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[redacted]sociation

Chicago , IL 60645

Property Inspection location:
[redacted]Ave.
Chicago , IL

Inspection Date Friday, October 31, 2008

Dear [redacted]Condominium Association :

At your request, I have inspected the subject property, and my inspection report summary follows. The summary makes no attempt to describe all the materials and conditions in the building. The summary only addresses defects that I saw at the inspection, and describes certain materials relative to their maintenance and care requirements.

Site

1) The tree(s) in the parkway may be putting roots into the sewer. This can cause backup into the bsmt., and it can also damage the sewer tile so that it needs expensive repairs. You should rod and videocam the sewer to determine it's condition. Annual rodding to clear roots and dirt should be done to maintain the sewer.

Garage

1) The rear garage SE corner gutter is smashed, apparently by impact from a truck. The gutter should be fixed so it drains.

2) The garage sidewall brick is in various stages of deterioration. The problem is water soaking into the brick, with resulting freeze/thaw cycles causing the brick to fall apart. The repairs made thus far work "against" known materials properties / a thorough discussion of this is provided in the Sidewall section of this report.

The garage brick has to be repaired properly, or the continuing deterioration will accelerate and likely damage the walls to the point expensive rebuilding will be necessary.

3) The garage service door(s) have rot in the brick molding over the doors. There should have been metal drip caps installed over the doors when they were replaced to divert water out over the trim and away from the wood.

Porches

1) The rear egress porch stair handrails are not graspable, i.e., it is not possible to wrap ones' hand around it satisfactorily to provide for safe support when walking on the stairs. This type of 1x6 "top slab" handrail is very common, but it isn't workable. There isn't any specific requirement in the Chicago Porch and Deck codes for graspable handrails, but "graspability" is a requirement in every other code. So, whether or not the current meets code requirements is moot. You need a better handrail so occupants can navigate the stairs safetly.

How this is accomplished is open to a lot of discussion, because in some areas there isn't adequate space to install standard handrails. In other locations, placing a graspable handrail on top of the current slab would make it much too high to use effectively.

At this point, there needs to be a graspable handrail provided, but I'm not sure what the best design solution would be. We need to discuss this further.

2) The electrical service masthead is attached to the rear deck. The service can be easily reached by any occupant navigating the stairs. This is a shock or electrocution hazard. Electrical service connections have to be installed minimum 3' outside the footprint of a porch or deck to prevent accidental contact.

Installing a nonconductive barrier between the occupants and the service is an allowed exception. You should have a nonconductive (wood) barrier installed to prevent accidental contact with the service / see also Electrical.

Sidewalls

In order to understand how the masonry on this building "works", I am first going to provide a discussion of mortar, brick, and installation methods.

This building was designed & constructed with relatively soft "Chicago Common" brick, solid masonry exterior walls, and *lime mortar* (what most folks call cement). Lime mortar is considerably softer and more permeable than the mortars used now which contain Portland cement and additives. Lime mortar was mixed on site by experienced masons that would tailor the mix to be compatible w/whatever brick was being used.

Lime mortar has several characteristics that are completely different than modern (Portland Cement) mortars. Lime mortar tends to refill small cracks that may occur due to settlement, and it will expand & contract to account for movement caused by atmospheric changes (winter to summer). It also was compatible with the permeability of the bricks so moisture was absorbed and evaporated equally from both materials. Modern mortars are hard, brittle, and tend to transmit water to the interior through absorption and hairline cracks.

Solid masonry construction @ that time had completely different performance characteristics from modern masonry. The older (solid) masonry would absorb some amount of moisture, but the sheer mass of the wall would limit the amounts of moisture & the depth of moisture penetration into the wall.

Almost all modern “tuck-pointing” repairs to older buildings mistakenly use modern mortars. Many "restoration masons" utilize this method because it is fast and they don't have a clear understanding of what is necessary to perform a proper long lasting repair. In the end, the building owner thinks that since the entire wall appears to have been "re-pointed" uniformly, it looks clean and improved and they think they’ve received a good and very affordable repair. In fact, what they receive was a cosmetic overlay, which in most cases, accelerates the deterioration of the masonry.

