



Guidelines for Home Energy Professionals Project: Multifamily Job Task Analyses Needs Assessment

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NREL is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, operated by the Alliance for Sustainable Energy, LLC.

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Acronyms and Abbreviations

AE	Advanced Energy
AEA	Association for Energy Affordability
BAS	building automation system
COM-BO	Commercialization Building/Operating Engineer Technician
COM-CX	Commercial Building Commissioning/Retro-commissioning Authority
COM-EA	Commercial Building Energy Auditor
COM-EM	Commercial Building Energy Modeler
COM-FM	Commercial Building Facility Manager
COM-SM	Commercial Building Energy/Sustainability Manager
Cx	commissioning
DOE	U.S. Department of Energy
HMG	Heschong Mahone Group
HUD	U.S. Department of Housing and Urban Development
HVAC	heating, ventilation, and air conditioning
JTA	job task analysis
KCHA	King County Housing Authority
LISC	Local Initiatives Support Corporation
NMIC	Northern Manhattan Improvement Corporation
NRCERT	New River Center for Energy Research and Training
NREL	National Renewable Energy Laboratory
NYSERDA	New York State Energy Research and Development Authority
O&M	operations and maintenance
QC	quality control
RCx	retro-commissioning
SME	subject matter expert
SWS	standard work specifications
TNDC	Tenderloin Neighborhood Development Corporation
VAV	variable-air volume
WAP	Weatherization Assistance Program

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Background

The U.S. Department of Energy (DOE) Weatherization Assistance Program (WAP) and the National Renewable Energy Laboratory (NREL) have developed the Guidelines for Home Energy Professionals (Guidelines) project to support and promote high-quality energy upgrade work within the WAP. The Guidelines project seeks to provide foundational resources not only for the WAP, but also for workers, contractors, training providers, homeowners, and program administrators involved in the greater home performance industry to facilitate job growth in this sector and increase the skilled workforce available to perform home energy upgrade work.

The Guidelines project aims to achieve the highest possible quality in any given home energy upgrade task through a three-pronged approach:

1. **Standard work specifications (SWS)**

SWS define the minimum acceptable outcomes for effective, durable, and safe energy upgrade work. SWS for single-family, multifamily, and manufactured housing energy upgrades are being developed under the Guidelines project.

2. **Job task analyses (JTAs)**

The JTAs for energy upgrade job designations define what a worker needs to do and know to be successful in a given job. The single-family housing sector has developed four major job designations that include retrofit installer/technician, crew leader, energy auditor, and quality control (QC) inspector. Meanwhile, the commercial building sector has developed six job categories that include commercial building energy auditor, commissioning (Cx)/retro-commissioning (RCx) authority, commercial building energy modeler, operations engineer/building technician, facility manager, and energy/sustainability manager. The JTAs for energy upgrade work allow for the certification of workers and the accreditation of training programs, ultimately ensuring quality workmanship for consumers.

3. **Certification blueprints**

Certification blueprints synthesize SWS content and JTAs by laying out a roadmap for developing worker certifications specific to a designated job category. Four worker certification blueprints have been developed for each of the single-family housing JTAs. Home energy professional worker certifications are being developed from these blueprints and are part of the Guidelines project. They aim to test a worker's competency to properly perform the work of the job category being evaluated.

The Guidelines project allows industry to leverage these three components to develop training resources, quality assurance protocols, accredited training programs, and professional certifications. The development of these foundational materials for the WAP, and for the home performance industry, facilitates a growing, skilled home energy upgrade workforce that is able to meet the increasing demand for energy upgrade work while maintaining quality assurance for homeowners and employers.

Purpose of Job Task Analyses

JTAs are resources that allow industry to define quality work and educate a skilled workforce to perform that work. Ensuring quality work and having access to the needed workforce are key factors for enabling an industry to grow and sustain itself. The development of JTAs is the first step in creating worker certifications and training accreditations within an industry or a sector of industry. JTAs serve as a foundational resource from which certification blueprints and certification tests can be developed as needed. They provide the industry a comprehensive catalog of tasks and the knowledge, skills, and abilities needed to perform these tasks competently.

While the development of JTAs can be seen as creating a barrier to market entry for certain workers and contractors, the benefits of having a uniform, consensus-based definition of energy upgrade work will ultimately propel the home performance industry forward. JTAs establish a mechanism for quality control that will help prevent unskilled workers and contractors from performing work. The need for skilled workers and contractors is especially pertinent in the home energy upgrade field where consumers and financiers expect a certain level of energy savings to offset the cost of the work.

The complexities of the work as well as the financing of energy upgrade work create a situation in which JTAs are very useful to the home performance industry. As a resource, they facilitate industry in achieving the following benefits in their supporting role for certification and accreditation programs.

