Best Practices

Best Practices Report

A sampling of best practices and resources of school facility construction

March 2003

Office of Public School Construction
Lusia M. Park, Executive Officer

OPSC

Best Practices

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Executive Summary

The Office of Public School Construction (OPSC) was requested to present a report to the State Allocation Board (SAB) regarding a variety of methods and best practices of school facility construction. The OPSC produces and frequently updates many comprehensive sources of information to support and guide school districts and other stakeholders as they build and retrofit schools. These OPSC resources contain the fundamentals as well as detailed information for the skilled practitioner. Our user-friendly resources range from the basic overview and introductory information for small school districts and first-time applicants to the hands-on instructions for every aspect of planning, site selection, design, plan approval, program funding, school construction, and reporting requirements.

In response to the Board's request, the OPSC has compiled a sampling of our resources that address various strategies and best practices for school facility construction. Contained within this *Best Practices Report*, the reader can access feedback from districts that built schools with funding from the Proposition 1A State Bond funds as well as information on topics such as cost reduction, energy conservation, sustainable schools, reuse of plans, prototype plans, urban design solutions, design or developer built schools, School Facility Program eligibility and funding and other helpful tips for successful projects. This report also contains "Feature Projects" from *Breaking Ground* that illustrate the latest school facility planning ideas and design solutions approved by the Division of the State Architect (DSA) and the California Department of Education (CDE).

For the reader's convenience, a summary of the *Best Practices Report* contents is as follows:

Survey Results — The OPSC surveyed school districts and county offices of education that received Proposition 1A State Bond funding for more than one project at the same grade level to determine if they reused plans or used other methods to expedite their applications for funding.

Public School Construction Cost Reduction Guidelines — These guidelines are a comprehensive document setting forth various strategies and the best practices for construction of new, or modernization of existing facilities. The document was developed through a series of constituency workshops. It is not intended to be a treatise on how to build schools; rather, it is an identification of some of the key issues and processes that inflate the cost of construction, and suggestions of how to avoid them. The guidelines address specific areas of concern, which collectively influence the cost of school construction. The suggestions emphasize efficiency, better processes, and innovative ideas that produce schools we can take pride in, while making the most of the resources available to us. Each concern taken individually may not produce a significant reduction, but acted upon collectively can result in measurable cost savings.

Cookbook for Energy Conservation Measures — This cookbook provides general energy efficiency techniques and methodologies that can be utilized in new construction or modernization of existing facilities and has any immediate effect on energy savings and costs.

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School Facility Program Guidebook — This guidebook was developed by the OPSC to assist school districts in applying for and obtaining "grant" funds for the new construction and modernization of schools under the provisions for the Leroy F. Greene School Facilities Act of 1998. It is intended to be an overview of the program for use by school districts, parents, architects, the Legislature, and other interested parties on how a district or county superintendent of schools becomes eligible and applies for State funding.

Breaking Ground Excerpts — The "Feature Project" is a regular section in the newsletter collaboratively created and published by the OPSC and the DSA. Contained in this report, the reader can view three Feature Projects complete with photographs, site diagrams and project data that illustrate the latest school facility planning ideas and design solutions.

Prototype Plans — The OPSC Web site offers this comprehensive source of school planning and design information including:

- Plan Abstracts
- Construction Data
- Architect Contacts
- Site Plans
- Floor Plans
- School Contacts
- Photographs
- Program Data
- Database Search

Several examples from each grade level category are included in this report.

Plan Reuse Examples — Photographs and facts from Capistrano, Elk Grove and Val Verde Unified School Districts related to multiple schools built with the same architectural plans. The OPSC would like to acknowledge the contributions to this section from Dave Doomey and Cary Brockman of Capistrano Unified School District, Kathleen Moore Baratta of Elk Grove Unified School District, and Janet Mehrl of Val Verde Unified School District.

Developer Built Schools — Information about and examples of projects utilizing this delivery method. The OPSC would like to acknowledge the contribution of Gary Gibbs to this section.

Design-Build Schools — Information about a procurement process in which both the design and construction of a project are procured from a single entity. Includes excerpts from the CDE's *Design-Build Projects Guidelines.*

Additional Resources — Beyond the resources included in this report, the OPSC has compiled a list of additional useful resources available on the OPSC Web site.

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Survey Results

The Office of Public School Construction (OPSC) surveyed school districts and county superintendents of schools that had received new construction apportionments for multiple projects at the same grade level from Proposition 1A. The purpose of the survey was to learn what processes they utilized to be efficient in the application submittal process, the construction process, and the utilization of available funding.

The survey was mailed to ninety-seven school districts and county superintendents of schools. Thirty-seven percent responded. Of those that responded sixty-nine percent used architectural plans for multiple projects (reuse). Please see the section "Plan Reuse Examples ".

Of those that used architectural plans for multiple projects:

- Ninety-two percent saved time in the application process
- Sixty* percent saved time in the construction process
- Forty-eight* percent saved money in the construction process

**Seventy-two percent had projects still under construction or not yet bid so they were unable to determine if time and/or money was saved in the construction process*

Other methods used to submit School Facility Program new construction funding applications efficiently include:

- Modular and portable construction
- Anticipate the need
- Standardized specifications and design guides
- Use plans developed by another school district
- Utilized an existing school as the basis to plan the next school
- Used same components on two schools, rearranging them to fit the site

Dollar saving techniques that have been identified by the respondents include:

- Use a project tracking system (a district example was *Expedition* software)
- Standardized bid specifications for items like technology, roofing, electrical, phone systems, hardware, low voltage systems, flooring, etc.
- In-depth constructability reviews
- Value engineering
- Partnering meetings with prime trade contractor following the bid
- Focus on need rather than design

Best Practices

Breaking Ground Excerpts

The OPSC/DSA Connection to California School Districts

Over the last two years, the Office of Public School Construction (OPSC) and the Division of the State Architect (DSA) collaboratively issue a semiannual joint newsletter. The *Breaking Ground* newsletter is much more than a link to our California school districts; it provides districts, architects, design professionals, and consultants with useful information relating to both OPSC and DSA processes, policies, and our latest joint ventures in California school construction.

Valuable information is offered on current topics impacting school construction such as energy savings, sustainable schools, universal design, historic preservation, urban school site selection, urban design solutions, multistory construction, cost containment and other helpful tips for successful project and plan submittals. Our next issue will focus on the topic of project budgeting.

Additionally in each issue of *Breaking Ground*, the OPSC and the DSA showcase a new K–12 school design as a "Feature Project". In one issue, we broke with tradition and featured existing schools in order to highlight universal design solutions. These features, created as a "pullout" from the newsletter, can be saved as a resource for school districts to see the latest school facility planning ideas and design solutions approved by the DSA and the California Department of Education (CDE). The Feature Projects from several *Breaking Ground* issues are included for viewing in this *Best Practices Report* as follows:

- Liberty High School from the Summer 2001 Issue
- The Universal Design feature from the Winter 2002 Issue
- John O'Connell High School and George R. Moscone Elementary School/Las Americas Childcare Center feature from the Summer 2002 Issue

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Feature Project: **Liberty High School**

Liberty High School is the third re-use of the prototype comprehensive high school design. The original concept for the Kern Union High School District's Centennial High School opened in 1993 on a 45-acre site, with 19 structures encompassing 197,785 square feet of buildings targeting 2,050-student average daily attendance. With minor modifications, the same plan was successfully executed a second time in 1996 producing the Central High School, East Campus for the Fresno Unified School District. Since completing Liberty High School in 1999 two more iterations of the architectural design have been implemented. The fourth re-use of the design for Delano Joint Union High School District is currently under construction. The fifth and latest iteration of the design, Golden Valley High School for the Kern Union High School District, was completed and submitted on May 17, 2001 to the DSA.

Aerial View of Campus

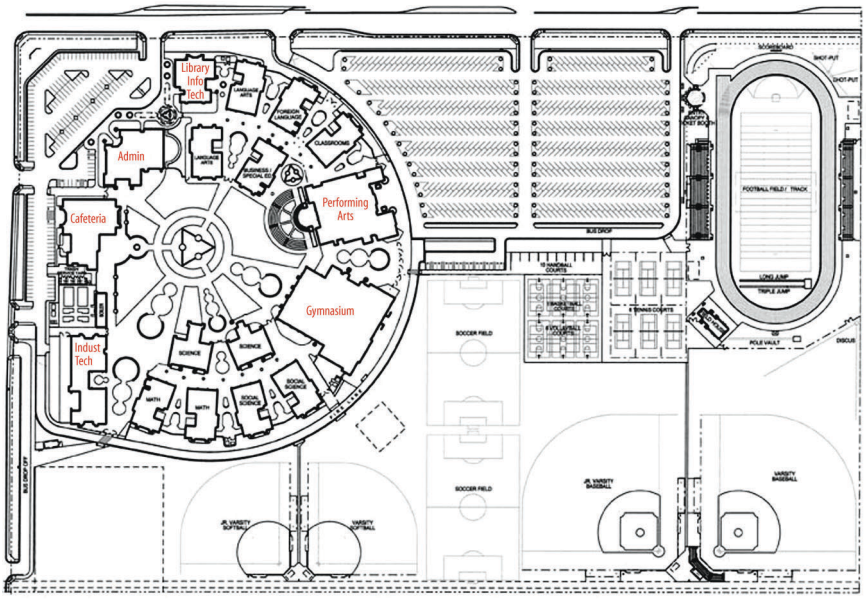
Interior View of the Performing Arts Center

Typical Classroom Building

Pergola Style Walkways between Buildings

The rotund site plan reduces both the number of steps and the amount of time required to traverse the campus. The 600-seat Performing Arts Auditorium is equipped with stage sound and acoustic system. The gymnasium provides seating for 1,824 spectators (1,752 with disabled/handicapped accommodations) for basketball and volleyball games. A spacious cafeteria has a 650-person capacity for seated meals. The school has 79 teaching stations to accommodate a comprehensive educational curriculum. It incorporates the latest technology components including LAN and fiber optics backbone for communications systems and Internet access. Buildings feature overhangs to address different exposures to sunlight. Strategically placed green belts create a park-like environment and the circular pergola style concrete walkways provide efficient dispersal of traffic and avoid congestion as students move from one building to another. In the campus central quad large landscape areas allow students to mingle, visit friends, enjoy the fresh air and freedom of open space.

Major Spaces		*Square Footage*
61	Classrooms	980-1160
16	Labs	1,140-2,620
2	Special Education Classrooms	950
1	Administration Building	13,240
1	Library/Information Technology	7,760
1	Performing Arts Center	23,447
1	Gymnasium	36,278
1	Cafeteria/Dining/Commons	14,609
1	Energy Management (HVAC) Plant	1,872
1	Field House/Athletics	2,020
1	Industrial Technology Building	13,500



Klassen corporation
Architects • Constructors

Project Description

School: Liberty High School
District: Kern Union High School District
Superintendent: William D. Hatcher
Grades: 9-12
No. of Students: 2,100 students
Square Footage: 195,360 SF
Cost: $26,966,000
Completion: 1999

School Contact: Jack Woody Covard/jcovard@khsd.k12.ca.us
Liberty High School
925 Jewetta Avenue, Bakersfield, CA 93312
661.827.3100

Architect: Klassen Corporation
2021 Westwind Drive, Bakersfield, CA 93301
661.324.3000
Contact: Robert A. Klassen/bobk@klassencorp.com
Web site: www.klassencorp.com

Site and Construction Details

Site Acreage: 45
Number of floors: 1
Cost per square foot: $111*
Roof type: Fiberglass shingles
Heating & cooling: Central plant
Construction type: VN, V 1-Hour, IFR
Number of times design was used: 5
Construction time: 21 months

Consultants

Structural Engineer: Structcon
1700 Fulton, Fresno, CA 93721

Mechanical Engineer: Lawrence Nye Anderson
7580 North Ingram Avenue, Fresno, CA 93711

Electrical Engineer: Cornelius Consulting Group
131 South Dunworth Avenue, Visalia, CA 93292

Civil Engineer: Porter Robertson Engineering
1200 21st Street, Bakersfield, CA 93301

Information Technology/LAN Consultant: Mastec Network
5418 Schaefer Avenue, Chino, CA 91710

Kitchen Consultant: Don L. Deuel & Associates
PO Box 42411, Bakersfield, CA 93384

*The listed cost is the entire cost of the work in the plans and specifications; it does not include planning, design, furniture, equipment, tests or inspection.

FEATURE PROJECT:

Universal Design

"The design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design."

"...at any point in our lives, personal self-esteem, identity, and well being are deeply affected by our ability to function in our physical surroundings with a sense of comfort, independence and control."

