

O 1 1 lealui			
Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAL	TEST CHECKI	LIST
AIR HA	ANDLING	UNIT - COLD	DECK
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this proassociated prefunctional chaperformance has been verifiappropriate Contractor / Subrequiring correction / complete	oject. The system ecklists are con- ied as complying econtractor signa- ection on attached	n is complete and ready for applete, approved and attach g with the contract documentures below. Any outstandialist. Any outstanding items with the contract documentures below.	functional testing. All testing to this FT. Prior the as attested by the ng items are noted as will require completion
reliable functional tests being List attached.		d. None of the outstanding it	ems preclude safe and
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

Date

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Date



Record Submittal Performance data Service / maintenance contract Sequences and control strategies O&M manuals PERFORMANCE The HOA switch properly activates and deactivates the unit Fan rotation verified as correct		
Performance data Service / maintenance contract Sequences and control strategies O&M manuals PERFORMANCE The HOA switch properly activates and deactivates the unit		
Service / maintenance contract Sequences and control strategies O&M manuals PERFORMANCE The HOA switch properly activates and deactivates the unit		
Sequences and control strategies O&M manuals PERFORMANCE The HOA switch properly activates and deactivates the unit		
O&M manuals PERFORMANCE The HOA switch properly activates and deactivates the unit		
PERFORMANCE The HOA switch properly activates and deactivates the unit		
The HOA switch properly activates and deactivates the unit		
Fan rotation verified as correct		
Vibration within tolerances (report attached)		
Verify noise dB within tolerances		
Safeties installed and operating properly		
All valves and dampers stroke fully and smoothly		
TAB/Mechanical firm verified performance (report attached)		
Record full load running amps for fanrated FL amps x		
srvc factor = (Max amps)		
Specified sequences of operation and operating schedules have been		
implemented and verified (report attached)		
Specified point-to-point checks have been completed (report attached)		
VFD operation verified (report attached)		
Test Failure/Retest Required: The Test performed has not met the criteria and will require retesting before approval.	he specifie	d performance
Owner's Representative / Commissioning Authority Dat	e	
Approval: The test has been witnessed as meeting the performance redocuments with any exceptions noted.	quirements	s of the contra
Owner's Representative / Commissioning Authority Dat	e	



Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	ΓΙΟΝΑΙ	L TEST CHECK	LIST
AIR HA	NDLIN	G UNIT - HOT I	DECK
Location		Test	#
Submittal / Approvals			
Submittal. All components approved for use on this projustional checonstant of the performance has been verified.	ect. The syste eklists are co	m is complete and ready for mplete, approved and attac	functional testing. Al hed to this FT. Prior
appropriate Contractor / Subcrequiring correction / complete before approval of this form or reliable functional tests being particles. List attached.	contractor sign ion on attached can be execute	natures below. Any outstand list. Any outstanding items	ing items are noted as will require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

Date

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Date



Approved	Cont.	UTH
DELIVERABLES	- I	
Record Submittal		
Performance data		
Service / maintenance contract		
Sequences and control strategies		
O&M manuals		
PERFORMANCE		
The HOA switch properly activates and deactivates the unit		
Fan rotation verified as correct		
Vibration within tolerances (report attached)		
Verify noise dB within tolerances		
Safeties installed and operating properly		
All valves and dampers stroke fully and smoothly		
TAB/Mechanical firm verified performance (report attached)		
Record full load running amps for fanrated FL amps x srvc factor = (Max amps)		
Specified sequences of operation and operating schedules have been		
implemented and verified (report attached)		
Specified point-to-point checks have been completed (report attached)		
VFD operation verified (report attached)		
Test Failure/Retest Required: The Test performed has not met to criteria and will require retesting before approval.	he specifie	d performar
Owner's Representative / Commissioning Authority Dat	e	
Approval: The test has been witnessed as meeting the performance re	quirements	s of the cont
locuments with any exceptions noted.		

Section 01 91 00

Project Name	
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PREFUNCTIONAL CHECKLIST

AIR COMPRESSOR PUMP

Location		Test #	<u> </u>	
Make Model#				
Submittal / Approvals				
approved for use on this p testing. <u>Prior performance has</u> by the appropriate Contracte submitted for approval / w	oroject. The con as been verified or or / Subcontract vitness, subject	being installed have been subspanning installed have been subspanning with the contract of signatures below. This presents an attached list of outstandire completion before approve	eady for prefunction t documents as attest functional checklist ading items yet to	
executed. None of the outs performed.	-	preclude safe and reliable pre		
executed. None of the outs performed List attached.	-			
	standing items p	preclude safe and reliable pre	efunctional tests bei	

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Project Commissionin	g	Section 01 91 00)	
MOTOR/ELECTRICAL Motor Manufacturer: _		Serial #		
Motor Nameplate Data	a - Volt	FLA	HP	
RMP	SVC Factor	Class	Frame	
Actual per phase	Volt	FLA		
Starter Size	Fuse Size	Heater S	Size	
Compressor MFR: Serial #:				
Receiver capacity: Static water pressure: Actual vacuum reading	PSI	Pressure switch	or set pressure: set pressure:	_PSI _PSI
	Approved		Cont.	UTH
Manufacturer product	data sheet			
O&M Manual				
Piping complete				
Drain piping complete	;			
Regulator adjusted	non contract do	manta		
Dryer station installed Pressure switch adjust		nents		
Vibration isolation ins				
Housekeeping pad ins				
Controls complete	tancu			
Installation/applic performance criteria an	U		-	t the specifie
Owner's Representativ	ve / Commissioning	g Authority	Date	
Approval: This filled exceptions noted	l-out checklist has l	been reviewed. Its co	ompletion is approve	ed with the
Owner's Representative	e / Commissioning	Authority	Date	
11/29/21	Air C	Compressor Pump	I	Page 2 of 2

Project Name	UTH Project #
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PRE	FUNCTION	ONAL CHECKL	IST		
AIR HA	ANDLING	G UNIT / COLD	DECK		
Location		Test #	<u> </u>		
Make		Model#			
approved for use on this p testing. <u>Prior performance has</u> by the appropriate Contracte submitted for approval / w completed. Any outstanding	or or ject. The consistency or subcontract ritness, subject items will requ	being installed have been surponents are complete and reas complying with the contractor signatures below. This presto an attached list of outstandire completion before approved reclude safe and reliable presented.	eady for prefunctional t documents as attested efunctional checklist is nding items yet to be ral of this form can be		
Mechanical Contractor	Date	Controls Contractor	Date		
Electrical Contractor	Date	Plumbing Contractor	Date		
Other Contractor	Date	General Contractor	Date		
verification, preparatory	take the place	to be completed as politesting. of the manufacturer's recom	-		

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11/29/21	Cold Deck	Page 1 of 4
	UT Health Project Commissioning	



MOTOR/ELECTR	ICAL:		
Motor Manufacturer	:	Serial #	
Motor Nameplate Da	ata - Volt	FLA	HP
RMP	SVC Factor	Class	Frame
Actual per phase	Volt	FLA	
Starter Size	Fuse Size	Heater S	ize

Approved	Cont.	UTH
INSTALLATION		
Manufacturer's cut sheets		
Performance data		
Installation and startup manual and plan		
Shop drawings		
INSTALLATION		
Unit pressure leakage and deflection verified (report attached)		
Permanent labels affixed, including for fans		
Casing condition good: no dents, leaks, door gaskets installed		
Access doors close tightly - no leaks		
Boot between duct and unit tight and in good condition		
Vibration isolation equipment installed & released		
Maintenance access acceptable for unit and components		
Sound attenuation installed		
Thermal insulation properly installed and according to specification		
Instrumentation installed according to specification (thermometers,		
pressure gages, flow meters, etc.)		
Clean up of equipment completed per contract documents		
Filters installed and construction filters in place		
Valves, Piping and Coils properly installed and flushed (reports		
attached)		
PolyChain or Vee Belt: Belt		
Sheave size/number		
Bearings lubricated		
SSTL lube lines installed		
Alignment check: Fan sheave to motor sheave: degrees		
$(0^{\circ}\pm0^{\circ})$		
Fan wheel to shaft-all bolts torque checked		
Interior lights and light switch operational		



Approved	Cont.	UTH
Pipes properly labeled		
Pipes properly insulated		
Strainers in place and clean		
Chilled water lines counter-flow connection verified		
All coils are clean and fins are combed		
All condensate drain pans clean and slope to drain, per spec		
Valves properly labeled		
OSAT, MAT, SAT, RAT, chilled water supply sensors properly		
located and secure (related OSAT sensor shielded)		
Sensors calibrated (report attached)		
P/T plugs and isolation valves installed per drawings		
Supply fan and motor alignment correct		
Supply fan belt tension & condition good		
Supply fan protective shrouds for belts in place and secure		
Supply fan area clean		
Supply fan and motor properly lubricated		
Smoke and fire dampers installed properly per contract docs		
All dampers close tightly		
All damper linkages have minimum play		
Low limit freeze stat sensor located to deal with stratification &		
bypass		
Sound attenuators installed		
No apparent severe duct restrictions		
Turning vanes in square elbows as per drawings		
OSA intakes located away from pollutant sources & exhaust outlets		
Ducts cleaned as per specifications		
ELECTRICAL AND CONTROLS		
Pilot lights are functioning		
Power disconnects in place and labeled		
All electric connections tight		
Proper grounding installed for components and unit		
Safeties in place and operable		
Starter overload breakers installed and correct size		
Sensors calibrated (report attached)		
Control system interlocks hooked up and functional		
Smoke detectors in place		
All control devices, pneumatic tubing and wiring complete		
VFD connected and operational (report attached)		



Installation/application Rejected: The installation/a performance criteria and will require reinspection before application.	1.	ecified
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its exceptions noted	s completion is approved with	the
Owner's Representative / Commissioning Authority	Date	

Project Name	UTH Project #
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PREI	FUNCTIO	ONAL CHECKL	IST
AIR HA	ANDLIN	G UNIT / HOT D	ECK
Location		Test #	
Make Model#			
approved for use on this pretesting. Prior performance has by the appropriate Contractor submitted for approval / will completed. Any outstanding	oject. The comes been verified a r / Subcontracte tness, subject titems will requ	peing installed have been subsponents are complete and reas complying with the contract or signatures below. This preso an attached list of outstandire completion before approve reclude safe and reliable presonant	ady for prefunctional documents as attested functional checklist is ding items yet to be al of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date
verification, preparatory	to functional take the place	to be completed as parties testing. of the manufacturer's recommendation of the manufacturer's recommendation.	

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11/29/21	Hot Deck	Page 1 of 4
	UT Health Project Commissioning	



MOTOR/ELECTR	ICAL:		
Motor Manufacturer	:	Serial #	
Motor Nameplate Da	ata - Volt	FLA	HP
RMP	SVC Factor	Class	Frame
Actual per phase	Volt	FLA	
Starter Size	Fuse Size	Heater S	ize

Approved	Cont.	UTH
INSTALLATION		
Manufacturer's cut sheets		
Performance data		
Installation and startup manual and plan		
Shop drawings		
INSTALLATION		
Unit pressure leakage and deflection verified (report attached)		
Permanent labels affixed, including for fans		
Casing condition good: no dents, leaks, door gaskets installed		
Access doors close tightly - no leaks		
Boot between duct and unit tight and in good condition		
Vibration isolation equipment installed & released		
Maintenance access acceptable for unit and components		
Sound attenuation installed		
Thermal insulation properly installed and according to specification		
Instrumentation installed according to specification (thermometers,		
pressure gages, flow meters, etc.)		
Clean up of equipment completed per contract documents		
Filters installed and construction filters in place		
Valves, Piping and Coils properly installed and flushed (reports		
attached)		
PolyChain or Vee Belt: Belt		
Sheave size/number		
Bearings lubricated		
SSTL lube lines installed		
Alignment check: Fan sheave to motor sheave: degrees		
$(0^{\circ} \pm 0^{\circ})$		
Fan wheel to shaft bolts torque checked		
Interior lights and light switch operational		



Approved	Cont.	UTH
Pipes properly labeled		
Pipes properly insulated		
Strainers in place and clean		
Steam supply line counter-flow connection verified		
All coils are clean and fins are combed		
All condensate drain pans clean and slope to drain, per spec		
Valves properly labeled		
OSAT, MAT, SAT, RAT, chilled water supply sensors properly		
located and secure (related OSAT sensor shielded)		
Sensors calibrated (report attached)		
P/T plugs and isolation valves installed per drawings		
Supply fan and motor alignment correct		
Supply fan belt tension & condition good		
Supply fan protective shrouds for belts in place and secure		
Supply fan area clean		
Supply fan and motor properly lubricated		
Smoke and fire dampers installed properly per contract docs		
All dampers close tightly		
All damper linkages have minimum play		
Low limit freeze stat sensor located to deal with stratification &		
bypass		
Sound attenuators installed		
No apparent severe duct restrictions		
Turning vanes in square elbows as per drawings		
OSA intakes located away from pollutant sources & exhaust outlets		
Ducts cleaned as per specifications		
ELECTRICAL AND CONTROLS		
Pilot lights are functioning		
Power disconnects in place and labeled		
All electric connections tight		
Proper grounding installed for components and unit		
Safeties in place and operable		
Starter overload breakers installed and correct size		
Sensors calibrated (report attached)		
Control system interlocks hooked up and functional		
Smoke detectors in place		
All control devices, pneumatic tubing and wiring complete		
VFD connected and operational (report attached)		



Installation/application Rejected: The installation/apprent performance criteria and will require reinspection before apprent apprent of the installation of the insta	-
Owner's Representative / Commissioning Authority	Date
Approval: This filled-out checklist has been reviewed. Its coexceptions noted	ompletion is approved with the
Owner's Representative / Commissioning Authority	Date

Section 01 91 00

Project Name	UTH Project #	
· •	<u> </u>	

PREFUNCTIONAL CHECKLIST

Location		Test #	!	
Make		Model#		
Submittal / Approvals				
by the appropriate Contract	or / Subcontract	as complying with the contract tor signatures below. This pre to an attached list of outstar	functional checkli	st is
completed. Any outstanding executed. None of the outsperformed.		uire completion before approve preclude safe and reliable pre		ı be
completed. Any outstanding				ı be
completed. Any outstanding executed. None of the outsperformed. List attached.	standing items p	preclude safe and reliable pre	functional tests b	ı be

- startup procedures or report.
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Air Handling Unit UT Health Project Commissioning Page 1 of 4



MOTOR/ELECTR	ICAL:		
Motor Manufacturer	:	Serial #	
Motor Nameplate Da	nta - Volt	FLA	HP
RMP	SVC Factor	Class	_ Frame
Actual per phase	Volt	FLA	
Starter Size	Fuse Size	Heater Si	ze

Approved	Cont.	UTH
Manufacturer product data sheet	Conti	0111
O&M Manual		
INSTALLATION		
Manufacturer's cut sheets		
Performance data		
Installation and startup manual and plan		
Shop drawings		
INSTALLATION		
Unit pressure leakage and deflection verified (report attached)		
Permanent labels affixed, including for fans		
Casing condition good: no dents, leaks, door gaskets installed		
Access doors close tightly - no leaks		
Boot between duct and unit tight and in good condition		
Vibration isolation equipment installed & released from shipping		
locks		
Maintenance access acceptable for unit and components		
Sound attenuation installed		
Thermal insulation properly installed and according to specification		
Instrumentation installed according to specification		
Clean up of equipment completed per contract documents		
Filters installed and construction filters in place		
Valves, Piping and Coils properly installed and flushed (reports		
attached)		
Pipes properly labeled		
Pipes properly insulated		
Strainers in place and clean		
Hot/cold supply line counter-flow connection verified		
All coils are clean and fins are in good condition		
All condensate drain pans clean and slope to drain, per spec		



Approved	Cont.	UTH
Valves properly labeled		
Valves installed in proper direction		
OSAT, MAT, SAT, RAT, chilled water supply sensors properly		
located and secure (related OSAT sensor shielded)		
Sensors calibrated (report attached)		
P/T plugs and isolation valves installed per drawings		
Supply fan and motor alignment correct		
Supply fan belt tension & condition good		
Supply fan protective shrouds for belts in place and secure		
Supply fan area clean		
Supply fan and motor properly lubricated		
Smoke and fire dampers installed properly per contract docs		
All dampers close tightly		
All damper linkages have minimum play		
Low limit freeze stat sensor located to deal with stratification &		
bypass		
Sound attenuators installed		
Duct joint sealant properly installed		
No apparent severe duct restrictions		
Turning vanes in square elbows as per drawings		
OSA intakes located away from pollutant sources & exhaust outlets		
Branch duct control dampers operable		
Ducts cleaned per specifications		
Balancing dampers installed as per shop drawings		
ELECTRICAL AND CONTROLS		
Pilot lights are functioning		
Power disconnects in place and labeled		
All electric connections tight		
Proper grounding installed for components and unit		
Safeties in place and operable		
Starter overload breakers installed and correct size		
Sensors calibrated (report attached)		
Control system interlocks hooked up and functional		
Smoke detectors in place		
All control devices, pneumatic tubing and wiring complete		
VFD connected and operational (report attached)		



Installation/application Rejected: The installation/application has not met the specified performance criteria and will require reinspection before approval.					
Owner's Representative / Commissioning Authority	Date				
Approval: This filled-out checklist has been reviewed. Its exceptions noted	s completion is approved with	the			
Owner's Representative / Commissioning Authority	Date				



Project Commissioning	Section 01 91 00
Project Name	UTH Project #
FUI	NCTIONAL TEST CHECKLIST
APPLIAN	NCE – CLOTHES WASHER / DRYER

ocation Test #_			<u> </u>
Submittal / Approvals			
approved for use on this prassociated prefunctional chaperformance has been verifappropriate Contractor / Surequiring correction / compl	roject. The systemecklists are confied as complying abcontractor sign etion on attached a can be executed.	being installed have been sultimed in the complete and ready for implete, approved and attaching with the contract documentatures below. Any outstandid list. Any outstanding items were the contract of the outstanding items were contracted.	functional testing. All the decision of this FT. Prionts as attested by the ng items are noted a will require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date.	General Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

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Section 01 91 00

CLOTHES WASHER

Appliance Location	Manufacturer	Model	Voltage	Cont.	UTH

Approved	Cont.	UTH
Hot & cold water connected:		
Each cycle operational		
Indicator lights operational		
Door closure latch functional		
All switch/adjustment handles installed		
Unit is leveled		

CLOTHES DRYER

Appliance Location	Manufacturer	Model	Voltage	Cont.	UTH

Approved		. UTH
Hot & cold water connected:		
Each cycle operational		
Indicator lights operational		
Door closure latch functional		
All switch/adjustment handles installed		
Ventilation duct installed		
Filter installed		
Unit is leveled		



Test Failure/Retest Required: The Test performed be criteria and will require retesting before approval.	nas not met the specified perform	mance
Owner's Representative / Commissioning Authority	Date	
Approval: The test has been witnessed as meeting the perdocuments with any exceptions noted.	formance requirements of the c	ontract
Owner's Representative / Commissioning Authority	Date	

O I I Icalui	Tioust		
Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAI	TEST CHECKI	LIST
AP	PLIANCI	E – DISHWASHI	ER
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this pr associated prefunctional ch performance has been verified	oject. The systenecklists are confied as complying	being installed have been submiss complete and ready for implete, approved and attaching with the contract documentatures below. Any outstandi	functional testing. Almed to this FT. Prior nts as attested by the
requiring correction / compl	etion on attached n can be execute	d list. Any outstanding items ved. None of the outstanding it	will require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

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Date

Date



Section 01 91 00

DISHWASHER

Appliance Location	Manufacturer	Model	Voltage	Cont.	UTH

Approved	Cont.	UTH
Record Submittal		
O&M manuals		
Hot & cold water connected:		
Each cycle operational		
Indicator lights operational		
Door closure latch functional		
All switch/adjustment handles installed		
Gas supply/valve line leak tested		
Unit is leveled		

Test Failure/Retest Required: The Test performed has criteria and will require retesting before approval.	nas not met the specified perfor	rmance
Owner's Representative / Commissioning Authority	Date	
Approval: The test has been witnessed as meeting the per documents with any exceptions noted.	formance requirements of the	contract
Owner's Representative / Commissioning Authority	Date	

Project Commissioning		PLL Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAL	TEST CHECK	LIST
AP	PLIANCE	- MICROWAY	VE
Location		Test	#
Submittal / Approvals			
Submittal. All component approved for use on this property associated prefunctional chaperformance has been veriful appropriate Contractor / Subsequenting correction / complete before approval of this form reliable functional tests being List attached.	oject. The system ecklists are complying becontractor signate etion on attached lacan be executed.	is complete and ready for plete, approved and attact with the contract docum- ures below. Any outstand ist. Any outstanding items	r functional testing. All thed to this FT. Prior ents as attested by the ling items are noted as will require completion
Mechanical Contractor	Date	Controls Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

Plumbing Contractor

General Contractor

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Date

Date

Date

Date

Electrical Contractor



Section 01 91 00

MICROWAVE

Appliance Location	Manufacturer	Model	Voltage	Cont.	UTH

Approved	Cont.	UTH
Record Submittal		
O&M manuals		
Ventilation fan operational		
Interior light operational		
All cooking modes operational		
Timer/clock operational		
Door "open" - Stops oven		
Door closure operational & sealed		
All tape and packing residue removed		

Test Failure/Retest Required: The Test performed is criteria and will require retesting before approval.	nas not met the specified perforn	nance
Owner's Representative / Commissioning Authority	Date	
Approval: The test has been witnessed as meeting the per documents with any exceptions noted.	formance requirements of the co	ontract
Owner's Representative / Commissioning Authority	Date	

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAI	L TEST CHECKI	LIST
APP	LIANCE	– REFRIGERAT	OR
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this prassociated prefunctional chaperformance has been veriful appropriate Contractor / Surequiring correction / complete	oject. The syste lecklists are confed as complying becontractor sign etion on attached a can be executed.	being installed have been sub- em is complete and ready for implete, approved and attach- ing with the contract docume- natures below. Any outstanding d list. Any outstanding items ved. None of the outstanding ite	functional testing. All ted to this FT. Prior this as attested by the temporal terms are noted as will require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

