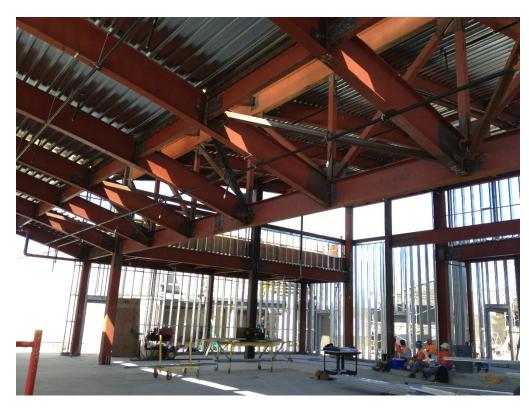
# Public School Construction Requirements WLC Architects, Inc.

23 March 2016







Foster City E.S.

El Cerrito H.S.

Coronado E.S.



#### Public School Construction Requirements

- 1. Public schools are required to provide programs, services and a comprehensive educational curriculum for the community.
- Public Funds vs. Private Funds: public funds require extensive construction standards, agency reviews, testing and continuous inspections. (e.g.: DSA, CGS, CDE, DTSC, LFM, etc.)
- WCCUSD Board approved Educational Master Plan, is the basis for the Educational Specifications used for all school design.
- 4. San Francisco Bay Area Construction Costs are the highest in the State.
- 5. It is anticipated\* schools will be used as emergency disaster centers after a disaster, due to their durability and size. (\* Field Act of 1933)



### Public School Construction Requirements Programs, Services & Curriculum

- 1. Public schools are required to provide programs, services and a comprehensive educational curriculum for the community.
- a. Board Approved Educational Master Plans:
  - Provide facilities needed to serve its students (e.g.: Performance Theaters, Learning Academies, Auxiliary Gymnasiums, etc.)
  - Provides amenities for the communities it serves (e.g.: Health Clinic spaces, community kitchens, etc.)
  - Requires Special Education classrooms be included in every school constructed.



### School Construction Public Funds vs Private Funds

- 1. Public Funds vs. Private Funds:
- a. Public Schools are, or may be, required to be reviewed by many agencies. (e.g.: CDE, DSA, CGS, HSD and DTSC)
- b. DSA-Field Act requires extensive construction plan reviews and procedures not found in municipal reviews.
- C. DSA-Field Act requires construction testing and special inspections procedures not found in municipal reviews.
- d. WCCUSD engages Project Labor Agreements (PLAs) that provide for prevailing wage and other requirements for projects.



## Public School Construction Requirements Field Act: California Seismic Safety for Schools













Earthquakes: Not a matter of if . . . . but when!



