



July 8, 2021

Erik Sydow, Project Manager
County of Riverside Facilities Management
3133 Mission Inn Avenue
Riverside, CA 92507

RE: County of Riverside – Riverside University Health System
Behavioral Health Franklin Repurposing Project
Assessment of Existing Building Condition
3021 Franklin Avenue, Riverside CA 92507

Dear Mr. Sydow,

STK Architecture, Inc. and consultants attended a site visit on 6/24/21 at the above property to observe and report on the exiting condition of the building. The following Firms / disciplines attended the site visit:

STK Architecture, Inc.
Design West Engineering (DWE)
Innovative Structural Engineering (ISE)
Big Mike's Plumbing Service

The County is planning a complete rehabilitation and repurposing of 3021 Franklin Ave. The existing building appears to be constructed in the 70's and was used for all different types of "B" Occupancies. The county wishes to convert it into a "R-2.1" Occupancy to house a new Behavioral Health Residential Facility. Prior to beginning the repurposing construction work the county wishes to obtain a current building condition assessment to help avoid unforeseen costs during construction. The following observations were made:

General Information:

The building appears to be concrete tilt up construction with a wood framed roof and floor structure. The building currently has fire sprinklers and fire alarm installed. The building is two stories for a total of 41,288 sf. The construction type is III-A. It appears to have been constructed in the early 80's. The HVAC system is a 4-pipe central plant with a gas fired boiler all in a rooftop penthouse.

STK Architecture Observation / Recommendations:

- Fire Sprinklers – The existing fire sprinklers appear to be functional but due to the major reconfiguration of the floor plan much of the internal sprinkler lines will have to be reconstructed to accommodate the new floor plan.

- Fire Alarm – The existing fire alarm is most likely original to the building and due to the change in occupancy classification will need to be updated to a system that meets code for an R2.1 occupancy. Not sure if the current system is functional.
- Smoke Control – Both floors will be required to have a smoke control system due to the change in occupancy classification.
- Roof – The roof consists of an asphalt built-up roofing system with a gravel ballast. Although the roof is not in terrible condition it is most likely the original roof and therefore past its reliable lifespan. No significant signs of roof leaking is observable. Recommend replacement with a new single liner such as PVC or TPO. (see attached photos #1-6)
- The existing roof drains and overflow drains are in poor condition and of poor design. The existing overflow system consists of a small hole thru the parapet approximately 8" higher than the roof drains. If the roof drains were to be blocked too much water would build up before the overflow drains will function. Recommend replacing drains with a rooftop drain and overflow system. (See photos #7 & 8)
- Elevator – The elevator is not currently functioning. Recommend repairs and ADA / safety updates to elevator and equipment. (See photo #9)
- Bank Vault – It appears that the building was once a bank in its former life as evidenced by an existing large vault. This should be considered and specified in the new demolition plans to avoid a change order. (See photo #10)
- ADA for both stairways – Both stairways and handrails will need to be updated to meet current accessibility codes. (See photo #11 & 12)

Big Mike's Plumbing Service:

- Observed sewer piping run with camera from furthest point of sewer starting at unisex restroom on first floor through clean out on wall. Sewer pipe is old cast iron with a lot of calcium build up and rust. This may catch toilet paper and cause stoppage in the future. (See photo #13-21)
 - Recommend descaling sewer line and shooting a new liner from restroom to restroom in the middle of the building where back-to-back restrooms are.
 - Recommend saw cutting floor in main restroom to replace all toilet drops and sink drops and connect into section of new 4" ABS that would be installed between shots of liner.
 - Recommend the installation of a new liner from restroom to outside of the building.
- Observed Clay sewer pipe where the sewer exits the building. The clay pipe has settled to the point that every clay joint has a lip on it to catch debris coming down the line.
 - Recommend that all of the 6" clay be descaled, and a new liner installed. New clean outs should be reinstalled.
- Observed that the water supply system is a mixture of copper and galvanized, mostly galvanized. All the galvanized piping is in poor condition with evidence of many repairs over the years.
 - Recommend replacing all domestic water lines from the incoming 2 ½" copper mainline through the exterior wall and into drop ceiling inside of the building.

