Larrabee & Associates, Inc.

General Engineering Contractors & Consultants

Lic. # 525973

Kathleen D'Silva

Property Address:
668 W. Washington Avenue
Sunnyvale CA 94086

Larrabee & Associates, Inc.

Brian Larrabee
3002 Scott Blvd
Santa Clara, CA 95054
Tel: 408-364-9000
Fax: 408-496-1101
Email: team@larrabeeandassociates.com

RECEIVED & READ

SIGNATURE DATE

SIGNATURE DATE

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Date: 8/4/2017	Time:	Report ID: 17_08_02
Property: 668 W. Washington Avenue Sunnyvale CA 94086	**Customer:** Kathleen D'Silva	**Real Estate Professional:** Dave Clark

This documentation confirms that Larrabee & Associates, Inc. (LAI) Consulting Services Division has completed our evaluation at 668 W Washington Ave., Sunnyvale, CA 94086 on Tuesday, August 1, 2017 as requested by Dave Clark, acting representative for Kathleen D'Silva.

The intended purpose of this evaluation is to help clarify any specific and / or general concerns of Kathleen D'Silva as related to the subject property in the field of our expertise, as well as reveal any additional potential or active disruptive conditions we may observe during our review. Disruptive conditions are generally regarded as those that have the potential to affect the serviceability of the structure beyond current levels. All reported conditions included in the attached report have been verified during our evaluation.

This report should not be interpreted as an in-depth structural analysis or faultfinding exercise, but rather a review of the historic performance of the specified systems to allow for an informed prediction as to anticipated future serviceability. It is important to understand that serviceability is a relative term, and will vary based on personal preference, age, on-site building pad characteristics, system design, and the intended function of the property. All of these conditions have been considered in our conclusions regarding the serviceability of the reviewed systems.

Our reports typically include observations of defective foundation systems / workmanship, minimum recommendations, miscellaneous discussion as related to observed conditions, and comparable retrofit costs. Comparable retrofit costs should not be interpreted as firm construction bids, but rather general guidelines for establishing preliminary budgets. Only after the development of a specific scope of work and/or official construction plans, if required, can firm construction costs be established.

Investigation for: Buyer	**Client / Representative Is Present:** Yes	**Other Professionals / Representative Present:** No
Age Of Structure: Built approximately 1947	**Structure Description:** 1-Level / 1 Story	**Rain / over irrigation in last 3 days:** No
Detached structure: N/A	**Relevant reference Documents provided and/ or discussed.:** Yes	

1. SUMMARY OF REPORT VALUATION(S):

The list below summarizes our findings and recommendations in no particular order, and does not represent the relative severity of the items indicated. Each recommendation on this page is followed with a line for your notes.

This list is not comprehensive. General maintenance items are excluded. For more detailed information on general maintenance, please review the section Surface Moisture Control Advisory later in this report.

Note: The term "valuation", as used below, denotes our best estimation of the likely construction costs to implement our recommendations, expressed as a range, based upon our associations and knowledge within various fields. It is not a proposal, scope of work or bid. You will usually find it reliable within 20% plus or minus. It is provided merely to help you weigh your options with the relative costs to decide upon the best course of action.

Throughout this report, advisories may be given to supplement these. However, the cost to implement these advisories are site specific, repetitive / cyclical, and therefore are not offered as part of this report. Generally these advisories can be completed in the most cost effective manner by specialist familiar with the specific tasks, or undertaken by the Home Owner under the supervision of a qualified specialist.

1.0 SUMMARY OF VALUATION(S) LISTED BY REPORT SECTION BELOW

4.0 Valuation $3,200 Recommendation **(04.00.04)** [Vertical Fractures - Perimeter Foundation]

4.3 Valuation $1,500 Recommendation **(04.03.05)** [Spillway Grades]

Summary

After completion of the above referenced site visit, and review of our observations and findings, we conclude that the structure's overall visible foundation systems are in average / serviceable condition for similar homes of this vintage, design and site conditions. The observed systems appear to remain capable of performing their intended purpose with the completion of all maintenance and repair items recommended in this report. We believe that none of the observed systems or conditions present an imminent threat to the overall serviceability of the structure at this time.

