MECHANICAL COMPLIANCE SUMMARY

2018 WSEC Compliance Forms for Commercial Buildings including Group R2, R3 & R4 over 3 stories and all R1

Project & Applicant Information	City of Puyallup Development & Permitting Services ISSUED PERMIT: Building, Planning, Engineering, Public Works, Fire, Traffic	**Project Title**	Pierce College New STEM Building - 2018 WSEC	For Building Department Use: THE APPROVED CONSTRUCTION PLANS, DOCUMENTS AND ALL ENGINEERING MUST BE POSTED ON THE JOB AT ALL INSPECTIONS IN A VISIBLE AND READILY ACCESSIBLE LOCATION. FULL SIZED LEDGIBLE COLOR PLANS ARE REQUIRED TO BE PROVIDED BY THE PERMITEE ON SITE FOR INSPECTION
		Project Address	1601 39th Ave SE Puyallup, WA 98374	City of Puyallup Building ACCEPTED JMontgomery 09/08/2022 3:05:19 PM
		Applicant Name	Sara Wilder	**Date: Jun 30, 2022**
		Applicant Phone	206-250-8721	
		Applicant Email	swilder@integrusarch.com	

For questions about this report, contact WSEC Commercial Technical Support at 360-539-5300 or via email at com.techsupport@waenergycodes.com

General Occupancy	All Commercial		**General Building Use Type**	Education, College/University	**Building Cond. Floor Area**	53,997
General Project Types	New Building	**New Building or Addition Mechanical Scope**	Central Plant Systems Single Zone Systems & Equipment Multiple Zone Systems & Equipment	**Alteration Mechanical Scope**	**Project Cond. Floor Area**	53,997
					Floors Above Grade	3
					Compliance Method	Compliance Method 1 - General
Mechanical Project Description	New Building with laboratory classrooms and standard classrooms. Classroom system served by heat recovery air handling units serving terminal units with boiler HW reheat. Lab system served by 100% outside air air handling unit serving terminal units with high efficiency condensing boiler hot water reheat, and exhausted by an dedicated exhaust air air handling unit with exhaust air terminal units. Heat recovery for the laboratory system is provided by run-around coil between the two air handlers. Cooling water supplied by air source screw chiller serves air handling units. Split systems serve electrical IDF and elevator machine rooms.					

Mechanical Compliance Scope and Method	**Project Type**	**Mechanical Scope**	**Economizer Exception(s) Applied?**	**DOAS Ventilation Provided?**	**Higher Equipment Efficiency Option Applied?**	**Equipment Efficiency Compliance Verification**
	Building Addition	Central Plant Systems	Yes	NA	NA	**COMPLIES**
	New Building	Single Zone Systems & Equipment	Yes	No	NA	**COMPLIES**
	New Building	Multiple Zone Systems & Equipment	No	No	NA	**COMPLIES**
Additional Efficiency Credits Included (AEC)						
Does building include occupancy classifications requiring DOAS?	Yes		**Does project include DOAS equipment?**			No
Based on project scope do TSPR requirements apply?	Yes		**Do all systems comply with Appendix D standard reference design or qualify for an exception to TSPR?**			No

Scope & Space Conditioning	**NEW CONSTRUCTION - CENTRAL PLANT SYSTEMS**	**Compliance Verification**	**COMPLIES**

Chilled Water Plant

Equipment Efficiency Information

Equipment Type	Equipment ID	Cooling Capacity (Tons)	Efficiency Path	AEC Efficiency Multiplier	Econo Exception Multiplier	Econo Exception Multiplier Type (PL/Both)	Combined Efficiency Multiplier (AEC & Econo)	Proposed Full Load Efficiency	FL Units	Proposed IPLV Efficiency	PL Units	Efficiency Compliance Verification
Chiller, air cooled												
Centrifugal	CH-1	300	Path B	1	1.0	Both	1	11.010	300	18.240	IPLV	COMPLIES

Equipment Details

Equipment Type	Equipment ID	Cooling Load Served	Location in Documents - Plan/Detail #	
Chiller, air cooled				
Centrifugal	CH-1	Space cooling	M004, M401, M801	
	Cooling Load Served: Space cooling			Serves non-standard temp applications (exempt)?: No
	Non-standard temp condition (AC-Centrifugal): Leaving fluid temp < 36 F			Air-side economizer exception applied?: None applied

	Supply temp reset control method (≥ 25 tons): Return water temperature	WSEC Equipment Efficiency Reference Table: Table C403.3.2(7) Water Chilling Packages

