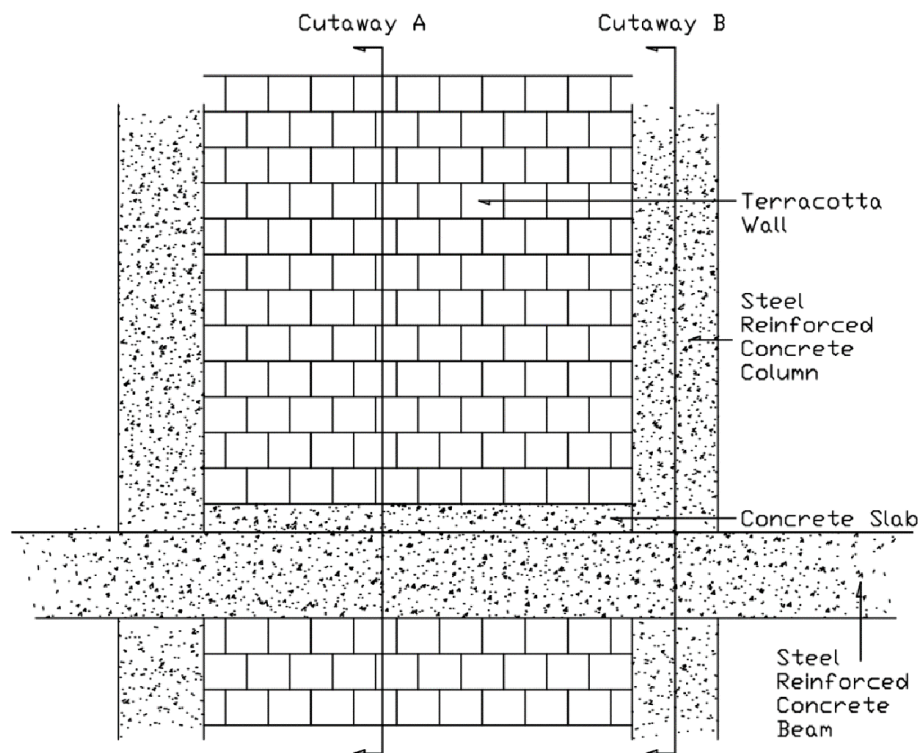


## Air Conditioner Opening Maintenance

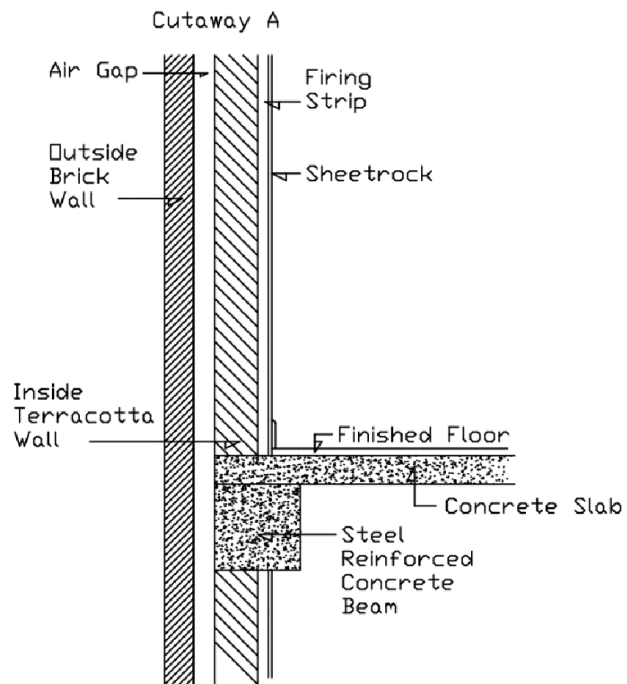
As mentioned in an email set out last year, the board laid out a rough plan to close up abandoned-in-place air conditioner openings and repair the air conditioner openings still in use. This email further defines that plan. To better share how we came to this plan, and how we are moving forward, we have broken the topic into four areas:

- The construction of the building
- The potential for water intrusion
- The process of closing an air conditioner opening
- How we are going to pay for project

