



## 2010-2011 SANTA CLARA COUNTY CIVIL GRAND JURY REPORT

### TRACE ELEMENTARY SCHOOL: RISING FROM THE ASHES



#### **Issue Statement:**

The July 2010 fire that destroyed Building 100 at Trace Elementary School (Trace) in the Rose Garden neighborhood of San Jose raised several questions. The 2010-2011 Santa Clara County Civil Grand Jury (Grand Jury) conducted an investigation that focused on three of them:

1. What went wrong?
2. What was the impact on the Trace community?
3. What should be changed going forward?

## Background

On January 1, 2002 the California Legislature enacted the “Green Oaks Family Academy Elementary School Fire Protection Act (“Green Oaks Act”) in response to a devastating 1997 fire at the Green Oaks Academy in East Palo Alto.<sup>1</sup> The Green Oaks Act required the installation of automatic fire detection, alarm, and sprinkler systems in all new state-funded school construction projects begun after July 1, 2002. As stated in the implementation policy published by the Division of the State Architect (DSA) accompanying the Green Oaks Act, public school construction projects funded 100% by local funds are specifically exempted from this requirement.<sup>2</sup> Where 100% local funds are used, the construction is governed by the Field Act (Education Code Section 17280 et. seq.), which requires compliance with the Building Code as it relates to fire protection.

In the early 2000s, San Jose Unified School District (SJUSD) issued local bonds to fund the modernization of facilities within the district, including improvements to Trace in 2007. When Trace Building 100 was modernized, a fully automatic fire alarm and sprinkler system was not installed nor required under applicable laws. While the fire detection and reporting system in the building was updated to install detection devices in the HVAC system ductwork and near the fire control panel, SJUSD did not install a fully automated system in the building.

Early on the morning of July 5, 2010, a fire occurred at Trace. There was a breakdown in communications which resulted in a delay in alerting authorities to the fire. This in turn caused a delay in dispatching first responders to the scene. The delayed response allowed the fire to burn unabated for over 23 minutes. Once firefighters did arrive, the fire could not be extinguished, leaving them no choice but to employ a defensive strategy to save other nearby buildings on campus. Total destruction of Building 100 and its contents was the result. In addition to the delay in reporting the fire, which can be attributed to the lack of an up-to-date fire alarm system, firefighter response was further complicated by standing instructions issued by SJUSD to the third-party fire-monitoring company. These instructions were that SJUSD personnel were to be notified of emergency alarms, occurring after hours, by email rather than by phone. The Grand Jury learned that SJUSD instituted the email notification process some years prior to the Trace fire due to a history of multiple false alarms.

To best understand what happened at Trace the morning of July 5, 2010, it is important to review the rules governing public school fire safety in California.

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<sup>1</sup> See Appendix A for text of the Green Oaks Act (SB 575), California Education Code Sections 17074.50, et seq.

<sup>2</sup> See Appendix B, including the following language appearing throughout: “Note: Private and parochial school campuses and *public school campuses 100 percent funded by local* bonds are not required to install automatic fire sprinkler systems under the law.” (emphasis added). Green Oaks Family Academy Elementary School Fire Protection Act Policy 11-01. See also, Appendix C1, DSA Policy 10-01, and Appendix C2, DSA Policy 11-01.

K-12 public schools are built and modernized based “indirectly” on the California Building Code (CBC). Indirectly, because as with all state and locally funded construction projects, CBC requirements are interpreted by the Department of General Services, Division of the State Architect (DSA). The California Education Code specifically gives to the DSA the authority to interpret and implement laws and regulations contained in a variety of California codes which govern construction at K-12 schools throughout the state.

While the DSA<sup>3</sup> provides design and construction oversight for K-12 schools, community colleges, and various other state-owned and leased facilities, it also develops accessibility, structural safety, fire and life safety, and building codes and standards for construction relating to historic buildings, utilized in various public and private buildings throughout the State of California.

### **The Evolution of Building Code Requirements for Public Schools**

California law with respect to public school construction has evolved over the years, often in response to specific events. The following timetable discusses some notable events which illustrate the legal framework and construction requirements in place when SJUSD made decisions regarding the installation of fire safety equipment at Trace during its 2007 modernization.

