CAD To GIS Conversion For Facility Management Using Model Builder

James Walker, GIS Analyst
Garland Independent School District
JVWalker@GarlandISD.net

Getting CAD into GIS

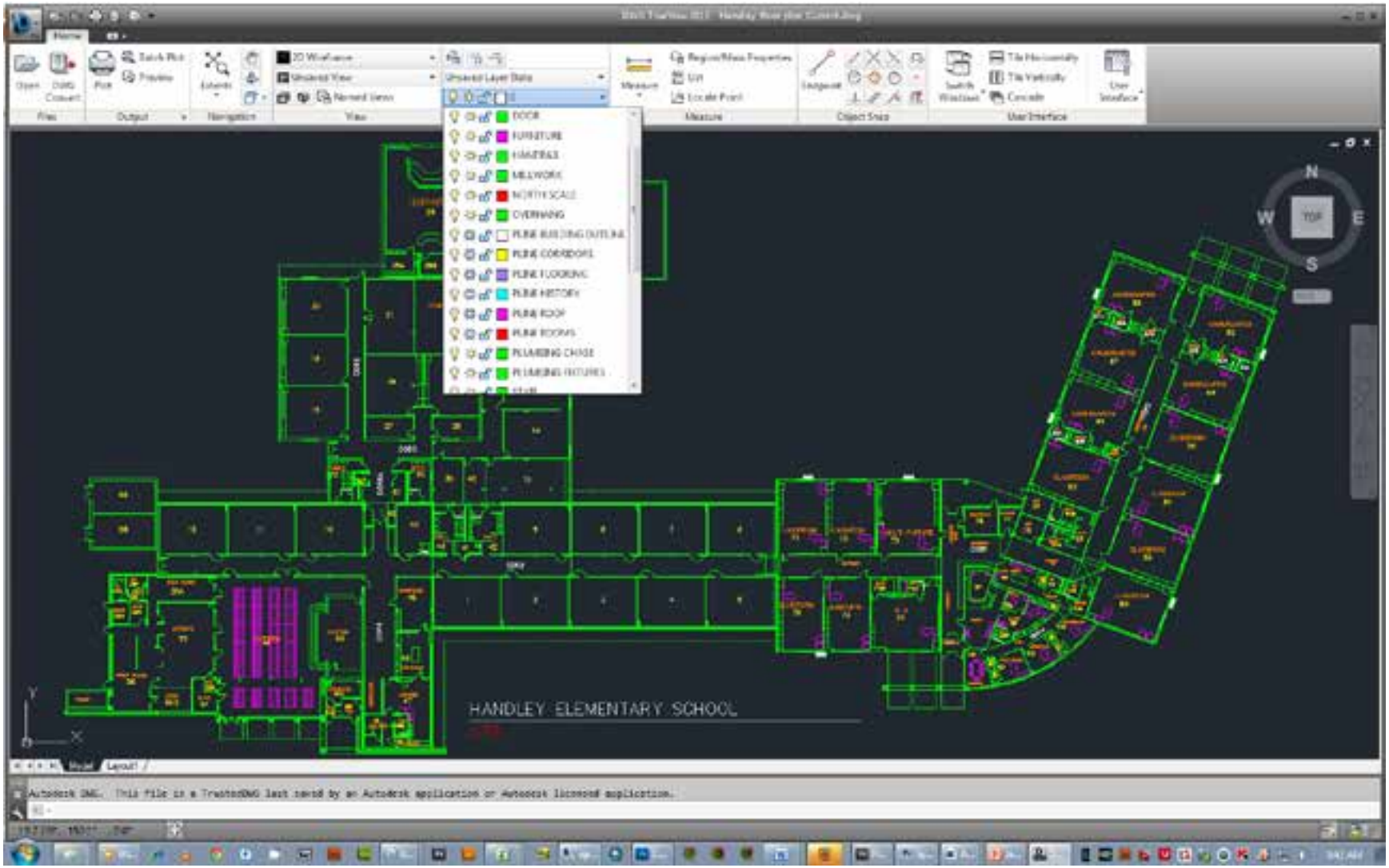
There are several ways to Get CAD data into GIS. Each method had advantages and disadvantages. One thing that all methods have in common is that the more consistent your data is the better your results will be.

Establishing a CAD data schema is essential !

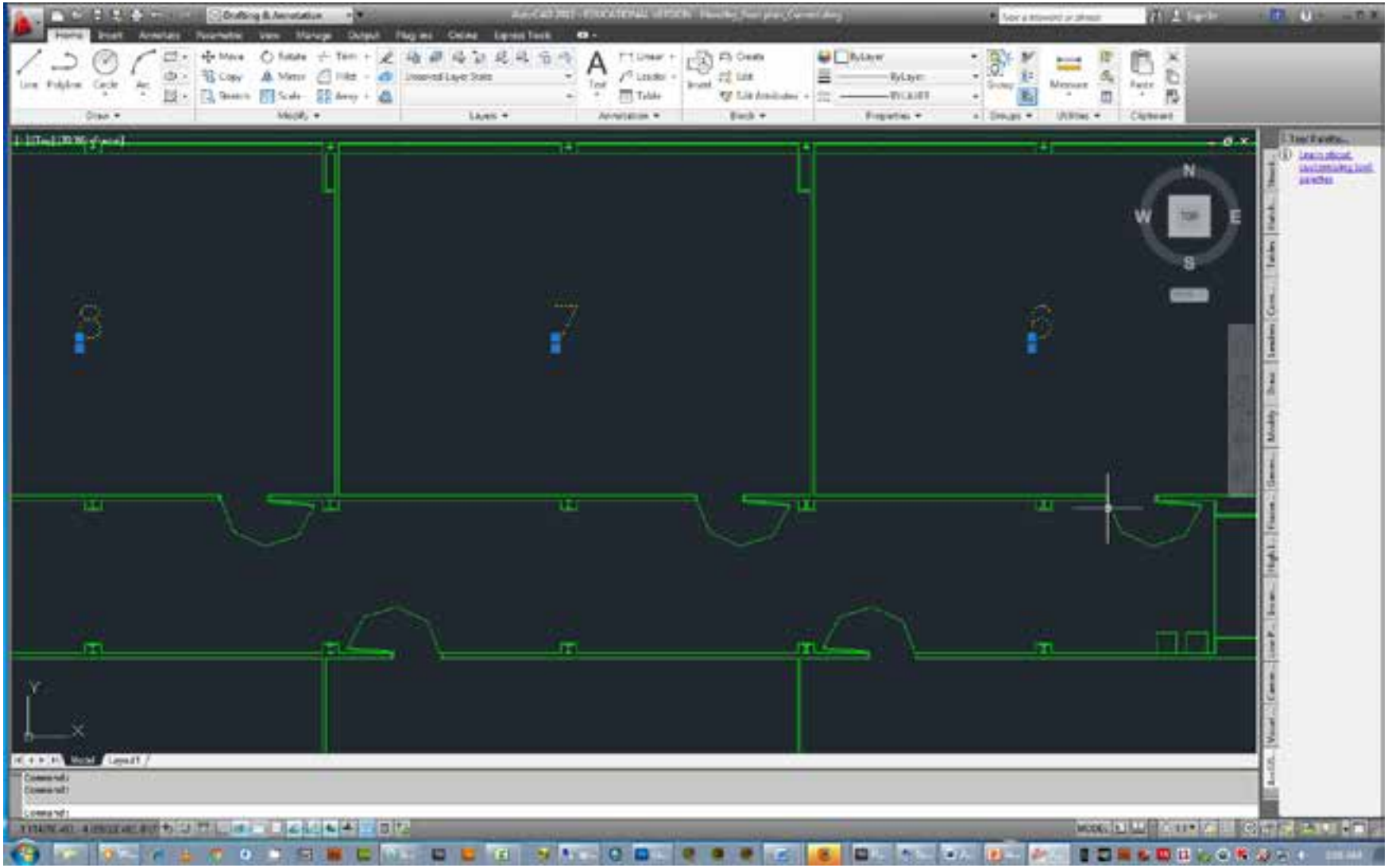
Specific layer names are established for each type of data Rooms, Roof, History ……
In CAD unlike GIS geometry types points, lines, polygons and Annotations are mixed.
Keep how the data will be used in both programs in mind when establishing your schema.