Leslie Kanes Weisman, AIA
Author, Lecturer, Activist, Professor of Architecture at the New Jersey Institute of Technology
from a speech presented to
the Chicago Public Schools Design Competition, Community Forum

In this issue, *Breaking Ground* deviates from the normal practice of highlighting a single distinctive educational facility to focus on several design solutions which effectively illustrate the concepts and practical implementation of Universal Design. *Breaking Ground* is indebted to the architectural firm of Sally Swanson Associates, for providing the information and photographs for this issue's Universal Design featured projects.

Sally Swanson Associates, have twenty-five years experience in providing Universal Design for Learning (UDL) solutions within existing institutional and educational environments.

A positive relationship with the Division of the State Architect is an important component of successful UDL implementation, says Sally Swanson, AIA. "DSA has been receptive to our structural solutions and insights when implementing code requirements. Our continued relationship promotes ideas about strategies for UDL applicability."

When designing for access, the firm explores means by which all persons (not only the disabled) move and interface with their surroundings. The firm's goal is to enhance the built environment in addition to facilitating overall well-being. SSA designs not only respond to current codes, but also embrace the seven principles of Universal Design as developed by the Center for Universal Design at North Carolina State University.

The Seven Principles of Universal Design

▸ **Equitable Use…** *The design is useful and marketable to people with diverse abilities.*

Guidelines

- Provide the same means of use for all users: identical whenever possible; equivalent when not.
- Avoid segregating or stigmatizing any users.
- Provisions for privacy, security, and safety should be equally available to all users.
- Make the design appealing to all users.

Laney Community College
Oakland, California
Campus Wide ADA Upgrades

▲ **Equitable Use:** Provide the same means of use for all users. Avoid segregating or stigmatizing any users.

◂◂ **Equitable Use:** Provisions for privacy, security, and safety should be equally available to all users.

Architectural designs and photographs provided by:
Sally Swanson Associates
490 Post Street, #830
San Francisco, California 94102

▸ **Flexibility in Use…** *The design accommodates a wide range of individual preferences and abilities.*

Guidelines

- Provide choice in methods of use.
- Accommodate right- or left-handed access and use.
- Facilitate the user's accuracy and precision.
- Provide adaptability to the user's pace.

Yerba Buena High School
San Jose, California

▲ **Flexibility in Use:** Provide adaptability.

▲ **Flexibility in Use:** Provide choice in methods of use.

- **Simple and Intuitive…** *Use of the design is easy to understand regardless of the user's experience, knowledge, language skills, or current concentration level.*

  Guidelines
  - Eliminate unnecessary complexity.
  - Be consistent with user expectations and intuition.
  - Accommodate a wide range of literacy and language skills.
  - Arrange information consistent with its importance.
  - Provide effective prompting and feedback during and after task completion.

- **Tolerance for Errors…** *The design minimizes hazards and the adverse consequences of accidental or unintended action.*

  Guidelines
  - Arrange elements to minimize hazards and errors. Hazardous elements should be eliminated, isolated, or shielded. Provide warnings of hazards and errors.
  - Provide fail-safe features.
  - Discourage unintentional actions in tasks that require vigilance.

- **Perceptible Information…** *The design effectively communicates necessary information to the user, regardless of ambient conditions or the user's sensory abilities.*

  Guidelines
  - Use different modes (pictorial, verbal, tactile) for redundant presentation of essential information.
  - Provide adequate contrast between essential information and its surroundings.
  - Maximize "legibility" of essential information.
  - Differentiate elements in ways that can be easily perceived.
  - Provide compatibility with a variety of techniques or devices used by people with sensory limitations.

- **Low Physical Effort…** *The design can be used efficiently and comfortably and with a minimum of fatigue.*

  Guidelines
  - Allow a user to maintain a neutral body position.
  - Use reasonable operating forces.
  - Minimize repetitive actions.
  - Minimize sustained physical effort.

- **Size and Space for Approach and Use…** *Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.*

  Guidelines
  - Provide a clear line of sight to important elements for any seated or standing user.
  - Make reach to all components comfortable for any seated or standing user.
  - Accommodate variations in hand and grip size.
  - Provide adequate space for the use of assistive devices or personal assistance.

Escondido Elementary School
Palo Alto, California
Library and School Modernization Project

▲ **Size and Space for Approach and Use:** Provide a clear line of sight to important elements for any seated or standing user.

◀ **Size and Space for Approach and Use:** Make reach to all components comfortable for any seated or standing user.

Size and Space for Approach and Use: Provide adequate space for the use of assistive devices or personal assistance. ▶

Feature Project:

John O'Connell High School and George R. Moscone Elementary School/ Las Americas Childcare Center

A 1,400 student comprehensive high school on less than two acres, with a full gymnasium and outdoor play facilities?

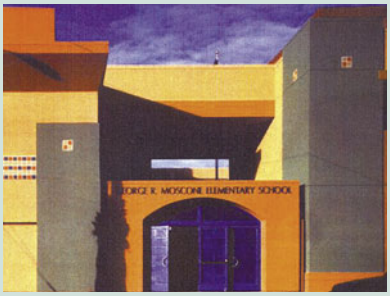
An elementary school on an acre and a half with multilevel parking, play areas, and a separate child care facility?

It's doubtful that any district in California faces more difficult facility and siting issues than the San Francisco Unified School District. Impossibly small sites, strong, involved community groups, and the need for facilities in older, established neighborhoods are just a few of the considerations that must be addressed. Yet the solutions the district has produced are as innovative and creative as the challenges are formidable. Our two featured projects illustrate the district's success in the face of almost overwhelming obstacles.

During a planned modernization of the John O'Connell High School, it was discovered that the structure, located on a one and one half acre site and originally built by Henry Ford as a Model T assembly plant, was damaged in the 1989 earthquake. One block away, the Moscone Elementary School/Las Americas Child Center was slated for demolition and reconstruction. Both schools were located in the Mission District of San Francisco, one of the most densely populated areas in San Francisco where open space and parking are limited.

Parents and community members were involved in the process from the beginning. The main issues and concerns that kept surfacing were maintaining open space in the Mission District and providing parking for both schools. Seizing a rare opportunity, the District proposed to solve these issues by swapping the two schools. Placing the O'Connell High School on the slightly larger site formerly occupied by the elementary school allowed construction of an outdoor playing field for the high school that was non-existent at the old site. Meanwhile, at the elementary school the District built an enclosed court, a playground on the second floor above a new parking garage, and a separate child care facility to provide a safe and secure environment for children of all ages. As hard as it is to believe, upon completion, the District had managed to create, on a total of less than three acres of land, two new schools, an additional 10,900 square feet of open space, and an additional 116 parking spaces in the Mission District.

In spite of the challenges presented by the extremely small sites, educational program needs were not sacrificed. As you will see in the pictures and descriptions that follow, both schools represent state of the art educational facilities without compromise.



John O'Connell High School

The building is linearly organized along an enclosed pedestrian street with an atrium space as the focus. The design intent is to create an exciting identity for the school, a central circulation area that is easy to supervise, as well as a social area for the students. John O'Connell High School is also designed to facilitate community use. Spaces such as the gymnasium, library, cafeteria/kitchen, amphitheater/plaza, and athletic field are located at the eastern side of the school along Harrison Street for community access.

Project Description:

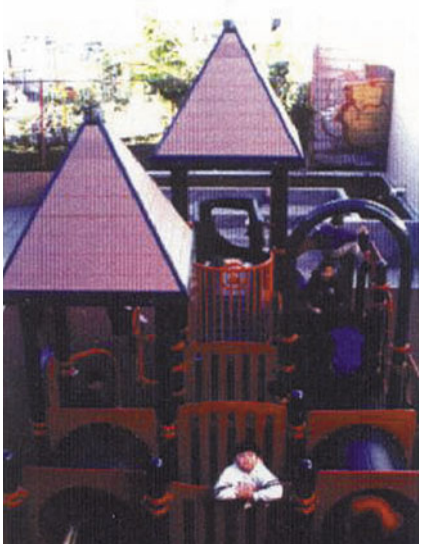
Address:	2355 Folsom Street, San Francisco
Construction Cost:	$26.5 Million
Construction Schedule:	November 1997 – August 2000
Proposed Enrollment:	1,472 (Designed Capacity)
Building Area (sf):	127,000
Site Area (sf):	65,340
No. of Classrooms:	34
Special Areas:	8 Technology Labs, 5 Science Labs, Cafeteria, Library, Gymnasium, Locker Room, Multi-Media Center (Pending Completion)
Status:	School occupied Fall 2000

Project Team:

Architect:	Marshall/Lee Inc.
Design Consultant:	Diseno/Santos & Associates
Structural Engineer:	Forell/Elsesser Engineers, Inc.
Electrical Engineer:	Pete Lapid & Associates
Mechanical Engineer:	MCT Engineers
Landscape Architect:	Keller Mitchell & Company
Civil Engineer:	Robert A. Karns Associates
Construction Manager:	Vanir Construction Management, Inc.
General Contractor:	S.J. Amoroso Construction Co. Inc.

George R. Moscone Elementary/Las Americas Childcare Center

Moscone Elementary School and Las Americas Child Development Center is located in the heart of the Mission District bounded by 21st and 22nd and Harrsion and Treat street. George Moscone ES is a 2-story structure built around a courtyard that has covered corridors on four sides and at both levels. The gymnasium is reused from the former John O'Connell High School that occupied the site; it has been renovated as a gymnasium, cafeteria, library and a computer classroom. Las America CC is designed as a separate building so that all classrooms on the first floor look into and have direct access to the playground. The second level has access to the playground located above the new parking garage.



Project Description:

Address:	2576 Harrison Street, San Francisco
Construction Cost:	$10.8 Million
Moscone ES Bldg Area (sf):	36,726 (Building); 3,464 (Balcony)
Las Americas CC Bldg Area (sf):	13,568 (Building); 1,208 (Balcony)
Parking Structure (sf):	43,920
Playground (sf):	21,960 (Including Roof Deck Yard, Kindergarten Yard, Childcare Yard)
Site Area (sf):	67,375
Status:	School occupied Fall 1997

Classrooms and Specialty Spaces:

George Moscone Elementary School

First Floor	Qty	Second Floor	Qty
Kindergarten Classrooms:	3	Third Grade Classrooms:	2
First Grade Classrooms:	2	Fourth Grade Classrooms:	2
Second Grade Classrooms:	2	Fifth Grade Classrooms:	2
PRT Classroom:	1	Science Classroom:	1
RSP Classroom:	1	Faculty Work Room:	1
Library:	1	Faculty Lounge:	1
Computer Classroom:	1	Parents Room:	1
Cafeteria:	1	Gym:	1
Office:	1		
Principal's Office:	1		
Conference Room:	1		
Nurses Room:	1		
Kitchen:	1		

Las Americas Childcare Center

First Floor	Qty	Second Floor	Qty
Pre-Kindergarten Classrooms:	3	School Age Classrooms:	4
Office:	1	Faculty Work Room:	1
Director's Office:	1	Faculty Lounge:	1
Conference Room:	1		
Nurses Room:	1		
Kitchen:	1		

The Facility also includes a Two-Level Parking Garage with a Roof Deck Play Yard.

Project Team:

Architect:	Del Campo & Maru Architects
Structural Engineer:	Structus Inc.
Electrical Engineer:	W. L. Associates
Mechanical Engineer:	MHC Engineers
Civil Engineer:	Telamon Engineers
Construction Manager:	Vanir Construction Management, Inc.
General Contractor:	S.J. Amoroso Construction Co. Inc.

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Prototype School Designs

The Prototype School Designs Web site was established by the State Allocation Board (SAB) and the Office of Public School Construction (OPSC) as a comprehensive source of school planning and design information including:

- Plan Abstracts
- Construction Data
- Architect Contacts
- Site Plans
- Floor Plans
- School Contacts
- Photographs
- Program Data
- Database Search

One of our goals with this service is to assist school districts in reducing the time and costs of designing new facilities by facilitating the reuse of facility designs and plans. Sharing information allows school districts, facility managers, and business managers to be in the loop with the latest school designs, design solutions, manufacturing products, and building alternatives.

Numerous prototype design examples can be located on the OPSC Web site. Included for your viewing in this *Best Practices Report* are a few examples for each school category as follows:

Elementary Schools

- Shoal Creek (Poway USD)
- Dennis Earl (Turlock Joint USD)
- Union House (Elk Grove USD)

Middle Schools

- Shivela Middle (Murrieta Valley USD)
- Manhattan Beach Middle (Manhattan Beach USD)
- Longfellow Arts and Technology Middle (Berkeley USD)

High Schools

- Rocklin High (Rocklin USD)
- Redlands East Valley High (Redlands USD)
- Kaiser High (Fontana USD)

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Plan Reuse Examples

The Office of Public School Construction (OPSC) survey of school districts and county superintendents of schools revealed that one of the processes utilized to be efficient in the application submittal process, the construction process, and the utilization of available funding was the reuse (multiple use) of the same architectural plans. This section includes examples of this technique from the following three school districts: Capistrano, Elk Grove, and Val Verde Unified School Districts.

