

**PRODUCT KNOWLEDGE:
ORGANIZATION TECHNIQUES
NO SPEC WRITER CAN AFFORD
TO IGNORE**

**BY
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This information is on a need-to-know bases. (That is, you need to know this of information, so take your time and read carefully).

Your opinion matters. It matters to your fellow Architects. And I'd like to hear it. In fact, I NEED to hear it. When you share your experiences and opinions, you become an active member. Tell me when I am right and when I am wrong. Tell me what to include and not to include in this Guide.

1. Use this guide for documenting project information for all phases (SD, DD, CD, and CA).
2. This guide is particularly useful for creating Outline Spec.
3. This guide is available in both Word and PDF format, including toc-bookmark feature and hyperlink to vendor web sites.
4. Modify, add, delete, and attach pertinent info as required for your project.
5. Use this document for assigning drawing call-outs, notation in parenthesis in each section.
6. Brackets [] indicate selections to be made.
7. Specify a "System" when possible for a complete assembly.
8. When Construction Manager (CM) is involved, all Division 1 sections require CM wording added.
9. Don't just use the term "By Owner", be more specific by using either Owner Furnish Owner Install (OFOI) or Owner Furnish Owner Install (OFCI).
10. Need to figure out a way to incorporate Color Board information to either on DWG (elevation) or specs. Best practice would be on Exterior and Interior Elevations on drawings (See Cuesta LRC). Color Board is not part of Contract Documents.
11. Read this document completely prior to drawing and before editing.
12. Auto-generation of submittal list and manufacturer list is available for each project. (Not a perfect list since each spec section has to follow the exact format.)
13. The drawings define the quantity and location of the product/equipment. The specifications define the quality.
14. Four (4) Step Process:
 - a. Pre-design (vision): Very little in-depth product selection is done during this phase of the project; however, budgeting that is done at this phase starts to set the tone for the criteria that will be used to select products.
 - b. Design (planning).
 - c. Construction (implementation).
 - d. Project close-out/occupancy (evaluation).
15. Basis of Design:
 - a. Get the owners to "sign off" on important design criteria that affect product selections.
 - b. Sometimes at the bidding phase or construction phase, you'll need to revisit this documentation to ensure that what the contractor is proposing to install meets the goals of the client.
 - c. The reasons behind all of the product features and attributes called for in the specifications are not usually documented in the contract documents; therefore, the contractors do not readily realize and understand why the engineer rejects certain submittals and substitution requests.
16. Construction Documents:
 - a. The specifications and the drawings are both part of the owner/contractor contract to build the facility.
 - b. The architect and engineer are not a direct party to this contract and do not have independent authority to modify the owner/contractor contract.

- c. This is a fact that many architects, engineers, and contractors tend to ignore when they attempt to change the contract documents via the product submittal process.
 - d. Architect of record does not have independent authority to modify these contract documents (via submittal approval, punch list, or otherwise) without the Owner's concurrence.
 - e. The plans and specifications are part of the owner/contractor contract documents and are used to communicate the "design intent" to the bidding contractors. They are produced in the construction document design phase of the project.
17. Submittals:
- a. This is effectively the beginning of the evaluation step in the process. The submittals are supposed to reflect what the contractor is going to install in the project, and generally become a part of the O&M manual that is given to the owner at the end of the job.
 - b. Once all of the design team and contractor team members are no longer working on the job, the owner's facility management team only has the contract documents (which include the drawings and specifications) and the O&M manual to rely on to understand how to operate the building.
 - c. This is where the rubber hits the road. Does the product selected by the contractor meet the contract document requirements?
 - d. The submittal process is NOT intended to be a last step in the design phase. This is the main reason why there are disclaimers in the contract document specifications that clearly tell the contractor that the submittal review does not relieve the contractor from the responsibility of providing to the owner what was in the contract documents.
 - e. The contractor may assume that the engineer does have the authority to accept a modified product (substitution) via the submittal process and order the product in good faith based on the submittal review. This is the start of many construction disputes and lawsuits.
 - f. The submittal review is essentially a gap analysis. Is the product being submitted meeting the "required function" specified in the contract documents, and is it being clearly, completely, correctly, and concisely communicated in the submittal?
18. Shop drawings:
- a. Are the actual build-to drawings that need to coordinate the location and quantity of the devices with the rest of the construction trades.
 - b. It is a formal opportunity for the build team to build the job on paper.
 - c. It's the contractor's opportunity to tell the other trades what is needed to work out the little details of specific locations, such as to move the ductwork running directly over projectors, and to relocate the sprinkler heads that are shown over the equipment racks.
 - d. "Words fly away, but paper is forever."
19. Commissioning Agent (HVAC systems): The commissioning agent theoretically monitors the design, construction, and installation evaluation process to ensure that the required functions established at the beginning of the design phase are ultimately delivered to the owner. A D-B firm can give a team approach also; however, the owner should still have an independent consultant or commissioning agent help monitor the required decision making process.
20. Title 24 Issues:
- a. Advise mech and electrical on owner requirements (i.e. beat Title 24 by 10%).
 - b. Mechanical calculates U factor and SHGC for windows; wall and roof R values.
 - c. Since our glazing is site installed, we need to calculate U factor and SHGC for glass.
 - d. Need acceptance wording in the front end documents.
21. Sustainable Design: Product or product category with  symbol in front indicates it contributes to one or more LEED credit category. See detail information in Cutsheet folder for exact credit explanation by each manufacturer.

Special Note:

1. Stairs: Need to determine if the stairs are concrete or metal. If concrete, structural consultant needs to detail. For metal stairs, determine if it will be detailed by structural consultant or pre-assembled stairs (Sharon, American, etc.) will be used, and determine the tread type (concrete filled, check plate, etc.)
2. Basis of Design: Where we use "Trade Reference" such as model numbers by certain manufacturers.

Bid Information

- A. Construction Duration:
 1. [] days.
 - a. 548 calendar days from the after the date of commencement of work as set forth in Notice to Proceed issued by Owner. (Cuesta Allied)
 - b. 330 calendar days from NTP. (Reedley)
 - c. 140 calendar days from NTP. (Oceano)
 - d. 12 month from NTP. (Skills)
 2. Or define start and end date.
 - a. Complete prior to March 31, 2005. (Hidden Oaks)
- B. Subcontractor List Form.
- C. Bid Due Date and Time: [] []
- D. Place for submitting Bid: []
- E. Bid Opening Date and Time: [] []
- F. Place of Opening Bid: []
- G. Bid and Contract documents:
 1. Available at []
 2. Times between [] am to [] pm.
 3. Cost per set:
 - a. \$150.00 (Skills).
 - b. \$200.00 (Hidden Oaks)
 4. Mailed service fee: \$50.00 (Hidden Oaks)
 5. Refunded if returned with in [5] days of bid opening.
- H. Bid to be valid up to: [60] days after bid opening date (Hidden Oaks)
- I. Bid to accompany following forms:
 1. List of forms.
- J. Mandatory Job Walk Date and Time: [] []
- K. Bid questions accepted up to:
 1. [7] days prior to Bid Due Date.
 2. 72 hours (3 days) prior to Bid opening date. (Hidden Oaks).
- L. Public Code (4104.5):
 1. Addendum may be issued up to 3 days prior to Bid Due Date. Otherwise, bid opening date will be postponed to allow additional addendum.
- M. Bond:
 1. Bid Bond: [10] % of Total bid price. (Hidden Oaks)
 2. Performance Bond: [100] % of Total bid price. (Hidden Oaks)
 3. Payment: [100] % of Total bid price. (Hidden Oaks)
- N. License Requirements: Class [B] (Hidden Oaks)
- O. Storm Water Permit Requirements. (Hidden Oaks)
- P. List of Subcontractors: (Hidden Oaks)
 1. List Name, Location, and area of work for work in amount excess of 0.05% of total work.
 2. Include in bid documents.
 3. Public Code (4104): Owner will not allow bidders additional [24] hours after submission of bid.

Q. Award Process: (Hidden Oaks)

1. Successful bidder will have [5] calendar days from Notice of Award supply all documents.
2. Contract time will begin to run [10] calendar days from Notice of Award letter.
3. Once Owner receives all documents, Owner will issue Notice to Proceed to Contractor.

Invitation to Bid and Advertisement for Bids (in correct order)

- A. Project identification: Name, project number, date of issue, name and address of A/E.
- B. Description of work.
- C. Type of Bid.
- D. Time of Completion.
- E. Prebid meeting: Time and location.
- F. Bid opening: Time and location.
- G. Examination and procuring of documents.
- H. Bidder's qualification.
- I. Bid security.
- J. Owner's right to reject bids.
- K. Laws and regulation.

Bid Form (in correct order)

- A. Project identification: Name, project number.
- B. Bid To: Name and address of party to whom the bid is directed.
- C. Bid From: Entity Submitting Bid.
- D. Acknowledgements.
- E. Time for the bids to be held open.
- F. Identification of Addenda.
- G. Prices:
- H. Alternates:
- I. Allowances:
- J. Unit prices:
- K. Completion of time.
- L. Liquidated damages.
- M. Supplements. List other documents.
- N. Closing: Submitted by name, address, date, corporate seal, etc.

Agreement (Between Owner and Contractor).

- A. Date of Agreement.
- B. Date of Notice to Contractor.
- C. Contract Price.
- D. Scope of work: List of documents.
- E. List of Alternates selected.
- F. Liquidated Damages:
 1. Delay per day: \$[1,000] (Hidden Oaks)
- G. Owner's Lawyer:
 1. Best Best & Krieger LLP (Hidden Oaks)
 2. Sherman Wong (AHC)
- H. Timeline:
 1. Agreement - Notice to Proceed - Start Construction.

General Conditions of the Contract

- A. AIA A201 General Conditions of the Contract
 1. 8.1.4. Days mean Calendar Days.

2. AIA A201 Modified. (Fletcher).
- B. Owner supplied.
 1. District. (all school projects)
- C. EJCDC (Engineers Joint Contract Documents Committee).
- D. AGC (Associated General Contractors) - Music Academy of the West - Wood II.

Supplementary Conditions of the Contract

- A. None: (Hidden Oaks).
- B. Owner Supplied. (Cuesta College)
- C. Forms provided by Owner:
 1. RFI. (Cuesta Allied).
- D. Forms provide by Architect
 1. Change Estimate Request - Bulletin (Cuesta Allied).
 2. Change Order (Cuesta Allied).
- E. Supplementary Conditions used (Cuesta)

Special Conditions of the Contract

- A. None: (Hidden Oaks).
- B. Special Conditions used (AHC, Cuesta)
 1. Hidden Oaks did not use Supplementary or Special Conditions.

Design/Build (special note)

- A. Owner has a single contract point of contact for the design and construction of the project.
- B. Need different type of construction documents. Not provide here.

Geotechnical (soils) Report (Required by DSA)

- A. Signed by California Certified Geotechnical Engineer.
 1. Douglas Dunham of Earth Systems Pacific (Skills)
- B. Soil at this site was found to be generally non-expansive and may be used as structure backfill. (Skills)
- C. Have soils consultant review DSA approved set for any discrepancies.

Geologic Hazards Report (Required by DSA)

- A. Signed by California Certified Geotechnical Engineer or Engineering Geologist.
 1. Douglas Dunham of Earth Systems Pacific (Skills)

Addendum (in correct order)

- A. Number and Date.
- B. Project Identification.
- C. Name and Address of A/E.
- D. To Whom Addendum is issued.
- E. Opening Remarks and Notice to Bidders.
- F. Changes to Prior Addenda.
- G. Changes to Bidding Requirements.
- H. Changes to Contracting Requirements.
- I. Changes to Specifications.
- J. Changes to Drawings.

Division 1 General Requirements

Many of the Division 1 questions require owner's input. Take this list with you when you meet with your Client. Provide copy of General Conditions to spec writer.

01100 Summary

- A. Provide a clear written description of the scope of the project. (part of DSA checklist)
 - 1. Construction of building and Demolition of existing wood frame Building "S". (Skills)
 - 2. Construction of 46,250 sf 2-story steel frame with exterior masonry walls and EIFS. (LRC)
 - 3. Construction of 27,300 sf bldg. and interconnecting 3,048 sf Math building with access roads and mechanical yard. (Allied)
 - 4. Construction of a new 17,600 asf (31,000 GSF) load bearing masonry and steel frame construction with steel deck and concrete floors and roof with full basement. Renovate portions of Building 551. (Psychology)
 - 5. Construction of 11,737 sf classroom building Type V one-hour construction - sprinklers in lieu of one hour. (Reedley)
 - 6. AGHS Mod:
 - a. Demolish and remodel finishes, fixtures, and partitions to upgrade restrooms in Buildings 200, 300 and 500 to current ADA standards. New lighting, exhaust fans, partition walls and doors included. Building 500 classroom work to include replacement of wall finishes and heaters; installation of new windows and panic hardware. Replace door hardware on all classroom doors in Buildings 200, 300 and 500. Install or replace paving outside exterior doors to make path of travel to all doors accessible. Install new fire alarms and provisions for future campus-wide communications network in all three buildings.
 - b. The intent of these drawings and specifications is that the alteration, rehabilitation or reconstruction is to be in accordance with Title 24, California Code of Regulations. Should any existing conditions such as deterioration or non-complying construction be discovered which is not covered by the contract documents wherein the finished work will not comply with Title 24, California Code of Regulations, a change order, or a separate set of plans and specifications, detailing and specifying the required repair work shall be submitted to and approved by Division of the Sate Architect before proceeding with the repair work.
 - c. Cutting, boring, sawcutting or drilling through the new or existing structural elements to be done only when so detailed in the drawings or accepted by the Architect and Structural Engineer with the approval of DSA Representative.
- B. Type of Contract:
 - 1. Single Prime: Contract with single general contractor. (Allied, LRC)
 - 2. Multi Prime: Work in each construction discipline is bid separately.
- C. Phasing: Normally require certain start and end date with substantial completion date for partial occupancy.
 - 1. Single.
 - 2. Multiple:
 - a. 3 packages (Foundation, core/shell, and finish) (Granada)
- D. Construction Manager (as an agent):
 - 1. Name: []
- E. Project Coordinator:
 - 1. Name: []

- F. Work of Other Contracts: (that may effect current work)
 - 1. Any preceding work? [Hazardous Material Removal]
 - 2. Any concurrent work?
 - 3. Any future work?
- G. Any products ordered in advance? Owner will assign these Purchase Orders to Contractor.
 - 1. List Items ordered in advance: []
- H. Owner Furnished Owner Installed (OFOI).
 - 1. List. _____
- I. Owner Furnished Contractor Installed (OFICI).
 - 1. List. _____
- J. Use of premises
 - 1. During construction: [Limited use] [Full use]
 - 2. After construction: [may partially occupy prior to substantial completion]
- K. Work Restrictions:
 - 1. On-Site Work Hours: [] a.m. to [] p.m., Monday through Friday.
 - 2. Weekend Hours: [] a.m. to [] p.m.
 - 3. Early Morning Hours: []
 - 4. Hours for Utility Shutdowns: []
 - 5. Hours for [Core Drilling] [Insert noisy activity]: []
- L. Spec Format: CSI 16 divisions, 3-part format.
- M. Deferred Approval: [Listed on Drawings].
 - 1. [Fire Alarm System]
 - 2. [Fire Sprinklers]
 - 3. [Elevator guide rails and brackets].
- N. Storm Water Pollution Prevention Site Plan.

01125 Summary of Multiple Contracts

- A. Project Coordinator:
- B. Construction Manger: CM is usually involved for multiple contracts.
- C. Phasing:
- D. List separate contracts:

01210 Allowances

- A. Specific amount set aside for below:
 - 1. Allowance #1: Lump-sum allowance of \$xxx.
 - 2. Allowance #2: Unit-cost allowance of \$xxx.
 - 3. Allowance #3: Quantity allowance of \$xxx.
 - 4. Allowance #4: Contingency allowance of \$xxx.
 - 5. Allowance #5: Testing and Inspection allowance of \$xxx.
- B. Construction trailer furniture and furnishings: \$4,000. (Cuesta LRC Add2)
- C. Testing and balancing of mechanical systems: \$25,000 (Cuesta LRC Add2)

01230 Alternates

- A. Specific amount the bidder may add or delete if Owner accepts the alternate.
- B. Need to clearly specify what base bid is and what the alternate is.
- C. Construction completion time will be adjusted if alternates are accepted by Owner.
- D. Alternate #1: _____

01250 Contract Modification Procedures

- A. Minor Changes in Work:

1. Instructions or interpretations not involving adjustment to the contract sum or time. Such changes are made by the architect's supplemental instructions directing the contractor to make stated modifications.
 2. Architect have the authority to order minor changes in the work not involving adjustment in the contract sum or extension of the contract time and not inconsistent with the intent of the contract documents.
 3. Such changes shall be effected by written order and shall be binding on the owner and contractor. The contractor is required to carry out such written orders promptly.
 4. Form: [AIA G710 Architect's Supplemental Instructions] [Attached]
 5. EJCDC: Field Order.
 6. AGC does not have equivalent.
- B. Proposal Request (Bulletin):
1. Owner Initiated:
 - a. Contractor to respond within [15] days.
 2. Contractor Initiated:
 - a. No set date to respond by Architect.
 3. Form: [AIA G709 Proposal Request] [Attached]
 4. AGC does not have equivalent.
- C. Allowances: (used only if allowances are in project)
1. Submit claim within [21] days of receipt of CO or CCD.
- D. Change Order (CO) Procedures:
1. Issued after Owner's approval of Proposal Request.
 2. Change orders must be signed by the A/E recommending the change, the owner authorizing the change, and the contractor accepting the change. The contract price or time can be adjusted only by written change order.
 3. Written instruction to the contractor issued after execution of the agreement that authorizes an addition, deletion, or revision in the work or an adjustment in the contract sum or the contract time.
 4. Form: [AIA G701 Change Order].[Attached]
- E. Construction Change Directive (CCD):
1. Used when Change Order is NOT in agreement. It is a mechanism which the Owner exercises a unilateral right to order changes in the work without invalidating the contract since Contractor don't have to work beyond general scope of work.
 2. Form: [AIA G714 Construction Change Directive] [Attached].
 3. EJCDC equivalent is Work Change Directive (WCD).
 4. AGC equivalent is Interim Directed Changes (IDC) Article 9.
- F. AIA (3 Methods of Modifications when using A201):
1. Change order (G701)
 2. Change directive (G714)
 3. Minor changes in the work (Architect's Supplemental Instructions) (G710).
- G. EJCDC (4 Methods of Modifications when using EJCDC C-700):
1. Change order (C-941).
 2. Work change directive (C-940).
 3. Field order (EJCDC does not have a standard form for field orders.)
 4. Written interpretation or clarification:
 - a. Clarification of statement modifying the contract documents, signed by the owner and the contractor modifying the contract documents.
 - b. Signed by the owner and the contractor on or after the effective date of the agreement, and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the contract documents.

01270 Unit Prices

- A. Price per unit of work, when quantity of work is unknown (mostly civil work).
- B. Unit Price #1:

01290 Payment Procedures

- A. Schedule of Values: (“Cost Breakdown” is used for Cuesta Allied.)
 - 1. Submit no later than [7] days before submittal of initial app for payment.
 - 2. Form: [AIA G703 Continuation Sheet] [Attached].
- B. Application for Payment
 - 1. Payment App Time:
 - a. Specified in: [Agreement] [General Conditions]
 - b. Submit [1st] day of each month for work ending [last day of each month]
 - 2. Form: [AIA G702 Application and Certificate for Payment & G703] [AIA G702/CMa & G703] [Attached]
 - 3. Submit [3] copies.
- C. Initial App for Payment (contains list of items to be submitted prior to payment).
- D. Application for Payment at Substantial Completion (contains list of items to be submitted prior to payment).
- E. Final App for Payment (contains list of items to be submitted prior to payment).
- F. EJCDC (2.07): First Payment - At least 10 days before submission of first Application of Payment, conference shall be held to review schedule. Additional 10 days will be given to make corrections and adjustment and to complete and resubmit schedules. No progress payments shall be made until acceptable schedule is submitted, U.O.N.
- G. EJCDC (14.02): Progress Payments - Submit 20 days prior to each progress payment a Application for Payment. Within 10 days notify Contractor either approve or disapprove with explanation. Payment is due after 10 days after presentation of Application for Payment to Owner with Engineer’s recommendation.
- H. EJCDC (14.07): Final Payment application will be submitted by Contractor when Contractor has satisfactorily completed when:
 - 1. All corrections identified during final inspection.
 - 2. Delivered all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, marked-up record documents.
 - 3. Engineer will recommend to Owner within 10 of receipt of application either to pay or given reasons.
 - 4. Payment is due in 30 days after Owner receives the recommendation from Engineer’s agreement of payment.

01310 Project Management and Coordination

- A. Submit coordination drawings.
- B. Key Personnel Names:
 - 1. Submit within [15] days of starting construction.
- C. Project meetings (General):
 - 1. Conduct meetings and conferences at project site.
 - 2. Notify participants.
 - 3. Prepare meeting agenda and distribute.
 - 4. Record minutes and distribute to attendees within [3] days of meeting.
- D. Preconstruction conference:
 - 1. Schedule no later than [15] days after execution of Agreement.
 - 2. See specs for list of agenda items.
- E. EJCDC (2.06): Within 20 days after Contract Time start to run, but before any Work at the Site is started, discuss schedules, and other matters.

- F. Preinstallation Conference:
 - 1. See specs for list of agenda items.
- G. Progress meetings:
 - 1. Conduct meetings at [weekly] intervals.
- H. Coordination meetings (normally not used except for multiple contracts):
- I. RFI:
 - 1. Frivolous RFIs
 - a. Cost of design professional's time will be billed at [\$100/hr].
 - 2. Form: [Attached]
 - a. Electronic: [Extranet-Prolog]
 - 3. Allow [21] days for Architect's response.
 - 4. Architect's request for additional info re-starts response time.
- J. RFI Log:
 - 1. Submit log [weekly].
 - 2. Form: [Attached]

01320 Construction Progress Documentation

- A. Prescheduling Conference:
 - 1. Conduct conference at project site.
 - 2. See specs for list of agenda items.
- B. Preliminary Construction Schedule:
 - 1. Submit within [14] days of NTP.
 - 2. Format:
 - a. Submit [3] hard copies.
 - b. Submit electronic files of [Primavera] [Microsoft Project].
 - 3. Outline significant construction activities for first [60] days of construction.
- C. EJCDC (2.05): Preliminary construction schedule, shop drawing schedule, sample list are due within 10 days after effective date of Agreement U.O.N.
- D. Final Construction Schedule:
 - 1. Submit within [30] days of NTP.
 - 2. Submit [3] copies
 - 3. Format:
 - a. Gantt chart for small projects.
 - b. CPM for large projects.
- E. Preliminary Submittal Schedule:
 - 1. Submit within [14] days of NTP.
 - 2. Submit [3] copies
 - 3. Include submittals required during the first [60] days of construction
 - 4. Form: [Attached]
- F. Final Submittal Schedule:
 - 1. Submit within [30] days of NTP.
 - 2. Submit [3] copies.
 - 3. Form: [Attached]
- G. Three Week Look-Ahead Schedule:
 - 1. Prepare weekly, for the weekly Project meeting, a computer-generated 3-week look-ahead schedule (bar chart) which is consistent with the CPM schedule and depicts daily labor activities. The schedule will consist of the prior week, current week and the following 3 week.
- H. Contractor's Construction Schedule Updating:
 - 1. At [monthly] intervals, update schedule to reflect actual construction progress and activities. Issue schedule [one week] before each regularly scheduled progress meeting.

01322 Photographic Documentation

- A. Are periodic construction photographs required? (This section is normally not used.)
- B. LMUSD: Require photo documentation of existing asphalt and concrete conditions (if any) prior to construction.

01330 Submittal Procedures

- A. Processing: All costs for printing, preparing, packaging, submitting, resubmitting, and mailing, or delivering submittals required shall be included in Contract Sum.
- B. Submit: Product data, Samples, Test Reports, Warranties, Survey data, Closeout Submittals.
- C. Product Data:
 - 1. Copies: [4] copies, 1 for Architect, 1 for Architect's consultant, 2 returned to Contractor.
- D. Shop Drawings:
 - 1. Submit 1 set of reproducible mylars and 3 sets of prints.
- E. Submit to:
 - 1. [Particular Architect office]
 - 2. [To be determined at initial construction meeting]
- F. Review turn-around times:
 - 1. Default: 21 days.
 - 2. Allow additional 7 days for District staff's review. (LMUSD)
 - 3. Architect will request for more time if need.
 - 4. Initial: 15 days.
 - 5. Re-submittal: 15 days.
 - 6. Sequential (require Architect's consultant to review): 21 days.
 - 7. Concurrent (sent to Architect's consultant same time if allowed): 14 days.
- G. Show deviation from contract documents: [Encircle].
- H. Transmittal Form: [AIA G810] [Attached].
- I. Product Schedule or List: This is different from what is request at beginning of project where it lists all products. This schedule or list for each individual sections listing the following:
 - 1. Type of product. Include unique identifier for each product.
 - 2. Number and name of room or space.
 - 3. Location within room or space.
 - 4. Number of Copies: Submit [3] copies.
 - a. Mark up and retain one returned copy as a Project Record Document.
- J. Electronic File Transfer:
 - 1. [Free to contractor, already charged the Owner.] [Charge xx dollars].
 - 2. Disclaimer form attached at end of Section. Consultant's disclaimer form is also needed.
 - 3. See sample format for consultants (Reedley)
- K. LEED Submittals.
- L. Subcontractor List: This may already be requested in Bid Form.
 - 1. Form: [CSI Form 1.5A]
 - 2. [3] Copies.
 - 3. See sample. (Reedley)

01352 LEED Requirements

- A. Rating: [Certified] [Silver] [Gold] [Platinum].
- B. LEED Consultant:

01400 Quality Requirements

- A. Mockups.
- B. Laboratory Mockups. (Limited to storefronts and curtainwalls)
- C. Field samples.
- D. Preconstruction Testing.

- E. Experienced means: Successfully completed minimum of 5 previous projects similar in size and scope within 3 years.
- F. Conflicting requirements: Comply with most stringent requirements. Notify Architect. (However, drawings and specs should be coordinated)

01410 Testing and Inspection Requirements for School Projects

- A. Mandatory section for DSA project.

01415 Concrete Moisture and Alkalinity Testing

- A. Test per ASTM F1869.
- B. Independent Testing Agencies:
 - 1. Advanced Moisture.
 - 2. Ed Vincent.
 - 3. George Donnelly Testing and Inspections. (can do both ASTM F1869 and F2170)

01420 References

- A. Definitions.
- B. List of standard Org.
- C. Abbreviations & Acronyms.
- D. Code Agencies.
- E. Fed and State Agencies.

01500 Temporary Facilities and Controls

- A. Temporary Facilities:
 - 1. Trailer: Define size and equipment required.
 - 2. One 12 by 60 feet. 3 compartments (one 12 by 30 for meetings and two 12 by 15 one for Owner's rep and one for CM) (Supp Con of Cuesta Allied)
- B. Temporary Equipments:
 - 1. Desk.
 - 2. Chair.
 - 3. Phone.
 - 4. Computer.
 - 5. Printer.
 - 6. Broadband access.
 - 7. Drawing table.
 - 8. Drawing rack.
 - 9. Drinking water.
 - 10. See equipment list. (Supplementary Conditions of Cuesta Allied).
- C. Utilities: Pay for all utilities.
 - 1. Sewer and drainage.
 - 2. Water.
 - 3. Sanitary.
 - 4. Heating.
 - 5. Electric power and lighting.
 - 6. Telephone.
 - 7. Communication (modem).
- D. Temporary roads, traffic control, parking.
- E. Temporary Roads and Paved Areas: Provide dust-control treatment.
- F. Project Identification and Temporary Signs:
 - 1. 4'-0" x 8'-0" project sign constructed of 1/2" plywood or 10 mil corrugated plastic mounted to 4"x4" posts 8'-0" long set 2'-0" deep into earth. (Science, Reedley)
 - 2. Actual design of sign at end of section (Psychology)

- G. Waste Disposal Facilities.
- H. Elevators:
 - 1. Temporary Elevators.
 - 2. Existing Elevator use.
- I. Stairs:
 - 1. Temporary stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.
 - 2. Existing stair usage: [Allowed] [Not allowed]
 - 3. Temporary used of Permanent Stairs: Cover with protective covering.
- J. Temporary Erosion and Sedimentation Control.
- K. Stormwater Control.
- L. Pest Control.
- M. Site Enclosure Fence:
 - 1. Full coverage with green wind screen fabric to block viewing through construction fencing. (Reedley)
- N. Temporary Fire Protection.
- O. LMUSD: Arrange/schedule all utility hook-ups, including CATV.

01524 Construction Waste Management

- A. Find out requirements from the Owner.
- B. Recycle:
 - 1. Default sustainable goal:
 - a. Recycle 20% of construction [and demo] waste.
 - 2. LEED: [50%][75%].
- C. Submit waste management plan.
- D. Recycling Incentives:
 - 1. Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall be shared equally by Owner and Contractor.

01600 Product Requirements

- A. Defined:
 - 1. Named Products.
 - 2. Basis of Design.
 - 3. Substitutions.
 - 4. Comparable Products.
 - 5. District Standard Products.
- B. Product List:
 - 1. Preliminary List:
 - a. Submit within [30] days after Commencement of Work.
 - b. Submit [3] copies.
 - 2. Complete List:
 - a. Submit within [60] days after Commencement of Work.
 - b. Submit [3] copies.
 - c. Architect to respond within [15] days of Complete List.
- C. Substitution requests:
 - 1. Public Code: Allow up to 35 days after Award of Contract if not defined.
 - a. Submit within [35] days of NTP.
 - 2. Submit [3] copies.
 - 3. Form: [Attached].
 - 4. Architect to respond within [15] days.
- D. Comparable product requests: (same requirement as substitution request, except time limit).

1. Submit [3] copies.
2. Form: [Attached].

01700 Execution Requirements

- A. Submit:
 1. Qualification Data for land surveyor.
 2. Certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.
 3. Landfill receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
 4. Certified Surveys [2] copies signed by land surveyor.
 5. Final Property Survey [10] copies showing the Work performed and record survey data.
- B. Construction layout.
- C. Field engineering.
- D. Final Property Survey:
 1. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."
- E. General installation of products.
- F. Coordination of Owner-installed products.
- G. Progress cleaning.
- H. Starting and adjusting.
- I. Protection of installed construction.
- J. Correction of the Work.
- K. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- L. EJCDC (4.05): Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with Work.

01731 Cutting and Patching

- A. Cutting is the removal of existing construction necessary to permit the installation or performance of other Work.
- B. Patching is the fitting and repair work required to restore surfaces to original conditions after the installation of other Work.

01732 Selective Demolition

- A. Selective demolition is the removal of a portion of an existing structure. It often includes removing major structural elements to provide for the enlargement and alteration of the structure. Selective demolition may require the performance of cutting and patching as a part of the Work.
- B. Indicate on Drawings the extent of selective demolition.
- C. Hazardous materials:
 1. [Will be removed by Owner before start of the Work]
 2. [Have been removed by Owner under a separate contract].
 3. [Non anticipated, if found, notify Architect.]
 4. [Are present in construction to be selectively demolished. A report on the presence of hazardous materials is on file for review and use.]
- D. Selective Demolition (General):
 1. Reuse of Building Elements: [As indicated] [None].
 2. Removed and Salvaged Items: [As indicated] [None].
 3. Removed and Reinstalled Items: [As indicated] [None].
 4. Existing Items to Remain: [As indicated] [None].
- E. Disposal of materials.

01770 Closeout Procedures

- A. Substantial Completion:
 - 1. Preliminary Procedures:
 - a. Prepare a list of items to be completed and corrected (punch list).
 - b. See detail list in spec.
 - 2. Inspection: Submit a written request for inspection for Substantial Completion.
 - a. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - b. Results of completed inspection will form the basis of requirements for Final Completion.
- B. Final Completion:
 - 1. Preliminary Procedures:
 - a. Submit a final Application for Payment.
 - 2. Inspection: Submit a written request for inspection for Substantial Completion.
- C. List of Incomplete Items (Punch-list):
 - 1. Submit [3] copies of list.
 - 2. Form: [CSI Form 14.1A.]
- D. Final Cleaning:
 - 1. Complete cleaning operations before requesting inspection for certification of Substantial Completion.
- E. Warranty.
- F. Extra Materials:
 - 1. Deliver to Owner's facility manager extra materials specified in each section.
 - 2. Organize submitted materials in orderly sequence based on the table of contents of the Project Manual.
 - a. Itemize each material and quantity in 8-1/2 by 11-inch paper.
 - 3. Label each items for easy identification.
- G. EJCDC (14.04): Contractor request Engineer issue certificate of Substantial Completion when Contractor considers entire work is ready except for items specifically listed as incomplete. Engineer will notify Contractor and issue tentative certificate of Substantial Completion. Owner shall have 7 days after receipt to object to Engineer if disagree. Engineer to notify Contractor within 14 days the reason.
- H. EJCDC (14.05): Partial occupancy by Owner will be allowed if certificate of Substantial Completion for that part of Work.
- I. EJCDC (14.06): Final Inspection will be conducted when written notice from Contractor that entire Work or agreed portion thereof is complete. Engineer will notify Contractor in writing of all particulars in which this inspection reveals that Work is incomplete or defective.