2. EXTERIOR:

2.0 ROOF DRAINAGE CONTROL SYSTEMS:

Observation: The structure was lacking a complete roof moisture collection system (e.g. rain gutters).

Information / Maintenance: Gutters and downspouts perform two main functions. First, they help capture and direct the roof run-off away from the house. Second, they help protect the exterior surface and perimeter grading of the home from water damage that can result from the roof run-off water running down the side of the house or eroding the soil around the home. It is estimated that a one-inch rainfall on a typical 2000 square foot roof can produce up to 1,800 gallons of water. Therefore, it is very important to strictly clean and maintain the gutter system. In addition, where the downspout discharges the water is important when controlling surface water around the home. Discharging roof water directly adjacent to the foundation system could lead to soil saturation. Eventually, this water could work its way beneath the home and can lead to building settlement and foundation support failure.

Recommendation - Contact roof gutter installation company for system installation. Subsequent to installation, maintain roof moisture collection system to obtain optimal control of roof moisture. Ensure that downspouts that discharge in the vicinity of the perimeter foundation system are relocated to discharge a minimum of 10'-15' down grade from the perimeter foundation. This can be accomplished by installing temporary extensions, the installation of perimeter positively graded (moisture controlled) flatwork aprons, and / or installation of permanent surface drain systems which would control surface and roof water sources.

2.1 SURFACE MOISTURE CONTROL SYSTEMS :

NO VISIBLE SYSTEM

2.2 EXTERIOR VERTICAL SURFACES:

NO SIGNIFICANT DEFECTS WERE OBSERVED

2.3 VEGETATION:

Observation: Foundation systems are located within drip line of adjacent tree(s).

Information - Roof and gutter systems can suffer from overhanging tree limbs. In addition, drainage systems can become obstructed with debris, thereby deterring their efficiency. To protect your roof and gutter systems, trees need to be kept under control and roof gutter systems maintained / cleaned on a regular basis.

Recommendation - Implement annual maintenance procedures on roof gutter systems to maximize effectiveness.

2.4 EXTERIOR HORIZONTAL SURFACES:

Observation: Neutral grade conditions directly adjacent to the perimeter foundation.

Maintenance: Proper grading of soils and impermeable surfaces helps prevent water from pooling around foundations, flooding sub-areas or below grade structural components, and concentrating water into destructive volumes. Routine homeowner maintenance would require that dense soils / impermeable surfaces adjacent to the foundation be maintained with a slope one-half inch per foot away from the foundation for a distance of five feet. In addition, soils elevation should be a minimum of 8 inches below the adjacent sill elevation. In some cases this may require custom landscape / hardscape design.

2.5 PORCH-ELEVATED ENTRY:

NOT APPLICABLE

2.6 SUB-SURFACE MOISTURE CONTROL SYSTEMS:

NONE VISIBLE OR DISCLOSED

2.7 IRRIGATION:

NOT APPLICABLE

2.8 ADJACENT STRUCTURES:

NOT APPLICABLE

PLOT/LOT CHARACTERISTICS:	ACCESS LIMITING STUCTURES/ITEMS:
LEVEL LOT	NO

Important: In order to maximize the effectiveness of the recommendations made throughout this document, we encourage full implementation of all relevant measures listed in the "Surface Moisture Control Advisory" segment of this report. Preservation and maintenance of these measures, controls, and systems should be made part of any Preventive Maintenance Plan for this property.