#### Public School Construction Requirements Field Act: California Seismic Safety

Page 1 of 5 1019700.03-P4	Pa	ge 2 of 5		Page 3 of 5
State Architect Statement of Structural Tests Application No:  Only 1984-103 Wild Department of Structural Tests Application No: Only 1984-103 Wild Department of Structural Tests Only 1984-104 Wil	State Architect State Architect and Special Inspecti	ONS Date Submitted: 10/1/2015 Ravised:	State Architect State Architect Statement of Statement of and Special I	Structural Tests Application No.: 01-113561
2010 CBC Revised:	X c. Concrete retaining walls. Provide tests a	The state of the s	Inspect type, size, and location of anchors and all other items to	Revised:
IMPORTANT: This form is only a summary list of structural tests and special inspections.	- CONCRETE Table 1704A4 - 7. CAST IN PLACE CONCRETE		X be embedded in masonry including other details of anchorage of masonry to structural members, frames and other construction.	Continuous SI
required for the project. The actual tests and inspections must be performed as detailed on the DSA approved documents. The project inspection indicates it is a mandatory requirement. A state of the project inspection indicates are the requirement of the project inspection indicates are the requirement. As all entering the project inspection indicates are the requirement of the project inspection indicates are the requirement. As all entering the project inspection indicates are the requirement of the project inspection indicates are the requirement. As all entering the project inspection indicates are the requirement of the project inspection indicates are the requirement. As all entering the project in the project inspection indicates are the requirement. As all entering the project inspection indicates are the requirement of the project inspection indicates are the requirement. As all entering the project inspection indicates are the requirement of the requ	Material Verification and Testing:	T	m. Inspect grout space prior to grouting and placement of grout.     15. POST-INSTALLED ANCHORS IN MASONRY	Continuous Si
of all facets of construction, including but not limited to, special inspections not listed on this	X b. Test reinforcing steel. Test	31 & PF * To be performed by batch-plant special inspector and project inspector.  Lab 1916A.2 (1916.1.6"). ASTM A370. See IR 17-10	a. Inspect installation of post-installed anchors     b. Test post-installed anchors.	Continuous PI Table 1704A.5.3
from such as structural wood framing, high-load wood disphragms, cold-formed steel framing, anchorage of non-structural components, etc., per Tile 24, Part 2, Chapter 17A.  NOTE: This form is also available for projects submitted for review under the 2007 CBC.		Lab ASTM C172, ASTM C31.		Test Lab 1916A.7 (1916.1.11") ASTM E488. Table 1704A.3
form, see DSA-103.INSTR.	X d. Test concrete (compression). Test	Lab 1905.A.4 (1905.6"). ASTM C39.	17. STRUCTURAL STEEL AND COLD-FORMED     Material Verification:	STEEL USED FOR STRUCTURAL PURPOSES
Note: All references to the California Building Code (CBC) are to the 2010 edition.	X e. Inspect batching of concrete. Continuous	SI 1704A.4.2; (see 1704A.4.3 , option 2 for waiver based on design parameters).	a. Verify that all materials are appropriately marked and that:     Mill certificates indicate material properties that comply with	
TEST OR SPECIAL INSPECTION		PI* *May be performed by a special inspector when specifically approved by DSA.	X requirements, - Material sizes, types and grades comply with requirements.	Periodic  * By special inspector when performed off-site; by project inspector for steel shipped directly project site without welding or fabrication.
The start of the s	9. PRECAST CONCRETE (in addition to Cast in Place Concrete the Concrete Concret	Inspection per STEEL, category 19.1(d) & (e) and/or 19.2(g) & (h) below.  oncrete tests and inspections):	X b. Test unidentified materials	Test Lab 2203A.1 (2203.1°). ASTM A370.
- SOILS	A a. Inspect fabrication of precast concrete members. Continuous	SI *May be performed by a special inspector when specifically approved by DSA.	X c. Examine seam welds of structural tubes and pipes Inspection:	Periodic \$I* See DSA IR 17-3.
1. GENERAL: Table 1704A.7 a. Verify that:	- 11. POST-INSTALLED ANCHORS:		Verify member locations, bracing and all details constructed in the field.	Continuous Pi
site has been prepared properly prior to placement of controlled     fill and/or excavations for foundations,	X b. Test post-installed anchors. Test	PI Table 1704A.4 Lab 1916A.7 (1016.1.11*).	<ul> <li>Verify stifferer locations, connection tab locations and all construction details fabricated in the shop.</li> </ul>	Periodic St
