



**Bay Architects**

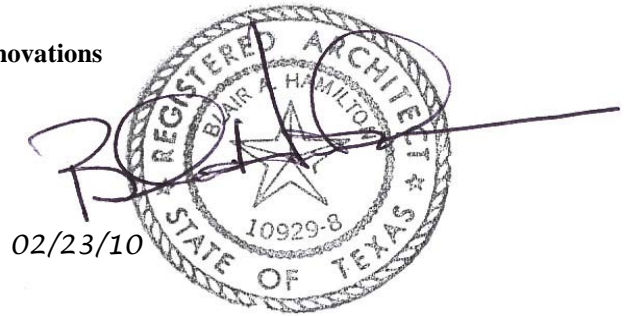
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**ADDENDUM NO. 08**

February 23, 2010

Project: **Dickinson High School Additions and Renovations**  
Dickinson Independent School District

Prepared by: **Bay Architects, Inc.**  
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Bay Project No.: **0743**

Prepared for: **Prospective Proposers. To be distributed by Bartlett-Cocke, Construction Manager.**

**PART A NOTICE TO PROPOSERS:**

- 01. Receipt of this Addendum shall be acknowledged on the Proposal Form. Failure to do so may subject Proposers to disqualification. Each Proposer shall make necessary adjustments and submit his proposal with full knowledge of all modifications, clarification, and supplemental data included therein.
- 02. This Addendum forms part of the Contract Documents and shall be incorporated integrally therewith. Where provisions of the following supplemental data differ from those of previously issued documents, this Addendum shall govern.
- 03. The following Contract Documents have been issued to date delineating the Work (Project):
 

Construction Documents	January 22, 2010
Addendum No. 01	February 4, 2010
Addendum No. 02	February 10, 2010
Addendum No. 03	February 12, 2010
Addendum No. 04	February 15, 2010
Addendum No. 05	February 16, 2010
Addendum No. 06	February 18, 2010
Addendum No. 07	February 18, 2010
- 04. This Addendum consists of three (3) 8-1/2x11 written pages; twenty-three (23) 8-1/2x11 pages Sections 04240, 08337 and 12345; and four (4) 8-1/2x11 sketches **ADD-08-01** through **ADD-08-04**; as prepared by Bay Architects, Inc. Total pages: 30 pages

**PART B CHANGES TO PRIOR ADDENDA**

- 05. Addendum No. 05: Section 08800 Glazed Systems; page 5, item 2.1 Manufactures; Delete item A. in its entirety and replace with the following:

- A. Aluminum Framing Systems and Doors
  - 01 Vistawall Architectural Products, (basis of design / specification)
  - ~~02 Kawneer~~
  - 03 YKK AP America, Inc.
  - ~~04 U.S. Aluminum~~
  - ~~05 ARCH Aluminum & Glass Co., Inc.~~
  - 06 ~~All products and assemblies shall meet or exceed all specified requirements.~~ ***The following manufacturer's may be acceptable provided all products and assemblies meet or exceed all specified requirements; and provided 125 MPH (minimum) tested / certified aluminum doors and frames do NOT require use of vertical rods / flush-bolts to achieve certification:***
    - a. ***Kawneer***
    - b. ***US Aluminum***
    - c. ***ARCH Aluminum & Glass Co.***

**PART C            CHANGES TO THE PROJECT MANUAL**

- 06. Table of Contents; Part III. Specifications, Division 4 – Masonry; Add Section 04240 Autoclaved Aerated Concrete Units, and add page numbers.....1-6.
- 07. Table of Contents; Part III. Specifications, Division 8 – Doors and Windows; Rename Section 08337 as “Coiling Fire & Smoke Rated Doors”, and add page numbers .....1-5.
- 08. Table of Contents; Part III. Specifications, Division 12 – Furnishings, Section 12345 Laboratory Casework; Change page numbers to .....1-12.
- 09. Section 00100A: pages 00100A-2, 00100A-4, 00100A-12 and 00100A-13; Change the Proposal and Alternate Date and Times as follows:  
 \*\*\*\*Base Bid Due Tuesday, March 9, 2010 by 2:00 PM \*\*\*\*  
 \*\*\*\*Alternates Due Tuesday, March 9, 2010 by 3:00 PM \*\*\*\*
- 10. Section 00100G: page 00100G-12; Change the Proposal and Alternate Date and Time, and Board Approval tentative date, as follows:
  - Proposal Deadline – Base .....March 9, 2010 at 2:00 PM
  - Proposal Deadline – Alternates.....March 9, 2010 at 3:00 PM
  - Anticipated Board Approval (tentative date).....April 2010
- 11. Section 04200 - Unit Masonry; page 5, Part 2.2 Manufactures: Delete item A. Face Brick in its entirety and replace with the following:
  - A. Face Brick
    - 01 Acme
    - 02 Upchurch Kimbrough, contact Stephen Crane
    - 03 Architectural Masonry Products contact Jeff Pate
    - 04 Other manufacturers shall be considered provided the proposed products are, for all practical purposes, a match to the specified products, including homogeneity / blend, texture and color characteristics.
- 12. Section 04200 - Unit Masonry; page 5, Part 2.3 Acceptable Sub-Contractors, item A.: Add the following approved sub-contractor:
  - 09. Walton Masonry

13. Section 04240 Autoclaved Aerated Concrete Units: Insert the attached section in its entirety. (6 pages)
14. Section 05410 Light Gauge Steel Framing, page 2, Part 2.2-B, line 40: Revise 25 PSF to 125 MPH.
15. Section 08337 Coiling Fire & Smoke Rated Doors: Remove blank page and replace with the attached Section 08337 in its entirety. (5 pages)
16. Section 12345 Fire Extinguisher and Cabinets: Remove blank page and replace with the attached Section 12345 in its entirety. (12 pages)
17. Section 12765 Telescoping Bleachers, page 3, line 51, Part 2-C-03: Revise 31” to 26”.
18. Section 12765 Telescoping Bleachers, page 4, Part 2-D Side Courts-2, line 3, item 03: Revise 31” to 26”.
19. Section 12765 Telescoping Bleachers, page 4, Part 2-E Competition Courts (Center - Ends), line 10, item 03: Revise 31” to 26”.
20. Section 12765 Telescoping Bleachers, page 4, Part 2-G Accessories, line 53, item 09: Revise to read: Vinyl end curtains closures shall be provided at the Competition Court side bleachers to limit unauthorized....

**PART D CHANGES TO THE DRAWINGS**

21. Sheet A0.01 –First Floor Demolition Plan Unit “C”: Rooms B114, B114A and B116 (hatched areas): Revise key note 11 to key note 6
22. Sheet A2.24- Unit N Area “H”- Second Floor Plan: Room N259 provide casework reference tag see attached **ADD-08-01**.
23. Sheet A2.29 – Unit “H” – Schedules: Change door 135B to 10’-0” X 12’-0” in lieu of 8’-0” X 12’-0”.
24. Sheet A8.02- Science Casework Elevations: Replace detail 17/8.02 in its entirety see attached **ADD-08-02**.
25. Sheet A8.02 Science Casework Elevations-Detail 18: Extend backsplash to bottom of upper cabinets see attached **ADD-08-03**.
26. Sheet A8.02 Science Casework Elevations-Detail 29: Extend backsplash and provide drip trough see attached **ADD-08-04**.

**PART E NEW ISSUED DRAWING SHEETS**

27. None

**PART D RE-ISSUED DRAWING SHEETS**

28. None

**END OF ADDENDUM**

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**SECTION 04240**

**AUTOCLAVED AERATED CONCRETE UNITS**

*Issued In Its Entirety in Addendum No. 08*

CONDITIONS OF THE CONTRACT, SUPPLEMENTARY CONDITIONS AND DIVISION 1 APPLY TO THIS SECTION.

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. Refer to the CM@R Proposal Instructions issued under a separate cover.
- B. Refer to Section 01300 - Submittals for substitutions.
- C. Work Included:
  - 01 Provide Autoclaved Aerated Concrete Units (ACC Units) where indicated on the Drawings.
  - 02 AAC unit construction is used both as a fire barrier and as acoustical wall assemblies.
- D. Related Work Described Elsewhere
  - 01 Section 04200 – Unit Masonry
  - 02 Section 04721 – Cast Stone

**1.2 REFERENCES**

- A. American Society for Testing and Materials
- B. American Concrete Institute (ACI)
- C. ASTM C1386 – Standard Specifications for Precast Autoclaved Aerated Concrete (AAC) Wall Construction Units
- D. ASTM E-90 – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- E. The Masonry Society (TMS)
- F. Underwriters Laboratory (UL)

**1.3 SUBMITTALS**

- A. Product Data: Provide manufacturer’s complete product data for all products proposed to be furnished as needed to demonstrate compliance with all specified requirements.
- B. Certification from the AAC manufacturer that all AAC products shall be manufactured in accordance with ASTM C1386.
- C. Samples:
  - 01 Minimum 6” x 6” samples of all AAC products proposed to be furnished.
  - 02 Samples of Reinforcing, ties and other accessories proposed to be furnished.

