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**CONSTRUCTION PROJECTS COMMITTEE**  
**WEDNESDAY, SEPTEMBER 23, 2009**  
**7:00 P.M.**  
**NASHUA HIGH NORTH LECTURE HALL**

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A meeting of the Construction Projects Committee was held at Nashua High North on **Wednesday, September 23, 2009**. Alderman McCarthy called the meeting to order at **7:03 p.m.**

Present: Alderman McCarthy, Alderman Tabacsko, Mr. Dowd, Mr. Hollowell

Also Present: Mr. Smith, Mr. Vaughan, Alderman Teeboom, Carl DuBois, Kevin Drew, Gary O'Connell, David Bryson

***DISCUSSION: Review of Construction Estimates***

**Mr. Smith**

We met approximately 2 weeks ago in we met with Jordan in their office in Concord. They brought their spreadsheet with them tonight.

**Mr. O'Connell**

What I've passed out is basically what we prepared upon your instructions of the last meeting. We put the 2 budgets side by side and indicated where the two parties agree, and then have our notes on the right hand column explaining what our numbers include. Measure 4 and 6 are really the areas we have to focus on.

On measure 4, we have miscellaneous pouring of the walls to get fresh air into the rooms and ancillary rooms. That's represented by the \$12,000 number at the top. Air handling equipment... we have some renew air energy recovery units that would go on the roof of the school.

The big discrepancy on the ventilation as we expressed last time, is that our approach was to subsidize the ventilation that was being lost by pulling out the unit heaters at the floor in the classrooms. We did not address ventilation for the other side of the building which already has hot water distribution for heat and already has rooftop units for ventilation.

**Alderman McCarthy**

So on EEM4 the Harvey estimate has a scope of the whole building for ventilation and your only deals with the classroom section?

**Mr. O'Connell**

No, it deals with the areas where the unit heaters are coming out.

**Alderman McCarthy**

Okay, but you're not touching the mechanical systems in the other parts of the buildings.

**Mr. O'Connell**

Right. On the floor plan that we were just handed, the ones that we're not addressing are phase 3, 4 and 5. We did look at the units in those areas, and although they are older, replacing them would not have generated all that much energy savings... which was the charge when we were handed the study.

**Alderman McCarthy**

So we have a philosophical difference here. Are we simply doing an energy saving project or are we restoring the mechanical system so they're closer to a beginning of life rather than end of life. These sections are at end of life. Does that in general account for the difference between the \$230,000 and \$891,000 numbers?

**Mr. O'Connell**

Well that and the duct work.

**Alderman McCarthy**

Give me a ball park for how much we'd attribute finishing phases 3, 4 and 5.

**Mr. O'Connell**

About \$330,000.

**Alderman McCarthy**

And the duct work issue is...

**Mr. DuBois**

A difference in philosophy of how you provide the air. We're looking at it almost as a displacement system... bringing ducts in and return ducts out. We're still trying to get a better understanding of the distribution system that's being proposed. That's where I think we need to hone in.

**Alderman McCarthy**

I want to try and understand that. That's basically the \$325,000 difference in duct work and accessories.

**Mr. DuBois**

In addition to having the entire building as opposed to just the pieces of it that are in the old section, we have a different philosophy about how we were going to replace the existing air system. Although it's conceptually the same thing, we're providing ventilation air with heat recovery units, we're providing... well part of the issue with the duct work is that we're replacing duct work within areas such as the gym, cafeteria... non classroom areas. But we're also treating it as a displacement air system. So that probably accounts for the additional duct work.

**Alderman McCarthy**

I guess I'm not sure what that means. I mean what's the difference between the scope of the duct work in your estimate vs. the scope in the Jordan Estimate?

**Mr. DuBois**

The scope of the ductwork in our estimate is bringing the air in at a low level. I can't really speak to what's in the Jordan estimate. But we're bringing the air into the classroom down low and returning it high, similar to earlier designs.

**Alderman McCarthy**

This would include the hallway ductwork for distribution plus into the classroom spaces and down to the floor. And that accounts for some of the masonry wall opening changes as well.

**Mr. O'Connell**

That's correct. The ductwork under Jordan's estimate is to and from the energy recovery ventilators on the roof. Basically the fresh air would come in through a duct that would run the length of that roof and then penetrate the masonry the cavity above the ceiling to the diffuser in the ceiling.