#### **1997: Green Oaks Family Academy Fire**

On January 13, 1997 a fire erupted at Green Oaks Elementary School in East Palo Alto during school hours. Students and teachers were inside classrooms and narrowly escaped the fire, which ultimately destroyed an entire wing of the school and caused over 3 million dollars in damage. The fire was only detected when a student stepped out of a classroom and noticed smoke. Similarly, the fire at Trace was reported by neighbors who were awakened by the smell of smoke and called the Fire Department. In both cases, the alarm was sounded only after the fire became sufficiently large to be noticed and reported by people, rather than caught in its early stages by an automatic fire detection system.

After the Green Oaks fire, the Menlo Park Fire District, which covers East Palo Alto, worked with local Bay Area state legislators to draft legislation requiring the installation of automatic sprinkler systems in K-12 public schools. As a result, the Green Oaks Act was passed in 2002. The measure included tougher standards and requirements for school fire safety systems built with state funds. Prior to the implementation of the Green Oaks Act, manual, hand-pull alarm stations were the norm for fire safety at K-12 schools.

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<sup>3</sup> See Appendix D for a general description of the Division of State Architect and its role in state construction projects.

### **1998: The Leroy F. Greene School Facilities Act of 1998**

The Leroy F. Greene School Facilities Act of 1998,<sup>4</sup> established a structure to provide for up to 100% state funding, per pupil, for new construction and modernization of existing school facilities. The law represents the major funding regulation for state-funded K-12 public school facilities construction across the state.

### **2001: California Building Code Update**

The CBC was updated in 2001 to require the installation of hand-pull fire alarm stations in all new and modernization school construction projects throughout California in all buildings which would be occupied by children. This change represented the first major upgrade to the CBC with respect to fire safety in California public schools in the 21<sup>st</sup> century. The continuing evolution of the CBC requirements for school safety has meant that as of 2010, in addition to laws mandating the installation of fire detection, alarm and monitoring, California schools are required to install pro-active fire extinguishing systems, also known as automatic fire suppression systems (AFSS).

### **2003: A Rash of School Fires Occur Across The Bay Area**

In 2003, seven public schools across the Bay Area were struck by fire. Two fires occurred in the San Jose Unified School District, one at Gardner Academy and another at Pioneer High School. The Gardner fire was the result of arson and the Pioneer fire was the result of faulty wiring in a vending machine. The five other school fires occurred in Concord, Fairfield, San Leandro, Laurel Creek and Walnut Creek.

### **2006: Adoption of the International Building Code**

The State of California adopted the International Building Code as the standard for its building codes. By doing so, California aligned its building regulations with those adopted by other states and with those employed by developed nations worldwide. In making this decision, California sought to make internationally accepted best practices the basis of its construction codes.

### **2007: Trace Elementary School Building 100 Undergoes Modernization**

The modernization of Building 100 was begun using funding generated completely by use of local funds. While SJUSD did modernize school facilities, it chose not to install an up-to-date fire detection system or Automatic Fire Sprinkler System (AFSS). Because construction was locally funded, installation of a fully automatic detection and sprinkler system was not required under state law.

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<sup>4</sup> See Appendix E. California Education Code Sections 17070.10-17070.99.

## Methodology

Members of the Grand Jury conducted interviews with members of the San Jose Unified School District administration, the District Board of Trustees, and the Santa Clara County Office of Education. The Chiefs of the San Jose, Santa Clara, and Menlo Park Fire Departments were also interviewed, as were the Fire Marshals for each of those cities.

Members also attended:

- A School Fire Safety Community Forum at the Santa Clara County Office of Education
- A special community meeting at Trace where the final design for the new Building 100 and the selected contractor were presented
- A tour of the final installation and test of a state-of-the-art fire detection and control system in the Alum Rock Union Elementary School District.

## Discussion

### 1. What went wrong?

While Building 100 was modernized in 2007, the fire detection system met minimum standards as opposed to the higher—and not applicable—standards established under the Green Oaks Act in that it only monitored the vents and the area in front of the system control panel, as opposed to providing a fully implemented system and a sprinkler system.