- 1  
2 D. Sample panel: Sample panel shall be 6' long x 6' high panel showing all aspects of  
3 material, texture, bonding, mortar color, joint shape, and quality workmanship.  
4 01 Do not start masonry until Architect has approved the sample panel.  
5 02 Once approved, the sample panel shall become the basis for quality and  
6 finish of all installed masonry on the finished building.  
7 03 Sample panel shall remain at the jobsite until all masonry is completed.  
8

9 **1.4 DELIVERY, STORAGE, AND HANDLING**

- 10  
11 A. Storage and protection:  
12 01 Offload AAC units with pallets resting on ground. Placing AAC units in  
13 direct contact with earth is prohibited.  
14 02 Protect AAC units from oil and chemical staining.  
15

16 **1.5 PROJECT CONDITIONS**

- 17  
18 A. Cold and hot weather installation practices:  
19 01 Cold weather precautions for AAC masonry work:  
20 a. When temperature of AAC units is below 20°F, do not install.  
21 b. Remove visible ice on AAC units prior to installation.  
22 c. Heat mortar sand or mixing water to produce mortar temperatures  
23 between 40°F. and 120°F. at time of mixing. Maintain mortar  
24 temperature above freezing until placed.  
25 02 Ambient temperature requirements:  
26 a. Between 25°F. and 20°F.: Use heat sources on both sides of AAC  
27 walls under construction. Install wind breaks when wind velocity is  
28 in excess of 15 mph.  
29 b. Below 20°F.: Provide enclosure for AAC walls under construction.  
30 Use heat sources to maintain temperatures above 32°F. within  
31 enclosures.  
32 03 Daily mean temperature requirements:  
33 a. Between 40°F. and 32°F.: Protect completed AAC walls from rain  
34 or snow by covering with weather resistive membrane for a  
35 minimum of 24 hours after construction.  
36 b. Between 32°F. and 25°F.: Completely cover completed AAC walls  
37 with weather resistive membrane for a minimum of 24 hours after  
38 construction.  
39 c. Between 25°F. and 20°F.: Completely cover completed AAC walls  
40 with insulating blankets or equal protection for a minimum of 24  
41 hours after construction.  
42 d. Below 20°F.: Maintain AAC wall construction above 32°F. for 24  
43 hours after completion by enclosure with supplementary heat,  
44 electric heating blankets, infrared heat lamps, or other acceptable  
45 methods outlined to Architect.  
46 04 When erected in ambient air temperature of 100°F. or ambient air  
47 temperature of 90°F. implement the following:  
48 a. Protect AAC wall construction from direct exposure to wind and  
49 sun.  
50 b. Spreading mortar beds more than 4'-0" ahead of AAC units is  
51 prohibited.  
52 c. Setting AAC unit more than one minute after spreading mortar is  
53 prohibited.  
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**1.6 WARRANTY**

- A. Warrant the work specified herein for one year against becoming unserviceable or causing an objectionable appearance, resulting from either defective or nonconforming materials or workmanship.
- B. Defects shall include, but not be limited to the following:
  - 01 Noticeable deterioration of unit or mortar finish.
  - 02 Chalking or dusting excessively.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

- A. Design for autoclaved aerated concrete units is based on products manufactured by Xella Aircrete North America / Xella AAC Texas / Hebel
- B. Products from the following manufacturers shall be acceptable provided all proposed products meet or exceed all specified requirements and performance criteria:
  - 01 Aercon
  - 02 TrueStone America

**2.2 MATERIALS**

- A. AAC Physical Characteristics:
  - 01 Strength Category: AAC-4 at fire-rating conditions. AAC-6 at Band Hall and Ensemble Rooms.
  - 02 Minimum Compressive Strengths: AAC-4 at 580 PSI; AAC-6 at 870 PSI
  - 03 Nominal Dry Bulk Density: AAC-4 at 37 PCF; AAC-6 at 44 PCF.
- B. AAC Unit Sizes:
  - 01 Standard block, square head joints.
  - 02 8" height by 24" length
  - 03 Widths as indicated on the drawings.
  - 04 Provide reinforced lintel units and core block as recommended by the manufacturer for the structural integrity requirements of the specific use / assemblies indicated on the Drawings.
  - 05 Field cut units to fit tight to all structure and interfacing work.
- C. Sound Transmission Class (STC) Rating
  - 01 8" thick units shall have a minimum STC of 50 when tested in accordance with ASTM E-90.
  - 02 Assembly consisting of two (2) 6" thick units with a 1-1/2" air space between units shall have a minimum STC of 62 when tested in accordance with ASTM E-90.
- D. Mortar Materials:
  - 01 AAC unit head joint and bed joint mortar; acceptable product: Xella Aircrete North America Inc.; HEBEL Thin Bed Mortar and/or HEBEL Large Grain Mortar.
  - 02 Leveling bed mortar: ASTM C270, Type "M". Aggregate: Leveling bed mortar: Clean, hard, natural, washed sand in accordance with ASTM C144.

- 1                   03     Masonry grout:
- 2                   a.     Fine aggregate: ASTM C404, Size No. 1
- 3                   b.     Coarse aggregate: ASTM C404, Size No. 89.
- 4                   c.     Water: Clean, potable, free from deleterious amounts of alkalis,
- 5                                 acids, and organic materials.
- 6                   04     Mortar Proportions
- 7                   a.     ACC unit head joint and bed joint mortar: Mix in accordance with
- 8                                 manufacturer's mixing instructions.
- 9                   b.     Proportion materials by volume in accordance with ASTM C270 for
- 10                                 leveling course only. Use AAC thin-bed mortar for head and bed
- 11                                 joints and other joints in AAC work.
- 12                   05     Grout Proportions
- 13                   a.     Fine and Coarse Grout: Proportion materials by volume in
- 14                                 accordance with ASTM C476.
- 15                   b.     Slump: 8" to 11" measured in accordance with ASTM C143.
- 16
- 17           E.     Reinforcement:
- 18                   01     General: Reinforcement used in all bond beams, lintel units and / or cored
- 19                                 units shall be as recommended by the manufacturer for the specific
- 20                                 application / assembly.
- 21                   02     All steel bar reinforcing shall be in accordance with ASTM A615, Grade 60
- 22                                 for #3 bars and larger.
- 23

24     **PART 3 - EXECUTION**

25

26     **3.1     PREPARATION**

27

- 28           A.     Thoroughly inspect all installed, interfacing work of other trades to determine
- 29                         suitability for the work of this section to proceed. Advise Contractor of any
- 30                         discrepancies and do not proceed until fully resolved.
- 31
- 32           B.     Carefully lay-out proposed coursing to minimize cuts.
- 33
- 34           C.     Work shall be laid out so that partial, cut units are a minimum of 8" long.
- 35

36     **3.2     INSTALLATION**

37

- 38           A.     Workmanship
- 39                   01     Lay AAC units plumb, level, and true to line for range.
- 40                   02     Lay units in running bond with 4" minimum head joints lap in alternate
- 41                                 courses.
- 42                   03     Cut AAC units with unit manufacturer recommended hand type saw or
- 43                                 electric band-saw specially designed for cutting AAC units. Lay out units to
- 44                                 minimize cutting.
- 45
- 46           B.     Building In Other Work
- 47                   01     Install work of other sections required to be incorporated with AAC units as
- 48                                 work progresses; include anchors, and accessories. Space and align built-in
- 49                                 parts; exercise care not to disturb other materials from position.
- 50                   02     Coordinate with other trades for required routing and chases.
- 51                   03     Fill in interior spaces around built-in items with fine grout or interior plaster.
- 52                   04     Fill in exterior spaces around built-in items with fine grout or stucco.
- 53                   05     Fill hollow metal frames in AAC unit walls with fine grout as wall is laid.
- 54                                 Rake back 1/2" joint between hollow metal frame and adjacent AAC unit to
- 55                                 receive sealant at butt type frames.

- 1                   06       All units shall be cut to fit tight to all structure, interfacing work and all  
2                   penetrations.  
3
- 4           C.       Mortar Joints
- 5                   01       Head and bed joints:
- 6                   a.       Lay first course in full bed of leveling bed mortar in thickness  
7                   necessary to level AAC unit top; not less than 1/2".
- 8                   b.       Apply AAC unit head joint and bed joint mortar on full face of  
9                   AAC unit already laid.
- 10                  02       Make adjustment while mortar is still soft and plastic by tapping to plumb  
11                  and bringing to alignment.
- 12                  03       Check each AAC unit as laid with mason's level for level and plumb with  
13                  wall below.
- 14                  04       Remove and replace mortar with fresh mortar, where adjustment must be  
15                  made after mortar has started to set.
- 16                  05       Keep bed and head joints uniform in width.
- 17                  06       Standard thickness for both horizontal and vertical mortar joints:
- 18                  a.       Base course bed joint: 1/2", nominal, +/- 1/4".
- 19                  b.       Other vertical coursing and head joints: 1/16", nominal.
- 20                  07       Take particular care to avoid spreading mortar on exposed face of AAC unit.  
21                  Only normal mortar droppings will be accepted on face of AAC unit; remove  
22                  only after mortar has dried enough not to smear.  
23
- 24           D.       Grout Filled Cells
- 25                   01       Provide a clean-out opening at the base of the AAC wall at each vertical  
26                   reinforcing bar locations.
- 27                   02       Remove debris through-out from core area prior to placement of concrete  
28                   grout.
- 29                   03       Pre-wet the core cells with clean water prior to placement of concrete grout.
- 30                   04       Fill core cell with concrete grout using appropriate lift procedures to avoid  
31                   wall blow-outs.
- 32                   05       Consolidate the grout filled core with a needle vibratory device.  
33
- 34           E.       Flexible flashing:
- 35                   01       Clean AAC unit surfaces smooth; maintain free from projections capable of  
36                   puncturing flashing material.
- 37                   02       Follow requirements indicated in Flexible Flashing Section.  
38
- 39           F.       Joint treatment: Remove excess extruded mortar immediately after laying AAC unit;  
40                   tooling joints is not required.  
41
- 42           G.       Control joints:
- 43                   01       Make joint 1/2" wide, unless indicated otherwise, rake out control joints to  
44                   depth of 3/4" while mortar is still plastic.
- 45                   02       Provide joints at 20'-0" O.C. unless otherwise indicated.
- 46                   03       Leave joint open and clean for caulking in accord with Joint Sealants  
47                   Section.  
48
- 49           H.       Tolerances:
- 50                   01       Maximum variation from plumb: 1/4" in 10'-0"; not exceeding 3/8" in 20'-0".
- 51                   02       Maximum variation from level: 1/4" in 20'-0", not exceeding 1/2" in 49'-0" or  
52                   more.
- 53                   03       Maximum variation in linear building line from location indicated: 1/4" in  
54                   20'-0".  
55

1 I. Coordinate with other trades as required to properly interface with requirements for  
2 plaster finish on ACC unit walls.  
3

4 **3.3 CLEANING AND PATCHING**  
5

6 A. Keep AAC unit work free of mortar droppings as work progresses and, at completion  
7 of work, rub AAC unit to remove excess mortar.  
8

9 B. Replace AAC units with excessive spalls or chips.  
10

11 **3.4 PROTECTION**  
12

13 A. Keep walls dry during erection by covering at end of each work period with non-  
14 staining waterproof membrane covering.  
15

16 B. Protect partially completed walls not being worked on with non-staining waterproof  
17 membrane until construction activities specified in other sections completes protection  
18 of walls.  
19

20 C. Protect finished exposed work from stains.  
21

22 D. Take particular care to keep AAC units clean.  
23

24 E. Brace walls during construction to provide stable and structurally sound assemblies.  
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27 **END OF SECTION**

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**SECTION 08337**

**COILING FIRE & SMOKE RATED DOORS**

*Issued In Its Entirety in Addendum No. 08*

CONDITIONS OF THE CONTRACT, SUPPLEMENTARY CONDITIONS AND DIVISION 1 APPLY TO THIS SECTION.

