CITY OF SAN ANTONIO
DEVELOPMENT SERVICES DEPARTMENT
P.O.BOX 839966 I SAN ANTONIO TEXAS 78283-3966

ACCREDITED

TO: Development Services Customers

SUBJECT: **INFORMATION BULLETIN 221**
Commercial 2015 IECC Submittal Requirements

DATE: August 6, 2015 / *Revised December 22, 2016*

CREATED BY: Plan Review Division

Purpose:

As a customer service initiative, the Development Services Department (DSD) created this bulletin to guide customers through the application process regarding compliance with the 2015 International Energy Conservation Code (IECC). This information bulletin defines, clarifies, and sets specific requirements and guidelines for both DSD customers and DSD employees. Certain items are required to be submitted to DSD for review and other items are the review responsibility of the Designer and/or the Licensed Design Professional. *This IB was modified due to customer request for standard forms to fill out and submit for energy compliance letters to clear energy inspections prior to obtaining a certificate of occupancy.*

Scope:

This Information Bulletin consists of several parts:

Part I describes when, and for what types of buildings the 2015 Commercial IECC is applicable. This includes information about remodels of existing buildings, how to submit for shell and interior finish out phased permits, and how to submit for mixed use buildings that include R-2, R-3, and R-4 occupancies.

Part II lists and describes the energy specific information needed (reports, forms and letters) to submit to Plan Review as part of a commercial building permit application package, and later, to clear project specific applicable inspections prior to obtaining a Certificate of Occupancy.

Part III lists the responsibilities of review for the designer and licensed design professionals and responsibilities of review for DSD staff. This list contains greater detail as to what is submitted with a building permit package.

Part IV lists the Commissioning Agent requirements and who may conduct commissioning and provide the Pre-Commissioning Report to the City of San Antonio.

Part V, as a convenience, sets forth for the customer and DSD staff the mandatory sections of the IECC and/or ASHRAE 90.1 that must be complied with. This information can also be found in the Code themselves.

Appendix attached to this IB, contains the **Designer/Architect/Engineer's Letter of Certification of Energy Review to be submitted at Plan submission**, and the **Energy Compliance Letter(s)** submitted prior to issuance of the Certificate of Occupancy.

PART I – APPLICABILITY OF THE COMMERCIAL 2015 IECC

Applicability

The 2015 IECC Commercial Section is applicable for any new commercial building with conditioned space. This does not include one and two-family dwellings and townhomes covered under the provisions of the International Residential Code. It does not include any Group R-2, R-3 and R-4 buildings three stories or less in height above grade plane. These buildings are covered under the Residential provisions of the 2015 IECC. The commercial section of the 2015 IECC covers Group R-2, R-3 and R-4 buildings that are 4-stories and higher above grade plane. A REScheck, IC3 or other software printouts would be submitted for occupancies covered under the Residential Section of the IECC. See IB 101 for the Residential Energy Information Form to submit at permit submittal, and IB 167 - 2015 IECC Residential Inspection Forms for the required forms and information regarding inspections.

Mixed Use with Residential

Where a building has mixed use of residential and commercial, the appropriate section of the IECC shall apply with appropriate submittal documents; Residential and Commercial submittals are required as appropriate for the portion of the mixed use building.

Remodels to Existing Buildings

For additions to, remodel/alterations to, repairs of, and change of occupancy or change in use of an existing commercial building, Chapter 5 CE of the 2015 IECC applies and lists specific requirements and exemptions. Generally a COMcheck or printouts from other energy compliance software is not required unless a building is being "gutted" – brought down to the structural framing and being totally renovated. Specific information on energy submittals are in the Remodel Permit Application.

Phasing of Permits with Shell and Interior Finish Out Permits

Commercial buildings are often permitted in phases. In one case an owner is permitting a building for their own use but submitting a shell package and later submit an interior finish out permit (IFO), often because the interior is still in design. In another case an owner is permitting a shell building with future multi suite tenants who will then submit for interior finish out permits when a space is leased.

As with any building system, some systems are constructed with the shell stage and others at the interior finish out permit. Energy systems often work together and in both of the phasing cases mentioned above, the 2015 IECC with local amendments must be complied with. Due to the complications of phasing of energy systems, when a shell permit is applied for, the City of San Antonio requires the Architect to:

A. Submit the IECC C402 or ASHRAE Section 5 building envelope energy system designs with the shell permit. Additional information or revisions to the design may be required with the interior finish out permit for a system building wide permitted under the IFO.
B. Submit the proposed C406 additional energy package at the shell permit (included in COMCheck, if the COMCheck is being used as the compliance software).

C. Provide a schedule regarding each energy system as proposed and under which permit it will be installed and inspected under. Some energy systems are building wide while other systems may be individual systems for each tenant suite, therefore some systems are required at the shell stage or some building wide IFO, while other systems may be submitted with a tenant IFO.

