

**Nonresidential Building Commissioning**

NRCC-CXR-E (Created 11/19)

**CERTIFICATE OF COMPLIANCE**

*This document is used to demonstrate compliance with mandatory commissioning requirements in §120.8 for nonresidential buildings and hotel/motel or high-rise residential buildings with nonresidential spaces. This document does not demonstrate compliance with commissioning requirements within Title 24, Part 11, which need to be documented separately if they apply.*

Project Name: Example Commissioning Form for 2019 Energy Code

Report Page:

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Project Address: 1234 Main St.

Date Prepared:

7.24.20

<b>A. GENERAL INFORMATION</b>		
01 Project Location (city)	CA City	Building Size (ft <sup>2</sup> )
02 Occupancy Type	Mixed-Use	Nonresidential Conditioned Floor Area (ft <sup>2</sup> )
03 Project Type	Core & shell only	HVAC System Type

The selections made in Table A on the CXR form determine which commissioning requirements in Table B are required.

Hover over these ? in the NRCC dynamic form to get helpful tips when filling out the form.

**B. PROJECT SCOPE**

*Table Instructions: Based on project information provided in Table A, Table B indicates which commissioning related requirements apply per §120.8. Table B is not editable by the user.*

**Commissioning Requirements per §120.8**

01	Table F: Design Review Kickoff	<a href="#">§120.8(d)1</a> and <a href="#">§120.8(d)2</a>	The design review kickoff meeting establishes who will play the role of the design reviewer, the project schedule and identify owner's requirements. This meeting should be conducted during schematic design.
02	Table G: Owner's Project Requirements (OPR)	<a href="#">§120.8(b)</a>	The owner's project requirements establish the owner's goals, requirements, and expectations for everything related to energy consumption and operation. This should be completed during schematic design.
03	Table H: Basis of Design (BOD)	<a href="#">§120.8(c)</a>	The basis of design documents the design elements such as calculations and product selections that meet the owner's project requirements and applicable regulatory requirements. This should be completed during schematic design.
04	Table I: Design Review	<a href="#">§120.8(d)</a> and <a href="#">§120.8(e)</a>	The design reviewer(s) reviews the construction documents for clarity, completeness, and adherence to the owner's goals. Commissioning measures must be included in the construction documents to facilitate the design review and commissioning process. For projects with ≥ 10,000 ft <sup>2</sup> of nonresidential conditioned floor area, or with complex mechanical systems, the design review is for adherence with the Owner's Project Requirements (OPR) and Basis of Design (BOD). This should be conducted during design.
05	Table J: Commissioning Plan	<a href="#">§120.8(f)</a>	The commissioning plan is developed by the commissioning provider with input from the designer and defines the scope of commissioning the project. This should be drafted during design and completed during early construction.
06	Table K: Functional Performance Testing	<a href="#">§120.8(g)</a>	Functional performance testing is conducted on building systems to demonstrate correct installation and operation.
07	Table L: Documentation and Training	<a href="#">§120.8(h)</a>	Documentation of the operational aspects of the building shall be completed within the Systems Manual and delivered to the building owner or representative and facilities operator.
08	Table M: Commissioning Report	<a href="#">§120.8(i)</a>	A complete report of commissioning process activities undertaken through the design, construction and reporting recommendations for post-construction phases of the building project shall be completed and provided to the owner or representative.

In this project example, all of the requirements apply to the project scope. If some of the requirements did not apply, they would be greyed out and would say "This requirement does not apply." Table B is not editable by the user.

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## C. COMPLIANCE RESULTS

If any cell on this row says "No", it means the corresponding table does not comply and should be reviewed. Any "No" would cause column 09 to say "Does Not Comply." If any cell is grey and blank, that means the table is not applicable.

Table Instructions: Table C will indicate if the project data input into the compliance document is compliant with commissioning requirements per §120.8. This table is not editable by the user. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D. for guidance.

01	02	03	04	05	06	07	08	09	
Design Review Kickoff	Owner's Project Requirements	Basis of Design	Design Review	Commissioning Plan	Functional Performance Testing	Documentation and Training	Commissioning Report	All rows in column 09 should say "COMPLIES" before submitting for permit application.	
Table F	Table G	Table H	Table I	Table J	Table K	Table L	Table M		
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	COMPLIES	
10	Design Reviewer(s) for the project include: Winston Waterloo							This information comes from Table F, since Table C is not editable by the user.	COMPLIES

## D. EXCEPTIONAL CONDITIONS

Table D includes notes to the user, if there are errors which need to be corrected, or notes to the plans examiner. These notes are automatic based on selections made throughout the form and are note editable by the user.