The GIGO principle applies, “Garbage In Garbage Out”

CAD Layers



Annotation Geometry



Data rules for good conversion

Spaces that will become GIS polygons must be “Closed” polygons in AutoCAD

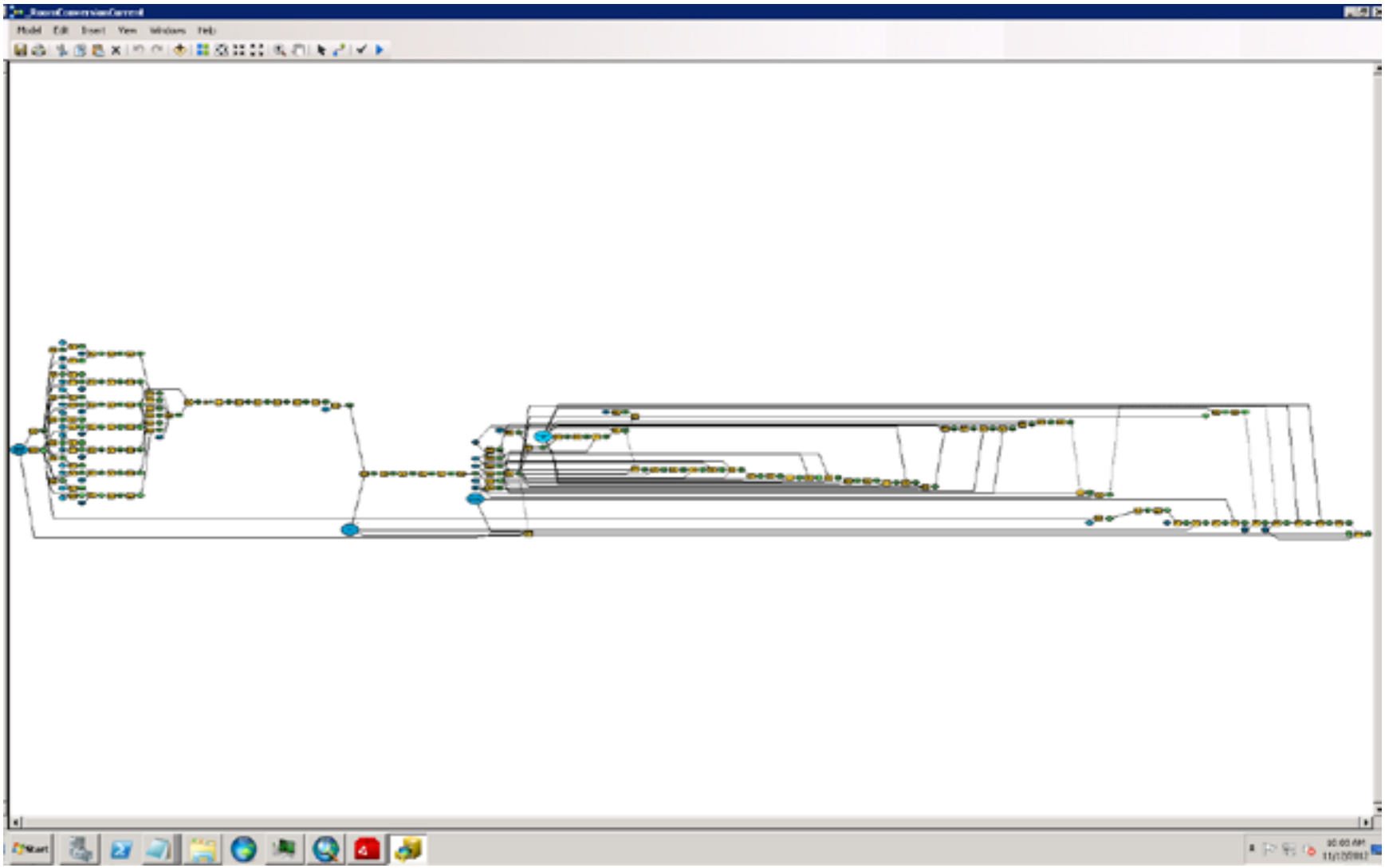
CAD blocks cause problems!

Annotation anchor points will be spatially joined to polygons, an anchor point must be inside its target polygon.

