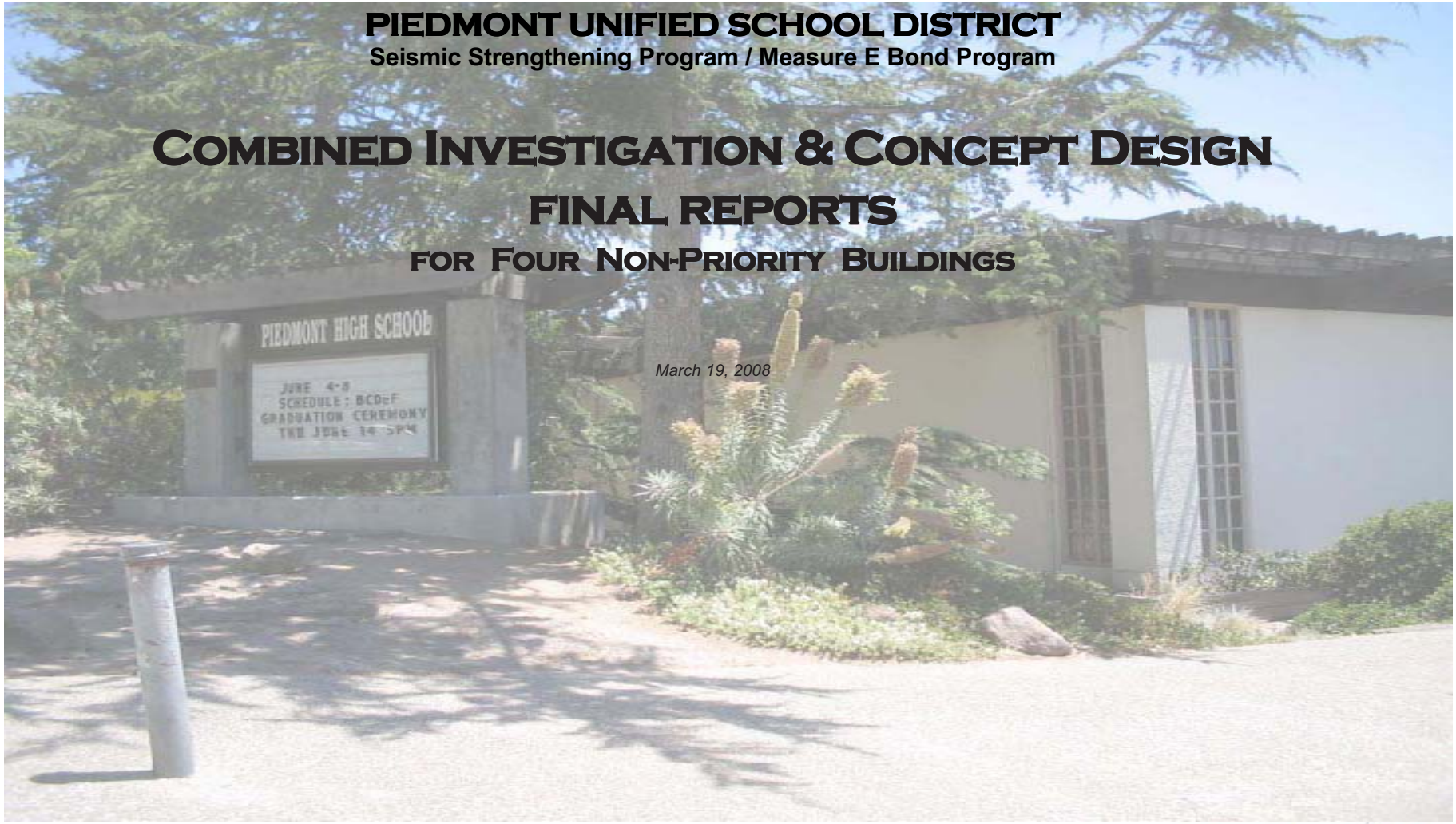
PIEDMONT HIGH SCHOOL

PIEDMONT UNIFIED SCHOOL DISTRICT

Seismic Strengthening Program / Measure E Bond Program

COMBINED INVESTIGATION & CONCEPT DESIGN FINAL REPORTS

FOR FOUR NON-PRIORITY BUILDINGS



March 19, 2008

R. P. Gallagher Associates, Inc.
Structural Engineering

murakami Nelson
ARCHITECTURAL CORPORATION

PIEDMONT HIGH SCHOOL

PIEDMONT UNIFIED SCHOOL DISTRICT

SEISMIC STRENGTHENING PROGRAM / MEASURE E BOND PROGRAM

CONCEPT DESIGN

FOR FOUR NON-PRIORITY BUILDINGS

FINAL REPORT

November 14, 2007

Building D - Social Science

Building E - Science

Building F - Gymnasium

Building G - 40's Building / PUSD Administrative Offices

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i. EXECUTIVE SUMMARY

The Concept Designs contained in this report address non-structural seismic hazards, accessibility, and fire/life-safety deficiencies at the four non-priority buildings at Piedmont High School. It follows an investigative report, dated August 16, 2007.

The four non-priority buildings: the Social Science Building D, the Science Building E, the Gymnasium Building F, and the 40's/Administrative Offices Building G have been evaluated and found to meet the seismic performance standards set by the Piedmont Unified School District Technical Advisory Committee. However, there are numerous non-structural falling hazards that were identified in the investigative report of August 16, 2007. The Concept Design addresses the cost to mitigate the non-structural seismic hazards.

The campus has addressed many of the accessibility deficiencies in its facilities over the years as it upgraded or modified its' facilities. However, there remain numerous accessibility deficiencies that will need to be corrected. The investigative report of August 16, 2007 identifies the deficiencies. Our Concept Design proposes remediation measures in order to assign a cost. We will need to get definitive responses from DSA in order establish the full magnitude and scope of corrective measures that will be required for each of the four non-priority buildings. Although there are obvious deficiencies common to all of the facilities, such as signage, door clearances, accessible counter heights, etc., these issues may be resolved in a number of different ways and by alternative means based on what can be negotiated with DSA.

The major fire and life safety issues that have a large cost impact are the need for a DSA compliant fire alarm system for each building and a DSA compliant fire sprinkler system for Buildings E and G. Confirmation that the existing fire sprinkler system in Building D is acceptable to DSA is needed. Other fire and life safety issues include the installation of low-level exit signage, installation of emergency lighting in various locations, and insuring proper fire ratings at corridor openings.

Once a design concept is selected, there may be an opportunity to negotiate accessibility and fire/life safety alternative solutions with DSA (Department of the State Architect), as this office has jurisdiction over public school construction.

A cost estimate was developed as part of this phase of work. We have included the summary pages in this document. The complete cost estimated is contained under separate cover.

This report will serve as the background for the next phase of work which will be to develop a schematic design.

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SUMMARY OF ACCESSIBILITY CONCEPTS

General site accessibility:

The main entry to the High School is on Magnolia Avenue, between the Social Science Building D and the Allen Harvey Theatre Building C. A secondary entry is located between the Theatre Building C and the 40's Building G. The main entry is relatively level and deemed accessible. The secondary entry has a portion of the path of travel that is sloped, though can comply with accessible ramp criteria. In the High School Priority Building Seismic Strengthening project, the creation of two accessible parking and a barrier-free path of travel are included. This report presumes that at the completion of the priority building's seismic strengthening projects, accessible parking and an accessible path of travel improvements will bring the site accessibility requirements into compliance.

The path of travel from the accessible parking to the Social Science Building D and the Science Building E is the same path of travel as the Quad Building A. The Priority Building projects will have brought the parking and path of travel to the Quad Building into compliance. The Social Science Building D's primary entrances are across the walkway from the Quad Building and are accessible. The Science Building E is north of the Quad Building. There are existing stairs and an accessible ramp that provide an accessible path of travel. However, minor accessible will be necessary to bring the stairs into full compliance. The stairs leading to the Science Building E needs handrail extensions and repainting of the contrasting stripes on stair treads.

The path of travel to the Gymnasium Building F was deemed accessible under the recently completed September 2003 Gymnasium Lobby Addition. We have assumed no additional path of travel improvements are necessary, though this assumption will need to be confirmed with DSA. During non-school hours, two accessible parking spaces are available on the south side of the Gymnasium Building. Accessible vertical path of travel between floors in this partial two story building is an issue and is addressed in our discussion of the individual buildings that follows.

The path of travel to the 40's/Administration Building G is generally compliant. A compliant path of travel to the PUSD Administrative Offices and the upper two floors of the 40's buildings are available. However, the path of travel between floors is on the exterior and somewhat circuitous. DSA accepted the current path of travel to Building G in the David Wade Byren's Modification Project in 1997. DSA's acceptance of this current path of travel will need to be confirmed.

General building accessibility:

The following floor plans show how the code deficiencies described in our Investigative Report can be addressed. In many cases, the proposed remediation can be performed without impacting the surrounding area. For example, replacing door hardware for accessibility, or providing a new accessible sink to replace an existing sink. These items are described in key notes, and their location is shown on the plans. In other cases, the remediation has a minor impact on the adjacent area, for example to accommodate an enlarged toilet room, a new ramp, or to provide adequate clearances in front of a door. These changes are shown, and highlighted, in the concept plans. In a few cases, the changes required to accommodate the proposed remediation can have a major impact. In some cases, we have included alternative solutions, and/or approaches to the problem. These options are not always mutually exclusive from one another. They are shown on the plans, and described below.

Building D - Social Sciences

Building D has a number of minor issues that can be easily corrected and one major issue that requires a complete redesign of the toilet rooms.

The current toilet rooms are not accessible. Our concept scheme eliminates the entry vestibule, relocates the entry doors inside the building, and provides for accessible toilet rooms with the same fixture count. The remodeled toilet room stays within the footprint of the existing toilet facilities and should not impact adjacent spaces.

The minor accessibility issues include correction of deficient room door clearances, providing accessible room and directional signage, correction of protruding fixtures and equipment, provisions for accessible counters and sinks, and provisions for accessible lockers.

Building E - Sciences

Building E has similar minor issues as Building D, including correction of deficient room door clearances, providing accessible room and directional signage, correction of protruding fixtures and equipment, provisions for accessible counters and sinks, and provisions for accessible lockers. The Science Building toilets will need some modifications to bring them into compliance, but the general layout remains unchanged.

(General building accessibility continued)

Building F – Gymnasium

Although Building F is of a younger vintage (1976), changes in the accessibility standards has resulted in numerous features falling short of full compliance. As with other buildings at the High School, the minor accessibility issues include correction of deficient room door clearances, providing accessible room and directional signage, correction of protruding fixtures and equipment, and provisions for accessible lockers.

The major accessibility issues in Building F are the lack of accessible toilet facilities for the staff, accessible showers for students and staff, and interior vertical access to the second floor dance studio.

Our concept scheme to provide for accessible toilets and shower will require us to expand staff facilities into the footprint of the student shower. This solution results in the lost of one gang shower station in each student shower room, but allows the installation of four accessible shower stalls, two for staff and two for students.

To provide vertical accessibility to the dance studio, an elevator is required. In reviewing the plan, there was no interior location for the new elevator that would not take away program space. Our concept approach is to append a two story addition to the east side of the Gymnasium Building to house the elevator. As of this writing, we have not been able to meet with DSA. We cannot rule out that DSA will require an accessible interior path of travel to the dance studio. **Building G – 40's Building/Administrative Offices**

The 40's building has undergone some accessibility improvements over the years. The installation of single-use boy's and girl's toilet rooms and the addition of an exterior walkway/ ramp/elevator system has addressed two of the concerns of DSA, toilet rooms and path of travel. However, the building does have a number of accessibility issues, including include correction of deficient room door clearances/hardware/closer pressure, providing accessible room and directional signage, correction of protruding fixtures and equipment, provisions for accessible counters and sinks, correcting a non-compliant interior ramp, handrail extensions, and provisions for accessible lockers.

The changes and corrective measure to bring the four non-priority building in compliance with current accessibility standards are shown on the plans in this report.

SUMMARY OF FIRE AND LIFE SAFETY SCHEMES:

The four non-priority buildings D, E, F, and G are generally life safe. The buildings met exit requirements and have floor and wall assembly resembling and generally equivalent to a rated corridor.

Fire Alarm System

Current code requires that all educational facilities have fire alarm system. All four non-priority buildings have fire alarm systems, though of varying vintages and sophistication. A cursory review of the existing fire alarm system with maintenance and administrative staff suggests that a replacement fire alarm should be considered at each building to allow for a centralized annunciated system for the campus. In the Schematic Design phase, a comprehensive evaluation by a fire and life safety consultant will be needed.

Supplemental to the Fire Alarm is the need to install magnetic hold-opens at all classroom door. Currently, a majority of the fire rated doors have been outfitted with dog-leg type door stops. These dog-leg stops defeat the self-closing feature of the door and as such, the fire protection. The dog-leg stops will need to be removed.

Fire Sprinkler System

Current code requires that all educational facilities have fire sprinklers throughout. The Social Sciences Building D and the Gymnasium have fire sprinkler systems. Their acceptability to DSA will need to be confirmed in the Schematic Phase.

The Science Building E and the 40's Building do not have fire sprinklers, though fire sprinklers were install at selection window opening, near exit ways. A new fire sprinkler system is needed in these two educational facilities.

Low Level Exit Lighting

Current code requires that all educational facilities have low-level exit lighting. Building E and F need to have low-level exit lighting installed. The 40's building G has a partial non-functioning low level lighting and will need to replace the system. The Gymnasium Building F is "assembly" occupancy and is not required to have low level exit lighting.

Other Fire and Life Safety Issues:

Chemical storage: We were unable to obtain an inventory of the chemicals stored in the Science Building E. The Principal is in the process to initiating an inventory list. An assessment can be made once the inventory list is received.

Signage: Tactical exit signage is required at all exits that require exit signage. Room capacity signage is required in assembly space. Our concept plans calls to provide this required signage.

Fire hose cabinet conversions: DSA has required renovation projects to remove fire hoses from facilities under their jurisdiction. Our concept scheme calls for removal of the fire hoses and installation of a DSA approved fire extinguisher in its place (only where not provide elsewhere within the facility or within the proper spacing requirements).

These and other specific fire and life safety upgrades are noted on the plan diagrams below.

ACCESSIBILITY KEY NOTES:

01 MOVE (E) DOOR AND FRAME TO OBTAIN 12" CLEAR SPACE ADJACENT TO DOOR OPENING ON THE STRIKE SIDE.

02 PROVIDE (N) ACCESSIBLE SIGNAGE INCLUDING:
- A. DIRECTIONAL SIGNAGE
- B. ROOM SIGNAGE
- C. TACTILE EXIT SIGNAGE

03 DOOR HARDWARE:
- A. DOOR HANDLE: REPLACE WITH LEVER TYPE
- B. REPLACE EXISTING THRESHOLD
- C. REMOVE EXISTING 'DOG-LEG' HARDWARE
- D. ADJUST DOOR PRESSURE

04 EXTEND HANDRAIL TO ACHEIVE REQUIRED 12" EXTENSION AT TOP OF STAIRS AND TREAD + 12" AT BOTTOM OF STAIRS.

05 PROVIDE (N) DUAL HEIGHT SET OF DRINKING FOUNTAINS.

05A REMOVE (E) DRINKING FOUNTAIN AND CAP LINES.

05B ADD GUARDRAIL PROTECTION.

06 ADJUST SLOPE OF (E) INTERIOR RAMP FOR ACCESSIBILTY.

07 PROVIDE ACCESSIBLE COUNTER WITH KNEE SPACE, MIN. 36"

07A CONVERT ONE CHEMISTRY OR SCIENCE STATION TO BE ACCESSIBLE, INCLUDING LOWERED COUNTER, ACCESSIBLE SINK AND FAUCET SET, REACHABLE UPPER AND LOWER CABINET STORAGE.

08A RELOCATE AND REESTABLISH PLUMBING FOR (N) WATER CLOSET.

08B REWORK ONE URINAL TO ACHIEVE COMPLIANT ACCESSIBLE HEIGHT AND DISTANCE FROM ADJACENT WALL.

08C PROVIDE (N) ACCESSIBLE LAVORATORY WITH LEVER TYPE HARDWARE.

08D REMODEL (E) TOILET TO UNISEX TOILET ROOM. (ONE TO BE FULLY ACCESSIBLE).

08E PROVIDE (N) ACCESSIBLE SHOWER STALL W/ BENCH , PLUMBING PIPING AND PLUMBING ACCESSORIES FOR ACCESSIBLE SHOWER AREA. REMOVE ONE GANG SHOWER POLE. REPLACE DRAIN WITH FLUSH COVER TYPE AND FLOOR AS REQUIRED.

09A PROVIDE ACCESSIBLE SINK AND KNEE SPACE AT COUNTER.

09B PROVIDE ACCESSIBLE FAUCET HANDLES AND WRAP HOT WATER SUPPLY AND DRAIN PIPE.

10 RESTRIPE ALL STAIRS WITH CONTRASTING PAINT STRIPE FOR THE VISUALLY IMPAIRED.

10A RESTRIPE TOP AND BOTTOM STAIR TREADS WITH CONTRASTING PAINT STRIPE.

11 MODIFY OR REPLACE TRANSACTION COUNTER TO PROVIDE A 36" WIDE ACCESSIBLE LOWERED COUNTER SPACE WITH KNEE SPACE.

12 REPLACE (E) FIRE EXTINGUISHER CABINET WITH (N) RECESSED TYPE.

13 MODIFY OR REPLACE ONE LOCKER TO BE ACCESSIBLE.

13A RELOCATE (E) LOCKERS.

13B RELOCATED LOCKERS.

13C REMOVE (E) LOCKERS TO CREATE WIDTH FOR AN ACCESSIBLE PATH.

ACCESSIBILITY KEY NOTES (CONT.):

14 REMOVE AND RELOCATE (E) VAULT AND CREATE (N) HALLWAY.

15 (N) ELEVATOR, ELEVATOR MACHINE ROOM, AND ENCLOSED 1ST AND 2ND FLOOR HALLWAYS. REMOVAL OF (E) FLOOR SLABS AND (E) WALLS. CONSTRUCTION OF (N) WALLS, DOORS, WINDOWS, AND FLOOR SLAB. REESTABLISHING (E) AND (N) FINISHES, AND MECHANICAL, ELECTRICAL AND PLUMBING SYSTEMS.

16 CHANGE DIRECTION OF (E) DOOR SWING.

17 REPLACE (E) POCKET DOOR WITH (N) 3'-0" WIDE SWINGING DOOR.

18 DEMO (E) TOILET ROOMS AND VESTIBULES. PROVIDE (N) GIRLS' AND BOYS' TOILET ROOMS.

19 (N) ACCESSIBLE PARKING STALLS CONSTRUCTED AS A PART OF PRIORITY BUILDING UPGRADES.

20 RELOCATE AREA DRAINS - REVISE SURROUNDING GRADES AND CONCRETE SLAB TO SLOPE TO (N) DRAINS.

LIFE SAFETY NOTES:

01 PROVIDE FLOOR LEVEL EXIT LIGHT SYSTEM.

02A PROVIDE NEW FIRE SPRINKLER SYSTEM.

02B PROVIDE NEW FIRE ALARM SYSTEM.

03 PROVIDE ROOM CAPACITY SIGNAGE.

04 REMOVE FIRE HOSE, CAP SUPPLY AND PROVIDE FIRE EXTINGUISHER.

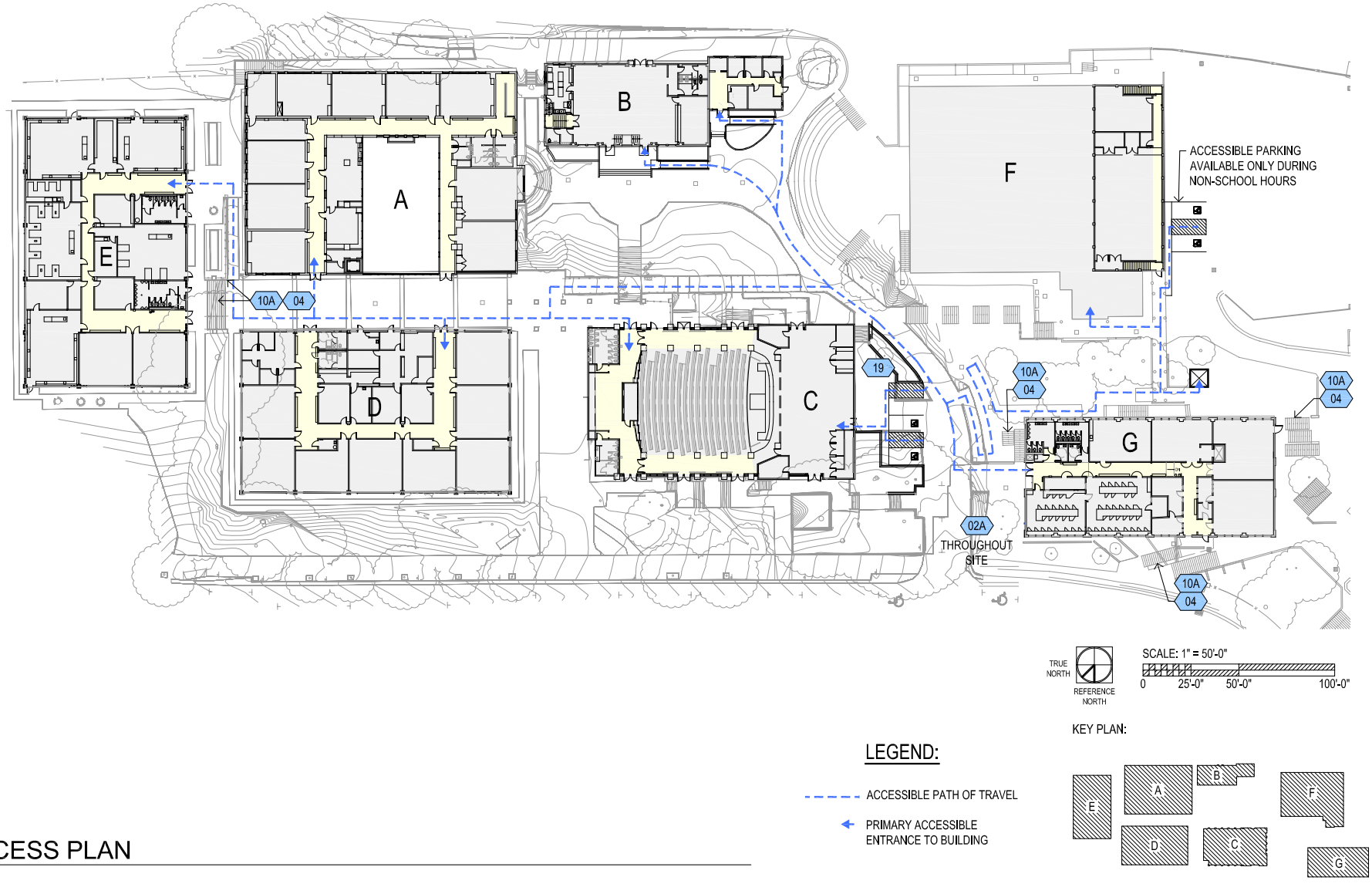
05 ADD (N) HANDRAIL WITH COMPLIANT DIAMETER TO ONE SIDE OF STAIRS.

06 REMOVE 'DOG-LEG' DOOR HARDWARE FROM ALL CORRIDOR DOORS.

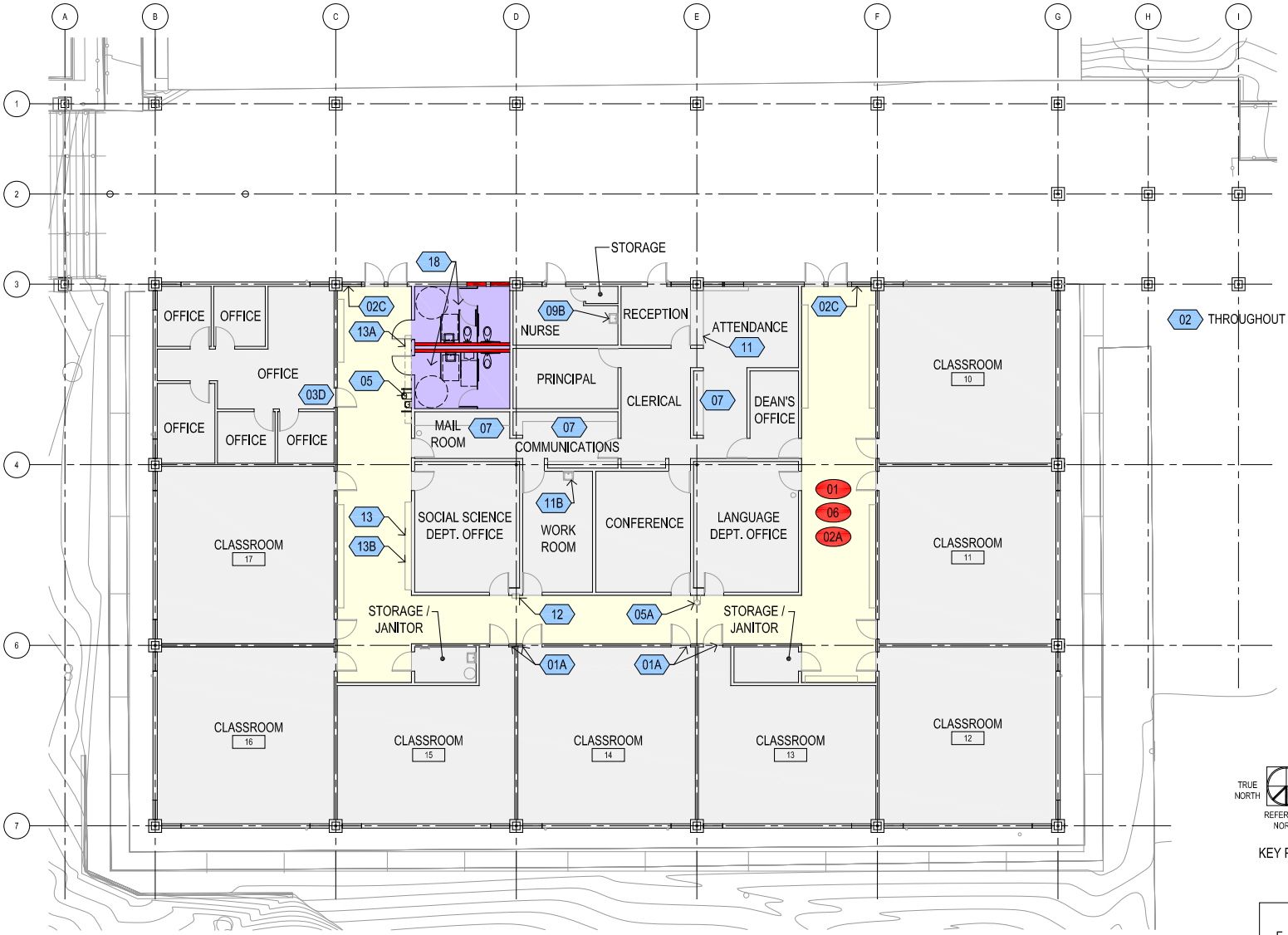
07 PROVIDE BRACING AND SHELF GUARDS AT ALL STORAGE SHELVES.

08 ADD TRAVEL RESTRICTOR TO CURTAIN ROD TO PREVENT CURTAIN FROM BLOCKING EXIT PATH: RELOCATE EXIT LIGHT TO MAINTAIN VISIBILITY.

