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# Facility Viewer Web Application

Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.





# Overview

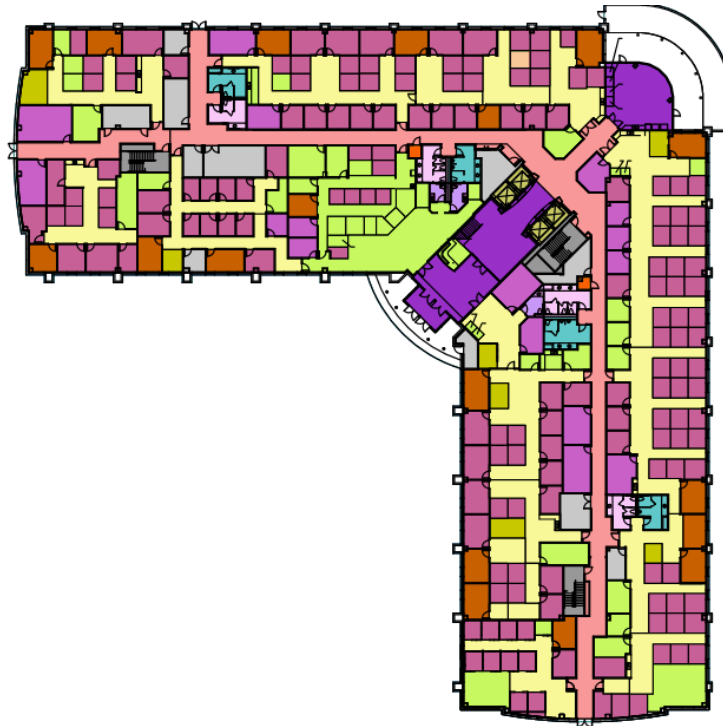
Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000. SNL uses TRIRIGA to manage approximately 7.6 million gross square feet (gsf) of property (owned, permitted, and leased space) at three major locations:

SNL/New Mexico(SNL/NM)  
SNL/California(SNL/CA)  
SNL/Nevada(SNL/NV)- Tonopah Test Range

SNL implemented CAD Integrator using Bentley MicroStation® 5 years ago in TRIRIGA 9 on 868 drawing space files, and upgraded to TRIRIGA 10 to take advantage of the new graphics reporting features. We have leveraged the TRIRIGA space Management data to build a Facility Viewer Web Application using the ESRI 10.2 Platform.

# Sandia Space Management

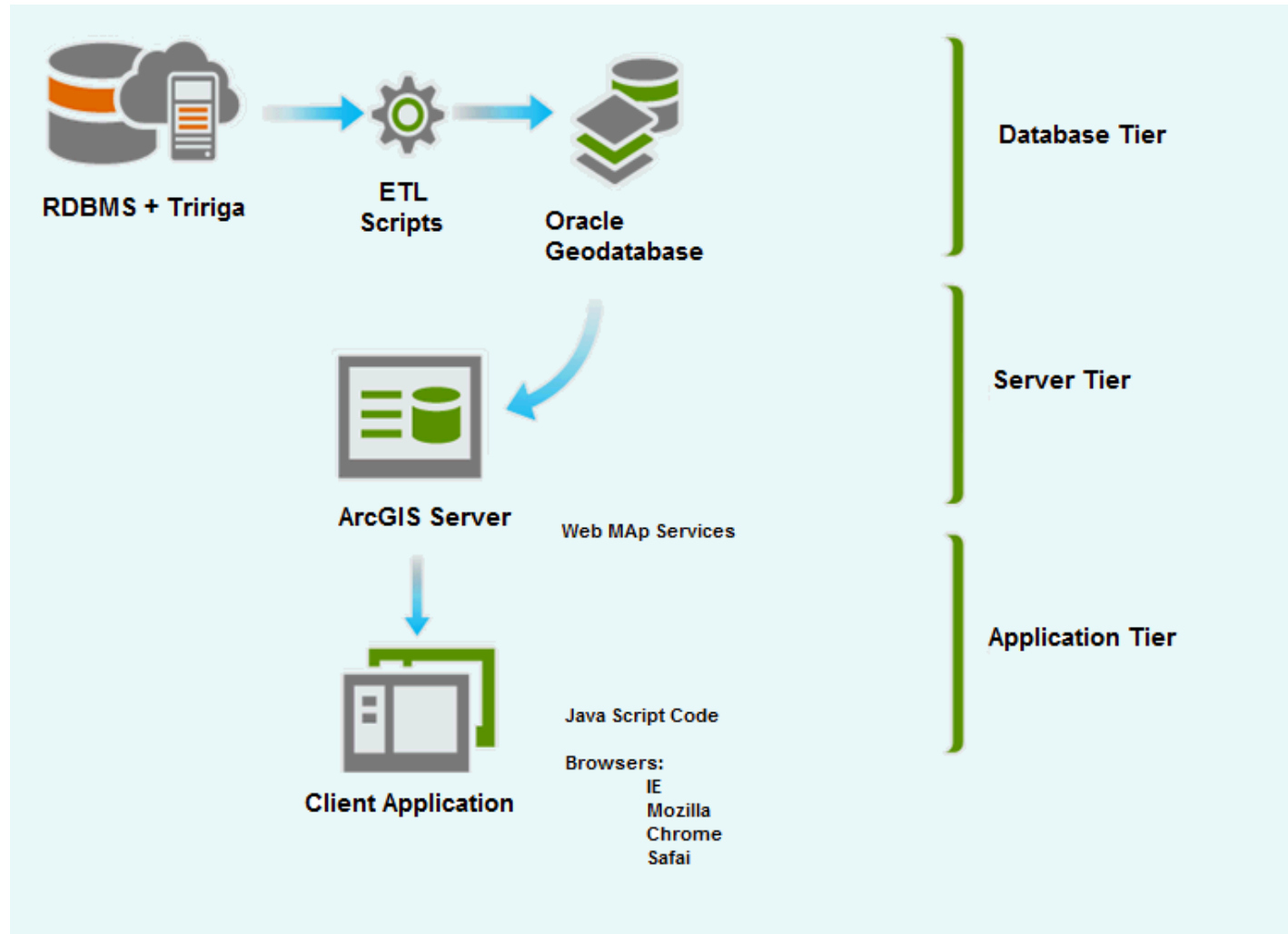
Tracking and reporting space at Sandia became easier with the implementation of Sandia's Facilities Management System, TRIRIGA. On a daily basis space data changes are updated and recorded in TRIRIGA and square footage is recorded/updated with the help of TRIRIGA CADD Integrator software. This made the data available for our ESRI Platform GIS development