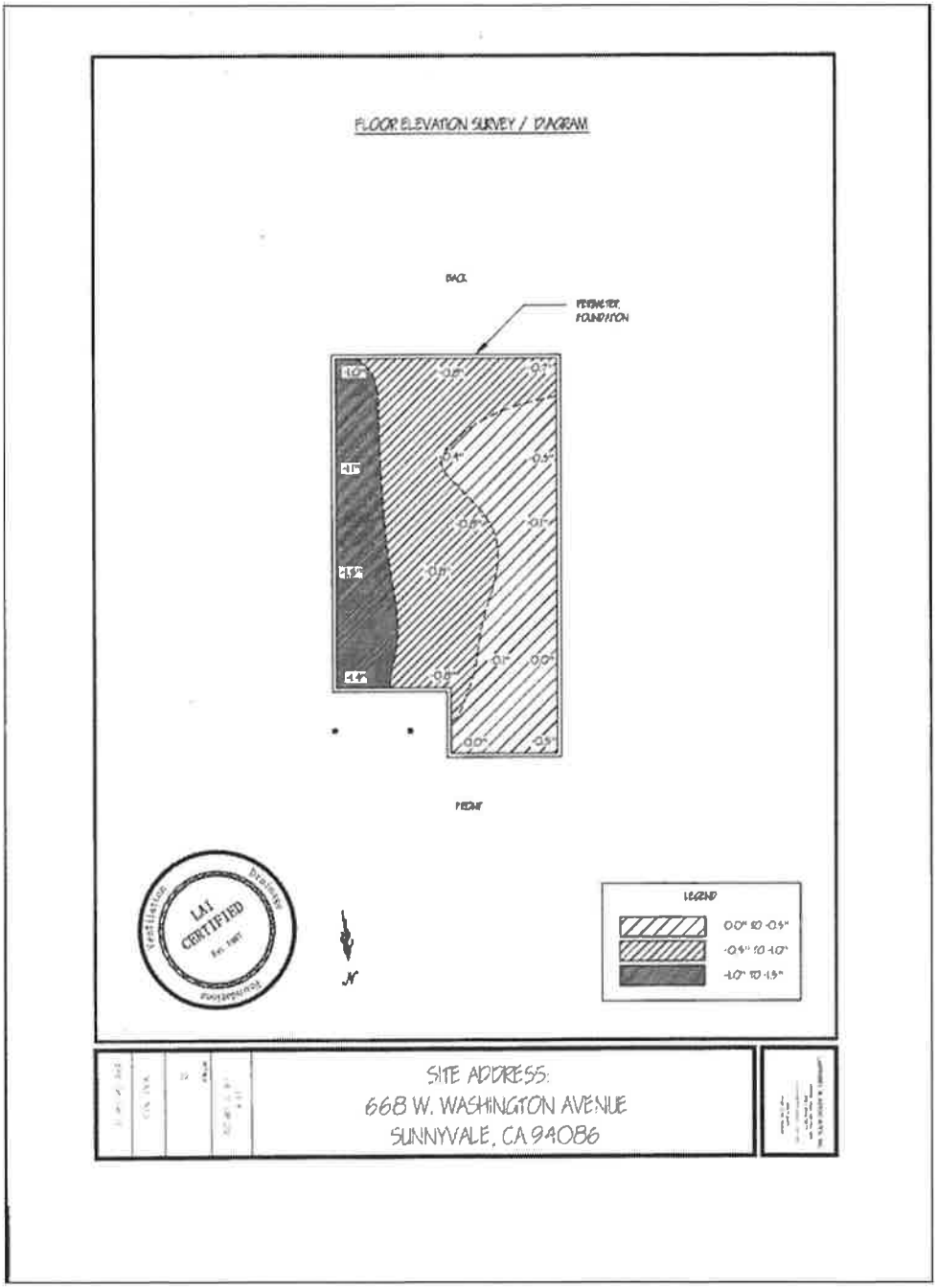
3. INTERIOR / HABITABLE SPACES

3.0 INTERIOR SURFACES:

Observation: A digital water level survey was conducted on the interior finished floor surfaces to help determine the performance of the perimeter foundation and interior support assemblies in relation to the building pad. The results of the survey indicated that the finish floor planes are generally within normally acceptable tolerances and, in our opinion, an indication of good overall foundation performance when compared to similar foundation systems in the general area. See the attached floor elevation survey with approximate measurements compared to the highest recorded elevation marked as 0.0". Item 1(Picture)

Note: This survey is for current readings on the finished floor surfaces and does not take into consideration any non visible or non disclosed subsurface framing practices, re-leveling procedures, or floor leveling compounds. Varying floor materials, wear, and associated elevation differences are taken into consideration to the best of our ability when determining the overall floor elevations. However, for the most accurate reading of potential foundation displacement, the manometer would have to be placed directly onto the foundation which is not part of this evaluation, however is available upon request.

