

GREEN BUSINESS EVALUATION

MJW DRYWALL & FOAM INSULATION

The Green Alliance will consider the following factors in evaluating your business' commitment to environmental responsibility. This is meant to be a guide, not a test, and will help you think about ways to move toward further sustainability. It will also help us promote what makes you "green" to local consumers and provide transparency to the community. A green business will bring sustainable practices into some or all of the following aspects of commerce: production and service, supply chain management, employment, investment, community relations, and vendors.

MJW DRYWALL & FOAM INSULATION

Green Products

1. Do you offer a green version of a good or service? What makes it green?

X 3) Yes, everything 2) Mostly (> 50%) 1) Some (<50%) 0) None N/A

Green structures are on the rise, from energy efficient renovations to LEED certified new homes. For those concerned with global climate change, greener structures are an important piece of the solution puzzle. Buildings are the largest contributors to global house gas emissions in the United States and experts agree that structures must be designed to use and waste less energy: an approach that has environmental and financial benefits. Any green builder or engineer will tell you that efficient energy use begins with good insulation. Experienced engineers have proven that most buildings could easily be 30% more efficient simply through better insulation and proper installation of that insulation. Most builders and engineers will also recommend spray foam insulation as the single most effective and efficient insulator on the market. MJW Drywall & Foam Insulation offers this product which is inherently green. Mike Wilson of MJW Drywall & Foam Insulation explains why closed-cell spray foam and injection foam insulation are the most efficient and effective insulation on the market today.

"Vermiculite, perlite, and cellulose insulation is what you will usually find in older homes inside ceiling cavities. This kind of insulation allows a lot of air infiltration and has a low R-value of about 2.5 per inch to 3.2. This is a very old and outdated form of insulation which is still used today in cinderblock walls. For many years, and still quite commonly found today, are homes that have no insulation at all. This kind of approach to building is tied to many years of incredibly low energy prices, where individuals didn't think much about the cost of heating or cooling a building. Pre-1968, most home were not insulated at all and that was because it was not yet a common part of building but then in 1968 they started coming up with batting-type insulation, which was mainly fiberglass. Many things were tried on the market back then but most commonly used insulation became fiberglass. Fiberglass has an R-value of about 3 per inch, but this value is not really a true indicator of its performance because that R-value is assigned to show perfect performance under absolutely ideal installation conditions. The truth is that about 95% of the time, fiberglass is not installed properly, either because of sloppy installation or just the reality of how that material behaves in a typical structure. Hence, even the low R-value listed for fiberglass is not realistic. Even today, fiberglass is advertised as having an R19 but it is almost never performing at that because it is almost never installed properly. Because of the nature of fiberglass, it almost always gets compress, and when it gets compressed its R-value falls drastically. Fiberglass and other kinds of insulation that come in batting have to be cut and whenever you cut around something, that inevitably leads to a lot of air infiltration, (loss of R-value). For example, the insulation is supposed to fit tightly, stud to stud, but that almost never happens. In addition, if you look at how fiberglass is made it uses a tremendous amount of fuel in production. In order to make fiberglass, you must burn strands of glass and other elements together. In addition some fiberglass contains formaldehyde, which is a carcinogen. People are still using fiberglass today, despite the fact that there are much better alternatives. Not only does fiberglass under-perform in terms of heat and cooling loss, but it is also not good for the workers who install it and in some cases the inhabitants who breathe in the tiny toxic particles that it releases into the air when disturbed. In addition, fiberglass loses its effectiveness over time as it gets compressed. Again, fiberglass may list an R19 value on its package but it performs way under that – even the US Department of Energy has determined that fiberglass can achieve only an R-14 in the best case scenario's in laboratory tests."

Wilson also compares spray foam to cellulose insulation which is arguably better than fiberglass but still underperforms spray foam when it comes to heat retention. "Cellulose is not necessarily a bad product and it is far better than fiberglass. What's appealing about cellulose is that it is a recycled material usually made from recycled paper and other materials with fire retardant mixed in. So from a pure materials perspective, some may argue that cellulose is more sustainable but if you look at the amount of energy saved with spray foam – cellulose is not as sustainable because it simply will require a building to burn more energy to attain and hold the same temperature, in addition, if cellulose gets wet it needs to be removed and runs the risk of molding" explains Wilson. Cellulose insulation is blown in and has a published R-Value of 3.5 per inch. But Wilson explains its limitations. "The problem with cellulose is that it can settle and it inevitably over time does indeed settle, then its R-value is reduced. Cellulose can and will settle a few inches and so now you have 3 inches of empty space thru which air can escape and enter. The cellulose will allow air movement in the wall cavities ultimately creating convection loops and thus, heat loss. In addition there are people that have allergy problems with cellulose so this is another consideration. Because cellulose is essentially a loose product, it can get into the air in trace amounts," adds Wilson.

Wilson says that he researched every kind of insulation and came to the conclusion that spray foam was the best product out there and that time would reveal its superiority. Indeed this is why he chose to go into the business and offer only foam-type insulations. "When I looked into all the choices, when I was deciding what kind of insulation I should offer as a business, I knew that spray foam and injection foam were the insulators of the future. I knew that in order to make it as a business, I had to offer what was going to play a crucial role in the future of insulation along with the very best insulation available," says Wilson. Wilson says that spray foam is a much better product for many reasons. Its R-values range from 6.5 to 7 per inch and it creates a closed cell situation; trapping all the gas bubbles within its structure and not allowing air movement thru it. Studies have show that

at 2 inches of closed-cell foam insulation a full vapor barrier is achieved. “You could make a boat out of it and float on it, that’s how effective this material is,” says Mike.

Spray foam is made from a number of different substances. It is created by mixing two parts together and then blown directly into any open cavity or surface. There are two parts to spray foam; the resins, or A component and the catalyst, or B component, which when blow in together under high pressure and heat, create an incredibly effective insulator. MJW uses Demilac Heat Soy Lock spray foam, (for attics, ceilings, roofs and any exposed surface) which is a mixture of polyphenylisocyanate (liquid plastic) and the A component. The B component is comprised of polyol, surfactants, catalysts and sucrose or soy oils. When the 2 mix under pressure and heat, an exothermal chemical reaction takes place and the foam is formed. Wilson’s injection foam (for pre-existing cavities) is called Tripolymer and is a mixture of water and a foaming agent (non-toxic) and polymers which hold the cell structure together like glue, (Tripolymer has a 5.1 R-value). Both of these products attain R-Values between 5.1 and 7; higher than any other insulation available.

Wilson explains his products’ make-up. “Polyurethane foam is basically plastic and uses soy-based or sucrose based lubricants instead of petroleum. This A and B component is mixed into the foam product at the tip of the gun at about 2000 psi. All polyurethane foams use polyphenylisocyanate, or ISO. ISO is in 90% of everything you touch every day and yes, has its environmental drawbacks when it is in liquid form, (that is why we handle it very carefully), but that is also what makes it so effective as an insulator. Unfortunately, some architects, builders, and homeowners make the mistake of using open-cell foam because it’s cheaper, but its R-value is only 3.5 per inch and it doesn’t achieve a vapor barrier. The closed cell spray cell spray foam reduces your energy consumption from 65-85%. By completely sealing air infiltration, eliminating cold spots, the building achieves a more uniform heat exchange, a higher R-value per inch. Because closed cell foam, also referred to as high-density foam, is so effective it requires less of it – meaning that 3 inches of foam can do what 6 inches of cellulose might try to do.” Wilson explains that air infiltration is the number 1 reason why you have a warm or cold home; warm air is always rises, cold air drops but when you install foam insulation you dramatically reduce that air exchange so that no cold air is coming in thru your walls – this is called a convection loop. In addition spray foam goes in “monolithically”, meaning that it fills in all the spaces from stud to stud, allowing no air or vapor penetration.

Wilson’s spray foams use 20% recycled plastic components and all meet the LEED certification criteria, (the essentials of that criteria, is to have a percentage of recycled material and non-petroleum based lubricant. All of MJW spray-foam is LEED and Energy Star certified.