WAP agencies

Benefits include the following:

- Agency reputation is improved by employing certified workers.
- Certified workers stand out in grant proposals and other funding opportunities.
- Utilities often prefer partnerships with weatherization agencies that employ certified workers.
- Certified workers are attractive to utility rebate programs as they can enhance their investments.

Energy efficiency program administrators

Certified workers are trained, capable, and professional, which leads to:

- Quality work done right the first time
- Increased cost efficiency and reduced call backs
- Reduced liability by providing safe conditions for the worker and the homeowner
- Satisfied customers.

Workers

Differentiates workers in a growing, competitive industry by demonstrating:

- Proven skills and abilities
- Commitment to quality work
- Commitment to results
- Delivery of a clear career lattice
- Reduced liability by providing safe conditions for the worker and the homeowner

- Increased homeowner confidence.

Employers

Benefits include:

- Strengthening contractor reputation and integrity
- Increasing effectiveness
- Doing quality work right the first time
- Delivering work on time and on budget
- Increasing cost efficiency and reduced call backs
- Reducing liability by providing safe conditions for the worker and the homeowner
- Satisfied customers
- Identifying talent for increased confidence when hiring.

Existing Job Task Analyses for the Building Performance Industry

In the last 18 months, DOE has facilitated the development of JTAs for both the commercial buildings sector and the single-family housing sector. While there is some overlap in the knowledge and skills needed to work in each of these sectors, there are very distinct job tasks that do not carry over from one to the other. These distinctions are apparent, for the most part, when looking at residential, single-family homes as compared to commercial buildings. Upon consideration of multifamily housing, these distinctions are not as clear, but this sector of the industry has been hurt by the lack of definition specific to multifamily housing due to an ad hoc attempt to place this diverse building set either under the umbrella of commercial buildings or residential housing focused on single-family homes.

The definition of multifamily housing used for this study is:

Any dwelling that contains five or more living units, which share one or more building systems and has three categories:

Low-rise: 1-3 stories with any shared building system

Mid-rise: 4-5 stories with any shared building system

High-rise: 6 stories or greater.

Introduction

Creating multifamily housing JTAs in addition to the already existing single-family and commercial building JTAs will allow for quality training and certifications within this unique sector. Workers, employers, and consumers will benefit from the proposed multifamily-specific JTAs. Workers will be provided a clear understanding of the varying skill sets, nuances, and knowledge needed to perform energy upgrades within each sector. This clear delineation will result in more effective measures and outcomes and will ultimately increase energy savings in all building types, benefitting consumers and employers. Having JTAs specific to each building sector clarifies career paths and educational opportunities for newcomers to the industry as well as for those practitioners with previous experience in one building sector transitioning to another. In addition, employers and consumers can be reasonably assured that a certified worker is able to perform the designated work at a satisfactory level or better, and can have greater confidence in the workmanship of a certified worker.

In completing the work on the multifamily SWS, the need for JTAs has become increasingly apparent in multifamily weatherization (and the broader multifamily building performance industry). To determine whether the proposed multifamily job categories needed to have multifamily-specific JTAs developed, a study was conducted to assess whether or not the existing JTAs for commercial buildings could be adopted “as-is” and effectively used for the proposed multifamily job categories.

After reviewing the existing commercial building JTAs, the study determined that the recent work completed with the support of DOE in the commercial sector would not provide an adequate basis for adoption and use in the multifamily sector. The study concluded that the creation of JTAs for key professionals in the multifamily building sector is required to effectively address energy upgrade work in multifamily buildings.

This report describes the efforts carried out to determine whether there is a need to develop separate, multifamily-specific JTAs for the four proposed job categories. The multifamily SWS market committee considered these job designations to be the best candidates for developing JTAs and certification blueprints, as well as having the greatest potential for promoting job growth in the multifamily home performance industry.

Multifamily Building Job Task Analyses Needs Assessment

NREL, Advanced Energy (AE), and the Association for Energy Affordability (AEA) created and managed a JTA study that engaged thirteen multifamily building subject matter experts (SMEs) to assess six commercial building JTAs to determine whether a distinct need existed for the multifamily workforce to have its own JTAs or if it could effectively use existing commercial building JTAs.

Scope

This study's main emphasis was on identifying gaps that might exist between the existing commercial building JTAs and the four proposed multifamily job categories for building operator, energy auditor, QC inspector, and project/program manager. The intent of the study was not to actually develop the proposed multifamily JTAs; it sought to find out from multifamily experts and practitioners whether there is a need for a future process to develop JTAs specific to the proposed multifamily job designations. This study did not look at the existing single-family JTAs, but these JTAs did come up during discussions and are mentioned in the appendix to the extent that they were addressed.

