GENERAL NOTES

1. ALL WORK SHALL BE IN COMPLIANCE WITH ALL APPLICABLE LOCAL BUILDING CODES AND REGULATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR PERMITS APPLICABLE TO SPECIFIC TRADES OR SUBCONTRACTOR'S WORK.
2. CONTRACTOR WILL HAVE EXAMINED THE PREMISES AND SITE SO AS TO COMPARE THEM WITH THE DRAWINGS AND WILL BE SATISFIED AS TO THE CONDITION OF EXISTING WORK AND ADJACENT PROPERTY PRIOR TO SUBMISSION OF BID. NO ALLOWANCES WILL SUBSEQUENTLY BE MADE IN BEHALF OF THE CONTRACTOR BY REASON OF ANY OMISSION ON HIS/HER PART TO INCLUDE THE COSTS OF ALL ITEMS OF WORK, EITHER LABOR OR MATERIALS, WHETHER THEY ARE OR ARE NOT ESPECIALLY OR PARTICULARLY SHOWN OR NOTED BUT WHICH ARE IMPLIED OR REQUIRED TO ATTAIN THE COMPLETED CONDITIONS PROPOSED IN THE DRAWINGS.
3. ALL SUBCONTRACTORS TO THE GENERAL CONTRACTOR SHALL INSPECT THE SITE AND SHALL CONVEY ANY QUESTIONS REGARDING DESIGN INTENT AND SCOPE OF WORK TO THE ARCHITECT PRIOR TO SUBMITTING BID AND PRIOR TO COMMENCING WORK.
4. CONTRACTOR SHALL COORDINATE THE WORK OF THE VARIOUS TRADES AND SUBCONTRACTORS AND SHALL BE RESPONSIBLE FOR ANY ACTS, OMISSIONS, OR ERRORS OF THE SUBCONTRACTORS AND OF PERSONS DIRECTLY OR INDIRECTLY EMPLOYED BY THEM.
5. CONTRACTOR TO ASSUME SOLE RESPONSIBILITY FOR JOB SITE CONDITIONS INCLUDING SAFETY OF PERSONS AND PROPERTY FOR THE DURATION OF THE PROJECT.
6. CONTRACTOR TO NOTIFY ARCHITECT PRIOR TO ORDERING OF ALL LONG LEAD ITEMS AND OF APPROXIMATE DELIVERY DATES.
7. ALL CONSTRUCTION MATERIALS AND SUPPLIES TO BE STORED, HANDLED, AND INSTALLED, ACCORDING TO MANUFACTURERS' RECOMMENDATIONS.
8. IF ERRORS OR OMISSIONS ARE FOUND IN THE DRAWINGS THEY SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
9. DRAWINGS SCHEMATICALLY INDICATE NEW CONSTRUCTION. THE CONTRACTOR SHOULD ANTICIPATE, BASED ON EXPERIENCE, A REASONABLE NUMBER OF ADJUSTMENTS TO BE NECESSARY TO MEET THE DESIGN OBJECTIVES AND SHOULD CONSIDER SUCH ADJUSTMENTS AS INCLUDED IN THE SCOPE OF WORK.
10. WHEN SPECIFIC FEATURES OF CONSTRUCTION ARE NOT FULLY SHOWN ON THE DRAWINGS OR CALLED FOR IN THE GENERAL NOTES, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS SIMILAR CONDITIONS.
11. ALL DIMENSIONS TO BE TAKEN FROM NUMERIC DESIGNATIONS ONLY; DIMENSIONS ARE NOT TO BE SCALED OFF DRAWINGS.
12. THESE NOTES TO APPLY TO ALL DRAWINGS AND GOVERN UNLESS MORE SPECIFIC REQUIREMENTS ARE INDICATED APPLICABLE TO PARTICULAR DIVISIONS OF THE WORK.SEE SPECIFICATIONS AND GENERAL NOTES IN THE SUBSECTIONS OF THE DRAWINGS.
13. ALL DIMENSIONS ARE TO FACE OF FRAMING, UNLESS OTHERWISE NOTED.
14. WEATHERSTRIP ALL DOORS LEADING FROM HEATED TO UNHEATED AREAS.PROVIDE VINYL BEAD TYPE WEATHERSTRIPPING AT THESE DOORS AND WINDOWS. ALL SIDES OF THE DOOR MUST BE WEATHERSTRIPPED, INCLUDING THE THRESHOLD.
15. CAULK AND SEAL OPENINGS IN BUILDING EXTERIOR 1/8" OR GREATER TO PREVENT AIR INFILTRATION.
16. WINDOWS TO BE MADE OPERABLE AND CLEANED, U.O.N.
17. ALL WALL FRAMING TO BE 2X4 @ 16" O.C. MINIMUM, U.O.N.
18. 5/8" GYPSUM WALL BOARD ON WALLS.
19. ALL GYPSUM AND/OR PLASTER SURFACES SHALL BE SMOOTH, CONTINUOUS, FREE OF IMPERFECTIONS, AND WITH NO VISIBLE JOINTS, U.O.N.
20. STUCCO OVER WOOD SHEATHING SHALL INCLUDE TWO LAYERS OF GRADE D BUILDING PAPER.
21. STRUCTURAL WOOD MEMBERS ADJACENT TO CONCRETE OR EARTH TO BE PRESSURE TREATED DOUGLAS FIR.
22. ALL WALL AND FLOOR INSULATION TO BE R-19. ALL ROOF INSULATION TO BE R-23 MIN.
23. ALL USERS OF THESE DRAWINGS AGREE BY USING THESE DRAWINGS TO HOLD THE ARCHITECT HARMLESS FOR ANY AND ALL WORK THAT DOES NOT CONFORM TO REQUIREMENTS AND MINIMUM STANDARDS OF THE UNIFORM BUILDING CODE, LOCAL ORDINANCES AND ACCEPTABLE STANDARDS.

24. THE ARCHITECT HAS NO CONTROL OR CHARGE OF AND SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES FOR ANY SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.

25. THE ARCHITECT ASSUMES NO RESPONSIBILITY FOR THE PERFORMANCE OF PRODUCTS OR MATERIALS NOT SPECIFIED IN THESE DRAWINGS.

26. ITEMS REQUIRED BY TITLE 24 "ENERGY CONSERVATION STANDARDS" SHALL BE CERTIFIED BY CALIFORNIA ENERGY COMMISSION (CEC). EQUIPMENT WHICH REQUIRES PREVENTATIVE MAINTENANCE FOR EFFICIENT OPERATION SHALL BE FURNISHED WITH THE COMPLETE AND NECESSARY MAITENANCE INFORMATION.

ABBREVIATIONS

&	AND
/	ANGLE
@	AT
℄	CENTERLINE
Ø	DIAMETER OR
#	ROUND
(D)	POUND OR NUMBER
(E)	DEMOLISH
(N)	EXISTING
(R)	NEW
	REMOVE
A.B.	ANCHOR BOLT
ADJ.	ADJUSTABLE
AGGR.	AGGREGATE
ALUM.	ALUMINUM
APPROX.	APPROXIMATE
ARCH.	ARCHITECTURAL
A.S.	AIR SPACE
BD.	BOARD
BLDG.	BUILDING
BLK.	BLOCK
BLKG.	BLOCKING
BM.	BEAM
BOT.	BOTTOM
CAB.	CABINET
CEM.	CEMENT
CER.	CERAMIC
CLG.	CEILING
CLKG.	CAULKING
CL.	CLOSET
CLR.	CLEAR
CNTR.	COUNTER
COL.	COLUMN
CONC.	CONCRETE
CONT.	CONTINUOUS
CTR.	CENTER
DBL.	DOUBLE
DET.	DETAIL
DIA.	DIAMETER
DIM.	DIMENSION
DISP.	DISPENSER
DN.	DOWN
D.O.	DOOR OPENING
DR.	DOOR
DS.	DOWNSPOUT
DWG.	DRAWING
DWR.	DRAWER
E.	EAST
EA.	EACH
EL.	ELEVATION
ELEC.	ELECTRICAL
ELEV.	ELEVATOR
ENCL.	ENCLOSURE
EQ.	EQUAL
EQUIP.	EQUIPMENT
EXST.	EXISTING
EXT.	EXTERIOR
F.D.	FLOOR DRAIN
FDN.	FOUNDATION
FIN.	FINISH
FLR.	FLOOR
FLASH.	FLASHING
FLUOR.	FLUORESCENT
FIXT.	FIXTURE
F.O.C.	FACE OF CONCRETE
F.O.F.	FACE OF FINISH
F.O.S.	FACE OF STUDS
F.R.	FIRE RATED
F.S.	FULL SIZE
FT.	FOOT OR FEET
FTG.	FOOTING
FURR.	FURRING
G.S.M.	GALVANIZED SHEET METAL
GA.	GAGE
G.F.I.	GROUND FAULT INTERCEPTOR
GL.	GLASS
GND.	GROUND
GYP.	GYPSUM
H.	HIGH
H.B.	HOSE BIB
H.C.	HOLLOW CORE
HDWD.	HARDWOOD
HDWR.	HARDWARE
HGT.	HEIGHT
HORIZ.	HORIZONTAL
HR.	HOUR
I.D.	INSIDE DIAMETER (DIM.)
INSUL.	INSULATION
INT.	INTERIOR
LAM.	LAMINATE
LAV.	LAVATORY
L.O.	LINE OF
LT.	LIGHT
MAX.	MAXIMUM
M.C.	MEDICINE CABINET
MECH.	MECHANICAL
MEMB.	MEMBRANE
MTL.	METAL
MTD.	MOUNTED
MFR.	MANUFACTURER
MIN.	MINIMUM
MIR.	MIRROR
MISC	MISCELLANEOUS
N.	NORTH
N.I.C.	NOT IN CONTRACT
NO.	NUMBER
NOM.	NOMINAL
N.T.S.	NOT TO SCALE
O.A.	OVERALL
OBS.	OBSCURE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER (DIM.)
OPNG.	OPENING
OPP	OPPOSITE
P.G.	PAINT GRADE
PL.	PLATE
P.LAM.	PLASTIC LAMINATE
PLYWD.	PLYWOOD
PR.	PAIR
PROP.LN.	PROPERTY LINE
P.T.	PRESSURE TREATED
R.	RISER
RAD.	RADIUS
RDWD.	REDWOOD
REF.	REFERENCE
REFR.	REFRIGERATOR
REINF.	REINFORCED
REQ.	REQUIRED
RESIL.	RESILIENT
RM.	ROOM
R.O.	ROUGH OPENING
S.	SOUTH
S.C.	SOLID CORE
SCHED.	SCHEDULE
S.D.	SOAP DISPENSER
SECT.	SECTION
SH.	SHELF
SHR.	SHOWER
SHT.	SHEET
SIM.	SIMILAR
SL.	SLOPE
SPEC.	SPECIFICATION
SQ.	SQUARE
S.S.D.	SEE STRUCTURAL DRAWINGS
S.ST.	STAINLESS STEEL
STD.	STANDARD
STL.	STEEL
STOR.	STORAGE
STRUC.	STRUCTURAL
SYM.	SYMMETRICAL
T.	TREAD
T.B.	TOWEL BAR
T.C.	TOP OF CURB
TEL.	TELEPHONE
T.&G.	TONGUE AND GROOVE
THK.	THICK
TMPR.	TEMPERED
T.O.P.	TOP OF PAVEMENT
T.O.W.	TOP OF WALL
T.P.R.	TOILET PAPER
T.S.	DISPENSER
T.V.	TUBULAR STEEL
TYP.	TELEVISION
	TYPICAL
V.C.T.	VINYL COMPOSITION TILE
VERT.	VERTICAL
V.I.F.	VERIFY IN FIELD
W.	WEST
W/	WITH
WD.	WOOD
W/O	WITHOUT
WT.	WEIGHT

CODE RELATED NOTES

1) FIRE-STOPS SHALL BE PROVIDED IN THE FOLLOWING SPACES;

A) CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES AT THE CEILING AND FLOOR LEVELS, AND AT TEN-FOOT INTERVALS BOTH VERTICAL AND HORIZONTAL.
B) AT ALL INTERSECTIONS BETWEEN VERTICAL AND HORIZONTAL SPACES SUCH AS SOFFITS, DROP AND COVE CEILINGS.
C) IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN, AND BETWEEN STUDS ALONG AND IN LINE WITH THE RUN OF THE STAIRS IF THE WALLS UNDER THE STAIRS ARE UNFINISHED.
D)IN OPENINGS AROUND VENTS, PIPES, DUCTS, CHIMNEYS, FIREPLACES AND SIMILAR OPENINGS WHICH AFFORD A PASSAGE FOR FIRE AT THE FLOOR AND CEILING LEVELS WITH COMBUSTIBLE MATERIALS.
E)AT OPENINGS BETWEEN ATTIC SPACES AND CHIMNEY CHASES FOR FACTORY-BUILT CHIMNEYS.

2) PRE-MANUFACTURED ITEMS, INCLUDING BUT NOT LIMITED TO, FIREPLACES,WOOD-BURNING STOVES, FIXTURES, EQUIPMENT AND APPLIANCES SHALL BE INSTALLED AS PER MANUFACTURER'S SPECIFICATIONS AND REQUIREMENTS.

3) ATTIC SPACE SHALL BE PROVIDED WITH ACCESS 22 INCHES BY 30 INCHES,MINIMUM HEAD-ROOM CLEARANCE SHALL BE 30 INCHES.

4) ATTIC SPACES SHALL BE PROVIDED WITH CROSS-VENTILATION. MINIMUM VENTILATION EQUAL TO 1/150 OF THE AREA OF THE ATTIC.

5) ALL HABITABLE ROOMS SHALL BE PROVIDED WITH NATURAL LIGHT BY MEANS OF EXTERIOR WINDOWS OR SKYLIGHTS WITH AN AREA NOT LESS THAN 1/10 OF THE FLOOR AREA OF SUCH A ROOM WITH A MINIMUM OF TEN SQUARE FEET.

6) ALL HABITABLE ROOMS SHALL BE PROVIDED WITH NATURAL VENTILATION BY MEANS OF EXTERIOR OPENINGS WITH AN AREA OF NOT LESS 1/20 OF THE FLOOR AREA OF SUCH ROOMS WITH A MINIMUM OF FIVE SQUARE FEET.

A) SUCH DEVICES ARE EQUIPPED WITH APPROVED RELEASE MECHANISMS WHICH CAN BE OPERATED FROM THE INSIDE WITHOUT USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT; AND
B) THE BUILDING IS EQUIPPED WITH SMOKE DETECTORS IN ACCORDANCE WITH THE CALIFORNIA BUILDING CODE.

7) BARS, GRILLES, GRATES OR SIMILAR DEVICES MAY BE INSTALLED ON AN EMERGENCY ESCAPE OR RESCUE WINDOWS AND DOORS PROVIDED;

8) ALL BATHROOMS, WATER CLOSET COMPARTMENTS, LAUNDRY ROOMS AND SIMILAR ROOMS SHALL BE PROVIDED WITH NATURAL VENTILATION BY MEANS OF AN OPERATING EXTERIOR OPENING WITH AN AREA OF NOT LESS THAN 1/20 OF THE FLOOR AREA OF SUCH ROOMS WITH A MINIMUM OPENING OF 1.5 SQUARE FEET. IN LIEU OF NATURAL VENTILATION, A MECHANICAL VENTILATION SYSTEM CONNECTED TO THE OUTSIDE MAY BE PROVIDED. THE MECHANICAL VENTILATION SYSTEM SHALL BE CAPABLE OF FIVE AIR CHANGES PER HOUR & EQUIPPED WITH A BACKDRAFT DAMPER. THE POINT OF DISCHARGE SHALL BE A MINIMUM OF 3' CLEAR FROM ANY OPENING INTO THE BUILDING.

9) ALL PLATFORMS AND OPEN SIDES OF STAIRWAYS, LANDINGS, RAMPS BALCONIES OR PORCHES WHICH ARE MORE THAN 30 INCHES ABOVE GRADE OR FLOOR BELOW, SHALL BE PROTECTED BY A GUARDRAIL. GUARDRAILS SHALL BE 36 INCHES IN HEIGHT WITH INTERMEDIATE RAILINGS SPACED TO PREVENT A 4 INCH SPHERE FROM PASSING THROUGH.

10) THE MINIMUM WIDTH OF STAIRWAYS SHALL NOT BE LESS THAN 36 INCHES. THE MINIMUM RUN SHALL BE 9 INCHES AND THE MAXIMUM RISER HEIGHT SHALL BE 8 INCHES. THERE SHALL NOT BE A VARIATION OF GREATER THAN 3/8 INCH BETWEEN ANY RISER. THE MINIMUM HEAD-ROOM CLEARANCE SHALL BE 6'-8" INCHES AS MEASURED PLUMB FROM THE STAIR TREAD NOSING.

SYMBOLS

1 A101 SIM	SECTION HEAD FILLED
1 A101 SIM	SECTION - HEAD OPEN
1 A101 SIM	SECTION - HEAD NO ARROW
1 A101 SIM	CALLOUT - HEAD
Name Elevation	LEVEL HEAD -CIRCLE
N	NORTH ARROW
Room name 101	ROOM TAG
Room name 4 96 SF	ROOM TAG WITH AREA
Room name 101 Volume	ROOM TAG WITH VOLUME
1	REVISION CLOUD WITH No. TAG
Room name 150 SF	AREA TAG
1 View Name	VIEW TITLE
℄	CENTER LINE
00	KEYNOTE
00	EQUIPMENT TYPE ON SCHEDULE
1	DOOR TAG
11	WINDOW TAG
Ref 1 Ref A101 1 Ref 1 Ref	EXTERIOR ELEVATION TAG
1Ref 1 Ref A101 1 Ref 1Ref	INTERIOR ELEVATION TAG
0	GRID-HEAD
	SPOT ELEVATION
1 A101	VIEW REFERENCE
11	WALL TAG
	NEW WALL
	DEMO WALL

TEAM

ARCHITECT:
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OWNER:
Gangaswamy Kempahonnaiah

LAND SURVEY:
Kristina D Comerer
Cross Land Surveying Inc

GENERAL CONTRACTOR :
tbd

STRUCUTRAL ENG:
tbd

SHORING ENG:
tbd

PROJECT DATA

PROJECT LOCATION:	22315 Regnart Rd, Cupertino, CA 95014
ZONING:	RHS-200 Residential Hillside
PARCEL NUMBER:	366 02 032
OCCUPANCY TYPE:	Residential
LAND USE:	Very Low Density (5-20 Acre Slope Density Formula)
PROPOSED HEIGHT:	30'

PROPOSED GROSS AREA:

FIRST FLOOR	2,144 SF
SECOND FLOOR	1,933 SF
COVERED PATIO	184 SF
GARAGE	856 SF
TOTAL	5,117 SF

BUILDING CODE REQUIREMENTS

THE GENERAL CONTRACTOR SHALL FULLY COMPLY WITH THE FOLLOWING
INTERNATIONAL CODES, 2016 CALIFORNIA BUILDING STANDARDS CODE (CAL. CODE REGS., TITLE 24)
COMPLIANCE WITH CITY OF SAN FRANCISCO AMENDMENTS.
CALGREEN CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11 OF TITLE 24
CBC CALIFORNIA BUILDING CODE (PART 2 OF TITLE 24)
CCR CALIFORNIA CODE OF REGULATIONS
CEBC CALIFORNIA EXISTING BUILDING CODE (PART 10 OF TITLE 24)
CEC CALIFORNIA ELECTRICAL CODE (PART 3 OF TITLE 24)
CEC CALIFORNIA ENERGY COMMISSION
CMC CALIFORNIA MECHANICAL CODE (PART 4 OF TITLE 24)
CPC CALIFORNIA PLUMBING CODE (PART 5 OF TITLE 24)
IFC INTERNATIONAL FIRE CODE
NFPA NATIONAL FIRE PROTECTION ASSOCIATION

DISCLOSURE STATEMENT

THIS SET OF DRAWINGS IS TO COMMUNICATE TO THE GENERAL CONTRACTOR AND THE INDIVIDUAL SUB-CONTRACTORS THE GENERAL INTENT OF THE DESIGN.

A CONTRACTOR'S BID THAT IS BASED ON THESE DRAWINGS SHALL BE UNDERSTOOD TO INDICATE THAT THE CONTRACTOR UNDERSTANDS THE INTENT OF THE DRAWINGS, FINDS THEM SUFFICIENTLY EXPLICIT FOR THEIR USE IN IMPLEMENTATION OF THE CONSTRUCTION, IS THOROUGHLY FAMILIAR WITH THE EXISTING CONDITIONS AND ACCEPTS THE REQUIREMENTS FOR FIRST QUALITY MATERIALS, WORKMANSHIP & FINISHES TO SATISFACTION OF THE ARCHITECT.

IT IS THE CONTRACTOR'S RESPONSIBILITY THAT ALL WORK CONFORM WITH EACH AND EVERY APPLICABLE CODE, ORDINANCE AND REGULATION ISSUED BY ANY ENTITY OR GOVERNMENTAL AGENCY HAVING AUTHORITY OR JURISDICTION THEREOF.
THE CONTRACTOR SHALL FILE FOR ANY AND ALL PERMITS AND PAY FOR ANY FEES CONNECTED THEREWITH.

IT IS THE CONTRACTOR, NOT THE ARCHITECT WHO SHALL BE RESPONSIBLE FOR SUPERVISION AND COORDINATION OF ALL PHASES OF THE WORK FROM START TO FINISH. THESE DRAWINGS SHALL NOT BE SCALED FOR ANY REASON. NOTIFY THE ARCHITECT IF ADDITIONAL DIMENSIONS ARE REQUIRED FOR ANY REASON.

RIGHT, TITLE AND INTEREST IN THE DESIGN, THE DRAWINGS AND ANY SPECIFICATIONS, WHETHER OR NOT THE PROJECT IS COMMENCED, EXECUTED OR COMPLETED, DESIGN, DRAWINGS AND SPECIFICATIONS CONTAINED IN THIS SET SHALL NOT BE MADE AVAILABLE TO OR USED BY ANY PERSON OR ENTITY EXCEPT IN FURTHERANCE OF THIS PROJECT WITHOUT PRIOR WRITTEN CONSENT OF PIXEL ARCH LTD.

PROJECT DESCRIPTION

A NEW 4BEDS 4BATHS
SINGLE FAMILY DOWELING
UNIT WITH 4-CAR GARAGE

CODE RELATED NOTES

11) ALL STAIRS WITH 3 OR MORE RISERS SHALL HAVE AT LEAST ONE HANDRAIL. THE HANDRAIL SHALL BE BETWEEN 34 AND 38 INCHES ABOVE THE NOSING OF THE TREAD AND BE CONTINUOUS THE FULL LENGTH OF THE STAIRS.

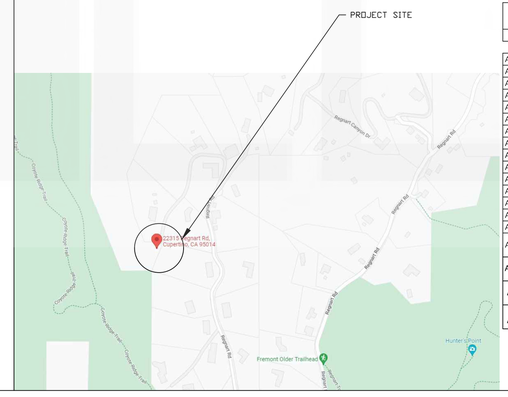
12) WATER CLOSETS SHALL BE PROVIDED IN A MINIMUM 30 INCH WIDE SPACE AND HAVE A MINIMUM OF 24 INCHES CLEAR IN FRONT OF THE FIXTURE. WATER CLOSETS TO BE "ULTRA-LOW FLUSH" TYPE AND PROVIDE A MAXIMUM FLUSH VOLUME OF 1.6 GALLONS PER FLUSH.

13) SHOWER HEADS, LAVATORY AND SINK FAUCETS SHALL HAVE A MAXIMUM FLOW RATE OF 2.5 GALLONS PER MINUTE.

14) UNDER-FLOOR ACCESS SHALL BE GIVEN BY A MINIMUM 18" X 24" CLEAR OPENING, TYP.

15) UNDER-FLOOR VENTILATION SHALL BE PROVIDED BY OPENINGS INTO THE UNDER-FLOOR AREAS NOT LESS THAN 1-1/2 SQ. FT. FOR EACH 25 LINEAR FT. OF EXTERIOR WALL. OPENINGS SHALL BE LOCATED TO OPTIMIZE CROSS VENTILATION WHILE RESPECTING STRUCTURAL SHEAR WALLS.

VICINITY MAP



SHEET INDEX

ARCHITECT DRAWINGS

Sheet No.	Sheet Name
A.000	Title Sheet
A.001	General Notes (1)
A.002	General Notes (2)
A.003	Cal-Green Building Standards Code (1)
A.004	Cal-Green Building Standards Code (2)
A.005	BMP (Best Management Practices)
A.101	Existing Site Plan
A.102	Proposed Site Plan
A.201	Proposed First Floor Plan
A.202	Proposed Second Floor Plan
A.203	Proposed Roof Plan
A.204	Front & Right Elevations
A.205	Rear & Left Elevations
A.206	Cross Sections
A.301	Doors & Windows Schedule
A.302	Kitchen, Bathrooms & Laundry Layouts
A.401	Building Paper/ House wrap details around windows
A.402	Building Paper/ House wrap details around wall to roof transition
A.403	Building Paper/ House wrap details at wall to roof transition

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Swamy Kempa

Date: 11/22/2022
Scale: N.T.S
DRAWING TITLE: TITLE SHEET
Sheet : 01 OF 19
Page No. : A.000

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No.	Revision/Issue	Date
1	CLIENT APPROVAL	

SPECIFICATIONS

DIVISION 00 - CONDITIONS OF CONTRACT

0.01 Terminology

- Referenced Organizations
  a. ACI American Concrete Institute (www.concrete.org)
  b. AISC American Institute of Steel Construction (www.aisc.org)
  c. AITC American Institute of Timber Constructio (www.aitc-glulam.org)
  d. ANSI American National Standard Institute (www.ansi.org)
  e. APA American Plywood Association (www.apawood.org)
  f. ASHRAE American Society of Heating, Refrigeration, and Air Conditioning Engineering (www.ashrae.org)
  g. ASTM American Society for Testing and Materials (www.astm.org)
  h. AWI Architectural Woodwork Institute (www.awinet.org)
  i. AWS American Welding Society (www.aws.org)
  j. AAMA Architectural Aluminum Manufacturers' Association (www.aamanet.org)
  k. CRI Carpet and Rug institute (www.carpet-rug.org)
  l. CEC California Energy Commission (www.energy.ca.gov)
  m. CRSI Concrete Reinforcing Steel Institute (www.crsi.org)
  n. FS Federal Specification (http://apps.fss.gsa.gov/pub/fedspecs/)
  o. GA Gypsum Association (www.gypsum.org)
  p. GANA Glass association of North America (www.glasswebsite.com)
  q. ICC International Code Council (www.iccsafe.org)
  r. NIST PS National Institute of Standards and Technology, Product Standards (www.nist.org)
  s. NEMA National Electrical Manufacturers Association (www.nema.org)
  t. NFPA National Fire Protection Association (www.nfpa.org)
  u. NFRC National Fenestration Rating Council (www.nfrc.org)
  v. NOFMA National Oak Flooring Manufacturers Association (www.nofma.org)
  w. NPCA National Paint and Coatings Association (www.npca.org)
  x. NRCA National Roofing Contractors Association (www.nrca.net)
  y. WDMA National Wood Window and Door Association (www.wdma.com)
  z. PDCA Painting and Decorating Contractors of America (www.pdca.org)
  aa. SDI Steel Door Institute (www.steeldoor.org)
  ab. SMACNA Sheet Metal and Air Conditioning Contractors National Association (www.smacna.org)
  ac. TCNA Tile Council of North America (www.tcna.org)
  ad. TPI Truss Plate Institute (www.tpinst.org)
  ae. TRI Tile Roofing Institute (www.tileroofing.org)
  af. UL Underwriters' Laboratories Inc. (www.ul.com)
  ag. WCLIB West Coast Lumber Inspection Bureau (www.wclib.org)
  ah. WI Woodwork Institute (www.woodworkinstitute.com)
  ai. WWPA Western Wood Products Association (www.wwpa.org)
- Definitions
  1. Contract Documents: The Contract Documents shall include the drawings, specifications, structural calculations, soils report, and California Energy Code compliance forms. These documents are intended to supplement and complement each other. In case of conflict, contact the Architect.
  2. Owner: The term "Owner" shall mean the Owner or the Owner's authorized representative(s).
  3. Contractor: The term "Contractor" shall mean the general contractor or the general contractor's authorized representative(s).
  4. Architect: The term "Architect" shall mean PixelArch ltd. authorized representative(s).
  5. Engineer: The term "Engineer" shall mean the structural engineer or the structural engineer's authorized representative(s).
  6. Builder: The term "Builder" shall mean a person or entity who is both an Owner and Contractor, and whose responsibilities are for both Owner and Contractor.

DIVISION 01 - GENERAL REQUIREMENTS

1.01 Scope of Work:

- Contractor shall provide all labor, materials, equipment, permits, and services necessary for construction of the building and site improvements conforming to the contract documents. Drawings and specifications represent finished structure.
- The contractor shall be responsible for means and methods of construction including shoring and temporary bracing and shall take all necessary measures to insure the safety of all persons and structures near or adjacent to the site.
- Care shall be taken to protect from any damage all trees and vegetation on the site and on adjoining properties. Any trimming or other alteration done to trees shall be done so only by approval of the Owner.
- The Architect will not be providing the Owner with regular on site contract administration and is available only at request of the Owner. The Contractor is solely responsible for the quality control and construction standards for this project.
- These plans are for general construction purposes only. They are not exhaustively detailed nor fully specified. The drawings were prepared to a level of completion satisfactory for building permit purposes and for construction by a knowledgeable and experienced contractor. The Contractor is responsible for preparation of any supplemental details, product specifications, coordination and installation of all materials and equipment.
- Mechanical, electrical, and plumbing systems are shown for intent only. These systems shall be design/build by the Contractor. The Contractor shall be responsible for all necessary permits, drawings, calculations, and California Energy Code.
- These drawings and specifications are divided into sections for convenience only. Contractors, subcontractors and materials suppliers shall refer to all relevant sections in bidding and performing their work and shall be responsible for all aspects of the work regardless of where the information occurs in the drawings.
- Clean-Up: The Contractor will remove all debris from the building site and in general keep the work as clear of rubbish as possible during the course of the work. Before filing the Notice of Completion, the building will be fully cleaned, including all glass polished, floors scrubbed and cleaned, and the building shall be suitable for immediate occupancy by Owner.

1.02 Quality Control

- All work shall comply with applicable requirements of all governing codes, regulations and ordinances. These shall include the latest adopted editions of: The California Building Code (CBC), California Residential Code (CRC), California Electric Code (CEC), California Plumbing Codes (CPC), California Mechanical Code (CMC), California Energy Code (CENC), California Green Building Standards Code (CAL Green), OSHA regulations, and all other health and safety codes, ordinances and requirements adopted by governing agencies. In the case of conflicts between these regulations and the contract documents, the most restrictive shall apply.
- The Contractor shall verify, at the site, all conditions affecting work and shall review the contract documents for any areas of question affecting cost, construction and warranty and any drawing dimensional or note conflict, discrepancy, illegibility or omission. All areas of question shall be brought to the attention of the Architect in writing before commencing any work and/or submitting any bid. Commencement of any work shall constitute acceptance by the Contractor of all conditions affecting work.
- Workmanship throughout shall be of the highest quality of each trade involved.
- The Contractor, before commencing work, shall notify the Owner in writing of any work that cannot be fully guaranteed or executed within the intent of the drawings prior to the bid submittal.
- All construction shall be in strict conformance with manufacturers' latest written specifications. All discrepancies between these specifications and the contract documents prepared by the Architect and his consultants shall be brought to the attention of the Architect before commencing work.
- Reference to product manufacturer or trade names are for minimum performance standards only. Submittal equals may be allowed upon approval by the Architect. Material and detail substitutions made by the Contractor without written approval by the Architect shall void any responsibility or liability of the Architect as to performance, repair cost, ancillary damage or the performance of related materials and details.
- Cutting and patching includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and patching required to restore surfaces to their original condition. Use materials for cutting and patching that are identical to existing materials.
- Do not cut and patch structural work in a manner that would result in a reduction of load carrying capacity or load-deflection ratio. Submit proposal and obtain Architect's and Engineer's approval before proceeding with cut and patch of structural work.
- Quality control services include inspections and tests performed by independent agencies and governing authorities, as well as by the Contractor. Inspection and testing services are intended to determine compliance of the work and the requirements specified. Approval by a building official does not mean approval or failure to comply with the contract documents. Inspections and testing shall be performed at the request of the Owner, the Architect and/or governing agencies and as set forth in these documents. Quality control services are the Contractor's responsibility, including those specified to be performed by an independent agency and not by the contractor. The Contractor shall employ and pay any independent agency, testing laboratory or other qualified firm to perform quality control services specified. Where results of inspections or tests do not indicate compliance with the contract documents, the Contractor shall be responsible for any repair, replacement, correction and re- test that is required.
- All dimensions shall take precedence over scale shown on the plans, sections, and details. Dimensions are to face of studs, face of foundation, face of concrete block, top of sheathing, top of slab, or center of openings, U.O.N. Do not scale drawings. Contractor shall verify all dimensions and review any conflicts or discrepancies with the Architect prior to commencement of work.

DIVISION 02 - SITEWORK

2.01 Soils Report:

- All work shall be in conformance with the Soils, Compaction and Geological Report.
- The Contractor shall have the Soils Engineer review and approve in writing to the Building Official and Architect that the foundation and site design are in conformance with the Soils Report prior to commencement of work.
- The Contractor shall be solely responsible for compliance with all recommendations of the Soils Report.
- Prior to the contractor requesting a foundation inspection by the building department, the Soils Engineer shall advise the Building Official and Architect in writing that:
  a. Site grading, subgrade preparation, cutting slopes, excavation, placement of engineered fill material and compaction is in accordance with the Soils Report.
  b. The utility trenches have been properly backfilled and compacted.
  c. The foundation excavations, forming, footing and pier depths, and reinforcement comply with the soils report and approved plans.

2.02 General Requirements

- The site plan is not a survey. It is based on site information provided by the Owner and is for building and site work layout only. The Contractor shall verify on site all grades, soil conditions, ground water, existing improvements, property lines, easements, setbacks, utilities and substructures. Where discrepancies with the drawings occur, contact Architect.
- Grade surface of till under concrete slabs shall be smooth and even, free of voids, compacted as specified and to required elevation.
- At raised foundations, pad grade under building shall have positive slope to a perforated drain set in gravel trench. Extend pipe to all portions of underfloor area. The drain shall discharge into the street or approved drainage facility.
- Unless otherwise detailed or noted, a perforated drain set in a gravel trench shall be installed around the entire perimeter of the foundation. The drain shall discharge into the street or approved drainage facility. Use only rigid pipe, flexible pipe will not be allowed.
- It shall be the responsibility of the Contractor to take proper erosion control measures. The Contractor shall be responsible for proper surface and subsurface drainage of the site. Slope all finish grading away from buildings, walks, drives or decks and provide catch basins where required.
- Finish grades shall be held down in planting areas. The Contractor shall provide and install a 6" minimum thickness of clean select top soils in these areas.
- Rough grading for slabs-on-grade shall be within 2/10th of one foot, plus or minus.
- Site grading shall be within 5/10th of one foot, plus or minus.
- All roof drainage shall be piped in a closed pipe system to street or approved drainage facility (U.O.N.).
- Builder shall provide landscape development guidelines to Owner that shall include information on site maintenance and development and state such items as "Irrigation system shall be designed to prevent saturation of soil adjacent to building".
- All utilities unless indicated otherwise shall be installed under ground. The Contractor shall be responsible to insure that all trenching within building area shall be backfilled and compacted with structural soils material free of rocks or other sharp objects which may damage underground utilities.
- Underground piping shall be laid to a minimum 24" depth below finished grade. When utilities are placed in a common trench, all utilities shall maintain separations and coverage both vertically and horizontally, as required by applicable codes.

DIVISION 03 - CONCRETE

3.01 Quality Control

- In addition to complying with all pertinent codes and regulations, comply with all applicable provisions of the latest editions of:
  a. ACI 301 "Specifications for Structural Concrete for Buildings"
  b. ACI 318 "Building Code Requirements for Reinforced Concrete"
  c. CRSI "Manual of Standard Practice"
  d. See Structural Engineer's drawings for additional requirements.

3.02 General Requirements

- Provide underfloor vents as per CBC 1203.3 or CRC R408.1. Add two 6 x 14 vents to garage. All first floor double framed areas shall be vented.
- Provide expansion and control joints in all exterior concrete slabs. Spacing of joints shall be per industry standard (U.O.N.). Verify joint layout with Architect.
- Refer to architectural, structural, mechanical, plumbing and electrical drawings for all moulds, grooves and ornamental clips, location of sleeves, inserts, etc. to be cast in concrete and for extent of depressions, curbs and ramps.
- Finishes:
  a. All interior slabs shall receive trowel smooth finish (U.O.N.).
  b. All driveways, sidewalks, and stairs shall receive broom-smooth finish (U.O.N).
  c. Garage slabs and other interior slabs that will remain unfinished shall be treated with Lipidolith Hardner by Sonneborn, or equal.

DIVISION 04 - MASONRY

4.01 Quality Control

- Glass Block: Minimum performance specifications shall be as Pittsburgh Corning glass block units. The units shall be the pattern and size indicated on the plans.
- Precast architectural concrete columns and trims: Concrete Designs Inc. (CDI) U.O.N.
- Grout for precast concrete: ASTM A 118.6, Latex Portland Cement, color to match precast concrete.
- Epoxy Grout: ANSI A 108.6 and A118.3. 4.02

4.02 General Requirements

- Concrete Block
  a. Mortar joints to be "flush" (U.O.N.).
  b. Bond shall be "running" (U.O.N.).
- Brick:
  a. Mortar joints shall be "raked" (U.O.N.). Raked joints shall be not more than 3/8" deep, and where exposed to weather, shall be tooled. Brick joints shall be concaved where subject to freezing.
  b. Bond shall be "running" (U.O.N.).
- Stone:
  a. Field Sample: A sample panel shall be built approximately 4 feet by 6 feet. This sample panel may be a part of the project. Veneer installation shall not proceed until the sample panel is accepted by the Architect and Owner. Full size units which have been selected and approved by the Architect and the Owner to show color range, maximum texture range, bond, mortar, tooling of joints, and quality of workmanship shall be used in the sample panel. The remainder of the veneer installation shall be consistent with the approved sample panel.
- Glass Block:
  a. Mortar for glass block installed on exterior walls and other damp location shall be waterproofed with Laticrete 8510 or equal.

DIVISION 05 - METALS

5.01 General Requirements

- All bolt heads and nuts that bear on wood shall have malleable iron washers if exposed or cut washers if concealed.
- Exposed welds shall be ground smooth.
- Shop paint structural steel work , except those members or portions of members to be embedded in concrete or mortar. Paint the initial 2" of embedded areas only. Do not paint surfaces which are to be welded or high strength bolted with friction type connections. After installation is completed, all welded and other abraded areas shall be touched up. On surfaces inaccessible after assembly or erection, apply two (2) coats of the specified primer.
- All exterior steel, exposed, concealed or embedded, or where called for on the Drawings, shall be thoroughly zinc-coat galvanized after fabrication by the hot-dipped method. Touch- up field welds with similar galvanizing product.
- Dissimilar Materials in contact with each other shall be protected to prevent galvanic or corrosive action. Use vinyl pressure tape, polyisobutylene tape, or similar product.
- All metals in contact with pressure treated wood shall be hot dipped galvanized, see Simpson Strong-Tie for recommended finishes for their connectors. Also see structural engineering specifications for further information.

DIVISION 06 - WOOD AND PLASTICS

6.01 Quality Control:

- Materials shall meet or exceed the following standards:
  a. Lumber:
     A. Structural lumber and their wood fasteners shall conform with CBC Chapter 23 and/or relevant chapters of the CRC.
     B. All wood in contact with concrete or masonry or located within 8" of finish grade shall be pressure treated Douglas or Hem Fir with an approved preservative.
     C. All timbers 6 x 8 and larger exposed to view shall be free of heart center (FOHC), with moisture content of 22% maximum.
     D. Max. deflection (DL + LL) shall be: Floor with Tile = L/ 720
- All wood shall be nontropical, reused, reclaimed, or FSC Certified

6.02 General Framing Requirements:

- Blocking:
  a. Block floor joists at all supports, line up double joists under all walls parallel to floor joists and space double joists under plumbing walls.
  b. Provide solid full width blocking or post below all structural posts - continuous to foundation.
  c. Provide blocking and nailers for all finishes and fixtures as required.
  d. Provide blocking in walls at ceiling lines.
  e. Corbles, knee braces, etc., shall be construction select materials. At double framed floors "sleepers" shall be perpendicular to framing below.

6.03 Attic Ventilation Requirements:

- Provide attic and soffit ventilation as per CBC 11203.2 or CRC R806. Vent all double framed areas. See Roof Plan for calculations.

6.04 Finish Carpentry:

- All millwork and case work shall be in accordance with AWI/AWMAC "Architectural Wood Standards" custom or premium grade standards, latest edition.
- All cabinets and millwork shall be selected by the owner.
- Provide 30" clear above kitchen range to unprotected underside of upper cabinetry or 24" clear to metal hood as per CMC Section 916.1 & 916.2.
- Plastic laminates and solid surfacing products shall meet or exceed ANSI/NEMA standards LD.
- Install and anchor all cabinetry to preclude movement, overturning, or distortion to other materials or finishes. Install level and plumb. Comply with manufacturer's instructions for support of supplied units.
- Install all trim in as long of lengths as possible. All splices in finish members shall be bevel splices. Where joints within a piece are required they shall be as unapparent as possible.

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

7.01 Quality Control

Materials shall meet or exceed the following standards:

- Insulation:
  a. Insulation shall be installed per the California Energy Code requirements.
  b. Thermal Batt/Blanket Insulation: Mineral-Fiber Blanket complying with ASTM C 665, Type I (blankets without membrane facing).
  c. Thermal insulation/blown-in blanket insulation glass fiber loose-fill complying with ASTM C 764 Type I (for pneumatic) or Type II (for poured) in attic.
  d. Sound Insulation: Unfaced mineral fiber blanket/batt insulation complying with ASTM C 665, Type I, minimum thickness equal to stud depth to entirely fill the void space, nominal 0.70 to 2.50 -pcf density.
  e. All plumbing walls adjacent to interior living spaces shall be sound insulated with fiberglass batts.
- Concrete Tile Roofing:
  a. All work shall comply with the TRI "Concrete and Clay Tile Installation Manual for Moderate Climate Regions and CBC 1507.3 or CRC 905.3
  b. Concrete Tile Roofing shall be applied according to manufacturers specifications.
  c. The minimum performance standards for concrete tile roofing shall be Eagle Roofing Products (ICC ESR-1900) or equal as approved by Owner and bear a UL Class A fire proof rating. Installed weight shall be a maximum of 900 lbs. per square.
  d. Trim units shall include manufacturer's standard ridge, hip and rake pieces. Color as selected by Owner (U.O.N.). Minimum one nail per tile, two nailes on all rake tile. Minimum pitch shall be as per manufacturer's specifications. Underlayment for concrete or clay tile roofing shall be one layer of 30 lb. asphalt-saturated organic roofing felt, complying with ASTM D 226, 36" wide applied per manufacturer's recommendations. 3-ply built up roof underlayment required for pitch less than 3:12.
  e. Roofing nails shall be aluminum or hot dip galvanized 11 or 12 GA sharp, pointed conventional roofing nails with barbed shanks, min. 3/8" dia. head and or sufficient length to penetrate min. 3/4" into solid decking or to penetrate through plywood sheathing (U.O.N.).
  f. The roofing contractor shall supply to the Owner a written guarantee to repair without cost to the Owner, any leaks due to faulty materials or workmanship, which develop within 1 year from the date of acceptance by Owner of completed building. During this time period, any repair work required because of Act of God, abuse, alterations, or failure to the substrate and/or supporting structure (other than that caused by defects in the roofing work) shall be completed by the contractor and paid for by the Owner, promptly after compeltion of the required repair work in each instance. The roofing contractor shall furnish the manufacturer's standard limited material warranty for a minimum of 10 years from the date of completion of the roof.
- Asphalt Shingle Roofing:
  a. All work shall comply with the NCRA "Roofing and Waterproofing Manual" and CBC 1507.2 or CRC R905.2
  b. Asphalt shingles shall be applied according to manufacturers specifications.
  c. The minimum performance standard for asphalt shingles shall be Elk Premium Roofing - Prestique Two or equal as approved by Owner and bear a UL Class A fire proof rating. Trim units shall include manufacturer's standard ridge and hip pieces. Color as selected by Owner (U.O.N.). Minimum pitch as per manufacturer's recommendations.
  d. For asphalt shingle underlayment shall be 15 lb. felt, 2 layers at pitch less than 4:12.
  e. Roofing nails shall be aluminum or hot dip galvanized 11 or 12 GA sharp, pointed conventional roofing nails with barbed shanks, min. 3/8" dia. head and or sufficient length to penetrate min. 3/4" into solid decking or to penetrate through plywood sheathing (U.O.N.).
  f. The roofing contractor shall supply to the Owner a written guarantee to repair without cost to the Owner, any leaks due to faulty materials or workmanship, which develop within 1 year from the date of acceptance by Owner of completed building. During this time period, any repair work required because of Act of God, abuse, alterations, or failure to the substrate and/or supporting structure (other than that caused by defects in the roofing work) shall be completed by the contractor and paid for by the Owner, promptly after compeltion of the required repair work in each instance. The roofing contractor shall furnish the manufacturer's standard limited material warranty for a minimum of 10 years from the date of completion of the roof.
- Built-up Roofing:
  a. All work shall comply with the NCRA "Roofing and Waterproofing Manual" and CBC 1507.10 or CRC R905.11.
  b. Built-up roofing shall be applied according to manufacturers specifications.
  c. The minimum performance standard for built up roofing for nailable decks shall be Johns Manville 4GNC or equal as approved by Owner and bear a Class A fire proof rating. All products and components shall be by same manufacture. Color as selected by Owner (U.O.N.).
  d. The roofing contractor shall supply to the Owner a written guarantee to repair without cost to the Owner, any leaks due to faulty materials or workmanship, which develop within 1 year from the date of acceptance by Owner of completed building. During this time period, any repair work required because of Act of God, abuse, alterations, or failure to the substrate and/or supporting structure (other than that caused by defects in the roofing work) shall be completed by the contractor and paid for by the Owner, promptly after compeltion of the required repair work in each instance. The roofing contractor shall furnish the manufacturer's standard limited material warranty for a minimum of 10 years from the date of completion of the roof.
- Metal roof panels:

  Deck requirements.

  Metal roof panel roof panels shall applied to a solid or closely fitted deck. Except where the roof covering is specially designed to be applied to spaced supports.

  Deck slope.

  Minimum slopes for metal roof panels shall comply with following:

  1. The minimum slope for lapped, no soldered seam metal roof panels without applied lap sealant shall be three units vertical in 12 units horizontal (25-percent slope).
  2. The minimum slope for lapped. No-soldered seam metal roof panels with applied lap sealant shall be one-half unit vertical in 12 units horizontal (4-percent slope). Lap sealants shall be applied in accordance with the approved manufacturer's installation instructions.
  3. The minimum slope for standing-seam metal roof panel systems shall be one-quarter unit vertical in 12 units horizontal (2-percent slope).

  Material standards.

  Metal-sheet roof covering systems that incorporate supporting structural members shall be designed in accordance with chapter 22. Metal-sheet roof coverings installed over structural decking shall comply with Table 1507.4.3(1). The materials used for metal -sheet roof coverings shall be naturally corrosion resistant or provided with corrosion resistance in accordance with the standards and minimum thicknesses shown in Table 1507.4.3(2).

TABLE 1507.4.3(1) METAL ROOF COVERINGS

ROOF COVERING TYPE	STANDARD APPLICATION RATE/THICKNESS
Aluminum	ASTM B209. 0.024 inch minimum thickness for roll–formed panels and 0.019 inch minimum thickness for press–formed shingles
Aluminum-zinc Alloy coated steel	ASTM A792 AZ 50
Cold-rolled copper	ASTM B370 minimum 16 oz./sq ft and 12 oz./sq ft high yield copper for metal–sheet roof covering systems. 12 oz./sq ft for preformed metal shingle systems.
Copper	16 oz./sq ft for metal–sheet roof–covering systems, 12 oz./sq ft for preformed metal shingle system
Galvanized steel	ASTM A653 G–90 zinc–coated
Hard lead	2 lbs./sq ft
Lead-coated copper	ASTM B101
Prepainted steel	ASTM A755
Soft lead	3 lbs./sq ft
Stainless steel	ASTM A240. 300 Series Alloys
Steel	ASTM A924
Terne and terne-coated stainless	Terne coating of 40 lbs. per double base box. Field painted where applicable in accordance with manufacturer's installation instructions.
Zinc	.0277 inch minimum thickness. 99.995% electrolytic high grade zinc with alloy additives of copper (0.08%–0.20%). Titanium (0.07%–0.12%) and aluminum (0.015%).

TABLE 1507.4.3(2) MINIMUM CORROSION RESISTANCE

55 %Aluminum-Zinc alloy-coated steel	ASTM A792 AZ 50
5%Aluminum alloy-coated steel	ASTM A875 GF60 50
Aluminum-coated steel	ASTM A463 T2 65
Galvanized steel	ASTM A653 G–90
Prepainted steel	ASTM 755

Metal roof panels shall be secured to the supports in accordance with the approved manufacturer's fasteners. In the absence of manufacturer recommendations, the following fasteners shall be used:

1. Galvanized fasteners shall be used for steel roofs.
2. Copper, brass, bronze, copper alloy or 300 series stainless-steel fasteners shall be used for copper roofs.
3. Stainless-steel fasteners are acceptable for all types of metal roofs.
4. Aluminum fasteners are acceptable for aluminum roofs attached to aluminum supports.

Underlayment and high wind:

Underlayment applies in areas subject to high winds [V.. greater than 110mph (49 m/s) as determined in accordance with section 1609.3.1] shall be applied with corrosion-resistant fasteners in accordance with the manufacture's installation instructions. Fasteners are to be applied along the overlap not more than 36" (914 mm) on center.

Underlayment installed where *Vasd* in accordance with section 1609.3.1, equals or exceeds 120 mph (54 m/s) shall comply with ASTM D226 type II, ASTM D4869 type IV , or ASTM D1970. The underlayment shall be attached in grid pattern of 12 inches (305 mm) between side laps with a 6 inch (152 mm) spacing at the side laps. Underlayment shall be applied in accordance with the manufacturer's installation instructions except all laps shall be a minimum of 4 inches (102 mm). Underlayment shall be attached using metal or plastic cap nails with a head diameter of not less than 1 inch (25 mm) with a thickness of at least 32-gage [0.0134 inch (0.34 mm)] sheet metal. The cap nail shank shall be a minimum of 12 gage [0.105 inch (2.67 mm)] with a length to penetrate through the roof sheathing or minimum of 3/4" (19.1 mm) into the roof sheathing.

Exception: As an alternate, underlayment complying with ASTM D 1970 shall be permitted.

f. The roofing contractor shall supply to the Owner a written guarantee to repair without cost to the Owner, any leaks due to faulty materials or workmanship, which develop within 1 year from the date of acceptance by Owner of completed building. During this time period, any repair work required because of Act of God, abuse, alterations, or failure to the substrate and/or supporting structure (other than that caused by defects in the roofing work) shall be completed by the contractor and paid for by the Owner, promptly after compeltion of the required repair work in each instance. The roofing contractor shall furnish the manufacturer's standard limited material warranty for a minimum of 10 years from the date of completion of the roof.

- Flashing:
  a. All work shall comply with the SMACNA "Architectural Sheet Metal Manual".
  b. All metal flashing to conform to ASTM A 653, commercial grade (zinc coated G 90).
  c. All metal flashing shall be 26 gauge for work less than 8" wide, 20 gauge for work over 8" wide or as indicated on the drawings. Use 20 gauge minimum for clips.
  d. Sheet metal flashing shall be installed at all locations where different material intersect such as roof to wall, roof to roof, deck/balcony/landing to wall, penetrations into walls, chimneys and as detailed. Flash and counterflash as required to make watertight.
  e. The center of all flashing for all through vents and all electrical service connections, shall not be less than 16" from center of any valley. See manufacturer's printed installation instructions recommendations for roofing tile.

DIVISION 07 - THERMAL AND MOISTURE PROTECTION (CONTINUED)

- Sheathing Paper:
  a. Provide sheathing paper under exterior metal lath and plaster, under wood siding, under masonry veneer, under metal flashings and where indicated or detailed.
  b. Use Tyvek House Wrap.
  c. Lapping: Horizontal Joints: Lap paper as detailed and not less than 3 inches; Wall Corners: Wrap paper to overlap not less than 18 inches each side of corner; Vertical Joints: Lap paper not less than 6 inches.
  d. Lap paper over head flashings and base screeds, roof and waterproof membranes, and under sill flashings. Treat penetrations and other details as necessary for adequate weather protection.
  e. Wall openings: Individually flash all exterior openings for fixtures such as windows, doors and vents as detailed to make them water tight.
- Flexible Flashings:
  a. Fortifiber system.
  b. Moiststop E-Z seal adhesive flashing for dampproofing at all exterior door window heads and jambs.
  c. Fortiflash 40 mil waterproof flashing for waterproofing at all horizontal plaster surfaces, horizontal penetrations, and windowsills.
  d. Moiststop sealant for sealing around windows.
- Deck Waterproofing:
  a. The minimum performance standard for waterproof sheet membrane at waterproof decks with tile or concrete finish shall be WR Grace "Bituthene 3000". All products and components shall be by same manufacturer. Install in strict accordance with manufacturer's written instructions to assure waterproof integrity.
  b. The minimum performance standard for traffic coatings at waterproof decks shall be Excel-Coat pedestrian membrane system or Excel-Coat Fire System for fire-rated decks by Excellent Coatings Inc.. All products and components shall be by same manufacturer. Install in strict accordance with manufacturer's written instructions to assure waterproof integrity.
  c. Quality Assurance. Pre-installation conference: A pre-installation conference shall be held prior to commencement of field operations to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work. Agenda for meeting shall include review of special details and flashing. This meeting shall include the representatives of the General Contractor, Applicator, Manufacturer, and Architect. A trained employee of the manufacturer shall be on site periodically during membrane waterproofing work to review installation procedures.
  d. Water test: Deck membranes shall be water tested and approved immediately before installation of finish materials. Water tests shall be witnessed by the Architect. A water test is conducted by closing any deck drains and erecting temporary dams where required to retain water on the waterproofing material surface, then flooding the surface to a minimum depth of 2". Care must be taken so that the weight of water retained does not exceed the load carrying capacity of the structural deck, and that the height of the water does not exceed the lowest flashing. For well sloped decks, tests should be segmented to avoid deep water near drains. The water tests should be conducted on a warm day (i.e. 65 degrees F. minimum). The water should be allowed to remain on the deck for 24 hours minimum, during and after which the areas beneath the membrane should be inspected for leaks. If leaks are detected, the test should be stopped, repairs made, and the area retested. When the test is successful, the drains should be opened and the temporary dams should be removed. Temporary protections boards should be installed over the tested area, and the area roped off to prevent construction traffic across the surface until drainage composite or permanent protections board has been installed.
- Roof Accessories
  a. The minimum performance standard for prefabricated acrylic skylights shall be Bristolite "AL-CM- 2" (ICC ER-2489) or equal as approved by Owner. Color as selected by owner. Install as per manufacturer's instructions.
- Firestopping
  a. Furnish UL Design No. from the "Fire Resistance Directory - Volume II" for each required penetration type and configuration. Indicate which materials will be used in firestopping the penetration.
  b. Firestopping materials shall conform to CBC Section 713 for fire resistance standards and requirements for penetrations in walls and partitions and floors.
  c. Through-Penetration Firestopping Materials: Hilt Construction Chemicals, Inc., International Protective Coatings Corp., Specified Technologies, Inc., The ReclorSeal Corporation, Tremco, Inc., 3M Fire Protection Products. Provide mortar, sealants and caulk, putty, wrap strips, pillows, bags, and other types required for UL Design No. for each penetration to receive firestopping.
  d. Mineral Fiber Firestopping Materials: Semirigid mineral fiber insulation, nominal 4-pcf density; complying with ASTM C612, Type IA and IB.
  e. Firestopping at Electrical Boxes and Utility Outlets: Utility penetrations in walls, ceilings, or floors requiring protected openings shall be firestopped and sealed with an approved material securely installed, capable of maintaining its integrity when subjected to test temperature was specified in ASTM E814. Steel electrical outlet boxes which exceed 16-square inches in area shall be protected by 3M "Moldable Putty Pads", Specified Technologies, Inc. "SpecSeal Series SSP Putty Pads."
  f. Provide solid continuous firestopping wherever the penetration or addition of a construction element through or adjacent to a fire-rated floor, wall or partition creates a discontinuity of such a rates separation. Application limited in size and configuration to tested systems.
  g. Penetrations: Penetrations include conduit, cable, wire, pipe, duct and other elements which pass through one or both outer surfaces of a fire-rated floor, roof, wall, or partition. Fill penetrations as indicated in applicable UL Design No. Verify that annular space around sprinkler pipes through fire-rated walls and floors is provided as required by NFPA 13.
  h. Fire Rated Partitions: Fire-rated or smoke-rated partitions shall be firestopped with a firestop sealant as listed in UL "Fire Resistant Directory." Apply minimum 3/8-inch bead at intersection of finish material and adjacent surface, both sides and along entire perimeter.
  i. Identify firestop systems after installation. Identify the firestop system that has been installed and include the appropriate UL Design Number.
- Caulking and Sealants/Locations:
  a. Sealant Locations: Locations such as ceramic tile, plumbing fixtures, and other where mildew resistant sealant is required. Location where high degree of movement is anticipated. Joints and cracks around windows, thresholds, door frames, wall penetrations, connections and other joints necessary to seal off building from outside air and moisture. Between exterior wall sole plate and slab on grade. All joints necessary to make the building watertight and to prevent the passage of dirt, dust, wind, air or water. At interior insulated sound walls. Fire stopping at penetrations of fire rated assemblies.
  b. Minimum product standards for sealants shall be as follows:
     Exterior Window and Door Frames and Masonry to Cement Plaster: Sonolastic NP 2, by Sonneborn or equal.
     Color to match wall surface.
     Interior Sound Walls at Sill: Tremco Acoustical Sealant or equal.
     Wood Sole Plate to Concrete, Window Sills and Door thresholds: Dow Corning 790 Silicone Building Sealant or equal.
     Color: Natural Stone.
     Painted Exterior Windows Frames to Metal Frames or Flashing: Dow Corning 999A Glazing Sealant or equal.
     Color: Clear.
     Caulking for Joints in Floor Slabs on Grade: PRC Rubber Caulk 230, two-part self-leveling polyurethane, Shore A hardness 35.
     Joint Fillers: Closed cell inert polyurethane or polyethylene as recommended by caulking manufacturer. Width or diameter of preformed backing material to be 1-1/4 to 1-1/3 times the width of the joint to be sealed. Fire stopping at penetrations of fire rated assemblies: 3M Fire Protection Products CP 25WB Caulk (U.O.N.), see details.
  c. Caulking and sealants shall be installed per manufacturer's written specifications. Consult manufacturer when sealant cannot be applied within recommended temperature ranges. All exposed caulking shall be free of wrinkles, sags, air pockets, ridges and embedded impurities. After joints are completely filled, they shall be tooled to a slight, neat concave joint.
  d. Sealants shall be compatible with all materials they are in contact with.

DIVISION 08 - DOORS AND WINDOWS

8.01 Quality Control

Material shall meet or exceed the following standards:

- Wood Doors:
  a. Doors shall meet or exceed the standards of the AWI/AWMAC "Architectural Wood Standards", Section 9, Custom Grade (U.O.N.).
  b. Wood doors shall be 1-3/4" thick solid core at exterior doors and where noted at selected interior doors. 8' interior doors shall be 1 3/4" thick, 6'-8" interior doors shall be 1 3/8" thick.
- Stile & Rail Wood Doors:
  a. Masonite International Corporation, molded panel series, or equal. See Window & Door schedule. Final windows and doors style to be selected by owner.

PixelArch ltd.
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Sheet : 02 OF 19
Page No. : A.001

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No.	Revision/Issue	Date
1	CLIENT APPROVAL	

SPECIFICATIONS

b. Factory fit doors to suit frame-opening sizes indicated.
c. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3.
d. Comply with final hardware schedules, door frame Shop Drawings, DHI A 115-W Series standards, and hardware templates.
e. Doors for Opaque Finish: Apply one coat of wood primer specified in Division 09 "Painting" to faces and edges of doors.

- Fiberglass Doors & Frames
  a. Performance Requirements:
     A. Door opening assemblies: Maximum flame spread 25 in accordance with ASTM E 84, self-extinguishing in accordance with ASTM D 635.
     B. Fire rated assemblies: Comply with requirements of UL 10B, NFPA 252, and ASTM E 152; UL ratings indicated on drawings with doors and frames bearing rating labels.
  b. Therma-Tru Corporation, Fiber-Classic Door System, or equal.
  c. Door Faces: 1/16 inch minimum thickness, fiberglass-reinforced thermoset composite, wood-grained in natural northern red oak patterns, stainable and paintable.
  d. Door Edges: Machinable kiln-dried pine, primed to match color of faces, lock edge reinforced with engineered lumber core, lockset area reinforced with solid blocking for hardware backup.
  e. Door Bottom Edge: Moisture-proof and decay-proof composite.
  f. Core: Foamed-in-place polyurethane, CFC-free, density 2.0 pcf minimum, K-factor of 0.14 for minimum thermal transmittance. Standard factory sizes may be edge trimmed or end trimmed in shop or field to suit replacement door size requirements.
  g. Weatherstripping: Jacketed thermoset closed-cell foam, press-fit in kerfs at jamb stops in frames. Extruded thermoplastic elastomer, finned and chambered design, press-fit into bottom edge of doors. Corner pads at bottom margin corners from jacketed thermoset closed-cell foam.
  h. Hinges & Strikes: Steel, zinc-plated, brass or chrome finish. Screws plated and finished to match hardware. Minimum hinge size 4 x 4 x .098 inches. Strikes are proprietary adjustable type, permitting in-out adjustment of door in frame, up to 3/16 inch. Final hardware to be determined by owner.
  i. Frames: Milled from 5/4 kiln-dried pine, profiled with ½ inch stop.
- Fire Ratings:
  a. Frame assemblies and fire rated doors shall carry equal rating. Fire rated doors and frames indicated shall carry Underwriters Laboratory Label for exposures indicated. Construct and install assemblies to comply with NFPA Standard No. 80. Hardware shall include smoke gasketing and self closures and be UL listed.
- Doors, General Requirements
  a. Accessible under-floor areas shall be provided with a minimum 18-inch by 24-inch opening unobstructed by pipes, ducts, and similar construction per CBC 1209.1.1 or CRC R408.4.
  b. Provide attic access opening (22" x 30" min.) readily accessible with a 30" min. clear head room above access in all attic spaces with a minimum vertical height of 30" per CBC 1209.2 or CRC R807. See CMC 904.11.1 for FAU's in attics.
  c. Doors between conditioned and unconditioned spaces shall be fully weatherstripped.
  d. All hardware shall be located per industry recognized standards and shall comply with applicable fire and building code requirements.
  e. Door stops shall be furnished wherever an open door or any item of hardware thereon strikes a wall, column, or part of the building construction.
  f. All swinging doors shall be accurately hung to fit snug against all stops and shall hang free from hinge bind.
- Sectional Doors
  a. Insulated Steel Sectional Doors: Overhead Door Corporation, 297 Series, or equal.
     A. Five (5) section doors, 19 1/8" ht
     B. Panel thickness: 1"
     C. Panel: Galvanized embossed smooth steel skin
     D. Insulation: CFC Free Polyurethane, R = 9/31
     E. Finish: Epoxy Primer and 2-coat baked on polyester paint.
     F. Weather Seal: EPDM Premium bulb-type bottom 2" Hot-dipped Galvanized vertical and horizontal tracks
     G. Rollers: Self-lubricating nylon
     H. Struts: Three (3) minimum per door.
  b. Door opener: Overhead Door Corporations, Signature Screw Drive, Model 250, or equal
     A. Motor: ½ hp
     B. Controller: Multi-function remote
- Metal and Vinyl Windows and Sliding Glass Doors
  a. Metal and vinyl units shall meet or exceed ANSI/AAMA 101 specifications.
  b. All units shall have a nail on flange (U.O.N.).
  c. Frame color as selected by Owner.
  d. The minimum performance standard shall be Milgard.
- Wood and Clad Windows and Doors
  a. Wood and clad units shall meet or exceed the following AAMA/WDMA/CSA 101/I.S.2/A440.
  b. Frame color as selected by Owner.
  c. The minimum performance standard shall be "Anderson."
- Glazing and Windows, General Requirements:
  a. Provide tempered glass where required by the C.B.C. in all hazardous areas such as sliding glass doors, French doors, glass panels adjacent to doors and walking surfaces, glass panels in tub and shower enclosures, etc.
  b. Provide screens at all operable sash.
  c. All escape or rescue windows shall have a minimum net clear openable area of 5.7 square feet. The minimum net clear openable height dimension shall be 24 inches. The minimum net clear openable width dimension shall be 20 inches when windows are provided as a means of escape or rescue they shall have a finished sill height not more than 44 inches above the floor.
  d. U-valves shall be determined in accordance to NFRC 100.
  e. Air infiltration shall meet the air infiltration requirements of the CEC.
  f. Water infiltration shall be tested in accordance with ASTM E 331.
  g. Window system manufacturer shall certify that its system can structurally perform to the following criteria for the local project wind conditions:
     A. Maximum deflection of 1/175 of the span
     B. Allowable stress with safety factor of 1.65.
  h. Test reports certified by an independent test laboratory must be made available upon request.
  i. Mirrors shall be float glazing select silvering quality, electrically deposited copper- backed mirror glass. Joint locations to be approved by Architect prior to commencement of work.
  j. All windows and doors shall be certified and labeled in accordance with California Energy Commission requirements and the National Fenestration Rating Council and comply with the California Energy Code compliance documentation.

DIVISION 09 - FINISHES

9.01 Quality Control

Materials shall meet or exceed the following standards:

- Stucco - 1 coat system
  a. 1" polystrene system shall be La-Habra-Wall (ICC-ES ER- 4226) or approved equal.
- Stucco - 3 coat system
  a. Application shall be in compliance with applicable sections of ANSI A 42.2 "Portland Cement and Portland Cement-Lime Plastering, Exterior (Stucco) and Interior"' and ANSI A 42.3 "Lathing and Furring for Portland Cement and Portland Cement-Lime Plastering, Exterior (Stucco) and Interior.
  b. In addition, materials shall meet or exceed the following:
     A. Portland cement: ASTM C 150, Type I, natural color.
     B. Special finishing hydrated lime: ASTM C 206, Type S. Aggregates: ASTM C 144, all sand to pass No. 8 sieve.
     C. Cement Plaster Finish Coat: A packaged blend of Portland cement (ASTM C 150), hydrated lime (ASTM C 206), and properly graded quality 20 mesh aggregate, with integral color and paint finish.
     D. Mixes: Job-mixed cement plaster mix, Bondcrete or Mortaseal Mason's Lime with Portland Cement and Sand in accordance with ANSI A 42.2, Type L.
     E. Proportions:
        1. Scratch Coat: 1 bag Portland cement, 3/4 to 1 bag lime to 6 cu. ft. sand.
        2. Brown Coat: 1 bag Portland cement, 1 bag lime, 6 to 7 cu. ft. sand.
        3. Finish Coat: 1 bag Portland cement, 2 bags lime, 7 to 10 cu. ft. sand. See drawings for location of cement plaster finish coat.
     F. Maximum Slump: 2-1/2 in. using Slump test ASTM C 143, modified slump cone 2 in. x 4 in. x 6 in.
     G. Wall Metal Lath: At vertical surface: No. 17 gauge galvanized stucco netting meeting Federal specification QQ-L-101 with two horizontal No. 19 gauge galvanized wires at 6 inches O.C. over two layesr s of Grade 'D' paper (60 min.).
     H. See Division 07.
     I. Lath at horizontal soffit: Galvanized mesh, 3.4 lbs/sq. yd. over 1 layer of Grade 'D' paper (60 min.).
     J. Staples: 14 gauge wire staples, divergent points, 3/4 inch crown, lin. legs.
     K. Nails (if soffit supported by wood framing): 1 3/4 inch 11 gauge, 3/8" head, 3/4" washer.
     L. Stucco accessories shall meet or exceed the criteria of ASTM C 1063

- Cement Plaster, General
  a. Finish texture and color shall be as approved by Owner.
  b. Climate conditions: Air temperature must be 40°F. minimum and rising when applying cement plaster or exterior finish coat. Air temperature must remain above 40°F. for a minimum of 24 hours. Consult National Weather Service before beginning work. Protect cement plaster and exterior finish coat from uneven and excessive evaporation during hot, dry weather.
  c. Allowable Tolerances: Maximum deviation from true plan 1/8 inch in 10 feet as measured by straight edge placed at any location on surface.
  d. Field Sample: A sample panel shall be prepared approximately 2 feet by 2 feet. This sample panel will be a separate part of the project. Installation shall not proceed until the sample panel is accepted by the Architect and Owner. The sample shall show color, texture, and workmanship of finished work. The sample panel shall remain on the project for comparison purposes with the actual work.
  e. Other materials where applicable:
     A. Polystyrene Board and Architectural Moldings:
        1. ASTM C-578 Type 1. Nominal 1 lb/c.f. cured expanded polystyrene.
        2. Flame spread and smoke development equal to or less than 24 and 450 respectively per ASTM E- 84/UL listed.
        3. Insulation board shall carry the seal of the RADCO testing agency.
     B. Fabric: A balanced, open weave, glass fiber fabric, complying with ASTM D 1682, standard mesh, as recommended for wrapping polystyrene board and moldings.
     C. Primer/Adhesive Mixture: A field-mixed blend of standard polymer-based primer adhesive and Portland cement. For use as a primer and leveler over cement plaster brown coat and for use as an adhesive for fabric and polystyrene board and moldings.
     D. Acrylic Resin Bonding Agent: Bonsel, Tammsway, or approved equal. For use on concrete or masonry before application of cement plaster.
     E. Add Mixtures: No add mixtures or plastic cements will be allowed without approval of the Architect.
     F. Synthetic Exterior Finish Coating: A 100% pure acrylic resin based, textured, factory-mixed coating having integral color, for exterior use. Minimum standards shall be Dry-Vit Systems Inc., or approved equal.
  f. Curing: Wet base as necessary before application with fine fog spray to produce uniform moist condition.
     A. When required, apply bond coat to concrete base and moist cure for minimum of 24 hours before applying first coat of cement plaster.
     B. Do not apply brown coat sooner than 48 hours after application of scratch coat.
     C. Do not apply cement plaster finish coat sooner than 14 days after application of brown coat.
     D. Inspect and repair base coats before application of finish coat.
     E. Cure base coats minimum of 48 hours after application.
     F. Maintain moist conditions by fine fog spray.
     G. Cure finish coat for minimum of 7 days.
- Siding
  a. Fiber-Cement Siding & Soffit: Siding & soffit made from fiber-cement board that does not contain asbestos fibers; complies with ASTM C 1186, Type A, Grade II; is classified as noncombustible when tested according to ASTM E 136; & has a flame-spread index of 25 or less when tested according to ASTM E 84.
  b. The minimum performance standard for Fiber-Cement Siding shall be CertainTeed Corp. Simulated Shingle and Lap Siding: Product as specified in the drawings;. Exposure as per Manufacturer's recommendation; Finish Factory Sealed.
     Soffit: Cedar texture, 16" wide x 12' long; Finish shall be Factory Sealed.
  c. Siding Accessories: Provide starter strips, edge trim, corner cap, & other items as recommended by siding manufacturer for bldg. configuration.
  d. Nails: Length as required to penetrate minimum 1-¼ inch (32 mm) into solid backing; hot-dipped galvanized or stainless steel.
  e. Install in accordance with manufacturer's instructions & drawing details.
     A. Read warranty & comply with all terms necessary to maintain warranty coverage.
     B. Use trim details indicated on drawings.
     C. Touch up all field cut edges before installing.
     D. Pre-drill nail holes, if necessary, to prevent breakage.
  f. Siding Installation:
     A. Starting: Install a minimum ¼ inch thick lath starter strip @ the bottom course of the wall. Apply planks horizontally with minimum 1-¼ inch wide laps @ the top. The bottom edge of the first plank overlaps the starter strip.

     Allow minimum 1-inch vertical clearance between roofing & bottom edge of siding.
     Align vertical joints of the planks over framing members.
     Maintain clearance between siding & adjacent finished grade.
     Locate splices at least one stud cavity away from window & door openings.
     Allow 1/8" space between both ends of siding panels that butt against trim for thermal movement; seal joint between panel & trim with exterior grade sealant.

     Joints: Avoid joints in lap siding except at corners; where joints are inevitable stagger joints between successive courses.

     Place fasteners no closer than ¾ inch & no further than 2 inch from side edge of trim board & no closer than 1 inch from end. Fasten maximum 16 inch on center.

  g. Completion:

     After installation, seal all joints except lap joints of lap siding. Seal around all penetrations.

     Paint all exposed cut edges.

     Finish Painting: Specified in Division 09, Section "Painting".

SECTION PAINTING

1.5. PAINTING

A. COATINGS SCHEDULE: The consultant shall prepare a schedule listing all surfaces in generic terms, all coating or finish operations, the types of finish materials and the number of coats of each material. Preferred finishes for certain locations or surfaces are as follows:
1. INTERIOR WOODWORK: Natural finish - stain, 2 coats sanding sealer, 2 coats semigloss varnish. If polyurethane varnish is used, delete sanding sealer. Painted finish - primer and 2 coats semi-gloss alkyd enamel.
2. METAL DOORS AND FRAMES: Shop coat, touch up and 2 coats semi-gloss enamel.
3. NEW GYPSUM WALLBOARD OR INTERIOR PLASTER: Spackle as required, primer and 2 coats semi-gloss alkyd enamel or 2 coats semi-gloss latex.
4. EXISTING PREVIOUSLY PAINTED GYPSUM WALLBOARD OR INTERIOR PLASTER: Primer and 1 coat semi-gloss alkyd enamel or semi-gloss latex. If surface is poor, remove finish to substrate, repair and finish the same as new gypsum wallboard or plaster. Refer to Section 09 00 00, Miscellaneous Requirements, Subparagraph 1.3.A.2, Surface Preparation.
5. INTERIOR CONCRETE OR CONCRETE BLOCK (Unpainted): 1 coat self-sealing heavy filler-type primer and 2 coats semi-gloss alkyd enamel or 2 coats semi- gloss latex. For laboratories requiring chemical resistance, replace the alkyd or latex paint with epoxy two-component finish.
6. EXTERIOR WOOD PLATFORMS OR BENCHES: Use Behr Plus 10 Solid Color Stain or approved equal in accordance with manufacturer's directions.
7. EXTERIOR PORTLAND CEMENT PLASTER (STUCCO): Use integral color, or paint.

1.6. ITEMS TO BE NOTED IN SPECIFICATIONS

A. TOP AND BOTTOM EDGES OF WOOD DOORS: Shall be sanded and sealed after fitting and finished with at least 2 coats of varnish or paint.
B. TOPS AND BOTTOMS OF METAL DOORS: Shall be painted with the same materials and number of coats as used on the door faces.
C. DRY FILM THICKNESS: Shall be specified for all coats of paint on metals.
D. ACCENT COLORS: If it is anticipated 5% or more of the scheduled finishes will be in accent colors, attention should be called to this fact. Estimated percentage of accent colors should be given as an aid to bidders in preparation of bids. A statement should be made to the effect that the information given in no way restricts the consultant in his final selection of colors.
E. COLOR CODING FOR PIPING: Include finish painting of insulated and uninsulated piping in the General Contract documents and include color banding of finished piping in the appropriate contract documents.

1.7. INTERIOR PAINTING

A. Finish coat to be semi-gloss in all corridors and stairwells. Use washable type of finish material on walls for ease of maintenance and cleaning.

1.1. WALL COVERING & GRAPHICS

A. No vinyl wall covering on the interior face of exterior walls.
B. Materials must conform to ASTM E-84. Research code carefully to determine class of fire and smoke resistance required for the specific application.
C. Vinyl wall covering must satisfactorily pass class A physical requirements for type II wall covering as listed in G.S.A. CCC-W-408A and CFFA Quality Standards for vinyl coated fabric wall covering.

DIVISION 10 - SPECIALTIES This Section not used.

DIVISION 11 - EQUIPMENT

11.01 Quality Control

- All appliances will be selected by the Owner. All appliances shall be Energy Star rated.
- Gas fired appliance shall be equipped with intermittent type ignition devices (except tank type water heaters).
- All combustion equipment, except range hoods and dryers, shall be closed combustion.
- Provide recessed connections in wall for water and waste at clothes washer space and water shut off for refrigerator icemaker. If washer is located on a second floor or above, provide a G.S.M. pan under washer with drain to outside. Washer standpipe shall extend between 18 and 30 inches above its trap. The trap shall be between 6 and 10 inches above the floor (CPC Section 804).
- Clothes dryer exhaust duct will be limited to 14' maximum length including 2, 90° elbows and 4" minimum diameter CMC 504).
- Kitchen hood and clothes dryer ducts shall be of metal and have a smooth interior surface. Kitchen hood ducts for downdraft grill-range may be Schedule 40 PVC when installed below concrete slab floors (CMC 504.2). Dryer duct may have six feet (maximum) of approved flexible duct (CMC 504.3).
- Makeup air equal to exhaust rate shall be provided for all kitchen range hoods exceeding 400 CFM.
- Rooms containing bath tubs, showers, spas and simular bathing fixtures shall be mechanically ventilated in accordance with the CMC (CBC 1203.4.2.1).
- Environmental air ducts (vent fans, range hoods, dryers, etc.) shall not terminate less than 3 feet from property line, or 3 feet from opening into the building (CMC 504.5).
  Dishwasher shall be connected to a drainage system or food waste disposer with the use of an approved dishwasher airgap fitting (CPC Section 807.4).
- Solar PV Systems shall provide a minimum of 10% of the Title 24 Proposed TDV energy.

15.01 General Requirements

- Mechanical and plumbing systems shown on archetectural drawings are shown for location intent only. These systems shall be engineered by others. The contractor shall be responsible for proper installation, placement, and performance.
- Fire sprinkler system when required shall be "design-build" and are not a part of the architectural documents. Layout of sprinkler heads shall be submitted to the Architect for revision. Fire sprinkler plans and calculations shall be submitted to the Building Department for review and approval prior to installation. Automatic fire sprinkler system shall be designed and installed in accordance with NFPA 13D or CRC R313.3 as a minimum.
- Anchor or strap water heater and HVAC units to structure to resist earthquake motion (CPC Section 508.2 and CMC Section 303.4).
- Water heater and HVAC units shall be accessible for inspection, service, repair, and placement without removing permanent construction (CMC Section 304.7)
- Furnaces and water heaters shall not be installed in or be accessible through rooms designed as bedrooms, bathrooms or wardrobe closets (CMC Section 304.5 and CPC Section 509).
- Water heating and HVAC units installed in garages where they may be subjected to damage shall be suitably guarded against such damage by being installed behind protective barriers or by being elevated or located out of the normal path of vehicles. Such equipment when located in a garage shall be installed so that the pilot or burners are at least 18" above the floor level (CMC Section 307 & CPC 508.14).
- Warm-air furnaces installed in attics or furred spaces shall be installed as per CMC Section 904.11 and include the following:
  a. A minimum 22 inch by 30 inch access but large enough to accommodate the removal of the largest component of FAU (maximum 20 feet from furnace unless passageway height is over 6 feet).
  b. Continuous solid flooring not less than 24 inches wide from access to furnace.
  c. A level working platform minimum 30 inches in depth along entire firebox side of furnace.
  d. A permanent 110V electrical outlet and lighting fixture (controlled by switch located at required access) at or near furnace.
  e. FAU shall be listed for installation in attics and on combustible flooring - clearances shall be as specified in the listing and as per CMC Section 303.
  f. Provide G.S.M. pan and drain below FAU with cooling coil at attic installed furnaces.

15.02 Heating, Ventilation and Air Condition (HVAC) *Requirements for On-demand Water Heater as this house will use on-demand type water heaters.*

- All work shall comply to the applicable standards of the ASHRAE handbooks and the SMACNA standards.
- A concrete pad shall be provided for grade mounted condensers.
- HVAC installer shall be NATE or part of n EPA-recognized HVAC installer training organization.
- All recirculating space conditioning systems shall have filters rated a minimum of MERV 8.
- HVAC supply flow rates shall be tested and shall be within ± 20% or ±CFM of ACCA J calculated rates.
- Pressure differences between bedrooms and the est of the house shall be less than 3 Pa.
- HVAC systems shall have at least 2 space-conditioned zones with independent thermostats.

15.03 Plumbing

- American Standard Inc. plumbing products shall be the minimum performance product standard for plumbing fixtures. The Owner will select all plumbing fixtures. Water closets shall be 1.28 gallon/flush maximum (U.O.N.). Shower heads 2.5 and faucets shall be 2.2 gallons per minute (GPM) maximum flow rate (U.O.N.).
- Waste and Vent System: All soil, waste and vent piping shall be approved ABS per local code (U.O.N.). All soil pipes penetrating or within rated fire walls shall be cast iron. All sewer pipes under driveway shall be cast iron. Provide minimum of 1/4" per foot slope for horizontal drainage pipe. (CPC Section 716). Cleanouts shall be installed as per CPC Section 719. Cleanout locations shall be located in least visible areas. All plumbing vents shall be combined into a minimum amount of roof penetrations. All roof penetrations shall occur to the rear of the main ridge.
- Domestic Water Piping System: All hot water lines shall be insulated with R- 4 insulation. Water service main piping shall be one inch minimum or larger as per load and pressure requirements. Provide shut-off valve at foundation wall. Hot and cold water supply shall be copper. No water supply will be allowed under concrete building slab. All runs shall be made so that branch connections occur at fixture locations where fittings can be installed. System shall be as free as possible from fittings and sharp turns. Provide hose bibs as per drawings with tee fittings above ground for future sprinklers installation at front and rear of house (U.O.N.). Provide a non-removeable backflow preventor or vacuum breaker at all hose bibbs (CPC Section 603).
- Water Heating System: Water heater shall be size and type as specified in the California Energy Code. Water heater shall have R-12 insulation blanket (U.O.N.). Insulate the first 5 feet of the hot and cold water pipes with R-4 insulation. If water heater is located on a second floor or above, provide a G.S.M. pan under water heater with drain to outside. Water heaters shall be provided with a pressure relief valve as per CPC Section 505.4.
- Domestic Gas Service: All gas piping shall be new and shall be black steel or galvanized (U.O.N.). No gas piping shall be installed in or on the ground under any building or structure and all exposed gas piping shall be securely supported and located where it will be protected from physical damage (CPC Section 1211
- Plumbing projecting through or embedded in concrete or masonry shall be protected during the placing of concrete and placed in an oversized sleeve or approved expansion wrap to allow for expansion, contraction and structural movement (CPC Section 313).
- All copper pipe connections to ferrous piping shall be made with dielectric couplings or isolation flanges.
- Each house shall receive a whole house water meter, Assured Automation WM-PC- 100 Series Water Meter, or equivalent.

DIVISION 16 - ELECTRICAL

16.01 General Requirements

- Electrical systems shown on architectural drawings are shown for intent only. These systems shall be engineered by others. The contractor shall be responsible for proper installation, placement, and performance.
- Materials and equipment shall be new and listed by Underwriter's Laboratories, Inc. (U.L.) and bear their label wherever standards have been established and their label service is regularly furnished.
- Service Distribution:
  a. Main electrical service shall be 200 AMP minimum (U.O.N.)
  b. Main service panel electrical load calculations shall conform to CEC Section 220.
  c. Install a main service disconnect as per CEC 230-70.
  d. Provide grounding at service entrance to comply with CEC Section 250.
  e. Branch circuit load distribution shall conform to CEC Section 210.
  f. Panels and sub-panels shall not be located in closets or similar confined spaces. (CEC 110-26).
  g. Aluminum wire smaller than No. 6 A.W.G. shall not be used in electrical wiring.
  h. Protection of wiring shall be as per CEC Sections 320-334.
- Receptacle Outlets:
  a. Outlet boxes on opposite sides of rated walls (wall separating garage from dwelling) shall be separated by a horizontal distance of 24 inches (CBC Section 713.3.2).
  b. Provide GFCI (GFI) protection per CEC Section 210-8(a).
  c. Outlet locations shall comply with CEC Sections 210-50 and 210-52.
  d. Switched outlets shall be one-half hot (U.O.N.).
- Lighting:
  a. All light fixtures shall be LED (U.O.N.).
  b. All light fixtures shall comply to CEC Section 410 for type, ratings, and installation.
  c. Fixture locations shall comply to CEC Section 210-70 and 410.
  d. Ceiling mounted junction boxes shall be capable of supporting 60# minimum (U.O.N.) and supported as per CEC Section 410-36.
  e. Fixtures installed in closets shall comply to CEC Section 410-16.
  f. Install switches at 47" above finished floor to top of switch box (U.O.N.).
- Smoke Detectors: Install 110 volt smoke detectors with battery backup as per CBC Section 907.2.11.2 or CRC R314 and conforming to NFPA 72. Install the detector in strict accordance with the manufacturer's printed installation instructions.
- Provide combustion air to HVAC units as per CMC Section 703; and to water heaters as per CPC Sec. 507.
- Installation of HVAC and plumbing systems shall insure properly balanced and quiet operation.
- All work shall comply to the California Energy Code.
- Vibration isolation of mechanical equipment shall be incorporated into the installation.
- Carbon Monoxide Detectors: Locate carbon monoxide alarms as per CBC 420.4 or CRC R315.
- All exterior lighting shall be Dark Sky qualified and shall have either a PV cell, motion sensor, or photo sensor controls.