* foundation excavations are extended to proper depth and have reached proper material, and representative, reached proper material, and representative, respective to the property of th	- MASONRY Table 1704A.5	3	- 18. HIGH STRENGTH BOLTS: Material Verification of High-Strength Bolts, Nuts, and Was	have
- materials below footings are adequate to achieve the design bearing capacity.  - 2. COMPACTED FILLS: Table 1794A.7	Material Verification and testing:	1500	a. Verify identification markings and manufacturer's certificates of compliance conform to ASTM standards specified in the DSA.	
X a. Perform qualification testing of fill materials. Test Lab* *Under the supervision of the geotachnical engineer.	X a. Test reinforcing steel. Test	Lab 2103A.13 (2103.13*), ASTM A370. Lab 170B.1.4 and 2105A.2.2.1 (or 1708A.1.4, 2105.2.2.1* and 2114.9.1*), ASTM C140, C1588.8	approved documents.  X b. Test high-strength bolts, nuts and washers.	
b. Verity use of proper materials and inspect fit thicknesses, Jacobs St.	b. Test masonry units, mortar and grout (unit strength method).     Test     d. Verify proportions of site-prepared, premixed or problended	Clury	Inspection of High-Strength Bolt Installation:	Test Lab 2212A.1 (2211.5.1"). ASTM F606, A370. DSA IR 17-8
X c. Test compaction of fit. Test Lab* 'Under the supervision of the geotechnical engineer.  4. CAST-IN-PLACE DEEP FOUNDATIONS (PIERS): Table 1704.9	A mortar and grout.	SI ASTM C780.  Lab 2105A4 (2114.9.3°).	X c. Bearing-type ("snug tight") connections.  X d. Slip-critical connections.	Periodic SI* See OSA IR 17-9
X a. Inspect drilling operations and maintain complete and accurate records for each pier.  Comtinuous GE* By geotechnical engineer or his or her qualified representative.	Inspection:	Lab (2100A4 (2114.9.3.).	- 19. WELDING:	<ul> <li>SI "Continuous" or "Periodic" depends on the tightening method used, see IR 17-9 and 1764J</li> <li>DSA IR 17-3, AWS D1.1 and AWS D1.8 (AWS D1.3 for cold formed steet).</li> </ul>
X b. Verify locations of piers. Continuous PI	Verify size, location and condition of all dowels, construction supporting masonny, etc.  Periodic		Verification of Materials, Equipment, Welders, etc:	- 1000 M/A - 1 - 1000 - 1
c. Confirm pier diameters, plumbness, boll diameters (if applicable), experience of applicable), experience of applicable), experience of applicable of appl	X h. Verify specified size, grade, and type of reinforcement. Periodic  X j. Inspect placement of reinforcement, connectors, masonry units Periodic	SI si	A. Verify weld filter material identification markings per AWS designation listed on the DSA approved documents and the WPS.     b. Verify weld filter material manufacturer's certificate of	Periodia SI
X   e. Concrete piers.   Provide tests and inspections per CONCRETE section below.   5. RETAINING WALLS:	k. Verify protection of masonry during cold weather (temperature	SI 2104A.3 and 2104A.4 (2104.3" and 2104.4").	D. Verify weld titler material manufacturer's certificate of compilance.     X c. Verify WPS, welder qualifications and equipment.	Periodic SI
X a. Placement of soil reinforcement, drainage devices, and backfill. Continuous GE: *Placement, compaction and inspection of backfill per Section 1704A.7.1 for fills supporting foundations (see Section 2 above).	X below 40° F) or hot weather (temperature above 90°). Periodic	or 2104A.3 and 2104A.4 (2104.3" and 2104.4").	19.1 SHOP WELDING:     x inspect groove, multi-pass, and filet welds > 5/16*	Periodic SI See DSA IR 17-3.
Page 4 of 5.	INCREMENT # DSA File No.: 7-H7	Page 5 of 5  Page 5 of 5  Page 5 of 5  Page 5 of 5	INCREMENT # DSA File No.: 7.47	
A State Architect State Architect State Architect and Special Inspections	Application No.: 01-113561 ate Submitted: 10/1/2015 Revised:	State Architect Statement of Structural Te	CANAL DESCRIPTION OF THE PROPERTY OF THE PROPE	
2010 CBC	Revised: AISC 360 (and AISC 341 as applicable). See DSA IR 17-3.	2010 CBC	Revised: See quality assurance notes on sheet SP100 of construction drawings	
X d. Verification of reinforcing steel weidability Periodic SI 1704A.4.1: ver	ty carbon equivalent reported on mill certificates. See DSA IR 17-3. 704A.3.1.4 and Table 1704A.3 item 5b. AWS D1.4. See DSA IR 17-3.	29. SIDE PLATE MF CONNECTION 30 BRICK VENEER BOND STRENGTH TEST		
19.2 FIELD WELDING:		Summary of Verified Reports Required:  Note: Project Inspector, contractor, architect and engineer verified reports are always required (Form DSA-	6 or DSA-6A/E as acclicable).	