In the drywall department MJW offers green options as well. “We carry recycled metal studs, and most of our sheetrock has a percentage of recycled materials in it. In addition we do offer green and Leed certified sheetrock.” Alternative choices in dry walling have to do with healthier air quality. MJW carries mold resistant and no-mold sheetrock as well as “Greenguard Certified” and “Greenguard Children and Schools Certified” drywall gypsum. This product meets the industry’s strictest indoor air quality standards. Studies show that adults spend 90% of time indoors and the indoor air quality can be 2-5X more polluted than outdoor air. The “greenguard” certification applies 3rd party standards with rigorous manufacturing and indoor air quality tests which assure that this product does not hinder a healthy indoor air quality environment. Wilson says this kind of green certified dry wall costs more but there are definitely instances where it is essential (allergies, low air flow areas like bathrooms and basements).

2. Do you offer it as a choice alongside other non-green products or is it all you offer?

3) Only green products sold 2) More (>50%) 1) Some (>50%) 0) None N/A

MJW’s spray foam and injection foam insulation is the greenest on the market. Wilson has chosen to aggressively educate the consumer and ultimately dissuade them from choosing open-cell foam because it drastically underperforms closed-cell, but due to market and demand constraints, does offer it to his clients if cost is a major factor. If you compare foam to cellulose – while the cellulose itself may be more sustainable – it wastes more energy so a long term analysis makes foam more sustainable. When Wilson’s spray foam is applied to roofs, it can reduce heating and cooling by 50%. Foam roof insulation is also qualified as an official Energy Star Cool roof, meaning that, in addition to keeping a building’s heating and cooling in, it reflects the sun’s heat and UV rays and can lower the temperature of a roof by up to 100 degrees. (Roof foams are sprayed with a light-colored reflective coating). These kinds of roofs can last upwards of 30 years – reducing replacement costs and the materials that go along with it. Spray foam insulation in the attic and crawl spaces also has drastic effects on a home’s energy use as well as safer air quality because unlike the small fibers of batting or cellulose, foam seals up and stays sealed. It also prevents ice dams which commonly form when heat escapes upwards and melts the snow on the roof which when that melted water meets back up with the colder part of the roof, freezes and expands, often creating damage. Polyurethane foam also strengthens walls, making a home longer lasting and more durable (especially in storms, high winds or floods). High density closed-cell foam inside stuff walls adheres to the sheathing and studs, reinforcing both. Studies show that foam filled walls add from 75%-up to 300% racking strength to walls.

MJW offers spray foam, for new construction or open cavities and injection foam, for older homes that have no insulation or poor insulation. Both create an airtight seal that results in fuel efficiency, air quality and structural integrity. It also has been proven to help with mold prevention. Both foams must be installed properly and by certified and trained professionals for safety and efficacy and in order to qualify for the many state, federal, and utility company’s weatherization rebates now available. Studies show that heating and cooling account for 50-70% of a home’s energy use – the US Dept. has determined that 40% of that energy is wasted due to air infiltration (poor or non-existent insulation). Studies show that closed-cell foam can save a home 38-48% in utility bills (with as much as 58% for propane heated homes). Insulation competitors, fiberglass and blown-in cellulose, leave cracks, crevices and leaks whereas foam expands to form an airtight seal. R-values (which measure resistance to heat transfer) are 3.7 per inch for cellulose, 3 for fiberglass and 7 for foam. Blocking out air infiltration allows for smaller heating and cooling systems and lower energy use.

“The true measure of the “greenness” of our product is the fact that we have an R-value double that of our competitors. Its actually simple chemistry that has been around for a long time, but only now consumers are beginning to realize the real value of foam insulation.” explains Wilson. We also offer thermal imaging and blower door tests to determine exactly where you are losing your heat and make sure that we offer the most cost efficient solutions. Sometimes the customer will ask for open-cell foam (because it is so much less expensive) but we do our best to tell them why it doesn’t perform well and to show them that its better to invest a little more now to save lots over time.” adds Wilson

MJW made sure they were offering the least toxic foams available. “There are 2 injection foams on the market that we won’t install because they contain urea-formaldehyde, a substance banned in Canada and the US in 1982 due to health reasons and off-gassing. We took a good hard look at what was on the market and settled on Trypolymer (for injection foam) because it is the most environmental friendly and non-toxic. You can put your hands right in it! I work with this stuff everyday and I have a family to go home to – I don’t want to be working with a dangerous product. Some of the foams are made from materials that can sicken workers, kids and pets. We are not going to be involved with that kind of product,”

UPDATE: Wilson has since expanded his products to include cellulose insulation made of 100 percent recycled paper. Currently he sources from two outfits – Green Fiber, which is out of Albany, and National Fiber, out of Springfield, Massachusetts. And while Wilson himself would rank the recycled paper insulation third in terms of the effectiveness and green credentials of his products, that’s like calling it “the worst of the best”. And there’s a silver lining: while not quite as effective as his other products, the recycled, blown-in cellulose insulation can be more affordable for the average home owner, as well as still being applicable to the available state and federal rebates for homeowners who improve their home’s efficiency.

3. Do you educate the customer about what makes this choice sustainable; encourage it? How do you and your employees keep abreast of sustainability developments in your industry?

X 3) Yes, education major part of business strategy; aggressive efforts to stay educated 2) Yes, but not central focus of sales/marketing; some on-going education 1) Minimal education 0) No education N/A

A visit to the MJW website will convince anyone of just how much this company does to educate the public on the importance of insulation. Wilson has aligned his business with the greenest entrepreneurs in the region, developing business relationships with them and even providing links to their sites from his. Clearly MJW has invested significantly in the “messaging” of insulation on his website, in the community and through advertising. Wilson’s product is Energy Star and LEEDs rated – forming a completely airtight, mold and moisture resistant barrier. “Closed-cell foam saves 30-50% off monthly utility bills and the 2lb closed-cell foam we use can get the average homeowner a full payback in 5-10 years. This is something we never stop talking about,” says Wilson. Indeed the website has reams of info on why it’s important to insulate and how it works, there is also tons of data on how spray foam compares to everything else out there. The MJW website is also equipped with extensive info on all of the NH state and federal rebates for weatherization and other energy saving products or techniques and how to apply for them. Direct links connect visitors to the Database of State Incentives for Renewables and Efficiency as well as info on homeowner incentives for insulating, from property tax exemptions to state rebate programs to utility loan programs and utility rebate programs.

“First we try to find out what the main source of the problem is and give recommendations based on what we find. We feel it is important to give the client the full story on what is happening with heat loss in the home and exactly what effect this is having on their bills and the environment in terms of burning wasted fossil fuels. We find that the use of a thermal imaging camera and a basic walk-thru and blower door test are incredibly effective at educating the individual homeowner on waste. It’s important for us to tell this story through the client’s house – so they can see what the effects of poor insulation are having on their own home and energy use. This is the main educational component – actually showing them in their own home where they are losing heat and how this doesn’t need to happen. We look at the home holistically so that if we see bad windows, we are going to educate the client about the importance of dealing with them as well. You have to start with the basics, find where the problem is and then educate on what can be done. What’s exciting for us is that we can talk to the client about the whole picture so that someone might come to us for strictly insulation but we are going to talk to them about making the other necessary changes to make their home overall more efficient. So we are looking at the walls, in the attic, at the roof but we are also looking at the windows, at the heating system itself. Its in our best interest that the client make all the changes to maximize efficiency. We don’t want to put in an extensive insulation job and then have heat still being lost thru the windows,” explains Wilson

MJW uses a blower door test to calculate the total cubic feet per minute of airflow through their walls windows ceilings and foundations. They are careful not to proscribe something that might not work. “It’s very important to find out what the house needs. For example, we went to look at a 2 story, 3,100 sq feet house recently. It had some cellulose in one wall but that had settled and the rest weren’t insulated at all. We added injection foam into all of those walls and then we did a post blower door test. The foam we added had yielded 2,100 cubic feet per minute reduction in air flow. That home went from 4,835 cubic feet of air exchange per minute to 2665! And still we knew a house that size should be about at 1800 cfm, so we identified another problem and recommended spray foaming the attic. This \$7,600 job is expected to have 3.8 year payback according to the computer modeling software we use called “Treat”. This client had no insulation at all in his attic and once they saw the difference we made in the walls, they contracted us to come back and spray foam their attic.”