D. Where a system may be partially constructed in separate permits, provide information in the schedule regarding who will be responsible for portions of a system in the case of multi-tenant buildings.

For a shell permit, this information is expected to be on the Energy Summary Sheet (See requirements below).

The next Table reflects requirements applicable to normal shell and interior finish out permits depending on whether the building is being designed and constructed for one owner, or for multiple future tenants with future interior finish out permits. Unique situations may alter the requirements, but the architect is expected to communicate the reasons for alterations to the requirements with Development Services at the time of the shell permit submittal. Please see further information on warehouses after the following table.

Submittals for a Shell Permit with Future Finish-Out Permit(s)		
Energy System	**One Owner Buildings**	**Multi-Tenant and Mixed Use with/without Residential**
COMCheck or other energy compliance software printout	Compliance printout required covering the proposed design of the building envelope systems under C402 or Section 5 of ASHRAE 90.1	Compliance printout required, as well as the detailed design of the building envelope systems under C402 or Section 5 of ASHRAE 90.1
Insulation - R-Value	Designed at the shell permit and may be phased or constructed entirely at either the shell or IFO	Must be designed and constructed at the shell stage
Insulation and Assembly U-Factors	Must be designed at the shell stage. May be constructed at IFO	Must be designed and constructed at the shell stage
Insulation - Floors	Must be designed and constructed at the shell stage	Must be designed and constructed at the shell stage
Roof - Solar Reflectance	Must be designed at the shell stage May be constructed at IFO	Must be designed and constructed at the shell stage
Fenestration - Percent Window to Wall Area	Must be calculated and designed at the shell stage.	Must be calculated and designed at the shell stage.

Required Skylights	Must be designed and constructed at the shell stage based on current IFO design information. May need to install additional skylights at the IFO if floor plans change.	Must be designed and constructed at the shell stage based on intended IFO information. Tenant may need to install additional skylights at the IFO if floor plans change or become better known.
Skylight to Roof Area	Must be calculated and designed at the shell stage. May be revised by IFO permit.	Must be calculated and designed at the shell stage. May be revised by IFO permit.
Air Barriers	Must be designed at the shell stage. May be constructed at the IFO	Must be designed and constructed at the shell stage
Additional Energy Package (only if using the 2015 IECC Prescriptive Method)	Proposal submitted at the shell stage. Required for additional package under C406. Can be designed and constructed at the IFO.	Must be designed at the shell stage. Required for additional package under C406, with clear description of possible phasing and who is responsible for which portion if applicable.
Mechanical Electrical and Plumbing	May be designed and constructed at the shell or the IFO. A compliance software printout for MEP may be submitted with an IFO. Once the floor plan and ceiling heights are fully known for skylights/daylighting, then electrical daylighting controls must included.	For Individual systems: May be designed and constructed at the IFO. Once the floor plan and ceiling heights are fully known for skylight requirements, then electrical daylighting controls must included with possible additional skylights with skylight curb insulation and details of air barrier interface. For a Building Wide Systems: Must be designed and constructed at the shell permit, or a separate building wide partial IFO (completion permit – no COO issued).

Warehouses are unique, especially where the percentage of tenant office space and type and height of materials to be stored are not entirely known. In these unique cases, the entire energy systems, including insulation, may be postponed to the tenant finish out, since the warehouse may not ever be heated or cooled. In addition, where a tenant and materials are known, a warehouse may not be designed with conditioned space, but sprinkler systems installed requiring heating only to prevent freezing. Insulation is also not required until the warehouse is altered to have conditioned space.

PART II – ENERGY FORMS/REPORTS AND LETTERS TO SUBMIT

A Building Permit Application Package shall include:

A. REQUIRED - Fill out that portion of the **Commercial Building Permit Application** that provides DSD information regarding which energy compliance options are chosen by the design team. The information requested is as follows:

1. Which Method of Energy Compliance will be used?
    a. 2015 IECC or ASHRAE 90.1-2013
2. If 2015 IECC is chosen, which sub-compliance method will be used?
    a. Prescriptive Path (C402 through C406), or Total Building Performance Path (C407)
    b. Will the Air Barrier Details be provided, or will there be a building pressure test?
3. If 2013 ASHRAE 90.1 is chosen, which sub-method will be used?
    a. Prescriptive Path (See 5.2.1), or
    b. Energy Cost Budget Method (Section 11)
4. Is Commissioning required for the project?
    The 2015 IECC may require a Mechanical and Plumbing Commissioning Plan at submittal and later a Pre-Final Commissioning Report prior to COO based on the HVAC details per C408.2. Commissioning for the Electrical system is always required under the 2015 IECC per C408.3.
    If ASHRAE 90.1-2013 is chosen, Commissioning is always required but the commissioning plan and pre-final commissioning report are turned in to the City of San Antonio ONLY for HVAC system(s) if the project has over 50,000 sq ft of conditioned space per ASHRAE 90.1-2013 (6.7.2.4).
5. For the IECC Prescriptive Path, provide which additional Efficiency Package is chosen and provided in design documents - Section C406.
6. For the ASHRAE 90.1-2013 path, provide a description of the whole building energy monitoring system/devices used to monitor natural gas, fuel oil, propane, steam, chilled water and hot water. ASHRAE 90.1-2013 Section 10.4.5 and subsections. Exceptions are listed in 10.4.5.2.