Information: Industry standards consider floor variations up to 1" over a 20' segment as a reasonable maximum differential for general foundation performance and within normally acceptable levels.



3.0 Item 1(Picture)

3.1 INTERIOR ENVIRONMENT:

NOT APPLICABLE

ACCESS LIMITING CONDITIONS/ITEMS:

YES

OCCUPIED

STORED MATERIALS

FLOOR ELEVATION SURVEY:

INCLUDED

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4. SUB STRUCTURE:

4.0 PERIMETER FOUNDATION:

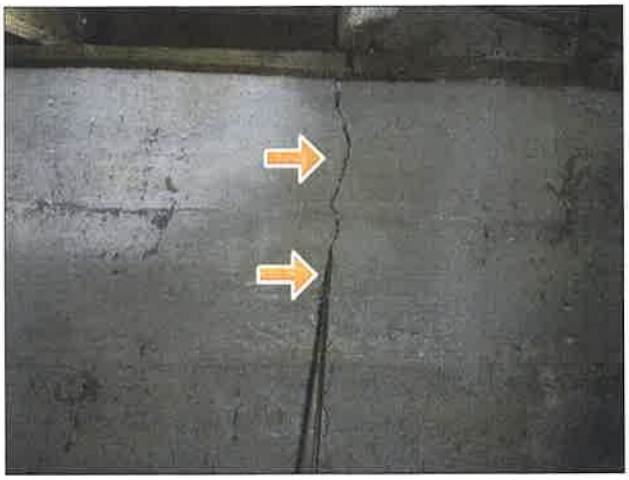
Observation: Approximately (8) minor to moderate vertical fractures noted in the perimeter foundation stemwall. Item 1(Picture)

Information: Some levels of fracturing are not unusual for structures of this age. The observed fracture sites indicate past stresses (i.e. seismic activity, poorly controlled drainage conditions, outside forces, etc.) in the affected foundation sections.

Recommendation (04.00.04) - Implement appropriate reinforcement procedures, materials and / or hardware to help improve attachment, preserve embedded steel (where applicable), establish more uniform performance and load characteristics at foundation fracture sites, as well as create a monitoring band for monitoring for any future movement. In this case, retrofit details should include epoxy injection. ***Anticipate costs in the vicinity of $3,200.***

Observation: A small section (est. 2') of the mudsill detail along the back of the crawlspace, adjacent to the crawlspace entryway, appeared to be split. In addition, the rim joist adjacent to the front of the crawlspace was shimmed, apparently from original construction practices. Both conditions are somewhat common for many foundation systems built during this era of construction. Item 2(Picture) Item 3(Picture)

Information: The sill plate (mudsill) / rimjoist acts as a connecting mechanism providing attachment between the structure and the perimeter foundation system. Its purpose is to evenly distribute loads onto the perimeter foundation system and to offer necessary attachment between the structure & foundation. Any modification to the attachment and/or loading properties subjects the structure to potential displacement under seismic / heavy weather loads.



4.0 Item 1(Picture)

4.0 Item 2(Picture)

4.0 Item 3(Picture)

4.1 INTERIOR FOUNDATION / GRADE BEAMS:

NOT APPLICABLE

4.2 GIRDER SUPPORT SYSTEM:

Observation: The interior isolated concrete piers and wooden support posts appear to be in serviceable condition. Item 1(Picture)

Information: A pier post is a vertical wood structural member that is used to support a wood horizontal member. The interior isolated pier post assemblies support the main girders at the interior of the structure. These assemblies are necessary to maintain a relatively firm and consistent elevation of the finish floor throughout the structure and stable interior structural support. Posts normally are supported at their base by concrete piers or footings. A girder is a large 4X or greater horizontal wood structural member that supports a home's sub-floor system consisting of floor joists, 2X decking or plywood. Girders are usually located under the interior of the house and run through the subarea from one foundation wall to the foundation wall at the opposite side of the subarea. The girder system is the primary support for

the interior loads generated by the structure. In addition, the girder support system supplies consistent floor planes throughout the interior portions of the structure. Voluntary seismic / attachment upgrades are available.