MJW stays informed on the cutting edge of insulation info and technology. They are members of the Spray Polyurethane Foam Alliance, an industry alliance which develops tools to educate, communicate and influence the construction industry and public on the positive benefits of spray foam insulation. “The SPFA is an incredibly important org. for us. They keep us informed with monthly publications and updates on building codes and products and they are very health focused, from making sure workers are using/installing the products properly to the latest test results for energy conservation.” Wilson attends many home, energy and building shows in the region with a special educational display which illustrates the effectiveness of spray foam as compared to cellulose and fiberglass. His website has the same test results, diagrams and articles touting the importance of insulation and

efficacy of foam. “When people see my display which I call a “hot box” they really get educated,” says Wilson. “It has 3 compartments comparing cellulose, fiberglass and spray foam. Each compartment has a ball on top of the insulation – air is sprayed underneath each compartment and of course the ball goes straight up with the fiberglass, it floats and bobs with the cellulose but doesn’t move at all over the foam because there is simply no air exchange! This air is also heated in each box and each compartment has a digital thermostat in it. The spray foam box which is directly over the heat gun typically is 40° cooler than the other two” Wilson stays on top of all the industry updates thru web research and is constantly retraining himself and employees. All MJW employees have been fully trained and are certified installers. MJW is also officially accredited which is a requirement to receive state and federal weatherization rebates.

4. Does the customer pay more for the “green” option?

3) Costs less or same 2) costs a little more 1) Costs significantly more 0) almost cost-prohibitive N/A

Spray foam insulation is a higher priced product up front but if you add in money saved on energy in a longer-term cost benefit analysis, high performance closed-cell foam jobs usually pay for themselves in 5-10 years. MJW uses the tag line, “insulation doesn’t cost, it pays”, because the true cost of not insulating is far greater. It’s a question of home and business owners shifting their thinking so that they are willing to incur some up front costs but then the insulation will have paid for itself and then some in a few years. In addition to saving money on energy costs, foam increases the structural strength of walls making the house better able to withstand high winds storms or floods. Walls sprayed with closed-cell foam have an increased structural strength of 75-200%. In addition spray foam roof insulation can last over 30 years, an impressive number for exterior applications, reducing replacement costs substantially and attic insulation can prevent ice and water damage by eliminating ice dams. “I often ask clients if they want to pay for good insulation now or wasted heat/energy over time,” says Wilson. “Often times we will even do the math for them and when they see the numbers, they are more willing to make the investment. With an average payback of 5 to 10 years, insulating properly is actually a pretty savvy investment. As buyers are becoming more interested in how much a home costs to heat or cool, having a well-insulated building can make a house more desirable. The facts show that by insulating properly you can reduce your energy costs by up to 80% – so yes you need to pay a little more upfront but then you will save on energy costs over time. It’s the same analysis with the greener more sustainable drywall. It does cost more upfront but in some more sensitive areas the costs of not using this kind of drywall can be exorbitant if you end up having mold or moisture issues and need to replace the existing drywall.”

5. Is there a greener version of your product? If so, what prohibits you from offering it?

3) No, offer the greenest 2) Yes, working toward offering 1) Yes, but not in business plan 0) Yes, no intent to offer N/A

“Not one that I know of,” says Wilson. “Most spray foam insulations all have essentially the same components. We would never carry the foam that has urea formaldehyde in it that could off-gas, and we have chosen to promote closed-cell because it has far superior insulating qualities and the Tripolymer injection foam that we use is about as non-toxic as they come. If you compare the insulating values of foam to cellulose it is going to save a lot of energy even though I agree that it could be argued that the material itself (cellulose) is more sustainable because it’s organic and made from recycled materials. But when it comes to creating a more efficient envelope, which is going to reduce the amount of fossil fuels burned, the Spray foam and the Tripolymer injection foam is considered the best home insulator and commercial roofing membrane available.” says Wilson. Indeed foam waterproofs, helps to prevent leaks, provides superior compressive strength, is lightweight, self-flashing (on roofs), durable and long lasting. MJW’s products are formaldehyde free and emit no VOC’s. Wilson also uses a Zone3, zero-ozone depleting blowing agent technology when blowing in the spray foam. Spray foam (for attics, crawl spaces, roofs), and the Tripolymer injection foam (for pre-existing walls), have 7 and 5.1 R-Values per inch respectively. Spray foam is an approved air barrier system with rigid, seamless construction that adds structural strength, and don’t allow moisture vapor in or heat out. It also eliminates condensing surfaces and therefore resists mold and mildew, thus providing a safer, healthier indoor environment. A straight comparison in R-Values yields; blown-in cellulose R-3, fiberglass R-3, wool batting R3.5, open-cell foam R-3.5. Depending on the home, closed-cell insulated homes can save approximately \$15,000 in energy savings over 20 years. In addition, because spray foam is recognized in building codes as an air barrier, new homes that are built with spray foam are eligible for energy efficiency incentives, under the Federal Energy Policy Act of 2005, for a 30% or up to \$1500 rebate and existing homes that use Tripolymer, are also eligible, for a \$500 rebate. New homes built with Demilac is eligible for special federal reduced rate mortgages for super energy efficient homes. (Learn more about rebates at the MJW website www.nhfoam.com).

“Are there elements of the spray foam itself which are not green? Absolutely, but remember that this product is guaranteed for the life of the home and once the A and B elements are bonded in a foam, none of that is ever getting into the air. If it were to burn, you should not inhale it but you have to balance those facts with the life time of energy savings it’s going to bring,” says Wilson. “We feel that the positives far outweigh the negatives.

Of course there are other choices out there, but have they been tested? How do they perform over time? One thing with our products is that there is a strict regimen of equipment and installation which doesn’t allow for any mistakes, we have guidelines and procedures for even the smallest amount of spray foam that might remain in a drum,” add Wilson of the care taken with any leftover components.

Wilson says there are other green similar products, different manufacturers of the spray foam, but he doesn’t believe they would be any greener. “They either meet LEEDS standards or they don’t and all of our spray foam meets these standards so we feel we have the best and greenest there is to offer. And if there was a greener product I’d be the first to offer it. I have spent extensive time

researching this; a year alone, researching spray foam manufacturers before chose Gaco Western, Green Fiber, National Fiber, Demilac and Tripolymer and then when I made the choice I and all of my workers were fully trained and certified in the product so that we would mix, handle and install it properly,” Wilson feels it is the customer themselves that are the biggest barrier to responsible building insulation, their reluctance to spend what it takes to insulate properly and thus use energy responsibly. “I’ve had potential clients tell me after I’ve done an estimate that the money they would spend to insulate would buy them a heck of a lot of oil – what do you say to people who would rather spend their money on wasting energy?!”

6. Are there greener options/products that you plan on offering in the future?

- X 3) Yes, tangible plans with date 2) Yes, no specific date 1) Possibly, investigating possibilities, no solid plan
0) No, never N/A

“If they can come up with a better insulator than closed-cell foam, we will sell it! But right now spray foam is still on the upward curve. Although it’s been around since the late 60s, the real barrier to its use was application and installation. Now with the mobile and efficient equipment it is finally starting to hit the consumer’s consciousness with a new force and has become affordable. Because we are “creating” the foam product through the marrying of A and B drums, we are actually considered a mobile manufacturing unit,” says Wilson. Although spray foam has been around for many years, it’s the equipment it takes to mix it and pump it in properly that has finally gotten efficient enough, mobile enough and cost efficient enough to do at individual locations. “What was holding spray foam back in the past was getting the mixing down to a science and now it is feasible and cost effective but spray foam is just in its beginning stages. The growth of spray foam is 300% in the last 2 years with New England having one of the largest amounts of spray foam contractors anywhere in the country. Folks are just beginning to realize the efficacy of this insulator with injection foam (which goes into pre-existing walls as opposed to spray foam in attics) still not that common. We still have a lot of educating and promoting of this product because many still don’t know about its performance. In fact there is a misconception out there that blown-in cellulose is better, add that misconception to the cost of spray/injection foam (costs about a dollar more per sq. ft) and I’d say that foam is the green product of the future!” Wilson says that many consumers don’t realize the full value of foam – that it has double the insulating value of cellulose and creates an air seal. But as new rebates and tax incentives come on with the Obama administration, foam has no where to go but up. Cellulose simply does not perform as well, yet people still choose it over foam – this will change in the coming years with higher energy prices and a political policy which puts a premium on a green building envelope.