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

Either Core and Shell or Tenant fit out has been indicated in Table A. Please note commissioning may be completed for the entire building prior to tenant improvements, or for each individual tenant improvement. The local enforcement agency may have commissioning policies for multi-tenant buildings. Table J. indicates that a draft commissioning plan is attached to the permit application.

## E. ADDITIONAL REMARKS

Table E includes user entered notes to the plans examiner, contractor or inspector. Use Table E to explain something in the form in more detail.

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

The commissioning plan outlines how the process will work for the core and shell and tenant finish phases of the project. The tenant lease agreement includes a clause that commissioning must be completed per the plan in order to meet Energy Code requirements in Section 120.8.

## F. DESIGN REVIEW KICKOFF MEETING

Table Instructions: Complete this table to indicate that the design reviewer meets the qualification requirements per Title 24, Part 1 Section 10-103(a)1 and to demonstrate compliance with design review kickoff requirements per §120.8(d)2. This meeting should occur during the Schematic Design phase of the project.

### Design Review Kickoff Meeting Details

01	Date of Design Review Kickoff Meeting	Nov 11, 2019			
02	Meeting Attendees: (one person may play multiple roles)				
<input checked="" type="checkbox"/>	Owner/ Facility Manager:	Ringo Ramon	<input checked="" type="checkbox"/>	Design Reviewer(s):	Winston Waterloo
<input checked="" type="checkbox"/>	Project Manager:	Jane Jimenson	<input checked="" type="checkbox"/>	Design Architect/ Engineer(s):	Floyd Fence, Arch; Anne Aniston, Mech;
<input type="checkbox"/>	Contractor:		<input checked="" type="checkbox"/>	Certified Acceptance Test Tech(s):	Perry Princeton
<input checked="" type="checkbox"/>	Commissioning Provider:	Winston Waterloo	<input checked="" type="checkbox"/>	Energy/ T24 Part 6 Consultant:	Ginger Grand

Table Continued

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Design Reviewer Qualifications per Title 24, Part 1 Section 10-103(a)1	
The design reviewer(s) must be licensed professional engineers or licensed architects, or licensed contractors representing services performed by or under the direct supervision of a licensed engineer or architect, as specified in the provisions of Division 3 of the Business and Professions Code.	
03	In addition, for buildings with $\geq 10,000$ ft <sup>2</sup> but $< 50,000$ ft <sup>2</sup> , the design reviewer(s) shall be a qualified in-house engineer or architect with no other project involvement or a third party engineer, architect, or contractor.
04	The design reviewer(s) for this project will be: Winston Waterloo
<b>Preliminary Construction Schedule</b>	
	<b>Start Date</b>
05	Schematic Design 2019-10-14
06	Design Development 2020-02-08
07	Construction Documents 2020-05-01
08	Construction 2020-08-08
09	Building Turnover 2021-02-16
<b>Completion Date</b>	
	2020-02-07
	2020-04-30
	2020-08-07
	2021-02-15
	2021-03-02
<b>Please proceed to Table G. to complete an Owner's Project Requirements (OPR) Document per §120.8(b).</b>	
If completion of the OPR is not required, Table F will expand for the project team to record energy efficiency goals during the Kickoff Meeting.	

## G. OWNER'S PROJECT REQUIREMENTS (OPR)

Table Instructions: Complete the table below if not attaching an OPR document, or attach an OPR document to your permit application to demonstrate compliance with §120.8(b). If a specific field is not applicable to the project scope, put "NA." Per §120.8(b), the OPR is to be completed before design begins. This may be done at the Design Review Kickoff Meeting (see Table F.).

01	Attaching Completed Owner's Project Requirements Document?	YES	NO
The project team can either attach an OPR to the permit application, or complete Table G, either is acceptable to demonstrate compliance.		<input type="radio"/>	<input checked="" type="radio"/>
02	Owner's Project Requirements Document Authors and Roles	Winston Waterloo, CxP; Ringo Ramon, Fac Man; Floyd Fence, Arch; Anne Aniston, Mech	
<b>Energy Efficiency Goals: General</b>			
03	What is the target total energy usage per square foot per year? (ie, Energy Use Intensity (EUI) in kBtu/ft <sup>2</sup> )	40 kBtu/sf	The OPR captures energy efficiency and system goals at the start of the project. This is typically done during programming when the team is determining the owner's requirements for the project.
04	What is the target total energy cost per square foot per year?	\$0.15/sf/yr	
05	Is kW demand control specifically an interest of the client or the design team? If so, for what reason?	Client is interested if results in utility rebates or incentives.	

