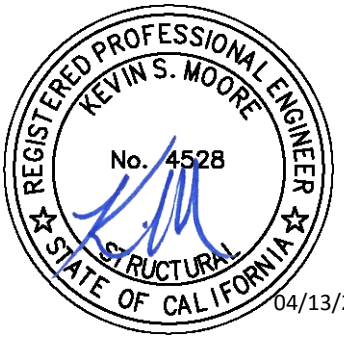
Rating form completed by: Simpson Gumpertz & Heger, SGH.COM
AS, KDP, KSM
Peer reviewed by: **UCSF Seismic Review Committee**

Text in green is to be part of UCSF building database and may be part of UCOP database.



04/13/2020

Date: 2020-04-13

UCSF Building Seismic Ratings

Langley Porter Psychiatric Hospital and Clinics, Parnassus Avenue

CAAN# *2290A*

401 Parnassus Avenue, San Francisco, CA 94143

UCSF Campus Site: *Parnassus*

Rating summary	Entry	Notes
UC Seismic Performance Level (rating)	V	Findings based on a drawing review and ASCE 41-17 Tier 1 evaluation[1]
Rating basis	Tier 1	ASCE 41-17
Date of rating	2019	
Recommended UCSF priority category for retrofit	N/A	Planned for Demolition
Ballpark total project cost to retrofit to IV rating	N/A	Planned for Demolition
Is 2018-2019 rating required by UCOP?	Yes	Building was previously rated IV but does not have a fully documented review quantifiable review
Further evaluation recommended?	N/A	Planned for Demolition

[1] The evaluations at UCSF translate the Tier 1 evaluation to a Seismic Performance Level rating using professional judgment discussed among the Seismic Review Committee. Non-compliant items in the Tier 1 evaluation do not automatically put a building into a particular rating category, but such items are evaluated along with the combination of building features and potential deficiencies, focused on the potential for collapse or serious damage to the gravity supporting structure that may threaten occupant safety.

Building information used in this evaluation

- Structure – Original Building Structural drawings by the California Department of Public Works Division of Architecture, 19 sheets, dated October 21, 1940.

Additional building information known to exist

- *Performance of UCSF Buildings During the October 17, 1989 Loma Prieta Earthquake*, Impell Corporation, dated 17 November 1989.

Scope for completing this form

Reviewed original structural construction drawings and performed an ASCE 41-17 Tier 1 evaluation.

Brief description of structure

The building is a five-story tall, L-shaped reinforced concrete structure, partially embedded in a low sloping hill site, occupying approximately 70,000 sq ft of floor area. The length of the "L" in the E-W direction is approximately 177 ft and the "L" in the N-S direction is approximately 198 ft. The width of each "L" is approximately 50 ft. The base level is partially buried in a low slope site, sloping down from southeast to northwest. The total height of the building is approximately 60 ft. The building was designed and built circa 1940. A four-story annex was designed on the south of side of the 1940 building in 1957 and is described in a separate report.

Identification of Levels: The basement comprises the lowest level of the building, with first to fifth floor, above grade and a high roof. The high roof occurs over a relatively small portion of the fifth floor at the NW corner. There is a grade differential between the north and south sides of the building of about 10 ft with the grade at the NW corner aligning with the basement level elevation and the grade at the south side aligning with the first floor.

Foundation System: The foundations comprise steel reinforced concrete shallow spread footings below columns and steel reinforced concrete strip footings below walls.

Structural System for Vertical (gravity) load: The horizontal framing comprises a one-way steel reinforced pan joist system supporting a 3 in. thick slab. The typical pan width and depth are 30 in., and the rib width is 5.5 in. The joists are either supported directly by perimeter concrete walls or concrete beams that are supported by concrete columns typically spaced at 16 ft on center. Most columns are generally rectangular. The columns contain typical tie spacing of 9 in. on center with two sets of ties at the lower levels (one rectangular, one diamond) and single rectangular ties above the second or third floor. The building has a ramp along the west elevation that slopes up from Level 01 to Level 04. The ramp is supported by 8 in. thick concrete walls.

Structural System for Lateral Loads: The lateral load resisting system comprises reinforced concrete walls and reinforced concrete beam-column frames. Lateral loads are transferred to walls and frames through the reinforced concrete pan joist slab system. The L-shaped building floor plan has one wall line and two frame lines on each leg of the L. All concrete elements, including those not specifically intended to resist lateral loads, will participate in seismic force resistance. The system is unbalanced by both the L-shaped plan and the arrangement and location of walls, including stiffness differences between walls and frames. The system is susceptible to torsional response in earthquake shaking.

Brief description of seismic deficiencies and Expected Seismic Performance

Identified seismic deficiencies of the building include:

- The adjacent building is 2 in. away which is 0.3% of overall height. This is less than the 1.5% requirement of the quick checklist at high seismicity zone.
- There is a vertical irregularity where the wall on the west side at the SW is not continuous to the foundation.
- Because of the L-shaped floor plan, wall configuration and frame configuration, the building is torsionally irregular. The eccentricity associated with the center of rigidity and center of mass is more than 20% of the building width.
- Reinforced concrete wall and column shear stress is larger than the greater of 100 psi or 2√f'c. The maximum calculated DCR is 1.7.
- Concrete column axial stress caused by unfactored gravity loads exceed 0.2f'c. The maximum calculated DCR is 1.8.
- Columns do not have adequate shear strength to develop moment capacity hinges at the ends.
- Beam-column frames do not comply with strong column-weak beam requirements.
- The two longitudinal top and two longitudinal bottom bars are not continuous through the joints in the beam-column frames.
- Column bar splices are shorter than 35 diameters, failing the quick check requirement.
- Column-ties are spaced greater than the check list maximum spacing of d/4, and beam column joint ties are spaced more than the check list maximum spacing of 8 diameters.

The items listed above may collectively affect the seismic performance of the building such that local failures may occur and negatively affect the global building performance. The wall shear stress may significantly increase after the column shear resistance is lost. The presence of the torsional irregularity will exacerbate column shear failures, further overstressing walls. Columns failing in shear is a non-ductile action that can potentially cause gravity failures.

Structural deficiency	Affects rating?	Structural deficiency	Affects rating?
Lateral system stress check (wall shear, column shear or flexure, or brace axial as applicable)	**Y**	Openings at shear walls (concrete or masonry)	N
Load path	Y	Liquefaction	N
Adjacent buildings	**Y**	Slope failure	N
Weak story	N	Surface fault rupture	N
Soft story	N	Masonry or concrete wall anchorage at flexible diaphragm	N
Geometry (vertical irregularities)	**Y**	URM wall height-to-thickness ratio	N
Torsion	**Y**	URM parapets or cornices	N
Mass – vertical irregularity	N	URM chimney	N
Cripple walls	N	Heavy partitions braced by ceilings	N
Wood sills (bolting)	N	Appendages	N
Diaphragm continuity	N		

Summary of review of nonstructural life-safety concerns, including at exit routes.

A detailed assessment of nonstructural systems has not been performed, but could be performed as part of a Tier 2 evaluation. No life-safety concerns were observed through the drawing review.

UCOP non-structural checklist item	Life safety hazard?	UCOP non-structural checklist item	Life safety hazard?
Heavy ceilings, feature or ornamentation above large lecture halls, auditoriums, lobbies or other areas where large numbers of people congregate	None observed	Unrestrained hazardous materials storage	None observed
Heavy masonry or stone veneer above exit ways and public access areas	None observed	Masonry chimneys	None observed
Unbraced masonry parapets, cornices or other ornamentation above exit ways and public access areas	None observed	Unrestrained natural gas-fueled equipment such as water heaters, boilers, emergency generators, etc.	None observed

Basis of seismic performance level rating

A building rating of V can be attributed to the identified deficiencies and the potential for progressive degradations associated with building behavior caused by the building's torsional irregularity. The limited analysis shows that columns fail in shear which may lead to loss of gravity load carrying capacity.

Recommendations for further evaluation or retrofit

If UCSF intends to retain the building for use, we recommend that the University perform a more detailed seismic evaluation. We recommend a three-dimensional response spectrum analysis that accounts for the behaviors related to the identified deficiencies. Detailed analyses should examine areas of potential overstress, including walls, beams, columns, beam-column joints and the effects of retained soil at the

partial basement. Applicable retrofit measures may include thickening existing concrete walls, adding walls along exterior frame lines and wrapping columns with FRP to increase shear capacity and provide confinement.

Peer review comments on rating

The structural members of the UCSF Seismic Review Committee (SRC) reviewed the evaluation on 8 January 2020 and agree with a rating of V.

