Changes made to UNT UDCS for April 2026 release

Page	Type of Change	Changed By	Date of Change
All	Revision	Becca	4/27/2025
General formatting changes - added Number/Letter List properties to all paragraphs to improve ease of using the document.			
Page 89:	Deleted	Icossipentarhos, Becca	4/15/2026 16:34
zero			
Page 89:	Added	Icossipentarhos, Becca	4/15/2026 16:34
32			
Page 89:	Deleted	Icossipentarhos, Becca	4/15/2026 16:43
The HVAC Designer should consider waste heat recovery, the utilization of outside air for cooling and the use of enthalpy controllers whenever possible.			
Page 89:	Deleted	Icossipentarhos, Becca	4/15/2026 16:44
Design electrical lighting systems for maximum efficiency consistent with required minimum lighting levels. Use natural lighting to the maximum extent practical.			
Page 89:	Deleted	Icossipentarhos, Becca	4/15/2026 16:55
Do not site fan coil units on the roof.			
Page 89:	Added	Icossipentarhos, Becca	4/15/2026 16:55
All roof-mounted equipment must have heat tracing.			
Page 89:	Deleted	Icossipentarhos, Becca	4/17/2026 5:46
Re-circulation: The building air conditioning system may re-circulate air from the office, classrooms, and similar areas; however, there must be no reintroduction into the building supply system of air delivered to mechanical rooms, toilet rooms, laboratories, or other areas where supply air may become contaminated.			
Page 90:	Deleted	Icossipentarhos, Becca	4/17/2026 6:04
University of			
100% Outside Air			
Page 90:	Added	Icossipentarhos, Becca	4/17/2026 6:04
Economizers			
Page 90:	Added	Icossipentarhos, Becca	4/17/2026 6:06
Outdoor equipment must have sufficient clearances for maintenance access. Equipment must have screening element to protect equipment from mowers or other damage, and provide enough clearance for proper air flow to the equipment.			
Page 90:	Moved to page 91 (Move #1)	Icossipentarhos, Becca	4/17/2026 6:17
Place mechanical equipment inside mechanical rooms. Do not mount mechanical equipment above the ceiling or in similar locations where access is difficult.			
Page 90:	Added Icossipentarhos, Becca 4/17/2026 12:34:00 PM		
Outdoor equipment must have sufficient clearances for maintenance access. Equipment must have screening element to protect equipment from mowers or other damage and provide enough clearance for proper air flow to the equipment.			
Page 90:	Added	Icossipentarhos, Becca	4/17/2026 6:21
Spaces housing Mechanical Equipment should be accessible via an exterior door.			
Page 90:	Added	Icossipentarhos, Becca	4/17/2026 12:37

Mechanical Rooms shall be conditioned and adequately ventilated.			
Page 90:	Deleted	lcossipentarhos, Becca	4/17/2026 12:36
Adequately ventilate the room by a fan.			
Page 91:	Added	lcossipentarhos, Becca	4/17/2026 12:37
Mechanical Room slabs to be sloped to the floor drain.			
Floor drains that do not serve air handler condensate to have a trap guard.			
Page 91:	Moved from page 90 (Move #1)	lcossipentarhos, Becca	4/17/2026 6:17
Place mechanical equipment inside mechanical rooms. Do not mount mechanical equipment above the ceiling or in similar locations where access is difficult.			
Page 91:	Added	lcossipentarhos, Becca	4/20/2026 8:26
Path to equipment and working clearance will be considered in the design phases of a project.			
Placement of large equipment will be at the direction of the Facilities Project Manager.			
Page 91:	Deleted	lcossipentarhos, Becca	4/20/2026 8:26
For large pieces of equipment, an industrial stairway may be required in accordance with 29 CFR 1910.24(b).			
Page 91:	Added	lcossipentarhos, Becca	4/20/2026 8:31
Where maintainable equipment, panels or controls are mounted above ceiling, an access panel must be provided at ceiling height for safe maintenance access.			
Page 91:	Deleted	lcossipentarhos, Becca	4/20/2026 8:34
and access panels at ceiling height.			
Page 91:	Deleted	lcossipentarhos, Becca	4/20/2026 16:28
Installing fan coil units above ceilings is not preferred. Provide access for service of unit and filter change. If ceiling mounting is the only alternative, provide recess mounted units.			
Page 91:	Added	lcossipentarhos, Becca	4/20/2026 16:28
Prior approval by UNT PM is needed for fan coil units outside of mechanical rooms.			
Page 91:	Deleted	lcossipentarhos, Becca	4/20/2026 16:32
Schedule 40 PVC			
Page 91:	Deleted	lcossipentarhos, Becca	4/20/2026 16:35
Mount all control equipment (relays, starters, etc.) where they are accessible without having to use a ladder.			
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Condensing Units for Walk-in Boxes			
Water-cooled condensers are required where cooling water is available. Air-cooled condensers must be			
placed outside building.			
Page 91:	Deleted	lcossipentarhos, Becca	4/20/2026 16:42
Refrigerant			
In compliance with EPA requirements, it is unlawful to release Group I or Group II refrigerants containing CFCâ€™s (chlorofluorocarbons) and HCFCâ€™s (Hydro-chlorofluorocarbons) into the atmosphere.			
Modify existing equipment to either contain or reclaim refrigerants or to replace very old and inefficient equipment. All new equipment must be compatible with more acceptable refrigerants, such as R-123, R-134a or R-410a.			