Format and Process

The study began with a kick-off meeting in which thirteen multifamily SMEs were given an overview of the assessment process and assigned to one of the three working groups. SMEs were tasked with reviewing the draft commercial building JTAs that corresponded to their assigned multifamily job category. To gain insight on whether there was a need for multifamily-specific JTAs, they were asked to consider the three following items:

1. Details important to the multifamily job category not covered in the commercial building JTAs (“gaps”).
2. Components unique to commercial properties and not applicable to the multifamily designation.
3. Whether a future process to develop a JTA specific to the multifamily job category was needed.

See Table 1 for participating SMEs and corresponding commercial building JTAs assignments for each proposed multifamily job designation.

Table 1. Proposed Multifamily Job Designations and Assigned SMEs

Proposed Multifamily Job Designations	Building Operator	Project/Program Manager	Energy Auditor	QC Inspector
SMEs	Asit Patel John Krigger Nick Dirr	Nehemiah Stone Dan Rieber Wayne Waite Lindsay Robbins	Mike MacDonald Phil Hull Jeff Staller Andy Brooks	Dan Cogan Glen Salas
Corresponding Commercial Building Job Designations	<ul style="list-style-type: none"> • Building/ Operating Engineer Technician • Facility Manager 	<ul style="list-style-type: none"> • Energy/ Sustainability Manager • Facility Manager 	<ul style="list-style-type: none"> • Energy Auditor • Cx/RCx Authority • Energy Modeler 	<ul style="list-style-type: none"> • Energy Auditor • Cx/RCx Authority • Energy Modeler

Each working group participated in a 2- to 3-hour work session webinar focused on whether there was a need to develop a JTA specific to the group’s multifamily job category. The working groups were coordinated by a point-of-contact from NREL, AEA, or AE, and were facilitated by AEA. Each webinar had a designated scribe to take notes to capture the SMEs insights and discussion. These notes were then used by the working group facilitators and points-of-contact to develop a webinar summary and consensus statement regarding the relevance of existing commercial building JTAs to the corresponding proposed multifamily job category. After the work session webinar, the summary, recommendations, and proposed next steps were distributed to the participating SMEs for review to ensure that the document accurately captured the findings of the working group.

Thirteen multifamily building SMEs actively participated in the study and additional experts in the field were consulted through the roundtable centered on the project/program manager job designation. These individuals have more than 300 years of combined experience in the multifamily retrofit industry; each averages approximately fifteen years of experience. SMEs from throughout the country participated in the study with a total of ten states represented in the overall study and discussions.

In addition, the organizations involved in the study represented various interests in the multifamily industry. They included representatives from affordable multifamily housing developers, local WAP sub grantees, state WAP grantees, the U.S. Department of Housing and Urban Development (HUD), and DOE as well as multifamily energy efficiency and building science experts, trainers, program administrators, and property owners.

In addition to the three working group webinars, there was a 1-hour voluntary multifamily project/program manager roundtable discussion held to gather stakeholder and industry input to create a general definition of the multifamily project/program manager. This roundtable discussion and the general definition formulated were used to inform the JTA needs assessment for the project/program manager working group. The roundtable was open to all SMEs

participating in the study and additional invitees. Fifteen multifamily building professionals attended the roundtable as well as staff from DOE, NREL, AE, and AEA. SMEs in attendance included:

- Crystal Bergemann, HUD, Denver, Colorado
- Wayne Waite, HUD, Reno, Nevada
- Brody Vance, Franklin Energy, Milwaukee, Wisconsin
- Nehemiah Stone, Benningfield Group, Folsom, California
- Katie Lamont, Tenderloin Neighborhood Development Corporation (TNDC), San Francisco, California
- Phil Hull, New River Center for Energy Research and Training (NRCERT), San Francisco, California
- Lindsay Robbins, New York State Energy Research and Development Authority (NYSERDA), New York, New York
- Dan Rieber, Northern Manhattan Improvement Corporation (NMIC), New York, New York
- Peggy Jen, Local Initiatives Support Corporation (LISC) San Francisco, California
- Michael Freedberg, HUD, Washington D.C.
- Dan Cogan, Taitem Engineering, Ithaca, New York
- Jeff Staller, Heschong Mahone Group (HMG), Encinitas, California
- Dan Auer, King County Housing Authority (KCHA), Seattle, Washington
- Julieann Summerfield, HMG, Oakland, California
- Amit Sarin, HUD, Washington, D.C.

For detailed summaries of the working group webinars and project/program manager roundtable discussions, see the Appendix.