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Table Continued **All of these goals should be a result of discussion between the project team and the building owner or facility manager.**

06	What are the project goals and requirements for building siting that will impact energy use?	Keep some existing trees for shading; would like to do analysis for solar access to maybe add PV at a later date; Would like to see energy impacts for building orientation/ massing options.
07	What are the project goals and requirements for landscape that will impact energy use?	Landscape goals are related to reducing water consumption.
08	Additional notes regarding general efficiency.	Pursuing LEED certification so need to get some EE credits from model.
<b>Energy Efficiency Goals: Envelope</b>		
09	What are the project goals and requirements for building fenestration that will impact energy use?	Want lots of glass on South and East facades (may need to do energy model to meet WWR code requirements.) Must meet minimum fenestration requirements in Energy Code, arch. needs to work with energy consultant on glazing spec.
10	What are the project goals and requirements for walls/floors that will impact energy use?	Provide insulated slabs below occupied space.
11	What are the project goals and requirements for building roof that will impact energy use?	Cool roof for energy code compliance and LEED credits.
12	Additional notes regarding envelope efficiency.	Open to overhangs for shading as long as they look nice.

**Energy Efficiency Goals: HVAC Systems**

13	List the HVAC system types considered desirable, and ones that are not to be considered.	- Packaged RTUs/ terminal units with hot water reheat. High-efficiency gas-fired condensing boilers for water heating or; - Air-cooled VRF with DOAS
14	What is the desired thermostat setpoint range in the heating season, and cooling season?	Cooling: 74 deg Drybulb (50% to 60% relative humidity). Heating: 70 deg Drybulb (no humidification).
15	What is the expected occupancy schedule? Will the occupants be allowed to override the mechanical system controls during "unoccupied hours"?	Ground floor 7:30-6:30 M-F; residences 24x7; No for occupant override
16	Are there times during the day that the zone temperature is allowed to drift out of the temperature setpoint range?	Not within working hours.
17	If so, how long and what times are acceptable?	Yes, propose what would be reasonable.
18	Is it acceptable to let the facility cool down to a night setback temperature in the winter?	Yes, propose what would be reasonable.
19	Is it acceptable to let the facility temperature drift above setpoint during the summer evenings?	
	How many days out of the year is it acceptable to not meet the entire cooling/heating load?	8

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20	Are there zones with special temperature, humidity, air filtering, etc., requirements? If so, identify and list the special environmental control requirements.	Supplemental cooling for any high power density tenant spaces via dedicated equipment (e.g. split-system) installed during tenant fit out.
21	What expectations are there around building ventilation?	- Either Provide code minimum ventilation requirements (Title 24 Part 5 or Part 6 ) or - Provide enough to achieve LEED enhanced ventilation credit. Depends on energy modeling results for energy impact.
22	Is occupancy-based demand control ventilation (DCV) desired, or required?	If required by Energy Code.
23	Is a building automation system (BAS) desired? If so, what are the requirements of the BAS and what value is expected to be added with the BAS?	- Yes, including front-end interface and LAN wiring to allow monitoring and control by FacMan. - EMCS network shall be separate from other building systems. - Provide for tenant temperature sensors with local adjustment and web based interface for after hour HVAC activation. - Critical alarms annunciate via alarm light and audio signal at security desk
24	Will zone setpoints be controlled locally by the user, or via the BAS only by the maintenance staff?	only by FacMan
25	Explain the requirements of the HVAC system in regards to temperature, humidity and draft control.	Must maintain space within temperature setpoint range; no humidity control provided
26	Explain the requirements of the facility with regard to indoor air quality.	MERV-8 pre-filters and MERV-13 final filters on OSA fans and air handling units.
27	What are the acoustic requirements of the HVAC system within the various spaces of the facility?	Maximum NC level of 40
28	Describe the maintenance plan and how the HVAC design needs to address operation and maintenance issues.	Fac Man would like to be included in major system decisions to ensure maintenance can be achieved with current personnel.
29	Additional notes regarding HVAC system efficiency.	None Every field must be completed on the Table, otherwise it will say "No" in Table C and will cause a "Does Not Comply" result. Use "NA", "TBD" or "None" as necessary.

