

MINUTES – HULL BUILDING COMMITTEE

Tuesday, June 1, 2010 – 4:30 P.M.

TOWN OF HULL MUNICIPAL BUILDING

4550 WOJCIK MEMORIAL DRIVE, STEVENS POINT, WI 54482

1) Call to order: The meeting of the Hull Building Committee was called to order on, Tuesday, June 1, 2010 at 4:35 p.m. by Hull Supervisor Co-Chair Dave Pederson at the Hull Municipal Building, 4550 Wojcik Memorial Drive, Stevens Point, WI 54482.

Present: Co-Chair David Pederson, Marilynn Kranig, Fire Chief Mark Kluck, Road Foreman Pete Kaminski, Assistant Fire Chief Mark Fritsche, citizen member - Alan Hucke, citizen member - Ted Stoltz, Owner Representative-Todd Grunwaldt, Building Committee Secretary Patty Amman.

Others Present: Phil DiSalvo from Grunwaldt & Assoc., Engineers Guy Thompson & Tom Reider

Absent: Co-Chair Melvin Bembenek, citizen member - Lance Reeve

2) Citizens wishing to address the committee on non-agenda items. Agenda items are for discussion and possible action: None.

3) Announcements/comments from committee members and citizens. None.

4) Approval of minutes of May 17, 2010. *A motion was made by Marilynn Kranig to approve minutes, seconded by Mark Fritsche. Motion passed.*

5) Discuss with consulting engineers the mechanical, electrical and alternative energy systems to be included in building plan/renovation recommendations.

Pederson We're meeting tonight to discuss with the planning engineers the electrical, mechanical, air exchange, alternative energy kind of questions that we'll need to address in our building project.

Grunwaldt Guy Thompson is the electrical engineer from the Appleton area and Tom Reider is an HVAC and plumbing engineer also from Appleton. What we're going to talk about tonight is the plumbing, electrical, mechanical and alternative energy items as Dave said. I have 2 handouts here that cover the items Tom will be going over; plumbing and HVAC. I have an overall plan back here if you want to reference anything as we move along including a site plan. I reviewed these outlines or programs and I think it's going to get a little tricky so I made the copies for you to follow along with. That is primarily why we are meeting tonight, to go over these items with these engineers.

Hucke First question: this new proposed building is going to go right next to here? Did we every buy that land?

Pederson We won't need to.

Reider I think it's really neat to be doing this in this way, meeting up front like this. Typically we go into this and we don't get a lot of feedback from the client and we try to do what we think is best. Then at the tail end is when the client typically starts to look at this kind of stuff and ask why certain things weren't done and could they put this or that in yet. It gets to be push at the end of the design cycle because the people we were working for were not on board until then. Or worse, they don't look at the plans even then and some of the stuff comes up when we're starting to build the thing, then it really gets to be problematic. So to be able to start off with going over these things up front with you, that is really good. So we are happy to be here. Let's start with the HVAC. I put what I think we are trying to accomplish with the building. This came about because, through Todd, we hear that you, as a group, are concerned about some things that often, many towns and villages aren't. But that is a good thing so we have a chance to get into this material here. As far as our HVAC system, we want it to be energy efficient, flexible, comfortable paying attention to the different areas of the building, and low in first cost to fit your budget. We try to balance these as best we can. Any questions to add to that?

Pederson The operating cost would be addressed under energy efficiency?

Reider Right, energy efficiency will translate into operating costs. I went through this and did some approximate estimation based on square footage. This part of the building (the original hall), we really are not doing anything with as far as HVAC goes. Your new system and part of the building are where we get to start with a clean sheet of paper so to speak. So this new area of town hall office and public areas of around 10,000 s.f. we estimate will take about 25-30 tons of A/C. Are you familiar with what that means and how it relates to buildings?

Kranig No.

Reider I suspected not everyone would be. A ton of A/C = 12,000 BTUs per hour, which may not mean much to you either. To make a comparison, the average house has a 2 or 3 ton A/C depending upon how big the house is. A place in a strip mall might have a 3 to 5 ton A/C unit. We're going to need 25-30 tons so we'll need 8 to 10 houses worth of A/C. You need more A/C per square foot in a municipal building like this because you've got lights, groups of people, computers that give off more heat. So you need about twice as much as a conventional home. We're looking through this and thinking about how you want to zone it. That translates into about 10 zones or 10 thermostats to have reasonable comfort. Some areas will be in use most of the time while others, like the big meeting room, might be just occasionally. So these would be on their own zones. There are different ways to accomplish that. You'll see on the handouts the categories of "base", "better", "best". The least expensive way to do this building would be packaged units. Usually rooftop boxes or sitting outside the back with ductwork going throughout the building above the suspended ceiling with some zone dampers.

Grunwaldt Sometimes it is better when you have higher capacity people like an auditorium?

Reider We need the capacity no matter what and this is one way of getting it. With package equipment, it makes some things easy to do. In our opinion, a better way, because you can get more efficiency out of it, would be instead of a bunch of boxes outside, to use some sort of furnace system that would have a 90-95% energy efficiency rating (EER) versus 83% efficiency that would be part of a rooftop unit. You can get very high EER A/C units more so than you can with the A/C being part of a

rooftop unit. Here you can optimize both units with the heating and cooling over and above what you can get in a rooftop unit. We would be locating these in places around the building. There are some other tradeoffs involved depending upon what we want to do with ventilation.

Grunwaldt Or, we were looking at that mechanical mezzanine.

Reider Yes, a mechanical mezzanine would be an excellent place to put a group of furnaces and we do that quite often. It's just a different concept in how to handle it. Also, base, better and best relates to least expensive to most expensive.

Pederson What was the efficiency of the better?

Reider With the better, we can get 95% efficiency. This would be similar type equipment that you would find in a house. There would be residential type style furnaces with 95-96% efficiency. If you want to pay for it, you can get up to a 20 SEER rating for A/C split furnace systems. The lowest is 13. That's the base mandated by law and it goes up from there along with price. It may not always be cost effective to get the best rating. In my own personal life, I generally don't do top of the line but one step down from that. You can get higher efficiency on both heating and cooling than you can with packaged units, which was the point I was trying to make.

Kranig What is a twin furnace?

Reider A twin furnace is for a large space like this where it might take 2 furnaces. The people that make the furnaces make a kit where you can take 2 furnaces and stick them together and run them as one unit instead of 2 separate ones. There are some advantages to doing that.

Kranig What are the advantages?

Reider It makes it easier to control and there might be some advantages in how you run the ductwork. That isn't a real major point. The "best" would be the kind of thing an engineer would do to have a central system like you would find in a larger commercial or institutional type building. An air handling unit for the whole building. DX cooling means it uses refrigerant instead of chilled water. That would be one step up. We use a boiler for hot water heat. A VAV box is something with a glorified damper for zoning, more of a commercial type thing. This would be commercial type grade system. I put "turn down may be problematic" meaning that when we talked about flexibility, if you have one system, you have to run that one system no matter if you're having only one zone occupied or not or if the rest of the building is occupied. One nice thing about the "best" type of system, is that it can heat and cool at the same time which none of these others can do. In a place that has a lot of zones and a lot of diversity, that could be an advantage. I'm not really recommending this, but if you wanted to go highest efficiency, top of the line, longest life, that would be the kind of thing you would be looking at. That would be at a premium of several dollars per s.f. above the next step down.

Pederson What would be the estimated useful life on each of those options?

Reider I think a rooftop unit or furnace condensing unit would be about 15 years. A central air handling system basically lasts forever. DX cooling, you would have a larger unit with a life

expectancy in the range of 20-25 years. A boiler would be 15-30 years depending upon what type you used. VAV boxes would be indefinitely.

Grunwaldt Would you say your best human comfort levels would be with the “best”, then depending upon the layout situation, the “better” with individual units could also achieve the same?