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Date

Date



Section 01 91 00

REFRIGERATOR

Appliance Location	Manufacturer	Model	Voltage	Cont.	UTH

Approved	Cont.	UTH
Record Submittal		
O&M manuals		
Hot & cold water connected:		
Interior light operational		
Icemaker operational		
Water dispenser operational		
Thermostat adjusted & operational		
Unit leveled for self closing doors		
Interior shelving installed		
All tape and packing residue removed		

Test Failure/Retest Required: The Test performed he criteria and will require retesting before approval.	as not met the specified perfo	ormance
Owner's Representative / Commissioning Authority	Date	
Approval: The test has been witnessed as meeting the per documents with any exceptions noted.	formance requirements of the	e contract
Owner's Representative / Commissioning Authority	Date	

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAI	L TEST CHECKI	LIST
API	PLIANCI	E – STOVE / OVI	EN
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this prassociated prefunctional chaperformance has been verifappropriate Contractor / Surequiring correction / complete	oject. The syste ecklists are co ied as complying becontractor sign etion on attached	being installed have been sulm is complete and ready for mplete, approved and attaching with the contract docume attures below. Any outstandid list. Any outstanding items ved. None of the outstanding it	functional testing. All ted to this FT. Prior this as attested by the temporal testing. All temporal testing temporal te
reliable functional tests being List attached.		ed. None of the outstanding it	ems preciude sare and
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO)= by others).
- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Date



Section 01 91 00

STOVE / OVEN

Appliance Location	Manufacturer	Model	Voltage	Cont.	UTH

Approved	Cont.	UTH
Record Submittal		
O&M manuals		
Stove top elements operational		
Oven light operational		
Oven thermostat operational		
Clock / timer operational		
Broiler operational		
Gas supply line/valve leak tested		
Ventilation fan operational		
Oven door seal is operational		
Self-Cleaning feature operational		
Unit leveled		

Test Failure/Retest Required: The Test performed has criteria and will require retesting before approval.	s not met the specified performance
Owner's Representative / Commissioning Authority	Date
Approval: The test has been witnessed as meeting the perfo documents with any exceptions noted.	ormance requirements of the contract
Owner's Representative / Commissioning Authority	Date



Officaluit	lousu			
Project Commissioning		Section 01 91 00		
Project Name		UTH Project #		
PREF	UNCTIO	ONAL CHECKL	IST	
AP	PLIED I	FIREPROOFING	3	
Location		Test #	<u> </u>	
Submittal / Approvals				
Submittal. All components approved for use on this protesting. Prior performance has by the appropriate Contractor	oject. The com been verified a	ponents are complete and rescomplying with the contract	eady for prefunction documents as attested	al ed
submitted for approval / with completed. Any outstanding is executed. None of the outstanding in performed. List attached.	ness, subject t tems will requ	o an attached list of outstar ire completion before approv	nding items yet to late al of this form can l	oe oe
Mechanical Contractor	Date	Controls Contractor	Date	
Electrical Contractor	Date	Plumbing Contractor	Date	

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

Date

General Contractor

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Date



Approved	Cont.	UTH
INSTALLATION		
Application locations confirmed		
Environmental criteria is enforced		
Substrate suitable for application		
Reinforcement, if req'd, is in place		
Penetrating items in place before application		
Review temporary protection		
Mix and application rate per mfg. instructions		
Confirm primer application		
Adhesion and thickness verified (test report attached)		
· · · · · · · · · · · · · · · · · · ·		
Final		
Patch and repair material disturbed by subsequent work		
Spills removed, excess materials trimmed		
General cleaning		
Installation/application Rejected: The installation/apperformance criteria and will require reinspection before app	roval.	the specifie
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its c exceptions noted	ompletion is approved	d with the
Owner's Representative / Commissioning Authority	Date	



Section 01 91 00

Project Name	UTH Project #
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PREFUNCTIONAL CHECKLIST

AUTO	MATIC '	TRANSFER SWI	TCH
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this protesting. Prior performance has by the appropriate Contractor submitted for approval / with completed. Any outstanding	roject. The constant specified so / Subcontract transs, subject items will requ	being installed have been subspondents are complete and reas complying with the contractor signatures below. This presto an attached list of outstandire completion before approved preclude safe and reliable presented.	eady for prefunctional todocuments as attested functional checklist is adding items yet to be all of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date
 This checklist does not startup procedures or repo Items that do not apply sh = by others). 	to functional take the place ort. all be noted with	of the manufacturer's recom	mended checkout and A = not applicable, BO
 Items on this checklist are 	e to be verified	by the Contractor as meeting tl	ne pertormance criteria

of the contract documents before contacting Owner to witness.



Project Commissioning	Section 01 91 00			
Manf.	Model #			
Serial #	Location			
UIPMENT SERVED AND LOA	ADS			
Equipment #	Load			AMPS
Fauinment #	Load			AMPS
Panel#	Load			AMPS
Panel#	 Load			AMPS
Normal power source (pane				
Volta	ge Rating			AMPS
Emergency power source (pane Volta	· -			AMPS
SETTINGS (Switch Supplier to	complete upon acceptance)			
Transfer to emergency source: _	Minutes (Range: 0	Min	utes)	
Retransfer to normal source:	Minutes (Range: 0	Mi	nutes)	
Overvoltage time delay:	Seconds (Range:	_Seco	onds)	
Frequency time delay:	Seconds (Range:	_Seco	onds)	
Pretransfer time delay:	Seconds (Range:	_Seco	onds)	
Transition time delay:	Seconds (Range:	Sec	conds)	
Generator start time delay:	Seconds (Range:	Sec	conds)	
Generator stop time delay:	Minutes (Range:	Min	utes)	
A	pproved		Cont.	UTI
Manufacturer's cut sheets				
Performance data				
INSTALLATION			T	1
Fittings complete and properly	11			
Connectors Torqued to specifie	d Tolerances			
Properly labeled				
Conductors properly labeled / c	olor-coded			
Properly Grounded				



Installation/application Rejected: The installation/a performance criteria and will require reinspection before application.		ied
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its exceptions noted	completion is approved with the	
Owner's Representative / Commissioning Authority	Date	

Project Commissioning	110400	Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTI	ONAL CHECKL	IST
	AUTON	IATIC VALVE	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this p testing. Prior performance has by the appropriate Contract submitted for approval / w completed. Any outstanding	oroject. The contact been verified as been verified as or / Subcontract vitness, subject as items will requ	being installed have been surponents are complete and reas complying with the contractor signatures below. This presto an attached list of outstandire completion before approved approved to the completion before approved to the completion before approved the complete and the complete and the complete and the complete and the contract and the complete and the complete and the complete and the contract and the complete and the complete and the complete and the contract and the complete	eady for prefunctional t documents as attested efunctional checklist is nding items yet to be val of this form can be
Mechanical Contractor	Date	Controls Contractor	 Date
Electrical Contractor	Date	Plumbing Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

General Contractor

Date

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Date



Section 01 91 00

	App	roved		Cont.	UTH
Manufacturer's cut she	ets				
Performance data					
O&M manuals					
Valve Schedule for all	valves com	plete and attach	ied		
INSTALLATION		•			•
Valve properly installed	d				
Valve properly aligned					
Valve is accessible					
Pneumatic / electrical c	onnections	secure			
Lubrication points serv	iced				
Proper gasket installed					
Valve operation (open/	close/shut-o	off) consistent v	vith specification	ns	
and manufacturers data	<u> </u>				
Free movement of actu	ator throug	hout range			
Permanent Valve Tag a	ittached				
Sensor or Actuator & Location	Location OK	1st Gage or BAS Value	Instr. Meas'd Value	Final Gage or BAS Value	Pass Y/N?
					1/10:
					1/10?
					I/IN:
					1/1\(\frac{1}{2}\)
Installation/applica performance criteria and	U		* *		
performance criteria and	d will requi	re reinspection	before approval		
	d will requi	re reinspection	before approval	Date	the speci
performance criteria and Owner's Representative Approval: This filled-	d will requi	sioning Authorist has been revi	ty ewed. Its compl	Date	the speci

Automatic Valve UT Health Project Commissioning



Project Commissioning		Section 01 91 00					
Project Name		UTH Project #					
FUNCTIONAL TEST CHECKLIST							
F	BIOSAFE	ETY CABINETS					
Location		Test #	<u> </u>				
Submittal / Approvals							
approved for use on this proassociated prefunctional chaperformance has been verificappropriate Contractor / Subsequiring correction / comple	pject. The syste ecklists are conted as complying econtractor sign etion on attached can be executed	being installed have been sum is complete and ready for implete, approved and attaching with the contract documentatures below. Any outstanding items with the outstanding items with the contract documentatures below. Any outstanding items with the contraction of the outstanding items with the contract document of the outstanding items with the contraction of the outstanding items with the contract document of the outstanding items with the contraction of	functional testing. All ned to this FT. Prior ents as attested by the ing items are noted as will require completion				
Mechanical Contractor	Date	Controls Contractor	Date				

Functional checklist items are to be completed and approved before placing equipment into operation.

Plumbing Contractor

General Contractor

Date

Date

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Date

Date

Electrical Contractor

Other Contractor



Approved	Cont.	UTH
DELIVERABLES		
Record Submittal		
Performance data		
Service / maintenance contract		
Sequences and control strategies		
O&M manuals		
PERFORMANCE		
Verify air flow at face with sash opened at 18" (report attached)		
Verify duct static pressure control		
Verify exhaust static pressure		
Demonstrate alarms operate as designed		
Verify med/lab gas lines/labels are correct		
Vibration within tolerances (report attached)		
Verify noise dB within tolerances		
Mechanical sub/TAB firm verified performance (report attached)		
Specified sequences of operation and operating schedules have been		
implemented and verified (report attached)		
Specified point-to-point checks have been completed (report attached)		
VFD operation verified (report attached)		
Test Failure/Retest Required: The Test performed has not met the criteria and will require retesting before approval.		d perform
Owner's Representative / Commissioning Authority Date	e	
Approval: The test has been witnessed as meeting the performance red documents with any exceptions noted.	quirements	s of the co



Section 01 91 00

Project Name UTH Project #	
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PREFUNCTIONAL CHECKLIST

BIOSAFETY CABINET

ocation Test #						
approved for use on this protesting. Prior performance has by the appropriate Contractor submitted for approval / wit completed. Any outstanding is	bject. The con been verified by Subcontract ness, subject tems will requ	being installed have been subspondents are complete and reas complying with the contract tor signatures below. This presto an attached list of outstandire completion before approved preclude safe and reliable presented.	eady for prefunct documents as at functional check adding items yet al of this form c	tiona testec list is to be an be		
Mechanical Contractor	Date	Controls Contractor	Date	_		
Electrical Contractor	Date	Plumbing Contractor	Date	_		
Other Contractor	Date	General Contractor	Date	_		

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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Project Commissioning	Section 01 91 00		-
Manf.	Model #		
wiani	Model #		
Serial #	CFM		
Approved		Cont.	UTH
Manufacturer's cut sheets			
Performance data			<u> </u>
Installation and startup manual and plan			<u> </u>
Shop drawings			i
INSTALLATION			
Permanent labels affixed			<u> </u>
Casing condition good: no dents, leaks, do	or gaskets installed		<u> </u>
Liner as specified			<u> </u>
Work Surface as specified			<u> </u>
Cup Sink as specified			<u> </u>
Baffle Adjustment as specified			<u> </u>
Water fixture connected and operable			1
Gas fixture connected and operable			1
Vacuum fixture connected and operable			1
Air fixture connected and operable			<u> </u>
Plumbing waste line connected			1
Fire and balance dampers installed (if requ	ired)		1
Backdraft dampers installed, per drawings,	, and operate freely		<u> </u>
Flow monitor installed			<u> </u>
Exhaust collar as specified			<u> </u>
Interior access panels w/ gaskets as specifi	ed		1
Sash Stop as specified (manual and automa	atic reset)		1
Sash Design as specified, including safety	glass, horiz/vert w/ counter		ı
balance, (verify sash operation)			1
ELECTRICAL			
Electrical connections complete			
Disconnect switch installed			
Fan overload heaters in place			
Hood Outlets as specified			
Interior Hood lighting as specified			
Alarm as specified and verified (report atta	iched)		
Fan rotation correct			
Electrical interlocks verified			
Any fan status indicators functioning			
No unusual vibration or and noise			
Fuse Size			1

Heater Size



Approved

Project Commissioning

Section 01 91 00

Cont.

UTH

11			
Starter Size			
Installation/application Rejected: The installation/a	pplication has r	ot met t	he specified
performance criteria and will require reinspection before ap			ar sponie
performance effectia and will require temspection before ap-	provar.		
Owner's Representative / Commissioning Authority	Data		
Owner's Representative / Commissioning Authority	Date		
		_	
Approval: This filled-out checklist has been reviewed. Its	completion is a	pproved	with the
xceptions noted			
Owner's Representative / Commissioning Authority	Date		
5			

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAL	TEST CHECKI	LIST
		Boiler	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this proassociated prefunctional chaperformance has been verifappropriate Contractor / Sulrequiring correction / complete	oject. The system oject. The system of contractor sign of can be executed as complying the can be executed as can be executed.	being installed have been submits complete and ready for implete, approved and attaching with the contract documentatures below. Any outstanding list. Any outstanding items vid. None of the outstanding items it.	functional testing. All ted to this FT. Prior this as attested by the the testing items are noted as will require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	- Date

Functional checklist items are to be completed and approved before placing equipment into operation.

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Approved	Cont.	UTH
Record Submittal		
O&M Manuals		
Sequence of Operations verified		

Operational Checks							
Check if acceptable, provide comment if unacceptable		NA	Comments				
Measure line to line voltage phase imbalance for all three-phase motors: (%Imbalance = 100 x (avg lowest) / avg.) Record imbalance of compressor. Imbalance less than 2%?							
Record full load running amps for all three-phase motors:rated FL amps xsrvc factor = (Max amps). Running less than max?							
No unusual noise and vibration when running							
Boiler safeties energized and tested							
Specified sequences of operation and operating schedules have been implemented with all variations documented							
Specified point-to-point checks have been completed and documentation record submitted for this system							
Startup report completed with this checklist attached. (Includes full listing of all internal settings with notes as to which settings are BAS controlled or monitored and which are integral.)							
Startup report includes written certification from boiler manufacturer that all specified features, controls and safeties have been installed and are functioning properly and that the installation and application comply with the manufacturer's recommendations.							
Startup report includes optimal and actual percent CO ₂ , CO, O ₂ , stack temperature; combustion efficiency							
Piping gages, BAS and boiler temperature and pressure readouts match (see calibration section below)							



Location

Project Commissioning

Sensor or Actuator Tag

Section 01 91 00

Instrument

Final Gage or

Pass

Sensor and	d Ac	tuator	Cali	bra	tion
------------	------	--------	------	-----	------

All field-installed sensors and gages, and all actuators (dampers and valves) on this piece of equipment shall be calibrated using the methods and tolerances given in the Calibration and Leak-by Test Procedures document. All test instruments shall have had a certified calibration within the last 12 months: Y/N_____. Sensors installed *in* the unit at the factory with calibration certification provided need not be field calibrated.

1st Gage or

	Measured Value	BAS Value	Y/N
ments:			
Test Failure/Retest Required: The Test perfo	rmed has not me	t the specified pe	erformano
criteria and will require retesting before approval.			
Owner's Representative / Commissioning Authority	$\overline{\Gamma}$	ate	
·			
Annroval. The test has been witnessed as meeting	the nerformance	requirements of	the contr
Approval: The test has been witnessed as meeting	the performance	requirements of	the contr
Approval: The test has been witnessed as meeting documents with any exceptions noted.	the performance	requirements of	the contr
	the performance	requirements of	the contr
documents with any exceptions noted.	_		the contr
	_	requirements of	the contra
documents with any exceptions noted.	_		



= by others).

Section 01 91 00

Project Name	UTH Project #			
PREF	UNCTI	ONAL CHECKL	IST	
		Boiler		
Location		Test #		
Make Model#				
Submittal / Approvals				
testing. Prior performance has by the appropriate Contractor submitted for approval / wit completed. Any outstanding i	been verified at / Subcontract ness, subject tems will requart tanding check	apponents are complete and reas complying with the contract or signatures below. This presto an attached list of outstandire completion before approvalist items preclude safe and	documents as attested functional checklist is ding items yet to be all of this form can be	
Mechanical Contractor	Date	Controls Contractor	Date	
Electrical Contractor	Date	Plumbing Contractor	Date	
Other Contractor	Date	General Contractor	Date	
 Prefunctional checklist verification, preparatory is This checklist does not to startup procedures or report 	<i>to functional</i> ake the place			

• Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO)



			В	Boiler 1 In	formati	on					
Make		Model Number									
Serial Number				(Capacity	/		•	GPM		
Volts/Phase		Functio	on		Servi	ce A	rea				
Comments:											
			В	Boiler 2 In	formati	on					
Make				N	Model N	umb	er				
Serial Number				(Capacity	y			GPM		
Volts/Phase		Functio	on	II.	Servi	ce A	rea		l .	_ I	
			Α -		Che al-	ioto					
Heating Hat Water F				sociated		ISTS	_	DAC			
Heating Hot Water F	ump		neatir Piping	ng Hot Wa	ater		Ш	BAS			
Other		Other						Othe	r		
Requested do	cument	tation s	submit	tted		Rec	'd		Com	ments	
ufacturer's cut sheets	-						1				
ormance data (pump c	urves. c	oil data	ı, etc.)	<u> </u>		F	, 1				
Illation and startup mai			,,]				
l manuals		•]				
ory test results]				
uences and control stra	ategies										
anty Certificate											
iments:											



Installation Checks								
Check if acceptable, provide comment if unacceptable NA Comment								
General								
General appearance good, no apparent damage								
Installation is per manufacturer's instructions								
Seismic restraints in place								
Pipe fittings and accessories complete								
Hydronic system flushing complete and strainers cleaned								
Test plugs (P/T) installed near all control sensors and as per spec								
Flow switch installed as required								
Equipment labels affixed								
Tube pull and access door space adequate and to code								
Combustion air supply installed								
No leaking apparent								
Draft Fan (if applic	able)							
Fan is installed per manufacturer's instructions								
Casing in good condition; no dents								
Mountings checked and shipping bolts removed								
Vibration isolators installed								
Plenums free of debris								
Fan rotates freely and in correct direction								
Bearings lubricated								
Equipment guards and safety devices installed								
Starter installed and size coordinated with motor								
Motor correctly aligned								
Gas Train	•							
Gas train Installed in accordance with NFPA, FM and IRI								
Gas train checked for leaks								
Gas piping installed and tested								
Gas train vents are terminated per code								
Gas train safety devices are operational								
Drip leg provided in gas main								
Gas cock valve orientation per manufacturers recommendations								
Gas cock valve accessible and travels freely								
Gas cock checked for leaks in closed position with the other gas train valves open								
Gas meter installed per manufacturer's instructions								
Gas meter properly located in non-turbulent section of pipe								



Installation Checks						
Check if acceptable, provide comment if unacceptable		NA	Comment			
Gas meter is properly oriented						
Gas meter is wired correctly						
Gas meter is accessible for test and service						
Gas pressure adjusted and verified within acceptable range						
Confirmed gas PRV operation						
Gas pressure sensor limits are appropriate for application						
Hi gas pressure switch installed per manufacturer's instructions						
Hi gas pressure switch is properly wired						
Low gas pressure switch installed per manufacturer's instructions						
Low gas pressure switch is properly wired						
Gas control valve installed per manufacturer's instructions						
Gas control valve installed vertical with direction of flow confirmed						
Gas control valve accessible and travels freely						
Gas control valve checked for leaks in closed position with the other gas train valves open						
Gas control valve had no visible damage						
Gas control valve nameplate readings checked against application and is applied correctly						
Drum relief valve setting adequate for application						
Drum relief valve discharge properly piped						
Stop-Check valve pressure rating applicable for duty						
Stop-Check valve installed per manufacturers instructions						
Piping						
Hydronic piping complete, including blowdown system, makeup water piping and safety reliefs						
Piping supported independently of the Boiler						
Hydronic system flushing complete and strainers cleaned						
Isolation valves and balancing valves installed						
Piping type and flow direction labeled on piping						
Chemical treatment system or plan installed						
Unions installed to allow for easy removal of control valves						
Electrical and Con	trols	•				
Power disconnect is located within site of the unit it controls and labeled						
All electric connections tight						
Grounding installed for components and unit						
Safeties installed and operational						
Starter overload breakers installed and correct size						
All control devices and wiring complete						
Control system interlocks connected and functional						



Installation Che	cke		
Check if acceptable, provide comment if unacceptable	CNS	NA	Comment
Smoke detectors in place			
Multiple boiler interlocks completed		\Box	
Flue	l	1	
Installed per manufacturers instructions			
Sloped toward boiler			
Clearance to combustibles per code			
Protection in place to prevent burning hazard			
Discharge is protected from rain and blockage			
Provisions in place for expansion compensation		Ħ	
Discharge is located to preclude re-entrainment back into the building		\Box	
Draft checked and meets minimum requirements of boiler manufacturer			
Low Water Cuto	off		
Installed per manufacturer's instructions			
Wire terminations checked and correct			
Sensors and Ga	ges		
Temperature, pressure and flow gages and sensors installed			
Piping gages, BAS and associated panel temperature and pressure readouts match.			
TAB			
Installation of system and balancing devices allowed balancing to be completed following specified NEBB or AABC procedures and contract documents			
Installation/application Rejected: The install performance criteria and will require reinspection be			_
Owner's Representative / Commissioning Authority			Date
Approval: This filled-out checklist has been review exceptions noted	ed. I	ts co	mpletion is approved with the
Owner's Representative / Commissioning Authority			Date
11/29/21 Boiler UT Health Project Con	ımiss	sioni	Page 5 of 5

Section 01 91 00

Project Name	UTH Project #
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PREFUNCTIONAL CHECKLIST

BTU METER							
Location		Test #	<u> </u>				
Submittal / Approvals							
approved for use on this p testing. <u>Prior performance ha</u> by the appropriate Contracte submitted for approval / w completed. Any outstanding	roject. The con as been verified a or / Subcontract itness, subject items will requ	being installed have been subsponders are complete and reas complying with the contractor signatures below. This presto an attached list of outstandire completion before approvate or safe and reliable presented.	eady for prefunctional documents as attested functional checklist inding items yet to be all of this form can be				
Mechanical Contractor	Date	Controls Contractor	Date				
Electrical Contractor	Date	Plumbing Contractor	Date				
Other Contractor	Date	General Contractor	Date				

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Pipe fittings complete and pipes properly supported		
Pipes properly labeled		
Pipes properly insulated		
Control wiring connected and verified		
Isolation valves installed		
Flushing and cleaning plan submitted and approved		
Piping system properly flushed and cleaned and temporary piping removed (report attached)		
Unit Calibrated (report attached)		
Piping pressure tested per contract documents (report attached)		
Backflow preventer installed and functional (report attached)		
No leaking apparent around fittings		
FCMS link verified and calibrated		
Valve labels permanently affixed		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.		he specifie
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its completiexceptions noted	on is approved	with the
Owner's Representative / Commissioning Authority	Date	

Project Commissioning	Section 01 91 00
Project Name	
PREFUN	CTIONAL CHECKLIST
	CABLE TRAY

Location		Test #		
Submittal / Approvals				
approved for use on this patesting. Prior performance has by the appropriate Contracted submitted for approval / w completed. Any outstanding	roject. The constant specified as been verified as or / Subcontract itness, subject items will required.	being installed have been subspondents are complete and reas complying with the contract or signatures below. This presto an attached list of outstartire completion before approve preclude safe and reliable presented.	eady for prefunc documents as at functional check ading items yet al of this form c	tional tested list is to be an be
Mechanical Contractor	Date	Controls Contractor	Date	_
Electrical Contractor	Date	Plumbing Contractor	Date	_

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

General Contractor

Date

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Date

Other Contractor



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Cable Tray is type, size, and shape, for location and installation		
Properly labeled		
Cable Tray is properly supported and installed per specifications		
Access to tray is unobstructed		
Cable Tray does not obstruct access and required clearances to equipment above tray		
Properly Grounded / Bonded		
Joints are bonded using proper fittings		
Wall / floor penetrations are properly sealed		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.	has not met t	the specified
Owner's Representative / Commissioning Authority	ate	
Approval: This filled-out checklist has been reviewed. Its completic exceptions noted	on is approved	l with the
Owner's Representative / Commissioning Authority D	ate	



U I Health F	louston
Project Commissioning	Section 01 91 00
Project Name	UTH Project #
PREFU	INCTIONAL CHECKLIST
CABLI	NG AND TERMINATIONS
Location	
Submittal / Approvals	
approved for use on this project	If the work being installed have been submitted, reviewed and ct. The components are complete and ready for prefunctional ten verified as complying with the contract documents as attested

completed. Any outstanding items will require completion before approval of this form can be executed. None of the outstanding items preclude safe and reliable prefunctional tests being performed.