B. REQUIRED - Provide an **energy analysis for the building design** (software printout showing energy compliance) based on the chosen compliance strategy. The design itself must utilize the specific energy values indicated by the energy analysis. Mandatory sections of the 2015 IECC or ASHRAE 90.1-2013 must be complied with even if the energy analysis software printout passes without the design in compliance with a mandatory section.

COMCheck is one option depending on the path chosen, but there are other energy compliance software options. The software used to show energy compliance must indicate that is complies with the 2015 IECC commercial provisions or, if applicable, compliance with ASHRAE 90.1-2013, and must reflect the actual requirements of the 2015 IECC or ASHRAE 90.1-2013. The next table summarizes software choices by compliance path.

Compliance Path and Software Submitted	2015 IECC Prescriptive	2015 IECC Total Building Performance	ASHRAE 90.1-2013 Prescriptive	ASHRAE 90.1-2013 Energy Cost Budget
COMCheck 2015 IECC	X			
COMcheck ASHRAE 90.1-2013			X	
Other Energy Analysis Software based on the 2015 IECC or ASHRAE 90.1-2013	X	X	X	X

C. REQUIRED - Submit the **Designer/Architect/Engineer's Letter of Energy Review** (Included in the Appendix to this IB). This letter lists the energy reviews that the designer and licensed professionals (A/E) are responsible for; that the listed design items have been reviewed and found to be in substantial compliance with the 2015 IECC or ASHRAE 90.1-2013. The Letter is required to be submitted even if all the items are checked "No". Items listed by the designer or A/E indicating that they will not be responsible for reviewing will require the City of San Antonio to perform the review, and calculations/details will need to be provided on the plans or in the submittal package for City review.

D. REQUIRED – Submit as part of the design drawings, an **Energy Summary Sheet(s)**. The Energy Summary Sheet(s) shall contain the information in the table in Part III and is so indicated in the table where required. This includes the building envelope systems, and the mechanical plumbing and electrical systems related to energy. The energy summaries may be located by discipline on their own sheets, or combined and included in one location in the design drawings. Some required information does not translate well in the form of a table, list, or narrative summary on an Energy Summary Sheet. These items would be located where most appropriate. For example the IECC requires that the thermal envelope be shown on the plans, which is appropriate for an architectural plan view rather than a summary sheet. Lack of an energy summary sheet(s) will slow down plan review, and may cause additional submittals, resulting in a longer time frame to issue the permit.

For shell permits, the Energy Summary Sheet must include a schedule of design and construction of energy systems indicating how the systems will be phased in terms of design, which permit submittals will contain the energy system and who will be responsible for that system or a sub-system. (See Part I above for details and a table of requirements)

E. PROJECT DEPENDENT - Submit a **Statement of Commissioning Requirements**. (Under the 2015 IECC, commissioning of the controls for automatic lighting systems are always required.) The Statement of Commissioning is simply a commissioning plan for mechanical, service water heating systems and electrical lighting systems where required C408.2 and C408.3. This includes requirements for air balancing, list of mechanical electrical and plumbing systems to be included in commissioning and functional testing of controls (mechanical, electrical and plumbing).

The commissioning plan must include the following:

a. Narrative description of the activities that will be accomplished during each phase of commissioning including the personnel intended to accomplish each task. The

commissioning agent for the project (if known) or the proposed certifications of such agent.

b. A listing of the specific equipment, appliances or systems to be tested and a description of the tests to be performed
c. Functions to be tested including calibrations and economizer controls
d. Conditions under which the tests are to be performed
e. Measurable criteria for performance

Mandatory and Project Dependent Inspections: Energy Compliance Letters, Preliminary Commissioning Report, Test Results and:

Up to nine (9) energy related inspections may be inserted on a building permit and required to be cleared by letters and/or reports submitted to development services prior to obtaining a Certificate of Occupancy: Forms are attached to this Information Bulletin.