Reider Yes, it could achieve that.

Grunwaldt Could you explain that if you take a larger office building like 35,000 s.f. multistory, their biggest problem is not heating it but cooling it? Cooling runs maybe 80% of the year.

Reider Some spaces in the middle of this building with no outside exposure may have no heat loss. All it has is heat gain, from people, lights and equipment and it needs cooling 100% of the year round. One of our first design projects was the Portage County Annex in Stevens Point. That one had 100 tons of cooling with a big chiller up on the roof and air handling units. You wouldn't want to do a building that big with furnaces. In that building, a lot of it needed cooling year round, so basically we provided a system that could always give you cooling and then you add heat where you need it. In your building here, you're really not going to have that case. This whole building will need heat at certain times of the year.

Pederson Is there a way to address that heating issue from lights? Are there lighting systems now that don't give you the heat gain?

Reider I'll differ to Guy Thompson on that.

Thompson There are better ones as far as heat gain goes. But you will get heat out of the electrical lights. You can think LED but that's too far into the future yet.

Pederson Yes, the lighting isn't good enough yet with that.

Thompson We use energy efficient fluorescents. That is a type that is required for us to use. The heat is less than what it used to be, yes.

Reider When I first started designing systems back in the 1970's, we didn't know anything else. We used a figure of 3 watts per s.f. of light for a situation like this. What is it now?

Thompson We cannot put in more than 1 watt per s.f.

Reider So that's how far we have come in the last 40 years in terms of lighting efficiency. You used to be able to figure that the lights were going to heat the building but you can't do that anymore because the heat isn't there. I guess that is a mixed blessing to do that. There will be some heat from the lights but it's not going to be as much as it used to be because they are very efficient. Right now, on a per s.f. bases, you get more heat from computers than from the lights in the room.

Thompson When I go through this, you'll see that they really have the lighting energy under control.

Reider The next point is the radiant floor heating which is a hot item right now. Five years ago, we would mention it to every project, but nobody wanted it. Now people are asking for it on almost every project. Everybody knows about in-floor heat. We are doing in-floor heat on almost every municipal project we do in some shape or form. Usually in the apparatus bay because it's really perfect for a place where you drive trucks into. We could do the whole building with in-floor heat if you decided to do that. It is very efficient. You need a boiler but you can use these real high efficiency boilers that you see advertised and get over 90% efficiency out of them. You can also have the option of having one boiler and that boiler can also act as your water heater and it doesn't cost you anything extra to do that. With an in-floor system, there is so much mass that you can divert all of the boiler into heating water for as long as needed and the building never really notices so the boiler goes back to heating the building when it's done heating the hot water. These are combined, very efficient systems that are popular and we do a lot of these.

Grunwaldt Do they do multiple boilers on this size of a project with hydronic heating in the slab?

Reider It depends.

Grunwaldt If you had 2 of them, would they alternate?

Reider Yes, you can get high efficiency boilers up to a very large capacity now a days. You can make a decision if you want 2 or 3 or 4 smaller ones or 1 or 2 big ones. It's less expensive to have 1 or 2 big ones. If the boiler fails, you have that much less redundancy than if you had 3 or 4 small ones.

Hucke We're talking twice as much money? From forced air to boilers? For the cooling you still have to run all the ductwork, right?

Reider Let's say if we used radiant heat for the office, we will be air conditioning it and we still have to put in a blower which would look like a furnace. You still need the ductwork, you still need the air conditioning, you still need all the other stuff so the boiler and tubing does cost extra. You don't get much back on the other end for adding that in. So it is a more expensive system than to go with the warm air heat that we talked about. But this could be used with any of the concepts that I just presented. The cost difference is about \$2 per s.f. Half of that is the tubing the other half if the equipment for the building of this size.

Grunwaldt That also is going to fall into your base, better and best too.

Reider It can be used with either. For example the base system could be a package system with no heat in them; that would be you're A/C. Then you go with a boiler and in-floor heat. Or, we could break those down into smaller units, which doesn't make quite as much sense with that concept. Instead of furnaces, you would have air conditioners with a blower and go that route with in-floor heat. Or the central air handler, the real top of the line system still with the in-floor heat. I suppose it gets down to dollars and cents at the end of the day.

Pederson It does. We do want to look at the long-term efficiency as well. What the payback would be, how many BTUs are required to cool and heat, and what can be gained by using radiant heat as opposed to gas.

Reider We can develop some rough numbers on that. Which is probably what you want to see.

Pederson Okay, we'd appreciate that.

Kranig If you are talking about comfort being one of your objectives, this room is really cold, especially along the walls.

Reider I looked at it and this area doesn't have that much of a heating system.

Kranig Janet and Barb's offices are right next to the wall and they need to use extra electric heaters.

Reider But these people would be moving out into the new building, right?

Grunwaldt Yes.

Reider Where we can do a better job for them. In the first place, the new building will be a better building than this one with more insulation. The walls won't be so cold. I know when you heat that floor, that really makes people happy. I put it in my own office and it made me a believer.

Kranig We've also heard that it takes a long time for that to get to the right temperature.

Reider Which it does. You don't set it back at night like you would a furnace. Because you have tons of concrete that you have warm. You want to get it to the right temperature and keep it there. Then you shut it off at the end of the heating season and turn it on again in the fall. So you are right.

Kluck But you can't zone that?

Reider Sure you can. You can do whatever you want. We probably wouldn't have as many zones. I don't know if that would be quite as important, but we could still zone it however we please by however they run the tubing and what you connect up to what.

Hucke The drawbacks to that kind of heating is like when in March, we had it warm outside and a week later it was cold again. It can take all day if not longer to recycle all over again.

Reider That's very true.

Grunwaldt What we've done in a bank is that we have the hydronic system heating the floor at a certain temperature and we have a forced air system that brings it up to temperature during the occupied hours.

Reider That is another way to approach it.

Grunwaldt You want to bring in fresh air and circulate air anyway when it's occupied. Each time you do that, it would be costing a little more.

Reider It's not common to do that. Most of the time you do count on getting the heat and that's because the floor will provide the heat that you need at a fairly low temperature. The floor doesn't have to be very warm to be the total source of heat for the space. If you turn it down to the point where it doesn't do that, then it's not warm anymore either and you'd have to wonder why it is there.

Grunwaldt Well another advantage we'll have is that we will have operable windows. They don't have operable windows in this office right now. It may help but it all needs discussion yet.

Kranig I have a question. If we end up with a day that's 40 degrees in the morning and by 3 p.m. it's 82 degrees outside, can you kick the A/C on with the in-floor heating?

Hucke It takes a long time for that concrete to cool down, I tell you, it just stays in the building.

Reider Well you'd have a cool room with a warm floor.

Pederson You're feet would be warm but usually floors are set at 60-65 degrees. It's not a real high temperature.

Reider You set the room temperature typically at 65 degrees and the floor might have to be 70 or 75 degrees to maintain that. It'll be warmer than the room.

Hucke You just can't come every day and turn it on and off.

Pederson Right, the response time is different. If you understand how it is and decide to live with it or adjust to it, anticipate some things.

Reider One thing that is done sometimes is to take the outer areas of the office and use that for your radiant floor and not worry about the interior. For this particular application, that might be a smart thing to do. You would have less tubing and expense and you still get the benefit you want without doing zoning to accomplish the same thing.

Pederson You could move away from the heat.

Reider Yes, if you want to.

Grunwaldt Then there is another drawback in that we have a southern exposure too. So if you are heating the perimeter and the sun comes out in the afternoon even in the winter, you warm up. But more zoning would help. You could break that office up into perimeter wall. The perimeters could be on a separate zone.

Reider With that you could at least do it by exposure or just turn it off if the temperature got over a certain point.