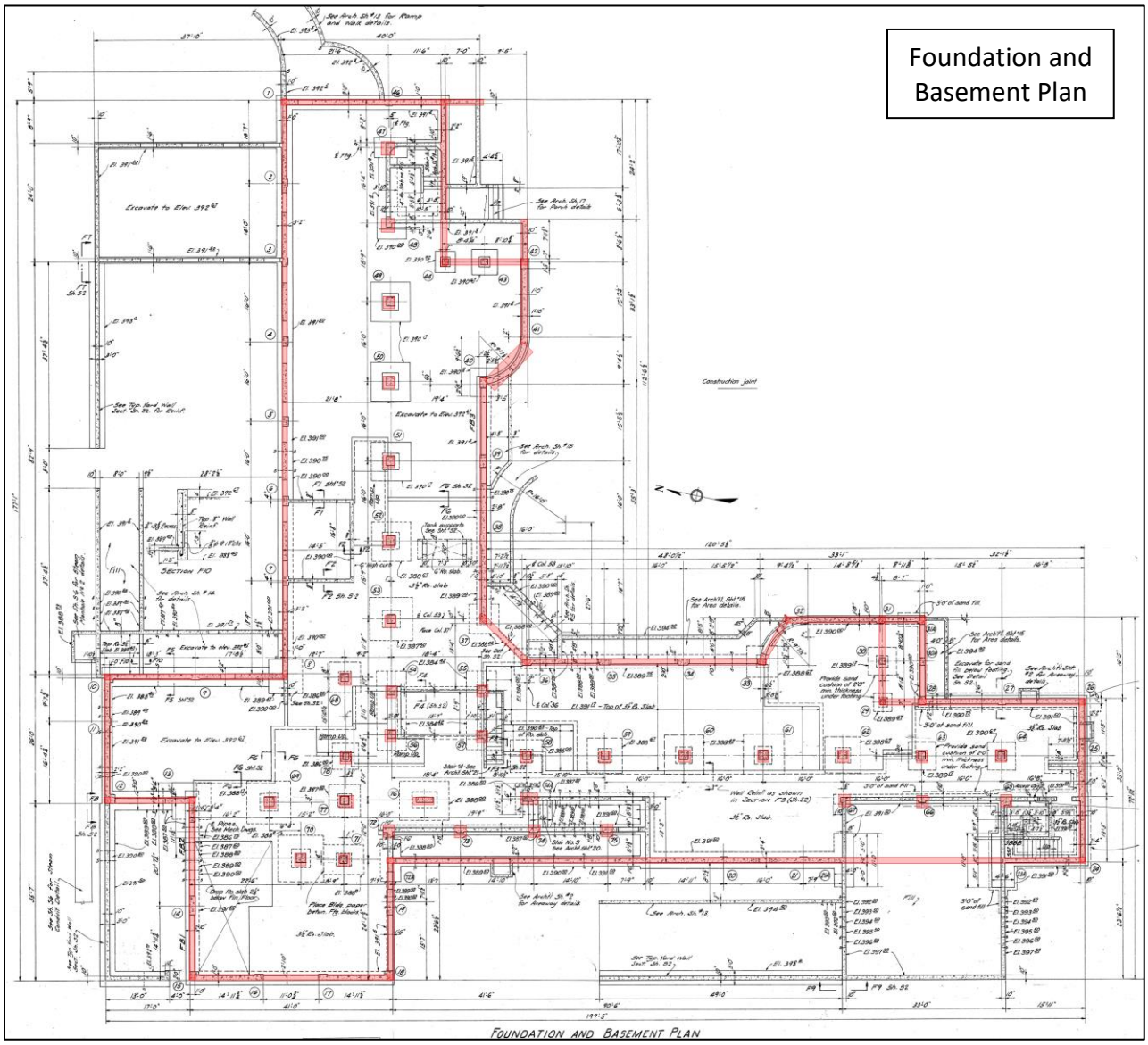
Additional building data	Entry	Notes
Latitude	37.7632917°	
Longitude	-122.4566337°	
Are there other structures besides this one under the same CAAN#	Yes	4 Story LPPI Appendix building constructed in 1955
Number of stories above lowest perimeter grade	5	
Number of stories (basements) below lowest perimeter grade	0	
Building occupiable area (OGSF)	105,115	From UCOP spreadsheet, includes Annex
Risk Category per 2016 CBC 1604.5	II	
Building structural height, h_n	56 ft	As defined per ASCE 7-16 Section 11.2
Coefficient for period, C_t	0.02	ASCE 41-17 equation 4-4 and 7-18
Coefficient for period, ?	0.75	ASCE 41-17 equation 4-4 and 7-18
Estimated fundamental period	0.41 sec	ASCE 41-17 equation 4-4 and 7-18
Site data		
975 yr hazard parameters S_s, S_1	1.553, 0.628	UCSF Group 3 Buildings, Geotechnical Characteristic and Geohazards (2019) – LPPI Outpatient unit
Site class	C	UCSF Group 3 Buildings, Geotechnical Characteristic and Geohazards (2019)
Site class basis	Estimated	UCSF Group 3 Buildings, Geotechnical Characteristic and Geohazards (2019)
Site parameters F_a, F_v	1.2, 1.4	UCSF Group 3 Buildings, Geotechnical Characteristic and Geohazards (2019)
Ground motion parameters S_{cs}, S_{c1}	1.843, 0.847	UCSF Group 3 Buildings, Geotechnical Characteristic and Geohazards (2019)
S_a at building period	1.843	Calculated
Site V_{s30}	360 m/s	UCSF Group 2 Buildings, Geotechnical Characteristic and Geohazards (2019)
V_{s30} basis	Estimated	UCSF Group 2 Buildings, Geotechnical Characteristic and Geohazards (2019)
Liquefaction potential	No	UCSF Group 2 Buildings, Geotechnical Characteristic and Geohazards (2019)
Liquefaction assessment basis	Estimated	UCSF Group 2 Buildings, Geotechnical Characteristic and Geohazards (2019)

Additional building data	Entry	Notes
Landslide potential	No	UCSF Group 2 Buildings, Geotechnical Characteristic and Geohazards (2019)
Landslide assessment basis	Sloping Site	Rutherford + Chekene Study, 2006
Active fault-rupture hazard identified at site?	No	UCSF Group 2 Buildings, Geotechnical Characteristic and Geohazards (2019)
Site-specific ground motion study?	No	
Applicable code		
Applicable code or approx. date of original construction	Original Building Drawings Dated 1940	
Applicable code for partial retrofit	None	No partial retrofit known
Applicable code for full retrofit	None	No full retrofit known
Model building data		
Model building type North-South	C2A	C1 also participate in this direction
Model building type East-West	C2A	C1 also participate in this direction
FEMA P-154 score	N/A	Not included here because we performed ASCE 41 Tier 1 evaluation.
Previous ratings		
Most recent rating	IV	UCSF Building Seismic Survey and Ratings
Date of most recent rating	-	2013
2nd most recent rating	-	
Date of 2nd most recent rating	-	
Appendices		
ASCE 41 Tier 1 checklist included here?	Yes	Refer to attached checklist file

