

Table 81. Hot Water Pipes Wrapped Before the Program and Additional Wrap Purchased (N=22)

	Customers (N)	Customers (%)
Previously installed hot water pipe wrap		
Already had pipes wrapped	1	4.5%
Did not already have pipes wrapped	19	86.4%
Don't know / not specified	2	9.1%
Were you planning on purchasing pipe wrap before participating in the program?		
No	18	81.8%
No, already installed on all available pipe	0	0.0%
Maybe	1	4.5%
Yes	3	13.6%
Don't know / not specified	0	0.0%
Additional pipe wrap purchased since program		
Have not purchased additional pipe wrap	22	100.0%
Purchased additional pipe wrap	0	0.0%

Water Heater Tank Insulation Wrap Installations

As seen in Table 82, the 19 surveyed participants confirmed that 17 water heaters were insulated by the program, which is 89.5% of the 19 installations recorded by auditors.²⁸ Two customers (10.5% of 19) report that they did not receive this measure, and none of the measures (0% of 17 confirmed installations) were installed by the customers themselves.

Table 82. Measure Installation: Water Heater Tank Insulation Wrap

19 participants received door caulk according to auditor records	Customer count (N=19)	Measures installed count according to auditor records (N=19)	Confirmed measures installed count (N=17)
Auditor caulked door(s)	84.2%	84.2%	94.1%
Auditor gave caulk to customer, customer caulked doors	0.0%	0.0%	0.0%
Auditor gave caulk to customer, customer has NOT caulked doors	0.0%	0.0%	0.0%
Did not receive door caulk	10.5%	10.5%	0.0%
Don't know (assuming auditor record is correct and measure was installed)	5.3%	5.3%	5.9%

Customers who confirmed that water heaters were insulated by the program were asked if any of the insulation has been removed from where it was installed. As indicated in Table 83, none of the surveyed participants (0.0% of 17 who confirmed installations) reported that insulation was removed.

²⁸ The 16 participants who confirmed that the auditor insulated their water heaters had 16 water heaters insulated according to auditor record. In addition, one customer did not know if they had their water heater insulated. Thus the total confirmed installed is 16 units insulated confirmed by customers plus one unit where auditor records are assumed correct equals 17 units insulated.

Table 83. Removing Program-Provided Water Heater Tank Insulation

	Customers with confirmed installation percent (N=17)	Confirmed measures installed percent (N=17)
<i>Have the water heater tank insulation that was installed through the Residential Neighborhood Program since been removed?</i>		
No, insulation currently installed	94.1%	94.1% installed
Yes, insulation removed	0.0%	0.0% removed
Not sure if insulation was installed (did not answer questions about installation)	5.9%	5.9% assumed installed

Sixteen participants who confirmed that they currently have water heaters insulated by the program rated their satisfaction with this measure on a ten-point scale where “10” is the most satisfied. As seen previously in Table 24, the mean satisfaction rating for the program-provided door caulking is very high at 9.73, and only 6.3% (1 out of 16) gave a rating of “7” or lower (this customer’s satisfaction rating is “7 out of 10). The customer with relatively low satisfaction was asked why they gave this rating, and they responded “*the wrap came loose from the tank soon after it was installed.*”

None of the surveyed participants who confirmed the installation of this measure (0% of 16) already had insulation wrap on their water heater tanks before participating in the Residential Neighborhoods program, as seen in Table 84. Prior to the program, one respondent (6.3% of 16) say they intended to purchase and install insulating wrap on their water heater, while another respondent (6.3% or 1 out of 16) said they “maybe” would have intended to insulate their water heater before participating in the program, while the remaining 87.5% (14 out of 16) did not intend to insulate their water heaters before the program.²⁹

²⁹ Participants were not asked if they have purchased additional water heater tank insulation wrap after participating the program, since this question is only asked of respondents who had the program-provided insulating wrap installed, and it is assumed that residences do not have more than one water heater.