Grunwaldt I think it's going to have to be a foolproof system where they are not going to have a full time custodian to be up on this.

Reider That should be the 5th point under objectives; simplicity. I've seen so many places where some engineer designed just a wonderful system, but nobody understood or knew how to work it so it wasn't working or meeting the needs and expectations. So that is an excellent point. It needs to be simple to operate. The other advantage to radiant floor heat is that it's a natural match to geothermal. What kind of appetite does this group have of pursuing that at this point?

Grunwaldt Why don't you continue with the other areas first and come back to geothermal.

Reider I put in there solar powered cooling because I was reading an article about that the other day. It's not really there yet and so we would not recommend that for this application. It's unfortunate because that is the natural and best use of solar. What happens when the sun shines, you need cooling. But it's not there yet.

Pederson But solar could be used for part of the heating.

Reider It could. There is a rule of thumb on that. If you are serious about solar for heating, you are talking about 30-40% of the floor area in collectors. So you would have about 3,000 s.f. of collectors. That would be 100 solar collectors at 32 s.f. each. It would be quite expensive. I have a little bit on that when we get to plumbing. Hot water from solar gives you an idea of what you are getting into if you are talking whole building solar. It's a very expensive proposition right now. There are rebates and incentives but unfortunately, we keep coming back to this. Some of the incentives are tax credits and you don't pay taxes so you'd be missing out on the main benefit of putting in a high efficiency system because you don't pay taxes. You can apply for utility rebates and some of the other rebates out there. But that's one thing you can't factor in for your life cycle cost.

Hucke There are certain things you can do like with Focus on Energy.

Reider Focus had guidelines that if you buy a certain thing with a certain level of efficiency, you get X dollars per ton back or X dollars per thousand BTUs. If you want to go beyond that, and geothermal would be doing beyond that, they will sponsor half the cost for the study that is needed to happen before they would fund that. If the study indicates that it has some feasibility to it, they will provide an incentive. We have participated in a couple of those recently. Now I'd like to move into the apparatus bay which is quite different because A/C is not a consideration. Here we would be doing heating and ventilation. The code says you need ½ a CFM per s.f. of exhaust and a corresponding amount of makeup air in a garage type area like this where vehicles are stored. That's where this 5,500 CFM comes from. We have to do that. So how do we do that? The base would be the gas units that hang from the ceiling blowing heating into the space. You can't do better than that for cost. A better way would be to use infrared tube heaters. That is a pretty decent heat. What it really does is heat the floor and then the floor radiates it back and that's why it is so nice for garage type installations. The best, because it's more efficient, would be in-floor heat. We recommend gas fired even if we have in-

floor heat to go with the ventilation system not also being the heating system. The reason we do that is because even though the code says the stuff is supposed to be running 24/7, we know that people shut it off when there are no trucks in the garage and nothing is happening. I'm not going to make it impossible to do that.

DiSalvo Especially since this is a volunteer fire dept.

Kranig Can you adjust the temperature on those? Or is it just on or off?

Reider As far as the ventilation goes, all we are doing is providing air exchange. That's what I'm saying, we provide the ventilation separately. We don't try to heat the building with it. The owners can run it as they see fit. It needs to be there, but how you actually run it after everybody packs up and goes away is actually your business. It just makes life easier to not have that also be the heating system. That way we can provide a better and more efficient heating system than what you get with warm air. These things are basically big furnaces. But it still needs to be there. I wrote down a question because I had gotten a comment that you were considering using Plymo-Vent. Is that something you were looking into?

Kluck We had looked into it for a grant a couple of years back but the grant got denied. The reason we looked into it was because when you start your truck up, with that system, you put no exhaust into the building at all. You don't need any other exhaust system to take it out other than that system.

Reider The amount of air that it uses can be used as a credit towards the ½ s.f. that you need to provide by code. The building ventilation can be less if you have one of those systems. There are others, but that is the real Cadillac of exhaust capture systems.

Kluck Right.

Reider I don't know how serious you are about it. I also know they are very expensive.

Kluck I think our quote was inaccurate because of the positioning of the fire trucks in the current fire station. They couldn't run a straight system. In something like this new building, they could run a straight system. At that time, it was \$105,000 for that system.

Reider Again, I don't know what your appetite is for consideration of this.

Kluck It's something I'd like to find out about in what else you have like this.

Pederson What the options are.

Kluck Right now, we are pumping diesel fuel and cancer causing agents into our fire station where people are. We've got to stop that. That's a liability issue for the Town and everything else.

Reider There are other systems that you can manually hook up to the exhaust pipe. There is a coupler that breaks the connection so you can drive away with the truck and not take the exhaust stack with you. A system like that, they are still pricey. I know they are a lot, but they are much less

expensive than the Plymo-Vent, a rail system. The least expensive would be to provide a utility set fan and some flexible tubing that if you wanted to run the vehicles in the garage, you would drop that over the stack or put it on the exhaust pipe, turn the fan on and operate that for as long as the vehicle has to run. That's not a bad idea for the maintenance bay. But I don't think you want to do that for your fire dept. area. You need to have something better than that for the fire trucks.

Grunwaldt How does that work? Say the Plymo-Vent, does it only vent when the engine is running?

Kluck It connects right to your exhaust and it shrinks around it when it's activated. It runs on a rail system, overhead, when you start the truck, there are sensors up along the rail and as you drive out, the whole system goes with you then it hits these sensors up on rail. When it hits the last one, it disconnects and you're out the door.

Grunwaldt Does it turn off then?

Kluck Yes.

Grunwaldt So it turns on when you start the truck.

Kluck When you turn the truck on, yes.

Grunwaldt So it's not always running?

Kluck Correct.

Reider The other one that I'm thinking of that we've had some experience with is a magnetic type coupling. When it is demagnetized, the exhaust pipe drops away from the truck. You may have seen those too.

Kluck Yes, I have. It's a very similar system to the Plymo-Vent system only the Plymo-Vent release or expands and comes off your exhaust pipe and the magnet just demagnetizes.

Reider With the Plymo-Vent, when you drive into the garage, from the time that you first hit that rail, it's exhausting. With the other system, if you pull the fire truck in, you have to hook it up.

Kluck You do. Eventually you have to put that one there, or attach it. It's a great big L-bracket and as soon as you put it around the tail pipe, it just sucks in and covers it totally.

Grunwaldt The reason I ask is because getting back to energy, if we reduce the CFM, we've got to exhaust constantly.

Reider An alternative to the Plymo-Vent, is that something we should look at, as well as the Plymo-Vent system?

Kluck Yes, I'd like that.

Stoltz I like the one where you hit a switch on the wall and it goes on.

Kranig I think all three of those should be looked at.

Kluck Yes, I think they all need to be looked at.

Kranig We need to be cost efficient. Otherwise we're never going to sell this to the public.

Wolle Pete, what do you have out in the garage here?

Kaminski For exhaust system? When I start up my vehicle now, when there is so much smoke inside there, it will start up by itself.

Reider Are those the 2 fans in the roof?

Kaminski Yes.

Kluck Somebody else had a system similar to that, maybe Bancroft or Stockton.

Pederson It may have been Bancroft because Stockton had the hoses hanging down.

Kluck That's the Plymo-Vent.

Pederson I don't think it was as automatic as Plymo-Vent.

Kluck Well with one, you're putting exhaust into the building. With the other one, you're not putting any in. That's the give and take. If you have just a fan system, you're going to be putting some exhaust into the building, correct?

Reider You mean from the trucks?

Kluck Yes.

Reider Oh yes. It has to get from the exhaust pipe to wherever we would typically have one or two pickups.

Kluck We're going to have a mezzanine area above that place that will be a storage area for gear. Again you would be pumping exhaust into that area and contaminate it. That's my concern. That's what we are doing right now. We've got \$20,000 worth of equipment sitting up there and it's all contaminated.