- Capistrano Unified School District
- Elk Grove Unified School District
- Val Verde Unified School District

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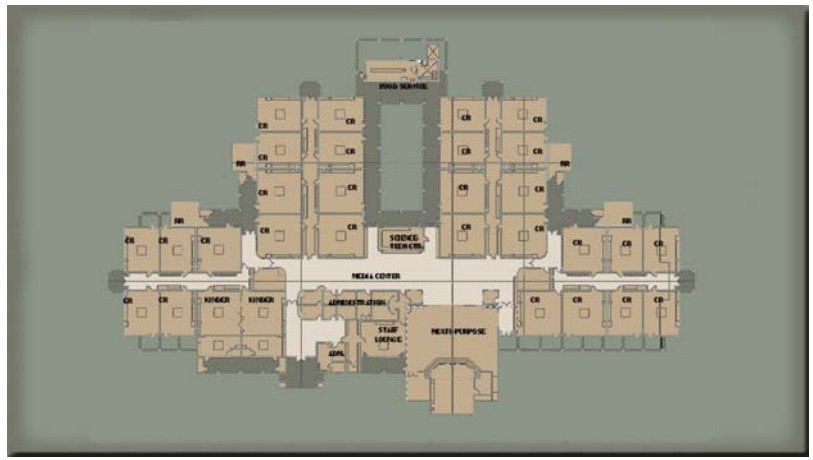
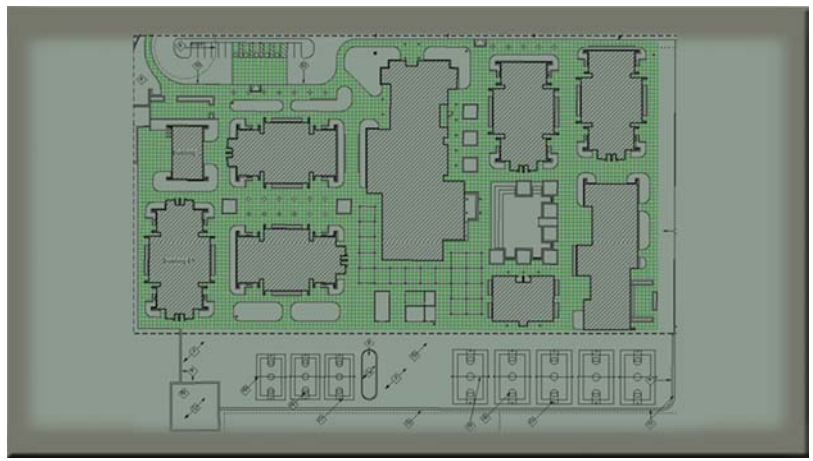
Reuse of Plans

- Involves reuse of building footprint at different project sites.
- Reduces planning/coordination process as previous school is used as a tangible development model.
- Decreases time and expense in preparing construction drawings.
- Streamlines application and approval process through Division of State Architect and the Office of Public School Construction.
- Enables District to project more accurate construction costs.





Kinoshita Elementary School

- The school site is located in the City of San Juan Capistrano.

- Prototype Elementary School has been repeated at 8 sites including:

- Arroyo Vista Elementary
- Canyon Vista Elementary
- Chaparral Elementary
- Kinoshita Elementary
- Laguna Niguel Elementary
- Oak Grove Elementary
- Oso Grande Elementary
- Wagon Wheel Elementary

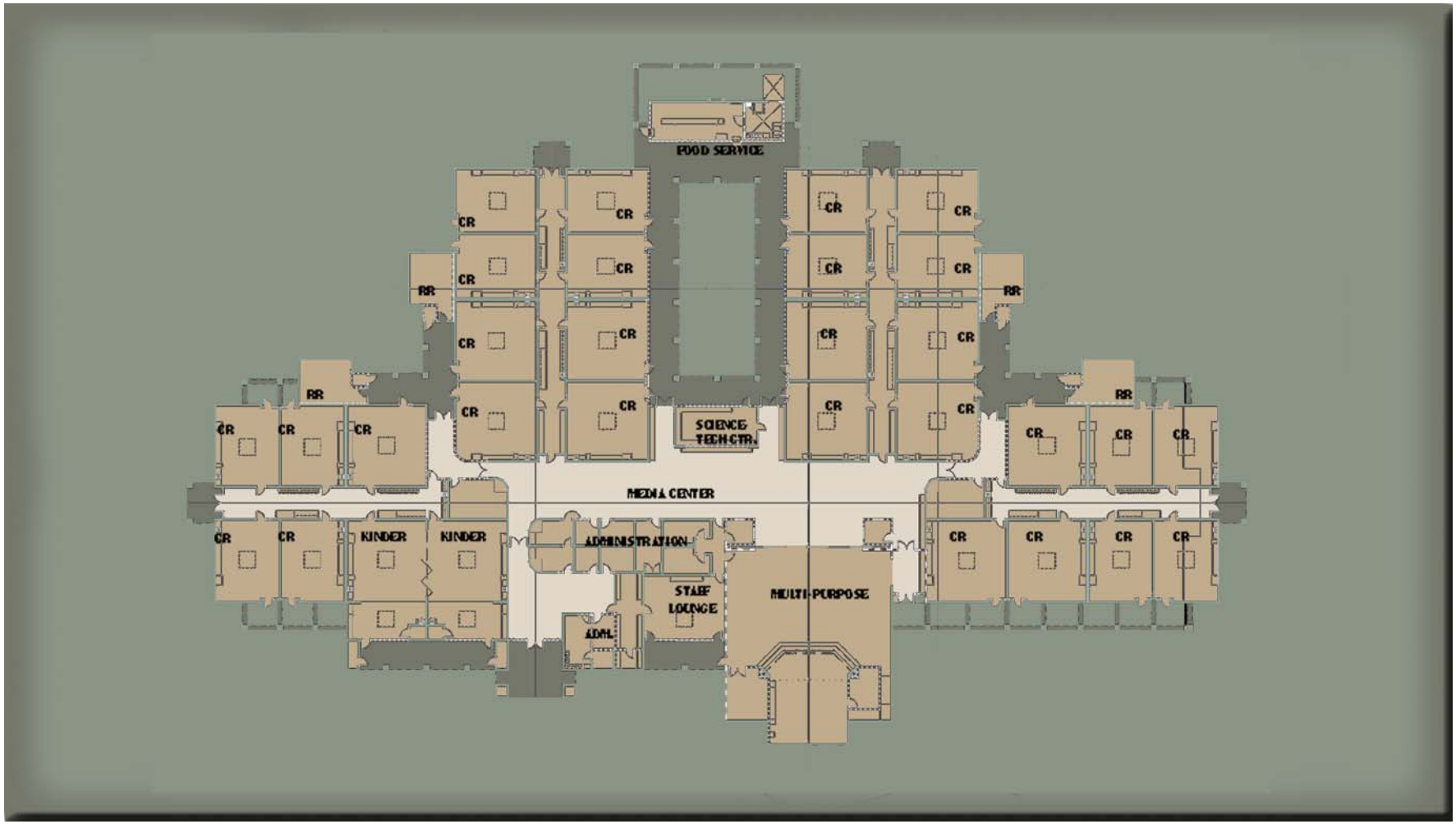
Chaparral Elementary School

Chaparral Elementary School

Chaparral Elementary School

Oso Grande Elementary School

Oso Grande Elementary School

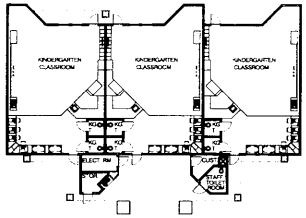


Elk Grove Unified School District

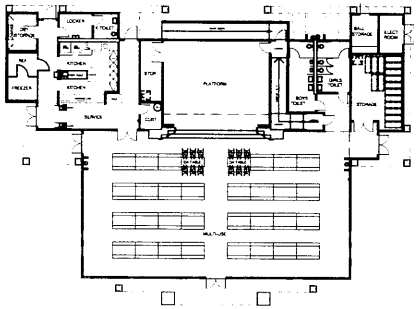
Elk Grove Unified School District

Elk Grove Unified School District

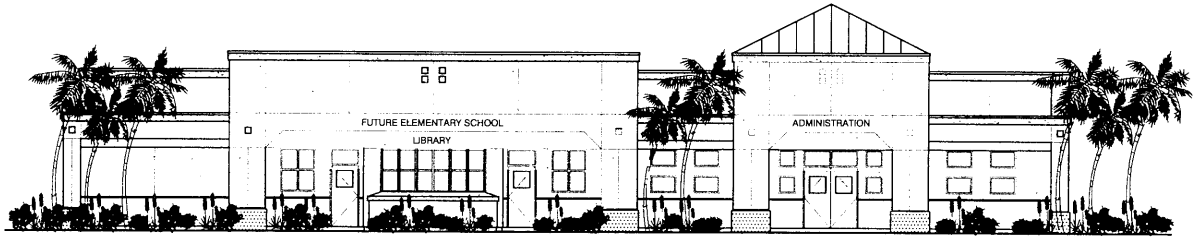
Elk Grove Unified School District



KINDERGARTEN FLOOR PLAN



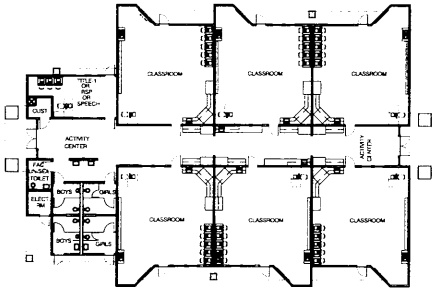
MULTI-USE/KITCHEN FLOOR PLAN



ADMIN./LIBRARY/MEDIA CENTER FRONT ELEVATION

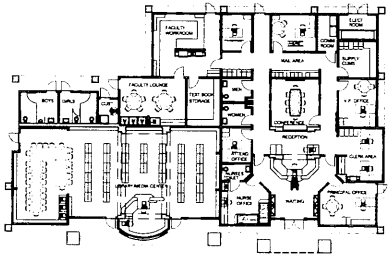
FUTURE ELEMENTARY SCHOOL

VAL VERDE UNIFIED SCHOOL DISTRICT.

