EXHIBIT 2C – OWNER'S MINIMUM REQUIREMENTS

PACIFICA SCHOOL OWNER
WORKFORCE HOUSING

Pacifica, CA

April 2, 2019

Owner's Design Consultants:
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Seidel Architects
545 Sansome St.
San Francisco, CA 94111

Landscape Design Consultant:
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Orinda, CA 94563

Civil Design Consultant:
BKF Engineers
255 Shoreline Drive, Suite 200
Redwood City, CA 94065

Structural Design Consultant:
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San Francisco, CA 94118

MEP Design Consultant:
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1. Architectural Narrative

This document provides the minimum design intent for all spaces in the project. It is the responsibility of the Design-Builder to develop the designs into complete detailed working drawings and specifications. These construction documents shall contain all required building permit, planning and zoning approvals as required to construct the project.

a. General Notes

i. Scope of Work

A. Design-Builder shall furnish architectural, landscape architectural, and engineering services for the preparation of the complete and comprehensive Construction Documents necessary to complete the Project in accordance with the requirements of the Contract Documents. From the Owner-approved Construction Documents, in compliance with the Contract Documents, the Design-Builder shall furnish all labor, materials, equipment, services, and transportation necessary to complete construction of the Project, including site Work, structures, utilities, and landscaping. Refer to Exhibit 3 of the Design/Build Agreement for additional Scope of Work requirements.

ii. Correlation and Intent of the Contract Documents

A. The intent of the Contract Documents is to include all items necessary with full, complete, accurate and compliant documentation, for the proper execution and completion of the Work by the Design/Builder within the Contract Time. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all except that the Construction Documents shall not supersede the other Contract Documents, and in the event of a conflict between the Construction Documents and the other Contract Documents, the other Contract Documents shall govern. Performance by the Design/Builder shall be required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results. The Design/Builder shall provide and pay for all services, labor, overtime labor, standby labor, methods, materials, equipment, transportation, power, fuel, water, and all other facilities and services, including operating costs of balancing, startup and checking out equipment, and all other items and facilities of every kind necessary to complete the intent of the Contract Documents for the contract amount within the times for completion.

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iv. Laws and Codes

A. The Construction Documents and resulting construction shall comply with all laws, ordinances, rules and regulations of the State of California, including but not limited to:
   1. The California Building Standards Code (CBC), in Title 24 of the California Code of Regulations, as adopted and published by the California Building Standards Commission.
   2. Compliance with the Department of State Architect, Access Compliance Unit's accessibility regulations in the California Code of Regulations Title 24 (Parts 2 and 3); 2010 federal ADA standards for accessible design; standards for state and local government facilities – Title II (where more restrictive than CBC.
   3. Compliance with the Office of the State Fire Marshal, fire and life safety regulations, including the most recent editions of NFPA 101, Life Safety Code and NFPA Fire Protection Handbook.
   4. Seismic Safety Structural Peer Review.
      a. The Design-Builder shall direct its design team to interact with the appointed Owner's Representative and their consultants at the beginning of the design process, and continue at regular intervals during the design process and during construction as required. The Design-Builder shall submit one (1) set at each submittal point within the peer review process (as outlined in the Design/Build Agreement). Seismic Peer Review comments shall be resolved before the start of construction.
      b. In the event that there are disputes over interpretation of the Owner' seismic safety policy, the responsible Building Official's' representative shall make a final

determination under the authority of the Building Official. Refer to Structural Owner Minimum Requirements.

5. Other agencies (as may apply) including Division of Occupational Safety & Health (DOSH), county health department (food and aquatics).
6. Laws, ordinances, rules, regulations and codes incorporated by reference shall be those of the latest edition at the time of receiving proposals, unless otherwise specified.
7. Materials Testing and Inspection Services: The Owner shall appoint a firm(s) to provide materials testing and inspection services during construction. The testing and inspection services firms are solely responsible to the Owner for observation of construction, determination of adherence to the Contract Documents (including approved Plans and Minimum Design Requirements and Performance Criteria) and compliance with the applicable codes and standards.

B. Miscellaneous Requirements:

1. The Construction Documents shall include a quality control program and an implementation plan to ensure that the completed Project complies with the Contract Documents. The design professional-of-record shall specify within the Construction Documents all tests and inspections that are required by the building code and those that are appropriate to achieve compliance with the Contract. The Design-Builder shall retain the design professional-of-record to provide in a professional capacity, timely construction administration services. These services shall include shop drawing review, response to Requests For Information regarding the Construction Documents, and periodic visits to the site to observe the quality of the Work.
2. The final, approved-for-construction set of Construction Documents shall be signed and stamped by the respective California-licensed professionals who prepared the documents, certifying their compliance with codes, standards, practices and regulations. The design professionals-of-record shall retain full responsibility for the design.

C. Plan Check Review:

1. The Design-Builder shall submit to the responsible Building Official three (3) copies to the Owner, plus all required documentation as required by the building official and other applicable review agencies of the completed Plans and Minimum Design Requirements and Performance Criteria and two (2) copies each of the structural calculations and soils report, for code review, and shall coordinate, monitor and secure all required review approvals. Also provide electronic copies to Owner on all review document distributions. When submitting these documents, The Design-Builder must allow sufficient time to conduct the reviews and to correct identified deficiencies before construction. The minimum review time for the completed design documents to be reviewed is two weeks (10 Working Days). These durations may vary. The Design-Builder shall allocate appropriate additional time for resolution of back check review comments for all reviews.
2. The Design-Builder is encouraged to seek guidance and clarification of Project-specific code compliance issues from the respective agencies and/or Owner's representative and their consultants.
3. The Owner shall pay plan check fees and seismic peer review fees associated with the Project.
4. The Design-Builder shall incorporate changes, if any, resulting from plan reviews, and/or Building Official code determinations into the final design without additional cost to the Owner. Such final drawings and Minimum Design Requirements and Performance Criteria shall be resubmitted to the Owner for approval.
5. The final authority for code interpretations shall be as follows for:
   a. Based on appropriate city official:

b. access compliance issues, the Division of the State Architect Access Compliance Unit
c. all other items, code issues shall be issued by the responsible Building Official

D. Access Law Compliance:

1. Access Compliance requirements must be certified by responsible Building Official. The A/E of Record will coordinate the access compliance submittal.
2. The Design-Builder shall supply one (1) copy of the Construction Documents (structural calculations are not required) for certification of access compliance (Government Code section 4450 *et seq*.). The Design-Builder shall incorporate modifications required in the Construction Documents without additional cost to the Owner. Access compliance review and certification can take six to eight weeks or more. The Owner will consider administrative appeals in the event that Access Compliance review extends beyond eight weeks when due to reasons outside the control of Design- Builder.

E. Plan Approval by Building Official:

1. Plans for construction require the express written approval of the responsible Building Official. The Building Official will require resolution of issues from building code, accessibility, Fire Marshal and Seismic Peer Review and other agency reviews as may apply, as a prerequisite to the approval of documents for construction.
2. The Design-Builder shall address all review comments and appropriately reserve Project schedule time for their completion. Delays in meeting the schedule are the responsibility of The Design-Builder, not the Owner.
3. Changes, alterations, substitutions, or modifications made to approved Plans during construction that affect code compliance must be approved in writing by the Building Official.
4. The Design-Builder shall incorporate without additional cost to the Owner any changes, alterations, substitutions, or modifications made to the approved Plans that are required during construction to satisfy code requirements, including those not previously identified in the approved Plans, or to properly implement the approved Plans, or where observed workmanship and/or discovered conditions so require.
5. As a prerequisite to the Owner filing the Notice of Completion for the Project, the Building Official will issue a certificate of completion when satisfied that the approved Plans have been implemented and that all inspection and technical code and standards compliance issues identified during construction have been satisfactorily resolved.

F. Plan Review Related Appointments by Owner:

A. Plan Check Service Provider: The Owner shall appoint a plan check service provider. The selected service provider will review the Project Plans and Minimum Design Requirements and Performance Criteria s for adherence to applicable codes and standards, providing an assessment of code compliance to the responsible Building Official. The service provider is solely responsible to the Client in the provision of these services.
B. Seismic Peer Reviewer: The Owner shall appoint a seismic peer reviewer for the Project.
C. Materials Testing and Inspection Services: The Owner shall appoint a firm(s) to provide materials testing and inspection services during construction. The testing and inspection services firms are solely responsible to the Owner for observation of construction, determination of adherence to the Contract Documents (including approved Plans and Minimum Design Requirements and Performance Criteria) and compliance with the applicable codes and standards.

v. Partial Permit Approvals

A. Review and approval of Construction Documents shall be obtained from the Owner before the start of construction. The Owner will consider design submissions for site development and, if found satisfactory, will allow the Design-Builder to proceed with preliminary grading, foundations, and other elements of site development while completing final Construction Documents for the balance of the Work.

B. The Design-Builder is responsible for final approvals, and approval of portions of the Work by the Owner does not relieve The Design-Builder of responsibility for construction should changes be required due to items disapproved or changed due to plan check. The responsibility for a totally integrated design in accordance with the Contract Documents shall remain with the Design-Builder.

vi. Submittals

A. General provisions:

1. Provisions in this section are mandatory procedures for preparing and submitting samples, shop drawings and product data.
2. Submittals shall be in orderly sequence and timed to cause no delay in the Work.
3. Job delays occasioned by requirement of resubmission of samples, shop drawings and product data not in accord with Contract Documents are the Design-Builder's responsibility and will not be considered valid justification for extension of Contract Time.
4. Neither the Owner nor the Owner's Representative or other designee has any responsibility of any nature for reviewing or approving such shop drawings, product data or samples.
5. Shop drawings, product data, samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work, where submittals are required, the way the Design-Builder proposes to conform to the information given and the design concept expressed in the Contract Documents.
6. Prepare shop drawings, product data, and samples for the project to illustrate specific portions of the Work. Manufacturers' and suppliers' "fill-in-the-blanks" forms will not be acceptable unless modified to indicate exact requirements and conditions. Submittals shall contain only information relevant to the particular equipment or materials to be provided. Product data shall be technical information published or prepared by the equipment or materials manufacturer and shall include complete engineering and dimensional data. Submittals that describe equipment and materials other than that to be provided shall not be submitted for review unless all nonapplicable material is marked out. Do not submit photocopies of material and equipment illustration unless photocopies are true and accurate representations of the original illustrations.
7. The Design-Builder shall review, approve and simultaneously submit to the AE and Owner's Representative shop drawings, product data, samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate Design/Builders. Submittals made by the Design-Builder which are not required by the Contract Documents may be returned without action.
8. The Design-Builder shall submit for the AE's and Owner's Representative's approval a form and system for tracking shop drawing submittals. Each drawing of a shop drawing submittal shall have a unique number. Subsequent submittals of the same drawing shall bear this same unique number plus indicate the number of times the drawing has been submitted.

B. Submittal schedule:

1. During course of the Work, maintain an updated submittal schedule showing status of all submittals. Provide copies for the Owner's Representative's information at project meetings and at other times when requested.
2. The following is a list of products for which shop drawings are required, as a minimum:
   a. Reinforcing steel.
   b. Structural steel.
   c. Cast-in-place concrete.
   d. Wood Framing.
   e. Exterior wall skin.
   f. Plumbing Fixtures and Trim.
   g. Finish Hardware.
   h. Millwork.
   i. Special Doors.
   j. Windows.
   k. Submittals required for MEP Scope of Work or other sections of the of The Owner's Minimum Requirements.
   l. Submittals required in Landscape Requirements.

C. The following is a list of products for which product data submittals are required, as a minimum:
1. Wood Products
2. Exterior wall finishes
3. Flashing
4. Waterproofing.
5. Roofing.
6. Ceramic tile (samples)
7. Builders Hardware (samples).
8. Carpet (samples).
9. Wood flooring (samples).
10. Millwork.
11. Toilet room accessories (samples).
12. Roofing.
13. Waterproofing.
14. Components of systems for which shop drawings are required.
15. Submittals required for MEP Scope of Work in the MEP Minimum Design Requirements and Performance Criteria.

D. Submit for information, coordination drawings to assure building system coordination.

1. Base for coordination drawings shall be structural, fire protection, plumbing and sheet metal shop drawings as a minimum:
2. Installers of the following systems shall indicate major equipment, conduit, pipe, bussway, and work space locations superimposed on the sheet metal shop drawings. Conflicts shall be resolved, and the coordination drawings marked to indicate the solution.
   a. Plumbing equipment.
   b. Air conditioning units.
   c. Fan powered terminals.
   d. Temperature controls.
   e. Panelboards.
   f. Cable television components.
   g. Luminaries.
   h. Communication cables and connectors.

i. Fire alarm components.
j. Security access components.
k. Submittals required required for MEP Scope of Work in the MEP Minimum Design Requirements and Performance Criteria.
l. Fire sprinkler systems.
m. HVAC piping and equipment.
n. Electrical service and distribution.
o. Lighting.
p. Communication pathways.

E. Submit operation and maintenance data for Owner's use on the following:

1. Fire suppression systems.
2. Plumbing fixtures.
3. Plumbing equipment.
4. Air conditioning units.
5. Ventilation fans.
6. Air distribution system.
7. Temperature controls.
8. Panelboards.
9. Luminaries.
10. Fire alarm system.
11. Security access system.
12. Submittals required required for MEP Scope of Work in the MEP Minimum Design Requirements and Performance Criteria.

K. Shop Drawing review and approval:

1. The Design-Builder's AE (Architect or the appropriate Engineer of record) will review and approve or take other appropriate action upon the Design-Builder's submittals including shop drawings and Product Data for the purpose of checking for conformance with information given and design concept expressed in the expanded Contract Documents (which includes the Construction Documents). Samples will be reviewed by the Design-Builder's AE and reviewed and then submitted to the Owner's Representative.
2. The Design-Builder's AE (Architect or the appropriate Engineer of record) will review and mark submittals with any comments or corrections that may be required all submittals from the Design-Builder after the Design-Builder has checked all field and surrounding structural dimensions and met all other shop drawing requirements. The Design-Builder shall forward drawings to the Owner's Representative for his information at the same time the shop drawings are distributed to the AE. The Owner's Representative retains the right to review and determine acceptance of all submittals. However, the Owner's Representative may not review a submittal or may limit its review to a cursory "spot" review which shall not relieve the Design-Builder of responsibility for deviations from the requirements of the Contract Documents.
3. Upon completion of the checking of a set of submittals by the Design-Builder's AE, the Design-Builder's AE shall file an approved copy of such submittals with the Owner's Representative. No fabrication or construction of work shown on shop drawings shall commence for seven (7) business days after the AE has filed the set of shop drawings for that work with the Owner's Representative. For the purposes of determining the foregoing seven (7) business days, the Design-Builder may not submit more than one set of checked shop drawings per every two (2) business days. During that time, if the Owner's Representative notifies the Design-Builder that those submittals are unacceptable because they are incomplete or at variance with the Contract Documents, then

fabrication or construction of the work shown on such submittals shall not commence until submittals have been redone, refiled with Owner's Representative and five (5) business days have passed without the Owner's Representative notifying the Design-Builder that the refiled submittals are unacceptable for one of the reasons cited above.

4. The Design-Builder shall not be relieved of responsibility for errors, omissions or deviations from requirements of the Contract Documents by the Design-Builder's AE's approval of shop drawings, product data, samples, or similar submittals, nor by the Owner's Representative lack of review or by the absence of notification of unacceptability by the Owner's Representative. Submittals that contain excessive errors or that are incomplete will be returned unchecked and any delay caused thereby will be the responsibility of the Design-Builder.
5. Allow not less than 14 days for review by the AE without causing delay in the progress of the Work.
6. Except as specified otherwise, samples will be retained by the Owner's Representative until final completion of the project.
7. When professional certification of performance criteria of materials, system or equipment is required by the Contract Documents, the Owner's Representative shall be entitled to rely on the accuracy and completeness of such calculations and certifications.

vii. Divisions of the Owner's Minimum Requirements

A. The performance criteria/requirements are divided into sections for convenience. The actual limitations of Work in the various trades and/or sections of the Minimum Design Requirements and Performance Criteria remain the responsibility of the Design-Builder.

viii. Standards and Testing Criteria

A. Standards listed in the Minimum Design Requirements and Performance Criteria, such as ASTM, ANSI, AASHTO, AWWA, AISC, Commercial Standards, Federal Specifications, NBFU, NEMA, UL, and the like, incorporated in the requirements by reference, shall be those of the latest edition at the time of receiving proposals, unless otherwise specified.

ix. Layout of the Work

A. The Design-Builder shall employ, at its own expense, a California-registered civil engineer or California-licensed land surveyor to layout the Work of the Project and establish reference points and elevations required for the construction. Reference points for the construction shall be set in accordance with layout control points identified in the Request for Proposal.

B. On projects with new foundations (for buildings, site improvements, bridges, light poles, others), The Design-Builder shall prepare a survey illustrating dimensions, locations, angles and elevations of the construction associated with the new foundation, and shall show the as-built location of the construction on the Project Site Boundary drawing provided by the Owner. Design-Builder shall specify the horizontal location using California Coordinate System, NAD 83 Coordinates. A California-licensed land surveyor shall certify the survey with its stamp and signature, after which The Design-Builder shall submit it promptly to the Owner.

C. The Design-Builder shall prepare surveys and design for excavations and shorings, where required, for the Project.

D. The Owner has the right, but not the obligation, to check the location and elevation of such stakes and reference points and/or to check Work constructed from such stakes or reference points. Work that is not correctly located shall be rejected.

E. The Design-Builder shall provide to the Owner the record survey and a copy of the closure data of the layout of the Project showing the ties to the University layout control points. The information shall be provided in the form of a CD-ROM containing "PDF" and "CAD" files of the same.

x. Ownership and Use of Documents

A. The Design-Builder agrees and shall secure like agreement from the Project Architect/Engineer that designs, drawings, Minimum Design Requirements and Performance Criteria, electronic equivalents and other technical data produced in the performance of this Agreement become the property of the Owner upon payment of Work completed.

B. The Design-Builder agrees that the Owner shall have access at reasonable times to inspect and make copies of notes, designs, drawings, Minimum Design Requirements and Performance Criteria electronic files, calculations and other technical data pertaining to the Work performed under this Contract.

