MAGNOLIA
PUBLIC SCHOOLS

Board Agenda Item #	II.A.- Action Item
Date:	Monday, May 14, 2018
To:	Magnolia Board of Directors- Special Meeting
From:	Caprice Young, Ed.D., CEO & Superintendent
Staff Lead:	Patrick Ontiveros, General Counsel & Director of Facilities
RE:	Motion to Approve Award of Construction Contract for MSA-1 High School Building

Proposed Board Recommendation(s)
Staff recommends that the Board of Directors of Magnolia Educational & Research Foundation dba Magnolia Public Schools:
(1) approve the budget for the construction of the new MSA-1 high school building project, and
(2) award the contract for the construction of the MSA-1 high school building to Oltmans Construction.

Background
After more than a year of design, plan check, and permitting, the new high school building for MSA-1 is set to be constructed. The project consists of a three (3) story, 27,000 square foot building with standard classrooms, one specialty classroom, administrative space, and a rooftop play area. The construction of the new building will not only allow MSA1 to increase its enrollment capacity -- from about 500 to about 880 -- it will also allow MSA1 to keep its middle school and high school populations separate. It will continue to house middle school students in the existing building while housing high school students in the new building.

Construction Contract RFP
As explained in more detail in PrimeSource's board report attached hereto, MPS/PrimeSource issued an RFP to multiple general contractors for the construction of MSA-1's new high school building. Fifteen (15) general contractors were originally contacted. Eventually 6 general contractors were prequalified to submit a proposal. Of the 6 prequalified general contractors, two (2) submitted bids – Oltmans Construction, Inc. and RC Construction Services, Inc. While neither MPS nor PrimeSource has worked with Oltmans before, they have been around a number of years and have a solid reputation. RC Construction Services, Inc. constructed the MSA-Santa Ana school building and is in the process of constructing the gymnasium at that school.

Bidding

The bidding outcome – the receipt of only two bids, both of which are above the estimated numbers previously provided to the board – reflects the overheated state of the construction market in Los Angeles. Most of the other pre-qualified firms did not bid because they are simply too busy with other projects and do not have either the manpower or bonding capacity to take on a new job. It is expected that construction costs will continue to escalate for the foreseeable future.

The Oltmans final bid is $7,392,479 and the RC Construction final bid is $9,419,350. The bid breakdown from each company was reviewed in detail to insure that neither bid was missing scope. MPS and PrimeSource determined that both bids include the required scope of work.

Bid/Firm Evaluation

Both firms were interviewed by an evaluation committee composed of MPS representatives and PrimeSource. Based on the proposals received and the interviews conducted MPS staff and PrimeSource believe that the Oltmans's bid is not only the low cost bid but also the best value bid. In particular, Oltmans's bid was more detailed and better developed and this was reflected in the interviews. It is clear that Oltmans was able to secure more subcontractor interest than RC Construction. In addition, Oltmans is able to self-perform certain trades which will allow them to better control the schedule.

Further, Oltmans's bid presents a lower fee (4%) compared to RC Construction's (7%) and a buyout savings split that is more favorable to MPS (25% to Oltmans and 75% to MPS versus 50% to RC Construction and 50% to MPS).

Construction Contract

A draft construction contract in the form required by bondholder Hamlin Capital Management and its representative Rob Hartman – Cost Plus with a Guaranteed Maximum Price – was attached to the RFP. The draft was prepared by MPS's attorney. The final contract terms and conditions largely have been agreed upon by MPS and Oltmans.

Budget & Budget Implications

The current budget for the project, including sources and uses, is as follows:

USES		**SOURCES**	
Cost Categories	**$ Amount**	**Source Category**	**$ Amount**
Acquisition	$1,000,000	CSFIG 2017-18	$500,000
Hard/Construction	$8,448,979	CSFIG 2018-19	$500,000
Soft	$968,490	2017 Bond	$8,425,792
Financing	$55,000		
Construction Management	$250,000		
Contingencies—hard and soft	$633,528		
Total	**$11,355,997**	**Total**	**$9,425,792**
		Surplus/(Deficit)	($1,930,205)

Notes:

(1) The financing cost is the sum of anticipated payments to the bondholder's construction monitor, Rob Hartman.

(2) The total contingencies amount is based on 7% for hard/construction costs and 3% for soft costs.

A more detailed budget breakdown and explanation is included in the PrimeSource board report and project costs exhibit and is set up to match the format previously provided to and reviewed by the Board.

MPS staff has confirmed that there is sufficient cash within the MPS network of schools to make an inter-company loan to the project from excess reserves – that is, cash in excess of the amount each school is required to hold in reserve. Making an inter-company zero percent loan to the Project is recommended versus borrowing from other third party sources. An inter-company loan will be made when other sources have been exhausted and will be last money out. Therefore, the expectation is that with value engineering, buy-out savings and the expenditure of less than the entire contingency amount, any intercompany loan would be less than the $1,930,205 shortfall currently projected. Moreover, in the short term, MPS may be able to defer certain costs related to the zone change thus saving money in the short-term. Said amount of savings could be about $900,000 (see PrimeSource project costs exhibit).

Impact on MPS

MSA-1 is the highest performing school in the MPS network and there is a strong demand for its educational services in the community it serves. Staff believes it is in the best interests of MPS and MSA-1 to allow it to expand its enrollment capacity in order to provide a high quality educational option to more underserved children. A new facility will allow MSA-1 to operate more efficiently by splitting up the middle school and high school populations.

Name of Staff Originator

Patrick Ontiveros, General Counsel & Director of Facilities

Exhibits

1. PrimeSource Board Report
2. PrimeSource Project Costs
3. Additional Info (FYI)

Exhibit 1

PrimeSource Board Report

PRIMESOURCE PROJECT MANAGEMENT
Project Leadership | Project Success

Board Report: General Contractor Award – MSA-1 New High School Building at 18220 Sherman Way in Reseda (Adjacent to existing facility at 18228 Sherman Way)

Requested Board Action: That the Board of Directors of Magnolia Educational & Research Foundation dba Magnolia Public Schools ("MPS") award the construction contract for the MSA-1 New High School project to Oltmans Construction Company, with a Guaranteed Maximum Price (GMAX) of $7,392,479 and total project budget of approximately $11,355,997 and other commercial terms as defined in the Request for Proposal and Contract Documents and proposal negotiations.

Staff has ensured that the scope and contract documents for the project are well defined and that changes will be limited. The building permit is ready to issue and the site is ready. The contract is negotiated and commercial terms are clear and fair.

The project was aggressively marketed and steps taken to make the project attractive to bidders and to ensure competitiveness of pricing and responses. See "Bidding Process" discussion below.

Staff makes this recommendation even though the price is considerably higher than projections and only two proposals were received. The LA construction market is unusually busy resulting in lowered competition among general contractors and especially among subcontractors. The LA construction market is also experiencing extraordinary inflation in pricing. The Board has previously rejected major scope revisions. There are few significant options for scope reduction and continued escalation is likely to wipe out the benefits of any scope reductions. Re-bidding the project is unlikely to solicit either more bidders or further cost reductions.

Background and Project Scope – the project includes a new 3-story 27,000 SF building with 20 classrooms. This is a simple, wood framed structure, that is not overly complicated and which has simple, utilitarian systems and features. The building design has not changed since the presentation and review with the Board in November 2018. {Please see floor plans attached.}

At that meeting, there was significant concern over total project cost and staff presented the only significant option to reduce cost: elimination of the rooftop recreation area. This change would have reduced cost, but also would have delayed the project at least six months to a year primarily due to re-permitting delays: the cost savings would be significantly eroded by construction inflation in the Los Angeles market. The Board rejected this idea, and directed staff to proceed with the project as designed.

The MSA-1 site has a large existing parking lot that requires various improvements to better support the school and its expanding population. At the November meeting, the Board gave direction that those improvements to the parking lot would be deferred to reduce project costs.

Also reviewed at the November meeting were ongoing issues related to obtaining a building permit from the City of Los Angeles, which tied the classroom building permit to various improvements to the parking lot overlaid on already imposed requirements form the campus zoning variance approval. Staff subsequently reached a resolution of this duplication of requirements, but the City then imposed a complete rebuilding of the existing parking lot to current Codes (e.g. added landscaping, night lighting, infiltration drainage, restriping, ADA parking and walking access, and bike parking) as a permit requirement. Negotiations with the City resulted in an agreement to allow construction of the classroom building and issuance of a temporary certificate of occupancy pending completion of the parking lot improvements under a separate building permit.

This agreement will allow the potential deferral of parking lot improvements past the completion of the classroom building and after completion of site master planning and the change in zoning now underway – which will alter the parking lot design. However, these improvements will ultimately be required in order to obtain an unrestricted Certificate of Occupancy for the new classroom building and to satisfy zoning requirements for the entire campus.

Staff has structured the proposed Oltmans contract to separate the parking lot work from the building work. Oltmans will use the parking lot as its primary staging area and location for construction trailers and equipment. Work on the parking lot will be deferred until completion of the bulk of the building when the staging area is dismantled. The contract contains an allowance for all parking lot work (e.g. slurry seal, striping, landscape, night lighting, ADA, bicycle racks). It was assumed by all bidders that the final parking lot design could vary from the bid documents to reflect final changes in the design due to master planning and any new zoning conditions. This separation in the contract effectively defers parking lot expenditures and decisions until spring of 2019. Should the Board decide at that time, this portion of the work could be deleted from the Oltmans contract and awarded to another contractor at a later time.

Contract Form – The project is being primarily funded by the 2017 MSA bond. The project was bid using the form of contract and specific terms specified by Rod Hartman the agent for the bondholder representative, Hamlin Capital Management. The contract is a modified AIA 102 contract which is a **cost reimbursable contract** with a defined fee and **guaranteed maximum price (GMAX)**. Essentially, the contractor is paid its actual costs, plus a percentage fee on those costs up to the GMAX. If total costs are less than the GMAX, the savings are shared between MPS and the Contractor (with 75% of savings going to MPS and 25% going to the contractor); any costs above the GMAX become the financial responsibility of the contractor.

The standard contract form was modified with lender driven changes. Staff was concerned with generating sufficient contractor interest and competition. Within the constraints given, staff attempted to craft a set of contract documents as evenly balanced as possible. In a certain number of areas, staff has adopted more contractor-friendly provisions specifically to increase contractor acceptance; these differences, although justified by experience and the proposals received, remain to be negotiated with Hartman.

Bidding Process – The bidding process began by contacting more than 15 general contractors, making them aware of them project, attempting to generate interest in bidding on the project and also assessing the current construction market conditions.

This round of calls confirmed the fact that the Los Angeles market has become extremely busy to the point that contractors either cannot accept new work because of capacity or financial limitations (e.g. bonding capacity), or are becoming very selective in the projects and clients that they pursue. The situation is even more problematic among subcontractors with many general contractors struggling to find sufficient subcontractors to cover all elements of their projects. The net result has been a significant **spike in construction costs** in Los Angeles, more than 25% higher than even two years ago.

Another recent problem now impacting the construction bidding market has been the introduction of **tariffs on imported steel and aluminum**. The bulk of the metal used in California construction is imported with the result that prices for raw metals and prices for any product that uses metals – which make up a significant portion of the building - have skyrocketed in the last few months. For example, raw aluminum prices jumped 25% just last week. The prices are so volatile that suppliers are refusing long term pricing and even becoming unwilling to commit to fixed short term prices. The only possible general contractor market response has been to increase markups and contingencies – resulting in even higher prices.

Interested bidders were required to submit **prequalification packages** to support their experience and performance in similar school construction and their willingness to work on this project and under this form of contract. We received six prequalification packages from:

- Blackwell Construction, Inc.
- Del Amo Construction, Inc.
- Oltmans Construction Company, Inc.
- RC Construction Services, Inc. (Currently building the Santa Ana Gymnasium for MPS)
- RJ Daum Construction, Inc.
- Satoh Brothers International, Inc.

All six firms were considered qualified and competent and were invited to bid. {See attached Oltmans prequalification package.}

A **Request for Proposals (RFP)** was issued to all seven prequalified firms. The RFP was structured as a **"best value" selection process** where MPS was allowed to select the contractor with the best overall value to MPS even if it did not have the lowest GMAX. The RFP was released on March 19th with proposals due on April 20th.

Steps were taken to make the project as attractive as possible to bidders. The RFP was made a simple as possible and the contract documents as contractor-friendly as possible while still protecting MPS and the lender. All bidders were contacted repeatedly over the proposal period to address any questions or concerns and to ensure that they had adequate time to respond properly. Only two minor addenda were issued providing source documents and clarifying requirements. Four formal Requests for Information from the contractors seeking clarification on the design were received and promptly answered. Despite these efforts, over the course of the bidding process five of the firms dropped out and ultimately did not submit proposals. The primary reason cited was the overheated market and the intent to pursue other projects. Only Oltmans Construction and RC Construction Services remained active. Both proposers were able to respond by April 20th and did not request time extensions.

Proposal evaluation – Proposals were received on April 20th. Contractor proposals were required to include:

1. Letter of interest committing the firm to proposed commercial terms and scope of work
2. Staffing, with certain key staff considered critical
3. Specific experience on similar projects, especially for key staff
4. Current backlog to ensure adequate capacity to do this project
5. Project approach describing how they will manage the contract and project commercially, and how they build the project with the specific site conditions and dealing with the City of Los Angeles
6. Proposed schedule which was required to meet or improve on a 330-day duration to deliver the building and a 360 day duration to deliver the parking lot (effectively deferring the parking lot improvements)
7. Claims and disputes history of the firm to ensure compatibility
8. Insurance and bonding capacity as a surrogate for financial capacity and resources
9. Exceptions or changes requested in the contract documents

Both proposals received were **responsive**: they fully complied with the conditions of the RFP. Both proposals were then carefully evaluated.

- Both contractors offered a complete and compliant list of commercial terms.
- Both contractors proposed various qualifications and exceptions and alternatives to the scope as defined in the bid documents.
- Both contractors suggested reasonable changes in the contract documents.
- Both contractors provided a credible project approach.
- Both proposals met the schedule, with RC Construction proposing a 30-day time savings on the building and overall project.
- Both proposals received offered GMAX pricing significantly higher than the original MPS estimate presented at the November 2017 Board Meeting.

Staff then conducted multiple conversations with the proposers and with the legal and design team to ensure that both proposals were compliant and delivered the required scope, and to develop final pricing and commercial terms acceptable to both MPS and the contractor.

Both firms were given the opportunity to make **price adjustments** after the submission of proposals; both firms submitted revised pricing proposals that adjusted the GMAX.

Interviews were conducted with both firms on April 27th. The MPS Evaluation Team consisted of Patrick Ontiveros, Mustafa Sahin and Tim Buresh. In addition to the Evaluation Team, Caprice Young and Suat Acar participated in the interviews. The contractors were required to bring key staff, to discuss their project approach and schedule in detail, and to negotiate commercial terms and pricing. The interview tested all aspects of the project. One area receiving detailed attention was the Oltmans plan to prevent construction from negatively interfering with MSA-1 school operations outdoors or indoors.

Although both proposals were responsive, it was the conclusion of the Evaluation Committee that the Oltmans proposal, including the project approach and proposed team, was significantly more detailed and better developed, an impression that was reinforced in the interview process.

After the interviews, the contractors were given the opportunity and challenged to continue refining their GMAX pricing; both firms made another round of revised pricing proposals that adjusted the GMAX.

A comparison of the commercial terms in the proposals follows:

	Oltmans Construction	RC Construction Services
GMAX (initial)	$7,120,538	$11,183,000
GMAX (final)	$7,392,479	$9,419,350
Fee (Within GMAX)	4%	7%
Change Order markup	5%	7%
Buyout Savings Split	25% Oltmans/75% MSA	50% RC Const/50% MSA

The Oltmans price increased in part by: increased MSA-1 security requirements to prevent materials theft from the project – a recent and significant change in the area; by certain design refinements to increase value (e.g. added termite treatment, added waterproofing); and by moving certain allowances inside the GMAX. Should the award go to RC Construction, it is likely that these additions would be required in the RC Construction GMAX also. The RC Construction GMAX decreased primarily because of better subcontractor and supplier bids received after proposals were submitted; however, it is clear that Oltmans received much better subcontractor interest and response than RC Construction.

Staff reviewed the proposals in detail to insure, for example, that the Oltmans proposal was not missing scope that was included in the RC Construction proposal. We are confident that they are an apples to apples comparison – that is, there is nothing included in the RC Construction proposal that is missing from the Oltmans proposal.

Commercial terms were negotiated with Oltmans and MPS agreeing to a final set of contract documents.

CONCLUSION - At the conclusion of the interview and proposal review process, it is the recommendation to award the contract to Oltmans Construction as presenting the highest value proposal received.

Staff is confident that the schedule can be met and the GMAX sustained. Oltmans' reputation is impressive, and their proposed key staff members are experienced and skilled. They are compatible with the MSA-1 team, and have agreed to the MSA team co-housing in their trailer, a step that increases transparency and on-site team building. Oltmans is unique in that it will build a significant portion of the project with its own forces, not subcontractors. This approach not only reduces cost, it makes it more likely that the schedule can be controlled. The project approach is conservative and appropriate to this type of construction and the schedule is not overly aggressive. Work will begin after the 2018 winter seasons and the building will be closed in before the next winter season, reducing the potential for weather delays.

On cost, staff will continue to pursue additional value engineering ideas, particularly in the choice of mechanical and electrical equipment and the choice of plumbing supplier; these savings will not decrease the GMAX, but will increase contingency funding available to the project and may ultimately lower the project cost. The proposed contract also contains multiple allowance items in areas prone to change such as foundation excavation. The purpose of these allowances is to protect the GMAX from small changed conditions likely to be encountered or to allow further design refinement to increase value or reduce changes in the future. Moreover, the overall project budget includes a robust 7% hard cost contingency controlled by the Owner to absorb any unforeseen conditions that may arise.

Revisions to the contract documents have been negotiated and the Oltmans is prepared to sign the agreement and to begin work immediately.

Because of the market volatility and the importance of signing subcontractors and suppliers to fixed term contracts, Oltmans has agreed to hold its price only for a short time. Assuming that the Board approves the contract award on May 14th, both Oltmans and the MPS team are prepared to begin work the following week.

Attachments
Floor plans and renderings
Oltmans Prequalification package

FRANCO ARCHITECTS INC.
12345 Ventura Blvd. H
Studio City, CA 91604
Tel 818 754-2030
Fax 818 754-2032
Architecture and Planning

MAGNOLIA SCIENCE ACADEMY 18220 SHERMAN WAY, RESEDA, CA 91335

MAGNOLIA SCIENCE ACADEMY
18220 SHERMAN WAY, RESEDA, CA 91335

REV	DESCRIPTION	DATE
	PLAN CHECK #1	6/14/2017
	FD PLAN CHECK	10/31/2017
	FD PLAN CHECK	12/14/2017

LICENSED ARCHITECT
JOHANN D. WANG
C27010
4/30/2019
RENEWAL DATE
STATE OF CALIFORNIA

PROJECT: MAGNOLIA SCIENCE ACADEMY

PROJECT ADDRESS: 18220 SHERMAN WAY, RESEDA, CA91335

DRAWING TITLE: COVER

DRAWN BY:

ISSUE DATE: 12/14/2017

JOB NUMBER:

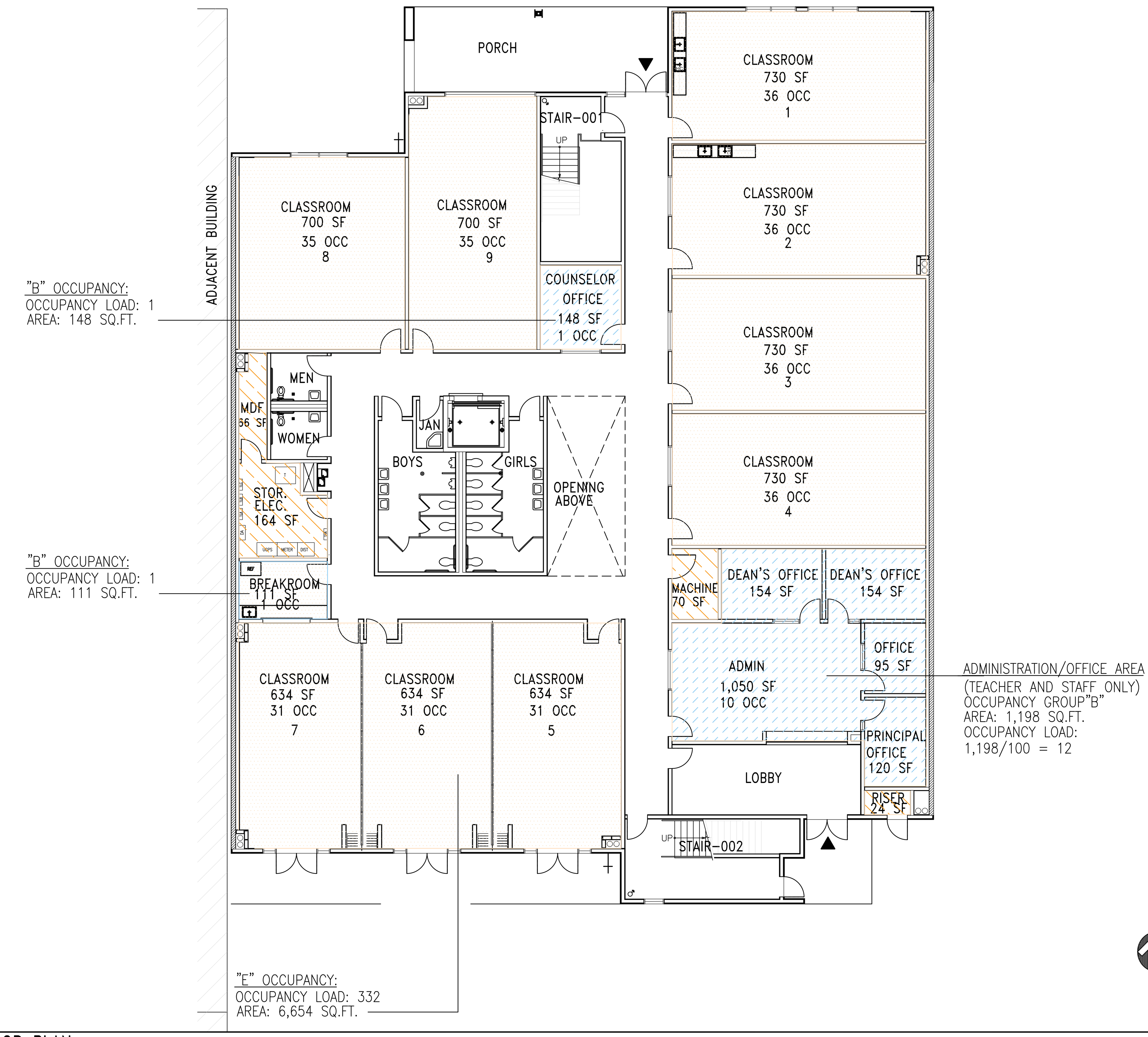
DRAWING SCALE: AS NOTED

APPROVED BY:

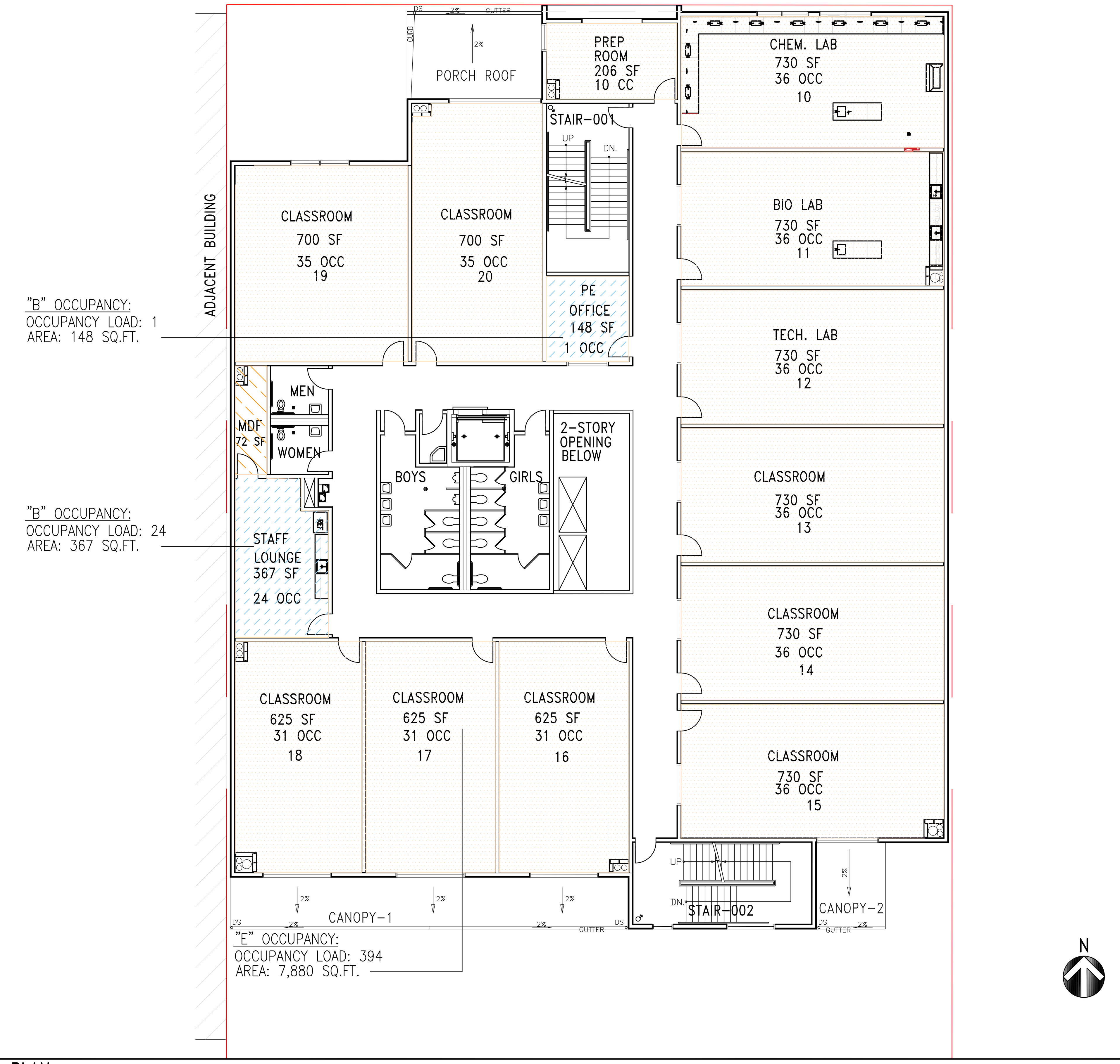
DRAWING NUMBER: A0.0

BID SET 03-07-18

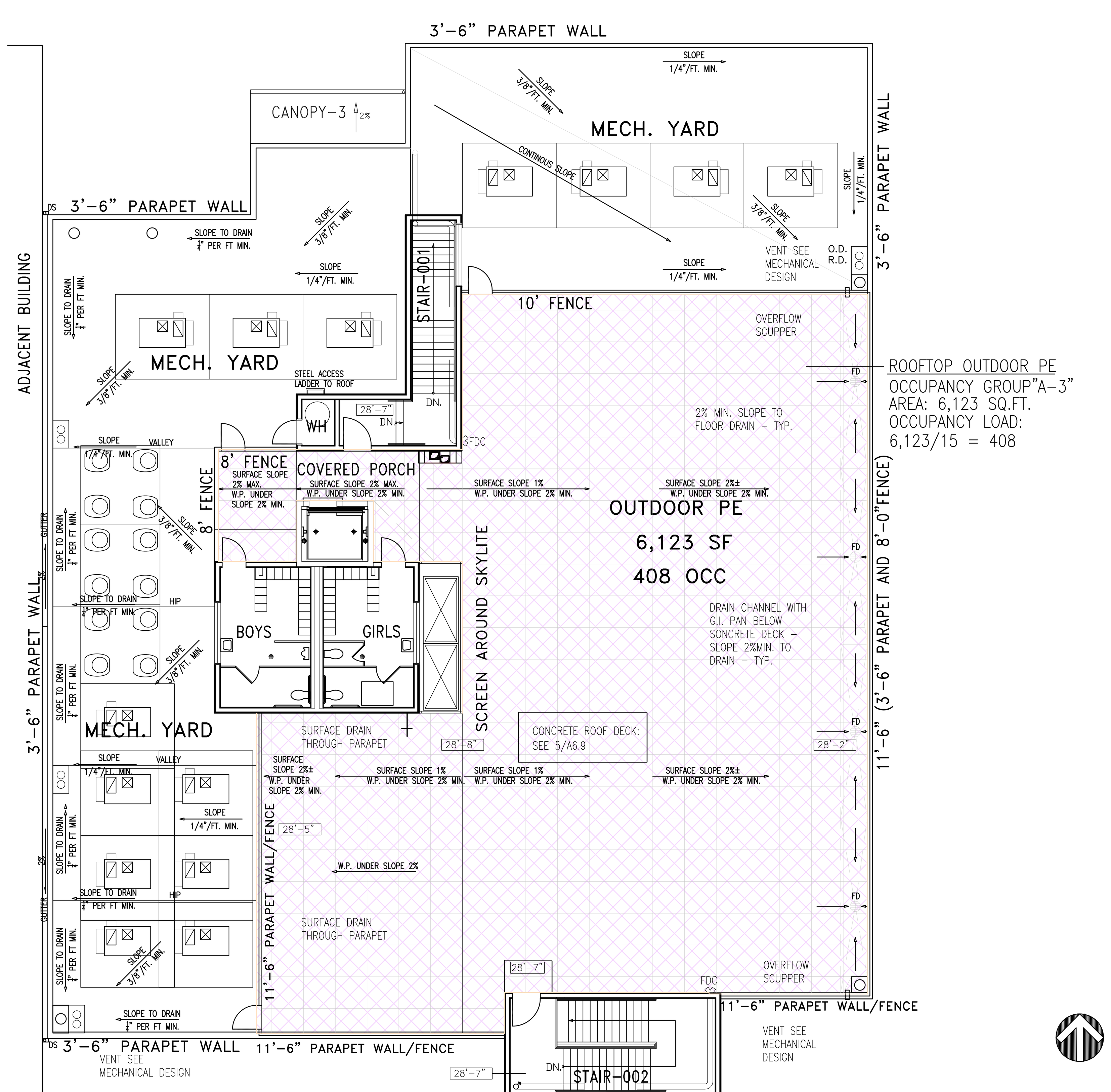
NOTE: RENDERINGS ARE FOR REFERENCE ONLY. SEE PLANS FOR CONSTRUCTION



1 FIRST FLOOR PLAN
SCALE: 3/32" = 1'-0"



2 SECOND FLOOR PLAN
SCALE: 3/32" = 1'-0"



3 ROOF PLAN
SCALE: 3/32" = 1'-0"

CONSTRUCTION TYPE: TYPE III-B WITH SUPERVISED AUTOMATIC SPRINKLER SYSTEM THROUGHOUT
2 HR RATED EXTERIOR BEARING WALL CONSTRUCTION,

ALLOWABLE FLOOR AREAS

2016 CALIFORNIA BUILDING CODE SECTION 506

FLOOR AREA: THE AREA INCLUDED WITHIN SURROUNDING EXTERIOR WALLS (OR EXTERIOR WALLS AND FIRE WALLS) EXCLUSIVE OF VENT SHAFTS AND COURTS. AREA OF THE BUILDING NOT PROVIDED WITH SURROUNDING WALLS SHALL BE INCLUDED IN THE BUILDING AREA IF SUCH AREAS ARE INCLUDED WITHIN THE HORIZONTAL PROJECTION OF THE ROOF OR FLOOR ABOVE.

OCCUPANCY TYPE: E AND B

TOTAL GROSS FLOOR AREA:
1ST FLOOR AREA: 12,706 SF
2ND FLOOR AREA: 11,610 SF
ROOF FLOOR AREA: 912 SF
TOTAL: 25,228 SF

LEGENDS OF OCCUPANCY

B OCCUPANCY
OFFICE AREA

E OCCUPANCY
CLASSROOMS & ROOFTOP PE AREA

S-2

A-3 OCCUPANCY
ROOFTOP OUTDOOR AREA

ALLOWABLE NUMBER OF STORIES

ALLOWABLE NUMBER OF STORIES: 3 (WITH SPRINKLER INCREASE)

NON-SEPERATED OCCUPANCIES

ALLOWABLE FLOOR AREA CALCUATION
NON-SEPERATED E OCCUPANCY

GROUND FLOOR - ALLOWABLE FLOOR AREA FOR EACH OCCUPANCY

E OCCUPANCY PER STORY:
TABULATED ALLOWABLE FLOOR AREA FOR E OCCUPANCY PER TABLE 506.2
ALLOWABLE BUILDING HEIGHT: 75' (PER TABLE 504.3)
ALLOWABLE BUILDING FLOOR AREAS: 14,500 SF (PER TABLE 506.2)
ACTUAL BUILDING FIRST FLOOR AREAS (FOR E OCCUPANCY): 12,706 SF

SECOND FLOOR - ALLOWABLE FLOOR AREA FOR EACH OCCUPANCY

E OCCUPANCY PER STORY:
TABULATED ALLOWABLE FLOOR AREA FOR E OCCUPANCY PER TABLE 506.2
ALLOWABLE BUILDING HEIGHT: 75' (PER TABLE 504.3)
ALLOWABLE BUILDING FLOOR AREAS: 14,500 SF (PER TABLE 506.2)
ACTUAL BUILDING SECOND FLOOR AREAS (FOR E OCCUPANCY): 11,610 SF

ROOF LEVEL - ALLOWABLE FLOOR AREA FOR EACH OCCUPANCY

E OCCUPANCY PER STORY:
TABULATED ALLOWABLE FLOOR AREA FOR E OCCUPANCY PER TABLE 506.2
ALLOWABLE BUILDING HEIGHT: 75' (PER TABLE 504.3)
ALLOWABLE BUILDING FLOOR AREAS: 14,500 SF (PER TABLE 506.2)
ACTUAL BUILDING ROOFTOP AREAS (FOR E OCCUPANCY): 912 SF

ALLOWABLE BUILDING AREA CHECK

GROUND FLOOR PER 508.4.2
E OCCUPANCY ACTUAL SF / ALLOWABLE SF = 12,706 / 14,500 SF = 0.88 < 1

2ND FLOOR PER 508.4.2
E OCCUPANCY ACTUAL SF / ALLOWABLE SF = 11,610 / 14,500 SF = 0.80 < 1

3RD FLOOR PER 508.4.2
E OCCUPANCY ACTUAL SF / ALLOWABLE SF = 912 SF / 14,500 SF = 0.06 < 1

TOTAL BLDG. SF CHECK:
25,228 SF (TOTAL BLDG. SQ. FT.) < 29,000 SF ALLOWED PER 506.2

OCCUPANCY SEPARATION:
NO SEPARATION IS REQUIRED BETWEEN NON-SEPERATED OCCUPANCIES. PER SEC. 508.3.3

4 BUILDING LIMITATION CALCULATION
SCALE: 3/32" = 1'-0"

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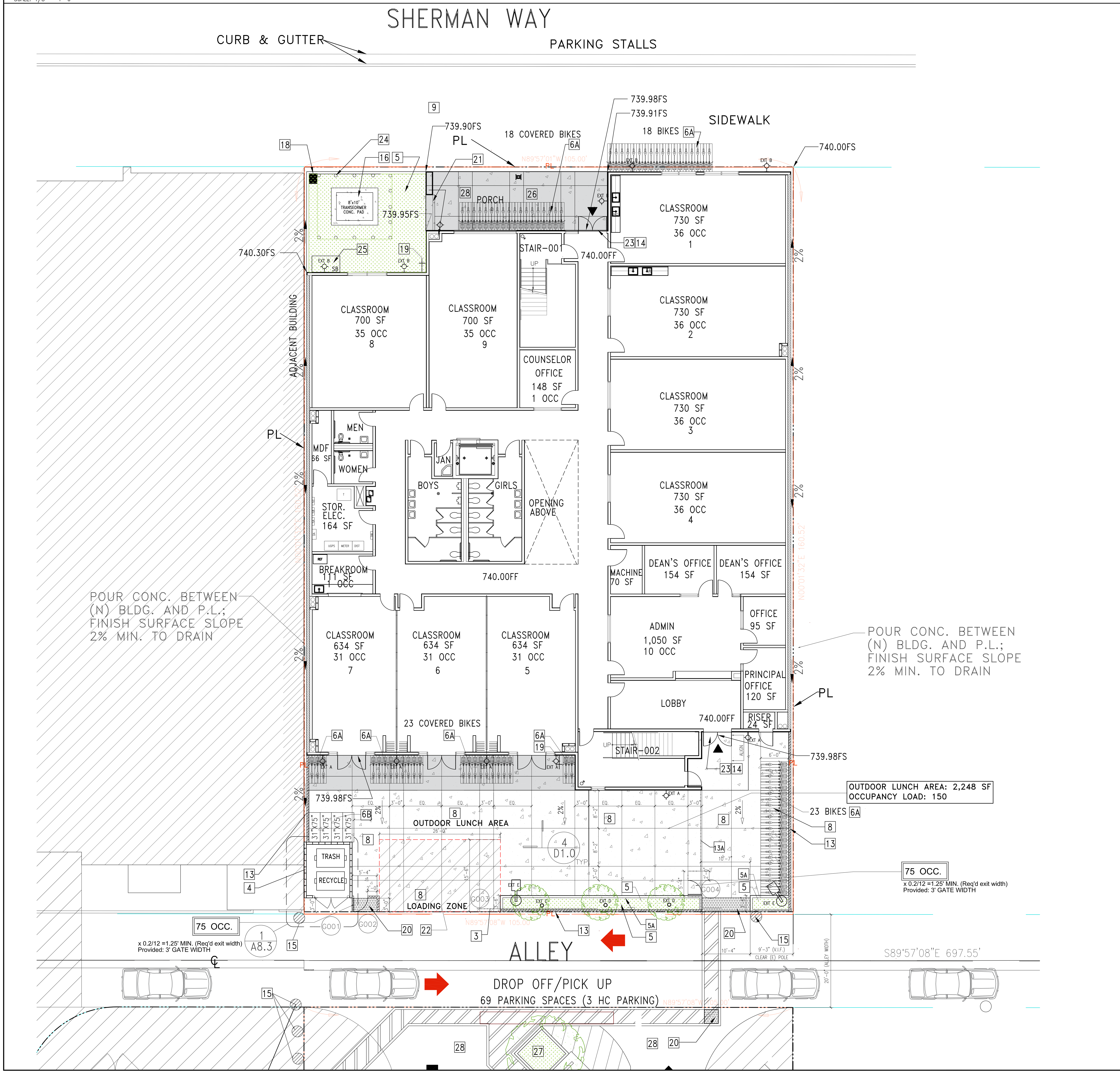
LICENSED ARCHITECT JOHANN D. WANG C27010 4/30/2019 RENEWAL DATE STATE OF CALIFORNIA

PROJECT: MAGNOLIA SCIENCE ACADEMY
PROJECT ADDRESS: 18220 SHERMAN WAY, RESEDA, CA91335
DRAWING TITLE: BUILDING LIMITATIONS
DRAWN BY:
ISSUE DATE: 12/14/2017
JOB NUMBER:
DRAWING SCALE: AS NOTED
APPROVED BY:
DRAWING NUMBER: A0.4

BID SET 03-07-18

SITE PLAN
SCALE: 1/8" = 1'-0"



SITE KEY NOTES

1. HC STRIPING, SEE SHEET A0.2 FIG. 11B-502.2, "NO PARKING" SIGN PAINTED IN 12" MIN. PER 11B-812.7.3
2. CONCRETE WHEEL STOP TYP. SEE DETAIL 1/D1.0
3. NEW 8'-0" HT. 26'-0" WIDE W.I. SLIDING GATE, SEE DOOR SCHEDULE
4. TRASH/RECYCLING ENCLOSURE W/ 8' HT. SPLIT-FACE PROTO II WALL, SEE A8.3
5. LANDSCAPE AREA. SEE LANDSCAPE PLANS

5A. 6" HT. CONC. CURB AT PLANTER

6A. PROVIDED 82 - SHORT TERM BIKE PARKING SPEC. PER CITY OF LOS ANGELES (SEE A0.6) (41 COVERED) STANDARD PLAN NO. S-671-0
EACH BICYCLE PARKING SPACE SHOULD BE MIN. 6' IN LENGTH
SEE SPEC. ON SHEET A0.6
FINISH: GALVANIZED

6B. PROVIDED 4 - LONG-TERM BICYCLE PARKING SPACES (SEE A.6)
LOCKABLE, PERMANENTLY ANCHORED BIKE LOCKER FOR 2 BIKES
SPECS: MADRAX OR EQUAL
MODEL: MLN-2 BIKE LOCKER
COLOR: T.B.D.

7. DESIGNATED PARKING FOR ANY COMBINATION OF LOW-EMITTING, FUEL-EFFICIENT & CARPOOL/VAN POOL VEHICLES. PAINT "CLEAN AIR/VANPOOL/EV" WORDS WORDS ON GROUND AS SHOWN ON PLAN. THE LOWER EDGE OF THE LAST WORD ALIGNS WITH THE END OF THE STALL STRIPING AND IS VISIBLE BENEATH A PARKED VEHICLE. PAINT COLOR TO MATCH STALL STRIPING. PROVIDE 6 PARKING SPACES FOR ANY COMBINATION OF LOW-EMITTING, FUEL-EFFICIENT,AND CARPOOL/VAN POOL VEHICLES, PER TABLE 5.106.5.2

7A. SURFACE MARKING "EV CHARGING ONLY". COMPLY WITH CBC 11B-812.9

7B. EV IDENTIFICATION SIGNS, SIGN IDENTIFYING VAN ACCESSIBLE EV SPACE SHALL CONTAIN THE WORDS "VAN ACCESSIBLE" PER 11B-812.8

8. SCORED UNCOLORED CONCRETE PAVING WITH SMOOTH CEMENT FINISH, SEE DETAIL 4/D1.0 CONCRETE MATERIAL WITH INITIAL SOLAR REFLECTANCE OF AT LEAST 0.30
9. REPAIR ALL BROKEN, OFF-GRADE OR BAD ORDER CONCRETE CURB, GUTTER AND EXISTING SIDEWALK ALONG THE PROPERTY FRONTAGE.
10. DOUBLE STRIPING OF STALLS SHALL BE PER FIG.7 OF THE CITY OF LA BLDG. DEPT. STANDARDS
11. 3' H. BOLLARD WITH POWER OUTLETS FOR ELECTRICAL CHARGING STATIONS TWO DEDICATED 208/240V 40 AMP, GROUNDED AC OUTLETS SHALL BE PROVIDED. SEE ELECTRICAL PLAN. A SEPARATE ELEC. PLAN CHECK IS REQUIRED TO VERIFY THE RACEWAY METHODS, WIRING SCHEMATICS AND ELECTRICAL CALCULATIONS FOR THE ELECTRICAL CHARGING SYSTEM. THE ELECTRICAL SYSTEM SHALL HAVE SUFFICIENT CAPACITY TO SIMULTANEOUSLY CHARGE ALL ELECTRIC VEHICLES AT THEIR FULL RATED AMPERAGE.
THE SERVICE PANEL OR SUBPANELS SHALL HAVE SUFFICIENT CAPACITY TO ACCOMMODATE THE REQUIRED NUMBER OF DEDICATED 40 AMPERE MIN. BRANCH CIRCUITS FOR THE FUTURE INSTALLATION OF THE EVSC (5.106.5.3). PROVIDE 4 EV SPACES, PER TABLE 5. 106.5.3.3
12. PAINT LETTERS "VISITOR" ON GROUND.
13. 5' WROUGHT IRON FENCE ON TOP OF THE 3' MASONRY WALL W/PERFORATED PANEL, NO MORE THAN 50% OF THE FACE IS OPEN, SEE 9/A8.3

13A. 8' WROUGHT IRON FENCE W/PERFORATED PANEL, NO MORE THAN 50% OF THE FACE IS OPEN

14. PROVIDE DOOR BUZZER AND COMUNICATION DEVICE WITH CONDUIT TO MAIN ENTRANCE
15. EXISTING POWER POLE. V.I.F.
16. NEW PAD TRANSFORMER, SEE ELECTRICAL PLANS
17. CONC. CURB, SEE DETAIL 2/D1.0
18. FDC
19. INSTALL A HOSE BIB AT THIS LOCATION. REFER TO PLUMBING ENGINEERING PLANS FOR FURTHER INFO.
20. 3'-0" MIN. WIDE BAND OF DETECTABLE WARNING, W/TRUNCATED DOMES, DETAIL SEE 1/A0.2.5 OVER CONCRETE PAVING
21. LOW STUCCO WALL, SEE DETAIL 2/A6.5
22. 400 SF LOADING SPACE, 26'-0" X 15'-6"
23. ENTRANCE
24. STANDARD 31"H STEEL BOLLARD INSTALLED 60" O.C.
MFG: RELIANCE FOUNDRY CO. LTD.
MODEL: R7835, INSTALLED BY ANCHOR CASTING
COLOR: PAINT YELLOW
25. SWITCH BOARD, SEE ELECTRICAL PLAN
26. PERMEABLE PAVER, SEE CIVIL PLAN
27. TREE WELL WITH 6" CONC. CURB AROUND, SEE LANDSCAPE PLAN

FRANCO ARCHITECTS INC.
12345 Ventura Blvd. H
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Architecture and Planning

MAGNOLIA SCIENCE ACADEMY
18220 SHERMAN WAY, RESEDA, CA 91335

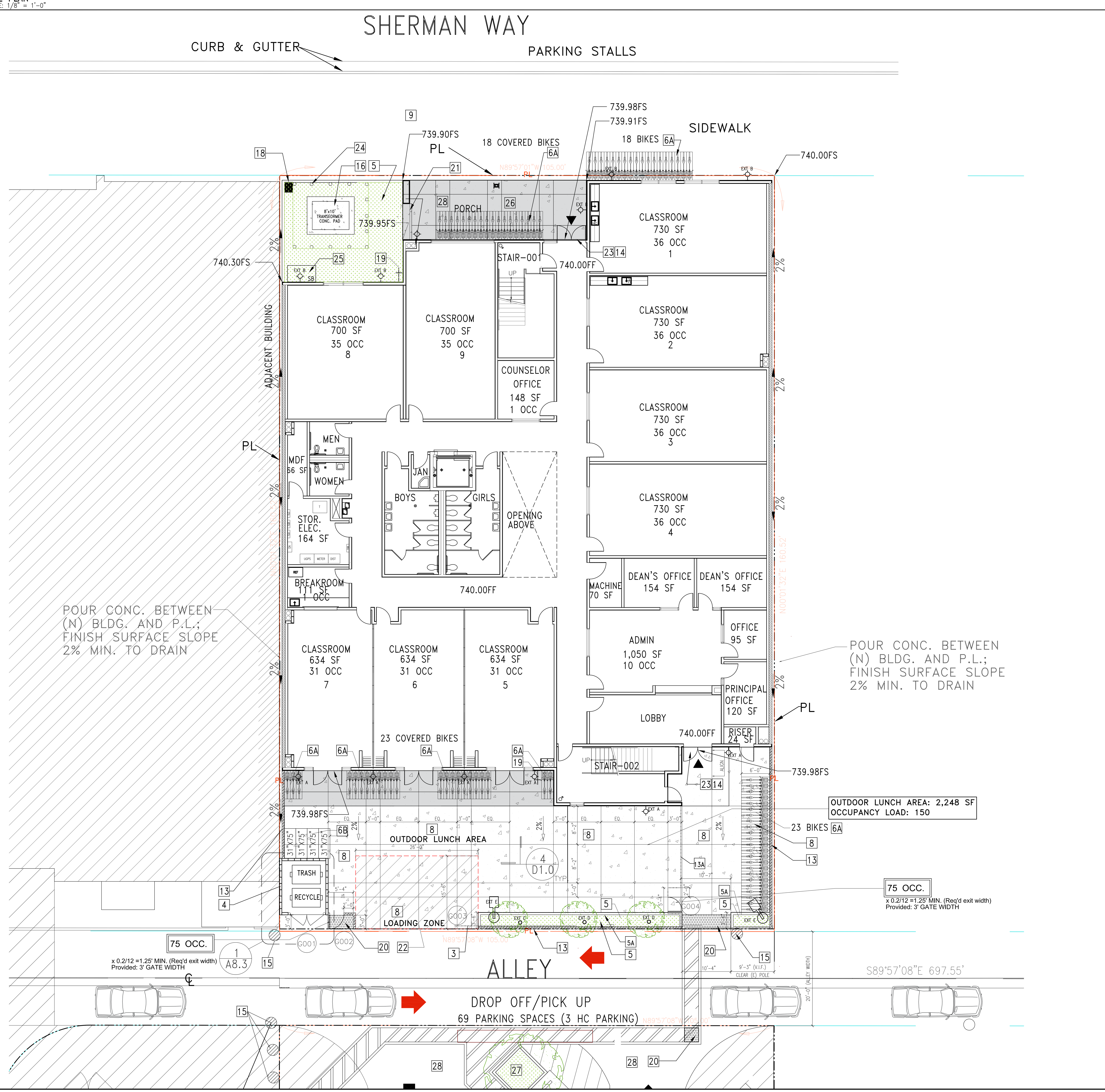
REV	DESCRIPTION	DATE
	PLAN CHECK #1	6/14/2017
	FD PLAN CHECK	10/31/2017
	FD PLAN CHECK	12/14/2017

LICENSED ARCHITECT JOHANN D. WANG C27010 4/30/2019 RENEWAL DATE STATE OF CALIFORNIA

PROJECT: MAGNOLIA SCIENCE ACADEMY
PROJECT ADDRESS: 18220 SHERMAN WAY, RESEDA, CA91335
DRAWING TITLE: ENLARGED SITE CONSTRUCTION PLAN
DRAWN BY:
ISSUE DATE: 12/14/2017
JOB NUMBER:
DRAWING SCALE: AS NOTED
APPROVED BY:
DRAWING NUMBER: A0.5A

BID SET 03-07-18

SITE PLAN
SCALE: 1/8" = 1'-0"



SITE KEY NOTES

1. HC STRIPING, SEE SHEET A0.2 FIG. 11B-502.2, "NO PARKING" SIGN PAINTED IN 12" MIN. PER 11B-812.7.3
2. CONCRETE WHEEL STOP TYP. SEE DETAIL 1/D1.0
3. NEW 8'-0" HT. 26'-0" WIDE W.I. SLIDING GATE, SEE DOOR SCHEDULE
4. TRASH/RECYCLING ENCLOSURE W/ 8' HT. SPLIT-FACE PROTO II WALL, SEE A8.3
5. LANDSCAPE AREA. SEE LANDSCAPE PLANS
5A. 6" HT. CONC. CURB AT PLANTER
6A. PROVIDED 82 - SHORT TERM BIKE PARKING SPEC. PER CITY OF LOS ANGELES (SEE A0.6) (41 COVERED) STANDARD PLAN NO. S-671-0
EACH BICYCLE PARKING SPACE SHOULD BE MIN. 6' IN LENGTH
SEE SPEC. ON SHEET A0.6
FINISH: GALVANIZED
6B. PROVIDED 4 - LONG-TERM BICYCLE PARKING SPACES (SEE A.6)
LOCKABLE, PERMANENTLY ANCHORED BIKE LOCKER FOR 2 BIKES
SPECS: MADRAX OR EQUAL
MODEL: MLN-2 BIKE LOCKER
COLOR: T.B.D.
7. DESIGNATED PARKING FOR ANY COMBINATION OF LOW-EMITTING, FUEL-EFFICIENT & CARPOOL/VAN POOL VEHICLES. PAINT "CLEAN AIR/VANPOOL/EV" WORDS WORDS ON GROUND AS SHOWN ON PLAN. THE LOWER EDGE OF THE LAST WORD ALIGNS WITH THE END OF THE STALL STRIPING AND IS VISIBLE BENEATH A PARKED VEHICLE. PAINT COLOR TO MATCH STALL STRIPING.
PROVIDE 6 PARKING SPACES FOR ANY COMBINATION OF LOW-EMITTING, FUEL-EFFICIENT,AND CARPOOL/VAN POOL VEHICLES, PER TABLE 5.106.5.2
7A. SURFACE MARKING "EV CHARGING ONLY". COMPLY WITH CBC 11B-812.9
7B. EV IDENTIFICATION SIGNS, SIGN IDENTIFYING VAN ACCESSIBLE EV SPACE SHALL CONTAIN THE WORDS "VAN ACCESSIBLE" PER 11B-812.8
8. SCORED UNCOLORED CONCRETE PAVING WITH SMOOTH CEMENT FINISH, SEE DETAIL 4/D1.0 CONCRETE MATERIAL WITH INITIAL SOLAR REFLECTANCE OF AT LEAST 0.30
9. REPAIR ALL BROKEN, OFF-GRADE OR BAD ORDER CONCRETE CURB, GUTTER AND EXISTING SIDEWALK ALONG THE PROPERTY FRONTAGE.
10. DOUBLE STRIPING OF STALLS SHALL BE PER FIG.7 OF THE CITY OF LA BLDG. DEPT. STANDARDS
11. 3' H. BOLLARD WITH POWER OUTLETS FOR ELECTRICAL CHARGING STATIONS TWO DEDICATED 208/240V 40 AMP, GROUNDED AC OUTLETS SHALL BE PROVIDED. SEE ELECTRICAL PLAN. A SEPARATE ELEC. PLAN CHECK IS REQUIRED TO VERIFY THE RACEWAY METHODS, WIRING SCHEMATICS AND ELECTRICAL CALCULATIONS FOR THE ELECTRICAL CHARGING SYSTEM. THE ELECTRICAL SYSTEM SHALL HAVE SUFFICIENT CAPACITY TO SIMULTANEOUSLY CHARGE ALL ELECTRIC VEHICLES AT THEIR FULL RATED AMPERAGE.
THE SERVICE PANEL OR SUBPANELS SHALL HAVE SUFFICIENT CAPACITY TO ACCOMMODATE THE REQUIRED NUMBER OF DEDICATED 40 AMPERE MIN. BRANCH CIRCUITS FOR THE FUTURE INSTALLATION OF THE EVSC (5.106.5.3). PROVIDE 4 EV SPACES, PER TABLE 5. 106.5.3.3
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LICENSED ARCHITECT JOHANN D. WANG C27010 4/30/2019 RENEWAL DATE STATE OF CALIFORNIA