09 PROVIDE FIRE-RATED DOOR AND FRAME.



SITE ACCESS PLAN



BUILDING D - SOCIAL SCIENCES

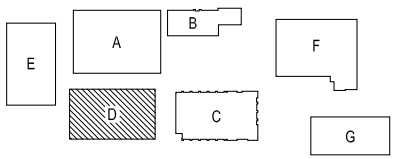
LEGEND:

- (E) WALL, NO WORK
- (N) WALL
- (N) ARCHITECTURAL IMPROVEMENT
- (E) CORRIDOR

TRUE NORTH
REFERENCE NORTH

SCALE: 1/16" = 1'-0"
0 8'-0" 16'-0" 32'-0"

KEY PLAN:



concept - social sciences

BUILDING E - SCIENCE

LEGEND:

- (E) WALL, NO WORK
- (N) WALL
- (N) ARCHITECTURAL IMPROVEMENT
- (E) CORRIDOR

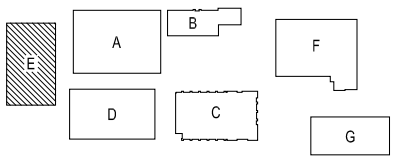
TRUE NORTH

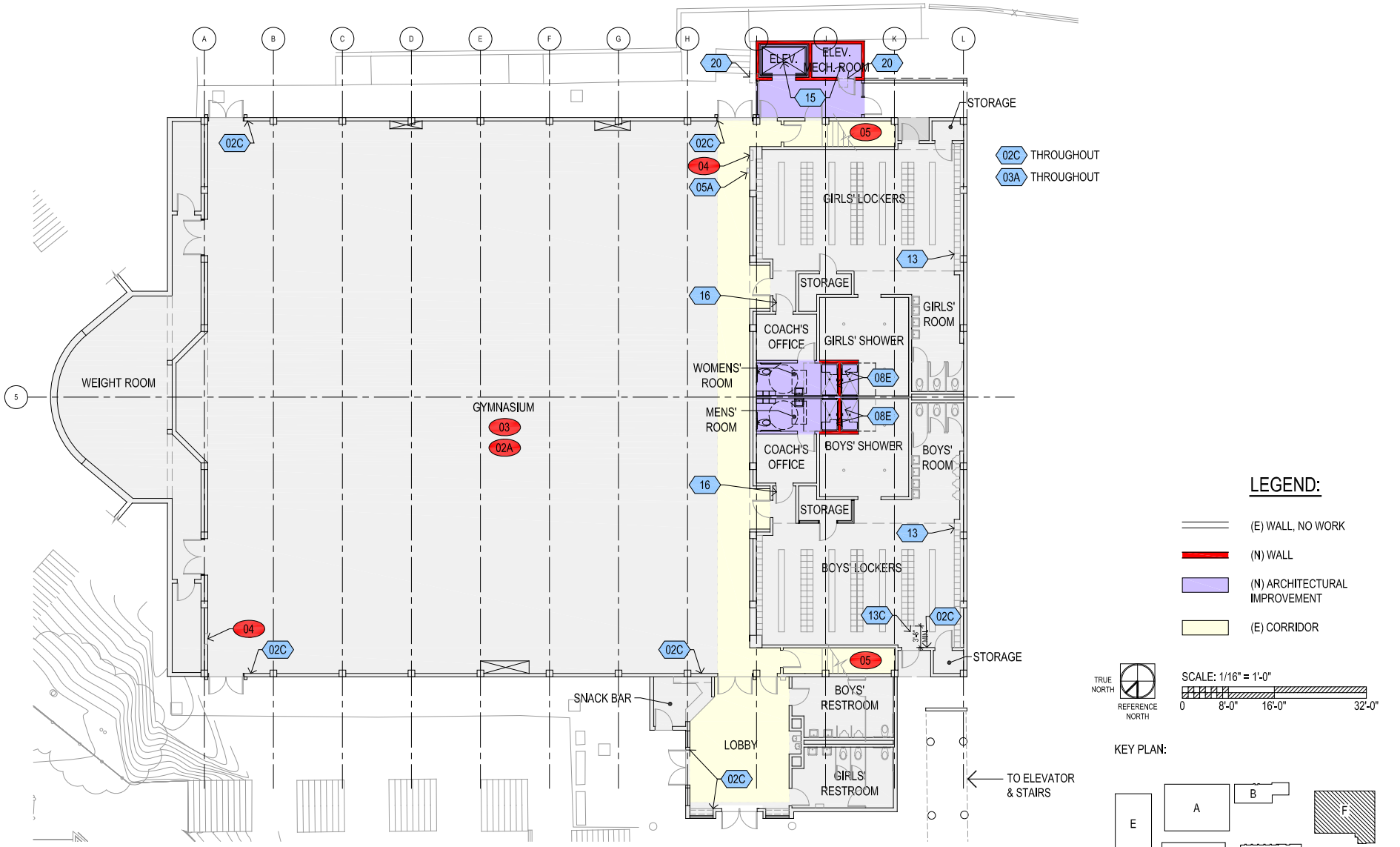
REFERENCE NORTH

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

0 8'-0" 16'-0" 32'-0"

KEY PLAN:





BUILDING F - GROUND FLOOR - GYM

LEGEND:

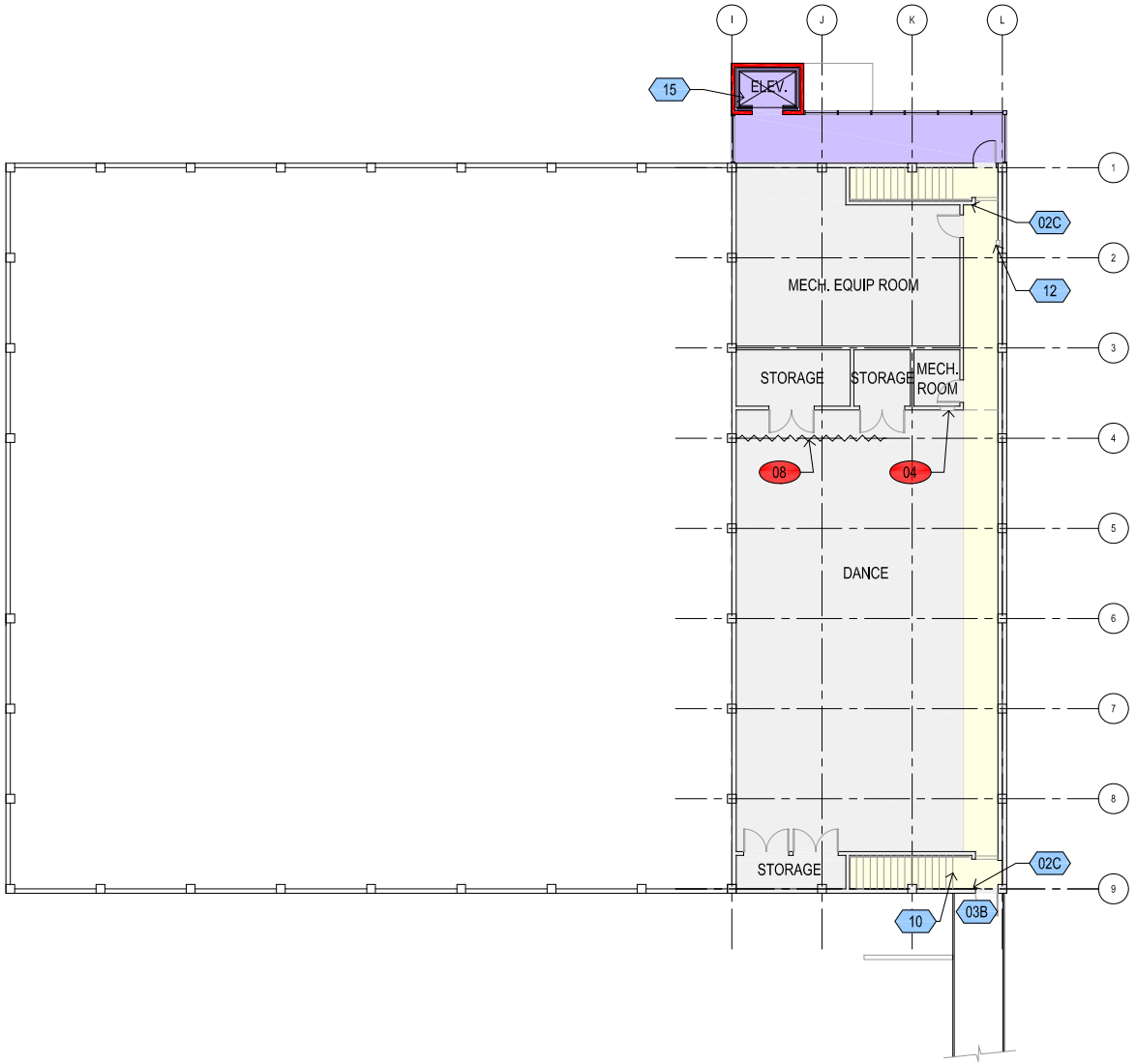
- (E) WALL, NO WORK
- (N) WALL
- (N) ARCHITECTURAL IMPROVEMENT
- (E) CORRIDOR

TRUE NORTH / REFERENCE NORTH

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

0 8'-0" 16'-0" 32'-0"

KEY PLAN:



BUILDING F - UPPER FLOOR - GYM

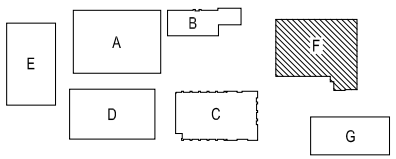
LEGEND:

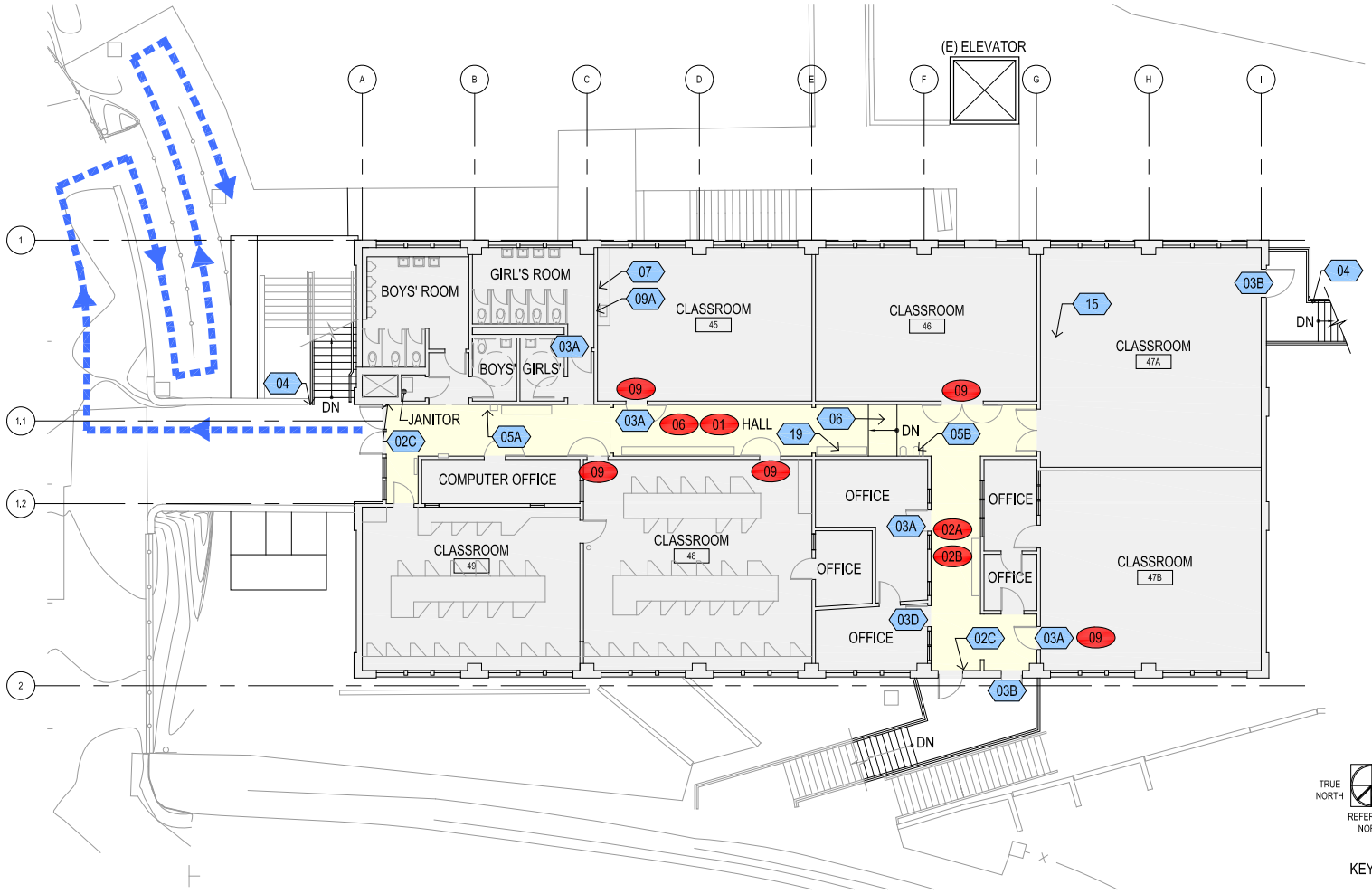
- (E) WALL, NO WORK
- (N) WALL
- (N) ARCHITECTURAL IMPROVEMENT
- (E) CORRIDOR

TRUE NORTH
REFERENCE NORTH

SCALE: 1/16" = 1'-0"
0 8'-0" 16'-0" 32'-0"

KEY PLAN:





02 THROUGHOUT

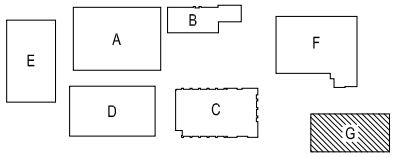
LEGEND:

- (E) WALL, NO WORK
- (N) WALL
- (N) ARCHITECTURAL IMPROVEMENT
- (E) CORRIDOR
- (E) ACCESSIBLE PATH OF TRAVEL
- (N) ACCESSIBLE PATH OF TRAVEL

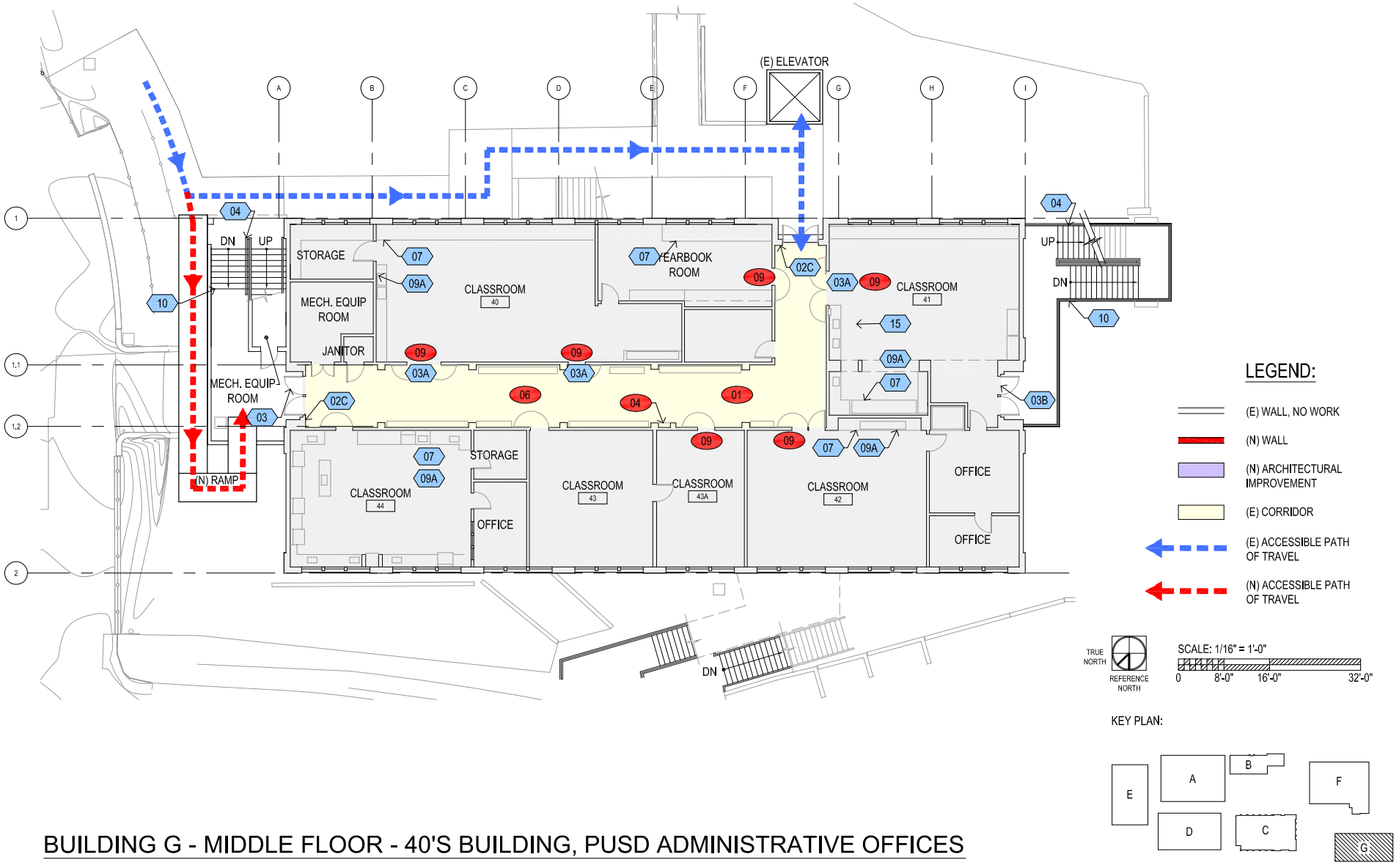
TRUE NORTH
REFERENCE NORTH

SCALE: 1/16" = 1'-0"
0 8'-0" 16'-0" 32'-0"

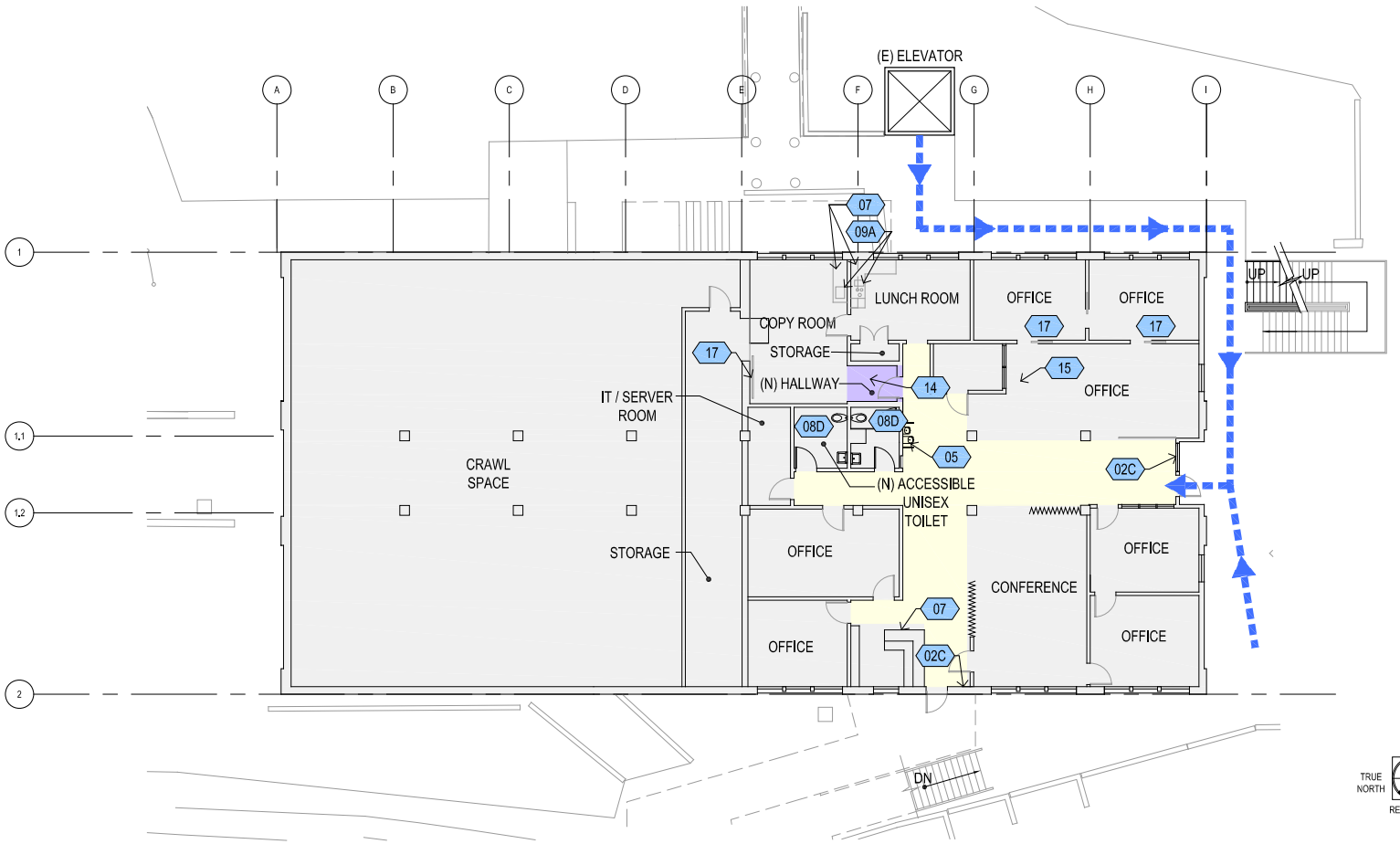
KEY PLAN:



BUILDING G - UPPER FLOOR - 40'S BUILDING, PUSD ADMINISTRATIVE OFFICES



BUILDING G - MIDDLE FLOOR - 40'S BUILDING, PUSD ADMINISTRATIVE OFFICES



OPTION ONE:

ACCESSIBILTY AND LIFE SAFETY CORRECTION ONLY

OPTION TWO:

REMODEL ENTIRE PUSD ADMINISTRATIVE OFFICES. (ASSUME A A SQUARE FOOT COST OF $175/S.F.)

02 THROUGHOUT

03A THROUGHOUT

LEGEND:

- (E) WALL, NO WORK
- (N) WALL
- (N) ARCHITECTURAL IMPROVEMENT
- (E) CORRIDOR
- (E) ACCESSIBLE PATH OF TRAVEL
- (N) ACCESSIBLE PATH OF TRAVEL

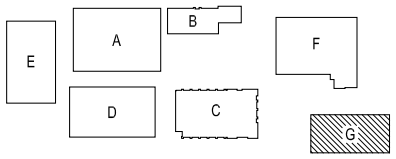
TRUE NORTH

REFERENCE NORTH

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

0 8'-0" 16'-0" 32'-0"

KEY PLAN:



BUILDING G - LOWER FLOOR - 40'S BUILDING, PUSD ADMINISTRATIVE OFFICES

concept - 40's building

DRAFT FOR REVIEW

Conceptual Cost Plan

for

Piedmont High School Non-Priority Buildings
Building D, Building E, Building F, and Building G
Piedmont Unified School District

October 31, 2007

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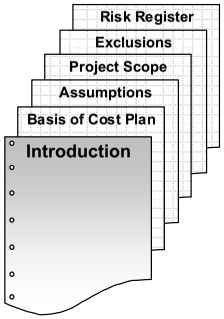
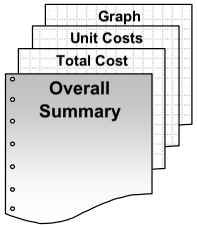
Contents

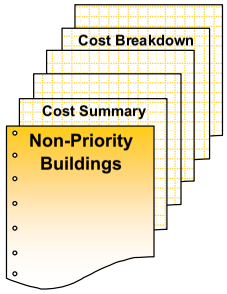


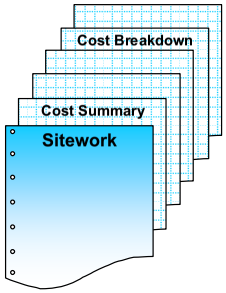
Mack5 was requested to carry out a Conceptual Cost Estimate for the proposed modernization of the Piedmont High School Non-Priority Buildings including Buildings D, E, F, and G for the Piedmont Unified School District.

The first part of the Report contains the basis of the report, the assumptions made, description of the project scope, the exclusions to the costs and a risk register which contain items that have potential to impact cost at some point in the future.



Each detail section includes a Cost Summary and a Cost Breakdown with the detail of the scope included within the estimate.





DRAFT FOR REVIEW
Commentary | M5-07-197 | October 31, 2007

PROJECT INTRODUCTION:	The project consists of making improvements to the existing Piedmont High School Non-Priority Buildings including costs for non-structural seismic hazards and accessibility and fire life safety upgrades.
ITEMS USED FOR COST PLAN:	Drawings dated October 3, 2007
civil drawings	None
architectural drawings	By murakami/Nelson, 10 Sheets
structural narrative and sketches	Draft Survey of Piedmont High School for Nonstructural Seismic Hazards dated August 14, 2007
mechanical narrative and plans	None
electrical narrative and plans	None
telecommunication drawings	None
specifications	None
project team meetings	Site Visit on September 28, 2007

ASSUMPTIONS

(a) The construction start date is unknown

(b) A construction period of 9 months

(c) The general contract may be bid or negotiated with qualified contractors.

(d) The general contractor will not have full access to the site during business hours.

(e) There may be phasing requirements.

(f) The existing electrical power are adequate for the increased loads.

(g) Owner provide materials in a timely fashion.

DRAFT FOR REVIEW
Commentary | M5-07-197 | October 31, 2007

PROJECT SCOPE

The project consists of making improvements to the existing Piedmont High School Non-Priority Buildings including costs for non-structural seismic hazards and accessibility and fire life safety upgrades.

modernization

The following contains a general description of the scope of work included in each element of the estimate.

substructure

Foundation work includes a new elevator pit.

structure

Structure includes new slab on grade tied to existing at toilet room modifications and new structure as required for the building/elevator addition.

exterior enclosure

Exterior enclosure work includes patching and repair of finishes disturbed by the accessibility upgrades to doors as required. New exterior wall framing and finish are included at the addition. Costs are included for work to exterior doors as required for accessibility.

roof

Roofing includes new roofing to match existing at the additions.

interiors

Interior partitions include limited framing and sheathing of new partitions and interior doors, frames, and hardware.

finishes

Allowances are included for new finishes where disturbed by the modernization work and paint to new wall sheathing. New finishes are included at the new toilet rooms and the addition.

equipment

Equipment includes limited new casework to match the existing as required for accessibility, signage, and an allowance for bracing or anchoring existing equipment as required.

stairs and vertical transportation

Stairs include modifications to existing stairs and interior ramps for accessibility and a new elevator.

plumbing

Plumbing work includes removal and replacement of fixtures as required for accessibility.

hvac	Allowance for work at renovated toilet rooms and building addition as required.
fire protection	Sprinklers in limited buildings.
site preparation	Selective demolition as required for the modifications to the existing buildings.
electrical	Electrical includes removal and replacement necessary to facilitate architectural requirements, new work as detailed on the drawings, and a new fire alarm system.
sitework	Sitework includes modifications to paving, steps, and ramps as required for accessibility.
site utilities	Site fire water piping and connection to existing building service.

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EXCLUSIONS

(a)	Owner supplied and installed furniture, fixtures and equipment
(b)	Security equipment and devices
(c)	Design, testing, inspection or construction management fees
(d)	Utility and connection fees
(e)	Scope change and post contract contingencies
(f)	Assessments, taxes, finance, legal and development charges
(g)	Builder's risk, project wrap-up and other owner provided insurance program
(h)	Telephone / data active equipment and switch, sound systems, audio visual equipment and cabling
(i)	Modification to existing HVAC except as specifically identified at the additions.
(j)	Schedule compression
(k)	Commissioning costs associated with CHPS, LEED Certification, or other programs (construction cost included as required)
(l)	Deferred maintenance
(m)	Programmatic changes
(n)	Complete replacement of building finishes except as specifically noted (costs for selective replacement of finishes as required for seismic work is included in the estimate)
(o)	Interim housing
(p)	Cost escalation
(q)	Work beyond close connections for new plumbing fixtures.
(r)	New main service and distribution

risk register

In the course of preparing the Cost Estimate, the following items were noted as areas of possible exposure.

(a) The project is relatively small and the scope limited within a larger area. Consequently contractors bids can vary widely.

(b) Current market conditions are driven by limited supply of metal and consequently cost escalation and bids are unstable.

(c) The design process is early in the conceptual stage. As ideas are more fully developed there may be scope which was not anticipated in this cost estimate.

NON-PRIORITY BUILDINGS

Floors	Enclosed	Covered	Covered (included at 50%)	Sub-Total	GFA
Building D	11,152	0	0	11,152	
Building E	11,152	0	0	11,152	
Building F	18,332	0	0	18,332	
Building G	19,829	0	0	19,829	
	60,465	0	0		60,465 SF

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Overall Summary

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	GFA	$/SF	$,000
Building D	11,152	34	381
Building E	11,152	24	263
Building F	18,332	57	1,041
Building G	19,829	27	539
Sitework	45,000	3	149
Subtotal Construction and Sitework			2,373
Premium for phasing	5.00%		119
TOTAL CONSTRUCTION AND SITEWORK			**2,492**

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Building D Summary

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	GFA: 11,152 SF	%	$/SF	$,000
Substructure		0%	0.00	0
Structure		2%	0.61	7
Exterior Enclosure		1%	0.22	3
Roofing		0%	0.00	0
Sub-total - Shell & Core		*2%*	*0.83*	*9*
Interior Walls		18%	6.14	68
Floor, Wall & Ceiling Finishes		7%	2.39	27
Sub-total - Internal Finishes		*25%*	*8.53*	*95*
Equipment & Specialties		10%	3.57	40
Stairs & Vertical Transportation		0%	0.00	0
Sub-total - Equipment and Stairs		*10%*	*3.57*	*40*
Plumbing		12%	4.16	46
Heating, Ventilating & Air Conditioning		1%	0.31	4
Electrical		14%	4.80	54
Fire Protection		0%	0.00	0
Sub-total - Mechanical and Electrical		*27%*	*9.27*	*103*
Sub-total - Construction		*65%*	*22.20*	*248*
Site Preparation & Demolition		10%	3.59	40
Site Development		0%	0.00	0
Site Utilities		0%	0.00	0
Sub-total - Sitework		*10%*	*3.59*	*40*
Total - Construction and Sitework		*76%*	*25.79*	*288*
General Conditions	12.50%	9%	3.22	36
Contractor's Overhead & Profit or Fee	7.00%	6%	2.03	23
Sub-total		*91%*	*31.04*	*346*
Contingency for Design Development	10.00%	9%	3.10	35
TOTAL CONSTRUCTION BUDGET	***October, 2007***	***100%***	***34.15***	***381***

NOTE: Inclusions and Exclusions.

