

Raleigh Fire Station Goes Green with New Roof

09/17/09 71 W, 1 I - + 12 - 7

WRAL has a good story on the green roof at Station 9. The vegetation is being installed this week. The new roof doubles as an above-ground garden, absorbing about half of the rain it receives, and improves water quality by reducing runoff. It also reduces energy costs in the building, by adding insulation. [Read/watch the story.](#)



You have got to be kidding me!!!

C.Smith - 09/18/09 - 16:17

Wonder if they put a small shed up there to keep the lawn mower in. Lol. Stimulus money is tax dollars and boy do i love how they spend my money.

gen3fire - 09/19/09 - 08:55

Actually that's not really that bad of a way to spend our money. I'm not a "green head" by any means but I actually do a lot of stuff that is considered "green". I only do them because in the long run it saves me money. This roof will add insulation thus reducing the operating costs of the station (so they say). If it works like they plan I'm all for it.

RescueRanger - 09/19/09 - 10:36

Just another goofy politically correct way to waste our tax dollars! Take a look into the costs to upgrade the structure to accomodate this, and I wonder how much more the maintenance will be now. In case you didn't notice-I do not think very much of this project!!

goose - 09/19/09 - 12:36

Just curious, but how much extra weight does this put on the roof? What is the estimated savings from doing this?

CTK - 09/19/09 - 17:19

Glad I'm not sleeping under all that extra weight.

ncff - 09/19/09 - 20:26

Does anyone know what the term WTF means? Thank you

ExplorerRickels ([Email](#)) - 09/20/09 - 19:32

C'mon people, the company doing this roof pays their engineers alot more money than a firefighter to figure the weight of the new roof versus what the current roof can hold. From what I've been told, the current roof was reinforced to accommodate the weight.

JB - 09/21/09 - 08:28

Doctors get paid alot more than we do as well...we still go to doctors offices to pick up patients i mean WTF? I figured they would have to reinforce the old roof for the weight as much money as it was going to cost. But how much energy savings will this produce? How long will it take to see it? Im just wondering. Im not against this as long as it is does what they say it does.

CTK - 09/21/09 - 09:26

JB was clearly responding to the comment about not wanting to sleep under the extra weight, not the comment about wondering how much it weighed. As for the shot at doctors...we go to doctors offices to pick up patients with emergencies that certain doctors aren't trained to treat and take them to other doctors who are. Would you expect a radiologist to treat a patient having a heart attack? Funny thing is I am an engineer, a firefighter, and a physician in training. All three mentioned in one thread.

Andrew - 09/21/09 - 11:35

Still havent answered the questions...as for making a shot at the doctors, i just think its funny that we have to go to places to help people that were there originally to be helped by someone making ALOT more money and years of school. I would certainly hope that a radiologist would atleast have a CPR credential somewhere with all those years of education. Im talking about urgent cares and family physicians. Why go there for a injured person or sick call...isnt that for the med transports. If a doctor cant put a band-aid on or a few stitches on someone, why be called a "doctor". Im not trying to call anyone out or anything, good luck on the physician in training deal. Hope it goes well.

Back to the original posting that no one has the answer for yet.."Just curious, but how much extra weight does this put on the roof? What is the estimated savings from doing this?

CTK - 09/19/09 - 17:19 "

Maybe those "engineers" have an answer to this..

CTK - 09/21/09 - 12:52

I think a few cows or goats is totally in order.

Elsie - 09/21/09 - 17:03

You know, it probably is for medical transports, but because of flaws in the system, 911 is activated instead. I don't disagree there are some piss-poor physicians out there, but for the majority, they are not trained to treat acute emergencies. That is what emergency physicians do and so thats why WE have to take them from an internist to an emergency physician. There is an enormous amount of specialization out there in the medical field and there is SO much information/knowledge too. We spend years of training to become doctors in very specilized fields so we can be very good at a very specific job. There will be other doctors that are very good at very different specific job. As for the question and staying on topic...this engineer does have an answer for you.

