

6101 CONTRA COSTA ROAD, OAKLAND, CALIFORNIA

BUILDING INSPECTION REPORT

INSPECTION DATE:
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PREPARED FOR:
BARRY & CATHERINE AUGUS

AGENT:
HELENE BARKIN
TEMPLETON/LEVERETTE REALTY

PREPARED BY:
MARTIN REUTINGER
RESIDENTIAL DESIGN & CONSULTING
California General Contractor #406439
1818 Harmon Street
Berkeley CA 94703
(510) 658-2626 (PHONE)
(510) 658-2778 (FAX)
e-mail: mreut@lmi.net

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MEMBER

REPORT OVERVIEW

THE HOUSE IN PERSPECTIVE

This house is approximately two years old. It was built to standards commonly accepted at the time of its construction with appropriate materials. It appears to have been generally well maintained, but there are a few deferred maintenance items and other small problems needing attention.

- This house was occupied and furnished at the time of inspection. Closets and other storage areas were filled with personal possessions. There may be defects concealed by furniture or personal property (rugs, stored items, pictures, etc.). It is recommended that all areas be carefully examined once the house is vacated to determine if there are any conditions requiring further inspection.
- Directions in this report are given with the assumption one is standing on Contra Costa Road facing the front of the house.
- Both present and past tenses used throughout this report refer to observations made at the time of inspection.
- It took approximately five hours to perform this inspection.

THE SCOPE OF THE INSPECTION

All components designated for inspection in the ASHI® Standards of Practice are inspected, except as specifically excluded within this report.

The scope of the inspection is limited to the visually accessible areas. A representative sample of building components is observed as access permits. No destructive testing or dismantling of building components is performed. No inspection of underground components can be performed. This inspection does not include research into public records. This report is not a substitute for disclosure obligations required of home sellers and real estate agents.

This inspection is not a "code inspection" or an evaluation of compliance to building codes, housing standards, or similar regulations. References in this report to such standards are intended only to place findings in the context of modern expectations of durability, safety, and convenience, and do not suggest there is any requirement that such standards be applied retroactively.

Numerous household products and components have been recalled in the past, and additional items are recalled each year. Identification of recalled products is beyond the scope of this inspection. If further information regarding components found on this property is desired, contact the Consumer Product Safety Commission at www.cpsc.gov.

Hazards or conditions including, but not limited to toxic, reactive, combustible, or corrosive contaminants, wildfire potential, flood potential, or adverse geologic conditions may be associated with this property. Conditions related to animals, rodents, insects, and wood-destroying insects, or the damage caused by any of these conditions may also be associated with this property. These items are not included in this report as they are considered beyond the scope of this inspection. For further information regarding such items, consult the appropriate qualified specialists.

Some molds, organisms, and mildew can pose a health hazard to occupants of a property. Environmental hazards related to molds, organisms, and mildew, or the damage caused by these items are not included in this report as they are considered beyond the scope of this inspection. To determine if these types of conditions exist on this property would require examination by an Industrial Hygienist or other qualified specialist.

Clay-type soils are found throughout much of this area. Clay-type soils tend to expand and contract with changing moisture conditions. This condition may cause seasonal movement of the foundation and supporting structure, resulting in exterior/interior wall cracking, doors/windows that do not open and close properly at all times of the year, and other similar conditions. Some fill dirt may also be present. Fill dirt can be subject to compaction, which can result in structural movement. Evaluation of the soil conditions on this property is beyond the scope of this inspection. If further information is desired, a Soils Engineer should be consulted.

This inspection report is a reflection of conditions observed *on the day of inspection*. The conditions found during the inspection of this property are subject to change over time. Any third party receiving this report should NOT consider this report to be a reliable source of information without obtaining an on-site consultation from Mr. Reutinger or obtaining a separate inspection from a qualified inspector of his/her choosing.

This report will provide an overview rather than a detailed listing of all defects. It is possible that repair items not discussed at the time of inspection will be found. The inspection should not be considered a guarantee or warranty of any kind.

It is recommended that any other inspection reports pertaining to this property (Structural Pest Control Report, Transfer Disclosure Statement, etc.) be carefully reviewed to determine conditions found and recommendations made by others.

In the case that some items cannot be inspected due to inaccessibility, Mr. Reutinger will return upon request and for an additional fee, to inspect the items once access is provided.

WEATHER CONDITIONS

The weather was dry at the time of inspection, but there was rain in the days leading up to the inspection.

STRUCTURAL COMPONENTS

DESCRIPTION OF STRUCTURAL COMPONENTS

Foundation:	•Poured Concrete •Crawl Space Configuration
Floor Structure:	•Wood Joists
Floor Structure Supports:	•Continuous Concrete Footings •Cripple Walls
Crawl Space Ventilation:	•Exterior Wall Vents
Floor Insulation:	•Fiberglass Batts
Wall Structure:	•Wood Frame
Exterior Wall Insulation:	•Fiberglass Batts
Roof Structure:	•Wood Rafters •Chipboard Sheathing
Ceiling Structure:	•Wood Joists
Roof Ventilation:	•Eave Vents •Roof Vents
Attic Insulation:	•Six-inch-thick Fiberglass Batts

DESCRIPTION OF ITEMS INSPECTED

The *crawl space* is the space between the floor and the ground below the structure. The *attic* is the space between the ceiling and roof framing.

Accessible areas of the attic and crawl space are inspected with attention to condition and installation of structural components and obvious signs of distress. The roof sheathing is observed for signs of roof leakage. Portions of mechanical systems such as plumbing and electrical systems and heat distribution ducting are examined, and observations regarding these systems are reported in the appropriate report sections. Both areas are checked for the presence of insulation and adequacy of ventilation. Plumbing vents, exhaust fan ducts, and appliance flues are inspected to confirm that they extend to the exterior.

Only a representative sampling of visible structural components is inspected. Assessing the structural and seismic integrity of a building is beyond the scope of a typical house inspection.

STRUCTURAL COMPONENT OBSERVATIONS

PERMIT REVIEW

It appears that some of the construction permits were not finalized. This condition should be discussed with the Builder. The Oakland Planning and Building Department records and any other public records for this property should be reviewed to determine the permit history of the property. The public record should also be reviewed to discover if there is any information about conditions that may not be apparent to a visual inspection.

BASEMENT/CRAWL SPACE

Basement

There are basement areas at the front of the house, under the garage, and at the rear of the house. There is access to the front basement through a door near the entry. There is access to the rear basement by stairs and exterior doors.

The lower basement rooms and the basement area below the garage are built on concrete slab foundations. The foundations in these areas are under finished walls and floors, and there is no subarea beneath the floors. They are inaccessible to inspection from the exterior, but they can be viewed from the interior. It is assumed that the slabs are reinforced with steel, but from a visual inspection, it could not be determined if

the slabs are reinforced with steel. No significant unevenness of the slabs was noticed while walking about in these areas.

Stored personal possessions on the front basement floor limited inspection of the foundation. When the stored items are removed, it is recommended the basement be carefully examined to determine if there are any indications of damage or moisture intrusion.

Carpeted floors and the tiled floor in the lower bathroom limited inspection of the rear basement rooms.

Crawl Space Access

There are two small crawl space areas, one under the garage that has an opening to the front basement. There is another crawl space opening that is accessed by a high door located in the "recording room". Inspection of these crawl spaces was performed by crawling throughout the areas.

A thin layer of concrete, known as 'rat-proofing', covers the soil in the crawl space areas.

Foundation

According to the plans, there is a poured-in-place, concrete pier-and-grade beam foundation. This type of foundation should consist of steel-reinforced concrete piers extending into the ground that are tied together at the top with steel-reinforced concrete beams. The wood framing of the structure rests on the concrete beams. This type of foundation is typical of construction since the 1960's. This foundation was not accessible to inspection.

The visible portions of the foundation were examined. Only a few hairline cracks were observed. Small foundation cracks such as these are common and may be caused by shrinkage of the concrete during curing or by movement of the foundation.

Floor Support System

The floor joists are supported on continuous concrete footings at the front of the house.

At the sides and rear, the floor joists are supported by wood cripple walls constructed on the concrete foundation. Cripple walls are wood walls that extend from the top of the foundation to the floor structure.

The subfloor is presumed to be plywood resting on wood floor support joists. The sub floor was only accessible to inspection in the crawl spaces, and it was partly concealed by under floor insulation.

Seismic Components

Finished walls and surfaces throughout the house make seismic support measures difficult to observe.

Where visible in the crawl spaces, there are anchor bolts that secure the sill plates (the horizontal plates that are the lowest members of the wood structure) to the foundation.

It is assumed that plywood-bracing panels are installed on the perimeter cripple walls for lateral support, although the panels are not visible beneath the exterior stucco. There are visible cripple walls in the attic. Cripple walls braced with plywood are generally considered to be less prone to damage in an earthquake than unbraced cripple walls. In the crawl rear crawl space the plywood shear walls were appropriately nailed. It is not known if the plywood is nailed correctly at the exterior of the house.

A determination of the ability of this structure to withstand damage in an earthquake requires an engineering analysis, which is beyond the scope of this inspection. For further information, contact a Civil or Structural Engineer.

Debris

There were no pieces of wood or wood-related debris under the house.

ATTIC

Access

There is access to the attic through a hatch in the upstairs hall. The attic was not entered for fear that a misstep would damage the ceiling below. A limited visual inspection was performed from the top of a ladder at the access opening only.

Framing/Sheathing

The roof framing consists of 2x8 rafters at 16" and 24" on center, and the roof was assembled on-site. The visible framing is in serviceable condition.

No water stains were observed on the underside of the roof sheathing.

There were no visible H-clips installed between pieces of roof sheathing at the 24" on center rafters. The H-clips provide support for the edges of the pieces of sheathing, and they allow for expansion and contraction. The omission of H-clips is a common construction oversight, and no obvious problems resulting from this condition were noted. Installing H-clips at this time is not practical, as doing so would necessitate removal of the roof.

Ventilation

The attic is vented by a combination of roof vents and eave vents, and they ventilation appears ample. Proper attic ventilation will help to keep the house cooler during warm weather and extend the life of roofing materials.

INSULATION

Insulation levels are typical for a new house. But it was observed that the Title 24 calculations call for R-30 insulation in the attic. The insulation that was installed appears to have a rating of R-19. Upgrading is to R-30 is recommended.

LOT DRAINAGE/CRAWL SPACE MOISTURE

DESCRIPTION OF LOT DRAINAGE

Lot Grading:

•Hillside Sloped Downward from Front to Rear

Downspout Drainage System:

•Downspouts discharge below grade

DESCRIPTION OF ITEMS INSPECTED

Lot surface grading and the discharge of roof water are reviewed to determine whether water will flow away from the structure or tend to accumulate near the foundation. Any components or systems that are not visible are beyond the scope of this inspection.

Testing of underground drainage systems is beyond the scope of the basic house inspection. No determination can be made regarding whether or not drainage systems are functioning properly.

LOT DRAINAGE/CRAWL SPACE MOISTURE OBSERVATIONS

LOT DRAINAGE

Downspout Discharge

The downspouts discharge into underground drainage piping. The visible piping is solid rigid plastic with glued connections. This type of piping is preferable to the flexible piping often used. Underground piping should be flushed periodically with a hose to remove any debris.

There are a few cleanouts for the underground drainage piping at the left front of the garage and right rear in the lawn.

Roof water drainage should be controlled and diverted away from the foundation as poor drainage can contribute to movement of the foundation and moisture penetration into the subarea.

BASEMENT/CRAWL SPACE MOISTURE

Basement Moisture Conditions

'Paraseal' and 'Ameridrain' waterproofing membranes are visible in the crawl space at the center rear. It cannot be determined by visual inspection if all exterior surfaces of the walls constructed below grade are waterproofed.

At the time of inspection, the basement rooms were dry. It is possible that drainage problems could develop in the future due to excessively heavy rains, clogged drainpipes, or movement in the foundation. If dampness or seepage is observed at any time, consult a Drainage Contractor.

Crawl Space Moisture Conditions

The ratproofing in the crawl spaces was dry at the time of inspection. It is essential to prevent moisture build-up in the crawl space as high humidity conditions can cause moisture-related deterioration and may contribute to seasonal movement of the foundation, which can result in cracked walls, sticking doors, and unevenness in the floors.

Ventilation

The installation of additional crawl space ventilation for the central rear crawl space and the crawl space area below the garage should be considered if feasible. Improved crawl space ventilation will help to control humidity and reduce the potential for moisture-related deterioration. Moisture conditions in the crawl space should be monitored. Keeping plantings pruned away from the exterior and the vent openings will help to improve crawl space ventilation.

Monitoring/Maintenance

Periodic cleaning of the gutters and downspouts will be needed to maintain good roof drainage. It is recommended that the gutters and downspouts, the drainage from subsurface piping, and the site drainage in general be observed each year during heavy rains to determine if any drainage improvements or corrections are needed. The crawl space and basement should be monitored periodically throughout the rainy season for any signs of moisture penetration.

Determining the location of the discharge points for the underground drainage piping is beyond the scope of this inspection. There are a number of openings in the curb at the lower street, but it is not known if these openings are for the roof drainage from 6101 Contra Costa Road. It is recommended that you review the systems with the Builder and obtain a drawing of the systems for future reference.

EXTERIOR COMPONENTS

DESCRIPTION OF EXTERIOR

Driveway:	•Concrete
Walkways:	•Concrete
Patio:	•Concrete
Wall Cladding:	•Stucco •Stone Veneer
Eaves:	•Wood
Overhead Garage Door(s):	•Wood

DESCRIPTION OF ITEMS INSPECTED

Inspection of the exterior includes components in yard areas (such as fencing, decking, patios, etc.), condition of exterior surfaces (such as siding, trim, and balconies, etc.), and the driveway and garage. Inspection of the garage includes observation of the garage slab, applicable fire ratings, the condition and operation of the garage door, and the proper operation of automatic garage door openers.

EXTERIOR OBSERVATIONS

YARD AREAS

Retaining Walls

There are stone retaining walls at the right front of the property. They are in satisfactory condition and are performing their intended function.

There are concrete planter/retaining walls at the front stairs, and they are also in satisfactory condition.

An evaluation of the structural integrity of retaining walls is beyond the scope of this inspection. For further information, consultation with a Civil or Structural Engineer is recommended.

Fencing & Gates

Most of the fencing is in serviceable condition.

The fence near the right front gate is damaged, possibly by a dog.

The hinges for the left rear gate are not secure, and the gate needs repair to function properly.

The entry gates are not aligned correctly, and planing or other adjustment is needed.

The right rear gate functioned easily.

Landscaping

The landscaping is generally in satisfactory condition, but the rear lawn is deteriorated, and repair or new sod is needed.

Public Sidewalks

The public sidewalk at the front of the property has some typical concrete cracks, but is in satisfactory condition. Contact the Oakland Department of Public Works to determine who is responsible for maintenance and repair of the sidewalk.

Driveway

The driveway is in serviceable condition, with little or no concrete cracking. There is some erosion of the soil between the concrete pads. Apparently the Builder plans to fill these areas with stones. It is recommended that these stones be set in concrete so that they will not become dislodged.

Walks

The rear walk is in serviceable condition.

Porch

The concrete porch at the front entry is in serviceable condition.

Stairs

The entry stairs are in satisfactory condition.

The pair of rear stairs from the rear balcony and the right front stairs have risers that are not consistent in height, which is a potential tripping hazard for anyone unfamiliar with the stairways. No more than a 3/8-inch variation in height is allowed for safety, and the maximum height allowed for a riser is eight inches. It is recommended these stairs be brought up to this standard for improved safety.

The public stairway outside the right side of the property has risers that are not consistent in height, and there are various tripping hazards. It is recommended that you discuss the condition of this stairway with the City of Oakland Public Works Department.

Patio

The right front patio is in serviceable condition.

Railings

The guardrails and handrails are secure and in good condition.

STRUCTURE EXTERIOR

Most of the exterior is covered with stucco. There is stone veneer at the entry and office room above.

Stucco

The exterior stucco is in serviceable condition, with some typical cracks at the corners of doors and windows. Some cracking of stucco is to be expected.

The bottom edge of the stucco ends on a weep screed (perforated metal channel). The screed allows moisture to drain from the paper backing behind the stucco-covered walls. This installation also helps to prevent undetected structural pest infestation. The level of the exterior concrete flatworks and soil should be maintained below the base of the stucco.

The screed is covered with concrete at the steps at the right side of the house.

The screeds at the rear balcony are not visible at the two descending stairways.

No obvious signs of moisture-related problems were noted in these areas at the time of inspection, but these areas should be monitored for leakage or damage every year.

