



Date of Inspection April 20, 2022

To: Christina Santos teenerbeaner88@gmail.com
Selling Licensee: Jamie Napolski, NextHome Arctic Sun
Listing Licensee: Jaquie Turner, RE/MAX
Seller: Jaquie and Jammel Turner

Re: Engineering report for the building at 712 16th Duplex April 2022

This report was prepared for you after my inspection completed April 20, 2022. Comments apply to both units unless stated otherwise. The structure appears to be generally safe and sound. For brevity positive merits of the building are not reported here. Recommendations for immediate correction are listed with additional suggestions for the future consideration.

General and Miscellaneous:

1. Ensure there are functioning smoke detectors in the hall adjacent to bedrooms or living areas on each story of the residence and in each bedroom with fresh batteries. Replace any smoke detectors that are more than ten years old.
2. Ensure there are functioning CO detectors in the hall adjacent to bedrooms or living areas on each story of the residence.
3. Cut out damaged gypsum board around the bath fan housing. Correct any leaking or decayed material if found and replace finishes. A upstairs.

Attic/Roof:

4. Vent the upstairs bathroom fan directly to the outside with a smooth rigid duct run to the gable end in the attic instead of terminating it in the attic. Slope the duct toward the exterior terminal vent that has a flapper not a screen. Insulate the duct with fiberglass or similar using permanent materials such as string, wire or zip ties if necessary. Seal the ducts with appropriate tape. Regular duct tape does not last but tape specifically rated for ducts or metal tape does.
5. Run the plumbing vent through the roof instead of terminating it in the attic. I could smell the sewer gas in the attic. It should be 3" in diameter before going through the roof. Cut the plumbing vents at the angle of the roof so they only extend 10" above the roof to reduce freezing during very cold temperatures.

Exterior:

6. Fasten the deck ledger to the house with two each 1/4" diameter x 4.5" Simpson SDS Structural screws every 16".

7. Repair the side porch roof that is falling down per the sketch attached. Add **two** 2x4 “collar ties” on the horizontal for each rafter and install a king post or strut above the collar ties to support the top of the rafters on both sides. See sketch. Use gussets or Simpson brackets to secure all connections.
8. Replace all decayed lumber for the exterior porch with AWW material.

Electrical:

9. Ensure that all circuit breakers in the panel are properly labeled. The label for each breaker should be numbered on the cover and correctly corresponds to the circuit referenced such that a user can quickly identify and disconnect power to the circuit.
10. Provide proper clearance to the electrical panel. It should have a 30" wide opening 36" deep in front of the panel. Remove shelves upstairs that prevent proper clearance/access.
11. Gfci protection should be provided for bathroom, kitchen and exterior receptacles. Polarity and grounding should be correct and the gfci protection should trip with an independent testing device.
12. Secure wiring to the hot water heater.
13. Replace bulbs in light fixtures and or make corrections if necessary to ensure that all lights work properly. Front porch and closet on main level.
14. Remove small plug and wire in the exterior service box.

Plumbing:

15. Install a good quality air admittance valve at the vent that does not go to the atmosphere as required by the plumbing code. Washing machine drain.
16. Adjust the plumbing for temperature and pressure relief valve for the hot water heater so the probe extends into the tank.
17. Reduce the temperature of the domestic hot water to 120 to comply with code to prevent scalding and to save money.

Mechanical:

18. Have the boiler inspected and fully serviced by a licensed and bonded contractor. Contractor is to check all safety items and perform necessary repairs. Ensure that the heat exchanger is cleaned. Supply a receipt to confirm the work. This is a normal service item that should be performed every year. Some technicians do not brush the boiler clean on the service every year but we consider it part of the service that should be done at a routine house transfer. If this work was done within the last 12 months send documentation to confirm.
19. Provide a 6" diameter combustion air vent to the area near the boiler. The inlet shall be screened and undampened. Use an exterior terminal like those used for HRV supply ducts found at sheetmetal shops. Make a cold air trap in the duct and insulate it to reduce passive heat loss.

