

PROPERTY TEAM ELEVATOR MINUTES
OCTOBER 4, 2023

ATTENDING MEMBERS:

Joe Mueller
Gary Tackes

Claude Zimmerman - Secretary

TOPICS FOR DISCUSSION:

OTIS CONTRACT

During our meeting we reviewed the terms of Otis' five-year contractual agreement that was written in October 1, 2019. In it we found that the elevator was to be inspected annually for:

- Lubricating the following parts when conditions warrant:
 - Machine bearings, gears, pumps, pump motors, operating valves, valve motors and leveling valves
- Selectors, governors, governor sheaves, governor tension frame sheave assemblies, and compensating sheave assemblies
- Door operator, car door hangers, hoist way door hangers, and interlocks
- Safeties, car and counterweight guide rails, and car and counterweight guide shoes including rollers and gibs.

We did notice from their maintenance logs that they were coming in quarterly to perform a lubrication inspection. During our monthly inspections, the team has noticed that the hydraulic reservoir level has been down 1.5 inches for several months. It is possible that the leak may have started between quarterly inspections or the level change was not outside their limits at the time.

Their contract also identified items that are **not covered** under the contract that the church would be obligated to pay for (such as governmental or insurance requirements). These items include:

- Replacing parts
- Design changes/updates.
- Repairs or replacements of failures detected due to testing or buried/unexposed hydraulic cylinders or piping.
- Replacing obsolete or discontinued components.

If we chose to have Otis interact with a third agency (i.e. insurance company), Otis will charge the church an appropriate fee for the service.

There is an important clause in the contract that could affect how we proceed with repairs. We noted that the Otis contract will **not** allow others to make alterations, additions, adjustments or repairs to our elevator equipment. Doing so would result in a violation of this contract. The team felt that if we wanted someone else to perform these repairs other than Otis, we would need to terminate the contract. In our opinion, this would entail paying the remainder of the contract plus any unforeseen fees they may charge. This would mean a fee

of no less than \$1600 for the remainder of this year and the next year when our contract expires.

QUOTES

Claude will reach out to three other elevator contractors to attempt to get bids for replacing the holed hydraulic jack. This will entail removing the current jack and potentially the structure supporting it, as well as reconfiguring the hole to fit the replacement jack that will meet the current standards. The new jack will have a PVC casing around it to prevent corrosion of the jack and also prevent hydraulic fluids from leaching into the ground. Our current jack, when installed in 1990, did not require an abatement area to collect leaking fluid from entering the surrounding soil. Replacement may entail cleaning up the contaminated soil surrounding the cylinder (EPA standards) although this was not mentioned by Otis as an extra expense.

The team felt that a number of questions will need to be answered by each contractor to satisfy our needs to move forward:

1. The agency must have a current standing as a licensed elevator mechanic.
2. Will use our existing functional electrical and mechanical controls.
3. Carry liability insurance for damage to our church and for their crew.
4. Have sufficient experience for performing this type of work in the past.
5. Provide referrals/recommendations of jobs they have performed recently.
6. Provide a detailed estimate including labor, parts replaced, permits and fees, and taxes.
7. Leadtime for completing the jack replacement.
8. Duration of the repair
9. Information relating to the warranty of parts and labor
10. And a quote for their annual service agreement if we chose to drop Otis as our service provider

Based on the contractor's costs and answers to the above questions, the team will make a recommendation to the council for further action. We will also consider Otis' quote and termination costs of their contract in our recommended direction.

While Claude is gathering quotes and contractor information, Joe offered to look up grants that may help us pay for this repair.

Continue to next page for issue log.

ELEVATOR PROBLEM LOG

September 13, 2023 by Gary Tackes

On Wednesday, Sept 13, 2023, Otis conducted their annual elevator inspection. During the inspection a test was conducted where the elevator was run to its highest level and stopped there. After a designated time (15-20 min) the elevator floor was 6 inches lower than its starting position indicating that hydraulic fluid was leaking out of the system. This elevator has a 20ft long, 6 ½ inch diameter vertical piston under the elevator car's floor. There is a 6 ft pit and a center hole going into the ground where most of the cylinder is located. When shining a flashlight into the pit alongside the elevator car, we could see a sheen of fluid (and water?) which should not have been there and hadn't been there before.

The Otis representative said there were three major places that can leak, hydraulic lines, the piston seals, or the cylinder housing (usually the lowest 1 ft). The first two are repairable, but the cylinder housing leak would require a new cylinder at a substantial cost. New cylinders have a 13-week lead time from date of order. The soonest that they can start work is two weeks.

So, there is bad news and worse news when it comes to repair costs. The repair charges are billed at time and materials. Since the car is currently resting on the springs at the bottom of its travel and no door exists to get into the pit, they will send a crew to attach a hoist to the top of the car and lift it up so that post stands can be installed to make it safe to work beneath the elevator car. Then they will suck the fluid out of the pit and check for the source of the leak. If repairable, they will make repairs. If the cylinder needs to be replaced, they will lift it, secure it, cut off a piece, lift again secure, cut off another piece until it is completely removed. The new cylinder assembly comes in pieces that are assembled and lowered into the hole. In some cases, they have had to redrill the hole because it collapsed after the old cylinder is removed. In any case, they have to rebuild the top of the hole to mount a new cylinder. If there is too much water in the hole or if they have to redrill the hole, they will need a suction truck. Dollars add up. Their proposal for the inspection and minor repairs is a maximum of 16 hours (\$9,200 labor) plus travel time and parts. They said a cylinder replacement could be from \$60,000 to \$100,000 (or more).