1. Use of Documents:
   The Owner retain the right to utilize documents prepared under the Agreement regardless of whether the Agreement is terminated, or the Project is suspended or abandoned. This right allows the Owner to use these documents in the future for the same Project, a modified version of it, or for one that is similar.
2. Reuse of Documents:
   Reusing the documents on another project without the approval of The Design-Builder relieves The Design-Builder of liability resulting from their use.

xi. Additional Notes

A. All work is to be new unless otherwise specified, and all work is to be of good quality, and free from defects. Site shall be left clean, free from debris and acceptable to the Owner.

B. Sole-Source Manufacturers: Unless otherwise noted, where specific manufacturers are listed, the General Design/Builder shall provide such product and assemblies sole-sourced from the listed manufacturer.

C. Acoustical Reports: The Design/Builder is responsible for hiring a licensed Acoustical Consultant to establish acoustical requirements, information and noise criteria for architectural assemblies, including but not limited to, exterior walls and windows, demising walls, floor-ceiling assemblies, roof-ceiling assemblies, finishes, sealants, and doors, all subject to the Owner's representative's approval.

D. STC values shall be established by said consultants and meet or exceed code-required minimums, typically no lower than 52-54 STC range.

a. Minimum Design Requirements and Performance Criteria

i. Project Description

The Project is located on a portion of an approximately 11.1-acre Owner-owned property on the south side of Oddstad Boulevard in Pacifica, California (between Big Bend Drive to the northeast and Humboldt Court to the southwest).

The Site currently includes a surplus school facility (the Andres F. Oddstad School, with the street address of 930 Oddstad Boulevard) and including several athletic fields and two surface parking lots at the western portion of the lot. This western portion of the Site will remain intact. The Project will be located on the eastern portion of the Site and the school building that currently sits there will be demolished.

The Project will take place in two phases. The first phase of the Project is located on the

central portion of the Site and includes the development of Forty-Five (45) residential units, ancillary facilities and associated parking ("Phase One"). The second phase of the Project is located on the eastern portion of the Site and includes Twenty-Five (25) residential units and associated parking ("Phase Two").

Together, Phase One and Phase Two ("Both Phases") include Seventy (70) residential units. The playing fields and parking lot on the western portion of the Site are excluded from the Project; however, Phase One does include new restrooms and related facilities to serve the playing fields. The budget and scope of Phase One include sitework directly associated with Phase One, possibly including minimal sitework and utility connections in the physical area comprising Phase Two (for example, as required to balance cut and fill for Both Phases). **The final design and construction of Phase Two is excluded.**

All buildings for the Project will be designed to be no more than two stories in height. The Owner has communicated to community stakeholders that Project buildings will not exceed that height in order to maintain consistency with the scope and scale of the existing neighborhood.

The Project shall be delivered on a progressive design-build basis pursuant to Sections 17250.10, et seq., of the California Education Code.
Design-Builder shall furnish architectural, landscape architectural, and engineering services for the fully-developed project, documented via the Construction Documents necessary to complete the Project in accordance with the requirements of the Contract Documents.

i. <u>Units</u>

A. <u>Preferred unit sizes:</u>

1. 1-bedroom flat units shall be between 650 and 700 sqft.
2. 2-bedroom flat units shall be between 900 and 950 sqft.
3. 2-bedroom townhouse units (type B1) shall be between 1150 and 1200 sqft.
4. 2-bedroom townhouse units (type B2) shall be between 1250 and 1300 sqft.
5. 3-bedroom townhouse units shall be between 1625 and 1675 sqft.

B. <u>All Units:</u>

1. All 1- and 2-Bedrooms to have a minimum dimension 10' X 12' (12' dimension shall be able to accommodate a bed without being interrupted by a door or other elements).
2. All 3-Bedrooms to have a minimum dimension of 10' X 10'-6".
3. Provide number of bathrooms per unit as indicated on DGI drawings.
4. Provide light sconce, entry signage, doorbell, and viewer at all unit entries.
5. Provide hollow core doors at bathrooms and storage rooms.
6. Provide solid wood doors at unit entries and bedrooms, paint-grade, with painted finger-jointed pine or MDF trim. MDF shall not be used at door jambs.
7. Provide glazed fiberglass doors at decks. See Division 08.
8. Provide separate coat closet within proximity of entry door at all units
9. Provide separate linen closet at all 2 and 3-bedroom units.
10. Provide wire shelving system, to the full width of the closet at all closets where solid wood shelving occurs (solid wood pole to be provided at bedroom and coat closets and middle support as needed). 4 shelves, typ.
11. Provide washer/dryer unit in dedicated closet at all units.
12. All appliances to be electric and Energy Star rated, of a single manufacturer, with UL certification labels affixed to each appliance. Any gas-burning appliances shall have an

American Gas Association seal of approval. (See also Mechanical, Electrical and Plumbing Basis of Design for additional information)

13. Provide under sink garbage disposal with counter mounted air-switch (garbage disposal in conjunction with selected sink and cabinet configuration must comply with all code required clearances)
14. All residential units to receive:
    a. Range
    b. Microwave/hood
    c. Dishwasher
    d. Refrigerator
    e. Washer/dryer
    f. Garbage disposal with air switch at kitchen sink with rear drain.
15. **See Division 11** of this document for appliance sizes, manufacturer and finish information.
16. Provide full-height tile backsplash at all unit kitchens. Provide at all side walls in addition to back wall.
17. Provide full-depth double-sided millwork panel at inside face of Refrigerator to match base cabinet finish. **See Division 12 of this document for information on cabinets and cabinet hardware.**
18. Provide full-height framed wall at outside face of refrigerator alcove.
19. Provide separate cabinet finish/color for upper cabinets.
20. All base cabinets shall be sized such that total depth of counters (including any overhang) does not exceed 24".
21. Provide pull-out cabinets for 3-bucket waste containers (waste, recycling, compost)
22. Provide a minimum of 18" clear counterspace at either side of range.
23. All inside corners at cabinets to be usable and accessible from one side or the other. Provide "lazy-suzan" at all inside corner cabinets.
24. All upper cabinets shall be sized such that 12" clear dimension is provided on the inside.
25. Provide a minimum of 70-cubic feet of kitchen cabinet storage.
26. Continue all flooring under cabinets at kitchens and bathrooms.
27. Provide quartz or granite counters at all kitchens and bathrooms.
28. Provide minimum 10" overhang at all bar/island counters. Counter shall be self-supporting as verified by the manufacturer and not require additional brackets or reinforcing.
29. Provide 4" quartz/granite backsplash at all bathroom vanities (to match counter material). Provide at all side walls in addition to back wall.
30. All vanity cabinets to be provided with at least one set of drawers and one pair of doors. **Refer to Division 12 for material information.**
31. Provide undermount sinks at kitchens and bathrooms.
32. Provide tub/shower combo with fiberglass surround at 1-bedroom units and guest bathrooms in 2 and 3-bedroom units.
33. Provide solid surface roll-in shower with tile surround and glass door/enclosure at all master bathrooms and unit bathrooms that are required to be accessible per Code. **Refer to Division 10 for manufacturer and model information.**
34. Provide backing for grab bars at all tub/shower combos, all showers and all toilets.
35. All tub/shower combos and all showers shall have slip-resistant bottoms.
36. All bath and kitchen plumbing fixtures and associated trim to be polished chrome (excluding sink and lavatory).
37. Provide dual-flush floor mounted toilet.
38. Provide variable speed combined light and fan unit at all bathrooms.
39. Provide clip-mounted mirror for full width of vanity at all bathrooms.
40. Provide the following bathroom accessories at all bathrooms:
    a. Bathrobe hook (back of door)

b. Toilet roll holder
c. (2) towel bars (with blocking)
d. Vinyl curved shower curtain rod (at tub/shower combo units)
e. **See Division 10** for manufacturers and finish.

41. Provide frosted glass for "privacy glazing" within all bathrooms.
42. Provide vanity sconce centered on vanity above mirror at all bathrooms (with independent switch).
43. Provide recessed light fixtures or flush mounted fixtures at all rooms and closets.
44. All light fixtures to be associated with wall mounted switch.
45. Provide dimmable lighting at all rooms.
46. All dropped soffits and ceilings shall be hard lid construction using light-gauge metal framing. Design/builder shall ensure that code required acoustical STC ratings are maintained.
47. Provide roller-shade type window coverings at all exterior glazed openings (including doors). **See Division 10** of this document for manufacturer and shade cloth details.

C. Flats:

1. Balconies/patios shall be provided at all 2-bedroom "flats". Outdoor patios shall be provided at all 1-bedroom units on the first floor. Patio shall consist of sloped to drain hardscape of concrete or pavers. Metal Juliet balconies (minimum 18" in total depth) shall be provided on at least one window on each 1-bedroom unit on the 2nd floor.
2. Provide 12" wide and 4" deep pilaster on either side of interior unit entry.
3. Provide U-shaped kitchens with bar/peninsula to accommodate a minimum of 3 people (4 preferred).

D. Townhouses:

1. Provide individual water heater units at all townhouse units (See mechanical and Plumbing Basis of Design for additional information).
2. Provide L-shaped or linear kitchens with island wherever possible.
3. Interior stairs within townhouse units to include stained oak treads with rounded nose and painted riser.
4. Handrails at townhouse interior stairs to be stained hardwood to match treads. Attach to wall with painted steel support (design/builder to provide all in-wall blocking as required for installation).
5. Wherever possible the area under townhouse stairs not already being used as another room shall be designed as built-in storage/cabinetry to face the adjoining room.

ii. Common Areas

A. General:

1. Provide minimum of level-4 smooth painted finish at all common or public areas.
2. All common areas shall be covered by wall/ceiling mounted security camera.
3. All dropped soffits and ceilings shall be hard lid construction using light-gauge metal framing. Design/builder shall insure that code required acoustical STC ratings are maintained.
4. Basic room finishes, see **Division 09 of this document for additional information on finishes**:
   a. Lobby:
      i. Large format ceramic tile at floors, 10" MDF or wood wall base, paint on GWB walls and ceilings.

b. Management/Leasing Offices, Community Room, and Mail Room:
   i. Tile carpet at floors, rubber base, paint on GWB walls and ceiling.
c. Toilet Rooms:
   i. Ceramic tile at floors, tile base, paint on GWB walls and ceilings.
d. Resident Storage, Electrical Rooms:
   i. Sealed concrete at floors, rubber wall base, paint on GWB walls and ceilings.
e. Bike Storage, Trash Enclosures:
   i. Sealed concrete at floors (rated for exterior applications and heavy traffic), walls to be integral finish to building (sealed split faced CMU block at trash enclosures per DGI. Hot dipped galvanized welded wire mesh and structural steel frame per DGI)

5. All community rooms and spaces shall be lockable and keyed for management's access.
6. Provide roller-shade type window coverings at all exterior and interior glazed openings (including doors).

B. Leasing Office/Entry Lobby:

1. Provide direct line of sight from leasing office/property management desk to primary entry door and public areas through use of interior storefront system and glazed interior door.
2. Provide gender neutral restroom. Design/builder shall be responsible for supplying number and type of fixtures to comply with all applicable codes. Design/builder shall be responsible for providing grab bars and associated in wall blocking as required.
3. Provide the following restroom fixtures:
   a. Flush valve toilet,
   b. Wall-hung sink with manufacturer specified mounting brackets. iii Push-up type soap dispenser,
   c. Paper towel dispenser immediately adjacent to sink,
   d. Waste can,
   e. Mirror,
   f. Sanitary napkin disposal can
   g. Two (2) Coat hooks
4. Provide restroom door hardware indicating if room is occupied.
5. Provide lockable office for property manager/leasing agent.
6. Provide glazed doors and sidelights with automatic opener and ADA compliant push buttons for disabled access. Door shall have minimum 4-foot clear opening.
7. Provide recessed aluminum or stainless-steel floor mats at the interior side of all doors to the Leasing office.
8. Provide larger glazed openings at leasing office offering direct views of the street and common outdoor areas.
9. Provide sitting area within lobby for guests. This area should be visible from the property manager's desk.
10. Provide mailboxes and package lockers adequate to serve all residential units within the leasing office building. See **Division 10 Specialties** for more information.
11. Provide built-in, concealed recycling and garbage bins.
12. Include a mall slot and lockbox for rent collection, either through manager's office Door or wall.
13. Provide package concierge system adequate to serve all units within the leasing office building. See **Division 10** for manufacturer and model.
14. Provide built-in coffee bar with water hook-up adjacent to entry.
15. Provide water bottle filling station (recessed in wall)
16. Provide key boxes at all locations deemed necessary by fire department.
17. Provide drinking fountain and water bottle filling station.

18. The floor slab shall be set to accommodate the structural slab to be ground, sealed and polished. Design/builder shall provide saw-cut joints as needed
19. Dropped soffit and ceilings shall be minimized as much as possible and limited to closets and office areas.
20. Provide electronic key fobs and electrified entry door systems that will be utilized by building tenants and may be controlled by building management.

C. Community Room:

1. The community space shall be designed to accommodate multiple sizes and functions of group gathering. The space should be able to accommodate TV viewing, event hosting, and business meetings.
2. Provide gender neutral restroom. Design/builder shall be responsible for supplying number and type of fixtures to comply with all applicable codes. Design/builder shall be responsible for providing grab bars and associated in wall blocking as required.
3. Provide the following restroom fixtures:
    a. Flush valve toilet,
    b. Wall-hung sink with manufacturer specified mounting brackets. iii Push-up type soap dispenser,
    c. Paper towel dispenser immediately adjacent to sink,
    d. Waste can,
    e. Mirror,
    f. Sanitary napkin disposal can,
    g. Two (2) Coat hooks
4. Provide restroom door hardware indicating if room is occupied
5. Built-in banquet seating shall be included to seat a minimum of 10 people (finish to match other adjacent millwork and cabinetry).
6. The floor slab shall be set to accommodate the structural slab to be ground, sealed and polished. Design/builder shall provide saw-cut joints as needed
7. Provide means to divide room into multiple spaces for multiple events
8. Provide at least two means of ingress/egress.
9. Provide large unobstructed windows, oriented to face green space with a minimum vertical dimension of 6 feet.
10. Include lockable storage closet (minimum 24" clear interior depth and 4 feet wide).
11. Provide chair rails, corner guards, and 6" painted MDF base.
12. Provide 2 locations for wall mounted T.V. including all structural, power and data requirements.
13. Provide a variety of lighting to suit the various functions of the room, bright for meetings, more subdued for daily use.
14. Provide electronic key fobs and electrified entry door systems that will be utilized by building tenants and may be controlled by building management
15. Include full kitchen within the community room space.
16. All appliances to be electric. See Division 11 of this document for manufacturer, model, and sizes of appliances.
17. Provide full height tile backsplash. White glossy subway tile with dark gray grout. Daltile or equal. **See Division 9** of this document for additional information.
18. All base cabinets to be lockable.
19. Provide full height millwork end panels at refrigerator.
20. All cabinets to meet Minimum Design Requirements and Performance Criteria for unit cabinets.
21. Provide dedicated pull-out base cabinet for waste, recycling and compost bins.

D. Bike Storage Rooms:

1. Provide electronic key fobs and electrified entry door systems that will be utilized by building tenants and may be controlled by building management
2. All bike storage within secured areas to be provided in the form of individually secured stacking bike storage system with assisted lift mechanism. **See Division 10 for information on bike storage systems.**
3. All open bike storage areas to be provided with sloped floor to prevent pooling.

iii. Circulation

A. Corridor:

1. All corridors to be provided with carpet tile flooring.
2. All corridors to be provided with 6" painted MDF base material.
3. All corridors to maintain minimum clear height of 8'-0".
4. All corridors to maintain minimum clear width of 5'-6".
5. Extend exterior wall finish materials a minimum of 15'-0" at openings (open corridors and entries). Finish shall transition at an inside corner condition.
6. Floor finishes at open ended corridors and entries should consist of exterior rated gypcrete of concrete substrate and traffic coating, sloped to drain (Exterior finish assembly to extend a minimum of 15'-0" into the building and align with exterior wall finish transition).

iv. Back-of-House/Maintenance

A. Trash Staging Areas:

1. All trash staging areas should be sized to accommodate full number of residential units in both phases in accordance with the local waste management service's requirements and in conjunction with a decided number of waste pick-ups that has been approved by the City. Design/builder shall be responsible for submitting waste management plan for review and approval.
2. All trash staging areas should be provided with 12" wide concrete curb at all walls to protect inside finish surface from damage.
3. Lockable Hose bib should be provided at all trash staging areas

B. Utility Rooms:

1. Provide janitor closet on first floor of each 'flats' building with min inside dimension of 4' X 5'. Provide mop sink at both locations.
2. All utility rooms to be provided with elastomeric floor coating
3. All Electrical and boiler rooms to be provided with sloped floor and area drains.

b. Minimum Design Requirements and Performance Criteria

Division 3 – Concrete

It is the responsibility of the Design-Builder to prepare and develop a submittal illustrating the design intent of all concrete, including but not limited to, cast-in-place concrete, concrete finishes, surface treatments and cement underlayments. The Design-Builder is also responsible for providing the requirements for associated formwork, reinforcement, structural calculations, complete detailed working drawings and specifications. These construction documents shall contain all required building permit, planning and zoning approvals and to construct the project.

A. Private Unit Patios: **Flooring to be poured-in-place concrete topping slab over waterproofing membrane, natural grey color, with topcast 5 finish and sawcut joints.** See Division 7 for waterproofing requirements and Landscape Basis of Design.
B. Concrete finish to be Class B where exposed in garage and similar back-of-house spaces, Class C where concealed behind future finishes.
C. Concrete floor to be swirl finish at garage levels.
D. Concrete floor sealer at non-parking areas in floors 1 and 2, e.g. bicycle rooms, storage rooms, maintenance rooms and where indicated above.
    1. Approved Manufacturers: L&M Construction Chemicals, Inc. "Seal Hard", Euclid, Sonneborn, or approved equal.
E. 1-1/4" thick gypsum cement underlayment, with acoustical underlayment at all hard-surface floors.

1. Approved Manufacturers: Maxxon "Gyp-Crete 2000/3.2k" or approved equal

F. Acoustical underlayment thickness shall vary by location in building: based on floor assembly, adjacency to dwelling units, and finish floor material. See verbiage under Division 09 for specific floor finish materials.
   1. Approved Manufacturers: Maxxon "Acousti-Mat" or Enkasonic products.

REFER TO STRUCTURAL NARRATIVE FOR ADDITIONAL PARAMETERS.