01781 Project Record Documents

- A. Record drawings:
 - 1. 1 marked-up Record Prints.
 - 2. 1 CAD files (normally not done, extra services). (but it is in LMUSD Gen Con.)
 - 3. 1 CAD plots (normally not done, extra services).
- B. Record specification: 1 marked-up of actual products installed.
- C. Record product data: Actual installed product data.
- D. Recording:
 - 1. Maintain one copy of each submittal during the construction period.
 - 2. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- E. Maintenance of Record Documents and Samples:

1. Store Record Documents and Samples in the field office apart from the Contract Documents used for construction.
2. Do not use Project Record Documents for construction purposes.
3. Maintain Record Documents in good order.
4. Provide access to Project Record Documents for Architect.

01782 Operation and Maintenance Data

- A. Required for: Elevators, HVAC equipments, Electrical equipments, etc.
- B. Submittals:
 1. Initial Submittal: [2] draft copies of each manual at least [15] days before requesting inspection for Substantial Completion. Include a complete operation and maintenance directory. Architect will return [1] of draft and mark whether general scope and content of manual are acceptable.
 2. Final Submittal: [1] of each manual in final form at least [15] days before final inspection. Architect will return copy with comments within [15] days after final inspection.
 3. Correct or modify each manual to comply with Architect's comments. Submit [3] copies of each corrected manual within [15] days of receipt of Architect's comments.
- C. Types of Manuals:
 1. Emergency Manuals.
 2. Operation Manuals.
 3. Product Maintenance Manuals.
 4. Systems and Equipment Maintenance Manual.

01810 General Commissioning Requirements

- A. TAB (Testing, Adjusting, and Balancing) is a part of the commissioning process; however, by itself, TAB is NOT commissioning. TAB is a process that occurs after design and construction is complete. The primary purpose of TAB is to set installed systems at their design conditions and to report deviations from design conditions. Commissioning is a quality-assurance process that involves verifying and documenting the performance.
- B. BMA consultant has TAB specification in Section 15600 in last paragraph of Part 3.

01815 HVAC Commissioning Requirements

- A.

01820 Demonstration and Training

- A. Demonstration of operation of systems.
- B. Training in operation and maintenance of systems.
- C. Demonstration and training video tapes: [Required] [Not required].
- D. Instruct District staff on operation and maintenance of all operable equipment prior to occupancy (LMUSD)

Division 2 Site Construction

02221 Building Demolition

- A. Demolition is the total removal of an existing structure, with little or no regard to salvaging materials or construction items.
- B. Complete demolition of building as indicated on Drawings.

02741 Hot-Mix Asphalt Paving

- A. Normally specified by Civil Consultant.
- B. Type: [New paving] [patching and repair] [paving overlay to existing].
- C. Cold milling (if removing a course or layer from existing hot-mix asphalt pavement).
- D. Fog and Slurry Seals applied to older asphalt pavements.
- E. Pavement-marking: 506 Traffic Line Paint by [Frazee](#).

02751 Cement Concrete Pavement

- A. Normally specified by Civil Consultant.
- B. Driveways and roadways.
- C. Parking lots.
- D. Curbs and gutters.
- E. Walkways.
- F. Unit paver base.
- G. Pavement-marking: 506 Traffic Line Paint by [Frazee](#).
- H. Float Finish:
 - 1. Slopes 6% or greater: Heavy broom finish (0.8 min static coef. Friction, wet condition).
 - 2. Slopes less than 6%: Medium broom finish (0.6).
- I. Tactile Detectable Tiles:
 - 1. Vanguard (<http://vanguardonline.com>)
 - 2. Armor- Tile (<http://www.armor-tile.com>)
 - 3. Transit-Tile (<http://www.transit-tile.com>)
 - 4. Or equal.
- J. Colored Concrete:
 - 1. Chromix Admixture by L.M. Scofield.
 - a. Color: C-35 "Santa Barbara Brown" (Fletcher).
- K. Concrete Sealant:
 - 1. Cementone by L.M. Scofield (Fletcher).

02780 Unit Pavers

- A. Manufactures: [Olsen Pavingstone](#).
- B. Need to Know:
 - 1. Brick: Thickness (1-1/4" for rigid and 2-1/4" for flexible), face size, and color.
 - 2. Installation method: Flexible (sand and crush stone base, mortarless) or Rigid (rigid support base with mortar bed and joints).
 - 3. Installation pattern: Running bond, herringbone, stack bond, Basketweave.
- C. H.C. Muddox: (Fletcher)
 - 1. Split paver: 1-1/4" thick, 3-5/8" x 7-5/8" face size, #890 Old Town Red.
 - 2. Rigid installation for walk way, herringbone pattern.
- D. Royal Cobble I & II blend by Olsen Pavingstone.
 - 1. Shape: Rectangular.
 - 2. Thickness: 2-3/8 inches.
 - 3. Color: Cream and brown blend.

- E. Country Cobble by Olsen Pavingstone. (MAW -Wood2- Deleted)
 - 1. Shape: Rectangle.
 - 2. Size: 9-3/8 by 6-1/4.
 - 3. Thickness: 2-3/4 inches.
 - 4. Pattern: Herringbone.
 - 5. Color: As selected by Architect from manufacturer's full range.

02782 Exterior Clocks

- A. [Campbellsville](#), [Elderhorst](#),

02821 Chain-Link Fences and Gates

- A. Knuckle top and bottom for LMUSD.
- B. Fabric: Manufactured by [Master Halco](#), [Hoover](#), Ameristar, MerchantMetals .
 - 1. Selvage: Knuckled finish top and bottom.
 - 2. Material:
 - a. Zinc coating, ASTM A392, Class 1.
 - b. Polymer coated. (Allied, Science, Pool).
 - 3. Size: [2 inch mesh] [1-3/4 inch maximum is climbable but used as pool enclosure per code]
 - 4. Thickness:
 - a. Residential: 12 gage.
 - b. Light Industrial or Tennis Courts: 11 gage.
 - c. Standard Industrial: 9 gage (Pool).
 - d. High Security or Heavy Industrial: 6 gage (Science).
 - 5. Minimum Break Strength:
 - a. 11 gauge (0.120" diameter): 850 lbf.
 - b. 9 gauge (0.148" diameter): 1290 lbf.
 - c. 6 gauge (0.192" diameter): 2170 lbf.
 - 6. Security:
 - a. Extremely high security: 3/8" mesh 11 gauge
 - b. Very high security: 1" mesh 9 gauge
 - c. High security: 1" mesh 11 gauge
 - d. Greater security: 2" mesh 6 gauge
 - e. Normal Industrial security: 2" mesh 9 gauge
- C. Privacy Slats.
- D. Post Diameter and Thickness: ASTM F 1043 and ASTM F 1083. (Oceano with input from structural consultant, Angelo)
 - 1. Top and Bottom Rail: 1-5/8 inch O.D. Commercial Quality.
 - 2. Line and Terminal Post and Brace Rail: 2.5 inch (o.d. = 2.875 inch) diameter, extra strong pipe.
 - 3. Swing Gate Post: ASTM F 900, 3.5 inch (o.d. = 4 inch) diameter, extra strong pipe.
- E. Schedule 40 Pipe (thickness)
 - 1. 2.5" diam. extra strong pipe (o.d. = 2.875") and for the 2.5" diam extra strong pipe, should have an inside diameter of 2.469"
 - 2. Gate posts you use 3.5" diam. extra strong pipe (o.d. = 4"). 3.5" diam extra strong pipe should have an inside diameter of 3.548".
- F. Framing:
 - 1. Insert table or check to see if indicated on Civil Drawings.
 - 2. Height: [As indicated on Drawings] [__ feet].
- G. Tension Wires:
 - 1. 6 gage (Science).

2. 7 gage (Pool).
- H. Swing Gates:
 1. Chain link infill panel.
 2. Hollow metal steel doors and frames.
 3. Hardware: [spring hinge], [push bar exit].
- I. Sliding Gates:
 1. Operation: [Manual] [Motorized].
 2. Type: ASTM F 1184.
 - a. [Overhead slide] - Type 1. (gate hangs from track above)
 - b. [Cantilevered] - Type 2. (gate suspended from one side)
 - c. [Roller wheel] - Not classified.
 - d. [V-groove track] - Not classified.
 3. Manual chain link gate (LRC Trade)
- J. Tymetal:
 1. V-Groove System:
 - a. V-Groove Wheels: Gate shall travel on a minimum of two (2) v-groove wheel assemblies. Each v-groove wheel shall capable of carrying a minimum of 100% of the gross gate weight.
 - b. V-Groove Track shall be 1 1/2" x 1 1/2" x 3/16" steel angle welded to 1/4" x 5" steel bar with hot dipped galvanized finish. Track shall be installed across the entire area of gate travel, flush with roadway surface and lagged to the concrete footing.
- K. Locks:
 1. Locinox Gage Locks by [Hoover fence](#).
- L. Options: [Privacy slats] [Barbed wire] [Barbed tape] [Wind screen].
- M. Contractor: [Crown Fence Company](#) in Santa Fe CA.
- N. Breakload and Core Wire Gauge:
 1. 11 gauge, diameter 0.120 inch (3.05 mm), 850 lbf (3780 N).
 2. 10 gauge, diameter 0.135 inch (3.43 mm), 1000 lbf (4448 N).
 3. 9 gauge, diameter 0.148 inch (3.76 mm), 1290 lbf (5740 N).
 4. 6 gauge, diameter 0.192 inch (4.88 mm), 2170 lbf (9650 N).
- O. Manufacturers:
 1. Hoover (Retailer): Newton Falls, Ohio
 - a. What is extruded vinyl coating? In layman's terms, extruded vinyl. When cut with a knife, can be peeled off like a banana. However, it does not peel easily. That is what makes extruded different then bonded vinyl, which would have to be cut off completely, much like peeling a potato. Bonded costs more than extruded.
 - b. Vinyl coated chain link is sold by the finish gauge. 9 gage chain link vinyl coated actually has a thinner inner steel wire. It is considered 9 gage once it has been coated, although the inner steel wire is nearest 11 gage.
 2. Master Halco: Orange, CA
 - a. Polyolefin elastomer coating, 6 mil (0.15mm) to 10 mil (0.25mm) thickness, thermally fused to zinc-coated steel core wire, ASTM F668 Class 2b. Core wire tensile strength 75,000 psi (517 MPa).
 3. Boundary Fence:
 - a. Offer both vinyl coated and bonded.
 4. Merchant Metals:
 - a. Offers polymer coating, ASTM D 668, in all 3 Classes over metallic-coated steel wire.02823 Ornamental Fences and Gates
 - 1) Class 1 (Extruded): Produced by extruding PVC at a coating thickness up to 0.025 in. (0.64 mm) over a galvanized core wire.

- 2) Class 2a (Extruded and adhered): Produced by first applying a molecular bonding agent to the galvanized core wire to eliminate slippage of the PVC. A coating of PVC up to 0.025 in. (0.64 mm) is then pressure bonded to the wire.
- 3) Class 2b (Fused and Adhered): Produced by first applying a thermoset bonding agent to the galvanized core wire to which the PVC is bonded. A coating of PVC up to 0.010 in. (0.25 mm) is then fusion/bonded to the wire.

P. Products: Manufactured by [Builders Fences](#), [Ametco](#). (Pool)

Q. Rolling Gates:

1. General: Rolling gates are primarily used for chain link fences in order to minimize amount of space used by gate. These gates slide parallel with fence line using track and wheel system. Gate frames are welded and depending on size may also be braced and trussed. Finish size of gate must be wider than opening size to account for rear wheels which are bolted to gate frame. Gates do not require wide counterbalance like cantilever gate. Height of gate is shorter than fence to allow for chosen wheel carrier which is under gate.
2. Advantage(s): Rolling gates use less space than typical swing type gates. They are also inexpensive compared with V-track gates and cantilever gates. Design is simple and incorporates many fittings that simply bolt together making project possible for do-it-yourselfer. Lack of counterbalance on gate frame makes tight fits possible. Repairs and adjustments are easily done with household tools.
3. Disadvantage(s): Wheel carriers which are mounted under gate prevent gate from being installed close to ground. Although few animals can squeeze through a 3-6" gap, it can still be problematic. Wheel carriers are also susceptible to being blocked by snow and debris. Wheel carriers work best on asphalt or concrete driveways. You may also consider pouring sidewalk-like path in concrete for gate wheel(s) to travel on. Wheels mounted on heavy gates will wear into asphalt driveways and dig a rut. Rolling gates work best on level surfaces. Rolling gates cannot be automated. Friction of wheels will destroy operator. If you either now or later wish to automate sliding gate, consider using cantilever gate instead.

R. V-Track Gates:

S. Windscreen:

- 1.

02791 Playground Surface Systems

- A. Resilient cushion under play equipment must be installed (LMUSD).
- B. SpectraPour by SpectraTurf (Aquistapace)
 1. Wearing Course: EPDM rubber particles and polyurethane. 1/2 inch.
 2. Cushion Course: 5 inches.
 3. Subbase: Asphalt or concrete.
 4. Tested for impact attenuation according to ASTM F 1292.

02795 Playground Equipments

- A. Fabricated of minimum 5 inch diameter aluminum or galvanized steel posts with lead free powder coat finish, imbedded in permanent footings: (LMUSD)
 1. Tube slides are not permitted.
 2. Swings are not permitted.
 3. Wood components are not permitted.
 4. All edges shall be rounded or smoothed.

02826 Ornamental Fences and Gates

- A. Sliding Gates:

1. Operation: [Manual] [Motorized].
 2. Type: [Regular (wheeled)] [Cantilevered].
 3. Motorized ornamental gate (Montecito)
- B. Ametco:
1. Cantilever [Single] [Double] Sliding Gates:
 - a. [Single] [Double] track [top] [bottom] mounted.
 - b. T-Track top mounted.
 2. V-Wheel Roller Gate:
 - a. [Single] [Dual] wheel.
 - b. [Surface] [Recessed] track.
- C. Master Halco (FenceOnLine)
1. Commercial Classic Premier: (Oceano)
 - a. 3/4inch, 16 Ga. square pickets.
 - b. 1-1/2 inch rail.
 - c. 2-1/2 inch, 12 Ga. square posts.
 2. Industrial Classic Premier Ornamental Fence:
 - a. 1 inch, 14 Ga. square pickets.
 - b. 1-3/4 inch rail.
 - c. 2-1/2 inch, 12 Ga. square posts.
 3. Configuration: Flush top rail panel, 3-rail with following minimum sizes. (Residential - Web tool)
 - a. Picket: 5/8 inch square, 18 gauge.
 - b. Rail: 1-1/4 inch square, 16 gauge.
 - c. Post: 2 inch square, 16 gauge.
- D. Gate Operator:
1. Chain type sliding gate, SL 1000-X3 by LiftMaster (Montecito).

02870 Site Furnishings

- A. Concrete Benches:
1. Victoria style flat concrete bench with arms, model # Q2V1C84B.(LRC)
- B. Planter Benches:
1. Wood, #QPB 96" outside square bench to attach to site built planter wall. Bench on four sides at 18" wide by [Sitecraft](#). (Science) - This is a complete system of wood bench and wood planter with a composite plastic bottom.
- C. Precast Concrete Bench Cap: Model WC5 by Dura Art Stone.
- D. Bicycle racks:
1. 2-7/8" outside diameter schedule 40 steel, factory powder coat finish.
 2. Support Options: [Embedment] [Surface Plate].
 3. Products:
 - a. Serpentine: Model 125-30 for 7 bikes by [DuMor](#). (Allied)
 - b. Model #SU 20 by [Creative](#). (Pool)
- E. Precast concrete bollards: Manufactured by [Wausau Tile](#).
1. Model #TF6084 for Lighted Bollard, color as selected (B4 Buff), Anchor style C by Wausau Tile. (Pool).
 2. Model #TF 6020 Round Bollard, color as selected, Anchor Style B by Wausau Tile (Pool).

Division 3 Concrete

03371 Shotcrete

- A. Normally specified by Structural Consultant.

- B. Pneumatically applied concrete, [dry] [wet] mix.

03331 Cast-In-Place Architectural Concrete (CONC-X)

- A. Vertical Finish Types: [Smooth-formed finish] [Smooth rubbed finish].
- B. Horizontal (Flat work, slab): [Trowel], [Trowel and Fine Broom] [Medium broom finish] [Heavy broom finish] [Nonslip Broom Finish].
- C. Columns: [Sonotube](#) for exposed to view.
- D. Indicated on drawing which finish goes where. Spec will define definitions of each.
- E. Specify under slab vapor retarder in this section: Manufactured by [Reef](#), [Stego](#), [Raven](#).
 - 1. Reinforced Vapor Barrier for mat foundation (basement): Griffolyn Vaporguard by Reef (Psychology).
 - 2. Slab on grade (non-basement): ASTM D 2103, polyethylene sheeting, clear, 10 mils minimum thickness. (Psychology)
 - 3. 10 mil thick clear polyethylene film, type recommended for below grade application. (Reedley)
- F. Interior concrete floor:
 - 1. Leveling Course for Floor Covering: Cementitious type; feather finish, with P-82 Primer by [Ardex](#). (LRC, Allied, Science, Reedley)
 - 2. Patching Compound: Manufactured by [Scofield](#).
 - a. Slimpatch by Scofield. (Oceano)
- G. Colored Concrete:
 - 1. Davis Colors.
- H. Stain: Manufactured by [Scofield](#).
 - 1. Lithochrome Chemstain Classic Stain by Scofield. (Oceano)
 - 2. Concrete Sealer: Manufactured by [Scofield](#), [DuPont](#).
 - a. Cementone Clear Sealer by Scofield. (Oceano, Science)
 - b. Hydrozo Enviroseal 40, not stainable. (AGSH Mod)
 - c. VaprStop(tm) Silver; one coat, two-part low odor epoxy, 100 percent solids by DuPont. (LRC, Allied, Science, Reedley) Discontinued.
- I. Polished:
 - 1. [Concrete Reflections](#).

03450 Architectural Precast Concrete

- A. Manufacturers: [Clark Pacific](#)
- B. Architectural sills: Bullnose pavers, finish Type A by [CDI](#). (LRC, Allied)
- C. Bench cap: Model WC5, 3 x 14 inch by [Dura Art Stone](#). (Science)

Division 4 Masonry

04211 Brick Veneer Masonry

- A. Brick size: As indicated on Drawings.
- B. Framing: See [06100 - wood framing] [05400 - steel framing].
- C. Substrate: See 06160 for sheathing and weather resistive barrier.
- D. Installation: Mortar, grout, and wall ties, brick 1" away from framing.
- E. Products: Manufactured by [Higgins](#), [Arto](#).
 - 1. 2-3/16" h x 11-1/2" l x 3 - 1/2"d full Norman brick, ASTM C216 Grade SW Type FBS, color range to match existing, by [Pacific Clay](#). (Reedley)
- F. Anchor:
 - 1. 3" Fleming Anchors by [Halfen](#) (Reedley, specified by structural consultant).

04225 Thin Brick Veneer Masonry

- A. Manufacturers: H. C. Muddox Company,

1. Sizes shall be "Norman", face dimensions; 2-1/4" x 7-5/8" by Muddox (Dorthea).
2. Thickness: 3/8 inches nominal.
- B. Mortar: 1 part Portland cement Type S, 1 part sand, gauged with "Laticrete 4237 Latex Thin-Set Mortar Additive.
- C. Waterproof Membrane: Laticrete 9235 liquid applied waterproof membrane with high strength, rot proof reinforcing fabric.

04810 Unit Masonry Assemblies (CMU-X)

- A. Normally provided by Structural consultant.
- B. Face type: [Split Face] [Precision Face].
- C. Integral Water Repellent for CMU.
 1. Dry-Block by Grace. (Oceano)
- D. Mortar:
 1. Type M is stronger than Type S.
 2. Water repellent mortar: Admixture Dry Block II by Grace. (Oceano)
- E. Color: [integral color - cost 15% more than without.] [Field painted see 09910].
 1. Select color for CMU and mortar. No color for grout since it will not be visible.
- F. Miscellaneous: Other miscellaneous sizes may be required for construction but shall match these basis units in color and texture.
- G. Products: Manufactured by [Air Vol \(San Luis Obispo\)](#), [RCP](#), [Angelus](#), [Orco](#).
 1. Hollow Load Bearing Block Units: ASTM C90, UBC Standard No. 21-4, Grade N, type 1, medium weight, standard grey color or integral color to match existing Psychology Building #551, AirVol Block "Salmon" #60B-601C, smooth face both sides, minimum compressive strength 2500 psi., open and closed end. (Psychology)
 2. Angeles Block only makes Grade N.
 3. Type 1 is "moisture controlled".
- H. Sandblasting vs. Cleaning:
 1. Cost (sq/ft):
 - a. Cleaning (\$0.55).
 - b. Sandblasting smooth face (\$0.97).
 - c. Sandblasting rough face (\$1.19).
 2. Sandblasting: [Light] [Medium].
 3. Acid Cleaners: [Dietrich](#)
 - a. Custom Masonry Cleaner by Prosoco. (50 psi or lower)
 - b. 960 Heavy Duty Concrete Cleaner by Dietrich.
 - c. Type V by FabriChem.
- I. Clear Sealers:
 1. Siloxane WB Concrete Sealer by Prosoco.
 2. Price Research Ltd.
- J. CMU Sizes: Width (depth) x Height x length (long).
- K. Concrete Block Wall: Standard natural gray medium weight, 8" x 16", cost of material per square ft. (material and labor cost)
 1. 4" thick wall: \$1.37; split face: \$1.27. (\$4.76; \$5.41)
 2. 6" thick wall: \$1.53; split face: \$1.34. (\$5.29; \$5.89)
 3. 8" thick wall: \$1.87; split face: \$1.54. (\$6.39; \$6.54)
 4. 12" thick wall: \$2.90; split face: \$2.18. (\$8.54; \$7.94)
 5. Split face block cost slightly less than standard block but cost slightly more to install; bringing the split block costing slightly more overall.
- L. Concrete Block or Gray Block:
 1. The term CMU (Concrete Masonry Unit) is commonly used within the specification and construction industry to refer to what is known to the public as a Concrete Block or Gray

- Block. Often times it is incorrectly referred to in the media as a Cinder Block or Cement Block. Both of these terms are incorrect.
2. CMU's are utilized in residential, commercial, institutional and industrial construction. They are strong, durable and offer maximum design flexibility.
 3. The CMU is manufactured locally usually within 100 miles of use, using materials found in state. In addition to its strength, the concrete masonry unit is valued for the fact that it is non-combustible and it won't rot or rust.
- M. Architectural Concrete Block:
1. Architectural Block is generally used to describe Concrete Masonry Units (CMU) that are produced in a number of standard colors or in a custom designed color.
 2. These CMU's also normally incorporate a split face, ribbed, and/or scored surface that make them especially suited for many types of exterior wall applications. In addition to the inherent beauty obtained through the combination of color and texture.

04811 Unit Masonry Finishes

- A. Integral colored CMU:
 1. Field: Match Vol Block Inc. Color #60B402A. (AGHS New)
 2. Accent: Match Vol Block Inc. Color #60B403C. (AGHS New)
- B. Mortar colors.
- C. Clear sealer.

04851 Dimension Stone Cladding (STN-X)

- A. Stone: Limestone, Granite, Marble, Slate, Travertine.
- B. Thickness: Minimum 3 inches.
- C. Set with individual stainless steel anchors. (See 09751 for dimension stone applied as trim and paneling on building interiors)
- D. Sheathing: See 06160.
- E. Joint Sealant: Dow 790.
- F. Cleavage Membrane: Polyethylene film 4-mil nominal thickness, ASTM D 4397.

04860 Stone Veneer Assemblies (STN-X)

- A. Stone: Limestone, Granite, Marble, Slate, Travertine.
- B. Thickness: 1 inch max.
- C. Adhered to cold-formed metal framing and cement board by tile-setting method.
- D. Setting material: Portland cement.
- E. Grout: Polymer-modified.

04861 Manufactured Stone Veneer Assemblies

- A. Manufactures: Cultured Stone, Boulder Creek, El Dorado Stones.

Division 5 Metals

05310 Steel Deck

- A. Section provided by Structural Engineer.
- B. Products: Manufactured by [Verco](#), BHP/ASC (Psychology)
- C. Roof deck:
 1. 3 and 1-1/2 inch profile in 22 gage galvanized steel. (LRC)
- D. Composite Floor deck:
 1. 1-1/2 inch profile in 22 gage galvanized steel. (LRC)
- E. Epic Metals: Normally used for exposed roof deck.
 1. ER2RA - Acoustical. (AGHS New Const)
 - a. All perforated flats: NRC of 0.95.

- b. Alternating perforated flats: NRC of .075.
- c. Hanging capacity:
 - 1) 20 gage: 60 lbs.
 - 2) 18 gage: 100 lbs.
 - 3) 17 gage: 110 lbs.
 - 4) 16 gage: 120 lbs.
- 2. ER2R - Non-acoustical. (AGHS New Const)

05400 Cold-Formed Metal Framing

- A. Normally written by Structural consultant.
- B. Type:
 - 1. Load-Bearing only.
 - 2. For non-load bearing, see 09111.
- C. Design to AISI's Standard for Cold-Formed Steel Framing.
- D. Coating: G90.
- E. Minimum Base-Metal Thickness: 0.0538 inch (16 gage).
- F. Cemco: Structural Framing.
 - 1. 2-1/2" to 12" ECS, CS, XCS, XXCS, WFS Studs, SLT, DLT, SDLT, SMLT Track
 - 2. 20GA. and 18GA., (0.0329", 0.0428" uncoated) 33 ksi minimum yield;
 - 3. 16GA. and 14GA., (0.0538", 0.0677" uncoated) 50 ksi minimum yield;
 - 4. G60 Hot-dip Galvanized Coating; or (G90 at request)
 - 5. Hot-Rolled Carbon steel, Cold-Rolled Carbon Steel; red oxide rust-inhibitive coating

05500 Metal Fabrications

- A. Miscellaneous steel trims.
- B. Bollards: (site fabricated)
 - 1. Concrete filled galvanize steel pipe. If manufactured item specify in Site Furnishing.
- C. Steel ladders:
 - 1. Siderails: Continuous, 3/8-by-2-1/2-inch steel flat bars, with eased edges.
 - 2. Rungs: 1-inch- diameter steel bars.
 - 3. Fabricated (Bath)
- D. Products: Manufactured by [Alaco](#), [Cotterman](#), [ACL](#), [Lyn-Lad](#).
 - 1. Heavy duty hatch access Model ACL-200 by ACL.
 - 2. Assembled steel ladders by Lyn-Lad.(LRC, Allied)
- E. Ladder safety cages.
- F. Ladder Security Door: Brock Manufacturing, Carbis.
 - 1. Security Cover by Carbis range from \$90 to \$120 depending on the material. Padlocks are sold separately. The Security Covers can be installed easily by the purchaser.
 - 2. Ladder Security Door by Brock costs \$86. A padlock to secure the door must be purchased separately. Installation of the door is quick (less than one hour), and it can be installed by the purchaser. (Kunst-Liberty)
 - 3. 17 gage, G90 galvanized steel.
 - 4. Steel ladder door bolts to the side of the ladder and hinges over the rungs.
 - 5. Provide for padlock to keep unauthorized use of ladder.

05501 Aluminum Ladders

- A. Manufacturers: [Royalite](#)
 - 1. Sure Step Model Channel Ladder CL by Royalite (Science, Reedley-Mod).
 - a. Extruded from 6063-T5 aluminum, serrated on the top surface, smooth and rounded on the sides and bottom.
 - b. Load: 1200 lbs without failing.
 - c. Steps: 2" x 1" in section by 24" long.

- d. Heavy-duty side rails: Not less than .125" wall thickness by 3" wide x 1" smooth and burr free Channels.
 - e. Step fastener: 302 stainless steel self locking fasteners.
 - f. Finish:
 - 1) Mill finish.
 - 2) Factory UV protected polyurethane in manufacturers' standard color or OSHA safety yellow color. Finish to be applied over a chromitized surface pretreatment.
- B. Coordination: Need to determine if extension pole is specified here or in the roof hatch section.

05511 Metal Stairs

- A. Normally written by Structural consultant unless using pre-assembled stairs.
- B. Type: [Concrete filled metal pan] [metal stairs with grate]
- C. Railing gates at exit discharge.
- D. Finish: [Factory powder coat] [Field - High performance coating] [Field - 09910].
- E. Contractor designed stairs:
 - 1. Describe performance criteria. (Psychology)
- F. Pre-Engineered Module Stairs (drop-in): Manufactured by [Sharon](#) or [American](#).
 - 1. Need to pick style, finish, and options.
- G. Concrete filled steel pan treads and landings by American Stair. (LRC)
- H. Pre-engineered alternating treads stairs: Lapeyre Stair. (Psychology)
- I. Single component aluminum nosings: Embedded abrasive treads.
 - 1. Products: Manufactured by [Balco](#), Wooster.
 - a. No. R315LP by Balco. (Psychology)
 - b. SuperGrit 238 by Wooster. (Psychology)
 - c. Model #BF-211D by American Safety Tread, for steel pan and poured concrete (Science)

05521 Pipe and Tube Railings

- A. Use this section if stairs require special railings or railings required in addition to stairs.
- B. See 05721 for architectural railings.
- C. Utility railings:
 - 1. Interior - field painted steel.
 - 2. Exterior - field painted galvanized steel.

05530 Gratings

- A. Tree Grating: Manufactured by [Olympic Foundry](#), Alhambra Foundry, [Ironsmith](#), [Balco](#).
 - 1. Model Market Street 36" square - 12" opening by Ironsmith. (LRC)
 - 2. Tree Grates and frames: Olympic Foundry, Alhambra Foundry or equal. (Psychology)

05700 Ornamental Metal

- A. Fabricators: [Mater Metal Works \(MMW\)](#)

05715 Fabricated Spiral Staircase

- 1. Products: Manufactured by [Duvinage](#), [Iron Shop](#), [Stairways](#).

05721 Ornamental Railings

- A. Handrails: Being used for guidance and support. Heights between 34 to 38 inches.
- B. Guardrails: Being used to resist accidental falls. Height of 42 inches.
- C. Aluminum:
 - 1. Contemporary Systems, pre-engineered aluminum handrail with custom wood top rail and stainless steel insets by [Sterling Dula](#) (LRC, Trade).
 - 2. Carlsdat self-aligning post brackets and pipe railing - Schedule 40: 1-1/2" OD by [Julius Blum](#). (Allied)

- D. Stainless Steel:
 - 1. Stainless steel tube railings by Tubular Specialties Inc. (Reedley)
- E. Copper-Alloy: (Granada)
 - 1. Bronze, Brass, or Nickel-Silver.
 - 2. Architectural bronze is sub-classification of brass - sometimes referred to as leaded brass.
 - a. It has rich golden color as opposed to brass, which is more yellow in color.
 - b. It is more malleable than brass, making it easier to work with.
 - c. Tubing is thicker (0.1 to 0.125 inch) than brass (0.062 inch).
- F. Manufacturers:
 - 1. Sterling Dula:
 - a. Aluminum systems. Custom stainless steel insets.
 - b. No steel system?
 - c. Common decorative insets?
 - 2. Julius Blum:
 - a. Supplies stock materials only and does not offer custom design, fabricating or installing services.
 - b. Except as notes, all items are supplied in mill finish. Additional finishes are performed by fabricator.
 - 3. Wagner:
 - 4. Cable Rail:
 - a. Aluminum railing with standard 1/8 inch cable infill:
 - 1) Horizontal cable: \$65-\$75/ft.
 - 2) Vertical cable: \$95-\$105/ft.
 - b. Aluminum railing with clear tempered glass infill: \$75-\$85/ft.
 - c. Aluminum railing with vertical picket infill: \$50-\$60/ft.
 - d. Installation: \$25-\$35/ft extra.

05730 Ornamental Formed Metal

- A. Column Covers: V joint or 1/2 by 1/2 inch reveal.
 - 1. Material: [Stainless steel] [Aluminum].
 - 2. Series 1500 by [Pittcon](#).
- B. Metal base.
 - 1. Material: [Stainless steel] [Aluminum].
 - 2. Products: Manufactured by [Pittcon](#) or [Fry Reglet](#).

05811 Architectural Joint Systems

- A. Involve product rep to select systems required for the project.
- B. Material & Finish: Aluminum, color anodized.
- C. Metal Plate: Manufactured by [C/S Group](#), [Balco](#), [MM Systems](#), Capital Services.
 - 1. Exterior Wall Joints: SC-800 by C/S Group.
 - 2. Soffit/Wall Covers: # SC-400 by C/S Group. (LRC, Reedley)
 - 3. Roof Covers: #BRJW, flexible bellows assembly by C/S Group. (LRC, Reedley)
 - 4. Balcony Covers: # TPR by C/S Group. (LRC)
 - 5. BRJ-400 - 1" movement by C/S Group. (Science)
 - 6. SC-400 - 2.5" movement by C/S Group. (Science)
 - 7. SF-200 - 1" movement by C/S Group. (Science)
 - 8. Exterior Wall: FCVS (2" to 6" joint) by Balco (AGHS -New)
 - 9. Interior Wall: TCVS (2" to 6" joint) by Balco (AGHS - New)
- D. Balco:
 - 1. TCWW (flat seal) allows for 50% open movement or 2" joint will open to 3".
 - 2. TCVS (variable seal) can open 100% or a 2" joint will open to 4".

