

Mechanical Compliance Certificate for Complex Systems for the 90.1 ('89) Code

ALL INFORMATION MUST BE FILLED IN - PRINT CLEARLY

Section 1 - Project Information

Project Name		Permit #
Address		Date
Owner/Agent	Telephone	Checked By
Documentation Author	Telephone	Date <small>For Department Use Only</small>

Section 2 - General Information

Building Floor Area _____ sf

Project Description New Construction Addition Alteration Unconditioned Shell

Section 3 - Requirements Checklist

	Inspection Date	Approved By	Notes
<p>Load Calculations</p> <ul style="list-style-type: none"> • Load calculations per 1997 ASHRAE Fundamentals and • Capacities shown on plans 	_____	_____	
<p>Equipment Efficiency</p> <ul style="list-style-type: none"> • Newly purchased equipment covered by mfr. Std. or <input type="checkbox"/> • Meets efficiency requirements in table <input type="checkbox"/> 	_____	_____	
<p>HVAC System Controls</p> <ul style="list-style-type: none"> • Minimum one temperature control device per zone • Minimum thermostat capabilities: <ul style="list-style-type: none"> - Minimum 5° F deadband - Setback/setup capability to 55°F (htg.) & 85°F (clg.) - 7-day clock, 2-hr occupant override, 10-hr backup Thermostat setback capability exceptions: <ul style="list-style-type: none"> multifamily residential <input type="checkbox"/> hotel/motel guest rooms <input type="checkbox"/> areas that operate continuously <input type="checkbox"/> • Heat pump thermostat used with supplemental electric resistance heat 	_____	_____	
<p>Outdoor-Air Ventilation</p> <ul style="list-style-type: none"> • In accordance with Chapter 4 of the IMC • Automatic shut-off dampers on supply and exhaust systems with airflow >3,000 cfm 	_____	_____	
<p>Economizers</p> <ul style="list-style-type: none"> • Economizers on systems ≥90,000 Btu/h or ≥3,000 cfm Exceptions: <ul style="list-style-type: none"> exempted climate zone <input type="checkbox"/> supermarkets, residential, hotel guest rooms <input type="checkbox"/> high-efficiency cooling equipment tradeoff <input type="checkbox"/> minimum EER: _____ EER: _____ other _____ <input type="checkbox"/> 	_____	_____	
<p>Hydronic Systems Control</p> <ul style="list-style-type: none"> • Separate hot and cold water supplies and returns • No capability for concurrent hot and chilled water supply to terminals Exception: zones with special humidity requirements <input type="checkbox"/> • Hydronic systems \$ 600 kBtu/h have: <ul style="list-style-type: none"> - reset controls for supply water temperature or <input type="checkbox"/> - mechanical or electrical adjustable-speed pump drive(s) or <input type="checkbox"/> - multiple-stage pumps or <input type="checkbox"/> - other system controls that reduce pump flow by at least 50% based on load (calculations required) <input type="checkbox"/> 	_____	_____	

Mechanical Compliance Certificate for Complex Systems(Continued)

Section 3 - Requirements Checklist

	Inspection Date	Approved By	Notes
Variable Air Volume Fan Control			
<ul style="list-style-type: none"> • Systems serving more than one zone are VAV Exceptions: <ul style="list-style-type: none"> - special pressurization relationships <input type="checkbox"/> - 75% energy recovery <input type="checkbox"/> - special humidity requirements <input type="checkbox"/> - zone supply <300 cfm & <10% of total fan supply <input type="checkbox"/> - where reheated/recooled air < min OSA req. <input type="checkbox"/> - sequential controls that prevent reheat/recool <input type="checkbox"/> • VAV fans with motors \$ 25 hp: <ul style="list-style-type: none"> - have mech. or elec. variable speed drive(s) or <input type="checkbox"/> - are vane-axial fans w ith variable pitch blades or <input type="checkbox"/> - have other controls that reduce motor demand to 50% design kW at 50% design flow (calcs. req.) <input type="checkbox"/> • Controls are capable of resetting supply air temp (SAT) by 25% of (SAT - room temp) difference • Single-duct VAV terminals are capable of reducing primary air before reheating • Dual-duct VAV mixing boxes are installed to minimize mixing 	 	 	
Duct Construction			
<ul style="list-style-type: none"> • Duct insulation meets minimum R-values <ul style="list-style-type: none"> - Ducts in unconditioned spaces R-value _____ - Ducts outside the building R-value _____ • Ducts sealed <ul style="list-style-type: none"> - Joints and seams on ductwork fastened and sealed per UL 181A or B (no duct tape as primary sealant) - Systems with \$3" wg sealed in accordance with SMACNA Leakage Class (CL) < 6.0 	 	 	
Hydronic Heating Systems			
<ul style="list-style-type: none"> • Pipe insulation: <ul style="list-style-type: none"> - ½ in. or heating coil branches - 1½ in. or circulation loops • Part-load efficiency method: <ul style="list-style-type: none"> - temperature reset or <input type="checkbox"/> - variable flow <input type="checkbox"/> 	 	 	
HVAC System Completion			
<ul style="list-style-type: none"> • Balancing devices in accordance with IMC 603.15 • Balancing and pressure test connections on all hydronic terminal devices • O & M manual(s) provided to building owner 	 	 	

Section 4 - Compliance Statement

The proposed mechanical design represented in these documents is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical system has been designed to meet the 90.1 ('89) Code mechanical requirements using COMcheck-EZ™ Version 2.1.

Principal Mechanical Designer – Name	Signature	Date

NOTE: This form is required on project plans.