20. Clean and inspect the boiler chimney. Provide a receipt from a qualified technician. Make any corrections necessary for safe use. Technician is to report condition on receipt.
21. Properly support the chimney allowing access to the clean out to get rid of the soot from the bottom.
22. Move the insulation away from the chimney in the attic and ensure there is a proper metal firestop at the ceiling to also serve as a vapor/air stop.
23. Protect the soft copper oil lines to the boiler with a wood cover.
24. Have the entire length of the dryer duct inspected and cleaned by a qualified and licensed contractor. The contractor is to ensure that entire duct is smooth, metal material without use of screws. Contractor to supply a receipt to confirm the work and verify compliance with these provisions on company letterhead.

Egress:

25. Install a continuous graspable handrail 34" to 38" above the stair nosings for the full length of the side exterior stairs to the main level. All stairs.
26. Install an egress window in each bedroom with the following minimums: Area - 5.7 s.f., width - 20", height - 24". Maximum sill height is 44" off the floor. The size of the opening that a person can fit through when the window is opened must meet all three minimums of area, width and height. I noted a newer upstairs bedroom window that only has a 16" clear width. It should be replaced.
27. If you plan to make the basement habitable. Construct a new stair with uniform riser heights not to exceed 7.75" and uniform treads that are at least 10". Uniformity of treads and risers is to be within 3/8" maximum. The tread measurement is from nose to nose, the stair stringers should be cut for the full 10" width, the nosing does not count for width. Headroom is to be at least 6'-8" measured from a diagonal to the stair nosings to any obstruction. This will be exceedingly difficult. Otherwise instruct users to exercise caution. Unit A to the basement.
28. Replace operator for bedroom window in the basement of A to make it work.
29. Install or improve existing guardrails for stairs and landings of platforms and decks where the drop exceeds 30". The guardrail is to be at least 34" high at stairs and at least 36" high at landings with midrails that will not allow a 4" ball to pass through. .
30. Replace the exterior door to the front porch upstairs. It is cracked and not designed to be an exterior door for this climate.
31. Replace the interior door to the bedroom upstairs. It is falling apart.
32. Replace the missing door knob for the exterior door where it only has a deadbolt.

Additional information and/or suggestions for future reference follow:

- a. There may be some smoke and CO detectors in place already. I call for them in the report as a default even if they are present because we want to ensure they are installed and have fresh batteries at the final as specified. Please note requirements carefully.

- b. The stair to the upper level is steep. Rebuild or use with caution.
- c. The roof framing consists of premanufactured trusses. They are generally sufficient for our snow load. The trusses were installed over a flat roof.
- d. There appeared to be about 10” of fiberglass batt in the attic where I measured. The existing old raftered flat roof may have another 5.5” more. You could put in another 4” to 5” but I would make the upgrades to the boiler first.
- e. Seal all the openings in the electrical boxes in the exterior walls including the ones around the wires with a good firestop foam or caulk. Seal around the perimeter of the boxes at the wall face and around windows also. This will reduce air leakage and reduce migration of moisture into the exterior wall cavity.
- f. The laminate flooring is not in good condition. It is best to replace the flooring.
- g. Adjust the door so that it does not rub on the frame. Some interior doors to bedrooms.
- h. Remove incandescent light fixtures within 18" of a plumb line above closet shelves. Replace them with LED fixtures or cap the box. Main level.
- i. Seal around the pipes with expanding foam or similar to stop any leaking around the pipes from the soil outside. Insulate the water lines to minimize condensation.
- j. There are some exposed hydronic pipes in the closets. Use caution or provide covers for them.
- k. Replace gypsum board window sills with a durable material. Inexpensive products are “plastic wood” such as Azak or Trex decking.
- l. Cover or replace the thin paneling with gypsum wall board when remodeling.
- m. Install continuous eave vents for the attic on both sides to ensure a cold roof. This was previously a flat roof, so it is less likely to have a hot roof condition.
- n. Install an outdoor reset or modulating aquastat on the boiler to save energy. Most local technicians use a Tekmar.
- o. Consider adding an automatic damper for the chimney to stop the flow of hot air when the boiler is not running.
- p. Share the excess heat from the boiler room with the adjacent living space in the winter.
- q. I noted the oil tank riser is pushed over. We do not evaluate the tanks but it may be prudent to replace the tank as excess force on the riser can create a weak spot subject to leaking which might allow water into the tank.
- r. Cover the foundation wall on the exterior with foam and a weather protection barrier to reduce energy loss.