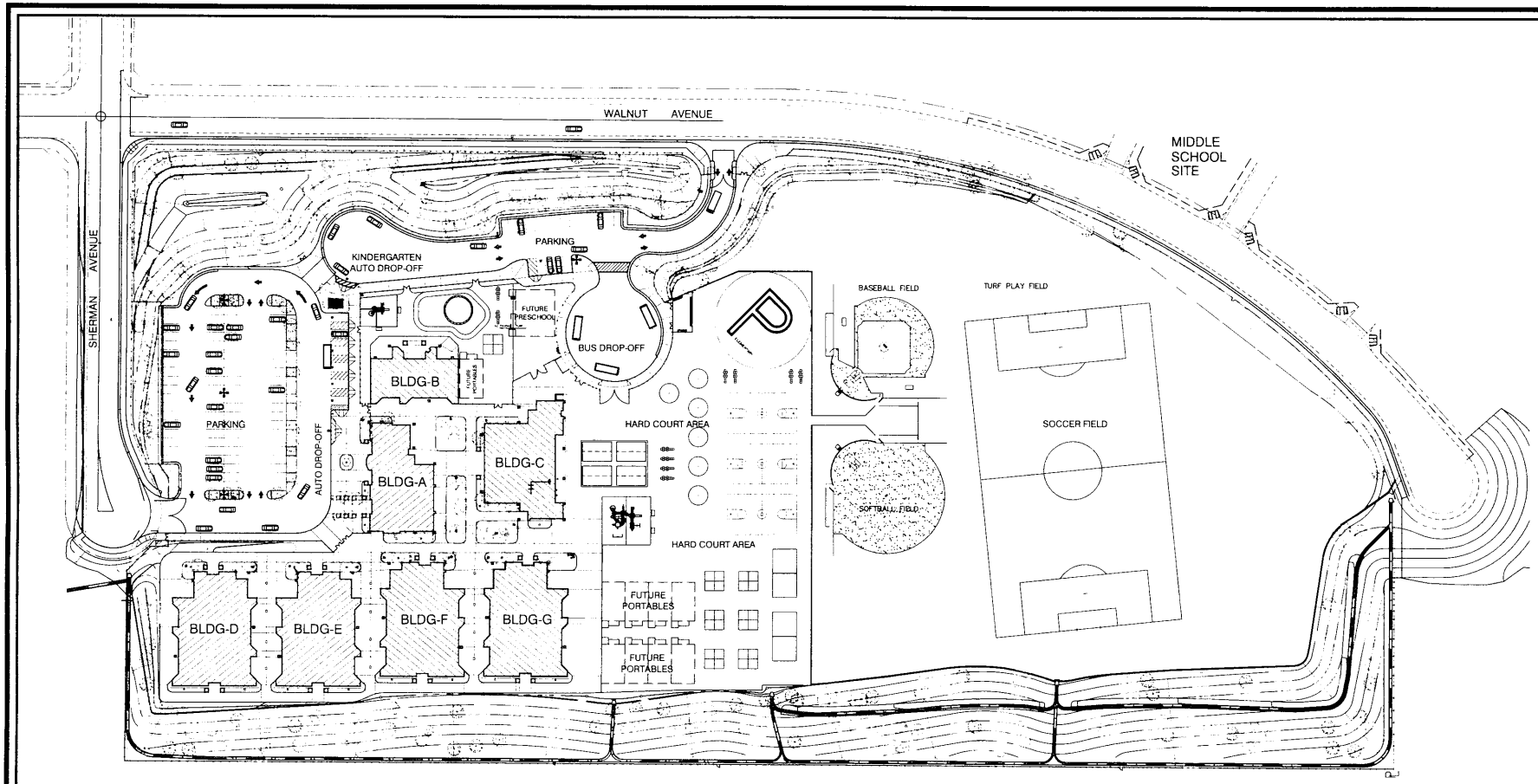


CLASSROOM FLOOR PLAN

DC ARCHITECTS
960 NORTH AMELIA AVE., SUITE "B"
SAN DIMAS, CA. 91773
Tel: (909) 592-1720 Fax: (909) 592-2108



ADMIN./LIBRARY/MEDIA CENTER FLOOR PLAN



SITE: 17.30 GROSS ACRES
GRADE LEVEL: K-5
DESIGN CAPACITY: 650 STUDENTS
MASTER PLAN CAPACITY: 850 STUDENTS

FINANCING:
FUNDED BY THE STATE OF CALIFORNIA

BLDG. "A" - ADMINISTRATION / LIBRARY

BLDG. "B" - KINDERGARTEN

BLDG. "C" - MULTI-USE BUILDING

BLDG. "D" - CLASSROOMS

BLDG. "E" - CLASSROOMS

BLDG. "F" - CLASSROOMS

BLDG. "G" - CLASSROOMS

SITE PLAN

10' 50' 25'

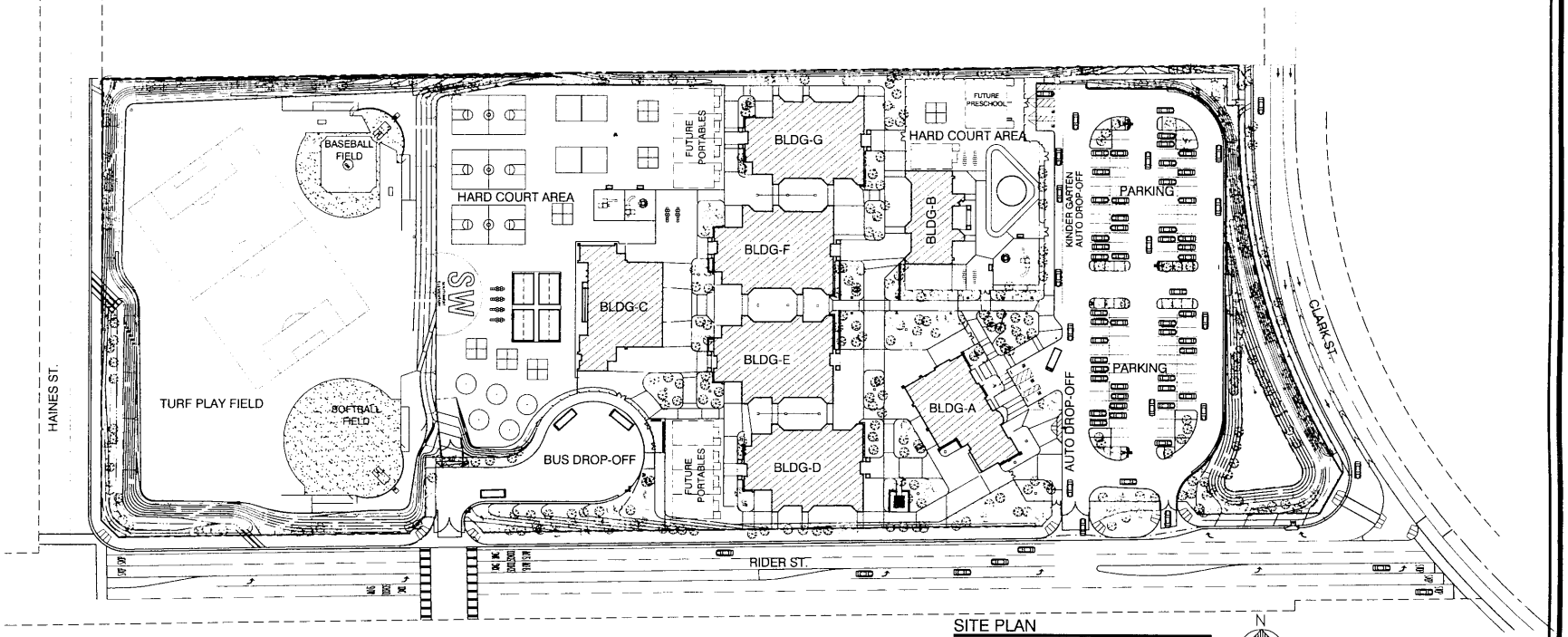
03-17-03

N W E S

SIERRA VISTA ELEMENTARY SCHOOL

VAL VERDE UNIFIED SCHOOL DISTRICT

DC ARCHITECTS
960 NORTH AMBLER AVE., SUITE "B"
SAN DIMAS, CA 91773
Tel. (909) 592-3720 Fax (909) 592-3728



SITE PLAN

10' 50' 25'

3-17-03

N W E S

SITE: 12.26 GROSS ACRES
GRADE LEVEL: K-5
DESIGN CAPACITY: 650 STUDENTS
MASTER PLAN CAPACITY: 850 STUDENTS

FINANCING:
FUNDED BY THE STATE OF CALIFORNIA

BLDG. "A" - ADMINISTRATION / LIBRARY

BLDG. "B" - KINDERGARTEN

BLDG. "C" - MULTI-USE BUILDING

BLDG. "D" - CLASSROOMS

BLDG. "E" - CLASSROOMS

BLDG. "F" - CLASSROOMS

BLDG. "G" - CLASSROOMS

COLUMBIA ELEMENTARY SCHOOL

VAL VERDE UNIFIED SCHOOL DISTRICT

DC ARCHITECTS
142 NORTH ANELLA AVE., SUITE "B"
SAN DIMAS, CA. 91773
Tel. (909) 592-1720 Fax. (909) 592-2108

SITE: 13.77 GROSS ACRES
GRADE LEVEL: K-5
DESIGN CAPACITY: 650 STUDENTS
MASTER PLAN CAPACITY: 850 STUDENTS

FINANCING:
FUNDED BY THE STATE OF CALIFORNIA

BLDG. "A" - ADMINISTRATION / LIBRARY

BLDG. "B" - KINDERGARTEN

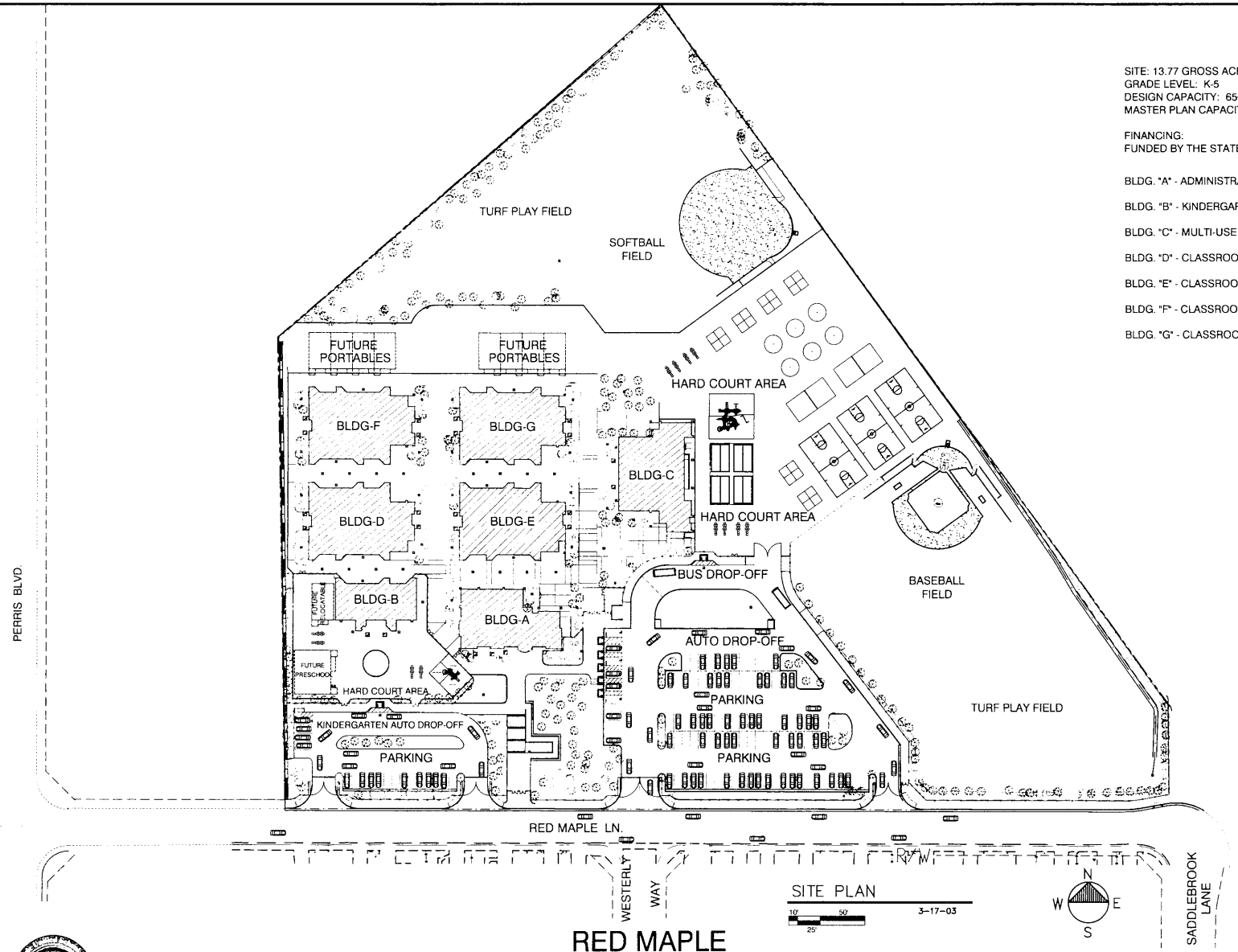
BLDG. "C" - MULTI-USE BUILDING

BLDG. "D" - CLASSROOMS

BLDG. "E" - CLASSROOMS

BLDG. "F" - CLASSROOMS

BLDG. "G" - CLASSROOMS



SITE PLAN

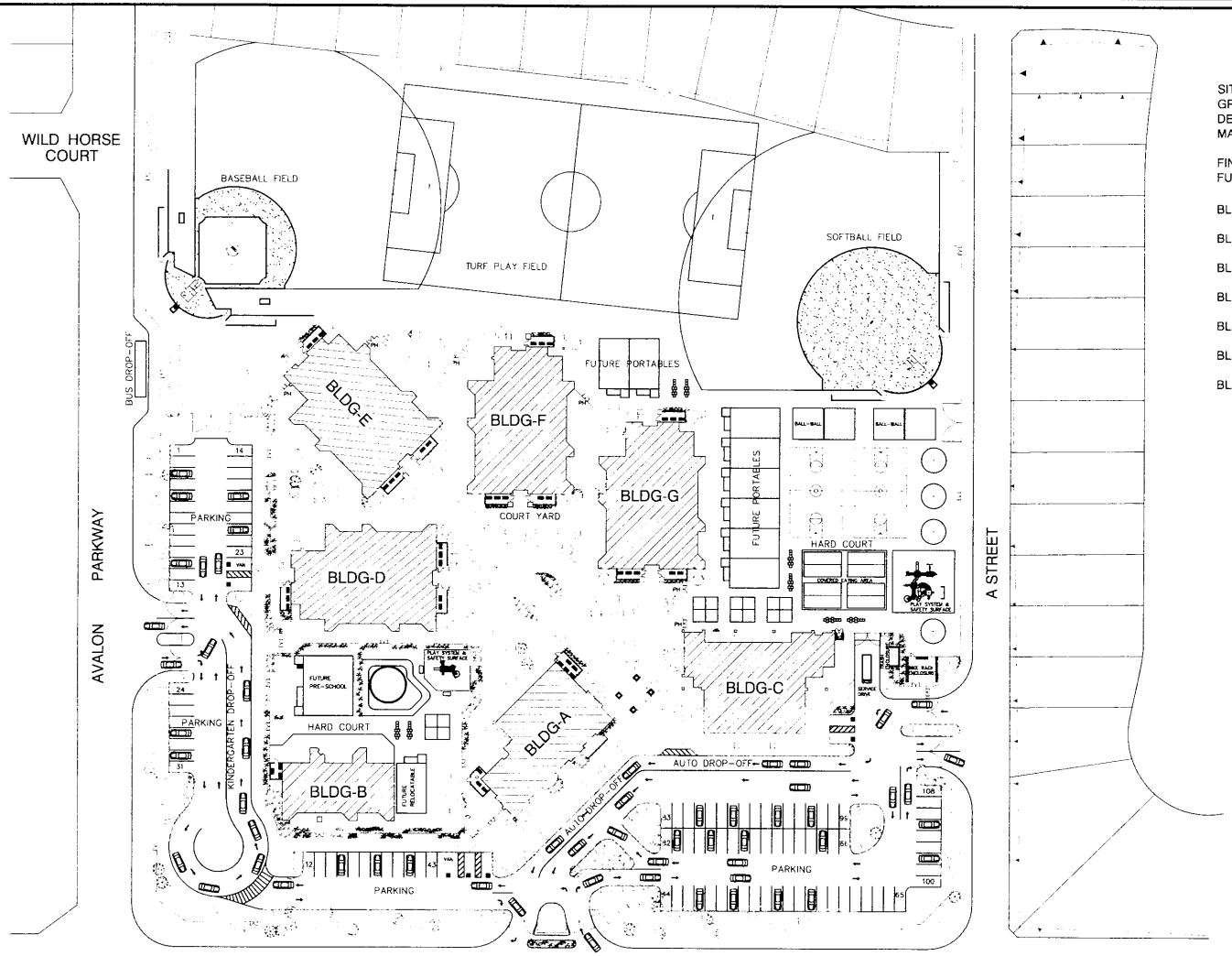
10' 50' 25'