A. Six Inspections are cleared, by one or by separate **Energy Compliance Letter(s)** (details attached to this IB) from the Architect, Engineer, Contractor or Installers providing statements of acceptable installation for the following energy related components/systems:
   1. REQUIRED - Type of insulation materials and R-Values as installed.
   2. REQUIRED - Type reflective roof - Roof solar reflectance and thermal emittance as installed.
   3. REQUIRED - Fenestration (vertical and horizontal) U-Factors, SHGC, and VT as installed.
   4. REQUIRED - Mechanical system insulation and R-Values and Mechanical Equipment Efficiencies
   5. PROJECT DEPENDENT - Plumbing Hot Water Service type of insulation and R-Values, and Equipment Efficiencies (if Hot Water Service is required or provided in the building)
   6. PROJECT DEPENDENT – Efficiencies of Motors and Transformers

B. PROJECT DEPENDENT - **Preliminary Report of Commissioning** that corresponds to the Commissioning Plan provided with the permit application. The Final Report of Commissioning is to be provided to the owner. The City does not require or accept the final Commissioning report, which only is provided to the owner. The City form for this report is attached to this IB.

   The preliminary report for mechanical and plumbing hot water systems should include an itemization of deficiencies found that have not been corrected by the time of the report, list of deferred tests not accomplished because of climatic conditions, and conditions necessary for scheduling of deferred tests. The report should address the following in particular:
   a. Mechanical, and service hot water commissioning – Air system balancing, hydronic systems balancing C408.2.2; 6.7.2.3.1
   b. Functional Performance Testing of HVAC and Hot Water System Equipment and Controls C408.2.3; 6.7.2.4

   Lighting System Controls Functional Testing C408.3; 9.4.3
   Under the 2015 IECC, lighting system controls testing is always required for all commercial projects. A letter from the registered design professional or commissioning agent that follows the requirements in C408.3.1 will fulfill this requirement. This includes in particular:

a. Occupant sensor controls, applicable for all projects C405.2.1
b. Time switch controls, applicable for all projects C405.2.2
c. Daylight responsive controls, where applicable C405.2.3
d. Specific application controls, where applicable C405.2.4 (display lighting, display cases and hotel, motel rooms.
e. Exterior lighting controls, where applicable C405.2.5

C. PROJECT DEPENDENT - **Duct Leakage Test Results -** If applicable to the project. For ducts designed to operate in excess of 3 in water gauge and all ductwork outside conditioned space 6.4.4.2.2, or Section C403.2.9.1.3. The City form for this report is attached to this IB.

D. PROJECT DEPENDENT - **Pressure Testing of the Envelope Test Results** (under Section C402.5) (if applicable). The City form for this report is attached to this IB.

All reports/letters listed above to clear inspection may be e-mailed to DSDlicense@sanantonio.gov

PART III – RESPONSIBILITES FOR ENERGY REVIEW AND SPECIFIC SUBMITTAL REQUIREMENTS

The project Designer and/or Architect and Engineers (A/E) will perform some reviews/quality checks for the building design in regards to energy compliance. The Designers and/or A/E will submit a required statement (or multiple statements from the designers, architect and engineers) that the item(s) under their responsibility were reviewed for energy compliance. (The form to be submitted is the "**Designer/Architect/Engineer's Letter of Energy Review**" in the Appendix to the IB). For those items the City will not perform an additional review. But it is expected the information is on plans as indicated in the next few tables.

The following tables describe individual responsibilities in more detail, indicating what should be on an Architectural Energy Summary Sheet and on MEP Energy Summary Sheets. In addition the daylighting areas and building thermal envelope is required to be shown in the plans.

Items to Provide for review on a Architectural Energy Summary Sheet			
Description	**Section of IECC**	**Section of ASHRAE**	**Comment**
Provide the intended R-Value of roofs, walls and slabs	C402.1.3 Prescriptive Path Only	5.5.3 Prescriptive Only	If using the Table C402.1.3 - Provide R-Value for the building thermal envelope Energy Summary Sheet
Provide the Assembly method U-Factors, C-Factors and/or F-Factors	C402.1.4 Prescriptive Path Only	5.5.3 Prescriptive Only	If using the Assembly method for the building thermal envelope
Provide the Roof solar reflectance and thermal emittance (3-year), or Solar Reflectance Index (3-year) for low slope roofs	C402.3 Prescriptive Path Only	5.5.3.1.1 Prescriptive Only	See City amendments for other than low slope roofs - Provide minimum initial Solar Reflectance of 0.35 or a minimum Solar Reflectance Index of 29.

