

BUILDING ENERGY ANALYSIS REPORT

PROJECT:

Tokyo Wako Restaurant
500 N. Atlantic Blvd, Suite 200A
Monterey Park, CA 91754

Project Designer:

LJ Construction
17637 Rowland St, # E
City Of Industry, CA 91748
626-581-7738

Report Prepared by:

Frank Le
TITLE24.NET
14211 Riata Street
Westminster, CA 92683
714-600-7955

Job Number:

31-04

Date:

4/28/2010



The EnergyPro computer program has been used to perform the calculations summarized in this compliance report. This program has approval and is authorized by the California Energy Commission for use with both the Residential and Nonresidential 2008 Building Energy Efficiency Standards.

This program developed by EnergySoft, LLC – www.energysoft.com.

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PERFORMANCE CERTIFICATE OF COMPLIANCE (Part 1 of 3) **PERF-1C**

Project Name <i>Tokyo Wako Restaurant</i>			Date <i>4/28/2010</i>
Project Address <i>500 N. Atlantic Blvd, Suite 200A Monterey Park</i>	Climate Zone <i>CA Climate Zone 09</i>	Total Cond. Floor Area <i>6,470</i>	Addition Floor Area <i>n/a</i>

GENERAL INFORMATION

Building Type:	<input checked="" type="checkbox"/> Nonresidential	<input type="checkbox"/> High-Rise Residential	<input type="checkbox"/> Hotel/Motel Guest Room
	<input type="checkbox"/> Relocatable - indicate	<input type="checkbox"/> specific climate zone	<input type="checkbox"/> all climates
Phase of Construction:	<input type="checkbox"/> New Construction	<input type="checkbox"/> Addition	<input type="checkbox"/> Alteration

STATEMENT OF COMPLIANCE
 This certificate of compliance lists the building features and specifications needed to comply with Title 24, Parts 1 and 6 of the California Code of Regulations. This certificate applies only to a Building using the performance compliance approach.

The documentation author hereby certifies that the documentation is accurate and complete.

Documentation Author

Name <i>Frank Le</i>	Signature <i>Frankle</i>
Company <i>TITLE24.NET</i>	Date <i>4/28/2010</i>
Address <i>14211 Riata Street</i>	Phone <i>714-600-7955</i>
City/State/Zip <i>Westminster, CA 92683</i>	

The Principal Designer hereby certifies that the proposed building design represented in this set of construction documents is consistent with the other compliance forms and worksheets, with the specifications, and with any other calculations submitted with this permit application. The proposed building has been designed to meet the energy efficiency requirements contained in sections 110, 116 through 118, and 140 through 149 of Title 24, Part 6. Please check one:

ENV. LTG. MECH.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	I hereby affirm that I am eligible under the provisions of Division 3 of the Business and Professions Code to sign this document as the person responsible for its preparation; and that I am licensed in the State of California as a civil engineer, mechanical engineer, electrical engineer, or I am a licensed architect.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	I affirm that I am eligible under the provisions of Division 3 of the Business and Professions Code by section 5537.2 or 6737.3 to sign this document as the person responsible for its preparation; and that I am a licensed contractor performing this work.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	I affirm that I am eligible under Division 3 of the Business and Professions Code to sign this document because it pertains to a structure or type of work described as exempt pursuant to Business and Professions Code Sections 5537, 5538 and 6737.1.

Principal Envelope Designer

Name	Signature
Company <i>Envelope Compliance Not In The Scope Of This Document</i>	Date
Address	License #
City/State/Zip	Phone

Principal Mechanical Designer

Name	Signature
Company <i>LJ Construction</i>	Date
Address <i>17637 Rowland St, # E</i>	License #
City/State/Zip <i>City Of Industry, CA 91748</i>	Phone <i>626-581-7738</i>

Principal Lighting Designer

Name	Signature
Company <i>LJ Construction</i>	Date
Address <i>17637 Rowland St, # E</i>	License #
City/State/Zip <i>City Of Industry, CA 91748</i>	Phone <i>626-581-7738</i>

INSTRUCTIONS TO APPLICANT COMPLIANCE & WORKSHEETS (check box if worksheets are included)

<input type="checkbox"/> ENV-1C	Certificate of Compliance. Required on plans.	<input checked="" type="checkbox"/> MECH-1C	Certificate of Compliance. Required on plans.
<input checked="" type="checkbox"/> LTG-1C	Certificate of Compliance. Required on plans.	<input checked="" type="checkbox"/> MECH-2C	Air/Water Side/Service Hot Water & Pool Requirements.
<input type="checkbox"/> LTG-2C	Lighting Controls Credit Worksheet.	<input checked="" type="checkbox"/> MECH-3C	Mechanical Ventilation and Reheat.
<input type="checkbox"/> LTG-3C	Indoor Lighting Power Allowance.	<input checked="" type="checkbox"/> MECH-5C	Mechanical Equipment Details.