- E. Preformed cellular foam: Capital Services.
 - 1. Model PZ by Capital Services (Science)
 - a. Foam Material: Non-extruded, low-density, crosslinked, nitrogen-blown, ethylene-vinyl-acetate copolymer.
 - 1) Color: As selected by Architect from manufacturer's full range.
 - b. Cover Plate: Where indicated over preformed cellular foam.
- F. Reedley-Mod:
 - 1. Seismic Corner:
 - a. SCW – Seismic corner wall cover.
 - b. SCC – Seismic corner ceiling cover.
 - 2. Seismic Roof: SRJW – Seismic Roof to Wall.
 - 3. Seismic Wall: SCC – Seismic wall to ceiling.
 - 4. Exterior Wall: SF – Flush exterior wall seal.

Division 6 Wood and Plastics

Framing - General

- A. Wood frame construction is preferable to metal framing in buildings where wireless networks are being considered (LMUSD):
 - 1. A transceiver can serve a 90 feet diameter in wood framing and only 40 feet diameter when metal framing is used.
- B. Solid blocking is required and shall be verified in all wall mounted equipment (LMUSD).

06100 Rough Carpentry

- A. Wood framing: Normally written by Structural consultant.

06105 Miscellaneous Carpentry

- A. Normally included in Section 06100 if Structural Consultant is involved. Use this section if Section 06100 is not used.
- B. Wood blocking, cants, and nailers: PS-20.
- C. Plywood backing panels for equipments: Min 1/2 inch, fire-retardant, DOC PS 1, Exposure 1, C-D plugged.
- D. Fire Retardant Treated Wood: Manufactured by [Osmose](#), [Timber Specialties](#).
 - 1. FirePRO by Osmose. (Science)

06160 Sheathing (Sheathing-X)

- A. Some times included in Section 06100 if Structural Consultant is involved. Plywood is normally specified by structural consultant, but if we want Dens-Glass, we need it here, unless it's part of the roof.
- B. Plywood Wall Sheathing: Exposure 1, Structural I sheathing.
 - 1. Span Rating: Not less than 32/16.
 - 2. Thickness: 1/2 inch
- C. Plywood Roof Sheathing: Exposure 1, Structural I sheathing.
 - 1. Span Rating: Not less than 40/20.
 - 2. Thickness: As shown on drawings.
- D. Plywood Subflooring: Exposure 1, Structural I single-floor panels or sheathing.
 - 1. Span Rating: 48/24
 - 2. Thickness: Not less than 3/4 inch
- E. Gypsum Sheathing:
 - 1. Edge type is crucial.
 - 2. MR board is for interior use only and can be taped and finished.
 - 3. There are actually 2 types of Gypsum Sheathing available:

- a. 1/2" thick 2' wide is tongue and groove.
- b. 4' wide is square edged.
4. The reason sheathing edges are different is because there is no compound or tape for exterior use.
5. The 5/8" Square Edge 4' wide sheathing CAN be part of a fire rated wall with no joint treatment. Also, the sheathing paper is different than MR board and can survive the elements, both UV and rain, for up to 30 days before it must be covered.
- F. Glass-Mat Gypsum Wall Sheathing
 1. Product: Dens-Glass Gold by [GP](#). Not recommend for exterior tile backer, use cement board. No known equal. (Reedley-Mod)
 2. Thickness: Type X, 5/8 inch.
- G. Weather Resistive Barrier (VR-X)
 1. Products: Manufactured by [DuPont](#), [Typar](#).
 - a. Commercial Wrap (Tyvek) by DuPont.
 - b. Housewrap by Typar. (Sports)
- H. Plywood Backing Panels:
 1. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2 inches thick.

06201 Exterior Finish Carpentry (Items are fabricated in factory)

- A. Exterior standing and running trim.
- B. [Lumber] [Plywood] [Hardboard] siding.
- C. [Plywood] [Hardboard] soffits.
- D. Exterior [stairs] [and] [railings].
- E. Exterior ornamental wood columns.

06202 Interior Finish Carpentry (Items are fabricated in factory)

- A. Naming convention:
 1. Shop-assembled door frames: Frames and Jambs.
 2. Job-built door frame: Standing Trim.
- B. Hardboard: Smooth surface on one side and a mesh texture on the other.
- C. MDF board: Type of hardboard which is made from wood fibres glued under heat and pressure manufactured using urea-formaldehyde resin. Some green manufactures use Urea-Formaldehyde-free MDF.
- D. Interior standing and running trim.
 1. Wood base.
 2. Wood door frames.
 3. Wood chair rails. (For factory fabricated type such as CR3 by InPro is specified in Section 10265 Impact-Resistant Wall Protection.)
- E. Fire-rated interior door [and sidelight] frames.
- F. [Plywood] [Hardboard] [Board] paneling.
- G. Shelving[and clothes rods].
- H. Interior [stairs] [and] [railings].
- I. Interior ornamental wood columns.
- J. Plywood for interior wall application for storage rooms Rather than using gypsum board, cheaper way to finish the wall using 1/2 plywood field painted. 1-1/2 inch wood furring on CMU.

06402 Interior Architectural Woodwork (Items are fabricated in woodworking shop)

- A. Cabinets shall comply with AWI Section 400, Reveal Overlay Construction, Custom grade, plastic laminate finish. (LMUSD).

1. Both sides of all shelves shall be 0.028 high pressure decorative laminate, regardless of location or exposure, and shall not span more than 34 inches.
 2. Shelves shall be retained with seismic clips.
 3. Cabinets shall be designed for full use of corners.
 4. Upper cabinets shall be at 4'-6" AFF max.
- B. Countertops shall be 0.050 inches thick plastic laminate, using exterior grade plywood at wet locations (LMUSD)
1. No seams shall occur within 18 inches of sink cut-outs.
 2. Sink cut-outs shall be coated with opaque sealer.
 3. Back splash shall coordinate with size of soap and paper tower dispensers for solid attachment.
 4. Corners of tops shall be cut at 45 degrees if projecting or in pathway.
- C. Reference:
1. Woodwork Institute (WI) - default.
 2. Architectural Woodwork Institute (AWI) - LMUSD.
- D. Reference WI - Cabinet Design Series (CDS) numbers for each cabinet. (Skills).
- E. Woodwork Institute (WI): Premium grade.
- F. WI - Certified Compliance Program (CCP): default.
1. Licensed woodworkers are authorized to inspect and certify their own work. However, Architect can request WI representative to inspect work at any time when things don't look right.
 2. Shop drawings will have serial numbered WI Label.
 3. Submittals: Shop drawing sticker. Product and Installation Certificate.
 4. Cost: \$1,500 for non-members, \$750 for WI members.
- G. WI - Monitored Compliance Program (MCP): Cost more than CCP (compare con doc to shop drawings and continuous inspection).
- H. Mockups.
- I. Interior frames and jambs.
- J. Stairwork [and rails].
- K. Cabinet Type:
1. Flush overlay (Reedley)
- L. Materials:
1. Plastic laminate NEMA LD-3 (PLAM-X).
 2. Solid surfacing (SS-X): Manufactured by [Corian](#), [Wilsonart](#).
- M. Countertops:
1. Plastic laminate. (Science, LRC)
 2. Solid surfaces countertops: Use 1/2 inch. (1/4 inch is not recommended for horizontal application)
 - a. Corian - Delta Sand, Price Group F. (Fletcher).
 - b. Avonite - Studio Collection, Amazon K3-8460. (Fletcher)
 3. Quartz countertops:
 - a. Ogee edges by [CaesarStone](#). (Pool)
 - b. Zodiac quartz, 3/4 inch by DuPont. (LRC)
 - 1) Antique Pearl (Fletcher)
 4. Avonite:
 - a. Foundations: cheaper than Studio Collection, 30 by 144 inch standard sheet.
 - b. Studio Collection: 36 by 120 inch standard sheet. Has 8 colors that are 40% recycled content.
 - c. Gloss finish is put on at shop by fabricators. Matt finish from the manufacturer.
 5. shetkaSTONE.

- N. Paneling:
 - 1. Plastic laminate.
 - 2. Wood veneer - [maple] [natural birch].
- O. Window Sill:
 - 1. Plastic Laminate.
 - 2. Solid surfacing.
- P. Plastic laminate: (PLAM-X)
 - 1. High Pressure Laminate (HPL): Manufactured by [Formica](#), [Wilsonart](#), [Nevamar](#).
 - a. Laminate Substrate: Medium-density fiber board (MDF) or a 45# density particle board (CS 236-66; Type 1, Grade B, Class 2). Do not use plywood.
 - b. Formica - Surf 923.58, Matte, cabinets (Fletcher)
 - c. Cabinets - Wilsonart (LRC).
- Q. Glass:
 - 1. Framed sliding and swinging doors: 1/8 inch float glass.
 - 2. Unframed sliding doors: 1/4 inch float glass.
- R. Wall Panel System: Adhesively applied.
 - 1. Wood veneer: Flat cut white birch SSV-285, 1/4 inch by Marlite (Fletcher)
 - 2. Grid: System 4, Brushed AlumaStainless SSM-364 by Marlite. (Fletcher)
- S. FRP panels: see 06820.
- T. Transparent factory finish: #4 Conversion varnish.
- U. Opaque factory finish: #4 Conversion varnish on closed grain hardwood.
- V. Countertop RS Means, 24 inch wide, material price per liner foot:
 - 1. Stock plastic laminate: Min 8.85 to max 16.
 - 2. Ceramic mosaic tile: 26.50.
 - 3. Marble: 1/2 inch min. 32.50 to 3/4 inch max of 81.
 - 4. Stainless steel: 121.
 - 5. Solid Surfacing (Corian) with order of 100 liner foot or more:
 - a. Solid color: 44.
 - b. Pattern color: 56.
 - c. Premium pattern color: 70.
- W. Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde. (Reedley-Mod)
 - 1. Medex, Medex NC, Medite II, or Arreis SDF by SierraPine Ltd.
 - 2. Weyerhaeuser Company; Premier Plus by Weyerhaeuser.
- X. Linoleum top for information desk (Reedley-Mod)
 - 1. Product: Marmoleum Real by Forbo Flooring, Inc.

06512 Composite Lumber

- A. Manufacturers: [Nexwood](#), [Trex](#), [EON](#).
 - 1. HDPE: Trex, (Science, Reedley-Mod).

06660 Plastic Architectural Trims

- A. MasterSpec has this item in Section 06202 Interior Finish Carpentry.

06820 Fiber Reinforced Plastic Panels (FRP-X)

- A. Melamine finishes on medium density wood fiberboard substrate by [Marlite](#).
- B. Kitchen Wall Surfaces: [Marlite](#), [Kemlite](#), [Glasteel](#).
 - 1. Fiber Reinforced Plastic (FRP) panels by Marlite for kitchen wall surfaces. (Science, Reedley-Mod)
 - a. Thickness: 3/32 inch.
 - b. Pebble (\$0.80), Smooth (\$1.20) sq. ft.

2. Glasbord by Kemlite. (Allied - addendum3)
3. Glasliner FRP by Glasteel.

[Division 7 Thermal and Moisture Protection](#)

07110 Dampproofing.

- A. Dampproofing is not intended to resist water under hydrostatic pressure. Not for below grade application. Use waterproofing instead.
- B. Horizontal (Under slab application)
 1. Normally specified by Structural Consultant in concrete section.
 2. Dampproofing: [Reef](#), [Stego](#), [Raven](#).
 - a. Class A per ASTM E-1745:
 - 1) Griffolyn 10 mils by Reef Industries. (\$0.08 to 0.10/sq ft.) (Science)
 - 2) Stego Wrap 10 mils by Stego Industries. (Science)
 - 3) Vapor Block 10 by Raven Industries.
- C. Vertical wall application: [Sonneborn](#), [Pactiv](#).
 1. Asphalt: Hydrocide 700B by Sonneborn (Sports).
 - a. Use: Exterior surfaces below grade.
 - b. ASTM D1227, Type 2, Class I, 51% solid by volume, 53% solids by weight.
 - c. Applied: Brush, roller, or spray.
 2. Protection Board: GreenGuard PB4 fan fold protection board by Pactiv. (Sports)
 - a. XPS, 1/4 inch.

07115 Bituminous Dampproofing.

- A. Cold-applied asphalt:
 1. Emulsified (water-based) asphalt compounds.
 - a. Sealmatic Fibered by W.R. Meadows (Basis of Design)
 - b. HE789 Fibered Asphalt Emulsion Dampproofing by Henry Company.
 - c. Hydrocide 700B by Sonneborn, Div. of ChemRex, Inc.
 - d. Dehydratine 85 by Tamms Industries.

07131 Self-Adhering Sheet Waterproofing (WP-X)

- A. WR Grace recommendation:
 1. If the waterproofing is on the outside and must be applied prior to the placement of the concrete (Blind Side) - PrePrufe 300R.
 2. If the waterproofing is on the outside but the concrete is placed first and then waterproofed - Bituthene 4000.
 3. If waterproofing is on the inside - no option from Grace.
 4. Use: Foundation wall below grade and plaza decks.
- B. Modified bituminous sheet waterproofing: Manufactured by [WR Grace](#), [WRMeadows](#).
 1. Bituthene 3000 by WR Grace. (Psychology option 2, Oceano)
 2. Bituthene 3000 by WR Grace. (LRC)
 - a. Horizontal application: In concrete filled metal deck, require 1-1/8 inch minimum topping slab above membrane, can also be used below tile.
 - b. Waterproofing below sheet metal parapet cap (Dororthea).
 3. Mel-Rol by WRMeadows. (Psychology option 2)
 4. Use: Post applied sheet membrane for below grade foundation walls and horizontal split slab construction and deck construction
- C. Modified bituminous deck paving sheet waterproofing: (Highway app, seldom used)
 1. Bituthene 5000 by WR Grace.
- D. Adhesive-coated HDPE sheet waterproofing:

1. Preprufe [160R] [and] [300R] by WR Grace.
- E. Molded-sheet drainage panels: Manufactured by [WR Grace](#), [Carlisle-CCW](#).
 1. Hydroduct 220 on vertical and Hydroduct 660 on horizontal by WR Grace. (Psychology option2)
 2. Miradrain 6000on vertical and 9000 on horizontal by Carlisle-CCW. (Psychology option 2)
- F. Drainage: Use either on of following. Coordinate with Civil.
 1. Perforated PVC pipe.
 2. Hydroduct Coil 600 by WR Grace. (Thicker version Hydroduct 220).
- G. Insulation.
- H. Plaza deck pavers [and paver pedestals].
- I. Vertical or horizontal between slabs:
 1. Thickness: 60 mil.
 2. Product: Bituthene 3000 by Grace.
 3. Material cost:
 4. Type: Self-adhesive sheet.
- J. Horizontal below slab:
 1. Vapor Retarder (Minimum):
 - a. Thickness: 10 mil.
 - b. Product: Stego, Raven etc.
 - c. Use: Warehouse.
 - d. Material Cost: \$0.10/ sq. ft.
 - e. Type: Sheet.
 2. Vapor Barrier (Better):
 - a. Thickness: 21 mil.
 - b. Product: FlorPrufe 120 by Grace
 - c. Use: Front office in warehouse.
 - d. Material Cost: \$0.40 / sq. ft.
 - e. Type: Sheet.
 3. Waterproofing (Best):
 - a. Thickness: 46 mil. (32 mil for 160R)
 - b. Product: Preprufe 300R by Grace.
 - c. Use: Critical areas with finished floor.
 - d. Material Cost: \$1.75 / sq. ft.
 - e. Type: Pressure-sensitive adhesive sheet.
- K. Preprufe Waterproofing System (Preprufe 300R & 160R) by Grace:
 1. Preprufe® 300R & 160R membranes are unique composite sheets comprising a thick HDPE film, an aggressive pressure-sensitive adhesive and a weather resistant protective coating.
 2. Unlike conventional non-adhering membranes, which are vulnerable to water ingress tracking between the unbonded membrane and structure, the unique Preprufe seal to concrete prevents any ingress or migration of water around the structure.
 3. The Preprufe R System includes:
 - a. Preprufe 300R - heavy-duty grade for use below slabs and on rafts (i.e. mud slabs). Designed to accept the placing of heavy reinforcement using conventional concrete spacers.
 - b. Preprufe 160R - thinner grade for lighter applications and reverse tanking (i.e. blindside zero property line) applications against permanent formwork such as soil retention systems.

07132 Elastomeric Sheet Waterproofing (WP-X)

- A. Use: Vertical walls and plaza decks.
- B. Butyl rubber sheet waterproofing: Manufactured by [Carlisle](#).
 - 1. Sure-Seal Butyl by Carlisle.
- C. EPDM rubber sheet waterproofing: Manufactured by [Carlisle](#).
 - 1. Sure-Seal EPDM by Carlisle.
- D. Molded-sheet drainage panels.
- E. Insulation.
- F. Plaza deck pavers[and paver pedestals].

07133 Thermoplastic Sheet Waterproofing (WP-X)

- A. PVC with reinforced nonwoven fiberglass.
- B. Thickness: [80] [96] [120] mils.
- C. Option: Felt back.
- D. Drainage panels.
- E. Insulation.
- F. Mockup.
- G. Installation: [Fully adhered] [Loosely laid].
- H. Application: [Horizontal] [Vertical] [Vertical, blind-side].
- I. Products: Manufactured by [Sarnafil](#).
 - 1. System 3000 (Loosely laid with containment girds), G476, 80 mil, by Sarnafil. (Psychology at 1st floor)
 - 2. System 4002 (Foundation walls and horizontal split slab construction), G476, 80 mil, by Sarnafil. (Psychology option 1 at below grade)

07142 Hot Fluid-Applied Waterproofing (WP-X)

- A. Waterproofing (Science):
 - 1. Reinforced 6125 by American Hydrotech.
 - 2. 6100 by Permaquik.
 - 3. CCW-500 by Carlisle.
 - 4. Miraseal 9100 by Miradri.
 - 5. Tremproof 150 by Tremco.
- B. LEED:
 - 1. Use Reinforced 6125EV for LEED.
- C. Rigid Insulation
 - 1. Horizontal Application: ASTM C578 Type VII, 2.2-lb/cu. ft. minimum density and 60-psi minimum compressive strength.
 - 2. Vertical Application: ASTM C578 Type VI, 1.8-lb/cu. ft. minimum density and 40-psi minimum compressive strength. Use insulating drainage board on vertical.
- D. Protection Course: 1/8 inch (vertical), 1/4 inch (elsewhere).
- E. Drainage panels: Geotextile-faced molded-plastic-sheet.
- F. Topping: [Aggregate ballast] [plaza pavers] [concrete slab] [garden].
- G. Foundation walls.
- H. Flood test: 48 hours minimum.
- I. Independent testing agency: Paid by Owner.
- J. Warranty (Manufacturer): 10 years.
- K. Warranty (Installer - sub contractor): 2 years.

07170 Bentonite Waterproofing (WP-X)

- A. Foundation Wall:
 - 1. Volclay Voltex (geotextile/Bentonite sheet) by Cetco.
- B. Under slab:

1. Volclay Voltex DS by Cetco.
 2. Paraseal LG by Tremco (composite geotextile-HDPE/Bentonite membrane).
- C. Under slab (chemical resistance): Ultraseal SP by Cetco.

07180 Traffic Coatings (TC-X)

- A. Products: Manufactured by [Neogard](#), [Pacific Polymers](#), [Dex-O-Tex](#).
1. Pedestrian traffic:
 - a. Elastatex 500 Urethane Deck by Dex-O-Tex (LRC Trade Tech)
 - b. PEDDA-GARD II by Neogard.
 2. Vehicular traffic: AUTO-GARD II by Neogard.
 3. Elasto-deck BT and Elasto -Deck 5000 X2 by Pacific Polymers. (LRC)
 4. Décor-Floor by Dex-O-Tex: In replacing the typical primer which we call "C" Bondcoat there is an additional \$1.25/per square foot in material cost, with no difference in labor for using the Vapor Control Primer 100 at 14 - 16 dry mil thickness to address moisture vapor transmission.

07190 Concrete Floor Sealer

- A. Concrete Clear Penetrating Sealer:
1. Cementone Clear Sealer by Scofield. (Reedley-Mod)

07191 Concrete Moisture and Alkalinity Barrier

- A. Apply on concrete surfaces to receive resilient flooring, carpet, and where indicated to seal concrete.
- B. Apply within 48 hours of concrete pour for on grade surfaces.
- C. Apply within 48 hours of concrete pour at Contractor's option or bead blast after cure when moisture test fails for upper floors.
- D. Products:
1. Vapor-Guard DC by Advance Moisture Control. (Reedley-Mod)
 2. System 6 by Floor Seal Technology Inc.

07194 Masonry Sealer

- A. Substrate: CMU walls.
- B. Water repellents: Film forming sealers (water-based acrylic), Penetrating sealers - not visible (water based siloxane)
- C. Products: Manufactured by [Advanced Chemical Tech](#), [Hydrozo](#), [Pecora](#), [Sonneborn](#).
1. CMU:
 - a. Polysilane:
 - 1) Blok-Lok by [Rainguard](#). (UCSB)
 - b. Silane/Siloxane:
 - 1) Weather Seal GP by [Prosoco](#). (UCSB)
 - c. Siloxane:
 - 1) Hydrozo Enviroseal Porous Block Treatment (PBT). (UCSB, substitution)
 - d. Silicone:
 - 1) Clear System:
 - a) 1-coats of Super Strength clear by Kansas.
 - b) 1-coats of 626 Dur A Pell GS (Graffiti Shield) by Tnemec.
 - e. Thoroclear 777 solvent based by Thoro is discontinued.
 - f. WaterPel by Prosoco is discontinued (was for horizontal application manufactured by 3rd party).
- D. Integral CMU admixture DRY-BLOCK by Grace is another option.

07210 Building Insulation (INS-X)

- A. Batt/Blankets: Manufactured by [CertainTeed](#), [Johns Manville](#), [Owens Corning](#), [Knauf](#)

- B. R means resistance to heat flow. The higher the R-value, the greater the insulating power. R-values are expressed in $\text{ft}^2 \cdot \text{h} \cdot ^\circ\text{F} / \text{Btu}$.
- C. Need building envelope information (R values for walls and roofs) from mechanical consultant.
 - 1. Wall:
 - a. R-11: 3-1/2 inches of fiberglass (interior walls for sound insulation).
 - b. R-13: 3-1/2 inches of fiberglass. Fits 3-5/8 inch metal studs. Or 2x4 wood studs.
 - c. R-19: 6-1/4 inches of fiberglass. 2x6 wood studs.
 - 2. Wall: Z furring rigid insulation (R).
 - a. Extruded Polystyrene (EPS) Foam:
 - 1) Styrofoam Cavitymate by Dow: 24"x8', 1" (5.0), 1-1/2" (7.5), 2" (10).
 - 2) Styrofoam Z-Mate by Dow: 23-7/8"x8', 1-1/2" (7.5), 2" (10). (Trade)
 - b. Polyisocyanurate Foam:
 - 1) Tuff-R Commercial, foil facer on both sides by Dow: 16"x8', 1" (8), 1-1/2" (12), 2" (16).
 - 2) Value-R, foil facer on both sides by Dow: 16"x8', 2" (14.4).
 - 3. Ceiling: Fiberglass from ceiling side for roof insulation.
 - a. R-30: 10 inches of fiber glass.
 - 4. Roof: Foam board insulation (ASTM C 578) is specified in roofing system.
 - a. R-30: 5 inches of polyisocyanurate (R-6 per inch).
 - b. R-30: 6 inches of expanded polystyrene (EPS), (R-5 per inch).
 - c. R-23. (Cottage Residential Center)
- D. Facing: Faced on one side with asphalt treated Kraft paper for exterior walls. (Reedley)
- E. Blankets come in 2 forms (batts and rolls).
 - 1. Batts: fit standard wall cavities and are faster to install than roll products.
 - 2. Rolls: can be cut to fit any size cavity and installed in any part of a building.
- F. Sheathing and Vapor barrier: see 06160.
- G. Thermal and sound insulation:
 - 1. Glass-fiber blanket insulation: Unfaced, ASTM C 665, Type I, Formaldehyde-free.
- H. Sprayed cellulose thermal insulation: Spayed just like fire-proofing on deck from below.
 - 1. K-13 by International Cellulose Corp (Psychology).
 - a. NRC of 0.75 with 1 inch thick. Available with color, but using at MRI room for acoustical insulation below deck, concealed with suspended acoustical panels.
- I. Batt Installation:
 - 1. Metal Deck (from ceiling side):
 - a. Insulation Fasteners, spindle type:
 - 1) Ceiling insulation from interior side rather than using rigid insulation on the roof - Metal and concrete deck (glass-fiber board, ASTM C 612).
 - 2. Plywood Deck (from ceiling side):
 - a. Staple insulation to sides of joists or trusses at 4 inches o.c. through bent down flanges of vapor barrier in such manner that air leaks between insulation and joints are minimized.
- J. Cavity insulation: Rigid board insulation (ISO or EPS), see 04810.
- K. Safing Insulation: [Fibrex](#), [Owens Corning](#), [Thermafiber](#).
- L. Sound Insulation
 - 1. Sound Attenuation Batts (SABs) by Owens Corning: Unfaced, light-weight, flexible fiberglass insulation batts. Available in thicknesses of 2 1/2" and 3 1/2", comes in standard metal framing widths and is available in a full 8 foot length.
 - 2. Complies with ASTM C 665, Type I, 1/8" wider than stud spaces for friction-fit installation.

3. STC values: 3-5/8 inch steel stud, single layer 5/8 inch on both sides, 24" o.c. has STC of 42. With 2-1/2 mineral wool or glass fiber in cavity has STC of 47.
- M. Polyisocyanurate Board
1. Sarnatherm is available in 4 x 4 foot or 4 x 8 foot sizes. Use 3.1 inch, R-19 boards (UCSB).
- N. Extruded-Polystyrene (EPS) Board Insulation: ASTM C 578, of type and density indicated below, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively:
1. Product: Styrofoam Z mate: R value of 7.5, 1-1/2 inch thick, 24 inches on center stud. (Trade)
 2. 1.5 Density, 20 psi EPS, ASTM C578 Type II, submitted and approved (Psychology)
 3. Application: CMU walls with 2-inch furred walls.
 4. Note: EPS board insulation is combustible. It should not be exposed to flame or other ignition sources. EPS board insulation is subject to attack by organic solvents and coal-tar products. Take care to prevent contact of these materials with EPS board insulation.
- O. Sarnafil Rigid Insulation Values:
1. Polyisocyanurate:
 - a. ISO R-19, 3.1".
 - b. ISO R-30, 5.2".
 2. EPS:
 - a. EPS, R-19, 4.2" (we received 4-1/8 inch thick for R-19 on Psychology).
 - b. EPS, R-30, 7.2".
- P. Johns Manville: (LEED MR 4.1 - 20 % post consumer recycled content)
1. Manufacturing Plant Locations: Willows, CA / Winder, GA / Penbryn, NJ / McPherson, KS.
 2. Foil-Faced Batts:
 - a. ASTM C 665, Type III, Class B, Category 1.
 - b. ASTM E 96 Permeability; Foil – 0.05 Perms.
 - c. ASTM E 84 Flame Spread 75 or less, Smoke Developed 150 or less.
 - d. Width: 16 and 24 inches.
 - e. R-30: 10-1/4 inches, R-19: 6-1/4 inches; R-13: 3-1/2 inches, R-11: 3-5/8 inches.
 - f. Stapling tabs for attachments to wood framing.
 - g. Foil vapor retarder on this product will burn, and must not be left exposed. It must be covered with gypsum board or another approved interior finish. Where an exposed application is required, use FSK-25 flame-resistant faced insulation.
 - h. In predominantly hot, humid climates local practices often call for placing the vapor retarder toward the outside of the wall cavity.
 3. FSK-25 Foil-Faced Batts:
 - a. ASTM C 665, Type III, Class A, Category 1.
 - b. ASTM E 96 Permeability; FSK – 0.05 Perms.
 - c. ASTM E 84 Flame Spread 25 or less, Smoke Developed 50 or less.
 - d. Size, R values are same as regular foil-faced batts.
 - e. Stapling tabs for attachments to wood framing.
 - f. Must be protected from outside elements like wind, rain and sunlight.
 4. Kraft-Faced:
 - a. ASTM C 665, Type II, Class C, Category 1.
 - b. ASTM E 96 Permeability; Kraft – 1.0 Perms.
 - c. Pre-cut batts – fit standard wall cavities and are faster to install than roll products.
 - d. Rolls – can be cut to fit any size cavity and installed in any part of a building.
 - e. Size, R values are same as regular foil-faced batts.
 - f. Stapling tabs are provided for attachment to wood framing.

- g. The kraft facing on this product will burn, and must not be left exposed. It must be covered with gypsum board or another approved interior finish. Where an exposed application is required, use FSK-25 flame-resistant faced insulation.
 - 5. Panel Deck FSK-25:
 - a. ASTM C 665, Type III, Class A, Category 1.
 - b. ASTM E 96 Permeability; FSK-25 Facing – 0.05 Perm Rating.
 - c. ASTM E 84 Flame Spread 25 or less, Smoke Developed 50 or less.
 - d. Extra-wide tabs (5 inches) extend full length along both sides for specialty applications. The reflective facing may be left exposed where codes permit.
 - 6. Panel Deck PSK:
 - a. ASTM C 665, Type II, Class A, Category 1.
 - b. ASTM E 96 Permeability; PSK facing – .10 Perm Rating.
 - c. ASTM E 84 Flame Spread 25 or less, Smoke Developed 50 or less.
 - d. Width: 23 inches, R-19: 6-1/4 inches.
 - e. Extra-wide tabs (5 inches) extend full length along both sides for specialty applications. The reflective facing may be left exposed where codes permit.
 - f. Light-reflective Surface – when exposed, the white polypropylene reflective surface helps maximize lighting efficiency, and may reduce lighting requirements.
 - 7. AP Foil-Faced:
 - a. Polyisocyanurate Foam Sheathing.
 - b. Use:
 - 1) Behind all siding types, including brick veneer and exterior stucco.
 - 2) Masonry cavity wall insulation.
 - 3) Thermal insulation under reinforced slab.
- Q. Effective R-value of batt insulation in stud walls: This is according to Dow who makes rigid insulation where there R value is same for effective value.
- 1. R-19:
 - a. R values in steel stud walls: Lower effective value comes from thermal bridging through the studs.
 - 1) 24 inches on center: 8.6.
 - 2) 16 inches on center: 7.1.
 - b. R values in wood studs:
 - 1) 24 inches on center: ??
 - 2) 16 inches on center: ??
- R. ASTM C665 - Mineral-Fiber Blanket Thermal Insulation:
- 1. 3 Types:
 - a. Type I: Blankets w/o membrane coverings.
 - b. Type II: Blankets w/ nonreflective vapor-retarder membrane covering one principal face:
 - 1) Class A: Membrane-faced surface with flame spread of 25 or less.
 - 2) Class B: flame propagation resistance; critical radiant flux of 0.12 W/ cm sq. or greater.
 - 3) Class C: not rated for flame propagation resistance (for use in nonexposed applications only).
 - c. Type III: Blankets w/ reflective vapor-retarder membrane covering one principal face:
 - 1) Class A, B, and C same as above.

07241 Exterior Insulation and Finish Systems - Class PB (EIFS-X)

- A. Sheathing: see 06160.
- B. Insulation: Channeled, molded, Expanded Polystyrene Board, ASTM C 578, Type I,

- C. Finish: Acrylic-based coating.
- D. Trim Accessories: UV-stabilized PVC.
- E. Mesh:
 - 1. Standard-Impact Reinforcing Mesh: Not less than 4.0 oz./sq. yd.
 - 2. Intermediate-Impact Reinforcing Mesh: Not less than 10 oz./sq. yd.
 - 3. High-Impact Reinforcing Mesh: Not less than 15 oz./sq. yd..
 - 4. Heavy-Duty Reinforcing Mesh: Not less than 20 oz./sq. yd.
 - 5. Panzer mesh comes in 15 and 20 oz.
- F. Products: Manufactured by [Dryvit](#), [Sto](#), [Parex](#).
 - 1. EIFS with Drainage:
 - a. Outsulation MD Systems by Dryvit. (LRC)
 - b. Water Master Commercial DB System by Parex.
- G. Dryvit:
 - 1. Outsulation Plus: Site built. Weep traditionally.
 - 2. Outsulation MD: site built or panelized. Vent system. Cost 10 to 15% more than Plus. Unsightly control joint between floors.
- H. Concrete or CMU as substrate:
 - 1.