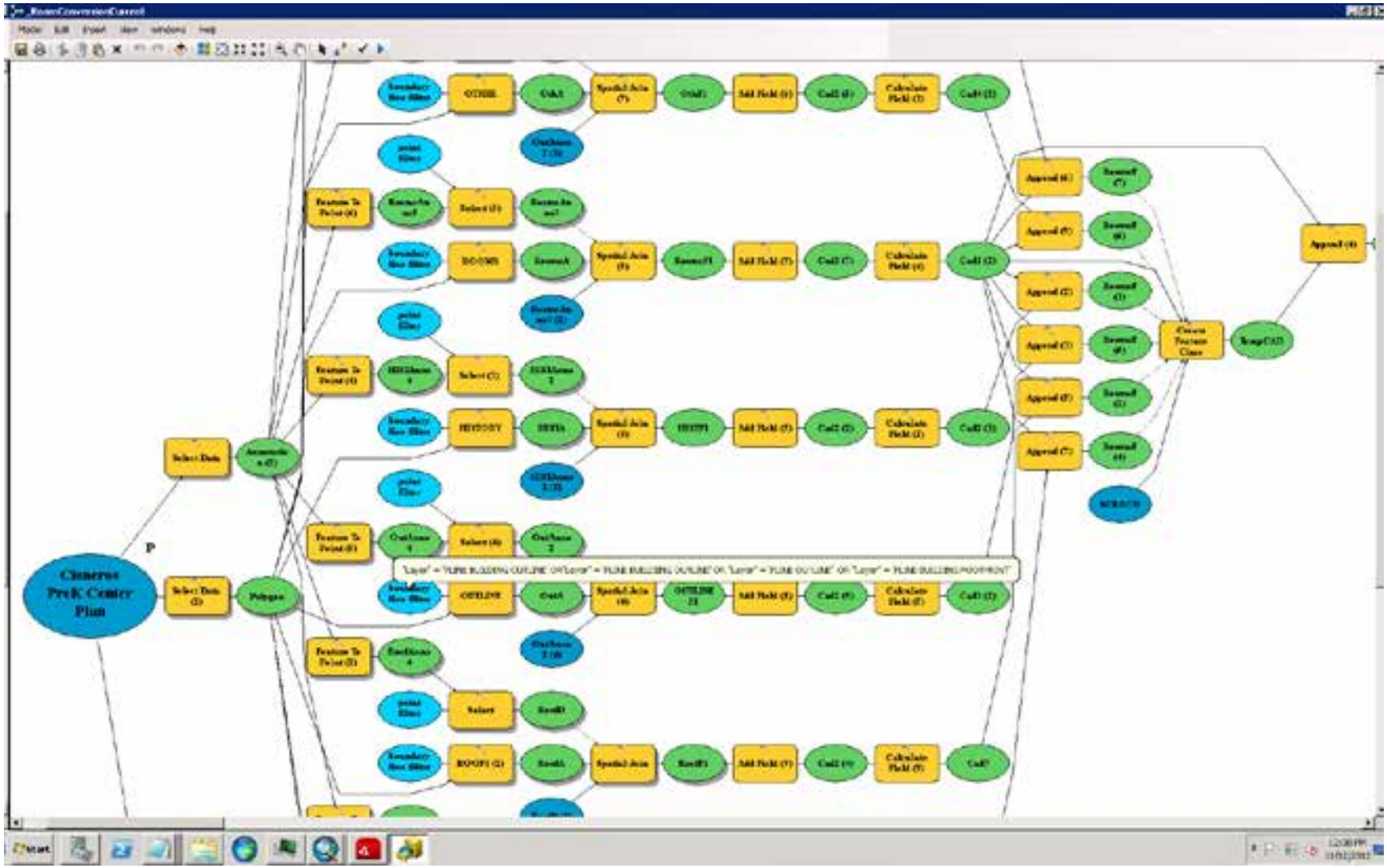
Multiple annotations in the same CAD layer should not be placed in the same target polygon.

Annotation text should be simple, single line, left justified, with no special formatting.

