1 Starting THERM in Command Line Mode

THERM will have the following command line options (switches):

-pw <str>	password for command line mode
-log <logPath>	specifies a log file with all program messages, including warning and error messages
-clearlog	deletes the contents of the current log file (use after -log <logPath>)
-ini <iniPath>	resets ini variables based on the ini specified by iniPath
-thm <thmPath>	opens the thm file specified by thmPath
-thmx <thmxPath>	opens the XML file specified by xmlPath
-calc	performs calculations on the supplied model
-writexml	writes thmx file from the supplied thm file
-ignore	ignores all subsequent command line arguments (normally used for testing only)
-exit	exits program and returns to command prompt. if omitted, the program runs in interactive mode after processing all command line arguments
-saveXML	Writes SaveXML = 1 to the THERM INI file (Therm7.ini in C:\Users\Public\LBNL\Settings. *This was only added to THERM 7*

Using these command line options, you will be able to start THERM program and specify which XML file will be used to perform calculation or which thm file can be run to produce xml file.

THERm6.exe -pw YourPassword <other command line flags> -exit

Warning: do not copy/paste the above string into a command window, the – characters in WORD are sometimes turned into "em dashes" (–) as opposed to the hyphens (-) that W6.exe expects.

Note that command line arguments are processed sequentially and immediately. The execution of THERM simulation starts after –log parameter is read. An example of such command line that would result in THERM performing calculation on a mymodel.thx file is given below:

THERM6 -pw "passwordString" -log <simPath>\mymodel.log -ini <progPath>\T6.ini -thm <simPath>\mymodel.thm -writexml <simPath>\mymodel.thmx -calc –exit

This example would open mymodel.thm, located in the directory <simPath> (where <simPath> represents complete path to the simulation folder), read ini settings from the T6.ini file, located in the directory <progPath> (where <progPath> represents complete path to the main program folder), create mymodel.thmx XML file, write all program messages in a file mymodel.log, located in <simPath> directory, calculate THERM model mymodel.thmx and finally exit to the command prompt, returning control to the calling application

The following example would read thmx file without performing any calculation THERM6 -pw “passwordString” -log <simPath>\mymodel.log -ini <progPath>\THERM6.ini -thmx <simPath>\mymodel.thmx –exit

2 Preparing THERM INI file

You can either use the standard INI that is used by THERM6, or specify one on the command line.

Table 1. THERM 6 INI Settings

INI Command	Description
[THERM]	Header
ConradOutput=0	Suppress detailed output from sim engine
ConradRadiosityMaxIterations=100	Max iterations for radiosity convergence
ConradRadiosityTolerance=0.000100	Radiosity convergence tolerance
Relaxation=1.000000	Initial relax parameter
ConradRelaxationStep=-0.0100	Relax parameter auto decrease step
ConradRelaxationMaxIterations=25	Relax parameter auto decrease (max times)
ConradRunType=0	
ConvergenceTolerance=0.000001	Overall convergence tolerance
ErrorCheckEnable=1	Run calculation error estimator
PrefErrorCheckFlag=1	
PrefErrorLimit=10.00	Error energy norm upper limit
FloatTolerance=0.010000	
LogFileSize=200	
MeshVoidTolerance=1	
AutoIncrementMesh=1	Auto increment step for mesh refinement
MaxMeshIterations=5	Max iterations before auto mesh increase stop
QuadTreeMSP=7	Starting mesh parameter
SaveConrad=0	Do not save debug file (.o)
SaveResults=0	Do not save detailed simulation results
SaveSimFiles=0	Do not save intermediate simulation files
UnitSystem=1	Use SI unit system
ViewFactorSmoothing=1	Use view factor smoothing
SimPath=<sim dir>	Location of simulation directory
BCLibName= sim dir\bc.lib >	Location of the boundary condition lib
MaterialLibName=< sim dir\material.lib >	Location of the material lib
UfactorLibName=< \ufactor.lib >	Location of the U-Factor tag lib
GasLibName=< sim dir\gas.lib>	Location of the gas lib
SaveXML=1	Save xml version of THERM file
The following entries are only relevant for the NFRC Component Modeling Approach (CMA)	
CMALowSpacerConductivity= 0.01	Conductivity of the Best spacer
CMAHighSpacerConductivity= 10.0	Conductivity of the Worst spacer
CMALowGlazingGapConductance: 0.638566	Conductance of the Best glazing
CMAHighGlazingGapConductance: 5.880546	Conductance of the Worst glazing
CMAGlassLayer1Thickness=6	Glazing layer 1 thick for the commercial glass
CMAGlassLayer2Thickness=6	Glazing layer 2 thick for the commercial glass
CMAGlassLayer1Conductivity=1.0	Glazing layer 1 conductivity
CMAGlassLayer2Conductivity=1.0	Glazing layer 2 conductivity
CMAGlzSysInsideEmiss=0.84	Emissivity of the indoor glazing surface
CMAGlzSysOutsideEmiss=0.84	Emissivity of the outdoor glazing surface
CMALowGlzSysInsideConvectiveFilm=1.854252	Indoor hc (conv. film) for Best IG glazing
CMAHighGlzSysInsideConvectiveFilm=2.866122	Indoor hc (conv. film) for Worst IG glazing

