### March 20, 2019

# GRUENING MIDDLE SCHOOL POST-EARTHQUAKE ASSESSMENTS AND EVALUATION

Prepared For: Anchorage School District Facilities Department 1301 Labar Street Anchorage, Alaska 99515

<u>Prepared By:</u> BDS Architects 3330 C Street, Suite 200 Anchorage, Alaska 99503



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## **1. ACKNOWLEDGEMENTS**

#### Anchorage School District

Yuki Janson, Project Manager Email: janson\_yuki@asdk12.org | Phone: (907) 348-5155

#### **Gruening Middle School**

Bobby Jefts, Principal Email: jefts\_bobby@asdk12.org | Phone: (907) 742-3600

#### **BDS Architects | Architecture and Interior Design**

Ray Amsden, Architect Email: raya@bdsak.com | Phone: (907) 562-6076

#### Reid Middleton | Structural

David Stierwalt, Structural Engineer Email: dstierwalt@reidmiddleton.com | Phone: (907) 433-3305

#### AMC Engineers | Mechanical & Electrical

Bart Semmler, Mechanical Engineer Email: bsemmler@amc-engineers.com | Phone: (907) 257-9100 John Hood, Electrical Engineer Email: jhood@amc-engineers.com | Phone: (907) 257-9100

#### **Estimations | Cost Estimating**

Jay Lavoie, Estimator Email: jay@estimations.com | Phone: (907) 561-0755

## 2. SITE LOCATION MAP



## **3. KEY PLAN AND CONSTRUCTION TIMELINE**



## 4. EXECUTIVE SUMMARY

The purpose of this report is to provide the ASD Capital Planning & Construction Department with a post-earthquake school assessment and evaluation for Gruening Middle School. This report will provide information to be used in developing a recommended scope of work for the facility.

Gruening Middle School (GMS) is a 124,862 square foot two-story building located at 9601 Lee Street in Eagle River, Alaska on a 20-acre site. GMS was designed beginning in 1981 following a junior high school program delivery model serving 7<sup>th</sup> and 8<sup>th</sup> grade students. Soon after the school opened in 1984 the middle school program was adopted for program delivery at GMS. The building has a program capacity of 727 students and is currently serving approximately 600 students assigned to 6 academic teams. The school was red-tagged following the M7.1 November 30, 2018 earthquake, and deemed unsafe to occupy. The displaced students have been temporarily relocated to Chugiak High School.

Since the original construction multiple interior renovations have occurred modifying the building to accommodate changing and new educational programs. Some of these include the recent remodel of the Special Education suite located on the second level and the CTE renovation of the original shop rooms. Today Gruening Middle School has 41 teaching stations which includes a gymnasium, a multipurpose room with a stage and kitchen, an instructional media center (IMC), and an administrative office area.

In 2013 the School District engaged Livingston Slone/NAC to examine the physical conditions and programmatic alignment of Gruening with their standard middle school educational specifications. The outcome of this investigation was published in the Gruening Middle School Project Analysis Report (PAR) dated September 25, 2015. Integrated in this analysis was a structural seismic evaluation that was developed in two stages. First the design team completed an ASCE 41-13 Tier 1 seismic checklist to identify potential seismic vulnerabilities in the building. Then a more detailed ASCE 41-13 Tier 3 evaluation was completed on vulnerable items to develop conceptual structural solutions (in tandem with programmatic upgrades) for cost estimation which enabled the District to create Capital Improvement Plans. No Tier 3 report beyond the text of the PAR was created in this process. The Tier 3 concept upgrades were integral with the planned building space and program improvements to address programmatic deficiencies.

The original construction project utilized codes and building trends which were current at the time, but which are now outdated. The design team examined the existing building and compiled their observations of current conditions and observed deficiencies into the following document. The following sources of information were reviewed and assimilated:

- Post-Earthquake Building Evaluation by Reid Middleton, 12-14-2018
- Existing building record drawings
- ASD September 2012 Districtwide Educational Specifications: Middle Schools

- Gruening Middle School Hazardous material reports
- ASD Gruening Middle School Project Analysis Report dated September 25, 2015
- Various facility information documents compiled from ASD website including:
  - o ASD Destination 2020
  - o 2019-2025 ASD Six-Year Capital Improvement Plan (CIP)

The purpose of reviewing all this documentation was to prepare the BDS design team with the greatest possible depth of understanding regarding the Gruening Middle School, as well as the goals and expectations of the Anchorage School District. After reviewing the available documents, the design team took the following steps:

- The Design Team, including architects, surveyors, structural, geotechnical, electrical and mechanical engineers, visited the school in January-February 2019 to document the existing building conditions and identify any damage or facility deficiencies.
- Develop written narratives of existing earthquake related damages and recommended repairs.
- With ASD input, developed written recommendations to A) repair earthquake damage, B) mitigate seismic risks, improve the school and correct deficiencies; organized into four concept solutions.
- Obtained cost estimates for each of the proposed concept solutions.

### **Project Analysis Report**

This project analysis report contains the following:

- Existing Conditions: Information regarding the current condition of the facility including the building, utility systems, the site and the presence of hazardous materials immediately after the November 30, 2018 earthquake.
- Concept Solutions: Four different levels of design solutions have been investigated and are presented. These are the progressive design approaches established by the ASD:
  - Earthquake-Related Damage Repairs.
    - Provides only those repairs directly related to deficiencies resulting from earthquake damage. Restores and improves the facility to its pre-earthquake condition for continued service. This solution also addresses any required code and safety upgrades triggered by the necessary repairs. These repairs do not reduce the risk for similar damage resulting from a similar future seismic event. This option does not address any program deficiencies. After completion of this option, the building would be available for occupancy.

- Damage Control Improvements (earthquake related damage repairs + code, safety and improvements to comply with Damage Control performance objective under ASCE 41-13).
  - Provides improvements to the building intended to reduce the potential of repeating similar damage resulting from a future similar earthquake event. These are items not specifically required to restore the building to pre-November 30, 2018 conditions. These items include code upgrades to current standards where not specifically required to restore to previous conditions. This option does make upgrades to the heating, ventilation and lighting systems. No additional area is added or are existing spaces reconfigured to meet any program deficiencies.
- Demolition and Site Clearing.
  - This solution provides all costs associated with clearing the site, including the removal of foundation systems.
- School Replacement including Demolition and Site Clearing.
  - The existing school would be demolished, and a new facility built on the existing school site. The new building would be expected to serve for minimum of 50 years.
- Estimated Costs for each of the four Conceptual Design Solutions.
- Exhibits to further delineate conditions at the school and the proposed Conceptual Solutions including drawings, sketches, and photography.

### Earthquake Damage

Snow cover on the ground and roof severely limited the opportunity to inspect for civil related site damage and as spring approaches there may be some yet to be discovered damage. Primary areas of observed damage are summarized below.

Architectural:

- 1. Surface and grout damage to ribbed CMU block wall with corresponding cracking in much of the building.
- 2. Extensive gypsum drywall cracking throughout the building.
- 3. Dislodged "Tectum" suspended ceilings in some corridor locations.
- 4. Limited dislodged fabric-wrapped acoustical ceiling panels in gymnasium areas.

#### Structural:

- 1. Steel columns contained within CMU block walls moved during the earthquake impacting the surrounding block breaking block and exposing the column and creating a lot of debris.
- 2. The wall to roof connection of southwest CMU block wall of the gymnasium and the northwest wall of the MPR failed and became displaced.
- 3. The east stairwell off the gymnasium (SW2) shifted causing significant damage.
- 4. CMU masonry walls cracked throughout the building at discontinuities, levels and wall intersections.

Mechanical:

- 1. Inadequate seismic restraint of mechanical equipment.
- 2. Broken pipe, duct, and equipment supports.
- 3. Fire suppression sprinkler heads shifted throughout the building and dislodged sprinkler system escutcheons.

Electrical:

- 1. Insufficient length in flexible electrical connections to mechanical equipment.
- 2. Inadequate structural support and sway bracing for conduit racks.
- 3. Damaged surface mounted conduit connected to failed CMU walls.

## **5. EXISTING CONDITIONS**

ASD facilities employees, contractors and engineers were brought in immediately after the November 30, 2018 earthquake by the School District to perform rapid visual evaluations, clean up debris and restore heat and other services. At GMS, due to the extent of the CMU cracking, the leaning of the gym CMU walls, and the amount of debris, the building was given a Red Tag, meaning it was unsafe to occupy. In the subsequent days, the contractor and structural engineer worked together to remove the debris, evaluate the reinforcing in the walls and shore the CMU wall adjacent to the gym to prevent collapse. This shoring remains in place today. Because the walls could not be fixed quickly, the students were relocated to other facilities and the Red Tag was left in place on this building. No permanent repairs have been completed.

Major glycol leaks haves been cleaned up. Some displaced items have been replaced and/or removed to allow movement of personnel and equipment during the property removal process.

BDS Architects were subsequently hired to perform a much more through assessment of damage and repair requirements.

Three initial site investigations were performed at Gruening Middle School:

- Site Visit 1: Friday 1/4/19 from 1pm-5pm (Architectural Ray Amsden; Structural David Stierwalt; Electrical, John Hood; Mechanical, Bart Semmler)
- Site Visit 2: Tuesday 1/8/19 from 1pm-4pm (Architectural Ray Amsden; Electrical John Hood; Mechanical – Bart Semmler)
- Site Visit 3: Wednesday 1/16/19 from 11am-7:30pm (Architectural Ray Amsden)

The design team walked through the entire building to assess and document the existing conditions directly pertaining to any observable post-earthquake related damages. A key to the outdoor generator module was not available at the time of the site observation. However, ASD reports that they have been manually initiating tests of the generator system every month since the earthquake with no issues identified. ASD anticipates further inspection of the fuel lines in the spring once the snow has melted to verify that they have not been compromised in any manner. The roof and most of the exterior site/landscape were covered with snow and not investigated.

### **Existing Geotechnical Conditions**

The contractor that was onsite to provide clean-up and temporary shoring indicated that the floor of the gym and gym mezzanines were badly out of level. This is reported in the post-earthquake report from Reid Middleton. Being informed of these concerns and wanting to quantify/verify any potential ground movement, BDS contracted with Slana Surveys to perform a more thorough survey focused on the gymnasium area where movement was thought to have occurred. Results of the Slana survey indicate the ground floor area is very close to the elevations established during the original construction confirming the underground stability in this area. Surveyed elevations taken on the mezzanine surrounding the gymnasium floor do show elevation deviations greater than those expected. The stairwell identified as SW2 also shows measurable movement at the second-floor landing.

BDS also engaged Golder Engineering to investigate the site for conditions that might warrant further geotechnical investigation. Golder could not identify any changes that occurred in the site grading and foundations after reviewing historical data of the site and surrounding area: site topography and LIDAR surveys from before and after the earthquake, geotechnical foundation reports, and as-built records for the school. This report is included as Exhibit D of this report.

### **Existing Civil/Site Conditions**

General

The site is 20 acres consisting of land leased from Eklutna Inc. (MOA parcel no. 050-873-01-000) which is generally flat with parking on the north side of the school with a bus drop-off configured within this parking area. Ice rink, 2 basketball courts, running track and open grass sports fields are located on the north side of the school. The site is bordered by an AWWU reservoir facility and Eagle River Road on the north side; residential subdivisions on the east and west sides and fronts the bluff to the south overlooking the Eagle River.

Parking / Site Paving

The parking area and site paving for the school was covered in snow and the design team was unable to investigate the post-earthquake condition. There is no data available to determine what type of structural section is in place beneath the pavement; therefore, for the purposes of this report it is assumed that the structural section is adequate and will be reused pending further investigation in the Spring.

Anchorage Municipal Code requires 1 parking space per 6 students, based on ASD school program capacity.

- Gruening Program Capacity = 727 students
- Existing Parking: **194 spaces provided**; 4 of which are accessible spaces and include 2 van accessible spaces.<sup>1</sup>
- Required Parking: **121 required parking spaces** (727 students X 1 parking space/6 students); 6 accessible spaces (including 1 van accessible space) are required.
- Existing overall parking count is adequate but lacks 2 accessible spaces.
- Site Circulation and Pedestrian Safety

The current bus drop-off is directly in front of the building but requires close staff management to function well. The parent drop-off and bus traffic arrive at the parking lot together and separate upon entering the parking area causing some level of site conflict. All traffic areas are intermixed, causing some safety concerns for students and other pedestrians. Current ASD Middle School Educational Specifications require bus drop-off and pick-up be separated from parent drop-off and pick-up lanes. They further indicate staff and visitor parking must also be separate from bus traffic patterns.

- Site Enhancements and Amenities
  - An outdoor tiered amphitheater is constructed on the south side of the building located on the toe of the hill above the Eagle River buff. This received a cursory inspection and no seismic damages were observed. This area was covered with snow and should be investigated in the spring to confirm there are no damages.
  - MOA Title 21 remediation standards may be impacted, depending on the scope of any damage repairs or upgrades. A standard percentage has been included in cost estimate B assuming this will be triggered.
- Site Drainage

Overall, the site drainage appears to be graded away from the building and there are no apparent problems with storm water runoff.

<sup>&</sup>lt;sup>1</sup> Livingston Slone & Architecture (2015). *Gruening middle School Project Analysis Report*. Part 2: Existing Conditions (p.8)

### **Existing Architectural Conditions**

#### Code Compliance:

- Code History: The building was originally designed under the 1979 Uniform Building Code. The building was classified as a two-story mixed occupancy building with E-1, A-2.1 and A-3 occupancies. The construction type was classified in the 1979 UBC as Type V- 1 hour. This classification changed with the later adoption of the IBC family of codes. An automatic sprinkler system was installed throughout the school in the original construction.
- Current Code Analysis: Governing codes are the 2012 international building code (IBC), International Existing Building code (IEBC), fire code (IFC), mechanical (IMC), fuel gas code (IFGC), UPC 2012, and NEC 2014, NFPA 13, and ASHRAE 90.1-2010 as adopted by the state of Alaska.
- Proposed Facility: Main school building occupancy (IBC Section 305) E. (A occupancies associated with Group E occupancies not considered separate occupancy per IBC Section 303.1.3). Design work will comply with currently MOA adopted building codes. While not currently adopted, MOA anticipates adopting the 2018 codes by the end of 2019.
- Construction Type (IBC Table 601): Type V-A
- Fire Protection: Automatic sprinklers per 13 AAC 50.020 (37). Fire extinguishers per IBC/IFC, section 906, fire alarm system 907.2.3 as revised by 13 AAC 50.020 (47). Commercial cooking system requires a fire protection system per IBC, section 904.11.
- Allowable Area:

Base Allowable (IBC Table 506):

E Occupancy - 55,500 SF Per Story Building Area Modification (IBC Section 506):

Aa = {55,500 + [55,500 x .75] 2} Aa = {55,500 + [41,625] x 2} Aa = {55,500 + 35,625} Aa = 194,250 SF Total Allowable Area = 97,125 SF per Story

Actual Area: Lower Floor Level: 79,045 SF

Upper Floor Level: <u>45,817 SF</u> 124,862 SF • Exterior Wall Protection:

Per table 602, where exterior property lines are equal to or greater than 30 feet, exterior walls of Occupancy E construction type V-A shall not be rated. At fire wall, exterior wall shall be one (1) hour rated for 4'-0" on either side of fire wall.

- Fire-Resistance Rating Requirements for Building Elements (IBC Table 601):
  - Primary Structure Frame: 1 hr
  - Exterior Bearing Walls: 1 hr
  - Exterior Non-Bearing Walls: 0 hr
  - Interior Bearing Walls: 1 hr
  - Interior Non-Bearing Walls: 0 hr
  - Floor Construction: 1 hr
  - Roof Construction: 1 hr
- Openings:

Per table 705.8, unlimited unprotected openings are permitted in an unprotected and sprinkled building.

- Corridor Construction:
  - None required per IBC, Section / Table 1018.1 because of the automatic sprinkler system.
  - All exit doors serving an Occupant load of 50 or more for E occupancy require panic hardware per IBC, section 1008.1.10.
- Emergency Lights & Illuminated Exit Signs:
  - Required per IBC, Sections 1006 and 1011 where rooms, or the building, require two exits.
- Roof Covering:
  - Class B per IBC, Section / Table 1505.1.
- o Interior finishes:
  - Class C

#### **Exterior Observations:**

#### <u>Roof:</u>

The roof was covered with snow and not inspected at the post-earthquake site visits. However, one recent leak was documented at the 1/8/19 site visit. This leak was in the east end of the administrative area, room 2. The construction contractor providing initial building stabilization and repairs, Eklutna Construction & Maintenance, documented this leak and initiated initial repairs provided by Rain Proof Roofing (Exhibit H). Temporary repairs were made on or about 1/7/2019. This was a new leak considered to be a direct result of the earthquake.

The existing moderate-slope roofs mainly consist of asphalt shingles installed over a selfadhering membrane applied waterproofing directly to wood underlayment installed in two phases, 1988 and 1989. A few small roof areas were either patched or replaced with similar materials required to remedy shingle blow off damage and leaks. The existing roof areas have been documented beyond their life expectancy (2015 Master Plan).

#### Exterior Walls:

The existing exterior walls consist of 4" of concrete block veneer, 2 x 6 wood studs, R-19 fiberglass batt insulation with interior gypsum wallboard and other interior finishes. The approximate R-value of existing exterior walls is R-19; below the R-21 recommendation for Anchorage, Alaska. The block veneer is damaged in several areas and in need of repair (see Exhibit C - Photos).

Nearly the entire building exterior consists for ribbed CMU veneer similar to the exposed CMU used in the building interior. For the most part the exterior CMU veneer appears to have held up better than the interior block. There are limited areas of cracking running mostly in grout lines and damaged block headers above some window locations requiring repairs. These are identified in the structural repair items. (See Exhibit C- Photos).

#### **Exterior Windows and Doors:**

Exterior windows are a part of the original 1984 construction. Windows typically include internal horizontal mini-blinds located inside or a removal storm window style on the building interior side. These windows performed well, and no post-earthquake damages were noticed except 1 interior pane in classroom 204 broke during the earthquake.

Exterior Doors and frames are hollow metal and appear to be functioning well.

#### **Interior Observations:**

#### Doors:

**General:** Doors and door frames appear to have performed well. Only the door pair located at the upper landing of stairwell SW2 has racked doors likely caused by the earthquake damage to this part of the structure. This door remains functional, although the door is not square to the mounting frame and floor.

#### **Typical Classrooms:**

*General*: Virtually all rooms exhibit varying degree of drywall cracking. This was the most common damage in these areas including the adjacent supporting spaces like teacher preparation and storage areas. The recessed wall mounted clocks dislodged from cabinets in several isolated locations. Marker boards, tack boards, projection screens, etc., appear to show minimal signs of any earthquake-related damages.

**Flooring**: Carpeting and vinyl composition tile (VCT) are the most common floor finishes in classroom. VCT floors are the common finish in science classrooms and in all cases the VCT appeared to be in very good condition. Carpet to was in good condition although evidenced limited soiling and wear particularly in high traffic areas like room entrances. No obvious earthquake related damage was observed except for debris scattered on classroom floors.

*Wall finishes*: The predominant wall finish consists of gypsum drywall. There is sporadic seismic cracking at most walls on each side of classrooms. These typically occurred near the upper corners of the corridor doors, interior corners, walls to ceilings, soffits and soffit beams. One exception to this occurred in classroom 218 where the wall mounted projector arm pulled off the wall. (see Exhibit C - Photos).

**Ceilings**: The most common classroom ceiling is painted drywall, surface attached light fixtures and suspended fabric-wrapper acoustical panels. No light fixture damage or acoustical panel damage was observed. As discussed above, beam soffits and ceiling to wall intersections exhibited seismic cracking. Ceilings in the lower level southeast wing classrooms and their adjacent support spaces have suspended ceilings with acoustical tile. Very little damage occurred at these locations except for an occasional fallen smaller cut tiles requiring replacement. (see Exhibit C - Photos).

*Fixed Casework*: Casework throughout all classrooms, although dated and exhibiting wear, appeared to be in good condition with no earthquake damage. This was also true for the science casework located in their corresponding classrooms as well as the associated teacher support spaces.

#### Music Classrooms:

**General**: Band and Chorus classrooms exhibited similar earthquake damage as other classrooms. These rooms are unique with high ceilings, tiered floors and adjacent storage and practice rooms (see Exhibit C - Photos). Damage mostly consisted of drywall seismic cracking. Wall mounted boards and devices do not show any signs of any earthquake-related damage.

*Flooring*: Carpet is the predominant floor finish in these rooms. No earthquake damage was observed other than debris on the floor resulting from fallen material.

*Wall Finishes*: Significant walls consist of exposed ribbed CMU block identical to much of the corridors. More limited areas consist of painted drywall. Both materials exhibiting limited seismic cracking.

*Ceiling*: Ceilings are painted drywall with surface mounted light fixtures and suspended fabric-wrapped acoustical panels. Limited drywall damage was observed.

*Fixed Casework*: In the music instrument storage room the cabinet doors are not attached. Doors were present, but It is unclear if these were damaged as a result of the earthquake or removed for other purposes. Cabinets are constructed from wood composite material making it difficult to reinstall due to material damage at the mounting locations. Considering the age, matching cabinets would likely be unavailable, and therefore replacements would require all cabinets be replaced to match.

#### CTE (Applied Tech) Classroom:

*General*: In addition to the large shop space, this area includes several support spaces such as an instructor's office, CAD learning classroom, storage and entry vestibule off the corridor. Condition was good except for drywall cracking.

*Flooring*: The floor in this area was painted concrete that looked to be in good shape - a product of a recent upgrade. No flooring earthquake damage was observed.

*Wall Finishes*: Overall, drywall assemblies performed well. There is sporadic seismic cracking at most walls on each side of classrooms. These typically occurred near interior corners, walls to ceilings, soffits and soffit beams.

*Ceiling*: Painted drywall with surface mounted lights and suspended fabric-wrapped acoustic panels all of which held up well except for seismic cracking in the drywall. Like most other locations, cracking occurred and ceiling to wall interfaces, interior corners and beam soffit locations.

#### Art and Family Consumer Science:

*General*: This space includes large instructional classrooms, display cabinets viewable from the corridor, teacher prep and storage rooms, learning work areas such as kitchen alcoves in the upper level Family Consumer Science (FCS) classroom and pottery stations in the Art classroom on the lower level. No specific earthquake damage was readily observed other than typical seismic drywall cracking.

*Flooring*: Flooring in these classrooms consists of a sheet good product in good condition with no evidence of earthquake damage.

*Wall Finishes*: There is sporadic seismic drywall cracking at most walls on each side of classrooms. These typically occurred near the upper corners of the corridor doors, interior corners, walls to ceilings, soffits and soffit beams.

**Ceilings**: Painted drywall with surface mounted light fixtures and suspended fabric-wrapped acoustical panels all of which held up well except for seismic cracking in the drywall. Like many locations, cracking occurred and ceiling to wall interfaces, interior corners and beam soffit locations.

*Fixed Casework*: Both classrooms contain fixed casework. They evidence their age through expected wear and tear although no earthquake specific damage was observed in either classroom.

#### Corridors, Ramps and Stairs:

*General*: Corridors interconnect with ramps to provide fully accessible access throughout the lower and upper levels of the school. Circulation is augmented by numerous stairwells to access other levels. Stairwells exhibited concentrated locations of grout seismic damage at the intersecting corners at stair landings. The CMU handrail serving the stairs from the central

commons area up to the MPR balcony seating detached from the supporting concrete column leaving it unsupported. This was temporarily secured by a metal plate in the original post-contractor repairs. These require repair (see Exhibit C - Photos).

*Flooring*: Vinyl composition tile used throughout all corridors except for ramps appeared to be in very good condition. Carpet used on the ramps between the upper and lower levels evidence wear and soiling but are generally holding up well considering the high level of traffic use. "Mondo" rubber treads and risers are installed on the stairs, with VCT used on the landings, also was performing well with no evidence of earthquake damage except for the upper landing of stairwell SW2 which was directly damaged by the earthquake. Several locations were observed to have loose or missing base molding in the stair areas, but it is unlikely that this was caused by the earthquake.

*Wall finishes*: CMU corridor walls have considerable seismic cracking throughout the facility, though largely cosmetic. The most prevalent damage to CMU walls consists of damaged grout lines and spalling of the block faces. In a few locations the face shell of blocks broke entirely away. The CMU block style is no longer available (or rare) making repairing these blocks time consuming to hand mold repairs to replicate the original ribbed profile. Vertical cracking occurred at mortar joints between corridor walls and gypsum wallboard finishes at classroom entry alcoves. There is also earthquake damage to wall edges where sheetrock walls meet with CMU walls. Hairline cracking following block coursing can also be found throughout the corridors (see Exhibit C - Photos).

**Ceilings**: Suspended acoustical tectum ceiling systems are damaged/compromised in the lower levels. A number of these heavier tectum ceiling tiles fell. Remediation will require a new code-compliant suspension grid and tile system. (see Exhibit C - Photos). Fabric-wrapped acoustical panels located in the upper level appeared to perform well with no observed displacement in these areas, but other areas did experience limited failures where they are only connected to gypsum ceilings. It is recommended that these panels be re-anchored directly into structural members.

**Glazing**: Hollow metal framed relites are installed between the administrative offices located on the east and west end of administrative area, at other program support rooms located along the corridors and offices located adjacent to classrooms. These are in good condition with no observed earthquake damage.

#### Restrooms:

*General*: Restrooms were observed to have experienced very minimal damage. A ceiling return air grill fell in the girl's restroom on the lower level. Plumbing fixtures and toilet partitions are in generally good condition.

*Flooring*: Ceramic tile flooring is generally well maintained and undamaged. (see Exhibit C - Photos).

*Wall finishes*: Ceramic tile used on the walls is generally well maintained and undamaged (see Exhibit C - Photos).

*Ceilings*: Sheetrock is generally in good condition and undamaged, except for minor damage in girl's restroom previously mentioned.

#### Administration Area:

*General*: The administration area does not have an ideal secure entry sequence. This is also challenged due to two main entries located on each end of the administration area. Any future remediations should address this condition. The office staff can see those who have entered the corridor but cannot see individuals before entering the two sets of entry doors.

**Flooring**: Carpeting is in generally good condition. At each end of the administrative area, where heavy traffic occurs, the carpet is showing wear and soiling. Except for the staining in room 2 resulting from the earthquake-caused roof leak, the flooring is not directly damaged from the earthquake. Earthquake-related debris is scattered throughout.

Wall finishes: There is sporadic seismic cracking at drywall in most of the rooms.

**Ceilings**: Suspended acoustical ceiling systems are located on the southern portion of the administration area inclusive of the central hallway. Offices on the north side consist of painted drywall and surface light fixtures (see Exhibit C - Photos). Earthquake damage consisted of a few fallen cut tiles knocked loose from the grid.

**Fixed Casework**: Casework in rooms 2 and 8 appears to be undamaged. Although, perhaps not directly damaged from the earthquake, doors and drawers should be checked and adjusted for proper function. Casework in the workrooms 11 and 15 are worn, stained, marred and are likely past their useful life. Some of these cabinets evidenced several cabinet doors torn off their respective cabinets attributable to earthquake damage. Cabinets are constructed from wood composite material making it difficult to reinstall due to material damage at the mounting locations. Considering the age, matching cabinets would likely be unavailable, and therefore replacements would require all cabinets be replaced to match.

#### Gymnasium Area:

*General*: The Gymnasium and surrounding mezzanine areas appeared to have absorbed the most severe damage. This includes a damaged stairwell (SW2) located of the NE corner of the gymnasium containing a buckled floor at the upper landing along with significant cracks in the CMU. Doors to the mezzanine on the landing also appeared to be racked due to the earthquake.

*Flooring*: The poured urethane sports floor in the gym appeared to be in excellent condition and suffered no visible damage. Vinyl athletic flooring is generally worn, stained and past its useful life. Carpeting in room 224 is generally worn, stained and past its useful life. Earthquake-related debris is scattered throughout.

*Wall finishes*: On the lower level of the gym exposed CMU is the typical finish. This was largely undamaged, except for CMU cracking. On the mezzanine level, the predominant wall is CMU block covered by fabric-wrapped acoustical panels. At the southwest wall where the wall to roof connection failed these panels were removed to allow the installation of temporary shoring and to expose the wall for more in-depth examination.

*Ceilings*: Ceilings in this area are painted gypsum wallboard with surface attached light fixtures and suspended fabric wrapped acoustical panels. A limited number of these panel fell during the earthquake. The ceiling in the wrestling room is an exposed gypsum ceiling exhibiting extended roof leak damage. This ceiling was further damaged by the earthquake (see Exhibit C - Photos).

*Fixtures & Equipment*: Basketball goals and wall-mounted safety pads show no sign of earthquake-related damage. Retractable room divider supporting beam was damaged and no longer straight.

#### Multipurpose Room & Kitchen:

*General*: This area suffered significant CMU block damage at the roof columns embedded in CMU. At the balcony seating area the CMU block forming the railing suffered damage to the concrete cap. This area suffered significant glycol leaking from the overhead fan unit located in the rooftop mechanical room. This was cleaned up early in the initial earthquake response.

*Flooring*: The poured urethane flooring is in excellent condition and suffered no apparent damage. Ceramic tile flooring in the adjacent kitchen also appeared undamaged.

*Wall finishes*: CMU walls have seismic cracking and spalling throughout. Drywall in kitchen storage, restroom and offices exhibited cracking, especially at corner conditions.

**Ceilings**: Ceiling generally consists of painted gypsum wallboard with surface attached light fixtures and suspended fabric wrapped acoustical panels. No apparent damage was present other than typical cracking. (see Exhibit C - Photos).

*Fixtures & Equipment*: Kitchen equipment appears to show no signs of any earthquake-related damage. A gas leak was detected early in the earthquake response leading to partial demolition of one wall in the kitchen where gas lines supply fuel to heating equipment. Retractable tables and benches appear to be undamaged. The stage curtain support was damaged requiring replacement. Stage lighting in this area appeared undamaged.

#### IMC (Library):

*General*: This area includes the large library space and two adjacent computer classrooms, storage, workroom and librarian office. All rooms exhibit varying degree of drywall cracking. Marker boards, tack boards, projection screens, etc., appear to show minimal signs of any earthquake-related damages.

*Flooring*: Carpeting throughout IMC area is in good condition. Although IMC flooring is not directly damaged from the earthquake, earthquake-related debris is scattered throughout.

*Wall finishes*: There is sporadic seismic cracking in drywall surfaces.

*Ceilings*: Ceilings are painted drywall with surface mounted light fixtures and suspended fabricwrapped acoustical panels. Drywall suffered limited earthquake generated cracking a typical location. (see Exhibit C - Photos).

