

September 7, 2018

CLIENT: 4090 Falcon Street HOA

SUBJECT: Professional Service
File #180907AST
Limited Evaluation of Foundation Soundness
4090 Falcon Street Units A1, B1, C1, D1, & E1
San Diego, California 92103

Dear Client:

In accordance with the Professional Engineering Services Contract between you and SD Engineering, SD Engineering conducted a visual examination of the above property on September 7, 2018. The specific purpose of this examination was to evaluate the condition of the foundation.

This evaluation report incorporates by reference, as though fully set forth herein, a copy of the SD Engineering contract with you. This report is based upon all of the contractual provisions stated therein, and we remind you, among other things, that this report is solely to benefit you, and no third parties. This report is not to be relied upon by any other parties.

A Report of Limited Geotechnical Performance Evaluation regarding this property prepared by Geotechnical Exploration Inc and dated November 18, 2002 was provided for review. The contents of that report were relied upon in preparing this report.

The building is a two story multi-family structure with stucco siding. The building is approximately 50 to 55 years old. For the purpose of this report it is assumed that the front door of Unit A1 faces north, the front doors of Units B1, C1, and D1 face east, and the front door of Unit E1 faces south. The building is "C" shaped with Unit A1 located in the southeast portion of the building, Units B1, C1, and D1 located in the west portion of the building, and Unit E1 located in the northeast portion of the building. Unit C1 is located north of Unit B1 and south of Unit D1.

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The building is situated on a flat lot that slopes down at the east side, down steeply at the north side, and up at the south and west sides. The configuration of the lot indicates that there may be fill soil present underneath the foundation, especially at the north side of the building. The Geotechnical Exploration Inc report confirms the presence of fill soils. This evaluation is limited to the foundation and features of the building likely to exhibit symptoms of possible foundation movement. The interiors of the upstairs dwellings were not examined and no representations are made regarding the condition of the interiors of the upstairs dwellings. The examined dwellings were furnished at the time of the evaluation, precluding examination of some portions of the dwellings.

FINDINGS & OPINIONS

The concrete flatwork adjacent to the perimeter of the building was examined and is in satisfactory condition with only minor and hairline cracks. Gutters are present around the building and are in serviceable condition. The downspouts discharge to underground drains. The downspout located at the southeast corner of the building was noted to be crushed and should be properly replaced. Area drain inlets were observed in places around the property to aid in drainage. It is beyond the scope of this evaluation to determine the condition of the area drains and underground drainage system. Weep holes were observed to aid in drainage along the bases of the patio area privacy walls located at the north side of the Unit A1 and at the south side of Unit E1. There is an automatic sump pump present outside on the northwest portion of the lot. The sump pump was not tested and it is beyond the scope of this evaluation to determine if the sump pump is functioning properly. Maintaining the drainage to limit the opportunity for water to run or pond near the foundation, and thereby infiltrate the soils underneath the foundation, should reduce the probability of future movement of the foundation.

The stucco siding covering the exterior of the building was examined for significant cracking. There are mostly hairline cracks noted in the stucco which are typical for this type of material. There are cracks in the stucco at the following locations which are apparently caused by some movement of the foundation:

- There are diagonal cracks approximately 1/8 inch in width at the west side of Unit A1 near the junction with the patio area privacy wall. These cracks taper to hairline at their south ends. One of these cracks continues diagonally across the

west portion of the north side of the unit. These cracks are apparently caused by some movement of the privacy wall foundation.

- There is a diagonal crack approximately 1/8 inch in width in the stucco covering the west side of the Unit E1 privacy wall near the junction with the southeast corner of the dwelling. This crack is apparently caused by some movement of the privacy wall foundation.
- There are cracks approximately 1/16 inch or less in width in the stucco covering the east side of Unit B1 to the lower left and upper right of the kitchen window.
- There is a crack approximately 1/16 inch or less in width in the stucco covering the east side of Unit C1 to the lower left of the living room window.
- There is a crack approximately 1/16 inch in width in the stucco covering the west wall of Unit A2 to the upper left of the front door.
- There is a crack approximately 1/16 inch in width in the stucco to the upper right of the door for the upstairs storage area located above the water heater room.
- There is a crack approximately 1/16 inch in width in the stucco covering the south side of the building to the upper left and lower right of the water heater room window.
- There is a crack approximately 1/16 inch or less in width in the stucco covering the south side of the building to the lower right of Unit B1 living room window.

Outside at the west side of the Unit A1 patio area there is a horizontal gap approximately 1/8 inch in height between the Unit A1 patio area privacy site wall concrete foundation and the wood framing located above this foundation. Outside at the west side of the Unit E1 patio area there is also a horizontal gap approximately 1/16 inch in height in the stucco between the Unit E1 patio area privacy site wall concrete foundation and the wood framing located above this foundation. These gaps are apparently caused by some movement of the privacy wall foundations.