Heating Water Plant

Equipment Efficiency Information

Equipment Type	Equipment ID	Heating Capacity (MBH)	AEC Efficiency Multiplier	Proposed Heating Efficiency (%)	BE Units	Efficiency Compliance Verification
Boilers, hot water						
Gas-fired, packaged	B-B01, B-B02	2,397.5	1	94.5	Et	COMPLIES

Equipment Details

Equipment Type	Equipment ID	Heating Load Served	Location in Documents - Plan/Detail #	
Boilers, hot water				
Gas-fired, packaged	B-B01, B-B02	Space heating	M004, M401, M801	
	Heating Load Served: Space heating			Supply temp reset control method (≥ 300 MBH): Return water temperature
	Burner part load controls (> 500 MBH): Staged boilers			Total capacity of overall HW system > 1,000 MBH?: Yes
	Boiler turndown ratio is required: 5 to 1 (>10,000 MBH)			Boiler turndown method: Modulating boilers
	WSEC Equipment Efficiency Reference Table: Table C403.3.2(5) Gas- And Oil-Fired Boilers			

Scope & Space Conditioning	NEW BUILDING - SINGLE ZONE SYSTEMS & EQUIPMENT	Compliance Verification	COMPLIES

Single Zone Air Systems Category - Heat pump, packaged (PTHP, SPVHP, room)

Air Systems Summary Information

System/Equip ID	Quantity of Items	Supply Airflow Control	Ventilation Standard	Ventilation CFM (Total if Multiple Items)	Ventilation Air Source	Paired with DOAS	Ventilation energy recovery	Energy Recovery Efficiency (%)
AC-103, AC-202	2	Variable air volume	Unoccupied, no ventilation requirement		Other System			
AC-102		Variable air volume	Unoccupied, no ventilation requirement	0	Other System			
AC-204		Variable air volume	Unoccupied, no ventilation requirement	0	Other System			
AC-101, AC-201, AC-301, AC-302	4	Variable air volume	Unoccupied, no ventilation requirement	0	Other System			
AC-203		Variable air volume	Unoccupied, no ventilation requirement	0	Other System			

Air Systems & Equipment - Cooling

System/ Equip ID	Cooling System/Equip Type	Specific Type	Cooling Capacity per item (Btu/h)	AEC Efficiency Multiplier	Econo Exception Multiplier (FL & PL)	Combined Efficiency Multiplier (AEC & Econo)	Proposed Cooling Efficiency	CE Units	Proposed Part Load Efficiency	PL Units	Efficiency Compliance Verification
AC-103, AC-202	Heat pump, terminal (PTHP)	Packaged terminal HP, new construction	24,000	1	0	1	12.2	EER			COMPLIES
AC-102	Heat pump, terminal (PTHP)	Packaged terminal HP, new construction	36,000	1	0	1	11.0	EER			COMPLIES
AC-204	Heat pump, terminal (PTHP)	Packaged terminal HP, new construction	36,000	1	0	1	11.0	EER			COMPLIES
AC-101, AC-201, AC-301, AC-302	Heat pump, terminal (PTHP)	Packaged terminal HP, new construction	12,000	1	0	1	12.0	EER			COMPLIES
AC-203	Heat pump, terminal (PTHP)	Packaged terminal HP, new construction	24,000	1	0	1	10.8	EER			COMPLIES

Air Systems & Equipment - Heating

System /Equip ID	Heating System/Equip Type	Specific Type	Heat Pump Heating Capacity (Btu/h)	Cooling Capacity (Btu/h)	AEC Efficiency Multiplier	Proposed Heat Pump Heating Efficiency	HPH Units	Proposed Low OSA Temp Efficiency	LTH Units	Efficiency Compliance Verification
AC-204	Heat pump, terminal (PTHP), heating	Packaged terminal HP, new construction	24,400	36,000	1	4.6	COP			COMPLIES
AC-203	Heat pump, terminal (PTHP), heating	Packaged terminal HP, new construction	15,400	24,000	1	4.2	COP			COMPLIES