*Fixed Casework*: Casework appeared to be in good condition with no observed earthquake damage. Although, perhaps not directly damaged from the earthquake, doors and drawers and shelving should be checked for position and proper operation.

*Fixtures & Equipment*: Book shelving appears undamaged and functioning properly. Marker boards, tack boards and projection screens appear to show no signs of any earthquake-related damages.

### **Existing Structural Conditions**

#### Seismic Performance Rating of Existing Structure

Based on a Tier 3 analysis in 2015, the building was qualitatively ranked a 4 on a scale from 1-10. The building performed as predicted, in that the damage was consistent with a 4 ranking. All persons were able to successfully exit the building and the damage is significant, but likely repairable (although it may not be economical to do so).

Following the November 30, 2018 M7.1 earthquake, the existing structure at Gruening Middle School was down-rated to a 3 on a scale of 1-10 due the amount of CMU cracking and the CMU wall separation from the roof diaphragm (see figure 3). The damage from the earthquake degraded this building's ability to provide a ductile response in a similar sized and located earthquake today.

This puts the building well below the Life Safety (LS) performance objective (5), and the target performance objective of Damage Control (DC, 6.5).

After the completion of all repairs and mitigations indicated in both the earthquake-related damage repairs and damage control improvements, the building could be re-rated to a 6.5.



Figure 3: Qualitative Building Ranking

#### Existing Structural System

Gruening Middle School is a complex two-story, 124,862 square foot wood and reinforced masonry building designed and constructed under the 1979 Uniform Building Code. The general configuration consists of two primary corridors configured to form an "X". Classrooms and offices are located on each side of the corridors. At the center of the X, where the corridors intersect, the areas on each side of the intersection house the Administrative area, Gymnasium, and the Multi-Purpose Room (MPR). Ramps and stairs link the upper and lower levels. No elevators are located in the building.

Gruening Middle School has a complicated design history. Near the completion of construction, it was discovered that the building was not adequately designed for seismic forces. Construction was delayed, and Corrective Actions were designed and constructed on the brand-new facility.

Gruening Middle School is a hybrid of wood and CMU construction. Roof framing consists of plywood sheathing supported on timber joists supported on glued-laminated beams, steel beams, wood stud walls, or CMU walls. Upper level floor framing is similar to the roof framing.

Exterior walls are CMU veneer (on one or both sides) attached to wood stud framing. The foundation consists of a concrete slab on grade and concrete spread or strip footings.

Lateral loads are resisted by flexible plywood diaphragms at the roof and upper floor level (topped with a light weight concrete that is not considered in the stiffness of the diaphragm). Diaphragm loads are transferred to a combination of plywood and CMU shear walls.

Gruening Middle School has a complex lateral force resisting system. Although the primary components are simple systems, plywood diaphragms and plywood or CMU shear walls, the unusual geometry, arrangement of shear walls within the building, and extensive seismic renovations combine for a challenging evaluation of the building's lateral force resisting system. The load distribution does not appear to be entirely linear, therefore an attempt has been made here to distribute the load to the lateral elements most likely to resist that load (closest in geometry), not relying on drag struts and collectors to evenly distribute the load.

#### Post-Earthquake Observations

- 1. Drywall cracking throughout. This occurred primarily at corners, door openings, below windows, at wall intersections and other areas of local stiffness.
- 2. Masonry walls cracked at tall walls around Gym & MPR. Existing CMU is primarily stack bonded and therefore does not crack along the traditional diagonals. Stair step cracking, cracking at corners and vertical/horizontal cracking was observed on the interior and exterior walls.

- 3. Masonry corners at embedded steel columns are heavily cracked and spalling. These embedded columns were intended to be grouted solid and reinforced. Based on the amount of debris and the exposed condition, the columns were simply set into hollow cells, and when the columns began to shake in the earthquake, they impacted and broke the masonry face shells, creating the debris.
- 4. Top of wall connection between CMU and wood diaphragm failed at two known locations. CMU walls appear to be leaning at these locations. Temporary diagonal shoring has been installed. The design seismic force for a heavy walls to diaphragm connection has been evolving over time as new earthquakes yield new data. Even if designed to full code forces originally, current codes would recommend this connection be designed for 2x-3x higher forces.
- 5. Handrail leading to upper level not joined to column, leaving handrail very loose to the touch. Until repairs, this stair is unsafe for use.
- 6. Brick veneer on top of MPR side seating has come loose.
- 7. Gym curtain support at mezzanine has failed. The support is now slightly buckled and is no longer straight.
- 8. Stairwell 2 (SW2) off of the Gym is unlevel at the 2<sup>nd</sup> floor landing and the CMU is cracked at the corners.
- 9. Previous Master Planning work identified:
  - Wood shearwalls may not be connected between floors, are likely nailed inadequately, and may not be aligned between floors. Recent renovation work at the Special Education rooms confirmed these suspicions.
  - Diaphragm openings do not have reinforcement at corners.
  - Unblocked diaphragms are spanning too far for their capacity.
  - Corroded steel found at exterior stairs.
  - Stack-bonded CMU reinforcing is too far apart.

### **Existing Mechanical Conditions**

#### General

The following systems were included in the existing mechanical conditions assessment following the November 30, 2018 earthquake: ventilation, heating, controls, plumbing, fire protection, and any mechanical specialty systems (e.g. wood shop dust collector).

#### Mechanical Systems Summary

The school was originally constructed in 1981 and has undergone several remodels and upgrades throughout its lifetime. Most of the central mechanical equipment is original to the building construction. Exceptions include replacement of boiler burners in 2006 and changing from an all glycol heating system to water with a secondary glycol loop to serve air handler heating coils between 2010 and 2015. The building controls are mostly pneumatic installed under the original construction with some valve pneumatic actuators switched to Honeywell electronic actuators (e.g. air handling unit 3-way valves). Additionally, several central ventilation units have very poor access and available space to perform maintenance or replacement.

#### Mechanical Systems Observation Summary

The mechanical equipment and systems were observed after the earthquake once the building structural condition had been reviewed, temporarily remediated, and deemed safe to walk-through to observe the systems. Additionally, initial remediation had already occurred for issues that could cause further damage to the facility including a hydronic piping leak in the boiler room above the kitchen and catchment systems for roof leaks to drain to a proper location.

Mechanical observations were limited to visual inspection of the equipment and systems. Disabled equipment was not enabled due to possible safety risks. Mechanical equipment and systems that were enabled were not tested for functional performance, but only determined to be operational. A majority of the damage observed was located in the gymnasium, the multi-purpose room, and the boiler room.

#### Observed Damages

The following is a list of observed earthquake related mechanical damages and issues, as well as, recommendations for repair and remediation: Several sprinkler heads and exposed wall penetrations are missing their escutcheons and need to be replaced. In addition, several sprinkler heads have shifted in relation to ceiling penetrations and need to be modified.

- 1. Several sprinkler heads have shifted in relation to ceiling penetrations and need to be modified.
- 2. The Gym heating ventilating unit (HVU-3) in the catwalk mechanical room ripped off its spring isolator mounts and the supply ducting was disconnected from the ventilation unit discharge. This unit should be replaced due to its age and condition.

- 3. The Multipurpose Room heating ventilating unit in the catwalk mechanical room ripped off its spring isolator mounts and the supply ducting disconnected from the ventilation unit discharge. This unit should be replaced due to its age and condition.
- 4. The toggle bolt supporting a sprinkler pipe ripped out of ceiling drywall on the Gym catwalk. The sprinkler pipe needs to be re-supported with an appropriate hanger.
- 5. The exhaust fan (EF-13) above the Gym catwalk is resting on the catwalk railing and bending the fan casing. This unit should be replaced due to its age and condition.
- 6. The Shower pan in the Coach's Restroom (Room 152) has shifted and broken tiling. The shower pan should be replaced and tile fixed.
- 7. The Flamex dust collector detector panel in the Wood Shop (Room 158) was beeping upon arrival, but no alarm indication lights displayed. The dust collector spark detector system should be tested to verify the system is fully functional.
- The return fan (RF-1) intake duct pulled off wall connection in Mechanical Room (Room 220A). The intake duct should be reconnected to the wall connection and the return fan spring isolators should be adjusted.
- 9. A duct damper actuator rod was ripped out of ductwork in Wrestling Room Office (Room 224). The duct damper and actuator should be replaced.
- 10. A hydronic pipe was leaking above ceiling in the Wrestling Room Office (Room 224). The leaking pipe should be repaired.
- 11. The duct supports for the exhaust fan in the Wrestling Room (Room 224E) were broken, missing, or shifted. The exhaust fan ductwork should be re-supported.
- 12. The ductwork was disconnected at the 90-degree elbow in the southwest corridor (Corridor 1130). The ductwork should be re-connected and sealed.
- 13. A pipe clevis hanger and associated threaded rod pulled from ceiling in the northwest corridor (Corridor 2300). The threaded rod and clevis hanger supporting the pipe should be replaced.
- 14. Two pipe clevis hangers are no longer attached to their associated threaded rod in the southeast corridor (Corridor 2320). The threaded rods and clevis hangers supporting the pipe should be replaced.
- 15. The hydronic heat exchanger pipe supports in the Boiler room (Room 228) shifted causing a significant leak at the heat exchanger. The piping and heat exchanger should be replaced.
- 16. The air separator support stanchion in the Boiler room (Room 228) shifted and broke away from the concrete. The air separator support stanchion should be replaced and anchored to the concrete.
- 17. A pipe structural anchor in the Boiler Room (Room 228) ripped away from the wall/structural beam. The pipe anchor should be replaced.

- 18. The indirect-fired water heaters (4 total) in the Boiler Room (Room 228) have shifted and broken away from their anchoring system. This is causing connected pipes to bend. The piping should be disconnected from the water heaters, water heaters should be relocated to their original locations, and new piping connections should be provided to the water heaters. A Unistrut support framed should be built and anchored to the concrete to properly support the water heaters.
- 19. The Energy Extender heat recovery system in the Boiler Room (Room 228) has shifted causing connected pipes to leak. The pipe leaks at heat recovery system should be fixed.
- 20. A return air duct in the Boiler Room (Room 228) was disconnected. The return air duct should be reconnected and sealed.
- 21. One hydronic circulation pump in the Boiler Room (Room 228) was disassembled and the piping isolated. It is unclear if this is due to the earthquake damage. The pump should be replaced.
- 22. Due to the damage sustained to the school and its mechanical systems, it is recommended that the mechanical systems be commissioned to ensure proper operation of the building mechanical components. It is also recommended that the ventilation and heating systems be rebalanced as part of the commissioning effort.

### **Existing Electrical Conditions**

General

The following systems were included in the existing mechanical conditions assessment following the November 30, 2018 earthquake: ventilation, heating, controls, plumbing, fire protection, and any mechanical specialty systems (e.g. wood shop dust collector).

Electrical Systems Summary

Gruening Middle School is served from a 300kVA, 3 phase Matanuska Electric Association (MEA) transformer. The building service point of entrance is comprised of the electrical meter, CT Can, and 1200A combination automatic transfer switch and service disconnect located on the outside of the building. The main distribution switchboard (MDS) is a 1600A, 208Y/120V, 3 phase, 4 wire, fusible, General Electric (GE) two section switchboard, located in the boiler room. The MDS was installed during the original construction in 1981.

The MDS feeds approximately nine 480/277V panelboards and fifteen 208/120V panelboards via three fusible distribution panelboards "A", "B", and "CP". The majority of the panelboards are from the original building construction. A 2003 Technology upgrade added Distribution Panelboard "CP" and four branch panelboards.

#### Standby Power Distribution System

Gruening Middle School is supported by a standby generator located on the northwest exterior side of the building. The original 200kW generator was replaced with a larger 500kW standby generator during the Standby Generation System Upgrade project in 2007. As a result of this project, the entire building is powered by the generator during loss of utility power.

#### Electrical Systems Observation Summary

The electrical equipment and systems were observed after the earthquake once the building structural condition had been reviewed, temporarily remediated, and deemed safe to walk-through to observe the systems.

Electrical observations were limited to visual inspection of the equipment and systems. A majority of the damage observed was located in the gymnasium, the multi-purpose room, and the boiler room.

#### Observed Damages

The following is an overview of earthquake related electrical damages and issues, detailed breakdown and remediation is addressed further in the report:

- 1. Broken electrical connections serving mechanical equipment damaged by excessive movement. New conduit and wiring, to include a MOA code required equipment grounding conductor, will need to be provided to the replacement or repaired equipment.
- 2. Water damage was observed on numerous lights and kitchen equipment, as detailed in this report. After leak repair, fixtures/equipment will require inspection or replacement.
- 3. Damaged and disconnected conduit and cable tray supports were observed throughout the building. The main conduit rack in the boiler room was observed to be insufficiently supported and braced for the weight of conduit. Additional supports and seismic bracing will be required to repair and support the rack.
- 4. Fire alarm conduit was damaged in the gym and MPR, conduit and wiring will need to be repaired. Fire alarm devices were removed as part of the repair process, however the fire alarm panel did not indicate a fault or trouble. Fire alarm testing and recommission will be required for the full building for NFPA 72 required acceptance report.
- 5. Minor damage was observed throughout the facility consisting of lighting fixture lenses missing, wired clocks detached and hanging from wires, failed wall projector mounts.
- 6. The site lighting, outbuildings, and track area were inspected. No damage noted.

### **Existing Hazardous Materials**

Overview

Asbestos and other hazardous materials are known to be present in the school and will likely have an impact on the planned renovations. No site inspection or survey has been performed on the school yet for this project. However, EHS-Alaska Inc. has extensive previous information and experience with this school.

The extent and costs of the required removal or disturbance of these materials varies depending on the concept solution and are indicated in Exhibit A - Cost Summary Matrix. These costs will be further developed as the design progresses.

Hazardous materials in the building include asbestos-containing materials, leadcontaining materials, mercury containing lamps, mercury containing thermostats and switches, smoke detectors and self illuminating exit signs with radioactive components, refrigerators or other items with ozone depleting substances, and glycol in the heating system. It is unknown at this time whether or not these items will be impacted by the proposed repairs.

 Further detail on hazardous materials in the building is included in Exhibit F – Hazardous Materials Report.

## 6. CONCEPT SOLUTIONS

### Overview

Four proposed Concept Solutions have been investigated and are presented in this report. Specific repairs and improvements are described under each solution, including estimated cost. The proposed designs conform to the progressive approach benchmarks established by ASD. All products, materials and systems will meet the most current version of the ASD School Facilities Construction Design Standards.

**NOTE:** The numbering of items delineated under each of the following solutions corresponds to those numbers indicated on both Exhibit A – Cost Summary Matrix and Exhibit B - Drawings.

#### Earthquake-Related Damage Repairs

Provides only those repairs directly related to deficiencies resulting from earthquake damage. Restores and improves the facility to its pre-earthquake condition for continued service. This solution also addresses any required code and safety upgrades triggered by the necessary repairs. These repairs do not reduce the risk for similar damage resulting from a similar future earthquake. This option does not address any program deficiencies. After completion of this option, the building would be safe to occupy.

#### Earthquake Damage Mitigation Repairs

Provides improvements to the building intended to reduce the potential of repeating similar damage resulting from a future similar earthquake. These are items not specifically required to restore the building to pre-November 30, 2018 conditions. These items include code upgrades to current standards where not specifically required to restore to previous conditions. This option includes upgrades to the heating, ventilation and lighting systems. No additional area is added or are existing spaces reconfigured to meet any program deficiencies.

#### **Demolition and Site Clearing**

This solution provides all costs associated with clearing the site, including the removal of foundation systems.

#### **Replacement Project**

The existing school would be demolished, and a new facility built on the existing school site. The new building would be expected to serve for 40-50 years.

### Earthquake-Related Damage Repairs (Level A)

(Reference Exhibit B - Drawing A2-A3)

- **C1.** Civil: Repair 8" CMU bike rack on the south side of the building located near the southwest exit from the Library (estimate 20 SF plus cast in place concrete cap and CMU trim out pieces).
- A1. Architectural: Repoint/replace missing face block and paint interior CMU walls throughout. With the extent of patched and repaired CMU cracking, it will be necessary to paint 70% of the CMU in its entirety for uniformity of color/texture.
- A2. Architectural: Epoxy grout exposed CMU seismic cracks throughout the building (estimate 1000 linear feet).
- A3. Architectural: Repair gypsum wallboard (GWB) cracks throughout the building.
  - a. Tape, mud and repaint to match existing adjacent surfaces. Estimate 10 locations within typical classrooms. These also occur in mechanical data/electrical, storage and custodial rooms. They occur in corridors where gypsum finishes abut CMU surfaces.
- **A4.** Architectural: Replace ceiling suspension grid and Tectum ceiling tiles in corridors (estimate 15,000 SF).
- A5. Architectural: Repair Replace missing fallen and damaged acoustic ceiling tile and repair any damage to suspension gird. Replace missing escutcheons at sprinkler heads (estimate 2% of ceilings, 13,000 SF).
- A6. Architectural: Reattach acoustic panels to structure throughout building.
- **A7.** Architectural: Patch/paint gymnasium gypsum ceiling. Located along catwalk accessing fan room about gymnasium (estimate 16 SF).
- **A8.** Architectural: Complete structural repairs to southwest CMU wall of room 221. Patch and paint as required. Reinstall acoustic wall panels. Panels removed post-earthquake to facilitate brace installation (estimate 700 SF).
- **A9.** Architectural: Replace/reinstall missing ceiling fabric wrapped acoustic panels in gymnasium, mezzanine room and several other misc. rooms (estimate 500 SF).
- A10. Repair contractor holes in floor and CMU walls resulting from wall stabilization and CMU reinforcing steel investigation post-earthquake (reference with S2)
- A11. Architectural: Repair fire tapping and holes in exposed gypsum ceiling at room 224E.
- A12. Architectural: Remove and replace suspended ceiling system in office area room 224.
- **A13.** Architectural: Repair concrete floor cracks in boy's locker room 152. Recoat floor paint finish throughout area to provide matching color (estimate 30 LF).

- **A14.** Repair roof framing structural damage and related roof leaking in room 2. See Exhibit H, investigation report by Rain Proof Roofing dated 1-7-2019.
- A15. Architectural: Replace damaged cabinet doors on 40% overhead cabinets locations in the teachers work room 15, storage room 11 and 100% in the music instrument storage room 129C
- A16. Architectural: Reinstall acoustic wall panels and wall mounted athletic equipment on the common wall between the weight room 221 and adjacent corridor 2310. Replace missing CMU blocks at top and refinish surfaces both sides of wall after structural work has been completed.
- **A17.** Repair hole in gypsum ceiling and reinstall fallen ventilation louver in girl's bathroom 17.
- **A18.** Repair ceiling damage in room 121. Work consists of damaged gypsum wrapping beam, minor ceiling tile replacement and adjustment and quarry tile base repair at doorway to kitchen. (estimate 20 repair locations).
- A19. Repair kitchen wall located in room 122 below cooking vent hood. Surfaces were demolished pursuing gas leaks after earthquake. These consists of gypsum and FRP (estimate 130 SF). Repair gypsum ceiling at dropped soffit areas (estimate 2 locations).
- **A20.** Patch and paint damage to concrete column located in MPR room 123 located outside of kitchen serving area. Remove and reinstall impact protection padding to access column.
- **A21.** Repair CMU damaged by column movement located at each major column supports in MPR room 123 and Gymnasium room 150 (estimate 250 LF) (reference with S2).
- **A22.** Patch and repair damaged inside CMU corners in MPR room 123 and other hallway locations (estimate 250 LF).
- **A23.** Repair concrete dislodged paver caps removed from the CMU balcony railing located in MPR balcony (estimate 25 LF).
- A24. Repair wall mounted sink located in girl's bathroom located off of room 123 A.
- **A25.** Architectural: Repair damaged CMU "wing wall" in corridor left of entrance to room 108, concrete head detail between locker bank outside classroom 110.
- **A26.** Architectural: Repoint damaged CMU veneer on building exterior. (estimate 5% of exterior wall area).
- **A27.** Architectural: Replace damaged existing fabric wrapped acoustical wall panels in Gymnasium area (estimate 500 SF).
- **A28.** Repair broken window inner glass pane at exterior window in room 204 (clipped pane outside louver shade).
- **S1.** Structural: See A1 & A2 for description.

- **S2.** Structural: Repair CMU corners & column embeds (reference A21).
  - a. Where columns are embedded in walls (20 locations, each with 8 horiz bars), weld horizontal #4 rebar at 16" on center onto face of column (or drill through column), extending each direction 24". Add #3 hoops around each column. Grout CMU solid around column and over length of rebar. At existing bond beams (48" oc), epoxy dowel rebar into existing bond beam.
  - b. Where no column is embedded at CMU corners (120 locations, each with 8 horiz bars), add horizontal #4 x 4' corner bars with 2' embedded in each wall segment at 16" on-center. Grout CMU solid around corner and over length of rebar. At existing bond beams (48" oc), epoxy dowel rebar into existing bond beam.
  - c. If a doorway or opening interrupts the extension of the bar, hook the reinforcing vertically.
- **S3.** Structural: CMU Wall Anchorage
  - a. Expose & as-built top of CMU wall connections and CMU wall connections at 2nd floor elevation (estimate 1800 lf). Scaffolding required.
  - b. Add tension ties to better connect CMU walls to roof and 2nd floor diaphragms (estimate 900 locations)
  - c. Note that this item was included in the 2015 Master Plan as "openings at masonry shearwalls" at 16 locations, see Repair Sketch 3.
- **S4.** Structural: CMU Grouting (reference with A21)
  - a. During exploratory work, if any cells are found to be reinforced, but not grouted, the extents of the missed grouting shall be determined, and grouted (estimate 10 locations, each 4' wide x 20' tall).
- **S5.** Structural: Repair handrail on west side of Foyer
  - a. Anchor end of handrail wall to column (1 location).
- **S6.** Structural: Replace Gym Curtain Support
- **S7.** Structural: Replace SW2 Stairwell
  - a. Remove existing stair.
  - b. Compact soil, possibly address drainage.
  - c. Rebuild stair enclosure and landing in kind (CMU & Concrete with Wood Roof), or as modified by Architect.
- **S8.** Structural: Stiffening of floors surrounding Gym at 2<sup>nd</sup> floor (220, 221, 223, 224) this will address the mezzanine survey irregularities and the unlevel/bouncy floor.
  - a. Install steel W12 beams at 4'-0" on-center parallel to existing wood joists.
  - b. Add 2" of gypcrete over existing floors to level and dampen floor movement.

- M1. Mechanical: General Sprinkler:
  - a. Several sprinkler heads and exposed pipe wall penetrations missing escutcheons. Replace sprinkler escutcheons throughout facility.
  - b. Several sprinkler heads shifted in relation to ceiling penetration vertically and horizontally. Modify sprinkler heads and associated ceiling tiles to provide code required clearance around sprinkler pipe penetration.
- **M2.** Mechanical: Gym heating ventilating unit (HVU-3) in catwalk mechanical room ripped off spring isolator mounts and supply ducting disconnected from ventilation unit discharge. Due to age and condition of unit, replace entire unit.
- **M3.** Mechanical: Multipurpose Room heating ventilating unit in catwalk mechanical room ripped off spring isolator mounts and supply ducting disconnected from ventilation unit discharge. Due to age and condition of unit, replace entire unit.
- **M4.** Mechanical: Toggle bolt supporting sprinkler pipe ripped out of ceiling drywall on Gym Catwalk. Re-support sprinkler pipe with appropriate hanger.
- **M5.** Mechanical: Exhaust fan (EF-13) above Gym catwalk is resting on catwalk railing and bending fan casing. Due to the age and condition of unit, replace entire unit.
- **M6.** Mechanical: RM 152: Shower pan in coach's restroom has shifted and broken tiling. Replace shower pan and re-tile.
- M7. Mechanical: RM 158: Flamex dust collector detector panel beeping upon arrival, but no alarm indication lights displayed. Test duct collector spark detector system to verify fully functional.
- **M8.** Mechanical: RM 220A: Return fan (RF-1) intake duct pulled off wall connection. Reconnect intake duct to wall connection and adjust return fan spring isolators.
- M9. Mechanical: RM 224:
  - a. Duct damper actuator rod ripped out of ductwork. Replace duct damper and actuator.
  - b. Hydronic pipe leaking above ceiling. Repair leaking pipe.
- **M10.** Mechanical: RM 224E: Exhaust fan duct supports broken, missing, or shifted. Resupport exhaust fan ductwork.
- M11. Mechanical: Corridor 1130: Ductwork disconnected at 90-degree elbow. Re-connect ductwork.
- **M12.** Mechanical: Corridor 2300: Pipe clevis hanger and associated threaded rod pulled from ceiling. Replace threaded rod and clevis hanger supporting pipe.
- **M13.** Mechanical: Corridor 2320: Two pipe clevis hangers no longer attached to threaded rod. Replace threaded rods and clevis hangers supporting pipe.

- M14. Mechanical: Boiler Room 228:
  - a. Hydronic heat exchanger pipe supports shifted causing significant leak at heat exchanger. Replace piping and heat exchanger.
  - b. Air separator support stanchion shifted and broke away from concrete. Replace air separator support stanchion and anchorage.
  - c. Pipe structural anchor ripped away from wall/structural beam. Replace pipe anchor.
  - d. 4 Indirect-fired water heaters have shifted and broken away from anchoring system (self-tapping screws drilled into fiberglass tank stand). This is causing connected pipes to bend. Disconnect piping, relocate water heaters to original locations, and provide new piping connections to water heaters.
  - e. Energy Extender heat recovery system has shifted causing connected pipes to leak. Fix pipe leaks at heat recovery system.
  - f. Return ductwork disconnected. Reconnect ductwork.
  - g. One hydronic circulation pump was disassembled and piping isolated. Unsure if this is due to the earthquake. Replace pump.
- **M15.** Recommission the mechanical systems to ensure proper operation of the building mechanical components. Commissioning shall include rebalancing the ventilation and heating systems.
- **E1.** Electrical: Gym heating ventilating unit #3 (on catwalk) ripped off mounts, electrical conduit and conductors pulled of equipment. Provide new conduit and conductors with equipment ground conductor (EGC) and connect to serving panel (estimate 20').
- **E2.** Electrical: North Basketball hoop motor wiring disconnected. Repair connection (minor).
- E3. Electrical: RM 223A:
  - a. Fan motor in overhead conduit ripped off. Reconnect motor.
  - b. IDC punch down block pulled off wall. Re-secure IDC block (minor).
- **E4.** Electrical: RM 221A AHU-2 control conduit pulled out, j-box cover missing. Replace cover, test and reconnect control conduit and wiring.
- **E5.** Electrical: Gym overhead battery ballast burned out from water infiltration. Replace Lighting fixture (2x4 surface mount fluorescent troffer with A125 prismatic lens) and Bodine battery ballast.
- **E6.** Electrical: RM 220B Mechanical equipment in overhead: conduit missing, exposing wiring. Replace flex conduit.

- **E7.** Electrical: RM 223 fire alarm wireway and devices detached from wall, wireway damaged. Replace plastic wireway and reconnect devices. Perform full building fire alarm acceptance testing IAW NFPA 72.
- **E8.** Electrical: Corridor 2310, outside rooms 213/214, cable tray support detached. Reattach segment and secure to structure above.
- **E9.** Electrical: RM 218 projector arm mounting failure, projector and arm damaged and on the ground. Replace projector and arm.
- **E10.** Electrical: SW3 second level fixture lens missing. Replace 2x4 prismatic lens.
- **E11.** Electrical: Corridor 2120, outside of RM 210, cable tray support detached. Re-attach segment and secure to structure above.
- **E12.** Electrical: RM 201 back office, clock detached from wall. Re-attach clock.
- **E13.** Electrical: SW6 conduit support in overhead detached. Re-attach and secure support to structure above.
- **E14.** Electrical: Corridor 2300 outside of MPR and boiler room entrance. Fire alarm wireway damaged at corner joint. Replace section of wireway (estimate 5ft), devices and perform full building fire alarm acceptance testing IAW NFPA 72.
- **E15.** Electrical: Boiler Room 228:
  - a. Immediately inside door from corridor 2300: Conduit separated in overhead (tight to structure, difficult to see). Reconnect conduit if still in use (minor).
  - b. Large conduit rack support detached from structure in overhead, conduit rack supported by HWS supply piping. Reconnect detached supports.
  - c. Conduit separated due to rack movement (15.b above), conductors exposed and insulation may be damaged. Replace section of conduit and conductors from point of failure back to serving panel (estimate 25').
  - d. Transformer in overhead near service equipment condulet LB covers missing. Replace 3 inch condulet LBs (2).
  - e. Conduit to battery powered emergency lighting unit (ELU) separated. Replace section of conduit and conductors from point of failure back to serving panel (estimate 40').
  - f. Numerous broken T12 bulbs from fixtures swaying. Replace T12 bulbs.
  - g. Numerous fuses fell from spare fuse box, impacting the concrete slab. Inspect and test fuses prior to returning to spare.
- **E16.** Electrical: RM 155 Girls Lockers, water damaged lights. Replace light with LED wraparound surface mounted fixture (2).

- **E17.** Electrical: RM 2 water leaking through conduit roof penetrations in concealed ceiling space.
- **E18.** Electrical: RM 127 clock hanging from wires. Reinstall clock.
- **E19.** Electrical: RM 121 water damaged lights replace 2x4 surface mounted fluorescent fixtures with equivalent fluorescent fixtures.
- **E20.** Electrical: RM 122 water on exposed refrigerator electrical connections. Inspect and clean refrigerator connections.
- **E21.** Electrical: RM 123 MPR behind bleachers:
  - a. Fire alarm conduit detached from wall. Re-secure conduit to CMU.
  - b. Power conduit detached from wall. Re-secure conduit to CMU.
- **E22.** Electrical: RM 124 2x4 lighting in stage area damaged lenses. Replace 2x4 prismatic lens (3).
- E23. Electrical: RM 134 surface mounted light missing lens.
- **H1.** HazMat: Mitigation for all items listed above. Proper removal, disposal, and testing required.

### Damage Control Improvements (Level B)

(Reference Exhibit B - Drawings A2-A5)

Unless noted otherwise, the Proposed Improvements from the Earthquake-Related Damage Repairs solution described above are to be provided as part of the Earthquake-Related Mitigation Upgrades also.