Veneer

The stone veneer at the entry tower is in serviceable condition. It was not loose from the house or cracked.

Trim

The raised trim details at the upper floor appear to have been built up with foam blocks covered with a thin layer of stucco, which are commonly referred to as 'plant-ons'. This method has the advantage of providing architectural detail without wood shrinkage or additional breaks in the membrane behind the stucco. This material is easily damaged by impact and moisture intrusion. Any damaged areas or voids should be sealed promptly to prevent moisture penetration. No obvious problems were observed at the time of inspection.

Exposed "Bituthene-type" material at the main electrical enclosure should be painted for protection from sun damage.

Paint

The exterior paint is in satisfactory condition.

GARAGE

Garage Structure/Floor

There are two attached garages at the left front of the house. Where visible, the garage floor is in serviceable condition, with only a few small concrete cracks.

Stored personal possessions and finished walls prevented a thorough inspection of the interior of the garage. When stored items are removed, the garage interior and floor should be thoroughly examined.

Garage Vehicle Door

There are two sectional roll-up wood garage doors. The nuts on the hinges of this type of door require periodic tightening. Consider installing lock washers with flat washers to hold the nuts in place. For a lock washer to work properly, a flat washer must also be installed.

The garage doors operated normally when opened and closed using the button near the door between the garage and interior. No remote control devices were operated.

The automatic reversing mechanism on the overhead garage doors responded to testing, but too much force was required to cause the doors to reverse. The mechanisms need adjustment.

The secondary infrared light beam reversing mechanisms responded properly to testing.

Reversing mechanisms are an important safety feature that should be tested regularly. Refer to the owner's manual or contact the manufacturer for further information.

Garage/House Door

There is a solid-core door installed between the house as is currently required. This door will help slow the spread of a fire originating in the garage to the rest of the house.

The door is provided with a self-closing device as is required.

Firewall

The wood storage platform at the rear of the garage could catch fire, should a fire start in the garage. If the underside of this platform was sheathed in Type-X gypsumboard, it would improve its resistance to fire.

ROOFING SYSTEM

DESCRIPTION OF ROOFING SYSTEM

Roof Covering:	•Clay Tile
Gutters and Downspouts:	•Copper
Balcony:	•Tile Surface
Method of Inspection:	•Viewed from Ladder at Garage Eaves and Ground with Binoculars

DESCRIPTION OF ITEMS INSPECTED

The roof is inspected with attention to the condition of the surface materials, installation/sealing of roof penetrations and flashings, and method of roof water drainage (gutters and downspouts). Roofing life expectancies can vary depending on several factors. This assessment of the roof does not preclude the possibility of leakage. Leakage can develop at any time and may depend on rain intensity, wind direction, etc.

ROOFING OBSERVATIONS

ROOF

Clay Tile

Due to roof height and inaccessibility, much of the roof was inaccessible to inspection.

The roof is covered with clay tile. A properly installed tile roof should last approximately 20 to 30 years.

It is important that no one except a qualified tradesman walk on this roof, as the tiles are susceptible to breakage.

The tiles are secured by copper wires and by nails to the roof sheathing. The field and ridge tiles appear to be properly installed.

Tile roofs often experience tiles slipping out of place at vertical walls, roof rakes and hips, and flashings where they have been cut to fit. No slipped tiles were observed at the time of inspection.

Rolled asphalt roofing is installed beneath the roofing tiles. If this material was properly installed, a cracked, slipped, or broken tile will not cause a leak.

Jacks/Flashings

Where visible, there are lead roof jacks where the plumbing vent pipes penetrate the roof. These jacks are well sealed to prevent leakage.

Gutters

There is debris in the gutters that should be cleaned out.

There is a gutter leak at the left front of the garage that needs repair.

The rear downspouts are enclosed inside exterior walls. Keeping these downspouts clear of blockages is essential to prevent moisture penetration into the walls.

The wire baskets could be installed at the downspouts to prevent debris from blocking the downspouts. Regular cleaning and maintenance of the gutters and downspouts is essential.

Balcony

There is a balcony at the rear of the house. The balcony surface is covered with tile. The balcony is pitched slightly so that water will drain down the double stairway.

There is another balcony at the left rear of the house that also has a tiled surface. This balcony drains through a scupper to the balcony below. There is no downspout, and it is recommended that a "hopper style" downspout be installed and run to the lower balcony surface.

As noted above in the Exterior section, there is no visible weep screed at the base of the stucco at the rear stairs.

There also are a number of visible cracks in the tiled surface, and there are cracks in the stairs to the living room. These cracks may indicate that there is inadequate joist support for the balcony.

The tiles at both balconies need cleaning and sealing to prevent leakage.

It is recommended that a Civil or Structural Engineer review the plans to determine if there is adequate support for the lower rear balcony.

CHIMNEY & FIREPLACE

DESCRIPTION OF CHIMNEY & FIREPLACE

Chimneys: •Metal below Stucco siding
Fireplaces: •Zero-Clearance •Gas-Only

DESCRIPTION OF ITEMS INSPECTED

The chimney stack is inspected with attention to condition and signs of settlement. The interior of the flue is inspected for condition and build-up of soot (except when otherwise noted). The fireplace is inspected for condition, and the damper and any gas service are tested for proper operation. The adequacy of the fireplace draw cannot be determined during a visual inspection.

CHIMNEY & FIREPLACE OBSERVATIONS

CHIMNEYS

Chimney Stack

There are two insulated metal chimneys contained in a wood-framed chases that are covered with stucco.

Due to the tile roof and roof height, the top of the chimneys, the flues, and the chimney flashings were inaccessible for inspection.

Spark Arrester/Rain Cap

There are combination spark arrester/rain cap assemblies at the top of both chimney flues for fire safety and to prevent water from entering the flues.

Flashings

Viewed from the ground with binoculars, the flashings at the living room chimney appear properly installed and sealed where visible.

Flue/Soot Conditions

The living room chimney flue has very little buildup of soot. Soot conditions should be monitored periodically as part of routine maintenance, and the flue cleaned when necessary.

LIVING ROOM FIREPLACE

Firebox

The zero-clearance fireplace is in serviceable condition. Zero-clearance fireplaces will not take as large a fire as a masonry unit. Most manufacturers recommend that imitation logs not be burned in these units.

Damper

The damper worked easily. The damper prevents heated air from escaping up the chimney when the fireplace is not in use.

There are glass doors at the firebox opening. The doors provide some of the same functions as a damper to help conserve energy. The glass doors operated easily.

Gas Service

There is a gas log lighter at the living room fireplace. There was a key on the mantle, and the log lighter emitted gas when the key was used. Keep the key in a safe place and use care when operating the log lighter.

When there is a gas log lighter, some municipalities require the damper be modified so it will not close completely. This modification allows gas to escape up the chimney should there be a leak at the log lighter. This damper has not been modified. Modification of the damper may not have been required at the time this house was constructed, but is recommended for improved safety.

Hearth

The hearth depth is adequate.

MASTER BEDROOM FIREPLACE

In the master bedroom there is a decorative gas-only fireplace. It is controlled by a switch at the entry to the room. It functioned properly when operated. It would be advisable to obtain the manufacturer's installation/operation manual for future reference.

HEATING & COOLING SYSTEMS

DESCRIPTION OF HEATING & COOLING SYSTEMS

Heating Energy Source:	•Gas
Heating System Type:	•Hydronic
Heated Air Distribution Method:	•Radiation
Cooling System Type:	•None

DESCRIPTION OF ITEMS INSPECTED

The *heating system* is inspected for proper operation, presence of safety controls, availability of combustion air, condition and proper installation of the exhaust flue and means of distribution. A complete evaluation of the furnace heat exchanger is beyond the scope of this inspection. The inspection of the heating system is limited and not technically exhaustive. A determination of the adequacy of distribution of conditioned air is beyond the scope of this inspection.

HEATING & COOLING OBSERVATIONS

HEATING SYSTEM

Hydronic Heat

There is a hydronic heating system that delivers hot water to under floor pipes that are inaccessible to inspection. Two water heaters in the front basement provide heated water for the system.

The radiant heating system functioned at the time of inspection. The system is estimated to be three years old. The typical life cycle for a unit such as this is 20 to 25 years. Some units will last longer, others can fail prematurely.

The distribution of heat to different parts of the house is adjusted thermostats located in each room of the house. It is recommended the Builder be consulted regarding operation of this system, and that any operation manuals be obtained for future reference.

It is impossible to verify the condition or reliability of concealed radiant piping. It should be understood that pipe repairs could be difficult. It is strongly recommended that a homeowner's insurance policy include coverage for water damage that could result from a leak.

There is an electric boiler in the attic that appears to provide backup to the hydronic heating system but may provide back up to the hot water system.

Refer to the Plumbing section of this report for a description of the water heaters supplying the radiant heating system.

Combustion Air

The supply of combustion air by upper and lower ventilation openings at the basement below the garage appeared adequate.

PLUMBING SYSTEM & WATER HEATER

DESCRIPTION OF PLUMBING SYSTEM & WATER HEATER

Main Water Valve Location:	•Crawl Space below Garage
Water Supply Source:	•Public Water Supply
Supply Piping:	•Copper
Waste Disposal System:	•Public Sewer System
Drain / Waste / Vent Piping:	•Plastic
Main Gas Valve Location:	•Right Front of Garage
Water Heaters:	•Gas •50-gallon approximate capacity each

DESCRIPTION OF ITEMS INSPECTED

The *plumbing system* consists of domestic water supply lines and drain, waste, and vent lines. Water is run through the accessible fixtures to assess functional flow conditions of supply and waste lines. This testing is of short duration and should not be considered a complete inspection of the supply and drain system. Gas lines, which are also part of the plumbing system, are inspected for proper installation.

Portions of the plumbing system concealed by finished walls and/or storage (below sinks, etc.) are not inspected. Water quality is not tested. The presence or effect of lead content in solder and or supply piping is beyond the scope of the inspection.

The *water heater* is inspected for condition of the tank, proper water and gas connections, proper installation of the exhaust flue, availability of combustion air, presence of a safety valve, and adequacy of seismic restraint.

PLUMBING & WATER HEATER OBSERVATIONS

PLUMBING

Main Water Supply Piping

Where visible under the garage at the main water shutoff valve, the service piping to the house is 1-1/2" diameter copper. The main water shutoff valve was not operated.

Interior Water Supply Piping

Where visible the accessible underfloor supply piping has adequate support.
The accessible water supply pipes are not insulated. Insulating these pipes would improve energy efficiency.
At the rear of the house there are exposed copper pipes that should be insulated to help prevent freezing.

Water Pressure

The water pressure was recorded as 40 psi on a testing device at the time of inspection.

There is a regulator installed at the main water valve to adjust the amount of water pressure. The pressure can be adjusted by turning the bolt/screw on the bell of the regulator. Setting the bolt further into the regulator increases pressure, while setting the bolt/screw further out of the regulator decreases pressure. The pressure supplied by the water system may vary from time to time depending on neighborhood use and other factors.

Valves

The fixtures throughout the house turned on and off properly.

Circulating Tub

The circulating tub in the master bathroom was not operated. The circulating tub equipment is accessed from the adjacent toilet room. The tub is provided with ground fault circuit interrupter (GFCI) protection as is required.

Sewer Cleanouts

Cleanouts for the main sewer line are located at the right rear of the property and beyond the right rear property line. Other cleanouts are located on the exterior and beneath the structure. Cleanouts beneath the structure are located within 20' of a crawl space access opening as is currently required. Cleanouts are used to remove obstructions in the drainage piping.

The sewer lateral leading from the house to the sewer main is underground and inaccessible to visual inspection. The location of all cleanouts should be documented. The Owner should be questioned to determine if it has been necessary to clean the drainage system. If cleaning has been necessary, it could indicate a problem with the lateral, in which case further inspection with a camera by a Plumbing Contractor would be indicated.

Waste System

The waste system appeared to flush and drain properly at the time of inspection. The accessible underfloor drain piping appeared to have adequate slope and support.

The sink in the upstairs kitchen is in an island, so there is no way to make a direct connection to a vent pipe in a wall. Vent piping is necessary to assure proper drainage and to maintain the seal of the drain trap below the sink. There is a vent loop in the cabinet below the sink, and a foot vent connected to this vent loop under the floor. This installation appears correct.

GAS SERVICE

The main gas valve can be operated with a wrench. An automatic shut-off valve could be installed for earthquake safety.

WATER HEATER

Tank

There are two water heaters that provide heated water to the plumbing system and the hydronic heating system. The water heaters are plumbed in series, as is standard practice when two water heaters are connected together.

The water heaters delivered heated water when tested. These units are the power-vent type with fans on the exhaust flues to assist the draft.

The water heaters are estimated to be three years old. Water heaters have a typical life expectancy of 10 to 15 years. It cannot be predicted with certainty when replacement will become necessary.

There are no insulating blankets on the tanks. Blankets could be installed for improved energy efficiency.

The water heaters are strapped and braced for earthquake protection as currently required.

The water heaters are plumbed with rigid water supply piping. Rigid piping may break in an earthquake, causing water damage to the house. The use of flexible pipe connectors is now recommended.

There are circulation pumps to keep hot water continuously at some or all of the fixtures.

Safety Release Valve

There are pressure and temperature relief (PTR) valves. These valves were not tested. The PTR valves are provided with discharge pipes terminating in an appropriate manner.

Combustion Air

The supply of combustion air by upper and lower ventilation openings at the basement below the garage appeared adequate.

Exhaust Flue

The water heaters are served by black plastic flues. The exhaust flue for the first water heater is disconnected. This condition can allow spillage of combustion exhaust, posing a safety hazard as the exhaust could contain carbon monoxide. The flue should be reassembled.

ELECTRICAL SYSTEM

DESCRIPTION OF ELECTRICAL SYSTEM

Size of Electrical Service:	•Main Service Rating 200 Amps, 120/240 Volts
Service Entrance Wires:	•Underground
Main Disconnect:	•Breakers •Located at Left Front of Garage
Service Ground:	•Not Visible
Subpanels:	•Breakers •Located in the Basement
110-Volt Distribution Wiring:	•Copper
220-Volt Distribution Wiring:	•Copper
Receptacles:	•Grounded

DESCRIPTION OF ITEMS INSPECTED

The electrical system consists of service capacity, distribution panels and wiring, switches, receptacles, and lights. Examination of the electrical system includes visible conductors, branch circuitry, panels, overcurrent protection devices, and a random sampling of receptacles and switches. Electrical components concealed behind finished surfaces and beneath insulation could not be inspected. The inspection does not include low voltage systems, telephone wiring, intercoms, alarm systems, TV cable, or timers.

ELECTRICAL OBSERVATIONS

Amperage Capacity

The main amperage capacity is standard for a house of this size and age.

Grounding/Bonding

There is a main grounding conductor from the service panel, but the grounding source for this conductor could not be located. Modern systems are typically grounded to water piping, foundation steel (ufer), or a driven rod, but no connection to such a ground source was visible.

The gas and water supply piping are bonded together for electrical system safety.

Subpanels

Breakers in the basement subpanels match the size of the wires they protect.

Breakers in the subpanels are labeled. Whether or not the breakers are correctly labeled was not verified.

The breakers making up the multi-wire branch circuits in the subpanels should be mechanically connected to prevent one half of a circuit from being turned on or off independent of the other half.

Distribution Wiring

Labeling on the panels indicates that dedicated 220 volt circuits have been provided for 220 volt appliances within the house.

Receptacles/Switches

Three-slot grounded outlets are installed throughout the house. A random number of outlets were tested for proper polarity and grounding. All three-slot outlets that were tested were appropriately grounded.

The switches that were tested operated satisfactorily.

GFCI's

Ground fault circuit interrupter (GFCI) devices are installed in all required locations. These devices functioned properly when tested.

A GFCI device detects imbalances in electrical load associated with short circuits in wiring or appliances. The GFCI will shut off power in a circuit before a short can result in a serious shock. In new construction, GFCI protection is required for exterior, garage, bathroom, and kitchen outlets. Circulating tubs and swimming pool equipment are also required to have GFCI protection.

Wiring

The house has been wired for the installation of speakers in various areas, but the wiring has not yet been connected. Category 5 wiring is visible in the attic and crawl space, and there are coaxial cables in the cabinet at the left side of the family room.

The fountain at the entry is powered by an extension cord running through the basement. Extension cords are intended only for temporary use as they do not have quality insulation, and long-term use can pose a fire hazard. The extension cord should be removed and permanent wiring installed.