MJW continues to look for the next best thing in other aspects of the business. “We hope to get our own blower door so that we don’t have to contract that out – it provides such incredibly useful and specific information about a home’s energy loss. We did get a truck with a diesel generator and are looking to run that on biodiesel. We would actually like to make our own waste oil to run in the generator and trucks and hope to get this started this summer.” They plan on purchasing cellulose equipment in the next year and a half so that they can offer cellulose to clients that insist on that option. Highly sustainable cellulose and what is called “Wet Wall Pack” cellulose offered in conjunction with spray foam is something that can further diversify and strengthen MJW’s insulation options and maximize R-values.

UPDATE: After including in his repertoire blown-in, recycle paper-based insulation, it is safe to say that Wilson offers the three “greenest” varieties of insulation anywhere on the market. And obviously, given his track record, if a better and more effective product were to arise, Wilson would certainly look into that as well.

Energy Use:

7. Have you conducted an energy audit? Identified areas of inefficiency? Taken corrective measures?

- X 3) Yes, official audit completed, corrective measures taken 2) Audit in process, has committed to official audit/official audit completed, corrective measures taken 1) unofficial audit, corrective measures
0) No official or unofficial audit, no measures taken

MJW’s office is a home office and all of the insulation work is done at the client’s residential site. Nevertheless Wilson applied his own product to his office/home. In the first winter, when he first started the spray foam operation, they used three 265 gallon tanks of oil, so he knew there was major heat loss and air infiltration. Starting first with a thermal scan, they determined where the heat loss was coming from and then spray foamed the attic. They he brought in the injection foam and did his entire home and office. The end result is that the entire home and office is heated with a pellet stove. The insulation was so effective they barely use any oil now (only a small amount to heat the domestic hot water). Wilson recently did another thermal scan to test its effectiveness and found 2 room joists that are losing heat. Wilson has decided to remodel to correct that and will spray foam the new area when its renovated. Lighting at home and in the office has been reviewed and all bulbs switched out to CFLs and all appliances are Energy Star. Windows have also been updated and are very efficient. All of these changes have significantly decreased energy use in the Wilson home and office.

UPDATE: Since this evaluation, Wilson has completed a full-on energy audit and has taken a number of corrective measures, including: retrofitting all of the office and home’s lighting, improving the efficiency of the boiler, as well as improved sprayfoam insulation throughout. He has also completely gutted his downstairs, replacing it with new spray-foam throughout.

8. Have you invested in energy efficient technology/equipment/appliances? Energy Star?

- 3) Yes, substantial equipment changes X 2) Some equipment changes 1) minor equipment change 0) No

new equipment N/A

In regards to the insulation equipment, which is a large part of the business – because it is very specific and sensitive technology, MJW does not have any real choices on equipment that is more efficient. “The insulation needs to be blown in and mixed, and that does require energy. For our source we usually tie into the clients electric. Don’t forget that in order to get the high insulation value this material needs to be heated and pumped, (heated to 130 degrees and pumped at 1200 psi per side (A and B)) with a force that will cause the chemical reaction. This is an essential part of our products’ performance,” explains Wilson. “So the reality is that we have no real choices on the equipment, other than choosing hydrolic or electric. Now, hydraulics might use less electricity but the costs associated with the outcome are prohibitive and hydraulics can often create a less consistent mix. Again for the performance of our product, which is going to yield energy savings over many, many years – the mix is absolutely crucial. An electric powered pump gives more consistent results at all times and it is a system that we know works.” If a homeowner doesn’t have an electric plug in (if it’s a new home that has not be outfitted with electric yet), MJW will use a diesel generator to run the equipment. They do have plans to begin to power that generator with biodiesel starting this summer. “That is my next project, to make my own biodiesel using recycled restaurant waste oil. I’ve been working on that for some time now,” says Wilson.

At the home office the refrigerator, washer, dryer, and dishwasher are all energy star. The copier and computers are new and efficient. Conservation of energy is a priority at the home/office. In regards to storing the insulation mixtures which come in drums, both A and B components must be kept from freezing. Wilson has an efficient mini heater in the trucks that keep the product warm in the cold months.

9. If you heat with oil, are you using Bioheat or some other renewable source (wood)?
 3) Yes, B20 or 100% wood 1) Yes, B5 or some wood 0) No, Oil N/A (no oil system)

Home/office is heated almost entirely with a super efficient wood pellet stove. Bioheat is in the oil furnace for back-up.

10. If your business is in Maine or Massachusetts, are you using Green Electricity? If in Maine, are you participating in the Efficiency Maine Program? If in NH, have you contacted PSNH about their business efficiency programs?

3) Yes 1) Extenuating circumstances make cost-prohibitive 0) ME or MA resident, no Green Elec.
 N/A (NH res. only)

MJW is actively working with Unitil and National Grid and is well-versed in their weatherization programs which incentivize quality insulation jobs such as spray and injection foam. As an approved contractor, MJW is well poised to help customers get the rebates and it also makes it more likely that customers will chose a more proven, effective insulator such as foam. The MJW website is filled with info on rebates and every program, state and federal, under the sun – for individuals and businesses to get educated and take advantage of these programs. “I can get the rebates for customers because we have taken the time to know the different programs offered and become an official certified installer. But most importantly this program pushes the consumer to choose the better performing insulation by incentivizing foam. We are currently working on developing tight relationships with all four of NH’s electric companies to maximize utilization of their weatherization incentives and rebates programs. Unitil bought Northern Utilities and National Grid also has a natural gas company which is now offering a prescriptive rebate. Whether gas or electric and hopefully soon oil, they are all mandated to give out the money to encourage energy efficiency. They must use those funds or they will lose those funds,” explains Wilson. He says that what’s happening now is that these incentive programs are morphing and bleeding into all the fuel providers so that monies that used to be only available in connection with reduced electrical use are now extended to every kind of fuel source, so that weatherization that reduces any kind of fuel usage is eligible for cash incentives. The basic rebate is up to \$2,000 as a credit for insulation work installed, (75% of an insulation job’s cost, with a ceiling of \$2,000. MJW currently has 3 customers accessing those rebates and a business in Statham applying for it. “We find that it’s really important to be knowledgeable about these programs, actively advocate and educate on our website and in person with the client. This can be the piece that helps them decide to insulate. Another thing we so is provide the details required by these programs so we calculate the heat/load requirements and provide that data which is essential for clients to be eligible for the rebate.”

11. Have you looked at water usage and taken steps toward efficiency and conservation?

3) Yes, steps taken 2) Some conservation measures 1) Minor measures taken 0) None N/A

Water is required to mix the insulation; 50 gallons of water per set of materials – for a 50/50 mix. Wilson obtains that water from his home/office and does notice about a 30 dollar increase in the water bill but he adds it is just the reality of the needs of proper mixing of the product. “In terms of water use in the office/home, we engage in water conservation. Our washing machine uses half the water that a normal washer does, we take short showers and do not water the lawn,” adds Wilson.

12. Do you offer bottled water at your office/store for employees & customers? *(This is highly energy intensive and unnecessary in a developed country like the U.S.)*

3) No water & has business that would traditionally offer 2) No bottles, replaced with cooler /minimal sales
1) limited sales 0) Yes, bottles N/A

Occupational Safety and Health Administration (OSHA) standards require that insulators offer all employees water in closed individual bottles due to the fact there are chemicals that could get into opened or loosely covered water jugs – so this is a rule that MJW must abide by. “Believe me I’d love to not have to provide this but it is a requirement. Because of the chemicals that are in the spray foam as a liquid form, we can not have any large containers on the jobsite so part of what we must have is small bottles of water for the employees that are installing the foam; OSHA rules,” explains Wilson.

13. Do you shut-down/unplug equipment after hours on weekends or when not in use? Do you turn off all lights after hours or if not using a room? Educate employees to do the same? *(Vampire*



loads waste enormous amounts of energy; turning off 1 computer saves 500 lbs. of CO2 yearly.)

3) Yes 1) Sometimes 0) No N/A

Yes conservation is part of the MJW ethic. Not just because they believe in it but because it saves the company money! “We practice conservation, unplugging and shutting off everything in both the office and the home – my family is totally engaged in this,” says Wilson.