Okay, so since this looks like a ground cover type vegetation so it will grow out not up. Also, since this vegetation is of desert origin, it will probably grow slowly. What does this mean? It means negligible maintenance costs. In fact, "green roofs" have a 20 to 40 year longer life span than conventional roofs. This means station nine's new roof will cost less to maintain than a conventional roof and will pay for itself the first time a conventional roof would have to be replaced.

As for energy reduction, this type of roof is a fantastic insulator in both winter and summer, but especially in summer. This is because radiation from the sun is converted to chemical energy by photosynthesis instead of heat, and the water held by the soil will absorb the extra heat and dissipate as water vapor. This means less heat getting into the building during summer. Additionally, the soil and water will increase insulation during both winter and summer, helping keep the heat in during the winter and keep the heat out during the summer.

In a study by the University of Michigan (Environ. Sci. Technol., 2008, 42(6), pp2155-2161), the net present value of a green roof is 20.3 to 25.2% less than that of a conventional roof. This means that when it is all said and done, the green roof comes out to be 20 to 25% cheaper. These figures were based on increased roof longevity, storm water runoff, and building energy consumption. When air quality improvements are included, the NPV reaches upwards of 40% less than conventional roofs. These are significant energy savings! The reason we don't see more of these is the rather large upfront cost.

Andrew - 09/21/09 - 21:09

Wow! That was awesome...they didnt go in to detail on the news about that. I guess too many people wouldnt have a clue about most of what you were saying. I was just hoping that going green didnt give off to the public as putting vegetation on your roof at home will make the world a better place.

That was very informative though, thanks for answering my questions. I wonder if maybe the county will start looking at this as an option for new stations in the future to help cut costs on energy bills...

CTK - 09/21/09 - 22:52

As far as weight, I have found values of 10-50 pounds per square foot. This seems like a lot but a lot of flat roof fire stations (Western Wake for example) have river rocks on top that weigh around 12 pounds per square foot. As mentioned above, structural engineers (which I'm not) were called into to asses station nines construction and insure that the extra weight would be supported.

I don't want to down play the environmental impact of such projects. I am no tree hugger, but pollution and urban warming (not global warming) are serious issues. Urban warming refers to the several degree increase in ambient air temperature in an urban environment as opposed to suburban or rural areas. All the concrete does a poor job of dispersing heat resulting in what's called an "urban canyon". These green roofs improve both. The goal of engineers is to provide for the needs of society while attempting to lower costs (environmental and economic costs). Projects like these are great because they achieve both! If everyone had green roofs, it indubitably would make the world a better place. The point is...don't shun "environmental friendly" projects and ideas. They often will save money and you won't be a tree hugger.

Andrew - 09/22/09 - 08:15

Did anyone think about this building was built in 1963(Legeros website,2009). This would have been a great project on a new 'Green' fire station. This is a perfect example of government waisting money. Not the City of Raleigh, but the federal goverment. This is some of the stimulus money. When they rebuild fire station 9, are they going to take the old roof and put it on the new one. I do not think so. That is not the way goverments do business. Just a little math, The roof cost \$120,000,so lets say they save \$100 a month on energy bills(I doubt it), that means it going to take 100 years for the roof to pay for it's self. So you can take the money savings out of the equation.

Chris Smith - 09/22/09 - 17:36

When are they going to rebuild station 9?

Andrew - 09/22/09 - 20:00

Engine 9's quarters is low on the priority list of firehouse replacement. The current list looks something like this; relocating engine 12 (and putting a ladder in it,land's bought), relocating engine 3, rebuilding engine 14/rescue 3 (relocating ladder 3 to it)....in no particular order.

Silver - 09/22/09 - 22:55

I do not think they have plans to rebuild station nine. I was just refering to the station will have to be rebuilt one day in the future.(ten years or 20 years???????)

Chris Smith - 09/23/09 - 06:21

Silver's correct on the ladder placement. I also heard that L1 will be moved to #18 with the addition of L9 which will supposedly go to #15.