- **C1.** Civil/Site: Required Landscaping improvements per MOA Title 21.
  - a. 10% of construction costs associated with exterior building improvements.
  - b. The scope of deficiencies is unknown had no costs have been identified for this work should it be required by MOA.
- **A29.** Architectural: Replace all suspended acoustical ceiling system throughout lower level classrooms, administration, storage and miscellaneous spaces (estimate 19,000 SF).
  - a. Areas not included suspended Tectum ceilings and recent Special Ed area renovation.
- **A30.** Architectural: Replace entire roof with new high-performance assembly (estimate 168,645 SF).
- **S9** Structural: Wood Shearwall Upgrade & Verification (2015 Master Plan)
  - a. Add 2<sup>nd</sup> layer of sheathing (or enhanced nailing), holddowns and shear transfer connections to wood shearwalls throughout school.
    - i. Estimate 20 walls, 40 holddowns, total of 3104 lf, 12' tall
  - b. During the recent SPED renovation, it was determined that the wood shearwalls that were intended to stack from the first to second floor are not always aligned. This was identified in the *2015 Master Plan* as "wall connected through floors", but it was incorrectly believed to already be corrected by the 1984 Corrective Actions.
    - i. Provide exploration at ends of wood shearwalls to determine if holddowns are provided between floors and if they align with walls above/below.
    - ii. Move or repair walls found to be out of alignment (estimate 10 walls).
- **\$10.** Structural: Diaphragm Reinforcement at Openings (2015 Master Plan)
  - a. Add straps or holddowns at all unreinforced corners of diaphragms (estimate32 locations).
- **S11.** Structural: Unblocked Diaphragms (2015 Master Plan)
  - a. Add metal strap blocking and nailing/stapling at panel seams (from above or below), (estimate 8,500 sf x 2 = 17,000 sf).
- **S12.** Structural: Clean and repaint exterior stairs and ledgers with zinc rich paint to remove and slow corrosion. (estimate 8 locations).
- **\$13.** Structural: Repair cracked headers over exterior windows
  - a. Epoxy repair (estimate 20 locations, each 4' wide).
- S14. Structural: CMU Vertical Reinforcing: Existing vertical reinforcing is at 32" on-center. This is not allowed by current code for stack bond walls. Maximum spacing of reinforcing is now 16" on-center. At 32" on-center, half-way between each existing vertical bar:
  - a. Prep CMU by grout infilling or demolishing flutes in block and add 3" wide vertical strips of fiberglass reinforcing (FRP) on both faces of CMU (total estimated length of prep & fiberglass = 26,700 lf).
- **M15.** Mechanical: Properly engineer and design seismic securement and vibration isolation of the Gym heating ventilating unit. Install seismic securement and vibration isolation to building structure (reference Level A item M2).
- M16. Mechanical: Properly engineer and design seismic securement and vibration isolation of the Multipurpose room heating ventilating unit (reference Level A item M3). Install seismic securement and vibration isolation to building structure.

- M17. Mechanical: Properly engineer and design seismic securement and vibration isolation of Exhaust Fan (EF-13) above the Gym catwalk. Install seismic securement and vibration isolation to building structure (reference Level A item M5).
- **M18.** Mechanical: Properly engineer and design seismic securement of heat exchanger and associated piping. Install seismic securement to building structure (reference Level A item M14.a).
- **M19.** Mechanical: Provide Unistrut support frame and seismic straps to indirect-fired water heaters. Install seismic securement to building structure (reference Level A item M14d).
- **E24.** Electrical: Replace conduit and conductors back to serving panel (estimate 30 lf), provide equipment grounding conductor (EGC) in new conduit (reference Level A item E3a).
- **E25.** Electrical: Provide EGC added to new section of flex conduit (reference Level A item E6).
- **E26.** Electrical: Replace plastic wireway with painted EMT (assume 50'), reinstall fire alarm horn strobes (2). Perform full building fire alarm acceptance testing IAW NFPA 72 (reference Level A item E7).
- **E27.** Electrical: Properly engineer and design seismic support for large conduit rack (reference Level A item E15b).
- **E28.** Electrical: Replace existing T12 fixtures with LED strip lights. Provide sway bracing at 2 corners (diagonals), (estimate 8 fixtures), (reference Level A item E15f).
- **E29.** Electrical: Replace 2x4 surface mounted fluorescent fixtures with surface mounted LED fixtures (4), (reference Level A item E19).
- **E30.** Electrical: Provide additional conduit supports and secure conduit to wall (reference Level A item E21 a & b).
- **E31.** Electrical: Replace lighting fixture with surface mounted LED cylinder fixture (reference Level A item E23).
- **H2.** HazMat: Mitigation for all Earthquake-Related Repair items and those listed above. Proper removal, disposal, and testing required.

## **Demolition and Site Clearing**

Under this scenario, the existing school would be demolished in whole including all foundation systems, and the building would not be replaced.

## **Building Replacement**

Under this scenario a new school facility would be constructed of equal square footage (124,862 SF), including site improvements. No land allocation or lease fees are included in this estimate.

# 7. CONSTRUCTION SCHEDULE SCENARIOS

# **Presumed Timelines for Design and Construction**

The presumed design and construction timeline for the following Gruening Middle School (GMS) Concept Scenarios is based on a traditional 'Design/Bid/Build' project delivery method following a Notice to Proceed (NTP) with design services and maintaining a vacated building for the construction phase. Alternative delivery methods could be pursued such as 'Construction Management-at-Risk', 'Design-Build' and 'Design-Build Bridging'. These alternative methods may shorten the overall design/construction schedule by as much as 25% by overlapping the design and construction timelines.

Whichever project delivery method is chosen, there would be a selection process prior to the award of a contract. This Request for Proposal (RFP) process, from release of the RFP to issue of the Contract Award, generally takes anywhere from a month and a half to three months (and sometimes longer if contract negotiations are difficult or if an agency contests the decision).

	Designer	Design &		Contractor		
<b>Concept Scenarios</b>	Selection	Review	Permitting	Procurement	Construction	Total
A. Earthquake-						
Related Damage						
Repairs	4 months	3 months	1 month	3 months	4 months	15 months
B. Earthquake-Relate						
Mitigation						
(earthquake-related						
damage repairs +						
seismic upgrade						
building						
improvements)	4 months	4 months	2 months	3 months	11 months	24 months
C. Demolition & Site						
Clearing	4 months	3 months	1 month	3 months	3 months	14 months
D. School						
Replacement	4 months	12 months	2 months	3 months	19 months	40 months

# 8. COST ESTIMATE

## Summary

Construction cost estimates for the Gruening Middle School were performed by Estimations Inc. with some interpretation and extrapolation by BDS Architects. The cost estimates are based on a traditional Design-Bid-Build delivery method with a presumed bid date of Winter 2019. Pricing is also based on current material, equipment, freight costs, and A.S. Title 36 labor rates.

Proposed Improvements	Construction Costs	Project Costs
A. Earthquake Related Damage Repairs	\$7,040,000	\$10,060,000
B. Earthquake Repairs + Damage Mitigation	\$16,320,000	\$23,320,000
C. Demolition and Site Clearing (Including Hazmat)	\$5,000,000	\$7,150,000
D. Building Replacement (Including Demo & Hazmat	\$53,700,000	\$76,700,000

The total estimated construction costs for each the Concept Solutions are as follows:

The construction estimate excludes costs associated with A/E design fees, administrative management costs and contingencies, furniture, furnishings and equipment (FF&E), as well as some other peripheral costs of completing the project. Project cost estimates include these items. Construction is assumed to start in January of 2020; if construction starts later, there is an average escalation currently of 3.5% per year.

## Cost Breakdown

An itemized breakdown of estimated costs associated with specific improvements to the facility are shown in Exhibit A - Cost Summary Matrix.

# 9. ATTACHMENTS

Attachments included are:

- Exhibit A Cost Summary
  - o Cost Matrix
  - Construction Cost Estimate, Estimations
- Exhibit B Drawings
  - A1: Floor Plan/Site Plan Existing Conditions
  - A2: Floor Plan/Site Plan Earthquake Related Repairs
- Exhibit C Photos of Existing Facility
- Exhibit D Geotechnical Evaluation of GMS Foundation Earthquake Damage, Golder
- Exhibit E Elevation Survey Data, Slana Survey
- Exhibit F Hazardous Materials Report
- Exhibit G Rain Proof Roofing Investigation Proposal

**EXHIBIT A: COST SUMMARY** 

# Gruening Middle School Cost Summary Matrix

	A. Earthquake-Re Damage Repairs	elated	B. Earthquake Damage Mitigation Repairs		C. Demolition and Site Clearing	D. Facility Replacement including Demolition and Site Clearing
Item Description	Repair	Cost	Mitigation	Cost	Cost	Cost
Dennis CMU Dike Deek	Item C1	62.455	C1	62.455		
Repair CMU Bike Rack	CI A1	\$2,455	C1 A1	\$2,455		
CMU Crack Repair CMU and Paint Intieror	A1 A2	\$1,425,599	A1 A2	\$1,511,672	-	
CMO Crack Repairs	A2 A3	\$124,140	A2 A3	\$124,140		
Repairs to GWB	A3	\$208,991	A3	\$268,991	_	
Replace Ceiling Tiles	A4	\$335,341	A4 A5	\$106 615	-	
Reattach Acoustic panels throughout	A5 A6	\$100,015	A5 A6	\$100,015		
Renair Gym Ceiling	A0 A7	\$58,405	A0 A7	\$50,405		
Patch and Paint Room 223	A7 A8	\$J22 \$13 103	A7 A8	\$12 102		
Replace/Reinstall Ceiling Fabric Panels	A9	\$22 739	49	\$22 739		
Repain Contractor Holes in Floor/Walls	A10	\$61 394	A10	\$61 394		
Repair GWB Ceijng in Wrestling	A11	\$44 379	A11	\$44 379		
Remove/Replace Suspended Ceiling Rm 224	A12	\$15.374	A12	\$15,374		
Renair Conc Floor Crack at Boys Locker	A13	\$1 179	A13	\$1 179		
Repair Boof Framing in Rm 2	A14	\$41 655	A13 A14	\$41 655		
Replace Damaged Cabinet Doors	A15	\$90 311	A15	\$90 311		
Reinstall Acoustic Wall Panels and Gym Equip in 221	A16	\$22.086	A16	\$22.086		
Renair GWB Ceiling Damage in Girl's Bathroom	A17	\$4 400	A17	\$4 400		
Repair Ceiling in Rm 121	A18	\$11 014	A18	\$11 014		
Repair Kitchen Walls in Rm 122	A19	\$18 705	A19	\$18 705		
Patch and Paint Columns in MPR	A20	\$6 548	A10	\$6 548		
Renair CMII at MPR	Δ21	\$0,540	Δ21	\$129.893		
Repair CMU at MPR/Hall	A21	\$97.426	A21 A22	\$97.426		
Repair Conc Paver can at CMII Balcony	A22	\$3 742	A22	\$3 747		
Repair Wall Mtd Sink in Rm 123A	A23	\$3,242	A23	\$1,081		
Repair CMII Locker Wing Wall (End Can)	A25	\$2 974	A25	\$2 974		
Repoint/Repair CMUL Exterior	A26	\$405 749	A26	\$441.099		
Replace Acoustical Wall Treatment in Gym	A20	\$66 537	A27	\$102 370		
Repair Broken Window in Rm 204	A28	\$1 297	A28	\$1 297		
Repair CMU Masonry	S1	\$497,760	51	\$497,760		
Repair CMU Corners & Column Embeds	S2	\$752.815	S2	\$752.815		
CMU Wall Anchorage	S3	\$679.901	S3	\$679.901		
CMU Grouting	S4	\$24.346	S4	\$24.346		
Repair Handrail on west side of Fover	\$5	\$226	\$5	\$226		
Replace Gym Curtain Support Beam	S6	\$27.074	S6	\$27.074		
Replace SW2 Stairwell	\$7	\$267.175	\$7	\$267.175		
Stiffen Floors Surrounding Gym	S8	\$1,085,629	S8	\$1,085,629		
Sprinklers	M1	\$16,099	M1	\$16,099		
Gym Heating Ventilating Unit (HVU-3)	M2	\$26,643	M2	\$26,643		
Multipurpose Room Heating Ventilating Unit	M3	\$26,643	М3	\$26,643		
Resupport Sprinkler Pipe	M4	\$194	M4	\$194		
Replace Exhaust fan (EF-13)	M5	\$26,018	M5	\$26,018		
Replace Shower Pan and Re-tile in Rm 152	M6	\$5 <i>,</i> 886	M6	\$5,886		
Repair and TestFlamex Dust Collector Panel in Rm 158	M7	\$4,986	M7	\$4,986		
Reconnect Return Fan in Rm 220A	M8	\$4,133	M8	\$4,133		
Duct Connection/Leak Repair in Rm 224	M9	\$3,596	M9	\$3,596		
Repair Exhaust Fan Supports in Rm 224E	M10	\$2,137	M10	\$2,137		
Recoonect Ductwork in Corridor 1130	M11	\$3,067	M11	\$3,067		
Replace Pipe Support in Corridor 2320	M12	\$162	M12	\$162		
Replace Pipe Support in Corridor 2320	M13	\$323	M13	\$323		
Boiler Room 228 Repairs	M14	\$58 <i>,</i> 898	M14	\$58,898		
Recommission/rebalance ventilation & heating system	M15	\$109,102	M15	\$109,102		
Gym Heating Unit Wiring	E1	\$348	E1	\$348		
Repair Basketball Hoop Motor Wiring	E2	\$329	E2	\$329		
Fan Motor Wiring	E3	\$522	E3	\$522		
AAU-2 Control Conduit Repairs in Rm 221-2	E4	\$247	E4	\$247		
Overhead Fixture & Battery Ballast Replacementvin Gym	E5	\$1,025	E5	\$1,025		
Replace Missing Conduit in Rm 220B Mechanical Equip	E6	\$99	E6	\$99		
Repair and Test Wireway/Devices Fire Alarm in Rm 223	E7	\$31,671	E7	\$31,671		
Reattach Cable Tray in Corridor 2310	E8	\$321	E8	\$321		

# Gruening Middle School Cost Summary Matrix

	A. Earthquake-F Damage Repairs	Related	B. Earthquake Damage Mitigation Repairs		C. Demolition and Site Clearing	D. Facility Replacement including Demolition and Site Clearing	
Item Description	Repair Item	Cost	Mitigation Item	Cost	Cost	Cost	
Replace projector and support in Rm 218	E9	\$3,871	E9	\$3,871			
Replace Light Fixture Lens in Stairwell SW3	E10	\$131	E10	\$131			
Reattach Cable Tray in Corridor 2120	E11	\$321	E11	\$321			
Reinstall Clock in Rm 201	E12	\$158	E12	\$158			
Reattach Conduit Support in SW6	E13	\$198	E13	\$158			
Replace Wireway Damage in Cooridor 2300	E14	\$493	E14	\$493			
Boiler Room 228 Repairs	E15	\$5,128	E15	\$5,128			
Replace Light Fixtures in Rm 155	E16	\$1,339	E16	\$1,339			
Repair/Seal Water Damaged Conduit in Rm 2	E17	\$174	E17	\$174			
Reinstall Clock in Rm 127	E18	\$82	E18	\$82			
Replace Light Fixtures in Rm 121	E19	\$554	E19	\$554			
Inspect and Clean Refrigerator Electrical Connections	E20	\$148	E20	\$148			
Reattach/Test Elect Conduits Eehind Bleacher in MPR	E21	\$527	E21	\$527			
Replace Light Fixture in Stage Area Rm 124	E22	\$394	E22	\$394			
Replace Light Fixture Lens in Rm 134	E23	\$131	E23	\$131			
MOA Title 21 Improvements	C2		C2	\$600,819			
Replace All Acousitcal Suspended Ceilings	A29		A29	\$127,127			
Replace Roof Assembly	A30		A30	\$5,993,031			
Wood Shearwall Upgrade & Verification	S9		S9	\$503,234			
Diaphragm Reinforcement at Openings	S10		S10	\$16,676			
Unblocked Diaphragms	S11		S11	\$440,754			
Clean and Repaint Exterior Stairs and Ledgers	S12		S12	\$274,169			
Repair Cracked Headers over Exterior Windows	S13		S13	\$11,728			
CMU Vertical Reinforcing	S14		S14	\$1,245,598			
Gym Heat/Vent Unit Seismic Securement	M15		M15	\$3,227			
MPR Heat/Vent Unit Seismic Securement	M16		M16	\$3,227			
Gym Exhaust Fan (EF-13) Seismic Securment	M17		M17	\$3,227			
Heat Exchanger and Assoc Piping Seismic Securement	M18		M18	\$3,227			
Unistrut Frame and Seismic Water Heater Securement	M19		M19	\$7,434			
Conduit Replacement (Reference Level A - E3a)	E24		E24	\$522			
Electrical Ground Conductor (Reference Level A - E6)	E25		E25	\$236			
Replace Wireway with EMT Conduit (Ref Level A - Item E7)	E26		E26	\$31,671			
Large Conduit Rack Seismic Secure (Ref Level A - E15b)	E27		E27	\$1,576			
Replace Light Fixture with LED (Reference Level A - E15f)	E28		E28	\$6,066			
Repace 2x4 Surface Mtd Fixtures (Ref Level A - E19)	E29		E29	\$2,217			
Provide Add'l Conduit Supports (Ref Level A - E21 a & b)	E30		E30	\$1,055			
Replace Light Fixtures (Reference Level A - E23)	E31		E31	\$751			
	Total Construction	\$7 038 244		\$16 473 032	\$4 994 480	\$53 690 660	
		<i>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</i>		910, <del>4</del> 73,032			
	Cost per SF (124,862 SF						
	Facility)	\$56.37		\$188.30	\$40.00	\$430.00	
	Total						
	Project Cost	\$10,054,634		\$23,308,309	\$7,134,971	\$76,700,943	

PAR SUBMITTAL	
CONSTRUCTION COST ESTIMATE	
GRUENING MIDDLE SCHOOL	
ANCHORAGE SCHOOL DISTRICT ANCHORAGE, ALASKA	
,	
Prepared for:	
BEZEK DURST SEISER 3300 C Street, Suite 200	
Anchorage, Alaska 99503	
907.562.6076	
Prepared by:	
RESTIMATIONS	
1225 E International Airport Road, Suite 205	
Anchorage, Alaska 99518	
907.561.0790	

### NOTES REGARDING THE PREPARATION OF THIS ESTIMATE

#### DRAWINGS AND DOCUMENTS

Level of Documents:	Program Analysis Report
Date:	January 18, 2019
Provided By:	Bezek Durst Seiser, Inc.

#### RATES

Pricing is based on current material, equipment and freight costs.

Labor Rates: A.S. Title 36

#### **BIDDING ASSUMPTIONS**

Contract:	
Bidding Situation:	Design-Bid-Build
Bid Date:	Fall/Winter of 2019
Start of Construction:	Spring 2020

#### **EXCLUDED COSTS**

- 1. A/E design fees
- 2. Administrative and management costs
- 3. Furniture, furnishings and equipment (except those specifically included)

	Total	TOTAL
ELEMENT	Mat/Labor	COST
		¢ 7 020 244
C1 Renair CMU Rike Rack, Can	\$2.455	φ <i>1</i> ,030,244
A1 Repoint/Repair CMU and Paint Interior	¢2,400 \$1 425 599	
A2 CMU Crack Repairs Interior	\$124 146	
A3 Renairs to GWB	\$268,991	
Ad Replace Ceiling Corridor Ceilings	\$339 341	
A5 Replace Ceilings Tiles	\$106.615	
A6 Confirm Attachment of Acoustical Papels	\$38.465	
A7 Gym Ceiling	¢00,400 \$522	
A8 Patch and Paint at Room 223	\$13 103	
A9 Renlace/Reinstall Ceiling Fabric Wranned Panels	\$22,739	
A10 Renair Contractor Holes in Floor/Walls	\$61,394	
A11 Repair GWB Ceiling at Wrestling	\$44,379	
A12 Remove/Replace Suspended Ceiling in Room 224	\$15,374	
A13 Renair Conc Floor Cracks in Boys Locker	\$1 179	
A14 Repair Roof Framing and Roof in Room 2	\$41 655	
A15 Replace Damaged Cabinet Doors	\$90.311	
A16 Reinstall Acoustical Wall Panel and Gym Equipment at 221	\$22,086	
A17 Repair Large Hole in GWB Ceiling and Reinstall Fallen Vent Louver in Girls	\$4,400	
Bathroom	<i> </i>	
A18 Repair Ceiling at 121	\$11,014	
A19 Repair Kitchen Walls Rm 122	\$18,705	
A20 Patch Pain Columns at MPR	\$6,548	
A21 Repair CMU at MPR	\$129,893	
A22 Repair CMU at MPR and Hall	\$97,426	
A23 Repair Conc Pavers at CMU Balcony Railing	\$3,242	
A24 Repair Wall Mtd Sink at 123A	\$1,081	
A25 Repair Damaged CMU at Corridor Wing Wall	\$2,974	
A26 Repoint CMU, Exterior	\$405,749	
A27 Replace Acoustical Wall Treatment In Gym	\$66,537	
A28 Repair Broken Window Inner Glass Pane on Ext Windows	\$1,297	

	Total	TOTAL
ELEMENT	Mat/Labor	COST
S1 Repoint Masonry	\$497.760	
S2 Repair CMU Corners and Column Embeds	\$752.815	
S3 CMU Wall Anchorage	\$679.901	
S4 CMU Grouting	\$24.346	
S5 Repair Handrails on Westside of Fover	\$266	
S6 Gvm Curtain Support Beam	\$27.074	
S7 Replace Stairwell SW2	\$267.175	
S8 Stiffening of Floors Surrounding Gym	\$1,085,629	
M1 Sprinklers	\$16,099	
M2 Gym Heating Ventilating Unit HVU-3	\$26,643	
M3 MP Room Heating Ventilating Unit	\$26,643	
M4 Resupport Sprinkler Pipe	\$194	
M5 Replace EF-13	\$26,018	
M6 Rm 152 Shower Pan	\$5,886	
M7 Rm 158 Flamex Dust Collector Panel	\$4,986	
M8 Rm 220A Return Fan	\$4,133	
M9 Room 224 Duct Correction / Leak Repair	\$3,596	
M10 Rm 224E Exhaust Fan	\$2,137	
M11 Corridor 1130 Ductwork Disconnected	\$3,067	
M12 Corridor 2300 Pipe Supports	\$162	
M13 Corridor 2320 Pipe Support	\$323	
M14 Boiler Room 228 Repairs	\$58,898	
M15 Recommission the Mechanical Systems	\$109,102	
E1 Gym Heating Unit Wiring	\$348	
E2 Repair Basketball Hoop Motor Wiring	\$329	
E3 Fan Motor Wiring	\$522	
E4 Rm 221A AHU-2 Control Conduit	\$247	
E5 Gym OH Battery Ballast	\$1,025	
E6 Rm 220B Mech Equipment Missing Conduit	\$99	
E7 Rm 223 Fire Alarm Wireway and Devices	\$31,671	
E8 Corridor 2310 Cable Tray	\$321	
E9 Rm 218 Projector Arm	\$3,871	
E10 SW3 Second Level Fixture Lens Missing	\$131	
E11 Corridor 2120 Cable Tray Support	\$321	
E12 Rm 201 Clock Detached	\$158	
E13 SW6 Conduit Support	\$158	
E14 Corridor 2300 FA Wireway Damaged	\$493	

	Total	TOTAL
ELEMENT	Mat/Labor	COST
E15 Boiler Room	\$5,128	
E16 R155 Water Damaged Lights	\$1,339	
E17 Rm 2 Seal Penetration	\$174	
E18 RM 127 Clock Loose	\$82	
E19 Rm 121 Water Damaged Fixture	\$554	
E20 Rm 122 Water on Exposed Refrigerator Connection	\$148	
E21 Rm 123 MPR Behind Bleachers	\$527	
E22 Rm 124 2x4 Light with Damage Lenses	\$394	
E23 Room 134 Light Missing Lens	\$131	

	Total	TOTAL
ELEMENT	Mat/Labor	COST
LEVEL B - EARTHQUAKE MITIGATION ITEMS		\$ 9,277,572
C2 Title 21 Improvements	\$600,819	
AA29 Replace All Acoustical Ceilngs	\$127,127	
A30 Roof Replacement	\$5,993,031	
S9 Wood Shearwall Upgrade	\$503,234	
S10 Diaphragm Reinforcement	\$16,676	
S11 Unblocked Diaphragms	\$440,754	
S12 Clean and Repaint Exterior Stairs and Ledgers	\$274,169	
S13 Repair Cracked Headers	\$11,728	
S14 CMU Vertical Reinforcing	\$1,245,598	
M15 Design and Install Seimic at Gym Heat Vent Unit	\$3,227	
M16 Design and Install Seimic at MPR Heat Vent Unit	\$3,227	
M17 Design and Install Seimic at EF-13	\$3,227	
M18 Design and Install Seimic at Heat Exchanger	\$3,227	
M19 Unistrut Support Frame and Seismic Strap at Water Heaters	\$7,434	
E24 Conduit Replacement	\$522	
E25 Electrical Ground Conductor	\$236	
E26 Replace wireway with EMT Conduit	\$31,671	
E27 Design and Install Seismic Support for Large Conduit Rack	\$1,576	
E28 Replace Fixtures with LED	\$6,066	
E29 Replace 2x4 Surf Mtd Fixture with LED	\$2,217	
E30 Additional Conduit Supports	\$1,055	
E31 Replace Light Fixture	\$751	

#### REPLACEMENT

New School - \$390/SF Construction Cost, Project Cost = \$309/0.70 = \$557 Demo Existing School - \$20/SF Construction Cost, \$26/SF Project Cost = 20/0.7 = \$29 Hazmat for Total Demolition - \$15-20/SF Construction Cost, Project Cost (\$15-20)/0.7 = \$22-29/SF