PERFORMANCE CERTIFICATE OF COMPLIANCE

(Part 2 of 3)

PERF-1C

Project Name
Tokyo Wako Restaurant

Date
4/28/2010

ANNUAL TDV ENERGY USE SUMMARY (kBtu/sqft-yr)

Energy Component	Standard Design	Proposed Design	Compliance Margin
Space Heating	2.06	3.38	-1.33
Space Cooling	126.05	124.75	1.30
Indoor Fans	37.87	35.96	1.90
Heat Rejection	0.00	0.00	0.00
Pumps & Misc.	0.00	0.00	0.00
Domestic Hot Water	328.34	336.94	-8.60
Lighting	83.47	72.92	10.54
Receptacle	42.30	42.30	0.00
Process	0.00	0.00	0.00
Process Lighting	0.00	0.00	0.00
TOTALS	620.09	616.26	3.83



Percent better than Standard *0.6 %* (*0.6 %* excluding process)

BUILDING COMPLIES

GENERAL INFORMATION

Building Orientation	<i>(S) 180 deg</i>	Conditioned Floor Area	<i>6,470</i> sqft.
Number of Stories	<i>1</i>	Unconditioned Floor Area	<i>0</i> sqft.
Number of Systems	<i>5</i>	Conditioned Footprint Area	<i>6,470</i> sqft.
Number of Zones	<i>4</i>	Natural Gas Available On Site	<i>Yes</i>

	Orientation	Gross Area	Glazing Area	Glazing Ratio
Front Elevation	<i>(S)</i>	<i>0</i> sqft.	<i>0</i> sqft.	<i>0.0 %</i>
Left Elevation	<i>(W)</i>	<i>0</i> sqft.	<i>0</i> sqft.	<i>0.0 %</i>
Rear Elevation	<i>(N)</i>	<i>0</i> sqft.	<i>0</i> sqft.	<i>0.0 %</i>
Right Elevation	<i>(E)</i>	<i>0</i> sqft.	<i>0</i> sqft.	<i>0.0 %</i>
Total		<i>0</i> sqft.	<i>0</i> sqft.	<i>0.0 %</i>
Roof		<i>6,470</i> sqft.	<i>0</i> sqft.	<i>0.0 %</i>

	Standard	Proposed
Lighting Power Density	<i>1.192</i> W/sqft.	<i>1.042</i> W/sqft.
Prescriptive Envelope TDV Energy	<i>33,055</i>	<i>47,027</i>

Remarks:

Standard Building (Compliance)

PERFORMANCE CERTIFICATE OF COMPLIANCE (Part 3 of 3) **PERF-1C**

Project Name <i>Tokyo Wako Restaurant</i>	Date <i>4/28/2010</i>
----------------------------------------------	--------------------------

ZONE INFORMATION

System Name	Zone Name	Occupancy Type	Floor Area (sqft.)	Inst. LPD (W/sf) ¹	Ctrl. Credits (W/sf) ²	Allowed LPD		Proc. Loads (W/sf)
						Area (W/sf) ³	Tailored (W/sf) ⁴	
<i>New HVAC</i>	<i>Lobby</i>	<i>Lobby, Main Entry</i>	<i>485</i>	<i>1.823</i>				
	<i>Dining Room</i>	<i>Dining</i>	<i>4,557</i>	<i>1.055</i>				
	<i>Restroom</i>	<i>Corridor/Restroom/Support</i>	<i>312</i>	<i>0.583</i>				
	<i>Kitchen</i>	<i>Kitchen, Food Preparation</i>	<i>1,116</i>	<i>0.775</i>				

Notes: 1. See LTG-1C (items marked with asterisk, see LTG-1-C by others) 2. See LTG-2C 3. See LTG-3C (by others) 4. See LTG-4C Items above require special documentation

EXCEPTIONAL CONDITIONS COMPLIANCE CHECKLIST

The local enforcement agency should pay special attention to the items specified in this checklist. These items require special written justification and documentation, and special verification to be used with the performance approach. The local enforcement agency determines the adequacy of the justifications, and may reject a building or design that otherwise complies based on the adequacy of the special justification and documentation submitted.

The exceptional features listed in this performance approach application have specifically been reviewed. Adequate written justification and documentation for their use have been provided by the applicant.

Authorized Signature or Stamp _____

CERTIFICATE OF COMPLIANCE

(Part 1 of 3)

LTG-1C

Project Name
Tokyo Wako Restaurant

Date
4/28/2010

INDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST

Installation Certificate, LTG-1- INST (Retain a copy and verify form is completed and signed.)

Field Inspector

Certificate of Acceptance, LTG-2A (Retain a copy and verify form is completed and signed.)

Field Inspector

A separate Lighting Schedule Must Be Filled Out for Conditioned and Unconditioned Spaces Installed Lighting Power listed on this Lighting Schedule is only for:

CONDITIONED SPACE **UNCONDITIONED SPACE**

The actual indoor lighting power listed below includes all installed permanent and portable lighting systems in accordance with §146(a).

Only for offices: Up to the first 0.2 watts per square foot of portable lighting shall not be required to be included in the calculation of actual indoor lighting power density in accordance with the Exception to §146(a). All portable lighting in excess of 0.2 watts per square foot is totaled below.