The most common result is that the thin layer of new (modern) mortar cracks & falls off within a few years. In the areas where the new mortar extends deep enough to remain in place, moisture tends to be trapped in both the mortar bed joints and the edge surfaces of the brick. This causes the moisture laden brick to deteriorate through the expansion that occurs as it freezes. This condition is called spalling. Entire faces of brick can literally begin to progressively fall away. In many cases, the trapped moisture will cause entire sections of brick to bulge out away from the building due to freeze/thaw cycles.

This is essentially the condition of the masonry of this building. The “tuckpointing” is largely cosmetic utilizing incompatible mortars.

Where these skim coat repairs are most obvious are at the west and southwest portions of the lower wall. In these locations, the mortar has been literally smeared over the brick and colored to look like brick. Also, the garage walls lower masonry is peeling and in poor condition due to decades of improper repair.

On the bright side, the masonry in this building was not appreciably deteriorated in the first place, so the improper repairs have not had a substantial deteriorative affect.

In short, stop having “maintenance tuckpointing” performed; you will save money and the building in the process. If you want the masonry to look better, simply have it cleaned along with miscellaneous minor pointing repairs as necessary in those locations that actually need it (more on this later).

The primary concern in this building has to do with the lintels, which are the steel beams spanning the top of the window and door openings.

Steel lintels rust over time, delaminate and expand, and damage the adjacent masonry. The process is slow, but inexorable. This building is at the front of of suffering from lintel deterioration, and similar to the improper tuckpointing, the current lintel “repairs” are probably accelerating the deterioration of the building, not slowing it down.

Several of the lintels on the front elevation are rusted, warping, and delaminating. The "repairs" thus far involve caulking the lintels. The caulking is causing moisture in the masonry to be retained in the wall where it accelerates the deterioration of the lintels. Look at the photolog, and you will see rust stains, warping, and moisture weeping out from the lintel caulking that is failing because moisture in the wall is migrating to the exterior like it should be.

The good part here is your building lintels not so far gone that you are going to need massive rebuilding. You are going to need lintels replaced, though. By my count, there are at least 7-10 lintels that need replacing in the next couple years. Given the way these things work, different contractors are going to recommend different lintels that could or should be replaced.

Average cost for lintel replacement at this time is approx. $1000-1200. That means the association should be budgeting somewhere in the vicinity of $12,000 over the next few years to accommodate lintel replacement. Failure to replace the lintels in a timely manner will result in continued and exaggerated masonry damage, resulting in increased cost.

My best advice is start talking to contractors to collect opinions and proposals for lintel and masonry repair. Be prepared to get all sorts of differing opinions; that's the way this works, so don't be surprised. Call me when you get some proposals and we can look them over to help you figure out which ones are appropriate.

Roofing

1) The eave edge detail @ the gutter eave is incorrect; the membrane is folded down into the gutter instead of being wrapped behind the gutter, or installed w/a flanged gutter and strip flashing.

Wrapping the membrane down into the gutter is extremely common, but not recognized by the roofing industry or manufacturers associations as an effective or desirable method. The membrane doesn't weld satisfactorily to the aluminum, and gaps can open up that can leak during ice dam conditions. If this isn't a problem, I don't think this is a critical defect, but it is something that you should be aware of.

2) The coping stones on top of the sidewalls have gaps and openings that can leak water into the sidewall parapets. All the coping stones should have the joints sealed with a good quality caulk that doesn't open up like the roofing cement repairs that are currently in place.

3) The brick chimney (for the boiler and water heating equipment) is badly deteriorated on the interior of the crown. Bricks are so loose they could tumble down the chimney flue, causing blockage that could cause combustion gas to back into the building. The bricks should be mortared placed. While a serious condition, it is an easily accomplished repair.

Structural

1) The bsmt. ceiling has several small holes in the plaster. These holes can allow a fire in the bsmt. to engage into the upper floors, creating a hazard. Multiple family building codes all state that there should be an unbroken fire separation of plaster or drywall on the bsmt. ceiling.