FLOOR PLAN SHEET NOTES

1. GENERAL CONTACTOR TO BE RESPONSIBLE FOR ADEQUATELY FRAMING, BRACING, AND STRUCTURING ALL WALLS AND OTHER GYPSUM BOARD CONSTRUCTION IN ACCORDANCE WITH APPLICABLE TYPICAL DETAILS CONTAINED IN THESE DRAWINGS. WHETHER OR NOT SPECIFICALLY REFERENCED IN THE PLANS, ALL PARTITIONS SHALL BE BRACED IN ACCORDANCE WITH SEISMIC CODE REQUIREMENTS.
2. COORDINATE AND INSTALL BACKING AS REQUIRED FOR ALL NEW MILLWORK, MARKERBOARDS, EQUIPMENT, FURNITURE, PROJECTION SCREENS, ETC.
3. ALL PARTITIONS ARE DIMENSIONED FROM FACE OF FINISH TO FACE OF FINISH, U.O.N.
4. PARTITIONS SHOWN TO ALIGN WITH FACE OF EXISTING CONSTRUCTION OR NEW PARTITIONS SHOULD ALIGN FINISHED FACE TO FINISHED FACE.
5. DIMENSIONS INDICATED TO BE "CLEAR" OR TO HOLD SHALL BE MAINTAINED AND DISCREPANCIES OR VARIATIONS ON THESE DIMENSIONS SHALL BE REVIEWED WITH ARCHITECT BEFORE BEGINNING CONSTRUCTION.
6. PATCH AND REPAIR (E) WALLS & CEILINGS AS REQUIRED AND PREPARE TO RECEIVE (N) FINISHES AS SCHEDULED. VERIFY EXTEND OF WORK IN THE FIELD.
7. (E) LIFE SAFETY DEVICES TO BE RELOCATED WHERE REQUIRED BY NEW CONSTRUCTION. CONTRACTOR TO VERIFY CONDITIONS IN FIELD. SEE G 2.00 FOR TYPICAL MOUNTING HEIGHTS.
8. PREPARE ALL GYP. BD. WALL SURFACES TO RECEIVE PARTITIONS, AND WALL FINISHES.
9. PROVIDE SIGNAGE AS REQUIRED BY APPLICABLE CODES. SEE G 2.01 FOR TYPES, LOCATIONS, AND TYPICAL MOUNTING HEIGHTS OF SIGNAGE.
10. SEE G0.00 FOR ABBREVIATIONS AND SYMBOLS USED ON THESE SHEETS.
11. FLOOR TOLERANCE: FINISHED FLOOR TO BE LEVELED TO A TOLERANCE OF 1/4" SLOPE IN 10 FEET. GENERAL CONTRACTOR TO IMMEDIATELY VERIFY SLOPE AND REPORT ANY DEVIATIONS FROM ABOVE STATED TOLERANCE TO PIXELARCH LTD.
12. PRIOR TO COMMENCING WORK ALIGNMENT OF DOOR HEADS AND OTHER CRITICAL HORIZONTAL ELEMENTS SHALL BE MAINTAINED AT A CONSTANT LEVEL AND SHALL NOT FOLLOW VARIATIONS IN THE FLOOR PLATES.
13. NEW WALLS TO ALIGN WITH CENTER OF (E) WINDOW MULLIONS U.O.N.
14. AT LEAST ONE FIRE EXTINGUISHER WITH A MINIMUM RATING OF 2-A-10B:C SHALL BE PROVIDED WITHIN 75 FEET MAXIMUM TRAVEL DISTANCE FOR EACH 3,0000 SQUARE FEET OR PORTION THEREOF ON EACH FLOOR. LOCATIONS INDICATED ON THE DRAWINGS SHALL BE VERIFIED WITH THE FIRE MARSHALL AS BEING ACCEPTABLE.
15. REFER TO SHEET G 2.01 FOR TYPICAL MOUNTING HEIGHTS OF LIGHT STROBES, LIGHT SWITCHES, THERMOSTATS, OUTLETS, FIRE EXTINGISHER CABINETS, ETC.
16. THERMOSTATS TO BE LOCATED ABOVE LIGHT SWITCHES, TYP. SEE G 2.00.
17. MULTIPLE LIGHT SWITCHES TO BE GANGED WITHIN A SINGLE COVER-PLATE TO MAXIMUM EXTENT POSSIBLE. WHERE MULTIPLE SWITCHES CANNOT BE GANGED WITHIN A SINGLE COVER-PLATE, SWITCHES ARE TO BE ADJACENT TO EACH OTHER OR AS CLOSE AS POSSIBLE.
18. GC TO PROVIDE ALL APPLIANCES AND FIXTURES, U.O.N.
19. THE CONTRACTOR SHALL "STRIKE OUT" LOCATION OF ALL WALLS, DOORS, MULLIONS, SOFFITS, RAISED FLOOR GRIDS, HOUSEKEEPING AND UTILITY EQUIPMENT PADS, AND OTHER MAJOR ELEMENTS, OR AS DIRECTED BY ARCHITECT AT THE BEGINNING OF THE PROJECT BEFORE PROCEEDING WITH CONSTRUCTION. IF DISCREPANCIES EXIST BETWEEN FIELD CONDITIONS AND THE DRAWINGS NOTIFY ARCHITECT.
20. ALL FURRED WALLS SHALL EXTEND VERTICALLY THRU THE CEILING WHERE INDICATED ON THE DRAWINGS OR TO THE STRUCTURE ABOVE WHERE NO CEILING OCCURS. U.O.N.
21. HINGE SIDE OF DOORS TO BE LOCATED PER DETAILS FROM THE FACE OF ADJACENT PERPENDICULAR PARTITIONS, U.O.N.
22. REFER TO ENLARGED PLANS FOR DIMENSIONS AND INFORMATION WHEN DESIGNATED.
23. THE GENERAL CONTRACTOR SHALL COORDINATE AND PROVIDE APPROPRIATE STRUCTURAL BACKING AND REINFORCING IN PARTITIONS BEHIND ALL WALL-MOUNTED, WALL ANCHORED OR SUPPORTED ITEMS. ALL CONCEALED WOOD USED FOR SUCH SUPPORT SHALL BE FIRE RETARDANT TREATED.
24. IN THE EVENT OF CONFLICT BETWEEN DATA SHOWN ON DRAWINGS AND DATA SHOWN ON THE SPECIFICATIONS, THE DRAWINGS SHALL TAKE PRECEDENCE. DETAIL DRAWINGS TAKE PRECEDENCE OVER DRAWING OF SMALLER SCALE. SHOULD THE CONTRACTOR AT ANY TIME DISCOVER AN ERROR IN A DRAWING OR SPECIFICATION OR A DISCREPANCY OR VARIATION BETWEEN DIMENSIONS ON DRAWINGS AND MEASUREMENTS AT THE SITE OR LACK OF DIMENSIONS OR OTHER INFORMATION, THE GENERAL CONTRACTOR SHALL NOT PROCEED WITH THE WORK AFFECTED UNTIL CLARIFICATION HAS BEEN MADE.
25. REFER TO DOOR SCHEDULE ON SHEET A 9.00 FOR MORE INFORMATION ON SCOPE OF WORK RELATED TO DOORS.
26. PROVIDE BACKING AS REQUIRED PER FURNITURE REQUIREMENTS.
27. THE CONSTRUCTION PLANS INDICATE THE TYPE AND LOCATION OF NEW INTERIOR PARTITIONS, DOORS, WINDOWS, CABINETWORK, ETC. THE BUILDING SHELL AN EXISTING CONDITION.
28. THE FOLLOWING SHALL BE PROVIDED BY THE GENERAL CONTRACTOR AS DESIGN-BUILD SYSTEMS (*IF SUCH SYSTEMS ARE REQUIRED BY THE CITY*):
    A. AUTOMATIC FIRE SPRINKLER SYSTEM.
       CONTRACTOR SHALL FULLY COORDINATE THE DESIGN/ENGINEERING PROCESS OF THE ABOVE REFERENCED SYSTEMS AND THE COMPLETE AND PROPERLY FUNCTIONING INSTALLATION THEREOF.
29. THE FOLLOWING MAYBE PROVIDED BY THE OWNER'S VENDORS BUT THE INSTALLATION OF THOSE SYSTEMS SHALL BE COORDINATED BY THE GENERAL CONTRACTOR WITH EACH OF HIS SUBCONTRACTORS FOR THE SYSTEMS NOTED BELOW:
    A. TELECOMMUNICATIONS
    B. SECURITY
       THE GENERAL CONTRACTOR SHALL PROVIDE ELECTRICAL RACEWAY AND POWER TO ALL POINTS DESIGNATED BY THE VENDOR'S FOR EACH OF THE OWNER'S FURNISHED SYSTEMS.
30. ALL PARTITIONS, DOORS, GLAZED OPENINGS, SOFFITS, ETAL., SHALL BE STRUCTURALLY BRACED IN ACCORDANCE WITH SEISMIC CODE REQUIREMENTS.
31. COORDINATE LOCATION AND PROVIDE BLOCKING, BACKINGS AND/OR REINFORCEMENT IN PARTITIONS FOR ALL CABINETS, COUNTERTOPS AND ANY WALL-MOUNTED ITEMS. REFER TO THE PLANS, ELEVATIONS AND DETAILS FOR LOCATION OF ITEMS WHICH MAY REQUIRE SUPPORT. REFER TO DETAIL 1, SHEET A11.01.
32. THE CONTRACTOR IS RESPONSIBLE FOR VERIFING THE DIMENSIONS AND ELEVATIONS AT THE SITE. THE CONTRACTOR AND SUB-CONTRACTORS SHALL COORDINATE THE LAYOUT AND EXACT LOCATIONS OF ALL PARTITIONS, DOORS, ELECTRICAL/TELEPHONE OUTLETS, LIGHTSWITCHES AND THERMOSTATS WITH THE ARCHITECT IN THE FIELD PRIOR TO PROCEEDING.
33. WHEREVER DIAGONAL BRACING IS INDICATED OR OTHERWISE REQUIRED, INSTALL BRACING UNEXPOSED TO VIEW, PARTICULARLY AT SUSPENDED OR DRYWALL CEILING AREAS. IF EXPOSED TO VIEW CONDITIONS EXIST IN THE DESIGN, DO NOT BRACE INTO THE AREA WHERE NO CEILING IS TO BE INSTALLED, OR INTO THE "MORE OPEN"AND VISIBLE SIDE OF BULKHEAD/SOFFIT WHERE BOTH SIDES SHALL BE WITHOUT A CEILING.
34. FOR TYPICAL PARTITIONS, AND PARTITION DETAILS REFER TO SHEET A 9.10.
35. WHERE NEW PARTITIONS MEET EXISTING MULLIONS OR COLUMNS INSTALL THE NEW PARTITION PERPENDICULAR TO THE EXISTING MULLION OR COLUMN AND ALIGN THE CENTERLINE OF THE NEW PARTITION WITH THE MULLION OR COLUMN U.O.N.
36. WHERE A GYPSUM BOARD PARTITION MEETS FLUSH WITH THE FACE OF AN EXISTING PARTITION, REMOVE THE EXISTING METAL CORNER BEAD BEFORE INSTALLING THE NEW PARTITION.
37. ALIGN NEW PARTITION SURFACES WITH THE EXISTING ADJACENT OR ADJOINING SURFACES WHERE INDICATED. TAPE AND SAND THE JOINTS TO SMOOTH WITHOUT ANY VISIBLE JOINTS. PATCH AND REPAIR SURFACES TO MATCH ADJACENT OR ADJOINING SURFACES.
38. PATCH EXISTING DAMAGED PARTITIONS THROUGHOUT ENTIRE PROJECT AREA TO MATCH ADJACENT SURFACES.
39. CUT AND FIT COMPONENTS AS REQUIRED TO ALTER EXISTING WORK FOR INSTALLATION OF NEW WORK. PATCH DAMAGED AREAS TO MATCH ADJACENT SURFACES.
40. AT OPENINGS IN GYPSUM BOARD WALLS FOR DUCT WORK, RETURN AIR, WRAP HEAD, JAMBS AND SILL OF OPENING WITH GYPSUM BOARD. U.O.N.
41. VERTICAL DIMENSIONS ARE FROM TOP OF FLOOR SLAB, EXCEPT WHERE OTHERWISE NOTED TO BE ABOVE FINISH FLOOR.
42. DIMENSION ARE NOT ADJUSTABLE WITHOUT APPROVAL OF THE ARCHITECT UNLESS NOTED +/- OR VIF.
43. THE GENERAL CONTRACTOR SHALL VERIFY THAT NO CONFLICT EXIST IN THE LOCATION OF ANY MECHANICAL, HVAC, TELEPHONE, ELECTRICAL, PLUMBING AND SPRINKLER EQUIPMENT (TO INCLUDE ALL PIPING, DUCTWORK, CONDUIT, CABLES, ETC.) AND THA

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

RESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2020, Includes August 2019 Supplement)

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

CHAPTER 3
GREEN BUILDING
SECTION 301 GENERAL

301.1 SCOPE. Buildings shall be designed to include the green building measures specified as mandatory in the application checklists contained in this code. Voluntary green building measures are also included in the application checklists and may be included in the design and construction of structures covered by this code, but are not required unless adopted by a city, county, or city and county as specified in Section 101.7.

301.1.1 Additions and alterations. [HCD] The mandatory provisions of Chapter 4 shall be applied to additions or alterations of existing residential buildings where the addition or alteration increases the building's conditioned area, volume, or size. The requirements shall apply only to and/or within the specific area of the addition or alteration.

Note: On and after January 1, 2014, residential buildings undergoing permitted alterations, additions, or improvements shall replace noncompliant plumbing fixtures with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.

301.2 LOW-RISE AND HIGH-RISE RESIDENTIAL BUILDINGS. [HCD] The provisions of individual sections of CALGreen may apply to either low-rise residential buildings high-rise residential buildings, or both. Individual sections will be designated by banners to indicate where the section applies specifically to low-rise only (LR) or high-rise only (HR). When the section applies to both low-rise and high-rise buildings, no banner will be used.

SECTION 302 MIXED OCCUPANCY BUILDINGS

302.1 MIXED OCCUPANCY BUILDINGS. In mixed occupancy buildings, each portion of a building shall comply with the specific green building measures applicable to each specific occupancy.

ABBREVIATION DEFINITIONS:

HCD	Department of Housing and Community Development
BSC	California Building Standards Commission
DSA-SS	Division of the State Architect, Structural Safety
OSHPD	Office of Statewide Health Planning and Development
LR	Low Rise
HR	High Rise
AA	Additions and Alterations
N	New

CHAPTER 4
RESIDENTIAL MANDATORY MEASURES
DIVISION 4.1 PLANNING AND DESIGN
SECTION 4.102 DEFINITIONS

4.102.1 DEFINITIONS
The following terms are defined in Chapter 2 *(and are included here for reference)*

FRENCH DRAIN. A trench, hole or other depressed area loosely filled with rock, gravel, fragments of brick or similar pervious material used to collect or channel drainage or runoff water.

WATTLES. Wattles are used to reduce sediment in runoff. Wattles are often constructed of natural plant materials such as hay, straw or similar material shaped in the form of tubes and placed on a downflow slope. Wattles are also used for perimeter and inlet controls.

4.106 SITE DEVELOPMENT

4.106.1 GENERAL. Preservation and use of available natural resources shall be accomplished through evaluation and careful planning to minimize negative effects on the site and adjacent areas. Preservation of slopes, management of storm water drainage and erosion controls shall comply with this section.

4.106.2 STORM WATER DRAINAGE AND RETENTION DURING CONSTRUCTION. Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction. In order to manage storm water drainage during construction, one or more of the following measures shall be implemented to prevent flooding of adjacent property, prevent erosion and retain soil runoff on the site.

1. Retention basins of sufficient size shall be utilized to retain storm water on the site.
2. Where storm water is conveyed to a public drainage system, collection point, gutter or similar disposal method, water shall be filtered by use of a barrier system, wattle or other method approved by the enforcing agency.
3. Compliance with a lawfully enacted storm water management ordinance.

Note: Refer to the State Water Resources Control Board for projects which disturb one acre or more of soil, or are part of a larger common plan of development which in total disturbs one acre or more of soil.

(Website: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html)

4.106.3 GRADING AND PAVING. Construction plans shall indicate how the site grading or drainage system will manage all surface water flows to keep water from entering buildings. Examples of methods to manage surface water include, but are not limited to, the following:

1. Swales
2. Water collection and disposal systems
3. French drains
4. Water retention gardens
5. Other water measures which keep surface water away from buildings and aid in groundwater recharge.

Exception: Additions and alterations not altering the drainage path.

4.106.4 Electric vehicle (EV) charging for new construction. New construction shall comply with Sections 4.106.4.1, 4.106.4.2, or 4.106.4.3 to facilitate future installation and use of EV chargers. Electric vehicle supply equipment (EVSE) shall be installed in accordance with the *California Electrical Code*, Article 625.

Exceptions:
1. On a case-by-case basis, where the local enforcing agency has determined EV charging and infrastructure are not feasible based upon one or more of the following conditions:
   1.1 Where there is no commercial power supply.
   1.2 Where there is evidence substantiating that meeting the requirements will alter the local utility infrastructure design requirements on the utility side of the meter so as to increase the utility side cost to the homeowner or the developer by more than $400.00 per dwelling unit.
2. Accessory Dwelling Units (ADU) and Junior Accessory Dwelling Units (JADU) without additional parking facilities.

4.106.4.1 New one- and two-family dwellings and townhouses with attached private garages. For each dwelling unit, install a listed raceway to accommodate a dedicated 208/240-volt branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be continuous at enclosed, inaccessible or concealed areas and spaces. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.

4.106.4.1.1 Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging as "EV CAPABLE". The raceway termination location shall be permanently and visibly marked as "EV CAPABLE".

4.106.4.2 New multifamily dwellings. If residential parking is available, ten (10) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.

Notes:
1. Construction documents are intended to demonstrate the project's capability and capacity for facilitating future EV charging.
2. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.

4.106.4.2.1 Electric vehicle charging space (EV space) locations. Construction documents shall indicate the location of proposed EV spaces. Where common use parking is provided at least one EV space shall be located in the common use parking area and shall be available for use by all residents.

4.106.4.2.1.1 Electric Vehicle Charging Stations (EVCS) When EV chargers are installed, EV spaces required by Section 4.106.2.2, Item 3, shall comply with at least one of the following options:

1. The EV space shall be located adjacent to an accessible parking space meeting the requirements of the *California Building Code*, Chapter 11A, to allow use of the EV charger from the accessible parking space.
2. The EV space shall be located on an accessible route, as defined in the *California Building Code*, Chapter 2, to the building.

Exception: Electric vehicle charging stations designed and constructed in compliance with the *California Building Code*, Chapter 11B, are not required to comply with Section 4.106.4.2.1.1 and Section 4.106.4.2.2, Item 3.

Note: Electric Vehicle charging stations serving public housing are required to comply with the *California Building Code*, Chapter 11B.

4.106.4.2.2 Electric vehicle charging space (EV space) dimensions. The EV space shall be designed to comply with the following:

1. The minimum length of each EV space shall be 18 feet (5486 mm).
2. The minimum width of each EV space shall be 9 feet (2743 mm).
3. One in every 25 EV spaces, but not less than one EV space, shall have an 8-foot (2438 mm) wide minimum aisle. A 5-foot (1524 mm) wide minimum aisle shall be permitted provided the minimum width of the EV space is 12 feet (3658 mm).
   a. Surface slope for this EV space and the aisle shall not exceed 1 unit vertical in 48 units horizontal (2.083 percent slope) in any direction.

4.106.4.2.3 Single EV space required. Install a listed raceway capable of accommodating a 208/240-volt dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box or enclosure in close proximity to the proposed location of the EV space. Construction documents shall identify the raceway termination point. The service panel and/or subpanel shall provide capacity to install a 40-ampere minimum dedicated branch circuit and space(s) reserved to permit installation of a branch circuit overcurrent protective device.

4.106.4.2.4 Multiple EV spaces required. Construction documents shall indicate the raceway termination point and proposed location of future EV spaces and EV chargers. Construction documents shall also provide information on amperage of future EVSE, raceway method(s), wiring schematics and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any on-site distribution transformer(s), have sufficient capacity to simultaneously charge all EVs at all required EV spaces at the full rated amperage of the EVSE. Plan design shall be based upon a 40-ampere minimum branch circuit. Required raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.

4.106.4.2.5 Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device space(s) reserved for future EV charging purposes as "EV CAPABLE" in accordance with the *California Electrical Code*.

4.106.4.3 New hotels and motels. All newly constructed hotels and motels shall provide EV spaces capable of supporting future installation of EVSE. The construction documents shall identify the location of the EV spaces.

Notes:

1. Construction documents are intended to demonstrate the project's capability and capacity or facilitating future EV charging.
2. There is no requirement for EV spaces to be constructed or available until EV chargers are installed for use.

4.106.4.3.1 Number of required EV spaces. The number of required EV spaces shall be based on the total number of parking spaces provided for all types of parking facilities in accordance with Table 4.106.4.3.1. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number.

TABLE 4.106.4.3.1

TOTAL NUMBER OF PARKING SPACES	NUMBER OF REQUIRED EV SPACES
0-9	0
10-25	1
26-50	2
51-75	4
76-100	5
101-150	7
151-200	10
201 and over	6 percent of total

4.106.4.3.2 Electric vehicle charging space (EV space) dimensions. The EV spaces shall be designed to comply with the following:

1. The minimum length of each EV space shall be 18 feet (5486mm).
2. The minimum width of each EV space shall be 9 feet (2743mm)

4.106.4.3.3 Single EV space required. When a single EV space is required, the EV space shall be designed in accordance with Section 4.106.4.2.3.

4.106.4.3.4 Multiple EV spaces required. When multiple EV spaces are required, the EV spaces shall be designed in accordance with Section 4.106.4.2.4.

4.106.4.3.5 Identification. The service panels or sub-panels shall be identified in accordance with Section 4.106.4.2.5.

4.106.4.3.6 Accessible EV spaces. In addition to the requirements in Section 4.106.4.3, EV spaces for hotels/motels and all EVSE, when installed, shall comply with the accessibility provisions for the EV charging stations in the *California Building Code*, Chapter 11B.

DIVISION 4.2 ENERGY EFFICIENCY
4.201 GENERAL

4.201.1 SCOPE. For the purposes of mandatory energy efficiency standards in this code, the California Energy Commission will continue to adopt mandatory standards.

DIVISION 4.3 WATER EFFICIENCY AND CONSERVATION
4.303 INDOOR WATER USE

4.303.1 WATER CONSERVING PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the sections 4.303.1.1, 4.303.1.2, 4.303.1.3, and 4.303.4.4.

Note: All noncompliant plumbing fixtures in any residential real property shall be replaced with water-conserving plumbing fixtures. Plumbing fixture replacement is required prior to issuance of a certificate of final completion, certificate of occupancy, or final permit approval by the local building department. See Civil Code Section 1101.1, et seq., for the definition of a noncompliant plumbing fixture, types of residential buildings affected and other important enactment dates.

4.303.1.1 Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Tank-type Toilets.

Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.

4.303.1.2 Urinals. The effective flush volume of wall mounted urinals shall not exceed 0.125 gallons per flush. The effective flush volume of all other urinals shall not exceed 0.5 gallons per flush.

4.303.1.3 Showerheads.

4.303.1.3.1 Single Showerhead. Showerheads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Showerheads shall be certified to the performance criteria of the U.S. EPA WaterSense Specification for Showerheads.

4.303.1.3.2 Multiple showerheads serving one shower. When a shower is served by more than one showerhead, the combined flow rate of all the showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to only allow one shower outlet to be in operation at a time.

Note: A hand-held shower shall be considered a showerhead.

4.303.1.4 Faucets.

4.303.1.4.1 Residential Lavatory Faucets. The maximum flow rate of residential lavatory faucets shall not exceed 1.2 gallons per minute at 60 psi. The minimum flow rate of residential lavatory faucets shall not be less than 0.8 gallons per minute at 20 psi.

4.303.1.4.2 Lavatory Faucets in Common and Public Use Areas. The maximum flow rate of lavatory faucets installed in common and public use areas (outside of dwellings or sleeping units) in residential buildings shall not exceed 0.5 gallons per minute at 60 psi.

4.303.1.4.3 Metering Faucets. Metering faucets when installed in residential buildings shall not deliver more than 0.2 gallons per cycle.

4.303.1.4.4 Kitchen Faucets. The maximum flow rate of kitchen faucets shall not exceed 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi.

Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.

4.303.2 STANDARDS FOR PLUMBING FIXTURES AND FITTINGS. Plumbing fixtures and fittings shall be installed in accordance with the *California Plumbing Code*, and shall meet the applicable standards referenced in Table 1701.1 of the *California Plumbing Code*.

NOTE:
THIS TABLE COMPILES THE DATA IN SECTION 4.303.1, AND
IS INCLUDED AS A CONVENIENCE FOR THE USER.

TABLE - MAXIMUM FIXTURE WATER USE

FIXTURE TYPE	FLOW RATE
SHOWER HEADS (RESIDENTIAL)	1.8 GMP @ 80 PSI
LAVATORY FAUCETS (RESIDENTIAL)	MAX. 1.2 GPM @ 60 PSI MIN. 0.8 GPM @ 20 PSI
LAVATORY FAUCETS IN COMMON & PUBLIC USE AREAS	0.5 GPM @ 60 PSI
KITCHEN FAUCETS	1.8 GPM @ 60 PSI
METERING FAUCETS	0.2 GAL/CYCLE
WATER CLOSET	1.28 GAL/FLUSH
URINALS	0.125 GAL/FLUSH

4.304 OUTDOOR WATER USE

4.304.1 OUTDOOR POTABLE WATER USE IN LANDSCAPE AREAS. Residential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent.

NOTES:

1. The Model Water Efficient Landscape Ordinance (MWELO) is located in the *California Code Regulations*, Title 23, Chapter 2.7, Division 2. MWELO and supporting documents, including water budget calculator, are available at: https://www.water.ca.gov/

DIVISION 4.4 MATERIAL CONSERVATION AND RESOURCE EFFICIENCY
4.406 ENHANCED DURABILITY AND REDUCED MAINTENANCE

4.406.1 RODENT PROOFING. Annular spaces around pipes, electric cables, conduits or other openings in sole/bottom plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or a similar method acceptable to the enforcing agency.

4.408 CONSTRUCTION WASTE REDUCTION, DISPOSAL AND RECYCLING

4.408.1 CONSTRUCTION WASTE MANAGEMENT. Recycle and/or salvage for reuse a minimum of 65 percent of the non-hazardous construction and demolition waste in accordance with either Section 4.408.2, 4.408.3 or 4.408.4, or meet a more stringent local construction and demolition waste management ordinance.

Exceptions:

1. Excavated soil and land-clearing debris.
2. Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite.
3. The enforcing agency may make exceptions to the requirements of this section when isolated jobsites are located in areas beyond the haul boundaries of the diversion facility.

4.408.2 CONSTRUCTION WASTE MANAGEMENT PLAN. Submit a construction waste management plan in conformance with Items 1 through 5. The construction waste management plan shall be updated as necessary and shall be available during construction for examination by the enforcing agency.

1. Identify the construction and demolition waste materials to be diverted from disposal by recycling, reuse on the project or salvage for future use or sale.
2. Specify if construction and demolition waste materials will be sorted on-site (source separated) or bulk mixed (single stream).
3. Identify diversion facilities where the construction and demolition waste material collected will be taken.
4. Identify construction methods employed to reduce the amount of construction and demolition waste generated.
5. Specify that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both.

4.408.3 WASTE MANAGEMENT COMPANY. Utilize a waste management company, approved by the enforcing agency, which can provide verifiable documentation that the percentage of construction and demolition waste material diverted from the landfill complies with Section 4.408.1.

Note: The owner or contractor may make the determination if the construction and demolition waste materials will be diverted by a waste management company.

4.408.4 WASTE STREAM REDUCTION ALTERNATIVE [LR]. Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 3.4 lbs./sq.ft. of the building area shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1

4.408.4.1 WASTE STREAM REDUCTION ALTERNATIVE. Projects that generate a total combined weight of construction and demolition waste disposed of in landfills, which do not exceed 2 pounds per square foot of the building area, shall meet the minimum 65% construction waste reduction requirement in Section 4.408.1

4.408.5 DOCUMENTATION. Documentation shall be provided to the enforcing agency which demonstrates compliance with Section 4.408.2, items 1 through 5, Section 4.408.3 or Section 4.408.4..

Notes:

1. Sample forms found in "A Guide to the California Green Building Standards Code (Residential)" located at www.hcd.ca.gov/CALGreen.html may be used to assist in documenting compliance with this section.
2. Mixed construction and demolition debris (C & D) processors can be located at the California Department of Resources Recycling and Recovery (CalRecycle).

4.410 BUILDING MAINTENANCE AND OPERATION

4.410.1 OPERATION AND MAINTENANCE MANUAL. At the time of final inspection, a manual, compact disc, web-based reference or other media acceptable to the enforcing agency which includes all of the following shall be placed in the building:

1. Directions to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure.
2. Operation and maintenance instructions for the following:
   a. Equipment and appliances, including water-saving devices and systems, HVAC systems, photovoltaic systems, electric vehicle chargers, water-heating systems and other major appliances and equipment.
   b. Roof and yard drainage, including gutters and downspouts.
   c. Space conditioning systems, including condensers and air filters.
   d. Landscape irrigation systems.
   e. Water reuse systems.
3. Information from local utility, water and waste recovery providers on methods to further reduce resource consumption, including recycle programs and locations.
4. Public transportation and/or carpool options available in the area.
5. Educational material on the positive impacts of an interior relative humidity between 30-60 percent and what methods an occupant may use to maintain the relative humidity level in that range.
6. Information about water-conserving landscape and irrigation design and controllers which conserve water.
7. Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the foundation.
8. Information on required routine maintenance measures, including, but not limited to, caulking, painting, grading around the building, etc.
9. Information about state solar energy and incentive programs available.
10. A copy of all special inspections verifications required by the enforcing agency or this code.

4.410.2 RECYCLING BY OCCUPANTS. Where 5 or more multifamily dwelling units are constructed on a building site, provide readily accessible area(s) that serves all buildings on the site and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waster, and metals, or meet a lawfully enacted local recycling ordinance, if more restrictive.

Exception: Rural jurisdictions that meet and apply for the exemption in Public Resources Code Section 42649.82 (a)(2)(A) et seq. are note required to comply with the organic waste portion of this section.

DIVISION 4.5 ENVIRONMENTAL QUALITY
SECTION 4.501 GENERAL

4.501.1 Scope
The provisions of this chapter shall outline means of reducing the quality of air contaminants that are odorous, irritating and/or harmful to the comfort and well being of a building's installers, occupants and neighbors.

SECTION 4.502 DEFINITIONS

5.102.1 DEFINITIONS
The following terms are defined in Chapter 2 *(and are included here for reference)*

AGRIFIBER PRODUCTS. Agrifiber products include wheatboard, strawboard, panel substrates and door cores, not including furniture, fixtures and equipment (FF&E) not considered base building elements.

COMPOSITE WOOD PRODUCTS. Composite wood products include hardwood plywood, particleboard and medium density fiberboard. "Composite wood products" does not include hardboard, structural plywood, structural panels, structural composite lumber, oriented strand board, glued laminated timber, prefabricated wood I-joists or finger-jointed lumber, all as specified in California Code of regulations (CCR), title 17, Section 93120.1.

DIRECT-VENT APPLIANCE. A fuel-burning appliance with a sealed combustion system that draws all air for combustion from the outside atmosphere and discharges all flue gases to the outside atmosphere.

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DRAWING TITLE: CAL-GREEN BUILDING STANDARD CODES (1)
Sheet : 04 OF 19
Page No. : A.002

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No.	Revision/Issue	Date
1	CLIENT APPROVAL	
2		
3		
4		

2019 CALIFORNIA GREEN BUILDING STANDARDS CODE

RESIDENTIAL MANDATORY MEASURES, SHEET 1 (January 2020, Includes August 2019 Supplement)

Y = YES
N/A = NOT APPLICABLE
RESPON. PARTY = RESPONSIBLE PARTY (ie: ARCHITECT, ENGINEER, OWNER, CONTRACTOR, INSPECTOR ETC.)

MAXIMUM INCREMENTAL REACTIVITY (MIR). The maximum change in weight of ozone formed by adding a compound to the "Base Reactive Organic Gas (ROG) Mixture" per weight of compound added, expressed to hundredths of a gram (g O³/g ROC).
Note: MIR values for individual compounds and hydrocarbon solvents are specified in CCR, Title 17, Sections 94700 and 94701.

MOISTURE CONTENT. The weight of the water in wood expressed in percentage of the weight of the oven-dry wood.

PRODUCT-WEIGHTED MIR (PWMIR). The sum of all weighted-MIR for all ingredients in a product subject to this article. The PWMIR is the total product reactivity expressed to hundredths of a gram of ozone formed per gram of product (excluding container and packaging).
Note: PWMIR is calculated according to equations found in CCR, Title 17, Section 94521 (a).

REACTIVE ORGANIC COMPOUND (ROC). Any compound that has the potential, once emitted, to contribute to ozone formation in the troposphere.

VOC. A volatile organic compound (VOC) broadly defined as a chemical compound based on carbon chains or rings with vapor pressures greater than 0.1 millimeters of mercury at room temperature. These compounds typically contain hydrogen and may contain oxygen, nitrogen and other elements. See CCR Title 17, Section 94508(a).

4.503 FIREPLACES

4.503.1 GENERAL. Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with U.S. EPA New Source Performance Standards (NSPS) emission limits as applicable, and shall have a permanent label indicating they are certified to meet the emission limits. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.

4.504 POLLUTANT CONTROL

4.504.1 COVERING OF DUCT OPENINGS & PROTECTION OF MECHANICAL EQUIPMENT DURING CONSTRUCTION. At the time of rough installation, during storage on the construction site and until final startup of the heating, cooling and ventilating equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of water, dust or debris which may enter the system.

4.504.2 FINISH MATERIAL POLLUTANT CONTROL. Finish materials shall comply with this section.

4.504.2.1 Adhesives, Sealants and Caulks. Adhesives, sealant and caulks used on the project shall meet the requirements of the following standards unless more stringent local or regional air pollution or air quality management district rules apply:

1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable or SCAQMD Rule 1168 VOC limits, as shown in Table 4.504.1 or 4.504.2, as applicable. Such products also shall comply with the Rule 1168 prohibition on the use of certain toxic compounds (chloroform, ethylene dichloride, methylene chloride, perchloroethylene and trichloroethylene), except for aerosol products, as specified in Subsection 2 below.
2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than 1 pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of *California Code of Regulations*, Title 17, commencing with section 94507.

4.504.2.2 Paints and Coatings. Architectural paints and coatings shall comply with VOC limits in Table 1 of the ARB Architectural Suggested Control Measure, as shown in Table 4.504.3, unless more stringent local limits apply. The VOC content limit for coatings that do not meet the definitions for the specialty coatings categories listed in Table 4.504.3 shall be determined by classifying the coating as a Flat, Nonflat or Nonflat-High Gloss coating, based on its gloss, as defined in subsections 4.21, 4.36, and 4.37 of the 2007 California Air Resources Board, Suggested Control Measure, and the corresponding Flat, Nonflat or Nonflat-High Gloss VOC limit in Table 4.504.3 shall apply.

4.504.2.3 Aerosol Paints and Coatings. Aerosol paints and coatings shall meet the Product-weighted MIR Limits for ROC in Section 94522(a)(2) and other requirements, including prohibitions on use of certain toxic compounds and ozone depleting substances, in Sections 94522(e)(1) and (f)(1) of *California Code of Regulations*, Title 17, commencing with Section 94520; and in areas under the jurisdiction of the Bay Area Air Quality Management District additionally comply with the percent VOC by weight of product limits of Regulation 8, Rule 49.

4.504.2.4 Verification. Verification of compliance with this section shall be provided at the request of the enforcing agency. Documentation may include, but is not limited to, the following:

1. Manufacturer's product specification.
2. Field verification of on-site product containers.

TABLE 4.504.1 - ADHESIVE VOC LIMIT[1,2]
(Less Water and Less Exempt Compounds in Grams per Liter)

ARCHITECTURAL APPLICATIONS	VOC LIMIT
INDOOR CARPET ADHESIVES	50
CARPET PAD ADHESIVES	50
OUTDOOR CARPET ADHESIVES	150
WOOD FLOORING ADHESIVES	100
RUBBER FLOOR ADHESIVES	60
SUBFLOOR ADHESIVES	50
CERAMIC TILE ADHESIVES	65
VCT & ASPHALT TILE ADHESIVES	50
DRYWALL & PANEL ADHESIVES	50
COVE BASE ADHESIVES	50
MULTIPURPOSE CONSTRUCTION ADHESIVE	70
STRUCTURAL GLAZING ADHESIVES	100
SINGLE-PLY ROOF MEMBRANE ADHESIVES	250
OTHER ADHESIVES NOT LISTED	50
SPECIALTY APPLICATIONS	
PVC WELDING	510
CPVC WELDING	490
ABS WELDING	325
PLASTIC CEMENT WELDING	250
ADHESIVE PRIMER FOR PLASTIC	550
CONTACT ADHESIVE	80
SPECIAL PURPOSE CONTACT ADHESIVE	250
STRUCTURAL WOOD MEMBER ADHESIVE	140
TOP & TRIM ADHESIVE	250
SUBSTRATE SPECIFIC APPLICATIONS	
METAL TO METAL	30
PLASTIC FOAMS	50
POROUS MATERIAL (EXCEPT WOOD)	50
WOOD	30
FIBERGLASS	80

1. IF AN ADHESIVE IS USED TO BOND DISSIMILAR SUBSTRATES TOGETHER, THE ADHESIVE WITH THE HIGHEST VOC CONTENT SHALL BE ALLOWED.
2. FOR ADDITIONAL INFORMATION REGARDING METHODS TO MEASURE THE VOC CONTENT SPECIFIED IN THIS TABLE, SEE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE 1168.

TABLE 4.504.2 - SEALANT VOC LIMIT
(Less Water and Less Exempt Compounds in Grams per Liter)

SEALANTS	VOC LIMIT
ARCHITECTURAL	250
MARINE DECK	760
NONMEMBRANE ROOF	300
ROADWAY	250
SINGLE-PLY ROOF MEMBRANE	450
OTHER	420
SEALANT PRIMERS	
ARCHITECTURAL	
NON-POROUS	250
POROUS	775
MODIFIED BITUMINOUS	500
MARINE DECK	760
OTHER	750

TABLE 4.504.3 - VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS[2,3]
GRAMS OF VOC PER LITER OF COATING, LESS WATER & LESS EXEMPT COMPOUNDS

COATING CATEGORY	VOC LIMIT
FLAT COATINGS	50
NON-FLAT COATINGS	100
NONFLAT-HIGH GLOSS COATINGS	150
SPECIALTY COATINGS	
ALUMINUM ROOF COATINGS	400
BASEMENT SPECIALTY COATINGS	400
BITUMINOUS ROOF COATINGS	50
BITUMINOUS ROOF PRIMERS	350
BOND BREAKERS	350
CONCRETE CURING COMPOUNDS	350
CONCRETE/MASONRY SEALERS	100
DRIVEWAY SEALERS	50
DRY FOG COATINGS	150
FAUX FINISHING COATINGS	350
FIRE RESISTIVE COATINGS	350
FLOOR COATINGS	100
FORM-RELEASE COMPOUNDS	250
GRAPHIC ARTS COATINGS (SIGN PAINTS)	500
HIGH TEMPERATURE COATINGS	420
INDUSTRIAL MAINTENANCE COATINGS	250
LOW SOLIDS COATINGS[1]	120
MAGNESITE CEMENT COATINGS	450
MASTIC TEXTURE COATINGS	100
METALLIC PIGMENTED COATINGS	500
MULTICOLOR COATINGS	250
PRETREATMENT WASH PRIMERS	420
PRIMERS, SEALERS, & UNDERCOATERS	100
REACTIVE PENETRATING SEALERS	350
RECYCLED COATINGS	250
ROOF COATINGS	50
RUST PREVENTATIVE COATINGS	250
SHELLACS	
CLEAR	730
OPAQUE	550
SPECIALTY PRIMERS, SEALERS & UNDERCOATERS	100
STAINS	250
STONE CONSOLIDANTS	450
SWIMMING POOL COATINGS	340
TRAFFIC MARKING COATINGS	100
TUB & TILE REFINISH COATINGS	420
WATERPROOFING MEMBRANES	250
WOOD COATINGS	275
WOOD PRESERVATIVES	350
ZINC-RICH PRIMERS	340

1. GRAMS OF VOC PER LITER OF COATING, INCLUDING WATER & EXEMPT COMPOUNDS
2. THE SPECIFIED LIMITS REMAIN IN EFFECT UNLESS REVISED LIMITS ARE LISTED IN SUBSEQUENT COLUMNS IN THE TABLE.
3. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIFORNIA AIR RESOURCES BOARD, ARCHITECTURAL COATINGS SUGGESTED CONTROL MEASURE, FEB. 1, 2008. MORE INFORMATION IS AVAILABLE FROM THE AIR RESOURCES BOARD.

TABLE 4.504.5 - FORMALDEHYDE LIMITS[1]
MAXIMUM FORMALDEHYDE EMISSIONS IN PARTS PER MILLION

PRODUCT	CURRENT LIMIT
HARDWOOD PLYWOOD VENEER CORE	0.05
HARDWOOD PLYWOOD COMPOSITE CORE	0.05
PARTICLE BOARD	0.09
MEDIUM DENSITY FIBERBOARD	0.11
THIN MEDIUM DENSITY FIBERBOARD[2]	0.13

1. VALUES IN THIS TABLE ARE DERIVED FROM THOSE SPECIFIED BY THE CALIF. AIR RESOURCES BOARD, AIR TOXICS CONTROL MEASURE FOR COMPOSITE WOOD AS TESTED IN ACCORDANCE WITH ASTM E 1333. FOR ADDITIONAL INFORMATION, SEE CALIF. CODE OF REGULATIONS, TITLE 17, SECTIONS 93120 THROUGH 93120.12.
2. THIN MEDIUM DENSITY FIBERBOARD HAS A MAXIMUM THICKNESS OF 5/16" (8 MM).

DIVISION 4.5 ENVIRONMENTAL QUALITY (continued)

4.504.3 CARPET SYSTEMS. All carpet installed in the building interior shall meet the testing and product requirements of at least one of the following:

1. Carpet and Rug Institute's Green Label Plus Program.
2. California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers" Version 1.1, February 2010 (also known as Specification 01350).
3. NSF/ANSI 140 at the Gold level.
4. Scientific Certifications Systems Indoor Advantage™ Gold.

4.504.3.1 Carpet cushion. All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute's Green Label program.

4.504.3.2 Carpet adhesive. All carpet adhesive shall meet the requirements of Table 4.504.1.

4.504.4 RESILIENT FLOORING SYSTEMS. Where resilient flooring is installed , at least 80% of floor area receiving resilient flooring shall comply with one or more of the following:

1. Products compliant with the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.1, February 2010 (also known as Specification 01350), certified as a CHPS Low-Emitting Material in the Collaborative for High Performance Schools (CHPS) High Performance Products Database.
2. Products certified under UL GREENGUARD Gold (formerly the Greenguard Children & Schools program).
3. Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program.
4. Meet the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers", Version 1.1, February 2010 (also known as Specification 01350).

4.504.5 COMPOSITE WOOD PRODUCTS. Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the buildings shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.), by or before the dates specified in those sections, as shown in Table 4.504.5

4.504.5.1 Documentation. Verification of compliance with this section shall be provided as requested by the enforcing agency. Documentation shall include at least one of the following:

1. Product certifications and specifications.
2. Chain of custody certifications.
3. Product labeled and invoiced as meeting the Composite Wood Products regulation (see CCR, Title 17, Section 93120, et seq.).
4. Exterior grade products marked as meeting the PS-1 or PS-2 standards of the Engineered Wood Association, the Australian AS/NZS 2269, European 636 3S standards, and Canadian CSA 0121, CSA 0151, CSA 0153 and CSA 0325 standards.
5. Other methods acceptable to the enforcing agency.

4.505 INTERIOR MOISTURE CONTROL

4.505.1 General. Buildings shall meet or exceed the provisions of the *California Building Standards Code*.

4.505.2 CONCRETE SLAB FOUNDATIONS. Concrete slab foundations required to have a vapor retarder by California Building Code, Chapter 19, or concrete slab-on-ground floors required to have a vapor retarder by the California Residential Code, Chapter 5, shall also comply with this section.

4.505.2.1 Capillary break. A capillary break shall be installed in compliance with at least one of the following:

1. A 4-inch (101.6 mm) thick base of 1/2 inch (12.7mm) or larger clean aggregate shall be provided with a vapor barrier in direct contact with concrete and a concrete mix design, which will address bleeding, shrinkage, and curling, shall be used. For additional information, see American Concrete Institute, ACI 302.2R-06.
2. Other equivalent methods approved by the enforcing agency.
3. A slab design specified by a licensed design professional.

4.505.3 MOISTURE CONTENT OF BUILDING MATERIALS. Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19 percent moisture content. Moisture content shall be verified in compliance with the following:

1. Moisture content shall be determined with either a probe-type or contact-type moisture meter.Equivalent moisture verification methods may be approved by the enforcing agency and shall satisfy requirements found in Section 101.8 of this code.
2. Moisture readings shall be taken at a point 2 feet (610 mm) to 4 feet (1219 mm) from the grade stamped end of each piece verified.
3. At least three random moisture readings shall be performed on wall and floor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing.

Insulation products which are visibly wet or have a high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufacturers' drying recommendations prior to enclosure.

4.506 INDOOR AIR QUALITY AND EXHAUST

4.506.1 Bathroom exhaust fans. Each bathroom shall be mechanically ventilated and shall comply with the following:

1. Fans shall be ENERGY STAR compliant and be ducted to terminate outside the building.
2. Unless functioning as a component of a whole house ventilation system, fans must be controlled by a humidity control.
   a. Humidity controls shall be capable of adjustment between a relative humidity range less than or equal to 50% to a maximum of 80%. A humidity control may utilize manual or automatic means of adjustment.
   b. A humidity control may be a separate component to the exhaust fan and is not required to be integral (i.e., built-in)

Notes:

1. For the purposes of this section, a bathroom is a room which contains a bathtub, shower or tub/shower combination.
2. Lighting integral to bathroom exhaust fans shall comply with the *California Energy Code*.

4.507 ENVIRONMENTAL COMFORT

4.507.2 HEATING AND AIR-CONDITIONING SYSTEM DESIGN. Heating and air conditioning systems shall be sized, designed and have their equipment selected using the following methods:

1. The heat loss and heat gain is established according to ANSI/ACCA 2 Manual J - 2011 (Residential Load Calculation), ASHRAE handbooks or other equivalent design software or methods.
2. Duct systems are sized according to ANSI/ACCA 1 Manual D - 2014 (Residential Duct Systems), ASHRAE handbooks or other equivalent design software or methods.
3. Select heating and cooling equipment according to ANSI/ACCA 3 Manual S - 2014 (Residential Equipment Selection), or other equivalent design software or methods.

Exception: Use of alternate design temperatures necessary to ensure the system functions are acceptable.

CHAPTER 7
INSTALLER & SPECIAL INSPECTOR QUALIFICATIONS

702 QUALIFICATIONS

702.1 INSTALLER TRAINING. HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program. Uncertified persons may perform HVAC installations when under the direct supervision and responsibility of a person trained and certified to install HVAC systems or contractor licensed to install HVAC systems. Examples of acceptable HVAC training and certification programs include but are not limited to the following:

1. State certified apprenticeship programs.
2. Public utility training programs.
3. Training programs sponsored by trade, labor or statewide energy consulting or verification organizations.
4. Programs sponsored by manufacturing organizations.
5. Other programs acceptable to the enforcing agency.

702.2 SPECIAL INSPECTION [HCD]. When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition to other certifications or qualifications acceptable to the enforcing agency, the following certifications or education may be considered by the enforcing agency when evaluating the qualifications of a special inspector:

1. Certification by a national or regional green building program or standard publisher.
2. Certification by a statewide energy consulting or verification organization, such as HERS raters, building performance contractors, and home energy auditors.
3. Successful completion of a third party apprentice training program in the appropriate trade.
4. Other programs acceptable to the enforcing agency.

Notes:

1. Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.
2. HERS raters are special inspectors certified by the California Energy Commission (CEC) to rate homes in California according to the Home Energy Rating System (HERS).

[BSC] When required by the enforcing agency, the owner or the responsible entity acting as the owner's agent shall employ one or more special inspectors to provide inspection or other duties necessary to substantiate compliance with this code. Special inspectors shall demonstrate competence to the satisfaction of the enforcing agency for the particular type of inspection or task to be performed. In addition, the special inspector shall have a certification from a recognized state, national or international association, as determined by the local agency. The area of certification shall be closely related to the primary job function, as determined by the local agency.

Note: Special inspectors shall be independent entities with no financial interest in the materials or the project they are inspecting for compliance with this code.

703 VERIFICATIONS

703.1 DOCUMENTATION. Documentation used to show compliance with this code shall include but is not limited to, construction documents, plans, specifications, builder or installer certification, inspection reports, or other methods acceptable to the enforcing agency which demonstrate substantial conformance. When specific documentation or special inspection is necessary to verify compliance, that method of compliance will be specified in the appropriate section or identified applicable checklist.

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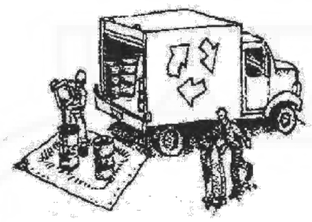
1	CLIENT APPROVAL	

Water Pollution Prevention Program
Clean Water. Healthy Community.

Construction Best Management Practices (BMPs)

Construction projects are required to implement the stormwater best management practices (BMP) on this page, as they apply to your project, all year long.

Materials & Waste Management



Non-Hazardous Materials

- ❑ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or if not actively being used within 14 days.
- ❑ Use (but don't overuse) reclaimed water for dust control.

Hazardous Materials

- ❑ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.
- ❑ Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.
- ❑ Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- ❑ Arrange for appropriate disposal of all hazardous wastes.

Waste Management

- ❑ Cover waste disposal containers securely with tarps at the end of every work day and during wet weather.
- ❑ Check waste disposal containers frequently for leaks and to make sure they are not overfilled. Never hose down a dumpster on the construction site.
- ❑ Clean or replace portable toilets, and inspect them frequently for leaks and spills.
- ❑ Dispose of all wastes and debris properly. Recycle materials and wastes that can be recycled (such as asphalt, concrete, aggregate base materials, wood, gyp board, pipe, etc.)
- ❑ Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.

Construction Entrances and Perimeter

- ❑ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.
- ❑ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

Equipment Management & Spill Control

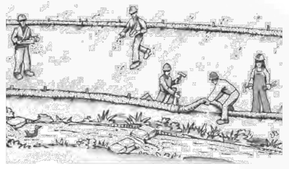
Maintenance and Parking

- ❑ Designate an area, fitted with appropriate BMPs, for vehicle and equipment parking and storage.
- ❑ Perform major maintenance, repair jobs, and vehicle and equipment washing off site.
- ❑ If refueling or vehicle maintenance must be done onsite, work in a bermed area away from storm drains and over a drip pan or drop cloths big enough to collect fluids. Recycle or dispose of fluids as hazardous waste.
- ❑ If vehicle or equipment cleaning must be done onsite, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.
- ❑ Do not clean vehicle or equipment onsite using soaps, solvents, degreasers, or steam cleaning equipment.

Spill Prevention and Control

- ❑ Keep spill cleanup materials (e.g., rags, absorbents and cat litter) available at the construction site at all times.
- ❑ Inspect vehicles and equipment frequently for and repair leaks promptly. Use drip pans to catch leaks until repairs are made.
- ❑ Clean up spills or leaks immediately and dispose of cleanup materials properly.
- ❑ Do not hose down surfaces where fluids have spilled. Use dry cleanup methods (absorbent materials, cat litter, and/or rags).
- ❑ Sweep up spilled dry materials immediately. Do not try to wash them away with water, or bury them.
- ❑ Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
- ❑ Report significant spills immediately. You are required by law to report all significant releases of hazardous materials, including oil. To report a spill: 1) Dial 911 or your local emergency response number, 2) Call the Governor's Office of Emergency Services Warning Center, (800) 852-7550 (24 hours).

Earthmoving



- ❑ Schedule grading and excavation work during dry weather.
- ❑ Stabilize all denuded areas, install and maintain temporary erosion controls (such as erosion control fabric or bonded fiber matrix) until vegetation is established.
- ❑ Remove existing vegetation only when absolutely necessary, and seed or plant vegetation for erosion control on slopes or where construction is not immediately planned.
- ❑ Prevent sediment from migrating offsite and protect storm drain inlets, gutters, ditches, and drainage courses by installing and maintaining appropriate BMPs, such as fiber rolls, silt fences, sediment basins, gravel bags, berms, etc.
- ❑ Keep excavated soil on site and transfer it to dump trucks on site, not in the streets.

Contaminated Soils

- ❑ If any of the following conditions are observed, test for contamination and contact the Regional Water Quality Control Board:
  - Unusual soil conditions, discoloration, or odor.
  - Abandoned underground tanks.
  - Abandoned wells
  - Buried barrels, debris, or trash.

Paving/Asphalt Work

- ❑ Avoid paving and seal coating in wet weather or when rain is forecast, to prevent materials that have not cured from contacting stormwater runoff.
- ❑ Cover storm drain inlets and manholes when applying seal coat, tack coat, slurry seal, fog seal, etc.
- ❑ Collect and recycle or appropriately dispose of excess abrasive gravel or sand. Do NOT sweep or wash it into gutters.
- ❑ Do not use water to wash down fresh asphalt concrete pavement.

Sawcutting & Asphalt/Concrete Removal

- ❑ Protect nearby storm drain inlets when saw cutting. Use filter fabric, catch basin inlet filters, or gravel bags to keep slurry out of the storm drain system.
- ❑ Shovel, abosorb, or vacuum saw-cut slurry and dispose of all waste as soon as you are finished in one location or at the end of each work day (whichever is sooner!).
- ❑ If sawcut slurry enters a catch basin, clean it up immediately.

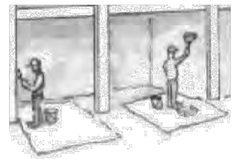
Concrete, Grout & Mortar Application

- ❑ Store concrete, grout, and mortar away from storm drains or waterways, and on pallets under cover to protect them from rain, runoff, and wind.
- ❑ Wash out concrete equipment/trucks offsite or in a designated washout area, where the water will flow into a temporary waste pit, and in a manner that will prevent leaching into the underlying soil or onto surrounding areas. Let concrete harden and dispose of as garbage.
- ❑ When washing exposed aggregate, prevent washwater from entering storm drains. Block any inlets and vacuum gutters, hose washwater onto dirt areas, or drain onto a bermed surface to be pumped and disposed of properly.

Landscaping

- ❑ Protect stockpiled landscaping materials from wind and rain by storing them under tarps all year-round.
- ❑ Stack bagged material on pallets and under cover.
- ❑ Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.

Painting & Paint Removal



Painting Cleanup and Removal

- ❑ Never clean brushes or rinse paint containers into a street, gutter, storm drain, or stream.
- ❑ For water-based paints, paint out brushes to the extent possible, and rinse into a drain that goes to the sanitary sewer. Never pour paint down a storm drain.
- ❑ For oil-based paints, paint out brushes to the extent possible and clean with thinner or solvent in a proper container. Filter and reuse thinners and solvents. Dispose of excess liquids as hazardous waste.
- ❑ Paint chips and dust from non-hazardous dry stripping and sand blasting may be swept up or collected in plastic drop cloths and disposed of as trash.
- ❑ Chemical paint stripping residue and chips and dust from marine paints or paints containing lead, mercury, or tributyltin must be disposed of as hazardous waste. Lead based paint removal requires a state-certified contractor.

Dewatering

- ❑ Discharges of groundwater or captured runoff from dewatering operations must be properly managed and disposed. When possible send dewatering discharge to landscaped area or sanitary sewer. If discharging to the sanitary sewer call your local wastewater treatment plant.
- ❑ Divert run-on water from offsite away from all disturbed areas.
- ❑ When dewatering, notify and obtain approval from the local municipality before discharging water to a street gutter or storm drain. Filtration or diversion through a basin, tank, or sediment trap may be required.
- ❑ In areas of known or suspected contamination, call your local agency to determine whether the ground water must be tested. Pumped groundwater may need to be collected and hauled off-site for treatment and proper disposal.

Storm drain polluters may be liable for fines of up to $10,000 per day!

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Date: 11/22/2022
Scale: N.T.S
DRAWING TITLE: BMP (BEST MANAGEMENT PRACTICES)
Sheet : 06 OF 19
Page No. : A.005

No.	Revision/Issue	Date
1	CLIENT APPROVAL	

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DRAWING TITLE:
SURVEYING PLAN

Sheet : 07 OF 19
Page No. : A.101

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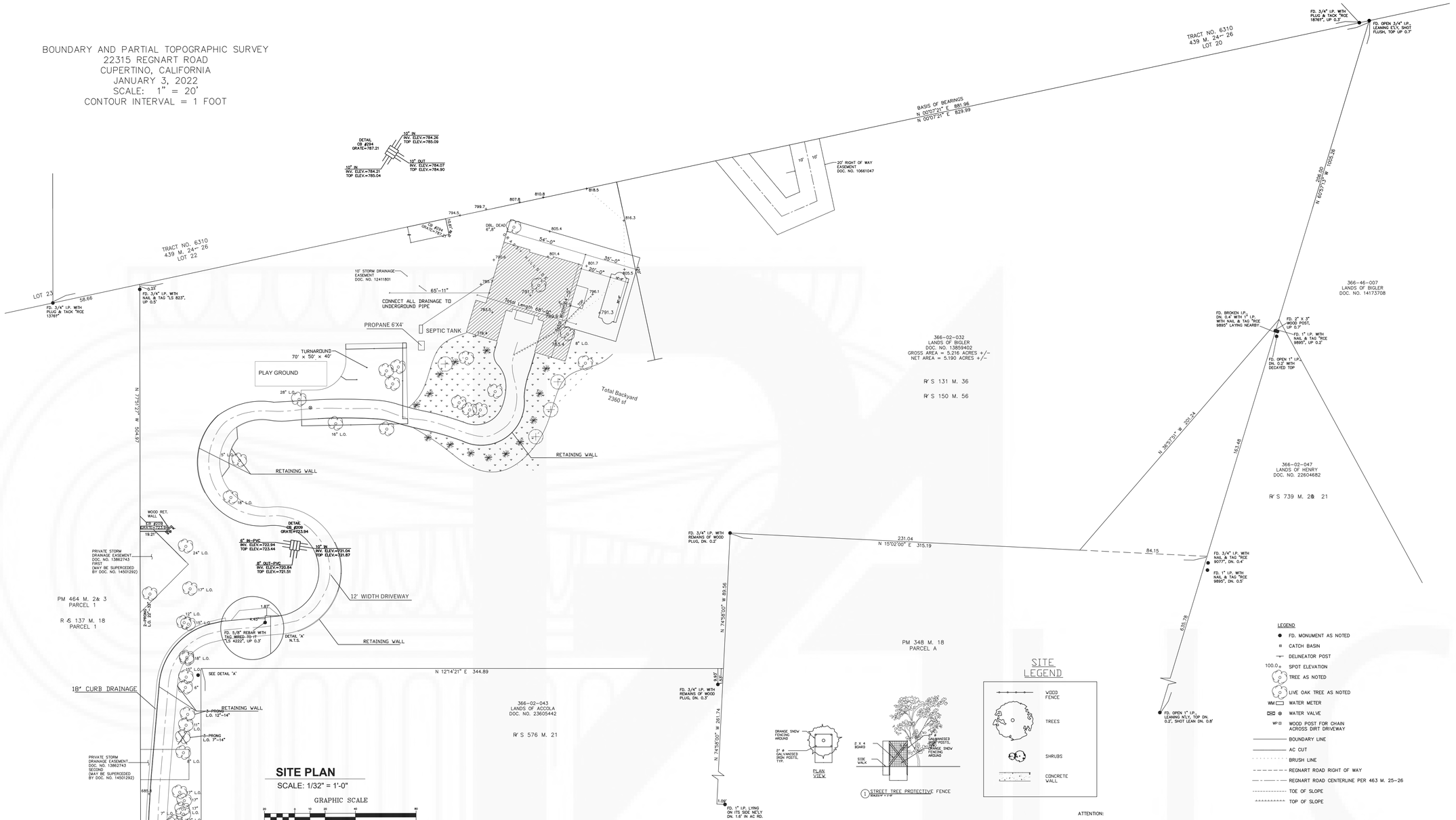
BOUNDARY AND PARTIAL TOPOGRAPHIC SURVEY
22315 REGNART ROAD
CUPERTINO, CALIFORNIA
JANUARY 3, 2022
SCALE: 1" = 20'
CONTOUR INTERVAL = 1 FOOT



SITE PLAN
SCALE: 1/32" = 1'-0"

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

LEGEND
- FD. MONUMENT AS NOTED
- CATCH BASIN
- DELINEATOR POST
- 100.0+ SPOT ELEVATION
- TREE AS NOTED
- LIVE OAK TREE AS NOTED
- WM WATER METER
- WATER VALVE
- WP WOOD POST FOR CHAIN ACROSS DIRT DRIVEWAY
- BOUNDARY LINE
- AC CUT
- BRUSH LINE
- REGNART ROAD RIGHT OF WAY
- REGNART ROAD CENTERLINE PER 463 M. 25–26
- TOE OF SLOPE
- TOP OF SLOPE

BUILDING CODE REQUIREMENTS

THE GENERAL CONTRACTOR SHALL FULLY COMPLY WITH THE FOLLOWING INTERNATIONAL CODES,
2016 CALIFORNIA BUILDING STANDARDS CODE (CAL. CODE REGS., TITLE 24)
COMPLIANCE WITH CITY OF SAN JOSE MUNICIPAL CODES (TITLE 20).
CALGREEN CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11 OF TITLE 24
CBC CALIFORNIA BUILDING CODE (PART 2 OF TITLE 24)
CCR CALIFORNIA CODE OF REGULATIONS
CEBC CALIFORNIA EXISTING BUILDING CODE (PART 10 OF TITLE 24)
CEC CALIFORNIA ELECTRICAL CODE (PART 3 OF TITLE 24)
CEC CALIFORNIA ENERGY CODE (PART 6 OF TITLE 24)
CEC CALIFORNIA ENERGY COMMISSION
CMC CALIFORNIA MECHANICAL CODE (PART 4 OF TITLE 24)
CPC CALIFORNIA PLUMBING CODE (PART 5 OF TITLE 24)
CRSC CALIFORNIA REFERENCED STANDARDS CODE (PART 12 OF TITLE 24)
DPH IDENTIFIES CODE PROVISIONS BY THE DEPARTMENT OF PUBLIC HEALTH
IBC INTERNATIONAL BUILDING CODE
IFC INTERNATIONAL FIRE CODE
IEBC INTERNATIONAL EXISTING BUILDING CODE
IRC INTERNATIONAL RESIDENTIAL CODE
NEC NATIONAL ELECTRICAL CODE
NFPA NATIONAL FIRE PROTECTION ASSOCIATION

FINISH NOTES:

RENDERINGS ARE NOT TO SCALE; ALL RENDERINGS ARE FOR ARTISTIC DEPICTION ONLY. PLAN UPDATES MAY NOT BE REFLECTED IN RENDERINGS. RENDERINGS SHALL NOT BE USED FOR CONSTRUCTION.

BASE BOARDS SHALL BE 6" IN ALL ROOMS, UNO.
FINAL FINISHES SHALL BE CONFIRMED WITH THE HOME OWNER PRIOR TO APPLICATION.

BASIS OF BEARINGS

THE BEARING OF NORTH 00° 07' 21" EAST ALONG THE EASTERLY LINE OF TRACT NO. 6310, AS SHOWN ON THE MAP OF SAID TRACT FILED IN BOOK 439 OF MAPS AT PAGES 24–26, SANTA CLARA COUNTY RECORDS, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS SURVEY AND WAS ESTABLISHED BETWEEN FOUND MONUMENTS.

BENCH MARK

SET MAG NAIL FLUSH IN AC CURB WITH ASSUMED ELEVATION OF 608.00 AS OBTAINED FROM GOOGLE EARTH.

LICENSED LAND SURVEYOR KRISTINA D. COMERER L.S. 6766 Exp 9/30/22 STATE OF CALIFORNIA

SURVEYOR'S STATEMENT

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS' ACT AT THE REQUEST OF SWAMY IN NOVEMBER, 2021.

KRISTINA D. COMERER, PLS 6766

DATE: JANUARY 11, 2022

ATTENTION:

THIS MAP IS PROVIDED IN AN ELECTRONIC FORMAT (ON COMPUTER DISK) AS A COURTESY TO SWAMY. THE DELIVERY OF THE ELECTRONIC FILE DOES NOT CONSTITUTE THE DELIVERY OF OUR PROFESSIONAL WORK PRODUCT. THE SIGNED PAPER PRINT DELIVERED WITH THIS ELECTRONIC FILE CONSTITUTES OUR PROFESSIONAL WORK PRODUCT, AND IN THE EVENT THE ELECTRONIC FILE IS ALTERED, THE PRINT MUST BE REFERRED TO, FOR THE ORIGINAL AND CORRECT SURVEY INFORMATION. WE SHALL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THE ELECTRONIC FILE, OR FOR ANY PRODUCTS, DERIVED FROM THE ELECTRONIC FILE WHICH ARE NOT REVIEWED, SIGNED AND SEALED BY US.

BY: Kristina D. Comerer

DATE: JANUARY 11, 2022

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Date: 11/22/2022
Scale: 1/32" = 1' – 00"

DRAWING TITLE: PROPOSED SITE PLAN

Sheet : 08 OF 19
Page No. : A.102

No.	Revision/Issue	Date
1	CLIENT APPROVAL	

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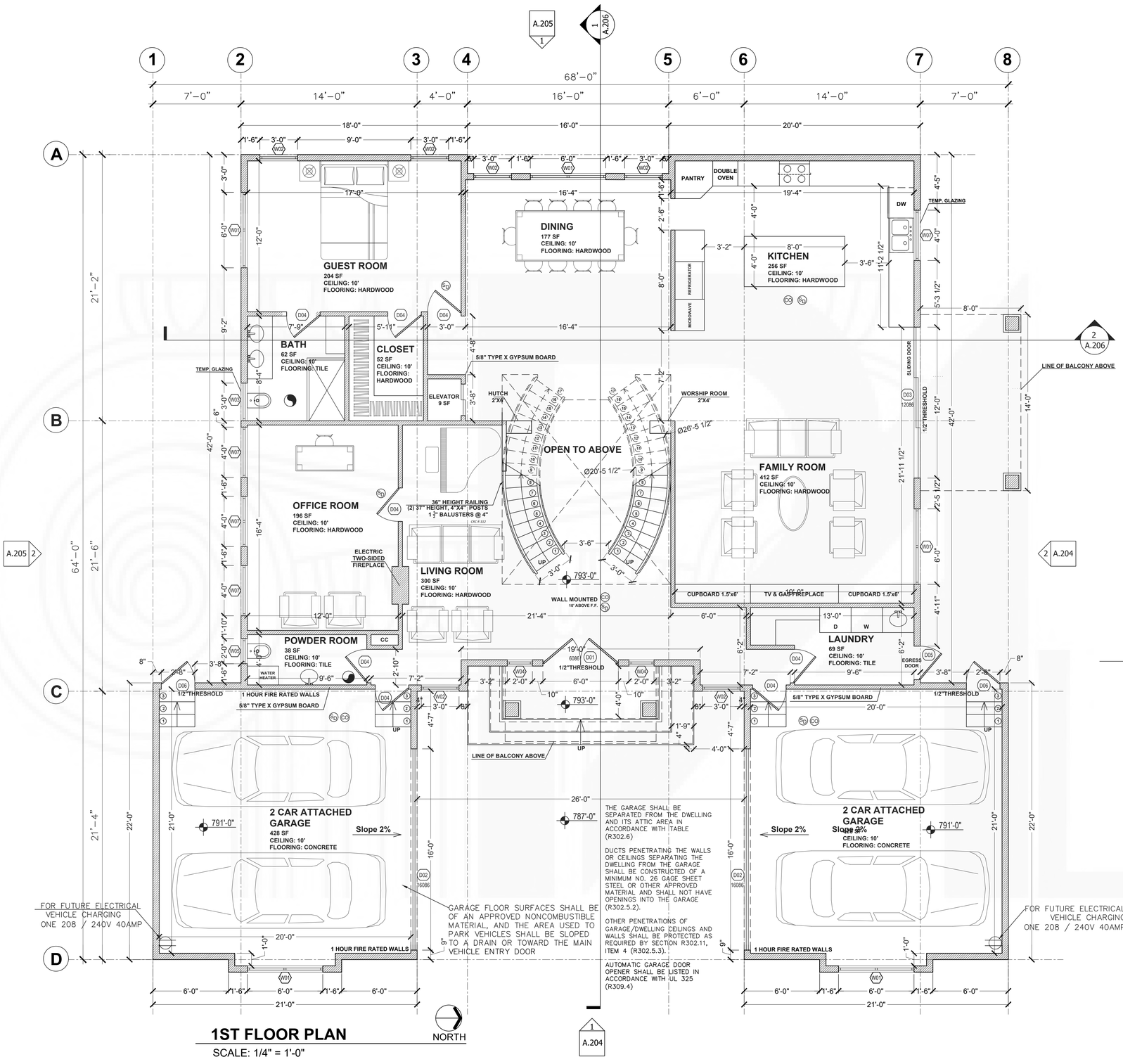


1ST FLOOR PLAN

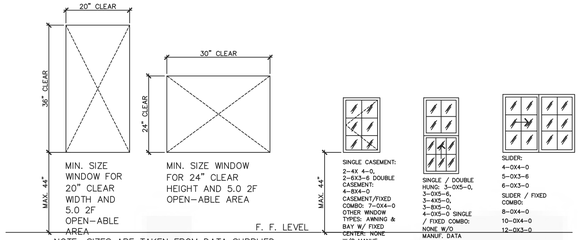
SCALE: 1/4" = 1'-0"

NORTH

SYMBOLS

- BATHROOM FAN (MAY INCLUDE LIGHT UNIT).
- SD SMOKE DETECTOR - HARD WIRED TO ELECTRICAL SYSTEM W/BATTERY BACKUP PROVIDED IN ACCORDANCE WITH THE 2016 CALIFORNIA BUILDING CODE, SECTION R314.
- CO COMBINATION SMOKE & CARBON MONOXIDE DETECTOR, HARD WIRED TO ELECTRICAL SYSTEM W/BATTERY BACKUP PROVIDED IN ACCORDANCE WITH THE 2016 CALIFORNIA BUILDING CODE, SECTION R315.

EMERGENCY ESCAPE / RESCUE OPENING (R310)



NOTE: SIZES ARE TAKEN FROM DATA SUPPLIED BY WINDOW MANUFACTURES. HOWEVER, THESE ARE GENERAL DIMENSIONS AND MUST BE VERIFIED WITH ACTUAL WINDOWS INSTALLED TO MEET MIN. EGRESS REQUIREMENTS.

SECTION 1026 OF THE 2016 INTERNATIONAL BUILDING CODE /SECTION 310 OF THE 2016 INTERNATIONAL RESIDENTIAL CODE

BASEMENTS IN A DWELLING UNIT AND EVERY SLEEPING ROOM BELOW THE FOURTH STORY (INCLUDES ROOMS WHICH COULD BE USED FOR SLEEPING SUCH AS DENS, SEWING ROOMS, STUDY, ETC.) MUST HAVE A LEAST ONE OPERABLE WINDOW OR DOOR APPROVED FOR EMERGENCY ESCAPE OR RESCUE WHICH SHALL OPEN DIRECTLY INTO A PUBLIC STREET, PUBLIC ALLEY, YARD, OR EXIT COURT. THE UNITS MUST BE OPERABLE FROM THE INSIDE TO PROVIDE A FULL CLEAR OPENING WITHOUT THE USE OF SEPARATE TOOLS.

FOR FULL EGRESS, ESCAPE OR RESCUE WINDOWS ARE REQUIRED TO HAVE A MINIMUM NET CLEAR OPEN-ABLE AREA OF 5.7 SQ. FT. (820.8 SQ IN). EXCEPTION: MAY BE REDUCED TO 5.0 SF (720 SQ IN) IF 44"OR LESS FROM EXTERIOR GROUND LEVEL TO SILL. THE MINIMUM NET CLEAR OPEN-ABLE HEIGHT DIMENSION MUST BE 24 INCHES. THE MINIMUM NET CLEAR OPEN-ABLE WIDTH DIMENSION MUST BE 20 INCHES. THEY MUST ALSO HAVE A FINISHED SILL HEIGHT (CLEAR OPENING) OF NOT MORE THAN 44 INCHES ABOVE THE FLOOR. IN ORDER TO MEET THE REQUIRED NET-CLEAR OPEN AREA SQUARE-FOOT OPENING, EITHER THE WIDTH OR HEIGHT OR BOTH MUST EXCEED THE MINIMUM DIMENSIONS THEREOF.

WHEN REPLACING EXISTING NONCONFORMING WINDOWS REQUIRED FOR EMERGENCY ESCAPE AND RESCUE THE REPLACEMENT WINDOWS MUST MEET THE FOLLOWING:

EMERGENCY ESCAPE AND RESCUE REPLACEMENT WINDOW OPENINGS SHALL HAVE A MINIMUM NET CLEAR OPENING OF 4 SQ. FT.; MINIMUM NET CLEAR OPENING HEIGHT OF 22 INCHES; MINIMUM NET CLEAR OPENING WIDTH OF 20 INCHES. MINIMUM SILL HEIGHT OF NOT MORE THAN 48 INCHES ABOVE THE FLOOR OR THE INSTALLATION OF ONE OR MORE PERMANENTLY AFFIXED STEPS EXTENDING THE FULL WIDTH OF THE WINDOW OPENING, CONSTRUCTED TO THE CURRENT ADOPTED IRC RISE AND RUN DIMENSIONAL REQUIREMENTS, SO THAT THE TOP STEP IS NO GREATER THAN 44 INCHES TO THE TOP OF THE SILL WHERE THE EXISTING ROUGH OPENING DOES NOT ALLOW FOR REPLACEMENT WINDOW DIMENSIONAL REQUIREMENTS THE ROUGH OPENING SHALL BE ENLARGED AND THE REPLACEMENT WINDOW SHALL MEET THE FULL EMERGENCY ESCAPE AND RESCUE OPENINGS PER IRC SECTION R310.1 THROUGH R310.5 OR IBC SECTION 1026 AS APPLICABLE FOR SCOPE OF PROJECT.

ADDITIONAL GLAZING REQUIREMENTS:

FOR MINIMUM LIGHT, ALL SLEEPING ROOMS AND OTHER HABITABLE ROOMS REQUIRE GLAZING EQUAL TO AT LEAST 8% OF THE FLOOR AREA OF THE ROOM; MINIMUM VENTILATION OF 4% OF THE FLOOR AREA. SEE THE INTERNATIONAL BUILDING OR RESIDENTIAL CODES AS APPLICABLE FOR EXCEPTIONS AND A COMPLETE LIST OF LIGHT AND VENTILATION REQUIREMENTS.

SAFETY GLAZING IS REQUIRED IN DOORS, STORM DOORS, RAILINGS, WITHIN 24 INCHES OF A DOOR, OR WHEN PANES ARE OVER 9 SQUARE FEET AND WITHIN 18 INCHES OF THE FLOOR. SEE THE INTERNATIONAL BUILDING OR RESIDENTIAL CODES FOR EXCEPTIONS AND A COMPLETE LIST OF SAFETY GLAZING REQUIREMENTS.

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Date: 11/22/2022
Scale: 1/4" = 1' - 00"

DRAWING TITLE: PROPOSED FIRST FLOOR PLAN

Sheet : 09 OF 19
Page No. : A.201

No.	Revision/Issue	Date
1	CLIENT APPROVAL	

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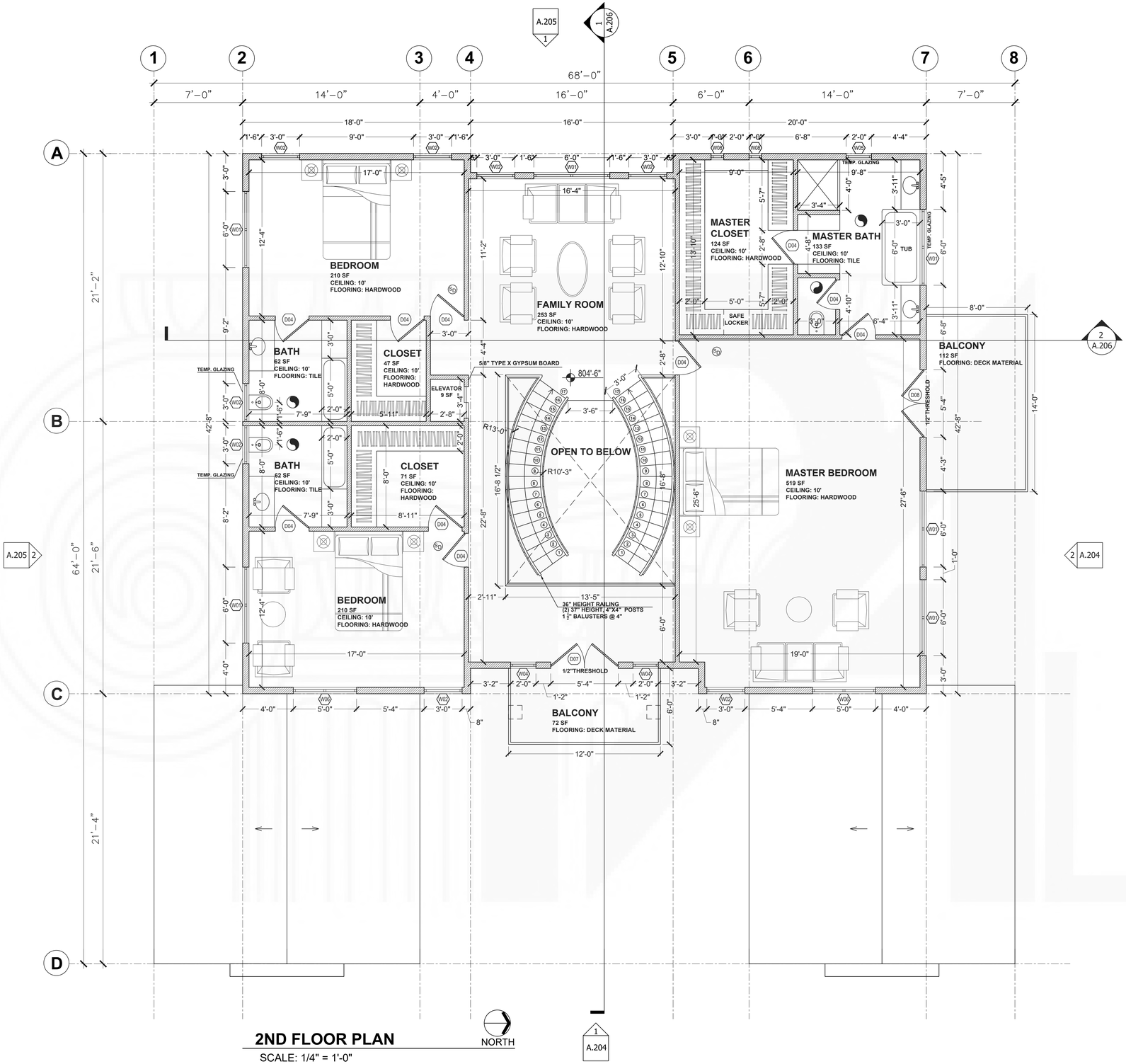

2ND FLOOR PLAN

SCALE: 1/4" = 1'-0"

NORTH

1 A.204

SYMBOLS

- BATHROOM FAN (MAY INCLUDE LIGHT UNIT).
- SD SMOKE DETECTOR - HARD WIRED TO ELECTRICAL SYSTEM W/BATTERY BACKUP PROVIDED IN ACCORDANCE WITH THE 2016 CALIFORNIA BUILDING CODE, SECTION R314.
- CO COMBINATION SMOKE & CARBON MONOXIDE DETECTOR, HARD WIRED TO ELECTRICAL SYSTEM W/BATTERY BACKUP PROVIDED IN ACCORDANCE WITH THE 2016 CALIFORNIA BUILDING CODE, SECTION R315.

GENERAL RENOVATION NOTES:

1- CONTRACTORS TO VERIFY ALL EXISTING CONDITIONS PRIOR TO BIDDING AND CONSTRUCTION.
2- ALL NEW INTERIOR WALLS TO BE 2x4 STUDS (3 1/2") fa 16" O.C. W/ In" GYP. BRD. — USE MOISTURE RESISTANT GYP. BRD. e PLUMBING FIXTURES.
3- ALL AREAS DISTURBED BY CONSTRUCTION WHICH ARE TO REMAIN UNTOUCHED ARE TO BE RETURNED TO ORIGINAL CONDITION.
4- STRUCTURAL HEADERS & BEAMS (2) 2x10's (MIN) & POSTS 2-STUD (MIN) S.Y.P. #2 (UNLESS NOTED OTHERWISE)

FINISH NOTES:

1 - NEW CEILING TO BE 1/2" GYP. BRD.
2 - ALL GYP. BRD. TO BE PAINTED.
3 - FLOORING TO BE INSTALLED IN FINISH AREAS (PER OWNER)
4 - ALL FINISH SELECTIONS PER OWNER

CONSTRUCTION PHASING PLAN:

PHASE I. MAIN HOUSE BUILDING, GARAGE BUILDING
PHASE II. ACCESSORY DWELLING UNIT (ADU)

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Project Name and Address:

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Date: 11/22/2022
Scale: 1/4" = 1' - 00"
DRAWING TITLE: PROPOSED SECOND FLOOR PLAN
Sheet : 10 OF 19
Page No. : A. 202

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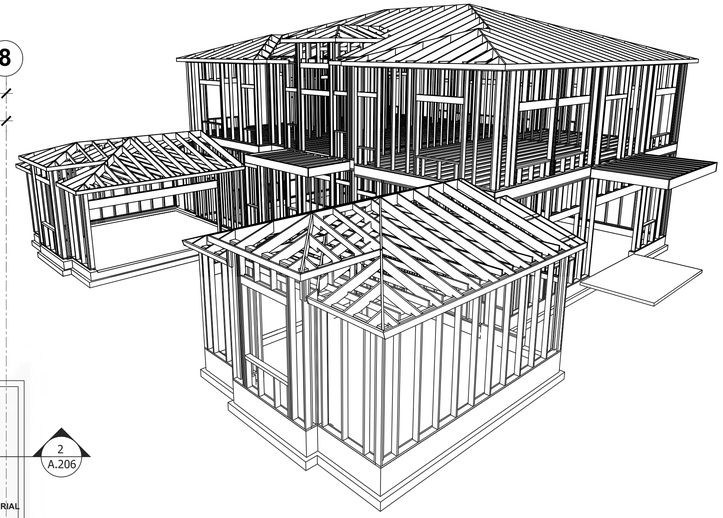

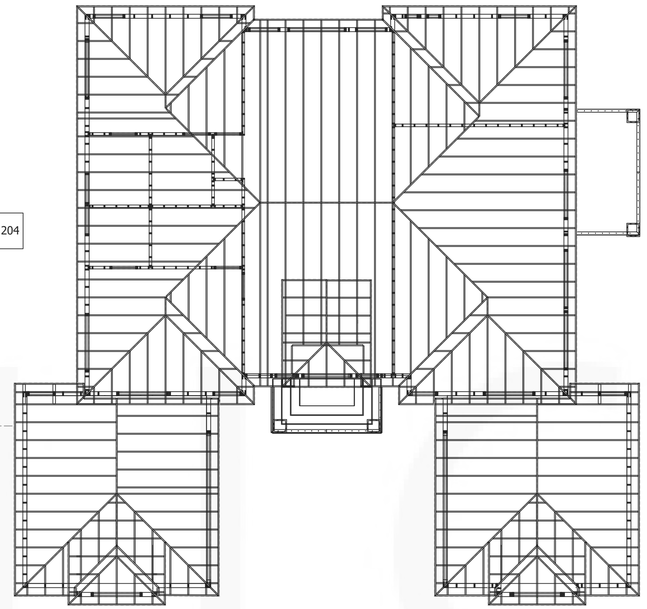

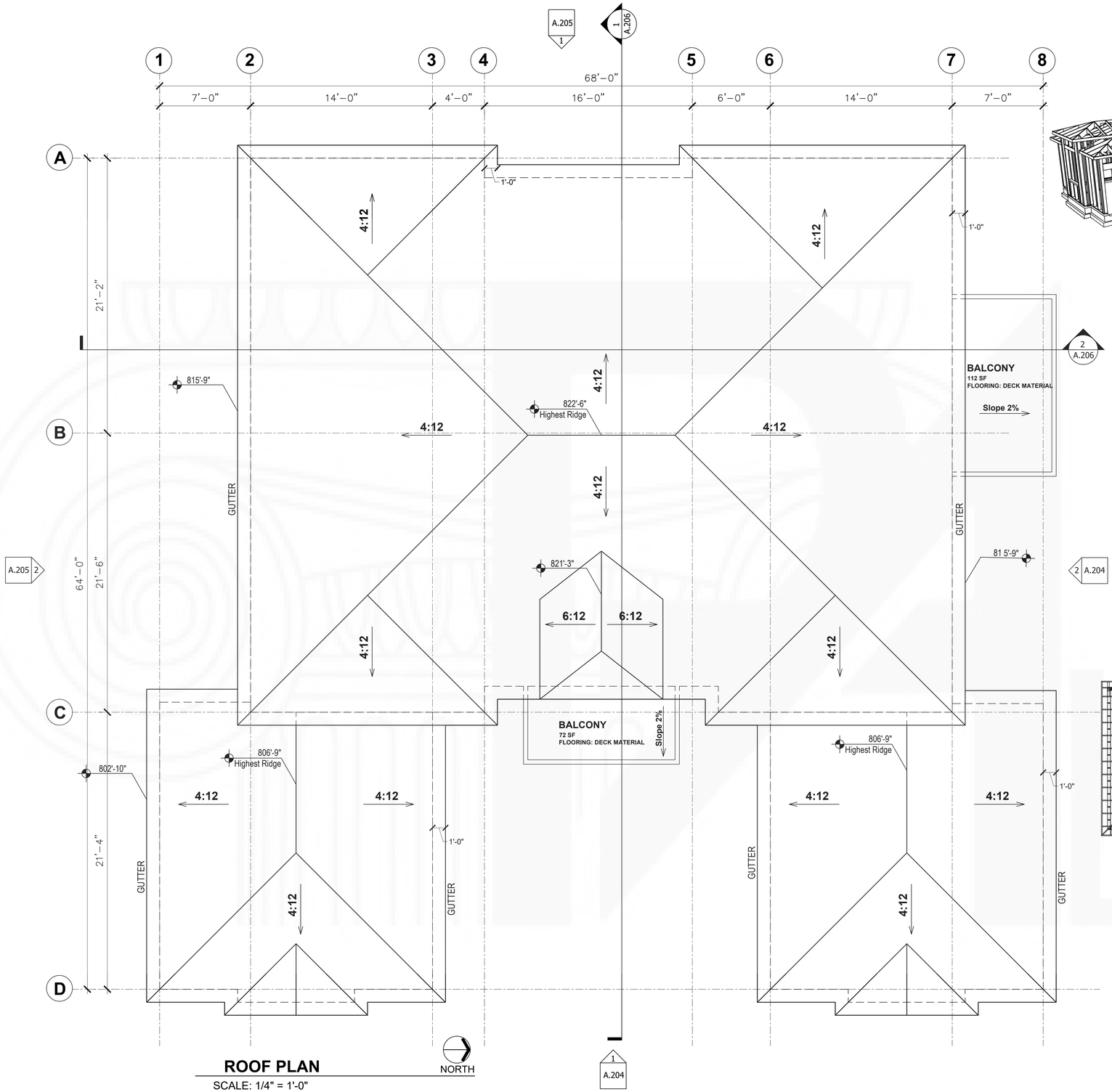

ROOF PLAN

SCALE: 1/4" = 1'-0"

DECK FRAMING = PRESSURE– TREATED DOUGLAS FIR

ROOF AREA VENTILATION NOTE:

CONTRACTOR TO PROVIDE NEW ROOF AREA VENTILATION .NOTE:

1. 50% OF VENTILATION MUST BE IN UPPER 1/3 OF ATTIC SPACE – USE ROOF MOUNTED GSM DORMER VENTS.
2. CONTRACTOR SHALL SUPPLY ALL VENTILATION AMOUNTS ABOVE AS A MINIMUM –EAVE VENTING SHALL BE (3) 2" DIA HOLES PER ROOF BAY (9 SQ IN PER BAY).
3. UPPER ATTIC VENTING SHALL BE ROOF MOUNTED GSM DORMER VENTS (150 SQ IN PER VENT).
4. ALL VENTS SHALL BE COVERED WITH CORROSION RESISTANT WIRE MESH WITH MAXIMUM OPENING OF 1/4" IN DIMENSION.
5. VAULTED CEILINGS SHALL HAVE A MINIMUM 1" AIR SPACE BETWEEN INSULATION AND ROOF SHEATHING.