**Energy Efficiency Goals: Indoor Lighting Systems**

30	Describe specific lighting requirements including quality and glare.	Lighting in tenant spaces to be provided by tenant. Back of house lighting and shared spaces provided within this scope.
31	List the desired types of lighting (if any) and ones that are not to be considered. (example: fluorescent in 2x2 grid, accent lighting, particular lamps)	LED fixtures in back of house spaces; LED or self-luminous exit signs (L).
32	Describe (if any) task lighting requirements.	Lighting in tenant spaces to be provided by tenant.
33	Describe any desired features of the lighting control system including occupancy, daylighting, and demand response if applicable.	- Lighting control relay panels (interfaced with EMCS) for lobby and outdoor lighting. - Specific controls as required by Energy Code - Lighting controls in tenant spaces to be provided by tenant.
34	What is the expected occupancy schedule? Will the occupants be allowed to override the lighting system controls during "unoccupied hours"?	Occupant override via web interface only for after hours operation.

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35	Does occupancy-based control need to be coordinated with mechanical demand control ventilation?	Only if required by Energy Code
36	Describe how occupants will interact with the lighting control system (overrides etc.)	EMCS controlled by on site facility manager; No occupant override; tenant lighting provided by tenants
37	Additional notes regarding Indoor Lighting system efficiency.	Need to meet power density maximums per Energy Code. Hoping for a credit in model to offset extra fenestration.
<b>Energy Efficiency Goals: Outdoor Lighting Systems</b>		
38	Describe specific outdoor lighting requirements.	Meet energy code and safety requirements.
39	List the desired types of outdoor lighting, including lighting for building façade, landscape, walkways, roof-top, etc. if applicable.	Provide LED landscape lighting, walkway lighting, including code-required egress lighting to the public right-of-way.
40	Describe any features of the outdoor lighting control system, including motion sensors, photocontrol, time-switch and automatic scheduling.	Meet Energy Code requirements; best practices for site safety lighting, including what's needed for security cameras
41	Describe how occupants will interact with the lighting control system (overrides etc.)	EMCS controlled by on site facility manager; No occupant override
42	Additional notes regarding Outdoor lighting system efficiency.	None

## Energy Efficiency Goals: Water Heating Systems

43	Describe what the water heating system will be used for and expected demand.	Low flow fixtures to contribute to LEED
44	Describe the desired type (if any) of water heating system and those that should not be considered. (example: instantaneous, heatpump, manufacturer, etc.)	Tankless point-of-use domestic water heater at each restroom core.
45	What are the desired automation features and controls for the water heating system.	As required by Energy Code
46	What are the efficiency requirements of the water heating system?	As required by Energy Code
47	Additional notes regarding Water Heating system efficiency.	None

In some instances, the goal may relate to requirements in the Energy Code. That is why it's recommended to have project team member(s) knowledgeable about the Energy Code present at the Kickoff.

## Operation and Maintenance Requirements

48	Desired building lifespan	75 years minimum
49	What are the broad goals relative to life cycle of the equipment?	Provide estimated lifespans with any system options
50	What is the desired level of training and orientation for building occupants to understand and use the building systems?	No training for occupants, tenants installing their own systems

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51	What is the desired level of training and orientation for O&M staff to understand and maintain the building systems?	Onsite training by installer for fac man per fac man schedule. Documented maintenance schedule and requirements provided during training.
<b>Fire Protection System</b> In the dynamic form, there are buttons that can be used to add systems and related goals to the form. Both Fire Protection System and Electrical Power Distribution were added to capture owner goals for these systems.		
52	Sprinkler Supply	Light hazard classification for interior build-out flexibility. Minimum density of 0.10 gpm/ft2 with head spacing not to exceed 180 ft2/head.
53	Sprinkler Heads & Distribution	Horizontal distribution with upturned heads; Concealed (All public and tenant spaces unless no ceiling installed).
<b>Electrical Power Distribution</b>		
54	Electrical Distribution Requirements	8 W/ft2 design load for main electrical distribution; Provide single-feed service switchboards (non-redundant). Radial distribution system, including switchboards, distribution panels, and lighting receptacle panels.; meet Energy Code requirements

## H. BASIS OF DESIGN (BOD)

A BOD can be either attached to the permit application, or Table H can be completed to demonstrate compliance if a BOD is required by Table B.