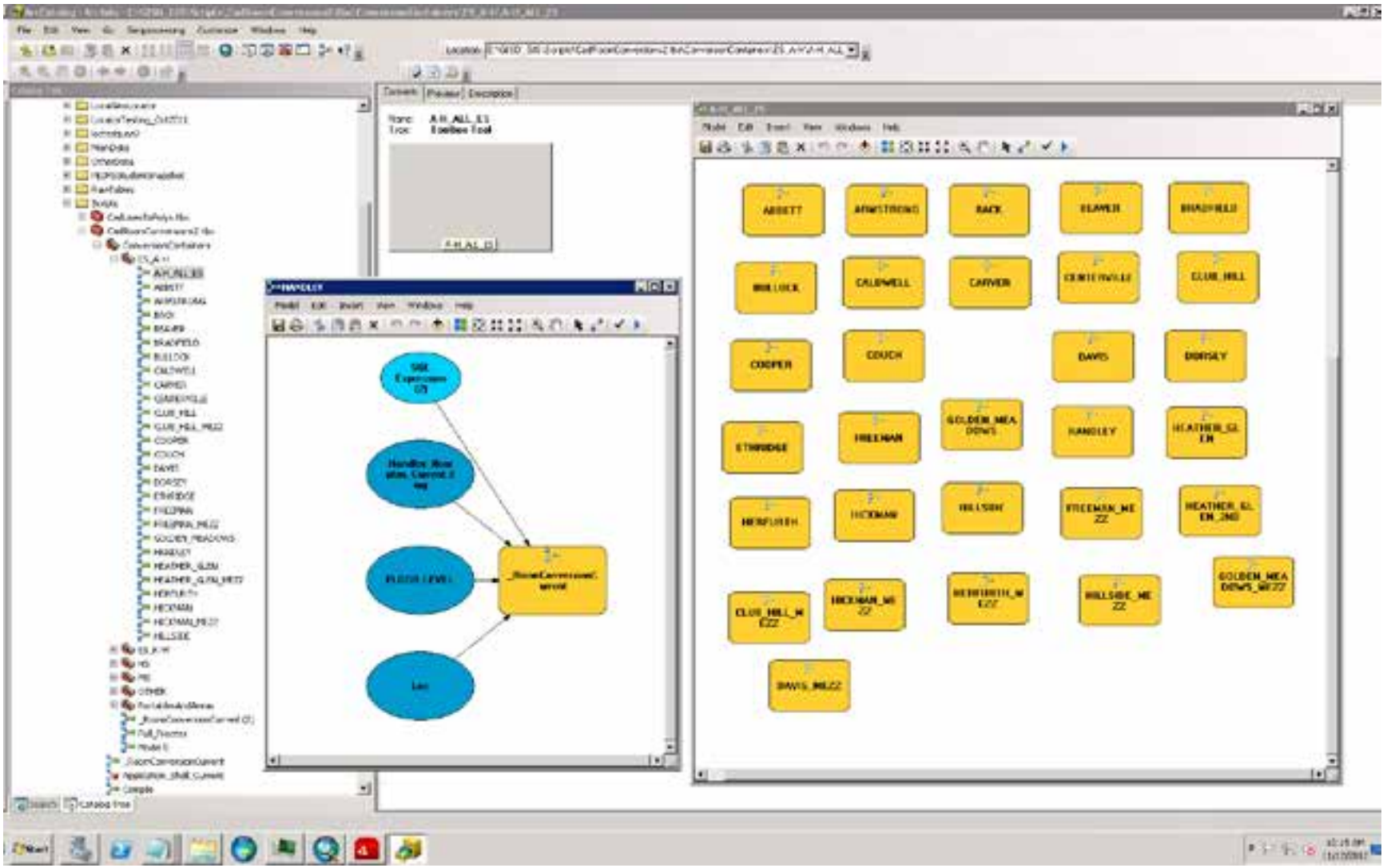
CAD Conversion Model



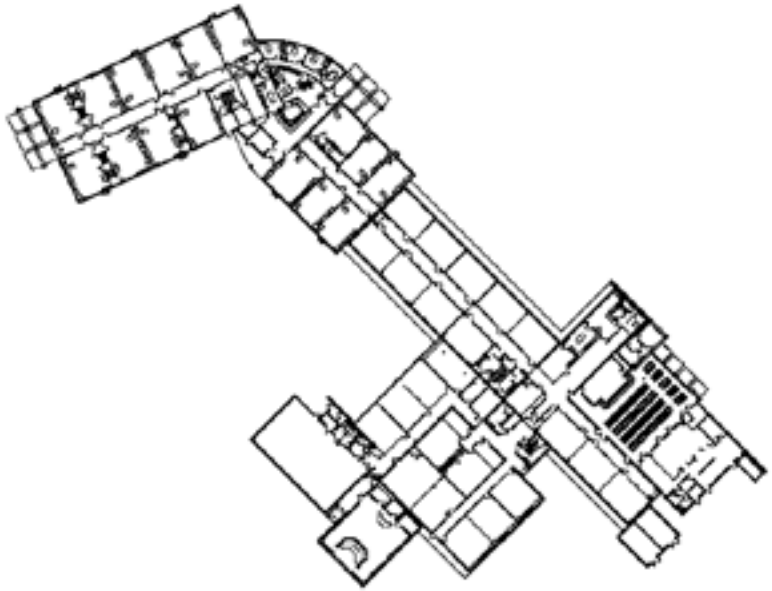
CAD data Structured Queries and Spatial Joins