Air Systems & Equipment Details			
System/Equip ID	**Area(s) Served**	**Location In Project Documents - Plan/Detail #**	
AC-103, AC-202	EMERGENCY ELECTRICAL 124, ELEC 254	M004, M201, M202, M801	
	System/Equip ID for a single or multiple items?: Multiple items w/ identical heating & cooling capacity		
	Economizer Compliance Method: Economizer not required		WSEC Equip Efficiency Reference Table - Cooling: Table C403.3.2(3) - Packaged Terminal and Vertical AC and HP
AC-102	ELECTRICAL MAIN 123	M004, M201, M801	
	System/Equip ID for a single or multiple items?: Single item		
	Economizer Compliance Method: Economizer not required		WSEC Equip Efficiency Reference Table - Cooling: Table C403.3.2(3) - Packaged Terminal and Vertical AC and HP
AC-204	STAIRWELL - SOUTHWEST	M004, M202, M801	
	System/Equip ID for a single or multiple items?: Single item		
	Economizer Compliance Method: Economizer not required		WSEC Equip Efficiency Reference Table - Cooling: Table C403.3.2(3) - Packaged Terminal and Vertical AC and HP
	WSEC Equip Efficiency Reference Table - Heating: Table C403.3.2(3) - Packaged Terminal and Vertical AC and HP		
AC-101, AC-201, AC-301, AC-302	MDF 153, IDF 252, IDF 352, ELEVATOR MACHINE ROOM 354	M004, M201, M202, M203, M801	
	System/Equip ID for a single or multiple items?: Multiple items w/ identical heating & cooling capacity		
	Economizer Compliance Method: Economizer not required		WSEC Equip Efficiency Reference Table - Cooling: Table C403.3.2(3) - Packaged Terminal and Vertical AC and HP
AC-203	STARIWELL - SOUTHEAST	M004, M202, M801	
	System/Equip ID for a single or multiple items?: Single item		
	Economizer Compliance Method: Economizer not required		WSEC Equip Efficiency Reference Table - Cooling: Table C403.3.2(3) - Packaged Terminal and Vertical AC and HP
	WSEC Equip Efficiency Reference Table - Heating: Table C403.3.2(3) - Packaged Terminal and Vertical AC and HP		

Scope & Space Conditioning	**NEW BUILDING - MULTIPLE ZONE SYSTEMS & EQUIPMENT**	**Compliance Verification**	**COMPLIES**

Multiple Zone Air Systems Category - Central air handling unit, hydronic

Air Systems Summary Information

System ID	Supply Airflow Control	Ventilation Standard	Ventilation CFM	Ventilation Air Source	Paired with DOAS	Ventilation energy recovery	Energy Recovery Efficiency (%)
AHU-4	Variable air volume	IMC Multiple Zones Ventilation	20,000	Integral		Yes per C403.5 Energy Recovery	76
AHU-1, AHU-2	VAV with zone return or exhaust control	IMC Multiple Zones Ventilation	22,000	Integral		Yes per C403.5 Energy Recovery	88
AHU-3	Variable air volume	IMC Multiple Zones Ventilation	31,000	Integral		Yes per C403.5 Energy Recovery	66

Air Systems & Equipment - Cooling

System/ Equip ID	Cooling System/Equip Type	Specific Type	Cooling Capacity per item (Btu/h)	AEC Efficiency Multiplier	Econo Exception Multiplier (FL & PL)	Combined Efficiency Multiplier (AEC & Econo)	Proposed Cooling Efficiency	CE Units	Proposed Part Load Efficiency	PL Units	Efficiency Compliance Verification
AHU-3	Chilled water coil		1,169,200	1		0					COMPLIES
AHU-4	Chilled water coil		731,010	1		0					COMPLIES
AHU-1, AHU-2	Chilled water coil		868,447	1		0					COMPLIES

Air Systems & Equipment - Heating

System /Equip ID	Heating System/Equip Type	Specific Type	Heat Pump Heating Capacity (Btu/h)	Cooling Capacity (Btu/h)	AEC Efficiency Multiplier	Proposed Heat Pump Heating Efficiency	HPH Units	Proposed Low OSA Temp Efficiency	LTH Units	Efficiency Compliance Verification
AHU-4	Hot water coil				1					COMPLIES
AHU-1, AHU-2	Hot water coil				1					COMPLIES
AHU-3	Hot water coil				1					COMPLIES

Air Terminal Equipment

System ID	Air Terminal Type	Specific Type	Quantity	Cooling Capacity (Btu/h)	Heating Capacity (Btu/h)	Reheat Type
AHU-1, AHU-2	Air terminal units		32			No reheat
AHU-3	Air terminal units		28			Heating water
AHU-4	Air terminal units		22			Heating water
AHU-1, AHU-2	Air terminal units		17			Heating water

Air Systems & Equipment Details			
System ID	**Area(s) Served**	**Location In Project Documents - Plan/Detail #**	
AHU-4	North/West side Classrooms	M002, M204, M304, M802	
	Cooling Capacity Source: Plant CHWS/R supplied by chiller		
AHU-1, AHU-2	Laboratory Classrooms	M002, M803	
	Cooling Capacity Source: Plant CHWS/R supplied by chiller		
AHU-3	South Side Classrooms	M002, M204, M304, M802	
	Cooling Capacity Source: Plant CHWS/R supplied by chiller		