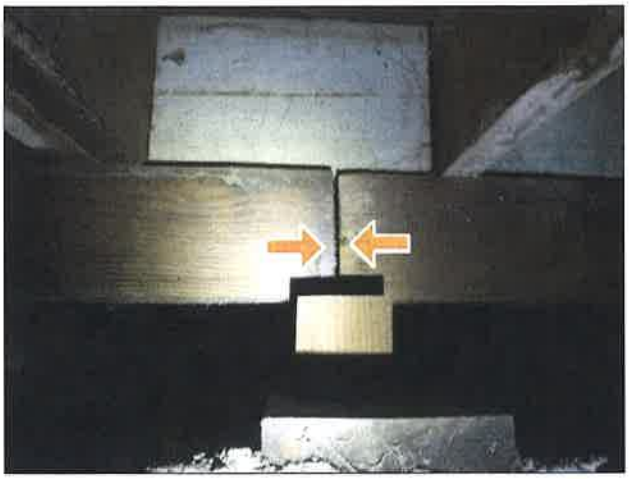
4.2 Item 1(Picture)

4.3 GIRDER SYSTEM

Observation: The girder system appears to be in serviceable condition. However, we did note regionally spliced girders without positive attachment (typical of age). Item 1(Picture)

Information: A girder is a large 4X or greater horizontal wood structural member that supports the sub-floor systems (floor joists, 2X decking or plywood) of the structure. Girders are usually located under the interior of the house and run through the subarea from the foundation wall at one side of the subarea to the opposite foundation wall. The girder system is the primary support for the interior loads generated by the structure. In addition, the girder support system supplies consistent floor planes throughout the interior portions of the structure.

Recommendation (04.03.05) - Installation of 2x6 wood members across spliced locations. ***Anticipate costs in the vicinity of $1,500***



4.3 Item 1(Picture)

4.4 MOISTURE CONTROL SYSTEMS:

NOT APPLICABLE

4.5 FOUNDATION ANCHORING

Observation: The perimeter foundation contains anchor bolt attachment hardware.Item 1(Picture)

Information: Anchor bolts are used to secure the framing to the foundation to resist displacement. An anchor bolt is a metal rod, usually with a threaded end, that is set in the concrete form works and becomes embedded as part of the foundation. The mudsills, of the home are then attached to the foundation by slipping the wood mudsill over the anchor bolt through a predrilled hole in the mudsill and then a washer and nut are added on the anchor bolt and tightened to secure the mudsill to the foundation. Voluntary seismic upgrades are available.

4.5 Item 1(Picture)

4.6 CROSS VENTILATION:

Observation: The cross-ventilation conditions noted in the crawlspace appeared adequate based on present conditions.

Information: Air exchange is important in the prevention of moisture build-up; this build-up can cause the deterioration of structural members and encourage poor environmental conditions in the sub-area. Screened vent openings at the perimeter foundation help dissipate moisture by means of cross-ventilation. The placement of vents on opposing sides of the foundation is to facilitate cross-ventilation and speed evaporation of moisture. When these vents are closed or obstructed, the evaporate is contained in the sealed space. Any surfaces present with a lower moisture content will begin to draw in the airborne moisture. This condition may allow moist / humid conditions to exist which could result in rotting / damage of the wood framing and / or corrosion of metal in the crawlspace. In homes with non-complaint vent details and/ or other negative / obstructive conditions, lack of adequate air circulation / ventilation may necessitate the implementation of mechanical air ventilation.

4.7 SUB AREA ENVIRONMENTS

Observation: The crawlspace was relatively dry at the time of our evaluation. However, we did note evidence of possible low-level seasonal moisture intrusion and accumulation at the front right of the crawlspace. Item 1(Picture)

Recommendation - Implement strict controls on moisture sources adjacent the perimeter foundation system. Refer to the Exterior drainage recommendations and the "Surface Moisture Control Advisory" at the end of this report. Specifically, refer to roof gutter installation, downspout management, and grading of surfaces adjacent to the perimeter foundation.