14. Have you switched to CFLs; dispose of CFLs properly? LED lighting? If you have vending machines, have you installed Energy Misers? *(CFLs use 66% less energy – save \$45 over the life of the bulb! CFLs contain mercury and must be disposed of properly)*

3) Yes, all lighting CFLs, some LEDs 1) Most lighting CFLs 0) Still using incandescents N/A

All CFLs and one LED in the office. Home office – too small and no client traffic, no need for motion sensors.

15. Is your business lit-up at night? Is your sign lit-up all night? Switch these to CFLs or LEDs?

3) Lit up, using LED lighting 1) Business lit up, using CFL or fluorescents/timers in place 0) Lit up using incandescent, no timer N/A

Again, home office, no sign, all of our client traffic would be to our website or we go to the client.

16. What is your business' carbon footprint? (*Calculate it at www.terrapass.com*)

- 3) Calculated, show results upon rough estimate 1) Have not calculated officially but have taken major strides to reduce based
 0) Not calculated

MJW did take the time to calculate on the Terrapass site as a result of learning about it through the GA. "We were really pleased to find that in our business footprint we had already reduced significantly because of the insulation job we did on the home/office and the wood pellet stove. Switching to biodiesel will get us even further reductions when we begin to implement that strategy," adds Wilson. (Diesel trucks and diesel generator sometimes used to run pump and heat to mix and install the insulation).

While MJW has significantly reduced their CO2 emissions thru full re-insulation of the office/home space and thru the use of a pellet stove as a major heating source – it is the work that MJW does with residential and commercial client that has the largest impact on reducing overall CO2 in New England. For every home that MJW insulates with injection foam and/or spray foam – that building's CO2 emissions are substantially reduced every heating and cooling season. With foam insulation a building can reduce its monthly utility bills by 30-50% -- thus reducing fossil fuel burning CO2 emissions by 30-50%. Wilson's foam is also formaldehyde free and emits no VOCs and uses a zero-ozone-depleting flowing agent. Over 20 years a closed-cell insulated home can save \$15,000 in energy costs and tens of thousands of lbs of CO2. 50% of a buildings CO2 emissions come from heating and cooling with an estimated 40% of that burning of fuel calculated as pure waste from lost heat and cooling. Spray foam used on roofing systems have been proven to reduce the heat of the roof by 100 degrees. Insulations that create air barriers are proven to reduce fossil fuel use. Also one industry estimate states that certain varieties of sprayfoam take around 3.4 trillion BTUs less energy to manufacture than traditional insulation materials.

17. Do you use any renewable technology? Have you explored wind/solar/geothermal?

- 3) Yes, hardware on sight 2) Tangible plans for future 1) Researching/researched options, not possible
 0) No attention given

MJW does use a form of renewable in the pellet stove which heats the office/home. Bioheat is a portion of renewable fuel is used in the oil burner as a back up. Currently there is no real option for renewables such as solar or wind to power the spray foam equipment (MJW's largest energy user) – the technology is just not yet available. Wilson does have plans to integrate waste vegetable oil into his diesel trucks and diesel generator this summer.

18. Do you encourage/educate employees to use energy responsibly at home? Customers?

- 3) Yes, major part of business strategy 2) Some, not central focus to training 1) Minimal education, not comfortable preaching 0) No education/encouragement N/A

Mike Wilson is not the kind of guy to preach to his employees. "I don't really feel that it is my place. If they aren't wise enough to do it...I don't really feel comfortable telling them what to do in their personal life. But most my workers know the benefits of energy efficiency – it is something they are working on every day. For the most part they understand the importance of what we are doing and would carry that mentality back into the other aspects of their lives," says Wilson. "We do very often use a thermal camera to identify where the problems are and for both the worker and the customer, when you walk thru a house and see where, how and to what extent, waste is taking place – you cant help but apply that to your own home. We are sharing this info and experience with the client so that when we do the walk thru we show them what to look for and how its happening and then provide recommendations on how to fix it. So the educational process is happening everyday. We also really encourage a 3rd party energy audit so that they don't just have to take our word for it – so clients can see that we aren't just trying to sell them this insulation – that a 3rd party analysis would verify what we are presenting. We are always very careful not to present the insulation as a "cure all" – it will definitely fix some of the problems but other steps need to be taken like usage and heating/cooling systems inefficiencies. We always talk about the bigger picture. We always stress that insulation is an important piece of the puzzle but just one piece. It's better for the customer, our employees and our company's reputation."

19. Is your building LEED certified? Have you considered LEED retrofitting? EPA energy challenge? Energy Star certification?

X 3) Yes, LEED's cert or retrofitted 2) Lesser programs, EPA/Energy star; some tangible changes 1) Informal assessment of building's energy use 0) No LEED, No retrofitting, No conservation efforts N/A

Wilson believes that his home/office is now so tight from the insulation job he did, combined with the main heating source of wood pellets that he could qualify for LEED retro-certification. "We haven't really felt the need to go for this because the main thing is that we are using energy efficiently – I have seen for myself, firsthand what an incredibly huge impact on energy use spray foam insulation has. LEED does look at the building as a whole – so I'm not quite sure how we'd do in other areas, but we would certainly achieve Energy Star certification because much of that is just CFM (cubic feet per minute – air infiltration) reduction," says Wilson.

So while he didn't want to shell out the big bucks for "official" LEED certification, Wilson has clearly done everything and anything necessary so that it would.

Waste:

20. Do you recycle? How extensively? Is it easy and automatic? Have you instituted/encouraged/educated employees/customers on recycling? (*America consumes 31.2 billion water bottles a year, using 17.6 million barrels of oil to create them.*)

X 3) Yes, extensive recycling for everything produced/sold, prominent display for customers 2) More than the status quo, some special effort 1) Minimal, fulfilling status quo 0) Don't recycle N/A

"Believe me, we don't want to waste our product – it's very expensive!" says Wilson. "So keeping any waste of the spray or injection foam down to a minimum is crucial. Yes, the overspray sometimes needs to be scraped off and we typically will throw that out. We are still looking for good option for that; some way to reuse it, but because it is a very specific product that is created under certain conditions, (heat and pressure), there is no real way yet to say brake that back down and turn it back into the liquid form – especially because the way that the foam works is combining two separate materials, the A and B to create a chemical reaction that forms the finished foam product. We have about a trash bag of excess foam per job which is actually quite minimal. I'm very strict with my workers minimizing overspray because every bit of extra foam adds cost to the job. We did call ReStore in Dover to ask if they wanted it; if there was some way they could reuse it or resell it but they declined as there is not really a market or practical use for the overspray. So currently we bag it up and take it to the dump where we are always careful to put it in its rightful section," says Wilson. Wilson looks forward to the future when they will also offer the best in cellulose insulation and when they add that to their product line they will have even less waste because the left over foam could be blended in with the cellulose and used as great insulation.

MJW also does dry walling and all left over sheetrock gets recycled at the recycling plant unless it's a really large job and then it's just not feasible to take 10 truck loads to the recycling plant. MJW does this recycling even though it does cost them more – they actually have to pay the Gypsum plant in Portsmouth to take the leftover drywall which Georgia Pacific turns back into usable larger sheets of sheetrock. "Yes it costs us but we'd rather see the stuff reused than discarded. Its an incredible feat to pull this stuff out of the earth and the process uses a lot of energy – that material should be used and not just go into the landfill and get burnt, which is what would happen if we didn't bring it to the recycling plant."

Wilson says that recycling is a part of everyday operations at the home/office – paper is shredded and then recycled, all bottles and cans as well as any packaging materials that product comes in, (although the spray foam comes in drums which are also recycled – see below). "I admit that sometimes its an uphill battle with some of the employees – these are trades people that have not thought much about recycling in the past so we have to stay on them to make sure they are thinking about the waste at a job site and minimizing it," adds Wilson.