Luminaire (Type, Lamps, Ballasts)		Installed Watts							
A	B	C	D	E		F	G	H	
None or Item Tag	Complete Luminaire Description ¹ (i.e, 3 lamp fluorescent troffer, F32T8, one dimmable electronic ballasts)	Special Features	Watts per Luminaire	How wattage Was determined		Number of Luminaires	Installed Watts (C X F)	Field Inspector ²	
				CEC Default From NA8	According To §130 (d or e)			Pass	Fail
	(1) 23w Compact Fluorescent Quad 2 Pin	<input type="checkbox"/>	23	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8	184	<input type="checkbox"/>	<input type="checkbox"/>
	(2) 4 ft Fluorescent T8 Energy Savings Elec	<input type="checkbox"/>	62	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10	620	<input type="checkbox"/>	<input type="checkbox"/>
	(1) 13w Compact Fluorescent Twin 2 Pin	<input type="checkbox"/>	13	<input checked="" type="checkbox"/>	<input type="checkbox"/>	400	5,200	<input type="checkbox"/>	<input type="checkbox"/>
	(1) 32w Lng Cmpnt T5 Fluorescent	<input type="checkbox"/>	32	<input checked="" type="checkbox"/>	<input type="checkbox"/>	23	736	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
Installed Watts Page Total:							6,740		
Building total number of pages:				Installed Watts Building Total (Sum of all pages)					
				Enter into LTG-1C Page 4 of 4			6,740		

1. Wattage shall be determined according to Section 130 (d and e). Wattage shall be rating of light fixture, not rating of bulb.
 2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

CERTIFICATE OF COMPLIANCE

(Part 2 of 3)

LTG-1C

Project Name

Tokyo Wako Restaurant

Date

4/28/2010

INDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST

Fill in controls for all spaces: a) area controls, b) multi-level controls, c) manual daylighting controls for daylit areas > 250 ft², automatic daylighting controls for daylit areas > 2,500 ft², d) shut-off controls, e) display lighting controls, f) tailored lighting controls – general lighting controlled separately from display, ornamental and display case lighting and g) demand responsive automatic controls for retail stores > 50,000 ft², in accordance with Section 131.

MANDATORY LIGHTING CONTROLS – FIELD INSPECTION ENERGY CHECKLIST				Field Inspector	
Type/ Description	Number of Units	Location in Building	Special Features	Pass	Fail
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SPECIAL FEATURES INSPECTION CHECKLIST (See Page 2 of 4 of LTG-1C)

The local enforcement agency should pay special attention to the items specified in this checklist. These items require special written justification and documentation, and special verification. The local enforcement agency determines the adequacy of the justification, and may reject a building or design that otherwise complies based on the adequacy of the special justification and documentation submitted.

Field Inspector's Notes or Discrepancies:

CERTIFICATE OF COMPLIANCE

(Part 3 of 3)

LTG-1C

Project Name
Tokyo Wako Restaurant

Date
4/28/2010

CONDITIONED AND UNCONDITIONED SPACE LIGHTING MUST NOT BE COMBINED FOR COMPLIANCE

Indoor Lighting Power for Conditioned Spaces		Indoor Lighting Power for Unconditioned Spaces	
	Watts		Watts
Installed Lighting (from Conditioned LTG-1C, Page 2)	6,740	Installed Lighting (from Unconditioned LTG-1C, Page 2)	0
Lighting Control Credit Conditioned Spaces (from LTG-2C)	-	Lighting Control Credit Unconditioned Spaces (from LTG-2C)	-
Adjusted Installed Lighting Power	= 6,740	Adjusted Installed Lighting Power	= 0
Complies if Installed ≤ Allowed		Complies if Installed ≤ Allowed	
Allowed Lighting Power Conditioned Spaces (from LTG-3C or PERF-1)	6,740	Allowed Lighting Power Unconditioned Spaces (from LTG-3C)	0

Required Acceptance Tests

Designer:

This form is to be used by the designer and attached to the plans. Listed below is the acceptance test for the Lighting system, **LTG-2A**. The designer is required to check the acceptance tests and list all control devices serving the building or space shall be certified as meeting the Acceptance Requirements for Code Compliance. If all the lighting system or control of a certain type requires a test, list the different lighting and the number of systems. The NA7 Section in the Appendix of the Nonresidential Reference Appendices Manual describes the test. Since this form will be part of the plans, completion of this section will allow the responsible party to budget for the scope of work appropriately. **Forms can be grouped by type of Luminaire controlled.**

Enforcement Agency:

Systems Acceptance. Before Occupancy Permit is granted for a newly constructed building or space or when ever new lighting system with controls is installed in the building or space shall be certified as meeting the Acceptance Requirements. The **LTG-2A** form is not considered a complete form and is not to be accepted by the enforcement agency unless the boxes are checked and/or filled and signed. In addition, a Certificate of Acceptance forms shall be submitted to the enforcement agency that certifies plans, specifications, installation certificates, and operating and maintenance information meet the requirements of §10-103(b) of Title 24 Part 6. The field inspector must receive the properly filled out and signed forms before the building can receive final occupancy. A copy of the **LTG-2A** for each different lighting luminaire control(s) must be provided to the owner of the building for their records.