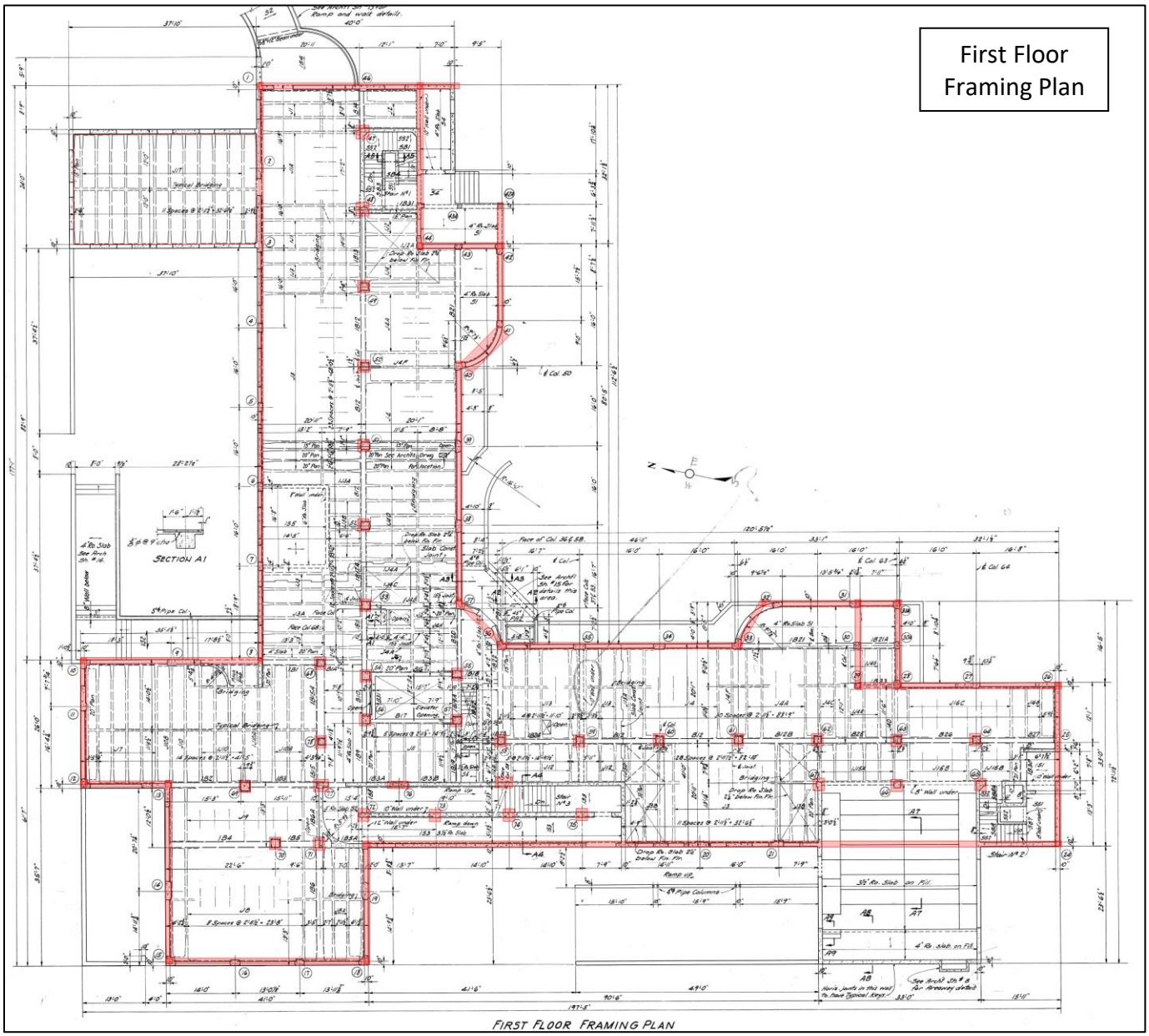
Appendix A

Drawing Images

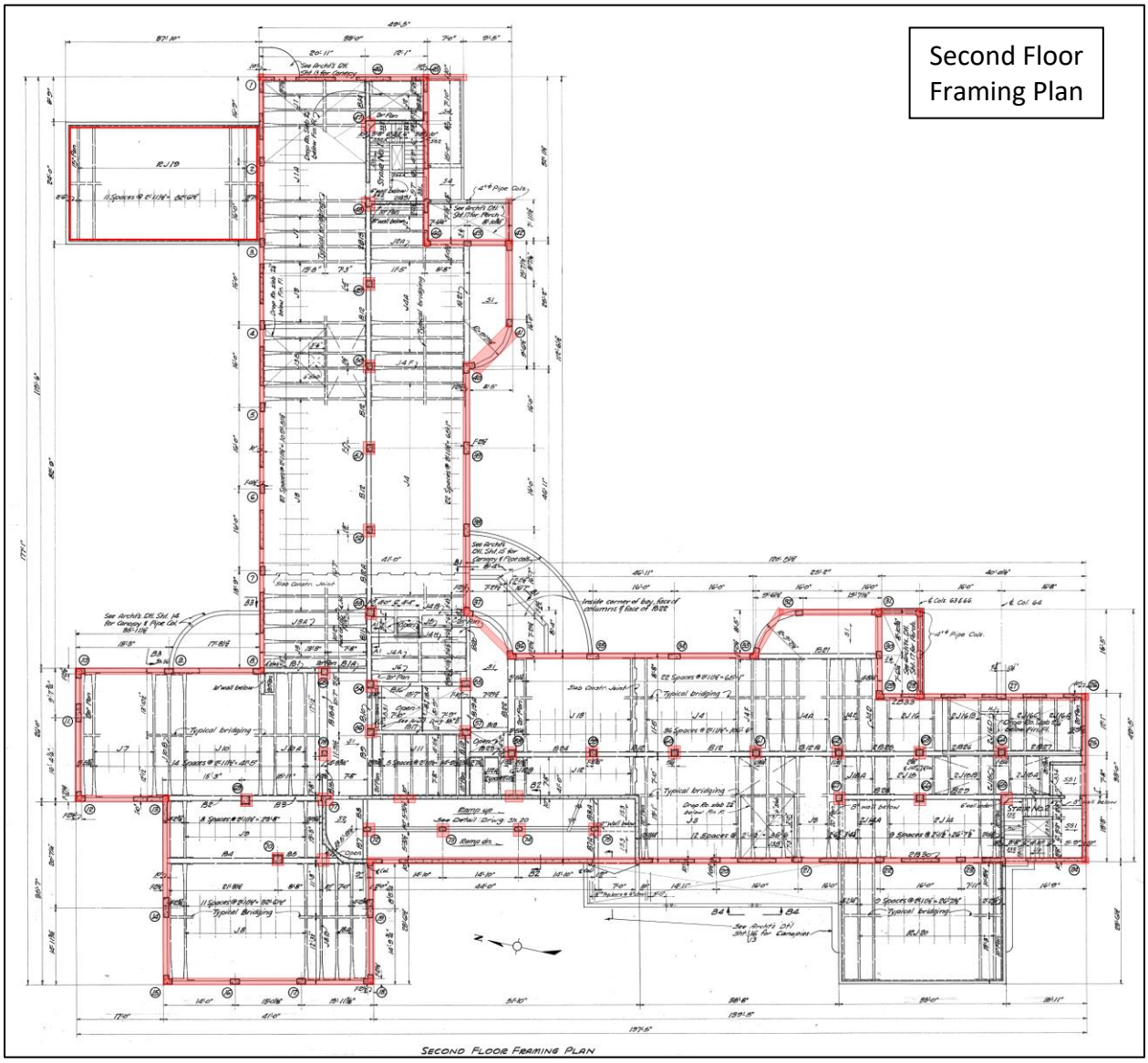
Foundation and Basement Plan



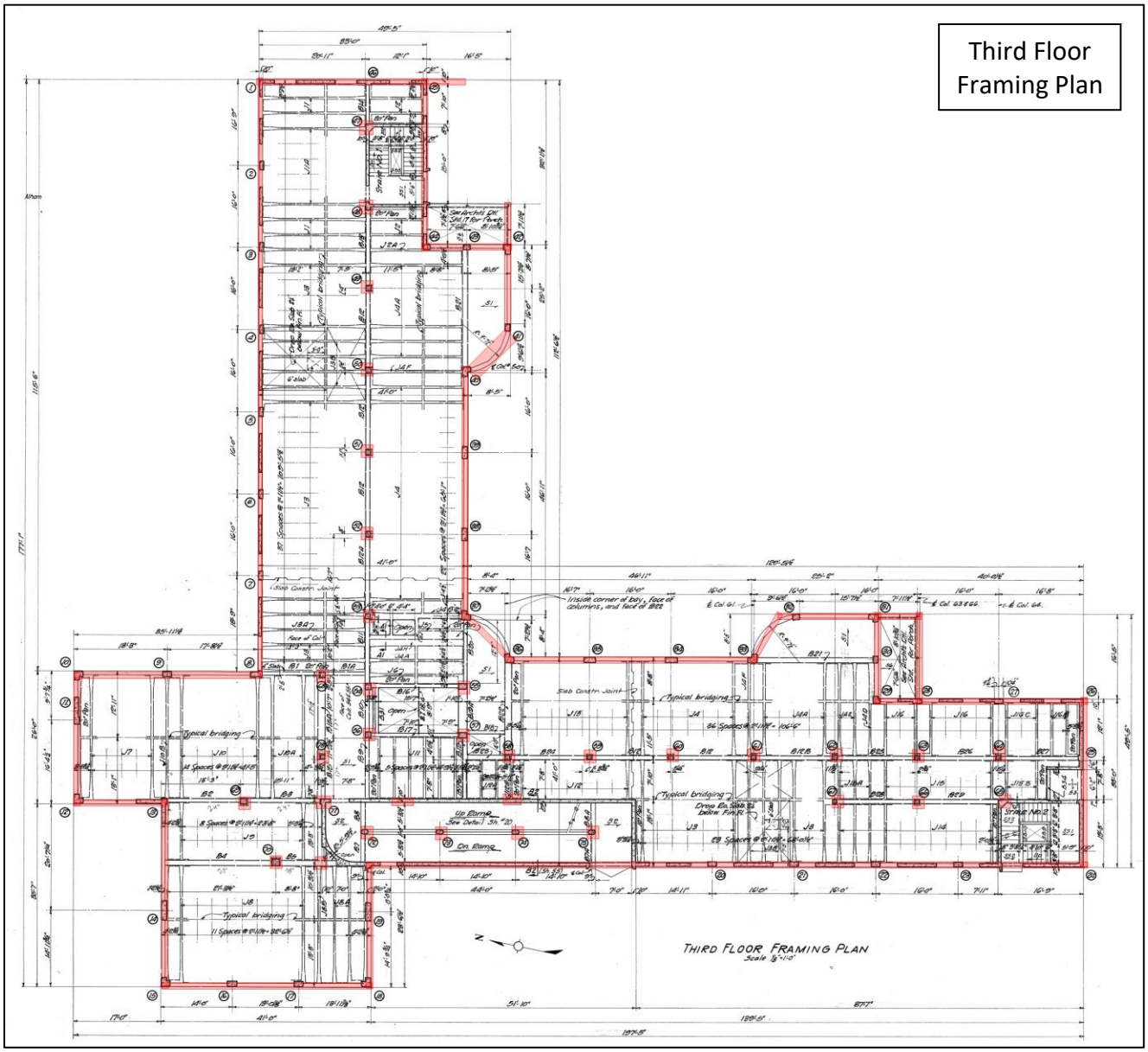
First Floor Framing Plan



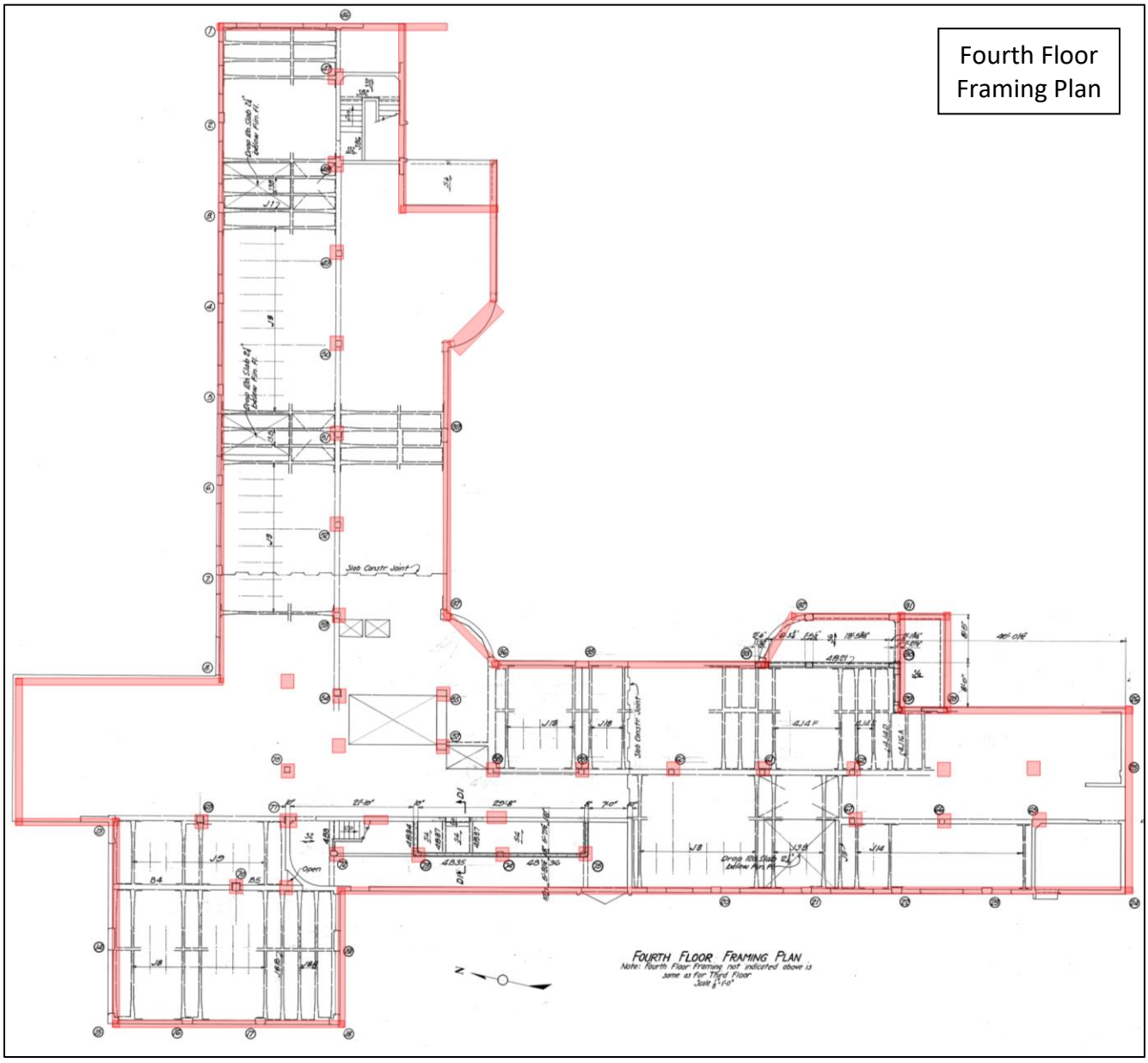
Second Floor Framing Plan

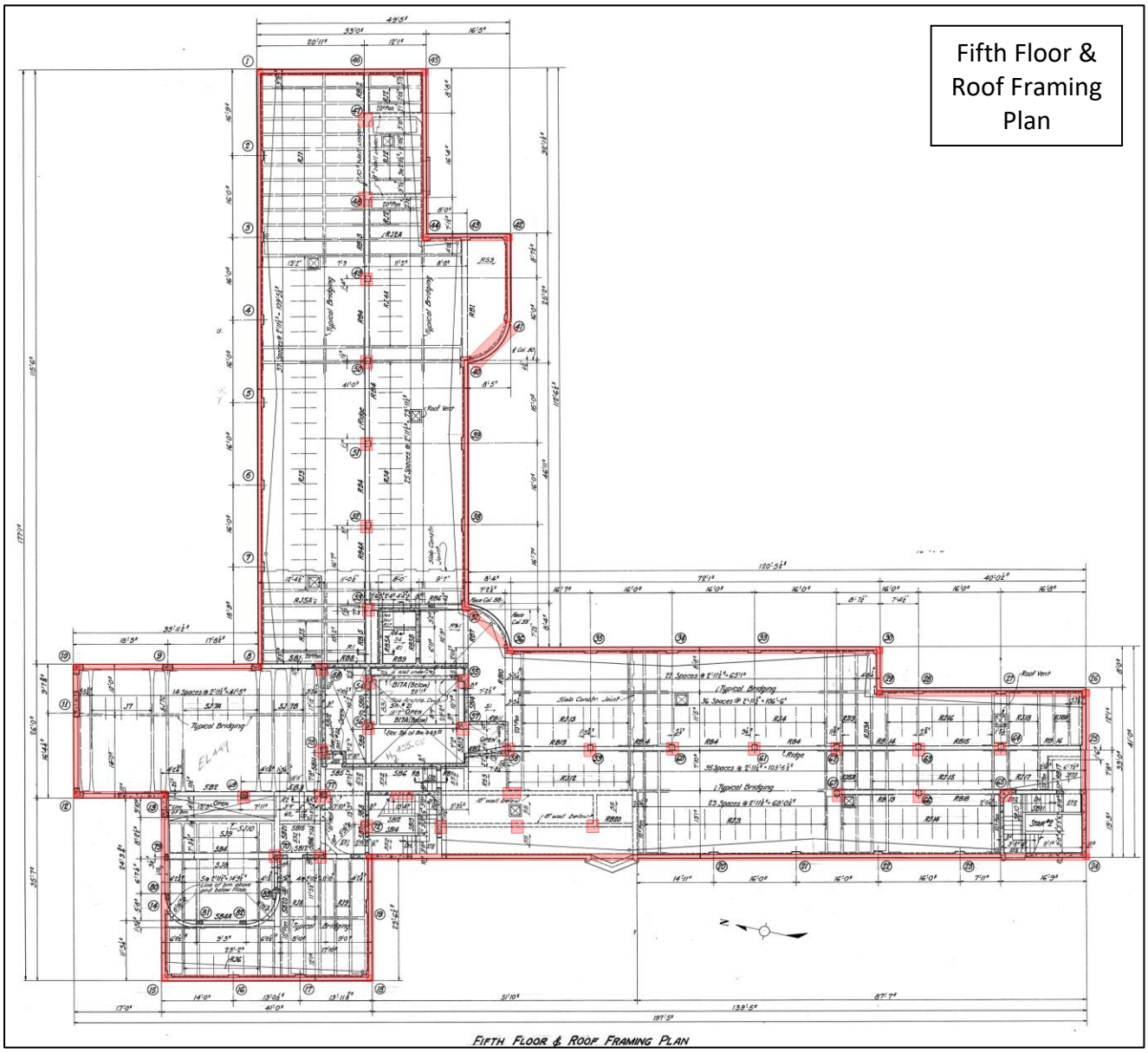


Third Floor Framing Plan

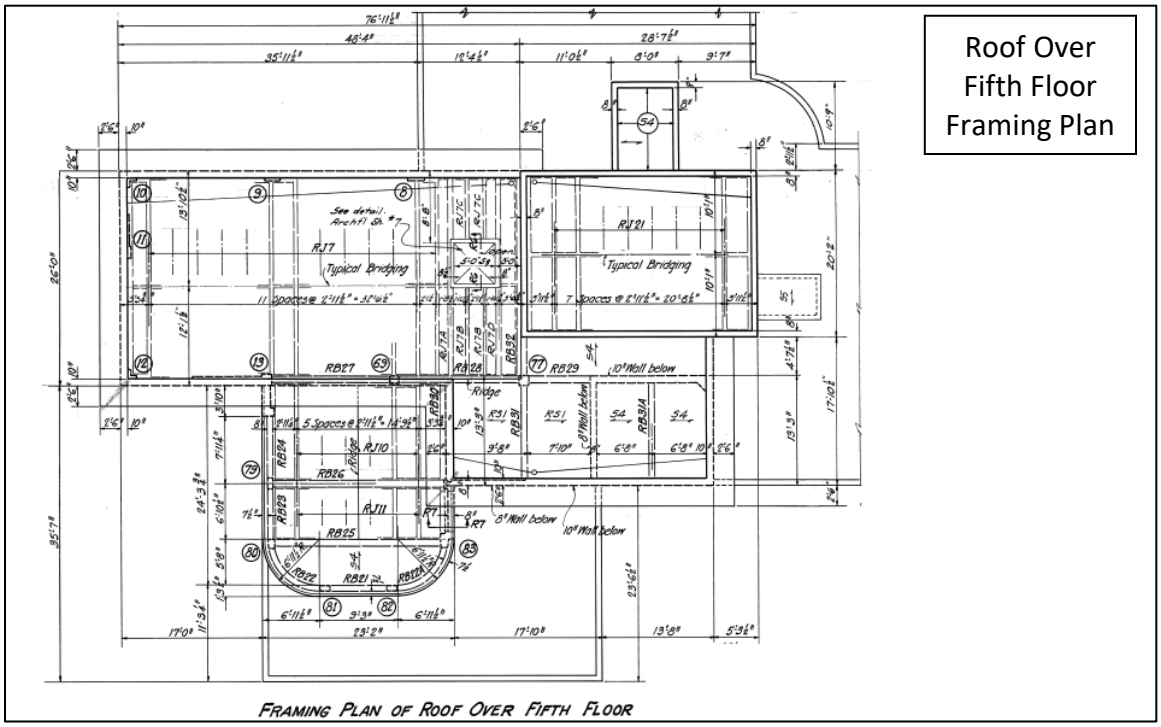


Fourth Floor Framing Plan



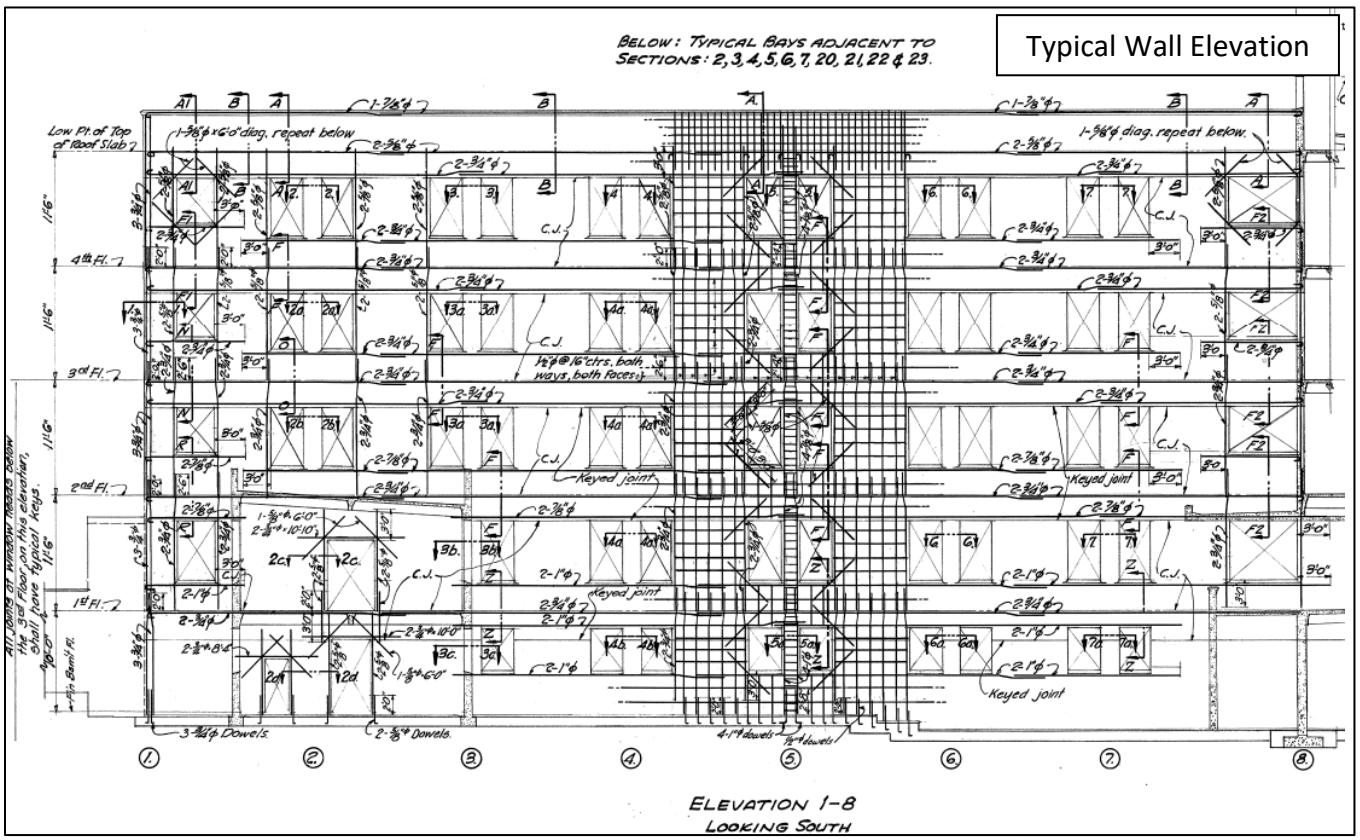

Fifth Floor & Roof Framing Plan
FIFTH FLOOR & ROOF FRAMING PLAN

Roof Over Fifth Floor Framing Plan

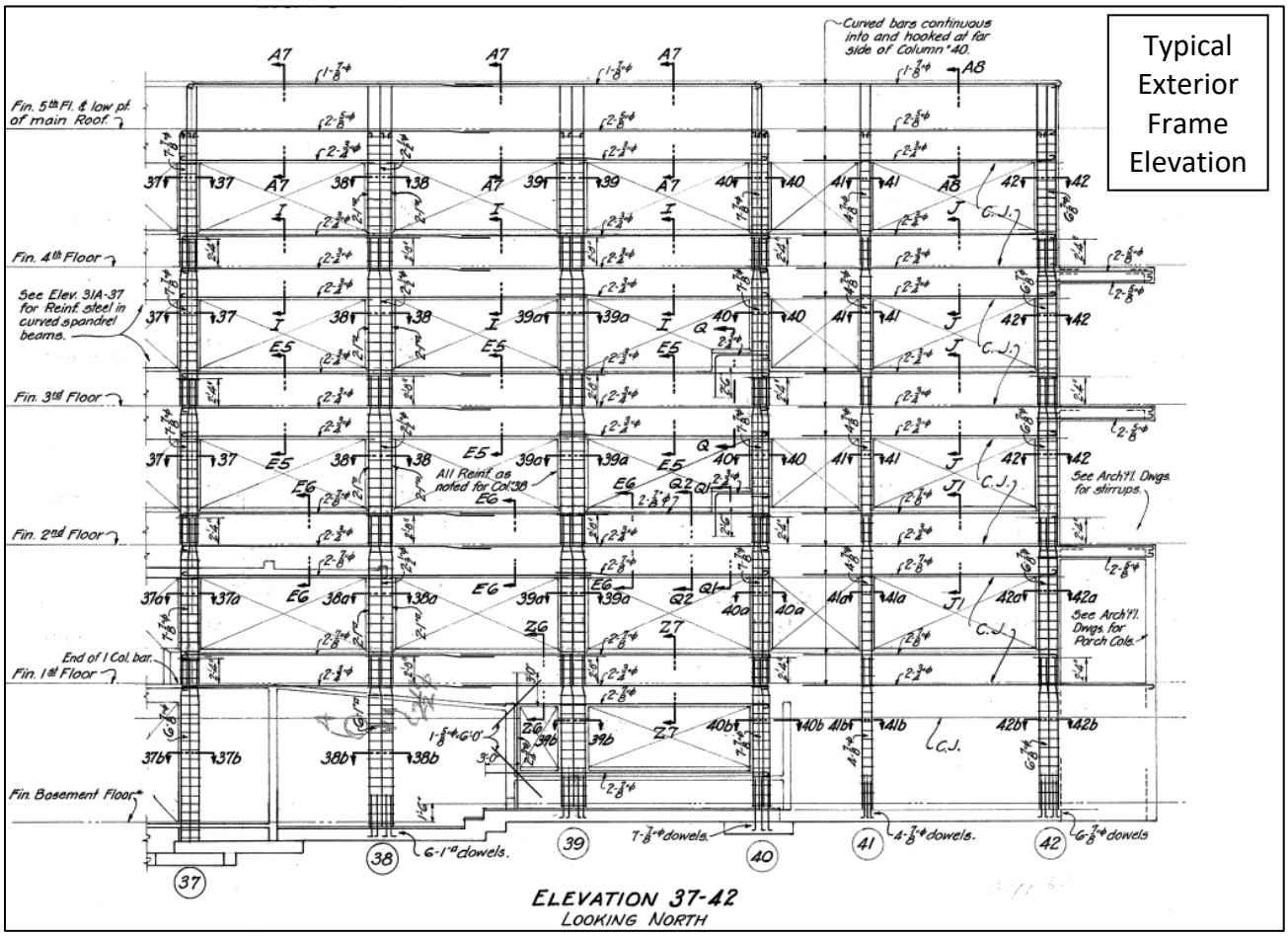


FRAMING PLAN OF ROOF OVER FIFTH FLOOR

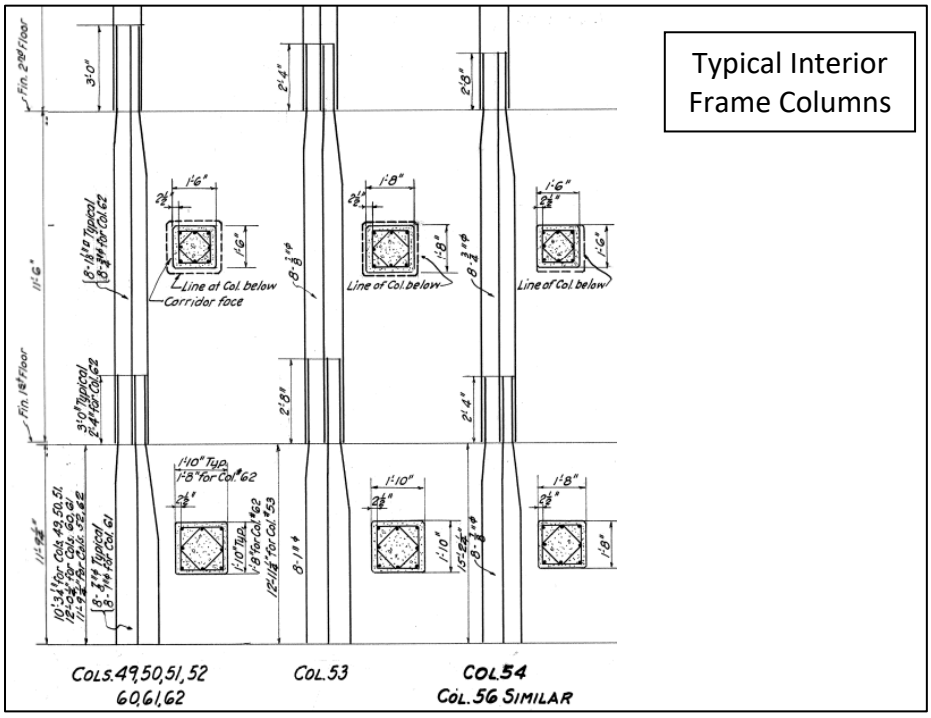
Typical Wall Elevation



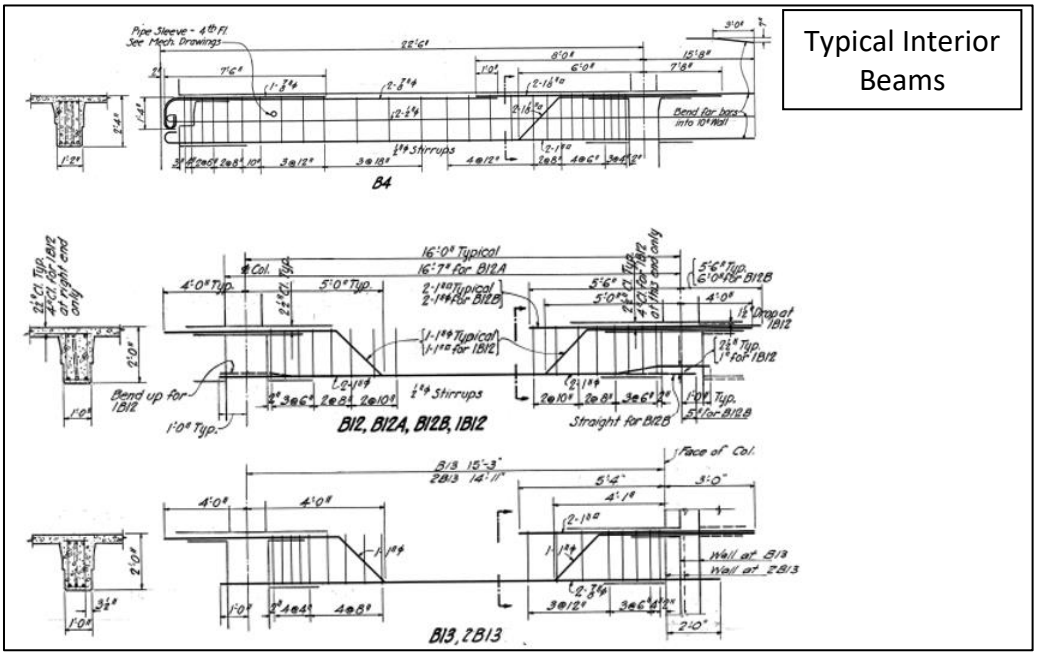
ELEVATION 1-8
LOOKING SOUTH


Typical Exterior Frame Elevation
Curved bars continuous into and hooked at far side of Column "40.
Fin. 5th Fl. & low pt. of main Roof.
Fin. 4th Floor
See Elev. 31A-37 for Reinf. steel in curved spandrel beams.
Fin. 3rd Floor
Fin. 2nd Floor
End of 1 Col. bar.
Fin. 1st Floor
Fin. Basement Floor
All Reinf. as noted for Col. 38
See Arch'l. Dwgs. for stirrups.
See Arch'l. Dwgs. for Porch Cols.
C.J.
6-1"ø dowels.
7-7/8"ø dowels.
4-7/8"ø dowels.
6-7/8"ø dowels
37
38
39
40
41
42
ELEVATION 37-42
LOOKING NORTH

Typical Interior Frame Columns



Typical Interior Beams



Appendix B

Checklists

UC Campus:	Parnassus			Date:	13 April 2020		