RescueRanger - 09/23/09 - 10:28

Is that the latest rumor on our next stop? Funny how things travel around; I've heard everything from leaving us here, to going to 15's, 16's, and 18's!! Reliable source?

Silver - 09/23/09 - 12:03

Okay, I don't know what the payback period is for a "green roof" project, but it certainly isn't 100 years. It may be less than 20 years. I do agree that it may have been more appropriate on a newer fire station, but station nine's situation in terms of shading and roof slope is optimal for a green roof.

Andrew - 09/23/09 - 12:54

The art of speculating the possible relocation of apparatus is about as accurate as predicting a transfer list. Good luck!

Nostradamus - 09/23/09 - 15:27

HAHAHAHAHA!!!! Good one with an awesome screen name!!

Silver - 09/23/09 - 16:32

While the direct cost savings (money directly saved on bills) may be hard to recoup, we have to consider the indirect savings. The value of

what it is doing for the environment. By no means am I saying that it will be cost effective, I am just saying we need to start looking at the big picture. I am sure recycling cost the city more than what it returns, but it is the right thing to do and we are slowly accepting it. Green roof may not seem so crazy 10 years from now. My 2cents

14driver - 09/23/09 - 19:54

I have it on good authority that Ladder 4 will remain at its present location until it is moved.

Legeros - 09/23/09 - 20:07

While it might be true these roofs help the environment, there are other ways that are cheaper, make a bigger impact and take less to maintain or build. Things like using roofs with better solar reflectance index to reduce heat loads and insulation needs. Also, I'm sort of confused as to why they are worried about insulating a firehouse, I mean usually the living areas aren't really that spacious and insulation needs are easily satisfied. Not sure why they would be so worried about insulating a truck bay, doubt that saves much money when usually they are only heated in the winter and there isn't air conditioning.

Even collecting the roof water in cisterns, like they have done elsewhere makes a difference on runoff and such. Other ideas include reducing asphalt usage and looking into pervious concretes to also help with run off and water quality. They could use more recycled materials, such as when building new or replacing buildings using concrete that has recycled concrete pieces as aggregate instead of new rocks. I just don't understand the cost of things like these roofs where they add complexity to maintenance, increase structural loads and really offer little impact when there are cheaper ways to make bigger impacts even if they aren't as news worthy or flashy.

Joey ([Email](#)) - 09/23/09 - 20:24

You've got to also consider this; the affect it has on the city council and the public. Since Raleigh is becoming "greener", they can see that the fire department is also participating and doing its' part. While we still drive big fire trucks that throw off diesel exhaust and only get 5 mpg's, we can try to do other things.

Let's not forget the system in place at 15's quarters, the rainwater runoff systems at a handful of firehouses, and now the roof. I predict more and more inspectors being in hybrids and more fuel efficient vehicles in the near future, which is about the same as the PD detectives in their fuel efficient rides.

Silver - 09/23/09 - 20:50

Some of you still don't seem to understand that this project is economically feasible. That is, it does save money. There are several ways it saves money. 1) Maintenance costs: this roof is cheaper to maintain and has a longer life than a conventional roof. This is the primary economic benefit. 2) Heating/cooling: money will be saved on the heating and cooling of the fire department. 3) Environmental: remember that this is a government building. There are costs associated with storm water run off. While this is an almost negligible benefit, it does cost Raleigh money to collect, divert, and process storm waters. If enough of these are built, savings could become significant.

The point is, if this project is allowed to persist through the predetermined project life, IT WILL BE CHEAPER than a conventional roof. 20 to 25% cheaper. So direct costs will be easy to recoup.

Andrew - 09/24/09 - 08:30

Name: (real name preferred)
E-mail: (optional)
Web Site: (optional)

Remember personal info?

Yes
No

Comment:

/ [Textile](#)

Comment moderation is enabled on this site. This means that your comment will not be visible on this site until it has been approved by an editor.