Recommendation on the Development of Multifamily-Specific JTAs

Each SME working group concluded that the multifamily building workforce needs its own distinct JTAs. As they currently stand, the reviewed commercial building JTAs are not good “stand-alone” documents for any of the multifamily job categories. The reviewed commercial building JTAs do not cover the full range of skills and knowledge needed for the multifamily sector; and in many instances, the reviewed JTAs included details that are not applicable to the multifamily job designations.

The working groups recommend the future development of multifamily JTAs be conducted for the proposed energy auditor, QC inspector, building operator, and project/program manager job categories. The SMEs recommend that the future process consider an approach that can account for, and properly manage, the full range of multifamily buildings, which vary broadly in size, complexity, equipment types, regional variations, ownership structures, funding structures, and occupancy types. The working groups recognized that a number of the commercial building JTAs have some individual components that can carry over to the multifamily designations. As such, the SMEs recommend that the future process use this existing information to help inform the development of multifamily-specific JTAs.

The development of the proposed JTAs will enable the accreditation of energy efficiency training programs for multifamily buildings and verification that organizations training workers in the industry are qualified to teach to multifamily job categories. The end result will develop a highly qualified workforce that delivers better value to employers and homeowners by specifically addressing the multifamily section of the home performance industry thus increasing quality assurance for employers, property owners and managers, and tenants/homeowners.

In various instances, multifamily buildings have been classified as either a commercial building or a low-rise residential building, often based on building height, which has resulted in long-standing issues, missed opportunities, and confusion in the industry. To avoid this confusion and the ad hoc classification of multifamily buildings that leads to less effective energy upgrades, multifamily buildings need to be treated independently of these other building types in the home performance industry.

Developing JTAs specific to multifamily buildings will help lay the foundation for the future development of standards, certifications, training, and programs that are specifically designed for multifamily buildings and will thus produce better results. Well-defined multifamily JTAs will produce not only better results (and increase energy savings) but also will assist in clarifying career paths and educational opportunities for those practitioners with previous experience in either single-family housing or commercial buildings.

This study concludes that the existing commercial building JTAs cannot be applied effectively to the majority of multifamily buildings. The inadequacy of the existing commercial building JTAs to effectively address the work and skills needed to perform energy upgrades on multifamily buildings demonstrates the need for development of JTAs specific to the four proposed multifamily job categories.

Appendix: Subject Matter Expert Working Group Webinar Summaries

The following sections provide a summary of each working group webinar as conducted with the multifamily building SMEs. Each working group member analyzed two or three of the existing commercial building JTAs in order to determine their applicability to the respective proposed multifamily JTA category being discussed in the 3-hour webinar. Notes from the webinar discussion were used to form a summary, SME recommendations, and proposed next steps. Each SME reviewed the webinar summary, recommendations, and proposed next steps to ensure the written documents accurately reflected the SMEs’ previous analysis, discussion, and final determinations during the webinar.

Group 1: Energy Auditor and Quality Control Inspector Webinar Summary

The following summarizes the multifamily energy auditor and QC inspector working group’s webinar. Table 2 contains the webinar’s participants and reviewed commercial building JTAs.

Table 2. Group 1: SMEs and Reviewed JTAs

Group 1	Multifamily Energy Auditor and QC Inspector
Webinar Date	Nov. 12, 2012
SMEs	Dan Cogan, Taitem Engineering Phil Hull, NRCERT Mike MacDonald, Oak Ridge National Laboratory Glen Salas, Sustainable Management Solutions Jeff Staller, HMG Andy Brooks, AEA
Facilitators	Vince Perez and David Hepinstall, AEA
Scribe	Christina Larney, NREL
Points of Contact	Christina Larney and Rachel Romero, NREL
Reviewed Commercial Building JTAs	Commercial Building Energy Auditor (COM-EA) Commercial Building Cx/RCx Authority (COM-CX) Commercial Building Energy Modeler (COM-EM)

Commercial Building JTAs Review Results

Regarding the proposed multifamily energy auditor and QC inspector job categories, the SMEs identified the following gaps in the reviewed commercial building JTAs as well as content that was not applicable to the proposed multifamily job category.

Areas Unique to Multifamily Energy Auditor Not Covered in Commercial Building JTAs

- There are little to no details in any of the commercial building JTAs on the residential components of a multifamily building, including the “soft skills” needed for tenant engagement and interaction; and the technical skills for identifying appropriate audit sampling methods for multifamily buildings, auditing the apartments/dwelling units, and multifamily domestic hot water systems.
- There is little discussion regarding auditing and the diagnostic skills specific to multifamily buildings for building enclosure, infiltration, mechanical ventilation systems, and indoor air quality.
- Most of the commercial building JTAs speak more to large, central, and complex commercial systems and do not address mid- and low-rise type residential buildings, in particular, non-central (dwelling-unit) hot water and heating, ventilation, and air-conditioning (HVAC) systems.
- Most of the commercial building energy modeler JTA speaks more to code compliance, new construction, and hourly simulation software tools, and lack the necessary information for, and are considerably more advanced than, the multifamily building energy audit software tools currently used in the industry.