21. Have you done a waste audit? Have you reduced your waste? (if started green consider industry norms) (*See the EPA's free Waste Wise which analyzes a workplaces' municipal solid waste and helps you to monitor and reduce it!*)

3) Yes, official audit/50% reduction in waste X 2) Yes, reduced substantially, aprox. 20% 1) Slight reduction in waste 0) Nothing done N/A

MJW has not completed an official waste audit but they work hard to minimize waste and recycle what they can. From taking excess sheetrock to the gypsum recycling plant in Portsmouth to carefully reducing overspray of the foam product, to reduced energy waste at the home/office due to the insulation and efficient wood pellet story – MJW feels they have significantly reduced their business waste. "The foam components come in 55 gallon steel

drums which we take to the scrap metal yard. It actually makes financial sense for us because we get .75 cents a drum. At one point when steel prices were up we were getting \$5.95 a drum. We try to reduce trips and sometimes will bring 18 at a time to save on fuel use. Even with the current low prices for scrap metal, we still continue to bring them to be recycled. Also some recycling spots will take them for storing of their toxics, so they will be reused in that way. One thing we are always careful about is making sure there is not material left in the drums, nothing left unmixed so that when we are bringing in a drum for recycling or reuse, they are completely empty of A or B – have no left over liquid insulation product,” says Wilson. The drums arrive in pallets, which are reused by MJW or given to local businesses to be reused.

22. If you use packaging or offer food, are there cloth/paper/cornstarch alternatives to any plastics you are using? Do you sell a product that is packaged? Do you receive goods extensively packaged? Is that packaging necessary and have you talked to suppliers about excessive or wasteful packaging? *(Five trillion plastic bags are manufactured each year. Americans throw away 100 billion bags a year – using 12 million barrels of oil in production - of those only 1% is recycled)*

- 3) All or almost all packaging renewable/sustainable/biodegradable 2) Some/a good portion renewable/etc
1) Minor alternatives integrated into packaging 0) Using typical plastics N/A

Nothing MJW sells is packaged – the drywall comes in sheets and almost free of packaging. The foam components come in steel drums which are recycled.

Again the drywall and foam components are very specific. Wilson chose Demilac and Tripolymer because of their performance – there are no choices in how that material is packaged or delivered. It arrives in 55 gallon steel drums, 4 to a pallet (pallets are crucial to preventing spills as the drums each weigh 600lbs so the pallets are essential to safety). Wilson reuses the pallets. The drywall is virtually unpackaged. Only a tarp is used if it is raining.

23. Do you compost?

- 3) Yes, greater than 75% of compostable waste 2) Some 1) Minimal/No special effort 0) None N/A

No compostable elements in this business.

24. Do you buy post consumer recycled paper? Do you recycle paper? Do you print your brochures/flyers/business materials on recycled paper? Do you use both sides of paper whenever possible? Print on both sides? Print black and white when possible? Do you reuse what you can in the office? Boxes, envelopes, etc...? Encourage conservation of products? *(Staples offers printing on recycled paper for the same cost of virgin paper. Ram Printing Company, a Green Alliance member, offers fully sustainable printing options which include sustainably harvested paper products and soy-based sustainable ink options for the same price as other printers, visit www.theramcompanies.com)*

- 3) Only uses recycled, recycling, conserving, printing (only if business materials on recycled), full commitment to sustainable printing and paper use 2) Often uses recycled, do recycle, do conserve. have not yet moved to print business materials with sustainable printer 1) Recycling paper, minimal conservation 0) No recycled/recycling N/A

MJW recycles all paper in the office. Their brochures/materials are printed on recycled paper, (thru Elite Printing in Greenland). They admit to not using the “both sides” technique of conservation but are careful to shred and recycle all paper used. Elite uses natural inks and recycled paper which is important as MJW does have quite a bit of printed material and sometimes utilizes direct mail campaigns. They do supplement printed materials with reams of information on efficiency, insulation and rebate programs on their website. A potential client can find out everything they would ever want to know about the MJW insulation products, from tests to performance to usage on the website – MJW really uses its website information as a way to reduce paper.

UPDATE: MJW now uses exclusively recycled paper, which he purchases from Staples.

25. Do you recycle printer/toner cartridges?

- 3) Yes 0) No N/A

At the time of this evaluation, MJW had not been recycling printer/toner cartridges but said they will begin to do so

in an effort to recycle more effectively.

UPDATE: MJW now recycles all printer and toner cartridges through Staples.

26. Do you donate furniture/equipment instead of throwing it out? Try to obtain used or second-hand office equipment, furniture or industry equipment?

- 3) Yes, obtain second-hand as much as possible/donate and reuse 2) have some second-hand items 1) have donated but almost always buy new 0) Never second hand/never donate N/A

The main desk in the office is secondhand from Craig's list and the air compressor was purchased used. Wilson's truck was bought used as well as the trailer that carries the liquid insulation drums. "Any items that I can obtain used, I will – it just makes good business sense if you can get things that are not brand new. But in this business, in terms of the insulation installment equipment – it is all highly , specialized and calibrated equipment and the mixing of the A and B is a science and must have the exact pressure and temperature – these are things that could effect the performance of the insulation so we don't want to take any chances. Also with the insulation equipment it is a safety issue. The BASF Wilson used to use (but no longer does) did have some toxic elements when it is in its liquid form and we want to be sure that we are handling these materials with the utmost of safety precautions for our workers and the client. We felt it was essential to buy our specific insulation equipment new so that we knew exactly what we were getting and that when it comes to heat and the chemical reaction process, everything is at peak performance."



Transportation/Travel:

27. Does your business involve transporting goods? Do you use fuel efficient vehicles? BioDiesel? If you contract out your deliveries have you encouraged that company to use fuel efficient vehicles or Biodiesel?

- 3) Yes, highly fuel efficient (hybrid/biodiesel) 2) Some effort, some changes (ext. circumstances)
 1) Very little effort 0 No, nothing N/A

MJW does need to transport the equipment and insulation materials to each work site so in a sense, there is significant transportation of the product. Wilson needs largish trucks to transport these items as well as a generator to run the equipment, (if they can't tie into the clients electric). Because they have diesel trucks and a diesel generator, MJW will be switching over to Biodiesel this summer. "I'd like to actually produce the bio myself from recycled restaurant waste oil for my trucks, generator and home use. Depending on the cost – I would like to buy the kit to make my own rather than purchasing it preprocessed because it is more than regular diesel. By producing my own I can be more sustainable and save money for my business," says Wilson. "Especially because of the equipment and materials we need to pull, our trucks are not fuel efficient. We have one ton truck which is necessary for the industry we are in. Biodiesel will allow us to lower our impact in regards to this."

28. Have you sought out local distributors/vendors in an effort to reduce the travel time of your product and support the local economy? How high of a priority is sourcing local to your business? What percentage of your product comes from local suppliers? (*Studies show that dollars spent locally tend to stay local; local businesses contribute more to local non-profits and participate more in community life; and local independents demand less of our energy resources and public infrastructure).*

- 3) Yes, 50% or more, integral part of choosing supplier 2) less than 50%, try to source local first, serious extenuating circumstances don't allow "local" to be first 1) aprox. 20%, when convenient 0) Not a consideration N/A

"Items that I can buy locally I do. We get our drywall from Kamco, out of Londonderry or Southern Maine, whichever location is closer, or Marjam out of Manchester for drywall, and wall board. The insulation we don't have a choice on – it comes from Pennsylvania and New York, all of it comes from 2 manufacturers in those areas. There are only 2 manufacturers of the A component, (ISO), in the world – BASF and Huntsman, which were thankfully, both American made. I toured the plant in Houston and was very impressed. I spent a lot of time looking for the

best product and really that was my priority – it wouldn't do a lot of good if I chose locally but had an inferior product. For example, I did research a NH company which offers a spray foam but even that is trucked in from Georgia; and I wasn't as impressed with that products insulating value and performance so I chose to go with the product that was going to provide the hand's-down best insulation – and that happened to be a larger manufacturer that has more experience and R&D behind them. There is very little of this product that is locally produced and when we can we will carry it. Like Georgia Pacific which does supply some of our sheetrock and that is manufactured right here in Portsmouth.”

29. Do you carpool whenever possible? Travel less, phone meetings whenever possible? Do you encourage employees to work at home if possible? Do you encourage employees to carpool or walk/bike to work? Do you have a bike rack for customers/employees? Incentives for workers who walk/bike/car pool?