# Facility Viewer Integration

- Leverages an Oracle based Geodatabase as a repository to maintain spatial data that consists of layers representing Sandia campus, buildings, people/staff and CAD drawings of floor plans.
- Includes ETL scripts that transformed and loaded data into the Oracle geodatabase for the Facility Viewer Application from Tririga FMS.
  - Data Interoperability Extension
- Spatial data made available for querying and map generation by publishing ArcGIS map services for application development.
- Developed with the ESRI Java Script Web App Builder

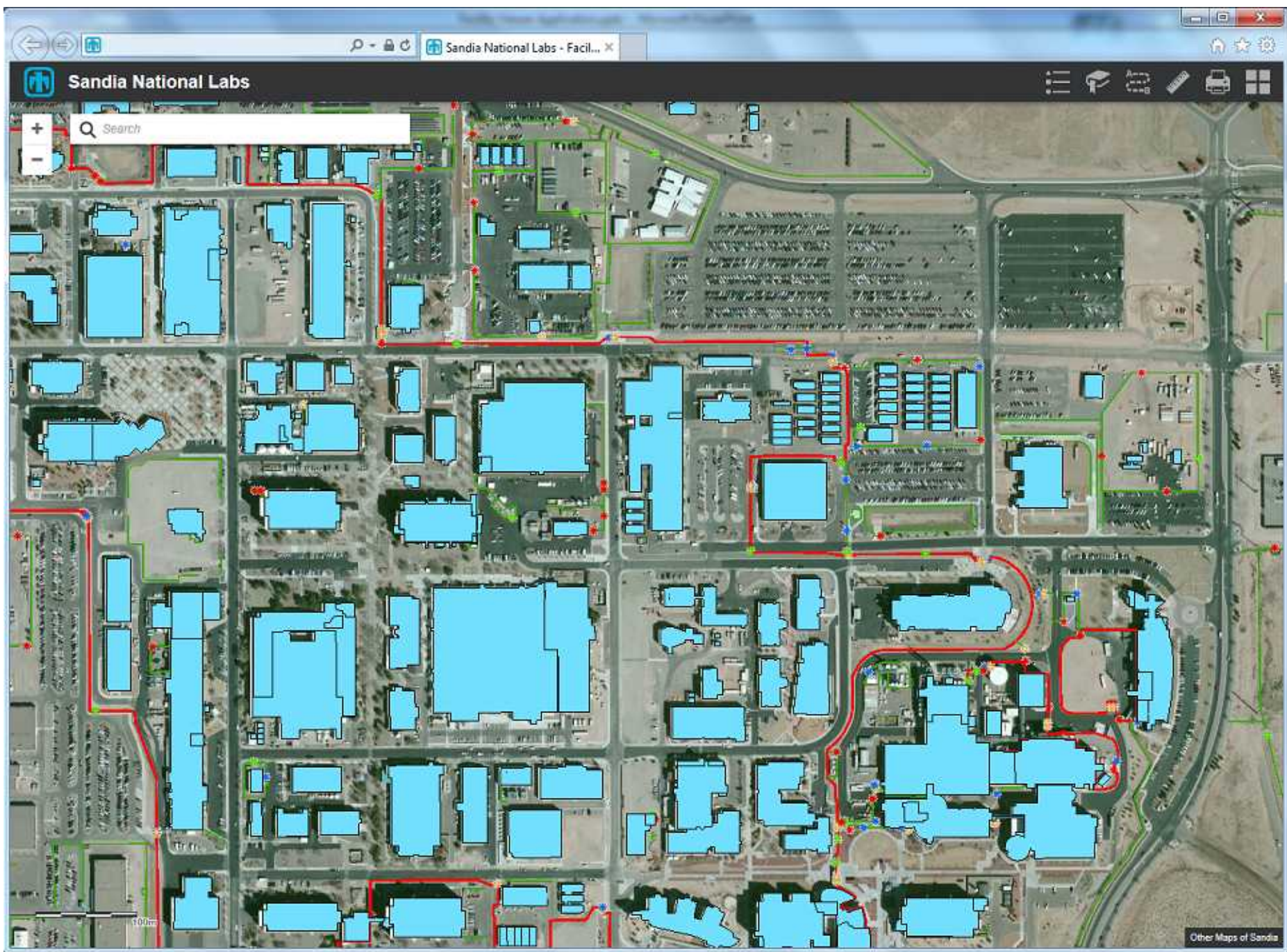
# System Architecture



# Design Overview

- **Goals:**
  - Highly Available
  - Scalable
  - Flexible
  - Extensible
  - Intuitive
  - Search and Locate
    - Buildings
    - Rooms
    - People
    - Gates





# Database Overview

- **Floor Plan Data Load :** (Data from Tririga Facilities Management System)
- **Ancillary Data Load**
  - Shape Files: (Fences & Gates from Facilities Bentley Map Data)
- **Spatial Layer**
  - ETL Scripts Nightly Update: (Python Script, Task Scheduler)
- **Oracle 11 Enterprise Geodatabase**