Roofing in General

- A. Contractor shall provide warranty as follows: (LMUSD)
 - 1. Roofing and flashing shall be guaranteed for a period of 10 years from date of substantial completion against all failure and leakage.
 - 2. Warranty shall be signed by Contractor and Subcontractor and shall include complete contact information for both.
- B. Generally uses following types of roofs:
 - 1. Flat (low slope) Roofing:
 - a. Elastomeric (PVC) roofing.
 - b. Built-up roofing.
 - 2. Slope Roofing:
 - a. Standing seam metal roofing.
 - b. Asphalt shingle roofing.
 - c. Clay roofing (Santa Barbara look)
- C. Determine minimum roofing class in CBC Table 15-A using occupancy and building type.
- D. Determine substrate type:
 - 1. Nailable: [Plywood] [Dens-Deck by GP] [Nothing at all].
 - 2. Non-nailable: Concrete.
 - 3. Insulated: Rigid (non-isocyanurate).
- E. Determine insulation type: [Rigid] [Batt insulation from interior side] [Nothing at all].
- F. Determine underlayment type: [Asphalt-saturated organic felts] [Self-adhesive type like Grace Ice and Water Shield] [Nothing at all].
- G. Cool Roof is required by Title 24 for low-sloped roofs as of Oct 1, 2005.
 - 1. Commercial roofing products that qualify as cool roofs fall in 2 categories: single-ply and liquid-applied:
 - a. Single-ply products include:
 - 1) White PVC (polyvinyl chloride).
 - 2) White CPE (chlorinated polyethylene).
 - 3) White CPSE (chlorosulfonated polyethylene, e.g. Hypalon).
 - 4) White TPO (thermoplastic polyolefin).
 - b. Liquid-applied products may be used to coat asphalt cap sheets, modified bitumen, and other substrates. Products include:

- 1) White elastomeric coatings.
- 2) White polyurethane coatings.
- 3) White acrylic coatings.
- 4) White paint (on metal or concrete).

07311 Asphalt Shingles (RF-X)

- A. Use: Sloped roofs, range (4:12 to 20:12).
- B. Glass-fiber-reinforced asphalt shingles:
 1. Carriage House or Landmark by [CertainTeed](#).
 - a. Landmark 30 by Certainteed. (Science)
 - b. Timberline 30 by GAF (Science).
- C. Organic-felt-reinforced asphalt shingles:
 1. Hallmark by [CertainTeed](#).
- D. Owens Corning Oakridge® PRO 30 fiber. (Dorothea)
- E. Underlayments:
 1. Two-ply application: Type I (No. 15) felt.
 2. Single-ply application: Type II (No. 30) felt.
 3. Self-Adhering, Polyethylene-Faced Sheet: Ice and Water Shield by [WR Grace](#).
- F. Ridge vents.

07321 Clay Roof Tiles (RF-X)

- A. Manufacturers: [Redlands](#), [Ludowici](#), Aeri-Clay, [Deleo](#), [US Tile](#), [Gladding-McBean](#), [MCA](#).
- B. Mission 2000 Series Tiles by Redland Clay Tile (MAW Wood II)
 1. Size: 7 to 8-1/2 by 20 inch nominal size.
 2. Color: Palmia.

07322 Concrete Roof Tiles (RF-X)

- A. Manufacturers: Entegra, Lifetile, Permacon, Pioneer.

Kynar Finish in general:

- A. Kynar means Kynar 500 meeting AAMA 2605 and not AAMA 2604.
- B. Most manufacturers don't warrant Kynar finish on steel, warranty given only on aluminum.

07411 Metal Roof Panels (RF-X)

- A. Factory-formed and field-assembled, standing-seam roof (SSR) panels.
- B. Aluminum-Zinc Alloy-Coated (Galvalume) Steel Sheet: 22 gage minimum, ASTM A 792, Class AZ55 coating designation, Grade 40.
- C. Wind-Uplift Resistance: Class 90, UL 580.
- D. Fire/Windstorm Classification: FGM Class 1A-90.
- E. Finish: Factory Kynar 3-coat metallic coating.
- F. Products: Manufactured by [AEP-Span](#), [McElroy](#), [MBCI](#).
 1. Water shedding, non-structural panels:
 - a. Medallion I Flat Pan 16" wide, 1" batten, UL90 roof; Class A roof system, 24 gage min, Kynar500 - Bright Red by McElroy. (LRC)
 - b. Select Seam, 16 inch, non-structural by AEP-Span. (LRC, Reedley, Allied, Science)
 - 1) Narrow Batten. (Oceano)
 - c. Craftsman SB by MBCI.
 2. Water shedding, structural:
 - a. Klip-Rib by AEP Span (Aquistapace)
 - 1) Slope: 1:12 minimum.
 3. Watertight:
 - a. LokSeam by MBCI.

- b. Design Span by AEP Span (water shedding but can get watertight warranty).
 - 4. 24 gage, Medallion-Lok 16" by McElroy, Color as Selected (SBCC)
 - 5. Cap Seam by AEP-Span.
 - 6. Batten-Lock, structural by MBCI (AGHS New Construction- BOD).
 - a. Span-Lock by AEP Span was actually installed for AGHS New Construction (???)
 - 7. Batten System (Maxi) by Metal Roofing (Dorothea)
- G. Soffits: Coordinate sprinkler pipes.
 - 1. Artisan by MBCI:
 - a. Solid: 8, 10, 12 inch in all colors.
 - b. Perforated: only 12 inch in white. 1/8" round on .324 staggered centers. 13-1/2 % open area.
 - 2. Matrix Soffit Panel by McElroy:
 - a. 12 inch solid and vented: All colors. 5% to 8% opening.
 - 3. Prestige Series Panel by AEP Span:
 - a. Solid and Vented: All colors. 7.8% opening
- H. Corrugated Panels:
 - 1. Agri-Line by MBCI:
 - a. 26ga Galvalume Plus corrugated 1/2" is \$70.07 per 100 sq/ft. (\$0.70/sq. ft.)
 - 2. Multi-Cor by McElroy.
- I. Insulation: Batts, see 07210 (inside of building).
- J. Roof Substrate Board (Sheathing):
 - 1. Type X, 5/8 inch, Dens-Deck by [GP](#).
 - 2. Plywood.
- K. Underlayments:
 - 1. Asphalt saturated paper:
 - a. Two-ply application: Type I (No. 15) felt.
 - b. Single-ply application: Type II (No. 30) felt. (\$0.14/sq. ft. material only)
 - 2. Self-Adhering, Polyethylene-Faced Sheet:
 - a. Ice and Water Shield by [WR Grace](#). (\$0.51/sq. ft. material only)
 - 3. Synthetic Wrap:
 - a. Titanium-UDL by [InterWrap](#).
 - b. Tri Flex 30 by [WR Grace](#). (\$0.15/sq. ft. material only). 20 year warranty and can be left exposed for up to 6 month.
- L. Medallion I by McElroy:
 - 1. System: Plywood, DensDeck, Metal Panel. (Cuesta Trade)
 - a. Fire Rating: UL-790, Class A Roof System TGFU.R6955.
 - b. Uplift Test: UL 580, Class 90, TGKX.280 (over plywood). (TGKX.310 would be for rigid insulation over metal deck)
 - c. Air Infiltration: ASTM E1680.
 - d. Water infiltration: ASTM E1646.
 - e. Impact Resistance: UL 2218, Class 4.
 - f. Warranty: 25 years for standard Kynar 500 finish.
- M. Batten Lock by MBCI (AGHS Pool)
 - 1. Open frame installation (no solid deck).
 - 2. Batten Lock is water tight.
 - 3. Building paper (usually over solid deck) or slip sheet is not needed.
- N. LEED Recycled Content: Per Metal Construction Association.
 - 1. Steel: 60%.

07412 Metal Wall Panels (RF-X)

- A. Finish: Kynar 3-coat metallic coating.

- B. Sheathing and Vapor Retarder: Section 06160.
- C. Metal liner: Normally not used.
- D. Insulation: Batt from the interior side of the building (07210).
- E. Rigid and integral insulation panel: Normally not used.
- F. Metal Panels - Manufactured by [Centria](#), [AEP-Span](#), [ATAS](#), [Flexospan](#).
 - 1. Corrugated: Mini-V-Beam profile in 4-9/16" inch wide panels; lapped edges by AEP-Span. (Allied, Science)
 - 2. Belvedere Rib Panel System, BWR360 by ATAS. (Psychology)
 - 3. Flexbeam by Flexospan. (Psychology)
 - 4. Flat - Model IW-10A by Centria.
 - 5. Rib - Model IW-60A by Centria.
- G. Metal-Faced Composite Panels:
 - 1. Alusuisse Composites, Inc.; [Alucobond] [Alucobond 21].
 - 2. Copper Sales Inc.; UNA-FAB Series [1000] [1500].
 - 3. Mitsubishi Chemical America, Inc.; [Alpolic] [Alpolic/fr].
 - 4. Reynolds Metals Company; Reynobond [PE] [FR].

Tear-Off and Replace Roofing

A.

07511 Built-Up Asphalt Roofing (RF-X)

- A. System: 4 ply with [Mineral surface cap sheet] [Aggregate] [Coated].
- B. Performance: FM Class 1A-90, with [R-30] [R-19] insulation.
- C. Deck:
 - 1. Concrete Deck: Adhered insulation.
 - 2. Metal Deck: Mechanically fasten substrate board to deck.
- D. Underlayments:
 - 1. Self-Adhering Sheet Vapor Retarder: 40-mil-thick, polyethylene film laminated to layer of rubberized asphalt adhesive; maximum permeance rating of 0.1 perm, Ice and Water Shield by [WR Grace](#). (Vapor retarders are used only in roofing systems that have insulation sandwiched between the roof deck and roofing membrane.)
- E. Base Sheet: ASTM D 4601, Type II, nonperforated, asphalt-impregnated and -coated, glass-fiber sheet, dusted with fine mineral surfacing on both sides.
- F. Interply Sheet: ASTM D 2178, Type VI, asphalt-impregnated, glass-fiber felt.
- G. Top Sheet:
 - 1. Cap Sheet: ASTM D 3909, asphalt-impregnated and -coated, glass-fiber cap sheet.
 - 2. Aggregate: ASTM 1863, 3/8 inch to 5/8 inch.
- H. Insulation:
 - 1. Extruded-Polystyrene Board Insulation: ASTM C 578, Type IV, 1.6-lb/cu. ft. minimum density, square edged.
- I. Cover Board: Perlite board as recommended by roofing manufacturer.
- J. Walkway Pads:
 - 1. Bitumen-impregnated mineral fiber boards with granular surfaces, compatible with roofing materials (1/2" x 36" x 48").
 - 2. Space pads about 4 inches apart to permit passage of water.
- K. Products: Manufactured by [GAF](#), [Johns Manville](#), [Tamko](#), Conglas.
 - 1. 4-ply with base sheet, with polyisocyanurate insulation (I-B-4-M), mineral white cap sheet, UL Class A (fire), Factory Mutual 1-60 (wind), by GAF. (Reedley)
 - a. Insulation: Polyisocyanurate.
 - b. Base Sheet (First ply): StrataVent Eliminator ASTM D4897 Type II by GAF.
 - c. Interply Sheet: 2-ply of GlasPly by GAF.

- d. Top Sheet: Mineral Surfaced Cap Sheet by GAF.
2. Polyester Mat CP by Tremco. (Granada RF-2)
3. 4-ply plus base sheet, mineral surface cap sheet, I-90 (wind), by Johns Manville. (Oceano)
4. ND-26A-cap, nailable deck (plywood), by Conglas. (Dorothea). UL 950 listed for Class A without dens-deck UL R7290.

07513 Copolymer Alloy Roofing (RF-X)

- A. Product: Manufactured by [IB Roof Systems](#).
 1. Copolymer Alloy (CPA) 50 mil, cool roof, un-ballasted by IB Roof System. (Allied, Science)

07514 Tri-Polymer Alloy Roofing (RF-X)

- A. White Thermoplastic Single Ply Roofing System: Manufactured by [Tremco](#).
 1. Tri-polymer Alloy (TPA) 60 mil, white, by Tremco. (Psychology option 1, Pool).
 2. TPA-FB by Tremco. (Granada, RF-1).
 3. TremLock by Tremco: Fascia, Copings, Counterflashings and Accessories.
 - a. Extruded aluminum:
 - 1) Fascia:
 - a) Protect roof from water entry seeping in from edges of roof.
 - b) Built-in cant and lock-in place, non-penetrating aluminum piece.
 - c) Miter corner.
 - 2) Counterflashings:
 - a) Protects roof system from water entry from wall run-off.
 - b) Surface mounted with end cap: Compression bar is primary seal while counterflashing acts as secondary shield.
 - c) Reglet mounted.
 - d) Stucco mounted.
 - b. Formed aluminum and Steel:
 - 1) Coping: Deflect water away from building's walls and roof system by covering parapet walls.
 - 2) Tapered to roof side.
 - 3) Miter corner.
 4. Dens-Deck:
 - a. Overlayment board for isocyanurate insulation in built-up roof.
 - b. Substrate for single ply roof system.

07531 EPDM (Elastomeric) Membrane Roofing (RF-X)

- A. Cover Board: Perlite board as recommended by roofing manufacturer.
- B. Reinforce, 60 mils, ASTM D4637 Type II.
- C. Products: Manufactured by [Carlisle SynTec](#), [Firestone](#), [Johns Manville](#).

07540 Thermoplastic Membrane Roofing (RF-X)

- A. This section contains both PVC and TPO.
- B. PVC: Manufactured by [Johns Manville](#), [Sarnafil](#).
 1. Adhered (fiberglass reinforced):
 - a. Everguard PVC single ply roofing - EGFB fleece backed, 60 mil, cool roof by GAF. (LRC)
 - b. G410 feltback, 60 mil single-ply by Sarnafil. (LRC).
 - c. G410 feltback, 72 mil (10 cent /sq ft. more than 60 mil), EnergySmart White by Sarnafil. (Psychology option 1)
 - d. G410 feltback, 72 mil, EnergySmart White by Sarnafil. (Science)

- e. Fleece back is recommended over concrete, existing roof, and adhered application.
2. NOTE: Concerning equal products.
 - a. Sarnafil G410 Feltback fiberglass reinforced membrane with an integral factory-applied proprietary lacquer coating to repel dirt and sustain reflectivity.
 - b. Sarnafil G410 complies with ASTM D4434 Type II, other manufacturers comply with Type III except for Johns Manville.
3. Mechanically fasten (polyester reinforced):
 - a. S327 60 mil single-ply by Sarnafil.
4. Clad Metal: Part of the roofing system warranty.
 - a. Not Kynar, PVC coating maybe powder coated.
 - b. Hot welded to PVC membrane for attachment. Not caulked.
 - c. White is default color. Can specify other color.
 - d. Contractor will break metal to shape needed.
5. Sarnafil:
 - a. ASTM D4434, Type II, Grade I.
 - b. G410: EnergySmart feltback (white), initial reflectivity of 0.83, initial emissivity 0.92, solar reflective index (SRI) of >104.
6. GAF:
 - a. Everguard PVC single ply roofing: ASTM D4434, Type III, 80 mil.
- C. CPE (Co-Polymer Elveloy): ASTM D4434, Type III.
- D. TPO: Manufactured by [GAF](#)
 - 1.
- E. KEE: Manufactured by [Fibertite](#)
 1. FB EIP by Fibertite. (Psychology option 1)
- F. Substrate Board: Glass-mat, Dens-Deck by [GP](#).
 1. Water resistant, silicone treated gypsum core, faced with embedded fiberglass mat on top and bottom of board. Meets ASTM C1177 Standard Spec for Glass Mat Gypsum Substrate for use as Sheeting.
 2. Thickness: 1/4, 1/2, 5/8 inch thick.
 3. Board size: 4 by 8 feet.
 4. Price:
- G. Insulation:
 1. Polyisocyanurate or EPS on roof.
 2. Batt from ceiling side.
- H. Installation from deck up:
 1. Deck.
 2. Rigid insulation.
 3. Substrate Board.
 4. Membrane.

07551 APP-Modified Bituminous Membrane Roofing (RF-X)

- A. System: 1I1X-DC/FR
- B. Deck: Insulating concrete.
- C. Insulation: Rigid insulation, R=3.
- D. Tapered and Cricket Insulation: Perlite.
- E. Surface: Granule.
- F. Product: Derbicolor XPS/FR by [Performance Roof Systems \(PRS\)](#).

07552 SBS-Modified Bituminous Membrane Roofing (RF-X)

- A. Concrete Deck: Adhered insulation.
- B. Metal Deck: Mechanically fasten substrate board to deck.

- C. Membrane: Torched or cold applied.
- D. Substrate Board: glass-mat, Dens-Deck by [GP](#).
- E. Insulation: Polyisocyanurate.
- F. Products: Paradiene 20 TG/30 FR TG by [Siplast](#). Mineral surfaced finish ply.
- G. GAF. (Dorothea H).

07556 Vegetated Protected Membrane Roofing

- A. System Makeup:
 - 1. G476 120 ml membrane.
 - 2. G445 protection layer.
 - 3. Geonet B.
 - 4. XPS insulation.
 - 5. Vegetation.
- B. Vegetation:
- C. Rigid insulation: XPS by Dow.
 - 1. XPS has the lowest water absorption rate (0.3%). Iso has 1%. EXP has 3%.
 - 2. Dow only makes XPS and Iso. No EXP.
- D. Waterproof membrane: G476 by Sarnafil. No need for UV protection like the roof membrane since it will be covered up.

07561 Hot Fluid-Applied Roofing (RF-X)

- A. Rigid Insulation: ASTM C578 Type VI, 1.8-lb./cu. Ft. min. density and 60-psi min. compressive strength.
- B. Topping: [Aggregate ballast] [roof pavers] [concrete topping].
- C. Products:
 - 1. Reinforced 6125 by [American Hydrotech](#). Use Reinforced 6125EV for LEED.

07620 Sheet Metal Flashing and Trim

- A. This section specifies metal flashing and trim not integral with roofing systems.
- B. Shop- and field-formed sheet metal roof drainage systems, roof and wall flashing.
- C. Material:
 - 1. Galvanized steel, G90.
 - 2. Field paint (09910) to match adjacent color.
- D. LMUSD: Shingles, flashing, gutters, etc. shall match existing.
- E. Downspout: [Outside walls] [Inside walls].
- F. Downspout termination options:
 - 1. Precast concrete splash block: Minimum 10 by 24 inches.
 - 2. Centered directly over the drain pipe.
 - 3. Centered directly over catch basin.

07650 Flexible Sheet Flashing

- A. Products: Manufactured by [WR Grace](#), Dupont, Fortifiber (moistop), Tremco.
 - 1. Vycor Plus by WR Grace, self-adhering flashing around window and door openings.
 - 2. Perm-A-Barrier by WR Grace for around CMU openings.

07710 Manufactured Roof Specialties:

- A. Copings: 0.063-inch thick aluminum sheet.
 - 1. Membrane below coping: Bituthene 3000.
- B. Gravel stops: Manufactured by [Berger Bros](#), [Hickman](#), [MM Systems](#).
- C. Gutters:
 - 1. 4" Rectangular profile. (Reedley)
- D. Downspouts:
 - 1. Same material as gutters. (Psychology)

2. Schedule 40 black iron pipe. (Allied, Science, Reedley)
- E. Downspout Boots:
 1. Schedule 40 Steel. (Reedley)
- F. Downspout Termination:
 1. Downspouts into storm drainage system
 2. Splash block.
- G. Counterflashings and reglets.
- H. Fascia: Extruded aluminum, 0.60 inches thick.
- I. Materials: [galvanized steel -factory powder coat] [aluminum - factory Kynar 3 coat.]
- J. Anchorage Devices: In accordance with SMACNA requirements.
- K. Products: Manufactured by [Berger Bros](#), [Hickman](#), [MM Systems](#).

07716 Roof Expansion Assemblies

- A. Involve product rep to select systems required for the project.
- B. Material & Finish: Aluminum, color anodized.
- C. Product: SRJW-800 by [C/S](#).

07720 Roof Accessories

- A. Roof Hatch, Prefabricated curb and equipment support: galvanized steel, 14 gage, shop primed, field painted (09910).
- B. Roof Hatch Size: Standard sizes from Bilco.
 1. Ladder Access: 30 x 36 or 36 x 36.
 2. Ships ladder: 30 by 54.
 3. Service stair access: 30 x 96.
- C. Products:
 1. Type S-20 (steel door and frame) single leaf by [Bilco](#):
 - a. 24 by 36. (Allied, Science)
 - b. 30 by 36. (LRC, Pool, Reedley)
- D. Options: Extension pole.
- E. Smoke Vent/Hatch:
 1. Fusible link for automatic operation.
 2. Type SV, 30 by 36 inch single leaf by Bilco. (LRC)
- F. Gravity Relief Ventilators: PR-16 by [Loren Cook](#). (Allied, Science)
- G. Half Round Roof Relief Ventilator: 24x12 by [Copper Craft](#). (Allied, Science)
- H. Roof Curbs:
 1. Used to support lighter loads such as packaged air-handling units. Roof curbs do not act as structural members. They can be used to seal off roof penetrations such as ductwork to air-handling units and pipe penetrations. When roof curbs are used to seal off pipe penetrations, they must be equipped with weathertight insulated covers.
- I. Equipment Supports:
 1. Used to support heavier loads such as larger custom air-handling units. They act as structural members.

07811 Sprayed Fire-Resistive Materials

- A. Need to determine: Concealed, Exposed, and Retrofit.
- B. Products: Manufactured by [WR Grace](#), [Carboline](#), [Isolatek](#)
 1. WR Grace or Southwest Vermiculite. (Sports).
 - a. Interior columns: 2 hours; UL No. X772.
 - b. Interior girders: 2 hours; UL No. P741.
 - c. Interior floors: 2 hours; UL No. P741.
 - d. Interior roof deck: 2 hours; UL No. P741.
 - e. Exterior columns: 2 hours; UL No. X772.

- C. Concealed (Science):
 - 1. MK-6HY by WR Grace.
 - 2. Pyrolite 15 High Yield by Carboline.
 - 3. Cafco 300 by Isolatek.
- D. Exposed: Cost 3 times the concealed.
 - 1. Monokote Z146 by WR Grace.
 - 2. Pyrocrete 241 by Carboline.
 - 3. Cafco 800 by Isolatek.
- E. Code:
 - 1. Exposed is required up to 8 feet AFF. Beyond that, concealed product can be used in exposed areas for cost savings.
 - 2. Not required above 25 feet.
- F. Topcoat: Not needed per WR Grace.
- G. Intumescent Mastic (Steel structure exposed to view at critical areas such as lobby): [A/D](#), [Nu-Chem](#).
 - 1. Standard: primer and top coat.
 - 2. Option: base coat and or glass mesh/cloth.
 - 3. Products: Firefirm II by A/D. (Sports)
- H. LEED products: Manufactured by [ThermoCon](#), [ICC](#).
 - 1. K13 by [ICC](#). (Psychology)

07841 Through-Penetration Firestop Systems

- A. UL designation: [As indicated on Drawings].
- B. Standard: Storage rooms are 1 hr rated.
- C. Products: Manufactured by [A/D](#), [3M](#), [STI](#), [Hilti](#).
 - 1. Specific product numbers are specified (Psychology, Pool)

07842 Fire-Resistive Joint Systems

- A. Head-of-wall:
 - 1. Slip-type head joints are specified in 09111 for steel framing.
- B. Perimeter (curtain wall) fire-containment system: UBC Standard 26-9 and UL 2079.
- C. Joint Systems in and between Fire-Resistance-Rated Constructions: UL 2079.
- D. Products: Manufactured by [A/D](#), [3M](#), [STI](#), [Hilti](#).

07920 Joint Sealants

- A. Interior and exterior joint sealants including acoustical sealants.
- B. Products: Manufactured by [Pecora](#), [Dow Corning](#), [GE](#).

Division 8 Doors and Windows

Doors in general:

- A. The bottom 10 inches of all doors shall be smooth to allow opening with wheelchair footrest (LMUSD).
- B. All edges shall be primed and finished (LMUSD).
- C. Vision panels shall be low enough for use by students (LMUSD).
- D. All office doors shall have vision panels unless a relight or window is provided (LMUSD).
- E. Sidelights shall be only be used where not in conflict with signage (LMUSD).
- F. Doors (Check with Door Schedule to account for all doors in the project).
- G. Have Doors section reviewed by the Hardware consultant.

08110 Steel Doors and Frames

- A. See attached Door Hardware standards in LMUSD folder.

- B. Default: SteelCraft.
- C. Rated and non-rated (See door schedule on Drawings).
- D. No fire-rated doors and frames, unless close proximity to another building (Science).
- E. Temperature rise rating: Typically required in stairwell applications where the temperature on the non exposed side will not exceed 250 degrees for 30 minutes.
 - 1. T-Series: 250 or 450 degrees F.
 - 2. L, B, CE, A-Series: Over 650 degrees F.
- F. Smoke and Draft Control Doors (Indicated as "S" on Drawings): In addition to required fire rating, comply with air leakage requirements of UBC Std 7-2, Part II; with "S" label.
- G. Doors: Default and LMUSD
 - 1. Exterior Doors: galvanized steel, 16 gage, ANSI/SDI-100 grade 3, extra-heavy-duty, full flush, 1-3/4 inch thick.
 - 2. Interior Doors: cold rolled steel (CRS), 18 gage, ANSI/SDI-100 grade 2, heavy-duty, full flush, 1-3/4 inch thick.
- H. Frames:
 - 1. Default:
 - a. Exterior (16 gage), galvanized.
 - b. Interior (18 gage).
 - 2. LMUSD:
 - a. Exterior (14 gage), over 42 inches width (12 gage), galvanized.
 - b. Interior (16 gage).
- I. All welded frames. (LMUSD uses knock-down for interior frames).
- J. Hollow metal frames come in two generic types:
 - 1. Welded frames come to the job site as a single piece with all corners welded and ground smooth. This type of frame is positioned first and partitions (gypsum board on metal studs or masonry) are built to it.
 - 2. Knock-down frames come to the job site in three pieces (two jambs and a head) and are installed after partitions are in place; this type of frame is generally used with drywall construction only and cost less than the welded frames.
 - 3. Both types can be used in fire-rated assemblies.
- K. Doors must be at least 36 in. wide in order to be accessible to people in wheelchairs.
- L. Rooms or spaces with an occupant load of 50 or more people generally require two means of egress that must be remote from each other, and the doors must swing in the direction of egress travel (i.e., out of the room).
- M. Transom: Door frame having a transom bar and glass, panel or louver above the door opening.
- N. Sidelights: Door frame with glass openings attached to one or both sides of the door opening.
- O. Borrowed Lite: Four-sided frame without a door opening, prepared for glass installation in the field.
- P. Removable Mullions (separating double doors).
- Q. Louvers:
 - 1. Fusible link, 24 by 24 inches max. on the bottom of door, 3/4 or 1-1/2 hour fire-rated.
- R. Site lites (borrowed lites).
- S. Primer: Factory applied baked on primer.
- T. Finish: Field painted (09910).
 - 1. Steelcraft: 2 options, primed for field finish or factory baked enamel.
- U. Products: Manufactured by [SteelCraft](#), [Ceco](#), [Amweld](#).
 - 1. Steel Craft (Science):
 - a. Doors: Series L18 and L16 Kraft honeycomb core doors by Steelcraft.
 - b. Full glazed door: A Series (stile and rail).
 - c. Narrow Lite door: LNL type in L Series.

- d. Frames: F16 and F14 series flush frames in set-up and welded.
- e. L series by Steel Craft:
 - 1) Cold-rolled steel as standard.
 - 2) Galvanized (A60) is available as an option.
 - 3) Available with factor finish with 10 standard colors.
- f. Fire-rated doors:
 - 1) Only one cutout for louver is available up to 24 inch sq.
 - 2) Can NOT have 2 openings for combustion air requirements.
- 2. Security Metal Products:
 - a. Only one cutout for louver is available up to 24 inch sq.
- V. Lead Lined Doors and Frames:
 - 1. Steel Craft options:
 - a. Frames: Can be lead lined prepped, only with lead line clips (lead lining by others).
 - b. Doors: No lead lining, nor prep for lead lining.
- W. Psychology (submitted):
 - 1. Frames: by Mesker.
 - a. Regular: Standard Steel Frames.
 - b. Gypsum wall: DJ Series, Knock-down, 16 gage.
 - 2. Doors:
 - a. ???

08125 Interior Aluminum Frames

- A. Interior aluminum frames for doors.
- B. Finish: Clear anodized.

08140 Bronze Clad Entrances

- A. Manufacturers: [Ambico](#), [Ellison](#).
 - 1. Manual, swing doors and frames.

08211 Flush Wood Doors

- A. Fire-rated wood door frames are not specified in this Section but are included in "Division 6 Sections "Interior Finish Carpentry" and "Interior Architectural Woodwork."
- B. Flush wood doors shall be for interior use only and shall have Stave Lumber Cores, (type SLC) (LMUSD).
- C. Products: Manufactured by [Eggers](#), [Algoma](#), [Marshfield](#)
- D. DEFAULT: Marshfield.
- E. Used only for interior (LMUSD standard). Most manufacturers don't warrant exterior application.
- F. Door Thickness: 1-3/4 inches (default)
- G. Fire-rating:
 - 1. Storage, electrical, and mechanical rooms.
 - 2. Corridor.
- H. Face:
 - 1. Paint grade birch or hardboard - Paint (Marshfield)
 - 2. Wood veneer faced:
 - a. Ply: [5ply] [7ply] (5 for Marshfield).
 - b. Veneer species: [Birch] [Oak]
 - 3. Plastic laminate (Science):
 - a. Signature Series by Marshfield (Fletcher)
 - 4. Field paint grade:
 - a. Signature Series by Marshfield (AGHS Pool)
- I. Vision Panel:

1. Rated: Fire glass, wire glass is not recommended.
 2. Non-rated: Tempered glass.
 3. On all office doors unless relight or window is provided (LMUSD standard)
- J. Louvered openings.
1. Wood.
 2. Metal (fusible link, 45 and 60 minutes).
- K. Finish:
1. Factory finished for wood veneer.
 2. Field painted 09910 for paint grade.
- L. No flush wood door specified for both Cuesta LRC and Allied Health project (HM only).
- M. Wood Frames: Used in Ellwood (01002.00)
- N. Psychology (submitted): VT Industries.
1. Face: Rotary Natural Birch.
 2. SolidStyle Architectural Wood Veneer, 5-ply, WDMA Type PC-5.
 - a. Non-rated or 20-min: VT Door Type - 5502.
 - b. 45 of 60 min: VT Door Type - 5P45.
 - c. 90 min: VT Door Type - 5P11.
- O. Bi-fold doors: Jeld-Wen, Simpson Door Company.

08212 Stile and Rail Wood Doors

- A. Standards:
1. WDMA I.S.6:
 - a. Premium grade: Natural or stain finish, i.e., a transparent finish.
 - b. Select grade: Opaque finish.
 2. AWI's requirements are more stringent than WDMA I.S.6.
 3. WI's goes into greater detail than the AWI standard in some respects, but in others it is not as detailed. For example, WI lists minimum stile and rail widths, which are different for exterior and interior doors.
 4. WI does not allow use of particleboard or fiberboard cores for stiles and rails and only allows fiberboard to be used for opaque-finished panels.
 5. WI requires 1/16-inch- thick face veneers on stiles and rails and 1/50-inch- thick face veneers for panels.
- B. Stile and rail doors of:
1. Stock design and construction.
 2. Special design and construction.
- C. Door Styles:
1. Panel doors.
 2. French doors.
 3. Combination Doors (panels and glass).
- D. Frames:
1. Wood frames.
 2. Metal frames. (Section 08110)
- E. Marshfield and Eggers: Not available with plastic laminate facing. (Need to check with other manufacturers)

08311 Access Doors and Frames

- A. Location: Rated and non-rated walls and ceilings.
- B. Material: 16 gage steel.
- C. Finish: Field painted steel (09910).
- D. Walls and floors. (LRC)
- E. Manufacturers: [Karp](#), [Milcor](#), [Acudor](#).

- F. Karp:
 - 1. DSC-214M 20x30 and RDW 24x12 by Karp. (LRC, Reedley)
 - 2. KRP - 150FR, insulated, fire-rated (Science)
 - 3. RDW 24x12 or 12x12 (Science)
 - 4. KHD 12x12 for duct access (Science)
 - 5. KSTDW 30x36 for access to roof hatch. (Science)
 - 6. KRP-250FR, rated, non-insulated, exposed flange.
 - 7. KRP-450FR, rated, non-insulated, flange covered with joint compound.
- G. Milcor:
 - 1. Style DW by Milcor: non-rated, for wall or ceiling.
 - 2. Style UFR by Milcor: rated, for wall or ceiling.