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. Refer to the CM@R Proposal Instructions issued under a separate cover.
- B. Refer to Section 01300 - Submittals for substitutions.

**1.2 WORK INCLUDED**

- A. Provide coiling fire and smoke rated doors with egress doors in configurations as indicated on the Drawings.
- B. Doors operation shall include an overhead coiling, fire rated door and two pass-thru egress doors.
  - 01 Egress doors shall be magnetically held open; and upon alarm shall automatically release for closure.
  - 02 Upon alarm, the overhead coiling door shall also close, directly integrating with egress doors to form a continuous fire and smoke rated barrier and allowing panic device operation of the egress doors.
  - 03 Upon alarm deactivation, entire assembly shall be capable of being returned to non-alarm configuration entirely from the floor. No other reset or similar operation shall be required above the ceiling.
  - 04 Provide a complete unit, including all structural supports, mounting brackets, alarm interfaces, integral electrical components and accessories required for a complete functioning door as described.
- C. Related Work Described Elsewhere
  - 01 Section 05120 – Structural Steel
  - 02 Section 06100 – Rough Carpentry
  - 03 Section 09260 – Gypsum Wallboard Systems
  - 04 Section 09510 – Acoustical Lay-In Ceilings
  - 05 Section 09340 – Porcelain Tile
  - 06 Section 09900 – Painting and Staining
  - 07 Division 16 - Electrical

**1.3 SUBMITTALS**

- A. Refer to Section 01300.
- B. Product Data: Provide manufacturer's complete product data for all products proposed to be furnished as required to clearly demonstrate compliance with the specified requirements.
- C. Shop Drawings:

- 1                   01       Complete elevations, sections and plan views as required to fully describe all  
2                                   proposed work to be furnished.  
3                   02       Indicate size, material, and finish.  
4                   03       Show locations and installation procedures.  
5                   04       Include details of structural components, bracing, connection methods,  
6                                   attachments, and clearances. Details shall be specific to the specific  
7                                   installation for this project.  
8  
9                   D.       Samples:  
10                   01       Provide actual samples of all finishes required to be selected by the  
11                                   Architects.  
12                   02       Provide sample of each item of hardware proposed to be furnished  
13  
14                   E.       Maintenance Instructions: Provide preprinted maintenance instructions for the  
15                                   casework hardware. Instruct and demonstrate the proper maintenance to the Owner's  
16                                   designated representative.  
17  
18                   F.       Product Test Reports: Submit copy of manufacturer's actual burn test report clearly  
19                                   detailing the description of product, fire endurance method, test results and test  
20                                   conclusions of actual burn test as conducted and witnessed by UL or WH.  
21

#### 22   **1.4    QUALITY ASSURANCE**

- 23  
24                   A.       Fire & Smoke Rated Assemblies: Provide all doors with fire and smoke resistance  
25                                   rating required to comply with governing regulations which are inspected, tested,  
26                                   listed and labeled by UL or WH and complying with NFPA 80 for class of opening.  
27                                   Provide units tested and approved under UL 10B and UBC 7-2-1997 Part II. Provide  
28                                   testing agency label permanently fastened to each fire door assembly.  
29  
30                   B.       Regulatory Requirements: Comply with applicable requirements of the laws, codes,  
31                                   ordinances and regulations of federal, state and municipal authorities having  
32                                   jurisdiction.  
33  
34                   C.       Testing: Provide documentation from a certified testing agency that the fire door  
35                                   operator and self-closing mechanism has been tested for a minimum of 50,000 cycles  
36                                   and 500 drop tests.  
37  
38                   D.       Manufacturer Requirements: Door manufacturer shall have been in the business of and  
39                                   have experience in manufacturing the type of product covered under this specification  
40                                   section as well as giving credible service for a minimum of five (5) years. Provide list  
41                                   of at least ten (10) completed projects which include the products covered under this  
42                                   section.  
43

#### 44   **1.5    DELIVERY, STORAGE AND HANDLING**

- 45  
46                   A.       General: Deliver and store materials in manufacturer's original packaging, labeled to  
47                                   show name, brand and type. Store materials in a protected, dry location off the ground  
48                                   in accordance with manufacturer's instructions.  
49

#### 50   **1.6    WARRANTY**

- 51  
52                   A.       Door Warranty: Furnish one (1) year written warranty signed by the manufacturer and  
53                                   installer agreeing to repair or replace work which has failed as a result of defects in  
54                                   materials or workmanship. Upon notification within the warranty period, such defects  
55                                   shall be repaired at no cost to the owner.

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**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

A. Approved Manufacturers: Specifications are based on McKeon Door Company “Safescape” model T2500-SD-G

**2.2 COILING FIRE & SMOKE RATED DOORS WITH TWO EGRESS DOORS**

A. Curtain: Assembled of galvanized steel slats, cold rolled. Slats shall have endlocks locking each end of alternate slats to act as a wearing surface, and maintain slat alignment. Curtain shall be 20 gauge minimum or gauge required by testing laboratory whichever is greater.

B. Bottom bar: Shall be of a double steel angle assembly equipped with an obstruction sensing safety edge.

C. Swinging Egress Doors: Incorporated within the curtain shall be two swinging type steel doors designed and built as an integral part of the fire door's assembly.

01 Door Frames: Shall be an all-steel unit type ASTM A366 hot rolled steel, 14 gauge, same labeled fire resistance rating as specified for door.

02 Door Assemblies: Complete with door, hinge, and locking channel mechanism. 20 gauge stretcher leveled, electro galvanized and bonderized steel faces.

03 Hardware:

a. Fire Exit Devices: Shall be 202P type fire exit device on one face and with lever handle on opposite face of swinging door.

b. Closers: Shall be 4004T 90 degree pocketed applications, surface mounting.

c. Electro Magnetic Door Holders: Shall be 1304AQ Series, surface mounted, with proper projection to hold swinging doors in the fully open position.

d. All keyed hardware shall be capable of supporting a Sargent keying system / core.

e. All hardware shall be ADA compliant.

D. Grooves:

01 Each fire door is to be mounted on 4" x 4" minimum structural steel tubes provided by the door manufacturer. Tubes shall be constructed with a slip joint at the top to provide for thermal expansion. Refer to section 05120 – Structural Steel for steel grades / requirements.

02 Each groove assembly shall be fabricated of 1/8" thick minimum steel shapes with a minimum 3-1/2" depth.

03 Provide internal UL classified smoke seals in each groove assembly. Assembly shall have tested and approved under UBC 7-2-1997 Part II.

E. Floating Guide: Curtain shall incorporate a steel channel assembly to ensure proper feeding of the curtain into the door frames. This assembly shall also allow for the engagement of coiling curtain into the egress door frame.

F. Hood: Shall be provided to entirely enclose coiled curtain and counterbalance assemblies. Hood shall be fabricated of 22 gauge galvanized steel and designed to match brackets. Top and bottom shall be bent and reinforced for stiffness.

