

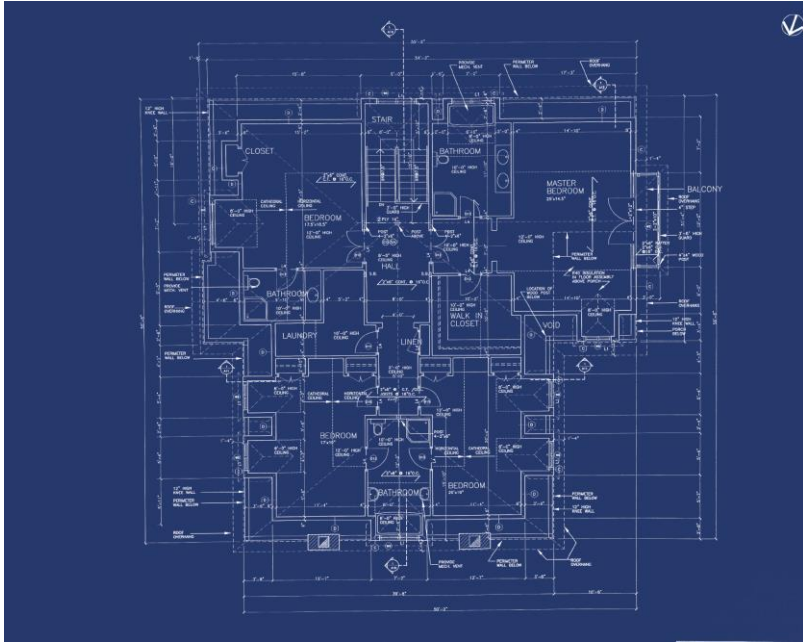
Making Schools Smarter and Safer Using Geographic Information Systems

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President of GEOcommand, INC.

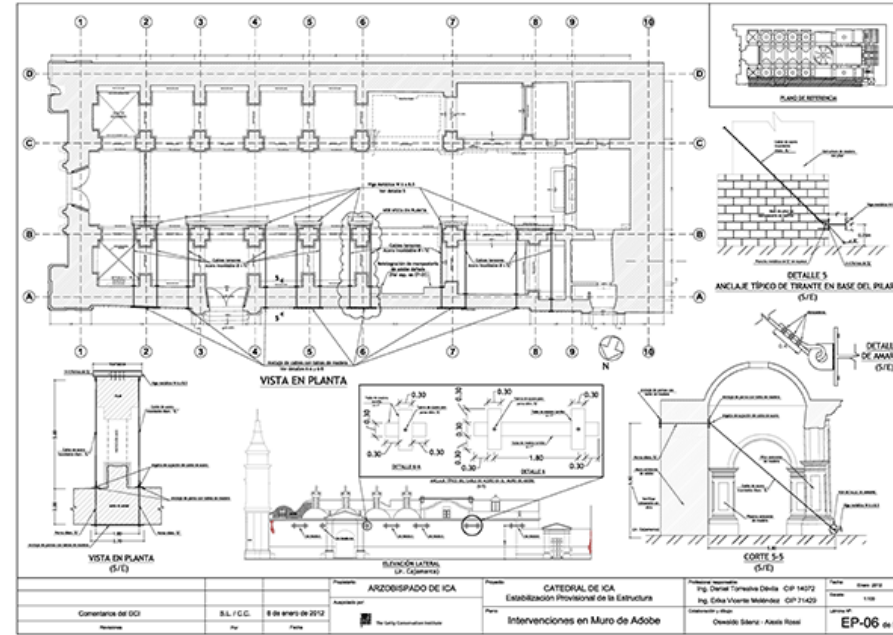
Florida Educational Facilities Planners' Association