Due to its urban location, the Rose Garden neighborhood enjoys an excellent response time capability (statistically, less than 5 minutes). This is important because, had the fire department been able to get to Trace before Building 100 was fully engulfed, according to one interviewee, there is an excellent chance that the fire would not have resulted in a total loss. With minimal automatic fire detection and alarm systems in place, it was only because neighbors smelled smoke that an alarm was called in.

### **The following timeline reflects the severity of the delay:**

- 3:55 AM – Trace’s alarm system sent a signal to the third-party off-site monitoring company, indicating a malfunction of the alarm system.
- 3:55 AM – In accordance with SJUSD’s standing notification procedure, the third-party monitoring company sent an email, rather than making a phone call, to the SJUSD employee who was on call after hours.

- 4:17 AM – Neighbors smelled smoke and called the San Jose Fire Department.
- 4:21 AM – San Jose Fire Department arrived onsite at Trace.
- 5:17 AM – Trace alarm system sent a fire alarm to the third-party monitoring company.
- 5:18 AM – Third-party monitoring company calls SJUSD's Central Station and San Jose Fire Department to report fire. The fire department was already on the scene.
- 7:05 AM – The fire was officially contained.

The timeline clearly illustrates the ineffectiveness of the Trace alarm system in two important respects: first, firefighters did not arrive at the scene until approximately more than 20 minutes had elapsed from the email notification, and 4 minutes after the called-in alarm; and second, the fire department was on the scene for 57 minutes before the third-party monitoring company reported the fire.

During its investigation, the Grand Jury discovered that the SJUSD operates an after-hours monitoring facility referred to as its Central Station. Central Station monitors burglar alarm systems across SJUSD, but importantly, does not monitor fire alarms. The restriction to burglar alarm monitoring is due to a legal requirement that all fire monitoring facilities be Underwriter Laboratory (UL) certified to do so. SJUSD considered obtaining UL certification for the Central Station, but decided against it due to the cost involved.

## **2. What was the impact on the Trace community?**

While the Trace community was devastated by the fire, the Grand Jury is impressed with the leadership and professionalism shown by SJUSD management. Management personnel quickly began implementing a recovery plan that involved all segments of the Trace community.

SJUSD officials have shown leadership and initiative, as well as a concern for the Trace community. As a result of SJUSD's commitment, Trace was able to start the school year in late August, 2010 in temporary housing on part of the campus that had been an athletic field only two months earlier. In addition, the task of rebuilding the facilities at Trace has emphasized student safety and consideration for staff, parents, and the immediate neighborhood.

## **Post-fire chronology:**

### **2010**

- July 5: Fire destroyed 16 classrooms, library, and offices. District personnel were immediately onsite to ease public concern.
- July 9: Demolition crews finished razing Building 100.
- July 15: Investigators determined that fire was deliberately set.
- Aug. 10: Community outpouring helped raise money to cover the deductible on the fire insurance policy.
- Aug. 12: Installation and furnishing of portable classrooms on both the Trace campus and at the nearby Hoover Middle School athletic field were completed. Trace was ready for teachers to move in and setup for the new school year.
- Aug. 16: The first day of school.
- Sept. 9: SJUSD offered a \$5,000 reward for information leading to the conviction of the arsonist. Earlier, San Jose firefighters had offered a \$10,000 reward.
- Oct. 14: Two juveniles were arrested in connection with the fire.

### **2011**

- Mar. 23: At a special meeting at Trace, SJUSD unveiled the final design of the replacement building and introduced key project members to the Trace community, including District staff and the selected construction contractor.

## **3. What Can be Done Going Forward**

SJUSD has already made some changes. It has engaged a new third-party monitoring company, and it has ensured that the fire-alert procedure is clearly understood by both district staff and the new vendor.

The design for the replacement building moves away from the traditional pod design of classrooms that open to an interior room or hall, which is problematic for firefighters, to a new J-shaped two-story building with an up-to-date AFSS.

After fighting the Green Oaks Academy fire in 1997 during which students and teachers nearly lost their lives, the Menlo Park Fire Department actively sought to toughen and improve elementary school fire safety. It chose to work with legislators to develop legislation. As a result, the *Green Oaks Act* was passed in 2002.

