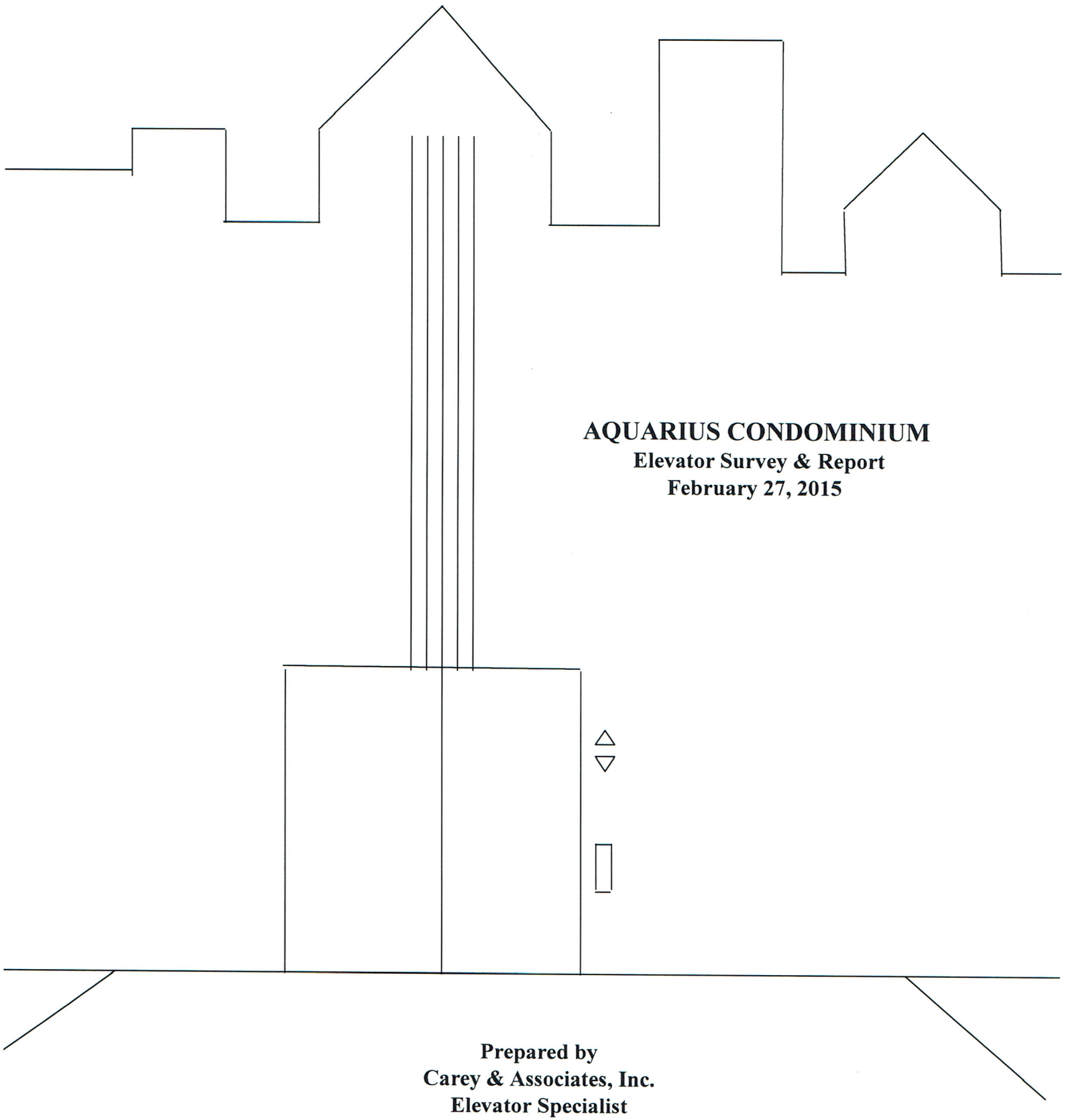

AQUARIUS CONDOMINIUM

Elevator Survey & Report
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SECTION IV

RECOMMENDATION/DISCUSSION

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1. **Overview** - Most of the problems on any elevator system comes from the doors and hoistway equipment. It is clear, after this surveying this equipment, Thyssenkrupp must spend more time performing maintenance in the hoistway cleaning, lubricating and adjusting to achieve reliable elevator operation. Proper Door operation is vital for reliable elevator operation. It is clear no door maintenance is being performed. Also, more housekeeping in the machine room is necessary along with more attention to controller maintenance. Industry standard for this type equipment is 2.5 hours per month per elevator. This clearly is not being done!

   This is supposed to be a preventative maintenance contract, not just a callback service when something breaks!

2. **Logbook** - The code requires a logbook/Maintenance Control Program (MCP) be kept to indicate the monthly test of the fire service elevator operation. Also, all tests along with service calls and maintenance are to be kept in a log. Log sheet is in place however no entries are shown. This MCP sheet is for 2014. The 2015 sheet is not here. This confirms no maintenance is being performed! Monthly fire service test??