PROJECT: MAGNOLIA SCIENCE ACADEMY
PROJECT ADDRESS: 18220 SHERMAN WAY, RESEDA, CA91335
DRAWING TITLE: ENLARGED SITE CONSTRUCTION PLAN
ISSUE DATE: 12/14/2017
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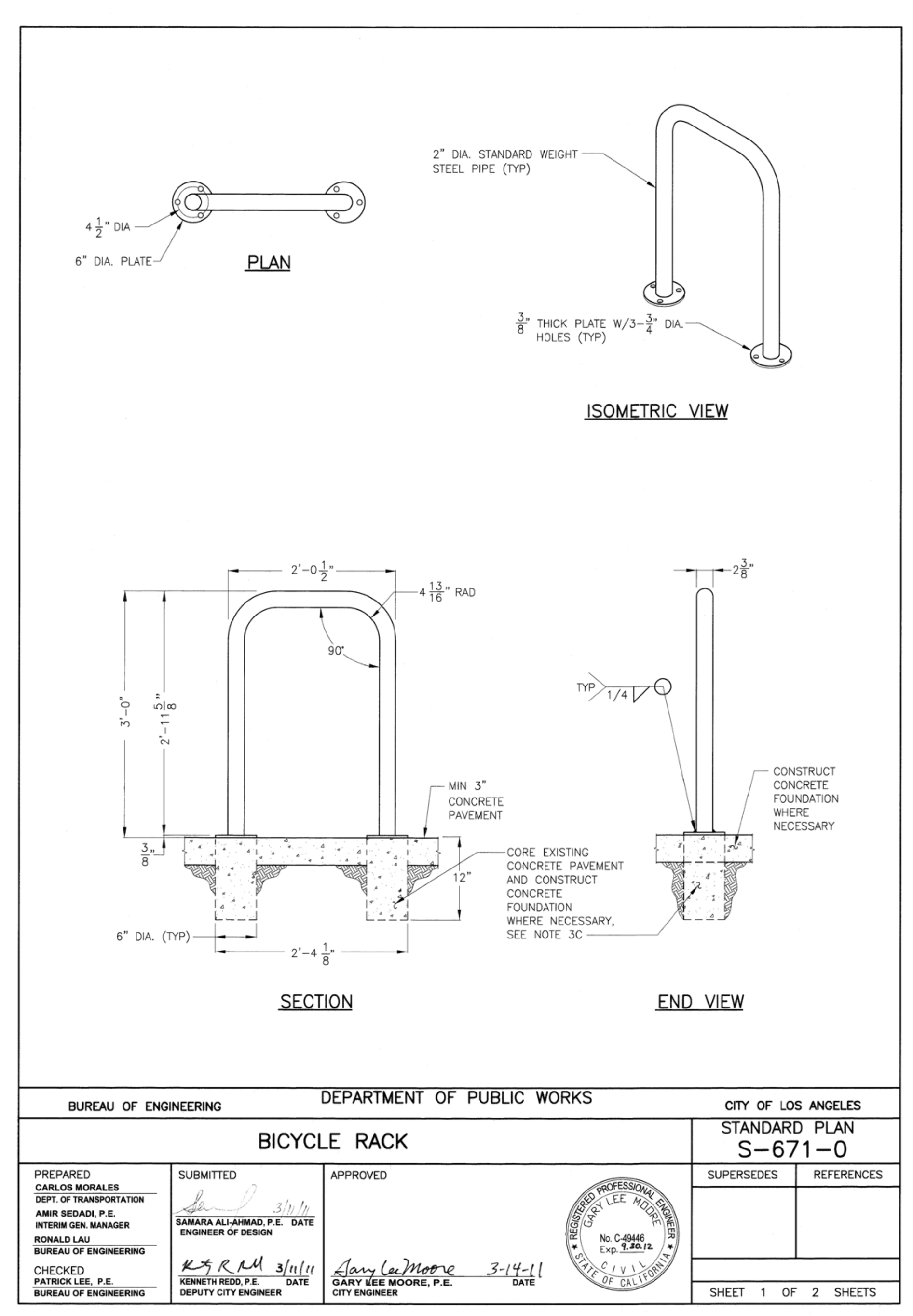
BID SET 03-07-18



NOTES

1. MATERIALS:
   - A. PIPE: ASTM A53 GRADE B STANDARD WEIGHT STEEL PIPE; 2 INCH DIA. CONSTRUCTED OF 90 DEGREE BENDS WITH AN INSIDE RADIUS BEND OF 4 13/16 INCHES.
   - B. PLATE: ASTM A36 3/8 INCH THICK PLATE WITH THREE 3/4 INCH DIA. HOLES AT 120 DEGREES SPACING.

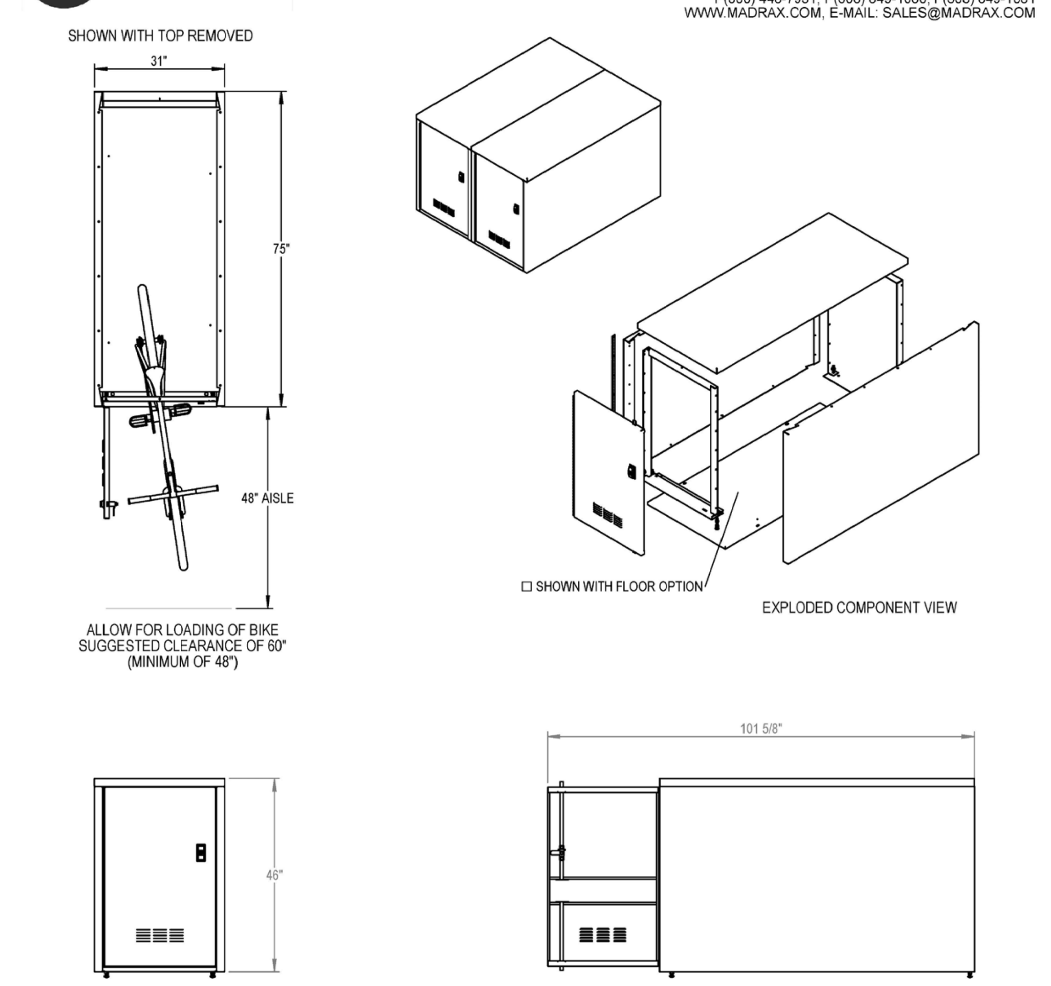
     BOLT: DRIVE TYPE ANCHOR BOLT MADE OF ZINC PLATED AISI 1038 HEAT TREATED CARBON STEEL, 1/2 INCH DIA BY 3 INCHES LONG. THE ANCHOR BOLT, SHALL BE MANUFACTURED BY POWERS FASTENERS (WWW.POWERS.COM), ALLIED BOLT INC. (Http://alliedboltinc.com) OR APPROVED EQUIVALENT. NO ANCHOR BOLT SHALL CONTAIN ANY SHARP EDGES.
   - C. UNLESS SPECIFIED OTHERWISE OR APPROVED BY THE CITY ENGINEER, THE BICYCLE RACK SHALL BE INVERTED-U DESIGN AND SUPPORT THE BICYCLE FRAME (NOT THE WHEEL) AT TWO POINTS.
   - D. THE BICYCLE RACK SHALL ALLOW FOR USE OF A CABLE AS WELL AS U-SHAPED LOCK.
2. MATERIAL FINISH:
   - A. ALL METAL COMPONENTS INCLUDING ALL BOLT HOLES SHALL HAVE MINIMUM 4 MIL THICK BLACK COLORED, LONG WEARING, MILDEW AND ULTRAVIOLET RAY RESISTANT ELECTROSTATIC POLYESTER COATING MADE OF TRIGLYCIDYL (TGIC) APPLIED IN THE FACTORY PRIOR TO DELIVERY. OTHER ALTERNATE COATINGS ARE CITY APPROVED POLYVINYL, THERMOPLASTIC OR POWDER COATING.
   - B. BEFORE COATING APPLICATION, THE BICYCLE RACK SHALL BE SANDBLASTED AND EPOXY PRIMED.
   - C. ALL FINISH COATINGS SHALL BE MAINTAINED BY THE INSTALLER. ANY DAMAGED SURFACE AREA INCLUDING THOSE RESULTED FROM THE INSTALLER'S OPERATION SHALL BE REPAIRED TO THE CITY ENGINEER'S SATISFACTION WITH APPROVED MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. ALL WASTE SHALL BE HANDLED AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE EPA AND/OR CALIFORNIA STATE REQUIREMENTS.
3. MOUNTING PROCEDURES:
   - A. ALL BICYCLE RACKS SHALL BE INSTALLED IN THE SIDEWALK FURNITURE ZONE AT A LOCATION APPROVED BY THE DEPARTMENT OF TRANSPORTATION (http://www.ladot.lacity.org/tf_development_review.htm) AND THE CITY ENGINEER. A MINIMUM 48 INCH WIDE UNOBSTRUCTABLE SIDEWALK MUST BE MAINTAINED. NO INTERFERENCE WITH THE PEDESTRIAN ACCESS AND/OR THE EGRESS TO THE PARKING ZONE SHALL BE PERMITTED.
   - B. UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER, ALL INSTALLATIONS SHALL CONFORM WITH THE FOLLOWING CLEARANCES AND APPLICABLE AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS:
     - MINIMUM 45 FEET CLEARANCE FROM ALL STREET CORNERS TO PROVIDE THE REQUIRED VISIBILITY TRIANGLE.
     - MINIMUM 45 FEET CLEARANCE FROM BUS STOP, BUS SHELTER, OR ITS REQUIRED CLEAR APPROACH AREA. FOR ARTICULATED BUS STOP, MINIMUM 55 FEET CLEARANCE SHALL BE PROVIDED.
     - MINIMUM 25 FEET FROM ANY PORTION OF THE BEGINNING OF THE CURB RETURN (BCR), THE END OF THE CURB RETURN (ECR), THE TOP OF THE CURB OF ANY CURB RAMP OR ALLEY INTERSECTION.
     - MINIMUM 48 INCHES CLEARANCE FROM ANY FIRE DEPARTMENT CONNECTION; STAND PIPE; INLET, OUTLET, OR DRAIN PIPE THAT ARE INSTALLED AT THE EXTERIOR OF THE BUILDING. PROVIDE MINIMUM 48 INCHES CLEAR SIDEWALK ACCESS FROM THE STREET CURB TO THE FIRE FACILITIES.
     - MINIMUM 24 INCHES CLEARANCE FROM THE CURB FACE.
     - MINIMUM 63 INCHES (36 INCHES PLUS 27 INCHES WHEEL SPACE) CLEARANCE BETWEEN ANY PART OF THE RACK OR RACK POST, AND ANY SIDEWALK FURNITURE OR IMPROVEMENT INCLUDING BUT NOT LIMITED TO STREET TREE AND TREE WELL, PARKING METER, STREET LIGHTING STANDARD, TRAFFIC SIGN OR POST, HYDRANT, OTHER UTILITY FACILITY AND ITS ACCESS OPENING.
     - IF ADDITIONAL RACK IS INSTALLED SIDE BY SIDE, IT SHALL HAVE MINIMUM 30 INCHES CLEARANCE BETWEEN THE RACKS OR THE RACK POSTS.
     - IF ADDITIONAL RACK IS INSTALLED END TO END, IT SHALL HAVE AT LEAST 90 INCHES (36 INCHES PLUS TWO-27 INCHES WHEEL SPACE) CLEARANCE BETWEEN THE RACKS OR RACK POSTS.
     - MINIMUM 3 INCHES CLEARANCE FROM ANY EXPANSION JOINT OR CONTROL JOINT IN THE CONCRETE PAVEMNT. DO NOT AFFIX BICYCLE RACK OVER OR NEAR ANY UTILITY FACILITY, STORM DRAIN CATCH BASIN OR STRUCTURE.
   - C. ALL BOLT HOLES IN THE CONCRETE PAVEMENT OR THE CONCRETE FOUNDATION SHALL BE PREDRILLED HOLES, 1/2 INCH DIA. BY 2 3/4 INCHES DEEP. PRIOR TO INSTALLATION, ALL BOLT HOLES SHALL BE CLEANED OF DUST OR DELETERIOUS MATERIAL. ALL ANCHOR BOLTS SHALL BE DRIVEN VERTICALLY THROUGH THE SUPPORT PLATE INTO THE BOLT HOLES UNTIL THE HEAD IS FIRMLY SEATED AGAINST THE SUPPORT PLATE. NO PROTRUDING OR NON-FLUSH ANCHOR BOLTS SHALL BE USED.
   - D. FOR CONCRETE PAVEMENT THAT IS LESS THAN 3 INCHES THICK, CONSTRUCT CONCRETE FOUNDATION IN ACCORDANCE WITH THE SPECIFIED DETAILS. FOR CONCRETE PAVEMENT THAT IS NOT LEVEL, USE HOT DIPPED GALVANIZED STEEL OR STAINLESS STEEL WASHERS TO LEVEL THE RACK AND THE SUPPORT PLATES BEFORE DRIVING THE ANCHOR BOLTS. FILL ALL OPENINGS AND VOIDS WITH NON-SHRINK GROUT AFTER ERECTION OF THE BICYCLE RACK.
4. COVENANT AND MAINTENANCE AGREEMENT:
   - A. ALL BICYCLE RACKS INSTALLED UNDER WORK PERMIT SHALL BE MAINTAINED BY THE PERMITTEE. THE PERMITTEE SHALL COMPLETE THE COVENANT & AGREEMENT (C&A) FORM, AVAILABLE FROM THE DEPARTMENT OF TRANSPORTATION PERMIT OFFICE, EXECUTE IT WITH THE CITY AND RECORD IT WITH THE LOS ANGELES COUNTY REGISTRAR-RECORDER. SUBMIT A COPY OF RECORDED C&A TO THE CITY ENGINEER BEFORE A WORK PERMIT CAN BE ISSUED.

STANDARD PLAN NO. S-671-0 | SHEET 2 OF 2 SHEETS

6A SHORT TERM BIKE PARKING SPEC. PER CITY OF LOS ANGELES STANDARD NO. S-671-0
FINISH: GALVANIZED
INSTALLED ON CONC. PAVING.
PROVIDE REQUIRED CONC. FOOTING FOR STEEL TUBE

MADRAX

MADRAX DIVISION
GRABER MANUFACTURING, INC.
1080 UNIEK DRIVE
WAUNAKEE, WI 53597
P(800) 448-7931, P(608) 849-1080, F(608) 849-1081
WWW.MADRAX.COM, E-MAIL SALES@MADRAX.COM



OTHER AVAILABLE OPTIONS:
- PERFORATED WALLS AND DOORS
- NUMBER PLATES
- GRAFFITI RESISTANT ADDITIONAL COATING

PRODUCT: MLN-2
DESCRIPTION: MADLOCKER™ NARROW BIKE LOCKER 2 UNITS, 2 BIKE CAPACITY
DATE: 10-25-17
ENG: SMC

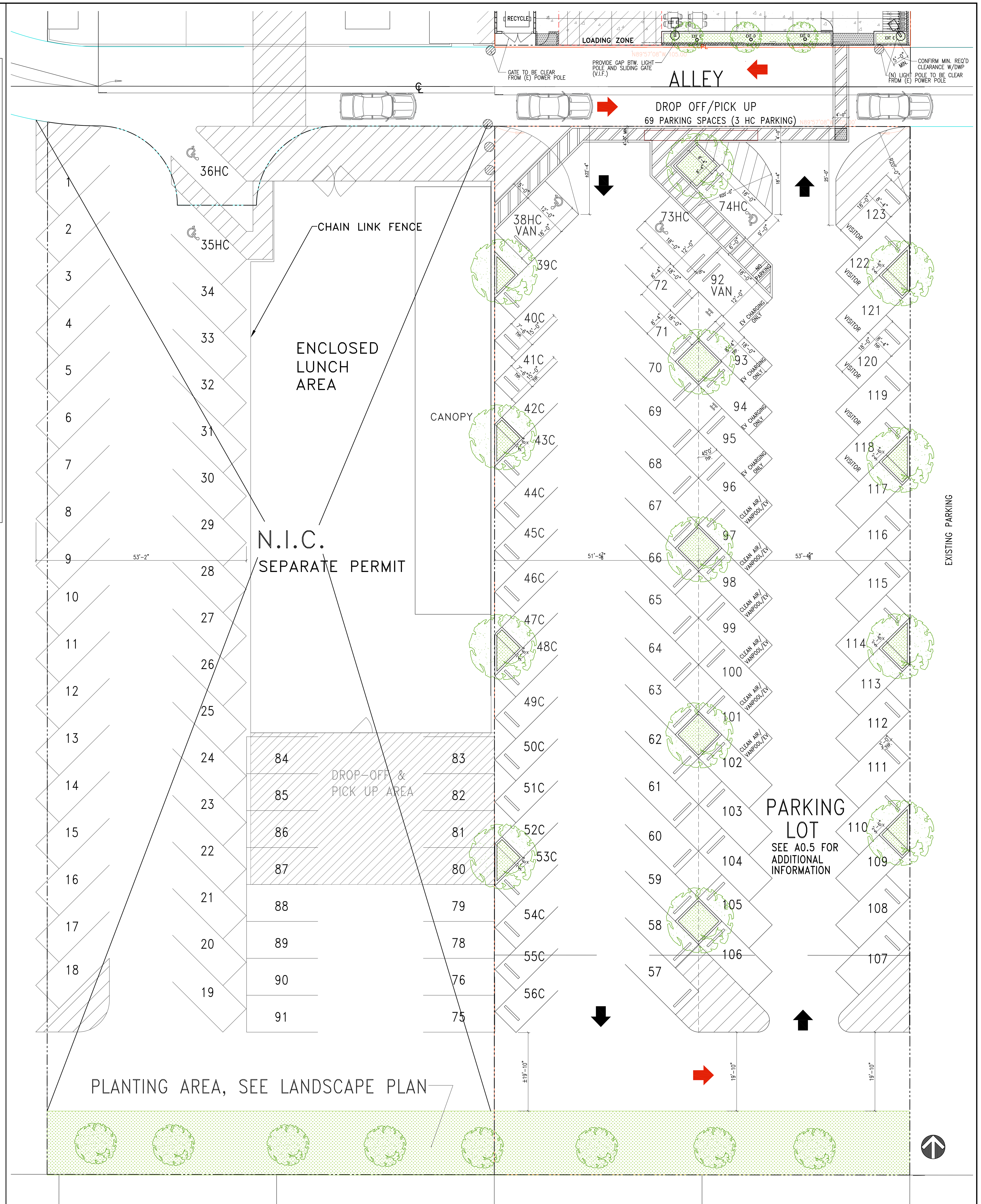
CHECK LOCKING STYLE
- ☐ HEAVY DUTY 4266 POP-OUT "T" HANDLE WITH 2 USER KEYS (KEYED DIFFERENTLY)
- ☐ STEEL U-LOCK AND PADLOCK STYLE HANDLE (PADLOCK AND U-LOCK NOT INCLUDED)

CHECK DOOR STYLE
- ☐ SOLID DOOR
- ☐ BICYCLE PERFORATION DOOR
- ☐ FULL PERFORATION DOOR

NOTES:
1. INSTALL BIKE RACKS ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
2. CONSULTANT TO SELECT COLOR (FINISH), SEE MANUFACTURER'S SPECIFICATIONS.
3. SEE SITE PLAN FOR LOCATION OR CONSULT OWNER.

6B LONG TERM BIKE PARKING LOCKER SPEC.

BIKE RACK SPECS.



PARKING PLAN
SCALE: 3/32" = 1'-0"

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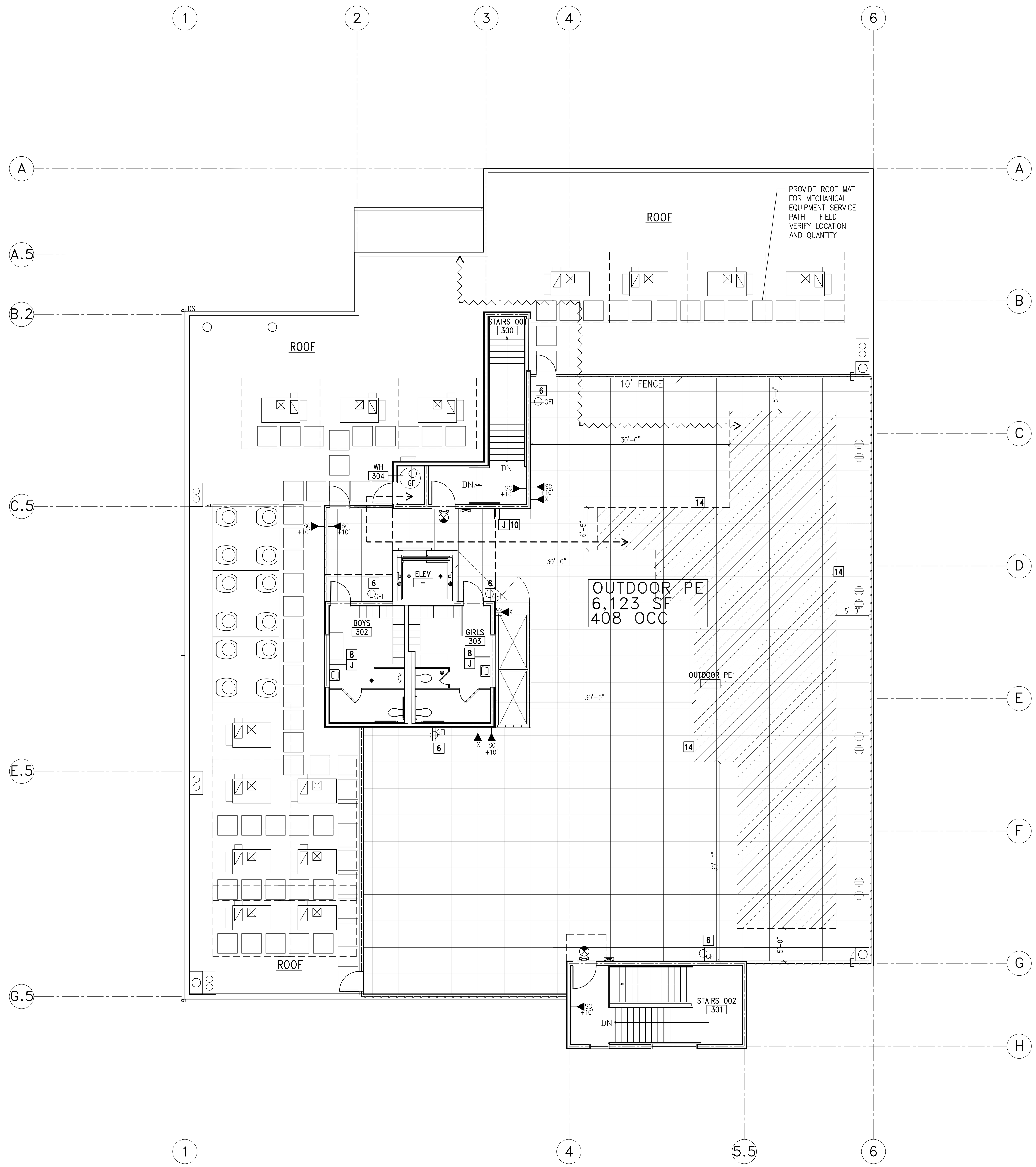
PROJECT: MAGNOLIA SCIENCE ACADEMY
PROJECT ADDRESS: 18220 SHERMAN WAY, RESEDA, CA91335
DRAWING TITLE: PARKING LOT PLAN
DRAWN BY:
ISSUE DATE: 12/14/2017
JOB NUMBER:
DRAWING SCALE: AS NOTED
APPROVED BY:
DRAWING NUMBER: A0.6

BID SET 03-07-18



ROOF POWER & SIGNAL PLAN

SCALE: 1/8" = 1'-0"

LEGEND

(symbol)	WALL MOUNTED FOURPLEX POWER OUTLET
(symbol)	WALL MOUNTED DUPLEX POWER OUTLET
(symbol)	WALL MOUNTED FOURPLEX DATA OUTLET
(symbol)	WALL MOUNTED DUPLEX DATA OUTLET
(symbol)	SW = CEILING SPEAKER + WIDE AREA ACCESS POINT SPEAKER BY OTHERS – WIDE AREA ACCESS POINT IN CONDUIT
(symbol)	S = CEILING SPEAKER – PAIRED WITH WALL MOUNTED VOLUME CONTROL LOCATED NEXT TO ENTRANCE DOOR. SPEAKER AND VOLUME CONTROL BY OTHERS. REQUIRES DUPLEX BOX + 1/2" CONDUIT IN WALL
(symbol)	VOLUME CONTROL FOR SPEAKERS
S	S = WALL SPEAKER – SPEAKER BY OTHERS – REQUIRES DUPLEX BOX + CONDUIT TO CABLE TRAY (NO SEPARATE VOLUME CONTROL)
VA	VA = VIDEO ACCESS BOX – 3/4" CONDUIT TO CABLE TRAY TO OFFICE. NOTE: THESE ENTRANCE DOORS WILL HAVE ELECTRONIC LOCKS, CONTROLS IN OFFICE.
W	W = WIDE AREA ACCESS POINT – BOX AND CONDUIT TO CABLE TRAY
TL	TEACHER LOCATION – VOIP + DATA QUAD BOX W/ 2EA 1.5" CONDUITS. ONE CONDUIT TO TV LOCATION IN ROOM – ONE CONDUIT TO CABLE TRAY TO MDF. PLUS ADJACENT POWER QUAD BOX, 120V
TV	TELEVISION/MONITOR LOCATION – TV/MOUNTING BRACKET/CABLING BY OTHERS REQUIRES DATA QUAD BOX WITH 2 CONDUITS LOCATED ABOVE CEILING – ONE 1.5" CONDUIT TO TL AND ONE 3/4" CONDUIT TO CABLE TRAY TO MDF ALSO NEEDS ABOVE CEILING – DUPLEX POWER 120V
X	QUAD DATA BOX +3/4" CONDUIT TO CABLE TRAY TO MDF – MOUNT LOW ON WALL OR ABOVE LAB TABLES. CENTER ON WALL – NOTE: LOW WALL DATA BOX UNDER TV IN ADDITION TO ABOVE CEILING DATA BOX SERVING TV
Z	DUPLEX DATA BOX + 3/4" CONDUIT TO CABLE TRAY TO MDF
SC	SECURITY CAMERA – EXTERIOR CAMERAS MOUNTED 10 FT ABOVE GRADE AND BELOW CANOPY AND PORCH ROOF – QUAD BOX + 3/4" CONDUIT TO CABLE TRAY TO MDF. CORRIDOR CAMERAS NOT SHOWN; NO CONDUIT REQUIRED.
D	DEDICATED POWER CIRCUIT
GFI	GFI– GROUNDED OUTLET
X"	X" ABOVE FINISHED FLOOR
BZ	DOOR BUZZER BY OTHERS– PROVIDE CONDUIT
J	JUNCTION BOX FOR ELECTRICAL POWERED HAND DRYER, 20A CIRCUIT; DRYER SHALL BE AMERICAN DRYER INC. EXTREMEAIR EXT7–SS.
(symbol)	EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM
(symbol)	PATHWAY FOR TOUTUNG OF PLUMBING FROM THE SOLAR ZONE TO THE WATER–HEATING SYSTEM. (5.211.1, ENERGY CODE 110.10, LAFD REQUIREMENT NO96.
(symbol)	LOACTION FOR INVERTERS AND METERING EQUIPMENT AND PATHWAY FOR ROUTUNG FROM SOLAR ZONE TO THE MAIN SERVICE PANEL.