- 1                   01       Provide UL classified lintel smoke seals. Assembly shall have tested and  
2                                   approved under UBC 7-2-1997 Part II.  
3  
4       G.       Counterbalance Assembly: Door shall be counterbalanced by means of adjustable steel  
5                   helical torsion springs attached to shaft enclosed in pipe with required mounting  
6                   blocks or rings for attachment of curtain. Grease sealed bearings or self-lubricating  
7                   graphite bearings shall be attached to the spring barrel which shall be fabricated of hot  
8                   formed structural quality carbon steel seamless pipe.  
9  
10       H.       Electric Motor Operator: Door shall be provided with a compact power unit designed  
11                   and built by the door manufacturer. Operator shall be equipped with an adjustable  
12                   screw-type limit switch to break the circuit at termination of travel. High efficiency  
13                   planetary gearing running in an oil bath, shall be furnished together with a centrifugal  
14                   governor, spring-set solenoid-operated brake and a fail-safe magnetic release device,  
15                   completely housed to protect against damage, dust, and moisture. Operator is to be  
16                   NEMA type 1 enclosure. An efficient overload protection device, which will break  
17                   the power circuit and protect against damage to the motor windings shall be integral  
18                   with the unit.  
19                   01       Motor: Shall be totally enclosed, intermediate duty, thermally protected, ball  
20                                   bearing type with a class A or better insulation. Horsepower of motor is to be  
21                                   ½ hp minimum or of manufacturer's recommended size whichever is greater.  
22                   02       Starter: Shall be size "0" magnetic reversing starter, across the line type with  
23                                   mechanical and electrical interlocks, with 24 volt control circuit.  
24                   03       Reducer: Planetary gear type, 90% efficiency minimum, 77:1 reduction.  
25                   04       Brake: Double shoe type, continuous duty, solenoid activated, integral within  
26                                   the operators housing.  
27                   05       Control Station: Provide recessed mount key switch control station marked  
28                                   open, close and stop.  
29  
30       I.       Self-Closing Mechanism: Door shall be designed with a centrifugal governor as an  
31                   integral part of the operator's construction. The automatic release mechanism shall be  
32                   activated by a fusible link, smoke detector or fire alarm. When activated the door is  
33                   released and begins to close due to gravitational force. The speed of the door is  
34                   governed by a centrifugal governor, designed to match the normal operating speed of  
35                   the door, at a rate no greater than 9" per second or less than 6" per second.  
36  
37       J.       Magnetic Release Mechanism: A fail-safe magnetic release device shall be built into  
38                   the operator as an integral part of the release mechanism. When power is interrupted  
39                   to the release mechanism by the smoke detector or fire alarm, the door system shall  
40                   begin to self-close. In the event of a complete power failure, the magnetic release  
41                   mechanism shall release causing the door to self-close. Once the power is restored, the  
42                   fire door shall resume normal function without any resetting or adjustment of the limit  
43                   switches.  
44  
45       K.       Easy Trip Test Feature: The fire door shall be designed so that it may be trip-tested  
46                   simply by cutting power to the operator. By turning the power switch off, the door  
47                   system shall self-close. Once the fire door has satisfactorily closed, it shall be reset  
48                   simply by turning the power back on. No ladders or tools shall be needed to reset the  
49                   door.  
50  
51       L.       Painting: After completion of fabrication, clean all metal surfaces to remove dirt and  
52                   chemically treat to provide for paint adhesion. Slats are to receive a prime coat of .2  
53                   mils of Urethane primer and .6 mils of Polyester paint.  
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**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine surfaces and field conditions to which this work is to be performed and notify architect if conditions of surfaces exist which are detrimental to proper installation and timely completion of work.
- B. Verify all dimensions taken at job site affecting the work. Notify the architect in any instance where dimensions vary.
- C. Coordinate and schedule work under this section with work of other sections so as not to delay job progress.

**3.2 INSTALLATION**

- A. Perform installation using only factory approved representatives of the door manufacturer.
- B. Install door assemblies at locations shown in perfect alignment and elevation, plumb, level, straight and true.
- C. Adjust door installation to provide uniform clearances and smooth non-binding operation.
- D. Install wiring in accordance with applicable local codes and the National Electrical Code Standard. Materials shall be UL listed. Coordinate with other trades as required for proper interface.
- E. Test door closing sequence when activated by the building's fire alarm system. Reset door after successful test.

**3.3 PROTECTION AND CLEANING**

- A. Protect installed work using adequate and suitable means during and after installation until accepted by owner.
- B. Remove, repair or replace materials which have been damaged in any way.

**END OF SECTION**

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**SECTION 12345**

**LABORATORY CASEWORK**

*Issued In Its Entirety in Addendum No. 08*

CONDITIONS OF THE CONTRACT, SUPPLEMENTARY CONDITIONS AND DIVISION 1 APPLY TO THIS SECTION.

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

- A. Refer to the CM@R Proposal Instructions issued under a separate cover.
- B. Refer to Section 01300 - Submittals for substitutions.

**1.2 WORK INCLUDED**

- A. The laboratory equipment supplier shall be responsible for the following:
  - 01 Furnishing all cabinets and casework, including tops, ledges supporting structures, free-standing student tables, and miscellaneous items of equipment as listed in these specifications, or equipment schedules including delivery to the building, setting in place, leveling, scribing to walls and floors as required. Furnishing and installing all filler panels, knee space panels and scribes as shown.
  - 02 Preparation of casework for installation of all utility service outlet accessory fittings, electrical receptacles and switches, as listed in these specifications, equipment schedules or as shown on drawings, as mounted on the laboratory furniture.
  - 03 Furnishing service strip supports where specified, and setting in place service tunnels, service turrets, supporting structures and reagent racks of the type shown on the details. Service lines in reagent racks shall be furnished only when they are expressly specified to be part of this Section of the specifications.
- B. Fume Hoods: Furnish fume hoods when they are specifically listed in the specifications, equipment schedules or shown on the drawings to be part of this section of the specifications.
  - 01 Provide utilities and ventilation as indicated / described; including all controls.
  - 02 Fume Hoods shall be complete, fully functional units including support base if not a stand-alone unit.
  - 03 Provide unit completely wired / plumbed for final connection by relative trade. Coordinate with other trades as required for proper interface and installation.
- C. Equipment and Accessories:
  - 01 Fire Blanket and Cabinet
  - 02 Germicidal Cabinet for Safety Goggles
  - 03 Demonstration Table Apparatus'
  - 04 Emergency Eye-Wash and Shower
  - 05 Accessories as described.

- D. Related Work Described Elsewhere
  - 01 Section 12304 – Educational Casework
  - 02 Division 15 – Mechanical
  - 03 Division 15 – Plumbing
  - 04 Division 16 - Electrical

### 1.3 SUBMITTALS

- A. Refer to Section 01300.
- B. Product Data: Provide manufacturer’s complete product data for all products proposed to be furnished as required to clearly demonstrate compliance with the specified requirements.
- C. Shop Drawings: Complete shop drawings and fabrication drawings, including elevations, materials, finishes, sections, details, and schedules, Show locations and installation procedures. Include details of joints, attachments, and clearances.
- D. Full Sized Sample: Submit one full sized cabinet to the Owner for review before submitting proposals. The approved sample of each manufacturer that is not selected for the project will be returned after the contract is awarded. The approved sample of the successful manufacturer will be retained until the units are delivered to the Project.
- E. Samples:
  - 01 Provide minimum 6” x 6” sample of oak veneer proposed for use on the project.
  - 02 Provide stain samples for selection on accepted oak veneer samples.
  - 03 Sample of each type of counter top construction and surfacing.
- F. Equipment List: Include references and symbols, where applicable, that correspond to the contract documents together with the names and addresses of manufacturers, catalog numbers, and trade names of the item. Supplement lists with catalogs or catalog pages, diagrams, drawings, and other descriptive data necessary to evaluate utility considerations, dimensions, and appearances.
- G. Maintenance Instructions: Provide preprinted maintenance instructions for the casework hardware. Instruct and demonstrate the proper maintenance to the Owner’s designated representative.

### 1.4 REFERENCES

- A. Architectural Woodwork Institute. Architectural Woodwork Quality Standards Illustrated, Eighth Edition, Version 1.0. Virginia: 2003.
- B. Hardwood Plywood Veneer Association. American National Standard for Hardwood and Decorative Plywood, Version ANSI/HPVA HP-1-2004.
- C. Scientific Equipment Furniture Association. Recommended Practices for Wood Laboratory Grade Furniture, Casework, Shelving and Tables, SEFA 8W-2007.

### 1.5 DEFINITIONS

- A. The following are standard definitions used throughout the specification:
  - 01 “Concealed Portions of Casework” are surfaces that are not visible after installation; bottoms of cabinets less than 30 inches above finished floor; tops

- 1 of cabinets 72 inches or more above finished floor (and not visible from an  
2 upper level); stretchers, blocking and/or components concealed by drawers;  
3 corners created by tall, wall, or base cabinets that are non-accessible.
- 4 02 “Eased” is a process of providing a slight radius on door and drawer fronts of  
5 a cabinet.
- 6 03 “Exposed surfaces” are surfaces that are visible when: drawer fronts and  
7 doors are closed; cabinets and shelving are open or behind clear glass doors;  
8 bottoms of cabinets are seen 48 inches or more above the finished floor; tops  
9 of cabinets are seen below 72 inches above finished floor, or are visible from  
10 an upper floor or raised area after installation.
- 11 04 “False Fronts” are nonfunctional fronts attached to particular units that mimic  
12 drawer box fronts to create an uninterrupted visual image of an elevation.
- 13 05 “Flush Inset” occurs when doors and drawer faces are inset within the side  
14 members of the cabinet in the same plane.
- 15 06 “FSC” is the term used for Forest Stewardship Council, which is a  
16 recognized certifier for the LEED credit for certified wood.
- 17 07 “Partial Overlay” is the reveal between cabinets created by the hinge at the  
18 edge of the cabinet. This reveal will be used for all exterior reveals on the  
19 project.
- 20 08 “Laboratory Casework Contractor/Manufacturer” is defined as the  
21 manufacturer and/or manufacturer’s representative that is to provide and  
22 install the laboratory casework, equipment, and accessories listed under the  
23 specifications, laboratory equipment schedule and/or illustrated on drawings.
- 24 09 “NAF” is the term used for “no added urea formaldehyde”. This is a factor  
25 to be considered when trying to gain credit under LEED IEQ 4.4 Low  
26 Emitting Materials, Composite Wood and the California CARB  
27 requirements.
- 28 10 “Reveal” is the measurement between individual door and drawer  
29 components on the face of a cabinet and between doors and drawers from  
30 cabinet to cabinet.
- 31 11 “Semi-exposed surfaces” are surfaces that are visible when: opaque doors are  
32 open or drawers are extended; bottoms of cabinets are more than 30 inches  
33 and less than 42 inches above finished floor.
- 34 12 “Service Fixtures” are laboratory gas, air, and vacuum cocks; hot, cold and  
35 reagent water faucets; remote control valves, electrical receptacles (with  
36 necessary flush mounting hardware), fluorescent and/or incandescent light  
37 fixtures, light switches and/or motor switches for fume hoods and other items  
38 which serve as an operational part of the equipment.
- 39 13 “Service Lines” are the necessary piping and drain lines for laboratory gas,  
40 air and vacuum as well as hot, cold and reagent grade water that convey the  
41 respective services from building rough-ins through floors or walls through  
42 equipment to the previously defined service fixtures. Also included are  
43 conduits, junction boxes, conduit fittings, wire disconnect switches and fuse  
44 or circuit breakers necessary to conduct electrical services from building  
45 rough-ins through floors or walls through equipment to service fixtures.