SUBSTRUCTURE	Quantity	Unit	Rate	Total ($)
No work anticipated				
Sub-Total for Substructure:				

STRUCTURE	Quantity	Unit	Rate	Total ($)
Structure at modified toilet rooms				
New slab on grade to match existing	270	SF	25.00	6,750
Sub-Total for Structure:				**6,750**

EXTERIOR ENCLOSURE	Quantity	Unit	Rate	Total ($)
Exterior walls				
Patch exterior finish to match existing where removed for door work	1	LS	1,000.00	1,000
Patch abandoned door openings as required	2	EA	750.00	1,500
Sub-Total for Exterior Enclosure:				**2,500**

ROOFING	Unit	Rate	Total ($)
No work anticipated			
Sub-Total for Roofing:			

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INTERIOR WALLS		Unit	Rate	Total ($)
Interior partitions				
Interior partition framing and sheathing at modified toilet rooms	360	SF	17.50	6,300
Interior partition framing and sheathing at modified toilet rooms, double framed	225	SF	25.00	5,625
Guardrails at drinking fountain, stainless steel	1	PR	1,200.00	1,200
Rework partitions as may be required for DSA approval of office space renovation at Building D	812	SF	10.00	8,120
Interior doors				
New door, frame, and hardware	9	EA	1,800.00	16,200
Relocate/adjust door for clearance	4	EA	3,500.00	14,000
Adjust closing pressure on existing door	1	EA	250.00	250
New hardware to existing door	21	EA	800.00	16,800
Sub-Total for Interior Walls:				**68,495**

FLOOR, WALL & CEILING FINISHES		Unit	Rate	Total ($)
Floor finishes				
Ceramic tile floor and base at toilet room modifications	270	SF	25.00	6,750
Wall finishes				
Patch and repair existing finishes as required for accessibility upgrades	1	LS	1,000.00	1,000
Ceramic wall tile	768	SF	15.00	11,520
Paint to new partitions	1	LS	500.00	500
Ceiling finishes				
Painted gypsum board ceilings at toilet room	270	SF	15.00	4,050

Miscellaneous				
Miscellaneous patch and repair as required	11,152	SF	0.25	2,788
Sub-Total for Floor, Wall & Ceiling Finishes:				**26,608**

EQUIPMENT & SPECIALTIES		Unit	Rate	Total ($)
Cabinets and casework				
Modify existing casework as required for accessibility	10	LF	300.00	3,000
New casework, including blocking as necessary, to match existing	10	LF	350.00	3,500
Add guards to existing shelves	40	LF	25.00	1,000
Adjust height of transaction/reception counter as required	5	LF	350.00	1,750
New accessible counter with knee space	32	LF	250.00	8,000
Signage				
Code-required signage throughout building	11,152	SF	0.40	4,461
Toilet partitions and accessories				
Toilet partition	3	EA	1,100.00	3,300
Privacy screen	2	EA	600.00	1,200
Urinal screen	1	EA	600.00	600
Toilet accessories	1	LS	3,000.00	3,000
Grab bars	5	PR	350.00	1,750
Mirrors	3	EA	200.00	600
Amenities and convenience items				
Modify existing lockers for accessibility	1	LOC	350.00	350
Relocate existing lockers	12	LF	150.00	1,800
Fire extinguisher and cabinet	1	EA	350.00	350
Brace and anchor existing cabinets, televisions and speakers as required	1	LS	3,500.00	3,500

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Miscellaneous equipment and specialties	11,152	SF	0.15	1,673
Sub-Total for Equipment & Specialties:				**39,834**

STAIRS & VERTICAL TRANSPORTATION		Unit	Rate	Total ($)
No work anticipated				
Sub-Total for Stairs & Vertical Transportation:				

PLUMBING		Unit	Rate	Total ($)
Sanitary fixtures, connection piping, including rough-in				
DF (N) w/(N) rough-in	1	EA	5,177.28	5,177
Sink (N) w/(N) rough-in	4	EA	2,741.28	10,965
WC (N) w/(N) rough-in	2	EA	5,121.60	10,243
UR (N) w/(N) rough-in	1	EA	3,385.20	3,385
LAV (N) w/(N) rough-in	2	EA	2,456.88	4,914
FD w/TP	1	EA	1,320.48	1,320
FD	1	EA	452.16	452
Miscellaneous	1	EA	1,394.52	1,395
Demolition and cleaning	1	LS	1,144.32	1,144
Utility relocation	1	LS	422.16	422
Pipework and accessories				
Sewer, waste and vent:				
Under slab w/ excavation	30	LF	69.62	2,089
Above slab	10	LF	58.02	580
Point of connection to existing	1	EA	512.16	512
Domestic water				
Water above w/ insulation to 2"	60	LF	38.57	2,314
Point of connection	2	EA	392.16	784
Valves and specialties	1	LS	708.24	708
Sub-Total for Plumbing :				**46,406**

HEATING, VENTILATING & AIR CONDITIONING		Unit	Rate	Total ($)
Allow at toilet room modifications	1	LS	3,500.00	3,500
Sub-Total for Heating, Ventilating & Air Conditioning:				**3,500**

ELECTRICAL		Unit	Rate	Total ($)
Electrical work within building				
Remove and replace electrical systems to facilitate architectural modifications				
	11,152	SF	0.50	5,576
Bathroom light fixture	4	EA	675.00	2,700
Receptacle - GFI	2	EA	600.00	1,200
Low level exit sign	4	EA	1,250.00	5,000
Provide new fire alarm system	11,152	SF	3.50	39,032
Sub-Total for Electrical:				**53,508**

FIRE PROTECTION		Unit	Rate	Total ($)
No work anticipated				
Sub-Total for Fire Protection:				

SITE PREPARATION & DEMOLITION		Unit	Rate	Total ($)
Selective demolition and removal				
Remove existing; recycle				
Cut opening for door in existing wall	2	EA	500.00	1,000
Door, frame, and hardware	3	LVS	115.00	345
Fire hose reel	1	EA	85.00	85
Interior partition	31	LF	25.00	775
Floor and ceiling finishes - allow	270	SF	2.00	540
Casework	20	LF	35.00	700
Improvements as required for toilet room modifications	270	SF	30.00	8,100
General demolition and preparation	11,152	SF	0.05	558
Premium for hazmat abatement - allow	11,152	SF	2.50	27,880
Sub-Total for Site Preparation & Demolition:				**39,983**

SITE DEVELOPMENT		Unit	Rate	Total ($)
No work anticipated (see Sitework section)				
Sub-Total for Site Development:				

SITE UTILITIES		Unit	Rate	Total ($)
No work anticipated (see Sitework section)				
Sub-Total for Site Utilities:				

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Building E Summary

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	GFA: 11,152 SF	%	$/SF	$,000
Substructure		0%	0.00	0
Structure		0%	0.00	0
Exterior Enclosure		0%	0.09	1
Roofing		0%	0.00	0
Sub-total - Shell & Core		*0%*	*0.09*	*1*
Interior Walls		13%	3.17	35
Floor, Wall & Ceiling Finishes		1%	0.34	4
Sub-total - Internal Finishes		*15%*	*3.51*	*39*
Equipment & Specialties		21%	4.97	55
Stairs & Vertical Transportation		0%	0.00	0
Sub-total - Equipment and Stairs		*21%*	*4.97*	*55*
Plumbing		9%	2.20	25
Heating, Ventilating & Air Conditioning		0%	0.00	0
Electrical		19%	4.45	50
Fire Protection		0%	0.00	0
Sub-total - Mechanical and Electrical		*28%*	*6.65*	*74*
Sub-total - Construction		*64%*	*15.22*	*170*
Site Preparation & Demolition		11%	2.62	29
Site Development		0%	0.00	0
Site Utilities		0%	0.00	0
Sub-total - Sitework		*11%*	*2.62*	*29*
Total - Construction and Sitework		*76%*	*17.84*	*199*
General Conditions	12.50%	9%	2.23	25
Contractor's Overhead & Profit or Fee	7.00%	6%	1.40	16
Sub-total		*91%*	*21.47*	*239*
Contingency for Design Development	10.00%	9%	2.15	24
TOTAL CONSTRUCTION BUDGET	***October, 2007***	***100%***	***23.62***	***263***

NOTE: Inclusions and Exclusions.

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Building E

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SUBSTRUCTURE	Quantity	Unit	Rate	Total ($)
No work anticipated				
Sub-Total for Substructure:				

STRUCTURE	Quantity	Unit	Rate	Total ($)
No work anticipated				
Sub-Total for Structure:				

EXTERIOR ENCLOSURE	Quantity	Unit	Rate	Total ($)
Exterior walls				
Patch exterior finish to match existing where removed for door work	1	LS	500.00	500
Exterior doors				
Adjust closing pressure on existing door	2	EA	250.00	500
Sub-Total for Exterior Enclosure:				**1,000**

ROOFING	Unit	Rate	Total ($)
No work anticipated			
Sub-Total for Roofing:			

INTERIOR WALLS	Unit	Rate	Total ($)
Interior partitions			
Guardrails at drinking fountain, stainless steel	1 PR	1,200.00	1,200

Interior doors				
New door, frame, and hardware	9	EA	1,500.00	13,500
Relocate/adjust door for clearance	2	EA	3,500.00	7,000
New hardware to existing door	17	EA	800.00	13,600
Sub-Total for Interior Walls:				**35,300**

FLOOR, WALL & CEILING FINISHES		Unit	Rate	Total ($)
Wall finishes				
Patch and repair existing finishes as required for accessibility upgrades	1	LS	1,000.00	1,000
Miscellaneous				
Miscellaneous patch and repair as required	11,152	SF	0.25	2,788
Sub-Total for Floor, Wall & Ceiling Finishes:				**3,788**

EQUIPMENT & SPECIALTIES		Unit	Rate	Total ($)
Cabinets and casework				
Modify existing casework as required for accessibility	10	LF	300.00	3,000
New casework, including blocking as necessary, to match existing	10	LF	350.00	3,500
Modify existing laboratory casework as required for accessibility	54	LF	650.00	35,100
Add guards to existing shelves	40	LF	25.00	1,000
New accessible counter with knee space	8	LF	250.00	2,000
Signage				
Code-required signage throughout building	11,152	SF	0.40	4,461

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Amenities and convenience items				
Modify existing lockers for accessibility	1	LOC	350.00	350
Fire extinguisher and cabinet	1	EA	350.00	350
Brace and anchor existing cabinets, televisions and speakers as required	1	LS	4,000.00	4,000
Miscellaneous equipment and specialties	11,152	SF	0.15	1,673
Sub-Total for Equipment & Specialties:				**55,434**

STAIRS & VERTICAL TRANSPORTATION	Unit	Rate	Total ($)
No work anticipated			
Sub-Total for Stairs & Vertical Transportation:			

PLUMBING		Unit	Rate	Total ($)
Sanitary fixtures, connection piping, including rough-in				
DF (N) w/(N) rough-in	1	EA	5,177.28	5,177
Sink (N) w/(N) rough-in	6	EA	2,741.28	16,448
Miscellaneous	1	EA	1,394.52	1,395
Demolition and cleaning	1	LS	1,144.32	1,144
Utility relocation	1	LS	422.16	422
Sub-Total for Plumbing :				**24,586**

HEATING, VENTILATING & AIR CONDITIONING	Unit	Rate	Total ($)
No work anticipated			
Sub-Total for Heating, Ventilating & Air Conditioning:			

ELECTRICAL		Unit	Rate	Total ($)
Electrical work within building				
Remove and replace electrical systems to facilitate architectural modifications	11,152	SF	0.50	5,576
Low level exit sign	4	EA	1,250.00	5,000
Provide new fire alarm system	11,152	SF	3.50	39,032
Sub-Total for Electrical:				**49,608**

FIRE PROTECTION		Unit	Rate	Total ($)
No work anticipated				
Sub-Total for Fire Protection:				

SITE PREPARATION & DEMOLITION		Unit	Rate	Total ($)
Selective demolition and removal				
Remove existing; recycle				
Fire hose reel	1	EA	85.00	85
Casework	20	LF	35.00	700
General demolition and preparation	11,152	SF	0.05	558
Premium for hazmat abatement - allow	11,152	SF	2.50	27,880
Sub-Total for Site Preparation & Demolition:				**29,223**

SITE DEVELOPMENT		Unit	Rate	Total ($)
No work anticipated (see Sitework section)				
Sub-Total for Site Development:				

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SITE UTILITIES		Unit	Rate	Total ($)
No work anticipated (see Sitework section)				
Sub-Total for Site Utilities:				

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Building F Summary

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		GFA: 18,332 SF	%	$/SF	$,000
Substructure			3%	1.87	34
Structure			5%	2.88	53
Exterior Enclosure			9%	5.07	93
Roofing			1%	0.30	6
Sub-total - Shell & Core			*18%*	*10.12*	*186*
Interior Walls			5%	3.11	57
Floor, Wall & Ceiling Finishes			5%	2.87	53
Sub-total - Internal Finishes			*11%*	*5.98*	*110*
Equipment & Specialties			3%	1.50	28
Stairs & Vertical Transportation			10%	5.56	102
Sub-total - Equipment and Stairs			*12%*	*7.07*	*130*
Plumbing			7%	3.85	71
Heating, Ventilating & Air Conditioning			1%	0.55	10
Electrical			8%	4.65	85
Fire Protection			11%	6.50	119
Sub-total - Mechanical and Electrical			*27%*	*15.55*	*285*
Sub-total - Construction			*68%*	*38.73*	*710*
Site Preparation & Demolition			7%	4.16	76
Site Development			0%	0.00	0
Site Utilities			0%	0.00	0
Sub-total - Sitework			*7%*	*4.16*	*76*
Total - Construction and Sitework			*76%*	*42.89*	*786*
General Conditions	12.50%		9%	5.36	98
Contractor's Overhead & Profit or Fee	7.00%		6%	3.38	62
Sub-total			*91%*	*51.63*	*946*
Contingency for Design Development	10.00%		9%	5.16	95
TOTAL CONSTRUCTION BUDGET		***October, 2007***	***100%***	***56.79***	***1,041***

NOTE: Inclusions and Exclusions.

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SUBSTRUCTURE	Quantity	Unit	Rate	Total ($)
Foundations for new addition				
Reinforced concrete foundations tied to existing	64	LF	300.00	19,200
Elevator pit	1	EA	15,000.00	15,000
Sub-Total for Substructure:				**34,200**

STRUCTURE	Quantity	Unit	Rate	Total ($)
Structure at modified toilet rooms				
New slab on grade to match existing	356	SF	25.00	8,900
Structure at addition				
Reinforced concrete slab on grade, tied to existing	252	SF	15.00	3,780
Vertical structure including steel columns, framing, and sheathing	1,635	SF	10.00	16,350
Floor framing and sheathing, tied to existing - allow	308	SF	30.00	9,240
Roof framing and sheathing at addition - allow	371	SF	25.00	9,275
Seismic joint and cover	53	LF	100.00	5,300
Sub-Total for Structure:				**52,845**

EXTERIOR ENCLOSURE	Quantity	Unit	Rate	Total ($)
Exterior walls				
Patch exterior finish to match existing where removed for door work	1	LS	1,500.00	1,500
New framing at exterior wall	1,635	SF	10.00	16,350
Batt insulation in new walls	1,136	SF	1.50	1,704
Gypsum board to inside face of new exterior walls	1,136	SF	3.00	3,408
Exterior wall finish to match existing	1,136	SF	25.00	28,400

Exterior windows				
Aluminum framed insulated glazing	499	SF	65.00	32,435
Exterior doors				
Glazed entrance door in aluminum frame	1	EA	3,500.00	3,500
New lever handle to existing door	13	EA	400.00	5,200
New threshold to existing door	1	EA	500.00	500
Sub-Total for Exterior Enclosure:				**92,997**

ROOFING		Unit	Rate	Total ($)
Roof coverings				
New roofing and underlayment at addition, to match existing	371	SF	10.00	3,710
Flashings and sheetmetal at addition - allow	371	SF	5.00	1,855
Sub-Total for Roofing:				**5,565**

INTERIOR WALLS		Unit	Rate	Total ($)
Interior partitions				
Interior partition framing and sheathing at addition	225	SF	17.50	3,938
Interior shaft wall framing and sheathing at added elevator	360	SF	25.00	9,000
Interior partition framing and sheathing at modified toilet rooms	870	SF	17.50	15,225
Interior partition framing and sheathing at modified toilet rooms, double framed	225	SF	25.00	5,625
Interior doors				
New door, frame, and hardware	9	EA	1,500.00	13,500
New lever handle to existing door	21	EA	400.00	8,400
Modify door swing	2	EA	650.00	1,300
Sub-Total for Interior Walls:				**56,988**

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FLOOR, WALL & CEILING FINISHES		Unit	Rate	Total ($)
Floor finishes				
Vinyl composition tile and carpet with topset rubber base to match existing at addition	497	SF	6.00	2,982
Ceramic tile floor and base at toilet room modifications	356	SF	25.00	8,900
Wall finishes				
Patch and repair existing finishes as required for accessibility upgrades	1	LS	1,500.00	1,500
Ceramic wall tile	1,504	SF	15.00	22,560
Paint to new partitions	1,856	SF	1.00	1,856
Ceiling finishes				
New ceiling finishes at addition	497	SF	10.00	4,970
Painted gypsum board ceilings at restrooms	356	SF	15.00	5,340
Miscellaneous				
Miscellaneous patch and repair as required	18,332	SF	0.25	4,583
Sub-Total for Floor, Wall & Ceiling Finishes:				**52,691**

EQUIPMENT & SPECIALTIES		Unit	Rate	Total ($)
Cabinets and casework				
Add guards to existing shelves	40	LF	25.00	1,000
Signage				
Code-required signage throughout building	18,332	SF	0.40	7,333

Toilet partitions and accessories				
Toilet accessories in new toilet rooms	1	LS	3,000.00	3,000
Shower bench	4	EA	850.00	3,400
Grab bars	5	PR	350.00	1,750
Mirrors	3	EA	200.00	600
Amenities and convenience items				
Modify existing lockers for accessibility	3	LOC	350.00	1,050
New lockers	6	LF	250.00	1,500
Fire extinguisher and cabinet	2	EA	350.00	700
Brace and anchor existing cabinets, televisions and speakers as required	1	LS	4,000.00	4,000
Add travel restrictor to room curtain	1	LS	500.00	500
Miscellaneous equipment and specialties	18,332	SF	0.15	2,750
Sub-Total for Equipment & Specialties:				**27,583**

STAIRS & VERTICAL TRANSPORTATION		Unit	Rate	Total ($)
Staircase flights				
Warning stripes on existing building stairs	2	FLT	1,000.00	2,000
Modify handrails as required for accessibility at existing building stairs	2	FLT	7,500.00	15,000
Elevators and lifts				
Elevator in addition, 2 stop	1	EA	85,000.00	85,000
Sub-Total for Stairs & Vertical Transportation:				**102,000**

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PLUMBING		Unit	Rate	Total ($)
Sanitary fixtures, connection piping, including rough-in				
Sink (N) w/(N) rough-in	2	EA	2,741.28	5,483
WC (N) w/(N) rough-in	4	EA	5,121.60	20,486
UR (N) w/(N) rough-in	1	EA	3,385.20	3,385
LAV (N) w/(N) rough-in	4	EA	2,456.88	9,828
Shower (N) w/(N) rough-in	4	EA	2,832.96	11,332
FD w/TP	2	EA	1,320.48	2,641
FD	2	EA	452.16	904
Miscellaneous	1	EA	1,394.52	1,395
Demolition and cleaning	1	LS	1,144.32	1,144
Utility relocation	1	LS	422.16	422
Sump pump	1	EA	1,928.64	1,929
Pipework and accessories				
Sewer, waste and vent:				
Under slab w/ excavation	30	LF	69.62	2,089
Above slab	10	LF	58.02	580
Point of connection to existing	10	EA	512.16	5,122
Domestic water				
Water above w/ insulation to 2"	60	LF	38.57	2,314
Point of connection	2	EA	392.16	784
Valves and specialties	1	LS	708.24	708
Sub-Total for Plumbing :				**70,546**

HEATING, VENTILATING & AIR CONDITIONING		Unit	Rate	Total ($)
Allow at toilet room modifications/addition	1	LS	10,000.00	10,000
Sub-Total for Heating, Ventilating & Air Conditioning:				**10,000**

ELECTRICAL		Unit	Rate	Total ($)
Electrical work within building				
Remove and replace electrical systems to facilitate architectural modifications	18,332	SF	0.50	9,166
Bathroom light fixture	6	EA	675.00	4,050
Receptacle - GFI	2	EA	600.00	1,200
Elevator connections as required	1	EA	6,750.00	6,750
Provide new fire alarm system	18,332	SF	3.50	64,162
Sub-Total for Electrical:				**85,328**

FIRE PROTECTION		Unit	Rate	Total ($)
Sprinklers				
Fire protection system-wet	14,699	SF	7.54	110,877
Fire protection system riser	1	EA	8,305.92	8,306
Sub-Total for Fire Protection:				**119,183**

SITE PREPARATION & DEMOLITION		Unit	Rate	Total ($)
Selective demolition and removal				
Remove existing; recycle				
Door, frame, and hardware	13	LVS	115.00	1,495
Lockers	2	EA	50.00	100
Fire hose reel	1	EA	85.00	85
Interior partition	60	LF	25.00	1,500
Floor and ceiling finishes - allow	356	SF	2.00	712
Improvements as required for toilet room modifications	356	SF	30.00	10,680
Prepare building pad for addition	1	LS	15,000.00	15,000
General demolition and preparation	18,332	SF	0.05	917
Premium for hazmat abatement - allow	18,332	SF	2.50	45,830
Sub-Total for Site Preparation & Demolition:				**76,319**

SITE DEVELOPMENT	Unit	Rate	Total ($)
No work anticipated (see Sitework section)			
Sub-Total for Site Development:			

SITE UTILITIES	Unit	Rate	Total ($)
No work anticipated (see Sitework section)			
Sub-Total for Site Utilities:			

DRAFT FOR REVIEW

Building G Summary

M5-07-197
October 31, 2007

	GFA: 19,829 SF	%	$/SF	$,000
Substructure		0%	0.00	0
Structure		0%	0.00	0
Exterior Enclosure		1%	0.18	4
Roofing		0%	0.00	0
Sub-total - Shell & Core		*1%*	*0.18*	*4*
Interior Walls		11%	2.92	58
Floor, Wall & Ceiling Finishes		1%	0.34	7
Sub-total - Internal Finishes		*12%*	*3.26*	*65*
Equipment & Specialties		4%	1.21	24
Stairs & Vertical Transportation		1%	0.38	8
Sub-total - Equipment and Stairs		*6%*	*1.58*	*31*
Plumbing		8%	2.25	45
Heating, Ventilating & Air Conditioning		0%	0.00	0
Electrical		15%	4.00	79
Fire Protection		24%	6.61	131
Sub-total - Mechanical and Electrical		*47%*	*12.86*	*255*
Sub-total - Construction		*66%*	*17.88*	*354*
Site Preparation & Demolition		10%	2.64	52
Site Development		0%	0.00	0
Site Utilities		0%	0.00	0
Sub-total - Sitework		*10%*	*2.64*	*52*
Total - Construction and Sitework		*76%*	*20.52*	*407*
General Conditions	12.50%	9%	2.57	51
Contractor's Overhead & Profit or Fee	7.00%	6%	1.62	32
Sub-total		*91%*	*24.70*	*490*
Contingency for Design Development	10.00%	9%	2.47	49
TOTAL CONSTRUCTION BUDGET	***October, 2007***	***100%***	***27.17***	***539***

NOTE: Inclusions and Exclusions.

DRAFT FOR REVIEW

Building G

M5-07-197
October 31, 2007

SUBSTRUCTURE	Quantity	Unit	Rate	Total ($)
No work anticipated				
Sub-Total for Substructure:				

STRUCTURE	Quantity	Unit	Rate	Total ($)
No work anticipated				
Sub-Total for Structure:				

EXTERIOR ENCLOSURE	Quantity	Unit	Rate	Total ($)
Exterior walls				
Patch exterior finish to match existing where removed for door work	1	LS	1,500.00	1,500
Exterior doors				
New threshold to existing door	4	EA	500.00	2,000
Sub-Total for Exterior Enclosure:				**3,500**

ROOFING	Unit	Rate	Total ($)
No work anticipated			
Sub-Total for Roofing:			

INTERIOR WALLS	Unit	Rate	Total ($)
Interior partitions			
Guardrails at drinking fountain, stainless steel	2 PR	1,200.00	2,400

Interior doors				
New door, frame, and hardware	9	EA	1,500.00	13,500
New door, frame, and hardware, rated	13	LVS	2,000.00	26,000
New lever handle to existing door	4	EA	400.00	1,600
New hardware to existing door	18	EA	800.00	14,400
Sub-Total for Interior Walls:				**57,900**

FLOOR, WALL & CEILING FINISHES		Unit	Rate	Total ($)
Floor finishes				
Vinyl composition tile and carpet with topset rubber base to match existing, including preparation of floor to receive new finish at removed vault	40	SF	7.50	300
Wall finishes				
Patch and repair existing finishes as required for accessibility upgrades	1	LS	1,000.00	1,000
Ceiling finishes				
New ceiling finishes at removed vault	40	SF	10.00	400
Miscellaneous				
Miscellaneous patch and repair as required	19,829	SF	0.25	4,957
Sub-Total for Floor, Wall & Ceiling Finishes:				**6,657**

EQUIPMENT & SPECIALTIES		Unit	Rate	Total ($)
Cabinets and casework				
Modify existing casework as required for accessibility	10	LF	300.00	3,000
New casework, including blocking as necessary, to match existing	10	LF	350.00	3,500
Adjust height of transaction/reception counter as required	5	LF	350.00	1,750

DRAFT FOR REVIEW
Building G
M5-07-197
October 31, 2007

Signage				
Code-required signage throughout building	19,829	SF	0.40	7,932
Amenities and convenience items				
Relocate existing lockers	6	LF	150.00	900
Fire extinguisher and cabinet	1	EA	350.00	350
Brace and anchor existing cabinets, televisions and speakers as required	1	LS	3,500.00	3,500
Miscellaneous equipment and specialties	19,829	SF	0.15	2,974
Sub-Total for Equipment & Specialties:				**23,906**

STAIRS & VERTICAL TRANSPORTATION		Unit	Rate	Total ($)
Staircase flights				
Warning stripes on existing building stairs	4	FLT	1,000.00	4,000
Extension to existing handrail	4	EA	500.00	2,000
Ramps				
Modify interior ramp slope - allow	1	LS	1,500.00	1,500
Sub-Total for Stairs & Vertical Transportation:				**7,500**

PLUMBING		Unit	Rate	Total ($)
Sanitary fixtures, connection piping, including rough-in				
DF (N) w/(N) rough-in	2	EA	5,177.28	10,355
Sink (N) w/(N) rough-in	10	EA	2,741.28	27,413
Miscellaneous	1	EA	1,394.52	1,395
Demolition and cleaning	1	LS	1,144.32	1,144
Utility relocation	1	LS	422.16	422
Sump pump	2	EA	1,928.64	3,857
Sub-Total for Plumbing :				**44,586**

HEATING, VENTILATING & AIR CONDITIONING		Unit	Rate	Total ($)
No work anticipated				
Sub-Total for Heating, Ventilating & Air Conditioning:				

ELECTRICAL		Unit	Rate	Total ($)
Electrical work within building				
Remove and replace electrical systems to facilitate architectural modifications	19,829	SF	0.50	9,915
Provide new fire alarm system	19,829	SF	3.50	69,402
Sub-Total for Electrical:				**79,316**

FIRE PROTECTION		Unit	Rate	Total ($)
Sprinklers				
Fire protection system-wet	16,282	SF	7.54	122,818
Fire protection system riser	1	EA	8,305.92	8,306
Sub-Total for Fire Protection:				**131,124**

SITE PREPARATION & DEMOLITION		Unit	Rate	Total ($)
Selective demolition and removal				
Remove existing; recycle				
Casework	25	LF	35.00	875
Vault	1	LS	1,000.00	1,000
General demolition and preparation	19,829	SF	0.05	991
Premium for hazmat abatement - allow	19,829	SF	2.50	49,573
Sub-Total for Site Preparation & Demolition:				**52,439**

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Building G
M5-07-197
October 31, 2007

SITE DEVELOPMENT	Unit	Rate	Total ($)
No work anticipated (see Sitework section)			
Sub-Total for Site Development:			

SITE UTILITIES	Unit	Rate	Total ($)
No work anticipated (see Sitework section)			
Sub-Total for Site Utilities:			

DRAFT FOR REVIEW

Sitework Summary

M5-07-197
October 31, 2007

	GFA: 45,000 SF	%	$/SF	$,000
Substructure		0%	0.00	0
Structure		0%	0.00	0
Exterior Enclosure		0%	0.00	0
Roofing		0%	0.00	0
Sub-total - Shell & Core		*0%*	*0.00*	*0*
Interior Walls		0%	0.00	0
Floor, Wall & Ceiling Finishes		0%	0.00	0
Sub-total - Internal Finishes		*0%*	*0.00*	*0*
Equipment & Specialties		0%	0.00	0
Stairs & Vertical Transportation		0%	0.00	0
Sub-total - Equipment and Stairs		*0%*	*0.00*	*0*
Plumbing		0%	0.00	0
Heating, Ventilating & Air Conditioning		0%	0.00	0
Electrical		0%	0.00	0
Fire Protection		0%	0.00	0
Sub-total - Mechanical and Electrical		*0%*	*0.00*	*0*
Sub-total - Construction		*0%*	*0.00*	*0*
Site Preparation & Demolition		13%	0.44	20
Landscaping		56%	1.86	84
Site Utilities		6%	0.20	9
Sub-total - Sitework		*76%*	*2.50*	*113*
Total - Construction and Sitework		*76%*	*2.50*	*113*
General Conditions	12.50%	9%	0.31	14
Contractor's Overhead & Profit or Fee	7.00%	6%	0.20	9
Sub-total		*91%*	*3.01*	*136*
Contingency for Design Development	10.00%	9%	0.30	14
TOTAL CONSTRUCTION BUDGET	***October, 2007***	***100%***	***3.32***	***149***

NOTE: Inclusions and Exclusions.

DRAFT FOR REVIEW

Sitework

M5-07-197
October 31, 2007

SITE PREPARATION & DEMOLITION	Quantity	Unit	Rate	Total ($)
Site demolition and earthwork				
Modify surrounding paving and prepare pad for elevator addition	1	LS	20,000.00	20,000
Sub-Total for Site Preparation & Demolition:				**20,000**

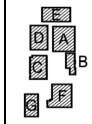
LANDSCAPING	Quantity	Unit	Rate	Total ($)
Pedestrian paving				
New site ramp at 40s Building including modifications to building entry paving	484	SF	150.00	72,600
Extend handrail at existing site stair	18	LOC	250.00	4,500
Warning stripes at existing site stairs	180	LF	10.00	1,800
Miscellaneous accessories				
Site signage	1	LS	5,000.00	5,000
Sub-Total for Landscaping:				**83,900**

SITE UTILITIES	Quantity	Unit	Rate	Total ($)
Fire water				
Service and connection to existing	100	LF	58.82	5,882
AC pavement cut and replace	200	SF	14.49	2,897
Sub-Total for Site Utilities:				**8,779**

APPENDIX: Project Status & Information Availability Matrix

PIEDMONT SEISMIC SAFETY PROGRAM
PIEDMONT UNIFIED SCHOOL DISTRICT
PROJECT STATUS
MARCH 31, 2008

murakami/Nelson Architectural Corp.
Job No.: 0629 - PUSD Seismic

School / Site	Abbreviation	Building Designation	Building Name	Seismic Tier 1	Revised Seismic Tier 1	Letter From Fiscal & Illnesses on Seismic Performance*	ATI Report (Accessibility - Seismic Performance)	Included in Scope Of Work (for mtN)	Qualitative Seismic Assessment by B.P. Gallagher	Qualitative Seismic Assessment by Peer Reviewer	Benchmark Building	Seismic Tier 2	ADA / Access Evaluation	Life Safety Evaluation	Materials Testing Spring 2007	Materials Testing Summer 2007	Materials Testing Fall 2007	Materials Testing Winter 2007	Destructive Testing Spring 2007	Destructive Testing Summer 2007	Destructive Testing Fall 2007	Destructive Testing Winter 2007	Slope Stability Analysis - Site Specific Spectra	Peer Review of Investigation and Analysis	Peer Review Non-Structural	Peer Review of Concept Design	Peer Review of Schematic Design	Peer Review of Design Development	Existing Hazardous Materials Documents	Hazardous Materials Reports in mtN possession	Topographical Survey	Title Report	Boundary Survey	Existing Geotechnical Reports	Existing Structural Calculations in mtN Possession	Existing Specifications in mtN Possession	Measured Drawings - Architectural	Measured Drawings - Structural	DSA Dwgs in mtN Possession	DSA Drawing Date	DSA Number for Drawings	Drawings	Architect	Concept Plan	Cost Estimate (1)	Refined Concept Plan / Value	Cost Estimate (2)	Comments
Piedmont High School	PHS																																													
		D	Admin./Social Science/Language	×	○		●	●	●	○		×	●	●	●	×				×				●	×	●	●	○	○	○	●	○	●	○	×	×	×	×	×	×	●	4/13/1997	66513	Alterations	David Wade Byrens	●	●	×	×	
																																								●	4/25/1988	49857	Repair	Keith Eric Johnson					
																																								●	2/18/1975	37514	Original Construction	Reid & Tarics Assoc.					
		E	Science Building	○	○		●	●	●	○		×	●	●	●	×				×				●	×	●	●	○	○	○	●	○	●	○	×	×	×	×	×	×	●	4/25/1988	49857	Repair	Keith Eric Johnson	●			×	×
																																							●	2/18/1975	37514	Original Construction	Reid & Tarics Assoc.					
		F	Gymnasium	×			×	●	●	○		×	●	●	●	×				×				●	×	●	●	×			●		●	○	×	●	×	×		×	●	8/12/1976	38887	Original Construction	Reid & Tarics Assoc.	●	●	×	×	
																																								●	4/25/1988	49857	Repair	Keith Eric Johnson					
																																								○	-	38754	Gym Bleachers	Unknown					
																																								●	8/15/2003	105636	Lobby Addition	Deems Lewis McKinley					
																																								○	-	41145	Bleachers	Unknown					
		G	Art Bldg./Millennium H.S./Admin.	×			×	●	●	○		×	●	●	●	×				×				●	×	●	●	×			●		●	○	×	×	×	×	×	×	●	4/29/1997	67006	Modernization	David Wade Byrens	●	●	×	×	
																																								○	5/3/1977	40144	Alterations	Reid & Tarics Assoc.					
																																								●	3/25/1976	39256	Annex Remodel	Reid & Tarics Assoc.					
																																								●	2/7/1961	20906	Addition to PMS	Warnecke & Warnecke					

LEGEND
- ○ NEEDED/IN PROGRESS
- ● YES / OK / COMPLETE
- ○ DO NOT HAVE
- ● NON CONCLUSIVE
- × NOT NECESSARY
- ○ Pending Authorization
- ● NO

Shaded Area Indicates Tier 2 Seismic Analysis.