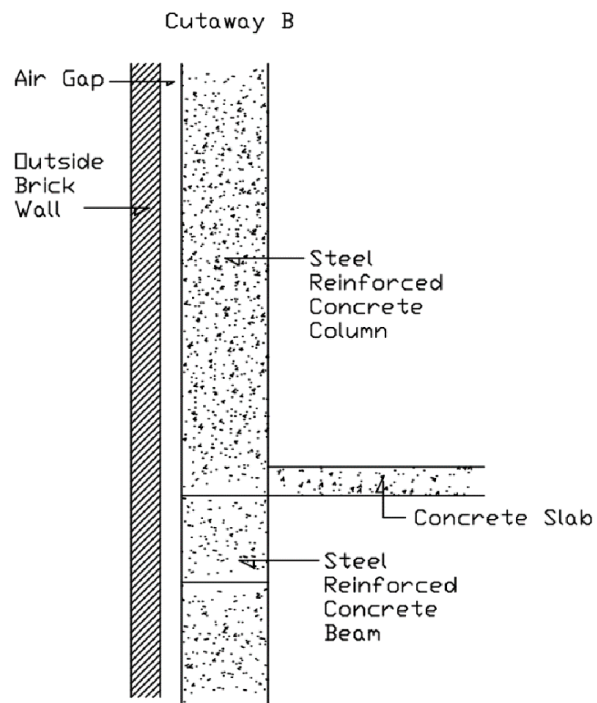
1. **The construction of the building:** The building is constructed with a series of steel reinforced concrete columns, steel reinforced concrete beams, concrete slabs for the floors/ceilings, terracotta block walls for the envelope and an outside brick veneer. The only components of the construction that provide strength/support to the building is the steel reinforced concrete columns and beams. That means that we have no load bearing walls in terms of the building itself, but that does not mean that the walls do not support other elements. For instance, the outside terracotta block walls support the windows.



**figure no.1:** Front view of the basic construction elements



**figure no.2:** Cutaway view looking through a terracotta block wall



**figure no.3:** Cutaway view looking through a steel reinforced concrete column

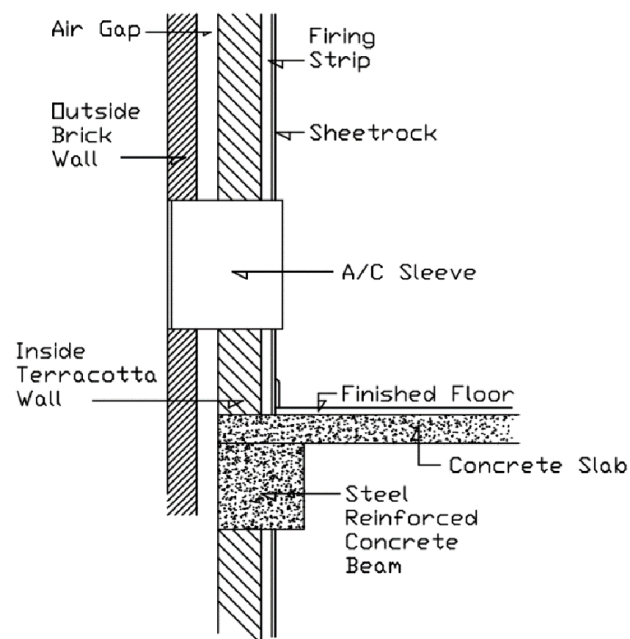


**figure no.4:** Example of steel reinforced concrete column and beam construction before the brick façade is added.

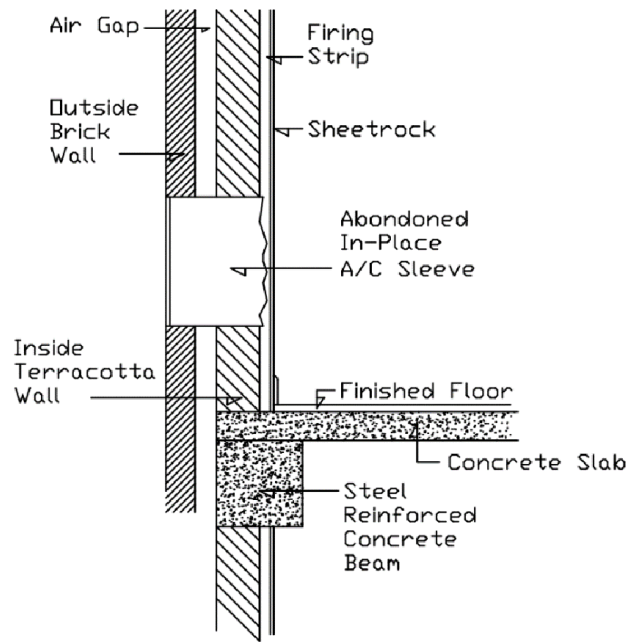
2. **The Potential for Water Intrusion:** Each opening in the building envelope is a liability in terms of water intrusion, whether it is an opening from a bathroom vent, dryer vent, window, balcony door or air conditioner. Clearly there is a real need to have openings through the envelope of the building, but they need to be constructed properly, maintained and restored correctly when no longer in use.