INTERIOR COMPONENTS

DESCRIPTION OF INTERIOR

Wall and Ceiling Finishes:	•Drywall
Floor Surfaces:	•Tile •Wood •Carpet
Doors:	•Wood •Metal-Clad Wood •French
Window Frames and Glazing:	•Metal-Clad Wood •Double-Glazed
Window Style:	•Casement

DESCRIPTION OF ITEMS INSPECTED

The interior inspection includes observation of the condition of walls, ceilings, floors, stairways, and railings. These items are examined for signs of excessive wear and general state of repair. Assessing the quality and condition of interior finishes is highly subjective. Issues such as cleanliness, cosmetic flaws, quality of materials, architectural appeal and color are outside the scope of this inspection. Comments are general, except where functional concerns exist. No comment is offered on the extent of cosmetic repairs that may be needed after removal of existing wall hangings, furniture, storage, and appliances.

A random number of interior and exterior doors are examined for operation, condition of hardware, weather-stripping, presence of safety glazing, and signs of moisture penetration. A representative number of windows are examined for operation, presence of safety glazing, signs of moisture penetration, and compliance with secondary egress requirements.

The inspection of the bathrooms includes condition of grout, tile, and flooring; adequacy of caulking; adequacy of ventilation; and signs of excessive moisture. Operation of fixtures is part of the Plumbing system inspection.

INTERIOR OBSERVATIONS

INTERIOR

Walls & Ceilings

The interior paint is in generally serviceable condition, but because of normal wear and tear, some painting may be needed after the Owner moves out.

Some typical cracks were observed.

Floors/Floor Coverings

The wood flooring in the living room, dining room, kitchen, and upper hall is in serviceable condition.

The wood flooring in the entry shows some surface wear, and refinishing is needed.

The carpeting in the upstairs bedrooms and basement room showed some stains and replacement is recommended. It is not known if the stains can be removed by cleaning or if the stains penetrate into the flooring beneath the carpet.

Stairways & Railings

The handrail at the lower flight of stairs to the second floor projects outward at the end rather than returning to the wall. This condition could snag baggy clothing or purse straps. Modern railings are required to return to the wall or to posts to prevent this potential hazard. It would be advisable to upgrade the railing to meet this standard.

No handrail is installed at the upper flight of stairs to the second floor, and a handrail that can easily be grasped should be provided for safety.

Fire/Smoke Detectors

Fire/smoke detecting devices are installed in all bedrooms, in hallways within 15' of bedroom doors and on every level. Fire/smoke detecting devices are located in all required locations. These devices were not tested. Plan to change batteries in these devices each year.

Consider storing emergency escape ladders in the upstairs bedrooms for added safety.

DOORS

Entry

The wood entrance door closes, latches, and is weather-stripped.

No doorbell is present at the entry door. There appears to be wiring for a doorbell, and a doorbell could be installed.

French

The metal-clad wood exterior French doors opened and closed easily.

Interior

A random sampling of interior doors were operated. The doors tried opened and latched properly.

WINDOWS

Components

Thermal-pane glass is installed in the windows throughout the house. It is possible for the seals of the glass in these windows to have failed but for the failure to not be perceivable under the particular climatic conditions on the day of inspection. No comment can be made regarding the future performance of thermal-pane glass.

The sills of the windows in the right front and right rear bedrooms are higher than 44 inches above the floor. Since the late 1950's, bedroom windows have been required to be no more than 44 inches from the floor so that they can serve more readily as a secondary means of egress in case of an emergency.

Operation

A random sampling of windows were operated. The window in the basement bedroom does not close completely as the vinyl strip is damaged. Repair is needed. The rest of the windows tried opened and latched properly.

Moisture Penetration

The windows showed no signs of moisture penetration from the exterior.

BATHROOMS

Master Bathroom

The tile grout at the vanity counter/wall joint and toilet room floor/wall joint is cracked, and repair is needed.

Tile grout should be sealed periodically to prevent moisture penetration.

There is a ceiling ventilation fan and an operable window to provide ventilation for the bathroom.

Note that the steam feature at the master bathroom shower was not tested.

Upstairs Hall Bathroom

Caulking between the tub and tile is needed for cosmetic reasons and to prevent moisture intrusion.

A ceiling ventilation fan and an operable window are present to provide ventilation for the bathroom.

Basement Bathroom

The bathroom has no obvious problems. Cleaning is needed, and there were ants in the bathroom at the time of inspection.

There is a ceiling ventilation fan and an operable window to provide ventilation for the bathroom.

Entry Half Bathroom

The bathroom showed no obvious problems. A ventilation fan provides ventilation for the bathroom.

KITCHEN & LAUNDRY

DESCRIPTION OF KITCHEN & LAUNDRY

Kitchen Appliances Present: •Gas Range •Waste Disposers •Dishwasher •Hot Water Appliance
Laundry Appliances Present: •220-Volt Circuit & Gas Piping for Dryer •Dryer Vented to Exterior
•120 Volt Circuit for Washer •Hot & Cold Water Supply for Washer

DESCRIPTION OF ITEMS INSPECTED

Kitchen appliances are tested by turning them on for a short period of time. Laundry facilities are checked for presence and type of available hookups. Testing of microwave ovens, refrigerators, freezers, washing machines, and dryers is beyond the scope of this inspection. Self-cleaning and continuous-cleaning oven cycles, thermostats, timers, clocks, and other specialized features are also beyond the scope of this inspection. The effectiveness, efficiency and overall performance of appliances are outside the scope of this inspection. It is strongly recommended that a Homeowner's Warranty or service contract be purchased to cover the operation of appliances. It is further recommended that appliances be tested during any scheduled pre-closing walk-through. Like any mechanical device, appliances can malfunction at any time (including the day after taking possession of the house).

KITCHEN & LAUNDRY OBSERVATIONS

KITCHEN

Sink

The sink is in satisfactory condition.

Counters

The limestone counters are in serviceable condition, with no wear.

Cabinets

The cabinets are in satisfactory condition.

Range

The gas oven and cooktop burners ignited.

Vent

A vent hood is installed above the cooktop. The vent operated.

The vent filter is clean. The vent and vent filter will require periodic cleaning.

It is recommended a fire extinguisher be stored in the kitchen for improved fire safety.

Waste Disposer

The waste disposers functioned.

Dishwasher

The dishwasher was operated and appears to be in serviceable condition.

There is a visible connection for an air gap device at the dishwasher, but there is no visible air gap device at the countertop. An air gap device is required to provide a separation between supply and waste water. It is recommended that an air gap be installed.

Hot Water Appliance

The hot water appliance delivered heated water.

Basement

The sink and under-counter refrigerator in the basement family room are in serviceable condition.

LAUNDRY

No overflow pan is provided for the washing machine. It is recommended that a metal pan with a drain to the exterior be placed under the washing machine to prevent water damage should the washer leak or overflow.

The ventilation fan operated.

IF YOU NEED FURTHER INFORMATION

As a reference for home maintenance projects, a book such as *Rehab Right* by the City of Oakland Planning Department (Ten Speed Press), the *Reader's Digest Complete Do It Yourself Manual*, or a similar handbook can be obtained.

The enclosed *Sunset* article contains a variety of information on earthquake preparedness. Additional information can be obtained from:

- California Office of Emergency Services: PO Box 9577, Sacramento, CA 95823; (916) 427-4990, (510) 667-7740 (Alameda County).
- The Bay Area Regional Earthquake Preparedness Project: Metro Center, 101 8th Street, Suite 152, Oakland, (510) 540-2713.

City maps indicating geologic materials and ground-shaking intensities for different earthquake scenarios are available from:

- The Association of Bay Area Governments, P. O. Box 2050, Oakland, CA 94604-2050, or on the Internet at <http://www.abag.ca.gov>.

For information on rodent control, contact the County Health Department, Vector Control Services District.

When the house is empty and all surfaces are visible, it is recommended that you do a walk-through inspection to see if conditions have changed since the time of this inspection. Check for new cracks or water stains, check the operation of doors and windows, and look for plumbing leaks at sinks, tubs, and showers, etc. If you note any significant changes, feel free to call for advice.

Please read this report carefully and call immediately if you have any questions or would like further clarification of any items. Feel free to call should you have any questions regarding the operation or maintenance of your house.

WOOD DESTROYING FUNGUS AND ORGANISMS INSPECTION REPORT

This is an inspection report only -- not a Notice of Completion
ADDRESS OF PROPERTY INSPECTED

BUILDING NO. 6101	STREET, CITY, STATE, ZIP CONTRA COSTA ROAD, OAKLAND, CA, 94618	COUNTY CODE 01	DATE OF INSPECTION 01/04/02	NUMBER OF PAGES 6
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5300 HUNTINGTON AVENUE • RICHMOND, CALIF. 94804 • (510) 524-3112 • FAX: (510) 524-3757

Affix stamp here on Board copy only
A LICENSED PEST CONTROL OPERATOR IS AN EXPERT IN HIS/HER FIELD. ANY QUESTIONS RELATIVE TO THIS REPORT SHOULD BE REFERRED TO HIM/HER.

REGISTRATION # PR 0195	REPORT # 5262	STAMP #	ESCROW #
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ORDERED BY: BARRY AUGUS C/O TEMPLETON LEVERETTE 3070 CLAREMONT AVENUE BERKELEY CA 94705
HELENE BARKIN

REPORT SENT TO: PRUDENTIAL 2077 MOUNTAIN BLVD. OAKLAND CA 94611
HEIDE MARCHESOTTI

PROPERTY OWNER: MICHAEL PRITCHARD 6101 CONTRA COSTA ROAD OAKLAND CA 94618

PARTY IN INTEREST: BARRY AUGUS 1724 MARIN BERKELEY CA 94707

ORIGINAL REPORT <input checked="" type="checkbox"/>	LIMITED REPORT <input type="checkbox"/>	SUPPLEMENTAL REPORT <input type="checkbox"/>	* REINSPECTION REPORT <input type="checkbox"/>	*Original Stamp #	Date
GENERAL DESCRIPTION: <u>3 STORY SINGLE FAMILY RESIDENCE</u>					
INSPECTION TAG POSTED: <u>SUBAREA BENEATH GARAGE</u>					
OTHER INSPECTION TAGS: <u>NO CURRENT TAGS POSTED</u>					
1. SUBSTRUCTURE AREA	2. STALL SHOWER	3. FOUNDATIONS	4. PORCHES -- STEPS	5. VENTILATION	6. ABUTMENTS
7. ATTIC SPACES	8. GARAGES	9. DECKS -- PATIOS	10. OTHER -- INTERIOR	11. OTHER -- EXTERIOR	
DIAGRAM AND EXPLANATION OF FINDINGS (This report is limited to structure or structures shown on diagram)					

RECEIVED AND READ

NUMBER OF PAGES: 6

NAME _____ DATE _____

NAME _____ DATE _____

NOTE: DIAGRAM IS DISPLAYED ON PAGE 2.

Inspected by Kent Stonebraker License No. OPR #5580 Signature Kent Stonebraker

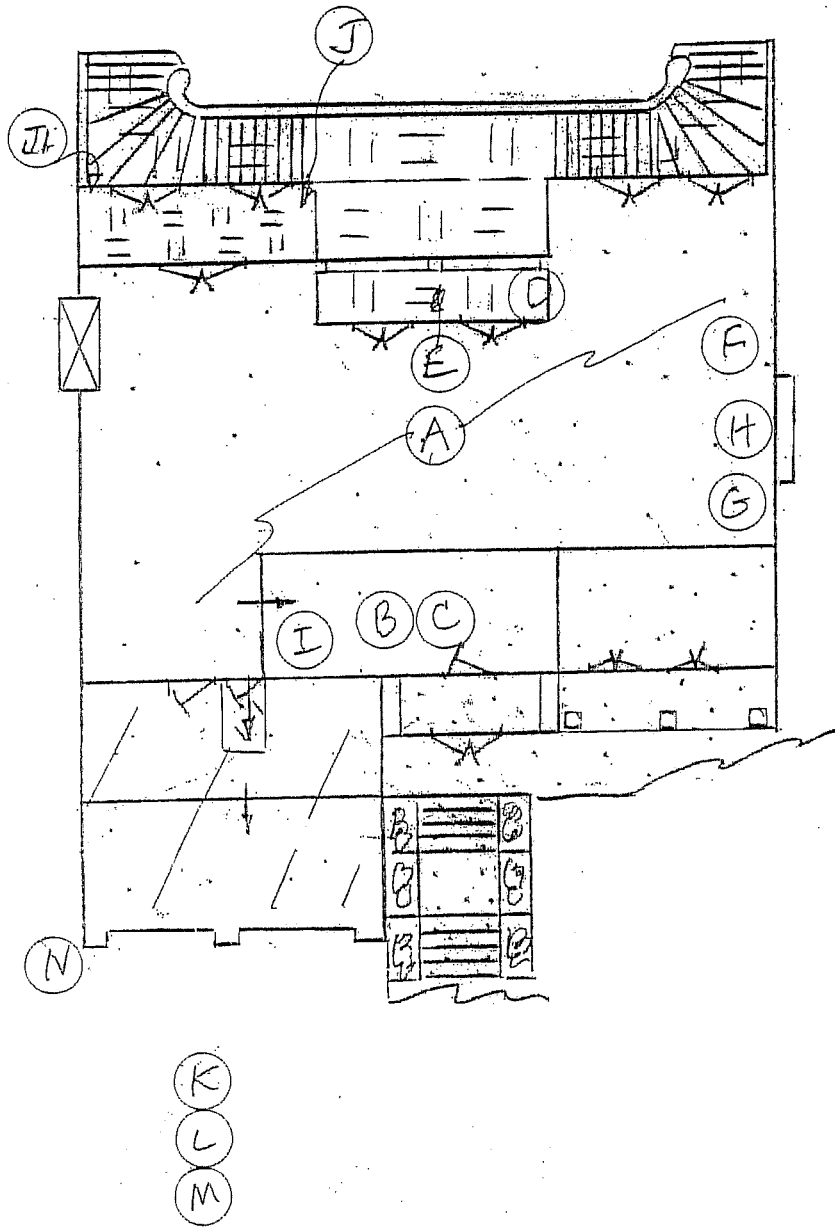
NOTE: Questions or problems concerning the above report should be directed to the manager of the company. Unresolved questions or problems with services performed may be directed to the Structural Pest Control Board at (916) 561-8708, or (800) 737-8188.

6101 CONTRA COSTA ROAD, OAKLAND, CA, 94618

01/04/02 5262

BUILDING NO. STREET, CITY, STATE, ZIP

INSPECTION DATE REPORT NO.



6101	CONTRA COSTA ROAD, OAKLAND, CA, 94618	01/04/02	5262
BUILDING NO.	STREET, CITY, STATE, ZIP	INSPECTION DATE	REPORT NO.

" ANYONE READING THIS REPORT MUST READ THE FOLLOWING"

What is a Wood Destroying Pest & Organism Inspection Report ?

READ THIS DOCUMENT. IT EXPLAINS THE SCOPE AND LIMITATIONS OF A STRUCTURAL PEST CONTROL INSPECTION AND A WOOD DESTROYING PEST & ORGANISM INSPECTION REPORT.

A Wood Destroying Pest & Organism Inspection Report contains findings as to the the presence or absence of evidence of Wood Destroying Insects or Organisms in visible and accessible areas on the date of inspection and contains our recommendations for correcting any infestations, infections, or conditions found. The contents of the Wood Destroying Pest & Organism Inspection Report are governed by the Structural Pest Control Act and Its Rules and Regulations.

Some structures may not comply with building code requirements or may have structural, plumbing, electrical, heating and air conditioning, or other defects that do not pertain to Wood Destroying Organisms. A Wood Destroying Pest and Organism Inspection Report does not contain information about any such defects as they are not within the scope of that license of the inspector or the company issuing this report.

IMPORTANT-----PLEASE READ CAREFULLY*

AREAS NOT INSPECTED

This is a report of an inspection for wood destroying pest and organisms at accessible and visible parts of the building shown on the diagram. We did not inspect areas immediately under or behind finished walls, applicances, carpeting, insulation or personal stored property/articles. We did not open cabinet drawers, cabinet doors, or move personal articles inside closets. We did not inspect inside finished walls or ceilings. Inspection of these areas is not practical, unless noted. Our inspection does not include inspection of the electrical, heating, mechanical or plumbing systems unless noted. We did not inspect the roof covering. We did not use a ladder to inspect the exterior siding, windows or any other part of the exterior. If any information is desired about any areas not inspected by this firm, a company that makes home and roof inspections should be engaged. It is possible for wood destroying pests and organism, infestations of termites and infections to be concealed and not evident at the time of our inspection.