The ceilings and walls throughout Units A1, B1, C1, D1, & E1 were examined for significant cracking. No significant cracks were observed in Units B1, D1, and E1. There is a zigzag type crack approximately 1/16 inch in width extending across the upper and south portions of the Unit A1 living room west wall. The drywall tape has

also pulled in the Unit A1 living room northwest and southwest corners. These conditions are apparently caused by some movement of the Unit A1 patio area privacy wall foundation. There is also a zigzag type crack approximately 1/16 to 1/8 inch in width extending along the upper and west portions of the Unit C1 living room south wall. Hairline vertical cracks were also noted in the Unit C1 living room east wall above the south portion of the front door and in the entryway north wall near the front door. These cracks are apparently caused by some movement of the foundation.

There are floor height variations in the Unit A1, C1, and D1 wood framed floors. These conditions are probably caused by the common sagging of the wood floor joists and wood sub-flooring.

The doors and door frames in Units A1, B1, C1, D1, & E1 were examined for fit and squareness. The following conditions were noted and are caused by the door frames being out of square, apparently because of some movement of the foundation :

- In Unit A1 the door between the powder room and office leaves a gap at the top when closed.
- In Unit B1 the front door and the secondary leaf of the master bedroom double doors to the outside leave a gap at the top when closed.
- In Unit C1 the front door and the door between the powder room and secondary bedroom rub on the tops of the door frames and are in need of planing. The master bedroom door and the secondary bedroom door to the outside have been planed at the top to fit the door frames.
- In Unit D1 the front door leaves a gap at the top when closed and the bedroom door has been planed at the top to fit the door frame.
- In Unit E1 the front door rubs on the top of the door frame and is in need of planing.

A floor level survey of this property prepared by Dakini Engineering General Contracting and dated November 1, 2005 was provided for review. The contents of that survey were used to make comparisons to the current floor level survey as described below. We used a manometer to perform new independent random floor level surveys on Units A1, B1, C1, D1, & E1 to determine the amount of any differential settlement or movement which has occurred subsequent to the Dakini Engineering General Contracting 2005 floor level survey. The levelness of the floors at the time of

construction is not known, however, the average amount of variation for concrete slab-on-grade type buildings is normally approximately 3/4 inch.

The variation of the Unit A1 floor level was determined to be approximately 3.8 inches. The highest point measured is along the east side of the dwelling in the northeast corner of the dining room and the lowest point measured is in the northwest corner of the dwelling. In 2005 the variation of Unit A1 was determined to be approximately 3 inches. It appears that the dwelling has settled approximately 0.8 inches with the northwest portion of the dwelling settling the most. This settlement appears to be caused by some movement of the foundation.

The variation of the Unit B1 floor level was determined to be approximately 1.5 inches. The highest point measured is in the northwest corner of the dwelling and the lowest point measured is in the southwest corner of the dwelling. In 2005 the variation of Unit B1 was determined to be approximately 1.3 inches. This slight change in overall variation is not considered to be significant.

The variation of the Unit C1 floor level was determined to be approximately 1.5 inches. The highest point measured is in the northeast corner of the master bedroom and the lowest point measured is along the west side of the dwelling in the southwest corner of the secondary bedroom. In 2005 the variation of Unit C1 was determined to be approximately 1.2 inches. This slight change in overall variation is not considered to be significant.

The variation of the Unit D1 floor level was determined to be approximately 1.5 inches. The highest point measured is along the north side of the dwelling in the northwest corner of the living room and the lowest point measured is along the west side of the dwelling in the northwest corner of the office. In 2005 the variation of Unit D1 was determined to be approximately 1.5 inches. This variation is identical to the variation measured during the previous survey described above.

The variation of the Unit E1 floor level was determined to be approximately 1.2 inches. The highest point measured is along the east side of the dwelling in the southeast corner of the dining room and the lowest point measured is along the north side of the dwelling in the northwest corner of the office. In 2005 the variation of Unit E1 was determined to be approximately 1.3 inches. This variation is nearly identical to the variation measured during the previous survey described above.

According to the Geotechnical Exploration Inc report referenced above the foundation consists of perimeter and interior concrete grade beams supported by concrete caissons. Our examination of the foundation system indicated, however, that portions

of the building may be supported by conventional footings/foundation walls rather than by caissons. The portions of the grade beams/foundation walls visible around the outside of the building were examined for possible cracks. The visible portions of the grade beams/foundation walls appear to be in satisfactory condition with only hairline cracks noted. Portions of the grade beams/foundation walls are inaccessible because of flatwork, storage, and/or vegetation and could not be examined.