08331 Overhead Coiling Doors (OHD-X)

- A. Windload design: 20 PSF.
- B. Mounting: [Face-of-wall] [Between jambs].
- C. Products: Manufactured by [Cookson](#), [Cornell](#), [Overhead](#).
- D. Service Door: [Motorized] [chain pull manual].
- E. Coiling Doors (Pool-A504)
- F. Counter Door: [Hand crank] [push-up].
 - 1. CD10-2 by Cookson, non-rated, with hood, stainless steel, push-up, counter doors. (Montecito)
 - 2. Crank operated CD10-4; stainless steel; all exposed surfaces #4 finish. (Dorothea-A8.3)
- G. [rated] [non-rated]
- H. Insulated Coiling Doors.
 - 1. 625 Series Stromtite, insulated service doors by Overhead Door (LRC Trade)
 - 2. Model JMWI - Motor by Cookson (Dorothea).
- I. Materials:
 - 1. Steel - interior, galvanized steel - exterior.
 - 2. Stainless steel.
 - 3. Aluminum.
- J. Curtain: Interlocking roll-formed, 24 gage minimum.
- K. Finish: Factory powder coated (color as selected).
- L. Steel Angle Jamb Protector:
 - 1. CMU wall:
 - a. Outside corner: 3x8-1/4x42 inch.
 - b. Inside corner at coiling door jamb: 3x3x42 inch
- M. Cornell Counter Doors:
 - 1. ESC10: Standard counter shutter which usually closes on a non-rated plastic laminate top or a finished floor. It comes in a larger size.
 - 2. ESC20: Integral frame counter shutter, which closes on its own countertop as part of the frame. Some people consider the integral frame unit more aesthetically pleasing and a more finished appearance. However you are limited in height to 4' 10".
 - 3. When not to use ESC20:
 - a. Motor operation desired.
 - b. Height over 4' 10".
 - c. Shutter to close on a finished floor.
 - d. Shutter to close on an existing countertop.
 - 4. Price:
 - a. ESC10 in a 6' x 4' would run around \$1100 uninstalled.
 - b. ESC20 in a 6' x 4' would run around \$2200 uninstalled.
 - c. Both of these are stainless steel shutter prices.

- d. ESC20 usually is almost twice as much because it uses more material, is custom, hand built and therefore a much more finished product.
- N. Jamb Protector: Galvanized steel angle.
 - 1. Outside corner: 3x8-1/4x42 inches.
 - 2. Inside corner (near curtain guide): 3x3x42 inches.
- O. Cornell in General, Product Numbers:
 - 1. Emergency Response Type:
 - a. ERC 11: Rolling counter fire doors
 - b. ERC 20: Rolling counter fire door with integral frame.
 - c. ERD 10: Fire door without smoke control.
 - d. ERD 11: Smokeshield Smoke and fire rated coiling doors.
 - e. ERD 20: Firemiser insulated rolling fire doors.
 - f. ERD 21: Smokeshield Firemiser insulated fire doors.
 - g. ERG 10: CrossingGard emergency Response Grille
 - 2. Environmental Separation Type:
 - a. ESD 10: rolling service doors
 - b. ESD 11: QS24 (quick ship) service doors. Size: 5x5 to 12 wide x 16 high.
 - c. ESD 20: insulated doors.
 - d. ESC 10: rolling counter doors.
 - e. ESC 20: rolling counter doors with integral frames.
 - f. ESG 10: open curtain rolling grilles.
 - g. ESG 11: glazed curtain rolling grilles.
 - h. ESG 20: SentryGate 3 rolling grilles
 - i. ESG 21: SentryGate 4 rolling grilles.
 - j. ESG 30: open curtain side folding grilles & closures
 - k. ESG 31: glazed curtain side folding grilles & closures

08334 Overhead Coiling Grilles (OHD-X)

- A. Material: [Stainless steel] [Aluminum].
- B. Operation: [Motorized] [Manual].
- C. Products: Manufactured by [Cookson](#), [Cornell](#), [Overhead](#).
 - 1. Interior:
 - a. Type FPG, push-up, aluminum, clear anodized, pattern 5014-M92 by Cookson. (Pool)
 - b. Atlas Door, motorized, stainless steel grilles. (Skills)
 - 2. Pool Enclosure Storage Rooms:
 - a. Type FPG, push-up, stainless steel, Pattern 5014-M92 by Cookson. (Pool)

08343 ICU/CCU Entrance Doors

- A. Aluminum - Clear anodized.
- B. Products: Manufactured by [Dor-O-Matic](#), [Horton](#), [EFCO](#).

08361 Sectional Overhead Doors (OHD-X)

- A. Use: Maintenance garage doors with vision panels.
- B. Products: Manufactured by [Cookson](#), [Cornell](#), [Overhead](#), [Arm-R-Lite](#).
 - 1. Electra, manual, by Arm-R-Lite. (Sports)
- C. Overhead Doors Corp:
 - 1. Aluminum:
 - a. Sectional 511:
 - 1) 1 3/4" panel thickness
 - 2) 16'2" width max.
 - 3) 16'2" height max.

- b. Sectional 521:
 - 1) 1 3/4" panel thickness
 - 2) 26'2" width max.
 - 3) 20'1" height max.
 - 4) Glazing options:
 - a) 1/8" (3 mm) DSB.
 - b) 1/8" (3 mm) or 1/4" (6 mm) plexiglas.
 - c) 1/8" (3 mm) or 1/4" (6 mm) tempered.
 - d) 1/8" (3 mm) or 1/4" (6 mm) clear lexan.
 - e) 1/4" (6 mm) wire glass.
 - f) 1/2" (12 mm) insulated glass. Note: 1/4" glass and 1/2" insulated glass up to 14'2" wide only.

Fluoropolymer (Kynar) Coating - General

- A. Fluropon is a registered trademark of The Valspar Corporation.
- B. Acroflur is a trademark of The Valspar Corporation.
- C. Interpon is a registered trademark of Akzo Nobel Coatings, Inc.
- D. Duracron is a registered trademark of PPG Industries Inc.
- E. Duranar is a registered trademark of PPG Industries Inc.

08411 Aluminum-Framed Entrances and Storefronts

- A. Involve product rep to select systems required for the project.
- B. Finish: [Clear anodized, Class I (0.018 mm) - default] [Kynar 3-coat metallic coating].
- C. Products: Manufactured by [Arcadia](#), [EFCO](#), [Kawneer](#), [Vistawall](#).
- D. Storefronts:
 - 1. Fabrication Options:
 - a. Screw Spline: The split vertical in the screw-spline system allows a frame to be installed from unitized assemblies. Screws are driven through the back of the verticals into splines extruded in the horizontal framing members. The individual units are then snapped together to form a complete frame.
 - b. Shear Block: The shear block system of fabrication allows a frame to be preassembled and installed as a single unit. Horizontals are attached to the verticals by means of shear blocks.
 - c. Stick System: The stick system allows on-site erection. Head and sill receptors are fastened to the surround. Vertical mullions are then installed in these receptors and are held in place by snap-in inserts. Intermediate horizontal members are attached to the verticals by means of shear blocks. Flashing is not required.
 - 2. Products Specified:
 - a. Trifab VG 450 (1-3/4 inch sightline by 4-1/2 depth) by Kawneer. (LRC, Allied)
 - 1) w/ Glassvent project-out windows (Science)
 - b. Trifab VG 451 (2 inch sightline by 4-1/2 depth) by Kawneer.
 - c. Trifab VG 451T (2 by 4-1/2 with thermal break) by Kawneer.
 - d. Trifab II 450 by Kawneer. (Reedley).
 - 3. Products:
 - a. Trifab VG 451/451T by Kawneer:
 - 1) Frame:
 - a) 4-1/2" deep with a 2" sightline for 451T for exterior.
 - b) 4-1/2" deep with a 1-3/4" sightline for 451 for interior.
 - 2) Front, Center, Back or Multi-Plane glass applications
 - 3) Flush glazed from either the inside or outside
 - 4) Screw Spline, Shear Block, Stick or Type-B fabrication

- 5) SSG / Weatherseal option.
 - 6) 451T: Isolock lanced and debridged thermal break option.
 - 7) Infill options (glass or others) up to 1-1/8" thickness
 - 8) Permanodic anodized finishes in 7 choices.
 - 9) Painted finishes in standard and custom choices.
4. Finish: Duracron S600 Thermal setting acrylic by PPG, color - PPG #K20794 Grey Metallic. (Lompoc Pool, Addendum 1)
 5. Kawneer Finishes:
 - a. Fluropon (Kynar).
 - b. Permadize (Kynar).
 - c. Acroflur (Kynar) - Discontinued.
 - d. Interpon (power coat).
 - e. Color anodized.
 - f. Clear anodized.
- E. Entrances:
1. Glass:
 - a. Type (GL-X): []
 - b. Thickness: Available from 1/4 to 1 inch.
 2. Stiles: Size is vertical face dimensions. [standard door is 1-3/4 inch in depth] [Tuffline is 2 inch in depth]
 - a. Narrow stile; 2-1/8-inch nominal width. (normally not used)
 - b. Medium stile; 3-1/2-inch nominal width. (normally not used)
 - c. Wide stile; 5-inch nominal width. (Psychology)
 3. Wide Stile Products:
 - a. 500 Tuffline glazed entrance by Kawneer. (LRC, Allied)
 - b. 500 Standard weight by Kawneer. (Reedley)
 - c. DuraStile Wide D518 by EFCO (Science).
 - 1) Extrusion thickness: Heavy duty 3/16 (0.18) inch as opposed to the 1/8 (0.12) inch of standard doors.
 - 2) Stile: Wide stile, 5 inch, full glazed.
 4. Psychology (submitted):
 - a. Storefront: Series 451, 2 x 4-1/2, flush glazed with Stack System 24254 by US Aluminum.
 - b. Class 1 clear anodized.
 - c. Kynar 70%, UC70093F Warm Silver.
 5. Weather-Stripping for Aluminum Doors: Single doors are weather-stripped at the frame with ASTM E2203 Compliant bulb gasket and extruded door stops which are available in integral, snap-in, and surface mounted varieties. See frame section. All pairs of doors are dual weather-stripped at the astragal with Poly-Pile.
 - a. Note: Hollow metal doors are NOT provided with weather-stripping. (Specified by Door Hardware consultant)
 6. Kawneer:
 - a. Standard Doors: Available in narrow, medium, and wide stiles.
 - 1) Doors:
 - a) Depth: 1-3/4 inches.
 - b) Door wall thickness: 1/8 (0.125) inch.
 - c) Bottom rail: High Bottom Rail, 10-1/4 inch.
 - 2) Frame:
 - a) Depth: 4-1/2 inches.

- b) Frame wall thickness: 1/8 (0.125) inch exposed faces and sides, 5/16 inch at recessed sidewalls receiving mortised or concealed hardware.
 - b. Tuffline Doors: Available in medium (3-1/2") and wide (5") stile only.
 - 1) 350 Tuffline Entrance; Medium stile, 3-1/2" vertical face dimension, 2" depth, 3/16" wall thickness door and frame, high traffic and high abuse applications.
 - 2) 500 Tuffline Entrance; Wide stile, 5" vertical face dimension, 2" depth, 3/16" wall thickness door and frame, high traffic and high abuse applications.
 - 3) Doors:
 - a) Depth: 2 inches.
 - b) Door wall thickness: 3/16 (0.188) inch.
 - c) Bottom rail: High Bottom Rail, 10-1/4 inch.
 - 4) Frame:
 - a) Depth: 4-1/2 inches.
 - b) Standard Wall Frame wall thickness: 1/8 (0.125) inch exposed faces and sides, 5/16 inch at recessed sidewalls receiving mortised or concealed hardware.
 - c) Heavy Wall Frame thickness: 3/16 (0.188) inch exposed faces and sides, 5/16 inch at recessed sidewalls receiving mortised or concealed hardware.
- 7. EFCO Doors:
 - a. Standard (1-3/4 inch thick):
 - 1) 200: Narrow stile.
 - 2) 300: Medium stile.
 - 3) 500: Wide stile.
 - b. 2 inch:
 - 1) 318: 3inch narrow.
 - 2) 518: 5 inch medium.
 - 3) 618: 6 inch wide.
- 8. EFCO Door Sweep: 3 parts.
 - a. Parts 9960 and 9961 are aluminum surface housing. Available in Kynar to match door.
 - b. Part W113 is bottom vinyl sweep.
- 9. US Aluminum Doors:
 - a. All doors can accommodate 1/4 inch and 1 inch glazing, frame depth of 1-3/4 inch:
 - b. Standard Duty Doors: Series [250] [400] [550].
 - 1) Standard duty doors have 0.125 inch (3mm) wall thickness; 1-3/4 inch (44 mm) deep in three frame widths.
 - c. Heavy Duty Doors: Series [800] [850].
 - 1) Heavy duty doors have 0.188 inch (5 mm) wall thickness; 1-7/8 inches (48 mm) deep for 1/4 inch (6 mm) glazing and 1-7/8 inches (48 mm) deep for 1 inch (25 mm) insulated glazing, in two frame widths.
- 10. Metal Window Corp:
 - a. Series 3000: Frame members are minimum 0.125 inch and 2 inch depth.
- 11. Ellison:
 - a. Stile widths: Available in 2-1/2", 3-1/2", and 4-1/2".
 - b. Top rails are 2-1/2", 3-1/2" and 5".
 - c. Bottom rail heights are 6", 7-1/2", 10" or greater with dress plates.
 - d. Frames are 3" x 5" or 3" x 6".

- e. Glass thickness may vary.

08412 Ornamental Entrances

- A. Ellison:
 - 1. Formed stainless steel or bronze doors.
 - 2. Minimum stile width: 2-3/4 " (3-1/2" preferred).
 - 3. Minimum top rail height of 2-3/4" (3-1/2" preferred)
 - 4. Minimum bottom rail height of 6".
 - 5. Minimum face width of frame material is 3" in most cases.
 - 6. Frame depth is a minimum of 5".
 - 7. Glass and glass thickness may vary.
 - 8. Doors may be customized to suit architect's concept.

08460 Sliding Automatic Entrance Doors

- A. Involve product rep to select systems required for the project.
- B. Entrance Door: Select glazing (GL-X).
- C. Finish: [Clear anodized - default] [Kynar 3-coat metallic coating].
- D. Activation Devices: Activate doors by the following equipment:
 - 1. Microwave-scanner motion detector.
 - 2. Remote switch.
 - 3. Keyless keypad.
- E. Operator Safety Devices: Control door opening and closing by the following equipment:
 - 1. Infrared-scanner presence detector.
- F. Electromechanical Operators: Self-contained overhead units, with power opening and closing mechanism indicated below and with checking in both opening and closing cycles. Provide safety-release clutch for obstructed closing. Provide for manual sliding when power is off. Provide operator action as indicated.
 - 1. Closing Mechanism: Power operated.
 - 2. Mounting: Concealed.
- G. Manufacturers:
 - 1. [Besam Inc.](#)
 - 2. [Dor-O-Matic](#); an Ingersoll-Rand Company.
 - 3. [Horton](#) Automatics; Div. of Overhead Door Corporation.
 - a. ProSlide Series 2004 Type 110 (O-SX-SX-O).
 - b. Biparting sliding doors, with sidelite on each side of door.
 - 4. [KM Systems, Inc.](#)
 - 5. [Stanley Access Technologies](#); Div. of Stanley Works.

08510 Steel Windows

- A. Section [cutsheets](#).
- B. Involve product rep to select systems required for the project.
- C. Use: Normally used for interior fire-rated areas or for thinner profile.
- D. Type: [casement] [horizontal sliding] [projected] [pivoting] [single-hung].
- E. Finish: Factory [baked alkyd enamel] [powder coating] [e-glazing (Hope only)].
- F. SWI's hot-rolled (solid steel) windows: Manufactured by [Hope's](#), [Torrance Steel](#), [A&S Windows](#).
 - 1. Heavy Intermediate Windows: Not less than 3.5 lb/ft. in combined weight, and not less than 1-5/16 inches deep.
 - a. Century 2000 Series by Torrance. (also available up to 45 min fire rated)
 - 2. Hope's, Torrance Steel, A & S: No factory glazing, all field glazed (anchor holes would be blocked if it was factory glazed). Fire-rated windows available from Hope's and Torrance but not from A & S.

3. 3/4 hour rated window:
 - a. Hope's Jamestown 175 Series: (175 means 1-3/4 inch)
 - 1) Fixed: 1-7/16 inch by 1-3/4 inch deep.
 - 2) Operable: 2-5/8 inch by 1-3/4 inch deep.
- G. SWI's cold-rolled (hollow metal) windows: Manufactured by [D.V. Fyre-Tec](#), [Optimum](#)
 1. Commercial and Industrial Windows: Not less than 2.75 lb/ft. in combined weight, and not less than 1-1/4 inches deep.
 - a. Series 925 vertical single-hung windows, 3/4 hour fire-rated (UL -R13157) by D.V. Fyre-Tec. (LRC, Allied, Science)
 - 1) Factory backed alkyd enamel with standard colors.
 - 2) AAMA H-C30.
 - b. Series 950 fixed lite, 3/4 hour rated by D.V. Fyre-Tec:
 - 1)
 - c. Series 900 horizontal slider, 3/4 hour rated by D.V. Fyre-Tec:
 - 1) AAMA HS-C30.
 - d. Series 925 single hung, 3/4 hour rated.
 - 1)
 - e. D.V. Fyre-Tech Finishes: (3 options)
 - 1) Primed for field painted.
 - 2) Factory powdered coated.
 - 3) Factory enamel.
 - f. Hope's Finishes: Factory electrocoating (E-Coating) (default).
 - g. Hope's also makes cold-rolled (hollow metal) called "custom formed steel windows".
 - 1) 12 gauge steel.
 - 2) Accepts any glass thickness from 1/4" to heavy duty laminated bullet resistant.
 - 3) 2" profile by 4" deep frame.
 - H. Applied grid (false Muntin)
 1. Hopes:
 - a. Exterior flat grids: 10 gage steel welded to window.
 - b. Interior flat grids: 12 gage steel and taped to glass.
 - I. Oversized, fire-rated: [Technical Glass Products \(TGP\)](#), Vetrotech.
 1. Vetrotech (Hope's)
 2. 1 hour fire rated, up to 40 sq ft Firelite by TGP.

08520 Aluminum Windows

- A. Window types: [Nail-on head (with flange)] [Block head (without flange)]
- B. Involve product rep to select systems required for the project.
- C. Grade: Heavy Commercial, thermal-break type.
- D. Type: [fixed] [horizontal sliding] [single hung] [double hung] [projected] [Awing]
- E. Matching aluminum sills for [exterior] [interior].
- F. Finish: [Clear anodized - default] [Kynar 3-coat metallic coating].
- G. Flexible Window Flashing: Window wrap by [Tylpar](#).
- H. Sun shades: See 10711.
- I. Products: Manufactured by [Arcadia](#), [EFCO](#), [Kawneer](#), [US Aluminum](#).
 1. Series 2600, non-thermal, 2 inch by EFCO. (Psychology)
 2. Series 2700 by EFCO. (Science)
 3. Sealair 7225 by Kawneer. (Psychology)
 4. Series 8250 by US Aluminum. (Psychology)

5. Project-in casement Series 7225 with 2-1/4" frames finished to match storefront by Kawneer. (Reedley)
6. Series 3000 by All Weather Architectural Aluminum. (Skills)
7. Series 1500 by Metal Windows Corp. (Fletcher)
- J. No aluminum windows specified for LRC and Science (originally, changed during review).
- K. Break Metal Pan Flashings: Extruded aluminum, minimum 18 gage (0.04 inch), custom profile to suit conditions as indicated, finished to match window units.
- L. LMUSD: Match existing windows for Dorothea Lange Elementary - [All Weather Architectural Aluminum](#), Series 3000, 1-5/8" Commercial, custom Brick Red UC 43355 color, glazing shall be 1/4" tinted grey. Bloomberg was originally specified.
- M. Psychology (Submitted):
 1. WV410 vented window by EFCO.
 2. S-2600 fixed, casement, project out by EFCO. (Shop drawings.)
 3. Sun shade (shop drawings - manuf not specified)
- N. NFRC rating is normally for residential windows.

08550 Wood Windows

- A. Stock windows.
- B. Custom windows as detailed on Drawings [to match existing].

08620 Unit Skylights

- A. Standard factory-assembled skylight units with or without integral curbs (default) and intended for installation in flat roof areas.
- B. Glazing: Plastic, insulating glass, or translucent insulating panels.
- C. Specify dome type, glazing material, size, and finish.
- D. Products: Manufactured by [American](#), [TriStar/Bristolite](#), [Naturalite](#).
 1. Insulated, Integral Curb, Flashing: EZISFxxxx by American.
 2. Curb Mount (curb by others): CM4646 by American. (AHCS).
 3. Model 4242 ALT-SF-2-WTH-MF-PYR, double-glazing, pyramid shape, 48 by 96 inch, self-flashing skylight by TriStar/Bristolite. (LRC)
 4. TB-SF 4896, self-flashing 9" insulated curb rectangular skylight, aluminum frame, double dome, pyramidal shape, 48"x96" by TriStar/Bristolite. (Allied)
 5. Continuous vault skylight model CVRDD, double polycarbonate by Naturalite. (Psychology)
 6. Bristolite products have ICBO Report numbers. No integral curbs for unit skylights.
 7. FCM 3030 Curb mounted skylight, insulated dual low-e glazing with white laminated glass on lower layer, electric controlled heat and light awning by [Velux](#). (Reedley)
 8. Sloped roof: Bristolite GAL, insulated glass (Casa PCU)
 9. Flat roof: Bristolite AL-CM-2, double acrylic dome. (Casa PCU)
 10. Velux (Aquistapace).

08630 Metal-Framed Skylights

- A. Aluminum-framed skylights using retaining caps or structural sealant.
- B. Glazing Material: [Glass], [Polycarbonate].
- C. Glazing: [Single], [Double].
- D. Shapes: [Dome], [Pyramid], [As indicated on Drawings].
- E. Finish: [Clear anodized -default] [Kynar 3-coat].
- F. Products: Manufactured by [CPI](#), [TRACO](#), [Bristolite](#).
 1. Controlite by CPI. (SBCCP)
 2. Custom ridge skylight by Bristolite.
 3. 2000 Skylight by Kawneer.
 4. 3350 Slope Glaze by US Aluminum (LRC)

- a. For both ridge and pyramid skylights with laminated-insulated glazing.

08710 Door Hardware

- A. Avoid floor stops where possible (LMUSD).
- B. Keying at additions/modernizations on existing campuses shall comply with keying system at that campus unless directed otherwise by District (LMUSD).
- C. See "Exit Device for Relocatables" dated April 24, 2002 (LMUSD).
- D. Overhead stop/holder #104H Glynn Johnson, is no longer acceptable. These type of holders are springing hinges and are not resistant to constant use. (LMUSD).
- E. Exit device strike shall be Von Duprin 499F Series (LMUSD).
- F. Submit: Wiring diagram. (If needed)
- G. This section is normally supplied by Hardware consultant (Ray Paulus of [IRCO](#))
 1. Send Architectural Floor Plan (showing door swing) and Door schedule in hard copy to Ray at 421 Camino de la Aldea, Santa Barbara, Ca 93111, Ph: 805/692-0831, Fax: 805/692-0832, Ray_Paulus@irco.com.
 2. Need to put all doors on the Door Schedule for his coordination.
- H. Primus by Schlage cost 25% more than standard locks. (List price of \$97 vs \$76 per lock)
- I. Power Operators:
 1. Low energy door operator with actuator button.
 2. Meets reduced opening force requirements without affecting closing power. Manual door closers, although certified by BHMA, may not provide sufficient power to reliably close and latch the door.

08716 Automatic Door Operators

- A. Designed primarily for manual opening applications that occasionally require automatic opening.
- B. Ray Paulus normally include this item in the 08710 section.
- C. Need to coordinate with electrical consultants for electrical power and box.

08800 Glazing (GL-X)

- A. Fire-rated: CBC 713.7,
- B. Hazard Locations: CBC 2406.3 and 2406.4.
- C. Players:
 1. Manufacturers: AFG, PPG, Guardian (both manufacturer and fabricator), Pilkington, [Visteon](#) (Ford), Nippon Electric Glass, Versalux by Ach.
 2. Fabricators: [Viracon](#), [Oldcastle](#), Guardian.
 3. Distributors/Marketers/Importers: [Technical Glass Products \(TGP\)](#).
- D. Involve product rep to select systems required for the project. Look around the studio for samples.
- E. Monolithic
 1. Float-glass units.
 2. Ceramic-coated vision-glass units.
 3. Ceramic-coated spandrel-glass units.
 4. Reflective-coated vision -glass units
 - a. 1/4 inch Versalux (Visteon) Gray RC fabricated by Oldcastle. VIS: 19%, SHGC: 0.44, SC: 0.51. (UCSB Psychology)
 5. Wired-glass units. (Normally not recommended, use rated glazing)
 - a. 1/4 inch square fabricated by Oldcastle (SBCC Sports)
 6. Annealed -glass: ASTM C1036.
 7. Tempered-glass units: ASTM C1043.
 - a. 1/4 inch clear glass, VIS: 89%, SHGC: 0.81 fabricated by Oldcastle (Psychology)
 8. Patterned-glass units.

- F. Low E Glass:
1. Float type, tempered, clear. U value of 1.28 btu/hr-sf-deg. F, with a shading coefficient of 0.68. (Skills, no insulated units)
 2. A thin, metallic coating on a surface of glass that will bounce or reflect different wavelengths of heat and light. The objective with all Low-E product design is to maintain a high visible light transmission while blocking wavelengths of far and/or near infrared. The infrared wavelengths create the heat that you feel, whether it is direct sunlight or radiant heat from a heat lamp.
 3. All Weather Aluminum Windows use PPG Solarban 60 product.
 4. Performance: Depending on the type and design of the coatings, the performance will vary. Low-e coatings are made to decrease the radiant transfer of heat energy. Some types of Low-e coatings block far infrared, but transmit more near infrared. These coatings are best for cold climates. Other types of Low-e block both near and far infrared. These coatings are best in hot climates.
- G. Laminated-glass units:
1. Laminated Safety Glass: 1/4 inch thick, "Solargray", consisting of two 1/8 inch thick lites laminated with special plastic interlayer between. (Dorothea Lange, Hidden Oaks)
 2. Conform to ASTM C1048 condition A type I transparent float glass I – vertical glazing to be 1/8" tempered at greenhouse. (Science)
 3. Conform to ASTM C1172 and 16 CFR 1201 test requirements for category II – horizontal glazing at greenhouse to be laminated minimum 1/4 inch thickness with .030 thick plastic PVB interlayer between two 1/8 inch tempered units. (Science)
- H. Insulating-glass units: ASTM E774.
1. Outer pane of clear glass, inner pane of clear tempered as required glass. SHGC of .55 and U factor of 0.7. (Reedley)
 2. Versalux (Visteon) Grey RC (Reflective Coating) (Not 2000) on outer pane fabricated by Oldcastle. (Psychology)
 3. Inner pane is clear. Outer pane is clear or tinted depending on exposure. Tinted Glass (Type - south facing exterior windows and doors): Float type, tempered, grey color. 1. Light transmittance of 19 percent, shading coefficient of 0.51. Visteon Versalux Grey RC. (Lompoc)
 4. Insulated Glass Units for all exterior Storefronts, Doors and aluminum Windows: Double pane, Low e with glass to elastomer edge seal. Outer pane of clear glass, inner pane of clear glass. Place reflective coating on No.2 surface within the unit fabricated by Oldcastle. 1/4 Graylite, 1/4 Solarban 60 (low -e coating) by PPG. VIS: 11%, SHGC: 0.20, SC: 0.23.(SBCC Sports)
 5. Double pane with glass to elastomeric edge seal. Outer pane of clear glass, inner pane of clear tempered as required glass. SHGC of 0.55 and U factor of 0.7. (Cuesta Allied Health)
 6. Double pane with glass to elastomer edge seal. Outer pane of clear glass, inner pane of clear tempered as required glass. SHGC of .73 and U factor of .87. (Cuesta LRC)
 7. Double pane with glass to elastomeric edge seal. Outer pane of clear glass, inner pane of clear tempered glass. SHGC of .70 and U factor of .72. Total unit thickness of 1 inch. (1/4 inch glass and 1/2 inch of air space) (AHC Science)
 8. Double; gray tinted; low-e. (Nipomo Mesa View)
- I. Laminated and insulated glass:
1. 1/4 laminated (1/8 glass with pvb interlayer and 1/8 glass) with 1/2 air and 1/4 lami.
 2. STC: 40. Able to get 43 with enhanced pvb interlayer. But not available with white or frosted color.
- J. Safety Glazing: ANSI Z97.1 or CPSC 16 CRF 1201.

- K. Fire-Rated Insulating-glass units: Used with DV Fyre-Tec steel windows for exterior.
 - 1. KERALITE FR IGU by [Vetrotech Saint-Gobain NA](#) (Science), TGP.
 - a. Fire-Rating: 20 to 90 minutes (with hose stream test)
 - b. Visible light transmission: 80%
 - c. U-Value: Night-time: 0.48 / Summer Day-time: 0.55
 - d. Shading Coefficient: 0.81
 - e. IGU Make Up:
 - 1) Outer lite: 1/4 inch clear.
 - 2) Air: 1/2 inch.
 - 3) Inner lite: 3/16 inch Keralite FR-R.
- L. Fire-rated glazing: Technical Glass Products, [Safti](#), Oldcastle.
 - 1. Firelight NT (UL-R13377) by TGP. (LRC)
 - 2. Firelight NT by TGP (Science)
- M. Wire-glass is not allowed (DEFAULT standard)
- N. TGP: Ceramics. (Prices in sq ft)
 - 1. Fireglass: Tempered glass, only up to 20 min. for door.
 - 2. Firelite: fire rated only, no impact resistance. Standard (\$45), Premium (\$70)
 - 3. Firelite NT: Lamination on one site, 3/16 inch thick. Standard (\$65), Premium (\$90)
 - 4. Firelite Plus: Lamination in between lites, 5/16 inch thick.
 - 5. Firelite IGU: Insulated glass made of any Firelite, NT, or Plus.
 - 6. All firelite comes in standard and premium (polished) grade.
- O. Insulating-glass units for sloped glazing.
- P. Low-E coatings:
 - 1. Low E, insulated, VE1-52 by Viracon.
- Q. Non-reflective clear glass: Dip coated glass that reduces the reflections in the glass surfaces from the normal 8% to less than 1%. It can be custom ordered as laminated or tempered which requires special processes.
 - 1. Amiran by Schott (Architectural application).
 - 2. Mirogard by Schott (Picture framing and show-case).
 - 3. Conturan by Schott (Technical application)
 - 4. Luxar.
 - 5. Den-Glass.
- R. Very Low Transmission Glass (V.L.T.): "Solargray" (Dorothea)
- S. Visteon: Does NOT have any clear insulated glazing.
- T. Fabricated by Oldcastle (Default): Clear Insulating-Glass Units for all exterior Storefronts, Doors and aluminum Windows: Double pane, Low-e with glass to elastomer edge seal. Outer pane of clear glass, inner pane of clear glass. Place reflective coating on No.2 surface within the unit fabricated by Oldcastle.
 - 1. Product: Solarban 60 (low -e coating) by PPG.
 - a. Transmittance:
 - 1) Ultraviolet: 19%.
 - 2) Visible: 70%.
 - 3) Total Solar Energy: 33%.
 - b. Reflectance:
 - 1) Visible Light: 11%.
 - 2) Total Solar Energy: 30%.
 - c. U-Value:
 - 1) Winter Nighttime: 0.29.
 - 2) Summer Daytime: 0.28.

- d. Shading Coefficient (SC): 0.44.
- e. Solar Heat Gain Coefficient (SHGC): 0.38.
- f. Light to Solar Gain (LSG): 1.84.
- 2. Overall Unit Thickness and Thickness of Each Lite: 1 and 1/4 inch.
- 3. Interspace Content: Air.
- 4. Outdoor Lite: Class 1 (clear) float glass.
- 5. Indoor Lite: Class 1 (clear) float glass.
- U. PPG: 1 inch insulating vision units with two 1/4 inch clear lites. (no low-e)
 - 1. Transmittance:
 - a. Ultraviolet: 50%.
 - b. Visible: 79%.
 - c. Total Solar Energy: 61%.
 - 2. Reflectance:
 - a. Visible Light: 15%.
 - b. Total Solar Energy: 12%.
 - 3. U-Value (K-Value, Metric):
 - a. Winter Night Time: 0.47 (2.67).
 - b. Summer Day Time: 0.50 (2.84).
 - 4. Shading Coefficient: 0.81.
 - 5. Solar Heat Gain Coefficient (SHGC): 0.70.
 - 6. Light to Solar Gain (LSG): 1.13.
- V. PPG: Monolithic 1/4 inch uncoated, tinted glass (Dorothea H).
 - 1. Transmittance:
 - a. Ultraviolet: 24%.
 - b. Visible: 44%.
 - c. Total Solar Energy: 42.
 - 2. Reflectance:
 - a. Visible Light: 6%.
 - b. Total Solar Energy: 5%.
 - 3. U-Value (K-Value, Metric):
 - a. Winter Night Time: 1.02 (5.79).
 - b. Summer Day Time: 0.93 (5.28).
 - 4. Shading Coefficient: 0.67.
 - 5. Solar Heat Gain Coefficient (SHGC): 0.58.
 - 6. Light to Solar Gain (LSG): 0.76.
- W. Product Comparison Chart (www.safti.com/comparision_chart/index.html)
 - 1. SAFTI: SuperLite C, SuperLite C/S, SuperLite C/P, SuperLite C/SP, SuperLite I, SuperLite I-XL, SuperLite II-XL, SuperLite I-W.
 - 2. GP: Fireglass 20, Pyrodur, FireLite, FireLite NT, FireLite Plus, Pyrostop, Pyroshield Plus.
 - 3. Vetrotech: Keralite FR-L, Keralite FRR, Keralite FRF, PyroSwiss, SwissFlam N2, ContraFlam.
 - 4. Interedge: ProEdge 20, Pyrobel.
 - 5. Schott: Pyran Crystal.