X b. Inspect single-pass fillet welds 5.5/16" Periodic St. Per AISC 360 (	(and AISC 341 as applicable). See DSA IR 17-3. (and AISC 341 as applicable). See DSA IR 17-3.	Soils testing and Inspection: Geotechnical Verified Report - Form DSA-293     All Structural Yeating: Laboratory Verified Report - Form DSA-291	The state of the s	•
" Dend inst)	(and AISC 341 as applicable). See DSA IR 17-3.	Concrete Batch Plant Inspection: Special Inspection Verified Report - Form DSA-292     Precast Concrete Inspection: Special Inspection Verified Report - Form DSA-292		
X d. Inspect floor and roof deck weight Periodic SI Per AISC 300 (  x e. Inspect weiging of structural cold-formed steel Periodic SI May be performed.	(and AISC 341 as applicable). See DSA IR 17-3. somed by the project inspector when approved by DSA. See DSA IR 17-3. and 170A-3.1.1.	5 Mesonry Inspection: Special Inspection Verified Report - Form DSA-292		
X t. Inspect wedning or sections converses seeks   Periodic   Sir 'May be perfo	and 1704A.3.1.4  project inspector when approved by DSA. See DSA IR 17-3.	<ol> <li>Shop Welding Inspection: Special Inspection Verified Report - Form DSA-292</li> <li>Field Welding Inspection: Special Inspection Verified Report - Form DSA-292</li> </ol>		
X g. Verification of reinforcing steel weldstability Periodic SI 1754A.4.1; ver	sizer / You'k is project inspector when approved by DSA. See DSA IRI 17-3.  ### 1704A.3 july  #### 1704A.3 july  ##### 1704A.3 july  ##### 1704A.3 july  ###################################	HS Bolt Installation Inspection: Special Inspection Verified Report - Form DSA-292     Steel Joist Fabrication Inspection: Special Inspection Verified Report - Form DSA-292		
A fit import weating or remoting times. Community and 1/04A.1.1.1.1  20 NONDESTRIBUTIVE TESTING:	704A.3.1.4 and Table 1704A.3 flem 56. AVS D1.4	10 Fire-Proofing Application Inspection: Special Inspection Verified Report - Form DSA-292		
X         a. Ultrasonic         Test         Lab         AISC, 341, App           X         b. Magnetic Particle         Test         Lab         DSA IR 17-2.	1. Q 5.2. AWS D1.1, D1.6 ANSWASHT CP-189, SNT-TC-1A ASTM E543, E1212-	KEY to Columns		
21. STEEL JOISTS AND TRUSSES:		1 Type - 2 Perfo  Continuous – Indicates that a continuous special inspection is required 0E – Indica	ormed By - sites that the special inspection is to be performed by a registered geofechnical engineer or his or her	
a. Verify size, type and grade for all chord and web members as well as connectors and weld filter material; verify joist profile, Continuous Special 1704A.3.2.1 as	nd DSA IR 22-3 for steet joists only, 1704A.3.2.2 for steet trusses.			
X dimensions and careful (f applicable), verify all weld locations, lengths and prolifes, mark or tag each joint.  Continuous Special 1704A.3.2.1 and			ales that the test is to be performed by a testing taboratory accepted in the DSA taboratory and Acceptance (LEA) Program see that the special inspection is to be performed by the project inspector	
22. SPRAY APPLIED FIRE-PROOFING:     A. Examine structural steel surface conditions, inspect application.		\$I - Indicate	tes that the special inspection is to be performed by a special inspector	
Examine structural steel surface conditions, inspect application, take surplex, measure includes, and verify compliance of all aspects of application with DISA approxime with DISA approximed become mits.	TM 6606.	(Note: The difference between "tests" and "special inspections" COMPILE PRINT (Note that r	reassignment of responsibility is permitted only with the written approval of DSA)	
X         b. Test bond strength.         Test         Lab         1764A.12.6. Al           X         c. Test density.         Test         Lab         1764A.12.6. Al		(is addressed in IR 17-4)  Kevin MacQuarrie	IDENTIFICATION STAMP	J
· 23. OTHER STEEL:	DISC COVA.	Name of Architect or Engineer in general responsible charge	DIV OF THE STATE ARCHITECT APP. # 01 - 11 3 7 6 1	
X a. Framing of cold formed steel at mansards Periodic SI  - WOOD		Warren Pottebaum Name of Druckural Engineer (When structural design has been delegated)		
- OTHER Section 1704A15		and the state of t	AC N/A F/LS N/A SS WF/D.W.	
27.         SKYLIGHT LOAD TEST         Test         Lab           28.         SHEAR STUD BEND TEST         Test         LaD		Architect or Structural Engineer	DATE_10/29/2015	
DSA-103 (trev 03-19-12) + In the CODE REFERENCE AND NOTES column relicates DSA-SSICC seed	ions that can be used by community colleges, per 2010 CBC Sec. 1.9.2.2.	Engineer Stamp  DSA-103 (the ID-19-12)   In the CODE REFERENCE AND NOTES column indicates D	SSA-SSCC sections that can be used by community colleges, per 2010 CBC Sec. 1.9.2.2.	