____ List attached.

by the appropriate Contractor / Subcontractor signatures below. This prefunctional checklist is submitted for approval / witness, subject to an attached list of outstanding items yet to be

Mechanical Contractor	Date	Controls Contractor	Date	
Electrical Contractor	Date	Plumbing Contractor	Date	
Other Contractor	Date	General Contractor	Date	

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Verify cabling free of physical damage		
Verify that adequate insulating protection is provided on cable rack		
straps, stringers, threaded rods, auxiliary braces, and other metallic		
objects where power cable makes contact with sharp surfaces.		
Verify that all terminating wires and cables are properly tagged and		
designated at both ends on conductors.		
Verify that all cables are installed with correct type and size cable as specified.		
Verify that neutral conductors are not used for equipment grounding.		
Fittings complete and properly supported		
Connectors Torque to specified Tolerances		
Properly labeled		
Cable and wire insulation correct color based on color code standards		
Each individual Cable and wire has passed a continuity test		
Installation/application Rejected: The installation/application has performance criteria and will require reinspection before approval.	as not met t	he specified
Owner's Representative / Commissioning Authority Date	e	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	with the
Owner's Representative / Commissioning Authority Date	2	



Project Commissioning	2	section 01 91 00		
Project Name		UTH Project #		
FUNCT	IONAL	TEST CHECKI	IST	
Calibration and Leak-by Test Procedures				
Location		Test #		
Equipment ID	Arc	ea Served		
Equipment Description				
Submittal / Approvals				
Submittal. All components of approved for use on this project associated pre-functional check performance has been verified appropriate Contractor / Subconfequiring correction / completion before approval of this form carreliable functional tests being performance.	ct. The system klists are con as complying ontractor signa n on attached in be executed	is complete and ready for applete, approved and attach with the contract documentures below. Any outstanding list. Any outstanding items were	functional testing. All red to this FT. Prior as attested by the rig items are noted as will require completion	
Mechanical Contractor	Date	Controls Contractor	Date	
Electrical Contractor	Date	Plumbing Contractor	Date	
Other Contractor	Date	General Contractor	Date	

Functional checklist items are to be completed and approved before placing equipment into operation.

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Section 01 91 00

• Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

1. DESIGN INTENT AND DOCUMENTATION VERIFICATION

Commissioning Agent to verify that the design intent has been reviewed prior to observing required sample tests.

All field-installed RTD's, temperature, relative humidity, CO, CO₂, VOC, pressure sensors and gages, and all actuators (dampers and valves) on all equipment shall be calibrated using the methods described below. Alternate methods may be used, if approved by the Owner beforehand. All test instruments shall have had a certified calibration within the last 12 months. Sensors installed *in* the unit at the factory with calibration certification provided need not be field calibrated.

All procedures used shall be fully documented on the prefunctional checklists or other suitable forms, clearly referencing the procedures followed and written documentation of initial, intermediate and final results.

R	eview the design documents and the specifications.
R	eview Calibration Certification of test instruments.
Verify	the following related items are on-site:
Verify	the following related items are on-site.
D	Device Description
S	pecifications
N	pecifications Iaterial Testing Reports
	laterial Certificates
From 1	the design documents determine:
R	elated Systems:
S	equence of Operation:
S	afety Procedures:

2. SENSOR CALIBRATION METHODS

All Sensors: Verify that all sensor locations are appropriate and away from causes of erratic operation. Verify that sensors with shielded cable, are grounded only at one end. For sensor pairs that are used to determine a temperature or pressure difference, make sure they are reading within 0.2°F of each other for temperature and within a tolerance equal to 2% of the reading, of each other, for pressure. Tolerances for critical applications may be tighter.

- A. <u>Sensors Without Transmitters--Standard Application.</u> Make a reading with a calibrated test instrument within 6 inches of the site sensor. Verify that the sensor reading (via the permanent thermostat, gage or building automation system (BAS)) is within the tolerances in the table below of the instrument-measured value. If not, install offset in BAS, calibrate or replace sensor.
- B. <u>Sensors With Transmitters--Standard Application.</u> Disconnect sensor. Connect a signal generator in place of sensor. Connect ammeter in series between transmitter and BAS control panel. Using manufacturer's resistance-temperature data, simulate minimum desired temperature. Adjust



Section 01 91 00

transmitter potentiometer zero until 4 mA is read by the ammeter. Repeat for the maximum temperature matching 20 mA to the potentiometer span or maximum and verify at the BAS. Record all values and recalibrate controller as necessary to conform with specified control ramps, reset schedules, proportional relationship, reset relationship and P/I reaction. Reconnect sensor. Make a reading with a calibrated test instrument within 6 inches of the site sensor. Verify that the sensor reading (via the permanent thermostat, gage or building automation system (BAS)) is within the tolerances in the table below of the instrument-measured value. If not, replace sensor and repeat. For pressure sensors, perform a similar process with a suitable signal generator.

C. <u>Critical Applications.</u> For critical applications (process, manufacturing, etc.) more rigorous calibration techniques may be required for selected sensors. Describe any such methods used on an attached sheet.

Tolerances, Standard Applications

	<u>Required</u>		<u>Required</u>
<u>Sensor</u>	Tolerance (+/-)	<u>Sensor</u>	Tolerance (+/-)
Cooling coil, CHW and condenser		Flow rates, water	4% of design
water temps	0.4F	Relative humidity	4% of design
AHU wet bulb or dew point	2.0F	Combustion flue temps	5.0F
Hot water coil and boiler water temp	1.5F	Oxygen or CO ₂ monitor	0.1 % pts
Outside air, space air, duct air temps	0.4F	CO monitor	0.01 % pts
Watthour, voltage & amperage	1% of design	Natural gas and oil flow rate	1% of design
Pressures, air, water and gas	3% of design	Steam flow rate	3% of design
Flow rates, air	10% of design	Barometric pressure	0.1 in. of Hg
Volatile Organic Compound (VOC)	Per Mfgr Spec		_

NOTE: Required tolerances should be adjusted to coincide with the manufacturer specified accuracy for devices submitted and approved.

3. VALVE AND DAMPER STROKE SETUP AND CHECK

A. <u>EMS Readout.</u> For all valve and damper actuator positions checked, verify the actual position against the BAS readout.

Set pumps or fans to normal operating mode. Command valve or damper closed, visually verify that valve or damper is closed and adjust output zero signal as required. Command valve or damper open, verify position is full open and adjust output signal as required. Command valve or damper to a few intermediate positions. If actual valve or damper position doesn't reasonably correspond, replace actuator or add pilot positioner (for pneumatics).

B. <u>Closure for heating coil valves (NO)</u>: Set heating setpoint 20°F above room temperature. Observe valve open. Remove control air or power from the valve and verify that the valve stem and actuator position do not change. Restore to normal. Set heating setpoint to 20°F below room temperature. Observe the valve close. For pneumatics, by override in the EMS, increase pressure to valve by 3 psi (do not exceed actuator pressure rating) and verify valve stem and actuator position does not change. Restore to normal.



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C. Closure for cooling coil valves (NC): Set cooling setpoint 20°F above room temperature. Observe the valve close. Remove control air or power from the valve and verify that the valve stem and actuator position do not change. Restore to normal. Set cooling setpoint to 20°F below room temperature. Observe valve open. For pneumatics, by override in the EMS, increase pressure to valve by 3 psi (do not exceed actuator pressure rating) and verify valve stem and actuator position does not change. Restore to normal.

4. COIL VALVE LEAK CHECK

- A. Method 1--Water Temperature With 2-Way Valve. Calibrate water temperature sensors on each side of coil to be within 0.2°F of each other. Turn off air handler fans, close OSA dampers; keep pump running. Make sure appropriate coil dampers are open. Normally closed valves will close. Override normally open valves to the closed position. After 10 minutes observe water delta T across coil. If it is greater than 2°F, leakage is probably occurring. Reset valve stroke to close tighter. Repeat test until compliance.
- B. Method 2--Air Temperature With 2 or 3-Way Valve. Calibrate air temperature sensors on each side of coil to be within 0.2°F of each other. Change mixed or discharge air setpoint, override values or bleed or squeeze bulb pneumatic controller to cause the valve to close. Air handler fans should be on. After 5 minutes observe air delta T across coil. If it is greater than 1°F, leakage is probably occurring. Reset valve stroke to close tighter. Repeat test until compliance. Water leak-by less than 10% will likely not be detected with this method.
- C. Method 3 Coil Drain Down (not for 3-way valves). Put systems in normal mode. If cooling coil valve, remove all call for cooling or if heating coil valve put system in full cooling. Close isolation valve on supply side of coil, open air bleed cap, open drain-down cock and drain water from coil. Water should stop draining, else there may be a leak through the control valve. Return all to normal when done.

ISOLATION VALVE OR SYSTEM VALVE LEAK CHECK (for valves not by coils).

A. Method 1--Ultra-sonic flow meter. With full pressure in the system, command valve closed. Use an ultra-sonic flow meter to detect flow or leakage.

6. OUTSTANDING ITEMS

Note Outstanding items in table below. Use numbers referenced above.

Resolved (Initial / Date)	Note	Description
	1.	
	2.	
	3.	
	4.	
	5.	
	6.	
	7.	

Project Commissioning	Section 01 91 00
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1 reject commissioning	80011011 01 91 00

8.	
9.	
10.	

7. FIELD NOTES

Fill in as appropriate.

8. SIGN OFF

 $System\ /\ Equipment\ has\ been\ installed\ in\ accordance\ with\ the\ contract\ documents\ and\ is\ ready\ for\ Owner\ acceptance.$

	Signature	Date
Contractor's Representative		
A /E Representative		
Commissioning Agent		
Owner's Representative		



Section 01 91 00

END OF TEST



Section 01 91 00

Project Name	UTH Project #
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PREFUNCTIONAL CHECKLIST

Location		Test #	<u> </u>
Submittal / Approvals			
testing. Prior performance he by the appropriate Contract submitted for approval / w	as been verified and sor / Subcontract vitness, subject	as complying with the contractor signatures below. This preto an attached list of outstands.	t documents as attested functional checklist anding items yet to be
executed. None of the outs	, .	aire completion before approvoreclude safe and reliable pre	
executed. None of the outsperformed.	, .		
executed. None of the outs performed List attached.	standing items r	preclude safe and reliable pre	efunctional tests beir

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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Approved		Cont.	UTH
Manufacturer's cut sheets			
Performance data			
Welders certificates			
INSTALLATION			
Trench bedding material per contract docum	nents		
Backfill placed in lifts and compacted per c	ontract documents		
Pipe ID tape installed in trench per contract	documents		
Underground piping restraints coated per sp	pecifications		
Underground piping properly bedded and b	ackfilled		
Underground thrust blocks properly placed			
Pipe fittings complete and pipes properly su	pported		
Pipe hangers type, size and coating per cont	tract documents		
Pipe roller supports installed			
Pipes properly labeled			
Pipes properly insulated			
Strainers in place and clean			
Isolation valves installed			
Cleanouts installed			
Flushing and cleaning plan submitted and a			
Piping system properly flushed and cleaned			
10% of strainers and Owner selected low po			
witnessed by Owner to be clean. (list point			
Piping hydrostatically tested per specification			
Water treatment report submitted according	to contract documents		
Heat tracing wire installed			
Valves checklists complete			
Valve labels permanently affixed			
Pipe painted / coated per specifications			
Installation/application Rejected: To performance criteria and will require reinspose.		on has not met t	the specific
Owner's Representative / Commissioning A	uthority	Date	
Approval: This filled-out checklist has been exceptions noted	en reviewed. Its complet	ion is approved	l with the
Owner's Representative / Commissioning Au	uthority	Date	
	Vater Piping	Pag	e 2 of 2

Section 01 91 00

Project Name	UTH Project #
	<u> </u>

PREFUNCTIONAL CHECKLIST

Location		Test #	¥		
Make Model#					
Submittal / Approvals					
		as complying with the contractor signatures below. This pre			
submitted for approval / w completed. Any outstanding executed. None of the outs	ritness, subject g items will requ	to an attached list of outstandire completion before approve preclude safe and reliable pro-	val of this form can	be be	
submitted for approval / w completed. Any outstanding executed. None of the outs performed.	ritness, subject g items will requ	iire completion before approv	val of this form can	be be	
submitted for approval / w completed. Any outstanding executed. None of the outs performed List attached.	vitness, subject g items will requestanding items p	nire completion before approvo	ral of this form can efunctional tests be	be be	

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Chilled Water Pumps UT Health Project Commissioning Page 1 of 3



Project Commission	ning	Section 01 91 00)	_
MOTOR/ELECTI	RICAL:			
	r:	Serial #		
	oata - Volt		HP	
Motor Namepiate D	ata - VOII	FLA		
RMP	_ SVC Factor	Class	Frame	
Actual per phase	Volt	FLA		
Starter Size	Fuse Size	Heater S	Size	
	Approved		Cont.	UTH
Manufacturer produ	ict data sheet			
INSTALLATION				
Label permanently	affixed			
Housekeeping pads	installed per contract	documents		
Pumps in place and	•			
	devices installed and	functional		
	gages and sensors inst			
	ete and pipes properly			
Valves properly tag				
Y-strainer baskets of	lean			
Suction strainers in				
Block valves in place				
	lled (discharge side):			
Bearings lubricated				
	ecked (report attached	4)		
	C/CCW (viewed fro			
	er switch/Disconnects			
High/Temp safety is		5 ilistanea		
<u> </u>	nstalled for componen	nte and unit		
	pneumatic tubing and			
Installation/app	lication Rejected: a and will require rein	: The installation/app		the specifi
Owner's Representa	ntive / Commissioning	g Authority	Date	
Approval: This fill exceptions noted	led-out checklist has l	been reviewed. Its co	ompletion is approve	ed with the
11/29/21	Chilled	l Water Pumps	Pa	ge 2 of 3

UT Health Project Commissioning



Section 01 91 00

Owner's Representative / Commissioning Authority

Date



Project Commissioning	,	Section 01 91 00		
Project Name		UTH Project #		
FUNC	TIONAL	TEST CHECKI	LIST	
CI	HILLED '	WATER PUMPS	8	
Location		Test #	<u> </u>	
Submittal / Approvals				
Submittal. All components approved for use on this pro- associated prefunctional che- performance has been verificappropriate Contractor / Sub- requiring correction / completation before approval of this form reliable functional tests being List attached.	pject. The system ecklists are comed as complying econtractor signation on attached can be executed	n is complete and ready for applete, approved and attached with the contract documentures below. Any outstandilist. Any outstanding items v	functional testing. All ned to this FT. Prior ents as attested by the ng items are noted as will require completion	
Mechanical Contractor	Date	Controls Contractor	Date	

Functional checklist items are to be completed and approved before placing equipment into operation.

Date

Date

Plumbing Contractor

General Contractor

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Date

Date

Electrical Contractor

Other Contractor



Section 01 91 00

Approved	Cont.	UTH
Record Submittal		
O&M Manuals		
Sequence of Operations verified		
OPERATION		
VFD operation verified (report attached)		
The HOA switch properly activates and deactivates the unit		
Pump rotation verified correct		
No unusual noise or vibration		
No leaking apparent around fittings		
Measure line to line voltage phase imbalance for each pump: (%Imbalance = 100 x (avg lowest) / avg.)		
Record imbalance of each pump (report attached)		
Record full load running amps for each pumprated FL amps x srvc factor = (Max amps)		
Specified sequences of operation and operating schedules have been		
implemented with all variations documented (Documentation		
attached)		
Specified point-to-point checks have been completed and		
documentation record submitted for this system		
Pump line pressure verified as compliant with contract		

Sensor and Actuator Calibration

All field-installed pressure sensors and gages on this piece of equipment shall be calibrated using the methods and tolerances given in the Calibration and Leak-by Test Procedures document. All test instruments shall have had a certified calibration within the last 12 months: Y/N_____. Sensors installed *in* the unit at the factory with calibration certification provided need not be field calibrated.

Sensor or Actuator & Location	Location OK	1 st Gage or BAS Value	Instr. Meas'd Value	Final Gage or BAS Value	Pass Y/N?



Section 01 91 00

Gage reading = reading of the permanent gage on the equipment. BAS = building automation system. Instr. = testing instrument. Visual = actual observation. The Contractor's own sensor check-out sheets may be used in lieu of the above, if the same recording fields are included and the referenced procedures are followed.

Test Failure/Retest Required: The Test performed has criteria and will require retesting before approval.	as not met the specified per	formance
Owner's Representative / Commissioning Authority	Date	
Approval: The test has been witnessed as meeting the per documents with any exceptions noted.	formance requirements of the	he contract
Owner's Representative / Commissioning Authority	Date	

Project Name	UTH Project #

FIELD OBSERVATION REPORT

rir	LD OBSERVATIO	NKEPUKI
Report #.:		
Institution:	Contractor:	Date:
Site Conditions: Approxi	mate Temperature Range: High:	Low: Weather:
During a site visit, the follo	owing items were noted as being in nor	n-compliance with the contract documents
Special instruction issu	ied to Contractor:	
Report receipt acknow	ledged:	
Contractor:	Construction Inspector:	Date:
Initials	Initials	S
xc:		
11/29/21		Page 1 of 1
11/4//41	UTH Project Commission	

CLOSEOUT DOCUMENTATION MATRIX								
Project Name : Project #:								
Specification Section	Description	Quantity (w/units)	Spare Part/ Attic Stock	Warranty	O&M	Demo & Training	Comments	Date Received
								
								
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CLOSEOUT DOCUMENTATION MATRIX								
Project Name :								
Specification Section	Description	Quantity (w/units)	Spare Part/ Attic Stock	Warranty	O&M	Demo & Training	Comments	Date Received

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			CLOSEO	UT DOCUM	IENTATIO	ON MATRIX		
Project Name :							Project #:	
Specification Section	Description	Quantity (w/units)	Spare Part/ Attic Stock	Warranty	O&M	Demo & Training	Comments	Date Received
								<u> </u>

			CLOSEO	UT DOCUM	IENTATIO	ON MATRIX		
Project Name :							Project #:	
Specification Section	Description	Quantity (w/units)	Spare Part/ Attic Stock	Warranty	O&M	Demo & Training	Comments	Date Received

			CLOSEO	UT DOCUM	IENTATIO	ON MATRIX		
Project Name :							Project #:	
Specification Section	Description	Quantity (w/units)	Spare Part/ Attic Stock	Warranty	O&M	Demo & Training	Comments	Date Received

			CLOSEO	UT DOCUM	IENTATIO	ON MATRIX		
Project Name :							Project #:	
Specification Section	Description	Quantity (w/units)	Spare Part/ Attic Stock	Warranty	O&M	Demo & Training	Comments	Date Received

			CLOSEO	UT DOCUM	IENTATIO	ON MATRIX		
Project Name :							Project #:	
Specification Section	Description	Quantity (w/units)	Spare Part/ Attic Stock	Warranty	O&M	Demo & Training	Comments	Date Received

			CLOSEO	UT DOCUM	IENTATIO	ON MATRIX		
Project Name :							Project #:	
Specification Section	Description	Quantity (w/units)	Spare Part/ Attic Stock	Warranty	O&M	Demo & Training	Comments	Date Received

			CLOSEO	UT DOCUM	IENTATIO	N MATRIX		
Project Name :							Project #:	
Specification		Quantity	Spare Part/					
Section	Description	(w/units)	Attic Stock	Warranty	O&M	Demo & Training	Comments	Date Received



Section 01 91 00

Project Name U	JTH Project #
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PREFUNCTIONAL CHECKLIST

COMPRESSED AIR PIPING

Location		Test #	Test #	
Submittal / Approvals				
approved for use on this presting. Prior performance has by the appropriate Contract submitted for approval / we completed. Any outstanding executed. None of the outstanding of the outstanding the contract of the outstanding of the outstandi	oroject. The con as been verified for / Subcontract vitness, subject g items will requ	being installed have been subspaced in ponents are complete and reas complying with the contract tor signatures below. This presents on attached list of outstandire completion before approved preclude safe and reliable presents.	eady for prefunt documents as a functional chech ding items yet al of this form	ctional ttested klist is to be can be
List attached.	Date	Controls Contractor	Date	_
Mechanical Contractor Electrical Contractor	Date Date	Controls Contractor Plumbing Contractor	Date Date	_

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Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Pipe fittings complete and pipes properly supported		
Pipe hangers type, size and coating per contract documents		
Pipes properly labeled		
Strainers in place and clean		
Isolation valves installed		
Flushing and cleaning plan submitted and approved		
Piping system properly flushed and cleaned (report attached)		
10% of strainers and Owner selected low point drains opened and		
witnessed by Owner to be clean. (list points checked)		
Dryer station installed per details		
Air quality verified as acceptable		
Piping pressure tested per specifications (report attached)		
Valves checklists complete		
Valve labels permanently affixed		
Pipe painted / coated per specifications		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.	has not met t	he specific
Owner's Representative / Commissioning Authority Da	te	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	with the
Owner's Representative / Commissioning Authority Date of the Commission of the Comm	te	



Project Commissioning		Section 01 91 00					
Project Name		UTH Project #					
PRE	FUNCTIO	ONAL CHECKL	IST				
CO	NCRETE	PRE/POST-POU	J R				
Location		Test #	<u> </u>				
Submittal / Approvals							
approved for use on this proj <u>Prior inspection and complia</u> <u>appropriate Contractor / Sub</u> for approval / witness, subjective outstanding items will require	ect. The componence with the concontractor signatured to an attached re completion be	eing installed have been sub ents are complete and ready for atract documents has been ver- ures below. This prefunctional list of outstanding items yet fore approval of this form can le prefunctional tests being pe	or pre-pour inspection ified as attested by the checklist is submitted to be completed. Any be executed. None of				
Mechanical Contractor	Date	Controls Contractor	Date				
Electrical Contractor	Date	Plumbing Contractor	Date				
Other Contractor	Date	General Contractor	Date				
Prefunctional checklist	t items are	to be completed as pa	urt of installation				

verification, preparatory to functional testing.