You should have a repairman seal all the bsmt. ceiling holes with plaster or drywall. This is a relatively simple and inexpensive repair, but one that you should have done.

Heating

The boiler and associated equipment is all essentially new, and in satisfactory condition. There are concerns that should be addressed, though.

1) There is asbestos on the heating pipes in the bsmt., and possibly in the walls & ceilings of the upper floors. There are several damaged end caps or open areas where the asbestos is exposed. Current EPA recommendations for asbestos is to leave it in place and encapsulate it if the asbestos is undamaged and tight to the pipes. If it is damaged, the material should be removed. This material looks like it could be encapsulated satisfactorily, but there could be contractors that would disagree with me and recommend removal.

Have a licensed asbestos abatement contractor re-inspect the asbestos & specifications for abatement & the approximate cost. After reviewing proposals for removal or encapsulation, you should call me to discuss the options.

2) The large issue with the heating is distribution in the building. Occupants at the lower level are cold, and the upper floor occupants are roasting hot during the heating season. I will try to explain why it is working this way; please bear with me, as this gets a little dense on the first run through.

After looking over the system, it seems apparent that there has never been a comprehensive approach to figuring out the distribution problems. There are thermostatic sensors and an “energy management system”, but the location of these sensors isn’t going to provide a balanced distribution.

First, understand the energy management system doesn’t redistribute heat “where it’s needed”, it only monitors temperature in the building and cycles the system on and off. It is essentially a sophisticated programmable set of thermostats.

Second, the energy management system doesn’t exist independent of the rest of the heating system. The energy management system is only going to provide the most efficient operation if it is balanced with the rest of the system, meaning the output of the individual radiators. It does not divert heat to areas of the building where it is needed; it only cycles the heating system on and off.

Balancing output in a single pipe steam system involves placing thermostats in the best locations to monitor temperature in the building, and properly sizing the vents on the individual radiators.

The radiator vents allow air to purge out of the radiator so the steam can enter. Steam enters the radiator, condenses on the radiator interior and gives up its heat, and the condensate runs back down the single pipe to the boiler to be turned back into steam and begin the cycle all over again.

The radiator vents all have orifices (holes), and there are a few dozen orifice sizes available. The general theory is to place vents with tiny orifice on radiators close to the boiler, and vents with large orifice on radiators furthest from the boiler. The tiny orifice will purge slower than the larger orifice, so steam will travel to the furthest radiator (large orifice vents) quicker than the closest radiators (small orifice vents).

The idea is to balance the orifice sizing throughout the building so the (approximate) same amount of steam arrives at each radiator at roughly the same time. Basically, it's a way a pressure balancing the purge speed of each individual radiator.

The location of the thermostatic sensors on the 3rd fl. contribute to uneven heating. The 3rd fl. heats up quickly (heat rises), and the thermostats shut down the system before heat can get to the 1st fl. units. Exacerbating this is the phenomenon of "stack effect", which is the fancy term to describe heat rising quickly up through the building and pulling in cooler air at the lower floors. The combination of improperly placed thermostats and stack effect essentially guarantees the lower floors will be cold.

There are other complicating factors in this building. Several radiators have been moved, altered, or removed altogether, so the original balance in the building is thrown off. The complications introduce a fair bit of art with the science of figuring out orifice sizing for all the radiators.

I looked at several of the units individual radiator vents, and they are a very mixed bag of of new, old, missing, upside down, and non-functional components. With this sort of messed up venting arrangement, balance is impossible.

Where all this leads is to the building needing a complete rethinking of balancing thermostatic control location and programming, and resizing the vents throughout the building. The approach to getting this right is holistic; there is no way to adjust only portions of the building without it affecting other areas of the building.

You need to have your heating contractor come back out and think this through in a much more comprehensive manner, and come up with a plan for getting things in order. This could mean moving thermostats to different floors or locations, replacing and resizing vents, removing or adding radiators, or making other alterations to the system. Until there is some comprehensive overview of every unit, and a complete inventory made of the existing conditions, it is impossible to determine what the actual alterations should be.