The lack of more inclusive law has frustrated officials of the Menlo Park Fire District who have had to extinguish two more fires at Green Oaks Academy since passage of the Green Oaks Act in 2002. In another attempt to effect change, the Menlo Park Fire Department is urging school boards that are not subject to the Green Oaks Act because the construction/modernization is 100 percent funded by local bonds to sign a pledge to install automatic fire sprinkler systems regardless of the funding source. The Menlo Park Fire District intends to urge school districts across the state to sign the pledge.<sup>5</sup>

## Conclusions

Two factors exacerbated the extent of damage caused by the Trace fire:

- The fire-alert procedure that required the use of email rather than telephone for "emergency" notification between the third-party, monitoring company and SJUSD.
- The inadequate fire alarm system.

While much of the insurance deductible was paid through contributions from local businesses and members of the community, the cost of rebuilding Trace's Building 100 was covered by insurance. The premiums for the insurance were paid with taxpayers' monies.

To the credit of the SJUSD, its leadership in recovering from the fire was excellent, especially since both the District's superintendent and Trace's principal had just started in their new positions over that same 4th of July weekend.

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<sup>5</sup> For the complete text of the pledge, see Appendix F.

## **Findings and Recommendations**

### **Finding 1**

SJUSD's post-fire recovery actions were admirable, especially its concerted effort to involve the Trace and neighborhood communities in the recovery process.

### **Recommendation 1**

SJUSD should continue these efforts throughout the reconstruction process.

### **Finding 2**

The weak link that exacerbated the damage caused by the fire at Trace was the email communication procedure.

### **Recommendation 2**

SJUSD should periodically review its new communication protocol and randomly test it across the District.

### **Finding 3**

SJUSD has an afterhours central station which monitors all burglar alarms within the district, but because this station is not UL (Underwriter Laboratories) approved, fire alarms cannot be monitored at this central station.

### **Recommendation 3**

The District's Central Station should be upgraded to UL certification so that it can monitor both burglar and fire alarm systems, rather than requiring the use of a third-party monitoring service.

### **Finding 4**

The Fire Chief for the Menlo Park Fire Protection District issued a pledge in which he is asking all elected school boards in the state of California to issue a resolution that they will use the highest standards of fire safety in all school construction regardless of funding source.

### **Recommendation 4**

SJUSD Board of Trustees should issue a resolution to promote the highest standard of fire safety in all school construction and modernization regardless of funding source.

## Appendix A

### California State Education Code

Title 1, Division 1, Part 10, Chapter 12.5, Article 7.5, Section 17074.50-17074.56

#### Automatic Fire Detection, Alarm, and Sprinkler Systems

17074.50.

(a) On and after July 1, 2002, all new construction projects submitted to the Division of the State Architect pursuant to this chapter, including, but not limited to, hardship applications, that require the approval of the Department of General Services shall include an automatic fire detection, alarm, and sprinkler system as set forth in Section 17074.52 and approved by the State Fire Marshal. These provisions shall entitle the school district to all applicable reductions in code requirements, as provided in the California Building Standards Code (Title 24 of the California Code of Regulations).

(b) On and after July 1, 2002, all modernization projects that have an estimated total cost in excess of two hundred thousand dollars (\$200,000) submitted to the Division of the State Architect pursuant to this chapter, including, but not limited to, hardship applications, that require the approval of the Department of General Services shall include an automatic fire detection and alarm system as set forth in Section 17074.52 and approved by the State Fire Marshal. For a modernization project that is to be completed in more than one phase, the school district may defer installation of the system until the final phase of the modernization project. Solely for purposes of this section, "modernization" means any modification of a permanent structure or construction of a new building on an existing campus.

(c) The Department of General Services shall administer this section based upon the standards adopted by the State Fire Marshal pursuant to Section 17074.52.

17074.52.

(a) For modernization projects, the automatic fire detection and alarm system required pursuant to subdivision (b) of Section 17074.50 shall consist of smoke or heat detectors, or a combination thereof, as determined by the State Fire Marshall, installed in the school building. The alarm, upon activation of an initiating device, shall alert all occupants and shall transmit the alarm signal to an approved supervising station.