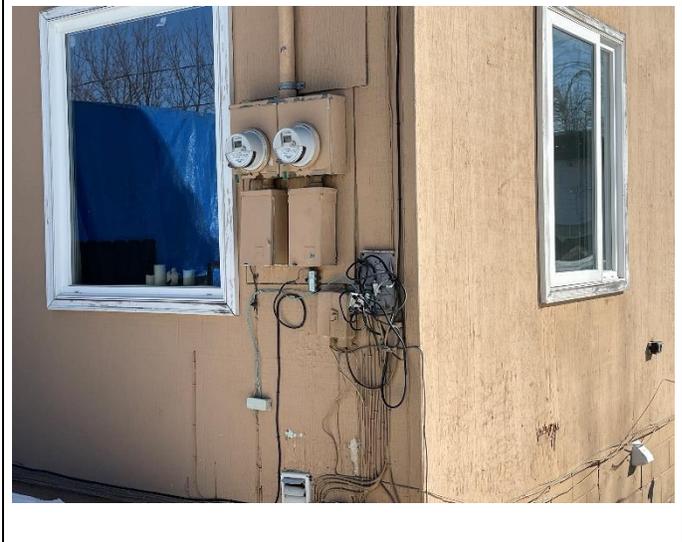
The inspection was limited to the portions of the building readily accessible. This report may not address every concern that you or another engineer deem applicable. It does not address: detached buildings, mold, radon, wells, septic systems, fuel tanks, soils, environmental hazards (such as lead in paint or piping) or right of way/zoning violations. Leaks or condensation may not be identified if not readily visible.



Vince Meurlott, P.E. Date for this stamp is April 20, 2022



Some foam on the CMU foundation walls – not much. Add more for energy conservation.





Remove small plug and wire in the left side exterior service box.

Heat loss is typical for an older structure.



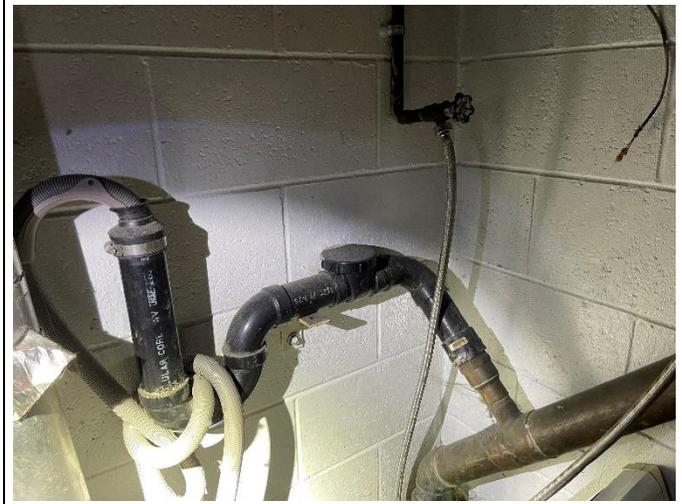
Avoid putting clothes and materials against an exterior wall of a closet especially if there is no heat pipes there to avoid mildew.



Some newer windows are nice.



Very low headroom.