- **Web Services published to ArcGIS Server**



- SandiaToolbox\_Staging.tbx
  - Tool01\_GDB\_Table\_Prep
  - Tool02\_Ancillary\_Data\_Loading
  - Tool03\_CAD\_DGN\_to\_GDB\_v5
  - Tool04\_DISSOLVE\_JOIN

- NightlyUpdate.tbx
  - NightlyUpdate

Contents	
Preview	
Description	
Name	Type
SDE.Building	SDE Feature Class
SDE.BuildingFloor	SDE Feature Class
SDE.BuildingFloorplanLine	SDE Feature Class
SDE.BuildingFloorplanLine_Dissol	SDE Feature Class
SDE.BuildingFloorplanPublish	SDE Feature Class
SDE.BuildingFootprint	SDE Feature Class
SDE.BuildingInteriorSpace	SDE Feature Class
SDE.ESH_Incident_Location	SDE Table
SDE.FacilitySite	SDE Feature Class
SDE.Sandia_People	SDE Table
SDE.SiteAmenityLine	SDE Feature Class
SDE.StreetFurniture	SDE Feature Class
SDE.Tririga_Buildings	SDE Table
SDE.Tririga_Rooms	SDE Table
SDE.TririgaBuildings_to_BuildingFloor	SDE Relationship Class
SDE.TririgaBuildings_to_ESHIncident	SDE Relationship Class
SDE.TririgaBuildings_to_SandiaPeople	SDE Relationship Class
SDE.TririgaBuildings_to_TririgaRooms	SDE Relationship Class
SDE.TririgaRooms_to_ESHIncident	SDE Relationship Class
SDE.TririgaRooms_to_SandiaPeople	SDE Relationship Class