PIEDMONT HIGH SCHOOL

PIEDMONT UNIFIED SCHOOL DISTRICT

SEISMIC STRENGTHENING PROGRAM / MEASURE E BOND PROGRAM

INVESTIGATION AND ANALYSIS

FOR FOUR NON-PRIORITY BUILDINGS

FINAL REPORT

August 16, 2007

Building D - Social Science

Building E - Science

Building F - Gymnasium

Building G - Millennium High School / Admin. Offices

R. P. Gallagher Associates, Inc.
Structural and Earthquake Engineering

murakami / Nelson
ARCHITECTURAL / CORPORATION

Executive Summary

Piedmont High School Non-Priority Buildings
Evaluation and Analysis

murakami/Nelson has been retained by the Piedmont Unified School District to evaluate buildings at the five school campuses and district corporation yard for seismic safety and related accessibility and fire & life safety deficiencies and to design corrections of those deficiencies as part of the Measure E Bond Program. As part of this global objective we have evaluated the four non-priority buildings at the Piedmont High School - the Social Sciences building, the Science building, the Gymnasium, and the Millennium High School / District Administrative Offices Building.

The project is divided into three phases - Evaluation and Analysis, Concept Design and Design/ Construction Document/Construction. This Evaluation and Analysis phase has identified deficiencies; later phases of the project will conceptualize and design corrections of those deficiencies.

To assist us in this effort we have assembled a consultant team comprised of R. P. Gallagher Associates for structural engineering. We have been assisted by Capital Program Management (CPM), the District's Program Manager; School Superintendent Constance Hubbard, Assistant Superintendent Michael Brady and maintenance staff.

Accessibility Evaluation

The four non-priority buildings were evaluated for accessibility conformance with the ADA and the related ADAAG regulations and the 2001 California Building Code. The evaluation process included review of applicable codes, review of existing documents, and site investigations to verify actual field conditions. The buildings had deficiencies, as addressed below:

Building D - Social Science – The building's only restrooms (which are intended for Staff and Faculty members) are not accessible due to fixture types and heights, and because the path of travel lacks the necessary width for a wheelchair. The transaction counter in the Attendance office is not accessible. Many of the doors in this building have non-compliant hardware.

Building E - Science – The toilet rooms in this building are not accessible, due to fixture types and locations, and the path of travel lacks the necessary width for a wheelchair. Most of the building's lab tables and counters are not accessible, and many of the doors in this building lack compliant hardware.

Building F -Gymnasium – The ground floor of this building can only be reached by an elevator which needs to be updated for minor non-compliance issues. The building's lobby addition has accessible toilets rooms, but all other toilet rooms and locker rooms within the building are not accessible. The signage is non-compliant, and much of the door hardware is non-compliant as well.

Building G - Millennium High School / Administrative Offices – The middle floor of this building can only be reached by an elevator which needs to be updated for minor non-compliance issues. The building lacks compliant door hardware throughout. The building's sinks and counters are largely non-compliant, and only the single-occupant toilet rooms on the upper floor are accessible.

Fire & Life Safety Evaluation

The buildings were evaluated for life safety in conformance with the 2001 California Building Code. In general the buildings have a number of life safety deficiencies. The evaluation process included review of applicable codes, review of existing documents, and verification of actual field conditions.

Building D - Social Science – The building requires compliant low-level exit lighting and emergency lighting, and the existing fire alarm system must be evaluated for compliance and may need to be replaced to make the campus have a fully integrated code compliant fire alarm system.. The building is currently sprinklered. Many of the doors in this building have 'dog-leg' hardware which must be removed.

Building E - Science - The building requires compliant low-level exit lighting and emergency lighting, and the existent fire alarm system must be checked for compliance. Many of the doors in this building have 'dog-leg' hardware which must be removed. The handrails at the building's exterior ramp and stairs are not compliant. The building is not currently sprinklered, and is required to be.

Building F - Gymnasium – The building requires compliant low-level exit lighting and emergency lighting, and the existent fire alarm system must be checked for compliance. Some of the doors in this building have 'dog-leg' hardware which must be removed. The handrails and landings at the interior stairs are not compliant. The building is not sprinklered.

Building G - Millennium High School – The building requires compliant low-level exit lighting and emergency lighting, and the existent fire alarm system must be checked for compliance. Some of the doors in this building have 'dog-leg' hardware which must be removed. The handrails and landings at the interior stairs are not compliant. The building is sprinklered at exterior openings adjacent to exit paths, but not within the building, nor is it required to be sprinklered.

Seismic Evaluation

The four buildings were surveyed for nonstructural hazards using ASCE Standard 31. The results of this survey are as follows:

Building D - Social Sciences– This building is a one story classroom and office structure. It has been evaluated for non-structural seismic hazards. Several bookcases, shelves and file cabinets in this building pose a high risk of falling during seismic activity. Wall mounted televisions in some of the classrooms pose a risk, while the existing lighting fixtures, windows, HVAC units and suspended ceilings pose a low risk.

Building E - Science Building– The Science building is a one-story classroom structure. Many of the wood shelves (including the storage shelves for the Chemistry lab), file cabinets, book cases, televisions, cd players and other appliances pose a high risk of falling during an earthquake. The building's light fixtures, HVAC units, doors and windows pose a minimal risk.

Building F -Gymnasium – The Gymnasium is a two story building with a Lobby addition built in 2003. The non-structural seismic hazards that pose the largest risk in this building are: the metal storage cabinet in the Upper Level dance room and the building's water heater and boiler units. The building's light fixtures, windows, sports equipment and suspended ceilings pose a low risk.

Building G - Millennium High School / District Administrative Offices – The Millennium High School is a three story concrete building housing classrooms and the high school's administrative offices. Many of the buildings light fixtures, storage cabinets, shelving, HVAC units, ceiling tiles, book cases, televisions, kilns, and windows pose a high-level risk during the event of seismic activity.

Conclusions

Based on structural, accessibility and fire & life safety evaluations, we believe it is feasible to strengthen and mitigate the deficiencies in the buildings and at the same time preserve their basic functional and architectural character. However, the extent of work will be defined during the next, conceptual design phase of the work.

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1. INTRODUCTION

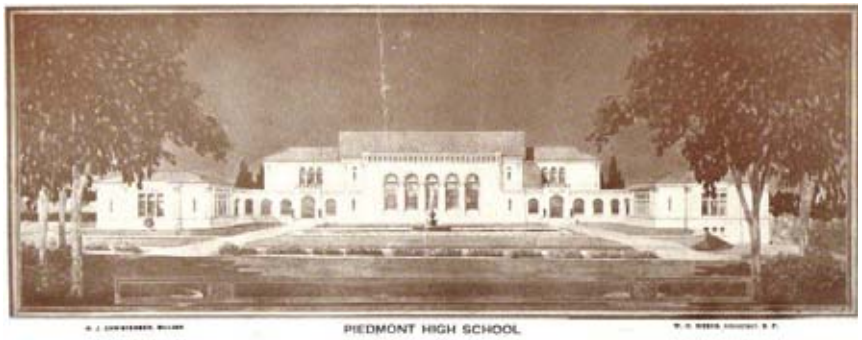
A. *Project Scope*

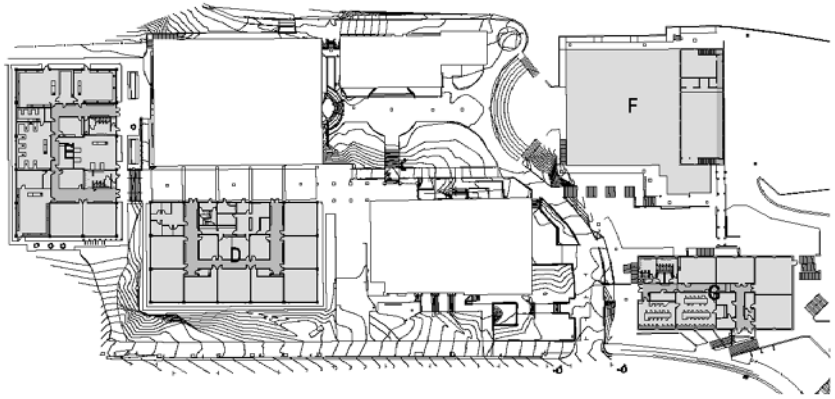
In March of 2006, the City of Piedmont voters passed Measure E, a $56 million bond to address seismic safety in the Piedmont Unified School District (PUSD).

To assist the District in managing the seismic program, the PUSD has engaged Capital Program Management, Inc. (CPM), to oversee program planning and implementation. The School Board has formed a Steering Committee to oversee the management of all bond projects and serve as a communications hub; a Technical Advisory Committee to advise the Steering Committee and about the technical aspects of the project and a Citizens Oversight Committee to ensure that funds are appropriately and prudently spent. Additionally, an extensive public engagement effort has been set up to both educate the community about the progress of the project and to elicit comments and feedback.

murakami/Nelson was selected to evaluate the school buildings, develop design solutions, prepare construction documents and oversee construction of the projects. Assisting us in this effort is R. P. Gallagher Associates. The initial work effort has focused on four non-priority buildings at Piedmont High School. They are the Social Science Building (Building D), the Science Building (Building E), the Gymnasium, (Building F), and the Millennium High School/District Administration Offices (Building G). This report summarizes the investigative efforts of the design team to understand the existing conditions of the four non-priority buildings. *murakami*/Nelson has reviewed the non-priority buildings and identified accessibility and life safety deficiencies. R. P. Gallagher has completed their Tier 1 non-structural hazards analysis of these buildings. This report documents our findings.

The basis of this report are existing approved drawings from the Department of the State Architect (DSA), field investigations conducted by *murakami*/Nelson, R.P. Gallagher Associates, and the ATI "Accessibility Review" dated 09/01/05 provided by the District, and an existing conditions topographic survey by Sandis. After reviewing existing documentation and verifying existing conditions, *murakami*/ Nelson created electronic base drawings to serve as the framework for the project.





B. *Application of California Building Code*

Since there are often code interpretations with use of the California Building Code, the School District engaged DSA in a discussion about the PUSD Voluntary Seismic Upgrade Program. In May 2006 DSA representatives attended a special meeting of the School Board to discuss the District's program and how individual projects would involve compliance with fire, life safety and accessibility requirements of the California Building Code. *murakami*/Nelson continued that discussion with a follow up meeting with DSA on February 9, 2007. At that meeting DSA indicated a willingness to work with the District on the extent of compliance with the current California Building Code. Such determinations would be made on a case by case basis and relate to the specifics of each project.

C. *Future Considerations*

During the next Concept Design phase of the project, programmatic, maintenance and sustainability issues will be considered where those issues can be solved as an integral part of the Bond project. Where those issues are not integrally linked to the seismic work, then the District may decide to use Modernization or other funding sources to solve those problems.

Aeiral view of the Piedmont High School campus

D. Building Descriptions

Piedmont High School was originally built in 1921. Since its design by W.H. Weeks, the school has undergone several remodels, additions and reconstructions to accommodate expansions, earthquake retrofitting, and dryrot repairs. In 1974, portions of the school were declared unsafe, under the State's earthquake laws. The school buildings were demolished, except for the original library, the Quad building, and the administration building. Two classroom buildings, a gymnasium, and an auditorium were built. These make up the seven major buildings which occupy the site currently. Four of these, buildings D, E, F & G, were identified as "non-priority buildings" during the District's Tier 1 life-safety risk evaluation process.

Building D. **The Social Science / Language Building**, designed by Reid and Tarics Associates, and built in the mid 1970's, is a non-priority building and has been analyzed for non-structural seismic hazards, accessibility and life-safety in this report.

Building E. **The Science Building**, designed by Reid and Tarics Associates, and built in the mid 1970's is a non-priority building that has been analyzed for non-structural seismic hazards, accessibility and life-safety in this report.

Building F. **The Gymnasium Building**, designed by Reid and Tarics Associates, and built in the mid 1970's, with a lobby / toilet room addition in 2003, is a non-priority building and has been analyzed for non-structural seismic hazards, accessibility and life-safety in this report.

Building G. **The Administration / Art / Milliennium High Building**, designed by Warnecke and Warnecke, and built in 1961, is a non-priority building and has been analyzed for non-structural seismic hazards, accessibility and life-safety in this report.

Note: Piedmont High School's priority buildings have been described in a previous Investigation and Analysis Report. The Field House and Witter Field are not part of this project and were not evaluated.

2. ADA / ACCESSIBILITY

2. ADA /ACCESSIBILITY.

Background:

School facilities in California are required by federal and state law to provide equal access for students, teachers, staff and visitors. At the Federal level the empowering legislation is the Americans with Disabilities Act or ADA. Under that law ADAAG regulations were written to describe the accessibility requirements for the entire country. The ADAAG regulations are enforced by civil action. At the State level accessibility is governed by the California Building Code. In the case of public school buildings the California Building Code is enforced by the Division of the State Architect or DSA.

The State of California is in the process of getting the California Building Code certified by the Department of Justice as meeting ADAAG. Until that occurs architects must comply with both the ADAAG and the California Building Code. *murakami*/Nelson has used both documents in evaluating the non-priority buildings at Piedmont High School.

The California Building Code requires whenever more than $120,000 (*adjusted for inflation each year*) worth of work other than for maintenance or replacement of finishes is done in any three year period for an existing building, that access compliance work be included as part of that project. Section 1134B of the California Building Code requires that alteration work within an existing building comply with the current Code and that additional access work, as stipulated in the Code, be done beyond the area of the alteration.

Because seismic upgrade projects often affect areas throughout a school the State Attorney General has issued an interpretation (DSA Document 96-01) that access work triggered by a seismic strengthening project need only provide an accessible primary entrance, sanitary facilities, signs, telephone (if provided), drinking fountain and an accessible path of travel to those facilities, but not a accessible path of travel to the area of all the alterations as Section 1134B.2 of the Building Code requires. Use of this interpretation by DSA on the Piedmont Seismic project remains to be resolved.

In any event the voluntary seismic strengthening work the District is planning will trigger substantial compliance with the access requirements of Section 1134. Furthermore, if State modernization funds are used for the projects, then all the requirements of Section 1134 would be triggered.

Summary & Analysis

This report has made use of the ATI report, with field verification of existing conditions.

Piedmont High School has had numerous changes implemented over its 86 year history. With the major new construction that occurred in the mid 1970's, the accessibility of the site and within the buildings were greatly enhanced, though accessibility issues do exist and the site and building are not fully compliant with current code and ADA requirements.

Main entry point on to campus

Exisitng accessible parking

Existing accessible parking

Site:

Piedmont High School is bound by the City park to its east and south sides, the Piedmont Middle School to its west, and the primary access to the school site, Magnolia Avenue to its north. There are two on-street parking stalls designated as accessible at the northwest corner of the school and two parking stalls on-site near the Gymnasium. The two on-street parking spaces are not compliant, due to the steepness of the sidewalk and street. The two on-site parking spaces are remote and not near the primary entries to the site. Magnolia Avenue is the main drop-off and loading zone for the majority of the students. No accessible drop-off/loading zone has been provided for a physically impaired student. These issues will be addressed in the planning of the seismic work for the three priority buildings.

There are two accessible entry points onto the school campus. The school utilizes a series of ramps to provide access to most of the buildings on the campus. Access to the Building F, the Gymnasium, requires the use of an elevator along the path of travel, as does the middle floor of Building G, the Millennium High School. The bottom floor of Building G can be accessed via an accessible ramp from Magnolia Avenue, but the length of the route is considerable.

Many of the exterior stairs are not compliant, lacking handrails on one side or intermediate railings, lacking proper extensions, and/or lacking proper contrasting striping on the stair treads. The ramps are lacking guide rail edge protection. The diameter of most of the handrailing is non-compliant.

There is very little directional or informational signage throughout the site. Accessibility signage is non-existent and will need to be provided.

Covered Thoroughfare between Bldg. A & D

Ramp and Entry to Building G

Stairs between buildings D & E

Stairs between buildings D & E

Building D – Social Sciences / Language Building

The Social Sciences building was built in the 1970's and was renovated in 1988. As a part of that renovation, a majority of the accessibility deficiencies were mitigated. In reviewing the current facility, there are still some accessibility issues that need to be addressed as follows:

1) Most of the doors have knob locksets that must be replaced with accessible lever hardware. Many of the closers need to be adjusted for proper opening/closing pressure.
2) One of the existing classrooms in this building was remodeled into an office suite without DSA approval, although the construction is generally accessible and compliant. DSA may require confirmation that the construction meets the building code.
3) There are no student bathrooms in this building. The existing men's and women's restrooms (for faculty and staff) are not accessible because they lack minimum clearance for an accessible path of travel, as well as non-compliant fixture heights.
4) All the existing built-in casework, counters, and the transaction desk in the Attendance Office are not accessible.
5) The existing water fountain in this building does not comply with accessibility standards.
6) The building lacks proper signage.

Building D - lockers are not accessible.

Building D - The faculty/staff toilet is not accessible.

Building D - Sinks and counters in faculty/ staff restrooms are non-accessible.

Building D - Attendance counter is not accessible.

Building E - Laboratory sinks are non-accessible.

Building E - Laboratory tables are non-accessible throughout.

Building E - Student bathrooms are not accessible.

Building E – Science Building

The Science Building was built in the 1970's and was renovated in 1988. As a part of that renovation, a majority of the accessibility deficiencies were mitigated. In reviewing the current facility, there are still some accessibility issues that may need to be addressed as follows:

1) Lab sinks and counters in all classrooms and preparatory rooms are non-compliant, because of their height and lack of knee space. No provisions to provide a minimum of one accessible station were made.
2) Most of the doors in this building are compliant, although the doors in classrooms 26 and 27 have non-compliant door closing/opening pressure. The doors in classrooms 22 and 23 lack proper push-side clearance.
3) The building lacks proper signage.
4) There is one "hi-lo" drinking fountain that is accessible, and one that is non-compliant.
5) The building has student bathrooms that were updated in the 1990's, but still remain inaccessible because they lack proper clearance for an accessible path of travel, as well as non-compliant fixtures.
6) The exterior stairs leading to the building's main doors lack compliant warning stripes.

Building F – Gymnasium

The Gymnasium was built in the 1970's and subsequently renovated in the 1980's. A Lobby/ toilet room addition was built in 2003 and includes accessible women's and men's restrooms as well as a Snack Bar. Accessibility deficiencies remain, and are described below:

1) Many of the doors in the Gymnasium are not accessible, due to non-compliant hardware. Except at the new entry lobby, exterior doors throughout need new exterior landings because level changes exceed the allowable ½" height difference.
2) With the exception of the bathrooms in the Lobby addition, all of the bathroom facilities in the Gymnasium are non-compliant, including the Shower Rooms in the Girl's and Boy's Locker Rooms. The locker room restrooms can be made compliant by including accessible fixtures and accessories at the proper mounting heights.
3) The accessibility signage for the lobby/toilet room addition is non-compliant.
4) The drinking fountain in the main room is non-compliant.
5) The current bleachers do not currently have an accessible accommodation.
6) The two stairs leading to the second floor exercise room need new, compliant handrails, as well as warning striping.
7) Lockers in both Boys' and Girls' Locker areas are not accessible.

Building F - Water fountain is not accessible and projects into path of travel..

Building F - Boys' and Girls' Toilets and Locker Rooms are non-compliant.

Building F - Toilet room / Lobby addition lacks proper accessibilty signage.

Building F - Bleachers do not appear to have accessible seating.

Building G - Water fountain at upper floor lacks one handrail.

Building G - Water fountain at middle floor is not accessible.

Building G - Door hardware throughout the building is non-compliant.

Building G – Administration / Art / Millennium High school Building

The Millennium High School building was built in 1961 and subsequently remodeled in 1976 and 1997, upgrading the building's overall compliance, but not resolving all accessibility issues. Some minor changes have been made to the building without the DSA's approval, including the demolition of interior partition walls on the middle and lower levels, as well as building a non-DSA approved partition wall on the upper floor. These non-approved changes have not altered the building's accessibility in any considerable manner. Although the Millennium Building has been altered several times, barriers to accessibility remain, as detailed below:

1) The middle floor of this building can only be accessed by wheelchair via an elevator which needs to be updated to accessibility standards.
2) The ground floor of this building can be accessed via wheelchair, but the route of access (from Magnolia Avenue) is considerable.
3) Many of the doors in this building are non-compliant, chiefly because of existing hardware and thresholds. The ground floor entry doors require new landings and hardware, and there are pocket doors on this floor which need to be replaced for accessibility compliance.
4) There are multi-occupancy restrooms on the upper floor that are not accessible, however, single-occupancy restrooms on this floor were updated in 1997 and serve as the accessible toilets.
5) There is one water fountain on the upper floor which could be made accessible by adding a guard rail (it is a hi-lo unit with one guardrail). On the middle floor, there is one non-accessible water fountain. The lower floor has one non-accessible water fountain that is also within the current path of travel.
6) Most of the counters and sinks in this building are not accessible, including all of the Home Economics, Ceramics and Art counters. One accessible counter should be made available per classroom. The District Offices front counter (at the ground floor) is also not accessible.
7) All exterior stairs at this building lack warning stripes at the treads, and handrails are non-compliant.
8) Lockers in this building are not accessible.
9) Accessible signage throughout this building is either non-existent or non-compliant.

ACCESSIBILITY NOTES:

GENERAL NOTES:

1. DOOR ASSEMBLIES ARE GENERALLY COMPLIANT, INCLUDING THRESHOLDS, CLOSING FORCE, CLEAR SPACE, LANDINGS AND BARRIERS, BUT DOOR HARDWARE IS NON-COMPLIANT THROUGHOUT. (NOTE: PUSD WILL BE UPGRADING LOCKSET IN THE NEAR FUTURE).

2. SIGNAGE THROUGHOUT IS NOT COMPLIANT. DIRECTIONAL SIGNAGE IS MISSING. ALL ROOM IDENTIFICATION SIGNAGE WHERE PROVIDED IS NON COMPLIANT.

3. NO ACCESSIBLE PATH OF TRAVEL SIGNAGE.

4. MOST OF THE EXISTING CASEWORK, BUILT-IN CABINETRY AND COUNTERS ARE NOT ACCESSIBLE.

01 DOOR CLEARANCE DOES NOT COMPLY WITH ACCESSIBILTY STANDARDS.

02 NO ACCESSIBILITY SITE SIGNAGE.

03 ENTRANCE / EXIT DOOR ASSEMBLY NOT ACCESSIBLE: MINOR BARRIER SUCH AS OPERATING HARDWARE, EXCESSIVE CLOSING FORCE, THRESHOLD, ETC.

04 HANDRAILS NOT ACCESSIBLE.

05 DRINKING FOUNTAIN NOT ACCESSIBLE.

06 STAIR & HANDRAILS NOT ACCESSIBLE.

07 CABINETRY & COUNTERS NOT ACCESSIBLE, MIN. ONE STATION REQUIRED TO BE ACCESSIBLE

08 TOILET NOT ACCESSIBLE, OR ACCOMODATIONS NOT COMPLIANT.

09 KITCHEN NOT ACCESSIBLE.

10 LANDING TOO SMALL

11 SINKS NOT ACCESSIBLE, ONE ACCESSIBLE SINK REQUIRED.

12 SIGNAGE NOT COMPLIANT.

13 NO ASSISTED LISTENING PROVIDED.

14 LACKING OR WORN STAIR WARNING STRIPES AT TOP AND BOTTOM TREADS.

15 TRANSACTION COUNTER NOT ACCESSIBLE.

16 NO ACCESSIBLE ROUTE (RAMP) @ STAIR.

17 FIXTURE PROJECTS MORE THAN 4" INTO ACCESSIBLE PATH OF TRAVEL.

18 NO INTERIOR ACCESS TO ROOM FROM FIRST FLOOR. WHEELCHAIR ACCESS REQUIRES LEAVING THE BUILDING.

19 LOCKERS ARE NOT ACCESSIBLE.

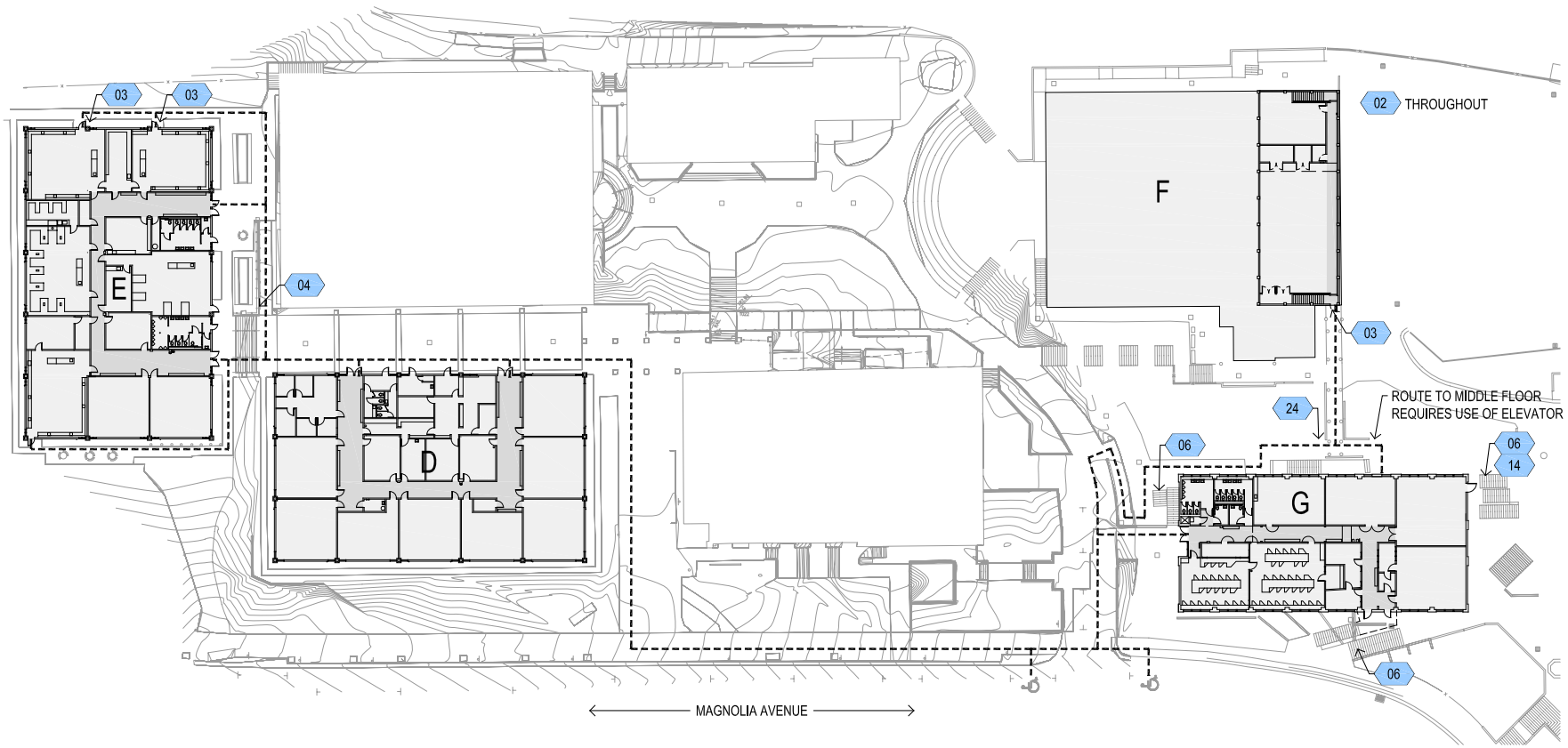
20 LEVEL CHANGE GREATER THAN 1/2" ALLOWED BY CODE (CBC 1104)

21 AISLE DOES NOT MEET MINIMUM CLEARANCE FOR ACCESSIBLE PATH OF TRAVEL (44" WIDE).

22 NON-COMPLIANT RAMP.

23 BLEACHERS DO NOT HAVE ACCESSIBLE SEATING.

24 ELEVATOR MUST BE ACCESSIBLE WITHOUT USE OF A KEY.



REFERENCE NORTH
TRUE NORTH

SCALE: 1" = 50'-0"
0 25'-0" 50'-0" 100'-0"

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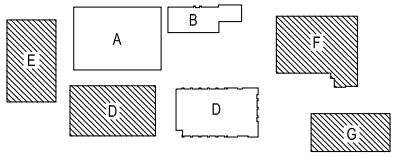

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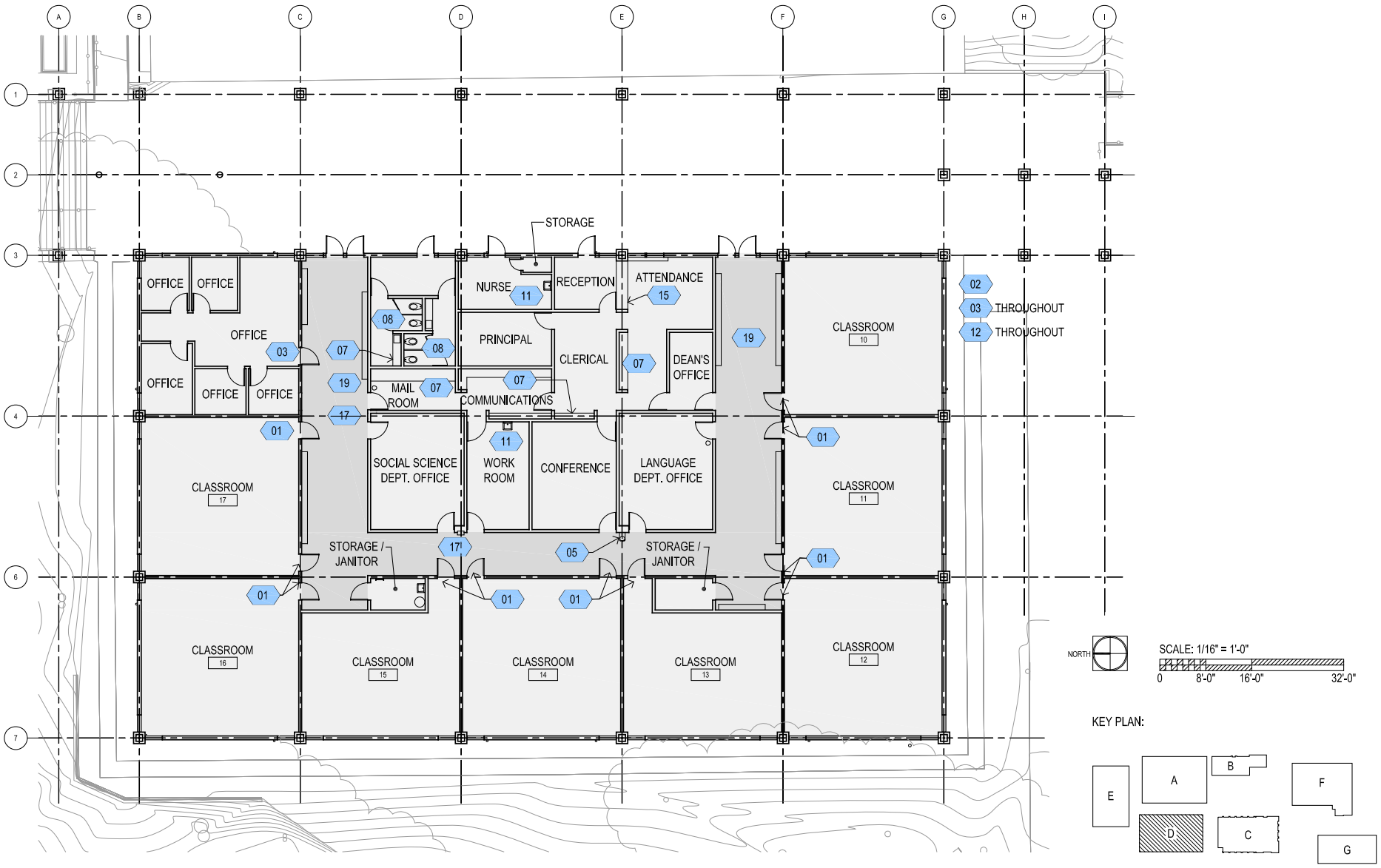
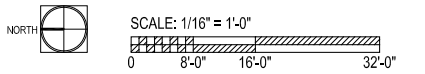