- 1. Educational Specifications and District Standards:
- The Board of Education approves educational specifications for the design of all facilities and play yards.
- b. The Board of Education approves classroom count and space allocation matrices.
- The Board of Education also approves the standardization of construction products, materials and equipment.





Isometric View

WALLS 5/8" thick type -"X" high impact gypsum wall board, with level 5 smooth finish, painted neutral color with eggshell acrylic finish.

FLOORING 1/8" thick rubber flooring. Provide a two- or three-color basic floor pattern to be approved by the District. Sheet goods may be used with the permission of the District.

2' x 4' suspended grid premium acoustic lay-in tiles (Armstrong "Optima"), 10' high from finish floor minimum, suspended grid to have seismic hold down clips and uplift struts.

HT District Standard modular classroom operable window system with low-E laminated clear glass. Window coverings to be vinyl, electrically operated sunshades with 3% openness factor.

Clerestory windows, translucent white laminated glass with District Standard exterior perforated metal vandal-resistant screen (optional and site specific at the direction of the District).

WRITING SURFACES

At front Learning Wall provide (3) 4' x 8' = 24 Lineal Feet (LF) at 24" depth max. horizontal sliding porcelain enameled steel whiteboards mounted at 34" Above Finished Floor (AFF) maximum with continuous chalk rail at bottom; tack strip, map hooks, and flag holder at top.

(1) 4' x 8' "Eno" board or approved interactive whiteboard 8 LF porcelain enameled steel whiteboard mounted at 34" AFF on wall opposite windows.

ACOUSTICAL TREATMENT

Acoustical batt wall sound insulation in all interior walls (blown in may be used at existing walls). Walls to have 35dB with material assemblies that meet an STC rating of STC 60.

DISPLAY SPACE

Vinyl wrapped tackable wall board (4' x 10' or 4' x 12' sheet, typical) mounted mounted full wall height. Vertical seams to be the wrapped edges of board, no exposed edges all edges to be wrapped. All walls to have vinyl wrapped tackable wall board where applicable.

Provide continuous wood chair rail at all walls mounted 34" AFF maximum (align with bottom of whiteboards). Detail with rabbited top edge to conceal the cut end of the tack board (optional and site specific at the direction of the District).

8' wide by 4'-6" high automatic recessed projection screen, in the down position to be located a minimum of 4'-6"from finished floor. Screen should not block "ENO" board, white boards or interactive boards.

Teaching Wall with Interactive Learning Board

JANUARY 2011 / PROJECT 1019700

CORE ACADEMICS

- 6





Pinole Valley High School New Campus
West Contra Costa Unified School District

Abbreviations: ESA = Environmental Science Academy

L & J = Law & Justice Academy

6/9/2011

HCA = Health Career Academy

Teaching				Existing		Proposed			
_	Dept	Room	Quantity	Sq. Ft.	Total Sq. Ft.	Quantity Sq. Ft. Total Sq. Ft.			Notes
	Core A	cademics							
40		Standard Classroom		300	3)				
		English	10	varies	10,538	10	1,070	10,700	1 ESA, 1 L&J, 1 HCA
		ELD	1	960	960	1	1,070	1,070	
		Foreign Language	8	varies	6,981	8	1,070	8,560	
		Math	9	varies	8,721	9	1,070	9,630	
		Social Studies	9	varies	9,369	8	1,070	8,560	2 ESA, 2 L&J, 1 HCA
		Law & Justice Academy	1	1,141	1,141	1	1,500	1,500	and share 3 regular classrooms
		Health Career Academy	1	960	960	1	1,500	1,500	and share 5 regular classrooms
		Environmental Science Academy	0	0	-	1	1,500	1,500	and share 4 regular classrooms
		Engineering Academy (Project Lead the Way)	0	0	-	1	1,500	1,500	
		Sub-Total			38,670			44,520	
6		Science Classroom							
		Multi-Use Lab (General Science)	4	1,090	4,360	4	1,600	6,400	2 ESA, 1 HCA
		Chemistry Lab	2	1,476	2,952	2	1,600	3,200	2 HCA
		Prep Room	4	188	752	3	300	900	
		Storage Room	2	69	138	3	80	240	
		Sub-Total			8,202	_	-	10,740	