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Approved	Cont.	OFPC.
Concrete mix design per contract documents		
Admixtures and water addition procedures reviewed for contract		
compliance		
Forms are clean of all debris		
Cleanouts and windows cut in with closures available		
Any and ALL rebar modifications have been approved in writing by		
the Structural Engineer of record.		
Embeds are properly located and supported		
Rebar grade as per plans / Structural Eng. review		
Post-tension cabling inspected (report attached)		
All rebar placed and supported per contract documents		
No rebar is burning formwork		
Keyways detailed per contract drawings		
Bulkhead locations approved by Structural Engineer		
Waterstops installed per contract documents		
All sleeves are properly located and supported		
Sleeves have additional rebar installed per contract documents		
Outside and inside corners both vertical and horizontal, have detail		
rebar per contract documents		
All penetrations are detailed per contract documents		
All column tops are level with bottom of beams forms		
Concrete truck washout has been located		
Additional vibrators on site		
Hot / Cold weather placement provisions in place		
Slab tolerance verification equipment on site		
Curing compound and application verified		
POST-POUR		
$F_f - F_l$ verified as complying with contract documents		
Curing compound coverage verified		
Concrete cylinders taken as prescribed in contract		
Concrete strength verified at 7-day break		
Forms / shoring left in place until strength achieved per contract		
Any concrete deficiencies noted and any corrective action approved		
by Structural Engineer of record		



Installation/application Rejected: The installation/a performance criteria and will require reinspection before application.	1.	ecified
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its exceptions noted	s completion is approved with	the
Owner's Representative / Commissioning Authority	Date	



Section 01 91 00

Project Name UTH Project #	
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PREFUNCTIONAL CHECKLIST

CONDUIT, RACEWAYS & BOXES

Location	One ch	necklist per room Test #	
Submittal / Approvals			
Submittal. All components of approved for use on this projecting. Prior performance has been the appropriate Contractor assubmitted for approval / with completed. Any outstanding its executed. None of the outstanderformed. List attached.	ect. The conveen verified of Subcontractess, subjectems will requ	as complying with the contract or signatures below. This pre to an attached list of outstandire completion before approve	ady for prefunctional documents as attested functional checklist is ading items yet to be all of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

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Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Wiring boxes are proper type, size, shape, and depth for location and		
installation		
Conduit is type and size, for location and installation		
Boxes properly labeled / color-coded		
Conduit is properly supported and installed per specifications		
Conduit connectors per contract documents (compression / screw)		
Properly Grounded		
Cover plates are type, size, shape, color and depth for location and		
installation		
Flexible metal conduit is min 3'-0" and max 6'-0"		
All knockouts in boxes are plugged		
All wall penetrations sealed per contract documents		
Installation/application Rejected: The installation/application has performance criteria and will require reinspection before approval.		he specifie
Owner's Representative / Commissioning Authority Dat	e	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	with the
Owner's Representative / Commissioning Authority Dat	e	



Section 01 91 00

Project Name	UTH Project #
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PREFUNCTIONAL CHECKLIST

DEIONIZED WATER PIPING

Location		Test #	<u> </u>	
Submittal / Approvals				
approved for use on this presting. Prior performance has by the appropriate Contract submitted for approval / we completed. Any outstanding executed. None of the outstanding	oroject. The contact been verified or / Subcontract vitness, subject items will requ	being installed have been subspecified in the complete and reast complying with the contract tor signatures below. This presto an attached list of outstarting completion before approved preclude safe and reliable presented.	eady for prefunction to documents as attended to the control of th	onal sted st is be be
List attached.	Date	Controls Contractor	- Date	
Mechanical Contractor Electrical Contractor	Date Date	Controls Contractor Plumbing Contractor	Date Date	

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION	·	
Pipe fittings complete and pipes properly supported		
Pipe hangers type, size and coating per contract documents		
Pipe roller supports installed		
Pipes properly labeled		
Pipes properly insulated		
Strainers in place and clean		
Isolation valves installed		
Piping system properly flushed and cleaned (report attached)		
Piping hydrostatically tested per specifications (report attached)		
Heat tracing wire installed		
Valves checklists complete		
Water treatment report submitted per contract documents (ohm	1)	
No leaking apparent around fittings	,	
Pressure Tank installed consistent with contract documents		
Level controller installed consistent with contract documents		
Valve labels permanently affixed		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.	n has not met t	he specifie
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its completions noted	on is approved	with the
Owner's Representative / Commissioning Authority	Date	



Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAI	L TEST CHECKI	LIST
DH	EIONIZE	D WATER PUM	P
Location		Test #	!
Submittal / Approvals			
approved for use on this pr associated prefunctional ch performance has been verif	oject. The syste lecklists are co fied as complying	being installed have been submis complete and ready for mplete, approved and attaching with the contract documentatures below. Any outstanding	functional testing. All ted to this FT. Prior nts as attested by the
requiring correction / comple	etion on attached of can be executed	d list. Any outstanding items ved. None of the outstanding it	vill require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
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- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Other Contractor



Approved	Cont.	UTH
DELIVERABLES	•	
Record Submittal		
Service / maintenance contract		
Sequences and control strategies		
O&M manuals		
PERFORMANCE		
Pump rotation verified correct		
Vibration within tolerances (report attached)		
Verify noise dB within tolerances		
No leaking apparent around fittings		
High level alarm operation		
Low level alarm operation		
Specified sequences of operation and operating schedules have been		
implemented and verified (report attached)		
Specified point-to-point checks have been completed (report attached)		
VFD operation verified (report attached)		
Pump pressure verified as complying with contract		
Pressure at furthest fixture location in compliance with contract		
Purity of system verified (report attached)		
Test Failure/Retest Required: The Test performed has not met t criteria and will require retesting before approval.	he specified	d performance
Owner's Representative / Commissioning Authority Date Date Date Description:	e	
Approval: The test has been witnessed as meeting the performance redocuments with any exceptions noted.	quirements	of the contra
Owner's Representative / Commissioning Authority Date Date	e	



Section 01 91 00

Troject Commissioning	Section	01 91 00	
Project Name		UTH Project #	
	DEMO / TRAI	NING LOG	
Specification Section		Date:	
	above mentioned specificate tired) for the following equi	tion section, training is being pment/system:	ng provided and
Equipment/System:			
troubleshooting procedures. provided and demonstrated ademonstrated has been succe commissioned.	Any and all diagnostic equipments part of this demo/training exessfully commissioned and according to the North No	for review of proper operation nent required by the contract do cercise. The equipment/system cepted by the Owner as being for the cecording provided Y / N	ocuments shall be being fully
ATTENDEE	COMPANY	PHONE NUMB	RFR
ATTENDEE	COMPANI	THORE WOME)EK
General Contractor	Date Subcont	ractor providing Training	Date
Owner Representative	Date		
11/29/21	Demo / Training I	Log Pa	age 1 of 1

UT Health Project Commissioning



Section 01 91 00

Project Name	UTH Project #
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PREFUNCTIONAL CHECKLIST

Location		Test #	<u> </u>	
Make		Model#		
Submittal / Approvals				
testing. Prior performance has by the appropriate Contract	as been verified or / Subcontract	as complying with the contractor signatures below. This pre-	documents as attended to the deck	ested ist is
	g items will requ	to an attached list of outstar aire completion before approved or a safe and reliable pre-	al of this form c	n be
completed. Any outstanding executed. None of the outsperformed.	g items will requ	ire completion before approv	al of this form c	n be
completed. Any outstanding executed. None of the outs performed List attached.	g items will requestanding items p	nire completion before approver preclude safe and reliable pre	al of this form c	n be

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO)= by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Project Commissionin	g	Section 01 91 (00	
Equipment Number:_		Serial Number:		
Location:				
Manufacturer:	Mode	e1 #:		
Heating Medium:	Stean	n Pressure:		
Nameplate Data: Volts	S	Phase	W	/atts
Amps	Capac	city:	gals	
Circulation Pump				
Equipment I.D.:	Manufacture	r:		
Mounting Configuration	on:	Model #	#:	
	(Vertical or Horizontal)			
MOTOR/ELECTRIC	CAL:			
Motor Manufacturer:		Serial #		
Motor Nameplate Data	a - Volt	_ FLA	HP	
RMP	SVC Factor	Class	Frame	
Actual per phase	Volt	FLA		
Starter Size	Fuse Size	Heater	Size	

Approved	Cont.	UTH
INSTALLATION		
Manufacturer's cut sheets		
Performance data		
Shop drawings		
INSTALLATION		
Pump body is accessible for service		
Lubrication oil added per manufacturer requirements		
Pump suction & discharge pressure gauges installed		
Thermometer installed downstream of circulation pump		
Impeller rotation verified		
Flushing of piping system complete		
Vacuum relief valve installed on cold water line		
Isolation (ball) valves installed		
Y-strainer installed in return: Strainer Cleaned		
Heater relief valve set atPSI / Piped to drain with union		



Approved	Cont.	UTH
Solenoid operated relief valve piped to drain		
Drain valve installed with hose bib		
Steam trap installed		
Check valve installed in cold supply		
120 volt power supplied to unit controls		
All Piping on heater has unions for equipment removal		
Gas fuel line pressure tested per contract documents (report attached)		
Regulator pressure verified for correct operation		
	1	

Installation/application Rejected: The installation/apperformance criteria and will require reinspection before apperformance criteria and will require reinspection before appearance criteria.	1 1	ne specified
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its exceptions noted	completion is approved	with the
Owner's Representative / Commissioning Authority	Date	



C I I lead I louston			
Section 01 91 00			
UTH Project #			
AL TEST CHECKLIST			
VATER BOOSTER PUMP			

Submittal / Approvals

Location

Submittal. All components of the work being installed have been submitted, reviewed and approved for use on this project. The system is complete and ready for functional testing. All associated prefunctional checklists are complete, approved and attached to this FT. Prior performance has been verified as complying with the contract documents as attested by the appropriate Contractor / Subcontractor signatures below.. Any outstanding items are noted as requiring correction / completion on attached list. Any outstanding items will require completion before approval of this form can be executed. None of the outstanding items preclude safe and reliable functional tests being performed.

List attached.			
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO)= by others).
- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Test #



Approved	Cont.	UTH
Record Submittal		
O&M Manuals		
Sequence of Operations verified		
OPERATION		
VFD operation verified (report attached)		
The HOA switch properly activates and deactivates the unit		
Pump rotation verified correct		
No unusual noise or vibration		
No leaking apparent around fittings		
Measure line to line voltage phase imbalance for each pump:		
(%Imbalance = $100 \text{ x (avg lowest) / avg.}$)		
Record imbalance of each pump (report attached)		
Record full load running amps for each pumprated FL amps x		
srvc factor = (Max amps)		
Specified sequences of operation and operating schedules have been		
implemented with all variations documented		
Specified point-to-point checks have been completed and		
documentation record submitted for this system		
Pump pressure verified as complying with contract		
Test Failure/Retest Required: The Test performed has not met the criteria and will require retesting before approval.	e specified	performance
Owner's Representative / Commissioning Authority Date	;	
Approval: The test has been witnessed as meeting the performance reconcuments with any exceptions noted.	uirements	of the contract
Owner's Representative / Commissioning Authority Date	;	



Project Name UTH Project #	
----------------------------	--

DOMES	STIC WA	TER BOOSTER	PUMP	
Location		Test #		
Make				
Submittal / Approvals				
by the appropriate Contract submitted for approval / w completed. Any outstanding	or / Subcontract vitness, subject g items will requ	as complying with the contract tor signatures below. This pre to an attached list of outstandire completion before approve preclude safe and reliable pre	functional checklist is ding items yet to be al of this form can be	
Mechanical Contractor	Date	Controls Contractor	Date	
Electrical Contractor	Date	Plumbing Contractor	Date	
Other Contractor	Date	General Contractor	Date	
verification, preparatory	y to functiona	to be completed as paltesting. of the manufacturer's recomme	-	

- startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO)= by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Section 01 91 00

Motor Manufacturer: Serial # Motor Nameplate Data - Volt FLA HP RMP SVC Factor Class Frame Actual per phase Volt FLA Starter Size Fuse Size Heater Size PUMP Equipment Number Location: Manufacturer: Model #: Medium Pumped: Number of Pumps: GPM: @TDH per pump Suction pressure: PSI Discharge pressure:PSI
RMPSVC FactorClassFrame
Actual per phase Volt FLA Starter Size Fuse Size Heater Size PUMP Equipment Number Location: Manufacturer: Model #: Medium Pumped: Number of Pumps: GPM: @TDH per pump
Starter Size Fuse Size Heater Size PUMP Equipment Number Location: Manufacturer: Model #: Medium Pumped: Number of Pumps: GPM: @TDH per pump
PUMP Equipment Number Location:
Equipment NumberLocation:Manufacturer:Model #:Model #:
Manufacturer:Model #:
GPM: @TDH per pump
Suction pressure: PSI Discharge pressure: PSI
Control Valves: Size:MFR
Approved Cont. UTH
Manufacturer product data sheet O&M Manual INSTALLATION
Flushing of piping system complete
Sterilization of piping system complete
Bearings lubricated
Impeller rotation verified as correct
Lag pump sequencing verified Tank: Air fill valve & gauge installed
Tank: Air fill valve & gauge installed Drain lines installed
Electrical connections verified

All controls installed and operating properly



Installation/application Rejected: The installation/apprent performance criteria and will require reinspection before apprent apprent of the installation of the insta	-
Owner's Representative / Commissioning Authority	Date
Approval: This filled-out checklist has been reviewed. Its coexceptions noted	ompletion is approved with the
Owner's Representative / Commissioning Authority	Date



1 roject con	unussioning	Section 01 71 00	
Project Nam	1e	UTH Project #	<u> </u>
DOMEST	TIC WATER STE	RILIZATION & FLUS	SHING REPORT
		ized:	
		ystem:	
Amount of ma	aterial being applied:	(ppm)	
Time of day/I	Date material injected into	o system:(am / pm)_	(Date)
Time of day/I	Date flushing started:	(am / pm)	(Date)
After flushing	g, measure residual mater	ial in system:	(ppm)
Specify exact During steriliz	zation, all valves are to be	where samples were taken. e opened and closed several time as verified by General Contractor	
	YES	NO	
Comments:			
Subcontractor	::	Printed Name	Date
Contractor:	Signatura	Duinted Name	Data
	Signature	Printed Name	Date
11/20/21			D 1 C1



Project Commissioning	Section 01 91 00	
Project Name	UTH Project #	
FUNCTIO	ONAL TEST CHECKLIST	
DOME	STIC WATER SYSTEM	
Location	Test #	
Submittal / Approvals		
approved for use on this project. associated prefunctional checklist performance has been verified as appropriate Contractor / Subcontractor / completion of the contractor / completion / co	The system is complete and ready for functional testings are complete, approved and attached to this FT. complying with the contract documents as attested actor signatures below. Any outstanding items are not attached list. Any outstanding items will require complete executed. None of the outstanding items preclude samed.	ng. All Prior by the oted as pletion
Mechanical Contractor I	Oate Controls Contractor Date	_

Functional checklist items are to be completed and approved before placing equipment into operation.

Date

Date

Plumbing Contractor

General Contractor

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Electrical Contractor

Other Contractor

Date

Date



Approved	Cont.	UTH
Record Submittal	•	
Any and all punchlist items corrected		
Piping system properly flushed and cleaned (report attached)		
Coloform bacteria count report completed (report attached)		
Adequate pressure verified throughout all floors		
Hot water temperature at fixtures verified (report attached)		
Cross-contamination dye test performed (report attached)		
Pipe video inspected per specifications (report attached)		
Water purity verified (report attached)		_
criteria and will require retesting before approval.		
Owner's Representative / Commissioning Authority	Date	
Approval: The test has been witnessed as meeting the performanc documents with any exceptions noted.	e requirements	of the contrac
Owner's Representative / Commissioning Authority	Date	



Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTIO	ONAL CHECKL	IST
DO	OR HAR	DWARE & KEY	YS
Location		Test #	#
Submittal / Approvals			
approved for use on this present testing. Prior performance has by the appropriate Contracted submitted for approval / we completed. Any outstanding	roject. The com as been verified a or / Subcontractoritness, subject to items will requ	peing installed have been surponents are complete and rates complying with the contractor signatures below. This preson an attached list of outstaire completion before approve reclude safe and reliable presented.	eady for prefunctional of documents as attested efunctional checklist is noting items yet to be wal of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	 Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

General Contractor

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
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Date

Other Contractor



Approved	Cont.	UTH
Keying Schedule		
Manufacturer's product data, cut sheets		
Shop drawings		
Finish samples		
Maintenance instructions, parts lists, special tools		
Templates		
Certificate for hardware used on fire-rated door assemblies		
KEYS		
Keying Conference with Institution		
Keying Schedule confirmed		
Bitting Schedule		
Key blanks received by Institution (number. correct)		
Distribution receipts		
INSTALLATION		
Preinstallation meeting conducted		
Installed per mfg. instructions		
Confirm door and frame reinforcement in place		
Confirm mortise and cut-outs per templates		
Fasteners in place and fully set w/o splitting of wood		
Proper mounting heights		
FRAME		
Frame installed plumb and level		
No rust on frame		
Bumpers installed		
Confirm door-prep and pathways for security devices		
BUTTS		
Mortise type set flush		
Proper number of hinges for door size		
Steel with ball bearings at fire doors		
CLOSERS		
Proper type for function and swing		
Proper mounting plates; mounted with through-bolts		
Adjusted for proper, smooth operation, opening force		



Approved	Cont.	UTH
Proper swing range and backcheck		
LOCKSETS AND LATCHSETS		
Full latchbolt projection and strike engagement		
Proper cylinder core		
Faceplate set flush with door edge		
Strike box installed		
DWIT DDWIGDG		
EXIT DEVICES		
Mounting level and plumb		
Full latchbolt projection and strike engagement		
UL/FM Label complies with door assembly rating		
Confirm dogging mechanism operates		
Confirm accessory items (coordinators, removable mullions)		
DOOR BOLTS		
Top and bottom bolts fully seated in strikes		
Smooth operation		
UL/FM Label complies with door assembly rating		
Dust proof strike cover retraction		
DOOR HOLDERS		
Smooth operation		
Proper swing range		
Armature alignment		
Proper electrical characteristics		
DOOR TRIM		
Set flush, level and plumb		
Correct placement on door, horiz. & vert.		
DOOD STORS		
DOOR STOPS Proper (yell, floor) type for eveing condition		
Proper (wall, floor) type for swing condition		
Set for proper door engagement Pleaking heak up at well stone		
Blocking back-up at wall stops		
DOOR SEALS		
Proper type per schedule		
Ensure full contact seal		
Verify acoustical performance		



	Approved	Cont.	UTH
Threshold height m	eets accessibility req'mts.		
	•		
ELECTRIC LOC	KS / STRIKES		
Securely mounted			
Covers in-place, sec	cure		
Installed plumb and	level		
Electrical connection	ons tight		
Check voltage	•		
Verify smooth oper	ation		
•			
KNOX BOX			
Location per plans			
Keys provided			
•			
AUTOMATIC DO	OOR OPERATOR		
Verify frame reinfo	rcement installed		
Verify installation of	of control voltage transformer		
Location / operation	of remote pushbutton		
Proper swing range	and backcheck		
MAGNETIC LOC	CKS		
Verify frame reinfo	rcement installed		
	hment to frame / door		
Alignment of armat			
	e alarm / security system		
	•		
FINAL			
Replacement of def	ective items		
Removal of protecti	ive film and labels		
	lication Rejected: The installation/application and will require reinspection before approval.	on has not met	the specific
Owner's Representa	tive / Commissioning Authority	Date	
Approval: This fill exceptions noted	led-out checklist has been reviewed. Its complet	ion is approve	ed with the
Owner's Representat	ive / Commissioning Authority	Date	
11/29/21	Door Hardware and Keys UT Health Project Commissioning	F	Page 4 of 4



Section 01 91 00

Project Name	UTH Project #
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PREFUNCTIONAL CHECKLIST

Location		Test #	!	
Submittal / Approvals				
approved for use on this p testing. <u>Prior performance has</u> by the appropriate Contract submitted for approval / w	oroject. The con as been verified or / Subcontract vitness, subject	being installed have been sul- inponents are complete and re- as complying with the contract for signatures below. This pre- to an attached list of outstandare completion before approve	eady for prefunctional check and items yet	etiona ttestec clist is to be
executed. None of the outs		preclude safe and reliable pre		
executed. None of the outs performed List attached.		1		
executed. None of the outs performed.	standing items p	preclude safe and reliable pre	functional tests	

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
O&M Manuals		
INSTALLATION		
Pipe fittings complete and pipes properly supported		
Pipes properly labeled		
Push-bar operates properly		
Inline flow regulator installed per contract documents		
Faucet handles secured and properly aligned		
Associated Trim/Accessories		
Fixture installation complies with TAS requirements		
P-Trap installed		
Fixture size and configuration per contract documents		
Water supply shut-off valve installed per contract documents		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.	has not met t	he specifie
Owner's Representative / Commissioning Authority Date Date	ite	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	n is approved	with the
Owner's Representative / Commissioning Authority Date of the Commissioning Authority	ate	



Project Commissioning		Section	n 01 91 00		_
Project Name		_	UTH Project #		
DUCT PRE	SSURE '	TEST	TREPORT FOR	M	
Duct Test No					
Identification of Duct System T	ested:				
Actual Location of Portion(s) of	f System Tes	ted:			
Spec. Section:		_	Detail/Drawing Numb	er:	
Description of Test Procedure:_					
Specified Performance Criteria:					
Total Design CFM under test		Al	lowable Sys. Leakage:		CFM
Test Results - Actual Sys.	Leakage:		CFM		
CONTRACTOR CERTIFICA	ATION OF I	PERFC	ORMANCE:		
Actual Performance Confirme	ed by Test:				
Prime / General Contract	or				
I hereby certify that the above d tested as indicated above and fo	•	-	-	•	n, has been
Signature of Contractor		Printed	Name		 Date
Signature of Subcontractor		Printed	Name		Date
Test Witnessed by UT He	alth:				
Results of Test Acceptable?	YES	NO	Retest Required?	YES	NO
Owners Representative	\overline{Pr}	inted Na	ame		

11/29/21

Page 1 of 1

Project Commissioning Section 01 91 00				
Project Name	UTH Project #			
PREFUN	NCTIONAL CHECKLIST			
DUCTBANK				
Location	Test #			
Submittal / Approvals				
approved for use on this project.	ne work being installed have been submitted, reviewed and The components are complete and ready for prefunctional verified as complying with the contract documents as attested			

completed. Any outstanding items will require completion before approval of this form can be executed. None of the outstanding items preclude safe and reliable prefunctional tests being performed.