NOTE: STRUCTURAL ENGINEERING DRAWINGS SUPERSEDE ARCHITECTURAL RELATED

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Date: 11/22/2022

Scale: 1/4" = 1' – 00"

DRAWING TITLE: PROPOSED ROOF PLAN

Sheet : 11 OF 19

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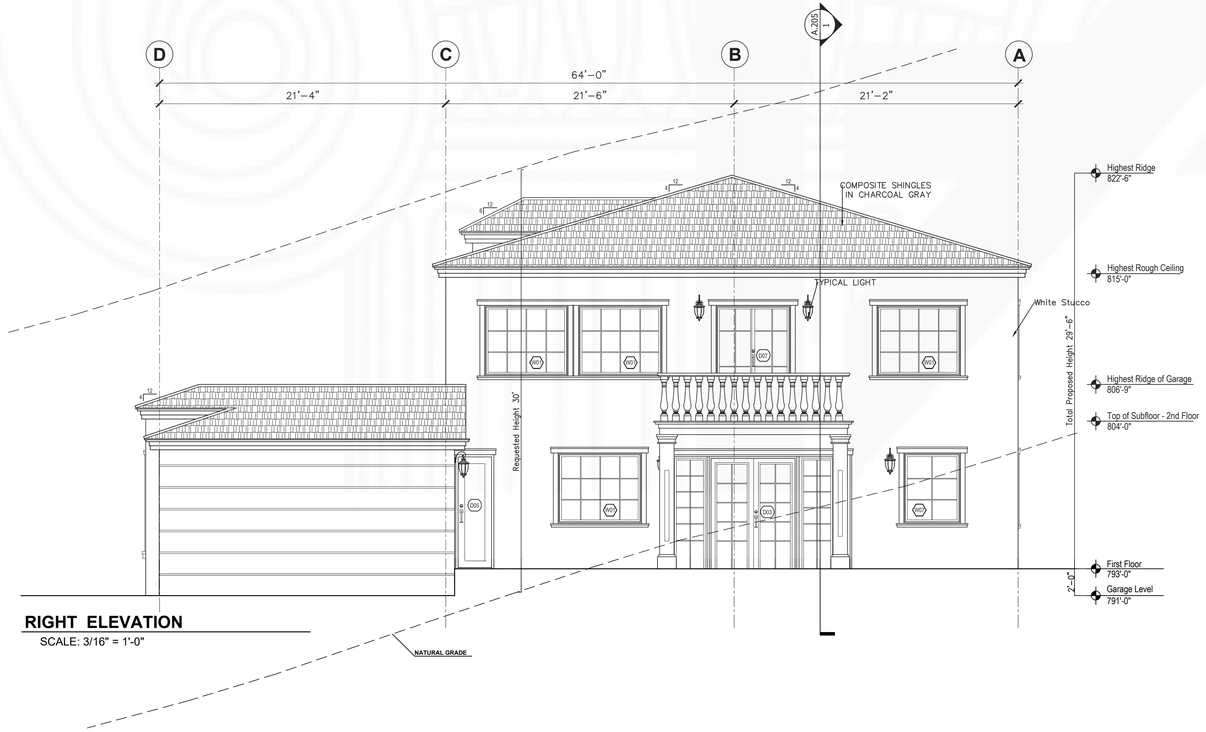
FRONT ELEVATION

SCALE: 3/16" = 1'-0"



RIGHT ELEVATION

SCALE: 3/16" = 1'-0"

NOTES:

1. ATTICS; ACCESS PER CRC R807, DRAFTSTOPS PER CRC R302.10 & R502.12 AND VENTILATION PER R806 & R408.1.
2. WHERE EMERGENCY ESCAPE AND RESCUE OPENINGS ARE PROVIDED, THEY SHALL HAVE THE BOTTOM OF THE CLEAR OPENING NOT GREATER THAN 44" MEASURED FROM THE FLOOR.
3. PER CRC 310.1.
4. GLAZING IN ENCLOSURES FOR OR WALLS FACING HOT TUBS, WHIRLPOOLS, SAUNAS, STEAM ROOMS, BATHTUBS AND SHOWERS WHERE THE BOTTOM EXPOSED EDGE IS LESS THAN 60" MEASURED VERTICALLY ABOVE A STANDING OR WALKING SURFACE. PER CRC R308, R303.1 7 R301.2.1.2.
5. FACTORY-BUILT FIREPLACES AND CHIMNEYS PER CRC R1004, R1005, R1006, A.Q.M.D. RULE 445, AND CAL-GREEN SECTION 4.503.1.
6. COMBUSTION AIR TO FORCED AIR UNIT PER CMC CHAPTER 7.
7. COMBUSTION AIR TO WATER HEATER PER CPC SECTION 507.0.
8. ENVIRONMENTAL AIR DUCTS PER CMC SECTION 504.
9. MECHANICAL EQUIPMENT LOCATION AND PROTECTION AGAINST DAMAGE PER CMC 307.
10. PER THE BUILD IT GREEN PROGRAM'S "GREENPOINT RATING CHECKLIST" SECTION P(D)2, MOISTURE MATERIALS SHALL BE USED IN WET AREAS (i.e. KITCHEN, BATHROOM, UTILITY ROOMS, ETC.)EXTERIOR DOOR LANDING SHALL BE A MAX. OF 7-¾" BELOW DOOR THRESHOLD PER CRC R311.3.2.
11. GRADE NEEDS TO FALL 6" WITHIN THE FIRST 10'
12. CONCRETE SLAB THICKNESS FOR PORCH AND PATIO SLAB SHALL BE 3½" MIN. REQUIRED PER R506.1

EXTERIOR ELEVATION NOTES:

1. NOTES AND SYMBOLS ARE TO APPLY AT ALL AREAS OF SIMILAR GRAPHIC REPRESENTATION. SUCH INDICATIONS MAY BE LIMITED TO PROMOTE CLARITY OR AVOID REDUNDANCY.
2. SLOPE FINISH GRADE 2% MINIMUM AWAY FROM BUILDING FOR 5'-0" MINIMUM, DIRECT DRAINAGE AWAY FROM BUILDING WALLS TO ELIMINATE PONDING.
3. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR GRILLES, REGISTERS, HORNS, SPEAKERS, PANELS, PULL STATIONS AND OTHER FEATURES NOT OTHERWISE SHOWN
4. FLASH AND SEAL ALL PENETRATIONS THROUGH EXTERIOR ROOFS AND WALLS, AND FLOORS WEATHER TIGHT AND WATERPROOF. PACK ALL PENETRATIONS THROUGH THE BUILDING INSULATION ENVELOPE WITH INSULATION.
5. FLASH ALL WINDOWS, DOORS, LOUVERS, ACCESS PANELS AND SIMILAR WALL OPENINGS PER DETAILS ON SHEET A500.
6. FIREBLOCKING, CBC 717.2.: PROVIDE MATERIALS COMPLYING WITH CBC 717.2.1 AT CONCEALED SPACES, FURRED SPACES, CEILING/FLOOR LEVELS AND 10'-0" INTERVALS ALONG LENGTH OF WALL, SOFFITS, DROP CEILINGS, AND COVE CEILINGS, CONCEALED PLACES BETWEEN STAIR STRINGERS & BETWEEN STUDS IN LINE WITH STAIR RUN, AND ALL LOCATIONS LISTED IN CBC 717.2.2 THROUGH 717.2.7.
7. FLOOR/CEILING DRAFTSTOPPING, CBC 717.3: PROVIDE MATERIALS COMPLYING WITH CBC 717.3.1. AT FLOOR/CEILING ASSEMBLIES AS REQUIRED BY CBC 717.3.2 THROUGH 717.3.3. -GROUP R-1, R-2, R-3, R-4

EXCEPTION: DRAFTSTOPPING NOT REQUIRED IN BUILDINGS SPRINKLERED PER CBC 903.3.1.1. WHEN SPRINKLERS ARE INSTALLED IN THE COMBUSTIBLE CONCEALED SPACES

8. ATTIC DRAFTSTOPPING, CBC 717.4: PROVIDE MATERIALS COMPLYING WITH CBC 717.3.1. IN ATTICS AND CONCEALED ROOF SPACES AS REQUIRED BY CBC 717.4.2 THROUGH 717.4.3. PROVIDE SELF-CLOSING DOORS WITH AUTOMATIC LATCHES CONSTRUCTED AS REQUIRED FOR DRAFTSTOPPING PARTITIONS.
9. REFER TO REFLECTED CEILING PLAN FOR LOCATION OF CLERESTORY WINDOWS, TYPICAL.
10. ELEVATIONS SHOWN ARE MEASURED FROM FINISHED FLOOR DATUM FOR THIS BUILDING.
11. NEW WORK PROVIDE BLOCKING, BACKING, FRAMING, SHEATHING, UTILITIES OR OTHER CONCEALED WORK, WHETHER SPECIFICALLY SHOWN OR INFERRED. REFER TO STRUCTURAL DRAWINGS FOR CONCEALED WORK NOT SHOWN ON ARCHITECTURAL DRAWINGS.
12. REMODEL/ADDITION WORK NEATLY CUT AND REMOVE SURFACES AND FINISHES AS REQUIRED OR TO A NATURAL POINT OF DIVISION TO ENABLE INSTALLATION OF BLOCKING, BACKING, FRAMING, SHEATHING, UTILITIES OR OTHER CONCEALED WORK, WHETHER SPECIFICALLY SHOWN OR INFERRED FOR SUPPORT OR RENOVATION. REFER TO STRUCTURAL DRAWINGS FOR CONCEALED WORK NOT SHOWN ON ARCHITECTURAL DRAWINGS.
13. REPAIR AND REPLACE ALL EXISTING SURFACES AND FINISHES TO MATCH EXISTING UNDISTURBED WORK.
14. ALL NEW ADDITION WORK FINISHES AND COLORS FOR SIDING, TRIM, WINDOWS, ROOFING, ETC. ARE TO MATCH EXISTING FINISHES AND COLORS.

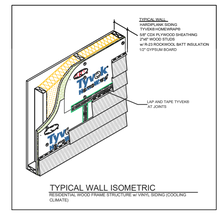
FINISH NOTES:

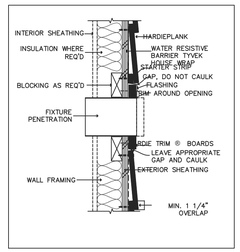
RENDERINGS ARE NOT TO SCALE; ALL RENDERINGS ARE FOR ARTISTIC DEPICTION ONLY. PLAN UPDATES MAY NOT BE REFLECTED IN RENDERINGS. RENDERINGS SHALL NOT BE USED FOR CONSTRUCTION.

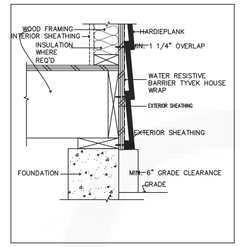
BASE BOARDS SHALL BE 6" IN ALL ROOMS, UNO.
FINAL FINISHES SHALL BE CONFIRMED WITH THE HOME OWNER PRIOR TO APPLICATION.

EXTERIOR FINISH NOTES:

EXTERIOR FINISH TO BE FIBER CEMENT SIDING OVER 5/8 CDX PLYWOOD. WINDOW & DOOR TRIM CEDAR. MATERIAL AND COLOR BY OWNER.
ROOFING TO BE STANDING SEAM METAL ROOFING OVER 30#FELT 5/8 .CDX PLYWOOD.
DECKING TO BE TREX OR WOOD .FINAL MATERIAL AND COLOR BY OWNER.
CHIMNEYS ARE DECORATIVE AND PROVIDE FOR VENTING OF GAS FIREPLACES ONLY.
DOWNSPOUTS TO BE COLLECTED AND ROOF RUN OFF TO BE DIRECTED AWAY FROM STRUCTURE PER THE SITE PLAN.
FINISH GRADE SHALL SLOPE AWAY FROM STRUCTURE MIN "1/2 .PER FOOT OF RUN FOR '4MIN.
BASALT RETAINING WALLS TO MATCH EXISTING RETAINING WALL.







SPANISH TILE
ROOF MATERIAL

SRI: 27
EMI: 0.90

DPIHACIENDA WALL
PANELING, WHITE STUCCO

Color: Basswood
LRV: 46
R201 G 177 B 150

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Project Name and Address:

22315 Regnart Rd, Cupertino, CA 95014
Swamy Kempa

Date: 11/22/2022

Scale: 3/16" = 1' - 00"

DRAWING TITLE: FRONT & RIGHT ELEVATIONS

Sheet : 12 OF 19

Page No. : A.204

No.	Revision/Issue	Date
1	CLIENT APPROVAL	

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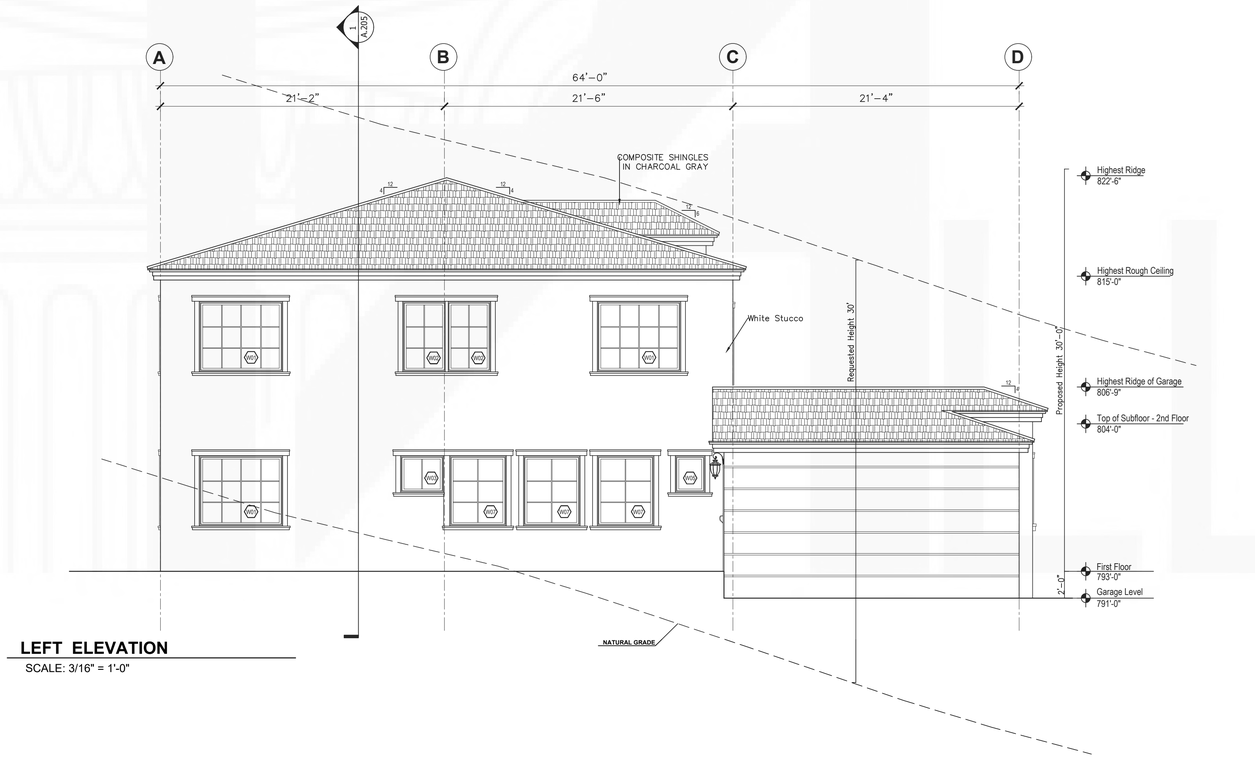
REAR ELEVATION

SCALE: 3/16" = 1'-0"



LEFT ELEVATION

SCALE: 3/16" = 1'-0"

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Project Name and Address:

22315 Regnart Rd, Cupertino, CA 95014
Swamy Kempa

Date: 11/22/2022

Scale: 3/16" = 1' – 00"

DRAWING TITLE: REAR & LEFT ELEVATIONS

Sheet : 13 OF 19

Page No. : A.205

No.	Revision/Issue	Date
1	CLIENT APPROVAL	

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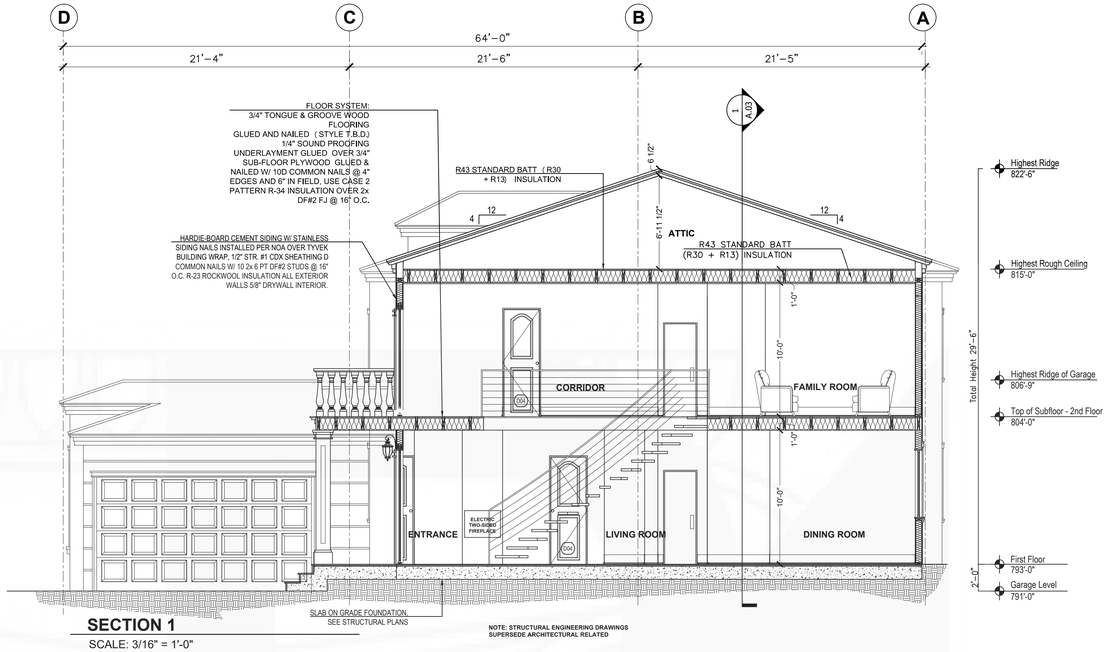
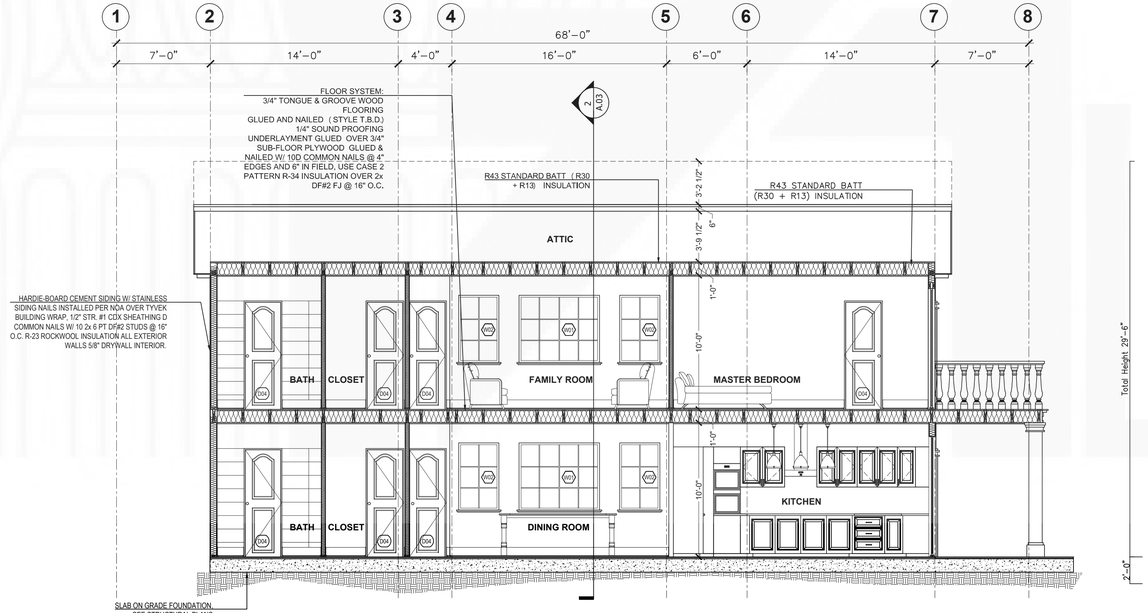


SECTION 1

SCALE: 3/16" = 1'-0"



SECTION 2

SCALE: 3/16" = 1'-0"

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Project Name and Address:

22315 Regnart Rd, Cupertino, CA 95014
Swamy Kempa

Date: 11/22/2022
Scale: 3/16" = 1' – 00"
DRAWING TITLE: SECTIONS
Sheet : 14 OF 19
Page No. : A.206

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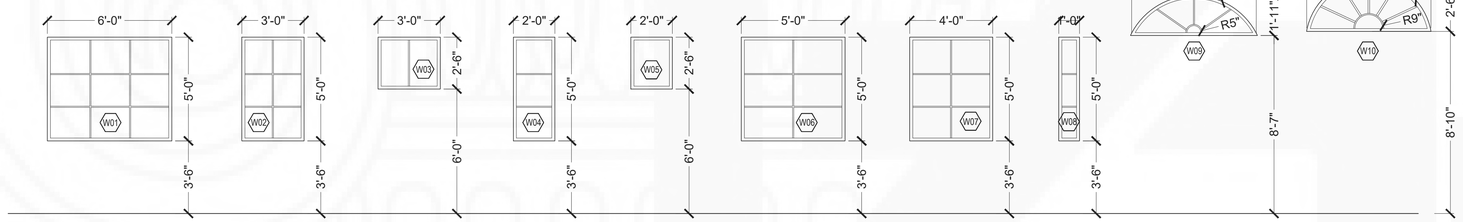
No.	Revision/Issue	Date
1	CLIENT APPROVAL	

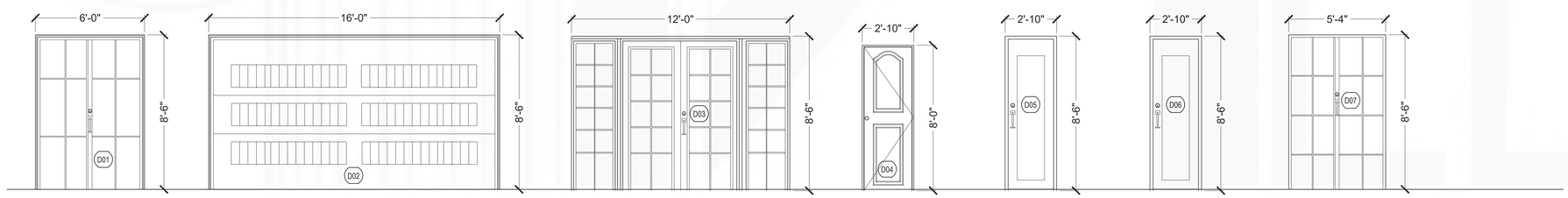
WINDOW SCHEDULE

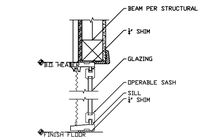
Number	Label	Qty	Floor	Width	Height	Egress	Description		Dimensions	Divided Lites	Glazing Type	SHGC	Tempered	U-Factor	Manufacturer	Comments
1	W01	11	1&2	72"	60"	N/A	Casement		72"x60"C	3/3	Double Pane	0.4	Temp. Glazing	0.35	to be chosen by owner	Bird Safe
2	W02	14	1&2	36"	60"	N/A	Casement		36"x60"C	2/3	Double Pane	0.4		0.35	to be chosen by owner	Bird Safe
3	W03	1	1&2	36"	30"	N/A	Single Hung		36"x30"SH	1/2	Double Pane	0.4	Temp. Glazing	0.35	to be chosen by owner	Bird Safe
4	W04	4	1&2	24"	60"	N/A	Casement		24"x60"C	1/3	Double Pane	0.4		0.35	to be chosen by owner	Bird Safe
5	W05	2	1&2	24"	30"	N/A	Single Hung		24"x30"SH	1/1	Double Pane	0.4	Temp. Glazing	0.35	to be chosen by owner	Bird Safe
6	W06	2	1	60"	60"	N/A	Casement		60"x60"C	3/2	Double Pane	0.4		0.35	to be chosen by owner	Bird Safe
7	W07	4	1	48"	60"	N/A	Casement		48"x60"C	3/2	Double Pane	0.4	Temp. Glazing	0.35	to be chosen by owner	Bird Safe
8	W08	7	2	12"	60"	N/A	Fixed Glass		12"x60"FG	3/1	Double Pane	0.4		0.35	to be chosen by owner	Bird Safe
9	W09	2	1	72"	23"	N/A	Fixed Glass		72"x23"FG	-	Double Pane	0.4		0.35	to be chosen by owner	Bird Safe
10	W10	1	2	72"	30"	N/A	Fixed Glass		72"x30"FG	-	Double Pane	0.4		0.35	to be chosen by owner	Bird Safe

DOOR SCHEDULE

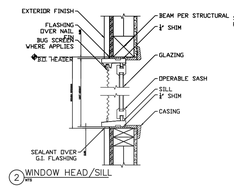
Number	Label	Qty	Floor	Width	Height	Description	Egress	Thickness	Manufacturer	Comments	EX/IN	Finish	Floor	SHGC	Swing Side	U-Factor
D01	6086	1	1	72"	102"	Hinged-Door	N/A	1 3/8"	to be chosen by owner	Entrance	EX	Color - White	1	0.4	In	0.35
D02	16086	2	1	192"	102"	Roll-Up	N/A	1 3/8"	to be chosen by owner	Garage	EX	Color - White	1	0.4	-	0.35
D03	12086	1	1	144"	102"	Sliding-Door	N/A	1 3/4"	to be chosen by owner	Living Room	EX	Color - White	1	0.3	-	0.35
D04	21080	18	1&2	34"	96"	Hinged-Door	N/A	1 3/4"	to be chosen by owner	Bedrooms, Bathrooms & Closets	IN	Color - White	1&2	0.3	In	0.35
D05	21086	1	1	34"	102"	Hinged-Door	YES	1 3/4"	to be chosen by owner	Laundry	EX	Color - White	1	0.3	Out	0.35
D06	21086	2	1	34"	102"	Hinged-Door	N/A	1 3/4"	to be chosen by owner	Garage	EX	Color - White	1	0.3	In	0.35
D07	5486	1	2	64"	102"	Hinged-Door	N/A	1 3/4"	to be chosen by owner	Bedroom & Corridor	EX	Color - White	2	0.3	In	0.35



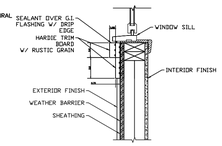




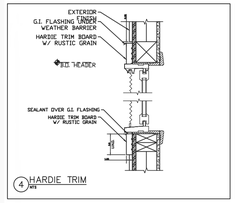
1 SLIDING GLASS DOOR HEAD/SILL



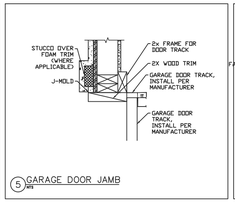
2 WINDOW HEAD/SILL



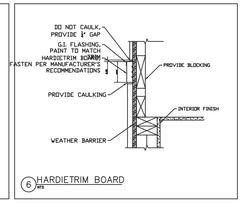
3 HARDIE SILL



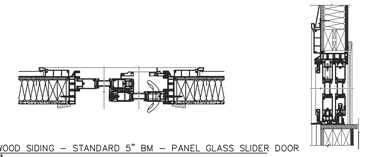
4 HARDIE TRIM

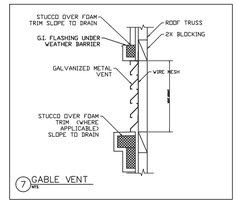


5 GARAGE DOOR JAMB



6 HARDIETRIM BOARD


8 WOOD SIDING – STANDARD 5" BM – PANEL GLASS SLIDER DOOR



7 GABLE VENT

ENERGY NOTES

1. ALL OPENABLE WINDOWS AND SLIDING DOORS SHALL LIMIT AIR LEAKAGE AND BE CERTIFIED AND LABELED TO COMPLY WITH ANSI STANDARD AIS 4.2-1972.
2. FIXED WINDOWS SHALL BE SEALED TO LIMIT AIR INFILTRATION.
3. ALL EXTERIOR DOORS AND WINDOWS ARE TO BE WEATHERSTRIPPED.
4. SITE BUILT DOORS MOUNTED ON THE INSIDE OR THE OUTSIDE OF EXTERIOR WALLS SHALL HAVE A MIN. 1" LAP AT JAMPS.
   OPEN EXTERIOR JOINTS AROUND WINDOW AND DOOR FRAMES BETWEEN WALLS, FOUNDATIONS, ROOFS, PANELS, AND AT PENETRATION OF UTILITIES THRU THE ENVALOPE, SHALL BE SEALED, CAULKED, OR WEATHERSTRIPPED TO LIMIT AIR LEAKAGE.
   PROVIDE A "CERTIFICATE OF COMPLIANCE" SIGNED BY THE OWNER, G.C., ARCHITECT, OR ENGINEER TO THE BLDG. DEPARTMENT STATING THAT THE WORK HAS BEEN PERFORMED AND MATERIALS INSTALLED ACCORDING TO THE PLANS AND SPECIFICATIONS AFFECTING NON-

   INSULATION SHALL BE INSTALLED TO MEET FLAME SPREAD AND SMOKE DENSITY REQUIREMENTS

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www.pixelarchltd.com

Project Name and Address:

22315 Regnart Rd, Cupertino, CA 95014
Swamy Kempa

Date: 11/22/2022
Scale: N.T.S

DRAWING TITLE: DOORS & WINDOWS SCHEDULE

Sheet : 15 OF 19
Page No. : A.301

No.	Revision/Issue	Date
1	CLIENT APPROVAL	

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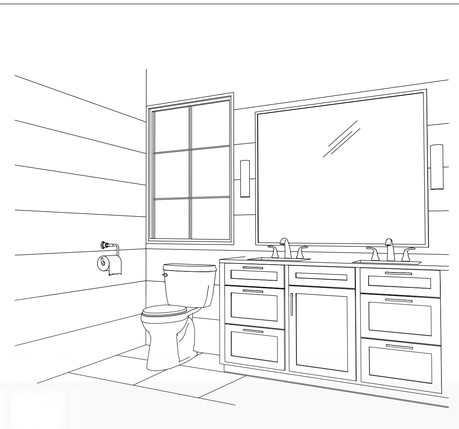
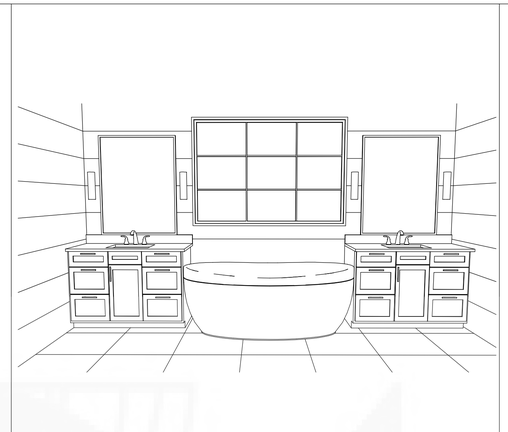
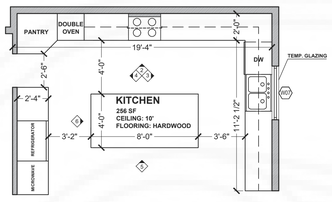
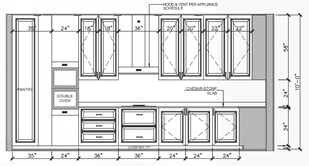


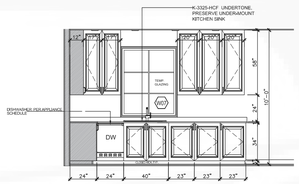




1 KITCHEN PLAN
SCALE:1/2" = 1'-0"



2 ELEVATION A
SCALE:1/2" = 1'-0"



3 ELEVATION B
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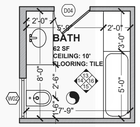
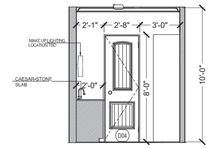


12 ELEVATION C
SCALE:1/2" = 1'-0"



13 ELEVATION C
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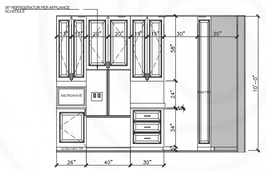

4 ELEVATION C
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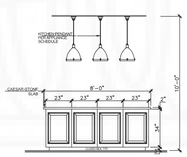

5 ELEVATION D
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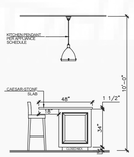

6 ELEVATION E
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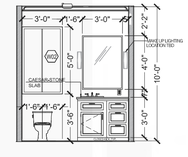

14 ELEVATION C
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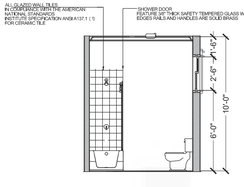

15 ELEVATION C
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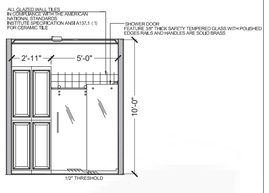

16 ELEVATION C
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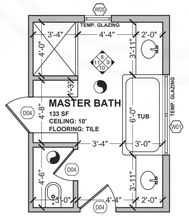
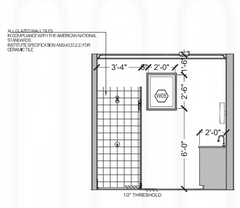


7 MASTER BATHROOM PLAN
SCALE:1/2" = 1'-0"



8 ELEVATION A
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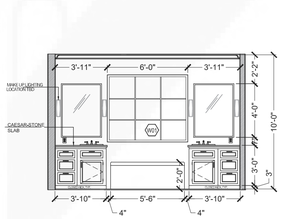

9 ELEVATION B
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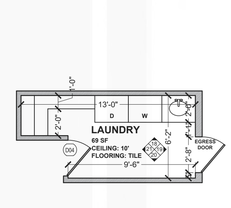
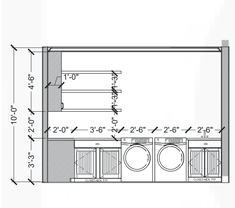


17 ELEVATION B
SCALE:1/2" = 1'-0"



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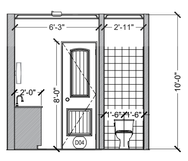

10 ELEVATION C
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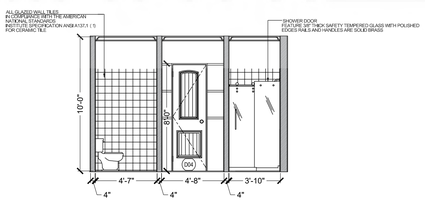
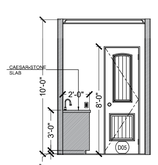
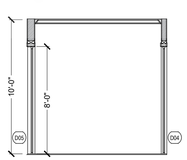


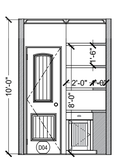
11 ELEVATION D
SCALE:1/2" = 1'-0"



19 ELEVATION B
SCALE:1/2" = 1'-0"



20 ELEVATION B
SCALE:1/2" = 1'-0"



21 ELEVATION B
SCALE:1/2" = 1'-0"

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Swamy Kempa

Date: 11/22/2022

Scale: 3/16" = 1' - 00"

DRAWING TITLE:
KITCHEN, BATH & LAUNDRY LAYOUTS

Sheet : 16 OF 19

Page No. : A.302

No.	Revision/Issue	Date
1	CLIENT APPROVAL	

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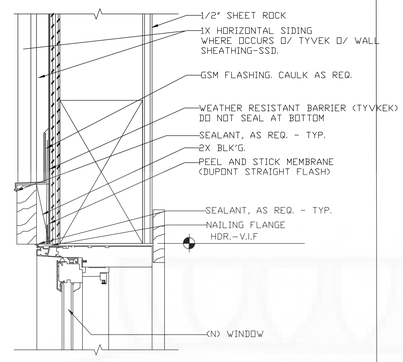
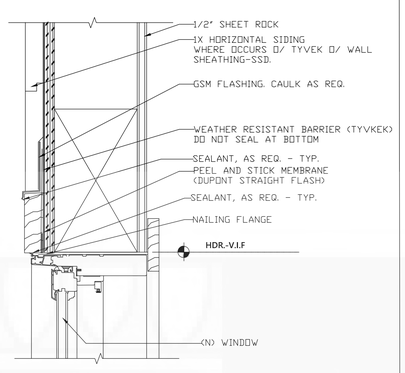
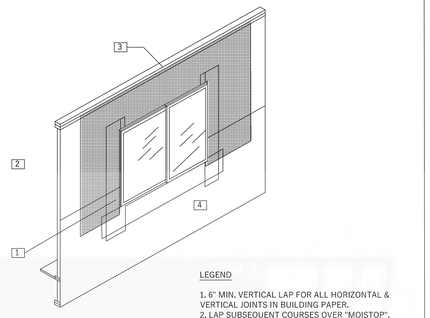


WINDOW HEAD @ WD. BOARD & BATTEN SIDING 12



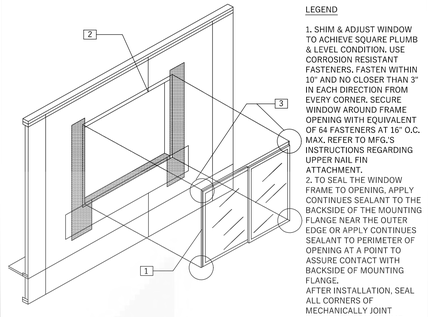
WINDOW HEAD @ HORIZONTAL SIDING 9



LEGEND

1. 6" MIN. VERTICAL LAP FOR ALL HORIZONTAL & VERTICAL JOINTS IN BUILDING PAPER.
2. LAP SUBSEQUENT COURSES OVER "MOISTOP".
3. CARRY PAPER TO UPPER EDGE OF TOP PLATE.
4. HOLD PAPER BACK 1" FROM WINDOW.

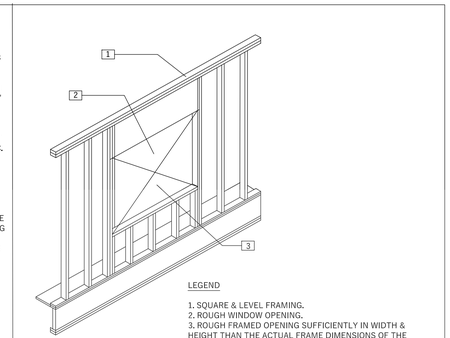
BUILDING PAPER-SECOND COURSE 7



LEGEND

1. SHIM & ADJUST WINDOW TO ACHIEVE SQUARE PLUMB & LEVEL CONDITION. USE CORROSION RESISTANT FASTENERS. FASTEN WITHIN 10" AND NO CLOSER THAN 3" IN EACH DIRECTION FROM EVERY CORNER. SECURE WINDOW AROUND FRAME OPENING WITH EQUIVALENT OF 64 FASTENERS AT 16" O.C. MAX. REFER TO MFG.'S INSTRUCTIONS REGARDING UPPER NAIL FIN ATTACHMENT.
2. TO SEAL THE WINDOW FRAME TO OPENING, APPLY CONTINUES SEALANT TO THE BACKSIDE OF THE MOUNTING FLANGE NEAR THE OUTER EDGE OR APPLY CONTINUES SEALANT TO PERIMETER OF OPENING AT A POINT TO ASSURE CONTACT WITH BACKSIDE OF MOUNTING FLANGE.
AFTER INSTALLATION, SEAL ALL CORNERS OF MECHANICALLY JOINT FRAMES TO SEAL FRAME SEAM JUNCTURE.

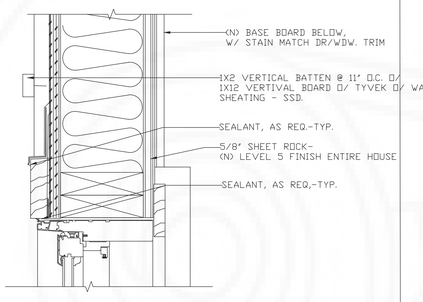
WINDOW INSTALLATION 4



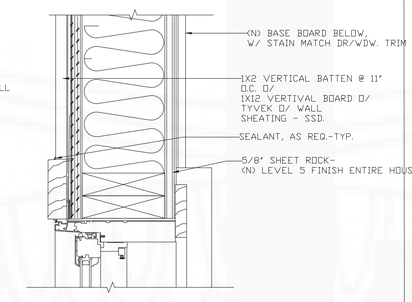
LEGEND

1. SQUARE & LEVEL FRAMING.
2. ROUGH WINDOW OPENING.
3. ROUGH FRAMED OPENING SUFFICIENTLY IN WIDTH & HEIGHT THAN THE ACTUAL FRAME DIMENSIONS OF THE WINDOW. TO ASSURE ADEQUATE CLEARANCE CONSULT THE WINDOW MANUFACTURED'S LITERATURE FOR THE RECOMMENDED ROUGH OPENING DIMENSIONS.

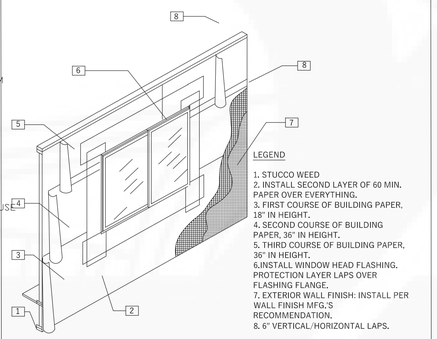
ROUGH WINDOW OPENING 1



WINDOW JAMB @ WD. BOARD & BATTEN SIDING 13



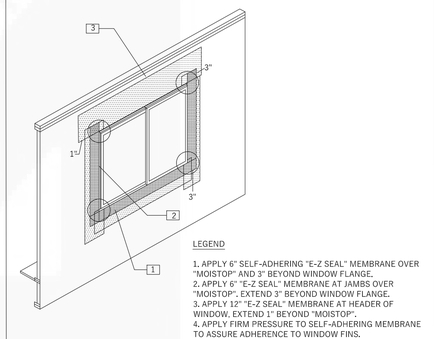
WINDOW JAMB@HORIZONTAL SIDING 10



LEGEND

1. STUCCO WEED
2. INSTALL SECOND LAYER OF 60 MIN. PAPER OVER EVERYTHING.
3. FIRST COURSE OF BUILDING PAPER, 18" IN HEIGHT.
4. SECOND COURSE OF BUILDING PAPER, 36" IN HEIGHT.
5. THIRD COURSE OF BUILDING PAPER, 36" IN HEIGHT.
6.INSTALL WINDOW HEAD FLASHING. PROTECTION LAYER LAPS OVER FLASHING FLANGE.
7. EXTERIOR WALL FINISH: INSTALL PER WALL FINISH MFG.'S RECOMMENDATION.
8. 6" VERTICAL/HORIZONTAL LAPS.

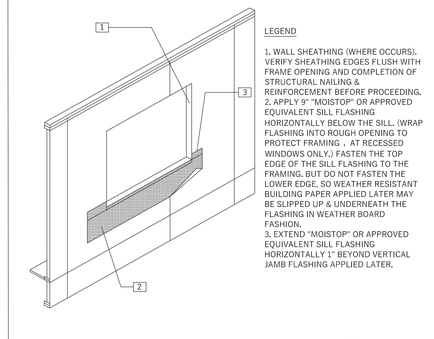
TRIM-FLASHING-PROTECTION COURSE 8



LEGEND

1. APPLY 6" SELF-ADHERING "E-Z SEAL" MEMBRANE OVER "MOISTOP" AND 3" BEYOND WINDOW FLANGE.
2. APPLY 6" "E-Z SEAL" MEMBRANE AT JAMBS OVER "MOISTOP", EXTEND 3" BEYOND WINDOW FLANGE.
3. APPLY 12" "E-Z SEAL" MEMBRANE AT HEADER OF WINDOW, EXTEND 1" BEYOND "MOISTOP".
4. APPLY FIRM PRESSURE TO SELF-ADHERING MEMBRANE TO ASSURE ADHERENCE TO WINDOW FINS.
5. CECH ALL CORNERS FOR PROPER SEAL OF SELF-ADHERING MEMBRANE.

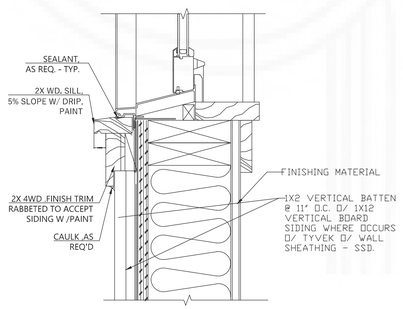
SELF-ADHESIVE MEMBRANE 5



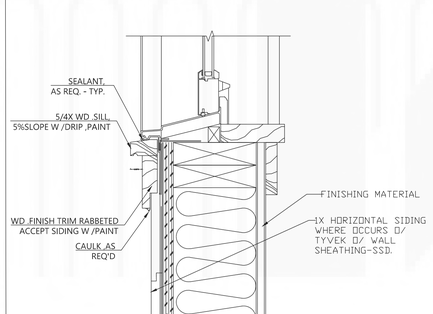
LEGEND

1. WALL SHEATHING (WHERE OCCURS). VERIFY SHEATHING EDGES FLUSH WITH FRAME OPENING AND COMPLETION OF STRUCTURAL NAILING & REINFORCEMENT BEFORE PROCEEDING.
2. APPLY 9" "MOISTOP" OR APPROVED EQUIVALENT SILL FLASHING HORIZONTALLY BELOW THE SILL. (WRAP FLASHING INTO ROUGH OPENING TO PROTECT FRAMING , AT RECESSED WINDOWS ONLY.) FASTEN THE TOP EDGE OF THE SILL FLASHING TO THE FRAMING. BUT DO NOT FASTEN THE LOWER EDGE. SO WEATHER RESISTANT BUILDING PAPER APPLIED LATER MAY BE SLIPPED UP & UNDERNEATH THE FLASHING IN WEATHER BOARD FASHION.
3. EXTEND "MOISTOP" OR APPROVED EQUIVALENT SILL FLASHING HORIZONTALLY 1" BEYOND VERTICAL JAMB FLASHING APPLIED LATER.

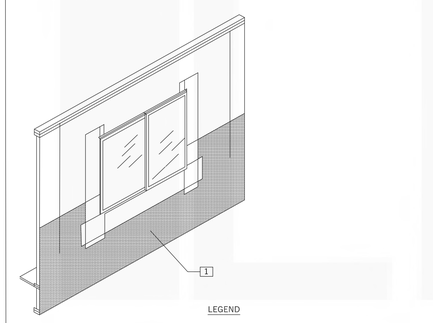
SILL FLASHING 2



WINDOW SILL @ WD. BOARD & BATTEN SIDING 14



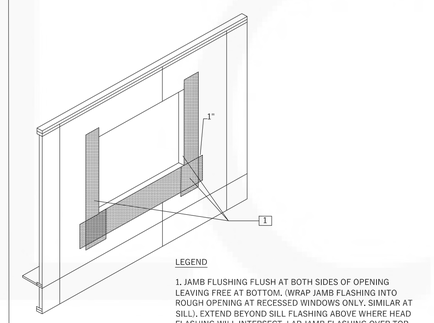
WINDOW SILL @ HORIZONTALN SIDING 11



LEGEND

1. INSERT FIRST COURSE 60 MIN. PAPER UNDER "MOISTOP" AND STAPLE "MOISTOP".

BUILDING PAPER- FIRST COURSE 6



LEGEND

1. JAMB FLUSHING FLUSH AT BOTH SIDES OF OPENING LEAVING FREE AT BOTTOM. (WRAP JAMB FLASHING INTO ROUGH OPENING AT RECESSED WINDOWS ONLY. SIMILAR AT SILL). EXTEND BEYOND SILL FLASHING ABOVE WHERE HEAD FLASHING WILL INTERSECT. LAP JAMB FLASHING OVER TOP SILL FLASHING. LEAVE PAPER FLASHING UNATTACHED FROM SILL DOWN.

JAMB FLASHING 3

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Date: 11/22/2022
Scale: N.T.S

DRAWING TITLE:
BUILDING PAPER/ HOUSE WRAP
DETAILS AROUND WINDOWS

Sheet : 17 OF 19
Page No. : A. 401

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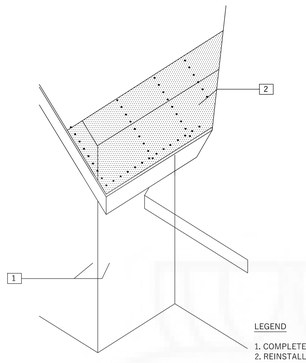
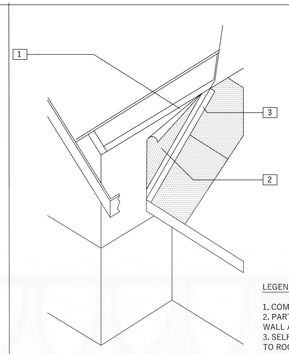
No.	Revision/Issue	Date
1	CLIENT APPROVAL	



LEGEND

1. COMPLETE INSTALL OF STUCCO.
2. REINSTALL PLY AFTER STUCCO IS INSTALLED.

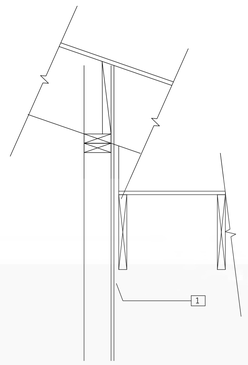
FINAL ROOF SHEATHING 7



LEGEND

1. COMPLETE PAPERING OF WALL.
2. PARTIAL INSTALL 30# ROOF FELT 18" UP WALL AND 24" ON ROOF TOP.
3. SELF-ADHERING MEMBRANE 3" ON WALL TO ROOF.

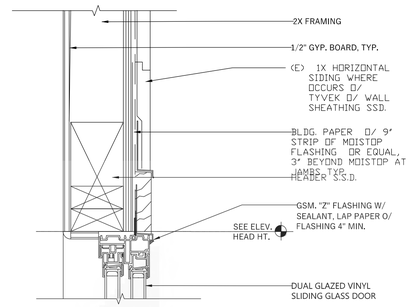
BUILDING PAPER TO WALL 4



LEGEND

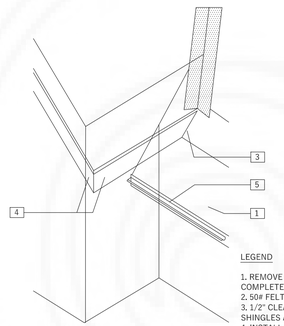
1. 1/2" CLEARANCE BETWEEN WALL AND ROOF SHEATHING.

ROOF TO WALL 1



SLIDING GLASS DOOR HEAD/JAMB 18

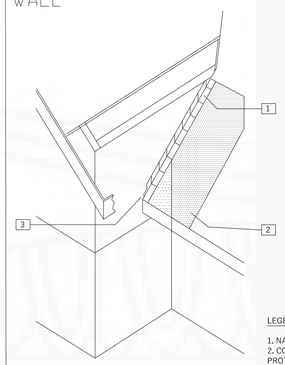
15



LEGEND

1. REMOVE PROTECTION BOARD & COMPLETE ROOFING FELT.
2. 50# FELT OVER WOVEN 30# VALLEY.
3. 1/2" CLEARANCE BETWEEN ROOF SHINGLES AND FASCIA.
4. INSTALL FINISH FASCIAS.
5. INSTALL GUTTERS.

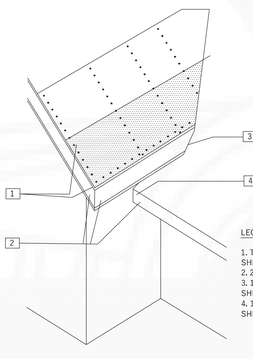
FINISH APPLICATION 8



LEGEND

1. NAIL G.I. FLASHING TO WALL.
2. COVER ROOF FELT WITH PROTECTION BOARD.
3. DIVERTER STEP FLASHING.

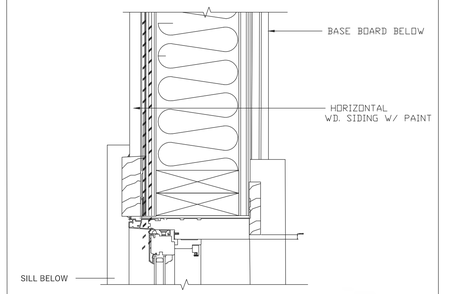
STEP FLASHING 5



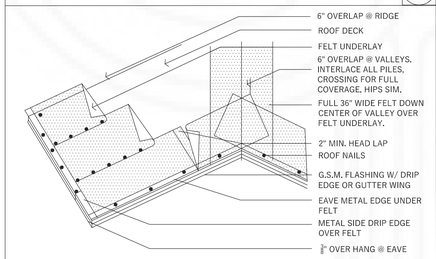
LEGEND

1. TACK NAIL LOWER EPIC OF ROOF SHEATHING.
2. 2X ROUGH FASCIA.
3. 1 1/2" CLEARANCE BETWEEN FASCIA AND SHEATHING.
4. 1 1/2" CLEARANCE BETWEEN WALL SHEATHING & ROOF RAFTER.

ROUGH FRAMING 2



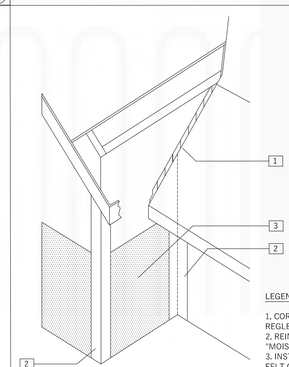
TYP. DOOR JAMB @ HORIZONTAL WD. SIDING 16



APPLICATION NOTES FOR LOW SLOPE, 2:12 TO LESS THAN 4:12 :

1. START W/ 1-19" WIDE SHEET OF FELT ALONG EAVE W/ ¾" OVERHANG.
2. TROWEL A CONTINUOUS LAYER OF ROOFING CEM. (@ A RATE OF 2 GAL. PER 100 SQ. FT) ON TO THE FELT.
3. PRESS 1-36" WIDE SHEET OF FELT FIRMLY ONTO THE CEM., & NAIL DOWN W/ GALV. ROOFING NAILS @ 12" O.C. ALONG A LINE 18" ABOUT THE BTM. EDGE OF THE FELT.
4. APPLY ROOFING CEM. TO THE UPPER 19" OF THE EXPOSED FELT.
5. COVER THE CEMENTED PORTION W/ THE NEXT SHEET OF FELT & NAILS.
6. REPEAT PROCESS UNTIL 24" INSIDE THE INTERIOR WALL LINE.
7. COVER THE REMAINING ROOF W/ DBL. LAYERS OF FELT. W/O CEM., UP TO THE RIDGE.

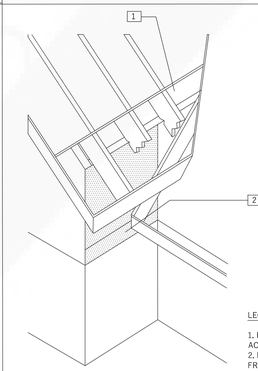
FELT UNDERLAYMENT 9



LEGEND

1. CORNER FLASH FLASHING WITH G.I. REGLET,
2. REINFORCE CORNERS WITH 12" "MOISTOP".
3. INSTALL SECOND COURSE OF 60 MINUTE FELT OVER REGLET AND STUCCO WEEP SCREED.

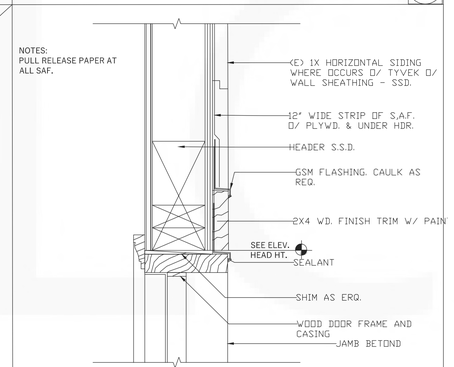
CORNER FLASHING 6



LEGEND

1. ROOF PLY TEMPORARILY MOVED FOR ACCESS.
2. INSTALL CONTINUOUS PIECE OF FELT FROM CORNER TO CORNER EXTENDING UP TO TOP PLATE,

FELT APPLICATION 3



DOOR HEAD/JAMB 17

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DRAWING TITLE:
BUILDING PAPER/ HOUSE WRAP DETAILS AROUND WALL TO ROOF TRANSITION

Sheet : 18 OF 19

Page No. : A.402

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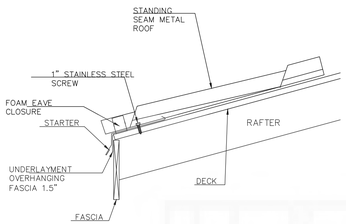
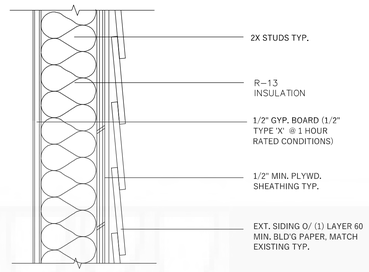
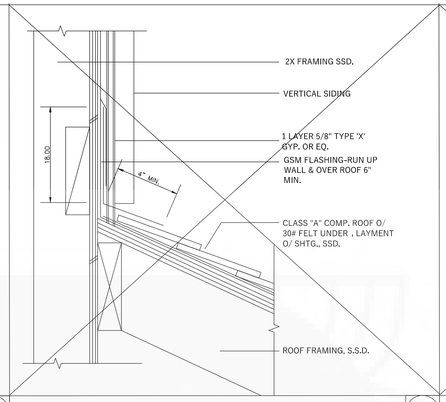


22 HORIZONTAL LAP SIDING



19 ROOF TO WALL PERP.



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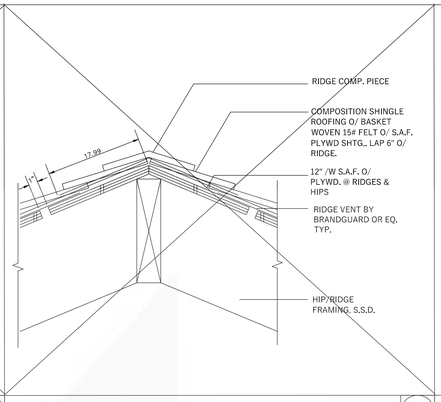
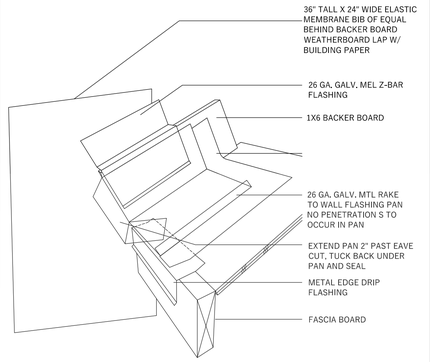


13 RAKE TO WALL DIVERTER



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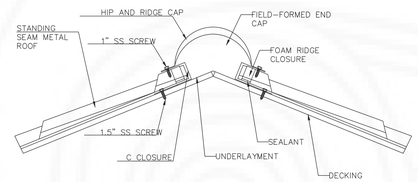
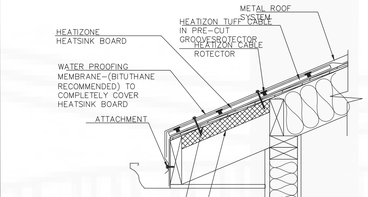


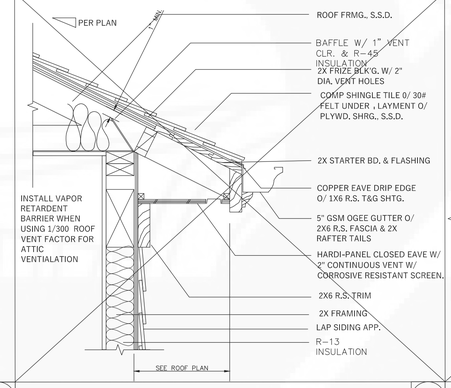
RIDGE CAP DETAIL

23

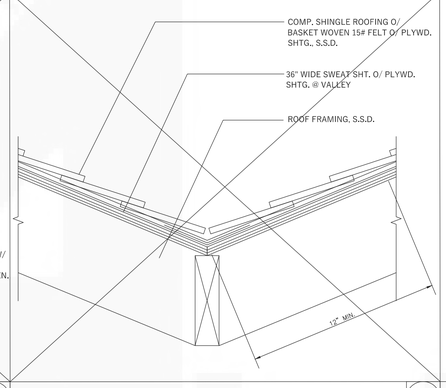


EAVE DETAIL-TUFF CABLE IN HEATSINK UNDER METAL ROOF

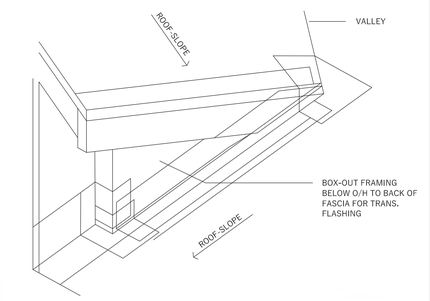
20



17 VALLEY



14 RAKE TO EAVE TRANSITION



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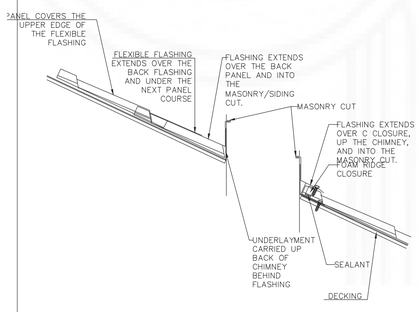
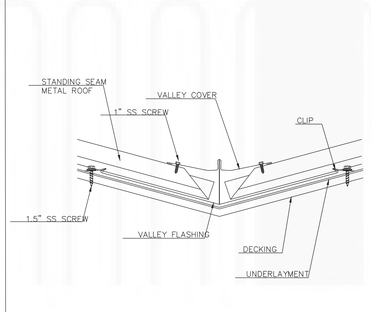


METAL ROOF CHIMNEY FLASHING DETAILS

24



METAL ROOF VALLEY DETAIL

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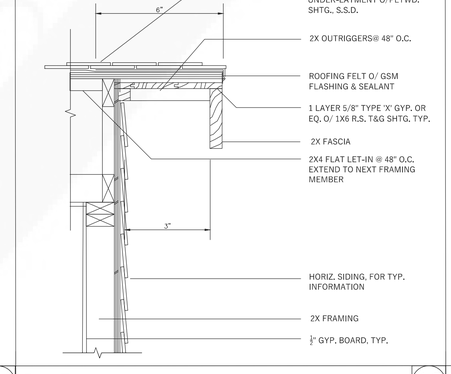

RAKE

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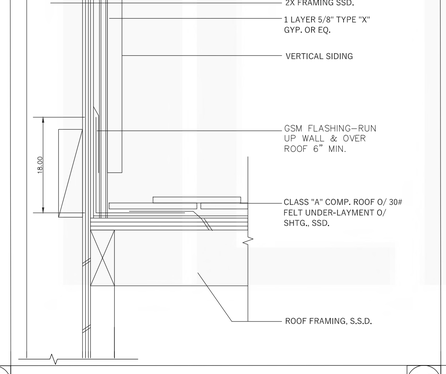

ROOF TO WALL PARALLEL

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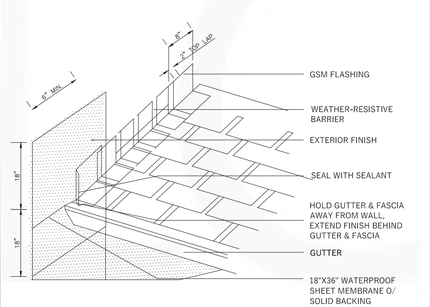

ISOMETRIC EAVE PERP. TO WALL @ COMP

12

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Project Name and Address:

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Swamy Kempa

Date: 11/22/2022
Scale: N.T.S
DRAWING TITLE: BUILDING PAPER/ HOUSE WRAP DETAILS AT WALL TO ROOF TRANSITION
Sheet : 19 OF 19
Page No. : A.403

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No.	Revision/Issue	Date
1	CLIENT APPROVAL	

SINGLE FAMILY HOME
22315 REGNART ROAD CUPERTINO CA 95014

SITE INFORMATION

Parcel Number (APN):	366-02-032Assessor's Map
APN Suffix:	22315
Land Use:	Low-Density Residential
Earthquake Fault Hazard Zones	No
Liquefaction	No
Military Operations Areas	No
Tsunami Inundation	No
Site Address:	22315 REGNART RD CUPERTINO CA 95014-4824
Recorded Size (Assessor Database):	231,739 sq. ft. / 5.3 acres
TRA:	13021
Zoning:	INCORPORATED
Supervisor District:	5
Fire Protection District:	Santa Clara County Central Fire Protection District
Geohazard:	County landslide hazard zone
Geohazard:	State seismic hazard zone (earthquake induced landslides)
Historic Parcel:	NO
FEMA Flood Zone:	D (96.3%), X (3.7%)
Watershed:	San Francisco Bay
Rain isohyet:	25 inches
Nearest named creek:	REGNART CREEK (0 feet)
Nearest named lake:	Stevens Creek Reservoir (3111 feet)

SCOPE OF WORK:

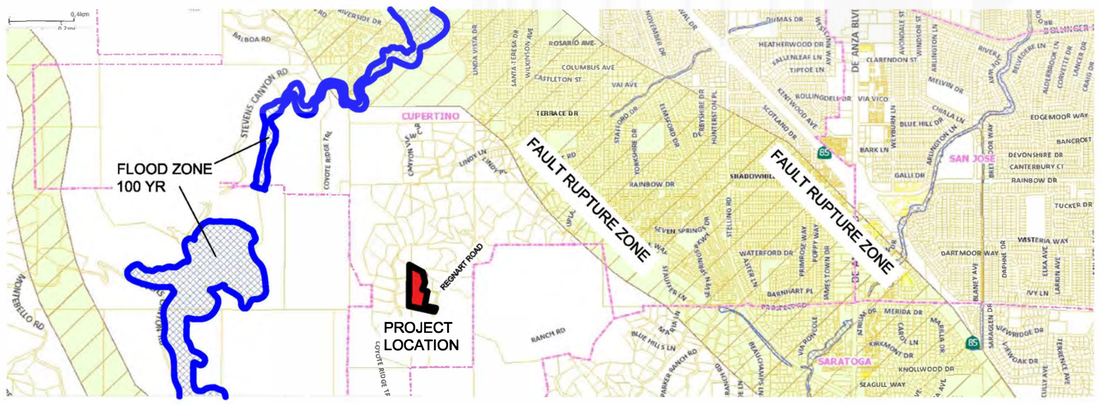
PROPOSING A NEW 5 BEDS 4 BATHS 2 STORY SINGLE FAMILY HOME & 4-CAR GARAGE

BUILDING CODE STANDARDS:

2019 CALIFORNIA BUILDING CODE, VOLUMES 1 & 2
2019 CALIFORNIA RESIDENTIAL CODE
2019 CALIFORNIA ELECTRICAL CODE
2019 CALIFORNIA MECHANICAL CODE
2019 CALIFORNIA PLUMBING CODE
2019 CALIFORNIA ENERGY CODE
2019 CALIFORNIA FIRE CODE
2019 CALIFORNIA REFERENCED STANDARDS CODE

SHEET LIST

C1	GENERAL NOTES
C2	EXISTING CONDITIONS
C3	PROPOSED GRADE (GRADING PLAN)
C4	DRAINAGE AREA MAP
C5	EROSION & SEDIMENTATION CONTROL
C6	EROSION & SEDIMENTATION CONTROL DETAILS
C7	UTILITY PLAN
C8	SITE PLAN
C9	DRIVEWAY PROFILE
L1	LANDSCAPE PLAN



REGISTERED PROFESSIONAL ENGINEER
BARRETT CROOK
C 057196
Exp. 12-31-2023
4-13-2022
CIVIL
STATE OF CALIFORNIA

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Scale:

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Page No. :

GENERAL NOTES:

1. THESE DRAWINGS HAVE BEEN PREPARED FOR THE SOLE USE OF THE OWNER AND BASED THE OWNER'S COMMENTS AND REQUEST. THE ENGINEER ACCEPTS NO RESPONSIBILITY OR LIABILITY FOR THE ACCURACY OF THE EXISTING CONDITIONS, PLAN REVIEW, AND COMPLETENESS OF THE INFORMATION SHOWN ON THE PLANS.
2. ALL MATERIALS AND CONSTRUCT ION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL COMPLY WITH:
   A. CURRENT CITY OF CUPERTINO BUILDING PERMIT APPLICATIONS AND STANDARDS AS OF THE DATE OF THIS CONTRACT.
   B. THE MOST CURRENT EDITION OF THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS) STANDARD SPECIFICATIONS.
   C. THE ADOPTED EDITION OF THE STATE OF CALIFORNIA BUILDING CODES ALONG WITH THE SPECIFIC CODE MODIFICATIONS ADOPTED BY THE CUPERTINO COUNTY.
3. CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES , FEES, AND TAXES AND GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DUE AND LAWFUL PROSECUTION OF THE WORK.
4. ANY EXISTING OFF-SITE IMPROVEMENTS THAT ARE DAMAGED OR UNDERCUT BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER AND APPROVED BY THE OWNER OF THE EXISTING IMPROVEMENT AT THE CONTRACTOR'S EXPENSE (NO SEPARATE PAY ITEM).
5. WORK COMPLETED BY THE CONTRACTOR WHICH HAS NOT RECEIVED A WORK ORDER OR CONSENT OF THE OWNER OR ENGINEER WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.
6. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON PROJECT COMPLETION. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIAL IN ANY 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT.
7. BARRICADES AND WARNING SIGNS SHALL CONFORM TO THE CALTRANS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (CA MUTCD) AND SHALL BE LOCATED TO PROVIDE MAXIMUM PROTECTION TO THE PUBLIC AS WELL AS CONSTRUCTION PERSONNEL AND EQUIPMENT WHILE PROVIDING CONTINUOUS TRAFFIC FLOW AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL DEVICES DURING CONSTRUCTION.
8. CONTRACTOR IS REQUIRED TO VERIFY PROJECT ELEVATIONS. THE TERM "MATCH EXISTING" SHALL BE UNDERSTOOD TO SIGNIFY BOTH HORIZONTAL AND VERTICAL ALIGNMENT.
9. WHEN MATCHING EXISTING PAVEMENTS. CURBS, DRIVES, AND WALKS, THEY SHALL BE SAW CUT FULL DEPTH AND REMOVED TO ALLOW FOR PROPOSED CONSTRUCTION. IF ANY EXISTING JOINT IS ENCOUNTERED, PRECAUTION SHALL BE TAKEN DURING REMOVAL OF CONCRETE SO AS NOT TO DAMAGE EXISTING DOWELS. ALL EXISTING DOWELS SHALL BE EXPOSED AND CLEANED.
10. ALL "COMPACTED SUBGRADE" SHALL CONSIST OF NATIVE MATERIAL SCARIFIED TO A MINIMUM DEB OF SIX INCHES AND COMPACTED TO 95% DENSITY ACCORDING TO ASTM D-698 AND TESTED BY ASTM D-2922.
11. ALL "FLEXIBLE BASE" SHALL BE TYPE "A", GRADE 1, COMPACTED TO 100% MODIFIED DENSITY AT A MOISTURE CONTENT BETWEEN -2 AND +3 OF OPTIMUM PERCENT MOISTURE ACCORDING TO ASTM D-1557 (MODIFIED PROCTOR) AND TESTED BY ASTM D-2922.
12. ASPHALT PAVEMENT SHALL BE THE TYPE SPECIFIED ON THE PLANS AND ACCORDING TO CALTRANS "HOT MIX ASPHALT CONCRETE PAVEMENT".
13. PRIME COAT USING MC-30 AT A RATE OF 0.2 GALLONS PER SQUARE YARD SHALL BE PLACED OVER PREPARED BASE AT LEAST ONE DAY PRIOR TO LAYING ASPHALTIC CONCRETE PAVEMENT. ANY NECESSARY TACK COAT SHALL BE MC-30 AT 0.05 GALLONS PER SQUARE YARD.
14. CONCRETE SHALL BE CLASS "A" UNLESS OTHERWISE ON PLANS.
15. REINFORCING STEEL SHALL BE FROM NEW BILLET. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS EXCEPT WHEN REFERRING TO CLEARANCE.
16. ALL SAWED JOINTS SHALL BE SAWED WITHIN 24 HOURS OF POURING.
17. ORDINARY COMPACTION CONTROL IS REQUIRED ON THIS PROJECT.
18. ALL ROLLING FOR COMPACTION OF ASPHALTIC CONCRETE PAVEMENT SHALL BE COMPLETED BEFORE THE MIXTURE TEMPERATURE DROPS BELOW 175 DEG. (F).
19. CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND SHALL NOT BE LIMITED TO THE NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNERS AND THE ENGINEER AND HIS EMPLOYEES, PARTNERS, OFFICES, DIRECTORS, OR CONSULTANTS, HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPTING FROM LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE OWNER OR ENGINEER, ENGINEER'S DIRECTORS, OFFICERS, EMPLOYEES, OR CONSULTANTS.
20. ALL CMP (CORRUGATED METAL PIPE) USED ON THIS PROJECT SHALL HAVE A MANNING'S "N" VALUE OF 0.024, UNLESS OTHERWISE SHOWN ON PLANS.
21. ALL COST ASSOCIATED WITH THE REMOVAL, REPLACEMENT AND TESTING SHALL BE PAID BY THE CONTRACTOR.
22. ALL PVC SLEEVES SHALL BE INSTALLED THREE FEET (3') BELOW FINISHED GRADE AND ENDS SHALL BE MARKED SO THAT LOCATIONS OF SLEEVES CAN BE EASILY IDENTIFIED.

EROSION / SEDIMENTATION CONTROL NOTES:

- AT A MINIMUM, THESE CONTROLS SHALL CONSIST OF ROCK BERMS AND/OR SILT FENCES CONSTRUCTED PARALLEL TO AND DOWN GRADIENT FROM THE TRENCHES. THE ROCK BERMS OR SILT FENCES SHALL BE INSTALLED IN A MANNER SUCH THAT ANY RAINFALL RUNOFF SHALL BE FILTERED. HAY BALES SHALL NOT BE USED FOR TEMPORARY EROSION AND SEDIMENTATION CONTROLS.
- ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE MAINTAINED DURING CONSTRUCTION BY THE CONTRACTOR. THE CONTRACTOR SHALL REMOVE THE CONTROLS WHEN VEGETATION IS ESTABLISHED AND THE CONSTRUCTION AREA IS STABILIZED. ADDITIONAL PROTECTION MAY BE REQUIRED IF EXCESSIVE SOLIDS ARE BEING DISCHARGED FROM THE SITE.
- ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE REMOVED BY THE CONTRACTOR AT FINAL ACCEPTANCE OF THE PROJECT BY THE OWNER / ENGINEER.
- PLACEMENT OF TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE CONSTRUCTION PLANS. ACTUAL LOCATIONS MAY VARY SLIGHTLY FROM THE PLANS, BUT WILL BE VERIFIED BY THE ENGINEER/INSPECTOR IN THE FIELD PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL INSPECT THE CONTROLS AT WEEKLY INTERVALS AND AFTER EVERY SIGNIFICANT RAINFALL TO INSURE DISTURBANCE OF THE STRUCTURES HAS NOT OCCURRED. SEDIMENT DEPOSITED AFTER A RAINFALL SHALL BE REMOVED FROM THE SITE OR PLACED IN AN ENGINEER APPROVED DESIGNATED DISPOSAL AREA.
- CONTRACTOR SHALL BE RESPONSIBLE TO INSURE THAT NO EROSION CONTROL MEASURES BLOCK THE DRAINAGE SYSTEM FROM WORKING AS DESIGNED.

UTILITIES:

- LOCATION AND DEPTH OF EXISTING UTILITIES SHOWN HERE ARE APPROXIMATE ONLY. ACTUAL LOCATIONS AND DEPTHS MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ALL EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION, INCLUDING THOSE NOT SHOWN ON THE DRAWINGS.
- ANY EXISTING UTILITIES, ON OR OFF THE SITE, THAT ARE DAMAGED OR UNDERCUT BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER AND APPROVED BY THE RESPECTIVE UTILITY COMPANY AT THE CONTRACTOR'S EXPENSE.
- DUE TO FEDERAL REGULATIONS TITLE 49, PART 192(8), GAS COMPANIES MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT THE WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA. CONTRACTOR SHALL REFERENCE CITY UTILITIES PLANS FOR FINAL ELECTRICAL LINE DESIGNS AND LAYOUT.

SEWER NOTES:

1. THE CONTRACTOR SHALL MAINTAIN SERVICE TO EXISTING SANITARY SEWERS AT ALL TIMES DURING CONSTRUCTION.
2. A MINIMUM OF SIX INCHES (6") WASTEWATER PIPE AND FITTINGS (ASTM D3034 SDR 26) ARE REQUIRED ON ALL NEW INSTALLATION.
3. ALL RESIDENTIAL WASTEWATER SERVICE LATERALS SHALL BE EXTENDED TO THE PROPERTY LINE AND A CLEANOUT SHALL BE INSTALLED AT THE PROPERTY LINE. SERVICES TO LOTS WILL EXTEND THROUGH 10-FOOT (10') UTILITY EASEMENT.
4. SECONDARY BACKFILL OF SEWER LINES SHALL GENERALLY CONSIST OF MATERIALS REMOVED FROM THE TRENCH AND SHALL BE FREE FROM BRUSH, DEBRIS, AND TRASH, NO ROCKS OR STONES HAVING ANY DIMENSION LARGER THAN FOUR INCHES (4") AT THE LARGEST DIMENSION.
5. ALL SEWER PIPES SHALL HAVE COMPRESSION OR MECHANICAL JOINTS.
6. ALL MANHOLES SHALL BE CONSTRUCTED OF FOUR FOOT DIAMETIER (4' DIA) REINFORCED CONCRETE PIPE MEETING THE REQUIREMENTS OF ASTM SPECIFICATIONS C-478 OR POUR MONOLITHICALLY. CONCRETE RINGS SHALL BE USED TO ADJUST MANHOLE HEIGHTS TO MATCH EXISTING GRADE, MAXIMUM HEIGHT SHALL NOT EXCEED TWELVE INCHES (12") . CAST IRON FRAMES AND COVERS SHALL CONFORM TO ASTM SPECIFICATIONS A-4B CLASS 30.
7. MANHOLE RINGS AND COVERS SHALL WEIGH A MINIMUM OF 460 POUNDS. OUTSIDE DIAMETER OF THE LID SHALL BE THIRTY-TWO INCHES (32"). MANHOLES SHALL BE CONSTRUCTED OF OR LINED WITH A CORROSION MATERIAL RESISTANT MATERIAL. WHERE NEW CONSTRUCTION TIES INTO AN EXISTING MANHOLE, THE EXISTING MANHOLE MUST BE LINED, COATED, OR REPLACED WITH A CORROSION RESISTANT MATERIAL.
8. LIDS ARE TO BE SOLID WITH NO PICK HOLES.
9. MANHOLE COVERS SHALL BE MARKED "SANITARY SEWER". PIPE CONNECTIONS TO MANHOLES SHALL BE CORED AND WATER TIGHT MANHOLE CONNECTORS KOR-N-SEAL I & II OR EQUAL ASTM C.
10. ALL MANHOLES SHALL BE CONSTRUCTED SO THAT THE TOP OF THE RING IS 2" ABOVE THE SURROUNDING GROUND EXCEPT WHEN LOCATED IN PAVED AREAS. IN PAVED AREAS, THE MANHOLE RING SHALL BE FLUSH WITH PAVEMENT.
11. WASTEWATER PIPE CONNECTIONS TO MANHOLES SHALL BE MADE WATER TIGHT USING A GASKET AROUND THE PIPE. THE GASKET PIPE SHALL THEN BE GROUTED INTO PLACE, USING A STIFF MIX NON-SHRINK GROUT, VIA KNOCKED OUT HOLES IN CONCRETE PIPE WALLS. STEPS SHALL NOT BE PROVIDED.
12. WASTEWATER LINES SHALL BE TESTED FROM MANHOLE TO MANHOLE.
13. IN AREAS WHERE A NEW WASTEWATER MANHOLE IS TO BE CONSTRUCTED OVER AN EXISTING WASTEWATER SYSTEM, IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO TEST THE EXISTING MANHOLES BEFORE CONSTRUCTION. AFTER PROPOSED MANHOLE HAS BEEN BUILT, THE CONTRACTOR SHALL RE-TEST THE EXISTING SYSTEM TO THE SATISFACTION OF THE CONSTRUCTION INSPECTOR . (NO SEPARATE PAY ITEM).
14. WHERE THE MINIMUM NINE-FOOT (9') SEPARATION DISTANCE BETWEEN WASTEWATER LINES AND WATER LINES / MAINS CANNOT BE MAINTAINED, THE INSTALLATION OF WASTEWATER LINES SHALL BE IN STRICT ACCORDANCE WITH TCEQ REGULATIONS. THE WASTEWATER LINE SHALL BE CONSTRUCTED OF CAST IRON, DUCTILE IRON, OR PVC MEETING THE ASTM SPECIFICATION FOR BOTH PIPES AND JOINTS OF 150 PSI AND SHALL BE IN ACCORDANCE WITH 30 TAC 217. 53 (D)(3)(A)(I).
15. WATER JETTING THE BACKFILL WITHIN A STREET WILL NOT BE PERMITTED. SANITARY SEWER TRENCHES SUBJECT TO TRAFFIC SHALL CONFORM TO THE CITY CONSTRUCTION STANDARDS.
16. NO TESTING WILL BE PERFORMED PRIOR TO 30 DAYS FROM COMPLETE INSTALLATION OF THE SANITARY SEWER LINES. THE FOLLOWING SEQUENCE WILL BE STRICTLY ADHERED TO:
   A. PULL MANDREL
   B. PERFORM AIR TEST
   C. CLEANING OF ANY DEBRIS
   D. FLUSHING OF SYSTEM
   E. TV INSPECTION (WITH IN 72 HOURS OF FLUSHING)
17. A MINIMUM OF THREE FEET (3') OF COVER IS TO BE MAINTAINED OVER THE SANITARY SEWER MAIN AND LATERALS AT SUBGRADE, OTHERWISE CONCRETE ENCASEMENT WILL BE REQUIRED.
18. CLEANOUTS SHALL BE PROVIDED AT THE END OF EACH LINE WHEN A MANHOLE IS NOT REQUIRED. A CI CLEANOUT CASTING ALAMO IRON WORKS NO. 813-45, OR APPROVED EQUAL SHALL BE USED.
19. EACH LOT OWNER SHALL BE RESPONSIBLE FOR VERIFYING THE DEPTH OF THE SEWER SERVICE STUB OUT, AND DETERMINE THE MINIMUM SERVICEABLE FINISHED FLOOR ELEVATION.
20. VERTICAL SEWER SERVICE STACKS SHALL BE REQUIRED WHERE THE TOP OF THE SEWER MAIN IS AT A DEPTH OF EIGHT FEET (8') OR GREATER, UNLESS SHOWN OTHERWISE ON PLANS.

WATER NOTES:

1. ALL WATER MAINS SHALL BE AWWA C900 (CLASS 150 OR GREATER), DR18.
2. WATER SERVICES SHALL BE TYPE "K" SOFT COPPER CONFORMING TO ASTM SPECIFICATION B-88t OR LATEST REVISION.
3. WATER MAIN SHALL HAVE A MINIMUM OF 36 INCHES OF COVER, EXCEPT THAT UNDER ROAD SIDE DITCHES AND ROAD CROSSING, ADDITIONAL COVER AND ENCASEMENT IS REQUIRED.
4. EACH UNIT WITHIN A DUPLEX, TRIPLEX, FOURPLEX, OR CONDOMINIUM SHALL BE PROVIDED WITH AN INDIVIDUAL WATER METER. A MASTER METER CAN BE CONSIDERED FOR SEPARATE BUILDINGS, HOWEVER, THOSE BUILDINGS MUST BE PLUMBED TO ALLOW SEPARATE METERS FOR FUTURE CONSIDERATION.
5. CONTRACTOR WILL KEEP THE AREA ON TOP OF AND AROUND THE WATER METER BOX FREE OF ALL OBJECTS AND DEBRIS.
6. SECONDARY BACKFILL OF WATER LINES SHALL GENERALLY CONSIST OF MATERIAL REMOVED FROM THE TRENCH AND SHALL BE FREE FROM BRUSH, DEBRIS AND TRASH OR STONES HAVING ANY DIMENSION LARGER THAN 4" INCHES AT THE LARGEST DIMENSION.
7. HYDROSTATIC TESTING IS DONE FROM VALVE TO VALVE.
8. NO METER BOXES TO BE SET IN DRIVEWAYS OR SIDEWALKS. ANY METER BOXES SET IN DRIVEWAYS OR SIDEWALKS WILL BE RELOCATED AT CONTRACTOR 'S AND/OR DEVELOPER'S EXPENSE.
9. METER BOXES MUST BE SET AT THE PROPOSED GRADE. ANY METER BOXES THAT ARE NOT SET AT THE FINAL GRADE WILL BE ADJUSTED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.
10. METER BOXES SHALL BE PLASTIC, WITH COVERS, BY DFW PLASTICS, INC. OR APPROVED EQUAL.
11. BRASS STOPS FOR CONNECTING TUBING TO SERVICE CLAMPS SHALL BE MUELLER OR APPROVED EQUAL WITH COMPRESSION BY CC THREAD FITTINGS.
12. TAPPING SADDLES SHALL BE MUELLER OR APPROVED EQUAL DOUBLE STRAP WITH CC THREAD.
13. CONTRACTOR SHALL PLACE TRACER WIRE ON TOP OF THE WATER MAINS. TRACER WIRE SHOULD RUN FROM VALVE TO VALVE AND EXIT AT THE VALVE BOX. THE TRACER WIRE SHOULD BE ATTACHED TO THE TOP OF THE PIPE USING TAPE. EXCESS WIRE SHOULD BE LEFT WITHIN VALVE BOXES TO BE PLACED WITHIN LID OF COVER.