07/10/2018



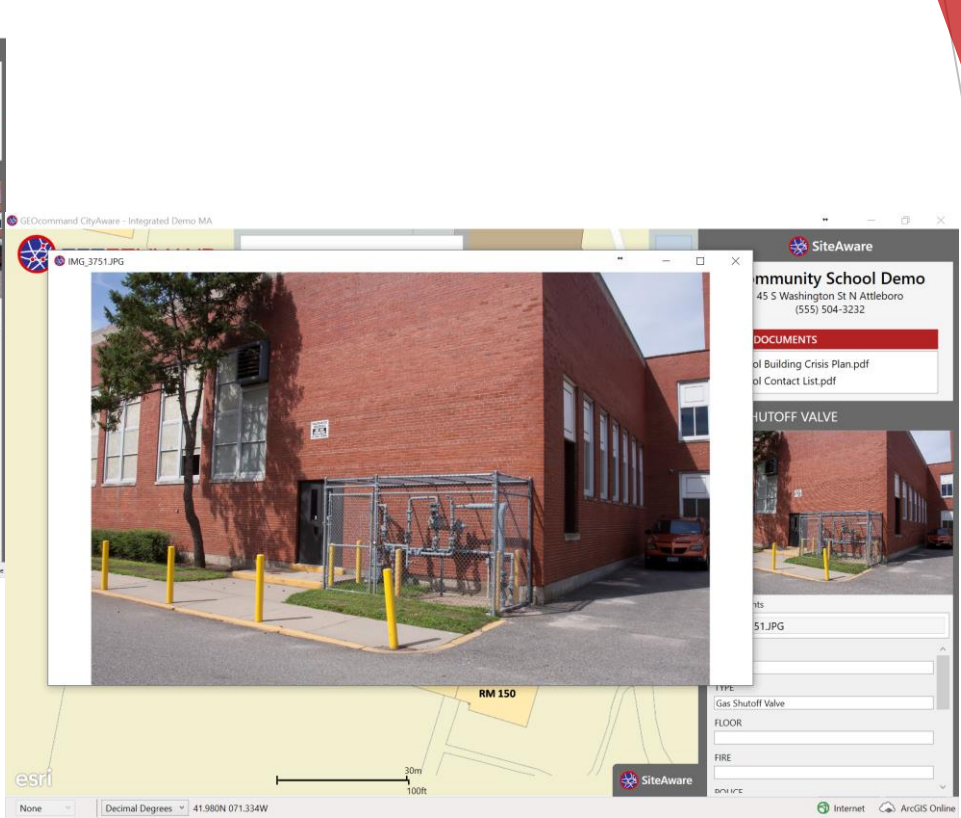
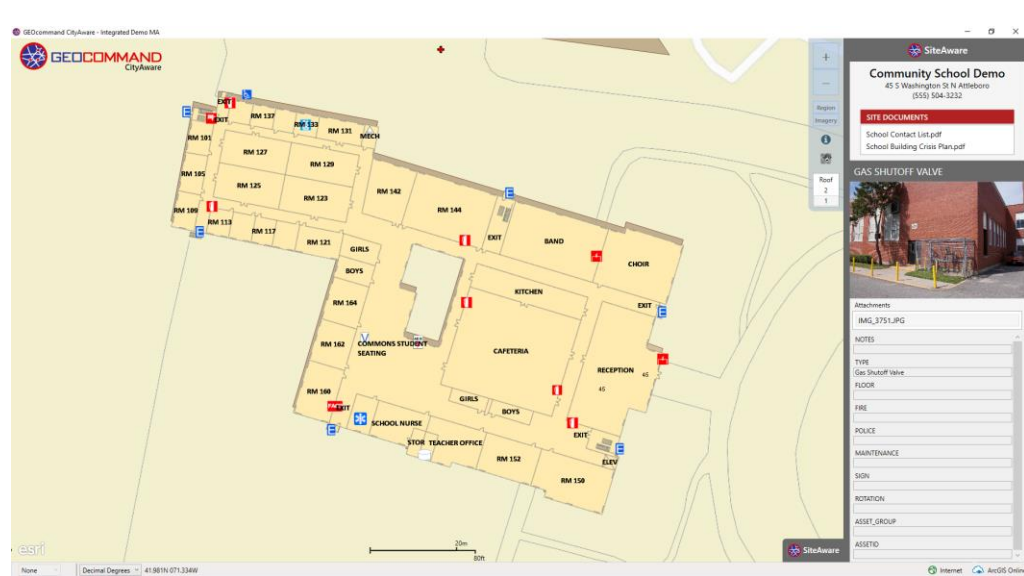
Old School