3-17-03

RED MAPLE ELEMENTARY SCHOOL

VAL VERDE UNIFIED SCHOOL DISTRICT

RC ARCHITECTS
166 NORTH ARIELLA AVE. SUITE "B"
SAN DIMAS, CA 91773
Tel. (909) 592-1720 Fax. (909) 592-2108



SITE: 10.0 GROSS ACRES
GRADE LEVEL: K-5
DESIGN CAPACITY: 650 STUDENTS
MASTER PLAN CAPACITY: 850 STUDENTS

FINANCING:
FUNDED BY THE STATE OF CALIFORNIA

BLDG. "A" - ADMINISTRATION / LIBRARY

BLDG. "B" - KINDERGARTEN

BLDG. "C" - MULTI-USE BUILDING

BLDG. "D" - CLASSROOMS

BLDG. "E" - CLASSROOMS

BLDG. "F" - CLASSROOMS

BLDG. "G" - CLASSROOMS

SITE PLAN

10' 50'
25'

3-17-03

N W E S

AVALON ELEMENTARY SCHOOL

VAL VERDE UNIFIED SCHOOL DISTRICT

DC ARCHITECTS

SITE: 14.10 GROSS ACRES
GRADE LEVEL: K-5
DESIGN CAPACITY: 650 STUDENTS
MASTER PLAN CAPACITY: 850 STUDENTS

FINANCING:
FUNDED BY THE STATE OF CALIFORNIA

BLDG. "A" - ADMINISTRATION / LIBRARY

BLDG. "B" - KINDERGARTEN

BLDG. "C" - MULTI-USE BUILDING

BLDG. "D" - CLASSROOMS

BLDG. "E" - CLASSROOMS

BLDG. "F" - CLASSROOMS

BLDG. "G" - CLASSROOMS

SITE PLAN

10' 25' 50'

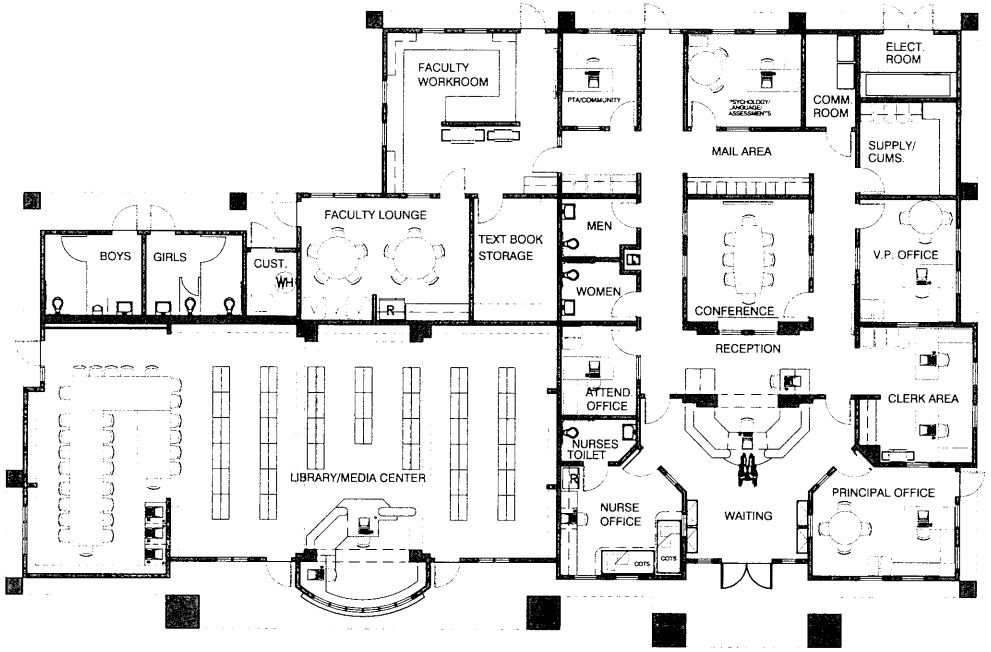
3-17-03

N W E S

DC ARCHITECTS

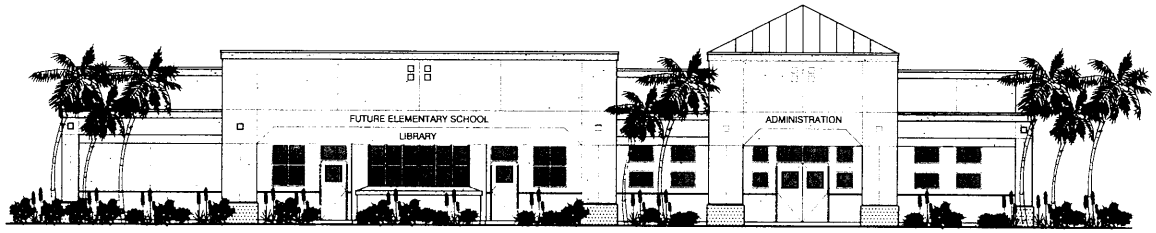
BOULDER SPRINGS ELEMENTARY SCHOOL

VAL VERDE UNIFIED SCHOOL DISTRICT



ADMIN./LIBRARY/MEDIA CENTER FLOOR PLAN

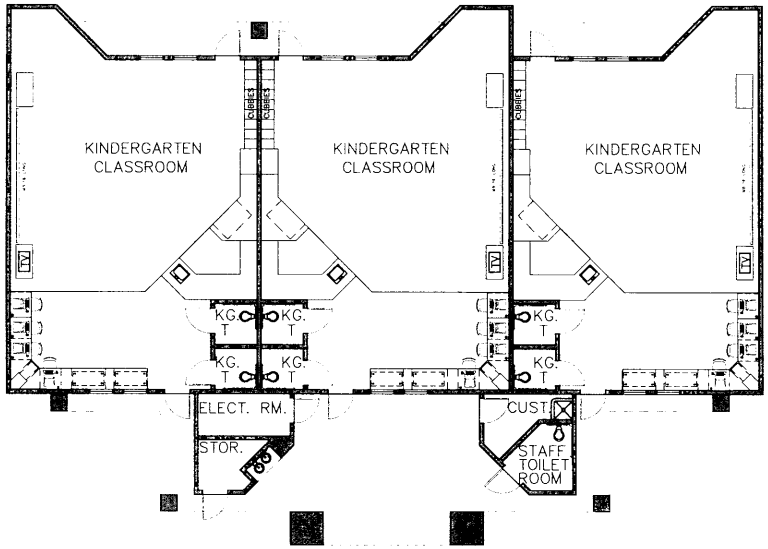
BUILDING 'A'



ADMIN./LIBRARY/MEDIA CENTER FRONT ELEVATION

BUILDING 'A'

DC ARCHITECTS
960 NORTH AMELIA AVE., SUITE "B"
SAN DIMAS, CA. 91773
Tel: (909) 592-1720 Fax: (909) 592-2108



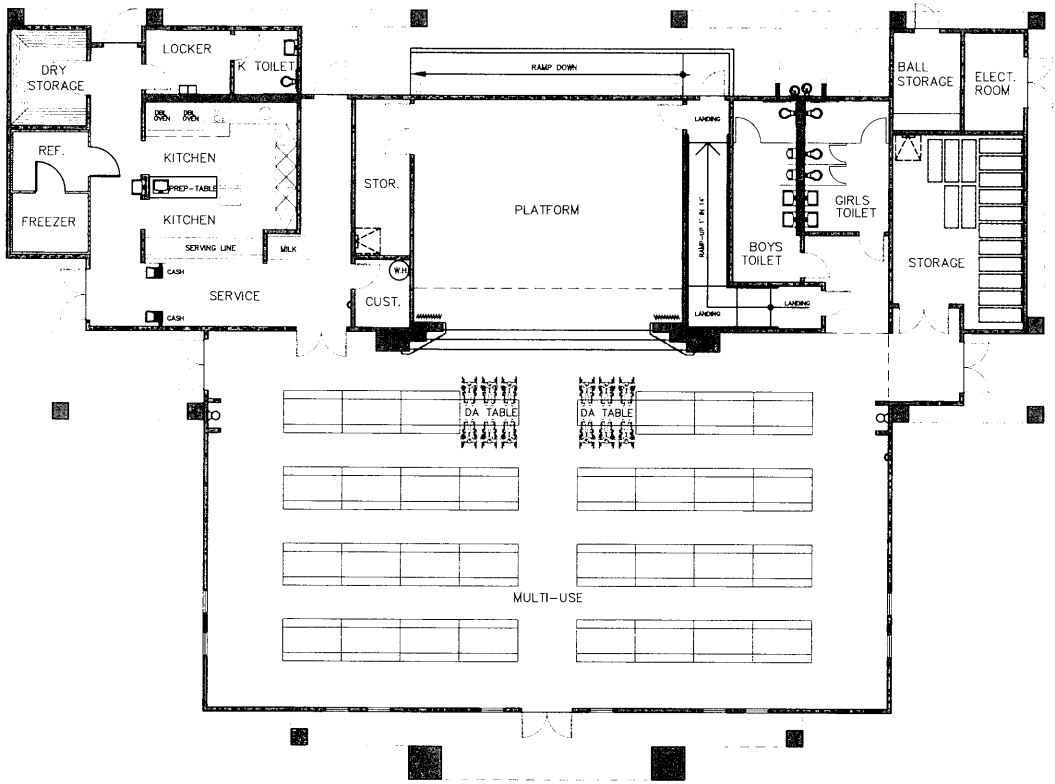
KINDERGARTEN FLOOR PLAN

BUILDING 'B'

KINDERGARTEN FRONT ELEVATION

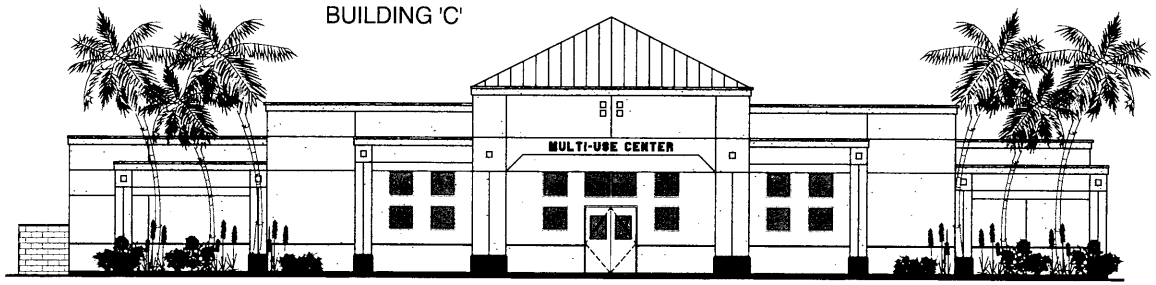
BUILDING 'B'