**Alderman McCarthy**

So the ductwork is external to the building?

**Mr. O'Connell**

Well the trunk line would be external to the building, right. And then there would be wall penetration.

**Mr. DuBois**

Part of the difference is they're coming high, returning high... we're coming in low, returning high. And I think our number represents a larger quantify and size of ductwork.

**Alderman McCarthy**

It strikes me that some of the savings there is that the rooftop mounting of the duct work is a lot less labor than trying to get them into existing hallways. Would that work with the distribution that you're envisioning?

**Mr. DuBois**

We can entertain it, certainly. It's certainly a viable option, although I'm not sure it's going to be cheaper in the end. There are plusses and minuses. I think to get these numbers closer an engineer really has to look at this. This is all done on discussion. There's no drawing to look at; there's nothing to go by. We've looked at prior applications in terms of school construction, what we've done in the past, sizing that we think it will take, etc. And I think that's where the differences are coming in. To try and get these closer... you're looking at \$230,000 vs. \$530,000. And I think the balance of that is just in the approach in terms of what we believe they need as opposed to what they believe they need. And I think you need to get into that next level of an engineer review to get into approximate sizing to really hone this in closer... in my estimation.

**Alderman McCarthy**

In Item 5, I think your estimate doesn't take into account motion sensors or...

**Mr. DuBois**

We put 5 out on the street to see where the number would come in. The number we're carrying is the low number we received from 3 contractors. Taking the schedule provided for by the Jordan Institute, we went to 3 contractors and actually have 3 budgets from 3 electrical contractors.

**Mr. Smith**

I think it's a mistake not to be replacing the lighting fixtures with the estimates we have here. I'd like to see the whole fixtures replaced if we can do that. I think it would be money well spent.

**Mr. DuBois**

We actually pulled a number together for a one-to-one replacement a couple of years ago. At that time it was about \$160,000 to replace all of the fixtures with new fixtures.

For Item 6, I think the biggest difference is a dumpster. We do not include one in our number. The big difference obviously is the hot water distribution piping. The largest difference is that we have the entire school re-fed. So you'd have to take out of our numbers to match up with the Jordan Institute, C, D and E. That's what we see as the cost to complete the balance of the work... \$280,000. Again, the only other difference I can see comes down to distribution piping and what we think we're going to need. The biggest difference I can see is the hot water distribution.

**Alderman McCarthy**

So you're proposing replacing all the hot water distribution piping throughout the building and the Jordan Institute is not, I take it. What is the piping that's in there now?

**Mr. DuBois**

It's all steam.

**Alderman McCarthy**

So if we don't replace that, we would just use the existing steam piping for hot water distribution?

**Mr. DuBois**

You couldn't do that. You could potentially use the existing hot water piping within the We're planning on that having to be replaced because we're not sure if the condition of it and the configuration would allow us to tie into that system.

**Alderman McCarthy**

What happens in the Jordan Institute?

**Mr. O'Connell**

In both cases the steam pipes cannot be used. It's the other 3 sections that are already hot water piping already have hot water in them. That was left alone.

**Alderman McCarty**

So the \$55,000 is just replacing steam piping?

**Mr. O'Connell**

Correct.

**Alderman McCarthy**

And you're leaving the existing pipe in the rest of the building?

**Mr. O'Connell**

Correct.

**Alderman McCarthy**

Okay, and you're replacing that part. So, that brings us down to the question... what is that pipe? Steel?

**Mr. O'Connell**

Steel and copper I would assume.

**Mr. DuBois**

It would be safe to say that none of the hot water piping is 50 years old, because none of the additions are 50 years old.

**Alderman McCarthy**

My recollection of when we did this with the Police Station renovations is that there are some non invasive technologies for looking at the condition of those pipes. Could we do that and get a look? If the pipe's in reasonable shape we may be able to use that... and that's a substantial amount of money.

**Mr. Smith**

I think we have to look at it closely. We had a leak at the South High School over the weekend, where a copper pipe burst where it was sotted. So 20 years doesn't give me any confidence.

**Mr. DuBois**

Again this comes down to a difference of philosophy and the size of piping that's required. We're basing it on sizing that we feel is needed to provide the proper heat to the classrooms. Again, I think we have to get it to an engineer so we can price it accordingly.

**Alderman McCarthy**

Where else are there major differences in the items in 6?

**Mr. O'Connell**

One is how we're going to distribute the heat in the classroom... what unit we're going to us. We're recommending 22 fan coil units.

