

EC and ZAH Members,

This past year, BCC and a few concerned members, have been researching the Roof Leakage Problem at our Center. We have tried patching up the roof when a leak occurs and it does stop the leak but for a little while. This stop-gap solution can go on for years without really solving our problem once and for all. The BCC recommends that a re-roof should be done and we should not follow the "repair as and when needed" route. Details were presented in the "Report by BCC" to the EC.

There are some members, who are of the opinion that the Air Conditioning Units should be removed from the roof and placed on the ground. Farhad Mistri of Bissonnet Mechanical Works, our regular and long time A/c maintenance contractor, has very strongly recommended to BCC, that the A/c units should not be removed from their present location and left where they are. This recommendation was presented to the EC at our last meeting .

Below is our detailed report and recommendation.

BUILDING CONSTRUCTION COMMITTEE'S REPORT AND BISSONNET MECHANICAL WORKS' RECOMMENDATION

BCC'S REPORT

WHY AIR CONDITIONING UNITS SHOULD NOT BE REMOVED TO THE GROUND

1. Adil Godiwalla was concerned about the vibration and the effect of it on the roof screws. There is a concern, but the industry has accepted that and designed accordingly. The alternate of locating the units on the ground or a different kind of roof was rejected as we did not have the space on the ground nor the funds for a different roof.
2. Feroze Bhandara says that the roof is leaking at the Roof Top Units (RTU) curb. This is not correct. The leaks at the Center has been at the transition joints on the roof or more correctly at the flashings. Wind driven rain tends to make the rain water go against the gravity and over the flashing. The leak has been at the corner of the building, the main door of the hall, the corner of the prayer room, at the atrium and at the entrance near the library. There are no a/c at these points. The leak at the bathroom is caused by the RTU .
3. Jehangir Shroff has reasoned that we should place the RTU on a concrete roof of the proposed Serving Kitchen. This is not possible, as he himself says, that I have to check the roof heights. There is wind beam together with the two offsets in the main hall which will prevent the transition of the ducts from the ceiling to the units mounted on the concrete roof. Furthermore at the present time

we do not have the \$150,000 to construct the Serving kitchen. This argument is based on replacing the present units with a package units.

4. Feroze Bhandara says to replace the 3- 10 ton units with a split unit instead of the package unit. The noise level in the main hall will be very high as the fan will be just above the false ceiling. If we place the condenser on the ground we will have no place to put the serving kitchen. If we place them on the concrete roof, as Jehangir has suggested we will have to first construct that serving kitchen. If we place them behind the Kids Room the distance will be too far to get an economical system. Servicing the inside unit will have to be done on a 16 foot step ladder, which is difficult and dangerous.

5. The action of bringing the units down will cost us about \$25,000, with absolutely no difference in the cooling capacity nor a better or longer roof warranty.

6. If we are prepared to spend \$25,000 and give up the space of serving kitchen and storage east of our Hall the RTU's can be brought down, if we can live with the disadvantages.

7. Hence the BCC and the A/C contractor Farhad Mistri recommends that the roof mounted units should remain where they are.

WHY DO WE NEED A NEW ROOF

1. For the past three years we have been patching the roof up where ever a leak appeared. The leaks at the gutters was fixed but we cannot get a permanent solution to our problem as the low roof pitch makes the rain water back up on the underside of the roof panels. There are many leaks at the flashings or transition points and each fix has been a temporary solution. The caulking used on the roof joints gets heated to over 184 F in the hot sun with the result that the previously repaired area tends to leak again.

2. The insurance company has paid us \$31,159 and with held \$7,000 to be paid at the completion of the repairs. We may not be able to get that additional funds if a permanent solution is not achieved. Both Adil and Feroze have mentioned that we need to find a permanent solution as the patching of the roof is a temporary solution.

3. Over the years the roof has been leaking, sometimes its visible and sometimes it just stays within the walls. This causes mold and mildew to grow and this is visible at the side entrance. We have been unable to fix this area and it needs to be addressed immediately.

