Weatherization Plus
Health
(Healthy Homes)

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Mission of Weatherization Assistance Program (WAP)

To reduce energy costs for low-income families, particularly the elderly, people with disabilities, and children, while ensuring their health and safety.
Health & Housing Connection:
Link between health & indoor environment is well established

- Asthma triggered by indoor environmental conditions
- Lead poisoning from old paint
- Radon, carbon monoxide and other toxic substances cause health threats
Health risks of the families we assist:

- Asthma: children and adults
- Other respiratory illness
- Exposure to lead dust
- Compromised immune systems
- Chemical sensitivities
- Smokers and exposure to second-hand smoke
The homes we work on:

- Little or No insulation
- No exhaust fans
- Exhaust fans venting to attics
- Poorly vented combustion appliances
- Lots of dust
- Clutter/poor housekeeping
- Chemicals stored inside

- Pests – rodents, insects
- Dust mite habitat
- Moisture problems/wet crawlspaces/ damp
- Mold – variety types, places
- Lead paint
- Poorly ventilated spaces
Weatherization Perception

While many people still perceive WAP primarily as an energy conservation program, it is clear the work delivered through this program has a significant societal benefit in improving indoor air quality, thus potentially reducing health care needs for many low-income families.
Weatherization Should . . .

At a minimum not inadvertently create or exacerbate health and environmental threats in the home.

And whenever possible weatherization should improve the indoor environment.
Weatherization plus Health Timeline

- 1993 and 1995 EPA Environmental Justice Grants (Used to create Indoor Air Coalition of Whatcom county)
- 2002 HUD Healthy Homes Grant (pilot project)
- 2005 Head Start starts referring families
- 2008 Energy Assistance takes over conservation education role
- 2009 Private donation and commitment of $100k annually
- 2010 Energy Assistance takes the lead in the agency on Healthy Homes
- 2010 Agency receives EPA grant to train home visitors in the community in the 7 principles of HH and to make HH referrals
Community Partnerships and IAQ Coalition

Energy Assistance
Early Learning and Family Services
Weatherization & Home Repair
Building Performance Center
Whatcom and Island County Health Departments
Northwest Clean Air Agency
Health Ministries Network of Whatcom (interfaith)
Health Clinics
Tribal Representatives
Implementing WX *Plus* Health

Essential Ingredients

- Buy-in from Staff & Agency board
- Technical Expertise and Training
- Integrated & Efficient Systems
- Partnerships
- Funding
Healthy Homes Principles

7 Elements of a Healthy Home

The indoor environment should be...

- Dry
- Clean
- Well ventilated
- Combustion byproduct free
- Pest free
- Toxic chemical free
- Lead Hazard free
WX Plus Health Program

Weatherization
- House/structure as a system
- Air Movement and pressures
- Humidity and Temperature
- Heating and cooling systems
- Insulation & Related Repairs

Infrastructure

Additional Services
- Education
- Indoor Air Quality
- Rodent & Pest Exclusion
- Moisture/Mold
- Advanced Ventilation
- Performance Testing

Weatherization Plus Health Program
Referrals

Energy Assistance
Early Learning programs
Indoor Air Quality Coalition
Housing Case Managers
Community Service and Health Providers
Eligibility

Integrated with existing eligibility services to maximize efficiency and centralize application processes for clients (Energy Assistance Program).

Follow eligibility rules and standard procedures for Weatherization.

Determine Appropriate Assessment Level: If the client answers “yes” to one or more of the additional questions the project will receive the Weatherization Plus Health assessment* (Improve Indoor Air Environment).

Education & Weatherization Coordination

- Energy Assistance Screens Eligible Clients.
  - HH Educator visits client, creates targeted action plan, and provides Do-It-Yourself HH items.
  - The HH educator coordinates with the Weatherization auditor on suggested HH improvements to be implemented during the energy efficiency retrofit.
  - Educator summarizes suspected asthma triggers, develops initial HH upgrade recommendations and makes referral to Weatherization.