Table Instructions: Complete the table below if not attaching a BOD document, or attach a BOD document to demonstrate compliance with §120.8(c). If a specific field is not applicable to the project scope, put "NA". Per §120.8(c), the BOD should be completed and updated during the design phase.

01	Attaching Completed Basis of Design Document?	YES	NO
02	Basis of Design Document Authors and Roles	Floyd Fence, Arch; Anne Aniston, Mech; Ginger Grand, Energy Consultant	
<b>Title 24 Part 6 Compliance Approach</b> Determining the Energy Code compliance approach is good to do while defining the basis of design early in the project, usually during schematic design.			
03	Title 24, Part 6 Compliance Approach (select one):	<input type="checkbox"/> Prescriptive <input type="checkbox"/> Performance <input checked="" type="checkbox"/> Both (Prescriptive and Performance)	
04	If both, describe prescriptive scopes and performance scopes:	Indoor conditioned lighting, envelope & water heating performance; outdoor & unconditioned lighting & mechanical prescriptive	
<b>General Energy Efficiency Goals</b>			
05	Energy Use Intensity (EUI)	Via energy model with default assumptions for mechanical	
06	Energy Cost Budget	Using LEED calculations	
<b>Envelope Basis of Design</b>			
07	Window to Wall Ratio	45% South facade, 50% East facade; 35% North and West	

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08	Opaque Wall Assembly	Need to coordinate assembly details with energy model.
09	Window Performance	Need to coordinate window performance with energy model.
10	Response to OPR Document	Using the performance path will allow team to meet aesthetic requirements of owners while still complying with Energy Code. Coordinating fenestration specifications and assembly details with energy model will allow least cost compliance options while achieving desired LEED certification.
<p>The BOD defines how the design team intends to meet the owner's requirements outlined in the OPR. Sometimes it takes the form of a schematic design narrative.</p>		
<b>HVAC System Basis of Design</b>		
11	HVAC System Design	VAV packaged RTUs no larger than 100 tons serving terminal units in each tenant space. Central water heating system, including gas-fired boilers, pumps, and controls.
12	Heating System Description	Central system with gas-fired boilers.
13	Cooling System Description	DX
14	Ventilation System Description	Code minimum outside air rates will be provided to tenant spaces Make-up air units serving restroom cores
15	Control Intent Narrative/ Sequence of Operations	EMCS for monitoring and control of all the equipment from the management offices. Temperature sensors installed in future tenant space build-outs will interface with the EMCS and allow tenant temperature adjustment during occupied business hours. After-hour HVAC operation will be coordinated between the Owner and tenants & offered via web interface.
16	Outside Air Supply	Code minimum outside air rates will be provided to tenant spaces Make-up air units serving restroom cores
17	Load Calculations	Outdoor design conditions per ASHRAE & John Wayne Airport weather station data Cooling: 89.8 deg drybulb / 64.8 deg wetbulb Heating: 42.8 deg drybulb
18	Indoor Design Conditions	Occupied Spaces
		Temp (°F)
		Relative Humidity (%)
		Unoccupied Spaces
19	Response to OPR Document	Temp (°F)
		Temp (°F)
		Temp (°F)
		Temp (°F)
This was the baseline system requested by the owner in the OPR. Will meet prescriptive requirements of Energy Code.		

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<b>Indoor Lighting System Basis of Design</b>	
20	Indoor Lighting System Narrative <i>Lighting systems will be provided for lobbies, restrooms, amenity spaces and outdoors</i>
21	Fixture Types <i>LED fixtures will be basis of design</i>
22	Lamp and Ballast Types <i>TBD</i>
23	Control Types <i>Controls will be provided as required by Energy Code. Manual controls and occupancy sensors will be provided to meet shut-off requirements.</i>
24	Control Intent Narrative/ Sequence of Operations <i>TBD</i>
25	Response to OPR Document <i>The proposed lighting system will be energy-efficient, designed to meet Energy Code requirements and included in energy model.</i>
<b>Outdoor Lighting System Basis of Design</b>	
26	Outdoor Lighting System Narrative <i>Facade lighting will be coordinated with architect.</i>
27	Fixture Types <i>TBD, will meet prescriptive requirements of Energy Code</i>
28	Lamp and Ballast Types <i>TBD</i>
29	Control Types <i>TBD, will meet mandatory requirements of Energy Code</i>
30	Control Intent Narrative/ Sequence of Operations <i>TBD</i>
31	Response to OPR Document <i>The outdoor lighting system will meet landlord security requirements, and will meet Energy Code requirements.</i>
<b>Water Heating System Basis of Design</b>	
32	Water Heating System Narrative <i>One tank type electric heat pump water heater to serve the janitor sinks and the restroom lavatories of each stacked restroom core.</i>
33	Water Heating Load Calculations <i>Provided to owner in separate spreadsheet. Based on standard Class A office occupancy for tenant space and residential dwelling unit standards.</i>
34	Response to OPR Document <i>Will be coordinated with energy modeler to ensure compliance.</i>
<b>Fire Protection</b>	
35	Head Density <i>Will meet owner requirements in OPR exactly.</i>
36	Minimum system requirements <i>Upright sprinkler heads shall be provided in shell spaces without ceilings. Concealed sprinkler heads shall be provided in public and tenant spaces with ceilings.</i>