The foundation includes several crawl spaces. There is a crawl space access hatch present outside at the north side of Unit E1. The remainder of the crawl space access hatches are in the floors of the dwellings in the living rooms and/or closets. Access could not be located for the south half of the crawl space underneath Unit A1 and for the west half of the crawl space underneath Unit B1.

The crawl spaces were entered and examined. The northwest portion of the foundation underneath Unit D1 is inaccessible because of ductwork and could not be examined. The soil in the crawl spaces underneath Units A1, B1, and C1 has receded laterally and vertically and there are voids present along the edges of the grade beams/foundation walls as much as 12 inches in width and as much as 18 inches in height. Numerous perimeter and interior grade beams/foundation walls were noted to have been installed on the surface of the soil and there are no footings present in numerous locations. There are what appear to be large pad footings or shallow caissons present in places and voids as much as 12 inches in height were noted underneath these footings/caissons. This condition causes a loss of proper support for the foundation walls and is referred to as "undermining". The soil adjacent to and underneath one of the east/west interior grade beams/foundation walls located in the west half of the Unit C1 crawl space and the soil underneath the west portion of the Unit E1 north grade beam/foundation wall has been removed, apparently by excavation of the plumbing in these locations. As described above these conditions cause a loss of proper support for the soil underneath foundation walls.

There is a horizontal crack approximately 1/16 inch in width and approximately 2 feet in length in the grade beam/foundation wall located underneath the north portion of the west side of Unit A1. This crack is apparently caused by the reinforcing steel being located too close to the surface of the concrete. The foundation becomes wet and the moisture penetrates the concrete to the steel. The moist steel then rusts and expands producing the horizontal cracking. This process can be accelerated by the presence of certain additives or contaminants in the concrete.

The interior grade beams/foundation walls which extend east/west across the crawl spaces are not in contact with the floor framing. These grade beams/foundation walls appear to provide only lateral support for the grade beams/foundation walls

extending north/south. Bricks and what appears to be cement grout or mortar have been previously installed on top of the west portion of the east/west interior grade beam/foundation wall located underneath the Unit C1 living room south wall. There is a tapered crack in the west portion of this foundation wall approximately 1/8 inch in width at the top and approximately hairline at the bottom. There is also a tapered crack in the east portion of this grade beam/foundation wall approximately 1/8 inch in width at the bottom and hairline at the top. These tapered cracks are apparently caused by some settlement of the west portion of the foundation. Because of the presence of the bricks and grout/mortar above the west portion of this beam/wall, the vertical movement has apparently "pushed" the bricks and grout/mortar upward into the underside of the floor framing located underneath the Unit C1 living room south wall where the zigzag type cracks were noted and described above.

There is a tapered crack in the south portion of the grade beam/foundation wall located underneath the south portion of the west side of Unit E1 near the southwest corner of the crawl space. This crack is approximately 1/16 inch in width at the top and hairline at the bottom.

The sill plates are fastened to the tops of the grade beams/foundation walls with anchor bolts, this is proper.

The soil in the majority of the crawl spaces was dry at the time of the evaluation, however, the soil in the crawl space underneath the water heater was wet. This conditions is reportedly caused by a prolonged water heater leak, which was recently discovered and repaired. Maintaining the drainage to limit the opportunity for water to run or pond near the foundation, and thereby infiltrate the soils underneath the foundation, should reduce the probability of future movement of the foundation.

There is a large tree growing relatively close to the foundation near the southwest corner of the building. This tree does not appear to have damaged the foundation, however, limiting the type and size of vegetation allowed to grow near the foundation should reduce the probability of future root related movement of the foundation.

The building appears to have experienced some structural distress as evidenced by the above findings. The structural distress observed is apparently the result of movement/settlement of the soil and/or of the recently discovered prolonged water heater leak. SD Engineering limits its activities to determining the condition of the foundation and to the design of relatively straightforward repairs, usually not requiring subsurface investigation or soil testing. Further evaluation of the property and design of appropriate repairs for the building foundation system will probably require soil testing.

RECOMMENDATIONS

As pointed out above, determining the likely cause or causes for the apparent soil movement/settlement and evaluating the potential for future movement of the soil and of the building foundation system will require a subsurface soils investigation. SD Engineering will, if desired, provide detailed repair recommendations for the building foundation system after the completion of a sub-surface soils investigation, provided that installing pipe piles or deepened footing are deemed appropriate. SD Engineering limits its services to designing these types of repairs. Should the subsurface soils investigation determine that a more extensive type of foundation repair/soil stabilization is required, such as installation of reinforced concrete caissons, it will be necessary that an engineering firm providing a broader range of services be retained to further evaluate the condition of the property and to provide detailed repair recommendations.