3) Yes, personal & employee system for less travel/working from home or walking/biking, incentives 2) Sometimes, some employee outreach 1) Not a priority but welcome 0) No employee outreach, no personal effort N/A

MJW does encourage carpooling when traveling to a site – putting as many workers into the work trucks instead of having them all drive independently to the site from the home office. Sometimes this is not as fuel efficient if the employees need to go out of their way – or if it is a shorter distance to the worksite they can just begin their day at the site. Because employees live in all different surrounding communities, it can be difficult to encourage carpooling but whenever possible, it happens. “We often do a meeting at the “park and drive” or at the home office if it is a job that is closer for the worker/s to just drive directly to, so we really do end up carpooling about 90% of the time,” says Wilson.

30. Do you have an anti-idling campaign at your facility? Do you have any sort of fuel awareness/transportation efficiency program for employees/customers?

3) Yes, campaign in place 1) Will be instituting plan 0) No, nothing, not interested N/A

“This is not really an issue as workers would not idle at a site in their own vehicles, and if they were in a company vehicle, it would be strongly discouraged. Again, this kind of employee advocacy can be difficult with a group of men in the building trade who don't exactly appreciate being told what to do. I'd never have the company vehicle idling as I don't want to be wasting the fuel but I'm not entirely comfortable telling the employees what to do with their own personal vehicles.”

Community:

31. Does your business give back or contribute to the community?

3) Yes, extensively, tangible examples 2) Some 1) Small amount 0) not much N/A

Mike Wilson is extensively involved and contributes to Cub Scouts in Hampton, with both time and resources. “We do some giveaways. I also do try to keep costs down as much as possible so that what we are doing is affordable to all. If I go to a job site and see that an elderly person really can't afford a good insulation job but the home is desperately in need of it, I will do the job at cost. I have had instances where there is a struggling single parent who just can't afford the cost of insulating – I have done a few of these jobs at cost,” says Mike.

MJW has also helped the green business community through partnerships in the Green Alliance but also with his own initiatives like having a list of affiliate businesses that he lists prominently on his website – mostly businesses that are furthering energy efficiency. Currently he has around 10 other local green businesses listed and linked on his website; Thermal Imaging, Simply Green Biofuels, Little Green Homes, International Wood Fuels (commercial sized wood pellet systems), Seacoast Energy Alternatives, Ridgeview Construction, ReStore and many more. MJW is doing an incredible service in educating the community around energy efficiency issues, such as a full article on Insulated Concrete Foundations (ICF) and how they work, extensive information on state and federal rebate programs for everything from solar to wind to insulation, to fuel efficient vehicles. His website educates extensively on green drywall options, how they work and why they are safer, on LEED (Leadership in Energy Efficient Design) standards, how they are achieved and what they mean. His website (www.nhfoam.com) performs an important community service in helping individuals understand the different kinds of insulation out there and how they compare and perform. There is also extensive information on building codes and the general importance of a tight building envelope – how energy is wasted with air movement and infiltration.

32. 34. Do you check to see if your suppliers are environmentally responsible? Do you talk to other businesses/vendors/suppliers about the importance of sustainable business practices?

3) Advocate to all other businesses and suppliers starting to advocate/reach out

2) Some advocacy and outreach

1) Minimal, just

0) None

MJW never stops talking about responsibility in terms of energy use and the importance of proper insulation to all the businesses and vendors they come into contact with. They are strong advocates of this aspect of sustainability but pretty singly focused on this part of sustainability which is associated with the business. They did choose the Tripolymer because of its non-toxicity and also use Demilac because of its 17% soy to offset the petroleum piece in the spray foam product. “We are always educating every business about the superiority of spray foam or injection foam – and the financial and environmental benefits as a company that can be achieved with closed-cell foam. I spent a lot of time researching the foam supplier choices and settled on Demilac and Tripolymer because of their superior insulating qualities and safety record. I still believe that it is a tough argument to make that cellulose is more sustainable because the product itself is natural and recycled – this is true, but what is also true is that a building is going to have to use more energy to attain the same temperatures with cellulose and so while the product itself may be greener, the life-time use of energy associated with it is not greener,” says Wilson.

Wilson admits that this is not always a priority for him but it is a consideration and something that is added into the equation for any business decision he makes for MJW. “When we decided what products to carry for both insulation and drywall – we looked at all the options out there and made sure that we were at the very least offering the consumer greener choices. In fact in terms of energy use, the overall choice to offer closed-cell foam was made because I felt it was the single-most environmentally friendly insulation on the market – it offers the highest performing R-value and in doing so saves the most amount of fossil fuel combustion. Now once I decided I wanted to go with spray/injection foam, I looked at all the different options for that product and chose BASF’s product partly because of their extensive company sustainability program (although he no longer carries BASF). In addition, Demilac USA, spray foam, another product I use, has sustainability initiatives which drew me to them and of course for me as a distributor/installer of these brands I reap the benefits of offering this greener product. The public is interested and cares about these questions and we are proud to be able to offer products that have certified green programs and practices.”

MJW also carries “Greengaurd” certified drywall which meets 3rd party standards – the industry’s most stringent air quality standards. Closed-cell itself is considered an integral part of any LEED certified home because it far exceeds traditional R-Values. The Tripolymer which is used for the injection foam is non-toxic and not polyurethane or urea formaldehyde insulation. It is rated environmentally safe and yet is still water-repellent, fire resistant, non-corrosive and doesn’t require the use of any added chemicals like some fibrous insulations. In addition to being formaldehyde free and emitting no VOC’s, MJW uses Zone 3, zero-ozone depleting blowing agent technology.

MJW is an active, even aggressive, marketer, educator and promoter of energy efficiency through proper insulation. In addition to an extensive and informative website which educates on everything from rebates, to tax incentives, to insulation tests and comparative performance, MJW has invested significantly in local media markets to get out the word about the efficacy of spray foam and injection foam. “We advertise on all of the local radio stations including WHEB, WERZ, and all the Clear Channel radio stations and we have done some television advertisements as well as mailers, we have video educational information at trade shows, yard signs and even door hangers by neighborhood. We have a lot to explain to people because it is really just recently that people are beginning to grasp the importance of proper insulation – and there is a lot of misinformation out there in regards to performance of other types of insulation that are cheaper but seriously under-perform foam. We also stress in any campaign we do, be it in the community or in a paid advertisement or on our website – proper insulation isn’t just good for the environment because it allows you to burn less energy, but it is also an intelligent financial decision. We have had many clients that save 65% or more on their monthly heating or AC bills. We are always careful to stress the environmental benefits because ultimately that is as important as the cost savings. If a home is going to burn 50% or even 30% less energy – think of all that CO2 and particulate that has not entered the atmosphere.” explains Wilson. And while, of course, MJW is promoting and growing its own business and hence its own financial interests, when 6,000 mailers go out to homes, explaining the important of insulation in general and reminding people just how much energy they are wasting – this business is also promoting sustainability. Every home that insulates better is reducing its contribution to CO2 and particulate by thousands of pounds a year. “We couldn’t make it without the educational piece. That is why our website is so extensive. People need this information to make better choices. We have a lot of people that might just visit our website and maybe they don’t even use our services – but I don’t think its possible for them to leave our site without a new awareness of energy use – and a reminder of how ugly it is, and how ignorant it ultimately is, to be literally wasting the energy you are burning in your own home.”

33. Are you a member of Seacoast Buy Local?

3) Yes 0) No N/A

MJW is located in Hampton and Seacoast Buy Local does not extend to Hampton.

34. Do you encourage your staff to volunteer with local community projects/nonprofits?

3) Yes, large part of employee ethic 2) Yes, encouraged 1) Suggested occasionally 0) No, never N/A

MJW did do a gratis drywall job for Habitat for Humanity, and has occasionally done insulation jobs discounted or at cost for low-income elderly or single parent homes.

Miscellaneous:

35. How do your businesses sustainability efforts compare to the industry standard?

3) Far more sustainable than industry standard 2) Significantly better than typical businesses in industry
1) Slightly better; a long way to go 0) Exactly the same environmentally to other businesses of the same type

Wilson feels that all of the insulation products he offers are cutting edge and the very best on the market for responsible energy use and optimal building efficiency. Industry tests indeed show that closed-cell spray foam and injection foam help to conserve the most amount of energy and are the very best insulation available today (save Insulated Concrete Foundations – only for new construction). Wilson adds, “by promoting this type of insulation and doing my utmost to educate the public on why they should use it, I am by default promoting conservation because we are getting folks to rethink how they heat and cool their homes; to stand up and take notice and then correct useless waste.”