**Mr. Smith**

Gary, how many would you put in each classroom?

**Mr. O'Connell**

One.

**Mr. Dowd**

Are you saying the hot water piping that you're talking throughout the school should be replaced with something with a larger diameter?

**Mr. DuBois**

No. What I was alluding to was the discussions that we've had with the Jordan Institute and the size line that they're proposing. We don't feel it's adequate enough to supply the volume you need. We have different philosophies. We've gone with baseboard heat.

**Mr. Dowd**

A question for the Jordan Institute... We're talking about classrooms. What's the noise volume?

**Mr. O'Connell**

We've been told that they're not very noisy at all. These are not like the fan coils that you'd see in a garage.

**Mr. Dowd**

Do you need to supply more volume of heat for distribution from the ceiling than you would if you were allowing normal flow from a baseboard unit?

**Mr. O'Connell**

We believe you would not because the ventilation system will be recovering the heat, so the fresh air coming in will be heated. Right now you have unit ventilators on the wall.

**Mr. Dowd**

You also said there was one per classroom... does it adequately distribute it throughout the whole room?

**Mr. O'Connell**

Yes, that's the intent. Right now that's not the situation. The unit ventilators that are supplying heat are down against the exterior wall and in most cases are not centered in the classroom.

**Mr. Dowd**

And if you have the heat coming off the ceiling and your coldest point of the room is near the windows and wall... does it provide enough heat to keep that area of the room at a temperature that's adequate for young children?

**Mr. O'Connell**

The intent is to get a convective loop going through the classroom. Because the exhaust or return to the ventilation system is going to be up high as well.

**Mr. Hallowell**

So the smaller piping... have you had experience using that?

**Mr. O'Connell**

I don't understand what the smaller piping reference has to do with this. We're never put anything out there with piping sizing.

**Mr. DuBois**

The conversations we had in your office, Gary, you talked about a 1 inch supply line. And I'm saying you'll never do it with a 1 inch supply line... you'll never get enough flow through there. To get these numbers any closer, you really have to get something down on paper. And it can be just a schematic layout and what the sizes will be. Then we can take a look at it. The difficulty here is I don't want to get caught not having enough money to do the job properly. And I've got some strong disagreements with some of the approaches being taken. You've got a lot of glass on the exterior of that wall. We're not adding any insulation to the outside of the wall. To me you need that heat at that outside wall pulling from the outside wall, rising back up and extracted to get rid of it. Doing it with a unit heater in that one location you're talking about 5-6 feet of heat to distribute a room that's 900 or 800 square feet. It's a difference of philosophy and that's what these numbers represent.

**Mr. Hallowell**

So if we were going to expend money and go get an engineer, I'm guessing that if you do that the answers we get back will be your answers.

**Alderman McCarthy**

We have an engineer... Turner Building Sciences.

**Alderman Teeboom**

So talking about philosophies... getting to the bottom line, we're talking about a \$2 million difference. That's a lot of philosophy. Jordon Institute... is what you're proposing new? Have you done it before? Is this something risky?

**Mr. O'Connell**

Our philosophy is to do exactly what we were asked to do. To do an energy analysis of that building and address the weaknesses of that building. We saw that these sections C, D and E had very few weaknesses and did not propose to do anything with those. As far as the others that have the steam heat, we've addressed that.

**Alderman Teeboom**

So you guys are the experts on HVAC stuff. What you've proposed, will it work?

**Alderman McCarthy**

What they were tasked to do was to do an energy audit. And they did not consider if from a maintenance standpoint we ought to replace the systems that are in the remainder of the building. Harvey's estimates contain that. That is one philosophical difference. The other is there are questions about pipe sizing, etc. which need to be referred, I believe to engineers. I know the Harvey guys, and we got a conservative estimate I'm pretty sure. We need to look at things like, do we want to use the 20 year old piping... that will save us something. Clearly we trade off some years of maintenance that have to be done in the future, but those are the differences we have to look at. There is no expert as to who is the expert. We're actually look at 2 different tasks that we're undertaking. And we have to look at what we want to do at the end of the project. I think we're actually fairly close on the discussions on just the steam part of the building and what we have to do to close up the envelope. The two big differences we've seen is on C, D and E and what we do to the piping and the air distribution.