The Unit A1 patio area privacy wall foundation should be repaired as specified in Appendix A, provided that a favorable subsurface soils investigation report is obtained. The recommended repairs include the installation of pipe piles to provide additional support. The use of pipe piles is considered to be appropriate only if there is no significant risk of lateral movement of the soils supporting the foundation. The use of the recommended repair methods is subject to our review and approval of a subsurface soils investigation report prepared by a registered Geotechnical Engineer or Engineering Geologist which indicates that the use of pipe piles is appropriate for this site. The results of the geotechnical investigation may indicate that pipe piles are not appropriate or that another repair method may be preferable.

Appendix A also includes recommendations for minor repairs to the building foundation system. The Client is advised that performing the recommended repairs will not significantly improve the ability of the foundation to resist forces which may be applied by future movement of the underlying soils.

Special inspection requirements are addressed in Appendix B.

The Unit E1 patio area privacy wall should be monitored for additional movement. Should additional movement occur, this privacy wall may require repair in the future.

The crushed gutter downspout located at the southeast corner of the should be properly replaced.

Any doors which rub or bind may be planed in order to improve their fit. When planing a door, sufficient space should be created between the door and the frame to allow for normal swelling and shrinking of the wood. It is recommended that the top and bottom edges of the doors be painted or sealed to minimize the absorption of moisture.

The building should be periodically examined for signs of distress which might be caused by the roots of the large tree growing relatively close to the foundation near the southwest corner of the building and the tree removed and the roots killed if necessary.

Keeping water away from the foundation is essential to reducing the probability of future movement of the foundation. Maintenance recommendations to assist in keeping water away from the foundation are provided in Appendix C.

FOLLOW-UP SERVICES

Our fee for designing pipe pile or deepened footing type repairs for portions of the building foundation will be \$450.00. This fee is in addition to the fee for the original evaluation and is due upon delivery of the repair recommendations.

SD Engineering offers to provide certification of the repair work, if desired. The Client is advised that certification of repairs, as defined in the Professional Engineers Act, Section 6735.5 of the California Business and Professions Code, constitutes an expression of professional opinion and does not constitute a warranty or guarantee, either expressed or implied. To enable us to prepare a certification report it will be necessary for us to observe the work in progress from time to time and to observe the final product. Although these periodic observations will provide some assurance that the work is being accomplished in accordance with our recommendations and accepted construction practices, proper accomplishment of the work requires continuous supervision and is ultimately the responsibility of the contractor performing the repairs. Therefore, any warranties or guarantees regarding the project are to be provided by the party performing the work.

Our fee for periodically observing the progress of the repair work recommended in Appendix A and providing a written certification report is \$425.00. Acceptance and use of these recommendations shall be deemed to constitute agreement with this fee. This fee is in addition to the fee for the original evaluation and is due at the time of

the final site visit. Any site visits in addition to the two planned site visits described below shall be billed to you at a basic rate of \$200.00 each. This quote is available only to the above named Client. Extension of this quote to another Client is at the option of SD Engineering and would require the new Client to execute a separate services contract.

Observation of the work will be required at the following points during the project:

1. Observe the progress of the repair work after the pipe piles have been driven and tested and the steel spacers installed. The reinforcing steel for the grade beam should be installed prior to this site visit so that the grade beam rebar may be observed along with the pipe piles. The new concrete should not be installed until after this site visit.
2. After completion of all repairs observe the completed repair work and provide a written report. The recommended site improvements should be completed prior to the final site visit if it is desired that we certify the site improvements along with the repairs.
3. At any time that the contractor requests on-site review of the project for clarification of project requirements.

Providing additional information which may be required in order to obtain a building permit is not within the scope of our initial evaluation. Assistance in meeting permit requirements directly related to our design is available on an hourly basis. The fee for these services is \$120.00 per hour.

CLOSING

The Client is reminded that the opinions and recommendations provided in this report are based upon a limited visual evaluation of structural soundness without the benefit of a current geotechnical investigation and that SD Engineering makes no representations or guarantees regarding future performance of the property. Remedial measures which may be recommended cannot guarantee that future movement of the foundation will not occur.

The Client is advised that raised foundation buildings such as this one are more flexible than slab-on-grade buildings and that nuisance/cosmetic symptoms of minor foundation movement, such as cracking of the ceilings and walls and out of squareness of the door frames, may appear in the future.

The Client is reminded that particular attention should be given to maintaining proper drainage as recommended in Appendix C.

It is recommended that this Company be retained to re-evaluate the building should any visible signs of distress appear.

