

# EndUseType

Enumerator	Description	Notes
INTERIOR_LIGHTING	Interior lighting	
EXTERIOR_LIGHTING	Exterior lighting	
SPACE_HEATING	Space heating	
HEAT_PUMP_SUPPLEMENTAL_HEATING	Heat pump supplemental heating	
SPACE_COOLING	Space cooling	
PUMPS	Pumps	
HEAT_REJECTION	Heat rejection	
FANS_INTERIOR_VENTILATION	Fans - interior ventilation	
FANS_PARKING_GARAGE	Fans - parking garage	
HUMIDIFICATION	Humidification	
HEAT_RECOVERY	Heat recovery	
SERVICE_WATER_HEATING	Service water heating	
MOTORS	Motors	
TRANSFORMERS	Transformers	
OFFICE_EQUIPMENT	Office equipment	
COMPUTERS_SERVERS	Computers and servers	
COMMERCIAL_COOKING	Commercial cooking	
MISC_EQUIPMENT	Misc equipment	
INDUSTRIAL_PROCESS	Industrial process	
REFRIGERATION_EQUIPMENT	Refrigeration equipment	
ELEVATORS_ESCALATORS	Elevators and escalators	
OTHER	Other	

# EnergySourceOptions

Enumerator	Description	Notes
ELECTRICITY	Electricity	
NATURAL_GAS	Natural gas	
PROPANE	Propane	
FUEL_OIL	Fuel oil	
STEAM	Steam	
PURCHASED_HOT_WATER	Purchased hot water	
PURCHASED_CHILLED_WATER	Purchased chilled water	
ON_SITE_RENEWABLES	On-site renewables	Used primarily in AnnualResult
OTHER	Other	

## Output2019ASHRAE901

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Name	Description	Data Type	Units	Range	Req	Notes
<code>id</code>	Scope-unique reference identifier for instances of this data group.	<code>ID</code>			✓	
<code>reporting_name</code>	Descriptive name used in RCT reports if id is not already a descriptive name	<code>String</code>				
<code>notes</code>	Supplementary information to provide context to the model reviewer	<code>String</code>				
<code>output_instance</code>	References output that correspond to specific simulation model.	<code>{OutputInstance}</code>				A separate file is expected for each simulation model including outputs that correspond with building rotations.
<code>performance_cost_index</code>	Performance cost index for the project	<code>Numeric</code>				This output is appropriate for the overall project not specific instance of a model.
<code>baseline_building_unregulated_energy_cost</code>	baseline building unregulated energy cost.	<code>Numeric</code>				The units are the local monetary units such as dollars. This output is appropriate for the overall project not specific instance of a model.
<code>baseline_building_regulated_energy_cost</code>	baseline building regulated energy cost.	<code>Numeric</code>				The units are the local monetary units such as dollars. This output is appropriate for the overall project not specific instance of a model.
<code>baseline_building_performance_energy_cost</code>	baseline building performance energy cost.	<code>Numeric</code>				The units are the local monetary units such as dollars. This output is appropriate for the overall project not specific instance of a model.

Name	Description	Data Type	Units	Range	Req	Notes
<code>total_area_weighted_building_performance_factor</code>	Total area weighted building performance factor	Numeric				This output is appropriate for the overall project not specific instance of a model.
<code>performance_cost_index_target</code>	Performance cost index target for the project	Numeric				This output is appropriate for the overall project not specific instance of a model.
<code>total_proposed_building_energy_cost_including_renewable_energy</code>	Total proposed building energy cost including renewable energy.	Numeric				The units are the local monetary units such as dollars. This output is appropriate for the overall project not specific instance of a model.
<code>total_proposed_building_energy_cost_excluding_renewable_energy</code>	Total proposed building energy cost excluding renewable energy.	Numeric				The units are the local monetary units such as dollars. This output is appropriate for the overall project not specific instance of a model.
<code>percent_renewable_energy_savings</code>	Percent renewable energy savings	Numeric				This output is appropriate for the overall project not specific instance of a model.

## OutputInstance

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Name	Description	Data Type	Units	Range	Req	Notes
<code>id</code>	Scope-unique reference identifier for instances of this data group.	<code>ID</code>			✓	
<code>reporting_name</code>	Descriptive name used in RCT reports if id is not already a descriptive name	<code>String</code>				
<code>notes</code>	Supplementary information to provide context to the model reviewer	<code>String</code>				
<code>ruleset_model_type</code>	Describes the current model instance for rulesets with multiple simulation models	<code>&lt;RulesetModelType2019ASHRAE90I&gt;</code>				
<code>rotation_angle</code>	Rotation angle of the building model.	<code>Numeric</code>		<code>≥0, &lt;360</code>		Usually 0, 90, 180, or 270.
<code>unmet_load_hours_heating</code>	Unmet load hours for heating	<code>Numeric</code>	hr		✓	
<code>unmet_occupied_load_hours_heating</code>	Unmet load hours for heating when the zone is occupied	<code>Numeric</code>	hr		✓	
<code>unmet_load_hours_cooling</code>	Unmet load hours for cooling	<code>Numeric</code>	hr		✓	
<code>unmet_occupied_load_hours_cooling</code>	Unmet load hours for cooling when the zone is occupied	<code>Numeric</code>	hr		✓	
<code>annual_source_results</code>	Annual results by source	<code>[{SourceResult}]</code>				Contains a list of results by energy source.
<code>building_peak_cooling_load</code>	Building peak cooling load	<code>Numeric</code>	W		✓	
<code>annual_end_use_results</code>	Annual end use results	<code>[{EnduserResult}]</code>				Contains a list of results by end use and energy source.

## SourceResult

Name	Description	Data Type	Units	Range	Req	Notes
<code>id</code>	Scope-unique reference identifier for instances of this data group.	<code>ID</code>			✓	
<code>reporting_name</code>	Descriptive name used in RCT reports if id is not already a descriptive name	<code>String</code>				
<code>notes</code>	Supplementary information to provide context to the model reviewer	<code>String</code>				
<code>energy_source</code>	End use type	<code>&lt;EnergySourceOptions&gt;</code>			✓	
<code>annual_consumption</code>	Annual energy consumption	<code>Numeric</code>	J		✓	For energy_source ON_SITE_RENEWABLES this value is negative.
<code>annual_demand</code>	Annual site demand	<code>Numeric</code>	J		✓	This corresponds to the coincident demand for end-use results.
<code>annual_cost</code>	Annual cost	<code>Numeric</code>			✓	The units are the local monetary units such as dollars. For energy_source ON_SITE_RENEWABLES this value is negative.

# EndUseResult

Name	Description	Data Type	Units	Range	Req	Notes
id	Scope-unique reference identifier for instances of this data group.	ID			✓	
reporting_name	Descriptive name used in RCT reports if id is not already a descriptive name	String				
notes	Supplementary information to provide context to the model reviewer	String				
type	End use type	<EndUseType>			✓	
energy_source	End source	<EnergySourceOptions>			✓	
annual_site_energy_use	Annual site energy use	Numeric	J		✓	
annual_site_coincident_demand	Annual site coincident demand	Numeric	J		✓	
annual_site_non_coincident_demand	Annual site non-coincident demand	Numeric	J		✓	
is_regulated	Indicates whether the end use consumption is from regulated equipment	Boolean				