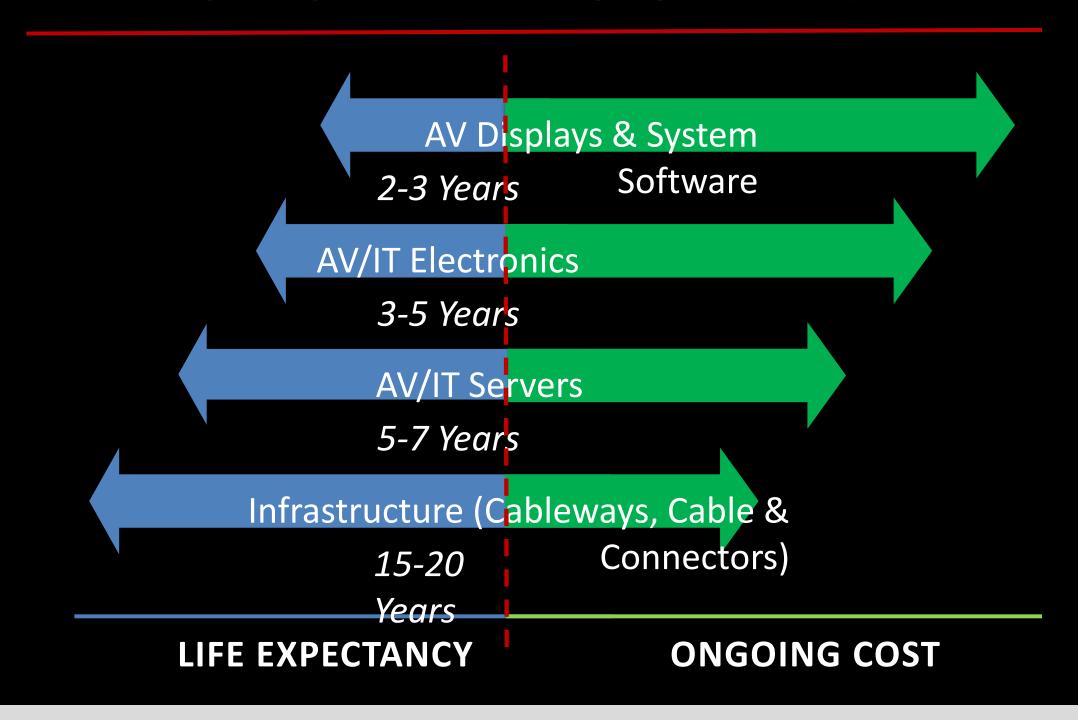
#### PRIORITY CODES:

G – GENERAL COMMENTS C – CHPS/HPI PRODUCTS SS – SOLE SOURCE PRODUCTS DS- DISTRICT STANDARD PP – PREFERRED PRODUCT OAE – OR APPROVED EQUAL

DISTRICT	PRIORITY CODE	ITEM/USE TYPE	ELEMENTARY MIDDLE HIGH	PRODUCT DESCRIPTION	PRODUCT SERIES / MODEL NO.	MANUFACTURER, CONTACT, AND/OR SOURCE	CHPS ELIGIBILITY CRITERIA	MAXIMUM CHPS PTS	COMMENTS
		Ductless Split Cooling System		Carrier 53 Series including outdoor condensing units and indoor ductless fan coils.	Carrier 53 Series	Carrier Corporation Distributor: E.B. Ward & Company (650) 872-5207	PO3.1		Used for small equipment rooms such as MDF rooms.  Where roof penetrations are required, provide appropriate details.
	SS	High Efficiency Rooftop Gas Packaged A/C Unit		Carrier 48HJ Series. Complete with 2 inch filters, time delay relay, stainless steel heat exchanger, condenser coil corrosion resistant coating, factory roof curb (2 inch isolation curb if necessary).	Carrier 48HJ Series	Carrier Corporation Distributor: E.B. Ward & Company (650) 872-5207			For new construction only in locations such as library, computer, and media rooms.  Where roof penetrations are required, provide appropriate details.
S	SS	Large High Efficiency Rooftop Gas Packaged A/C Unit		Carrier 48PJ Centurion Series. Complete with 2 inch filters, time delay relay, stainless steel heat exchanger, condenser coil corrosion resistant coating, 2 inch isolation curb, Premierlink controls.		Carrier Corporation Distributor: E.B. Ward & Company (650) 872-5207			For theater, assembly/ multi-purpose rooms.  Where roof penetrations are required, provide appropriate details.
		Gas-Fired Heating, Ventilating Unit			BPA Master Specification				For multi-purpose rooms and kitchen make-up air units.  Where roof penetrations are required, provide appropriate details.
	LOQ		Elementary Middle High			Greenheck www.greenheck.com  Norman S. Wright Mechanical Equip. Equipment Purchase: Stewart Bass (415) 467-7600  Parts Purchase: Sandy Crane (916) 381-6666  Sterling (413) 564-5540  E.B. Ward & Company (650) 872-5207	PO3.1		



