OEP CONTRACT NO. SW-ESA-12-2182-02

WEATHERIZATION LOW-INCOME ASSISTANCE AGREEMENT

BETWEEN

STATE OF ARIZONA
GOVERNOR'S OFFICE OF ENERGY POLICY

and

GILA COUNTY

THIS Weatherization Low-Income Assistance Contractual Agreement ("AGREEMENT") is made, by and between the **State of Arizona, Governor's Office of Energy Policy ("OEP")**, located at 1700 West Washington, Suite 220, Phoenix, Arizona 85007, and **Gila County, Office of Community Services ("Contractor")**, located at 5515 South Apache Avenue, Suite 200, Globe, Arizona 85501.

WHEREAS, A.R.S. § 41-101.01 and Executive Order 2011-02 authorizes OEP to execute and administer contracts.

WHEREAS, A.R.S. §11-201 authorizes the Gila County Government to execute and administer contracts.

WHEREAS, OEP desires to engage the Contractor to render certain services, hereinafter described, in connection with a Weatherization services work program funded by the Southwest Gas Corporation Low-Income Energy Conservation Program ("SWG") and passed through the OEP under the terms of the Memorandum of Understanding ("MOU") as amended, (Commerce Contract No. M082-07), effective July 1, 2007 for a period of (5) years until June 30, 2012.

In consideration of the representations and obligations hereunder, the OEP and Contractor agree as follows:

I. **PURPOSE OF THE AGREEMENT**

Contractor shall implement weatherization services under the terms of this AGREEMENT. The purpose of the Weatherization Assistance Program is to install energy efficiency measures in the homes of income eligible persons, especially homes occupied by the elderly, persons with disabilities, and children. Funds are targeted to the most cost-effective efficiency measures, determined from an on-site energy audit of the building.

II. **TERM OF CONTRACT**

This AGREEMENT shall become effective upon signature by both parties and continue through June 30, 2012, unless terminated, cancelled or extended as otherwise provided herein. Pre-award cost expenses are allowable beginning July 1, 2011 if the pre-award expenses are submitted with the Contractor's first monthly reimbursement request pursuant to the requirements listed in Section V, subsection C.

III. **CONTRACT TYPE**

Cost Reimbursement Sub-Grant.

IV. CONTRACT BUDGET

A. The total SWG budget for this AGREEMENT shall not exceed **$28,434.00.**

B. Contractor agrees that it will use the funds solely and strictly for the purposes outlined in the Scope of Work and in accordance with the attached Budget, Exhibit A, incorporated by reference.

V. SCOPE OF WORK

A. GENERAL REQUIREMENTS

Contractor shall implement weatherization services under the terms of this AGREEMENT in coordination with other federal, state and local weatherization related services or energy efficiency programs in order to preclude duplication of services generally and to optimize residential energy efficiency efforts within the Contractor's service delivery area.

B. SPECIFIC REQUIREMENTS

The Contractor shall perform the services under this AGREEMENT, in accordance with the then existing edition of the Program Requirements, incorporated herein by reference. The current edition is attached to this AGREEMENT as Exhibit B. Program Requirements may change and the Contractor will be notified by the OEP. Contractor shall perform the services in accordance with the then existing edition of the Program Requirements immediately upon notification by OEP or actual/constructive notice by any other means.

C. METHOD OF PAYMENT

1. Program expenses for this AGREEMENT are allowable beginning the effective date of this AGREEMENT.

2. All reimbursement of travel expenses shall be paid in accordance with the Contractor's travel policies, but shall not exceed the Domestic Per Diem rates allowed under the Federal Travel Management Policy, and the prevailing Federal standard mileage rates.

3. The OEP shall provide to Contractor master templates for the Payment Request Form and the Financial Report Form to use in requesting SWG funds during the term of the AGREEMENT.

4. The Contractor shall submit to the OEP no later than the twelfth (12^{th}) working day of the following month (excluding state observed holidays) a monthly Payment Request Form, a Financial Report Form showing monthly and cumulative expenditures by line item according to Exhibit A, and a list of database client job numbers of completed and submitted jobs entered on the Weatherization Program Database website for the report month. All documents must indicate the contract name and number.

5. Reimbursement

   a. Reimbursement requests shall be submitted to the OEP on a Payment Request Form a minimum of once a month for services performed and work completed to date. Include reporting month, dollar amount requested, original signature, and date. The *COMPLETED/SUBMITTED JOBS* check-box section of the

Payment Request Form must be marked with appropriate choice and if applicable, attach documentation:

- *Completed/Submitted Jobs listing attached* (Attach list)
- *Completed/Submitted Jobs listing sent via email to* ebillings@az.gov (Send list by email to Evelyn Billings)
- *No Completed/Submitted jobs this month* (No list is required)

b. Administration Line-item expense cannot be reimbursed unless Program Operations Expenses have been incurred. The total billed for the Administration Costs cannot exceed 10% of the total payment requested.

c. Reimbursement requests will be processed for payment upon determination that all reporting elements have met Weatherization contractual requirements. If reimbursement requests do not meet Weatherization contractual requirements, the OEP will provide a report listing areas out of compliance and remedies needed to bring the request into compliance.

D. REPORTS

1. Weatherization Program Database Website

a) For each dwelling unit completed, the Contractor shall input in the database the client information, house occupant information, and data on House Characteristics, Combustion Safety, Diagnostics and Work Performed to the fullest extent possible.

b) No later than the twelfth (12th) working day of the following month (excluding state observed holidays), each completed dwelling unit submitted for payment in the report month must have the job submitted as final on the website.

2. List of Client Jobs

a) A hard-copy client list, referencing the website client job numbers of completed jobs being requested for payment, must be submitted either by email to ebillings@az.gov or attached as a separate document to the Payment Request Form. As applicable, the appropriate check-box must be marked on the Payment Request Form utilizing the following choices:

- *Completed/Submitted Job listing attached*
- *Completed/Submitted Job listing sent via email to* ebillings@az.gov

b) If there are no dwelling units completed and submitted as final on the website for a billing month, the following box on the Payment Request Form should be checked:

- *No Completed/Submitted jobs this month*

3. Financial Report Form

a) The Financial Report shall show per line item current expenditures of the reporting period, and cumulative expenditures to date.

4. Monthly Detailed Expense Financial Reports
a) Detailed financial expense documentation reports generated by Contractor's accounting system that reflect Contractor's Weatherization budget expenses must be submitted monthly with a Payment Request for the purpose of fiscal desk-audit monitoring.

5. Report Submittal Requirements
a) The Payment Request Form and Financial Report Form shall be mailed to the OEP no later than the twelfth (12th) working day of the month on or before 5:00 P.M. taking into consideration any State holiday.

b) Payment Request Forms must be submitted even if there was no production or fiscal activity during the report month.

c) Final reports shall be submitted no later than July 26, 2012.

E. **SUBMITTAL ADDRESS**
All Payment Request Forms and Report Forms must be directed to:

Governor's Office of Energy Policy
1700 W. Washington, Suite 220
Phoenix, Arizona 85007

F. **SERVICE TERRITORY**
Gila County, excluding tribal organizations.

VI. REGULATION REQUIREMENTS

A. As applicable, Contractor must follow conditions set forth by the U. S. Department of Energy, 10 C.F.R. pt. 440, and the OEP, in conjunction with the Arizona Department of Economic Security.

B. The cost per dwelling unit for labor, materials and program support expenditures shall not exceed $3,000.00 using SWG program funds.

C. All measures must be determined to be eligible as cost-effective as set forth by the Weatherization Assistance Program.

D. Total expenditures on Health and Safety and Durability measures are subject to budget limitations.

VII. PROGRAM FINANCIAL ELIGIBILITY AND CERTIFICATION REQUIREMENTS

A. Eligible Population and Certification of Eligibility
Contractor is responsible to follow the current Arizona Department of Economic Security ("DES") LIHEAP Policy Manual requirements for income level of 150% of Federal Poverty Guidelines as it pertains to the Weatherization Program. Copies of the Policy Manual will be provided by DES.

B. Income Eligibility
1. Applicants are eligible whose income is 150% of the Federal Poverty Guidelines income

determined in accordance with criteria_established by the Office of the Secretary, U.S. Department of Health and Human Services.

2. Households including members who have received cash assistance payments under Temporary Assistance for Needy Families ("TANF") or Supplemental Security Income ('SSI"), are automatically eligible for Weatherization assistance.

C. Priority

Priority shall be given to identifying and providing weatherization assistance to the following households:

1. Elderly persons
2. Persons with disabilities
3. Families with children
4. High residential energy users and households with a high energy burden

VII. PROHIBITION AGAINST WEATHERIZATION SERVICES

Dwelling Units

1. Dwelling units which are vacant or which are designated for acquisition or clearance by a federal, state, or local program within twelve (12) months from the date of scheduled weatherization shall not be provided Weatherization services under this AGREEMENT.
2. Dwelling units which are known to be for sale as evidenced by "For Sale" signs on the property, realtor listing and offering or classified advertisement, shall not be provided Weatherization services under this AGREEMENT.

IX. PRIOR WRITTEN APPROVAL REQUIREMENTS

Prior Written Approval from the OEP is required on the following:

1. All purchases of program vehicles or equipment over $4,999.
2. All purchase lease or lease-purchase of vehicles or equipment.
3. Weatherization training, program sessions, or workshops not sponsored by the OEP or DOE, and charged to Weatherization.
4. Adjustments to line items in the AGREEMENT budget.
5. Purchase of extended warranties for installed items on client homes.
6. Weatherization of all rental properties of four (4) or more units.
7. Replacement or repair of items in a rental unit that are the responsibility of the landlord under A.R.S. § 33-1324.
8. Specific references to written approval requirements listed in the latest edition of the Program Requirements, attached as Exhibit B.
9. Services for new additions or residences in varying stages of new construction or remodeling, or for garage/carport conversions in progress. Low-Income Weatherization services are for existing residential buildings only.
10. Homes that have been weatherized after September 30, 1994 and reported to the OEP for contract credit.

X. ELIGIBILITY FOR STATE OR LOCAL PUBLIC BENEFITS; DOCUMENTATION AND VIOLATIONS

Contractors providing services as an agent the State, shall ensure compliance with A.R.S. §1-502. A.R.S. §1-502 requires each person applying or receiving a public benefit to provide documented proof which demonstrates a lawful presence in the United States. The State shall reserve the right to conduct unscheduled, periodic process and documentation audits to ensure contractor compliance. All available contract remedies, up to and including termination may be taken for failure to comply with A.R.S. §1-502 in the delivery of services under this AGREEMENT.

XI. HISTORIC PRESERVATION:

Prior to the expenditure of Federal funds to alter any structure or site, the Contractor is required to comply with the requirements of Section 106 of the National Historic Preservation Act (NHPA), consistent with DOE's 2009 letter of delegation of authority regarding the NHPA. Section 106 applies to historic properties that are listed in or eligible for listing in the National Register of Historic Places. In order to fulfill the requirements of Section 106, the OEP and the State Historic Preservation Officer ("SHPO") have developed a Statewide Programmatic Agreement ("PA"). As long as the contractor adheres to a scope of work in conformance with this executed PA, the contractor need not perform any further Section 106 review. The Statewide Programmatic Agreement is available at: http://www.azenergy.gov/HistoricPreservation.aspx. Additional information is also available at the U.S. Department of Energy website: http://www1.eere.energy.gov/wip/historic_preservation.html.

XII. INVENTORY

The Contractor shall maintain a current list of all non-expendable inventory equipment, with an individual cost of $500 and over, which has a useful life of more than a year, and is available for use in Weatherization. This list shall include:

1. Description of inventory item
2. Manufacturer's serial number, model number, national stock number, or other identification number, and agency's unique tag number, if applicable.
3. Acquisition date
4. Locations, use, and condition of inventory
5. Unit acquisition cost and funding source
6. Disposition data - date and method of disposal

Contractor shall update the Program Equipment Inventory list at the end of the program year. Inventory list shall include any inventory acquisition, disposition, and condition changes during the program. Upon request by the OEP, a copy of the Contractor's Program Equipment Inventory list shall be provided.

XIII. PROPERTY

All inventories acquired by funds provided through the OEP AGREEMENT become program property. Title to inventory acquired and defined under the AGREEMENT may vest upon expiration of the contract provided all terms and conditions of the contract have been met. This is pursuant to Office of Management and Budget ("OMB") Circular A-102, and 10 C.F.R. § 600.232(A) (1996).

The Contractor shall indicate Weatherization Program ownership, maintain reasonable control, and be responsible for the proper care and maintenance of all inventories acquired through an AGREEMENT with the OEP. Equipment and vehicles no longer required for program operation shall be reported to the OEP prior to disposition. When the AGREEMENT is terminated, the disposition of all inventory acquired with AGREEMENT funds shall be determined as follows:

A. The OEP may allow continued use of program inventory provided that a new AGREEMENT is executed and the inventory continues to be used as originally intended.

B. The OEP may sell inventory to the Contractor, at fair market value, if the Contractor wishes to utilize the inventory for purposes other than for which it was acquired. Fair market value will be determined by the OEP.

C. The OEP may take possession of the inventory.

XIV. CLIENT FILE REQUIREMENTS

A. Separate File

A separate file shall be maintained for each household receiving Weatherization assistance under the terms of this AGREEMENT. The client file shall be retained by the Contractor for a minimum of five years and be available for inspection by representatives of the OEP with reasonable advance notification.

B. Program Application Form

A copy of the signed application form must be retained in the client file. Applicants qualifying for Weatherization will be notified of program eligibility.

C. Fuel Information Release Form

A fuel information release form signed by the applicant to allow the Contractor or the OEP to obtain a utility history for all metered fuels purchased by the applicant household. Refusal to sign fuel information release does not affect weatherization services available to applicants. If fuel information release is not signed by applicant, do not list utility account number on the Weatherization Program Database Website. Applicants who are on a "master metered" system are not required to sign the fuel information release form.

D. Rental Properties

Rental properties may be weatherized under the terms of this AGREEMENT. **Prior written approval is required by the OEP for all rental properties of four (4) or more units.** Written permission to perform itemized services must be obtained from the owner of the rental unit or the owner's authorized agent. Said written permission is to be retained along with such other agreements between the Contractor and the rental owner/agent, as part of the job record and client job file.

1. The owner of the rental property or the owner's agent shall agree in writing prior to performing the work, with a stipulation that the rental charge of said dwelling will not be increased for a minimum period of one year from the date of completion of Weatherization services as a consequence of the Weatherization investment.
2. The landlord is required to maintain fit premises pursuant to A.R.S. § 33-1324 (A)(4). The Contractor must obtain written permission from the OEP prior to repairing or replacing any items in the rental property the landlord is required to maintain.

SPECIAL TERMS AND CONDITIONS

XV. SINGLE AUDIT:

In compliance with the Single Audit Act of 1984 (Pub L. No. 98-502, as amended by Pub. L. No. 104-156, which is codified at 31 U.S.C. 7501-7507), grant sub-recipients organizations expending $500,000 or more of Federal funds from all sources during the organization's fiscal year, must have an annual audit conducted in accordance with OMB Circular A-133.

If your organization is subject to the annual audit requirements, then submit two copies of your organization's most recently completed audit in accordance with OMB Circular A-133 and the Management Letter, Findings and Questioned Costs to the OEP.

If your organization is not subject to OMB Circular A-133, submit two copies of the most recently completed audit of financial statements, with the Management Letter, Findings and Questioned Costs to the OEP.

If your organization does not have a recently completed audit, submit the most recently prepared financial statements including a Balance Sheet, Income Statement, and Statement of Cash Flows along with a description of the source of the documents to the OEP.

XVI. MONITORING REQUIREMENTS:

Contractor acknowledges that requirements may change as governmental regulations change and assures that it will comply with applicable reporting and operational requirements related to the programmatic and financial performance of this grant.

XVII. AUDIT TRAILS:

Contractor shall maintain proper audit trails for all reports related to this AGREEMENT. The OEP reserves the right to review all program records, including fiscal and programmatic records.

XVIII. FUND MANAGEMENT:

The Contractor must maintain funds received under this AGREEMENT in separate ledger accounts and cannot mix these funds with other sources. Contractor must manage funds according to applicable federal regulations for administrative requirements, cost principles and audits.

The Contractor must maintain adequate business systems to comply with Federal requirements. The business systems that must be maintained are:

Financial Management
Procurement
Personnel
Property
Travel

A system is adequate if it is: 1) ***written***; 2) ***consistently followed*** – it applies in all similar circumstances; and 3) ***consistently applied*** – it applies to all sources of funds. The OEP reserves the right to review all business systems policies.

XIX. FISCAL RESPONSIBILITY

It is understood and agreed that the total amount of the funds used under this AGREEMENT shall be used for the project(s) outlined in this AGREEMENT. Therefore, should the project not be completed, be partially completed, or be completed at a lower cost than the original budget called for, the amount reimbursed to the Contractor shall be for only the amount of dollars actually spent by the Contractor. For any funds received under this AGREEMENT for which the expenditure is disallowed by an audit exception by the OEP, the State or Federal government, the Contractor shall reimburse said funds directly to the OEP immediately, but not later than fifteen (15) business days, exclusive of state holidays.

XX. INDEMNIFICATION:

Each party (as "Indemnitor") agrees to indemnify, defend, and hold harmless the other party (as "Indemnitee") from and against any and all claims, losses, liability, costs, or expenses (including reasonable attorney's fees) (hereinafter collectively referred to as "Claims") arising out of bodily injury of any person (including death) or property damage, but only to the extent that such Claims which result in vicarious/derivative liability to the Indemnitee are caused by the act, omission, negligence, misconduct, or other fault of the Indemnitor, its officers, officials, agents, employees, or volunteers.