**Alderman Teeboom**

I'm not quite done yet. Here's the report for Fairgrounds and you guys came in at \$1.22 million. Here's the report for City Hall. Same kind of building but slightly smaller. You're doing a few more things. Since you're overseeing this job, are you going to come pretty close to this \$1.5 million?

**Mr. O'Connell**

Yes, that's what we intend to do.

**Alderman Teeboom**

Have you taken into consideration maintenance and other things?

**Mr. O'Connell**

No, it's strictly energy, just like Fairgrounds.

**Alderman Teeboom**

So when you put your \$1.5 million system in, are they going to be concerned with maintenance?

**Mr. O'Connell**

I don't believe so.

**Alderman Teeboom**

So what's the difference here? If you have a system for \$1.5 million and you're going to oversee this job, and the Mayor tells me she's going to do it for \$1.5 million...

**Mr. O'Connell**

One of the major differences is that we're not changing anything to hot water in the City Hall. It's staying steam. We're not replacing boilers in City Hall. We're conditioning existing boilers. Those are 2 major issues.

**Alderman Teeboom**

So if you were on the same basis of this job for \$1.3 million, would you bring it in at the same basis you brought in the City Hall building? Or would you have to add in another \$2 million of margin?

**Mr. O'Connell**

No, the difference between one and the other is that this is involving a construction manager. That one is being bid out design built. So there's a difference just in the delivery system.

**Alderman Teeboom**

This job comes in at \$1.3 million. The City Hall bottom line is \$1.4 million. Forget the construction manager for a minute. If you were given this job, how much would you have to add to the \$1.3 million to bring this job in?

**Mr. O'Connell**

General conditions... probably \$75,000.

**Alderman Teeboom**

Right. So you bring this job in at about \$1.35 million.

**Mr. O'Connell**

Yes, I suspect if we were to bid it out as a design built, the contractors would have to hire the architects or the mechanical engineers, so there would be adjustments to their pricing, but not drastically.

**Alderman Teeboom**

So, \$1.35 million vs. \$3.28 million. And that's not even counting the stuff that Shawn added up. Another \$500,000. So I fail to understand where we're going.

**Alderman McCarthy**

What is priced at \$1.22 million is a different project than the one that we're setting out to do. That is an energy saving project and conversion for one portion of the building from steam to hot water.

**Alderman Teeboom**

He just said they're going to do City Hall... same thing.

**Mr. O'Connell**

City Hall is the entire building. This is not. Most of the work at Fairgrounds under our proposal is just the sections A, B and F.

**Alderman Teeboom**

And do you have to do more?

**Mr. O'Connell**

We don't think we have to do more. Not as an energy upgrade.

**Alderman Teeboom**

That's all I have. If it's good enough for City Hall, then it ought to be good enough for Fairgrounds Elementary. If someone can tell me the difference, then explain it.

**Alderman McCarthy**

If somebody can explain to me how we managed to do the Elm Street renovations that were originally estimated at \$12 million for \$6 million I'll be able to explain this. But those \$6 million worth of renovations have since then cost us an additional \$9 million. One thing we've learned in the JSSBC is do it right the first time and don't do it over.

**Alderman Teeboom**

Are you saying that City Hall is going to be a band-aid solution?

**Alderman McCarthy**

If we're leaving steam heat in it, that would be my opinion. But it may be a much more energy efficient band-aid solution. But I think that building needs a much better renovation in the long term.

**Mr. DuBois**

I know our numbers have been questioned the last couple of years by various members. Just a point of reference. We do a tremendous amount of school construction in the state. We're looking at it a little differently than an energy savings. We're looking at it as a new system going in. We just priced out a school in Maine, which was a geothermal project with 80,000 sq. ft. The hard bid came out to \$2.6 million. About a year ago our numbers on Fairgrounds for just under 70,000 sq. ft. on a line drawing was \$2.65 million. I'll leave it at that, gentlemen.

**Mr. Dowd**

The ceiling unit that you're thinking of installing... is there maintenance involved? Are there filters?

**Mr. O'Connell**

Yes, they do. And there's no more maintenance than with the unit ventilators you have now.

**Mr. Dowd**

The only difference is that they're mounted in the ceiling requiring ladders. Is this something that would be proposed to be done by our normal maintenance staff?

**Mr. O'Connell**

Of course.

Mr. Dowd

That might be an issue. Shawn, do you want to address that?