Kranig Contaminated with what?

Kluck Diesel particles.

Kranig What does that do?

Fritsche That is the exhaust that comes out of the truck. Like soot.

Kranig If you wear that uniform long enough, like 3 days in a row, will it affect your body?
You wear it for 5 or 6 hours.

Kluck If you would bring in a scientist, he would tell you that you shouldn't wear it period,
that it's useless, junk. If you breath the stuff, it's cancer causing.

Kranig Can't the area where this stuff is stored be blocked off somehow instead of an open
mezzanine?

Grunwaldt It could be.

Fritsche You still need the exhaust system either way.

Reider We need to do a basic exhaust system no matter what. It's just a question of how big
it needs to be. The vehicle exhaust for the fire station is optional; it's not required by code. It's
something you decide that you want to do because of how you want to operate and you can afford to put
it in. A vehicle exhaust system for the truck wash bay, to the extent that you will be doing maintenance
is required. That could be a drop hose which is what we would recommend for you.

Kluck We will be doing fire truck maintenance in those bays.

Thompson What kind of maintenance? Is this a hazardous area?

Grunwaldt Let me backup a bit. We had classified the wash bay as a wash bay/maintenance bay.
I think now it's just changing to wash bay and the maintenance they would be doing in the apparatus
room.

Reider Maintenance trucks and fire trucks?

Kluck No, just fire truck maintenance.

Pederson Well, your firemen change their oil.

Reider But that is still on the fire trucks. You're not going to be bringing other Town
vehicles in there?

Pederson We allow the firemen to bring their private vehicles in there to change their oil.

Reider But it's not a Town truck maintenance area.

Thompson It's not a hazardous area?

Pederson No, it's not hazardous.

Kluck The only hazard that will be stored in there will be one of those yellow gasoline cabinets.

Reider But to the extent that you are doing maintenance and running the engines on these trucks, then you definitely want to have some type of exhaust system. Again, you'd go from the simple slip it over the tail pipe and turn the fan on to something more automatic. We could get some information on that.

Kluck I think Marilyn is right. I'd like to see the basic systems up to the Plymo-Vent systems priced out.

Reider Moving along here, the exhaust fan and small heater for the hose tower. I raised the question because I think people may be doing this. You have a heated floor, can you use that to dry hoses or do they have to hang still?

Kluck Well, the idea is to not leave them laying on the ground on the floor where guys would be stepping on them and tripping over them. We're talking a lot of hose.

Stoltz They do dry them on the floor.

Kluck Sure. Some of the them do. But we're going to have the hose tower there anyway for the training.

Reider Oh. That's for something other than just for drying hoses?

Kluck Correct.

Reider Okay, I didn't know that.

Kranig Doesn't anyone else in the neighboring communities have a training tower that you could use?

Reider In the last 4 or 5 years for all the ones we done, there's only been one that had a hose tower. I think the other places did lay them on the floor, especially if they have a radiant floor which would promote the hose to dry.

Kranig I can't remember why we needed that hose tower.

Kluck For training purposes. We send people up on ladders to the top like a window, we do repelling off of it.

Kranig How many two-story buildings do we have in Hull?

Kluck Well take a look at all the homes with a second story. We're calling the Stevens Point ladder truck out on any chimney fires in the Town of Hull.

Kranig I'm questioning it because I see that hose tower and that's a big expense.

Stoltz We've got one already.

Kluck The decision was made to make that cold storage and not use that one anymore. If you want us to use it, that's fine, I have no problem using it but you would need to leave a heater in there and it won't be cold storage anymore.

Reider If we are going to have a hose tower, we would provide something similar to what you have now where you have an exhaust fan on the top and we put some heat on the bottom. Heat rises and it'll promote the drying of the hoses.

Kluck What we need to keep in mind is that we are trying to look towards the future on this stuff. We don't want to give up anything we already have.

Reider We are assuming that you would want to have a PTAC unit air conditioner for this person in the dispatch office?

Kluck Yes.

Reider In addition to the in-floor heat, or if there isn't any in there, he'd have his own heater. A PTAC unit is like what you find in a motel room that sticks through the wall and can both heat and cool. It stands for Packaged Terminal Air Conditioners, PTAC.

Kranig What is done from the dispatch office?

Kluck That is where our radio communication is. That's where all the maps would be, our command post during a fire.

Kranig I thought that was your office?

Kluck Absolutely not.

Kranig Do you have a certain group of people that just work in that office or does everybody do that?

Kluck When we have a call, that would be our staff room, our radio room, there would be a computer system in there.

Fritsche Right now it's being done out of that little office next to the lunch room.

Kluck That's where the radio system and reports are done out of there.

Reider The last thing I have here is the service wash bay that Todd now said will be just a wash bay. So we'll consider it just a wash bay. Because we're operating vehicles in there, we are required by code to have ½ a CFM per s.f. so we would have a small makeup air and exhaust system for that area. That can be like the same way we deal with the apparatus bay. A unit heater would be cheap, gas infrared tube heaters may not be such a good idea if you have water spraying around because that tube is hot.

Grunwaldt I have a feeling that it will be pretty messy.

Reider Again, best would be a radiant floor type heat. For a wash bay, you just can't beat that. I made a note that we want to keep our ventilation separate from our heating because you don't have to run the ventilation if you are just washing a vehicle. So we definitely want to have that as a separate item. Or we could do warm air equipment but we'd want to put it in the mezzanine which is going to be right here, right?

Grunwaldt Right. That was another purpose of having that mezzanine.

Reider That's great. For both this and the garage there is the question of energy recovery. We'll be exhausting a bunch of air, we will be bringing in a bunch of air, we can recover a lot of heat by running it through a device that transfers heat from the exhaust air to the incoming air. That looks really good and you get rebates for that. The efficiency will derive from how much you actually use it. If it's something that will be running all the time, we'll definitely promote that idea. Although the energy recovery system of the size you would need for the garage is another item that would be quite a big expense. So if you know that you may be shutting this thing off at times, I'm not going to sit here and say that is something you have to do. Same thing on the wash bay. How many vehicles a day would you wash in there?

Kaminski I wash in there from snow plowing season start until about April. Now I'll wash my tractor and grader about once a week. It all depends.

Reider So you may not average even one a day?

Kaminski No. During the winter, several times a week.

Reider The point there being that if it's that's intermittent; I can't really see justifying the cost of a heat recovery system when you just don't use it that much. Again, it's thousands of dollars that add up in the cost for a recovery system. That was most of the notes I had on heating although we said we were going to come back to the geothermal as our last item. I had asked the question, what is the interest level here in geothermal?

Grunwaldt I think they are interested in knowing about it, if they can tap into it, if they can justify utilizing it, which you would by heating the slabs as much as possible.

Reider That's the best use for it. You can do other things with it too.

Grunwaldt You said the best use is heating and cooling with geothermal right?