BUILDING D - SOCIAL SCIENCES

BUILDING E - SCIENCE



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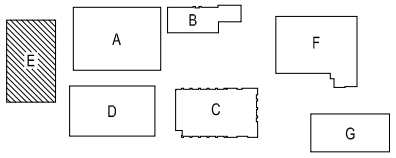
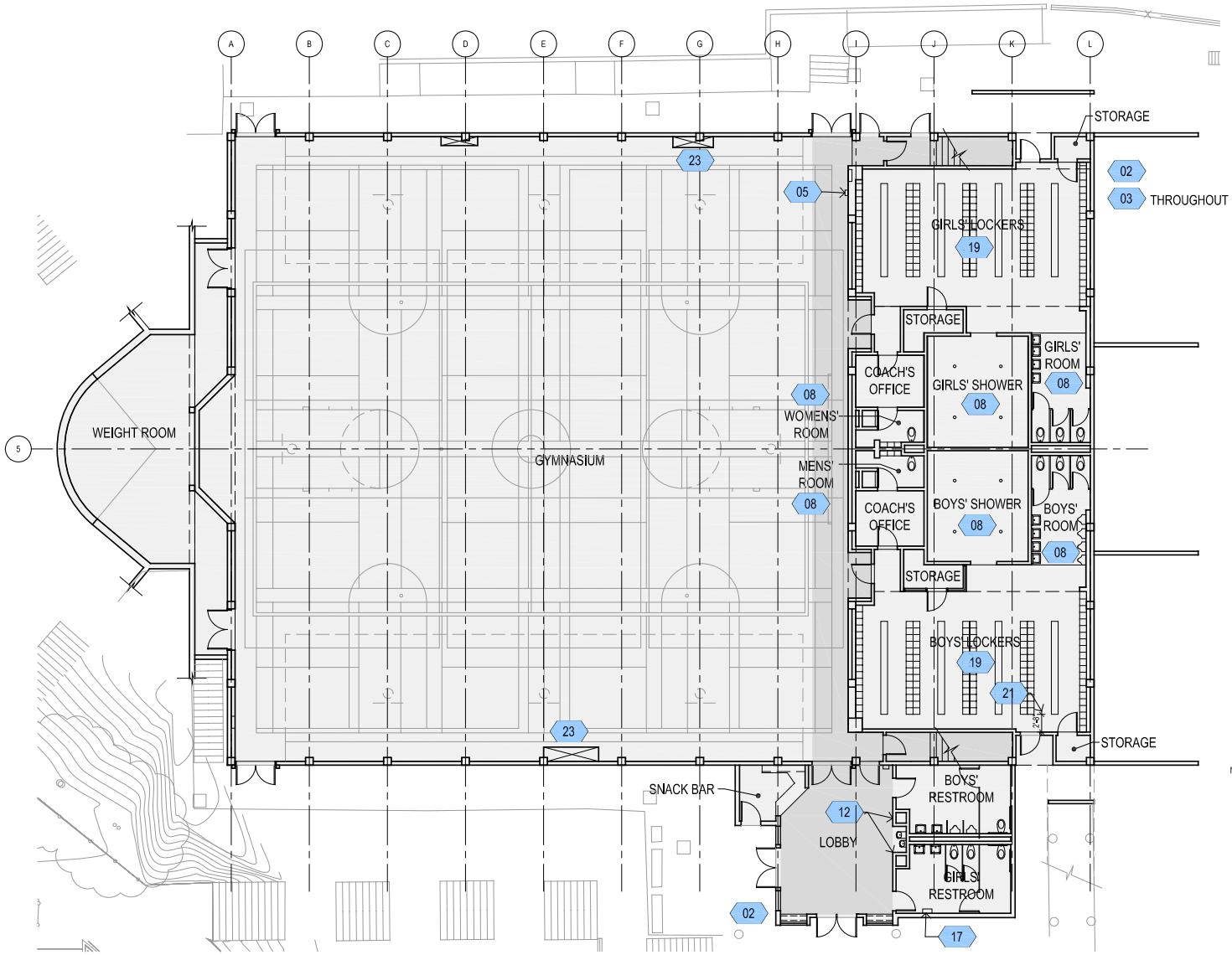
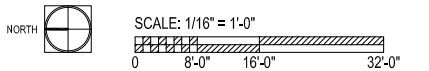


ada / accessibility





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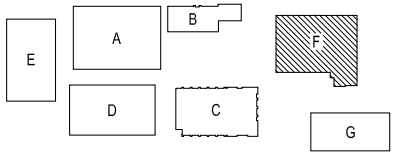
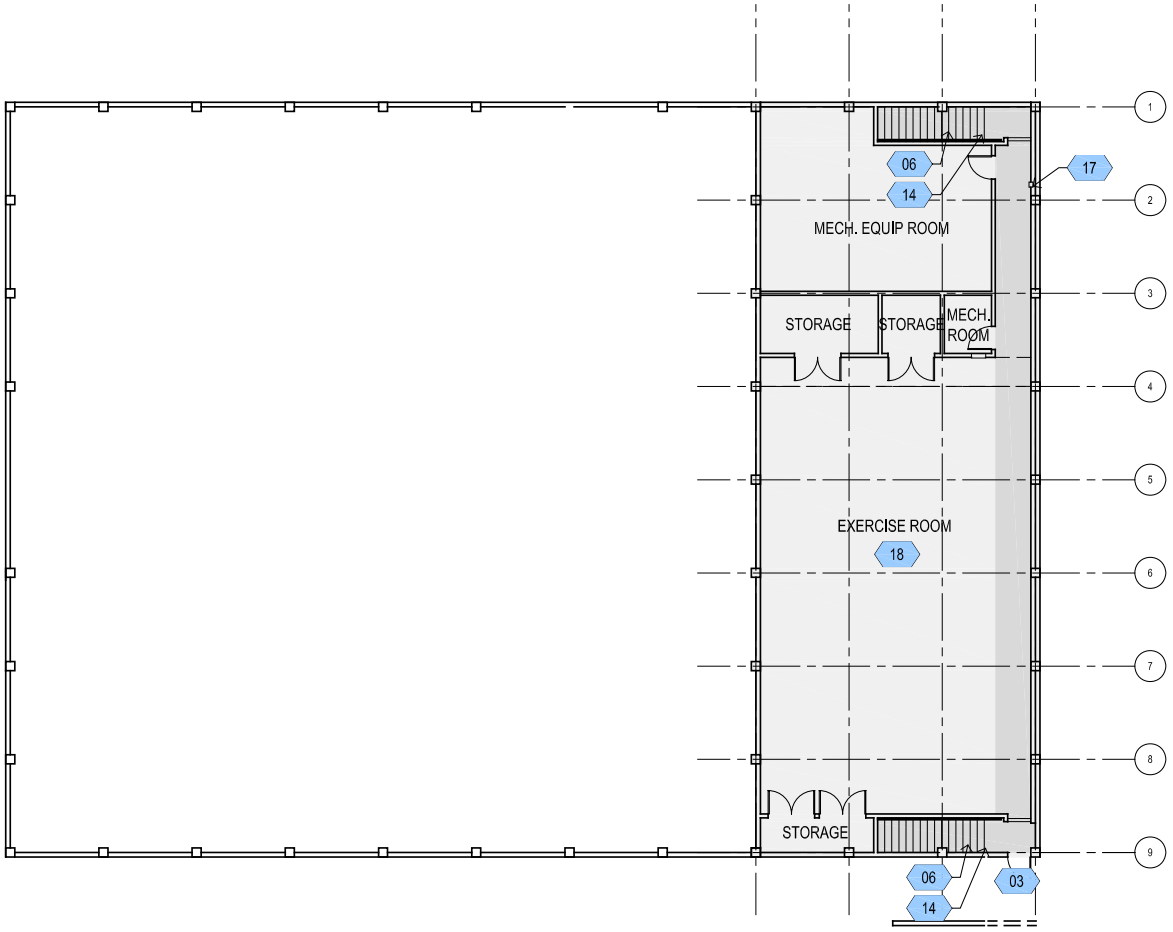


BUILDING F - GROUND FLOOR - GYM



NORTH

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

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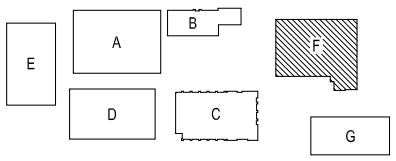
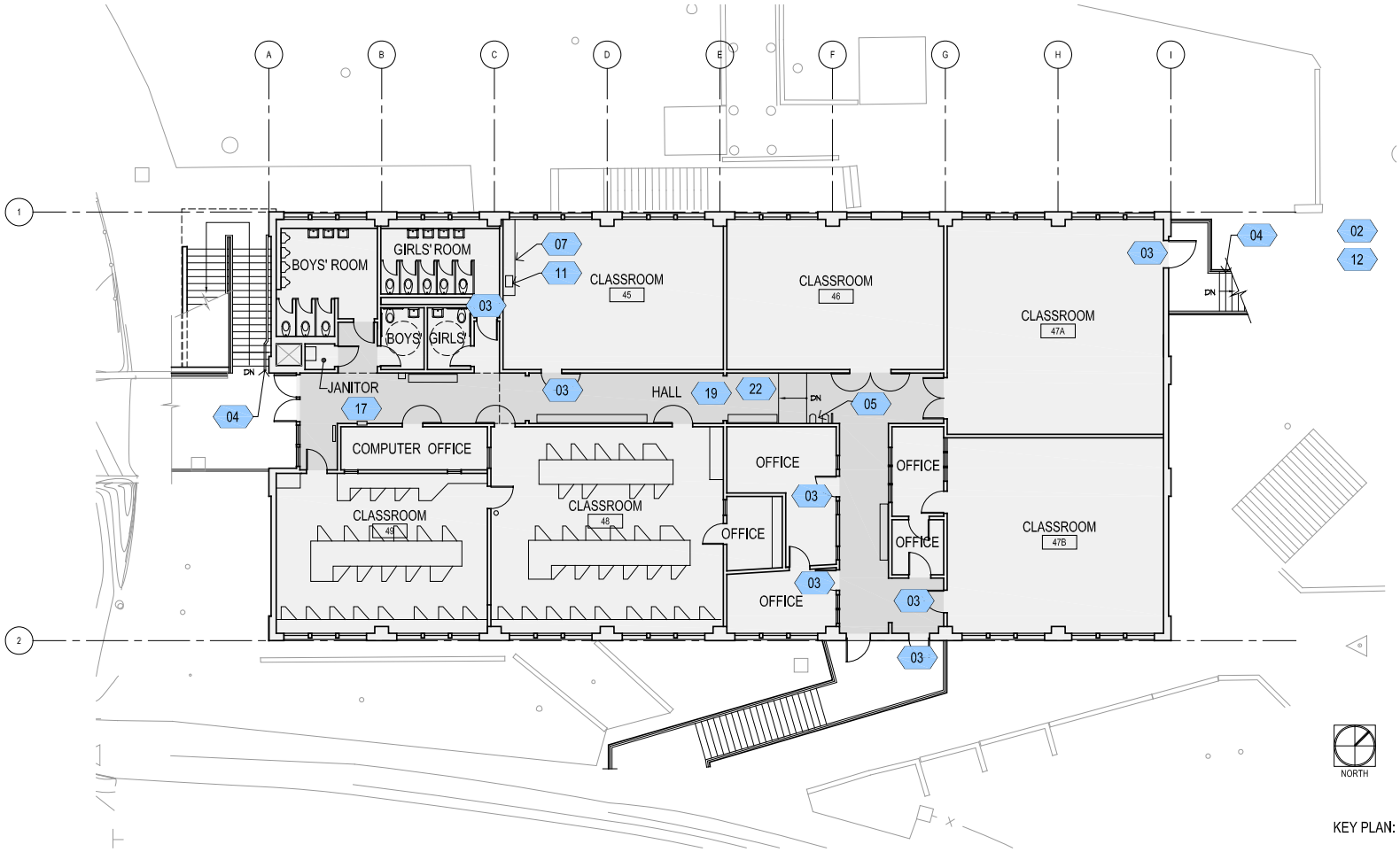
KEY PLAN:



BUILDING F - UPPER FLOOR - GYM



NORTH

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

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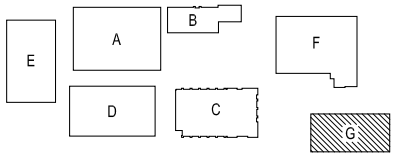
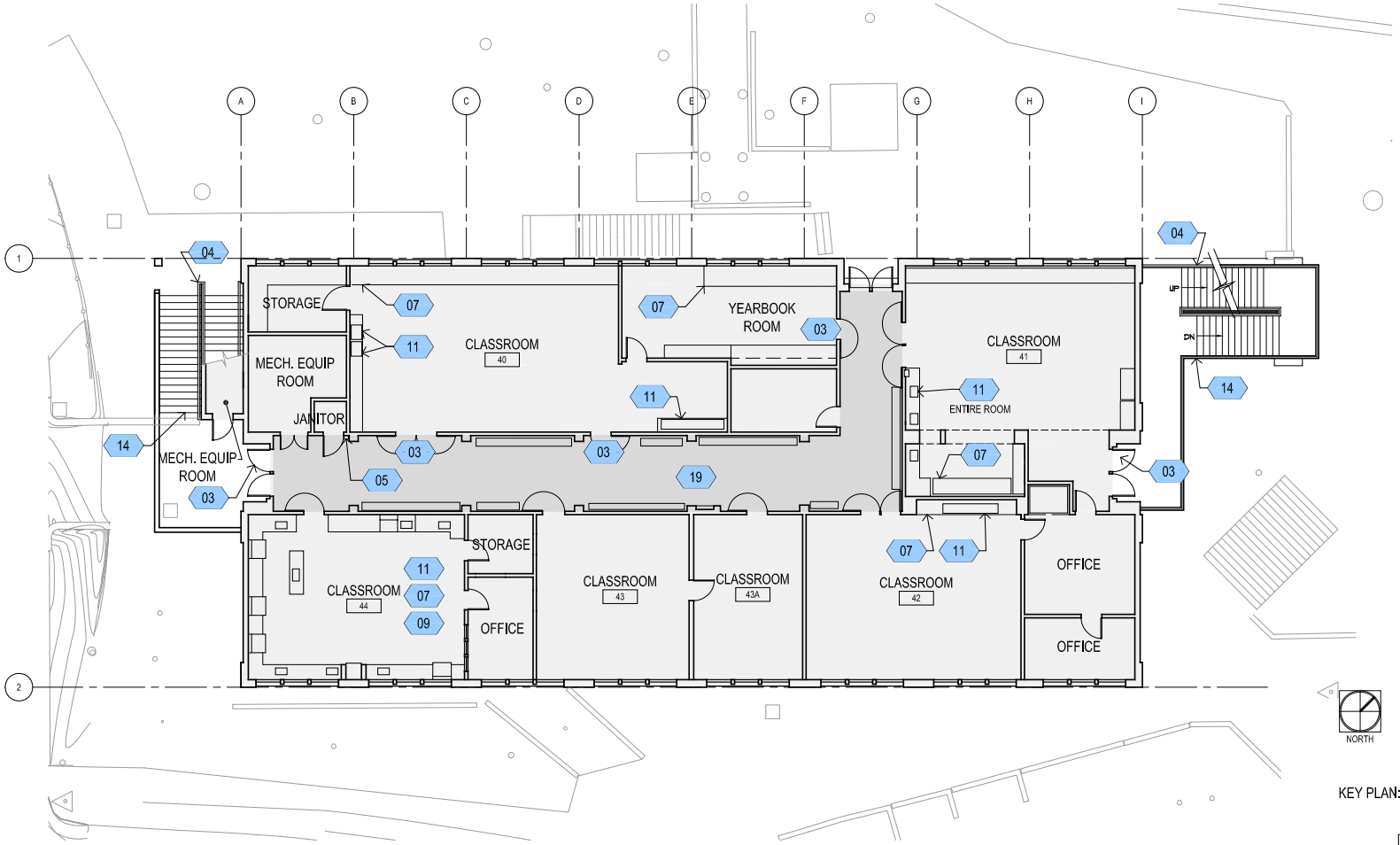
KEY PLAN:



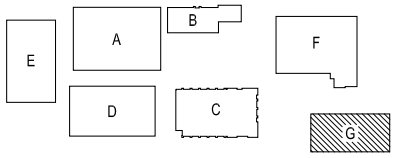
BUILDING G - UPPER FLOOR - 40'S BUILDING, MILLENNIUM HIGH SCHOOL, ADMINISTRATION



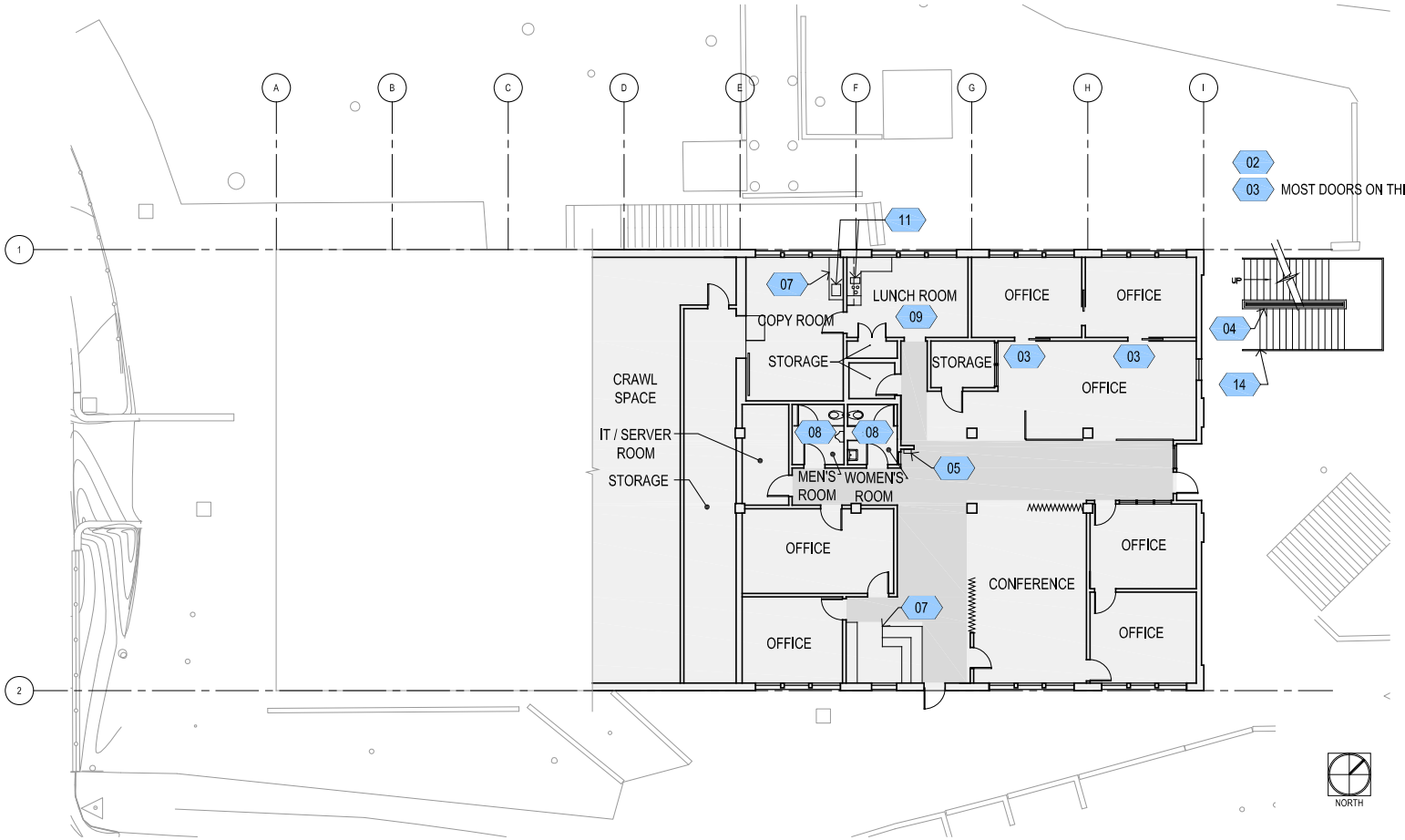
NORTH

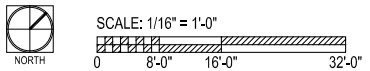
SCALE: 1/16" = 1'-0"
0 8'-0" 16'-0" 32'-0"

KEY PLAN:



BUILDING G - MIDDLE FLOOR - 40'S BUILDING, MILLENNIUM HIGH SCHOOL, ADMINISTRATION





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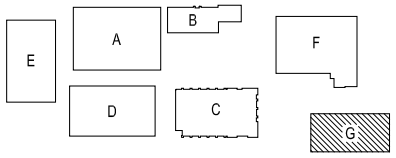


BUILDING G - LOWER FLOOR - 40'S BUILDING, MILLENNIUM HIGH SCHOOL, ADMINISTRATION

3. FIRE / LIFE SAFETY

3. FIRE/LIFE-SAFETY

A. Background:

As with accessibility, fire and life-safety is governed by the California Building Code and is enforced by the Division of the State Architect (DSA). Unlike the accessibility regulations the fire and life-safety regulations are spread throughout the Code; however, most of the pertinent regulations are in Chapters 5 and 10. There is no overarching life safety regulation like ADAAG for fire and life safety. Life Safety is not an area where the School District, the design professional or DSA would compromise; however, there will be areas of negotiation about what is acceptable given the fact that the existing buildings may be constructed differently from what would be built today under current codes. Nonetheless, a primary objective of the project, in addition to seismic safety and accessibility will be to increase fire and life-safety at the schools.

B. Summary & Analysis

The four non-priority buildings at Piedmont High School were also analyzed for fire/life safety code compliance. These findings are summarized in Appendix B: Code Analysis, as well as on the drawings in this section. This report identifies deficiencies. The next phase of the project will offer conceptual solutions to these deficiencies.

Of critical importance are construction type and allowable floor areas; individual and cumulative occupancies and occupant loads, which determine required exiting and area separations. See Appendix B for code review summary

<u>The Site</u>

There are three driveways that come off of Magnolia Avenue that provide access for the Fire Department. None are designated as fire lanes. We will be meeting with the Piedmont Fire Department to review the school for fire department access, as well as any other concerns of the Fire Department.

Building D - many of the doors have non-compliant "dog-leg" hardware.

Building D - corridor.

<u>Building D – Social Sciences / Language Building</u>

The renovation of the Social Sciences Building in 1988 mitigated a number of fire and life safety deficiencies. The corridors have been brought up to the required one hour fire rating, although it was noted that many of the doors have dog-leg door stops installed. These dog-legs compromise the self-closing feature of the door and the smoke and fire protection afforded by a closed door. The building has fire sprinklers. However, there remain a number of fire and life safety issues that will need to be addressed.

Section 305.9 of the 2001 California Building Code requires that all educational facilities known as E-occupancy, have a State Fire Marshal approved and listed fire alarm system. Although the Social Sciences Building has a fire alarm system, it's compliance with DSA will need to be confirmed during the concept phase.

Section 904.2.4.1 Exception 2 of the 2001 California Building Code allows the building to not be sprinklered. However, the building is sprinklered.

Building E – Science Building

The Science Building was renovated in 1988. The corridors have been brought up to the required one hour fire rating, although it was noted that many of the doors have dog-leg door stops installed. These dog-legs compromise the self-closing feature of the door and the smoke and fire protection afforded by a closed door.

Section 305.9 of the 2001 California Building Code requires that all educational facilities known as E-occupancy, have a State Fire Marshal approved and listed fire alarm system. The Science building has a fire alarm system, it's compliance with current life safety standards should be confirmed.

The building is not fire sprinklered. The California Building Code requires the building to be sprinklered.

Section 1007.3.12 of the 2001 California Building Code requires that all educational facilities known as E-occupancy have floor level exit signs with illumination at all corridors. In addition, tactile exit signage is required at locations identified in Sec. 1003.2.8.6.1

An assessment of the chemicals used in the classrooms and the quantities stored on site is still needed for compliance with codes and regulations. A request to the school for this information has been forwarded to the principal of the school. The school is in the process of assembling the information.

Building E - Chemical storage

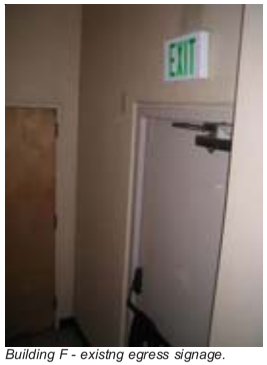
Building E - Fume hood in Chemistry Classroom.

Building E - Chemical storage is non-compliant.

Building E - Fire Extinguisher in corridor.

Building F - non-compliant handrails.

Building F - curtain will obscure exit sign when closed.



Building F - existng egress signage.

Building F - existng fire hose cabinet.

Building F – Gymnasium

Section 305.9 of the 2001 California Building Code requires that all educational facilities (E-occupancies), have a State Fire Marshal approved and listed fire alarm system. Although the Gymnasium Building is an A-2, assembly occupancy, it serves an educational community and will be subject to the requirement of an E-occupancy based on Sec 305.9.3. The existing fire alarm system with manual pull station, does not meet the current code requirements.

It appears that the Gymnasium does not have emergency lighting as required by current code.

The Gymnasium is not sprinklered. Section 904.2.4.1 Exception 2 of the 2001 California Building Code allows the building to not be sprinklered.

Building G – Millennium High School / Art / Administration

Section 305.9 of the 2001 California Building Code requires that all educational facilities (E-occupancies), have a State Fire Marshal approved and listed fire alarm system. The existing fire alarm system with manual pull station and duct smoke detectors, may not meet the current code requirements.

Section 1007.3.12 of the 2001 California Building Code requires that all educational facilities known as E-occupancy have floor level exit signs with illumination at all corridors. In addition, tactile exit signage is required at locations identified in Sec. 1003.2.8.6.1. The upper level has the floor level exit signs. The middle level has no exit signs at all. The lower level is a B-occupancy and does not require floor level exit signs. However, exit signs are required. The lower level has no exit signs.

Building G - many of the doors are not fire rated.

Building G - fire hoses should be replaced with fire extinguishers.

Building G - kilns in the ceramics room pose a high risk of falling over during a seismic event.

LIFE SAFETY NOTES:

01 STAIRWAY WIDTH NOT COMPLIANT (CBC 1007.3.6).

02 EXIT DOORWAY WIDTH NOT COMPLIANT (CBC 1003.6.1.3).

03 NO SFM APPROVED FIRE ALARM SYSTEM (CBC 305.9).

04 NON-COMPLIANT OFFICE SUITE REQUIRES FIRE ALARM & SPRINKLERS (CBC 1004.3.4.3, EXCEPTION 4).

05 FLOOR LEVEL EXIT LIGHT REQUIRED.

06 TACTILE EXIT SIGN REQUIRED.

07 NON-COMPLIANT BUILDING PROTECTION (CBC 305.9.3), GROUP E OCCUPANCIES REQUIRED FIRE ALARM SYSTEM.

08 NON-COMPLIANT HALLWAY (CBC 1004.3.4.3), CORRIDOR MUST BE 1-HR. RATED OR PROVIDED WITH FIRE ALARM & SPRINKLER TO BE NON-RATED.

09 ROOM CAPACITY NOT POSTED (CBC 1007.2.6).

10 ADEQUACY OF FIRE ALARM SYSTEM TO BE CONFIRMED WITH DSA.

11 ADEQUACY OF FIRE SPRINKLERS TO BE CONFIRMED WITH DSA.

12 ADEQUACY OF SMOKE HATCHES TO BE CONFIRMED WITH DSA.

13 CONFIRM MEANS OF EGRESS LIGHTING (MIN. 1 FC) COMPLIES WITH CBC.

14 (E) FIRE HOSE AND CABINET. REPLACE WITH FIRE EXTINGUISHER.

15 LANDING REQUIRED ON EACH SIDE OF DOOR (CBC 1003.3.1.6).

16 HANDRAILS AT STAIRS NOT COMPLIANT (CBC 1003.3.3).

17 NON-COMPLIANT 'DOG-LEG' DOOR HARDWARE TO BE REMOVED.

18 FIRE RATING LABEL ON DOOR PAINTED OVER.

19 VERIFY FUME HOOD COMPLIANCE.

20 CHEMICAL STORAGE: NOT ALL SHELVES HAVE BARS TO PREVENT CHEMICALS FROM FALLING. ADDITIONALLY, A REVIEW OF STORAGED CHEMICALS IS REQUIRED FOR TYPE AND AND ALLOWED QUANTITIES.