In addition, the Contractor shall cause its contractor(s) and subcontractors, if any, to indemnify, defend, save and hold harmless the State of Arizona, any jurisdiction or agency issuing any permits for any work arising out of this AGREEMENT, and their respective directors, officers, officials, agents, and employees (hereinafter referred to as "Indemnitee") from and against any and all claims, actions, liabilities, damages, losses, or expenses (including court costs, attorneys' fees, and costs of claim processing, investigation and litigation) (hereinafter referred to as "Claims") for bodily injury or personal injury (including death), or loss or damage to tangible or intangible property caused, or alleged to be caused, in whole or in part, by the negligent or willful acts or omissions of the other governmental entity's contractor or any of the directors, officers, agents, or employees or subcontractors of such contractor. This indemnity includes any claim or amount arising out of or recovered under the Workers' Compensation Law or arising out of the failure of such contractor to conform to any federal, state or local law, statute, ordinance, rule, regulation or court decree. It is the specific intention of the parties that the Indemnitee shall, in all instances, except for Claims arising solely from the negligent or willful acts or omissions of the Indemnitee, be indemnified by such contractor from and against any and all claims. It is agreed that such contractor will be responsible for primary loss investigation, defense and judgment costs where this indemnification is applicable.

XXI. INSURANCE REQUIREMENTS

The Contractor and subcontractors shall procure and maintain until all of their obligations have been discharged, including any warranty periods under this AGREEMENT, are satisfied, insurance against claims for injury to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors.

The insurance requirements herein are minimum requirements for this AGREEMENT and in no way limit the indemnity covenants contained in this AGREEMENT. The State of Arizona in no way warrants that the minimum limits contained herein are sufficient to protect the Contractor from liabilities that might arise out of the performance of the work under this AGREEMENT by the Contractor, its agents, representatives, employees or subcontractors, and Contractor is free to purchase additional insurance.

A. MINIMUM SCOPE AND LIMITS OF INSURANCE

Contractor shall provide coverage with limits of liability not less than those stated below. Within ten (10) business days following notification of award, certificates of insurance must be submitted to the OEP, clearly stating the applicable contract number, effective date(s) of coverage, and limits of liability required pursuant to the AGREEMENT.

1. Commercial General Liability – Occurrence Form

Policy shall include bodily injury, property damage, personal injury and broad form contractual

liability coverage.

• General Aggregate	$2,000,000
• Products – Completed Operations Aggregate	$1,000,000
• Personal and Advertising Injury	$1,000,000
• Blanket Contractual Liability – Written and Oral	$1,000,000
• Fire Legal Liability	$ 50,000
• Each Occurrence	$1,000,000

a. The policy shall be endorsed to include the following additional insured language: ***"The State of Arizona, its departments, agencies, boards, commissions, universities and its officers, officials, agents, and employees shall be named as additional insureds with respect to liability arising out of the activities performed by or on behalf of the Contractor".***

b. Policy shall contain a waiver of subrogation against the State of Arizona, its departments, agencies, boards, commissions, universities and its officers, officials, agents, and employees for losses arising from work performed by or on behalf of the Contractor.

2. Business Automobile Liability

Bodily Injury and Property Damage for any owned, hired, and/or non-owned vehicles used in the performance of this AGREEMENT.

Combined Single Limit (CSL)	$1,000,000

a. The policy shall be endorsed to include the following additional insured language: ***"The State of Arizona, its departments, agencies, boards, commissions, universities and its officers, officials, agents, and employees shall be named as additional insureds with respect to liability arising out of the activities performed by or on behalf of the Contractor, involving automobiles owned, leased, hired or borrowed by the Contractor".***

b. Policy shall contain a waiver of subrogation against the State of Arizona, its departments, agencies, boards, commissions, universities and its officers, officials, agents, and employees for losses arising from work performed by or on behalf of the Contractor.

3. Worker's Compensation and Employers' Liability

Worker's Compensation	Statutory
Employer's Liability	
Each Accident	$ 500,000
Disease – Each Employee	$ 500,000
Disease – Policy Limit	$1,000,000

a. Policy shall contain a waiver of subrogation against the State of Arizona, its departments, agencies, boards, commissions, universities and its officers, officials, agents, and employees for losses arising from work performed by or on behalf of the Contractor.

b. This requirement shall not apply to: Separately, EACH CONTRACTOR or subcontractor exempt under A.R.S. §23-901, AND when such CONTRACTOR or subcontractor executes the appropriate waiver (Sole Proprietor/Independent Contractor) form.

4. Professional Liability (Errors and Omissions Liability)

Each Claim	$1,000,000
Annual Aggregate	$2,000,000

a. In the event that the professional liability insurance required by this AGREEMENT is written on a claims-made basis, Contractor warrants that any retroactive date under the policy shall precede the effective date of this AGREEMENT; and that either continuous coverage will be maintained or an extended discovery period will be exercised for a period of two (2) years beginning at the time work under this AGREEMENT is completed.
b. The policy shall cover professional misconduct or lack of ordinary skill for those positions defined in the Scope of Work of this AGREEMENT.

B. ADDITIONAL INSURANCE REQUIREMENTS

The policies shall include, or be endorsed to include, the following provisions:

1. The State of Arizona, its departments, agencies, boards, commissions, universities and its officers, officials, agents, and employees wherever additional insured status is required. Such additional insured shall be covered to the full limits of liability purchased by the Contractor, even if those limits of liability are in excess of those required by this AGREEMENT.
2. The Contractor's insurance coverage shall be primary insurance with respect to all other available sources.
3. Coverage provided by the Contractor shall not be limited to the liability assumed under the indemnification provisions of this AGREEMENT.

C. NOTICE OF CANCELLATION

With the exception of ten (10) day notice of cancellation for non-payment of premium, any changes material to compliance with this AGREEMENT in the insurance policies above shall require thirty (30) days written notice to the State of Arizona. Each insurance policy required by the insurance provisions of this AGREEMENT shall provide the required coverage and shall not be suspended, voided, canceled, or reduced in coverage or in limits. Such notice shall be sent directly to The Governor's Office of Energy Policy, Evelyn Billings, Grants Administrator 1700 West Washington, Suite 220, Phoenix, AZ 85007 and shall be sent by certified mail, return receipt requested.

D. ACCEPTABILITY OF INSURERS

Insurance is to be placed with duly licensed or approved non-admitted insurers in the state of Arizona with an "A.M. Best" rating of not less than A- VII. The State of Arizona in no way warrants that the above-required minimum insurer rating is sufficient to protect the Contractor from potential insurer insolvency.

E. VERIFICATION OF COVERAGE

Contractor shall furnish the State of Arizona with certificates of insurance (ACORD form or equivalent approved by the State of Arizona) as required by this AGREEMENT. The certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf.

All certificates and endorsements are to be received and approved by the State of Arizona before work commences. Each insurance policy required by this AGREEMENT must be in effect at or prior to commencement of work under this AGREEMENT and remain in effect for the duration of the project. Failure to maintain the insurance policies as required by this AGREEMENT, or to provide evidence of renewal, is a material breach of contract.

All certificates required by this AGREEMENT shall be sent directly to Evelyn Billings, Grants Administrator, the Governor's Office of Energy Policy, 1700 W. Washington, Suite 220, Phoenix, AZ 85007. The State of Arizona project/contract number and project description shall be noted on the certificate of insurance. The State of Arizona reserves the right to require complete, certified copies of all insurance policies required by this AGREEMENT at any time. DO NOT SEND CERTIFICATES OF INSURANCE TO THE STATE OF ARIZONA'S RISK MANAGEMENT DIVISION.

F. SUBCONTRACTORS

Contractor's certificate(s) shall include all subcontractors as insureds under its policies or Contractor shall furnish to the State of Arizona separate certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to the minimum requirements identified above.

G. APPROVAL

Any modification or variation from the insurance requirements in this AGREEMENT shall be made by the Department of Administration, Risk Management Division, whose decision shall be final. Such action will not require a formal AGREEMENT amendment, but may be made by administrative action.

H. EXCEPTIONS

In the event the Contractor or subcontractor(s) is/are a public entity, then the Insurance Requirements shall not apply. Such public entity shall provide a Certificate of Self-Insurance. If the Contractor or subcontractor(s) is/are a State of Arizona agency, board, commission, or university, none of the above shall apply.

XXI. POLLUTION OCCURRENCE INSURANCE

If working with pollutants or any remediation exposures are part of the project then Pollution Occurrence Insurance ("POI") shall be added as a part of, or an addendum to, general liability insurance by Contractor and all subcontractors. If Contractor or subcontractors do NOT obtain POI coverage and damage occurs because of not following all aspects of Lead Safe Weatherization, or there is disturbance to any other environmental pollutants, the cost to do

remediation, clean up, relocation, medical expenses or any other resulting costs may not be charged to DOE Weatherization and must be covered by another funding mechanism.

XXIII. AMENDMENTS OR MODIFICATIONS

A. This AGREEMENT may be modified only through a written Amendment within the scope of the AGREEMENT, except as provided in (B) and (C) of this section. Changes to the AGREEMENT, including the addition of work or materials, the revision of payment terms, or the substitution of work or materials, directed by a person who is not specifically authorized by OEP in writing or made unilaterally by the Contractor are violations of the AGREEMENT and of applicable law. Such changes, including unauthorized written Amendments shall be void and without effect, and the Contractor shall not be entitled to any claim under this AGREEMENT based on those changes.

B. Either party shall give written notice to the other party of the following alterations that do not require a written amendment:

1. Change of Address
2. Change of telephone number
3. Change in authorized signatory
4. Change in the name and/or related contact information of the person to whom notices are to be sent.

C. Without limit, Administration Costs and Health and Safety funds may be moved to Program Operations as long the Budget Total is not exceeded as listed in Exhibit A - Budget. Any change shall be made in consultation with and approved in writing by the OEP Weatherization Program Manager but shall not require a formal contract amendment.

XXIV. SUBCONTRACTORS

The Contractor understands and agrees that no subcontract that the Contractor enters into shall in any way relieve the Contractor of any responsibility for performance of duties. Notwithstanding anything to the contrary contained in this AGREEMENT, the Contractor is not an employee or agent of the OEP. In the event the Contractor elects to retain a subcontractor, the Contractor hereby agrees to hold harmless, indemnify and defend the OEP, the State of Arizona, their officers, agents, employees, successors and assigns for any payment, loss, claim or liability including but not limited to, attorney fees associated with any subcontract entered into by the Contractor.

XXV. LOBBYING

The Contractor shall not pay for, influence, or seek to influence any officer or employee of the State of Arizona or the federal government if that action may have an impact, of any nature, on this AGREEMENT.

XXVI. APPLICABLE LAW

All parties to this AGREEMENT shall comply with all applicable federal, state and local laws.

XXVII. **LICENSES**

Contractor shall maintain in current status all federal, state and local licenses and permits required for the operation of the business conducted by the Contractor.

XXVIII. **NON-AVAILABILITY OF FUNDS**

In accordance with A.R.S. §35-154, every payment obligation of the State under the AGREEMENT is conditioned upon the availability of funds appropriated or allocated for payment of such obligation. If funds are not allocated and available for the continuance of this AGREEMENT, this AGREEMENT may be terminated by the State at the end of the period for which funds are available. No liability shall accrue to the State in the event this provision is exercised, and the State shall not be obligated or liable for any future payments or for any damages as a result of termination under this paragraph, including purchases and/or contracts entered into by the Contractor in support of this AGREEMENT.

Funds are not presently available for performance under this AGREEMENT beyond the current fiscal year. No legal liability on the part of the OEP for any payment may arise for performance under this AGREEMENT beyond the current fiscal year until funds are made available for performance of this AGREEMENT.

XXIX. **ARBITRATION**

In accordance with A.R.S. §12-1518, the parties agree to resolve all disputes arising out of or relating to this AGREEMENT through arbitration, after exhausting applicable administrative review except as may be required by other applicable statutes.

XXX. **INVALIDITY OF PART OF THIS AGREEMENT**

The parties agree that should any part of this AGREEMENT be held to be invalid or void, the remainder of the AGREEMENT shall remain in full force and effect and shall be binding upon the parties.

XXXI. **CANCELLATION FOR CONFLICT OF INTEREST**

Pursuant to A.R.S. § 38-511, the state, its political subdivisions or any department or agency of either may, within three years after its execution, cancel any AGREEMENT, without penalty or further obligation, made by the state, its political subdivisions, or any of the departments or agencies of either if any person significantly involved in initiating, negotiating, securing, drafting or creating the AGREEMENT on behalf of the state, its political subdivisions or any of the departments or agencies of either is, at any time while the AGREEMENT or any extension of the AGREEMENT is in effect, an employee or agent of any other party to the AGREEMENT in any capacity or a consultant to any other party of the AGREEMENT with respect to the subject matter of the AGREEMENT. A cancellation made pursuant to this provision shall be effective when the Contractor receives written notice of cancellation unless the notice specifies a later time.

XXXII. **AUDIT OF RECORDS**

Pursuant to A.R.S. §§ 35-214 and 35-215, the Contractor shall retain and shall contractually require each subcontractor to retain all data, books, and other records ("records") relating to this AGREEMENT for a period of five years after completion of the AGREEMENT. All records shall be subject to inspection and audit by the State at reasonable times. Upon request, the Contractor shall produce the original of any or all such records. The Contractor shall require all subcontractors to abide by this provision during the term of the AGREEMENT.

XXXIII. **SUSPENSION OR DEBARMENT CERTIFICATION:**
By signing the AGREEMENT, the Contractor certifies that the firm, business or person acting as a subcontractor submitting the bid or offer has not been debarred, suspended or otherwise lawfully been precluded from participating in any public procurement activity with any federal, state or local government. Signing the AGREEMENT without disclosing all pertinent information about a debarment or suspension shall result in rejection of the AGREEMENT or cancellation of the AGREEMENT. The OEP may exercise any other remedy available by law.

XXXIV. **TERMINATION:**
The OEP reserves the right to terminate the AGREEMENT at any time, in whole or in part at any time when in the best interest of the State, without penalty or recourse. Upon receipt of the written notice, the Contractor shall stop all work, as directed in the notice, notify all subcontractors of the effective date of the termination and minimize all further costs to the State. In the event of termination pursuant to this paragraph, all documents, data, and reports prepared by the Contractor under the AGREEMENT shall become the property of and be delivered to the State upon demand. The Contractor shall be entitled to receive just and equitable compensation for work in progress, work completed and materials accepted before the effective date of termination. The cost principles and procedures provided in A.A.C. R2-7-701 shall apply.

XXXV. **NON-DISCRIMINATION**
The Contractor shall comply with State Executive Order No. 2009-09 and all other applicable Federal and State laws, rules and regulations, including the Americans with Disabilities Act. The Contractor shall require all subcontractors to abide by this provision during the term of the AGREEMENT.

XXXVI. **THIRD PARTY ANTITRUST VIOLATIONS**
The Contractor assigns to the OEP any claim for overcharges resulting from antitrust violations to the extent that such violations concern materials or services supplied by third parties to the Contractor toward fulfillment of this AGREEMENT.

XXXVII. **PROGRAM REVIEW AND SITE VISITS**
The OEP has the right to make site visits at reasonable intervals for purposes of review of project accomplishments and management control systems and to provide technical assistance, if required. Contractor will provide reasonable access to facilities, office space, resources, and assistance for the safety and convenience to the OEP representatives in the performance of their duties. All site visits and evaluations must be performed in a manner that does not unduly interfere with or delay the work.

XXXVIII. **RIGHTS IN DATA**
The OEP may duplicate, use, and disclose in any manner and for any purpose whatsoever, within the limits established by Federal and State laws and regulations, all information relating to this AGREEMENT.

XXXIX. **HEALTH & SAFETY**
The nature of the work to be performed under this AGREEMENT is inherently hazardous. In performance of work under this AGREEMENT, the Contractor shall satisfy all federal, state, and local statutes, regulations, ordinances, etc., regarding health and safety.

XL. **OCCUPATIONAL SAFETY AND HEALTH ACT ("OSHA") GUIDELINES**

The Contractor or Subcontractor conducting activities to fulfill the requirements of the Weatherization Low-Income Assistance project must be in compliance with the requirements and shall operate with the guidelines set forth by OSHA (Pub. L. No. 91-596, which is codified at 29 U.S.C. 651-678).

XLI. **ENTIRE AGREEMENT**

This AGREEMENT, including exhibits, attachments, and modifications approved in accordance herewith, shall constitute the entire AGREEMENT between the parties and supersede all understandings, oral or written.

XLII. **OFFSHORE PERFORMANCE OF WORK PROHIBITED**

Any services that are described in the specifications or scope of work that directly serve the State of Arizona or its clients and involve access to secure or sensitive data or personal client data shall be performed within the defined territories of the United States. Unless specifically stated otherwise in the specifications, this paragraph does not apply to indirect or "overhead" services, redundant back-up services or services that are incidental to the performance of the AGREEMENT. This provision applies to work performed by subcontractors at all tiers. The Contractor shall require all subcontractors to abide by this provision during the term of the AGREEMENT. Contractor shall declare all anticipated offshore services to the OEP.

XLIII. **FEDERAL IMMIGRATION AND NATIONALITY ACT**

The Contractor shall comply with all federal, state and local immigration laws and regulations relating to the immigration status of their employees during the term of the AGREEMENT. The State shall retain the right to perform random audits of the Contractor and subcontractor records or to inspect papers of any employee thereof to ensure compliance. Should the State determine that the Contractor and/or any subcontractors be found noncompliant, the State may pursue all remedies allowed by law, including, but not limited to: suspension of work, termination of the AGREEMENT for default and suspension and/or debarment of the Contractor. The Contractor shall require all subcontractors to abide by this provision during the term of the AGREEMENT.