NOTICE:

A reinspection of the structure (s) described herein will be performed by Structural Renewal, Inc. and an estimate given, if so requested by persons ordering the original report. This company will reinspect repairs done by others within (4) months of the original inspection. A charge, if any, can be no greater than the original inspection fee for each reinspection. The reinspection must be done within ten (10) working days of request. The reinspection is a visual inspection and if inspection of concealed areas are desired, inspection of work in progress will be necessary. Any guarantees must be received from parties performing repairs. Structural Renewal, Inc. will reinspect but will not pass, repairs performed but not finalized by the Local Building Authority. In the event damage is found to extend further than outlined at any items listed below during the course of repairs, except where further inspection is recommended, our estimate includes repairs of these areas. SHOULD ANY PERSONS OR FIRMS UNDERTAKE REPAIRS OUTLINED IN THIS REPORT, THEY SHALL ALSO ASSUME RESPONSIBILITY FOR DAMAGE THAT MAY BE MORE EXTENSIVE THAN OUTLINED. Structural Renewal, Inc. will not be responsible for any damage more extensive than outlined, unless performing the repairs.

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BUILDING NO.	STREET, CITY, STATE, ZIP	INSPECTION DATE	REPORT NO.

NOTE: ONLY A LICENSED STRUCTURAL PEST CONTROL FIRM MAY APPLY ANY CHEMICAL FOR TREATMENT OF ANY WOOD DESTROYING ORGANISMS, INCLUDING FUNGICIDES. FOR EXEMPTIONS, SEE SECTIONS 8555 AND 8556 OF THE BUSINESS AND PROFESSIONS CODE. IF A CONTRACTOR TREATS FOR ACTIVE INFESTATIONS OR INFECTIONS - THE CONTRACTOR IS TREATING ILLEGALLY.

WARNING:
OWNER MUST BE AWARE OF THE ABOVE IF OBTAINING COMPETITIVE ESTIMATES. ALSO, NO GUARANTEES OR WARRANTIES SHALL BE GIVEN BY STRUCTURAL RENEWAL, INC, REGARDING THE WORKMANSHIP OR QUALITY OF MATERIALS IF REPAIR WORK IS PERFORMED BY OTHERS, EVEN IF WORK IS ACCEPTABLE AND APPROVED BY THIS FIRM.

GUARANTEE: All work performed by Structural Renewal, Inc. is guaranteed for a period of one (1) year from the date of completion. (EXCEPTIONS) Plumbing, caulking and linoleum work is guaranteed for thirty (30) days only. The report in regard to findings, shall be valid for one (1) year. There are no guarantees given for caulking, sealing, roofing, plumbing and other such mechanical failures. Outlined repair work will not be accepted after six (6) months without a new inspection report being issued. See Work Authorization Agreement regarding bill of acceptance.

NOTE: Areas of new wood replacement and/or stucco repair shall be prime painted one coat only unless specifically mentioned elsewhere in this report. It shall become the owner's responsibility to keep these areas finish painted during the course of property maintenance. All pesticides and fungicides shall be applied by state certified applicator and in accordance with the chemical manufacturer's label requirements.

NOTE: This inspection and report does not include any inspection for the presence of asbestos. The owner or contractor must determine whether asbestos is present prior to commencement of any work. Employees/occupants must be protected from asbestos fiber release. Any work in progress by Structural Renewal, Inc. will be halted if it is believed that asbestos is observed in such areas. Structural Renewal Inc. would then resume work only after the area has been certified as safe, by an asbestos abatement contractor. Owner to contact asbestos contractor. Structural Renewal, Inc. shall be held harmless from all claims of any nature pertaining to asbestos by owner/agent/tenant or third party.

NOTICE: Reports on this structure prepared by various registered companies should list the same findings (i.e. termite infestations, termite damage, fungus damage, etc. However, recommendations to correct these findings may vary from company to company. You have a right to seek a second opinion from another company.

NOTE:
THIS IS A SEPARATED REPORT WHICH DEFINES AS SECTION 1 OR SECTION 2 CONDITIONS EVIDENT ON THE DATE OF INSPECTION.

SECTION 1 CONTAINS ITEMS WHERE THERE IS VISIBLE EVIDENCE OF ACTIVE INFESTATION, INFECTION OR CONDITIONS THAT HAVE RESULTED IN OR FROM INFESTATION OR INFECTION.

SECTION 2 ITEMS ARE CONDITIONS DEEMED LIKELY TO LEAD TO INFESTATION OR INFECTION, BUT WHERE NO VISIBLE EVIDENCE OF SUCH WAS FOUND.

FURTHER INSPECTION: FURTHER INSPECTION ITEMS ARE DEFINED AS RECOMMENDATIONS TO INSPECT AREAS WHICH DURING THE ORIGINAL INSPECTION, DID NOT ALLOW THE INSPECTOR ACCESS TO COMPLETE THE INSPECTION AND CANNOT BE DEFINED AS SECTION 1 OR SECTION 2.

6101

CONTRA COSTA ROAD, OAKLAND, CA, 94618

01/04/02

5262

BUILDING NO.

STREET, CITY, STATE, ZIP

INSPECTION DATE REPORT NO.

GENERAL INFORMATION AND MAINTENANCE ITEMS

- A. This area of the structure has a concrete slab floor with finished floor and wall surfaces throughout. This type of construction renders internal wall framing inaccessible for inspection. A visual inspection of the floor and wall areas reveal no outward evidence of conditions to justify further inspection at this time. This is not meant to be misconstrued as a guarantee against possible hidden damage, but a statement of finding only.
- B. Portions of the subarea framing are inaccessible for inspection due to placement of plywood shear panels. No representations can be given here, unless panels are removed; however, we noted no indications to suggest an obvious ongoing problem at visually accessible areas that would justify such measures, in our opinion.
- C. Portions of the substructure framing members were inaccessible for inspection due to the presence of insulation between the floor joist bays. No representations can be given to these areas unless insulation is removed, other than, the accessible surface areas that were observed did not seem to indicate any signs of an ongoing problem that would justify such measures at this time. This is not to be misconstrued as a guarantee against hidden damage where it may exist, but is to be recognized as a mere statement of finding.
- D. Master bath shower/steamer facility is situated over a finished ceiling, revealing no indications of leaks, infections or infestations. Owner to keep accessible surface areas of the ceramic tile and grout periodically caulked and sealed and maintain shower door frame to prolong serviceable life.
- E. Tub is situated over a finished ceiling revealing no indications to suggest leaks, infections, or infestations. I would suggest owner keep adjacent floor cover well caulked and minimize against oversplash during usage.
- F. The limestone counter top at kitchen is sound and serviceable and I encourage the owner to keep the sink perimeter periodically well caulked.
- G. Upper level tub/shower facility is situated over a finished ceiling revealing no indications of leaks, infections or infestations that would justify further inspection/alterations. I did find some cracked and missing grout to the base of walls where it abuts the tub; however, is still considered very sound and serviceable. Tiles were tap tested, no looseness noted at this time. Owner to keep base of walls, corners, fixtures, etc. periodically cleaned, caulked and sealed when warranted to prolong serviceable life.
- H. This tub/shower facility is situated over a concrete slab, revealing no indications of leaks, infections or infestations that would justify further inspection/alterations. Length of serviceability will depend upon the degree of owner maintenance applied in the future.
- I. The bathroom sink and water closet at main level were inspected and no evidence of leakage, infection or infestation was noted.
- J. Some tree debris build-up was noted adjacent to the drain servicing the upper level balcony deck. Where I indicate #J1, I also noted some weathering to the wood pillars. Deck and pillars are considered sound and serviceable. Owner to keep debris build-ups well cleared of drain system and wood pillars periodically sealed and painted to prolong serviceabilities.

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BUILDING NO.	STREET, CITY, STATE, ZIP	INSPECTION DATE	REPORT NO.

K. Owner must realize that no representations can be given to the wood framed members behind the stucco, unless openings are made. In viewing the accessible surface areas, and primarily due to new construction, I saw no indications to suggest an ongoing problem that would justify such openings, in my opinion. This is not meant to be misconstrued as a warranty against hidden damage behind the stucco at areas where it may exist, but is to be recognized as a mere statement of finding. Stucco structures can be a very sensitive condition and it would behoove the owner to keep the exterior surface areas, especially if and when stress cracks should occur, well caulked, sealed and painted.

L. The attic space was not inspected, as physical damage may occur to the finished ceiling during the course of inspection. Attic space would be inspected, providing this company would receive a written release of any damage that may occur during the course of a normal inspection. Attic would only be inspected, providing it is physically accessible and without the benefit of insulation.

M. The exterior roof, gutters and down spouts were not inspected. If you want the water tightness of the roof determined, you should contact a roofing contractor who is licensed by the State Contractor's License Board.

N. I did note a minor leak at the outside solder joint of copper gutter. Presently it is not affecting any wood members. Any further representation would have to come from other trade.

THIS IS TO CERTIFY THAT THE ABOVE PROPERTY WAS INSPECTED ON 1/4/02, IN ACCORDANCE WITH THE STRUCTURAL PEST CONTROL ACT AND RULES AND REGULATIONS ADOPTED PURSUANT THERETO, AND THAT NO EVIDENCE OF ACTIVE INFESTATION OR INFECTION WAS FOUND IN THE VISIBLE AND ACCESSIBLE AREAS.

COST OF THIS INSPECTION: \$ 200.00 PAID

NOTE: A BUILDING PERMIT IS REQUIRED FOR MANY SECTION 1 AND SOME SECTION 2 ITEMS PLEASE REFER TO ITEMS IN REPORT OR CONTACT US TO GUIDE YOU IF YOU ARE HAVING SOMEONE ELSE PERFORM THE WORK.

*PERMIT FEES INCLUDE RELATED COSTS AND SMOKE ALARMS IF REQUIRED.

SECTION 2 ITEMS ARE NOT REQUIRED FOR CERTIFICATION.

IF YOU WISH STRUCTURAL RENEWAL, INC., TO PERFORM THE ABOVE WORK, PLEASE SIGN ONE COPY OF THE ATTACHED WORK AUTHORIZATION AGREEMENT, (PESTICIDE NOTICE IF APPLICABLE), FORWARD, AND WE SHALL CONTACT YOU WITH A COMMENCEMENT DATE.

PLEASE REFER TO THE WORK AUTHORIZATION AGREEMENT REGARDING PROGRESS AND FINAL PAYMENT.

THANK YOU FOR THE OPPORTUNITY TO BE OF SERVICE TO YOU!
MYR

ROBERT A. MCGUIRE JR.
CIVIL ENGINEER: 23109
Civil/Environmental Engineering

February 1, 2000
Job 02-00-01

City of Oakland
Director of Public Works
Plancheck Division
Frank Ogawa Plaza, Suite 200
Oakland, CA 945612

Re: Project: Detached Single Family Home
Job Address: 6101 Contra Costa Avenue
Contractor: Becker/Silva Partnership
Building Permit No.: RB9804571

This is to certify that in accordance with requirements of the City of Oakland and the Uniform Building Code, I inspected excavations and borings for the above project in February, 1999.

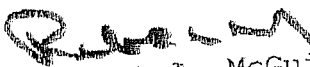
Exposed surfaces were in a stable condition, and borings were completed in conformance with the recommendations for my report, and were ready for pouring.

Drainage systems were inspected on February 1, 2000. Connections were completed in conformance with approved design plans. Stormwater and groundwater collection systems discharge to City approved discharge facilities along Estates Drive.

Necessary fills were in place and in a stable condition.

I certify that to the best of my knowledge, above work was completed in conformance with the requirements of the Oakland and Uniform Building Codes.

Sincerely,


Robert A. McGuire Jr.
RCE 23109, Exp. 12/'01



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NUMBER OF PAGES _____

NAME _____ DATE _____

NAME _____ DATE _____

GREGORY J. COOK R. C. E.
Civil Engineering • Planning • Surveying
CA • NV • AZ • OR • CO • ID

SPECIAL INSPECTOR'S FINAL REPORT

Date: 7-30-99

City of Oakland
Office of Planning and Building
1330 Broadway, 2nd Floor
Oakland, CA 94612

Attn: Mr. Calvin Wong
Building Official

Project: Becker Spec.
Project Address: 6101 Contra Costa Rd
Building Permit #: RB 9804571

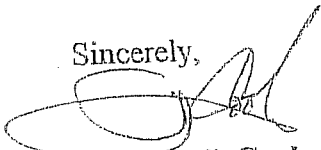
Sir,

This is to certify that in accordance with Section 306 of the Oakland Building Code, we have provided a special inspection of:

Plywood/Particleboard Shear Wall nailing with nail spacing < 4" O.C.

This inspection was performed by the undersigned Special Inspector. To the best of our knowledge, the work was in conformance with the approved plans and specifications and the requirements of the Oakland Building Code.

Sincerely,


Gregory J. Cook
RCE 31570

RECEIVED AND READ

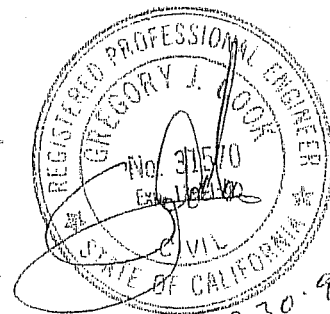
NUMBER OF PAGES 3

NAME _____

DATE _____

NAME _____

DATE _____



7-30-99

EASEMENT

The following easement is for drainage purposes and is granted to that Real Property located at 6101 Contra Costa Road in the City of Oakland, County of Alameda, State of California, described as follows:

A portion of lots 1 and 2, Block 3, Resubdivision of Blocks 9, 10, 11, 12, 13, 14, and a portion of Block 16; Rock Ridge Terrace, filed March 16, 1911 in Book 26, Page 15, of Maps, Alameda County Records described as follows:

Beginning on the Western line of Contra Costa, formerly of Chabot Road, at the most Northern corner of said Lot 1; thence Southerly along said line of Contra Costa Road on the arc of a curve to the right with a radius of 120.27 feet (the chord of which bears South $15^{\circ} 44' 30''$) a distance of 74.84 feet; thence South $77^{\circ} 29'$ West 104.29 feet; thence North $5^{\circ} 49'$ West 55.89 feet to the Northwestern boundary line of said lot 1; and thence North $66^{\circ} 36'$ east along the last named line 95.34 feet to the point of beginning.

