



MEMORANDUM

TO: Mayor and Members of the City Council

FROM: Rich Olson, City Manager
Dennis Gordon, Energy Officer

DATE: June 23, 2016

REF: Presentation/Discussion – Insulation and Weatherization

BACKGROUND:

During the City Council meeting of June 13, 2016, Councilman Stimatz brought up concerns regarding the City's weatherization program. His primary concern was the City requiring that its weatherization contractors use either blown in or batts insulation for attics. Councilman Stimatz mentioned that for older homes, foam insulation would be better due to the type of wiring in the house.

Under the City's weatherization program, Dennis Gordon has developed a Thermal Bypass Checklist, which is attached. During your Work Session, Dennis will be able to explain the benefits to our customers and the City by using this checklist.

INSULATION:

The blown in and batts insulation used by the City's weatherization contractors is installed to provide an R value of 38. Foam insulation is much more expensive. Due to the nature of the foam installation process, the maximum R value that can be achieved is 22, depending on the application. In addition, our existing weatherization contractors do not have the expertise or equipment to install foam insulation due to its limited use. Contractors that do have the equipment and expertise are in very short supply in our area.

As a comparison of the various insulation process methods, the following expenses to insulate a 1,000 square foot house have been calculated for your information.

Installation of Blown-in-Cellulose	\$ 891
Installation of Batt, Rolled or Reflective Insulation	\$1,530
Installation of Spray Foam Insulation	\$2,677

For the City's weatherization program, \$900 has been the average spent to insulate a home using blown cellulose. This method is consistently applied to 99% of all homes weatherized. It is the most cost effective method.

To address Councilman Stimatz' concerns, staff has identified two methods to provide for the usage of foam insulation. First, if a citizen elects to utilize foam insulation and Dennis Gordon concurs that foam would be the proper method to use, that individual would receive a rebate of \$500 rather than a rebate of \$250, which is currently provided under the City's Attic Insulation Rebate Program (attached).

Secondly, if the home is being weatherized by one of the City's certified contractors, the contractor would forgo installing blown in or batts insulation and inform the citizen that the City would pay \$900 if they wanted a foam contractor to do the work.

Once the work is completed and signed off on by one of our inspectors, a check would be cut to the property owner for the agreed-upon amount.

AVERAGE COST TO WEATHERIZE HOMES:

In previous presentations to the Council on the City's Weatherization Program, it has been reported that the average expenditure by the City per home is \$4,000. Quite naturally, a smaller square footage home would be less costly to weatherize than a larger square footage home simply because of the size of the building envelope.

Recently, the issue of "fairness" has been discussed by some members who are of the opinion that the same total amount of weatherization funding should be provided for each resident. In doing so, the City would not meet its goal to help our citizens reduce their energy bills by increasing the energy efficiency of their home, regardless of the size.

Dennis Gordon has calculated the average cost per square foot of all homes weatherized over the life of the City's program, which is \$4.04. In order to provide examples of the costs to weatherize various sized homes based on this average, the following chart is provided:

Square Footage	Cost to Weatherize at \$4.04 per square foot
1,000	\$4,040
1,200	\$4,848
1,500	\$6,060
2,000	\$8,080
2,500	\$10,100

You will recall the Council's previous discussions regarding the Arts of the Albemarle Designer House. The City spent \$10,596.36 to weatherize this home, located 2000 Rivershore Road, in 2012. This home, built in 1966, has 3,897 square feet of conditioned living space. In applying the \$4.04 average cost to 3,897 square feet, the total would be \$15,743.88, which is considerably more than the City's actual expenditure.

To address the perceived issue of fairness, the Council may wish to consider adopting a \$4.00 maximum amount per square foot allowance for each home weatherized by the City. Of course, some homes would not require the total allowance based on the Scope of Work developed by Dennis Gordon.

STAFF RECOMMENDATION:

By motion, amend the City's Attic Insulation Rebate Program policy to provide for installation of foam insulation pursuant to the two methods described herein.

Further, provide direction to staff regarding the adoption of a maximum allowance per square foot for weatherization services.

RCO/vdw

City of Elizabeth City

Weatherization Assistance Program

Thermal Bypass Checklist

1. Overall Air Barrier and Thermal Alignment.
 - a. Overall Alignment throughout unit
 - b. If applicable Garage Band joist Air barrier
 - c. Attic Eave Baffles
 - d. Air barrier at Band Joist
2. Walls Adjoining Exterior Walls or Unconditioned Spaces.
 - a. Walls behind Showers or Tubs
 - b. Fireplaces
 - c. Insulated Attic Slopes/walls
 - d. Walls adjoining porches
 - e. Staircase walls
 - f. Double walls
3. Floors between Conditioned and Exterior Spaces.
 - a. Air barrier is installed at any exposed fibrous insulation edges
 - b. Insulation is installed to maintain permanent contact
 - c. Blanket insulation have no gaps, voids, compressions, misalignments, wind intrusions.
 - d. Blown in insulation blown to density
 - e. Floor insulated above garage if applicable.
4. Shafts/ Opening to unconditioned space are fully sealed
 - a. Duct shaft
 - b. Piping penetrations
 - c. Flue shafts
5. Attic/Ceiling /Knee Walls Interface
 - a. Attic access panels has gaskets and insulated
 - b. Moveable insulation fits properly in opening and proper air barrier achieved
 - c. Attic dropdown stairs sealed and insulated to area standards
 - d. Dropped ceiling and soffits air barrier achieved and insulated to standard
 - e. Recessed lighting fixtures sealed and insulated to standard if not ICAT
6. Common Walls
 - a. Seal all tops at exterior and interior walls



ATTIC INSULATION REBATE PROGRAM

The City Council of Elizabeth City adopted an attic insulation "rebate program" on November 28, 2005 as amended on September 28, 2009. This program is available to residential customers of the City of Elizabeth City electric system. It is intended to assist customers with improving the energy efficiency of their residence, by offering a \$250 rebate for upgrading attic insulation in existing homes.

To qualify for a \$250 rebate, the following criteria shall be complied with:

- Purchase a \$50 insulation permit from the City's Minimum Housing Office or the Pasquotank County Inspections Department.
- Install and/or add insulation in your attic equivalent to an R 30 insulation value.
- Complete the rebate application.
- For residences located inside the City's corporate limits, return the completed application "and receipts" for the labor and/or materials used to the Minimum Housing Office to schedule a minimum housing inspection (NOTE: The applicant is required to provide a ladder for the City's inspection)
- If the residence is located outside the corporate limits of the City, a copy of the permit and inspection report from Pasquotank County must be presented to the Minimum Housing Office with the rebate application.

Once the installation has been inspected and approved, the City will mail the applicant a \$250 rebate.

Policy Amended on September 28, 2009