- Educator reviews completed HH project file, ensuring completeness.
Assessment

2 Levels

Basic Weatherization / Do No Harm

Offers a basic approach and incorporates limited changes to a current WX program.

Improve Indoor Environment

Offers a more detailed audit, more intensive solutions, and a more formal and tailored educational component.
## Assessment and Strategies

<table>
<thead>
<tr>
<th>Basic</th>
<th>Do No Harm</th>
<th>Improve Indoor Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weatherization Audit</td>
<td>Lead safe work practices</td>
<td>Lead hazard removal/abatement/clearance</td>
</tr>
<tr>
<td>Assume or test for lead</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostics</td>
<td>Pressurized blower door testing</td>
<td>Low cost dust control and non toxic cleaners</td>
</tr>
<tr>
<td>Energy conservation measures</td>
<td>Source and primary ventilation strategy</td>
<td>Advanced ventilation strategy to improve indoor air</td>
</tr>
<tr>
<td>Air sealing, duct sealing,</td>
<td></td>
<td>Highly filtered supply air</td>
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<tr>
<td>insulating,</td>
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</tr>
<tr>
<td>Basic conservation</td>
<td>Combustion safety</td>
<td>Extended Education component includes Asthma trigger reduction and IAQ action plan</td>
</tr>
<tr>
<td>education component</td>
<td></td>
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<tr>
<td>Low cost energy saving</td>
<td></td>
<td>Old Carpet replaced with easily cleanable hard surface flooring</td>
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<tr>
<td>materials</td>
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opportunity council
Level 1 Basic Weatherization / Do No Harm

Program Components

Weatherization Audit

Diagnostics

Basic Educational Component

Lead safe work/Mold moisture survey

Energy Savings
Funding Level 1

DOE

HHS

State Funding

Utility Funding
Level 2 – Improve Indoor Environment

Program Components

Basic WX

Do No Harm

*Plus*

Lead Hazard Reduction

Comprehensive IAQ

Extended Education Component

Dust Control & Non-Toxic cleaning
Level 2 – A More Extensive Educational Component

Additional time is needed to deliver a more formalized education component that involves one on one discussions with residents to help them establish a workable and long term plan to maintain a healthy home.
IEQ & You
Informal Education for staff & clients

Dry
Minimizes mold growth • reduces chances of pests • low humidity

Clean
Eliminates asthma triggers • reduces chances of pests •

Well ventilated
Helps keep home dry • reduces strength of contaminants

Combustion Product free
These products are poisonous and should not be breathed •

Pest Free
Rodents, roaches carry disease and their byproducts are asthma triggers •

Toxic Chemical Free
Most chemicals found in the home are toxic to living organisms • by products can be asthma triggers

Lead Hazard Free
Paint that is older than 1978 may contain lead • peeling paint presents a health hazard
# Improve Indoor Environment – Education

<table>
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<tr>
<th>IEQ and You (Indoor Environment Quality)</th>
<th>Toxic Free Cleaning Tips Brochure</th>
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<tr>
<td>Asthma Home Environment Checklist – EPA</td>
<td>Eco-Clean Deck 50 Recipes for Nontoxic Household</td>
</tr>
<tr>
<td>Pollution Source Survey</td>
<td>&quot;Quit Now&quot; business cards w/ available hotline promoting smoking cessation</td>
</tr>
<tr>
<td>HH Action Plan</td>
<td>Information on Lead</td>
</tr>
<tr>
<td>HH Home Visit Report</td>
<td>Safety information CFLs and disposal</td>
</tr>
<tr>
<td>How Your House Works Workbook</td>
<td>2 different HH focused coloring books</td>
</tr>
<tr>
<td>Asthma Training Workbook</td>
<td></td>
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<tr>
<td>Moisture, Mold, and Your Home – EPA</td>
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Expanded Education

During Improve Indoor Environment, a more detailed education package is delivered that promotes engagement with the client. It includes workbooks and in-home training to encourage and support behavior change that can lead to improved health outcomes.
Family Action Plan

Opportunity Council
Family Energy & Indoor Air Quality Action Plan

Three Steps to improve your Indoor Air Quality

1.