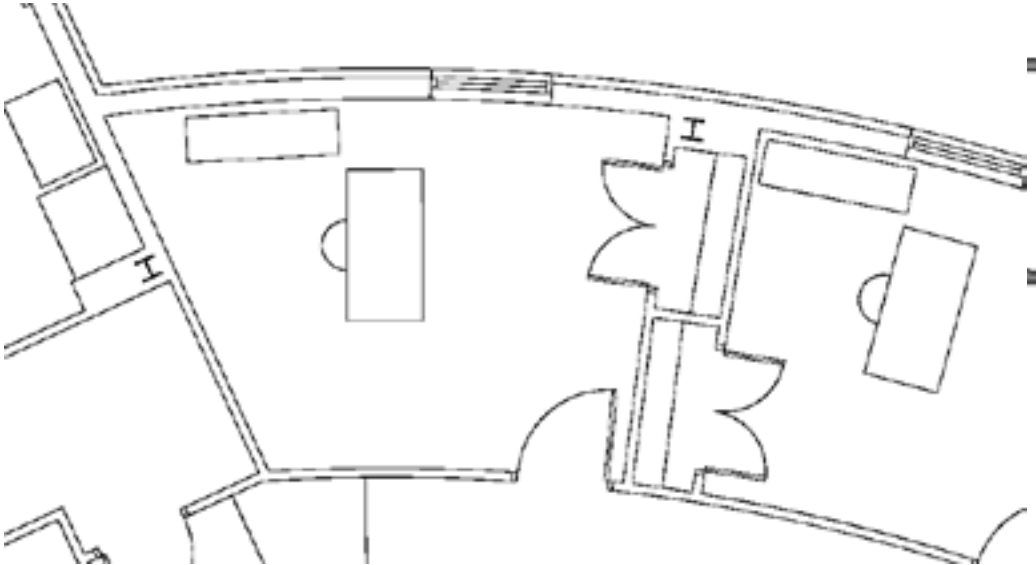


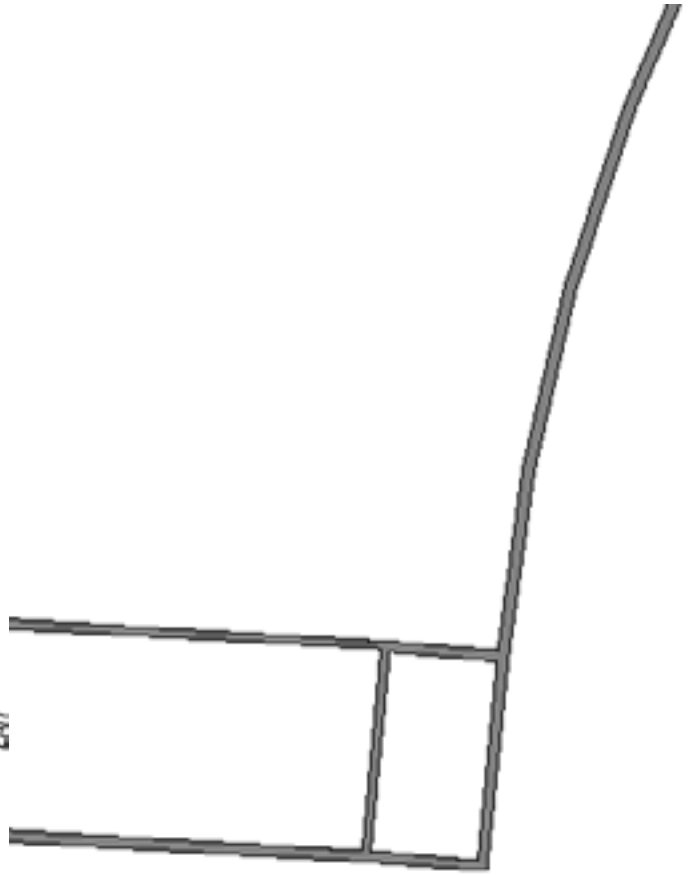
Imbedded model for each Drawing



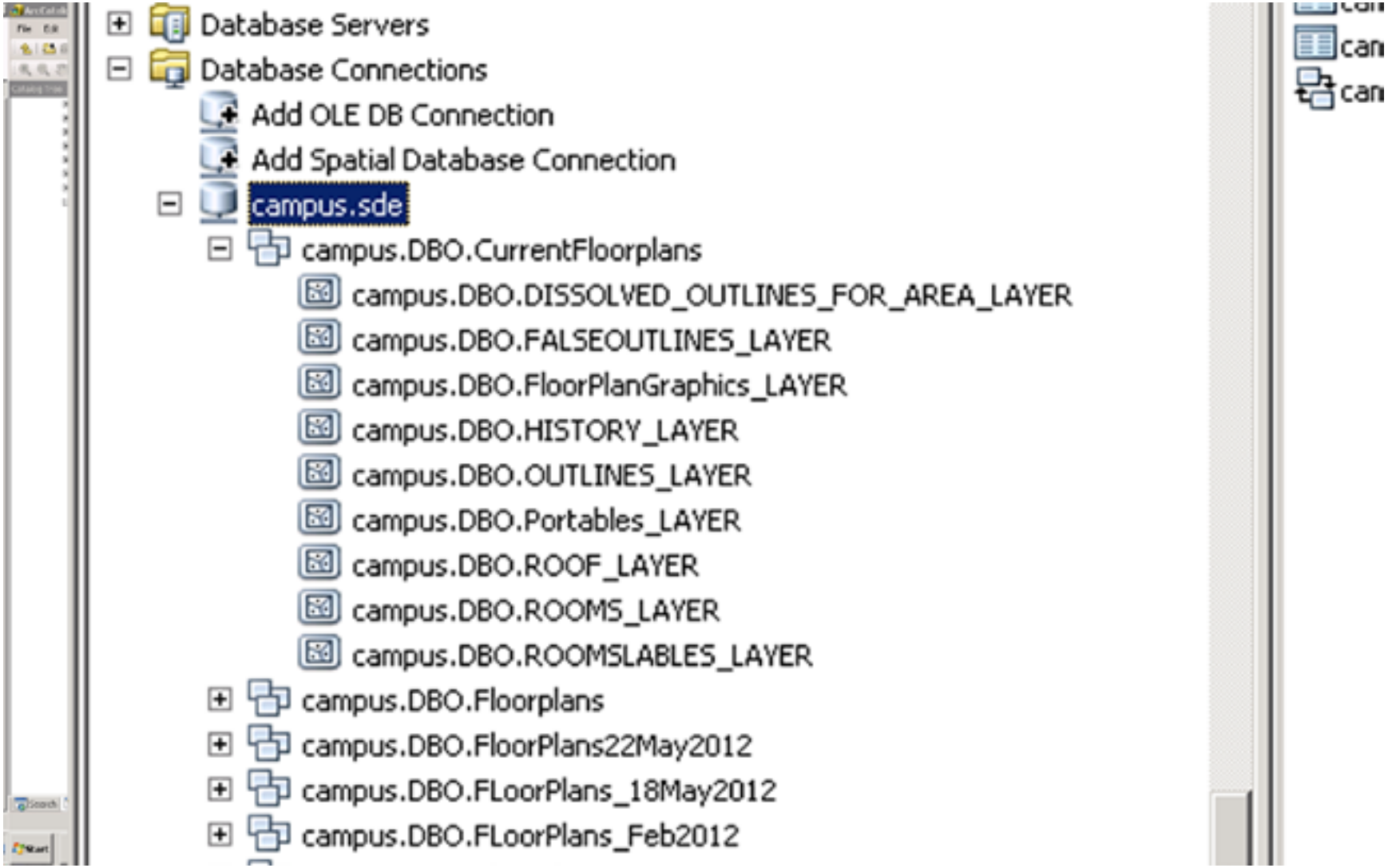
CAD polylines convert to GIS polygons using buffer tool.