Structural Engineer's Report:

- See attached report from Innovative Structural Engineering (ISE)

MPE Engineer's Report:

- See attached report from Design West Engineering (DWE)

Summary of ROM Costs:

- General building repairs
 - Roof replacement
 - Stairway updates
 - Elevator repair and updates
- HVAC
 - Chiller and Pumps -
 - Boiler and Pumps -
 - Cooling Tower and Pumps -
 - Controls -
- Plumbing
 - Approximately
- Electrical
 - Main Switchgear and associated panels and transformers -
 - Interior Lighting and Controls -
 - Exterior Lighting and Controls -
 - Fire Alarm System -
- Structural Repairs -

Thank you for the opportunity to assist on this project. Should you have any questions, please give us a call.

Sincerely,

Tony Finaldi, CFO
Architect, NCARB
LEED® AP



Photo #1 Existing Roof



Photo #2 Existing Roof



Photo #3 Existing Roof



Photo #4 Existing Roof



Photo #5 Existing Roof



Photo #6 – Old Roof Repair



Photo #7 Roof Drain – Note the overflow and screen.



Photo #8 Roof Drain – Note the overflow.



Photo #9 Elevator not functioning.



Photo #10 Bank Vault Door

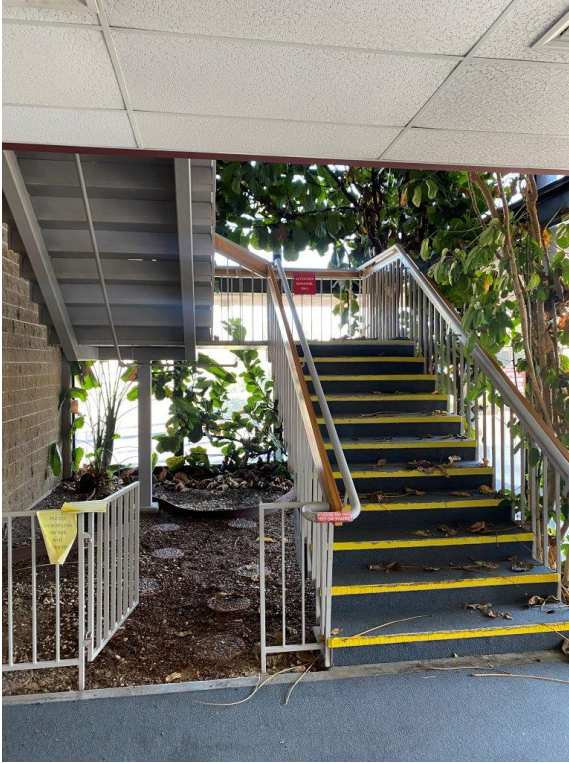


Photo #11 Atrium Stairs



Photo #12 Atrium Stairs



Photo #13 Clay pipe interior. Note separation at joint.

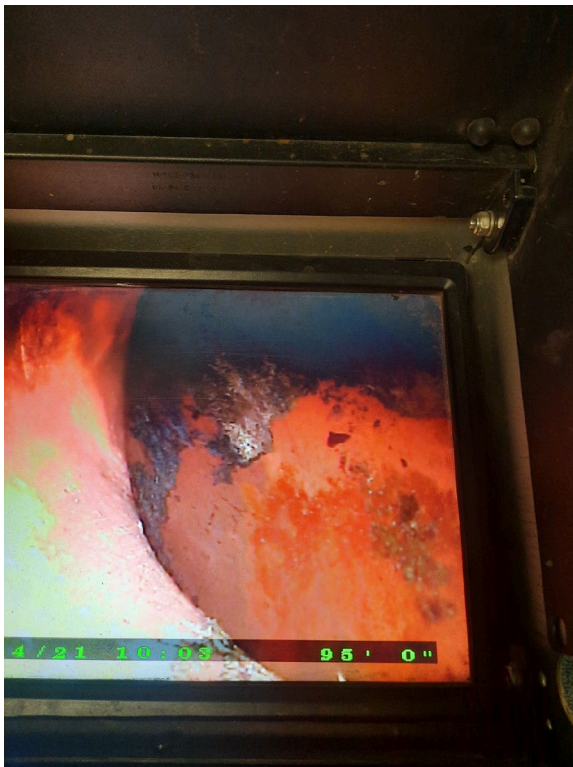


Photo #14 Clay pipe interior.