**Mr. Smith**

Well, I'd certainly prefer our people not be climbing on ladders. We have to climb on ladders in other schools for other reasons to replace filters. For the last 2 weeks I've been trying to broker a common ground between Harvey Construction and the Jordan Institute. With Harvey we're trying to come up with an estimate of Harvey's design. I get the sense that Carl is certainly right... we have to have an engineer now to take the next step. Without bashing Harvey, I don't think they understand the design that Jordan has put forth. I don't think Jordan can explain the design they're putting forth, except in very large chunks. And that is a very large part of the reason for the differences in cost, I believe. Doing the back section of the school, as the person has to maintain the school, in the next 10-12 years before I retire I would like to see us not have to go back again in those next 10-12 years. I'd like us to finish the job over there. And that means replacing the systems in the back of the school. That's my thought. Harvey needs a better understanding and we need direction from this committee on how far you want us to go. I have my ideas, but I think we need to get that engineer on board right now.

**Alderman McCarthy**

What I'm looking for is getting a system that includes all the energy improvements we've been told we can do, and is not going to require maintenance for a good amount of time. Now that does not necessarily mean I think we should replace the piping that we did in the 80's. If that pipe is clogged with rust, then we probably want to think about that. But if it's reasonably clear inside, it's probably got another 20-30 years of life in it and replacing some of the equipment around it would be fine. I think we need to understand the condition of the equipment in that section. It's old, but does it need replacement now? If we're not replacing piping, is it equipment we can replace without major disruption to the schools at some later date? I suspect the answer to that is, not in bulk. I'm open to discuss the external duct work as a cost savings, but I'm skeptical of it based on our experience with exterior parts to the schools. And in terms of the placement of the units, I really don't like having filters in units that are mounted in the ceiling because they may as well be an integral part of the unit rather than a replaceable part.

**Mr. Dowd**

One of the things we ought to be looking at in this design is the least operating cost and the least maintenance cost. We already are hard pressed for having maintenance fee funds in our budget. So we want to try and make this system as cost effective as possible. Even if the acquisition cost is more expensive, we're more concerned about the maintenance costs because that's the dollars we have a hard time getting a hold of right now.

**Mr. Hallowell**

If I go back to number 6 when we're looking at the hot water distribution piping... Jordan Institute has \$45,000 albeit for a smaller portion of the school. But you have \$463,000. So I'm trying to figure out... Jordan Institute's number is half the school? A third of the school? So is it just a larger piping that we're talking about, which is why it's not just double of three times their number?

**Mr. DuBois**

That's some of it. Also the numbers in our estimate are based on historical data and established by figuring out what it costs on a sq. ft. basis. I can't give you an exact size coming out and going down the corridors. But in our experience, looking at the building as a whole on a sq. ft. basis, the hot water distribution comes out somewhere within that range. Again, once we have something on paper that we can really price, we can tighten up that number considerably.

**Mr. Hallowell**

And I just want to be clear on my criticism earlier... I'm just trying to get an expectation of what we think the number is going to be. Because every time we go out and we get somebody different and another number starts floating around, my head starts spinning with the numbers. So when I look at Harvey's numbers in 6, I've got all these items that are not balanced by the Jordan Institute side. What are those? Are they items that Jordan didn't consider because they're not energy items, or are they part of some other system that's compensating for something on the right hand side with Jordan's numbers?

**Mr. DuBois**

Well, the individual components like chemical treatments, triple duty valves, etc. are all parts that are going to be needed to make the system whole. So presumably those are included in the numbers Jordan Institute is showing, though I can't speak to that. These are items that will have to be in there to make it work.

**Mr. O'Connell**

We have actual quotes from contractors, and it's not broken down to this valve and that valve.

**Mr. Hallowell**

So when I look at the gas fired boiler, that number is much larger for you than it is for them. Is that because it includes some of these other items?

**Mr. DuBois**

That's right. It's also what we think is the best boiler on the market.

**Mr. O'Connell**

The boiler that's in our estimate is a similar condensing type boiler. It's a similar technology.

**Mr. Hallowell**

I agree partially with Mr. Dowd about trying to minimize maintenance costs. The point is we just don't have nearly as much money as we used to have in our school capital reserve fund either, and this isn't the only school we have to do. So we may have to make tough choices like I don't really want to leave that piping there, but maybe I have to try to get away with it because I have to do Ledge Street. And how am I going to do Ledge Street if I use up all the money in one school. So that's what I'm struggling with. I'm trying to understand what things we have to do; what things we'd like to do; and then try to come to a conclusion on my side based on data from engineers once we get in there where we're going to go. But if I don't understand when we all start out here, I'm not going to have any hope of understanding it once the engineer comes back and says something.