08830 Mirrors

- A. Standard framed mirrors in bathrooms are specified in Section 10801.
- B. Size: As indicated on Drawings.
- C. Annealed monolithic glass mirrors.
- D. **[Film-backed] [Laminated] [Tempered]** glass mirrors qualifying as safety glazing.
- E. Hardware:

1. Top and Bottom Aluminum J-Channels.
- F. Mirror Edge Treatment: [Flat polished edge] [Rounded polished edge] [Beveled polished edge of width shown].

08911 Glazed Aluminum Curtain Walls (ALUM-X)

- A. Involve product rep to select systems required for the project.
- B. Performance specification but still good to have basis of design product.
- C. Specify glazing (GL-X).

08960 Sloped Glazing System

- A. Kawneer: 2000 skylight.
- B. US Aluminum:
 1. System 2250: Applications requiring a single slope or single slope with one return.
 2. System 3350: Adjustable hinge transition which accommodates slope angles from 20 to 60 degrees

Division 9 Finishes

Finish Room Schedule

- A. Indicated material and finish required.
 1. CMU sealed.
 2. CMU field painted.
 3. CMU anti-graffiti coating.

09111 Non-Load-Bearing Steel Framing

- A. Minimum Base-Metal Thickness: 0.0270 inch (22 gage), galvanized, unless otherwise indicated.
- B. Corridor/Bathroom wall: 6 inch depth.
- C. Backing vs. Blocking??
- D. Backing: 20 gage sheet steel (for cabinet supports).
- E. Blocking: Install blocking for support of plumbing fixtures, toilet partitions, toilet accessories, and other items attached to the wall weighing more than 10 pounds, and hardware. Bolt or screw steel channels to studs. Use of 18 gauge pre-manufactured blocking is acceptable.
- F. Partition Framing: "DS", 1-1/4 inch flanges by Cemco. (Sports)
- G. Structural Framing: "ECS", 1-3/8 inch flanges by Cemco. (Sports)
- H. Slip-track head-of-wall: [Fire Track](#), [SlipTrack](#).
 1. Shadowline by Fire Track. (Psychology, Pool)
- I. Products: Manufactured by [Clark](#), [Dale-Incor](#), [Dietrich](#), [Cemco](#).
- J. Metal Ceiling Channels (Psychology submitted): No manuf. Just SSMA data.
 1. U Channels:
 - a. 150U50-54, 0.0538 thick, 1/2 inch wide, 1-1/2 inch deep.
 2. Hat Furring Channels:
 - a. 087F125-30, 0.0296 thick, 1-1/4 inch wide, 7/8" inch deep.
- K. Fasteners:
 1. Black Track Pins, 0.300 head diameter drive pins, Catalog number 1506BC, 3/4" shank length by Ramset.
 2. Drive pins, 0.300 head diameter drive pins with 7/8" washer, Catalog number 1510SD, 1-1/4" shank length.
- L. Cemco: Partition Framing.
 1. 1 5/8" to 8" deep DS and SS Studs and Track,
 2. 7/8" Furring Channel (Hat), Z-Furring Channel, Angles, Flat Strap.
 3. 25GA, 20GA, and 22GA. (0.0179", 0.0329", and 0.0271" uncoated);
 4. G40 Hot-dip Galvanized Coating

09215 Gypsum Veneer Plastering

- A. Gypsum base for veneer plaster: Type X.
- B. Gypsum Veneer Plaster: 1/16 to 3/32 inch each coat.
 - 1. National Gypsum Company:
 - a. Base Coat: Kal-Kote Plaster Base.
 - b. Smooth Finish Coat: Kal-Kote Smooth Finish.
 - 2. USG Corporation:
 - a. Base Coat: Diamond Veneer Basecoat Plaster.
 - b. Smooth Finish Coat: Diamond Interior Finish Plaster.
- C. USG:
 - 1. DIAMOND Veneer Finish is a white finish formulated for hand application over Imperial Brand Gypsum Base. It can also be used as the finish for a two-coat system over a sanded gypsum basecoat, Imperial Veneer Basecoat or Diamond Veneer Basecoat. This veneer finish is unaggregated for a smooth or skip-trowel finish. It can also be job-aggregated with clean silica sand to create Spanish, swirl, float and other types of texture.
 - 2. DIAMOND Veneer Finish is recommended for interior wall and ceiling surfaces, as well as over properly prepared monolithic concrete. It's ideal for residential construction including single-family dwellings, high-rise buildings and garden apartments. It provides a strong, hard surface that resists abrasion and surface cracking. Diamond Veneer Finish Plaster is also ideal for use in electric cable systems.
- D. Field Paint: Per section 09910.
- E. Response from USG:
 - 1. More info at publication SA920 by USG.
 - 2. Basecoat plasters are supplied in 2 forms:
 - a. Mill aggregated which requires only mixing with water.
 - b. Neat: Requires addition of aggregate at job site.
 - 3. Finish plasters are supplied in 2 forms:
 - a. Factory-prepared finishes require only the addition of water.
 - b. Gauging plasters require addition of lime putty.
 - 4. There are 2 different types of Plaster systems, Conventional and Veneer.
 - 5. Conventional consists of metal or gypsum lath with either 2 or 3 coats of plaster. Basecoat plaster is applied from 5/8" to 1" with 3/32" finish coat.
 - a. There are many different combinations of basecoat & finish plasters that make up this system.
 - b. There are too many to list so I will let him get that info from catalog.
 - c. These type systems are typically used in heavy commercial approx. \$6-\$10/sq.ft.
 - 6. Veneer Plaster systems consist of Imperial Gypsum Board Base with either 1 or 2 coats of Veneer Plaster applied. 1 coat system uses either Diamond or Imperial Basecoat Plaster applied 3/32" with Diamond Finish or Imperial finish also 3/32".
 - a. These systems are much more user friendly & economical.
 - b. 2-coat veneer is usually commercial, approx. \$3/sq.ft
 - c. 1-coat is usually custom residential approx. \$2/sq.ft.
 - d. Imperial (basecoat or finish) is much more abrasion resistant than Diamond & is usually used on commercial.

09220 Portland Cement Plaster (PLAS-X)

- A. Number of coats:
 - 1. New: 3 coat of paint.
 - 2. Repair: 2 coat of paint.
- B. Type: stucco on metal lath over sheathing.
- C. Sample and Mockup.

- D. Framing
 - 1. Steel: See 05400 and 09110.
 - 2. Wood: See 06100.
- E. Sheathing: See 06160.
 - 1. ASTM C1325 cement boards.
 - 2. ASTM C1177 Dens-Glass Gold silicone core gypsum sheathings, Fiberock Aqua-Tough Sheathing.
 - 3. Fiberboard ANSI/AHA A 194-85.
 - 4. ASTM C1396 gypsum sheathing.
 - 5. Exposure 1 or exterior grade plywood (Grade C-D or better). (DEFAULT)
 - 6. Exposure 1 OSB.
 - 7. Poured concrete.
 - 8. Unit masonry.
- F. Weather Resistive Barrier:
 - 1. Minimum Grade D Building Paper (ASTM D226). (DEFAULT)
 - 2. HouseWrap - See 06160.
- G. Metal lath: Superior Metal Trim
 - 1. Superior Metal Trim (Science)
 - 2. Self-furring diamond-mesh, 2.5 lb/sq yd.
- H. Trims: Zinc and Zinc-Coated (Galvanized).
 - 1. Foundation Weep Screed.
 - 2. Cornerite: Fabricated.
 - 3. External-Corner Reinforcement.
 - 4. Cornerbeads.
 - 5. Casing Beads: Square-edged style; with expanded flanges.
 - 6. Control Joints: One-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.
 - 7. Expansion Joints: Folded pair of unperforated screeds in M-shaped configuration; with expanded flanges.
 - 8. Two-Piece Expansion Joints: Formed to produce slip-joint and square-edged reveal that is adjustable from 1/4-to-5/8-inch wide; with perforated flanges.
 - 9. Continuous Soffit Vents: Perforated screeds, with expanded flanges.
 - a. 2-1/2" (Dorothea).
- I. Trim and Reveals: [Fry Reglet](#)
 - 1. Aluminum (Fry Reglet), size and profile as indicated. (Science)
- J. Finish Texture:
 - 1. Pick a sample from manufacturer.
 - a. Fine Sand Float (Saugus/Canyon HS Performance Center)
 - b. Float finish - traditional.
 - c. 1620 sand.
 - d. 1230 blend.
 - e. Steel trowel.
 - f. Smooth finish - Acrylic.
- K. Color: Both integral color and field paint for more uniform finish.
 - 1. Integral color. (Allied, Reedley)
 - 2. Field painted- see 09910.
 - 3. Field painted- see 09963 elastomeric coatings.
- L. Stucco: Manufactured by [La Habra](#), [Omega](#), [Highland](#)
- M. Special Acoustical Type:

1. Acoustement 40 by Pyrok. (Pool)
- N. CBC 2508A.1:
 1. Metal lath: Not less than 3-coat.
 2. Concrete and CMU as substrate: Not less than 2-coat.
 3. Gypsum plaster shall not be used on exterior surfaces.
- O. Psychology (submitted): Galvanized, submitted for Alabama, Unimast, Cemco, and Western.
 1. Building Paper:
 - a. Ameri-Kraft Aqua-Barrier "BP-2D" +D, Grade D by American Lath Products.
 - b. ICBO ER-4369.
 - c. Two laminated sheets, finish weight of 7 lbs per 100 sq. ft. complies with UBC Standard 14-1.
 2. Lath:
 - a. Self-furred ("V" grooved) diamond mesh, 3.4 lbs/sq yd.
 3. Lath Screws:
 - a. Part No. 33, 8 x 1-1/4, K-lath, #2 point, Darts self-drilling screws by Compass International.
 - b. ICBO ER 520.
 4. Accessories:
 - a. X-2 (reinforced wing) Corner bead.
 - b. X-66 Casing bead (used as plaster stop, screed ground, exposed trim around doors and windows, base screed), 1/2 inch grounds, 3 inch expanded mesh flange.
 - c. N-66 Casing bead (narrow wing), 7/8 inch grounds, 1 inch expanded mesh flange.
 - d. Expansion Control Joint (VV Type), 5/8" and 7/8" grounds.
 - e. Foundation Weep Screed (No. 7), 7/8" grounds, 3-1/2" nailing flange.
 5. Stucco:
 - a. Base coat: Cement mix by TXI Riverside Cement.
 - b. Finish coat: Blue Eagle Brand by Eagle Stucco Mfg in Fresno.

09250 Gypsum Board (GYP-X)

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.
- B. Framing: [See 09111 for steel framing] [See 06100 for wood framing]
- C. Finish texture:
 1. Smooth.
 2. Textured: [Orange peel].
- D. Regular: 1/2 inch (Normally not used, use Type X for all).
- E. Fire-Rated Type X: 5/8 inch.
- F. Ceiling: Sag resistant, 1/2 inch. (Normally not used, manufactured homes)
- G. Water Resistant: Type X, 5/8 inch. (In restrooms and janitor's closets to be painted. Check kitchen walls)
- H. Fiber-Reinforced Gypsum Board: (Casa Dorinda, Montecito Del Mar)
 1. Manufactured to ASTM C1278 material standards.
 2. Product: Fiberock Brand Aqua-Tough Panel by USG Corp. (Basis of Design)
 3. Type and Thickness: Type X, 5/8 inch thick.
 4. Description: Abuse resistant, water resistant, mold resistant, fire resistant, environmentally friendly (made from 95% recycled materials), smooth paintable surface.
 5. Stud Spacing: Up to 24 inches on center on ceilings with Type X, 5/8 inch thick.
 6. Use: On ceilings over sheet waterproofing (09310) and with epoxy painted finish (09910).
- I. Abuse Resistant: Rated 5/8 inch. (Normally not used)
- J. Cement board: See 09310 for tile backers, unless cement board is substrate for non-tile app.

- K. Acoustical Sealants: See 07920.
- L. Acoustical Insulation: See 07210.
- M. Gypsum board screws:
 - 1. Bugle head, Part No. 43080, Model #12, 6 x 1-1/4" Dart, self-drilling screws.
- N. Accessories: [Galvanized steel] [Plastic] trims.
 - 1. Clinch-On Cornerbead Company was also submitted for Psychology.
- O. Sample: Level 4 and 5.
- P. Mockup: Level 4 and 5.
- Q. Gypsum Finish Levels: See 09910 for priming of gypsum board surfaces.
 - 1. Level 3: Suitable for surfaces receiving medium- or heavy-textured finishes before painting or heavy wallcoverings where lighting conditions are not critical.
 - 2. Level 4: Suitable for surfaces receiving light-textured finish wallcoverings and flat paints. It is generally the standard exposed finish. ASTM C 840 requires application of "drywall primer" on surfaces before final decoration.
 - 3. Level 5: Suitable for surfaces receiving non-flat finish (eggshell, semi-gloss and gloss enamels) and surfaces subject to severe lighting. It is considered a high-quality gypsum board finish. Drywall primers cannot be used to bring a level 4 to level 5, a skim coat is required.
 - 4. See 09910 for paint gloss level description.
- R. Gypsum Finish Level Locations:
 - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
 - 2. Level 2: Panels that are substrate for tile and acoustical tile and Where indicated on Drawings.
 - 3. Level 3: Where indicated on Drawings.
 - 4. Level 4: At panel surfaces that will be exposed to view and for flat paint finish.
 - 5. Level 5: At panel surfaces that will be exposed to view and for other non-flat paint finishes.
- S. Gypsum Board: Manufactured by [USG](#), [National Gypsum](#), [GP](#).
 - 1. American Gypsum was also submitted for Psychology.
- T. Sound Gypsum: QuiteRock by [Quiet Solutions](#).
- U. STC:
 - 1. National Gypsum Board figures:
 - a. 38: 1-5/8 inch steel studs, 24 inches o.c. 5/8 gypsum board on each side.
 - b. 40: 2-1/2 inch steel studs, 24 inches o.c. 5/8 gypsum board on each side.
 - c. 45: 2-1/2 inch steel studs, 24 inches o.c. 5/8 gypsum board on each side with 2-1/2 inch mineral wool or glass fiber in cavity.
 - d. 42: 3-5/8 inch steel studs, 24 inches o.c. 5/8 gypsum board on each side.
 - e. 47: 3-5/8 inch steel studs, 24 inches o.c. 5/8 gypsum board on each side with 2-1/2 inch mineral wool or glass fiber in cavity.
 - f. 50: 1/2 inch gypsum board on resilient furring channel on one side, 2-1/2 inch steel studs, 24 inches o.c. 1/2 gypsum board with 3 inch mineral wool or glass fiber in cavity.
 - g. 48: 3-5/8 inch steel studs, 24 inches o.c., 2 layers of 5/8 inch on both sides.
 - h. 56: 3-5/8 inch steel studs, 24 inches o.c., 2 layers of 5/8 inch on both sides with 3 inch mineral wool or glass fiber in cavity.
 - 2. Quite Solutions figures:
 - a. 34: Stud, 5/8 inch Gypsum on both sides, R-11 insulation.
 - b. 38: Cinderblock.
 - c. 42: Soundboard.
 - d. 52-74: QuietRock, depending on number of studs and layers.

3. People's perception of STC:
 - a. Poor: 30-39.
 - b. Good: 40-49.
 - c. Better: 50-59.
 - d. Excellent: 60-69.

09265 Gypsum Board Shaft-Wall Assemblies

- A. Used at: Elevator shaft, stair shaft, mechanical shaft, party wall. Even possible on corridor ceilings.
- B. Gypsum Liner Panels: 1 inch core.
- C. Gypsum Board: See Section 09250.
- D. Gypsum liner panel steel studs.

09271 Glass-Reinforced Gypsum (GRG) Fabrications

- A. Interior use only since it is a gypsum product.
- B. Manufacturers: [Formglas](#).

09310 Ceramic Tile (CT-X)

- A. All ceramic tile shall be sealed with Knapp Pro Seal. (LMUSD)
- B. Epoxy grout shall be used at all toilet room floors and walls behind urinals. (LMUSD)
- C. Tile wainscot shall be designed to surround mirrors and other wall fixtures. (LMUSD)
- D. Do not use quarry tile in kitchens.
- E. Any showers or bath tub?
- F. Tiles: [American Olean](#),
 1. Ceramic mosaic tiles.
 2. American Olean, 2x2 mosaic, F-1 (Beach Tan 20) (LRC)
 3. American Olean, 6x6 glazed wall tile (LRC).
 4. Porcelain tiles.
 - a. Highland Ridge (residential product) by American Olean (Fletcher).
 5. Select price group if undecided on color.
- G. Tile backer: Cementitious Backer Units, [5/8] [1/2 inch]; unless Owner wants water-resistant board.
 1. Install water barrier (#15 Asphalt felt) and not vapor barrier behind CBU wall.
- H. Bathroom floors are normally thickset installation (Notify Structural consultant for slab depression).
- I. Floors:
 1. Thickset:
 - a. F121 (cement mortar bed w/ waterproof membrane) w/epoxy gout (Skills - TCA number called out on Drawing)
 - b. F132 (epoxy mortar and grout w/o waterproof membrane) at restrooms. (Science)
 2. Thinset:
 - a. F113 (modified mortar and grout) at other interior. (Science)
 - b. F115 (modified mortar and epoxy grout) (AGHS Mod)
- J. Waterproof Membrane (floors):
 1. Need to determine if waterproofing or crack resistant membrane is needed.
 2. Thinset: Fluid applied.
 3. Thickset: Fluid or sheet membrane.
 4. Fabric-Reinforced, Fluid-Applied Products: (Skills)
 - a. Trowel & Seal Waterproofing and Anti-Fracture Membrane by Custom Building Products.
 - b. Laticrete 9235 Waterproof Membrane by Laticrete.
 - c. PRP M19 by Mapei.

5. Fabric-Reinforced, Sheet Waterproofing:
 - a. Bituthene 3000 by W.R. Grace (LRC)
 - 1) Recommended for thick-set (1-1/8 inch minimum), but not for thin-set (not enough mortar).
- K. Walls:
 1. Thinset only.
 - a. W244: Cement board at restrooms (Science).
 - b. W244: Cement board w/ waterproof membrane at shower (Science)
 - c. W243: Gypsum board (Normally not used as backer for tiles)
 2. Thickset. Traditional metal lath and 3-coat plaster.
 - a. W231: Open frame.
 - b. W221: Solid backing (Plywood, wood, concrete, CMU, etc.)
- L. Shower-receptor: Waterproof membrane, TCA B415 with wall, TCA W244.
- M. Ceiling installation over fiber-reinforced gypsum board over waterproof membrane, TCA SR614.
- N. Mortar: Latex-modified cement, even with epoxy grout.
- O. Grout:
 1. Floors: Epoxy (default).
 2. Walls: Latex modified (default, less expensive than epoxy).
 3. Toilet Rooms:
 - a. DEFAULT: Epoxy on floors and walls.
 - b. LMUSD: Epoxy floors and walls behind urinals.
- P. TCA (2007) installation method: [As indicated on Drawings]. (Indicate STC number of drawings, see Science project for sample. List here for coordination).
- Q. Products:
 1. Tiles: Manufactured by [American Olean](#), [Dal Tile](#), [Summitville](#).
 - a. American Olean (Science)
 2. Setting (mortar and grout) products: Manufactured by [Mapei](#), [Laticrete](#), [Custom Building Products](#).
 - a. Custom Building Products #382 Bone. (LRC)
- R. Thresholds: Marble look finish of solid surfacing material, Zodiac by [Corian](#), honed finish. (LRC)
- S. Rubber Transition Strip (Tile to Carpet): See 09653 Resilient Wall Base and Accessories.

Terrazzo General

- A. Master Terrazzo Technologies recommend using ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In Situ Probes for determining concrete dryness. Our spec uses ASTM F1869.

09401 Portland Cement Terrazzo Flooring

- A. Poured-in-place and Precast terrazzo.
- B. Types:
 1. Monolithic: 1/2 to 5/8 inches thick.
 2. Bonded: 1/2 inch thick terrazzo over minimum 1-1/4 inch thick underbed.
 3. Sand-cushion: Top of the line system where 1/2 inch thick terrazzo over 2-1/2 thick underbed.

09402 Resinous Matrix Terrazzo flooring

- A. Thin-set, epoxy-resin and Precast terrazzo.
- B. Not for exterior use. Only for interior use because of UV.
- C. Manufacturers: [Master Terrazzo Technologies](#), [General Polymer](#)
 1. Thickness: 3/8 inch.

2. Chip options: Marble, granite, glass, synthetic, mother of pearl in #2 or less.
- D. Cost: \$22/sq. ft thinset vs \$10/sq. ft for resinous (Stonehard/general polymers) flooring.

09403 Resinous Matrix Terrazzo Tiles

- A. Manufacturer: [Geoquartz](#).
 1. Nominal Sizes (square inch): 12, 16, 20, 24, 60, 120.
 2. Thicknesses: 1/2, .60, .80, 1.2 inches.

09511 Acoustical Panel Ceilings (ACP-X)

- A. Include Item Number for your product selection to be specific.
- B. Fire-rated panels and suspension system needed? (Fire-rated assemblies are expensive).
- C. Select grid that works with panel used.
- D. Insulation above ACP: [yes] [no].
- E. Sizes: [2 x 2] [2 x 4]
- F. Edge Detail: [Square edge Lay-in] [Beveled Tegular] [Angled Tegular].
- G. Mineral based panels: Manufactured by [Armstrong](#), [USG](#), [BPB-Celotex](#).
 1. Cirrus by Armstrong and F Fissured by USG.
 2. Georgian by Armstrong and Rock Face ClimaPlus by USG and Natural Fissured by BPB-Celotex.
 3. Radar by USG (SBCC)
 4. Fine Fissured CeramaGuard by Armstrong and CapCore 44 by BPB-Celotex.
 5. Fine Fissured 1733, 2 by 4 by Armstrong (Skills)
 6. Fine Fissured Second Look II - 1761, 2 by 4 w/mid-grid by Armstrong (Skills)
 7. "F" Fissured (LR-79%, NRC-70%) by USG with exposed grid Type Donn DX heavy duty suspension system. (LRC, Allied, Reedley)
 8. Rock Face Clima Plus by USG, exposed grid Donn DX heavy duty. (Allied)
 9. Georgian by Armstrong or Natural Fissured by BPB-Celotex. (Psychology).
 10. Armatuff by Armstrong, CapCore 44 by BPB-Celotex. (Pool)
 11. Millennia ClimaPlus (LR-85%, NRC-70%) by USG. (Granada)
- H. Kitchen:
 1. Clean Room VL by Armstrong:
 - a. Un-perforated, 2x2 or 2x4, no NRC value, CAC(40), Recycled content (32-41%)
 2. Gypsum Core, Vinyl Faced Acoustical Panels by USG:
 - a. Recycled content (23%), LR (0.77), no NRC value, CAC (35).
- I. Washable:
 1. Optima Open Plan (0.95 NRC) by Armstrong (Science).
- J. Specialty Ceilings:
 1. Cementitious wood fiber ceilings:
 - a. Interior Panels by Tectum. (Oceano)
 - 1) 1 inch thick, 2 by 2 lay-in: 0.45 NRC, 0.75 Light Reflectance, 0-25 Flame Spread.
 - b. Grid: Same as for mineral type, standard 15/16" intermediate duty grid with 1-1/2" high web.
- K. Armstrong:
 1. Looking for something better (aesthetic and NRC) than F fissured? Try Ultima or Cirrus.

09512 Acoustical Tile Ceilings (ACT-X)

- A. Mainly used for:
 1. Patching and repairing of existing tiles.
 2. Fire rated ceilings with gypsum board and ceiling tiles for acoustics.
- B. Fire-Rated Tiles needed?
- C. Substrate: Gypsum board.

- D. Installation: Adhesive.
- E. Sizes: 1 foot square.
- F. Thickness: 5/8 inch.
- G. Products: [Armstrong](#), [BPB-Celotex](#).
 - 1. Cirrus, Item 580 by Armstrong and Natural Fissured by BPB-Celotex.
 - 2. ~~Georgian (??) by Armstrong~~ or Natural Fissured by BPB-Celotex. (Psychology).
 - 3. "F" Fissured (LR-79%, NRC-70%), Item 101, SESK, direct glue on by USG. (Psychology Add #2)
 - 4. Radar by USG (SBCC)
 - 5. Millennia ClimPlus (LR-85%, NRC-65%) by USG. (Granada)
- H. Pricing Info for Armstrong Grid:
 - 1. Steel Grid Prelude XL 7300 (Base price)
 - 2. Steel Grid with aluminum cap. (300% increase from base)
 - 3. Aluminum Grid (310% Increase from base)
 - 4. Stainless Steel Grid (1200% or 12 times more than base)
- I. Armstrong ceiling Tiles (Glue-applied)
 - 1. [579 CIRRUS](#)(12x12x3/4")
 - 2. [580 CIRRUS](#)(12x12x3/4")
 - 3. [746FINE FISSURED](#) (12x12x5/8")
 - 4. [592 FINE FISSURED](#) (12x12x3/4")
 - 5. [741 FINE FISSURED](#) (12x12x1/2")
 - 6. [552 NATURAL FISSURED](#) (12x12x3/4")
 - 7. [554 NATURAL FISSURED](#) (12x12x3/4")
 - 8. [571 SANSERRA](#) (12x12x3/4")

09541 Luminous Ceilings

- A. Manufacturers: Tess, Skyfactory. (Fletcher)

09547 Linear Metal Ceilings

- A. Metalworks by Armstrong.
- B. Serpentina 3-Dimensional Ceiling System by Armstrong: <Green>25% Recycled Content.
 - 1. Extruded aluminum
 - 2. Infill Panels: Perforated Panel (R250)
 - 3. Curved Pattern.
 - 4. Grid: 15/16 (Prelude) or 9/16 (Suprafine) Serpentina.

09580 Suspended Decorative Grids

- A. Manufacturers: [USG Interiors](#), [Armstrong](#).
- B. GridWare grids and Compasso trim by USG (MAW-Wood2)
- C. Acoustical Panels: Decoustics, ESSI.
 - 1. Fabric wrapped Lay-in by Decoustics (MAW-Wood2)
 - 2. Fabric wrapped Lay-in, C-302 reveal by ESSI.
- D. Fabric: Guilford FR 701.

09585 Acoustical Baffles

- A. Products: [MBI](#), [Phoenix-E](#)
- B. Cloud - Lite Baffle System by MBI. (Pool)
 - 1. Size: 24" x 72" and 48" x 96".
 - 2. Thickness: 2 inches.
 - 3. Surface Finish: 2.5 mil PVC.
 - 4. Edge Construction: Heat sealed.
 - 5. Edge: Square.

6. Surface Color: White and Grey.
 7. Acoustical Performance: 1.10 NRC.
- C. Baffles by Phoenix-E.

09640 Wood Flooring

- A. Factory finished: Bruce, Harris Tarkett, Hartco.
1. Solid-Wood, **[Strip] [and] [Plank]** Flooring.
 2. Solid-Wood Parquet Flooring.
 3. Engineered-Wood, **[Strip] [and] [Plank]** Flooring:
- B. Field finished: Aged Woods, Bruce, Carlisle Restoration Lumber, Oregon Lumber Company.
1. Solid-Wood, **[Strip] [and] [Plank]** Flooring.
 2. Solid-Wood Parquet Flooring.
 3. Engineered-Wood, **[Strip] [and] [Plank]** Flooring:

09642 Wood Sports-Floor Assemblies

- A. Products: Manufactured by [Action Floor Systems](#), [Aacer](#).

09651 Resilient Floor Tile

- A. Vinyl Composition Tile (VCT-X): [Armstrong](#), [Altro](#).
1. Excelon - Imperial Texture by Armstrong. (Allied, Reedley, Skills)
 - a. Thickness: 1/8 inch.
 - b. Static Load Limit: 75 psi.
 - c. Standard: ASTM F 1066, Class 2 - through -pattern.
 2. Excelon - StoneTex by Armstrong (LRC)
 - a. Thickness: 1/8 inch.
 3. Excelon: ASTM F 1066, Class 2 – through pattern.
 4. Quartz granules compressed with 33% vinyl resin plasticizer and pigments, 24 x 24, 0.1 inch thick by Altro. (Psychology)
- B. Solid Vinyl Tile (VST-X).
1. Manufacturers: [Toli](#).
 - a. Lightwood, 6” planks (Fletcher)
- C. Recycled: [Ecosurfaces](#).
1. Eco surfaces (SBCC)
- D. Armstrong: Approximate installed costs per SF:
1. Std Excelon Imperial Texture: (including multicolor) 1.40 to 1.75.
 2. StoneTex VCT L 1.90 to 2.25.
 3. Arteffects: 2.10 - 2.50.
 4. New Colors (Rubber Base) 1.20 - 1.35.

09652 Sheet Vinyl Floor Coverings (SV-X)

- A. Walkway 20, 0.08 inch thick, 6'-7" in width, 65'-7" in length by [Altro](#). (Pool. Selected color was discontinued)
- B. Classic Corlon by Armstrong with integral base. (Oceano, Science)
1. Please note that there will be limited availability of this product beginning January 1, 2006.
 2. Per rep, installed cost for Classic Corlon is \$2.35 to 3.00. Newer colors of Connection Corlon are cheaper \$2.10 to 2.90 range. Both have save properties, only colors are different.
 3. 6 ft (1.83 m) Wide x 94.5 ft (28.8 m) Max. Length
 4. ASTM F 1303 Class A backing, Grade 1, Type II
 5. Fire Test Data : ASTM E 648 Critical Radiant Flux Class I - 0.45 or more watts/cm2
 6. ASTM E 662 Smoke Developed 450 or less

7. Static Load Limit: ASTM F 970 (modified) 500 psi (35.16 kg/cm²)
 8. Gauges: 0.085 inch overall (nominal), 0.050 inch wear layer (nominal)
 9. Approximate Installed Cost (per Sq. Ft.): 0.085 inch thick: U.S.: \$2.25 to \$3.10
- C. Connection Corlon by Armstrong:
1. Sheet: 6 ft Wide x 94.5 ft Max. Length
 2. ASTM F 1303 Class A backing, Grade 1, Type II
 3. Fire Test Data : ASTM E 648 Critical Radiant Flux Class I - 0.45 or more watts/cm²
 4. ASTM E 662 Smoke Developed 450 or less
 5. Static Load Limit: ASTM F 970 (modified) 500 psi (35.16 kg/cm²)
 6. Gauges: 0.085 inch thick overall (nominal), 0.050 inch thick wear layer (nominal)
 7. Approximate Installed Cost (per Sq. Ft.):0.085 inch thick: \$2.10 to \$2.90
- D. Medintech by Armstrong (Skills).
- E. Mature by TOLI (Fletcher, Montecito-installed).

09653 Resilient Wall Base and Accessories

- A. Type TS rubber, vulcanized thermoset Base: Manufactured by [BurkeMercer](#), [Nora](#), [Roppe](#), [Flexco](#).
1. Coved Base by BurkeMercer. (Reedley, LRC)
 2. Rubber base by Johnsonite (Science)
- B. Rubber Transition Strips (Carpet to Tile): [Roppe](#)
1. No. 182 Ceramic/Wood Carpet Transition 3/8" tile height by Roppe.
- C. Vinyl Transition Strips (Carpet to Tile): [BurkeMercer](#), [Johnsonite](#), [Roppe](#).
- D. Rubber Base:
1. Johnsonite (No Type TS):
 - a. 90 standard colors.
 - b. 4 foot sections and coils.
 - c. Pre-manufactured inside and outside corners available.
 - d. Three standard heights: 2-1/2" (6.4cm), 4" (10.2cm) or 6" (15.3cm).
 - e. Two thicknesses: 1/8" (3.2mm) and .080" (2.0mm).
 - f. Available in toe and toeless.
 2. Burke:
 - a. BurkeBase 1/8" Molded Rubber Wall Base Type TS.
 - b. Vulcanized thermoset rubber.
 - c. Molded to provide dimensional consistency
 - d. 4 foot molded lengths
 - e. 55 standard colors including 25 Uni-Color System colors

09654 Linoleum Floor Coverings

- A. Linosom by [Tarkett](#). (Psychology)
- B. Marmorette by Armstrong World Industries, Inc. (Fletcher)
1. Available in both sheet and tile.
 2. Thickness: 0.079 inch (2.0 mm), 0.098 inch (2.5 mm), 0.126 inch (3.2 mm)
- C. Marmoleum Dual Tile by Forbo: (Casa PCU)
1. Description: Homogeneous tile of primarily natural materials consisting of linseed oil, wood flour, and rosin binders, mixed and calendered onto a polyester backing. Pattern and color shall extend throughout total thickness of tile material.
 2. Size: [20" x 20" approx. (50 cm x 50 cm)] [13" x 13" approx. (33 cm x 33 cm)]
 3. Gauge: 1/10" (2.5 MM).
 4. Backing: Polyester backing.
 5. Pattern(s) and Color(s): As selected by Architect from manufacturers standard patterns and colors.