Provide the Percent of windows in each wall area	C402.4 Prescriptive Only	5.5.4.2.1, Table 5.5-2 Prescriptive Only	Provide indication to use daylight responsive controls to increase fenestration area, and indication of meeting requirements in C402.4.1.1.
Provide the skylight area as a percentage of the roof area	C402.4 Prescriptive Only	5.5.4.2.2, Table 5.5-2 Prescriptive Only	Provide indication to use daylight responsive controls to increase skylight area, and indication of meeting requirements in C402.4.1.2.
Where skylights are required by C402.4.2 for certain spaces, provide daylight zone as a percentage of that floor area/space.	C402.4.2 Prescriptive Only	5.5.4.2.3 Prescriptive Only	Provide Visible Transmittance of chosen skylight(s) and well factor(s)
Provide maximum U-factor and SHGC for specified fenestration and for skylights	C402.4.3 Prescriptive Only	5.5.4.3, 5.5.4.4 Prescriptive Only	Provide Area weighted U-Factors where appropriate
Indicate whether Air Leakage requirements will be met by Materials, Assemblies or by Testing during construction	C402.5.1.2 Always Required	5.4.3.1 Always Required	Provide details of air permeability of materials, or air leakage rate of assemblies. Provide air sealing details.

Architectural Items required on an <u>architectural plan sheet</u>			
Description	**Section of IECC**	**Section of ASHRAE**	**Comment**
Provide location of skylights and location and dimensions of daylight zones on floor plans	C103.2		Provide locations and dimensions of both toplight daylight zones and sidelight daylight zones
Indicate the location of the building thermal envelope on a floor plan and on elevation		5.7.4	

Items to Provide for review on a <u>MEP Energy Summary Sheet</u>			
Description	**Section of IECC**	**Section of ASHRAE**	**Comment**
Total BTU/h for Cooling and Combined BTU/h for Heating/Hot Water	C403.2.1 Always Required	6.4.2.1 Always Required	For Commissioning Requirements

Provide description/narrative of HVAC controls:	C403.2.4 Always Required	6.4.3.1 Always Required	HVAC Equipment and systems controls: thermostat controls, location/description of heating and cooling zones, description of the dead-band, set point overlaps, off-hour controls and controls for shutoff dampers
Greatest Air Flow Rate of each Fan System and Percent of Outdoor Air, Provide the percent of outdoor Air at full design airflow	C403.2.7 Always Required	6.5.6 Prescriptive Path Only	To Determine the need for an Energy Recovery Ventilation System for a Cooling System (not required for Heating)
Design Air Flow of Spaces, Presence of Air Side Economizers, Presence of Automatic Modulating Control of Outdoor Air Dampers	C403.2.6.1 Always Required	6.4.3.8 Always Required	To determine the need for Demand Controlled Ventilation
Narrative of Enclosed Parking Garage Ventilation	C403.2.6.2 Always Required	6.4.3.4.5 Always Required	To determine the need for configuring the staging/modulating of fans
Provide Kitchen Exhaust System Air Balancing; provide total kitchen hood exhaust flow rate for each hood.	C403.2.8 Always Required	6.5.7.1 Prescriptive Path Only	To Check for the need for listed factory built kitchen hoods and check airflow/balancing - Replacement Air for kitchen exhaust hoods, balance with hood exhaust flow rates, transfer air, total building required exhaust flow rates;
Provide a narrative of controls for walk-in coolers, freezers and refrigerated warehouses and refrigerated display cases	C403.2.15 Always Required	6.4.5, 6.4.6 Always Required	
Provide capacity of each cooling unit. Provide total chilled water system capacity minus capacity of cooling units with air economizers if applicable	C403.3 Only under the Prescriptive Path	6.5.1 Prescriptive Path Only	To determine the need for economizers and where an exemption is taken.
Provide narrative of the economizer controls if required. Provide the type of economizer provided; show that an air economizer can supply 100% of design supply air as outdoor air. Show design of water-side - 100% of cooling load as outdoor air not greater than 50 deg F	C403.3.3 Only under the Prescriptive Path	6.5.1 Prescriptive Path Only	Show that fault protection is provided

Provide description/narrative of controls for Hydronic and multiple-zone HVAC systems equipment, any heat rejection equipment and fan speed control, and VAV systems; Provide description/narrative of controls for complex mechanical equipment serving multiple zones	C403.4, C403.4.4 Only under the Prescriptive Path	6.5.2, 6.5.3, 6.5.4 Prescriptive Path Only	Details of Hydronic and multiple zoned systems, fan speed control
Provide the narrative/description of the controls for a hot water recirculation pump or heat trace system	C404.7 Always Required	7.4.4 Always Required	
Provide a narrative of the lighting controls (occupant sensor function, time switch controls, light reduction controls, manual controls, daylight-responsive controls in daylight zones).	C405.2 Always Required	9.4.1 Always Required	
Provide the total interior lighting power calculated under Equation 4-9 C405.4.1.	C405.4.1 Always Required	9.5 9.6 Always Required	Provide the result from Equation 4-9 C405.4.1 See 9.1.3 in ASHRAE
Provide the interior lighting power calculated under C405.4.2 - Building Area Method C405.4.2.1 or the Space by Space Method C405.4.2.2	C405.4.2 Always Required	9.2.2 Prescriptive Path Only	Provide the calculation result of the interior lighting power using either the Building Area Method C405.4.2.1 or the Space by Space Method
Provide the comparison of the two above calculated interior power - C405.4.1 vs C405.4.2	C405.4.1 and C405.4.2 Always Required	9.2.2.3 Prescriptive Path Only	Total lighting power calculated under C405.4.1 can't be greater than interior lighting power calculated under C405.4.2
Provide summary of the total exterior lighting power	C405.5.1 Tables C405.5.2 (1) and (2) Always Required	9.4.2 Always Required	Provide a narrative of external lighting power, and results of calculations of the exterior lighting power in regards to the allowable exterior lighting power
Provide details of an Additional Energy Package chosen	C406 Only under the Prescriptive Path	Not applicable	