One more condition that you have to consider is the windows; the old windows leak cold air in winter, and the lower level windows will leak the most due to stack effect. Making alterations to the heating system without accompanying improvements to the building envelope will only serve to throw the system back out of balance. Remember, getting steam systems balanced is a holistic approach.

3) There are leaks in some of the radiator valves or vents in the building. The 2nd fl. east unit front LR ceilings and one of the BR ceilings is water stained, apparently from leaks in the radiators from above. Since I didn't have access to all of the units on the day of my inspection, I am not able to determine the specific problem(s) that are causing the leaks. This problem is something that should be able to be corrected when the radiator vent balancing and radiator repairs is occurring.

Electrical

The individual service panels for the units were not inspected. If any occupant has a problem with their individual service panel or branch circuits, they should call me to discuss it.

While I didn't perform a complete in depth inspection and analysis of all the electrical systems in the building, I was able to make several observations.

1) There was AC cable (commonly referred to as BX) running from junction boxes in the bsmt. to the upper floors. BX cable is not approved for use (in Chicago) in lengths >6'. The reasons for this are too numerous and obscure to get into here, but what this indicates is there was some unauthorized wiring installation by individuals that were not aware of wiring practice in Chicago. When I see large amounts of AC cable installed in one location, it is likely there are other areas where it is installed where I can't see it. In short, there is probably AC/BX cable installed in several locations in the building. This is common, but it is not correct.

2) There is at least one strand of "rag wrap" cloth wrapped range cable installed in the bsmt. This material has never been approved for use in Chicago.

3) There is one strand of loose open wire above the electrical service equipment. This wire should be removed or enclosed in a junction box.

4) The garage overhead supply wiring isn't a material approved for use in sunlight; the UV will break down the insulation and cause it to fail, creating a dangerous condition. You should have the wiring replaced with a UV resistant type, or bury the wiring underground.

5) There are too few GFCI safety outlets in the building. They are not installed in all the locations where they should be.

Most people would recognize these outlets as the ones in bathrooms w/the little "test" and "reset" buttons. These devices protect individuals against shock or electrocution caused by ground faults. In new construction regulated by the 2008 National Electrical Code, ground fault devices are required for outlets @ **any exterior locations, all kitchen countertops, all bathroom wall and countertop receptacles, laundry rooms, wet bars, utility room, all garage outlets including the outlet for the**

I realize this is considered excessive by some people. While GFCI devices are not necessarily required to be retrofit into existing homes built before the new electrical code required them, safety hazards do not respect calendar dates. For this reason, I recommend you install GFCI devices in the locations described above in any home you are occupying **.**

The devices should be tested every 30 days to determine if they are working. If the devices don't trip, or if the device doesn't reset, you should replace them immediately. The newest devices have improved testing capabilities, and are vastly improved over the older original devices. I recommend installing these new devices in any older home w/existing GFI's.

Plumbing

1) There is still old original galvanized pipe in the building. The basement laterals have all been replaced, but the original supply risers remain in place. There is at least one active leak in some of the visible piping in the bsmt. If there is one visible leak, there are probably others about to leak where I can't see them.

Old galvanized plumbing has a limited lifespan of approximately 60-80 years in Chicago depending on a wide range of variables. What this means is the pipe supply risers are due for replacement. This is a disruptive and expensive item as it requires opening walls and ceilings to access the pipes for replacement. You need to establish a budget for pipe replacement in the near future. If there are pipes that are so old that they burst and leak, it could cause flooding in the property resulting in major damage and expense. Plan on replacing the pipes.

2) The new copper pipe connects to the older galvanized directly without benefit if a dilectric union. These unions isolate the dissimilar metals of the two pipes to prevent galvanic reaction and accelerated deterioration of the pipe. You should have dilectric unions installed between the copper and galvanized pipe.

3) The bsmt. floor is heaved up in several locations. This is most often caused by sewer back up in the City infrastructure. The sewer backs up, water leaks out of the old clay sewer tiles, and the resulting saturation and pressure in the soil beneath the floor causes the floor to heave up.

There is no repair for this other than keeping the sewer rodded out and cleaned periodically. You should have the sewer rodded annually to keep it clear.