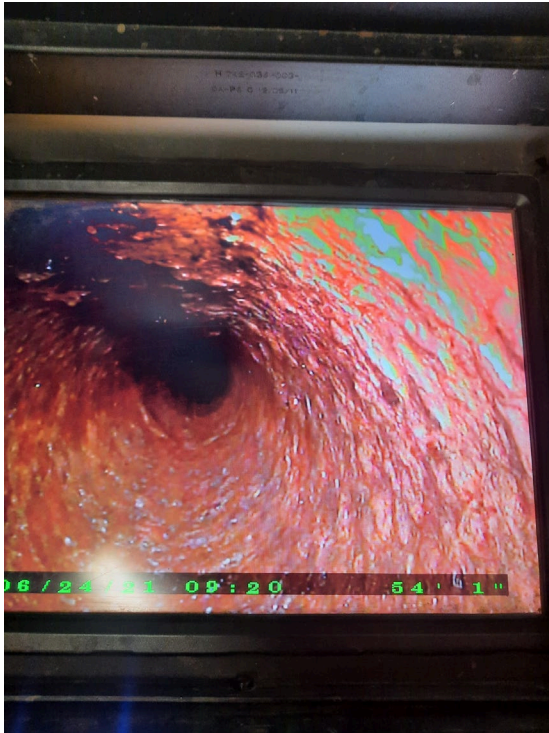


Photo #15 Cast iron pipe interior. Note rust and scale.

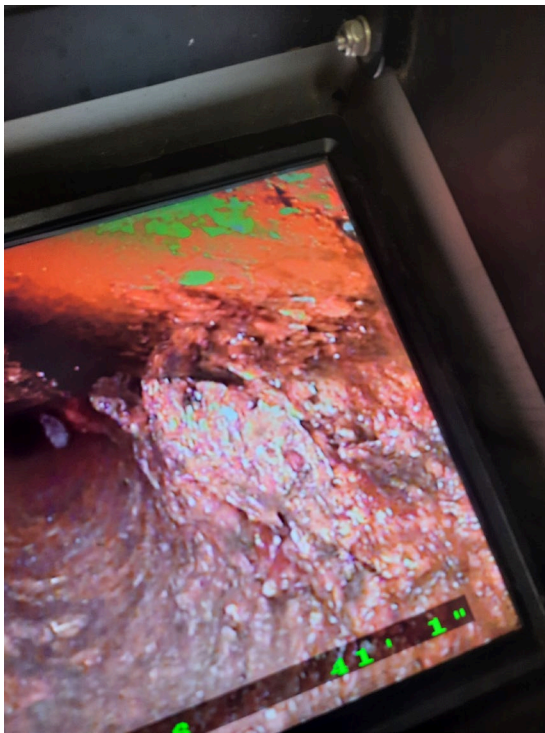


Photo #16 Cast iron pipe interior. Note rust and scale.



Photo #17 Cast iron pipe with minor corrosion at joint.



Photo #18 Cast iron pipe with some corrosion at joint.



Photo #19 Old repair joint between original galvanized pipe and newer copper pipe



Photo #20 Old galvanized pipe showing corrosion.

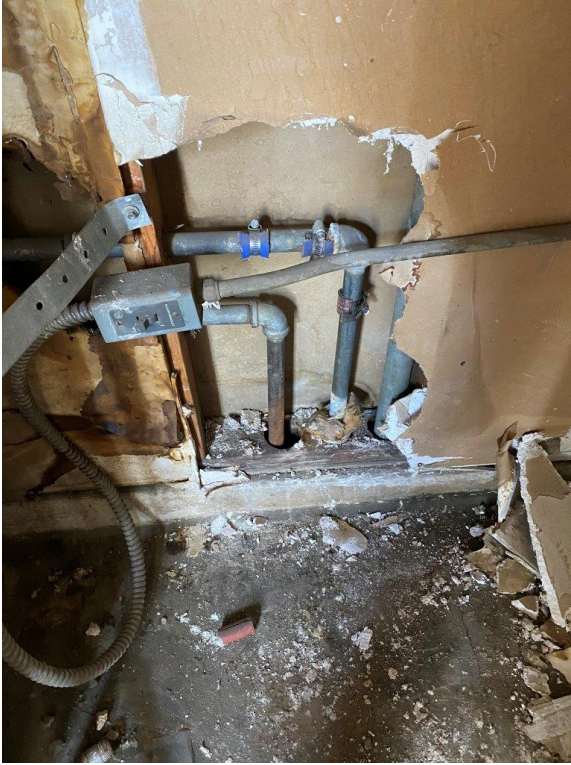


Photo #21 Galvanized pipe in mechanical penthouse note the temporary repairs with rubber hose and hose clamps.