Controls for Credits				LTG-2A
Equipment Requiring Testing	Description	Number of Luminaire controls	Location	Controls and Sensors and Automatic Daylighting Controls Acceptance
				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>
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				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>
				<input type="checkbox"/>

CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST

(Part 1 of 4)

MECH-1C

Project Name <i>Tokyo Wako Restaurant</i>		Date <i>4/28/2010</i>	
Project Address <i>500 N. Atlantic Blvd, Suite 200A Monterey Park</i>	Climate Zone <i>9</i>	Total Cond. Floor Area <i>6,470</i>	Addition Floor Area <i>n/a</i>

GENERAL INFORMATION

Building Type:	<input checked="" type="checkbox"/> Nonresidential	<input type="checkbox"/> High-Rise Residential	<input type="checkbox"/> Hotel/Motel Guest Room
	<input type="checkbox"/> Schools (Public School)	<input type="checkbox"/> Relocatable Public School Bldg.	<input checked="" type="checkbox"/> Conditioned Spaces
			<input type="checkbox"/> Unconditioned Spaces (affidavit)
Phase of Construction:	<input type="checkbox"/> New Construction	<input type="checkbox"/> Addition	<input type="checkbox"/> Alteration
Approach of Compliance:	<input type="checkbox"/> Component	<input checked="" type="checkbox"/> Overall Envelope TDV Energy	<input type="checkbox"/> Unconditioned (file affidavit)
Front Orientation: N, E, S, W or in Degrees:	<i>180 deg</i>		

HVAC SYSTEM DETAILS

FIELD INSPECTION ENERGY CHECKLIST

Equipment ²	Inspection Criteria	Meets Criteria or Requirements		
		Special Feature ¹	Pass	Fail ³
Item or System Tags (i.e. AC-1, RTU-1, HP-1)	<i>DHW Heater</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equipment Type ⁴ :	<i>Electric Res DHW Boiler</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Number of Systems	<i>2</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Max Allowed Heating Capacity	<i>15,359 Btu/hr</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minimum Heating Efficiency	<i>0.85 EF</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Max Allowed Cooling Capacity	<i>n/a</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cooling Efficiency	<i>n/a</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duct Location/ R-Value	<i>n/a</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duct Leakage Testing - If Yes, a MECH-4A must be submitted	<i>n/a</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Economizer	<i>n/a</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thermostat	<i>n/a</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fan Control	<i>n/a</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FIELD INSPECTION ENERGY CHECKLIST

Equipment ²	Inspection Criteria	Meets Criteria or Requirements		
		Special Feature ¹	Pass	Fail ³
Item or System Tags (i.e. AC-1, RTU-1, HP-1)	<i>New HVAC</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equipment Type ⁴ :	<i>Split DX</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Number of Systems	<i>5</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Max Allowed Heating Capacity	<i>44,000 Btu/hr</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Minimum Heating Efficiency	<i>6.00 HSPF</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Max Allowed Cooling Capacity	<i>60,600 Btu/hr</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cooling Efficiency	<i>13.1 SEER / 9.8 EER</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duct Location/ R-Value	<i>R-4.2</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duct Leakage Testing - If Yes, a MECH-4A must be submitted	<i>No</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Economizer	<i>No Economizer</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thermostat	<i>Setback Required</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fan Control	<i>Constant Volume</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Indicate special feature DETAILS on Page 2 of the Inspection Checklist Form.
2. If the Actual installed equipment performance efficiency and capacity is less than the Proposed (from the energy compliance submittal or from the building plans) the responsible party shall resubmit energy compliance to include the new changes.
3. For additional detailed discrepancy use Page 2 of the Inspection Checklist Form.
4. Indicate Equipment Type: Gas (Pkg or, Split), VAV, HP (Pkg or split), Hydronic, PTAC, or other.

CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 3 of 4) MECH-1C

Project Name: *Tokyo Wako Restaurant* Date: *4/28/2010*

Required Acceptance Tests

Designer:

This form is to be used by the designer and attached to the plans. Listed below are all the acceptance tests for mechanical systems. The designer is required to check the applicable boxes by all acceptance tests that apply and listed all equipment that requires an acceptance test. If all equipment of a certain type requires a test, list the equipment description and the number of systems. The NA number designates the Section in the Appendix of the Nonresidential Reference Appendices Manual that describes the test. Since this form will be part of the plans, completion of this section will allow the responsible party to budget for the scope of work appropriately.

Building Departments:

Systems Acceptance: Before occupancy permit is granted for a newly constructed building or space, or a new space-conditioning system serving a building or space is operated for normal use, all control devices serving the building or space shall be certified as meeting the Acceptance Requirements for Code Compliance.

Systems Acceptance: Before occupancy permit is granted. All newly installed HVAC equipment must be tested using the Acceptance Requirements.

The MECH-1C form is not considered a completed form and is not to be accepted by the building department unless the correct boxes are checked. The equipment requiring testing, person performing the test (Example: HVAC installer, TAB contractor, controls contractor, PE in charge of project) and what Acceptance test must be conducted. The following checked-off forms are required for **ALL** newly installed equipment. In addition a Certificate of Acceptance forms shall be submitted to the building department that certifies plans, specifications, installation, certificates, and operating and maintenance information meet the requirements of §10-103(b) and Title-24 Part 6. The building inspector must receive the properly filled out and signed forms before the building can receive final occupancy.