GENERAL DIRECTION:
LOW VOLTAGE DEVICES AND WIRING TO BE BY OTHERS. BY OTHERS DEVICES INCLUDE: MDF EQUIPMENT UPS AND SERVER RACKS, CAT 5–6 WIRING AND HDTV CABLES, COVER PLATES, CEILING AND WALL SPEAKERS, SPEAKER VOLUME CONTROL, TELEVISION MONITORS, TV MOUNTING BRACKETS, INDOOR AND OUTDOOR SECURITY CAMERAS AND MOUNTING BRACKETS, AND VIDEO ACCESS PANELS. DEVICES BY CONTRACTOR INCLUDE: ELECTRONIC DOOR LOCKS AT FRONT AND REAR ENTRANCES.

POWER AND SIGNAL PLAN NOTES

1. IN ALL THE CLASSROOMS, AT EACH FOURPLEX OUTLETS PROVIDE A 1–1/2" CONDUIT FOR DATA.
2. IN ALL THE CLASSROOMS, PROVIDE A DEDICATED CIRCUIT FOR EVERY TWO FOURPLEX OUTLETS.
3. MDF ROOM: PROVIDE 3/4" FIRE TREATED PLYWOOD ON RESTROOM SIDE WALLS; PROVIDE (3) DEDICATED 20A DUPLEX RECEPTACLES, EACH ON A SEPARATE CIRCUIT. A DEDICATED 1.5 TON AC UNIT TO BE PROVIDED FOR THIS ROOM. CONTRACTOR TO COORDINATE AND CONFIRM ELECTRICAL REQUIREMENTS WITH CLIENT'S IT PROVIDER.
4. PROVIDE POWER FOR FIRE RATED MOTORIZED ROLL–DOWN COUNTER DOOR PER MANUFACTURER'S RECOMMENDATIONS. SEE COOKSEN MOTOR–OPERATED COUNTER DOOR (OR EQUAL), COLORCOTE FINISH; BETWEEN JAMB MOUNTED; FEATHEREDGE. SEE 1/D5.0
5. LOCATE FIRE ALARM CONTROL PANEL IN ELECTRICAL ROOM
6. PROVIDE LOCKABLE COVER PLATES FOR ALL EXTERIOR OUTLETS. WATER PROOF
7. PROVIDE POWER FOR INSTA–HOT WATER HEATER AND GARBAGE DISPOSAL. REFER TO PLUMBING PLANS FOR SPECIFICATION.
8. ELECTRIC POWERED HAND DRYER.
9. NOT USED
10. PROVIDE POWER FOR INTERIOR DRINKING FOUNTAIN. REFER TO PLUMBING ENGINEERING DWGS. FOR SPECS.
11. PROVIDE DEDICATED ELECTRICAL OUTLET FOR COPIER.
12. PROVIDE POWER/CONNECTION FOR HOT WATER HEATER WITHIN JANITOR'S CLOSET. REFER TO PLUMBING ENGINEERING DWGS. FOR SPECS.
13. PROVIDE DOOR BUZZER AND COMUNICATION DEVICE WITH CONDUIT TO MAIN GATE ENTRANCE
14. SOLAR ZONE AREA: 1,571 SF (>15% OF 10,300 TOTAL ROOF AREA)

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PROJECT: MAGNOLIA SCIENCE ACADEMY

PROJECT ADDRESS: 18220 SHERMAN WAY, RESEDA, CA91335

DRAWING TITLE: ROOF POWER & SIGNAL PLAN

DRAWN BY:

ISSUE DATE: 12/14/2017

JOB NUMBER:

DRAWING SCALE: AS NOTED

APPROVED BY:

DRAWING NUMBER: A3.3

BID SET 03-07-18

Oltmans
CONSTRUCTION CO.

February 15, 2018

Tim Buresh, Project Manager
PrimeSource Project Management
655 Deep Valley Drive, Suite 335
Rolling Hills Estates, CA 90274
tim.buresh@primesourcepm.com
424/903-0981 – office

RE: LETTER OF INTEREST – MSA-1 NEW HIGH SCHOOL CLASSROOM BUILDING

Tim,

Thank you for considering Oltmans Construction Co. to provide General Contracting Services for the MSA-1 New High School Classroom Building project. We would like to submit our below qualifications.

1. Name of Firm and Address: Oltmans Construction Co., 10005 Mission Mill Road, Whittier, CA 90601
2. Point of Contact for Bidding: Steven Mootz, (562) 948-4242, Ext. 3341, stevenm@oltmans.com
3. State Contractor License #: 86393 AB
4. Years in Business as a GC: 86 Years
5. Experience: Please find the project sales pages attached, for your review.
6. Self-Performed Work: Concrete, Rough Carpentry, Millwork, Drywall, Doors/Frames/Hardware
7. Other Information: Please find our education brochure attached, for your review.

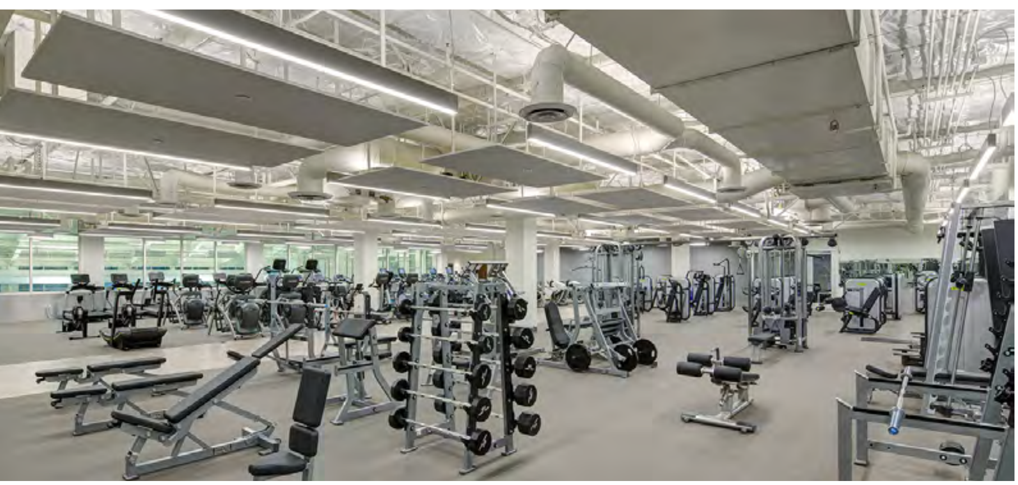
Respectfully submitted,

Karen Okerlund
Director, Client Development & Marketing
Oltmans Construction Co.

Contact Telephone:	(562) 948-4242, Ext. 3312
Contact Email:	kareno@oltmans.com
CA Contractor's License #:	86393 AB

COLLINS & KATZ FAMILY YMCA (Formerly Westside Family YMCA)

markets: educational & institutional, DSA



Location
1466 S Westgate Ave.
Los Angeles, CA 90025

Owner
Collins & Katz Family YMCA (Formerly Westside Family YMCA)
11311 LaGrange Avenue
Los Angeles, CA 90025
Ann Samson, Executive Director
(424) 465-5200; annsamson@ymcala.org

Architect
Gonzalez Goodale Architect
135 West Green Street, Suite 200
Pasadena, CA 91105
Dennis B. Smith, AIA, Associate
(626) 568-1428; dsmith@gonzalezgoodale.com

Contract Value
Original - $20,106,431

Size
76,136 s.f. - Total
39,669 s.f. - 1st Floor
22,517 s.f. - 2nd Floor
13,951 s.f. - Roof

Start & End Date
August 14, 2014 - December 15, 2017

Oltmans Project Team
Anjana Bhowmik, Project Manager
Sal Proetto, Superintendent, Tenant Improvements
Vince Ruesch, Superintendent, Core & Shell
George Mihaylov, Senior Project Engineer

The Collins & Katz Family YMCA is a community-focused nonprofit with recreational programs & services for all ages. Via a joint-use agreement on LAUSD property and under DSA jurisdiction, the new facility is a 76,136 s.f., ground-up, building project consisting of a gymnasium, executive offices, exercise rooms, indoor swimming pools, classrooms, saunas, steam rooms, a rooftop track and a rooftop basketball court. Oltmans' scope of work also includes the fire-life safety and elevator scopes for the adjacent parking structure that is built concurrently. Upon completion, the building not only serves the thousands of members of the YMCA, but also provides many years of use for the University High School students. Interesting features of the project include a curved copper roof, extensive MEPs, a structure made up of tilt-up panels, masonry, cast in place concrete, and a glass curtain wall.

Design Excellence

- Due to site constraints and durability requirements, a masonry and concrete tilt-up combination was selected for the building construction.
- To create enough space for a tilt-up/masonry combined solution, the construction team converted the property line wall to masonry.
- A vaulting copper roof expresses pool and glass-walled lobby to the street, while the remainder of the building is densely stacked, including intensive use of the roof plane.
- The facility is designed and constructed on the grounds of the University High School campus and required extensive collaboration with the school, LAUSD and DSA inspector.

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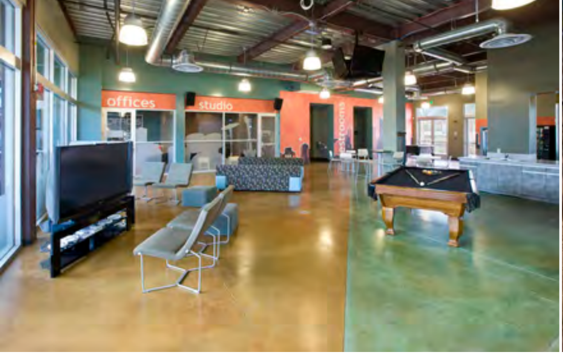

MARINERS CHURCH YOUTH CENTER

markets: creative spaces, religious, auditoriums and athletic facilities

Winner of "Best of" in the Worship Category from California Construction Magazine.

The two-story, steel framed Youth Building included large multi-purpose rooms with state-of-the-art sound, video and lighting for the performing arts stage. Recreational areas included meeting rooms with roll-up doors to connect with the youth plaza outside, lounges for high school age youth furnished with pool tables, table top games and other equipment for interactive recreation. There was a 2-level basketball court structure as well as a large skateboard/ bike park located outdoors in the student plaza. The studio space was designed for students to listen to music, record music or practice for upcoming performances. Class room and office space was also included.

Location
5001 Newport Coast Drive
Irvine, CA 92603

Owner
Mariners Church
Todd Otte, Development and Operations Officer
Brian Arcadis, Development and Operations
949-769-8496
totte@marinerschurch.org
bnorkaitis@marinerschurch.org

Architect
DeRevere & Associates
1601 Dove Street, #190
Newport Beach, CA 92660
Steve Zieg
(949) 833-3800
steve@derevere.com

Contract Value
Youth Building $8,000,000 (o) / $ 7,600,000 (f)

Size
Youth Building 27,000sf

Start & End Date
August 2007-September 2008

Services
General Contracting/New Construction
Design-Build Services for MEPF Systems
Self Performed Concrete Work
Rough Carpentry

Oltmans Project Team
Ed Gorton, Youth Building & Site Project Manager
Sal Proetto, Youth Building & Site Superintendent
John Schwind, Port Mariners Project Manager
Bill Gamboa, Port Mariners Superintendent

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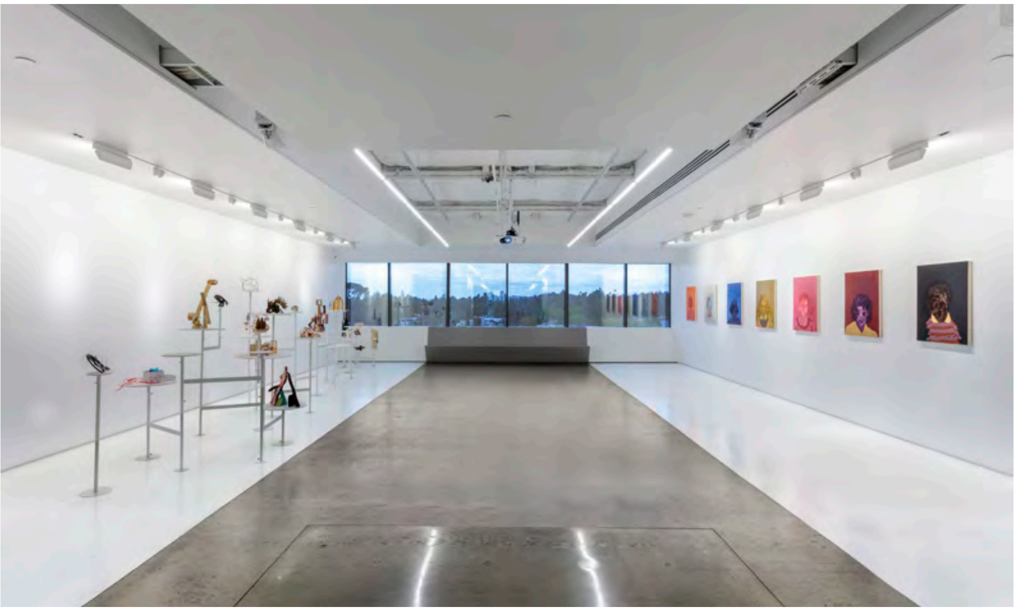
ART CENTER COLLEGE OF DESIGN - 6TH FLOOR T.I.

markets: educational & institutional, multi-story tenant improvement, classrooms, gallery



Location
1111 S. Arroyo Parkway
Pasadena, CA

Owner
Art Center College of Design
1700 Lida Street, Pasadena CA 91103
Rollin Homer, Associate AIA
Director of Real Estate and Campus Planning
(626) 396-2292 / rollin.homer@artcenter.edu

Architect
Darin Johnstone Architecture
7462 N Figueroa St #206,
Los Angeles, CA 90041
Darin Johnstone; (323) 478-9700
darin@djarch.net

Contract Value
$ 4,782,970

Size
22,407 s.f.

Start & End Date
April 2015 - September 3, 2015

Oltmans Project Team
Anjana Bhowmik, Project Manager
Scott Salerno, Superintendent
Julie Echeveria, Assistant Project Manager

Description
Oltmans recently completed the tenant improvement project for the Art Center College of Design in Pasadena, CA. The project involves a complete transformation from an existing 6 story office building to a space with galleries, art classrooms, offices and support spaces. As part of the upgrade, the entire sixth floor was taken off the main building line, and a new HVAC system was installed on the roof, while maintaining chilled water for the tenants. The exterior of the building was stained black to tie-in to the other Art Center campus buildings located in the same area. In keeping with the white and black Art Center theme, black epoxy floors were installed in the main circulation and living room areas. Existing stairs, handrails and guardrails were upgraded to meet code requirements. In addition, Oltmans completed the relocation of the building's main supply and return air shaft to make way for a much needed fourth elevator. Oltmans coordinated closely with the City of Pasadena to coordinate deliveries during the Rose Bowl parade street shut downs, permit approvals and tree protection programs. Construction of the scope occurred within an occupied and fully operational building.

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NOVA ACADEMY

markets: educational & institutional, renovation & tenant improvement

Location

500 West Santa Ana Boulevard
Santa Ana, CA

Owner

Hollencrest Capital Management
100 Bayview Circle, Suite 500
Newport Beach, CA 92660
Zach Staggs
(949) 823-7750; zachs@hollencrest.com

Architect

Berliner Architects
5976 Washington Blvd.
Culver City, CA 90232
Richard Berliner, AIA, Principal
(310) 838-2100, richardb@berliner-architects.com
Prithwish Gupta, Project Manager
prithwishg@berliner-architects.com

Contract Value

$5,377,340

Size

42,199 s.f. Gross Building Area
35,341 s.f. Area of Work

Start & End Date

March 14, 2016 - July 18, 2016

Oltmans Project Team

Picasso Bhowmik, Project Executive
Jeff Cosme, Project Manager
George Mihaylov, Sr. Project Engineer
Hip Ortiz, Superintendent
Sal Proetto, TI Superintendent

Description

The Nova Academy 42,199 s.f. tenant improvement project is a seismic retrofit and conversion of an existing 4-story office building into a charter high school.
The construction scope of work included complete demolition of the existing space, seismic retrofits: installation of 32-metal braces throughout the building and structural steel reinforcement on the 2nd floor patio as well as all interior buildout.

Accelerated Schedule

The Oltmans project management team coordinated closely with Berliner Architects & Nova Academy to ensure project delivery in time for the new school year. To reach the grand opening date, Oltmans began construction activities while design was at 65% completion. Other strategies utilized were early ordering of long lead items such as steel braces, strategic overtime work towards the end of the construction schedule and consistent communication between Berliner Architects, Nova Academy and Oltmans Construction.

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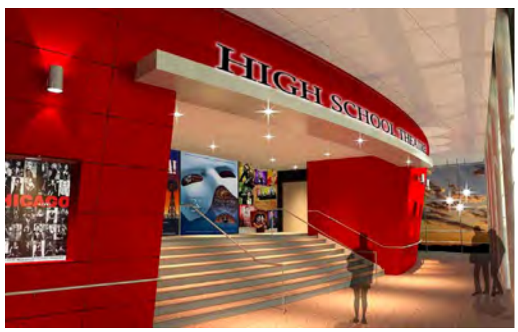
WILLIAM S. HART HIGH SCHOOL

markets: education & Institutional, self-performed concrete



Location
31575 Valley Creek Road
Santa Clarita, CA

Owner
William S. Hart Union High School District
21515 Centre Point Parkway
Santa Clarita, CA 91350

Architect
Ruhnau Ruhnau Clarke
3775 Tenth Street
Riverside, CA 92501
Roger Clarke
(951) 684-4664; rclarke@rrcarch.com

Contract Value
$11,851,531 (Self-Performed Concrete)

Size
Building: 250,000 s.f.
Site Area: 60 acres

Start & End Date
June 15, 2016 - August, 2019

Oltmans Project Team
Terence Meredith, Project Manager
John Flores, Superintendent

Oltmans has teamed with Castaic High School Construction Inc. and Kemp Bros. to deliver a new state of the art High School for the William S. Hart Union High School District in the Santa Clarita Valley. Nestled on 60 acres in a canyon west of Interstate 5, the new campus boasts approximately 250,000 s.f. of classroom, library, administration, gymnasium, locker room, and performing arts space. Complimenting the learning spaces will be baseball, softball, track, and football / soccer fields as well as basketball and tennis courts. Completion scheduled to open for the Fall Term 2019.

Design Excellence

- The entire campus has been designed and quality controlled via complex 3D modeling tools shared on an online dashboard to all team members.
- The new campus has plans in place to erect additional transmission towers to accommodate increased cellular, television, satellite or other broadcasting technologies as technological needs expand.
- Designed as a multi-use campus, one classroom's walls accordion out to become a 1,600 s.f. lecture hall.
- A regional emergency center, a state-of-the-art storage vessel holding 700,000 gallons of water will serve the campus and act as a hydrant for firefighting in the Santa Clarita Community.
- One hilltop within campus grounds will be graded for a helipad 1.1 acres at 2,010' elevation for emergency helicopter landings.
- The 843-stall parking lot on campus doubles as a storm water run-off evaporative basin.
- The school is designed to hold hundreds of local residents during natural disasters as a relief shelter and is already intended to be a base headquarters for Red Cross and other emergency services.

Construction Excellence

- Using Global Positioning Technology, zero wooden stakes were used throughout construction of this project
- Emphasizing sustainable construction, many construction equipment and vehicles used onsite are newer and more sustainable models than traditional construction equipment.

Oltmans
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THE CROSSING CHURCH CAMPUS

markets: education, institutional & auditoriums

Location
2115 Newport Blvd.
Costa Mesa, CA 92627

Owner
The Crossing Church
2115 Newport Blvd.
Costa Mesa, CA 92627
Tim Celek, Lead Pastor/President
(949) 645-5050; tcelek@thecrossing.com
Dale Winson, Executive Manager
(949) 510-8682; dwinson@thecrossing.com

Architect
LS Architects
3111 Second Ave.
Corona Del Mar, CA 92625
Scott Laidlaw
(949) 645-9982; slaidlaw@lsarchitects.com

Contract Value
$8,045,978

Start & End Date
October 25, 2010 - December 31, 2010

Size
21,389 s.f.

Project Team
Dan Wozniak, Project Manager
Ed Whinnery, Superintendent

Oltmans provided construction to the 21,389 s.f. church consisting of a two-story 1,300 seat acoustically controlled auditorium and innovative audio-visual/lighting system. The site work included the excavation of an open pit in order to build the below-grade auditorium.

This project was modeled using the BIM delivery process. With the challenges in the horseshoe shaped auditorium design, the BIM model provided time and money saving insight for the structural steel detailing portion of the job and the installation of the Mechanical, Electrical, Plumbing systems as well as other components of the job. This project was also built around an existing auditorium that was being used for church services. This presented a unique challenge as the new church encroached into this existing auditorium. The BIM model provided valuable information on which portions of the new church could be built while maintaining the use of the existing auditorium. Other unique design features of this project included a state-of-the-art audio-visual and lighting control system. AV system consists of more than 70 speakers, 35 HD TV screens and an HD TV projector. This system is installed in the 1,300 seat auditorium, where every seat has a view of one of the 70-TV screens. The innovative lighting package is a computer-controlled system and includes the extensive use of energy saving LED lights.

Oltmans
CONSTRUCTION CO.

Education & Institutional

INSPIRING CHANGE

TABLE OF CONTENTS

RZC Motion Capture Lab

UNIVERSITY OF SOUTHERN CALIFORNIA

LOS ANGELES, CA

USC/Phi Delta Theta Fraternity House - Historical Renovation

Architect GeorgeArchitecture
Total Square Footage 10,000 s.f.
Delivery Design-Bid-Build

The project was a complete reconstruction of the entire house including, but not limited to, the following: concrete work performed to raise a remaining portion of the previously fire-damaged structure accommodating new foundations, elargement of the existing basement to accommodate new HVAC units. All new electrical, plumbing and HVAC systems. Renovation also included infrastructure and all exterior flatwork including new handicap access ramp and addition of outside patio areas.

USC/University Gardens

Architect Frank Webb Architects
Total Square Footage 20,000 s.f.
Delivery Design-Bid-Build

Multi-phased tenant improvement at the USC Garden Office while the building remained fully operational.

USC/Seismic Repairs

Architect Tomko Woll Group Architects Inc.
Total Square Footage various
Delivery Design-Bid-Build

Seismic repairs on three (3) buildings - Waiter Phillips Hall, Pardee Dormitory and Sierra Apartments.

USC/RZC Motion Capture Lab

Architect Perkins+Will
Total Square Footage 500 s.f.
Delivery Design-Bid-Build

Provide new motion capture lab (stage like) with new truss system, flooring, walls, and acoustical panels.

USC/Hoffman Medical Research Seismic

Architect Coleman Caskey Architects
Delivery Design-Bid-Build

Seismic repairs including demolition, epoxy injection, painting and column bolting.

USC/Edmondson Seismic Upgrade

Architect Coleman Caskey Architects
Total Square Footage 25,000 s.f.
Delivery Design-Bid-Build

Seismic repairs as well as a new HVAC system installed. Roofing removed and replaced.

USC/CHP Rooms 109, 110 and 11

Architect Lundstrom & Associates Architects
Total Square Footage 3,400 s.f.
Delivery Design-Bid-Build

Interior renovation of three classrooms, metal stud framing, drywall and taping by Oltmans Drywall Division

As part of Art Center College of Design's South Campus Expansion plan, the six (6)-story office building located South of the main campus was acquired and currently undergoing a major transformation into art galleries, studios, offices and support spaces.

Phase I included removal of the sixth floor off the main building line and installation of a new HVAC system on the roof, while maintaining chilled water for the existing tenants. The exterior of the building was stained black. In keeping with the white and black Art Center theme, black epoxy floors were installed in the main circulation and living room areas. Upgrades also included ADA compliant restrooms & stairwells, and relocation of the building's main supply and return air shaft to make way for a much needed fourth elevator. Oltmans coordinated closely with the City of Pasadena to coordinate deliveries during the Rose Bowl parade street shut downs, permit approvals and tree protection programs.