4.7 Item 1(Picture)

4.8 BUILDING PAD

NOT APPLICABLE - ANY EVALUATION OF THE BUILDING PAD SOILS CHARACTERISTICS / CONDITIONS WOULD REQUIRE CONSULTATION WITH A SOILS ENGINEER.

4.9 PLUMBING LEAKAGE:

NOT APPLICABLE

SUBAREA FULLY ACCESSIBLE:
YES

SURFACE SOIL CHARACTERISTICS:
DRY AT TIME OF INSPECTION

PERIMETER FOUNDATION TYPE:
ORIGNIAL
RAISED PERIMETER
SHALLOW SPREAD
FOOTING DETAIL

GIRDER SUPPORT SYSTEM/S:
INTERIOR ISOLATED FOOTINGS WITH PRECAST BLOCKS AND WOODEN POST

FOUNDATION ATTACHMENT SYSTEMS/METHOD:
YES
ANCHOR BOLTS

Important: In order to maximize the effectiveness of the recommendations made throughout this document, we encourage full implementation of all relevant measures listed in the "Surface Moisture Control Advisory" segment of this report. Preservation and maintenance of these measures, controls, and systems should be made part of any Preventive Maintenance Plan for this property.

5. BASEMENT:

5.0 RETAINMENT:

NOT APPLICABLE

5.1 MOISTURE MANAGEMENT:

NOT APPLICABLE

Basement:

No

Important: In order to maximize the effectiveness of the recommendations made throughout this document, we encourage full implementation of all relevant measures listed in the "Surface Moisture Control Advisory" segment of this report. Preservation and maintenance of these measures, controls, and systems should be made part of any Preventive Maintenance Plan for this property.

6. Surface Moisture Control Advisory

Surface Moisture Control Advisory

(Residential Building Site)

Important: In order to maximize the effectiveness of the recommendations made throughout this document, we encourage full implementation of all relevant measures listed in the "Surface Moisture Control Advisory" segment of this report. Preservation and maintenance of these measures, controls, and systems should be made part of any Preventive Maintenance Plan for this property.

All surface moisture control systems adjacent to the perimeter foundation must be strictly maintained in optimum condition to effectively manage all potential moisture sources that could negatively impact the foundation systems. Maintenance of these systems is generally performed by the homeowner or landscape personnel. Any renovation / modification of these systems should be completed only under the direction of drainage specialists. Recommended areas of attention include, but are not limited to:

Finish grades / sheetwater controls on all soils / flatwork surfaces:

- It is very important that surface moisture be directed away from the structure. Surface water should not be allowed to collect or be directed into an area within 3' of the perimeter foundation systems. If there is water ponding in this area, the condition must be corrected by using standard grading practices, as provided by a drainage specialist.

Recommendations:

- Implement and maintain controls on all finish grades adjacent to the perimeter foundation systems.
- Establish and maintain dense, water-absorbent ground cover on all soils surfaces that may generate a negative sheetwater influence.
- Establish and maintain dense water-resistant materials in all fill areas adjacent to the structure.
- Routinely inspect areas within 5' of the foundation immediately following a rainstorm or heavy irrigation for evidence of negative conditions.

Roof discharge systems:

- Gutters, downspouts and roof eaves help capture and direct roof run-off away from the home, isolating the foundation systems from the negative influences of moisture. Location of downspout discharge extensions is also important.

Recommendations:

- Direct downspout discharge away from any foundation systems. For specific recommendations consult your drainage specialist.
- Insure discharge system is clear, fully functional and maintains optimal control of roof moisture.
- Schedule regular cleaning and evaluation of roof discharge and extension systems and/or drain systems.

All impermeable surfaces (asphaltic concrete, concrete, rock, tile, pavers, etc.):

- Defective flatwork surfaces (i.e. cracks, wooden expansion or construction joints, improper gradients) may subject the foundation to the negative effects of moisture.