No.     Description     Qty     UNITS     \$     \$       1     LEVEL A EARTHQUAKE RELATED DAMAGE REPAIRS     -	Line				Tota	Cost
No.     Description     Qty     UNITS     \$     \$       1     LEVEL A EARTHQUAKE RELATED DAMAGE REPAIRS     -					Unit	Matl/Labor
1   2   LEVEL A EARTHQUAKE RELATED DAMAGE REPAIRS     3   C1 Repair CMU Bike Rack, Cap   20   SF     6   CIP Concrete Cap   20   SF   \$41.94   \$839     7   CMU   20   SF   \$43.72   \$874     8   Paint   40   SF   \$2.11   \$85     9   Ceneral Requirements   12.0%   \$216.00     10   General Requirements   12.0%   \$216.00     11   Contractors Fee   6.0%   \$121.00     12   Contingency   \$320.00   \$320.00     14   Subtotal: C1 Repair CMU Bike Rack, Cap   \$2,455     15   Subtotal: C1 Repair CMU Bike Rack, Cap   \$2,455     16   Repairs at Masonry   140,000   SF     18   Repairs at Masonry   140,000   SF   \$2,11     18   Repair Face Shells   5,325   SF   \$22.07     10   Repair Face Shells   5,325   SF   \$22.07	No.	Description	Qty	UNITS	\$	\$
2     LEVEL A EARTHQUAKE RELATED DAMAGE REPAIRS       3     C1 Repair CMU Bike Rack, Cap     20     SF       6     CIP Concrete Cap     20     SF     \$\$41.94     \$\$839       7     CMU     20     SF     \$\$41.94     \$\$839       7     CMU     20     SF     \$\$43.72     \$\$874       8     Paint     40     SF     \$\$2.11     \$\$85       9     General Requirements     12.0%     \$\$216.00       10     Contractors Fee     6.0%     \$\$121.00       12     Contingency     15.0%     \$\$230.00       13     Cubtotal: C1 Repair CMU Bike Rack, Cap     \$\$2,455       16      \$\$2,455       17     A1 Repoint/Repair CMU and Paint, Interior     140,000     SF       18     Repairs at Masonry     140,000     SF     \$\$4.65     \$\$651,000       19     Paint     140,000     SF     \$\$2.11     \$295,400       20     Repair Face Shells     5,325     SF     \$25.07     \$133,498	1					
3   C1 Repair CMU Bike Rack, Cap   20   SF     6   CIP Concrete Cap   20   SF   \$\$41.94   \$\$839     7   CMU   20   SF   \$\$43.72   \$\$874     8   Paint   40   SF   \$\$2.11   \$\$85     9   General Requirements   12.0%   \$\$216.00     11   Contractors Fee   6.0%   \$\$121.00     12   Contingency   15.0%   \$\$2216.00     13   Subtotal: C1 Repair CMU Bike Rack, Cap   \$\$24,55     16	2	LEVEL A EARTHQUAKE RELATED DAMAGE REPAIRS				
5   CIP Concrete Cap   20   SF   \$41.94   \$839     7   CMU   20   SF   \$43.72   \$874     8   Paint   40   SF   \$2.11   \$85     9   0   General Requirements   12.0%   \$216.00     11   Contractors Fee   6.0%   \$121.00     12   Contingency   15.0%   \$320.00     13	3	C1 Repair CMU Bike Rack, Cap	20	SF		
6   CIP Concrete Cap   20   SF   \$41.94   \$839     7   CMU   20   SF   \$43.72   \$874     8   Paint   40   SF   \$2.11   \$85     9	5					
7   CMU   20   SF   \$\\$43.72   \$\\$874     8   Paint   40   SF   \$\\$2.11   \$\\$85     9   0   General Requirements   12.0%   \$\\$216.00     11   Contractors Fee   6.0%   \$\\$121.00     12   Contingency   15.0%   \$\\$320.00     13   Subtotal: C1 Repair CMU Bike Rack, Cap     14   Subtotal: C1 Repair CMU and Paint, Interior     16   140,000     17   A1 Repoint/Repair CMU and Paint, Interior   140,000   SF     18   Repairs at Masonry   140,000   SF   \$\$4.65   \$\$651,000     19   Paint   140,000   SF   \$\$2.11   \$295,400     20   Repair Face Shells   5,325   SF   \$\$25.07   \$133,498	6	CIP Concrete Cap	20	SF	\$41.94	\$839
8   Paint   40 SF   \$2.11   \$85     9   6eneral Requirements   12.0%   \$216.00     10   Contractors Fee   6.0%   \$121.00     12   Contingency   15.0%   \$320.00     13	7	CMU	20	SF	\$43.72	\$874
9   General Requirements   12.0%   \$216.00     11   Contractors Fee   6.0%   \$121.00     12   Contingency   15.0%   \$320.00     13   Image: Subtotal: C1 Repair CMU Bike Rack, Cap   \$2,455     16   Image: Subtotal: C1 Repair CMU and Paint, Interior   140,000   SF     18   Repairs at Masonry   140,000   SF     18   Repairs at Masonry   140,000   SF     19   Paint   140,000   SF     20   Repair Face Shells   5,325   \$25.07   \$133,498	8	Paint	40	SF	\$2.11	\$85
10   General Requirements   12.0%   \$216.00     11   Contractors Fee   6.0%   \$121.00     12   Contingency   15.0%   \$320.00     13   Image: Subtotal: C1 Repair CMU Bike Rack, Cap   \$2,455     16   Image: Subtotal: C1 Repair CMU and Paint, Interior   140,000   SF     18   Repairs at Masonry   140,000   SF     18   Repairs at Masonry   140,000   SF     19   Paint   140,000   SF     20   Repair Face Shells   5,325   SF     21   State Shells   5,325   SF	9					
11   Contractors Fee   6.0%   \$121.00     12   Contingency   15.0%   \$320.00     13   Image: Subtotal: C1 Repair CMU Bike Rack, Cap   \$2,455     16   Image: Subtotal: C1 Repair CMU and Paint, Interior   140,000   SF     18   Repairs at Masonry   140,000   SF   \$4.65   \$651,000     19   Paint   140,000   SF   \$2.11   \$295,400     20   Repair Face Shells   5,325   SF   \$25.07   \$133,498	10	General Requirements	12.0%			\$216.00
12   Contingency   15.0%   \$320.00     13   Subtotal: C1 Repair CMU Bike Rack, Cap   \$2,455     15   \$2,455     16   \$2,455     17   A1 Repoint/Repair CMU and Paint, Interior   140,000 SF     18   Repairs at Masonry   140,000 SF     19   Paint   140,000 SF     20   Repair Face Shells   5,325 SF     21   \$25.07	11	Contractors Fee	6.0%			\$121.00
Subtotal: C1 Repair CMU Bike Rack, Cap   \$2,455     15   ************************************	12 13	Contingency	15.0%			\$320.00
15   16     16   17   A1 Repoint/Repair CMU and Paint, Interior   140,000   SF     18   Repairs at Masonry   140,000   SF   \$4.65   \$651,000     19   Paint   140,000   SF   \$2.11   \$295,400     20   Repair Face Shells   5,325   SF   \$25.07   \$133,498	14	Subtotal: C1 Repair CMU Bike Rack, Cap				\$2,455
16   17   A1 Repoint/Repair CMU and Paint, Interior   140,000   SF     18   Repairs at Masonry   140,000   SF   \$4.65   \$651,000     19   Paint   140,000   SF   \$2.11   \$295,400     20   Repair Face Shells   5,325   SF   \$25.07   \$133,498	15					. ,
17   A1 Repoint/Repair CMU and Paint, Interior   140,000   SF     18   Repairs at Masonry   140,000   SF   \$4.65   \$651,000     19   Paint   140,000   SF   \$2.11   \$295,400     20   Repair Face Shells   5,325   SF   \$25.07   \$133,498	16					
18   Repairs at Masonry   140,000   SF   \$4.65   \$651,000     19   Paint   140,000   SF   \$2.11   \$295,400     20   Repair Face Shells   5,325   SF   \$25.07   \$133,498	17	A1 Repoint/Repair CMU and Paint, Interior	140,000	SF		
19     Paint     140,000     SF     \$2.11     \$295,400       20     Repair Face Shells     5,325     SF     \$25.07     \$133,498	18	Repairs at Masonry	140,000	SF	\$4.65	\$651,000
20     Repair Face Shells     5,325     SF     \$25.07     \$133,498       21	19	Paint	140,000	SF	\$2.11	\$295,400
21	20	Repair Face Shells	5,325	SF	\$25.07	\$133,498
21	21					
22     General Requirements     12.0%     \$113,568.00	22	General Requirements	12.0%			\$113,568.00
23     Contractors Fee     6.0%     \$63,598.00	23	Contractors Fee	6.0%			\$63,598.00
24 Contingency 15.0% \$168,535.00 25	24 25	Contingency	15.0%			\$168,535.00
26 Subtotal: A1 Repoint/Repair CMU and Paint, Interior \$1,425,599	26	Subtotal: A1 Repoint/Repair CMU and Paint, Interior				\$1,425,599
27	27					
28	28					
29 A2 CMU Crack Repairs, Interior 1,000 LF	29	A2 CMU Crack Repairs, Interior	1,000	LF		
30 Clean and Grout 1,000 LF \$27.64 \$27,640	30	Clean and Grout	1,000	LF	\$27.64	\$27,640
31 Epoxy Diagonal Cracks 50 LF	31	Epoxy Diagonal Cracks	50	LF		
32 Clean and Route Joints 50 LF \$11.07 \$554	32	Clean and Route Joints	50	LF	\$11.07	\$554
33 Backer Rods 50 LF \$2.52 \$126	33	Backer Rods	50	LF	\$2.52	\$126
34 Epoxy Grout 50 LF \$17.67 \$884	34	Epoxy Grout	50	LF	\$17.67	\$884
35 Scaffolding 17,750 SF \$4.78 \$84,846	35	Scaffolding	17,750	SF	\$4.78	\$84,846
	36		40.00/			<b>A</b> O 047 00
<b>37 General Requirements 12.0%</b> \$3,317.00	37	General Requirements	12.0%			\$3,317.00
38     Contractors Fee     6.0%     \$1,857.00       20     Continuousu     45.0%     \$4,022.00	38		6.0%			\$1,857.00
40 <b>15.0%</b> \$4,922.00	39 40	Contingency	15.0%			\$4,922.00
41 Subtotal: A2 CMU Crack Repairs, Interior \$124,146	41	Subtotal: A2 CMU Crack Repairs, Interior				\$124,146
	42					
43	43					
44	44 15					
40	40 46					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
47	A3 Renairs to GWB	700	FΔ		
48	Repair GWB	700	FA	\$112.66	\$78 862
49	Paint	56 000	SF	\$2.11	\$118 160
50		00,000	01	Ψ=	<i>Q</i> 110,100
51	General Requirements	12.0%			\$23.643.00
52	Contractors Fee	6.0%			\$13,240.00
53	Contingency	15.0%			\$35,086.00
54					
55	Subtotal: A3 Repairs to GWB				\$268,991
56					
57					
58	A4 Replace Ceiling Corridor Ceilings	15,000	SF		
59					
60	Demo Ceilings	15,000	SF	\$1.80	\$27,000
61	Suspended Tectum Ceilings	15,000	SF	\$14.77	\$221,550
62					
63	General Requirements	12.0%			\$29,826.00
64	Contractors Fee	6.0%			\$16,703.00
65	Contingency	15.0%			\$44,262.00
66					
67	Subtotal: A4 Replace Ceiling Corridor Ceilings				\$339,341
68					
69		40.000	05		
70	A5 Replace Ceilings Tiles	19,000	SF		
71	Deplace Calling Tiles 20/	10.000	05	<b>¢</b> 4.44	¢70.000
72	Replace Celling Tiles 2%	19,000	3F	\$4.11	\$78,090
73	Conoral Paguiramente	12.0%			¢0.271.00
74	Contractors Eoo	6 0%			\$9,371.00 \$5.248.00
76	Contingency	15.0%			\$13,240.00 \$13,006,00
70	Contingency	10.070			ψ10,300.00
78	Subtotal: A5 Replace Ceilings Tiles				\$106 615
79	Custotal. Ao replace cennigs riles				<i><i>w</i>100,010</i>
80					
81	A6 Confirm Attachment of Acoustical Panels	1	LS		
82		-			
83	Confirm Attachment Of Acoustical Panels	1	LS	\$28,174.16	\$28,174
84					. ,
85	General Requirements	12.0%			\$3,381.00
86	Contractors Fee	6.0%			\$1,893.00
87	Contingency	15.0%			\$5,017.00
88					
89	Subtotal: A6 Confirm Attachment of Acoustical Panels				\$38,465
90					
91					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
92	A7 Gym Ceiling	16	SF		
93	Cailing Danais	4		¢204.00	¢200
94 05	Ceiling Repair	I	EA	\$381.08	\$382
90	General Requirements	12 0%			\$46.00
97	Contractors Fee	6.0%			\$26.00
98	Contingency	15.0%			\$68.00
99					•
100	Subtotal: A7 Gym Ceiling				\$522
101					
102					
103					
104	A8 Patch and Paint at Room 223	700	SF		
105					
106	Patch & Paint	700	SF	\$4.22	\$2,954
107	Reinstall Acoustical Panels	700	SF	\$9.49	\$6,643
108					
109	General Requirements	12.0%			\$1,152.00
110	Contractors Fee	6.0% 15.0%			\$645.00 ¢1.700.00
112	contingency	15.0%			<b>Φ</b> 1,709.00
112	Subtotal: A8 Patch and Paint at Room 223				\$13 103
113					φ1 <b>3</b> ,103
115					
116	A9 Replace/Reinstall Ceiling Fabric Wrapped Panels	500	SF		
117					
118	Replace Ceiling Tiles	500	SF	\$33.31	\$16,655
119					
120	General Requirements	12.0%			\$1,999.00
121	Contractors Fee	6.0%			\$1,119.00
122	Contingency	15.0%			\$2,966.00
123					
124	Subtotal: A9 Replace/Reinstall Ceiling Fabric Wrapped Panels				\$22,739
125					
126	Ado Densin Contractor Holes in Desnakolla		10		
127	All Repair Contractor Holes in Floor/Walls	1	LS		
120	Repair Holes	100	FΔ	\$449.68	\$44 968
120		100	LA	φ++3.00	φ++,500
131	General Requirements	12.0%			\$5,396.00
132	Contractors Fee	6.0%			\$3,022.00
133	Contingency	15.0%			\$8,008.00
134					
135	Subtotal: A10 Repair Contractor Holes in Floor/Walls				\$61,394
136					-
137					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
400			<b>0</b> -		
138	A11 Repair GWB Ceiling at Wrestling	6,000	SF		
139	Renair and Paint	6 000	SE	\$4.22	\$25 320
140	Repair Leaks	0,000	IS	\$9.810.77	\$9,811
142	General Requirements	12.0%	20	<i>\\</i> 0,010111	\$3.038.00
143	Contractors Fee	6.0%			\$1,701.00
144	Contingency and Escalation	15.0%			\$4,509.00
145					
146	Subtotal: A11 Repair GWB Ceiling at Wrestling				\$44,379
147					
148					
149					
150	A12 Remove/Replace Suspended Ceiling in Room 224	1,380	SF		
151	Remove Replace ACT	1,380	SF	\$8.16	\$11,261
152		40.0%			¢4.054.00
153	General Requirements	12.0%			\$1,351.00
154	Contingency and Escalation	0.0%			\$757.00 \$2.005.00
156	Contingency and Escalation	13.0 /0			φ2,005.00
157	Subtotal: A12 Remove/Replace Suspended Ceiling in Room 224				\$15 374
158	oublotal. A12 Nemoverkepiace ouspended denning in Noom 224				ψ10,07 <b>4</b>
159					
160	A13 Repair Conc Floor Cracks in Boys Locker	30	LF		
161	Epoxy Cracks	30	LF		
162	Clean and Route Joints	30	LF	\$9.91	\$297
163	Backer Rods	30	LF	\$2.36	\$71
164	Epoxy Grout	30	LF	\$16.51	\$495
165					
166	General Requirements	12.0%			\$104.00
167	Contractors Fee	6.0%			\$58.00
168	Contingency and Escalation	15.0%			\$154.00
169					A4 470
170	Subtotal: A13 Repair Conc Hoor Cracks in Boys Locker				\$1,179
171					
172	A14 Panair Poof Framing and Poof in Poom 2	800	SE.		
173	Allow for Structural Repairs	800	SE	\$22.48	\$17 984
175	Roof Repair Per Rainproof Report	1	IS	\$12.527.00	\$12,527
176		•	20	\$12,021.00	<i><i><i>v</i>12,021</i></i>
177	General Requirements	12.0%			\$3,661.00
178	Contractors Fee	6.0%			\$2,050.00
179	Contingency and Escalation	15.0%			\$5,433.00
180					
181	Subtotal: A14 Repair Roof Framing and Roof in Room 2				\$41,655
182					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
183					
184	A15 Replace Damaged Cabinet Doors	1	LS		
185		00		<b>*••••</b>	<b>\$0.440</b>
186	Replace Cabinet Doors /Replace Cabinets	20		\$307.42	\$6,148
187	Replace Music Storage	1	LS	\$60,000.00	\$60,000
100	Concerci Do surizo esta	40.00/			¢7,000,00
189	General Requirements	12.0%			\$7,938.00 ¢4.445.00
190	Contractors ree	0.0% 15.0%			\$4,445.00 ¢11.790.00
102	Contingency and Escalation	15.0%			<b>ΦΤΙ,760.00</b>
192	Subtataly A15 Danlage Demograd Cabinet Deeve				¢00.244
193	Subtotal: A15 Replace Damaged Cabinet Doors				\$90,311
194					
195	A16 Reinstall Acoustical Wall Panel and Gym Equipment at 221	1	15		
197	Acoustical Panels Reinstall	1 000	SE	\$10.31	\$10,310
198	Reinstall Equipment	1,000	IS	\$3.696.77	\$3,697
199	Refinish Wall	1.000	SF	\$2.17	\$2.170
200		.,		+	<i> </i>
201	General Requirements	12.0%			\$1,941.00
202	Contractors Fee	6.0%			\$1,087.00
203	Contingency and Escalation	15.0%			\$2,881.00
204					
205	Subtotal: A16 Reinstall Acoustical Wall Panel and Gym Equipment	nt at 221			\$22,086
206					
207					
208	A17 Repair Large Hole in GWB Ceiling and Reinstall Fallen Vent Lo	uver in Girls	Bathroor		
209	Install Louver	1	EA	\$749.35	\$749
210	Ceiling Repair	1	EA	\$2,473.22	\$2,473
211	General Requirements	12.0%			\$387.00
212	Contractors Fee	6.0%			\$217.00
213	Contingency	15.0%			\$574.00
214					• • • • •
215	Subtotal: A17 Repair Large Hole in GWB Ceiling and Reinstall Fal	len Vent Lo	uver in Gir	is Bathroom	\$4,400
216					
217	Ade Densis Calling at 121	20	EA		
210	Alo Repair Ceiling at 121	20		¢010.00	¢1 206
219	Repair Centry Pongint	1 200		φ∠19.0∠ ¢2.74	φ4,390 ¢2.288
220	Repaint Repair Tile Base	1,200	SΓ EΔ	φ2.74 \$383.24	φ3,200 \$383
221	General Requirements	12 0%	LA	φ303.2 <del>4</del>	00 8962
223	Contractors Fee	6.0%			\$542.00
224	Contingency and Escalation	15.0%			\$1,437.00
225		/ 0			÷.,
226	Subtotal: A18 Repair Ceiling at 121				\$11.014
227	······································				÷••,•••

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
000					
228	Ado Danain Kitaban Walla Dua 400	•	<b>F A</b>		
229	A19 Repair Kitchen walls Rm 122	<b>2</b>		¢40.74	¢4 700
230	Replace FRP Banair Cailing Soffita	130	OF SE	う13.74 ¢11 51	ΦΙ,700 ¢0.070
231	Repair Centry Solits	1 400	SF SE	φ11.04 ¢2.74	φο,070 ¢3 836
232	Repaint	1,400	36	φ2.74	φ3,030
234	General Requirements	12.0%			\$1 644 00
235	Contractors Fee	6.0%			\$921.00
236	Contingency and Escalation	15.0%			\$2,440.00
237					<i> </i>
238	Subtotal: A19 Repair Kitchen Walls Rm 122				\$18,705
239					<i> </i>
240					
241	A20 Patch Pain Columns at MPR	1	LS		
242					
243	Patch Repair Conc Columns	6	EA	\$799.35	\$4,796
244					
245	General Requirements	12.0%			\$576.00
246	Contractors Fee	6.0%			\$322.00
247	Contingency and Escalation	15.0%			\$854.00
248					
249	Subtotal: A20 Patch Pain Columns at MPR				\$6,548
250					
251					
252	A21 Repair CMU at MPR	250	LF		
253		0.000	05	<b>A</b> 47 57	<b>005 4 40</b>
254	CMU Repairs	2,000	SF	\$47.57	\$95,140
200	Conoral Paguiramento	12.0%			¢11 /17 00
250	Contractors Eco	12.0% 6.0%			Φ11,417.00 ¢6.303.00
258	Contingency and Escalation	0.0 % 15.0%			\$0,393.00 \$16.043.00
250	contingency and Escalation	15.0 /0			ψ10,945.00
260	Subtotal: A21 Repair CMII at MPR				\$129.893
200	Subtotal. Az i Repair GMO at MFR				φ129,09 <b>5</b>
262					
263	A22 Repair CMU at MPR and Hall	250	LF		
264					
265	CMU Repairs	1,000	SF	\$71.36	\$71,360
266		,			. ,
267	General Requirements	12.0%			\$8,563.00
268	Contractors Fee	6.0%			\$4,795.00
269	Contingency and Escalation	15.0%			\$12,708.00
270					
271	Subtotal: A22 Repair CMU at MPR and Hall				\$97,426
272					. , -

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
273					
274	A23 Repair Conc Pavers at CMU Balcony Railing	25	LF		
275		05	. –	<b>*• • • •</b>	<b>\$0.074</b>
276	Replace Paver Cap	25	LF	\$94.94	\$2,374
277	Conoral Paguiramenta	12.0%			¢295.00
270	Contractors Eoo	6.0%			\$265.00 \$160.00
219	Contingency and Escalation	15.0%			\$100.00
200	Contingency and Escalation	15.0 /8			φ <del>4</del> 23.00
201	Subtotal: A23 Ponair Conc Payors at CMU Balcony Pailing				\$3.242
202	Subtotal. A25 Repair Conc Pavers at Civic Balcony Raining				ψ <b>J</b> , <b>Z4</b> Z
203					
285	A24 Repair Wall Mtd Sink at 123A	1	FA		
286			-		
287	Repair Sink	1	EA	\$791.76	\$792
288				<b>,</b>	• -
289	General Requirements	12.0%			\$95.00
290	Contractors Fee	6.0%			\$53.00
291	Contingency	15.0%			\$141.00
292					
293	Subtotal: A24 Repair Wall Mtd Sink at 123A				\$1,081
294					
295					
296	A25 Repair Damaged CMU at Corridor Wing Wall	1	LS		
297					
298	CMU Wing Wall	1	EA	\$2,178.35	\$2,179
299					
300	General Requirements	12.0%			\$261.00
301	Contractors Fee	6.0%			\$146.00
302	Contingency	15.0%			\$388.00
303					
304	Subtotal: A25 Repair Damaged CMU at Corridor Wing Wall				\$2,974
305					
306					
307	A26 Repoint CMU, Exterior	1	LS		
308	Densisting Massage (50) of exterior)	0.050	05	¢40.05	¢440.000
309	Repointing Masonry (5% of exterior)	0,050 66 560	SF SF	\$10.05	\$110,823
310	Repairit Exterior		ог	\$2.8U	9100,300 \$35 663 00
310	Contractors Foo	12.U% £ 00/			\$33,003.00 \$10,071,00
312 313	Contingency and Escalation	0.0% 15 0%			919,971.00 \$52 021 00
313	Contingency and Escalation	15.0%			φJZ,9Z4.00
215	Subtotal: A26 Banaint CMU Exterior				¢405 740
316					φ+00,/49
317					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
310	A27 Poplace Accustical Wall Treatment In Grm	1 600	SE.		
310	A27 Replace Acoustical Wall Treatment in Gym	1,500	JF		
320	Replace Acoustical Wall Treatment	1.500	SF	\$32,49	\$48,735
321		.,		<b>+--···</b>	<i> </i>
322	General Requirements	12.0%			\$5,848.00
323	Contractors Fee	6.0%			\$3,275.00
324	Contingency and Escalation	15.0%			\$8,679.00
325					
326	Subtotal: A27 Replace Acoustical Wall Treatment In Gym				\$66,537
327					
328					
329	A28 Repair Broken Window Inner Glass Pane on Ext Windows	1	EA		
330				<b>\$</b> 040.00	<b>*</b> 050
331	Repair Window	1	EA	\$949.68	\$950
332 222	Conoral Paguiramanta	12 00/			¢114.00
334	Contractors Foo	6.0%			00 464 ال 10 464
335	Contingency and Escalation	15.0%			\$169.00
336	contingency and Ecolution	10.070			¢100.00
337	Subtotal: A28 Repair Broken Window Inner Glass Pane on Ext V	Vindows			\$1.297
338					· / -
339					
340	S1 Repoint Masonry	17,750	SF		
341					
342	Repointing Masonry	17,750	SF	\$20.54	\$364,585
343					
344	General Requirements	12.0%			\$43,750.00
345	Contractors Fee	6.0%			\$24,500.00
340	Contingency and Escalation	15.0%			\$64,925.00
347	Subtotal St Danaint Maganny				¢ 407 760
348 340	Subtotal: 51 Repoint Masonry				\$497,760
349					
351	S2 Repair CMU Corners and Column Embeds	1	IS		
352		-			
353	Column Repairs	20	LOC		
354	Weld Horz #4 Resteel	160	EA	\$31.80	\$5,088
355	Drill To Embed	320	EA	\$54.24	\$17,357
356	Add #3 Hoops	160	EA	\$17.09	\$2,735
357	Grout CMU Solid	851	SF	\$30.17	\$25,681
358	Epoxy Dowels at Bond Beams	240	EA	\$148.28	\$35,587
359	Scaffolding	1,280	SF	\$3.83	\$4,902
360	Paint	1,702	SF	\$2.85	\$4,852
361					
362					

363

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
364	CMIL Corpors without Columns	120	1.00		
365	Add #4 Corner Bar 4'	960	FA	\$28.86	\$27 705
366	Drill To Embed	1 920	FA	\$54.24	\$104 141
367	Grout CMU Solid	2 554	SE	\$30.17	\$77.042
368	Epoxy Dowels at Bond Beams	1.440	FA	\$148.28	\$213.523
369	Scaffolding	960	SF	\$3.83	\$3,676
370	Paint	10.214	SF	\$2.85	\$29,111
371		,	•.	<b>\$</b> _100	<i> </i>
372	General Requirements	12.0%			\$66.168.00
373	Contractors Fee	6.0%			\$37.054.00
374	Contingency and Escalation	15.0%			\$98,193.00
375					,,
376	Subtotal: S2 Repair CMU Corners and Column Embeds				\$752.815
377					<i>,</i>
378					
379	S3 CMU Wall Anchorage	1	LS		
380	•				
381	Expose/Asbuilt Top of CMU Wall Connections	1,800	LF	\$9.74	\$17,532
382	Demo Parapets	1,800	LF	\$2.25	\$4,050
383	New Parapets	1,800	LF	\$68.52	\$123,336
384	Roof Repairs	7,200	SF	\$6.54	\$47,088
385	Repair Wall Connections - Tension Ties	900	EA	\$102.42	\$92,178
386	Scaffolding	54,000	SF	\$3.39	\$183,060
387	-				
388	Opening at Masonry Shearwalls	16	EA	\$1,921.88	\$30,750
389					
390	General Requirements	12.0%			\$59,759.00
391	Contractors Fee	6.0%			\$33,465.00
392	Contingency and Escalation	15.0%			\$88,683.00
393					
394	Subtotal: S3 CMU Wall Anchorage				\$679,901
395					
396					
397	S4 CMU Grouting	800	SF		
398					
399	Grout Shearwalls	800	SF	\$22.29	\$17,832
400					
401	General Requirements	12.0%			\$2,140.00
402	Contractors Fee	6.0%			\$1,198.00
403	Contingency and Escalation	15.0%			\$3,176.00
404					
405	Subtotal: S4 CMU Grouting				\$24,346
406					
407					
408					
409					