- Blueprints
 - Static, on paper, not easily shareable
 - Not accessible to the layman



New School

- CAD files
 - Dynamic, digital, shareable, in depth
 - Still not accessible to the layman



A Step Further: ArcGIS

- Interactive, editable, scalable
- Shareable
- User friendly
- Familiar

Safety and Security Goals

- Public safety is especially important in schools
- Get vital data in the hands of first responders
 - Mutual aid: they may not have the data they need
 - Where is the FACP?
 - Where is the main water shutoff?
 - Who needs to be contacted?
- Design for laypeople, not construction professionals
 - Easy to use in an emergency
 - Accessible to all
 - Not meant to be a BIM style service

Vertical Interoperability

- Push critical data up to the county, state, and federal level
 - Pass data to the state police
 - Pass data to emergency operations centers
 - Pass data to FEMA
- Pull critical data down to the local level
 - Government agencies may have more info than local responders
 - May prevent walking in blind

Scalability and Robustness

- Everyday issues
 - Maintenance records
 - Asset manuals
 - Contact lists
 - Mutual aid
 - Inform those not familiar with location
- Major event handling
 - In depth crucial asset information
 - Simple interface for use under time critical situations
 - ArcGIS connection (many agencies already using a version of it)

School Safety and Response

- **Let's talk closer to home**
- Parkland shooting
 - Coral Springs officers were first on scene. They had:
 - No access to school cameras
 - No floorplans of the building
 - No list of emergency contacts
- Access to crucial data could *inform, improve, and accelerate* future responses
- That data could also aid in recovery and analysis

Sustainable, Smarter, Safer Schools

- Communication
- Interoperability
- Data sharing
- Public-private partnership
- Scalability of solutions
 - Can they be used every day?
 - **Can they handle “the big one?”**
 - Both use cases are important



Maintenance

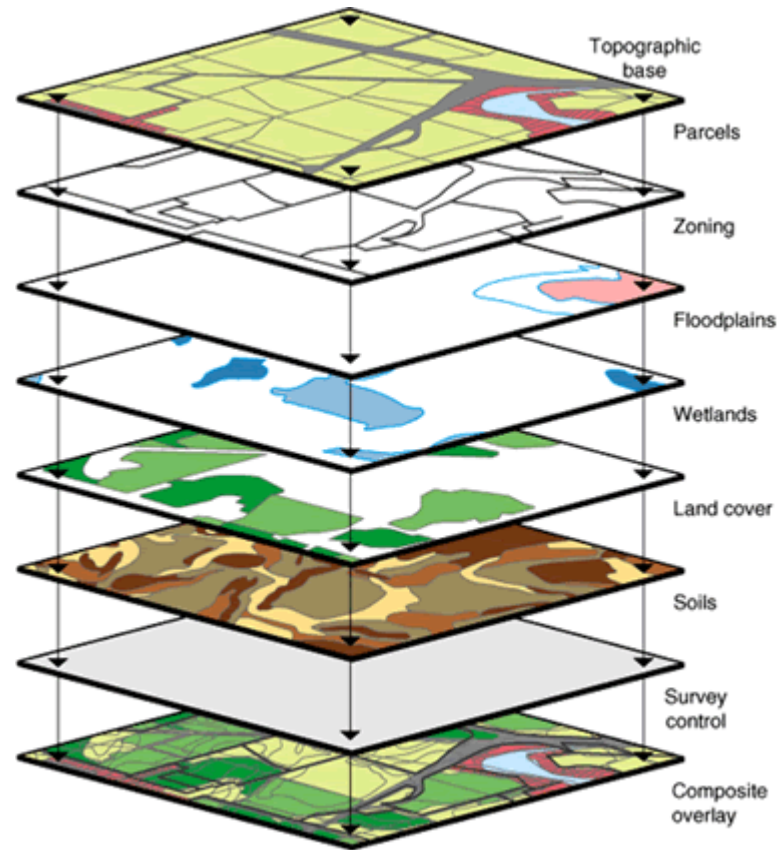
- Ease of access to information
 - Manuals
 - Service records
 - Warranties
 - Manufacturer details
 - Diagrams
 - Cameras

The screenshot displays the SiteAware software interface. The top portion shows a 3D floor plan of a school building with various rooms labeled, such as Science RM 206, Science RM 207, Teacher Office RM 225, and Flammable Locker Room 225. A sidebar on the right provides site information for 'Community School Demo' and lists attachments like '213_5079.jpg' and 'Demo Inventory 1.pdf'. Below the floor plan, a detailed view of 'Flammable Locker Room 225' is shown, including a table of its contents.