Recommendation:

- Seasonally inspect and make repairs to any flatwork surfaces adjacent to the perimeter foundation systems to insure effective drainage controls.

Planter areas directly adjacent to the perimeter foundation:

- These soils areas provide an increased potential for localized collection of water that may encourage soil saturation adjacent to the foundation systems, which may lead to foundation distress.

Recommendation:

- Strictly adhere to standard grading practices in these areas.

Irrigation systems:

- Irrigation systems for lawns and landscape areas adjacent to the structure must be properly designed and strictly maintained to provide adequate moisture for foliage growth without disruption to the foundation systems.

Recommendations:

- Manage irrigation systems to avoid saturated soils conditions.
- Inspect and test the sprinkler systems / drip systems at least twice a year to determine if systems are functioning properly.
- Effective irrigation design should minimize the use of spray irrigation fixtures within 4 feet of any foundation system.

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INVOICE

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3002 Scott Blvd
Santa Clara, CA 95054
Tel: 408-364-9000
Fax: 408-496-1101
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Inspected By: Brian Larrabee

Inspection Date: 8/4/2017
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Customer Info:	**Inspection Property:**
Kathleen D'Silva **Customer's Real Estate Professional:** Dave Clark	668 W. Washington Avenue Sunnyvale CA 94086

Inspection Fee:

Service	Price	Amount	Sub-Total
Heated Sq Ft 1,001 - 2,000	605.00	1	605.00

Tax $0.00
Total Price $605.00

Payment Method: Check
Payment Status: Paid At Time Of Inspection
Note:

Afterword

Thank you for choosing Larrabee and Associates, Inc. It is our pleasure to assist you in this matter.

This report represents the observations and evaluations of a trained inspector with extensive knowledge in this field. The inspection was performed on the date indicated, and is valid only as of that date.

The purpose of this report is to give a general overview of those systems and conditions observed at the property. It is understood that conditions not observable can result in findings substantially different than those in this report. Areas not reasonably accessible or observable by the inspector are not included, and Larrabee & Associates, Inc. accepts no responsibility for those exclusions or unforeseen consequences related to unobservable conditions.

The report does not seek to predict, detect or appraise all possible risks or imperfections, and is not an in-depth structural analysis. It will include observations of defective foundations, poor workmanship, significant water or drainage problems, poor sub-area conditions and/or ventilation. It is beyond our scope to evaluate for termite damage, sub-surface soils, or suspected organic or fungus incursion. We suggest you hire qualified, licensed professionals to evaluate these conditions.

While we will strive for accuracy and completeness in our evaluation and report, the firm and its agents do not accept liability for any errors or omissions, or consequences arising from them. Furthermore, should additional information become available, Larrabee and Associates reserves the right to modify or amend this report. This report should not be presumed to include a warranty or guarantee of any kind.

It is strongly suggested that for any work you hire only qualified, licensed contractors with experience in the design, installation and repair of drainage systems/foundation systems. All work should be performed by qualified personnel, utilizing appropriate materials, methods and equipment, as required by the most current engineering guidelines.

Larrabee & Associates, Inc. maintains a full staff specializing in all forms of design and repair of distressed foundation systems, retainment systems, drainage control systems and sub-area ventilation systems. Upon request, we can supply required documentation, including but not limited to, written proposals to perform any work you specify in these areas.

Any use of this document by other than the LAI client(s) listed must be authorized in writing by LAI. This authorization may require additional review to insure understanding of the findings by the client. In addition, should any of the recommendations be proposed for implementation by other than LAI personnel we will require a review of all documents (plans, scope of work, materials, etc.) to insure compliance with the intent of our recommendations. Any work proposed or completed without initial LAI review, as well as in-process verification, will absolve LAI, its principals and agents, of any liability.

If we can be of any further assistance or if you have any questions, please contact our office at your convenience. If further information is required regarding the observations and recommendations contained in this report, we can arrange for an in-house consultation at our Campbell office or a phone

consultation. Fees for in-house/phone consultations are based upon an hourly rate and may include the viewing of any available digital photos taken during time of inspection.

Thank you again for allowing us to serve you.

Walt Larrabee