Areas Unique to Multifamily QC Inspector Not Covered in Commercial Building JTAs

- It was recognized that a multifamily QC inspector needs not simply to confirm that the work was done, but also needs to confirm that the estimated energy savings are likely to be realized—this confirmation aspect was missing in the existing commercial building JTAs. Multifamily QC inspection includes confirming that what is found on-site correlates with and supports the energy audit. Thus, the multifamily QC inspector needs to understand many of the components of multifamily energy auditing in order to perform a QC inspection; although, in many areas it can be at a more general level of understanding.
- The multifamily QC inspector also needs to be familiar with multifamily energy modeling to determine if the energy savings and projections are accurate and in agreement with equipment and quality of installation at the multifamily property. As such, each of the components missing from the commercial building JTAs in regards to the multifamily energy auditor, as identified above, also applies to the multifamily QC inspector.

Areas Only Applicable to Commercial Building JTAs and Not a Multifamily Energy Auditor

- The COM-CX JTA is very specific to the Cx authority process, and less so to the multifamily energy auditing process.
- Many of the systems identified in the commercial building JTAs would apply to a very small subset of multifamily buildings (less than 15%-20%), such as high-rise multifamily buildings with complex HVAC systems (central chillers, ducted variable-air volume [VAV] systems, etc.).
- The marketing/project development/scoping skills highlighted in the COM-EA JTA are more advanced than what is necessary for a typical multifamily energy auditor.

- Much of the COM-EA JTA is more relevant to modeling a new construction commercial building for energy code compliance; the tools to do so are different from the tools used in the existing building multifamily energy audit industry.

Areas Only Applicable to Commercial Building JTAs and Not a Multifamily QC Inspector

- COM-EM JTA is more detailed and advanced than what is needed for a multifamily QC inspector. A multifamily QC inspector needs to be a good translator/interpreter of the audit and model in order to confirm that what is found on-site correlates with and supports the energy audit report and the model’s projected savings, but does not need to have the level or extent of skills listed in the COM-EM JTA.
- Many of the systems identified in the commercial building JTAs would apply to a very small subset of multifamily buildings (less than 15%-20%), such as high-rise multifamily buildings with complex HVAC systems (central chillers, ducted VAV systems, etc.).
- The COM-CX JTA is very specific to the Cx authority process—a sometimes complex, relatively expensive procedure—and less so to the simpler multifamily QC inspection process. Tasks/items listed in the COM-CX JTA, but not applicable to a multifamily QC inspector, include Cx process and documentation, managing the Cx process, developing and coordinating testing schedules, reporting and analyzing results, performing end-of-warranty reviews, professional liability, and risk factors.

SME Group Recommendation

The working group recommends that a unique JTA development process be conducted for both a multifamily energy auditor and QC inspector. As they currently stand, the reviewed commercial building JTAs are not good “stand-alone” documents for multifamily job designations. The majority of the reviewed commercial building JTAs apply to building types that make up a very small subset of multifamily buildings (less than 15%-20%), and do little to address the typical tasks and technological understanding a multifamily energy auditor and QC inspector would need for small and mid-size multifamily buildings. The commercial building JTAs have little to no details on the residential components of a multifamily building, including the “soft skills” needed for tenant engagement and interaction, the technical skills for identifying appropriate audit sampling methods for multifamily buildings and auditing the apartments/dwelling units and multifamily domestic hot water systems.

The existing commercial building JTAs are lacking in multifamily auditing and diagnostic skills for building enclosure, infiltration, mechanical ventilation systems, and indoor air quality specific to multifamily buildings. Additionally, much of the commercial building JTAs are geared toward new construction and energy modeling for alternative method code compliance and are inadequate for addressing energy audits and QC inspections in multifamily buildings. In some cases, they go significantly beyond the necessary tasks and skills for performing energy audits and QC inspections on existing multifamily buildings.

The COM-CX JTA has useful information, which may be used as a starting point in developing a multifamily QC inspector JTA, but because it is specifically designed for a Cx authority in a commercial building, there are many missing as well as irrelevant components. Due to these significant differences, the existing COM-CX JTA is not a viable substitute for a multifamily QC inspector job description.

As has happened at various times and in various regions of the country, multifamily buildings are classified as either a commercial building or a low-rise residential building, based often on building height, which has resulted in long-standing issues, missed opportunities, and confusion in the industry. Developing JTAs specific to multifamily buildings will help lay the foundation for the future development of standards, certifications, training, and programs that are designed for multifamily buildings, thus producing better results.