A.P. No.: 048A-7102-022

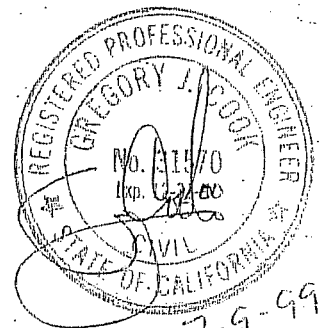
Said drainage easement is 5.00 feet wide, parallel to the southeasterly line of Belalp Path. Said easement running along the northwesterly line of that property at 6110 Buena Vista Avenue. Said property being in the City of Oakland, County of Alameda, State of California described as follows:

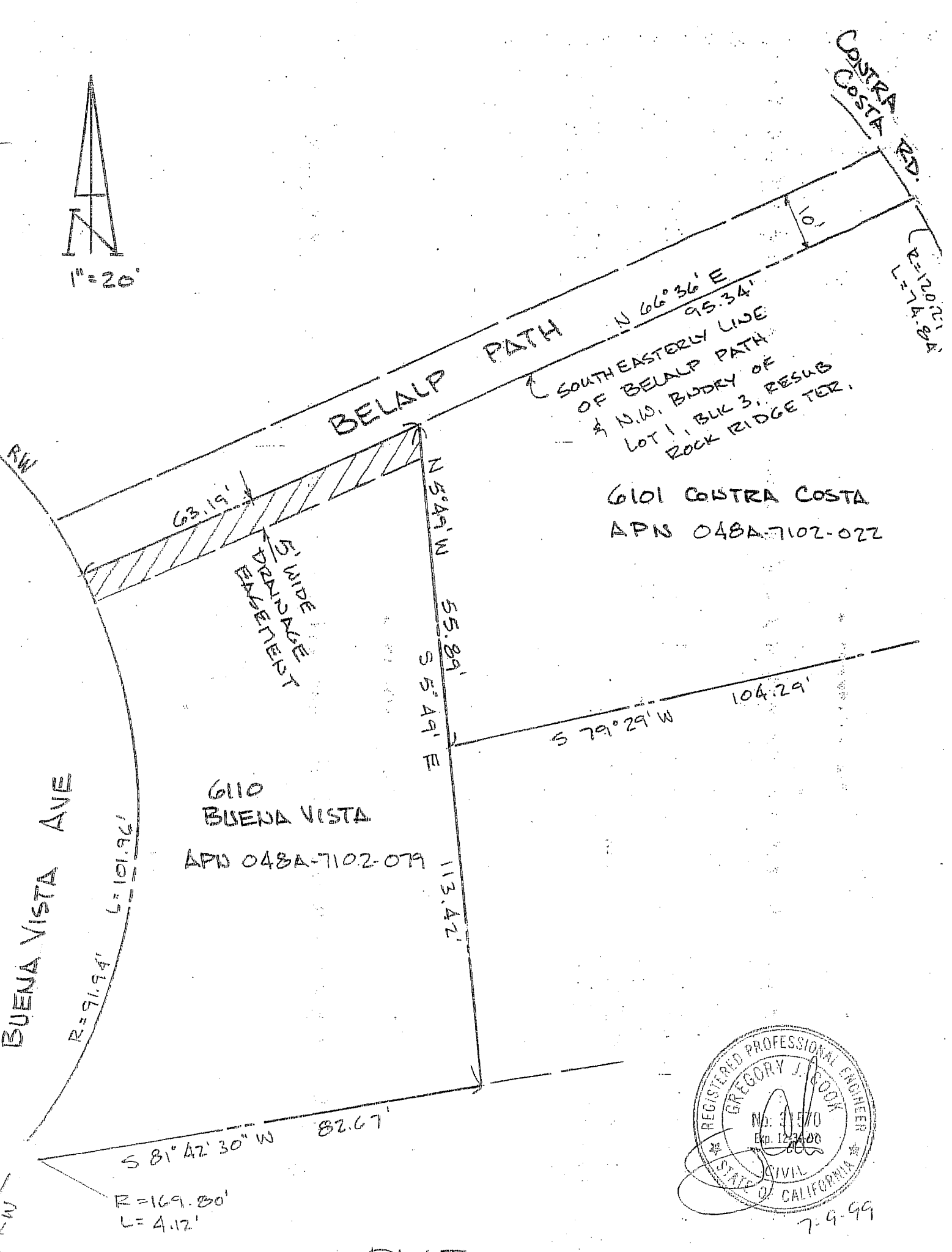
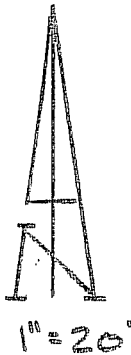
A portion of lots 1 and 2, Block 3, Resubdivision of Blocks 9, 10, 11, 12, 13, 14, and a portion of Block 16; Rock Ridge Terrace, filed March 16, 1911 in Book 26, Page 15, of Maps, Alameda County Records described as follows:

Beginning at a point on the Eastern line of Buena Vista, formerly Brookside Avenue, at the most Southern corner of Lot 2 in Block 3, as said Avenue, Lot and Block are herein referred to; running thence running Northerly, along said Eastern line of Buena Vista Avenue on the arc of a curve to the right, with a radius of 169.80 feet; at a distance of 4.12 feet; thence continuing along said line of Buena Vista Avenue Northerly, on the arc of a curve to the left, with a radius of 91.94 feet (reversing with the last said curve) a distance of 101.96 feet to the Northwestern boundary line of Lot 1 in said Block 3; thence North $66^{\circ} 36'$ East, along the last named line 63.19 feet; thence South $5^{\circ} 49'$ East 113.42 feet to the Southeastern boundary line of said Lot 2; thence South $81^{\circ} 42' 30''$ West, along the last named line 82.67 feet to the point of beginning.

A.P.No.: 048A-7102-079

The following plat is part of this description.





BELALP PATH

CONTRA COSTA RD.

BUENA VISTA AVE

SOUTHEASTERLY LINE OF BELALP PATH & N.W. BODY OF LOT 1, BLK 3, RESUB ROCK RIDGE TER.

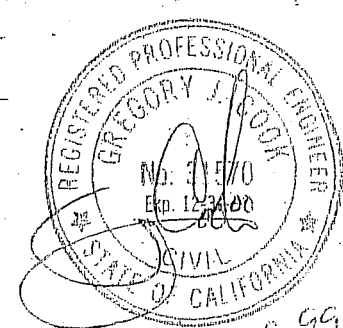
6101 CONTRA COSTA
APN 048A-7102-022

6110 BUENA VISTA
APN 048A-7102-079

R=91.94'
L=101.96'

R=120.21'
L=14.99'

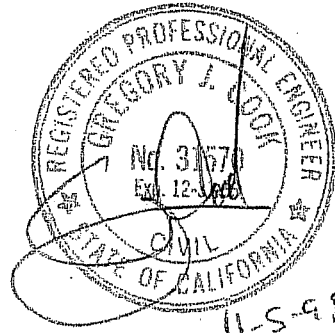
R=169.80'
L=4.12'



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JOB BECK-25
 SHEET NO. 1 OF _____
 CALCULATED BY GJC DATE 10-9-98
 CHECKED BY _____ DATE _____
 SCALE _____

STRUCTURAL CALCS
 OF
 SINGLE FAMILY RESIDENCE
 FOR
 B.N.H. PARTNERSHIP
 6101 COSTA COSTA RD
 OAKLAND, CA.



11-5-98

ROOF

LL = 16 PSF 4:12
 DL = $\frac{24 \text{ PSF}}{40 \text{ PSF}}$

FLOOR

LL = 40 PSF
 DL = $\frac{15}{55 \text{ PSF}}$

DECKS

LL = 60 PSF
 DL = $\frac{15 \text{ PSF}}{75 \text{ PSF}}$

RR SPAN = 14' MAX

COST AREA = 16"
 $M = \frac{53(14)^2}{8} = 1307 \text{ FT-LBS}$

$W = 40(14/12) = 53.3 \text{ PLF}$
 $S = \frac{12M}{1200} = 13 \text{ LBS}$

RECEIVED AND READ
 NUMBER OF PAGES 42

$I = \frac{5(53)14^3(144)240}{384(16000000)} = 40.9 \text{ LBS}^4$

NAME	DATE
NAME	DATE

USE 2x8 @ 16" O.C. DF #2 OR BETTER

HIP BT @ BD 3

SPAN = 20' $P = 40(14)^2 = 3920 \text{ LBS}$ $R_1 = P/3 = 1307 \text{ LBS}$ $R_2 = 2P/3 = 2613 \text{ LBS}$

$M = 1.283(3920)20 = 10059 \text{ FT-LBS}$ $S = \frac{12M}{2800} = 43 \text{ LBS PL}$

$V = 2613 \text{ LBS}$ $A = 3V/2(285) = 14 \text{ LBS PL}$

$I = .01304(3920)20^2(144)240 / 2000000 = 353 \text{ LBS}^4$

USE 3 1/2 x 11 1/2" PARALLEL BT @ R₂ = 2800
 OR 5 1/4 x 9 1/2" " " " " " "

JOB SITE

HIP / VAL SPAN = 8.5' MAX $P = 40 \left(\frac{6}{2}\right)^2 = 720^{15}$ $R_1 = P/3 = 240''$ $R_2 = 2P/3 = 480''$

$M = .1283 (720) 8.5 = 785 \text{ Ft-lb}$ $S = \frac{12M}{1000} = 10 \text{ L}^3$

$I = .01304 (720) 8.5^2 (144) 240 / 1600000 = 15 \text{ L}^4$

USE 2x10 DF 1

CEIL BM e GARAGE

SPAN = 22' $P = 5420^{15}$

$M = 5420 (22/4) = 29810 \text{ Ft-lb}$

$S = \frac{12M}{2800} = 128 \text{ L}^3 \text{ PL}$

$V = 5420 (1/2) = 2710^{15}$

$A = 3V/2(2805) = 15 \text{ L}^2$

$I = 5420 (22)^2 144 (240) / 48 (2000000) = 944 \text{ L}^4$

USE 5/4x14" PARALLEL BM $f_b = 2800 \text{ psi}$ - OK TO CLIP ENDS TO MATCH RR

RIDGE BM e GAR. & STAIR WALK

SPAN₁ = 11' $W = 40 (22/2) = 440 \text{ PLF}$

$P_{DD} = 440 (11/2) = 2420^{15}$

SPAN₂ = 12.5'

$P_{2E} = 440 (12.5/2) = 2750^{15}$

$M_2 = 440 (12.5)^2 / 8 = 8594 \text{ Ft-lb}$

$S = 12M / 2800 = 37 \text{ L}^3 \text{ PL}$

$M_1 = 440 (11)^2 / 8 = 6655 \text{ Ft-lb}$

$S = 12M / 2800 = 29 \text{ L}^3 \text{ PL}$

$V = 2750^{15}$ $A = 3V/2(2805) = 15 \text{ L}^2 \text{ PL}$

$I = 5 (440) 12.5^3 (144) 240 / 384 (2000000) = 193 \text{ L}^4 \text{ PL}$

USE 3 1/2 x 9 1/2" PARALLEL BM $f_b = 2800 \text{ psi}$

RIDGE e M. BD CLOSET SPAN = 15' $W = 40 (7/2) = 140 \text{ PLF}$ $P_e = 140 (4 1/2) = 1050^{15}$

$M = 140 (15)^2 / 8 = 3938 \text{ Ft-lb}$ $S = 12M / 1000 = 47 \text{ L}^3 \text{ DF}$

$I = 5 (140) 15^3 (144) 240 / 384 (1000000) = 133 \text{ L}^4 \text{ DF}$

USE 4x10 DF 1

CEIL BM @ M BD

SPAN = 16.5'

$P_{WP} = 1760 + 320(6/2) = 2720^{lb}$

$W = 20 \text{ PLF}$

$M = 2720(16.5/4) + 20(16.5)^2/8 = 11901 \text{ AFS}$

$S = \frac{12M}{1000} = 143 \text{ L}^3 \text{ DF}$
 $\frac{2600}{2600} = 55 \text{ L}^3 \text{ ML}$

$V = 1360^{lb}$ $A = 3V/2(285) = 8 \text{ L}^2 \text{ ML}$

$I = \left(\frac{2720(16.5)^2}{48} + \frac{20(5)(16.5)^2}{384} \right) \frac{(144)(240)}{2000000} = 268 \text{ L}^4$

USE 5 1/4 x 9 1/2" PARALLEL BM F = 2800

OK TO CLIP ENDS TO MATCH R/R

CEIL BM @ BD 4

SPAN = 14'

$P = 1927 + 910 = 2837^{lb}$

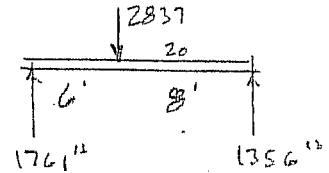
$W = 20 \text{ PLF}$

$M = 1761(L) - 20(6)^2/2 = 10206 \text{ AFS}$

$S = \frac{12M}{2600} = 47 \text{ L}^3 \text{ PL}$

$V = 1761^{lb}$ $A = 3V/2(285) = 10 \text{ L}^2 \text{ PL}$

$I = \left(\frac{20(5)(14)^2}{384} + \frac{2837(14)^2}{48} \right) \frac{(144)(240)}{2000000} = 213 \text{ L}^4 \text{ PL}$



USE 3 1/2 x 9 1/2" PARALLEL BM F = 2800

OK TO CLIP END TO MATCH R/R

CEIL BM/JEF @ BD 2

SPAN = 12'

$P = 960^{lb}$

$W = 20 \text{ PLF}$

$M = 20(12/2)^2 + 960(12/4) = 3240 \text{ AFS}$

$S = \frac{12M}{1000} = 39 \text{ L}^3 \text{ DF}$
 $\frac{2600}{2600} = 15 \text{ L}^3 \text{ PL}$

$V = 20(12/2) + 960(1/2) = 600^{lb}$ $A = 3V/2(285) = 10 \text{ L}^2 \text{ DF}$

$I = \left(\frac{5(20)(12)^3}{384} + \frac{960(12)^2}{48} \right) \frac{(144)(240)}{1600000} = 72 \text{ L}^4 \text{ DF}$

USE 4x10 DF 1 OR 3-2x8 COL JEF

HDR C CEIL BM C M BO

SPAN = 4' P = 1360^{lb} W = 15 (17/2) = 128 PLF

M = 1360 (4/4) + 128 (4)² / 8 = 1615 PLB S = 12M / 1000 = 20 L³ DF

V = 1360 (1/2) + 128 (4/2) = 936^{lb} A = 3V / 2(85) = 17 L² DF

USE 4x8 DF 1 OR BETTER

HDR C RIDGE / CORR BM

SPAN = 4.5' P = 910^{lb} + 770 = 1680^{lb}

M = 1680 (4.5) / 4 = 1890 PLB S = 12M / 1000 = 23 L³ DF

V = 1680 (3/4.5) = 1120^{lb} A = 3V / 2(85) = 20 L²

USE 4x8 OR 1 OR BETTER

HDR C CORR BM

SPAN = 4' P = 1356^{lb} W = 413 PLF

M = 1356 (4/4) + 413 (4)² / 8 = 2182 PLB S = 12M / 1000 = 26 L³ DF

V = 1356 (3/4) + 413 (4/2) = 1843^{lb} A = 3V / 2(85) = 29 L² DF

USE 4x10 DF 1 OR BETTER

ROOF BM C DECK RE

SPAN = 8' W = 40 (9² / 2(6)) = 270 PLF

M = 270 (8) = 2160 PLB S = 12M / 1000 = 26 L³ DF

V = 270 (8/2) = 1080^{lb} A = 3V / 2(85) = 19 L² DF

USE 4x10 OR 6x8 DF 1 OR BETTER

FLOOR JOIST

SPAN = 17' CONT. AREA = 16" $W = 55 (16/12) = 73.3 \text{ p.f.}$

USE TJI/250 x 11 7/8" @ 16" o.c.

TJI @ WALL ABOVE

$P = 15(17/2) + 15(9) = 262.5 \text{ p.f. } (16/12) = 350 \text{ lbs/ft}$

$W = \frac{350(2)}{17} + 73 = 114 \text{ p.f. EQUIV. UNIFORM LOAD @ TJI}$

USE TJI/350 x 11 7/8" @ 16" o.c.

GARAGE FLOOR JOIST

LL = 50 OR P = 2000^{lb}

DL = 50 p.f. 4" conc.
 100 p.f.

SPAN = 11' CONT. AREA = 16" $W = 100 (16/12) = 133 \text{ p.f.}$

$M = \frac{133(11)^2}{8} = 2012 \text{ ft-lb}$ $M_p = 2000(11/4) + 50 \frac{(11)^2}{8} \frac{16}{12} = 6508 \text{ ft-lb}$

$V = 2000(11/11) + 50(16/12)(11/2) = 2185 \text{ lbs}$

$S = \frac{12M}{2600} = 30 \text{ in}^3 \text{ M.L.}$

$A = \frac{3V}{2(2800)} = 12 \text{ in}^2$

$I = \frac{5(133)(11)^3(144)(360)}{384(2000000)} = 60 \text{ in}^4$

$I_p = \left(\frac{5(67)(11)^3}{384} + \frac{2000(11)^2}{48} \right) \frac{144(360)}{2000000} = 161 \text{ in}^4$

USE 1 3/4" x 11 7/8" MICRO LAMTS @ 16" o.c. $f_b = 2600$

DECK JOIST

SPAN = 6' CONT. AREA = 16" $W = 75 (16/12) = 100 \text{ p.f.}$

$M = 100 (6)^2/8 = 450 \text{ ft-lb}$

$S = 12M/1000 = 5.4 \text{ in}^3$

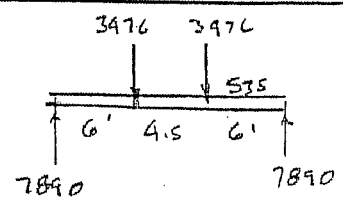
USE 2 x 8 @ 16" o.c. DF #2 OR BOTTOM

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CEIL BM & LIV RM & WALL ABOVE

SPAN = 16.5' $W = 75(1/2) + 55 + 15(9) + 40(1/2) = 535 \text{ psf}$
 $P = 2176 \text{ psf}$ $P_2 = 1300 \text{ lb}$



$M = 7890(8.25) - 535(8.25)^2 - 3976(2.25) = 39065 \text{ ft-lb}$

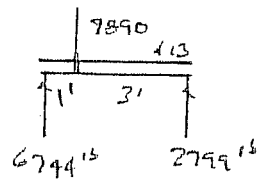
$V = 7890 \text{ lb}$ $S = \frac{12M}{2800} = 167 \text{ in}^3 \text{ PL}$
 $A = 3\sqrt{\frac{2(285)}{165}} = 42 \text{ L2 PL}$
 $2400 = 195 \text{ L3 GLB}$
 $21600 = 22 \text{ L3 STEEL}$