Division 4 - Masonry

REFER TO STRUCTURAL AND LANDSCAPE NARRATIVES FOR ADDITIONAL PARAMETERS.

Division 5 – Metal

A. It is the responsibility of the Design-Builder to prepare and develop a submittal illustrating the structural metal framing, including but not limited to, floor assemblies, wall assemblies and roof structure as applicable. The Design-Builder is also responsible for providing the requirements of load bearing metal elements including structural calculations, complete detailed working drawings and specifications. The Design-Builder is also responsible for providing the design of non-structural metal finishes and furnishings. These construction documents shall contain all required building permit, planning and zoning approvals and to construct the project.

B. All metalwork in this section shall be Design/Build.

C. All gutters, downspouts, and exterior sheet metals shall be galvanized sheet metal or bonderized.

D. Guardrails: Guardrails shall be Design / Build, constructed of hot dipped galvanized steel (entire assembly) and painted steel tube members. Guardrail infill shall be 2" x 4" hot-dipped galvanized steel flatbar welded to posts. Maximum member size shall be 1 ½-inches, O.D.

E. Balcony Rails: Shall also be Design / Build, constructed of hot dipped galvanized steel (entire assembly) and painted steel tube members. Guardrail infill shall be 2" x 4" hot-dipped galvanized steel flatbar welded to posts.

F. Juliet Balconies: Shall also be Design / Build, constructed of hot dipped galvanized steel (entire assembly) and painted steel tube members. Guardrail infill shall be 2" x 4" hot-dipped galvanized steel flatbar welded to posts. The entire assembly shall extend 18" from the exterior face of the buildings and shall be supported by steel knife plates integrated with building waterproofing systems.

G. All metal elements of exterior trellis structures to be hot dipped galvanized and painted. All post elements to be elevated from grade and protected with galvanized and painted post shoe.

H. Planter Walls: Refer to Landscape Narrative for planter wall Minimum Design Requirements and Performance Criteria**.**

I. Vine growing mesh panels: by Green Screen, NcNichols Eco mesh or similar product, shall be placed where necessary to shield future utility locations from public view. Locations to be determined.

J. Pipe guards/bollards at all vertical piping that can be impacted by maneuvering vehicles in parking spaces or drive aisles.

K. Bollards: concrete filled where required to protect equipment or to keep an exit path or accessible path clear. Bollards shall be made of galvanized steel pipe, anchored into concrete with preset pipe sleeves. After inserting into sleeves, fill annular space between bollard and sleeve with non-shrink, non-metallic grout, such as Euclid Chemical Co "Euco N-S Grout", L&M "Chrystex, Master Builders Technologies, Inc. "Masterflow 928 and 713". Field-paint per Exterior Painting listed in Division 9 of the Minimum Design Requirements and Performance Criteria.

Division 6 – Wood/Plastic

A. It is the responsibility of the Design-Builder to prepare and develop a submittal illustrating the structural wood framing, including but not limited to, floor assemblies, wall assemblies, shear, tie-downs and roof structure. The Design-Builder is also responsible for providing the requirements for the wood species, required treatments, structural calculations, complete detailed working drawings and specifications. The Design-Builder is also responsible for providing the design of non-structural wood and plastic finishes and furnishings. These construction documents shall contain all required building permit, planning and zoning approvals and to construct the project.

B. Rough Carpentry *(Also refer to Structural Narrative for parameters.)*

1. Lumber shall be green with **less than** 19% moisture content at time of close-in.
2. Wood in contact with or closer than ½" to masonry or concrete shall be pressure-treated lumber.
3. All timbers 6x8 or larger shall be FOHC with 22% moisture content max
4. Exterior walls generally are to be framed with 2 x 6 lumber.
5. Demising walls ("party walls") are to be framed with double 2 x 4 stud walls set 2" apart to allow for piping in between.
6. Plumbing walls 2 x 8 plates with 2 x 6 staggered framing.
7. Elevator and stair shaft walls shall to be 2 hr. rated shaft walls with 2 ½" C-H metal studs, or 2 hr. rated double 2 x 4 or 2 x 6 where unit separation wall occur.
8. Floor construction shall be 11 7/8" TJI with 2 x 8 joists at corridors. Refer to Narrative of Structural Systems and Basis of Design.
9. Deck construction shall be 2x12 joists ripped on top to create slope to the edge of the deck. Refer to Narrative of Structural Systems and Basis of Design.
10. Roof construction shall be open, shop-fabricated wood trusses with 1/4" min slope at "flat" roof areas, or steeper where indicated on the drawings at high slope areas. Refer to Narrative of Structural Systems and Basis of Design.
11. Solid block T&G roof plywood joints, do not use "H" clips.

C. Exterior Woodwork

1. Wood trellis at flats, community patio and townhouse buildings. Wood species to be rot and termite resistant. See landscape narrative for additional information.

D. Common Area Casework:

1. Community Building and Office: 2'-0" deep countertop and base cabinet with doors; provide grommet for integral trash bin; quartz countertop. Assume thermafoil cabinets and base.

E. Interior Woodwork:

1. Wall base: Use everywhere resilient base is not used. See Division 09 for information on resilient base.

    a. Painted Formaldehyde-free MDF, Pine or Douglas Fir; wood shall comply with NAAWS Section 6. See Division 09 for information on interior paint.
    b. Grade: Custom.
    c. Backout or groove backs of flat trim members and kerf backs of other wide flat members, except for members with ends exposed in finished work.
    d. Profiles: 5 1/2-inches high. Ease edges to a radius as follows:

i. Corners and edges of solid wood members less than 1-inch in nominal thickness 1/16-inch.
ii. Edges of rails and similar members more than 1-inch in nominal thickness: 1/8-inch.

2. Shelving:

a. Coat Closet: Rod and shelf (3/4" thick x 12" deep); painted Pine or Douglas Fir.
b. Linen Closet: full height; 4 adjustable shelves; painted Pine or Douglas Fir.
c. Bedroom: Rod and shelf (3/4" thick x 12" deep); **See Division 10 for information on wire shelving system.**
d. Pantry (where occurs): 5 shelves (3/4" thick x 12" deep); painted

F. Gypsum Sheathing

1. Exterior gypsum sheathing where indicated in the Drawings.
a. Approved Manufacturers: Georgia Pacific "DensGlass Sheathing" or approved equal.

G. Plastic Paneling

1. Fiberglass Reinforced Plastic-coated wall panels (FRP) at Trash Termination Rooms and other Utility Rooms.
a. Approved Manufacturers: Allied Resinous Products, Inc. "Permaclean", Crane Composites "KEMLITE Fire-X Glasbord", NUDO "FiberLite", Sequentia "Structoglas" or approved equal. Texture to be embossed.

Division 7 – Thermal and Moisture

A. It is the responsibility of the Design-Builder to prepare and develop a submittal illustrating how water infiltration will be prevented at all openings, including but not limited to, wall-penetrations, roof penetrations, roof drainage, floor slabs, below- and above-grade moisture protection. The design intent of the thermal and moisture protection systems also shall include exterior building materials and finishes such as roofing and siding materials. The Design-Builder is also responsible for providing the requirements for attachment, associated accessories and installation methods of said systems and shall include complete detailed working drawings and specifications. These construction documents shall contain all required building permit, planning and zoning approvals and to construct the project.

B. Typical Exterior Wall Assemblies:

1. Wood Framed:
   a. 1-hour fire resistance rating, plywood, wood stud framing, thermal batt insulation, 1 layer 5/8" Type "X" GWB, 1 layer Fortifiber WeatherSmart Commercial, then apply: 5/8" exterior Dens Glass sheathing, plaster system with rainscreen drainage mat or additional layer WRB, or DensGlass and finish system as indicated on the drawings.

C. Copings

1. Provide bonderized and painted GSM coping cap; 1 layer butyl SASM flashing below coping cap. Joints shall be 12" sliding overlap joint type per SMACNA. Pre-formed corners required, 4" faces with 1" hems.

D. Exterior Finish Systems

1. Cement Plaster: 7/8" thick plaster assembly, 3-coat with integral color finish layer, La Habra or approved equal; color as indicated in the drawings;
   a. Expanded metal lath such as Structa Wire Corp. "Structalath No. 17 SF CR II"; 3mm rainscreen drainage mat or additional layer WRB, and weather resistive barrier.
   b. Galvanized steel control joints at all cement plaster soffits and walls (whether interior or exterior). Space control joints so that the distance between joints does not exceed 18 feet, the area bordered by joints does not exceed 144 square feet, and the panel bordered by joints has an aspect ratio that does not exceed 2.5:1.
   c. Drainage mat shall be a geometric-patterned drainage and ventilation mat with a Class A Famespread/Smoke Index per ASTM E84. Approved Manufacturers: Keene Building Products "Driwall Rainscreen 0210-1", Struc-O-Flex "Waterway 3-mm Rainscreen Drainage Mat with Integrated Filter Fabric", Vaproshield "VaproMat 3-mm Drainage Mat with Integrated Filter Fabric" or approved equal.

2. Fiber Cement Horizontal Siding
   a. Fiber cement horizontal rainscreen siding with accessories and trim.
      i. Approved manufacturers: James Hardie Building Products or approved equal.
      ii. Board Size: 7-1/4" W / 6" exposed and 11-1/4" / 12" exposed
      iii. Board Thickness: 7/16"
      iv. Texture: Cedar Mill
      v. Finish: Factor-sealed/primed; Field Painted.
3. Fiber Cement Board and Batten Siding

a. Fiber cement board and batten rainscreen siding with accessories and trim
b. James Hardie Building Products or approved equal.
c. Board Size: 4' W x height indicated in drawings.
d. Board Thickness: 5/16"
e. Texture: Cedar Mill
f. Finish: Factor-sealed/primed; Field Painted.

4. Fiber Cement Shingle Siding
   a. James Hardie Building Products or approved equal.
   b. Board Size: 4' L x 15.25" W
   c. Board Thickness: 1/4"
   d. Texture: Cedar Mill
   e. Finish: Factor-sealed/primed; Field Painted.

E. Soffits
1. Soffits shall be Fiber cement soffit board with venting as required by code. James Hardie product or equal.

F. Horizontal and Below Grade Waterproofing

The Design-Builder is responsible for the full roof design that can achieve a 20-year No Dollar Limit warranty for any of the following roofing systems, whichever is selected and installed. Roofing shop drawings shall include roof configuration, seam locations, perimeter details and roof penetrations, drawn at minimum 1/8" = 1' scale.

1. Built-Up Roofing Asphalt roofing
   a. Base ply, (2) plies felt asphalt-impregnated glass-fiber mats, an inter-ply bitumen roofing asphalt layer, and a mineral surface cap sheet, white acrylic-coated fiberglass cap sheet with an aged reflectance of 0.63 or higher and thermal emittance of 0.75 or higher.
   b. Approved manufacturers: Johns Manville 4GNC or approved equal.
   c. Liquid-applied flashing Alsan RS PMMA Reinforced Flashing System
   d. Walkway protection boards/pads

2. Asphalt Shingle Roofing
   a. Shingle: Self-sealing, granule-surfaced asphalt shingle with strong reinforced fiberglass core and discoloration protection.
   b. Approved manufacturers: Certainteed "Landmark Designer Shingles" or approved equal.
   c. Hip and Ridge Shingles: High profile self-sealing hip and ridge cap shingle matching the color of selected roof shingle. Each bundle covers approx. 20 lineal feet (6.10m). Timbertex Premium Ridge Cap Shingles, by GAF.
   d. Compatible starter strips and leak barriers by GAF.
   e. Underlayment: (2) layers of GAF "Deck Armor Premium Breathable Roof Deck Protection" or GAF "Roof Pro SBS Modified All-Purpose Underlayment".
   f. Warranty: 40 Year with first 2-years non-pro-rated.

3. Thermoplastic-Polyolefin Roofing
   a. Factory-applied, totally-adhered thermoplastic polyolefin (TPO) single-ply roofing system: Fabric-reinforced thermoplastic polyolefin, per ASTM 6878. Nominal 60-mils thick, white color.
   b. Approved manufacturers: Johns Manville "JM TPO", Carlile Syntec "Sureweld TPO" or approved equal.
   c. Performance criteria:
      i. Fire/Windstorm Classification: Class 1A-90

ii. Hail Resistance: MH
iii. SRI: 78

d. Warranty: Manufacturer's warranty, No Dollar Limit, 20-year after date of Substantial Completion. Installer's warranty, 5-years after date of Substantial Completion.
e. Provide glass-mat, water-resistant substrate board such as USG Securock Gypsum Fiber Roof Board" or Georgia-Pacific "Densdeck Prime", minimum ¼" thick; factory-coated steel fasteners with metal or plastic plates as recommended by the roofing membrane manufacturer, and non-porous, surface-textured flexible walkways sourced by roofing membrane manufacturer.

4. Polyvinyl-Chloride Roofing
   a. Factory-applied, totally-adhered polyvinyl chloride (PVC) elastomeric single-ply roofing system: polyester fabric (Type III) or fiberglass mat (Type II) reinforced PVC sheet, per ASTM D4434. Minimum 60-mils thick.
   b. Approved manufacturers: Johns Manville "JM TPO", Carlile Syntec "Sureweld TPO" or approved equal.
   c. Performance criteria:
      i. Fire/Windstorm Classification: Class 1A-90
      ii. Hail Resistance: MH
      iii. SRI: 78
   d. Warranty: Manufacturer's warranty, No Dollar Limit, 20-year after date of Substantial Completion. Installer's warranty, 5-years after date of Substantial Completion.
   e. Provide glass-mat, water-resistant substrate board such as USG Securock Gypsum Fiber Roof Board" or Georgia-Pacific "Densdeck Prime", minimum ¼" thick; factory-coated steel fasteners with metal or plastic plates as recommended by the roofing membrane manufacturer, and non-porous, surface-textured flexible walkways sourced by roofing membrane manufacturer.

5. Unit Deck Areas
   a. Fluid-applied deck coating system at wood and concrete decks. Class A fire rating on 3/4-inch plywood per ASTM E108, NFPA 256 and UL 790.
   b. Approved Manufacturers: Pli-Deck at wood decks, Con-Dek at concrete decks, or equal products by WestCoat Specialty Coatings "MACoat"
   c. Modified cementitious underlayment and woven fiberglass mat over a high-build elastomeric acrylic resin base coat.
   d. Sheet metal flashing is to be 24-gauge and bonderized.
   e. Hot-dip galvanized expanded metal lath required at wood decks with PliDek coating.
   f. Low-profile flat-head fasteners staggered in a 'W' pattern at 4'-6" on center, recessed in concrete and set in epoxy so that top surface of flashing is flush with top surface of concrete.
   g. Additional coatings must be applied to provide a feathered transition at door thresholds so that all flashing and fasteners are completely concealed and indiscernible.

6. Planters
   a. Cold applied membrane hall be a fluid-applied polyurethane waterproofing membrane, coal tar free, complying with ASTM C836.
   b. Approved Manufacturers: Henry Company "CM-100", Tremco "TremProof 250GC", Pacific Polymers "Elasto Deck B.T.", Gaco Western "GacoFlex LM60" or approved equal.

Hot applied membrane required where planters are located adjacent to occupied space. Shall be a single-component, rubberized-asphalt membrane system formulated for minimum 215-mil thick-coat application.

c. Approved Manufacturers: American Hydrotech, Inc. "Monolithic Membrane 6125-EV Fabric-Reinforced (FR) System", Carlisle Coatings & Waterproofing "CCW-500R Reinforced", Soprema "Colphene H", Tremco, Inc. "TREMProof 6100" or approved equal.

7. Below grade/under slab waterproofing assembly:
   a. Below grade 15-mil sheet membrane, meeting or exceeding Class A per ASTM E1745.
      i. Stego Industries "Stego Wrap", Reef Industries "Grifolyn Type-65" or approved equal Class A, per ASTM E1745.
      ii. Seam tape and mastic compatible with sheet membrane.
      iii. Perimeter/edge seal: Stego "Crete Claw" or approved equal.
   b. Design/builder shall be responsible for evaluating full geotechnical and environmental reports for recommendations and providing additional under-slab waterproofing and/or vapor mitigation measures as necessary.

Division 8 – Openings

It is the responsibility of the Design-Builder to prepare and develop a submittal illustrating all opening types, including but not limited to, punched windows, storefront windows, doors, garage entry doors, access panels, doors integrated with the fire alarm, and door hardware. The Design-Builder is also responsible for providing the required STC ratings, water penetration testing data for integrating building envelope finishes and waterproofing systems with the installation of all doors and windows and shall include complete detailed working drawings and specifications. These construction documents shall contain all required building permit, planning and zoning approvals and to construct the project. It is also the responsibility of the Design-Builder to hire an acoustical consultant to establish acoustical requirements in both an environmental noise study and an interior acoustical narrative.

A. Windows
   1. Exterior windows in Retail Spaces, Resident Lounge, Fitness Center, Athleisure Lounge, Leasing Office, Flex Amenity, Laundry Lockers and all Lobbies shall be: front loaded (offset) glazed storefront window system, custom color, by Kawneer or approved equal. Include cost of internal structural support as required by height. Sound rated to STC level as recommended by Acoustical Consultant in Final Environmental Noise Report.
   2. Residential Unit windows shall be vinyl nail-fin type windows, single hung, with insect screen, integral black color from standard palette by manufacturer. Windows to be VPI, **Endurance Series**, sound rated to STC level as required by code and recommended by Acoustical Consultant hired by the Design-Builder.
   3. Water test typical installations prior to installing exterior finish and interior drywall, testing a minimum of six (6) windows. Water testing shall be performed by a third-party AAMA certified agency, hired by the Owner. Water penetration tests shall be per AAMA 502 Method B. If a window fails a test, window must be re-tested and pass twice after remediating the cause of the leak.
   4. Provide foam sill and head at windows in plaster walls.
   5. Flashing: All window, door, and louver openings to receive GSM head flashing, GSM sill pan with integrated vapor permeable window penetration flashing such as Top Industrial Rain Buster 420, Vaproshield "WrapShield SA" or approved equal.
   6. **Mechanically attached penetration wrap,** flashing shall be single layer, into rough opening and then over the nail fin, typically. See window installation sequence drawings to be prepared by Waterproofing Consultant.