PART IV – COMMISSIONING REQUIREMENTS

An architect or engineer licensed under the Texas Board of Architectural Examiners or the Texas Board of Professional Engineers may perform commissioning and submit the **Preliminary Report of Commissioning.** Along with the report, submit the City form attached to this IB.

As an option to a Texas licensed design professional, the architect, contractor or owner may hire a certified commissioning agent to perform the commissioning and provide the **Preliminary Report of Commissioning** to the City of San Antonio. There are a number of organizations that train, and certify commissioning agents. These certifications include:

CBCP – Certified Building Commissioning Professional – Association of Energy Engineers
CCP – Certified Commissioning Professional – Building Commissioning Association
CPMP – Certified Process Management Professional - ASHRAE
CxA – Certified Commissioning Authority – AABC Commissioning Group
BSC – Building System Commissioning Certification – National Environmental Balancing Bureau

This list is not exhaustive. Other options exist for nationally recognized certifications. To hire commissioning agents that have other certifications, these certification agency requirements must be sent to, reviewed and approved by the City of San Antonio.

PART V – LIST OF MANDATORY REQUIREMENTS OF THE 2015 IECC OR ASHRAE 90.1-2013

If ASHRAE 90.1-2013 is Chosen, there is a **Prescriptive Path (Sections 5 through 10) and a Energy Cost Budget Method (Section 11**). Customers must choose one or another.
Mandatory provisions of the **Energy Cost Budget Method (Section 11)** are:

A. Section 5.4 Thermal Envelope Mandatory Provisions: Insulation, Fenestration, and Air Leakage
B. Section 6.4 HVAC Mandatory Provisions: Minimum Efficiencies, Equipment Sizing, HVAC Controls, HVAC construction and Insulation, Walk-in Coolers and Freezers
C. Section 7.4 Service Water Heating Equipment: Load Calculations, Equipment Efficiencies, Insulation, and Controls
D. Section 8.4 Electrical Mandatory Provisions: Maximum voltage drop, Receptacle Control, Energy Monitoring; Low Voltage Dry Type Distribution Transformers
E. Section 9.4 Lighting Mandatory Provisions: Lighting Controls (Interior and Exterior), Functional Testing
F. Section 10.4 Other Mandatory Provisions: Electric Motors, Service Water Pressure Booster Systems, Elevators, Escalators and Moving Walkways, Whole Building Energy Monitoring
G. Energy Cost Budget less than or equal to the Design Energy Cost (Software for Energy Cost Budget – DOE-2, BLAST, other software that complies with Section 11.4.1.1)

Mandatory Provisions of the **ASHRAE 90.1-2013 Prescriptive Path** are:

A. Section 5 Building Envelope; Sections 5.1, 5.2, 5.3, 5.4, 5.7, 5.8 and either
    a. Section 5.5 OR
    b. Section 5.6
B. Section 6 HVAC; Sections 6.1, 6.2, 6.7, and either

a. Section 6.3 OR
b. Section 6.4 and 6.5

C. Section 7 Service Water Heating; All of Section 7
D. Section 8 Electrical Power; All of Section 8
E. Section 9 Lighting; Sections 9.1, 9.2, 9.4, 9.7, and either
   a. Section 9.5 OR
   b. Section 9.6.

If the 2015 IECC path is Chosen, there is a **Prescriptive Path (Sections C402 through C406) and a Total Building Performance Path (Section C407**). Customers must choose one or another. Mandatory provisions of the **Total Building Performance Path (Section C407)** are:

A. Section C402.5 Air Leakage
B. Section 403.2 HVAC; Minimum Efficiencies, Equipment Sizing, HVAC Controls, Energy Recovery Ventilators, HVAC construction and Insulation, Fan Horsepower and Efficiencies, Walk-in Coolers and Freezers
C. Section C404 Service Water Heating
D. Section C405 Electrical Power and Lighting
E. Section C407 Total Building Performance; Building Energy Costs shall be equal to or less than 85% of the standard reference building design
F. Section C408 System Commissioning

Mandatory Provisions of the **2015 IEC Prescriptive Path** are:

A. All of Sections C402 through C405; Building Envelope, HVAC, Service Water Heating, Power and Lighting
B. Commercial Buildings must comply with C406 Additional Efficiency Package (Chose one of 6 options)
C. Tenant Spaces must comply with C406.1.1 (either one of the following)
   a. Where the shell building is not in compliance, tenant spaces must comply with one of the following additional energy efficiency packages:
      i. C406.2 or
      ii. C406.3 or
      iii. C406.4 or
      iv. C406.6 or
      v. C406.7
   b. Where the shell building is in compliance, comply with C406.5 On-Site Renewable Energy

If you have any questions on this process, please contact the Plans Review Staff at DSDPlansManagement@sanantonio.gov.

