I. EXECUTIVE SUMMARY

This analysis report is generated to review resident occupant load at Mary Park Hall and Mary Ward Hall at San Francisco State University.

The intent of the report is to review existing room areas and related California Building Code (CBC) occupant fire life safety requirement to review potential for housing additional students. In addition, plumbing fixture requirements are reviewed to consider feasibility of increased occupant load per the California Plumbing Code (CPC). Accessibility compliance requirement has not been reviewed.

The report is generated based on the existing plans provided by the University and subsequent site walk of the residence halls. The report shall not be considered a comprehensive analysis of all code compliance requirement; it is to be used as a guide to consider increased occupancy and a start for further detailed investigations.

The following overall observations are noted:

1. Existing dorm rooms have physical space to increase occupant load.
2. Existing exit component sizes and quantities can accommodate increased occupant load.
3. Existing buildings do not have full fire sprinkler systems.
4. Existing Mary Ward Hall dorm rooms seem to be missing fire alarm strobe.
5. Means of Egress Illumination (emergency exit lighting) and illuminated exit signage were observed. Minimum light levels were not checked.
6. Various exiting related signs were observed.
7. Existing restrooms and bathing facilities were observed. Per California Plumbing Code, the existing facilities can accommodate increased occupant load.

In synopsis, the following recommendations are made to consider increased residential occupancy:

A. FIRE LIFE SAFETY RECOMMENDATIONS

i. The buildings have partial fire sprinkler systems only in minimum utility areas. Per the current California Building Code, dormitories require automatic fire sprinkler system. We recommend new automatic sprinkler systems are installed prior to increasing occupant load.

ii. As noted, the Mary Ward Hall fire alarm system was observed with inconsistencies. i.e. no visual strobe inside the dorm rooms. Existing fire alarm systems should be reviewed by a qualified fire protection engineer to review compliance with the code requirement.

iii. Existing corridor doors were observed to be solid core doors with closers in general compliance with the 20-minute fire rating requirement; however, there were no certification tags. Appropriate fire rating should be confirmed.

iv. Existing elevators should be reviewed to comply with the Accessible Means of Egress requirement. In general, the required elevators should be furnished with Standby power and 2-way communication features.
B. PLUMBING/BATHING FACILITY RECOMMENDATIONS

i. Plumbing fixture count complies with the California Plumbing Code Fixture Count requirement; however, in situation where the occupant load is increased to maximum level allowed by the occupant load factor, we believe the restroom and bathing facilities will be overloaded. We recommend increasing the fixture count if the occupant load is increased.

ii. In process of increasing the fixture count, we recommend considering opportunities for gender neutral facilities. The current regulatory requirements do not specify exact requirement for gender neutral facilities; however, the facility should be considered to provide inclusive environment.

Detailed discussions related to the above recommendations are outlined in the following sections. The following tables illustrate potential maximum occupant load increase per CBC Chapter 10 occupant load factor consideration.

<table>
<thead>
<tr>
<th>MARY PARK HALL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Public Space</strong></td>
</tr>
<tr>
<td><strong>Occupant Load</strong></td>
</tr>
<tr>
<td><strong>Occupant Load</strong></td>
</tr>
<tr>
<td>1st floor</td>
</tr>
<tr>
<td>2nd floor</td>
</tr>
<tr>
<td>3rd floor</td>
</tr>
<tr>
<td>4th floor</td>
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<tr>
<td>5th floor</td>
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<tr>
<td>6th floor</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
</tr>
</tbody>
</table>
### MARY WARD HALL

<table>
<thead>
<tr>
<th>Floor</th>
<th>Public Space Occupant Load</th>
<th>Existing Residential Occupant Load</th>
<th>Potential Residential Occupant Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st floor</td>
<td>207</td>
<td>51</td>
<td>105</td>
</tr>
<tr>
<td>2nd floor</td>
<td>0</td>
<td>76</td>
<td>156</td>
</tr>
<tr>
<td>3rd floor</td>
<td>0</td>
<td>77</td>
<td>156</td>
</tr>
<tr>
<td>4th floor</td>
<td>0</td>
<td>70</td>
<td>144</td>
</tr>
<tr>
<td>5th floor</td>
<td>0</td>
<td>76</td>
<td>155</td>
</tr>
<tr>
<td>6th floor</td>
<td>0</td>
<td>75</td>
<td>151</td>
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<tr>
<td>TOTAL</td>
<td>207</td>
<td>442</td>
<td>871</td>
</tr>
</tbody>
</table>