B. Doors

   1. **Garage Vehicle Entry: Overhead Sectional Doors:** Provide segmented, counter-balanced doors with no overhead track. Door style shall be panelized and in keeping with the overall building aesthetic.
      a. Approved Manufacturers: Overhead Door Corp. "Model 416" or approved equal.
   2. **Hollow Metal Doors:** Provide 1 3/4" thick hollow metal doors and hollow metal frames (welded at exterior, Knock-down at interior) as follows:
      a. Storerooms, stairs, electrical, and similar utility rooms.
      b. Exterior doors not located in a storefront window system.
      c. Interior doors at common areas.
      d. Unit Entry Doors: knock-down frame, prefinished.
   3. **Interior Fire Rated Doors:** Provide fire rated doors at all door openings in fire walls, fire barriers, and fire partitions; 1-3/4" hollow metal; paint grade. Door frames to be hollow metal; painted.
   4. **Residential Unit Entry Doors (Flats) (Fire Rated):** Provide fire rated doors at residential unit entries; 1-3/4" solid core wood; flush panel style; veneer species

to be selected; stain grade. Door frames to be knock-down hollow metal; painted, welded.

a. Timely or approved equal.

5. **Residential Unit Entry Doors (Townhouses):** Provide fiberglass panelized doors at residential unit entries. Door frames to be matching fiberglass finish; painted.
   a. Thermatru Classic Craft American Style or approved equal.
6. **Interior Unit Doors:** Flat slab hollow core paint grade. Stile and rail or molded hardboard style.
   a. Approved Manufacturers: Ceco, Algoma, Marshfield, Coplay, or approve equal.
7. **Interior Unit Trim:** 9/16" x 3-1/2" primed MDF casing, painted.
8. **Patio Doors:** Provide glazed fiberglass patio doors. Thermatru or approved equal. Exterior color to match that of the vinyl windows. Deck doors to provide code-required minimum STC rating or better within the STC 52-54 range.
9. **Access Panels:** The Design-Builder is responsible for installing access doors at all required locations, including but not limited to, any attic space that is 30-inches or higher. Provide minimum of 2 per roof area. Unless otherwise required, sizes shall be 12" x 12" for hand access, 18" x 18" for valve and actuator access, 24" x 24" for equipment access.
10. Frames and doors shall be 14-gauge and 16-gauge cold-rolled steel, respectively. Flush panel.
11. Approved Manufacturers: Bilco, Acudor, J.L. Industries or approved equal. Fire rated access doors and frames shall comply with NFPA 80 and be UL listed and labeled.

Division 9 – Finishes

It is the responsibility of the Design-Builder to prepare and develop a submittal identifying all interior finishes, including but not limited to, manufacturer, model/series, color/finish and sheen (if applicable). The Design-Builder is also responsible for establishing the scope and extent of each finish and shall include complete detailed working drawings and specifications. These construction documents shall contain all required building permit, planning and zoning approvals and to construct the project. It is also the responsibility of the Design-Builder to hire an acoustical consultant to establish acoustical requirements in both an environmental noise study and an interior acoustical narrative.

A. Typical Interior Wall Assemblies (All assemblies are provided as a baseline of required quality. Design-Builder may submit alternate assemblies. The use of such assemblies shall be contingent on the review and approval of the Owner).

1. All GWB at fire rated assemblies shall be 5/8" Type "X" or Type "C" at ceilings, unless otherwise noted.
2. All GWB finish to be painted **level 3 with medium knock-down within residential units, and level 4 smooth finish at all amenity spaces, unless otherwise noted,** with the use of primer/surfacer such as "Tuff Hide", on level 3 and above.
3. Fire-rated moisture and mold-resistant gypsum board shall be installed, floor to ceiling where applicable, at the following locations: three walls at all tub and shower surrounds, toilet and sink walls, at kitchens between countertop and upper casework, washer/dryer closets, any "pre-rocked" or preliminary drywall installation that is installed prior to the building being enclosed and the HVAC system is operational, and where required by code.
   a. Approved Manufacturers: United States Gypsum "Sheetrock Mold Tough Type X", CertainTeed Gypsum, Inc. "ProRoc Moisture and Mold Resistant with M2TECH Type X", Georgia Pacific "DensArmor Plus Fireguard" or approved equal.
4. Where gypsum board is to receive tile, use glass-mat-faced gypsum board such as Georgia Pacific "DensShield Tile Backer". Follow tile installation methods as delineated in the most recent TCNA manual.
5. Shaft Walls (Mechanical Shafts): full height, 2-hour fire rated; a combination of, 2 layers 5/8" Type "X" GWB and 1 layer 1" GWB shaft liner inserted into 2-1/2" C-H shaft wall stud framing or 2 layers 5/8" Type "X" GWB and 1 layer 1" GWB shaft liner on 2 x 6 wood framing, except elevator shaft walls are to use 4" C-H shaft wall framing. **Additional furred walls should be placed at major duct shafts.**
6. Corridors Adjacent to Residential Units (Above Podium): Full height, 1HR fire partition; (2) layers 5/8" gyp bd at one side of stud, (2) layers 5/8" gyp bd at opposite side of stud; (1) layer plywood shear at corridor side, or both sides as required, staggered 2x4 and 2x6 wood stud framing (2x8 bottom and top plate); acoustical batt insulation. Below the podium use metal framing.
7. Plumbing Walls: Provide wall types at plumbing as follows: at wood stud locations: 2x6 minimum framing, at metal stud locations: 6" minimum framing; include acoustic insulation at all plumbing walls.
8. Soffits: All drop soffit will have a double GWB lid. Provide a 5/8" gyp bd dropped soffit on metal studs at all residential unit kitchen ceiling above upper cabinets, entry ceilings, and bathroom ceilings. Provide a continuous metal stud dropped ceiling at interior corridors.

Division 9 – Finishes, continued

B. Typical Interior Floor-Ceiling Assemblies

1. All GWB at fire rated horizontal assemblies is 5/8" Type "X" or Type "C" at ceilings, unless otherwise noted.
2. 1-hour fire resistance rating; fire resistance assembly design per 2016 California Building Code Table 720.1(3), Item 26-1.1;(2) layer 5/8" Type X GWB; 1/2" metal resilient channel; wood I-joist framing; acoustical batt insulation; plywood subfloor; acoustical underlayment at hard floor finishes. See structural narrative for information on joist framing and plywood subfloor

C. Flooring

1. Carpet: provide carpet as follows:
   a. Unit Bedrooms: Sheet carpet with 3/8-inch thick, 6-pound Rebond Foam Pad.
   b. Approved Manufacturers: Shaw Contract Kindred Series, "Stay, Interface or approved equal.
   c. Corridors: Carpet tile: Shaw Contract "Color Form" 5T112. Color to be selected by future Interior Designer.
   d. Provide carpet edge for glue-down carpet applications with resilient base.
2. Vinyl Plank Flooring:
   a. Unit living areas and kitchens.
3. Approved manufacturers: Evoke "Selma" vinyl plank, Shaw Contract
4. Vinyl plank to be installed over Custom Building Products "Redgard" waterproofing and crack-isolation membrane on top of Gypcrete, over Acousti-Mat).
5. Ceramic tile: Provide at Lobbies, Kitchen walls between countertop and upper cabinets, and at all bathrooms.
   a. Approved Manufacturers: Crossville Studios "SOHO" 3" x 6", white, glossy, or similar by Daltile, Fire Clay or approved equal.
   b. Ceramic tile at floors to be installed over Laticrete Hydro-Ban, over gypsum cement underlayment, over acoustical underlayment, per the guidelines below. The Design-Builder is responsible for installing tile per the most current TCNA methods. Grout joints typically minimum 1/8", unless otherwise recommended by the TCNA.
6. Acoustical underlayment thickness at ceramic tile shall generally be as follows:
   a. "Acousti-Mat ¼", ¼-inch thick at hard surfaces other than ceramic tile.
   b. Pliteq "Genie-Mat RST-10, 10-mm at concrete floor assemblies between units.
   c. Pliteq "Geni-Mat RST-02, 2-mm at lowest residential floor.
7. Rubber Flooring: Provide at Fitness Room. Resilient sheet flooring shall be installed over Pliteq "GenieMat RST-02 2-mm thick at lowest residential floor, GenieMat RST-05 5-mm thick at concrete demising floor assemblies.
8. VCT: Provide at all common area storage and common area; provide coved base; provide acoustical underlayment per the future Interior Designer. VCT shall have the same floor assembly including waterproofing and crack isolation membrane as vinyl plank flooring.
9. Resilient accessories: rubber cap for cove at resilient sheet flooring, reducer strip for resilient flooring, tile/carpet transition strips.
10. Miscellaneous Amenity Rooms: TBD with I.D.

A. Baseboard

1. Corridors: 3/4" thick MDF, square edge: 5 1/2" high; painted.

Division 9 – Finishes, continued

2. Residential Units: 3/4" thick MDF, square edge: 5 ½" high; painted
3. At VCT floor finish: 4", standard cove resilient base by Roppe or Johnsonite. Ends shall be pre-molded.

B. Wall and Ceiling Finishes

1. Residential Units: texture to be Level 3 medium orange-peel finish
2. Office: texture to be Level 4 smooth finish
3. Interior Lobbies: Level 4 smooth finish
4. Community Building: Level 4 smooth finish
5. All other rooms: texture to be a light knock-down or orange peel (level 3); mechanical and maintenance rooms to be level 2 finish.
6. Trash Rooms: wall and ceiling coverings as required by code or local jurisdiction for washability of surfaces. **See FRP under Division 06**.

C. Interior Paint

1. Approved manufacturers: Sherwin Williams, Benjamin Moore, Kelly Moore, or approved equal. All paint shall be low-odor and VOC-free.
2. Colors shall be submitted to the Owner for approval prior to ordering.
3. The Design-builder is responsible for applying paint appropriate for the substrate, including primers and number of coats, per manufacturer's recommendations.
   a. At wood, use urethane stains and clear coats
   b. At plaster and concrete, gypsum board and metal, use 100% acrylic, with the appropriate surface-prep for the type of metal.
4. Residential Units:
   a. Walls/Ceilings: 1 color, plus one accent color at walls; satin finish for kitchen/bathroom.
   b. Doors and Trim: 1 color, semi-gloss finish for doors/trim; satin finish for kitchen/bathroom walls/ceilings.
   c. Soffits: 2 accent colors, satin finish
   d. See future Interior Design Drawings for additional design requirements, color and finish.
5. Office: 3 colors at walls, ceiling, accent soffits.
6. Common Area Storage, Closets, Exit Stair Enclosures, MEP Rooms: 1 color walls and ceilings.

Division 10 – Specialties

It is the responsibility of the Design-Builder to prepare and develop a submittal identifying all specialty items, including but not limited to, signage (including all code requirements for signage) mail boxes (including all code and USPS requirements for Mailboxes) and all manufactured specialty items that are installed after framing is complete. The Design-Builder is also responsible for establishing the scope and extent of specialty item and shall include complete detailed working drawings and specifications. These construction documents shall contain all required building permit, planning and zoning approvals and to construct the project.

A. Signage: Signage is to include, and not be limited to:

1. Dimensional letters and numbers.
2. Accessibility entrance signs.
3. Parking stall accessibility symbols and signs.
4. Unauthorized vehicle signs.
5. Room identification signs.
6. Emergency exit at elevator signs.
7. Tactile stairwell signs.
8. Stairway floor number signs.
9. Area of refuge signs.
10. Tactile exit signs.
11. Residential unit entry signs.
12. International symbol of accessibility.
13. Architectural graphic signs, including but not limited to the monument signs on the building facades, shall be illuminated.

B. Acrylic sheet signage shall be transparent, clear, demi-matte or non-glare, per Owner's preference.

C. Aluminum Sheet signage shall be of alloy and temper recommended by the aluminum producer or finisher for the type of use and finish indicated and specified.

D. Stainless Steel Plate, Sheet, Strip signage Provide stainless steel plate, sheet, or strip, AISI Type 302, complying with ASTM A167.

E. Building Letters: Hot-dip galvanized steel, pre-finished to match site metalwork, surface-mounted.

1. Helvetica font, ½" thick, 1" offset between letters, 12" high upper case, 4" high lower case.

F. Fire Extinguished Cabinets: Semi-recessed boxes (surface-mounted at concrete/CMU walls), satin alum finish, clear window, placed to meet CFC.

G. Postal boxes in fully-accessible arrangement, (low-height) in "bronze" finish, Provide 1 parcel box for every 10 units, Florence "Versatile 4C Mailbox Suites" or equal. Must comply with ADA requirements and USPS requirements.

H. Provide package concierge system adequate to serve all units within the leasing office building. Luxor One or approved equal. **See Division 10 for more information on mailboxes and package concierge system.**

I. Residential and Parking Signage: provide parking and garage signage as follows:

1. Interior directional way-finding signage
2. Interior/Exterior regulatory signs.
3. Code required signage.
4. Clearance Barriers

J. Toilet Accessories in Common Area Restrooms

1. Conform with future Interior Design drawings.
2. Toilet accessories may include, but not be limited to:
   a. Paper towel dispenser, toilet paper dispenser, soap dispenser, waste receptacles, etc.
   b. Approved manufacturers: Bobrick "Classic Series", Bradley, American Specialties or approved equal.

K. Residential Bathroom Accessories:

1. Provide bath accessories as follows:
   a. Towel bar: Provide one 24" towel bar and one towel hook "Astral" single robe hook 04-2801 per bathroom and powder room. Brushed stainless or nickel finish.
   b. Toilet Tissue holder: Taymor "Astral" paper holder, 04-SN2848 or approved equal.
   c. Shower shelf/soap holder: Integral in fiberglass shower surround.
   d. Curved shower curtain rod: Taymor "Astral" 01-C6289SN or approved equal,
   e. Vanity mirror: Plate glass mirror above bathroom/powder room vanities; 42" high x length of countertop, 3/16" thickness, set in mastic with j-mold clips
   f. Provide medicine cabinet, surface mounted. Provide blocking for medicine cabinet attachment. Avoid mounting at plumbing walls.

L. Wardrobe and Closet Specialties

1. Approved Manufacturers: RubberMaid "Wire Shelving with Integral Rod", Clairson "ClosetMaid", Lee-Rowan, Stanley or approved equal.
2. Walk-in: 50% of wall space to be rod and five-high sweater/linen stack shelving; 50% of wall space to be double rod and shelf (3/4" thick x 12" deep).

M. Residential Tubs and Showers:

1. For showers required to be accessible, provide custom ADA-compliant roll-in shower modules, 39"x 64" in size, by Best Bath.
   a. For center-drain shower configuration, use Best Bath model P26438A75B.
   b. For trench-drain shower configuration, use Best Bath model P263391FTB.

2. Tub/showers: Sterling "Ensemble" Series 7112 tub with three-piece, reversible, snap-together rectangular surround.
3. Bike Storage:
   a. Provide individually-secured bike storage system with assisted lift mechanism. Approved manufacturers: Saris "Stretch Rack" or "Stack Rack", Dero "Decker", "Duplex", or "Ultra Space Saver. Design-builder is responsible for selecting the Manufacturer and model appropriate for the size space, including ceiling height, as well as the bike parking count required for the project.

Division 11 – Equipment

It is the responsibility of the Design-Builder to prepare and develop a submittal identifying all required equipment including, but not limited to, appliances at Common Areas, appliances at Dwelling Units, equipment associated with exterior building maintenance, if required, and necessary parking and vehicle-entry equipment. The Design-Builder is also responsible for establishing the extent and quantity of equipment and shall include complete detailed working drawings and specifications. These construction documents shall contain all required building permit, planning and zoning approvals and to construct the project.

A. OSHA-compliant fall restraint system shall be provided on a Design / Build basis by Exterior Building Maintenance subDesign/Builder. General Design/Builder shall include cost of fall restraint system as a separate line item during conceptual pricing.

B. Residential appliance must be Energy Star compliant.

C. Appliances:

1. All appliances to be accessible (ADA and CBC Chapter 11B at Leasing Office, FHA and Chapter 11A at Amenity Spaces and Residential Units) and shall comply with all California Commercial Code requirements. Provide appliances by GE, Whirlpool or approved equal. All appliances to be of a single manufacturer, with the exception of the garbage disposal.

2. Office Break Room to receive:
   a. Standard 18.2 cu ft refrigerator with icemaker and "plumbed" water connection:
   b. Standard 24" dishwasher:
   c. Microwave:
   d. Garbage disposal at kitchen sink with rear drain:

3. Recreation Rooms to receive:
   a. Standard 18.2 cu ft refrigerator/freezer: GE model GIE18ISHSS, stainless steel.
   b. Standard 24" dishwasher: GE model GLDT696DSS, stainless steel finish
   c. Standard 30" electric range: GE model JB630RFSS, stainless steel finish
   d. Standard 30" microwave/hood: GE model JVM6172SFSS, stainless steel finish.

4. All residential units to receive:
   a. Gas Range: GE model JB645RKSS, stainless steel finish
   b. Microwave/hood: GE model JVM6175SKSS, stainless steel finish
   c. Dishwasher: GE model GDT655SSJSS, stainless steel finish
   d. Refrigerator: GE model GIE18ISHSS, stainless steel finish
   e. Washer/dryer: GE models GFW430SSMWW and GFV40ESCMWW for washer and dryer, respectively, white finish.
   f. Garbage disposal with air switch at kitchen sink with rear drain: Waste King "Legend 1001".

Division 12 – Furnishings

It is the responsibility of the Design-Builder to prepare and develop a submittal identifying all interior finishes, including but not limited to, manufacturer, model/series, color/finish and sheen (if applicable). The Design-Builder is also responsible for establishing the scope and extent of each finish and shall include complete detailed working drawings and specifications. These construction documents shall contain all required building permit, planning and zoning approvals and to construct the project. It is also the responsibility of the Design-Builder to hire an Interior Design consultant. *(Interior Designer has yet to be selected by Owner; confirm all Furnishings with I.D. when on board.)*

A. Design/Builder to carry an allowance typical to this type of project and provide a scope along with allowance.

B. Window Treatment (Residential Units):

1. All Residential Unit exterior windows to receive roller shade with additional blackout shade rollershade at bedrooms, MechoShade Systems "Suburban 2/Standard Roller Shade with Fascia" or equal. Shade cloth shall be a visually-transparent single-fabric shade cloth such as "1500 Series ThermoVeil Dense Basket weave", 3-percent open.
2. Confirm shade W:H ratios do not exceed manufacturer's standards. If motorized, install tubular asynchronous motors with built-in reversible capacitors. Shade hardware shall be constructed of minimum 1/8-inch thick plated steel or heavier as required to support 150-percent of the full weight of the shade.
3. All Residential Unit swing doors at patios to receive roller shade, MechoShade or equal.