Refrigerant lines to be supported by a professional manufactured grade material on rooftops.			
Page 91:	Deleted	lcossipentarhos, Becca	4/20/2026 16:42
Economizer cycles are preferred but should be evaluated on a cost/benefit basis			
Page 91:	Added	lcossipentarhos, Becca	4/20/2026 16:42
relief			
Page 91:	Deleted	lcossipentarhos, Becca	4/20/2026 16:42
return			
Page 91:	Deleted	lcossipentarhos, Becca	4/20/2026 16:48
Pitot tube test port			
Page 91:	Added	lcossipentarhos, Becca	4/20/2026 16:48
Air flow measuring			
Page 92:	Deleted	lcossipentarhos, Becca	4/20/2026 16:50
Air handling units will consist of factory fabricated components.			
Page 92:	Deleted	lcossipentarhos, Becca	4/20/2026 16:51
A drawing will be mounted near the air handling unit showing as-built locations of all fire dampers, balancing dampers, VAV boxes, coils, and other equipment in the ductwork served by that unit. The drawing will be protected by glass or other suitable material.			
Large systems are preferred over small multiple systems.			
Page 92:	Moved to page 92 (Move #2)	lcossipentarhos, Becca	4/20/2026 16:57
1. 8. HVAC Pumps			
a. All HVAC pumps shall be frame mounted mechanical seal.			
a. All HVAC Pumps with VFDâ€™s shall have TB Woods Duraflex couplers or approved equal.			
Page 92:	Added	lcossipentarhos, Becca	4/20/2026 16:59
, and Yaskawa			
Page 92:	Deleted	lcossipentarhos, Becca	4/20/2026 17:00
Piping coming out of unit should be supported within 12" of unit at first available joint			
Page 92:	Added	lcossipentarhos, Becca	4/20/2026 17:01
9. Rooftop duct work shall be mechanically fastened to roof deck.			
Page 92:	Moved from page 93 (Move #3)	lcossipentarhos, Becca	4/22/2026 12:09
Where used for sound dampening, double wall duct with exposed insulation edge shall be sealed to prevent becoming air borne. All open ducts shall be temporarily sealed during construction until final connections are made. Construction filtration must be properly maintained throughout project.			
Page 92:	Moved from page 92 (Move #2)	lcossipentarhos, Becca	4/20/2026 16:57
8. HVAC Pumps			
. All HVAC pumps shall be frame mounted mechanical seal.			
. All HVAC Pumps with VFDâ€™s shall have TB Woods Duraflex couplers or approved equal.			
Horizontal split case preferred over vertical pumps.			
Page 92:	Added	lcossipentarhos, Becca	4/20/2026 16:57
Horizontal split case preferred over vertical pumps.			
Page 92:	Added	lcossipentarhos, Becca	4/21/2026 18:53
drain pans,			
Page 92:	Deleted	lcossipentarhos, Becca	4/21/2026 18:57
Side loading or upstream loading filter banks.			