**Mr. DuBois**

Actually, quite the contrary... I think it might clear a lot of things up. Having a point of reference to go by, is what's really missing here. A lot of our numbers are based on cost history that we've established with 6-7 schools that we've built. I do understand what you're up against with maintenance, and I'm trying to produce a system that will work and last. I just have too many unknowns and questions. I'm not saying they're wrong, but I don't understand how schools can be built at the ranges that we're finding and they can do it for 50% of the cost.

**Mr. Smith**

When I started with the school district 12 years ago, I don't think there was a school capital reserve fund. I think one year the state gave us money... \$20+ million and we've been tapping away at it every since for various things, and not including school construction. We used to bond things when we had a school project.

**Alderman McCarthy**

We have not yet done a school project with cash from that reserve fund. When we had budget crunches we have paid the bond payments out of the school capital reserve fund.

**Mr. Smith**

To me, to go into a school and renovate it and leave all the old equipment in place, you're just looking for trouble down the line. I can go through the estimate. One of the suggestions that Jordan Institute had was to put higher pads underneath the boilers so they don't get rusted, etc. Boilers have electrical components. My technicians have to walk on that wet floor touching those electrical components. If we're not going to raise the floor above the foot stage, we're probably going to have to put 50 pairs of boots for people to put on when they get to the bottom of the stairs. Right now the guys are stepping on egg crates to get off the floor. That's not something I want to see continuing in the future.

**Alderman McCarthy**

Why do we have water on the floor?

**Mr. Smith**

It's seeping in... coming in through the walls. It has nothing to do with energy savings, and I know why Jordan didn't even include it. But that's one of those many things little things that I want to see us address as a safety issue.

**Mr. O'Connell**

We did include concrete pads to raise the boilers up, but not to raise the entire floor.

**Alderman McCarthy**

It seems to me like stopping the flow of water into the building would be the prudent solution.

**Mr. Dowd**

If you go to Charlotte Avenue, they've actually dug a hole through the concrete and have sump pumps to keep the water at a level they can control. The problem is that these boilers are below the water line, and water seeps in. The question I have for Jordan Institute on the centralized units is, are the ceiling mounted units design being considered for heat efficiency or cost?

**Mr. O'Connell**

Both. It is a cheaper cost, but the combination of our ventilation design along with the heating design is what's going to heat that room. Not just that unit that's providing the heating itself.

**Mr. Dowd**

Is the cost difference of that approach from Harvey's approach enough to cover 20 years of life cycle costs?

**Mr. O'Connell**

I can't tell you that right now.

**Alderman Teeboom**

When you say you want minimum operating costs and minimal maintenance costs... maintenance has to be proved. You have to show that the investment pays off against maintenance over a 20 year life cycle. You can't just say you want it. You have to prove it. And just because someone has to climb up a ladder...

**Alderman McCarthy**

It's a union issue.

**Alderman Teeboom**

Well, that's a different issue. The other thing that occurs to me is that Jordan Institute is an expert on this. How many units have you guys installed at this point? I know you have Merrimack Valley.

**Mr. O'Connell**

We have a few, not with this particular heating system but the energy recovery units we've worked before.

**Alderman Teeboom**

Are they working well?

**Mr. O'Connell**

They're working great.

**Alderman Teeboom**

How about the piping you replaced... is it working? Is it leaking? Are ducts bursting?

**Mr. O'Connell**

No, we have confidence in our contractors who give us pricing and do our work.

**Alderman Teeboom**

Any customer complaints?

**Mr. O'Connell**

No.

**Alderman McCarthy**

How long has the oldest of those systems been in place?

**Mr. O'Connell**

To be fair, we go to a pool of qualified contractors to get their opinion. And from that we discern what is the best approach.

**Alderman McCarthy**

I understand that. We're interested in more than just getting a decent system that is energy efficient. We have very good new energy technologies emerging, but we won't understand their long term viability until they've had long term viability. So it's not like we can say we're not going to have to do maintenance on them.

**Mr. O'Connell**

No, but it's not like we're using untried and untested equipment.