SD Engineering does not routinely provide litigation support and has not prepared a Curriculum Vitae to establish expert status, however, we are available to testify in the event of litigation regarding the contents of this report. Our fee for such services is \$200.00 per hour with a four hour minimum. The fee is doubled for time spent giving testimony.

We remind you that this entire report incorporates by reference, as though set forth fully herein, all of the provisions of the contract between SD Engineering and you. It is thus necessary, should you have any questions regarding the scope of SD Engineering's services and responsibilities, that you consult the subject contract. A blank copy of the contract is attached to this report for reference.

We appreciate this opportunity to be of professional service to you in this matter. Should any questions arise or should you desire to retain SD Engineering to observe the progress of the repair work and certify the completed repairs please feel free to contact our office.

Prepared by,

Trent M Burdeno

Trent M. Burdeno
B.S.C.E., R.C.E.

Reviewed by,

Gary N Sniffin

Gary N. Sniffin
B.S.M.E., R.C.E.

The Stamping and signing of this document indicates that the engineer of record has approved the findings, conclusions, and recommendations and does not indicate the approval of the local Building Official. Obtaining any necessary building permits is the responsibility of the property owner.

9/7/18



APPENDIX A

FOUNDATION REPAIR SPECIFICATION

4090 Falcon Street Units A1, B1, C1, D1, & E1, San Diego, California 92103

1. The foundation should be repaired as specified below. The use of the recommended repair methods is subject to our review and approval of a subsurface soils investigation report prepared by a registered Geotechnical Engineer or Engineering Geologist which indicates that the use of pipe piles is appropriate for this site. The results of the geotechnical investigation may indicate that pipe piles are not appropriate or that another repair method may be preferable.
2. Temporary supports shall be provided while the repairs are completed.
3. It will be necessary to remove the deck from the Unit A1 patio area in order to perform the repairs.
4. It shall be noted that for the purpose of this project it is assumed that the front door of Unit A1 faces north, the front doors of Units B1, C1, and D1 face east, and the front door of Unit E1 faces south.
5. All work shall be performed in accordance with the California Building Code (CBC) as adopted by the appropriate local building authority. The following specifications are general in nature. The contractor performing the work is expected to have a thorough knowledge of the CBC requirements.
6. All concrete is to be 2,500 p.s.i. at 28 days. All rebar doweling is to be accomplished with high strength epoxy adhesive. The rebar dowels shall extend a minimum of 6 inches into the existing concrete.
7. Recommendation for pressure injection of epoxy is referring to the injection of high strength epoxy adhesive using automated commercial injection equipment intended for this purpose. Cracks are to be properly cleaned/prepared prior to epoxy injection. Gravity filling or other methods of placement of epoxy are not recommended as a substitute for pressure injection.
8. Unforeseen conditions may require changes to the repair recommendations. Should unforeseen conditions be encountered, SD Engineering should be contacted for possible revision of the repair recommendations. Evaluation of such conditions and modification to the repair recommendations may require an additional fee.

9. Deviation from these recommendations may jeopardize the ultimate success of the repairs. It is recommended that the contractor performing the repairs be provided with a copy of these recommendations and that the contractor be encouraged to contact SD Engineering directly for any clarification of these recommendations. Proposed deviations from these recommendations should be reviewed and approved by SD Engineering prior to accomplishment of the work. Telephone requests for clarification will normally be returned no later than the evening received.

10. In general, the foundation repair consists of two phases. The first phase consists of installing pipe piles and a grade beam underneath portions of the perimeter of the Unit A1 patio area privacy wall to provide additional support. The second phase consists of minor repairs to the building foundation system. The pipe pile phase is to be completed prior to commencement of the building foundation system repair phase.

PIPE PILE/GRADE BEAM PHASE

A. Pipe piles shall be installed underneath the Unit A1 patio area privacy wall between the entry steps and the northwest corner of the dwelling. The westerly pile shall be installed underneath the junction of the privacy wall with the northwest corner of the dwelling and the easterly pile shall be installed two feet from the entry steps. The remainder of the piles shall be no more than 6 feet on center.

B. The pile should be installed from the interior of the patio area. The piles are to be of 2 inch Schedule 80 steel pipe. Prior to commencement of the repairs the repair contractor shall submit to SD Engineering for review and approval shop drawings of the pile section connections, of the pile jacking pads, and of the steel spacers which transfer the vertical loads from the original footings to the jacking pads.

C. Each pipe pile shall be mechanically driven with a pneumatic or hydraulic hammer through fill and/or unconsolidated, natural soils to refusal in dense, natural soils or bedrock. Pipe piles shall be driven within 6 inches horizontally of the existing footings. Pipe piles may be inclined up to 10 degrees from vertical in order to minimize the distance between the pipe pile and the footing. Pipe pile driving refusal is defined as 1/8 inch or less ground penetration in 10 minutes using a 90 pound pneumatic jack hammer.