46  
47 **1.5 WARRANTY**

- 48  
49 A. Furnish a written warranty that Work performed under this Section shall remain free  
50 from defects as to materials and workmanship for a period of three (3) years from date  
51 of acceptance. Defects in materials and workmanship that may develop within this  
52 time are to be replaced without cost or expense to the Owner. Defects include, but are  
53 not limited to:
- 54 01 Ruptured, cracked, or stained coating.  
55 02 Discoloration or lack of finish integrity.

- 03 Cracking or peeling of finish.
- 04 De-lamination of components or edge-banding.
- 05 Slippage, shift, or failure of attachment to wall, floor, or ceiling.
- 06 Weld or structural failure (visible weld marks).
- 07 Warping or unloaded deflection of components.
- 08 Failure of hardware.

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS**

- A. Approved Manufacturers: Specifications are based on Advanced Lab Concept (ALC) "Collegedale Collegiate" series laboratory casework.
- B. The following manufacturers are acceptable contingent upon meeting or exceeding all specified requirements, performance criteria and attributes.
  - 01 Mott Manufacturing
  - 02 Thermo Fisher Scientific
  - 03 Kewaunee Scientific
  - 04 Campbell Rhea
  - 05 Sheldon Laboratory Inc.

**2.2 WOOD FURNITURE / CASEWORK**

- A. General Requirements: In general, all materials shall be the best of their respective kinds for the purpose intended, and all methods used in construction shall conform to the best practices of the Scientific Laboratory Equipment Industry, including any specialized materials required.
- B. Solid Lumber Used:
  - 01 All hardwoods shall be carefully and thoroughly air-dried, and then kiln dried to a moisture content of 6-9% before use.
  - 02 All exterior wood casework surfaces exposed to view after installation, exposed exterior ends, tops and bottoms of open cases or cases having glazed doors shall be plain sliced red oak. Provide "FAS" firsts and seconds.
  - 03 All interior parts fabricated of hardwood shall be plain sliced red oak, Grade 1.
- C. Exposed Veneer: Veneer used for exterior surfaces exposed to view after installation, and the exposed interior ends, tops and bottoms of open cases shall be constructed of Grade A, plain sliced red oak or engineered veneer of similar characteristics, book matched of at least 1/45 inch thick veneer.
- D. Semi-Exposed Veneer:
  - 01 Veneer faces used for semi-exposed areas shall be constructed of plain sliced red oak component faces or engineered veneer of similar characteristics, grade 1 or better, either plain sliced or rotary sliced, any match.
  - 02 Interior shelves shall be banded with 1/8" plain sliced red oak hardwood on front edge.
- E. Unexposed Veneer: Veneer of any species, Grade 2 or better.
- F. Plywood Core Construction for Casework Body, Interior Shelving: All 3/4" plywood panels shall be hardwood plywood constructed as 7-ply combination core with composite crossbands. 1" panels shall be constructed as 9-ply hardwood plywood

- 1 with composite crossbands. Exterior panels must be produced from domestic sources  
2 with outer layer balanced and equal to 1/5 +/- of core thickness. Inner plies must be  
3 similar in thickness for improved balance. Semi-exposed to unexposed panels shall be  
4 of similar construction with outer layer 1/5 +/- or panel thickness. The finished panel  
5 will have a thickness tolerance plus or minus .5mm. Plywood used for shelving shall  
6 be 9-ply 1" thick.
- 7
- 8 G. Core Construction for Doors and Drawers: Standard: All 3/4" plywood panels shall  
9 be constructed as 7-ply combination core with composite crossbands hardwood  
10 plywood with 3mm edgebanding, milled to a lipped profile.
- 11
- 12 H. Hardware and Trims:
- 13 01 Door and Drawer Pulls: Shall be modern design, offer a comfortable hand-  
14 grip and be securely fastened to doors and drawers with screws. All pulls  
15 shall be aluminum wire type with 4 inch centers and without escutcheons.  
16 Two pulls shall be required on all drawers over 24 inches wide. Use of  
17 plastic pulls (molded or extruded), or a design not compatible for usage by  
18 the handicapped will not be acceptable.
- 19 02 Flush Pulls: For sliding doors, pulls shall be satin finish chrome, providing a  
20 recessed finger grip. Finger holes or slots machined into doors will not be  
21 acceptable.
- 22 03 Hinges: Shall be five (5) knuckle 2.75" grade 1 type 304 stainless steel for  
23 all hinged doors. Two hinges for doors less than 4 ft. in height and three  
24 hinges on doors over 4 ft. in height.
- 25 04 Locks:
- 26 05 Casework drawers and hinged doors: Shall be provided when indicated by  
27 the specified product number, shown on the drawings or called for in the  
28 casework schedule. Exposed surface of locks shall be dull chrome. All  
29 locks, for the purpose of coordinating keying systems, shall be National five  
30 (5) tumbler. These can be furnished with master keys, however grand master  
31 keying is not provided unless specified prior to bid time.
- 32 06 Framed Glass Doors: Locks shall be plunge type sliding showcase locks  
33 which are to be of the same make as those selected above.
- 34 07 Sliding Glass Doors: Locks shall be ratchet type sliding showcase locks  
35 which are to be of the same make as those selected above.
- 36 08 Door Catches:
- 37 09 Roller Catches: Shall be used on all hinged doors. Catches shall have a  
38 spring-loaded dual polyethylene roller and are provided with a steel strike  
39 plate. Double doors without locks shall have a catch on each door. Tall  
40 cases shall have latching devices located on upper and lower part of each  
41 door. On cabinets equipped with locks, the left-hand door shall have an  
42 astragal and the right hand door shall have roller type catch.
- 43 10 Elbow Catches: Catches and strike plates shall be used on left hand doors of  
44 double door cases where locks are used, and shall be steel, cadmium plated.
- 45 11 Drawer Slides: Drawer slides for standard drawers shall be Grade 1, 100  
46 pound ball bearing full extension as manufactured by ALC-Collegedale  
47 Model #7032. Slides for file drawers, heavy-duty paper storage drawers and  
48 any drawers over 36 inches in width shall be Grade 1, 150 pound full  
49 extension ALC-Collegedale Model #9677.
- 50 12 Leg Shoes: Shall be provided on all table legs, unless otherwise specified, to  
51 conceal leveling device. Shoes shall be 2 and 1/2 inches high and constructed  
52 of pliable, ABS plastic. Use of a leg shoe which does not conceal leveling  
53 device will not be acceptable.
- 54 13 Tote Trays: Shall be tan color vacuum-formed plastic type with full top rim  
55 in standard sizes. Each tote tray is equipped with plated steel label holder.

- 14 Coat Rods: Shall be ALC-Collegedale #770 chrome plated 1 inch diameter steel with ALC-Collegedale #764 rod flanges (or approved equivalent).
- 15 Support Struts: Shall consist of two 16 gauge channel uprights fastened top and bottom by two adjustable "U" shaped spreaders, each 1/8" by 1-1/2" by length required. Struts can be furnished to support fume hood superstructures or other abnormal loads when required. Support struts shall be finished with a black, enamel paint.
- 16 Shelf Support Clips: Shall be plastic twin pin seismic type or metal "L" type as dictated by seismic requirements, for mounting on interior of cabinets. Shelves are adjustable on 32 mm centers.
- 17 Tempered Hardboard: Wood-fiber and resin combination formed with heat and pressure into a hard, smooth surface.

**2.3 SPECIAL MATERIALS**

- A. Fiberglass Reinforced Polyester: Reinforced polyester panels for laboratory use specifically designed to be corrosion and flame resistant lining for fume hoods and certain acid storage units. Exposed surface shall be smooth in appearance and white in color. Material has a flexural strength of 19,500 PSI and water absorption of 0.2%.
- B. Glass:
  - 01 Glass for framed and unframed doors shall be 1/4" thick clear laminated safety glass, complying with ASTM C1172, Kind LT, Condition A, Type 1, Class 1.
  - 02 Glass used in fume hood sashes or other equipment used in hazardous areas shall be 7/32 inch thick laminated safety type. Fluorescent light shielding in fume hoods shall be tempered glass offering greater resistance to heat and impact.

**2.4 SPECIAL UNITS**

- A. Acid Storage Base Cabinet: Cabinet exterior is to match type of wood, stain, color and finish of adjacent cabinetry but is to be lined with corrosion resistant material equal to the fiberglass reinforced polyester described in the "Special Materials" section of this document.
  - 01 Provide three (3)
  - 02 Size: 42"W x 35"H x 22"D
- B. Flammable Cabinet: Cabinet exterior is to match type of wood, stain, color and finish of adjacent cabinetry but is subject to the following differences:
  - 01 Inset Overlay: Doors are set within the members of the frame to allow for the creation of a near airtight seal when closed. Reveals reflect panel width and are 1 inch around the entire face of the cabinet.
  - 02 NFPA 30 Compliant/UL listed: Cabinet is constructed to limit the internal temperature at the center of the cabinet and 1 inch from the top of the cabinet to no more than 325 degrees Fahrenheit when subjected to a 10 minute test that simulates fire exposure. All joints and seams are designed to remain tight and the door shall remain securely closed for the duration of exposure to flame/heat of the same duration of the test.
  - 03 Exposed Plywood: Properties pertaining to plywood used for exterior surfaces and doors remain consistent with the properties already specified under the Exposed Plywood section of Laboratory Casework with the following exception: The plywood used for exterior surfaces and doors must be constructed from 1 inch plywood as opposed to a 3/4 inch thick material.