CMALowSnglGlzInsideConvectiveFilm=3.415185	Indoor hc (conv. film) for Best Single glazing
CMAHighSnglGlzInsideConvectiveFilm=3.529954	Indoor hc (conv. film) for Worst Single glazing
CMALowSnglGlzInsideEmissivity=0.026	Indoor emissivity for Best Single glazing
CMAGlazingExteriorBC=NFRC 100-2001 Exterior	Outdoor Boundary conditions
CMATin=21.0	Indoor temperature
SaveXML=1	Causes the THMX XML file to be saved automatically by the program. *This was only added to THERM 7*

3 THERM XML FILE (.THMX)

The THERM xml file (.thmx) can be used as a format to import or export data from THERM6

3.1 Structure of THERM XML File

The THERM xml file thmx contains all the information needed to perform a simulation and to provide a full set of results:

- CrossSectionType
- Polygons
- List of Materials
- List of Boundary Conditions
- List of Glazing Systems
- List of U-value results

The structure of xml file is included here for reference.

NOTE:

The THMX file format in version 7.5 has changed slightly.

Here are some of the changes highlighted in yellow

7.4

<Material Name="sample-sill:Silica Gel (dessicant)" Type="0" Conductivity="0.030000" Absorptivity="0.500000" Emissivity="0.900000" RGBColor="0xFF8080"/>

<BCPolygon ID="61" BC="Frame Cavity Surface" units="mm" PolygonID="83" EnclosureID="5" UFactorTag="" Emissivity="0.900000">

7.5

<Material Name="sample-sill:Silica Gel (dessicant)" Type="0" Conductivity="0.030000" Absorptivity="0.500000" EmissivityFront="0.900000" EmissivityBack="0.900000" WindowDB="" WindowID="-1" RGBColor="0xFF8080"/>

<BCPolygon ID="61" BC="Frame Cavity Surface" units="mm" MaterialName="" PolygonID="83" EnclosureID="5" UFactorTag="" Emissivity="0.900000" MaterialSide="Front" IlluminatedSurface="FALSE">