Location	Pasadena, CA
Owner	Art Center College of Design
Size	22,407 s.f.
Delivery	Design-Bid-Build

ART CENTER COLLEGE OF DESIGN

6th Floor Renovation

BRANDMAN UNIVERSITY

The scope of the project involves the 7,815 s.f. office tenant improvement for Brandman University in an existing office building on the second floor of an existing, occupied, 25,722 s.f., 2-story office building at Palmdale Corporate Center.

Construction includes non-bearing partitions, movable partitions, classrooms, computer labs, staff lounge, offices, and conference rooms, associated electrical, HVAC and Plumbing.

Location Palmdale, CA
Owner Brandman University
Size 7,815 s.f.
Delivery Design-Bid-Build

UNIVERSITY TECHNICAL INSTITUTE

RANCHO CUCAMONGA & LONG BEACH, CA

University Technical Institute Rancho Cucamonga, CA

Architect Peters Jepson Partnership, Inc.
Total Square Footage 186,712 s.f.
Delivery Design-Bid-Build

Concrete tilt-up post-secondary educational training facility, which sits on a 666,529 s.f. lot. The project features complete classrooms with the latest data and network instruction techniques, administrative offices and a large multi-purpose room for graduations. The laboratories provide engine dynos, alignment testing, car racks and transmission dynos. The electrical and mechanical systems to support the above include compressed air throughout the labs, carbon exhaust systems, and state of the art power and data outlets to connect all mechanic devices.

University Technical Institute Long Beach, CA

Architect DRA Architects
Total Square Footage 142,000 s.f.
Delivery Design-Bid-Build

142,000 s.f., concrete tilt-up post-secondary educational training facility for Universal Technical Institute. The project sits atop a 7.13-acre lot, featuring classrooms with the latest data and network instruction techniques, administrative offices and a large multi-purpose room for graduations. The laboratories provide engine dynos, alignment testing, car racks and transmission dynos. The electrical and mechanical systems to support the above include compressed air throughout the labs, carbon exhaust systems, and state-of-the-art power and data outlets to connect all mechanic devices.

UNIVERSITY OF LA VERNE

West Campus Athletics Facility

The existing offsite West Campus Area, covers approximately 16 acres and was undeveloped at the start of construction. The scope of work was to convert the existing West Campus Site into the new West Campus Athletic Facility.

The completed project features NCAA-compliant baseball field and softball fields, each with bleacher seating for 300, team dugouts, bullpens press box and digital scoreboard; two (2) softball and baseball steel framed batting cage structures with metal roofing, high-performance tunnel nets and light fixtures; site work including two parking lots, fencing, landscaping, walkways, on-site lighting, and a multipurpose field with Musco lights to be used for intramural sports. The facility building includes baseball and softball locker rooms, showers/team rooms, public restrooms, drinking fountains and a training room (shell space) and was constructed of CMU block.

Location	La Verne, CA
Size	653,400 s.f.
Delivery	Design-Bid-Build

CALTECH

PASADENA, CA

Caltech Keith Spalding 3rd Floor Renovation

Architect gkkworks
Total Square Footage 3,000 s.f.
Delivery Design-Bid-Build

Working in a multi-story, occupied, educational building, Oltmans was vigilant in our noise and dust control practices as well as took extra precautions to ensure the safety of the building's inhabitants. The scope of work was to reconfigure the 3rd floor of the 3-story plus basement building, which included soft demolition of existing offices, wall stud construction, doors and windows construction, carpet installation, millwork, drywall, HVAC (install flex duct), electrical, fire sprinkler system install, paint, addition of new ceiling grid, and lighting.

Caltech Crellin Lecture Hall Room 151

Architect Peters Jepson Partnership
Total Square Footage 950 s.f.
Delivery Design-Build

Design-build renovation of Crellin Lecture Hall Room 151 included an update to the existing 50 seat lecture hall with new seating and finishes, replace the demonstration bench, refurbish the chalk boards, update the AV system and improve the HVAC. The project team successfully completed the project with little disruption to the current occupants and was mindful to not disrupt ongoing operations.

LOMA LINDA UNIVERSITY
Administration Building

Ground-up construction of a new three (3)-story administrative office building for Loma Linda University Health.

Location	San Bernardino, CA
Owner	Loma Linda University Shared Services
Size	153,029 s.f.
Delivery	Design-Bid-Build

Location	Menlo Park, CA
Owner	The Board of Trustees of Leland Stanford Jr. University - SLAC National Accelerator Laboratory
Size	18,000 s.f.
Delivery	Design-Bid-Build

When Precision and Technical Details Matter

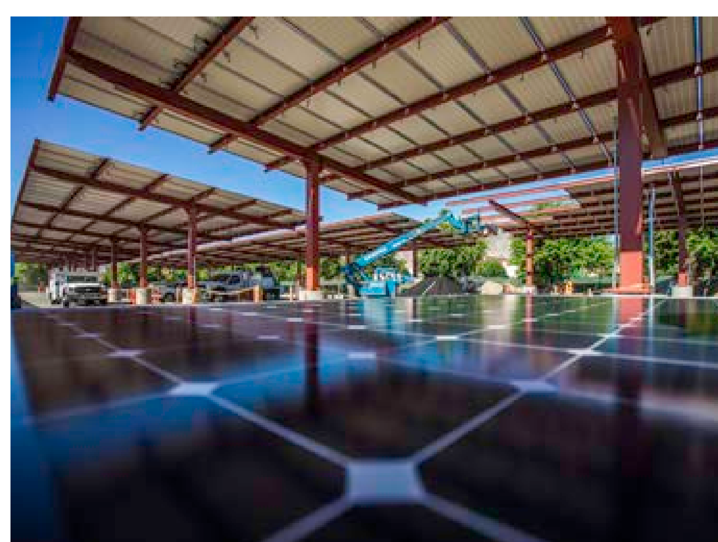
SLAC National Accelerator Laboratory is one of ten Department of Energy (DOE) Office of Science laboratories and is operated by Stanford University on behalf of the DOE. The project is a joint venture between Oltmans Construction Co. and Halbert Construction with Oltmans providing project management support and Halbert providing the field supervision. The scope of work consists of the demolition, renovation and addition, as well as the tenant improvement of the 3-story laboratory and office building. This project is LEED Gold and features 18,000 s.f. of newly renovated laboratory and office space as well as improvements to the Laser/MBE Lab, Synthesis Lab, Measurement Lab, Energy Storage Lab, UHV Lab and associated support rooms, common space and restrooms. Aside from the typical lab casework, air handling units and fume hood improvements, the team installed advanced process piping (UN2, CDA), a laser safety system, and a specialized Acoustic Chamber. One adjacent building is retrofitted into a training center which includes classrooms, common space and retrofitted with advanced AV systems.

STANFORD UNIVERSITY

Stanford Linear Accelerator B40 Renovation

BUILDING SOLAR

Orange Coast College
Costa Mesa, CA



Working as a subcontractor for SunPower Corporation, Oltmans Construction's scope of work included the installation of 6 photovoltaic array carports at existing Orange Coast College's Adams Parking Lot with associated electrical equipment and installation of a shade structure over accessible parking. This project was completed under DSA Jurisdiction.

Fixed Tilt Carport System Summary

- 1070.10 kWP ≈ 1 MW
- (2460) 435W Modules
- 10 Modules/String
- 246 Strings Total

Related site improvements include:

- AC and Concrete Pavement Patching
- Parking Lot Lighting Replacement at Area of Work

Location	Costa Mesa, CA
Owner	Coast Community College District
Size	1.0MW
Delivery	Design-Bid-Build

College of the Desert
Palm Desert, CA

This project consists of the construction of 27 elevated photovoltaic array carports at an existing parking lot for College of the Desert. The project was also under DSA jurisdiction and Oltmans worked collaboratively to ensure procedures, quality, and various DSA requirements were met.

Total System Summary

- 3.8 MW
- (8844) SunPower 435W Modules
- 6 Modules/String
- 1474 Strings

Location	Palm Desert, CA
Owner	College of the Desert
Size	3.8MW
Delivery	Design-Bid-Build

CASTAIC HIGH SCHOOL
School Integrated

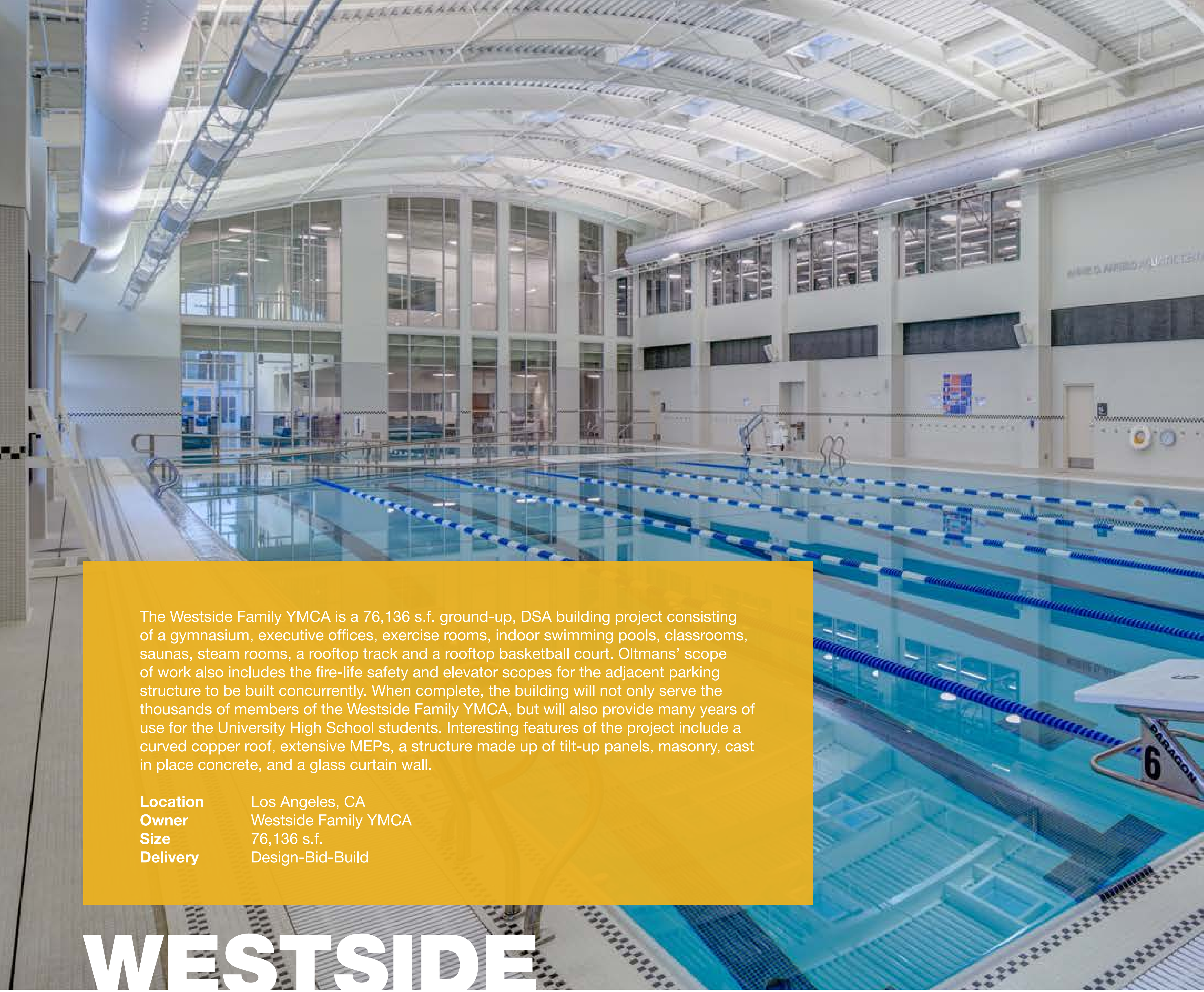
Nestled on 60 acres in a canyon, west of Interstate 5, the new campus boasts approximately 250,000 s.f. of classroom, library, administration, gymnasium, locker room, and performing arts space. Complimenting the learning spaces will be baseball, softball, track, and football / soccer fields as well as basketball and tennis courts. Completion scheduled to open for the Fall Term 2019. Oltmans has teamed with Castaic High School Construction Inc. and Kemp Bros. to deliver a new state of the art High School for the William S. Hart Union High School District in the Santa Clarita Valley.

Location Castaic, CA
Owner William S Hart Union High School District
Size 250,000 s.f., 60-acres
Delivery Lease-leaseback

NOVA ACADEMY
Charter High School

The Nova Academy 42,199 s.f. tenant improvement project is a seismic retrofit and conversion of an existing 4-story office building into a charter high school. The construction scope of work included complete demolition of the existing space, seismic retrofits: installation of 32-metal braces throughout the building and structural steel reinforcement on the 2nd floor patio as well as all interior buildout.

Location Santa Ana, CA
Owner Hollencrest Capital Management
Size 42,199 s.f.
Delivery Design-Bid-Build



The Westside Family YMCA is a 76,136 s.f. ground-up, DSA building project consisting of a gymnasium, executive offices, exercise rooms, indoor swimming pools, classrooms, saunas, steam rooms, a rooftop track and a rooftop basketball court. Oltmans' scope of work also includes the fire-life safety and elevator scopes for the adjacent parking structure to be built concurrently. When complete, the building will not only serve the thousands of members of the Westside Family YMCA, but will also provide many years of use for the University High School students. Interesting features of the project include a curved copper roof, extensive MEPs, a structure made up of tilt-up panels, masonry, cast in place concrete, and a glass curtain wall.

Location	Los Angeles, CA
Owner	Westside Family YMCA
Size	76,136 s.f.
Delivery	Design-Bid-Build

WESTSIDE FAMILY YMCA

THE CROSSING
For the People

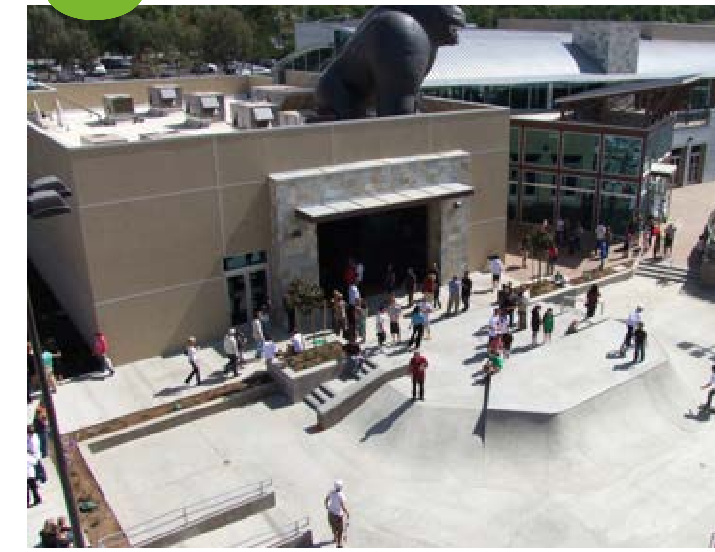
The Crossing Church involved ground up construction of a two (2)-story, 1,300 seat acoustically controlled auditorium and innovative audio-visual/lighting system. The site work included the excavation of an open pit in order to build the below-grade auditorium.

The Annex Building was a renovation of an existing 2-story, concrete tilt-up, auditorium/multipurpose facility at the Crossing Church campus. The renovated space includes a new auditorium for worship events and functions, a kids' activity area with a performing stage, as well as various common areas.

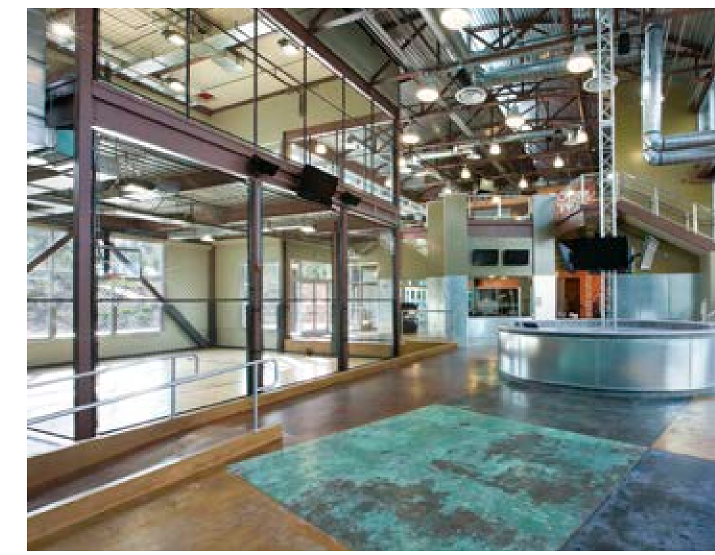
Location	Costa Mesa, CA
Owner	The Crossings Church
Size	Main Building - 21,389 s.f. Annex Building - 17,155 s.f.
Delivery	Design-Bid-Build

MARINER'S CHURCH

Forward Focused



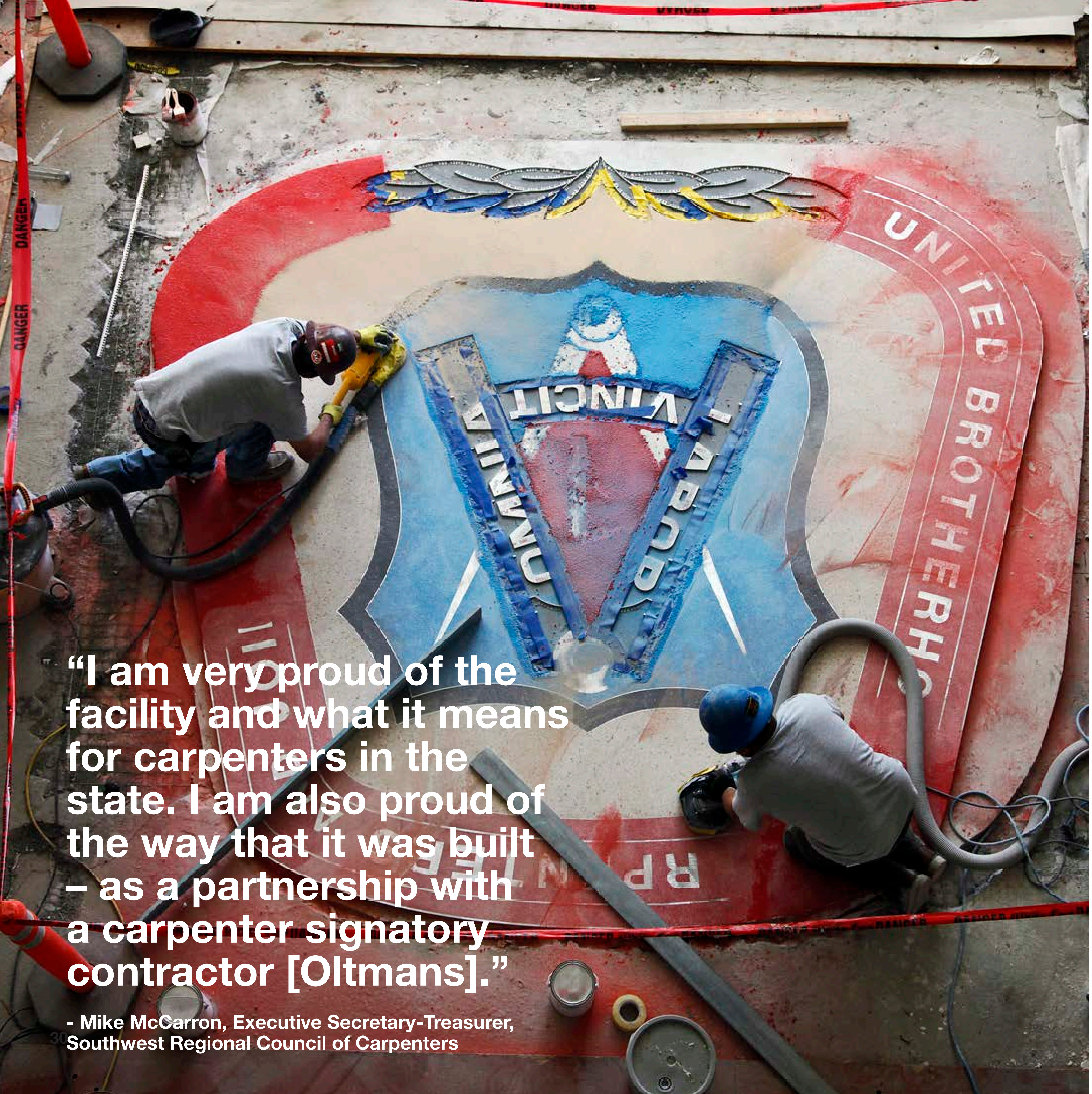
The Mariners Church's master-planned project was developed in a series of phases. Oltmans was brought on board to assist with planning and constructing Imagine 3, the third phase of the master-planned campus, which included the site and lake work encompassing 3-acres, 27,000 s.f. Youth Building and a 72,162 s.f. Port Mariners Kids Building. The new chapel was under construction concurrently with our portion of work and required collaborating with the other on-site generals and subcontractors.



The two-story, steel framed Youth Building included large multi-purpose rooms with state-of-the-art sound, video and lighting for the performing arts stage. The two-story, Port Mariners Kids Building was a tilt-up concrete structure with a stone veneer, glass and aluminum façade. The site and artificial lake scope of work included a 3-acre man-made lake with a concrete bottom.

Awarded "Best of" in the Worship Category from California Construction Magazine

Location	Irvine, CA
Owner	Mariner's Church
Size	Port Mariners - 72,162 s.f. Youth Building - 27,000 s.f. Site Work/Lake - 3-acres
Delivery	Design-Build



"I am very proud of the facility and what it means for carpenters in the state. I am also proud of the way that it was built – as a partnership with a carpenter signatory contractor [Oltmans]."

- Mike McCarron, Executive Secretary-Treasurer, Southwest Regional Council of Carpenters

SELF PERFORMED WORK

Oltmans Construction has a long standing reputation for excellent self-perform construction services in concrete, rough carpentry, millwork, drywall, doors/frames/hardware & SWPPP.

Our crews pour over 300,000 cubic yards of concrete every year.

Oltmans self-performs the majority of the concrete poured on our projects. As a pioneer in tilt-up construction, concrete is quite literally the foundation of our business and is one of our most highly-developed specialties. But the real reason we do our own concrete work is the simple fact that no one can do it better, faster or more efficiently than our crews.

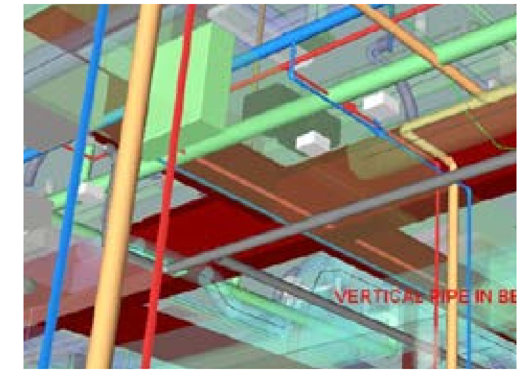
Our in-house crews guarantee that the finished concrete exceeds every expectation and our processes adhere to Southern California's strict air quality (AQMD) requirements.

Our Drywall team of 60 drywallers, complete 30-40 projects a year.

To ensure that our clients always get the best prices possible, Oltmans has established an independent drywall team that delivers the highest quality work at prices that meet or beat the competition. But you don't have to take our word for it – our general contracting estimators always solicit bids from outside drywall contractors to keep our guys honest, and award contracts to the best company for the job, whether it is our in-house crew or one of our prime competitors.

INNOVATION AT WORK

Committed to progress & innovation, Oltmans is constantly raising the standards in delivery.



BIM

In addition to these project and file management tools we believe the use of Building Information Modeling (BIM) is crucial to manage our work within existing conditions. Clash Detection will be performed when the Revit model is available to coordinate the new gas and utilities with the existing utilities. Furthermore the Revit model will allow our team to perform usability analysis. This “fly-through” of the model will identify the utility of the design as it relates to the function of the space. We have found this to be a very productive way to eliminate the communication gap that often occurs between the end users and architectural design layout.

Tools for Project Integration

We believe that our success depends upon effective collaboration with our clients, inspectors, subcontractors and others. We use several tools to help coordinate our crews and our subcontractor’s personnel. We use online file sharing sytems including “Sharefile” and “Bluebeam Studio”. We use “Bluebeam Revu” to keep track of field changes, as-built information and mark-ups. Our browser based project management software allows us to electronically keep track of progress and coordination items.

Oltmans BuildKit

Oltmans Construction has incorporated an electronic close out system. All closeout documents will be electronic and available via a disc or other storage device. The file which opens in Adobe Acrobat will link all O&M manuals, as-built information, and product cut sheets to the floor plans. Thus, a building manager could click on a room to get all pertinent information for that space.

Scheduling & Coordination of Work

Oltmans Construction’s approach to project scheduling is a very collaborative process with input from the subcontractors and trades that perform the work. The Oltmans team will implement Lean Construction principles such as “last planner” and will allow the foremen on the project to plan the day to day activities in the project schedule.

FAST FACTS

Oltmans is a full service General Contractor, committed to our craft.

Founded in 1932
Incorporated on February 21, 1946

Bonding
$125M single limit; $350M Total

Project Volume
In Past 3 Years: $437M (2016), $316M (2015), $394M (2014) (fiscal year April 1 - March 31)

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Arizona License #83137-B-01
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Gerald Singh, V.P. Business Development
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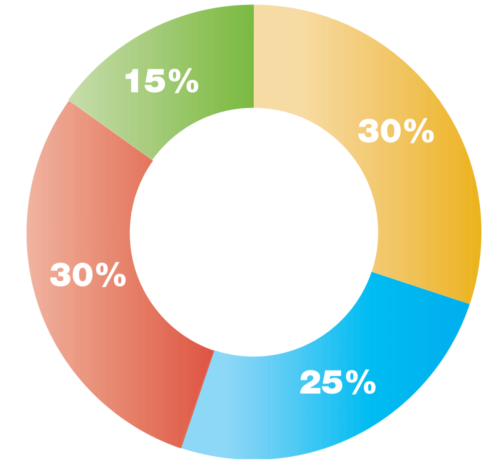
Gregory Grupp, CPA, MBT, V.P. Real Estate Services



30% **Strategic Markets Group**
Hospital Work
Education
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30% Commercial & Industrial

25% TIs & Renovations

15% Infrastructure

THREE OFFICES
Whittier, Thousand Oaks & San Jose

500+ STRONG

75% REPEAT CLIENTELE

$650M VOLUME IN 2017

SERVICES
GENERAL CONTRACTING
PRECONSTRUCTION
CONSTRUCTION
DESIGN-BUILD / DESIGN-ASSIST
CONSTRUCTION MANAGEMENT
RENOVATIONS & RETROFITS

SELF PERFORMED TRADES
CONCRETE
ROUGH CARPENTRY
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DRYWALL
DOORS, FRAMES, & HARDWARE

History of the Firm

Founded in 1932, Oltmans Construction Co. is a locally owned and operated commercial construction firm. In recent years, our firm has completed in excess of $400-million dollars in annual construction volume, placing us in the Engineering News Record's Top California Contractors List and the National Top 400 Contractors List. With the corporate office in Whittier, CA as well as regional offices in Thousand Oaks, CA and San Jose, CA—Oltmans completes the majority of our contracting work in the state of California. The firm holds contractors licenses in California, Arizona, Nevada, Utah and New Mexico.