TEST DESCRIPTION		MECH-2A	MECH-3A	MECH-4A	MECH-5A	MECH-6A	MECH-7A	MECH-8A	MECH-9A	MECH-10A	MECH-11A
Equipment Requiring Testing or Verification	Qty.	Outdoor Ventilation For VAV & CAV	Constant Volume & Single-Zone Unitary	Air Distribution Ducts	Economizer Controls	Demand Control Ventilation DCV	Supply Fan VAV	Valve Leakage Test	Supply Water Temp. Reset	Hydronic System Variable Flow Control	Automatic Demand Shed Control
<i>CARRIER: 50RHR-06060</i>	<i>5</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CERTIFICATE OF COMPLIANCE and FIELD INSPECTION ENERGY CHECKLIST (Part 4 of 4) **MECH-1C**

Project Name <i>Tokyo Wako Restaurant</i>	Date <i>4/28/2010</i>
----------------------------------------------	--------------------------

TEST DESCRIPTION	Qty.	MECH-12A Fault Detection & Diagnostics for DX Units	MECH-13A Automatic Fault Detection & Diagnostics for Air & Zone	MECH-14A Distributed Energy Storage DX AC Systems	MECH-15A Thermal Energy Storage (TES) Systems	
Equipment Requiring Testing						Test Performed By:
<i>CARRIER: 50RHR-06060</i>	<i>5</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

AIR SYSTEM REQUIREMENTS

(Part 1 of 2)

MECH-2C

Project Name

Tokyo Wako Restaurant

Date

4/28/2010

Item or System Tags (i.e. AC-1, RTU-1, HP-1)	Indicate Air Systems Type (Central, Single Zone, Package, VAV, or etc...)		
		<i>New HVAC</i>	
Number of Systems		5	

MANDATORY MEASURES	Indicate Page Reference on Plans or Schedule and indicate the applicable exception(s)		
	T-24 Sections		
Heating Equipment Efficiency	112(a)	<i>6.00 HSPF</i>	
Cooling Equipment Efficiency	112(a)	<i>13.1 SEER / 9.8 EER</i>	
HVAC Heat Pump Thermostat	112(b), 112(c)	<i>Yes</i>	
Furnace Controls/Thermostat	112(c), 115(a)	<i>n/a</i>	
Natural Ventilation	121(b)	<i>Yes</i>	
Mechanical Ventilation	121(b)	<i>1,320 cfm</i>	
VAV Minimum Position Control	121(c)	<i>No</i>	
Demand Control Ventilation	121(c)	<i>No</i>	
Time Control	122(e)	<i>Programmable Switch</i>	
Setback and Setup Control	122(e)	<i>Setback Required</i>	
Outdoor Damper Control	122(f)	<i>Auto</i>	
Isolation Zones	122(g)	<i>n/a</i>	
Pipe Insulation	123		
Duct Insulation	124	<i>R-4.2</i>	

PRESCRIPTIVE MEASURES

Calculated Design Heating Load	144(a & b)	<i>n/a</i>	
Proposed Heating Capacity	144(a & b)	<i>152,669 Btu/hr</i>	
Calculated Design Cooling Load	144(a & b)	<i>n/a</i>	
Proposed Cooling Capacity	144(a & b)	<i>266,547 Btu/hr</i>	
Fan Control	144(c)	<i>Constant Volume</i>	
DP Sensor Location	144(c)		
Supply Pressure Reset (DDC only)	144(c)	<i>Yes</i>	
Simultaneous Heat/Cool	144(d)	<i>No</i>	
Economizer	144(e)	<i>No Economizer</i>	
Heat and Cool Air Supply Reset	144(f)	<i>Constant Temp</i>	
Electric Resistance Heating ¹	144(g)	<i>Constant Temp</i>	
Air Cooled Chiller Limitation	144(i)		
Duct Leakage Sealing. If Yes, a MECH-4-A must be submitted	144(k)	<i>No</i>	

1. Total installed capacity (MBtu/hr) of all electric heat on this project exclusive of electric auxiliary heat for heat pumps. If electric heat is used explain which exception(s) to §144(g) apply.

WATER SIDE SYSTEM REQUIREMENTS

(Part 2 of 2)

MECH-2C

Project Name

Tokyo Wako Restaurant

Date

4/28/2010

WATER ² SIDE SYSTEMS: Chillers, Towers, Boilers, Hydronic Loops			
Item or System Tags (i.e. AC-1, RTU-1, HP-1) ¹			
Number of Systems			
Indicate Page Reference on Plans or Specification ²			
MANDATORY MEASURES	T-24 Sections		
Equipment Efficiency	112(a)		
Pipe Insulation	123		

PRESCRIPTIVE MEASURES

Cooling Tower Fan Controls	144(a & b)		
Cooling Tower Flow Controls	144(h)		
Variable Flow System Design	144(h)		
Chiller and Boiler Isolation	144(j)		
CHW and HHW Reset Controls	144(j)		
WLHP Isolation Valves	144(j)		
VSD on CHW, CW & WLHP Pumps>5HP	144(j)		
DP Sensor Location	144(j)		
Heat Rejection System	144(h)		

- The proposed equipment need to match the building plans schedule or specifications. If a requirement is not applicable, put "N/A" in the column next to applicable section.
- For each chiller, cooling tower, boiler, and hydronic loop (or groups of similar equipment) fill in the reference to sheet number and/or specification section and paragraph number where the required features are documented. If a requirement is not applicable, put "N/A" in the column next to applicable section.

