

# Meeting Minutes

TC 7.06 Building Data Exchange Subcommittee  
Tuesday, June 27, 2023, 10:00 – 12:00 EDT  
JW Marriott – Manatee [4], Tampa, FL



## ASHRAE Code of Ethics Commitment

In this and all other ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, integrity, and respect for others, and we shall avoid all real or perceived conflicts of interests. (See full Code of Ethics: <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>.)

## Attendees

29 people in attendance (combined in person and virtually)

Name	Affiliation	E-Mail	Member (VM, CM, or Guest)	YEA Member?	Intl Member?
Nicholas Long	NREL	nicholas.long@nrel.gov	VM TC7.6	N	
Amanda Webb	Univ of Cincinnati	amanda.webb@uc.edu	Vice Chair	N	N
Annie Smith	Introba	smithannelise314@gmail.com	Guest	N	N
Brittany Wilkins	Carrier	brittany.wilkins@carrier.com	Guest	N	N
Gregory Cmar	Interval Data Systems	gcmr@intdatsys.com	Guest	N	N
Guy Long	Prosoco	Guy.Long@prosoco.com	Guest	N	N
Isabel Langlois	NREL	isabel.langlois@nrel.gov	Guest	N	N
Jason DeGraw	ORNL	jason.degraw@gmail.com	Guest	N	N
Jeff Wanner (on behalf of Data Tools Team, Sydney)	DOE Building Technologies Office (contractor)	sydney.applegate@ee.doe.gov	Guest	N	N
Jie Xiong	NREL	jie.xiong@nrel.gov	Guest	N	N
Josh Dean	CA Energy Alliance	Josh.dean@caenergyalliance.org	Guest	N	N
Justin Mezzadri	ALC	justin.mezzadri@carrier.com	Guest	N	N
Lauren Adams	NREL	lauren.adams@nrel.gov	Guest	N	N
Mahabir Bhandari	ORNL	bhandarims@ornl.gov	CM	N	N
Mark Borkum	PNNL	mark.borkum@pnnl.gov	Guest	N	N
Mitchell Paulus	Command Commissioning	paulusm14@gmail.com	Guest	N	N
Nicholas Long	NREL	nicholas.long@nrel.gov	VM TC7.6	N	N
Niraj Kunwar	ORNL	kunwarn1@ornl.gov	CM	Y	

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Patrick Wendler	Taylor Engineering	pwendler@taylorengeers.com	Guest	N	N
Paul Grahovac	Prosoco	Paul.Grahovac@prosoco.com	Guest	N	N
Rob Hitchcock	Hitchcock Consulting	rjhitchcock@gmail.com	Guest	N	N
Ron Bernstein	RBCG Consulting	ron@rb-cg.com	Guest	N	N
Sagar Rao	AEI	sagar.rao@outlook.com	Guest	N	N
Scott Duncan	GA Tech	duncan@gatech.edu	Guest	N	N
Siu Fung FUNG	University College London	fungsiufung@gmail.com	Guest	Y	Y
Stephen Roth	Carmelsoft	sroth@carmelsoft.com	Guest	N	N
Thibault Marzullo	NREL	thibault.marzullo@nrel.gov	Guest	N	N
Travis Walter	LBNL	twalter@lbl.gov	Guest	N	N
Vish Reddi	Univ of Nebraska-Lincoln	vish@unl.edu	Guest	N	N
Yimin Chen	LBNL	YiminChen@lbl.gov	Guest	N	N

## Meeting

10:00	Introductions	All
	Acknowledgment of previous meeting minutes ( <a href="http://tc0706.ashraetcs.org/">http://tc0706.ashraetcs.org/</a> )	
10:10	Announcements and Remarks	Long
10:12	Old Business / Action Items	Long
	Action items at end of minutes.	
10:20	Round Table on Building Data Exchange Updates	
	Standards and Schema	All
	<ul style="list-style-type: none"><li>229P: Protocols for Evaluating Ruleset</li></ul>	

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Application in Building Performance Models

Goel

Dedicated schema working group. Developing both schemas and data dictionaries. There is an entirely new data dictionary. The schema is novel and uses new data dictionaries – independent of serialization but the version used in PNNL is JSON.

Name of the schema is Ruleset Evaluation Schema. The format will be shared with vendors soon. It is a very high-level view of the buildings needed for building compliance only. It is much different than the existing schemas of gbXML and BuildingSync. Schema has already been reviewed by vendors.

First public review by Jan 2024.

- 223P: Semantic Data Model for Analytics and Automation Applications in Buildings

Fierro

No update.

- 205: Representation of Performance Data for HVAC&R and Other Facility Equipment

TBD

No longer a P. Standing maintenance committee. They working on windows next.