D. If pipe piles meet refusal at a depth less than 3 feet below the bottom of the pile cap excavation the Engineer shall be consulted for further direction.

E. If the refusal depth of two adjacent pipe piles varies by more than 3 feet the Engineer shall be consulted regarding the advisability of driving an additional pipe pile adjacent to the shorter pipe pile.

F. A driving log showing refusal depth and driving time for each pipe pile shall be recorded and provided for review. Refusal depths shall be measured from the ground surface. The driving log shall also reflect the loads to which the pipe piles were tested.

G. Pipe piles shall be individually load tested against the existing footings using a 12 ton or greater hydraulic jack with a calibrated pressure gauge. Each pipe pile shall be load tested to 18,000 pounds for a minimum period of 1 hour. If the jack gauge pressure drops below 18,000 pounds during load testing the pile shall be redriven to refusal and load tested again.

H. If the weight of the privacy wall is insufficient to provide a test load of 18,000 pounds, and/or if footing damage appears likely from jacking, the test load may be reduced by the Engineer.

I. In certain clay soils the jacking pressures may continue to drop during testing even though the driving refusal specifications were met. Should this occur, the Engineer shall be contacted and requested to provide additional guidance.

J. After testing of all of the piles the contractor shall attempt to raise the privacy wall foundation to a more level condition prior to replacing the jacks with appropriate steel spacers. In order to avoid suspending the portions of the footings beyond the underpinned areas the amount of jacking at the end piles is to be limited to that which is necessary to transfer the foundation loads to the pipe piles. The Client should be aware that this jacking process will cause flexing of the wood framing and related opening and/or closing of cracks in the interior walls and ceilings and in the stucco siding. Some change in the squareness of door frames is also to be expected. The repair contractor is expected to monitor these factors during the jacking process and to consider these factors along with elevation measurements in determining the optimum amount of jacking.

K. The portions of the existing privacy wall foundation which are to be supported by the pipe piles should be strengthened by installing a reinforced concrete grade beam. The grade beam shall be a minimum of 18 inches high and shall extend a minimum of 12 inches below the bottom of the original footing. The grade beam shall be a minimum of 12 inches wide and shall extend a minimum of 6 inches horizontally underneath the original footing. The grade beam shall have two continuous #5 rebars 3 inches above the bottom and two 3 inches below the top. The horizontal reinforcing

steel shall be continuous where passing through the pipe pile pits. The grade beam shall be doweled into the existing footing at 2 foot intervals with #4 rebars epoxied into the original footing with high strength epoxy adhesive. The rebar dowels shall extend a minimum of 6 inches into the footing. The grade beam and the concrete pile caps which encase the steel jacking pads and spacers shall be monolithic (placed as a single pour).

L. Following completion of the pipe pile installation, the soil in the work areas should be graded so that the soil slopes away from the foundation and water drains freely to the street or to another proper drainage discharge area. When grading the soil care must be taken to keep the soil level well below the bottom edge of the metal weep screed at the lower edge of the stucco to prevent possible moisture intrusion into the wall assembly and deterioration of the wood framing. In newly constructed buildings the soil level must be a minimum of 4 inches below the bottom edges of metal weep screed, however, this may not have been required at the time of construction.

BUILDING FOUNDATION REPAIR PHASE

A. The horizontal crack in the grade beam/foundation wall located underneath the north portion of the west side of Unit A1 should be pressure injected with high strength epoxy. The purpose of the recommended repairs is to restore the strength of the concrete at the cracked location and to arrest/retard the corrosion to the steel.

B. The bricks and grout/mortar installed on top of the west portion of the east/west interior foundation wall located underneath the C1 living room south wall should be removed.

APPENDIX B

SPECIAL INSPECTION

4090 Falcon Street Units A1, B1, C1, D1, & E1, San Diego, California 92103

1. This special inspection plan is provided in accordance with Section 110.3.9 of the California Building Code (2013 version). The special inspections are to be performed by SD Engineering, as authorized by Section 1704.2.1 of the California Building Code.
2. Concrete Construction – Section 1705.3 of the California Building Code addresses requirements for special inspection of concrete construction. The concrete specified for the repairs is 2,500 p.s.i. and requires no special inspection (Exception 2).
3. Steel Construction – Section 1705.2 of the California Building Code addresses requirements for special inspection of steel construction. All steel fabrication is to be accomplished in an approved fabricator's shop. No special inspection of steel fabrication is required at the job site.
4. Deep Driven Foundations – Section 1705.7 of the California Building Code addresses requirements for special inspection of deep driven foundations. The piles specified are considered to be specialty elements (Item 7 in Table 1705.7, Required Verification and Inspection of Deep Driven Foundation Elements Table). Periodic inspection is considered to be sufficient, provided that the repair contractor maintains a driving log including the location, depth below grade, driving time, and test load for each pile. The pipe piles are to be inspected after driving, testing, releveling, and installation of the steel spacers and prior to installation of the concrete pile caps. At that time, the driving log will be reviewed by the Engineer of Record and must be deemed satisfactory prior to proceeding with placement of the concrete pile caps.