960 NORTH AMELIA AVE., SUITE "B"
SAN DIMAS, CA. 91773
Tel: (909) 592-1720 Fax: (909) 592 2108
DC ARCHITECTS



MULTI-USE/KITCHEN FLOOR PLAN

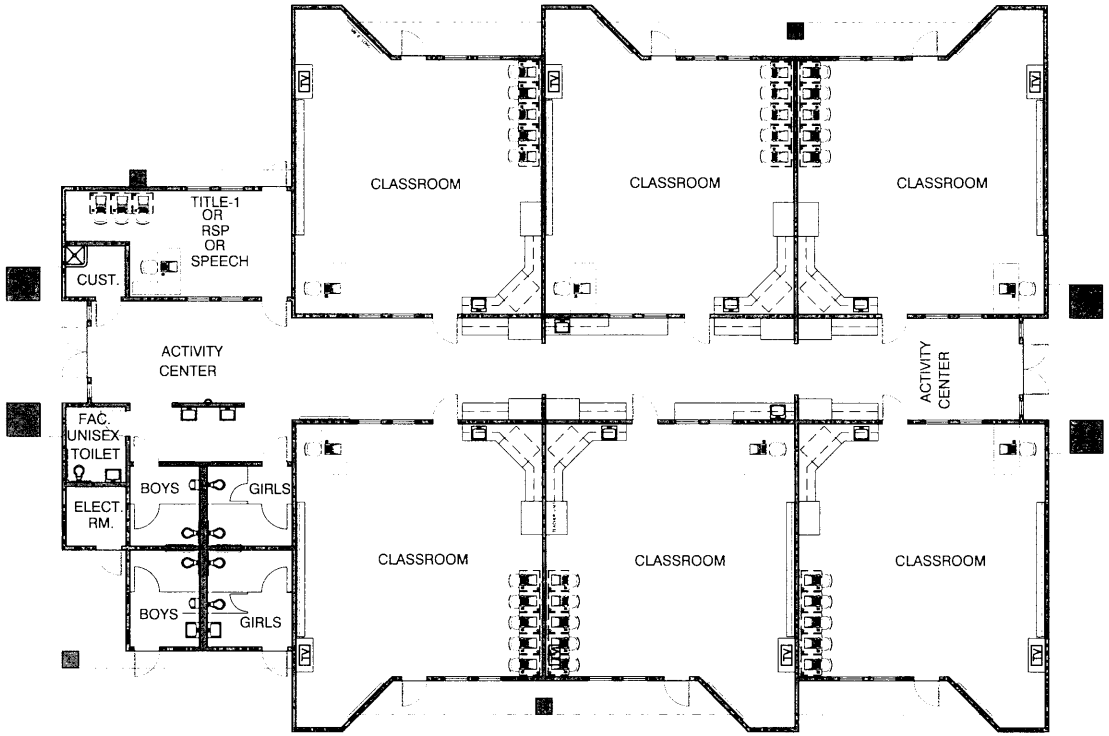
BUILDING 'C'



MUILT-USE/KITCHEN FRONT ELEVATION

BUILDING 'C'

DC ARCHITECTS
960 NORTH AMELIA AVE., SUITE "B"
SAN DIMAS, CA. 91773
Tel: (909) 592-1720 Fax: (909) 592-2108



CLASSROOM FLOOR PLAN

BUILDINGS "D", "E", "F" & "G".

CLASSROOM FRONT ELEVATION

BUILDINGS "D", "E", "F" & "G".

NOT TO SCALE

3-17-03

DC ARCHITECTS
960 NORTH AMELIA AVE., SUITE "B"
SAN DIMAS, CA. 91773
Tel: (909) 592-1720 Fax: (909) 592-2108

Best Practices

Developer Built Schools

This section includes photographs of two Developer Built schools and some information regarding this delivery method. This method allows the developer to finance and build the school in lieu of Level II/III developer fees. As with other delivery methods, districts that choose to use the Developer Built delivery method and apply for State funding will still be subject to all the laws, regulations and policies of the School Facility Program. A brief summary of the steps for this method include the following:

- The school site(s) is mutually selected by the District and the Developer and becomes integrated into the Community Master Plan. The Developer is responsible for all California Environmental Quality Act (CEQA), Department of Toxic Substance Control (DTSC), and California Department of Education (CDE) site approvals.

- The District and Developer together use a competitive process to select the Architect, but the contract is with the Developer.

- The District, Developer, CDE and the DSA must all approve the plans before construction begins.

- The Developer prepares the site to "construction ready" condition concurrent with the design process and the surrounding subdivision.

- Timing of construction directly linked to the actual arrival of students from the housing project must be approved by the District and the Developer.

- Weekly team meetings to monitor construction include the Architect of Record, the Inspector of Record, the General Contractor, the District and the Developer representatives, the Construction Manager and other consultants as needed.

- Before the school is "turn-keyed" to the District, the District must:

  - *Approve and certify the construction of the school as meeting the District's specifications and requirements;*
  - *Ensure clean title, including elimination of any liens, encumbrances and tax assessments; and*
  - *Ensure the Developer's compliance with all terms and conditions for construction including conveyance of warranties and necessary releases.*

The Office of Public School Construction (OPSC) wishes to acknowledge Gibbs & Associates for the information provided in this section. The benefits attributed to the Developer Built process are the author's opinions and do not constitute an endorsement by the State Allocation Board (SAB) or OPSC.

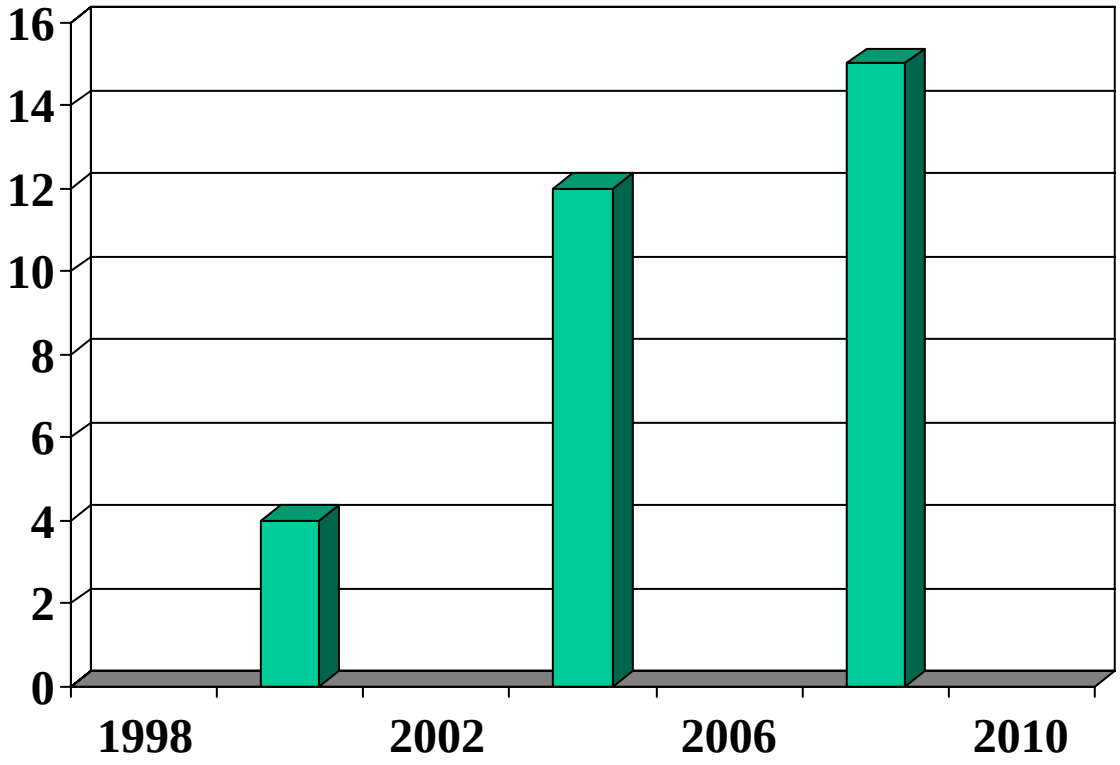
OPSC

Developer Built Schools

“A Creative Solution to Building Schools”

Garrett B. Gibbs
Gibbs & Associates
916-449-9669

Developer Built Schools
Built or Planned



First “Developer Built” School

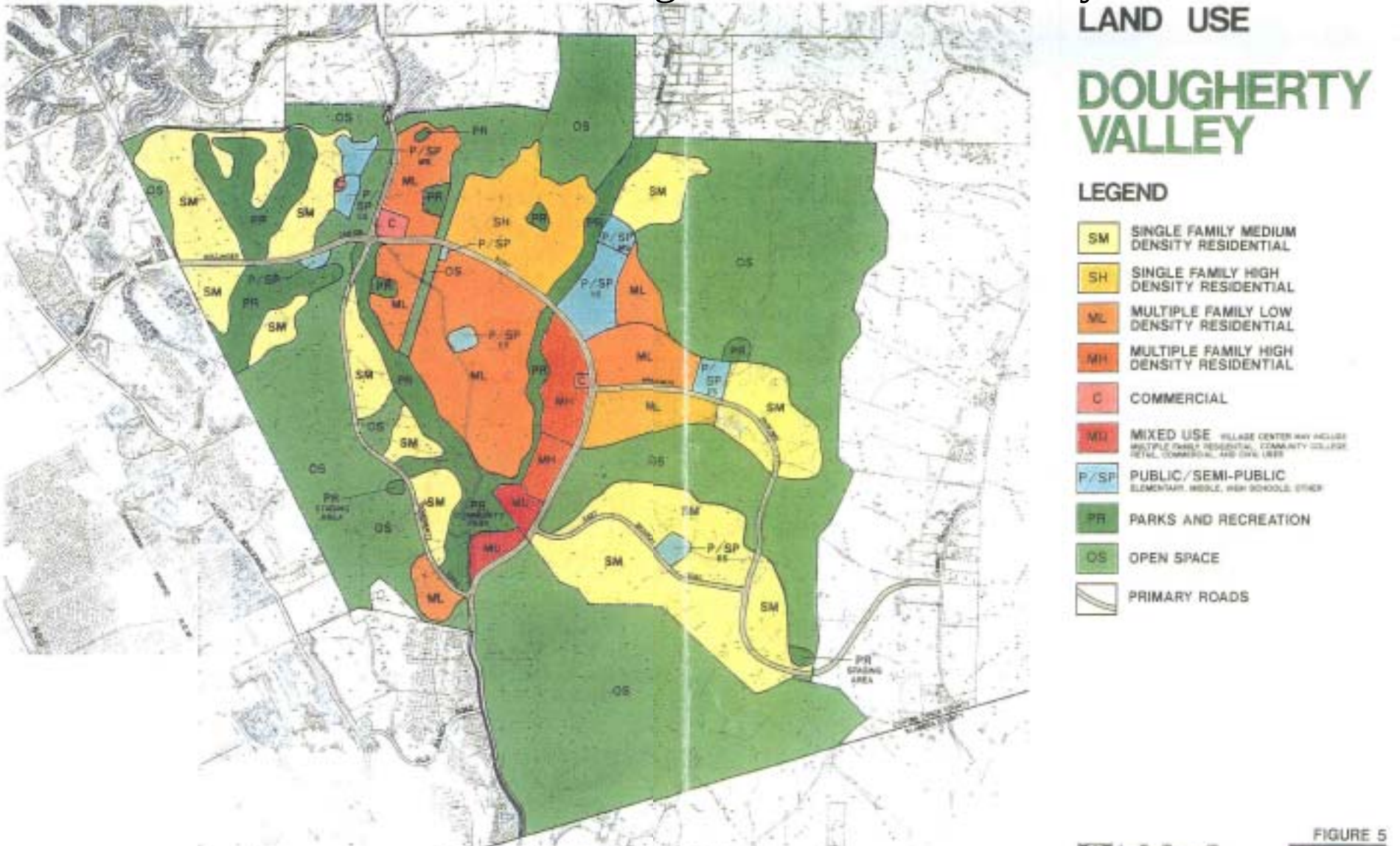
Coyote Creek Elementary School

- San Ramon Valley Unified School District
- Shapell Industries
- Opened July, 2000