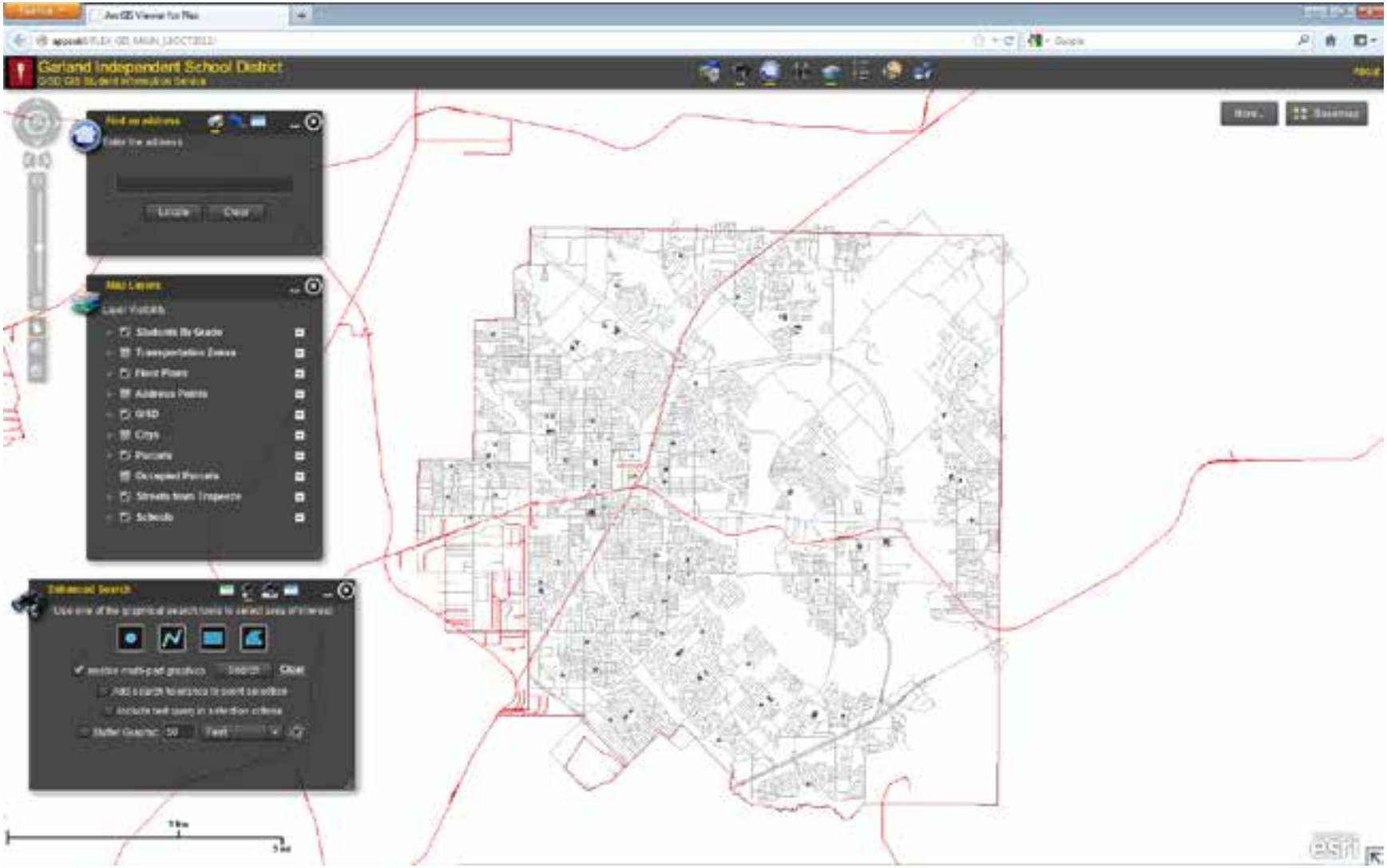




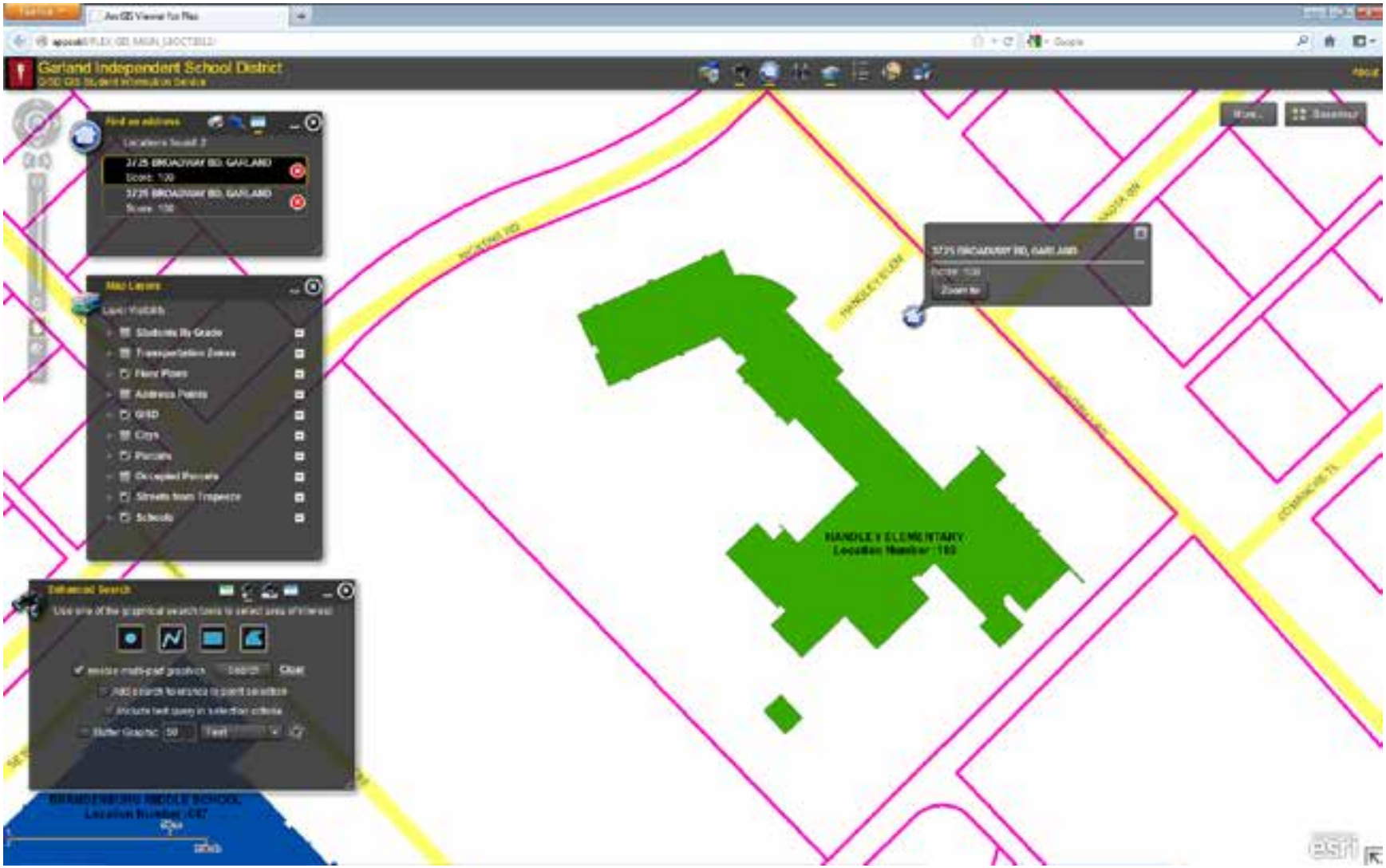
Resulting Feature Classes



FLEX Application



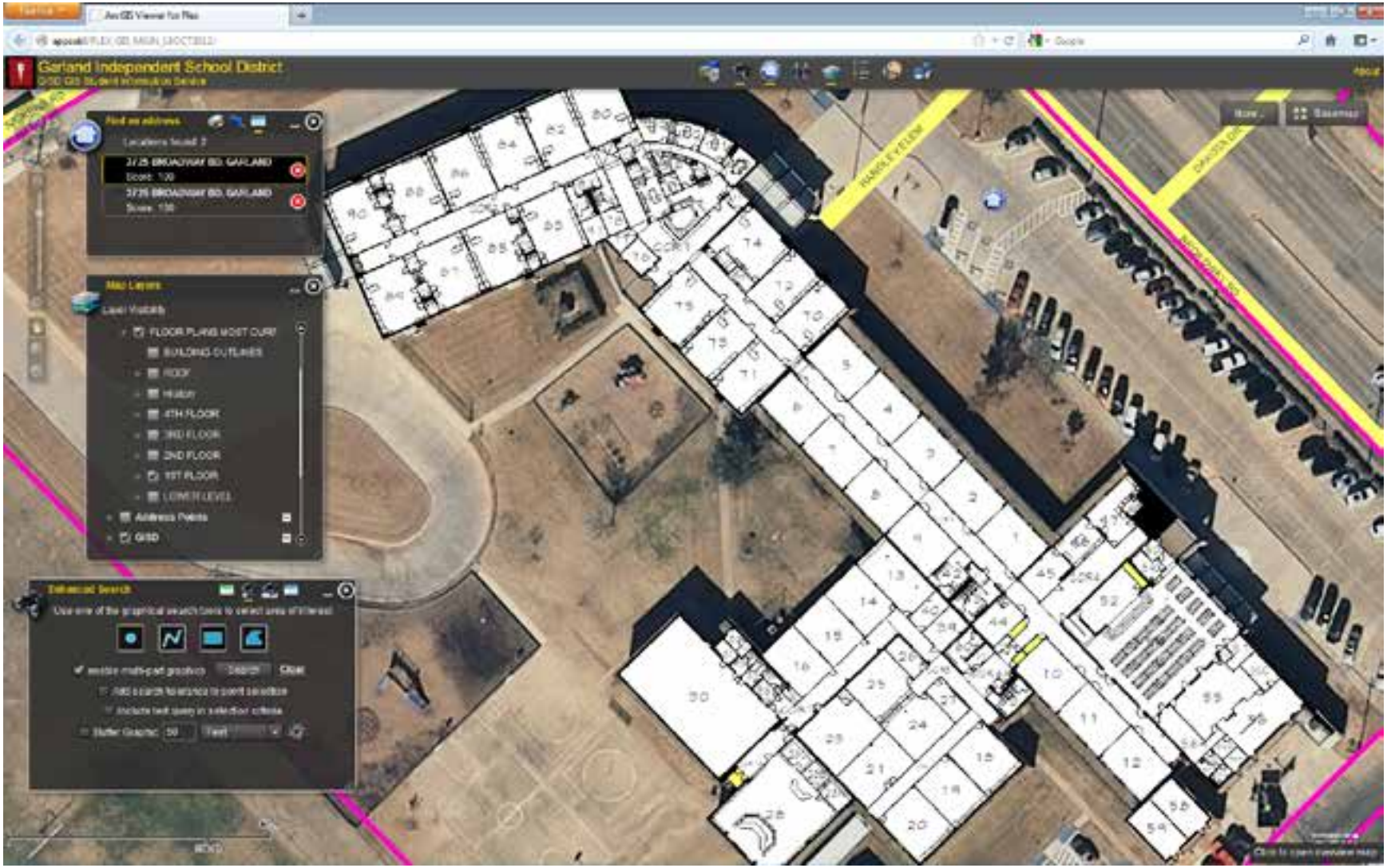
Building Outline



Imagery added