When first installed, a sacrificial anode (zinc or aluminum block like in hot water heaters) is installed in the bottom of the hole attached to the cylinder housing. It oxidizes/corrodes first, but when gone, then the cylinder case rusts. If they can make a simple repair to get the elevator running, I would suggest that we purchase an anode, bury and attach it at ground level to lengthen the life of the cylinder. New cylinders come in a sealed PVC sleeve so they are not in contact with the ground and are constructed so moisture can be periodically blown out.

The Otis representative also stated that the hydraulic pump assembly and controls (and car) are separate assemblies that do not need to be replaced at this time. He suggested that they could be run until failure and then replaced. They can be replaced with new retrofit controls or pumps that are available at that time. He was of the opinion that we won't need to worry that a replacement will not exist.

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**September 26, 2023 by Gary Tackes**

On Tuesday, Sept. 26, 2023, Otis sent 2 technicians who conducted a further investigation of the elevator hydraulic leak. After raising the elevator car and securing it, they removed 1/2 to 1 inch of hydraulic fluid from the elevator pit. After cleaning the hydraulic lines, the cylinder case and cylinder seal area, they repressurized the hydraulic system and looked for the leak. Unfortunately, there was no leakage from the lines or cylinder seal area. Instead, fluid started to pool around the cylinder casing at ground level. Basically, the verdict is that there is a hole in the cylinder casing below ground and fluid was being forced into the sand and soil around the casing. The pressurized fluid was taking the path of least resistance, pushing some of the sand up and out alongside the cylinder casing.

This basically is the worst case of the possible leaks. The general ballpark guess by Otis from two weeks ago was that the cylinder replacement will cost from \$60,000 to \$100,000 with a slight possibility of problems that could cause the price to be even higher. At this point, we should ask Otis for an actual quote and ask if there are any alternatives such as installing an older cable system. My guess is that this would not be a viable alternative partly due to space requirements above the car and the extensive modifications needed. The older systems also have brakes and mechanical parts that require more maintenance and adjusting - probably the reason the hydraulic system was chosen in the first place. Because the new piston cylinders will not be in direct contact with the ground, but are enclosed in PVC, they should last much longer.

We should look into getting quotes from a couple of other elevator repair companies. Even if Otis's bid is higher, we might be able to use the other bids as bargaining chips. The only problem might be if the other companies need to do their own inspections of the elevator. These would probably not be free. In this case, we might be better off sticking with Otis.

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October 10, 2023

On Tuesday October 10, Claude, Gary, and Joe met with John from Northwestern Elevator company to look at our elevator and gather information for a quote. Since the elevator was resting on the pit springs, he wasn't able to go inside the pit to get any cylinder/hole measurements or see the problem first hand. He gave as a ball park figure of \$50,000 - \$70,000 but will return once we have given him permission to raise the elevator car so he can get inside to finish with a detailed quote. They cylinder and labor will cost close to \$50,000. If they need to drill the hole larger to fit the PVC casing inside or if they need to pump out any contaminated oil/debris from the hole, the cost will go up. He indicated that it will take 12 to 14 weeks to have a cylinder custom made since each cylinder assembly is custom made to facility specs.

John also warned us that the electrical controls in the panel and in the elevator are quite old and most of the controls are no longer made. Some replacements may not be compatible with the older parts. If we have an electrical problem involving these controls, it would take at least 16 weeks to get the new/repairs controls made and installed due to current backlogs. John also stated that our elevator car doesn't a fire alarm system inside and if we were to change over the electrical controls, we would also need to install an alarm that is tied to our current building system.

The team received the Otis quote via email on October 10. The information below are key elements from their quote. There are also statements regarding additional insurance they require the church to provide.

NEW CYLINDER WITH SEALED PVC PROTECTION

The cylinder shall be of a double bottom design constructed of steel pipe of sufficient thickness and suitable for the operating pressure as prescribed by the latest revision of the ASME A17.1 or CAN3-B44 codes. The top of the cylinder shall be equipped with a new cylinder head with a drip ring to collect any oil seepage as well as an internal guide ring and self-adjusting packing. The cylinder exterior shall be covered with a protective coating. Sealed PVC Protection helps protect the cylinder from corrosion, permits monitoring and evacuation of liquids to make sure the cylinder does not come in contact with water, and helps contain oil should the cylinder leak. The sealed PVC Protection can help protect your property against possible environmental contamination and clean-up costs.

NEW PLUNGER

The plunger shall be constructed of selected steel tubing or pipe of proper diameter machined true and smooth with a fine polished finish. The plunger shall be provided with a stop ring electrically welded to it to prevent the plunger from leaving the cylinder.