DRAINAGE NOTES:

1. ALL CONCRETE AND REINFORCING STEEL USED IN DRAINAGE STRUCTURES SHALL BE IN COMPLIANCE WITH THE CITY STANDARDS. CONCRETE SHALL BE CLASS A.
2. PIPES FOR STORM DRAINS SHALL BE CONCRETE PIPE IN SIZES AS SHOWN ON APPROVED PLANS. ALL CONCRETE PIPES SHALL BE RCP ASTM SPECIFICATION C76. WHERE ADDED STRENGTH OF PIPE IS NEEDED FOR TRAFFIC LOADS OVER MINIMUM COVER OR HAVE A MINIMUM COVER OF NOT LESS THAN ONE FOOT (1') OVER THE TOP OF THE PIPE. ALL PIPES SHALL HAVE INTEGRAL TONGUE AND GROOVE JOINTS . ALL CONCRETE PIPE BENDS OR FITTINGS FOR HORIZONTAL OR VERTICAL CHANGES IN ALIGNMENT, AND ALL SPECIAL FITTINGS, SHALL BE OF PREFABRICATED CONSTRUCTION USING RCP.
3. MANHOLE COVERS SHALL BE VULCAN FOUNDRY NUMBER VM-34, OR EQUAL, WITH 22 INCH (22") OPENING AND WEIGHT OF AT LEAST 240 POUNDS. THE COVER SHALL BE MARKED "STORM".
4. ASPHALT COMPOUNDS SHALL CONSIST OF ASPHALT BASE, VOLATILE SOLVENTS, AND INERT FILTER. THE JOINT COMPOUND SHALL CONFORM TO THE STANDARDS OF THE TDHPT.
5. MORTAR JOINT MIX SHALL BE COMPOSED OF ONE PART CEMENT OR PARTS OF MORTAR SAND.
6. THE TRENCH WIDTH SHALL BE AT LEAST 15 INCHES (15") WIDER BUT NOT MORE THAN 21 INCHES (21") WIDER THAN THE OUTSIDE DIAMETER OF PIPE.
7. TRENCH SHALL BE EXCAVATED VERTICALLY TO A MINIMUM DISTANCE OF ONE FOOT (1') OVER THE TOP OF PIPE OR CONDUIT, ABOVE WHICH POINT, TRENCH SIDES SHALL BE EXCAVATED AS NEAR TO VERTICAL AS POSSIBLE AND SAFE.
8. A MINIMUM OF SIX INCHES (6") OF GRANULAR EMBEDMENT SHALL BE PLACED UNDER THE PIPE WHEN ROCK IS ENCOUNTERED.
9. BACKFILL MATERIALS FOR TRENCHES NOT TO BE IN PROPOSED STREET AREA, EXISTING STREETS, OR WITHIN FIVE FEET (5') OF THE BACK OF CURB OR EDGE OF PAVEMENT MUST INCLUDE SPECIFIED EMBEDMENT MATERIAL AND MAY BE BACKFILLED WITH EXCAVATED MATERIALS THAT ARE VOID OF ROCKS AND OTHER OBJECTS LARGER THAN FOUR INCHES IN DIAMETER (4" DIA).
10. SECONDARY BACKFILL OF STORM DRAIN SHALL GENERALLY CONSIST OF MATERIALS REMOVED FROM THE TRENCH AND SHALL BE FREE FROM BRUSH, DEBRIS, AND TRASH, NO ROCKS OR STONES HAVING ANY DIMENSION LARGER THAN FOUR INCHES (4") AT THE LARGEST DIMENSION.
11. MORTAR JOINT AREAS SHALL BE THOROUGHLY WETTED. THE LOWER ONE-HALFE (1/2) OF THE GROOVE SHALL BE PACKED WITH MORTAR FROM THE INTERIOR. THE REMAINING GROOVE AREA SHALL BE QUICKLY PACKED WITH MORTAR FROM THE EXTERIOR. A MORTAR BEAD SHALL BE FORMED AROUND THE PIPE JOINT. THE BEAD SHALL EXTEND A MINIMUM OF ONE INCH (1") ON EACH SIDE OF THE JOINT AND PROJECT OUTWARD A DISTANCE OF ONE INCH (1"). THE INSIDE OF PIPE JOINT SHALL BE FINISHED SMOOTH WITH THE INSIDE OF THE PIPE. THE JOINT SHALL BE PROTECTED FROM SUN AND AIR BY AN APPROVED WET WRAPPING OR WET OIL COVER FOR A MINIMUM OF 4B HOURS OR UNTIL BACKFILLED. JOINTS SHALL NOT BE MADE WHEN THE TEMPERATURE IS 40 DEG F OR BELOW.
12. ASPHALT COMPOUND JOINTS SHALL BE MADE IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS. THE PIPE SHALL BE DRY. SUFFICIENT COMPOUND SHALL BE PLACED IN THE GROOVE TO CAUSE SOME MATERIAL TO BE SQUEEZED FROM JOINT WHEN PIPE IS SEATED. THE INSIDE OF PIPE JOINTS SHALL BE WIPED CLEAN AFTER JOINT CONNECTION.

CONSTRUCTION NOTES:

DRAINAGE NOTE
- DRAINAGE IMPROVEMENTS SUFFICIENT TO MITIGATE THE IMPACT OF CONSTRUCTION SHALL BE INSTALLED PRIOR TO ADDING IMPERVIOUS COVER.

ROADWAY
- ALL ROADWAY COMPACTION TESTS SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEO-TECHNICAL ENGINEER. FLEXIBLE BASE OR FILL MATERIAL, INCLUSIVE OF SUBGRADE, SHALL BE COMPACTED AS A SPECIFIED AND TESTED FOR DENSITY AND MOISTURE.
- ASPHALTIC CONCRETE PAVEMENT SHALL BE TYPE "D" HOT MIX ASPHALT AS DEFINED IN CALTRANS' STANDARD SPECIFICATIONS.
- THE ASPHALTIC CONCRETE SURFACE COURSE SHALL BE PLANT MIXED, HOT LAID TYPE "D" MEETING THE SPECIFICATION REQUIREMENTS OF CALTRANS. THE MIX SHALL BE DESIGNED FOR A STABILITY OF AT LEAST 35 AND SHALL BE COMPACTED TO BETWEEN 91 AND 95 PERCENT OF THE MAXIMUM THEORETICAL DENSITY. THE ASPHALT CEMENT CONTENT BY PERCENT OF TOTAL MIXTURE WEIGHT SHALL FALL WITHIN A TOLERANCE OF +0.5 PERCENT FROM A SPECIFIC MIX DESIGN.

UTILITY TRENCH COMPACTION
- ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEO-TECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE.

CURB CUT

DUE TO CONSTRUCTION OF NEW RIGHT-OF-WAY CONSTRUCTION:
- SAWCUT EXISTING STREET AND MATCH TO NEW CONSTRUCTION.
- SAWCUT EXISTING CURB TO TIE INTO EXISTING CONSTRUCTION.

CONSTRUCTION STABILIZED ENTRANCE
- SAWCUT CURB FOR CONSTRUCTION ENTRANCE.
- STABILIZED CONSTRUCTION AREA SHALL BE CONSTRUCTED OF 3"X5" ROCK TO BE PLACED A MINIMUM LENGTH OF 25 FEET AND MAINTAINED SO THAT CONSTRUCTION DEBRIS DOES NOT FALL WITH IN THE CITY RIGHT-OF-'WAY. RIGHT-OF-WAY MUST BE CLEARED FROM MUD, ROCKS, ETC. AT ALL TIMES.

SIGNING AND PAVEMENT MARKING NOTES
- THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REGULATORY AND WARNING SIGNS, STREET NAME SIGNS AND SIGN MOUNTS IN ACCORDANCE WITH APPROVED ENGINEERING PLANS. THE CITY WILL INSPECT ALL SIGNS AT FINAL INSPECTION.
- THE CONTRACTOR SHALL INSTALL ALL PAVEMENT MARKINGS IN ACCORDANCE WITH APPROVED ENGINEERING PLANS. THE CONTRACTOR SHALL NOTIFY THE CITY AT LEAST TWIENTY-FOUR (24) HOURS PRIOR TO THE INSTALLATION OF ALL SEALER AND FINAL MARKINGS. THE CITY WILL INSPECT ALL MARKINGS AT FINAL APPLICATION.

MOUNTING
- THE WEDGE ANCHOR STEEL SYSTEM AND THIN-WALLED TUBING POST SHALL BE USED FOR SIGNS WITH UP TO 10 SQUARE FEET OF SIGN AREA. MATERIALS AND INSTALLATION SHOULD FOLLOW THE TCALTRANS TRAFFIC STANDARDS.
- THE TRIANGULAR SLIP BASE SYSTEM AND 10 BWG TUBING POST SHALL BE USED FOR SIGNS THAT HAVE 10 TO 16 SQUARE FEET OF SIGN AREA. MATERIALS AND INSTALLATION SHOULD FOLLOW THE CALTRANS TRAFFIC STANDARDS.
- OBJECT MARKERS MATERIALS AND INSTALLATION SHOULD FOLLOW THE CALTRANS TRAFFIC STANDARDS.

MATERIALS
- SIGN MATERIALS INCLUDING ALUMINUM SIGN BLANKS AND SIGN FACE MATERIALS SHOULD FOLLOW THE CALTRANS TRAFFIC STANDARDS.

SEQUENCE OF CONSTRUCTION
1. INSTALL EROSION CONTROLS PER APPROVED PLAN.
2. TEMPORARY CONTROLS TO BE INSPECTED AND MAINTAINED WEEKLY AND PRIOR TO ANTICIPATED RAINFALL EVENTS, AND AFTER RAINFALL EVENTS, AS NEEDED. CONTRACTOR/OWNER SHALL PROVIDE A CONTACT NAME AND NUMBER FOR EROSION CONTROL ISSUES.
3. CONDUCT DEMOLITION ACTIVITIES, IF APPLICABLE.
4. CONDUCT GRADING ACTIVITY IN R.O.W. FOR STREET CONSTRUCTION.
5. CONDUCT TRENCHING ACTIVITY FOR WATER AND WASTEWATER IMPROVEMENTS.
6. RE-VEGETATE DISTURBED AREAS.
7. REMOVE EROSION CONTROLS (AS APPLICABLE) WITH COORDINATION OF OWNER REPRESENTATIVE AND ENGI

STREET DESIGN NOTES:

A. NO STREETS SHALL BE DESIGNED HAVING A SLOPE OF LESS THAN 0.40 FEET PER 100 FEET.
B. MAXIMUM VERTICAL GRADE AND MAXIMUM RADIUS LENGTH:
   1. MAJOR ROAD/ARTERIAL STREET: 6% MAX. VERTICAL GRADE; MAX. RADIUS LENGTH 383'
   2. COLLECTOR STREET: 6% MAX. VERTICAL GRADE; MAX. RADIUS LENGTH 288'
   3. MINOR STREET: 60 FOOT R.O.W.: 6% MAX. VERTICAL GRADE; MAX. RADIUS LENGTH 288 FOOT
      50 FOOT R.O.W.: 10% MAX. VERTICAL GRADE; MAX. RADIUS LENGTH 100 FOOT

C. TRAFFIC BARRIERS SHALL BE USED TO ROUTE, STOP, OR REDIRECT THE FLOW OF TRAFFIC AROUND DANGER ENVIRONMENTS AND TO ALERT PEDESTRIANS AND LOWER VEHICLE TRAFFIC OF NEARBY DANGERS.
D. THE MINIMUM PAVEMENT REQUIREMENTS FOR STREETS SHALL BE AS FOLLOWS APPROVED BY THE CITY ENGINEER:

STREET CLASSIFICATION	35 PI OR LESS	MORE THAN 35 PI
1. FOR RESIDENTIAL (MINOR) ASPHALT STREETS		
BASE OR STRUCTURAL EQUIVALENT MINIMUM	8"	12"
ASPHALT THICKNESS TYPE D OR AS APPROVED	1 ½"	2"
2. FOR COLLECTOR ASPHALT STREETS		
BASE OR STRUCTURAL EQUIVALENT MINIMUM	10"	14"
ASPHALT THICKNESS TYPE D OR AS APPROVED 2" 2"		
3. FOR MAJOR ROAD/ARTERIAL STREETS		
BASE OR STRUCTURAL EQUIVALENT MINIMUM	12"	16"
ASPHALT THICKNESS TYPE D OR AS APPROVED	2"	2"

E. SOILS TESTING AND PAVEMENT DESIGN RECOMMENDATION FROM AN INDEPENDENT TESTING LABORATORY WILL BE REQUIRED TO DETERMINE IF ANY LIME STABILIZATION OR ADDITIONAL BASE OR PAVEMENT THICKNESS IS NEEDED.

GEOTECHNICAL STUDY & PAVEMENT DESIGN:
1. RECOMMEND THE TOP 6" OF THE FINISHED SUBGRADE SOILS DIRECTLY BENEATH THE PAVEMENT BE CHEMICALLY TREATED.
2. CHEMICAL TREATMENT SHALL CONSIST OF LIME APPLIED AT A RATE OF ABOUT 6% - 7%, WHICH EQUATES TO ABOUT 30 - 35 LBS OF LIME (DRY WEIGHT) PER SQUARE YARD PER 6" TREATED DEPTH.
3. PAVEMENT DESIGN:
   A. RIGID PAVEMENT:
      a. REINFORCED CONCRETE - 6"
      b. TREATED SUBGRADE - 6"
   B. FLEXIBLE PAVEMENT:
      a. ASPHALT CONCRETE - 2.5"
      b. BASE MATERIAL - 10"
      c. TREATED SUBGRADE - 6"

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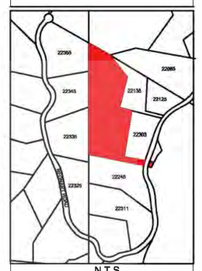

N.T.S.

Project name and Address:
SINGLE FAMILY HOME
22315 Regnart Road Cupertino CA 95014

Seal:

REGISTERED PROFESSIONAL ENGINEER
BARRETT CROCKETT
C 057186
Exp. 12-31-2023
4-13-2022
CIVIL
STATE OF CALIFORNIA

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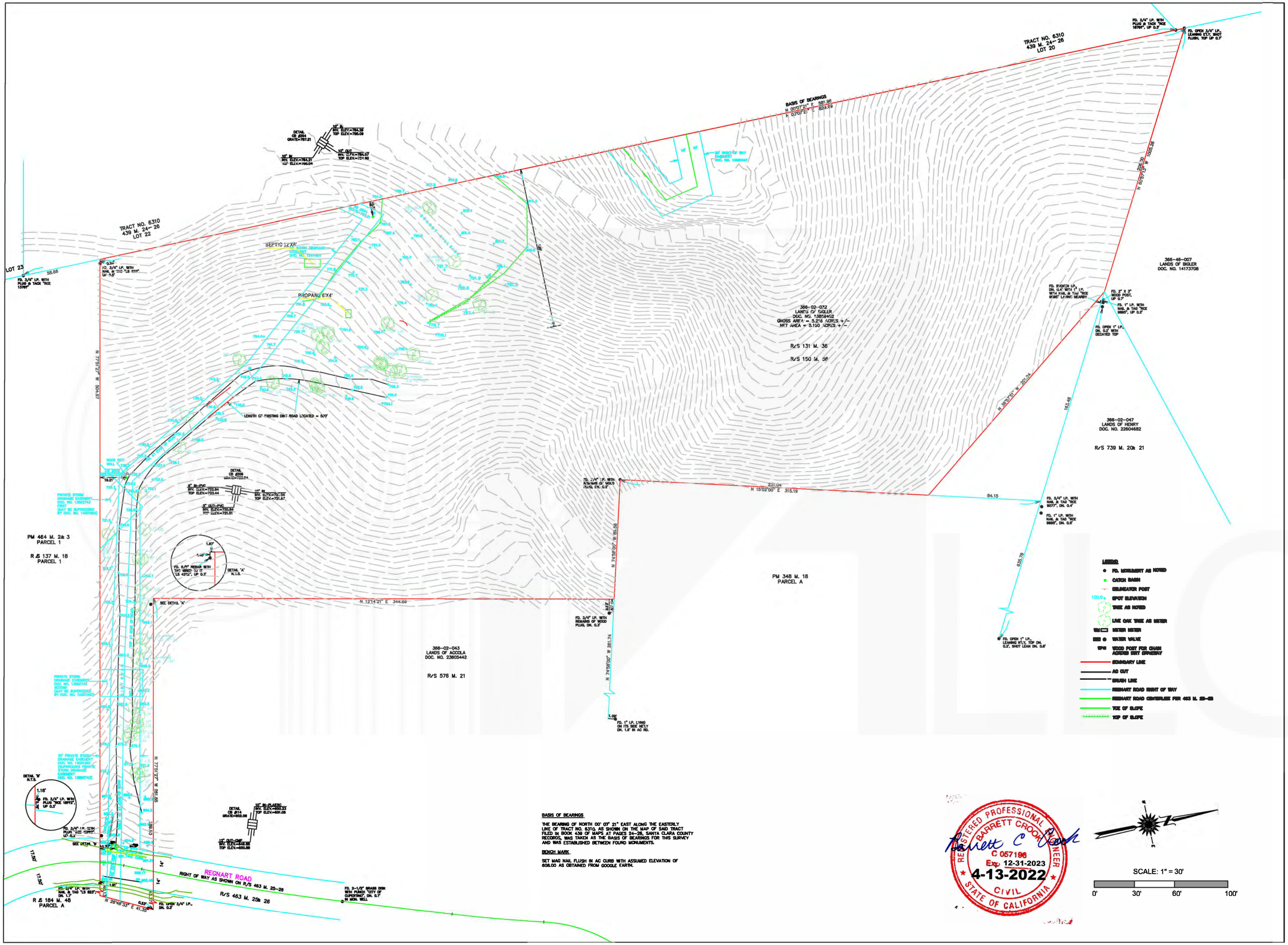
TRACT NO. 6310
439 M. 24-- 26
LOT 20
TRACT NO. 6310
439 M. 24-- 26
LOT 22
LOT 23
BASIS OF BEARINGS
N 00°07'21" E 881.96
N 0°07'21" E 624.69
27' ROAD OF WAY
DEDICATED
DOC. NO. 10800457
SEPTIC 12'X8'
PROPANE 6'X4'
366-02-032
LANDS OF SIGLER
DOC. NO. 13858402
GROSS AREA = 5.216 ACRES +/-
NET AREA = 5.150 ACRES +/-
R/S 131 M. 38
R/S 150 M. 58
366-46-007
LANDS OF SIGLER
DOC. NO. 14173708
366-02-047
LANDS OF HENRY
DOC. NO. 22604682
R/S 739 M. 20& 21
PM 464 M. 2& 3
PARCEL 1
R/S 137 M. 18
PARCEL 1
PM 348 M. 18
PARCEL A
366-02-043
LANDS OF ACCOLA
DOC. NO. 23605442
R/S 576 M. 21
R/S 184 M. 48
PARCEL A
REGNART ROAD
RIGHT OF WAY AS SHOWN ON R/S 463 M. 25-26
R/S 463 M. 25& 26
N 77°57'37" W 304.57
N 15°02'00" E 315.19
N 74°58'00" W 89.86
N 74°58'00" W 261.74
N 12°14'21" E 344.89
N 28°48'33" E 41.32
N 60°57'13" W 1002.36
N 38°37'31" W 267.54
84.15
635.78
231.04
154.50
17.50'
14'
1.18'
1.07'
1.09'
0.82'
DETAIL 'A'
N.T.S.
DETAIL 'B'
N.T.S.
SEE DETAIL 'A'
SEE DETAIL 'B'
LENGTH OF EXISTING DIRT ROAD LOCATED = 820'
PRIVATE STORM DRAINAGE EASEMENT DOC. NO. 13882743 (MAY BE SUPERCEDED BY DOC. NO. 14067882)
PRIVATE STORM DRAINAGE EASEMENT DOC. NO. UNKNOWN RECORD (MAY BE SUPERCEDED BY DOC. NO. 14067882)
30' PRIVATE STORM DRAINAGE EASEMENT DOC. NO. 14067882 (SUPERCEDES PRIVATE STORM DRAINAGE EASEMENT DOC. NO. 13882743)
FD. 3/4" I.P. WITH PLUG & TACK "RCE 13798" L.S.
FD. 3/4" I.P. WITH NAIL & TAG "RCE 13798" L.S. 8/99" UP 0.6'
FD. 3/4" I.P. WITH PLUG & TACK "RCE 18782" UP 0.3'
FD. 3/4" I.P. WITH PLUG & TACK "RCE 18782" UP 0.3'
FD. 3/4" I.P. WITH PLUG & TACK "RCE 18782" UP 0.7'
FD. OPEN 3/4" I.P. LEANING E'LY, SHOT FLUSH, TOP UP 0.7'
FD. 3/4" I.P. WITH NAIL & TAG "RCE 18782" UP 0.3'
FD. 3/4" I.P. WITH NAIL & TAG "RCE 18782" DN. 0.4'
FD. 1" I.P. WITH NAIL & TAG "RCE 18782" DN. 0.5'
FD. 3/4" I.P. WITH NAIL & TAG "RCE 18782" DN. 0.7'
FD. 3/4" I.P. WITH REMAINS OF WOOD PLUG, DN. 0.3'
FD. 3/4" I.P. WITH ALUMINUM DISC MARKED "LS 6572", UP 0.3'
FD. 3/4" I.P. WITH ALUMINUM DISC MARKED "LS 6572", DN. 0.7'
FD. 3/4" I.P. WITH ALUMINUM DISC MARKED "LS 6572", DN. 1.7'
FD. 3/4" I.P. WITH ALUMINUM DISC MARKED "LS 6572", DN. 0.3'
FD. 3/4" I.P. WITH ALUMINUM DISC MARKED "LS 6572", DN. 0.5'
FD. 3/4" I.P. WITH ALUMINUM DISC MARKED "LS 6572", DN. 0.7'
FD. 3/4" I.P. WITH ALUMINUM DISC MARKED "LS 6572", DN. 1.0'
FD. 3/4" I.P. WITH ALUMINUM DISC MARKED "LS 6572", DN. 1.5'
FD. 3/4" I.P. WITH ALUMINUM DISC MARKED "LS 6572", DN. 2.0'
FD. 3/4" I.P. WITH ALUMINUM DISC MARKED "LS 6572", DN.

LEGEND

- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE
- BOUNDARY LINE
- REGNART ROAD RIGHT OF WAY
- REGNART ROAD CENTERLINE PER 463 M. 25-26
- CATCH BASIN
- EXISTING SPOT ELEVATION
- TREE AS NOTED
- LIVE OAK TREE AS NOTED
- WM WATER METER
- WV WATER VALVE
- WP WOOD POST FOR CHAIN ACROSS DIRT DRIVEWAY

TRACT NO. 6310
439 M. 24-26
LOT 22

LOT 23

FD. 3/4" I.P. WITH PLUG & TACK "RCE 13789"

58.66

N 77°51'37" W 304.37

FD. 3/4" I.P. WITH NAIL & TAG "LS 5521" UP: 0.5'

DETAIL
CB #14
GRATE=787.21

18" IN
INV. ELEV.=784.58
TOP ELEV.=788.09

18" IN
INV. ELEV.=784.31
TOP ELEV.=788.04

18" OUT
INV. ELEV.=784.07
TOP ELEV.=724.90

GARAGE
LEVEL @ 776

R20

5+50

5+00

6+00

6+50

775.0 T.W.
770.0 B.W.

770.0 T.W.
765.0 B.W.

765.0 T.W.
760.0 B.W.

760.0 T.W.
755.0 B.W.

755.0 T.W.
750.0 B.W.

745.0 T.W.
740.0 B.W.

740.0 T.W.
738.0 B.W.

737.0 T.W.
735.0 B.W.

4+50

4+00

730.0 T.W.
728.0 B.W.

30' BYPASS LANE

RET. WALL

3+50

3+00

END OF RET. WALL

709.5 T.W.
706.0 B.W.

703.5 T.W.
700.0 B.W.

RET. WALL

2+50

2+00

697.1 T.W.
694.0 B.W.

1+50

1+00

0+50

697.0 T.W.
695.0 B.W.

694.0 T.W.
694.2 B.W.

692.0 T.W.
691.4 B.W.

688.0 T.W.
676.3 B.W.

684.0 T.W.
675.4 B.W.

680.0 T.W.
672.3 B.W.

676.0 T.W.
669.0 B.W.

672.0 T.W.
666.0 B.W.

668.0 T.W.
663.0 B.W.

664.0 T.W.
660.2 B.W.

660.0 T.W.
656.9 B.W.

650.0 T.W.
654.7 B.W.

N 77°51'37" W 304.37

PM 464 M. 2& 3
PARCEL 1

R.S 137 M. 18
PARCEL 1

DETAIL
CB #14
GRATE=658.08

12" CMP
INV. ELEV.=650.33
TOP ELEV.=651.08

12" CMP
INV. ELEV.=650.08
TOP ELEV.=650.88

RET. WALL

REGNART ROAD
RIGHT OF WAY AS SHOWN ON R/S 463 M. 25-26

R/S 463 M. 25& 26

FD. 3/4" I.P. WITH NAIL & TAG "LS 6521" DN: 1.7'

FD. OPEN 3/4" I.P. DN: 0.3'

N 28°48'53" E 41.35'

BASIS OF BEARINGS

THE BEARING OF NORTH 00° 07' 21" EAST ALONG THE EASTERLY LINE OF TRACT NO. 6310, AS SHOWN ON THE MAP OF SAID TRACT FILED IN BOOK 439 OF MAPS AT PAGES 24-26, SANTA CLARA COUNTY RECORDS, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS SURVEY AND WAS ESTABLISHED BETWEEN FOUND MONUMENTS.

BENCH MARK.

SET MAG NAIL FLUSH IN AC CURB WITH ASSUMED ELEVATION OF 608.00 AS OBTAINED FROM GOOGLE EARTH.

BASIS OF BEARINGS
N 00°07'21" E 881.96
N 0°07' E 824.69

TRACT NO. 6310
439 M. 24-26
LOT 20

FD. 3/4" I.P. WITH PLUG & TACK "RCE 18789"; UP: 0.3'

FD. OPEN 3/4" I.P. LEANING ELY, SHOT FLUSH, TOP UP: 0.7'

20' RIGHT-OF-WAY DEDICATED DOC. NO. 10980437

N 60°57'13" W 1002.36

366-46-007
LANDS OF BIGLER
DOC. NO. 14173708

366-02-032
LANDS OF BIGLER
DOC. NO. 13859402
GROSS AREA = 5.216 ACRES +/-
NET AREA = 5.150 ACRES +/-

R/S 131 M. 36

R/S 150 M. 58

FD. BROKEN I.P., DN. 0.4' WITH 1" I.P. WITH NAIL & TAG "RCE 9988" LAYING NEARBY

FD. 3" X 3" WOOD POST, UP: 0.3'

FD. 1" I.P. WITH NAIL & TAG "RCE 8988", UP: 0.2'

FD. OPEN 1" I.P., DN. 0.2' WITH DECAYED TOP

N 30°37'01" W 201.24

353.49

366-02-047
LANDS OF HENRY
DOC. NO. 22604682

R/S 739 M. 20& 21

FD. 3/4" I.P. WITH PLUG, DN. 0.3'

231.06
N 15°02'00" E 315.19

84.15

FD. 3/4" I.P. WITH NAIL & TAG "RCE 8077", DN. 0.4'

FD. 1" I.P. WITH NAIL & TAG "RCE 9889", DN. 0.5'

655.79

PM 348 M. 18
PARCEL A

N 74°30'00" W 89.58

N 12°14'21" E 344.69

FD. 3/4" I.P. WITH REMAINS OF WOOD PLUG, DN. 0.3'

366-02-043
LANDS OF ACCOLA
DOC. NO. 23605442

R/S 576 M. 21

N 74°30'00" W 281.74

FD. 1" I.P., LYING ON ITS SIDE NELY DN. 1.0' W/ AC RD.

N 77°51'37" W 304.65

TOTAL CUT 3,517 CU. FT.
TOTAL FILL 3,283 CU. FT.
NET CUT/FILL 233 (CUT) CU. FT.

MIN. ELEV.(FT)	MAX.ELEV.(FT)	COLOR SCHEME
-14	-8	
-8	-4	
-4	0	
0	4	
4	8	
8	14	

SCALE: 1" = 30'

0' 30' 60' 100'

R.S 184 M. 48
PARCEL A

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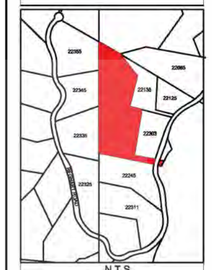

N.T.S.

Project Name and Address:
SINGLE FAMILY HOME
22315 Regnart Road Cupertino CA 95014

Seal:

REGISTERED PROFESSIONAL ENGINEER
GARRETT CROOKSHANK
C 057196
Exp. 12-31-2023
4-13-2022
CIVIL
STATE OF CALIFORNIA

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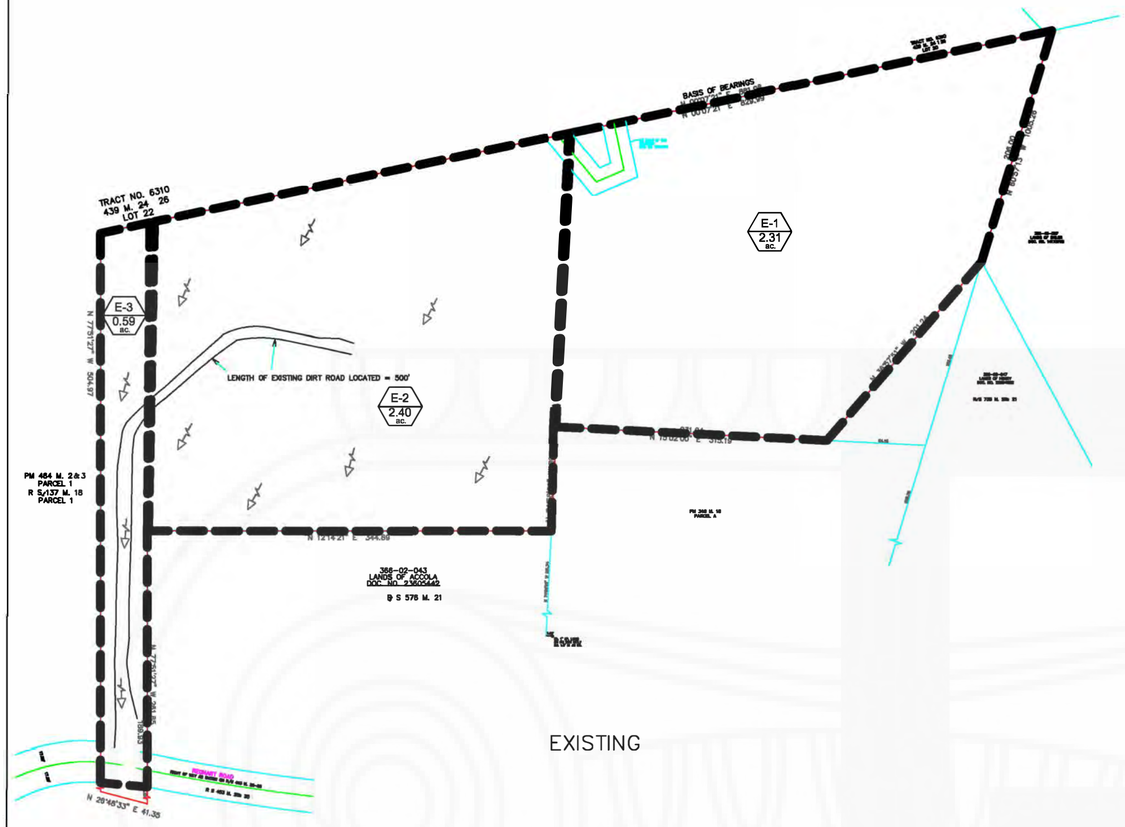
Date:

Page No.:



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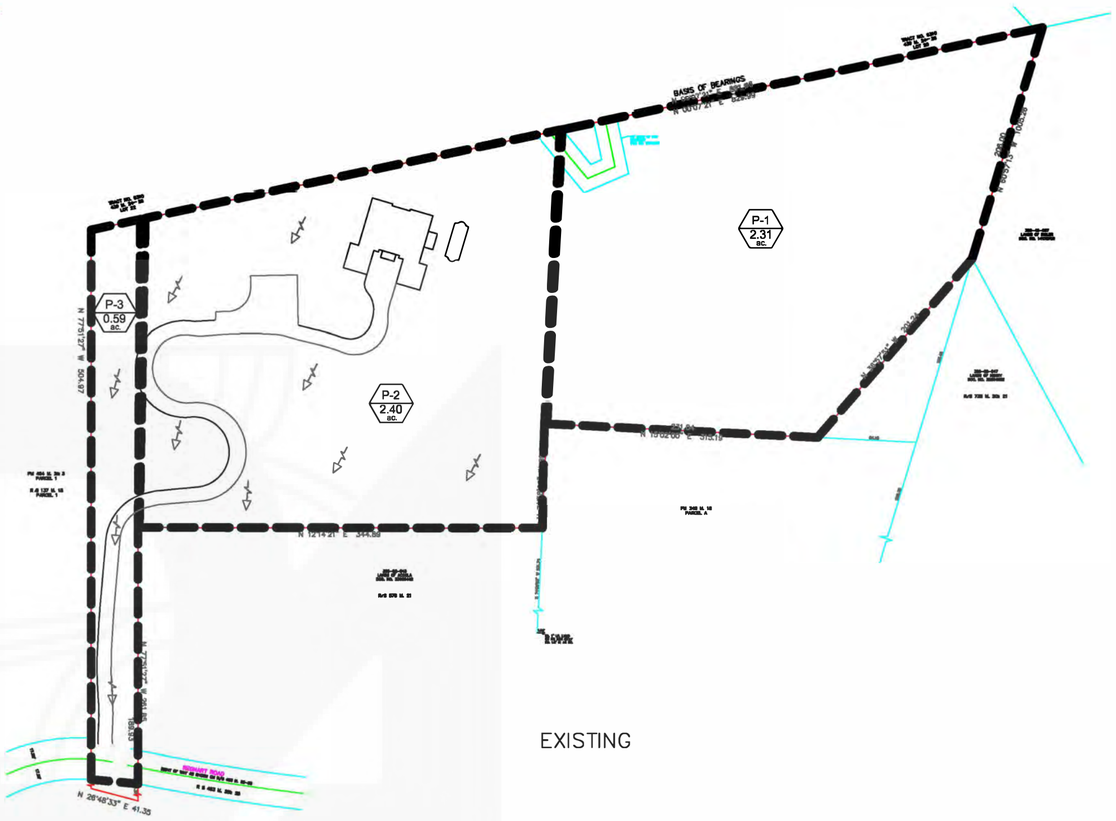

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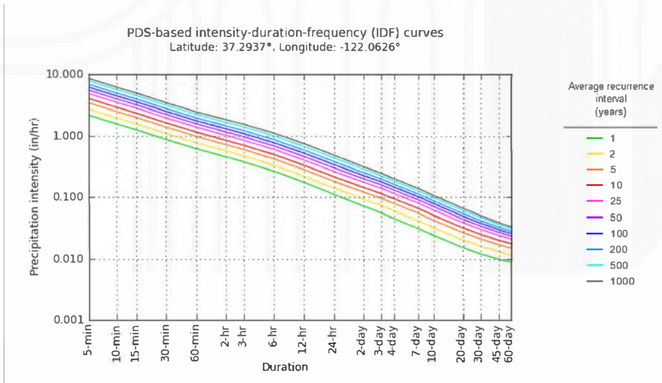

LEGEND

- DRAINAGE AREA
- BOUNDARY LINE
- REGNART ROAD RIGHT OF WAY
- REGNART ROAD CENTERLINE
- SURFACE WATER FLOW
- DRAINAGE AREA ID/AREA

DRAIN AREA NO.	AREA (ACRES)	IMPERVIOUS (ACRES - %)	PERVIOUS (ACRES - %)	T_C (MIN)	RUNOFF COEFF. C	5-YR STORM RUNOFF PEAK (CFS)	5-YR STORM RUNOFF INTENSITY (IN/HR)	10-YR STORM RUNOFF PEAK (CFS)	10-YR STORM RUNOFF INTENSITY (IN/HR)	25-YR STORM RUNOFF PEAK (CFS)	25-YR STORM RUNOFF INTENSITY (IN/HR)	100-YR STORM RUNOFF PEAK (CFS)	100-YR STORM RUNOFF INTENSITY (IN/HR)
E-1	2.31	0 - 0%	2.31 - 100%	10.0	0.26	1.483	2.47	1.742	2.90	2.102	3.50	2.667	4.44
E-2	2.40	0 - 0%	2.40 - 100%	10.0	0.20	1.186	2.47	1.392	2.90	1.680	3.50	2.131	4.44
E-3	0.59	0 - 0%	0.59 - 100%	10.0	0.21	0.306	2.47	0.359	2.90	0.434	3.50	0.550	4.44
TOTAL	5.30	0 - 0%	5.3 - 100%	--	--	2.975	-	3.493	-	4.216	-	5.348	-
P-1	2.31	0 - 0%	2.31 - 100%	10.0	0.26	1.483	2.47	1.742	2.90	2.102	3.50	2.667	4.44
P-2	2.40	0.21 - 9%	2.19 - 91%	5.0	0.27	1.601	2.47	1.879	2.90	2.268	3.50	2.877	4.44
P-3	0.59	0.07 - 12%	0.52 - 88%	5.0	0.47	0.685	2.47	0.804	2.90	0.971	3.50	1.231	4.44
TOTAL	0.26	0.09 - 36%	0.17 - 64%	--	--	3.769	-	4.425	-	5.341	-	6.775	-
DIFFERENCE	-	-	-	--	--	**0.794**	-	**0.932**	-	**1.125**	-	**1.427**	-

Note: Participaton Intensity values are obtained from NOAA Atlas (https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html).
Location information: Latitude: 37.2937° Longitude: -122.0626° Elevation: 659.78 ft

SCALE: 1" = 60'

0' 60' 120' 200'

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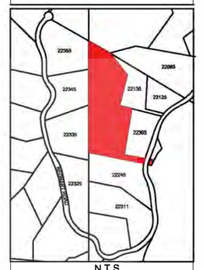

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DRAWING TITLE:
C4
Drainage Area Map

Scale:

Date:

Page No. :

LEGEND

- CHAIN LINK FENCE
- SUBJECT LINE
- REGNART ROAD RIGHT OF WAY
- REGNART ROAD CENTERLINE PER 453 M. 25~28
- BRUSH LINE
- TOE OF SLOPE
- TOP OF SLOPE
- WP WOOD POST FOR CHAIN ACROSS DIRT DRIVEWAY
- CATCH BASIN
- STABILIZE THE ENTRANCE

TRACT NO. 6310
439 M. 24-26
LOT 22

TRACT NO. 6310
439 M. 24-26
LOT 20

BASIS OF BEARINGS
N 00° 07'21" E 891.96
N 00° 07'21" E 829.99

20' RIGHT OF WAY EASEMENT
DOC. NO. 10661047

INSTALL TEMPORARY SILT FENCE
SEE SANDARD DETAIL

10' 10'

206.00
N 60° 57'13" W 1005.26

GRASSY HILLSIDE

10' STORM DRAINAGE EASEMENT
DOC. NO. 12411801

PRIVATE STORM DRAINAGE EASEMENT
DOC. NO. 13862743 FIRST
(MAY BE SUPERCEDED BY
DOC. NO. 14501292)

LENGTH OF EXISTING DIRT ROAD LOCATED = 600'

APPROX. PERIMETER OF EROSION CONTROL BLANKETS

231.04
N 15° 02'00" E 315.19

N 36° 57'51" W 201.24

366-02-047
LANDS OF HENRY
DOC. NO. 22604682
R/S 739 M. 20&21

INSTALL TEMPORARY SILT FENCE
SEE SANDARD DETAIL

N 74° 58'00" W 89.95

PM 464 M. 2&3
PARCEL 1

R/S 137 M. 18
PARCEL 1

N 77° 51'27" W 504.97

10' WIDTH CONCRETE DRIVEWAY

N 12° 14'21" E 344.89

PM 348 M. 18
PARCEL A

366-02-04
LANDS OF ACCOLA
DOC. NO. 23605442

R/S 576 M. 21

PRIVATE STORM DRAINAGE EASEMENT
DOC. NO. 13862743 SECOND
(MAY BE SUPERCEDED BY
DOC. NO. 14501292)

N 77° 51'27" W 261.85

30' PRIVATE STORM DRAINAGE EASEMENT
DOC. NO. 14501292
(SUPERCEDED PRIVATE STORM DRAINAGE EASEMENT DOC. NO. 13862743)

STABILIZE THE ENTRANCE

17.5'
17.5'

14'
14'

REGNART ROAD

R/S 184 M. 48
PARCEL A

BASIS OF BEARINGS:
THE BEARING OF NORTH 00° 07' 21" EAST ALONG THE EASTERLY LINE OF TRACT NO. 6310, AS SHOWN ON THE MAP OF SAID TRACT FILED IN BOOK 439 OF MAPS AT PAGES 24-26, SANTA CLARA COUNTY RECORDS, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS SURVEY AND WAS ESTABLISHED BETWEEN FOUND MONUMENTS.

BENCH MARK: SET MAG NAIL FLUSH IN AC CURB WITH ASSUMED ELEVATION OF 608.00 AS OBTAINED FROM GOOGLE EARTH.

REGISTERED PROFESSIONAL ENGINEER
BARRETT CROOK
C 057196
Exp. 12-31-2023
4-13-2022
CIVIL
STATE OF CALIFORNIA

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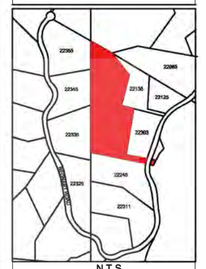

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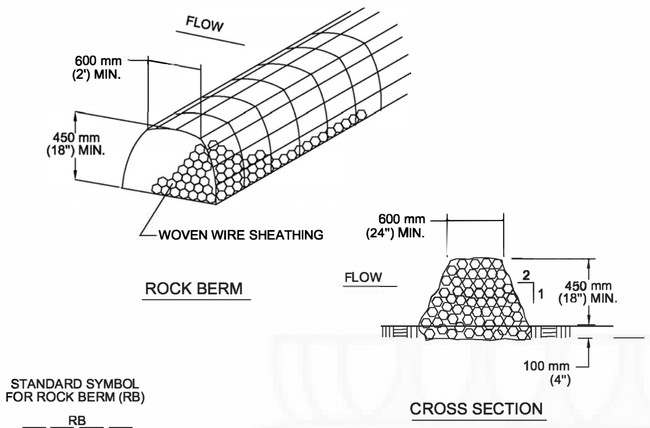
DRAWING TITLE:
C5
Erosion & Sedimentation Control

Scale:

Date:

Page No. :



ROCK BERM

CROSS SECTION

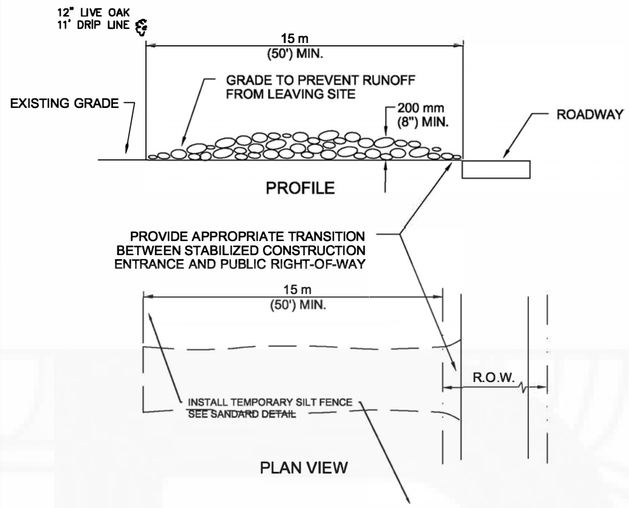
STANDARD SYMBOL
FOR ROCK BERM (RB)

RB

NOTES:

1. ROCK BERM IS RECOMMENDED TO PREVENT SEDIMENT IN SILT-LADEN SHEET FLOW AND CAN BE USED AT THE TOE OF FILL OR ON SIDE SLOPES ABOVE WATERWAYS OR DRAINAGE CHANNELS.
2. USE ONLY OPEN GRADED ROCK 75 to 125 mm (3 to 5") DIAMETER FOR ALL CONDITIONS.
3. THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM 25 mm (1") OPENING AND MINIMUM WIRE DIAMETER OF 12.9 mm (20 GAUGE).
4. THE ROCK BERM SHALL BE INSPECTED DAILY OR AFTER EACH RAIN, AND THE STONE AND/OR FABRIC CORE-WOVEN SHEATHING SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED, DUE TO SEDIMENT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
5. IF SEDIMENT REACHES A DEPTH EQUAL TO ONE-THIRD THE HEIGHT OF THE BERM OR 150 mm (6"), WHICHEVER IS LESS, THE SEDIMENT SHALL BE REMOVED AND DISPOSED OF ON AN APPROVED SITE AND IN A MANNER THAT WILL NOT CREATE A SEDIMENTION PROBLEM.
6. WHEN THE SITE IS COMPLETELY STABILIZED,THE BERM AND ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

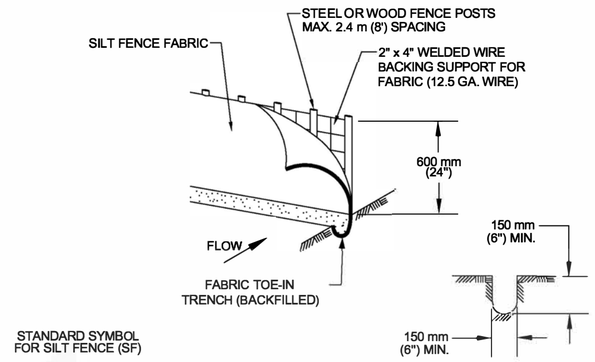
ROCK BERM (OPTIONAL)



NOTES:

1. STONE SIZE: 75-125 mm (3-5") OPEN GRADED ROCK.
2. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 15 m (50').
3. THICKNESS: NOT LESS THAN 200 mm (8").
4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
5. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASURE DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENTS THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

STABILIZED CONSTRUCTION ENTRANCE



STANDARD SYMBOL
FOR SILT FENCE (SF)

SF

L=

TRENCH CROSS SECTION

1. STEEL OR WOOD POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF 300 mm (12 INCHES). IF WOOD POSTS CANNOT ACHIEVE 300 mm (12 inches) DEPTH, USE STEEL POSTS.

2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.

3. THE TRENCH MUST BE A MINIMUM OF 150 mm (6 inches) DEEP AND 150 mm (6 inches) WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

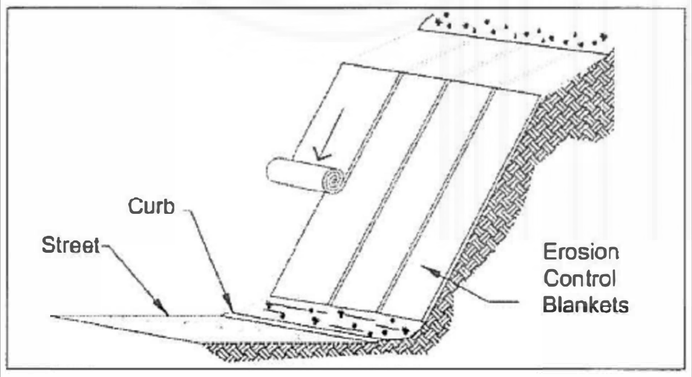
4. SILT FENCE FABRIC SHOULD BE SECURELY FASTENED TO EACH STEEL OR WOOD SUPPORT POST OR TO WOVEN WIRE , WHICH IS IN TURN ATTACHED TO THE STEEL OR WOOD FENCE POST.

5. INSPECTION SHALL BE MADE WEEKLY OR AFTER EACH RAINFALL EVENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTY AS NEEDED.

6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 150 mm (6 inches). THE SILT SHALL BE DISPOSED OF ON AN APPROVED SITE AND IN SUCH A MANNER THAT WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

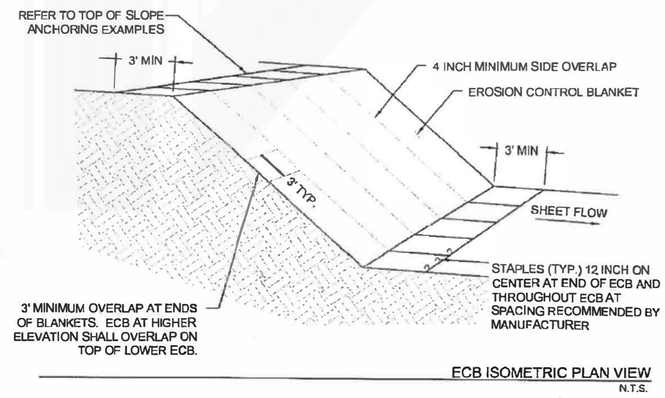
SILT FENCE



NOTES:

1. USE EROSION CONTROL BLANKETS AS TEMPORARY, DEGRADABLE, ROLLED EROSION CONTROL PRODUCTS TO REDUCE SOIL EROSION AND ASSIST IN THE ESTABLISHMENT AND GROWTH OF VEGETATION.

EROSION CONTROL BLANKET (OPTIONAL)



ECB ISOMETRIC PLAN VIEW

N.T.S.

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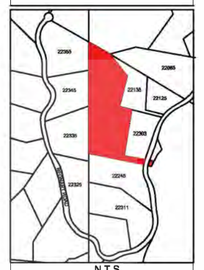

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C6
Erosion & Sedimentation Control Details

Scale:

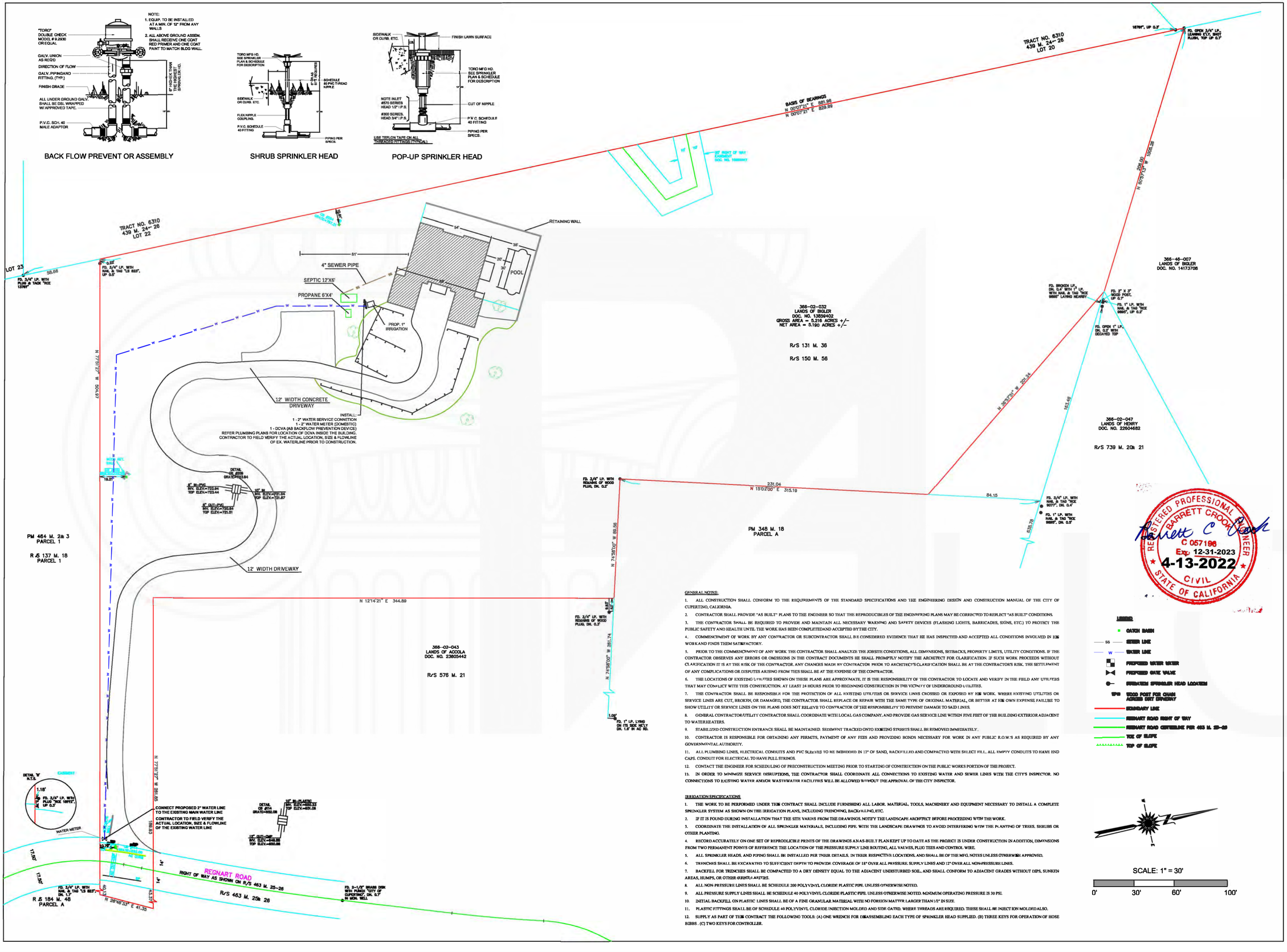
Date:

Page No. :

BACK FLOW PREVENT OR ASSEMBLY

SHRUB SPRINKLER HEAD

POP-UP SPRINKLER HEAD



GENERAL NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE ENGINEERING DESIGN AND CONSTRUCTION MANUAL OF THE CITY OF CUPERTINO, CALIFORNIA.
2. CONTRACTOR SHALL PROVIDE "AS BUILT" PLANS TO THE ENGINEER SO THAT THE REPRODUCIBLES OF THE ENGINEERING PLANS MAY BE CORRECTED TO REFLECT "AS BUILT" CONDITIONS.
3. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE AND MAINTAIN ALL NECESSARY WARNING AND SAFETY DEVICES (FLASHING LIGHTS, BARRICADES, SIGNS, ETC.) TO PROTECT THE PUBLIC SAFETY AND HEALTH UNTIL THE WORK HAS BEEN COMPLETED AND ACCEPTED BY THE CITY.
4. COMMENCEMENT OF WORK BY ANY CONTRACTOR OR SUBCONTRACTOR SHALL BE CONSIDERED EVIDENCE THAT HE HAS INSPECTED AND ACCEPTED ALL CONDITIONS INVOLVED IN HIS WORK AND FINDS THEM SATISFACTORY.
5. PRIOR TO THE COMMENCEMENT OF ANY WORK THE CONTRACTOR SHALL ANALYZE THE JOBSITE CONDITIONS, ALL DIMENSIONS, SETBACKS, PROPERTY LIMITS, UTILITY CONDITIONS. IF THE CONTRACTOR OBSERVES ANY ERRORS OR OMISSIONS IN THE CONTRACT DOCUMENTS HE SHALL PROMPTLY NOTIFY THE ARCHITECT FOR CLARIFICATION. IF SUCH WORK PROCEEDS WITHOUT CLARIFICATION IT IS AT THE RISK OF THE CONTRACTOR, ANY CHANGES MADE BY CONTRACTOR PRIOR TO ARCHITECT'S CLARIFICATION SHALL BE AT THE CONTRACTOR'S RISK. THE SETTLEMENT OF ANY COMPLICATIONS OR DISPUTES ARISING FROM THIS SHALL BE AT THE EXPENSE OF THE CONTRACTOR.
6. THE LOCATIONS OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND VERIFY IN THE FIELD ANY UTILITIES THAT MAY CONFLICT WITH THIS CONSTRUCTION. AT LEAST 24 HOURS PRIOR TO BEGINNING CONSTRUCTION IN THE VICINITY OF UNDERGROUND UTILITIES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES OR SERVICE LINES CROSSED OR EXPOSED BY HIS WORK. WHERE EXISTING UTILITIES OR SERVICE LINES ARE CUT, BROKEN, OR DAMAGED, THE CONTRACTOR SHALL REPLACE OR REPAIR WITH THE SAME TYPE OF ORIGINAL MATERIAL, OR BETTER AT HIS OWN EXPENSE. FAILURE TO SHOW UTILITY OR SERVICE LINES ON THE PLANS DOES NOT RELIEVE TO CONTRACTOR OF THE RESPONSIBILITY TO PREVENT DAMAGE TO SAID LINES.
8. GENERAL CONTRACTOR/UTILITY CONTRACTOR SHALL COORDINATE WITH LOCAL GAS COMPANY, AND PROVIDE GAS SERVICE LINE WITHIN FIVE FEET OF THE BUILDING EXTERIOR ADJACENT TO WATERHEATERS.
9. STABILIZED CONSTRUCTION ENTRANCE SHALL BE MAINTAINED. SEDIMENT TRACKED ONTO EXISTING STREETS SHALL BE REMOVED IMMEDIATELY.
10. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY PERMITS, PAYMENT OF ANY FEES AND PROVIDING BONDS NECESSARY FOR WORK IN ANY PUBLIC R.O.W.'S AS REQUIRED BY ANY GOVERNMENTAL AUTHORITY.
11. ALL PLUMBING LINES, ELECTRICAL CONDUITS AND PVC SLEEVES TO BE IMBEDDED IN 12" OF SAND, BACKFILLED AND COMPACTED WITH SELECT FILL, ALL EMPTY CONDUITS TO HAVE END CAPS. CONDUIT FOR ELECTRICAL TO HAVE PULL STRINGS.
12. CONTACT THE ENGINEER FOR SCHEDULING OF PRECONSTRUCTION MEETING PRIOR TO STARTING OF CONSTRUCTION ON THE PUBLIC WORKS PORTION OF THE PROJECT.
13. IN ORDER TO MINIMIZE SERVICE DISRUPTIONS, THE CONTRACTOR SHALL COORDINATE ALL CONNECTIONS TO EXISTING WATER AND SEWER LINES WITH THE CITY'S INSPECTOR. NO CONNECTIONS TO EXISTING WATER AND/OR WASTEWATER FACILITIES WILL BE ALLOWED WITHOUT THE APPROVAL OF THE CITY INSPECTOR.

IRRIGATION SPECIFICATIONS:

1. THE WORK TO BE PERFORMED UNDER THIS CONTRACT SHALL INCLUDE FURNISHING ALL LABOR, MATERIAL, TOOLS, MACHINERY AND EQUIPMENT NECESSARY TO INSTALL A COMPLETE SPRINKLER SYSTEM AS SHOWN ON THE IRRIGATION PLANS, INCLUDING TRENCHING, BACKFILLING, ETC.
2. IF IT IS FOUND DURING INSTALLATION THAT THE SITE VARIES FROM THE DRAWINGS, NOTIFY THE LANDSCAPE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
3. COORDINATE THE INSTALLATION OF ALL SPRINKLER MATERIALS, INCLUDING PIPE, WITH THE LANDSCAPE DRAWINGS TO AVOID INTERFERING WITH THE PLANTING OF TREES, SHRUBS OR OTHER PLANTING.
4. RECORD ACCURATELY ON ONE SET OF REPRODUCIBLE PRINTS OF THE DRAWINGS AN AS-BUILT PLAN KEPT UP TO DATE AS THE PROJECT IS UNDER CONSTRUCTION IN ADDITION, DIMENSIONS FROM TWO PERMANENT POINTS OF REFERENCE THE LOCATION OF THE PRESSURE SUPPLY LINE ROUTING, ALL VALVES, PLUG TEES AND CONTROL WIRE.
5. ALL SPRINKLER HEADS, AND PIPING SHALL BE INSTALLED PER THEIR DETAILS. IN THEIR RESPECTIVE LOCATIONS, AND SHALL BE OF THE MFG. NOTES UNLESS OTHERWISE APPROVED.
6. TRENCHES SHALL BE EXCAVATED TO SUFFICIENT DEPTH TO PROVIDE COVERAGE OF 18" OVER ALL PRESSURE SUPPLY LINES AND 12" OVER ALL NON-PRESSURE LINES.
7. BACKFILL FOR TRENCHES SHALL BE COMPACTED TO A DRY DENSITY EQUAL TO THE ADJACENT UNDISTURBED SOIL, AND SHALL CONFORM TO ADJACENT GRADES WITHOUT DIPS, SUNKEN AREAS, HUMPS, OR OTHER IRREGULARITIES.
8. ALL NON-PRESSURE LINES SHALL BE SCHEDULE 200 POLYVINYL CLORIDE PLASTIC PIPE, UNLESS OTHERWISE NOTED.
9. ALL PRESSURE SUPPLY LINES SHALL BE SCHEDULE 40 POLYVINYL CLORIDE PLASTIC PIPE. UNLESS OTHERWISE NOTED. MINIMUM OPERATING PRESSURE IS 30 PSI.
10. INITIAL BACKFILL ON PLASTIC LINES SHALL BE OF A FINE GRANULAR MATERIAL WITH NO FOREIGN MATTER LARGER THAN 1/2" IN SIZE.
11. PLASTIC FITTINGS SHALL BE OF SCHEDULE 40 POLYVINYL CLORIDE INJECTION MOLDED AND SIDE GATED. WHERE THREADS ARE REQUIRED. THESE SHALL BE INJECTION MOLDED ALSO.
12. SUPPLY AS PART OF THIS CONTRACT THE FOLLOWING TOOLS: (A) ONE WRENCH FOR DISASSEMBLING EACH TYPE OF SPRINKLER HEAD SUPPLIED. (B) THREE KEYS FOR OPERATION OF HOSE BIBBS . (C) TWO KEYS FOR CONTROLLER.

LEGEND

- CATCH BASIN
- SS — SEWER LINE
- W — WATER LINE
- PROPOSED WATER METER
- PROPOSED GATE VALVE
- SPRAWLER SPRINKLER HEAD LOCATION
- WOOD POST FOR CHAIN ACROSS DIRT DRIVEWAY
- BOUNDARY LINE
- REGNART ROAD RIGHT OF WAY
- REGNART ROAD CENTERLINE PER 463 M. 25-26
- TOE OF SLOPE
- TOP OF SLOPE

SCALE: 1" = 30'

0' 30' 60' 100'

REGISTERED PROFESSIONAL ENGINEER
BARRETT CROOKHAM
C 057196
Exp. 12-31-2023
4-13-2022
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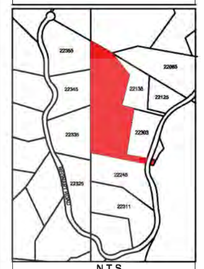

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C7
Utility Plan

Scale:

Date:

Page No. :

TRACT NO. 6310
439 M. 24-26
LOT 22

TRACT NO. 6310
439 M. 24-26
LOT 20

20' RIGHT OF WAY
EASEMENT
DOC. NO. 10661047

BASIS OF BEARINGS
N 00° 07'21" E 891.96
N 00° 07'21" E 829.99

2 STORY, 4 BED 4 BATH
SINGLE FAMILY UNIT

810.5 T.W.
801.5 B.W.
810.5 T.W.
804.0 B.W.
810.5 T.W.
806.0 B.W.
RETAINING WALL
810.5 T.W.
807.7 B.W.

94'
81'
35'
27'
20'
POOL
CONCRETE PAVER

PLAY GROUND
SEPTIC 12'X6'
RAINWATER SUMP TANK
PROPANE TANK
TURNAROUND
70' x 50' x 40'
40'
R27'
50'
PROPOSED WATER METER

775.0 T.W.
770.0 B.W.
770.0 T.W.
766.0 B.W.
RETAINING WALL
760.0 T.W.
755.0 B.W.

30' BYPASS LANE
70'
740.0 T.W.
736.0 B.W.
738.0 T.W.
735.6 B.W.
744.0 T.W.
739.0 B.W.
753.0 T.W.
742.0 B.W.
756.0 T.W.
748.5 B.W.
760.0 T.W.
752.36 B.W.

D=18"
18" CURB DRAINAGE
RETAINING WALL
RET WALL
END OF RET. WALL.
RETAINING WALL
PROPOSED CHANNEL
DISCHARGED TO
EXISTING CATCH BASIN
12' WIDTH DRIVEWAY
709.5 T.W.
706.0 B.W.
30' BYPASS LANE
703.5 T.W.
700.0 B.W.
RET. WALL
RETAINING WALL
END OF RET. WALL
697.1 T.W.
694.0 B.W.

PM 464 M. 2&3
PARCEL 1
R/S 137 M. 18
PARCEL 1

N 77° 51'27" W 504.97

N 12° 14'21" E 344.89

697.0 T.W.
688.0 B.W.
694.0 T.W.
684.2 B.W.
RETAINING WALL
692.0 T.W.
681.4 B.W.
688.0 T.W.
679.3 B.W.
684.0 T.W.
675.4 B.W.
680.0 T.W.
672.3 B.W.
676.0 T.W.
669.0 B.W.
672.0 T.W.
665.6 B.W.
668.0 T.W.
663.0 B.W.
664.0 T.W.
660.2 B.W.
660.0 T.W.
653.8 B.W.
656.0 T.W.
654.7 B.W.

N 77° 51'27" W 265.85

18" CURB DRAINAGE
20' GATE SETBACK
PRIVATE VEHICULAR
ACCESS GATE
RETAINING WALL
20' GATE SETBACK
BET. 25' AND 100' FROM CENTER LINE OF REGNART ROAD

GATE NOTES:
- MIN. CLEAR WIDTH BETWEEN HINGE POSTS (NO CENTER POSTS) SHALL BE 24'
- GATEPOSTS MUST BE LOCATED BEHIND THE BACK OF THE CURB SECTION OR EDGE OF PAVEMENT.
- THE FULL WIDTH OF A SIDEWALK OR PAVED WALKWAY MUST BE MAINTAINED AROUND ANY GATE APPURTENANCE.
- GATES MUST OPEN TO PROVIDE UNOBSTRUCTED ACCESS TO ALL PORTIONS OF THE TRAVELED WAY.
- SWING TYPE GATES SHALL HAVE A MINIMUM OF 6 INCHES OF CLEARANCE BETWEEN THE BOTTOM OF GATE
- AND THE TRAVELED SURFACE, THROUGH ITS ENTIRE OPERATING ARC.

17.5'
17.5'
PROPOSED CHANNEL
DISCHARGED TO
EXISTING CATCH BASIN
14'
14'
REGNART ROAD

R/S 184 M. 48
PARCEL A

366-02-04
LANDS OF ACCOLA
DOC. NO. 23605442

R/S 576 M. 21

231.04
N 15° 02'00" E 315.19

N 74° 58'00" W 89.56

PM 348 M. 18
PARCEL A

206.00
N 60° 57'13" W 1005.26

366-02-047
LANDS OF HENRY
DOC. NO. 22604682
R/S 739 M. 20&21

N 36° 57'31" W 201.24

BASIS OF BEARINGS:
THE BEARING OF NORTH 00° 07' 21" EAST ALONG THE EASTERLY LINE OF TRACT NO. 6310, AS SHOWN ON THE MAP OF SAID TRACT FILED IN BOOK 439 OF MAPS AT PAGES 24-26, SANTA CLARA COUNTY RECORDS, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS SURVEY AND WAS ESTABLISHED BETWEEN FOUND MONUMENTS.

BENCH MARK: SET MAG NAIL FLUSH IN AC CURB WITH ASSUMED ELEVATION OF 608.00 AS OBTAINED FROM GOOGLE EARTH.

REGISTERED PROFESSIONAL ENGINEER
BARRETT CROOK
C 057186
Exp. 12-31-2023
CIVIL
STATE OF CALIFORNIA
4-13-2022

SCALE: 1" = 30'
0' 30' 60' 100'

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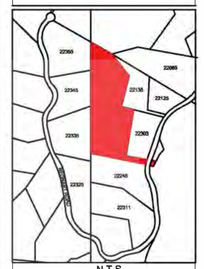

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Project Name and Address:
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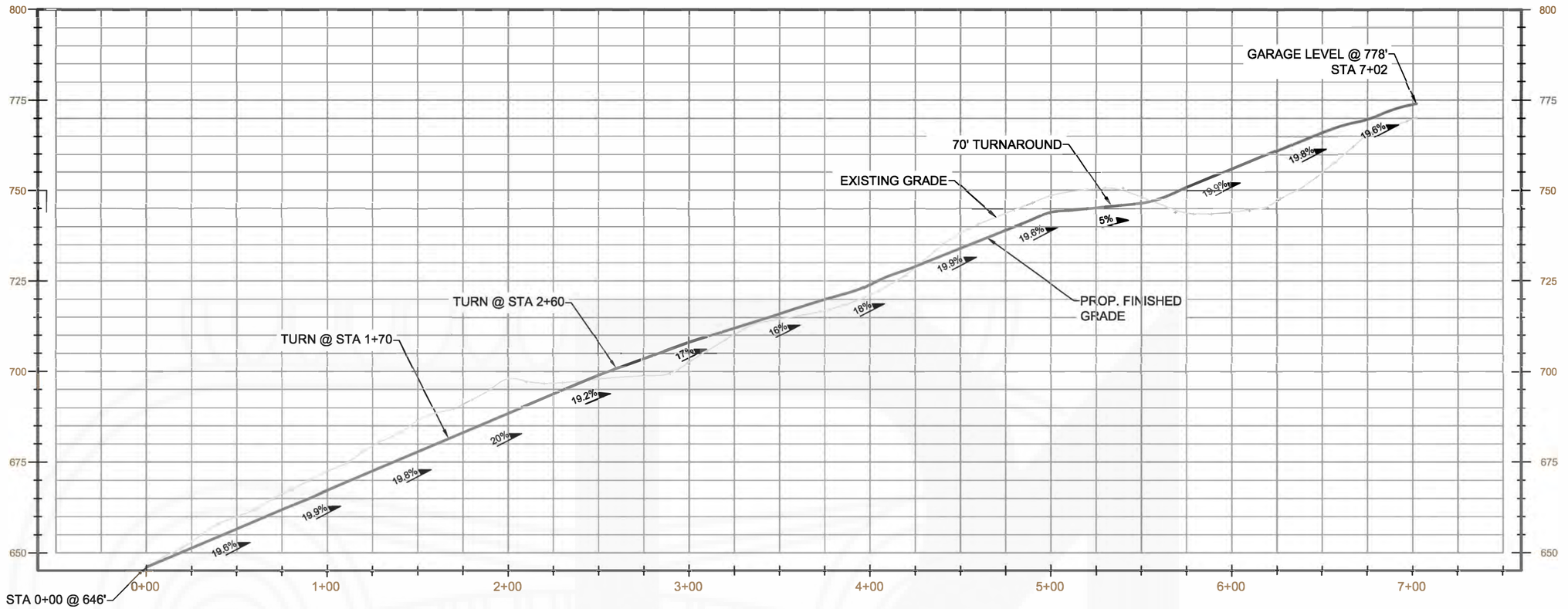


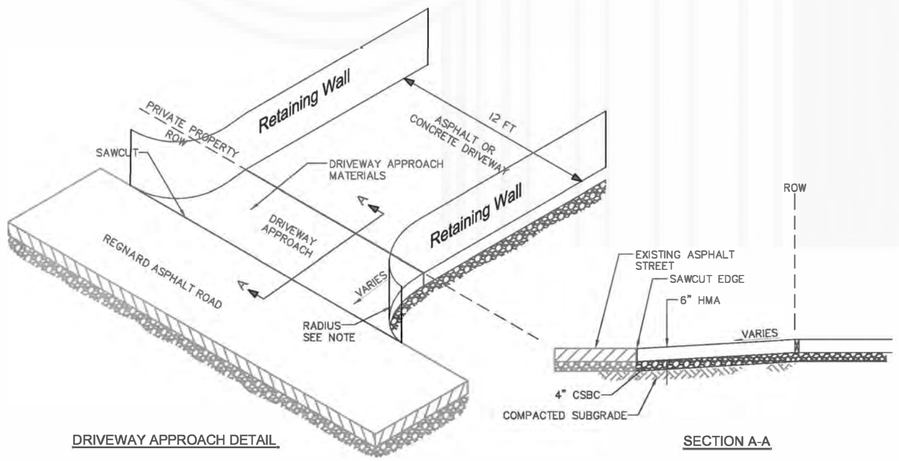
DRIVEWAY PROFILE

HOR. SCALE: 1" = 30'

0' 30' 60' 100'

VER. SCALE: 1" = 60'

0' 60' 120' 200'

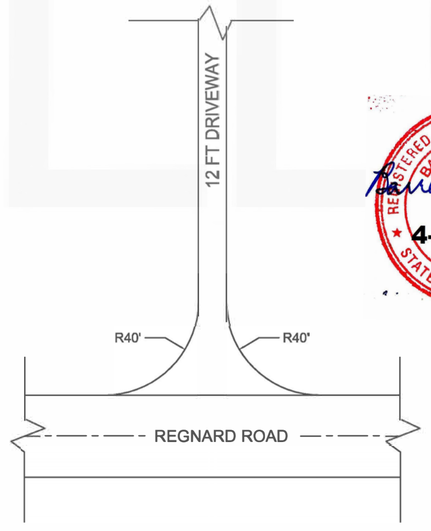


DRIVEWAY APPROACH DETAIL

SECTION A-A

NOTES:

- SAWCUT AND TACK ROAD TO DRIVEWAY APPROACH JOINT.
- DRIVEWAY APPRAOCH TO BE 6" HMA CLASS $\frac{1}{2}$" PG 64-22 ASPHALT IN 2" LIFTS.
- 12' WIDE HOT MIX ASPHALT OR CONCRETE TO BE PLACED OVER COMPACTED SUBGRADE AND 4" PF CSTC COMPACTED TO 95%.
- EDGE RADIUS: 12'
- DRIVEWAY APPROACH SHALL NOY CONTAIN REINFORCING STEEL.
- THE SURFACE SHALL BE APPROVED BY A CIVIL ENGINEER AND BE ABLE TO SUPPORT APPARATUS WEIGHING AT LEAST 75,000 POUNDS.



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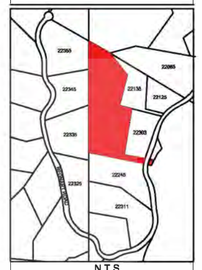

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DRIVEWAY PROFILE

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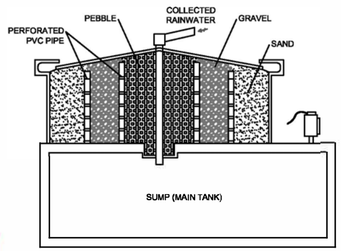
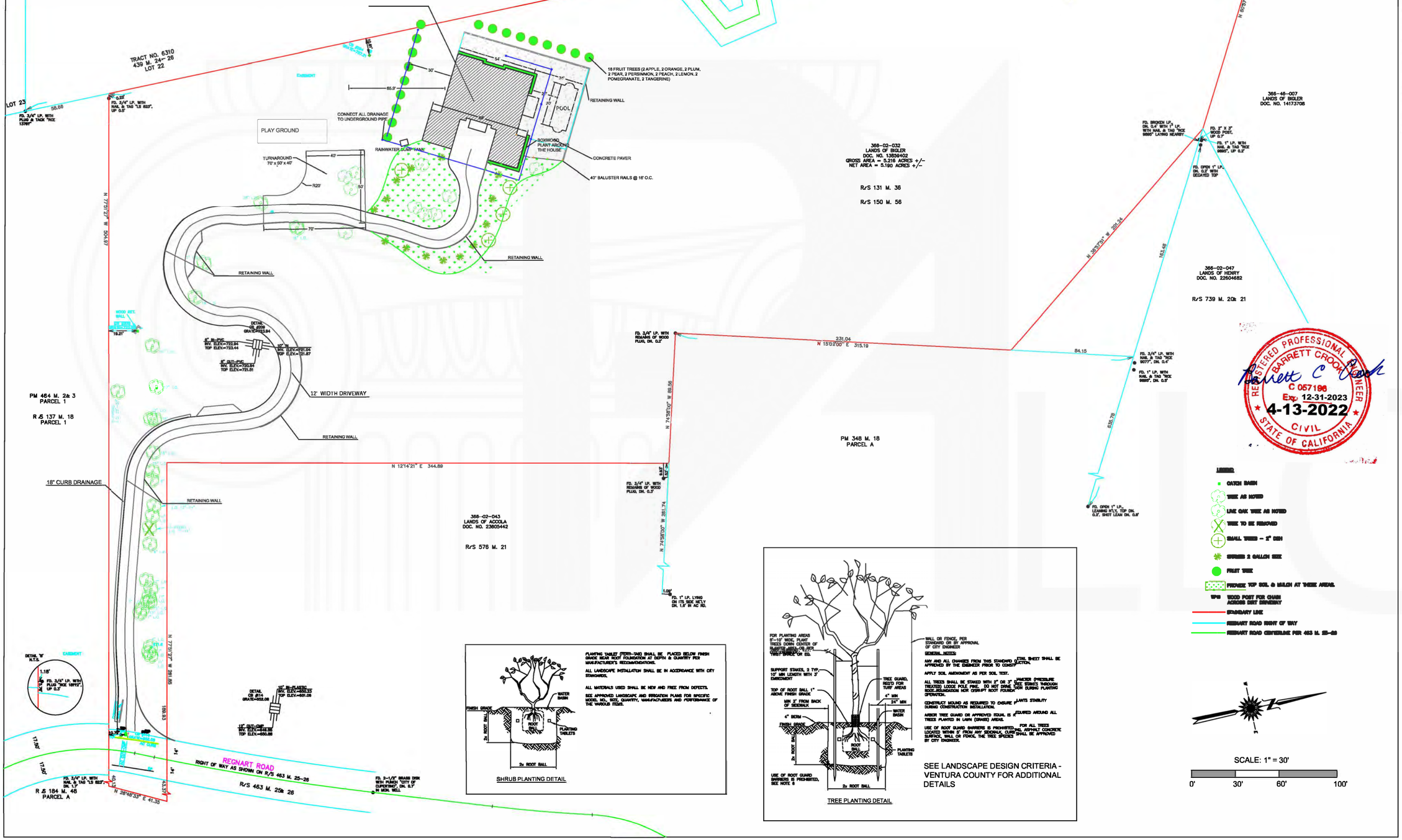


Planting Schedule (New Trees Only)			
Discription	Family and Type	Type	Count
RPC Shrub: Fountain Grass 2'			
Blue Eyed Grass	RPC Shrub: Fountain Grass 2'	Fountain Grass 2'	14
2" Diameter at Breast Height (DBH) Small Tree			
Deciduous Tree	1 Gal. Willow Deciduous Oak Tree	Quercus phellos	4
Fruit Trees			
2 APPLE, 2 ORANGE, 2 PLUM, 2 PEAR, 2 PERSIMMON, 2 PEACH, 2 LEMON, 2 POMEGRANATE, 2 TANGERINE			18
RPC Tree - Fall: Black Oak - 60'			
California Black Oak	RPC Tree - Fall: Black Oak - 60'	Black Oak - 60'	2



SHRUB PLANTING DETAIL

PLANTING TABLET (FERTI-TAB) SHALL BE PLACED BELOW FINISH GRADE NEAR ROOT FOUNDATION AT DEPTH & QUANTITY PER MANUFACTURER'S RECOMMENDATIONS.

ALL LANDSCAPE INSTALLATION SHALL BE IN ACCORDANCE WITH CITY STANDARDS.

ALL MATERIALS USED SHALL BE NEW AND FREE FROM DEFECTS.

SEE APPROVED LANDSCAPE AND IRRIGATION PLANS FOR SPECIFIC MODEL NO., SIZE, QUANTITY, MANUFACTURERS AND PERFORMANCE OF THE VARIOUS ITEMS.

TREE PLANTING DETAIL

GENERAL NOTES:

ANY AND ALL CHANGES FROM THIS STANDARD DETAIL SHEET SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.

APPLY SOIL AMENDMENT AS PER SOIL TEST.

ALL TREES SHALL BE STAKED WITH 2" OR 3" DIAMETER (PRESSURE TREATED) LODGE POLE PINE. DO NOT DRIVE STAKES THROUGH ROOT BALL/FOUNDATION NOR CROSS-PUT ROOT FOUNDATION DURING OPERATION.

CONSTRUCT MOUND AS REQUIRED TO ENSURE PLANTS STABILITY DURING CONSTRUCTION INSTALLATION.

ARBOR TREE GUARD OR APPROVED EQUAL IS REQUIRED AROUND ALL TREES PLANTED IN LAWN (GRASS) AREAS.

USE OF ROOT GUARD BARRIERS IS PROHIBITED FOR ALL TREES LOCATED WITHIN 5' FROM ANY SIDEWALK, CURB, ASPHALT CONCRETE SURFACE, WALL OR FENCE. THE TREE SPECIES SHALL BE APPROVED BY CITY ENGINEER.

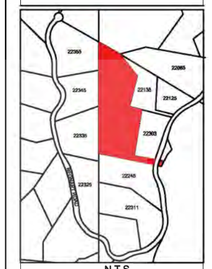
SEE LANDSCAPE DESIGN CRITERIA - VENTURA COUNTY FOR ADDITIONAL DETAILS

LEGEND:

- CATCH BASIN
- TREE AS NOTED
- LIVE OAK TREE AS NOTED
- TREE TO BE REMOVED
- SMALL TREES – 2" DBH
- SHRUBS 2 GALLON SIZE
- FRUIT TREE
- PREPARE TOP SOIL & MULCH AT THESE AREAS.
- WPB WOOD POST FOR CHAIN ACROSS DIRT DRIVEWAY
- BOUNDARY LINE
- REGNART ROAD RIGHT OF WAY
- REGNART ROAD CENTERLINE PER 463 M. 25–26

SCALE: 1" = 30'

0' 30' 60' 100'



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Landscape Plan

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Date:

Page No. :

GENERAL NOTES

DESIGN DATA:
APPLICABLE DESIGN LOADS: PER ASCI/SEI 7-16

FLOOR LIVE LOAD: 40 PSF
ROOF LIVE LOAD: 20 PSF
BASIC WIND SPEED: 91 MPH
SNOW: 0 PSF
STRUCTURAL CATEGORY: II
FLOOR DEAD LOAD: 20PSF
ROOF DEAD LOAD: 20PSF
EXPOSURE: D
SEISMIC DESIGN CATEGORY = D

ALL PRESSURES SHOWN ARE BASED ON ASD DESIGN.

SHEAR WALL SCHEDULE

SHEAR WALL SCHEDULE 2019 C.B.C.

S.W. TYPE	SHEAR PANEL DESCRIPTION	ALLOWABLE SHEAR (PLF)	SILL BOLT'G @ FOUNDATION	TOP PL. TO BLK'G.	SILL NAILING UPPER STORIES
1	7/8" STUCCO OVER PAPER BACKED LATH W/ 16 GA STAPLES AT 6" O.C. AT TOP & BOTTOM PLATES, EDGE OF SHEAR WALL AND ON FIELD (CBC TABLE 2306.4.5) SEE NOTE 3 BELOW.	180 *180	5/8" @ 48" O.C. 5/8" @ 24" O.C.	A35 @ 16" A35 @ 16"	16d @ 8" O.C. 16d @ 4" O.C.
2	15/32" APA RATED PLYWOOD SHT'G. STRUCT I WITH 8d COMMON NAILS @ 6" O.C. AT EDGES & 12" O.C. FIELD (TABLE 2306.4.1 CBC) SEE NOTES 1,2,8,9, AND 10 BELOW.	280 *560	5/8" @ 32" O.C. 5/8" @ 16" O.C.	A35 @ 16" A35 @ 8"	16d @ 6" O.C. 16d @ 3" O.C.
3	15/32" APA RATED PLYWOOD SHT'G. STRUCT I WITH 8d COMMON NAILES @ 4" O.C. AT EDGES & 12" O.C. FIELD (TABLE 2306.4.1. CBC) SEE NOTES 1,2,4,5,8,9, AND 10 BELOW.	430 *860	5/8" @ 24" O.C. 5/8" @ 14" O.C.	A35 @ 8" LTP4 @ 6"	16d @ 4" O.C. 16d @ 2" O.C.
4	15/32" APA RATED PLYWOOD SHT'G STRUCT I WITH 8d COMMON NAILS @ 3" O.C. AT EDGES & 12" O.C. FIELD (TABLE 2306.4.1. CBC) SEE NOTES 1,2,4,5,8,9, AND 10 BELOW.	550 *1100	5/8" @ 20" O.C. 3/4" @ 16" O.C.	A35 @ 8" LTP4 @ 6"	16d @ 3" O.C. 1/4"Ø X 3-1/2" LAG SC. @ 2" O.C.
5	15/32" APA RATED PLYWOOD SHT'G. STRUCT I WITH 8d COMMON NAILS @ 2" O.C. AT EDGES & 12" O.C. FIELD (TABLE 2306.4.1. CBC) SEE NOTES 1,2,4,5,8,9, AND 10 BELOW.	730 *1460	5/8" @ 16" O.C. 3/4" @ 16" O.C.	A35 @ 8" LTP4 @ 6"	16d @ 2-1/2" O.C. 1/4" Ø X 3-1/2" LAG SC. @ 2" O.C.
6	15/32" APA RATED STRUCT. I SHT'G. WITH 10d COMMON NAILS @ 2" O.C. AT EDGES & 12" O.C. FIELD OVER 3 X STUDS (TABLE 2306.4.1 CBC) SEE NOTES 1,4,5,8,9, AND 10 BELOW.	870 *1740	3/4" @ 16" O.C. 3/4" @ 8" O.C.	A35 @ 6" LTP4 @ 4-1/2"	#12 X 3-1/2" WD. SC. @ 2" O.C. 1/4" Ø X 3-1/2" LAG SC. @ 1-1/2" O.C.