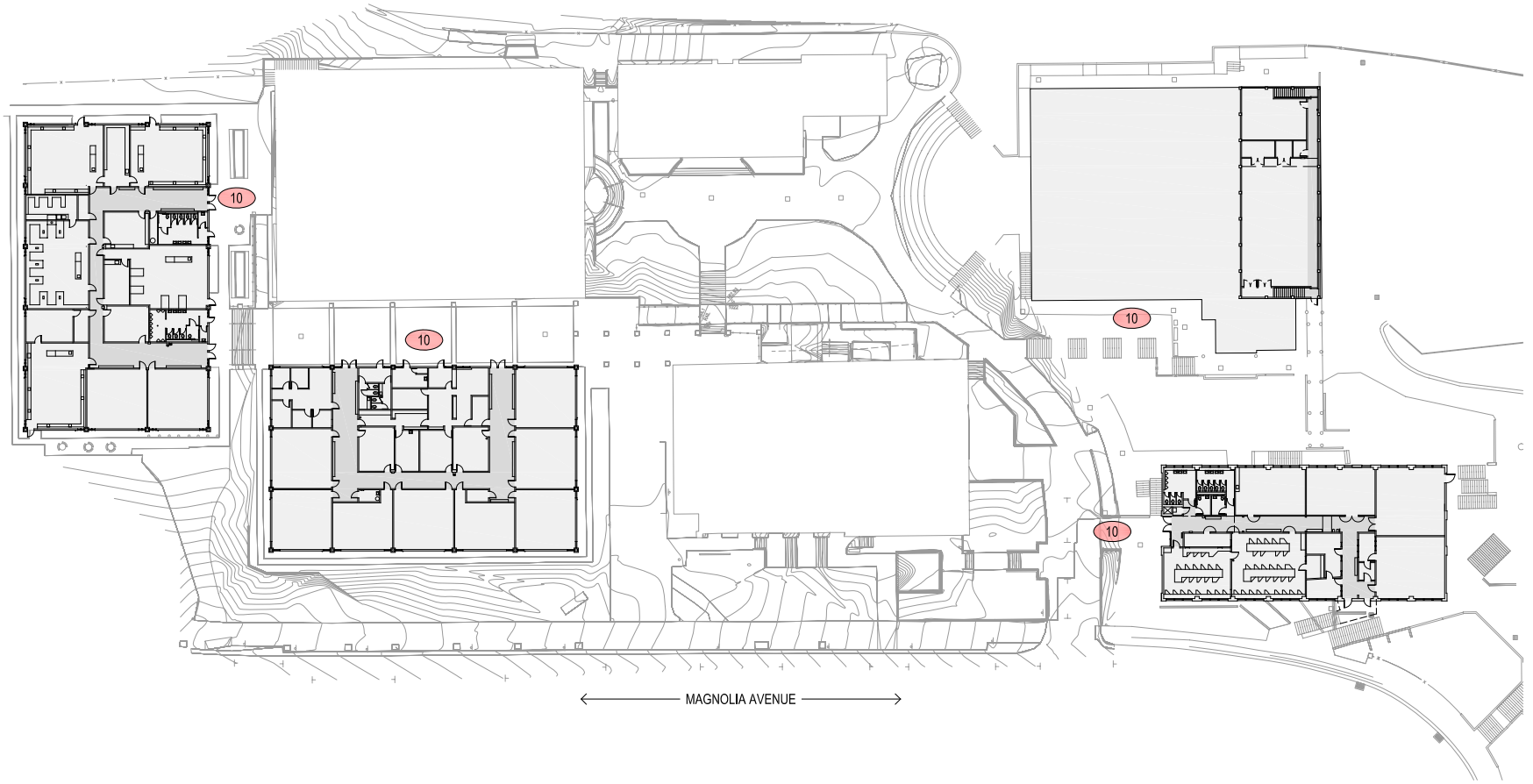
21 EXISTING CURTAIN OBSTRUCTS EXIT LIGHT WHEN DRAWN CLOSED.

22 NON-RATED DOOR. ALL DOORS LEADING TO I HR. RATED CORRIDOR MUST BE FIRE RATED.

23 MEANS OF EGRESS FROM THIS ROOM IS NOT COMPLIANT. WHEN OCCUPANCY LOAD IS GREATER THAN 10, NOT MORE THAN ONE INTERVENING ROOM IS ALLOWED.

ABBREVIATIONS:

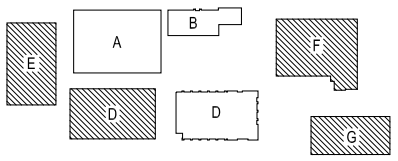
F.E. EXISTING FIRE EXTINGUISHER
P.H. EXISTING PANIC HARDWARE



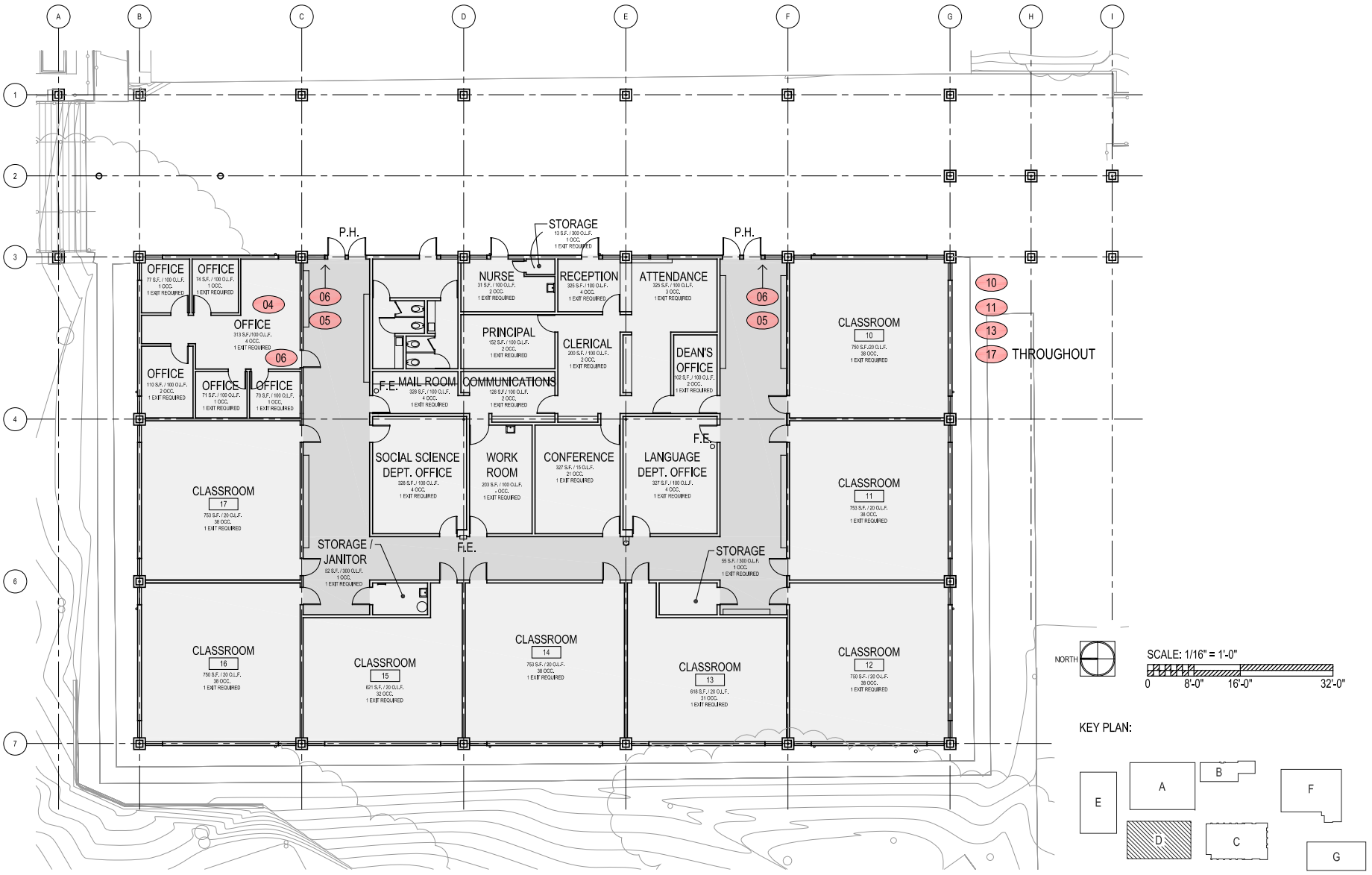
REFERENCE NORTH
TRUE NORTH

SCALE: 1" = 50'-0"
0 25'-0" 50'-0" 100'-0"

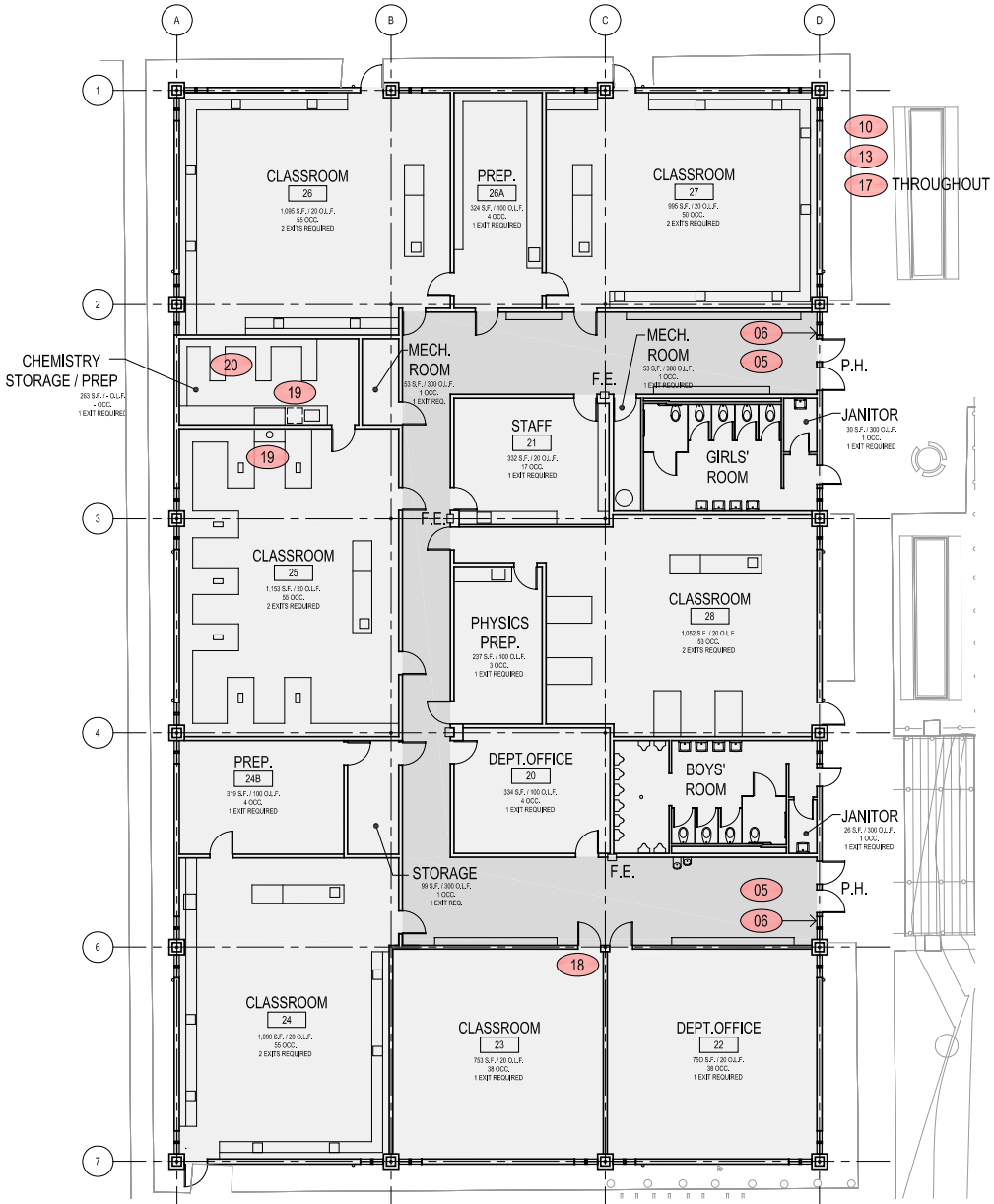
KEY PLAN:



SITE ACCESS PLAN



BUILDING D - SOCIAL SCIENCES



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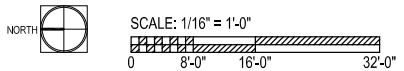

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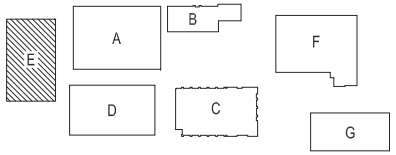
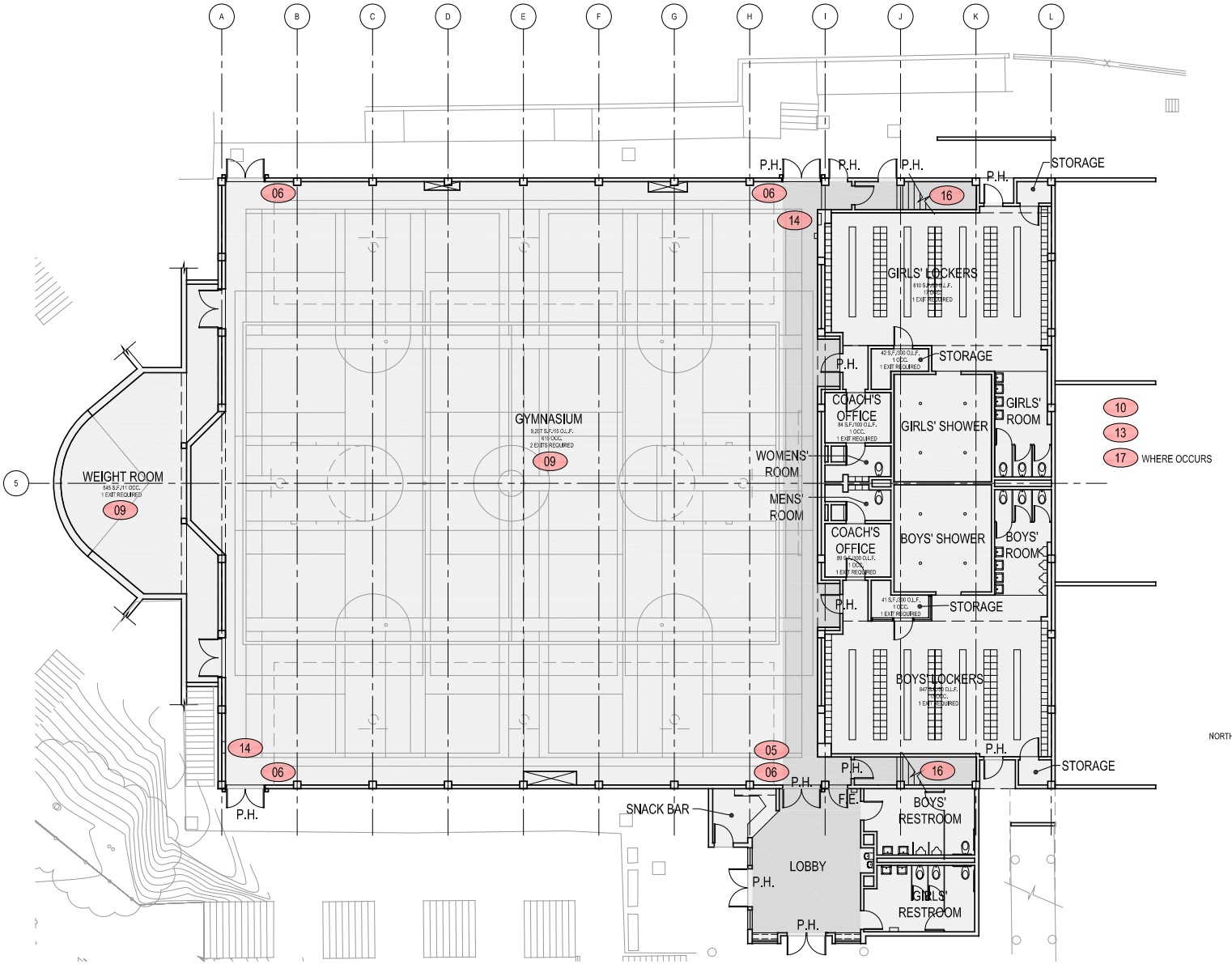
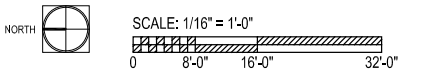


life safety



BUILDING F - LOWER LEVEL - GYM



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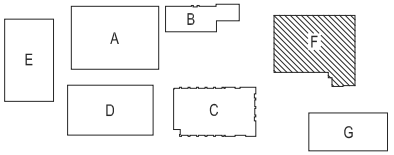

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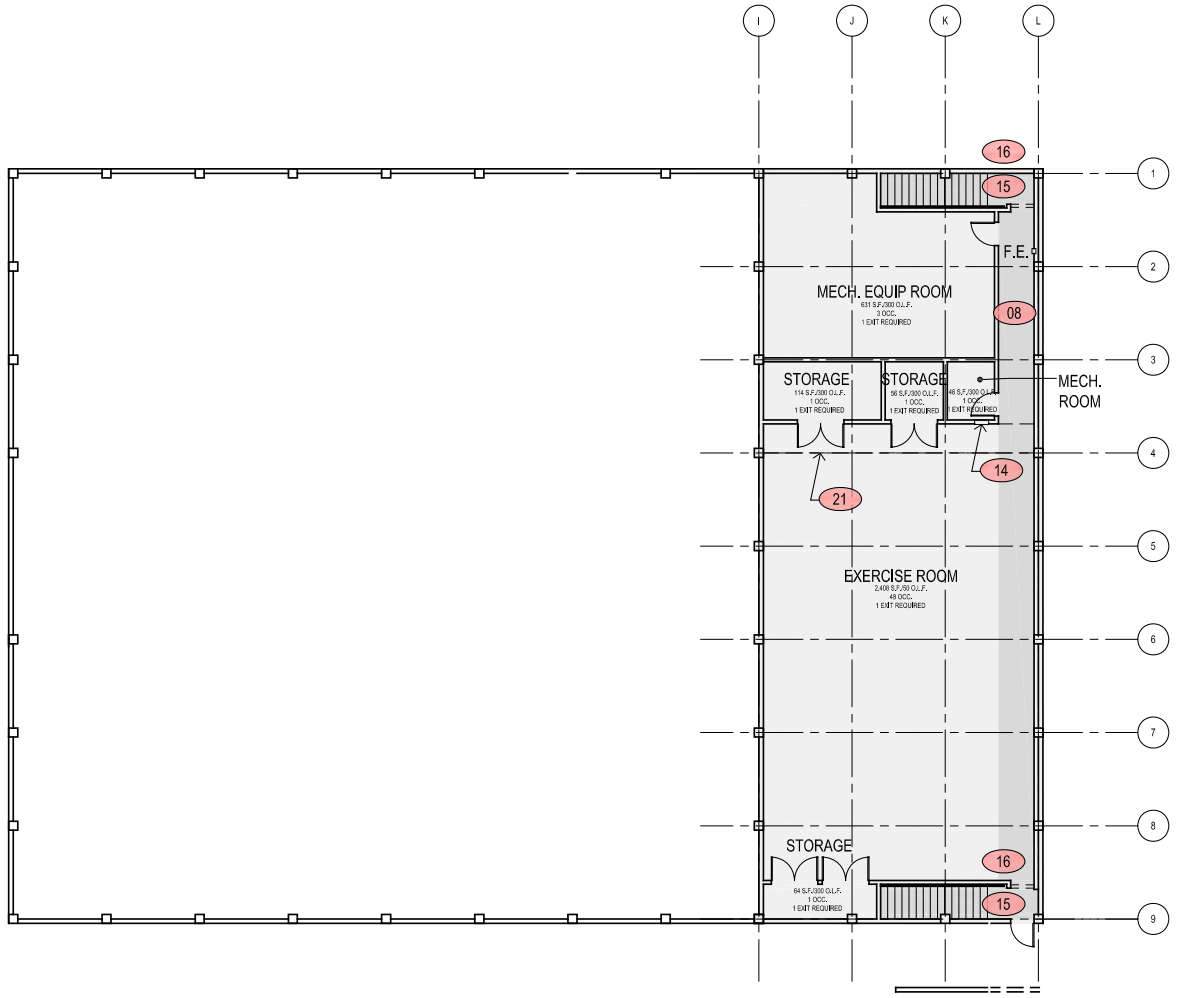
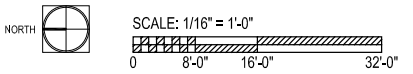


BUILDING F - UPPER LEVEL - GYM



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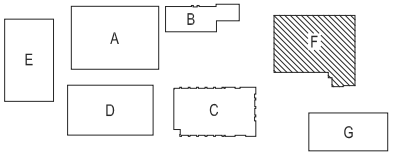

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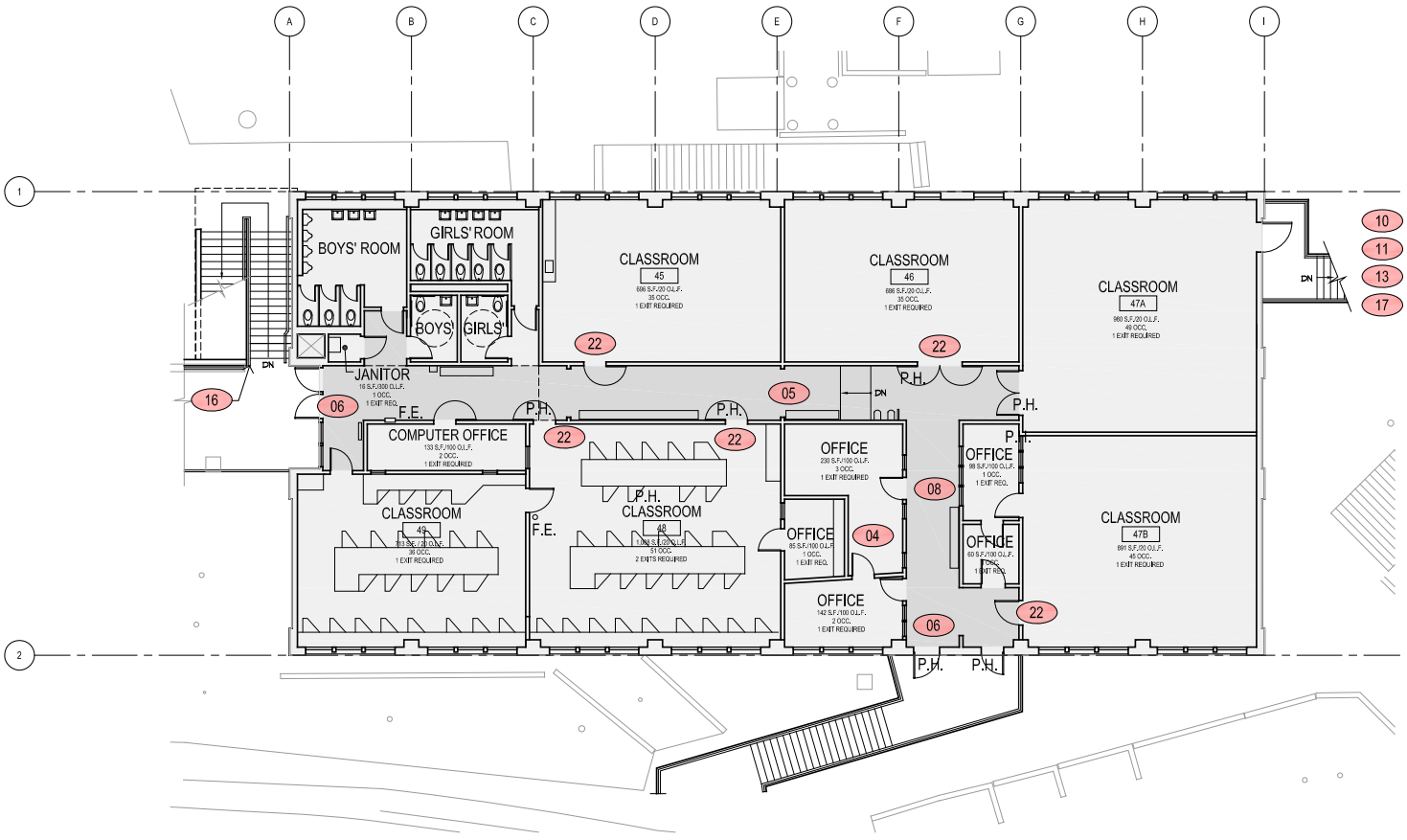

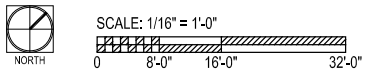

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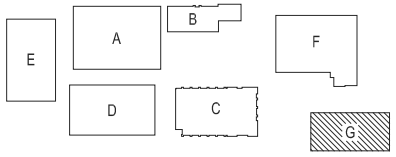
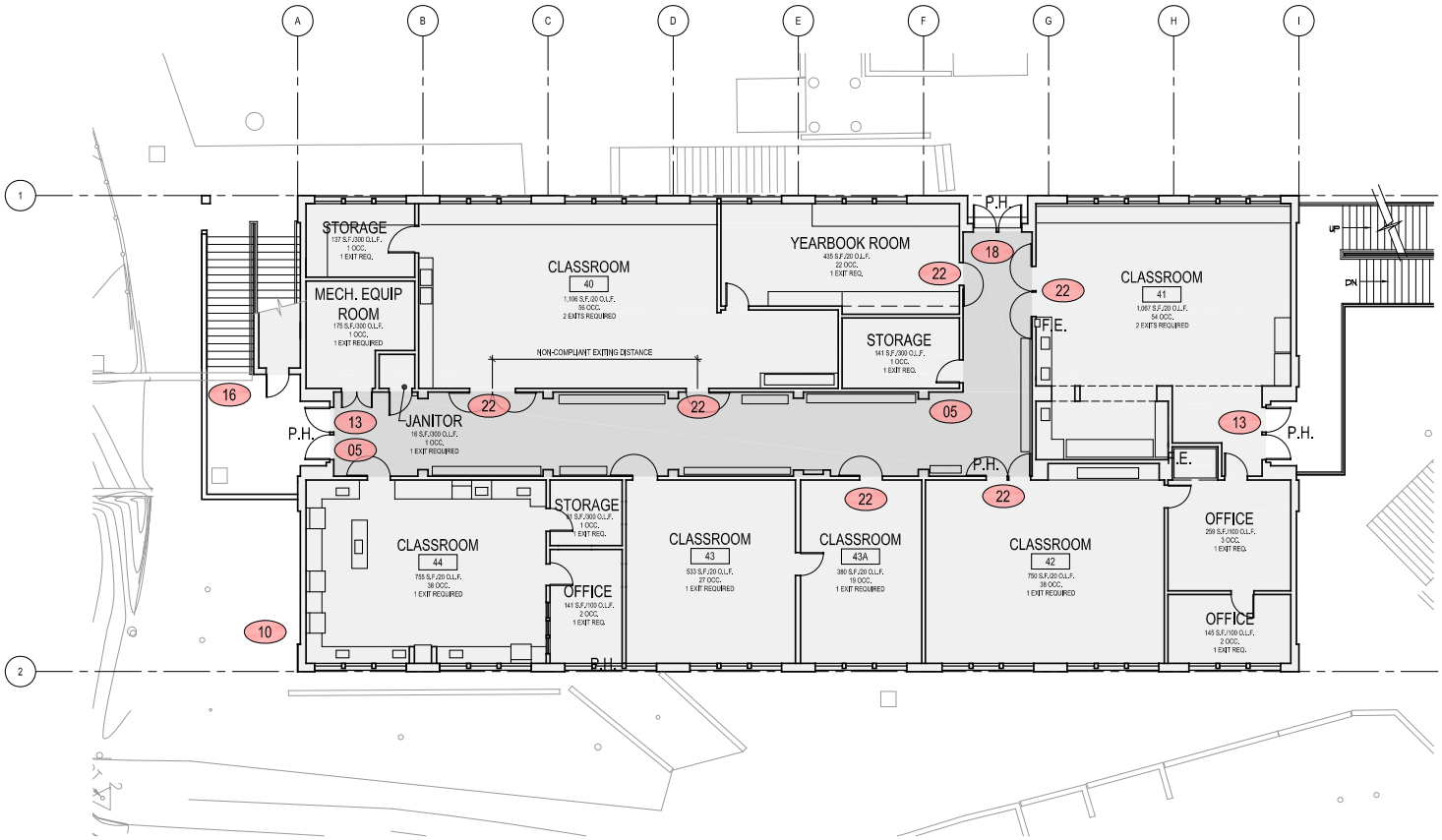


BUILDING G - UPPER FLOOR - 40'S BUILDING, MILLENNIUM HIGH SCHOOL, ADMINISTRATION

life safety

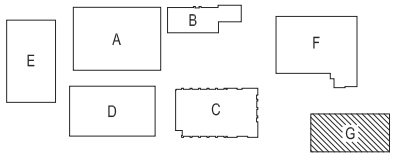


NORTH

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

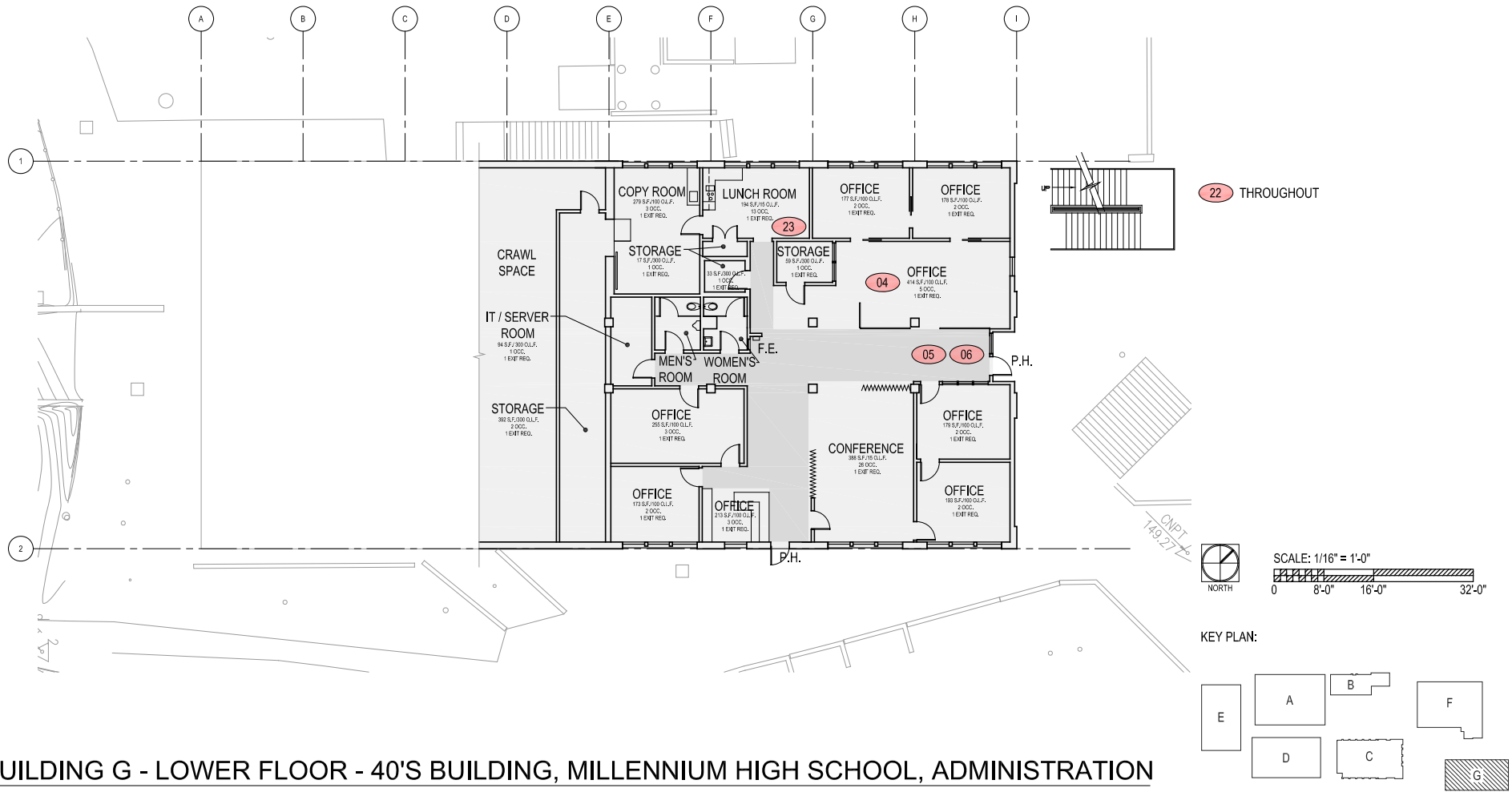
0 8'-0" 16'-0" 32'-0"

KEY PLAN:



BUILDING G - MIDDLE FLOOR - 40'S BUILDING, MILLENNIUM HIGH SCHOOL, ADMINISTRATION

life safety



BUILDING G - LOWER FLOOR - 40'S BUILDING, MILLENNIUM HIGH SCHOOL, ADMINISTRATION

life safety

4. STRUCTURAL TIER 2 REPORT

Draft Report:
Survey of Buildings D, E, F and G at Piedmont High School for Nonstructural Seismic Hazards, Piedmont Unified School District

Prepared for
murakami/Nelson Architects, Inc.
Oakland, CA

August 14, 2007

Prepared by
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Structural Engineers
Oakland, CA

Executive Summary

A survey of four buildings at Piedmont High School for nonstructural seismic hazards was conducted. The evaluation criteria used was ASCE Standard 31 "Seismic Evaluation of Existing Buildings," published in 2003 by the American Society of Civil Engineers. This document is the generally recognized national standard for assessing the life safety risk of existing buildings, including nonstructural hazards.