## Appendix A - continued

(b) For new construction projects, the automatic fire detection, alarm, and sprinkler system required pursuant to subdivision (a) of Section 17074.50, shall in addition to compliance with subdivision (a), include an automatic fire sprinkler system installed in the school building including, but not necessarily limited to, attic spaces.

(c) Notwithstanding Section 17074.50 or subdivisions (a) or (b) of this section, for a stand alone portable building, the system required pursuant to this article shall consist of an automatic fire detection and alarm system. For the purposes of this subdivision a "stand alone portable building" means a portable building that is used as a single classroom and that is sited more than 25 feet from any other building, including, but not limited to, any other portable building.

(d) Except as required for automatic fire detectors and waterflow detection devices, manual fire alarm boxes shall not be required throughout the school building.

(e) The entire system shall be installed, tested, and maintained in accordance with the regulations of the State Fire Marshal.

17074.54.

(a) A portable building that is sited with the intent that it be at the site for less than three years and is sited upon a temporary foundation in a manner that is designed to permit easy removal, is exempt from Sections 17074.50 and 17074.52 for a period of three years from the date of siting.

(b) After the three-year exemption set forth in subdivision (a), a school district may request an extension of the exemption for an additional period not to exceed three additional years. The board shall grant the request if the school district presents convincing evidence demonstrating to the satisfaction of the board that the extension is necessary.

(c) For purposes of this section, "portable building" means a classroom building of modular design and construction that meets all of the following criteria:

## Appendix A - continued

(1) It is designed and constructed to be relocatable and transportable over public streets.

(2) It is designed and constructed for relocation without detaching the roof or the floor from the building.

(3) It has a floor area of 2,000 square feet or less when measured at the most exterior walls.

17074.56. (a) The State Allocation Board shall adjust the per-pupil grant amount set forth in Section 17072.10 as necessary to accommodate 50 percent of the increased costs due to the automatic fire detection, alarm, and sprinkler system required pursuant to subdivision (a) of Section 17074.50. The board shall adjust the per-pupil grant amount set forth in Section 17074.10 as necessary to accommodate 80 percent of the increased costs due to the automatic fire detection and alarm system required pursuant to subdivision (b) of Section 17074.50. The board shall establish a method to provide up to 100 percent of the increased costs of the automatic fire detection, alarm, and sprinkler, if applicable, systems for school districts which qualify for hardship assistance pursuant to paragraph (1) of subdivision (b) of Section 17075.10.

(b) By July 1, 2003, the board shall review the adequacy of the per-pupil grant adjustments made pursuant to subdivision (a) and shall increase or decrease those adjustments as determined to be necessary.

(c) Any project submitted to the Division of the State Architect on or after September 1, 2001, that includes a qualifying fire detection, alarm, and sprinkler, if applicable, system, and that has not been fully funded prior to July 1, 2002, shall be eligible for grant or eligibility adjustments as set forth in this article.

## **Appendix B**

### **SB 575 IMPLEMENTATION POLICY**

**Please refer to the following web page:**

[http://www.documents.dgs.ca.gov/dsa/other/sb575\\_policy5-02.pdf](http://www.documents.dgs.ca.gov/dsa/other/sb575_policy5-02.pdf)

## **Appendix C1**

### **DSA Policy 10-01**

**Please refer to the following web page:**

[http://www.documents.dgs.ca.gov/dsa/pubs/PL\\_10-01\\_03-01-10.pdf](http://www.documents.dgs.ca.gov/dsa/pubs/PL_10-01_03-01-10.pdf)

## **Appendix C2**

### **DSA Policy 11-01**

**Please refer to the following web page:**

[http://www.documents.dgs.ca.gov/dsa/pubs/PL\\_11-01\\_rev03-02-11.pdf](http://www.documents.dgs.ca.gov/dsa/pubs/PL_11-01_rev03-02-11.pdf)

## Appendix D

### DSA

#### What is the Division of the State Architect?

The Division of the State Architect(DSA) provides design and construction oversight for K–12 schools, community colleges, and various other state-owned and leased facilities. The Division also develops accessibility, structural safety, fire and life safety, and historical building codes and standards utilized in various public and private buildings throughout the State of California.