Roof layer joined with records

Floor Plan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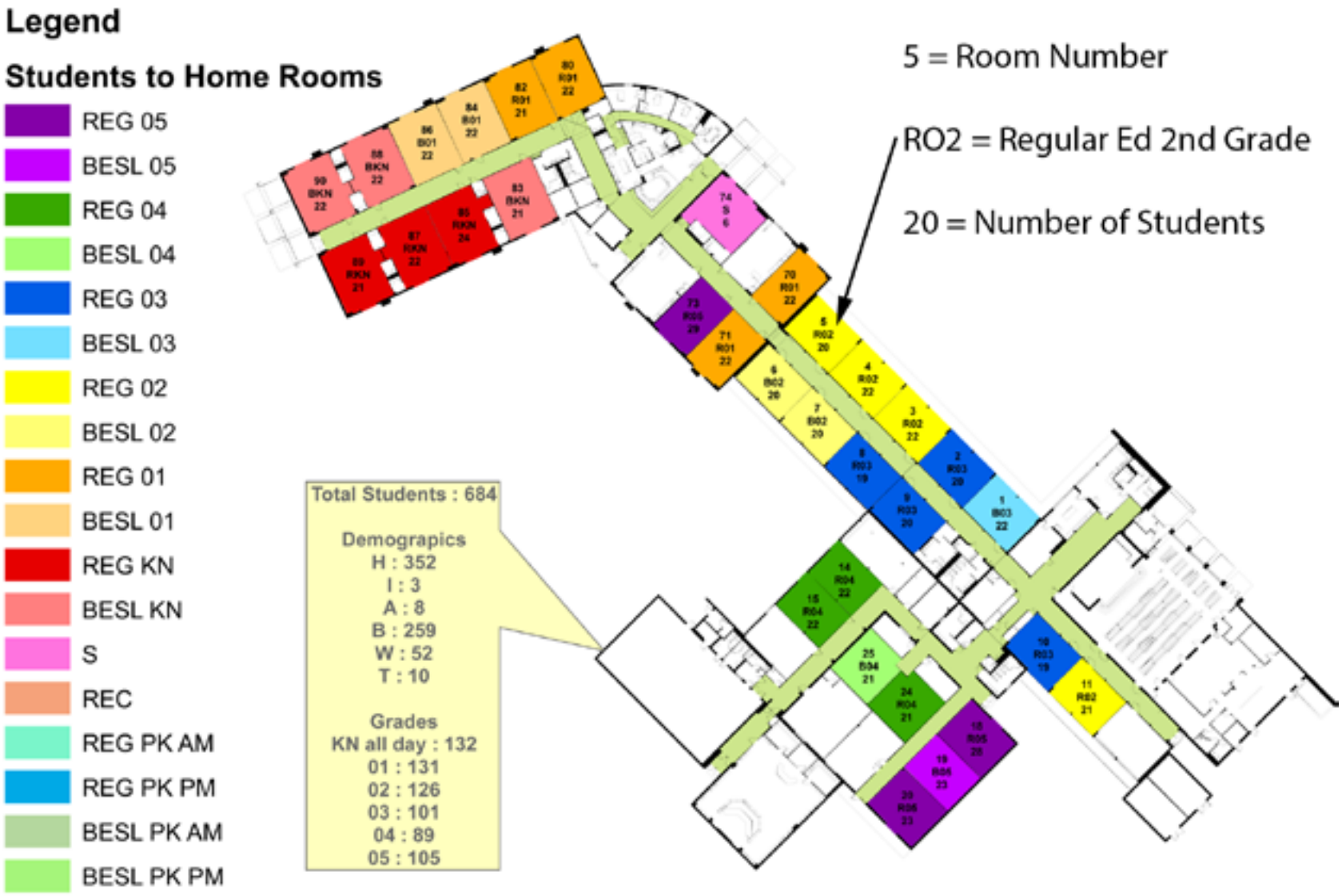
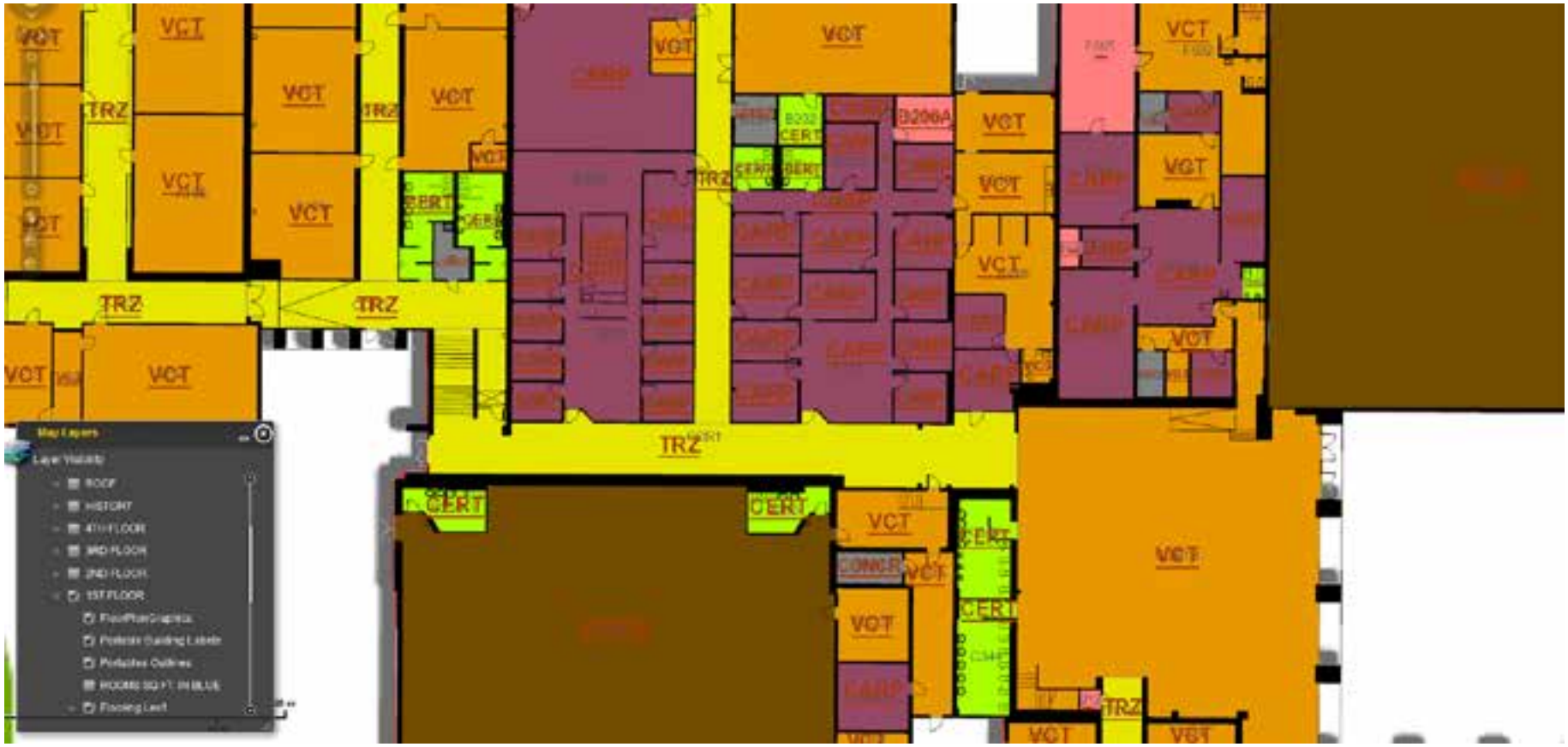
Map Layers
Enhanced Search