General Interior

1) The windows are a major problem. They are contributing to the overall heat loss/cold conditions already noted in the Heating section of this report. You should replace the windows. This is an expensive process, and costs will be all over the map depending on a wide array of variables. You need to talk to several window replacement companies to begin getting an approximate estimate of what window replacement will cost.

2) There aren't any fire extinguishers in the hallways and stairwells. This is required by Chicago building codes and it simply is a smart thing to do. Install fire extinguishers in all the stairwells of the building.

3) The laundry equipment in the 2nd fl. west unit lacks a pan under the washer to collect an leaks that occur. You should install pans under any laundry equipment in the building and connect them to a drain.

4) The laundry dryer discharge at the 2nd fl. west apt. is plastic. These plastic ducts have been cited by the CPSC and several other safety organizations as a source for home fires. You should change out the plastic duct and replace it with a smooth walled metal duct.

5) The central stairwell and egress halls lack emergency lighting. You should install emergency lighting in case there is a fire or emergency requiring lighting for occupants to safely exit the building.

Summary Comments

In short, you need to focus on these items.

1) The window lintels. Replacing the defective lintels and masonry will likely run approx. $12,000 -15,000.

2) The porch handrails should be improved for safe use of the stairs.

3) Repair the chimney and seal the coping stones. This is a relatively simple and inexpensive repair, but one you should absolutely accomplish so the damage doesn't spread.

4) Repair the holes in the bsmt. ceiling plaster. This is relatively cheap and simple, but something you should accomplish for fire safety in the building.

5) Remove or encapsulate the asbestos. This can be simple or complicated depending on the wishes of the association members.

6) Get the heating balanced. This could end up being a big project, as it necessitates everybody's involvement and cooperation. It will likely take several tries to get it right.

7) Minor electrical repairs; this should be relatively inexpensive and simple.

8) Replace the old plumbing risers with new copper pipe. This could easily run into >$10,000 to get it all done right. You will have to get proposals from plumbers and get back to me to discuss.

9) Window replacement. This is another big one. This could easily run into $5000 per unit to replace the front LR windows. Until I get a better idea about what windows the association members would

be interested in obtaining, I'm not sure what the final costs would be.

10) Install safety equipment; fire extinguishers, emergency lighting, and smoke detectors/carbon monoxide monitors. This is inexpensive and simple, and easily accomplished. It's the right thing to do.

There are a number of other basic repairs listed in the report, but these are the items that affect the long term performance of the building, the heating costs and general comfort of the association members, and the general safety of the occupants.

Thank you for the opportunity to provide inspection services. If you have any questions, do not hesitate to call me to discuss them at anytime.

Kurt Mitenbuler IL lic. #450.000220 expires 11/30/08

PHOTO LOG

Kurt Mitenbuler & Assoc., Inc.
1021 Wesley Ave. Evanston, IL 60202
IL Lic, #450.000220

Customer:
Property Location: [redacted]cago, IL

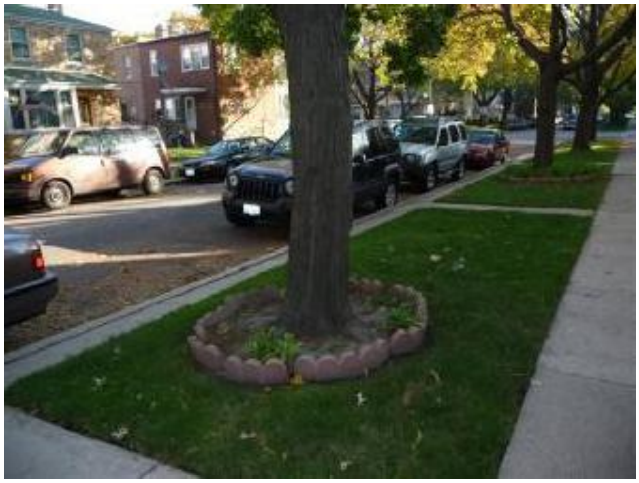
The defects that I saw during my inspection are listed in the following photolog.