Table 84. Water Heater Tank Insulation Wrap Installed before the Program (N=16)

	Customers (N)	Customers (%)
Previously installed water heater tank insulation		
Already had insulation on tank	0	0.0%
Did not already have insulation on tank	16	100.0%
Don't know / not specified	0	0.0%
Were you planning on purchasing water heater tank insulation before participating in the program?		
No	14	87.5%
No, already installed on water heater	0	0.0%
Maybe	1	6.3%
Yes	1	6.3%
Don't know / not specified	0	0.0%

Water Heater Temperature Adjustments

As seen in Table 85, the 44 surveyed participants whose water temperature was checked according to auditor records confirmed that their water temperature was checked in 40 cases (90.9% of 44).³⁰ Only 9.1% (4 out of 44) of these participants report that they did not receive a check of their water heater temperature and none of the participants (0% of 44) checked the temperature themselves.

Table 85. Checking Water Heater Temperature

44 participants had their water temperature checked according to auditor records	Customer count (N=44)	Temps checked according to auditor records (N=44)	Confirmed temps checked (N=40)
Auditor checked temperature	56.8%	56.8%	62.5%
Customer checked temperature	0.0%	0.0%	0.0%
Did not receive temperature check	9.1%	9.1%	0.0%
Don't know (assuming auditor record is correct and temperature was checked)	34.1%	34.1%	37.5%

The 25 participants who confirmed that the auditor checked the temperature of their water heater were asked if any adjustments were made to the temperature settings. As seen in Table 86, 44.0% (11 out of 25) report that their temperature was adjusted, while 32.0% (8 out of 25) report that there was no adjustment and 24.0% (6 out of 25) are not sure.

³⁰ Twenty-five participants confirmed that the auditor checked the temperature of their hot water, and fifteen participants were not sure if this had been done or not. Thus the total confirmed temperature checks is 25 confirmed by customers plus 15 where auditor records are assumed correct equals 40 temperatures checked.

Table 86. Adjusting Water Heater Temperature

25 participants confirmed that the auditor checked their water heater temperature	Customer count (N=25)
Auditor adjusted temperature	44.0%
Auditor did not make an adjustment	32.0%
Not sure if the temperature was adjusted or not	24.0%

The 25 participants who confirmed that the auditor checked the temperature of their water heater were also asked if they knew the temperature readings before and after any adjustments. Only one customer who did not confirm that their temperature was adjusted (7.1% of 14) was able to report the temperature reading from the home audit: this customer says their water heater was set to 90 degrees. Five customers who did have their temperatures adjusted (45.5% of 11) were able to give temperature readings: four of these customers pre-adjustment settings ranged from 130 to 180 degrees and all four were adjusted down to 120 degrees by the auditor, while the fifth participant had their water temperature turned down from 120 degrees to 104 degrees (they explained that this was “*due to young children in our home*”).

Customers whose water heater temperature was checked were asked if any further adjustments have been made since the program audit. Table 87 shows that 92.0% (23 out of 25) of participants report no further adjustments, while one participant (4.0% of 25) confirms that there was a further adjustment made and one participant (4.0% of 25) is not sure.

Table 87. Undoing Water Heater Temperature Adjustments (N=25)

25 participants confirmed that the auditor checked their water heater temperature	Customer count (N=25)
<i>Has anyone made any further changes to the temperature setting since the home audit?</i>	
No, temperature has not been adjusted since audit	92.0%
Yes, temperature has been adjusted since audit	4.0%
Not sure if temperature has been adjusted since audit or not	4.0%

The customer whose water temperature was adjusted after the audit was asked who did this and what adjustment was made; they reported that “*building maintenance turned the temperature up to 125 degrees*”. Overall, the five participants who were able to give specific temperature readings report that their water temperatures were adjusted down from an average setting of 143 degrees before the audit to 118 degrees afterwards (including one participant’s post-audit adjustment).

Twenty-five participants who confirmed that their water temperature was checked during the program audit rated their satisfaction with this measure on a ten-point scale where “10” is the most satisfied. As seen previously in Table 24, the mean satisfaction rating for the temperature check is quite high at 9.36, and only 8.0% (2 out of 25) gave ratings of “7” or lower.