6. Adhesive: Forbo Linoleum, Inc., L910 adhesive.
7. Heat Welding Rod: Forbo Linoleum, Inc., Marmoweld color matched welding rod.
8. Finish: Topshield.
9. Thickness: 2.5mm
10. Sheet size: [200cm width x length required (up to 32m)].
11. Suitability: Light and Heavy Domestic / Commercial, Castor chairs, Not suitable for high moisture concrete sub-floors i.e. basement.
12. Warranty: 15 Years.
13. Eco Attributes: Manufactured from sustainable, natural resources, marmoleum is fully biodegradable at the end of its long life.
14. Slip Resistance: .6 for flat surfaces, for compliance with Americans with Disabilities Act (ADA) of 1990 per manufacturer's testing criteria.
15. Fire Resistance:
 - a. Smoke Density: 450 or less (ASTM E 662/NFPA 258).
 - b. Critical Radiant Flux: Class 1 Rating (ASTM E 648/NFPA 253).

09661 Static-Control Resilient Floor Coverings

- A. Rubber Tile for ESD Protection Control on concrete floor:
 1. Mega al, Article 200, smooth surface, 24 x 24, 0.08 inch thick, static dissipative by Norapan. (Psychology)
- B. Rubber Tile without ESD Protection Control on concrete floor:
 1. Mega al, Article 206, smooth surface, 24 x 24, 0.08 inch thick by Noraplan. (Psychology)
- C. Rubber Tile for Access Floor Panels:
 1. Mega al, Article 296, smooth surface, 24 x 24, static dissipative by Noraplan. (Psychology)
- D. Static Dissipative Tile by Armstrong. (Reedley) - Needs waxing. Not recommended.
- E. Static Dissipative Rubber by Nora:
 1. Tile: Noraplan mega al, Article 200, 2 mm (0.08 inches) thick, 61 cm by 61 cm (24 inches by 24 inches).
 2. Sheet: Noraplan mega al, Article 100, 2 mm (0.08 inches) thick, 15.0 m by 1.22 m (49.2 feet by 48 inches) roll size. (Fletcher)
- F. Pricing: Approx. installed cost per square foot.
 1. Armstrong VCT Excelon SDT: \$4.25 to \$4.75.

09671 Resinous Flooring


- A. See Section 11400 for kitchen floor requirements for LMUSD.
- B. This section covers FLOORING made of epoxy or urethanes. COATING of epoxy or urethanes is specified in 09910.
- C. Type: Trowel (integral) and Broadcast (aggregate at top layer only)
- D. Aggregate: sand or quartz.
- E. Products: Manufactured by [Stonhard](#).
 1. Concrete Floors:
 - a. Stonshield HRI by Stonhard for epoxy flooring and integral base. (Skills)
 - b. Stonclad GS by Stonhard for epoxy flooring and integral base at kitchen (LMUSD)
 - c. Stonehard GSI/HDII by Stonehard, Inc. (Alternate for Science)
 2. Cant strip: Approx. \$10/ liner foot.
 3. Save \$7/liner foot by using rubber base rather than integral base.
 4. Product by Sun Belt is similar to Stonshield.
- F. Stonhard Prices: Approximate pricing provided by Carl Bage of Stonhard. Price includes material and installation per sq. ft.
 1. Stonclad: \$6 to \$8.

2. Stonshield (thin broadcast): HRI (\$7 to \$9), SLT (\$5 to \$7), UTS (\$10 to \$14).
3. Stonblend (3/16 inch thick): GSI and HDI (\$9 to \$11), RTZ (\$14 to \$24), ETZ - not used.
4. Stontec (mma, urethane): \$9 to \$11.
5. Stonlux (epoxy): \$7 to \$9.
6. Epoxy painting (09910): \$0.75 to \$1.50.

09680 Carpet (CPT-X)

- A. Shaw, Lucia Mar Ultra Loc MP (LMUSD standard).
- B. Contractor shall submit seaming diagram for District staff review. (LMUSD)
- C. Direct glue-down.
- D. Products: Manufactured by [Shaw](#), [Karastan](#), [Lees](#), [Prince Street](#), [Mohawk](#).
 1. Surreal MC007 by Mohawk. (Science)
 2. University 28 Unitary with cellular rubber pad by Shaw. (Psychology)
 3. Faculty IV by Lees. (Reedley)
 4. LMUSD: Lucia Mar UltraLoc MP by Shaw. (Dorothea H)
 5. Innovate by Mohawk (Montecito - installed).
- E. Saylor Estimation 2005: (Price of square yard)
 1. Polyester: 30 oz (20.46), 35 oz (22.71), 40 oz (24.20), 50 oz (28.41).
 2. Nylon: 20 oz (11.89), 24 oz (13.55).
 3. Nylon filament: 20 oz (11.89), 24 oz (16.43).
 4. Nylon level loop: 15 oz (14.19), 21 oz (17.25), 28 oz (23.63), 48 oz (28.57).
 5. Antron nylon antistatic: 21 oz (22.42).
 6. Wool commercial: standard weight (47.99).
 7. Average allowance: Housing (18.28), Custom Housing (44.72), Commercial (25.88), School (28.22), Hotel/theater (30.59).

09681 Carpet Tile (CPT-X)

- A. Direct glue-down.
- B. Products:  Manufactured by [Interface](#), [Shaw](#).
 1. Entropy by Interface.
 2. Hush Carpet Tile by Shaw.
 3. Entropy by Interface or Shadow Play by Shaw. (Sports)
 4. Surreal MC007 by Mohawk.
- C. Patch and Repair Remodeling:
 1. Portland Cement Patching Compound:
 - a. Webcrete 95 by Durabond. (SB office remodel)

09720 Wall Coverings (WC-X)

- A. Vinyl coated fabric: Manufactured by [Koroseal](#), [Omnova](#).
 1. Koroseal. (Science)
 2. Type II wall covering for tackboard with Teflon by Koroseal. (Reedley)

09751 Interior Stone Facing (STN-X)

- A. Stone: Limestone, Granite, Marble, Slate, Travertine.

09771 Fabric-Wrapped Panels

- A. Aluminum framed with J-clips:
 1. Vinyl wrapped panel (one piece). (no acoustical quality)
 2. Thickness: 1/2 inch.
 3. 4 by 8 foot board with aluminum trims.

09772 Stretched-Fabric Wall Systems

- A. Custom, Site-Fabricated Low-Tension System: No visible framing.

1. Tackable Wall Systems by Fabricmate Systems. (Basis of Design)
2. Thickness:
 - a. 1/2 inch: Tackable (0.45 NRC)
 - b. 1 inch: Acoustical. (0.80 NRC)
3. Substrate: Drywall. \$8 to \$10 dollars/ sq ft.
4. Size: Custom size.
5. Staple: 3/4 inch through the plastic track.
6. Fabric: Replaceable fabric. Fabric is not integral with board (easier to replace and repair).
 - a. Guilford of Maine, FR701, Style 2100. (Basis of Design)
 - b. Maharam Lustra

09841 Acoustical Wall Panels (AWP-X)

- A. Manufacturers: [Decoustics](#), [Essi Acoustical](#), Empire, [Noise Barriers](#), [Phoenix-E](#).
- B. Vinyl covered tackboard panels: Chatfield-Clarke, Decoustics.
- C. Prefinished, factory assembled fabric-covered panels: Interior.
 1. Essi Acoustical (Allied, Science)
 2. Soundsoak by Armstrong.
 - a. Panel heights: 6, 8, 9, 10 feet.
 - 1) Mineral fiber with fabric: 30 inches wide, 3/4 inch thick.
 - 2) Mineral fiber with vinyl: 24 inches wide, 5/8 inch thick.
 - 3) Fiberglass with fabric: 14 inches wide, 1 inch thick. (Fiberglass gets 10% NRC than mineral fiber).
 - b. Mounting:
 - 1) Directly: A mounting.
 - 2) Spaced 3/4 inch from surface: D mounting (D mounting gets 10% better NRC than A mounting).
 - 3) Metal furring channel.
- D. Factory Fabricated:
 1. M-90 by Empire Acoustical Systems (AGHS Pool - exterior)
 - a. Suitable for both interior and exterior since perforated panels are galvanized and mineral wool retain only 1% of water.
 2. QuietPerf by Noise Barriers. (MAW-Wood2 - exterior)
 - a. Custom 6 inches thick.
 3. Sono-Con SC-6P by Phoenix-E. (MAW-Wood2 - equal to QuietPerf)
- E. Site Fabricated:
 1. Aluminum panel: Pattern F by Alpro or equal product by Eckel Acoustic.
 2. Insulation: 6 inch.
 3. Framing: Exterior grade 6x studs.
- F. Lamvin Inc.

09910 Painting (PNT-X)

- A. Frazee (LMUSD standard).
- B. Edges and corners shall be stippled with no visible brush lines. (LMUSD)
- C. Entire trim element shall be painted same color, not just faces. (LMUSD)
- D. Colors shall be per District standard palette. (LMUSD)
- E. Both interior and exterior field painting.
- F. Existing surfaces to be painted.
- G. Mockups: Apply benchmark sample to set quality standard.
- H. Format: MPI or School District Standard.
- I. Drywall:
 1. Common Ares:

- a. Ceilings: Flat (some times used in projects).
- b. Walls and Ceilings: Eggshell.
2. Bathrooms:
 - a. Walls and Ceilings: Semi-gloss.
3. Kitchen, wet areas:
 - a. Walls and Ceilings: Gloss.
4. Labs (Science, Allied Health):
 - a. Epoxy.
- J. Ferrous and non-ferrous Metal: semi-gloss.
- K. CMU: semi-gloss.
- L. Concrete: semi-gloss.
- M. Exterior wood for field paint and stained finish: semi-gloss.
- N. MPI Gloss Levels: (Units at 60 deg.)
 1. G1: Matte finish - flat Max. of 5
 2. G2: Sheen flat - "a velvet like" finish Max. of 10
 3. G3: "Eggshell-like" finish 10 - 25
 4. G4: "Satin like" finish 20 - 35
 5. G5: Semi-gloss 35 - 70
 6. G6: Gloss 70 - 85
 7. G7: High gloss More than 85.
- O. Paints: Manufactured by [Benjamin Moore](#), [Frazee](#), [Dunn-Edwards](#), [ICI](#), [Kelly-Moore](#), [Sherwin-Williams](#), [Vista](#).
 1. ICI (DEFAULT Office Standard, Reedley, Science, Psychology, Pool).
 2. Frazee (LMUSD Standard).
 3. Benjamin Moore (Psychology, Pool).

09960 High-Performance Coatings

- A. Gypsum board (Epoxy): 113 by Tnemec.
- B. CMU walls (Epoxy): Stoneglaze by Stonhard.
- C. Galvanized and Ferrous Metal Finish: Aliphatic Acrylic Urethane (Semi-gloss finish)
 1. Metallic Finish: Endura-Shield 1077, spray-applied by Tnemec.
 2. Non-Metallic Finish: Endura-Shield 1075 by Tnemec.
- D. Products: Manufactured by [Tnemec](#), [Stonhard](#).

09963 Elastomeric Coatings

- A. Substrate: Stucco.
- B. Manufacturers: Manufactured by [Tnemec](#), [Sto](#), [Parex](#), [Omega](#).
- C. Modified Waterborne Acrylate:
 1. Stucco: Tnemec 156 Enviro-Crete by Tnemec (Ventura Bath).

09966 Anti-Graffiti Coating System

- A. Anti-Graffiti coating has close relationship with water repellent products. Some vendors use single coats for water repellent and 2 coats of same product for anti-graffiti coatings.
- B. Non-sacrificial Anti-Graffiti Coating System:
 1. 3 different base coatings are available. (urethane, silicone, cross link co-polymer)
 2. Urethane based system: [Textured Coatings of America](#), [Tamms](#)
 - a. Clear System:
 - 1) 2-coats of clear Graffiti Guard IIIW by Textured Coatings.
 - b. Opaque System:
 - 1) 1-coat of pigmented Ty-Coat and 2-coats of clear Graffiti Guard IIIW by Textured Coatings.
 - 2) Pigments: can match any color.

3. Silicone based system: [Professional Products of Kansas](#), [Tnemec](#).
 - a. Clear System:
 - 1) 2-coats of Super Strength clear by Kansas.
 - 2) 2-coats of 626 Dur A Pell GS (Graffiti Shield) by Tnemec.
 - b. Opaque System: Not available. Can't be applied to painted surface.
 4. Cross link co-polymer based system: [Rainguard](#) – This product failed at AGHS Multi-purpose building.
 - a. Clear System: (unpainted CMU surface)
 - 1) 1 coat of blok lok water repellent by Rainguard.
 - 2) 2 coats of VandlGuard by Rainguard.
 - b. Opaque System:
 - 1) Color lok. Can match any color.
 - 2) 2 coats of VandlGuard by Rainguard.
 5. Graffiti Remover:
 - a. As recommended by anti-graffiti coating system manufacturer.
 - b. Sure Cleaner by Prosooco. (will work only with their product for 4 to 5 times)
 6. SealCrete may be used as primer for Anti-graffiti coating according to Hydrozo.
- C. Sacrificial Anti-Graffiti Coating System: Some rep recommended this type because it is easier to re apply coating rather than cleaning.

Division 10 Specialties

10101 Visual Display Surfaces

- A. Products: [Claridge](#), AZ Series Nelson Adams, [Chatfield Clarke](#), [Polyvision](#).
- B. Markerboard: Porcelain enamel face. Claridge, Polyvision, Chatfield Clarke.
 1. LCS Series 1 by Claridge or Series 500 by Polyvision. (Psychology)
 2. 7/16 inch Duracore with porcelain steel marker board face by Claridge. (Reedley, Science)
 3. Combination units. (Reedley)
 4. Magnaboard by Chatfield Clarke Co. (LMUSD Standard)
 - a. Manufactured locally in Fontana, CA.
- C. Chalkboards: Porcelain enamel face:
- D. Tackboard (Bulletin board):
 1. Vinyl-faced cork:
 - a. Fabricork by Claridge (Science)
 - b. Polyvision:
 - 1) Type I: 7 mil vinyl with 1/2" fiberboard.
 - 2) Type IV 9 mil vinyl with 1/4" cork and 1/4" hardboard.
 - 3) Type V: Vinyl with 1/8" cork and 3/8" fiberboard.
 2. Natural Cork:
 - a. Polyvision: 1/8" cork with 3/8" fiberboard (recommended) or 1/4" cork with 1/4" fiberboard backing. Typical push pin stab is 3/8" long.
 3. Colored Cork:
 - a. Polyvision: 1/4" linoleum grade with 1/4" hardboard.
 4. Aluminum Trim:
 - a. H Divider Bars and Channel Trim: 1/4" and 1/2" by both Polyvision and Claridge.
 - b. Angle Trim: 1/2" and 1" by Claridge.
- E. Prefinished tackboard panels:
 1. Claridge Products; 1/8" cork on 1/4" fiberboard with School collection tackable vinyl by Koroseal. (Reedley)
- F. Core: [Hardboard] [Particleboard] [Fiberboard] with moisture-barrier backing (aluminum foil).
- G. Frames: Clear anodized aluminum.

- H. Display Cases: Factory assembled illuminated floor cases #748 by Claridge. (LRC)
 - 1. Remember - Wood box is an optional item.
- I. Polyvision: Marker, chalk, tackboards: (Nelson Adams is part of Polyvision)
 - 1. 100 Series High-Gloss Markerboard: (Submitted for AGHS -Mod)
 - a. Type 1 for tackboard (Type 1 vinyl with 1/2 inch fiberboard).
 - 2. 110 Series:
 - a. Aluminum frame.
 - b. Sizes: 4x4, 4x6, 4x8, 4x10, 4x12 foot, custom sizes available.
 - 3. 500 Series Marker board (Psychology- submitted)
 - a. 500 series cost more than 110 series (trim and box tray is different).
 - b. 24 gage, PES on 1/2" particle board with 0.005 aluminum backer. 0.62 inch clear anodized aluminum frame.
 - 4. Standard: Wrapped and mitered safety corners on aluminum boards. 1" map rail with natural cork insert.
 - 5. Options:
 - a. 2" map rail with natural cork insert.
 - b. Available with marker, chalk, or tack board surface.
 - c. Sizes range from 4' and 5' in height and from 3' to 16' in length.
 - 6. Lead time: 6 to 8 weeks.
 - 7. Gloss Options:
 - a. High Gloss Marker Boards:
 - 1) White (6100H).
 - 2) Light Grey (610H).
 - 3) Beige (6102H).
 - b. Ultra Matte Chalkboards:
 - 1) Green (6500U).
 - 2) Black (6501U).
 - 3) Grey (6502U).
 - c. Specify P ceramicsteel low gloss ONLY when projection is used more than writing. Due to low gloss, surface may require continual maintenance.
- J. Claridge: Tackboard options.
 - 1. Claridge Cork: 1/4" self-healing burlap backed cork. Comes in 12 colors.
 - 2. Fabricork: Washable vinyl fabric. Comes in 20 colors.
 - 3. Designer Fabric: 100% soil and stain resistant polyester fabric. Comes in 12 colors.
 - 4. Hook-Fab: Hook and loop compatible bulletin board fabric. Comes in 5 colors.
 - 5. Tan Nucork: 1/4" fine grain natural cork, without burlap. Only in Tan color.

10125 Bulletin Boards and Display Cases

- A. Trophy Cases: Products manufactured by [Claridge](#), [Best-Rite](#)
 - 1. Model 3370 with fluted face front by Claridge. (Skills).
 - 2. Claridge:
 - a. Recessed, Aluminum:
 - 1) 370 Series: 3-1/2 inch angel face front.
 - 2) 1370 Series: 2 inch radius face front.
 - 3) 3370 Series: 3-1/2 inch fluted face front.

10155 Toilet Compartments

- A. Santana HDPE (LMUSD standard).
- B. Toilet Enclosures: [Overhead braced and floor anchored] [Floor anchored] [Overhead braced] [Ceiling hung].
- C. Urinal Screens: Wall hung.

- D. Metal Units (Normally not used): Factory baked-enamel.
 - 1. [Bradley](#), [General Partitions](#), [Global](#).
- E. Stainless Steel Units: No. 4 bright, directional polish.
- F. Phenolic-Core Units: Bobrick, Bradley, Columbia, Trespa.
 - 1. Melamine facing.
- G. Solid-Polymer Units:
 - 1. High-density polyethylene (HDPE): [Santana](#), [Comtec/Capital Partitions](#), [Accurate](#), Global Materials, Columbia
 - a. Comtec/Capital Partitions (Sports, Psychology).
 - b. Santana (LRC, Allied, Science, Pool, Reedley).
 - c. Accurate (LRC)
 - d. PolyLife by Columbia.
 - 2. Polypropylene (PP): [Hadrian](#), Columbia.
 - a. PolyLife Plus by Columbia. (Psychology - Submitted)
- H. Stone Units:
- I. Recycled Plastics: Yemm & Hart.
- J. Corian Units: [Gerali Design](#)
- K. Fire Rating:
 - 1. Class A: Phenolic.
 - 2. Class B: PolyLife (HPDE) by Columbia.
 - 3. None: PolyLife Plus (Polypropylene) by Columbia.
- L. RS Means Pricing for one stall (material + labor):
 - 1. Painted metal: \$470 + \$114.
 - 2. Plastic laminate: \$665 + \$114.
 - 3. HDPE (Santana): \$985 + \$114.
 - 4. Stainless steel: \$1,450 + \$114.
 - 5. Recycled Plastic: \$1,000 to \$1,500 + Installation
 - 6. Phenolic -
 - a. Trespa - Athlon Phenolic: \$900 + installation.
 - b. Trespa - Virtuon Metallic.: \$1,300 + installation.
 - 7. Marble: \$1,675 + \$223.
 - 8. Corian: \$1,900 to 2,000 + Installation
 - 9. Zodiaq: ??? + ???

10191 Cubicle Curtains and Tracks

- A. Products: [Salsbury](#), InPro, Silent Gliss.
- B. Track:
 - 1. Series 19100 track system Salsbury. (Allied, Science)
- C. Curtain:
 - 1. Salsbury (Science)

10200 Louvers and Vents (LVR-X)

- A. Involve product rep to select systems required for the project.
- B. Size: As indicated on Drawings.
- C. Finish: [Factory power coat] [Factory Kynar 3-coat metallic coating].
- D. Products: Manufactured by [C/S Specialties](#), [Industrial Louvers](#), [Airolite](#).
 - 1. Aluminum Storm Louvers by C/S Specialties.
 - 2. #413-SXP (galvanized steel) non-drainable by Industrial Louvers. (Allied, Science, LRC, Cuesta Trade)
 - a. #450XP would be same as #413SXP but in aluminum.

3. #258 (aluminum, not available in galvanized steel), drainable by Industrial Louvers. (Cuesta Trade)
 4. K609HP, clear anodized by Airolite. (Pool)
 5. 413-SXP, 4 inch, Non drainable, powder coated by Industrial Louvers (Olga, Oceano Phase I)
- E. Material: Aluminum cost less than galvanized steel according to Industrial Louvers (\$30/sq ft for galvanized steel and \$22/sq. ft.)
- F. No such thing as fire-rated louvers. UL listed fusible linked louver is available from [Wonder Metals](#) but louver it self is not fire-rated.
1. AL-614: Adjustable Louver, galvanized steel, factory baked enamel finish, 4 inch depth.

10265 Impact Resistant Wall Protection

- A. Products manufactured by [C/S Specialties](#), [IPC](#), [Balco](#), [Pawling](#), InPro, Korogard.
- B. Involve product rep to select systems required for the project.
- C. Location: As indicated on Drawings.
- D. Products: Acrovin by C/S.
- E. Chair Rail:
1. Korowood Chair rails model BW90 by Korogard (Science).
 2. CR-3 Chair rail (maple stain to be selected) by InPro
- F. Sheet wall protection:
1. Sanparrel Rigid sheet vinyl by In Pro Corp. (Science)

10270 Access Flooring

- A. Concurrent Review Requirements:
1. Submit submittals of this section with [static dissipative flooring].
- B. Design: (DEFAULT)
1. Computer Rooms: steel concrete filled with stringer.
 2. MRI Rooms: aluminum without stringer and with static dissipative flooring.
 3. Pedestal longer than 12 inches should consult manufacturer.
- C. Type: [Aluminum] [Concrete-filled] [Steel].
- D. Stringer: [Stringerless] [With stringer]
- E. Size: 24 by 24 inches.
- F. Covering: (Decide if covering will be cross-referenced to other sections or provided by Access Flooring supplier as single source.)
1. Resilient Floor.
 2. Carpet Tile.
 3. Air Flow (grid).
- G. Products: Manufactured by [Maxcess](#), [Tate](#), [ASM](#).
1. Maxcess or Tate for both aluminum and steel (Psychology - submitted Maxcess).
 - a. Equipment Room:
 - 1) Panel: RWC100 (1000 lbf concentrated load) concrete filled, cornerbolt steel panel.
 - 2) Understructure: M285 pedestal, B800 base, BG-4 steel stringer, 4x4' rigid grid system stringer system by Maxcess.
 - b. MRI Room:
 - 1) Panel: H-24/60 (1750 lbf concentrated load), solid aluminum.
 - 2) Understructure: Standard duty, gridless system, aluminum.
 - c. Static Dissipative flooring - cross referenced to other section.
 - 1) Nevamar or Formica.
 - d. Static Conductive flooring:
 - 1) VPI or Flexco.

- e. Panel Pricing:
 - 1) Steel: concrete filled (\$), Solid panel (\$\$), Grate (\$\$\$).
 - 2) Aluminum: solid panel (\$\$\$), Grate (\$\$\$\$)

- H. Laminated Floor Tile for access flooring:
 - 1. Nevamar Company, LLC, with Maxcess SpecTrim edges.

10350 Flagpoles

- A. Products: Manufactured by [American](#), [Concord](#), [Poletech](#)
- B. Outrigger single stationary 6'-0" pole by American. (LRC)
- C. 30 ft mill finished aluminum, Straight shaft, 6 inch diameter with internal halyard by American. (Pool, AGHS New Construction)

10411 Emergency Key Cabinets

- A. Single key "Knox Box" by Knox (Psychology, Pool)
- B. Knox Key Switch (Casa PCU)

10431 Signage

- A. Products: Manufactured by [Best Signs](#), [Innerface](#), [Mohawk Signs](#), [Sign A Rama](#).
- B. Signs: ADA, [room numbers], [room names].
- C. Material: Acrylic.
- D. Type: Engraved, silk-screened.
- E. Best Signs, See schedule (Science)
- F. Products by Seton. (Pool)
- G. Exterior Signage: Standard cast clear anodized aluminum letters; "OPTIMA SEMIBOLD" in size, backlighting, by [ARK Ramos](#). (Pool)
- H. Dedication Plaque: Aluminum by [Metal Arts](#). (Reedley)
- I. Traffic Signs: [Best Signs](#), [Emedco](#), [TrafficSignStore](#).

10436 Post and Panel/Pylon Signage

- A.

10505 Metal Lockers (LKR-X)

- A. Heavy duty metal lockers by De Bourgh, Penco Products, or Art Metal (LMUSD).
 - 1. Expanded metal: 13 gage minimum.
 - 2. Frame members: Welded 16 gage channels or 12 gage angles.
 - 3. Body and shelves: 16 gage minimum, except 18 gage back are acceptable.
 - 4. Doors: 14 gage minimum.
 - 5. Tops: Sloped, 16 gage.
 - 6. Locking mechanism: Recessed single point latch equipped with padlock hasps.
 - 7. Trim, closure, filler, and finishing panels: 16 gage minimum.
 - 8. Lockers over 14 inches high: 2 double pronged wall hooks all extending minimum 2 inches.
 - 9. Hinges: Minimum 2 hinges for doors under 42 inches and 3 hinges for doors 42 inches and over.
 - 10. Secure lockers per Title 24 Regulations.
- B. Products: Manufactured by [Lyon](#), [Tiffin](#), [Republic](#).
- C. All-Welded by Penco Products, Inc. (TradeTech)
- D. Types
 - 1. Knocked-down lockers.
 - 2. Corridor lockers: [Knocked-down] [All-welded].
 - 3. Athletic lockers: [Knocked-down] [All-welded].
- E. Number of tiers: [single] [double][triple]

- F. Base: [Metal] [concrete].
- G. Finish: Factory baked enamel.

10507 Plastic Lockers (LKR-X)

- A. Solid plastic polymer resin lockers: Manufactured by [Santana](#), [Comtec](#).
 - 1. Santana lockers. (Pool)

10520 Fire-Protection Specialties (FE-X)

- A. Be recessed or semi-recessed in order not to protrude more than 4 inches from face of wall per CBC 1133B.8.6.
- B. Fire Extinguishers:
 - 1. Class 2A-10B:C:
 - a. Cosmic 5E by JL:
 - 1) 5 lbs. capacity, (4-1/4" diameter x 14-5/8" height x 6" width).
 - 2. Class 40B Type K for kitchen:
 - a. Saturn 15 and 25 by JL:
 - 1) The Saturn 15 and the Saturn 25 will fit in the 2000, 3000 and the 4000 series cabinets.
 - 2) The Saturn 25 – the bigger of the 2 – will fit in the 3000 and 4000 series cabinets. It will not fit in the 2000 series. The width on the 2000 series cabinets is only 12" and the extinguisher is 14" in width.
 - 3. Non-Magnetic Clean Agent for MRI rooms:
 - a. Cleanguard FE13NM by Ansul:
 - 1) Exceeds ANSI/UL 2129 and 711.
 - 2) 25 x 9 x 7 inches.
 - 4. Factory baked enamel, red color.
- C. Fire Extinguisher cabinets: Semi-recessed and surface mounted at CMU.
 - 1. Steel: Factory baked enamel, color to be selected by Architect from full range.
- D. Fire Extinguisher hooks: Used in utility areas where extinguishers with out cabinets.
- E. Factory Finish (default):
 - 1. Baked enamel.
 - 2. Color as selected from manufacturer's standard colors.
- F. Products: Manufactured by [Potter-Roemer](#), [JL](#), [Larsen's](#).
 - 1. Recessed:
 - a. #1025W17 aluminum (10-1/2 x 24 x 6" deep) by JL (Sports, Psychology, Pool).
 - b. #1015W17 steel.
 - c. #FX1025W17, or #FX1015W17 for fire rated type.
 - d. #1015W12 steel, (10-1/2 x 24 x 6" deep) Ambassador by JL (Kunst/Liberty)
 - 2. ~~1600 Series~~ by JL (LRC).
 - 3. Gemini Series cabinet by Larsen's. (LRC)
 - 4. Occult by Larsen. (Dorothea H)
 - 5. Semi-recessed type. (Reedley)
 - 6. Ambassador (in steel. Other materials available) by JL:
 - a. FIRE-FX Option for fire-rated walls.
 - b. Least expensive of recessed and semi-recessed cabinets in steel trim and door.
 - c. Continuous hinge.
 - d. Non-locking doors consists of zinc plated pull handles and roller catch.
 - e. A handle and cylinder lock with flexible cam for SAF-T-LOK mechanisms.
 - f. Steel cabinets: White powder coat.
 - g. Model Number Explained:

- 1) Select tub: Size most suited for fire extinguisher and wall opening. (first two digits of part #)
 - 2) Trim material: steel, aluminum, stainless steel, bronze or brass. (third digit of part #). 1 is steel, 2 is aluminum.
 - 3) Trim style: Trimless (recommended only on plaster walls), flat trim, 1 1/4", 1 1/2", 2 1/2", 3", 4", 4 1/2", surface mount. (4th digit of part #). 5 is flat trim.
 - 4) Door style: (5th digit of part #). W is Contemporary V with SAF-T-LOK.
 - 5) Door glazing: (last two digits of part #). 12 is clear acrylic, 17 is clear tempered glass.
- G. Signage and Operating Mechanisms: At the present time, raised and brailled characters or other special ADA signage are not required for fire protection cabinets. In addition, the controls, handles, and other operating mechanisms for fire protection cabinet doors presently are not covered by ADA Accessibility Guidelines for hardware.

10524 Key Storage Cabinets

- A. Manufacturers: [Knox](#),
- B. 1300 Series Cabinets (for indoor): (Submitted for Psychology without options).
 1. Housing: 10gauge plate steel.
 2. UL listed against physical attack.
 3. Mounting: Surface.
 4. Size: 14-1/2" W x 18 " H x Depth options: 5" or 7".
 5. Storage: Up to 231 keys or combinations of keys and documents (in 7# depth).
 6. Weight: 65 lbs.
 7. Lock: Medeco UL listed, 1/8" stainless steel dust cover with tamper seal capability.
 8. Finish: Knox-Coat, proprietary finish process, four times better than standard powder coat.
 9. Color: Light grey.
 10. Options:
 - a. Alarm tamper switches.
 - b. Dual entry locks (either key opens or both keys required to open).
 - c. Combination lock.
 - d. Submated lock.
 - e. Key hook panels to 231 keys (when no documentation is stored).
- C. Knox Box 3200 Series (for exterior): (Montecito)
 1. Storage: Up to 10 keys.
 2. Sizes:
 - a. 5" W x 4" H x 3-1/4" D for surface mount.
 - b. 7" W x 7" H x 3-1/4" D for recessed mount.

10531 Awning

- A. Definition:
 1. Manufactured exterior fixed or lateral-arm retractable awnings with fabric attached to exterior of the building.
 2. Unlike canopies, awnings have no supporting ground poles.
 3. Unlike rectangular-shaped marquees that are supported by exposed rigid poles from above.
 4. Awning fabrics incorporate and cover over any supporting framework and they are not limited to two dimensions. Awnings may be fabricated into a variety of three-dimensional shapes.
- B. Fabrics for awnings are:

1. Polyesters, either woven or knit (most common). Usually they are either coated with vinyl, acrylic, or another resin or laminated with vinyl. Finished fabric weights range 13 to 22 oz./sq. yd.
 2. Vinyl laminates consist of woven polyester scrim sandwiched between layers of vinyl films. Finished fabric weights range 16 to 24 oz./sq. yd.
 3. Vinyl-laminated or -coated polyester mesh fabrics have discrete open spaces between the yarns, which may be quantified by a fabric openness factor. Finished fabric weights range 10 to 16 oz./sq. yd.
 4. Acrylic-, vinyl-, or resin-coated cotton or cotton/polyester blends are typically less expensive than fabrics made of synthetics and often come in fewer colors. Finished fabric weight 15 oz./sq. yd. Acrylic-painted cotton or cotton/polyester blend typically weighs less at 13 oz./sq. yd.
 5. Solution-dyed or -coated acrylics or modacrylics. Finished weights are about 10 oz./sq. yd. (339.1 g/sq. m).
- C. Manual or electrically operated.
D. Framework: Steel, galvanized steel, stainless, wrought iron, or aluminum.
E. Graphics option.

10533 Canopy

- A. Structural exterior roof like structure with metal panels, sheet metal, or glass in-fil panels.
- B. MAW Hahn Hall.
- C. Local samples: Restoration Hardware and Saks 5th on State Street.

10605 Wire Mesh Partitions

- A. Use: [Storage lockers] [Stairway partitions] [Railing insert panels] [Equipment barriers].
- B. Material: [Standard-duty (0.135 inch)] [Heavy-duty (0.192 inch)].
- C. Finish: Factory powder-coated finish.