Building CAAN:	2290A	Auxiliary CAAN:		By Firm:	Simpson Gumpertz & Heger		
Building Name:	Langley Porter Psychiatric Hospital and Clinics, Parnassus Avenue			Initials:	*AS*	Checked:	*KDP*
Building Address:	401 Parnassus Avenue, San Francisco, CA 94143			Page:	1	of	3

ASCE 41-17
Collapse Prevention Basic Configuration Checklist

LOW SEISMICITY

BUILDING SYSTEMS - *GENERAL*

C	NC	N/A	U	Description
●	○	○	○	LOAD PATH: The structure contains a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation. (Commentary: Sec. A.2.1.1. Tier 2: Sec. 5.4.1.1) **Comments: Concrete diaphragms transfer loads to the walls and frames, and the walls and frames transfer load to the foundations.**
○	●	○	○	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 0.25% of the height of the shorter building in low seismicity, 0.5% in moderate seismicity, and 1.5% in high seismicity. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2) **Comments: 2 inch gap between the two buildings, which is only 0.3% . The buildings are of same height with the same floor elevations but likely different dynamic properties due to their relative configuration.**
○	○	●	○	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure. (Commentary: Sec. A.2.1.3. Tier 2: Sec. 5.4.1.3) **Comments: No interior mezzanine levels.**

BUILDING SYSTEMS - *BUILDING CONFIGURATION*

C	NC	N/A	U	Description
●	○	○	○	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above. (Commentary: Sec. A2.2.2. Tier 2: Sec. 5.4.2.1) **Comments: Shear strength in a story is greater or similar to the story above.**