Summary:

Prepared by: Richard Chamberlin, PE, Development Services Engineer

Reviewed by: Terry Kannawin, Assistant Director

Authorized by: Michael Shannon, PE, CBO, Assistant Director

Designer/Architect/Engineer's Letter of Energy Review

(Date)

Referenced Project: *(Project Name)*
(Project Address)
San Antonio, Texas 782__
Project AP (Permit number) if known

The project referenced above is being designed under the commercial provisions of the 2015 IECC or ASHRAE 90.1-2013. In accordance to Information Bulletin 221, we have reviewed the design of this project for the following energy related items. It is our opinion that the items checked below, as designed, meets the substantial intent of the 2015 IECC or ASHRAE 90.1-2013. Items not checked will be provided to the City of San Antonio for their review with application submittal for a building permit.

Code Section [a]	Reference [b]	Checked Yes/No	Not Required for Project
Insulation materials/Assemblies and their R-values/U-Factor or Component Performance (calculations)	**C402.1, C402.2, 5.5.3**		
Roof Solar Reflectance and Thermal Emittance	**C402.3, City Amendment, 5.5.3.1.1**		
Fenestration U-factors and solar heat gain coefficients (SHGCs), Percentage of vertical fenestration to wall area, and percent skylights to roof area	**C402.4, 5.5.4.2**		
Area-weighted U-factor and SHGC calculations, Area weighted calculations, details of dynamic glazing, Calculations for fenestration orientation (ASHRAE)	**C402.4.3, 5.5.4.6, 5.5.4.5**		
Air Barrier – materials and assemblies compliance	**C402.5.1.2, 5.4.3.1.3**		
Mechanical system design criteria - Calculations for Sizing Equipment	**C403.2.2, 6.4.2.1**		
Mechanical and service water heating system and equipment types, sizes and efficiencies	**C403.2.3, C404.2, 6.4.1.1, 7.4.2**		
Calculations for Maximum Hot Water Volume or Length (IECC)	**C404.5**		

Efficiency rating of all refrigeration and freezer equipment	**C403.2.14, 6.4.1.1**		
Economizer fault detection and diagnosis	**C403.2.4.7**		
Fan motor horsepower (hp) and controls efficiencies	**C403.2.12, 6.5.3.1**		
HVAC duct and plenum sealing, and insulation details, Hot Water Piping fluid temperatures and insulation	**C403.2.9, C404.4, 6.4.4.1.2-3**		
Lighting fixtures – Calculations for total connected interior and exterior power	**C405.4.1, C405.5.1, 9.2.2.3, 9.4.2**		
Calculations for interior lighting power by the building area method or the space by space method	**C405.5.1, 9.2.2, 9.5, 9.6**		

Notes
a. Some code sections may not be applicable dependent on the chosen compliance path
b. Code References: Cxxx.x refers to an 2015 IECC section; while 5.x.x, 6.x.x etc, refer to a section in ASHRAE90.1-2013

If you have any questions, please call.

Respectfully,

[Designer/Architect/Engineer Signature Here]
(Type Architect/Engineer Name Here)

Architect/Engineer Seal (if applicable)

Provide on Firm Letterhead or Provide Contact Information:

Name: _____

Firm/Company name: _____

Address: _____

E-Mail: _____

Phone: _____

CITY OF SAN ANTONIO
DEVELOPMENT SERVICES DEPARTMENT
P.O.BOX 839966 I SAN ANTONIO TEXAS 78283-3966

2015 Commercial International Energy Compliance System Letter(s) Pre-Commissioning / Testing Reports

Your Name: _____

Company Name: _____

Address: _____

_____

Phone: _____ **Email Address:** _____

Project Permit A/P Number(s): _____

Project Address: _____

Building Number(s): _____

Suite Number: _____

The following Energy Conservation Letters Section may be filled out by the Architect, Engineer, General Contractor, Installer, or Energy Consultant.