- 232P: Common Content and Specifications for Building Data Schemas

Roth

The project is about 6 months old. It is a continuation of IBPSA committee that created a consensus standard. The majority of the work comes from Std 205. Relates to collecting data models for the built environment. Plan is to get a Public Review out for review in the next 6 months.

- 231P: CDL - A Control Description Language for Building Environmental Control Sequences

Pritoni

Pushing it along with 150 functions defined. Building tooling to help people produce the CDL. Guideline 36 is working with CDL.

- BEDES and Mapping Manager

Walter

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BEDES is a data dictionary with 600 terms with units and definitions. Data have been relatively static—adding a few terms a year. Working on transitioning BEDES out of LBNL to OSCR or ASHRAE. 30 or 40 users using mapping manager.

- gbXML Roth

green building XML – schema for transferring BIM to analysis tools. Revit -> OpenStudio, e.g. Updating the schema that Revit implemented in Revit Systems Analysis. New version is be under public review.

Working on RP 1813 – how to better handle stochastic models including the potential integration of obXML into gbXML.

Does this apply to existing buildings – yes, absolutely. Any data that are in BIM. But doesn't have to be BIM, but easier since BIM handles “everything”.

- HPXML TBD

No updates.

- BuildingSync Adams/Xiong/Marzullo

An XML schema for energy audit data transfer. E.g., Audit Template to SEED.

New use cases have been developed for GHG and Building EQ. There is a new Technical Advisory Group – new people are free to join. There is a new tool called the BuildingSync Asset Extractor – e.g., oldest HVAC unit, age of lighting, etc.

BuildingSync Gem – TAG is providing useful feedback. need updated schematron.

User survey showed interoperability with tools such as BSync to Audit Template and easier onboarding including documentation.

Import/export with eProjectBuilder.

New releases with no breaking changes.

How to handle multiple languages?

Individual asked about a primer, go to [buildingsync.net](https://buildingsync.net).

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If you would like to join the TAG, then send message to [lauren.adams@nrel.gov](mailto:lauren.adams@nrel.gov).

Controls & Optimization	All
• BRICK	Pritoni

First look seminar tomorrow at 11AM.

• Haystack	TBD
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Haystack is a flexible standard for hvac controls language. Meta spec language was added. Guidance was added on how to tag. Xeto tagging.

• OpenBuildingControl – CDL	TBD
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Now part

Design & Construction	All
• IBPSA BDE	Rao

IBPSA has been tasked with developing a standard output reporting protocol. It is for compliance and utility incentive programs. The goal is to create similar outputs from various tools such as DOE2, E+, OS, etc. There was an RFP for the project—proposals are due mid July. Possible to make its way to ASHRAE, but that is all to be determined. There is clear delineation between Std 229P and IBPSA BDE.

The other IBPSA projects are still on hold. IBPSA consensus document.

• BuildingSync Gem	Marzullo
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The BuildingSync Gem can specify retrofit scenarios to generate multiple OpenStudio/EnergyPlus models.

Public Agency Programs, Organizational Updates, Compliance, and Reporting	All
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- DOE Updates

Wanner

<https://buildingdatatools.energy.gov>. How to analysis the stock, a subset, and help local agencies use the data. The last year has really focused on BPS. More efforts focused on small buildings to help them prioritize needs. There was an effort to improve schools and Asset School was used to evaluate potential. Similar for HUD.

- ASHRAE Building EQ

Roth

Similar to LEED, but solely focused on the energy use of the building. It provides energy benchmarking score, compares to ASHRAE std 100 and/or ESPM. 0 is bad, 200 is extremely energy efficiency. Can import BuildingSync XML... new Use Case developed by BuildingSync team.

Localized in French and Spanish.

Does it compete to LEED, but it does differ, only focused on Energy and ties to std 211. It will dynamically create std211 spreadsheet.

Are there rankings of the Building EQ score.

- Asset Score

Borkum

<https://buildingenergyscore.energy.gov>

QBAT – Quick Building Assessment Tool. Used for the K-12 schools FOA. Received 2,000 submissions. QBAT does not map to BuildingSync – PDF is the main report.

- Audit Template

Borkum

New templates for Brisbane and Denver. Development server has CERL HUD, and new RCx for Washington DC.

Upcoming work for 179D tax deductions.

New feature being developed for a user to create their own template. Also, data exchange for ESPM.

- UBID

Borkum

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UBID is now really an idea for anything with a footprint. New cities include Indianapolis, Maryland, and New Jersey

Does it use bitmap? No, it was built on top of Google plus codes. UBID's toolset allows for a user to cross reference UBIDs as needed.