The basic anatomy of the air conditioner openings consists of a metal sleeve that transitions through the inside terracotta block and the outside brick wall, which supports the air conditioning unit. The inside terracotta block serves as the barrier to keep water out. In every abandoned-in-place air conditioner opening there has been no attempt to restore the inside terracotta block wall. We have also found that the terracotta blocks were not cut, but rather smashed through with a hammer, leaving cracked and broken block and no practical way to seal the sleeve to the terracotta block. Further, no lintels were installed over the air conditioner sleeves, which is necessary to carry the load above. We will have to address the lack of lintels for the in-use sleeves when it comes time to replace windows.

Below is a cutaway view of an in-use air conditioner opening and an abandoned-in-place air conditioner opening.



**figure no.5:** The sleeve transitions through the inside terracotta block and the outside brick, and supports the air conditioning unit. When installed properly and maintained, the condensate from the air conditioner will collect in the air conditioner's drip pan, which should have the proper slope to the outside, and drain through a drain line through the outside grate.



**figure no.6:** We have found that the sleeves from the abandoned-in-place openings have been cut off and left in place...leaving a path for driving rain to get behind the finished walls and travel under the flooring along the concrete floor slab and finding its' way down to units underneath.

3. **The process of closing an A/C opening:** Below is a series chronological pictures showing the process of closing up an air conditioning opening on the West façade of the building.



**figure no.7:** This was an A/C opening that was abandoned in place in Unit F5. The picture is after removal of the grate and a foam board that was held in place with expandable foam.



**figure no.8:** This is a picture of a sill cap. It will give you a good idea of the kind a masonry work that has been done by past air conditioning contractors.



**figure no.9:** You can see that the inside terracotta block was not cut, but broken out to make room for the sleeve. The next step is to clean the debris that was left behind from the previous air conditioning contractor.



**figure no.10:** This picture is from Unit F4 after the debris has been cleaned up. You can see remnants of the old A/C sleeve that was abandoned in place. Abandoning a sleeve in place provides a path for water infiltration. In a driving rain the water could travel along the sleeve and find its way to the concrete slab, under the floor, and travel until it finds a path to drain. With the old sleeve cut back we now have room to rebuild the inside wall.



**figure no.11:** Next...the broken terracotta block is filled with mortar so that we can get a good bond with the new inside wall.



**figure no.12:** A new inside wall is built to replace the missing terracotta section. The new inside wall goes all the way up to support the window. We have found that none the air conditioner openings have lintels installed over the sleeve. A lintel is a steel angle iron that carries the load above.



**figure no.13:** A temporary jig is installed to help guide setting the outside brick in the correct place.





**figure no.14:** The brick for the sill cap is shortened, grooved and a web is removed to make room for the proper thickness of the mortar bed to support the window above.



**figure no.15:** The sill cap course of brick is set in place. Notice that each brick in the sill cap is scored to help bind the mortar top coat to the course and to keep it from delaminating.



**figure no.16:** Sill cap course with the mortar top coat



**figure no.17:** Completed air conditioner opening restoration.

4. **How we are going to pay for project:** It cost \$1,600 to \$1,900 to close an abandoned-in-place air conditioning opening and \$500 to \$700 to repair an in-use air conditioning opening. These costs do not include rigging or material costs. Rigging alone can be expensive. As an example: it cost us over a \$1,000 to move the rig from the North wall to the West wall. Doing as much as we can with the rig in a given location makes the best use of our money.

Air conditioning openings are appurtenant to the unit...meaning it only serves the unit. Maintaining appurtenant fixtures is done at the expense of the unit owner. Some of the abandoned-in-place air conditioning openings have been previously closed while other in-use openings have been repaired. The majority still needs to be either closed or repaired. We will be assessing \$1,500 for each opening that has been abandoned-in-place and \$500 for each opening that is still in-use. The first air conditioner openings that were closed, on the East side of the building, were the most costly to close because we had a learning curve to find the best process. Because the cost of closing each opening is different from one to the next, and each closure benefits from the learned processes of previous closures, we think it is a reasonable approach to round down to assessed amounts to \$1,500 for closing an abandoned-in-place opening and \$500 for inspecting and repairing in-use opening.

We will be doing the assessment for previously completed work this week and will be assessing the remainder as work is completed. Attached is a spreadsheet of the assessment amounts. You will notice that no one on the first floor or six floor (with exception of myself) will have an assessment because they do not have air conditioner openings.

Please do not hesitate to call me, or any board member, if you have any questions. If anyone is interested, we have historical records of costs to work on the air conditioner openings available in the HOA office for your review.

Thank you for your continued support in the care and upkeep of our building,

Bill VanHeulen  
Forsyth Parkside HOA