We have earned our way to the top of California's construction industry by staying true to the vision and business practices our founder J.O. Oltmans laid down over 85 years ago.

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Oltmans
CONSTRUCTION CO.

Exhibit 2
PrimeSource Project Costs

MSA-1 - Project Conceptual Cost Estimate - 05-10-2018

Project Element	Quantity		Unit Price		Nov Estimate	Notes	May Update		
HS New Building Construction Cost							Cost to Date	Cost to Go	Total Cost Estimate
Demoliton, abatement and site clearing old gym	25,000	SF	$7.00	/SF	$175,000	1	$161,500	$0	$161,500
HS - Base contract 1st floor	13,140	SF	$225.00	/SF	$2,956,500	2			
HS - Base contract 2nd floor	11,242	SF	$225.00	/SF	$2,529,450	2			
HS - Base contract 3rd floor - enclosed area/roof	473	SF	$225.00	/SF	$106,425	2			
HS - Base contract - 3rd floor - basketball court	6,123	SF	$80.00	/SF	$489,840	2			
HS - A and B permit work	1	ea	allow		$100,000	3			
HS - Entire building							$0	$7,084,896	$7,084,896
HS - minimal site work parking lot	27,108	SF	$3.00	/SF	$81,324	4	$0	$308,583	$307,583
HS - low voltage, utilites, other site, PPB									$600,000
HS - School Startup Costs									$335,000
Subtotal - HS New Building Construction Cost					$6,438,539				$8,488,979
Construction contingency			10	%	$643,854	5			$593,528
Acquisition Costs					$0		$1,000,000	$0	$1,000,000
Financing Costs					$0		$0	$55,000	$55,000
Management Costs					$0		$0	$250,000	$250,000
Owner soft costs	21	%			$1,352,093	6	$586,810	$381,680	$968,490
Soft Cost Contingency									$35,537
Total HS New Building Project Cost					**$8,434,486**				**$11,355,997**

HS New Building Funding Sources							Paid to Date	Pay to Go	Total Rev Estimate
CSFIG 2016-17					$152,891	7	$0	$0	$0
CSFIG 2017-18					$500,000	8	$0	$500,000	$500,000
CSFIG 2018-19					$500,000	8	$0	$500,000	$500,000
CSFIG 2019-20					$0				$0
2014 MPS Bond			$148,606.55		$0	9	$0	$0	$0
2017 MPS Bond					$7,267,000	10	$1,735,416	$6,690,376	$8,425,792
Total HS New Building Funding Sources					**$8,419,891**				**$9,425,792**
Funding Shortfall					**$14,595**	11			**$1,930,205**

MSA-1 - Project Conceptual Cost Estimate - 05-10-2018

Project Element	Quantity		Unit Price		Nov Estimate	Notes	May Update		
MS Existing Building Renovation							Cost to Date	Cost to Go	Total Cost Estimate
MS Renovation - façade and exterior Sherman Way	3,500	SF	$10.00	/SF	$35,000	12		**Deferred**	**$0**
MS Renovation - deep clean	26,000	SF	$2.00	/SF	$52,000	13		**Deferred**	**$0**
MS Renovation - new classrooms, added space	3,000	SF	$150.00	/SF	$450,000	14		**Deferred**	**$0**
MS Renovation - facelift	26,000	SF	$8.00	/SF	$208,000	15		**Deferred**	**$0**
MS Seismic Retrofit - second floor addition	26,000	SF			$0				$537,190
Prop 39 - HVAC and lighting upgrades					$0				$206,612
Subtotal - MS renovation construction costs					$745,000				$743,802
Construction contingency			15	%	$111,750	16			$0
FF&E - replace all furniture					$200,000	17			$0
Owner soft cost	21	%			$156,450	18			$156,198
Total MS Existing Building Renovation Project Cost					**$1,213,200**				**$900,000**

MS Existing Building Renovation Funding Sources							Paid to Date	Pay to Go	Total Rev Estimate
Prop 39 - Energy Upgrades					$32,000	19	$0	$250,000	$250,000
CSFIG 2016-17					$0	7	$0	$0	$0
CSFIG 2017-18					$0	8	$0	$0	$0
CSFIG 2018-19					$0	8	$0	$0	$0
2014 MPS Bond					$712,000	9	$0	$712,000	$712,000
2017 MPS Bond					$0	10	$0	$0	$0
Total MS Existing Building renovation Funding Sources					**$744,000**				**$962,000**
Funding Shortfall					**$469,200**				**-$62,000**

MSA-1 - Project Conceptual Cost Estimate - 05-10-2018

Project Element	Quantity		Unit Price		Nov Estimate	Notes	May Update		
Site Development (Near Term) Construction									
Site - demolition and clearing	30,662	SF	$2.00	/SF	$61,324	20			**In HS Contract**
Site - infiltration system	4,000	SF	$15.00	/SF	$60,000	21			**In HS Contract**
Site - perimeter wall residential side)	1,744	SF	$15.00	/SF	$26,160	22			**In HS Budget**
Site - perimeter fence	5,984	SF	$8.00	/SF	$47,872	23			**In HS Budget**
Site - lighting (double pedestal - low height _	15	EA	$1,500.00	/EA	$22,500	24			**In HS Contract**
Site - trees and irrigation on parking	20	EA	$800.00	/EA	$16,000	24			**In HS Contract**
Site - landscape and irrigation'	21,062	SF	$5.00	/SF	$105,310	25		**Deferred**	**$0**
Site - shade shelter, concrete slab, lighting	9,600	SF	$30.00	/SF	$288,000	26		**Deferred**	$0
Site - modular toilets and changing	500	SF	$250.00	/SF	$125,000	27		**Deferred**	**$0**
Subtotal - Site Development (Near Term) Construction Cost					$752,166				$0
Construction contingency			15	%	$112,825	28			$0
Owner soft costs	21	%			$157,955				$0
Total Site Developoment (Near Term) Project Cost					$1,022,946				$0
Site Development (Near Term) Funding Sources									
PPA - Solar Shade Shelter					$288,000	29	Lease-Purchase		$0
CSFIG 2016-17					$0	7			$0
CSFIG 2017-18					$0	8			$0
CSFIG 2018-19					$0	8			$0
2014 MPS Bond					$0	9			$0
2017 MPS Bond					$0	10			$0
Total Site Development (Near Term) Funding Sources					**$288,000**				**$0**
Funding Shortfall					**$734,946**				**$0**
Combined Funding Demand - All Sources									
Prop 39					$32,000				$250,000
PPA - Solar Shade Shelter					$288,000				$0
CSFIG 2016-17					$152,891				$0
CSFIG 2017-18					$500,000				$500,000
CSFIG 2018-19					$500,000				$500,000
CSFIG 2019-20					$0				$0
2014 MPS Bond					$712,000				$712,000
2017 MPS Bond					$7,267,000				$8,425,792
Total Site Development (Near Term) Funding Sources					**$9,451,891**				**$10,387,792**

Explanation of soft costs			May Estimate
Owner Soft Costs (Non-General Contractor and Non-Construction Costs)			May Estimate
Design, site investigation	7.0 % of construction costs		7.5% of construction costs
Permitting and land use approval, connection fees	2.0 % of construction costs		2.0% of construction costs
PM, CM, Inspection and Testing, General Conditions	5.3% of construction costs		5.3% of construction costs
Low Voltage - wiring, computers, communications, FA	2.5% of constrution costs		2.5% of construction costs
FF&E, Moving	4.5% of constrution costs		4.0% of construction costs
Subtotal - Owner Soft Costs	21% of construction costs		21% of construction costs

Notes:	
1	Firm cost =- work complete
2	Design complete, no option to reduce scope - unit cost depends on bid market
3	Scope depends on City review - not yet complete
4	Leave existing asphalt alone - slurry seal, striping only
5	Design complete - not yet bid 10% contingency minium
6	Pre-construction soft costs already spent - assumes all new F&E for new building
7	Amount already received and spent here - no remaining balnce
8	Amount anticipated - amount certain - will all go to new HS building only
9	Remainder of 2014 Bond restricted to existing building and site improvements
10	Amount approved by Board at time of Bond issuance - will all go to new HS building only
11	Funding shortfall within contingency range - wait for bids to firm up costs
12	Sherman Way side - remove entrance arch feature, paint and stucco exterior to match new HS building
13	Done after students move to HS over Christmas break - requires FF&E removal, scrub down of entire building
14	Need to accommodate added students SY2018-19 who arrive prior to completion of New HS building. Scope assumes extension of second floor and additon of classrooms inside building on Sherman Way side, then rearranging offices and support space to first floor, opening up central area for group activity or open space - feasibility depends on structural assessment of building

15	Broad range of potential facelift scope - minimum is painting, lighting upgrade, plumbing repairs, door repairs - maximum would also add interior windows, upgrade HVAC, rearrange admin and support spaces in open area, and new low voltage systems - abatement and seismic questions unknown - existing code violations unknown
16	No design yet - 15% contingency minimum
17	FF&E - ideally replce majority of classroom furniture - switch to stackable movable tables/chairs - could defer replacement, or do incrementally over time, just do new classrooms now
18	Standard soft cost rate will not have enough FF&E allowance for complete replacement
19	Prop 39 funding available - probably best spent on lighting upgrades, conversion to LED - better lighting plus reduce building electrical demand - goal is to add classrooms without upgrading switchgear
20	Remove all asphalt except where needed for revised site parking - re-use existing asphalt in parking area
21	Must add infiltration to address site drainage - remove Lake Magnolia

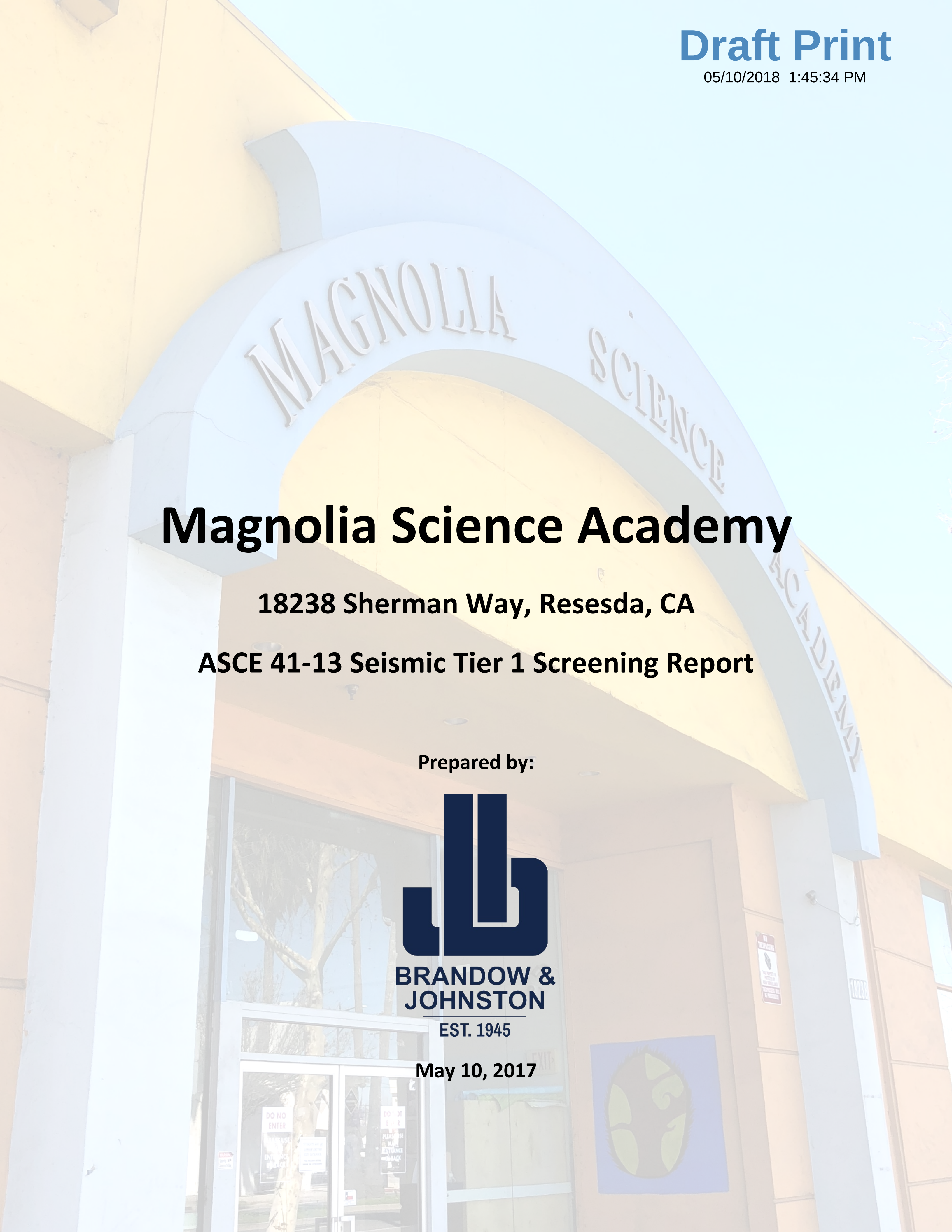
	Notes:
22	Plan for 8 foot high block wall along residential side - act as sound barrier plus security screening
23	Plan for wrought iron fencing on 3 sides surrounding campus - define campus and secure parking/outdoor activity space after hours - needs gates - could not fence parking area
24	Use existing asphalt - repair and slurry seal only - need night lights, add trees/irrigation for shade
25	Broad range of options - could do minimum planting and irrigation initally, and self-landscape over time - surface options range from dirt, to sod, to lots of plantings - could also add outdoor learning/activity equipment like benches, planting boxes and site features
26	Need shade shelter large enough and high enough for 500 student dining and to serve other outdoor group activities - Concept to do very large solar shelter - Instead of MSA design/construction, get shelter provided by Purchased Power Provider (PPP) under long term power purchase agreement where MSA buys solar power monthly and pays for shelter. Would require RFP/competivitve biddign to select PPP + specialty consultant to write RFP and administer bid/contract.
27	Nice to have, may not be required by Code - conceptm is minimal toilets and changing rooms for 30 boys/30 girls and hand washing at dining area - could use modular system site adapted.
28	No design - loosely defined scope - 15% minimum contingency at this stage
29	Structure PPA to cover the shade shelter cost, paid off in monthly utility fees

Possible Mitigations to Cover HS New Building Funding Shortfall		Impact	Total Cost Estimate
Demoliton, abatement and site clearing old gym	Complete - cannot change cost	$0	$161,500
HS - Entire building	Aggressively manage GMAX to control change, maximize VE	($50,000)	$7,084,896
HS - minimal site work parking lot	Defer until SY2019-20 or later, have to do infiltration now	($200,000)	$307,583
HS - low voltage, utilites, other site, PPB	Eliminate construction bond, defer all sitework to SY2019-20 or beyond	($305,000)	$600,000
HS - School Startup Costs	Defer FF&E until SY2019-20; have to equip TBBF campus	($255,000)	$335,000
Subtotal - HS New Building Construction Cost		($810,000)	$8,488,979
Construction contingency	Aggressively manage contingency items - be lucky	($100,000)	$593,528
Acquisition Costs	Complete - cannot change cost	$0	$1,000,000
Financing Costs	Complete - cannot change cost	$0	$55,000
Management Costs	Effort here generates cost savings above	$0	$250,000
Owner soft costs	Defer master planning and zoning change	($80,000)	$968,490
Soft Cost Contingency	Already tight	$0	$35,537
Total HS New Building Project Cost		**($990,000)**	**$11,355,997**

HS New Building Funding Sources		Pay to Go	Total Rev Estimate
CSFIG 2016-17	Closed - cannot submit expenses	$0	$0
CSFIG 2017-18	Amount fixed	$0	$500,000
CSFIG 2018-19	Amount fixed	$0	$500,000
CSFIG 2019-20	Included in State budget - applications not until February 2019	$500,000	$0
Erate funding for low voltage	Have to apply - federal program	$100,000	$0
2014 MPS Bond	Restricted to existing campus and site	$0	$0
2017 MPS Bond	Bond amount fixed - possible savings at Santa Ana	$0	$8,425,792
Total HS New Building Funding Sources		**$600,000**	**$9,425,792**
Funding Shortfall through occupancy new building		**$340,205**	**$1,930,205**

Deferred Costs and Scope Items - Must Still Get Completed	
Completion of master planning and zoning change - risk zoning variance enforcement - cannot pursue Ice Rink	$80,000
Parking lot - required for Certificate of Occupancy - operate under Temporary Certificate of Occupancy	$200,000
Site Development - required to appease neighbors, outdoor lunch shelter, fencing, sound wall, pavement will fail	$125,000
FF&E - must add furniture as population doubles	$255,000
Potential Deferred Costs That Mus Be Completed Evenutally	**$660,000**

ADDITIONAL INFORMATION FOR BOARD (FYI)



Magnolia Science Academy

18238 Sherman Way, Resesda, CA

ASCE 41-13 Seismic Tier 1 Screening Report

Prepared by:

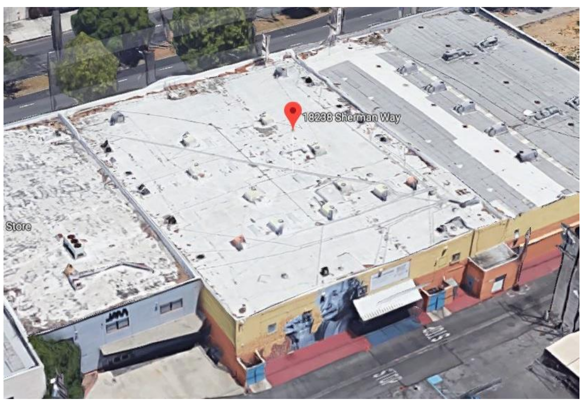
BRANDOW & JOHNSTON
EST. 1945

May 10, 2017

Magnolia Science Academy
ASCE 41-13 Seismic Tier 1 Screening Report
Summary Sheet

GENERAL BUILDING INFORMATION

Building Use	Classroom	**Risk Category**	III
Date of Construction	Unknown, assumed 1940 - 1960	**Construction Type**	Wood, masonry, steel, concrete
Approximate Area	27,400sf	**Seismic Lateral System**	Concrete & Masonry Shear walls
No. of Stories	2	**Code Upgrade Required?**	No
Approx. Occupants:	1050	**Satisfies ASCE 41 Life-Safety Checklists**	No
Design Code(s):	Unknown, assumed to be pre-1973	**Recommendations**	Perform Voluntary Seismic Upgrades



Existing Conditions

Vertical Load System:

The floor and roof are sheathed with plywood and framed with wood joists and a combination of steel and wood beams. The exterior walls on the east, west and south sides are reinforced brick. The north front side (street side) is has three cast-in-place concrete piers.

Foundation System:

Foundations are assumed to be shallow reinforced concrete spread and continuous footings.

Seismic Lateral Load System:

Seismic lateral loads are resisted by brick and concrete shear walls.

Seismic Evaluation

Major Seismic Concerns:

1. WALL ANCHORAGE and CROSS TIES
2. DIAPHRAGMS, LOAD PATH and OPENINGS AT SHEAR/EXTERIOR WALLS
3. REINFORCING and FOUNDATION DOWELS
4. DIAPHRAGMS

Potential Mitigation Measures:

1. Add wall anchors from second floor and roof framing to exterior brick and concrete walls.
2. Infill second floor to connect diaphragm to concrete shear walls at front of building.
3. FRP strengthening of brick wall at back of building. Add supplemental concrete walls at front of building.
4. Add nailing or blocking.

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Table of Contents

A. INTRODUCTION

The Magnolia Science Academy classroom building is located at 18238 Sherman Way in Reseda, CA. Original construction drawings are not available so the original date of construction is not known. It is a 2-story structure with the floor and roof framed with wood and steel beams and joists. The sides and back of the building are reinforced brick walls. The front (street side) is mostly glass storefront with three cast-in-place concrete piers.

This ASCE 41 Tier 1 Report is a screening process of the seismic performance of building. It has identified Seismic Deficiencies that need to be further evaluated and potentially addressed in a retrofit scheme developed with a more thorough analysis.

Figure 1 shows an aerial view the building looking from the southwest.

Figure 2 is the flowchart of the Tier 1 Evaluation Process (Ref. ASCE 41-13, Fig. 4-1) as it applies to this report.

Figure 1 – Aerial View of Magnolia Science Academy (Google)

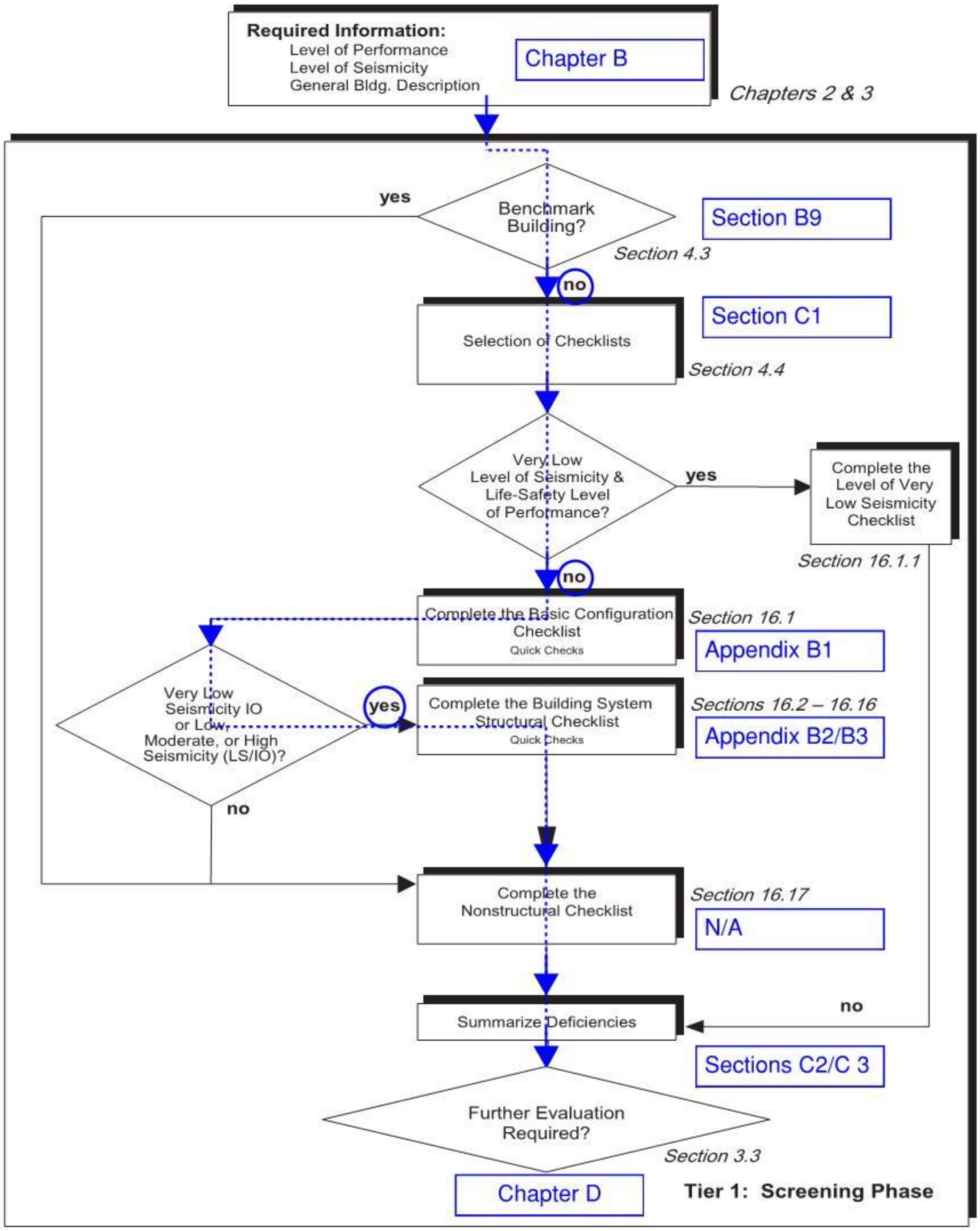

FIG. 4-1. Tier 1 Evaluation Process

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Figure 2 – Tier 1 Evaluation Process (Ref. ASCE 41-13 Fig. 4-1)

B. EVALUATION REQUIREMENTS

B1. Target Building Performance Level

The Target Building Performance Level is a combination of the Basic Building Performance Objectives (BPOE) for Structural Performance and the Non-structural Performance. The BPOE is the specified performance objective based on the Risk Category of the building per the Los Angeles Building Code (LABC). The Magnolia Science Academy is *Risk Category III* per the 2017 LABC. This is based on a Group E occupancy (Education) with an occupant load greater than 250. As defined in ASCE 41-13 Table 2-1, the BPOE is as follows:

Structural Performance Level	Life Safety*
Non-structural Performance Level	Position Retention

*Checklist statements using the Quick Check procedures of ASCE 41-13 Section 4.5.3 are based on M_S-factors and other limits that are an average of the values for Life Safety and Immediate Occupancy.

Combining these BPOEs defines the Target Building Performance Level as:

Target Building Performance Level = 2-B.

B2. Seismic Hazard Level

For the Tier 1 Evaluation, only the Seismic Hazard Level of BSE-1E is used. Assuming Site Class D. USGS defines the design spectral response acceleration parameters as follows:

$$S_{XS,\ BSE\text{-}1E} = 0.965g$$

$$S_{X1,\ BSE\text{-}1E} = 0.533g$$

See Appendix B2 for complete USGS data and general response spectrum.

B3. Level of Seismicity

To determine the Level of Seismicity, the Seismic Hazard Level of BSE-2N is used. Assuming Site Class D. USGS defines the design spectral response acceleration parameters as follows:

$$S_{DS,\ BSE\text{-}2N} = 1.171g$$

$$S_{D1,\ BSE\text{-}2N} = 0.600g$$

Based on the Seismic Hazard Levels and ASCE 41-13 Table 2-5, the Level of Seismicity is:

Level of Seismicity = HIGH

B4. As-built Information

No original construction drawings were available for our evaluation. Architectural plans from 2002 for the renovations completed when the school moved into the building were available for review. These plans were prepared by Arthur Golding and Associates and are dated July 23, 2002. They included a minor structural modification changing a step to a ramp at the second-floor level.

B5. On-Site Investigation

An initial walk-through of the building was completed by Jim Pearson, SE of Brandow & Johnston on March 2, 2018. A follow-up, detailed on-site investigation was conducted on March 27, 2018. School was not in session and access was provided to most rooms in the building. Observations were limited to exposed structural elements and some access holes in furred walls.