2.

3.

Three steps to reduce your Energy Bills

1.

2.

3.

The Opportunity Council Energy Representative has explained what we need to do to make this action plan work for us. We can call the energy representative at the Opportunity Council if we have any questions.

Signed: ________________________________
Level 2 – Improve Indoor Environment

Adding assessment tools and undertaking repairs

Assessing and delivering more complicated ventilation strategies

Repairing indoor hazards with a health link (moisture/mold, asbestos, lead hazards from lead-based paint and dust, radon, pests, dust mite habitats)

Providing additional resources to maintain a healthy home (HEPA vacuums, walk off mats, pillow and mattress covers to minimize dust mites)

Providing technical training for staff

Estimating Costs above basic Weatherization
Dust Control & Non-Toxic Cleaning
Home Asthma Trigger Reduction

- Damp Wiping
- HEPA Vacuum
- Dust Control Strategies
- Walk Off Mats
- Dust Mite Covers on Pillows & Mattress
- Non-Toxic Cleaning / Green Cleaning Kit
- Flooring Change outs
Experience with the WX Plus Health pilot project indicates that roughly 15%-20% of the homes will require this additional level of service.

Our current healthy homes related project costs are approximately $2,000 per home on top of the weatherization grant.
Funding Level 2

Utility Funding
State Matching Funds or General Fund
Federal/State Housing Rehabilitation
Federal Lead Hazard Control Funds
Private / Discretionary Funds
Federal Healthy Homes Funds
2010

Completed and closed 60 HH projects:

- 36 received a home visit, education, and healthy homes inventory (60%)
- 5 Received the above plus a Wx assessment (8%)
- 19 Received the above plus Wx upgrades (full Wx) (32%)
- $2000 Average cost for educator, inventory, pc, contractor POs
Questions?

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Indoor Environmental Intervention Demonstrated to Work

2.2 fewer unscheduled clinic or ER visits

22 fewer days with symptoms

4.4 fewer days absent from school

Results of a Home-Based Environmental Intervention among Urban Children with Asthma
Wayne J. Morgan, M.D., C.M., et al
September 9, 2004
WX Plus Health Program

**Basic Weatherization**
A weatherization audit, energy saving measures, combustion safety

Do No Harm adds to Basic Weatherization such elements as Lead Safe work practices, Asbestos awareness

Conservation education

**Education Component**
Visual survey of indoor air and health issues
Interview with client
Develop action plan for behavior changes and implementation
Low cost, no cost materials

**Improve Indoor Environment**
Additional measures that improve the indoor environment and build on basic weatherization and education component
Strategies

Diagnostics
Weatherization Audit
Energy Savings
Lead Compliance
Advanced Indoor Air Quality
Basic Educational Component
Lead Hazard Reduction & Clearance
Enhanced Ventilation
Extended Education Component
Pressurized Blower Door Testing
Dust Control & Non-Toxic Cleaning
An example of Weatherization work improving the indoor environment
Eligibility
Complete Application Questions

Are there any household members with asthma?

Does the person have a confirmed diagnosis of asthma?

Are there any household members with respiratory problems?

Are there any household members with frequent flu like symptoms (running nose, itchy eyes)?

Does anyone in your home have health problems that you feel may be attributed to the indoor environment? If yes explain.
Level 1 – Basic Weatherization / Do No Harm

Most of the work assessed and delivered in Weatherization Plus Health Level I are allowable program expenses under DOE WAP.

-Combustion safety

-Lead-safe work practices

-Moisture mitigation and ventilation