# Application Overview

## User Interface Functionality

Pan , Zoom

Base Map Selection

Bookmarks

Search/Results

Measure

Floor Selector

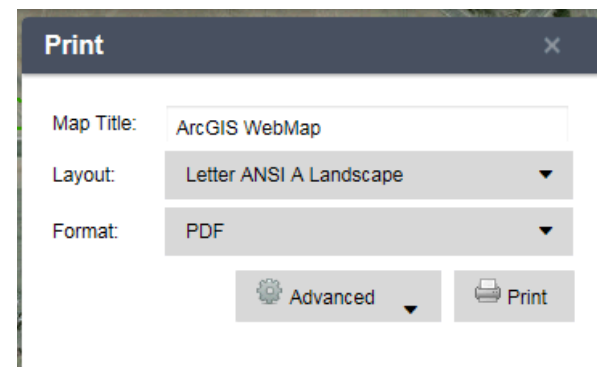
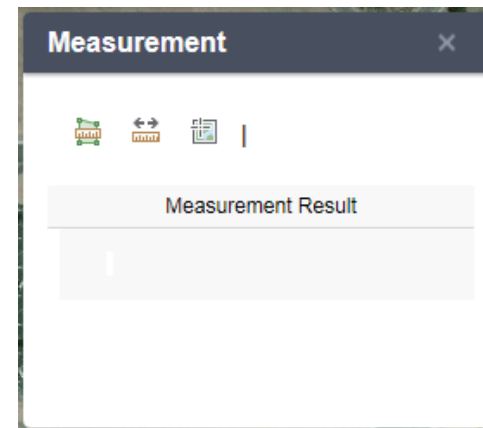
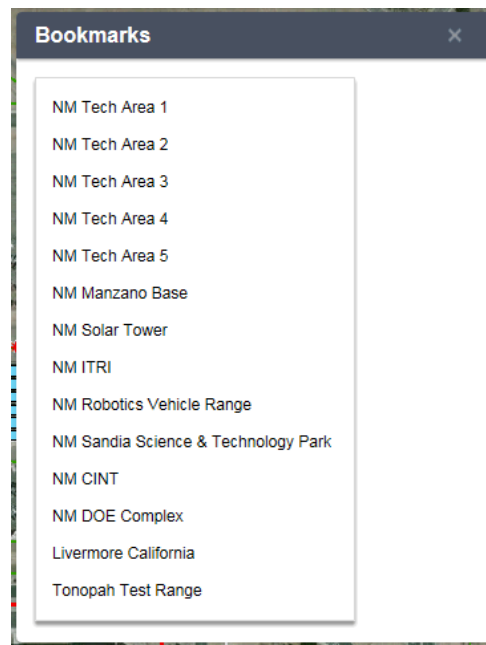
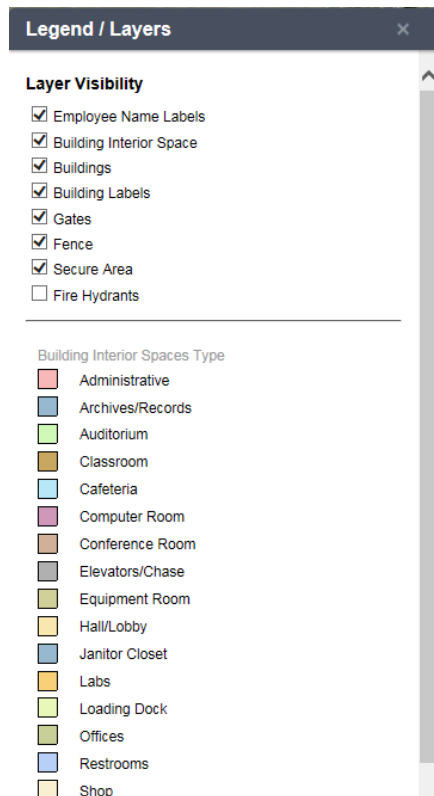
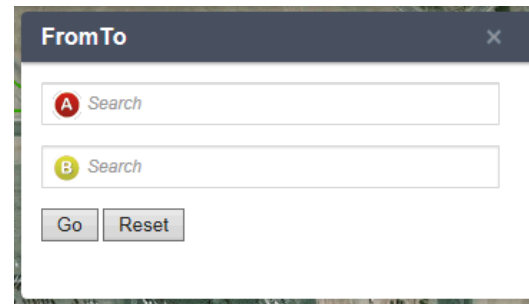
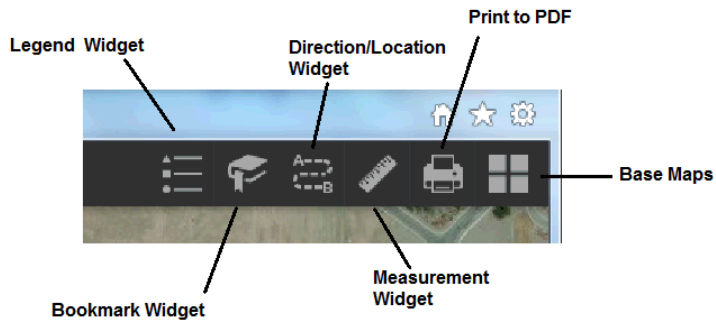
Entity Details