Foam competitors, fiberglass and blown-in cellulose can leave cracks, crevices and leaks in a typical house, no matter how well the insulation is installed. Spray/injection foam, however, expands upon contact to form an airtight seal. The R-Value, which measures resistance to heat transfer, is 6.5 per one inch of thickness for spray foam, in comparison to 3.7 for blown-in cellulose and 3.4 for fiberglass bats. By creating an airtight, seamless and rigid seal, foam eliminates convection currents, the leading cause of heat loss, maintaining a comfortable constant temp. that results in greater energy efficiency. Airtight insulation also allows for a smaller HVAC system, resulting in reduced energy use and cost. Foam also offers other benefits like better air quality, inhibition of rot and mold, greater structural integrity and noise reduction. The airtight seal that foam creates inhibits vapor and resists the permeation of moisture through walls and roofs – the leading cause of building damage. Reducing the amount of internal moisture also reduces the growth of mold, which poses a health risk, especially to people with allergies, asthma and other respiratory conditions. In addition to improving the quality of a building’s interior environment, injection foam contributes to the structural integrity of the building itself. When cured, it fortifies the walls it insulates, providing additional structural strength, which is particularly beneficial for buildings located in areas subject to earthquakes, hurricanes or flooding. SEE CHART ON NEXT PAGE.

Compare MJW's COMFORT FOAM® with traditional systems

	COMFORT FOAM®	Glass Fiber	Wool	Blown Cellulose	Open-Cell Foam
R-Value	6.9	3.0	3.5	3.0	3.5
Approved Air Barrier System	Yes Air leakage <0.001 L/s/m² @ 75 Pa at 1.5" thickness	No	No	No	Yes Air leakage 0.005 L/s/m² @ 75 Pa at 5.5" thickness
Seamless Construction	Yes	No	No	No	Yes
Rigid	Yes	No	No	No	No
Fully Adhered	Yes	No	No	No	Yes
Adds Structural Strength	Yes	No	No	No	No
Long Service Life	Yes	No	No	No	Yes
Absorbs Water	<4% v/v	Yes	Yes	Yes	>40% v/v
Allows Moisture Vapor In	No	Yes	Yes	Yes	Yes

36. Do you use chemicals on your business lawn/plantings: to wash clothes/linens, for cleaning?
 3) No, all natural chemicals in most areas
 2) Minimal chemicals used
 1) Have made a few changes, but still use traditional chemicals in most areas
 0) Traditional chemicals used in all of these areas
 N/A

No chemicals are used on the lawn at the home/office.

37. Are there aspects of your business which are toxic/hazardous? If so how do you mitigate them? Have you investigated alternatives? What keeps you from offering/adopting safer products?

- 3) Completely non-toxic in a toxic industry X 2) Make special effort to reduce impact or toxicity 1) Some effort, extenuating circumstances, not priority 0) No N/A

There is no doubt that spray foam insulation has its critics due to its chemical make-up, particularly before it is sprayed in. Many environmentalists indeed prefer cellulose because it is completely non-toxic, recycled and does not use any petroleum products, (cellulose generally has 82% recycled content). However, let's not forget the energy equation – while foam is more toxic and petrochemical based – studies and performance show that less energy is burned in buildings insulated with closed-cell foam. The BASF spray foam that MJW used to use was manufactured from petrochemicals – which means that the product itself did have somewhat of a carbon footprint. Some estimates show 1 lb of foam uses 30,000 BTU's of energy in production while 1 lb of cellulose would require a tenth of that energy to produce. But again – a true comparison of the two take into consideration the energy saved due to superior insulating values. MJW's foam does contain a percentage of sucrose and soy-based materials in an effort to mitigate the reliance on petrochemicals, (approximately 17% soy). And yes, when burned, spray foam does release toxic smoke. In addition in the short curing process spray foam does emit isocyanate gases which are toxic. Wilson explains the process, "The components, in their liquid form are originally separate, and when they are mixed a chemical reaction happens, during that period, which is approx. 60 seconds there is off-gassing until it hardens, after this 1 min. period there is no more off-gassing as the material had hardened and is sealed within the walls. All of our employees wear full fresh-air masks, and a tyvek suit. I have zero tolerance on safety issues. And the foams used today literally have no remnants of that gas – it's actually incredible because pre-1982 spray foam did off-gas but it has been reformulated so that every test shows zero residual off-gassing. It's a proven scientific fact that after those 60 seconds when the chemical reaction is complete – none of that escapes into the air over the lifetime of the home. In addition some of the foam insulations of the past used to use ozone depleting blowing agents but no longer. I watch all of these hazards like a hawk and I can assure every home that we go into that these products are incredibly safe. I work with this stuff every day and there is no way that I am putting myself at risk. The foam insulation industry has worked hard to make these products safe and I have done my homework to make sure that we are offering the safest product possible under the safest conditions," says Wilson.

"You could certainly argue that cellulose is better in terms of what its made from but don't forget that cellulose still has fire retardant in it, plus its chemically treated so it doesn't break down so quickly over time. So I believe if you balance the product with what it is providing, i.e. proven increased energy efficiency and an R-Value that far exceeds that of cellulose (closed-cell foam at R-Value 6.5-6.9 and cellulose at R-Value at 3.8), I believe the petroleum and even slightly toxic aspects of the liquid foam are far more sustainable than the energy used over a 20 period in a home insulated with cellulose,"

Further questions which will help us evaluate your business:

What is your biggest obstacle to offering more sustainable products or sustainable business practices?

Wilson feels that the cost to the consumer is the biggest obstacle to his industry's contribution to sustainability. "We still get the occasional customer who, despite our best educational efforts, just doesn't want to spend the money now to save the energy over time. I still get commercial customers who want open-cell foam simply because it is that much cheaper. And we run all the numbers, we show them how much energy they will save over time – and they still don't care. Many are still looking at the upfront costs and still feel okay about essentially wasting energy. Dollar is often the bottom line to the customer. If the cost of materials were cheaper, I could offer this incredible insulation for cheaper and maybe more folks would go for it, but often times people are not willing to make the investment. Also there is still a lot of misinformation out there about other types of insulation. Many people still believe what the package tells them when they buy fiberglass bats. So we have a lot of education to do to get the consumer to understand that there is more to an insulation than the R-Value stated on the package. "Another large obstacle I've been coming across lately is weatherization programs both federal and state funded and even some of the utility funded programs having a bias against foam simply because it costs more than cellulose. Some of these programs don't look at the over-time cost benefits that foam brings and instead just analyze the upfront costs. Some of these programs state literally, "because you can insulate 4 homes with cellulose with what it would cost to insulate 3 homes with foam" cellulose is favored over foam for reimbursement programs. To counter that we are currently working on doing a series of blower door energy audits and getting actual numbers into modeling software that will illustrate the true payback savings with foam that will justify to these programs the additional cost of foam.

How many employees? 4

How big is your customer base? 85+ and growing!

What is the average distance employees drive to work?

This can vary dramatically because MJW services Me, NH, Ma and even VT We will do an insulation job in any of these areas so that often times we do travel quite far. Of course we prefer to have jobs in the Seacoast area and do many locally but we are not unwilling to travel.

Do you offer a product or service? How much of your income comes from the products vs. a service?

50/50 –50/50 (installation service, foam product)

What is the average distance your product, or materials to make your product, travel?

Most of our product comes from Penn and NY, so aprox 400 miles

Does your product require heat/electricity to produce? How much compared to the heat/electricity of just the building? What are your heat/electric sources? Are any of them renewable?

Heat is required to mix the insulation and power is required to pump it in. So some energy is used on the site to mix and install the foam. Usually MJW ties into the home electric and they have found that the process does not use an absorbitant amount of energy. If there is not a plug in they do have a diesel generator to run the equipment.

The home/office is heated with a super efficient wood pellet stove.

What is your water source? Water usage/month?

MJW is on city water and although they do need to mix in some water with the A and B components to make the foam – it is not a large amount. The home/office water bill is aprox. \$30 more for the water used with the product.

How big of a building do you utilize? Is space being used efficiently?

Home/office is a very efficient use of space. The office part is aprox 200 sq. ft and houses 4 employees and a very brisk business.