Service Hot Water, Pool Heating			
Item or System Tags (i.e. WH-1, WHP, DHW, etc...) ¹		DHW Heater	
Number of Systems		2	
Indicate Page Reference on Plans or Schedule ²			
MANDATORY MEASURES	T-24 Sections		

SERVICE HOT WATER

Certified Water Heater	111, 113(a)	AO SMITH PEC-080	
Water Heater Efficiency	113(b)	0.85 EF	
Service Water Heating Installation	113(c)		
Pipe Insulation	123	n/a	

POOL AND SPA

Pool and Spa Efficiency and Control	114(a)	n/a	
Pool and Spa Installation	114(b)	n/a	
Pool Heater – No Pilot Light	115(c)	n/a	
Spa Heater – No Pilot Light	115(d)		
Pipe Insulation	123		

- The Proposed equipment needs to match the building plans schedule or specifications. If a requirement is not applicable, put "N/A" in the column next to applicable section.
- For each water heater, pool heater and domestic water loop (or groups of similar equipment) fill in the reference to sheet number and/or specification section and paragraph number where the required features are documented. If a requirement is not applicable, put "N/A" in the column.

MECHANICAL VENTILATION AND REHEAT

MECH-3C

Project Name: *Tokyo Wako Restaurant* Date: *4/28/2010*

MECHANICAL VENTILATION (§121(b)2)								REHEAT LIMITATION (§144(d))					
A	AREA BASIS			OCCUPANCY BASIS			H	I	VAV MINIMUM				
	B	C	D	E	F	G			J	K	L	M	N
Zone/System	Condition Area (ft ²)	CFM per ft ²	Min CFM By Area B X C	Number Of People	CFM per Person	Min CFM by Occupant E X F	REQ'D V.A. Max of D or G	Design Ventilation Air CFM	50% of Design Zone Supply CFM	B X 0.4 CFM / ft ²	Max. of Columns H, J, K, 300 CFM	Design Minimum Air Setpoint	Transfer Air
Lobby	485	0.15	73				73	194					
Dining Room	4,557	0.50	2,279				2,279	911					1,367
Restroom	312	0.15	47				47	47					
Kitchen	1,116	0.15	167				167	167					
New HVAC						Total	2,565	1,320					
Totals										Column I Total Design Ventilation Air			

C	Minimum ventilation rate per Section §121, Table 121-A.
E	Based on fixed seat or the greater of the expected number of occupants and 50% of the CBC occupant load for egress purposes for spaces without fixed setting.
H	Required Ventilation Air (REQ'D V.A.) is the larger of the ventilation rates calculated on an AREA BASIS or OCCUPANCY BASIS (Column D or G).
I	Must be greater than or equal to H, or use Transfer Air (column N) to make up the difference.
J	Design fan supply CFM (Fan CFM) x 50%; or the design zone outdoor airflow rate per §121.
K	Condition area (ft ²) x 0.4 CFM / ft ² ; or
L	Maximum of Columns H, J, K, or 300 CFM
M	This must be less than or equal to Column L and greater than or equal to the sum of Columns H plus N.
N	Transfer Air must be provided where the Required Ventilation Air (Column H) is greater than the Design Minimum Air (Column M). Where required, transfer air must be greater than or equal to the difference between the Required Ventilation Air (Column H) and the Design Minimum Air (Column M), Column H minus M.

MECHANICAL EQUIPMENT DETAILS

(Part 1 of 2)

MECH-5C

Project Name
Tokyo Wako Restaurant

Date
4/28/2010

CHILLER AND TOWER SUMMARY

Equipment Name	Type	Qty.	Efficiency	Tons	PUMPS				
					Qty.	GPM	BHP	Premium Eff. Motor	Pump Control
								<input type="checkbox"/>	
								<input type="checkbox"/>	
								<input type="checkbox"/>	

DHW / BOILER SUMMARY

System Name	Type	Distribution	Qty.	Rated Input	Vol. (Gals.)	Energy Factor or RE	Standby Loss or Pilot	Tank Ext. R-Value	Status
<i>AO SMITH PEC-080</i>	<i>Small Elec.</i>	<i>Kitchen Pipe Ins</i>	<i>2</i>	<i>15,359</i>	<i>74</i>	<i>0.85</i>	<i>n/a</i>	<i>n/a</i>	<i>New</i>

MULTI-FAMILY CENTRAL WATER HEATING DETAILS

Hot Water Pump				Hot Water Piping Length (ft)			
Control	Qty.	HP	Type	In Plenum	Outside	Buried	Add 1/2" Insulation
							<input type="checkbox"/>
							<input type="checkbox"/>
							<input type="checkbox"/>

CENTRAL SYSTEM RATINGS

System Name	Type	Qty.	HEATING			COOLING		Status
			Output	Aux. kW	Efficiency	Output	Efficiency	
<i>CARRIER: 50RHR-06060</i>	<i>Split DX</i>	<i>5</i>	<i>44,000</i>	<i>0.0</i>	<i>6.00 HSPF</i>	<i>60,600</i>	<i>13.1 SEER / 9.8 EER</i>	<i>New</i>

