Retrofitting the Piedmont, CA Schools

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Structural Engineer
Parent of 2 Former Students
Community Volunteer
Piedmont, California
Piedmont, CA

* Own Police, Fire, Public Works, Recreation Depts.
* Easy commute to San Francisco
* Great weather
* Beautiful homes
* Good schools
“95 percent of Piedmont Unified School District graduates pursue a college education”
PUSD Schools

* 3 Elementary Schools
  * Beach Elementary – 150 students
  * Wildwood Elementary - 150
  * Havens Elementary - 400
* Piedmont Middle School - 592
* Piedmont High School - 770
* Millenium High School (on H.S. campus)
Me, Back to School Night 1995

Hayward fault......1940s building.... steel rod bracing.......20 psf..... Say 0.2g.......wow!
Dr. Richard Saykally –

Professor at UC Berkeley and Piedmont Parent

If the UC buildings need seismic strengthening, could our local schools be unsafe?

Doe Library, UC Berkeley
School Board

School Superintendent Gail Uilkema
And School Board President Greer Graff
(Architect) Listened
Voluntary Engineering Advisory Board

1999 - Six structural engineers and geologists

2000 - Two structural engineers
  John Sumnict, SE and Janiele Maffei, SE

2010 - One structural engineer
  Janiele Maffei, SE
The Process

1. Voluntary FEMA 310 Tier 1 evaluation
2. Report to Superintendent (New Superintendent)
3. District hired consultant to establish a budget
4. 2005 Bond measure put on the ballet – narrowly passed
5. Technical Advisory Committee formed (TAC)
6. Plan developed
7. Consultants hired (Tier 1 and 2 evaluations completed)
FEMA 310 Tier 1 Findings

1. HS concrete tilt-up buildings retrofit in 1985
2. Middle School buildings meet Life Safety (LS) criteria
3. Many district buildings require Tier 2 evaluation
4. Single-story wood-framed building with rod bracing at Havens Elementary requires retrofit
5. 1934 single-story wood-framed buildings do not meet LS criteria, but……
The Process –
TAC Planning Phase

1. Retrofit Havens or build new campus?
2. Utilize ASCE 31/41 (Formerly FEMA 310/356)?
3. Are additional funds available?
4. Retrofit 1934 wood-framed structures?
5. Nonstructural seismic bracing
6. Temporary Housing
7. Community Involvement
Single-story, wood-framed decision

One-story, wood-framed structures historically have performed well in earthquakes – meaning they provided a minimum performance level of “life safety” (LS).

However, the damage can be irreparable.
1. All 3 elementary schools built in 1934 - 1 year after Field Act but older code
2. All within 2 miles of Hayward fault - no redundancy

Risk: Loss of all 3 elementary schools in 15 seconds.
1. Numerous buildings not LS
2. Students in potential collapse hazard building moved to portables
3. Serious accessibility issues
4. Constrained site
5. Community member led effort to replace the school.

New Havens Elementary School
The Process – Design Phase

1. TAC disbanded
2. Steering Committee created
3. Citizens Oversight Committee created (required for CA school bond projects) – financial oversight only
4. PUSD Measure D Website created
5. Final plans approved by Steering Committee
6. A State State Architect (DSA) review completed – required for school projects
The Process – Construction Phase 2009-2012

1. New Havens school – Design Build
2. High School, Wildwood and Beach all separate bids

Steering committee included construction manager.
The Process – “The Dance”

1. Temporary Housing
   1. Leased an unused school – bussed students
   2. Portables on Havens campus
2. Only one elementary school at a time – rotated students
3. Nonstructural to be completed by maintenance staff
1. $56m Bond (voter approved)
2. $3.1m State modernization funds – require 40% local contributions (60% State)
3. $12m CA state Proposition 1D Seismic Retrofit funds obtained – require 50% local contributions (50% State)
4. The program ended in 2012, on time and on budget

Note: Getting Prop 1D funds required local State Senator Loni Hancock involvement as the characterization of a qualifying school building was too limited.
When asked how I allowed my two sons to attend the un-retrofitted Piedmont schools but insisted that they now be retrofit at considerable cost I responded:

The risk to an individual student during their short stay in school is very low. However, as a community we are responsible for all students, all the time.