NOTES:

1. ALL EDGES OF PLYWOOD SHEAR WALLS MUST BE BLOCKED WITH 2X SOLID BLOCKING.
2. DESIGNATES SILL BOLTING OR NAILING WHERE SHEAR WALL PANELS ARE TO BE APPLIED TO BOTH SIDES OF WALL.
3. PAPER BACKED SELF-FURRING EXPANDED METAL OR WOVEN WIRE LATH AND PORTLAND CEMENT PLASTER.
4. FRAMING AT ADJOINING PANEL EDGES SHALL BE 3-INCH NOMINAL OR WIDER AND NAILS SHALL BE STAGGERED. (USE 3X SILL PLATE @ FOUND., FOR SHEAR LOADS LESS THAN 350 PLF 2X SILL PLATE MAY BE USED.)
5. WHERE PANELS ARE APPLIED ON BOTH FACES OF A WALL AND NAILS SPACING IS LESS THAN 6" O.C. ON EITHER SIDE. PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS OR FRAMING SHALL BE 3" NOMINAL OR THICKER & NAILS ON EACH SIDE SHALL BE STAGGERED. (USE 3 X SILL PLATE @ FOUND.)
6. ALL CONTINUOUS EXTERIOR AND INTERIOR SHEAR/BEARING WALL FOOTINGS TO HAVE 5/8"Ø A.B.'S @ 48" O.C. WITH 3" X 3" X 1/4" PLATE WASHERS U.N.O. MINIMUM OF TWO BOLTS PER EACH PIECE OF SILL PLATE AT 4" TO 12" CLEARANCE TO THE END AND 7" MINIMUM EMBEDMENT.(FOR TWO POUR SYSTEM,BOLTS SHALL BE EMBEDDED 4 INCH MIN. INTO FIRST POUR.)

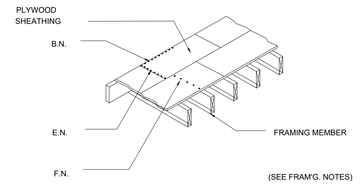
(SEE NOTE 12 FOR A.B. LENGTH.)

7. ALL INTERIOR NON-BEARING FTGS TO HAVE 3/16" Ø SHOT PINS AT 32" O.C., I.E., HILTI SHOT PINS (ICC ESR-1663).
8. USE APA RATED PLYWOOD SHEATHING. OR O.S.B. PANEL. ALL PLYWOOD SHALL BE DOUGLAS FIR. 4-PLY MIN. OTHER SPECIES MAY REQUIRE CHANGES.
9. USE 3 X 3 X 1/4 PLATE WASHERS WITH 5/8"Ø A.B. AT ALL SHEAR WALLS. USE 3 X 3 X 5/16 PLATE WASHERS WITH 3/4"Ø A.B. AT ALL SHEAR WALLS.
10. AT EXISTING FOOTINGS, USE THREADED RODS W/ SIMPSON "SET-XP" EPOXY 7" MIN. EMB. W/MIN. EDGE DIST. OF 1-7/8" (ICC ESR-2508) (SPECIAL INSPECTION REQ'D.)
11. ALL ANCHOR BOLTS SHALL CONFORM TO ASTM A-307 U.N.O.

12. ANCHOR BOLT SPEC.:

	BOLT LENGTH	
	SINGLE POUR	DOUBLE POUR
2X SILL	12"	16"
3X SILL	14"	18"

PLYWOOD DIAPHRAGM



NAILING: (EXCEPT WHERE NOTED OTHERWISE)

	ROOF NAIL'G	FLOOR NAIL'G
B.N. = BOUNDARY NAILING	8d @ 6" O.C.	10d @ 6" O.C.
E.N. = EDGE NAILING	8d @ 6" O.C.	10d @ 6" O.C.
F.N. = FIELD NAILING	8d @ 12" O.C.	10d @ 10" O.C.

NOTES:

1. NAILS SHALL BE GALV. COMMON(HOT-DIPPED OR TUMBLED), PLACED NOT LESS THAN 3/8" FROM PANEL EDGES AND SHALL BE FIRMLY DRIVEN.
2. NO UNBLOCKED PIECE LESS THAN 12" SHALL BE USED.
3. WOOD STRUCTURAL PANELS SHALL COMPLY WITH 2019 CBC STANDARD AND SHALL BE APA RATED EXPOSURE I.
4. WOOD STRUCTURAL PANELS, WHEN USED, SHALL COMPLY WITH THE REQUIREMENTS FOR THEIR TYPE IN DOC PS1-95 OR PS2-92.
5. ALL PANELS SHALL BE IDENTIFIED BY TRADE MARK OF AN APPROVED TESTING & GRADING AGENCIES, APA, TECO OR PITTSBURG.

NAILING SCHEDULE

CONNECTION:(TABLE 2304.9.1)

1.	JOISTS TO SILL OR GURDER, TOE NAIL	3 - 8d
2.	BRIDGING TO JOISTS, TOE NAIL EA. END	2 - 8d
3.	1X6 SUBFLR. OR LESS TO EA. JST., FACE NAIL	2 - 8d
4.	WIDER THAN 1X6 SUBFLR. TO EA. JST., FACE NAIL	3 - 8d
5.	2" SUBFLR. TO JST. OR GURDER, BUND & FACE NAIL	2 - 16d
6.	SILL PLATE TO JST. OR BLK'G., FACE NAIL	16d @ 16" O.C.
7.	TOP PLATE TO STUD, END NAIL	2 - 16 d
8.	RAFT. BLK'G TO TOP PLATE, FACE OR TOE NAIL	16d @ 8" O. C.
9.	STUD TO SILL PLATE, TOE NAIL	4 - 8d
10.	DOUBLE STUDS, FACE NAIL	16d @ 24" O.C.
11.	DOUBLE TOP PLATES, FACE NAIL	16d @ 16" O.C.
12.	TOP PLATES LAPS & INTERSECTIONS, FACE NAIL	2 - 16d
13.	CONTINUOUS HEADER, TWO PIECES	16d @ 16" O.C. ALONG EA. SIDE
14.	CEILING JOISTS TO PLATE, TOE NAIL	3 - 8d
15.	CONTINUOUS HEADER TO STUD, TOE NAIL	4 - 8d
16.	CEILING JOISTS, LAPS O/ PARTITIONS, FACE NAIL	3 - 16d
17.	CEILING JOISTS TO PARALLEL RAFTERS, FACE NAIL	3 - 16d
18.	RAFTER TO TOP PLATE, TOE NAIL	3 - 8d
19.	1" BRACE TO EA. STUD & PLATE, FACE NAIL	2 - 8d
20.	1X8 SHT'G. OR LESS TO EA. BEARING WALL FACE NAIL	2 - 8d
21.	WIDER THAN 1X8 SHT'G. TO EA. BEARING WALL FACE NAIL	3 - 8d
22.	BUILT-UP CORNER STUDS	16d @ 24" O.C.
23.	BUILT-UP GRADERS & BEAMS	20d @ 32" O.C. @ TOP & BOT. & STAGG. 2 - 20d @ END & @ EA. SPLICE
24.	2" PLANKS	2 - 16d @ EA. BRG.
25.	PARTICLE BD. - WALL SHTG. (TO FRMG.)	8d
26.	PLYWOOD -	
	SUBFLR. RF. & WALL SHTG. (TO FRMG.):	
	1/2" & LESS	8d
	5/8" - 3/4"	8d
	7/8" - 1"	8d
	1 1/8" - 1 1/4"	10d
	COMBINATION SUBFLR. / UNDERLAYMENT (TO FRMG.):	
	3/4" & LESS	8d
	7/8" - 1"	8d
	1 1/8" - 1 1/4"	10d
	FIBERBD. SHTG.:	
	1/2"	NO. 11 GA. 6d, NO. 16 GA.
	25/32"	NO. 11 GA. 6d, NO. 18 GA.

NOTE:

1. ALL NAILS SHALL BE COMMON WIRE NAILS. WHERE DRIVING OF NAILS CAUSES SPLITTING HOLES FOR THE NAILS SHALL BE SUB DRILLED.
2. FASTENERS IN PRESERVATIVE-TREATED WOOD SHALL BE OF HOT-DIPPED ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER.(CBC 2304.9.5)

GENERAL NOTES:

1. CONTRACTOR TO ASSUME FULL RESPONSIBILITY FOR ABIDING TO ALL APPLICABLE CALIFORNIA BUILDING CODES, LOCAL CITY ORDINANCES, ZONING REQUIREMENTS, AND LICENSING/PERMIT REQUIREMENTS. CONTRACTOR IS FULLY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES INCLUDING WITHOUT LIMITATION TO DEMOLITION, EXCAVATION AND ERECTION PROCEDURES.
2. THE CONTRACTOR SHALL EXAMINE THE CONSTRICTION DOCUMENTS AND NOTIFY THE PROJECT ENGINEER & ARCHITECT OF ANY DISCREPANCIES, ERRORS, OR OMISSIONS SHE/HE MAY FIND BEFORE PROCEEDING WITH THE WORK.
3. NOTIFY THE PROJECT ENGINEER OF ANY DESIGN CHANGES PROPOSED BY OWNER OR THE CONTRACTOR DURING THE COURSE OF CONSTRUCTION. SUCH CHANGES AFFECTING ROOM ADDITION DESIGN MAY ALSO AFFECT STRUCTURAL DESIGN.
4. ANY SUBCONTRACTOR WHICH AGREES TO CONSTRUCT THE PROJECT PURSUANT TO THESE PLANS FULLY ASSUMES THE RISK OF ALL ERRORS AND OMISSIONS WHICH SHOULD HAVE BEEN DETECTED BY A CAREFUL REVIEW BY A KNOWLEDGEABLE LICENSED CONTRACTOR, THAT WHICH FOR ANY REASON WERE NOT RESOLVED DURING THE BIDDING OR NEGOTIATION PROCESS. FURTHER, THE CONTRACTOR SHALL CAREFULLY REVIEW THESE PLANS AS THE WORK PROGRESSES IN ORDER TO IDENTIFY ANY SIGNIFICANT ERRORS AND OMISSIONS AND TO ASCERTAIN ALL NECESSARY INFORMATION BEFORE PROCEEDING WITH THE AFFECTED WORK, AND ASSUMES THE RISK OF ANY AND ALL LOSS, INCLUDING DELAY, WHICH MAY BE CAUSED OR CONTRIBUTED TO BY THE FAILURE TO ASCERTAIN CORRECT OR NECESSARY INFORMATION IN A TIMELY MANNER.
5. ALL TRADES SHALL, AT ALL TIMES, KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY THEIR WORK, AND AT THE COMPLETION OF THE WORK SHALL REMOVE ALL RUBBISH FROM AND ABOUT THE JOBSITE AND ALL THEIR TOOLS, SCAFFOLDING AND SURPLUS MATERIALS, AND SHALL LEAVE THE JOB BROOM CLEAN. INCLUDING REMOVING ALL LABELS, STICKERS, PAINT SMEARS, ETC., FROM LIGHTING FIXTURES, PLUMBING FIXTURES, GLASS SURFACES, FINISH HARDWARE, CABINETS, COUNTER TOPS, ETC.
6. EXCEPT WHERE MORE STRINGENT REQUIREMENTS ARE NOTED OR SHOWN ON THE PLANS, WORKMANSHIP & MATERIALS SHALL CONFORM TO THE LATEST EDITION OF THE C.B.C. OR LOCAL CODE.
7. THE PLANS SHALL BE REVIEWED FOR DIMENSIONAL & EXISTING SITE CONFORMANCE WITH THE PLANS BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE ARCHITECT & ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES.
8. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS IN THE FIELD, AND ALL QUESTIONS AS TO DIMENSIONS AND FIELD CONDITIONS SHALL BE RESOLVED BEFORE THE AFFECTED WORK PROCEEDS. NO DIMENSIONS SHALL BE OBTAINED BY SCALING THESE PLANS.
9. CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR DIMENSIONS AND CONDITIONS OF THE JOB.
10. THE PRECISE DIMENSIONS AND LOCATIONS OF ALL DOOR, WINDOW AND ROOF OPENINGS SHALL BE DETERMINED FROM DRAWINGS AND OTHER FLOOR, WALL OPENING REQUIRED BY MECHANICAL OR ELECTRICAL SHALL BE VERIFIED FROM SHOP DRAWINGS, EQUIPMENT DATA SHEETS, ETC. AS REQUIRED.
11. ITEMS IDENTIFIED BY TRADE NAMES MAY BE SUBSTITUTED BY APPROVED EQUALS.
12. NOTES & DETAILS ON DRAWINGS SHALL PRECEDE THESE GENERAL NOTES.
13. PROVIDE ANY SHORING & OR BRACING PRIOR TO REMOVING EXISTING WALLS, BEAMS, OR SUPPORTS FOR CONSTRUCTION. REMOVE SHORING ONLY WHEN NEW SUPPORTS ARE IN PLACE AND SECURED.
14. PROVIDE RED HEADS INTO EXISTING CONCRETE AT ALL SHEAR WALLS PER MFG. SPECIFICATIONS. SEE SHEAR WALL SCHEDULE FOR SIZE AND SPACING.
15. PROVIDE SIMPSON ST-6224 BETWEEN NEW WALLS AND EXISTING WALLS AT THE DOUBLE TOP PLATE.
16. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON DRAWINGS AND PROTECT THEM FROM DAMAGE
17. DO NOT CUT POST TENSION SLABS. CONTRACTOR TO DETERMINE EXISTING CONDITIONS PRIOR TO START OF CONSTRUCTION.
18. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS FOR FOOTING, BEAMS AND JOISTS, SIZES, LOCATIONS, ETC., AND SHALL NOTIFY THE ARCHITECT & ENGINEER OF ANY DISCREPANCIES.
19. DOWEL NEW INTO EXISTING SLABS W/ #4 REBAR @ 24" O.C. AND FOOTINGS W/ DOWELS TO MATCH NEW REINF. SIZE/ LOCATION.

ENGINEERING NOTES

1. CONCRETE SLABS ON GRADE HAVE NOT BEEN DESIGNED BY THE STRUCTURAL ENGINEER.
2. THE VIBRATIONAL EFFECTS OF MECHANICAL EQUIPMENT HAVE NOT BEEN CONSIDERED BY THE STRUCTURAL ENGINEER.
3. THE DESIGN, ADEQUACY AND SAFETY OF ERECTION, BRACING SHORING, TEMPORARY SUPPORTS ETC., IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR, AND HAS NOT BEEN CONSIDERED BY THE STRUCTURAL ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING THE ENTIRE COURSE OF CONSTRUCTION. THE ENGINEER SHALL NOT BE HELD RESPONSIBLE FOR FIELD INSPECTION/OBSERVATION OF THE ABOVE ITEMS.
4. "THE SOIL REPORT IS DONE BY AMERICAN SOIL TESTING & ENGINEERING INC. REPORT # 21-7568-S; DATED 02/07/2022. AMERICAN SOIL TESTING & ENGINEERING INC. @ 408-559-4400 SHALL BE RETAINED TO PROVIDE OBSERVATION AND TESTING SERVICES DURING THE GRADING AND FOUNDATION PHASE OF CONSTRUCTION PER SOIL REPORT RECOMMENDATIONS."

STRUCTURAL SYMBOLS

△ INDICATES SHEAR WALL. SEE FOUNDATION, FRAMING PLAN AND SHEAR WALL SCHEDULE FOR TYPE, SILL BOLTING, SHT'G., ETC. NOTE: FOR SILL BOLTING AT EXISTING FOOTINGS, USE 5/8" Ø THREADED RODS W/ SIMPSON "SET-XP" EPOXY 7" MIN. EMB. PER ICC ESR-2508 THE SAME SIZE & SPACING AS CALLED FOR ON PLANS

☒ INDICATES POST (BELOW BEAM)

MIN. POST SIZE/TYPE AS FOLLOWS U.N.O.:

BEAM SIZE	POST SIZE
4 X 12 & SMALLER	2-2X4 W/16d NAILS @ 12" O.C.
4 X 14 & LARGER	4X4
6 X 10 & SMALLER	4X6
6 X 12 & LARGER	6X6 SEE HOLDDOWN DETAILS AND TYPICAL WALL

FRAMING FOR FURTHER POST SIZE REQUIREMENTS. POSTS ARE TO CONTINUE DOWN TO FOUNDATION.

FOUNDATION NOTES

GENERAL

1. SOIL BENEATH FOOTINGS AND SLABS SHALL BE COMPACTED PER 2019 C.B.C. (90%) RELATIVE COMPACTION MINIMUM.
2. CONTINUOUS FOOTINGS AND GRADE BEAMS SHALL BE EXCAVATED TO THE DEPTH SHOWN ON THE DRAWINGS BELOW UNDISTURBED SOIL OR COMPACTED EARTH. PROVIDE 1-#4 HORIZONTAL BARS ON TOP AND BOTTOM U.N.O. ON FOUND. PLAN.
3. ALLOWABLE SOIL BEARING PRESSURE IS ASSUMED TO BE 1500. PSF IF NO SOILS REPORT IS PROVIDED.
4. SLAB ON GRADE: 4 INCH. NET CONCRETE SLAB WITH #3 BARS @ 18" O.C. EACH @ CENTER OF SLAB OVER 2 INCH OF SAND OVER 6 MIL. VISQUEEN OVER 2" SAND BED OVER COMPACTED SOIL. U.N.O.
5. NO TRENCHES OR EXCAVATIONS FIVE FEET IN DEPTH OR GREATER INTO WHICH A PERSON SHALL BE REQUIRED TO DESCEND SHALL BE MADE WITHOUT PROPER PERMIT.
6. THE MINIMUM BOLTING FOR SILL PLATES TO FOUNDATION SHALL BE AS FOLLOWS: 5/8" DIAMETER ANCHOR BOLTS WITH 7" MIN EMBEDMENT IN CONCRETE WITH SPACING NO GREATER THAN 4 FEET O.C. NOR FURTHER THAN 12" FROM CORNERS (MIN 2 BOLTS PER PIECE). SEE THE FOUNDATION PLAN & SHEAR WALL SCHEDULE FOR FURTHER BOLTING REQUIREMENTS.(FOR TWO POUR SYSTEMS,BOLTS SHALL BE EMBEDDED 4 INCH MIN. INTO FIRST POUR.)
7. PIPES OR DUCTS THAT EXCEED ONE THIRD THE SLAB OR CONC. WALL THICKNESS SHALL NOT BE PLACED IN STRUCTURAL CONC. UNLESS SPECIFICALLY DETAILED. SEE MECHANICAL AND/OR ELECTRICAL DRAWINGS FOR LOCATION OF SLEEVES, ACCESSORIES, ETC.
8. PIPES MAY PASS THRU STRUCTURAL CONC. IN SLEEVES, BUT SHALL NOT BE EMBEDDED THEREIN.
9. PROVIDE 3/4" CAMBERS AT ALL EXPOSED CORNERS.
10. SEE ARCHITECTURAL PLANS FOR MOLDS, GROOVES, ORNAMENTS, CLIPS OR GROUNDS REQUIRED TO BE CAST IN CONCRETE, AND FOR LOCATION OF FLOOR FINISHES AND SLAB DEPRESSIONS.
11. LOCATION OF POUR JOINTS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.

CONCRETE

1. UNLESS OTHERWISE NOTED ON PLANS, CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI IN 28 DAYS.
2. FINE & COURSE AGGREGATE SHALL CONFORM TO A.S.T.M. C-33, USE 3000 P.S.I. CONC. @ GRADE BEAMS. CEMENT SHALL CONFORM TO A.S.T.M. C-150 (STANDARD BRAND PORTLAND CEMENT) TYPE II (USE TYPE V CEMENT IF NOTED IN SOILS REPORT)
3. CONCRETE SHALL BE MACHINE-MIXED USING A MAXIMUM OF 7" GALLONS OF WATER PER SACK OF CEMENT. READY MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C-94 MIXED AT A RATE OF 5 SACKS OF CEMENT PER CUBIC YARD. MAXIMUM SLUMP SHALL BE 4 INCH AS MEASURED BY THE ASTM "STANDARD METHOD OF TESTING FOR SLUMP OF PORTLAND CEMENT CONCRETE."
4. DRY PACK SHALL CONSIST OF 1 PART CEMENT, 4 PARTS SAND. BASED ON DRY LOOSE VOLUMES AND NOT LESS THAN 1/4 PART, NOR MORE THAN 1/2 PART, LINE PUTTY OR DRY HYDRATED LIME. DRY PACK SHALL OBTAIN A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 2000 PSI AT 28 DAYS.
5. ADDING CALCIUM CHLORIDE TO CONCRETE OR GROUT IS NOT PERMITTED.
6. CONC. SHALL BE KEPT MOIST FOR 10 DAYS FOR PROPER CURING.

REQUIREMENTS FOR CONCRETE EXPOSED TO SULFATE-CONTAINING SOLUTIONS (ACI 4.3)			
SULFATE EXPOSURE	CEMENT TYPE	WATER-CEMENT RATIO	COMPRESSIVE STRENGTH
NEGLIGIBLE	NOT REGULATED	-	2500 psi
MODERATE	I, II	0.50	4000 psi
SEVERE	V	0.45	4500 psi
VERY SEVERE	V	0.45	4500 psi

CONCRETE BLOCK MASONRY

1. CONCRETE BLOCK SHALL CONFORM TO A.S.T.M. C-90 MED. WT. GRADE N UNITS, WITH MIN. COMP. STRENGTH OF 1500 PSI. ALL CMU BLOCKS SHALL BE LAID UP IN RUNNING OR COMMON BOND CONFIGURATION.
2. MORTAR SHALL CONFORM TO ASTM C-270, TYPE S, WITH MINIMUM COMPRESSIVE STRENGTH OF 2000. PSI AT 28 DAYS.

MIX: 1 PART PORTLAND CEMENT. 1/2 PART LIME PUTTY. 4 PARTS SAND. } BY VOLUME

3. GROUT SHALL CONFORM TO ASTM C-476, WITH MINIMUM COMPRESIVE STRENGTH OF 2000. PSI AT 28 DAYS.

MIX: 1 PART PORTLAND CEMENT. 3 PARTS SAND 2 PARTS PEA GRAVEL } BY VOLUME

WATER SUFFICIENT TO ALLOW GROUT TO FLOW INTO ALL JOINTS.

4. CELLS SHALL BE IN VERTICAL ALIGNMENT TO PROVIDE A MIN. UNOBSTRUCTED CORE OF 3" X 3".
5. ALL CELLS BELOW FINISHED GRADE AND ALL CELLS WITH REINFORCING, ANCHORS OR INSERTS SHALL BE FILLED SOLID WITH GROUT.
6. CONCRETE SURFACES SHALL BE CLEANED OF ALL LAITANCE PRIOR TO SETTING OF BLOCKS.
7. PROVIDE VERTICAL CONSTRUCTION JOINTS AT 40 FT. O.C.
8. MINIMUM LAP FOR ALL STEEL IS 40 BAR DIAMETER, OR 24 INCHES, WHICHEVER IS GREATER.
9. IF WORK IS STOPPED FOR ONE HOUR OR LONGER, PROVIDE HORIZONTAL CONSTRUCTION JOINTS BY STOPPING GROUT 1-1/2 INCH BELOW THE TOP OF THE BLOCK.

REINFORCED MASONRY (CMU)

1. ALL MASONRY SHALL BE REINFORCED CONCRETE MASONRY UNIT IN ACCORDANCE WITH THE LATEST EDDITION OF ACI 530/ASCE 5/TMS 402.
2. INSTALL ALL BLOCKS IN RUNNING BOND.
3. MINIMUM MASONRY BLOCK (ASTM C90) STRENGTH SHALL (F'M) BE 2000 PSI.
4. TYPE "S" MORTAR (ASTM C270) SHALL BE USED USING 3/8" FULL BEDDING REINFORCED W/ 9 GAGE GALVANIZED LADDER WIRE EVERY 2ND ROW.
5. FILLED CELLS SHALL BE REINFORCED WITH #5 REBAR @ 24" O.C. (UNLESS OTHERWISE IS SPECIFIED ON THE PLANS).
6. GROUT SHALL BE PEA ROCK PUMP MIX (ASTM C476) WITH A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI (28 DAY) (ASTM C1019). TARGETED SLUMP SHALL BE 8"-11".
7. EACH GROUTED CELL SHALL HAVE CLEANOUT OPENINGS AT THE BOTTOM. THERE SHALL BE NO LOOSE MORTAR OR OTHER DEBRIS IN THE BOTTOM OF THE CELL. USE BLAST PRESSURE WASHING FOR SURFACE PREPARATION.

REINFORCING STEEL

1. REINFORCING STEEL, #3 AND #4 GRADE 40, #5 AND LARGER GRADE 60 PER A.S.T.M. A615.
2. LOW HYDROGEN WELDING RODS SHALL BE USED FOR ALL WELDING OF REINFORCING BARS.
3. BARS NOTED AS "CONT" TYPICAL WALL REINFORCING AND VERTICAL COLUMN REINFORCING SHALL HAVE A MINIMUM SPLICE OF 50 BAR DIAMETERS LAP IN MASONRY OR 40 BAR DIAMETERS MINIMUM IN CONCRETE.
4. REINFORCING SHALL BE SPLICED ONLY AS SHOWN OR NOTED. OTHER SPLICES SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.
5. SPLICES IN ADJACENT HORIZONTAL WALL REINFORCING BARS SHALL BE STAGGERED 4 FEET UNLESS OTHERWISE NOTED.
6. PROVIDE DOWELS IN FOOTINGS AND/OR GRADE BEAMS THE SAME SIZE AND NUMBER AS VERTICAL WALL OR COLUMN REINFORCING. DOWELS SHALL HAVE A MINIMUM PROJECTION EQUAL TO STANDARD LAP SPLICE UNLESS OTHERWISE NOTED.
7. ALL REINFORCING, ANCHOR BOLTS, AND OTHER INSERTS SHALL BE SECURED IN PLACE PRIOR TO PLACEMENT OF CONCRETE OR GROUTING OF MASONRY.
8. PROVIDE THE FOLLOWING MINIMUM PROTECTIVE COVERING OF CONCRETE:

BELOW GRADE (UNFORMED)	3" CLEAR
BELOW GRADE (FORMED)	2" CLEAR
WALLS	1" CLEAR
COLUMNS	1.5" CLEAR
BEAMS AND GIRDERS	1.5" CLEAR
STRUCTURAL SLAB (ABOVE GRADE)	3/4" CLEAR

9. #5 OR LARGER REINFORCING BARS SHALL NOT BE RE-BENT WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.

GRADING NOTES

1. A GRADING PERMIT SHALL BE OBTAINED PRIOR TO ANY GRADING.
2. ALL FILL ONE FOOT & GREATER SHALL BE CERTIFIED AND TESTED AS TO RELATIVE COMPACTION PER U.B.C.
3. ALL FILL SHALL BE COMPACTED IN ACCORDANCE WITH ASTM D-1557, TO MAXIMUM OF 90% DENSITY.
4. ALL UTILITY TRENCH BACKFILLS SHALL BE IN ACCORDANCE WITH THE SOILS ENGINEER'S RECOMMENDATIONS.

STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL CONFORM TO ASTM A36,(Fy=36 KSI) FOR PLATES AND TO ASTM A992,(Fy=50 KSI) FOR W-SHAPE STEEL SECTIONS.
2. CORTEN STEEL SHALL CONFORM TO ASTM A588, Fy=50. KSI.
3. STAINLESS STEEL SHALL CONFORM TO ASTM A276 TYPE 304-HOT ROLLED, Fy=18. KSI.
4. FABRICATION, ERECTION & PAINTING SHALL COMPLY WITH THE AISC SPECS. CHAPTER M. (THIRTEENTH EDITION)
5. ALL BOLTS FOR STEEL MEMBERS SHALL CONFORM TO ASTM A325 OR A490, UNLESS OTHERWISE NOTED.
6. HIGH TENSILE BOLTS WHERE INDICATED ON THE PLANS OR DETAILS SHALL BE THE FRICTION TYPE AND THERE SHALL BE NO PAINT, OIL, LAQUER, OR GALVANIZING BETWEEN THE CONTACT SURFACES. HIGH TENSILE BOLTS SHALL CONFORM TO ASTM A325 OR A490.
7. HIGH STRENGTH BOLTS SHALL HAVE LOAD INDICATOR WASHERS TO SERVE AS A DIRECT TENSION INDICATOR INSTALLATION FOR HIGH STRENGTH BOLTS SHALL REQUIRE INSPECTION BY A DEPUTY INSPECTOR.
8. ANCHOR RODS SHALL BE ASSTM F-1554 GRD. 55 KSI U.N.O. ALL ANCHOR RODS SHALL BE. HEADED RODS ANCHOR ROD WASHER SHALL BE ASTM A436. NUTS SHALL BE ASTM A563.
9. PIPE COLUMNS SHALL CONFORM TO ASTM A-53 GRADE B.
10. STEEL TUBE SHAPED MEMBERS SHALL CONFORM TO ASTM A-501 OR A-500 GRADE B.
11. WHERE FINISH IS ATTACHED TO STRUCTURAL STEEL, PROVIDE HOLES FOR 1/2" WELDED STUDS AT 4 FEET O.C. FOR THE ATTACHMENT OF NAILERS. SEE ARCHITECTURAL DRAWINGS FOR FINISHES.
12. OPEN WEB JOISTS SHALL COMPLY WITH THE STANDARDS OR "THE STEEL JOIST INSTITUTE".
13. STEEL STUDS, JOIST, TRACKS & BRIDGING:
ASTM A-570 GRADE "E" Fy = 50 KSI 12, 14 & 16 GA.
ASTM A-570 GRADE "C" Fy = 33 KSI 18 & 20 GA.
14. SPECIAL INSPECTION OF HIGH-STRENGTH A325 AND A490 BOLTS SHALL BE IN ACCORDANCE WITH APPROVED NATIONALLY RECOGNIZED STANDARDS AND REQUIREMENT OF SECTION 1701.
15. SHOP DRAWINGS SHALL BE PROVIDED TO ENGINEER OR ARCHITECT OF RECORD FOR REVIEW PRIOR TO FABRICATION.

STRUCT. STEEL WELDING

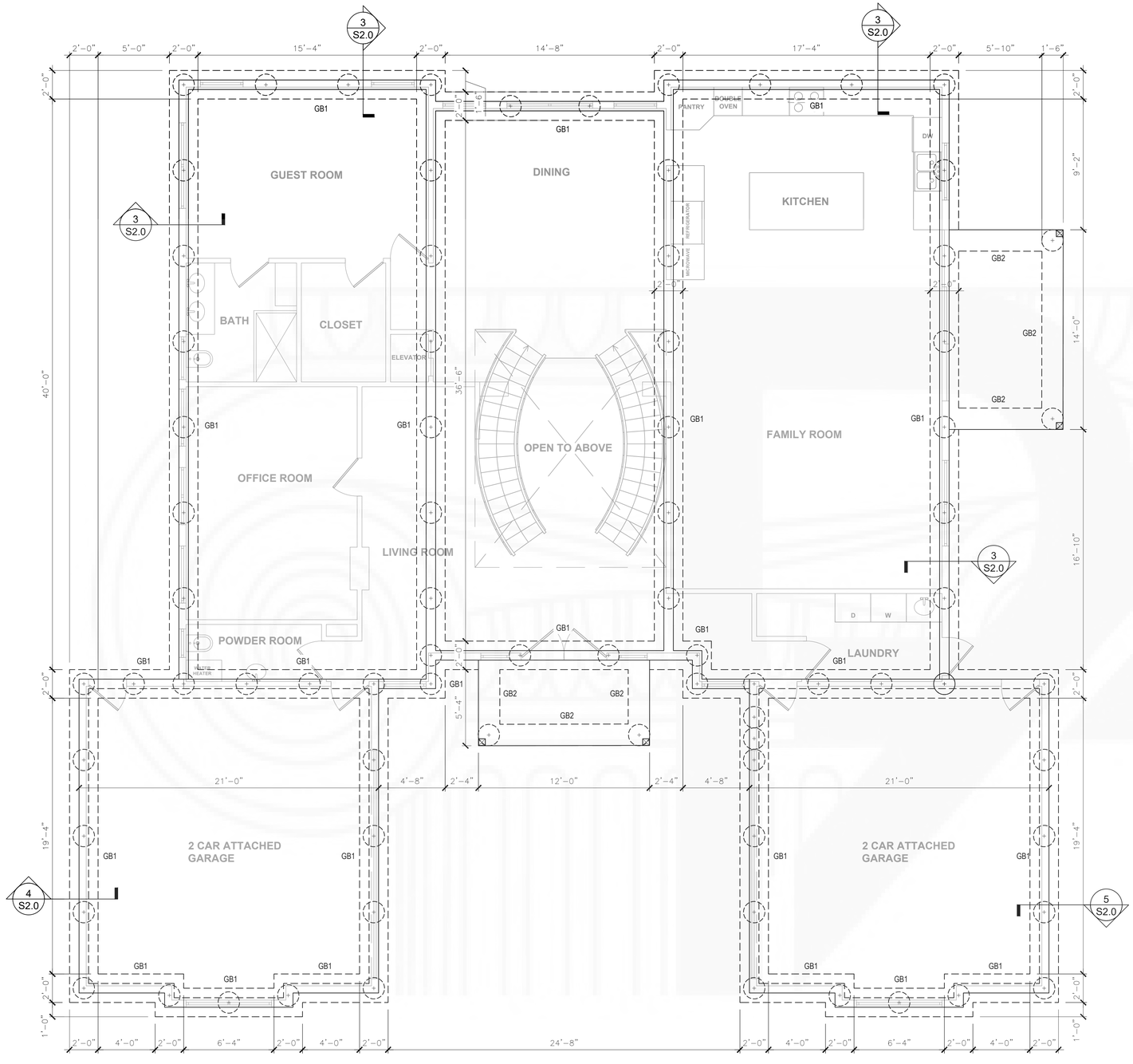
1. WELDING SHALL BE DONE BY THE ELECTRIC SHIELDED ARC PROCESS W/E70-XX ELECTRODES AND SHALL COMPLY WITH A.W.S. SPECIFICATIONS FOR WELDING AND FABRICATION.
2. WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS WHO ARE APPROVED BY THE LOCAL AUTHORITY USING ARC PROCESS WITH E70XX ELECTRODES.
3. ALL FIELD WELDS SHALL HAVE CONTINUOUS INSPECTION PER CBC (1701) UNLESS OTHERWISE NOTED.
4. ALL BUTT WELDS SHALL BE FULL PENETRATION U.N.O.
5. A CERTIFICATE OF FABRICATION FROM THE SHOP PERFORMING WELDING OR A REPORT FROM THE SPECIAL INSPECTOR MUST BE FURNISHED TO THE JOB INSPECTOR PRIOR TO FRAMING APPROVAL.
6. WELDED, FULLY RESTRAINED CONNECTION BETWEEN MEMBERS OF ORDINARY MOMENT FRAMES OR SPECIAL MOMENT-RESISTING FRAMES SHALL HAVE SPECIAL CONTINUOUS INSPECTION AND CONNECTION TESTED BY NONDESTRUCTIVE METHODS PER SECTION 1703.
7. FIELD WELDING OF REINFOCING STEEL SHALL BE DONE BY WELDERS SPECIFICALLY CERTIFIED FOR REINFORCING STEEL WELDING .BEFORE WELDING,THE "CARBON EQUIVALENT" (CE) OF STEEL SHALL BE DETERMINED. IF THE (CE) OF STEEL IS MORE THAN 0.75% , THEY SHALL NOT BE WELDED.

FRAMING NOTES

1. FRAMING SHALL COMPLY WITH CHAPTER 23 OF THE 2019 CBC

FRAMING-GENERAL

1. USE SIMPSON U-HANGERS



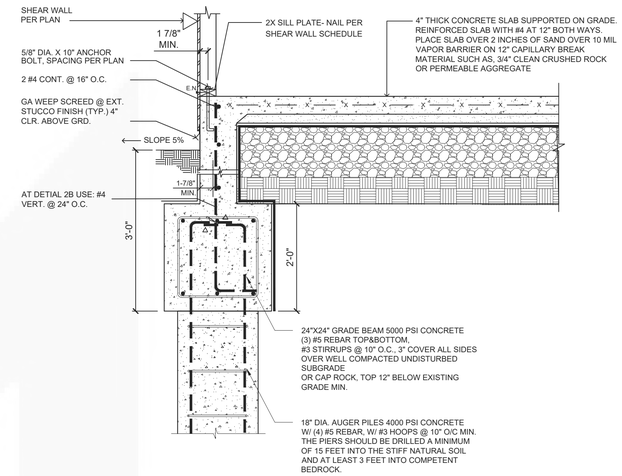
1 FOUNDATION PLAN

SCALE: 1/4"=1'-0"

GRADE BEAM SCHEDULE	
TYPE	DESCRIPTION
GB1	24"X24" GRADE BEAM 5000 PSI CONCRETE (3) #5 REBAR TOP&BOTTOM, #3 STIRRUPS @ 10" O.C., 3" COVER ALL SIDES OVER WELL COMPACTED UNDISTURBED SUBGRADE OR CAP ROCK, TOP 12" BELOW EXISTING GRADE MIN.
GB2	18"X18" GRADE BEAM 5000 PSI CONCRETE (3) #5 REBAR TOP&BOTTOM, #3 STIRRUPS @ 10" O.C., 3" COVER ALL SIDES OVER WELL COMPACTED UNDISTURBED SUBGRADE OR CAP ROCK, TOP 12" BELOW EXISTING GRADE MIN.

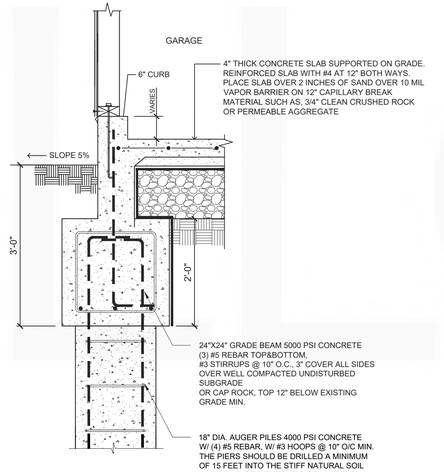
GENERAL FOUNDATION PLAN NOTES:

1. 4" THICK CONCRETE SLAB SUPPORTED ON GRADE. REINFORCED SLAB WITH #4 AT 12" BOTH WAYS. PLACE SLAB OVER 2 INCHES OF SAND OVER 10 MIL VAPOR BARRIER ON 12" CAPILLARY BREAK MATERIAL SUCH AS, 3/4" CLEAN CRUSHED ROCK OR PERMEABLE AGGREGATE
2. CJ ON PLAN DENOTES CONTROL JOINT. SEE DETAIL ON 3/S012.
3. CENTER ALL FOOTINGS BELOW WALLS AND POSTS/COLUMNS, UNO.
4. DROP FOOTING FOR PLUMBING PIPE AS NECESSARY.



3 EXTERIOR FOOTING

SCALE: NTS



4 GARAGE FOOTING

SCALE: NTS

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4-13-2022
CIVIL
STATE OF CALIFORNIA

Date: MAR. 22, 2022

Scale: 1/4"= 1'- 00"

DRAWING TITLE: FOUNDATION PLAN

Sheet : S2.0

Page No. :

No.	Revision/Issue	Date
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2		
3		
4		

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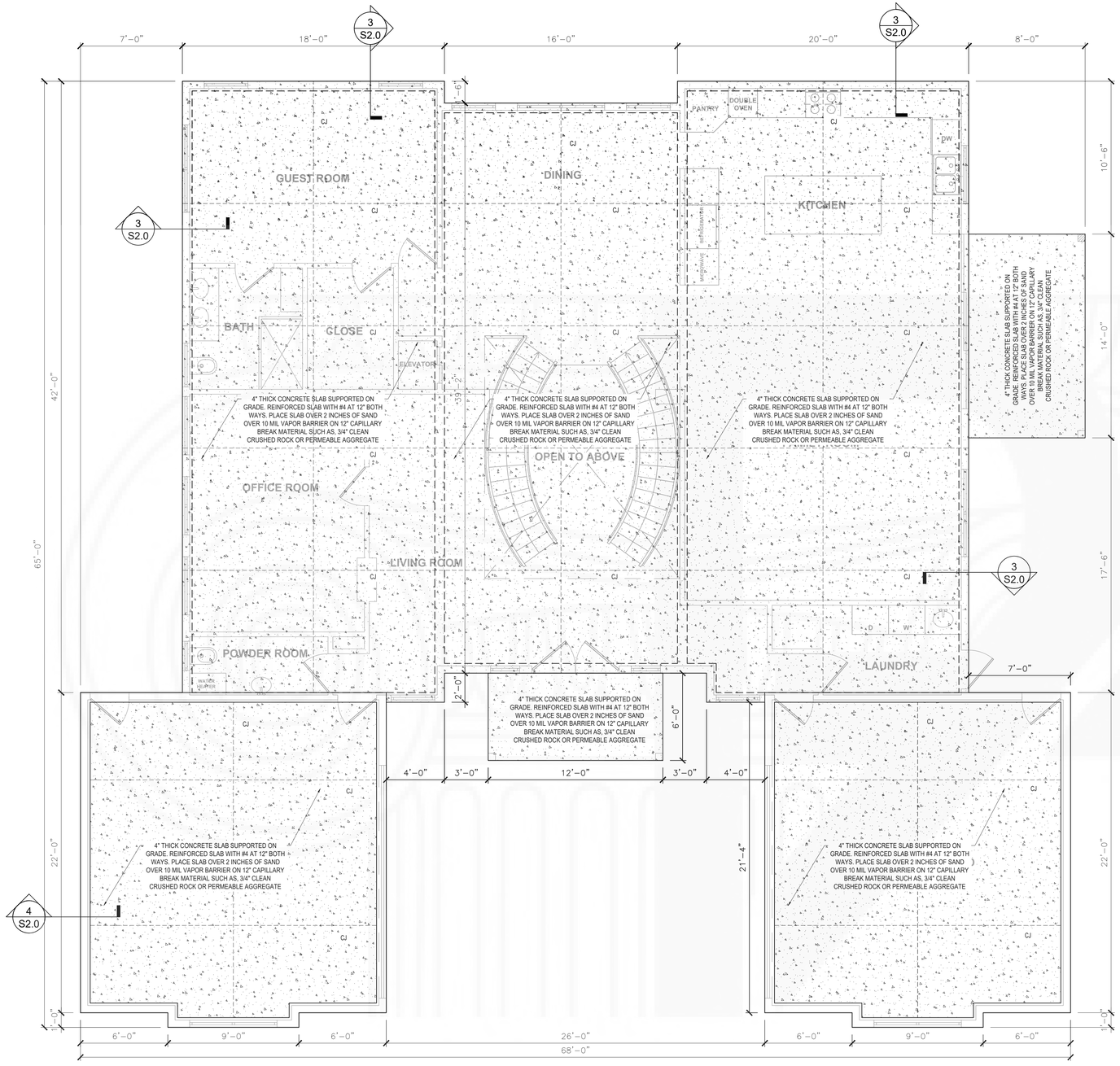
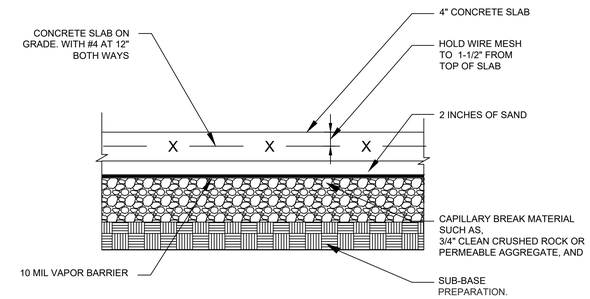


1 FIRST FLOOR FRAMING PLAN

SCALE: 1/4"=1'-0"



2 TYP SLAB ON GRADE

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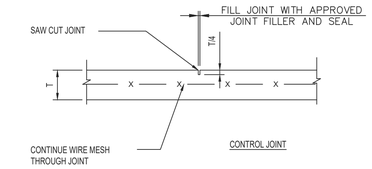
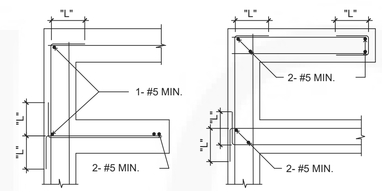


3 CONTROL JOINT

SCALE: NTS



NOTE: "L" = 40 X BAR DIAMETER IN CONC, U.N.O.RETE
"L" = 50 X BAR DIAMETER IN MASONRY, U.N.O.

4 TYPICAL WALL & FTG. REINFORCEMENT

SCALE: NTS

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Scale: 1/4"= 1'- 00"

DRAWING TITLE: 1ST FLOOR FRAMING PLAN

Sheet : S3.0

Page No. :

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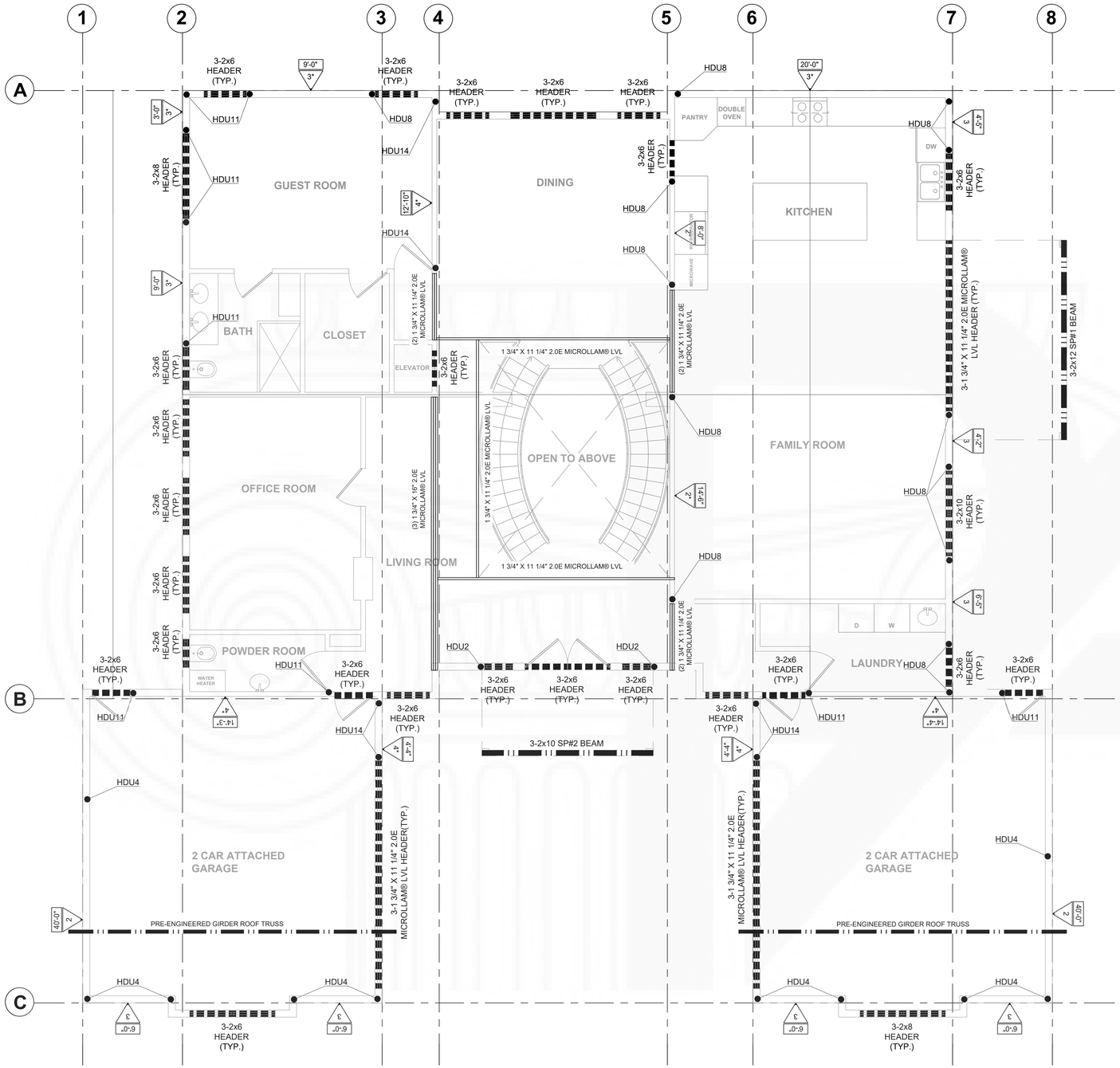
No.	Revision/Issue	Date



1 FIRST FLOOR SHEAR-WALLS PLAN

SCALE: 1/4"=1'-0"

NOTES:

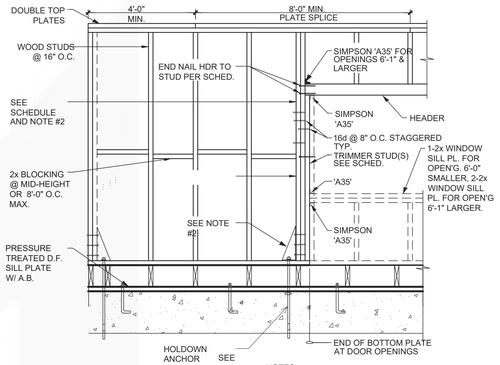
NOTES:

1. "MINIMUM MEMBER THICKNESS @ PANEL SEAM" REFERS TO FRAMING MEMBERS, INCLUDING PLATE AND BLOCKING, WHICH RECEIVE EDGE NAILING FROM ADJACENT PANELS.
2. 3x PLATES: USE 3x PLATES 5/8" DIAMETER ANCHOR BOLTS & 3"x3"x0.229" PLATE WASHERS AT ALL SHEAR WALL LOCATIONS.
3. LTP4 FRAMING CLIPS: LTP4 CLIPS MAY BE USED IN PLACE OF A35 CLIPS SHOWN IN SCHEDULE WERE LOCATION OF RIM OR BLOCKS ABOVE DOUBLE TOP PLATE ALLOWS. USE ONE LTP4 FOR EACH A35 CLIP.
4.- SHEAR WALLS SHALL NOT BE OFFSET MORE THAN 4'-0" FROM EACH OTHER.
5.- SHEAR PANELS TYPES SHALL NOT BE COMBINED IN THE SAME LINE OF RESISTANCE.
6.- WALL STUDS SHALL BE 2X MIN @16" OC.
7.- 10d NAILS SHALL BE PLACED NOT LESS THAN 3/8" FROM PANEL EDGES.
8.- SPLICE TOP PLATES WITH ST6236, U.N.O.
9.- 3"X3"X1/4" PLATE WASHERS, IN LIEU OF CUT WASHERS, SHALL BE PROVIDED FOR ALL PLYWOOD SHEAR WALL SILL PLATE ANCHOR BOLTS AND HOLD DOWNS.
10.- BOLT HOLES THROUGH ANY HOLD DOWN POST SHALL BE OVERSIZED BY 1/16" AND SHALL BE VERIFIED BY INSPECTOR.
11.- MUDSILL TO BE SILL GRADE REDWOOD OR SHALL BE PROTECTED WITH SODIUM BORATE. IF ANY OTHER PRESERVATIVE IS USED, PROTECT ALL FASTENERS IN THESE MATERIALS WITH 1.85 oz. OF ZINC GALVANIZED PER ASTM A653.
12.- 8d = .131" DIA. X 2.5" COMMON NAIL
13.- 10d = .148" DIA X 3" COMMON NAIL

SHEAR WALL SYMBOL

SHEAR WALL LENGTH → 5'-7"

SHEAR WALL TYPE → 1



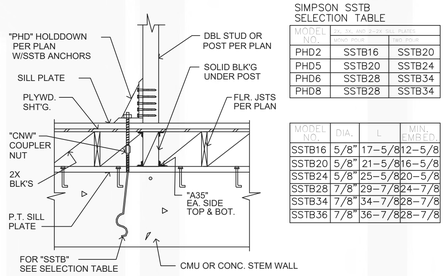
NOTES: 1. USE DBL STUDS FOR SIMPSON "PHD" TYPE HOLDOWNS. USE 4x POST ADJACENT TO TYPE HOLDOWN IS SPECIFIED. EDGE NAIL TRIMMER STUDS @ LOCATIONS WHERE A "HD" SHEATHING TO POST, KING AND TRIMMER STUDS.

2 WALL FRAMING DETAIL

SCALE: NTS

3 TYPICAL STUD WALL INTERSECTION

SCALE: NTS



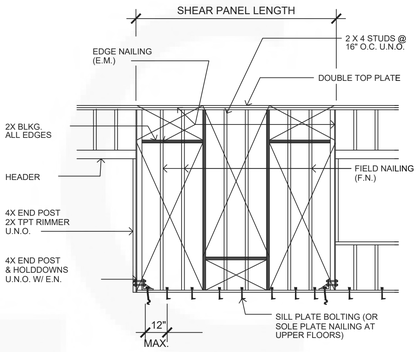
SIMPSON SSTB SELECTION TABLE

MARK NO.	CONCRETE	MASONRY
PHD2	SSTB16	SSTB20
PHD5	SSTB20	SSTB24
PHD6	SSTB28	SSTB34
PHD8	SSTB28	SSTB34

MODEL NO.	DIA.	L	MIN. EMBED
SSTB16	5/8"	17-5/8	12-5/8
SSTB20	5/8"	21-5/8	16-5/8
SSTB24	5/8"	25-5/8	20-5/8
SSTB28	7/8"	29-7/8	24-7/8
SSTB34	7/8"	34-7/8	28-7/8
SSTB36	7/8"	36-7/8	28-7/8

4 SHEAR TRANSFER

SCALE: NTS



5 TYP. SHEAR WALL LAYOUT

SCALE: NTS

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Date: MAR. 22, 2022
Scale: 1/4"= 1'- 00"

DRAWING TITLE: 1ST FLOOR SHEAR WALLS PLAN

Sheet : S4.0

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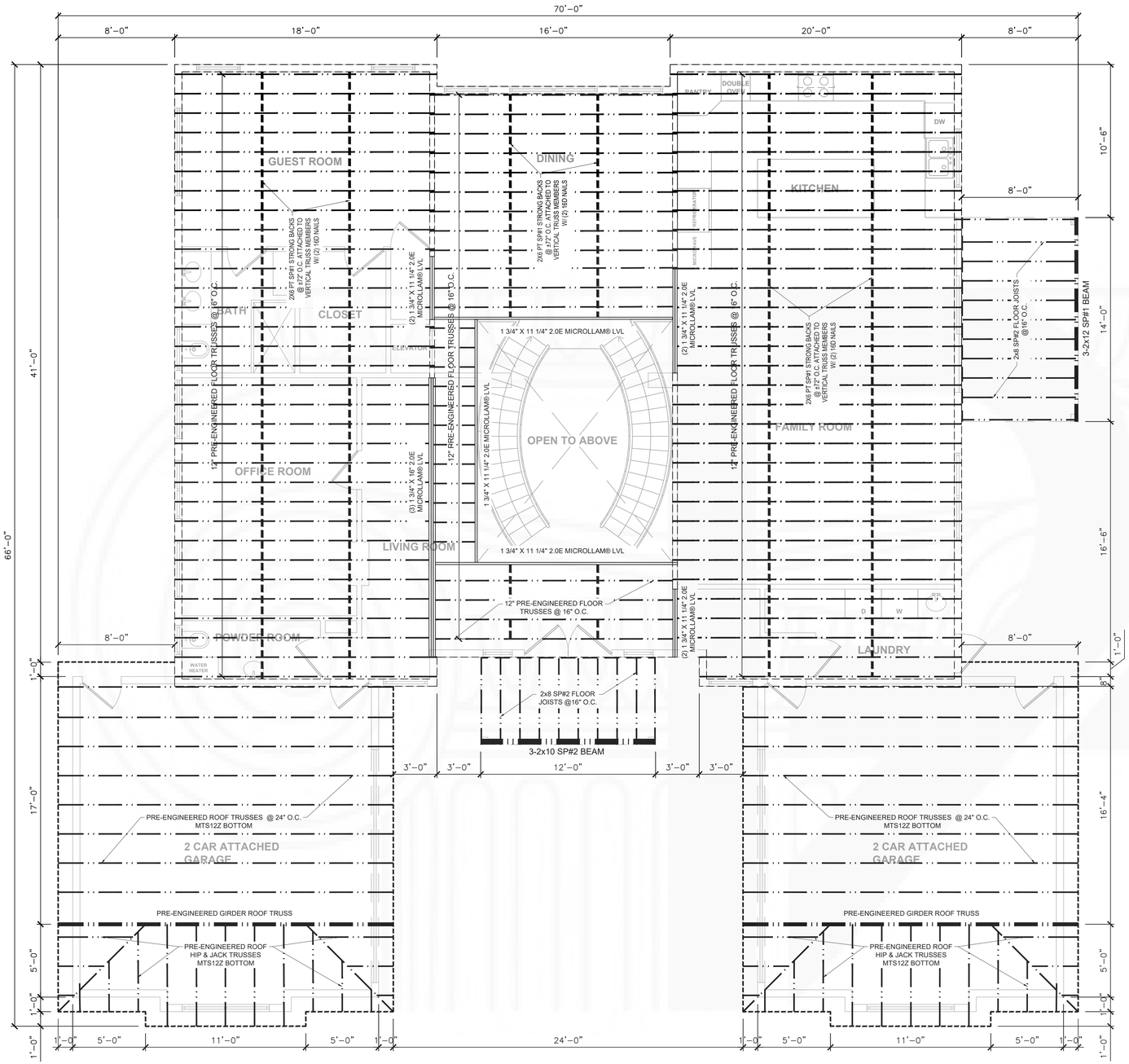
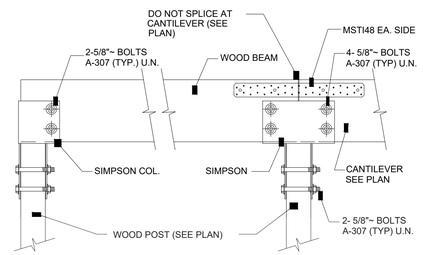


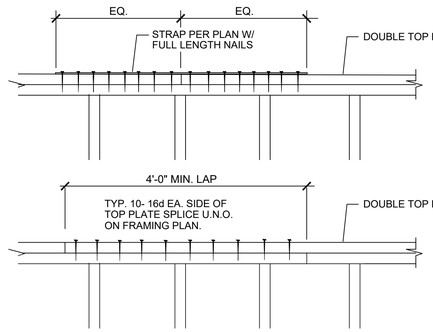
1 SECOND FLOOR FRAMING PLAN

SCALE: 1/4"=1'-0"



2 TYP. BEAM TO COLUMN DETAIL

SCALE: 1"=1'-0"



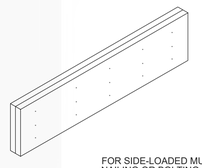
4 TOP PLATE SPLICE DETAIL

SCALE: NTS

1)MIN. OF 2 ROWS 16d (3D) NAILS @ 12" O.C.

2)MIN. OF 3 ROWS 16d (3D) NAILS @ 12" O.C. FOR 16" & 18" BEAMS

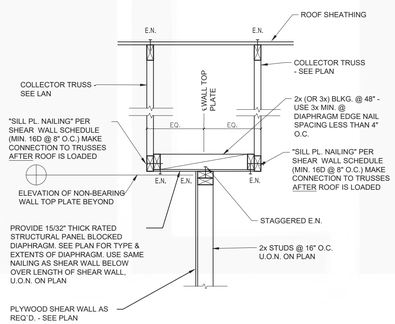
3)MULTIPLE PIECES OF MICROLLAM LVL CAN BE NAILED OR BOLTED TOGETHER TO FORM A HEADER OR BEAM OF THE REQUIRED SIZE, UP TO A MAX. WIDTH OF 7"



FOR SIDE-LOADED MULTIPLE MEMBER BEAMS, ADDITIONAL NAILING OR BOLTING MAY BE REQUIRED. SEE CURRENT TRUSS JOIST Mac MILLAN LITERATURE.

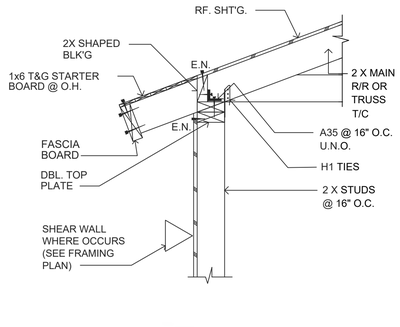
3 CONN. OF MULTIPLE PIECES OF TOP-LOADED BEAMS

SCALE: NTS



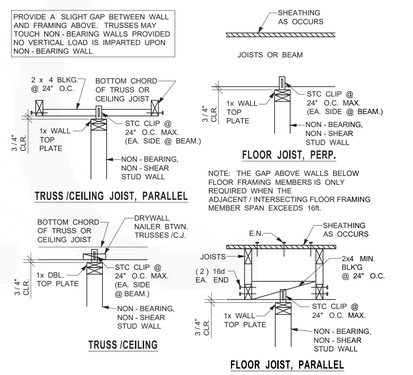
6 SHEAR TRANSFER DETAIL

SCALE: 1"=1'-0"



5 SHEAR TRANSFER SECTION A

SCALE: 1"=1'-0"



7 TOP OF NON -BR'G STUD WALLS

SCALE: 1"=1'-0"

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Page No. :

No.	Revision/Issue	Date
1		
2		
3		
4		

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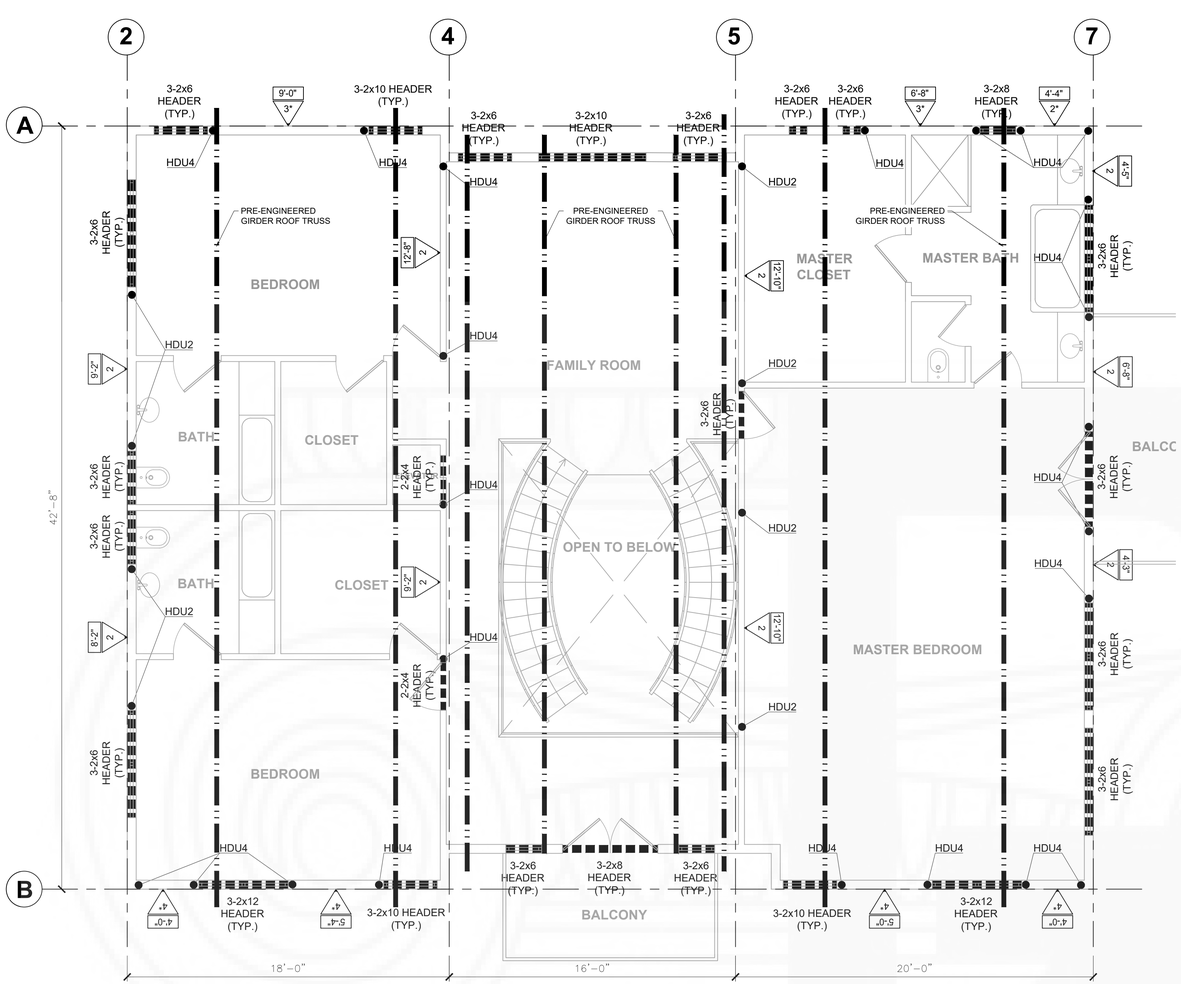
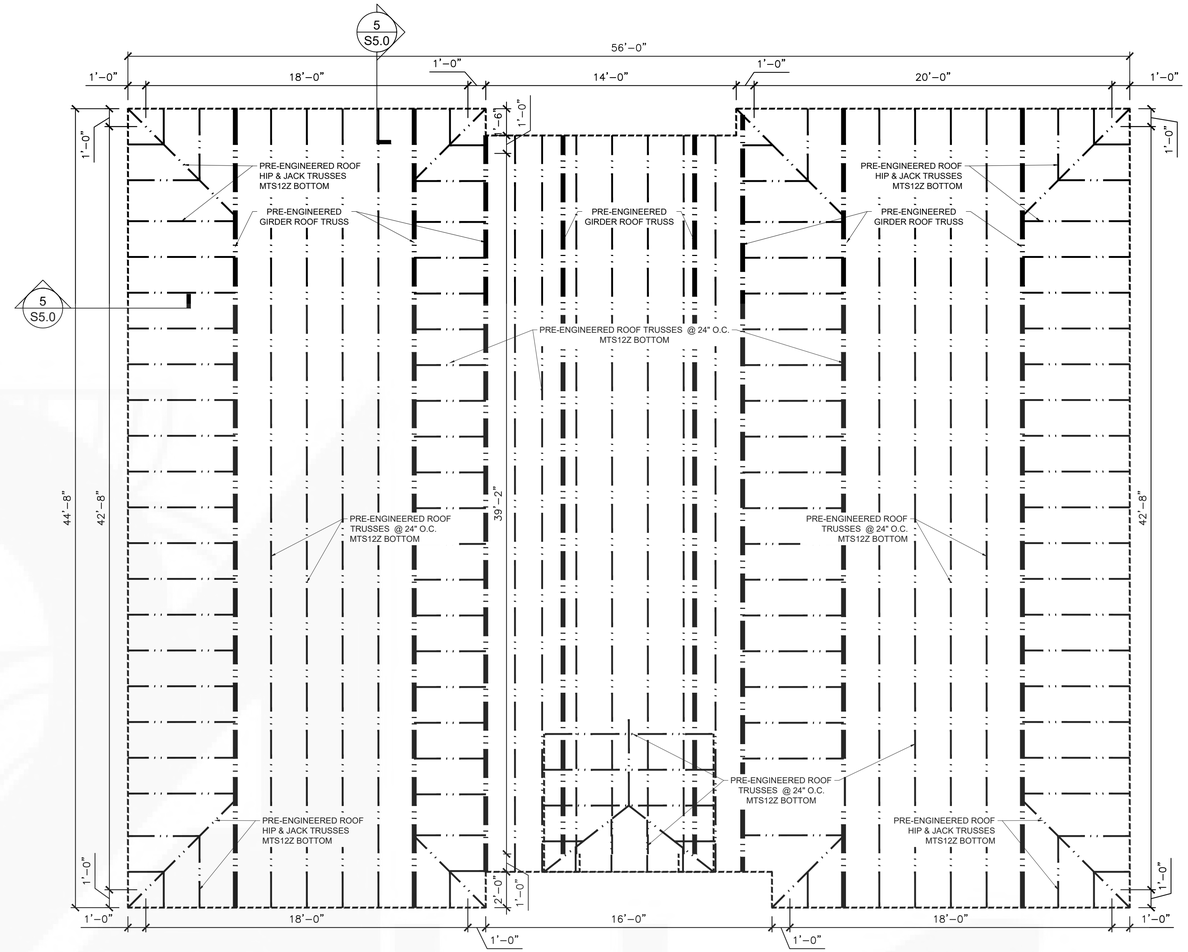


1 SECOND FLOOR SHEAR-WALLS PLAN

SCALE: 1/4"=1'-0"



2 ROOF FRAMING PLAN

SCALE: 1/4"=1'-0"

NOTES:
1, ROOF TRUSS LAYOUT IS FOR GUIDANCE PURPOSES. CONTRACTOR TO SUPPLY TRUSS MANUFACTURER SHOP DRAWINGS SIGNED AND SEALED BY SPECIALTY P.E.
2. PRELIMINARY TRUSS CONNECTORS:
ORDINARY TRUSSES: (1) HTS20(2) W/ (24) 10d 1-1/2 NAILS (TWIST STRAPS)
GIRDER TRUSSES: (1) HGA10KT W/ (4) SDS 1/4"x1-1/2" | (4) SDS 1/4"x3" (LATERAL TIES)
HIP SETS: PER FINAL APPROVED SHOP DRAWINGS
(2) HTS20(2) W/ (24) 10d 1-1/2 NAILS (TWIST STRAPS)
(1) HGA10KT W/ (4) SDS 1/4"x1-1/2" | (4) SDS 1/4"x3" (LATERAL TIES)
3. FINAL SIZING OF ALL TRUSS CONNECTOR WILL BE BASED ON THE APPROVED SHOP DRAWINGS. CONTRACTOR SHALL COORDINATE THE REVIEW PRIOR ORDERING ANY TRUSSES AND STRAPS.
4. ROOF SHEATHING 5/8 CDX PLYWOOD NAILED W/ 8D RING SHANK NAILS @ 4" ALL SUPPORTS (ZONE 1 AND 2) AND @ 3" ALL SUPPORTS (ZONE 3)
(UNLESS SHOWN OTHERWISE ON THE DETAILS)

NOTES:

NOTES:

1. "MINIMUM MEMBER THICKNESS @ PANEL SEAM" REFERS TO FRAMING MEMBERS, INCLUDING PLATE AND BLOCKING, WHICH RECEIVE EDGE NAILING FROM ADJACENT PANELS.
2. 3x PLATES: USE 3x PLATES 5/8" DIAMETER ANCHOR BOLTS & 3"x3"x0.229" PLATE WASHERS AT ALL SHEAR WALL LOCATIONS.
3. LTP4 FRAMING CLIPS: LTP4 CLIPS MAY BE USED IN PLACE OF A35 CLIPS SHOWN IN SCHEDULE WERE LOCATION OF RIM OR BLOCKS ABOVE DOUBLE TOP PLATE ALLOWS. USE ONE LTP4 FOR EACH A35 CLIP.
4.- SHEAR WALLS SHALL NOT BE OFFSET MORE THAN 4'-0" FROM EACH OTHER.
5.- SHEAR PANELS TYPES SHALL NOT BE COMBINED IN THE SAME LINE OF RESISTANCE.
6.- WALL STUDS SHALL BE 2X MIN @16" OC.
7.- 10d NAILS SHALL BE PLACED NOT LESS THAN 3/8" FROM PANEL EDGES.
8.- SPLICE TOP PLATES WITH ST6234, U.N.O.
9.- 3"X3"X1/4" PLATE WASHERS, IN LIEU OF CUT WASHERS, SHALL BE PROVIDED FOR ALL PLYWOOD SHEAR WALL SILL PLATE ANCHOR BOLTS AND HOLD DOWNS.
10.- BOLT HOLES THROUGH ANY HOLD DOWN POST SHALL BE OVERSIZED BY 1/16" AND SHALL BE VERIFIED BY INSPECTOR.
11.- MUDSILL TO BE SILL GRADE REDWOOD OR SHALL BE PROTECTED WITH SODIUM BORATE. IF ANY OTHER PRESERVATIVE IS USED, PROTECT ALL FASTENERS IN THESE MATERIALS WITH 1.85 oz. OF ZINC GALVANIZED PER ASTM A653.
12.- 8d = .131" DIA. X 2.5" COMMON NAIL.
13.- 10d = .148" DIA X 3" COMMON NAIL

SHEAR WALL SYMBOL

SHEAR WALL LENGTH → 5'-7"

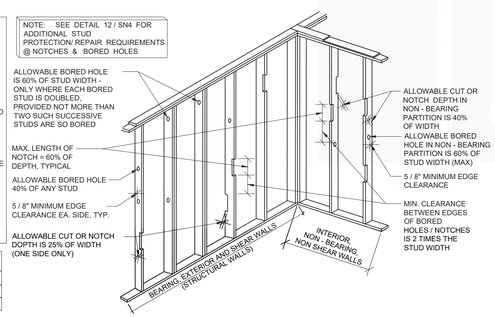
SHEAR WALL TYPE → 1

STUD NOTCHING AND BORING NOTES:

1) THIS DETAIL APPLIES TO ALL WALLS FRAMED w / WOOD STUDS. THIS DETAIL DOES NOT COVER WALL TOP & BOT. PLATES - SEE DETAILS 12 / SN4.
2) IN NO CASE SHALL THE EDGE OF BORED HOLES BE NEARER THAN 5 / 8" TO THE EDGE OF THE STUD.
3) BORED HOLES SHALL NOT BE LOCATED AT THE SAME SECTION OF STUD AS A CUT, NOTCH OR OTHER BORED HOLE. SEE DRAWING FOR CLEARANCE.
4) NOTCHES SHALL NOT BE OVERCUT. ROUND CORNERS WHERE POSSIBLE.
5) WHERE SINGLE STUDS HAVE BEEN OVER - NOTCHED, USE DETAIL 16 / SN4 FOR A STANDARD SOLUTION.
6) CONTACT ENGINEER FOR AN ENGINEERED FIX WHERE STUDS HAVE BEEN OVER - BORED OR OVER - NOTCHED PAST THE LIMITATIONS ON THIS SHEET.
7) HOLES SHALL BE BORED PERPENDICULAR TO WIDE FACE OF PLATE.

NOTE: SEE DETAIL 12 / SN4 FOR ADDITIONAL STUD PROTECTION/ REPAIR REQUIREMENTS @ NOTCHES & BORED HOLES

DEPTH SCHEDULE				
STUD SIZE	ACTUAL DEPTH	25%	40%	60%
2x4	3 1 / 2"	7 / 8"	1 7 /16"	2 1 / 8"
2x6	5 1 / 2"	1 3 / 8"	2 3 / 16"	3 5 / 16"



3 ALLOWABLE NOTCHING & BORING OF STUDS

SCALE: 1"=1'-0"

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STATE OF CALIFORNIA

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DRAWING TITLE:
ROOF FRAMING &
2ND FLOOR SHEAR WALLS PLAN

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No.	Revision/Issue	Date
1		
2		
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MECHANICAL SPECIFICATIONS

PROVIDE EQUIPMENT INDICATED ON THE DRAWINGS, AND AS REQUIRED FOR A COMPLETE FUNCTIONING SYSTEM.

DEFINITIONS: FURNISH MEANS TO SUPPLY AND DELIVER TO PROJECT SITE, READY FOR INSTALLATION. INSTALL MEANS TO PLACE IN POSITION AND MAKE CONNECTIONS FOR SERVICE OR USE. PROVIDE MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR INTENDED USE.

WARRANTY: PROVIDE LABOR AND MATERIALS TO REPAIR OR REPLACE DEFECTIVE PARTS AND MATERIALS AS REQUIRED FOR ONE YEAR AFTER SUBSTANTIAL COMPLETION OR OWNER ACCEPTANCE OF THE COMPLETED PROJECT. PROVIDE A SEPARATE LINE ITEM DEDUCT AMOUNT ON THE PROPOSAL FORM TO DELETE WARRANTY SERVICE, AT THE OWNER'S OPTION.

PROVIDE OPERATION MANUALS, MAINTENANCE MANUALS AND SCHEMATICS FOR ALL MECHANICAL EQUIPMENT INSTALLED.

COORDINATION: COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE.

ROOF PENETRATIONS SHALL COMPLY WITH "SMACNA" AND "NRCA" STANDARDS, AND WITH THE REQUIREMENTS OF THE EXISTING ROOFING WARRANTY, IF APPLICABLE. DO NOT PERFORM ROOFING PENETRATIONS IN A MANNER WHICH WOULD VOID OR OTHERWISE LIMIT THE EXISTING ROOF WARRANTY.

DUCT DIMENSIONS: UNLESS OTHERWISE NOTED, DUCT DIMENSIONS ON THE DRAWINGS ARE INSIDE CLEAR DIMENSIONS.

SHEET METAL DUCTWORK: PROVIDE SHEET METAL DUCTWORK FABRICATED AND INSTALLED IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS, FOR 1" W.G. PRESSURE CLASS, SEAL CLASS "A". SHEET METAL SHALL BE GALVANIZED SHEET STEEL OF LOCK FORMING QUALITY, WITH G90 ZINC COATING. SHEET STEEL SHALL COMPLY WITH ASTM A653 STANDARD SPECIFICATION FOR STEEL SHEET METAL, ZINC COATED (GALVANIZED) OR ZINC–IRON ALLOY–COATED (GALVANNEALED) BY THE HOT DIP PROCESS, AND A924 STANDARD SPECIFICATION FOR GENERAL REQUIREMENTS FOR SHEET, METALLIC–COATED BY THE HOT DIP PROCESS. ALL ANGLE IRON USED FOR SUPPORT SHALL BE GALVANIZED. CONNECTIONS TO WALLS OR FLOOR SHALL BE AIR TIGHT WITH ANGLE IRON AND CAULKING. SEAL ALL DUCT SEAMS, TRANSVERSE AND LONGITUDINAL, AIR TIGHT. PROVIDE TURNING VANES AT ALL 90° ELBOWS.
TRAPEZE DUCT HANGERS: PROVIDE MINIMUM 1" X 2" X 1" X 18 GAUGE CHANNELS WITH MINIMUM 1" X 18 GAUGE STRAPS TO STRUCTURAL SUPPORT.

ROUND SHEET METAL DUCT: PROVIDE SPIRAL SEAM (ALL SIZES) OR SNAP LOCK (DUCT SIZES UP TO 10") GALVANIZED STEEL COMPLYING WITH SMACNA STANDARDS. SPIRAL SEAM DUCTWORK SHALL HAVE SMACNA SEAM TYPE RL–1.

FIBER GLASS DUCT BOARD IS AN ACCEPTABLE ALTERNATIVE IF APPROVED BY OWNER AND THE LOCAL BUILDING CODE OFFICIAL. PRODUCT AND INSTALLATION MUST MEET NAIMA STANDARDS AND OTHER APPLICABLE CODES AND REGULATIONS.

EXPOSED DUCTWORK: EXPOSED DUCTWORK SHALL BE CLEANED OF DEBRIS AND OIL, THEN WIPED DOWN WITH VINEGAR OR OTHER SURFACE PREPARING CHEMICAL TO PREPARE DUCT FOR PAINT.

DUCT SEALANT: PROVIDE POLYMERIC RUBBER TYPE SEALANT FOR USE ON BOTH INTERIOR LOCATED DUCTWORK AND DUCTWORK EXPOSED TO OUTDOOR CONDITIONS. SEALER SHALL HAVE HIGH BONDING STRENGTH FOR SURE, FIRST TIME SEALING OF JOINTS IN LOW, MEDIUM, AND HIGH PRESSURE DUCT SYSTEMS. SEALER SHALL BE HIGH IN SOLID CONTENT. PROVIDE A TWO PART TAPE SEALING SYSTEM, CONSISTING OF WOVEN FIBER TAPE IMPREGNATED WITH A GYPSUM MINERAL COMPOUND, AND A MODIFIED ACRYLIC/SILICONE ACTIVATOR THAT REACTS EXOTHERMICALLY WITH THE TAPE. TWO PART TAPE SEALING SYSTEM MUST BE RATED FOR BOTH INDOOR AND OUTDOOR APPLICATION. TAPE SHALL NOT CONTAIN ASBESTOS.

DUCT INSULATION: MATERIAL FOR SUPPLY AND RETURN AIR DUCT ABOVE CEILING INSIDE THE BUILDING SHALL HAVE THE EQUIVALENT THERMAL RESISTANCE OF MINIMUM R–6. THE REQUIRED R VALUES ARE FOR INSTALLED INSULATION WITH 25% COMPRESSION AT THE CORNERS. PROVIDE PINS AND WASHERS IN ACCORDANCE WITH SMACNA REQUIREMENTS AND AS REQUIRED TO PREVENT INSULATION FROM SAGGING. PROVIDE ADEQUATE INSULATION AT THE SUPPLY AIR DIFFUSERS TO PREVENT CONDENSATION.

FLEXIBLE DUCT : UL #181 LISTED, CLASS 1, AND CONTAIN A 0.1 PERM RATED POLYETHYLENE INNER LINER, WITH R–8 FIBERGLASS INSULATION. FLEXIBLE DUCTS SHALL BE SECURED TO RIGID SHEET METAL COLLARS AND AIR DIFFUSERS WITH NYLON TIES OR STAINLESS STEEL WORM GEAR STRAPS. SEAL ALL CONNECTIONS AND JOINTS AIRTIGHT. SUPPORT FLEXIBLE DUCTS FROM THE BUILDINGS STRUCTURE WITH MINIMUM 1" WIDE, 18 GAUGE, GALVANIZED STEEL STRAP AT MAXIMUM 4'–0" CENTERS. PROVIDE 4" WIDE SHEET METAL SADDLES AT EACH SUPPORT EACH STRAP. SAG OF FLEXIBLE DUCT BETWEEN HANGERS SHALL NOT EXCEED 1/2" PER FOOT OF SUPPORT SPACING. RADIUS FOR TURNS OF FLEXIBLE DUCTS SHALL BE A MINIMUM OF ONE DUCT DIAMETER. FLEXIBLE DUCT RUNS SHALL NOT EXCEED 10'–0" IN LENGTH AND SHALL BE THE SAME SIZE AS THE DIFFUSER NECK CONNECTION.

ROUND VOLUME DAMPERS: PROVIDE MINIMUM 20 GAUGE GALVANIZED STEEL FRAME AND BLADES, MINIMUM 3/8" SQUARE STEEL AXLE, MOLDED SYNTHETIC BEARINGS, WITH LOCKING POSITION REGULATOR. REGULATOR SHALL BE POSITIONED WITH SHEET METAL BRACKET BEYOND DUCT COVERING. WHERE POSITIONING REGULATOR IS NOT ACCESSIBLE, PROVIDE COUPLING AND EXTENSION ROD WITH REGULATOR FOR CEILING OR WALL INSTALLATION, AS REQUIRED.

RECTANGULAR VOLUME DAMPERS: PROVIDE MINIMUM 16 GAUGE GALVANIZED STEEL CHANNEL FRAME, 16 GAUGE GALVANIZED STEEL BLADES, MINIMUM ½" HEXAGONAL AXLE, BOLDED SYNTHETIC BEARINGS, WITH 3/8" SQUARE PLATED STEEL CONTROL SHAFT. LINKAGES SHALL BE CONCEALED IN THE FRAME. OPERATING SHAFT SHALL EXTEND BEYOND FRAME AND DUCT TO A LOCKING QUADRANT WITH ADJUSTABLE LEVER. MAXIMUM BLADE WIDTH SHALL NOT EXCEED 6".

DUCT TURNING VANES: PROVIDE FABRICATED TURNING VANES AND VANE RUNNERS, CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS". PROVIDE TURNING VANES CONSTRUCTED OF CURVED BLADES, SUPPORTED WITH BARS PERPENDICULAR TO BLADES, AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTWORK. FOLLOW SMACNA GUIDELINES FOR SPACING SUPPORT, AND CONSTRUCTION. ALL BLADES SHALL BE DOUBLE THICKNESS AIRFOIL TYPE.

FLEXIBLE DUCT CONNECTORS: PROVIDE U.L. LABELED 30 OUNCE NEOPRENE COATED FIBERGLASS FABRIC DUCT CONNECTORS.

DUCT ACCESS DOORS: PROVIDE HINGED ACCESS DOORS IN DUCTWORK WHERE REQUIRED FOR ACCESS TO EQUIPMENT. PROVIDE INSULATED ACCESS DOORS FOR INSULATED DUCTWORK. CONSTRUCT OF SAME OR THICKER GAUGE SHEET METAL AS DUCT IN WHICH IT IS INSTALLED. PROVIDE FLUSH FRAMES FOR UN–INSULATED DUCTS, AND EXTENDED FRAMES FOR EXTERNALLY INSULATED DUCTS. PROVIDE CONTINUOUS HINGE ON ONE SIDE, WITH ONE HANDLE–TYPE LATCH FOR ACCESS DOORS 12" HIGH AND SMALLER, AND TWO HANDLE–TYPE LATCHES FOR LARGER ACCESS DOORS.

HVAC CONTROL SYSTEM: PROVIDE ALL THE NECESSARY CONTROLS AND CONTROL WIRING IN CONDUIT COMPATIBLE TO SYSTEMS SHOWN ON EQUIPMENT SCHEDULE M2.0.

PROGRAMMABLE THERMOSTAT FOR EACH SYSTEM SHALL ENABLE THE SUPPLY FAN AND CYCLE THE COOLING AND HEATING STAGES TO MAINTAIN SPACE SET–POINT. SUPPLY FAN RUNS CONTINUOUSLY DURING THE OCCUPIED MODE.
EACH THERMOSTAT SHALL HAVE A DEAD BAND OF AT LEAST 5 DEGREES (ADJ) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING IS SHUT OFF,

EACH THERMOSTAT SHALL HAVE SETBACK AND SET–UP CAPABILITY DURING THE UNOCCUPIED MODE. FOR SETBACK, THE HEATING SHALL RESTART AND TEMPORARILY OPERATE ACCORDING TO A SET–POINT ADJUSTABLE DOWN TO 55 DEGREES. FOR SET–UP, THE COOLING SHALL RESTART AND TEMPORARILY OPERATE ACCORDING TO A SET–POINT ADJUSTABLE UP TO 85 DEGREES OR TO PREVENT HIGH SPACE HUMIDITY LEVELS.

EACH SYSTEM SHALL BE PROVIDED WITH A MOTORIZED OUTSIDE AIR DAMPER THAT WILL AUTOMATICALLY SHUT WHEN THE SYSTEM OR SPACES SERVED ARE NOT IN USE. VENTILATION OUTSIDE AIR DAMPERS SHALL BE CAPABLE OF AUTOMATICALLY CLOSING DURING PREOCCUPANCY BUILDING WARM–UP, COOL DOWN, AND SETBACK, EXCEPT WHEN VENTILATION REDUCES ENERGY COSTS (e.g., NIGHT PURGE) OR WHEN VENTILATION MUST BE SUPPLIED TO MEET CODE REQUIREMENTS.

COMMISSIONING/VERIFICATION: HVAC CONTROL SYSTEM SHALL BE TESTED TO ENSURE THAT CONTROL ELEMENTS ARE CALIBRATED, ADJUSTED, AND IN PROPER WORKING CONDITION, AND THAT THE SYSTEM MEETS THE DESIGN REQUIREMENTS.