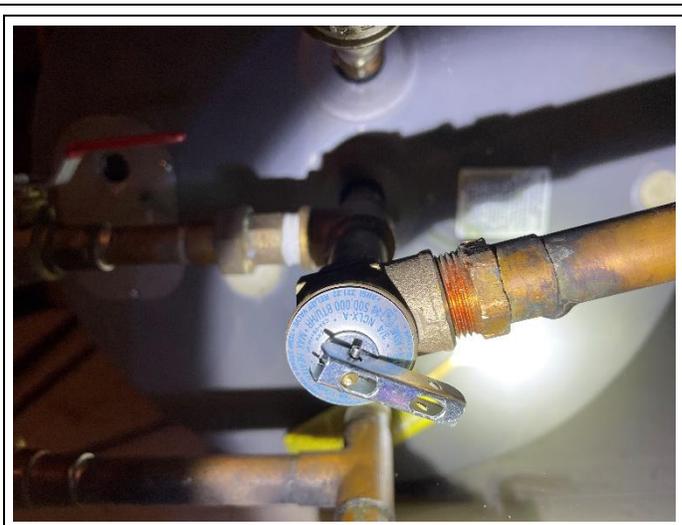
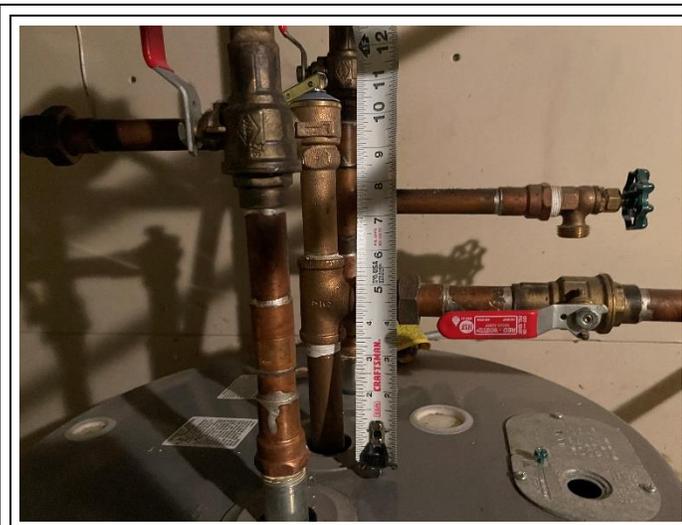
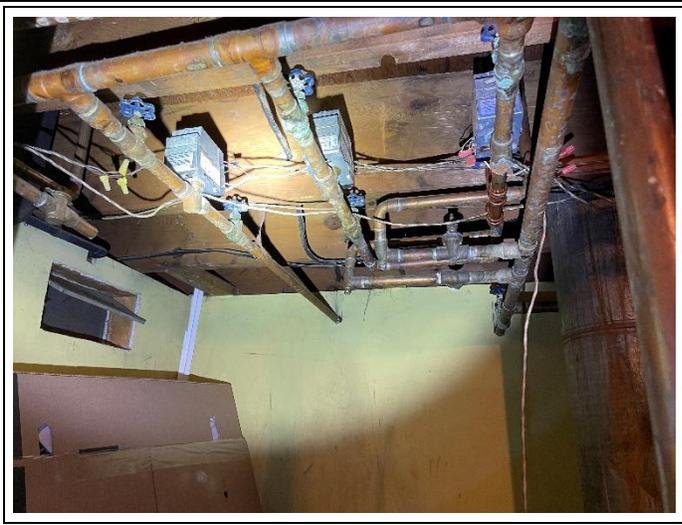
It would be best to provide a proper walking stair.

Upgrades recommended in items n and o can improve the energy efficiency by up to 15%



Fan blowing heat out of the boiler room.