1

front elevation

2

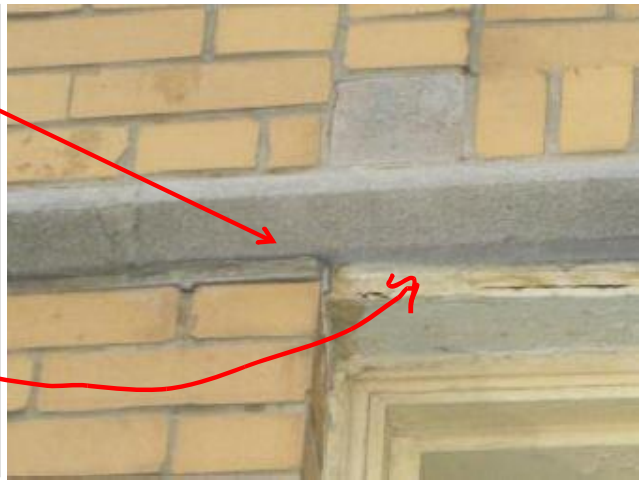
Trees in parkways put roots in sewers. You should rod and videoscope the sewer to determine its condition.



3

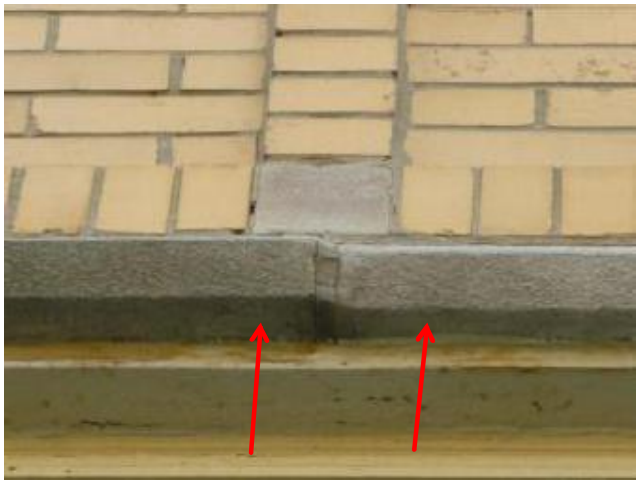
The upper corners of several windows had the beginning stages of lintel deterioration. The lintel is rusting, and pushing the "tuckpointing" out.

The caulk in the window holds moisture in the wall, accelerating the deterioration.



4

Dissimilar movement in the stone details over the lintels indicates lintel deterioration and resulting movement.



5

Mortar deterioration from recent "tuckpointing" at several of the windows

6

Caulking lintel in this manner holds moisture into the assembly and accelerates the deterioration.

Note the hair line cracks with rust stains; that's water pushing open the caulk and wicking out.

7

Similar conditons at the front bay details.

8

Misaligned stone details at another window corner.

Cracks radiating upward in stairstep pattern are the initial stages of lintel jacking and masonry damage.

9

Close up of opposite details shows the mortar being pushed out by the deteriorated lintel.

10

"plastering" is not tuckpointing. This overlay mortar will likely loosen and crumble off in the next few years, revealing additional damage underneath.

11

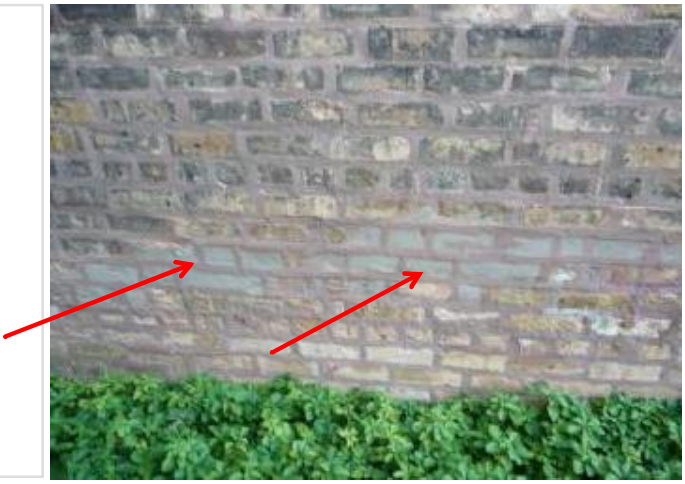
SW corner has large areas of plastered mortar. There are loose areas indicating the material is flaking off.