CENTRAL SYSTEM FAN SUMMARY

System Name	Fan Type	Economizer Type	SUPPLY FAN			RETURN FAN		
			CFM	BHP	Premium Eff. Motor	CFM	BHP	Premium Eff. Motor
<i>CARRIER: 50RHR-06060</i>	<i>Constant Volume</i>	<i>No Economizer</i>	<i>1,200</i>	<i>0.33</i>	<input type="checkbox"/>	<i>none</i>		<input type="checkbox"/>
					<input type="checkbox"/>			<input type="checkbox"/>
					<input type="checkbox"/>			<input type="checkbox"/>
					<input type="checkbox"/>			<input type="checkbox"/>
					<input type="checkbox"/>			<input type="checkbox"/>
					<input type="checkbox"/>			<input type="checkbox"/>

LIGHTING MANDATORY MEASURES: NONRESIDENTIAL**LTG-MM**

Project Name

Tokyo Wako Restaurant

Date

4/28/2010

Indoor Lighting Measures:**§131(d): Shut-off Controls**

For every floor, all interior lighting systems shall be equipped with a separate automatic control to shut off the lighting.

1. This automatic control shall meet the requirements of Section 119 and may be an occupancy sensor, automatic time switch, or other device capable of automatically shutting off the lighting.

2. Override for Building Lighting Shut-off: The automatic building shut-off system is provided with a manual, accessible override switch in sight of the lights. The area of override is not to exceed 5,000 square feet.

§119(h): Automatic Control Devices Certified: All automatic control devices specified are certified, all alternate equipment shall be certified and installed as directed by the manufacturer.

§111: Fluorescent Ballast and Luminaires Certified: All fluorescent fixtures specified for the project are certified and listed in the Directory. All installed fixtures shall be certified.

§132: Tandem Wiring for One and Three Lamp Fluorescent Fixtures: All one and three lamp fluorescent fixtures are tandem wired with two lamp ballasts where required by Standards Section 132; or all one and three lamp fluorescent fixtures are specified with electronic high-frequency ballasts and are exempt from tandem wiring requirements.

§131(a): Individual Room/Area Controls: Each room and area in this building is equipped with a separate switch or occupancy sensor device for each area with floor-to-ceiling walls.

§131(b): Uniform Reduction for Individual Rooms: All rooms and areas greater than 100 square feet and more than 0.8 watts per square foot of lighting load shall be controlled with bi-level switching for uniform reduction of lighting within the room.

§131(c): Daylight Area Control: All rooms with windows and skylights that are greater than 250 square feet and that allow for the effective use of daylight in the area shall have 50% of the lamps in each daylit area controlled by a separate switch; or the effective use of daylight cannot be accomplished because the windows are continuously shaded by a building on the adjacent lot. Diagram of shading during different times of the year is included on plans.

§131(c): Display Lighting. Display lighting shall be separately switched on circuits that are 20 amps or less.6.

Outdoor Lighting Measures:

§130(c)1: Mandatory lighting power determination for medium base sockets without permanently installed ballasts

§132(a): All permanently installed luminaires with lamps rated over 100 Watts either have a lamp efficacy of at least 60 lumens per Watt or are controlled by a motion sensor.

§132(b): All Luminaires with lamps rated greater than 175 Watts in hardscape area, including parking lots, building entrances, canopies, and all outdoor sales areas meet the Cutoff Requirements.

§132(c)1: All permanently installed outdoor lighting meets the control requirements listed.

§132(c): Building facades, parking lots, garages, canopies, and outdoor sales areas meet the Multi-Level Lighting Requirements listed.

MECHANICAL MANDATORY MEASURES: NONRESIDENTIAL**MECH-MM**

Project Name

Tokyo Wako Restaurant

Date

4/28/2010

Equipment and System Efficiencies

- §111: Any appliance for which there is a California standard established in the Appliance Efficiency Regulations will comply with the applicable standard.
- §115(a): Fan type central furnaces shall not have a pilot light.
- §123: Piping, except that conveying fluids at temperatures between 60 and 105 degrees Fahrenheit, or within HVAC equipment, shall be insulated in accordance with Standards Section 123.
- §124: Air handling duct systems shall be installed and insulated in compliance with Sections 601, 602, 603, 604, and 605 of the CMC Standards.

Controls

- §122(e): Each space conditioning system shall be installed with one of the following:
- 1A. Each space conditioning system serving building types such as offices and manufacturing facilities (and all others not explicitly exempt from the requirements of Section 112 (d)) shall be installed with an automatic time switch with an accessible manual override that allows operation of the system during off-hours for up to 4 hours. The time switch shall be capable of programming different schedules for weekdays and weekends and have program backup capabilities that prevent the loss of the device's program and time setting for at least 10 hours if power is interrupted; or
 - 1B. An occupancy sensor to control the operating period of the system; or
 - 1C. A 4-hour timer that can be manually operated to control the operating period of the system.
2. Each space conditioning system shall be installed with controls that temporarily restart and temporarily operate the system as required to maintain a setback heating and/or a setup cooling thermostat setpoint.
- §122(g): Each space conditioning system serving multiple zones with a combined conditioned floor area more than 25,000 square feet shall be provided with isolation zones. Each zone: shall not exceed 25,000 square feet; shall be provided with isolation devices, such as valves or dampers that allow the supply of heating or cooling to be setback or shut off independently of other isolation areas; and shall be controlled by a time control device as described above.
- §122(c): Thermostats shall have numeric setpoints in degrees Fahrenheit (F) and adjustable setpoint stops accessible only to authorized personnel.
- §122(b): Heat pumps shall be installed with controls to prevent electric resistance supplementary heater operation when the heating load can be met by the heat pump alone
- §122(a&b): Each space conditioning system shall be controlled by an individual thermostat that responds to temperature within the zone. Where used to control heating, the control shall be adjustable down to 55 degrees F or lower. For cooling, the control shall be adjustable up to 85 degrees F or higher. Where used for both heating and cooling, the control shall be capable of providing a deadband of at least 5 degrees F within which the supply of heating and cooling is shut off or reduced to a minimum.