4. The cool roof that we have recommended will give us a saving of about 30% in electricity bills. Our present billing runs about \$1,500 a month. We hope to get 20- 30% saving. This will save us about \$3,600 to \$5,400 a year. With the

extra \$7,000 insurance proceeds and the yearly saving the cool roof will pay for itself.

5. The single one ply VINYL roof has been used for the 25 years in Europe and has given excellent service. The warranty is for 15 years but it could last us way beyond that, saving additional money over the long run.

6. In the roofing industry the SIKA membrane, we had suggested, is considered the Cadillac compared to a Chevrolet. This PVC membrane is better than TPO or EDPM membrane.

7. The idea that we keep repairing the roof on an ongoing way will only mean that at the end of 15 years we would have spent over \$20,000 in repairs and not achieved anything. For at the end of 15 years you still have to pay for the new roof. This approach of patching and going on over the past 15 years you lost the initial \$7,000 and subsequent saving of utilities cost of about \$3,600 a year, to a grand loss of \$61,000.

Following this report, we contacted Farhad Mistri of Bissonnet Mechanical Works, our A/C Contractor.

From: Hoshang Sethna [mailto:hsethna@comast.net]
Sent: Monday, September 28, 2009 8:40 PM
To: Farhad Mistri
Cc: Purvez Rustomji
Subject: A/c relocation etc.

Dear Farhad,

We are trying to find out if it is feasible or cost effective to relocate our A/c units from the roof to a reasonable location on ground. Purvez has put together a list of queries which are of concern to us and we will appreciate it if you can give us **your input on this issue**, which has too many pros & cons and ifs and buts.

Regards,
Hoshang
on behalf of ZAH - Building Construction Committee

Farhad's response

Dear Hoshang:

I have had several people unofficially ask me about this. I have had the same answer for them, and now for you. It is not a question of Pro's & Con's. I will break this down as clearly as I can.

There are NO PRO's.

- A) 90% of all commercial applications are on the roof in the US, unless structurally not compatible.
- B) All commercial projects try to design the HVAC on the roof, due to its feasibility, and the fact that roof top package units are the best in reliability, sturdiness & life of operation.
- C) Roof top units can be placed on the ground, but were never designed for that application.
- D) Your problem has always been a cheap & bad roof from day one. A Commercial building built like a residential unit. It was never done right from the word go. Either the contractor had never done commercial roofs, or he just wanted to save costs.
- E) Your HVAC systems have never given you trouble in all these times, considering the age of its original installation. Other than minor calls & repairs, our original installation has given the center excellent performance & value to this day. I am very proud of my work & have stood by it for the last 10 to 15 years, ever since I put that design together and installed your HVAC systems.
- F) By current statistics, you have got back every cent of the dollars you spent originally. Average age on commercial units in Houston climate is 10 to 12 years.
- G) After that spending more money on more than 10 year old systems is not economical. The systems begin dropping in efficiency, and the wear and tear has begun taking its toll. Let good things alone, should be the rule.
- H) In the past 3 years to present, I have done close to 23% of my sales, in replacing systems that were burglarized & vandalized for their copper & aluminum. 90% of those systems were on the ground. Do you think it's going to be any better soon?
- I) The area that our center is in, is presently in the top 5 areas of high crime, burglaries, vandalism & theft zones in Houston.
- J) My Company has been the Prime contractor for Regency Properties & Weingarten Properties for the past 10 years, and I have seen enough of my share of vandalized systems for their copper.

Now to address the issues if you persist in taking this relocation route:

- a) To bring down the (3) RTU systems the following has to be done. The duct work will have to be on the outside of the building. Do we have enough room? How ugly will that look? Even though insulated, exposed ductwork will lose cooling efficiency when ductwork is exposed. Additional tonnage is required when designing exposed ductwork. The cost to do that to old systems is close to a new installation of equipment & ductwork.
- b) The only space on the ground to do all that is in the back, which makes it all the more vulnerable to theft. Also I still have the original Prints. That space

clearly showed an allowance left so we could enlarge the hall in the future as phase II. Forget about future expansion then. With the systems in the back all interior ductwork in the Hall will have to be re-configured & re-done also.