C. Countertops: Quartz surfacing countertops

1. by Caeserstone, Pental, DuPont or approved equal.
2. Thickness shall be 3-cm unless otherwise noted. Edges shall be square, outside corners ¾-inch radius unless otherwise indicated.
3. Backsplashes to be integral with countertop, or applied as standard with the manufacture. Countertop depth shall not exceed 25-inches from the face of the wall.
4. Substrates supporting quartz surfaces must be plumb, level, and flat to within 1/16-inch in 10-feet with necessary supports and blocking in place.

D. Residential Unit Casework:

1. Approved manufacturers: Lanz cabinets, Barbosa, Sozo, or approved equal formaldehyde-free with thermafoil finish. Frameless design such as Lanz "Manhattan Collection" or similar.
2. Casework to include (2) -15" breadboard cabinets per unit plans to meet ADA accessibility requirements.
3. Cabinet depth, including doors and drawers, shall not extend more than 24-inches from the face of the wall.
4. Composite wood used in casework shall exceed current CARB ATCM formaldehyde limits prior to mandatory compliance dates.
5. Casework hardware shall include the following: Hardware by Liberty Hardware or approved equal.
    a. Cabinet Bar Pulls: 3"
    b. Cabinet knobs: "Phoebe" 5/16"
    c. Hinges: 35 mm 100-degree full-overlay, soft-close, concealed clip, frameless Euro hinge.

d. Drawer Slides: Full extension, 24" soft-close, concealed undermount, ball-bearing zinc-plated, 100-lb. capacity.

Division 32 - Exterior Improvements

It is the responsibility of the Design-Builder to prepare and develop a submittal identifying all exterior improvements. The Design-Builder is also responsible for establishing the scope and extent of each finish and shall include complete detailed working drawings and specifications. These construction documents shall contain all required building permit, planning and zoning approvals and to construct the project. See also the Landscape portion of this Owner's Minimum Requirements document.

A. Wheel Stops: Provide concrete wheel stops at all parking conditions where stalls are parked head-to-head, and at all accessible and EV stalls.

B. Parking Area Striping and Markings:

1. Layout work and field measuring.
2. Painting parking stall lines and numbers as indicated on the Drawings.
3. Painted arrows and signs on pavement.

C. Tactile Warning Surfacing: Surface applied tile with detectable, tactile warning textured surface where required by code, using an exterior grade tactile warning surface and in-line dome pattern at pedestrian crossings and staggered dome pattern abutting vehicular routes.

D. All infrastructure for electric vehicle car charging as required per code

Acoustical Requirements:

Refer to item (xi) at the beginning of this document.

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MEMORANDUM

Date: March 4, 2019 **BKF Job Number:** 20180948

Deliver To: Ian Murphy
BDE Architecture
950 Howard Street
San Francisco, CA 94103

From: Tim Heffernan

Subject: **Pacifica School District Workforce Housing, Phase I and II – Civil Basis of Design**

1. GENERAL

The site is currently occupied by steep slopes, grassy fields, buildings, hardscape, landscaping and trees. There is an existing parking lot on the west side of the site which will remain operational to serve the existing fields that will remain throughout construction of the project. However, a portion of the existing parking lot will be removed to accommodate embankment slopes and stormwater facilities.

The sewer, storm and water services will be fed by existing mains located in Oddstad Boulevard. There is currently no reclaimed water system available in the vicinity of the project.

Demolition

The existing site will be cleared of vegetation, hardscape and buildings within the limits of demolition. Existing utilities will be removed within the footprints of proposed buildings, will be removed where in conflict with proposed improvements, and abandoned/removed per utility owner requirements. Refer to the geotechnical report additional requirements when available. Refer to landscape plans for tree preservation.

Sanitary Sewer

The onsite sewer system will serve the proposed buildings, be operated and maintained by the owner and consist of cleanouts, manholes and below grade pipes. There are two proposed lateral connections to the existing main in Oddstad Boulevard.

Storm Drainage

The proposed drainage pattern of the building sites will generally follow the existing drainage pattern which slopes from the northeast to the southwest. Runoff from the steep slope to the south will be captured in a concrete ditch and directed around or through the proposed improvements. Runoff from this hillside and other self treating/self retaining areas will be separated from runoff requiring treatment and discharge directly to the city's storm drain system. Runoff from most of the site, including impervious surfaces, will be directed to a central stormwater treatment basin and ultimately discharge to the city's 72" RCP main in Oddstad Boulevard.

Proposed drainage improvements consists of cleanouts, area drains, inlets, manholes and below grade pipes. The onsite drainage improvements will connect to the existing laterals or directly connect to the

storm drain system located in Oddstad Boulevard via three laterals, two of which are existing. It is recommended the existing laterals be inspected and their condition evaluated if they are to be reused.

The project is subject to the C3/C6 provisions of the Municipal Regional Permit (MRP) and based on the scope of the proposed project runoff from all impervious surfaces are required to be treated. In addition, the project is located within an area subject to Hydro modification. Stormwater treatment and Hydro modification shall be per the most recent version of the San Mateo County C.3 Guidelines and local requirements.

Water
An onsite water system will loop around the site and provide water service to the building laterals, building fire services and onsite fire hydrants. Fire hydrants proposed along Oddstad Boulevard will be fed from the existing 12" water main across the street. The onsite water system will owned and maintained by the owner and connect to the existing 12" water main in Oddstad Boulevard at two locations providing redundancy to the system.

Surveying
Currently the site is comprised of multiple lots that will have to be merged. There are existing public Right-of-Ways and a public utility easement that will need to be vacated. The project proposes to grant a public utility easement along the property frontage of Oddstad Boulevard consistent with the existing conditions.

All work within the City's Right-of-Way shall be per the city of Pacifica Standard details and specifications.

Below is additional information regarding the onsite surface, sanitary sewer, storm drainage, and domestic water improvements.

2. MATERIAL

A. SURFACE IMPROVEMENTS

1) Concrete Sidewalks – Refer to Landscape Architect
2) Concrete Curbs and Gutters – City Standard Detail 101B
3) Street Paving – asphalt concrete per Caltrans Specifications and Class II Aggregate Base per Caltrans Specifications. The geotechnical report shall be reviewed for paving thicknesses.
4) Concrete Paving – Caltrans Specifications
5) Driveways – City Standard Detail 102A

B. SANITARY SEWER

1) Pipe Material – PVC SDR 26
2) Cleanouts – For pipe sizes less than 8"
3) Manholes – Pipes 8" to 17" City Standard Detail. Average spacing 300'.

C. STORM DRAIN

1) Storm Drain Lines
   - 4" to 6" Subdrain – Perforated PVC SDR 26
   - 4" to 10" Solid – PVC SDR 26
   - 12" to 24" – HDPE SDR 17 or Class IV Reinforced Concrete Pipe
   - Larger than 24" – Class IV Reinforced Concrete Pipe

2) Cleanouts – For pipe sizes less than 8"
3) Manholes – Pipes up to 36" City Standard Detail 304. Average spacing 300'.
4) Trench Drains - Aco
5) Drop Inlet – Oldcastle Precast
6) Curb Inlet – Caltrans G0

D. DOMESTIC WATER

1) Backflow preventers at the mains shall be per North Coast County Water
2) Backflow preventers onsite shall be:
   - Domestic Service - Double check valve
   - Fire Service – Double check detector assembly
   - Irrigation Service – Reduced Pressure Principal Assembly
3) Pipe Material – PVC C900 (Class 305)
   - Valves (3" and larger) – AWWA C509
   - Valves (less than 3") – AWWA C800
4) Main Line Pipe Sizes – 8"
5) Ductile Iron Fittings – Polyethylene encasement (AWWA C105)
6) Concrete thrust blocks required on pipes larger than 3"
7) Domestic and Fire Service Laterals – 1", 2", 4", 6" or 8"
   - 1" or 2" – Type K Copper Tubing
   - 4" or larger – PVC C900 (Class 305)
8) Fire Hydrant – Clow #2060 or #2050, to be determined by district, installed per North Coast County Water District Detail NC-15.
9) Soil corrosively to be confirmed with geotechnical report when available.

Memorandum

Date March 04, 2019

To Ian Murphy
BDE Architecture
950 Howard Street
San Francisco, CA 94103

Project Pacifica School District Workforce Housing, Phase I and II

Subject **Basis of Design – Landscape Narrative**

The following Landscape Basis of Design is to be used in conjunction with the Conceptual Landscape Plans, sheets L1.1, L2.1, L3.1, and L4.1.

General Notes

1. All landscape irrigation, planting, soil preparation, and associated grading is to be compliant with the most current version of the California Department of Water Resources Model Water Efficient Landscape Ordinance (MWELO), as per the Pacifica Municipal Code, Amendment 5.304.2.
2. All stormwater treatment soil shall be compliant with the County of San Mateo's C.3 Stormwater Technical Guidance Manual, Appendix K.
3. All landscape elements shall be compliant with the California Building Code.
4. The Developer shall provide a Tree Protection Plan to the City incorporating City-approved tree protection measures for all trees to remain and identifying all Heritage trees to be removed. The Developer shall provide replacement trees and/or in-lieu fees for removed Heritage trees as required by the City. The Tree Protection Plan shall be produced in accordance with the Pacifica Municipal Code, Chapter 12 "Preservation of Heritage Trees".
5. All proposed trees shall be selected and installed per the City of Pacifica "Trees for Pacifica – Tree Selection and Planting Guide" or as otherwise approved by the City.

Hardscape

1. All concrete paving to incorporate steel reinforcement and tooled score joints at a minimum of 8-feet on-center and expansion joints at a minimum of 20-feet on-center. Paving finishes shall be light/medium broom or sandblast. Subgrade compaction and depth/compaction of aggregate base shall be as recommended by the Geotechnical Report.
2. Permeable paving shall be either concrete pavers with 1/4" joint gaps or concrete pavers with integral permeability. All permeable paving shall be ADA-compliant and incorporate rock basins and drainage measures sufficient to accommodate the required volume of storm water.

Landscape Structures, Fencing, And Furnishings

3. Trellises shall have galvanized steel-tube posts and joists with wood rafters. Bottom of lowest member shall be 8-feet above finished grade, minimum. All steel elements shall be painted. Footings shall be per Structural Engineer. A Structural Engineer shall review the final trellis design and provide calculations if required by the City.
4. Fencing around the upper community patio shall be powder-coated tube steel with veneer-covered CMU pillars. Veneer to match or complement building finishes. Fence manufacturer: Ameristar Fencing, or approved equal.
5. All gates on egress routes shall have panic hardware, self-closing hinges, and accessible lever sets in compliance with the California Building Code.
6. Handrails at ramp and stairs shall be painted galvanized steel.
7. On-site short-term bicycle racks shall accommodate a minimum of 4 bicycles as per CalGreen's requirement of 5% of all new vehicular parking spaces. Bike racks shall be in-ground mounted with two points of contact. Racks shall be Bikeparking.com Welle Circular square-tube, galvanized, or approved equal.

Landscape Lighting

1. Landscape lighting shall be comprised of pedestrian-scale pole lights, 10-feet to 14-feet tall, and trellis down-lights.
2. All landscape lighting shall be Dark-Sky compliant with cut-offs where required to prevent light spillage.
3. Landscape lighting shall provide the minimum amount of light recommended by IESNA Guidelines for Security Lighting for People, Property, and Public Spaces.

Irrigation

1. The irrigation system shall be a fully automatic weather-based system using low-flow drip and bubbler distribution. The following components are required (this is not to be considered an all-inclusive list):
    a. "Smart" weather-based irrigation controller
    b. Master control valve and flow-sensor
    c. Two tree bubblers per tree
    d. Pressure regulated subsurface inline sub-surface drip tubing with all necessary fittings
    e. Spray heads may be used only in stormwater treatment planting areas and lawn area, if present.
    f. Mainline shall be Schedule 40 PVC
    g. Lateral line piping shall be solvent weld Schedule 40 PVC with Schedule 40 fittings.
    h. Quick couplers every 100 feet
2. The irrigation point-of -connection is to be determined. The following associated items are required:

a. 1-1/2" irrigation-only water meter in compliance with the North Coast County Water District
b. Reduced-pressure backflow preventer and enclosure

Planting

1. After mass grading and within 10-days prior to commencing planting, the existing soil is to be tested for agricultural suitability by a qualified soil-testing laboratory. Samples shall be taken from a minimum of three locations. The amendments and fertilizers recommended by the lab are to be incorporated into the existing soil at the rates and depths noted.
2. A 3-inch depth of mulch is to be used at all planting areas. Mulch shall be undyed and recycled from local organic matter such as tree-trimmings or clean plant waste. Mulch shall be "Arbor Mulch" through Recology Organics, or approved equal.
3. All trees within 5-feet of paving shall have 24-inch deep polypropylene root barriers installed linearly at the edge of the paving, centered on the tree trunk. Length shall be equal to the mature tree canopy size.
4. All planting shall be compliant with the Bay-Friendly Basics checklist.
5. The majority of plants shall be water-conserving species, California natives, or otherwise climate-adapted. The water required by individual species shall be determined by the "Water Use Classification of Landscape Species" (WUCOLS).
6. Trees along the street, parking area, and pedestrian paths shall be 24-inch box size, minimum. All other trees shall be a mix of 24-inch box and 15-gallon size.
7. Shrubs and groundcovers shall be a mix of 1-gallon and 5-gallon container sizes, with a minimum size of 1-gallon.

Fire-Safe Defensible Space

1. The hillside south of the project shall be made compliant with California's Government Code 51182, Public Resources Code Sections 4290 and 4291, and San Mateo County "Living with Fire in San Mateo County" guidelines in creating defensible space. In short (refer to listed items for a full set of requirements):
    a. Between 100 and 30 feet from structures, all shrubs and trees shall have the required horizontal and vertical spacing, grasses mowed down to 4-inches maximum height, and all fallen branches removed along with fallen leaves, needles, etc, exceeding a 4-inch depth.
    b. Between 30 feet and any structure, tree branches shall be pruned back a minimum of 10-feet from other trees or chimneys, all combustible plants near windows shall be pruned or removed, separation between trees/shrubs and site furniture shall be created, and all dead plants, grass, and weeds shall be removed. Plants nearest structures shall be "fire-smart" and irrigated.

Basis of Design

Pacifica Housing Entitlements Phase

Prepared for:

Brookwood Group

Prepared by:

Shawn MacLean, PE
George Edpalina, PE
Wesley Lau, PE, LEED AP
Kristina Santi, LC
Jason Nguyen
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Jarod Myrick, CET

April 2, 2019

INTERFACE ENGINEERING

Table of Contents

DIVISION 21 – FIRE PROTECTION

GENERAL

This project is a design-build project. This Basis of Design and the accompanying minimum requirements are meant to portray the design intent and quality of materials. The Design-Builder is ultimately responsible to the Owner for the complete design and construction of the Project in compliance with the contract documents. The Design-Build Team includes the Design Professionals who will be the Engineers of Record for the project. Not all systems are sized or documented within these requirements. It will be the responsibility of each trade to develop the design intent into a full design concept, completing all hydraulic calculations, seismic calculations, and pipe sizing and to create complete and coordinated construction documents and permitting documents.

The Design Builder and their Consultants will be expected to attend all required coordination and design meetings (on a weekly basis or more) as stipulated by the Design-Build Agreement. The Design-Builder, his Contractors Subcontractors and Design Consultants will be required to coordinate routing of all their respective utilities and create composite coordinated construction documents to be sent to the Architect of Record for review and upon acceptance by the Architect and Design-Builder, distributed to the Owner and their representatives for review and information. Prior to submission for review, the Contractors shall stamp all drawings as "coordinated with all trades" with a signature from each trades' project manager. Quantity of drawing submissions will be stipulated by agreement between the Owner and Design-Builder (minimum of three) and the Project Manager. All design and construction documentation will be completed on Autodesk Revit 2019. All files will be made available in Revit, CAD, and PDF files to the Architect and Owner for their use.

CODES AND STANDARDS

Codes

Systems shall be designed in accordance with the latest edition of the following codes:

- California Building Code.
- California Fire Code.
- California Plumbing Code.
- Local Amendments to above Codes.

Standards

The following reference standards shall be used for the design:

- NFPA #13, Standard for the Installation of Sprinkler Systems, adopted edition.
- NFPA #13R, Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies, adopted edition.
- NFPA #24, Standard for the Installation of Private Fire Service Mains, adopted edition.
- NFPA #72, National Fire Alarm and Signaling Code, adopted edition.
- ASCE 7, Minimum Design Loads for Buildings and Other Structures.
- ANSI – American National Standards Institute.
- ASCE – American Society of Civil Engineers.
- ASME – American Society of Mechanical Engineers.
- ASTM – American Society for Testing and Materials.

- AWS – American Welding Society.
- AWWA – American Water Works Association.
- FM Global Approval Guide.
- ICC-ES – International Code Council Evaluation Service.
- ICC-ES AC193 Mechanical Anchors in Concrete Elements.
- ICC-ES AC308, Post-Installed Adhesive Anchors in Concrete Elements.
- NEMA – National Electrical Manufacturer's Association.
- NFPA – National Fire Protection Association.
- OSHA – Occupational Safety and Health Administration.
- UL – Underwriters' Laboratory.
- UL Fire Protection Equipment Directory.
- UL Online Certifications Directory.

FIRE SPRINKLER SYSTEM DESCRIPTION

General

Design and construction of a complete fire sprinkler system to be in conformance with the contract documents.

Fire Sprinkler System

Provided new underground fire sprinkler water supplies from exterior main to interior fire sprinkler riser rooms in each building. Coordinate requirements for double check valve assembly, post indicator valve (PIV), and fire department connection (FDC) with the civil engineer and fire code officials.

Provide new hydraulically calculated wet pipe automatic fire sprinkler systems for each building.

Provide a fire department connection with two inlet connections at a location approved by the local authority.

Hydraulically designed system shall be based on an official water flow test conducted within one year of the date of shop drawing submittals.

Fire Sprinkler System Equipment

Piping will be as follows:

- Underground piping from 5 ft. outside of building to 6-inch above floor slab: Ductile iron pressure pipe, AWWA C151 with AWWA C110 Mechanical Joints.
- Aboveground: Schedule 40 black steel threaded pipe with cast or ductile iron threaded fittings, or schedule 10 black steel grooved pipe with UL listed rubber gasket couplings. Pipe shall meet ASTM A53 or A795 standards.