CYLINDER HEAD SUPPORT REMOVAL

Otis will remove the existing cylinder-head support for cylinder replacement. After installation of the new cylinder and sealed PVC Protection System is complete, Otis will provide a new cylinder-head support. This proposal includes removing the existing cylinder from the original well hole. Drilling work is not included in this proposal. If any physical obstruction, hindrance, ground water, or cave-in is encountered below the ground, we shall be provided with written authorization to proceed with the excavation utilizing any additional special hoisting or excavating equipment required. Otis Elevator Company shall be reimbursed for all additional costs incurred subsequent to encountering the physical obstruction or hindrance, including the costs of the special equipment, removal of equipment and hole preparation.

Pricing includes oil, and permit needed for the alteration.

WORK NOT INCLUDED IN THE ELEVATOR CONTRACT

It shall remain the owner's responsibility that the well hole is free of contaminants and clear of any obstructions. The owner will provide all necessary permits for welding, gas burning and cutting in the elevator hoist way.

Hole Clean Out is **not covered under this contract**, in the event after the cylinder is removed and the hole will need to be cleaned out, Otis will sub-contract with a third-party vendor and provide a proposal in the event this is needed.

Material provided shall be installed in accordance with the ASME A17.1 Safety Code for Elevators and Escalators.

The customer will be responsible for paying local inspection fees if applicable.

The quote for cylinder replacement is **\$68,606.31**. This price is based on a one hundred percent (100%) downpayment.

Payment terms:

- The base proposal price is contingent upon receiving a downpayment of one hundred percent (100%) of the base contract amount.
- The downpayment amount is due in full prior to Otis ordering material and/or mobilizing.
- If you choose the alternative downpayment amount listed below, the corresponding adjustment shall be applied to the base contract amount.

Downpayment Percent Price Adjustment Percentage Authorization (Initial)

25% + 10%

75% + 5%

In the event 100% of the contract price is not paid-up front, we must be paid the remaining balance no later than the completion of work. Final invoice will be submitted once work is scheduled.

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### **October 11, 2023**

Claude, Gary, and Joe met with Derek Zwart and Dan Stange from MEI Badger Elevator. Dan worked in engineering when he was employed with Northwestern Elevator for many years before he transferred to MEI. He seemed to be very knowledgeable about this elevator and willing to share his knowledge with us. Apparently, Northwestern designed the elevator system and then used Dover company to supply the car and US Elevator to engineer the controls for it. They indicated that our elevator was considered a hospital car because it was designed to fit a gurney or casket. The floor space of the car determines its capacity which is 4000 lbs. The hydraulic system is capable of lifting 8460 lbs. including the 4460 lb. car.

They indicated like the others that the cylinder assembly would have to be custom made to meet the specs of our unit. They typically use one of two companies (Custom and Hydraulic Elevator) to fabricate the cylinder. One of the companies has a longer backlog than the other but costs more to make. The backlog of fabricating the cylinder is around 12 – 14 weeks depending upon the vendor.

Derek suggested that **we hire** the contractor who will drill the new hole if necessary. He said this will cut the cost significantly if we pay the recommended drilling company ourselves. Derek indicated that MEI can hire the driller but it will cost more for them to do so. Derek stated that he won't know if we need the drilling contractor until they get inside, remove the concrete floor surrounding the cylinder and see the conditions inside the hole and the internal dimensions/configuration. Since the elevator car is on the springs in the pit, there is no way of knowing anything more than an educated guess based on their experience. MEI will suggest a couple of drillers that they have worked with in the past and provide and reasonable fee that they might charge if necessary. MEI will work directly with the drilling company for scheduling the job and providing them any necessary information.

MEI will hire and pay for the suction company that will remove any sand and dirt found inside the existing casing.

Derek felt that he could get his ballpark quote to us sometime during the week of October 23.

Don and Derek discussed our electrical controls and hydraulic equipment with us. They stated like the others that much of the controls and boards are no longer being made but there are repair shops that could do some of the work if they can find the bad parts and the software isn't damaged. There is often a 12-week backlog to getting these repairs made. If the software is lost somehow, its unlikely the repair could be accomplished. The hydraulic equipment appear in good shape and the parts are readily available.

### **What's Next**

Once the team has received all three quotes (hopefully by the end of October), they will review each quote independently and create questions or talking points regarding each. Then the team will meet within a few days of reviewing the contracts to discuss and send out concerns to the contractors for clarification. Once those issues have been resolved, the team will meet again with a member of the Council and/or Executive committee to discuss our findings and our recommendations. Hopefully a decision will be made by mid-November.

Please keep in mind that once a contractor is decided upon, and the funds identified to procure the work, the contractor will need to come back to the church, raise the elevator car with a cum-along and look inside the pit to gather more specific dimensions and data to order the cylinder and provide a more accurate quote. It should be noted that most contractors will need a substantial amount of the invoice paid before starting the job.

Once that is accomplished, it will take approximately 12-14 weeks to get the customized cylinder to the job site. From there, it will take about 10 to 14 days to complete the job depending upon whether or not the hole needs to be redrilled.