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Filter sections shall have access doors on both sides of AHU.			
Direct drive fans â€“ such as fan wall units â€“ should be considered where feasible to reduce maintenance cost and eliminate a point of failure due to belt breakage.			
Page 92:	Added	Icossipentarhos, Becca	4/21/2026 18:58
No belt drive fans on air handlers			
Page 92:	Added	Icossipentarhos, Becca	4/21/2026 19:00
In new construction, a			
Page 92:	Deleted	Icossipentarhos, Becca	4/21/2026 19:17
All units will provide thorough mixing of outside and return air. Designer will evaluate the need for engineered mixing boxes, blenders, or other methods to prevent stratification of the air.			
Sufficient space will be maintained between heating and cooling coils so air stratification is eliminated.			
Filters will comply with ASHRAE Systems and Equipment Handbook, Chapter 25, Table 2.			
Page 92:	Deleted	Icossipentarhos, Becca	4/21/2026 19:18
Recommended level is 85db, five (5) feet from the unit.			
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Fan type and characteristics will be selected to assure stable non-pulsing performance in required operating ranges. Air foil fan wheels are preferred.			
Variable speed drives will be considered for fans having 3 HP or larger motors.			
Page 92:	Added	Icossipentarhos, Becca	4/21/2026 19:26
1. Fan arrays should be selected whenever possible.			
Page 92:	Added	Icossipentarhos, Becca	4/21/2026 19:26
All exhaust fans to be direct drive.			
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Fan motors up to 15 HP, fans with belt drives will be provided with adjustable pulley sheaves.			
Midpoint of adjustment will be at design condition.			
Fans with motors larger than 15 HP, fixed non-adjustable drives in which motor pulleys of different			
The motor selected will have adequate fan/impeller inertia capacity and torque capability to bring the fan to full operating speed in less than 20 seconds. Appropriate starting devices and overload relays to tolerate this time period will be selected.			
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Minimum filter MERV rating of 13 for new Air Handler installs.			
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Filters will comply with ASHRAE.			
Final filter efficiency is a minimum of 60% or per ASHRAE, whichever is more stringent.			
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Volume dampers will be opposed blade.			
Page 93:	Added	Icossipentarhos, Becca	4/21/2026 19:35
Ductwork material shall be suitable for the environment for which it is designed. Note that galvanized duct must include the use of sealant.			
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All main and branch ductwork will be constructed of galvanized sheet metal per SMACNA.			
Construction will include the use of sealant.			
Mechanical, metal jacketing bands to be used on elbows per SMACNA details.			
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Jacketing required for all exterior installations. Material selection determined by individual			
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galvanized			
Page 93:	Added	lcossipentarhos, Becca	4/21/2026 19:43
For medium pressure or higher, will be tested per SMACNA. Minimum leakage as definited by			
Page 93:	Deleted	lcossipentarhos, Becca	4/21/2026 19:43
Maximum leakage for all duct systems is 3%. All ducts will be tested per SMACNA.			
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All branch duct takeoffs will use the 45-degree design and will have a balancing damper installed in each branch as close to the main duct as practical.			
Page 93:	Added	lcossipentarhos, Becca	4/21/2026 19:45
Internally lined duct must be approved by the University on a case-by-case basis.			
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will have a maximum length of 6' and will be properly supported.			
Page 93:	Deleted	lcossipentarhos, Becca	4/21/2026 19:49
Use of duct liner may be used for sound attenuation in return air systems within 10â€™ of air handling unit. Use of fiberglass duct liner is prohibited; use of sound attenuator is preferred.			
Page 93:	Moved to page 92 (Move #3)	lcossipentarhos, Becca	4/22/2026 12:09
1. Where used for sound dampening, double wall duct with exposed insulation edge shall be sealed to prevent becoming air borne. All open ducts shall be temporarily sealed during construction until final connections are made. Construction filtration must be properly maintained throughout project.			
Page 93:	Added	lcossipentarhos, Becca	4/22/2026 12:14
on all devices that require maintenance			
Page 93:	Deleted	lcossipentarhos, Becca	4/22/2026 12:13
on the entering air side of all dampers and turning vanes			
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will be specified with consideration given to air dumping at low velocities.			
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to be specified using sound and user comfort as the top priorities.			
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All turning vanes will be airfoil type.			
Page 93:	Added	lcossipentarhos, Becca	4/22/2026 12:32
1. Insulated diffusers are required.			
Page 95:	Deleted	lcossipentarhos, Becca	4/22/2026 12:36
; Bell & Gossett pumps are the standard			
Page 95:	Added	lcossipentarhos, Becca	4/22/2026 12:38
uninsulated			
Page 95:	Deleted	lcossipentarhos, Becca	4/22/2026 12:43
shall be			
Page 95:	Added	lcossipentarhos, Becca	4/22/2026 12:43
are preferred to be			
Page 95:	Added	lcossipentarhos, Becca	4/22/2026 12:43
Three-way valves will be allowed with the approval of UNT Facilities PM.			
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or ball valves.			