Your Partners
in **Mechanical,**
Electrical,
Plumbing,
Commissioning,
Fire Protection,
Technology,
& **Energy.**

3021 Franklin Ave
MEP Building Assessment
7/6/2021

Prepared for:
STK Architects
42095 Zevo Drive
Temecula, CA 92590

Prepared by:
Design West Engineering
412 E. Vanderbilt Way
San Bernardino, CA 92408

Executive Summary

The purpose of this report is to describe and evaluate the existing mechanical, plumbing, fire alarm and electrical system for the building located at 3021 Franklin Ave, Riverside, CA. Design West Engineering (DWE) performed a site visit for the intent to review the buildings Core MEP systems for viability for a Future Tenant Improvement and to identify any deficiencies within the systems. Design West Engineering performed visual inspections only with the assistance of a plumbing contractor to provide a camera inspection of the existing sewer lines.



Mechanical Overview

HVAC Equipment

The building HVAC system is located on the roof for most equipment. The system is a 4-Pipe Chilled & Hot Water system with custom Air Handler units, Chiller, Cooling Tower, Boiler, Pumps and building exhaust fans. There is also three condensing units located on the roof for dedicated split systems for a dedicated space within the building. The roof also contained two low temperature refrigerant condensing units that would serve a large capacity refrigerator or freezer.

Equipment

Cooling Tower – BAC VFL-484-M. Overall, the unit appears to be in decent shape for its age. The unit appears to be approximately 10 to 15 years of operation. The existing tubes are showing signs of scaling, plastic grates are also showing signs of scaling.

Chiller – Trane CGWCD101RHNKK623PT. The unit was not able to operate at the time of the site visit from what we were told was a control issue. The unit appears to be aged and utilizes R-22 refrigerant. R-22 refrigerant has been phased out from production and should the unit require repairs, the cost of refrigerant will continue to increase in cost due to limited supply availability. It is recommended that the chiller should be budgeted for replacement.

Air Handler – (2) Temtrol DHR36PG custom units that have 20 HP supply fan motors and 5 HP return fan motors. The filters were clean, the coils appear to be in decent shape and the units have been installed with Bioclimatic Purification System to clean the air. The OSA and Exhaust dampers might not be functioning correctly at the time of the site visit causing the pressure gauge on AHU #1 to read excessive pressure. OSA damper and exhaust dampers appeared to be closed. Ductwork from the AHU's within the mechanical room appear to be in decent shape. There are Danfoss VFD's mounted on the wall for each AHU that appear to control the supply fan motor to serve the VAV boxes that are located within the occupied space.

Pumps – (1) Condenser Water pump and (1) Chilled water pump. Both pumps were manufactured by Bell & Gossett and are 7.5 HP base mounted end suction pumps that appeared to be aged along with the other equipment within the space. There is only a single pump for each system.

Building Exhaust Fan – Cook 210 CPV Utility Set exhaust fan. This exhaust fan appears to be utilized to maintain building pressure within the space. The exhaust fan appears to be in decent shape, no major signs of defect.

Roof Mounted Exhaust Fans – (2) Jenn Air down blast exhaust fans that are typically utilized for restrooms. The exhaust fans appear to be aged, but did not show any major signs of defect.

Boiler – Rite 550,000 BTU/H input gas fired boiler that is not operational. The gas connection to the unit is capped off. The unit appears to be past its life expectancy and should be replaced. With the gas shut off to the unit, it appears that the building does not have a means to provide heating to the space.



Boiler Pump – Bell & Gossett 2 HP base mounted end suction pump that appears to be aged and only a single pump for the heating hot water system.

Outdoor Condensing Units – (3) Carrier units that appear to be less than 2 Tons in capacity each that are utilized for spot cooling within the building or IT rooms. The units are aged and should be replaced.