Benefit

Developer Built Schools

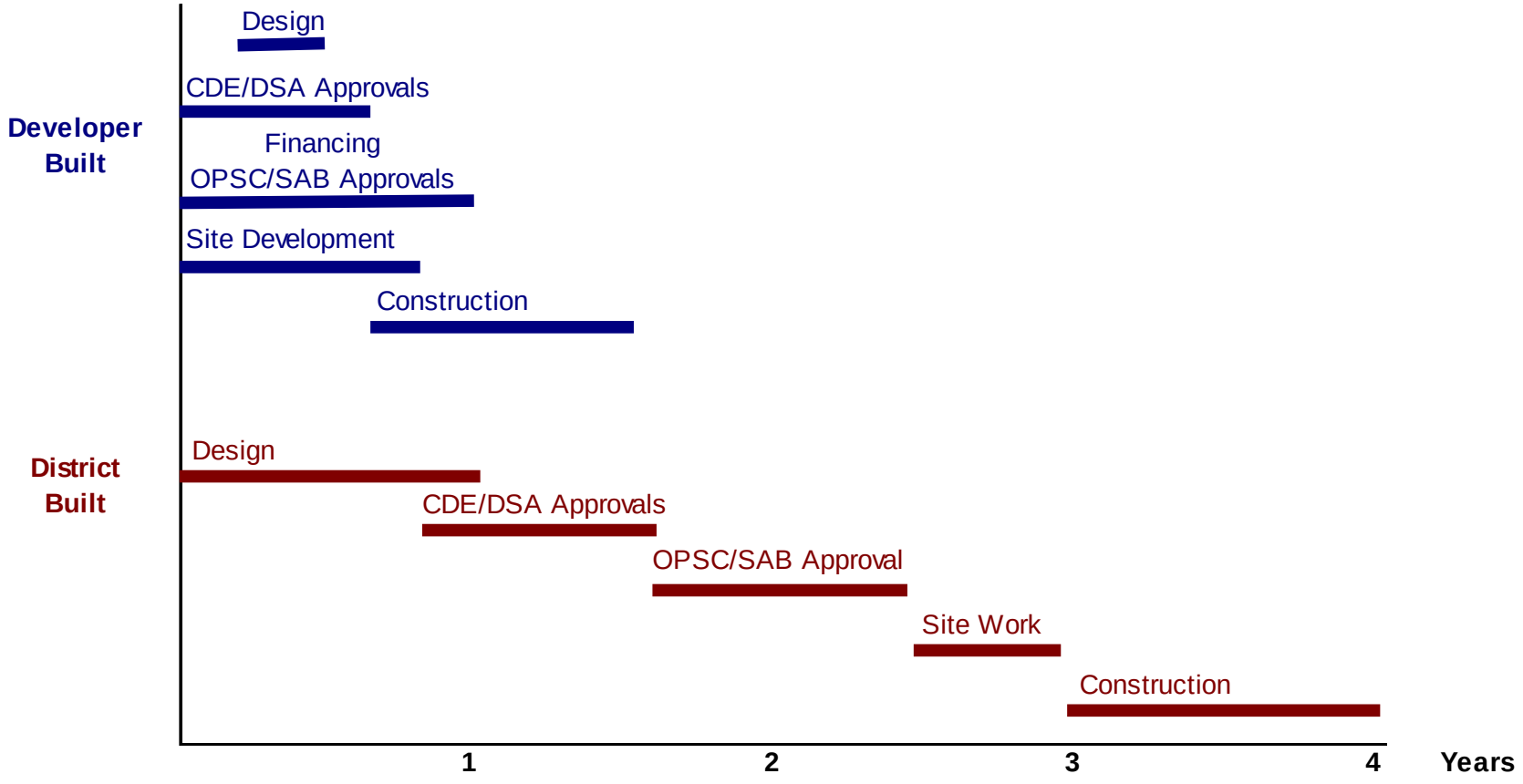
Ensure Schools Become Integral Part of Community Master Plan



Benefit

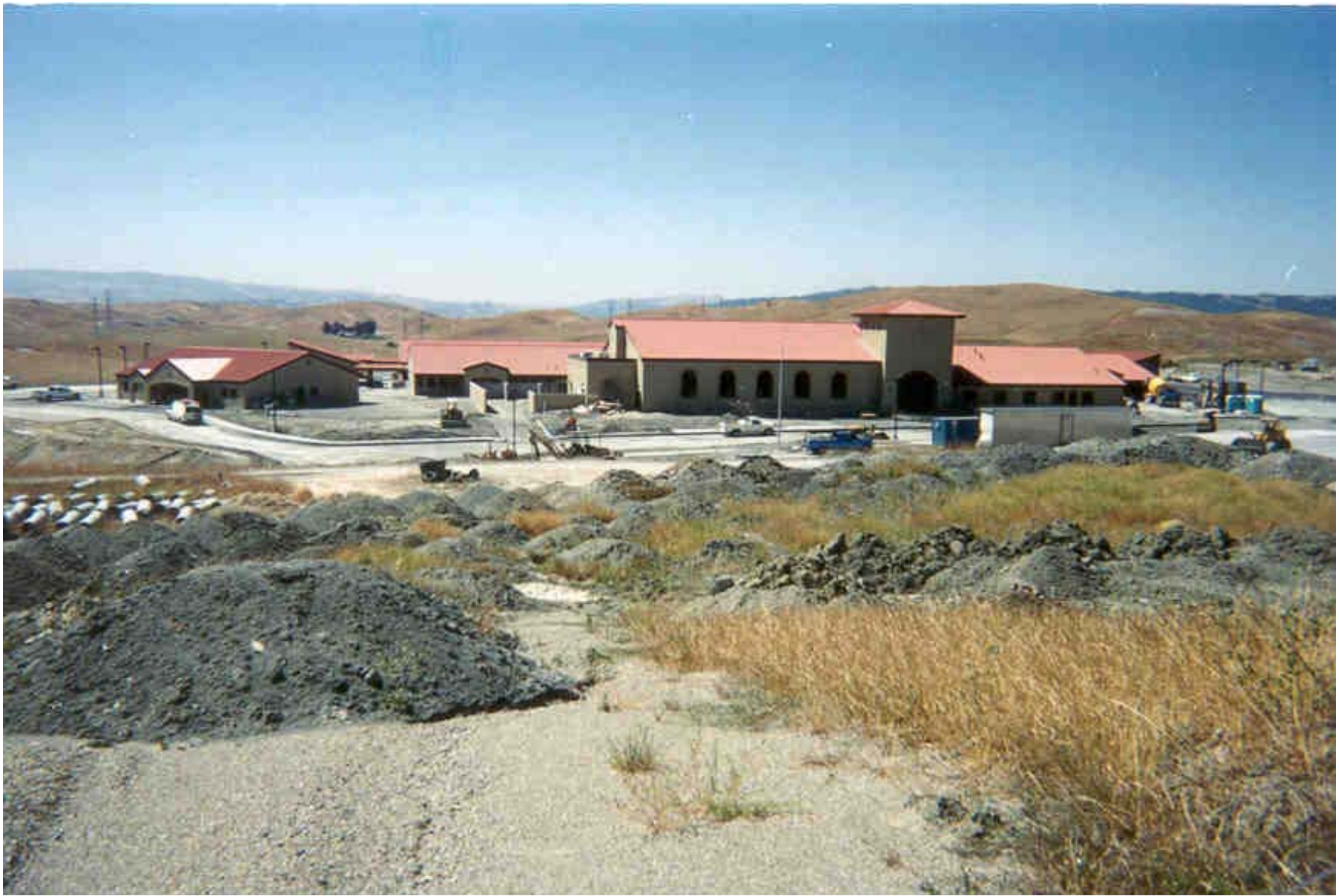
Ability to FAST-TRACK
Design, Approval, Financing & Construction of School

18 months versus 4 years for Elementary School



Benefit

Guarantee that School is Built in Project when Needed



Benefit

Developer can Build Higher Quality School More Cost Effectively than District

LIBRARY

FRONT ELEVATION

Benefit

Adds Value and “Marketability” to the Project and Community

Including the Ability to Plan for and Deliver Better Joint Use Facilities

Benefit

Guarantees Quality Construction that is Aesthetically Compatible with Project

Benefit

Substantial Economies of Scale
Especially Landscaping and General Site Improvements