The four are Buildings D, E, F and G (10's, 20's, Gymnasium and 40's). A survey consisting of a room-by-room examination was conducted by a structural engineer experienced in seismic design and post-earthquake damage reconnaissance. The Tier 1 procedures of ASCE 31 were used. This involves an examination of the various nonstructural items and completion of a checklist. Review of construction drawings and preparation of calculations is generally not done in a Tier 1 evaluation. Results are summarized below.

(1) While many nonstructural elements are seismically anchored or braced, there are a number that are not. These are identified in this report.

(2) Most tall bookcases and storage cabinets are restrained against overturning, but a number are not.

(3) Most gas-fired equipment was found to be seismically braced and to have the required flexible gas line, but some equipment did not.

(4) Most window glazing is either tempered glass or plastic and considered low risk, but windows in Building G have thin (1/8-inch thick) ordinary glass.

(5) Two buildings are sprinklered (Buildings D and F are not). The sprinkler piping is probably not braced according to ASCE 31 requirements, but it does not appear to be a falling hazard.

(6) A number of large items such as ceramic kilns, tall metal storage cabinets, tall wood bookcases, roof top A/C units, and water heaters are unrestrained and can overturn.

(7) During a large earthquake on the Hayward fault, there will be massive spillage and toppling of unsecured building contents. Books, jars of paint, glass laboratory vessels, computers and other items unsecured to shelves, cabinets and countertops are expected to fall to the floor.

The nonstructural hazards identified should either be given an ASCE 31 Tier 2 evaluation and/or abated, particularly those items designed as having a high vulnerability that can cause injury to persons in the vicinity. The criteria of ASCE 41 "Seismic Rehabilitation of Existing Buildings", published by the American Society of Civil Engineers in 2006, can be used.

CONTENTS

1. Introduction

This report summarizes a survey of four buildings at Piedmont High School for nonstructural seismic hazards. The school is located at 800 Magnolia Avenue in Piedmont. The buildings surveyed were Building D (also known as the 10's building), Building E (20's building), Building F (Gymnasium), and Building G (known as the 40's building or Annex, including Millennium High School and District Offices).

Buildings D and E are one story classroom and office structures (Figures 1 and 2). Building F is the school's gymnasium (Figure 3). It is a mostly a one-story high bay structure but at the west side it has two stories. Building G is a three-story concrete classroom and office structure (Figure 4).

A nonstructural seismic hazard survey of Buildings A, B and C (Quad, Student Center, and Harvey Theater) at the High School was conducted earlier, and the results for this survey are summarized in another report (Ref.1). With the work summarized in this report, all buildings at the High School have now been surveyed.

The purpose of the survey was to identity potential falling and other hazards that may be triggered in a major earthquake, particularly those items that may cause injury or death, and those items that can cause post-earthquake fire or hazardous material release.

Nonstructural hazards are a very real safety concern, particularly in schools. Following the 1994 Northridge earthquake, DSA investigated the performance of public school buildings and issued a report (Ref. 2). One of the major findings concerned nonstructural hazards. The report stated: ***"No catastrophic collapses were reported of any public school buildings thus the goals of the regulations and the Field Act were achieved. However, this success must be tempered with the knowledge that had the earthquake occurred during school hours, hundreds of students probably would have been seriously injured from hazards associated with nonstructural components."***

The report is organized as follows. The criteria used in the evaluations are described in Section 2. Results of the nonstructural hazard survey are presented and discussed in Section 3. A summary and recommendations are given in Section 4.

Figure 1 – Building D

Figure 2 – Building E

Figure 3 – Building F

Figure 4 – Building G

2. Evaluation Criteria

Nonstructural Components

The nonstructural elements, equipment, and contents in the four buildings were evaluated using the criteria of ASCE Standard 31-03 "Seismic Evaluation of Existing Buildings" (Ref. 3). This is the state-of-the-art criteria used for the seismic evaluation of existing buildings. It is used to establish whether there is a significant life safety risk. Items were evaluated in a site survey using the Tier 1 criteria of ASCE 31, supplement by additional guidance developed by DSA and other state agencies (Ref. 4).

According to Table 2-1 of ASCE 31, the site is situated in an area of "high seismicity", and the Basic Nonstructural and the Intermediate Nonstructural Component Checklists must be used for the Life Safety performance level.

Earthquake Ground Motions

Earthquake ground motions for the site were obtained from the seismic ground shaking maps found on the CD-ROM Seismic Design Parameters (Ref. 5). These ground shaking maps were developed by the U. S. Geological Survey under the National Earthquake Hazards Reduction Program (NEHRP). Ground motions at the site were determined for the Maximum Considered Earthquake (MCE). This represents an earthquake with only 2-percent chance of being exceeded in 50 years (i.e., an earthquake with a 2,500 year return period). However, only 2/3 of this level of motion is required to be used. At this location, the design short-period spectral response parameter (SDS) is 1.28g. "High seismicity" is defined by ASCE 31 as a SDS value of 0.50g or greater.

3. Nonstructural Hazard Survey

Survey Methodology

This section describes the survey of Buildings D, E, F and G at Piedmont High School for nonstructural seismic hazards and presents the results. The purpose of the survey was to identify potential falling and other hazards that may cause life safety risk, or result in other hazards such as post-earthquake fire or hazardous materials release.

Nonstructural components consist of things that are brought into a building after it has been constructed (e.g., furnishings, bookshelves, and building contents) as well as items that were installed when the building was built (e.g., mechanical and electrical equipment and fixtures, ceilings, and partitions). These can become hazards when they break, fall, slide or overturn. When this happens they can cause injury, block exits, and create secondary hazards such as chemical spills, gas leaks and post-earthquake fires.

A nonstructural hazard survey of the buildings was done using the ASCE 31 Tier 1 procedures. The Basic and Intermediate Nonstructural Component Checklists were used. The survey involved a room-by-room inspection of the buildings by a structural engineer experienced in seismic design. The survey was conducted on July 17 and July 19, 2007.

Table 1 summarizes results for the Building D. Table 2 summarizes results for the Building E, Table 3 for Building F (Gymnasium), and Table 4 for Building G (Annex). The tables identify the items examined, the estimated vulnerability of the item, and observations about each. The survey was entirely visual, and no drawings were reviewed or calculations prepared. The levels of vulnerability used are defined as follows:

Vulnerability	Characteristics
High (H)	Noncompliant under ASCE 31 Tier 1 procedures. Possesses little or no seismic resistance; item may break, fall, slide or overturn during strong shaking. High probability of damage under strong shaking. May cause injury to persons in vicinity.
Moderate (M)	Possesses some seismic resistance, but not as much as an item rated low.
Low (L)	Compliant under ASCE 31 Tier 1 procedures. Possesses good seismic resistance, should resist moderate shaking without damage. Low probability of damage under strong shaking. Unlikely to cause injury to persons in vicinity.

Bookcases and Storage Cabinets

There are many bookcases and storage cabinets located throughout the buildings. Most of these are secured to walls and are unlikely to overturn, although contents may fall out. Some cabinets and bookcases are free-standing and unanchored (see Figures 5 and 6). Those over 4

feet tall with height to depth ratios of 3.0 or greater are considered a hazard to overturn (Refs. 2 and 3), and these were rated high risk (H).

Building Contents on Tables and Shelves

In addition to the survey results given in Tables 1 through 4 it should be noted that in many areas of the school there are unrestrained contents. These include such things as stored materials and books on shelves (Figure 7) and computers on desks (Figure 8). While these are a threat to fall to the floor and may result in economic loss, they are generally not considered serious life-safety-hazards. Exceptions are unrestrained relatively heavy items stored overhead (Figure 9), pointed or sharp objects that can easily topple, and items that can impede or block exits (Figure 10).

Some contents have been restrained. For example, the microscopes in Room 24B of Building E (Figure 11) are restrained by chords placed across the shelves. This is an effective, low cost way of keeping items from falling off shelves in an earthquake.

Contents spillage is a recognized problem. The DSA Northridge report (Ref.2) stated: ***"Public schools officials that did not actively pursue efforts to anchor and brace bookshelves, library shelving, file cabinets, televisions, aquariums and other objects that would fall or topple during strong ground shaking found that the costs and efforts they faced for clean-up were significantly greater than those that prepared for the inevitable earthquake."***

Ceilings with Acoustical Tile

Many rooms in Building G have acoustical tile ceilings with tiles secured to wallboard by adhesive. In a number of rooms, the tiles have been falling off. According to District maintenance personnel, there has been an effort to remove additional tiles that could become falling hazards, but not all tile have been removed. We rated the tile high risk (H) even though they are relatively light-weight.

Emergency Gas Shutoff

Buildings D and E have gas lines that supply HVAC units on the roofs. Building F has gas lines to hot water boilers on the second floor. Building G has gas lines for water heaters and boilers. While some of the buildings have fire sprinklers, they all have portions with wood frame construction. It may be desirable to install an earthquake-activated gas shutoff valve at the PG&E meter. This would automatically shutoff the flow of gas and could prevent a possible post-earthquake fire.

One example of a potential post-earthquake fire hazard is the new water heater (Figure 12) in Building G this is not braced and can fall over and break its gas lines (even though the line is flexible). This could cause a fire because there is a gas-fired boiler immediately adjacent to the water heater.

File Cabinets

There are a number of file cabinets located throughout the buildings. The great majority of these are four drawer cabinets with locks on the drawers. However, there are a number of file cabinets without drawer locks, and these are a hazard to overturn when the drawers slide

outward. Those without drawer locks were rated as high risk (H) because of the overturning hazard.

Many file cabinets (but not all) are situated where they are a low risk of injury to persons in the vicinity. Most of these were rated moderate risk (M). The ASCE 31 Tier 1 Supplemental Nonstructural Checklist requires that "file cabinets arranged in groups shall be attached to one another." This requirement, however, is for the Immediate Occupancy (I/O) performance level. None of the file cabinets we observed were connected together, nor are they required to be under ASCE 31 Life Safety performance level requirements. We did observe some file cabinets that were secured to walls, and these were rated low risk (L), provided they had drawer locks.

Fluorescent Light Fixtures

Many of the fluorescent light fixtures in Buildings D and E are 4-foot square fixtures hung on four cables (cable-hung). These meet Tier 1 criteria. Chain and cable-hung fixtures are generally considered low risk (L).

Fluorescent fixtures that are rigidly mounted, such as those connected directly to the underside of wood framing, concrete slabs, or wallboard ceilings, are also considered low risk (L).

Where suspended ceilings occur, fluorescent fixtures are in the ceilings. The three story Building G has fluorescent light fixtures in the suspended ceilings at its two lower levels. The fixtures in these ceilings did not have the required two diagonally opposite hanger safety wires and consequently do not met Tier 1 requirements.

Many areas of Building G have the same type of pendant fixtures (see Figure 13). These have a swivel connection at the top and a connection at the bottom that also has some rotational capability (Figure 14). Stem lengths vary from room to room. It is difficult to rate these, but because of the poor performance of these in past earthquakes, we rated them high risk (H). We feel these should be considered potentially hazardous until proven otherwise. This recommendation is reinforced by the findings of the DSA Northridge earthquake report (Ref. 2): ***"Many pendant mounted light fixtures fell to the floor due to the failure of the ball and socket joint or the stem. The wire nut that connects the light fixture wiring to the main wiring unsuccessfully resists the gravity forces acting on the pendant light fixtures. This defect has been corrected in the regulations for public schools by additional requirement for a safety wire connecting the fixture directly to a structural member. However, thousands of light fixtures were installed before the regulation was added to the code. Had the Northridge Earthquake occurred with students at their desks, injuries could only have been avoided if the required "duck, cover and hold" training produced real event action. Approximately 100 classrooms had one or more light fixtures fall to the floor or on top of the desks."***

Sprinklers

Buildings D and G have sprinklers, but it is doubtful that they confirm to Tier 1 requirements, which requires that the sprinkler bracing conform to 1996 NFPA-13 requirements. It does not appear to us that any of the sprinkler piping is a falling hazard, although this is based on limited observations. However, if the sprinkler piping breaks, the sprinkler system will not be available for fire suppression and water damage may result.

Suspended Acoustic Ceilings

Only Building G, and limited areas of Buildings D and F, have suspended acoustic ceilings. These were spot-checked in each building, and the results are discussed below.

Requirements for bracing suspended ceilings came into the code in the mid-1970's. Before that time, ceilings were typically not braced. Building G was evidently constructed before this time, and its ceilings are not braced. However, since these ceilings weigh less than 2 psf and meet Tier 1 requirements.

There are some newly constructed, or newly refurbished, areas in both Buildings D and F. These either were observed to have the required seismic bracing consisting of compression struts and diagonal wire brace system, or were recently approved by DSA.

It appears that none of the buildings have clips on lay-in tiles placed over exits and corridors as required by ASCE 31. These are intended to keep tiles from falling out over evacuation routes.

Television Sets

There are various ways TV's are supported in the buildings. Some are placed on mobile stands, others are hung from overhead structural framing, and some are mounted on walls.

Those on stands are generally strapped to the stands, and the stands are on rollers. There is some possibility that the stands could over turn, although these generally have a H/D (height/depth) ratio less than the 3.0 that ASCE 31 requires for storage cabinets.

Those hung from ceilings appear to be low risk (L). Many were mounted on walls (Figures 15 and 16). These were installed by the District's maintenance staff.

Windows

Window glass in Buildings D and E is tempered. Windows in the high bay portion of the Building F, the gymnasium, were too high to inspect, but windows in the new lobby area of this building are made with tempered glass. Tempered glass shatters into many small pieces and is considered much less hazardous than ordinary glass, which can break into much larger and dangerous pieces.

Glass in Building G is largely ordinary glass and only 1/8-inch thick. In some places there appears to be a plastic film on the glass. Most panes, however, do not have this. Some panes, evidently replacement panes, are plastic. This building is a concrete shear wall structure, and story drifts are expected to be relatively low. Consequently, most if not all glass breakage is expected to be caused by objects striking a window and not story racking.

Unanchored Equipment

Several items of mechanical and electrical equipment were found to be unanchored. Unanchored equipment is a threat to slide and/or overturn. Examples of unanchored equipment include the A/C units on the roof of Building G (Figures 17 and 18), roof top flood lights on Building G (Figure 19), water heaters in Buildings F and Building G (Figure 12), and kilns in Building G (Figure 20).

Table 1 - Nonstructural Survey Results for the Building D (10's Building)

Item	Vulnerability	Comments
Roof		
1. Carrier HVAC units	L	Four of these, could not see anchorage but appear to be anchored to roof. Units have flexible gas lines.
Classrooms 10,11,12,13,14,15,16,17		
1. Fluorescent light fixtures	L	Square fixtures hung from roof framing by four cables.
2. Speakers (Rms.10,12)	L	Four of these per room, secured to brackets that are fastened to walls.
3. File cabinets (Rms. 10,11,12,14,15,16,17)	M	4-drawer units with drawer locks.
4. File cabinets (Rm.11)	H	4-drawer units without drawer locks
5. File cabinets (Rm. 17)	H	Tall, narrow unit 52" H x 18" W x 15" D, H/D = 3.5.
6. Small file cabinets (Rm. 15)	H	One 2-drawer unit stacked on top of another 2-drawer unit.
7. TV's (Rm.10,11,12,15)	L	Supported by vertical pipe fastened to roof beam. Restrained by two horizontal cables that are secured to walls.
8. TV (Rms.13,14,17)	L-M	Wall-mounted units.
9. TV on stand (Rm. 16)	H	TV strapped to stand, but stand on rollers and can roll/slide. 70" H x 34" W x 25"D, H/D = 2.8.
10. Windows	L	Tempered glass used.

Item	Vulnerability	Comments
11. Video projectors (Rms. 10,11,12,13,14,15,16)	L	Supported by pipe hung from ceiling.
12. Projector screens (Rms. 10,11,12,13,14,15,16)	L	Secured to walls.
13. Map racks (Rms. 15,16,17)	L	Secured to walls.
14. Wood storage cabinets (Rms. 10,11,12)	H	Unrestrained units 72" H x 48" W x 21" D, H/D = 3.4.
15. Moveable wood storage cabinet	M	Units 66" H x 48" w x 24" D on rollers and unrestrained.
16. Storage cabinet (Rm.12)	M-H	Unrestrained unit 70" H x 24" w x 24" D, H/D = 2.9.
17. Wood bookcases (Rms. 14,15,17)	H	Unrestrained units 60" H x 38" W x 12"D, H/D = 5.0.
18. Open-type wood book case (Rm. 14)	H	Unrestrained unit 74" H x 32" w x 18"D, H/D = 4.1.
19. Wood book case (Rm. 16) (Rm. 18)	L	65" high unit fastened to wall.
20. Elevated storage cabinet (Rm.13)	H	Cabinet 66" above floor and has no fail-safe door locks. If doors swing open, contents can fall on persons exiting room.
Electrical Closet (adjacent classrooms 12 and 13)		
1. Light fixtures	L	
2. Electrical panels	L	Wall-mounted.
3. Telecom rack	L	Small wall-mounted rack, equipment secured to rack.
Janitor's Closet (adjacent classrooms 15 and 16)		
1. Light fixtures	L	

Item	Vulnerability	Comments
2. Wood storage cabinet	L	Restrained
Room 18 - Offices		
1. Suspended ceiling	L	New ceiling.
2. Fluorescent light fixtures	L	Diagonal wires secured to fixtures.
3. File cabinets	M	Many 4-drawer units with drawer locks.
4. Bookcases	H	Two 6' high units against walls, H/D = 6.0.
5. Storage units on walls	L	New storage units fastened to walls.
6. Door glazing	L	Tempered glass used.
Mail Room		
1. Fluorescent light fixtures	L	
2. Mail boxes	L	Anchored to wall.
3. File cabinets	M	One 4-drawer unit and five 3-drawer units. All have drawer locks.
Teachers' Work Room		
1. Fluorescent light fixtures	L	
Communications Room		
1. Fluorescent light fixtures	L	
2. Storage cabinet	L	Anchored to wall.
3. File cabinets	M	Three 4-drawer units with drawer locks.
Principal's Office		
1. Fluorescent light fixtures	L	
2. Book shelves	L	Wall-mounted units, secured to wall.

Item	Vulnerability	Comments
Administration Areas		
1. Fluorescent light fixtures	L	
2. Bookshelves	L	Wall-mounted units, secured to wall.
Social Science Resources Center Room		
1. Fluorescent light fixtures	L	
2. Bookshelves	L	Units resting on the tops of cabinets and fastened to walls. (Note: There is a considerable falling hazard from the contents stored on shelves in this room.)
3. File cabinets	M	Two 4-drawer units with drawer locks.
Vice Principal's Office		
1. Fluorescent light fixtures	L	
2. File cabinets	M	Two 4-drawer units with drawer locks.
Foreign Language Resource Center		
1. Fluorescent light fixtures	L	
2. Bookcases	L	Several different types, anchored to wall.
3. File cabinets	L	Two 4-drawer units with drawer locks, anchored to wall.
Assistant Principal's Office		
1. Fluorescent light fixtures	L	
2. File cabinet	L	One 5-drawer unit with drawer locks, wedged-in, 60" H x 18"W x 26" D units, H/D = 3.3.
Hallways		
1. Fluorescent light fixtures	L	Ceiling-mounted.

Item	Vulnerability	Comments
2. Doors and windows	Unknown	Probably tempered glass, but not so marked.
3. Lockers	L	Secured to walls.
4. Ceilings	L	Wallboard and metal stud.
5. Ducts	L	Located above ceiling framing.
6. Blower	Unknown	Located above ceiling framing, could not inspect.

Table 2 – Nonstructural Survey Results for Building E (20's Building)

Item	Vulnerability	Comments
Roof		
1. Floodlight	L	Anchored to roof.
2. Carrier HVAC units	L	Four of these. Could not see anchorage, but these appear appear to be anchored to roof. Units have flexible gas lines.
3. Exhaust fan	L	Anchored
4. Gas lines	L	Anchored, small diameter lines with short runs.
Classrooms 22,23,24,25,26,27,28		
1. Fluorescent light fixtures	L	Square fixtures hung from roof framing by four cables.
2. Video projectors (Rms. 22,23,25,26,27,28)	L	Supported by pipe hung from ceiling.
3. Projector screens (Rms. 22,23,25,26,27,28)	L	Secured to walls.
4. Windows	L	Tempered glass used.
5. File cabinets (Rms. 22,23)	M	4-drawer units with drawer locks.
6. Wood storage cabinet (Rms. 22,26)	H	Unrestrained unit 84" H x 48" W x 24"D, H/D = 3.5. Unrestrained trophies stored on top (Rm. 22).
7. TV on stand (Rm. 23)	H	TV strapped to stand, but stand on rollers and can roll/slide.
8. Wood book case (Rm. 23)	H	Unrestrained unit 72" H x 25" W x 11"D, H/D = 6.5.
9. Wood storage cabinet (Rm.23)	H	Unrestrained unit 72" H x 48" W x 14"D, H/D = 5.1.

Item	Vulnerability	Comments
10. TV (Rms. 24,25,27,28)	L-M	Wall-mounted.
11. Doors (Rm. 24,26,27)	L	Tempered glass used.
12. Storage cabinets (Rm. 24)	L	Wall-mounted, but only magnetic locks on doors.
13. Exhaust fan (Rms. 24,26,27,28)	L	Anchored to wall.
14. Ducts (Rm. 24)	L	Small ducts (less than 6 sf).
15. Wood storage cabinet (Rm. 24)	H	Unrestrained unit on counter top, 36" H x 30" W x 12" D, H/D = 3.0, can fall off.
16. Wood storage cabinet (Rm. 24)	H	Weakly anchored unit 42" H x 42" W x 13" D, H/D = 3.2.
17. File cabinet (Rm. 25)	L	One 4-drawer units with drawer locks, secured to wall.
18. File cabinet (Rm. 25)	H	One 4-drawer unit without drawer locks.
19. Bookcases (Rm. 25)	L	Secured to wall.
20. Storage case (Rm. 25)	L	Wall-mounted unit 30" high with glass doors.
21. Wood storage case (Rm. 25)	L	7' tall unit near door, apparently anchored.
22. Wood book case (Rms. 26,27)	H	Unrestrained unit 84" H x 36" W x 12" D, H/D = 7.0.
23. Wood storage cabinet (Rm. 26)	L	Wall-mounted 4' high unit.
24. Wood storage case (Rm. 27)	L	Wall-mounted 42" high unit.
25. CD player (Rm. 27)	M-H	Unrestrained on shelf.
26. Wood Storage Cabinets (Rm. 28)	L	Four of these, all apparently secured to walls. Units have glass doors and contents can fall out.
Room 20 - Math Dept. Office		
1. Fluorescent light fixtures	L	
2. File cabinets	M	Two 4-drawer units with drawer locks.

Item	Vulnerability	Comments
3. Book cases	L-M	7' high units, apparently secured.
4. Book shelves	H	Three unrestrained units 82" H x 12" D and 4' to 8' wide, H/D = 6.8.
5. TV on stand	H	TV strapped to stand , but stand on rollers and can roll/slide.
Room 24A (Storage for Science)		
1. Fluorescent light fixtures	H	Appear to be pendant-type fixtures.
2. Wood storage cabinets	L	7' tall units anchored to walls, some free standing units 83" H x 32" D, H/D = 2.6.
3. File cabinet	H	One 4-drawer unit without drawer locks.
4. Refrigerator	M	Unrestrained unit 66" H x 30" W x 26" D, H/D = 2.5.
5. Storage shelves	L	Anchored to wall, mostly glass and specimens stored on them.
Room 24B (Microscope Storage)		
1. Fluorescent light fixtures	L	Ceiling-mounted.
2. Wood shelves	L	Anchored to walls, used to store microscopes.
3. Wood bookcase	H	7' tall, not restrained.
Room 21 - Science Office		
1. Fluorescent light fixtures	L	
2. Bookshelves	L	Bracket and shelf type, secured to wall.
3. Storage shelves	L	4' high wall-mounted units with doors.
4. Refrigerator	H	Small unrestrained unit 33" x 21" W x 24"D on counter, can fall off counter.
5. File cabinet	M	One 4-drawer unit with drawer locks.

Item	Vulnerability	Comments
Electrical Closet (adjacent classroom 26)		
1. Light fixtures	L	
2. Electrical panels	L	Several of these, all secured to wall.
3. Telecom rack	L	Small rack secured to wall, equipment secured to rack.
4. Transformer	L	Small transformer, anchored to floor.
5. Wood storage cabinet	H	Unrestrained unit 60” H x 13” W x 12” D, H/D = 5.0.
Room 26A (Lab Storage)		
1. Fluorescent light fixtures	L	
2. Wood storage cases	L	7’ tall units with sliding glass doors, secured to walls. Contents can break glass.
3. Ducts	L	
4. Wood storage cabinets	L	Wall-mounted units 24” to 30” high.
5. TV on stand	H	TV strapped to stand, but stand on rollers and can roll/slide.
6. File cabinets	M	Two 4-drawer units with drawer locks.
7. File cabinet	H	One 4-drawer unit without drawer locks.
Custodial Closet		
1. Light fixtures	L	Two ceiling-mounted fixtures.
2. Wood storage shelf	H	Unrestrained unit 84” W x 36” W x 12” D, H/D = 7.0.
Room 28A (Lab and Book Storage)		
1. Fluorescent light fixtures	L	
2. Book shelf	L	Bracket and shelf type, secured to wall.

Item	Vulnerability	Comments
3. Book cases	L	7’ tall, secured to walls.
4. Storage cases	L	7’ tall with glass doors, secured to walls.
Hallways		
1. Fluorescent light	L	Ceiling-mounted.
2. Doors and windows	L	Tempered glass used.
3. Lockers	L	Secured to walls.
4. Ceilings	L	Wallboard and metal stud.
5. Ducts	L	Located above ceiling framing.
6. Blower	Unknown	Located above ceiling framing, could not inspect.

Table 3 – Nonstructural Survey Results for the Building F (Gymnasium)

Item	Vulnerability	Comments
Roof		
No roof top equipment		
Dance Room (Upper Level)		
1. Fluorescent light fixtures	L	Mounted to under-side of roof framing.
2. Ducts	L	Less than 6 sf.
3. Windows	L	Tempered glass.
4. Metal storage cabinet	H	Unrestrained unit, 78" H x 36" W x 18" D, H/D = 4.3.
Electrical Closet (Upper Level)		
1. Light fixtures	L	Ceiling-mounted.
2. Electrical panels	L	Several of these, all wall-mounted.
3. Transformer	L	Anchored to floor.
4. Exhaust fan EF-1	L	
Mechanical Room (Upper Level)		
1. Light fixtures	L	Ceiling-mounted.
2. Hot water tank HW-1	L	Very large horizontal tank, anchored to floor.
3. Day & Night water heater	H	Apparently unanchored.
4. Parker hot water boiler	H	Large unit, bolted to floor, but lacks flexible gas line from 2½" pipe.
5. Ducts	L-M	Various sizes, difficult to assess, probably low to moderate risk.
6. HV-1	Unknown	Very large blower and/or heater unit. May not be anchored, couldn't see anchorage.

Item	Vulnerability	Comments
Main Gym (Lower Level)		
1. Lights	Unknown	Mounted to underside of roof framing, too high to inspect, could not examine.
2. Basketball backstops	L	Secured to roof framing. .
3. Windows	Unknown	Too high to inspect, probably tempered glass used but not sure.
Boys and Girls Locker Rooms (Lower Level)		
1. Fluorescent light fixtures	L	Ceiling-mounted.
2. Lockers	L	Anchored
3. File cabinet	M	One 4-drawer unit with drawer locks in coach's office.
Lobby (Lower Level)		
1. Suspended ceiling	L	Could not inspect, but new construction reviewed by DSA.
2. Lights	L	Attached to new ceiling. Construction reviewed by DSA.
3. Doors and windows	L	Tempered glass used.
Lobby Restrooms (Lower Level)		
1. Lights	L	
2. Ceiling	L	
Snack Bar (Lower Level)		
1. Lights	L	
2. Water heater	L	Small elevated electric unit is braced.

Table 4 - Nonstructural Survey Results for Building G (40's)

Item	Vulnerability	Comments
Roof		
1. Goodman A/C units	H	Two small A/C units both of which are not anchored.
2. Exhaust fan	L	Anchored
3. Floodlights	H	Three flood lights at roof edge, all unanchored and potential falling hazards.
Elevator (Located in Independent Structure Outside of Building)		
1. Elevator	L	Hydraulic unit, considered low risk.
2. Pump	L	Anchored (in mechanical closet).
Classrooms 48 and 49 - Computer Labs(Upper Level)		
1. Fluorescent light fixtures	H	Long rows of pendant-type fixtures. See discussion in text.
2. Ceiling tile	H	Acoustical tile, see discussion in text.
3. Projector screens	L	Secured to wall.
4. Wood storage cabinets	L	Large unit, anchored to wall.
Small Office off Classroom 48 (Upper level)		
1. Fluorescent light fixtures	L	Ceiling-mounted.
2. Telecom rack	L	Secured to wall, and equipment secured to rack.
3. Book shelf	L	Built-in units, bolted to wall.