Building Occupied Space, Controls / Air Compressor – Ingersoll Rand 2-2E403, unit is provided for the pneumatic controls for the building. The unit appears to be in ok shape, was not in operation at the time of the site visit. The building space temperature is controlled via pneumatic thermostats. It was observed that the VAV boxes have 3-Way pneumatic control valves and a portion of the 2nd floor has a return air plenum. The building has combustible material within the plenum, thus this plenum space shall not be utilized as a return air plenum and return ductwork would need to be added as part of the tenant improvement. The main supply ductwork appears to be in decent shape and can be utilized if desired. It would be recommended that the ductwork is cleaned.

Recommendation

The existing control system should be upgraded to a DDC electronic type such that the old pneumatic system and equipment should be replaced. This will provide increased control, increased trouble shooting of failed systems and increased energy efficiency for the building. The Chiller, Boiler, Cooling Tower and associated pumps shall be replaced and brought back into operation. With the Chiller utilizing R-22 refrigerant it could become cost prohibitive in the future to maintain the refrigerant charge. It is also recommended that the each piping system is provided with two pumps as pumps are a common point of failure. When either the condenser water or chilled water pump fails, the entire cooling system will be down will not be able to provide the required comfort cooling for the entire building. The current boiler is not operational and shall be replaced and restored to operation such that the building will be provided with the necessary heating to the occupied space.

The AHU's for the building did not show major signs of defect and should be able to be utilized for the tenant improvement. The existing damper operation should be investigated to ensure that the OSA and relief for the system is operating as intended. Prior to any demolition within the occupied space, an air test reading shall be done to understand the starting point of available supply air to the space prior to any tenant improvement.

The estimated Raw Order of Magnitude cost for the replacement of the HVAC system will be as follows:

- Chiller and Pumps -
- Boiler and Pumps -
- Cooling Tower and Pumps -
- Controls - depending on complexity and type. Should be confirmed by a controls contractor



Plumbing Overview

Plumbing System

The plumbing system was observed via a camera system by the plumbing contractor to determine the state of the existing waste lines within the building. It was observed that the existing sewer piping is constructed of cast iron pipe that is showing signs of excess calcium build up and rust. This may catch suspended solids and could cause stoppages within the piping system in the future. As the sewer line exits the building the pipe material changes to Clay type pipe and the pipe has settled such that the joints have a lip that can catch suspended solids and is another potential point of blockage. Within the restrooms there were observed locations of waste piping being replaced in small sections with ABS piping.

The building is supplied with 2-1/2" domestic cold water line that is copper on the exterior of the building and the interior of the building is a mixture of copper and galvanized steel. Majority of the interior of the building is galvanized steel piping which is in poor condition and is showing signs of leaks and major repairs over the years.

There is a 75 Gallon Bradford White Water heater that is located within the boiler room on the roof that is for the domestic hot water to the building. This unit appears to be aged and should be replaced.

Recommendation

Should the building tenant improvement include restroom remodel or upgrades, it would be recommended that the existing waste lines within the restroom be replaced with new ABS / DWV PVC plastic piping. The existing waste line that would remain should be descaled and possibly add a PVC liner to decrease the roughness of the pipe and allow for a better flow within the pipe. The exterior Clay pipe shall have a similar treatment along with additional exterior cleanouts to increase the access points to the plumbing systems for future repairs.

All existing galvanized cold water piping within the building should be replaced with a more durable piping material such as copper.

It is estimated that the Raw Order of Magnitude cost of the plumbing repairs to be approximately for the building repairs.



Electrical Overview

Main Service

The existing main electrical service is rated 277/480V 3Phase 4W rated at 1200Amps. The switchgear is aged and looks to be original to the building. The switchgear has exceed its life expectancy and should be considered for replacement. The switchboard has a large transformer that is currently buss tapped by manufacturer in order to provide 120/208V 3P 4W power to the building. The size of the transformer is unknown as there is no label attached to it. The electrical room is completely full with no more room to add panels in the same area. This could be a concern as time goes by and equipment starts to get added to the system. The electrical service is fed by pole mounted utility transformers that are also aged and should be replaced by the utility company when the building is occupied.