____ List attached.

by the appropriate Contractor / Subcontractor signatures below. This prefunctional checklist is submitted for approval / witness, subject to an attached list of outstanding items yet to be

 Mechanical Contractor
 Date
 Controls Contractor
 Date

 Electrical Contractor
 Date
 Plumbing Contractor
 Date

 Other Contractor
 Date
 General Contractor
 Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
Welders certificates		
INSTALLATION		
Excavation shored in accordance with contract documents		
Conduit type size and location correct		
Conduit supports correct		
Reinforcing installed per contract		
Watertight seal at all joints		
Concrete color and strength correct		
Manhole termination correct		
Pull lines installed		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval. Owner's Representative / Commissioning Authority	on has not met t	he specifie
Approval: This filled-out checklist has been reviewed. Its complete exceptions noted	tion is approved	with the
Owner's Representative / Commissioning Authority	Date	

Project Commissioning		Section 01 91 00		
Project Name		UTH Project #		
PRE	FUNCTIO	ONAL CHECKL	IST	
DI	J CTWOI	RK INSULATIO	N	
Location		Test #	<u> </u>	
Submittal / Approvals				
approved for use on this p esting. Prior performance has	roject. The con as been verified a	being installed have been sumponents are complete and reas complying with the contractor or signatures below. This pre-	eady for prefunctional t documents as attested	
submitted for approval / we completed. Any outstanding	itness, subject items will requ	to an attached list of outstandire completion before approved or clude safe and reliable pro-	nding items yet to be ral of this form can be	
List attached.				
Mechanical Contractor	Date	Controls Contractor	Date	
Electrical Contractor	Date	Plumbing Contractor	Date	

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

General Contractor

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Other Contractor



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Insulation Thickness consistent with contract documents		
Proper density material installed		
Insulation properly installed, mechanical fasteners, clean dry pipe, etc		
Duct reinforcing insulated and sealed.		
Insulation vapor barrier properly installed		
Access doors operable and accessible		
Valves operable throughout range of handle/actuator		
Gauges / instruments readable		
Hard insets at supports installed per specifications		
Shields at support points		
Fittings, valves, etc. properly insulated		
Insulation protective jacket per specifications		
Insulation primed and painted per specifications		
Proper sealant / firestopping at penetrations		
Labeling installed per specifications		
Installation/application Rejected: The installation/application is performance criteria and will require reinspection before approval.	as not met t	he specified
Owner's Representative / Commissioning Authority Date	e	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	with the
Owner's Representative / Commissioning Authority Date Date	e	

Project Commissioning	Section 01 91 00	
Project Name	UTH Project #	
PREFUN	CTIONAL CHECKLIST	

Location_____ Test #____

DUCTWORK

Submittal / Approvals

Submittal. All components of the work being installed have been submitted, reviewed and approved for use on this project. The components are complete and ready for prefunctional testing. Prior performance has been verified as complying with the contract documents as attested by the appropriate Contractor / Subcontractor signatures below. This prefunctional checklist is submitted for approval / witness, subject to an attached list of outstanding items yet to be completed. Any outstanding items will require completion before approval of this form can be executed. None of the outstanding items preclude safe and reliable prefunctional tests being performed.

List attached.			
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Sprinkler Contractor	Date	General Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
Shop Drawings		
INSTALLATION		
Proper gauge sheetmetal verified		
Large ductwork stiffener plates installed per contract documents		
Duct properly supported		
Required vibration isolation installed		
Hard block insulation installed at duct supports		
Joints properly sealed per contract documents		
Ductwork pressure tested per contract documents (report attached)		
Access doors properly labeled and located correctly		
Ducts properly labeled		
Ducts properly insulated / verify density & thickness		
Duct clean of all debris and dust		
All openings in duct sealed to keep out dust		
Isolation dampers, fire dampers, balancing dampers, and misc		
dampers installed per contract documents		
Installation/application Rejected: The installation/applicatio performance criteria and will require reinspection before approval.	n has not met t	he specifie
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its completiexceptions noted	on is approved	with the
Owner's Representative / Commissioning Authority	Date	



Section 01 91 00

Project Name	UTH Project #
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PREFUNCTIONAL CHECKLIST

Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this p testing. Prior performance ha by the appropriate Contractor submitted for approval / w completed. Any outstanding	roject. The corns been verified or / Subcontractitness, subject items will requ	being installed have been sultiple inponents are complete and reas complying with the contract tor signatures below. This preto an attached list of outstandire completion before approved preclude safe and reliable predoctions.	eady for prefunctional to documents as attested functional checklist is adding items yet to be all of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
	Buil		Duit
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date
verification, preparatory	to functiona take the place	to be completed as politesting. of the manufacturer's recom	-

Items on this checklist are to be verified by the Contractor as meeting the performance criteria

of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Fittings complete and properly supported		
Connectors Torqued to specified Tolerances		
Properly labeled		
Verify panels loads are balanced by phase		
Properly Grounded		
Working clearance 36" or more		
Hinged Doors and latch operate smoothly		
Legend filled out completely		

PANEL#						Megger
	Phase	to	Ground			
	Phase A			Volts	Amps	Ohms
Room#	Phase B			Volts	Amps	Ohms
	Phase C			Volts	Amps	Ohms
	Neutral			Volts	Amps	Ohms
PANEL#						Megger
	Phase	to	Ground			
	Phase A			Volts	Amps	Ohms
Room#	Phase B			Volts	Amps	Ohms
	Phase C			Volts	Amps	Ohms
	Neutral			Volts	Amps	Ohms
PANEL#						Megger
	Phase	to	Ground			
	Phase A			Volts	Amps	Ohms
Room#	Phase B			Volts	Amps	Ohms
	Phase C			Volts	Amps	Ohms
	Neutral			Volts	Amps	Ohms
PANEL#						Megger
	Phase	to	Ground			
	Phase A			Volts	Amps	Ohms
Room#	Phase B			Volts	Amps	Ohms
	Phase C			Volts	Amps	Ohms
	Neutral			Volts	Amps	Ohms



PANEL#								Megger
	Phase	to	Ground					
	Phase A			Volts		Amps		Ohms
Room#	Phase B			Volts		Amps		Ohms
	Phase C			Volts		Amps		Ohms
	Neutral			Volts		Amps		Ohms

Installation/application Rejected: The installation/a performance criteria and will require reinspection before application.		specified
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its exceptions noted	completion is approved w	ith the
Owner's Representative / Commissioning Authority	Date	



Project Commissioning	Section 01 91 00	
Project Name	UTH Project #	
PREFU	NCTIONAL CHECKLIST	
ELECT	RICAL TRANSFORMER	

Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this pretesting. Prior performance has by the appropriate Contractor submitted for approval / with completed. Any outstanding	roject. The constant specified or / Subcontract thress, subject items will requ	being installed have been sulphonents are complete and reas complying with the contract tor signatures below. This presto an attached list of outstandire completion before approved preclude safe and reliable presented.	eady for prefunctional documents as attested functional checklist is adding items yet to be all of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



	\mathbf{A}	pproved		Cont.	UTH
Manufacturer's cu	t sheets				
Performance data					
INSTALLATION				T	
Fittings complete a	`				
Connectors Torque					
		ound resistance test			
	opened and c	losed position prior	to energizing		
equipment					
Properly labeled p		calibrated per manu	faatumans		
•		quipment (report att			
Verify voltage taps		игритет (терот ан	actica)		
		nstalled per contract	documents		
Grounding jumper		istanea per contract	documents		
Ground bushing w		re installed			
) test complete (rep	ort attached)		
Vibration isolation) vest complete (rep	<u> </u>		
Transformer #			Room #		
KVA Rating:			Serial #:		
<i>U</i>					
TAP Settings: H ₁ _		H ₂		H3	
Primary Side			MEGGER		
Timary Side			Phase to Ground		
Phase H ₁	Volts	Amps		OHMS	
Phase H ₂	Volts	Amps		OHMS	
Phase H ₃	Volts	Amps		OHMS	
Secondary Side					
Secondary Side					
Phase X ₁	Volts	Amps	[for MEGGER read	dings	
Phase X ₂	Volts	Amps	see appropriate dis	tribution	
Phase X ₃	Volts	Amps	panel.]		
11/29/21		Electrical Tran	sformer	Pa	ge 2 of 3



Project Commissioning	Section 01 91 00	
Grounding Check:		
Neutral to ground (in volts):	volts (zero	required)
Neutral (secondary side) grounded to case:	Yڦ	Nے
performance criteria and will require reinspe	ection before approv	al.
Owner's Representative / Commissioning A	uthority	Date
Owner's Representative / Commissioning A Approval: This filled-out checklist has bee exceptions noted	•	

Project Commissioning	Section 01 91 00
Project Name	UTH Project #
FUNCTI	ONAL TEST CHECKLIST
	ELEVATORS
Location	Test #
Submittal / Approvals Submittal. All components of	the work being installed have been submitted, reviewed and

approved for use on this project. The system is complete and ready for functional testing. All associated prefunctional checklists are complete, approved and attached to this FT. Prior performance has been verified as complying with the contract documents as attested by the appropriate Contractor / Subcontractor signatures below.. Any outstanding items are noted as requiring correction / completion on attached list. Any outstanding items will require completion before approval of this form can be executed. None of the outstanding items preclude safe and reliable functional tests being performed. List attached

List attached.			
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
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- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
DELIVERABLES		
Record Submittal		
Service / maintenance contract		
O&M Manuals		
Wiring diagrams		
Tools, parts lists, keys, extra materials		
Extended warranty		
OPERATION		_
TDLR QEI inspection report attached		
Control and auxiliary station operation		
No unusual noise or vibration		
Car and hoistway door operation and control features		
Slack rope devices		
Normal and final terminal stopping devices		
Firefighting service	10.00	
Emergency power operation		
Broken rope switch		
Sequence of operation verified		
Smoke control operation verified	10.00	
Test Failure/Retest Required: The Test performed has not met criteria and will require retesting before approval.	the specified	performance
Owner's Representative / Commissioning Authority Date Date	ite	
Approval: The test has been witnessed as meeting the performance r documents with any exceptions noted.	equirements	of the contrac
Owner's Representative / Commissioning Authority Date of the Commissioning Authority	ite	

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTIO	ONAL CHECKL	IST
	ELI	EVATOR	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this p testing. <u>Prior performance ha</u> <u>by the appropriate Contracte</u> submitted for approval / w completed. Any outstanding	roject. The com as been verified a or / Subcontractor itness, subject to items will requi	ponents are complete and rescomplying with the contractor signatures below. This preson an attached list of outstandire completion before approved the safe and reliable presented.	eady for prefunctional t documents as attested functional checklist is ading items yet to be al of this form can be
executed. None of the outs performed List attached.		rectude safe and remadic pre	runctional tests being
performed.	Date	Controls Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

General Contractor

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11/29/21	Elevator
	UT Health Project Commissioning

Date

Other Contractor

Date



Approved	Cont.	UTH
Manufacturer qualifications		
Installer qualifications		
Manufacturer's product data, performance criteria		
Shop drawings		
Cab finish samples		
INSTALLATION		
Proper operational clearance		
Proper casing installed (hyd.)		
Annular space between jack and casing filled with proper material per		
specifications		
Power disconnects in place and labeled		
Electrical connections tight		
Proper earth ground		
Proper voltage		
Lubrication points accessible		
Accessible mounting heights at devices and controls		
HOISTWAYS		
Patch any holes and clip any screws or other projections		
No pipe / conduit traveling through shaft		
Two (2) hour rated walls		
Shaft plumb, within tolerances		
Projections 4"+ beveled to 75°		
Hoistway floor numbers		
Penetrations firestopped		
Traveling cable, suspension rope clearances		
Verify shaft ventilation		
Verify refuge space at top of hoistway (43" min.)		
Smoke control installed		
HOISTWAY DOORS		
Opening assembly labeled for proper rating		
Functional locking devices		
Interlocks tested		
Properly anchored sills		
Floor numbering on frame		



	Approved	Cont.	UTH
PITS			
Car and counterweight buffer			
GFCI convenience outlet 42":	a.f.f.		
Sump pit grating in-place			
Sump pump piped to hose bib	accessible from ladder		
Light switch and pump switch	42" a.f.f. at ladder.		
Pump powered by non GFI ou	tlet 48" a.f.f.		
Pump high level alarm installe	ed		
MACHINE ROOM			
Two (2) hour rated walls			
Class B-labeled door self-clos	ing and self latching.		
No pipe / conduit travel throug	gh room		
Only elevator equipment in ma	achine room		
Shunt trip installed			
IAQ maintained for equipmen	t operation		
Verify fire alarm signal landed	l at controller		
CAB INTERIORS			
Control panel device operation	1		
Auxiliary (fan, emg. lighting,			
Signage and symbols	•		
Accessible mounting heights			
Proper car leveling			
Protective mats and hooks			
Telephone connected and oper	rational		
Finishes clean and undamaged			
Installation/application I			t the speci
Owner's Representative / Com	missioning Authority	Date	
Approval: This filled-out che exceptions noted	ecklist has been reviewed. Its o	completion is approve	ed with the
Owner's Representative / Com	missioning Authority	Date	
11/29/21	Elevator]	Page 3 of 3



Ollicaldi	1 IOUSU		
Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAI	TEST CHECKI	LIST
EM	IERGEN	CY GENERATO	R
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this proassociated prefunctional chaperformance has been verification.	oject. The syste ecklists are co ied as complyi	being installed have been sulm is complete and ready for implete, approved and attaching with the contract docume atures below. Any outstandi	functional testing. All ned to this FT. <u>Prior</u> ents as attested by the
requiring correction / comple	etion on attached can be execute	I list. Any outstanding items ved. None of the outstanding it	will require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

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Date

Date

Other Contractor



Approved							(Cont.	UTH
DELIVERAI	BLES								
Record Subm									
Performance of	data								
Service / mair	ntenance (contract							
Wiring diagra	ms								
Sequences and	d control	strategie	S						
O&M manual	.S								
PERFORMA	NCE								
NFPA Emerge	•		er syste	ms accept	ance te	est form			
complete (for									
Full load test complete (report attached)									
No leaking ho									
Vibration with									
Activation with									
Operating tem	perature	air circu	lation ve	erified as	adequa	te			
OUTPUT VO	OLTAGE A	: B		C		NEUT	TRAL		
A		_						_Volts	
В								_Volts	
С								Volts	
Test Failure criteria and wi		_		_		d has not	met the	specified	l performa
Owner's Repr	esentativo	e / Comn	nissionii	ng Author	ity		Date		
	he test ha	s been w	ritnessed	l as meetii	ng the 1	performan	ce requi	irements	of the con
Approval: The locuments with					<i>U</i> 1	CHOIMAN	oc requi		



Section 01 91 00

Project Name	UTH Project #
INTECDATED CV	CTEM TECT DEDODT

INTEGRATED SYSTEM TEST REPORT

EMERGENCY GENERATOR

Location	ocation Test #						
Submittal / Approvals							
approved for use on this proassociated prefunctional chaperformance has been verifappropriate Contractor / Sulrequiring correction / complete	oject. The system ecklists are con- ied as complying ocontractor sign etion on attached can be execute	being installed have been sultimed in the complete and ready for implete, approved and attaching with the contract docume atures below. Any outstandid list. Any outstanding items with the outstanding items with the contract docume at the contract docume at the contract docume at the contract document in the contract doc	functional testing. A ned to this FT. Price nts as attested by the ng items are noted a will require completion				
Mechanical Contractor	Date	Controls Contractor	Date				
Electrical Contractor	Date	Plumbing Contractor	Date				
Other Contractor	Date	General Contractor	Date				

Functional checklist items are to be completed and approved before placing equipment into operation.

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	_		Appro	ved					Cont.	UTH
DELIVERAL	BLES							<u>I</u>		1
Record Subm										
Performance of	data									
Service / mair	ntenance	contr	act							
Wiring diagra	ms									
Sequences and	d control	strate	egies							
O&M manual	ıS									
PERFORMA	NCE									
NFPA Emerge			power sys	stems a	acceptan	ce test	form			
complete (for										
Full load test		: (repo	ort attach	ed) Y	/ N					
No leaking ho										
Vibration with										
	Activation with automatic transfer switch verified									
Operating tem	<u>iperature</u>	air c	irculation	verifi	ed as ad	equate				
(Actual)	A		В		С		NEUT	RAL	Volta	
Α				_		_			_Volts	
В				_		_			_Volts	
C									Volts	
				-	-	_			, 0165	
Test Failure criteria and wi			_		_	ormed [has not n	net the	specified	l performa
Owner's Repr	esentativ	e / Co	ommissio	ning A	Authority	7		Date		
Approval: T					meeting	the pe	rformano	ce requ	irements	of the con
locuments with	h any exc	серио	nis noted.	•						

Section 01 91 00

Project Name	UTH Project #	

PREFUNCTIONAL CHECKLIST

EMERGENCY GENERATOR

Location		Test #				
Make		Model#				
Submittal / Approvals						
approved for use on this patesting. Prior performance has by the appropriate Contract	project. The con as been verified tor / Subcontract	being installed have been sul inponents are complete and re as complying with the contract tor signatures below. This pre to an attached list of outstar	eady for prefunt documents as a functional chec	nctional attested eklist is		
completed. Any outstanding executed. None of the outsperformed.	g items will requ	uire completion before approvoreclude safe and reliable pre		can be		
completed. Any outstanding	g items will requ	aire completion before approv		can be		
completed. Any outstanding executed. None of the outsperformed List attached.	g items will requestanding items p	uire completion before approvoreclude safe and reliable pre	efunctional tests	can be		

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Project Commissioning	Section	n 01 91 00	
ENGINE: Mfr.:		BHP:	
No. of Cylinders: V-		Cooling Medi	um:
Fuel:		Fuel Rate:	<u>CFH</u>
Fuel Pressure:		_	
Turbocharger MFR:			
Intercooler: $\underline{Y / N}$			
Spark Plugs MFR:		_ Spark Plug #:	
ALTERNATOR:			
Drive Direct:		_ Belt Driven:	
RPM:	Type:		PF:
Output Voltage:	/	/	_(name plate)
HEATER SIZE AND VOLTAGE:		/	_Volts
STARTING:			
Batteries:	Volt	Number of Batteries:	
MFR:		Battery Charger MFF	.
Location of Charger:			
Approve	d		Cont. UT

Approved	Cont.	UTH
Manufacturer product data sheet		
Shop drawings		
INSTALLATION		
Housekeeping pad per contract documents		
Regulator sufficient for engine		
Air circulation adequate		
Exhaust w/muffler per contract documents		
Electrical connections per contract documents		
Antifreeze installed in water-cooled engines		
Service access adequate		
Coolant installed		
Oil installed		
Oil filter installed		
Fuel strainer installed		
Fuel source adequate for operation		



Project Commissioning	Section 01 91 ()()	
Installation/application Rejection performance criteria and will require	-		he specified
Owner's Representative / Commiss	sioning Authority	Date	
Approval: This filled-out checklis exceptions noted	st has been reviewed. Its	completion is approved	with the
Owner's Representative / Commissi	oning Authority	Date	-



Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	TIONAI	L TEST CHECKI	LIST
EN	NVIRON	MENTAL ROOM	1
Location		Test #	!
Submittal / Approvals			
approved for use on this pro- associated prefunctional che performance has been verified	oject. The syste ecklists are co ied as complying	being installed have been sub- em is complete and ready for implete, approved and attach- ing with the contract documentatures below. Any outstanding	functional testing. All ed to this FT. <u>Prior</u> nts as attested by the
requiring correction / comple	etion on attached can be execute	d list. Any outstanding items wed. None of the outstanding ite	vill require completion
Mechanical Contractor	Date	Controls Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

Plumbing Contractor

General Contractor

Date

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
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Date

Date

Electrical Contractor

Other Contractor



Section 01 91 00

Approved	Cont.	UTH
Record Submittal		
O&M Manuals		
Sequence of Operations verified		
OPERATION		
HVAC control coordination verified		
Low / high temp alarms verified		
Vibration within tolerances (report attached)		
Verify noise dB within tolerances		
Safeties installed and operating properly		
TAB/Mechanical firm verified performance (report attached)		
Record full load running amps for fanrated FL amps x		
srvc factor = (Max amps)		
Specified sequences of operation and operating schedules have been		
implemented and verified (report attached)		
Specified point-to-point checks have been completed (report attached)		

Sensor and Actuator Calibration

All field-installed pressure sensors and gages on this piece of equipment shall be
calibrated using the methods and tolerances given in the Calibration and Leak-by Test
Procedures document. All test instruments shall have had a certified calibration
within the last 12 months: Y/N Sensors installed in the unit at the factory
with calibration certification provided need not be field calibrated.