Reider In order to make the most of the investment that you put into it, the ideal system is used someplace where it is used to both heat and cool. The reason for that is because the earth is like a big tank. All winter long, if you are heating the building, you are taking energy out of the that tank. You are taking heat out of the ground. So the ground actually gets cooler. At the end of the heating season, you move into air conditioning and now, we're taking heat out of the building and we're putting it back into the ground. We are essentially recharging the big tank that we've been taking heat out of all winter by putting heat back into it in the summertime. That will bring the ground temperature back up. The ideal geothermal system is one that has about as many BTU's taken out of it in the course of the heating season as you are putting back in during the cooling season. If you have one of these systems and you are using it only for heating or only for cooling, you do run the risk of each year it working a little bit less than it did the year before. Because the ground temperature never quite came back up to where it was at the start. Eventually it could get to the point where it doesn't really work at all. What we've heard people do, where they have that situation like in a big warehouse, is they'll put up solar panels and make heat during the summertime and use that to recharge the ground. But that would add extra cost. There are 3 basic types but I'll get into 2 types of geothermal. Most of the time, what I've seen is what they call a bore hole. You think of it as a well because it's drilled like a well. They put down a casing except it's not actually a well because you don't really take anything out of the ground. They basically run a pipe down inside the casing and at the bottom you have a U-bend and then it comes back up again. The pipe is plastic; the casing is steel I think. The water goes in and the casing is full of grout so you get heat transfer between the pipe and the ground and that is how the heat gets transferred. It's not a question of pumping water out and in. Those are pretty much not being done anymore because of the DNR. This is totally non contact between the fluid in the system and the ground. You have a number of these bore holes depending upon how much heating or cooling you need. I said about 1500 feet per ton. One of these bore holes which can be anywhere from, if your ground is really good for heat transfer, 150 feet, or if it's not or if you want more energy, maybe 300 feet deep, is good for a ton to 2 tons of cooling. I said you needed, for our office part of this building, 20-30 tons of cooling; we could need 15 – 20 boreholes. Somebody has to come out and drill 15 to 20 wells. There is a cost for that, about \$1,500 per borehole which is a lot more expensive than buying conventional heating and cooling equipment. You do pay a premium. You're not going to get this cheaper than a typically building system. You're savings area in the operating costs.

Hucke I've heard from people that by the time they get done paying for it, they are paying more in electricity for paying for the pumps running for the system, they end up losing money.

Reider That's hard to say. With a house, it should be pretty simple because you only have one or 2 boreholes so it would be a pretty small pump. You do need a pump, you have to move that water around and that takes electricity to get it around the system and back again. You do need a pump and piping. The costs ramp up as systems get bigger because you need so much more piping. There is another way to do this and that is to dig a trench 6 or 7 feet deep below the frost line then you take this coiled black tubing and stretch it out so that it overlaps and you drop it in the trench and fill it back up again. That works okay, it's more cost effective than boreholes but you need land to do it which is why not very many are being done. A parking lot is not good because a parking lot does not have snow cover and so the frost goes deeper into the ground. You really want it on some land that has snow cover I the wintertime and provide insulation. You've got land.

Pederson We have the real estate.

Reider For you, that might work. That certainly would be worth looking at just for that reason. To say more than that goes beyond our scope here. If you want to pursue funding for this, the only decent way to tell you what the economics are is to do a study or energy model or analysis and unless you have some pretty good information on what your soil is like here, drill a test well, if you are thinking about bore holes. The last time we did that for somebody, our study ran about \$6,000 of which Focus on Energy paid half and they paid another \$4,000 for the bore hole. The thing about the bore hole if you decide to go ahead is that's one of your wells that you could use. We really can't develop any good numbers for you on geothermal without going to that next step. At this point, I can tell you that it is certainly able to be done but it will add cost and it will dictate that you use certain systems in your building as opposed to warm air systems. You would probably use a lot of little geothermal water source heat pumps. You would have a water loop running around the building with a lot of little air conditioners hooked up to it that can also heat that can take energy out or put it back in to this circulated loop and then that circulating loop ends up going back into the ground to put energy back in or take it out of the ground. You would be making an additional investment in this for the privilege of having quite low heating and cooling costs year round. It's more problematic but it would work better for what it can do for the apparatus bay and the wash bay if you want to have radiant floors there. We'd need to work through what we would have to do with that. So that's where we are with the geothermal on that. There may be questions on that or other comments.

Grunwaldt I think the idea is that we wanted to discuss these to identify what types of systems are available. You hit that with the pros and cons.

Reider And what you wanted us to pursue and what we should not for various reasons.

Grunwaldt They understand that there would be an additional charge to pursue that whole geothermal model.

Reider If you want to get funding on that, you're going to have to do that anyway.

Pederson Right.

Reider So you may want to discuss that.

Pederson Yes. Would you know of any examples that would have municipal buildings that would have used geothermal recently?

Reider I got some information from Focus on Energy. I can go there and I might be able to find something. Nothing that comes to mind offhand. That we can do.

Pederson As far as soil types, it's pretty much sand.

Reider How far down?

Pederson I'm not sure, does anybody know?

Hucke It's pretty sandy.

Stoltz At least 40'.

Reider What happens when you get below 100'?

Stoltz I have no idea, my well isn't that deep.

Pederson The high capacity well that the city is putting in, I think they went down 90'.

Hucke There are some rock ledges here in spots.

Reider Where is the water table?

Pederson It's pretty high right here.

Reider The ideal situation would be a lake to put this stuff in that would be 50 degrees all year round. The next best thing would be sand with a high water table.

Grunwaldt If we pursue this, I can ask Bruce Neuman and he might know, they're a testing service. Going on to electrical with Guy.

Thompson My end is much simpler than Tom's. I did some calculations on here and it looks like you will probably need to have 800 amps, 208 volt, 3 phase. I went to the power company and got a cost to bring that 3 phase into your property here. That's for your records (handout). It's about \$35,000. You don't have a choice, you need the power.

Grunwaldt The idea is to bring in a new service and back feed the new service to the existing service.

Thompson I would anticipate that there would be one main service panel with one meter and I would put branch panels. My idea would be to put them inside of the fire wall areas which means the fire dept. and apparatus room would have one panel, the town hall and connection would have another one, the fire dept. offices and existing building. These are separate panels. This would have something to do with what we talk about at a later date with the power company. First of all, when we start out electrically, we have a lot of people looking over our shoulder. Everything would be done according to the local state and national electrical codes. Lighting power design would be according to the International Energy Conservation Code which is the thing we really have to look at to keep your energy down within the guidelines on it. What we put into the building. Wisconsin Dept. of Commerce has all kinds of rules and regulations as to how much light we can have in an area, how much wattage, for the particular use of the building. We are regulated by that and it will be the lowest wattage possible. We also go by guidelines for foot-candles that are recommended for each area. So everything is designed along that. Dollar wise it will be fixtures, energy wise it will be as low as possible to give you the type of light you need for your areas. Lighting controls are regulated by us. To save energy, an area like this requires dual switching. Somewhere where you can reduce the light. Normally we just use 3 lamp fixtures with 2 light switches so you get 1/3, 2/3rds or all of it. We use occupant sensors in smaller areas like bathrooms and offices. There are daylight requirements and I don't know if it would be

necessary in this building here if you have so many windows. You have to be able to shut the lights off if there is a certain amount of daylight coming in. That controls the energy. It will all be built into the building. I will need information, as we start designing the building on the type of systems you have in here, the required fire alarm, communication, data processing and stuff like that. Everything will be built in to the electrical; we pick up everything Tom puts into the building that requires electricity. Parking lot lighting is controlled by the amount of foot-candles we have on the ground and the controls, time clocks or photo sensors. Until I get the plan and design the systems in it, then I would sit down with the people involved and say we have receptacles here and here. You people would have the input as to what you want and where you want it. I'd have them down there first and we would review it. The energy things are all built in. You can talk wind power or solar voltage cells. The design that is into this building first is all set for anything you would want to do in the future with wind power or solar voltage cells. The only thing that it requires is a thing called an inverter which is not on my original plans. We could go through some of these specialists that do this and say if we get an 800 amp service here, let's provide wind power for half the building. I'm just throwing out a hypothetical case. We could go to the wind tower people and there are some in our area here that do a good job, they can do a good study and say here's what my end of it will cost for the wind tower.

Grunwaldt We already looked at the wind power and it is not suitable for this area.

Thompson Okay, we can forget about that.

Grunwaldt Solar might be something else.

Thompson You mean solar cells. All it takes, after I would have this building all designed, is what percentage of the building you feel you would like to try to handle with solar power. It can be tied right into my main distribution panel. It would be another meter that would feed it back into the utilities service if you are not using all that is generated. You need one expensive item between the alternative power and our electrical system and that is called an inverter. Until we come up with some idea of how much you want to try to produce, these things could cost \$20,000.