DSA conducts many programs and performs services in support of its obligations and to assure construction of safe, accessible, and sustainable public buildings.

Aside from project design and construction oversight, DSA proposes changes to applicable state building and administrative codes. DSA also interprets the codes as needed for consistent enforcement. In addition, DSA manages programs to review, test and certify inspectors and materials testing laboratories to work on DSA reviewed projects; is a resource for clients in achieving access compliance; implements energy incentive programs and does outreach in support of sustainability; and other related programs.

- \* Construction Projects
- \* Codes and Policies
- \* Certification Programs
- \* Access Compliance
- \* Sustainability

#### **Construction Projects: Project Submittal, Review, Oversight and Closeout / Project Certification**

DSA reviews construction projects under its jurisdiction for Title 24 compliance. The scope of DSA’s review depends on the client who owns the facility and the scope of the project.

DSA's Fire and Life Safety (FLS) program serves DSA stakeholders by its role in the plan review of school construction projects and provides regulation recommendations to the State Fire Marshal for incorporation into the California building and fire codes. The FLS program also develops DSA Interpretation of Regulations (IR), bulletins, policies and procedures pertaining to FLS issues. DSA FLS is dedicated to the safety of occupants in buildings under DSA's jurisdiction, as related to fire resistive building materials, fire alarms, fire suppression equipment, safe occupant egress, and fire fighting equipment access.

## **Appendix E**

### **The Leroy F. Greene School Facilities Act of 1998**

#### **EDUCATION CODE SECTION 17070.10-17070.99**

**Please refer to the following web page:**

<http://www.leginfo.ca.gov/cgi-bin/displaycode?section=edc&group=17001-18000&file=17070.10-17070.99>

## **Appendix F**

### **The Pledge**

#### **California Public Schools Fire Safety Pledge**

Dear School Board Members

We need your assistance to make California's Schools Fire Safety a priority for all of California's Schools by passing a simple resolution.

On January 13, 1997 an early morning fire at the Green Oaks Elementary School in the City of East Palo Alto occurred while school was still in session. An entire wing of the school was destroyed by a fast moving attic fire that almost caught 60 students and their teachers in their classrooms, the Fire caused over 3 million dollars in damage to the facility but worse yet it disrupted the school for months after destroying the library, computer lab, classrooms, decades of teaching aids and most tragically the sense of safety and security for many students, parents and teachers during this life changing event.

With the assistance of our legislators in Sacramento the Fire District and California Fire Service helped to support legislation to upgrade our outdated fire safety rules and construction standards for all schools in California as it applies to early fire detection and automatic suppression.

After several attempts and years of effort our collective hard work culminated with the passage of SB-575 known as the Green Oaks Family Academy Elementary School Fire Protection Act which was passed on January 1, 2002. The law requires that schools with new campuses or modernization projects costing more than \$200,000.00 install fire alarm and sprinkler systems.

Until recently, we thought our work was done but unfortunately we found out during several recent school fires that occurred in structures built after the law was passed that a little known exception existed within the implementation policy under the Department of State Architecture (DSA). That provision states "Note: Private and parochial school campuses and public school campuses 100 percent funded by local bonds are not required to install automatic fire sprinkler systems under the law" and there in lies the problem.

As the Fire Chief for the Menlo Park Fire Protection District I am asking that all elected School Boards State wide voluntarily pass a formal resolution that memorializes that those schools will not compromise public safety or our vital educational infrastructure by taking advantage of the DSA provision when using local bond funds.

The intent of the Green Oaks Bill was to promote fire safety in all newly constructed schools statewide regardless of the funding source. We ask that you please pass a resolution and give the community your commitment to not take advantage of this funding source exemption.

Thank you

Harold Schapelhouman, Fire Chief Menlo Park Fire Protection District

This report was **PASSED** and **ADOPTED** with a concurrence of at least 12 grand jurors on this 14<sup>th</sup> day of June, 2011.

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Helene I. Popenhager  
Foreperson

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Gerard Roney  
Foreperson pro tem

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Kathryn Janoff  
Secretary