XLIV. **E-VERIFY REQUIREMENT**

The contractor warrants compliance with all Federal immigration laws and regulations relating to employees and warrants its compliance with Section A.R.S. § 23-214, Subsection A. (That subsection reads: "After December 31, 2007, every employer, after hiring an employee, shall verify the employment eligibility of the employee through the E-Verify program.) A breach of a warranty regarding compliance with immigration laws and regulations shall be deemed a material breach of the AGREEMENT and the contractor may be subject to penalties up to and including termination of the AGREEMENT. Failure to comply with a State audit process to randomly verify the employment records of contractors and subcontractors shall be deemed a material breach of the AGREEMENT and the contractor may be subject to penalties up to and including termination of the AGREEMENT. OEP retains the legal right to inspect the papers of any employee who works on the AGREEMENT to ensure that the contractor or subcontractor is complying with the warranty. The Contractor shall require all subcontractors to abide by this provision during the term of the AGREEMENT.

Questions about E-Verify see website below:
http://www.uscis.gov/portal/site/uscis/menuitem.eb1d4c2a3e5b9ac89243c6a7543f6d1a/?vgnextoid=6a0988e60a405110VgnVCM1000004718190aRCRD&vgnextchannel=6a0988e60a405110VgnVCM1000004718190aRCRD

XLV. SCRUTINIZED BUSINESSES

In accordance with A.R.S. §35-391 and A.R.S. §35-393, Contractor certifies that the Contractor does not have scrutinized business operations in Sudan or Iran. The Contractor shall require all subcontractors to abide by this provision during the term of the AGREEMENT.

XLVI. ATTORNEY FEES

In any litigation arising out of this AGREEMENT, each party shall bear all of its own attorneys' fees in the case.

XLVII. NOTICES

All notices, demands, and communications provided for herein or made hereunder shall be delivered, or sent by certified mail, return receipt requested, addressed in each case as follows, until some other address shall have been designated in a written notice to the other party hereto given in like manner:

If to CONTRACTOR:
Gila County
Office of Community Services
5515 South Apache Avenue, Suite 200
Globe, AZ 85501

Contractual/Financial Contact
Malissa Buzan
Housing Services Manager
PHONE 928-402-8693
FAX 928-425-9468
EMAIL mbuzan@co.gila.az.us

Program/Technical Contact
Malissa Buzan
Housing Services Manager
PHONE 928-402-8693
FAX 928-425-9468
EMAIL mbuzan@co.gila.az.us

If to the OEP:
The Governor's Office of Energy Policy
1700 W. Washington, Suite 220
Phoenix, AZ 85007

Contractual/Financial Contact
Evelyn Billings
Grants Administrator
PHONE 602-771-1141
FAX 602-771-1203
EMAIL ebillings@az.gov

Program/Technical Contact
OEP Assigned Auditor

Each notice shall be deemed to have been given or made when so delivered or mailed. Notification of change shall be delivered to the OEP and Contractor within ten (10) days of any change affecting this provision.

IN WITNESS WHEREFORE, the parties hereto have executed this AGREEMENT.

STATE OF ARIZONA
GOVERNOR'S OFFICE OF ENERGY POLICY

By _____ Date: 9/7/11
Leisa B. Brug
Director
Or Authorized Signatory

_____ Date: 9/8/11
Travis Price
Compliance, Finance & Procurement Manager
Office of the Governor

GILA COUNTY

_____ Date: _____
Board of Supervisors
Chairman

Tommie C. Martin
Printed name

Chief Deputy County Attorney

_____
Signature Date

Bryan B. Chambers
Printed name

Exhibit A - Budget	
GILA COUNTY	
SWG Weatherization Program Budget	
OEP Contract Number SW-ESA-12-2182-02	**SWG TOTAL BUDGET**
Contract to 6-30-2012	
1. Administration Costs	$2,843.00
2. Program Operations	$19,193.25
3. Health and Safety	$6,397.75
Budget Total	**$28,434.00**

EXHIBIT B

WEATHERIZATION

PROGRAM REQUIREMENTS

JULY 1, 2009
EDITION

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INSTALLATION MEASURES

All materials/measures installed shall be justified utilizing the Energy Audit Procedures established by the Governor's Office of Energy Policy(OEP).

ENERGY AUDIT PROCEDURE

The Weatherization Assistance Program (WAP) Energy Audit Procedure is to be used by all sub-grantees to gather record and analyze data on structures. This data is to be used to deliver weatherization materials/measures in a fashion that protects the health and safety of the client, increases the durability of the structure, increases the comfort of the client and reduces the energy cost to the client in a cost effective manner.

The following audit activities must be completed on all homes utilizing WAP funds.

- A site audit is to be completed that records all of the relevant data on the structure that is needed to perform cost effectiveness tests.
- The Cost Effectiveness Procedure must be followed to determine cost effectiveness of potential weatherization materials/measures.
- The Pressure Diagnostic Procedure must be completed and the findings documented following the Reporting procedures.
- A health and safety audit of the structures must be completed and the findings documented following the Reporting procedures.
- A final inspection of the structure must be completed and findings documented following the Final Inspection Procedures.

COST EFFECTIVENESS PROCEDURE

WAP has incorporated a performance-based energy audit procedure that focuses on optimizing investment in energy efficiency through a systems approach. To enable the WAP program to optimize the investment in energy efficiency, the following requirements have been established for the audit procedure:

- The energy audit procedure must determine that each weatherization material/measure is cost effective by ensuring the discounted savings-to-investment ratio (SIR) is greater or equal to one.
- The energy audit procedure must assign priorities among weatherization materials/measures in descending order of SIR and must account for interactions between architectural and mechanical measures.
- The energy audit procedure must ensure that the overall SIR for the entire package of materials/measures, including the cost of incidental repairs, is greater or equal to one. Incidental repairs are only allowed if they are necessary to make the installation of weatherization materials effective.
- Funds spent to abate energy related health and safety hazards do not need to be included in the preceding requirements. Funds can be spent to eliminate health and safety hazards when the elimination of the hazard is necessary before or because of the installation of weatherization materials.
- Written authorization must be received from the OEP before the installation of measures/materials that do not meet the Cost Effectiveness or Health and Safety Requirements established by the WAP program.

To determine the cost effectiveness of weatherization materials/measures, the contractor must use a computer audit approved by the OEP or an appropriate priority list for homes that meet the criteria contained in the list.

CLIMATE ZONES
Arizona Climate Zones used for the Cost Effective Priority Lists can be found at http://www.azenergy.gov

FUEL SWITCHING
The Weatherization Assistance Program does not permit the general practice of fuel switching when replacing heating, cooling or water heating equipment. The changing or converting equipment using one fuel source to another will be considered on a limited case-by-case basis only.

Written authorization must be received from the OEP prior to changing or converting equipment using one fuel source to another.

COST EFFECTIVENESS PRIORITY LIST FOR DETACHED HOUSING

CLIMATE ZONE 1

The priority list can be used to determine cost effective weatherization materials/measures for homes located in Climate Zone 1 (see Climate Zone map).

A computer audit is required if:

- There are potential cost-effective energy upgrades to the house that are not listed on the priority list or the General Waste Heat Items list.
- There are not sufficient funds to complete all the measures; including energy related health and safety measures and other energy related repairs.
- Energy related incidental repairs of more than $100 are included with the energy upgrades.

Homes with Fossil Fuel Heating

- Existing ceiling insulation of R-19 or less upgraded to R-38.
- Un-insulated frame walls upgraded with blown insulation.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Forced air furnace with a standing pilot light upgraded to a 90+ AFUE furnace.
- Water heater wrap (where allowed).

Homes Electric Heating (Heat Pump or Electric Resistance)

- Existing ceiling insulation of R-19 or less upgraded to R-38.
- Un-insulated frame walls upgraded with blown insulation.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Water heater wrap (where allowed).

In cases where there are potential cost effective energy upgrades not listed, incidental repairs of more than $100, or sufficient funds are not available to complete **all** (energy, health and safety and energy related repairs) possible upgrades, a computerized audit must be completed to develop a ranking of the energy upgrades, based on their SIR. Only those measures with a SIR of one or greater can be completed. If sufficient funds are not available to complete all possible upgrades, those upgrades with the highest SIR must be completed first.

COST EFFECTIVENESS PRIORITY LIST FOR DETACHED HOUSING

CLIMATE ZONE 2

The priority list can be used to determine cost effective weatherization materials/measures for homes located in Climate Zone 2 (see Climate Zone map).

A computer audit is required if:

- There are potential cost-effective energy upgrades to the house that are not listed on the priority list or the General Waste Heat Items list.
- There are not sufficient funds to complete all the measures; including energy related health and safety measures and other energy related repairs.
- Energy related incidental repairs of more than $100 are included with the energy upgrades.

Homes with Refrigeration Cooling

- Existing ceiling insulation of R-19 or less upgraded to R-30.
- Un-insulated frame walls upgrade with blown insulation.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Air Conditioners twenty years old or older upgraded with a minimum 13 SEER unit.
- Shade screens on all sun struck south, east and west windows and glass doors.
- Water heater wrap (where allowed).

Homes with Evaporative Cooling

- Existing ceiling insulation of R-11 or less upgraded to R-30.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Upgrade of evaporative cooler motor with higher efficiency two-speed motor.
- Water heater wrap (where allowed).

In cases where there are potential cost effective energy upgrades not listed, incidental repairs of more than $100 or sufficient funds are not available to complete **all** (energy, health and safety and energy related repairs) possible upgrades, a computerized audit must be completed to develop a ranking of the energy upgrades, based on their SIR. Only those measures with a SIR of one or greater can be completed. If sufficient funds are not available to complete all possible upgrades, those upgrades with the highest SIR must be completed first.

COST EFFECTIVENESS PRIORITY LIST FOR DETACHED HOUSING

CLIMATE ZONE 3

The priority list can be used to determine cost effective weatherization materials/measures for homes located in Climate Zone 3 (see Climate Zone map).

A computer audit is required if:

- There are potential cost-effective energy upgrades to the house that are not listed on the priority list or the General Waste Heat Items list.
- There are not sufficient funds to complete all the measures; including energy related health and safety measures and other energy related repairs.
- Energy related incidental repairs of more than $100 are included with the energy upgrades.

Home with Fossil Fuel Heating

- Existing ceiling insulation of R-19or less upgraded to R-38.
- Un-insulated frame walls upgraded with blown insulation.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Forced air furnace with a standing pilot light upgraded to a 90+ AFUE furnace.
- Water heater wrap (where allowed).

Homes Electric Heating (Heat Pump or Electric Resistance)

- Existing ceiling insulation of R-19 or less upgraded to R-38.
- Un-insulated frame walls upgraded with blown insulation.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Water heater wrap (where allowed).

In cases where there are potential cost effective energy upgrades not listed, incidental repairs of more than $100, or sufficient funds are not available to complete **all** (energy, health and safety and energy related repairs) possible upgrades, a computerized audit must be completed to develop a ranking of the energy upgrades, based on their SIR. Only those measures with a SIR of one or greater can be completed. If sufficient funds are not available to complete all possible upgrades, those upgrades with the highest SIR must be completed first.

COST EFFECTIVENESS PRIORITY LIST FOR DETACHED HOUSING

CLIMATE ZONE 4

The priority list can be used to determine cost effective weatherization materials/measures for homes located in Climate Zone 4 (see Climate Zone map).

A computer audit is required if:

- There are potential cost-effective energy upgrades to the house that are not listed on the priority list or the General Waste Heat Items list.
- There are not sufficient funds to complete all the measures; including energy related health and safety measures and other energy related repairs.
- Energy related incidental repairs of more than $100 are included with the energy upgrades.

Homes with Refrigeration Cooling

- Existing ceiling insulation of R-19 or less upgraded to R-30.
- Un-insulated frame walls upgraded with blown insulation.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Air Conditioners twenty years old or older upgraded with a minimum 13 SEER unit.
- Shade screens on all sun struck south, east and west windows and glass doors.
- Water heater wrap (where allowed).

Homes with Evaporative Cooling

- Existing ceiling insulation of R-11 or less upgraded to R-30.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Upgrade of evaporative cooler motor with higher efficiency two-speed motor.
- Water heater wrap (where allowed).

Homes with Inoperable Forced Air Fossil Fuel Furnace

- Upgraded to a 90+ AFUE furnace.

In cases where there are potential cost effective energy upgrades not listed, incidental repairs of more than $100, or sufficient funds are not available to complete **all** (energy, health and safety and energy related repairs) possible upgrades, a computerized audit must be completed to develop a ranking of the energy upgrades, based on their SIR. Only those measures with a SIR of one or greater can be completed. If sufficient funds are not available to complete all possible upgrades, those upgrades with the highest SIR must be completed first.

COST EFFECTIVENESS PRIORITY LIST FOR DETACHED HOUSING

CLIMATE ZONE 5

The priority list can be used to determine cost effective weatherization materials/measures for homes located in Climate Zone 5 (see Climate Zone map).

A computer audit is required if:

- There are potential cost-effective energy upgrades to the house that are not listed on the priority list or the General Waste Heat Items list.
- There are not sufficient funds to complete all the measures; including energy related health and safety measures and other energy related repairs.
- Energy related incidental repairs of more than $100 are included with the energy upgrades.

Homes with Fossil Fuel Heating

- Existing ceiling insulation of R-19 or less upgraded to R-38.
- Un-insulated frame walls upgraded with blown insulation.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Forced air furnace with a standing pilot light upgraded to a 90+ AFUE furnace.
- Water heater wrap (where allowed).

Homes with Electric Heating (Heat Pump or Electric Resistance)

- Existing ceiling insulation of R-19 or less upgraded to R-38.
- Un-insulated frame walls upgraded with blown insulation.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Water heater wrap (where allowed).

In cases where there are potential cost effective energy upgrades not listed, incidental repairs of more than $100, or sufficient funds are not available to complete **all** (energy, health and safety and energy related repairs) possible upgrades, a computerized audit must be completed to develop a ranking of the energy upgrades, based on their SIR. Only those measures with a SIR of one or greater can be completed. If sufficient funds are not available to complete all possible upgrades, those upgrades with the highest SIR must be completed first.

COST EFFECTIVENESS PRIORITY LIST FOR DETACHED HOUSING

CLIMATE ZONE 6

The priority list can be used to determine cost effective weatherization materials/measures for homes located in Climate Zone 6 (see Climate Zone map).

A computer audit is required if:

- There are potential cost-effective energy upgrades to the house that are not listed on the priority list or the General Waste Heat Items list.
- There are not sufficient funds to complete all the measures; including energy related health and safety measures and other energy related repairs.
- Energy related incidental repairs of more than $100 are included with the energy upgrades.

Homes with Refrigeration Cooling

- Existing ceiling insulation of R-19 or less upgraded to R-30.
- Un-insulated frame walls upgraded with blown insulation.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Air Conditioners twenty years old or older upgraded with a minimum 13 SEER unit.
- Shade screens on all sun struck south, east and west windows and glass doors.
- Water heater wrap (where allowed).

Homes with Evaporative Cooling

- Existing ceiling insulation of R-11 or less upgraded to R-30.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Upgrade of evaporative cooler motor with higher efficiency two-speed motor.
- Water heater wrap (where allowed).

In cases where there are potential cost effective energy upgrades not listed, incidental repairs of more than $100, or sufficient funds are not available to complete **all** (energy, health and safety and energy related repairs) possible upgrades, a computerized audit must be completed to develop a ranking of the energy upgrades, based on their SIR. Only those measures with a SIR of one or greater can be completed. If sufficient funds are not available to complete all possible upgrades, those upgrades with the highest SIR must be completed first.

COST EFFECTIVENESS PRIORITY LIST FOR MOBILE HOMES

CLIMATE ZONE 1

The priority list can be use to determine cost effective weatherization materials/measures for mobile homes located in Climate Zone 1 (see Climate Zone map).

A computer audit is required if:

- There are potential cost-effective energy upgrades to the house that are not listed on the priority list or the General Waste Heat Items list.
- There are not sufficient funds to complete all the measures; including energy related health and safety measures and other energy related repairs.
- Energy related incidental repairs of more than $100 are included with the energy upgrades.

Priority list for Mobile Homes with Fossil Fuel Heating

- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Jalousie windows retrofit (installed cost of under $28 per square foot).
- Upgrade of evaporative cooler motor with higher efficiency two-speed motor.
- Water heater wrap (where allowed).

Priority list for Mobile Homes with Electric Resistance Heating

- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Jalousie windows retrofit (installed cost of under $32 per square foot).
- Upgrade of evaporative cooler motor with higher efficiency two-speed motor.
- Water heater wrap (where allowed).

In cases where there are potential cost effective energy upgrades not listed, incidental repairs of more than $100, or sufficient funds are not available to complete **all** (energy, health and safety and energy related repairs) possible upgrades, a computerized audit must be completed to develop a ranking of the energy upgrades, based on their SIR. Only those measures with a SIR of one or greater can be completed. If sufficient funds are not available to complete all possible upgrades, those upgrades with the highest SIR must be completed first.

COST EFFECTIVENESS PRIORITY LIST FOR MOBILE HOMES

CLIMATE ZONE 2

The priority list can be use to determine cost effective weatherization materials/measures for mobile homes located in Climate Zone 2 (see Climate Zone map).

A computer audit is required if:

- There are potential cost-effective energy upgrades to the house that are not listed on the priority list or the General Waste Heat Items list.
- There are not sufficient funds to complete all the measures; including energy related health and safety measures and other energy related repairs.
- Energy related incidental repairs of more than $100 are included with the energy upgrades.