No.     Description     Qty     UNITS     \$     \$       410     S5 Repair Handrails on Westside of Foyer     1     EA     \$194.42     \$195       411     Anchor Railing     1     EA     \$194.42     \$195       412     General Requirements     12.0%     \$23.00     \$1000     \$100     \$100
No.     Description     Qty     UNITS     \$     \$       410     S5 Repair Handrails on Westside of Foyer     1     EA     \$194.42     \$195       411     Anchor Railing     1     EA     \$194.42     \$195       413     General Requirements     12.0%     \$23.00     \$13.00       414     Contractors Fee     6.0%     \$13.00       415     Contingency and Escalation     15.0%     \$23.00       416      \$1000     \$35.00     \$35.00       417     Subtotal: S5 Repair Handrails on Westside of Foyer     \$2266     \$35.00       418       \$4451.32     \$4,451       419     S6 Gym Curtain Support Beam     1     EA     \$15,379.03     \$15,379       420     S6 Gym Curtain Support Beam     1     EA     \$13,30.00     \$23,80.00     \$23,80.00       421     Demo Support     1     EA     \$13,30.00     \$23,30.00     \$13,33.00     \$24     Contractors Fee     6.0%     \$13,33.00     \$24,50.02     \$15,379     \$35,31.00
410   S5 Repair Handrails on Westside of Foyer   1   EA     411   Anchor Railing   1   EA   \$194.42   \$195     412   General Requirements   12.0%   \$23.00     414   Contractors Fee   6.0%   \$13.00     415   Contingency and Escalation   15.0%   \$35.00     416   Subtotal: S5 Repair Handrails on Westside of Foyer   \$266     418   1   EA   \$4,451.32   \$4,451     419   20   S6 Gym Curtain Support Beam   1   EA   \$15,379.03   \$15,379     420   S6 Gym Curtain Support Beam   1   EA   \$14,337.00   \$2,380.00     421   Demo Support   1   EA   \$15,379.03   \$15,379     421   New Support Beam   1   EA   \$15,379.03   \$15,379     422   New Support Beam   12.0%   \$2,380.00   \$24   Contractors Fee   6.0%   \$13,33.00     422   New Support Beam   15.0%   \$3,531.00   \$24   \$27,074     429   S7 Replace Stairwell SW2   1   EA   \$45,980.62   \$4
410   S5 Repair Handrails on Westside of Foyer   1   EA     411   Anchor Railing   1   EA     411   Anchor Railing   1   EA     412   Contractors Repair Handrails on Westside of Foyer   \$23.00     414   Contractors Fee   6.0%   \$13.00     415   Contingency and Escalation   15.0%   \$35.00     416    ************************************
411   Anchor Railing   1   EA   \$194.42   \$195     411   General Requirements   12.0%   \$23.00     413   Contractors Fee   6.0%   \$13.00     415   Contingency and Escalation   15.0%   \$35.00     416    \$35.00   \$35.00     417   Subtotal: S5 Repair Handrails on Westside of Foyer   \$266     418    \$445.132   \$4,451.32     419   S6 Gym Curtain Support Beam   1   EA     420   S6 Gym Curtain Support Beam   1   EA     421   Demo Support   1   EA   \$4,451.32   \$4,451     422   New Support Beam   1   EA   \$15,379.03   \$15,379     423   General Requirements   12.0%   \$2,380.00   \$22,380.00     424   Contractors Fee   6.0%   \$1,333.00   \$23.531.00     426    \$12.0%   \$23,531.00   \$35.531.00     427   Subtotal: S6 Gym Curtain Support Beam   \$27,074   \$44.8   \$45,980.62   \$45,981     429   S7 Replace Stairwell SW2   1<
412   12.0%   \$23.00     411   Contractors Fee   6.0%   \$13.00     416   15.0%   \$35.00     417   Subtotal: S5 Repair Handrails on Westside of Foyer   \$266     418   1   56 Gym Curtain Support Beam   1   EA     419   56 Gym Curtain Support Beam   1   EA   \$4,451.32   \$4,451     420   S6 Gym Curtain Support Beam   1   EA   \$4,451.32   \$4,451     421   Demo Support   1   EA   \$4,451.32   \$4,451     421   New Support Beam   1   EA   \$15,379.03   \$15,379     423   General Requirements   12.0%   \$2,380.00   \$22,380.00     424   Contractors Fee   6.0%   \$1,333.00   \$25     425   Contingency and Escalation   15.0%   \$3,531.00     426   57 Replace Stairwell SW2   1   EA     431   Sawcut/detach Stair   418   LF   \$16.00   \$6,688     432   Demo SW2 Stair   1   EA   \$45,980.62   \$45,981     433   Demo Foundatio
413   General Requirements   12.0%   \$23.00     414   Contractors Fee   6.0%   \$13.00     415   Contingency and Escalation   15.0%   \$35.00     416
414   Contractors Fee   6.0%   \$13.00     415   Contingency and Escalation   15.0%   \$35.00     416
415   Contingency and Escalation   15.0%   \$35.00     416   Subtotal: S5 Repair Handrails on Westside of Foyer   \$266     417   Subtotal: S5 Repair Handrails on Westside of Foyer   \$266     418   1   EA     420   S6 Gym Curtain Support Beam   1   EA     421   Demo Support   1   EA     422   New Support Beam   1   EA     423   General Requirements   12.0%   \$2,380.00     424   Contractors Fee   6.0%   \$1,333.00     425   Contingency and Escalation   15.0%   \$3,531.00     426   30   S7 Replace Stairwell SW2   1   EA     431   Sawcut/detach Stair   418   LF   \$16.00   \$6,688     432   Demo SW2 Stair   1   EA   \$445,980.62   \$44,970     433   Demo Foundations   43   LF   \$103.45   \$4,470     434   Faundations   43   LF   \$103.45   \$4,470
416     417     Subtotal: S5 Repair Handrails on Westside of Foyer   \$266     418     419     420   S6 Gym Curtain Support Beam   1     421   Demo Support   1   EA     422   New Support Beam   1   EA   \$4,451.32   \$4,451     421   Demo Support   1   EA   \$15,379.03   \$15,379     423   General Requirements   12.0%   \$2,380.00   \$2,380.00     424   Contractors Fee   6.0%   \$1,333.00     425   Contingency and Escalation   15.0%   \$3,531.00     426   Subtotal: S6 Gym Curtain Support Beam   \$27,074     427   Subtotal: S6 Gym Curtain Support Beam   \$27,074     428   57 Replace Stairwell SW2   1   EA     431   Sawcut/detach Stair   418   LF   \$16.00   \$6,688     432   Demo SW2 Stair   1   EA   \$45,980.62   \$44,970     433   Demo Foundations   43   LF   \$103.45   \$4,470     434   435   Faundations   43
417   Subtotal: S5 Repair Handrails on Westside of Foyer   \$266     418
418     419     420   S6 Gym Curtain Support Beam     421   Demo Support     422   New Support Beam     423   General Requirements     424   Contractors Fee     425   Contractors Fee     426   6.0%     427   Subtotal: S6 Gym Curtain Support Beam     428   429     430   S7 Replace Stairwell SW2     431   Sawcut/detach Stair     432   Demo Support Beam     433   Demo Support Beam     434   Sawcut/detach Stair     435   Demo SW2 Stair     436   LF     \$100   \$6,688     433   Demo Foundations     434   435
419     420   S6 Gym Curtain Support Beam     421   Demo Support     422   New Support Beam     423   General Requirements     424   Contractors Fee     6.0%   \$1,333.00     425   Contingency and Escalation     426   57 Replace Stairwell SW2     430   S7 Replace Stairwell SW2     431   Sawcut/detach Stair     432   Demo SW2 Stair     433   Demo Support Beam     434   435     435   Contractors Fee     60%   \$1,333.00     426   \$2,380.00     427   Subtotal: S6 Gym Curtain Support Beam     428   \$27,074     429   \$1< EA
420   S6 Gym Curtain Support Beam   1   EA     421   Demo Support   1   EA     422   New Support Beam   1   EA     422   New Support Beam   1   EA     423   General Requirements   1   EA     424   Contractors Fee   6.0%   \$2,380.00     424   Contractors Fee   6.0%   \$1,333.00     425   Contingency and Escalation   15.0%   \$3,531.00     426   427   Subtotal: S6 Gym Curtain Support Beam   \$27,074     428   429   430   S7 Replace Stairwell SW2   1   EA     431   Sawcut/detach Stair   418   LF   \$16.00   \$6,688     432   Demo SW2 Stair   1   EA   \$45,980.62   \$445,981     433   Demo Foundations   43   LF   \$103.45   \$4,470     434   435   Faundations   43   LF   \$103.45   \$44,004
421   Demo Support   1   EA   \$4,451.32   \$4,451     422   New Support Beam   1   EA   \$15,379.03   \$15,379     423   General Requirements   12.0%   \$2,380.00     424   Contractors Fee   6.0%   \$1,333.00     425   Contingency and Escalation   15.0%   \$3,531.00     426    \$427,074   \$428     427   Subtotal: S6 Gym Curtain Support Beam   \$27,074     428    \$418   LF   \$16.00   \$6,688     429   1   EA   \$45,980.62   \$45,981     428   2   1   EA   \$45,980.62   \$45,981     429   431   Sawcut/detach Stair   1   EA   \$43,980.62   \$45,981     432   Demo SW2 Stair   1   EA   \$45,980.62   \$45,981     433   Demo Foundations   43   LF   \$103.45   \$4,470     434   5   Foundations   43   LF   \$103.45   \$4,470
422   New Support Beam   1   EA   \$15,379.03   \$15,379     423   General Requirements   12.0%   \$2,380.00     424   Contractors Fee   6.0%   \$1,333.00     425   Contingency and Escalation   15.0%   \$3,531.00     426     \$27,074     428     \$27,074     429    \$27,074     430   S7 Replace Stairwell SW2   1   EA     431   Sawcut/detach Stair   418   LF   \$16.00   \$6,688     432   Demo SW2 Stair   1   EA   \$45,980.62   \$45,981     433   Demo Foundations   43   LF   \$103.45   \$4,470     434    43   LF   \$103.45   \$44,470
423   General Requirements   12.0%   \$2,380.00     424   Contractors Fee   6.0%   \$1,333.00     425   Contingency and Escalation   15.0%   \$3,531.00     426
424   Contractors Fee   6.0%   \$1,333.00     425   Contingency and Escalation   15.0%   \$3,531.00     426
425   Contingency and Escalation   15.0%   \$3,531.00     426   Subtotal: S6 Gym Curtain Support Beam   \$27,074     428   \$30   S7 Replace Stairwell SW2   1   EA     430   S7 Replace Stairwell SW2   1   EA     431   Sawcut/detach Stair   418   LF   \$16.00   \$6,688     432   Demo SW2 Stair   1   EA   \$45,980.62   \$45,981     433   Demo Foundations   43   LF   \$103.45   \$4,470     434   435   Foundations   42   LF   \$103.45   \$44,024
426     427   Subtotal: S6 Gym Curtain Support Beam   \$27,074     428   429     430   S7 Replace Stairwell SW2   1 EA     431   Sawcut/detach Stair   418 LF   \$16.00   \$6,688     432   Demo SW2 Stair   1 EA   \$45,980.62   \$45,981     433   Demo Foundations   43 LF   \$103.45   \$4,470     434   435   Foundations   42 LF   \$1020.52   \$44.024
427   Subtotal: S6 Gym Curtain Support Beam   \$27,074     428   429     430   S7 Replace Stairwell SW2   1 EA     431   Sawcut/detach Stair   418 LF   \$16.00   \$6,688     432   Demo SW2 Stair   1 EA   \$45,980.62   \$45,981     433   Demo Foundations   43 LF   \$103.45   \$4,470     434   435   Foundations   42 LF   \$200.52   \$44.024
428     429     430   S7 Replace Stairwell SW2   1 EA     431   Sawcut/detach Stair   418 LF   \$16.00   \$6,688     432   Demo SW2 Stair   1 EA   \$45,980.62   \$45,981     433   Demo Foundations   43 LF   \$103.45   \$4,470     434   Example time   42 LF   \$1020.52   \$144.024
429     430   S7 Replace Stairwell SW2   1   EA     431   Sawcut/detach Stair   418   LF   \$16.00   \$6,688     432   Demo SW2 Stair   1   EA   \$45,980.62   \$45,981     433   Demo Foundations   43   LF   \$103.45   \$4,470     434   435   Foundations   42   LF   \$1020.52   \$144.024
430   S7 Replace Stairwell SW2   1   EA     431   Sawcut/detach Stair   418   LF   \$16.00   \$6,688     432   Demo SW2 Stair   1   EA   \$45,980.62   \$45,981     433   Demo Foundations   43   LF   \$103.45   \$4,470     434   435   Foundations   42   LF   \$1020.52   \$14.024
431   Sawcut/detach Stair   418   LF   \$16.00   \$6,688     432   Demo SW2 Stair   1   EA   \$45,980.62   \$45,981     433   Demo Foundations   43   LF   \$103.45   \$4,470     434   435   Foundations   42   LF   \$1020.52   \$144.024
432   Demo SW2 Stair   1   EA   \$45,980.62   \$45,981     433   Demo Foundations   43   LF   \$103.45   \$4,470     434   435   Foundations   42   LF   \$1020.52   \$144.024
433   Demo Foundations   43   LF   \$103.45   \$4,470     434   435   Foundations   42   LF   \$100.50   \$144.004
434 425 Foundations 42 LF \$200.50 \$44.004
430 FOUNDALIONS 43 LF \$338.53 \$14,624
436     Slab on Grade     220     SF     \$6.95     \$1,529
437 Roof Framing and Decking, Wood 220 SF \$12.69 \$2,792
438 Exterior wall, CMU with furring, Insulation, Vapor Retarder, GWB 1,470 SF \$53.33 \$78,395
439 Windows 160 SF \$93.53 \$14,965
440 Stair and Landing Framing 220 SF
441     Stair Concrete Fill     1     LS     \$2,200.00     \$2,200
442 Landing Concrete Fill 90 SF \$6.95 \$625
443 Roofing 220 SF \$28.60 \$6,292
444 Flooring 90 SF \$10.98 \$988
445 Stair Treads and Risers 130 SF \$15.38 \$1,999
446 Ceilings 220 SF \$7.15 \$1,573
447 Lighting 6 EA \$894.38 \$5,366
448 Fire Sprinklers 220 SF \$8.75 \$1,925
449 FIVAC 220 SF \$24.00 \$5,280
450 General Requirements 12.0% \$23,483.00
451 Contractors ree 6.0% \$13,151.00
452 Contingency and Escalation 15.0% \$34,849.00
404 Jouniolal. 57 Replace Stairwell SW2 \$267,175

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
150					
400	S8 Stiffening of Floors Surrounding Orm	12 000	IE		
458		12,000	LI		
459	Ceiling Remove/Replace For Access	24,000	SF	\$7.50	\$180.000
460	W12 Beams	3.000	SF	\$116.10	\$348.300
461	2" Topping Slab	24,000	SF	\$10.00	\$240.000
462	Raise Doors	26	LV	\$880.48	\$22,892
463	Raise All Electrical Switches	30	EA	\$132.59	\$3,978
464				•	
465	General Requirements	12.0%			\$95,420.00
466	Contractors Fee	6.0%			\$53,435.00
467	Contingency and Escalation	15.0%			\$141,604.00
468					
469	Subtotal: S8 Stiffening of Floors Surrounding Gym				\$1,085,629
470					
471					
472	M1 Sprinklers	58,086	SF		
473					<b>.</b>
474	Replace Escutcheon Plates	465	EA	\$25.36	\$11,792
475					<b>A A A A A A A A A A</b>
476	General Requirements	12.0%			\$1,415.00
477	Contractors Fee	6.0%			\$792.00
478	Contingency and Escalation	15.0%			\$2,100.00
4/9					
480	Subtotal: M1 Sprinklers				\$16,099
481			-		
482	M2 Qum Hoating Ventilating Unit LN/U.2	4			
403 101	wiz Gym nealing ventilating Unit HVU-3	1	ĊA		
404 195	Demo HV/L	1	ΕΛ	\$1 115 O1	¢л ллб
400 196		1		φ4,440.04 \$15.070.04	₽4,440 ¢15 070
400 /197		I	ĒA	φ13,070.04	φ10,070
407	General Requirements	12 በ%			\$2,342,00
480 480	Contractors Fee	6 N%			\$1,311.00
490	Contingency and Escalation	0.0 <i>%</i> 15.0%			\$3 475 00
491		10.070			ψ0,+70.00
402	Subtotal: M2 Gym Heating Ventilating Unit HVIL3				\$26 643
493	Sustoun me cyn neating ventilating Unit HvU-0				Ψ <b>20,0</b> <del>1</del> 3
494	L				
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500					
501					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
502	M3 MP Room Heating Ventilating Unit	1	EA		
503					
504	Demo HVU	1	EA	\$4,445.04	\$4,445
505	HVU	1	EA	\$15,070.04	\$15,070
506					
507	General Requirements	12.0%			\$2,342.00
508	Contractors Fee	6.0%			\$1,311.00
509	Contingency and Escalation	15.0%			\$3,475.00
510					
511	Subtotal: M3 MP Room Heating Ventilating Unit				\$26,643
512					
513					
514	M4 Resupport Sprinkler Pipe	1	EA		
515	Dine Support	1		¢140.00	¢140
510	Pipe Support	I	EA	\$142.30	φ142
510	Conoral Paguiromente	12 0%			¢17.00
510	Contractors Equ	6.0%			\$17.00
520	Contingency and Escalation	15.0%			\$25.00
521	contingency and Localdion	10.070			φ20.00
522	Subtotal: M4 Resupport Sprinkler Pipe				\$194
523					<b><i>v</i>io</b> 4
524					
525	M5 Replace EF-13	1	EA		
526	•				
527	Demo Fan	1	EA	\$1,766.21	\$1,766
528	New Fan	7,000	CFM	\$2.47	\$17,290
529					
530	General Requirements	12.0%			\$2,287.00
531	Contractors Fee	6.0%			\$1,281.00
532	Contingency and Escalation	15.0%			\$3,394.00
533					
534	Subtotal: M5 Replace EF-13				\$26,018
535					
536					
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540					
54 I					
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545					
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547					

No.     Description     Qty     UNITS     S     Statistical stress of the stress o	Line				Total	Cost
No.     Description     Qry     UNITS     S     S       648     M6 Rn 152 Shower Pan     1     EA     5222.55     \$225.55     \$263.31     \$2.526     \$555     \$263.31     \$2.526     \$556     \$265.31     \$2.526     \$557     \$507     \$507     \$507     \$507     \$507     \$507     \$507     \$507     \$507     \$507     \$507     \$507     \$507     \$507     \$507     \$5000     \$505     \$5000     \$505     \$5000     \$505     \$5000     \$506     \$5000     \$507     \$50000     \$507     \$50000     \$507     \$50000     \$50000     \$50000     \$50000     \$50000     \$50000     \$50000     \$50000     \$50000     \$50000     \$50000     \$50000     \$50000     \$500000     \$50000     \$50					Unit	Matl/Labor
Mik Rm 152 Shower Pan     I     EA       548     Mik Rm 152 Shower Pan     1     EA       549     Demo Tile     96     SF     \$7.74     \$743       550     Demo Tile     96     SF     \$7.74     \$743       551     Demo Tile     96     SF     \$7.74     \$743       552     Shower Pan     1     EA     \$819.50     \$820       553     Tile Shower     96     SF     \$26.31     \$2.526       555     Caneral Requirements     12.0%     \$517.00     \$200.00       556     Caneral Requirements     15.0%     \$768.00     \$768.00       560     Subtotal: M6 Rm 152 Shower Pan     \$5,886     \$56     \$57       561     Test and Repair Spark Detection System     1     EA     \$3.653.02     \$3.653       562     General Requirements     12.0%     \$438.00     \$245.00       563     General Requirements     12.0%     \$4386.00     \$245.00       574     M8 Rm 220A Return Fan     1     EA     <	No.	Description	Qty	UNITS	\$	\$
1   EA     2	519	M6 Rm 152 Shower Pan	4	F۵		
550     Demo Shower Pan     1     EA     \$222.25     \$ \$222       551     Demo Tile     96     SF     \$ 7.7.4     \$ \$7.83       553     Shower Pan     1     EA     \$ \$819.50     \$ \$820.53       553     Tile Shower     96     SF     \$ \$ \$26.31     \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	549			LA		
551   Demo Tile   96   SF   \$7.74   \$743     552   Shower Pan   1   EA   \$819.50   \$820     553   Tile Shower   96   SF   \$28.31   \$2,526     554   General Requirements   12.0%   \$517.00   \$517.00     555   General Requirements   12.0%   \$517.00   \$577.00     556   General Requirements   12.0%   \$517.00   \$5788.00     556   Subtotal: M6 Rm 152 Shower Pan   \$5,886   \$568     561   Test and Repair Spark Detection System   1   EA   \$3,653.02   \$3,653     568   General Requirements   12.0%   \$438.00   \$569   \$245.00     574   Test and Repair Spark Detection System   1   EA   \$438.00     576   General Requirements   12.0%   \$438.00   \$245.00     571   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986   \$438.00     574   M8 Rm 220A Return Fan   1   EA   \$782.33   \$782     576   Reconnect Ductwork   1   EA   \$782.33   \$7	550	Demo Shower Pan	1	FA	\$222.25	\$222
552   Shower Pan   1   EA   \$819.50   \$820     553   Tile Shower   96   SF   \$26.31   \$2.526     556   General Requirements   12.0%   \$517.00   \$517.00     556   Contractors Fee   6.0%   \$290.00   \$290.00     557   Contractors Fee   6.0%   \$290.00     560   Subtotal: M6 Rm 152 Shower Pan   \$5,886   \$56     561   Test and Repair Spark Detection System   1   EA   \$3,653.02   \$3,653     562   General Requirements   12.0%   \$438.00   \$438.00     563   M7 Rm 158 Flamex Dust Collector Panel   1   EA   \$438.00     566   General Requirements   12.0%   \$438.00     567   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986   \$438.00     576   General Requirements   12.0%   \$42850.00     577   Reconnect Ductwork   1   EA   \$772.33   \$772     578   Adjust Fan On Isolators   1   EA   \$272.46.21   \$2.246   \$2.246.21   \$2.246.75   \$2.246.75   \$	551	Demo Tile	96	SF	\$7.74	\$743
553   Tile Shower   96   SF   \$28.31   \$2,226     554   General Requirements   12.0%   \$517.00     556   General Requirements   \$200.00   \$200.00     557   Contingency and Escalation   15.0%   \$2768.00     550   Subtotal: M6 Rm 152 Shower Pan   \$5,886   \$56     551   M7 Rm 158 Flamex Dust Collector Panel   1   EA     556   Test and Repair Spark Detection System   1   EA     556   General Requirements   12.0%   \$438.00     567   General Requirements   12.0%   \$438.00     568   General Requirements   12.0%   \$438.00     570   Contingency and Escalation   15.0%   \$438.00     571   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986   \$438.00     572   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986   \$438.00     573   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986   \$438.00     574   M8 Rm 220A Return Fan   1   EA   \$782.33   \$782     575   General Requirements   12.0%	552	Shower Pan	1	FA	\$819.50	\$820
554   12.0%   \$517.00     555   Contractors Fee   6.0%   \$290.00     560   Contingency and Escalation   15.0%   \$768.00     560   Subtotal: M6 Rm 152 Shower Pan   \$5,886   \$56     561   M7 Rm 158 Flamex Dust Collector Panel   1   EA     562   Test and Repair Spark Detection System   1   EA   \$3,653.02   \$3,653     566   General Requirements   12.0%   \$438.00   \$4285.00     570   Contractors Fee   6.0%   \$245.00     571   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   1   EA     572   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986     573   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986     574   M8 Rm 220A Return Fan   1   EA     577   Reconnect Ductwork   1   EA   \$782.33   \$782     578   Adjust Fan On Isolators   1   EA   \$782.33   \$782     581   General Requirements   12.0%   \$363.00   \$533.00     582   General Requirements   15.0%   \$539	553	Tile Shower	96	SF	\$26.31	\$2,526
555     General Requirements     12.0%     \$517.00       567     Contractors Fee     6.0%     5290.00       568     Contingency and Escalation     15.0%     \$768.00       569     Subtotal: M6 Rm 152 Shower Pan     \$5,886       561     Image: Spark Detection Panel     1     EA       562     Test and Repair Spark Detection System     1     EA       563     General Requirements     12.0%     \$436.00       566     Contractors Fee     6.0%     \$245.00       577     Subtotal: M7 Rm 158 Flamex Dust Collector Panel     \$4386.00       571     Subtotal: M7 Rm 158 Flamex Dust Collector Panel     \$4,986       572     Subtotal: M7 Rm 158 Flamex Dust Collector Panel     \$4,986       573     M8 Rm 220A Return Fan     1     EA       574     Reconnect Ductwork     1     EA     \$7782.33     \$782       573     General Requirements     12.0%     \$363.00     \$363.00       584     General Requirements     15.0%     \$363.00     \$363.00       584     General Requirements	554			0.	¢20.01	<i><b>4</b>2,<b>6</b>20</i>
556     General Requirements     12.0%     \$517.00       557     Contractors Fee     6.0%     \$290.00       558     Contingency and Escalation     15.0%     \$768.00       559     Subtotal: M6 Rm 152 Shower Pan     \$5,886       561     Subtotal: M6 Rm 152 Shower Pan     1     EA       562     M7 Rm 158 Flamex Dust Collector Panel     1     EA       563     Test and Repair Spark Detection System     1     EA     \$3,653.02     \$3,653       566     General Requirements     12.0%     \$438.00     \$245.00       567     General Requirements     12.0%     \$438.00       568     Contractors Fee     6.0%     \$245.00       570     Contingency and Escalation     15.0%     \$650.00       571     Subtotal: M7 Rm 158 Flamex Dust Collector Panel     \$4,986       572     Subtotal: M7 Rm 158 Flamex Dust Collector Panel     \$4,986       573     Freeconnect Ductwork     1     EA       576     Adjust Fan On Isolators     1     EA       578     General Requirements     \$2.	555					
State     6.0%     \$290.00       State     Contractors Fee     6.0%     \$290.00       Source     Contingency and Escalation     15.0%     \$768.00       Subtotal: M6 Rm 152 Shower Pan     \$5,886     \$56       M7 Rm 158 Flamex Dust Collector Panel     1     EA       Source     Test and Repair Spark Detection System     1     EA       General Requirements     12.0%     \$438.00       Contingency and Escalation     15.0%     \$245.00       Contingency and Escalation     15.0%     \$660.00       Subtotal: M7 Rm 158 Flamex Dust Collector Panel     \$4,986       Subtotal: M7 Rm 158 Flamex Dust Collector Panel     \$4,986       M8 Rm 220A Return Fan     1     EA       F77     Reconnect Ductwork     1     EA       S08     General Requirements     \$2,246.21     \$2,246       S03     Contractors Fee     6.0%     \$203.00       Contractors Fee     6.0%     \$203.00       Contractors Fee     6.0%     \$203.00       Contractors Fee     6.0%     \$203.00       Contingency a	556	General Requirements	12.0%			\$517.00
553     Contingency and Escalation     15.0%     \$768.00       559     Subtotal: M6 Rm 152 Shower Pan     \$5,886       561     M7 Rm 158 Flamex Dust Collector Panel     1     EA       563     M7 Rm 158 Flamex Dust Collector Panel     1     EA       564     Test and Repair Spark Detection System     1     EA     \$3,653.02     \$3,653       566     General Requirements     12.0%     \$438.00     \$438.00       567     Contingency and Escalation     15.0%     \$438.00       570     Contingency and Escalation     15.0%     \$438.00       571     Subtotal: M7 Rm 158 Flamex Dust Collector Panel     \$4,986       573     Subtotal: M7 Rm 158 Flamex Dust Collector Panel     \$4,986       574     M8 Rm 220A Return Fan     1     EA       576     Reconnect Ductwork     1     EA     \$782.33     \$782       576     General Requirements     12.0%     \$363.00     \$363.00       580     General Requirements     15.0%     \$363.00     \$363.00       581     General Requirements     15.0%	557	Contractors Fee	6.0%			\$290.00
Subtotal: M6 Rm 152 Shower Pan     \$5,886       M7 Rm 158 Flamex Dust Collector Panel     1     EA       660     1     EA       661     1     EA       662     M7 Rm 158 Flamex Dust Collector Panel     1     EA       663     1     EA     \$3,653.02     \$2,45.00     \$4,38.00     \$2,450.00     \$4,38.00     \$2,450.00     \$4,38.00     \$650.00     \$2,450.00     \$2,450.00     \$2,450.00     \$2,450.00     \$3,653.00	558	Contingency and Escalation	15.0%			\$768.00
Subtotal: M6 Rm 152 Shower Pan     \$5,886       M7 Rm 158 Flamex Dust Collector Panel     1     EA       563     M7 Rm 158 Flamex Dust Collector Panel     1     EA       564     Test and Repair Spark Detection System     1     EA     \$3,653.02     \$3,653       566     Centractors Fee     6.0%     \$245.00     \$245.00       570     Contingency and Escalation     15.0%     \$650.00       571     Subtotal: M7 Rm 158 Flamex Dust Collector Panel     \$4,986       573     Subtotal: M7 Rm 158 Flamex Dust Collector Panel     \$4,986       574     M8 Rm 220A Return Fan     1     EA       575     Reconnect Ductwork     1     EA     \$782.33     \$782       579     General Requirements     12.0%     \$363.00     \$203.00       581     General Requirements     12.0%     \$363.00     \$203.00       582     Contractors Fee     6.0%     \$203.00     \$363.00       583     General Requirements     15.0%     \$539.00     \$363.00     \$363.00     \$363.00     \$363.00     \$363.00     \$363.	559					<i><b></b></i>
M7 Rm 158 Flamex Dust Collector Panel     1     EA       664     1     EA       565     Test and Repair Spark Detection System     1     EA     \$3,653.02     \$3,653       566     Ceneral Requirements     12.0%     \$438.00       567     Contractors Fee     6.0%     \$245.00       570     Contingency and Escalation     15.0%     \$650.00       571     Subtotal: M7 Rm 158 Flamex Dust Collector Panel     \$4,986       572     Subtotal: M7 Rm 158 Flamex Dust Collector Panel     \$4,986       573     M8 Rm 220A Return Fan     1     EA       576     Reconnect Ductwork     1     EA     \$782.33     \$782       579     General Requirements     12.0%     \$363.00     \$203.00       581     General Requirements     12.0%     \$363.00     \$203.00       582     Contringency and Escalation     15.0%     \$363.00     \$539.00       584     Subtotal: M8 Rm 220A Return Fan     \$4,133     \$4,133     \$4,133       586     Subtotal: M8 Rm 220A Return Fan     \$4,133     \$4,133	560	Subtotal: M6 Rm 152 Shower Pan				\$5,886
M7 Rm 158 Flamex Dust Collector Panel   1   EA     562   Test and Repair Spark Detection System   1   EA   \$3,653.02   \$3,653     566   General Requirements   12.0%   \$438.00     567   Contractors Fee   6.0%   \$245.00     570   Contingency and Escalation   15.0%   \$650.00     571   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986     573   M8 Rm 220A Return Fan   1   EA     574   M8 Rm 220A Return Fan   1   EA     576   General Requirements   1   EA     576   Stubtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986     577   Reconnect Ductwork   1   EA     578   Adjust Fan On Isolators   1   EA     581   General Requirements   12.0%   \$363.00     582   Contractors Fee   6.0%   \$203.00     583   Subtotal: M8 Rm 220A Return Fan   \$4,133     586   Subtotal: M8 Rm 220A Return Fan   \$4,133     586   Subtotal: M8 Rm 220A Return Fan   \$4,133     586   Subtotal: M8 Rm	561					<i><b>+0</b>,000</i>
M7 Rm 158 Flamex Dust Collector Panel   1   EA     563   Test and Repair Spark Detection System   1   EA     564   Test and Repair Spark Detection System   1   EA     565   General Requirements   12.0%   \$438.00     566   General Requirements   12.0%   \$438.00     567   Contractors Fee   6.0%   \$245.00     570   Contingency and Escalation   15.0%   \$450.00     571   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986     573   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986     574   Reconnect Ductwork   1   EA     575   Reconnect Ductwork   1   EA     576   General Requirements   12.0%   \$363.00     581   General Requirements   12.0%   \$363.00     581   General Requirements   12.0%   \$363.00     583   Contractors Fee   6.0%   \$203.00     584   Subtotal: M8 Rm 220A Return Fan   \$4,133     586   Subtotal: M8 Rm 220A Return Fan   \$4,133     589   Subtotal: M8 Rm 220A Re	562					
1   EA   \$3,653.02   \$3,653     666   Test and Repair Spark Detection System   1   EA   \$3,653.02   \$3,653     666   General Requirements   12.0%   \$438.00     667   Contractors Fee   6.0%   \$245.00     570   Contingency and Escalation   15.0%   \$650.00     571   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986     573   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986     574   M8 Rm 220A Return Fan   1   EA     575   Reconnect Ductwork   1   EA   \$782.33   \$782     579   General Requirements   12.0%   \$363.00   \$203.00     581   General Requirements   12.0%   \$363.00   \$203.00     583   General Requirements   15.0%   \$203.00   \$203.00     584   Subtotal: M8 Rm 220A Return Fan   \$4,133   \$4,133     586   Subtotal: M8 Rm 220A Return Fan   \$4,133   \$4,133     587   Subtotal: M8 Rm 220A Return Fan   \$4,133   \$4,133	563	M7 Rm 158 Flamex Dust Collector Panel	1	FA		
1   EA   \$3,653.02   \$3,653     66   60   \$438.00     66   60%   \$245.00     670   Contractors Fee   6.0%   \$245.00     671   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986     673   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986     674   M8 Rm 220A Return Fan   1   EA     775   Reconnect Ductwork   1   EA   \$772.23   \$782     576   General Requirements   12.0%   \$363.00   \$782     577   Reconnect Ductwork   1   EA   \$7782.33   \$782     578   General Requirements   12.0%   \$363.00   \$363.00     581   General Requirements   12.0%   \$363.00   \$539.00     584   Subtotal: M8 Rm 220A Return Fan   \$4,133   \$569.00   \$539.00     585   Subtotal: M8 Rm 220A Return Fan   \$4,133   \$4,133     586   Subtotal: M8 Rm 220A Return Fan   \$4,133   \$4,133     587   Subtotal: M8 Rm 220A Return Fan   \$4,133   \$4,133	564		•			
1.101 and 1.101 and 1.001	565	Test and Repair Spark Detection System	1	FA	\$3 653 02	\$3 653
Second     \$438.00       568     General Requirements     12.0%     \$438.00       569     Contractors Fee     6.0%     \$245.00       570     Contingency and Escalation     15.0%     \$650.00       571     Subtotal: M7 Rm 158 Flamex Dust Collector Panel     \$4,986       573      \$4,986       574     M8 Rm 220A Return Fan     1     EA       576     Reconnect Ductwork     1     EA     \$2,246.21     \$2,246       578     Adjust Fan On Isolators     1     EA     \$782.33     \$782       580     General Requirements     12.0%     \$363.00     \$203.00       581     General Requirements     12.0%     \$363.00     \$203.00       582     Contractors Fee     6.0%     \$203.00     \$539.00     \$539.00       585     Subtotal: M8 Rm 220A Return Fan     \$4,133     \$66     \$4,133       586     590     591     591     \$4,133	566			<b>_</b> / (	\$0,000.0 <u>L</u>	<i><b>Q</b></i> <b>0</b> ,000
568   General Requirements   12.0%   \$438.00     569   Contractors Fee   6.0%   \$245.00     570   Contingency and Escalation   15.0%   \$650.00     571   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986     573   M8 Rm 220A Return Fan   1   EA     574   M8 Rm 220A Return Fan   1   EA     576   Reconnect Ductwork   1   EA   \$2,246.21   \$2,246     578   Adjust Fan On Isolators   1   EA   \$782.33   \$782     580   General Requirements   12.0%   \$363.00   \$203.00     581   General Requirements   12.0%   \$363.00   \$203.00     582   Subtotal: M8 Rm 220A Return Fan   \$4,133   \$539.00     584   Subtotal: M8 Rm 220A Return Fan   \$4,133   \$4,133     586   Subtotal: M8 Rm 220A Return Fan   \$4,133   \$4,133     587   Subtotal: M8 Rm 220A Return Fan   \$4,133   \$4,133     588   Subtotal: M8 Rm 220A Return Fan   \$4,133   \$4,133     589   Subtotal: M8 Rm 220A Return Fan   \$4,133	567					
Contractors Fee     6.0%     \$245.00       570     Contingency and Escalation     15.0%     \$650.00       571     Subtotal: M7 Rm 158 Flamex Dust Collector Panel     \$4,986       573     Subtotal: M7 Rm 158 Flamex Dust Collector Panel     \$4,986       574     M8 Rm 220A Return Fan     1     EA       575     M8 Rm 220A Return Fan     1     EA       576     Reconnect Ductwork     1     EA     \$782.33     \$782       579     Subtotal: Fan On Isolators     1     EA     \$782.33     \$782       580     General Requirements     12.0%     \$363.00     \$203.00       581     General Requirements     15.0%     \$539.00       584     Subtotal: M8 Rm 220A Return Fan     \$4,133       586     Subtotal: M8 Rm 220A Return Fan     \$4,133       587     Subtotal: M8 Rm 220A Return Fan     \$4,133	568	General Requirements	12.0%			\$438.00
570   Contingency and Escalation   15.0%   \$650.00     571   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986     573   M8 Rm 220A Return Fan   1   EA     576   M8 Rm 220A Return Fan   1   EA     577   Reconnect Ductwork   1   EA   \$2,246.21   \$2,246     578   Adjust Fan On Isolators   1   EA   \$782.33   \$782     580   General Requirements   12.0%   \$363.00   \$203.00     581   General Requirements   15.0%   \$203.00     583   Contingency and Escalation   15.0%   \$363.00     584   Subtotal: M8 Rm 220A Return Fan   \$4,133     585   Subtotal: M8 Rm 220A Return Fan   \$4,133	569	Contractors Fee	6.0%			\$245.00
571   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986     573   \$4   \$4     574   M8 Rm 220A Return Fan   1   EA     576   Reconnect Ductwork   1   EA   \$2,246.21   \$2,246     577   Reconnect Ductwork   1   EA   \$782.33   \$782     579   1   EA   \$782.33   \$782     580   2   Contractors Fee   6.0%   \$203.00     581   General Requirements   12.0%   \$539.00     583   Subtotal: M8 Rm 220A Return Fan   \$4,133     586   587   \$4,133     587   Subtotal: M8 Rm 220A Return Fan   \$4,133     588   589   590   591     591   592   591   592	570	Contingency and Escalation	15.0%			\$650.00
Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986     573   Subtotal: M7 Rm 158 Flamex Dust Collector Panel   \$4,986     574   M8 Rm 220A Return Fan   1 EA     576   Reconnect Ductwork   1 EA     577   Reconnect Ductwork   1 EA     578   Adjust Fan On Isolators   1 EA     580   1 EA     581   General Requirements   12.0%     582   Contractors Fee   6.0%     583   Contingency and Escalation   15.0%     584   Subtotal: M8 Rm 220A Return Fan     585   Subtotal: M8 Rm 220A Return Fan   \$4,133     586   589   590     590   591   592	571					<i><b>Q</b></i> <b>OOOOOO</b>
573   Constant in this for fullion back constant this   (+,))     573   M8 Rm 220A Return Fan   1   EA     576   Reconnect Ductwork   1   EA   \$2,246.21   \$2,246     577   Reconnect Ductwork   1   EA   \$782.33   \$782     579   1   EA   \$782.33   \$782     580   581   General Requirements   12.0%   \$363.00     582   Contractors Fee   6.0%   \$203.00     583   Contingency and Escalation   15.0%   \$539.00     584   Subtotal: M8 Rm 220A Return Fan   \$4,133     586   589   590   591     591   592   591   592	572	Subtotal: M7 Rm 158 Flamex Dust Collector Panel				\$4 986
570   M8 Rm 220A Return Fan   1   EA     577   Reconnect Ductwork   1   EA   \$2,246.21   \$2,246     578   Adjust Fan On Isolators   1   EA   \$782.33   \$782     579   580   1   EA   \$782.33   \$782     581   General Requirements   12.0%   \$363.00     582   Contractors Fee   6.0%   \$203.00     583   Contingency and Escalation   15.0%   \$539.00     584   Subtotal: M8 Rm 220A Return Fan   \$4,133     586   587   \$4,133     587   587   587   \$4,133	573					φ4,500
M8 Rm 220A Return Fan   1   EA     577   Reconnect Ductwork   1   EA   \$2,246.21   \$2,246     578   Adjust Fan On Isolators   1   EA   \$782.33   \$782     579   580   1   EA   \$782.33   \$782     580   581   General Requirements   12.0%   \$363.00     581   General Requirements   15.0%   \$203.00     583   Contingency and Escalation   15.0%   \$539.00     584    \$539.00   \$539.00     584    \$539.00   \$539.00     585   Subtotal: M8 Rm 220A Return Fan   \$4,133     586   \$590.00   \$591.00   \$591.00     587   588   \$590.00   \$591.00   \$591.00     588   589.00   \$590.00   \$591.00   \$591.00     590.01   591.00   591.00   \$592.00   \$593.00	574					
576   Imove the Experiment of the Experi	575	M8 Rm 2204 Return Fan	1	FΔ		
577   Reconnect Ductwork   1   EA   \$2,246.21   \$2,246     578   Adjust Fan On Isolators   1   EA   \$782.33   \$782     579   580   1   EA   \$782.33   \$782     580   581   General Requirements   12.0%   \$363.00     582   Contractors Fee   6.0%   \$203.00     583   Contingency and Escalation   15.0%   \$539.00     584   585   Subtotal: M8 Rm 220A Return Fan   \$4,133     586   587   588   589   590     590   591   592   592   592	576					
571   Adjust Fan On Isolators   1   EA   \$782.33   \$782     579   580   581   General Requirements   12.0%   \$363.00     581   General Requirements   12.0%   \$363.00     582   Contractors Fee   6.0%   \$203.00     583   Contingency and Escalation   15.0%   \$539.00     584   Subtotal: M8 Rm 220A Return Fan   \$4,133     586   587   \$589   \$599     590   590   \$591   \$592     592   593   593   593	577	Reconnect Ductwork	1	FΔ	\$2 246 21	\$2 246
570   Adjustration isolators   1 LA   \$102.55   \$102     579   580   \$12.0%   \$363.00     581   General Requirements   12.0%   \$363.00     582   Contractors Fee   6.0%   \$203.00     583   Contingency and Escalation   15.0%   \$539.00     584   \$205.00   \$4,133     585   Subtotal: M8 Rm 220A Return Fan   \$4,133     586   \$587   \$588     589   \$590   \$591     591   \$592   \$591     592   \$592   \$592	578	Adjust Fan On Isolators	1	ΕA	ψ <u>2,2</u> 40.21 \$782.33	ψ <u>2</u> ,2 <del>1</del> 0 \$782
580   12.0%   \$363.00     581   General Requirements   12.0%   \$363.00     582   Contractors Fee   6.0%   \$203.00     583   Contingency and Escalation   15.0%   \$539.00     584   Subtotal: M8 Rm 220A Return Fan   \$4,133     586   \$587     587   588   \$599     590   590   591     592   592   592	579	Augusti un on isolators	1		Ψ/ 02.00	φ10Z
581   General Requirements   12.0%   \$363.00     582   Contractors Fee   6.0%   \$203.00     583   Contingency and Escalation   15.0%   \$539.00     584    \$4,133     585   Subtotal: M8 Rm 220A Return Fan   \$4,133     586    \$4,133     587   588   \$59     590   590   \$591     592   592   \$592	580					
581   Contractors Fee   6.0%   \$203.00     583   Contingency and Escalation   15.0%   \$539.00     584   585   Subtotal: M8 Rm 220A Return Fan   \$4,133     586   587   588   \$599     590   591   591   591     592   592   592   593	581	General Requirements	12.0%			\$363.00
582 Contingency and Escalation 15.0% \$250.00   583 Contingency and Escalation \$4,133   586 \$4,133   587 \$88   589 \$90   590 \$90   591 \$92	582	Contractors Fee	6.0%			\$203.00
583     For solution     \$000.00       584     585     Subtotal: M8 Rm 220A Return Fan     \$4,133       586     \$87     \$58       589     \$90     \$90       591     \$92     \$90	583	Contingency and Escalation	15.0%			\$539.00
585   Subtotal: M8 Rm 220A Return Fan   \$4,133     586   587     588   589     590   591     592   592	584	contingency and Escalation	10.070			φ000.00
585 586 587 588 589 590 591 592	595	Subtotal: M8 Pm 220A Poturn Fan				\$1 122
586 587 588 589 590 591 592	505	Sublotal: Mo Rifi 220A Return Fan				\$4,133
588 589 590 591 592	500					
589 590 591 592	599					
589 590 591 592	500					
591 592	500					
592	501					
	502					
593	592					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
501	M9 Room 224 Duct Correction / Leak Repair	1	FΔ		
595	ing Room 224 Duct Correction / Leak Repair	I.			
596	Repair Duct Damper and Actuator	1	EA	\$2.126.21	\$2.126
597	Leak Repairs	1	EA	\$507.00	\$508
598					
599					
600	General Requirements	12.0%			\$316.00
601	Contractors Fee	6.0%			\$177.00
602	Contingency and Escalation	15.0%			\$469.00
603					
604	Subtotal: M9 Room 224 Duct Correction / Leak Repair				\$3,596
605					
606					
607	M10 Rm 224E Exhaust Fan	1	EA		
608					<b>•</b> / <b>-</b> • <b>-</b>
609	Resupport Exhaust Fan Ductwork	1	EA	\$1,564.66	\$1,565
610					
611	Concrel Paguiremente	42.09/			¢100.00
613	Contractors Eoo	6.0%			\$100.00 \$105.00
61/	Contingency and Escalation	0.0 % 15 0%			\$105.00
615	Somingency and Escalation	10.070			Ψ213.00
616	Subtotal: M10 Rm 224E Exhaust Fan				\$2 137
617					ψ2,107
618					
619	M11 Corridor 1130 Ductwork Disconnected	1	EA		
620					
621	Reconnect/Repair Ductwork	1	EA	\$2,246.21	\$2,246
622					
623	General Requirements	12.0%			\$270.00
624	Contractors Fee	6.0%			\$151.00
625	Contingency and Escalation	15.0%			\$400.00
626					
627	Subtotal: M11 Corridor 1130 Ductwork Disconnected				\$3,067
628					
629					
630	M12 Corridor 2300 Pipe Supports	1	EA	<b>*</b> / / <b>*</b> * *	<b>•</b> ( ) •
631	Replace Pipe Supports	1	EA	\$118.63	\$119
632		40.0%			¢44.00
633	General Requirements	12.0%			\$14.00
034 625	Contingency and Escalation	6.U%			00.8¢ Φ24.00
636	Contingency and Escalation	15.0%			φ2 1.00
627	Subtotal: M12 Corridor 2200 Pina Supports				\$460
639	Subtotal. W12 Corrigor 2300 Pipe Supports				\$10Z
030					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
639	M13 Corridor 2320 Pine Support	•	F۸		
640 641	wis corrigor 2020 Fipe Support	2	EA		
642	Replace Pipe Supports	2	EA	\$118.63	\$237
643	,	-		+	+=01
644					
645	General Requirements	12.0%			\$28.00
646	Contractors Fee	6.0%			\$16.00
647	Contingency and Escalation	15.0%			\$42.00
648					
649	Subtotal: M13 Corridor 2320 Pipe Support				\$323
650					
651		_			
652	M14 Boiler Room 228 Repairs	1	LS		
653				¢000 70	*~~ <del>~</del>
654	Demonstion at Heat Exchanger	1	EA EA	\$000./0 ¢0.005.77	\$667
000	Replace Piping To Heat Exchanger	1		\$∠,8U5.// ¢2,470.50	\$∠,8U6 ¢0 /70
657	near Excitative	I	<u>CA</u>	<b>φ0,</b> 47∠.3∠	<b>ФО,473</b>
658	Demo Air Separator	1	FΔ	\$222.25	¢000
659	Air Separator	1	FA	\$4 194 50	ΨΖΖΖ \$4 195
660		I.	_/ `	ψ.,.οου	ψ1,100
661	Relocate Water Heaters	4	EA	\$1,778.02	\$7.112
662	Repipe Water Heaters	4	EA	\$2,403.02	\$9,612
663					
664	Repair Pipe Leaks at Heat Recovery System	1	EA	\$2,722.52	\$2,723
665	Repair Return Ducts	1	EA	\$2,246.21	\$2,246
666	Replace Circ Pump	1	EA	\$5,083.51	\$5,084
667					
668	General Requirements	12.0%			\$5,177.00
669	Contractors Fee	6.0%			\$2,899.00
670	Contingency and Escalation	15.0%			\$7,682.00
671					
672	Subtotal: M14 Boiler Room 228 Repairs				\$58,898
673					
674 675	M15 Decommission the Machanical Systems				
075 676	Recommissioning	104 960	SE	¢0 61	\$70.010
677	Recommissioning	124,002	ы	<b>Φ</b> U.04	\$19,91Z
678	General Requirements	12 በ%			<u>\$9 58</u> 9 00
679	Contractors Fee	6.0%			\$5.370.00
680	Contingency and Escalation	15.0%			\$14.231.00
681	· · · · · · · · · · · · · · · · · · ·	/ 0			, ,,_01.00
682	Subtotal: M15 Recommission the Mechanical Systems				\$109.102
683					,, <b></b>
684	·				