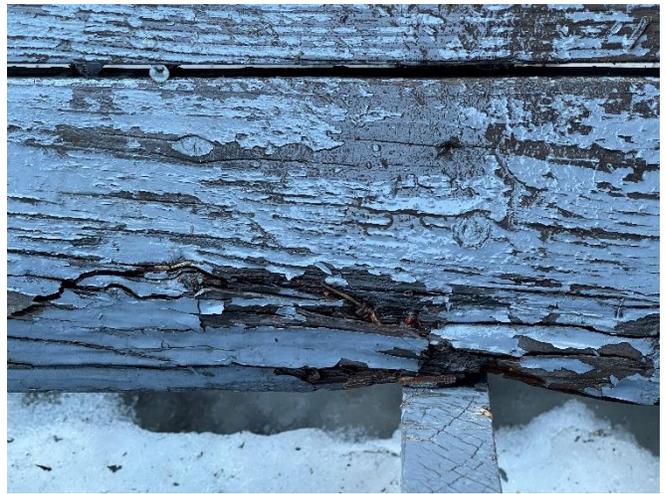




Fasten the deck ledger to the house



Replace all decayed lumber for the exterior porch with AWW material



Replace decking soon



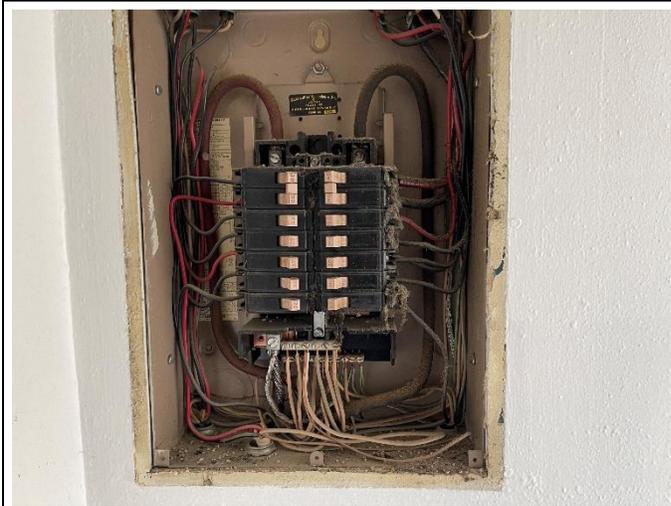
Replace this door with one designed for Alaska



Door shown to the left is cracked.



Replace w LED fixture





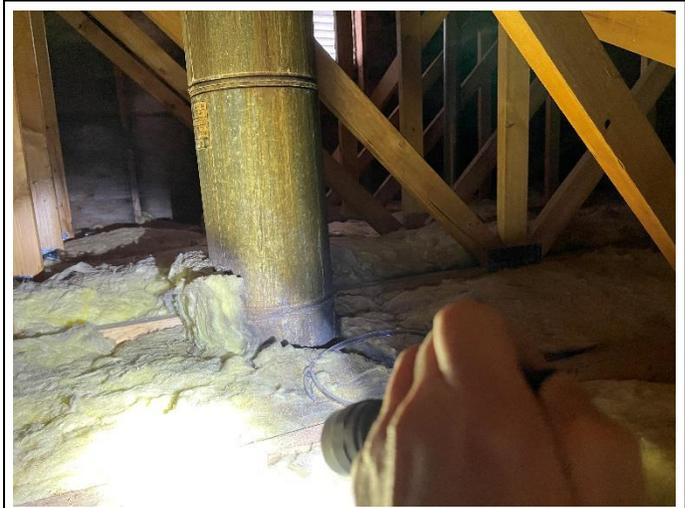
Replace door knob.