There are no significant differences from the construction indicated in the architectural plans reviewed as part of this report. The building is generally in good shape with little to no evidence of significant deterioration or damage. Photos from the site visit are included in the Appendix. The following table summarizes the conditions of existing structural elements (Ref. ASCE 41-13 Table 4-1).

Table 1 – Patterns of Defects and Deterioration

Component or Material	**Condition**
Foundation	No evidence of significant settlement or heave
Foundation elements	Underground elements not observed.
Wood	Good (where observed).
Wood structural panel shear wall fasteners	Not applicable.
Steel	Good (where observed).
Concrete	Not applicable.
Concrete walls	Good (where observed).
Concrete columns encasing masonry infill	Not applicable.
Unreinforced masonry units	Not applicable.
Unreinforced masonry joints	Not applicable.
Infill masonry walls	Not applicable.
Post-tensioning anchors	Not applicable.
Precast concrete walls	Not applicable.
Reinforced masonry walls	Generally good. Some minor joint deterioration.
Masonry veneer	Not applicable.
Masonry veneer (mortar)	Not applicable.
Masonry veneer (stone)	Not applicable.
Hazardous material equipment	Not applicable.
Mechanical or electrical equipment	Various. Some equipment fully anchored with other items not anchored at all. Some abandoned equipment on roof.
Cladding	Not applicable.

B6. General Building Description

The Magnolia Science Academy building located a 18328 Sherman Way in Reseda, CA is a two-story building. There are no original construction plans for the building, so the as-built descriptions here and elsewhere in this report are based on limited visual observations of exposed structural elements.

The floor and roof are framed with wood joists and a combination of steel and wood beams. The sheathing at the second floor was observed to be plywood and is assumed to be the same at the roof. The exterior walls on the east, west and south sides are reinforced brick. These are bearing and shear walls. The north front side (street side) is mostly glass storefront with three cast-in-place concrete piers.

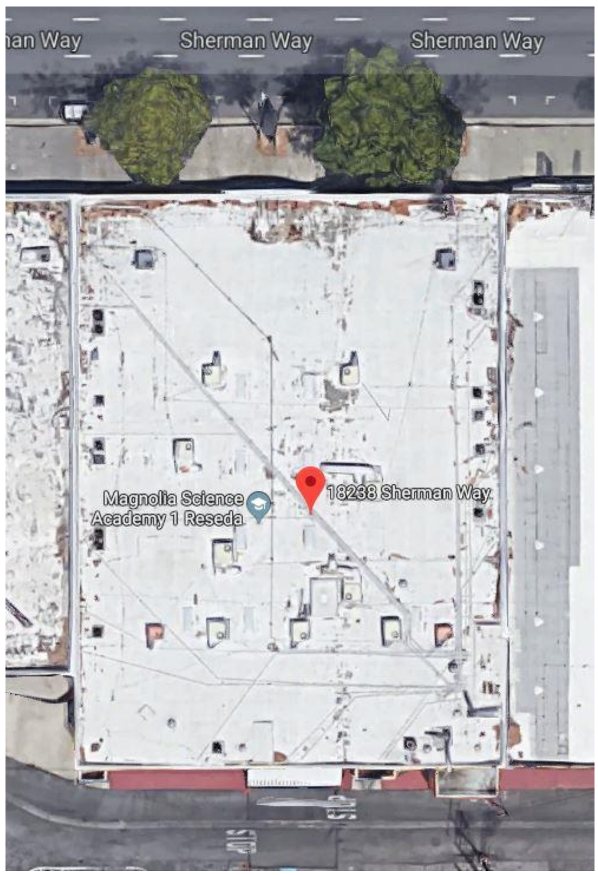


Figure 3 – Site Plan (Google)

B7. Building Type

The building has a combination of reinforced brick masonry shear walls and reinforced concrete shear walls. The second floor and roof diaphragms are wood framed and considered flexible for purposes of this evaluation.

Based on ASCE 41-13 Table 3-1, the predominant common building type is:

Building Type: RM1 (Reinforced Masonry shear walls with flexible diaphragms)

We also evaluated the additional applicable items from the concrete shear wall checklists.

Secondary Building Type: C2a (Concrete shear walls with flexible diaphragms)

B8. Material Properties

There are no material properties listed on the 2002 drawings except for stair/ramp modification. No other testing, destructive or non-destructive, was completed for this report.

B9. Benchmark Buildings

Benchmark buildings are standard building types constructed per more recent building codes. These buildings do not require a seismic evaluation because the standards they were constructed to are considered sufficient. The original date of construction of the Magnolia Science Academy building is not known but is likely is prior to the 1994 UBC which would consider it a Benchmark Building.

C. TIER 1 SCREENINGS

C1. Checklist Selection

The following checklists were completed for this building:

16.1.2LS	Life Safety Basic Configuration Checklist
16.15LS	Life Safety Structural Checklist for Building Type RM1
16.10LS	Life Safety Structural Checklist for Building Type C2a
16.17	Non-Structural Checklist (Not part of initial draft report)

C2. List of Tier 1 Deficiencies

The following deficiencies were identified in the checklists:

16.1.2LS Life Safety Basic Configuration Checklist

- Structural Components: LOAD PATH
- Structural Components: WALL ANCHORAGE
- General: LOAD PATH
- General: ADJACENT BUILDINGS
- General: MEZZANINES

16.15LS Life Safety Structural Checklist for Building Types RM1

- Seismic Force Resisting System: SHEAR STRESS CHECK
- Seismic Force Resisting System: REINFORCING STEEL
- Connections: WALL ANCHORAGE
- Connections: WOOD LEDGERS
- Connections: TRANSFER TO SHEAR WALLS
- Connections: FOUNDATION DOWELS

- Connections: GIRDER-COLUMN CONNECTION
- Flexible Diaphragms: CROSS TIES
- Flexible Diaphragms: OPENINGS AT SHEAR WALLS
- Flexible Diaphragms: OPENINGS AT EXTERIOR MASONRY SHEAR WALLS
- Flexible Diaphragms: DIAGONAL SHEATHED AND UNBLOCKED DIAPHRAGMS
- Connections: STIFFNESS OF WALL ANCHORS

16.10LS Life Safety Structural Checklist for Building Types C2a

- Seismic Force Resisting System: SHEAR STRESS CHECK
- Seismic Force Resisting System: REINFORCING STEEL
- Connections: WALL ANCHORAGE AT FLEXIBLE DIAPHRAGMS
- Connections: TRANSFER TO SHEAR WALLS
- Connections: FOUNDATION DOWELS
- Connections: GIRDER-COLUMN CONNECTION
- Diaphragms (Flexible or Stiff): DIAPHRAGM CONTINUITY
- Diaphragms (Flexible or Stiff): OPENINGS AT SHEAR WALLS
- Flexible Diaphragms: CROSS TIES
- Flexible Diaphragms: DIAGONAL SHEATHED AND UNBLOCKED DIAPHRAGMS

16.17 Non-Structural Checklist

- Not completed for initial draft report.

C3. Discussion of Tier 1 Deficiencies

16.1.2LS Life Safety Basic Configuration Checklist

- LOAD PATH: The second floor is not connected to the shear walls at the front (north) side of the building.
- WALL ANCHORAGE: Framing observed at the second-floor connection to the masonry walls only had wall anchorage at one of two locations. There was no connection of the steel girder to the pilaster in the one location observed.
- LOAD PATH: See above.
- ADJACENT BUILDINGS: There is only about 2” separation from the building to the west. This is insufficient for the building height.
- MEZZANINES: See LOAD PATH above.

16.15LS Life Safety Structural Checklist for Building Types RM1

- SHEAR STRESS CHECK: Masonry shear wall at back (south side) of building is over-stressed.
- REINFORCING STEEL: Minimum reinforcing steel cannot be confirmed without as-built drawings. Scanning or testing is an option.
- WALL ANCHORAGE: Framing observed at the second-floor connection to the masonry walls only had wall anchorage at one of two locations. There was no connection of the steel girder to the pilaster in the one location observed.

- WOOD LEDGERS: Cross-grain bending in wood ledgers is induced by the lack of wall anchors.
- TRANSFER TO SHEAR WALLS: More significant invasive observations required to confirm.
- FOUNDATION DOWELS: Scanning or testing is an option.
- GIRDER-COLUMN CONNECTION: There appears to be no connection from the girders to the pilasters.
- CROSS TIES: Based on the above lack of connection, it is assumed that continuous cross-ties are not present.
- OPENINGS AT SHEAR WALLS: There are stairwells adjacent to the shear walls at the second floor and the second-floor framing does not connect to the front (north) wall.
- OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: See above.
- DIAGONAL SHEATHED AND UNBLOCKED DIAPHRAGMS: Diaphragms are plywood but assumed to not be blocked. They exceed maximum span-to-depth ratios.
- STIFFNESS OF WALL ANCHORS: Wall anchors not present in some locations.

16.10LS Life Safety Structural Checklist for Building Types C2a

- SHEAR STRESS CHECK: See comment in 16.15LS checklist.
- REINFORCING STEEL: See comment in 16.15LS checklist.
- WALL ANCHORAGE AT FLEXIBLE DIAPHRAGMS: See comment in 16.15LS checklist.
- TRANSFER TO SHEAR WALLS: See comment in 16.15LS checklist.
- FOUNDATION DOWELS: See comment in 16.15LS checklist.
- GIRDER-COLUMN CONNECTION: See comment in 16.15LS checklist.
- DIAPHRAGM CONTINUITY: There is a 1ft. offset in the second-floor diaphragm at gridline 4. This may have been a point where the front wings of the second floor were added.
- OPENINGS AT SHEAR WALLS: See comment in 16.15LS checklist.
- CROSS TIES: See comment in 16.15LS checklist.
- DIAGONAL SHEATHED AND UNBLOCKED DIAPHRAGMS: See comment in 16.15LS checklist.

D. RECOMMENDATIONS FOR NEXT STEPS

The Magnolia Science Academy building has several seismic concerns. The four most significant seismic concerns are as follows:

- WALL ANCHORAGE and CROSS TIES:
  Out-of-plane wall anchorage was only observed in one area which appears to be newer framing than the original construction. In addition, the tapered steel girders of the roof appear to have little or no anchorage to the pilasters. This is a significant concern because sufficient wall anchorage is required to hold the heavy exterior brick walls to the floor and roof framing (diaphragms). Continuous cross-ties are also part of the system to anchor walls to the diaphragm.

- DIAPHRAGMS, LOAD PATH and OPENINGS AT SHEAR/EXTERIOR WALLS:
  The second-floor diaphragm is not connected to the shear walls at the front (north side) of the building. This is a concern because there is nothing to resist this seismic mass.

- REINFORCING and FOUNDATION DOWELS:
  Further investigation by scanning and/or destructive testing is necessary to confirm the strength of the shear walls.

- DIAPHRAGMS:
  Further investigation is necessary to confirm the strength of the diaphragms.

The next step is to complete a more thorough ASCE 41-13 Tier 2 Deficiency-Based Evaluation and retrofit design. This analysis will attempt to justify some of the deficiencies by calculation. For those deficiencies that cannot be justified, the retrofit designs will be proposed. The work will be voluntary so Brandow & Johnston will assist Magnolia Charter Schools to prioritize items to retrofit.

APPENDIX

Appendix A: Summary Data Sheet

Appendix C: Summary Data Sheet

BUILDING DATA

Building Name:	Magnolia Science Academy			Date:	April 2018
Building Address:	18238 Sherman Way, Reseda, CA 91335				
Latitude:		Longitude:		By:	
Year Built:	Unknown	Year(s) Remodeled:	2002	Original Design Code:	Unknown
Area (sf):		Length (ft):		Width (ft):	
No. of Stories:	2	Story Height:	9'-8"/10'-8" 2nd Floor	Total Height:	23'-0" Avg.

USE ☐ Industrial ☐ Office ☐ Warehouse ☐ Hospital ☐ Residential ☑ Educational ☐ Other:

CONSTRUCTION DATA

Gravity Load Structural System:	Wood beams & joists and steel beams & girders		
Exterior Transverse Walls:	Reinforced masonry & reinforced concrete	Openings?	Yes
Exterior Longitudinal Walls:	Reinforced masonry	Openings?	No
Roof Materials/Framing:	Wood beams & joists and steel beams & girders		
Intermediate Floors/Framing:	Wood beams & joists and steel beams & girders		
Ground Floor:	Slab on grade		
Columns:	Steel & masonry	Foundation:	Concrete (assumed)
General Condition of Structure:	Good		
Levels Below Grade?	None		
Special Features and Comments:	Second floor does not connect to exterior wall at the front.		

LATERAL-FORCE-RESISTING SYSTEM

	Longitudinal	Transverse
System:	Reinforced brick masonry walls	Reinforced brick masonry and concrete walls
Vertical Elements:	Reinforced brick masonry walls	Reinforced brick masonry and concrete walls
Diaphragms:	Plywood	Plywood
Connections:	Wood ledgers	Wood ledgers

EVALUATION DATA

BSE-1N Spectral Response Accelerations:	S_{DS}= n/a		S_{D1}= n/a	
Soil Factors:	Class= D		F_a= 1.0	F_v= 1.5
BSE-1E Spectral Response Accelerations:	S_{XS}= 0.965g		S_{X1}= 0.533g	
Level of Seismicity:	High	Performance Level:	2-B	
Building Period:	T=			
Spectral Acceleration:	S_a=			
Modification Factor:	$C_mC_1C_2$=	Building Weight:	W=	
Pseudo Lateral Force:	$V= C_mC_1C_2S_aW$=			

BUILDING CLASSIFICATION: RM1 & C2a

REQUIRED TIER 1 CHECKLISTS

	Yes	No
Basic Configuration Checklist	☑	☐
Building Type ___ Structural Checklist	☑	☐
Nonstructural Component Checklist	☐	☑

FURTHER EVALUATION REQUIREMENT: Yes

Appendix B: Tier 1 Checklists

Appendix B1: 16.1.2LS Life Safety Basic Configuration Checklist

Project Name Magnolia Science Acad
Project Number S18-0103

16.1 Basic Checklist

Very Low Seismicity

Structural Components

RATING				DESCRIPTION	COMMENTS
C ☐	NC ☒	N/A ☐	U ☐	LOAD PATH: The structure shall contain 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)	
C ☐	NC ☒	N/A ☐	U ☐	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm 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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Project Name	Magnolia Science Acad
Project Number	S18-0103

16.1.2LS Life Safety Basic Configuration Checklist

Low Seismicity

Building System

General

RATING				DESCRIPTION	COMMENTS
C ☐	NC ☒	N/A ☐	U ☐	LOAD PATH: The structure shall contain 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)	
C ☐	NC ☒	N/A ☐	U ☐	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 4% of the height of the shorter building. This statement need not apply for the following building types: W1, W1A, and W2. (Commentary: Sec. A.2.1.2. Tier 2: Sec. 5.4.1.2)	
C ☐	NC ☒	N/A ☐	U ☐	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)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Project Name: Magnolia Science Aca
Project Number: S18-0103

Building Configuration

RATING				DESCRIPTION	COMMENTS
C [x]	NC [ ]	N/A [ ]	U [ ]	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)	
C [x]	NC [ ]	N/A [ ]	U [ ]	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)	
C [x]	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)	
C [x]	NC [ ]	N/A [ ]	U [ ]	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)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Project Name: Magnolia Science Aca
Project Number: S18-0103

C	NC	N/A	U	Description	Comments
☒	☐	☐	☐	MASS: There is no change in effective mass 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)	
☒	☐	☐	☐	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)	

Moderate Seismicity

Geologic Site Hazards

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U		
☒	☐	☐	☐	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 ft under the building. (Commentary: Sec. A.6.1.1. Tier 2: 5.4.3.1)	
☒	☐	☐	☐	SLOPE FAILURE: The building site is sufficiently remote from potential earthquake-induced slope failures or rockfalls to be 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)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Project Name: Magnolia Science Aca
Project Number: S18-0103

C	NC	N/A	U	DESCRIPTION	COMMENTS
☒	☐	☐	☐	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)	

High Seismicity

Foundation Configuration

RATING				DESCRIPTION	COMMENTS
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)	
☒	☐	☐	☐	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)	Assumed continuous footing at front of building.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Appendix B2: 16.15LS Life Safety Structural Checklist for Building Type RM1

Project Name: Magnolia Science Ace
Project Number: S18-103

16.15LS Life Safety Structural Checklist for Building Types RM1: Reinforced Masonry Bearing Walls with Flexible Diaphragms and RM2: Reinforced Masonry Bearing Walls with Stiff Diaphragms

Low and Moderate Seismicity

Seismic-Force-Resisting System

C	NC	N/A	U	DESCRIPTION	COMMENTS
X				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)	
	X			SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than 70 lb/in.^{2}. (Commentary: Sec. A.3.2.4.1. Tier 2: Sec. 5.5.3.1.1)	Compliant (C) in longitudinal direction. Not Compliant (NC) in transverse direction.
			X	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced masonry walls is greater than 0.002 of the wall with the minimum of 0.0007 in either of the two directions; the spacing of reinforcing steel is less than 48 in., and all vertical bars extend to the top of the walls. (Commentary: Sec. A.3.2.4.2. Tier 2: Sec. 5.5.3.1.3)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Project Name | Magnolia Science Ace
Project Number | S18-103

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C ☐	NC ☐	N/A ☒	U ☐	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab. (Commentary: Sec. A.4.5.1. Tier 2: Sec. 5.6.4)	

Connections

RATING				DESCRIPTION	COMMENTS
C ☐	NC ☒	N/A ☐	U ☐	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm 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 shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	Wall anchors only present in part of the building. The main tapered steel girders are not anchored to the masonry pilasters.
C ☐	NC ☒	N/A ☐	U ☐	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers. (Commentary: Sec. A.5.1.2. Tier 2: Sec. 5.7.1.3)	Lack of wall anchorage induces cross-grain bending.
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)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Project Name: Magnolia Science Aca
Project Number: S18-103

C	NC	N/A	U	Description	Comments
☐	☐	☒	☐	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements. (Commentary: Sec. A.5.2.3. Tier 2: Sec. 5.7.2)	
☐	☐	☐	☒	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	
☐	☒	☐	☐	GIRDER–COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support. (Commentary: Sec. A.5.4.1. Tier 2: Sec. 5.7.4.1)	The main tapered steel girders are not anchored to the masonry pilasters.

High Seismicity

Stiff Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U		
☐	☐	☒	☐	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)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Project Name Magnolia Science Ace
Project Number S18-103

C	NC	N/A	U	DESCRIPTION	COMMENTS
☐	☐	☒	☐	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	

Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U		
☐	☐	☐	☒	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	Not likely due to the lack of wall anchors.
☐	☒	☐	☐	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)	The second floor is not connected to the concrete shear walls at the front of the building.
☐	☒	☐	☐	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft long. (Commentary: Sec. A.4.1.6. Tier 2: Sec. 5.6.1.3)	The second floor is not connected to the concrete shear walls at the front of the building.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Project Name: Magnolia Science Ace
Project Number: S18-103

C	NC	N/A	U	Item	Comment
☐	☐	☒	☐	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)	
☒	☐	☐	☐	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	
☐	☒	☐	☐	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	Plywood diaphragms are assumed to be unblocked and span up to 150ft. in long direction.
☒	☐	☐	☐	OTHER DIAPHRAGMS: The diaphragm shall 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)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Project Name	Magnolia Science Aca
Project Number	S18-103

Connections

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U		
☐	☒	☐	☐	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural elements are installed taut and are stiff enough to limit the relative movement between the wall and the diaphragm to no greater than 1/8 in. before engagement of the anchors. (Commentary: Sec. A.5.1.4. Tier 2: Sec. 5.7.1.2)	Wall anchors only present in part of the building.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Appendix B3: 16.10LS Life Safety Structural Checklist for Building Type C2a

Project Name: Magnolia Science Acad
Project Number: S18-103

16.10LS Life Safety Structural Checklist for Building Types C2: Concrete Shear Walls with Stiff Diaphragms and C2A: Concrete Shear Walls with Flexible Diaphragms

Low and Moderate Seismicity

Seismic-Force-Resisting System

RATING				DESCRIPTION	COMMENTS
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)	
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)	
C	NC	N/A	U		
☐	☒	☐	☐	SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 4.5.3.3, is less than the greater of 100 lb/in.^{2} or $2\sqrt{f'_c}$. (Commentary: Sec. A.3.2.2.1. Tier 2: Sec. 5.5.3.1.1)	
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)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Project Name: Magnolia Science Aca
Project Number: S18-103

Connections

C	NC	N/A	U	DESCRIPTION	COMMENTS
☐	☒	☐	☐	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 adequate strength to resist the connection force calculated in the Quick Check procedure of Section 4.5.3.7. (Commentary: Sec. A.5.1.1. Tier 2: Sec. 5.7.1.1)	
☐	☒	☐	☐	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)	
☐	☐	☐	☒	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation with vertical bars equal in size and spacing to the vertical wall reinforcing immediately above the foundation. (Commentary: Sec. A.5.3.5. Tier 2: Sec. 5.7.3.4)	

High Seismicity

Seismic-Force-Resisting System

C	NC	N/A	U	DESCRIPTION	COMMENTS
☐	☐	☒	☐	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)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Project Name: Magnolia Science Aca
Project Number: S18-103

C	NC	N/A	U	DESCRIPTION	COMMENTS
☐	☐	☒	☐	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)	
☐	☐	☒	☐	COUPLING BEAMS: The stirrups in coupling beams over means of egress are spaced at or less than d/2 and are anchored into the confined core of the beam with hooks of 135 degrees or more. 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)	

Connections

RATING C	NC	N/A	U	DESCRIPTION	COMMENTS
☐	☐	☒	☐	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)	

Diaphragms (Flexible or Stiff)

RATING C	NC	N/A	U	DESCRIPTION	COMMENTS
☐	☒	☐	☐	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)	There is a 1ft. offset at the second floor diaphragm.

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Project Name: Magnolia Science Acad
Project Number: S18-103

C	NC	N/A	U	Description	Comments
☐	☒	☐	☐	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)	The second floor is not connected to the concrete shear walls at the front of the building.

Flexible Diaphragms

RATING				DESCRIPTION	COMMENTS
C	NC	N/A	U		
☐	☐	☐	☒	CROSS TIES: There are continuous cross ties between diaphragm chords. (Commentary: Sec. A.4.1.2. Tier 2: Sec. 5.6.1.2)	Not likely due to the lack of wall anchors.
☐	☐	☒	☐	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)	
☒	☐	☐	☐	SPANS: All wood diaphragms with spans greater than 24 ft consist of wood structural panels or diagonal sheathing. (Commentary: Sec. A.4.2.2. Tier 2: Sec. 5.6.2)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

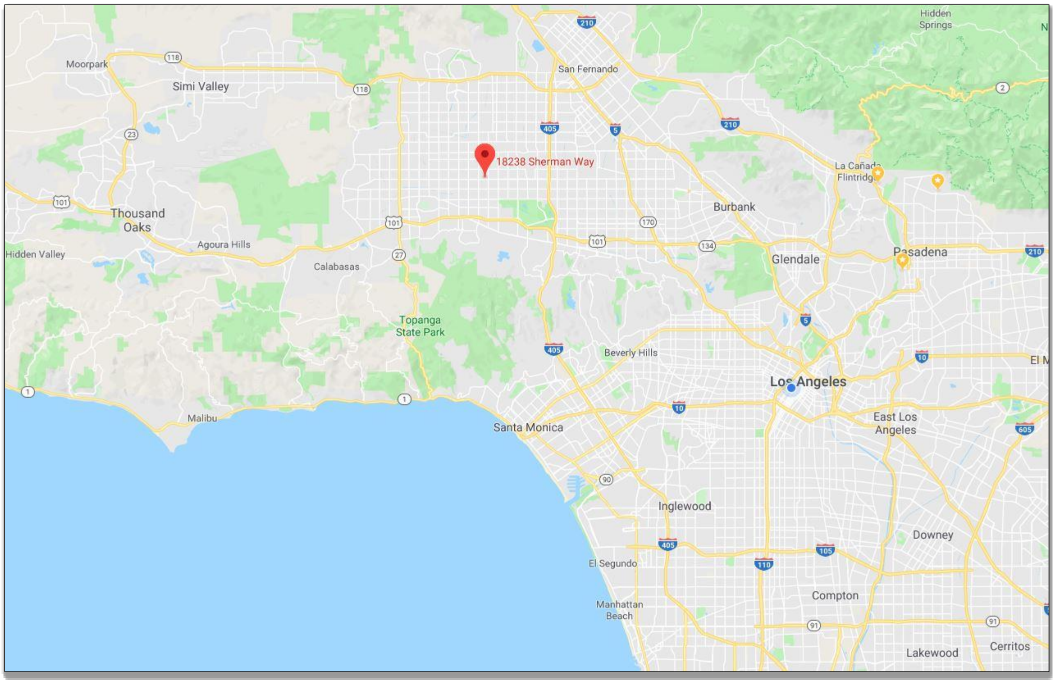
Project Name: Magnolia Science Aca
Project Number: S18-103

C	NC	N/A	U	Item	Comments
☐	☒	☐	☐	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft and aspect ratios less than or equal to 4-to-1. (Commentary: Sec. A.4.2.3. Tier 2: Sec. 5.6.2)	Plywood diaphragms are assumed to be unblocked and span up to 150ft. in long direction.
☒	☐	☐	☐	OTHER DIAPHRAGMS: The diaphragm does 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)	

Legend: C = Compliant, NC = Noncompliant, N/A = Not Applicable, U = Unknown

Appendix C: References

Appendix C1: Vicinity & Site Maps



Vicinity Map

Site Plan

Appendix C2: USGS Site Specific Design Parameters

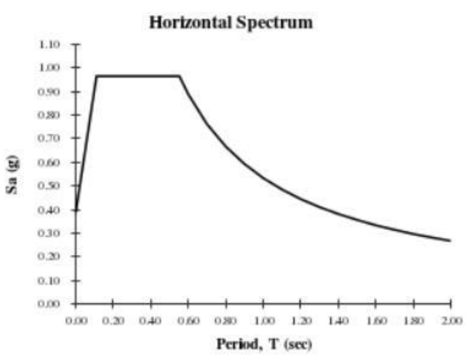
USGS Design Maps Summary Report

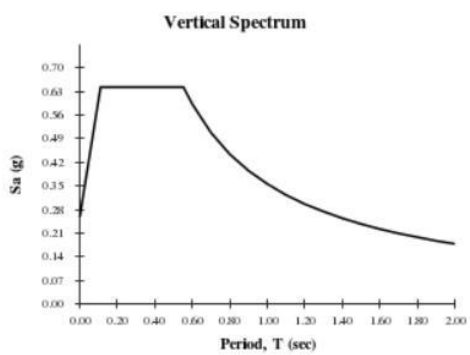
User–Specified Input

Report Title	18238 Sherman Way, Reseda Mon April 23, 2018 23:32:45 UTC
Building Code Reference Document	ASCE 41-13 Retrofit Standard, BSE-1E (which utilizes USGS hazard data available in 2008)
Site Coordinates	34.20105°N, 118.53052°W
Site Soil Classification	Site Class D – "Stiff Soil"

USGS–Provided Output

$S_{S,20/50}$	0.824 g	$S_{XS,BSE-1E}$	0.965 g
$S_{1,20/50}$	0.295 g	$S_{X1,BSE-1E}$	0.533 g





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USGS Design Maps Detailed Report

ASCE 41-13 Retrofit Standard, BSE-1E (34.20105°N, 118.53052°W)

Site Class D – "Stiff Soil"

Section 2.4.1 – General Procedure for Hazard Due to Ground Shaking

20%/50-year maximum direction spectral response acceleration for 0.2s and 1.0s periods, respectively:

From Section 2.4.1.4	$S_{S,20/50} = 0.824$ g
From Section 2.4.1.4	$S_{1,20/50} = 0.295$ g

Section 2.4.1.6 – Adjustment for Site Class

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class D, based on the site soil properties in accordance with Section 2.4.1.6.1.