●	○	○	○	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above. (Commentary: Sec. A.2.2.3. Tier 2: Sec. 5.4.2.2) **Comments: Walls and frames are of similar geometry and configuration from story to story.**

Note: **C =** Compliant **NC =** Noncompliant **N/A =** Not Applicable **U =** Unknown

ASCE 41-17
Collapse Prevention Basic Configuration Checklist

C	NC	N/A	U	
○	◉	○	○	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force-resisting system are continuous to the foundation. (Commentary: Sec. A.2.2.4. Tier 2: Sec. 5.4.2.3) **Comments: Wall running in the N-S direction on the west side of the southwest corner between 21 & 24 does not continue below the second level.**
◉	○	○	○	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines. (Commentary: Sec. A.2.2.5. Tier 2: Sec. 5.4.2.4) **Comments: The wall lengths and floor plans are fairly consistent over the height.**
◉	○	○	○	MASS: There is no change in effective mass of more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered. (Commentary: Sec. A.2.2.6. Tier 2: Sec. 5.4.2.5) **Comments: The mass does not change more than 10% on any adjacent levels except for the penthouse.**
○	◉	○	○	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension. (Commentary: Sec. A.2.2.7. Tier 2: Sec. 5.4.2.6) **Comments: "L-shaped" structure with walls at only one exterior face in each "L."**