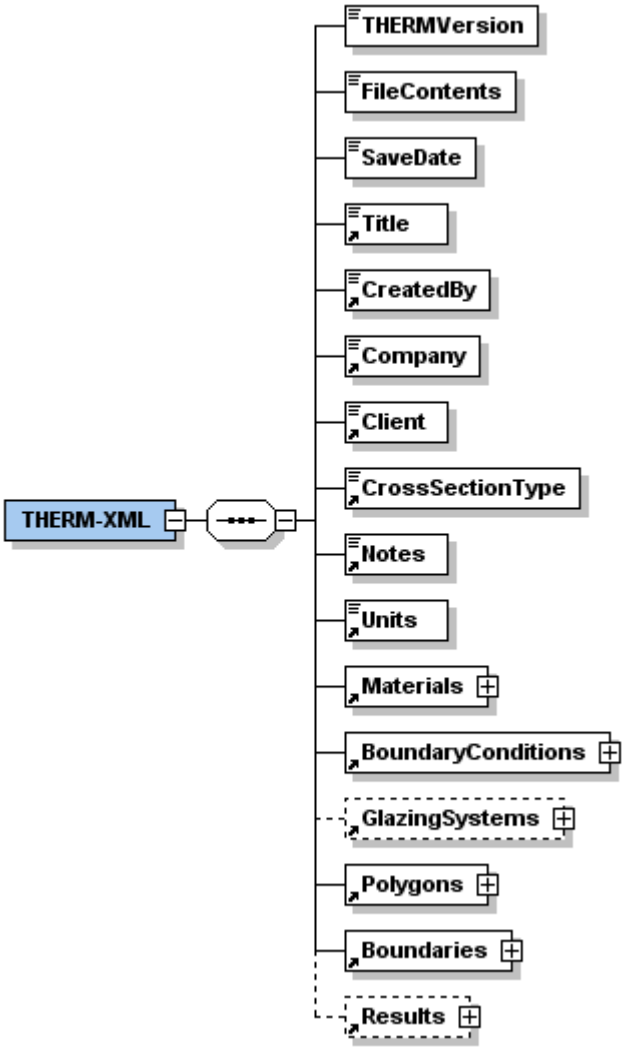

Figure 1. Schematic Representation of THERM xml Schema

In Figure 1 is represented top level THERM xml schema (thmx file) where full line rectangle boxes presents required blocks, while dotted rectangle boxes represents optional blocks. This notation is valid for other xml schema presentations also.