Mobile Homes with Refrigeration Cooling

- Reflective roof coating.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Air Conditioners twenty years old or older upgraded with a minimum 13 SEER unit.
- Jalousie windows retrofit (installed cost of under $9 per square foot).
- Shade screens on all sun struck south, east and west windows and glass doors.
- Water heater wrap (where allowed).

Mobile Homes with Evaporative Cooling and Electric Resistance Heating

- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Jalousie windows retrofit (installed cost of under $8 per square foot).
- Upgrade of evaporative cooler motor with higher efficiency two-speed motor.
- Water heater wrap (where allowed).

Mobile Homes with Evaporative Cooling and Fossil Fuel Heating

- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Upgrade of evaporative cooler motor with higher efficiency two-speed motor.
- Jalousie windows retrofit (installed cost of under $6 per square foot).
- Water heater wrap (where allowed).

In cases where there are potential cost effective energy upgrades not listed, incidental repairs of more than $100, or sufficient funds are not available to complete **all** (energy, health and safety and energy related repairs) possible upgrades, a computerized audit must be completed to develop a ranking of the energy upgrades, based on their SIR. Only those measures with a SIR of one or greater can be completed. If sufficient funds are not available to complete all possible upgrades, those upgrades with the highest SIR must be completed first.

COST EFFECTIVENESS PRIORITY LIST FOR MOBILE HOMES

CLIMATE ZONE 3

The priority list can be use to determine cost effective weatherization materials/measures for mobile homes located in Climate Zone 3 (see Climate Zone map).

A computer audit is required if:

- There are potential cost-effective energy upgrades to the house that are not listed on the priority list or the General Waste Heat Items list.
- There are not sufficient funds to complete all the measures; including energy related health and safety measures and other energy related repairs.
- Energy related incidental repairs of more than $100 are included with the energy upgrades.

Mobile Homes with Refrigeration Cooling and Fossil Fuel Heating

- Reflective roof coating.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Jalousie windows retrofit (installed cost of under $15 per square foot).
- Water heater wrap (where allowed).

Mobile Homes with Refrigeration Cooling and Electric Resistance Heating

- Reflective roof coating.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Jalousie windows retrofit (installed cost of under $20 per square foot).
- Water heater wrap (where allowed).

Mobile Homes with Evaporative Cooling and Electric Resistance Heating

- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Jalousie windows retrofit (installed cost of under $20 per square foot).
- Upgrade of evaporative cooler motor with higher efficiency two-speed motor.
- Water heater wrap (where allowed).

Mobile Homes with Evaporative Cooling Only and Fossil Fuel Heating

- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Jalousie windows retrofit (installed cost of under $14 per square foot).
- Upgrade of evaporative cooler motor with higher efficiency two-speed motor.
- Water heater wrap (where allowed).

In cases where there are potential cost effective energy upgrades not listed, incidental repairs of more than $100, or sufficient funds are not available to complete **all** (energy, health and safety and energy related repairs) possible upgrades, a computerized audit must be completed to develop a ranking of the energy upgrades, based on their SIR. Only those measures with a SIR of one or greater can be completed. If sufficient funds are not available to complete all possible upgrades, those upgrades with the highest SIR must be completed first.

COST EFFECTIVENESS PRIORITY LIST FOR MOBILE HOMES

CLIMATE ZONE 4

The priority list can be use to determine cost effective weatherization materials/measures for mobile homes located in Climate Zone 4 (see Climate Zone map).

A computer audit is required if:

- There are potential cost-effective energy upgrades to the house that are not listed on the priority list or the General Waste Heat Items list.
- There are not sufficient funds to complete all the measures; including energy related health and safety measures and other energy related repairs.
- Energy related incidental repairs of more than $100 are included with the energy upgrades.

Mobile Homes with Refrigeration Cooling and Heat Pump or Fossil Fuel Heating

- Reflective roof coating.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Air Conditioners twenty years old or older upgraded with a minimum 13 SEER unit.
- Jalousie windows retrofit (installed cost of under $9 per square foot).
- Shade screens on all sun struck south, east and west windows and glass doors.
- Water heater wrap (where allowed).

Mobile Homes with Refrigeration Cooling and Electric Resistance Heating

- Reflective roof coating.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Air Conditioners twenty years old or older upgraded with a minimum 13 SEER Heat Pump.
- Jalousie windows retrofit (installed cost of under $12 per square foot).
- Shade screens on all sun struck south, east and west windows and glass doors.
- Water heater wrap (where allowed).

Mobile Homes with Evaporative Cooling and Electric Resistance Heating

- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Jalousie windows retrofit (installed cost of under $8 per square foot).
- Upgrade of evaporative cooler motor with higher efficiency two-speed motor.
- Water heater wrap (where allowed).

Housing Type Three: Mobile Homes with Evaporative Cooling and Fossil Fuel Heating

- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Jalousie windows retrofit (installed cost of under $6 per square foot).
- Upgrade of evaporative cooler motor with higher efficiency two-speed motor.
- Water heater wrap (where allowed).

In cases where there are potential cost effective energy upgrades not listed, incidental repairs of more than $100, or sufficient funds are not available to complete **all** (energy, health and safety and energy related repairs) possible upgrades, a computerized audit must be completed to develop a ranking of the energy upgrades, based on their SIR. Only those measures with a SIR of one or greater can be completed. If sufficient funds are not available to complete all possible upgrades, those upgrades with the highest SIR must be completed first.

COST EFFECTIVENESS PRIORITY LIST FOR MOBILE HOMES

CLIMATE ZONE 5

The priority list can be use to determine cost effective weatherization materials/measures for mobile homes located in Climate Zone 5 (see Climate Zone map).

A computer audit is required if:

- There are potential cost-effective energy upgrades to the house that are not listed on the priority list or the General Waste Heat Items list.
- There are not sufficient funds to complete all the measures; including energy related health and safety measures and other energy related repairs.
- Energy related incidental repairs of more than $100 are included with the energy upgrades.

Mobile Homes with Refrigeration Cooling and Fossil Fuel

- Reflective roof coating.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Jalousie windows retrofit (installed cost of under $16 per square foot).
- Water heater wrap (where allowed).

Mobile Homes with Refrigeration Cooling and Electric Resistance Heating

- Reflective roof coating.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Jalousie windows retrofit (installed cost of under $24 per square foot).
- Water heater wrap (where allowed).

Mobile Homes with Evaporative Cooling and Electric Resistance Heating

- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Jalousie windows retrofit (installed cost of under $24 per square foot).
- Upgrade of evaporative cooler motor with higher efficiency two-speed motor.
- Water heater wrap (where allowed).

Mobile Homes with Evaporative Cooling and Fossil Fuel

- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Jalousie windows retrofit (installed cost of under $15 per square foot).
- Upgrade of evaporative cooler motor with higher efficiency two-speed motor.
- Water heater wrap (where allowed).

In cases where there are potential cost effective energy upgrades not listed, incidental repairs of more than $100, or sufficient funds are not available to complete **all** (energy, health and safety and energy related repairs) possible upgrades, a computerized audit must be completed to develop a ranking of the energy upgrades, based on their SIR. Only those measures with a SIR of one or greater can be completed. If sufficient funds are not available to complete all possible upgrades, those upgrades with the highest SIR must be completed first.

COST EFFECTIVENESS PRIORITY LIST FOR MOBILE HOMES

CLIMATE ZONE 6

The priority list can be use to determine cost effective weatherization materials/measures for mobile homes located in Climate Zone 6 (see Climate Zone map).

A computer audit is required if:

- There are potential cost-effective energy upgrades to the house that are not listed on the priority list or the General Waste Heat Items list.
- There are not sufficient funds to complete all the measures; including energy related health and safety measures and other energy related repairs.
- Energy related incidental repairs of more than $100 are included with the energy upgrades.

Mobile Homes with Refrigeration Cooling and Heat Pump or Fossil Fuel Heating

- Reflective roof coating.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Air Conditioners twenty years old or older upgraded with a minimum 13 SEER unit.
- Shade screens on all sun struck south, east and west windows and glass doors.
- Jalousie windows retrofit (installed cost of under $8 per square foot).
- Water heater wrap (where allowed).

Mobile Homes with Refrigeration Cooling and Electric Resistance Heating

- Reflective roof coating.
- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Air Conditioners twenty years old or older upgraded with a minimum 13 SEER heat pump.
- Shade screens on all sun struck south, east and west windows and glass doors.
- Jalousie windows retrofit (installed cost of under $10 per square foot).
- Water heater wrap (where allowed).

Mobile Homes with Evaporative Cooling and Heat Pump or Fossil Fuel Heating

- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Jalousie windows retrofit (installed cost of under $4 per square foot).
- Upgrade of evaporative cooler motor with higher efficiency two-speed motor.
- Water heater wrap (where allowed).

Mobile Homes with Evaporative Cooling and Electric Resistance Heating

- Pressure diagnostics and repair following the pressure diagnostic procedure established by the WAP program.
- Jalousie windows retrofit (installed cost of under $6 per square foot).
- Upgrade of evaporative cooler motor with higher efficiency two-speed motor.
- Water heater wrap (where allowed).

In cases where there are potential cost effective energy upgrades not listed, incidental repairs of more than $100, or sufficient funds are not available to complete **all** (energy, health and safety and energy related repairs) possible upgrades, a computerized audit must be completed to develop a ranking of the energy upgrades, based on their SIR. Only those measures with a SIR of one or greater can be completed. If sufficient funds are not available to complete all possible upgrades, those upgrades with the highest SIR must be completed first.

GENERAL WASTE HEAT ITEMS

ALLOWABLE MEASURES WHICH DO NOT REQUIRE A COST EFFECTIVENESS TEST

Domestic Hot Water

- Adjustment of the hot water temperature to 120 degrees if approved by the client.
- Replacement of existing showerhead, which exceeds a flow rate of 2.5 GPM, with a low-flow replacement showerhead if approved by the client.
- Faucet aerators

Space Heating and Cooling Systems

- Equipment maintenance and tune-up.
- Heating or Cooling System setback thermostat(s) for people with mobility problems or other extenuating circumstances, which make it difficult for them to manually adjust thermostat set points.

Existing Evaporative Coolers

- General evaporative cooler tune-ups.
- Replacement of a single speed evaporative cooler motor with a listed two-speed motor.

Base Load Items

- Replacement of incandescent light bulbs, which are on for at least one hour per day, with an ENERGY STAR qualified compact fluorescent bulbs that emit the same amount of light.
- Replacement of Refrigerators following the procedure established by the WAP program.

Door Replacement

- Door replacement can be completed on a limited basis.

DURABILITY MEASURES

Measure installed to protect or insure the long-term effectiveness energy measures are allowed. Total expenditures are subject to budget limitations.

PRESSURE DIAGNOSTIC PROCEDURE

The pressure diagnostic procedures are to be followed when performing air leakage diagnostics and repair. These procedures provide crews with immediate feedback on the effectiveness of air sealing work, insure that repairs will provide long-term energy benefit in a safe manner, and provide essential management information needed to monitor the cost effectiveness of the air sealing programs.
Pressure Diagnostic Decision Tree

The pressure diagnostic decision tree provides assistance to agency personnel in identifying the minimum level of pressure testing that needs to be performed to meet the Weatherization Program requirements. The decision tree is comprised of two levels of housing characteristics and corresponding test requirements. In all cases, air sealing can only be performed in conjunction with pressure diagnostics.

Level One: Homes with Central Forced Air Heating or Cooling

- The **complete** pressure diagnostic process must be followed in all cases on homes with a central forced air heating or cooling system. (Evaporative cooling is not considered a forced air system in this case.)

Level Two: Homes with No Central Forced Air Heating or Cooling

- The use of pressure diagnostic process is **optional** in homes that do not have a central forced air heating or cooling system and that do not contain the characteristics listed below.

- **Possible cost effective envelope sealing:** Pressure diagnostics must be completed on homes where the cost of space heating and/or cooling provides possible cost effective envelope sealing opportunities.

- **Combustion appliance zone testing:** The Worst Case Pressure Test must be performed in all zones that contain a combustion appliance.

Testing Procedure

When performing pressure diagnostic, crews are required to use the following procedures **IN SEQUENCE.** If a test is not performed, documentation must be provided in all cases stating the rational for not following the testing procedure.

1. Initial air leakage and room pressure tests
2. Duct repair
3. Envelope air sealing
4. Room pressure balancing

1. Initial Air Leakage and Room Pressure Tests:

These initial tests will provide reference information on the existing condition of the home. This information will be used to determine what retrofit measures are to be completed and their effectiveness.

A. Perform a complete energy audit and combustion safety test of the house. **No pressure testing or air sealing can be done until the required combustion safety procedure is completed.**
B. Perform Room Pressure Tests (dominant duct leakage test, room pressure test, and combustion appliance zone [CAZ] test) and record pressures. List combustion appliances located in rooms tested. **If a pressure of –3 Pascal's (Pa) or more exists in a CAZ, or the possibility exists that repair work will create a pressure of –3 Pa or more in a CAZ, corrective action must be completed before or in conjunction with air sealing or duct repair.** Discuss possible corrective action with the client. **If client refuses to allow corrective action to be completed,** no air sealing or duct repair can be completed.
C. Perform zonal pressures and record the results.
D. Perform initial Whole House CFM50 Test and record the results.
E. Perform Pressure Pan Test and record initial pressure difference.
F. Based on the results of the energy audit, combustion safety tests, and pressure tests, determine the extent of work to be completed.

2. Duct Repair Procedure:

A. Duct repair can only be performed under the supervision of a trained technician.
B. **In all cases, air sealing can only be performed in conjunction with pressure diagnostics.**
C. The Health and Safety Policy must be followed at all times.
D. Perform duct repair using approved products (see Product Guidelines) and repair techniques (see Duct Repair Techniques).
D. After initial duct repair is performed, evaluate if additional duct repair is possible.
E. Once all attainable duct leakage is repaired, perform post duct repair Whole House CFM50 Test and pressure pan readings. The difference between the initial Whole House CFM50 Test and the post duct repair Whole House CFM50 Test will provide the CFM reduction in duct leakage.

3. Envelope Air Sealing Procedure:

A. All duct repairs must be completed before envelope air sealing.
B. Envelope air sealing can only be performed under the supervision of a trained technician.
C. **In all cases, air sealing can only be performed in conjunction with pressure diagnostics.**
D. The Health and Safety Policy must be followed at all times.
E. Perform air sealing with high-quality products. Weatherization products must be permanent and guaranteed for at least 15 years.
F. Repeat Whole House CFM50 Test after air sealing work is performed and evaluate if additional air sealing is possible (see Health and Safety Policy for CFM ventilation requirements).
G .Once air sealing is completed, perform final Whole House CFM50 Test and record results.

4. Room Pressure Balancing:

A. All duct repair and air sealing must be completed before room pressure balancing.
B. Room pressure balancing can only be performed under the supervision of a trained technician.
C. In all cases, room pressure balancing can only be performed in conjunction with pressure diagnostics.
D. The Health and Safety Policy must be followed at all times.
E. Perform post air sealing room pressure tests (dominant duct leakage test, room pressure test, and worst case test) and record room pressures.
F. Review options to remedy pressure imbalances with the client. If pressure balancing is not performed, record reasons in the work summary.
G. Repeat room pressure tests after initial pressure balancing measures are installed and evaluate if addition pressure balancing is needed.
H. Once pressure balancing is completed, repeat room pressure tests and record results.

Economics
The cost effectiveness of pressure diagnostic and repair is to be based on a comparison of the present value of the reduced air leakage and the cost (labor and materials) to achieve the reduction. The values in the following tables are designed to provide general guidance on the present value of air leakage control.

Infiltration
The following table gives the present value of reducing the infiltration rate by 100 CFM50 for a typical weatherized home.

Present value of 100 CFM50 reduction	Climate Zone 1	Climate Zone 2	Climate Zone 3	Climate Zone 4	Climate Zone 5	Climate Zone 6
	$160	$40	$90	$40	$90	$40

Duct Leakage
The following table gives the present value of reducing duct leakage by 100 CFM50 for a typical weatherized home.

Present Value of 100 CFM reduction	Climate Zone 1	Climate Zone 2	Climate Zone 3	Climate Zone 4	Climate Zone 5	Climate Zone 6
Heating	$600	$90	$345	$95	$385	$50
Cooling*	$10	$450	$80	$300	$100	$570

*If a home has only evaporative cooling, only the heating values will be realized in duct repair.

COMBUSTION SAFETY AND CARBON MONOXIDE PROCEDURES
The Combustion Safety procedure records data on combustion appliances in the house, possible health and safety issues with these appliances and the actions taken by the Weatherization program. Because combustion appliances can be the dominant factor in the health and safety of the occupants, it is imperative that the combustion safety procedures are followed in all cases.

Note: Gas/propane stoves cannot be replaced utilizing DOE funds.

Carbon Monoxide Tests
Ambient CO levels shall be monitored upon entering the combustion appliance zone and during the test period for all appliances. If ambient levels exceed 35 ppm at any time, turn off the appliance immediately and make appropriate repair recommendations according to the charts provided.

CO shall be measured of undiluted flue gases, in the throat or flue of the appliance using a digital gauge and measured in parts per million (ppm). Do not drill holes in flues for power vented or sealed combustion units. Instead, measure CO at the exterior outlet of the flue and proceed with appropriate actions according to the CO limits identified in the Combustion Safety Action Level table. For all combustion appliances, CO shall be measured at steady-state operating conditions. Measurements shall be taken of undiluted flue gases.

With the exception of unvented gas or propane cooking appliances, CO must be tested in all combustion appliances under worst-case conditions and normal draft conditions (when the appliance fails under worst-case). In addition, it is recommended that CO be tested under a mild down-draft if conditions are safe.
For gas ovens, CO shall be measured at steady state (usually after 5-10 minutes of operation) at the highest setting. When measuring CO on gas ovens, it is recommended to turn on the exhaust hood and open a window to reduce risk of exposure to elevated ambient CO levels.