MODERATE SEISMICITY (COMPLETE THE FOLLOWING ITEMS IN ADDITION TO THE ITEMS FOR LOW SEISMICITY)

GEOLOGIC SITE HAZARD

C	NC	N/A	U	Description
◉	○	○	○	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance do not exist in the foundation soils at depths within 50 ft (15.2m) under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1) **Comments: Liquefaction potential is negligible.**
◉	○	○	○	SLOPE FAILURE: The building site is located away from potential earthquake-induced slope failures or rockfalls so that it is unaffected by such failures or is capable of accommodating any predicted movements without failure. (Commentary: Sec. A.6.1.2. Tier 2: 5.4.3.1) **Comments: Slope failure not likely to affect the building.**

Note: C = Compliant **NC =** Noncompliant **N/A =** Not Applicable **U =** Unknown

UC Campus:	Parnassus			Date:	13 April 2020		
Building CAAN:	2290A	Auxiliary CAAN:		By Firm:	Simpson Gumpertz & Heger		
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Building Address:	401 Parnassus Avenue, San Francisco, CA 94143			Page:	3	of	3

ASCE 41-17
Collapse Prevention Basic Configuration Checklist

MODERATE SEISMICITY (COMPLETE THE FOLLOWING ITEMS IN addition TO THE ITEMS FOR LOW SEISMICITY)

GEOLOGIC SITE HAZARD

C	NC	N/A	U	
◉	○	○	○	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated. (Commentary: Sec. A.6.1.3. Tier 2: 5.4.3.1) **Comments: Faults are adequately distant and do not pose a risk at this site.**

HIGH SEISMICITY (COMPLETE THE FOLLOWING ITEMS IN ADDITION TO THE ITEMS FOR MODERATE SEISMICITY)

FOUNDATION CONFIGURATION

				Description
C	NC	N/A	U	
○	◉	○	○	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$. (Commentary: Sec. A.6.2.1. Tier 2: Sec. 5.4.3.3) **Comments: Base/height at East corner is 33/56 = 0.59 < 1.11**
C	NC	N/A	U	
◉	○	○	○	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C. (Commentary: Sec. A.6.2.2. Tier 2: Sec. 5.4.3.4) **Comments: Site Class C.**

UC Campus:	Parnassus			Date:	13 April 2020		
Building CAAN:	2290A	Auxiliary CAAN:		By Firm:	Simpson Gumpertz & Heger		
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Building Address:	401 Parnassus Avenue, San Francisco, CA 94143			Page:	1	of	4

ASCE 41-17
Collapse Prevention Structural Checklist For Building Type C1

Low Seismicity

Seismic-Force-Resisting System

	Description
C ● NC ○ N/A ○ U ○	REDUNDANCY: The number of lines of moment frames in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.1.1.1. Tier 2: Sec. 5.5.1.1) **Comments: 2 frames (and one wall) in each direction.**
C ○ NC ● N/A ○ U ○	COLUMN AXIAL STRESS CHECK: The axial stress caused by unfactored gravity loads in columns subjected to overturning forces because of seismic demands is less than $0.20f'_c$. Alternatively, the axial stress caused by overturning forces alone, calculated using the Quick Check procedure of Section 4.4.3.6, is less than $0.30f'_c$. (Commentary: Sec. A.3.1.4.2. Tier 2: Sec. 5.5.2.1.3) **Comments: Load in many columns exceed 0.2 f'c and DCRs up to 1.8 are observed.**

Connections

	Description
C ● NC ○ N/A ○ U ○	CONCRETE COLUMNS: All concrete columns are doweled into the foundation with a minimum of four bars. (Commentary: Sec. A.5.3.2. Tier 2: Sec. 5.7.3.1) **Comments: Minimum 4 bars were provided.**

Moderate Seismicity (Complete The Following Items In Addition To The Items For Low Seismicity)

Seismic-Force-Resisting System

	Description
C ● NC ○ N/A ○ U ○	REDUNDANCY: The number of bays of moment frames in each line is greater than or equal to 2. (Commentary: Sec. A.3.1.1.1. Tier 2: Sec. 5.5.1.1) **Comments: Minimum number of bays in the building is 2.**
C ○ NC ○ N/A ● U ○	INTERFERING WALLS: All concrete and masonry infill walls placed in moment frames are isolated from structural elements. (Commentary: Sec. A.3.1.2.1. Tier 2: Sec. 5.5.2.1.1) **Comments: No infill walls in the building.**

ASCE 41-17
Collapse Prevention Structural Checklist For Building Type C1

C	NC	N/A	U	
○	◉	○	○	COLUMN SHEAR STRESS CHECK: The shear stress in the concrete columns, calculated using the Quick Check procedure of Section 4.4.3.2, is less than the greater of 100 lb/in.^{2} (0.69 MPa) or $2\sqrt{f'c}$. (Commentary: Sec. A.3.1.4.1. Tier 2: Sec. 5.5.2.1.4) **Comments: Maximum shear stress is calculated to be 170 psi > 100 psi.**
◉	○	○	○	FLAT SLAB FRAMES: The seismic-force-resisting system is not a frame consisting of columns and a flat slab or plate without beams. (Commentary: Sec. A.3.1.4.3. Tier 2: Sec. 5.5.2.3.1) **Comments: Horizontal frame elements are beams.**

High Seismicity (Complete The Following Items In Addition To The Items For Low And Moderate Seismicity)

Seismic-Force-Resisting System

C	NC	N/A	U	Description
○	○	◉	○	PRESTRESSED FRAME ELEMENTS: The seismic-force-resisting frames do not include any prestressed or post-tensioned elements where the average prestress exceeds the lesser of 700 lb/in.^{2} (4.83 MPa) or $f'_c/6$ at potential hinge locations. The average prestress is calculated in accordance with the Quick Check procedure of Section 4.4.3.8. (Commentary: Sec. A.3.1.4.4. Tier 2: Sec. 5.5.2.3.2) **Comments: No prestressed elements in the building.**
◉	○	○	○	CAPTIVE COLUMNS: There are no columns at a level with height/depth ratios less than 50% of the nominal height/depth ratio of the typical columns at that level. (Commentary: Sec. A.3.1.4.5. Tier 2: Sec. 5.5.2.3.3) **Comments: No captive columns.**
○	◉	○	○	NO SHEAR FAILURES: The shear capacity of frame members is able to develop the moment capacity at the ends of the members. (Commentary: Sec. A.3.1.4.6. Tier 2: Sec. 5.5.2.3.4) **Comments: 2Mp/L < (Vc + Vs), DCR = 2.0.**
○	◉	○	○	STRONG COLUMN—WEAK BEAM: The sum of the moment capacity of the columns is 20% greater than that of the beams at frame joints. (Commentary: Sec. A.3.1.4.7. Tier 2: Sec. 5.5.2.1.5) **Comments: Typical beam moment capacity is approximately 2.5 times the column moment capacity.**

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Collapse Prevention Structural Checklist For Building Type C1

C	NC	N/A	U	
○	●	○	○	BEAM BARS: At least two longitudinal top and two longitudinal bottom bars extend continuously throughout the length of each frame beam. At least 25% of the longitudinal bars provided at the joints for either positive or negative moment are continuous throughout the length of the members. (Commentary: A.3.1.4.8. Tier 2: Sec. 5.5.2.3.5) **Comments: Exterior frames comply, interior frames do not.**
○	●	○	○	COLUMN-BAR SPLICES: All column-bar lap splice lengths are greater than $35d_b$ and are enclosed by ties spaced at or less than $8d_b$. Alternatively, column bars are spliced with mechanical couplers with a capacity of at least 1.25 times the nominal yield strength of the spliced bar. (Commentary: Sec. A.3.1.4.9. Tier 2: Sec. 5.5.2.3.6) **Comments: Splice length < 35 d_b**
●	○	○	○	BEAM-BAR SPLICES: The lap splices or mechanical couplers for longitudinal beam reinforcing are not located within $l_b/4$ of the joints and are not located in the vicinity of potential plastic hinge locations. (Commentary: Sec. A.3.1.4.10. Tier 2: Sec. 5.5.2.3.6) **Comments: Lap splices for bottom bars are typically located at the joints and are too short to develop much of the bar strength.**
○	●	○	○	COLUMN-TIE SPACING: Frame columns have ties spaced at or less than $d/4$ throughout their length and at or less than $8d_b$ at all potential plastic hinge locations. (Commentary: Sec. A.3.1.4.11. Tier 2: Sec. 5.5.2.3.7) **Comments: Tie spacing > d/4.**
●	○	○	○	STIRRUP SPACING: All beams have stirrups spaced at or less than $d/2$ throughout their length. At potential plastic hinge locations, stirrups are spaced at or less than the minimum of $8d_b$ or $d/4$. (Commentary: Sec. A.3.1.4.12. Tier 2: Sec. 5.5.2.3.7) **Comments: Stirrups do not occur in the middle third of the length of the beams.**
○	●	○	○	JOINT TRANSVERSE REINFORCING: Beam–column joints have ties spaced at or less than $8d_b$. (Commentary: Sec. A.3.1.4.13. Tier 2: Sec. 5.5.2.3.8) **Comments: No joint reinforcing.**
○	●	○	○	DEFLECTION COMPATIBILITY: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2) **Comments: Column shear capacity not adequate.**
○	○	●	○	FLAT SLABS: Flat slabs or plates not part of the seismic-force-resisting system have continuous bottom steel through the column joints. (Commentary: Sec. A.3.1.6.3. Tier 2: Sec. 5.5.2.5.3) **Comments: No flat slab system in the building.**

Note: **C** = Compliant **NC** = Noncompliant **N/A** = Not Applicable **U** = Unknown

UC Campus:	Parnassus			Date:	13 April 2020		
Building CAAN:	2290A	Auxiliary CAAN:		By Firm:	Simpson Gumpertz & Heger		
Building Name:	Langley Porter Psychiatric Hospital and Clinics, Parnassus Avenue			Initials:	*AS*	Checked:	*KDP*
Building Address:	401 Parnassus Avenue, San Francisco, CA 94143			Page:	4	of	4

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Collapse Prevention Structural Checklist For Building Type C1

Diaphragms

	Description
C ◉ NC ○ N/A ○ U ○	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints. (Commentary: Sec. A.4.1.1. Tier 2: Sec. 5.6.1.1) **Comments: Diaphragms are continuous.**

Connections

	Description
C ○ NC ○ N/A ◉ U ○	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5) **Comments: Foundations are shallow spread and strip footings.**