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Electrical Distribution	
37	Electrical System Details (4) 12kV, 3-phase, 4-wire services sized as indicated on the riser diagram. Services will be fed from existing utility feeds underground into the building.

## I. CONSTRUCTION DOCUMENT DESIGN REVIEW CHECKLIST

*Table Instructions: The design reviewer(s) may fill out the table below or attach a design review document that lists the items checked by the design reviewer(s) during the construction document review. For buildings with  $\geq 10,000$  ft<sup>2</sup> conditioned floor area, the design review will ensure the construction documents meet the Owner's Project Requirements (Table G.) and the Basis of Design Documents (Table H.). For buildings with  $< 10,000$  ft<sup>2</sup> conditioned floor area, the design review will ensure the construction documents meet the goals documented in Table F. during the Design Review Kickoff.*

01	Attaching Completed Design Review Documentation?	YES	NO
	A design review document may be attached to the permit application, or Table I can be completed to demonstrate compliance.	<input type="radio"/>	<input checked="" type="radio"/>

### Design Review Checklist

02	Envelope Design	<ul style="list-style-type: none"> <li>- Details for some assemblies included in model are missing from plans</li> <li>Response: Will coordinate with energy modeler and add all details to plans</li> <li>- Note total fenestration area on each elevation</li> <li>Response: Added to elevations</li> <li>- Are skylights required when tenant occupancies are unknown?</li> <li>Response: Owner plans to rent to office tenant so that's what we'll base requirements on</li> <li>- Will any HVAC run for minimal conditioning prior to the tenant finish?</li> <li>Response: No</li> <li>- Show DP/Static Pressure sensor locations on drawings.</li> <li>Response: Majority of ductwork will be designed and installed with tenant finish, these locations will need to be determined then.</li> <li>- Are automatic fire/smoke dampers required at the branches off of the supply and return air risers on each floor? If so, coordinate with the operation of the RTUs. (typical for all floors)</li> <li>Response: Will need to coordinate with architect to resolve this.</li> <li>- Are ductwork/piping riser locations coordinated with the Architect?</li> <li>Response: Yes</li> <li>- HVAC details are incomplete including details for equipment mounting, ductwork, piping, etc.</li> <li>Response: Will complete details before next progress set</li> <li>- Show ventilation calculations on drawings</li> <li>Response: Will be shown on drawings prior to permit set</li> </ul>	<div style="border: 1px solid red; padding: 5px; width: fit-content;"> <p>For each building component, include design review comments made by the Design Reviewer(s) and the responses from the designer.</p> </div>
03	HVAC System Design		