Spillage and Draft Tests
Spillage and draft tests must be completed for all natural and induced draft space heating systems and water heaters. Spillage and draft must first be tested under worst-case conditions (see procedure below) and then repeated for natural conditions if the appliance fails under worst-case.

When a chimney is shared by multiple appliances the appliance with the smallest Btu input rating shall be tested first and remaining appliances tested in order of increasing input rate.

Induced draft heating systems shall be checked for spillage at the base of the chimney liner or flue. If a chimney is shared between an induced draft heating system and a natural draft water heater, spillage shall be checked at the water heater draft diverter. Vent draft pressure shall be measured at steady-state operating conditions for all natural draft heating and hot water appliances. Draft test location should be approximately 1-2' downstream of the appliance draft diverter. The test hole must be sealed with an appropriate plug after the test. Acceptable draft test results are shown below:

Acceptable Draft Test Ranges

Outside Temperature (degree F)	Minimum Draft Pressure Standard (Pa)
<10	-2.5
10-90 (T. out ÷ 40)	– 2.75
>90	-0.5

Most appliances will spill upon startup with a cold chimney. Document the amount of time it takes for spillage to stop and a positive draft to be established. Any appliance that continues to spill flue gases beyond the time limits established in the statement below has failed the spillage test.

Acceptable Appliance Spillage Periods
Vented appliances, regardless of type, that spill flue gases for more than 60 seconds after startup, fail the spillage test.

Gas Supply Safety
The entire gas/propane line must be examined and all leaks repaired. Particular care should be made in the immediate vicinity of the appliances and at the joints, shutoff valves, and pilot lines. Identify leaks using a gas leak detector and accurately locate the source of the leak using a soap bubble solution. Flexible gas lines must be replaced if they are: kinked, corroded or show signs of visible wear, the line was manufactured before 1973 (date is stamped on the date ring attached to the line), or the line has any soldered connections.

Combustion Air
Combustion air requirements, as prescribed in NFPA 54 or local gas codes, must be met on all homes with combustion appliances.

The Kbtu per hr input for heating and water heating equipment must be listed. If Kbtu per hr information is not available, state this fact and estimate input.
The location of all heating and water heating equipment must be listed.

The source and amount of combustion air for all heating and water heating equipment must be listed. For appliances that are using an interior space for combustion air, the cubic feet available is determined by the volume (area times height) of the space. Areas that can be isolated and the flow of air restricted from the combustion appliance are not to be included.

Heat Exchanger Safety Checks
Tests for possible cracked heat exchanger must be performed on all systems possible.

HVAC EQUIPMENT AND DISTRIBUTION INSTALLATION/REPAIR POLICY
The following policy must be strictly adhered to when installing or repairing HVAC equipment and distribution systems.

Repair/Replacement
Replacement of inoperable equipment is allowed under the following conditions.

- Existing inoperable AC equipment upgraded with a minimum 13 SEER unit if the replacement costs are less than the estimated repair cost and the lost saving potential of the new equipment.

- Existing inoperable forced air furnace equipment upgraded with a 90+ AFUE unit if the replacement costs are less than the estimated repair cost and the lost saving potential of the new equipment.

Replacement of the equipment is also justified if there is a high probability that the repaired equipment will fail again in the near term.

Sizing and Installing HVAC Equipment

- Minimum HVAC efficiencies:
  - AC: 13 SEER
  - Heat Pump: 13 SEER and 7.7 HSPF
  - Combustion furnace: 80% AFUE.
- New mechanical systems shall be sized according to the ACCA Manual J. Room-by-room load calculations using the ACCA Manual J shall be submitted for each plan to verify sizing.
- Airflow across the indoor coil and/or heat exchanger shall conform to the manufacturer's specifications.
  - Refrigerant charge shall be installed per the manufacturer's specifications.
  - Indoor and outdoor units shall be "matched" according to the ARI Directory.

Evaporative Cooler Installation
It is strictly prohibited to install an evaporative cooler on the ductwork of a forced air heating or cooling system that did not previously include an evaporative cooler. Replacing an existing evaporative cooler with a new evaporative cooler on a forced air heating or cooling system is allowed.

All existing evaporative coolers must be equipped with a damper system that allows the cooler to be isolated from forced air ductwork or the conditioned space.

Installation of Forced Air Distribution Systems

- All new ductwork must be installed according to the Duct Installation/Repair Techniques and Product Guidelines.
- All duct systems must be pressure tested and the CFM leakage rate cannot exceed 3% of conditioned sqft or 5% of high speed fan flow of the systems air handler capacity.
- Airflow to each room shall match designed airflow calculations from the ACCA Manual J to within +/- 10%.

Repair of Existing Air Distribution Systems
All ductwork must be repaired according to the Duct Installation/Repair Techniques and Product Guidelines.

Duct Installation / Repair Techniques
A. Flex ducts

- Seal the start collar to the plenum using mastic reinforced with mesh around the entire circumference.
- At all connections (triangles, junction boxes, etc.), fasten the inner liner to the start collar using a mechanically tightened draw band for mechanical strength.
- Seal the inner liner using approved mastic reinforced with fiberglass mesh and overlaid with another layer of mastic sufficient to cover the entire pattern in the mesh.

- Fasten the outer liner well over the start collar using a mechanically tightened draw band.
- Seal all boots to the Sheetrock using mastic or silicone caulk applied at the point where the air barrier (metal or exterior foil backing) meets the Sheetrock.

B. Duct board
- Staple all duct board joints with appropriate staples every two inches.
- Apply a layer of mastic; embed reinforcing mesh and overcoat with another layer of mastic sufficiently thick to hide the pattern in the tape.
- Allow for proper curing (manufacturer's specifications) before starting the system. This is critical.
- Seal all boots to the Sheetrock at the point where the foil backing meets the Sheetrock.

C. Metal
- Seal all points where components join together using mastic. Special attention must be given to any area where tabs provide the method of securing the joint.
- Seal all boots to the Sheetrock at the point where the metal meets the Sheetrock.
- Join all components with screws or other mechanical fastening devices as required in listings or code.

D. Building Cavities Used as Returns
- If the cavity is lined with Sheetrock, seal all joints with mastic. All gaps over 1/4 inch must be reinforced with embedded mesh tape.

- If the cavity is lined with duct board with the fiberglass side facing inside, you must create a positive air barrier in the plenum by covering the fiberglass with a material such as Sheetrock, duct board with the foil facing inside, or coat the fiberglass with mastic, etc., and seal all remaining joints in the plenum.

- If the cavity is unlined (exposed studs) and it is impossible to line the plenum, seal all joints, holes and penetrations using mastic applied with a brush attached to a handle or other extension. It may be easier and more effective to simply create a ducted plenum or chase and avoid the problems associated with using a building cavity to convey conditioned air.

- It may be necessary to cut a hole in the plenum in order to gain access and seal the interior adequately.

E. Air Handler
- Seal all penetrations and gaps between materials using mastic or silicone. If the gap is over ¼ inch, reinforce with fiberglass mesh.
- Seal the areas where the air handler meets the supply/return plenums using mastic reinforced with fiberglass mesh or other approved methods.
- Seal any panels that will require frequent access by the client (such as the filter area), using a quality temporary tape (duct tape).
- The air handler must not have any noticeable leaks.

F. Wall Penetrations

(The most common wall penetration problem is where the opening for the return grille is cut through the wall. In such an installation, even in a lined plenum, the wall cavity is open into the plenum.)
- Where an un-ducted section of the air distribution system penetrates a wall cavity, the wall cavity must be sealed.
- The cavity will first be blocked using a rigid air barrier such as Sheetrock or duct board with the foil facing the airflow.
- All seams, cracks, crevices, and openings will then be sealed airtight using approved mastic.

Duct Product Guidelines
- All new ductwork will be a minimum of R-8.
- Duct sealing materials shall have both excellent cohesive and adhesive qualities.

- Water-based Latex mastic with at least 50 percent solids reinforced with fiberglass mesh at all duct connections, joints and seams shall be used. "Hardcast" type mastic with reinforcing mesh is also acceptable.
- The ducts shall be further attached as per manufacturer's specification, using a draw tie, plumbing strap or screws, as appropriate for a strong mechanical connection. The mechanical connection **does not** replace air sealing.
- Foil tapes, including UL 181 AP-type tapes, when used alone will not be accepted. If tape is used to temporarily hold a seam, it must be overlaid with a coating of mastic that extends at least one inch (1") past the tape on all sides, and is thick enough to hide the tape completely.
- Do not use materials that are potentially damaging or have harmful effects, such as toxic vapors or carcinogenic substances that may be harmful to the clients or the installer. Agencies are required to obtain and maintain the Material Safety Data Sheets (MSDS) for all materials used on the job. Federal law requires this procedure; further information is available locally from the vendor.
- Materials must meet all current codes and manufacturer's specifications.

INSULATION STANDARDS

Installation of Insulation

Insulation must be installed with no gaps, no voids, no compression of the insulation, or no wind intrusion into the insulation. Insulation must also be in alignment with the air barrier in all cases.

All items on the Thermal Bypass Inspection Checklist must be verified where accessible. Items not meeting these standards must be repaired unless the repair is not cost effective. The Checklist includes the following 12 areas:

- Shower/Tub at Exterior Wall: Exterior walls behind tub or shower have been fully insulated. Exterior walls behind tub or shower have been faced with air barrier material.
- Insulated Floor above Garage: Floor framing is completely filled with insulation or insulation is snug against sub-floor. Air barrier is installed at any exposed edges of insulation.
- Attic Knee Walls Air barrier is installed on attic side of insulated wall. Insulation is in complete alignment with interior wall finish.
- Attic Hatch/Drop-down Stair Attic: Opening is fully gasketed for an air-tight fit. Hatch is covered with insulation that is attached and fits snugly in framed opening.
- Cantilevered Floor: Floor framing is completely filled with insulation or insulation is snug against sub-floor. Air barrier installed at any exposed edges of insulation.
- Duct Shafts: Opening is enclosed as required with flashing and any remaining gaps are sealed with caulk or foam.
- Flue Shaft: Opening is fully enclosed as required with flashing. Combustion clearance between flue and combustible flashing (e.g., OSB panel) are properly closed with metal collars and any remaining gaps are sealed with fire-proof caulk or foam.
- Piping Shaft/ Penetrations: Opening is fully enclosed as required with flashing and any remaining gaps are sealed with caulk or foam.
- Dropped Ceiling/Soffit Air barrier is fully aligned with insulated framing and any gaps are fully sealed with caulk or foam.
- Fireplace Wall: Air barrier is fully aligned with insulated framing in framed shaft behind fireplace and any gaps are fully sealed with caulk or foam.
- Staircase Framing at Exterior Wall/Attic: Air barrier is fully aligned with insulated framing and any gaps are fully sealed with caulk or foam.
- Whole-house Fan Attic Penetration: An insulated cover is provided that is gasketed to the framed opening.

RENEWABLES

Section 206 of the Energy Policy Act of 2005 (EPACT 2005) amended the Energy Conservation and Production Act to clarify that assistance under the Weatherization Assistance Program may be provided for renewable energy systems and to provide definitions and criteria to be used in assessing eligibility.

Cost Effectiveness
Renewable energy systems must follow the Cost Effectiveness Procedures. Local agencies must determine that the renewable energy system is cost effective by ensuring the discounted savings-to-investment ratio (SIR) is greater or equal to one. The net cost of renewable energy systems after rebates from third parties can be used for the SIR review.

Product Guidelines

Renewable energy systems must meet the requirements established by the State of Arizona for state tax credits which imposed several requirements on the seller of solar devices in order to qualify the equipment and application. Title 44, chapter 11, article 11 of the Arizona revised statues (44-1761- Definitions, and 44-1762 - Solar energy device warranties; installation standards; inspections) provides details on the requirements.

FINAL INSPECTION REQUIREMENTS
A final inspection shall be performed on all jobs.

The final inspection must be completed by designated inspector not directly involved with the completion of the job.

The final inspection shall verify that the house characteristics reported are correct.

The inspection shall verify that all cost effective opportunities were completed.

The inspection shall include all measures listed on the Work Performed report to verify installation has been completed in a safe and effective manner.

The inspection shall include a review of the diagnostic result, both pressure and combustion safety, to verify that all applicable tests were completed.

The inspector shall complete diagnostics on minimum of ten percent of completed homes to compare with reported results.

HEALTH AND SAFETY PLAN

PURPOSE
To establish the policies and procedures under which health and safety concerns are addressed in the Weatherization Assistance Program (WAP).

GOAL

To ensure energy savings are the result of Weatherization Assistance Program actions while promoting a healthy and safe environment for clients and WAP workers and contractors.

SCOPE
Energy-related health and safety concerns need to be remedied before, or because of, the installation of weatherization materials. Therefore, energy-related health and safety hazards associated with weatherization activities may be remedied or prevented with DOE funds. Measures and their costs must be reasonable and must not seriously impair the primary energy conservation purpose of the program.

The Health and Safety Procedures are applicable to all activities under the WAP.

Total expenditures on Health and Safety are subject to budget limitations.

A. Grantee Health & Safety
OEP – WAP field monitors will follow all applicable health and safety rules with respect to the conduct of their on-site job visits including the use of face masks, hard hats, appropriate footwear, and such other applicable attire and equipment so as to minimize personal risks.

B. Crew and/or Contractor Health & Safety

Arizona sub-grantees and their contractors will comply with Occupational Safety and Health Administration (OSHA) requirements in all weatherization activities.

The costs for sub-grantees to comply with OSHA requirements (action items and measures that DOE funds and receives credit for) may be charged under health and safety, tools and equipment, incidental repairs, etc. The cost category selected will be charged consistently throughout the state (from agency to agency) for the same activity.

Because of the wide range of activities involved in weatherizing a house, ensuring crew health and safety requires a broad knowledge of the appropriate OSHA requirements. Some of these requirements include, but are not limited to: respirator protection, techniques for safely lifting heavy objects, electrical equipment safety, ladder safety, and general worker protection. OSHA standards should be consulted for further details.

Other useful information includes Material Safety Data Sheets (MSDS) that identify potential health risks and describe the proper use, handling, and storage of a wide variety of materials, including some common weatherization materials. MSDS also recommend personal protective equipment and address first aid measures.

C. Client Health and Safety

Weatherization services can be provided in a manner that minimizes risk to workers and clients. Although the Weatherization Assistance Program does not provide all the solutions, awareness of potential hazards is essential to providing quality services. A list of the more common hazards and DOE's preferred approach to them are discussed in Section D. Other energy-related hazards should be considered on a case-by-case basis

Grantees and sub-grantees are required to take all reasonable precautions against performing work on homes that will subject workers or clients to health and safety risks. If there is any doubt that weatherization work can be conducted in a manner that is safe for all parties concerned, the subgrantee must not proceed further.

Before beginning work on the residence, sub-grantees will take into consideration the health concerns of each occupant, the condition of the dwelling, and the possible effect of work to be performed on any particular health or medical condition of the occupants. When a person's health is fragile and/or the work activities would constitute a health or safety hazard, the occupants at risk will be required to leave the home during these work activities or the work will be suspended until such a time as it can be performed appropriately.

D. Potential Hazard Considerations

1. Biological

Removal of mold, odors, viruses, bacteria, unsanitary (including raw sewage) conditions, and rotting wood is not a Weatherization responsibility; however, subgrantee frequently encounter these conditions. DOE funds may be used if these conditions must be remedied to allow effective weatherization work and/or to assure the immediate or future health of workers and clients. OEP – WAP requires that its sub-grantees seek prior approval to proceed before attempting to weatherize such dwellings with *Biological* problems.

Arizona sub-grantees will exercise caution when selecting air tightness limits for dwellings with these problems. Since these conditions are often related to moisture, Arizona sub-grantees may use DOE health and safety funding to acquire moisture detection instruments. Sub-grantees should incorporate moisture detection into their initial energy audits. If necessary, weatherization services may need to be delayed until moisture problems can be corrected by other funding sources.

2. Combustion Appliances and Combustion Gases

The following policy must be strictly adhered to when completing Weatherization work. If any house fails these program safety standards and the problem cannot be remedied, the homeowner must be notified in writing and a copy placed in the client's file.

- Perform air sealing and duct repair **only** in conjunction with pressure diagnostics to ensure that sufficient ventilation and draft rates are maintained in the home.

- A UL listed carbon monoxide detector (Underwriters Laboratories 2034-98) shall be installed in all structures with an attached garage or a combustion appliance located in the conditioned space.

- Research and follow the local health and safety codes and standards dealing with residential ventilation requirements for occupants and combustion equipment.

- No air sealing (including duct repair) should be done if there is a high pollution source, such as a non-vent combustion heater, that can't be removed.

- No air sealing (including duct repair) should be done if there are existing health and safety problems in the home.

- No air sealing (including duct repair) should be done if there is Carbon Monoxide (CO) present in the flue gases higher than 100 PPM.

- No air sealing (including duct repair) should be done if there is a possible gas leak.

- No air sealing (including duct repair) should be done if CO is greater than 9 PPM in the living space.

- If CFM50 is less than 1500 CFM for the home or 300 CFM per person (whichever is greater), the homeowner must be advised of the tightness of the home. Any further air sealing (including duct repair) may require that an active ventilation strategy be employed.

- Under normal operating conditions, an air handler cannot create room pressures with a magnitude of - 3.0 Pascal's, or greater with reference to outside, anywhere in a combustion appliance zone.

- Corrective action must be completed before or in conjunction with air sealing (including duct repair) if a negative pressure of 3 Pascal's or greater exists or is produced by repair work in a combustion appliance zone.

- Flame change is an indication of a cracked heat exchanger - no air sealing (including duct repair) should be done until the problem is fixed.