12

These bricks were literally "painted" with colored mortar.

13

More of the same as parevious.



14

Interior garage wall showing deterioration from moisture migration through the brick.

15

Garage interior plaster coat is peeling off.

16

Garage outside wall showing moisture damaged brick.

The damage was exacerbated by the incompatible (red) mortar.

17

The mortar at the garage is flaking off.

18

Bond bricks at the garage interior illustrate how the moisture is migrating through the wall.

19

More moisture deteriorated brick.

20

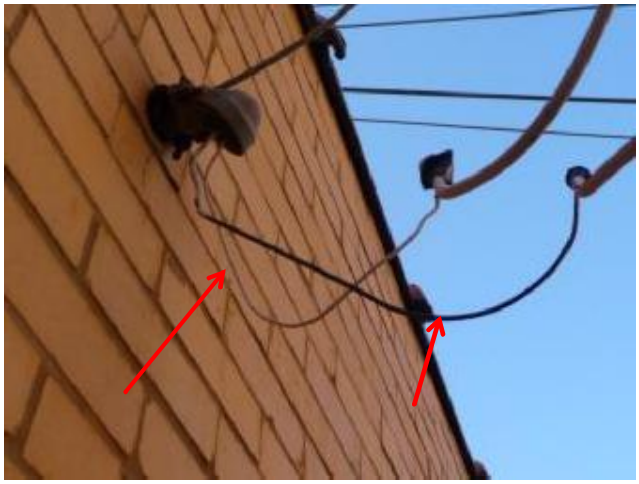
Rotten door frame over garage service door.

21

Garage service wire isn't approved for UV exposure. The garage service should be replaced with wiring approved for UV and wet locations.

Since this service is low (<10'), there is the chance for it being touched. Low overhead service wiring is a hazard.

You should consider burying the service to the garage so it is not located overhead.



22

The main service entrance is mounted on the rear egress porch and easily accessible by occupants. If they touch it, it could be hazardous.

The building code normally requires the service wiring to be >3' outside the footprint of the structure, or a non-conductive barrier installed to prevent accidental contact.

You should ask the power company if they approve this. They're not supposed to, but sometimes they do.

23

Spalling brick at the rear porch.

The brick is damaged and the repairs that were made are superficial. These areas might hold, and they might flake off, but either way, you should not wasted money on this sort of repair. You should have the damaged brick removed and the area rebuilt properly.

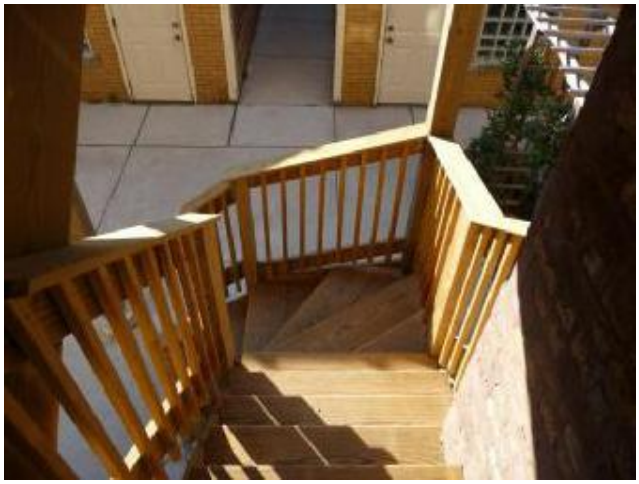
24

The rear egress porch handrails are not graspable.

There should be a graspable handrail not less than 34" nor more than 38" above the stair nosing.

25

The stair is narrow, so installing safe handrails will constrict the passage.



26

Wall coping tile joints are not sealed where they adjoin the cornice parapet.

27

Nearly every coping tile joint is open like this. Water can leak into the parapet, and damage it from freeze thaw cycles.

The parapets on this building are in satisfactory condition. You want to keep them that way.

While this is a problem, it is easily solved by taking out existing black sealant and replacing it with modern caulks.