$I = \left(\frac{5(535)16.5^3}{384} + \frac{3976(6)(3(16.5)^2 - 4(6)^2)}{24(16.5)} \right) \frac{144(240)}{2000000} = 1153 \text{ L9 PL}$
 $\frac{1700000}{2900000} = 1356 \text{ L9 GLB}$
 $= 120 \text{ L9 STEEL}$

USE $10\frac{3}{4} \times 12"$ GLU LAM BM $f_b = 2400 \text{ STD CAR}$
 OR $7" \times 14"$ PARALLEL BM $f_b = 2800$
 OR $W10 \times 30$ 36 KSI STEEL OR $W8 \times 40$

SUPPORT HDR. SPAN = 4' $P = 7890$ $W = 413 \text{ psf}$

$M = 2799(3) - 413(3)^2 = 6539 \text{ ft-lb}$ $S = \frac{12M}{2600} = 31 \text{ L3 PL}$



$V = 6744 \text{ lb}$ $A = 3\sqrt{\frac{2(285)}{165}} = 36 \text{ L2}$

USE $3\frac{1}{2} \times 11\frac{7}{8}"$ PARALLEL BM $f_b = 2800$
 OR $5\frac{1}{4} \times 9\frac{1}{2}"$ " " "

POSTS $\frac{l}{d} = \frac{10(12)}{3.5} = 34.3$ $F = .3 \frac{(1600000)}{34.3^2} = 408 \text{ psi} = 4 \times \text{POST OR STUDS}$

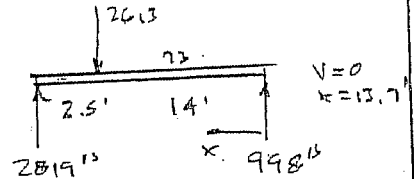
$\frac{10(12)}{5.5} = 21.8$ $F = .3 \frac{(1600000)}{21.8^2} = 1008 \text{ psi} = 6 \times \text{POST OR } 625 \text{ psi} = \text{STUDS}$
 4 POST

POST	P_{MAX}	POST	P_{MAX}
2-2x4	4284 ^{lb}	2-2x6	10312 ^{lb}
3-2x4	6426 ^{lb}	3-2x6	15469 ^{lb}
4x4	4998 ^{lb}	6x4	12031 ^{lb}
4x6	7854 ^{lb}	6x6	18906 ^{lb}
4x8	10353 ^{lb}	6x8	24922 ^{lb}

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CEIL BM C KIT / BRK FST / DOW e Post ABOVE
 SPAN = 16.5' $P_{max} = 2613^{lb}$ $W = 73^{lb/ft}$



$$M = 998(13.67) - 73\left(\frac{13.67}{2}\right)^2 = 6823 \text{ ft-lb} \quad S = \frac{12M}{2600} = 32 \text{ in}^3 \text{ ML}$$

$$V = 2819^{lb} \quad A = 3V/2(285) = 15 \text{ in}^2 \text{ ML}$$

$$I = \left(\frac{5(73)(16.5)^3}{384} + \frac{2613(14)(2.5)(14)\sqrt{3(14)}}{27(16.5)^2} \right) \frac{144(360)}{2000000} = 284 \text{ in}^4 \text{ ML/PL}$$

USE 2 1/16 x 11 7/8" PARALLEL BM $f_b = 2600$ OR BOTTOM

EXT. HDRS e MAIN FLOOR

$$W_{max} = 55(17/2) + 413 + 9(15) = 1016 \text{ lb/ft}$$

$$SPAN = 8' \quad M = 1016(8) = 8128 \text{ ft-lb} \quad S = \frac{12M}{2600} = 38 \text{ in}^3 \text{ PL}$$

$$V = 1016(8/2) = 4064^{lb}$$

$$A = 3V/2(285) = 22 \text{ in}^2 \text{ PL}$$

$$I = \frac{5(1016)(8)^3(144)}{384(2000000)} = 117 \text{ in}^4$$

USE 3 1/2 x 9 1/2" PARALLEL BM $f_b = 2600$ OR BOTTOM

$$SPAN = 6.33' \quad M = 1016\left(\frac{6.33}{8}\right)^2 = 5089 \text{ ft-lb} \quad S = \frac{12M}{2600} = 61 \text{ in}^3 \text{ DF}$$

$$\frac{1000}{2600} = 24 \text{ in}^3 \text{ PL}$$

$$V = 1016\left(\frac{6.33 - 9.25/8}{2}\right) = 2432^{lb}$$

$$3216^{lb}$$

$$A = 3V/2(285) = 39 \text{ in}^2 \text{ DF}$$

$$285 = 17 \text{ in}^2 \text{ PL}$$

USE 4 x 12 DF 1

OR 3 1/2 x 9 1/2" PARALLEL BM $f_b = 2600$

$$SPAN = 5' \text{ HDRC.} \quad M = 1016\left(\frac{5}{8}\right)^2 = 3175 \text{ ft-lb} \quad S = \frac{12M}{1000} = 38 \text{ in}^3 \text{ DF}$$

$$V = 1016\left(\frac{5 - 7.25/8}{2}\right) = 1926^{lb}$$

$$A = 3V/2(285) = 30 \text{ in}^2$$

USE 4 x 10 DF 1 OR 6 x 8 DF 1

AT HDR // TO F.I. USE 4 x 8 DF 1 OR BOTTOM

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REAR PORCH HDRS

SPAN = 7' W = 413 + 55 + 9(15) = 603 PAF

M = 603 $\left(\frac{7}{8}\right)^2 = 3693 \text{ Ft}^2$

S = $\frac{12M}{1000} = 44 \text{ L}^3 \text{ DF}$

V = 603 $(7 - 9.25/6)/12 = 1646 \text{ L}^3$

A = $3V/2(285) = 29 \text{ L}^2$

USE 4x10 DF 1 OR BETTOR

CEIL BM & ENTRY E WALL ABOVE

SPAN = 10.5'

W = $\frac{270}{PA} + \frac{9(15)}{WLL} + \frac{73}{P} = 478 \text{ PAF}$

M = 478 $\left(\frac{10.5}{8}\right)^2 = 6587 \text{ Ft}^2$

S = $\frac{12M}{2000} = 31 \text{ L}^3 \text{ ML/PL}$

V = 478 $(10.5/2) = 2510 \text{ L}^3$

A = $3V/2(285) = 14 \text{ L}^2 \text{ ML/PL}$

I = $5(478)10.5^3(194)360 / 384(2000000) = 187 \text{ L}^4 \text{ ML/PL}$

USE 3 1/2 x 11 7/8" PARALLEL BT B = 2800

AT STAIR HEAD OUT - ADD 174 = 11 7/8" ML TO TJ1

ENTRY HDR

SPAN = 8.5' W = 75(4/2) + 40(6 1/2/2(3)) + 9(15) = 600 PAF

M = 600 $\left(\frac{8.5}{8}\right)^2 = 5419 \text{ Ft}^2$

S = $\frac{12M}{1000} = 65 \text{ L}^3 \text{ DF}$

V = 600 $(8.5 - 9.25/6)/12 = 2085 \text{ L}^3$

A = $3V/2(855) = 37 \text{ L}^2 \text{ DF}$

USE 4x12 OR 6x10 DF 1

LOT HDRS = PJ SPAN = 4.5' MAX W = 262(14/16.5) + 55(33/2) = 1130 PAF P = 1761 L³

M = 1130 $(4.5)^2/8 + 1761(4.5/4) = 4841 \text{ Ft}^2$

S = $12M/1000 = 58 \text{ L}^3 \text{ DF}$

V = 1130 $(4.5 - 11.25/6)/12 + 1761(1/2) = 2364 \text{ L}^3$

A = $3V/2(95) = 37 \text{ L}^2 \text{ DF}$

USE 4x12 OR 6x10 DF 1 OR BETTOR

INT HDR @ D10 / KIT

SPAN = 4.5' W = 1130 rpf P = 5016 lb

$M = 1130 \frac{(4.5)^2}{8} + 5016 (4.5/4) = 8503 \text{ R-ft}$

$S = \frac{12M}{2600} = 40 \text{ I}^3 \text{ PL}$

$V = 5016 (1/2) + 1130 (4.5/2) = 5050 \text{ lb}$

$A = 3V/2(285) = 27 \text{ I}^2 \text{ PL}$

USE 3 1/2" x 9 1/2" PARALLEL B7 F₂₈₀₀

ENTRY HDR

SPAN = 4' W = 75(4/8) + 55(13/2) + 180(4/13) = 638 rpf

$M = 638 \frac{(4)^2}{8} = 1276 \text{ R-ft}$

$S = \frac{12M}{1000} = 16 \text{ I}^3 \text{ DF}$

$V = 638 (4/2) = 1276$

$A = 3V/2(285) = 23 \text{ I}^2$

USE 4" x 8" DF 1 OR BOTTOM

HDR @ ENTRY TO D10 & LIV RM

SPAN = 8' MAX W_{MAX} = 55(10/2) + 180(9/13) + 220 = 702 rpf

P = 2510 lb P₂ = 2150 lb

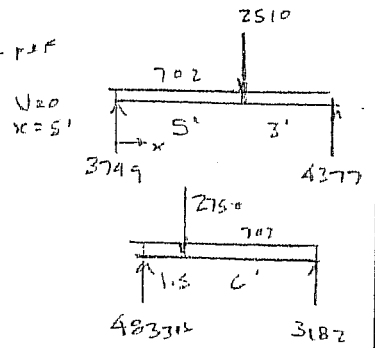
$M_{MAX} = 3749(5) - 702 \frac{(5)^2}{2} = 9970 \text{ R-ft}$

$S = \frac{12M}{1300} = 92 \text{ I}^3 \text{ DF}$
 $\frac{1300}{2600} = 46 \text{ I}^3 \text{ PL}$

$V = 4833 \text{ lb}$

$A = 3V/2(285) = 85 \text{ I}^2 \text{ DF}$
 $285 = 26 \text{ I}^2 \text{ PL}$

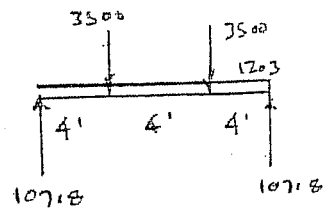
$I = \left(\frac{5(702)^2}{384} + \frac{2510(8)^2}{48} \right) \frac{144(240)}{1600000} = 173 \text{ I}^4$



USE 3 1/2" x 11 7/8" PARALLEL B7 F₂₈₀₀ OR 5 1/4" x 9 1/2" P.L.

ENTRY FLOOR BM c WALL ABOVE

SPAN = 12' $W_{HL} = 1130 + 73 = 1203 \text{ PLF}$ $P = 3500 \text{ LB}$



$M = 1071.8(6) - 3500(2) - 1203 \frac{(6)^2}{2} = 35654 \text{ FT-LB}$

$S = \frac{12M}{2800} = 153 \text{ L}^3 \text{ PL}$

$V = 1071.8 \text{ LB}$ $A = \frac{3V}{2(285)} = 57.2 \text{ L}^2 \text{ PL}$

$I = \left(\frac{5(1203)12^3}{384} + \frac{3500(4)(3(12)^2 - (4)^3)}{24(12)} \right) \frac{144(240)}{2000000} = 777 \text{ L}^4 \text{ PL}$

USE 7" x 11 7/8" PARALLEL BT $\phi = 2800$

LOT HDR c FAN RM / BATH

SPAN = 4' $W = 1130 + 55(3 1/2) = 2040 \text{ PLF}$ $P_{HL} = 5050 \text{ LB}$

$M = 2040 \frac{(4)^2}{8} + 5050(4/4) = 9130 \text{ FT-LB}$

$S = \frac{12M}{2800} = 84 \text{ L}^3 \text{ PL}$
 $\frac{1200}{2600} = 42 \text{ L}^3 \text{ PL}$

$V = 2040(4 - 7.25/6) + 5050(1/2) = 5033 \text{ LB}$
 $2040(4/2) + 5050(1/2) = 6605 \text{ LB}$

$A = \frac{3V}{2(285)} = 89 \text{ L}^2 \text{ PL}$
 $285 = 35 \text{ L}^2 \text{ PL}$

USE 5 1/4" x 9 1/2" PARALLEL BT $\phi = 2800$

FLOOR BM c DOOR JST / WALL ABOVE

SPAN = 17' $W = 75(6/2) + 55 + 10(15) = 430 \text{ PLF}$

$M = 430 \frac{(17)^2}{8} = 15534 \text{ FT-LB}$

$S = \frac{12M}{2600} = 72 \text{ L}^3 \text{ PL}$

$V = 430(17/2) = 3655 \text{ LB}$

$A = \frac{3V}{2(285)} = 20 \text{ L}^2 \text{ PL}$

$I = 5(430)17^3 \frac{144(360)}{384(2000000)} = 713 \text{ L}^4 \text{ PL}$

USE 5 1/4" x 11 7/8" PARALLEL BT $\phi = 2800$

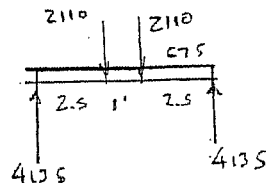
HDR C FLOOR / PATIO

SPAN = 6' $W = 75(6/2) + 75(12/2) = 675 \text{ PLF}$
 $P = 2110 \text{ LB}$

$M = 4135(3) - 675(3)^2 - 2110(1.5) = 8313 \text{ FT-LB}$

$V = 4135 \text{ LB}$ $A = 3V / (2(85)) = 73 \text{ L}^2 \text{ DF}$
 $285 = 22 \text{ L}^2 \text{ PL}$

$S = \frac{12M}{1300} = 77 \text{ L}^3 \text{ DF}$
 $\frac{1300}{2600} = 39 \text{ L}^3 \text{ PL}$



USE 5/16" x 9 1/2" PARALLEL CH B = 2800

DECK JOIST

SPAN = 12.33' $W = 75(12/2) = 450 \text{ PLF}$

$M = 450(12.33)^2 = 8552 \text{ FT-LB}$

$S = \frac{12M}{1300} = 79 \text{ L}^3 \text{ DF}$
 $\frac{1300}{2600} = 40 \text{ L}^3 \text{ PL}$

$V = 450(12.33/2) = 2774 \text{ LB}$

$A = 3V / (2(85)) = 49 \text{ L}^2 \text{ DF}$
 $285 = 15 \text{ L}^2 \text{ PL}$

$I = \frac{5(450)(12.33)^3(144)(24)}{384(1600000)} = 237 \text{ L}^4$

USE 6" x 12" DF 1 OR 3 1/2" x 11 7/8" PARALLEL CH B = 2800

DECK JOIST SPAN = 12' COOT. AREA = 16" $W = 75(16/12) = 100 \text{ PLF}$

$M = 100(12)^2 = 1800 \text{ FT-LB}$

$S = \frac{12M}{1000} = 21.6 \text{ L}^3 \text{ DF}$
 $\frac{1000}{2600} = 9 \text{ L}^3 \text{ PL}$

$V = 100(12/2) = 600 \text{ LB}$

$A = 3V / (2(95)) = 10 \text{ L}^2 \text{ DF}$
 $285 = 4 \text{ L}^2 \text{ PL}$

$I = \frac{5(100)(12)^3(144)(360)}{384(1600000)} = 73 \text{ L}^4 \text{ DF}$

USE 1 3/4" x 9 1/2" MICRO LAMTS @ 16" O.C. B = 2600
OR TJI / 250 x 9 1/2" @ 16" O.C.