Well-defined multifamily JTAs will produce not only better results (e.g. increase energy savings), but also will clarify career paths and educational opportunities for those practitioners with previous experience in either single-family residential housing or commercial buildings. Commercial building JTAs should not be applied to all types of multifamily buildings, just as single-family residential JTAs should not be applied to all types of multifamily buildings.

Proposed Next Steps

The working group recommends that a unique JTA process be conducted for both a multifamily energy auditor and QC inspector. However, because there is a considerable amount of information in the existing commercial building JTAs that can be used for these multifamily job designations, the group recommends that the future process use this existing information to help inform the development of multifamily JTAs. Finally, because multifamily buildings range broadly in size, complexity, equipment types, and regional variations, it is not expected that every multifamily energy auditor or QC inspector would need to have all the skills necessary for every possible type of multifamily building. The group recommends that the future process consider an approach that can account for, and properly manage, this variability.

Group 2: Building Operator Webinar Summary

The following summarizes the multifamily building operator working group’s webinar. Table 3 contains the webinar’s participants and reviewed commercial building JTAs.

Table 3. Group 2: SMEs and Reviewed JTAs

Group 2	Multifamily Building Operator
Webinar Date	Nov. 7, 2012
SMEs	John Krigger, Saturn Resource Management Asit Patel, ANP Energy Nick Dirr, AEA
Facilitators	Vince Perez and David Hepinstall, AEA
Scribe	Stefan Buck, AE
Point of Contact	Megan Douglas, AEA
Reviewed Commercial Building JTAs	Commercial Building Operating Engineer/Building Technician (COM-BO) Commercial Building Facility Manager (COM-FM)

Commercial Building JTAs Review Results

Regarding the proposed multifamily building operator job category, the SMEs identified the following gaps in the reviewed commercial building JTAs as well as content that was not applicable to the proposed multifamily job category.

Areas Unique to Multifamily Building Operator Not Covered in Commercial Building JTAs

- There are no details in either of the reviewed commercial building JTAs on the residential components needed for a multifamily building operator, such as tenant engagement, apartment inspections, laundry facilities, pest management, etc.
- There is little description regarding oversight and management of outside contractor and consultant personnel, which is an essential responsibility of a multifamily building operator and is typically the primary method for equipment maintenance, repair, and installation in multifamily buildings.
- The JTAs lack detail for mid- and low-rise type residential buildings, in particular, noncentral (dwelling-unit) hot water and HVAC systems.
- Existing commercial building JTAs lack the “soft skills” often necessary for a building operator in an occupied residential building, including managing tenant comfort/complaints, janitorial staff, and third-party personnel.

Areas Only Applicable to Commercial Building JTAs and Not Needed for Multifamily Building Operator

- Most of the systems identified in the COM-BO JTA would apply to a very small subset of multifamily buildings (less than 15%-20%), such as high-rise multifamily buildings with complex HVAC systems (central chillers, ducted VAV systems, etc.).
- Most of the COM-BO JTA applies to on-staff advanced mechanical maintenance and repair work. Most of this equipment would be inspected on-site by a multifamily building operator, but the work would often be completed by outside maintenance/mechanical contractors.
- Several areas of the COM-BO JTA have very little to no applicability to multifamily building operators, such as overseeing, repairing, and maintaining advanced life-safety systems, advanced electrical systems, building automation systems (BAS), cooling towers, side-stream systems, VAV systems/pneumatic systems, air-dryer systems, etc.
- Several areas of the COM-FM JTA have very little to no applicability to multifamily building operators, such as maintenance management systems (often an outside consultant, when existing), managing large-scale operations and maintenance (O&M) programs, utility supplier procurement, conducting staff development, performing human resources activities and programs, contract procurement and management, budget management, strategic planning, asset management, and executing large facility upgrade projects. Many of these tasks would be better applied to an asset manager or property manager in the multifamily industry.

SME Group Recommendation

The working group recommends that a unique JTA development process be conducted for a multifamily building operator. Too much of the commercial building operating engineer/building technician JTA applies to building types, which are a very small subset of multifamily buildings (less than 15%-20%), and does little to address the typical tasks of a building operator for small and mid-size multifamily buildings. Additionally, the COM-BO JTA does not address the residential components of a multifamily building, including apartment inspections, tenant engagement, and necessary soft skills. Finally, the existing COM-BO JTA requires the building operator to conduct much of the maintenance, repair, operation, and installation of advanced equipment, which in a multifamily building is often conducted by outside contractors or consultants. As a result, a multifamily building operator JTA would need to include more detail regarding managing these outside contractors and consultants.