c) The rest of the systems in the center are Split systems. Which means that only the condensing units are on the roof. Each unit is no more than 200 lbs. and has no duct penetrations. Only small copper lines come into the building. Do you want to again expose your copper to the outside? All copper would have to be run again. Have you priced copper lately? The longer the copper lines on a system the worse the efficiency of the units.

d) Now for the deal breaker. The existing systems are 10+SEER systems. If you go into such a drastic re-modeling, it is quite possible that the City will make you bring the installation & the building to current, & much higher Code Standards. This in itself would be more expensive than you may be willing to pay for.

In Summary

This is now a finished & occupied building all remodeling costs, including labor will be far more than new construction. I would place the cost of changes that you are contemplating to close to \$20,000.00 to \$30,000.00. This would not include other costs, such as New electrical wiring, external wall penetrations, internal sheetrock, painting ceiling, patchwork etc.

I can guarantee you, that this relocation can end up costing you just as much if not more for a new roof. Then be prepared to buy all new equipment as soon as we are vandalized & robbed.

Please just get a new roof. Hire an experienced Contractor. **NOTE:** We may have to disconnect & lift the systems a little for them to do the work, and then re-set them & reconnect. It depends on the Roofer & kind of work you have asked. We have done this kind of work before and it varies according to the repairs required. Even with all that, the costs of HVAC work to help along in re-roofing would be a fraction of the costs associated with a complete re-location of systems,

Any more questions, please do not hesitate to call (281)630-6566

Sincerely,
Farhad Mistri CEO
Bissonnet Mechanical Works Inc.

Following our telephone conversation, Farhad response is:

FARHAD MISTRİ – BISSONNET MECHANICAL WORKS – RESPONSE

Again you are making a biggest mistake.

October 5, 2009

Commercial size large Tonnage Split systems are very high maintenance & and undependable when compared to Roof top units. Now you will have indoor water leaks etc. from the system. You are always taking risks when drains are routed indoors. You are always taking risks, with Freon lines & refrigerant leaks. With your high ceilings they will be hard to service also. Large Indoor Units will also be very noisy. That's why halls, meeting rooms, theaters, etc don't use splits, and even if they do they have a special mechanical room built for them. Not hanging from the ceiling and hard to get to. They are kept away from everything else. Definitely not over a Banquet room.

SPLIT SYSTEMS SHOULD BE INSTALLED ONLY WHEN NO OTHER WAY IS POSSIBLE. Also you will still have big condensing units on the roof? Or are you going to put them outside on the ground, making it more convenient for our friendly neighborhood thieves.

Three 10-Ton split systems installed and adapted to existing ductwork. Approx. Cost \$39,000.00

Four 7 ½ -Ton split systems installed and adapted to existing ductwork. Approx. Cost \$ 41,000.00

FYI: You can replace existing RTU's with three brand new units for less than \$30,000.00 which would give you better service for next 15 years. PLUS ADD FOR: Removal disposal of existing RTU's of the roof \$2,100.00, OTHER ASSOCIATED COSTS: All new electrical runs & wiring. Removal & re-install of existing ceiling. Repair to sheet rock in main hall & restroom walls for copper lines & drains. Painting of walls after repair. Plumber to connect drains to approved storm drain connection.

Please, Please, Please, Please don't do this. This will be the biggest mistake you will make. Why is it that everybody thinks it is a A/C problem? You never had A/C problems. Your systems are fine and have given you good service. You have a roof problem. Get that stupid roof replaced with a good roof done by a good Roofing Company. I have Clients & property Developers with more than \$300,000.00 roofs all with Roof top units. Best roof to install & Maintain is a well insulated built up roof.

PLEASE SAVE THIS E-MAIL FOR YOUR MEETING RECORDS. I WANT MY RECOMMENDATIONS DOCUMENTED OVER THIS ISSUE. THAT WAY I CAN SAY I TOLD YOU SO.

Farhad Mistri (CEO)
Bissonnet Mechanical Works Inc.