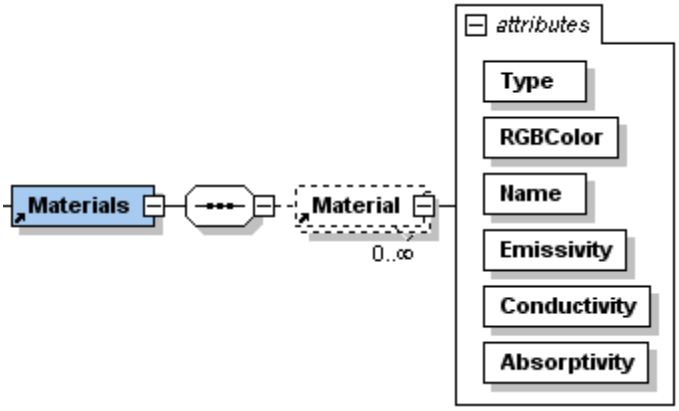

Figure 2. Schematic Representation of Materials Block

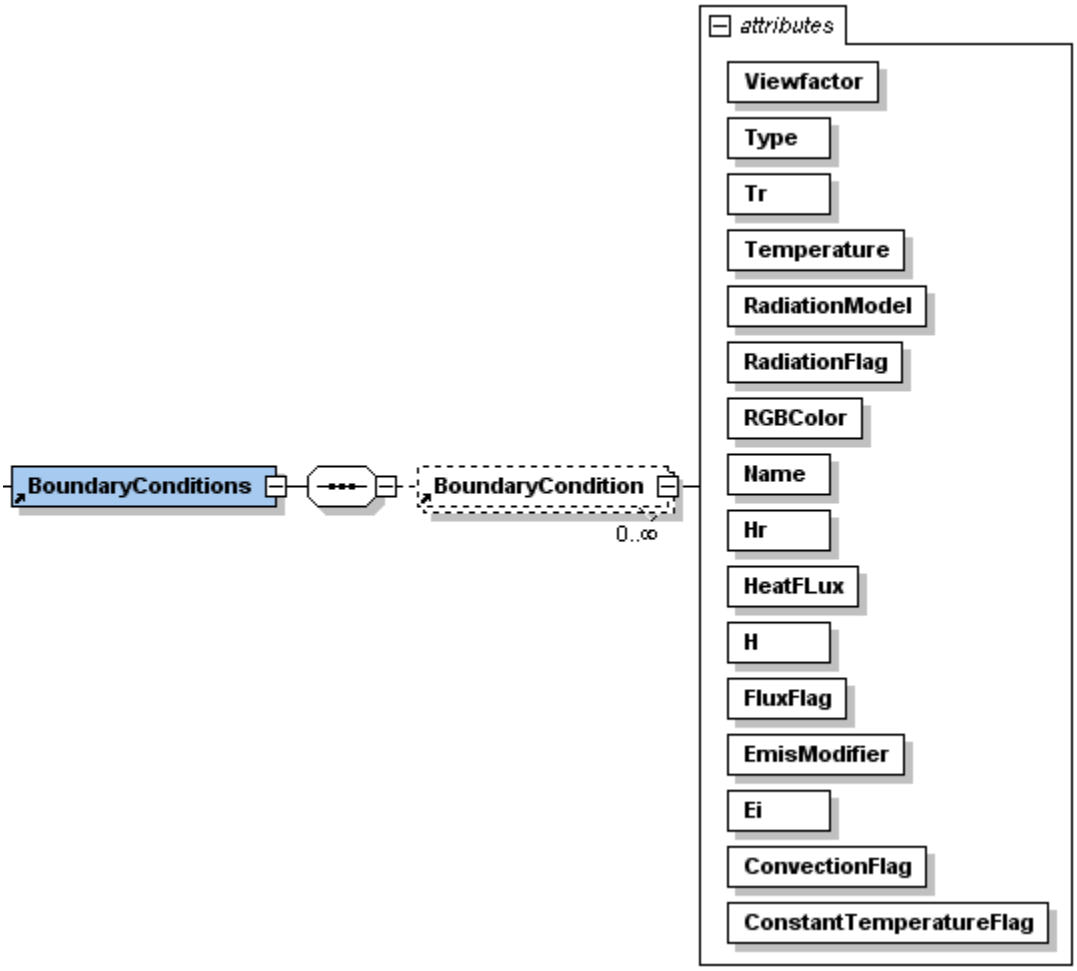

Figure 3. Schematic Representation of Boundary Conditions Block

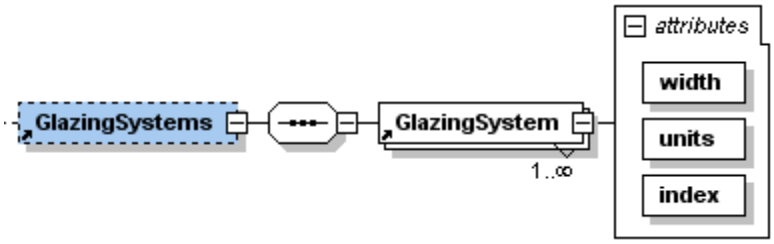

Figure 4. Schematic Representation of Glazing Systems Block