- 1                                   04     Hardware and Trim:
- 2                                   a.     Door Pull & Catch: Door pulls and catches shall be part of an
- 3                                                 integrated 3 point latching system that offers a comfortable hand-
- 4                                                 grip and is securely fastened to doors with zinc screws.
- 5                                   b.     Hinges: Full-length piano style hinge.
- 6                                   05     Cabinet Construction: Cabinet end panels, top, bottom and back shall be 1
- 7                                                 inch, 9-ply plain sliced red oak plywood meeting the same veneer quality
- 8                                                 requirements as indicated in Section 2.2 A.2. with 1/8" hardwood
- 9                                                 edgebanding. The entire structure including end panels, top, bottom and
- 10                                                back shall be of rabbet joint construction with each joint secured from two
- 11                                                directions with countersunk screws affixed to hardwood blocking from the
- 12                                                interior of the cabinet. The unit will be equipped with gasketing and a keyed
- 13                                                astragal to totally seal the interior of the cabinet from the outside. All base
- 14                                                units shall have a removable drip tray recessed within the blocking capable of
- 15                                                retaining a 2 inch depth of spilled liquid.
- 16                                   06     Doors: Doors shall be fabricated using 1 inch solid plywood core. All four
- 17                                                showing edges shall be edge banded with 1/8 inch hardwood. Piano hinges
- 18                                                will be attached via zinc screws to the interior of the cabinet.
- 19                                   07     Size: 42"W x 35"H x 22"D
- 20

21     **2.5     WOOD CASEWORK FINISH AND PERFORMANCE REQUIREMENTS**

- 22
- 23     A.     Wood Finish Application: Finishes shall be applied under controlled atmospheric
- 24                                                conditions, and shall be cured after application in a modern humidified oven at 140°F,
- 25                                                and 30% relative humidity.
- 26
- 27     B.     Wood Casework Finish (Interiors): Interior surfaces and unexposed exteriors shall
- 28                                                receive a double-pass coat of resinous wood sealer. Drawer glides and keels shall be
- 29                                                thoroughly waxed after sealing.
- 30
- 31     C.     Wood Casework Finish (Exteriors): Case and cabinet exposed surfaces, including
- 32                                                interiors of glazed cases and open shelving, shall be provided with an acid, alkali,
- 33                                                solvent, water and abrasion-resistant finish. Surfaces shall be first coated with toner
- 34                                                to secure the desired color. The color coat shall be thoroughly dried. The first sealer
- 35                                                coat shall be applied, thoroughly dried, sanded and carefully dusted with tack rags. A
- 36                                                second sealer coat shall be applied and thoroughly dried. A double pass coat of
- 37                                                chemical resistant synthetic varnish shall then be applied and thoroughly dried,
- 38                                                providing a semi-gloss finish.
- 39

40     **2.6     TABLE TOPS AND COUNTERTOPS**

- 41
- 42     A.     Molded Epoxy Resin Tops: Molded Epoxy Resin tops shall be molded from a
- 43                                                modified epoxy resin that has been especially compounded and cured to provide the
- 44                                                optimum physical and chemical resistance properties required of a heavy-duty
- 45                                                laboratory table top.
- 46                                   01     Tops and curbs shall be a uniform mixture throughout their full thickness,
- 47                                                and shall not depend upon a surface coating that is readily removed by
- 48                                                chemical and/or physical abuse.
- 49                                   02     Tops and curbs shall be non-glaring and black in color.
- 50                                   03     Table tops shall be 1 inch thick, with drip grooves provided on the underside
- 51                                                at all exposed edges. Further, all exposed edges except as indicated below,
- 52                                                shall be rounded to a 1/4 inch radius at front top edge and at vertical corners.
- 53                                   04     Integrally molded 18 inch high curbs at the backs and ends of tops shall be
- 54                                                3/4 inch thick, and the juncture between top and curb shall be coved to a 3/4
- 55                                                inch radius. Curbs on special width tops and round special cutouts shall be

the same thickness as the tops, bonded to the surface of the top to form a square joint. Sink cutouts shall be smooth and uniform without saw marks and the top edge shall have a uniform radius of approximately 1/8 inch. The bottom edge of the sink opening shall be finished smooth with the edge broken to prevent sharpness. Corners of sink cutouts shall be radiused not less than 3/4 inch.

B. Physical Properties:

- 01 Flexural Strength (ASTM D790-71)..... 15,000 psi
- 02 Compressive Strength (ASTM D695-77)..... 35,000 psi
- 03 Hardness, Rockwell M (ASTM D785-65) ..... 100
- 04 Water Absorption (ASTM D570-77)
- 05 % by weight, 24 hours..... 0.02
- 06 % by weight, 7 days ..... 0.04
- 07 % by weight, 2 hour boil ..... 0.04
- 08 Specific Gravity ..... 1.97
- 09 Tensile Strength ..... 8,500 psi
- 10 The result shall be an acid, alkali, and solvent resistant surface, uniform black in appearance which will meet the performance test results specified under the Performance Requirements section of this specification.

C. Performance Tests For Molded Epoxy Resin:

- 01 Performance Test Results (Heat Resistance): A high form porcelain crucible, size, 0, 15 ml. capacity, shall be heated over a Bunsen burner until the crucible bottom attains an incipient red heat. Immediately, the hot crucible shall be transferred to the top surface and allowed to cool to room temperature. Upon removal of the cooled crucible, there shall be no blisters, cracks or any breakdown of the top surface whatsoever.
- 02 Performance Test Results (Chemical Resistance): Tops shall resist chemical attacks from normally used laboratory reagents. Weight change of top samples submerged in the reagents\* listed in the next paragraph for a period of seven (7) days shall be less than one-tenth of one percent, except that the weight change for those reagents marked with \*\* shall be less than one percent. (Tests shall be performed in accordance with ASTM D543-67 at 77° F.)

\*Where concentrations are indicated, percentages are by weight.

Acetic Acid, Glacial	Ethyl Alcohol, 95%	Olive Oil
Acetic Acid, 5%	Ethyl Alcohol, 50%	Phenol, 5%
Acetone	Ethylene Dichloride	Soap Solution, 1%
Ammonium Hydroxide, 28%	Heptane	Sodium Carbonate, 20%
Ammonium Hydroxide, 10%	Hydrochloric Acid, 37%	Sodium Carbonate, 2%
Aniline Oil	Hydrochloric Acid, 10%	Sodium Chloride, 10%
Benzene Hydrogen Peroxide, 28%	Sodium Hydroxide, 50%	
Carbon Tetrachloride	Hydrogen Peroxide, 3%	Sodium Hydroxide, 10%
Chromic Acid, 40% **	Iso-Octane	Sodium Hydroxide, 1%
Citric Acid, 10% kerosene	Sodium Hypochlorite, 5%	
Cottonseed Oil	Methyl Alcohol	Sulfuric Acid, 85% **
Dichromate Cleaning Solution**	Mineral Oil	Sulfuric Acid, 30%
Diethyl Ether	Methyl Ethyl Ketone	Sulfuric Acid, 3%
Dimethyl Formamide	Nitric Acid, 70% **	Toluene
Distilled Water	Nitric Acid, 40%	Transformer Oil
Detergent Solution, 1/4%	Nitric Acid, 10%	Turpentine
Ethyl Acetate	Oleic Acid	

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**NOTE:** Dichromate cleaning solution is a formula from Lange’s Handbook of Chemistry.

- D. Provide integral 14” x 14” x 8” deep (5” deep at accessible station) sinks where indicated on the Drawings.
- E. Provide epoxy resin countertops at all lab and prep room casework.
- F. Provide epoxy resin tops at freestanding / moveable student tables.
  - 01 Provide 6 tables, 36” x 60” at each chemistry lab.
  - 02 Provide 8 tables, 36” x 60” at each physics lab.
- G. Provide epoxy resin tops at each teacher demonstration table.
- H. Provide epoxy resin tops at each base unit at fume hoods.

**2.6 MECHANICAL SERVICE FITTINGS**

- A. Double Ball Valve Assembly: Design is based on Watersaver Model No. VR4100-132SWSA Vandal Resistant Double Ball Valve Assembly, Deck Mounted.
  - 01 3/8” fittings
  - 02 Internal check valves to prevent backflow
  - 03 Forged brass handles secured with vandal-resistant screws
  - 04 Serrated hose ends.
  - 05 Chrome plated.
- B. Sink fittings, connection of gas supply to valves, and electrical outlets / wiring shall be provided by division 15 and 16. Coordinate as required for proper interface and installation.
- C. Service Indexes: Fittings shall be identified with service indexes in the following color coding:
  - 01 Hot Water .....Red
  - 02 Cold Water ..... Dark Green
  - 03 Gas.....Dark Blue

**2.7 ACCESSORIES**

- A. Germicidal Monitor Cabinet for Goggles: design is based on Sellstram Mnfr. Co. Model No. 2000 Germicidal Monitor Cabinet.
  - 01 Nominal Size: 32”H x 24”W x 9-1/2”D.
  - 02 Capacity: minimum 32 pairs of goggles.
  - 03 Wall mounted.
  - 04 Electrical: 120V, 60Hz, 35 watts, 0.25 amps, 253.7 Nanometers
  - 05 Vandal-resistant construction, double doors with light seal.
  - 06 Keyed lock.
  - 07 Ultraviolet lamp with “ON” indicator.
  - 08 Exterior heavy-duty 5-minute timer with automatic shut-off when doors are opened.
  - 09 Locations: provide one in each chemistry lab and physics lab.
- B. Fire Blankets: design is based on Sellstram Model No. 97457 Fiberglass Fire Blanket in Red Stainless Wall Mounted Cabinet.
  - 01 Blanket shall be 18 ounce texturized fiberglass material, maintaining physical integrity up to 1000 degrees F.