Kluck Do you need an inverter if we have a generator system?

Thompson Emergency generator?

Kluck Yes.

Thompson Yes. That's something that I want to talk with you about too. These are all things that can be added to what you have. You could put in several inverters. You can make the decision to provide the electrical power for just this here. I would hook it into the panel that is feeding this. You need the inverter between your power source. The purpose of the inverter is for the electricity phase and voltage that the solar power generates matches the utility company and you can sell it back to the utility company just by having another meter tied in parallel to your existing one.

Stoltz Taking DC and making AC with an inverter.

Thompson The decision now doesn't have to be made yet, if you want to generate some of your own power. We could have it ready. We can decide, how much will it cost if we did 20% of the building with solar cells.

Grunwaldt As far as payback?

Thompson Yes. I can't do that but the people in Oshkosh can. My suggestion is that when you get close to getting this, before it goes out to the referendum, are we going to have the building designed?

Grunwaldt To a point, preliminarily. Probably not a whole lot more than what you see there other than building elevations.

Thompson I guess what I meant was will I have my electrical stuff on the plans?

Grunwaldt No.

Pederson I need some firm costs.

Thompson We can come up with something.

Grunwaldt As far as the inverter and what alternative energy we look at, that would be something we'll provide as an alternate. If we provide alternate costs for solar cells, here's the solar cells and inverter and I'll give you a package deal.

Thompson That's something we could do very easily as an alternate.

Hucke Just to let you know, you see that Klismith, how they have all those solar panels, that is a 25 year payback. That's a long time.

Grunwaldt We talked about this already.

Reider That's before or after rebates?

Hucke That's after rebates.

Thompson Also I follow the Focus on Energy and anything that I would specify, I would try to specify something that has a rebate on the original equipment.

Grunwaldt How does this tie into generators? It sounded like they'd need an inverter for the generators.

Thompson No. A generator is just part of the buildings distribution system. What I need to know from you is exactly what you want on the generator to size it.

Grunwaldt That we have hit upon already and that we can decide later. That would be another possible alternate to this. We talked about it being 2 different generators. One for the fire dept. and one for the maintenance garage.

Thompson I raised the question of how often is your power out and how often would these doors have to be raised under emergency conditions? You're going to spend quite a bit of money for that but that's not my decision.

Pederson Could that be accomplished with a portable generator?

Thompson Yes, you would have a receptacle that you would plug it into. A transfer switch so that it works off the normal power. The best way to solve the generator stuff is to for you to get together and decide what you really want or need on the generator.

Grunwaldt Yes, that needs to be decided among the committee yet. It might come down to being an alternate. We'll give you something where you can size the generator and put a price tag on it and it will be an alternate item.

Thompson I have the main distribution panel with a feeder coming out of this panel here. The generator works the same way. Anything that is off of the generator has to come off of the main switch gear into its own panel and then there is a transfer switch there. Under normal conditions, all of your stuff off of the generator comes off of this one panel. If we are all over the building with emergency equipment, maybe it would be an advantage to have a couple of generators. You've got a lot of branch circuits going over or you've got one feeder going over with a generator. It would be outside if that would be the simplest way to do it.

Reider Are you on natural gas or propane here?

Pederson Natural gas that comes through from the city.

Thompson The generator codes have changed quite a bit over the years. If you were on natural gas, you had to have a standby storage tank. That was a real nuisance, but it's not required anymore.

Pederson Pete, do we have 3 phase power here or single phase?

Thompson No, you don't have it now. You're really going to need it for this.

Pederson The advantage to 3 phase is that it's more efficient?

Thompson It's 66% less wiring. It'll handle bigger loads.

Reider The class of A/C's that we will need here are only made in 3 phase once they get up past a certain size. A complex of this size almost has to have 3 phase power.

Grunwaldt This was to bring 3 phase in right? That pretty much sums it up. Getting back to alternative energy like solar cells, we would be looking at another company. We talked about local people.

Thompson You can't use wind here?

Hucke It's not a suitable site with all the trees around here. It's not going to happen. Plus, it's too close to the airport.

Thompson Here's another thing that I could show you in writing here. Wind turbines and solar cells; let's say someone is trying to sell you on a 20KW wind turbine, you don't get 20KW's out of that wind turbine. You get about 30% of that on average for the year. If you want 20KW wind turbine, you really need to have 3 of them. The point being that you see a lot things on that but your payback is not so good. But we can put something together that would e an alternate bid. The alternate bid will be easy here because it doesn't change the distribution system. It just adds to it.

Pederson We'll have the system requirements figured out ant then it can be added to it.

Thompson You could take any of these generating sources and add them to it. If it's 20KW that you're adding, you'll get a third of that in energy because the wind doesn't blow and the sun doesn't shine all the time. It just fits right into the system. An emergency generator is not part of this alternative energy.

Grunwaldt Right, but if we did put a generator inside, we've got ventilation issues to deal with.

Reider That's typically not done much anymore. I haven't seen a generator go inside a building for over 6 or 7 years.

Hucke When we were in Bancroft, didn't they have a generator?

Pederson They had one but it was outside.

Thompson In the fire dept., it's not covered in my national electrical code. It must say what you need on emergency backup power.

Grunwaldt So it's not required.

Thompson Right.

Pederson It would be the systems that are needed to respond to an emergency, that are essential.

Thompson Lighting wise, we need to have, by code, emergency lighting throughout the building but that is just for evacuation. The batteries are good for about 1 ½ hours or so.

Grunwaldt It is a code requirement to have something like a night light, a pass through light?

Thompson Yes, we do put in emergency lights.

Grunwaldt No, wouldn't you keep a couple of light fixtures on? Not the same as the battery emergency lights.

Pederson Security lights.

Thompson Security, evacuation, emergency lights, yes. That's all part of the system. But we follow all the guidelines on Focus on Energy. That's not this tax rebate stuff, this is if you use this particular fixture, you might get a rebate on it.

Reider The trouble with all that stuff is that as things move more into the mainstream, they don't give rebates on them anymore.

Thompson New construction is different than retrofitting. There are more rebates on retrofitting.

Grunwaldt Which we are hoping to do here in this part of the building.

Reider So on the plumbing, I think the objectives are pretty obvious. We'd want to minimize our usage. You're going to have a well here correct? You have a well now? What is the deal with that?

Grunwaldt We might be building over it. Can we build over the well? It's sitting right over here right where we would be making our building connection, that's where the well is.

Reider I don't think you can. From the little I know about wells, you can't. I don't think a well can be inside.

Hucke You could move it though.

Grunwaldt Well before the meeting, Dave was saying, "Could we build around it?" I think we might be able to and we'll have to pursue looking into that. They don't know what the capacity of the well is either.

Pederson We'd have to look that up.

Reider You'll have to make that decision probably based on feedback from us on what your water usage might be. Are you intending to fill pumper trucks?

Kluck No.

Pederson We have a separate thing for that.

Reider Because with a well system, that would get to be a problem.

Kluck Our only concern was from where the well is located to the opposite end of the building where the wash bay is, are we going to have enough capacity?

Reider The answer to that is that if you don't have much to work with, then you design your plumbing system very conservatively as far as pipe sizes go to minimize that pressure drop from one end of the system to the other. It can be done. There may not be enough flow for the amount of use that we anticipate there could be with all other things that are going on. That's what we end up providing information to whomever you are going to use as your well persons.

Grunwaldt We'll work on it on our end and find out the well information. When we get that, then between the well person and you, we can determine if we can utilize that well for the entire building. We don't know how old the well is, how old the pump is, but we'll get that information.