TEST AND BALANCE: CONTRACT DIRECTLY A THIRD PARTY TO PROVIDE TEST AND BALANCE OF THE HVAC SYSTEM. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR SCHEDULING. TEST AND ADJUST ALL MECHANICAL SYSTEM AND EQUIPMENT TO ASSURE PROPER BALANCE AND OPERATION. PERFORM TESTS IN ACCORDANCE WITH NEBB PROCEDURAL STANDARDS–1999 OR AABC 2002, AND ASHRAE STANDARD 111. ELIMINATE NOISE AND VIBRATION, AND ASSURE PROPER FUNCTION OF CONTROLS. SUBMIT COMPLETED TEST AND BALANCE REPORT TO OWNER'S REPRESENTATIVE. BALANCING CONTRACTOR SHALL BE INDEPENDENT AND CERTIFIED WITH NEBB OR AABC. BALANCE ALL SYSTEMS WITHIN 5% OF AIR FLOW INDICATED ON DRAWINGS, AND REPORT ALL DISCREPANCIES TO THE HVAC CONTRACTOR FOR CORRECTION. MARK FINAL BALANCE POSITIONS ON DAMPERS WITH PERMANENT MARKER.

COMPLETION REQUIREMENTS: THE CONTRACTOR SHALL PROVIDE, WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS AND AN OPERATING AND MAINTENANCE MANUAL TO THE BUILDING OWNER OR THE DESIGNATED REPRESENTATIVE OF THE OWNER.

THE RECORD DRAWING SHALL BE OF THE ACTUAL INSTALLATION AND INCLUDE AS A MINIMUM THE LOCATION AND PERFORMANCE DATA ON EACH PIECE OF EQUIPMENT, GENERAL CONFIGURATION OF DUCT AND PIPE DISTRIBUTION SYSTEM INCLUDING SIZES, AND THE TERMINAL AIR OR WATER DESIGN FLOW RATES.

THE OPERATING AND MAINTENANCE MANUALS SHALL BE IN ACCORDANCE WITH INDUSTRY–ACCEPTED STANDARDS AND SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING; (A) SUBMITTAL DATA STATING EQUIPMENT SIZE AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE; (B) OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE, EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED; (C) NAMES AND ADDRESSES OF AT LEAST ONE SERVICE AGENCY; (D) HVAC CONTROLS SYSTEMS MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SYSTEM SEQUENCE DESCRIPTIONS. DESIRED OR FIELD–DETERMINED SET–PIONTS SHALL BE PERMANENTLY RECORDED ON CONTROL DRAWINGS AT CONTROL DEVICES OR, FOR DIGITAL CONTROL SYSTEMS, IN PROGRAMMING COMMENTS; (E) A COMPLETE NARRATIVE OF HOW EACH SYSTEM EACH SYSTEM IS INTENDED TO OPERATE, INCLUDING SET–POINTS.

HVAC GENERAL NOTES

1. THE INTENT OF THESE PLANS AND SPECIFICATIONS IS TO INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND SERVICES NECESSARY TO FURNISH, INSTALL, TEST, AND ADJUST A COMPLETE WORKABLE HEATING, VENTILATION, AND AIR CONDITIONING SYSTEM AS SHOWN, PRESCRIBED, OR REASONABLY IMPLIED BUT NOT LIMITED TO THAT EXPLICITLY INDICATED IN THE CONTRACT DOCUMENTS, BUT NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE INTENT THEREOF.

2. THE ENTIRE INSTALLATION SHALL CONFORM TO THE APPLICABLE CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION. IN THE EVENT OF CONFLICT BETWEEN SPECIFICATIONS, CODES, AND REGULATIONS, THE MORE RESTRICTIVE SHALL APPLY.

3. DRAWINGS FOR HVAC WORK ARE DIAGRAMATIC SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT, REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. PROVIDE ALL DUCTWORK, MATERIALS, CONNECTIONS, ACCESSORIES, FITTINGS, OFFSETS, TRANSITIONS, DAMPERS AS REQUIRED FOR A COMPLETE WORKABLE SYSTEM.

4. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND APPROVED LISTING. ALL EQUIPMENT, PIPING AND SUPPORTS SHALL BE RESTRAINED IN ACCORDANCE WITH THE LATEST EDITION OF THE "GUIDLINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS" BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA). ALL EQUIPMENT SHALL BE ANCHORED TO RESIST THE LATERAL FORCE REQUIREMENTS OF CHAPTER 16 OF THE 2012 INTERNATIONAL BUILDING CODE.

5. COORDINATE THE INSTALLATION OF THE HVAC SYSTEM WITH ALL OTHER TRADES PRIOR TO FABRICATION OR INSTALLATION. COORDINATE THE LOCATIONS OF PENETRATIONS AND FINAL LOCATION OF ALL EQUIPMENT WITH THE GENERAL CONTRACTOR. PROVIDE EQUIPMENT WEIGHTS, EQUIPMENT DIMENSIONS, PLATFORM SIZES & LOCATIONS, CURB SIZES & LOCATIONS, CONCRETE PAD SIZES AND LOCATIONS AST REQUIRED. COORDINATE LOCATIONS OF GAS & CONDENSATE LINES WITH PLUMBING CONTRACTOR. COORDINTAE LOCATIONS OF POWER, DISCONNECTS, AND CONTROL CONDUIT WITH THE ELECTICAL CONTRACTOR. COORDINATE LOCATIONS OF ALL DIFFUSERS, REGISTERS, AND GRILLES WITH ARCHITECTURAL PLANS, ELECTRICAL LIGHTING PLANS AND ARCHITECTURAL ELEVATIONS.

6. DETAILS FOR EQUIPMENT PADS, PLATFORMS, AND FLASHINGS SHALL BE AS INDICATED BY THE ARCHITECTURAL/STRUCTURAL/CIVIL DRAWINGS, UNLESS NOTED OTHERWISE.

7. ALL EQUIPMENT, DUCTS, PIPING, SUPPORTS, AND OTHER DEVICES OUTSIDE OF THE BUILDING OR EXPOSED TO WEATHER, SHALL BE COMPLETELY WEATHER–PROOFED.

8. OUTSIDE AIR INTAKES SHALL BE AT LEAST 10 FT. AWAY OR 3 FT. BELOW ANY VENT OR EXHAUST DISCHARGE.

9. ALL DUCT SIZES ARE CLEAR INSIDE DIMENSIONS. DUCTWORK SHALL BE CONSTRUCTED, ERECTED, INSULATED AND TESTED IN ACCORDANCE CHAPTER 6 OF THE 2012 INTERNATIONAL MECHANICAL CODE.

10. ALL EXHAUST FANS SHALL BE EQUIPED WITH A BACK DRAFT DAMPER.

11. DUCT AND AIR TRANSFER PENETRATIONS THRU BUILDING ASSEMBLIES REQUIRING PROTECTION SHALL BE PROTECTED WITH FIRE DAMPERS, SMOKE DAMPERS, COMBINATION SMOKE/FIRE DAMPERS AND CEILING RADIATION DAMPERS IN ACCORDANCE WITH SECTION 607 OF THE INTERNATIONAL MECHANICIAL CODE. DUCTS NOT REQUIRING DAMPERS SHALL COMPLY WITH SECTION 714 & 717 OF THE 2012 INTERNATIONAL BUIDLING CODE.

12. INSTALL SMOKED DETECTORS AND PROVIDE FOR SMOKE DETECTION AND AUTOMATIC SHUT–OFF OF ALL AIR HANDLING EQUIPMENT IN ACCORDANCE WITH SECTION 606 OF THE INTERNATIONAL MECHANICIAL CODE.

13. UNLESS NOTED OTHERWISE, ALL LINE VOLTAGE WIRING, CONDUIT, FINAL CONNECTIONS, DISCONNECTS, STARTERS, AND OVER CURRENT PROTECTION DEVICES SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AS INDICATED ON THESE MECHANICAL DRAWINGS AND/OR ELECTRICAL DRAWINGS AND/OR ELECTRICAL SECTION OF THE SPECIFICATIONS.

14. INSTALL ALL LOW VOLTAGE HVAC CONTROL WIRE AND DEVICES PER PLAN. ALL WIRE SHALL BE IN CONDUIT PROVIDED AND INSTALLED BY THE ELECTICAL CONTRACTOR UNLESS NOTEDED OTHERWISE.

15. PROVIDE OWNER WITH THREE COPIES OF A CERTIFIED AIR BALANCE REPORT PREPARED IN BY A THIRD PARTY CERTIFIED BY THE AABC OR NEBB. TEST, ADJUST AND BALANCE THE HVAC SYSTEM IN ACCORDANCE WITH AABC OR NEBB PROCEDURES. PROVIDE START–UP/TEST REPORTS FOR ALL AIR HANDLING EQUIPMENT, FANS, AND REFRIGERATION EQUIPMENT. TEST AND VERIFY PROPER OPERATION OF ALL MAKE–UP AIR/EXHAUST AIR INTERLOCK SYSTEMS AND THIER SEQUENCES OF OPERATION. BALANCE ALL AIR FLOWS WITHIN 5% OF DESIGN VALUES. PERMANENTLY MARK BALANCE POSITION OF ALL REGULATING DEVICES.

16. PROVIDE OWNER WITH THREE SETS OF AS–BUILT PLANS AND OPERATIONS AND MAINTENANCE MANUALS. CLEARLY IDENTIFY ALL EQUIPMENT WITH PERMANENT PLASTIC OR METAL LABELS/TAGS (PEN MARKING NOT ACCEPTABLE).

17. PROVIDE ONE YEAR WARRANTY ON ALL LABOR, PARTS AND MATERIALS.

18. ANY CHANGE OR DEVIATION FROM THESE PLANS OR SPECIFICATIONS SHALL REQUIRE THE WRITTEN APPROVAL OF THE ENGINEER PRIOR TO COMMENCEMENT OF SUCH WORK.

LEGEND

AxB		DUCT WORK (WIDTHxDEPTH)
AxB		LINED DUCT WORK (WIDTHxDEPTH DIMENSIONS ARE FOR I.D.)
		SUPPLY DUCT, SECTION
		RETURN DUCT, SECTION
		EXHAUST DUCT, SECTION
R OR D		RISE OR DROP IN DIRECTION OF AIR FLOW
	FLEX. CONN.	FLEXIBLE CONNECTION
		DUCT TRANSITION, ROUND AND RECTANGULAR
		SPLITTER DAMPER
		EXTRACTOR AT BRANCH DUCT
		TURNING VANES
		FLEXIBLE DUCT
		SINGLE LINE DUCT WORK
	AVD	AUTOMATIC VOLUME DAMPER
	MVD	MANUAL VOLUME DAMPER
	BDD	BACKDRAFT DAMPER
	MD	MODULATING DAMPER
	AFD	AUTOMATIC FIRE DAMPER
	AD	ACCESS DOOR
	SD	SUPPLY DIFFUSER
	RR	RETURN REGISTER
	ER	EXHAUST REGISTER
	SWR	SIDE WALL SUPPLY REGISTER
	SWE	SIDE WALL RETURN OR EXHAUST
	LD	LINEAR DIFFUSER
D.L.	DL	DOOR LOUVER
U.C.	UC	UNDER CUT DOOR
	VAV	VARIABLE AIR VOLUME
T		THERMOSTAT
S		DUCT SMOKE DECTECTOR

SPECIAL NOTICE TO CONTRACTORS

1. ALL CONTRACTORS (GENERAL CONTRACTOR AND SUB–CONTRACTORS) BIDDING THIS PROJECT ARE REQUIRED TO VISIT THE JOB SITE AND VERIFY THE EXISTING CONDITIONS PRIOR TO SUBMITTING THEIR BID. CONTRACTORS ARE TO CAREFULLY REVIEW ALL CONSTRUCTION DOCUMENTS AND NOTE ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CONDITIONS OBSERVED AT THE JOB SITE PRIOR TO SUBMISSION OF ANY BID. THE BUILDING OWNER REPRESNENTATIVE LISTED BELOW MAY BE CONTACTED FOR ACCESS TO THE JOB SITE.

2. CONTRACTORS ARE RESPONSIBLE FOR VERIFYING THE LOCATION AND CONDITION OF ALL POINTS OF CONNECTION, LOCATION AND CONDITION OF ALL BUILDING (ROOF/FLOOR/CEILING) PENETRATIONS, LOCATION AND CONDITION OF ALL UTILITIES AND BUILDING SYSTEMS INCLUDING, BUT NOT LIMITED TO, GAS, WATER, SEWER, VENT, ELECTRICAL, BUILDING MECHANICAL SYSTEMS, DUCT CONNECTIONS, EXHAUST/OUTSIDE AIR CONNECTIONS, SECURITY, FIRE ALARM, DATA, AND PHONE PRIOR TO SUBMISSION OF THEIR BID.

3. ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CONDITIONS OBSERVED SHALL BE BROUGHT TO THE ATTENTION, IN WRITING, TO THE ARCHITECT AND/OR ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

4. NO WORK SHALL BE DONE ON ANY PART OF THE BUILDING BEYOND THE POINT INDICATED IN EACH SUCCESSIVE INSPECTION WITHOUT FIRST OBTAINING THE WRITTEN APPROVAL OF THE CODE OFFICIAL. NO CONSTRUCTION SHALL BE CONCEALED WITHOUT BEING INSPECTED AND APPROVED.

CITY CODES

2019 California Building Code
2019 California Residential Code
2019 California Fire Code
2019 California Electrical Code
2019 California Mechanical Code
2019 California Plumbing Code
2019 California Green Building Standards Code
2019 California Historical Building Code
2019 California Referenced Standards Code
2019 California Administrative Code
2019 California Energy Code
ACI 318-14 (Structural Concrete)
TMS 402/602-16 (Structural Masonry)
ASCE 7-16 (Design Loads for Structures)

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DRAWING TITLE: MECHANICAL SPECS

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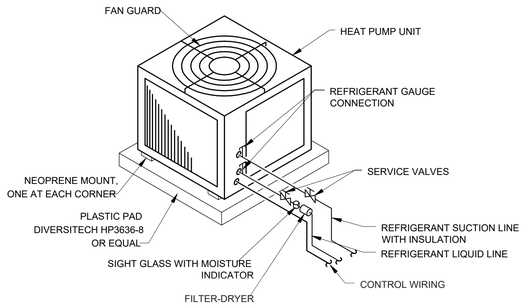
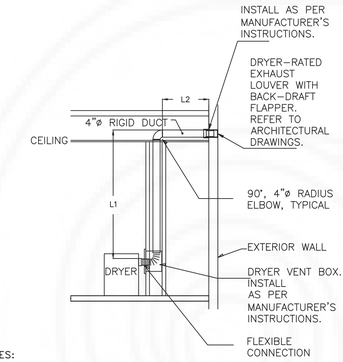
2		
3		
4		



AIR-COOLED HEAT PUMP UNIT DETAIL

NOT TO SCALE



NOTES:

1. THE MALE END OF THE OVERLAPPED DUCT JOINTS SHALL EXTEND IN THE DIRECTION OF AIRFLOW.

2. NO SCREWS SHALL BE ALLOWED IN THE DRYER EXHAUST DUCT AND ALL JOINTS SHALL BE SEALED WITH FOIL FACED TAPE.

3. DRYER EXHAUST SYSTEM IS DESIGNED BASED ON A WASHER/DRYER AS MANUFACTURED BY GE MODEL GFDN120ED. CONTRACTOR SHALL USE SHEET METAL ROUND DUCTWORK AND MINIMIZE THE USE OF FLEXIBLE DUCTWORK.

MAXIMUM LENGTH OF 4 INCH & 5 INCH DIAMETER RIGID METAL DUCT:

CFM = VELOCITY X AREA
CFM 4" = CFM 5"
V4" X A4" = V5" X A5"
V4" X (3.14 X D4"^)/4 = V5" X (3.14 X D5"^)/4
V4" = 5^/4^ X V5" = 1.5625 V5
FRICTION 4" = FRICTION 5" =
= (f X L4" X V4"^)/2g = (f X L5" X V5"^)/2g =
= (f X L4" X (1.5625 V5")^)/2g = (f X L5" X V5"^)/2g =
L5" = (1.5625)^ X L4" = 2.44 X L4"
L4" = 14 ft
L5" = 2.44 X14' = 34 ft
34 FEET OF 5" DUCTWORK IS EQUAL 14 FEET OF 4" DUCTWORK (WITH THE SAME AIR FLOW AND PRESSURE DROP).

* SEE DRYER VENT SIZING TABLE BELOW*

NOTES:

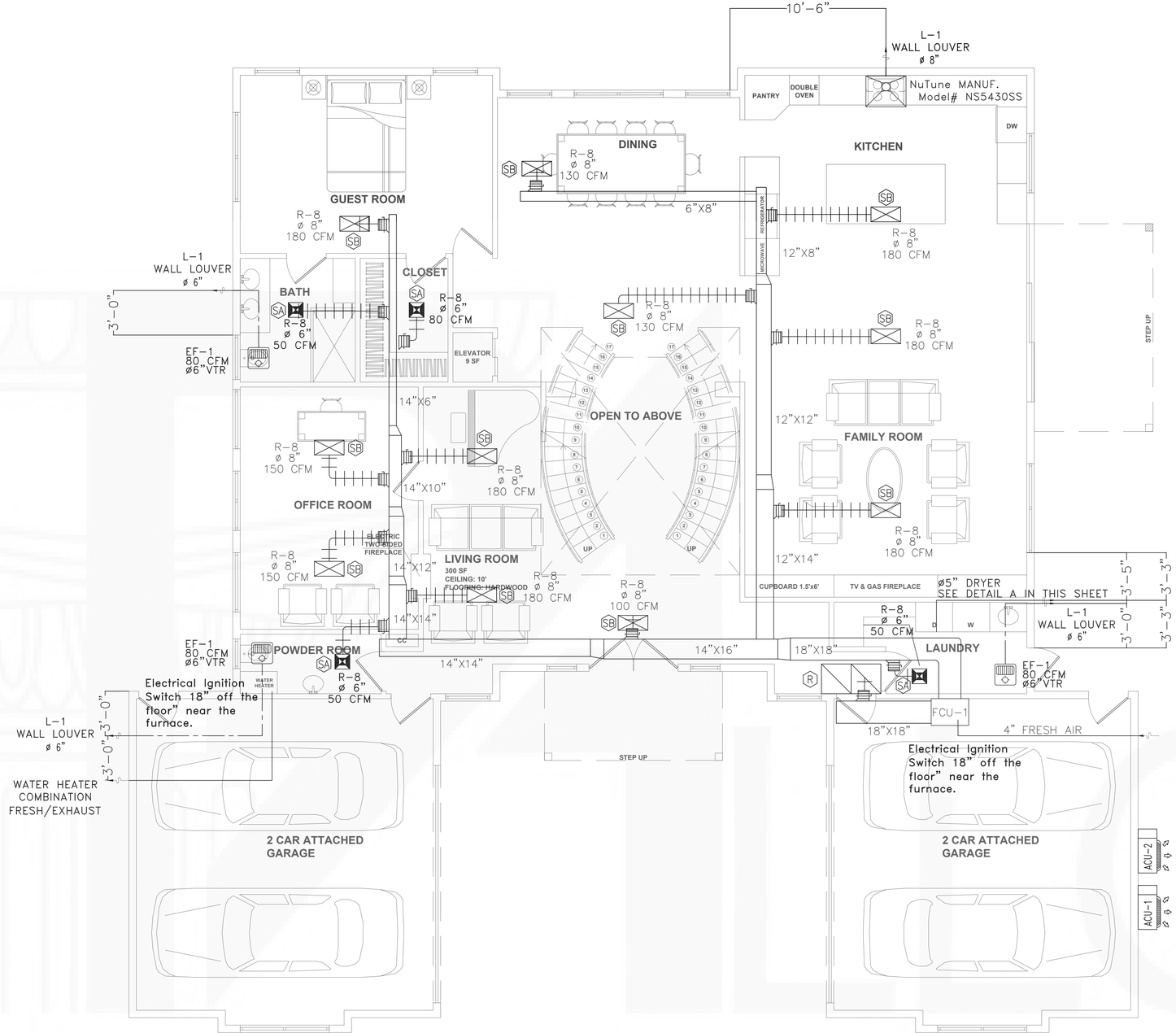
1. FOR A 4" GALVANIZED DRYER VENT DUCT IF L1=8' THEN L2 = 14'-8' = 6'
2. FOR AN EQUIPMENT 5" GALVANIZED DRYER VENT DUCT IF L1 = 8' THEN L2 = 34'-8' = 26'

DRYER VENT SIZE	LT	REMARK
4"	14'-0"	
5"	34'-0"	

CLOTHES DRYER VENT SHALL NOT EXCEED A TOTAL COMBINED HORIZONTAL AND VERTICAL LENGTH OF 14' FOR 4" AND 34' FOR 5" INCLUDING TWO 90-DEGREE ELBOWS. TWO FEET SHALL BE REDUCED FOR EACH 90-DEGREE ELBOW IN EXCESS OF TWO. SECTION 504.3.1.2 OF THE CMC., FLEX DUCT PORTION CANNOT BE CONCEALED WITHIN BUILDING CONSTRUCTION AS PROPOSED

DRYER EXHAUST DETAIL "A"

NOT TO SCALE



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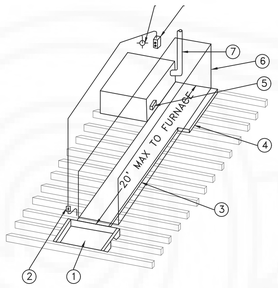
Page No. :

No.	Revision/Issue	Date
1		
2		
3		
4		

AS PER ENERGY CODE 150.(o) Requirements for Ventilation and Indoor Air Quality.
Total Required Ventilation Rate [ASHRAE 62.2:4.1.1].
The total required ventilation rate shall be calculated using Equation 150.0-B
Equation 150.0-B
Qtot = 0.03Afloor + 7.5(Nbr + 1)
where
Qtot = total required ventilation rate, cfm
Afloor = dwelling-unit floor area, ft2
Nbr = number of bedrooms (not to be less than 1)
Qtot = (0.03*4600)r + 7.5(4 + 1)= 175.5 CFM
200 CFM WHOLE HOUSE VENTILATION VAN REQUIRED

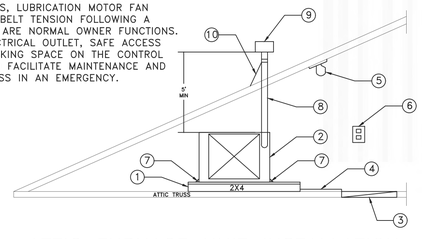


1. 30"X30" MINIMUM ATTIC OPENING
2. LIGHT SWITCH
3. SOLID FLOORING MINIMUM 24" WIDE
4. MINIMUM 30"X30" FLOOR AREA AT REQUIRED ACCESS SIDE
5. SERVICE SIDE OF APPLIANCE
6. UNOBSTRUCTED PASSAGEWAY MINIMUM 6FT HIGH UNLIMITED DISTANCE
7. GAS VENT
8. RECEPTACLE OUTLET
9. LIGHTING FIXTURE W/ LAMP PROTECTION CAGE BY ELECTRICAL

ATTIC FURNACE WALKWAY

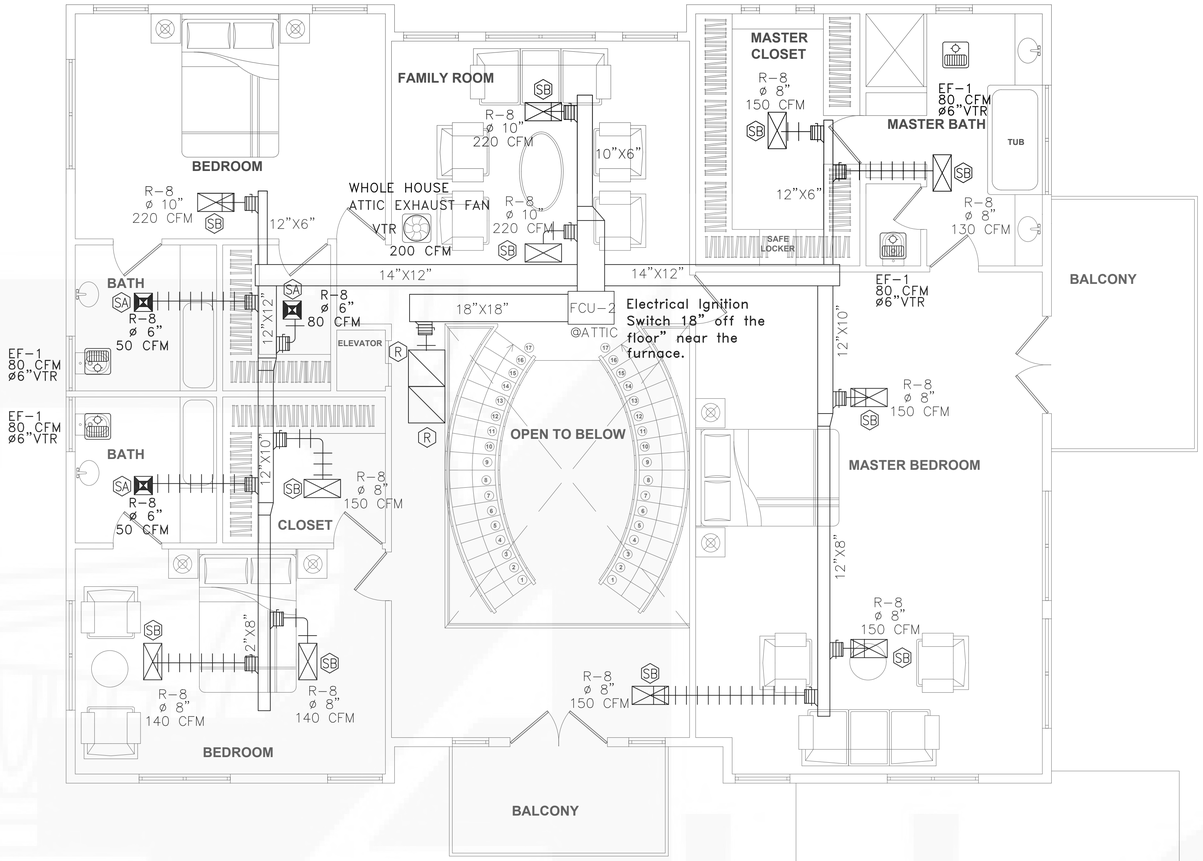
RELATED CODES

EQUIPMENT INSTALLED IN AN ATTIC MUST BE ACCUSABLE FOR ROUTINE INSPECTION AND MAINTENANCE BY THE OWNER/OCCUPANT AND FOR SERVICE AND REPAIR AS NEEDED. CHANGING FILTERS, LUBRICATION MOTOR FAN BEARINGS AND CHECKING BELT TENSION FOLLOWING A SERVICE IN INTERRUPTION ARE NORMAL OWNER FUNCTIONS. ADEQUATE LIGHT. AN ELECTRICAL OUTLET, SAFE ACCESS WAY AND SUFFICIENT WORKING SPACE ON THE CONTROL SIDE ALL ENCOURAGE AND FACILITATE MAINTENANCE AND ALSO ENABLE RAPID EGRESS IN AN EMERGENCY.



ATTIC FURNACE UNIT INSTALLATION

1. 3/4" PLYWOOD PLATFORM
2. MINIMUM 30" WORKING SPACE CLEARANCE IN FRONT OF CONTROL SYSTEM
3. 30"X30" ATTIC ACCESS (24" MIN AND 20'MAX CLEARANCE FROM UNIT) SIZE PER CODE
4. MIN 24" WIDE PLYWOOD FLOOR ACCESS WAY
5. LIGHT FIXTURE CONTROLLED BY NEAR ATTIC ACCESS
6. CONVENIENCE OUTLET WITHIN 25" OF EQUIPMENT
7. 2"X2"X1/8" ANGLE MOUNTED BRACKETS (TOTAL OF FOUR) WITH THE MAXIMUM DISTANCE OF 4" FROM THE EDGE OF THE UNIT. ATTACH BRACKETS TO FAN COIL UNIT NO. 6ASSEMBLY TAPPING SCREWS AND TO STUDS USING 5/8" LAG SCREW.
8. CONCENTRIC VENT (DIRECT VENT)
9. LISTED VENT CAP FLUE DISCHARGE SHALL TERMINATE AT A CODE APPROVED LOCATION
10. PRIMARY FLASHING PER ELEVATION. SECONDARY FLASHING AS NEEDED



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2		
3		
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CONDENSING UNIT SCHEDULE

						REFRIGERATION	CONDENSER FAN(S)		ELECTRICAL DATA		
OUTDOOR UNIT MARK	SERVES	MANUFATURER /CONDENSER MODEL NUMBER	NOMINAL TONNAGE	NOMINAL COOLING BTU/HR	Equipment Weight (LBS)	TYPE	HP	FLA	V/PH/HZ	MCA (AMPS)	MOP (AMPS)
ACU-1	FCU-1	GOODMAN/GSX160601F	5.0	54,000	279	R-410A	0.3333	2.8	208-230/1/60	29.6	50
ACU-2	FCU-2	GOODMAN/GSX160601F	5.0	54,000	279	R-410A	0.3333	2.8	208-230/1/60	29.6	50

NOTES:

1. UNITS ARE 1-STAGE SCROLL COMPRESSORS
2. PROVIDE MOUNTING PADS FOR CONDENSING UNITS PER MANUFACTURER RECOMMENDATIONS. COORDINATE LOCATION WITH ARCHITECT/OWNER.
3. PROVIDE TIMED LOCK-OUT, SERVICE VALVES AND DRYERS.
4. ELECTRICAL CONTRACTOR SHALL PROVIDE WEATHERPROOF DISCONNECT SWITCH.
5. PROVIDE DX LIQUID AND SUCTION REFRIGERANT PIPING SIZED FOR ACTUAL FIELD CONDITIONS AND MANUFACTURER'S RECOMMENDATIONS.
6. PROVIDE REFRIGERANT SAFETY RELIEF VALVE IN ACCORDANCE WITH LOCAL CODES.
7. PROVIDE LOW AMBIENT CONTROL.
8. EQUIVALENT MODEL OR EQUAL. CONTRACTOR TO VERIFY ALL PART NUMBERS WITH MANUFACTURER AND PROVIDE SUBMITTALS TO THE DESIGN TEAM.

FORCED AIR INDOOR UNIT

						HEATING DATA		ELECTRICAL DATA		
INDOOR UNIT MARK	OUTDOOR UNIT MARK	MANUF. /AHU MODEL NUMBER	SUPPLY AIRFLOW (CFM)	AFUE	HP POWER	HEATING INPUT (NAT. GAS BTU/H)	HEATING OUTPUT (NAT. GAS BTU/H)	MCA (AMPS)	MOP (AMPS)	Ship Weight (lbs)
FCU-1	ACU-1	GOODMAN/GMVC961005CNA	2000	96	1.00	70,000	67,200	14.40	20	143
FCU-2	ACU-2	GOODMAN/GMVC961005CNA	2000	96	1.00	70,000	67,200	14.40	20	143

NOTES:

1) PROVIDE MOTORIZED DAMPER FOR OA INTAKE
2) PROVIDE WALL MOUNTED 7-DAY PROGRAMMABLE THERMOSTAT , 1 -STAGE COOLING AND 2-STAGE HEATING
3) COORDINATE CONDENSATE DRAIN WITH PLUMBING CONTRACTOR. PIPE TO NEAREST APPROVED PLUMBING FIXTURE
4) PROVIDE FLOAT SWITCH IN SECONDARY DRAIN PAN FOR EMERGENCY SHUT-DOWN
5) PROVIDE CONCENTRIC VENT KIT. ALLOWS FOR BOTH EXHAUST AND COMBUSTION AIR.

Exhaust Ultra-Silent Humidity-Sensing Ventilation Fan schedule

TAG NUMBER	AREA SERVED	MANUFACTURER/MODEL	AIR DIRECTION	WATTS	VOLTAGE	CFM
EF-1	SEE PLAN	PANASONIC / FV-0511VQCL1	EXHAUST	6.10	120.00	80

REMARKS:

1. DISCONNECT SWITCH/STARTER
2. PROVIDE MANUFACTURER VIBRATION ISOLATION KIT
3. BACKDRAFT DAMPER
4. INTERLOCK W/ LIGHTS
5. EQUIVALENT MODEL OR EQUAL

SUPPLY & RETURN DIFFUSER SCHEDULE

SYMBOL	ADAPTOR/ NECK SIZE	FACE SIZE	MAX CFM	MAX TP	MAX NC	THROW
SA	6" Ø	12"X12"	118	0.041	_	4-WAY
SB	6"X6"	12"x24"	300	0.265	41	4-WAY
R	15" Ø	24"x24"	1718	0.22	44	4-WAY

1. SA THRU R1 ARE TITUS MODEL OMNI STEEL DIFFUSERS.
2. LL-2 IS TITUS MODEL LINEAR LOUVER DIFFUSERS.

ALL SUPPLY DIFFUSERS SHALL BE PROVIDED W/2" INSULATION BLANKET ON BACK OF DIFFUSER.
ALL DIFFUSERS SHALL HAVE OPPOSED BLADE DAMPERS (OBD).

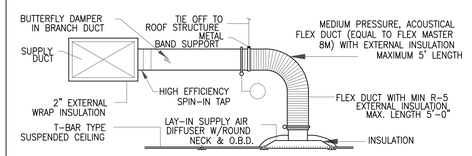
* RUNOUTS ARE DUCTS SERVING ONLY ONE SUPPLY DIFFUSER.

LOUVER SCHEDULE

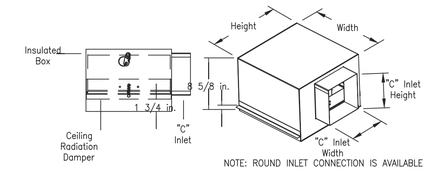
TAG	TYPE	MATERIAL	WIDTH (IN)	HEIGHT (IN)	FACE AREA (SQ.FT)	FREA AREA VEL (FPM)	MANUFACTURER MODEL
L-1	INTAKE AIR	ALUM.	12	48	4	52	RUSKIN ELF6375DX

GENERAL NOTES

1. MECHANICAL CONTRACTOR SHALL EXAMINE ALL OTHER SPECIFICATIONS, DRAWINGS AND ALL FEATURES OF BUILDING CONSTRUCTION WHICH MAY AFFECT HIS WORK AND SHALL B GOVERNED BY THESE AND OTHER SPECIFICATIONS, INCLUDIN THE GENERAL CONDITIONS AND PARTICULAR INSTRUCTIONS T ALL BIDDER AND SUPPLIERS .
2. ALL WORK SHALL BE EXECUTED AND INSPECTED IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND/OR STATE CODES, LAWS, ORDINANCES, RULES AND REGULATIONS APPLICABLE TO THIS PARTICULAR CLASS OF WORK, AND EACH CONTRACTOR SHALL INCLUDE IN HIS PRICE ALL APPLICABLE SERVICE CHARGES, FEES, PERMITS, TAXES, AND OTHER SIMILAR COSTS IN CONNECTION THEREWITH .
3. PRIOR TO FABRICATION OF DUCTWORK, THE MECHANICAL CONTRACTOR SHALL EXAMINE AND VERIFY ALL CONDITIONS ABOVE AND BELOW THE CEILING WHICH MAY INTERFERE WITH THE DUCT SYSTEM AND NOTIFY THE ARCHITECT OF ANY CONFLICT ENCOUNTERED CONTRACTOR SHALL PROVIDE ALL OFFSETS, ETC WHICH MAY BE REQUIRED, WITHOUT ADDITIONAL COST TO THE OWNER
4. ALL SHEET METAL DUCT CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH "SMACNA" LOW PRESSURE DUCT CONSTRUCTION STANDARD .
5. TURNING VANES SHALL BE INSTALLED IN ALL BENDS IN RECTANGULAR DUCT EXCEEDING 30"
6. ALL DUCTS SHALL BE SUPPORTED WITH 1"WIDE, 16 GAUGE, GALVANIZED STEEL BANDS .
7. ALL RECTANGULAR DUCT SHALL BE INSULATED WITH A MIN OF 1"INTERNAL LINER, 2 LBS DENSITY R-60 ALL ROUND DUCTS AND DIFFUSER TOPS SHALL HAVE A MIN 2" THICK OF FOIL BACKED BLANKET TYPE INSULATION R=4-4 2, WITH ALL JOINTS BUTTED AND TAPED .
8. ALL DUCT DIMENSIONS SHOWN ON PLANS ARE INTERNAL
9. THE MECHANICAL CONTRACTOR SHALL COORDINATE THE LOCATION OF SUPPLY AND RETURN AIR REGISTERS, DUCTS, GRILLES AND DIFFUSERS WITH LIGHTING AND CEILING PATTERNS
10. PROVIDE LATERAL BRACING OF ALL DUCTS AND PIPES AS REQUIRED BY CODE .
11. INSULATE AND SEAL ALL DUCTWORK PER CHAPTER 10 OF THE STATE MECHANICAL CODE (T-24, PART 4)
12. MOUNT ALL THERMOSTATS AT 48" ABOVE FINISHED FLOOR .
13. ALL BRACING OF DUCTS AND PIPING SHALL BE INSTALLED IN ACCORDANCE WITH SMACNA GUIDELINES
14. WHERE BRACING DETAILS ARE NOT SHOWN ON THE DRAWINGS OR IN THE GUIDELINES, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT AND THE MECHANICAL ENGINEER .
15. DUCT SMOKE DETECTOR SHALL BE INSTALLED BELOW THE ROOF
16. ALL MECHANICAL EQUIPMENT AND SYSTEMS INSTALLED AS PART OF PROJECT SHALL COMPLY WITH ALL REQUIREMENTS OF THE 2013 CALIFORNIA MECHANICAL CODE AND THE 2013 CALIFORNIA BUILDINGCODE AND THE 2013 CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS .
17. OUTSIDE AIR FOR A HEATING OR COOLING SYSTEM SHALL NOT BE TAKEN FROM CLOSER THAN 10 FEET FROM AN APPLIANCE VENT OUTLET, VENT OPENING OF A PLUMBING SYSTEM, OR THE DISCHARGE OUTLET OF EXHAUST FAN, UNLESS THE OUTLET IS 3 FT . ABOVE THE OUTSIDE AIR INLET (CMC 314 3) .
18. PROVIDE 120 VOLT ELECTRICAL OUTLETS WITHIN 25 FT OF ALL MECH EQUIPT (CMC-309)
19. HEATING,VENTILATING,ANDAIR CONDITIONING SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH ONE OF THE FOLLOWING METHODS IN ACCORDANCE WITH CMC 317 1.REQUIREMENTS .
    - A. AABC NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE
    - B. ACCA MANUAL B
    - C. ASHRAE 111
    - D. NEBB PROCEDURAL STANDARDS FOR TESTING,ADJUSTING ADJUSTING BALANCING OF ENVIRONMENTAL SYSTEMS
    - E. SMACNA HVAC TESTING,ADJUSTING,AND BALANCING
20. MATERIALS EXPOSED WITHIN DUCTS OR PLENUMS SHALL BE NON COMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX NOT TO EXCEED 25 AND A SMOKE DEVELOPED INDEX NOT TO EXCEED 50 WHERE TESTED AS A COMPOSITE PRODUCT IN ACCORDANCE WITH ASTM E84 OR UL 723 .

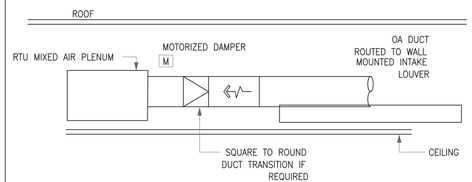


SUPPLY AIR DIFFUSER CONNECTION

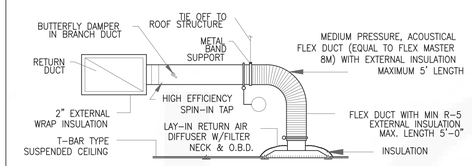


NOTE: ROUND INLET CONNECTION IS AVAILABLE

CEILING RADIATION DAMPER



OUTSIDE AIR CONNECTION



RETURN AIR GRILLE BOX CONNECTION

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Project Name and Address:

22315 REGNART ROAD CUPERTINO CA 95014

Date:

Scale: 1/4" = 1' - 00"

DRAWING TITLE: MECHANICAL SCHEDULES

Sheet : M4.0

Page No. :

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1		
2		
3		
4		

Franklin
Air Conditioning & Heating

GSX16

Cooling Capacity: 18,000 - 57,000

Energy-Efficient Split System Air Conditioner 1½ To 5 Tons Up to 16 SEER

Contents

Nomenclature 2
Product Specifications 3
Expanded Cooling Data 4
AHRI Ratings 24
Dimensions 106
Wiring Diagrams 107
Accessories 110

Standard Features

- Energy-efficient compressor
- Factory-installed filter drier
- Fully charged for 15' of tubing length
- Copper tube/aluminum fin coil
- Service valves with sweat connections and easy-to-access gauge ports
- Contactor with lug connection
- Ground lug connection
- AHRI Certified
- ETL Listed

Cabinet Features

- Heavy-gauge galvanized-steel cabinet with a louvered sound control top
- Attractive Architectural Gray powder-paint finish with 500-hour salt-spray approval
- Wire fan discharge grille
- Steel louver coil guard
- Single-panel access to controls with space provided for field-installed accessories
- When properly anchored, meets the 2010 Florida Building Code unit integrity requirements for hurricane-type winds (Anchor bracket kits available.)

10 YEAR PARTS LIMITED WARRANTY*

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001 =

COMPANY WITH ENVIRONMENTAL SYSTEM CERTIFIED BY DNV GL = ISO 14001 =

* Complete warranty details available from your local dealer or at www.franklinhvacsystems.com. To receive the 10-Year Compressor Limited Warranty and 10-Year Parts Limited Warranty, online registration must be completed within 60 days of installation. Online registration is not required in California or Quebec.

Nomenclature

	G	5	X	16	0	36	1	AA
	1	2	3	4,5	6	7,8	9	10,11

Brand
G Goodman® Brand

Product Category
S Split System

Unit Type
X Condenser R-410A
Z Heat Pump R-410A

Efficiency
13 13 SEER
14 14 SEER
16 16 SEER
18 18 SEER

Legacy National Model
0 Legacy National Model
S Sold In Southeast and North Regions
A Sold In All Regions

Nominal Capacity

18	1½ Tons	30	2½ Tons	42	3½ Tons
19	1½ Tons	31	2½ Tons	43	3½ Tons
24	2 Tons	36	3 Tons	48	4 Tons
25	2 Tons	37	3 Tons	60	5 Tons

Electrical
1 208/230 V, 1 Phase, 60 Hz
2 220/240 V, 1 Phase, 50 Hz
3 208/230 V, 3 Phase, 60 Hz

Engineering
Major & Minor Revisions
(not used for inventory or ordering)

Product Specifications

	GSX16 0181F*	GSX16 0241F*	GSX16 0301F*	GSX16 0311A*	GSX16 0361F*	GSX16 0371A*	GSX16 0421F*	GSX16 0481F*	GSX16 0601F*
Capacities									
Nominal Cooling (BTU/h)	18,000	23,600	29,000	30,000	34,800	36,000	42,000	45,500	54,000
SEER	16	16	16	16	16	16	16	16	16
Decibels	71.5	71.5	71.5	73.5	71.5	73	73	73	73
Compressor									
RLA	9.0	13.5	12.8	12.8	14.1	15.4	17.9	17.9	21.4
LRA	46	58.3	64	64	77	83.9	112	112	135
Condenser Fan Motor									
Horsepower	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/4	1/3
FLA	0.95	0.95	0.95	0.95	0.95	0.95	0.95	1.30	2.80
Refrigeration System									
Refrigerant Line Size [1]									
Liquid Line Size (“O.D.)	⅜”	⅜”	⅜”	⅜”	⅜”	⅜”	⅜”	⅜”	⅜”
Suction Line Size (“O.D.)	¾”	¾”	¾”	¾”	¾”	¾”	¾”	¾”	¾”
Refrigerant Connection Size									
Liquid Valve Size (“O.D.)	¼”	¼”	¼”	¼”	¼”	¼”	¼”	¼”	¼”
Suction Valve Size (“O.D.)	¾”	¾”	¾”	¾”	¾”	¾”	¾”	¾”	¾”
Valve Type	Sweat	Sweat	Sweat	Sweat	Sweat	Sweat	Sweat	Sweat	Sweat
Refrigerant Charge	78	70	78	94	94	93	110	121	237
Electrical Data									
Voltage-Phase (60 Hz)	208/230-1	208/230-1	208/230-1	208/230-1	208/230-1	208/230-1	208/230-1	208/230-1	208/230-1
Minimum Circuit Ampacity [2]	12.2	17.8	17.0	17.0	18.6	20.2	23.3	23.7	29.6
Max. Overcurrent Protection [3]	20	30	25	25	30	35	40	40	50
Min / Max Volts	197/253	197/253	197/253	197/253	197/253	197/253	197/253	197/253	197/253
Electrical Conduit Size	½” or ¾”	½” or ¾”	½” or ¾”	½” or ¾”	½” or ¾”	½” or ¾”	½” or ¾”	½” or ¾”	½” or ¾”
Equipment Weight (lbs)	145	142	149	155	162	182	206	219	279
Ship Weight (lbs)	163	160	167	179	180	204	228	241	301
ENERGY STAR® Certified	✓	✓	✓	✓	✓	✓	✓	✓	✓

Energy Star Notes

- Proper sizing and installation of equipment is critical to achieving optimal performance. Split system air conditioners and heat pumps must be matched with appropriate coil components to meet ENERGY STAR criteria. Ask your contractor for details or visit www.energystar.gov.
- The www.energystar.gov website provides up-to-date system combinations certified to meet ENERGY STAR requirements. See Pages 24-25 for all ENERGY STAR certified combinations as of this document's revision date.

[1] Tested and rated in accordance with AHRI Standard 210/240
[2] Wire size should be determined in accordance with National Electrical Codes; extensive wire runs will require larger wire sizes
[3] Must use time-delay fuses or HACR-type circuit breakers of the same size as noted.

Notes

- Always check the S&R plate for electrical data on the unit being installed.
- Installer will need to supply ¾” to 1¼” adapters for suction line connections.
- Unit is charged with refrigerant for 15' of ¾” liquid line. System charge must be adjusted per Installation Instructions Final Charge Procedure.
- Installation of these units requires the specified TXV Kit to be installed on the indoor coil. THE SPECIFIED TXV IS DETERMINED BY THE OUTDOOR UNIT NOT THE INDOOR COIL.

Goodman
Air Conditioning & Heating

GMVC96

Two-Stage, Variable-Speed ECM Gas Furnace Up to 96% AFUE

Contents

Nomenclature 2
Product Specifications 3
Dimensions 4
Airflow Data 5
Wiring Diagrams 9
Accessories 10

ComfortNet™ Communicating System

Standard Features

- ComfortNet™ Communicating System compatible
- Heavy-duty aluminized-steel tubular heat exchanger
- Stainless-steel secondary heat exchanger
- Two-stage gas valve provides quiet, economical heating
- Durable Silicon Nitride igniter
- Quiet two-speed induced draft blower
- Utilizes ComfortNet™ communicating, two-stage or single-stage thermostats
- Self-diagnostic control board with constant memory fault code history output to a dual 7-segment display
- Color-coded low-voltage terminals with provisions for electronic air cleaner and humidifier
- Efficient and quiet variable-speed airflow system gently ramps up or down according to heating or cooling demand
- Multiple continuous fan speed options offer quiet air circulation
- Auto-Comfort and enhanced dehumidification modes available
- All models comply with California 40 ng/J Low NOx emissions standard

Cabinet Features

- Designed for multi-position installation — upflow, horizontal left or right
- Certified for direct vent (2-pipe) or non-direct vent (1-pipe)
- Easy to install top venting with optional side venting
- Convenient left or right connection for gas and electrical service
- Cabinet air leakage ($Q_{2.5Pa}$) ≤ 2%
- Heavy-gauge steel cabinet with durable baked-enamel finish
- Fully insulated heat exchanger and blower section
- Airtight solid bottom or side-return with easy-cut tabs for effortless removal in bottom air-inlet applications

ENERGY STAR® and the ENERGY STAR mark are registered trademarks owned by the U.S. Environmental Protection Agency. ENERGY STAR products are third-party certified by an EPA-recognized Certification Body. Products that earn the ENERGY STAR prevent greenhouse gas emissions by meeting strict energy efficiency guidelines set by the U.S. Environmental Protection Agency.

LIFETIME HEAT EXCHANGER LIMITED WARRANTY* | 10 YEAR COMPRESSOR LIMITED WARRANTY* | 10 YEAR PARTS LIMITED WARRANTY*

* Complete warranty details available from your local dealer or at www.goodmanmfg.com. To receive the Lifetime Heat Exchanger Limited Warranty (good for as long as you own your home), 10-Year Unit Replacement Limited Warranty and 10-Year Parts Limited Warranty, online registration must be completed within 60 days of installation. Online registration is not required in California or Quebec.

Nomenclature

	G	M	V	C	96	060	3	B	N	A	A
	1	2	3	4	5,6	7,8,9	10	11	12	13	14

Brand
G Goodman® Brand

Configuration
M Upflow/Horizontal
C Downflow/Horizontal

Motor
V Variable Speed ECM / ComfortNet
E Multi-Speed ECM
S Single Speed

Gas Valve
M Modulating
C Two Stage
S Single Stage

AFUE
92 92% AFUE
96 96% AFUE
97 97-98% AFUE

MBTUh
040 - 40,000 BTU/h
060 - 60,000 BTU/h
080 - 80,000 BTU/h
100 - 100,000 BTU/h
120 - 120,000 BTU/h

Maximum CFM
2 - 800 CFM
3 - 1200 CFM
4 - 1600 CFM
5 - 2000 CFM

Cabinet Width
B - 17.5"
C - 21"
D - 24.5"

NOx
N - Low NOx

Major Revision
A - Initial Release
B - 1st Revision

Minor Revision
A - Initial Release
B - 1st Revision

Accessories

Model	Description	GMVC96 0403BNA	GMVC96 0603BNA	GMVC96 0803BNA	GMVC96 0804CNA	GMVC96 1005CNA	GMVC96 1205DNA
CTK04	ComfortNet-compatible Control	√	√	√	√	√	√
CVENT-2	Concentric Vent Kit (2")	√	√	√	√	√	√
CVENT-3	Concentric Vent Kit (3")	√	√	√	√	√	√
CFSB17	Downflow Sub-Base 17.5"	---	---	---	---	---	---
CFSB21	Downflow Sub-Base 21"	---	---	---	---	---	---
CFSB24	Downflow Sub-Base 24"	---	---	---	---	---	---
RF000142	Drain Kit -Horizontal Left Vertical Flue	√	√	√	√	√	√
EFR01	External Filter Rack with 16"x25" Permanent Filter	√	√	√	√	---	---
0170K00005	Flush Mount Vent Kit - 3" or 2"	√	√	√	√	√	√
0170K00015	Flush Mount Vent Kit - 2"	√	√	√	√	√	√
AFE18-60A	Fossil Fuel (Dual Fuel) Kit	√	√	√	√	√	√
HASFK	High-Altitude Natural Gas Kit	HASFK-1	HASFK-1	HASFK-2	HASFK-2	HASFK-3	HASFK-2
HASFK	High-Altitude LP Gas Kit	HASFK-1	HASFK-1	HASFK-1	HASFK-2	HASFK-2	HASFK-2
LPLP03	Low LP Gas Pressure Switch	√	√	√	√	√	√
LPM-08	LP Conversion Kits	√	√	√	√	√	√

Product Specifications

	GMVC96 0403BNA	GMVC96 0603BNA	GMVC96 0803BNA	GMVC96 0804CNA	GMVC96 1005CNA	GMVC96 1205DNA
Heating Data						
High Fire Input[1]	40,000	60,000	80,000	80,000	100,000	120,000
High Fire Output[1]	38,400	57,600	76,800	76,800	96,000	115,200
Low-Fire Steady-State Input[1]	28,000	42,000	56,000	56,000	70,000	84,000
Low-Fire Steady-State Output[1]	26,880	40,320	53,760	53,760	67,200	80,640
AFUE[2]	96	96	96	96	96	96
Temperature Rise Range (°F)	20 - 50	20 - 50	35 - 65	25 - 55	35 - 65	35 - 65
Vent Diameter[3]	2" - 3"	2" - 3"	2" - 3"	2" - 3"	2" - 3"	2" - 3"
No. of Burners	2	3	4	4	5	6
Circulator Blower						
Available AC @ 0.5" ESP	1.5 - 3	1.5 - 3	1.5 - 3	1.5 - 4	2 - 5	2 - 5
Size (D x W)	10" x 8"	11" x 8"	11" x 8"	11" x 10"	11" x 10"	11" x 11"
Horsepower @ 1075 RPM	½	½	¾	¾	1	1
Speed	VS ECM	VS ECM	VS ECM	VS ECM	VS ECM	VS ECM
Electrical Data						
Min. Circuit Ampacity[4]	7.8	7.8	7.8	10.6	14.4	14.4
Max. Overcurrent Device (amps)[5]	15	15	15	15	20	20
Shipping Weight (Lbs)	114	117	120	141	143	156

[1] Natural Gas BTU/h
[2] DOE AFUE based upon Isolated Combustion System (ICS)
[3] Installer must supply one or two PVC pipes; one for combustion air (optional) and one for the flue outlet (required). Vent pipe must be either 2" or 3" in diameter, depending upon furnace input, number of elbows, length of run and installation (1 or 2 pipes). The optional Combustion Air Pipe is dependent on installation/code requirements and must be 2" or 3" diameter PVC.
[4] Minimum Circuit Ampacity = (1.25 x Circulator Blower Amps) + ID Blower amps. Wire size should be determined in accordance with National Electrical Codes. Extensive wire runs will require larger wire sizes.
[5] Maximum Overcurrent Protection Device refers to maximum recommended fuse or circuit breaker size. May use fuses or HACR-type circuit breakers of the same size as noted.

Notes

- All furnaces are manufactured for use on 115 VAC, 60 Hz, single-phase electrical supply.
- Gas Service Connection ¾” FPT
- Important: Size fuses and wires properly and make electrical connections in accordance with the National Electrical Code and/or all existing local codes.
- For bottom return: Failure to unfold flanges may reduce airflow by up to 18%. This could result in performance and noise issues.
- For servicing or cleaning, a 24" front clearance is required. Unit connections (electrical, flue and drain) may necessitate greater clearances than the minimum clearances listed above. In all cases, accessibility clearance must take precedence over clearances from the enclosure where accessibility clearances are greater.

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Project Name and Address:

22315 REGNART ROAD CUPERTINO CA 95014

Date:

Scale: 1/4" = 1' - 00"

DRAWING TITLE: MECHANICAL CATALOGUES

Sheet : M5.0

Page No. :

No.	Revision/Issue	Date
1		
2		
3		
4		

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HVAC Load Calculations

for

22315 Regnart Road
Cupertino CA 95014

Elite Software

RHVAC Residential HVAC Loads

Prepared By:

Monday, April 18, 2022

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.

Project Report

General Project Information

Project Title:
Project Date: Monday, April 11, 2022
Client Name: 22315 Regnart Road
Client Address: Cupertino CA 95014

Design Data

Reference City: Cupertino, San Jose, California
Building Orientation: Front door faces North
Daily Temperature Range:
Latitude: 37 Degrees
Elevation: 98 ft.
Altitude Factor: 0.997
Elevation Sensible Adj. Factor: 1.000
Elevation Total Adj. Factor: 1.000
Elevation Heating Adj. Factor: 1.000
Elevation Heating Adj. Factor: 1.000

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	36	33.73	80%	n/a	70	n/a
Summer:	81	65	42%	50%	75	2

Check Figures

Total Building Supply CFM:	3,705	CFM Per Square ft.:	0.897
Square ft. of Room Area:	4,129	Square ft. Per Ton:	448
Volume (ft³) of Cond. Space:	44,094		

System Loads

Total Heating Required including Ventilation Air:	54,518	Btuh	54,518 MBH
Total Sensible Gain:	90,972	Btuh	82 %
Total Latent Gain:	19,633	Btuh	18 %
Total Cooling Required including Ventilation Air:	110,606	Btuh	9.22 Tons (Based On Sensible + Latent)

Notes

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.
All computed results are estimates as building use and weather may vary.
Be sure to select a unit that meets both sensible and latent loads.

Miscellaneous Report

System 1 Ac-1 Input Data:	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	36	33.73	80%	n/a	70	n/a
Summer:	81	65	42%	50%	75	2.06

System 2 Ac-2 Input Data:	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	36	33.73	80%	n/a	70	n/a
Summer:	81	65	42%	50%	75	2.06

Duct Sizing Inputs

	Main Trunk	Runouts
Calculate:	Yes	Yes
Use Schedule:	Yes	Yes
Roughness Factor:	0.00300	0.01000
Pressure Drop:	0.1000 in.wg./100 ft.	0.1000 in.wg./100 ft.
Minimum Velocity:	600 ft./min	450 ft./min
Maximum Velocity:	900 ft./min	750 ft./min
Minimum Height:	0 in.	0 in.
Maximum Height:	0 in.	0 in.

Outside Air Inputs

	Winter	Summer
Infiltration Specified:	0.140 ACHr	0.070 ACHr
	103 CFM	51 CFM
Infiltration Actual:	0.000 ACHr	0.000 ACHr
Above Grade Volume:	X 44,094 Cu.ft.	X 44,094 Cu.ft.
	0 Cu.ft./hr	0 Cu.ft./hr
	X 0.016	X 0.016
Total Building Infiltration:	0 CFM	0 CFM
Total Building Ventilation:	350 CFM	1,460 CFM

---System 1---
Infiltration & Ventilation Sensible Gain Multiplier: 6.69 = (1.10 X 0.998 X 6.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 1.40 = (0.68 X 0.998 X 2.06 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 37.32 = (1.10 X 0.998 X 34.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.140 ACHr (50 CFM), Construction: Tight
Summer Infiltration Specified: 0.070 ACHr (25 CFM), Construction: Tight

---System 2---
Infiltration & Ventilation Sensible Gain Multiplier: 6.69 = (1.10 X 0.998 X 6.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 1.40 = (0.68 X 0.998 X 2.06 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 37.32 = (1.10 X 0.998 X 34.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.140 ACHr (53 CFM), Construction: Tight
Summer Infiltration Specified: 0.070 ACHr (26 CFM), Construction: Tight

Duct Load Factor Scenarios for System 1

No.	Type	Description	Location	Attic Ceiling	Duct Leakage	Duct Insulation	Surface Area	From MDB
1	Supply	Main	Attic	168	0.12	6	471	No

Duct Load Factor Scenarios for System 2

No.	Type	Description	Location	Attic Ceiling	Duct Leakage	Duct Insulation	Surface Area	From MDB
1	Supply	Main	Attic	168	0.12	6	551	No

Load Preview Report

Scope	Heat Tons	BTU (Hour)	Area	Sen Gain	Lat Gain	Heat Gain	Sen Loss	Total Loss	Sen Gain	Duct Gain
Building	9.22	446	4,129	90,972	19,633	110,606	54,518	54,518	3,705	3,705
System 1	4.54	480	2,088	44,670	13,643	54,519	27,814	27,814	1,559	1,559
Ventilation				6,492	1,371	7,935	7,455			
Zone 1					12,272	12,272				
1-Office Room		1	2,088	34,221	12,272	46,493	20,940	20,940	1,559	1,559
1-Office Room		106	2,007	5,682	4,597	2,019	26	152	101	0.20
2-Powder Room		1	36	1,942	832	1,742	394	6	56	0.40
3-Living Room		1	460	4,051	2,602	6,717	3,060	48	288	0.00
4-Bath		1	45	1,782	202	1,853	1,344	142	81	0.40
5-Closet		1	50	1,740	400	2,149	280	4	69	0.20
6-GuestRoom		1	304	1,774	400	2,179	2,753	362	61	0.40
7-Kitchen & Family Room		1	699	10,665	1,023	10,961	6,063	79	509	0.40
8-Dining Room		1	396	5,471	2,460	7,971	3,992	34	278	0.40
9-Laundry Room		1	84	1,249	310	1,600	1,041	89	87	0.20
System 2	4.67	437	2,041	50,256	5,790	56,096	26,704	270	2,147	2147
Ventilation				3,162	671	3,833	5,599			
GarageM					319	319				
Zone 1			2,041	47,154	4,800	51,654	21,105	270	2,147	2147
10-BedRoom		1	316	3,730	400	4,130	3,783	41	201	0.20
11-Bath		1	62	3,214	200	3,414	728	63	105	1.40
12-Closet		1	73	2,911	400	3,310	199	4	139	0.20
13-BedRoom		1	316	5,742	400	6,156	3,185	41	320	0.20
14-Bath		1	62	3,214	200	3,414	728	63	105	1.40
15-Closet		1	47	2,852	202	3,152	209	3	138	0.20
16-Family		1	699	13,258	2,400	15,658	4,979	69	653	0.40
17-Master Bedroom		1	600	6,666	400	6,466	4,979	63	377	0.40
18-Master Bath		1	154	2,973	200	3,173	2,317	26	152	0.20
19-Master closet		1	125	3,160	200	3,360	899	12	150	1.40

Duct Size Preview

Room Name / Component	Measured Velocity	Maximum Velocity	Rough Factor	Design CFM	SP Loss	Duct Length	Hg Length	Dia Duct	Act. Duct	Dual Duct
System 1										
Supply Runouts										
Zone 1										
1-Office Room	439	750	0	0.1	410.3		36	20	10	1.40
2-Powder Room	466	750	0	0.1	397.8		6	10	8	1.40
3-Living Room	439	750	0	0.1	418.4		48	20	20	1.40
4-Bath	466	750	0	0.1	466.1		142	10	8	1.40
5-Closet	466	750	0	0.1	465.8		4	10	10	1.40
6-GuestRoom	466	750	0	0.1	410.7		362	10	8	1.40
7-Kitchen & Family Room	439	750	0	0.1	438.4		79	20	10	1.40
8-Dining Room	466	750	0	0.1	434.0		34	10	20	2.40
9-Laundry Room	466	750	0	0.1	466.1		89	10	8	1.40
Other Ducts										
Supply Main Trunk	659	900	0	0.1	660.7		295	12	12	1.00
System 2										
Supply Runouts										
Zone 1										
10-BedRoom	439	750	0	0.1	434.6		41	20	20	2.40
11-Bath	466	750	E	0.1	436.7		63	10	10	1.40
12-Closet	439	750	0	0.1	439.1		4	10	10	1.40
13-BedRoom	466	750	E	0.1	464.6		41	20	20	2.40
14-Bath	439	750	0	0.1	436.7		63	10	10	1.40
15-Closet	466	750	E	0.1	464.7		3	10	10	1.40
16-Family	439	750	0	0.1	439.1		69	20	10	1.40
17-Master Bedroom	466	750	E	0.1	464.6		63	20	20	2.40
18-Master Bath	466	750	E	0.1	464.7		26	10	10	1.40
19-Master closet	466	750	E	0.1	464.7		12	10	10	1.40
Other Ducts										
Supply Main Trunk	660	900	E	0.1	660.7		270	12	12	1.00

Summary

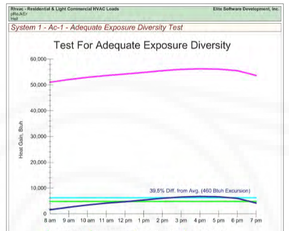
System 1

Heating Flow:	285
Cooling Flow:	1559

System 2

Heating Flow:	275
Cooling Flow:	2147

System 1 Ac-1 - Adequate Exposure Diversity Test



AED Calculation Summary

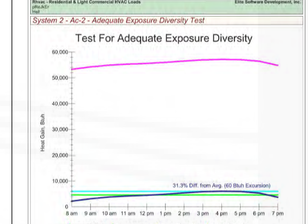
--- SYSTEM DOES NOT HAVE ADEQUATE EXPOSURE DIVERSITY. ---

System is on N, E, S, W installs.
Peak load exceeds 12-hour average load by 39.9%.
AED Excursion (amount by which peak exceeds 1.3 x average): 460 Btuh

Definition: A system has adequate exposure diversity if the peak-hour glass load for the entire conditioned space does not exceed the average glass load for the entire conditioned space by more than 30 percent.

(System Concept Warning for excursion greater than 1.3 x baseline and less than 1.5 x baseline) This application has glass areas that produced relatively large heat gains for part of the day. Variable air volume devices may be required to overcome spikes in solar gain for one or more rooms. A zoned system may be required, or some rooms may require zone control (provided by individual, motorized, thermostatically controlled dampers).

System 2 Ac-2 - Adequate Exposure Diversity Test



AED Calculation Summary

--- SYSTEM DOES NOT HAVE ADEQUATE EXPOSURE DIVERSITY. ---

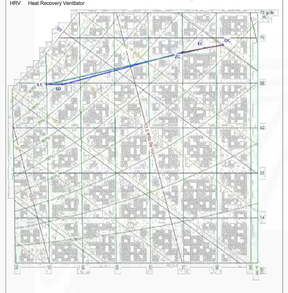
System is on N, E, S, W installs.
Peak load exceeds 12-hour average load by 31.3%.
AED Excursion (amount by which peak exceeds 1.3 x average): 60 Btuh

Definition: A system has adequate exposure diversity if the peak-hour glass load for the entire conditioned space does not exceed the average glass load for the entire conditioned space by more than 30 percent.

(System Concept Warning for excursion greater than 1.3 x baseline and less than 1.5 x baseline) This application has glass areas that produced relatively large heat gains for part of the day. Variable air volume devices may be required to overcome spikes in solar gain for one or more rooms. A zoned system may be required, or some rooms may require zone control (provided by individual, motorized, thermostatically controlled dampers).

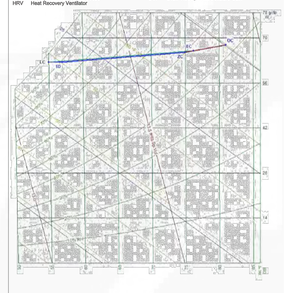
System 1 Ac-1 - Psychrometric Chart

ZC Zone (Room) Condition
LC Leaving Coil Condition
SD Supply Duct Temperature Rise
HRV Heat Recovery Ventilator
OC Outdoor Condition
EC Entering Coil Condition
DTF Draw Through Fan Sensible Gain



System 2 Ac-2 - Psychrometric Chart

ZC Zone (Room) Condition
LC Leaving Coil Condition
SD Supply Duct Temperature Rise
HRV Heat Recovery Ventilator
OC Outdoor Condition
EC Entering Coil Condition
DTF Draw Through Fan Sensible Gain



Total Building Summary Loads

Component Description	Area Quan.	Sen Loss	Lat Gain	Sen Gain	Total Gain
1F-4-d: Glazing-Triple pane, sliding glass door, reflective, insulated fiberglass frame, u-value 0.3, SHGC 0.23	626	6,383	0	10,017	10,017
11H: Door-Wood - Panel With Wood Storm	48	522	0	338	338
11H: Door-Wood - Panel With Wood Storm	96	980	0	633	633
12E-dbw: Wall-Frame, R-19 insulation in 2 x 6 stud cavity, no board insulation, brick finish, wood studs	2743	6,342	0	1,379	1,379
18A-30: Roof/Ceiling-Roof Joists Between Roof Deck and Ceiling or Foam Encapsulated Roof Joists, Dark Membrane, Dark Tar and Gravel, R-30 blanket or loose fill	4128	4,774	0	2,945	2,945
22B-19/4: Floor-Slab on grade, Vertical board insulation covers slab edge and extends straight down to 7' below grade, tile covering, R-15 insulation, radiant, light dry soil	381	4,003	0	0	0
Rotisserie for structure:		23,004	0	15,312	15,312
Equipment:	85		17,000	19,550	36,550
Equipment:			0	0	0
Lighting:	10900			37,189	37,189
Ductwork:		18,450	591	8,805	9,396
Infiltration: Winter CFM: 0, Summer CFM: 0		0	0	0	0
Ventilation: Winter CFM: 350, Summer CFM: 1,460		13,064	2,042	9,617	11,659
AED Excursion:		0	0	520	520
Total Building Load Totals:		54,518	19,633	90,972	110,606

Check Figures

Total Building Supply CFM:	3,705	CFM Per Square ft.:	0.897
Square ft. of Room Area:	4,129	Square ft. Per Ton:	448
Volume (ft³) of Cond. Space:	44,094		

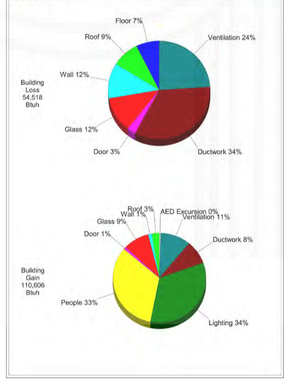
Building Loads

Total Heating Required including Ventilation Air:	54,518	Btuh	54,518 MBH
Total Sensible Gain:	90,972	Btuh	82 %
Total Latent Gain:	19,633	Btuh	18 %
Total Cooling Required including Ventilation Air:	110,606	Btuh	9.22 Tons (Based On Sensible + Latent)

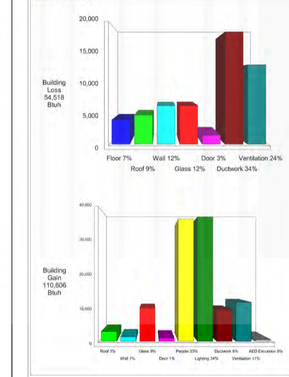
Notes

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.
All computed results are estimates as building use and weather may vary.
Be sure to select a unit that meets both sensible and latent loads.

Building Pie Chart



Building Bar Graph



System 1 Ac-1 Summary Loads

Component Description	Area Quan.	Sen Loss	Lat Gain	Sen Gain	Total Gain
1F-4-d: Glazing-Triple pane, sliding glass door, reflective, insulated fiberglass frame, u-value 0.3, SHGC 0.23	338	3,447	0	5,039	5,039
11H: Door-Wood - Panel With Wood Storm	48	522	0	338	338
11H: Door-Wood - Panel With Wood Storm	48	480	0	316	316
12E-dbw: Wall-Frame, R-19 insulation in 2 x 6 stud cavity, no board insulation, brick finish, wood studs	1279	2,957	0	644	644
18A-30: Roof/Ceiling-Roof Joists Between Roof Deck and Ceiling or Foam Encapsulated Roof Joists, Dark or Bold-Color As

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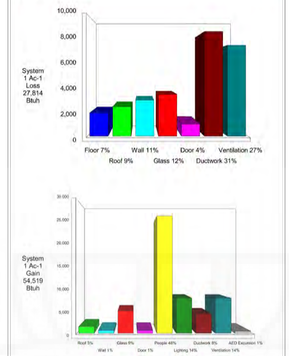
System 1 Ac-1 Bar Graph



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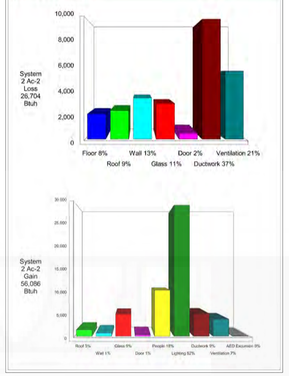
System 2 Ac-2 Bar Graph



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System 1, Zone 1 Summary Loads (Average Load Procedure for Rooms)

Component Description	Area Quan.	Sen. Loss	Lat. Loss	Sen. Gain	Total Gain
1F=5-E Glazing-Triple pane, sliding glass door, reflective, insulated fiberglass frame, u-value 0.3, SHGC 0.23	336	3,447	0	5,039	5,039
11H: Door-Wood - Panel With Wood Storm	48	522	0	338	338
11H: Door-Wood - Panel With Wood Storm	48	490	0	316	316
12E-Dbw: Wall-Frame, R-19 insulation in 2 x 6 stud cavity, no board insulation, brick finish, wood studs	1279	2,357	0	644	644
18A-30: Roof/Ceiling-Roof Joists Between Roof Deck and Ceiling or Foam Encapsulated Roof Joists, Dark or Bold-Color Asphalt Shingle, Dark Metal, Dark Membrane, Dark Tar and Gravel, R-30 blanket or board ins.	2087.5	2,414	0	1,489	1,489
22B-15Int: Floor-Slab on grade, Vertical board insulation covers slab edge and extends straight down to 3' below grade, tile covering, R-15 insulation, radiant, light dry soil	183	1,923	0	0	0
Subtotals for structure:		11,753	0	7,826	7,826
People:	61		12,200	14,070	26,270
Equipment:			0	0	0
Lighting:	2300			7,843	7,843
Ductwork:		8,596	0	4,082	4,082
Infiltration: Winter CFM: 0, Summer CFM: 0		0	0	5	5
System 1, Zone 1 Load Totals:		20,349	12,200	34,221	46,421

Check Figures			
Supply CFM:	1,558	CFM Per Square ft.:	0.746
Square ft. of Room Area:	2,088	Square ft. Per Ton:	540
Volume (ft³) of Cond. Space:	21,421		

Total Loads			
Total Heating Required:	20,349 Btuh	20,349 MBH	
Total Sensible Gain:	34,221 Btuh	74	%
Total Latent Gain:	12,200 Btuh	26	%
Total Cooling Required:	46,421 Btuh	3.87	Tons (Based On Sensible + Latent)

Notes
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Be sure to select a unit that meets both sensible and latent loads.

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System 2, Zone 1 Summary Loads (Average Load Procedure for Rooms)

Component Description	Area Quan.	Sen. Loss	Lat. Gain	Sen. Gain	Total Gain
1F=5-E Glazing-Triple pane, sliding glass door, reflective, insulated fiberglass frame, u-value 0.3, SHGC 0.23	288	2,936	0	4,919	4,919
11H: Door-Wood - Panel With Wood Storm	48	490	0	317	317
12E-Dbw: Wall-Frame, R-19 insulation in 2 x 6 stud cavity, no board insulation, brick finish, wood studs	1464	3,385	0	735	735
18A-30: Roof/Ceiling-Roof Joists Between Roof Deck and Ceiling or Foam Encapsulated Roof Joists, Dark or Bold-Color Asphalt Shingle, Dark Metal, Dark Membrane, Dark Tar and Gravel, R-30 blanket or board ins.	2040.5	2,360	0	1,456	1,456
22B-15Int: Floor-Slab on grade, Vertical board insulation covers slab edge and extends straight down to 3' below grade, tile covering, R-15 insulation, radiant, light dry soil	198	2,080	0	0	0
Subtotals for structure:		11,251	0	7,486	7,486
People:	24		4,800	5,520	10,320
Equipment:			0	0	0
Lighting:	8600			29,340	29,340
Ductwork:		9,855	0	4,743	4,743
Infiltration: Winter CFM: 0, Summer CFM: 0		0	0	0	0
System 2, Zone 1 Load Totals:		21,106	4,800	47,134	51,934

Check Figures			
Supply CFM:	2,147	CFM Per Square ft.:	1.052
Square ft. of Room Area:	2,041	Square ft. Per Ton:	472
Volume (ft³) of Cond. Space:	22,879		

Total Loads			
Total Heating Required:	21,106 Btuh	21,106 MBH	
Total Sensible Gain:	47,134 Btuh	91	%
Total Latent Gain:	4,800 Btuh	9	%
Total Cooling Required:	51,934 Btuh	4.33	Tons (Based On Sensible + Latent)

Notes
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Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.
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Be sure to select a unit that meets both sensible and latent loads.

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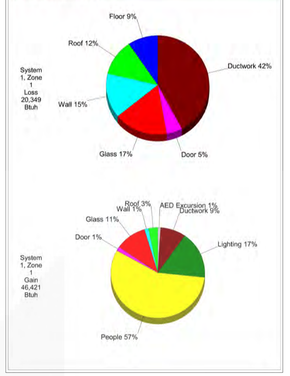
System 1, Zone 1 Pie Chart



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System 2, Zone 1 Pie Chart

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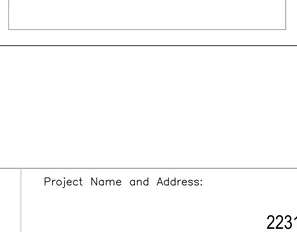
System 1, Zone 1 Bar Graph



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System 2, Zone 1 Bar Graph

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Detailed Room Loads - Room 1 - Office Room (Average Load Procedure)

General			
Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	196.0 ft.	System Number:	1
Room Width:	1.0 ft.	Zone Number:	1
Area:	196.0 sq.ft.	Supply Air:	151 CFM
Ceiling Height:	10.0 ft.	Supply Air Changes:	4.6 ACH
Volume:	1,960.0 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	20 CFM
Runout Air:	151 CFM	Percent of Supply.:	13 %
Runout Duct Size:	8 in.	Actual Summer Vent.:	20 CFM
Runout Air Velocity:	432 ft./min.	Percent of Supply:	13 %
Actual Loss:	0.081 in.wg./100 ft.	Actual Summer Infil.:	0 CFM

Item Description	Area Quantity	U-Value	Htg. Sen. H*TM	Htg. Lat. Loss	Clg. Sen. H*TM	Clg. Lat. Gain	Sen. Gain
S -Walk-12E-Dbw 16.5 X 10	117	0.068	2.3	271	0.5	0	58
S -Gls-1F-rf-d shgc-0.23 0%S (3)	48	0.300	10.2	489	10.4	0	498
S -Door-11H 3 X 8	24	0.300	10.2	245	10.4	0	249
Floor-22B-15in 17.5_Per.	17	0.178	10.5	179	0.0	0	0
Subtotals for Structure:				1,166		0	697
Infil.: Win.: 0.0, Sum.: 0.0	165		0.000	0	0.000	0	0
Ductwork:				853			393
AED Excursion:							44
People: 200 lat/per, 230 sen/per:	5					1,000	1,150
Lighting:	300						1,053
Room Totals:				2,019		1,000	3,307

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Detailed Room Loads - Room 2 - Powder Room (Average Load Procedure)

General			
Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	38.0 ft.	System Number:	1
Room Width:	1.0 ft.	Zone Number:	1
Area:	38.0 sq.ft.	Supply Air:	70 CFM
Ceiling Height:	10.0 ft.	Supply Air Changes:	11.1 ACH
Volume:	380.0 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	4 CFM
Runout Air:	70 CFM	Percent of Supply.:	6 %
Runout Duct Size:	8 in.	Actual Summer Vent.:	44 CFM
Runout Air Velocity:	356 ft./min.	Percent of Supply:	63 %
Actual Loss:	0.063 in.wg./100 ft.	Actual Summer Infil.:	0 CFM

Item Description	Area Quantity	U-Value	Htg. Sen. H*TM	Htg. Lat. Loss	Clg. Sen. H*TM	Clg. Lat. Gain	Sen. Gain
S -Walk-12E-Dbw 4 X 10	36	0.068	2.3	83	0.5	0	18
S -Gls-1F-rf-d shgc-0.23 0%S	4	0.300	10.2	41	10.3	0	41
S -Door-11H 3 X 8	24	0.300	10.2	245	10.4	0	249
Floor-22B-15in 8.5_Per.	4	0.178	10.5	42	0.0	0	0
Subtotals for Structure:				210		0	86
Infil.: Win.: 0.0, Sum.: 0.0	40		0.000	0	0.000	0	0
Ductwork:				154			183
AED Excursion:							21
People: 200 lat/per, 230 sen/per:	1					200	230
Lighting:	300						1,023
Room Totals:				364		200	1,543

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Detailed Room Loads - Room 3 - Living Room (Average Load Procedure)

General			
Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	460.0 ft.	System Number:	1
Room Width:	1.0 ft.	Zone Number:	1
Area:	460.0 sq.ft.	Supply Air:	268 CFM
Ceiling Height:	10.0 ft.	Supply Air Changes:	3.6 ACH
Volume:	4,600.0 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	3	Actual Winter Vent.:	36 CFM
Runout Air:	90 CFM	Percent of Supply.:	13 %
Runout Duct Size:	6 in.	Actual Summer Vent.:	161 CFM
Runout Air Velocity:	482 ft./min.	Percent of Supply:	60 %
Runout Air Velocity:	488 ft./min.	Actual Summer Infil.:	0 CFM
Actual Loss:	0.153 in.wg./100 ft.		