- 1                   02     Blanket Size: 60" x 72"  
2                   03     Locations: Provide one at each chemistry lab and physics lab.  
3  
4           C.     Peg-Board Drying Racks: design is based on Durcon Model No. 3036  
5                   01     Peg-Board Size: 30" x 36" x 1" thick in color selected by the Architect from  
6                             manufacturer's standard colors.  
7                   02     Pegs: 1/2" diameter x 6-1/2" length, polypropylene. Minimum 56 pegs per  
8                             board.  
9                   03     Provide stainless steel drip trays at each drying rack.  
10                  04     Locations: Provide one above each prep room sink..  
11

## 12   **2.9    DEMONSTRATION TABLE APPARATUS**

- 13  
14           A.     General: The frame support structure shall consist of vertical support members and  
15                             horizontal tubular frame.  
16  
17           B.     Vertical Support Members:  
18                   01     Type 304 stainless steel seamless tubing.  
19                   02     Size: 3/4" diameter x 48" length.  
20  
21           C.     Horizontal Frames:  
22                   01     Type 304 stainless steel seamless tubing.  
23                   02     Size: 1/2" diameter x 48" length.  
24  
25           D.     Provide clamps for securing horizontal frame to vertical supports.  
26  
27           E.     Provide mounting sleeves in tabletop with cap inserts when supports are not in use.  
28  
29           F.     Locations: provide one (set) at each teacher demonstration table in each chemistry lab  
30                             and physics lab.  
31

## 32   **2.10   EMERGENCY EYE WASH / SHOWER**

- 33  
34           A.     Design is based on Watersaver Model No. SSBF909-PCC barrier free, polished  
35                             chrome plated brass construction, combination emergency eye-wash / shower unit.  
36  
37           B.     Locations: Provide Install one emergency eye-wash / shower unit at each chemistry  
38                             lab and physics lab where indicated on the Drawings  
39

## 40   **PART 3 - EXECUTION**

### 41   **3.1    INSTALLERS**

- 42  
43  
44           A.     Installer Qualifications: For installation and maintenance of the field installation, a  
45                             certified installer, with certification issued by the casework manufacturer, is required for  
46                             this project.  
47

### 48   **3.2    EXAMINATION**

- 49  
50           A.     Inspection and Preparation:  
51                   01     Inspect the installed work of other trades and verify that it is complete to the  
52                             point where this installation may begin. Make necessary cut-out and accesses  
53                             for the work of other trades.

- 1                   02       Verify that casework and equipment may be installed in strict accordance  
2                   with the original design, pertinent codes, and regulations, manufacturer's  
3                   instructions and recommendations, and reviewed shop drawings.  
4                   03       In the event of discrepancy, immediately notify the Architect. Do not proceed  
5                   with installation in areas of discrepancy until such discrepancies have been  
6                   fully resolved.  
7                   04       Verify lengths of countertops, splashes, and bases. Units with exposed backs,  
8                   interiors, ends, and bases shall be finished to match the other exposed faces.  
9  
10                  B.       Coordinate with other trades as required for installation of work by other trades as  
11                  required to assure proper interface between trade installations.  
12

13   **3.3    INSTALLATION**

- 14  
15                  A.       Casework Installation:  
16                  01       Casework should be set with components plumb, straight and square,  
17                  securely anchored to building structure with no distortion. Concealed shims  
18                  should be used as required. Flooring elevations that exceed 3/4" in any  
19                  elevation must be reported and addressed by the contractor prior to  
20                  installation of the casework. Direction from the contractor to install product  
21                  in areas that exceed this requirement relieves this section from any  
22                  responsibility of adverse casework affects.  
23                  02       Cabinets in continuous runs should be bolted together with joints flush,  
24                  uniform and tight, with an alignment of adjacent units not to exceed 1/16 of  
25                  an inch.  
26                  03       Wall casework should be secured to solid material; not lath, plastic or  
27                  gypsum board.  
28                  04       Top edge surfaces should be abutted in one true plane. Joints are to be flush  
29                  and should not exceed 1/8 of an inch between tops units.  
30                  05       Casework and hardware shall be adjusted and aligned to allow for accurate  
31                  connection of contact points and efficient operation of doors and drawers  
32                  without any warping or binding.  
33  
34                  B.       Countertop Installation:  
35                  01       Countertops are to have been fabricated in lengths according to drawings,  
36                  with ends abutting tightly and sealed with corrosion resistant sealant.  
37                  02       Tops will be anchored to base casework in a single true plane with ends  
38                  abutting at hairline joints with no raised edges at joints.  
39                  03       Joints shall be factory prepared having no need for in-field processing of top  
40                  and edge surfaces.  
41                  04       Joints should be dressed smoothly, surface scratches removed and entire  
42                  surface cleaned thoroughly.  
43

44   **3.5    CLEANING**

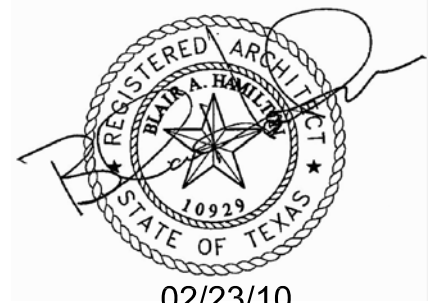
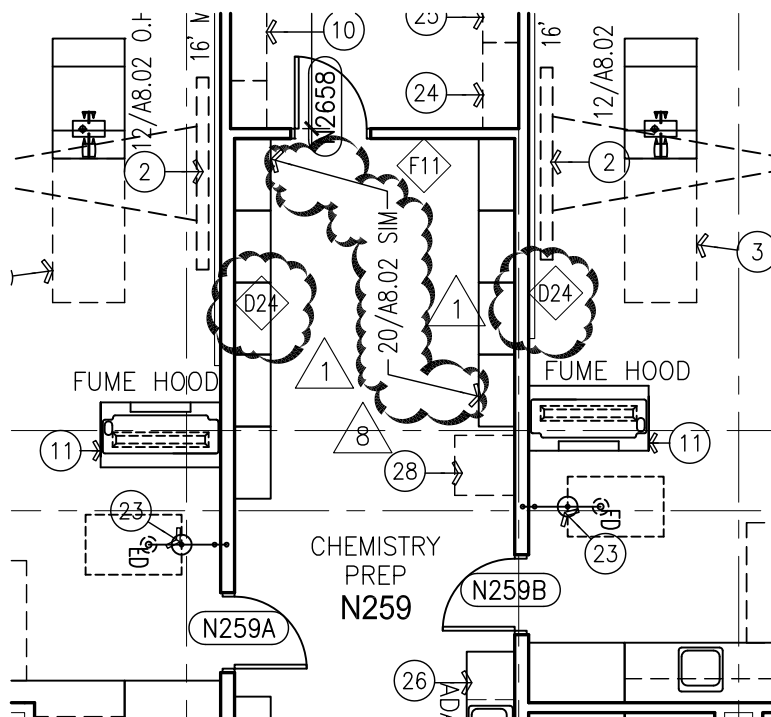
- 45  
46                  A.       Ensure all products are unsoiled and match factory finish. Remove or repair damaged  
47                  or defective units.  
48  
49                  B.       Clean all finished surfaces, including drawers and cabinet shelves, and touch up as  
50                  necessary.  
51  
52                  C.       Countertops should be cleaned and free of grease or streaks.  
53

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**3.6 PROTECTION**

- A. Counter tops and ledges should be protected with 1/4 inch ribbed cardboard for the remainder of the construction process.
  
- B. Touch Up: Upon completion of the installation, visually inspect exposed surfaces and touch up scratches and abrasions to be invisible to the unaided eye from a distance of five feet.

**END OF SECTION**



02/23/10

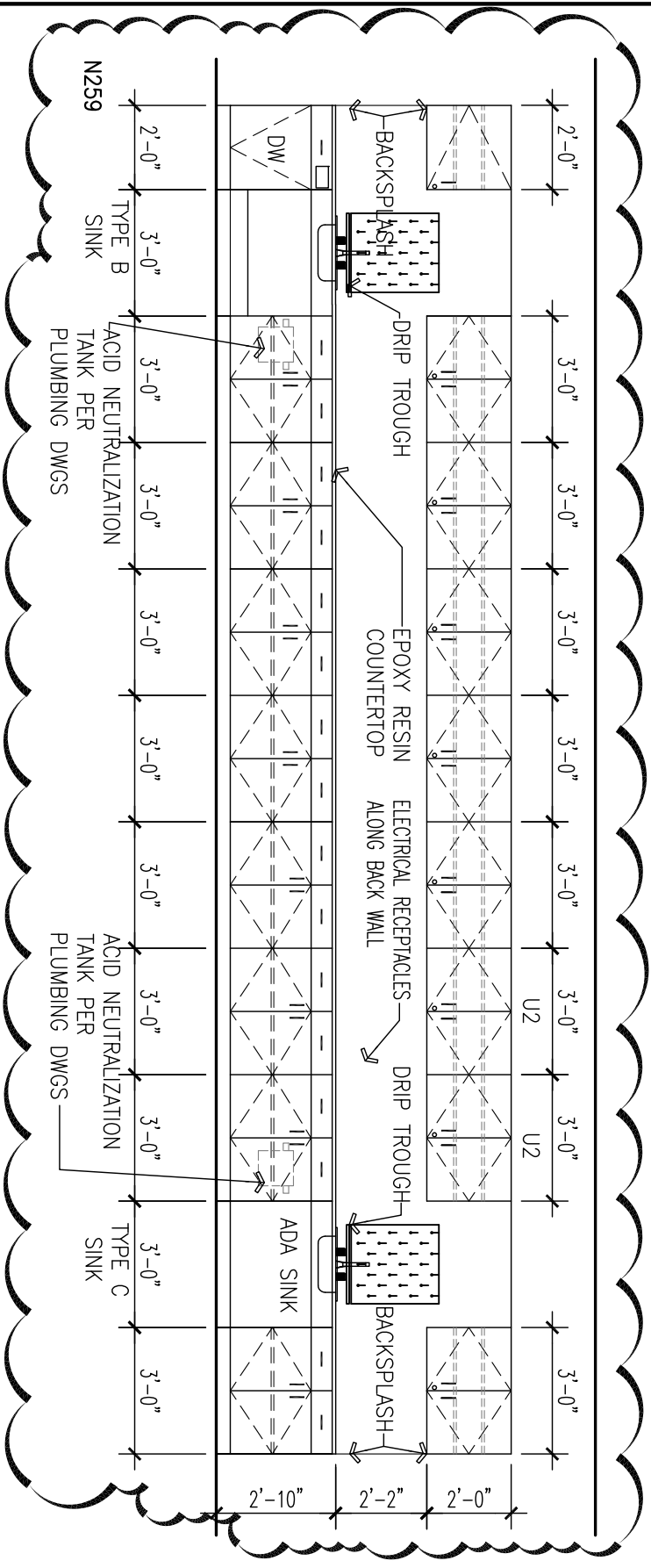
# PARTIAL REVISED PLAN 1/A2.24



**BAY ARCHITECTS**  
 18201 GULF FREEWAY  
 P.O. BOX 891209  
 HOUSTON, TEXAS 77289  
 281.286.6605

DICKINSON HS ADDITIONS & RENOVATIONS  
 DICKINSON I.S.D.