The two customers with ratings of “7” or lower were asked the reason for their relatively low satisfaction with the water temperature check; these responses are listed below.

- *The temperature was too low; it didn't have any steam anymore.* (Satisfaction rating “2 out of 10”; this is the customer whose temperature was adjusted back up to 125 after the audit.)
- *I like the water to be hotter.* (Satisfaction rating “7 out of 10”; this is the customer whose temperature was adjusted down to 104 degrees due to small children in the home.)

Customers who received the temperature check without an adjustment seem to be more satisfied on the whole than those who confirmed that the auditor made a temperature adjustment, although this difference is entirely accounted for by the lower satisfaction of the two customers with adjustments who are quoted above.³¹ Another way to state this is that 18.2% of 11 customers who confirmed temperature adjustments had complaints about this measure (indicated by satisfaction ratings of “7” or lower) while 0% of 11 customers who did not confirm temperature adjustments have complaints about this measure.

Only 20.0% (5 out of 25) program participants who confirmed that the auditor checked their water temperature report that they ever checked their water temperature before the program, and only 4.0% (1 out of 25) reports checking their water temperature on a regular basis. Three-quarters of surveyed participants (76.0% or 19 out of 25) have never checked the temperature on their water heaters.

Table 88. Checking Water Temperature before the Program (N=25)

	Customers (N)	Customers (%)
<i>How often did you check the temperature on your water heater before participating in the program?</i>		
Never checked	19	76.0%
Checked once or twice / a few times	4	16.0%
Checked regularly, once per year or more often	1	4.0%
Don't know	1	4.0%

Foam Insulation Spray Installations

As seen in Table 89, a minority of participants were able to positively confirm the installation of foam insulation spray measures. A third of participants (35.7% or 20 out of 56) who received this measure according to program records claim that they did not receive any foam insulation spray (accounting for 34.0% or 32 out of 94 cans of spray distributed according to auditor records).

The 56 surveyed participants confirmed the installation of only 62 cans of insulation spray, which is 66.0% of the 94 installations recorded by auditors; this includes 42 cans (44.7% of 94) which are counted as installed according to auditor records because the customer did not know if

³¹ Eleven surveyed participants said “no” or “don't know” when asked if the auditor adjusted their temperature, and these customers' average satisfaction rating for this measure is 9.82. Another eleven participants said “yes” when asked if the auditor adjusted their temperature, and these customers' average satisfaction rating is about a point lower at 8.91 (though this difference is not statistically significant due to small sample sizes). However if the two customers with adjustments who were less satisfied (ratings of “7” or lower) were removed from this group, the average satisfaction for the remaining nine customers with adjustments is 9.89, equivalent to the non-adjustment group.

they had received the measure or not. None of the surveyed participants reported installing this measure themselves, or receiving any spare measures to install.

Table 89. Measure Installation: Foam Insulation Spray

<i>56 participants received foam insulation spray according to auditor records</i>	Customer count (N=56)	Measures installed count according to auditor records (N=94 cans of spray)	Confirmed measures installed count (N=62 cans of spray)
Auditor installed showerhead(s)	23.2%	21.3%	32.3%
Auditor gave foam insulation spray to customer, customer installed it	0.0%	0.0%	0.0%
Auditor gave foam insulation spray to customer, customer has NOT installed it	0.0%	0.0%	0.0%
Did not receive foam insulation spray	35.7%	34.0%	0.0%
Don't know (assuming auditor record is correct and measure was installed)	41.1%	44.7%	67.7%

The thirteen participants who confirmed that foam insulation spray was installed were asked if they knew how much was installed; nine (69.2% of 13) could not estimate the amount, and the other four customers estimated that from “less than one can” to “two cans” were installed (averaging about one can per household). Three of these customers’ estimates did match the auditor-recorded number of cans installed (the fourth customer estimated one can but the auditor recorded two cans), thus even among customers who confirmed that the foam spray was installed only about one in four (23.1% or 3 out of 13) were able to accurately recall the amount installed.