Please refer to the attached building floor plans for assumed/observed building room use.
II. FIRE LIFE SAFETY CODE CONSIDERATION

Maximum floor area allowances per occupant is referenced from the California building Code Chapter 10, Table 1004.1.2. They are:

1. Dormitories: 50 SF per Occupant Gross
2. Institutional Area, Sleeping Area: 120 SF per Occupant Gross
3. Residential: 200 SF per Occupant Gross
4. Business Area: 100 SF per Occupant Gross
5. Classroom Area: 20 SF per Occupant Gross
6. Assembly without fixed seats: 15 SF per Occupant Gross

For the project review, student rooms will be considered as “Dormitories”. The Offices will be considered as “Business”. Workshops and conference rooms will be considered as “Classroom”, and dining halls and recreational area will be considered as “Assembly” occupancy group.

The occupant load of each room is determined by dividing the room area by the load factor. As an occupant is defined as a whole number, any remainder is rounded up. (i.e. 160 SF / 50 SF per person = 3.2. Rounded up to 4 occupants)

The existing buildings are 6 story residential dormitory buildings. Based on the definition of Highrise Building per the California Building Code, the existing buildings are not considered high rise building as the upper most floor elevation is less than 74 feet from the adjacent finished grade.

Per CBC chapter 4, section 420.5 and 420.6 of the CBC, residential occupancies require Fire Sprinklers and Fire Alarm systems.

The existing buildings are assumed to be type I-B buildings. There are constructed of non-combustible materials and the construction may have unprotected construction.

The buildings are not sprinklered. Although the code requirement during the original construction may not have required fire sprinklers, the current code stipulates that any changes in occupancy would trigger compliance with the new code requirement. The building code is not exact on the definition.

The buildings were observed with fire alarm systems; however, residential dorm rooms in Mary Wall Hall were missing notification strobes.

Per table 504.3, type I-B of R-2 occupancy building can be up to 160 feet tall. Per table 504.4, Type I-B of R-2 occupancy can have up to 11 stories.

The required means of egress sizing, number of exits, and exit access configurations are reviewed per the California Building Code Chapter 10, sections 1005, 1006, and 1007. The required review and analysis are noted on the reference plans. Although various exit signs and exit lightings were observed, the full compliance with the code requirement was not verified as a part of this report. In general, the building exit components can support the added occupant load.
Per CBC section 1009.2.1, elevators are required to provide accessible means of egress where a required accessible floor is four or more stories above or below a level of exit discharge. This elevator requires standby power complying with the requirement of Chapter 27 and Section 3003. In addition, two way communication devices shall be provided per the section 1009.8 at each landing points.

III. PLUMBING Fixture CONSIDERATIONS

A. PLUMBING FIXTURE COUNT CONSIDERATION

California Plumbing Code Chapter 4 applies to this project for assessing plumbing fixture requirement. Per CPC, Chapter 4, Table A, occupant load factors to assess plumbing fixture count is different from the CBC Chapter 10 exiting requirement. The following applicable occupant load factors are used.

1. Group A, assembly: 15 SF per Occupant to 30 SF per Occupant
2. Group R, residential: 200 SF per Occupant

Required fixture calculations need to comply with the Table 422.1 of CPC.

Based on the requirement, the existing fixture count is well within the code requirement. Furthermore, the potential occupant load increase outlined in the Executive summary does not impact the fixture count to meet the minimum code requirement. See detailed calculations on the plan sheets.

Although the minimum fixture count is met, we recommend that new plumbing fixtures are added to address potential crowding. Based on our experience, the current fixtures are adequate to serve the current occupant load. We recommend considering one additional Water Closet for every 15 to 20 additional students. Also adding one shower facility for 8 to 10 additional students is recommended.

B. GENDER NEUTRAL BATHING AND TOILET FACILITIES

In support of creating an inclusive 21st century facility design, gender neutral and inclusive bathing and toilet facilities should be considered. Although, we are not aware of any codified gender neutral and inclusive regulatory requirements, there are various considerations for providing inclusive facilities. The following definitions should be considered:

- Gender Identity – Is each person’s internal and individual experience of gender. It is their sense of being a woman, a man, both, neither or anywhere along the gender spectrum. A person’s gender identity may be the same as or different from their birth-assigned sex. Gender identity is fundamentally different from a person’s sexual orientation.