Main Switchboard



Transformer attached to Switchgear



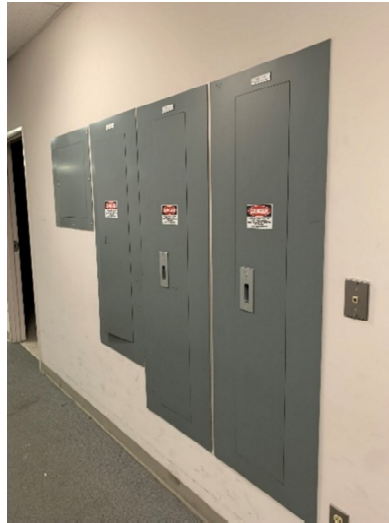
Utility Transformers on Pole

Panelboards

The remainder of the building has multiple panels installed. The same issues are presented as the switchgear. Some of the panels are old and need replacement, while other are newer and can be reused. Most panels are completely full with some panels having very limited spaces available for expansion. Circuit breakers for the older panels are not easy to come by and replacement circuit breakers have been installed that do not match the panel. Although this is not a code violation, the circuit breakers don't quite fit in the spaces allocated for the circuit breakers. There are also some load centers located within the building. Load centers are cheaper residential style forms of panelboards. These do not hold up very well in commercial areas and tend to have issues. Although they are not old, they should be replaced with commercial style panelboards.



Older Panelboards and Xfmr



Newer Panelboards

Offices Spaces and Common Areas

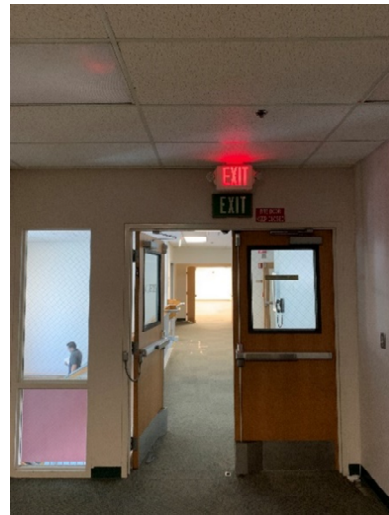
The building is fed out of common panels in the hallways and electrical rooms. The existing lighting fixtures are mainly ceiling recessed fixtures with fluorescent lamps, with a mixture of some surface mounted fluorescent fixtures. Although the lighting is not original to building, they are still at least a generation old and should be replaced. Emergency lighting is fed from multiple sources such as internal battery backup and emergency only fixtures (bugeyes). These systems seem to be in compliance for the most part, but the fixtures are aged and should be replaced. Exit signs for the most part are in correct locations but some do not work, and others are showing their age and should be replaced.



Typical lighting



Typical lighting in Corridors



Typical Exit Sign and Emergency Light

Site Lighting

The existing site lighting parking lot fixtures are pole mounted with HID style lamps. These fixtures appear to be original to the building and should be replaced. Building lights are also HID style fixtures and are severely aged. These fixtures will need to be replaced and some appear not be in working condition. Existing lighting controls are not T24 compliant and need to be replaced.



Typical light fixture in Parking Area



Typical light fixture on Building

Fire Alarm

The existing fire alarm system is old and looks to be original to the building. Over the years it appears that the main control panel has been modified to meet current standards but upgrades are no longer feasible and should be replaced. Some of the fire alarm devices are newer than others and could possibly be reused with a new system, but in general the entire system should be replaced.



Existing Main Fire Alarm Panel

Upgrade Strategy

Electrical

It is recommended that the main electrical switchboard and any transformer and panelboard older than 15 years be replaced. The main switchboard is not in ideal condition to be reconditioned and with older style circuit breakers you cannot get any new ones. Ideally the electrical room would need to be re-designed in order to properly fit and install all the required switchgear for its currently condition and future use. Currently the electrical room meets minimum requirements for the installation of the switchgear, but adding any future panels is not possible. Would also advise to do some circuit tracing and verify all the loads coming off from each panel is accurate. New accurate panel schedules would be provided for each panelboard so that it makes it easier for maintenance to shut loads off.

Lighting

The existing lighting should be replaced with new energy efficient LED fixtures. All new fixtures would greatly increase the quality of lighting and also reduce the energy consumption by approx. 30%. By replacing the fixtures, the facility will need to comply with current 2016 California Energy Code requirements. This would mean that all spaces would need dimming and auto shutoff. This can be easily accomplished by replacing all the existing wall switches with a combination occupancy sensor/dimming switch. Any space that does not require dimming would just have an occupancy sensor. By adding the sensors and dimming options, this would also decrease the energy consumption significantly. Also, certain spaces would require day-light control, these spaces will need further controls to meet current requirements. Controls can be accomplished with stand alone systems or in some cases the controls can be installed within the fixtures to minimize additional systems.