UC Campus:	Parnassus			Date:	13 April 2020		
Building CAAN:	2290A	Auxiliary CAAN:		By Firm:	Simpson Gumpertz & Heger		
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Building Address:	401 Parnassus Avenue, San Francisco, CA 94143			Page:	1	of	3

ASCE 41-17
Collapse Prevention Structural Checklist For Building Type C2-C2A

Low And Moderate Seismicity

Seismic-Force-Resisting System

	Description
C NC N/A U ○ ◉ ○ ○	COMPLETE FRAMES: Steel or concrete frames classified as secondary components form a complete vertical-load-carrying system. (Commentary: Sec. A.3.1.6.1. Tier 2: Sec. 5.5.2.5.1) **Comments: The joists frame into walls, no columns within wall or adjacent to wall.**
C NC N/A U ◉ ○ ○ ○	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2. (Commentary: Sec. A.3.2.1.1. Tier 2: Sec. 5.5.1.1) **Comments: There is two lines of shear walls, one at each end.**
C NC N/A U ○ ◉ ○ ○	SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 4.4.3.3, is less than the greater of 100 lb/in.^{2} (0.69 MPa) or $2\sqrt{f'_c}$. (Commentary: Sec. A.3.2.2.1. Tier 2: Sec. 5.5.3.1.1) **Comments: Maximum shear stress is calculated to be 170 psi > 100 psi**
C NC N/A U ◉ ○ ○ ○	REINFORCING STEEL: The ratio of reinforcing steel area to gross concrete area is not less than 0.0012 in the vertical direction and 0.0020 in the horizontal direction. (Commentary: Sec. A.3.2.2.2. Tier 2: Sec. 5.5.3.1.3) **Comments: Typical vertical and horizontal is 0.0025 for both 8" and 10" wall.**

Connections

	Description
C NC N/A U ◉ ○ ○ ○	WALL ANCHORAGE AT FLEXIBLE DIAPHRAGMS: Exterior concrete or masonry walls that are dependent on flexible diaphragms for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections have strength to resist the connection force calculated in the Quick Check procedure of Section 4.4.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1) **Comments: Available reinforcement is more than required.**
C NC N/A U ◉ ○ ○ ○	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls. (Commentary: Sec. A.5.2.1. Tier 2: Sec. 5.7.2) **Comments: Wall construction joints are below the slab, wall vertical reinforcement is continuous through the joint and slab reinforcement into the wall is #3@8" on center.**

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Collapse Prevention Structural Checklist For Building Type C2-C2A

C	NC	N/A	U	
◉	○	○	○	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation with vertical bars equal in size and spacing to the vertical wall reinforcing directly above the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4) **Comments: In typical foundation details, dowel same size and spacing as the vertical wall reinforcement is used.**

High Seismicity (Complete The Following Items In Addition To The Items For Low And Moderate Seismicity)

Seismic-Force-Resisting System

				Description
C	NC	N/A	U	
○	◉	○	○	DEFLECTION COMPATIBILITY: Secondary components have the shear capacity to develop the flexural strength of the components. (Commentary: Sec. A.3.1.6.2. Tier 2: Sec. 5.5.2.5.2) **Comments: 2Mp/L < (Vc + Vs), DCR 2.0**
○	○	◉	○	FLAT SLABS: Flat slabs or plates not part of the seismic-force-resisting system have continuous bottom steel through the column joints. (Commentary: Sec. A.3.1.6.3. Tier 2: Sec. 5.5.2.5.3) **Comments: No flat slabs occur in the building.**
◉	○	○	○	COUPLING BEAMS: The ends of both walls to which the coupling beam is attached are supported at each end to resist vertical loads caused by overturning. (Commentary: Sec. A.3.2.2.3. Tier 2: Sec. 5.5.3.2.1) **Comments: Walls are supported vertically at the ends.**

Diaphragms (Stiff Or Flexible)

				Description
C	NC	N/A	U	
◉	○	○	○	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints. (Commentary: Sec. A.4.1.1. Tier 2: Sec. 5.6.1.1) **Comments: Diaphragms are continuous.**
◉	○	○	○	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length. (Commentary: Sec. A.4.1.4. Tier 2: Sec. 5.6.1.3) **Comments: The elevator opening is not adjacent to shear wall. Stair openings are less than 25%.**

UC Campus:	Parnassus			Date:	13 April 2020		
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ASCE 41-17
Collapse Prevention Structural Checklist For Building Type C2-C2A

Flexible Diaphragms

C	NC	N/A	U	Description
○	○	◉	○	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2) **Comments: Diaphragms are concrete.**
○	○	◉	○	STRAIGHT SHEATHING: All straight-sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered. (Commentary: Sec. A.4.2.1. Tier 2: Sec. 5.6.2) **Comments: Diaphragms are concrete.**
○	○	◉	○	SPANS: All wood diaphragms with spans greater than 24 ft (7.3 m) consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2) **Comments: Diaphragms are concrete.**
○	○	◉	○	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft (12.2 m) and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2) **Comments: Diaphragms are concrete.**
◉	○	○	○	OTHER DIAPHRAGMS: Diaphragms do not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Commentary: Sec. A.4.7.1. Tier 2: Sec. 5.6.5) **Comments: Diaphragms are concrete.**

Connections

C	NC	N/A	U	Description
○	○	◉	○	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps. (Commentary: Sec. A.5.3.8. Tier 2: Sec. 5.7.3.5) **Comments: Foundations are shallow spread and strip footings.**

Appendix C

Tier 1 Calculations

SIMPSON GUMPERTZ & HEGER
Engineering of Structures and Building Enclosures

SHEET NO. _____
PROJECT NO. 197042.00
DATE 11.04.2019
BY AS
CHECKED BY KDP

CLIENT UCSF
SUBJECT LPPI: Flat Load

Typ Floor **Floor Area**

Level	Material	Slab (psf)	Beam (psf)	Column (psf)	Seismic (psf)	Gr. Cols (psf)	Remarks
L01-L05	Concrete Floor	-	-	-	-		ref eff. slab weight table
"	Floor Finish (arch.)	5.0	5.0	5.0	5.0		
"	Walls	-	-	-	-		ref. wall weight calculation
"	Columns	-	-	-	-		ref. column weight calculation
"	Ceiling and MEP (From Strl drawing)	5.0	5.0	5.0	5.0		
"	Partition (From structural drawing)	20.0	20.0	20.0	10.0		
"	Miscellaneous	0.0	0.0	0.0	0.0		
	Live Loads	**60.0**	**60.0**	**60.0**	**-**		

TABLE 1607.1
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS, L_o, AND MINIMUM CONCENTRATED LIVE LOADS[g]

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
17. Hospitals		
Corridors above first floor	80	1,000
Operating rooms, laboratories	60	1,000
Patient rooms	40	1,000

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and Building Enclosures

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SUBJECT Flat Load Table

SHEET NO.

PROJECT NO. 197042.00

DATE 11/05/2019

BY AS

CHECKED KDP

Slab Effective Weight

Floor Type	Effective Thickness (in)	Net Weight (psf)
Type 1 (S3, S5, 1S1, 1S3, 5S2, RS2, 5S1, 5S2)	3.5	43.75
Type 2 (S1, S2, S4, 1S2, 5S1, RS3)	4	50
Type 3 (1S4, RS1)	4.5	56.25
Type 4 (RS4)	5	62.5
Type 5 (S5)	6	75
Type A	5.8	72.7
Type B	5.5	68.9
Type C	5.2	65.1
Type D	4.9	61.3
Type E	9.7	120.8

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DATE 11/05/2019

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SUBJECT Flat Load Table

CHECKED KDP

73595

Floor	Floor slab type	Net Area sq. ft.	Net weight psf	Total weight kips
Floor 1	Type 1	724	43.8	32
	Type 2	1691	50.0	85
	Type 3	0	56.3	0
	Type 4	0	62.5	0
	Type 5	232	75.0	17
	Type A	3154	72.7	229
	Type B	6660	68.9	459
	Type C	498	65.1	32
	Type D	508	61.3	31
	Type E	170	120.8	21
		Length (ft)	**Weight (plf)**	
	Bridging	443	74.5	33
	Int. beams	566	375.0	212
	SUM	13637		939

Partition psf	MEP psf	Floor finish and Misc psf
10	5	5
136	68	68

Floor	Floor slab type	Net Area sq. ft.	Net weight psf	Total weight kips
Floor 2	Type 1	669	43.8	29
	Type 2	1530	50.0	76
	Type 3	0	56.3	0
	Type 4	169	62.5	11
	Type 5	132	75.0	10
	Type A	2246	72.7	163
	Type B	8428	68.9	581
	Type C	498	65.1	32
	Type D	945	61.3	58
	Type E	170	120.8	21
		Length (ft)	**Weight (plf)**	
	Bridging	476	74.5	35
	Int. beams	566	375.0	212
	SUM	14786		1017

Partition psf	MEP psf	Floor finish and Misc psf
10	5	5
148	74	74

Floor	Floor slab type	Net Area sq. ft.	Net weight psf	Total weight kips
Floor 3, Floor 4	Type 1	528	43.8	23
	Type 2	1614	50.0	81
	Type 3	0	56.3	0
	Type 4	0	62.5	0
	Type 5	132	75.0	10
	Type A	2246	72.7	163
	Type B	6744	68.9	465
	Type C	447	65.1	29
	Type D	945	61.3	58
	Type E	170	120.8	21
		Length (ft)	**Weight (plf)**	
	Bridging	406	74.5	30
	Int. beams	566	375.0	212
	SUM	12825		880

Partition psf	MEP psf	Floor finish and Misc psf
10	5	5
128	64	64

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SUBJECT Flat Load Table

Floor 5 & Roof	Type 1	951	43.8	42
	Type 2	1126	50.0	56
	Type 3	0	56.3	0
	Type 4	0	62.5	0
	Type 5	132	75.0	10
	Type A	1281	72.7	93
	Type B	6310	68.9	435
	Type C	2529	65.1	165
	Type D	0	61.3	0
	Type E	0	120.8	0
		Length (ft)	**Weight (plf)**	
	Bridging	406	74.5	30
	Int. beams	566	375.0	212
	SUM	12328		831

Partition	MEP	Floor finish and Misc
psf	psf	psf
5	5	5
62	62	62

Roof over Floor 5	Type 1	54	43.8	2
	Type 2	499	50.0	25
	Type 3	236	56.3	13
	Type 4	0	62.5	0
	Type 5	0	75.0	0
	Type A	0	72.7	0
	Type B	1255	68.9	86
	Type C	924	65.1	60
	Type D	0	61.3	0
	Type E	0	120.8	0
		Length (ft)	**Weight (plf)**	
	Bridging	77	74.5	6
	Int. beams	566	375.0	212
	SUM	2968		193

Partition	MEP	Floor finish and Misc
psf	psf	psf
5	5	5
15	15	15

Total floor area	69370 sq.ft.
Total floor weight	4739 kip

Partition	MEP	Floor finish and Misc
617	347	347

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SUBJECT Flat Load Table

SHEET NO.