SITE CLASS	SOIL PROFILE NAME	Soil shear wave velocity, $\overline{v}_s$, (ft/s)	Standard penetration resistance, $\overline{N}$	Soil undrained shear strength, $\overline{s}_u$, (psf)
A	Hard rock	$\overline{v}_s > 5,000$	N/A	N/A
B	Rock	$2,500 < \overline{v}_s \le 5,000$	N/A	N/A
C	Very dense soil and soft rock	$1,200 < \overline{v}_s \le 2,500$	$\overline{N} > 50$	>2,000 psf
D	Stiff soil profile	$600 \le \overline{v}_s < 1,200$	$15 \le \overline{N} \le 50$	1,000 to 2,000 psf
E	Stiff soil profile	$\overline{v}_s < 600$	$\overline{N} < 15$	<1,000 psf
E	—	Any profile with more than 10 ft of soil having the characteristics: 1. Plasticity index $PI > 20$, 2. Moisture content $w \ge 40\%$, and 3. Undrained shear strength $\overline{s}_u < 500$ psf		
F	—	Any profile containing soils having one or more of the following characteristics: 1. Soils vulnerable to potential failure or collapse under seismic loading such as liquefiable soils, quick and highly sensitive clays, collapsible weakly cemented soils. 2. Peats and/or highly organic clays ($H > 10$ feet of peat and/or highly organic clay where H = thickness of soil) 3. Very high plasticity clays ($H > 25$ feet with plasticity index $PI > 75$) 4. Very thick soft/medium stiff clays ($H > 120$ feet)		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Table 2–3. Values of F_a as a Function of Site Class and Mapped Short-Period Spectral Response Acceleration S_s

Site Class	Mapped Spectral Acceleration at Short-Period S_s				
	$S_S \le 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \ge 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	Site-specific geotechnical and dynamic site response analyses shall be performed				

Note: Use straight–line interpolation for intermediate values of S_S

For Site Class = D and S_s = 0.824 g, F_a = 1.170

Table 2–4. Values of F_v as a Function of Site Class and Mapped Spectral Response Acceleration at 1 s Period S_1

Site Class	Mapped Spectral Acceleration at 1 s Period S_1				
	$S_1 \le 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \ge 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	Site-specific geotechnical and dynamic site response analyses shall be performed				

Note: Use straight–line interpolation for intermediate values of S_1

For Site Class = D and S_1 = 0.295 g, F_v = 1.811

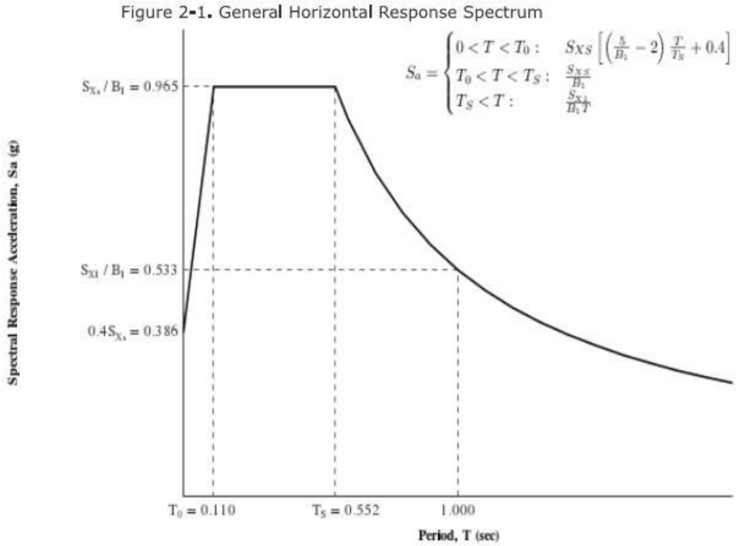
Provided as a reference for Equation (2-4):	$F_aS_{S,20/50}$ = 1.170 x 0.824 g = 0.965 g
Provided as a reference for Equation (2-5):	$F_vS_{1,20/50}$ = 1.811 x 0.295 g = 0.533 g
Provided as a reference for Equation (2-4):	$S_{XS,BSE\text{-}1N}$ = ⅔ x $S_{XS,BSE\text{-}2N}$ = ⅔ x $F_aS_{S,BSE\text{-}2N}$ = 1.171 g
Provided as a reference for Equation (2-5):	$S_{X1,BSE\text{-}1N}$ = ⅔ x $S_{X1,BSE\text{-}2N}$ = ⅔ x $F_vS_{1,BSE\text{-}2N}$ = 0.600 g

Equation (2-4): $S_{XS,BSE\text{-}1E}$ = MIN[$F_aS_{S,20/50}$, $S_{XS,BSE\text{-}1N}$] = MIN[0.965g, 1.171g] = 0.965g

Equation (2-5): $S_{X1,BSE\text{-}1E}$ = MIN[$F_vS_{S,20/50}$, $S_{X1,BSE\text{-}1N}$] = MIN[0.533g, 0.600g] = 0.533g

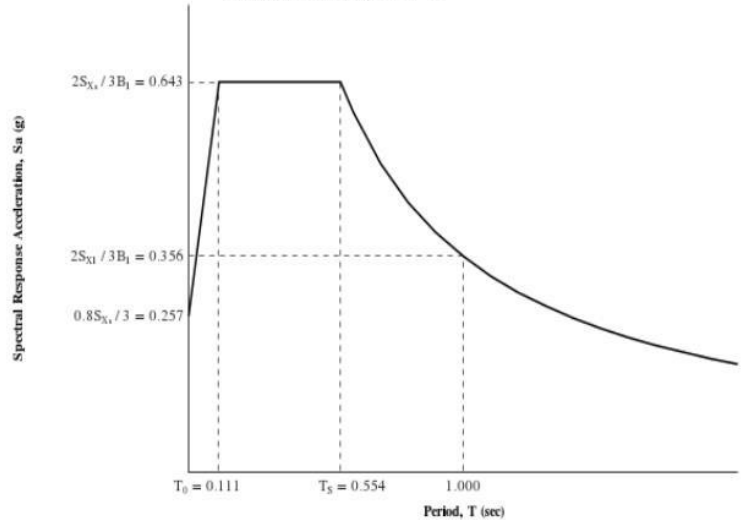
Section 2.4.1.7.1 — General Horizontal Response Spectrum

Figure 2-1. General Horizontal Response Spectrum



Section 2.4.1.7.2 — General Vertical Response Spectrum

The General Vertical Response Spectrum is determined by multiplying the General Horizontal Response Spectrum by ⅔.



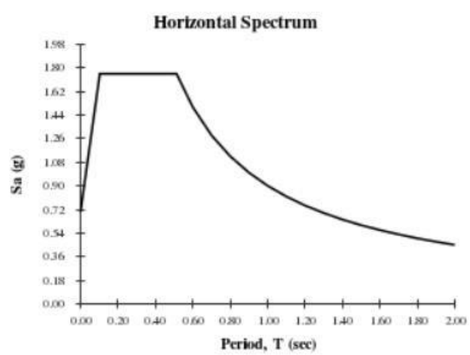
USGS Design Maps Summary Report

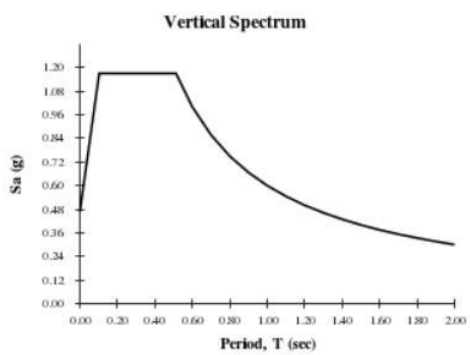
User–Specified Input

Report Title	18238 Sherman Way, Reseda Mon April 23, 2018 23:29:25 UTC
Building Code Reference Document	ASCE 41-13 Retrofit Standard, BSE-2N (which utilizes USGS hazard data available in 2008)
Site Coordinates	34.20105°N, 118.53052°W
Site Soil Classification	Site Class D – "Stiff Soil"

USGS–Provided Output

$S_{S,BSE-2N}$	1.756 g	$S_{XS,BSE-2N}$	1.756 g
$S_{1,BSE-2N}$	0.600 g	$S_{X1,BSE-2N}$	0.901 g





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USGS Design Maps Detailed Report

ASCE 41-13 Retrofit Standard, BSE-2N (34.20105°N, 118.53052°W)

Site Class D – "Stiff Soil"

Section 2.4.1 – General Procedure for Hazard Due to Ground Shaking

From Section 2.4.1.1	$S_{S,BSE-2N}$ = 1.756 g
From Section 2.4.1.1	$S_{1,BSE-2N}$ = 0.600 g

Section 2.4.1.6 – Adjustment for Site Class

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class D, based on the site soil properties in accordance with Section 2.4.1.6.1.

SITE CLASS	SOIL PROFILE NAME	Soil shear wave velocity, $\bar{v}_s$, (ft/s)	Standard penetration resistance, $\bar{N}$	Soil undrained shear strength, $\bar{s}_u$, (psf)
A	Hard rock	$\bar{v}_s$ > 5,000	N/A	N/A
B	Rock	2,500 < $\bar{v}_s$ ≤ 5,000	N/A	N/A
C	Very dense soil and soft rock	1,200 < $\bar{v}_s$ ≤ 2,500	$\bar{N}$ > 50	>2,000 psf
D	Stiff soil profile	600 ≤ $\bar{v}_s$ < 1,200	15 ≤ $\bar{N}$ ≤ 50	1,000 to 2,000 psf
E	Stiff soil profile	$\bar{v}_s$ < 600	$\bar{N}$ < 15	<1,000 psf
E	—	Any profile with more than 10 ft of soil having the characteristics: 1. Plasticity index *PI* > 20, 2. Moisture content *w* ≥ 40%, and 3. Undrained shear strength $\bar{s}_u$ < 500 psf		
F	—	Any profile containing soils having one or more of the following characteristics: 1. Soils vulnerable to potential failure or collapse under seismic loading such as liquefiable soils, quick and highly sensitive clays, collapsible weakly cemented soils. 2. Peats and/or highly organic clays (*H* > 10 feet of peat and/or highly organic clay where *H* = thickness of soil) 3. Very high plasticity clays (*H* > 25 feet with plasticity index *PI* > 75) 4. Very thick soft/medium stiff clays (*H* > 120 feet)		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Table 2–3. Values of F_a as a Function of Site Class and Mapped Short-Period Spectral Response Acceleration S_s

Site Class	Mapped Spectral Acceleration at Short-Period S_s				
	$S_S \leq 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \geq 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	Site-specific geotechnical and dynamic site response analyses shall be performed				

Note: Use straight–line interpolation for intermediate values of S_S

For Site Class = D and S_s = 1.756 g, F_a = 1.000

$S_{DS}=(2/3)F_aS_s= (2/3)*1.0*1.756 = 1.171$

Table 2–4. Values of F_v as a Function of Site Class and Mapped Spectral Response Acceleration at 1 s Period S_1

Site Class	Mapped Spectral Acceleration at 1 s Period S_1				
	$S_1 \leq 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \geq 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	Site-specific geotechnical and dynamic site response analyses shall be performed				

Note: Use straight–line interpolation for intermediate values of S_1

For Site Class = D and S_1 = 0.600 g, F_v = 1.500

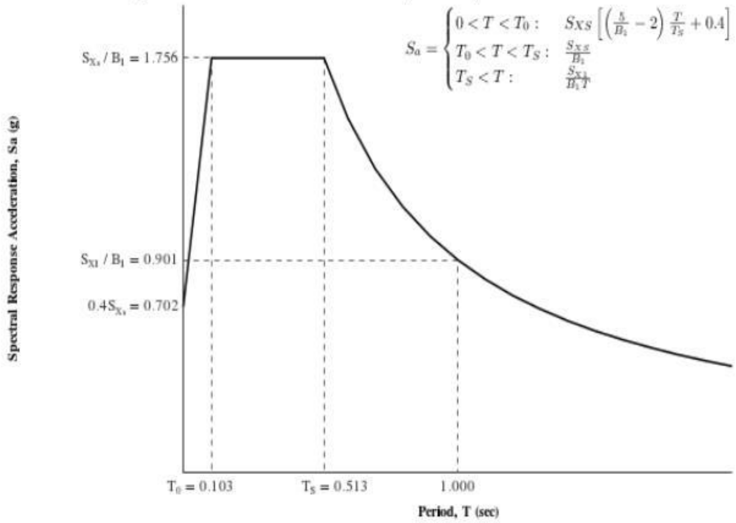
$S_{D1}=(2/3)F_vS_1= (2/3)*1.5*0.600 = 0.600$

BSE 2-N

Equation (2–4):	$S_{XS,BSE\text{-}2N} = F_a S_{S,BSE\text{-}2N} = 1.000 \times 1.756\ g = 1.756\ g$
Equation (2–5):	$S_{X1,BSE\text{-}2N} = F_v S_{1,BSE\text{-}2N} = 1.500 \times 0.600\ g = 0.901\ g$

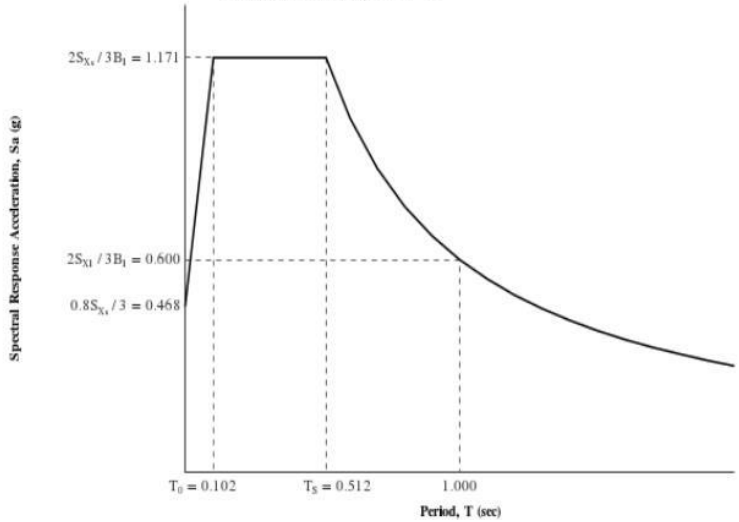
Section 2.4.1.7.1 — General Horizontal Response Spectrum

Figure 2-1. General Horizontal Response Spectrum

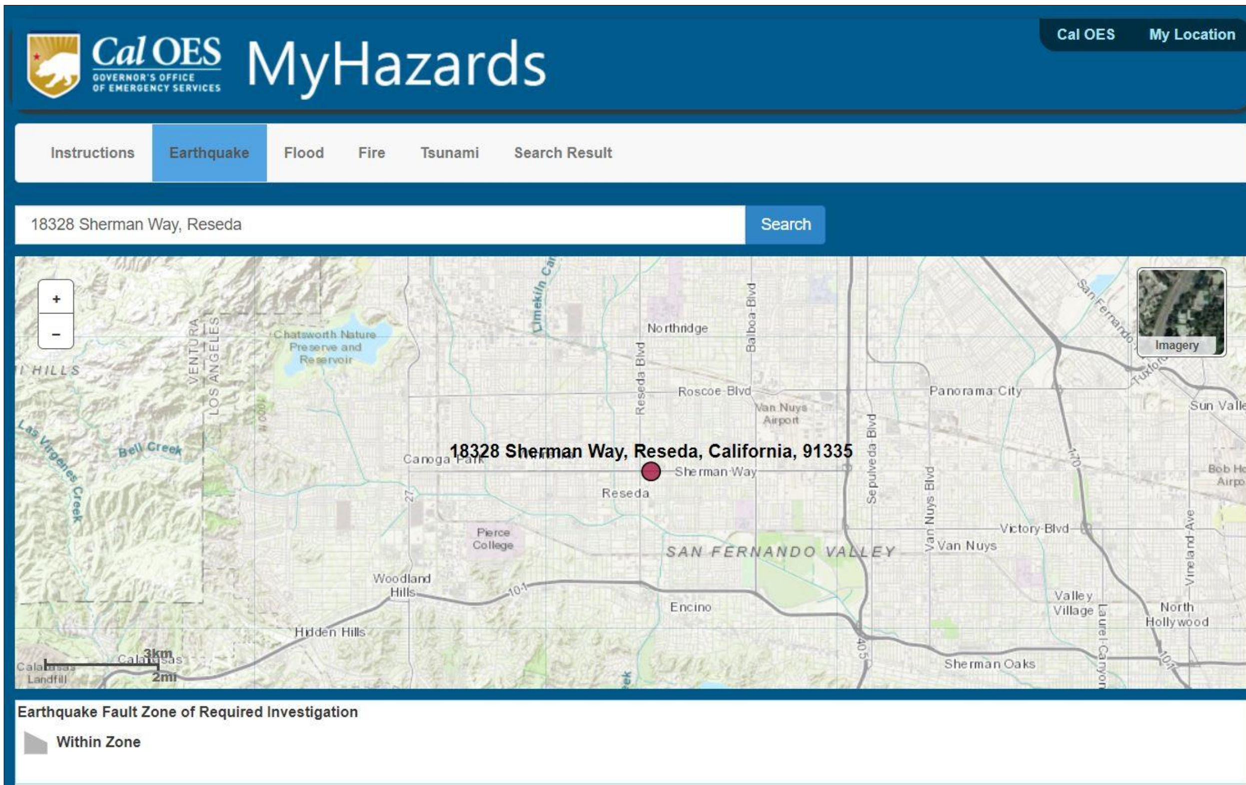


Section 2.4.1.7.2 — General Vertical Response Spectrum

The General Vertical Response Spectrum is determined by multiplying the General Horizontal Response Spectrum by ⅔.



Appendix C3: CalOES MyHazards



Cal OES
GOVERNOR'S OFFICE OF EMERGENCY SERVICES
MyHazards
Cal OES
My Location
Instructions
Earthquake
Flood
Fire
Tsunami
Search Result
18328 Sherman Way, Reseda
Search
Imagery
Northridge
Roscoe Blvd
Van Nuys Airport
Panorama City
Sun Valle
18328 Sherman Way, Reseda, California, 91335
Sherman Way
Reseda
Canoga Park
Chatsworth Nature Preserve and Reservoir
Bell Creek
Pierce College
SAN FERNANDO VALLEY
Victory Blvd
Van Nuys
Woodland Hills
Encino
Hidden Hills
Valley Village
North Hollywood
Sherman Oaks
Reseda Blvd
Balboa Blvd
Sepulveda Blvd
Van Nuys Blvd
Vineland Ave
3km
2mi
Earthquake Fault Zone of Required Investigation
Within Zone

Appendix C4: CGS Canoga Park Quadrangle Map

Earthquake Zones of Required Investigation
Canoga Park Quadrangle

California Geological Survey

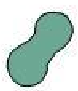
This Map Shows Seismic Hazard Zones
Alquist-Priolo Earthquake Fault Zones Have Not Been Prepared
For The Canoga Peak Quadrangle

This map shows the location of Seismic Hazard Zones, referred to here as Earthquake Zones of Required Investigation. The Geographic Information System (GIS) digital files of these regulatory zones released by the California Geological Survey (CGS) are the "Official Maps." GIS files are available at the GGS website http://maps.conservation.ca.gov/cgs/informationwarehouse/. These zones will assist cities and counties in fulfilling their responsibilities for protecting the public from the effects of earthquake-triggered ground failure as required by the Seismic Hazards Mapping Act (Public Resources Code Sections 2690-2699.6) and the Alquist-Priolo Earthquake Fault Zoning Act (Public Resources Code Sections 2621-2630). For information regarding the general approach and recommended methods for preparing these zones, see CGS Special Publication 118, *Recommended Criteria for Delineating Seismic Hazard Zones in California*, and Special Publication 42, *Earthquake Fault Zones, a Guide for Government Agencies, Property Owners/Developers, and Geoscience Practitioners for Assessing Fault Rupture Hazards in California*, Appendix C.

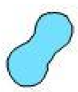
For information regarding the scope and recommended methods to be used in conducting required site investigations refer to CGS Special Publication 117A, *Guidelines for Evaluating and Mitigating Seismic Hazards in California*, and CGS Special Publication 42. For a general description of the Seismic Hazards Mapping and Alquist-Priolo Earthquake Fault Zoning acts, the zonation programs, and related information, please refer to the website at www.conservation.ca.gov/cgs/.

MAP EXPLANATION

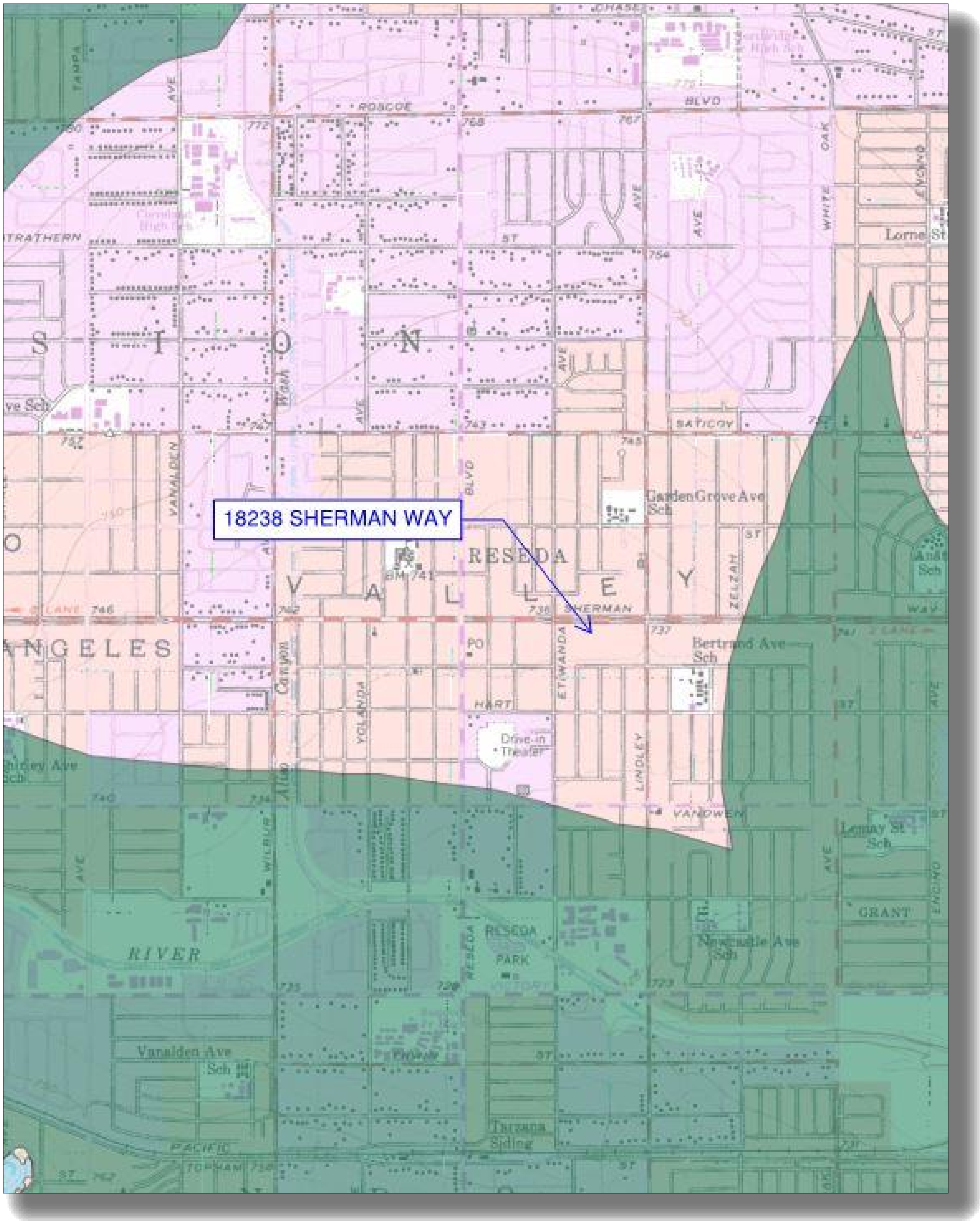
SEISMIC HAZARD ZONES



Liquefaction Zones
Areas where historical occurrence of liquefaction, or local geological, geotechnical and ground water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.



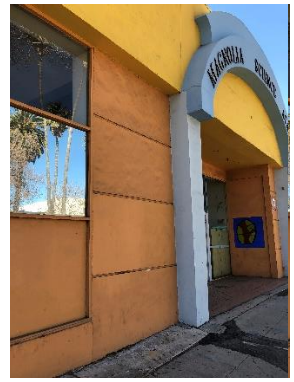
Earthquake-Induced Landslide Zones
Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.



CGS: Canoga Park Quadrangle Map

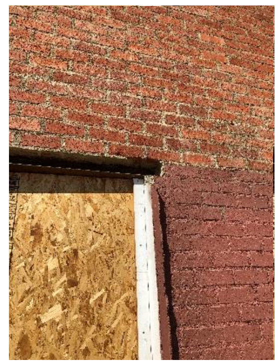
Appendix D: Photos

Front of school (North Elevation)



Concrete Pier

Door in East Wall



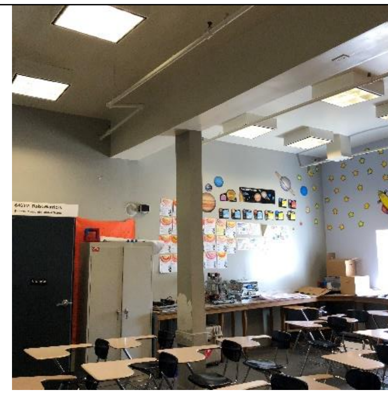
Door in East Wall

Door in East Wall

Foundation

Parapet at West Side Adjacent Building

Parapet on East Side After Demo

 High Ceiling at Classroom	 Column in Classroom
 Joists at 2nd Floor to West Wall	 Joists at 2nd Floor to South Wall
 Steel Beam to Pilaster	 Equipment at Roof