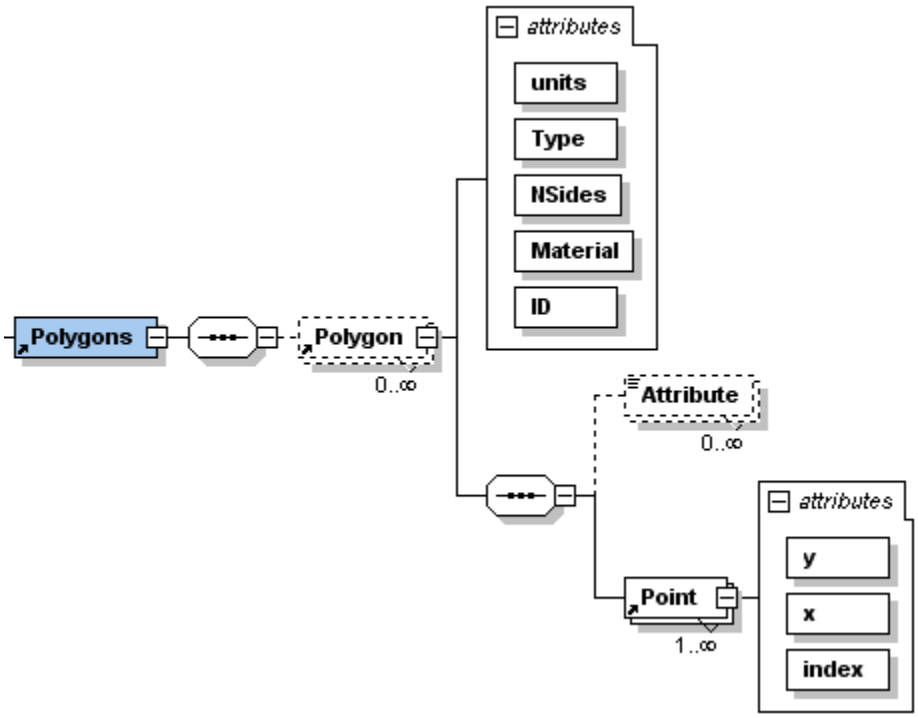

Figure 5. Schematic Representation of Polygons Block

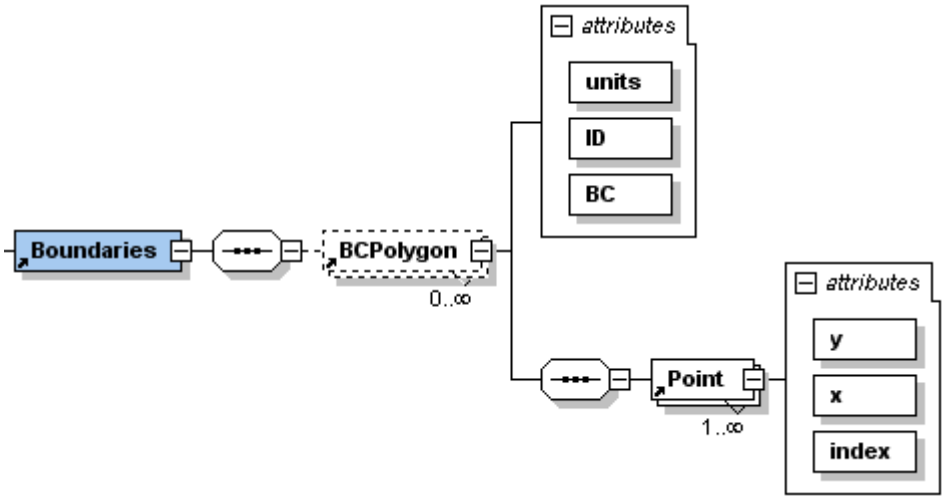

Figure 6. Schematic Representation of Boundaries Block

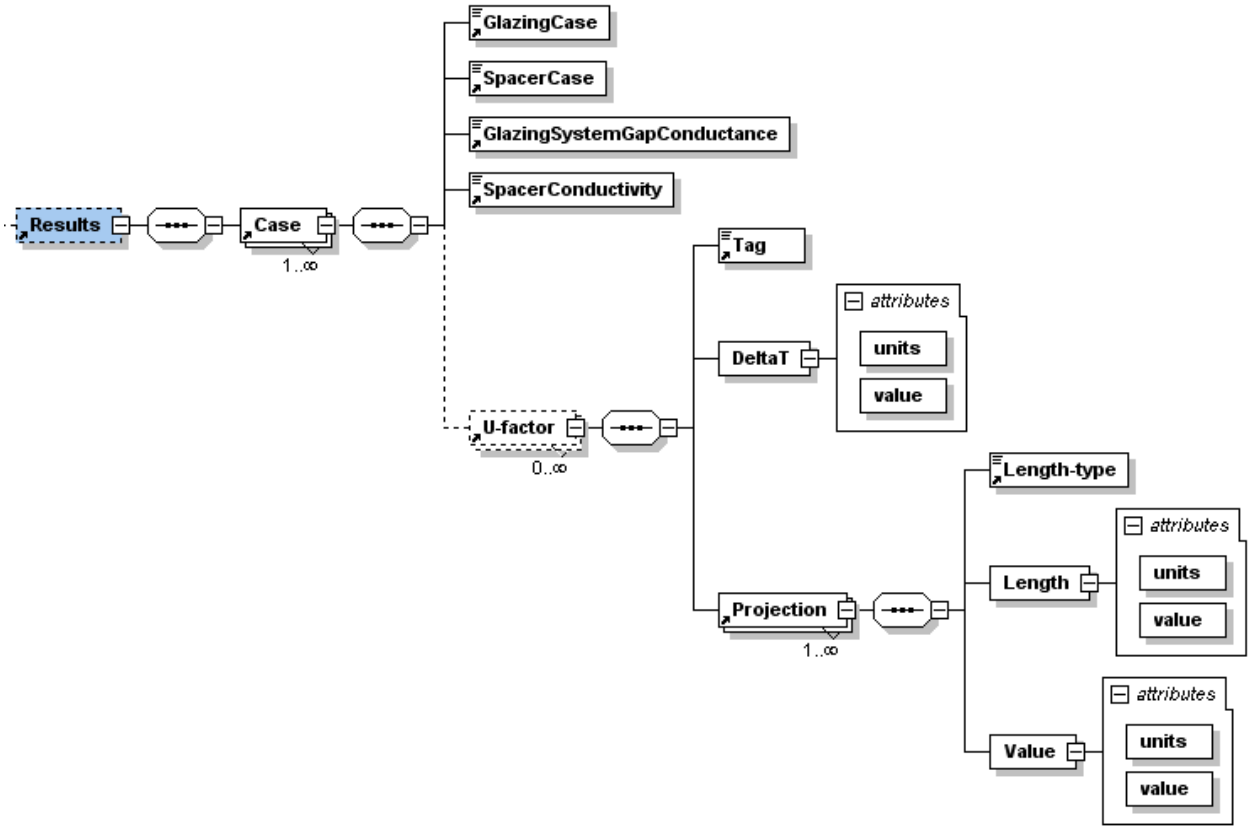

Figure 7. Schematic Representation of Results Block