- If spillage of flue gases occurs for more than one minute - no air sealing (including duct repair) should be done until the problem is fixed.

- If draft is low, it must be fixed before air sealing (including duct repair) is completed.

IF THE CONDITIONS DESCRIBED BELOW CONCERNING COMBUSTION AIR ARE NOT MET, <u>NO AIR SEALING</u> (INCLUDING DUCT REPAIR) SHOULD BE DONE:

- In homes of ordinary tightness insofar as infiltration is concerned, all or a portion of the air for fuel-burning appliances may be obtained from infiltration when the requirements for 50 cubic feet per 1000 Btu/hr input is met. Two openings are required and one shall be within 12 inches of the bottom of the space containing the combustion equipment. Openings shall allow space to communicate with the rest of the house. A minimum free area of one square inch per 1000 Btu per hour (or 100 square inches, which ever is greater) of the total input rating of all gas utilization equipment in the space, shall be provided.

- In all cases where combustion air is from inside the home, the homeowner must be made aware of this and sign the Health and Safety Waiver before any air sealing or duct repair is completed.

(**Note:** If this method is used, special attention must be given to zonal and draft pressures. In buildings of unusually tight construction, combustion air shall be obtained from outside.)

- In homes that receive combustion air from outside the conditioned space, two openings are required. One shall be within 12 inches of the top and one within 12 inches of the bottom of the space containing the combustion equipment. The openings shall communicate directly, or by ducts, with the outdoors or spaces (crawl or attic) that communicate with the outdoors.

- The following guidelines must be met when determining the minimum free area for combustion air openings:

- Openings directly communicating with the outdoors shall provide one square inch per 4000 Btu per hour of the total input of all gas utilization equipment in the space.

- Openings communicating to outdoors with vertical ducts shall provide one square inch per 4000 Btu per hour of the total input of all gas utilization equipment in the space.

- Opening communicating to outdoors with horizontal ducts shall provide one square inch per 2000 Btu per hour of the total input of all gas utilization equipment in the space.

(**NOTE:** If the free area is not known because of louvers or screens, double the required opening size. **IF THESE NFPA 54 NATIONAL FUEL GAS CODE REQUIREMENTS ON COMBUSTION AIR ARE NOT MET,** THEN NO AIR SEALING (INCLUDING DUCT REPAIR) SHOULD BE DONE UNTIL THESE CONDITIONS ARE MET.)

3. Fire Hazards
Combustion appliances and their associated venting systems can also present potential fire hazards. Sub-grantees that accept clients with wood stoves and fireplaces will have procedures to identify potentially dangerous creosote build-up in chimneys and wood stove flues.

It is the sub-grantee's responsibility to ensure that any work on wood stoves and fireplaces conforms with applicable codes in jurisdictions where the work is being performed.

4. Existing Occupant Health Problems
Sub-grantees will be sensitive to client health problems that might be exacerbated by weatherization activities.

Sub-grantees will establish procedures to identify pre-existing client conditions (e.g., allergies) and address such problems when they are found. Those procedures should address the manner in which such problems will be identified and the steps to be taken to ensure that weatherization work will not worsen these problems.

5. Indoor Air Quality (IAQ)

a. Asbestos
General asbestos removal is not approved as a DOE WAP health and safety weatherization cost.

Major asbestos problems should be referred to the Arizona Department of Environmental Quality or to the Environmental Protection Agency (EPA).

Where local agencies work on large heating and distribution systems, including related piping, asbestos removal may be necessary. Removal is allowed to the extent that energy savings resulting from the measure will provide a cost-effective savings-to-investment ratio. This would normally be true with work done on large, multifamily heating systems. Where permitted by code or EPA regulations, less costly measures that fall short of asbestos removal, such as encapsulation, may be used. Removal and replacement of asbestos siding for purposes of wall cavity insulation is permissible if allowed by state and local codes.

b. Radon
Where there is a previously identified radon problem, work that would exacerbate this problem should be limited. Radon abatement is not an allowable activity under the Weatherization program. However, those costs associated with taking precautions in a dwelling known to have radon problems are allowable weatherization expenditures. These costs are

allowable if an energy audit indicates that weatherization techniques would help in radon remediation. While sub-grantees should establish sound radon-related strategies, major radon problems should be referred to the appropriate local environmental organization or agency for mitigation or abatement.

c. Formaldehyde and Volatile Organic Compounds (VOCs)
Formaldehyde vapors may be slowly released by some new carpets, wafer-board, plywood, etc. Some household cleaning agents also emits VOCs. Caution should be taken when selecting air tightness limits in dwellings with VOC problems.

6. Lead Paint

Lead Safe Weatherization (LSW) must be applied to <u>all</u> pre-1978 housing unless the house meets EPA's Final Rule Exemptions.

Exemptions

1. **No Lead-Based Paint will be Disturbed.** LSW must be applied to all pre-1978 housing unless there is existing evidence that the home has been certified as being lead-free or below the lead threshold limit (e.g., for paint containing lead below the regulated level, 1.0 mg/cm2 or 0.5% by weight). One of the following methods must be used to determine the paint to be disturbed is not lead-based paint: -Written determination by certified lead inspector or risk assessor; *OR*
   -Proper use of EPA-recognized test kit provided agencies (*documenting manufacturer and model of test kit used, description and location of components tested, and test kit results)*
   Note: Beginning in 2010, tests must be performed by a Certified Renovator, per EPA final rule. Test kits are currently being evaluated but none have been approved to date – updates and approved kits will be posted athttp://www.epa.gov/lead/pubs/renovation.htm
   OR
   -A State-approved lead-based paint test protocol (e.g., XRF scans verifying absence of lead paint).

2. **Mobile Homes.** Often, interiors of mobile homes were not painted but rather, paneling was applied to the surfaces. Therefore, pre-1978 mobile homes that were not painted by the manufacturer, occupant, landlord, or past owner of the unit before 1978, may be exempt from LSW. However, Weatherization Programs must verify the areas receiving weatherization services have never been painted or were painted for the first time after 1978. If this is not verifiable, then LSW protocols must be followed. Painted exterior surfaces on pre-1978 units should not be drilled, scraped, sanded, or receive any other work that disturbs the paint.

3. **Exempt from training and work practice requirements <u>if owner signs written statement</u> that <u>all</u> apply:**
   a. No pregnant women resides there; and
   b. Not a child-occupied facility ("occupied" includes being the child's primary residence or a home that is visited regularly by the same child, under age 6, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visits last at least 6 hours, and the combined annual visits last at least 60 hours).

4. **Housing for the elderly or persons with disabilities** (unless any one or more children under age 6 resides or is expected to reside in such housing for the elderly or persons with disabilities).

5. **Any 0-bedroom dwelling.**

6. **Minor Repair or Maintenance Activities**: Activities that will disturb less than the following square feet of paint surfaces in 30 calendar days (counting all paint surface areas of a removed component):
   - 6 square feet per room for interior activities; or
   - 20 square feet for exterior activities.

But this exemption does *NOT* apply to the following:

- Window replacement.
- Demolition of painted surface areas.
  - Using any of the following:
- Open-flame burning or torching;
- Machines to remove paint through high-speed operation without HEPA exhaust control; or
- Operating a heat gun at temperatures at or above 1100 degrees Fahrenheit.

Testing for lead-based paint and lead-based paint residues
Testing for lead-based paint is not an allowable weatherization expense except, when it is related to the installation of energy efficiency measures. These expenditures must be within the limits set by the state in its Weatherization health and safety plan.

U.S. Department of Energy Minimum Standards for LSW

Safe Work Practices must be implemented to minimize exposure to hazards for residents and the workers, while allowing Weatherization to occur in a cost-effective manner and to not hinder production. The effort required will be based on the hazard, the work specifications, and customer health issues.

CHECK: Federal, state, and local regulations.

- OSHA has rules for worker safety.
- States and local communities may have rules for waste disposal.

To meet the LSW minimum standards, crews and contractors MUST follow the general principles of working in a lead-safe manner. Best practices for working in a lead-safe manner are available in the benchmark LSW procedures and curriculum and should be reviewed and consistently enforced on LSW jobs.

A. Requirements

Client Protection and Notification
For occupied homes, the Weatherization staff, crew, or contractor must have an adult tenant or homeowner sign an acknowledgement after receiving the pamphlet. The pamphlet can also be sent by certified mail with receipt to be placed in the customer file.

In multi-unit housing, the agency must:

- Provide written notice to each affected unit (notice must describe: general nature and locations of the planned renovation activities; the expected starting and ending dates; statement of how occupant can get pamphlet at no charge); or
- Post informational signs (signs must describe general nature and locations of the renovation and the anticipated completion date) and post the EPA pamphlet. (If pamphlet is not posted then agencies are required to provide information on how interested occupants can review a copy of the pamphlet or obtain a copy at no cost from the Weatherization Program).
- Delivery to owner/occupant. Owner's and/or occupant's signature with acknowledgment or certificate of mailing. The owner/occupant must acknowledge receipt of the EPA pamphlet prior to start of renovation that contains the address of unit undergoing renovation, name and signature of owner or occupant, and the date of signature. It must be in same language as "contract for renovation" for an owner-occupied (or the same language as the lease for occupant of non-owner occupied) target housing.

If the Weatherization Program cannot get a signed acknowledgment (either the occupant is not home or refuses to sign the form), then the self-certification section of the form must be signed to prove delivery.

The acknowledgement form must be filed and remain with the client file for three years from date of signature. In addition to providing a copy of the pamphlet to owners and occupants, designated local agency staff (e.g., intake specialist, auditor, crew chief) must discuss the hazards associated with lead-based paint and lead dust, and describe how they will conduct LSW in the home.

Weatherization Worker Protection

LSW includes these procedures and safety precautions:

- Wear personal protective gear specifically suited for the particular LSW measure. Use the National Institute for Occupational Safety and Health (NIOSH) approved respirators (at least ½ face) with HEPA filters.
- Use disposable overalls (with hood or a disposable painter's cap), gloves (cloth, plastic, or rubber as appropriate), goggles, and disposable shoe/boot covers.
- Keep dust to a minimum and properly contain dust and paint chips to the work area.
- Clean up area during and after work.
- During Weatherization, wash your hands and face frequently, particularly when leaving the work area and especially before leaving the area for the purpose of eating, drinking, or smoking.
- Before leaving a confined work area, remove your protective clothing and protective shoe/boot covers to avoid exposing others.
- Before leaving a confined work area, and before returning tools and equipment to vehicles, clean all tools to avoid exposing others and creating a lead-hazard to the next Weatherization job.
- Get annual medical exams to check blood lead levels. Do non-lead-related work if your blood lead level gets too high.
- Inform your employer if you develop signs of lead poisoning.

B. General LSW Work Practice Standards

- Crews and contractors must take steps to protect occupants from lead-based paint hazards while the work is in-progress using appropriate containment strategies.
- Occupants, especially young children or pregnant women, may not enter the work site. Occupants are allowed to return only after the work is done and the home has passed a visual inspection.
- Occupants' belongings must be protected from lead contamination. This can be done by removing them from the work area or covering them in protective bags and sealing it to prevent dust from getting on the items.
- The work site must be set up to prevent the spread of leaded dust and debris.
- Warning signs must be posted at entrances to the worksite when occupants are present; at the main and secondary entrances to the building; and at exterior work sites. The signs must be readable from 20 feet from the edge of the worksite. Signs should be in the occupants' primary language, when practical.
- The work area must be contained. If containment can not be achieved with occupants in the unit (e.g., work will take several days and involves the kitchen, bathrooms, or bedrooms that can not be sealed off from use), occupants must move out of the unit or the work must be deferred until containment can be achieved.
- Ensure containment does not interfere with occupant and worker egress in an emergency.

Prohibited Work Activities

- NEVER - use reusable cloth or fabric, such as a painter's drop cloth, as protective containment sheeting. Polyethylene and in some cases when working on the exterior garden fabric are the only acceptable protective containment sheeting and must never be reused.
- NEVER - use brooms and shop vacuums for cleanup. Wet cleaning and HEPA vacuums are the only acceptable methods for cleanup.
- NEVER – use a conventional shop vacuum with HEPA filters – only HEPA-designed vacuums are acceptable for LSW.
- NEVER - turn leaded paint into leaded dust by dry scraping or sanding (unless needed around electrical outlets) or grinding, abrasive blasting or planning.
- NEVER - use an open-flame torch or heat gun (above 1100°F) to remove paint or window glazing. Open flame/high heat methods to remove paint create fumes that are dangerous for workers to breathe. Small lead particles created by burning and heating also settle on surrounding surfaces and are very hard to clean up.
- NEVER - allow residents and pets access to the work area while work is underway.
- NEVER - open windows and doors allowing lead dust to float into other parts of the building or outside.
- NEVER - allow furniture and other objects to remain in the Weatherization work area while Weatherization work is being performed unless they are covered and sealed in polyethylene sheeting or bags.

C. Containment

Containment is anything that stops any dust or debris from spreading beyond the work area to non-work areas. The level of containment must be determined by the auditor/inspector or supervisor before work is assigned to a crew or contractor. To comply with EPA's LRRPP Rule requirements, **a Certified Renovator will be required at the jobsite to assess and set up the containment site.**

Every home and every specific Weatherization measure is unique, therefore the level of containment required will be based on the hazards present, the age of the home, the scope of work activities, and any customer health issues. Although Weatherization jobs require individual assessments, LSW work generally falls into two levels of containment and the related standards are outlined below.

Level 1 Containment

Level 1 containment is required in pre-1978 homes when ***less than*** 6 ft^2 of interior painted surface per room or 20 ft^2 of exterior painted surface will be disturbed.

Level 1 containment consists of methods that prevent dust generation and contains all debris generated during the work process. The containment establishes the work area which must be kept secure.

Measures that *may* fall within this guideline include:

- Installing or replacing a thermostat
- Drilling and patching test holes
- Replacing HEPA filters and cleaning HEPA vacuums
- Changing Furnace Filter
- Removing caulk or window putty (interior)
- Removing caulk or window putty (exterior)
- Removing weather-stripping

Level 2 Containment

Level 2 containment is required when Weatherization activities will disturb ***more than*** 6 ft^2 of interior surface per room or 20 ft^2 of exterior surfaces in homes built prior to 1978. Level 2 containment consists of methods that define a work area that will not allow any dust or debris from work area to spread. Level 2 containment requires the covering of all horizontal surfaces, constructing barrier walls, sealing doorways, covering HVAC registers with approved materials, and closing windows to prevent the spread of dust and debris.

Measures requiring level 2 containment *may* include:

- Drilling holes in interior walls
- Drilling holes in exterior walls, removing painted siding
- Cutting attic access into ceiling or knee walls
- Planing a door in place
- Replacing door jambs and thresholds
- Replacing windows or doors
- Furnace replacements

Additionally, Level 2 containment must ***ALWAYS*** be used where any of the following is conducted (even if the activities will disturb less than the hazard de minimis levels within the Level 1 category):

- Window replacement
- Demolition of painted surface areas
- Using any of the following:
    - Open-flame burning or torching;
    - Machines to remove paint through high-speed operation without HEPA exhaust control; or
    - Operating a heat gun at temperatures at or above 1100 degrees Fahrenheit.

D. Proper LSW Clean-Up and Debris Disposal

Following the containment standards in the previous section will minimize the level of effort required to properly clean up the job site. All dust, dirt, material scraps, containers, wrappers, and work related debris must be removed from the customer's home. A HEPA vacuum should be used to clean up the work areas. Further cleaning may be necessary based on the hazard.

At the conclusion of the job, once all workers have "cleaned" the work areas thoroughly, Weatherization workers must adhere to the following:

Safe and Secure Disposal

- Bag and gooseneck-seal all waste in 6-mil plastic bags
- Safely dispose of all waste in accordance with federal, state, and local regulations

Visual Inspection Verification

Checking the quality of worksite cleanliness is a two-phase process:

- Phase 1: Worker visual inspection during the cleaning process; look for any visible paint chips, dust, or debris as you clean, using proper techniques.
- Phase 2: Supervisor visual inspection after cleanup. There should be no evidence of settled dust following a cleanup effort. If dust is observed, the Weatherization crew must be required to repeat the cleaning.

If work is done outside the house, the grounds around the dwelling and all exterior horizontal surfaces should also be examined visually to make certain that all waste and debris have been removed and that paint chips were not left behind.

Deferrals

Arizona's WAP sub-grantees will follow the lead-based paint "deferral policy" to determine when it is prudent to defer certain Weatherization work in homes that have either tested positive or are assumed to have lead-based painted surfaces.

- First, the subgrantee should assess the following factors:

  1) Is the subgrantee prepared to work with lead-based paint? (i.e., have workers received training in LSW work practices - is the necessary equipment, such as HEPA vacuum cleaners, available; and does the agency's liability insurance cover work with lead-based paint);

  2) What is the condition of the painted surfaces in the house that might be specifically disturbed in the course of an allowable weatherization measure? (i.e., are they *seriously* deteriorated);

  3) What is the extent to which the specific energy efficiency measures determined by the audit will disturb painted surfaces? (i.e., will the disturbance likely generate dust in excess of OSHA minimums); and,

  4) Will the cost of doing LSW work represent a large portion of the total cost, such as to exceed the amount allowed by the state's health and safety plan (which could be the case if large amounts of lead-based paint surfaces will be disturbed)?

- Second, the grantee should determine, based on consideration of the above factors, whether to:

  1) Proceed with all the weatherization work, following LSW work practices; or
  2) Do some of the weatherization tasks, defer others; or
  3) Defer all the weatherization work

Deferral would mean postponing the work either until the Weatherization agency is prepared to work with lead-based paint, or until another funding source has been identified that can finance corrections to the problem LBP area that weatherization can be safely performed.