How do people find utility bills? They only care about who pays for the utility bill.

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- ~~IEA Annex 70~~
- CTS / FEMP Brauch

Adding in Water Conservation Measures into BuildingSync for CTS import.

- SEED Platform Long

UBID integrated

Energy Equity and Environmental Justice

Batch import/export between Audit Template and SEED Platform.

11:30 New Business

BuildingSync Data Standard / Guideline Adams  
Updates to [data.ashrae.org](http://data.ashrae.org)

Renaming to Common Data Format for Commercial Building Energy Audits. Building data exchange—will pull from BuildingSync. At TC 7.6, this is be discussed more. This is looking for TC 7.6 to take this up as the cognizant subcommittee.

Std211 is going to start looking at decarb assessments. Will this standard cover SDA.

PPIS is meeting now, they would meet next January. Ideally paper ballot in the fall. DeGraw volunteered.

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<b>APPLICATIONS</b> 	<b>Standard 211:</b> ASHRAE Commercial Building Energy Audits To establish consistent practices for conducting and reporting energy audits for commercial buildings.	<b>IBPSA:</b> Compliance and Certification Reporting
<b>RULESETS AND "QUERYING"</b> 	<b>Schematron:</b> A rule-based validation language Used for validation, data reporting, and QA, QC, and filtration	<b>BuildingSync Asset Extractor (BAE):</b> Python package that allows users to process a BuildingSync file to extract asset information that can then be imported into the SEED Platform
<b>OBJECT MODELS AND ONTOLOGIES</b> 	<b>Standard 229P:</b> Protocols for Evaluating Ruleset Implementation in Building Performance Modeling Software This standard establishes tests and acceptance criteria for implementation of rulesets (e.g., modeling rules) and related reporting in building performance modeling software.	<b>Standard 223P:</b> Designation and Classification of Semantic Tags for Building Data To provide a dictionary of uniform semantic tags. These tags enable interoperable use of descriptive information on building data.
<b>SCHEMAS</b> 	<b>BuildingSync-gem:</b> A repository of helpers for reading and writing BuildingSync XML files For using that data to drive energy simulations of the subject building	<b>BRICK, Haystack:</b> Standardized semantic metadata about a building To improve the understanding and management of building data
<b>DATA DICTIONARIES</b> 	<b>HPXML:</b> High Performance XML Creates a common language for the industry's transactions, making it easier and less expensive to collect and exchange information among contractors, program administrators, implementers, government, evaluation consultants, and other information trading partners.	<b>BuildingSync:</b> To address the lack of an industry-standard collection format for energy audit data
<b>PROTOCOLS AND SPECIFICATIONS</b> 	<b>gbXML:</b> Green Building XML It is the language of buildings that allows disparate 3D building information models (BIM) and architectural/engineering analysis software to share information with each other	<b>Standard 205P:</b> Representation of Performance Data for HVAC&R and Other Facility Equipment To facilitate automated sharing of equipment performance characteristics by defining data models and data serialization formats.
	<b>BEDES:</b> Building Energy Data Exchange Specification A dictionary of terms and definitions commonly used in tools and activities that facilitate the exchange of information on building characteristics and energy use	<b>ASHRAE Terminology:</b> Comprehensive online glossary of the built environment
	<b>Data Models Specification / Standard 232P:</b> Schema-Based Building Data Model Protocols Define building data structures and conventions for data exchange among building performance models	<b>Guideline 20:</b> Documenting HVAC&R Work Processes and Data Exchange Requirements To define a systematic procedure for documenting work processes (Use Cases) and data exchange requirements for specific HVAC&R activities.
	<b>IPBSA:</b> - Data Models Working Group Specification - Climate Data Model Specification	<b>JSONSchema:</b> Vocabulary that allows you to annotate and validate JSON documents  <b>XSD:</b> XML Schema Definition

Created by Marjorie Schott / NREL for ASHRAE TC 7.6 Subcommittee of BDE

ASHRAE & IBPSA BDE Committee Partnership

Rao/Long

- Ability to aggregate buildings across multiple systems. Ron Bernstein, 90% up and 10% down. Need to know what to do with the information. This is across disparate vendors and data formats. Needs an enterprise solution. Portfolio issues.

## Seminars and Programs of Interest

*Seminar 54: Applying ASHRAE Guideline 20 to Creating Real World Built-Environment Use Cases, Wed Jun 28 08:00-09:30, JW, Tampa Bay 3.*

*Seminar 68: By All Measures: Recent Advances in Energy Efficiency Measure (EEM) Data Collection Aggregation and Analysis, Wed Jun 28, 11-12:30, JW, Tampa Bay 3.*

Adjourned 11:57

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