**Alderman McCarthy**

I don't think anyone is arguing with the equipment you're going to use in this case. It's the equipment we're not going to use, which is replacements in the rest of the building.

**Mr. O'Connell**

Understood.

**Alderman Teeboom**

You guys have expertise in this stuff. This is what you do. You don't build new buildings. What makes anyone think they know better than Harvey? We're talking about almost a 3 to 1 cost ratio here. What makes anyone on this committee think that Jordan Institute is a better expert on this than...

**Alderman McCarthy**

What makes me think that? Mr. DuBois, what is the total value of construction that Harvey has undertaken?

**Mr. DuBois**

Last year we did over \$130 million. Lifetime... billions.

**Alderman McCarthy**

They've got some experience themselves.

**Alderman Teeboom**

This committee was originally charged with an HVAC system. We seemed to have rolled into more and more of all this other stuff unproven. I'm saying what makes you think that Jordan doesn't know more than Harvey does?

**Mr. DuBois**

I don't think it comes down to a matter of expertise. It comes down to a question of approach. A question of looking at it from an energy efficiency standpoint. And even when we sat down with them twice, there were certain items that we raised and they said no, they wouldn't include that because they're just looking at it from an energy standpoint. So there are a number of differences in terms of how we would approach this knowing the end all of what this committee is looking for, vs. just looking at it from an energy savings standpoint.

**Alderman Teeboom**

I understand that. But let me point out again to you, that's how the City Hall project started.

**Mr. DuBois**

Mr. Teeboom, you can take your \$491,000 and you still have water coming into your boiler room. We're fixing that. We're taking care of that. As we've done all along from the start of this, 2 years ago, we're looking at every, single item... making sure that it's all inclusive. Do I think that \$1.1 million is high? Yes. Do I think it will come down as this design is being finalized? Yes. Do I think the \$491,000 is going to go up? Yes. I think somewhere you're going to find after an engineer looks at this, that the numbers won't be quite that delta you see now. There is absolutely nothing to look at except the verbal description we were given of what they're proposing to do. Our numbers are based on our cost history of all the schools we've done and I don't see Fairgrounds being all that different in the approach. You still have to put the equipment in an existing school.

**Mr. Dowd**

I have physically been in each of the boiler rooms in each school in the last year. And the schools like Charlotte and Fairgrounds that have a lot of water in their boiler rooms, their boilers are completely covered with rust. If you look at the boilers at Mt. Pleasant, which is a much older school, there is no rust on them. They look like they're brand new and they're close to 20 years old. So if we don't solve the water problems in the boiler rooms, we're just asking for them not to last as long as they should. And they have more maintenance issues because electronics don't like to be in damp environments. So if you can get the humidity under control in those rooms, the equipment is going to last a lot longer and work a lot better. So I think the water problem is pretty important to this whole project.

**Mr. Hallowell**

There's a \$2 million difference in the bottom line. \$300,000 of that is contingency and management fees, which are not included in the Jordan Institute. There's another \$400,000 in general conditions, but let's call the total \$600,000. So now there's a \$1.4 million difference. And if I look at the differences here, if we make the decision that we only want to do the 3 areas of the school, there's not a huge amount of difference in cost from what Jordan and Harvey is saying. So it isn't that Harvey's numbers are ridiculous. It's that they're including another section of the school. And I think this committee was tasked with replacing the HVAC. There wasn't anything that said we could only do it if it paid for itself in energy efficiency. So I'm still not convinced... I do think that probably as Alderman

McCarthy pointed out, some of those pipes we're not going to need to replace and that's a good amount of money. So we have to look at those other areas and say do we really want to do them? I think I hear you say that you can't give us that answer without an engineer. It's so antagonistic, and I don't think it has to be. There is a \$2 million difference, but they're all explainable. It's all rational and we have to decide as a committee as eventually as a Joint Board if we want to move forward doing all of it or a portion of it, in order to save money. I know that's not what Mr. Smith wants to hear. I know we didn't always have a school capital reserve fund. But I also know that bonding means borrowing and I'd rather do that as little as possible, especially in this environment.

**Mr. DuBois**

We're on the same page. As the drawings are being developed, whatever system you decide to put in... our task or service would be to keep updating the cost to you and provide a shopping list of alternatives you may choose to add. I find it interesting sitting here that you're trying to make decisions on how to move forward, but I think there's a missing element here. And that is something on paper that has been legitimized by an engineer giving you the pros and cons from an engineering standpoint... because neither one of us are engineers... to make sure that the system that you're putting in is proper for what you are looking to purchase. Without having anything on paper, you're looking at numbers. And I think you'll see our numbers come down because we're painting the worst case scenario.