- Gender Expression – Is how a person publicly presents their gender. This can include behavior and outward appearance such as dress, hair, make-up, body language and voice. A person’s chosen name and pronoun are also common ways of expressing gender.
- Gender-Equal/Neutral – Not referring to either sex but only to people in general.

- All-Gender/Gender-Inclusive – Accessible to and usable by as many people as reasonably possible... without the need for special adaptation or specialized design.

In general, contemporary approach in creating a gender neutral facility is to design bathing pods that provides privacy with individual. See plan below.

Feasibility of creating new pods, especially in existing construction is very limited as the required minimum square footage is not available in existing constructions. As a method of incorporating inclusive environment, the following strategies should be considered.

a. Provide partitions/enclosures for urinals.
b. Increased privacy in each compartment, i.e. higher/lower partitions.
c. Add additional screening/curtains for individual show stall that allows changing.
d. Provide individual changing areas.

Examples of these improvements are illustrated below.
- Conventional locker rooms.
- Male/Female separated restroom and shower facility.
- Use of open urinal in men’s.
- Enclosed urinal and raised partitions.
- Dedicated changing room
- Creation of dedicated changing room.
- Decrease in fixture count.
Gender Neutral Toilet and Bathing Facility

- Eliminate urinals.
- All private partitions.
- Enlarged shower compartments including dedicated changing space.
- Gender neutral access.
- Male/Female separated restroom and shower facility.
IV. APPENDIX

The following documents are included in the Appendix.

- Mary Park Hall –First Floor Plan
- Mary Park Hall –Second Floor Plan
- Mary Park Hall –Third Floor Plan
- Mary Park Hall –Fourth Floor Plan
- Mary Park Hall –Fifth Floor Plan
- Mary Park Hall –Sixth Floor Plan

- Mary Ward Hall –First Floor Plan
- Mary Ward Hall –Second Floor Plan
- Mary Ward Hall –Third Floor Plan
- Mary Ward Hall –Fourth Floor Plan
- Mary Ward Hall –Fifth Floor Plan
- Mary Ward Hall –Sixth Floor Plan
### Table 422.1

<table>
<thead>
<tr>
<th>Room Name</th>
<th>Occ. Type</th>
<th>Max. Occ.</th>
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</thead>
<tbody>
<tr>
<td>LAUNDRY</td>
<td>4 OCC.</td>
<td>50</td>
</tr>
<tr>
<td>SHOWERS</td>
<td>200 SF</td>
<td>174</td>
</tr>
<tr>
<td>WC</td>
<td>179 SF</td>
<td>167</td>
</tr>
<tr>
<td>DRINKING FOUNTAINS</td>
<td>200 SF</td>
<td>159</td>
</tr>
<tr>
<td>R-2 ROOM</td>
<td>164 SF</td>
<td>153</td>
</tr>
<tr>
<td>4 OCC.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL EXISTING OCCUPANT LOAD:**

- **EXISTING FIXTURES:**
  - **Total:** 50
  - **WC:** 2
  - **Showers:** 2
  - **Urinals:** 4
  - **Lavatories:** 4

**EXISTING OCCUPANCY:**

- **Total:** 59
  - **Men's Restroom:** 89' 4 OCC.
  - **Women's Restroom:** 66' 4 OCC.
  - **WC:** 78' 4 OCC.
  - **Showers:** 167 200 SF 4 OCC.
  - **Urinals:** 59' 4 OCC.

**OCCUPANCY:**

- **Total:** 71
  - **Men's Restroom:** 159 SF 4 OCC.
  - **Women's Restroom:** 164 SF 4 OCC.
  - **WC:** 164 SF 4 OCC.
  - **Showers:** 167 200 SF 4 OCC.
  - **Urinals:** 59' 4 OCC.

**ROOM # | ROOM NAME | OCC. TYPE | MAX. OCC. | LOAD |
----------|-----------|-----------|-----------|------|
401       |           |           |           |      |
402       |           |           |           |      |
403       |           |           |           |      |
404       |           |           |           |      |
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430       |           |           |           |      |
431       |           |           |           |      |
432       |           |           |           |      |
433       |           |           |           |      |