Item	Vulnerability	Comments
Server Room (Upper Level)		
1. Fluorescent light fixtures	L	Ceiling-mounted.
2. Telecom rack	L	Secured to wall, and equipment (except one monitor) secured to rack.
3. Wood storage cabinet	L	Large, two-door unit anchored to wall.
4. Book shelves	L	Bracket and shelf type, secured to wall.
5. Ceiling tile	H	Acoustic tile, but many tiles have fallen off.
Men's Restroom (Upper Level)		
1. Light fixtures	H	Appears to be pendant-type incandescent fixtures, could not closely examine.
Men's ADA Restroom (Upper Level)		
1. Light fixture	L	Ceiling-mounted.
Girl's Restroom (Upper Level)		
1. Light fixtures	H	Two pendant-type incandescent fixtures.
HVAC Room in Attic (Upper Level)		
1. HVAC units	L	Two units, both anchored, no gas lines present.
2. Ducts	L	Braced to floor, 20" x 30" size, less than 6 sf.
Classroom 45		
1. Fluorescent light fixtures	H	Long rows of pendant-type fixtures. See discussion in text.
2. File cabinets	M	Two 4-drawer units with drawer locks.

Item	Vulnerability	Comments
3. Storage cabinets	L	Two very small wall-mounted units.
Classroom 46 (Upper Level)		
1. Fluorescent light fixtures	L	Ceiling-mounted.
2. Project screens	L	Two of these, both secured to wall.
3. Storage cabinets	H	Unrestrained unit 84" H x 24" D, H/D = 3.5.
4. TV	L	Wall-mounted.
5. Book cases	L	7' high, bolted to wall.
6. File cabinets	H	Two 4-drawer units without drawer locks.
Classroom 47A (Upper Level)		
1. Fluorescent light fixtures	H	Square pendant-type fixtures with four stems. See discussion in text.
2. TV	L	Wall-mounted.
3. File cabinets	M	Two 4-drawer units with drawer locks.
4. Projector screen	L	Secured to wall.
5. Door	L	Wire glass used.
Room C – Year Book Room (Upper Level)		
1. Fluorescent light fixtures	L	Ceiling-mounted.
2. Metal storage cabinet	H	Unrestrained
Room A (Upper Level)		
1. Florescent light fixtures	L	Ceiling-mounted.

Item	Vulnerability	Comments
2. Bookshelves	L	Bracket and shelf type, secured to wall. (Lots of stored materials and spillage likely).
Classroom 47B (Upper level)		
1. Fluorescent light fixtures	H	Square pendent-type fixtures with four stems. See discussion in text.
2. TV	L-M	Wall-mounted.
3. File cabinet	H	One 4-drawer units without drawer locks.
4. File cabinets	M	Two 4-drawer unit with drawer locks.
5. Wood storage cabinet	M	Unit on rollers, 65" H x 48" W x 25" D, H/D = 2.6, can roll/slide.
6. Book cases	H	Five unrestrained wood units H/D ranges from 5.1 to 7.5.
7. Projector screen	L	Secured to wall.
Two Rooms Next to Room 47B (Upper Level)		
1. Fluorescent light fixtures	L	Ceiling-mounted.
2. File cabinet	M	One 4-drawer unit with drawer locks.
Upper Level Hallway		
1. Fluorescent light fixtures	L	Ceiling-mounted.
2. Ceiling	L	Wallboard on wood framing.
3. Ducts	L	Located above framed ceiling.
4. Ceiling tile	H	Acoustic tile.
5. Lockers	L	Anchored

Item	Vulnerability	Comments
Gas Shut-Off Closet (Middle Level)		
1. Gas piping	L	
Classroom 44 (Middle Level)		
1. Fluorescent light fixtures	H	Long rows of pendant-type fixtures. See discussion in text.
2. Projector screen	L	Secured to wall.
3. Storage cabinets	L	Small, wall-mounted units.
4. Storage cabinets	L	Three 7' tall units in room off Room 44, secured to wall.
Office off Room 44 (Middle Level)		
1. Fluorescent light fixtures	H	Pendant-type fixtures. See discussion in text.
2. Book shelves	L	Bracket and shelf type, secured to wall.
Boiler Room (Middle level)		
1. Light	L	Ceiling-mounted fixture.
2. Water heater	H	Large unanchored gas-fired unit, has flexible gas lines.
3. Boiler	H	Anchored but no flexible gas line.
4. Telecom rack	L	Fastened to wall. Small equipment secured to rack.
5. Compressor	H	Unanchored, may not be in use.
6. Electrical Panels	L	Several of these, all secured to wall.

Item	Vulnerability	Comments
Classroom 40 (Middle Level)		
1. Fluorescent light fixtures	H	Long rows of pendant-type fixtures. See discussion in text.
2. Storage cabinets	L	Four 7' tall units, secured to wall.
3. Ducts	L	Supported from floor above, less than 6 sf in area.
4. Track lights	L	
5. Storage shelves	L	Wall-mounted 24" H x 15" D shelves.
6. Projector screen	L	Secured to wall.
7. Wood storage cabinets	L	Large built-in cabinets in small room off Room 40.
Art Dept. Office (Middle Level)		
1. Fluorescent light fixtures	H	Pendant-type fixtures. See discussion in text.
2. Book cases	L	Secured to wall.
3. File cabinet	M	One 4-drawer with drawer locks.
4. File cabinet	H	One 4-drawer unit without drawer locks.
5. Metal storage cabinet	H	Unrestrained free-standing unit.
6. Wood bookcase	H	Unrestrained free-standing unit 84" H x 35" W x 12 "D, H/D = 7.0.
7. Wood storage cabinets	H	Two unrestrained units 84" H x 24" D, H/D = 3.5.

Item	Vulnerability	Comments
Classroom 43 (Middle Level)		
1. Fluorescent light fixtures	H	Rows pendant-type fixtures. See discussion in text.
2. TV	L-M	TV strapped to wall-mounted stand.
3. Bookcases	H	Unrestrained units 84” x 36” W x 12” D, H/D = 4.9 and 59” H x 36” W x 12” D, H/D = 4.9.
4. Map rack	L	Secured to wall
Classroom 43A (Middle Level)		
1. Fluorescent light fixtures	H	Rows of pendant-type fixtures. Fixtures can strike pipes. See discussion in text.
2. TV	H	TV strapped to stand, but stand on rollers and can roll/slide.
3. File cabinet	M	One 4-drawer unit with drawer locks.
4. Storage cabinets	Unknown	7’ high built-in units probably secured to wall but could not verify.
Classroom 42 (Middle Level)		
1. Fluorescent light fixtures	H	Rows of pendant-type fixtures. See discussion in text.
2. Wood storage cabinets	L	Built-in 7’ high units, fastened to wall.
3. TV	L-M	Wall-mounted.
Art Storage Room (Middle Level)		
1. Fluorescent light fixtures	H	Pendant-type fixtures. See discussion in text.
2. Shelves	L	Braced

Item	Vulnerability	Comments
Classroom 41 (Middle Level)		
1. Fluorescent light fixtures	H	Rows of pendant-type fixtures. See discussion in text.
2. Kilns	H	Two electric kilns, both not anchored to floor.
3. Doors	L	Wire glass used.
4. Storage cabinet	L	7’ tall, fastened to wall.
5. Metal book case	H	Unrestrained unit, 78” H x 36” W x 13” D, H/D = 6.0.
6. Bookcases	H	Two unrestrained units approximately 84” H x 12” D, H/D = 7.0.
7. Storage shelves	L	Built-in shelving over sinks, heavily loaded with jars of stored materials. Jars can spill.
8. Ceiling electrical chord drops	L	Five ceiling-mounted units with drop-down chords.
9. Projector screen	L	Fastened to wood frame that is secured to wall.
Offices (off of Classroom 42)		
1. Fluorescent light fixtures	H	Pendant-type fixtures. See discussion in text.
2. Bookshelves	L	Small wall-mounted units.
3. File cabinets (MHS Principal’s office)	M	Two 4-drawer units with drawer locks.
Middle Level Hallway		
1. Suspended ceiling	L-M	Not braced, but meets ASCE 31 Tier 1 criteria because it weights less than 2 psf.

Item	Vulnerability	Comments
2. Fluorescent light fixtures	H	Fixtures are in suspended ceiling, but these lack required two diagonally opposite hanger wires.
3. Lockers	L	Anchored
4. Wood storage cabinet	L	Large 8' high unit anchored to wall.
Lobby, Hallway, and Conference Room (Lower Level)		
1. Suspended ceiling	L-M	Not braced, but meets ASCE 31 Tier 1 criteria because it weights less than 2 psf.
2. Fluorescent light fixtures in ceiling	H	Fixtures are in suspended ceiling, but these lack required two diagonally opposite hanger wires.
3. Fluorescent light fixtures	H	Pendant-type fixtures. See discussion in text.
4. Moveable partitions	Unknown	Could not examine connection of partitions to structure, but partitions are relatively light and probably low risk.
5. Doors	L	Wire glass used.
6. Storage cabinets in reception area	L	Secured to wall.
7. Metal storage cabinets	L	Three of these, all secured to walls.
Assistant Superintendent Office (Lower Level)		
1. Fluorescent light fixtures	H	Pendant-type fixtures. See discussion in text.
2. File cabinet	M	One 4-drawer unit with drawer locks.
3. Storage cabinets	L	Secured to wall.

Item	Vulnerability	Comments
Personnel Office (Lower Level)		
1. Fluorescent light fixtures (sim. To lobby)	H	Pendant-type fixtures. See discussion in text.
2. Fluorescent light fixtures	M-H	Additional pendant fixtures with attachment similar to those at Havens ES.
3. Metal files	L-M	Lateral files stacked one on top of another, but secured to walls.
Mechanical Mezzanine (Lower Level)		
1. Trane HVAC unit	L	Small unit anchored to floor, without gas service.
Telecom Room (Lower Level)		
1. Fluorescent light fixtures	L	Ceiling-mounted.
2. Telecom racks	L	Tall racks standing upright from floor, both are anchored to floor.
Storage Closet South of Conference Room (Lower Level)		
1. Fluorescent light fixtures	H	One-fixture similar to those in conference room, also another type that is difficult to rate.
2. Bookshelf	L	Wall-mounted.
3. Bookshelf	L	Bracket and shelf type, secured to wall.
Staff Kitchen (Lower Level)		
1. Fluorescent light fixtures	H	Pendant-type fixtures. See discussion in text.
2. Refrigerator	M	Unrestrained unit 63" H x 24" W x 24"D. H/D= 2.6.
3. Storage cabinets	L	Built-in above oven.

Item	Vulnerability	Comments
Reproduction Room (Lower Level)		
1. Fluorescent light fixtures	H	Pendant-type fixtures. See discussion in text.
Storage Room off Reproduction Room (Lower Level)		
1. Fluorescent light fixtures	H	Pendant-type fixtures. See discussion in text.
2. Metal bookcase	H	Unrestrained unit 84" H x 36" W x 10 "D, H/D =8.4.
3. Metal storage cabinet	H	Unrestrained
4. File cabinets	M	Several 4-drawer units with drawer locks.
5. File cabinets	H	Two 4-drawer units without drawer locks.
6. Open frame metal shelving	H	Unrestrained shelving 75" H x 24" D, H/D = 3.1 and 75"H x 15" D, H/D = 5.0.
7. Wood storage cabinet	L	Apparently secured to wall.
Office Area South of Conference Room (Lower Level)		
1. Fluorescent light fixtures	H	Pendant-type fixtures. See discussion in text.
2. File cabinets	L	Two 4-drawer and one 5-drawer units with locks, all secured to wall.
3. File cabinets	M	Three 4-drawer units with drawer locks.
4. Wood book shelf	H	Unrestrained unit 72" H x 36" W x 15" D H/D = 4.8.
5. Metal lateral files	L	Unit 78" high is secured to wall.

Item	Vulnerability	Comments
Two Small Offices on South Wall (Lower Level)		
1. Fluorescent light fixtures	H	Pendant-type fixtures. See discussion in text.
2. Wood bookcase	H	Unrestrained unit 60" H x 36" W x12" D, H/D=5.0.
3. Wood bookcase	L	Two 6' tall units, secured to wall.
Superintendent's Offices (Lower Level)		
1. Fluorescent light fixtures	H	Pendant-type fixtures. See discussion in text.
2. Wood storage cabinets	L	Anchored to wall.
Building Exterior		
1. Windows	H	Windows consist of 1/8-inch thick ordinary glass. These do not meet ASCE 31 criteria because many are located more than 10 feet above an exterior walking surface.

Figure 5 – The bookcase at right is unanchored, and placement of one file cabinet on top of another creates an additional falling hazard.

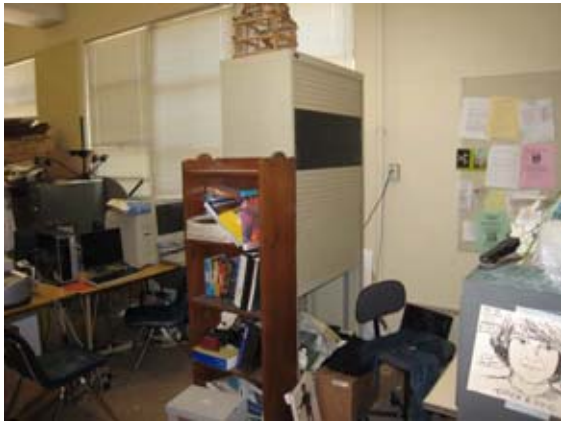


Figure 6 – Unanchored tall metal storage cabinet in Building G. Bookcase next to the cabinet is also unanchored.

Figure 7 – Stored materials in the Social Science Resource Center in Building D.

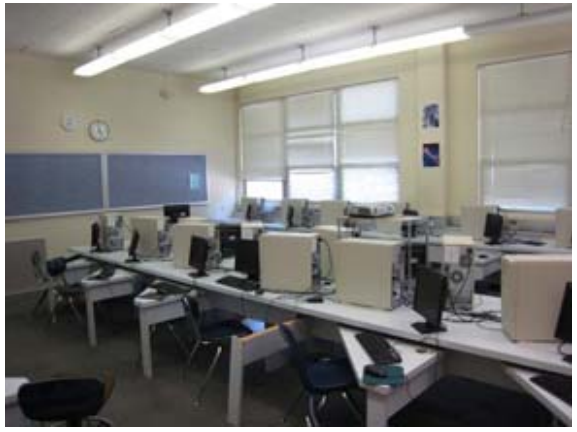


Figure 8 – Unanchored computers in a computer lab in Building G.

Figure 9 – Both the trophies stored on the top of this bookcase and the unanchored bookcase are falling hazards. The trophies are sufficiently heavy that they could cause a head injury.

Figure 10 – The top cabinet at right is anchored to the wall, but its contents can fall out if the latch is not engaged. This would interfere with a safe exit of students from the room.

Figure 11 – Microscopes in this room in Building E are restrained on shelves by chords placed across the front.

Figure 12 – Unbraced water heater in building G. This can fall over and break its gas line.

Figure 13 – Pendant-type fluorescent light fixture used in Building G.

Figure 14 – Typical top and bottom supports for pendant fixtures shown in Figure 13.

Figure 15 – Wall-mounted TV in Building D.

Figure 16 – Wall-mounted TV in Building G.

Figure 17 – Unanchored A/C units on the roof of Building G.

Figure 18 – Overturned A/C unit on the roof of a Northridge, California apartment building following the 1994 earthquake.

Figure 19 – This floodlight on the edge of the Building G roof is one of three that are not anchored. These can fall off.

Figure 20 – One of two unanchored kilns in the Building G ceramics room.

4. Summary and Recommendations

Summary

Four buildings at Piedmont High School were surveyed for nonstructural seismic hazards. The criteria used was ASCE 31, and a Tier 1 evaluation was preformed. Some of the more significant findings are summarized below.

(1) While many nonstructural elements are anchored or braced, there are a number that are not. These are identified in Tables 1 through 4 of this report.

(2) Most of the larger elements, such as tall bookcases and storage cabinets, are anchored or braced against overturning, but a number are not.

(3) Most roof top mechanical and electrical equipment was found to be anchored or braced. However, two A/C units on the roof of Building G are not anchored.

(4) There are several 4-drawer file cabinets, and some lateral files, without drawer locks. These are a hazard to overturn.

(5) Most gas-fired equipment is seismically braced, and most equipment (but not all) has flexible gas lines as required by ASCE 31. Two water heaters are not braced.

(6) Most glazing is either tempered glass or plastic, but Building G has mostly 1/8-inch ordinary glass in windows. Wire glass is generally used in doors with glazing.

(7) Two buildings are sprinklered (Buildings E and F are not). The sprinkler piping is probably not braced according to ASCE 31 requirements. It does not appear to be a falling hazard, but may not function after an earthquake.

(8) Several large items are not anchored or otherwise restrained. These include ceramic kilns, tall metal storage cabinets, tall bookcases, and large water heaters.

(9) The three flood lights on the edge of the roof of Building G are not anchored.

(10) Pendant fluorescent light fixtures in Building G may be questionable and are considered a potential falling hazard until proven otherwise.

(11) Fluorescent light fixtures in the suspended ceilings in Building G may be a hazard to fall out. They do not have the required two safety wires.

(12) During a large earthquake on the Hayward fault, there will be massive spillage and toppling of building contents. Books, jars of paint, glass laboratory vessels, computers and other items unsecured to shelves, cabinets and countertops are expected to fall to the floor.

Recommendations

The nonstructural hazards identified in Tables 1 through 4 should be given a Tier 2 evaluation and/or abated, particularly those items designated as having a high (H) vulnerability that can cause injury to persons in the vicinity. The criteria of ASCE 41 “Seismic Rehabilitation of Existing Buildings” (Ref. 6) can be used.

5. References

1. “Seismic Evaluation of Three Buildings at Piedmont High School, Piedmont Unified School District,” a report by R. P. Gallagher Associates, Inc., Structural Engineers, Oakland, 2007.

2. “Northridge Earthquake (January 17, 1994) Performance of Public School Buildings,” a report prepared by Division of State Architect, Office of Regulation Services, Sacramento, May 1994.

3. ASCE/SEI Standard 31-03, “Seismic Evaluation of Existing Buildings,” Structural Engineering Institute, American Society of Civil Engineers, 2003.

4. “Guide and Checklist for Nonstructural Earthquake Hazards in California Schools” a Project of the California Governor’s Office of Emergency Services, Division of State Architect, Seismic Safety Commission, and Department of Education, January 2003.

5. “Seismic Design Parameters,” prepared by U.S. Geological Survey, Federal Emergency Management Agency, and Building Seismic Safety Council, Version 3.10, February 2001 (CD-ROM).

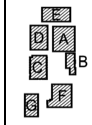
6. ASCE/SEI Standard 41-06, “Seismic Rehabilitation of Existing Buildings”, Structural Engineering Institute, American Society of Civil Engineers, 2006.

7. APPENDIX

APPENDIX A: PROJECT STATUS & INFORMATION AVAILABILITY MATRIX

PIEDMONT SEISMIC SAFETY PROGRAM
PIEDMONT UNIFIED SCHOOL DISTRICT
PROJECT STATUS
MARCH 31, 2008

murakami/Nelson Architectural Corp.
Job No.: 0629 - PUSD Seismic

School / Site	Abbreviation	Building Designation	Building Name	Seismic Tier 1	Revised Seismic Tier 1	Letter From Fiscal & Illnesses on Seismic Performance*	ATI Report (Accessibility - Seismic Performance)	Included in Scope Of Work (for mtN)	Qualitative Seismic Assessment	Qualitative Seismic Assessment by B.P. Gallagher	Benchmark Seismic Assessment by Peer Reviewer	Benchmark Building	Seismic Tier 2	ADA / Access Evaluation	Life Safety Evaluation	Materials Testing Report	Materials Testing Spring 2007	Materials Testing Summer 2007	Materials Testing Fall 2007	Materials Testing Winter 2007	Destructive Testing Spring 2007	Destructive Testing Summer 2007	Destructive Testing Fall 2007	Destructive Testing Winter 2007	Slope Stability Analysis	Peer Review of Investigation and Analysis	Peer Review - Site Specific Spectra	Peer Review Non-Structural	Peer Review of Concept Design	Peer Review of Schematic Design	Peer Review of Design Development	Existing Hazardous Materials Report	Hazardous Materials Reports in mtN possession	Topographical Survey	Title Report	Boundary Survey	Existing Geotechnical Reports	Existing Structural Calculations in mtN Possession	Existing Specifications in mtN Possession	Measured Drawings - Architectural	Measured Drawings - Structural	DSA Dwgs in mtN Possession	DSA Drawing Date	DSA Number for Drawings	Drawings	Architect	Concept Plan	Cost Estimate (1)	Refined Concept Plan / Value	Cost Estimate (2)	Comments
Piedmont High School	PHS																																																
		D	Admin./Social Science/Language	×	○		●	●	●	○		×	●	●	●	×				×				●	×	●	●	○	○	○	●	○	●	○	×	×	×	×	×	×	●	4/13/1997	66513	Alterations	David Wade Byrens	●	●	×	×	
																																									●	4/25/1988	49857	Repair	Keith Eric Johnson					
																																									●	2/18/1975	37514	Original Construction	Reid & Tarics Assoc.					
		E	Science Building	○	○		●	●	●	○		×	●	●	●	×				×				●	×	●	●	○	○	○	●	○	●	○	×	×	×	×	×	×	●	4/25/1988	49857	Repair	Keith Eric Johnson	●			×	×
																																								●	2/18/1975	37514	Original Construction	Reid & Tarics Assoc.					
		F	Gymnasium	×			×	●	●	○		×	●	●	●	×				×				●	×	●	●	×			●		●	○	×	●	×	×		×	●	8/12/1976	38887	Original Construction	Reid & Tarics Assoc.	●	●	×	×	
																																									●	4/25/1988	49857	Repair	Keith Eric Johnson					
																																									○	-	38754	Gym Bleachers	Unknown					
																																									●	8/15/2003	105636	Lobby Addition	Deems Lewis McKinley					
																																									○	-	41145	Bleachers	Unknown					
		G	Art Bldg./Millennium H.S./Admin.	×			×	●	●	○		×	●	●	●	×				×				●	×	●	●	×			●		●	○	×	×	×	×	×	×	●	4/29/1997	67006	Modernization	David Wade Byrens	●	●	×	×	
																																									○	5/3/1977	40144	Alterations	Reid & Tarics Assoc.					
																																									●	3/25/1976	39256	Annex Remodel	Reid & Tarics Assoc.					
																																									●	2/7/1961	20906	Addition to PMS	Warnecke & Warnecke					

LEGEND
- ○ NEEDED/IN PROGRESS
- ● YES / OK / COMPLETE
- ○ DO NOT HAVE
- ● NON CONCLUSIVE
- × NOT NECESSARY
- ○ Pending Authorization
- ● NO

Shaded Area Indicates Tier 2 Seismic Analysis.

APPENDIX B: BUILDING CODE ANALYSIS

Calculation of Non-Priority Existing Building Area

Building D: 11,593 sf
Building E: 11,593 sf
Building F: 17,668 sf
Building G: 19,567 sf

Chapter 3: Use or Occupancy

Main Occupancy Group:
Classrooms: E-1 (Sec 305)
Gymnasium: A2.1 Assembly

Accessory Occupancy Groups:
Administrative: B Office (less than 25% of Building G)

✓ No occupancy separation required between **E** and **B** Occupancy. (Table 3-B)
CBC 302.1. Exception 2.2: "Administrative and Clerical offices & similar rooms which do not exceed 25 percent of the floor area of the major use."

Chapter 5: Building Limitations

Building D – Social Sciences

✓ The Social Sciences building is a multiple occupancy building with an offices (B) occupancy and a education (E1) occupancy. The B-occupancy does not require and occupancy separation as the area does not exceeds 25% of the building's total square footage.

Allowable Floor Area

	Allowance	Running Total
-Construction Type V-N hr: (Table 5-B)	9,100 sf	9,100 sf
-Separation increase:	0%	9,100 sf
-Fire Protection (Sprinklers) (508):	100%	18,200 sf
-Multi-Story Factor:	100%	0 sf
Total allowable floor area:		18,200 sf
✓ Total actual floor area:		11,593 sf

Allowable Height

Allowed: 40 feet, 1 stories (Type V-N) (Table 5-B)
✓ Existing: approx. 24 feet, 1 stories

Wall and Opening Protection (Table 5-A)

✓ Walls: Two-hour less than 5 ft.
✓ Walls: One-hour less than 10 ft.
✓ Walls: NR elsewhere
✓ Openings: Protected less than 10 ft., not permitted less than 5 ft.

Building E – Science

Allowable Floor Area

	Allowance	Running Total
-Construction Type V-N: (Table 5-B)	9,100 sf	9,100 sf
-Separation increase: (1 side) (0%)	0 sf	9,100 sf
-Fire Protection (Sprinklers) (508): (100%)	9,100 0 sf	18,200 sf
-Multi-Story Factor:	0%	18,200 sf
Total allowable floor area:		18,200 sf
✓ Total actual floor area:		11,593 sf

Allowable Height

Allowed: 40 feet, 1 stories (Type V-N) (Table 5-B)
✓ Existing: approx. 24 feet, 1 stories

Wall and Opening Protection (Table 5-A)

✓ Walls: Two-hour less than 5 ft.
✓ Walls: One-hour less than 10 ft.
✓ Walls: NR elsewhere
✓ Openings: Protected less than 10 ft., not permitted less than 5 ft.

Building F - Gymnasium

✓ The Gymnasium was considered as an A2.1 occupancy in the 1970's building and an A3 occupancy in the new 2003 Entry lobby addition. For our review, we are viewing the building as one occupancy, A2.1.

Allowable Floor Area

		Allowance	Running Total
-Construction Type V-1 hr.: (Table 5-B)		10,500 sf	10,500 sf
-Separation increase: (2 sides) (50%) =		5,250 sf	15,750 sf
-Fire Protection (Sprinklers) (508):		0%	0 sf
-Multi-Story Factor:	0% =	0 sf	15,750 sf
Total allowable floor area:			15,750 sf
✓ Total actual floor area:			13,541 sf

Allowable Height

✓ Allowed: 50 feet, 2 stories (Type V -1 hr) (Table 5-B)
✓ Existing: 30 feet, 1 stories with partial 2 stories

Wall and Opening Protection (Table 5-A)

✓ Walls: Two-hour less than 10 ft.
✓ Walls: One-hour elsewhere
✓ Openings: Protected less than 10 ft., not permitted less than 5 ft.

Building G – Millennium High School / Art / Administration

The Millennium High School / Art / Administration is a multiple occupancy. The Millennium High School and Art classrooms are an E-occupancy. The PUSD Administrative Offices is a B-occupancy. The B-occupancy does not require and occupancy separation as the area does not exceeds 25% of the building's total square footage.

Allowable Floor Area for E1-Occupancy

	Allowance	Running Total
-Construction Type V-1 hr: (Table 5-B)	15,700 sf	15,700 sf
-Separation increase: (7.5%)	1,178 sf	16,878 sf
-Fire Protection (Sprinklers) (508):	0%	16,878 sf
-Multi-Story Factor:	100%	33,756 sf
Total allowable floor area:		33,756 sf
Total ratio adjusted area: (78%)		26,330 sf
✓ Total actual floor area:		15,305 sf

Allowable Floor Area for B-Occupancy

	Allowance	Running Total
-Construction Type V-N: (Table 5-B)	8,200 sf	8,200 sf
-Separation increase: (7.5%)	683 sf	8,883 sf
-Fire Protection (Sprinklers) (508):	0%	8,883 sf
-Multi-Story Factor:	100%	17,766 sf
Total allowable floor area:		17,766 sf
Total ratio adjusted area: (22%)		4,305 sf
✓ Total actual floor area:		4,262 sf

Allowable Height

✓ Allowed: 50 feet, 3 stories (Type V -1 hr) (Table 5-B)
✓ Existing: 48 feet, 3 stories

Wall and Opening Protection (Table 5-A)

✓ Walls: Two-hour less than 5 ft. (considered separate from Building A).
✓ Walls: One-hour less than 20 ft.
✓ Walls: NR elsewhere
✓ Openings: Protected less than 10 ft., not permitted less than 5 ft.

Chapter 9: Fire Protection Systems

☒ Sprinklers are required for Group E Occupancy (Section 904.2.4.1).
✓ Sprinklers not required for Group A2 or A3 Occupancy.

✓ Building D – Social Science is fully sprinklered and complies.

✓ Building E – Science is does not have sprinklers, but required for E-occupancies.

✓ Building F – Gymnasium is an A2.1 / A3 occupancy. The Main building (the gymnasium and locker rooms) has no sprinklers. No sprinklers are required. The Entry lobby addition is sprinklered.

✓ Building G – Millennium High School / Art / Administration is an E1 / B occupancy. The building is not sprinklered, except for selected window openings at the exterior of the building. We believe they serve as alternative means of protection for adjacent exterior walkways serving as exit ways.

Chapter 10: Means of Egress

Exits Required: See plans for room exiting requirements. Rooms with deficient exiting are noted. Cumulative occupant load exiting requirements will be calculated during future concept design phase.

✓ Maximum travel distance to exit in non-sprinklered hallway is 150' (section 1007.3.3).

✓ Hallway width shall be two feet wider than required by Sec. 1003, but not less than 6'. Except when less than 100 occupants 44" min. (Section 1007.3.5).

✓ Stair width shall not be less than 5'. (Section 1007.3.6).

✓ Panic hardware required where occupant load is over 50.

✓ Basement Rooms shall exit directly to the exterior without entering the first floor. (Section 1007.3.9)

Building D – Social Sciences
The building is substantially in compliance. Deficiencies in the means of egress system include stair width that is too narrow, exit doors on the second floor that are too narrow, lack of floor level exit lights, and lack of fire alarm system in the office suite.

Building E – Sciences
The building is substantially in compliance. Deficiencies in the means of egress system include lack of floor level exit lights, lack of fire alarm system in the office suite and the lack of posting of room capacity.

Building F – Gymnasium
The building is substantially in compliance. Deficiencies in the means of egress system include lack of fire-rated separation of the storage room under the stairs from the stage to the lower level, lack of contrast striping at the auditorium seating stairs, lack of stair handrails in numerous locations, 1-hr. separation between stage and accessory rooms, and an undersized smoke vent system above the stage area.

Building G – Millennium High School / Art / Administration
The upper two floors of the building are configured correctly for compliance for exiting, but the corridors are not currently in full compliance. Some doors do not have the fire label on the door opening assembly. Most doors have the dog-leg that holds the door open, thereby compromising the integrity of the required 20-min fire rating of the door. Classroom 40 has required exit doors that are too close together. The corridor does not have a low-level exit light system.