**Alderman Tabacsko**

I want to thank Mr. Hollowell for making the point earlier that although the bottom line is a \$2 million difference, when you look at the actual breakdown of what's actually being addressed, it's much better to characterize this as comparable on a sq. footage basis. And what we need to decide is can we get the entire school to a somewhat more uniform age in the overall life cycle of the equipment that's being used. Because in the long run that's going to be more cost effective to maintain. That's where I lean. But if in the process if we find some energy efficient ways to get there, then I don't want to miss those opportunities at the same time. I think getting the engineering input at this point is a good idea and I would support that.

**Mr. Dowd**

The other thing is Jordan Institute are energy experts at looking at the most energy efficient approach to doing this project. Harvey is looking at it from years of experience in putting these systems in. Is there some way that you can work together to come up with a hybrid approach to get the best of both that would result in an acceptable system for both?

**Mr. O'Connell**

I think we could do that, but it would probably be done best involving a mechanical engineer.

**Mr. DuBois**

I would agree.

**Alderman McCarthy**

I think what we'd do is develop a schematic engineering and get estimates for that, that include options to go with the ceiling mounting units, the internal and external piping, etc. to understand where the real costs are. If I take the 2 numbers and subtract them out, I get about \$1.2 in difference. The two items that we've talked about at length come to \$610,000 and if I subtract them out of there there's actually only about \$600,000 left. And when we take into account things like contingency, etc. the numbers are actually not very far apart. So I think we need to do that and get the options on the table. Some of the ideas that are in the Jordan Institute's proposal may save us some money throughout, and we have to determine how much of the building we're doing and how we're doing it. I guess I would propose that we get Turner to start doing the work on a schematic design that involves the concepts that are represented in what's in front of us, and then get some option estimates to drive it down to where we have yes/no decisions in front of us so we can look at cost vs. product.

**Mr. Dowd**

One other thing in the life cycle cost and efficiency of operating costs... when you're looking at the two alternatives for boilers, which one is more efficient relative to the utilization of fuel that we're going to be burning for the heat. And when you look at all the components in the system, what's the difference in use of electricity? Or any of the recurring expenses. My selection would be the one that is more effective as far as cost is concerned.

**Mr. Hallowell**

If we can go back to number 5 again when we talked about lighting, Mr. Smith had suggested that we might want to look at replacing everything. My suggestion would be that the guy who gave you the \$25,975... we might ask him what it would cost to replace everything. The number you threw out was \$160,000 and I guess my gut feeling is that's a lot of \$80 metal shields to replace before it's really cost effective to do. So maybe I'm missing something there. So I wouldn't mind having that number.

**Mr. Smith**

On that issue, I'm just looking to replace the old lights in the old classroom... so the front section of the building. The back section is in very good shape.

**Alderman McCarthy**

So the \$160,000 is to replace fixtures throughout. So, what we're probably looking at is re-lamping everything but the pendant fixtures and replacing the pendants. How many of those fixtures are there?

**Mr. Smith**

Each classroom probably has 9 fixtures, times 20 classrooms.

**Alderman McCarthy**

No, I mean the pendants that you want to replace.

**Mr. Smith**

There are probably 9 of those fixtures in each classroom, times 20 classrooms in the front section of the building.

**Mr. O'Connell**

One of the issues that we've come up against in terms of lighting analysis. Re-lamp/reballast... those are the pieces that consume energy. The fixture doesn't consume energy. But you can certainly save energy by reassessing the layout of your lights. If you can eliminate 2-3 fixtures per classroom or a lamp in every fixture, you're going to experience some energy savings in that assessment. So it might justify new fixtures in that case, and that's something we did do in City Hall

**Mr. Dowd**

And you'd still want to maintain the same illumination in each room. And the newer lighting has much less glare.

**Mr. O'Connell**

In most cases, most rooms are over lit. What you need to do is make sure you have the same foot candles that code request, which could be less than what you have now.

**Alderman McCarthy**

We'll schedule another meeting when we've got some feedback from Turner.

Alderman Tabacsko moved to adjourn. **So voted at 8:25 p.m.**

*Submitted by Jacki Waters*