Ventilation

- §121(e): Controls shall be provided to allow outside air dampers or devices to be operated at the ventilation rates as specified on these plans.
- §122(f): All gravity ventilating systems shall be provided with automatic or readily accessible manually operated dampers in all openings to the outside, except for combustion air openings.
- §121(f): Ventilation System Acceptance. Before an occupancy permit is granted for a newly constructed building or space, or a new ventilating system serving a building or space is operated for normal use, all ventilation systems serving the building or space shall be certified as meeting the Acceptance Requirements for Code Compliance

Service Water Heating Systems

- §113(c) Installation
3. Temperature controls for public lavatories. The controls shall limit the outlet Temperature to 110° F.
 2. Circulating service water-heating systems shall have a control capable of automatically turning off the circulating pump when hot water is not required.

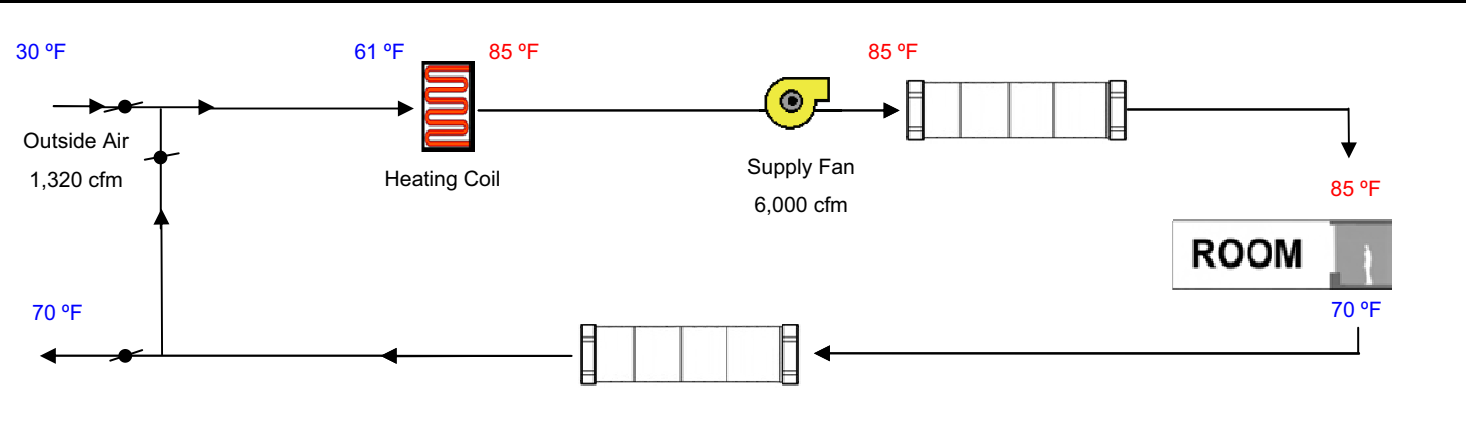
HVAC SYSTEM HEATING AND COOLING LOADS SUMMARY

Project Name Tokyo Wako Restaurant	Date 4/28/2010
System Name New HVAC	Floor Area 6,470

ENGINEERING CHECKS		SYSTEM LOAD					
Number of Systems	5	Total Room Loads Return Vented Lighting Return Air Ducts Return Fan Ventilation Supply Fan Supply Air Ducts TOTAL SYSTEM LOAD	COIL COOLING PEAK			COIL HTG. PEAK	
Heating System			CFM	Sensible	Latent	CFM	Sensible
Output per System	44,000		2,213	85,167	16,457	421	6,729
Total Output (Btuh)	220,000			0			
Output (Btuh/sqft)	34.0			4,258			336
Cooling System				0			0
Output per System	60,600		1,320	27,171	35,601	1,320	56,141
Total Output (Btuh)	303,000			0			0
Total Output (Tons)	25.3			4,258			336
Total Output (Btuh/sqft)	46.8						
Total Output (sqft/Ton)	256.2						

Air System		HVAC EQUIPMENT SELECTION				
CFM per System	1,200	CARRIER: 50RHR-06060				
Airflow (cfm)	6,000		266,547	0		152,669
Airflow (cfm/sqft)	0.93					
Airflow (cfm/Ton)	237.6					
Outside Air (%)	22.0 %	Total Adjusted System Output (Adjusted for Peak Design conditions)				
Outside Air (cfm/sqft)	0.20		266,547	0		152,669
Note: values above given at ARI conditions		TIME OF SYSTEM PEAK			Jul 1 PM	Jan 1 AM

HEATING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Heating Peak)



COOLING SYSTEM PSYCHROMETRICS (Airstream Temperatures at Time of Cooling Peak)