APPENDIX C

MAINTENANCE RECOMMENDATIONS

4090 Falcon Street Units A1, B1, C1, D1, & E1, San Diego, California 92103

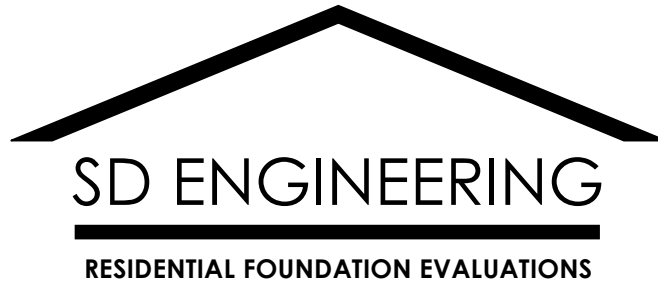
Keeping water away from the foundation is essential to reducing the probability of future movement of the foundation. The following maintenance recommendations are provided to assist in keeping water away from the foundation:

1. In maintaining and modifying the landscaping and the concrete flatwork around the building, care should be taken to ensure that the soil and the flatwork slope away from the foundation and runoff water drains freely to the street or to another proper drainage discharge area. Water should not be allowed to pond on the property, especially in the areas adjacent to the foundation. Drought resistant landscaping is recommended for areas around the foundation. In maintaining the drainage care must be taken to keep the soil level well below the bottom edge of the metal weep screed at the lower edge of the stucco to prevent possible moisture intrusion into the wall assembly and deterioration of the wood framing. In newly constructed buildings the soil level must be a minimum of 4 inches below the bottom edges of metal weep screed, however, this may not have been required at the time of construction.
2. Irrigation should be kept to a minimum in the areas adjacent to the foundation.
3. The gutters should be kept clean and the downspouts maintained to ensure water is directed well away from the foundation.
4. The area drain inlets should be kept clear of soil and debris and the underground drainage system should be maintained in good working order.
5. The automatic sump pump located outside on the northwest portion of the lot should be periodically tested and maintained in good working order.
6. The weep holes along the bases of Units A1 and E1 patio area privacy walls should be kept clear of soil and debris and maintained in good working order.
7. Preventing the entry of water into the foundation crawl space and the timely removal of water which may enter the crawl space are extremely important. The foundation crawl space should be periodically examined for the presence of water, especially during wet weather or if plumbing leaks are suspected. If standing water or mud is present, the source of the water should be determined and corrected. Timely

correction of water intrusion into the crawl space is essential to satisfactory performance of the foundation.

8. The water bill should be regularly monitored and any unexpected increase in consumption investigated to ensure water from an underground leak or a leak in the foundation crawl space does not infiltrate the soil underneath the foundation.

9. The pump north slope should be maintained and any erosion which may occur should be promptly repaired.



PROFESSIONAL ENGINEERING SERVICES CONTRACT

PURPOSE:

The engineering service to be performed for the Client consists of providing a limited evaluation of the structural integrity of the dwelling foundation. The investigation will be limited to the observations made during the evaluation and any recommendations which may be provided will be based on the Engineer's opinions as well as generally accepted engineering practices. The report SD Engineering provides is neither a geological nor a geotechnical report. The engineer of record for these services is Gary N. Sniffin, R.C.E. #C29710. The condition of the property at any time following the evaluation may vary from the condition at the time of the evaluation and SD Engineering makes no representations or guarantees regarding future performance of the property. The evaluation report is for the sole use of the Client and is not transferable. SD Engineering does not intend that anyone other than the Client will rely upon this report, therefore, it is intended solely for the Client, to the exclusion of all others.

SCOPE:

The evaluation of the foundation will be based solely upon a visual examination of the exterior and interior of the dwelling. SD Engineering will examine the exterior siding and the interior ceilings and walls for significant cracking and other signs of movement. The doors and door frames will be examined for fit and squareness. For raised foundation dwellings, the accessible portions of the foundation crawl space will be examined. For slab-on-grade dwellings, a manometer will be used to perform a random floor level survey on the structure to determine the possibility of any differential settlement and/or movement which may have occurred. SD Engineering is not responsible for removal of carpeting or any other flooring coverings. The drainage around the perimeter of the dwelling will be visually examined.