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
685	F1 Gym Heating Unit Wiring	1	IS		
686			20		
687	3/4" EMT. 3#10. 1#10	20	LF	\$12.75	\$255
688				• -	•
689	General Requirements	12.0%			\$31.00
690	Contractors Fee	6.0%			\$17.00
691	Contingency	15.0%			\$45.00
692					
693	Subtotal: E1 Gym Heating Unit Wiring				\$348
694					
695					
696	E2 Repair Basketball Hoop Motor Wiring	1	EA		
697					
698	Minor Wiring Repair	1	EA	\$241.18	\$241
699					
700	General Requirements	12.0%			\$29.00
701	Contractors Fee	6.0%			\$16.00
702	Contingency and Escalation	15.0%			\$43.00
703					
704	Subtotal: E2 Repair Basketball Hoop Motor Wiring				\$329
705					
706					
707	E3 Fan Motor Wiring	1	LS		
708					
709	3/4" EMT, 3#10, 1#10	30	LF	\$12.75	\$382
710					
711	General Requirements	12.0%			\$46.00
712	Contractors Fee	6.0%			\$26.00
713	Contingency and Escalation	15.0%			\$68.00
714					
715	Subtotal: E3 Fan Motor Wiring				\$522
716					
717					
/18	E4 Rm 221A AHU-2 Control Conduit	1	EA		
719		4		¢70.00	¢70
720	Add JDOX	1		\$72.3U	۵/۲ ¢100
721	rest Circulung	I	EA	\$108.59	\$109
722	Conoral Paguiramanta	12.0%			¢22.00
123 721	Contractors Foo	12.0%			φ∠∠.00 ¢12.00
1 24 725	Contingency and Escalation	0.0%			φ1∠.00 ¢32.00
726		15.0%			φ <u>υ</u> 2.00
707	Subtotal: E4 Pm 221A AHIL2 Control Conduit				¢0/7
1 2 1 72 8	Subiolal. E4 NII 22 IA ANO-2 COILLOI COILUIL				φ <b>24</b> /
720					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
730	E5 Gym OH Battery Ballast	1	FΔ		
731	Lo Cym o'r Dattory Danast	•	<u>L</u>		
732	Replace 2x4 Light Fixture With EM Ballast	1	EA	\$751.48	\$751
733	1 5				• -
734					
735	General Requirements	12.0%			\$90.00
736	Contractors Fee	6.0%			\$50.00
737	Contingency and Escalation	15.0%			\$134.00
738					
739	Subtotal: E5 Gym OH Battery Ballast				\$1,025
740					
741					
742	E6 Rm 220B Mech Equipment Missing Conduit	1	EA		
743					
744	Replace Flex Conduit 3'	1	EA	\$72.30	\$72
745					
746					
747	General Requirements	12.0%			\$9.00
748	Contractors Fee	6.0%			\$5.00
749	Contingency and Escalation	15.0%			\$13.00
750					
751	Subtotal: E6 Rm 220B Mech Equipment Missing Conduit				\$99
752					
753					
754	E7 Rm 223 Fire Alarm Wireway and Devices	1	LS		
755			. –	<b>* - - - -</b>	<b>*</b> 4 6 5
756	Demo Plastic Wireway	50		\$2.50	\$125
757		50		\$10.44	\$522
758		50	SF	\$12.06	\$603
759	Reinstall FA Horn Strobes	2	EA	\$114.59	\$229 ¢04.740
760	Test Fire Alarm System	I	L3	\$21,718.10	\$21,718
701					
762	Conoral Baguiromente	12.0%			¢0 794 00
703	Contractors Eco	12.0%			φ2,704.00 \$1,550.00
765	Contingency and Escalation	0.0 % 15 0%			\$1,559.00 \$4 131 00
766	contingency and Escalation	15.0 /8			φ4,131.00
767	Subtotal: E7 Bm 223 Fire Alarm Wireway and Devices				\$21 671
769	Sublotal. Er Riff 223 File Aldriff Wileway and Devices				\$31,071
760					
703					
771					
772					
773					
774					
775					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
776	F8 Corridor 2310 Cable Tray	1	IS		
777		•	20		
778	Resupport Cable Trav	1	EA	\$235.18	\$235
779	······			+	+
780	General Requirements	12.0%			\$28.00
781	Contractors Fee	6.0%			\$16.00
782	Contingency and Escalation	15.0%			\$42.00
783					
784	Subtotal: E8 Corridor 2310 Cable Tray				\$321
785					
786					
787	E9 Rm 218 Projector Arm	1	EA		
788					
789	Demo Projector and Arm	1	EA	\$108.59	\$109
790	New Projector and Arm	1	EA	\$2,725.77	\$2,726
791					
792					
793	General Requirements	12.0%			\$340.00
794	Contractors Fee	6.0%			\$191.00
795	Contingency and Escalation	15.0%			\$505.00
796					
797	Subtotal: E9 Rm 218 Projector Arm				\$3,871
798					
799	F40 CW/2 Concerd Louis Firsture Louis Missing	4	<b>F A</b>		
800	E10 SW3 Second Level Fixture Lens Missing	1	EA		
802	Renlace Fixture Lens	1	FΛ	\$06.30	902
802	Replace linure Lens	I	LA	\$90.50	490
804	General Requirements	12.0%			\$12.00
805	Contractors Fee	6.0%			\$6.00
806	Contingency and Escalation	15.0%			\$17.00
807		,			<i> </i>
808	Subtotal: E10 SW3 Second Level Fixture Lens Missing				\$131
809					
810					
811	E11 Corridor 2120 Cable Tray Support	1	EA		
812					
813	Resupport Cable Tray	1	EA	\$235.18	\$235
814					
815	General Requirements	12.0%			\$28.00
816	Contractors Fee	6.0%			\$16.00
817	Contingency and Escalation	15.0%			\$42.00
818					
819	Subtotal: E11 Corridor 2120 Cable Tray Support				\$321
820					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
821	F40 Pm 204 Clock Detected		<b>F A</b>		
822	E12 Rm 201 Clock Detached	1	EA		
023 824	Reattach Clock	1	FΔ	\$11/ 50	\$115
825	Realized block	I	LA	ψ114.00	ψΠΟ
826	General Requirements	12.0%			\$14.00
827	Contractors Fee	6.0%			\$8.00
828	Contingency and Escalation	15.0%			\$21.00
829					
830	Subtotal: E12 Rm 201 Clock Detached				\$158
831					
832					
833	E13 SW6 Conduit Support	1	EA		
834					
835	Reattach Conduit	1	EA	\$114.59	\$115
836					
837	General Requirements	12.0%			\$14.00
838	Contractors Fee	6.0%			\$8.00
839	Contingency and Escalation	15.0%			\$21.00
840					<u> </u>
841	Subtotal: E13 SW6 Conduit Support				\$158
84Z					
043 844	E14 Corridor 2300 EA Wiroway Damagod	1	19		
845	E14 Corridor 2000 TA Wireway Damaged		L3		
846	Replace Wireway	5	IF	\$72.30	\$362
847		Ũ		¢12.00	\$002
848	General Requirements	12.0%			\$43.00
849	Contractors Fee	6.0%			\$24.00
850	Contingency and Escalation	15.0%			\$64.00
851					
852	Subtotal: E14 Corridor 2300 FA Wireway Damaged				\$493
853					
854					
855					
856					
857					
858					
859					
860					
001 001					
200					
864					
865					
866					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
0.07					
867	E15 Boiler Room	1	LS		
000 860	Reconnect Conduit	1	FΔ	\$60.30	0.92
870	Replace Conductors 3#12+1#12G	75		\$4 91	\$368
871	Reconnect Conduit Support Large	1	FA	\$494.36	\$494
872	Replace Conduit and Conductor	25	L F	\$25.32	\$633
873	Replace 3" Condulet I Bs	2	EA	\$361.18	\$722
874	Replace Lighting Circuit	40	LF	\$16.74	\$669
875	Replace T12 Bulbs	24	EA	\$15.66	\$376
876	Inspect/Test Fuses	1	LS	\$434.36	\$434
877				,	• -
878	General Requirements	12.0%			\$451.00
879	Contractors Fee	6.0%			\$252.00
880	Contingency and Escalation	15.0%			\$669.00
881					
882	Subtotal: E15 Boiler Room				\$5,128
883					. ,
884					
885	E16 R155 Water Damaged Lights	2	EA		
886					
887	Replace Light Fixtures	2	EA	\$490.03	\$980
888					
889	General Requirements	12.0%			\$118.00
890	Contractors Fee	6.0%			\$66.00
891	Contingency and Escalation	15.0%			\$175.00
892					
893	Subtotal: E16 R155 Water Damaged Lights				\$1,339
894					
895					
896	E17 Rm 2 Seal Penetration	1	EA		
897					
898	Seal Conduit Penetration	1	EA	\$126.59	\$127
899					
900	General Requirements	12.0%			\$15.00
901	Contractors Fee	6.0%			\$9.00
902	Contingency and Escalation	15.0%			\$23.00
903					
904	Subtotal: E17 Rm 2 Seal Penetration				\$174
905					
906					
907					
908					
909					
910					
911					
912					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
013	E18 RM 127 Clock Loose	1	FΔ		
913	ETO NW 127 CIOCK LOOSE				
01 <del>4</del> 015	Reinstall Clock	1	FΔ	\$60.30	\$60
916		•		φ00.00	φοο
917	General Requirements	12.0%			\$7.00
918	Contractors Fee	6.0%			\$4.00
919	Contingency and Escalation	15.0%			\$11.00
920					••••••
921	Subtotal: F18 RM 127 Clock Loose				\$82
922					+
923					
924	E19 Rm 121 Water Damaged Fixture	1	EA		
925					
926	Replace 2x4 Surf Mtd Fixture	1	EA	\$406.03	\$406
927					
928	General Requirements	12.0%			\$49.00
929	Contractors Fee	6.0%			\$27.00
930	Contingency and Escalation	15.0%			\$72.00
931					
932	Subtotal: E19 Rm 121 Water Damaged Fixture				\$554
933					
934					
935	E20 Rm 122 Water on Exposed Refrigerator Connection	1	EA		
936					
937	Inspect and Clean	1	EA	\$108.59	\$109
938					<b>*</b> / <b>* * *</b>
939	General Requirements	12.0%			\$13.00
940	Contractors Fee	6.0%			\$7.00
941	Contingency and Escalation	15.0%			\$19.00
942					<u></u>
943	Subtotal: E20 Rm 122 Water on Exposed Refrigerator Connection				\$148
944					
945	F24 Pro 422 MPP Pakind Placebare				
940	E21 Rm 123 MPR Benind Bleachers	1	L3		
947	Socure EA Conduit	1		¢102.00	¢102
940	Secure Payor Conduit	1		\$192.09 \$102.80	ቅ 193 ¢103
949	Secure Fower Conduit	1	LA	φ192.09	\$19 <b>0</b>
950	Conoral Requirements	12 0%			\$46.00
952	Contractors Fee	6.0%			\$26.00
953	Contingency and Escalation	15.0%			\$69.00
954		//			<b>\$00.00</b>
955	Subtotal: F21 Rm 123 MPR Behind Bleachers				\$527
956					<b>\$021</b>
957					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
958	E22 Rm 124 2x4 Light with Damage Lenses	3	EA		
959				<b>*</b> ••••	<b>*</b> ~~~
960	Replace Lens	3	EA	\$96.30	\$289
901	Conoral Paguiramonto	12 0%			¢35.00
902	Contractors Fee	6.0%			\$33.00 \$19.00
964	Contingency and Escalation	15.0%			\$51.00
965					<b>\$</b> 01.00
966	Subtotal: E22 Rm 124 2x4 Light with Damage Lenses				\$394
967	······································				<b>,</b> .
968					
969	E23 Room 134 Light Missing Lens	1	EA		
970					
971	Replace Lens	1	EA	\$96.30	\$96
972					
973	General Requirements	12.0%			\$12.00
974	Contractors Fee	6.0%			\$6.00
975	Contingency and Escalation	15.0%			\$17.00
976					<b>A</b> 404
977	Subtotal: E23 Room 134 Light Missing Lens				\$131
970 070					
980					
981					
982					
983					
984					
985					
986					
987					
988					
989					
990					
991					
992					
994					
995					
996					
997					
998					
999					
1,000					
1,001					
1,002					
1,003					
Line				Total	Cost
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				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
1 004					
1,004	C2 Title 24 Improvements		10		
1,005	C2 Title 21 Improvements	1	LS	¢440.000.00	¢440.000
1,000	Budget for The 21 improvements	I		\$440,000.00	φ440,000
1,007					
1,008	General Requirements	12.0%			\$52 831 00
1,009	Contractors Fee	6.0%			\$29 586 00
1,010	Contingency and Escalation	0.0 <i>%</i> 15.0%			\$78/02/00
1 0 1 2	Contingency and Escalation	10.070			ψ/0,402.00
1,012	Subtotal: C2 Title 21 Improvements				\$600.819
1 0 1 4	Subtotal. 62 The 21 improvements				\$000,015
1 0 1 5	AA29 Replace All Acoustical Ceilnos	12 600	SF		
1,016	Demo Ceilings	12,000	SF	\$1 12	\$14 112
1 0 1 7	Acoustical Suspended Ceilings	12,000	SF	\$6.27	\$79.002
1.018		,		<i>ф</i> о . <u> </u>	<i></i> ,
1.019	General Requirements	12.0%			\$11.174.00
1,020	Contractors Fee	6.0%			\$6,257.00
1,021	Contingency and Escalation	15.0%			\$16,582.00
1,022	0				
1.023	Subtotal: AA29 Replace All Acoustical Ceilngs				\$127,127
1,024					. ,
1,025					
1,026					
1,027	A30 Roof Replacement	168,645	SF		
1,028	Roof Demo, Shingles	84,796	SF	\$2.04	\$172,984
1,029	Roof Demo, BUR	83,849	SF	\$2.72	\$228,069
1,030	Hazmat - Roofs are 1988 and new assume None				
1,031	Parapets, 4'H	8,080	SF	\$72.60	\$586,608
1,032	Back Slope Framing and Sheathing	16,160	SF	\$13.36	\$215,898
1,033	Roofing Mineral Cap BUR	168,645	SF		
1,034	Rigid Insulation, 2 Layers of 3" Polyiso	1,012	MBM	\$1,040.54	\$1,052,891
1,035	2 Ply BUR Vapor Barrier	168,645	SF	\$3.37	\$568,334
1,036	Coverboard	168,645	SF	\$1.89	\$318,739
1,037	MC BUR	168,645	SF	\$3.93	\$662,774
1,038	Seal Adhering Membrane	347	SF	\$1.81	\$627
1,039	Blocking at Parapet	132	BF	\$4.04	\$532
1,040					
1,041	Root Drains	40	EA	\$1,764.01	\$70,560
1,042	Overflow Root Drains	40	EA	\$1,764.01	\$70,560
1,043	Rainleaders	2,400	LF	\$68.96	\$165,504
1,044	Rainleader chase in Occupied area	7,680	SF	\$16.21	\$124,493
1,045	Penetrations - Toor/Foundation	13	EA	\$2,803.82	\$36,450
1,046					
1,047					
1.040					