It is also recommended that all site lighting be replaced, this includes the parking lot and building lights. New fixtures should be LED energy efficient type. Exterior fixtures mounted under 24' shall have integral occupancy sensors per T24 requirements. New lighting controls for overall control of exterior fixtures will also need to be installed.

Fire Alarm

It is recommended that a new addressable fire alarm system with full voice evacuation replace the existing obsolete system. Audible and visual notification to meet all current California Fire Code and NFPA 72 intelligibility requirements. New system shall be California State Fire Marshall approved and shall work in conjunction with the elevator controller for all required elevator recall functions.

Raw Order of Magnitude

The estimated Raw Order of Magnitude cost for the replacement of the Electrical systems will be as follows:

- Main Switchgear and associated panels and transformers -
- Interior Lighting and Controls -
- Exterior Lighting and Controls -
- Fire Alarm System -





July 2, 2021,

Mr. Tony Finaldi
STK Architecture, Inc.
42095 Zevo Drive, Suite A15
Temecula, CA 92590
951.296.9110

RE: 3021 Franklin St.
Riverside, CA 92507
ISE Project No.: 21-7215

Dear Mr. Finaldi,

It was a pleasure meeting with you and the project team on site on June 24, 2021, to examine the structural integrity of the proposed Transitional Re-entry Facility in Riverside. At the site visit, representatives of Innovative Structural Engineer (ISE), Sandy Fong and Purevdulam Enkhbat, performed a visual observation of the existing building at 3021 Franklin St., Riverside, CA. No demo work was performed to uncover any structural elements that was not easily accessible.

The existing structure is roughly a 180' x 120' two story building with first and second floor common areas and office spaces. The building is a post and beam structure with exterior masonry walls on the East side and concrete tilt up walls on the North, South, and West sides. The gravity system is comprised of wood joists and beams with steel girders for the roof and second floor framing supported by steel interior columns and exterior concrete and masonry walls. The lateral force resisting system is comprised of exterior reinforced concrete shear walls and reinforced masonry shear walls.

In addition, there is a mechanical penthouse on top of the roof that is framed with wood joist and steel beam support by steel columns. The foundation is concrete slab on grade with concrete continuous footings and mat footings. The foundation was not able to be observed due to it being covered by flooring; however, while walking through the first floor no unevenness in the concrete foundation slab was felt.

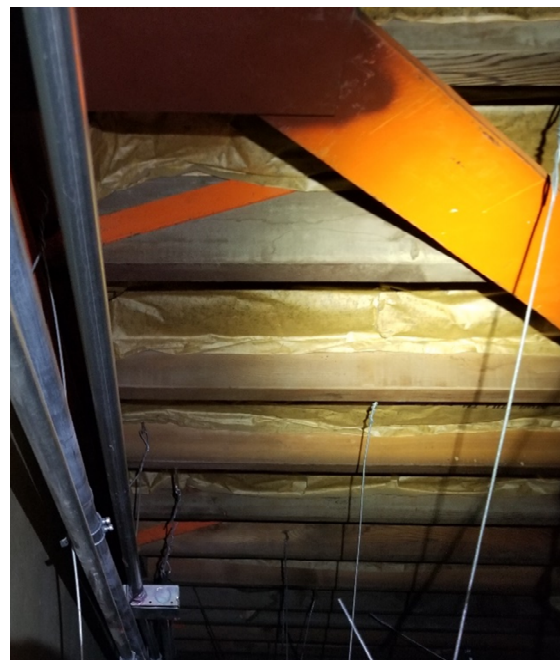
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Denver, CO