Reider If nothing else, they can do a flow test on it and determine the head versus flow. The curve of the pump is something someone will need to know. Most of what we do in plumbing is dictated by code, sort of like electrical is. Except there are not too many energy considerations in plumbing. We give our clients the option to use PEX pipe within reason. That's the plastic piping that is getting to be pretty standard for residential use. We let it be used wherever it's concealed or if it's in a mechanical room. But if you're running across an apparatus bay or something, you'll want that pipe to be copper. All the piping we figure will be overhead as opposed to running it under the slab. I get nervous about piping under a slab if there is a way to avoid that. For the amount of water that you are likely to use, outside of truck washing, a place like this doesn't use a lot of water. You have bathroom sinks, a kitchen sink, a couple of showers that are only used on an intermittent basis. You don't have that much hot water demand so keep that in mind as we go through this. You don't use much more water than an average house. A house type water heater is usually adequate for these types of occupancies. We'll specify a direct vent, fairly high efficiency, \$700 or \$800 water heater. Maybe it's a \$1,000 one because it's a direct vent. That would be the installed price. It is a tank-type heater. A hot item in plumbing now is the tankless water heater. We could do that, but you would pay extra for it. Maybe half again as much in cost. The one thing that you need to keep in mind is that if you're running just a little bit of hot water, it's hard to do with a tankless heater because it's made to run water straight through it and heat it from one end to the other. There's no tank so it's sensitive to flow and they sometimes don't work that well at very low flows.

Kluck The water that is here is high in iron. That is why there are stains all over the outside of the building. Is that going to affect anything?

Reider To the extent that it's going to plate out on the piping, which would be a problem for anything you are going to put in. But less so for a tank type heater than for a tankless one. That would be another reason to not use a tankless water heater.

DiSalvo I've heard that replacement parts for tankless heaters are expensive.

Reider They are much more complicated. A water heater is a very simple device. It's a tank, gas valve and a blower. If you look inside a tankless heater, there are a lot more components. Electric would be out of the question so we'd be talking about one that runs on gas.

Wolle I found the well depth for this building and it is 304 feet.

Pederson Is there anything on there about gallons per minute?

Wolle No. It's not unusual to have some deep wells in this area.

Kluck The mobile home court is over 600 feet, 3 wells.

Wolle But they needed a high capacity well.

Reider Doesn't the DNR have some regulations that you have to go a certain minimum?

Stoltz 25 feet minimum.

Hucke I've worked on some of the houses here and one can be very shallow and one right next to it very deep because of rock ledges. Mine is only 20 feet down and I live ½ mile from here.

Reider Our waste and vent; we do want to minimize our waste water because you are going to have some type of privately owned water treatment system which will be designed for this facility by your site plumber. Around here with all the sand, people use in-ground systems don't they, conventional as opposed to mound systems?

Hucke There are mound systems too because of the high water table in places.

Fritsche Over where I live, it's conventional but over a couple of blocks down the road, there are mound systems.

Reider So you really don't know what you are going to get there. What do have now? It's conventional now, okay. But I know the regulations are tighter than they used to be. We'll want to keep that in mind. Now, everybody uses PVC piping for the sanitary and there is no exception. We will have catch basins, not shown yet, but there will be at least one for these two areas. That's a code requirement.

Grunwaldt Where does that water go?

Reider From the catch basin? It goes into the sanitary system.

Pederson We wouldn't handle that differently?

Reider No. Not necessarily. You have a catch basin and one of the reasons for the catch basin is to separate out the oils. The water goes into the trap and comes out below where the oil level would be.

Grunwaldt Talk about the last item, recycling the wash water.

Reider What was your thought on that? I have a concept but I want to hear what your thoughts are. Is that something you see people do?

Pederson I haven't seen it, but I know people are promoting it.

Reider Who's promoting it?

Pederson Statewise to recapture rainwater and also the regulations on storm runoff are increasing. We need to manage that. Using the runoff from roofs for wash water or rain gardens. This could be a demonstration to the community too.

Reider We have touched on a couple of technologies. Not knowing how often you are going to be washing vehicles, the idea of recycling the vehicle wash water, I really couldn't get that excited about it because you need tankage, you need to treat the water, you've got to pump it a couple of times. For what you are doing, you would find that the equipment needed for that would be very expensive and not very cost effective. Where this really works out is in places like car washes, commercial truck washes where they are using the thing all day long and they are able to save on the water heating. Are you going to have a pressure washer?

Kaminski Yes.

Reider Similar to what you have now except maybe run it on gas instead of oil, right? I don't see the volume there to justify the equipment you would have to put in as a minimum in order to recycle that water for the next time around. Rainwater harvesting is something else again. You have a lot of roof area here, good drainage. It's not difficult to do but what do you do with the water? You'd need to have a storage tank somewhere which we could do. A below ground tank of some type. The people that make the roof and floor drains, they've got the fittings and equipment because it is something that is getting a certain amount of attention, rainwater harvesting. One use for this could be to flush toilets; a greywater system. Vehicle wash, toilet flushing, anything else that could use non-potable water. That would mean that you would have a separate non-potable water system. That would start running up the cost again, but it can be done if you have somewhere to go with the rainwater. Because you don't do much vehicle washing, I don't know if it would be worthwhile to put it in just for that unless you limited it to a small part of the building and you drew on that water when you needed to wash vehicles. That might work. For this place, I don't know about extending it any further than that.

Pederson It's just that I know the DNR is looking more at hard surfaces, parking lots, roofs. I know that when any subdivision is planned, the storm runoff has to have a management plan.

Reider That would be retention ponds.

Pederson Right. I would think something similar could be done with the runoff here.

Reider You may need a retention pond.

Grunwaldt Or retention areas, that's yet to be determined.

Reider It will depend upon the size of the construction project. Rainwater harvesting for reuse is a different concept. It can be done but there is an extra cost to it that might not be justified for the amount of water that you use. I don't know what to tell you on that. I did do some research into domestic solar hot water heating. Guy came up with some information. They have a posted price on pre-engineered systems. They provide you with the water heater, the panels and everything you need. I

looked at this and thought, wow, this is about as good as it gets. You can have a little solar electric panel to run the pump. I would say that this would be about the size of a residential system. Two solar panels: if you read the fine print on these solar panels, a system like this with two 32 s.f. panels, they are rated at 46 gallons of hot water a day. From 50 degrees to 140 degrees with a 90 degree temperature rise; 46 gallons a day is about how much hot water a household uses because this is what this is sized for. Of course, that would be on a sunny day. That doesn't sound all that bad. The cost is about \$8,000 - \$10,000 for a 2 panel domestic solar hot water system. The maximum rating on these, it does the amount of heating you need with natural gas for 33 cents a day. At this point, for you, there would not be a payback. You would do it to make a statement. People would see those panels.

Pederson That might be one of the factors that we need to consider.

Reider This isn't before rebates. You might be eligible for rebates on this. You won't get any tax credits because you don't pay taxes so that part doesn't help you. Even with a 50% rebate on this, you wouldn't find it cost effective but you may want to do it anyway.

Pederson Gas rates aren't guaranteed to go down.

Reider No. You have a good rate here now on natural gas. But even if it doubled, the payback on it would be quite long. That's something you can mull over and tell us if you want us to pursue it when we get to that. That would be another possible alternative item. It would replace the conventional water heater because that would be part of your system for your \$8,000 to \$10,000. That does buy you a water heater that has either gas or electric backup for when the sun doesn't shine or can't heat the water. You'd be taking something out but you'd be adding that in. This particular system, there is a water heater with it. You might be at the high end of the \$10,000 because you won't have a nice sloping roof to put the solar panels on that faces south. Going beyond that in our search for efficiency, your mandated flushing volume for water closets is 1.6 gallons per flush. There are water closets on the market that will gravity flush with 1.28 gallons. Or they have the so called dual flush where you take the handle and move it up and it gives a low flush for non solids, push the handle down and it gives you a higher volume flush for solids. These are things that are going into super energy efficient type of buildings. It will save you on your water cost, but you don't have a water bill since you have your own well, so the only thing you would be saving would be less electricity on the well pump. In your situation, some of these things don't look as good as if you would be a homeowner or anybody that had to pay for their water. For that reason for this project, I don't get real excited about that stuff. The base for urinals is 1 gallon per flush. You can get ones that are 1 pint per flush, they cost a little more. Again, if you want to make a statement, you could go with a waterless one. You'll have at least one in here right?

