CAD To GIS Conversion For Facility Management Using Model Builder

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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
Roof layer joined with records
Floor Plan
ES Home Room and Enrolment Info

Legend

Students to Home Rooms

- REG 05
- BESL 05
- REG 04
- BESL 04
- REG 03
- BESL 03
- REG 02
- BESL 02
- REG 01
- BESL 01
- REG KN
- BESL KN
- S
- REC
- REG PK AM
- REG PK PM
- BESL PK AM
- BESL PK PM

5 = Room Number

RO2 = Regular Ed 2nd Grade

20 = Number of Students

Total Students: 684

Demographics
- H: 352
- I: 3
- A: 8
- B: 259
- W: 52
- T: 10

Grades
- KN all day: 132
  - 01: 131
  - 02: 126
  - 03: 101
  - 04: 89
  - 05: 105
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.