10651 Operable Panel Partitions

- A. Non-rated. (See 10653 for fire-rated type).
- B. Wheel carrier at top track.
- C. Panel: [Individual] [Paired] [Continuously hinged].
- D. Panel facing: Vinyl.
- E. STC: [38-53]. Increasing panel weight increases STC.
 1. STC 51: 9.5-lbs. per sq. ft. for Series 6500 by Hufcor
- F. Weight: about 8 lbs/sq ft.
- G. Size: 48 inches, but all are made to order.
- H. Thickness: about 4 inches.
- I. Remodel: Self support systems by Advance Equipment is available.
- J. Pocket door.
- K. Pass-thru door.
- L. Products: Manufactured by [Modernfold](#), [Hufcor](#)
 1. Paired panel Series 6500 by Hufcor. (Allied, Science)
 2. Alpha Series by Advanced Equipment Corp. (Skills)
 3. Paired panel Model #632 by Hufcor (PCU)
- M. UCSB Psychology: Detailed but no spec section:
 1. Size: 8'-6" wide and 9'-6" high.
 2. Need self support system since framing is done.
- N. Alternative would be using accordion doors:
 1. Weight: 4 to 7 lbs/sq ft.
 2. STC: 37 - 44.
 3. Foldoor.com

4. Less framing work needed.

10653 Fire-Rated Operable Panel Partitions

10671 Metal Storage Shelving

- A. Manufactured item.
- B. Open Four-Post Metal Storage Shelving (Cuesta Trade): Factory-formed, field-assembled, freestanding system, designed for shelves to span between and be supported by corner posts, with shelves adjustable over the height of shelving unit. Fabricate initial shelving unit with a post at each corner. Fabricate additional shelving units similarly, so each unit is independent. Provide fixed top and bottom shelves, adjustable intermediate shelves, and accessories indicated.
 1. Type: Class 2A, heavy load shelf.
 2. Thickness: 18 ga steel shelf.
 3. 1 inch by 1 inch by 12 ga. angle in front and rear flanges.
 4. Adjustable shelves 1-1/2 inch increments
 5. Width, Depth, and Height: As indicted on Drawings.
 6. Shipped knock-down with all necessary shelf clips and fasteners.
 7. Factory Finish: Baked enamel or powder coat.
 - a. Color and Gloss: As selected by Architect from manufacturer's full range.

10711 Fixed Sun Screens

- A. Manufacturers: [EFCO](#), [Industrial Louvers](#), [AGS](#), [C/S Group](#), [PeachTree](#).
- B. Walkway covers.
- C. Sun Shade integral with Series 2600 Window by EFCO. (Psychology Alt 2)
- D. Model ST Series, Kynar 2-coat by Industrial Louvers. (Reedley)
- E. 8" Airfoil and 1-1/2 x 12 inch box outrigger by C/S (Science)

10750 Telephone Specialties

- A. Telephone enclosure: Stainless steel, Type 304, perforated interior.
 1. Product: #1305 by [ASI](#). (Allied, LRC)

10801 Toilet and Bath Accessories

- A. Toilets (water closets) are specified by Plumbing consultants.
- B. Vanity (sinks) and faucets are specified by Plumbing consultants.
- C. Mirrors: North County (Cuesta College) standard to be the individual mirrors and shelves.
- D. Toilet tissue dispensers in accessible toilet compartment shall be recessed, or semi-recessed so as not to project more than 3 inches from face of wall per DSA Policy 99-07.
- E. OFOI or OFCI or CFCI. Determine all or only certain items.
- F. Schedule: [on Drawing] [in spec section (Need equipment list and location)]
- G. Material: [Stainless steel] [Plastic].
- H. Products: Manufactured by [ASI](#), [Bobrick](#), [Bradley](#).
 1. Toilet paper dispensers.
 2. Paper tower dispensers.
 3. Waste dispenser.
 4. Paper tower and waste combo.
 5. Soap dispensers (single).
 6. Under lavatory guard.
 7. Grab bars.
 8. Sanitary napkin dispensers.
 9. Framed mirrors. (standard is NOT tempered, it's 1/4 inch float glass.)
 10. Baby changing station
- I. See schedule (Science, Pool, Reedley).

- J. Bobrick (Science)
- K. Folding Shower Seat: Model 8206 left and right by American Specialties.
 - 1. Meets ADA Accessibility Guidelines and the needs of the physically disabled and elderly. Seat is 1/2" thick, one piece solid Phenolic, ivory colored. Frame, support legs, flanges, and bracket are type 304 satin finish stainless steel. Self-locking mechanism. Seat measures 33" wide and projects 22 7/8" from wall.
- L. Bobrick:
 - 1. Series Names: (Price Index)
 - a. Stainless steel: Contra (1.8), Trimline (1.5), and Classic (1.0).
 - b. Plastic: Matrix (0.6)

Division 11 Equipment

11020 Safe

- A. Products: Manufactured by [Hayman](#), CWS.
 - 1. FS2300B #16153 by Hayman or AMSEC B1816 by CWS.

11054 Library Stack Systems

- A. Material: Steel.
- B. Type: Manual.
- C. Schedule: size and finish.
- D. Products: Manufactured by [Montel](#), [SpaceSaver](#).
 - 1. Montel. (LRC)

11132 Projection Screens

- A. Type: [Motorized – concealed in ceiling] [Manual – wall or ceiling mount]
- B. Size: As indicated on Drawings.
- C. Type: Front projection.
- D. Screens: Manufactured by [Da-Lite](#), [Draper](#), [Stewart](#).
 - 1. Series D front projection by Draper.
 - 2. Luma 2: 72"x 96", manual by Draper. (LRC, Allied, Science)
 - 3. Manually operated ceiling mounted screen; Luma by Draper (Reedley)
 - 4. Targa: 105" x 140", motorized by Draper. (LRC)
 - 5. Artisan Series E: 72" x 96" with Natural maple finish case - ceiling mount. (Allied, Science)
 - 6. Access/Series M, 96 by 96 inches, optional 12 inch extra drop, optional High contrast Grey viewing surface, manual by Draper. (Sports)
 - 7. Tensioned Cosmopolitan Electrol by Da-Lite, wall mounted, Da-Mat screen, 108 x 144 feet, 3 foot black drop, electrically operated. (AGHS New)
- E. Luma 2 – Heavy Duty Spring Roller Operated Projection Screen by Draper:
 - 1. Size: As indicated on Drawings.
 - 2. Mounting: Wall/ceiling mounting.
 - 3. Case: 22 ga. steel, flat at back design, with scratch-resistant white polyester finish. Friction-free closure.
 - 4. Viewing surface: [Fiberglass matt] [white/glass beaded] [optional High Contrast Grey] [optional AT 1200], flame and mildew resistant.
 - a. Matt white and glass beaded surfaces up to 10' high will be seamless.
 - b. Black Masking Borders: 1-1/2" through 70" wide; 1-3/4" on 84" wide; 2" on larger screens (optional on AV format, standard on all others).
 - 5. Endcaps:
 - a. Finished to match case, to have integral roller brackets.

- b. Form universal mounting brackets.
- 6. Viewing surface mounted on a 1-3/4", 2-1/4" or 3" diameter rigid steel roller, depending on screen size.
- 7. Bottom of viewing surface forms a pocket for the dowel.
- 8. Saddle and pull attached by screws.
- F. Fixed wall mount: Model Clarion - 72" x 96" and 90"x120" by Draper. (Science, Reedley)
- G. Projector Mount: Manufactured by [Draper](#), [Peerless](#), [BMS](#).
 - 1. Aero 2636, hard-lid ceilings by Draper. (LRC, Allied, Reedley)
 - 2. CMJ 455 variable position suspended ceiling kit by Peerless. (LRC, Allied, Science)
 - 3. LCD LOC II by BMS. (Sports)
- H. AV Equipment Racks: Manufactured by [Middle Atlantic](#).
 - 1. Middle Atlantic. (Skills)

11135 Television Mounts

- A. Television Mounts shall be Bretford TWPW 27R-BK with safety belt and VCR bracket. (LMUSD)
 - 1. Interior mounting plate shall be Bretford TVMP-BK.

11491 Gymnasium Equipment

- A. Basketball equipment:
 - 1. Basketball backboards (backstops).
- B. Volleyball equipment:
- C. Badminton equipment:
- D. Exercise equipment:
- E. Safety pads:

11521 Assistive Listening Devices

- A. Manufacturers: Telex, Williams Sound, Caparral.
- B. Sound Mate #SMP-2 by Telex (Science)

11160 Loading Dock Equipment

- A. Hydraulic dock leveler: K Series by Kelly. 6 by 7 feet nominal size.
- B. Laminated dock bumpers.
- C. Scissors lift: [Kelly](#), [Ecoa](#).
 - 1. HLD Series by Ecoa. (Granada)
 - a. Heavy duty loading dock, 5,000 pounds, 8 by 9 feet.

11400 Foodservice Equipment

- A. Products NOT acceptable to District due to maintenance and/or operation difficulties include Bodgett, Vulcan, and Pitco (LMUSD).
- B. Products preferred by District are: (LMUSD)
 - 1. Processing equipment: Hobart, Globe.
 - 2. Frying equipment: Frimaster, Dean.
 - 3. Hot carts: Bevles, Crescor, GA.
 - 4. Storage: ISF, Metro.
 - 5. Oven: Wolff, Garland.
- C. Kitchen flooring shall be troweled epoxy, Stonehard Stoneclad GS (LMUSD). Stonshield UTS is a better product for kitchen per Stonehard. Approved for use in AGHS New project.
- D. Kitchen equipment schedule (Oceano)

11451 Residential Appliances

11491 Gymnasium Equipment

- A. Gymnasium Equipment shall include the following; volleyball and badminton sleeves to accommodate existing equipment (LMUSD)
 - 1. Volleyball floor plate and sleeve: Sports Imports #KA25.
 - 2. Badminton floor plate and sleeve: Sports Imports #KA45.
 - 3. Products are solid brass with hinged caps, available from Jamie Reiser (1-800-556-3198).

11610 Laboratory Fume Hoods

- A. Products: Manufactured by [Kewaunee](#), [Advanced](#), [ISEC](#)
 - 1. Supreme Air fume hood by Kewaunee. (Allied, Science)
- B. Fume hood face velocity requirements set by Cal/OSHA are within a range of 70FPM and 100FPM, except for hoods with carcinogens, which require 150fpm and a minimum of 125fpm.

11761 View Boxes (X-Ray Illuminators)

- A. Surface or Recessed mounted.
- B. Manufacturers: Vista, IMRT Phantoms, Maxant, S&S X-ray, Wolf.
 - 1. Series T-S-4-44-120V-DB400-HGP by Vista. (Fletcher)

Division 12 Furnishings

12362 Wood Laboratory Casework

- A. Hardwood: [Maple] [Appalachian Red Oak].
- B. Products: Manufactured by [Kewaunee](#), [Advanced](#), [ISEC](#)
 - 1. Signature Series, contemporary full overlay, Style 05by Kewaunee. (Allied, Science)
 - 2. Work surfaces: Epoxy Resin Tops, Kemresin by Kewaunee. (Allied, Science)

12484 Floor Mats and Frames

- A. Roll-up, aluminum-rail hinged mats: [C/S Group](#), [Balco](#), ARDEN, Pawling.
 - 1. Pedimat by C/S (LRC)

12485 Foot Grilles

12491 Horizontal Louver Blinds

- A. Manually operated 1 inch aluminum blinds.

12494 Roller Shades

- A. Roller: [Single] [Dual].
- B. Manual:
 - 1. V8, V16, V24 clutch system by Vimco.
 - 2. Based off window size, and fabric size.
 - a. V8 - 1" tube. Max Shade width - 66", Max shade height - 96"
 - b. V16 - 1.375 or 1.75 inch tubes - max shade width - 96", Max shade height - 144"
 - c. V24 - 2" tube - max shade width - 120", Max shade height - 144"
 - 3. Now, this is based off the fabric, so you couldn't have both maximums.
 - 4. We had a chain guide that will help with the chain situation. Something would have to be built into the door to have something to mount the guide to approximately the same projection of the shade.
- C. Electrically Operated:
- D. Products: Manufactured by [MechoShade](#), [Lutron](#)
 - 1. 0706 Oyster Blackout by MechoShade.
 - 2. Thermo Veil Basketweave Collection, 1300 Series by MechoShade.
 - 3. Vimco by Lutron. (LRC)

4. Manual gear-operated Model 210 Vimco by Lutron. (Allied, Science, Reedley) - Discontinued.
5. Electrically Operated Roller Shades Sivoia QED. (Reedley)

12610 Fixed Audience Seating

- A. Products: Manufactured by [American Seating](#), [Irwin Seating](#), [KI](#).
 1. University Seating with PowerUp base and 1000 non-upholster seat by KI. (Science)
 2. Custom wood back by Irwin (MAW).

Division 13 Special Construction

13038 Cold Storage Rooms

- A. Products: U.S. Cooler, Bally Refrigerated Boxes, Master-Bilt.
- B. Extruded polystyrene walk-in cooler by U.S. Cooler (Science)
- C. Freezer and Refrigeration rooms (Dorothea).

13090 Radiation Protection

- A. Radio frequency protection system:
 1. 3 ounce copper sheeting on walls, ceiling and floor, applied to 1/2 inch plywood on walls and 3/4 inch plywood on ceiling
 2. Products: [MRI corp.](#) (Psychology).
- B. Radiation Protection Materials and Equipment, General:
 1. NELCO.
 2. Ray-Bar Engineering Corp.
- C. Lead-Lined Steel Doors and Frames:
 1. Ray-Bar Engineering Corp.
 2. Kewanee Corp.
- D. Lead-Lined Wood Doors:
 1. NELCO
 2. Ray-Bar Engineering Corp.
 3. VT Industries, Inc.
 4. Algoma Hardwoods, Inc.
 5. Eggers Industries; Architectural Door Div.
- E. Lead Glass: Refer to Door / Opening Schedule for glazing type designations and minimum thicknesses.
 1. NELCO
 2. Ray-Bar Engineering Corp.
 3. Schott DESAG; Distributed by Schott Corp., Technical Glass Div.
- F. Door Operator.
 1. Brookfield.
- G. Due to the increased weight of a heavily shielded door, special consideration must be given to the hinging and supporting arrangement. Assemblies come in 3 hinge types, determined by the door size & lead thickness.

13122 Pre-Engineered Retractable Roof Enclosures

- A. Product by [OpenAire](#). (Pool)

13123 Greenhouse

- A. Manufacturers: Rough Brothers, Stuppy Greenhouses, Florian Greenhouse, International Greenhouse.
- B. Rough Brothers (Science).

13129 Prefabricated Control Booths

13600 Photovoltaics

- A. Products: Manufactured by [Sharp](#), [Schcott](#), BP solar.
- B. Photovoltaic (PV) Panels:
 - 1. Sharp. (LRC)
 - a. 13,026 watt system with four 2500 invertors and one 1800 invertor to be installed on rooftop wall. Size of rooftop system shall be approximately 13'-0" x 85'-0". Contractor can include CEC rebate within his bid.
- C. Photovoltaic Laminates:
 - 1. UNI-SOLAR Triple Junction Solar Products. Bekaer ECD Solar Systems LLC. (Oceano)
 - a. Invertor: Sunny Boy #SWR 2500U.
- D. Side notes:
 - 1. 42-kilowatt photovoltaic array, laying flat on the roof, consists of 240 Powerguard tiles donated to the Bren School through the partnership of the Wege Foundation and Southern California Edison. These solar panels, manufactured by Powerlight, deliver 7-10% of the School's total energy supply. - Bren Hall UCSB.
- E. Basic Sun Energy - Sunlight:
 - 1. Sunlight is made up of tiny packets called photons.
 - 2. Every minute enough of this energy reaches world to meet world's energy demand for whole world.
 - 3. Photoelectric panels consists of many solar cells, these are made of materials like silicon, one of the most common elements on earth.
 - 4. The individual cell is designed with a positive and a negative layer to create electric field, just like in battery.
 - 5. As photons are absorbed in cell, their energy causes electrons to become free, the electrons move toward bottom of cell, and exit through connecting wire.
 - 6. The flow of photons is what we call electricity.
 - 7. By combining solar cells and photovoltaic panels, we can produce just the right amount of electricity to preform a specific job, no matter how large or small.

Division 14 Conveying Systems

14240 Hydraulic Elevators

- A. By others: Elevator pit ladders and waterproofing.
- B. Number of Stops: []
- C. Products: Manufactured by [ThyssenKrupp](#), [Kone](#), [Otis](#).
 - 1. Inground: MX Series by Kone. (Sports).
 - 2. LVM 3000L Holeless Telescoping Hydraulic elevator system by Otis. (LRC, Trade)
 - 3. Single direct acting hydraulic cylinder in well hole by Otis. (Psychology)
 - 4. Oil-hydraulic by ThyssenKrupp. (Granada)
 - 5. Non-proprietary system by Republic Elevators as substitution to MX system by KONE in Goleta (Sports)
 - 6. Kone (Science)
- D. Operation: Elevator car connects to the top of a plunger (piston), which moves up and down inside a cylinder. A hydraulic valve controls movement. As hydraulic fluid is pumped into the cylinder, the car rises; as fluid returns to the reservoir, the car descends.
 - 1. Holed: In-ground Cylinder. Single plunger on the center.
 - a. Rise: Up to 60 feet.
 - b. Speed: 100 to 150 fpm.

- c. Duty: 2000 to 5000 pounds.
 2. Holeless: Above-ground Cylinder (eliminates drilling). Dual plunger on each side.
 - a. Rise: Up to 20 feet.
 - b. Speed: 100 to 125 fpm.
 - c. Duty: 2000 to 5000 pounds.
 3. Roped: Above-ground Cylinder (eliminates drilling). Dual plunger on each side.
 - a. Rise: Up to 60 feet.
 - b. Speed: 100 to 150 fpm.
 - c. Duty: 2000 to 3500 pounds.
 4. Traction:
 - a. Geared:
 - 1)
- E. Hoistway Entrance: Door viewable from lobby.

14420 Wheelchair Lifts

- A. 12 foot maximum height limitation on vertical wheelchair lifts.
- B. Products: Manufactured by [National Wheel-O-Vator](#), [Access \(ThyssenKrupp\)](#).
 1. Acme screw lift: Model CDE 2 gate by National Wheel-O-Vator. (Allied, Science)
 2. Porch lift Model PL-ENC 2.0 (enclosure) by Access / ThyssenKrupp. (Granada)
 3. PL-S by Thyssen (MAW).

14560 Chutes

- A. Products: Manufactured by Midland, [U.S. Chutes](#), [Wilkinson Hi-Rise](#).

Div 15 Mechanical

- A. Division [Cutsheets](#).

15400 Plumbing

- A. Toilet rooms shall be designed as follows: (LMUSD)
 1. Immodest reflections in mirrors shall be avoided.
 2. Soap dispensers shall be located over sinks.
 3. Fixtures shall be provided at a ratio of 1 Boys': 1.75 Girls'.
 4. Waste receptacles shall be located near doors.
 5. Provide hose bibs, trap primers and floor drains at all student toilets.
- B. For ease of repair and parts replacement, standard plumbing fixtures are as follows: (LMUSD)
 1. Hose bibs: Acorn silcock HB, or Chicago.
 2. Gooseneck faucet: Chicago 350, Zurn Z-825B1.
 3. Flush valve: Sloan Royal 186-1 or Zurn Z-60003XL.
 4. Toilets: Kohler K-#4368.
 5. Toilet Seats: Elongated with stainless steel hinges, posts, washers and nuts, Beneke #523.
 6. Classroom sinks: Just 18 gage, 6 inch deep, bubbler opposite sidewall mounted soap dispenser.
 7. Classroom faucets: Chicago 350 or Zurn Z-825B1, metering.
 8. Bubbler: Haws 5054LF.
 9. Valve boxes: Christy.
 10. Nipples: brass.
- C. Locate exterior hose bibs to facilitate pressure washing of walks and buildings. (LMUSD)
- D. Provide separate water shut off for toilet rooms in recessed boxes with locking covers. (LMUSD)
- E. Floor Sink at Janitor's Closets: [CECO](#), Kohler, American Standard
 1. Enamel Sink Model No. 871 by CECO. (Skills).
- F. Stainless Steel Sinks:

1. Model 1716 by Elkay (Skills)
- G. Kitchen Exhaust Hood:
 1. 4524-ND-PSP-F by [Captive-Aire](#). (Skills)
 - a. Size: 4 by 10 feet.
 - b. Fire suppression systems completely pre-piped.
 - c. UL listed.
 - d. Weight: 650 lbs.
- H. Waterless Urinals: [Falcon](#), [Waterless](#), [McDry \(Duravit\)](#).
 1. McDry is ceramic.
 2. Falcon produces both acrylic and ceramic urinals.
 3. Waterless urinals are currently made only from fiberglass (glass-reinforced polyester).
- I. Urinal Prices:
 1. Urinal, wall, with flush valve, carrier by Saylor Estimate, material cost only:
 - a. Economy Grade: \$450.
 - b. Standard Grade: \$696.
 - c. Institutional Grade: \$1,022.
 2. Waterless urinal by Falcon, material only:
 - a. F1000, White Ceramic: \$409.00.
 - b. F2000 White Ceramic: \$369.00.
 - c. F2000A White Acrylic: \$359.00.
 - d. Replacement Cartridge: \$149.95.
 3. Waterless urinal McDry by Duravit, material only: \$895.
- J. Drinking Fountains:
 1. Haws stainless steel dual bubbler 1119.14 (AGHS Reno Phase II & III, Cuesta Trade)
 2. Haws concrete dual bubbler 3150.
 3. Model 440 DB FR pedestal drinking fountain by Most Dependable Fountains (Shandon Parking Lot)

15650 HVAC

- A. For ease of maintenance and parts replacement, all gas furnaces shall be Bryant, Models 340 MAV, 350 MAV, and 355 MAV. (LMUSD)
- B. HVAC ductwork shall be cross broken and beaded per attached SMACNA figure 1-8. (LMUSD)
- C. Return air grills shall not be located where any storage or furniture may possibly occur. (LMUSD)
- D. Thermostats shall not be located near door nor return grilles. (LMUSD)
- E. Boys' toilet rooms shall be extra-well ventilated. (LMUSD)
- F. Custodial and electrical closets shall be well ventilated. (LMUSD)
- G. Energy Management Control System shall be manufactured by Johnson Controls. (LMUSD)
- H. Modernization: HVAC- tied to existing system, add Testing and Balancing Section. (LMUSD)

Div 16 Electrical

- A. To facilitate maintenance, repair and parts inventory, all electrical and communications systems shall comply with the attached "Design Criteria for Electrical and Communications Systems", latest revision. (LMUSD)
- B. For uniformity, District standard electrical products are: (LMUSD)
 1. Electrical receptacles: Hubbell #CR20-1.
 2. Surface Mounted Raceway: Wiremold Model 2000, 5500, 500 Series.
 3. Data Outlets: Hubbell #FCX244GY and HBLDE301GY.
 4. Switchgear and Panelboards: Square D.
 5. Coverplates: Stainless steel or nylon ivory.

- C. Locations: (LMUSD)
 - 1. Provide access detail for receptacles located behind storage or casework.
 - 2. Provide receptacles in corridor for floor cleaning equipment.
 - 3. Provide exterior W.P. receptacles to accommodate washing equipment.
 - 4. Provide GFI protected receptacle at each restroom for drain cleaning snake.

Design Criteria for Electrical and Communications Systems (LMUSD)

- A. Electrical Load Criteria Main Service Board:
 - 1. Size service board for electrical demand loads present on system designed in strict compliance with 199 NEC.
 - 2. Include in Service Board, a projected 3 tons per classroom air conditioning load.
 - 3. Include capacity for up to 6 State Portable Classrooms in Service gear. Consider 15,000 watts per classroom as a typical relocatable load.
 - 4. Include an additional 20% spare capacity on top of the loads noted. Review this item with DSA Electrical Engineer of record.
- B. Electrical Load Criteria Subpanels:
 - 1. Within each classroom pod size the electrical distribution equipment to support demand loads as determined within the building.
 - 2. Provide capacity for up to 3600 watts per classroom of future technology load within the distribution equipment.
 - 3. Provide for spare conduit duct, parallel with the main feed, for upgrade, in consideration of 3 tons per square foot air conditioning load; i.e. do not provide copper for support of air conditioning loads projections.
 - 4. Provide one duplex receptacle per computer. Provide two 20A 120V branch circuits for the technology wall. One additional circuit for general use outlets around each classroom.
- C. Master Clock System:
 - 1. Rauland 2524 Master Clock system with analog 12 inch dial style slave clocks. Clock and PA speaker's assemblies within each classroom shall be integral and flush mounted with in enclosure.
- D. Intercom Paging System:
 - 1. Rauland Telecenter ISC prewired to expandable, with minimum 100 classroom capabilities. Minimum 8 zones of paging.
- E. Cable Television System:
 - 1. Provide cable television backbone design, with bandwidth up to 1 Giga Hertz for all passive equipment and active equipment to 750 Mega Hertz.
 - 2. Provide one point of television connection for each classroom.
 - 3. Headend equipment shall be racked with provisions for future modulators, channel illuminators, and VCR's with remote control equipment.
 - 4. Cable television system shall be designed in accordance with local Cable Utility Company design standards and FCC criteria.
- F. Fire Alarm System:
 - 1. Provide for fire alarm system compliant with State of California requirements, per NFPA-72 1996 along with the California amendments.
 - 2. Each classroom will be provided with Audible Notification devices. Specify selectable temporal code level output. Typical Wheelock AS series devices.
 - 3. Visual notification devices will be placed as required by NFPA-72, and as amended under CBC 3504.1 per the DSA interpretations. Classrooms are not defined as common areas and will not be provided with visual notification devices, unless they are for special education purposes.

4. Fire alarm control panels shall be based upon Grinnell/Thorn TFX-500 series addressable panels.
 5. The Contractor shall follow the following color code wiring scheme for all fire alarm system conductors:
 - a. Manual Initiation Circuits: Orange/Yellow conductors.
 - b. Automatic Initiation Circuits: Blue/Brown conductors.
 - c. Notification Circuits: Red/Black Conductors.
- G. Data Communications Systems:
1. Provide cable, conveyance, terminations and active equipment for each classroom to accommodate up to 8 category 5 cables and 100 Megabit IEEE 802.3 switched computer network. District prefers to use Cisco Systems networking equipment as a standard. All data cabling between buildings shall be via fiber optic LAN cables.
 2. Provide standard technology wall, constructed within each classroom. Technology wall accommodates 8 computer workstations, along with space for printer and mounting accommodations for 27-inch television, a wall mounted telephone.
 3. Technology wall shall be constructed to place computers in standardized contiguous arrangements, the placements shall be closely associated with these other components: the television receiver to facilitate general use with computer aided learning, the telephone for access to on-line assistance with trouble shooting, the printer (preferably below the TV set for safety and convenience.
 4. The entire arrangements shall be located in such manner to facilitate and promote the ease of use of computer and multimedia learning. As such, a method of interconnecting the teacher's computer with TV set shall be provided in the proximity of each classroom's teaching stations.
 5. Prewire each classroom with 8 drops of Category 5 cabling.
 6. Each pod shall be provided with Technical Interconnect Cabinet (TIC) to accommodate data and telephone cables for each classroom. TIC shall be provisioned to support fiber optic backbone cables from a central computer head and location. Provide a minimum 2-inch conduit sweep for all interbuilding conduit extensions.
- H. Assistive Listening System (Conduit, boxes, and power only):
1. Provide for flush mounted speakers within the multipurpose room for an assistive listening system, along with receivers for special students.
 2. Provide for a flush mounted, speakers within each classroom for Teacher Voice Sound reinforcement system, with along with headset mounted microphones for teachers and receivers for students.
- I. Security Systems:
1. Furnish each classroom with a security occupancy alarm sensor interconnected to the telephone system so that each classroom may be accessed/disabled individually using the telephone keypad.
 2. Furnish the multipurpose building with occupancy alarm sensor system, controlled via a keypad for the building and office.
- J. Sound System (Multipurpose Room):
1. Provide the multipurpose room with a integral sound system, to accommodate dances, public forums, plays and other multiuse building functions.
 2. Provide 6 input mixer/amplifier. Amplifier shall have high fidelity sound reinforcement capability. Minimum output wattage: 120 watts.
 3. Amplifier shall be integrally mounted within stage walls with remote volume control at rear of building.
 4. Flush mount speakers.

5. Extend conduit systems from amplifiers to alternate locations for various other inputs, to include CD, tape, and radio access. Amplifier shall be capable of integrating with the assistive listening system and wireless microphone systems.
 6. Provide a companion box net to the amplifier for ancillary equipment.
- K. Lighting and Lighting Controls:
1. Provide post lights at plus/minus 14 to 16 feet along Promenade with non-glare cut-off type fixture. Owner would like to avoid “exotic” styles and attempt to standardize not just here but with their other campuses. Use concrete style exterior area bollards only, aluminum, or steel is not acceptable.
 2. Outdoor lighting shall be HPS vs metal halide due to its longer life, higher light output, lower voltage sensitivity, and lower maintenance cost.
 3. Use PVL Hubbell style wall packs where glare is not a concern, but otherwise use cut off style fixtures if required, in order to comply with the EIR and “light trespass” issues. Specify all outdoor lighting around Hubbell products.
 4. Dimming control will NOT be required.
 5. Provide for multilevel switching of lighting with the multipurpose room. Dimming control will NOT be required.
 6. Parking lot lighting shall be with 20 foot poles with strong cut-off controls.
 7. All exit lights shall be the LED style, incandescent lamp or tritium based exit luminaires are NOT acceptable.
 8. All emergency lighting systems for egress shall be with integral battery contained luminaires. Centralized battery systems for exits and emergency egress is NOT acceptable.
 9. No dimming systems or dimming ballasts are to be used.
 10. All fluorescent shall be of the T8 energy saving types with a standard SP41 color.
- L. General Electrical Requirements Items.
1. Panelboards and switchboards shall be copper bussed, employing bolt-on style circuit breakers. Square D products exclusively will be specified.
 2. Transformers shall be copper wound, and of the low noise, low impedance energy saving style dry types. Coordinate any oil filled transformers with the EER.
 3. Main primary protection for each transformer shall be located at the transformer for maintenance and safety fire shut off.
 4. All electrical distribution shall be 120/208V, 3-phase, 4-wire.
 5. All electrical rooms shall be signed to indicate “Electrical Room No Storage Allowed”. Also paint lines on floors identifying working clearance in front of electrical equipment to insure that nothing be stored in front of, or within working space.
 6. Consider putting a generator receptacle box and manual transfer switch on the multi-use kitchen building as assistance in a disaster although it is not considered an essential service facility. Rewire the kitchen to a single panel for transfer equipment.
 7. Use Hubbell key switch (Hubbell 1221-L) or Bryant equal.
 8. Specify Hubbell CR2-01 nylon devices or equal. Device must be nylon.
 9. Specify stainless steel covers for all wiring devices.
 10. All risers through concrete shall be galvanized rigid steel from below slab into panels, terminal cabinets, and junction boxes, PVC coated or tape wrapped conduits.
 11. All underground conduit runs over 150 feet in length shall have GRS wrapped 90 degree elbows to allow for pulling.
 12. All panels with spare or spaces in panel shall have a 3/4 inch conduit for each 5 spaces or spare stubbed into an accessible attic or ceiling space.
 13. Stub future empty conduits out from building for future wiring needs. Also plan some spare communication and power conduits in duct banks throughout site.

14. Do not daisy chain GFCI devices. All devices shall be stand-alone.
15. Provide spare 4-inch conduit stubouts for power to an area where future portable buildings may reside from the main service panel.
16. All junction boxes containing fire alarm system conductors shall be enclosed with flush red face plates.

16970 Lighting Acceptance Testing

- A. AGHS New Construction:
 1. Copy of required Forms LTG-1-A, LTG-2-A, and LTG-3-A are in this Section.

End

Product Recommendation Form follows:

PRODUCT RECOMMENDATION

Use this form for product / installation changes we should make as default for projects

Today's Date	
Info submitted	<input type="checkbox"/> In person. <input type="checkbox"/> By Phone <input type="checkbox"/> By E-Mail <input type="checkbox"/> Other: _____
Reason for change	<input type="checkbox"/> Product is Discontinued. <input type="checkbox"/> Company no longer in business. <input type="checkbox"/> Product is not suitable for such condition. Explain at bottom. <input type="checkbox"/> Other: _____
Resource / Contact Info	Name: Company: Phone:
Section Number (if known)	
Section Title (if known)	
Product Currently Specified	Project Name: _____ Model Number: _____ Manufacturer: _____ Finish: _____ Color: _____ Options:
Product Recommended. Best way to select products completely is to use "Product Submittal" form provided by the manufacturer if one is available.	Model Number: _____ Manufacturer: _____ Finish: _____ Color: <input type="checkbox"/> As selected by Architect from standard colors. <input type="checkbox"/> As selected by Architect from full range of colors. <input type="checkbox"/> Custom color to match Architect's sample. <input type="checkbox"/> _____ Options: <input type="checkbox"/> Submittal Form is attached.
OFFICE USE ONLY	
Received by	
Follow-up	