The following checked items/systems were installed on between dates _____; verified on dates _____ and consisted of the following energy verifications. *(check each that you are confirming)*

Energy Conservation Letters

☐ **Building Thermal Envelope – Insulation (REQUIRED)**

Verified or NA? Wall Insulation R-Values

Verified or NA? Ceiling Insulation R-values

Verified or NA? Air Barrier

☐ **Building Thermal Envelope - Roof Reflectance**

Verified or NA? Roof Solar Reflectance & Thermal Emittance

☐ **Building Thermal Envelope – Windows (REQUIRED)**

Verified or NA? Fenestration U-factors SHGC, and VT

Verified or NA? Minimum and Maximum Skylights

☐ **Plumbing – Service Hot Water Systems**

Verified or NA? Water heating Equipment Efficiencies

Verified or NA? Hot Water Piping Insulation

Verified or NA? Controls for Hot Water Recirculation

☐ **Mechanical Systems**

Verified or NA? Minimum Equipment Efficiencies (REQUIRED)

Verified or NA? HVAC System Controls (REQUIRED)

Verified or NA? Duct Insulation and Sealing (REQUIRED)

Verified or NA? Energy Recovery System

Verified or NA? Kitchen Exhaust System

Verified or NA? Demand Controlled Ventilation

Verified or NA? Fan Efficiencies

Verified or NA? Economizers

Verified or NA? Walk-in Coolers Freezers/Refrigeration

☐ **Electrical Systems (Required)**

Verified or NA? Occupant Sensors

Verified or NA? Time Switch Controls

Verified or NA? Daylight Responsive Controls

Verified or NA? Electric Motor Efficiencies

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2015 Commercial International Energy Compliance System Letter(s) Pre-Commissioning / Testing Reports

Provide the following information: (provide details for designs with varying values - Provide on a separate sheet as needed) Place "N/A" for items that do not apply to the project

R Values or U-Factors of the Roof system/Ceiling _____

_____

R Values or U-Factors of the Exterior Envelope Walls _____

_____

R Values or U-Factors of Floor if applicable _____

Roof Solar Reflectance / Thermal Emittance _____

Fenestration – Vertical Window and Skylights U-Factors, Solar Heat Gain Coefficients, and Vertical Transmittance

_____

_____

Insulation R Values of Mechanical ducts _____

Insulation R Values of Plenum _____

Insulation R Values of Plumbing Hot water piping systems _____

Mechanical Equipment Efficiencies (in units as appropriate to the particular equipment) _____

_____

Plumbing Hot Water Equipment Efficiencies (in units as appropriate to the particular equipment) _____

_____

CERTIFICATION STATEMENT:

☐ By checking this box, I am confirming that at the time of this test/inspection all items checked and noted above were installed, tested and/or inspected in accordance with the 2015 International Energy Code. I am affirming that this project is consistent with the City approved plans and the Energy Compliance Path chosen during design and permitting.

Email form to the DSD Call Center at: callcenter@sanantonio.gov

Date: _____

Name (Print): _____

Title/Designation: _____

Name (Signature): _____

CITY OF SAN ANTONIO
DEVELOPMENT SERVICES DEPARTMENT
P.O.BOX 839966 I SAN ANTONIO TEXAS 78283-3966

2015 Commercial International Energy Compliance System Letter(s) Pre-Commissioning / Testing Reports

The following Pre-Commissioning Statement may be filled out by the Architect, Engineer, or Certified Commissioning Agent

Pre-Commissioning Report – Testing Reports for High Pressure Ducts and/or Air Barrier (attach report(s) with this form)

(check which Pre-Commissioning and/or Testing Report is being submitted to fulfill requirements required by the project – Check any that apply) (code sections reference the 2015 IECC)

☐ Mechanical System Commissioning

Verified or NA? System Adjusting and Balancing C408.2.2

Verified or NA? Functional Performance Testing, Equipment Controls and Economizers C408.2.3

☐ Commissioning Hot Water Recirculation Controls C408.2.3.2

☐ Commissioning Electrical Functional Testing of Controls C408.3

Verified or NA? Occupant Sensor Controls

Verified or NA? Time Switch Controls

Verified or NA? Daylight Responsive Controls

☐ Duct Leakage Testing for High Pressure Ducts if applicable C403.2.9.1.3

☐ Building Pressure Testing of the Air Barrier (if required by the Architect) C402.5.2

CERTIFICATION STATEMENT:

Qualified individuals from this office visited the site to perform the Pre-Commissioning or Duct/Air Barrier Testing checked above for general conformance with the previously submitted Commissioning Plan / Architect Engineer's design and requirements of the 2015 International Energy Conservation Code.

In my opinion, based on our experience, knowledge, information and belief, the Pre-Commissioning and/or Testing Report(s) submitted accurately reflects the testing of controls or systems checked above.

Email form and report(s) to the DSD Call Center at: callcenter@sanantonio.gov

Date: _____

Name (Print): _____

Title/Designation: _____

Name (Signature): _____

Professional License or Commissioning Certification Number: _____