Item Description	Area Quantity	U-Value	Htg. Sen. H*TM	Htg. Lat. Loss	Clg. Sen. H*TM	Clg. Lat. Gain	Sen. Gain
E -Walk-12E-Dbw 28 X 10	172	0.068	2.3	388	0.5	0	67
E -Door-11H 6 X 8	48	0.320	10.9	522	7.0	0	338
E -Gls-1F-rf-d shgc-0.23 0%S (2)	24	0.300	10.2	244	23.7	0	568
E -Gls-1F-rf-d shgc-0.23 0%S (2)	16	0.300	10.2	164	23.6	0	378
S -Door-11H 3 X 8	24	0.300	10.2	245	6.6	0	158
Floor-22B-15in 28.5_Per.	28	0.178	10.5	273	0.0	0	0
Subtotals for Structure:				2,133		0	1,699
Infil.: Win.: 0.0, Sum.: 0.0	260	0.000	0.000	0	0.000	0	0
Ductwork:				1,560			750
AED Excursion:							65
People: 200 lat/per, 230 sen/per:	12					2,400	2,760
Lighting:	300						1,023
Room Totals:				3,693		2,400	6,317

Rhvac - Residential & Light Commercial HVAC Loads — Ellis Software Development, Inc.
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Detailed Room Loads - Room 4 - Bath (Average Load Procedure)

General			
Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	65.0 ft.	System Number:	1
Room Width:	1.0 ft.	Zone Number:	1
Area:	65.0 sq.ft.	Supply Air:	51 CFM
Ceiling Height:	10.0 ft.	Supply Air Changes:	3.9 ACH
Volume:	650.0 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	3 CFM
Runout Air:	51 CFM	Percent of Supply.:	5 %
Runout Duct Size:	6 in.	Actual Summer Vent.:	51 CFM
Runout Air Velocity:	414 ft./min.	Percent of Supply:	100 %
Runout Air Velocity:	414 ft./min.	Actual Winter Infil.:	0 CFM
Actual Loss:	0.110 in.wg./100 ft.	Actual Summer Infil.:	0 CFM

Item Description	Area Quantity	U-Value	Htg. Sen. H*TM	Htg. Lat. Loss	Clg. Sen. H*TM	Clg. Lat. Gain	Sen. Gain
S -Walk-12E-Dbw 8.5 X 10	85	0.068	2.3	127	0.5	0	29
S -Door-11H 3 X 8	24	0.300	10.2	245	6.6	0	158
S -Gls-1F-rf-d shgc-0.23 0%S	6	0.300	10.2	61	10.3	0	62
UP-Roof-18A-30 69.X 1	65	0.034	1.2	75	0.7	0	46
Floor-22B-15in 9.5_Per.	9	0.178	10.5	95	0.0	0	0
Subtotals for Structure:				603		0	294
Infil.: Win.: 0.0, Sum.: 0.0	85		0.000	0	0.000	0	0
Ductwork:				441			212
AED Excursion:							24
People: 200 lat/per, 230 sen/per:	1					200	230
Lighting:	300						1,023
Room Totals:				1,044		200	1,783

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Detailed Room Loads - Room 5 - Closet (Average Load Procedure)

General			
Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	49.5 ft.	System Number:	1
Room Width:	1.0 ft.	Zone Number:	1
Area:	50.0 sq.ft.	Supply Air:	80 CFM
Ceiling Height:	10.0 ft.	Supply Air Changes:	9.6 ACH
Volume:	495.0 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	3 CFM
Runout Air:	80 CFM	Percent of Supply.:	3 %
Runout Duct Size:	6 in.	Actual Summer Vent.:	80 CFM
Runout Air Velocity:	408 ft./min.	Percent of Supply:	100 %
Runout Air Velocity:	408 ft./min.	Actual Winter Infil.:	0 CFM
Actual Loss:	0.106 in.wg./100 ft.	Actual Summer Infil.:	0 CFM

Item Description	Area Quantity	U-Value	Htg. Sen. H*TM	Htg. Lat. Loss	Clg. Sen. H*TM	Clg. Lat. Gain	Sen. Gain
UP-Roof-18A-30 49.5 X 1	49.5	0.034	1.2	67	0.7	0	35
Floor-22B-15in 10 ft._Per.	10	0.178	10.5	105	0.0	0	0
Subtotals for Structure:				162		0	35
Infil.: Win.: 0.0, Sum.: 0.0	0		0	0	0	0	0
Ductwork:				118			59
AED Excursion:							24
People: 200 lat/per, 230 sen/per:	2					400	460
Lighting:	300						1,023
Room Totals:				280		400	1,749

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Detailed Room Loads - Room 6 - Guest Room (Average Load Procedure)

General			
Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	204.0 ft.	System Number:	1
Room Width:	1.0 ft.	Zone Number:	1
Area:	204.0 sq.ft.	Supply Air:	81 CFM
Ceiling Height:	10.0 ft.	Supply Air Changes:	4.8 ACH
Volume:	2,448.0 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	1	Actual Winter Vent.:	27 CFM
Runout Air:	81 CFM	Percent of Supply.:	33 %
Runout Duct Size:	6 in.	Actual Summer Vent.:	81 CFM
Runout Air Velocity:	413 ft./min.	Percent of Supply:	100 %
Runout Air Velocity:	413 ft./min.	Actual Winter Infil.:	0 CFM
Actual Loss:	0.110 in.wg./100 ft.	Actual Summer Infil.:	0 CFM

Item Description	Area Quantity	U-Value	Htg. Sen. H*TM	Htg. Lat. Loss	Clg. Sen. H*TM	Clg. Lat. Gain	Sen. Gain
S -Walk-12E-Dbw 12 X 10	95	0.068	2.3	222	0.5	0	48
W -Walk-12E-Dbw 17 X 10	146	0.068	2.3	338	0.5	0	73
S -Gls-1F-rf-d shgc-0.23 0%S	24	0.300	10.2	245	10.4	0	249
W -Gls-1F-rf-d shgc-0.23 0%S (2)	24	0.300	10.2	244	23.7	0	568
S -Door-11H 3 X 8	24	0.300	10.2	245	6.6	0	158
Floor-22B-15in 20.5_Per.	20	0.178	10.5	305	0.0	0	0
Subtotals for Structure:				1,590		0	1,084
Infil.: Win.: 0.0, Sum.: 0.0	290		0.000	0	0.000	0	0
Ductwork:				1,163			211
AED Excursion:							24
People: 200 lat/per, 230 sen/per:	2					400	460
Room Totals:				2,753		400	1,779

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Detailed Room Loads - Room 7 - Kitchen & Family Room (Average Load Procedure)

General			
Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	668.0 ft.	System Number:	1
Room Width:	1.0 ft.	Zone Number:	1
Area:	668.0 sq.ft.	Supply Air:	500 CFM
Ceiling Height:	10.0 ft.	Supply Air Changes:	4.5 ACH
Volume:	6,680.0 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	4	Actual Winter Vent.:	60 CFM
Runout Air:	100 CFM	Percent of Supply.:	12 %
Runout Duct Size:	6 in.	Actual Summer Vent.:	314 CFM
Runout Air Velocity:	509 ft./min.	Percent of Supply:	63 %
Runout Air Velocity:	509 ft./min.	Actual Winter Infil.:	0 CFM
Actual Loss:	0.166 in.wg./100 ft.	Actual Summer Infil.:	0 CFM

Item Description	Area Quantity	U-Value	Htg. Sen. H*TM	Htg. Lat. Loss	Clg. Sen. H*TM	Clg. Lat. Gain	Sen. Gain
W -Walk-12E-Dbw 30.8 X 10	290	0.068	2.3	578	0.5	0	126
W -Walk-12E-Dbw 20 X 10	200	0.068	2.3	462	0.5	0	101
N -Gls-1F-rf-d shgc-0.23 100%S	48	0.300	10.2	490	6.4	0	306
S -Gls-1F-rf-d shgc-0.23 100%S	36	0.300	10.2	367	6.4	0	229
W -Gls-1F-rf-d shgc-0.23 100%S	24	0.300	10.2	245	6.4	0	153
S -Door-11H 6 X 8	48	0.320	10.9	522	7.0	0	473
Floor-22B-15in 66.5_Per.	66	0.178	10.5	588	0.0	0	0
Subtotals for Structure:				3,502		0	1,392
Infil.: Win.: 0.0, Sum.: 0.0	556		0.000	0	0.000	0	0
Ductwork:				2,561			1,303
AED Excursion:							148
People: 200 lat/per, 230 sen/per:	25					5,000	5,750
Lighting:	700						2,367
Room Totals:				6,063		5,000	10,980

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Detailed Room Loads - Room 8 - Dining Room (Average Load Procedure)

General			
Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	338.0 ft.	System Number:	1
Room Width:	1.0 ft.	Zone Number:	1
Area:	338.0 sq.ft.	Supply Air:	249 CFM
Ceiling Height:	10.0 ft.	Supply Air Changes:	4.4 ACH
Volume:	3,380.0 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	2	Actual Winter Vent.:	25 CFM
Runout Air:	125 CFM	Percent of Supply.:	10 %
Runout Duct Size:	8 in.	Actual Summer Vent.:	157 CFM
Runout Air Velocity:	498 ft./min.	Percent of Supply:	63 %
Runout Air Velocity:	625 ft./min.	Actual Winter Infil.:	0 CFM
Actual Loss:	0.256 in.wg./100 ft.	Actual Summer Infil.:	0 CFM

Item Description	Area Quantity	U-Value	Htg. Sen. H*TM	Htg. Lat. Loss	Clg. Sen. H*TM	Clg. Lat. Gain	Sen. Gain
W -Walk-12E-Dbw 16 X 10	68	0.068	2.3	203	0.5	0	44
W -Gls-1F-rf-d shgc-0.23 0%S	36	0.300	10.2	367	23.6	0	851
W -Gls-1F-rf-d shgc-0.23 0%S (2)	36	0.300	10.2	368	23.7	0	852
UP-Roof-18A-30 338 X 1	338	0.034	1.2	391	0.7	0	241
Floor-22B-15in 16.5_Per.	16	0.178	10.5	168	0.0	0	0
Subtotals for Structure:				1,497		0	1,988
Infil.: Win.: 0.0, Sum.: 0.0	160		0.000	0	0.000	0	0
Ductwork:				1,006			649
AED Excursion:							74
People: 200 lat/per, 230 sen/per:	12					2,400	2,760
Room Totals:				2,502		2,400	5,471

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Detailed Room Loads - Room 9 - Laundry Room (Average Load Procedure)

General					
Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	62.5	ft.	System Number:	2	
Room Width:	1.0	ft.	Zone Number:	1	
Area:	69.0	sq.ft.	Supply Air:	59	CFM
Ceiling Height:	12.0	ft.	Supply Air Changes:	4.3	ACH
Volume:	828.0	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	1		Actual Vent. Clg:	59	CFM
Runout Air:	59	CFM	Percent of Supply:	100	%
Runout Duct Size:	4	in.	Actual Summer Vent.:	37	CFM
Runout Air Velocity:	676	ft./min.	Percent of Supply:	63	%
Runout Air Velocity:	875	ft./min.	Actual Winter Infil.:	0	CFM
Actual Loss:	0.510	in.wg./100 ft.	Actual Summer Infil.:	0	CFM

Item	Area	-U-	Htg	Sen	Clg	Lat	Sen
Description	Quantity	Value	HTM	Loss	HTM	Gain	Gain
E -Wall-12E-Dbw 8.5 X 10	83	0.068	2.3	183	0.5	0	42
N -Wall-12E-Dbw 6 X 10	54	0.068	2.3	119	0.5	0	28
N -Door-11H 3 X 8	24	0.300	10.2	245	6.6	0	158
E -Glw-1F-rf-shgc-0.23 0%S	12	0.300	10.2	122	23.7	0	284
UP-Roof-18A-30 SI X 1	69	0.034	1.2	80	0.7	0	49
Floor-22B-15H 18 ft_Per.	16	0.178	10.5	168	0.0	0	0
Subtotals for Structure:				896		0	561
Infil., Win.: 0.0, Sum.: 0.0	155		0.000	0	0.000	0	0
Ductwork:				651			152
AED Excursion:							12
People: 200 lat/per, 230 sen/per:	1					200	230
Lighting:	100						341
Room Totals:				1,541		200	1,293

Detailed Room Loads - Room 10 - BedRoom (Average Load Procedure)

General					
Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	21.0	ft.	System Number:	2	
Room Width:	1.0	ft.	Zone Number:	1	
Area:	210.0	sq.ft.	Supply Air:	261	CFM
Ceiling Height:	12.0	ft.	Supply Air Changes:	8.2	ACH
Volume:	2,520.0	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	1		Actual Vent. Clg:	261	CFM
Runout Air:	130	CFM	Percent of Supply:	100	%
Runout Duct Size:	6	in.	Actual Summer Vent.:	58	CFM
Runout Air Velocity:	665	ft./min.	Percent of Supply:	22	%
Runout Air Velocity:	665	ft./min.	Actual Winter Infil.:	0	CFM
Actual Loss:	0.281	in.wg./100 ft.	Actual Summer Infil.:	0	CFM

Item	Area	-U-	Htg	Sen	Clg	Lat	Sen
Description	Quantity	Value	HTM	Loss	HTM	Gain	Gain
E -Wall-12E-Dbw 12.5 X 10	101	0.068	2.3	234	0.5	0	54
W -Wall-12E-Dbw 17 X 10	151	0.068	2.3	349	0.5	0	81
E -Glw-1F-rf-shgc-0.23 0%S	24	0.300	10.2	245	10.4	0	249
W -Glw-1F-rf-shgc-0.23 0%S	20	0.300	10.2	204	23.7	0	473
W -Glw-1F-rf-shgc-0.23 0%S	12	0.300	10.2	122	23.7	0	284
UP-Roof-18A-30 210 X 1	210	0.034	1.2	243	0.7	0	150
Floor-22B-15H 30 ft_Per.	30	0.178	10.5	315	0.0	0	0
Subtotals for Structure:				1,682		0	1,276
Infil., Win.: 0.0, Sum.: 0.0	295		0.000	0	0.000	0	0
Ductwork:				1,473			577
AED Excursion:							7
People: 200 lat/per, 230 sen/per:	2					400	460
Lighting:	1,000						3,410
Room Totals:				3,155		400	5,730

Detailed Room Loads - Room 11 - Bath (Average Load Procedure)

General					
Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	9.5	ft.	System Number:	2	
Room Width:	1.0	ft.	Zone Number:	1	
Area:	62.0	sq.ft.	Supply Air:	105	CFM
Ceiling Height:	12.0	ft.	Supply Air Changes:	6.5	ACH
Volume:	744.0	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	1		Actual Vent. Clg:	105	CFM
Runout Air:	105	CFM	Percent of Supply:	100	%
Runout Duct Size:	6	in.	Actual Summer Vent.:	24	CFM
Runout Air Velocity:	537	ft./min.	Actual Winter Infil.:	0	CFM
Runout Air Velocity:	537	ft./min.	Actual Summer Infil.:	0	CFM
Actual Loss:	0.281	in.wg./100 ft.			

Item	Area	-U-	Htg	Sen	Clg	Lat	Sen
Description	Quantity	Value	HTM	Loss	HTM	Gain	Gain
E -Wall-12E-Dbw 8 X 10	74	0.068	2.3	171	0.5	0	37
E -Glw-1F-rf-shgc-0.23 0%S	8	0.300	10.2	81	10.3	0	82
UP-Roof-18A-30 SI 62 X 1	62	0.034	1.2	72	0.7	0	44
Floor-22B-15H 8 ft_Per.	8	0.178	10.5	84	0.0	0	0
Subtotals for Structure:				408		0	163
Infil., Win.: 0.0, Sum.: 0.0	80		0.000	0	0.000	0	0
Ductwork:				297			94
AED Excursion:				3			3
People: 200 lat/per, 230 sen/per:	1					200	230
Lighting:	600						1,705
Room Totals:				708		200	2,195

Detailed Room Loads - Room 12 - Closet (Average Load Procedure)

General					
Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	7.5	ft.	System Number:	2	
Room Width:	1.0	ft.	Zone Number:	1	
Area:	71.0	sq.ft.	Supply Air:	135	CFM
Ceiling Height:	12.0	ft.	Supply Air Changes:	5.7	ACH
Volume:	1,420.0	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	1		Actual Vent. Clg:	135	CFM
Runout Air:	135	CFM	Percent of Supply:	100	%
Runout Duct Size:	6	in.	Actual Summer Vent.:	30	CFM
Runout Air Velocity:	687	ft./min.	Percent of Supply:	22	%
Runout Air Velocity:	689	ft./min.	Actual Winter Infil.:	0	CFM
Actual Loss:	0.362	in.wg./100 ft.	Actual Summer Infil.:	0	CFM

Item	Area	-U-	Htg	Sen	Clg	Lat	Sen
Description	Quantity	Value	HTM	Loss	HTM	Gain	Gain
UP-Roof-18A-30 71 X 1	71	0.034	1.2	82	0.7	0	51
Floor-22B-15H 8 ft_Per.	8	0.178	10.5	84	0.0	0	0
Subtotals for Structure:				166		0	51
Infil., Win.: 0.0, Sum.: 0.0	0		0	0	0	0	0
Ductwork:				143			299
AED Excursion:							4
People: 200 lat/per, 230 sen/per:	1					200	230
Lighting:	700						2,387
Room Totals:				311		200	2,971

Detailed Room Loads - Room 13 - BedRoom (Average Load Procedure)

General					
Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	21.0	ft.	System Number:	2	
Room Width:	1.0	ft.	Zone Number:	1	
Area:	210.0	sq.ft.	Supply Air:	261	CFM
Ceiling Height:	12.0	ft.	Supply Air Changes:	8.2	ACH
Volume:	2,520.0	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	1		Actual Vent. Clg:	261	CFM
Runout Air:	130	CFM	Percent of Supply:	100	%
Runout Duct Size:	6	in.	Actual Summer Vent.:	58	CFM
Runout Air Velocity:	665	ft./min.	Percent of Supply:	22	%
Runout Air Velocity:	665	ft./min.	Actual Winter Infil.:	0	CFM
Actual Loss:	0.281	in.wg./100 ft.	Actual Summer Infil.:	0	CFM

Item	Area	-U-	Htg	Sen	Clg	Lat	Sen
Description	Quantity	Value	HTM	Loss	HTM	Gain	Gain
E -Wall-12E-Dbw 12.5 X 10	101	0.068	2.3	234	0.5	0	54
W -Wall-12E-Dbw 17 X 10	151	0.068	2.3	349	0.5	0	81
E -Glw-1F-rf-shgc-0.23 0%S	24	0.300	10.2	245	10.4	0	249
W -Glw-1F-rf-shgc-0.23 0%S	20	0.300	10.2	204	23.7	0	473
W -Glw-1F-rf-shgc-0.23 0%S	12	0.300	10.2	122	23.7	0	284
UP-Roof-18A-30 210 X 1	210	0.034	1.2	243	0.7	0	150
Floor-22B-15H 30 ft_Per.	30	0.178	10.5	315	0.0	0	0
Subtotals for Structure:				1,682		0	1,276
Infil., Win.: 0.0, Sum.: 0.0	295		0.000	0	0.000	0	0
Ductwork:				1,473			577
AED Excursion:							7
People: 200 lat/per, 230 sen/per:	2					400	460
Lighting:	1,000						3,410
Room Totals:				3,155		400	5,730

Detailed Room Loads - Room 14 - Bath (Average Load Procedure)

General					
Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	62.5	ft.	System Number:	2	
Room Width:	1.0	ft.	Zone Number:	1	
Area:	62.0	sq.ft.	Supply Air:	105	CFM
Ceiling Height:	12.0	ft.	Supply Air Changes:	6.5	ACH
Volume:	744.0	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	1		Actual Vent. Clg:	105	CFM
Runout Air:	105	CFM	Percent of Supply:	100	%
Runout Duct Size:	6	in.	Actual Summer Vent.:	24	CFM
Runout Air Velocity:	537	ft./min.	Percent of Supply:	22	%
Runout Air Velocity:	537	ft./min.	Actual Winter Infil.:	0	CFM
Actual Loss:	0.184	in.wg./100 ft.	Actual Summer Infil.:	0	CFM

Item	Area	-U-	Htg	Sen	Clg	Lat	Sen
Description	Quantity	Value	HTM	Loss	HTM	Gain	Gain
E -Wall-12E-Dbw 8 X 10	74	0.068	2.3	171	0.5	0	37
E -Glw-1F-rf-shgc-0.23 0%S	8	0.300	10.2	81	10.3	0	82
UP-Roof-18A-30 62 X 1	62	0.034	1.2	72	0.7	0	44
Floor-22B-15H 8 ft_Per.	8	0.178	10.5	84	0.0	0	0
Subtotals for Structure:				408		0	163
Infil., Win.: 0.0, Sum.: 0.0	80		0.000	0	0.000	0	0
Ductwork:				297			94
AED Excursion:				3			3
People: 200 lat/per, 230 sen/per:	1					200	230
Lighting:	700						2,387
Room Totals:				708		200	2,977

Detailed Room Loads - Room 15 - Closet (Average Load Procedure)

General					
Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	47.0	ft.	System Number:	2	
Room Width:	1.0	ft.	Zone Number:	1	
Area:	47.0	sq.ft.	Supply Air:	134	CFM
Ceiling Height:	20.0	ft.	Supply Air Changes:	8.6	ACH
Volume:	940.0	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	1		Actual Vent. Clg:	134	CFM
Runout Air:	134	CFM	Percent of Supply:	100	%
Runout Duct Size:	6	in.	Actual Summer Vent.:	30	CFM
Runout Air Velocity:	685	ft./min.	Percent of Supply:	22	%
Runout Air Velocity:	686	ft./min.	Actual Winter Infil.:	0	CFM
Actual Loss:	0.295	in.wg./100 ft.	Actual Summer Infil.:	0	CFM

Item	Area	-U-	Htg	Sen	Clg	Lat	Sen
Description	Quantity	Value	HTM	Loss	HTM	Gain	Gain
UP-Roof-18A-30 47 X 1	47	0.034	1.2	54	0.7	0	34
Floor-22B-15H 8 ft_Per.	8	0.178	10.5	84	0.0	0	0
Subtotals for Structure:				138		0	34
Infil., Win.: 0.0, Sum.: 0.0	0		0	0	0	0	0
Ductwork:				121			297
AED Excursion:							3
People: 200 lat/per, 230 sen/per:	1					200	230
Lighting:	700						2,387
Room Totals:				259		200	2,952

Detailed Room Loads - Room 16 - Family (Average Load Procedure)

General					
Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	600.0	ft.	System Number:	2	
Room Width:	1.0	ft.	Zone Number:	2	
Area:	600.0	sq.ft.	Supply Air:	606	CFM
Ceiling Height:	10.0	ft.	Supply Air Changes:	6.1	ACH
Volume:	6,000.0	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	6		Actual Vent. Clg:	35	CFM
Runout Air:	101	CFM	Percent of Supply:	6	%
Runout Duct Size:	6	in.	Actual Summer Vent.:	135	CFM
Runout Air Velocity:	514	ft./min.	Percent of Supply:	22	%
Runout Air Velocity:	514	ft./min.	Actual Winter Infil.:	0	CFM
Actual Loss:	0.169	in.wg./100 ft.	Actual Summer Infil.:	0	CFM

Item	Area	-U-	Htg	Sen	Clg	Lat	Sen
Description	Quantity	Value	HTM	Loss	HTM	Gain	Gain
W -Wall-12E-Dbw 16 X 10	112	0.068	2.3	259	0.5	0	56
E -Wall-12E-Dbw 16 X 10	96	0.068	2.3	222	0.5	0	46
E -Door-11H 6 X 8	48	0.300	10.2	490	6.6	0	317
W -Glw-1F-rf-shgc-0.23 0%S (2)	24	0.300	10.2	244	23.7	0	568
W -Glw-1F-rf-shgc-0.23 0%S	24	0.300	10.2	245	23.7	0	568
E -Glw-1F-rf-shgc-0.23 0%S (2)	24	0.300	10.2	245	23.7	0	568
UP-Roof-18A-30 600 X 1	600	0.034	1.2	594	0.7	0	428
Floor-22B-15H 32 ft_Per.	32	0.178	10.5	336	0.0	0	0
Subtotals for Structure:				2,654		0	2,363
Infil., Win.: 0.0, Sum.: 0.0	320		0.000	0	0.000	0	0
Ductwork:				2,325			1,338
AED Excursion:							17
People: 200 lat/per, 230 sen/per:	12					2,400	2,760
Lighting:	2,000						6,820
Room Totals:				4,979		2,400	13,298

Detailed Room Loads - Room 17 - Master Bedroom (Average Load Procedure)

General					
Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	520.0	ft.	System Number:	2	
Room Width:	1.0	ft.	Zone Number:	2	
Area:	520.0	sq.ft.	Supply Air:	277	CFM
Ceiling Height:	10.0	ft.	Supply Air Changes:	3.2	ACH
Volume:	5,200.0	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	3		Actual Vent. Clg:	74	CFM
Runout Air:	92	CFM	Percent of Supply:	12	%
Runout Duct Size:	6	in.	Actual Summer Vent.:	62	CFM
Runout Air Velocity:	471	ft./min.	Percent of Supply:	22	%
Runout Air Velocity:	471	ft./min.	Actual Winter Infil.:	0	CFM
Actual Loss:	0.142	in.wg./100 ft.	Actual Summer Infil.:	0	CFM

Item	Area	-U-	Htg	Sen	Clg	Lat	Sen
Description	Quantity	Value	HTM	Loss	HTM	Gain	Gain
E -Wall-12E-Dbw 19 X 10	158	0.068	2.3	365	0.5	0	80
N -Wall-12E-Dbw 21.5 X 10	167	0.068	2.3	386	0.5	0	84
E -Glw-1F-rf-shgc-0.23 0%S	20	0.300	10.2	204	23.7	0	473
E -Glw-1F-rf-shgc-0.23 0%S	12	0.300	10.2	122	23.7	0	284
N -Glw-1F-rf-shgc-0.23 100%S	48	0.300	10.2	490	6.4	0	306
UP-Roof-18A-30 520 X 1	520	0.034	1.2	601	0.7	0	371
Floor-22B-15H 41 ft_Per.	41	0.178	10.5	431	0.0	0	0
Subtotals for Structure:				2,599		0	1,598
Infil., Win.: 0.0, Sum.: 0.0	405		0.000	0	0.000	0	0
Ductwork:				2,276			813
AED Excursion:							8
People: 200 lat/per, 230 sen/per:	2					400	460
Lighting:	1,000						3,410
Room Totals:				4,875		400	6,088

Detailed Room Loads - Room 18 - Master Bath (Average Load Procedure)

General					
Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	133.5	ft.	System Number:	2	
Room Width:	1.0	ft.	Zone Number:	2	
Area:	134.0	sq.ft.	Supply Air:	117	CFM
Ceiling Height:	10.0	ft.	Supply Air Changes:	5.2	ACH
Volume:	1,335.0	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	1		Actual Vent. Clg:	14	CFM
Runout Air:	117	CFM	Percent of Supply:	12	%
Runout Duct Size:	6	in.	Actual Summer Vent.:	26	CFM
Runout Air Velocity:	597	ft./min.	Percent of Supply:	22	%
Runout Air Velocity:	597	ft./min.	Actual Winter Infil.:	0	CFM
Actual Loss:	0.227	in.wg./100 ft.	Actual Summer Infil.:	0	CFM

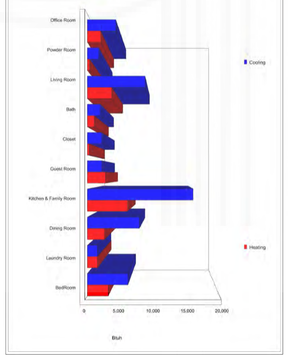
Item	Area	-U-	Htg	Sen	Clg	Lat	Sen
Description	Quantity	Value	HTM	Loss	HTM	Gain	Gain
N -Wall-12E-Dbw 14 X 10	128	0.068	2.3	296	0.5	0	64
W -Wall-12E-Dbw 8.5 X 10	91	0.068	2.3	210	0.5	0	46
N -Glw-1F-rf-shgc-0.23 100%S	12	0.300	10.2	122	6.3	0	78
W -Glw-1F-rf-shgc-0.23 0%S	4	0.300	10.2	41	23.8	0	95
UP-Roof-18A-30 133.5 X 1	133.5	0.034	1.2	154	0.7	0	95
Floor-22B-15H 24 ft_Per.	24	0.178	10.5	252	0.0	0	0
Subtotals for Structure:				1,075		0	378
Infil., Win.: 0.0, Sum.: 0.0	235		0.000	0	0.000	0	0
Ductwork:				942			299
AED Excursion:							3
People: 200 lat/per, 230 sen/per:	1					200	230
Lighting:	500						1,705
Room Totals:				2,017		200	2,573

Detailed Room Loads - Room 19 - Master closet (Average Load Procedure)

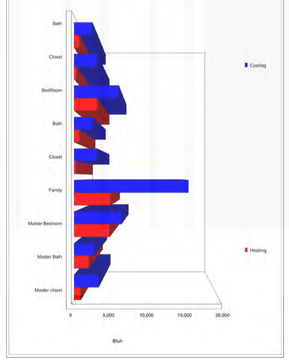
General					
Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	125.0	ft.	System Number:	2	
Room Width:	1.0	ft.	Zone Number:	2	
Area:	125.0	sq.ft.	Supply Air:	144	CFM
Ceiling Height:	10.0	ft.	Supply Air Changes:	6.9	ACH
Volume:	1,250.0	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	1		Actual Vent. Clg:	6	CFM
Runout Air:	144	CFM	Percent of Supply:	4	%
Runout Duct Size:	6	in.	Actual Summer Vent.:	32	CFM
Runout Air Velocity:	734	ft./min.	Percent of Supply:	22	%
Runout Air Velocity:	734	ft./min.	Actual Winter Infil.:	0	CFM
Actual Loss:	0.342	in.wg./100 ft.	Actual Summer Infil.:	0	CFM

Item	Area	-U-	Htg	Sen	Clg	Lat	Sen
Description	Quantity	Value	HTM	Loss	HTM	Gain	Gain
W -Wall-12E-Dbw 8 X 10	86	0.068	2.3	199	0.5	0	43
W -Glw-1F-rf-shgc-0.23 0%S (2)	4	0.300	10.2	40	23.5	0	94
UP-Roof-18A-30 125 X 1	125	0.034	1.2	145	0.7	0	89
Floor-22B-15H 8 ft_Per.	8	0.178	10.5	95	0.0	0	0
Subtotals for Structure:				479		0	226
Infil., Win.: 0.0, Sum.: 0.0	90		0.000	0	0.000	0	0
Ductwork:				420			319
AED Excursion:							4
People: 200 lat/per, 230 sen/per:	1					200	230
Lighting:	700						2,387
Room Totals:				899		200	3,166

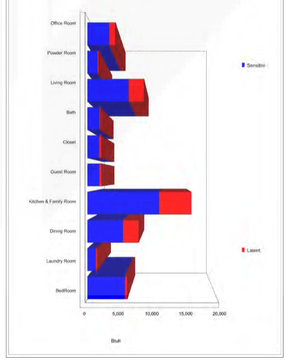
Room Cooling and Heating Loads Bar Graphs



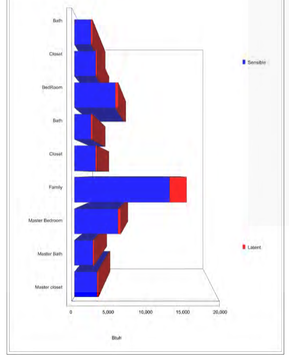
Room Cooling and Heating Loads Bar Graphs



Room Cooling Loads Bar Graphs



Room Cooling Loads Bar Graphs



System 1 Room Load Summary

Room No	Room Name	Area SF	Htg Sens. Btuh	Min Htg CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Min Clg CFM	Adj Sys CFM
—Zone 1—										
1	Office Room	196	2,019	26	1-6	432	3,307	1,000	151	151
2	Powder Room	56	384	5	1-6	358	1,543	200	70	70
3	Living Room	198	1,965	25	1-6	432	3,307	1,000	151	151
4	Bath	65	1,044	14	1-6	414	1,783	200	81	81
5	Closet	50	280	4	1-6	406	1,749	400	80	80
6	Guest Room	204	2,753	36	1-6	413	1,779	400	81	81
7	Kitchen & Family Room	668	8,063	79	5-6	509	10,880	5,000	500	500
8	Dining Room	338	2,582	34	2-6	635	5,471	2,400	249	249
9	Laundry Room	69	1,541	20	1-6	675	1,493	800	99	99
	Duct Sensible		7,480				6,458	1,271		
	Duct Latent							272		
	System 1 total	2,088	27,814	265			40,676	13,843	1,559	1,559

System 1 Main Trunk Size: 54x18 in.
Velocity: 801 ft./min
Loss per 100 ft.: 0.099 in.wg

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	4.54	75% / 25%	40,676	13,843	54,519

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Model Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:		
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

System 2 Room Load Summary

Room No	Room Name	Area SF	Htg Sens. Btuh	Min Htg CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Min Clg CFM	Adj Sys CFM
—Zone 1—										
10	BedRoom	210	3,155	41	2-6	665	5,730	400	261	261
11	Bath	62	728	9	1-6	537	2,314	200	105	105
12	Closet	71	1,044	14	1-6	414	1,783	200	81	81
13	BedRoom	210	3,155	41	2-6	665	5,730	400	261	261
14	Bath	62	728	9	1-6	537	2,314	200	105	105
15	Closet	47	295	3	1-6	685	2,952	200	134	134
18	Family	600	4,979	65	6-6	514	13,298	2,400	606	606
17	Master Bedroom	520	4,875	63	3-6	471	6,088	400	277	277
18	Master Bath	134	2,017	26	1-6	597	2,573	200	117	117
19	Master closet	125	899	12	1-6	734	3,166	200	144	144
	Duct Sensible		5,999				5,161	571		
	Duct Latent							919		
	System 2 total	2,041	26,754	375			50,296	5,790	2,147	2,147

System 2 Main Trunk Size: 20x20 in.
Velocity: 773 ft./min
Loss per 100 ft.: 0.055 in.wg

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	4.67	90% / 10%	50,296	5,790	56,086

Equipment Data

	Heating System	Cooling System
Type:	Natural

GENERAL ELECTRICAL NOTES

#	DESCRIPTION
1	GENERAL CONTRACTOR SHALL VERIFY FIELD CONDITIONS BEFORE SUBMITTING BID.
2	ALL WORK SHALL BE DONE IN ACCORDANCE WITH 2019 NEC, AS AMENDED BY 2019 ELECTRICAL CODE, 2019 ENERGY CODE AND ANY ADDITIONAL STATE OR LOCAL CODES WHICH MAY APPLY.
3	GENERAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, CERTIFICATES, ETC. REQUIRED.
4	GENERAL CONTRACTOR SHALL OBTAIN AND PAY FOR BOTH ROUGH AND FINAL UNDER-WRITERS OR OTHER APPROVED INSPECTION AGENCY CERTIFICATES "ELECTRICAL INSPECTION". THESE CERTIFICATES SHALL BE PRESENTED WITH REQUEST FOR FINAL PAYMENT.
5	IT IS THE INTENT OF THESE PLANS TO PROVIDE A COMPLETE OPERATING ELECTRICAL SYSTEM. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL WIRING, EQUIPMENT, MATERIAL. ETC. REQUIRED, EXCEPT WHERE SPECIFICALLY NOTED AS BEING FURNISHED BY OTHERS. SHOULD THERE BE ANY QUESTIONS CONCERNING RESPONSIBILITY, THEY SHALL BE ADDRESSED TO ARCHITECT PRIOR TO BID. NO EXTRA CHARGES WILL BE ALLOWED.
6	ELECTRICAL SERVICE SHALL BE COORDINATED WITH THE EXISTING FIELD CONDITIONS.
7	CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS TO ALL CONTROLS, OWNER-SUPPLIED EQUIPMENT, MECHANICAL AND PLUMBING EQUIPMENT AS REQUIRED.
8	REFER TO ARCHITECTURAL DRAWINGS FOR ELEVATION DETAILS. ALL FIXTURE AND DEVICE LOCATIONS SHOWN ON ARCHITECTURAL DRAWINGS SUPERSEDE THOSE SHOWN ON ELECTRICAL PLANS.
9	CIRCUIT NUMBER ON THE DRAWINGS ARE FOR IDENTIFICATION ONLY AND DO NOT INDICATE THE POSITION ON THE PANEL BOARD. CONNECT THE CIRCUITS WITH THE LIGHTEST LOADS AND THE RECEPTACLE CIRCUITS NEAR THE TOP OF THE PANEL, AND THE MORE HEAVILY LOADED CIRCUITS NEAR THE BOTTOM. BALANCE ALL CIRCUITS EVENLY BETWEEN PHASE SO THAT FEEDER WIRES CARRY APPROXIMATELY EQUAL CURRENT. ALL PHASES MUST BE BALANCED WITHIN 10% OR LESS. G.C. SHALL REBALANCE IF NECESSARY.
10	BRANCH CIRCUIT CONDUCTOR INSULATION SHALL BE COLOR CODED AND SHALL BE 600 VOLT. TYPE THHN/THWN.
11	CABLES IN HIGH TEMPERATURE AREAS SHALL HAVE INSULATION TYPE SUITABLE FOR THE TEMPERATURE. CABLES USED IN SPACES FOR ENVIRONMENTAL AIR SHALL CONFORM WITH APPLICABLE N.E.C REQUIREMENTS.
12	ALL WIRING USED IN RETURN OR DISCHARGE AIR PLENUMS SHALL BE PLENUM RATED OR INSTALLED PER METHODS APPROVED BY THE LATEST EDITION OF THE N.E.C. FOR SUCH APPLICATION.
13	ALL WIRE AND CABLE CONDUCTORS SHALL BE COPPER WITH INSULATION RATED 600V. CONDUCTORS SIZED #10 AWG AND SMALLER SHALL BE SOLID OD STRANDED, AND CONDUCTORS SIZED LARGER THAN #10 AWG SHALL BE STRANDED WIRE.
14	BRANCH CIRCUITS FOR POWER AND LIGHTING SHALL NOT BE LESS THAN #12 AWG. OR AS NOTED. WIRES ARE TO BE SIZED FOR THE APPROPRIATE VOLTAGE DROPS. SEE WIRE SIZE SCHEDULE ON THIS SHEET.
15	ALL DATA CABLES SHALL BE CAT6, PLENUM RATED. TO BE PROVIDED BY OWNER SELECTED VENDOR. ELECTRICAL WORK SHALL BE TO PROVIDE OUTLET BOXES AND "RING AND STRING" FOR PULLING OF CABLES IN CONCEALED SPACES.
16	CONTROL WIRING SHALL NOT BE LESS THAN #14 AWG UNLESS OTHERWISE NOTED.
17	HOMERUNS SHOWN ARE SCHEMATIC. CONTRACTOR MAY ORIGINATE HOMERUNS FROM DIFFERENT LOCATIONS. ALL WIRE INCLUDING HOMERUNS SHALL BE DELINEATED ON AS-BUILT DRAWINGS.
18	ALL WIRING INSTALLED UNDER THIS CONTRACT SHALL BE TESTED FOR PROPER CONNECTIONS AND SHORT CIRCUITS PRIOR TO THE TURNING OVER OF WORK AS A COMPLETE UNIT.
19	PROVIDE ALL ELECTRICAL SYSTEM GROUNDING IN ACCORDANCE WITH N.E.C. REQUIREMENTS EVEN IF IT IS NOT SHOWN ON THE DRAWINGS. INCLUDE ADDITIONAL GROUNDING CONDUCTORS IN ALL RACEWAYS EVEN THOUGH THE DRAWINGS SHOW ONLY CIRCUIT AND/OR NEUTRALS CONDUCTORS. THE PLUMBING AND PIPING SYSTEM SHALL NOT BE USED AS A GROUND. ALL TRANSFORMER NEUTRALS SHALL BE GROUNDED TO BUILDING STEEL IN ACCORDANCE WITH NEC 250-70.
20	ALL CONDUITS PASSING THROUGH PARTITIONS ARE TO BE APPROPRIATELY SLEEVED AND SEALED.
21	FURNISH AND INSTALL ALL CONDUIT WITH PULL WIRES AS REQUIRED. ALL OUTLET BOXES SHALL BE STEEL, EXTRA DEEP WITH GROUNDING PIGTAILS. GROUNDING PUSH-CLIPS ARE NOT ACCEPTABLE.
22	ALL PENETRATIONS SHALL BE INSTALLED AND SEALED PER NATIONAL STATE AND LOCAL CODES
23	DO NOT MAKE ANY CHANGES OR SUBSTITUTIONS WITHOUT SPECIFIC WRITTEN APPROVAL FROM THE ARCHITECT OR ENGINEER.
24	GUARANTEE ALL WORK, MATERIAL AND EQUIPMENT FOR A PERIOD OF ONE YEAR FROM THE DATE OF APPROVAL AND FINAL ACCEPTANCE.
25	THIS DESIGN IS BASED ON INITIAL DESIGN DATA. GENERAL CONTRACTOR TO SUPPLY AND INSTALL FEEDERS, FUSES AND CIRCUIT BREAKERS TO MATCH THE NAMEPLATE RATING OF ALL EQUIPMENT. THIS SHALL BE INCLUDED IN THE INITIAL BID PROPOSAL AND NO EXTRAS SHALL BE ENTERTAINED.
26	LABEL ALL JUNCTION BOXES, OUTLETS, LIGHT SWITCH, ETC. WITH CIRCUIT NUMBER ON INTERIOR ON COVER PLATE. USE SELF-ADHESIVE "DYMO" LABEL 1/8" HIGH LETTERS.
27	GENERAL CONTRACTOR SHALL PROVIDE SEISMIC RESTRAINTS AND SUPPORTS FOR ALL FLOOR, WALL, AND CEILING MOUNTED ELECTRICAL EQUIPMENT TO RESIST EARTHQUAKE EFFECTS DETERMINED IN ACCORDANCE WITH THE BUILDING CODE.
28	THE G.C. SHALL PROVIDE ALL EQUIPMENT. MATERIALS AND LABOR TO COMPLETE ALL ELECTRICAL WORK IN A NEAT AND WORKMANLIKE MANNER AND IN ACCORDANCE WITH GOOD COMMERCIAL PRACTICE INCLUDING THE INSTALLATION OF ALL THE EQUIPMENT MATERIALS AND SYSTEMS AND THE FINAL CONNECTIONS TO THE OWNER'S EQUIPMENT AND FIXTURES AS REQUIRED BY THE OWNER. THE G.C. SHALL ALSO FURNISH TEMPORARY WIRING AND LIGHTING TO PROVIDE A MINIMUM OF 25 FC IN WORK AREAS FOR USE OF ALL THE TRADES DURING CONSTRUCTION AND THE INSTALLATION OF THE OWNERS FIXTURES. THE G.C. IS RESPONSIBLE TO REMOVE ALL TEMPORARY WIRING UPON COMPLETION OF CONSTRUCTION OF ALL TRADES.
29	THIS CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AND INSTALL ALL SUPPLEMENTARY SUPPORT, INCLUDING SUPPORT STEEL AS REQUIRED TO HANG ALL EQUIPMENT AND LIGHTING FROM THE EXISTING STRUCTURE IN ACCORDANCE WITH THE ARCHITECTURAL/STRUCTURAL SUPPORT AND LOADING CRITERIA.
30	IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO PROVIDE FULLY DIMENSIONED COORDINATION DRAWINGS FOR ALL OF HIS RESPECTIVE WORK. THESE DRAWINGS MUST BE FULLY COORDINATED WITH ALL EXISTING CONDITIONS. ALL HVAC, PLUMBING, FIRE PROTECTION, ELECTRICAL, LIGHTING, STRUCTURAL AND ARCHITECTURAL SYSTEMS PRIOR TO PREPARING COMPOSITE MULTI DISCIPLINE COORDINATION DRAWINGS.
31	ALL DISCONNECTING MEANS AND EQUIPMENT INDICATED ON THE DRAWING SHALL BE IDENTIFIED BY NAMEPLATE IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE 110-22.
32	ALL WIRING FOR THE EMERGENCY LIGHTING AND EMERGENCY SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE ARTICLE 700.
33	THE WIRING METHODS AND MATERIALS INDICATED IN THE SPECIFICATIONS AND ON THE DRAWINGS SHALL BE INSTALLED AND CONNECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE ARTICLE 300.

GENERAL ELECTRICAL NOTES

#	DESCRIPTION
33	THE WIRING METHODS AND MATERIALS INDICATED IN THE SPECIFICATIONS AND ON THE DRAWINGS SHALL BE INSTALLED AND CONNECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE ARTICLE 300.
34	THE ELECTRICAL SERVICE AND DISTRIBUTION SYSTEM AS INDICATED ON THE RISER DIAGRAM AND MATERIALS INDICATED IN THE SPECIFICATIONS SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE ARTICLE 230, SERVICES.
35	ALL OVER CURRENT PROTECTION SHALL BE IN COMPLIANCE WITH THE NATIONAL ELECTRIC CODE SECTION 240, OVERCURRENT PROTECTION.
36	ALL GROUNDING REQUIREMENTS OF THE COMPLETE ELECTRICAL DISTRIBUTION SYSTEM AND AS INDICATED IN THE SPECIFICATIONS SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE ARTICLE 250, GROUNDING AND BONDING.
37	PRIOR TO ANY REQUIRED CUTTING AND PATCHING OF CONCRETE FLOOR AND/OR CUTTING OF ROOF, CONTRACTOR SHALL COORDINATE WITH BUILDING ENGINEER.
38	FOR ALL LIGHTING FIXTURES MOUNTED IN HUNG CEILING THE GENERAL CONTRACTOR SHALL PROVIDE AND INSTALL INDIVIDUAL SUPPORT AT EACH CORNER OF RECESSED LIGHTING TROFFER CONNECTED TO BUILDING STEEL ABOVE ALL CONDUIT AND MC CABLE MOUNTED ABOVE HUNG CEILING SHALL BE INDIVIDUALLY SUPPORTED IN THE SAME FASHION AS PER NEC REQUIREMENTS.
39	DO NOT SCALE FROM THESE DRAWINGS.
40	PLANS ARE PREPARED WITH REQUIRED BRANCH CIRCUITS INDICATED BY CIRCUITS NUMBERS. PROVIDE AND INSTALL ALL CONDUITS. CONDUCTORS, BOXES, MISCELLANEOUS FITTINGS, ETC. FOR A COMPLETE AND OPERABLE SYSTEM (HOME RUN SHOWN). BRANCH CIRCUIT INSTALLATION SHALL COMPLY WITH SPECIFICATIONS AND N.E.C.
41	ELECTRICAL RECEPTACLE, SWITCH AND CONTROL HEIGHTS (CBC-1136A.1:). RECEPTACLE HEIGHTS: ELECTRICAL RECEPTACLE OUTLETS ON BRANCH CIRCUITS OF 30 AMPERES OR LESS AND COMMUNICATION SYSTEM RECEPTACLES SHALL BE LOCATED NO MORE THAN 48 INCHES (1219MM) MEASURED FROM THE TOP OF THE RECEPTACLE OUTLET BOX OR RECEPTACLE HOUSING NOR LESS THAN 15 INCHES (381MM) MEASURED FROM THE BOTTOM OF THE RECEPTACLE OUTLET BOX OR RECEPTACLE HOUSING TO THE LEVEL OF FINISHED FLOOR OR WORKING FLATFORM. IF THE REACH IS OVER AN OBSTRUCTION (FOR EXAMPLE, A KITCHEN BASE CABINET) BETWEEN 20 AND 25 INCHES (508 AND 635MM) IN DEPTH, THE MAXIMUM HEIGHT MEASURED AT THE BOX IS REDUCED TO 44 INCHES (1118MM) FOR FORWARD APPROACH, OR 46 INCHES (1168MM) FOR SIDE APPROACH, PROVIDED THE OBSTRUCTION IS NO MORE THAN 24 INCHES (610MM) IN DEPTH. OBSTRUCTION SHALL NOT EXCEED MORE THAN 25 INCHES (635MM) FROM THE WALL BENEATH THE RECEPTACLE.
42	SWITCH AND CONTROL HEIGHTS: (CBC 1136A.2:) CONTROL OR SWITCHES INTENDED TO BE USED BY THE OCCUPANT OF THE ROOM OR AREA TO CONTROL LIGHTING AND RECEPTACLE OUTLETS, APPLIANCES, ALARMS OR COOLING, HEATING AND VENTILATING EQUIPMENT SHALL BE LOCATED NO MORE THAN 48 INCHES (1219MM) MEASURED FROM THE TOP OF THE OUTLET BOX NOR LESS THAN 15 INCHES (381MM) MEASURED FROM THE BOTTOM OF THE OUTLET BOX TO THE LEVEL OF THE FINISHED FLOOR OR WORKING PLATFORM. IF THE REACH IS OVER A PHYSICAL BARRIER OR AN OBSTRUCTION (FOR EXAMPLE, A KITCHEN BASE CABINET) BETWEEN 20 AND 25 INCHES (508 AND 635MM) IN DEPTH, THE MAXIMUM HEIGHT IS REDUCED TO 44 INCHES (1118MM) FOR FORWARD APPROACH, OR 46 INCHES (1168MM) FOR SIDE APPROACH, PROVIDED THE OBSTRUCTION IS NO MORE THAN 24 INCHES (610MM) IN DEPTH. PHYSICAL BARRIERS OR OBSTRUCTIONS SHALL NOT EXTEND MORE THAN 25 INCHES (635MM) FROM THE WALL BENEATH A CONTROL.

LIGHTING FIXTURE SCHEDULE

Type	Symbol	Type Location Description	Mfc Catalog #	Lamps	Watts	Voltage	Notes
L1	◎	Ceiling Recessed led (6" round)	"Lithonia Ltg" LDN6 40/05 LD6AR LD	LED	20W	120/ 277V	New dimmable lighting fixture
L1E	⊗	Ceiling Recessed led	"Lithonia Ltg" LDN6 40/05 LD6AR LD	LED	20W	120/ 277V	New dimmable lighting fixture
L2	▭	Surface mtd. 1'W X 4'L	GT8 2 32 A12 MVOLT GEB10IS	LED	32W	120/ 277V	New dimmable lighting fixture
L3	▭	Wall Mounted Bath Bar High Efficiency	"Lithonia Ltg" FMLFUFL 24 840 BN	LED	25W	120/ 277V	New dimmable lighting fixture
L4	—	Ceiling Mounted Strip Light High Efficiency	"Lithonia Ltg" CSS L48 4000LM MVOLT 40K 80CRI (CS All options)	LED	35.3W	120/ 277V	New dimmable lighting fixture
L5	—	Under-Cabinet Strip Light High Efficiency	"Lithonia Ltg" UCB 17 120 SWR	LED	17W	120/ 277V	New dimmable lighting fixture
L6	◌	Outdoor Lighting	"Lithonia Ltg" TWR1 LED ALO 40K MVOLT DDBTXD	LED	16W	120/ 277V	New dimmable lighting fixture
L7	⊗	CHANDELIER	"Lithonia Ltg" FMABFL 14 20840 F20	LED	24W	120/ 277V	New dimmable lighting fixture
L8	●—●—●	PENDANT KITCHEN LIGHT	"Lithonia Ltg" FERM 11536	LED	13W	120/ 277V	New dimmable lighting fixture
N	▭	Exhaust Fan w/Light	QTXE110C		31.4W		

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
$	SINGLE POLE SWITCH AND BOX, WALL MOUNTED +44" AFF. LOWER CASE LETTER INDICATES CIRCUIT CONTROLLED BY SWITCH.WITH OCCUPANCY SENSOR
D	WALL MOUNTED DIMMER SWITCH, 0-10V DIMMING WITH ON-OFF SWITCH.
$3	WALL MOUNTED 3 WAY ON, CENTER OFF LOW VOLTAGE SWITCH FOR LCP CONTROLLER LIGHTS.
	RECEPTACLE, DUPLEX 20A, 120V GRD, NEMA 5-20R +18"AFF U.O.N.(WP=WEATHERPROOF, GFCI=GROUND FAULT CIRCUIT INTERRUPTER)
D	DEDICATE RECEPTACLE, DUPLEX 20A, 120V GRD, NEMA 5-20R +18"AFF U.O.N. (WP=WEATHERPROOF, GFI=GROUND FAULT CIRCUIT INTERRUPTER)
USB	USB RECEPTACLE, DUPLEX 20A, 120V GRD, NEMA 5-20R +42"AFF U.O.N.
	RECEPTACLE, SINGLE, 20A, 120V GRD, NEMA 5-20R +18"AFF UON.
	RECEPTACLE, DOUBLE DUPLEX (2) 20A, 120V, GRD - NEMA (2) 5-20R +18"AFF U.O.N.
	RECEPTACLE DUPLEX 20A, 120V GRD NEMA 5-20R FLOOR MOUNTED.
	RECEPTACLE DOUBLE DUPLEX (2) 20A, 120V GRD, NEMA 5-20R UON. FLOOR MOUNTED.
	2 PORT VOICE/ DATA OUTLET, WALL MOUNT +18" AFF PROVIDE RING & STRING TO PULL CABLES THRU HOLLOW WALL. VOICE/ DATA WIRING BY TELECOM SYSTEM INSTALLER.
TV	TV OUTLET, WALL MOUNT +60" AFF PROVIDE RING & STRING TO PULL CABLES THRU HOLLOW WALL.
OV	COMBINATION 4-PLEX RECEPTACLE, NEMA 5-20R DOUBLE DUPLEX (1 DUPLEX AUTO CONTROLLED BY OCCUPANCY SENSOR PER T24, (1) DUPLEX UNCONTROLLED), & TYPE 6 VOICE/DATA OUTLET, FLOOR MOUNTED. PROVIDE MIN. 3/4" TEL/DATA CONDUIT WITH PULL WIRES.
	4-PLEX RECEPTACLE, NEMA 5-20R DOUBLE DUPLEX (1 DUPLEX AUTO CONTROLLED BY OCCUPANCY SENSOR PER T24, (1) DUPLEX UNCONTROLLED), +18"AFF, U.O.N. SEE NOTE 2.
	DUPLEX RECEPTACLE, NEMA 5-20R OCCUPANCY SENSOR CONTROLLED, +18"AFF. SEE NOTE 2.
GFCI	GFCI DUPLEX RECEPTACLE ABOVE COUNTER LEVEL, NEMA 5-20R.
GFCI	GFCI DUPLEX RECEPTACLE ABOVE COUNTER LEVEL, VACANCY SENSOR CONTROLLED, NEMA 5-20R.
	SPECIAL PURPOSE CONNECTION FOR ELECTRICAL EQUIPMENT. VERIFY CONNECTION TYPE AND WIRING REQUIREMENTS PRIOR TO ROUGH-IN.
EP	CLASS 1, DIVISION 1 RATED EXPLOSION-PROOF OUTLET. SEE ADDITIONAL NOTES ON SHEET E3.1.
	RECEPTACLE, 120V/240V, 3PH, 4W, GRD, RATING AS INDICATED IN PLANS.
	RECEPTACLE 20A, 480V, 3PH, 4W, GRD, NEMA L22-20R, +18"AFF UON.
	DUPLEX RECEPTACLE 20A, 120V, GND (5-20R U.O.N), SUSPENDED BY TYPE S.O. CORD WITH GRIPS AT EACH END.
	DOUBLE DUPLEX RECEPTACLE 20A, 120V, GND (5-20R U.O.N), SUSPENDED BY TYPE S.O. CORD WITH GRIPS AT EACH END.
	TWIST-LOCK RECEPTACLE 20, 250V, SINGLE PHASE (L6-20R U.O.N), SUSPENDED BY TYPE S.O. CORD WITH GRIPS AT EACH END.
OS	OCCUPANCY SENSOR LOW VOLTAGE CEILING MOUNTED FOR ROOM CONTROLLER.
OS	OCCUPANCY SENSOR LOW VOLTAGE WALL MOUNTED FOR ROOM CONTROLLER.
DS	CEILING MOUNTED DAYLIGHT SENSOR.
J	JUNCTION BOX CEILING MOUNTED, SIZE TO CODE, TAPE AND TAG WIRES.
J	JUNCTION BOX WALL MOUNTED, SIZE TO CODE, TAPE AND TAG WIRES.
	ELECTRICAL PANELBOARD, SURFACE OR FLUSH MOUNTED (277/480V).
	ELECTRICAL PANELBOARD, SURFACE OR FLUSH MOUNTED (120/208V).
	SPECIAL PURPOSE ELECTRICAL PANELBOARD, SURFACE OR FLUSH MOUNTED.
	TRANSFORMER - DRY TYPE.
	FUSED DISCONNECT SWITCH WITH DUAL ELEMENT FUSES. SWITCH AND FUSES RATING PER NAMEPLATE OF SERVED UNIT.
	NON-FUSED DISCONNECT SWITCH, RATING PER NAMEPLATE OF SERVED UNIT.
	MAGNETIC MOTOR STARTER, NEMA RATING AS REQUIRED PER SERVED UNIT.
P	WALL MOUNTED JUNCTION BOX FOR PRE-WIRED FURNITURE POWER SYSTEM CONNECTION. PROVIDE POWER WHIP WITH TERMINATION PLUG TO MATCH FURNITURE SYSTEM CONNECTOR. LOCATE BOX AS LOW AS POSSIBLE. FIELD COORDINATE FINAL LOCATION.
C	COMBINATION TELEPHONE AND DATA OUTLET, WALL MOUNTED AS LOW AS POSSIBLE FOR FLEXIBLE CONNECTION TO FURNITURE SYSTEM.
C P	FLOOR MOUNTED FURNITURE FEEDS W/POWER & TELE/DATA PORT CAPACITY FOR ELECTRIFIED DESKS PER CLIENT'S REQUIREMENTS.
C P	POWER POLES W/POWER & TELE/DATA PORT CAPACITY FOR ELECTRIFIED DESKS PER CLIENT'S REQUIREMENTS.
SD	Smoke Detector
CO	Carbon Monoxide Detector
	LEGEND NOTES: 1. MOUNTING HEIGHT INDICATED ARE AFF TO CENTER OF PLATE. INCASE OF CONFLICT, GENERAL NOTES 41 & 42 SHALL PREVAIL. 2. NOT ALL SYMBOLS AND ABBREVIATIONS ARE NECESSARILY USED IN THIS PROJECT.

WIRE SCHEDULE AND NOTES

LOAD PER PH (KVA)	WIRE SIZE (AWG)	MAXIMUM LENGTH OF BRANCH CIRCUIT PER UTILIZATION VOLTAGE (120, 1PH, MAX V.D. 3%)	(240, 1PH, MAX V.D. 3%)	(240, 3PH, MAX V.D. 3%)	NOTES AND REMARKS
< 1.92	#12	56 FT	85 FT	98 FT	5
	#10	94 FT	141 FT	163 FT	5
	#8	144 FT	217 FT	250 FT	5
	#6	230 FT	345 FT	398 FT	5
< 1.44	#12	75 FT	113 FT	130 FT	5
	#10	125 FT	188 FT	217 FT	5
	#8	192 FT	289 FT	334 FT	5
	#6	306 FT	460 FT	531 FT	5
< 1.26	#12	86 FT	129 FT	149 FT	
	#10	143 FT	215 FT	248 FT	
	#8	220 FT	330 FT	381 FT	
< 1.08	#12	100 FT	150 FT	173 FT	
	#10	167 FT	250 FT	289 FT	
	#8	256 FT	385 FT	445 FT	
< 0.9	#12	120 FT	180 FT	240 FT	
	#10	200 FT	300 FT	347 FT	
<0.72	#12	150 FT	225 FT	260 FT	
	#10	250 FT	376 FT	434 FT	

#	NOTES
1	CONTRACTOR SHALL REFER TO THIS TABLE PRIOR TO START OF BRANCH CIRCUIT ROUGH-IN.
2	CONTRACTOR SHALL USE THE APPROPRIATE WIRE SIZE IN CONJUNCTION WITH THE LENGTH OF THE PROPOSED FIELD VERIFIED ROUTING OF BRANCH CIRCUIT WIRING (INCLUDING VERTICAL & LATERAL RUN, ROUTED PARALLEL/PERPENDICULAR TO THE BUILDING STRUCTURE).
3	SEE PANEL SCHEDULE FOR THE CORRESPONDING KVA LOAD PER PHASE OF A PARTICULAR BRANCH CIRCUIT.
4	RESISTANCE VALUES USED ARE FOR UNCOATED COPPER WIRES IN STEEL CONDUIT. 75 DEGREE C., OPERATING AT 60HZ.
5	THE VALUES IN "120V, 1PH" COLUMN IS TO BE USED FOR GENERAL PURPOSE RECEPTACLE LOADS.

ABBREVIATIONS AND TAGS

ABB.	DESCRIPTION	ABB.	DESCRIPTION
EWH	ELECTRIC WATER HEATER	SD	SMOKE DETECTOR
(E)	EXISTING TO REMAIN	TEL	TELEPHONE
EC	ELECTRICAL CONTRACTOR	TX	TRANSFORMER
FA	FIRE ALARM	TV	TELEVISION
FMT	FLEXIBLE METALLIC TUBING	UAC	UNDER ANOTHER CONTRACT
GC	GENERAL CONTRACTOR	UAS	UNDER ANOTHER SECTION
GFI	GROUND FAULT INTERUPTER	UON	UNLESS OTHERWISE NOTED
IG	ISOLATED GROUND	V.D.	VOLTAGE DROP
LL	LANDLORD	W	WIRE
LV	LOW VOLTAGE	WP	WEATHERPROOF
AC 1	MECHANICAL UNIT TAG. SEE MECHANICAL DRAWINGS FOR ADDITIONAL DESCRIPTION.	E-4 4	DETAIL TAG. REFER TO DETAIL 4 ON SHEET NUMBER E-4.

ELECTRICAL DRAWING SCHEDULE

#	TITLE
E1.0	ELECTRICAL LEGEND, NOTES, SCHEDULES & ABBREVIATIONS
E2.0	1ST FL. ELECTRICAL LIGHTING PLAN
E3.0	1ST FL. ELECTRICAL POWER PLAN
E4.0	2ND FL. ELECTRICAL LIGHTING PLAN
E5.0	2ND FL. ELECTRICAL POWER PLAN
E6.0	SINGLE LINE DIAGRAM AND PANEL SCHEDULES

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DRAWING TITLE:
ELECTRICAL LEGEND, NOTES, SCHEDULES & ABBREVIATIONS

Sheet : E1.0

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No.	Revision/Issue	Date

PLAN DESIGN NOTES
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In bathrooms, garages, laundry rooms, and utility rooms at least one luminaire shall be controlled by a vacancy sensor.
Dimmers or vacancy sensors shall control all LED style luminaires. Two exceptions:
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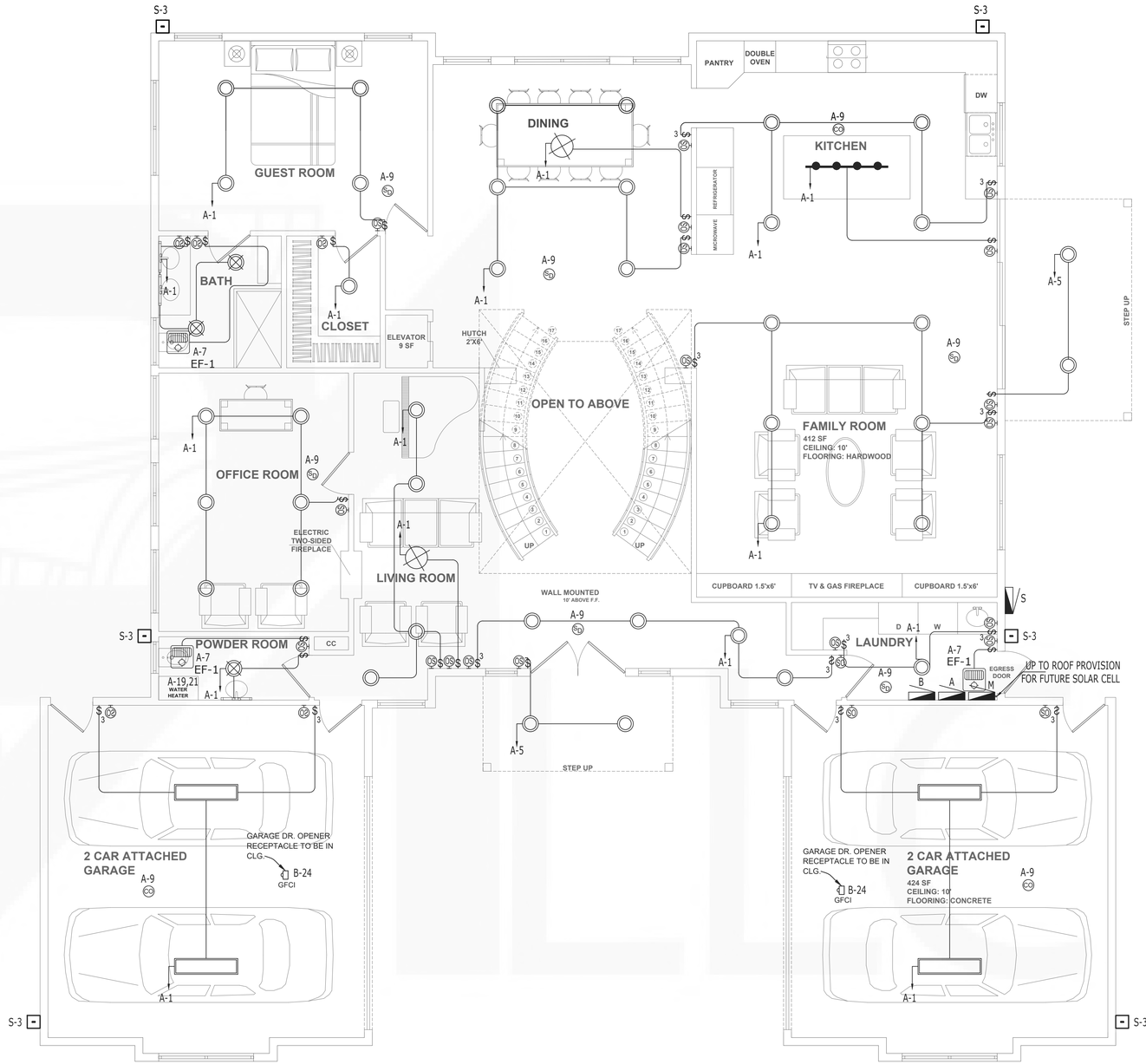

1ST FL. ELECTRICAL LIGHTING PLAN

NORTH

SCALE: 1/4" = 1'-0"

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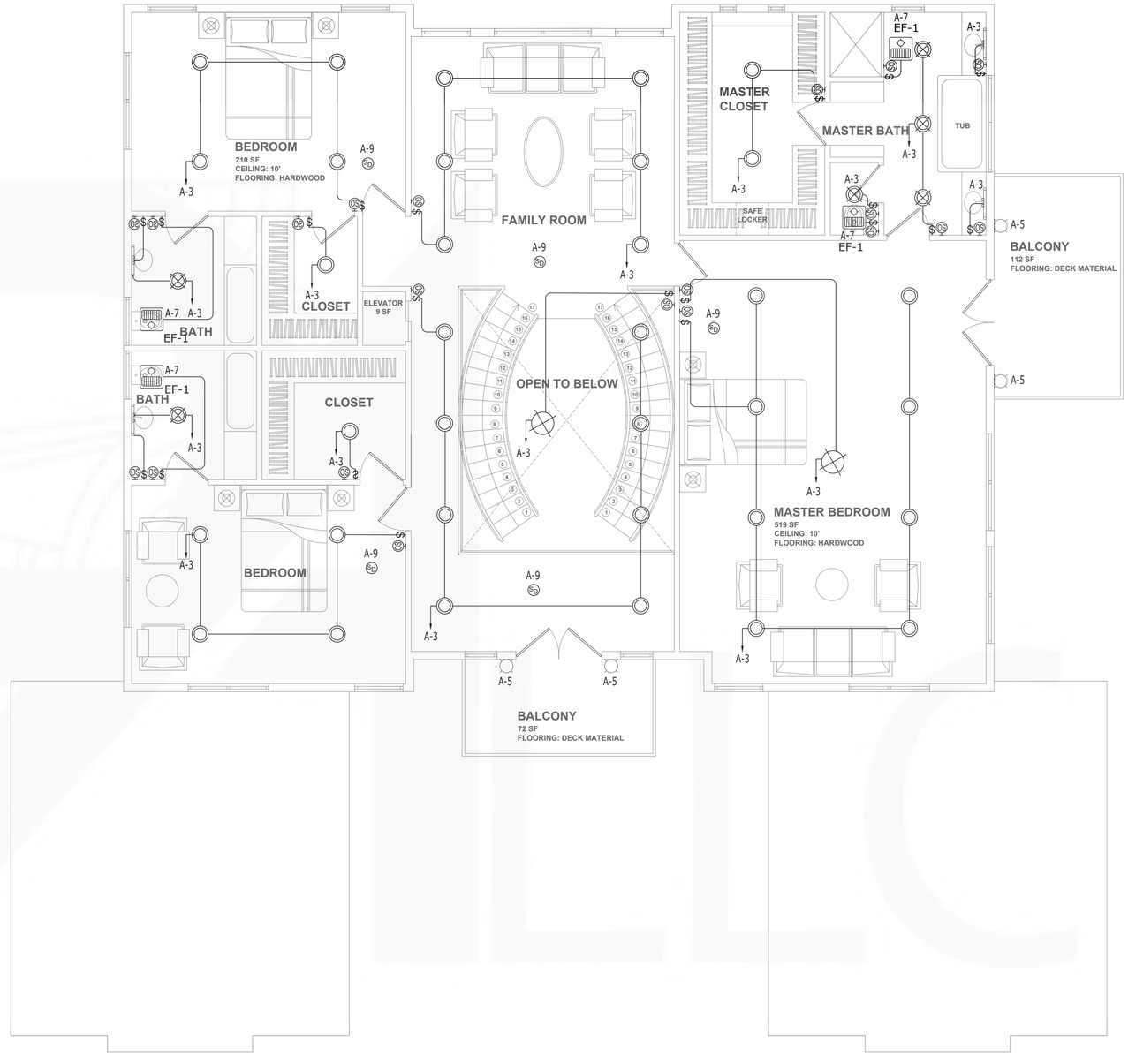

2ND FL. ELECTRICAL LIGHTING PLAN

NORTH

SCALE: 1/4" = 1'-0"

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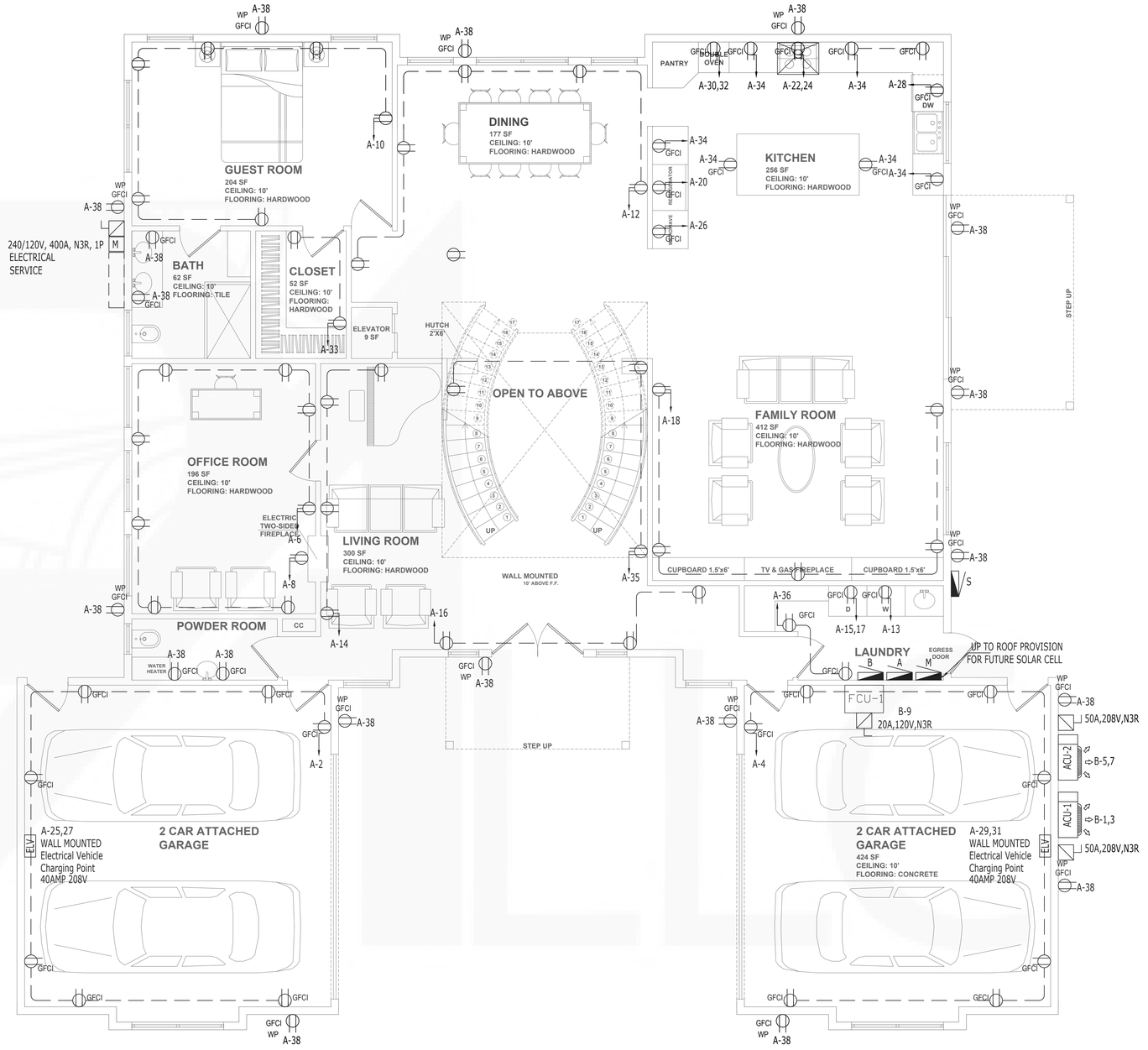

1ST FL. ELECTRICAL POWER PLAN

NORTH

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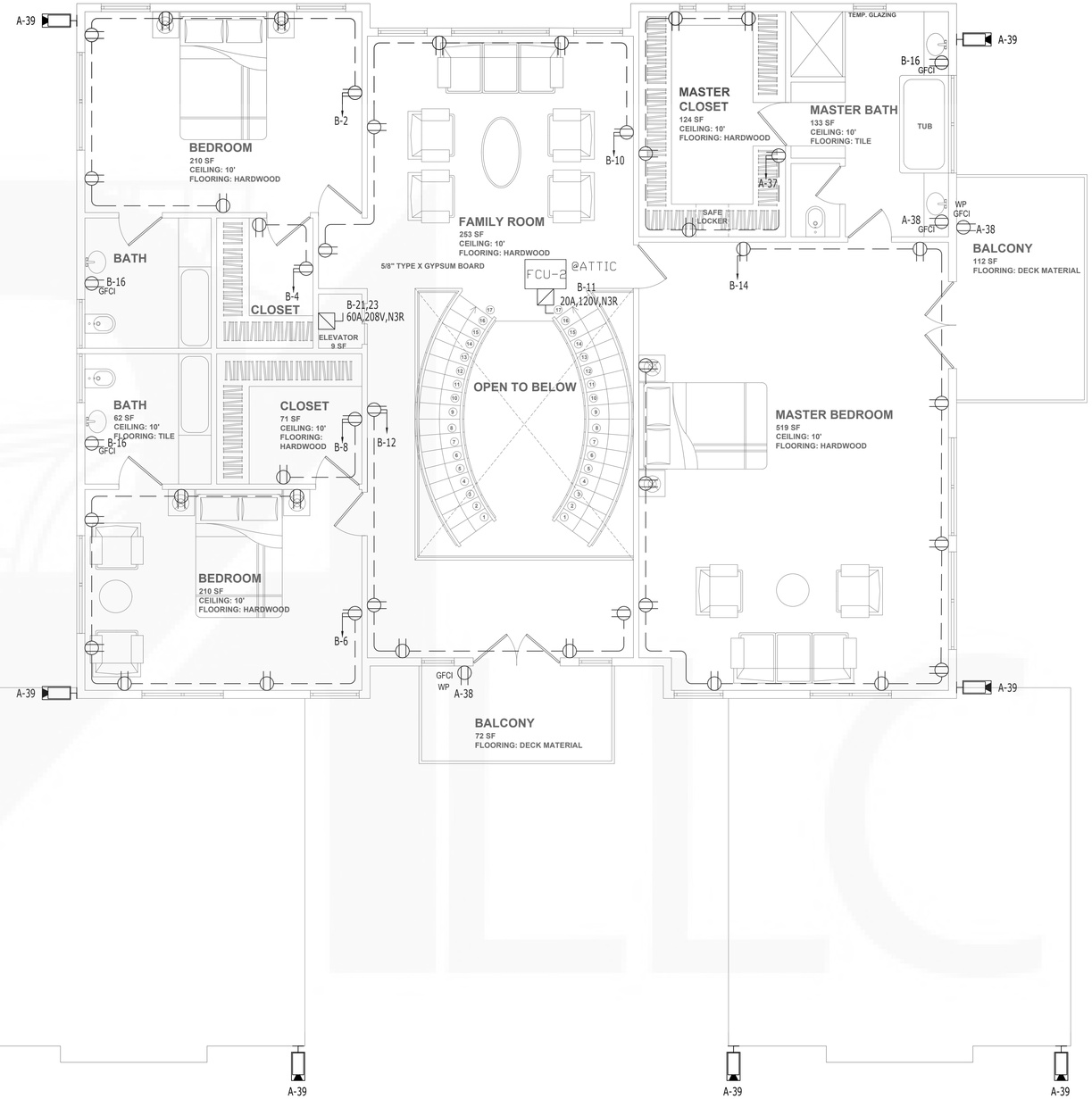

2ND FL. ELECTRICAL POWER PLAN

NORTH

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*	(Location:) LOAD SUMMARY	CL	DF	CONNECTED LOAD A	CONNECTED LOAD B	DEMAND TOTAL
L	Lighting	1.86	1.25	1.06	0.80	2.33
R	Convenience Recept	24.58		13.86	10.72	17.29
H	Heating (Space)	6.08	1.25	2.88	3.20	7.60
C	Cooling		1.00			
A	HVAC		1.00			
P	Process		1.00			
O	Other Continuous		1.25			
K	Kitchen	11.45	0.65	5.50	5.95	7.44
N	Noncontinuous	0.60	1.00	0.60		0.60
			1.00			
	Total	**44.57**		23.90	20.67	35.26

Total Demand Load (KVA)	35.26
Total Demand Current (A)	146.92
Min. Feeder Ampacity (A)	183.65

PANEL A

WITH EATON CHSPT2ULTRA Surge Protection

SYSTEM VOLTAGE	240/120V , 1Φ, 3W
BUS SIZE	200A
SYSTEM TYPE	NORMAL
FEEDER PROT	200A-1P C/B Bus Plug
CONDUCTOR SIZE	4/0 AWG - #2G CU
CONDUCTOR/PHASE	1
MAINS	200A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	50
FEEDER V. DROP (%)	0.508
FAULT CURRENT	6.119
KAIC RATING	22
ENCLOSURE	TYPE 1

	DESCRIPTION	*	CB	KVA	A	B	KVA	CB	DESCRIPTION	*	
1	LIGHTING AT 1ST FLOOR	L	20A-1P AFI/GF	1.00	2.08		1.08	20A-1P GFCI	GFCI OUTLET AT GARAGE	R	2
3	LIGHTING AT 2ND FLOOR	L	20A-1P AFI/GF	0.80		1.88	1.08	20A-1P GFCI	GFCI OUTLET AT GARAGE	R	4
5	OUTDOOR LIGHTING AT BALCONY	L	20A-1P GFCI	0.06	1.14		1.08	20A-1P	OUTLET AT OFFICE ROOM	R	6
7	EXHAUST FAN	H	20A-1P	0.32		1.32	1.00	20A-1P	ELECTRIC TWO-SIDED FIREPLACE	R	8
9	SMOKE DETECTOR	N	20A-1P	0.60	1.68		1.08	20A-1P AFI/GF	OUTLET AT GUEST ROOM	R	10
11	SPARE		20A-1P			1.08	1.08	20A-1P AFCI	OUTLET AT DINING	R	12
13	WASHER	R	20A-1P	1.00	2.08		1.08	20A-1P AFCI	OUTLET AT LIVING ROOM	R	14
15	DRYER	R	30A-2P GFCI	2.00		2.54	0.54	20A-1P AFI/GF	OUTLET AT HALL	R	16
17		R		2.00	3.08		1.08	20A-1P AFCI	OUTLET AT FAMILY ROOM	R	18
19	ELECTRICAL WATER HEATER	H	30A-2P	2.88		3.63	0.75	20A-1P	REFRIGRATOR	K	20
21		H		2.88	4.88		2.00	30A-2P	RANGE	K	22
23	SPARE		20A-1P			2.00	2.00			K	24
25	ELV OUTLET	R	40A-2P GFCI	1.02	2.52		1.50	20A-1P	MICROWAVE	K	26
27		R		1.02		2.22	1.20	20A-1P AFI/GF	DISH WASHER	K	28
29	ELV OUTLET	R	40A-2P GFCI	1.02	3.02		2.00	30A-2P	DOUBLE OVEN	K	30
31		R		1.02		3.02	2.00			K	32
33	OUTLET AT CLOSET	R	20A-1P AFCI	0.36	1.44		1.08	20A-1P	GENERAL GFCI OUTLET AT KITCHEN	R	34
35	OUTLET	R	20A-1P AFI/GF	0.54		0.90	0.36	20A-1P AFI/GF	OUTLET AT LAUNDRY	R	36
37	OUTLET AT MASTER CLOSET	R	20A-1P AFCI	0.90	1.98		1.08	20A-1P GFCI	GFCI OUTLET AT BATHROOM	R	38
39	CAMERA SYSTEM	R	20A-1P	1.00		2.08	1.08	20A-1P GFCI	GFCI / WP OUTSIDE OUTLET	R	40
41	SPARE		20A-1P					20A-1P	SPARE		42
	(KVA)							Updated	xx.xx.xxxx		
	Total Connected Load			23.90	20.67						

*	(Location:) LOAD SUMMARY	CL	DF	CONNECTED LOAD A	CONNECTED LOAD B	DEMAND TOTAL
L	Lighting	1.58	1.25	0.86	0.72	1.98
R	Convenience Recept	6.48		4.32	2.16	6.48
H	Heating (Space)		1.25			
C	Cooling	15.77	1.00	7.88	7.88	15.77
A	HVAC		1.00			
P	Process		1.00			
O	Other Continuous	0.72	1.25		0.72	0.90
K	Kitchen		0.65			
N	Noncontinuous	2.20	1.00	1.70	0.50	2.20
			1.00			
	Total	**26.75**		14.76	11.98	27.33

Total Demand Load (KVA)	27.33
Total Demand Current (A)	113.85
Min. Feeder Ampacity (A)	142.32

PANEL B

WITH EATON CHSPT2ULTRA Surge Protection

SYSTEM VOLTAGE	240/120V , 1Φ, 3W
BUS SIZE	150A
SYSTEM TYPE	NORMAL
FEEDER PROT	150A-1P C/B Bus Plug
CONDUCTOR SIZE	2/0 AWG - #8G CU
CONDUCTOR/PHASE	1
MAINS	150A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	50
FEEDER V. DROP (%)	0.606
FAULT CURRENT	3.387
KAIC RATING	22
ENCLOSURE	TYPE 1

	DESCRIPTION	*	CB	KVA	A	B	KVA	CB	DESCRIPTION	*	
1	ACU-1	C	50A-2P GFCI	3.08	4.16		1.08	20A-1P AFI/GF	OUTLET AT BEDROOM	R	2
3		C		3.08		3.44	0.36	20A-1P AFCI	OUTLET AT CLOSET	R	4
5	ACU-2	C	50A-2P GFCI	3.08	4.16		1.08	20A-1P AFI/GF	OUTLET AT BEDROOM	R	6
7		C		3.08		3.44	0.36	20A-1P AFCI	OUTLET AT CLOSET	R	8
9	FCU-1	C	20A-1P GFCI	1.73	2.63		0.90	20A-1P AFI/GF	OUTLET AT FAMILY ROOM	R	10
11	FCU-2	C	20A-1P GFCI	1.73		2.63	0.90	20A-1P AFI/GF	OUTLET AT HALL	R	12
13	ELEV. CAB LIGHTS	N	20A-1P	0.72	1.80		1.08	20A-1P AFI/GF	OUTLET AT MASTER BEDROOM	R	14
15	ELEV. PIT SUMP PUMP	M	20A-1P	0.60		0.78	0.18	20A-1P GFCI	GFCI OUTLET AT BATH	R	16
17	ELEV. PIT RECPT. LIGHT	N	20A-1P	0.48	0.78		0.30	20A-1P	LANDSCAPE LIGHT	L	18
19	ELEV. CONTROLLER	O	20A-1P	0.72		1.44	0.72	20A-1P	PLAY GROUND LIGHT	L	20
21	ELEVATOR DISCONNECT	M	60A-2P	4.80	5.36		0.56	20A-1P	OUTDOOR LIGHT	L	22
23		M		4.80		5.16	0.36	20A-1P	GARAGE OPENER	R	24
25	SWIMMING POOL	N	60A-2P	0.50	0.50			20A-1P	SPARE		26
27		N		0.50		0.50		20A-1P	SPARE		28
29	BARBECUE OUTLET	R	20A-1P	0.18	0.18			20A-1P	SPARE		30
31	SPARE		20A-1P					20A-1P	SPARE		32
33	SPARE		20A-1P					20A-1P	SPARE		34
35	SPARE		20A-1P					20A-1P	SPARE		36
37	SPARE		20A-1P					20A-1P	SPARE		38
39	SPARE		20A-1P					20A-1P	SPARE		40
41	SPARE		20A-1P					20A-1P	SPARE		42
	(KVA)							Updated	xx.xx.xxxx		
	Total Connected Load			19.56	17.38						

*	(Location:) LOAD SUMMARY	CL	DF	CONNECTED LOAD A	CONNECTED LOAD B	DEMAND TOTAL
L	Lighting		1.25			
R	Convenience Recept					
H	Heating (Space)		1.25			
C	Cooling		1.00			
A	HVAC		1.00			
P	Process		1.00			
O	Other Continuous		1.25			
K	Kitchen		0.65			
N	Noncontinuous	79.02	1.00	42.43	36.59	79.02
			1.00			
	Total	**79.02**		42.43	36.59	79.02

Total Demand Load (KVA)	79.02
Total Demand Current (A)	329.25
Min. Feeder Ampacity (A)	411.56

PANEL M

WITH EATON CHSPT2ULTRA Surge Protection

SYSTEM VOLTAGE	240/120V, 1Φ, 3W
BUS SIZE	400A
SYSTEM TYPE	NORMAL
FEEDER PROT	400A-1P C/B Bus Plug
CONDUCTOR SIZE	600-kcmil - #2/0G CU
CONDUCTOR/PHASE	1
MAINS	600A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	50
FEEDER V. DROP (%)	0.538
FAULT CURRENT	19.172
KAIC RATING	22
ENCLOSURE	TYPE 1

	DESCRIPTION	*	CB	KVA	A	B	KVA	CB	DESCRIPTION	*	
1	PANEL A	N	300A-2P		23.90	24.41	0.51	100A-2P	PANEL S	N	2
3		N			20.67		20.79	0.12		N	4
5	PANEL B	N	100A-2P		18.02	18.02		100A-2P	SPARE		6
7		N			15.80		15.80				8
9	SPARE		20A-1P					20A-1P	SPARE		10
11	SPARE		20A-1P					20A-1P	SPARE		12
13	SPARE		20A-1P					20A-1P	SPARE		14
15	SPARE		20A-1P					20A-1P	SPARE		16
17	SPARE		20A-1P					20A-1P	SPARE		18
				(KVA)					Updated	xx.xx.xxxx	
				Total Connected Load	42.43	36.59					

*	(Location:) LOAD SUMMARY	CL	DF	CONNECTED LOAD A	CONNECTED LOAD B	DEMAND TOTAL
L	Lighting	0.63	1.25	0.51	0.12	0.79
R	Convenience Recept					
H	Heating (Space)		1.25			
C	Cooling		1.00			
A	HVAC		1.00			
P	Process		1.00			
O	Other Continuous		1.25			
K	Kitchen		0.65			
N	Noncontinuous		1.00			
			1.00			
	Total	**0.83**		0.51	0.12	0.79

Total Demand Load (KVA)	0.79
Total Demand Current (A)	3.28
Min. Feeder Ampacity (A)	4.10

PANEL S

WITH EATON CHSPT2ULTRA Surge Protection

SYSTEM VOLTAGE	240/120V, 1Φ, 3W
BUS SIZE	100A
SYSTEM TYPE	NORMAL
FEEDER PROT	100A-1P C/B Bus Plug
CONDUCTOR SIZE	2 AWG - #8G CU
CONDUCTOR/PHASE	1
MAINS	100A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	50
FEEDER V. DROP (%)	0.810
FAULT CURRENT	3.387
KAIC RATING	22
ENCLOSURE	TYPE 1

	DESCRIPTION	*	CB	KVA	A	B	KVA	CB	DESCRIPTION	*	
1	LIGHTING AT SITE	L	20A-1P	0.20	0.20			100A-2P	SPARE		2
3	LIGHTING AT SITE	L	20A-1P	0.12		0.12					4
5	LIGHTING AT SITE	L	20A-1P	0.31	0.31			100A-2P	SPARE		6
7	SPARE		20A-1P								8
9	SPARE		20A-1P					20A-1P	SPARE		10
11	SPARE		20A-1P					20A-1P	SPARE		12
13	SPARE		20A-1P					20A-1P	SPARE		14
15	SPARE		20A-1P					20A-1P	SPARE		16
17	SPARE		20A-1P					20A-1P	SPARE		18
				(KVA)					Updated	xx.xx.xxxx	
				Total Connected Load	0.51	0.12					

Available Fault Current Calculation

Utility Fault Current 42,000 amperes — kVA = 79.02, E = 240

$I = \frac{kVA \times 1000}{E} = trans.\ FLA$ — trans. FLA = 329

$I_{sca} = \frac{trans.\ FLA \times 100 \times PF}{transformer\ Z} =$ — PF = 95%, Z = 4.00%

I_{sca} = ampere short-circuit current RMS symmetrical. — I_{sca} = 8,664 amperes

Point to Point Method — Single Phase 240/120

'f ' factor = $\frac{2 \times L \times I}{N \times C \times E_{L\text{-}N}}$

Length (distance) (ASC): FEET, L = 50, I_{sca} = 42,000 — Copper in Metal Raceway

conductors per phase: N = 1

Phase conductor constant: C = 22,965 — Phase Conductor — 600 kcmil

Volt Line to Line: $E_{L\text{-}L}$ = 240 Volt

f = 0.762

Neutral conductor constant: C = 22,965 — Neutral Conductor — 600 kcmil

Volt Line to Neutral: $E_{L\text{-}N}$ = 120 Volt

f = 2.286

Multiplier: $M = \frac{1}{1+f}$

Line to Line: M = 0.568

Line to Neutral: M = 0.304

$I_{sca} \times M$ = fault current at terminals of main disconnect L-L = → 23,836 amperes

$I_{sca} \times M$ = fault current at terminals of main disconnect L-N = → 19,172 amperes

Fault Current from PANEL M — Copper in Metal Raceway — Single Phase

'f ' factor = $\frac{2 \times L \times I}{N \times C \times E_{L\text{-}N}}$

Length (distance) (ASC): L = 50, I_{sca} = 23,836 Phase, 19,172 Neutral

conductors per phase: N = 1

Phase conductor constant: C = 22,965 — Phase Conductor — 600 kcmil

Volt Line to Line: $E_{L\text{-}L}$ = 240 Volt

f = 0.432

Neutral conductor constant: C = 22,965 — Neutral Conductor — 600 kcmil

Volt Line to Neutral: $E_{L\text{-}N}$ = 120 Volt

Multiplier: $M = \frac{1}{1+f}$

f = 0.696

Line to Line: M = 0.698

Line to Neutral: M = 0.590

$I_{sca} \times M$ = fault current at terminal of the panel L-L = 16,640 amperes

$I_{sca} \times M$ = fault current at terminal of the panel L-N = 11,306 amperes

Calculation does not include motor contribution

Branch Circuit Fault from PANEL A — Copper in Nonmetallic Raceway — Single Phase

Single Phase Branch

'f ' factor = $\frac{2 \times L \times I}{N \times C \times E_{L\text{-}N}}$

Length (distance) (ASC): L = 75, I_{sca} = 16,640 Phase, 11,306 Neutral

conductors per phase: N = 1

Phase conductor constant: C = 16,673 — Phase Conductor — 4/0

Volt Line to Line: $E_{L\text{-}L}$ = 240 Volt

f = 0.624

Neutral conductor constant: C = 16,673 — Neutral Conductor — 4/0

Volt Line to Neutral: $E_{L\text{-}N}$ = 120 Volt

Multiplier: $M = \frac{1}{1+f}$

f = 0.848

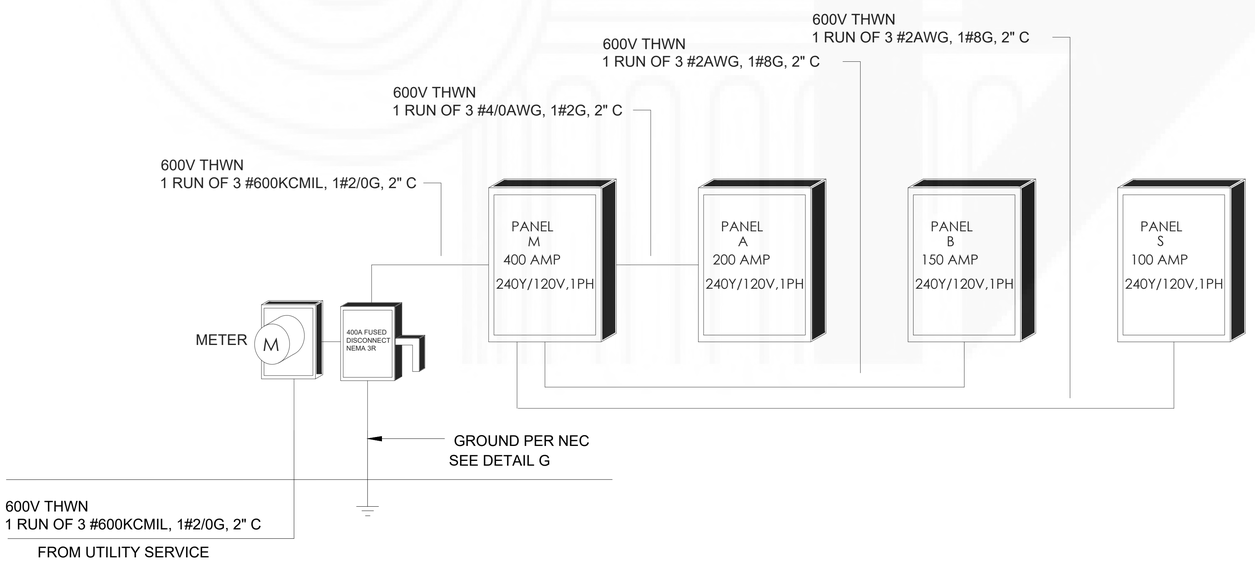
Line to Line: M = 0.616

Line to Neutral: M = 0.541

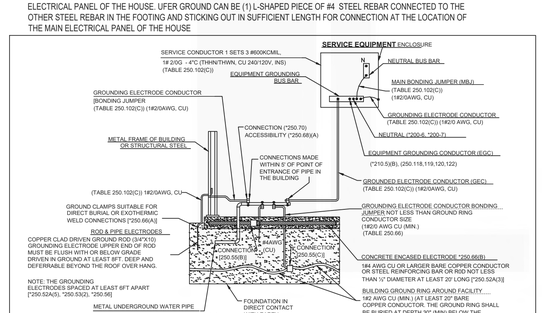
$I_{sca} \times M$ = fault current at terminal of the panel L-L = 10,248 amperes

$I_{sca} \times M$ = fault current at terminal of the panel L-N = 6,119 amperes

Calculation does not include motor contribution



UFER GROUND NOTE :
ALL STEEL REBARS MEASURING 1/2 " OR MORE IN DIAMETER AND 20 ' OR LONGER IN LENGTH THAT IS ENCASED IN NOT LESS THAN 2 INCHES OF CONCRETE SHALL BE BONDED TO THE BUILDING'S GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH CEC 250 (ELECTRICAL SUB CODE) SECTION 250.52(A)(3). THE "UFER" GROUND CAN BE 20 L.F. OF #2 OR #4 COPPER WIRING LAID INSIDE THE FOOTING AND THE SAME WIRE IS LONG ENOUGH TO REACH TO THE LOCATION OF THE MAIN ELECTRICAL PANEL OF THE HOUSE. UFER GROUND CAN BE (1) L-SHAPED PIECE OF #4 STEEL REBAR CONNECTED TO THE OTHER STEEL REBAR IN THE FOOTING AND STICKING OUT IN SUFFICIENT LENGTH FOR CONNECTION AT THE LOCATION OF THE MAIN ELECTRICAL PANEL OF THE HOUSE



DETAIL "G" OF GROUNDING ELECTRODE SYSTEM (*250.50) & GROUNDING ELECTRODES (*250.52) AS SERVICE

SCALE: NTS

SERVICE LOAD CALCULATION

Dwelling Information:

Floor Area:	5450SFT
Heater Type:	Electricity
Dryer:	Gas
Oven:	Gas

ELECTRICAL LOAD ANALYSIS

BUILDING AREA - 5450 SQ. FT.