In cases where extensive LSW would be necessary, agencies are encouraged to arrange with other organizations, which are funded to do lead-based paint hazard control, to perform some of the more costly activities, such as risk assessment or clearance testing. In areas where there are no organizations performing such work, Weatherization agencies may choose to develop their capabilities (purchase of equipment and advanced training for subgrantee crews) for lead-based paint hazard control work, but they may not use DOE Weatherization funds for this purpose. In such a home, regular Weatherization work that does not disturb painted surfaces can be done.

Funding of lead safe weatherization

Whereas DOE funds may be used to pay for Weatherization activities that disturb lead-based painted surfaces while installing energy efficiency measures or for case-by-case testing, the funds may not otherwise be used for abatement, stabilization or control of lead-based paint hazards, or routine entrance and clearance testing.

However, U. S. Department of Housing and Urban Development (HUD) funds such as Community Development Block Grant (CDBG), lead hazard control programs and HOME Repair and Rehabilitation Program funds may be used to do this work. Also, U. S. Department of Health and Human Services' (HHS) Low-Income Home Energy Assistance Program (LIHEAP), may be used for certain expenses related to Lead Safe Weatherization.

Specifically, for DOE funding, agencies should budget LSW costs under health and safety as a separate cost category, excluded from the calculation of average cost per home. Lead Safe Weatherization costs include labor, material, insurance, training, and equipment.

Liability issues

Unless an agency has specifically purchased additional insurance to cover pollution occurrences, they probably do not have sufficient insurance for their work as required by the WAP's Program Year 2002 Annual Guidance, **Weatherization Program Notice 02-1**. It is likely that their general liability insurance has a pollution occurrence exclusion.

All Arizona Sub-grantees must have liability insurance that covers work in a home with lead-based paint before any LSW work is implemented. This liability insurance does not and should not cover lead abatement projects.

Abatement projects are extensive projects designed to permanently eliminate the lead-based paint hazard. Only work that HUD refers to as "interim controls" must be covered. It is important to use this policy to demonstrate to the insurer the limited nature of the paint disturbance and the precautions being taken to avoid liability. The cost of such insurance is an allowable DOE expense, and we urge agencies to seek ways to obtain the coverage at reasonable rates.

For insurance shopping purposes, there are features about Weatherization work that local agencies should use in making the case for the lower risk associated with the nature of Weatherization work, especially when compared to lead-based paint abatement and lead hazard control work:

- Weatherization is different from lead hazard control work and involves lesser levels of work associated with painted surfaces. In fact, the disturbance of painted surfaces, by comparison, is minimal and when it happens, is incidental to the purpose of the work - the installation of energy conserving measures.

- In addition, not all weatherization work involves disturbing painted surfaces and some homes are lead free, and so the *risk basis* for insurance rates - unlike insurance for lead hazard control work - should not be based on one hundred percent operations in a lead paint environment for every home weatherized.

DOE is involved with EPA and HUD in continuing discussions with the insurance industry about ways to qualify Weatherization agencies for more favorable rates. We also welcome suggestions from state and local agencies with experience in obtaining reasonable rates for this kind of work, which we will share with the Arizona subgrantees.

Training

Arizona's WAP requires that *when disturbance of painted surfaces is significant,* Weatherization workers will use LSW practices.

Arizona's WAP will provide or recognize prior participation in the following training opportunities to sub-grantee as required, taking into consideration each subgrantees mix of action items and allowable measures:

- LSW workshops provided by trainers who are certified in The HUD Lead Safe Work Practices.
- Peer-to-Peer training.
- Individual agency training on an as needed basis.

All training will utilize the Lead Safe Weatherization curriculum developed by Montana State University.

7. Building Structure

Building rehabilitation is beyond the scope of the Weatherization Assistance Program; however, Arizona Subgrantees frequently encounter homes in poor structural condition. Dwellings whose structural integrity is in question should be referred to the Arizona Department of Housing.

Weatherization services may need to be delayed until the dwelling can be made safe for crews and occupants (see Deferral Standards).

Incidental repairs necessary for the effective performance or preservation of weatherization materials are allowed if the cost of the weatherization material and incidental repair are cost justified by the audit. Examples of these limited repairs include sealing minor roof leaks to preserve new attic insulation and repairing water-damaged flooring as part of replacing a water heater.

8. Electrical Issues

The two primary energy-related health and safety electrical concerns are
1) Insulating homes that contain knob-and-tube wiring and
2) Identifying overloaded electrical circuits.

Older electric wiring, primarily knob-and-tube wiring, located in a wall cavity or exposed on an attic floor was originally intended by code to have *free air movement* for that would cool the wire when carrying an electric current. Laboratory tests have shown that retrofitting thermal insulation around electric wiring can cause it to overheat, resulting in a fire hazard.

Arizona program policy requires that subgrantees ensure that insulation around knob-and-tube wiring conforms with applicable codes in jurisdictions where the work is being performed.

Serious electrical hazards exist when gross overloads are present. Should auditors and crews find such existing problems, they must notify the owner verbally and in writing by the subgrantee WAP program manager.

Weatherization measures that involve the installation of new equipment such as air conditioners, heat pumps, or electric water heaters can exacerbate previously marginal overload problems to hazardous levels. The problem must also be noted in the client file. To the extent that these problems prevent adequate weatherization, the agency should consider repairing them on a case-by-case basis.

9. Refrigerant Issues

The replacement of air conditioners requires subgrantees to ensure that the requirements of the Clean Air Act 1990, section 608, as amended by 40 CFR 82, 5/14/93, be enforced. The appliance vendor, de-manufacturing center, or other entity recovering the refrigerant must possess EPA-approved section 608 types I or universal certification. Subgrantees must ensure they have appropriate protocols in place that comply with all standards relating to the disposal of the existing appliances.

10. Other Code Compliance Issues

It is the subgrantee's responsibility to ensure that weatherization-related work conforms with applicable codes in jurisdictions where the work is being performed.

E. Deferral Standards

The decision to defer work in a dwelling is difficult, but necessary, in some cases. This does not mean that assistance will never be available, but that work must be postponed until the problems can be resolved and/or alternative sources of help are found. Note that subgrantees, including crews and contractors, are expected to pursue reasonable options on behalf of the client, including referrals, and to use good judgment in dealing with difficult situations.

Subgrantees will develop guidelines and a standardized form for such situations. The form will include the client's name and address, dates of the audit/assessment and when the client was informed, a clear description of the problem, conditions under which weatherization could continue, the responsibility of all parties involved, and the client(s) signature(s) indicating that they understand and have been informed of their rights and options.

Deferral conditions may include:

- The client has known health conditions that prohibit the installation of insulation and other weatherization materials.
- The building structure or its mechanical systems, including electrical and plumbing, are in such a state of disrepair that failure is imminent and the conditions cannot be resolved cost-effectively.
- The house has sewage or other sanitary problems that would further endanger the client and weatherization installers if weatherization work were performed.
- The house has been condemned or electrical, heating, plumbing, or other equipment has been "red tagged" by local or state building officials or utilities.
- Moisture problems are so severe they cannot be resolved under existing health and safety measures and with minor repairs.
- Dangerous conditions exist due to high carbon monoxide levels in combustion appliances, and cannot be resolved under existing health and safety measures.
- The client is uncooperative, abusive, or threatening to the crew, subcontractors, auditors, inspectors, or others who must work on or visit the house.
- The extent and condition of lead-based paint in the house would potentially create further health and safety hazards.
- In the judgment of the energy auditor, any condition exists which may endanger the health and/or safety of the work crew or subcontractor, the work should not proceed until the condition is corrected.

REFRIGERATOR REPLACEMENT POLICY

The following criterion applies to replacement refrigerators:

ELIGIBILITY FOR REPLACEMENT

Weatherization Program Notice 00-5 lists the types of refrigerators that may be installed with U.S. Department of Energy (DOE) funds. Refrigerators and refrigerator-freezers with manual, automatic, or partial automatic defrost are eligible. Units must comply with UL-250 and with energy efficiency standards established in the National Appliance Energy Conservation Act of 1987 that are periodically updated. New replacement units may **not** have through-the-door ice or water service since this feature increases energy use.

To qualify for replacement, the refrigerator replacement unit must result in a savings-to-investment ratio (SIR) of 1.0 or greater.

To determine the SIR, one of the following methods must be used to determine the energy use of the existing unit:

- Refrigerator replacement analysis tools that utilize the Association of Home Appliance Manufacturers or other approved refrigerator databases.
- Meter electric usage of the existing unit utilizing an approved meter. A list of approved meters is available from the OEP.

METERING REQUIREMENTS

- Meter at least 10% of units replaced — It is not required to meter every existing refrigerator that is replaced. Initially, as the program gains experience, DOE will require metering on at least 10% of the units replaced. Units that cannot be located in the Association of Home Appliance Manufacturers, or other refrigerator databases, may make up all or most of the 10% requirement.

- Meter at least 2 hours — The minimum metering duration required to obtain results accurate enough to make a reliable replacement decision has been debated for several years. DOE believes a two-hour minimum metering duration is an appropriate compromise.

MATERIALS

- New refrigerators shall:
  - Not exceed the size of the replaced unit.
  - Have a minimum 1-year warranty.

INSTALLATION

- The electrical outlet shall:
  - Provide the voltage specified on the ID plate of the new refrigerator.
  - Be properly grounded and/or protected with a properly functioning GFCI device.
  - Be located within reach of the refrigerator without the use of an extension cord.
  - Be in good condition with nothing visibly wrong (e.g., not cracked or broken, and no spark, smoke, or burn marks, etc.).
  - Meet refrigerator manufacturer's specifications for space and clearances.

- The contractor shall:
  - Deliver and install the new refrigerator.
  - Level the unit to ensure proper operation.
  - Ensure that door hinges are on the appropriate side.
  - Instruct the customer on refrigerator operation.
  - Deliver warranties and operating manuals to the customer.
  - Set temperature controls appropriately.

DISPOSAL

- The contractor shall:
  - Take unit out of service. Make sure the existing refrigerator, removed from the house, and **DOES NOT** find its way back onto the electric grid.
  - Dispose of unit in an environmentally responsible manner. All refrigerators replaced must be properly disposed of according to the environmental standards in the Clean Air Act of 1990, section 608, as amended by Final Rule 40 CFR 82, May 14, 1993.
  - Take unit to a de-manufacturing facility or incorporate disposal requirements in vendor contract.
  - Remove all packing materials from the customer's premises.

REPORTING

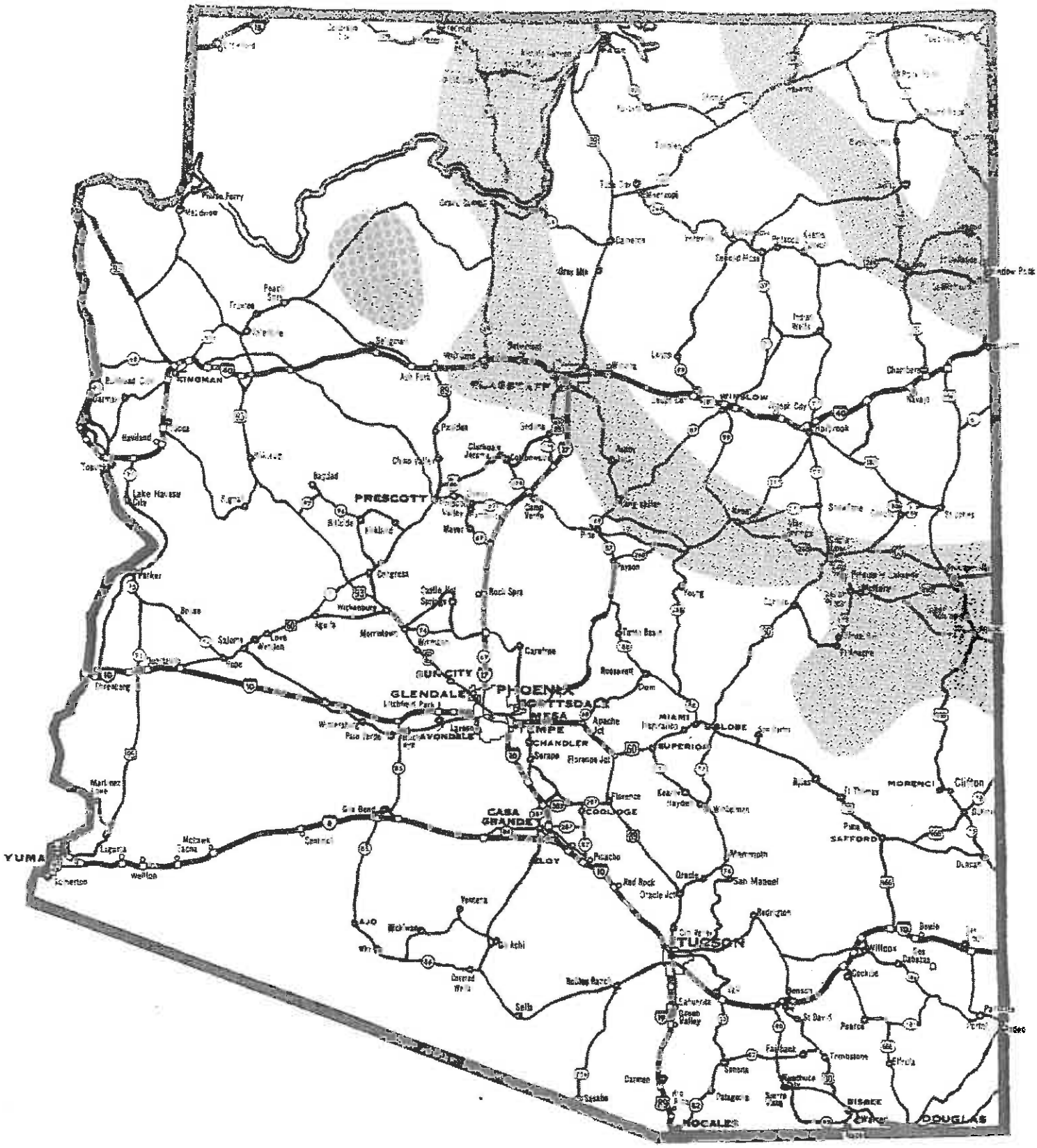
- The sub-grantee shall record the following information for both the existing and replacement refrigerators:

- Manufacturer (for years available)
- Brand
- Year of manufacture
- Model number
- Type (e.g., side-by-side, top freezer)
- Database estimated kWh/yr

- On metered units, the sub-grantee shall provide an estimated annual kWh usage and the duration of metered data.
- Provide saving to Investment Ratio for the replacement refrigerator.

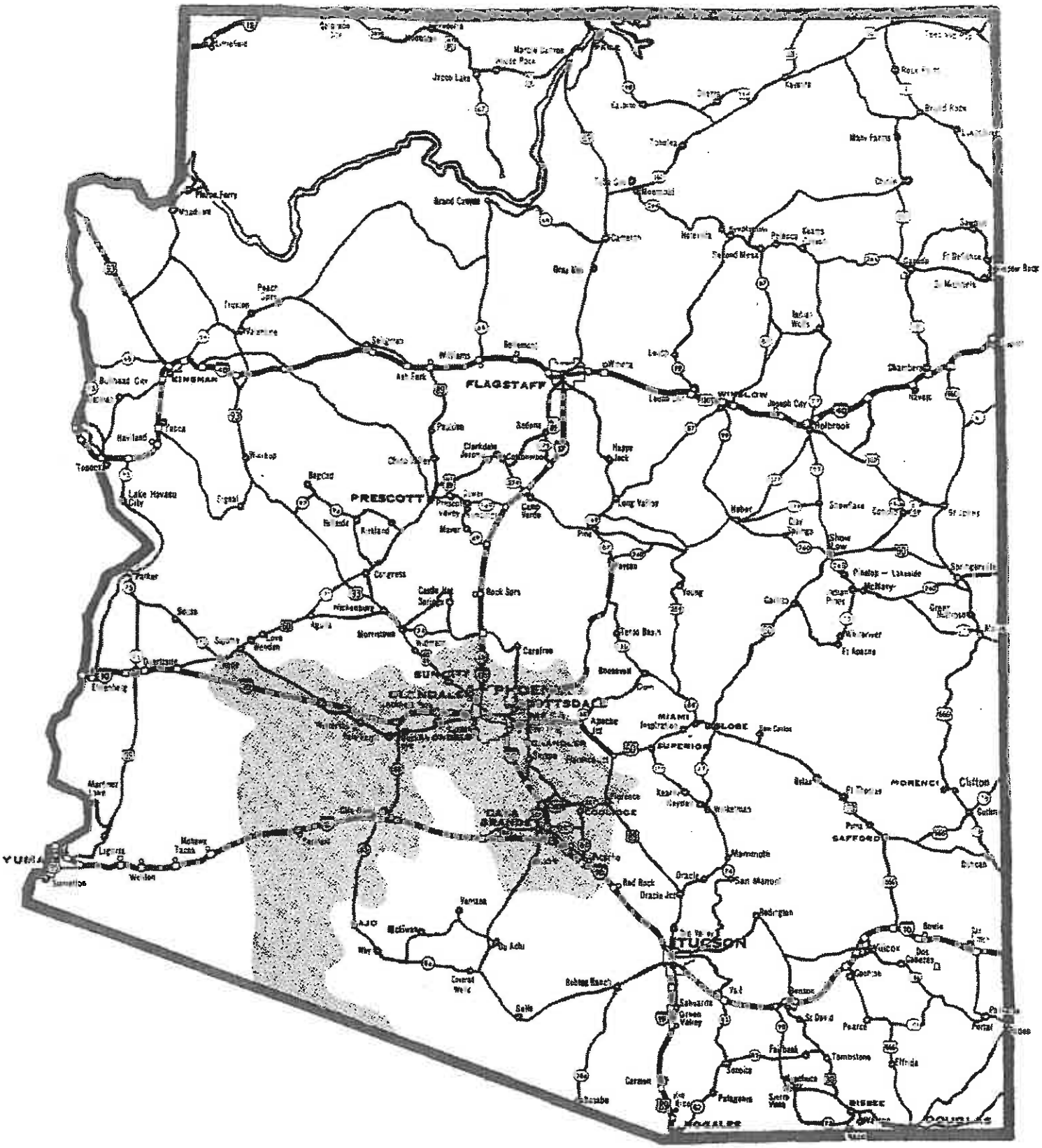
WRITTEN AUTHORIZATION

There may be cases where it is the best interest of the client that a refrigerator be installed that does not meet the requirements of the Weatherization Assistance Program Refrigerator Replacement Policy. In these cases, written authorization must be obtained from OEP.