### FUTURE-PROOFING

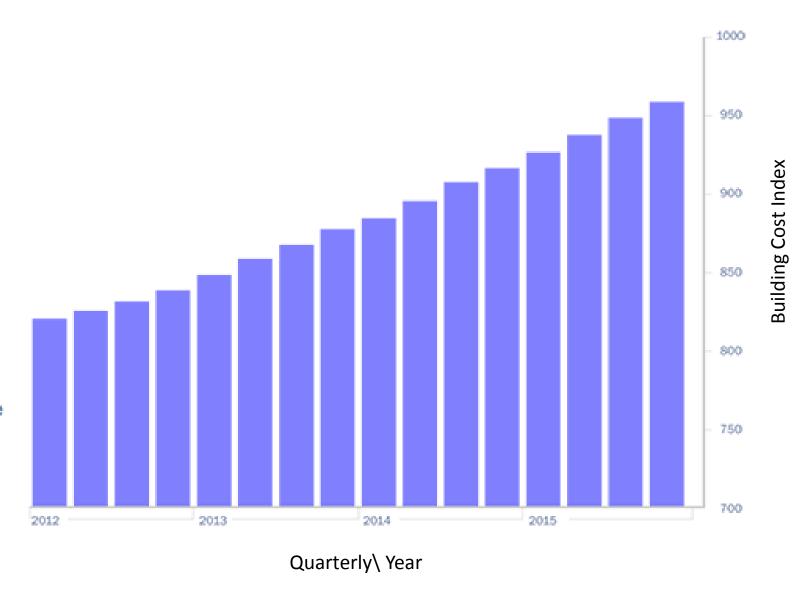




## Public School Construction Requirements San Francisco Bay Area Construction Costs

"The high volume of work underway continues to put upward pressure on skilled labor. As a result, we are seeing subcontractors and vendors being more selective in their pursuits, which has driven selective trade cost increases. We are also seeing continued increases in material delivery lead times in response to market demands and limited availability of production and fabrication facilities. As market demands continue to grow, the lead time for material will also continue to grow."

Attilio Rivetti Vice President



Turner Construction Cost Index Analysis Yields 4.58% annually



School Construction Features

### Public School Construction Requirements San Francisco Bay Area Construction Costs

- 1. San Francisco Bay Area Construction Costs:
- a. Turner Construction Co. report on San Francisco Bay Area Construction Costs indicated an escalation of 4.58% annual increase every fourth Quarter. Highest in the State.
- b. DSA school construction costs per square foot (2002 2012) is approximately \$463/ sq. ft.
- c. The programs and features of WCCUSD schools are very comprehensive. Based on the historical construction costs, the District's construction costs are "on average" for comprehensive schools.



### Public School Construction Requirements District and Community Collaboration

- District and Community Collaboration (MOUs, Joint-Use Agreements):
- a. District and Municipal Memorandum of Understandings (MOUs) provide community amenities such as supporting utility infrastructure, and public right of ways. (e.g.: storm water systems, roads, fencing to parks, etc.)
- b. Joint-Use agreements between the District and various agencies, create partnerships for certain facilities. (e.g.: Performance Theaters, Baseball Fields, etc.)



## Public School Construction Requirements Resulting in Beautiful Safe Schools



Thank You!