28

More of the same. All these open gaps have to be repaired.

The repair should include removing damaged tiles and replacing them with new materials.

29

The rear eave gutter detail is technically wrong, but common. You may have to periodically reseal the eave if the weld to the gutter fails.

30

The main chimney interior is falling apart.

The chimney crown interior should be rebuilt, and a rain cap installed to prevent future damage.

31

Asbestos insulation in the bsmt. has damaged end caps and joints. The material should be encapsulated and removed.

32

More asbestos open end caps.

33

More open ends.

34

The bsmt. ceiling has several small holes in the plaster. These holes can allow a fire in the bsmt. to engage into the upper floors, creating a hazard. Multiple family building codes all state that there should be an unbroken fire separation of plaster or drywall on the bsmt. ceiling.

You should have a repairman seal all the bsmt. ceiling holes with plaster or drywall. This is a relatively simple and inexpensive repair, but one that you should have done.

35

Same as previous, this time with wiring running through to an upper floor. This will mean some electrical repairs and alterations.

36

More of the same, this time with plumbing.

Installers are supposed to closer up the openings with plaster or drywall. It doesn't have to be pretty, but it has to be there.

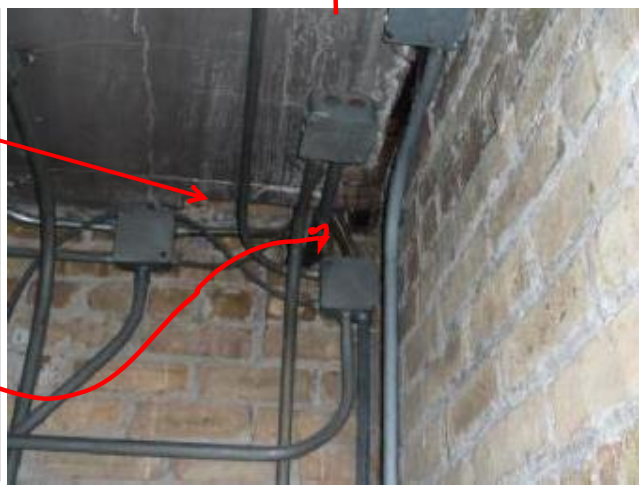
37

More of the same, this time with wood lath plaster.

38

Bsmt. wiring over the electrical panels has a smallish tangle of AC cable. This material isn't normally approved for use in lengths >6', so this sort of of application usually means portions of the installations may have had non-professional installers.

Also, there is rag wrap range cord in this corner; this material has never been approved for use in Chicago in this manner.



39

Range cord in a close-up

40

Loose wiring over the electrical panels.

41

The bsmt. floor is heaved up and cracked.

This can often mean sewer backup.

42

Radiator vent / FYI.

43

Radiator valve / FYI.

44

Water stain at ceiling of 2E, most likely due to leaking radiator valves, or other problem with the radiator.

45

Another area of water damaged ceiling at 2E, most likely caused by the radiator at the floor above it.

46

Leaking galvanized riser connection at the bsmt. ceiling penetration.

47

Close up of leaking galvanized fitting.

There is no dilectric fitting at this copper to galvanized joint.

48

None of the copper to galvanized connections used dilectric fittings to isolate the dissimilar metals.

The lack of dilectric fittings can lead to accelerated deterioration of the pipe from galvanic reaction. Dilectric fittings are required by all the building and plumbing codes.

When you repair the other plumbing, you should make sure that all the copper to galvanized fittings have dilectric connectors.

49

Windows at the front bay were loose, drafty, peeling paint, and generally inefficient.

You should replace the windows with energy efficient units.

50

Front bay windows.

51

The laundry utilized a plastic dryer duct. The CPSC has found these plastic ducts to be the source for many house fires.

Replace the plastic ducting with smooth walled metallic ducting.

52

There's no pan under the washer. If the washer leaks, it will flood the apt. and floors below.

Install a redundant drain pan under the washer and direct it to a plumbing drain.

53

Steam operating controls.

54

Water heating equipment.

55

Ratings plate for water heating equipment.