Sprinklers, valves, switches, pipe, fittings, backflow preventers, hangers, sway braces and other fire protection system components will be UL listed or FM Global approved for fire protection.

Fire sprinkler heads: Quick response, semi-recessed style white sprinkler heads and white escutcheons in finished areas. Areas open to structure will utilize upright sprinklers with brass finish.

Sprinkler head ASCE 7 seismic requirements: Sprinkler heads installed in acoustic ceiling tiles to be provided with braided stainless steel flexible sprinkler connections.

END OF FIRE PROTECTION SECTION

DIVISION 22 - PLUMBING

GENERAL

This project is a design-build project. This Basis of Design and the accompanying minimum requirements are meant to portray the design intent and quality of materials. The Design-Builder is ultimately responsible to the Owner for the complete design and construction of the Project in compliance with the contract documents. The Design-Build Team includes the Design Professionals who will be the Engineers of Record for the project. Not all systems are sized or documented within these requirements. It will be the responsibility of each trade to develop the design intent into a full design concept, completing water, sewer, gas and storm drain calculations, equipment sizing, and pipe sizing, and to create complete and coordinated construction documents and permitting documents.

The Design Builder and their Consultants will be expected to attend all required coordination and design meetings (on a weekly basis or more) as stipulated by the Design Build Agreement. The Design Builder, his Contractors Subcontractors and design Consultants will be required to coordinate routing of all their respective utilities and create composite coordinated construction documents to be sent to the Architect of Record for review and upon acceptance by the Architect and Design Builder, distributed to the Owner and their representatives for review and information. Prior to submission for review, the Contractors shall stamp all drawings as "coordinated with all trades" with a signature from each trades' project manager. Quantity of drawing submissions will be stipulated by agreement between the Owner and Design- Builder (minimum of three) and the Project Manager. All design and construction documentation will be completed on Autodesk Revit 2019. All files will be made available in Revit, CAD, and PDF files to the Architect and Owner for their use.

CODES, STANDARDS, AND GENERAL REQUIREMENTS

Codes

- California Building Code.
- California Plumbing Code.
- California Mechanical Code.
- California Fire Code.
- California Electrical Code.
- California Energy Code.
- California Green Building Code.
- California Energy Commission (Title 24 Energy Efficiency Standards for Residential Buildings).
- City Green Building Ordinance.
- NFPA (adopted editions).
- California Health & Safety Code, Section 116875 (known as AB 1953).
- Local Amendments to above Codes.

Standards

- California Building Code.
- California Plumbing Code.
- California Mechanical Code.
- California Fire Code.
- California Electrical Code.
- California Energy Code.

- California Green Building Code.
- California Energy Commission (Title 24 Energy Efficiency Standards for Residential Buildings).
- City Green Building Ordinance.
- NFPA (adopted editions).
- California Health & Safety Code, Section 116875 (known as AB 1953).
- Local Amendments to above Codes.

General Requirements

Design and construction of a complete plumbing system to be in conformance with the contract documents.

Quality Assurance

Contractor's Qualifications: Firm with at least 5 years of successful experience and licensed as a plumbing Engineer in the state of California.

Submittals and Calculations

Contractor shall submit complete plumbing calculations and plumbing equipment selection based on calculations, plumbing fixture and equipment cut-sheets.

Plumbing Site Utilities

Site Survey: Obtain a copy from the Owner and/or Civil Engineer.

Soils Report: Obtain a copy from the Owner and/or Civil Engineer.

Storm Water Management Plan: Obtain a copy from the Civil Engineer.

Acquire the water pressure available from the City Fire Department.

The design Engineer shall coordinate natural gas demands, and the location of the gas meter with the Dry Utilities consultant.

The plumbing design Engineer shall coordinate with the Civil Engineer all plumbing points of connection 5'-0" outside of the building including pipe sizes, invert elevations, sanitary sewer load (drainage fixture units), domestic water supply load (water supply fixture units), natural gas load (cubic feet per hour and pressure), and storm drainage load (square feet).

The plumbing design Engineer shall verify location, room area sizes, etc., with Architect for location of domestic water booster pumps (if required) and other visible equipment and devices.

DESIGN CRITERIA

General

The following plumbing design criteria is to be verified and up-dated by the Contractor as the design progresses and is subject to review and approval by the Owner and Architect.

- Provide a complete and operational sanitary waste and vent system, storm and overflow drainage system, domestic hot and cold water piping system, condensate drain piping system, and natural gas piping system. All plumbing systems shall be adaptable to the Architectural, Structural, and Civil design.
- Extend sanitary waste, storm drainage, and domestic water distribution piping to a point which is 5'-0" outside the building.
- Provide identification for all piping, valves, and equipment.

- Provide through penetration firestops in accordance with Section 714 of the 2016 California Building Code for pipes and fixtures passing thru rated floors and walls.
- Refer to the project's Geotechnical Report for below grade piping, corrosion protection and support requirements; provide per the report's recommendations.
- Do not run any piping through elevator machine rooms and shafts, IT rooms, telephone rooms, electrical rooms, or switchgear rooms unless it serves that space. If installing overhead piping in any of these areas is unavoidable, provide secondary containment piping to protect electrical equipment. Provide 3/4" drain pipe and terminate at nearest acceptable plumbing fixture termination or at 1/2" below ceiling.

Domestic Cold Water System Design Criteria

The domestic cold water system shall be designed per the 2016 California Plumbing Code. Fixture unit values shall be designed per 2016 CPC Table A.103.1.

Pipes shall be sized on the more stringent of the below:
- 6 feet per second in occupied areas.
- 8 feet per second for mains and large branches.
- 2 psi per 100 feet maximum pressure drop.

The most remote fixture (on top floor) shall be provided with minimum supply pressure of 25 psi.

The most remote flush valve type toilet on top floor shall be provided with minimum supply pressure of 30 psi

Water pressure at any fixture shall not exceed 75 psi inside the building.

Connections between copper piping and ferrous materials shall be made with dielectric unions.

Provide full-port ball valves for isolation at the following locations:
- At major branch lines.
- To domestic cold water to each public toilet.
- In supply and return piping to equipment.
- Gate valves are not acceptable.

Domestic Hot Water System(s) Design Criteria

The domestic hot water system shall be designed per the 2016 California Plumbing Code. Fixture unit values shall be per 2016 CPC Table A.103.1.

Pipes shall be sized on the more stringent of:
- 4 feet per second in occupied areas.
- 5 feet per second for mains and large branches.
- 2.5 feet per second for domestic water return lines.
- 2 psi per 100 feet maximum pressure drop.

The most remote fixture shall be provided with minimum supply pressure of 20 psi.

Water pressure at any fixture shall not exceed 75 psi inside the building.

The domestic hot water heating equipment shall be sized in accordance with ASHRAE Handbook chapter on "Service Water Heating" using the gallons per hour per fixture demand and applicable demand and storage factors.

Connections between copper piping and ferrous materials shall be made with dielectric unions.

Water pressure at any fixture shall not exceed 75 psi inside the building.

Insulate domestic hot water piping supply and return. Insulated pipes exposed to weather shall be covered with aluminum jacket.

Sanitary Waste and Vent System Design Criteria

Sanitary waste and vent system shall be sized using the fixture unit method on Table 702.1 of the 2016 CPC.

The sanitary waste system shall be gravity drained. Sanitary waste pipes shall be sloped at 1/4" per foot.

Cleanouts shall be provided per code and at a maximum of 50'-0" intervals. Locate cleanouts to allow service without interruption to the facilities' normal operations.

Storm Drainage System Design Criteria

Size storm and overflow drainage system per 2016 California Plumbing Code, Tables 1101.8 and 1101.12.

Storm Intensity Criteria for Drainage Design: 2 inches per hour.

The storm drainage system shall be gravity drained. Route overflow drains and spill to grade at the building exterior.

Natural Gas System Design Criteria

Size natural gas piping system for standard pressure per the 2016 California Plumbing Code Chapter 12.

Provide natural gas regulators for each supplied building/unit.

Provide seismic valve downstream of the utility meter.

Plumbing Fixtures and Equipment Design Criteria

Provide premium quality fixtures, faucets, and showers. Plumbing fixture selection shall be coordinated with the Architect, interior design consultant (if any) and Owner.

Fixture types and locations shall be per Architectural drawings.

All fixtures shall meet the requirements of City's Green Building Standards.

Fixtures shall meet the California Standard Assembly Bill AB 1953, No-Lead Law.

Provide fixtures, faucets, and accessories to meet barrier free requirements of the governing code with respect to plumbing fixtures provided for the physically handicapped.

Provide hose bibs at building exterior and garage at a maximum of 100 feet interval, and trash rooms.

Provide floor drains to laundry rooms and trash room with traffic rated floor drain.

Provide water hammer arresters on domestic cold and hot water with quick closing valves serving fixtures and equipment, including commercial dishwasher/clothes washers. Locate and size water hammer arrestors per PDI-WH 201 standard.

PLUMBING SYSTEM DESCRIPTION

Domestic Cold Water Service

The main city water service will enter the site and serve each building. A reduced pressure backflow assembly will be installed on the domestic water service. The main water supply shall be connected to a domestic water duplex booster pump (if required) and location to be determined as design progress. Domestic water will be routed to each building to serve the residential units with backflow preventer.

- Building A: 3" DCW minimum size
- Building B: 2" DCW (each) minimum size
- Building C: 2" DCW (each) minimum size
- Building D: 3" DCW minimum size

Copper mains will be routed throughout the building with copper piping in the units. Brazed connection for any piping greater than 2" and soldered smaller than 2" in size.

Domestic Hot Water Service

Domestic hot water service will be provided for each unit on each building. The gas water heater volume for one-bedroom unit is 30 - 40 gallon storage tank, for two bedroom 40 – 50 gallon storage tank system and can be located inside the unit. The public/community/office will have a separate gas water heater to be installed inside the space.

Copper mains will be routed throughout the building with copper piping in the units. Domestic hot water pipes shall be insulated.

Sanitary Drainage Waste and Vent Service

Sanitary drainage waste and vent piping will be routed for each building. The residential units, waste and vent piping will be routed to each plumbing fixture. The waste piping will be routed down through the floors and exit the building. Vent piping will be routed up through the residential roof.

- Building A: 6" SS minimum size
- Building B: 4" SS (each) minimum size
- Building C: 4" SS (each) minimum size
- Building D: 6" SS minimum size

Vent piping will collect in the ceiling spaces of the top floor and terminate above the roof.

Sanitary sewer and vent lines shall be no-hub cast iron pipe and fittings.

Storm Drainage

Roof drains will be provided. These drains will be routed down through the building and connected to the two connection points. Overflow drains will be routed down through the building and terminate through the side of the building at 12-inches above finished grade.

- Building A: (2) 6" SD minimum size
- Building B: (2) 4" SD (each building) minimum size
- Building C: (2) 4" SD (each building) minimum size
- Building D: (2) 6" SD minimum size

Roof and overflow drain bodies and horizontal storm lines shall be insulated to prevent condensation.

Storm drain lines line shall be no-hub cast iron pipe and fittings.

Natural Gas

Gas service will enter at each building at ground level. The gas meters will be located outside the building. Gas will be routed throughout the building to the domestic hot water heaters, and ranges. Natural gas piping shall be black steel schedule 40.

Plumbing Fixtures

Based on the California Green Building Standards Code, the following maximum flow rates will be required at the plumbing fixtures:

Residential Units

- Water Closets: 1.28 Gallons Per Flush or Dual Flush
- Lavatory Faucets: 1 Gallons Per Minute
- Showerheads: 1.75 Gallons Per Minute
- Kitchen Faucets: 1.8 Gallons Per Minute

Public Spaces

- Water Closets: 1.28 Gallons Per Flush
- Lavatory Faucets: 0.5 Gallons Per Minute
- Kitchen Faucets: 1.5 Gallons Per Minute
- Urinals: 0.125 Gallons Per Minute

Provide owner preferred plumbing fixtures.

END OF PLUMBING SECTION

DIVISION 23 – HVAC

GENERAL

This project is a design-build project. This Basis of Design and the accompanying minimum requirements are meant to portray the design intent and quality of materials. The Design-Builder is ultimately responsible to the Owner for the complete design and construction of the Project in compliance with the contract documents. The Design-Build Team includes the Design Professionals who will be the Engineers of Record for the project. Not all systems are sized or documented within these requirements. It will be the responsibility of each trade to develop the design intent into a full design concept, completing all calculations for heating and cooling loads, ventilation, Title 24 energy calculations, equipment sizing, duct layout and sizing, pipe layout and sizing, and controls and to create complete and coordinated construction documents and permitting documents.

The Design Builder and their Consultants will be expected to attend all required coordination and design meetings (on a weekly basis or more) as stipulated by the Design-Build Agreement. The Design-Builder, his Contractors Subcontractors and Design Consultants will be required to coordinate routing of all their respective utilities and create composite coordinated construction documents to be sent to the Architect of Record for review and upon acceptance by the Architect and Design-Builder, distributed to the Owner and their representatives for review and information. Prior to submission for review, the Contractors shall stamp all drawings as "coordinated with all trades" with a signature from each trades' project manager. Quantity of drawing submissions will be stipulated by agreement between the Owner and Design-Builder (minimum of three) and the Project Manager. All design and construction documentation will be completed on Autodesk Revit 2019. All files will be made available in Revit, CAD, and PDF files to the Architect and Owner for their use.

CODES

Codes

- Latest California Mechanical Code with local amendments
- Latest California Energy Code (Title 24)
- CalGreen as adopted by the City of Pacifica
- Latest California Building Code with local amendments

DESIGN CRITERIA

General Requirements

Design and construction of a complete HVAC system to be in conformance with the contract documents.

Cooling Temperatures

- 74 degrees F DB Inside Design
- 79 degrees F DB Outside Design

Heating Temperatures

- 68 degrees F DB Inside Design
- 31 degrees F DB Outside Design

Lighting

T-24 wattage will be used for public/common areas.

Miscellaneous Electric Loads

1.0 w/sf for public/common areas. 500 watts for living units.

Additional Conditions

Humidity is not controlled by the main split system. Humidity in all shower areas will be controlled by the exhaust fans.

Trash rooms will be continuously exhausted to control odor.

Envelope

System load calculations are based on envelope data provided by Architect for compliance with California T-24 requirements.

Acoustical Requirements

Sound generated by mechanical/plumbing systems in occupied zones of a treated space not to exceed noise criterion established by Acoustic Consultant in the Acoustic Narrative.

Ventilation

Outside air ventilation will be designed to provide mechanical ventilation per California Mechanical Code (ASHRAE Std. 62-2016) / California Title 24. Ventilation will include the following minimum requirements:

- Residential = 0.15cfm/sq.ft. or 15 cfm/person, whichever is greater; two people in first bedroom, one person in each additional bedroom
- Residential bathrooms = Minimum 20 cfm continuous with second speed at 50 cfm
- Residential kitchen hoods = 300 cfm non-continuous.
- Residential corridors = 0.06 cfm/sq.ft.
- Trash rooms = 1.0 cfm/sq.ft.

All outside air intakes will require MERV 13 (or better) filtration before distribution to interior zones.

Duct Design

System ductwork will be designed based on the following criteria.

- Corridor supply and exhaust vertical shaft velocity not to exceed 1,500 fpm.
- Common area DX split system ductwork will be sized using the equal friction method at 0.08 inch of water per 100 feet of duct. Branch supply and return duct from heat pumps will not exceed 700 fpm.
- Aluminum ductwork required for exhaust ductwork serving rooms with showers.

Supply, Return and Exhaust Grille Sizing

Grilles will be sized based on manufacturer recommendations to achieve a maximum room noise level not to exceed NC 25 for residential bedrooms, living rooms, and dining room, not to exceed NC 30 for residential kitchens, bathrooms, amenity room and leasing office, and not to exceed NC 35 for the common lobbies, corridors, and the fitness rooms.

HVAC SYSTEM DESCRIPTION

Residential Units

System

Individual split DX systems serving each residential unit to provide heating and cooling. Condensing units to be located on the roof when conditions allow. Fan coil units to be located above the bathroom in the unit and ducted for air distribution. Final intake and exhaust locations and details to be coordinated with the Architect and approved by the Owner.

Ventilation

Ventilation will be provided to each residential unit through ducts routed from sidewall louvers to the unit fan coil.

Exhaust

For all residential exhaust, maintain a minimum of 10'-0" clearance to all outside air intakes and 3'-0" to all windows and doors (building openings). Combine exhaust outlets into combined louvers for the bathroom, kitchen hood, and dryer vents where possible to minimize wall penetrations.

Each residential bathroom is provided with a two-speed fan and ducted to an exterior wall louver. The fans will operate 24/7 at the low speed and will ramp up to high speed during occupancy as indicated by an occupancy sensor or connected to the light switch.

Residential kitchen hoods are vented with a direct duct connection. Exhaust duct to be routed from the kitchen hood to an exterior wall louver.

Dryer venting will be routed from the appliance to an exterior wall louver. Larger sizes, 5-inch diameter, and 6-inch diameter, will be provided for dryer vent with longer runs.

As an add alternate, dryer exhaust ducting can be provided with booster fans with lint traps to allow longer lengths of ducting, installed in accordance with the state and city building code and the manufacturer's installation requirements.

Temperature Controls and Zoning

Individual temperature control will be provided for each residential unit and common spaces by dedicated HVAC unit and thermostat. If Design Builder chooses to reduce zoning, it is only allowed after the bids are completed and upon written agreement from the Owner.

All thermostats will have IP addressable for mobile and remote access.

Corridor HVAC

For Building A and Building D, the corridors will be conditioned by a split system heat pump with the condensing unit located on the roof and the fan coil units located in the ceiling. Outside air will be ducted to the fan coil unit from the façade.

Provide time clocks for all exhaust and supply fans serving the corridor.

Common Spaces

System

The mechanical systems for the common space will be individual split system split DX units serving the spaces. Condensing units will be located on the roof when conditions allow. Fan coil units will be located inside plenums above the spaces and ducted for air distribution.

Ventilation

Outside air ventilation will be provided to each space through ducts routed from sidewall louvers to the unit fan coil.

Main Electrical Room Cooling

Main electrical room and main panel rooms will be ventilated and conditioned per code, PG&E, and/or electrical equipment manufacturer's requirements via fans.