The basic evaluation fee includes repair recommendations provided that any repairs which may be deemed advisable are relatively simple and do not require soil testing, design calculations, or the preparation of extensive specifications. If the repairs are more complex, a fee for designing repairs will be quoted in the evaluation report. Certification of the completed repair work is available for an additional fee. The Client is advised that certification of repairs, as defined in the Professional Engineers Act, Section 6735.5 of the California Business and Professions Code, constitutes an expression of professional opinion and does not constitute a warranty or guarantee, either expressed or implied. The fee for certification of any recommended repairs will be quoted in the evaluation report.

Any recommended repairs will be predicated upon the original construction meeting accepted standards at the time of construction. Discovery of sub-standard original construction or other conditions not known to SD Engineering at the time of the evaluation may require modification of the repair recommendations. Any such conditions not noted in the original report should be reported to SD Engineering for evaluation and possible modification to the original repair recommendations. Evaluation of such conditions and modification to the recommendations may require an additional fee.

The report may include recommendations which require a building permit. Obtaining any necessary building permits is the responsibility of the property owner. SD Engineering provides only the repair design and does not provide other information which may be required including, without limitation, floor plans, plot plans, legal descriptions, or any other documents. Satisfaction of all permit fees and requirements is the responsibility of the property owner.

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EXCLUSIONS:

The scope of this evaluation does not include any determination of permit status or code compliance for the original construction or for any additions, alterations, or repairs.

No soil samples will be taken and no soil tests will be performed. The report which will be provided will not be a geological or geotechnical report.

No visual examination or tests will be performed for asbestos, radon, mold, mildew, fungus, pests (including, without limitation insects and rodents), lead paint, pollutants, or other hazardous organic or inorganic materials or substances. This evaluation also excludes items which would normally be included in Structural Pest Control and Physical Inspections.

Determination of compliance with lot line setbacks or other zoning requirements, location of the property lines, and measurement of lot or home size or other matters pertaining to surveys are beyond the scope of this evaluation.

NO WARRANTIES OR GUARANTEES:

SD Engineering does not guarantee or warrant, expressly or impliedly, the services being provided hereunder.

LIMITATION OF LIABILITY:

In recognition of the relative risks and benefits to both of the parties, the parties have allocated their contractual and other risks such that the Client agrees, to the fullest extent permitted by law, to limit the liability of SD Engineering, its agents, employees, directors, officers, and principals for any and all claims, demands, losses, liabilities, attorney fees, or injuries, whether sounding in tort, contract, indemnity, law, equity, or otherwise, so that the total aggregate liability of SD Engineering to the Client shall not exceed \$5,000. It is intended that this limitation shall apply to any and all liabilities, causes of action, or claims for relief, however alleged or arising, unless otherwise prohibited by law.

INDEMNITY:

The Client agrees to defend, indemnify, and hold harmless SD Engineering from and against any and all claims, demands, losses, injuries, or liabilities arising out of this contract to the fullest extent permitted by law.

MEDIATION:

In the event a dispute, other than one regarding the payment of SD Engineering's fee, arises between SD Engineering and the Client, the parties agree to (a) first attempt to reach an informal resolution of the dispute with a face-to-face meeting, and (b) in the event the meeting fails to be depositive, the parties agree to mediate their

dispute before the Judicial Arbitration and Mediation Service ("JAMS") in San Diego California with each party paying half of the JAMS mediation fee. Such mediation is a condition precedent to litigation between the parties, except with respect to a fee dispute.

CANCELLATION & SEVERABILITY:

This contract may be cancelled by either party prior to the performance of the services upon reasonable notice. Should any portion of this contract be declared void or unenforceable, the remaining portions shall remain in effect.

COMPLETE AGREEMENT:

This contract is the complete embodiment of the parties' intentions to the exclusion of any prior oral or written agreements between them respecting its subject matter.

NO THIRD PARTY BENEFICIARIES:

There are no third party beneficiaries to this contract. The contract is solely to benefit the executing parties.

CLIENT ACKNOWLEDGEMENT:

I/We hereby acknowledge that I/we understand and are in agreement with the terms and conditions of this contract and agree to pay the evaluation fee quoted below. If this contract is executed on behalf of Client by any third party, the person executing this contract expressly represents that he/she has the full and complete authority to execute this contract on Client's behalf and to fully and completely bind Client to all of the terms of this contract. Fees are due at the time of the evaluation unless other prior arrangements are made. Any additional services requested by the Client may require additional fees.

File # _____ Fee \$ _____

Property Address _____

City, State, Zip _____

Client Name _____

Client Signature

Date

Client Signature

Date

SD Engineering Signature

Date

Revised 12/1/15