Sensor or Actuator & Location	Location OK	1 st Gage or BAS Value	Instr. Meas'd Value	Final Gage or BAS Value	Pass Y/N?

Gage reading = reading of the permanent gage on the equipment. BAS = building automation system. Instr. = testing instrument. Visual = actual observation. The Contractor's own sensor check-out sheets may be used in lieu of the above, if the same recording fields are included and the referenced procedures are followed.



Test Failure/Retest Required: The Test performed learning and will require retesting before approval.	nas not met the specified per	formance
Owner's Representative / Commissioning Authority	Date	
Approval: The test has been witnessed as meeting the perdocuments with any exceptions noted.	rformance requirements of th	ie contract
Owner's Representative / Commissioning Authority	Date	



Section 01 91 00

Project Name	UTH Project #
1 Toject Ivanic	

PREFUNCTIONAL CHECKLIST

Location		Test #	<u> </u>
Submittal / Approvals			
testing. Prior performance he by the appropriate Contract submitted for approval / v	as been verified a tor / Subcontractor vitness, subject to	ponents are complete and rescomplying with the contractor signatures below. This preon an attached list of outstar	t documents as atteste functional checklist
		ire completion before approv reclude safe and reliable pre	
executed. None of the out performed List attached.			
executed. None of the out performed.	standing items pr	reclude safe and reliable pre	efunctional tests bein

verification, preparatory to functional testing.

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Project Commissioning	Section 01 91 00		-
Manf	Model #		
Serial #	CFM		
Approved		Cont.	UTH
Manufacturer's cut sheets		Cont.	UIII
Performance data			
Installation and startup manual and plan			
Shop drawings			
INSTALLATION			
Permanent labels affixed			
Casing condition good: no dents, leaks, do	or gaskets installed		
Liner as specified			
Work Surface as specified			
AHU properly supported			
Compressor located on roof – verify air cir	rculation for cooling		
Compressor located remote – verify refrig	erant line sizing / distance		
Access panels per contract documents			
Verify shelving per contract documents			
Verify wall thickness per contract docume	ents		
Verify door seal and latch			
Verify instrumentation per contract docum	nents		
ELECTRICAL			T
Electrical connections complete			
Disconnect switch installed			
Fan overload heaters in place			
Control connections complete			
Interior outlets verified			
Installation/application Rejected: performance criteria and will require reins		has not met t	he specif
Owner's Representative / Commissioning	Authority Da	ate	
Approval: This filled-out checklist has be exceptions noted	een reviewed. Its completion	n is approved	with the
Owner's Representative / Commissioning A	Authority Da	ate	

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PREF	UNCTIO	ONAL CHECKLI	ST
EQ	UIPME	NT INSULATION	1
Location		Test #_	
Submittal / Approvals			
Submittal. All components approved for use on this projection. Prior performance has by the appropriate Contractor submitted for approval / with	ect. The compeen verified a	ponents are complete and reases complying with the contract or signatures below. This pref	ady for prefunctional documents as attested functional checklist is
completed. Any outstanding it executed. None of the outstar performed. List attached.	ems will requ	ire completion before approva	al of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

General Contractor

Date

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Date

Other Contractor



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Proper density material installed		
Proper thickness insulation installed		
Insulation properly installed, mechanical fasteners, clean dry pipe, etc		
Insulation vapor barrier properly installed		
Access doors operable and accessible		
Valves operable throughout range of handle		
Gauges / instruments readable		
Hard insets at supports installed per specifications		
Shields at support points		
Fittings, valves, etc. properly insulated		
Insulation protective jacket per specifications		
Insulation vapor stops per specifications and manufacturers data		
Insulation primed and painted consistent per specifications		
Proper sealant / firestopping at penetrations		
Labeling installed per specifications		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.	has not met t	he specifie
Owner's Representative / Commissioning Authority Da	te	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	l with the
Owner's Representative / Commissioning Authority Da	te	

OFPC Project #:															UTH to	T		Trendina	1			
Equipment	System	ID # or Tag	Responsible SubContractor	Manufacturer	Specification	Submittal #	Location	Area Served	Submittal Date	Approved		PFT D	ate of:		UTH to Startup Witness Req'd? Startup	Startup	FT Date	Required	Trending Data Delivery Date	Training Plan	Training	Notes
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Project Name: OFPC Project #:

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Equipment	System	ID # or Tog	Responsible	Manufacturer	Specification	Submittal #	Location	Area Conved	Submittal Data	Approved		PFT D	ate of:		Startup V	Vitness	Startup	ET Data	Required	Trending Data	Training Plan	Training	Notes
Equipment	System	טו א טו Tag	Responsible SubContractor	Wallulacturel	Specification	Subililital #	Location	Area Serveu	Submittal Date	Submittal Date	Delivery	Install	Terminated	Completion	Reg'd?	Startup	Date	FIDate	(Yes/No)	Delivery Date	Approved	Date	Notes
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Page 2 of 2



EQUIPMENT or SYSTEM START-UP / Request for Inspection

Project:Contract #:		Project #:								
Identification of Equipment or System	<u>:</u>									
Location of Equipment or System:										
Spec. Section:	Deta	il/Drawing Number:								
Manufacturer / Supplier:										
This Date:	Inspection Requested for (Date):									
	ed equipment, or system, has rements of the Specifications a	been energized, operated, adjusted, and and the manufacturer's recommendations cts with the contract requirements.								
Signature:	Printed Name	Date								
Installing Sub-Contractor:										
Signature	Printed Name	Date								
Manufacturer's Representative: I he energizing, operational checkout, adjust and that such has been accomplished in operating correctly.	tments, and balancing of the a	above described equipment, or system;								
Manufacturer's Representative Printed Name	Printed Name	Date								
CONFIRMATION or COMMENTS	from UT Health or A/E:									
Results of Test Acceptable?YES	SNO Re-tes	st Required?YESNO								
Punch List:AttachedTo Follow	N/A Acceptabl	e for "User Training"?YesNo								
Signature	Printed Name	Date								
11/29/21	Health Project Commission	Page 1 of								

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAI	L TEST CHECKI	LIST
	EXH	AUST FAN	
Location	cation Test #		:
Submittal / Approvals			
approved for use on this pro associated prefunctional ch performance has been verif	oject. The syste ecklists are co ied as complyi	being installed have been sub- m is complete and ready for mplete, approved and attach ng with the contract documentatures below. Any outstanding	functional testing. All ed to this FT. <u>Prior</u> nts as attested by the
requiring correction / comple	etion on attached can be executed	d list. Any outstanding items wed. None of the outstanding ite	vill require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Other Contractor



Approved	Cont.	UTH
DELIVERABLES		
Record Submittal		
Performance data		
Service / maintenance contract		
Sequences and control strategies		
O&M manuals		
PERFORMANCE		
The HOA switch properly activates and deactivates the unit		
Fan rotation verified as correct		
Vibration within tolerances (report attached)		
Verify noise dB within tolerances		
Verified door pull/push force is within tolerances		
TAB firm verified performance (report attached)		
Record full load running amps for fanrated FL amps x srvc factor = (Max amps)		
Specified sequences of operation and operating schedules have been		
implemented and verified (report attached)		
Specified point-to-point checks have been completed (report attached)		
VFD operation verified (report attached)		
Test Failure/Retest Required: The Test performed has not met the criteria and will require retesting before approval.		d performar
Owner's Representative / Commissioning Authority Date		
Approval: The test has been witnessed as meeting the performance req	uirements	s of the cont
locuments with any exceptions noted.		

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTIO	ONAL CHECKL	IST
	EXH	AUST FAN	
Location		Test #	<u> </u>
Make	Make Model#		
Submittal / Approvals			
approved for use on this p testing. <u>Prior performance ha</u> <u>by the appropriate Contracte</u> <u>submitted for approval / w</u> <u>completed.</u> Any outstanding	roject. The comes been verified a cor / Subcontract itness, subject to items will required.	peing installed have been subsponders are complete and reas complying with the contract or signatures below. This preson an attached list of outstarire completion before approve reclude safe and reliable presonant.	eady for prefunctional documents as attested functional checklist is adding items yet to be all of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

General Contractor

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11/29/21 Exhaust Fan

UT Health Project Commissioning

Date

Other Contractor

Page 1 of 3

Date



MOTOR/ELECTR	ICAL:		
Motor Manufacturer	:	Serial #	
Motor Nameplate Da	nta - Volt	FLA	HP
RMP	SVC Factor	Class	Frame
Actual per phase	Volt	FLA	
Starter Size	Fuse Size	Heater Si	ze

Approved	Cont.	UTH
INSTALLATION		
Manufacturer's cut sheets		
Performance data		
Installation and startup manual and plan		
Shop drawings		
INSTALLATION		
Permanent labels affixed		
Casing condition good: no dents, leaks, door gaskets installed		
Vibration isolators installed and adjusted		
Equipment guards installed		
Pulleys aligned		
PolyChain or Vee Belt: Belt		
Belt tension correct		
Sheave size/number		
Plenums clear of debri		
Fan wheel to shaft-all bolts torque checked		
Fans rotate freely		
Alignment check: Fan sheave to motor sheave: degrees		
$(0^{\circ} \pm 0^{\circ})$		
Bearings lubricated		
SSTL lube lines installed		
Ductwork connected with flex connections		
Fire and balance dampers installed		
Backdraft dampers installed, per drawings, and operate freely		
Duct system complete (report attached)		
Interior lights and light switch operational		
Electrical connections complete		
Disconnect switch installed		
Overload heaters in place		



Approved	Cont.	UTH
Control connections complete		
VFD connected and operational (report attached)		

performance criteria and will require reinspection before ap	11	
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its exceptions noted	s completion is approved with the	
Owner's Representative / Commissioning Authority	Date	



Section 01 91 00

Project Name UTH Project #	
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FUNCTIONAL TEST CHECKLIST

EXTERIOR LIGHT FIXTURES & LOADS

Location	Test #	Test #	
Submittal / Approvals			
approved for use on this pro- associated prefunctional che	ject. The syste ecklists are co	being installed have been sub m is complete and ready for mplete, approved and attach ng with the contract documen	functional testing. All ed to this FT. Prior
requiring correction / complete	tion on attached can be executed	natures below. Any outstanding defined list. Any outstanding items wed. None of the outstanding items items.	vill require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

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- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Record Submittal		
O&M manuals		
INSTALLATION		
Fittings complete and properly supported		
Bulbs as specified		
Properly labeled		
Proper ballast installed		
Lens/globe as specified		
Pole base correctly installed		
Pole correctly installed		
Photoelectric switch operates properly		
Power switch operates properly		
Lights aligned per contract documents		
Nighttime verification of lighting complete		
Burn-in complete per contract documents		



Panel #	Circuit #	Load (amps)	Circuit #	Load (amps)
	1		28	
	2		29	
	3		30	
	4		31	
	5		32	
	6		33	
	7		34	
	8		35	
	9		36	
	10		37	
	11		38	
	12		39	
	13		40	
	14		41	
	15		42	
	16		43	
	17		44	
	18		45	
	19		46	
	20		47	
	21		48	
	22		49	
	23		50	
	24		51	
	25		52	
	26		53	
	27		54	

	elication Rejected: The installation/a and will require reinspection before ap	
Owner's Representa	ative / Commissioning Authority	Date
Approval: This fil exceptions noted	led-out checklist has been reviewed. Its	completion is approved with the
Owner's Representa	tive / Commissioning Authority	Date
11/29/21	Exterior Lighting Fixtures &	Loads Page 3 of 3

Ollicaidi	1 10430	OH	
Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAI	L TEST CHECK	LIST
	FAN	COIL UNIT	
Location		Test #	#
Submittal / Approvals			
approved for use on this prassociated prefunctional ch	oject. The syste lecklists are co	being installed have been su m is complete and ready for mplete, approved and attach ng with the contract docume	functional testing. All ned to this FT. Prior
appropriate Contractor / Surrequiring correction / comple	bcontractor sign etion on attached a can be executed	natures below. Any outstandid list. Any outstanding items ved. None of the outstanding it	ing items are noted as will require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

Date

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- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Other Contractor

Date



Approved	Cont.	UTH
DELIVERABLES		
Record Submittal		
Performance data		
Service / maintenance contract		
Sequences and control strategies		
O&M manuals		
PERFORMANCE		
The HOA switch properly activates and deactivates the unit		
Fan rotation verified as correct		
Vibration within tolerances (report attached)		
Verify noise dB within tolerances		
Safeties installed and operating properly		
All valves and dampers stroke fully and smoothly		
TAB/Mechanical firm verified performance (report attached)		
Record full load running amps for fanrated FL amps x		
srvc factor = (Max amps)		
Specified sequences of operation and operating schedules have been		
implemented and verified (report attached)		
Specified point-to-point checks have been completed (report attached)		
VFD operation verified (report attached)		
Test Failure/Retest Required: The Test performed has not met the criteria and will require retesting before approval. Owner's Representative / Commissioning Authority Date		d performa
Owner's Representative / Commissioning Authority Dav		
Approval: The test has been witnessed as meeting the performance red documents with any exceptions noted.	quirements	of the cor

Section 01 91 00

Project Name	UTH Project #
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PREFUNCTIONAL CHECKLIST

Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this patesting. Prior performance has by the appropriate Contract submitted for approval / v	oroject. The con as been verified a or / Subcontract vitness, subject	being installed have been sultipopenents are complete and reas complying with the contract or signatures below. This presto an attached list of outstar	eady for prefunction documents as attentional checklish
•		aire completion before approvoreclude safe and reliable pre	
executed. None of the outperformed.			
executed. None of the outperformed List attached.	standing items p	preclude safe and reliable pre	efunctional tests be

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Project Commission	ing	Section 01 91 00		
MOTOR/ELECTR	ICAL:			
Motor Manufacturer	:	Serial #		
Motor Nameplate Da	nta - Volt	FLA	HP	
RMP	SVC Factor	Class	Frame	
Actual per phase	Volt	FLA		
Starter Size	Fuse Size	Heater Si	ze	

Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
Installation and startup manual and plan		
Shop drawings		
INSTALLATION		
Permanent labels affixed		
Casing condition good: no dents, leaks, door gaskets installed		
Access doors close tightly - no leaks		
Boot between duct and unit tight and in good condition		
Vibration isolation equipment installed & released from shipping		
locks		
Maintenance access acceptable for unit and components		
Sound attenuation installed		
Thermal insulation properly installed according to specification		
Instrumentation installed according to specification		
Interior of unit cleaned		
Valves, Piping and Coils complete(reports attached)		
Dielectric union installed at coil supply / return		
Coil and lines flushed and clean (report attached)		
All coils are clean and fins are in good condition		
All condensate drain pans clean and slope to drain		
Valves properly labeled		
Sensors installed and calibrated (report attached)		
Supply fan and motor alignment correct		
Supply fan belt tension & condition good		
Supply fan protective shrouds for belts in place and secure		
Supply fan and motor properly lubricated		
Filters clean and tight fitting		
Filter pressure differential measuring device installed and functional		



Approved	Cont.	UTH
Smoke and fire dampers installed properly per contract docs (proper		
location, access doors, appropriate ratings verified)		
All dampers close tightly		
Al damper linkages have minimum play		
Low limit freeze stat sensor located to deal with stratification &		
bypass		
No apparent severe duct restrictions		
Turning valves in square elbows as per drawings		
OSA intakes located away from pollutant sources& exhaust outlets		
Pressure leakage tests completed (report attached)		
Branch duct control dampers operable		
Ducts cleaned as per Specifications		
Balancing dampers installed per contract documents		
ELECTRICAL AND CONTROLS		
Pilot lights are functioning		
Power disconnects in place and labeled		
All electric connections tight		
Proper grounding installed for components and unit		
Safeties in place and operable		
Starter overload breakers installed and correct size		
Sensors installed and calibrated (report attached)		
Control system interlocks hooked up and functional		
Smoke detectors in place		
All control devices, pneumatic tubing and wiring complete		
VFD connected and operational (report attached)		
Installation/application Rejected: The installation/application before approval.	nas not met t	he specif
Owner's Representative / Commissioning Authority Date D	te	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	with the
Owner's Representative / Commissioning Authority Date of the Date	te	

O I I Icalui	1 10430	OH	
Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAL	L TEST CHECKI	LIST
	FIR	E ALARM	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this prassociated prefunctional chaperformance has been veriful appropriate Contractor / Surequiring correction / complete	oject. The systemecklists are confied as complying becontractor sign etion on attached	being installed have been sulm is complete and ready for mplete, approved and attaching with the contract docume attures below. Any outstandid list. Any outstanding items ved. None of the outstanding it	functional testing. All ned to this FT. Prior nts as attested by the ng items are noted as will require completion
reliable functional tests being List attached.		or the customing is	one processes sure una
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

Date

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Date

Other Contractor



DELIVERABLES	•	
Record Submittal		
Performance data		
Service / maintenance contract		
Wiring diagrams		
Sequences and control strategies		
O&M manuals		
PERFORMANCE	_	
Verify sequence of operations is identified and coordinated with		
installation of fire alarm system		
System has been tested in accordance with NFPA 72 (report attached)		
NFPA FA record of completion form completed and attached		
Verify correct operation of each notification/detection device		
Verify FA signal is landed at elevator controller		
Verify shunt trip operates for elevator		
Verify elevator recall brings elevator to designated floor		
Verify secondary floor designation for elevator recall		
Verify HVAC dampers operate properly		
Verify HVAC units are controlled by FA system correctly		
Verify magnetic door hold-opens operate properly		
Verify stairwell pressurization fans operate properly		
Verify loss of power operation (battery check report attached)		
Verify audible devices operate within specified db range		
Verify visual devices operate within specified range		
Test Failure/Retest Required: The Test performed has not met to criteria and will require retesting before approval.	he specified	d performance
Owner's Representative / Commissioning Authority Date of the Date	te	
Approval: The test has been witnessed as meeting the performance redocuments with any exceptions noted.	equirements	of the contra
Owner's Representative / Commissioning Authority Date of the Date	te	



Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
INT	EGRAT	ED SYSTEM TE	ST
	FIR	E ALARM	
Test #			
Checklists documenting this complying with the contract signatures below. Any outs	are attached. documents as attanding items g items will req	ration have been completed a Prior integrated performance tested by the appropriate Conare noted as requiring correquire completion before appropriately safe, and reliable	has been verified as attractor / Subcontractor ction / completion on val of this form can be
executed. None of the outsperformed. List attached.	sunding rems	preciude sale and renadic	functional tests being
executed. None of the outs performed.	Date	Controls Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

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- Tests performed with this IST are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Date

Other Contractor



Section 01 91 00

Cont

HTH

Initiate a fire alarm signal from various devices throughout the facility and record the response. Minimally, this shall be executed using one device of each type on each floor to demonstrate proper operation. If any test fails, the number of devices shall be doubled and retested. If any failure occurs during retesting, the demonstration shall be cancelled and the Contractor shall retest the system to verify compliance before requesting the next demonstration.