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DATE 11/05/2019

BY AS

CHECKED KDP

Calculations below are used to estimate unit weight of walls per foot

	exterior wall elevation	avg height ft	Gross vol wall cu.ft	openings cu.ft	net weight kip	unit load kip/ft
Floor 1	Ele 1-8	10.875	1266.9	152.1	167	1.196
	Ele 8-10	10.875	402.4	82.3	48	1.081
	Ele 10-12	10.875	285.5	41.7	37	1.161
	Ele 12-13	10.875	199.0	37.1	24	1.106

	exterior wall elevation	avg height ft	Gross vol wall cu.ft	openings cu.ft	net weight kip	unit load kip/ft
Floor 2	Ele 1-8	11.5	1116.5	225.0	134	1.148
	Ele 8-10	11.5	354.6	139.0	32	0.874
	Ele 10-12	11.5	251.6	74.6	27	1.011
	Ele 12-13	11.5	175.4	42.5	20	1.089

	exterior wall elevation	avg height ft	Gross vol wall cu.ft	openings cu.ft	net weight kip	unit load kip/ft
Floor 3, Floor 4	Ele 1-8	11.5	1116.5	235.8	132	1.134
	Ele 8-10	11.5	354.6	113.3	36	0.978
	Ele 10-12	11.5	251.6	65.8	28	1.061
	Ele 12-13	11.5	175.4	37.5	21	1.130

	exterior wall elevation	avg height ft	Gross vol wall cu.ft	openings cu.ft	net weight kip	unit load kip/ft
Floor 5 & Roof	Ele 1-8	9.75	946.6	117.9	124	1.067
	Ele 8-10	11.5	354.6	113.3	36	0.978
	Ele 10-12	11.5	251.6	65.8	28	1.061
	Ele 12-13	11.5	175.4	27.1	22	1.216

	exterior wall elevation	avg height ft	Gross vol wall cu.ft	openings cu.ft	net weight kip	unit load kip/ft
Roof over Floor 5	Ele 1-8	0	0	0	0	
	Ele 8-10	5.75	177.3	56.7	18	0.489
	Ele 10-12	5.75	125.8	32.9	14	0.531
	Ele 12-13	5.75	87.7	5.0	12	0.678

Looking at the uniform linear load, assume 1.2 kip/ft

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Engineering of Structures and Building Enclosures

CLIENT UCSF

SUBJECT Flat Load Table

SHEET NO.

PROJECT NO. 197042.00

DATE 11/05/2019

BY AS

CHECKED KDP

	Location	Number of columns	section area sq.ft.	average height ft	net weight kip
Floor 1	interior columns	33	2.78	10.875	150

Estimate of exterior wall/column weight		
Total length ft	unit load kip/ft	Net Weight kips
1115	1.2	1338

	Location	Number of columns	section area sq.ft.	average height ft	net weight kip
Floor 2	interior columns	33	2.78	11.5	158

Estimate of exterior wall/column weight		
Total length ft	unit load kip/ft	Net Weight kips
987	1.2	1184.4

	Location	Number of columns	section area sq.ft.	average height ft	net weight kip
Floor 3, Floor 4	interior columns	30	1.56	11.5	81

Estimate of exterior wall/column weight		
Total length ft	unit load kip/ft	Net Weight kips
897	1.2	1076.4

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Engineering of Structures and Building Enclosures

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DATE 11/05/2019

CLIENT UCSF

BY AS

SUBJECT Flat Load Table

CHECKED KDP

	Location	Number of columns	section area sq.ft.	average height ft	net weight kip
Floor 5 & Roof	interior columns	24	1.17	6.75	29
		8	1.36	11.5	19

Estimate of exterior wall/column weight		
Total length ft	unit load kip/ft	Net Weight kips
897	1.2	1076.4

	Location	Number of columns	section area sq.ft.	average height ft	net weight kip
Roof over Floor 5	interior columns	9	1.00	5.75	8

Estimate of exterior wall/column weight		
Total length ft	unit load kip/ft	Net Weight kips
206	1	206

Total weight of vertical elements	6482 kips

Seismic Weight per Floor

Floor	Weight kips	Total Seismic Weight kips
Floor 1	2699	2969
Floor 2	2655	2921
Floor 3	2293	2523
Floor 4	2293	2523
Floor 5 & Roof	2139	2353
Roof over Floor 5	451	496
Total Seismic Weight		13785

(10% added for staircase and other unaccounted items)

Total Self weight of the building	12343 kips
Partition	679 kips
MEP	382 kips
Floor finish	382 kips
Net Seismic Weight	13,785 kips

SIMPSON GUMPERTZ & HEGER

Engineering of Structures
and Building Enclosures

SHEET NO.

PROJECT NO. 197042.00

DATE 11/06/2019

CLIENT UCSF

BY AS

SUBJECT LPPI - General building information

CHECKED KDP

General Building Information			
	Value	Units	Reference Document
Total building height	66.0	ft	Including penthouse
Effective Seismic Weight	13785	kips	
Compliance (per CBC)			2016 CBC 3412A.2.3
Structural Performance Level	S-5	BSE - C	2019 CBC Table 317.5
Non-structural	N-D		
Lateral System per ASCE 41	C2		Also contains C1, certain locations
Risk Category	III		CBC 1604.5
$S_{XS,\ BSE\text{-}C}$	1.843	g	
$S_{X1,\ BSE\text{-}C}$	0.847	g	
Site Class	C		
Ct	0.02		
beta	0.75		
height	66	ft	Including penthouse
Time Period T	0.46	s	
Sa	1.829	g	
C	1		ASCE 41-17, Table 4-7
Base Shear	25212	kips	Base Shear

Floor	Wi kip	$(hi)^k$ ft	$Wi\ (hi)^k$	Cvi	Fi kip	Vi kip
Roof over Floor 5	496	10.0	4963.5	0.03	816	816
Floor 5 & Roof	2353	11.5	27062.7	0.18	4,450	5,266
Floor 4	2523	11.5	29011.8	0.19	4,770	10,036
Floor 3	2523	11.5	29011.8	0.19	4,770	14,807
Floor 2	2921	11.5	33586.0	0.22	5,523	20,329
Floor 1	2969	10.0	29694.0	0.19	4,883	25,212
			153329.8	1.00	25,212	

*K = 1 for 6 stories or lower per 4.4.2.2

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Engineering of Structures and Building Enclosures

CLIENT UCSF

SUBJECT LPPI - General building information

SHEET NO.

PROJECT NO. 197042.00

DATE 11/06/2019

BY AS

CHECKED KDP

Shear Stress in Shear Walls

per ASCE 41-17 4.4.3.3

Ms 4.5

Floor	Story Shere at level j (V_j) kips	N-S Loading Area ft	N-S Loading v_j^{avg} ksi	E-W Loading length of wall ft	E-W Loading v_j^{avg} ksi	
Roof over Floor 5	816					
Floor 5 & Roof	5,266	150.0	0.05	150	0.05	
Floor 4	10,036	150.0	0.10	150	0.10	
Floor 3	14,807	150.0	0.15	150	0.15	NG
Floor 2	20,329	190.0	0.17	190	0.17	NG
Floor 1	25,212	298.0	0.13	298	0.13	NG

Flexible diaphragm connection force		
Ψ	1	CP
Sxs	1.843	g
wp	125	psf
Ap	310.5	ft^3
Tc	71.5	kips
Grade of steel	33	ksi
Area of steel required	2.17	sq.in
Provided	2.81	sq.in
	OK	

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Engineering of Structures and Building Enclosures

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SUBJECT LPPI - Columns

SHEET NO.

PROJECT NO. 197042.00

DATE 11/08/2019

BY AS

CHECKED KDP

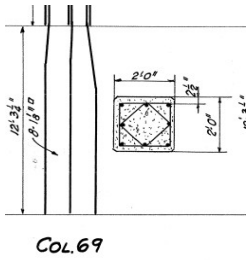
Column Shear Capacity Check

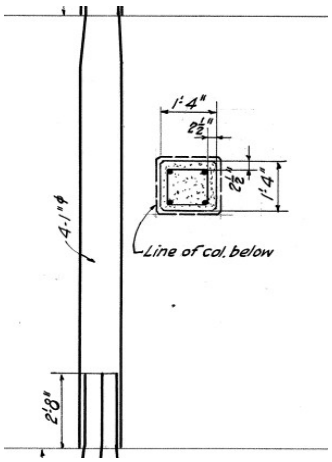
Square Columns

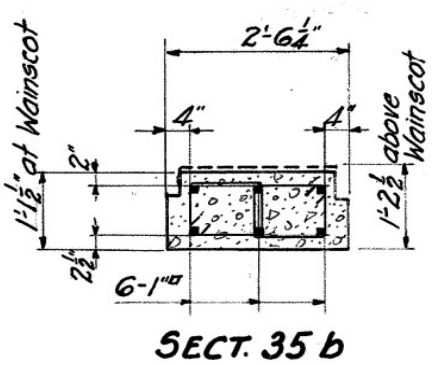
side in	vertical bars	bar size in	1.1(D+0.25L) kips	Mpr k-ft	2Mp/L	Vc kips	Av sq in	spacing in	Vs kips	V kips	
24	8	1.125	210	350	87.5	46.2	0.44	9	38.7	84.9	Not OK
16	4	1	200	115	24.2	19.3	0.22	9	12.9	32.2	ok

Rectangular Columns

L	30.125	8	1.125		330	138.9	33.4	0.33	9	36.5	69.8	Not OK
B	13.5											







Column Axial Stress Check

Column trib	L ft	B ft	area sq.ft.
	21	16	336

Level	DL psf	Beam self wt lb	SDL psf	LL psf	Unfactored load kip	Cummulative Load kip	Column c/s sq.in	Axial Stress ksi	Allowable Stress ksi	DCR
Roof	68.9	7191.667	20	60	57.23	57.23	144	0.397431	0.4	0.99
Level 04	68.9	7191.667	20	60	57.23	114.46	196	0.58398	0.4	1.46
Level 03	68.9	7191.667	20	60	57.23	171.69	256	0.670664	0.4	1.68
Level 02	68.9	7191.667	20	60	57.23	228.92	324	0.706543	0.4	1.77
Level 01	68.9	7191.667	15	20	42.11	271.03	484	0.559979	0.4	1.40