LOAD	VA
LTG/GEN RECEPT 3VA/SQ. FT X 900	16350
Small Appliance (4-20ACK By CEC 210.11)	1250
Bathroom(1-20ACKT By CEC210.11):	180
Dishwasher:	1250
Garbage Disposal:	800
Dryer:	5000
Microwave Oven:	1500
Cooktop:	6000
Refrigerator:	800
Water Heater:	4500
EXHAUST/ VENT HOOD:	100
Smoke detector:	100
Pool/Spa Equipment:	10900
EV charger	9000
SUBTOTAL	**57730**
FIRST 10,000 @ 100%	10,000
REMAINDER @40%	19092
HVAC -CLG	6971
TOTAL SERVICE LOAD	**36,063**
TOTAL SERVICE AMPS	**150.3** AMP
AT 120/240, 1 PH, 3 W	

200 AMP SERVICE PROVIDED

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Project Name and Address:

22315 REGNART ROAD CUPERTINO CA 95014

Date:

Scale: 1/4" = 1' - 00"

DRAWING TITLE: SINGLE LINE DIAGRAM AND PANEL SCHEDULES

Sheet : E6.0

Page No. :

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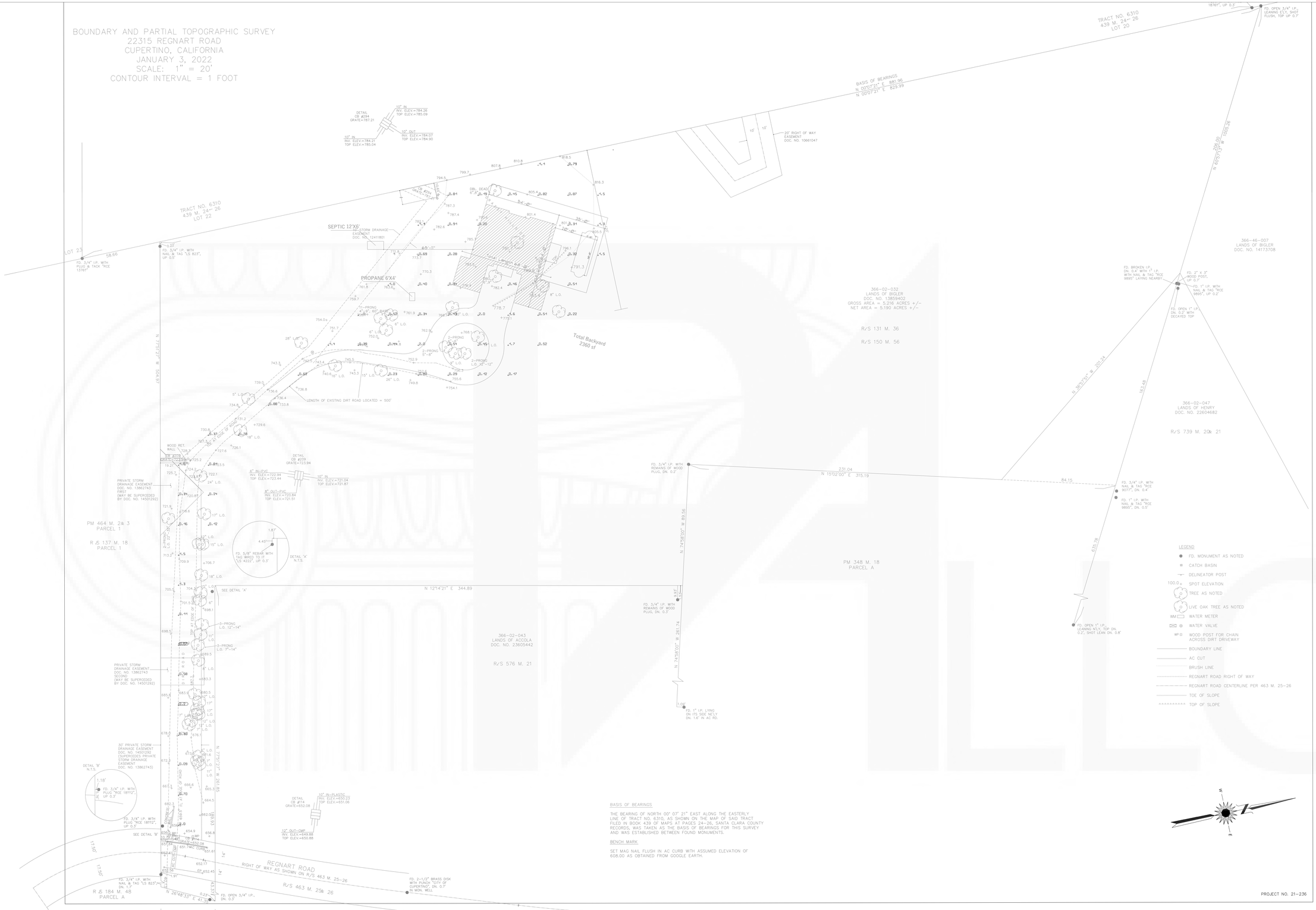
2		
3		
4		

BOUNDARY AND PARTIAL TOPOGRAPHIC SURVEY
22315 REGNART ROAD
CUPERTINO, CALIFORNIA
JANUARY 3, 2022
SCALE: 1" = 20'
CONTOUR INTERVAL = 1 FOOT



BASIS OF BEARINGS

THE BEARING OF NORTH 00° 07' 21" EAST ALONG THE EASTERLY LINE OF TRACT NO. 6310, AS SHOWN ON THE MAP OF SAID TRACT FILED IN BOOK 439 OF MAPS AT PAGES 24–26, SANTA CLARA COUNTY RECORDS, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS SURVEY AND WAS ESTABLISHED BETWEEN FOUND MONUMENTS.

BENCH MARK

SET MAG NAIL FLUSH IN AC CURB WITH ASSUMED ELEVATION OF 608.00 AS OBTAINED FROM GOOGLE EARTH.

PROJECT NO. 21–236

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3		
4		

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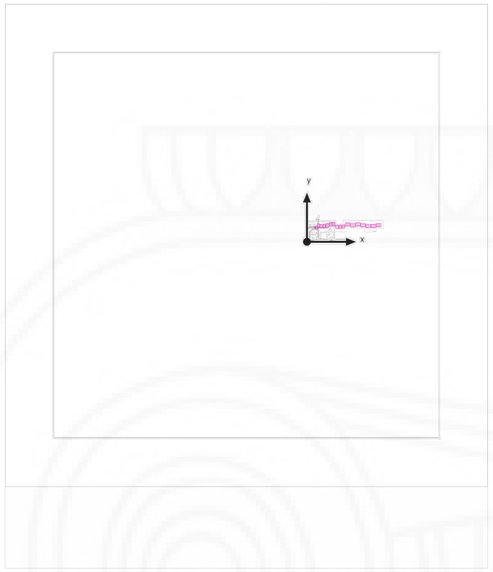
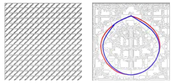
Site 1

Luminaire layout plan



Site 1

Luminaire layout plan



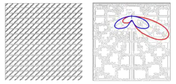
Manufacturer	ALEDECO
Article No.	ALEDECO
Article name	ALEDECO LED landscape lights

Individual luminaires

X	Y	Mounting height	Luminaire
27.426 ft	37.662 ft	1.000 ft	7
31.744 ft	37.840 ft	1.000 ft	8
25.377 ft	38.721 ft	1.000 ft	9

Site 1

Luminaire layout plan



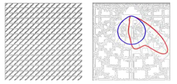
Manufacturer	Lonedruid Lamp Post Light Fixture with Pier Mount
Article No.	B08T1Z3KY2
Article name	Lonedruid Lamp Post Light Fixture with Pier Mount

Individual luminaires

X	Y	Mounting height	Luminaire
33.751 ft	44.169 ft	12.000 ft	10
33.728 ft	41.567 ft	12.000 ft	11
24.326 ft	44.169 ft	12.000 ft	12
24.303 ft	41.567 ft	12.000 ft	13
31.575 ft	39.138 ft	12.000 ft	14
24.575 ft	39.383 ft	12.000 ft	15
21.109 ft	41.853 ft	12.000 ft	16

Site 1

Luminaire layout plan



Manufacturer	Homedepot
Article No.	ETD31-LED LED
Article name	Home-Decorators-Collection-1-5-Watt-Low-Voltage-Brass-Outdoor-Integrated-LED-2700K-White-Warm-Landscape-Deck-Light-ETD31-LED

Individual luminaires

X	Y	Mounting height	Luminaire
30.245 ft	41.544 ft	9.000 ft	1
30.833 ft	39.716 ft	9.000 ft	2
24.875 ft	39.719 ft	9.000 ft	3
25.476 ft	41.601 ft	9.000 ft	4
25.876 ft	44.943 ft	9.000 ft	5
29.829 ft	44.939 ft	9.000 ft	6

SYMBOL	TYPE	MANU.	PART NO	NOTES	WATT	QTY
	POLE LIGHT	LONEDRUID	B08T1Z3KY2	FIXTURE WITH BUILT IN MOTION AND NIGHT SENSOR	100	13
	WALL MOUNTED LIGHT FIXTURE	HOMEDEPOT	ETD31-LED LED	FIXTURE WITH BUILT IN MOTION AND NIGHT SENSOR	1.5	6
	LED LANDSCAPE LIGHTS	ALEDECO	ALEDECO LED landscape lights	FIXTURE WITH BUILT IN MOTION AND NIGHT SENSOR	4.8	2

Luminaire list (Site 1)

Index	Manufacturer	Article name	Item number	Fitting	Luminous flux	Light loss factor	Connected load	Quantity
1	HOMEDEPOT	Decorators-Collection-1-5-Watt-Low-Voltage-Brass-Outdoor-Integrated-LED-2700K-White-Warm-Landscape-Deck-Light	ETD31-LED LED	1x homedepot/Home-Decorators-Collection-1-5-Watt-Low-Voltage-Brass-Outdoor-Integrated-LED-2700K-White- Warm -Landscape-Deck-Light-ETD31-LED	68 lm	0.80	1.5 W	6
2	ALEDECO	ALEDECO	ALEDECO LED landscape lights	8x ALEDECO	432 lm	0.80	4.8 W	2
3	LONEDRUID	Lonedruid Lamp Post Light Fixture with Pier Mount	B08T1Z3KY2	1x Lonedruid Lamp Post Light Fixture with Pier Mount	2924 lm	0.80	100 W	13

#	Name	Parameter	Min	Max	Average	Mean/Min	Max/Min
1	SITE	Perpendicular illuminance	0.065 fc	2.20 fc	0.75 fc	11.50	33.74

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SITE PHOTOMETRIC DATA

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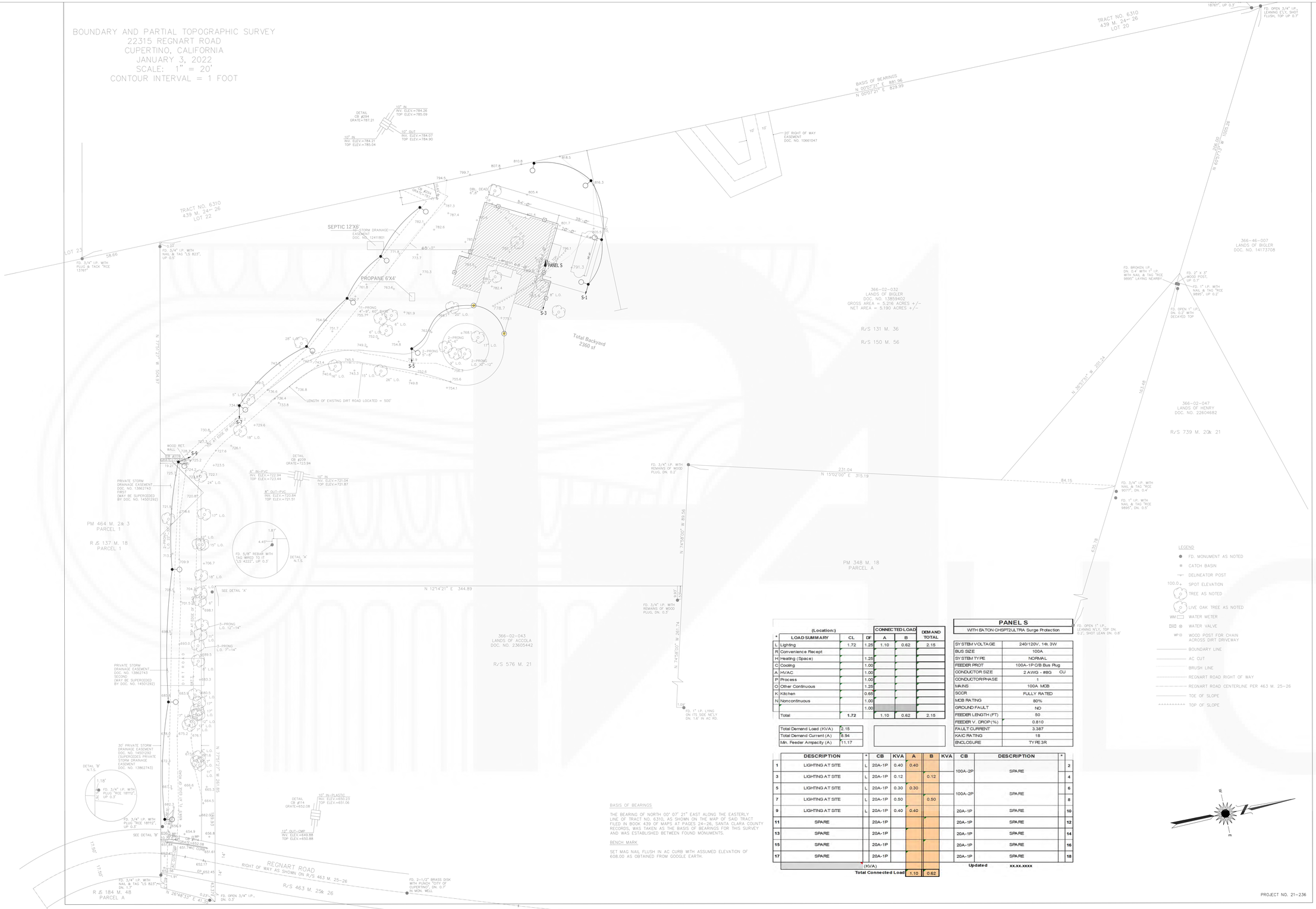
BOUNDARY AND PARTIAL TOPOGRAPHIC SURVEY
22315 REGNART ROAD
CUPERTINO, CALIFORNIA
JANUARY 3, 2022
SCALE: 1" = 20'
CONTOUR INTERVAL = 1 FOOT



BASIS OF BEARINGS

THE BEARING OF NORTH 00° 07' 21" EAST ALONG THE EASTERLY LINE OF TRACT NO. 6310, AS SHOWN ON THE MAP OF SAID TRACT FILED IN BOOK 439 OF MAPS AT PAGES 24–26, SANTA CLARA COUNTY RECORDS, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS SURVEY AND WAS ESTABLISHED BETWEEN FOUND MONUMENTS.

BENCH MARK

SET MAG NAIL FLUSH IN AC CURB WITH ASSUMED ELEVATION OF 608.00 AS OBTAINED FROM GOOGLE EARTH.

*	(Location:) LOAD SUMMARY	CL	DF	CONNECTED LOAD A	CONNECTED LOAD B	DEMAND TOTAL
L	Lighting	1.72	1.25	1.10	0.62	2.15
R	Convenience Recept		1.25			
H	Heating (Space)		1.25			
C	Cooling		1.00			
A	HVAC		1.00			
P	Process		1.00			
O	Other Continuous		1.25			
K	Kitchen		0.65			
N	Noncontinuous		1.00			
			1.00			
	Total	1.72		1.10	0.62	2.15

Total Demand Load (KVA)	2.15
Total Demand Current (A)	6.94
Min. Feeder Ampacity (A)	11.17

PANEL S
WITH EATON CHSPT2ULTRA Surge Protection

SYSTEM VOLTAGE	240/120V, 1ϕ, 3W
BUS SIZE	100A
SYSTEM TYPE	NORMAL
FEEDER PROT	100A-1P C/B Bus Rtg
CONDUCTOR SIZE	2 AWG - #8G CU
CONDUCTOR/PHASE	1
MAINS	100A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	50
FEEDER V. DROP (%)	0.810
FAULT CURRENT	3,387
KAIC RATING	18
ENCLOSURE	TYPE 3R

	DESCRIPTION	*	CB	KVA A	KVA B	KVA	CB	DESCRIPTION	*	
1	LIGHTING AT SITE	L	20A-1P	0.40	0.40		100A-2P	SPARE		2
3	LIGHTING AT SITE	L	20A-1P	0.12		0.12				4
5	LIGHTING AT SITE	L	20A-1P	0.30	0.30		100A-2P	SPARE		6
7	LIGHTING AT SITE	L	20A-1P	0.50		0.50				8
9	LIGHTING AT SITE	L	20A-1P	0.40	0.40		20A-1P	SPARE		10
11	SPARE		20A-1P				20A-1P	SPARE		12
13	SPARE		20A-1P				20A-1P	SPARE		14
15	SPARE		20A-1P				20A-1P	SPARE		16
17	SPARE		20A-1P				20A-1P	SPARE		18
			(KVA) Total Connected Load		1.10	0.62	Updated	xx.xx.xxxx		

PROJECT NO. 21–236

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22315 REGNART ROAD CUPERTINO CA 95014

Date:

Scale: 1/4" = 1' - 00"

DRAWING TITLE: SITE LIGHTING PLAN

Sheet : E9.0

Page No. :

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1		
2		
3		
4		

PLUMBING SPECIFICATIONS

THE WORK INCLUDES MODIFICATION TO THE EXISTING PLUMBING SYSTEM AND PROVIDING NEW MATERIALS, FITTINGS AND ACCESSORIES NECESSARY FOR A COMPLETE FUNCTIONING PLUMBING SYSTEM. THE WORK ALSO INCLUDES ROUGH-IN AND FINAL CONNECTIONS TO FOOD SERVICE EQUIPMENT AND BEVERAGE DISPENSING EQUIPMENT PROVIDED BY OTHERS. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND/OR ORDINANCES AND IS SUBJECT TO INSPECTION.

HOOK-UP CHARGES, PERMITS AND ALL OTHER EXPENSES RELATED TO A COMPLETE AND FUNCTIONING PLUMBING SYSTEM ARE INCLUDED AS A PART OF THIS SECTION.

WARRANTY: PROVIDE LABOR AND MATERIALS TO REPAIR OR REPLACE DEFECTIVE PARTS AND MATERIALS AS REQUIRED FOR ONE YEAR AFTER SUBSTANTIAL COMPLETION OR OWNER ACCEPTANCE OF THE COMPLETED PROJECT. PROVIDE A SEPARATE LINE ITEM DEDUCT AMOUNT ON THE PROPOSAL FORM TO DELETE WARRANTY SERVICE, AT THE OWNER'S OPTION.

THE INTENT OF THE DRAWINGS IS TO INDICATE THE GENERAL EXTENT OF WORK REQUIRED FOR THE PROJECT. THE DRAWINGS FOR PLUMBING WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, FIXTURES AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. REFER TO MANUFACTURER'S STANDARD ROUGH-IN DRAWINGS FOR PLUMBING FIXTURE INSTALLATION REQUIREMENTS. COMPLY WITH ALL APPLICABLE ADA INSTALLATION REQUIREMENTS.

COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE.

PIPING SYSTEMS – GENERAL: ALL PIPING SHALL BE RUN PARALLEL TO BUILDING LINES AND SUPPORTED AND ANCHORED AS REQUIRED TO FACILITATE EXPANSION AND CONTRACTION. ALL PIPING SHALL BE CONCEALED EXCEPT IN UNFINISHED SPACES. INSTALL AS REQUIRED TO MEET ALL CONSTRUCTION CONDITIONS AND TO ALLOW FOR INSTALLATION OF OTHER WORK SUCH AS DUCTS AND ELECTRICAL CONDUIT. AT ALL CONNECTIONS BETWEEN FERROUS PIPING AND NONFERROUS PIPING, PROVIDE AN ISOLATING DIALECTIC UNION. ALL HANGERS SHALL BE COMPATIBLE WITH PIPING MATERIAL TO PREVENT CORROSION.

PROVIDE ALL FITTINGS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY TO FACILITATE THE PLUMBING SYSTEM'S FUNCTIONING AS INDICATED BY THE DESIGN AND THE EQUIPMENT INDICATED.

FIXTURES/EQUIPMENT FURNISHED BY OTHERS: PLUMBING CONTRACTOR SHALL PROVIDE UTILITY CONNECTIONS REQUIRED SUCH AS WATER, GAS, AIR, SUPPLIES, WASTE OUTLET, TRAPS, ETC. AT ALL PLUMBING TYPE FIXTURES OR EQUIPMENT FURNISHED BY OWNER, GENERAL CONTRACTOR, FOOD SERVICE CONTRACTOR, EQUIPMENT SUPPLIER, ETC. INCLUDED ARE STOP VALVES, ESCUTCHEONS, AND CHROME PLATED BRASS TUBING WITH COMPRESSION FITTINGS.

SEWER AND WASTE PIPING: PROVIDE ALL DRAINS AND SEWERS WITHIN THE SPACE WITH CONNECTION TO THE EXISTING DRAINAGE SYSTEMS ON-SITE. SANITARY DRAINAGE PIPING ABOVE FLOOR SHALL BE CO-EXTRUDED PVC DWV (ASTM D1785) PIPE, FITTINGS AND CONNECTIONS. SANITARY DRAINAGE PIPING BELOW GRADE SHALL BE CO-EXTRUDED PVC DWV (ASTM D1785) PIPE WITH SOLVENT WELD FITTINGS MAY BE USED (WHERE PERMITTED BY CODE/LOCAL AUTHORITIES). ALL DRAINAGE PIPING SHALL BE UNIFORMLY PITCHED, 1/4" PER FOOT UNLESS OTHERWISE REQUIRED BY EXISTING CONDITIONS, OR INDICATED ON THE DRAWINGS.

VENTS: PROVIDE A COMPLETE SYSTEM OF STANDARD WEIGHT CAST IRON NO-HUB VENT RISERS WHERE THE CEILING SPACE IS USED AS A RETURN AIR PLENUM OR USE CO-EXTRUDED PVC DWV (ASTM D1785) PIPE (WHERE PERMITTED BY CODE/LOCAL AUTHORITIES) WHERE THERE IS A DUCTED RETURN AIR SYSTEM. DO NOT USE PVC PIPE IN RETURN AIR PLENUM SPACES. THE VENT SYSTEM SHALL BE CARRIED THROUGH THE ROOF WITH APPROPRIATE FLASHING.

CONDENSATE AND INDIRECT DRAIN PIPING:PIPING ABOVE FLOOR SHALL BE CO-EXTRUDED PVC DWV (ASTM D1785) PIPE, FITTINGS AND CONNECTIONS. PIPING BELOW GRADE SHALL BE CO-EXTRUDED PVC DWV(ASTM D1785) PIPE WITH SOLVENT WELD FITTINGS.

CLEANOUTS: PROVIDE CLEANOUTS AT THE END OF EACH HORIZONTAL RUN, AND AT THE BASE OF ALL VERTICAL WASTE AND DRAIN PIPES. CLEANOUTS SHALL BE OF THE SAME SIZE AS THE PIPES THEY SERVE, CONFORMING TO CODE REQUIREMENTS. PROVIDE SUITEABLE WALL OR FLOOR CLEANOUTS WITH ACCESSORIES TO OBSCURE FROM VIEW.

WATER DISTRIBUTION PIPING: LAYOUT WATER PIPING SO THAT THE ENTIRE SYSTEM CAN BE DRAINED. HOT AND COLD WATER PIPING SHALL BE 1/2" MIN. CPVC PIPE WITH SOLVENT FITTING. PROVIDE WATER HAMMER ARRESTERS AT EACH FIXTURE OR GROUP OF FIXTURES AS REQUIRED. INSTALL CHROME PLATED BRASS ESCUTCHEON PLATES AT ALL PENETRATIONS THROUGH FINISHED SURFACES (INCLUDING CABINET INTERIORS).

PIPE INSULATION: INSULATE (AS ALLOWED BY CODE) ALL LISTED SERVICE PIPING AS FOLLOWS. DOMESTIC COLD/HOT WATER, HOT WATER RETURN, STORM WATER PIPING. PROVIDE 1" PREFORMED FIBERGLASS, ASJ/SS-11, FLAME SPREAD 25, SMOKE DEVELOPED 50, ASTM C-547. FOR CONDENSATE PIPING PROVIDE 1/2" THICK INSULATION OF SAME CHARACTERISTICS AS LISTED FOR 1" ABOVE. WHERE PERMITTED BY LOCAL CODES, PROVIDE 1/2" SELF-ADHESIVE UNICELLULAR FOAM PIPE INSULATION WITH PRE-FORMED PVC FITTING COVERS – EQUAL TO SELF-ADHESIVE ARMSTRONG 2000 WITH K FACTOR OF 0.27 AT 75 DEGREES MEAN TEMPERATURE. INSULATE ANY EXPOSED CONDENSATE PIPING WITH WASTE TEMPERATURE BELOW 60 DEGREES F.

SHUTOFF VALVES, WITH UNIONS SHALL BE PROVIDED FOR SERVICE TO EACH PLUMBING FIXTURE, FOOD SERVICE EQUIPMENT ITEM OR OTHER EQUIPMENT ITEM, TO FACILITATE ISOLATION FOR REPAIR OR REPLACEMENT. VALVES SHALL BE EQUAL TO JENKINS #902-T BALL VALVE, CHROME-FINISHED BRONZE, TEFLON SEATS AND PACKING, 400 LB. W.O.G., SOLDER END.

ACCESS PANELS SHALL BE PROVIDED WHERE CONCEALED CONTROL DEVICES, VALVES, ETC. ARE CONCEALED WITHIN WALLS. WHERE ACCESS FOR ADJUSTMENT AND MAINTENANCE IS POSSIBLE THROUGH LAY-IN SUSPENDED CEILINGS, ACCESS PANELS ARE NOT REQUIRED.

PIPING SYSTEM- PVC ASTM D1785, SCHEDULE 80 AND CPVC PIPE WITH SOLVENT FITTINGS SHALL BE USED WHERE PEMITTED BY CODE/LOCAL AUTHORITIES.

INSTALLATION: THOROUGHLY CLEAN ITEMS BEFORE INSTALLATION. CAP PIPE OPENINGS TO EXCLUDE DIRT UNTIL FIXTURES ARE INSTALLED AND FINAL CONNECTIONS HAVE BEEN MADE. PROCEED AS RAPIDLY AS CONSTRUCTION WILL PERMIT. SET FIXTURES LEVEL AND IN PROPER ALIGNMENT. INSTALL SUPPLIES IN PROPER ALIGNMENT WITH FIXTURES. INSTALL SILICONE SEALANT BETWEEN FIXTURES AND ADJACENT MATERIAL, FOR SANITARY JOINT, AND OMIT ESCUTCHEONS.

REPAIR EXISTING PLUMBING SYSTEM COMPONENTS DAMAGED BY CONSTRUCTION OPERATIONS AND RESTORE TO ORIGINAL CONDITIONS.

TEST WATER SYSTEM UNDER 150 PSIG HYDROSTATIC PRESSURE, FOR FOUR (4) HOURS MINIMUM. WHEN TESTING INDICATES MATERIALS OR WORKMANSHIP IS DEFICIENT, REPLACE OR REPAIR AS REQUIRED, AND REPEAT TEST UNTIL STANDARDS ARE ACHIEVED.

ROOF PENETRATIONS SHALL COMPLY WITH "SMACNA" AND "NRCA" STANDARDS, AND WITH THE REQUIREMENTS OF THE EXISTING ROOFING WARRANTY, IF APPLICABLE. DO NOT PERFORM ROOFING PENETRATIONS IN A MANNER WHICH WOULD VOID OR OTHERWISE LIMIT THE EXISTING ROOFING WARRANTY.

GENERAL NOTES

1. THE INTENT OF THESE PLANS AND SPECIFICATIONS IS TO INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND SERVICES NECESSARY TO FURNISH, INSTALL, TEST, AND ADJUST A COMPLETE WORKABLE PLUMBING INSTALLATION AS SHOWN, PRESCRIBED, OR REASONABLY IMPLIED BUT NOT LIMITED TO THAT EXPLICITLY INDICATED IN THE CONTRACT DOCUMENTS, BUT NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE INTENT THEREOF.

2. THE ENTIRE INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE 2006 UNIFORM PLUMBING CODE, 2006 INTERNATIONAL BUILDING CODE, 2006 INTERNATIONAL ENERGY CONSERVATION CODE AND ALL OTHER APPLICABLE CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION. IN THE EVENT OF CONFLICT BETWEEN SPECIFICATIONS, CODES, AND REGULATIONS, THE MORE RESTRICTIVE SHALL APPLY.

3. COORDINATE ENTIRE INSTALLATION OF THE PLUMBING SYSTEM WITH THE WORK OF OTHER TRADES PRIOR TO ANY FABRICATION OR INSTALLATION. FIELD VERIFY ALL DIMENSIONS AND CONDITIONS. REPORT ANY DISCREPANCIES, IN WRITING, TO THE ENGINEER PRIOR TO COMMENCEMENT OF WORK.

4. CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS WITH ALL CHANGES NOTED THEREON AT THE COMPLETION OF THE PROJECT IN ACCORDANCE WITH THE SPECIFICATIONS.

5 PROVIDE ONE YEAR WARRANTY ON ALL PARTS AND LABOR.

6. THE DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW SCOPE. CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES TO PROVIDE THE BEST ARRANGEMENT OF ALL DUCT, PIPE, CONDUIT, ETC.

7. ALL CUTTING AND PATCHING OF THE EXISTING STRUCTURE SHALL BE PROVIDED UNDER OTHER SECTIONS OF THE WORK. PROVIDE NECESSARY REQUIREMENTS TO THE PROJECT SUPERINTENDENT.

8. ALL HOT WATER PIPING AND RECIRCULATION PIPING (EXCEPT RUNOUTS 12 FT. OR SHORTER TO INDIVIDUAL FIXTURES) SHALL BE INSULATED TO MEET THE REQUIREMENTS OF THE 2006 INTERNATIONAL ENERGY CONSERVATION CODE

9. CONDENSATE DRAINS SHALL BE PROVIDED FOR EACH AIR CONDITIONING UNIT. HORIZONTAL CONDENSATE DRAINS ABOVE ANY CEILING SHALL BE INSULATED WITH MIN. 3/8" THICK CLOSED CELL INSULATION.

10. PIPING:
   A. WASTE, VENT, AND STORM DRAIN PIPING SHALL BE CO-EXTRUDED PVC ASTM D1785) PIPE
   B. WATER PIPE SHALL BE CPVC PIPE
   C. CONDENSATE PIPING SHALL BE CO-EXTRUDED PVC (ASTM D1785) PIPE
   D. INSIDE GAS PIPING SHALL BE BLACK IRON ASTM D1785 WITH MALLEABLE IRON FITTINGS. OUTSIDE SHALL BE GALVANIZED IRON ASTM D1785 WITH GALVANIZED FITTINGS. GAS LINE TO BE PAINTED GRAY IN COLOR. A 24 HOUR METERED GAS TEST SHALL BE REQUIRED.
   E. ALL PIPING NOT ENCLOSED IN CONDITION SPACE OR AT EXTERIOR WALLS SHALL BE INSULATED.
   F. PIPING: PVC ASTM D1785, SCHEDULE 80 AND CPVC PIPING WITH SOLVENT WELD FITTINGS SHALL BE USED WHERE PERMITTED BY CODE/LOCAL AUTHORITIES

11. ALL VENTS OR EXHAUSTS SHALL BE AT LEAST 10 FT. AWAY OR 3 FT. ABOVE ANY WINDOW, DOOR, OPENING, OR AIR INTAKE.

12. CLEANOUTS SHALL BE INSTALLED PER THE UNIFORM PLUMBING CODE.

13. PROVIDE WATER TIGHT FLASHINGS WHEREVER PIPES PASS THROUGH EXTERIOR WALLS, ROOFS, OR FLOORS.

14. PROVIDE ISOLATION FOR ALL PIPES THAT COME IN CONTACT WITH THE STRUCTURE.

15. LOCATION OF EXISTING UTILITIES AND POINTS OF CONNECTION ARE APPROXIMATE. CONTRACTOR SHALL VERIFY EXACT LOCATIONS AND DEPTHS OF EXISTING UTILITIES AND SERVICES PRIOR TO STARTING WORK OF THIS SECTION. IF INDICATED POINTS OF CONNECTION CANNOT BE MADE TO EXISTING UTILITIES AS FOUND, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO INSTALLING ANY WORK WHICH MAY BE AFFECTED.

16. VALVES SHALL BE NIBCO, JENKINS, HAMMOND, RED & WHITE OR APPROVED EQUAL. SERVICE PRESSURE SHALL BE SUITEABLE FOR SERVICE INTENDED. THE MAIN WATER SHUT OF VALVE SHALL BE A FULL PORT BALL TYPE AND APPROVED FOR SERVICE INTENDED.

17. CONTRACTOR SHALL PROVIDE ALL SHUT OFF VALVES AS NECESSARY TO ISOLATE ANY EQUIPMENT, PLUMBING ITEMS, OR FIXTURES, THAT MAY NEED SERVICING OR ARE SUBJECT TO FAILURE WHETHER OR NOT SUCH VALVES ARE SHOWN ON THE DRAWINGS.

18. PROVIDE HANGERS AND SUPPORTS AS REQUIRED. PLUMBERS TAPE AND WIRE ARE NOT ACCEPTABLE.

19. CONTRACTOR IS RESPONSIBLE FOR HIS OWN TRENCHING, BACKFILL, AND COMPACTION OF TRENCHES NECESSARY TO COMPLETE HIS SCOPE OF WORK. BACKFILLED TRENCHES SHALL BE RETURNED TO THEIR ORIGINAL GRADE UNLESS NOTED OTHERWISE.

20. CONTRACTOR SHALL AFFIX A MAINTENANCE LABEL TO ALL EQUIPMENT REQUIRING ROUTINE MAINTENANCE AND SHALL PROVIDE MAINTENANCE AND OPERATIONAL MANUALS IN ACCORDANCE WITH THE SPECIFICATIONS.

21. ALL EQUIPMENT THAT REQUIRES KEYS OR SPECIAL TOOLS TO OPERATE SHALL SUPPLY THE OWNER WITH TWO OF ANY SUCH KEYS OR TOOLS FOR EACH PIECE OF EQUIPMENT THAT REQUIRE THE SAME.

25. ANY CHANGE OR DEVIATION FROM THESE PLANS OR SPECIFICATIONS SHALL REQUIRE THE APPROVAL, IN WRITING, OF THE ENGINEER PRIOR TO COMMENCEMENT OF SUCH WORK.

26. ALL PLUMBING, ELECTRICAL, AND GAS LINES SHALL BE CONCEALED WITHIN THE THE BUILDING STRUCTURE TO AS GREAT EXTENT AS POSSIBLE. ALL LINES NOT CONCEALED SHALL BE SECURED 6" OFF THE FLOOR AND 3/4" FROM THE WALLS USING STANDOFF BRACKETS

27. AN APPROVED BACKFLOW PREVENTOR SHALL BE PROPERLY INSTALLED UPSTREAM OF ANY POTENTIAL HAZARD BETWEEN THE POTABLE WATER SUPPLY AND SOURCE OF COMTAMINATION.

28. WATER SUPPLY CARBONATORS SHALL BE PROTECTED BY AN APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTOR. THE RELIEF VALVE SHALL DRAIN IN-DIRECTLY TO A FLOOR SINK WITH A 1" MIN. AIR GAP.

SPECIAL NOTICE TO CONTRACTORS

1. ALL CONTRACTORS (GENERAL CONTRACTOR AND SUB-CONTRACTORS) BIDDING THIS PROJECT ARE REQUIRED TO VISIT THE JOB SITE AND VERIFY THE EXISTING CONDITIONS PRIOR TO SUBMITTING THEIR BID. CONTRACTORS ARE TO CAREFULLY REVIEW ALL CONSTRUCTION DOCUMENTS AND NOTE ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CONDITIONS OBSERVED AT THE JOB SITE PRIOR TO SUBMISSION OF ANY BID. THE BUILDING OWNER REPRESENTATIVE LISTED BELOW MAY BE CONTACTED FOR ACCESS TO THE JOB SITE.

2. CONTRACTORS ARE RESPONSIBLE FOR VERIFYING THE LOCATION AND CONDITION OF ALL POINTS OF CONNECTION, LOCATION AND CONDITION OF ALL BUILDING (ROOF/FLOOR/CEILING) PENETRATIONS, LOCATION AND CONDITION OF ALL UTILITIES AND BUILDING SYSTEMS INCLUDING, BUT NOT LIMITED TO, GAS, WATER, SEWER, VENT, ELECTRICAL, BUILDING MECHANICAL SYSTEMS, DUCT CONNECTIONS, EXHAUST/OUTSIDE AIR CONNECTIONS, SECURITY, FIRE ALARM, DATA, AND PHONE PRIOR TO SUBMISSION OF THEIR BID.

3. ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CONDITIONS OBSERVED SHALL BE BROUGHT TO THE ATTENTION, IN WRITING, TO THE ARCHITECT AND/OR ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

WATER SAVING STANDARDS.

THE WATER SAVING PERFORMANCE STANDARDS FOR A PLUMBING FIXTURE ARE THOSE ESTABLISHED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), CURRENT REVISION, OR THE FOLLOWING STANDARDS, WHICHEVER ARE THE MORE RESTRICTIVE

1 THE MAXIMUM FLOW FROM A SINK OR LAVATORY FAUCET OR A FAUCET AERATOR SHALL NOT EXCEED 0 5 GALLONS OF WATER PER MINUTE AT A PRESSURE OF 60 POUNDS PER SQUARE INCH WHEN TESTED IN ACCORDANCE WITH ANSI TESTING PROCEDURES

2 THE MAXIMUM VOLUME OF WATER PER FLUSH FROM A TOILET SHALL NOT EXCEED AN AVERAGE OF 1 28 GALLONS WHEN TESTED IN ACCORDANCE WITH ANSI TESTING PROCEDURES

3 THE MAXIMUM VOLUME OF WATER PER FLUSH FROM A URINAL AND THE ASSOCIATED FLUSH VALVE, IF ANY, SHALL NOT EXCEED AN AVERAGE OF ONE GALLON WHEN TESTED IN ACCORDANCE WITH ANSI TESTING PROCEDURES

PIPE MATERIAL SCHEDULE

SERVICE		COPPER TYPE "M"	COPPER TYPE "L"	COPPER TYPE "K"	CAST IRON	BLACK STEEL	GALV. STEEL	VTRI. CLAY	ABS	SCH.40 PVC	SCH.40 CPVC	REMARKS
WATER PIPING	INSIDE		X									
	OUTSIDE			X								
SANITARY DRAIN	INSIDE									X		
	OUTSIDE									X		
SANITARY VENT	INSIDE									X		
	OUTSIDE									X		
GAS PIPING	INSIDE					X						
	OUTSIDE						X					
STORM DRAIN	INSIDE									X		
	OUTSIDE									X		
INDIRECT DRAINAGE	INSIDE									X		
	OUTSIDE									X		
CONDESATE	INSIDE									X		
	OUTSIDE									X		
COMPRESSED AIR	INSIDE					X						
	OUTSIDE						X					

NOTES:

MAXIMUM FIXTURE FLOW RATE

FIXTURE TYPE	MAXIMUM FLOW RATE
NONRESIDENTIAL LAVATORY FAUCETS	0.5 GPM @ 60 PSI
KITCHEN FAUCETS	1.8 GPM @ 60 PSI
METERING FAUCETS	0.2 GALLONS/CYCLE
WATER CLOSET	1.28 GALLONS/FLUSH
URINALS	0.5 GALLONS/FLUSH

CITY CODES

2019 California Building Code
2019 California Residential Code
2019 California Fire Code
2019 California Electrical Code
2019 California Mechanical Code
2019 California Plumbing Code
2019 California Green Building Standards Code
2019 California Historical Building Code
2019 California Referenced Standards Code
2019 California Administrative Code
2019 California Energy Code
ACI 318-14 (Structural Concrete)
TMS 402/602-16 (Structural Masonry)
ASCE 7-16 (Design Loads for Structures)

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Project Name and Address:

22315 REGNART ROAD CUPERTINO CA 95014

Date:

Scale: 1/4" = 1' - 00"

DRAWING TITLE: PLUMBING SPECS

Sheet : P1.0

Page No. :

No.	Revision/Issue	Date
1		
2		
3		
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ABBREVIATIONS :

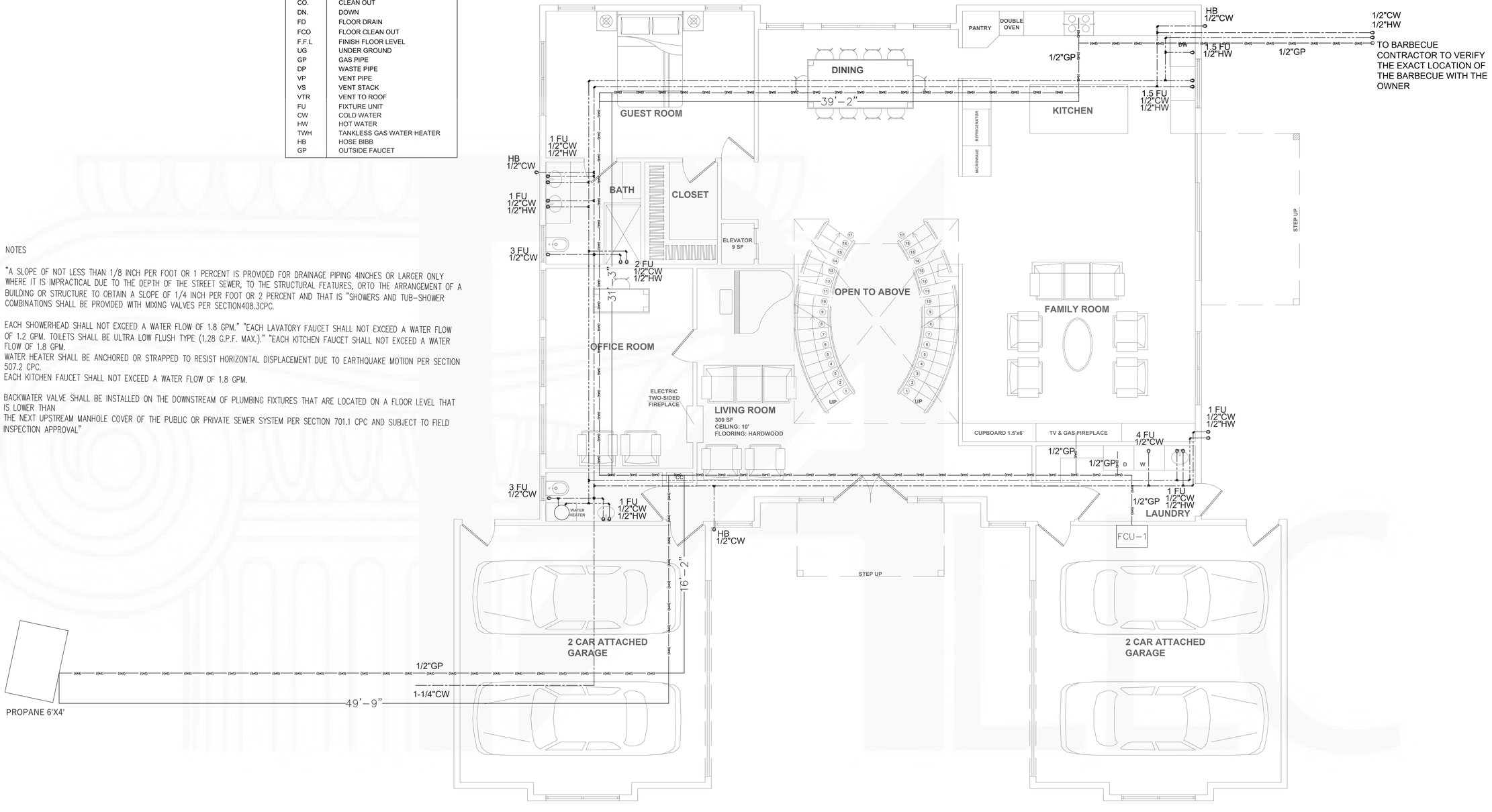
ABBREV.	DESCRIPTION
CO.	CLEAN OUT
DN.	DOWN
FD	FLOOR DRAIN
FCO	FLOOR CLEAN OUT
F.F.L	FINISH FLOOR LEVEL
UG	UNDER GROUND
GP	GAS PIPE
DP	WASTE PIPE
VP	VENT PIPE
VS	VENT STACK
VTR	VENT TO ROOF
FU	FIXTURE UNIT
CW	COLD WATER
HW	HOT WATER
TWH	TANKLESS GAS WATER HEATER
HB	HOSE BIBB
GP	OUTSIDE FAUCET

NOTES

"A SLOPE OF NOT LESS THAN 1/8 INCH PER FOOT OR 1 PERCENT IS PROVIDED FOR DRAINAGE PIPING 4INCHES OR LARGER ONLY WHERE IT IS IMPRACTICAL DUE TO THE DEPTH OF THE STREET SEWER, TO THE STRUCTURAL FEATURES, ORTO THE ARRANGEMENT OF A BUILDING OR STRUCTURE TO OBTAIN A SLOPE OF 1/4 INCH PER FOOT OR 2 PERCENT AND THAT IS "SHOWERS AND TUB-SHOWER COMBINATIONS SHALL BE PROVIDED WITH MIXING VALVES PER SECTION408.3CPC.

EACH SHOWERHEAD SHALL NOT EXCEED A WATER FLOW OF 1.8 GPM." "EACH LAVATORY FAUCET SHALL NOT EXCEED A WATER FLOW OF 1.2 GPM. TOILETS SHALL BE ULTRA LOW FLUSH TYPE (1.28 G.P.F. MAX.)." "EACH KITCHEN FAUCET SHALL NOT EXCEED A WATER FLOW OF 1.8 GPM.
WATER HEATER SHALL BE ANCHORED OR STRAPPED TO RESIST HORIZONTAL DISPLACEMENT DUE TO EARTHQUAKE MOTION PER SECTION 507.2 CPC.
EACH KITCHEN FAUCET SHALL NOT EXCEED A WATER FLOW OF 1.8 GPM.

BACKWATER VALVE SHALL BE INSTALLED ON THE DOWNSTREAM OF PLUMBING FIXTURES THAT ARE LOCATED ON A FLOOR LEVEL THAT IS LOWER THAN
THE NEXT UPSTREAM MANHOLE COVER OF THE PUBLIC OR PRIVATE SEWER SYSTEM PER SECTION 701.1 CPC AND SUBJECT TO FIELD INSPECTION APPROVAL"



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Project Name and Address:

22315 REGNART ROAD CUPERTINO CA 95014

Date:

Scale:
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DRAWING TITLE:
1ST FL. WATER SUPPLY PLAN

Sheet :
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ABBREVIATIONS :

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VTR	VENT TO ROOF
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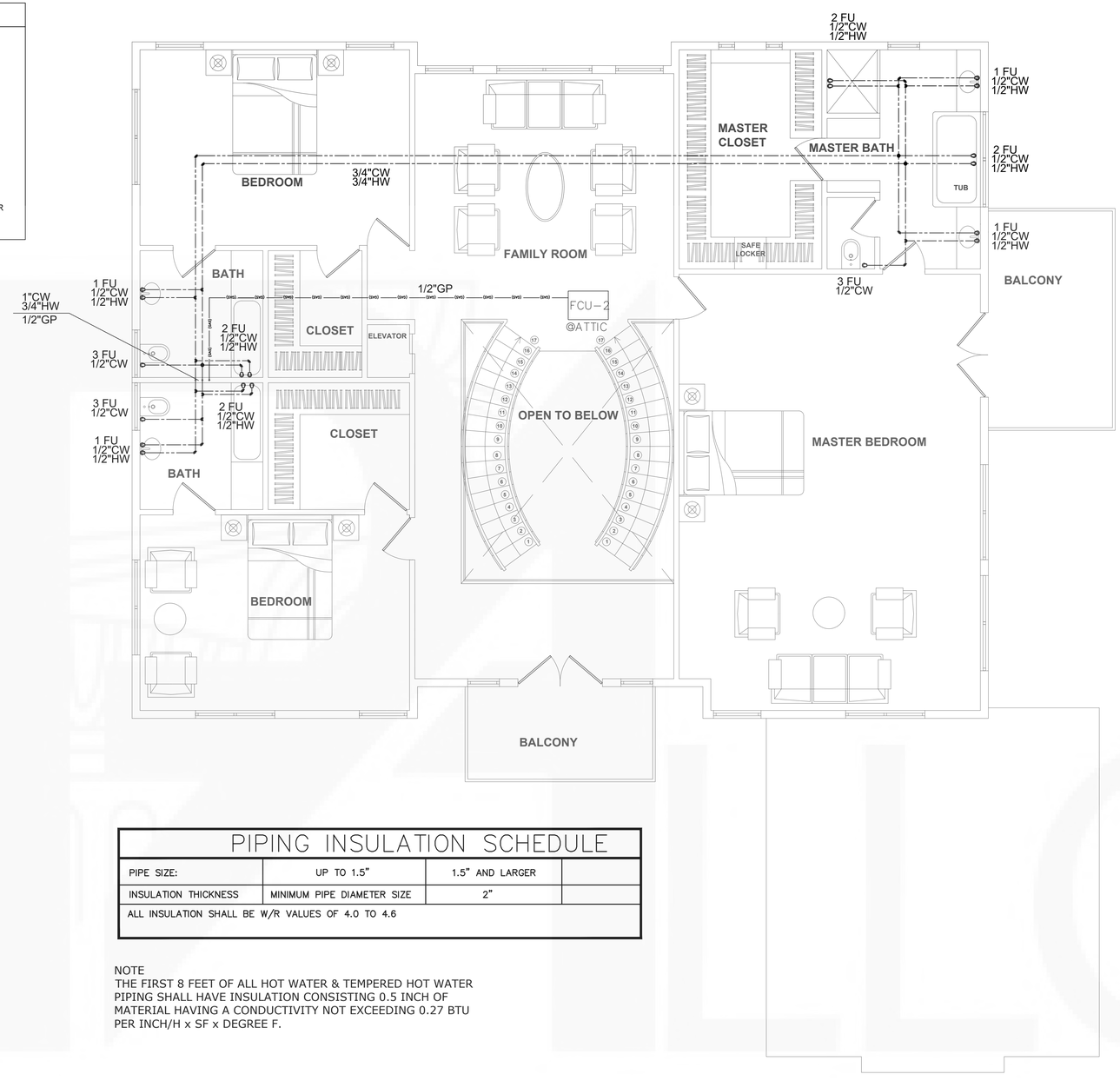
CW	COLD WATER
HW	HOT WATER
TWH	TANKLESS GAS WATER HEATER
HB	HOSE BIBB
GP	OUTSIDE FAUCET



PIPING INSULATION SCHEDULE			
PIPE SIZE:	UP TO 1.5"	1.5" AND LARGER	
INSULATION THICKNESS	MINIMUM PIPE DIAMETER SIZE	2"	
ALL INSULATION SHALL BE W/R VALUES OF 4.0 TO 4.6			

NOTE
THE FIRST 8 FEET OF ALL HOT WATER & TEMPERED HOT WATER PIPING SHALL HAVE INSULATION CONSISTING 0.5 INCH OF MATERIAL HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU PER INCH/H x SF x DEGREE F.

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2ND FL. WATER SUPPLY PLAN

Sheet :
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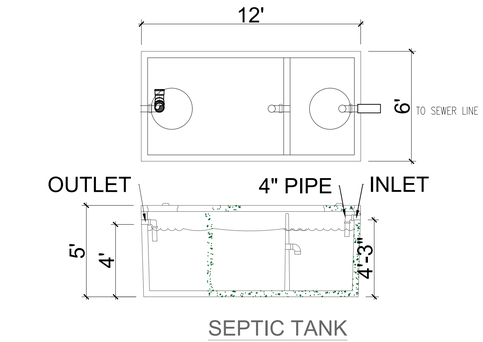


SEPTIC TANK

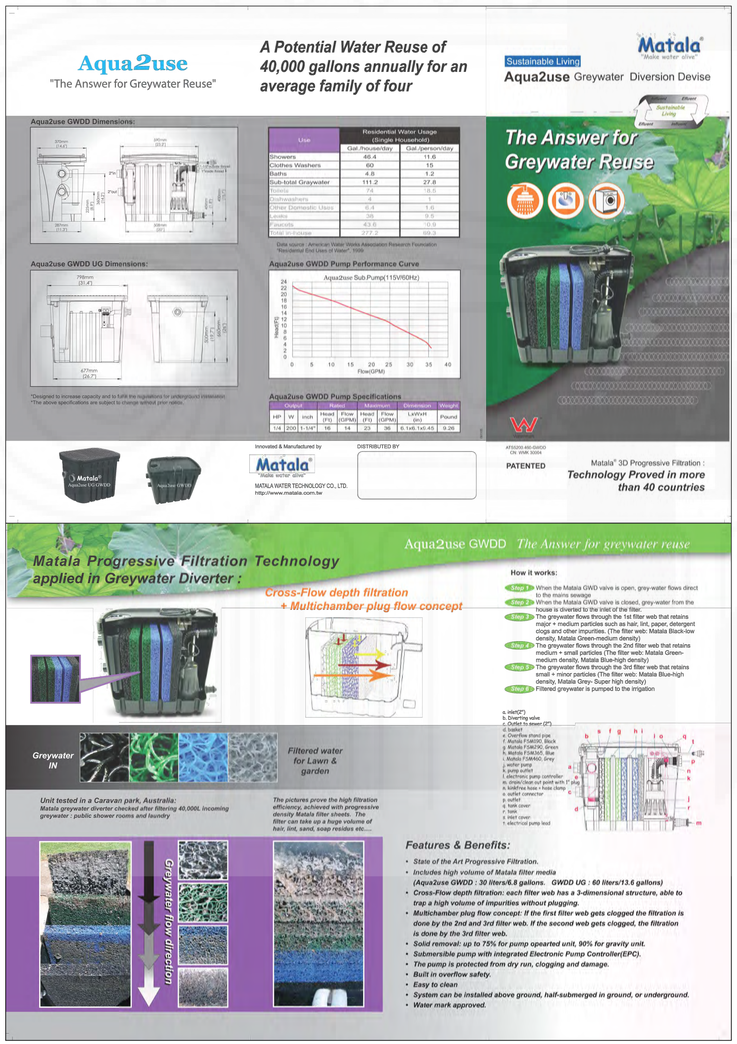
SEPTIC 12'X6'

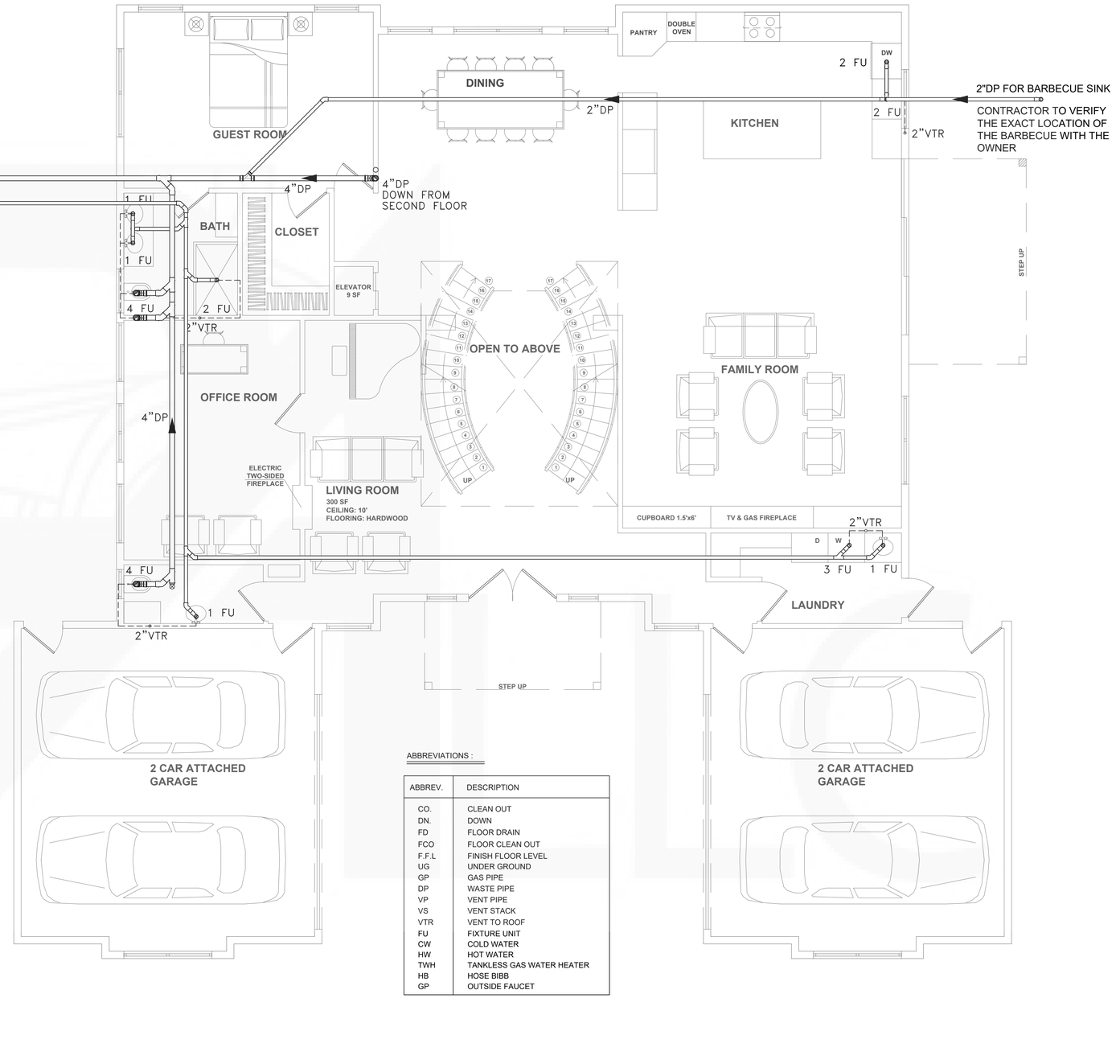
LANDSCAPE / IRRIGATION

excess goes back to septic tank

RECYCLING SYSTEM

4"DP





ABBREVIATIONS :

ABBREV.	DESCRIPTION
CO.	CLEAN OUT
DN.	DOWN
FD	FLOOR DRAIN
FCO	FLOOR CLEAN OUT
F.F.L	FINISH FLOOR LEVEL
UG	UNDER GROUND
GP	GAS PIPE
DP	WASTE PIPE
VP	VENT PIPE
VS	VENT STACK
VTR	VENT TO ROOF
FU	FIXTURE UNIT
CW	COLD WATER
HW	HOT WATER
TWH	TANKLESS GAS WATER HEATER
HB	HOSE BIBB
GP	OUTSIDE FAUCET

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1ST FL. DRAINAGE PLAN

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CW	COLD WATER
HW	HOT WATER
TWH	TANKLESS GAS WATER HEATER
HB	HOSE BIBB
GP	OUTSIDE FAUCET

ITEM	FIXTURE	TRAP	COLD WATER	HOT WATER	WASTE	VENT	DESCRIPTION
WC	WATER CLOSET	-	3/4"	-	3"	2"	1.28 GPF EFECTIVE FLUSH TANK VERIFY SELECTION W/ ARCH/OWNER
LAV	LAVATORY SINK	1-1/2"	3/4"	3/4"	3/4"	2"	1.2 GPF VERIFY SELECTION W/ ARCH/OWNER
KS	KITCHEN SINK	1-1/2"	3/4"	3/4"	3/4"	2"	1.8 GPF VERIFY SELECTION W/ ARCH/OWNER
LS	LAUDRY SINK	1-1/2"	3/4"	3/4"	3/4"	2"	1.8 GPF VERIFY SELECTION W/ ARCH/OWNER
SH	SHAWER	1-1/2"	3/4"	3/4"	3/4"	2"	SELECTION W/ ARCH/OWNER
DW	DISH WASHER	-	-	3/4"	-	-	SELECTION W/ ARCH/OWNER, ENERGY-STAR CERTIFIED
W	WASHER	-	-	3/4"	-	-	SELECTION W/ ARCH/OWNER, ENERGY-STAR CERTIFIED
FD	FLOOR DRAIN	-	3/4"	-	-	-	WATTS DRAINAGE FD-320-Y EPOXY COATED CAST IRON AREA DRAIN WITH ANCHOR FLANGE, WEEPHOLES, 8"DIAMETER FIXED TOP WITH HEEL PROOF DUCTILE IRON GRATE, AND NO HUB (STANDARD) OUTLET
FS	FLOOR SINK	-	3/4"	-	-	-	WATTS DRAINAGE FS-780 12" SQUARE X 6" DEEP 14 GA. TYPE 304 STAINLESS STEEL SANITARY FLOOR SINK WITH LOOSE SET CAST STAINLESS STEEL GRATE, DOME BOTTOM STRAINER, AND NO HUB (STANDARD) OUTLET.
FCO	FLOOR CLEAN OUT	-	-	-	-	-	WATTS DRAINAGE CO-200-S EPOXY COATED CAST IRON FLOOR CLEANOUT WITH 5"X5" SQUARE ADJUSTABLE GASKETED NICKEL BRONZE TOP, REMOVABLE GAS TIGHT GASKETED BRASS CLEANOUT PLUG, AND NO HUB (STANDARD) OUTLET.
HB	HOSE BIBB	-	3/4"	-	-	-	SELECTION W/ ARCH/OWNER, PROVIDE ANTI-SIPHONE DEVICE

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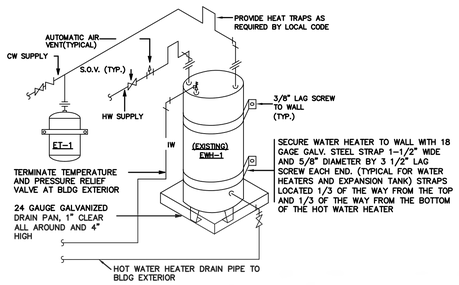
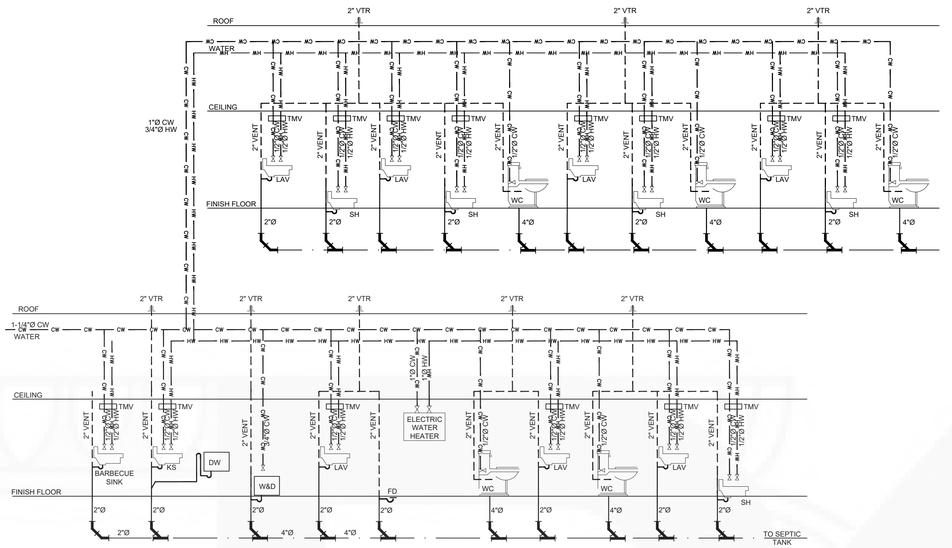


NOTES:

1. A WATERTIGHT PAN WITH 1" DRAIN SHALL BE PROVIDED UNDER WATER HEATER.

ELECTRIC WATER HEATER NOT TO SCALE



PLUMBING RISER DIAGRAM
Scale NTS

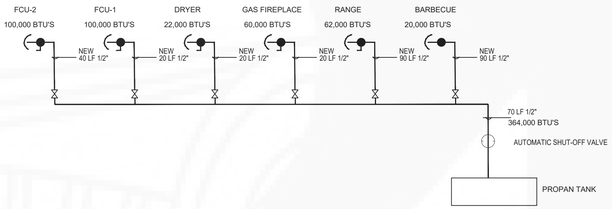


TABLE 610.4

FIXTURE UNIT TABLE FOR DETERMINING WATER PIPE AND METER SIZES

METER AND STREET SERVICE (inches)	BUILDING SUPPLY AND BRANCHES (inches)	MAXIMUM ALLOWABLE LENGTH (feet)															
		40	60	80	100	150	200	250	300	400	500	600	700	800	900	1000
PRESSURE RANGE - 45 to 50 psi																	
¾	¾	7	7	6	5	4	3	2	2	1	1	1	0	0	0	0
¾	1	20	20	19	17	14	11	9	8	6	5	4	4	3	3	3
¾	1	39	39	36	33	28	23	21	19	17	14	12	10	9	8	8
1	1	39	39	39	36	30	25	23	20	18	15	12	10	9	8	8
¾	1¼	39	39	39	39	39	39	34	32	27	25	22	19	19	17	16
1	1¼	78	78	76	67	52	44	39	36	30	27	24	20	19	17	16
1¼	1¼	78	78	78	78	66	52	44	39	33	29	24	20	19	17	16
1	1½	85	85	85	85	85	85	80	67	55	49	41	37	34	32	30
1¼	1½	151	151	151	151	128	105	90	78	62	52	42	38	35	32	30
2	1½	151	151	151	151	150	117	98	84	67	55	42	38	35	32	30
1	2	85	85	85	85	85	85	85	85	85	85	85	85	85	83	80
1¼	2	370	370	340	318	272	240	220	198	170	150	135	123	110	102	94
2	2	370	370	370	370	368	318	280	250	205	165	142	123	110	102	94
2	2½	654	640	610	580	535	500	470	440	400	365	335	315	285	267	250

TABLE 1216.2(24)
SCHEDULE 40 METALLIC PIPE (NFPA 54: TABLE 6.3(a))*

	GAS:	UNDILUTED PROPANE
	INLET PRESSURE:	10.0 psi
	PRESSURE DROP:	1.0 psi
	SPECIFIC GRAVITY:	1.50

INTENDED USE: PIPE SIZING BETWEEN FIRST STAGE (HIGH PRESSURE) REGULATOR AND SECOND STAGE (LOW PRESSURE) REGULATOR

	PIPE SIZE (inch)								
NOMINAL INSIDE:	⅛	¼	1	1¼	1½	2	2½	3	4
ACTUAL:	0.622	0.824	1.049	1.380	1.610	2.067	2.469	3.068	4.026
LENGTH (feet)	CAPACITY IN THOUSANDS OF BTU PER HOUR								
10	3320	6950	13 100	26 900	40 300	77 600	124 000	219 000	446 000
20	2280	4780	9000	18 500	27 700	53 300	85 000	150 000	306 000
30	1830	3840	7220	14 800	22 200	42 800	68 200	121 000	246 000
40	1570	3280	6180	12 700	19 000	36 600	58 400	103 000	211 000
50	1390	2910	5480	11 300	16 900	32 500	51 700	91 500	187 000
60	1260	2640	4970	10 200	15 300	29 400	46 900	82 900	169 000
70	1160	2430	4570	9380	14 100	27 100	43 100	76 300	156 000
80	1080	2260	4250	8730	13 100	25 200	40 100	70 900	145 000
90	1010	2120	3990	8190	12 300	23 600	37 700	66 600	136 000
100	956	2000	3770	7730	11 600	22 300	35 600	62 900	128 000

PLUMBING FIXTURE SUMMARY

FIXTURE	QTY.			COLD WATER		HOT WATER	
		SAN WASTE	TOTAL F.U. (SAN)	F.U. CW	TOTAL CW	F.U. HW	TOTAL HW
WATER CLOSET (Private)	5	4	20	3.0	15		0
LAVATORY (Private)	8	1	8	1.0	8	1	8
SHOWER (private)	5	2	10	2	10	2	10
DISHWASHER	1	2	2	1.5	1.5	1.5	1.5
KITCHEN SINK (private)	1	2	2	1.5	2	1.5	2
clothes washer (private)	1	3	3	4	4		0
TOTAL			45		40		21

THE FIXTURES BEING SHOWN FOR THIS PERMIT WILL BE CONNECTED TO
1-1/2" METER AND STREET SERVICE, 1-1/4" PIPE SIZES AS PER TABLE 610.4

A.O. Smith | Residential Electric Water Heater

VOLTEX® HYBRID ELECTRIC HEAT PUMP WATER HEATER

The Voltex Hybrid Electric heat pump water heater from A. O. Smith is the most cost effective energy-efficient option available for consumers who want to save money on their utility bills. Voltex can reduce water heating costs up to 71% and provide payback in 2-3 years. With annual savings of $437 or more, there is no better way to go green than Voltex.

HOW DO THEY WORK?

Absorb ambient heat from the surrounding air to heat water using a compressor and "Environmentally-Friendly" R134a refrigerant

- Self-contained heat pump unit is integrated into the top of the tank
- Multiple operating modes to maximize efficiency and performance

QUALIFIES FOR MANY STATE AND LOCAL UTILITY REBATES - CHECK WWW.DSIREUSA.ORG

INCREASED ENERGY EFFICIENCY

- Improved efficiency designed in, to ensure available hot water at the lowest possible cost. Up to a 3.24 Energy Factor (EF) Rating conserves energy and meets ENERGY STAR® qualifications

CHOICE OF OPERATING MODES

- Select from Efficiency, Hybrid, or Electric modes to match heating requirements to environmental conditions.
- Hybrid mode automatically adjusts between compressor and element, depending upon heat requirements.
- Vacation mode reduces operating costs and provides freeze protection during extended absence

BACKUP ELECTRIC ELEMENTS

- Long-lasting backup heating elements help heat water according to environmental conditions, demand, and the chosen operating mode

COREGARD™ ANODE ROD

- Our anode rods have a stainless steel core that extends the life of the anode rod allowing superior tank protection far longer than standard anode rods
- 66 and 80 gallon models have dual anodes for added protection.

DRY FIRE PROTECTION

- Control system checks to ensure the tank is full of water during start up to prevent dry firing the heating elements

ELECTRONIC USER INTERFACE

- User-friendly electronic interface allows easy control of temperature setting, operating mode, and communicates diagnostics
- Easy to read temperature display (see back) shows temperature in °F or °C
- Advanced diagnostics convey error messages for service purposes. The last four error messages are saved in the control system memory.

OTHER FEATURES

- Ideal for basements or garage installations; the compressor transfers heat to the water while dehumidifying and cooling the ambient air
- Washable air filter is easily removed for routine cleaning

OPTIONAL AIR DUCT ADAPTER KIT

- Permits installation in confined spaces

TEN YEAR LIMITED WARRANTY

- For complete information, consult written warranty or go to hotwater.com

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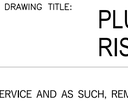
A.O. Smith | Residential Electric Water Heater

Model Number	Gallon Capacity	Energy Factor by Mode			1st Hour Rating (Gal) By Mode			Dimensions in Inches					Approx. Shipping Weight (lbs.)	Warranty Term
		Efficiency	Hybrid	Electric	Efficiency	Hybrid	Electric	A	B	C	D	E		
HPTU-50N	50	3.61	3.24	0.93	64.4	70	57.3	63	22	40-5/8	3-3/4	40-1/2	196	10
HPTU-66N	66	3.44	3.17	0.92	62.5	80	78.6	61	27	38	4	38	289	10
HPTU-80N	80	3.27	3.06	0.92	76.9	95	90.1	69	27	46	4	46	307	10

Requires 30 amp breaker.
Top TAP option not available.



ELECTRONIC USER INTERFACE

- User friendly, easy to read display.
- LEDs clearly indicate the current operating mode.
- Easily select operating mode:
  - Efficiency
  - Hybrid
  - Electric
  - Vacation
- Display communicates current status, mode and set point, and displays error messages when applicable.

EFFICIENCY MODE

- Utilizes the heat pump for all water heating.
- Automatically reverts to heating element if ambient air or water temperatures are outside optimal operating range for heat pump.

HYBRID MODE

- Utilizes the heat pump or heating element, depending on demand.

ELECTRIC MODE

- Standard electric water heater operation.

VACATION MODE

- One touch operation maintains tank temperature of 60°F (15.6°C) during vacation or extended absence to reduce operating costs and provide freeze protection.
- Programmable up to 99 days.

OTHER FEATURES:

- Sacrificial anode to protect against tank corrosion.
- Environmentally-friendly non-CFC foam insulation.
- Durable, enhanced flow brass drain valve.
- CSA certified and ASME rated temperature & pressure relief valve.

OPERATING REQUIREMENTS:

- Requires provision for condensate draining; if a suitable drain is not available, a condensate pump is required.
- 208/240 VAC 60Hz single phase 30 amp power supply.

For Technical Information, call 800-527-1953. A. O. Smith Corporation reserves the right to make product changes or improvements without prior notice.

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Date:

Scale: 1/4" = 1' - 00"

DRAWING TITLE: PLUMBING & GAS RISER DIAGRAM

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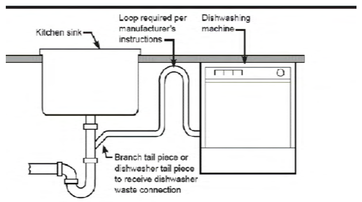
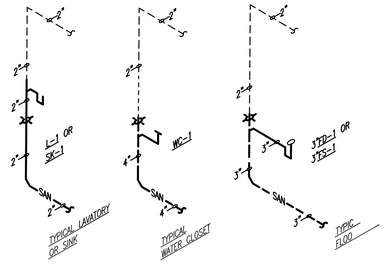
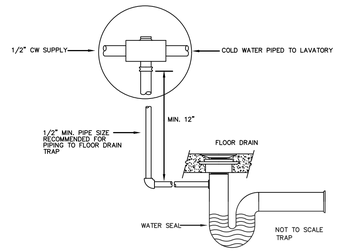


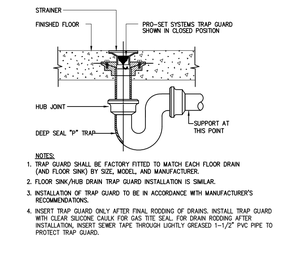
13 DISHWASHER INSTALLATION DETAIL



11 **TYPICAL WASTE AND VENT RISERS**
SCALE: NONE

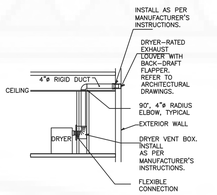


5 TRAP PRIMER



NOTES:
1. TRAP GUARD SHALL BE FACTORY FITTED TO MATCH EACH FLOOR DRAIN (AND FLOOR SINK) BY SIZE, MODEL, AND MANUFACTURER.
2. FLOOR SINK/HUB DRAIN TRAP GUARD INSTALLATION IS SIMILAR.
3. INSTALLATION OF TRAP GUARD TO BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. INSERT TRAP GUARD ONLY AFTER FINAL RODDING OF DRAINS. INSTALL TRAP GUARD WITH CLEAR SILICONE CAULK FOR GAS TITE SEAL. FOR DRAIN RODDING AFTER INSTALLATION, INSERT SEWER TAPE THROUGH LIGHTLY GREASED 1-1/2" PVC PIPE TO PROTECT TRAP GUARD.

4 **FLOOR DRAIN WITH TRAP SEAL PROTECTION**
SCALE: NONE



NOTES:

1. THE MALE END OF THE OVERLAPPED DUCT JOINTS SHALL EXTEND IN THE DIRECTION OF AIRFLOW.

2. NO SCREWS SHALL BE ALLOWED IN THE DRYER EXHAUST DUCT AND ALL JOINTS SHALL BE SEALED WITH FOIL FACED TAPE.

3. DRYER EXHAUST SYSTEM IS DESIGNED BASED ON A WASHER/DRYER AS MANUFACTURED BY GE MODEL GFDN120ED. CONTRACTOR SHALL USE SHEET METAL ROUND DUCTWORK AND MINIMIZE THE USE OF FLEXIBLE DUCTWORK.

MAXIMUM LENGTH OF 4 INCH DIAMETER RIGID METAL DUCT;

No. OF ELBOW	FEET
0	90
1	60
2	45
3	35
4	25

DRYER EXHAUST DETAIL "A"
NOT TO SCALE

12 DRYER VENT
SCALE: NONE

TRAPS FOR ISLAND SINKS AND SIMILAR EQUIPMENT SHALL BE TOUCHED IN ABOVE THE FLOOR AND MAY BE VENTED BY EXTENDING THE VENT AS HIGH AS POSSIBLE, BUT NOT LESS THAN THE DRAINBOARD EIGHT . THE VENT IS THEN RETURNED DOWNWARD AND CONNECTED TO THE HORIZONTAL SINK DRAIN IMMEDIATELY DOWNSTREAM FROM THE VERTICAL FIXTURE DRAIN.

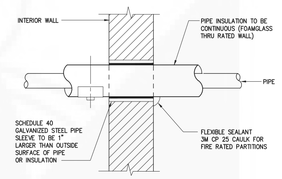
THE RETURNED VENT SHALL BE CONNECTED TO THE HORIZONTAL DRAIN THROUGH A WYE-BRANCH FITTING AND SHALL IN ADDITION BE PROVIDED WITH A FOOT VENT TAKEN OFF THE VERTICAL FIXTURE VENT BY MEANS OF A WYE-BRANCH FITTING IMMEDIATELY BELOW THE FLOOR . THIS FOOT VENT EXTENDS TO THE NEAREST PARTITION AND THENCE THROUGH THE ROOF TO THE OPEN AIR , OR MAY BE CONNECTED TO OTHER VENTS AT A POINT NOT LESS THAN SIX(6) INCHES ABOVE THE FLOOD LEVEL RIM TO OF THE FIXTURE SERVED.

DRAINAGE FITTINGS SHALL BE USED ON ALL PARTS OF THE VENT BELOW THE FLOOR LINE THIS INCLUDES FITTINGS NOTED AS A,B,C AND D . THE FOOT VENT SHALL MAINTAIN A MINIMUM SLOPE OF ONE — QUARTER (1/4) INCH PER FOOT BACK TO DRAIN . THE RETURN BEND USED UNDER THE DRAIN BOARD SHALL BE A ONE PIECE FITTING , OR AN ASSEMBLY OF A 45 DEGREE , A 90 DEGREE AND A 45 DEGREE ELBOW IN THE ORDER NAMED . PIPE SIZING SHALL BE REQUIRED IN THE CODE

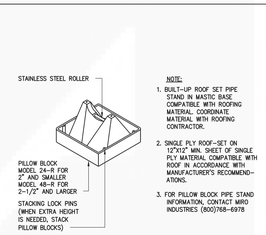
SPECIAL VENTING FOR ISLAND FIXTURE IS A METHOD FOR VENTING A FIXTURE IN AN ISOLATED LOCATION WHERE VENT PIPES INSTALLED AS NORMALLY REQUIRED IN UPC WOULD NOT BE PRACTICAL.

a,b AND c ARE Y-BRANCH FITTINGS

10 ISLAND SINK VENT

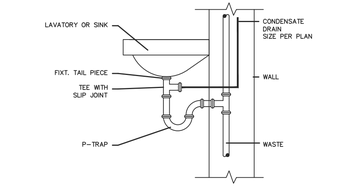


6 **INTERIOR WALL PENETRATION**
SCALE: NONE

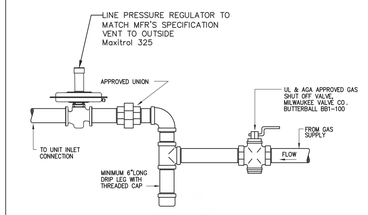


NOTE:
1. BUILT-UP ROOF SET PIPE STAND IN MASTIC BASE COMPATIBLE WITH ROOFING MATERIAL. COORDINATE MATERIAL WITH ROOFING CONTRACTOR.
2. SINGLE PLY ROOF-SET ON 12"X12" MIN. SHEET OF SINGLE PLY MATERIAL COMPATIBLE WITH ROOF IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
3. FOR PILLOW BLOCK PIPE STAND INFORMATION, CONTACT MIRO INDUSTRIES (800)768-6978

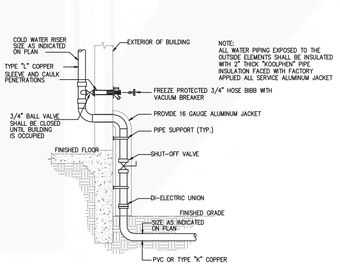
7 **PIPE SUPPORT ON ROOF**
SCALE: NONE



3 CONDENSATE TERMINATION
SCALE: NONE



2 **GAS CONNECTION TO EQUIPMENT**
SCALE: NONE

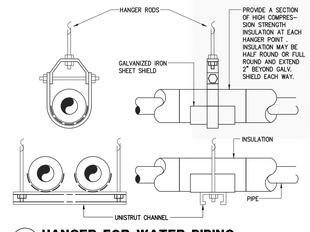


NOTE:
ALL WATER PIPING EXPOSED TO THE OUTSIDE ELEMENTS SHALL BE INSULATED WITH 2" THICK "ARMAFLEX" PIPE INSULATION FACED WITH FACTORY APPLIED ALL SERVICE ALUMINUM JACKET

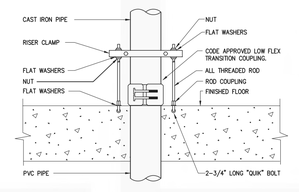
NOTE:
VERIFY REQUIREMENTS FOR METERING AND PIPING WITH WATER COMPANY. INSTALL OTHER UTILITIES A MINIMUM OF 10'-0" FROM WATER LINE. PLUMBING CONTRACTOR SHALL PAY ALL WATER COMPANY FEES FOR INSTALLATION. USE WELDED OR SCREWED PIPE AND FITTINGS PER PLUMBING SPECS. WATER COMPANY SHALL EXCAVATE, BACKFILL AND REPAIR ANY PAVING OR SOD FOR WATER SERVICE LINE INSTALLATION FROM MAIN TO BUILDING.

9 WATER ENTRY DETAIL
SCALE: NONE

MINIMUM DIMENSIONS OF GALVANIZED SHEETMETAL PROTECTION SHIELDS AT PIPE HANGERS		
NOMINAL SIZE PIPE	SHIELD LENGTH MIN. (IN.)	GAUGE THICKNESS
1/2" & 3/4"	12	18
1" – 2-1/2"	12	18
3" – 4"	12	16
6"	12	16



8 **HANGER FOR WATER PIPING**
SCALE: NONE



NOTE:
THERE IS TO BE NO EXPOSED PVC ABOVE SLAB.

1 **CAST IRON TO PVC PIPE TRANSITION**
SCALE: NONE

PLUMBING INSTALLATION DETAILS SCALE :NTS

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Date:

Scale: 1/4" = 1' - 00"

DRAWING TITLE: PLUMBING & GAS RISER DIAGRAM

Sheet : P7.0

Page No. :

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No.	Revision/Issue	Date
1		
2		
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