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04	HVAC Controls Design	<ul style="list-style-type: none"> <li>- Provide boiler and pump staging and loading strategy for lead/lag sequencing. Response: Architect and ME will coordinate with owner.</li> <li>- Provide the details for the heating hot water temperature reset schedule. Hot water supply temp range is noted, but outside air reference temperatures are missing. Response: Architect and ME will coordinate with owner.</li> <li>- Consider lowering hot water supply temp setpoint range. Condensing boilers are more efficient at lower supply temperatures. Response: Architect and ME will coordinate with owner.</li> <li>- Add boiler output (%) to list of analog inputs Response: Architect and ME will coordinate with owner.</li> <li>- Consider adding individual boiler HWS&amp;R temperatures to analog inputs in addition to loop temperatures. Response: Architect and ME will coordinate with owner.</li> </ul>
05	Indoor Lighting System Design	<ul style="list-style-type: none"> <li>- Fixture counts on schedule do not match those shown on floorplans Response: Corrected</li> </ul>
06	Indoor Lighting Controls Design	<ul style="list-style-type: none"> <li>- There does not appear to be any lighting control shown on the drawings. Response: Lighting controls added for C&amp;S only</li> </ul>
07	Outdoor Lighting System and Controls Design	<ul style="list-style-type: none"> <li>- There does not appear to be any outdoor lighting control shown on the drawings. Response: Lighting controls added for C&amp;S only</li> </ul>
08	Water Heating System Design	<ul style="list-style-type: none"> <li>- In summary section, page 1, should add references to Title 24 requirements. Response: Note changed</li> </ul>
09	Other Systems and Features	<ul style="list-style-type: none"> <li>- Add references to Spec Section 23 04 00 for all of the training and O&amp;M manual requirements in this Cx section. Response: Add references to Spec Section 23 04 00 for all of the training and O&amp;M manual requirements in this Cx section.</li> <li>- Add O&amp;M and training requirements for the other HVAC equipment (RTU's, boilers, pumps, etc.) Response: This will be addressed before the construction set.</li> </ul>

**J. COMMISSIONING PLAN**

*Table Instructions: Complete the table below if not attaching a Commissioning Plan document, or attach a Commissioning Plan document to demonstrate compliance with §120.8(f). Per §120.8(f), the Commissioning Plan is to be started during the design phase and a completed draft must be submitted with permit application.*

01	Attaching Completed Commissioning Plan?	If the user decides to attach a document instead of completing the Table, the only information needed is the document author and role. Note that Table D will alert the plans examiner that they should look for an attached commissioning plan.	
		YES	NO
		<input checked="" type="radio"/>	<input type="radio"/>
02	Commissioning Plan Authors and Roles	Winston Waterloo, CxP	

**K. FUNCTIONAL PERFORMANCE TESTING**

*Table Instructions: Complete the table below to demonstrate compliance with functional performance testing requirements per §120.8(g).*

Table Continued

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By checking this box, the responsible party<sup>1</sup> certifies that functional performance testing will be executed to demonstrate the correct installation and operation of each component, system and system-to-system interface in accordance with the acceptance test requirements in [§120.5](#), [§130.4](#) and [§140.9](#). The functional performance testing reports shall contain information addressing each of the building components tested, the testing methods utilized, and include any readings and adjustments made.

**The following acceptance tests have been identified as applicable to the project scope:<sup>2</sup>** This section of the Table should list Acceptance Tests required by the Energy Code.

02	03	04	05
System/ Equipment to be Tested	Brief description of functional performance test	Applicable Reference Appendix	Certified Acceptance Test Technician Required?
All exterior vertical windows	Visual inspection of NFRC label for windows	NA7.4.1 Fenestration	No
RTUs	Confirm units are providing min OSA & damper can maintain min position	NA7.5.1 Outdoor Air	No
RTUs	Verify FDD installed per design & sensor & controllers working	NA7.5.11 FDD for Package DX	No
RTUs	Confirm thermostat controls are working properly	NA7.5.2 CV, Single Zone AC/HP's	No
Indoor common and back of house lighting systems	Confirm shut-off controls are working properly	NA7.6.2 Lighting Shut-Off	Yes
Outdoor lighting systems	Confirm outdoor lighting systems control per motion sensors	NA7.8.2 Motion Sensor	Yes
Based on the Acceptance Test selected in column 04, the form will determine if a Certified Acceptance Test Technician (ATT) is required to perform the test, or if a Field Technician will be acceptable.			
The acceptance tests required by Title 24, Part 6 outline the minimum functional performance testing scope to be conducted for compliance. However, the commissioning scope may include additional functional performance tests on systems or equipment not having acceptance tests required by Title 24, Part 6.			
<b>The following additional functional performance tests have been requested by the owner or owner's representative:</b>			
06	07	If the owner would like functional performance testing in addition to the required acceptance testing as part of the commissioning process, the additional FPTs should be listed here.	
System/ Equipment to be Tested	Brief description of functional performance test		
RTUs	TAB observation		

<sup>1</sup> FOOTNOTE: See the signature block on the last page of this compliance document for the responsible party.

<sup>2</sup> Required acceptance tests can be determined by reviewing the "Certificates of Acceptance" table on each Certificate of Compliance submitted for permit application.