Trash/Recycle Room

Continuous exhaust ducted to building exterior at six air changes per hour, minimum. Integrity of fire rating will be maintained in the design.

Trash Chute

Chutes will be vented at the roof level.

END OF HVAC SECTION

DIVISION 26 – ELECTRICAL

GENERAL

This project is a design-build project. This Basis of Design and the accompanying minimum requirements are meant to portray the design intent and quality of materials. The Design-Builder is ultimately responsible to the Owner for the complete design and construction of the Project in compliance with the contract documents. The Design-Build Team includes the Design Professionals who will be the Engineers of Record for the project. Not all systems are sized or documented within these requirements. It will be the responsibility of each trade to develop the design intent into a full design concept, completing all calculations for loads, conduit and conductor sizing, lighting photometrics, and equipment and device coordination, and to create complete and coordinated construction documents and permitting documents.

The Design Builder and their Consultants will be expected to attend all required coordination and design meetings (on a weekly basis or more) as stipulated by the Design-Build Agreement. The Design-Builder, his Contractors Subcontractors and Design Consultants will be required to coordinate routing of all their respective utilities and create composite coordinated construction documents to be sent to the Architect of Record for review and upon acceptance by the Architect and Design-Builder, distributed to the Owner and their representatives for review and information. Prior to submission for review, the Contractors shall stamp all drawings as "coordinated with all trades" with a signature from each trades' project manager. Quantity of drawing submissions will be stipulated by agreement between the Owner and Design-Builder (minimum of three) and the Project Manager. All design and construction documentation will be completed on Autodesk Revit 2019. All files will be made available in Revit, CAD, and PDF files to the Architect and Owner for their use.

CODES AND GENERAL REQUIREMENTS

Codes

- Latest California Electrical Code with local amendments
- Latest California Energy Code (Title 24)
- CalGreen as adopted by the City of Pacifica
- Latest California Building Code with local amendments

General Requirements

Design and construction of a complete electrical system to be in conformance with the contract documents.

Final location of outlets and switches are subject to Owner's review and acceptance.

ELECTRICAL SERVICE AND DISTRIBUTION

There will be one electrical service to the building originating from PG&E utility transformer with secondary voltage at 208/120V, 3 phase, 4 wire. There will be 1 main electrical room located on the ground floor of the building site. Additional electrical closets/risers will be provided at each building with interior corridors on each floor.

Electrical Service

Is derived from 1000KVA utility transformer located on an exterior Pad on the site within 40 feet of the main electrical room. This service will be utilized to serve residential and commercial electrical loads of the buildings.

The main switchboard (MSRN) rated at 2500A, 208/120V, 3 phase, 4 wire will be located in the main electrical room and shall be provided with a main circuit breaker equipped with ground-fault interrupting devices and distribution sections.

One metered distribution section will be used to serve general house and activity spaces. The rest of the main switchboard will be an unmetered section to feed meter banks.

The second distribution section will serve (1) 1200A and (1) 800A residential meter banks; One 1200A meter bank (MBN1) will be used to serve apartment units located in the four (4) west buildings. The second meter bank (MBN2) will serve apartments units located in the three (3) East buildings.

Each residential unit will have a 125A, 208/120V, single phase, 3-wire residential unit load center. Kitchen appliances, lights, HVAC equipment, and plug loads will be connected to this panel.

Service Load Calculation

Pacifica Load Calculation - Main Electrical Service

Residential Unit Type 1 Loads						
	1,768 KVA	70	Units * 29% Demand Factor:	=	513	KVA
Demand Factor Per NEC 220.84						
Amenity spaces:		5400	square feet			
Lighting/Receptacle at 4.0 VA per square foot				=	21.6	KVA
Heating and cooling at 6 VA per square foot				=	32.4	KVA
Parking Lot						
EV chargers 12 dual point					80	
Lighting					2	
Pumps/misc					10	
TOTAL:				=	659	KVA
Current at 208 volt, three phase:				=	1828.09	A
Proposed Electrical Service:	**2500A**	**120/208V, 3PH, 4W**				

Main switchboard (MSH) will have an allocated space for provision to future interconnection to a PV system.

EMERGENCY LIFE SAFETY SYSTEM

No emergency generator power is to be provided on this project. All egress and exit lighting power is to be supplied by a lighting inverter. Lighting inverter shall be located in the main electrical room.

ELECTRICAL SYSTEMS

All panel bussing shall be copper. Provide deductive alternate for aluminum

Provide power for all HVAC control systems, mechanical systems, and plumbing systems.

Provide power to signage, site power and EV chargers as shown on architectural drawings.

The Building will be provided with a ground system with maximum, dry-ground impedance of no more than 25 ohms.

LIGHTING

Design Light Levels

Design criteria for the illuminance of various spaces within the building are shown in the table below:

Space	Average Illuminance (fc)
Common Space	
Storage, Janitors	10
Utility, Electrical, Mechanical	30
Parking Garage	5
Hallways (Active Hours)	10
Hallways (Sleeping Hours)	5
Public Restrooms	10
Elevator Lobby	10
Exterior Pedestrian Pathways	1-2
Lobby	15
Fitness Rooms/office/community	40
Resident Rooms	
Entrance	20
Living Room	15
Kitchen (Task)	50
Bedroom	10
Closet	30
Restroom	10
Make-Up/Shaving Area	50

System Description

Interior lighting shall be designed such that lighting is layered with a combination of downlights, decorative lighting and recessed accent lights. All lighting is to be efficient to be at least 45 lumens per watt and LED type. All interior lighting shall be 2700-3000K and 90CRI.

All lighting will be served from dedicated panelboards with an operating voltage at 120V.

Use owner preferred lighting fixtures where possible. Final selection of fixtures and locations subject to Owner approval.

Exit and Emergency Lighting

The inverter is recommended to be located in the main electrical room and connected to the dedicated emergency section of the lighting control panel.

Emergency lighting will consist of exit signs and general lighting fixtures for egress illumination provided with emergency lighting inverter controlled circuit. Provide an unswitched dedicated emergency circuit for exit signs.

Egress lighting will include an adequate number of fixtures to provide 90 minutes of 1 FC average illumination on the exit path.

Energy efficient green LED, edge-lit type exit signs shall be provided for all areas.

Stairways

Means of Illumination:

- Illumination will be provided using linear, surface mounted LED luminaires with integral occupancy sensor.
- Locate lights at each stairway landing.

Means of Control:

- Occupancy sensor shall be programmed to dim lights to 40% after a 10 minute vacancy period during the day hours.
- Program sensor to dim lights to 20% after a 5 minute vacancy period during night hours.
- Integrate with building wide lighting control system.
- Lights shall be activated from level above and below.
- Lights shall turn full-on when normal power shuts off or upon activation of emergency alarm. Provide UL924 emergency transfer relay device to bypass controls.
- Lighting in open stairways must have an occupancy sensor that works in combination with a photocell, an astronomical time clock or an energy management control system, or EMCS.

Corridors

Means of Illumination:

- Illumination will be provided using slim surface mounted LED luminaires.
- General lights shall be spaced appropriately in order to maintain the required footcandle levels.
- Provide fixture directly over elevator landing in order to maintain the minimum of 10 footcandles requirement.

Means of Control:

- Install ceiling mounted occupancy sensors designed for hallways.
- Program sensor to dim lights to 50% after a 15 minute vacancy period during the day hours.
- Program sensor to dim lights to 30% after a 5 minute vacancy period during night hours.
- Intertie with building wide lighting control system.
- Lights shall be activated from all designed paths of egress.
- Emergency lights shall turn full-on when normal power shuts-off or upon activation of emergency alarm. Provide UL924 emergency transfer relay device to bypass controls.

Storage, Janitors, Electrical and other BOH Rooms

Means of Illumination:
- Lensed LED strips shall be provided for mechanical, electrical and utility rooms.
- Recessed prismatic lens troffers shall be provided in support or storage rooms with drop ceiling type.

Means of Control:
- Due to the possibility of life safety issues main electrical and mechanical rooms shall only be controlled by manual toggle switches located at each access/egress point.
- Electrical closets, IDF closets, janitor rooms, storage, and all other BOH rooms shall be controlled by manual toggle switch and stand-alone vacancy sensor with automatic 10 minute time delay off. Provide high efficacy fixtures to avoid exceeding the 0.5 watts / square foot threshold that will require dimming switches.

Lobby

Means of Illumination:
- Illumination will be provided using a combination of downlights, cove lighting and decorative pendant fixtures.
- General lights shall be spaced appropriately in order to maintain the required footcandle levels.
- Provide fixture directly over elevator landing in order to maintain the minimum of 10 footcandles requirement.

Means of Control:
- Install ceiling mounted occupancy sensors designed for hallways.
- Program sensor to dim lights to 50% after a 15 minute vacancy period during the day hours.
- Program sensor to dim lights to 30% after a 5 minute vacancy period during night hours.
- Daylight sensors shall dim lighting within the daylight zone where there is sufficient daylighting.
- Intertie with building wide lighting control system.
- Lights shall be activated from all designed paths of egress.
- Emergency lights shall turn full-on when normal power shuts-off or upon activation of emergency alarm. Provide UL924 emergency transfer relay device to bypass controls.

Community/office/public

Means of Illumination:
- Illumination will be provided using a combination of recessed 2'x2' LED lighting and decorative lighting.

Means of Control:
- Install ceiling mounted dual technology occupancy sensors.
- Program sensor to dim lights to 50% after a 30 minute vacancy period.
- Daylight sensors shall dim lighting within the daylight zone where there is sufficient daylighting.

Exterior Lighting

Parking lot lighting shall be LED pole mounted luminaries at 4000K. Landscape lighting shall be a combination of pole lights and building mounted lighting.

All installed outdoor lighting shall be circuited and independently controlled from other electrical loads.

Façade and ornamental hardscape lighting must be controlled by a centralized time-based zone lighting control capable of automatically reducing lighting power by 50%.

Resident Apartments

All recessed luminaires shall be IC rated and sealed with a gasket or caulk in order to comply with Title 24. All residential luminaires are to be JA8 compliant and CRI of 90 or greater per Title 24.

All permanently installed high efficacy luminaires shall be switched separately from low efficacy luminaires. Low-efficacy lighting paired with vacancy sensors can be used instead of high-efficacy lighting in spaces such as bedrooms, living rooms, dining rooms (where switched separately from the kitchen), closets greater than 70 ft2, hallways, and attics.

Using dimmers instead of high efficacy luminaires/vacancy sensors is a recognized alternate method of compliance with the Title 24 residential lighting Standards for all rooms except for kitchens, bathrooms laundry, garage, or utility rooms.

Provide three-way switches where warranted.

Bedroom and Living

Provided switched receptacles at these areas.

Dining

Provide surface mounted slimline LED task lights with J-Box for provision of pendant over dining table, controlled individually by wall switch.

Kitchens

Provide surface mounted slimline LED downlights within kitchen and over kitchen counter controlled by wall switch.

Bathrooms

One vanity light mounted horizontally over the mirror. Provide high efficacy wet listed luminaire/combo fan surface mounted to ceiling. Lighting integral to exhaust fans shall be controlled separately from the exhaust fan.

Closet and Hallways

Provide surface mounted slimline LED downlighting in hallways and in walk in closets only as needed.

Resident Entries and balconies

Exterior lighting sconce at entry that's controlled from the inside of dwelling and high efficacy per Title 24.

Garages, Laundry Rooms & Utility Rooms

Surface mounted luminaires that are high efficacy and controlled by vacancy sensors.

END OF ELECTRICAL SECTION

DIVISION 27 – TECHNOLOGY

GENERAL

This project is a design-build project. This Basis of Design and the accompanying minimum requirements are meant to portray the design intent and quality of materials. The Design-Builder is ultimately responsible to the Owner for the complete design and construction of the Project in compliance with the contract documents. The Design-Build Team includes the Design Professionals who will be the Engineers of Record for the project. Not all systems are sized or documented within these requirements. It will be the responsibility of each trade to develop the design intent into a full design concept, completing all sizing of equipment, conduit and cable sizing, and coordination for all devices and equipment, and to create complete and coordinated construction documents and permitting documents.

The Design Builder and their Consultants will be expected to attend all required coordination and design meetings (on a weekly basis or more) as stipulated by the Design-Build Agreement. The Design-Builder, his Contractors Subcontractors and Design Consultants will be required to coordinate routing of all their respective utilities and create composite coordinated construction documents to be sent to the Architect of Record for review and upon acceptance by the Architect and Design-Builder, distributed to the Owner and their representatives for review and information. Prior to submission for review, the Contractors shall stamp all drawings as "coordinated with all trades" with a signature from each trades' project manager. Quantity of drawing submissions will be stipulated by agreement between the Owner and Design-Builder (minimum of three) and the Project Manager. All design and construction documentation will be completed on Autodesk Revit 2019. All files will be made available in Revit, CAD, and PDF files to the Architect and Owner for their use.

CODES, STANDARDS, AND GENERAL REQUIREMENTS

Codes

- National Electrical Code, as adopted by AHJ.
- California Electrical Code, as adopted by AHJ.
- California Building Code, as adopted by AHJ.
- National Fire Protection Association (NFPA).
- California Energy Conservation Code, Title 24.
- Utility Company Standards, Rules, and Regulations.
- California Fire Code, as adopted by AHJ and Local Fire Marshal

Standards

- BICSI TDMM, Latest Edition.
- ANSI/TIA-568-C.0 - Generic Telecommunications Cabling for Customer Premises.
- ANSI/TIA-568-C.1 - Commercial Building Telecommunications Cabling Standard.
- ANSI/TIA-568-C.2 - Balanced Twisted-Pair Telecommunications Cabling and Components Standard.
- ANSI/TIA-568-C.3 - Optical Fiber Cabling Components Standard. Commercial Building Telecommunicating Cabling Standard.
- ANSI/TIA-569-B - Commercial Building Standard for Telecommunications Pathways and Spaces.
- ANSI/TIA/EIA-606-A - Administration Standard for Commercial Telecommunications Infrastructure.
- ANSI-J-STD-607-A - Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications.

General Requirements

Design and construction of a complete telecommunications system to be in conformance with the contract documents.

TECHNOLOGY SYSTEM DESCRIPTION

Telecommunications Spaces

Intermediate Distribution Frame (IDF)

The main electrical room will be the Main Point of Entry (MPOE) for the telephone/data and CATV utility service provider connections. Wall space with plywood backboard mounted shall be reserved for location of service provider equipment.

The IDF closets shall be located on each floor and where distances are beyond 300' to the smart box within the unit additional IDF closets shall be provided.

3/4-inch fire-resistant plywood backing will be installed in each IDF, mounted 4 inches above finished floor and extending to 8 feet minimum. Service provider equipment and cabling will be mounted to the plywood.

Horizontal Distribution

2-strand fiber, (1) Category 6, and (1) RG-6 coax will be routed from the IDF to a smart box located in each residential unit. From the smart box, cables will be routed to telecom outlets located in the residential unit. Each telecom outlet will have one CATV, one voice, and one data jack available in the faceplate. Cabling shall be Category 6 for voice and data.

The smart box, at least 14 inches wide by 4 inches deep by 20 inches high, will be located in a closet within each residential unit. Each smart box will require a 15 amp duplex receptacle.

Each residential unit will have telecommunications and CATV outlets (TO) distributed from the smart box.

Each unit will have the following outlets. Final location of outlets subject to Owner's review and approval.

- One TO in each bedroom.
- One TO distributed in the living area.

Telecommunications Pathway

The MPOE shall be served via 4-inch conduits from the street with quantities to be determined by service provider requirements. Contractor shall coordinate with local service providers and provide spare conduits for future connectivity.

(2) Four inch conduit/sleeves will be provided from the MPOE to each IDF.

(2) Two inch conduit/sleeves with weather-heads will be provided from the highest IDF up to the roof for residents who prefer satellite TV service.

Distributed Antenna System (DAS)

A distributed antenna system may be required to support emergency responder radio coverage. Headend to be located in the MPOE. Signal testing within the building to be completed once the walls, wall coverings and roof/ceiling are constructed. Signal testing after the system installation is also required.

END OF TECHNOLOGY SECTION

DIVISION 28 – FIRE ALARM

GENERAL

This project is a design-build project. This Basis of Design and the accompanying minimum requirements are meant to portray the design intent and quality of materials. The Design-Builder is ultimately responsible to the Owner for the complete design and construction of the Project in compliance with the contract documents. The Design-Build Team includes the Design Professionals who will be the Engineers of Record for the project. Not all systems are sized or documented within these requirements. It will be the responsibility of each trade to develop the design intent into a full design concept, completing all calculations for battery sizing and circuit loads, equipment sizing, and conduit sizing, and to create complete and coordinated construction documents and permitting documents.

The Design Builder and their Consultants will be expected to attend all required coordination and design meetings (on a weekly basis or more) as stipulated by the Design-Build Agreement. The Design-Builder, his Contractors Subcontractors and Design Consultants will be required to coordinate routing of all their respective utilities and create composite coordinated construction documents to be sent to the Architect of Record for review and upon acceptance by the Architect and Design-Builder, distributed to the Owner and their representatives for review and information. Prior to submission for review, the Contractors shall stamp all drawings as "coordinated with all trades" with a signature from each trades' project manager. Quantity of drawing submissions will be stipulated by agreement between the Owner and Design-Builder (minimum of three) and the Project Manager. All design and construction documentation will be completed on Autodesk Revit 2019. All files will be made available in Revit, CAD, and PDF files to the Architect and Owner for their use.

CODES AND STANDARDS

Codes

Systems will be designed in accordance with the following codes:

- California Building Code (adopted edition).
- California Fire Code (adopted edition).
- California Electrical Code (adopted edition).
- California Fire Code (adopted edition).
- NFPA 13, Standard for the Installation of Sprinkler Systems (adopted edition).
- NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection (adopted edition).
- NFPA 72, National Fire Alarm and Signaling Code (adopted edition).
- Pacifica Municipal ordinances and amendments.

Standards

The following reference standards will be used in design:

- ASTM- American Society of Testing and Materials.
- NEMA- National Electrical Manufacturers Association.
- NFPA- National Fire Protection Association.
- UL- Underwriters Laboratories.
- FM – FM Global Approval Guide.
- ADA- Americans with Disabilities Act.

FIRE ALARM SYSTEM DESCRIPTION

General

Design and construction of a complete fire alarm system to be in conformance with the contract documents.