3. **Load Weighing** - The load weighing devices on all the cars should be checked for proper operation. Load weighing is a major part of leveling, ride quality, stopping consistency and starting.

4. **Compensation Chain** - The existing connection under the car platform does not have a slack chain safety switch. This switch was not part of the code when these cars were upgraded in 2000. However, it is safety issue that should be addressed. This is an electrical safety switch which would be installed under the car, connected to the compensation chains, to shut down the elevator in the event of any slack or break in the compensation chain.

5. **Brake Switch** - This system does not have a brake switch installed to indicate if the brake is picked up. A closed loop system such as this must have a means to detect if the brake is mechanically activated. Why is a brake switch not in place?

6. **Hoistways** - All hoistways are very dirty and need to be cleaned down. This should include rails, brackets, spreader beams, behind headers, tracks, sill ledges, door panels etc.

7. **Position Indicators** - The position indicators do not operate properly. This is a direct lack of maintenance. Dim or dull LED light segments must be replaced. This condition should be addressed immediately.

8. **Ride Quality** - The ride quality of these cars is poor. Bad rollers were found on every car. This is a maintenance issue that must be addressed. Replace all worn rollers and adjust for smooth operation.

9. **Landing System** - The existing selector tapes are rusting. This can and will become a problem. Rust particles will start to interfere with the sensors. The tape should be replaced with a teflon coated or stainless steel tape.

10. **Hoistway Venting** - Passenger car hoist way vents at the top of the shaft are open. This allows air to flow up the hoist way continuously. Because this is on the ocean the salt and humidity are causing rust to develop through out the hoistway. Auto dampening vents are the new code requirement when there is a closed lobby area. Closed vents that open automatically only during a smoke/fire event save energy and reduce the amount of rust. This would be a very positive improvement for the elevator equipment.

    The service cars have hoistway vents that open into the mechanical rooms on the roof. This is a code violation. Venting into another space or room can only be done by installing duct work through the room directly to the outside air. This condition must be corrected. Again, the auto dampening system is needed here.

11. **North Tower Repairs** - The service doors in the machine room are rusted out and need to be removed and replaced with new or removed and permanently blocked up. The existing doors are allowing salt air and humidity to enter creating a corrosive effect to the equipment. This will cost the building a lot of money if left as is.

    The entrance door jamb to the machine room is also rusted out and needs repair.

12. **Eccentrics** - The hoistway doors can be shifted up. Adjust the eccentrics to prevent this condition.

13. **Door Pin Assemblies** - The mounting plates for the door pin unlocking device are rusting. The plates are raw steel, never painted before being installed. All plates should be cleaned and painted to prevent further rusting.

14. **Car Identification** - Recommend car top identifying numbers and in car identifying numbers be installed.

15. **Car Communication**- The code requires the car telephone to be answer within 30 seconds of activation. All phones ring but no one is there to answer the call. This is a major liability to the building not to mention it does not meet code requirements. The system must have a 24/7 answering service to monitor all calls.

16. **Car Directional Lanterns** - It appears none of the car directional lanterns are working on the strike side of the door jambs. Find cause and repair all directional arrows and gongs.

17. **Main Line Disconnects** - The disconnects are fused with 100amp protection. This is overrated for this system. The NEC requires 125% max. All system must be checked and properly fused per code requirements.

18. **Lobby & Garage Door Tracks** - Because of the rusting and dirt at the lobby and garage level doors it is recommended to replace all door tracks at this level with galvanized/zinc treated tracks.

19. **Hoist Ropes** - Elevators N-2, S-1 & S-3 have original ropes from 1973. All are in poor condition and should be replaced.
Rope Tension - All cars need to have the hoist rope tension checked and adjusted. Poor rope tension can lead to uneven groove wear and create poor ride quality. Elevator S. 2 is the worst.

Hydraulic Passenger Elevator

20. This elevator is not operating properly. When opening the pit walk in door the system goes into fire service mode. Also, when testing to verify if there was door nudging the elevator shut. In both cases the elevator had to be reset by the main line disconnect.

    The controller was installed in 2006 and has already had parts replaced with non-original components. An outside power supply vender was used instead of the OEM part. Original parts for this controller are still available.

21. **Rust** - The hoistway door equipment, tracks, interlocks, spirators, headers, pick ups, gibs/retainers and hangers are very rusty. All should be replaced with galvanized/ zinc treated components. Also, the selector tape is very rusty and should be replaced with a teflon or stainless steel tape.

22. The first floor hall button station is partially covered up by the new wall, This must be corrected. The hall button fixture must be accessible for maintenance and repair.

23. The machine room door must have a threshold per code requirements.

24. The plywood cover over the old vent hole must be fire rated (painted) or removed and replaced with a sheet of metal.