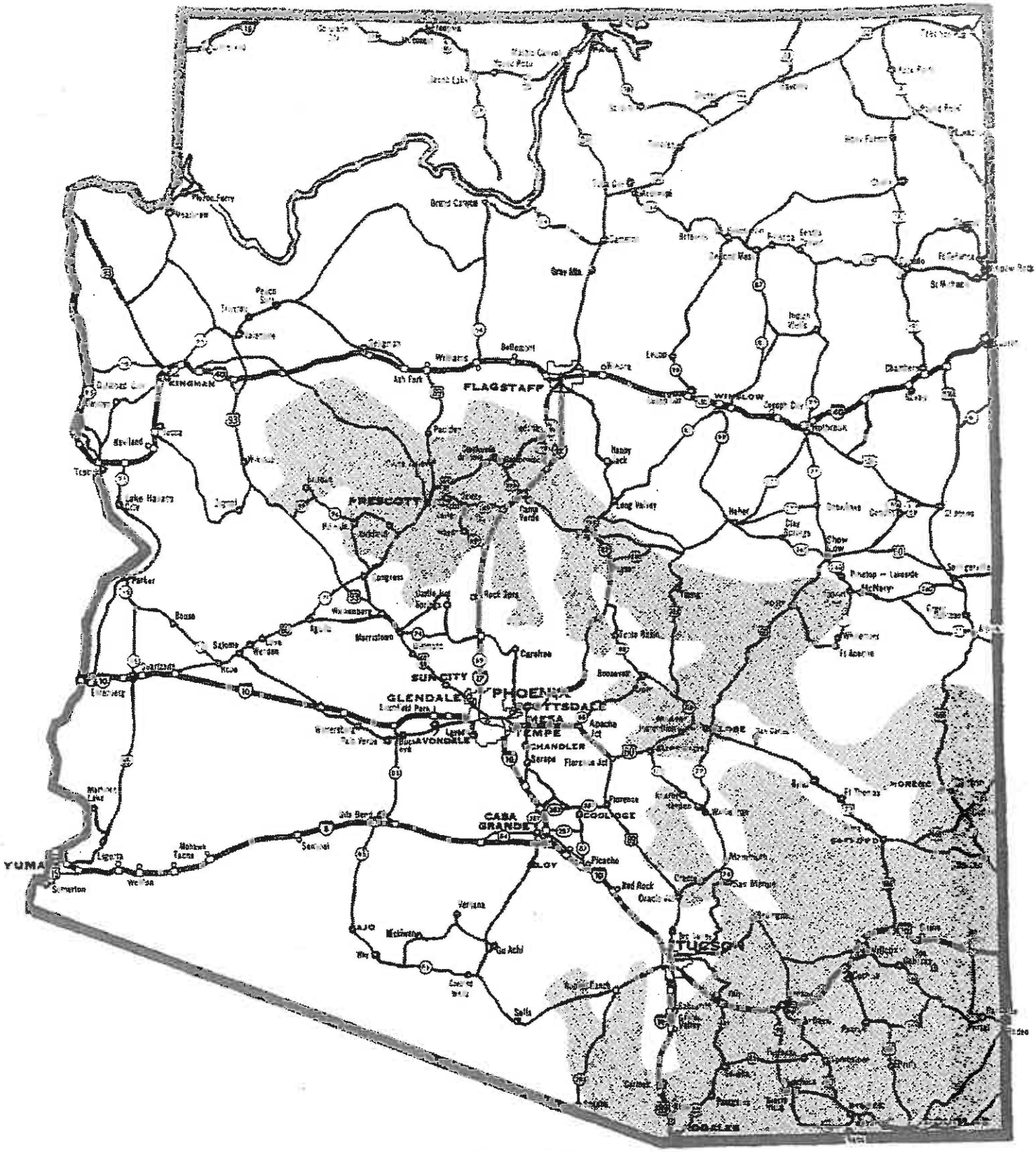
Climate Zone 1 Locations

Flagstaff
Fort Defiance
Grand Canyon
Happy Jack
Heber
Kayenta
McNary
Nutrioso
Pinetop-Lakeside
Show Low
Springerville
Whiteriver
Williams
Window Rock



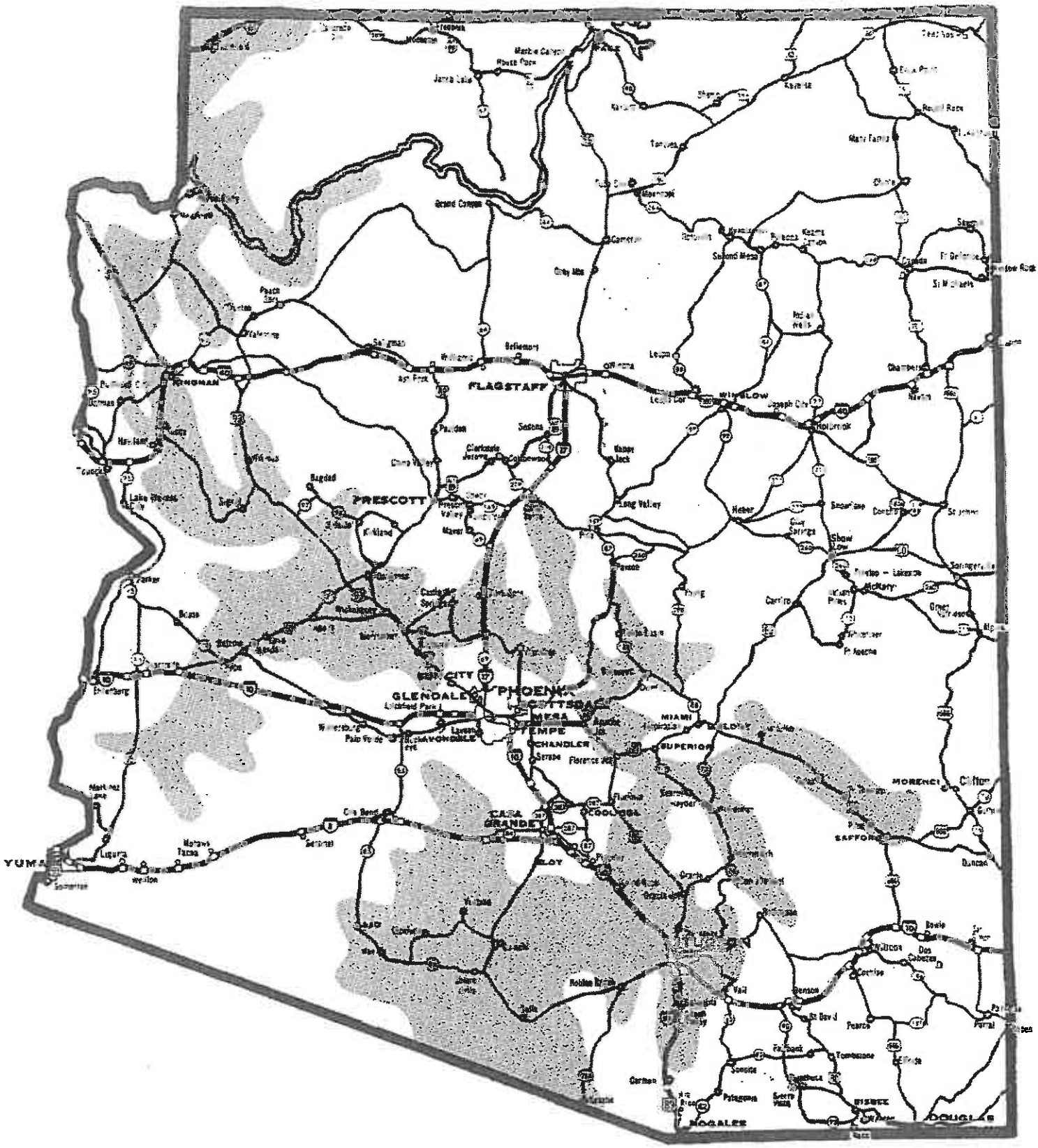
Climate Zone 2 Locations

Apache Junction
Avondale
Buckeye
Casa Grande
Chandler
Coolidge
Eloy
Florence
Gila Bend
Glendale
Litchfield Park
Mesa
Phoenix Area
Picacho
Scottsdale
Sun City
Tempe



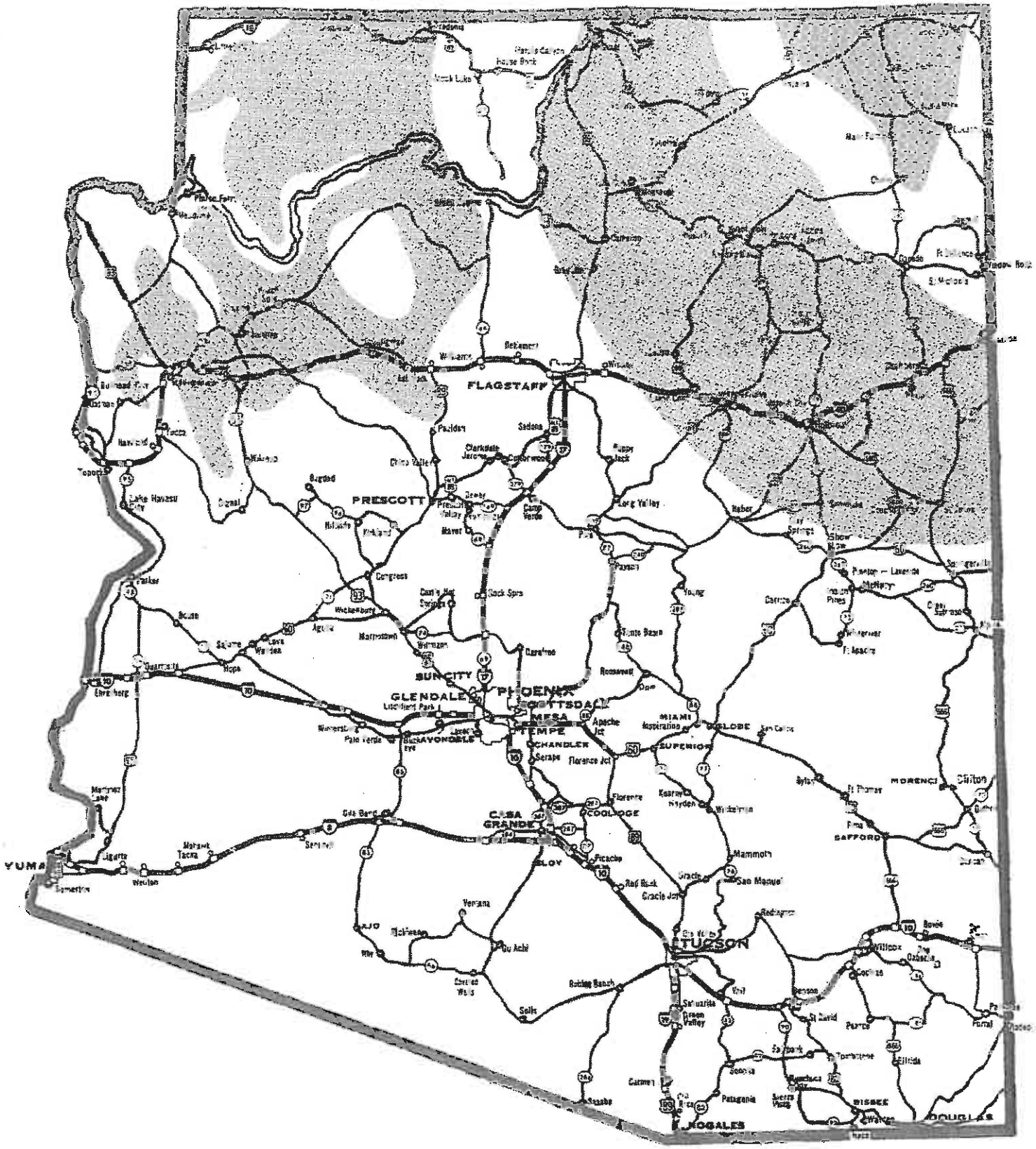
Climate Zone 3 Locations

- Bagdad
- Bisbee
- Campe Verde
- Chino Valley
- Clifton
- Cottonwood
- Douglas
- Duncan
- Globe
- Mayer
- Miami
- Nogales
- Oracle
- Patagonia
- Payson
- Prescott
- Sedona
- Willcox



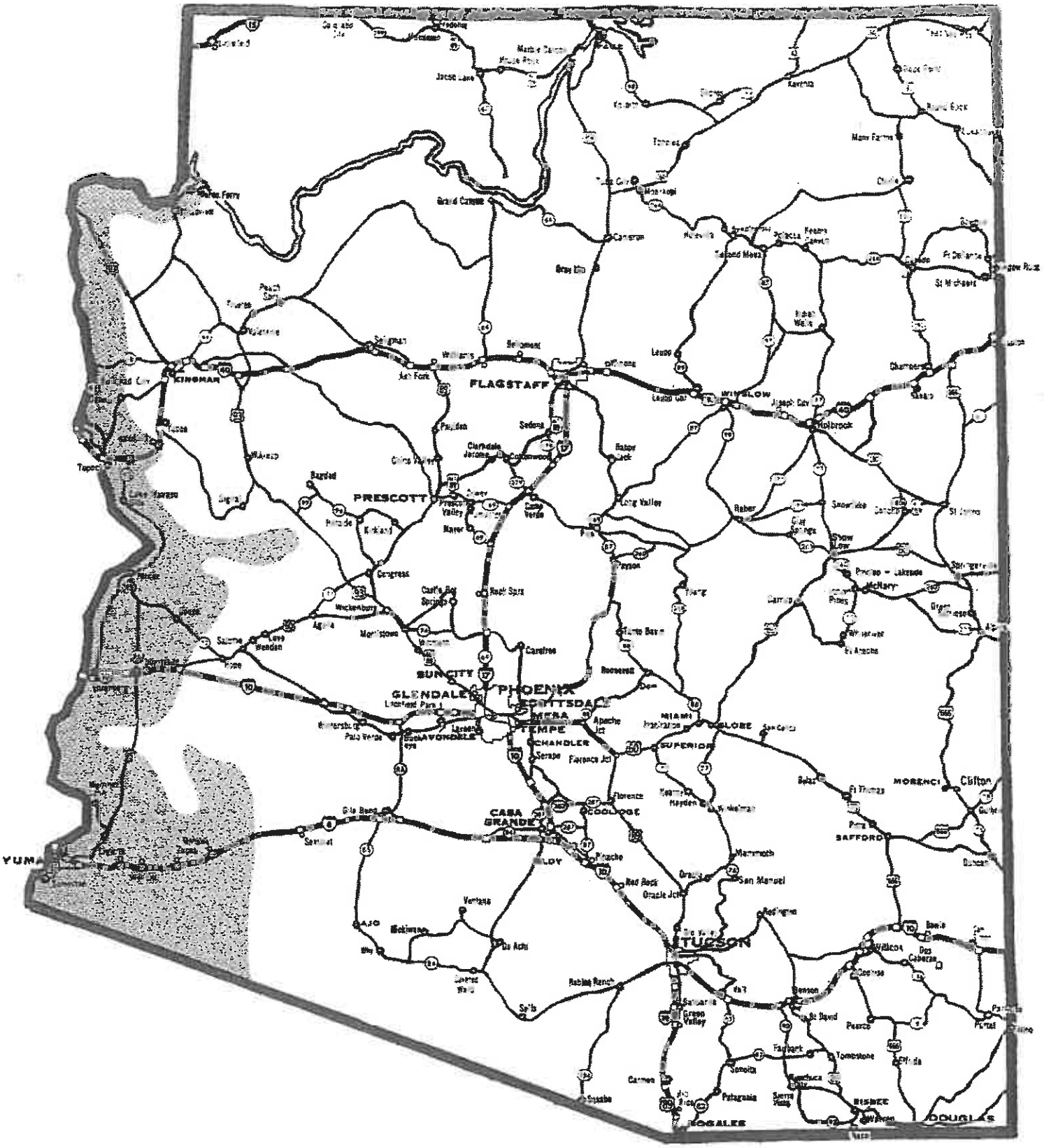
Climate Zone 4 Locations

Aguila
Ajo
Carefree
Fort Thomas
Green Valley
Gu Achi
Hayden
Kearney
Kingman
Morristown
Pima
Safford
Salome
San Carlos
Sells
South Tucson
Superior
Tucson



Climate Zone 5 Locations

Ash Fork
Colorado City
Fredonia
Holbrook
Joseph City
Keams Canyon
Mocassin
Moenkopi
Page
Peach Spring
Polacca
Saint Johns
Seligman
Snowflake
Tuba City
Winslow



Climate Zone 6 Locations

Bullhead City
Ehrenberg
Lake Havasu City
Parker
Quartzsite
Somerton
Wellton
Yuma