ADD-08-01  
 0743  
 1/8" - 1"=0"  
 02/23/2010



# 17 CHEMISTRY PREP (259)

1/4" = 1'-0"



02/23/10

## PARTIAL REVISED CASEWORK ELEVATION 17/A8.02

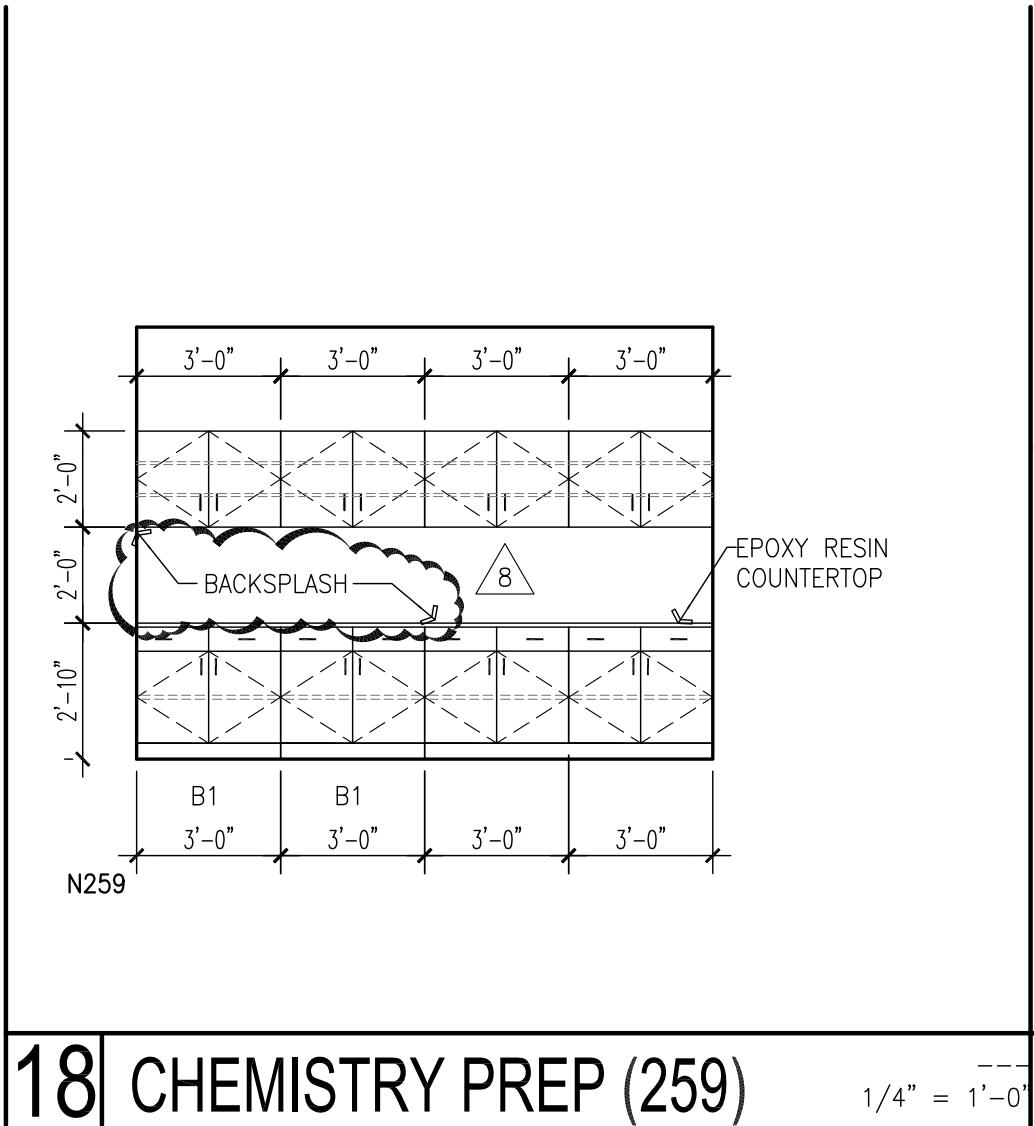
**BAY ARCHITECTS**

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281.286.6005

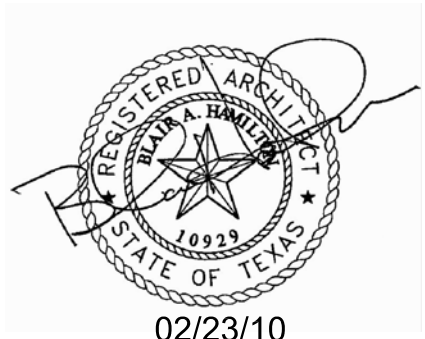
DICKINSON HS ADDITIONS & RENOVATIONS  
DICKINSON I.S.D.

ADD-08-02  
0743  
1/4"=1'-0"  
02/23/2010





# 18 CHEMISTRY PREP (259)



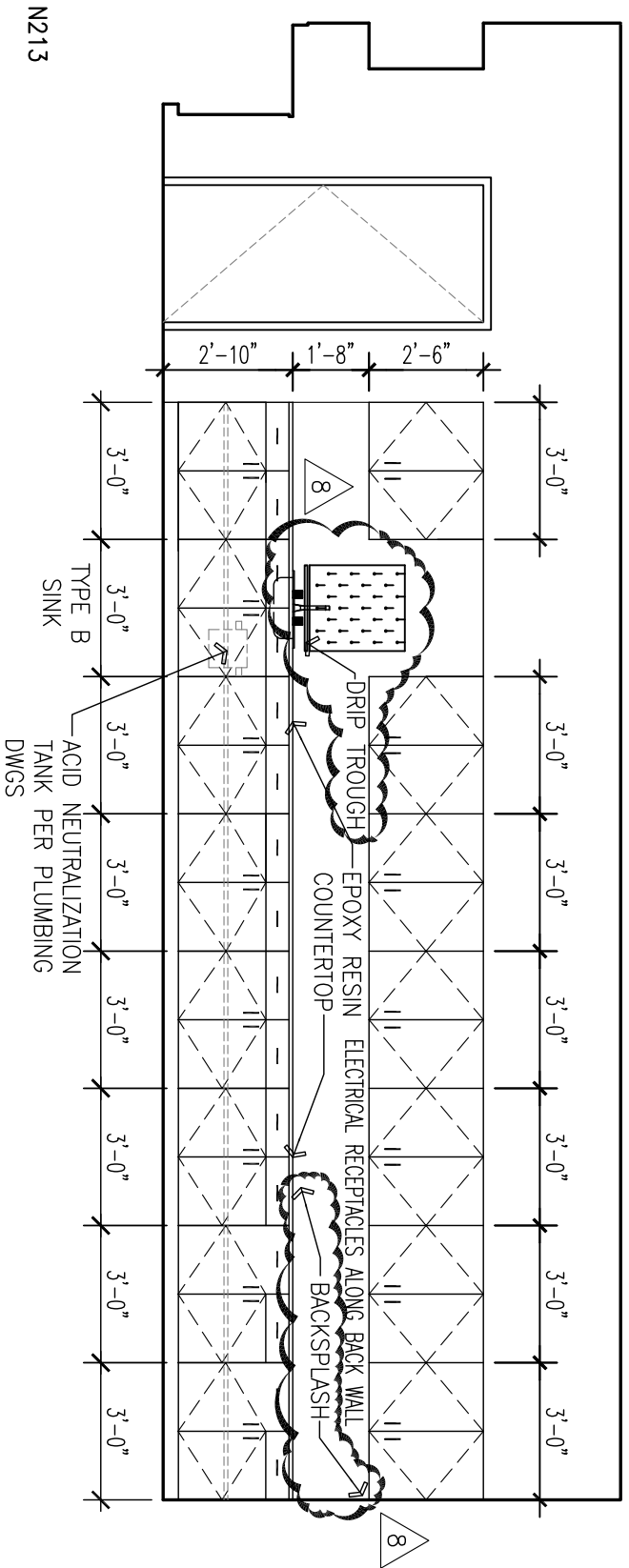
## PARTIAL REVISED CASEWORK ELEVATION 18/A8.02



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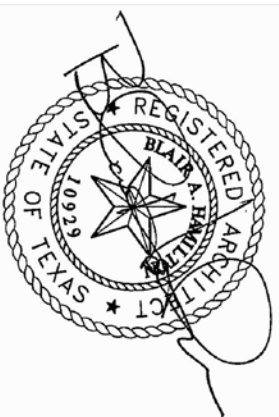
DICKINSON HS ADDITIONS & RENOVATIONS  
 DICKINSON I.S.D.

ADD-08-03  
 0743  
 1/4" - 1"=0"  
 02/23/2010



# 29 PREP RM (213)

## PARTIAL REVISED CASEWORK ELEVATION 29/A8.02



02/23/10



**BAY ARCHITECTS**  
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 P.O. BOX 891209  
 HOUSTON, TEXAS 77289  
 281.286.6005

DICKINSON HS ADDITIONS & RENOVATIONS  
 DICKINSON I.S.D.

ADD-08-04  
 0743  
 1/4"=1'-0"  
 02/23/2010