Related Info Tabs

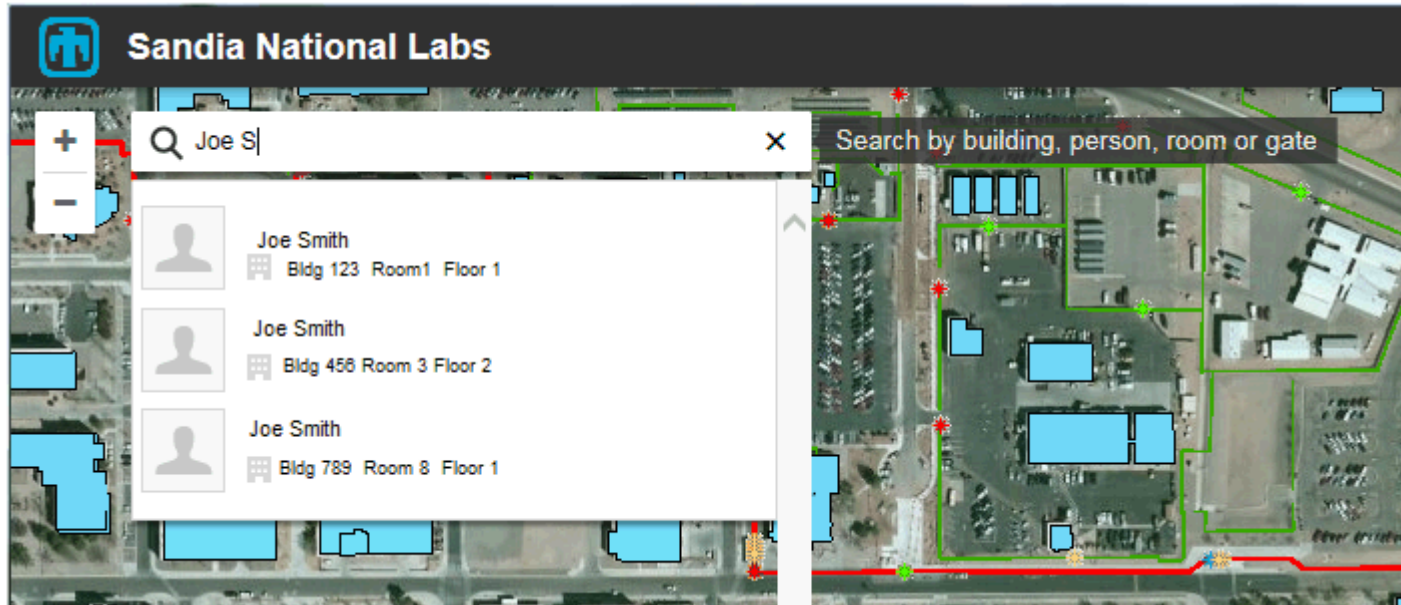
Print

Legend

To/From




# Search by Person



# Search by Building

Q Building 123



Close

Building: 123  
Name: A Sandia Building  
Area: 001\_Area 1


Alt Floor 1

Rooms

People

Room	Building	Floor	Type
	123	Floor 1	
	123	Floor 1	
	123	Floor 1	
	123	Floor 1	
	123	Floor 1	

Search by building, person, room or gate



Irwindale Air Force Base

Vehicle Gate

Gate 8

Gate 9

Building 123



# Search by Room

Sandia National Labs

Search

▲ Building: 123

Close

Room: 1

Building: 123

Floor: Floor 1

Class: General Office

People

Name	Room	Title	Phone	Email
Joe Smith	1	Employee	xxx-xxxx	xxx@ss1:

The floor plan diagram shows a complex building layout with various rooms and corridors. Room 1 is highlighted with a red border and the number 1. The building is color-coded: green for most rooms, yellow for corridors, and brown for specific rooms. A red border highlights Room 1, which is a small room located in the central part of the building.

# Search by Gate



# NEXT STEPS

- Implement ArcGIS Portal
- Heat Mapping
  - Chemical Tracking
  - ES&H Incident Tracking
  - Organizational
- Routing
  - Building to Building
- Maintenance (Maximo) Integration
- Time Slider

# Contact Information

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