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Carrier			
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Daikin			
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R123 or R134a, or approved equivalent.			
Page 96:	Added	lcossipentarhos, Becca	4/22/2026 13:27
per manufacturer specification.			
Page 96:	Added	lcossipentarhos, Becca	4/22/2026 13:32
; as well as allowance for future overhaul, and teardown.			
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Avoid placing cooling towers or condenser on the roof when possible.			
Page 96:	Added	lcossipentarhos, Becca	4/22/2026 14:27
Cooling Towers shall not be placed on the roof.			
Page 96:	Deleted	lcossipentarhos, Becca	4/22/2026 14:36
The heating system shall be stand-alone per building using hot water boilers.			
1.5 million BTU and above shall be AERCO Benchmark boilers.			
Page 97:	Added	lcossipentarhos, Becca	4/22/2026 14:54
or Backnet			
Page 97:	Added	lcossipentarhos, Becca	4/22/2026 14:57
Pipe sizes to be designed per ASHRAE standards for pipe velocity.			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
GPM			
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LENGTH (FT)			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
PIPE SIZE (IN)			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
0 â€“ 150			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
0 â€“ 400			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
4			
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150 â€“ 250			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
0 â€“ 200			
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4			
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200 â€“ 1000			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
6			
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250 â€“ 600			
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0 â€“ 250			

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6			
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250 â€“ 1000			
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8			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
600 â€“ 1000			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
0 â€“ 400			
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8			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
400 â€“ 1000			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
10			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
1000 â€“ 1500			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
0 â€“ 500			
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500 â€“ 1000			
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12			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
1500 â€“ 2000			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
0 â€“ 800			
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12			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
800 â€“ 1200			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
14			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
2000 â€“ 4000			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
0 â€“ 500			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
14			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
500 â€“ 1000			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:57
r123 or R134a, or approved equivalent.			
Page 97:	Deleted	lcossipentarhos, Becca	4/22/2026 14:58

Average return temperature from all building loads at design conditions (Designer must calculate this value). This average return temperature will be the set point for TCVA. A return temperature of 59 degrees Fahrenheit is preferred and 55 degrees Fahrenheit is the minimum acceptable return temperature.			
Supply temperature for all building loads at design conditions (Designer must calculate this value). The supply temperature must not be less than 40 degrees Fahrenheit, with a maximum supply temperature of 49 degrees Fahrenheit. Provide a separate interface if specific equipment needs a lower supply temperature.			
Total flow for all building loads at design conditions (Designer must calculate this value).			
Chilled water flow in distribution system branch connections to building at design conditions (Designer must calculate this value).			
Page 97:	Added	Icossipentarhos, Becca	4/22/2026 14:59
Primary pumps located at Chiller Plants; secondary pumps located at the building.			
Page 97:	Deleted	Icossipentarhos, Becca	4/22/2026 15:04
Blowdown will be piped to Spirotherm (or approved equal) drain line.			
Page 97:	Added	Icossipentarhos, Becca	4/22/2026 15:06
Design Engineer should propose water saving solutions as part of the design.			