<sup>1,049</sup> 

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
1,050	Storm Drain Collection	600	LF		<b>.</b>
1,051	Trench Excavation W/ Hyd. Exc.	1,778	CY	\$9.81	\$17,440
1,052	Backfill In Trenches	1,778	CY	\$30.36	\$53,974
1,053	Pipe Bedding	120	CY	\$32.22	\$3,867
1,054	12" Storm Drain Line	600	LF	\$21.49	\$12,894
1,055	Surface Repairs	12,000	SF	\$2.20	\$26,400
1,056		40.0%			
1,057	General Requirements	12.0%			\$526,752.00
1,058	Contractors ree	6.0%			\$294,981.00
1,059	Contingency and Escalation	15.0%			\$781,700.00
1,060					<b>AT 000 00</b>
1,061	Subtotal: A30 Roof Replacement				\$5,993,031
1,062					
1,063					
1,064	50 Wood Sheemvell Lingrade	27.240	ee.		
1,000	S9 wood Shearwall Opgrade	37,240	эг		
1,000	Helddowno	40		¢410.69	¢16 707
1,007	Shoothing	40 74 406		φ419.00 ¢2.97	\$10,707 \$212,804
1,000		14,490	SE	\$2.07 \$5.30	φ213,004 \$08,707
1,009	Paint	18,624	SE	\$0.00 \$2.11	\$30,707
1,070	1 ann	10,024	01	ΨΖ.ΤΤ	ψ09,290
1,071	General Requirements	12 0%			\$44 231 00
1,072	Contractors Fee	6.0%			\$24 770 00
1,070	Contingency and Escalation	0.0 <i>%</i> 15.0%			\$65,639,00
1,075					\$00,000.00
1 076	Subtotal: S9 Wood Shearwall Upgrade				\$503 234
1,077	Custotan of Wood Choannan opgrado				<i>\\</i> 000,204
1.078					
1.079	S10 Diaphragm Reinforcement	32	LOC		
1,080		-	-		
1,081	Straps	32	EA	\$381.68	\$12,214
1,082	General Requirements	12.0%			\$1,466.00
1,083	Contractors Fee	6.0%			\$821.00
1,084	Contingency and Escalation	15.0%			\$2,175.00
1,085					
1,086	Subtotal: S10 Diaphragm Reinforcement				\$16,676
1,087					
1,088					
1,089					
1,090					
1,091					
1,092					
1,093					
1,094					
1,095					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
1,096	S11 Unblocked Diaphragms	17,000	SF		
1,097	Strapping	8,500	LF	\$21.48	\$182,580
1,098	Ceiling Remove/Replace For Access	17,000	SF	\$8.25	\$140,250
1,099	General Requirements	12.0%			\$38,740.00
1,100	Contractors Fee	6.0%			\$21,694.00
1,101	Contingency and Escalation	15.0%			\$57,490.00
1,102					
1,103	Subtotal: S11 Unblocked Diaphragms				\$440,754
1,104					
1,105					
1,106	S12 Clean and Repaint Exterior Stairs and Ledgers	8	EA		
1,107					
1,108	Clean and Paint Stairs	8	EA	\$25,101.91	\$200,815
1,109					
1,110	General Requirements	12.0%			\$24,098.00
1,111	Contractors Fee	6.0%			\$13,495.00
1,112	Contingency and Escalation	15.0%			\$35,761.00
1,113					
1,114	Subtotal: S12 Clean and Repaint Exterior Stairs and Ledgers				\$274,169
1,115					
1,116					
1,117	S13 Repair Cracked Headers	20	EA		
1,118					
1,119	Repair Headers, Epoxy Grout	20	SF	\$429.51	\$8,590
1,120					
1,121					
1,122	General Requirements	12.0%			\$1,031.00
1,123	Contractors Fee	6.0%			\$577.00
1,124	Contingency and Escalation	15.0%			\$1,530.00
1,125					
1,126	Subtotal: S13 Repair Cracked Headers				\$11,728
1,127					
1,128					
1,129	S14 CMU Vertical Reinforcing	26,700	LF		
1,130					
1,131	Grout Or Fill Flutes In Block	26,700	LF	\$12.17	\$324,939
1,132	FRP Strips	26,700	SF	\$22.00	\$587,400
1,133					
1,134	General Requirements	12.0%			\$109,481.00
1,135	Contractors Fee	6.0%			\$61,309.00
1,136	Contingency and Escalation	15.0%			\$162,469.00
1,137					
1.138	Subtotal: S14 CMU Vertical Reinforcing				\$1,245.598
1,139					. ,
1,140					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
1,141	M15 Design and Install Seimic at Gym Heat Vent Unit	1	EA		
1,142	Solomia Design	1		¢1 000 00	¢1 000
1,143	Seismic Design	1		\$1,000.00 \$1,262.11	φ1,000 ¢1,263
1,144	Seisinic Resuants	I	EA	φ1,303.11	φ1,303
1,145	General Requirements	12.0%			\$284.00
1 1 1 4 7	Contractors Fee	6.0%			\$159.00
1.148	Contingency and Escalation	15.0%			\$421.00
1,149					•
1.150	Subtotal: M15 Design and Install Seimic at Gym Heat Vent Unit				\$3.227
1,151					+ - ,
1,152					
1,153	M16 Design and Install Seimic at MPR Heat Vent Unit	1	EA		
1,154					
1,155	Seismic Design	1	EA	\$1,000.00	\$1,000
1,156	Seismic Restraints	1	EA	\$1,363.11	\$1,363
1,157					
1,158	General Requirements	12.0%			\$284.00
1,159	Contractors Fee	6.0%			\$159.00
1,160	Contingency and Escalation	15.0%			\$421.00
1,161					
1,162	Subtotal: M16 Design and Install Seimic at MPR Heat Vent Unit				\$3,227
1,103					
1,104	M17 Design and Install Solimic at FE-13	1	E۷		
1,105	Seismic Design	1	FΔ	\$1,000,00	\$1,000
1,100	Seismic Bestraints	1	FA	\$1,000.00	\$1,363
1,168		•	<b>_</b> / (	<i><i><i>ϕ</i></i>,<i><i>ϕ</i>,<i>ϕ</i>,<i>ϕ</i>,<i>ϕ</i>,<i>ϕ</i>,<i>ϕ</i>,<i>ϕ</i>,<i>ϕ</i>,</i></i>	ψ1,000
1,169	General Requirements	12.0%			\$284.00
1,170	Contractors Fee	6.0%			\$159.00
1,171	Contingency and Escalation	15.0%			\$421.00
1,172					
1,173	Subtotal: M17 Design and Install Seimic at EF-13				\$3,227
1,174					
1,175					
1,176	M18 Design and Install Seimic at Heat Exchanger	1	LS		
1,177	Seismic Design	1	EA	\$1,000.00	\$1,000
1,178	Seismic Restraints	1	EA	\$1,363.11	\$1,363
1,179					<b>.</b>
1,180	General Requirements	12.0%			\$284.00
1,181	Contractors Fee	6.0%			\$159.00
1,182	Contingency and Escalation	15.0%			\$421.00
1,103	Cubicital M40 Decime and Install Osimis stills of Easterney				¢2 007
1,184	Subtotal: M18 Design and Install Selmic at Heat Exchanger				\$3,227
1,105					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
1,186					
1,187	M19 Unistrut Support Frame and Seismic Strap at Water Heaters	2	EA		
1,188		_			
1,189	Unistrut Framing	2	EA	\$2,153.02	\$4,306
1,190	Seismic Strapping	2	EA	\$569.50	\$1,139
1,191		40.00/			<b>*</b> 050.00
1,192	General Requirements	12.0%			\$653.00
1,193	Contractors Fee	6.0%			\$366.00
1,194	Contingency and Escalation	15.0%			\$970.00
1,195					AT 101
1,196	Subtotal: M19 Unistrut Support Frame and Seismic Strap at Water	Heaters			\$7,434
1,197					
1,198	F24 Conduit Doulo comont	20			
1,199		30		¢10.75	¢202
1,200	3/4 ENIT, 3#10, 1#10	30	LF	φ12.75	\$30Z
1,201	Canaral Paguiramanta	12 00/			¢46.00
1,202	Contractors Eco	6.0%			\$40.00 \$26.00
1,203	Contingency and Escalation	15.0%			\$20.00 \$68.00
1,204	Contingency and Escalation	10.0 /0			φ00.00
1,200	Subtotal: F24 Conduit Replacement				\$522
1,200					<b>4022</b>
1.208					
1,209	E25 Electrical Ground Conductor	1	EA		
1,210	Add Electrical Ground Conductor	1	EA	\$171.89	\$172
1,211					
1,212	General Requirements	12.0%			\$21.00
1,213	Contractors Fee	6.0%			\$12.00
1,214	Contingency and Escalation	15.0%			\$31.00
1,215					
1,216	Subtotal: E25 Electrical Ground Conductor				\$236
1,217					
1,218					
1,219	E26 Replace wireway with EMT Conduit	1	LS		
1,220	Demo Plastic Wireway	50	LF	\$2.50	\$125
1,221	EMT 1"	50	LF	\$10.44	\$522
1,222	Paint EMT	50	SF	\$12.06	\$603
1,223	Reinstall FA Horn Strobes	2	EA	\$114.59	\$229
1,224	Test Fire Alarm System	1	LS	\$21,718.10	\$21,718
1,225	General Requirements	12.0%			\$2,784.00
1,226	Contractors Fee	6.0%			\$1,559.00
1,227	Contingency and Escalation	15.0%			\$4,131.00
1,228					
1,229	Subtotal: E26 Replace wireway with EMT Conduit				\$31,671
1,230					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
1,231					
1,232	E27 Design and Install Seismic Support for Large Conduit Rack	1	EA		
1,233	Seismic Design	1	EA	\$600.00	\$600
1,234	Seismic Restraints	1	EA	\$554.36	\$554
1,235					
1,236	General Requirements	12.0%			\$138.00
1,237	Contractors Fee	6.0%			\$78.00
1,238	Contingency and Escalation	15.0%			\$206.00
1,239					<u> </u>
1,240	Subtotal: E27 Design and Install Seismic Support for Large Conde	uit Rack			\$1,576
1,241					
1,242		-			
1,243	E28 Replace Fixtures with LED	8	EA		
1,244				<b>*</b> 400.00	<b>*•</b> • • • •
1,245	Replace Fixtures	8	EA	\$430.03	\$3,440
1,246	SwayBracing	16	EA	\$62.70	\$1,003
1,247		40.00/			<b>#</b> 500.00
1,248	General Requirements	12.0%			\$533.00
1,249	Contractors Fee	6.0%			\$299.00
1,250	Contingency and Escalation	15.0%			\$791.00
1,201	Subtotal: E29 Banlago Exturge with LED				¢6.066
1,252	Sublotal. E20 Replace Fixtures with LED				<b>40,000</b>
1 254					
1.255	E29 Replace 2x4 Surf Mtd Fixture with LED	4	EA		
1.256		-			
1,257	Replace 2x4 Surf Mtd Fixture	4	EA	\$406.03	\$1,624
1,258					. ,
1,259	General Requirements	12.0%			\$195.00
1,260	Contractors Fee	6.0%			\$109.00
1,261	Contingency and Escalation	15.0%			\$289.00
1,262					
1,263	Subtotal: E29 Replace 2x4 Surf Mtd Fixture with LED				\$2,217
1,264					
1,265					
1,266	E30 Additional Conduit Supports	1	LS		
1,267	Secure FA Conduit	1	EA	\$385.77	\$386
1,268	Secure Power Conduit	1	EA	\$385.77	\$386
1,269					
1,270	General Requirements	12.0%			\$93.00
1,271	Contractors Fee	6.0%			\$52.00
1,272	Contingency and Escalation	15.0%			\$138.00
1,273					
1,274	Subtotal: E30 Additional Conduit Supports				\$1,055
1,275					

Line				Total	Cost
				Unit	Matl/Labor
No.	Description	Qty	UNITS	\$	\$
1,276					
1,277	E31 Replace Light Fixture	1	EA		
1,278	Replace Fixture	1	EA	\$550.03	\$550
1,279					
1,280	General Requirements	12.0%			\$66.00
1,281	Contractors Fee	6.0%			\$37.00
1,282	Contingency and Escalation	15.0%			\$98.00
1,283					
1,284	Subtotal: E31 Replace Light Fixture				\$751
1,285					

**EXHIBIT B: DRAWINGS** 



EXHIBIT B: Gruening Middle School Earthquake Related Repairs/ Damage Control Improvement School 

District

Site Plan No Scale







## Earthquake Related Repairs



	M1	MECHANICAL: Replace sprinkler escutcheons throughout facility; Modify sprinkler heads for code required clearance
	M2	MECHANICAL: Replace Gym heating ventilating unit (HVU-3)
	M3	MECHANICAL: Replace Multipurpose Room heating ventilating unit
nd column embeds	M4	MECHANICAL: Replace sprinkler pipe with appropriate hangers
	M5	MECHANICAL: Replace exhaust fan (EF-13) above Gym catwalk
	M6	MECHANICAL: Replace shower pan and re-tile
t side of Foyer	M7	MECHANICAL: Test dust collector spark system to verify fully functional
	MB	MECHANICAL: Reconnect intake duct wall connection and adjust fan spring isolators
ounding Gym	M9	MECHANICAL: Replace duct damper and actuator; Repair hydronic pipe leak
	M10	MECHANICAL: Repair broken exhaust fan ductwork
issing face block and paint	M11	MECHANICAL: Repair disconnected ductwork
ed CMU seismic cracks	M12	MECHANICAL: Repair pipe supports
cracks throughout building	M13	MECHANICAL: Repair pipe supports
d and Tectum tiles	M14	MECHANICAL: Repairs in Boiler Room 228
ssing and water damaged ; Repair damaged ceiling grid t of acoustic panels	(E1)	ELECTRICAL: Replace conduit and conductors at Gym heating
		ventilating unit #3
ypsum ceiling or reinstall		ELECTRICAL: Repair basketball backboard motor wiring
al repairs and paint/patch as	E	ELECTRICAL: Reconnect fan motor; Re-secure IDC block
coustic wall panels	E4	ELECTRICAL: Reconnect control conduit and wiring; Replace J-box
elling tabric wrapped acoustic	E5	ELECTRICAL: Replace light fixture due to water inflitration
ll and floor due to wall	E6	ELECTRICAL: Replace flex conduit at overhead equipment
IU reinforcing	E7	ELECTRICAL: Replace fire alarm wireway and reconnect devices
uspended ceiling system	E8	ELECTRICAL: Re-attach cable tray to structure above
or cracks: Recost floor finish	E9	ELECTRICAL: Replace projector and mounting arm
	E10	ELECTRICAL: Replace 2x4 prismatic lens
Structural damage and	E11	ELECTRICAL: Re-attach cable tray to structure above
cabinet doors	E12	ELECTRICAL: Re-attach wall clock
ited athletic equipment	E13	ELECTRICAL: Re-attach conduit support to structure above
sum ceiling and reinstall fallen	E14	ELECTRICAL: Replace section of fire alarm wireway
	E15	ELECTRICAL: Boiler Room repairs
ing damage	E16	ELECTRICAL: Replace light fixture due to water damage
demolition to get to gas leak	E17	ELECTRICAL: Water leaking through conduit roof penetrations in
mage to concrete column		concealed ceiling space
ged by column movement		
side CMU corners		ELECTRICAL, Replace light lixture due to water damage
ncrete dislodged paver caps	E20	water on exposed conenctions
nounted sink	E21	ELECTRICAL: Re-secure fire alarm conduit to CMU wall; Re-secure
MU wing wall	F22	power conduit to GMU wall ELECTRICAL: Replace 2x4 prismatic lens
ceiling fabric wrapped	E23	ELECTRICAL: Surface mounted light lens missing
rior window glass pane	-	



### EXHIBIT B: Gruening Middle School Earthquake Related Repairs







## Earthquake Related Repairs



No Scale

	M1	MECHANICAL: Replace sprinkler escutcheons throughout facility; Modify sprinkler heads for code required clearance
	M2	MECHANICAL: Replace Gym heating ventilating unit (HVU-3)
	M3	MECHANICAL: Replace Multipurpose Room heating ventilating unit
nd column embeds	M4	MECHANICAL: Replace sprinkler pipe with appropriate hangers
	M5	MECHANICAL: Replace exhaust fan (EF-13) above Gym catwalk
	M6	MECHANICAL: Replace shower pan and re-tile
it side of Foyer eam	M7	MECHANICAL: Test dust collector spark system to verify fully functional
 !	M8	MECHANICAL: Reconnect intake duct wall connection and adjust fan spring isolators
ounding Gym	M9	MECHANICAL: Replace duct damper and actuator; Repair hydronic pipe leak
	M10	MECHANICAL: Repair broken exhaust fan ductwork
issing face block and paint	M11	MECHANICAL: Repair disconnected ductwork
ed CMU seismic cracks	M12	MECHANICAL: Repair pipe supports
cracks throughout building	M13	MECHANICAL: Repair pipe supports
d and Tectum tiles	M14	MECHANICAL: Repairs in Boiler Room 228
ssing and water damaged ; Repair damaged ceiling grid t of acoustic panels	(E1)	ELECTRICAL: Replace conduit and conductors at Gym heating
		ventilating unit #3
ypsum ceiling or reinstall		ELECTRICAL: Repair basketball backboard motor wiring
al repairs and paint/patch as	E	ELECTRICAL: Reconnect fan motor; Re-secure IDC block
coustic wall panels	E4	ELECTRICAL: Reconnect control conduit and wiring; Replace J-box
elling tabric wrapped acoustic	E5	ELECTRICAL: Replace light fixture due to water inflitration
ll and floor due to wall	E6	ELECTRICAL: Replace flex conduit at overhead equipment
1U reinforcing	E7	ELECTRICAL: Replace fire alarm wireway and reconnect devices
uspended ceiling system	E8	ELECTRICAL: Re-attach cable tray to structure above
or cracks: Recoat floor finish	E9	ELECTRICAL: Replace projector and mounting arm
	E10	ELECTRICAL: Replace 2x4 prismatic lens
Structural damage and	E11	ELECTRICAL: Re-attach cable tray to structure above
cabinet doors	E12	ELECTRICAL: Re-attach wall clock
nted athletic equipment	E13	ELECTRICAL: Re-attach conduit support to structure above
sum ceiling and reinstall fallen	E14	ELECTRICAL: Replace section of fire alarm wireway
	E15	ELECTRICAL: Boiler Room repairs
ling damage	E16	ELECTRICAL: Replace light fixture due to water damage
demolition to get to gas leak	E17	ELECTRICAL: Water leaking through conduit roof penetrations in
mage to concrete column		concealed ceiling space
ged by column movement		ELECTRICAL: Replace light fixture due to water damage
side CMU corners		ELECTRICAL: Inspect and clean refrigerator connections due to
ncrete disloaged paver caps		water on exposed conenctions
iountea sink	E21	ELECTRICAL: Re-secure fire alarm conduit to CMU wall; Re-secure
	E22	ELECTRICAL: Replace 2x4 prismatic lens
ceiling fabric wrapped	E23	ELECTRICAL: Surface mounted light lens missing
rior window glass pane		



### EXHIBIT B: Gruening Middle School Earthquake Related Repairs

Upper Floor Plan







# Earthquake Related Mitigation





STRUCTURAL: Reference A1 and A2 STRUCTURAL: Repair CMU corners STRUCTURAL: CMU wall anchorage STRUCTURAL: Grouting STRUCTURAL: Repair handrail on we STRUCTURAL: Gym curtain support

STRUCTURAL: Replace Stairwell SW STRUCTURAL: Stiffening of floors sur STRUCTURAL: Wood shearwall upgr STRUCTURAL: Diaphragm reinforcer STRUCTURAL: Unblocked diaphragn STRUCTURAL: Clean and repaint ex STRUCTURAL: Repair cracked heade STRUCTURAL: CMU vertical reinforce

ARCHITECTURAL: Repoint/Replace ARCHITECTURAL: Epoxy grout expo ARCHITECTURAL: Repair GWB boa ARCHITECTURAL: Replace ceiling gi ARCHITECTURAL: Repair/Replace n acoustic ceiling tile

throughout buildin ARCHITECTURAL: Patch/Paint Gym fallen device

ARCHITECTURAL: Complete Structu required; Reinstall ARCHITECTURAL: Replace/reinstall panels

ARCHITECTURAL: Repair holes at w stabilization and C

ARCHITECTURAL: Repair fire taping ARCHITECTURAL: Remove/Replace

ARCHITECTURAL: Repair concrete f to match existing

ARCHITECTURAL: Repair roof framin related roof leak ARCHITECTURAL: Replace damage

ARCHITECTURAL: Reinstall wall mou ARCHITECTURAL: Repair hole in gy

ventilation louve ARCHITECTURAL: Repair gypsum c ARCHITECTURAL: Repair wall due to ARCHITECTURAL: Patch and paint of

ARCHITECTURAL: Repair CMU dam ARCHITECTURAL: Repair damaged

ARCHITECTURAL: Repair/Replace of

ARCHITECTURAL: Repair loose wall ARCHITECTURAL: Repair damaged

ARCHITECTURAL: Replace damage acoustic panels

ARCHITECTURAL: Repair broken ext ARCHITECTURAL: Repoint damaged

#### ARCHITECTURAL: Replace all suspe systems throughout

MECHANICAL: Replace sprinkler escu Modify sprinkler head MECHANICAL: Replace Gym heating MECHANICAL: Replace Multipurpose

> EXHIBIT B: Gruening Middle School Earthquake Related **Damage Control Improvement** Anchorage

Lower Floor Plan No Scale



	M4 MECHANICAL: Replace sprinkler pipe with appropriate hangers
	M5 MECHANICAL: Replace exhaust fan (EF-13) above Gym catwalk
	M6 MECHANICAL: Replace shower pan and re-tile
and column embeds	MECHANICAL: Test dust collector spark system to verify fully functional
	MB MECHANICAL: Reconnect intake duct wall connection and adjust fan spring isolators
est side of Foyer	MECHANICAL: Replace duct damper and actuator; Repair hydronic
beam	pipe leak
12	
rrounding Gym	
ade	
nent	MECHANICAL: Repairs in Boiler Room 228
IS	MECHANICAL: Repairs in Delign result seismic securement and vibration
erior stairs and ledgers	isolation for HVU-3
ers	MECHANICAL: Design and install seismic securement and vibration isolation for MPR heating ventilation unit
	MECHANICAL: Design and install seismic securement and vibration isolation to building structure for EF-13
missing face block and paint	MECHANICAL: Design and install seismic securement and
sed CMU seismic cracks	vibration isolation for heat exchanger and piping
d cracks throughout building	MECHANICAL: Provide Unistrut support frame and seismic straps
rid and Tectum tiles	to indirect fired water freaters
nissing and water damaged	EI ELECTRICAL: Replace conduit and conductors at Gym heating
ent of acoustic panels	ELECTRICAL: Repair basketball backboard motor wiring
g aunaum aciling ar rainatall	ELECTRICAL: Reconnect fan motor; Re-secure IDC block
gypsulli ceiling of reiristail	ELECTRICAL: Reconnect control conduit and wiring; Replace j-box cove
ral repairs and paint/patch as	E5 ELECTRICAL: Replace light fixture due to water inflitration
ceiling fabric wrapped acoustic	E6 ELECTRICAL: Replace flex conduit at overhead equipment
	ELECTRICAL: Replace fire alarm wireway and reconnect devices
all and floor due to wall MU reinforcing	ELECTRICAL: Re-attach cable tray to structure above
and holes in gypsum ceiling	EBECTRICAL: Replace projector and mounting arm
suspended ceiling system	ELECTRICAL: Replace 2x4 prismatic lens
oor cracks; Recoat floor finish	ELECTRICAL: Re-attach cable tray to structure above
ng Structural damage and	ELECTRICAL: Re-attach wall clock
	ELECTRICAL: Re-attach conduit support to structure above
d cabinet doors	ELECTRICAL: Replace section of fire alarm wireway
unted athletic equipment	ELECTRICAL: Boiler Room repairs
osum ceiling and reinstall fallen	ELECTRICAL: Replace light fixture due to water damage
eiling damage	EIT ELECTRICAL: Water leaking through conduit roof penetrations in
o demolition to get to gas leak	ELECTRICAL: Re-attach wall clock
amage to concrete column	ELECTRICAL: Replace light fixture due to water damage
aged by column movement	ELECTRICAL: Inspect and clean refrigerator connections due to
inside CMU corners	water on exposed conenctions
oncrete dislodged paver caps	power conduit to CMU wall
mounted sink	E22 ELECTRICAL: Replace 2x4 prismatic lens
CMU wing wall	E23 ELECTRICAL: Surface mounted light lens missing
d ceiling fabric wrapped	ELECTRICAL: Replace fan motor conduit and conductors (ref E3)
terior window glass pane	ELECTRICAL: EGC added to new section of flex conduit (ref E6)
I CMU and grout on building	ELECTRICAL: Replace wireway (ref E7)
	ELECTRICAL: Design seismic support for large conduit rack (ref E15)
enueu acoustical celling	ELECTRICAL: Replace existing T12 fixtures with LED fixtures (ref E15)
utcheons throughout facility.	ELECTRICAL: Replace 2x4 light fixtures with LED fixtures (ref E15)
s for code required clearance	ELECTRICAL: Provide additional conduit supports (ref E21)
ventilating unit (HVU-3)	ELECTRICAL: Replace light fixture with LED fixture (ref E23)
Room heating ventilating unit	ΛΛ
	Drawing



School

District







C1

S1 S2

**S**3

(S4)

S5

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**S8** 

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to match existing ARCHITECTURAL: Repair roof framir related roof leak ARCHITECTURAL: Replace damaged ARCHITECTURAL: Reinstall wall mou ARCHITECTURAL: Repair hole in gyp ventilation louver ARCHITECTURAL: Repair gypsum ce ARCHITECTURAL: Repair wall due to ARCHITECTURAL: Patch and paint da ARCHITECTURAL: Repair CMU dama ARCHITECTURAL: Repair damaged ARCHITECTURAL: Repair/Replace of ARCHITECTURAL: Repair loose wall ARCHITECTURAL: Repair damaged ARCHITECTURAL: Replace damage acoustic panels ARCHITECTURAL: Repair broken ext ARCHITECTURAL: Repoint damaged exterio ARCHITECTURAL: Replace all suspe systems throughout MECHANICAL: Replace sprinkler escu Modify sprinkler heads MECHANICAL: Replace Gym heating MECHANICAL: Replace Multipurpose

Upper Floor Plan No Scale

Reference keynote designations in report for the full item description.

CIVIL: Repair CMU bike rack	MECHANICAL: Replace sprinkler pipe with appropriate hangers
	MECHANICAL: Replace exhaust fan (EF-13) above Gym catwalk
STRUCTURAL: Reference A1 and A2	MECHANICAL: Replace shower pan and re-tile
STRUCTURAL: Repair CMU corners and column embeds	MECHANICAL: Test dust collector spark system to verify fully
STRUCTURAL: CMU wall anchorage	functional MECHANICAL: Reconnect intake duct wall connection and adjust
STRUCTURAL: Grouting	fan spring isolators
STRUCTURAL: Repair handrail on west side of Foyer	MECHANICAL: Replace duct damper and actuator; Repair hydronic
STRUCTURAL: Gym curtain support beam	pipe leak MECHANICAL: Repair broken exhaust fan ductwork
STRUCTURAL: Replace Stairwell SW2	MECHANICAL: Repair disconnected ductwork
STRUCTURAL: Stiffening of floors surrounding Gym	MECHANICAL: Repair pipe supports
STRUCTURAL: Wood shearwall upgrade	MECHANICAL: Repair pipe supports
STRUCTURAL: Diaphragm reinforcement	MECHANICAL Repairs in Boiler Room 228
STRUCTURAL: Unblocked diaphragms	MECHANICAL Design and install seismic securement and vibration
STRUCTURAL: Clean and repaint exterior stairs and ledgers	isolation for HVU-3
STRUCTURAL: Repair cracked headers	MECHANICAL: Design and install seismic securement and vibration isolation for MPR heating ventilation unit
	MECHANICAL: Design and install seismic securement and
ARCHITECTURAL: Repoint/Replace missing face block and paint	MECHANICAL Design and install seismic securement and
ARCHITECTURAL: Epoxy grout exposed CMU seismic cracks	vibration isolation for heat exchanger and piping
ARCHITECTURAL: Repair GWB board cracks throughout building	MECHANICAL: Provide Unistrut support frame and seismic straps
ARCHITECTURAL: Replace ceiling grid and Tectum tiles	to indirect fired water heaters
ARCHITECTURAL: Repair/Replace missing and water damaged acoustic ceiling tiles; Repair damaged ceiling grid	ELECTRICAL: Replace conduit and conductors at Gym heating ventilating unit #3
ARCHITECTURAL: Confirm attachment of acoustic panels	ELECTRICAL: Repair basketball backboard motor wiring
throughout building	ELECTRICAL: Reconnect fan motor; Re-secure IDC block
fallen device	ELECTRICAL: Reconnect control conduit and wiring; Replace j-box cove
ARCHITECTURAL: Complete Structural repairs and paint/patch as	ELECTRICAL: Replace light fixture due to water inflitration
ARCHITECTURAL: Replace/reinstall ceiling fabric wrapped acoustic	ELECTRICAL: Replace flex conduit at overhead equipment
panels	ELECTRICAL: Replace fire alarm wireway and reconnect devices
ARCHITECTURAL: Repair holes at wall and floor due to wall stabilization and CMU reinforcing	ELECTRICAL: Re-attach cable tray to structure above
ARCHITECTURAL: Repair fire taping and holes in gypsum ceiling	ELECTRICAL: Replace projector and mounting arm
ARCHITECTURAL: Remove/Replace suspended ceiling system	ELECTRICAL: Replace 2x4 prismatic lens
ARCHITECTURAL: Repair concrete floor cracks; Recoat floor finish	ELECTRICAL: Re-attach cable tray to structure above
to match existing	ELECTRICAL: Re-attach wall clock
related roof leak	ELECTRICAL: Re-attach conduit support to structure above
ARCHITECTURAL: Replace damaged cabinet doors	ELECTRICAL: Replace section of fire alarm wireway
ARCHITECTURAL: Reinstall wall mounted athletic equipment	ELECTRICAL: Boiler Room repairs
ARCHITECTURAL: Repair hole in gypsum ceiling and reinstall fallen	ELECTRICAL: Replace light fixture due to water damage
ARCHITECTURAL: Repair gypsum ceiling damage	ELECTRICAL: Water leaking through conduit roof penetrations in
ARCHITECTURAL: Repair wall due to demolition to get to gas leak	concealed ceiling space
ARCHITECTURAL Patch and paint damage to concrete column	ELECTRICAL: Re-attach wall clock
ARCHITECTURAL: Repair CMU damaged by column movement	ELECTRICAL: Replace light fixture due to water damage
ARCHITECTURAL: Repair damaged inside CMU corners	ELECTRICAL: Inspect and clean refrigerator connections due to water on exposed conenctions
ARCHITECTURAL: Repair/Replace concrete dislodged paver caps	ELECTRICAL: Re-secure fire alarm conduit to CMU wall; Re-secure
ARCHITECTURAL: Repair loose wall mounted sink	power conduit to CMU wall ELECTRICAL: Replace 2x4 prismatic lens
ARCHITECTURAL: Repair damaged CMU wing wall	ELECTRICAL: Surface mounted light lens missing
ARCHITECTURAL: Replace damaged ceiling fabric wrapped	ELECTRICAL Replace fan motor conduit and conductors (ref E3)
acoustic panels	ELECTRICAL: FGC added to new section of flex conduit (ref E6)
ARCHITECTURAL: Repair broken exterior window glass pane	ELECTRICAL: Replace wireway (ref E7)
ARCHITECTURAL: Repoint damaged CMU and grout on building	ELECTRICAL: Design seismic support for large conduit rack (ref E15)
ARCHITECTURAL: Replace all suspended acoustical ceiling	FI FCTRICAL Replace existing T12 fixtures with LFD fixtures (ref F15)
systems throughout	ELECTRICAL: Replace 2x4 light fixtures with I FD fixtures (ref F15)
MECHANICAL: Replace sprinkler escutcheons throughout facility;	FI FCTRICAL: Provide additional conduit supports (ref E21)
Modify sprinkler heads for code required clearance	El ECTRICAL : Replace light fixture with LED fixture (ref E23)
MECHANICAL: Replace Multinumose Room heating ventilating unit	
	Drawing

# EXHIBIT B: Gruening Middle School Earthquake Related Damage Control Improvement







**EXHIBIT C: PHOTOS OF EXISTING FACILITY** 



Photo 1-1: Damaged CMU at Bike Rack



Photo 1-3: CMU Wall at South MPR



Photo 1-5: Northwest CMU Wall at Music Cassrooms



Photo 1-2: Damaged CMU at West MPR Wall



Photo 1-4: CMU Cracks at Door Header



Photo 1-6: Cracked CMU Header at Classroom



Photo 2-1: Damaged CMU at Corridor/Gym Wall



Photo 2-1: Damaged CMU at Corridor outside Gym



Photo 2-3: Displaced CMU Gym Wall at Weight Room



Photo A1-2: Damaged CMU Wall at Stairwell



Photo A1-3: Damaged CMU at Gym Stair Landing



Photo A1-4: Damaged CMU at Gym Stair Landing



Photo 3-1: Damaged CMU Wall at Stairwell SW 2



Photo A3-2: CMU Displacement at Stairwell SW 2



Photo 3-3: Wall Bracing at Displaced Gym/Corridor Wall



Photo 3-5: Damaged CMU at Stairwell landing



Photo A3-4: Typical CMU Spalling and Crack Damage



Photo 3-6: Corridor Tectum Ceiling Damage



Photo 4-1: Gym Ceiling Damage



Photo 4-2: Fallen Acoustical Panel in Gym Area



Photo 4-3: Damaged Acoustic Panel in Gym Area



Photo 4-4: Broken GWB Fire-Tape Joints at Wrestling



Photo 4-5: Damaged Ceiling in Room 224



Photo 4-6: GWB Cracking, typical throughout



Photo 5-1: CMU Cracking at Top of Wall



Photo 5-3: Damaged Cabinets in Room 15



Photo 5-2: Roof Leak in Room 2



Photo 5-14: Damaged Cabinets in Room 11



Photo 5-5: Damaged Ceiling in Room 17



Photo 5-6: Ceiling Damage Kitchen, Typical this Area



Photo 6-1: Damaged Kitchen Wall



Photo 6-2: Damaged Column at MPR



Photo 6-3: Damaged CMU Balcony Rail at MPR



Photo 6-4: CMU Damage at MPR Mezzanine



Photo 6-5: CMU Damage at MPR Column



Photo 6-6: CMU Damage at MPR Column



Photo 7-1: Cracked GWB Typical Throughout



Photo 7-2: Cracked GWB Typical Throughout



Photo 7-3: Cracked GWB Typical Throughout



Photo 7-4: Broken Window Inner-pane



Photo 7-5: Displaced Classroom Clock



Photo 7-6: CMU Cracking at Top of Wall



Photo 8-1: Disconnected Conduit



Photo 8-3: Damaged CMU Locker "End Cap"



Photo 8-2: Conduit Resting on Piping



Photo 8-4: Damaged GWB Edge Metal, Typical Throughout



Photo 8-5: Dislodged Computer Projector



Photo 8-6: Damaged CMU at Stairwell



Photo 9-1: Displaced Perimeter Ceiling Tile



Photo 9-3: Temporary Wall Bracing at MPR Wall



Photo 9-5: AHU Connection at Gymnasium



Photo 9-2: Damage at CMU Locker "Cap"



Photo 9-4: Damaged GWB, Typical Throughout



Photo 9-6: Ventilation Unit at Gymnasium



Photo 10-1: Mechanical Equipment Connection



Photo 10-3: MPR Ventilation Unit 2



Photo 10-2: MPR Ventilation Unit 1



Photo 10-4: Water Heater Securement

# EXHIBIT D: GEOTECHNICAL EVALUATION OF GMS FOUNDATION EARTHQUAKE DAMAGE, GOLDER



March 19, 2019

Project No. 19116560

Ray Amsden BDS Architects 3330 C Street, Suite 200 Anchorage, AK 99503

# GEOTECHNICAL EVALUATION OF GRUENING MIDDLE SCHOOL FOUNDATION EARTHQUAKE DAMAGE, EAGLE RIVER, ALASKA

Dear Ray:

Golder Associates Inc. (Golder) is pleased to present this report summarizing our review of historic information relating to design and construction of Gruening Middle School, located in Eagle River, Alaska (Figure 1). We understand that school was damaged in the November 30, 2018 earthquake, and is currently closed to the public due to the damage. BDS Architects (BDS) is under subcontract to Anchorage School District (ASD) to lead planning and design efforts to repair the damage. Planning efforts for renovation of the school include a geotechnical evaluation of the site.