Annroyed

Verify elevator returns to designated recall floor Verify alternate recall floor for elevator return Verify shunt-trip operation with elevator Verify fire / smoke door hold-opens operate correctly Verify HVAC controls regulate HVAC equipment correctly		
Verify alternate recall floor for elevator return Verify shunt-trip operation with elevator Verify fire / smoke door hold-opens operate correctly Verify HVAC controls regulate HVAC equipment correctly		
Verify alternate recall floor for elevator return Verify shunt-trip operation with elevator Verify fire / smoke door hold-opens operate correctly Verify HVAC controls regulate HVAC equipment correctly		
Verify shunt-trip operation with elevator Verify fire / smoke door hold-opens operate correctly Verify HVAC controls regulate HVAC equipment correctly		
Verify fire / smoke door hold-opens operate correctly Verify HVAC controls regulate HVAC equipment correctly		
Verify HVAC controls regulate HVAC equipment correctly		
Verify HVAC controls regulate HVAC equipment correctly		
Verify BAS controls regulate devices correctly		
Verify security system responds to alarm in open mode to allow exit from facility		
Verify remote annunciator operation		
Verify areas that require negative pressure differential remain negative after alarm initiated		
Verify start-up of fire pump / jockey pump		
Verify initiation of stairwell pressurization fan		
Verify initiation of any smoke control sequence operation		
Verify Smoke Purge initiation and operation		
Test Failure/Retest Required: The Test performed has not met t criteria and will require retesting before approval.	he specified	l performan
Owner's Representative / Commissioning Authority Date	te	
Approval: The test has been witnessed as meeting the performance relocuments with any exceptions noted.	equirements	of the contr
Owner's Representative / Commissioning Authority Date of the Date	te	



Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	TIONAL	TEST CHECK	LIST
]	FIRE AL	ARM SYSTEM	
Location		Test	#
Submittal / Approvals			
approved for use on this pro- associated prefunctional cha- performance has been verifi- appropriate Contractor / Sub- requiring correction / comple	oject. The system ecklists are con ied as complying ocontractor sign etion on attached can be execute	being installed have been sum is complete and ready for implete, approved and attaceng with the contract documentatures below. Any outstanded list. Any outstanding items and the contract documentation is a second contract of the outstanding items.	functional testing. All hed to this FT. Prior ents as attested by the ling items are noted as will require completion
Mechanical Contractor	Date	Controls Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

Date

Date

Plumbing Contractor

General Contractor

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Electrical Contractor

Sprinkler Contractor

Date

Date



	Approved	Cont.	UTH
DELIVERABLES			
Record Submittal			
Service / maintenan	ce contract		
Copy of NFPA 25			
O&M Manuals			
Spare heads and wro	ench		
As-built drawings			
Point-to-point wirin	g diagrams		
	test Required: The Test performed has not uire retesting before approval.	met the specific	ed performand
Owner's Representa	tive / Commissioning Authority	Date	
Approval: The test ocuments with any o	t has been witnessed as meeting the performant exceptions noted.	nce requirement	s of the contr
wner's Representat	ive / Commissioning Authority	Date	
11/29/21	Fire Alarm System UT Health Project Commissioning	1	Page 2 of 2

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTIO	ONAL CHECKL	IST
	FIRE AL	ARM SYSTEM	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this presting. Prior performance has	roject. The com as been verified a	peing installed have been sumponents are complete and reas complying with the contract	eady for prefunctional t documents as attested
submitted for approval / we completed. Any outstanding	ritness, subject t titems will requ	or signatures below. This pre- to an attached list of outstandire completion before approve preclude safe and reliable pre-	nding items yet to be ral of this form can be
List attached.			
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

General Contractor

Date

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Date

Sprinkler Contractor



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
Shop Drawings approved		
INSTALLATION		
	L	1
Installation/application Rejected: The installation/applica	tion has not met t	he specifie
performance criteria and will require reinspection before approva		1
Owner's Representative / Commissioning Authority	Date	
	1	
approval: This filled-out checklist has been reviewed. Its comp	letion is approved	with the
xceptions noted		
Owner's Representative / Commissioning Authority	Date	
2 22-presentative / Commissioning / tamority	2000	

Section 01 91 00

Project Name UTH Project #	
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PREFUNCTIONAL CHECKLIST

FIRE JOCKEY PUMP

Location		Test #		
Make		Model#		
Submittal / Approvals				
approved for use on this patesting. Prior performance has by the appropriate Contract	project. The con as been verified a tor / Subcontract	being installed have been subspending installed have been subspending as complying with the contract or signatures below. This presto an attached list of outstar	eady for prefunctional check the characteristics and check the characteristics and check the characteristics are characteristics and check the characteristics are characteristics and check the characteristics are characteristics and characteristics are characteristics and characteristics are characteristics and characteristics are characteristics.	ctional <u>ttested</u> klist is
completed. Any outstanding executed. None of the outperformed.	g items will requ	nire completion before approvoreclude safe and reliable pre	al of this form	can be
completed. Any outstanding	g items will requ	ire completion before approv	al of this form	can be
completed. Any outstanding executed. None of the outperformed. List attached.	g items will requestanding items p	nire completion before approver preclude safe and reliable pre	al of this form of the functional tests	can be

verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
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Fire Jockey Pump UT Health Project Commissioning Page 1 of 3



MOTOR/ELECTR	ICAL:			
Motor Manufacturer:	:	Serial #		
Motor Nameplate Da	nta - Volt	FLA	HP	
RMP	SVC Factor	Class	Frame	
Actual per phase	Volt	FLA		
Starter Size	Fuse Size	Heater S	Size	
Equipment Number		Location:		
		Model #		
		Serial #		
	Approved	1	Cont.	UTH
Manufacturer produc	et data sheet			
C1 1				
INSTALLATION				
Tamper switches ins	talled and adjusted			
Flow meter installed				
Flushing piping syste	em complete			
Y-strainer baskets cl	ean			
Suction strainers in p	olace			
Block valves in place	e			
Check Valves install	ed (discharge side)			
Bearings lubricated				
Pump alignment che	cked (report attache	ed)		
Impeller rotation				
Pump gauges installe	ed			
Flow switch installed				
Auto air relief valves	s installed/tested			
Controls Information	ı:			
Pump(s) are interlock	xed with	(Specify equipment # or o	Javias)	
Performance:_10 GPI	M (design) Ac	(Specify equipment # or cettual:		
	gn) Actual:		PSI	
Relief Valve Setting		P:	SI	



Installation/application Rejected: The installation/appl performance criteria and will require reinspection before appropriate the control of the control	±
Owner's Representative / Commissioning Authority	Date
Approval: This filled-out checklist has been reviewed. Its con exceptions noted	mpletion is approved with the
Owner's Representative / Commissioning Authority	Date

Officalui	1 10usu	011	
Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAL	TEST CHECKI	LIST
	FIF	RE PUMP	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this pr associated prefunctional ch performance has been verif	oject. The systemecklists are con fied as complying	being installed have been sulten is complete and ready for implete, approved and attaching with the contract documentatures below. Any outstanding	functional testing. All ned to this FT. Prior nts as attested by the
1 0 1	n can be execute	l list. Any outstanding items vd. None of the outstanding it	
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
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- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Other Contractor



	Approved	Cont.	UTH
DELIVERABLES			
Record Submittal			
Performance data			
Service / maintenance	contract		
Wiring diagrams			
Sequences and contro	l strategies		
O&M manuals			
PERFORMANCE			
NFPA Flow and Press	sure record graph completed (graph atta	ached)	
Operation verified as	meeting specified performance		
Operation verified und	der normal and emergency power		
Controls Information: Pump(s) are interlocked	ed with(Specify equipment # or		
Performance:	(Specify equipment # or GPM (design) Actual:		
PSI (design) Actual:	PSI	
Main Relief Valve Set	ting:	PSI	
	st Required: The Test performed has be retesting before approval.	s not met the specified	d performa
Owner's Representativ	ve / Commissioning Authority	Date	
Approval: The test h	as been witnessed as meeting the perfoceptions noted.	ormance requirements	of the con
locuments with any ex			

Project Commissioning	Section 01 91 00
Project Name	UTH Project #
PREFUN	CTIONAL CHECKLIST
	FIRE PIIMP

	1 12			
Location		Test #	<u> </u>	
Make		Model#		
Submittal / Approvals				
approved for use on this p testing. <u>Prior performance has</u> by the appropriate Contract submitted for approval / w completed. Any outstanding	oroject. The contact been verified or / Subcontract vitness, subject to items will required.	being installed have been sultiple of the property of the contract of the cont	eady for prefunctional documents as attested functional checklist is adding items yet to be all of this form can be	
Mechanical Contractor	Date	Controls Contractor	Date	
Electrical Contractor	Date	Plumbing Contractor	Date	
Other Contractor	Date	General Contractor	Date	

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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11/29/21	Fire Pump	Page 1 of 3
	UT Health Project Commissioning	



MOTOR/ELECTRI	CAL:			
Motor Manufacturer:		Serial #		
Motor Nameplate Dat	a - Volt	FLA	HP	
RMP	SVC Factor	Class	Frame	
Actual per phase	Volt	FLA		
Starter Size	Fuse Size	Heater S	size	
Equipment Number Manufacturer: Medium Pumped:		Model #		
1	Approved		Cont	1
Manufacturer product				
Shop drawings				
INSTALLATION				
Tamper switches insta	alled and adjusted			
Flow meter installed/o	calibrated			
Flushing piping system	m complete			
Y-strainer baskets cle	an			
Suction strainers in pl	ace			
Block valves in place				
Check Valves installe	d (discharge side)			
Bearings lubricated				
Pump alignment chec	ked (report attached	d)		
Impeller rotation				
Pump gauges installed	1			
Flow switch installed				
Auto air relief valves	installed/tested			
Controls Information:			1	
Pump(s) are interlocked	ed with			
Performance: 1250 GI 105 PSI (design Main Relief Valve Set	Actual:		GPM PSI	



Project Commissioning	Section 01 91 ()()	
Installation/application Rejection performance criteria and will require			he specified
Owner's Representative / Commiss	sioning Authority	Date	
Approval: This filled-out checklis exceptions noted	st has been reviewed. Its	completion is approved	with the
Owner's Representative / Commission	oning Authority	Date	

Project Commissioning	Section 01 91 00
Project Name	UTH Project #
PREFUNC	TIONAL TEST CHECKLIST
FIRE	E RATED ENCLOSURE
Location	Test #
Submittal / Approvals	
approved for use on this projectesting. Prior performance has be	the work being installed have been submitted, reviewed and et. The components are complete and ready for prefunctiona en verified as complying with the contract documents as attested Subcontractor signatures below. This prefunctional checklist is

submitted for approval / witness, subject to an attached list of outstanding items yet to be completed. Any outstanding items will require completion before approval of this form can be executed. None of the outstanding items preclude safe and reliable prefunctional tests being

List attached.				
Mechanical Contractor	Date	Controls Contractor	Date	

Electrical Contractor Date Plumbing Contractor Date

Other Contractor Date General Contractor Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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performed.



Approved	Cont.	UTH
Manufacturer's product data, performance criteria		
Shop drawings		
INSTALLATION		
Proper storage and handling		
Proper gauge stud installed		
Proper top track		
Proper blocking, bracing, accessories, fasteners		
Proper cut-out and opening framing		
Proper perimeter seals		
Confirm materials installed comply with contact documents		
Installed per UL/FM design requirements		
Proper thickness and type of gypsum board		
Proper fastener type and spacing		
Penetrations cut tight and sealed		
Verify continuity of enclosure at cut-outs		
Proper staggering of joints at multi-layer gypsum board		
Proper joint treatment		
Enclosure assembly marked for proper rating		
FINAL		
Patch and repair material disturbed by subsequent penetrations		
Integrity of perimeter seals		
Removal of excess sealant		
General cleaning		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.	has not met t	he specifi
Owner's Representative / Commissioning Authority Date	ate	
	n is approved	l with the
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted		· With the

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PREF	FUNCTI	ONAL CHECKL	IST
F	TIRE RA	TED OPENING	
Location		Test #	<u> </u>
Submittal / Approvals			
		being installed have been sub nponents are complete and re	
testing. Prior performance has	been verified	as complying with the contract	documents as attested
		tor signatures below. This pre to an attached list of outstan	
completed. Any outstanding	items will requ	aire completion before approva	al of this form can be
executed. None of the outsta performed.	anding items [preclude safe and reliable pre	functional tests being
List attached.			
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

General Contractor

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
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Date

Other Contractor



Approved	Cont.	UTH
Manufacturer's product data, performance criteria		
Shop drawings		
Finish samples		
Maintenance instructions		
Factory Test Reports		
INSTALLATION		
Fabrication, construction, workmanship		
Opening assembly labeled for proper rating		
Labeling requirements are not compromised		
Under / Overcuts do not exceed label requirements		
Glazing material type and glazing method per contract documents		
Proper clearance, anchorage, support, and installation		
Opening functionality and smoothness of operation		
Primers, sealers and finishes		
Operating resistance within tolerances		
Hardware installation integral with rating requirements		
Perimeter seal tight and continuous		
Installation/application Rejected: The installation/application has performance criteria and will require reinspection before approval.		he specifie
Owner's Representative / Commissioning Authority Dat	e	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	with the
Owner's Representative / Commissioning Authority Dat	e	



Project Commissioning	Section 01 91 00
Project Name	UTH Project #
PREFU	NCTIONAL CHECKLIST
FIRI	E SPRINKLER PIPING
Location	Test #
Submittal / Approvals	

Submittal. All components of the work being installed have been submitted, reviewed and approved for use on this project. The components are complete and ready for prefunctional testing. Prior performance has been verified as complying with the contract documents as attested by the appropriate Contractor / Subcontractor signatures below. This prefunctional checklist is submitted for approval / witness, subject to an attached list of outstanding items yet to be completed. Any outstanding items will require completion before approval of this form can be executed. None of the outstanding items preclude safe and reliable prefunctional tests being nerformed

List attached.			
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Sprinkler Contractor	Date	General Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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	Approved	Con	t. UTH
Manufacturer's cut sh	neets		
Performance data			
Hydraulic Calculation	ns approved		
Shop Drawings appro			
Welder certificate ver	rified		
INSTALLATION			
All underground pipir	ng tested per specifications (report attached	d)	
Trench bedding mater	rial per contract documents		
Backfill placed in lift	s and compacted per contract documents		
Pipe ID tape installed	in trench per contract documents		
All above ground pip	ing tested per specifications (report attache	ed)	
Pipe fittings and pipe	s properly supported		
Pipe hangers type, siz	ze and coating per contract documents		
Pipes properly labeled			
	nents addressed via chemicals, dry pipe,		
insulation, etc.			
Sprinkler head types	verified as correct		
Isolation valves instal	lled, tested and verified		
	ly flushed and cleaned and temporary pipin	ng	
removed (report attac	hed)		
Backflow prevention	device installed		
Water gong installed			
Flow switches installed	ed		
Tamper switches insta	alled		
Valves checklists (rep			
Fire valve cabinets in			
Fire Department conn	nections installed		
Roof manifolds instal	lled		
	cation Rejected: The installation/application will require reinspection before approve		net the specifie
Owner's Representati	ve / Commissioning Authority	Date	
Approval: This filled exceptions noted	d-out checklist has been reviewed. Its com	pletion is appro	oved with the
Owner's Representativ	ve / Commissioning Authority	Date	
11/29/21	Fire Sprinkler Piping UT Health Project Commissioning	7	Page 2 of 2



Project Commissioning	Section 01 91 00
Project Name	UTH Project #
FUNCTIO	ONAL TEST CHECKLIST
FIRE	SPRINKLER SYSTEM
Location	
Submittal / Approvals	
approved for use on this project. associated prefunctional checklis performance has been verified as appropriate Contractor / Subcontractoring correction / completion of	The system is complete and ready for functional testing. It is are complete, approved and attached to this FT. If complying with the contract documents as attested by actor signatures below. Any outstanding items are noted in attached list. Any outstanding items will require complete executed. None of the outstanding items preclude safe rmed.
Mechanical Contractor	Date Controls Contractor Date

Functional checklist items are to be completed and approved before placing equipment into operation.

Date

Date

Plumbing Contractor

General Contractor

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
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- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Date

Electrical Contractor

Sprinkler Contractor



Approved	Cont.	UTH
DELIVERABLES		
Copy of NFPA 25		
O&M Manuals		
Spare heads and wrench (Quantity Heads: Wrenches:)		
As-built drawings		
Record Submittal		
PERFORMANCE		
Field installation as per approved shop drawings		
Standpipe Systems Pressure Test (report attached)		
Sprinkler Pipe Pressure Test (report attached)		
Fire Department Connections Pressure Test (report attached)		
Roof Manifold Pressure Test (report attached)		
Flow Sensor Test (report attached)		
Backflow prevention device tested (report attached)		
Tamper switches installed, tested and verified (report attached)		
Pressure reducing valves flow tested (report attached)		
Verify operation of dry-pipe / pre-action systems		
State Fire Marshal test forms complete and copies to OFPC		
Fire pump tested (report attached)		
Hydraulic Nameplate signage at risers		
NFPA Water-Based Fire Protection System final checklist complete		
(attached)		
Control / test connection valve identification tags installed		
Test Failure/Retest Required: The Test performed has not met the criteria and will require retesting before approval.	e specified	performance
Owner's Representative / Commissioning Authority Date	?	
Approval: The test has been witnessed as meeting the performance recodocuments with any exceptions noted.	uirements	of the contrac
Owner's Representative / Commissioning Authority Date	?	

O I I lealui I I			
Project Commissioning	Seci	ion 01 91 00	
Project Name		UTH Project #	
PREFU	NCTION	AL CHECKLIS	ST
	FIREST	OPPING	
Location		Test #	
Submittal / Approvals			
Submittal. All components of approved for use on this project	•		
testing. Prior performance has been testing.			
by the appropriate Contractor / S			
submitted for approval / witnes completed. Any outstanding item			•
executed. None of the outstandi	ng items preclu	ide safe and reliable prefur	nctional tests being
performed. List attached.			
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

Date

General Contractor

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Date



Approved	Cont.	UTH
Applicator qualifications		
Manufacturer's product data, performance criteria		
Shop drawings		
Schedule opening types, UL/FM designs, proposed systems		
Installation instructions		
Maintenance instructions		
INSTALLATION		
Substrates cured, cleaned and prepared for application		
Installed per mfg. instructions and UL/FM design requirements		
Engineer approved non-standard detail attached		
Confirm materials installed comply with approvals for opening type		
Confirm environmental criteria is enforced		
Backing material installed correctly		
Proper width-to-depth application verified		
FINAL		
Firestop failure corrected		
Patch and repair material disturbed by subsequent penetrations		
Protection in place		
Spills removed, excess materials trimmed		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.	has not met	the specifie
Owner's Representative / Commissioning Authority Da	te	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	d with the
Owner's Representative / Commissioning Authority Da	te	



Section 01 91 00

Project Name UTH Project #	
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PREFUNCTIONAL CHECKLIST

FLOORING & FLOORING COATING

Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this p testing. Prior performance has by the appropriate Contractor submitted for approval / w completed. Any outstanding	roject. The con as been verified a or / Subcontract itness, subject items will requ	being installed have been subsponents are complete and reas complying with the contract or signatures below. This preto an attached list of outstartire completion before approved reclude safe and reliable predictions.	eady for prefunctional documents as attested functional checklist is adding items yet to be all of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date
Prefunctional checklist verification, preparatory		to be completed as po testing.	art of installation
 This checklist does not startup procedures or rep 	-	of the manufacturer's recom	mended checkout and
 Items that do not apply sl 	hall be noted wit	h the reasons on this form (N/A)	A = not applicable, BO

• Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

= by others).



Approved	Cont.	UTH
Manufacturer's cut sheets	•	<u> </u>
Performance data		
INSTALLATION		
Substrate condition is acceptable for application		
Moisture tests performed (report attached)		
Substrate prep complete (sanding, fill, bead blasting, etc.)		
Temperature conditions verified for application		
Material climate acclamation complete		
Dust control verified for application of wet finishes		
Application fumes addressed for compliance with contract documents		
"No traffic" after application plan provided		
Protection plan for finished surface provided		
Installation/application Rejected: The installation/application laperformance criteria and will require reinspection before approval.	nas not met t	he specified
Owner's Representative / Commissioning Authority Da	te	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	with the
Owner's Representative / Commissioning Authority Da	te	

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAI	L TEST CHECKI	LIST
	FUN	IE HOODS	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this prassociated prefunctional choerformance has been verif	oject. The syste ecklists are co <u>ried as complyi</u>	being installed have been summary in the mis complete and ready for mplete, approved and attaching with the contract docume	functional testing. All ned to this FT. Prior ents as attested by the
requiring correction / comple	etion on attached to can be execute	natures below. Any outstandid list. Any outstanding items ved. None of the outstanding it	will require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

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- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Date



Approved	Cont.	UTH
DELIVERABLES	·	
Record Submittal		
Performance data		
Service / maintenance contract		
Sequences and control strategies		
O&M manuals		
PERFORMANCE	•	
Verify air flow at face with sash opened at 18" (report attached)		
Verify duct static pressure control		
Verify exhaust static pressure		
Demonstrate alarms operate as designed		
Verify med/lab gas lines/labels are correct		
Vibration within tolerances (report attached)		
Verify noise dB within tolerances		
Mechanical sub/TAB firm verified performance (report attached)		
Specified sequences of operation and operating schedules have been		
implemented and verified (report attached)		
Specified point-to-point checks have been completed (report attached)		
VFD operation verified (report attached)		
Test Failure/Retest Required: The Test performed has not met t criteria and will require retesting before approval.	he specifie	d performand
Owner's Representative / Commissioning Authority Date Date Date Description:	te	
Approval: The test has been witnessed as meeting the performance redocuments with any exceptions noted.	quirements	of the contra
Owner's Representative / Commissioning Authority Date of the Commission of the Comm	te	

Section 01 91 00

Project Name	UTH Project #
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PREFUNCTIONAL CHECKLIST

FUME HOOD				
Location		Test #	<u> </u>	
Submittal / Approvals				
approved for use on this p testing. <u>Prior performance ha</u> <u>by the appropriate Contractor</u> submitted for approval / w completed. Any outstanding	roject. The comes been verified a cor / Subcontract ritness, subject to items will required	peing installed have been subsponents are complete and reas complying with the contract or signatures below. This presto an attached list of outstartire completion before approvareclude safe and reliable presented.	eady for prefunctional documents as attested functional checklist inding items yet to be all of this form can be	
Mechanical Contractor	Date	Controls Contractor	Date	
Electrical Contractor	Date	Plumbing Contractor	Date	
Other Contractor	Date	General Contractor	Date	
D C . 1 1 111	. •.	, , ,		

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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Project Commissioning	Section 01 91 00
Manf.	Model #
Serial #	CFM

Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
Installation and startup manual and plan		
INSTALLATION		
Permanent labels affixed		
Casing condition good: no dents, leaks, door gaskets installed		
Liner as specified		
Work Surface as specified		
Cup Sink as specified		
Baffle Adjustment as specified		
Water fixture connected and operable		
Gas fixture connected and operable		
Vacuum fixture connected and operable		
Air fixture connected and operable		
Plumbing waste line connected		
Fire and balance dampers installed (if required)		
Backdraft dampers installed, per drawings, and operate freely		
Flow monitor installed		
Exhaust collar as specified		
Interior access panels w/ gaskets as specified		
Sash Stop as specified (manual and automatic reset)		
Sash Design as specified, including safety glass, horiz/vert w/ counter		
balance, (verify sash operation)		
ELECTRICAL		
Electrical connections complete		
Disconnect switch installed		
Fan overload heaters in place		
Hood Outlets as specified		
Interior Hood lighting as specified		
Alarm as specified and verified (report attached)		
Fan rotation correct		
Electrical interlocks verified		
Any fan status indicators functioning		
No unusual vibration or and noise		
Fuse Size		
Heater Size		
Starter Size		



Installation/application Rejected: The installation/a performance criteria and will require reinspection before application.	1.	ified
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its exceptions noted	completion is approved with the	he
Owner's Representative / Commissioning Authority	Date	

Project Commissioning	Section 01 91 000	
Project Name	UTH Project #	
PREFU	NCTIONAL CHECKLIST	
CROUN	D FAULT INTERRUPTOR	

Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this present testing. Prior performance has by the appropriate Contractor submitted for approval / we completed. Any outstanding	roject. The constant specified or / Subcontract itness, subject items will requ	being installed have been subspending installed have been subspending with the contract or signatures below. This presto an attached list of outstandire completion before approved preclude safe and reliable presented.	eady for prefunctional to documents as attested functional checklist is adding items yet to be all of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	- Date

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Performance data INSTALLATION Visually inspect the components for damage and errors in polarity or conductor routing Verify that ground connection is made ahead of neutral disconnect link and on the line side of any ground fault sensor Verify that neutral sensors are connected with correct polarity on both primary and secondary. Verify that all phase conductors and the neutral pass through the sensor in the same direction for zero sequence systems Verify that grounding conductors do not pass through zero sequence sensors. Verify that the grounded conductor is solidly grounded. Fittings complete and properly supported Properly labeled Properly installed Reset tested Verify tightness of all electrical connections including control circuits. Verify correct operation of all functions of the self test panel Verify that the control power transformer has adequate capacity for the system Measure the system neutral-to-ground insulation resistance with the neutral disconnect link after testing.	Approved	Cont.	UTH
Visually inspect the components for damage and errors in polarity or conductor routing Verify that ground connection is made ahead of neutral disconnect link and on the line side of any ground fault sensor Verify that neutral sensors are connected with correct polarity on both primary and secondary. Verify that all phase conductors and the neutral pass through the sensor in the same direction for zero sequence systems Verify that grounding conductors do not pass through zero sequence sensors. Verify that the grounded conductor is solidly grounded. Fittings complete and properly supported Properly labeled Properly installed Reset tested Verify tightness of all electrical connections including control circuits. Verify that the control power transformer has adequate capacity for the system Measure the system neutral-to-ground insulation resistance with the neutral disconnect link temporarily removed. Replace neutral disconnect link after testing.	Manufacturer's cut sheets		
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neutral disconnect link temporarily removed. Replace neutral disconnect link after testing.	· ·		
disconnect link after testing.			
	1 1 1		
	·		
	Measure insulation resistance of the control wiring at 1000 volts dc for one minute. Refer to manufacturer's instructions for devices with		
	solid-state components		
	Perform the following pickup test using primary injection:		
	Verify that the relay does not operate at 90 percent of the pickup		
	settings.		
	Verify pickup is less than 125 percent of setting or 1200 amperes,		
	whichever is smaller		



Approved	Cont.	UTH
For summation type systems utilizing phase and neutral current		
transformers, verify correct polarities by applying current to each		
phase neutral current transformer pair. This test also applies to		
molded case breakers utilizing an external neutral current transformer.		
Relay should operate when current direction is the same relative to		
polarity marks in the two current transformers.		
Relay should not operate when current direction is opposite relative to		
polarity marks in the two current transformers		
Measure time delay of the relay at 150 percent or greater of pickup		
(attach report)		
Verify reduced control voltage tripping capability: 55 percent for ac		
systems and 80 percent for dc systems.		