The fire alarm system and residential smoke alarm/carbon monoxide alarm systems will be contractor designed.

Automatic, addressable, fire alarm systems will be provided as needed to meet the requirements of the adopted editions of the California Building Code, California Fire Code, local Pacifica building code amendments and NFPA 72.

The fire alarm systems will provide system alarm, supervisory and trouble signal monitoring, and alarm notification for the buildings as well as provide interfaces for fire/life safety functions. System equipment will have batteries to provide a secondary power source in case of primary power loss to the control panel or any remote power supply.

Automatic smoke detection will be provided as required by code. Heat detection will be provided in areas not suitable for smoke detection. A manual pull station will be installed at an AHJ approved location.

Activation of system smoke detectors and manual pull stations will initiate alarm signals on the fire alarm control panel (FACP) and fire alarm annunciator (FAA), and activate the audible and visual notification appliances throughout the buildings. Activation of HVAC duct smoke detectors will initiate supervisory signals, which will annunciate on the FACP and the FAA. Fire alarm, supervisory and trouble signals will be transmitted off site to a remote monitoring station. Supervisory monitoring will include monitoring of the fire sprinkler control valves.

Audible and visual alarm notification appliances will be provided throughout the buildings to meet the audible and the visual notification requirements of NFPA 72 and the ADA. Audible alarm notification will be provided by horns. Visual notification will be provided by strobes in common use and public spaces as well as any space required to have strobe coverage per the ADA and building codes.

Control outputs will be provided for fire safety functions such as air handler shut down.

Residential Unit Smoke Alarm and Carbon Monoxide Alarm

Combination smoke alarm/carbon monoxide detectors will be installed in the residential units. The units will be tandem wired so that all units within the residential units will sound at the same time.

Activation of the smoke alarm will generate a temporal code 3 alarm. Activation of the carbon monoxide alarm will generate a temporal code 4 alarm. The alarm will only sound locally within the residential unit.

Provision for strobe units in all dwelling units, including conduit and circuitry, shall be provided for all units per the State of California interpretations.

Fire Alarm System Equipment

Fire alarm equipment will be UL listed for fire protection.

The fire alarm panel will be an analog, addressable system with point identification.

Strobes will have multi-candela settings for field adjustment to achieve ADA and NFPA 72 visual requirements for the protected spaces. Finishes will be white.

Horns will be provided to achieve audibility requirements per NFPA 72. Finishes will be white.

Manual pull stations will be single action type with red finish.

Smoke detectors will be photoelectric type. Where installed for monitoring HVAC systems and control of fire smoke dampers, detectors will be either duct mounted or in-duct mounted.

Combination smoke/carbon monoxide alarms will be photoelectric type and UL listed for fire protection. The alarms will operate from building power and will have an integral battery for use during power outages. Units will be configurable as tandem connected units.

END OF FIRE ALARM SECTION

Telesis

Tuesday, April 2, 2019

Memorandum

Mr. Ian Murphy
BDE Architecture
950 Howard Street
San Francisco, California 94103

Via Email

Re: Project Pacifica School District Workforce Housing,
Phase I and II Subject Basis of Design – Structural Narrative

Charles C. Thiel Jr., Ph.D.
Gary S. Varum, S.E.

Principal Office:
80A Blake Street
San Francisco, CA 94118
tel 510-508-8262

Branch Offices:

361 South Palouse Street
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tel 509-529-5350

480 Arlington Avenue
Berkeley, CA 94707
tel 510-508-8262

The following Structural Basis of Design is to be used in conjunction with the Design Guide Illustrations (DGI) provided.

The Structural Engineer of record is responsible for the development of the design and monitoring of the construction and approval of all modification of the structural system or other items that could impact the structural performance of the Building. The District has provided some guidance documents on the geotechnical characteristics of the site for information to help in the formulation of a plan for implementing the design/construction process. These are intended to be informative, and not a sufficient basis for development of the design. The the design team is responsible for retaining appropriate technical consultants to provide reliable understanding of the soils and related characteristics of the site. The District has a desire for a well-designed building in compliance with the technical standards applicable to it by the current California Building Code and referenced standard. The District has determined that Independent Seismic Peer Review is a means to assure meeting the intent of the Code and good practice. It is the responsibility of the design team to interpreted the CBC requirements for the specific design proposed using materials and systems in a technically acceptable way. To this end the following structural requirements apply:

1. It is the intent of the District that the seismic performance of buildings meets or exceeds those required for the buildings and structures by the California Building Code. The District shall retain a qualified independent structural peer reviewer to confirm that the design process uses both good structural and construction practices, and interprets and implements the structural requirements of the CBC. The CBC Part 19, CEBC Section 322 shall be the standard for the conduct of the peer review. The peer review is initiated at the beginning of design and terminates with the issuance of an occupancy permit. It is the responsibility of the Contractor to resolve all issues raised in the peer review prior to requesting an occupancy permit. Cost of the peer review are born by the District and the cost of compliance by the Contractor.
2. The structural design for all structural improvements, including buildings and civil works are to be prepared by the Structural Engineer to meet the requirements of the current edition of the CBC and any addition requirements enforced by the responsible Building Department. The structural design is to implement the architectural plans and be consistent with the approved Geotechnical Engineer's characterization of the supporting soils. The District has

no other specific limitations on the methods used to assess the suitability of the design to meet CBC requirements for the materials and structural systems used.

3. All structural design work is to be peer reviewed by the Peer Reviewer from the start of design through completion of construction. The Peer Reviewer shall examine the design at appropriate times specified at minimum in CEBC Section 322 and comment on Code compliance and good practice issue that are questionable or may be considered by the design team as cost-effective alternatives to those proposed. The Developer is required to resolve all Peer Review comments that are not adequately resolved before the design will be approved for construction, or where comments are offered based upon issues raised while in construction before the proposed changes are implemented. Other than peer review, there are no additional structural requirements other than Code and good practice consistency on implementation of the District's approved architectural program.

4. The Developer shall submit items that bear such review at a minimum of the following.
   - At all time specified by the RFP Addendum 1 for this work, 50% and 90%.

   For the structural review we want to review the documents, including plans at several additional times as listed below:
   - When the structural requirements for the building have been prepared and the structural systems have been identified by type. This is a document(s) that set the performance requirements for the design, proposed site design parameters, proposed analysis approaches, etc.
   - When the schematic design has been developed sufficiently to show the placement of gravity and lateral load resisting elements have been schematically determined, but before they are finalized. The purpose is to discuss and agree upon the basic system and its possible placement of elements before there is too great an investment incurred by changing them latter.
   - When the schematic design is forwarded to the District for review.

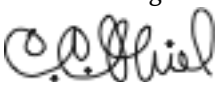
   Comment: these are intended to assure that the seismic design requirements of the schematic have been well considered in the development of the schematic plan before it is further developed in the subsequent design phases.
   - When during construction a modification is proposed that could alter the seismic performance of the building from that assumed for the approved design. Such an item should be forwarded with an assessment from the SEOR of why he concludes that the proposed change does not alter the expected seismic performance of the structure and its basis. This is consistent with the seismic peer review not being completed until the occupancy permit is issued.
   - Whenever the structural design team finds that it has questions about the best resolution of a seismic design or detailing question and wish to have a discussion with the independent peer reviewer of the technical or practical basis of the options under consideration. Comment: This is to maintain an efficient design process and not to have to wait until specified review times to resolve issues that may significantly impact the development of the design.

5. The Districts has provided information on the geotechnical characteristics of the building site and assessment of the slope stability of the southern adjacent property as part of the background information to the Developer. These were provided as information to assist the Developer in assessing the characteristics of the site. The Developer is responsible for the retention of appropriate consultants to evaluate the specific characteristics of the site and the slope stability of the site to the south for purposes of developing the specific property and its improvements. The District requires that it approve the site geotechnical and stability reports prior to their use in the design. The Peer Reviewer will review these reports and, if and where necessary, raise issues with its consultants to resolve design issues prior to their approval of the development plan. The stability of the bordering southern site is important because the slopes show signs of prior land-sliding that could impact the District property. The District has had its consultant review aerial images and they have concluded that there is no evidence of past large-scale slope instability, but the developer is responsible to confirm that this is in fact the case. The Developer's consultants should determine the degree of such hazards, and the appropriate design steps to protect the new buildings from damage if they should occur. The District suggests that the BSE-2 of the CBC seismic loadings are the appropriate ones to evaluate the land-sliding and if mitigation is required to protect the building. This will be at the discretion of the reviewing Building Official, who should be consulted. You will note that the Civil advisory plan addresses collection and containment of water reaching the toe of the slope. The Developer shall submit to the District the results of such studies and proposals for how, if necessary, the Developer will position and design the buildings and any diversionary improvement to limit the likelihood of structural damage to the buildings and improvement from these sources.

6. The District is satisfied that the CBC seismic requirements are an adequate basis for these residential buildings' designs, and that full conformance should lead to buildings of seismic performance characteristic that are acceptable to the District. The District believes as represented by CSU and UCSF experience that peer review over the time of the design development yields better performing and less expensive buildings than if it is not done. This is because rather than always making conservative decisions on the Building Code requirements, the decisions made are appropriate to the conditions of the specific building, and therefore, technical issues are discovered earlier when they are easily accommodated in the design. Notwithstanding, where the Developer believes that higher standards of performance for some elements would have beneficial reductions in future maintenance cost of loss of temporary use. The Developer is encouraged to propose to the District enhancements whose cost is beneficial on a life-cycle basis or for reliability in service purposes. Where the Developer sees such opportunities for total cost reduction by changing District requirements, the District will consider these including, a proposal of how to share the reduced cost of the development with the District.

7. The District has no prejudice in using alternative structural building materials and/or assemblies as long as they are acceptable under the CBC and the specifications for physical performance are equivalent or better for the proposed material or system than the alternatives over time. The District is particularly interested in the Developer's design team proposing Value Engineering suggested changes at the appropriate time in the design development process rather than at the end, where schedules are disrupted. The District expects to share with the Developer the cost savings or increases of such proposals on an equal benefit basis. The basis for evaluating such decisions are: cost differential, schedule changes, short-term and long-term performance and maintenance demands of the buildings.

For Telesis Engineers



Charles C. Thiel Jr., Ph.D.
Principal

APPENDIX A

Limited Geologic Study of Hillslopes

SLATE
GEOTECHNICAL CONSULTANTS

February 26, 2019
Project No. 18-005.01

Slate Geotechnical Consultants Inc.
490 43rd Street
Oakland, California 94609

Kenneth R. Klebanoff, AIA, LEED AP
Brookwood Group
One Embarcadero Center, Suite 500
San Francisco, CA 94111

Re: Limited Geologic Study of Hillslopes
Oddstad Site Planned Development
Pacifica, California

Dear Mr. Klebanoff:

Slate Geotechnical Consultants Inc. (Slate) is pleased to present this brief letter summarizing the findings of our geologic assessment of slope failure potential for the subject site. The site is located at 930 Oddstad Boulevard in Pacifica, California, and is currently occupied by a former elementary school and play fields. The school and surrounding grounds are situated on a relatively flat area with steep hills along the southeastern border of the property. Some portion of the hillslopes appear to be cut into bedrock.

Previously, Slate conducted a limited geologic site reconnaissance of the hillslopes that border the property for signs of potential landslide hazards that could affect the planned re-development at the site (Limited Geologic Reconnaissance Memorandum, dated October 4, 2018). As described in that memorandum, observations of the site conditions did not indicate the immediate presence of extensive or deep-seated landslides nearby the site, but significant vegetation on the hillslopes prevented visual access to a majority of the slopes. To better assess the potential for deep-seated landslide areas that could pose a significant hazard to the planned development of the site, additional assessment of the site was deemed warranted.

The current scope of work includes performing a detailed background review, conducting additional limited site reconnaissance (if needed), and preparing a report summarizing the findings. At your request, we have prepared this interim summary letter to briefly outline the overall findings of our studies. A more detailed report will be submitted in the coming weeks that will document the sources reviewed, include figures showing features of interest in the area of the site, and discuss the project findings further. The tasks completed and findings for the current project are outlined briefly below.

Detailed Background Review

Existing available geologic information for the site vicinity was gathered and reviewed for information that may be relevant to the potential for landslide hazards at the site. Sources of information included the following:

1. Geologic maps;
2. Landslide maps showing existing landslides and landslide deposits, landslide susceptibility, and hillslope susceptibility;

3. Debris flow maps showing deposits and probabilities of failures;
4. Reports of damage following major rain events (e.g., 1982 and 1997-1998); and
5. Reports of local ground failures following major earthquakes (e.g., 1906 San Francisco and 1989 Loma Prieta earthquakes).

Historical Aerial Photograph Review

Collections of historical aerial photographs are available for review at the University of California Earth Sciences & Map Library in Berkeley and the U.S. Geological Survey Library in Menlo Park. Slate visited both libraries to view available aerial photographs of the site vicinity. Aerial photographs were available spanning between 1943 (scale of 1:24,000) to 1983 (scale of 1:12,000), with a maximum scale of about 1:1,200. Photographs were viewed in stereo, when available, and were reviewed for major changes in site and slope conditions over time, failure of hillsides upslope of the site, geomorphic features indicative of head scarps or deep-seated landslides, and general hillslope conditions/failures in the areas surrounding the site.

Discussion of Findings

In conjunction with the previous limited geologic site reconnaissance, the detailed background review and review of aerial photographs did not identify potential extensive or deep-seated landslide areas that could pose a significant hazard to the planned development at the site. Existing reports, maps, and aerial photographs indicate the presence of small debris flows and slumps or landslides that have occurred infrequently both spatially and temporally across the hillslopes in the site vicinity. The potential for scattered, small (e.g., less than about 50-100 feet in maximum dimension) landslides or debris flows on the hillslopes immediately above the site appears to be consistent with the mountainous areas of the region surrounding the site. Overall, the primary slope stability issues for the hillslopes at and adjacent to the site appear to be the potential for scattered small landslides and/or debris flows, slope creep, and raveling of colluvial soils on slopes.

No areas were identified during the present study where additional site reconnaissance would be required (e.g., to visually inspect and confirm the presence of apparent landslide head scarps identified in aerial photographs or geologic maps). As such, no further reconnaissance or site visits are planned by Slate for the current project. As noted above, a more detailed report will be forthcoming that identifies the available sources reviewed and discusses in more detail the findings and conclusions of the current study.

In total, the available information to date does not indicate the presence of existing or past deep-seated or extensive slope failures that could pose a significant hazard to the proposed development. It is our opinion that shallow landslide or debris flow hazards to the site could be mitigated by typical means during development of the site.

Please call should you have any questions.

Sincerely yours,

Slate Geotechnical Consultants, Inc.

Courtney B. Johnson, PG
Associate Principal Geologist

APPENDIX B

Comments on Oddstad Site Soil and Generalized Development Observations

Telesis

Memorandum

Charles C. Thiel Jr., Ph.D.
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September 14, 2018 r

Memorandum for Alan Katz, Brookwood

Re: Comments on Oddstad site soil and generalized development observations specific to the site

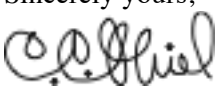
John and I looked at the Oddstad site documents and and reached some conclusions. These are form several sources: topographic map, Google images, and other items. Here are our observations

1. We understand that the southwest two bays of the topographic map will be developed in this round of considerations.
2. The site has sharp topographic changes at the east and west boundaries.
3. The state and country do not have maps of slope stability that include these sites. Available maps characterize the site as being situated in an area of flat land, underlain by artificial fill. Adjacent areas to the east and west are mapped variously as Quaternary alluvium, Quaternary hillslope deposits, or Franciscan Complex sedimentary rocks; these areas are characterized as having few landslides. It is not mapped for liquefaction nor faulting.
4. There appears to be no faulting within the bounds of the property. The San Andreas fault is to the east and San Gregorio fault to the west, but not close enough to indicate fault hazards within the property or within a mile or more.
5. Liquefaction is an unlikely problem. The site is in an area mapped as having low liquefaction susceptibility, and there are no apparent streams the would have local shallow water table in sandy materials. The lakes and ponds seem well removed from the site.
6. We have not yet been to the property to evaluate the risk of slope instability. Based on what we see and can project, if there is a risk of earthquake- or rainfall-induced landslides, a standoff distance from the toe of the hillside by 15-20 feet should be sufficient. As a planning effort it might be prudent to think of planning walls near the toe to catch debris if it should be necessary to encroach on this space. This is a question to be asked when the development of the design begins in earnest. If necessary we would want to have a geologist look at the slope and make initial judgements on potential slope instability and the possible size of such areas. At this time, we think it to be a premature expense.
7. For purposes of the initial feasibility planning process just plan for a standoff and we will confirm latter whether it is needed or not.

8. For purposes of supporting two story-wood or cold-formed metal framed buildings we see no issue out of the ordinary for foundation design. Conventional footings are indicated into native soils. For the Google look it may be that there has been some cut and fill here, but probably it was mostly local materials, not imported. Because it was a school site, we presume that the fill was engineered and placed with adequate observation and documentation. In the next phase we sould ask for an examination of the districts files to find the geotechnical report that guides the initial development of the school site, we have DSA as a backup. It is likely that this construction was controlled by DSA.
9. The site is close to the San Andreas fault and therefore the design ground motions will be high, of the order of 0.60g or higher. This puts a premium on light shear-wall designs being selected, but they are the most cost-effective for this type of two-story apartment construction. We suspect that these will be town-house types, and the stacked unit separation walls plus siding will be enough to take the lateral loads. So not much of an increase in cost to accommodate the seismic issues. It would be best not to consider in-building parking as this will introduce more significant cost here than would be required for a lower risk site.
10. The goal of added investigations is to characterize the geologic and seismic issues for the site in the same manner we did for the Jefferson Union High School school site. That is, to provide a characterization of the types of issues that may occur that would influence the initial planning for development of the site. We estimate the costs associated with the next phase to be about 12 hours of staff geologists, 4 hours of Senior geotechnical engineer, and 8 hours of my time. With a 10% contingency this would be about $8K. We would expect that with the decisions on how the site will be used, that we would have a definitive scope of work for the design phase site investigations. As a note we will estimate bearing capacities based on experience, but not do any borings. It is too early for this level of site investigation and expense.

Charles C. Thiel Jr., Ph.D. with assistance of John Egan, G.E.

Sincerely yours,



Charles C. Thiel Jr., Ph.D.
Principal