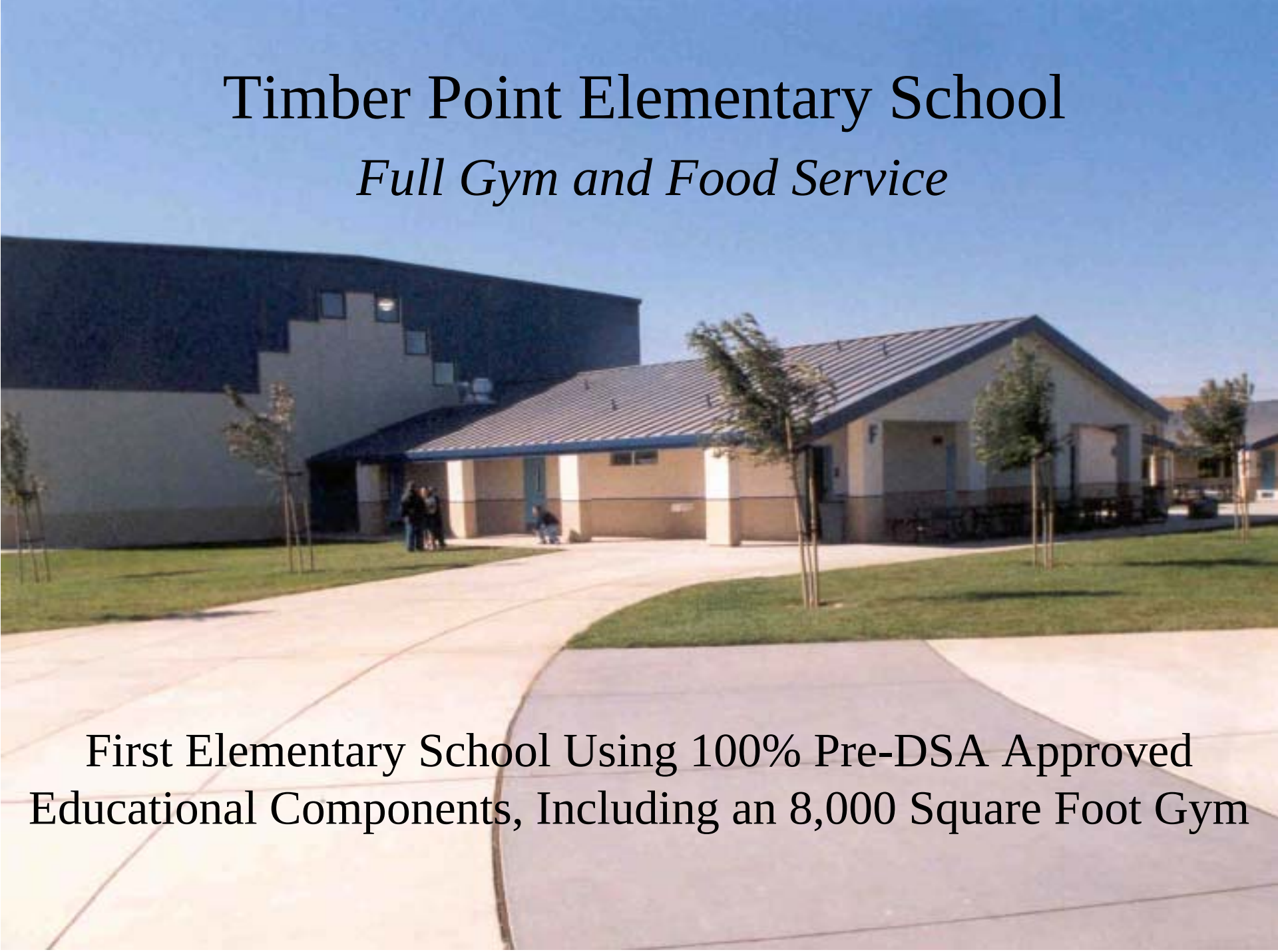
Timber Point Elementary School

Byron Union School District

Open: June, 2002

Timber Point Elementary School

Full Gym and Food Service

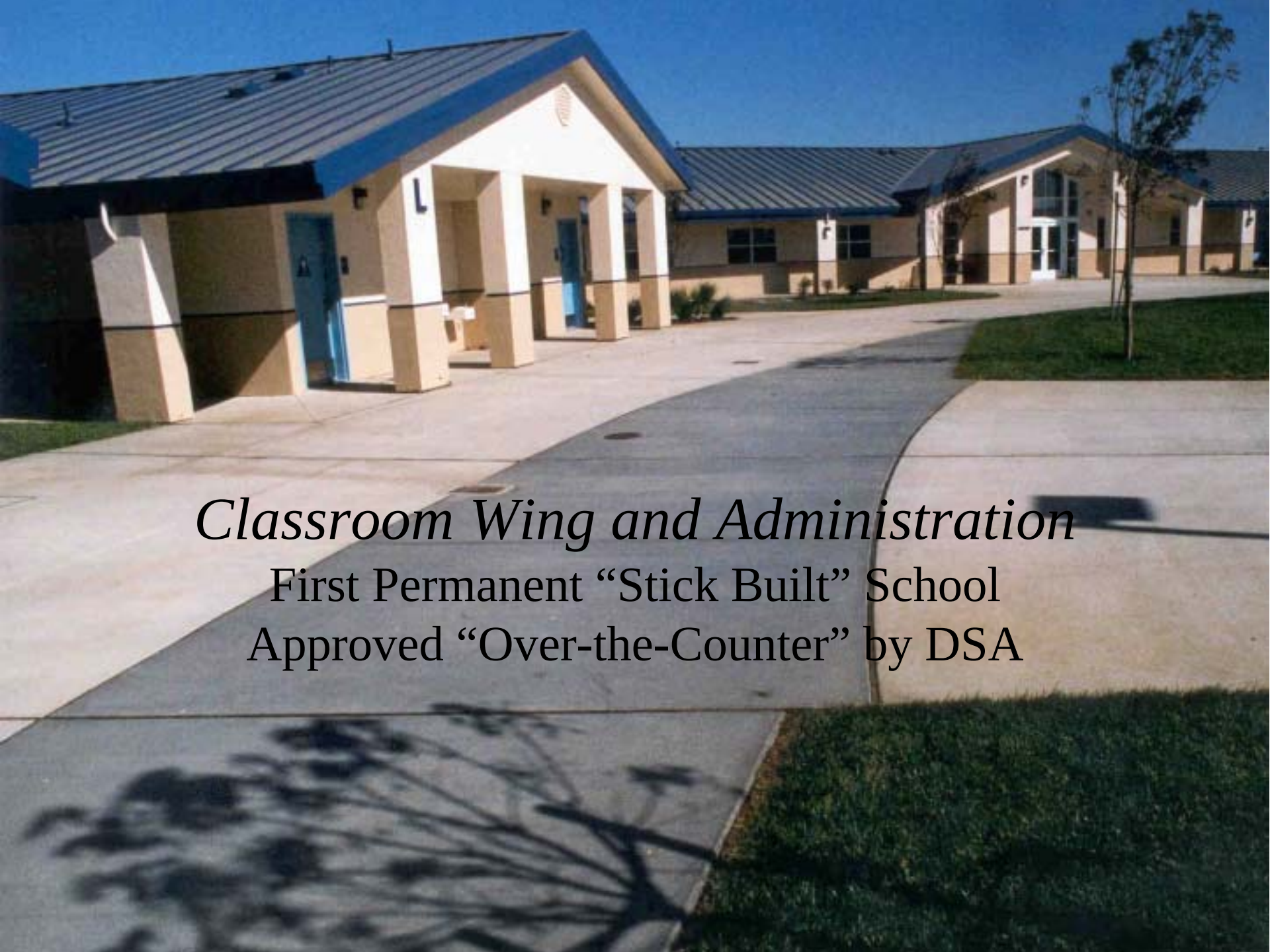


First Elementary School Using 100% Pre-DSA Approved Educational Components, Including an 8,000 Square Foot Gym

Timber Point Elementary School

Standard Classroom

First Permanent “Stick Built” School
Using 100% Pre-Manufactured Components



Classroom Wing and Administration

First Permanent “Stick Built” School

Approved “Over-the-Counter” by DSA

Best Practices

Design-Build Schools

Design-Build is a school delivery method that utilizes a procurement process in which both the design and construction of a project are procured from a single entity. As with other delivery methods, districts that choose to use the Design-Build delivery method and apply for State funding will still be subject to all the laws, regulations and policies of the School Facility Program.

This section includes a one-page information sheet published by the Office of Public School Construction (OPSC) and a three-page excerpt from the California Department of Education's (CDE) *Design-Build Projects Guidelines*. The CDE developed the guidelines to help school districts with the Design-Build process and be compliant with laws and regulations. The complete Guidelines are available on CDE's Web site at *www.cde.ca.gov/cdepress/downloads.html*.

OPSC

Design-Build

General Information

Assembly Bill (AB) 1402 became law on January 1, 2002. This law allows school districts to use Design-Build as an alternative delivery method for new construction and modernization projects that exceed $10 million.

To help school districts with the Design-Build process the California Department of Education (CDE) has put together a guidebook. A district considering the Design-Build delivery method is required by AB 1402 to review these guidelines.

At the completion of a Design-Build project, a district must submit a report to the Legislative Analyst's Office within 60 days.

What info is required in this report?

Districts who are considering Design-Build should proceed with caution and weigh all the pros and cons. This is an alternative delivery method and may not be right for all districts and/or projects.

Districts that are considering Design-Build should have a complete understanding of the process and understand the pros and cons of using the Design-Build process.

AB 1402 is designed to Sunset on January 1, 2007.

OPSC Specifics

Districts that chose to use the Design-Build delivery method and apply for State funding will be subject to all the policies and regulations of the School Facility Program (SFP) in effect at the time its application is submitted.

SFP Regulation Section 1859.51(i)(5), states that the baseline eligibility for new construction will be adjusted except "Where the contract for the lease, lease-purchase, or construction was made no more than 180 days before the Approved Application date for funding of the classrooms included in the contract." Therefore, districts must be aware that when signing a contract with a Design-Build entity that, in essence, they are signing the construction contract at the same time as the contract for architectural services is being signed.

Districts who are considering Design-Build should consult with their legal counsel.

Resources

Design-Build Projects Guidelines
This guidebook is available on the CDE's Web site at http://www.cde.ca.gov/cdepress/downloads.html.

Legislative Analyst's Office
925 L Street, Suite 1000
Sacramento, CA 95814
http://www.lao.ca.gov

Office of Public School Construction
1130 K Street, Suite 400
Sacramento, CA 95814
http://www.opsc.dgs.ca.gov

Department of Industrial Relations
770 L Street, Suite 1160
Sacramento, CA 95814
http://www.dir.ca.gov

O P
S C

Best Practices

Excerpts from the CDE

Design-Build Projects Guidelines

OPSC

Overview of Delivery Methods

On January 1, 2002, the enactment of Assembly Bill 1402 authorized school districts in the State of California to use a new method to deliver a school construction project. Until the passage of AB 1402, school districts were allowed to construct projects by using the traditional processes of design-bid-build (DBB) and lease-lease back (LLB). AB 1402 broadened the existing methods of project delivery to include design-build for projects with design and construction costs exceeding $10 million.

Traditional DBB is the most widely used method of project delivery in the California public school system. Under DBB the school district hires a design professional (typically an architect) to create documents from which general contractors will bid. The contractor selected to build the project is the responsible bidder who submits the lowest bid.

The LLB process (*Education Code* Section 17406) establishes a contract by which the district owns a piece of property and leases it for what is usually a nominal amount to an entity that is obligated to construct a school on that site. That entity then leases the completed school and site back to the district for a specified period of time at a specified rental amount. At the end of the lease, the school and site then become the property of the school district. The district's adoption of completed plans and specifications is a prerequisite for entering into the lease agreement. Procurement under the terms of *Education Code* Section 17406 does not require the selection of the lowest responsible bidder, allowing flexibility in contracting ranging from DBB to design-build.

Design-build is a method of project delivery that combines the design and construction functions and vests the responsibility for such functions with one entity: the design-builder. Under AB 1402 the school district defines its needs, issues a Request for Proposal (RFP) to prequalified design-build entities, and selects one of the proposing entities to design and build the project on district-owned property.

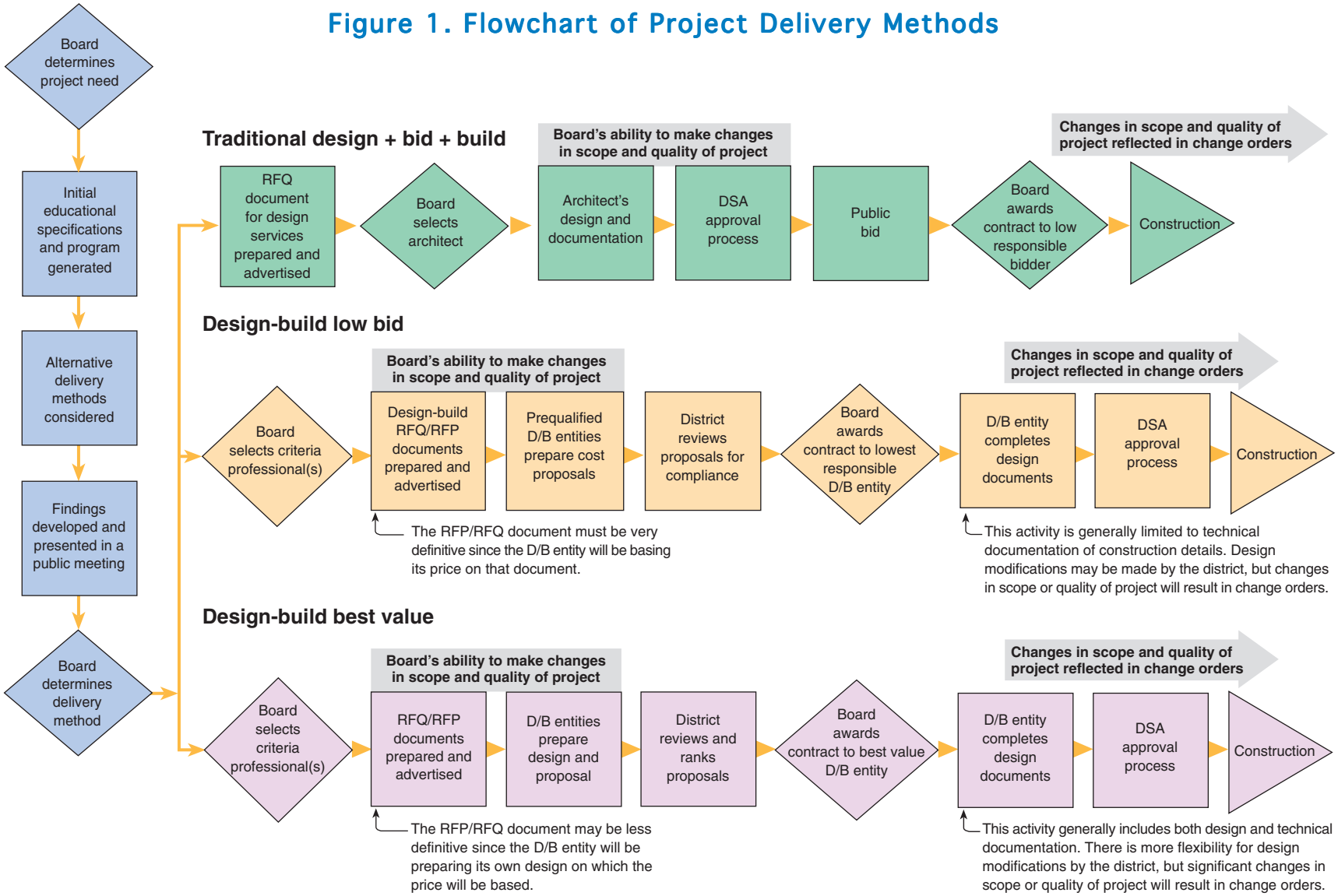
One of the many distinctions between design-build and DBB is the level of design undertaken by the school district prior to award of the construction contract and the level of specific, or prescriptive, criteria in the bid documents. Typically, under the DBB process there is an ongoing interaction between the district and the architect during the development of the design, thereby allowing school districts to define and select many of the products and systems to be specified in the contract documents. Once the architect completes the design, contractors bid on the project.

With design-build, school districts typically communicate their desires clearly in the RFP, specifying performance criteria in lieu of brand names and model numbers, leaving some of the decision making to the design-build entity. Although certain project components may be specified as district standards, such as keyed locksets or heating and cooling equipment, design-build entities will be required to provide a completed project that performs at or above the minimum performance specifications set forth in the design-build contract. The selected design-build entity will complete the design documents to a level necessary to obtain required agency approvals and construct the project.

The design-build process changes some fundamental relationships between the school district and the designers and builders. With the traditional DBB method, the district has two separate contracts: one with its architect and one with its contractor. A design-build entity includes an architect and contractor, so only one contract is needed between the district and the design-build entity. A DBB construction contract includes completed design documents approved by the Division of the State Architect (DSA). A design-build contract will include performance criteria and possibly some design documents from which the design-build entity will create completed and DSA-approved documents. This basic difference in contract components broadly identifies the roles of the school district and the design-build entity: In a design-build contract the district clearly defines its needs and the expected level of performance, and the design-build entity designs and constructs a completed project that conforms with those requirements.

A flowchart illustrating the DBB and design-build processes is provided in Figure 1 for comparison purposes.

Figure 1. Flowchart of Project Delivery Methods



Notes

1. The flowchart indicates the major activities. Numerous subactivities will be required, but there is no attempt to identify time frames.
2. The two design-build sequences appear to be identical, but there are significant differences that are noted on the diagram.
3. The law does not require that the criteria professional(s) needs to be selected in the same manner as the architect, but the board may elect to do so.

Best Practices

Additional Resources

The following additional resources are available on the OPSC's Web site located at *www.opsc.dgs.ca.gov*:

- *Architect's Submittal Guidelines*
- School Facility Program regulations
- Forms, worksheets and checklists including:
  - *School Facility Program Application Submittal Requirements*
  - *Site Analysis Worksheet for New Construction*
  - *Site Development Worksheet for Additional Grants*
- Advisory Actions and Mass Mailers
- OPSC Directory of Services
- School Energy Programs

OPSC