The thirteen customers who confirmed the installation of foam insulation spray were asked where in their home this insulation was installed; these responses are listed below. Eight of these thirteen responses identify kitchen and/or bathroom sinks and their pipes as the place in the home where this measure was installed, while four mentioned doors and three mentioned hot water heaters.

- *He sprayed the pipes from under the kitchen sink to outside the house.*
- *Under the kitchen sink and around a door.*
- *Under the kitchen sink, under the bathroom sink, and around the back door.*
- *Under my sinks.*
- *Under the house and under the kitchen sink.*
- *Under the sinks in the kitchen and the bathroom and the hot water heater.*
- *In the kitchen and maybe the bathroom.*
- *In the kitchen and two bathrooms.*
- *Around doors and the air conditioner.*
- *Around front and back doors.*
- *Around the hot water heater.*
- *It was used on the hot water heater, which is in a small closet just off of the kitchen.*
- *I don't recall.*

Customers who confirmed the installation of foam insulation spray were asked if any of this insulation has been removed from where it was installed; all thirteen (100%) confirmed that all of the auditor-installed foam insulation spray is still installed.

Twelve participants who confirmed that they currently have program-provided foam insulation spray installed in their homes rated their satisfaction with the insulation spray on a ten-point scale where "10" is the most satisfied. As seen previously in Table 24, the mean satisfaction rating for this measure is very high at 9.75, and none of these participants (0 out of 12) gave ratings of "7" or lower. Since none of the customers gave ratings of "7" or lower, none of them were asked to explain why they were less than satisfied with this measure.

A third of surveyed participants who confirmed the installation of program-provided foam insulation spray (30.8% or 4 out of 13) already had foam insulation in their homes, as seen in Table 90. Prior to the program, only three respondents (23.1% of 13) had intended to purchase foam insulation spray, while another respondents (7.7% of 13) said they "maybe" would have installed foam insulation spray before participating in the program, but a large majority of 69.2% (9 out of 13) did not intend to purchase foam insulation spray. One of the surveyed program participants (7.7% of 13) has purchased an additional can of foam insulation spray (one can) on their own since receiving this measure from the program audit.

Table 90. Foam Insulation Spray Installed Before the Program and Additional Insulation Spray Purchased (N=13)

	Customers (N)	Customers (%)
<i>Previously installed showerheads</i>		
Already had foam insulation spray installed	4	30.8%
Did not already have foam insulation spray installed	9	69.2%
Don't know / not specified	0	0.0%
<i>Were you planning on purchasing any foam insulation spray before participating in the program?</i>		
No	9	69.2%
Maybe	1	7.7%
Yes	3	23.1%
Don't know / not specified	0	0.0%
<i>Additional foam insulation spray purchased since program</i>		
Have not purchased additional foam spray	12	92.3%
Purchased additional foam insulation spray	1	7.7%

HVAC Filters and Filter Change Calendar Installations

As seen in Table 91, the 64 surveyed participants who received a year's supply of HVAC filters and/or the filter change calendar according to auditor records confirmed that 44 of them received filters from the program, which is 68.8% of the 64 measures recorded by auditors. Only 61.4% (27 out of 44) of customers confirming they received filters also confirmed that they received the filter change calendar (customers who are not sure if they received the calendar can be assumed

to not be using the calendar, whether or not they actually received it³²). There were also three customers (4.7% of 64) who report that they received the calendar but not the filters. About one in four participants who received these measures according to auditor records (26.6% or 17 out of 64) could not confirm the receipt of either the filters or calendar (including one customer who reported not receiving any filters but was not sure about the calendar).

Table 91. Measure Installation: HVAC Filters and Filter Change Calendar

<i>64 participants received filters and/or calendar according to auditor records</i>	Customer count (N=64)	Confirmed filters received count (N=44)
Received filters and calendar	42.2%	61.4%
Received filters but not calendar	10.9%	15.9%
Received filters, not sure if received calendar	15.6%	22.7%
Received calendar but not filters	4.7%	-
Did not receive filters or calendar	25.0%	-
Did not receive filters, not sure if received calendar)	1.6%	-

Customers who confirmed the receipt of either of these measures were asked if the auditor changed their filter during the audit.³³ As indicated in Table 92, three-quarters of those who reported receiving filters say that the auditor changed filters during the audit (72.7% or 32 out of 44) and one participant (2.3% of 44) changed the filter himself during the audit. The lone customer who changed the filter himself confirmed that this was “easy” to do.