Grunwaldt Yes.

Reider You're not going to save any money on the installation. In fact, you'll spend more because with a waterless one, you still have to run piping to it. That's the way the plumbing codes are written. Just in case. So to me, it falls into the category of making a statement. You can do it if you want to. That's your major options in terms of going the extra mile in water conservation. They all work but it's up to you. You wouldn't get much of a payback on it because your only water cost is your

electricity with private well and septic. To the extent that it puts less water out into your septic system, yes, there is an advantage to that. It's that much less load on your system.

Pederson The system would be designed for the wash load and everything else, correct?

Reider Yes. You have some time to think about that yet. I put some other things down here for the record so you know what to expect. We typically use the molded stone type sinks that everybody has seen. Are the showers going to be modular or tile?

Grunwaldt Yet to be determined.

Reider Tile ones last longer, but the modular are cheaper. Are those going to be roll-in showers? I just ask because you had the size like it was going to be that.

Grunwaldt We didn't determine that yet either. Roll in means that it's curbless. There is either a wheel-in, which is curbless, or what you call a side transfer with a fold-down seat. More than likely, you would take the seat out because you'd probably never use it. I'm guessing just a standard 3x3 shower would fit your needs.

Reider We've got time on this but I wanted to bring it up before this group. We're assuming you want a wash up sink in the wash bay and in the apparatus bay. What we usually put in is like a laundry type sink, wall mounted, molded stone. Unless you would like a floor type in either one of those 2 locations, a janitor type sink.

Grunwaldt I would count on a wall mounted utility type.

Reider We don't need to know yet where the hose bibs are going. That will come when we get more detail after this passes in referendum and we know that we're going to build it. I'll tell you that you will have some hoses inside and some outside. We'll need to find places for them. The heater for the wash bay, we talked about what it's going to be. Is that something you would just want to buy?

Pederson You mean the pressure washer?

Reider Yes, the pressure washer/heater.

Pederson We'd probably just replace what we've got when we need to.

Reider That's what I would recommend. To just take care of it yourself and get what you want. Have the plumber hook it up and run gas to it. If you want a 2 compartment sink in that kitchen, we would have to have some kind of grease handler.

Kranig Go with one compartment.

DiSalvo We're going to do whatever we have to do in order to convince inspectors that it's just a warming kitchen.

Reider That's what the plumber told me. He gave me a whole list of triggers for grease interceptors. In a building like this, a 2 compartment sink is one of them. No exceptions. Do we want to change out any fixtures in this building for more water efficient fixtures?

A general discussion followed on the fact that the existing bathrooms would be torn out anyway so any new bathrooms would automatically get new, more efficient fixtures.

Reider Are there any other special needs that we'll want to know about? Start thinking about that before we get into the detailed plans down the road. This will be the time to get things into the plans. It's cheaper to put things in on the front end rather than add them in after the building is done.

Grunwaldt Right. Typically, we would do an entry vestibule but I don't think we're going to have a vestibule in this case, but I know what you are saying. Any questions at all while these engineers are here about heating, plumbing or electrical systems?

Kranig I thought they were very thorough.

Reider We wanted to get this material in front of you so we could make decisions.

Kluck What would you typically use for lighting in the apparatus bay?

Thompson Fluorescents. With new construction, there may not be a payback for that.

Pederson I thank you gentlemen for sharing your knowledge with us.

Thompson When I get down to putting all the electrical outlets in the plan, I sure would like this committee to see what I am doing. Until it's down on paper, you can't see where you might need changes.

Grunwaldt Right. That will be part of that next phase. Other than knowing that we need data outlets.

6) Determine the next step and task assignments in the process the committee will follow to arrive at recommendations for the Board.

Grunwaldt We're not ready yet to meet for the changes. We started a rendering just to give you an idea of what the building might look like from the outside. That is a brick and masonry front. We're wrapping the sides and front and the rest would be metal siding.

Amman Is the roof flat or does it just look that way?

Grunwaldt It looks flat but it's actually sloped to the back. We put a front façade to the existing building. I just wanted to give you an idea of where we are at. We'll continue to develop this and get more site features as well as work on the colors. We have a green metal roof, standing seam metal. We do vary the heights of the roof lines and that gives it a little more character. I think you will enjoy how the building looks as you approach it from the east. Here is all the parking for the fire fighters.

Kluck How far off the road is that?

DiSalvo I think right now the building is set back 80'.

Grunwaldt You asked about the next step. We were going to set up another meeting when we had more information put of the plans. I would like to get the elevations and renderings developed further. I would like to get some more answers figured out from my engineers and get more from the Town on well information, get the name of that guy.

Kranig Haupt out of Auburndale.

Grunwaldt For the next meeting, we'll have building design, exterior design and floor plans to review along with boards like this set on easels for informational meetings along with more renderings. I'm assuming we can take these boards and put them the other way and bullet point cost estimates and alternatives, needs and objectives and current building conditions. We'll need to work on that verbiage so we really should start on that soon. When were you thinking of having the informational meetings begin? The September referendum would be the 1st Tuesday in September, right?

Kranig That's not right. I think it's the 14th. Did you decide to leave that wash bay where it is? I know you were talking about switching it over to the other side.

Grunwaldt I'd rather not add on to this building because we are going to max out on our square footage and then have to put up a fire wall. I'd rather just leave this building alone.

Kranig In listening to them talk about the need for exhaust for the fire dept., I think the maintenance guys need a better exhaust system.

Grunwaldt We looked at that system.

Kranig If the fire dept. is inhaling carbon particles, then these guys are too. They're eating in that area.

Kaminski Yes.

Grunwaldt We'll have a new lunch room for them over here and we certainly can look at that. I don't know all the options. What they currently have could be proposed for the fire dept. It works off a sensor or manual switch and it sucks the air out.

Kaminski When it gets a certain amount of soot in there, it kicks in, or, I can put it on manually.

Kluck What did they have in Bancroft?

Stoltz They had a switch by the door?

Kluck Did they?

Stoltz When you walked in, the first thing you did was to hit that switch before you even started your trucks.

Hucke So let me ask you this, if we do all this work here and at the referendum they vote no, what would we do then?

A general discussion followed on the possible need of a “Plan B”, or could the building be done in phases, which parts of the building project were most needed based on pressing safety issues, storage problems, etc. It was generally agreed that if the project would cause a tax increase, that would be hard to convince the electorate to approve. Funding and grants are still being pursued but hard to come by because of the Town resident’s median income.

7) Set next meeting date.

Grunwaldt Before we set the next meeting, we were hoping to be done by about the end of June, right? So I think we are pretty much on track with that. I would say the 21st of June, in 3 weeks.

Pederson Does 4:30 work? Okay.

Hucke I’d rather have it earlier like this that at 7 p.m.

Grunwaldt They haven’t been running this long, but this was a special meeting with the engineers here. Next time mine will be short because this plan is close enough for now, we’ll just develop it a with a little more detail.

Pederson On the 21st at 4:30. We’ll have a full agenda with possible discussion of a plan B.

8) Adjourn. *A motion was made by Mark Kluck to adjourn the meeting, seconded by Ted Stoltz. Motion passed. Meeting closed at 7:05 p.m.*

Respectfully submitted,

Patty Amman, Building Committee Secretary
Town of Hull, Portage County