From 12M 11M 10M CEIL BM

$SPW = 16.5'$ $W = 55(33/2) = 908 \text{ pcf}$

$P = 14945 \text{ lb} + 3655 \text{ lb} = 18600 \text{ lb}$

$M = 13691(11) - 908 \left(\frac{11}{2}\right)^2 = 95667 \text{ ft-lb}$

$S = \frac{12M}{2400} = 479 \text{ in}^3 \text{ GLB}$

$\frac{2400}{21600} = 54 \text{ in}^3 \text{ STEEL}$

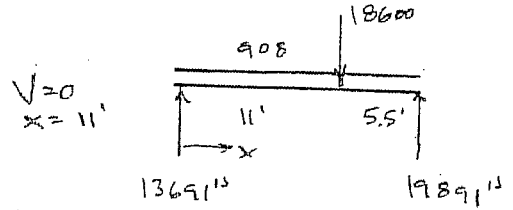
$V = 19891 \text{ lb}$ $A = \frac{3V}{2(16.5)} = 181 \text{ in}^2 \text{ GLB}$

$I = \left[\frac{5(908)(16.5)^3}{384} + \frac{18600(11)5.5(11+2(5.5))\sqrt{3(11)22}}{27(16.5)^2} \right] \frac{144(240)}{1700000} = 2925 \text{ in}^4 \text{ GLB}$

$\frac{29000000(36/24)^2}{257} \text{ in}^4 \text{ STEEL}$

USE $10\frac{3}{4} \times 18''$ GLB LM BM $f_c = 2400$

OR W 12 x 50 36 KSI STEEL



LATERAL ANALYSIS

70 MPH EXP
 C

WIND $P = C_e C_g q = I = 12.6 (1.31) / 3 = 20.1 \text{ PSF}$

A-D

$H_R = 20.1 (50) (5 + 9/2) = 9548 \text{ lb}$

$H_F = 20.1 (39) (10) = 7839$

$\Sigma 17387$

1-5

$20.1 (61) (5 + 9/2) = 11648 \text{ lb}$

$20.1 (51) (10) = 10251 \text{ lb}$

$\Sigma 21899 \text{ lb}$

$H_{BASE} = 20.1 (39) (5+1) = 4703 + 17387 = 22090 \text{ lb}$

$BASE = 20.1 (38) (10/2) = 3819 + 21299 = 25718 \text{ lb}$

SEISMIC

$W_R = 24 (20(44) + 16(44) + 20(42) + 22(28)) + 15(45) (2(61+50)) = 87945 \text{ lb}$

$W_F = 15 (17(39) + 16(34) + 17(39)) + 32(21)22 + 15(9.5) (2(39+50)) = 68199 \text{ lb}$
980 SF EQ AREA = 15 PSF

$W_{LF} = 15(38)50 + 15(5) (2(38+50)) = 35100 \text{ lb}$



$\Sigma 191244 \text{ lb}$



$V = \frac{1.4(2.75)}{6} W = .183 W = 34998 \text{ lb}$



∴ SEISMIC GOVERNS!



LEV	W_i	h_i	$W_i h_i$	F_i	$\frac{W_i h_i}{\Sigma W_i h_i}$	ΣF_i
2-R	87.95 K	30.5	2682	20780		20780
1-2	68.2 K	21.5	1466	11359		32139
0-1	35.1 K	10.5	369	2859		34998
			$\Sigma 4517$			


UPPER FLOOR SKED WALLS


LINE A $V = 20780(1/2)(1676/3040) = 5728^{1b}$
 $N_A = \frac{5728}{43} = 133 \text{ p.p.f.}$  or 


B $V = 20780(1/2)2160/3040 = 7382^{1b}$
 $N_B = \frac{7382}{30} = 246 \text{ p.p.f.}$  or 

C $V = 20780(1/2)1364/3040 = 4662^{1b}$
 $N_C = \frac{4662}{25} = 186 \text{ p.p.f.}$  or 

D $V = 20780(1/2)880/3040 = 3008^{1b}$
 $N_D = \frac{3008}{20} = 150 \text{ p.p.f.}$  or 

1 1/2 Z $V = 20780(1/2)2424/3040 = 8285^{1b}$
 $N = \frac{8285}{26} = 319 \text{ p.p.f.}$ 

4 $V = 20780(1/2) = 10390^{1b}$
 $N_A = \frac{10390}{28} = 371 \text{ p.p.f.}$ 

5 $V = 20780(616/3040)1/2 = 2105^{1b}$
 $N_5 = \frac{2105}{6} = 351 \text{ p.p.f.}$ 

ROOF SMTG: $N_{max} = \frac{8285}{50} = 166 \text{ p.p.f.}$

USE 1/2" PLYWOOD, STRUCT II OR CD, EXTERIOR INDEX 24/0 or 32/16
 W/ 8 d NAILS @ 6", 6", 12" TYP.

CHORD STRESSES A-D $W = 20780(2424/3040)1/50(1/38) = 140 \text{ p.p.f.}$
 $CHORD = 140 \frac{(33)^2}{8} \frac{1}{14} = 1361^{1b}$ $1361/105 = 13 \Rightarrow 14-16d$

1-5 $W = 20780(2424/3040)1/50 = 331 \text{ p.p.f.}$
 $CHORD = 331(22)^2/8(1/33) = 607^{1b}$ $607/105 = 6 \Rightarrow 14-16d$

DRAG STRAPS @ UPPER LEVEL

LINE B $V = \frac{7382(25)}{61} = 3025^{15}$ ∴ USE MST 37 DRAG STRAP

A, C, D $V_D = 150(11) - 3000(15/35) = 463^{15}$
 $V_A = 5728(7/61) = 657^{15}$ ∴ USE MST 27

4 $V = \frac{10390(16)}{50} - 371(10) = 2108^{15}$ ∴ USE MST 27

CHECK OVERTURNING

△₁₉ 1,2,4 $N = 371$ PRF $H = 9'$ $L = 4'$ $W_A = 42(4)^2/10 = 126$ PRF
 $W_{O.L.} = (24(10^2/20) + 15(9)) .85 = 260$ PRF $P = 260(3/2) = 391^{15}$

$M_{OT} = 371(9)4 = 13356$ FT-LB

$M_{RESIST} = (260 + 126) \frac{4^2}{2} + 391(4) + F(4) \geq 13356$ FT-LB $F \geq 2176^{15}$

USE SIMP MST 27 @ EACH WALL END

△₁₉ LINE 5 $N = 351$ PRF $H = 7'$ $L = 2'$ $W_A = 490^{15}/4B$
 $W_{O.L.} = (15(9) + 24(6^2/20)) .85 = 237$ PRF $P = 237(8/2) = 949^{15}$

$M_{OT} = 351(7)2 = 4914$ FT-LB

$M_{RESIST} = (237) \frac{2^2}{2} + 490(2) + 949(2) + F(2) \geq 4914$ FT-LB $F \geq 781^{15}$

USE SIMP H-PAVING @ EACH WALL END OR STRAP @ E

△₁₀ $N = 186$ PRF $H = 9'$ $L = 3'$ $W_A = 42(3)^2/10 = 95$ PRF
 $W_{O.L.} = (15(9) + 10(14/2) + 24(2)) .85 = 215$ PRF $P = 215(3/2) = 322^{15}$



$M_{OT} = 186(9)3 = 5022$ FT-LB


$M_{RES} = (215 + 95) \frac{3^2}{2} + 322(3) + F(3) \geq 5022$ FT-LB $F \geq 887^{15}$



USE SIMP MST 27 @ EACH WALL END



NOT REQ'D AT WALLS $L > B$


MAIN FLOOR SHEAR WALLS


LINE A $V = 5728 + (11359 - 2462) \frac{833}{1870} (\frac{1}{2}) + 2462 (\frac{1}{2}) = 8941^{15}$
 $N_A = \frac{8941}{37} = 242 \text{ psf}$  or 


B $V = 7382 + 8897 (1207/1870)^{1/2} + 2462 (\frac{1}{2}) = 11484^{15}$
 $N_B = \frac{11484}{24} = 479 \text{ psf}$  & 5/8" φ AB = 24" o.c.

C $V = 4662 + 8897 (\frac{1}{2})^{1037/1870} = 7129^{15}$
 $N_C = \frac{7129}{22} = 324 \text{ psf}$  or 

D $V = 3008 + 8897 (\frac{1}{2})^{663/1870} = 4585^{15}$
 $N_D = \frac{4585}{21} = 218 \text{ psf}$  or 

1 $V = 8285 + 8897 (\frac{1}{2})^{1220/1870} = 11187^{15}$
 $N_1 = \frac{11187}{17} = 658 \text{ psf}$ 

3 $V = 8897 (\frac{1}{2}) = 4449^{15}$
 $N_3 = \frac{4449}{12.5} = 356 \text{ psf}$ 


4 $V = 10390 + 2462 (\frac{1}{2}) + 8897 (\frac{1}{2})^{650/1870} = 13167^{15}$
 $N_4 = \frac{13167}{35} = 376 \text{ psf}$ 


5 $V = 2105 + 2462 (\frac{1}{2}) = 3336^{15}$
 $N_5 = \frac{3336}{22} = 152 \text{ psf} = \text{FINO/ROT WALL } 5/8" \phi \text{ A.B. } \& \text{ } 5'-0" \text{ o.c.}$


FLOOR SLUG: $N_{AD} = \frac{8941}{48} = 186 \text{ psf}$ $N_{1-5} = \frac{11187 - 319(6)}{34} = 235 \text{ psf}$


∴ USE 3/4" PLYWOOD, APA RATED STURD-I-FLOOR, EXTERIOR
 INDEX 48/24, W/ 10 d NAILS & 6", 6", 12" TYP PER CASE 1,
 UBC TABLE 23-1-J-1.


LOWER LEVEL / BASE SHEAR & ANCHORAGE TO FOUNDATION



LINE A $V = 8941 + 2859(1/2)17/50 = 9427^{lb}$
 $N_D = \frac{9427}{51} = 185 \text{ p.p.f.}$  & 5/8" ϕ A.B. @ 4'-0" o.c.


B₂ $V = 2859(1/2)33/50 = 943^{lb}$
 $N_{D_2} = \frac{943}{12} = 79 \text{ p.p.f.}$  & 5/8" ϕ A.B. @ 6'-0"

C $V = 7129 + 2859(1/2)33/50 = 8072^{lb}$
 $N_D = \frac{8072}{19} = 425 \text{ p.p.f.}$  & 5/8" ϕ A.B. @ 24" o.c.

D $V = 4585 + 2859(1/2)17/50 = 5071^{lb}$
 $N_D = \frac{5071}{35} = 145 \text{ p.p.f.}$  & 5/8" ϕ A.B. @ 5'-0" o.c.



1 $V = 11187 + 2859(1/2)25/38 = 12127^{lb}$
 $N_1 = \frac{12127}{29} = 418 \text{ p.p.f.}$  & 5/8" ϕ A.B. @ 24" o.c.


3 $V = 4449 + 2859(1/2) = 5879^{lb}$
 $N_3 = \frac{5879}{34} = 173 \text{ p.p.f.}$  or  & 5/8" ϕ A.B. @ 5'-0" o.c.


4 $V = 13167 + 2859(1/2)13/38 = 13656^{lb}$
 $N_4 = \frac{13656}{50} = 273 \text{ p.p.f.}$  or RET WALL & 5/8" ϕ A.B. @ 3'-0" o.c.

ANCHORAGE @ WORKS W/ FRAMING BELOW

 USE 3-16d @ 16" o.c.

  USE 4-16d @ 16" o.c.

 USE 5-16d @ 16" o.c.

 USE 6-16d @ 16" o.c.

MAIN FLOOR CHORD STRESSES

A-B $W = 32.139 (1870/2856)^{17/50} (1/38) = 188 \text{ pcf}$

CHORD = $188 \left(\frac{38}{8}\right)^2 \frac{1}{17} = 1999 \text{ lb}$ $\frac{1999}{105} = 19 \Rightarrow 20-16d$

∴ USE 48" MIN LAP & 20-16d NAILS & PLATE SPLICE

1-5 $W = 32.139 (1870/2856)^{17/50} = 421 \text{ pcf}$

CHORD = $421 \left(\frac{22}{8}\right)^2 \frac{1}{32} = 796 \text{ lb}$ $\frac{796}{105} = 7.6 \Rightarrow 12-16d$

∴ USE 48" MIN LAP & 12-16d NAILS & PLATE SPLICE

CHECK OVERTURNING AT MAIN FLOOR SHEAR WALLS

△₁₆ $N = 658 \text{ pcf}$ $H = 8'$ $L = 2.5'$ $W_A = 42(L)^2/16 = 189 \text{ pcf}$
 $W_{DL} = (19(15) + 24(6^2/2(17)) + 15(6/2)) \cdot 85 = 403 \text{ pcf}$ $P = 403(4/2) = 806 \text{ lb}$

$M_{OT} = 658(8)2.5 = 13160 \text{ ft-lb}$

$M_{RES} = 403 \frac{(2.5)^2}{2} + 806(2.5) + 189 \frac{(2.5)^2}{2} + F(2.5) \geq 13160 \text{ ft-lb}$ $F \geq 3718 \text{ lb}$

USE SIMP MST 48 @ EACH WALL END

△₁₅ $N = 479 \text{ pcf}$ $H = 10'$ $L = 24'$ $W_A = 42(L)^2/16 = 157 \text{ pcf}$
 $W_{DL} = (19(15) + 24(14^2/2(10)) + 15) \cdot 85 = 437 \text{ pcf}$

$M_{OT} = 479(10)24 = 114960 \text{ ft-lb}$

$M_{RESIST} = (437 + 157)24^2/2 + F(24) \geq 114960 \text{ ft-lb}$ $F \geq 0$

NO ADDED HOLD BOLDS REQ'D!

△₁₉ $N = 376 \text{ pcf}$ $H = 10'$ $L = 4'$ $W_A = 42(L)^2/16 = 125 \text{ pcf}$

$W_{DL} = (15(15) + 15(6/2) + 24(2)) \cdot 85 = 321 \text{ pcf}$ $P = 321(4/2) = 643 \text{ lb}$

$M_{OT} = 376(10)4 = 15040 \text{ ft-lb}$

$M_{RESIST} = (321 + 125)4^2/2 + 643(4) + F(4) \geq 15040 \text{ ft-lb}$ $F \geq 2225 \text{ lb}$

USE SIMP MST 27 @ EACH WALL END

10 $N = 242 \text{ pcf}$ $H = 10'$ $L = 7'$ $W_A = 42(3)^2/16 = 95 \text{ pcf}$
 $W_{DL} = (19(15) + 24(12^2/24)) + 15(2)$ $BS = 431 \text{ pcf}$ $P_E = 431(4/2) = 862 \text{ lb}$
 $M_{OT} = 242(10)7 = 16940 \text{ ft-lb}$
 $M_{RESIST} = (431 + 95)7^2/2 + 862(7) + F(7) \geq 16940 \text{ ft-lb}$ $F = 0$
∴ NO ADDED HOLD DOWNS REQ'D!

LOWER LEVEL

19 $N = 425 \text{ pcf}$ $H = 9.5'$ $L = 3'$ $W_A = 490 \text{ lb/ft}$
 $W_{DL} = (15(28) + 15(17/2) + 15(4))$ $BS = 516 \text{ pcf}$ $P_{OOD} = 516(4/2) = 1033 \text{ lb}$
 $M_{OT} = 425(9.5)3 = 12112 \text{ ft-lb}$
 $M_{RES} = 516(3)^2/2 + 1033(3) + 490(3+1) + F(3) \geq 12112 \text{ ft-lb}$ $F = 1577 \text{ lb}$

USE SIMP STRUBS OR HPAHD22 AT EACH WALL END
NOT REQ'D AT WALLS $L \geq 8'$

DRAG STRAPS

MAIN FLOOR

LIVE 1 $V = \frac{1187}{50}(17) - 658(10) = 2776 \text{ lb}$ ∴ USE MST 37

3 $V = 4949(41/50) - 3.5(350) = 2402 \text{ lb}$ ∴ USE MST 27

B $V_1 = 11484(30/54) = 6380 \text{ lb}$ ∴ USE HST 5 e BT TO WALL
 $V_2 = 11484(19/54) = 4041 \text{ lb}$ ∴ USE MST 48 e BT TO FLOOR

A, C, D $V_{max} = 8941(16/60) - 242(6) = 932 \text{ lb}$ ∴ USE MST 27

C $V = 8072(12/38) = 2549 \text{ lb}$ ∴ USE MST 27 on PA 23 e FLOOR

LOWER FLOOR

<u>△</u>	<u>SHEAR PANE' SCHEDULE 1994 UBC</u>	<u>STUD</u> <u>16" O.C.</u>	<u>SPACING</u> <u>24" O.C.</u>
<u>2</u>	1/2" Drywall with 5d cooler nails @ 7" O.C. Edges & Field (Table 25-I UBC)	50#/FT	
<u>3</u>	5/8" Drywall with 6d cooler nails @ 7" O.C. Edges & Field (Table 25-I UBC)	58#/FT	
<u>4</u>	1/2" Drywall with 5d cooler nails @ 4" O.C. Edges & Field (Table 25-I UBC)	62#/FT	
<u>5</u>	5/8" Drywall with 6d cooler nails @ 4" O.C. Edges & Field (Table 25-I UBC)	72#/FT	
<u>6</u>	7/8" Stucco Over Paper Backed Lathed w/16 Gauge Staples @ 6" O.C. @ Top & Bottom Plates, Edge Of Shear Wall And On Field (ICBO Report #1823, Feb. 1982 or ICBO Report # 1318, Dec. 1983)	180#/FT	180#/FT
<u>10</u>	3/8" Structural II Plywood With 8d Nails @ 6" O.C. @ Edges And 12" O.C. Field (Table 23-I-K-1 UBC)	260#/FT	220#/FT
<u>11</u>	3/8" Structural II Plywood With 8d Nails @ 4" O.C. @ Edges And 12" O.C. Field (Table 23-I-K-1 UBC)	380#/FT	320#/FT
<u>12</u>	3/8" Structural II Plywood With 8d Nails @ 3" O.C. @ Edges And 12" O.C. Field (Table 23-I-K-1 UBC)	490#/FT	410#/FT
* <u>13</u>	3/8" Structural II Plywood With 8d Nails @ 2" O.C. @ Edges And 12" O.C. Field (Table 23-I-K-1 UBC)	640#/FT	530#/FT
<u>14</u>	15/32" Structural I Plywood With 10d Nails @ 6" O.C. @ Edges And 12" O.C. Field (Table 23-I-K-1 UBC)	340#/FT	
<u>15</u>	15/32" Structural I Plywood With 10d Nails @ 4" O.C. @ Edges And 12" O.C. Field (Table 23-I-K-1 UBC)	510#/FT	
* <u>16</u>	15/32" Structural I Plywood With 10d Nails @ 3" O.C. @ Edges And 12" O.C. Field (Table 23-I-K-1 UBC)	665#/FT	
* <u>17</u>	15/32" Structural I Plywood With 10d Nails @ 2" O.C. @ Edges And 12" O.C. Field (Table 23-I-K-1 UBC)	870#/FT	
<u>18</u>	15/32" Structural II Plywood With 10d Nails @ 6" O.C. @ Edges And 12" O.C. Field (Table 23-I-K-1 UBC)	310#/FT	
<u>19</u>	15/32" Structural II Plywood With 10d Nails @ 4" O.C. @ Edges And 12" O.C. Field (Table 23-I-K-1 UBC)	460#/FT	
* <u>20</u>	15/32" Structural II Plywood With 10d Nails @ 3" O.C. @ Edges And 12" O.C. Field (Table 23-I-K-1 UBC)	600#/FT	
* <u>21</u>	15/32" Structural II Plywood With 10d Nails @ 2" O.C. @ Edges And 12" O.C. Field (Table 23-I-K-1 UBC)	770#/FT	

Use APA Rated Sheathing - Exterior or Exposure I In-Lieu of Structural II Plywood.
These values are for Douglas Fir only, other lumber species may require change.