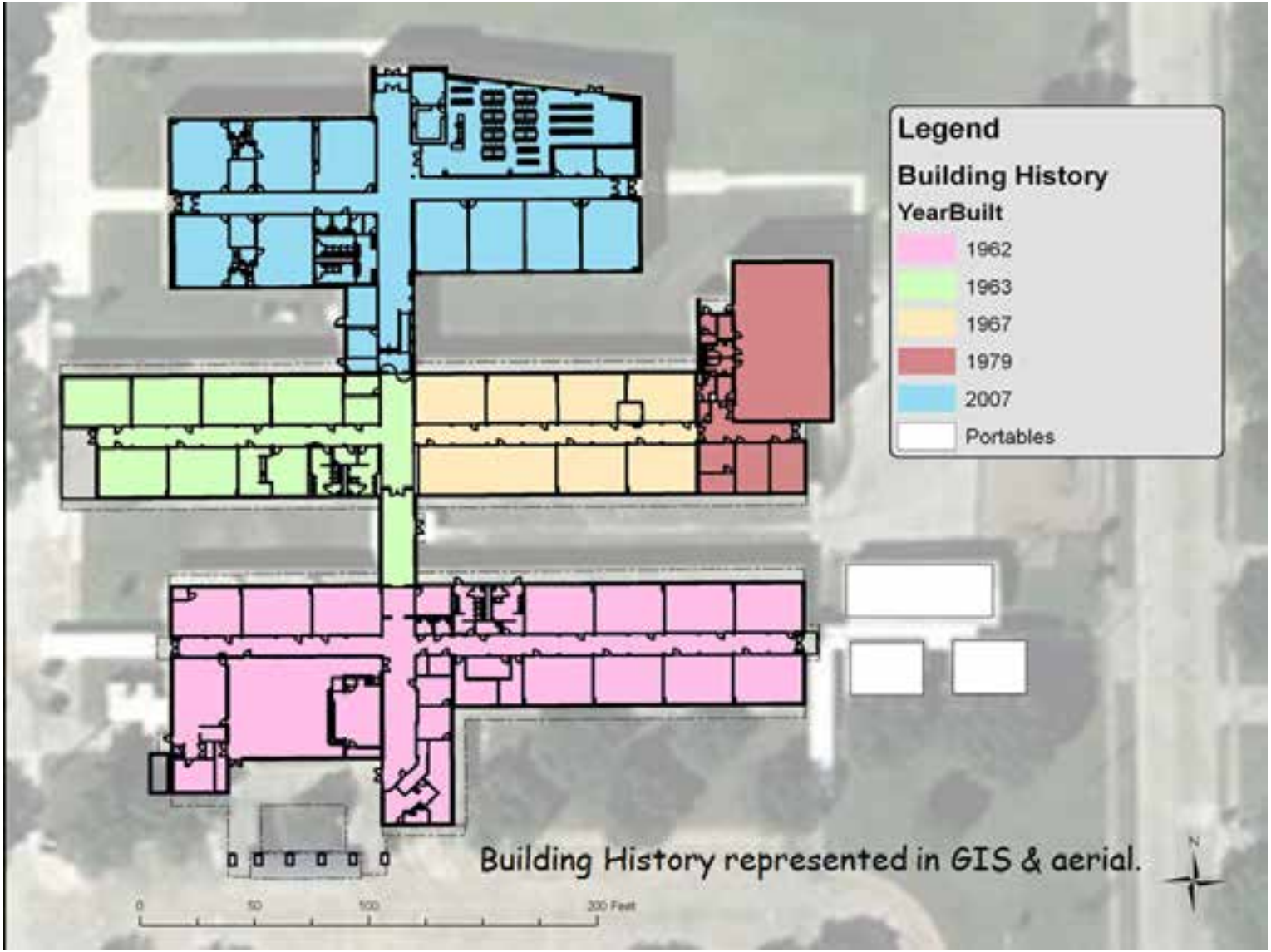
ES Home Room and Enrolment Info



Floor Surface Information



Building History



Going forward

Our initial workflow overwrote the floor plan of a building each time we reran our model on a CAD drawing.

We have added permanent space ID’s and are in the process of updating our workflows to compare and update instead of overwriting information in the data base.

We have also given access to our room list to other departments so that going forward data they are collecting will be easily integrated with our maps.