Window clear width to be 20" or more



Attic insulation above the flat roof



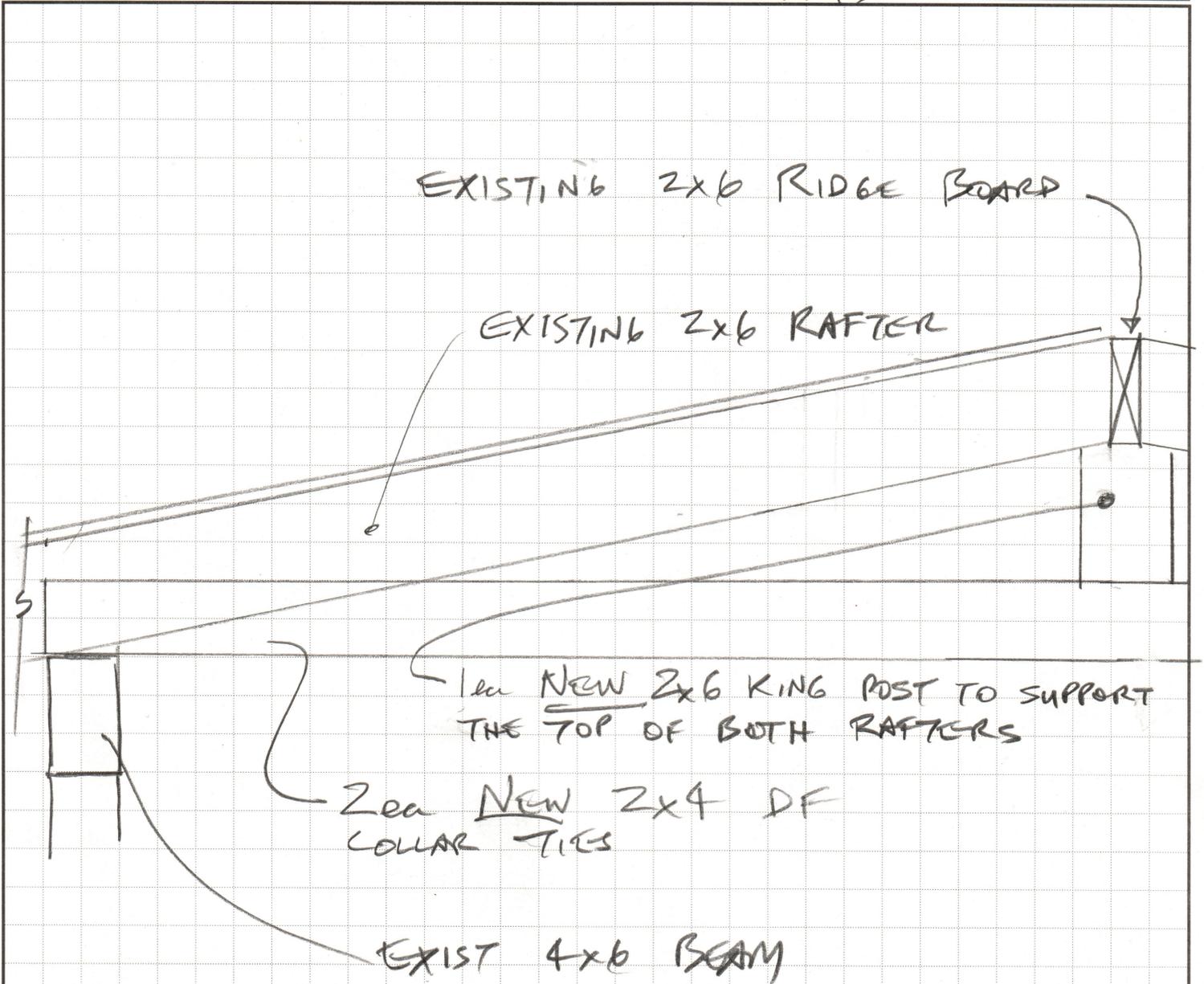
Water temp should not exceed 120 F





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JOB 712 16th Duplex
SHEET NO. 1 OF 1
CALCULATED BY JPM DATE 4-27-22
CHECKED BY _____ DATE _____
SCALE NTS



EXISTING 2x6 RIDGE BOARD

EXISTING 2x6 RAFTER

1ea NEW 2x6 KING POST TO SUPPORT
THE TOP OF BOTH RAFTERS

2ea NEW 2x4 DF
COLLAR TIES

EXIST 4x6 BEAM

OPEN PORCH FRAMING ROOF REPAIR

**MEURLOTT CONSULTING INC.
VINCE MEURLOTT, P.E.**



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Re: Engineering report for the building at 712 16th Duplex April 2022

This is to acknowledge payment for the inspection and attached report. Thank you.

Amount paid:\$650.00

Paid on April 20, 2022
\$650.00 paid in full by Christina Santos
Via Square online