANSFORMER.

NOTE: MENTION OF PROPRIETARY ITEMS DOES NOT IMPLY ANY GUARANTEE OF 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 58° F WINTER AND 75° F WINTER AND 78° 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 CONTROLLED BY THE DISTRIBUTION CONTROL SYSTEM HEATING OR COOLING.

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. SDT-1 CONTROLS BLOWER B-2 DURING SOLAR HEAT CYCLE.

a. SENSOR S₁ IS LOCATED IN ATTIC NEAR RIDGE AND SHADED.

b. SENSOR S₂ IS LOCATED IN ROCK, ONE FOOT IN ON COOL SIDE. WHEN R₁ IS 15° F HOTTER THAN S₂, BLOWER STARTS AT LOW SPEED.

2. TWO-SPEED BLOWER THERMOSTAT T₃ IS SET AT 100° F FOR HIGH SPEED BLOWER OPERATION WITH S₃ ON DIFFERENTIAL.

3. SDT-2 CONTROLS BLOWER B-2 DURING SOLAR COOLING CYCLE.

a. SENSOR S₃ IS LOCATED WITHIN ATTIC INTAKE VENT; SENSOR S₄ IS LOCATED NEAR S₂ IN ROCK.

b. WHEN S₃ IS 7°F COOLER THAN S₄, COLLECTION BLOWER B-2 OPERATES AT HIGH SPEED.

3. BOTH DIFFERENTIAL THERMOSTATS SDT-1 AND SDT-2, AND HEAT-COOL SWITCH SW-1 & SW-2 AND FURNACE ARE LOCATED IN OR EXP. COOL TO THE COOLER ENVIRONMENT OF THE ATTIC SPACE.

MANUAL CHANGE-OVER FROM SOLAR HEATING TO COOLING

A. OPEN RIDGE VENT IN COLLECTOR SPACE, CLOSE OFF ATTIC TO BLOWER.

B. POSITION HEAT-COOL SWITCH SW-1 AND SW-2 TO COOL.

C. CHANGE BOTH HOUSE THERMOSTATS TO COOL.

D. OPEN ALL SOFFIT VENTS.