The COM-FM JTA has little applicability to a multifamily building operator, and would be better suited for an asset manager or property manager in the multifamily industry.

Proposed Next Steps

The working group recommends that a unique JTA process be conducted for a multifamily building operator. However, because there is a considerable amount of information in the corresponding commercial building JTAs that can be used for a multifamily building operator JTA, the group recommends that the future process use this existing information already created to help inform the development of a multifamily building operator JTA. Finally, because multifamily buildings range broadly in size, complexity, system types, and regional variations, it is not expected that every multifamily building operator would need to have all the skills necessary for every possible type of multifamily building. The group recommends that the future process consider addressing core competencies in addition to identifying specialization based on multifamily building type.

Group 3: Project/Program Manager Webinar Summary

The following summarizes the multifamily project/program manager working group's webinar. Table 4 contains the webinar's participants and reviewed commercial building JTAs.

Table 4. Group 3: SMEs and Reviewed JTAs

Group 3	Multifamily Project/Program Manager
Webinar Date	Nov. 16, 2012
SMEs	Dan Rieber, NMIC Nehemiah Stone, Benningfield Group Wayne Waite, HUD Lindsay Robbins, NYSERDA
Facilitators	Nick Dirr and David Hepinstall, AEA
Scribe	Stefan Buck, AE
Point of Contact	Stefan Buck, AE
Reviewed Commercial Building JTAs	Commercial Building Energy/Sustainability Manager (COM-SM) Commercial Building Facility Manager (COM-FM)

Commercial Building JTAs Review Results

Regarding the proposed multifamily project/program manager job category, the SMEs identified the following gaps in the corresponding reviewed commercial building JTAs as well as content that was not applicable to the proposed multifamily job category.

Areas Unique to Multifamily Project/Program Manager Not Covered in Commercial Building JTAs

- There are no details in either of the reviewed commercial building JTAs on the residential components needed for a multifamily project/program manager, including tenant engagement, tenant demographics, and evaluation of opportunities in occupied apartments or during turnover of apartments. There is no information on management of split incentives as well as tenant utility allowances for publicly financed/subsidized properties.
- There is little discussion regarding building technologies, systems, and dynamics specific to multifamily properties including building enclosure, infiltration, mechanical ventilation systems, indoor air quality, combustion safety, multifamily domestic hot water systems, water conservation technologies, and on-site renewable energy technologies.
- The existing commercial building JTAs lack detail for mid- and low-rise type residential buildings, in particular, non-central (dwelling-unit) hot water and HVAC systems.
- There is little discussion of long-term energy efficiency and green capital planning or benchmarking of multiple properties within an organization. The existing commercial building JTAs are missing an emphasis on financing and funding of green and energy

efficiency opportunities in multifamily buildings, as well as the life cycle costing necessary for multifamily building, which includes knowledge of financing and ownership structure.

- Multifamily portfolio organizations, affordable multifamily development organizations, and multifamily energy efficiency project and programs would not fit well in the existing structure of the commercial building JTAs. They do not describe the development and adoption of portfolio and organization-wide policies and standards to move properties to a condition where they're continuing to improve the efficiency and quality of the housing.

Areas Only Applicable to Commercial Building JTAs and Not Needed for Multifamily Project/Program Manager

- Most of the systems identified in the COM-FM JTA would apply to a very small subset of multifamily buildings (less than 15%-20%), such as a high-rise multifamily building with complex HVAC systems (central chillers, ducted VAV systems, etc.).
- The COM-FM JTA is very specific to a single property and does not apply well to those managing multiple properties or projects. Many components of the COM-FM JTA would not apply to a multifamily project/program manager, including managing routine work orders, BAS, access control systems, security systems, and fire and life-safety systems; conducting staff development; and performing human resources activities and programs.
- A multifamily project/program manager would not necessarily be conducting the water and energy audits as highlighted in the COM-SM JTA, but rather would need to understand any audits completed by internal or external energy auditors.

SME Group Recommendation

The working group recommends that a unique JTA development process be conducted for a multifamily project/program manager. As they currently stand, the reviewed commercial building JTAs are not good “stand-alone” documents for a multifamily project/program manager.

The existing COM-FM JTA applies to building types, which are a very small subset of multifamily buildings (less than 15%-20%), and do little to address the typical tasks of a building operator for small and mid-size multifamily buildings. They also are very specific to a single property, and do not apply well to those managing multiple properties or projects.

The COM-SM JTA is a good starting point, but do not address the residential components of a multifamily building, including tenant engagement, tenant demographics, and evaluation of opportunities in occupied apartments or during turnover of apartments. There is no information on management of split incentives as well as tenant utility allowances for publicly financed/subsidized properties. Additionally, it does not adequately focus on long-term energy efficiency and green capital planning, or benchmarking of multiple properties within multifamily organizations or for a particular program.