The first phase of geotechnical site evaluation is review of available data related to school design and construction. Golder completed the review of site data presented in this report following a site visit on January 24, 2019 by Golder engineers Mark Musial, PE, and John Thornley, PE, who met with representatives of ASD, Reid Middleton, Inc., and BDS. The purpose of the site visit was to observe 1) separation of an exterior stairwell from the main gymnasium building, 2) apparent settlement of the mezzanine surrounding the gymnasium, and 3) possible settlement of the gymnasium floor; however, other types of damage were also noted in walls and corridors surrounding the gymnasium area.

The conclusions presented in this report were prepared in accordance with our proposal to BDS dated January 28, 2019 to compete the general scope of work outlined below.

- Reviewing historical air photos of the site prior to development of the school.
- Reviewing Municipality of Anchorage (MOA) LiDAR data to establish site topography prior to the earthquake.
- Reviewing geotechnical reports, plans, and as-built records for the school to establish initial design conditions and configuration of foundation elements.
- Comparing pre-earthquake and post-earthquake data, if available, in order to identify changes that may have occurred in the site grading, foundations, or gymnasium mezzanine area.

T: +1 907 344-6001 +1 907 344-6011

Developing a scope of work and cost estimate for conducting a geotechnical site investigation that may be needed to evaluate the soil and foundation conditions, identify possible causes of related settlement distress, and present recommendations for rehabilitation and stabilization of foundation soils.

#### 1.0 SITE CONDITIONS/TOPOGRAPHY

Gruening Middle school is located on top of bluff above a slope which extends approximately 210 feet down to Eagle River at an approximate slope of 2H:1V (horizontal to vertical). The main school building is approximately 100 feet north of the slope, with elevations ranging from 483 feet at the top of the bluff to 493 feet on the north side of the school.

Grading plans for the site were included in the design drawings. A review of the drawings indicates that the original ground under the structure ranged from approximate elevation 480 feet to 485 feet, with the ground sloping to the south towards the bluff. According to the design documents, the finished floor elevation in the gymnasium area of the school is 487 feet.

The project grading plans indicate higher ground elevation east of the school, near the residential developments, which is consistent with observations made during our January 2019 site visit. The slope on the east side of the property appears to range from approximately five to 12 feet high and slopes west down towards the school property.

A cleared area along the slope leading to Eagle River exists southwest of the school, as seen in Figures 2 through 6. Based on the utility plans, this area has a storm outfall easement that contains a buried 18-inch corrugated steel pipe. The area is also visible on the more recent aerial imagery (Figure 7).

#### 2.0 GEOLOGIC SETTING

The Eagle River Valley is a large valley in the western Chugach Mountains with local topography and geology defined by glaciation during the Pleistocene and late Tertiary. Bedrock in the area is generally a mix of weakly metamorphosed sedimentary and igneous rocks overlain by soils composed of alluvial outwash and moraine deposits. Soil overburden is relatively thin or absent on steeper slopes and mountainous areas but can be up to 700 feet thick in the Eagle River Valley. Glacial erratics are present. The topography is generally flat to rolling in the mid valley. The vegetation consists of a mixed forest of spruce, birch, and some poplar.

HLA mapped the site as seismic zone 2 in their 1979 geohazards study for the MOA (HLA, 1979). The report defines seismic zone 2 as "moderately low ground failure susceptibility".

The soils at the Gruening Middle School site are identified by the United States Geological Survey (USGS) in 1989 as fill material, while the soils immediately surrounding the site were identified as ground moraine, glacial till composed of poorly sorted gravel with small amounts of clay and silt (Yehle and Schmoll, 1989). Bedrock in the vicinity of the school is thought to be greater than 250 feet below ground surface.

#### 3.0 BACKGROUND DATA REVIEW

The following sections provide a summary of data provided by BDS related to historic site conditions and geotechnical engineering, as well as change detection analysis of LIDAR data performed by Golder.

#### 3.1 Specifications and Design Drawings

The specifications and design drawings for the school, titled "Eagle River / Chugiak / Eklutna Junior High School, Specifications, Drawings, and Contract Documents", were developed by Lane+Knorr+Plunkett Architects and Planners and submitted to ASD and the MOA in December 1981. The design documents include 54 pages of specifications that are include in Volume 1 of the documents and contain the geotechnical report for the site by Harding-Lawson Associates (HLA, 1981), which is discussed in Section 3.2.

- Sheet C-5. Grading Plan, South. The finish floor elevation in the gymnasium area is shown as elevation 487 feet, which appears to be within zero to three feet of the existing ground elevation in the vicinity of the gymnasium, which slopes to the southwest. Other positions of the building also appear to have finish floor elevations with a few feet of existing grades and appears to indicate that foundations would be in compacted native soil or structural fill.
- Sheet S-1. General Notes and Typical Details. Typical foundation details and a footing schedule are provided on this sheet. The footing schedule provides footing sizes and installation depths. A note on the sheet indicates that "All footings shall bear on undisturbed soil overlaid with 4" (min.) of compacted granular NFS fill" (Lane+Knorr+Plunkett, 1981).
- Sheet S-3. Foundation Plan/East Wing. Foundations in the stairwell appear to be spread footings with widened areas at columns. Similarly, the east and west walls of the gymnasium, which are reported to be tilting, appear to be supported on spread footings. In the gymnasium, the plan shows six-inch diameter pipe columns supported on spread footings.
- Sheet S-12. Foundation Sections & Details. This sheet shows a number of cross sections for the eastern side of the school, including the gymnasium. Foundation details, including footing size and fill requirements are not presented on this sheet, but are outlined elsewhere in the document, including in the specifications as well as in the geotechnical report discussed in Section 3.2.

Copies of the plan sheets and specification sheets containing the geotechnical report are included in Appendix A.

#### 3.2 Geotechnical Exploration

The geotechnical study (HLA, 1981) consisted of drilling and sampling test borings at the locations shown in Figure 2.1. Comparison of dimensions shown in Figure 3.1 indicate that the school building appears to be in approximately the same location and general shape as the existing building. One test boring (HLA Test Boring 12) is at the corner of the gymnasium at the location of the separated stairwell. Other site features of note are ponded surface water observed by HLA around the building footprint, indicated as 'wet areas' by HLA in Figure 3.1.

The data obtained by HLA indicates relatively consistent subsurface conditions, generally characterized as a dense silty gravel with sand below a near surface layer of sandy silt (Figure 3.2). Boulders and cobbles were encountered in the boreholes. Groundwater was encountered in five of the 31 boreholes at the time of drilling. Groundwater was generally observed ranging from 10 to 20 feet below ground surface (bgs) at the time of drilling. One borehole, HLA Test Boring 22, encountered water at three feet bgs at the time of drilling, but groundwater was measured to be 16 feet bgs three weeks after completion of drilling.





Figure 3.1: Borehole Location Map (HLA, 1981)



Figure 3.2: Cross Section Showing Generalized Subsurface Conditions (HLA, 1981)

Recommendations for site development and foundations are provided in the HLA (1981) report, including design of footings for 3,000 psf bearing pressure for dead loads and 4,000 psf for total loads including wind and seismic. The design criteria provided by HLA include use of insulation adjacent to exterior footings to limit the potential for frost penetration beneath exterior footings.

#### 3.3 Other Documents

Construction of the school began in 1982. We understand that litigation occurred related to school construction. Golder was provided various documents combined in a nearly 700-page PDF of information discussing the basis of a claim for equitable adjustment made by the prime contractor, Rogers and Babler. The documents also contained correspondence between the prime contractor, Architect, Municipality of Anchorage, and others. According to the documents, there were many issues during construction that caused delays and cost overruns. The outcome of the claims is unknown, and no legal documents or records of court decision were reviewed.

The documents were reviewed to better understand the geotechnical aspects of the project. The documents indicate the following:

- Construction quality control was completed by the owner.
- Compaction testing of fill was completed by the owner and a third party hired by the prime contractor.

- Fill material was rejected on numerous occasions due to oversized material, but the issue was resolved after material was screened and run through a crusher.
- There were issues in the design drawings with the foundation footing elevations that had to be resolved with revised design drawings.

#### 3.4 Aerial Imagery / LiDAR

#### 3.4.1 Aerial Imagery

Golder acquired a series of historical aerial images to review the development of the school site and surrounding areas. Specifically, we reviewed aerial images acquired in 1950, 1953, 1957, 1962, 1972, 1977, 1978, 1982, 1984, 1990, 1996, 2002, and 2015. In addition, Golder acquired and reviewed stereo aerial images from 1982, including photos taken on April 30, June 1, June 24, and September 27 of that year, documenting various stages of construction at the school site. Figures 2 through 6 present aerial images of the project site for select years.

Review of the historic aerial imagery indicate the following:

- Prior to 1950, vegetation around the school site extending down to Eagle River was absent, while surrounding areas were forested.
- Between 1950 and 1978, the site photographs shown vegetation recovering. No other development was observed.
- In April 1982 clearing and initial earthwork had begun (Figure 3). By June of 1982 the site was being leveled (Figures 4 and 5), and by September 1982 most of the exterior of the school had been completed.
- Subsequent aerial photographs (1984 to 2015) show development in surrounding areas, but no significant change at the school site.

#### 3.4.2 LiDAR / Change Detection Analyses

Golder acquired three different years of Airborne LiDAR data (2014, 2015, and 2018 – post earthquake), and performed a change detection analysis to look for ground movement related to the earthquake. The change detection analyses were performed using two types of filtering on the LiDAR datasets. The first LiDAR dataset analyzed filtered out everything but the ground or bare earth points, and the second LiDAR dataset analyzed used all points, including structures such as the top of the school. Figure 7 presents the Hillshade image of 2018 data obtained after the earthquake, showing the site and surrounding area.

The change analysis did not indicate any ground movements more than two feet around the school grounds or the structure between 2015 and 2018. These results are within the accuracy of the analysis, and they cannot be used to identify changes less than two feet. However, they do show that large scale ground displacement did not occur at the school, unlike the landslide that appears to have occurred on the bluff slope above Eagle River located approximately 650 feet southeast of the school.

#### 4.0 CONCLUSIONS

Golder reviewed multiple documents related to the design of the Gruening Middle School in order to determine if there were unique site conditions warranting further investigation and better refine the scope of additional field investigations. Results of the review do not point to an apparent geotechnical reason for the reported settlement

of mezzanine areas and tilting of walls in the gymnasium, as well as separation of the stairwell area north of the gymnasium from the main building. Rather, the results of our review suggest that the reported structure deformations, if related to site conditions and foundation performance, will require further site-specific site investigation.

A geotechnical investigation will allow location-specific data to be collected and used to assist with identifying possible causes of related settlement distress and assist in developing recommendations for rehabilitation and stabilization of foundation soils, if needed. We have attached (Appendix B) a proposed scope of work and cost estimate to provide a site-specific geotechnical investigation inside and outside the gymnasium and stairwell.

#### 5.0 USE OF REPORT

This report was prepared for BDS for the use in evaluating the damage to Gruening Middle School that occurred during the November 30, 2018 earthquake. This report is based on data and information collected by others and provided to Golder. We accept no responsibility for any deficiency, misstatements or inaccuracy contained in this report as a result of omissions, misstatements or fraudulent acts of published data. Golder did not independently verify the accuracy and completeness of the data and information provided for this report.

Our work followed the standard of care expected of professionals undertaking similar work in Alaska under similar contractual conditions and site constraints. No warranty expressed or implied is made.

#### 6.0 CLOSING

Thank you for the opportunity to assist BDS with this project and for considering the attached proposal for sitespecific investigation. If you have comments or questions, please contact John Thornley at (907) 865-2536.

#### Golder Associates Inc.

John D. Thornley, PE Associate, Senior Geotechnical Engineer

JDT/MRM/mlp

Plack R Phis

Mark R. Musial, PE Principal, Senior Geotechnical-Permafrost Engineer

Attachments: Figure 1: Vicinity Map Figures 2 – 6: Historic Aerial Imagery Figure 7: Hillshade Image – 2018 LiDAR Appendix A: Select Historical Documents Appendix B: Proposal for Geotechnical Investigation

https://golderassociates.sharepoint.com/sites/103615/deliverables/final/1911656 gruening data review - final.docx



#### 7.0 REFERENCES

Harding-Lawson Associates (HLA). 1979. Seismically-Induced Ground Failure Susceptibility. Accessed digitally from the Municipality of Anchorage, Information Technology Department.

Harding-Lawson Associates (HLA). May 1981. Report titled "Soil Investigation Eagle River Junior High School, Eagle River, Alaska", pp 14-17 of 55 in "Specifications, Drawings, and Contract Documents" by Lane+Knorr+Plunkett.

Lane+Knorr+Plunkett, Architects and Planners. December 1981. Eagle River/Chugiak/Eklutna Junior High School, Specifications, Drawings, and Contract Documents. Prepared for the Anchorage School District and the Municipality of Anchorage.

Rogers & Babler. August 1983. Ernest Gruening Jr. High School, Eagle River, Alaska, Proposal for Equitable Adjustment. PDF copy and associated documents provided by BDS Architects on January 29, 2019.

Yehle, L.A., and Schmoll, H.R., 1989, Surficial geologic map of the Anchorage B-7 NE quadrangle, Alaska: U.S. Geological Survey Open-File Report 89-318.





#### GEOTECHNICAL EVALUATION Project No. 19116560

March 19, 2019

# **FIGURES**





PROJECT

# **GRUENING MIDDLE SCHOOL**

EAGLE RIVER, ALASKA

VICINITY MAP

TITI F

PROJECT No. CONTROL Rev. FIGURE 19116560 0 1

FEET

1" = 2000'





#### REFERENCE(S)

AIRPHOTO DATED MAY 31, 1962 WAS OBTAINED FROM THE U.S. GEOLOGICAL SURVEY (USGS) AERIAL PHOTOGRAPHY SINGLE FRAME RECORDS COLLECTION AND DISTRIBUTED BY U.S. GEOLOGICAL SURVEY (USGS) AND EARTH RESOURCES OBSERVATION AND SCIENCE (EROS) CENTER.

#### CLIENT BDS ARCHITECTS

CONSULTANT	YYYY-MM-DD	2019-03-18
<b>GOLDER</b>	DESIGNED	-
	PREPARED	APG
	REVIEWED	BBS
	APPROVED	MRM

#### PROJECT GRUENING MIDDLE SCHOOL

EAGLE RIVER, ALASKA

TITLE

#### HISTORICAL AIRPHOTO - MAY 31, 1962

PROJECT NO.	CONTROL	REV.	FIGURE
19116560		0	2
APPROXIMATE SCHOOL OUTLINE 150 300 FEE'

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BDS ARCHITECTS

PROJECT
GRUENING MIDDLE SCHOOL

EAGLE RIVER, ALASKA

HISTORICAL AIRPHOTO - APRIL 30, 1982

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AIRPHOTO DATED JUNE 1, 1982 WAS ACQUIRED AND PROVIDED BY QUANTUM SPATIAL, ANCHORAGE ALASKA. COPYRIGHTED

## CLIENT BDS ARCHITECTS

CONSULTANT

BBS ARCHITECTS

# PROJECT GRUENING MIDDLE SCHOOL

EAGLE RIVER, ALASKA

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GRUENING MIDDLE SCHOOL	

EAGLE RIVER, ALASKA

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	PREPARED	APG
	REVIEWED	BBS
	APPROVED	MRM

PROJECT GRUENING MIDDLE SCHOOL

EAGLE RIVER, ALASKA

TITLE

HISTORICAL AIRPHOTO - MAY 2015

PROJECT NO. CONTROL REV. FIGURE 19116560 0 6



#### REFERENCE(S)

HILLSHADE IMAGE DEVELOPED FROM GROUND POINT DATA DERIVED FROM LIDAR POINT CLOUD DATA ACQUIRED BY KODIAK MAPPING INC. ON 2018-12-18. LIDAR DATA WAS DISTRIBUTED AS PART OF 2018 EARTHQUAKE-QL2 PHASE 01 DELIVERY AND IS INTENDED TO PROVIDE GENERALIZED SURFACE INFORMATION SUITABLE FOR INITIAL RESPONSE AND ASSESSMENT EFFORTS.

## CLIENT BDS ARCHITECTS

CONSULTANT
VYYY-MM-DD
2019-03-18
DESIGNED
PREPARED
APG
REVIEWED
BBS
APPROVED
MRM

## PROJECT GRUENING MIDDLE SCHOOL

# EAGLE RIVER, ALASKA

TITLE

# HILLSHADE IMAGE - 2018 LIDAR

PROJECT NO.	CONTROL	REV.	FIGURE
19116560		0	7

APPENDIX A

**Select Historical Documents** 



# LANE+KNORR+PLUNKETT

ARCHITECTS AND PLANNERS 800 CORDOVA ANCHORAGE, ALASKA 99501

EDUCATIONAL CONSULTANTS NORTHWEST REGIONAL LABORATORIES

CIVIL ENGINEERS AND SURVEYORS TRYCK, NYMAN & HAYES

ELECTRICAL AND MECHANICAL ENGINEERS HARGIS ENGINEERS

STRUCTURAL ENGINEERS SKILLING, HELLE, CHRISTIANSEN, ROBERTSON

LANDSCAPE ARCHITECTS LAND DESIGN NORTH

COST CONSULTANTS HANSCOMB ASSOCIATES

FOOD SERVICE CONSULTANTS LINO AGOSTI ASSOCIATES

GEOTECHNICAL ENGINEERS HARDING-LAWSON & ASSOCIATES

ACOUSTICAL CONSULTANTS TOWNE, RICHARDS & CHAUDIERE, INC.

THEATRE AND LIGHTING CONSULTANT PEDER H. KNUDSON







<u>f'c</u>	HIN. SACKS OF CEMENT/CJ. YD. OF CONCRETE	MAX. Wat C
500 psi	.5	7
		•







**EXHIBIT E: ELEVATION SURVEY DATA, SLANA SURVEY** 



Ray Amsden

March 4, 2019

**BDS Architects** 

Re: Gruening Middle School, Survey Report

Ray; attached is the pdf showing the summary of the survey data points. The survey was performed on February 5<sup>TH</sup> and 7<sup>TH</sup> 2019, and was performed under the direct supervision of a Land Surveyor licensed in the State of Alaska.

The locations of the proposed elevation points were provided to us in pdf format, and we obtained shots on the finish floor as close to the proposed locations as possible. Where more than 1 elevation is shown around the survey point, it represents elevations taken at the sides of an exposed column.

The elevations are based on an assumed datum; for future reference, we left a site benchmark on the north bolt of the top flange of a hydrant located near the main entry of the school. The assumed elevation of this benchmark is 100.00'.

Thank you for the opportunity to provide this service. Should you have any questions or concerns, please call me at 562-6103 or 227-1600 (cellular).

M-P.

Mark Davis, PLS



1200 E. 76th Avenue, Unit 1226 • Anchorage, Alaska 99518 • (907) 562-6103 Fax: (907) 929-3369 • E-mail: slana@gci.net EXHIBIT E



EXHIBIT E



**EXHIBIT F: HAZARDOUS MATERIALS REORT** 

# Hazardous Materials

# 2.30 General

Gruening Middle School was originally constructed in 1983 with only minor renovation work performed since the original construction. The interior walls are a mixture of concrete masonry units and gypsum wallboard. Floors are a mixture of carpet, vinyl tile or specialty floors. Ceilings are a mixture of gypsum wallboard, acoustical panels and exposed structure. The building is heated by a variety of heating systems. Ceiling mounted unit heaters are located at entryway vestibules. The rifle range area has its own dedicated supply and exhaust system. Classrooms situated in both the southwest and southeast portions of the school are heated by separate ducted, hydronic fan-coil heating and ventilation systems. These same systems also jointly service the IMC. The gymnasium and adjacent spaces are heated by a vortilation system located in the boiler room above. The MPR is heated by a ducted, hydronic fan-coil heating and ventilation system and the adjacent stage, dressing rooms and support areas are serviced by a separate similar system. The administration area of the school is serviced by its own ducted, hydronic fan-coil heating and ventilation system. The heating and domestic water piping is typically insulated with fiberglass.

The design of the school is very open and the majority of ducting is exposed and color coordinated with other building components.

# 2.31 Asbestos-Containing Materials

EHS-Alaska Inc. has an extensive history with this school, including three recent projects: a 2009 Roof Repair(Hidden text EHS project# 6730), and a 2013 CTE Construction Academy Upgrades project, and a 2013 Lighting Upgrades project. The following is a list of materials that are known or assumed to be asbestos-containing materials.

- 1. Mastic between CMU wall and finishing wall panel. Found in shop area, may be present at other locations.
- 2. Black sink undercoating found at drinking fountain, assumed present at stainless steel sinks.
- 3. Black mastic to white 12" x 12" floor tiles in Shop classrooms. Assumed ACM in other areas of the school.
- 4. Gray duct sealant throughout the ventilation system.
- 5. Black mastic at duct insulation pins; found in fan room above gym; assumed present in other fan rooms.



Part 2: Existing Conditions Gruening Middle School Project Analysis Report

- 6. Black tarry coating in filter housing of ventilation units. Found in heat exchanger of kitchen hood, assumed to be present at other HVAC units.
- 7. Flange gaskets and valve packing at piping and mechanical equipment.
- 8. Exterior tarry damp proofing (assumed ACM).
- 9. Patching tars and penetration sealants at shingle roofing.
- 10. Gray and black sealants on roof side wall and edge flashings and other roofing attachments and penetrations.
- 11. Tarry sound lining in clock/speaker boxes.

The following materials from Gruening Middle School have been found to be asbestos-free in this or previous surveys, but should not be considered a complete list of asbestos-free materials. Other materials may be present that will be sampled as the chosen design progresses.

- 1. Gypsum board.
- 2. Joint compound.
- 3. 2' x 4' Acoustical ceiling tiles.
- 4. Generator exhaust insulation.
- 5. Generator muffler insulation.
- 6. Ceramic tile grout.
- 7. Ceramic tile mastic.
- 8. Roof shingles.
- 9. Ice guard membrane and tar paper under roof shingles.

# 2.32 Lead-Containing Materials

Lead-containing materials found in the buildings are listed below.

- 1. Lead based paints were found on the exterior concrete walls.
- 2. Lead in the glazing of ceramic wall and floor tiles.
- 3. Lead in solder on copper piping and at sheet metal roof flashings.
- 4. Poured lead sealants at bell and spigot joints.
- 5. Lead acid batteries in emergency lights.
- 6. Painted interior and exterior surfaces.
- 7. Painted structural and miscellaneous steel.
- 8. Painted handrails, ducting and piping throughout.
- 9. Painted windows, garage door, doors and door frames.
- 10. Lead-containing dust in and on architectural, structural, mechanical, and electrical components.

Part 2: Existing Conditions Gruening Middle School Project Analysis Report



# 2.33 Other Hazardous Materials

Other hazardous materials present in the building include mercury containing lamps, mercury containing thermostats and switches, smoke detectors and self-illuminating exit signs with radioactive components, refrigerators or other items with ozone depleting substances, and glycol in the heating system. It is unknown at this time whether or not these items will be impacted by the proposed renovations.

# 2.34 Regulations

The Federal Occupational Safety and Health Administration (29 CFR 1926.1101) and the State of Alaska Department of Labor (8 AAC 61) have promulgated regulations requiring testing for airborne asbestos fibers; setting allowable exposure limits for workers potentially exposed to airborne asbestos fibers; establishing contamination controls, work practices, and medical surveillance; and setting worker certification and protection requirements. These regulations apply to all workplace activities involving asbestos.

The EPA regulations, issued as Title 40 of the Code of Federal Regulations, Part 61 (40 CFR 61) under the National Emission Standards for Hazardous Air Pollutants (NESHAP) established procedures for handling ACM during asbestos removal and waste disposal. These regulations required an owner (or the owner's contractor) to notify the EPA of asbestos removal operations and to establish responsibility for the removal, transportation, and disposal of asbestos.

The disposal of asbestos waste is regulated by the EPA, the Alaska Department of Environmental Conservation, and the disposal site operator. Wastes being transported to the disposal site must be sealed in leak tight containers prior to disposal and must be accompanied by disposal permits and waste manifests.

Federal OSHA (29 CFR 1926.62) and the State of Alaska (8 AAC Chapter 61) have promulgated regulations that apply to all construction work where employees may be exposed to lead. The disturbance of any surfaces painted with lead-containing paint requires lead-trained personnel, personnel protective procedures, and air monitoring until exposure levels can be determined. If initial monitoring verifies that the work practices being used are not exposing workers, monitoring and protection procedures may be relaxed.

The EPA requires that actual construction or demolition debris that contains lead or lead-containing paint or other heavy metals be tested using the TCLP test to determine if the waste must be treated as hazardous waste. All federal, state and local standards regulating lead and lead-containing wastes should be followed during the demolition of this building.



Part 2: Existing Conditions Gruening Middle School Project Analysis Report The EPA has promulgated regulations (40 CFR Part 761) that cover the proper handling and disposal of PCB-containing equipment. All construction workers who are required to remove or handle PCB-containing or PCB-contaminated equipment or to transport or dispose of PCB wastes shall be trained and certified as required by the U.S. Department of Labor (29 CFR 1910.120) and the State of Alaska Department of Labor (8 AAC 61).

Mercury and mercury-containing products are considered hazardous waste if TCLP testing of the waste for mercury confirms the mercury content to be greater than the EPA criteria of 0.2 mg/l. Typically mercury from fluorescent lights, thermostats, and thermometers is removed and recycled in accordance with the EPA Universal Waste Standard, 40 CFR 273.

# 2.35 Hazardous Materials Summary

Asbestos and other hazardous materials identified are known to be present in the school and will likely have an impact on the planned renovations. The exact extent of the required removal or disturbance of these materials will depend on the chosen renewal option, and will be further developed as the design progresses.

\*\*\*\*\*\*



Livingston Slone & NAC Architecture(2015). Gruening Middle School Project Analysis Report. Part 2: Existing Conditions(p.46-49)

# EXHIBIT G: RAIN PROOF ROOFING INVESTIGATION PROPOSAL



2201 EAST 84TH COURT • ANCHORAGE, ALASKA 99507 (907) 344-5545 • FAX (907) 344-4530

# **Proposal Submitted To:**

EKLUTNA CONST. & MAINT., LLC 10950 MAUSEL ST., UNIT B1a EAGLE RIVER AK 99577

# Proposal

Proposal #: 172-3428-19-1 Date: 01/07/2019

Project:

GRUENING MIDDLE SCHOOL 9601 LEE ST

EAGLE RIVER AK 99577

Phone: (907) 696-3871 Email: ncousineau@eklutnainc.com

We propose to provide the products and services outlined below:	Estimator: Adam Miles
Description:	Price:
NORTH ENTRANCE ROOF REPAIR REMOVE APPROXIMATELY 800 SQF OF SHINGLES FROM DAMAGED ROOF AREA. INSTALL 1/4" DENSDECK (MECHANICALLY ATTACHED) AT REPAIR AREA. INSTALL .060" FULLY-ADHERED EPDM RUBBER MEMBRANE AT REPAIR AREA. INSTALL ICE & WATER SHIELD 2' OVER NEW EPDM. INSTALL SHINGLES 2' OVER NEW EPDM.	
TOTAL LABOR AND MATERIALS:	\$12,527.00

**Proposal Excludes Snow or Ice Removal** 

The above prices, specifications, and conditions are satisfactory and are hereby accepted. You are authorized to do the work as outlined above. Payment is to be made within ten (10) days of the date invoice unless prior arrangements have been made.	To accept proposal please sign, date and return to us within thirty (30) days of date on proposal. Proposal may be withdrawn if not accepted within thirty (30) days.	
	°	Estimator
	Date:	

Roof Plane and possibly wall below has lifted, causing water to melt, pond and leak downwards

Leaking is coming from behind wall. This is below the shingle roof.

180

Leaking is coming from behind wall. This is below the shingle roof.