Table 92. Changing Filters During the Home Audit (N=44)

	Confirmed filters received (N=44)	Percentage
<i>Did you or the auditor change your A/C or heater filter during their visit to your home?</i>		
Yes, auditor changed filter	32	72.7%
Yes, I changed the filter	1	2.3%
No, filter was not changed	8	18.2%
Don't know	3	6.8%

As seen in Table 93, three-quarters of participants who confirmed that they received the filters and the calendar (77.8% or 21 out of 27) report that they are using the calendar and changing filters though only about half (51.9% or 24 out of 27) confirm that they are changing the filters as often as suggested, while 22.2% (6 out of 27) are changing them less frequently than the calendar suggests and none (0% of 27) are changing filters more often than suggested. Another 14.8% (4

³² Program participants are supposed to receive the filters and the calendar together, since they are intended to be used together. This survey asked them to confirm the receipt of both items separately, and customers often report that they did not receive both items. However, this is more likely due to incorrect recall by participants rather than auditors failing to deliver both measures; in particular they are less likely to recall the calendar (46.9% or 30 out of 64) than the filters (68.8% or 44 out of 64), indicating many may have “forgotten about” or “lost” the calendar. However, the energy savings for this set of measures are provided by the filters and not the calendar (the calendar is just a reminder to use the filters).

³³ Three customers who confirmed the receipt of the calendar but not the filters also confirmed that no filters (0% of 3) were changed during their home audits (not shown in Table 73).

out of 27) are changing their filters regularly without using the calendar, and only 7.4% (2 out of 27) are not changing their filters at all.

Among the 17 participants who confirmed receiving the filters but not the calendar, only half (47.1% or 8 out of 17) confirm that they are regularly changing filters, though another 23.5% (4 out of 17) are not sure (perhaps indicating that someone else in the household is responsible for changing filters). Among the three customers who report receiving the calendar but not the filters, one says they are using the calendar to change filters that they did not acquire from the program³⁴ (33.3% of 3), one is changing their own filters without using the calendar (33.3% of 3) and one is not changing their filters at all (33.3% of 3).

Table 93. Using the Filter Change Calendar (N=47)

	Confirmed calendar and filters received (N=27)	Confirmed filters received but not calendar (N=17)	Confirmed calendar but not filters (N=3)
<i>Have you been using the filter change calendar and changing your filters regularly since the Residential Neighborhood Program audit?</i>			
Yes, I am using the calendar and changing filters as the calendar suggests	51.9%	0.0%	0.0%
Yes, I am using the calendar and changing filters more often than the calendar suggests	0.0%	0.0%	0.0%
Yes, I am using the calendar and changing filters less often than the calendar suggests	22.2%	0.0%	33.3%
Yes, I am using the calendar and changing filters, don't know if more or less often than suggested	3.7%	0.0%	0.0%
Yes, I have been changing filters but not using the calendar	14.8%	47.1%	33.3%
No, not using calendar or changing filters	7.4%	29.4%	33.3%
Don't know	0.0%	23.5%	0.0%

Seven participants who report that they use the calendar but change their filters less often than suggested gave estimates of how often they do change their filters: six of these customers report changing filters from between “every month or two” up to “every four months” and average 2.3 months between changing filters, while the seventh customer says only “*I check it monthly but if it's clean I don't change it.*”

Five customers who report that they received the calendar and are changing filters without using the calendar were asked why they are not using the calendar. These responses are listed below.

Participants who confirmed receiving both filters and calendar (N=4)

- *I am not sure where the calendar is.*

³⁴ This customer changes filters less often than the calendar suggests, and explained their usage of the calendar as follows: “*I just use the calendar for reference, or a reminder. I use my own filters and I change them about every two or three months, depending on the season and how visually dirty the filter appears.*”