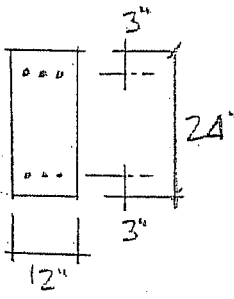
* Use 3x sill plate or 2-2x's with staggered nailing. Stagger nailing at 2-2x top plates.
(where nail spacing is 2" O.C.)

* Framing at adjoining panel edges shall be 3" nominal or wider and nails shall be staggered.

Note: If panels are applied to both faces of wall and nail spacing is less than 6" O.C. on either side, panel joints shall be offset to fall on different framing members or framing shall

FOUNDATION DESIGN

GRADE BMS 12" WIDE x 24" DEEP w/ 3 # 5 CONT. TOP & BTM



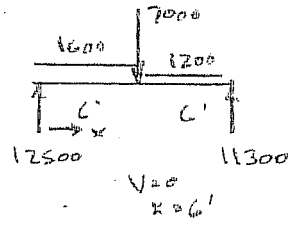
$d = 21"$ $a = \frac{.31(3)(60000)}{.85(2500)12} = 2.19$
 $b = 12"$

$M_{allow} = .19(3)(.31)(60000)(21 - \frac{2.19}{2}) \frac{1}{12} (\frac{1}{1.7}) = 49000 \text{ RB}$

GRADE BMS

LINE A SPAN = 12' $W_1 = 1600 \text{ rpf}$ $P = 7000 \text{ lb}$
 $W_2 = 1200 \text{ rpf}$

$M = 12500(6) - 1600(\frac{6}{2})^2 = 46200 \text{ RB}$

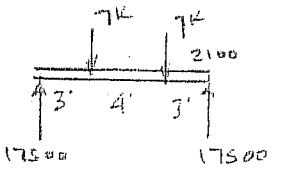


B SPAN = 12' $W = 1200 \text{ rpf}$ $P = 3000(\frac{1}{2}) + 500(2) = 2500 \text{ lb}$

$M = 1200(\frac{12}{2})^2 + 2500(\frac{12}{4}) = 29100 \text{ RB}$

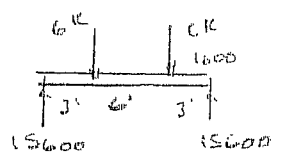
$M_2 = 14000(\frac{8}{4}) = 28000 \text{ RB}$

$P_2 = 14000 \text{ lb}$
 $S = 8'$



C SPAN = 10' $W = 2100 \text{ rpf}$ $P = 7000 \text{ lb}$

$M = 17500(5) - 2100(\frac{5}{2})^2 - 7000(2) = 47250 \text{ RB}$



D SPAN = 12' $W = 1600 \text{ rpf}$ $P = 6000 \text{ lb}$

$M = 15600(6) - 1600(\frac{6}{2})^2 - 6000(3) = 46800 \text{ RB}$

O SPAN = 16' $W = 600 \text{ rpf}$

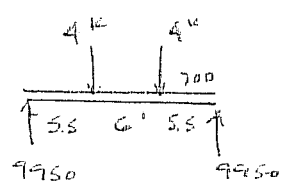
$M = 600(16)^2/8 = 19200 \text{ RB}$

I SPAN = 12' $W = 500 \text{ rpf}$ $P = 3000 \text{ lb}$

$M = 500(12)^2/8 + 3000(12/4) = 27000 \text{ RB}$

Z SPAN = 17' $W = 700 \text{ rpf}$ $P = 4000 \text{ lb}$

$M = 9950(8.5) - 700(8.5)^2/2 - 4000(3) = 47288 \text{ RB}$



GRADE BMS CONT.

LINE 3 SPAD = 16' W = 600 psf P = 7000 lb
 $M = 600 \frac{(16)^2}{8} + 7000 \left(\frac{16}{4}\right) = 47200 \text{ ft-lb}$

4 SPAD = 16' W₁ = 1000 psf M₁ = 1000 $\frac{(16)^2}{8} = 32000 \text{ ft-lb}$
 SPAD = 11' W₂ = 1500 psf
 $M_2 = 1500 \frac{(11)^2}{8} = 22688 \text{ ft-lb}$

5, 5B SPAD = 11' W_{max} = 1100 psf
 $M = 1100 \frac{(11)^2}{8} = 16638 \text{ ft-lb}$

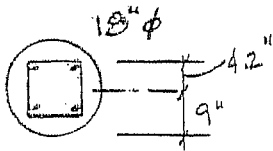
$\sqrt{\text{ALLOW. E GRADE BMS}} = .85(2) \sqrt{2500} (12) 21 = 21420 \text{ lb} > 17500 \text{ lb OK!}$

$\sqrt{\text{LAT ALLOW}} = .85(2) \sqrt{2500} (9) (24) = 18936 \text{ lb}$

$M_{\text{LAT ALLOW}} = (.9(31)2(60000)(9 - \frac{73}{2}) + .9(31)2(60000)(6 - \frac{73}{2})) \frac{1}{2} (\frac{1}{2}) = 23420 \text{ ft-lb}$
 $d = 9' \quad a = .73 \quad d = 6' \quad a = .73$

$M_{\text{LAT MAX}} = 30 \frac{(2)^2}{2} \frac{(16)^2}{8} = 1920 \text{ ft-lb} < 23420 \text{ ft-lb OK!}$

PIER DESIGN



$d = 13.2''$ 4 #5 VERTS $a = .31(2)60000 / .85(2500)16'' = 1.09$
 $M_{ALL010} = .9(.31)2(60000)(13.2 - 1.09/2) \frac{1}{12} (1/1.7) = 26769 \text{ Ft-lb}$

4 #6 HORTS $a = 1.55$
 $M_{ALL010} = .9(2).44(60000)(13.2 - 1.55/2) \frac{1}{12} (1/1.7) = 28943 \text{ Ft-lb}$

SKIN FRICT = 500 PSF x 4.71 SF/FT PIER = 2356^{lb}/FT PIER

PIER DEPTH INTO SUITABLE MATERIAL PER SOIL ENG.

18" ϕ PIER

DEPTH	DEPTH > 12'	PHASE ALLOW
20'	8'	18.8 K
22'	10'	23.5 K
24'	12'	28.3 K
26'	14'	32.9 K
28'	16'	37.6 K
30'	18'	42.4 K
32'	20'	47.1 K
34'	22'	51.8 K

$V_{MAX @ PIER} = 8072(1/6) = 1345^{lb}$
 $@ TOP$

$13656(1/6) = 2276^{lb}$ LIOE 4
 $12127(1/6) = 2021^{lb}$ LIOE 1

$M_{MAX @ PIER} = 2276(10) = 22760 \text{ Ft-lb}$ LIOES 1 & 4

$M_{OTHER} = 1345(10) = 13450 \text{ Ft-lb}$

AT LIOES 1 & 4 - USE 18" ϕ PIER W/ 4 #6 VORTS

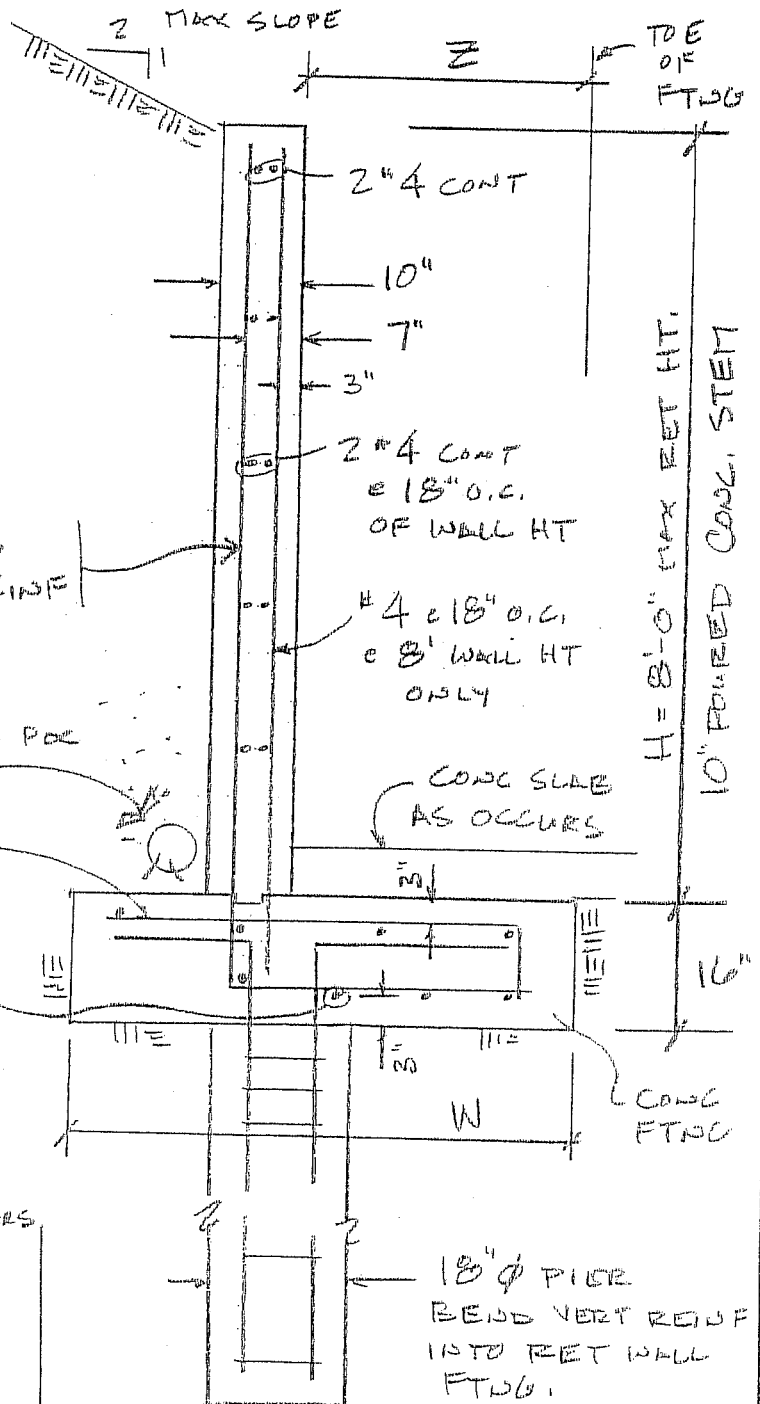
OTHER PIER LIOES - USE 18" ϕ PIER W/ 4 #5 VORTS

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JOB BECK 25
 SHEET NO. 121 OF _____
 CALCULATED BY GJC DATE _____
 CHECKED BY _____ DATE _____
 SCALE _____

RETAINING WALL DETAIL

$\frac{1}{2}'' = 1'-0''$
 $f_c = 2500$ psi MIN CONC
 GRADE 60 REINF
 40 BAR ϕ MID LAP
 WATERPROOF & DRAIN BACK
 OF WALL PER SOIL ENG.
 WATERPROOF ALONG COLD
 JOINTS TO ENSURE NO WATER
 SEEPAGE THRU WALL OR FTNG.



"A" BARS VERT REINF

PERF PIPE & DRAIN ROCK FOR SOIL ENG.

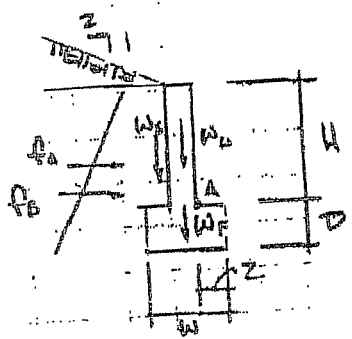
#4 @ 18" O.C. @ H > 4'

#5 CONT "B" BARS HORIZ @ FTNG

WALL SCHEDULE

H	W	Z	"A" BARS	"B" BARS
4'-0"	2'-10"	1'-4"	#4 @ 18"	4 " 5
5'-0"	3'-5"	1'-9"	#5 @ 18"	5 " 5
6'-0"	4'-0"	2'-2"	#5 @ 18"	5 " 5
7'-0"	4'-8"	2'-7"	#5 @ 12"	6 " 5
8'-0"	5'-4"	3'-0"	#5 @ 12"	6 " 5

RETAINING WALL DESIGN



$E_{FW} = 45 \text{ pcf} \times 2.11$

SOIL BEING = 1500 pcf
 FRICT = .35
 P.P.S. = 250 pcf

Copy read and acknowledged *Spgs*
 Signature *BA* Date *1/11/02*
 Signature *CT* Date _____

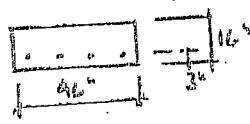
$F = 45 \left(\frac{H}{2}\right)^2$ $M = \frac{45 H^3}{6}$

WALL HT. H

WALL HT. H	D	F _H	M _A	F _B	M _B	t _w	d	$\frac{A_s}{A_c}$.85(ρ) ₁₆	$\frac{M U(2)7}{F(C)(A_s)}$ AS REQ.	VERT REINF
3'-0"	16"	202	202	422	609	10"	7"	.21	.01	"4" x 18"
4'-0"	16"	360	480	639	1136	"	"	.21	.03	"4" x 18"
5'-0"	16"	567	937	902	1990	"	"	.49	.05	"5" x 18"
6'-0"	16"	810	1620	1209	2954	"	"	.73	.09	"5" x 18"
7'-0"	16"	1102	2572	1561	4375	"	"	.73	.15	"5" x 12"
8'-0"	16"	1440	3840	1959	6091	10"	7"	.73	.22	"5" x 12"

$M_{max} = P \cdot I_{max} = K \cdot V$
 $V = 4681 \text{ (8'-2')} = 28087 \text{ lbs}$ USE 18" φ P.I.O. w/ 4" 6 VOLTS
 x 12' MIN EMBEDMENT.

$M_{max} = 2757 \left(\frac{10}{8}\right)^2 = 34462 \text{ ft-lb}$
 $a = \frac{.31(4)(60000)}{.85(2500)46} = .76$
 $M_{allow} = .9(A) .31(60000) \left(13 - \frac{.76}{2}\right) \left(\frac{1}{12}\right) \left(\frac{1}{12}\right) = 41421 \text{ ft-lb} > 34462 \text{ ft-lb}$



USE 4" 5 COR. FT. OF BASE { 10' O.C. MAX P.I.O. SPACING