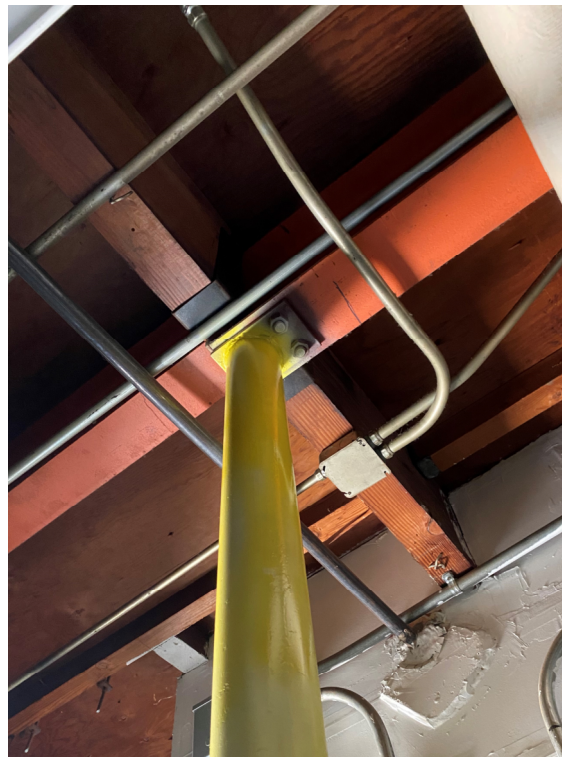
Please refer to photos taken during the site visit below on page 2 and 3, which illustrate the existing structural system.



Figures 1&2: Roof/Floor framing: steel post and girder with wood beam



Figures 3&4: Roof/Floor framing: diaphragm bracing and wall anchorage



Figures 5&6: Mechanical building: steel post and girder framing

Findings:

In our professional opinion, the building is structurally sound and not in need of any major repairs. Below is a list of the structural deficiencies we were able to observe.

First, a beam section by the roof access entry was partially cut, most likely for head room clearance. Please refer to *Figure 7* for observation. Further analysis needs to be performed to determine if the reduced section is acceptable. The beam may need to be strengthened or replaced. The roof and second floor framing were only observed at a few locations and at the locations that were observed, no other damage to the joist and beams was visible.

Secondly, there are some cracks in the masonry and concrete walls. The cracks vary in length but all of them appear to be less than 1/8 inch wide. Please refer to *Figure 8-10* for observation. The cracks are likely due to material shrinkage and/or temperature changes. The cracks do reduce some of the capacity in the lateral force resisting system and gravity system however from visual inspection we believe there is enough redundancy in the number of walls that the structural system is still structurally adequate. Structural repair to the exterior concrete and masonry walls is not required at this time.

Third, no definable lateral force resisting system was observed in the mechanical penthouse. Any changes that would require the building to be brought up to date to current building code standards would require a lateral force resisting system, such as brace frames, to be installed.



Figure 7: Cut out beam section

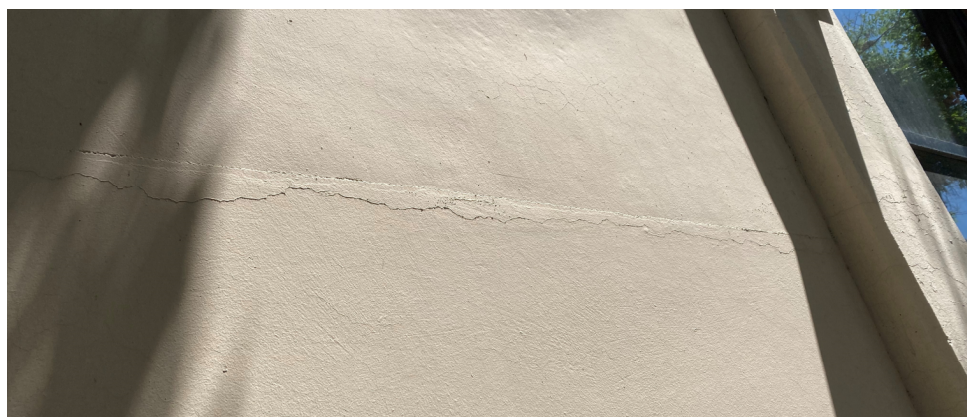


Figure 8: Crack on the exterior concrete wall



Figures 9&10: Cracks on the masonry and concrete wall

If you have any questions or concerns, please do not hesitate to contact us.



A handwritten signature in blue ink, appearing to read "Sandy Fong", with a long horizontal flourish extending to the right.

Sandy Fong, PE
California Civil Engineer, License # C83965
Project Engineer