## L. DOCUMENTATION AND TRAINING

Table Instructions: Complete the table below to demonstrate compliance with documentation and training requirements per [§120.8\(h\)](#).

By checking this box, the responsible party <sup>1</sup> certifies that a systems manual will be provided to the building owner or representative per <a href="#">§120.8(h)1</a> .	01
	<input checked="" type="checkbox"/>
Table Continued	02
	Both of these certifications are required to comply.

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By checking this box, the responsible party <sup>1</sup> certifies that a training of the appropriate maintenance staff for each equipment and system will be completed and documented in the commissioning report per <a href="#">§120.8(h)2</a> . Training requirements should be included in the contract document in the specifications.	<input checked="" type="checkbox"/>
--	-------------------------------------

<sup>1</sup> FOOTNOTE: See the signature block on the last page of this compliance document for the responsible party.**M. COMMISSIONING REPORT***Table Instructions: Complete the table below to demonstrate compliance with commissioning report requirements per [§120.8\(i\)](#).*

By checking this box, the responsible party <sup>1</sup> certifies that a complete report of commissioning process' activities undertaken through the design, construction and reporting recommendations for post-construction phases of the building project shall be completed and provided to the owner or owner's representative.	01	<input checked="" type="checkbox"/>
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<sup>1</sup> FOOTNOTE: See the signature block on the last page of this compliance document for the responsible party.

This is required to comply.

**N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION***There are no Certificates of Installation applicable to commissioning requirements.***O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE***Although there are no "CXR" Certificates of Acceptance required to document commissioning requirements, Certificates of Acceptance may be used to supplement functional performance testing required by [§120.8\(g\)](#).*

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## CERTIFICATE OF COMPLIANCE

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<b>DOCUMENTATION AUTHOR'S DECLARATION STATEMENT</b>		?	
I certify that this Certificate of Compliance documentation is accurate and complete			
Documentation Author Name:	Winston Waterloo	Documentation Author Signature:	
Company:	Cx Provider Example Company	Signature Date:	7.29.20
Address:	123 Fun St.	CEA/ HERS Certification Identification (if applicable):	NA
City/State/Zip:	Beach City, CA 90000	Phone:	510.510.0000
<b>RESPONSIBLE PERSON'S DECLARATION STATEMENT</b>			
I certify the following under penalty of perjury, under the laws of the State of California:			
<ol style="list-style-type: none"> <li>The information provided on this Certificate of Compliance is true and correct.</li> <li>I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)</li> <li>The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.</li> <li>The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.</li> <li>I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.</li> </ol>			
Responsible Designer Name:	Floyd Fence	Responsible Designer Signature:	
Company :	Example Architecture Company	Date Signed:	8.1.20
Address:	1235 PineSt.	License:	ABCD-1234
City/State/Zip:	Mountain City, CA 92000	Phone:	916.916.0000
<b>DOCUMENTATION AUTHOR'S DECLARATION STATEMENT</b>		?	
The CXR form will likely require more than one Responsible Person to sign. An additional signature block may be added using a button on the dynamic form. The Documentation Author will have to sign each signature block.			
I certify that this Certificate of Compliance documentation is accurate and complete			
Documentation Author Name:	Winston Waterloo	Documentation Author Signature:	
Company:	Cx Provider Example Company	Signature Date:	7.29.20
Address:	123 Fun St.	CEA/ HERS Certification Identification (if applicable):	NA
City/State/Zip:	Beach City, CA 90000	Phone:	510.510.0000

**Nonresidential Building Commissioning**

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**RESPONSIBLE PERSON'S DECLARATION STATEMENT**

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name:	Anne Aniston	Responsible Designer Signature:
Company :	Example Engineering Firm	Date Signed: 8.3.20
Address:	1567 This Wy.	License: erty-89
City/State/Zip:	Forest City, CA 98000	Phone: 756.123.1234

For more training on the NRCC forms, visit Energy Code Ace for Decoding Talks:

2019 Dynamic Form Introduction Series: [youtube.com/playlist?list=PLVH9EjKDaO5IMvxVJg2oDwq2B3wjJTQ1](https://www.youtube.com/playlist?list=PLVH9EjKDaO5IMvxVJg2oDwq2B3wjJTQ1)

Decoding NRCC: Let's Talk 2019 Nonresidential Dynamic Forms Handout and Recording: [energycodeace.com/content/training-ace/courseId=35705](https://energycodeace.com/content/training-ace/courseId=35705)