Neither corresponding commercial building JTA includes a description on financing and funding of green and energy efficiency opportunities in multifamily buildings as well as the life-cycle

costing necessary for multifamily buildings, which includes knowledge of financing and ownership structure.

Proposed Next Steps

The working group and industry practitioners agree there is a strong need for the development of a JTA for a multifamily project/program manager. The existing COM-SM JTA could serve as a useful building block for the multifamily project/program manager JTA, and as such, the group recommends that the future process use the existing information to help inform the development of the multifamily project/program manager JTA.

The group recommends that the future process consider an approach that can account for and properly manage the full range of multifamily buildings, which vary broadly in size, complexity, equipment types, regional variations, ownership structures, funding structures, and occupancy types. Additionally, the future JTA development process should address a clear naming convention for the multifamily project/program manager JTA to allow it to crosscut and cover multiple organizations, projects, or program structures, and to avoid confusion when possible (e.g., the potential differences between a “project” and a “program”).

Project/Program Manager Roundtable Summary

The following summarizes the multifamily project/program manager roundtable. Table 5 contains the roundtable participants.

Table 5. Multifamily Project/Program Manager Roundtable Participants

Webinar Date	Nov. 16, 2012
Roundtable Attendees	Crystal Bergemann, HUD Wayne Waite, HUD Brody Vance, Franklin Energy Nehemiah Stone, Benningfield Group Katie Lamont, TNDC Phil Hull, NRCERT Lindsay Robbins, NYSERDA Dan Rieber, NMIC Peggy Jen, LISC Michael Freedberg, HUD Dan Cogan, Taitem Engineering Jeff Staller, HMG Dan Auer, KCHA Julieann Summerfield, HMG Amit Sarin, HUD
Facilitators	Nick Dirr, AEA David Hepinstall, AEA Jennifer Somers, DOE
Scribe	Stefan Buck, AE
Point of Contact	Megan Douglas, AEA

Goal

The goal of the roundtable was to create a general definition for the multifamily project/program manager. Based on this definition, the existing commercial building JTAs that aligned most closely with the proposed multifamily project/program manager were evaluated in order to develop a recommendation for whether a multifamily-specific JTA needed to be developed for the role of a multifamily project/program manager or whether the corresponding commercial building JTAs are sufficient to accurately describe the work and skills needed to competently perform a multifamily project/program manager job designation.

Discussion

HUD experience has illustrated that the multifamily project/program manager is very critical in helping properties achieve energy efficiency savings and green capital improvements within the organization. Additionally, the WAP, as well as other energy efficiency multifamily programs, has seen the benefits of strong, experienced, and well-defined project and program managers. Affordable multifamily development organizations see merit in the development of the multifamily project/program manager JTA, as there is currently no training or certification in the industry, especially for green and energy efficiency measures.

The multifamily project/program manager JTA would be an important resource not only for specific projects or programs, but for multifamily housing organizations as a whole, particularly for portfolio management and long-term green capital planning.

The multifamily project/program manager needs an energy efficiency focus beyond the typical asset manager. Within larger organizations, the multifamily project/program manager or sustainability manager should be a unique position with more specialization than a typical asset manager.

The project/program manager:

- Serves as a single point of contact and coordinator between multiple stakeholders
- Interacts with asset managers; owners; local, state, and federal governments; program administrators; contract managers; construction managers; multifamily energy efficiency consultants; architects; and engineers
- Needs to be flexible based on client variability and different program types
- Communicates with internal and external experts who can keep the project/program manager current with changes in industry, standards, technology, and financing.

The multifamily project/program manager plays the following general roles and has experience in the following fields:

- Material and services procurement
- Contract management
- Financing and financial management

- Workforce/labor management
- Construction management
- Policy and procedure compliance (per regulator/funding source requirements)
- Energy efficiency and building science understanding, including energy conservation measures, retrofit specifications, energy policies, O&M best practices, and installation standards
- Good translator/interpreter of energy audits and specifications, including understanding building technologies, energy models, work scopes, projected savings (and how they can be affected by “energy poverty” and comfort issues).

Proposed Next Steps

Stakeholders within the industry agree that there is a strong need for the development of a JTA specific to a multifamily project/program manager. The group recommends that the future process consider an approach that can account for, and properly manage, the full range of multifamily buildings, which vary broadly in size, complexity, equipment types and regionally.

Additionally, the future JTA development process should address a clear naming convention for the project/program manager job category to allow it to crosscut and cover multiple organization, project, or program structures and to avoid confusion when possible (e.g., the potential differences between a “project” and a “program”).