PRODUCT TYPE – DESCRIPTION	QTY
Acetic acid	3 L
Acetic anhydride	1 L
Carbonic acid	2 L
Hydrobromic acid	200 mL
Hydrochloric acid	150 mL
Nitric acid	5 L
Phosphoric acid	1 L
Sulfuric acid	500 mL

Advantages to a GIS Platform

- All data is location oriented and has a real counterpart in the physical world.
- Customized, facility or city-wide relevant map layers. E.g., :
 - Hydrants and water mains
 - Utilities
 - Cameras
- Data sources exist in many places and can be integrated
 - Tax assessor
 - Utilities - water, sewer, gas, electric
 - Fire and police
 - Emergency ops centers





Real World Example: Morrelly Homeland Security Center

- Aftereffect of Superstorm Sandy
- Gas leak in the building
- Maintenance crew was able to identify HVAC damage to stop leak

Community School Demo
45 S Washington St N Attleboro
653-504-3232

SITE DOCUMENTS

- School Contact List.pdf
- School Building Crisis Plan.pdf

AIR CONDITIONING

Roof 2 1

Attachments

- IMG_4159.JPG
- HVAC Manual.pdf**

NOTES

TYPE
Air Conditioning

FLOOR

FIRE

POLICE

MAINTENANCE

SIGN

ROTATION

ASSET_GROUP

ASSETID

HVAC Manual.pdf - Adobe Acrobat Reader DC

File Edit View Window Help

Home Tools HVAC Manual.pdf x

1 / 34 125%

48ES Comfort™ 13 SEER Single-Packaged Air Conditioner and Gas Furnace System with Puron® (R-410A) Refrigerant Single and Three Phase 2 to 5 Nominal Tons (Sizes 024-060)

Carrier
Turn to the Experts™

Product Data

Convertible duct configuration
Unit is designed for easy use in either downflow or horizontal applications. Each unit is easily converted from horizontal to downflow with the two standard duct covers. Downflow operation is easily provided in the field to allow vertical ductwork connections. The basepan utilizes knockout style seals on the bottom openings to ensure a positive seal in the horizontal airflow mode.

Efficient operation High-efficiency design offers SEER (Seasonal Energy Efficiency Ratios) of up to 13.5 and AFUE (Annual Fuel Utilization Efficiency) ratings as high as 81%.

Energy-saving, direct spark ignition saves gas by operating only when the room thermostat calls for heating. Standard units are furnished with natural gas controls. A low-cost field installed kit for propane conversion is available for all units.

48ESN units are dedicated Low NOx units designed for California installations. These models meet the California maximum oxides of nitrogen (NOx) emissions requirement of 40 nanograms/joule or less as shipped from the factory and **MUST** be installed in California Air Quality Management Districts where a Low NOx rule exists. Low NOx option is available on single phase models only.

Durable, dependable components Compressors are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Each compressor also has vibration isolation to provide

Fig. 1 - Unit 48ES

A08438

Single-Packaged Products with Energy-Saving Features and

What Needs to Be Done

- Public-private partnerships on a large scale
- True interoperability
 - Horizontal for everyday operations
 - Vertical for major events
- Detailed, interactive pre-plans in the hands of first responders and shared with school administrators, EOCs, etc.
 - Make sure the system has everyday usability

Conclusions

What Does It Take To Build A Smarter And Safer School?

- Start with a world-class GIS platform
- Integrate current applications for horizontal and vertical data sharing
- Deliver solutions that serve government priorities, the needs of first responders, and protect our students
- Connect data from city developers, construction companies, architects, first responders, and school administrators
- Pair the development of interactive emergency plans with new construction

References

1. The building housing the Morrelly Homeland Security Center at 510 Grumman Road West in Bethpage, is shown on July 29, 2015. Photo Credit: Howard Schnapp