Installation/application Rejected: The installation/a performance criteria and will require reinspection before application.		e specified
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its exceptions noted	completion is approved	with the
Owner's Representative / Commissioning Authority	Date	

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTI	ONAL CHECKL	IST
	GRO	UNDING	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this p testing. <u>Prior performance has</u> <u>by the appropriate Contractor</u> submitted for approval / w	roject. The con as been verified or / Subcontract ritness, subject	being installed have been subsponents are complete and reas complying with the contractor signatures below. This preto an attached list of outstart in the contractor is a second contractor.	eady for prefunctional t documents as attested functional checklist is adding items yet to be
		nire completion before approvence or a safe and reliable pre	
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

General Contractor

Date

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Date



Approved			Cont.	UTH
INSTALLATION				
# 4/0 at service entrance				
Perimeter loop installed				
U/G water line bonded				
Loop part of lightning protection				
GROUND RODS				
Location: Length of Rod:			feet	-
GROUND ELECTRODES			1001	
Service Entrance Location:				
List locations of any bonds made to <u>Location</u>		nes: Equipment Grounde	ed_	- -
List locations of any bonds made to Location	Structural Steel: Column #	Location		<u>Column #</u>
GROUND TESTS [NOTE: All resistance to gr Location Ground rods Service Entrance Ground bus @ switce	Ü	nall be 25 OHMS or Measures Resistanc	e (OHMS	<u>)</u> -
Installation/application Reje- performance criteria and will requir			s not met	the specified
Owner's Representative / Commiss	ioning Authority	Date		
Approval: This filled-out checklis exceptions noted	t has been review	ved. Its completion i	s approve	d with the
Owner's Representative / Commission	oning Authority	Date		
11/29/21 UT He	Grounding ealth Project Cor	nmissioning	Pag	ge 2 of 2



Project Commissioning	1 10430	Section 01 91 00	
, c			
Project Name		_ UTH Project #	
PREI	FUNCTION	ONAL CHECKL	IST
GUT	TERS A	ND DOWNSPOU	TS
Location		Test #	:
Submittal / Approvals			
approved for use on this protesting. Prior performance has by the appropriate Contractor submitted for approval / with completed. Any outstanding	roject. The comes been verified a part / Subcontract itness, subject to items will required.	peing installed have been subsponents are complete and reas complying with the contract or signatures below. This preson an attached list of outstartire completion before approve reclude safe and reliable presented.	eady for prefunctional documents as attested functional checklist is adding items yet to be all of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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	Approved	Cont.	UTH
INSTALLATION			
Mockup installed			
Proper storage and prote	ection of materials		
Sections fabricated of pr			
Sections formed to prope	*		
Proper finish for installa	•		
Anchorage location and	spacing		
Proper lock seams and e			
	llation of expansion joints		
	ize and spacing on gutters		
Proper alignment of gutt			
Proper drainage			
	een sheet metal and substrate		
Internal joint seals			
Proper weld / solder join	nts		
Proper termination of do			
	umb without excessive offsets		
Splash blocks installed			
	d approved (test report attached)		
•			
Final			
Integrity of joints and se	als		
	e and damaged materials		
Confirm accessory comp			
	tion Rejected: The installation		the specified
performance criteria and	will require reinspection before a	approvai.	
Owner's Representative	/ Commissioning Authority	Date	
Approval: This filled-oxceptions noted	ut checklist has been reviewed. It	s completion is approve	ed with the
respirations nated			
wner's Representative /	Commissioning Authority	Date	
11/29/21	Gutters and Downspouts	Pa	ge 2 of 2
-	UT Health Project Commiss		<u></u>

Olikaidi	1 10431	OH	
Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAI	L TEST CHECK	LIST
	HEA	T WHEEL	
Location		Test #	#
Submittal / Approvals			
approved for use on this prassociated prefunctional ch	oject. The syste lecklists are co	being installed have been su m is complete and ready for mplete, approved and attach ng with the contract docume	functional testing. All ned to this FT. Prior
requiring correction / comple	etion on attached to can be execute	natures below. Any outstandid list. Any outstanding items ved. None of the outstanding it	will require completion
Mechanical Contractor	Date	Controls Contractor	 Date
Electrical Contractor	Date	Plumbing Contractor	 Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

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Date

Date



Approved	Cont.	UTH
DELIVERABLES		-
Record Submittal		
Performance data		
Service / maintenance contract		
Sequences and control strategies		
O&M manuals		
PERFORMANCE		
The HOA switch properly activates and deactivates the unit		
Fan rotation verified as correct		
Vibration within tolerances (report attached)		
Verify noise dB within tolerances		
Cross-contamination verified as compliant		
TAB firm verified performance (report attached)		
Record full load running amps for fan. rated FL amps x		
srvc factor = (Max amps)		
Specified sequences of operation and operating schedules have been		
implemented and verified (report attached)		
Specified point-to-point checks have been completed (report attached)		
VFD operation verified (report attached)		
Test Failure/Retest Required: The Test performed has not met the criteria and will require retesting before approval. Owner's Representative / Commissioning Authority Date		d performan
Approval: The test has been witnessed as meeting the performance rec	quirements	s of the cont
locuments with any exceptions noted.		

Section 01 91 00

Project Name	UTH Project #	

	HEA	T WHEEL	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this p testing. <u>Prior performance has</u> by the appropriate Contract submitted for approval / w completed. Any outstanding	roject. The con as been verified a or / Subcontract ritness, subject items will requ	peing installed have been subsponders are complete and reas complying with the contractor signatures below. This presto an attached list of outstandire completion before approved reclude safe and reliable presented.	eady for prefunctional documents as attested functional checklist is adding items yet to be all of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Mechanical Contractor Electrical Contractor	Date	Controls Contractor Plumbing Contractor	Date

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Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Permanent labels affixed		
Casing condition good: no dents, leaks, door gaskets installed		
Access doors close tightly - no leaks		
Boot between duct and unit tight and in good condition		
Vibration isolation equipment released from shipping locks		
Maintenance access acceptable for unit and components		
Copper Sampling tubes correctly installed in specified locations		
Copper Sampling tubes routed to central test station		
Test station complete with color graphic diagram		
Instrumentation installed according to specification (thermometers,		
pressure gages, flow meters, etc.)		
Clean up of equipment completed per contract documents		
Filters installed and replacement type and efficiency permanently		
affixed to housing—construction filters removed		
HEAT RECOVERY WHEELS		
Wheel is of material specified		
Wheel spokes are coated		
Wheel hub is as specified		
Seals are as specified		
Drive is as specified		
Anti-rotation device in place		
Purge angle verified		
ELECTRICAL AND CONTROLS		
Pilot lights are functioning		
Power disconnects in place and labeled		
All electric connections tight		
Proper grounding installed for components and unit		
Safeties in place and operable		
Starter overload breakers installed and correct size		
Sensors calibrated (report attached)		
Control system interlocks hooked up and functional		
Smoke detectors in place		
All control devices, pneumatic tubing and wiring complete		
VFD operation verified (report attached)		



Project Commissioning	Section 01 91 00	/	
Installation/application Reject performance criteria and will require			he specified
Owner's Representative / Commission	oning Authority	Date	
Approval: This filled-out checklist is exceptions noted	has been reviewed. Its co	ompletion is approved	with the
Owner's Representative / Commission	ning Authority	Date	

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAI	L TEST CHECKI	LIST
	HEP	A FILTERS	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this prassociated prefunctional ch	oject. The syste ecklists are co	being installed have been sub m is complete and ready for mplete, approved and attach ng with the contract docume	functional testing. Al ed to this FT. Prio
appropriate Contractor / Surrequiring correction / comple	bcontractor sign etion on attached a can be executed	natures below. Any outstanding items ved. None of the outstanding items items.	ng items are noted as vill require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date.

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

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Date

Date



Approved	Cont.	UTH
DELIVERABLES		
Record Submittal		
Performance data		
Service / maintenance contract		
Sequences and control strategies		
O&M manuals		
PERFORMANCE		
HVAC controls coordination verified (report attached)		
Dirty filter annunciator functioning properly		
All doors and latches operate and seal properly		
TAB/Mechanical firm verified performance (report attached)		
Filter access and removal verified		
Leak test for unit verified (report attached)		
Test Failure/Retest Required: The Test performed has not me criteria and will require retesting before approval.	et the specified	d performance
Owner's Representative / Commissioning Authority	Date	
Approval: The test has been witnessed as meeting the performanc documents with any exceptions noted.	e requirements	of the contract
Owner's Representative / Commissioning Authority	Date	



Project Commissioning		Section 01 91 00			
Project Name		UTH Project #			
PRE	FUNCTI	ONAL CHECKL	IST		
		HOIST			
Location		Test #	#		
Submittal / Approvals					
approved for use on this p testing. Prior performance ha by the appropriate Contracto submitted for approval / w completed. Any outstanding	roject. The consistence of Subcontract ritness, subject ritness will required	being installed have been sumponents are complete and ras complying with the contractor signatures below. This proto an attached list of outstature completion before approvementation of the completion before approvementation of the completion before approvementation.	eady for prefunctional t documents as attested efunctional checklist is nding items yet to be val of this form can be		
Mechanical Contractor	Date	Controls Contractor	Date		
Electrical Contractor	Date	Plumbing Contractor	Date		
Other Contractor	Date	General Contractor	 Date		

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Approved	Cont.	UTH
Manufacturer's product data, performance criteria		
Shop drawings		
•		
INSTALLATION		
Secure anchorage		
Proper operational clearance		
Installed plumb and level		
Power disconnects in place and labeled		
Electrical connections tight		
Safeties in place and operable		
Control station securely mounted and labeled		
Proper earth ground		
Check voltage		
Cabling verified as new w/o kinks, broken strands or other damage		
No leaking hydraulic seals		
Spill containment for hydraulic reservoir		
No obstruction within swing of boom		
Hoistway clear of penetrations		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.		he specifi
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval. Owner's Representative / Commissioning Authority		he specifi
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.	te	

Project Commissioning	110450	Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAI	L TEST CHECKI	LIST
	-	HOIST	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this proassociated prefunctional ch	oject. The syste ecklists are co	being installed have been sul m is complete and ready for mplete, approved and attach ng with the contract docume	functional testing. All ned to this FT. Prior
appropriate Contractor / Surrequiring correction / complete	bcontractor sign etion on attached a can be executed	natures below. Any outstandid list. Any outstandid list. Any outstanding items wed. None of the outstanding it	ng items are noted as will require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

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General Contractor

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Date

Date



Approved	Cont.	UTH
O&M manuals		
Warranty		
Service / maintenance contract		
Spare parts		
OPERATION		_
Startup report completed with checklist attached		
Control station activates and deactivates unit		
Full unobstructed rotation of boom		
Full unobstructed lift height of hoist		
Proper hoist motor speeds		
No unusual noise or vibration		
Load capacity test		
All lubrication points serviced		
Cable properly seated on reel		
Cabling verified as new w/o kinks, broken strands or other damage		
Carriage travel smooth		
Carriage brake operation smooth		
Door operation smooth		
Fire link operation verified		
Test Failure/Retest Required: The Test performed has not met to criteria and will require retesting before approval.	the specified	performance
Owner's Representative / Commissioning Authority Date D	te	
Approval: The test has been witnessed as meeting the performance redocuments with any exceptions noted.	equirements	of the contrac
Owner's Representative / Commissioning Authority Da	te	

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTIO	ONAL CHECKL	IST
НО	RIZONT	TAL FEEDERS	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this p testing. <u>Prior performance ha</u> <u>by the appropriate Contracte</u> <u>submitted for approval / w</u> <u>completed.</u> Any outstanding	roject. The com as been verified a or / Subcontract itness, subject to items will requ	peing installed have been subsponents are complete and reas complying with the contractor signatures below. This presto an attached list of outstandire completion before approved reclude safe and reliable presented.	eady for prefunctional t documents as attested efunctional checklist is nding items yet to be ral of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
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Date

Sprinkler Contractor



		Approved	(Cont.	UTH
Manufact	urer's cut sheets				
Performar	nce data				
INSTAL	LATION				
Verify pro	oper size conduct	ors and conduit		-	
Verify pro	oper routing and	support of conduit			
Check for	any breaks in in	sulation			
NOTES:	end. Measu	rements indicating mor	n conduit and the conduit e than 5 OHMS are to bector. Attach independ	be brou	ight to the
Feeder #	FROM	ТО	Ground. WIR	Ξ (CONDUIT
			ohms		ohms
		on Rejected: The instail require reinspection	allation/application has no before approval.	ot met t	he specific
Owner's F	Representative / C	Commissioning Authorit	ty Date		
Approva xceptions		checklist has been revie	ewed. Its completion is ap	proved	with the
<u> </u>		ommissioning Authority	v Date		

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAI	TEST CHECK	LIST
	HUN	11DIFIERS	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this pro- associated prefunctional chaperformance has been veriful appropriate Contractor / Surrequiring correction / complete	oject. The syste ecklists are considered as complying becontractor sign etion on attached a can be executed.	being installed have been sum is complete and ready for implete, approved and attaching with the contract documentatures below. Any outstanding items with the outstanding items with the contract documentatures below.	functional testing. All ned to this FT. Prior ents as attested by the ng items are noted as will require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

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Date



Approved		Cont.	UTH
DELIVERABLES			
Record Submittal			
Performance data			
Service / maintenance contract			
Sequences and control strategies			
O&M manuals			
PERFORMANCE			
HVAC controls coordination verified (report attached	d)		
Safeties installed and operating properly	,		
All valves and dampers stroke fully and smoothly			
TAB/Mechanical firm verified performance (report a	attached)		
Record full load running amps for fan. rated l	FL amps x		
srvc factor = (Max amps)	-		
Specified sequences of operation and operating sched	dules have been		
implemented and verified (report attached)			
	1	1	
_	Pre-Test		ned to Pre
Parameter	Values	Test	Values √
Humidity Setpoints			
Humidifier enable setpoint			
Humidifier disable setpoint			
<u>.</u>	med has not met th	e specified	d performa
criteria and will require retesting before approval.	med has not met the		d performa
Test Failure/Retest Required: The Test perfor criteria and will require retesting before approval. Owner's Representative / Commissioning Authority Approval: The test has been witnessed as meeting to documents with any exceptions noted.	Date	· ·	

Section 01 91 00

Project Name UTH Project #	
----------------------------	--

PREFUNCTIONAL CHECKLIST

Location		Test #	Test #		
Submittal / Approvals					
testing. Prior performance has by the appropriate Contract submitted for approval / w	as been verified or / Subcontract vitness, subject	nponents are complete and reas complying with the contractor signatures below. This preto an attached list of outstandire completion before approve	t documents as attest functional checklist ading items yet to		
	•	preclude safe and reliable pre			
executed. None of the outs performed.	•				
executed. None of the outs performed List attached.	standing items p	preclude safe and reliable pre	efunctional tests bei		

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Piping connected to DI water system w/ float make-up valve and		
manual drain.		
Pipe fittings complete and pipes properly supported		
Pipes properly labeled		
Pipes properly insulated		
Strainers in place and clean		
Vaporizing chamber per contract documents		
Isolation valves and balancing valves installed		
Heat exchanger is per contract documents		
Vaporizing chamber access easily removable for maint.		
Dispersion tube installed per contract documents		
Steam metering valve installed		
Flushing and cleaning plan submitted and approved		
Piping system properly flushed and cleaned and temporary piping		
removed (report attached)		
10% of strainers and Owner selected low point drains opened and		
witnessed by Owner to be clean. (list points checked below)		
Piping pressure tested per contract documents (report attached)		
No leaking apparent around fittings		
Valves		
Valve labels permanently affixed		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.	has not met t	he specifi
Owner's Representative / Commissioning Authority Date Date	ite	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	n is approved	with the
Owner's Representative / Commissioning Authority Date of the Commissioning Authority	ite	



Project Commissioning	10000	Section 01 91 00	
Project Name		UTH Project #	
FUNC	TIONAI	TEST CHECKI	LIST
	HVAC (CONTROLS II	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this proassociated prefunctional che	ject. The system ecklists are con	being installed have been sulm is complete and ready for mplete, approved and attaching with the contract docume	functional testing. All ned to this FT. <u>Prior</u>
appropriate Contractor / Subrequiring correction / complete	contractor sign tion on attached can be execute	latures below. Any outstandid list. Any outstanding items ved. None of the outstanding it	ng items are noted as will require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
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Date



Approved

Project Commissioning

Section 01 91 00

Cont.

UTH

	DELIVERABLES			
	Record Submittal			
	Performance data			
	Service / maintenance contract			
	Wiring diagrams			
	Sequences and control strategies			
	O&M manuals			
	PERFORMANCE			
	All Temperature sensors/RTD's cali	brated		
	All Humidity sensors calibrated			
	All CO/CO2/VOC sensors calibrated			
	All actuators stroke full range and el	ectric values de	ocumented	
	All other analog inputs calibrated (4-	-20mA, 1-5V,	2-10V, etc.)	
	All other analog outputs calibrated			
VFL				
	MFR.:		_ (ATTACH START	-UP REPORT)
	Equipment # (SVC) HP Model Nu			Serial Number
	AHU # (cold deck)			
	AHU # (cold deck) AHU # (cold deck)			
	AHU # (cold deck) AHU # (cold deck) AHU # (cold deck)			
	AHU # (cold deck)			
	AHU # (cold deck) AHU # (cold deck)			
	AHU # (cold deck) AHU # (cold deck) AHU # (hot deck)			
	AHU # (cold deck) AHU # (cold deck) AHU # (hot deck) AHU # (hot deck)			
	AHU # (cold deck) AHU # (cold deck) AHU # (hot deck) AHU # (hot deck) AHU # (hot deck)			
DU	AHU # (cold deck) AHU # (cold deck) AHU # (hot deck) AHU # (hot deck) AHU # (hot deck) Chilled Water Pump# Chilled Water Pump#			
DU	AHU # (cold deck) AHU # (cold deck) AHU # (hot deck) AHU # (hot deck) AHU # (hot deck) Chilled Water Pump#	Flo	or #	Tap Location
DU	AHU # (cold deck) AHU # (cold deck) AHU # (hot deck) AHU # (hot deck) AHU # (hot deck) Chilled Water Pump# Chilled Water Pump#	Floo	or #	Tap Location
DU	AHU # (cold deck) AHU # (cold deck) AHU # (hot deck) AHU # (hot deck) AHU # (hot deck) Chilled Water Pump# Chilled Water Pump# CT PRESSURE TAPS Equipment#	Flo	or #	Tap Location
DU	AHU # (cold deck) AHU # (cold deck) AHU # (hot deck) AHU # (hot deck) AHU # (hot deck) Chilled Water Pump# Chilled Water Pump# CT PRESSURE TAPS Equipment# AHU #	Flo	or #	Tap Location
DU	AHU # (cold deck) AHU # (cold deck) AHU # (hot deck) AHU # (hot deck) AHU # (hot deck) Chilled Water Pump# Chilled Water Pump# CT PRESSURE TAPS Equipment# AHU # AHU #	Floo	or #	Tap Location
DU	AHU # (cold deck) AHU # (cold deck) AHU # (hot deck) AHU # (hot deck) AHU # (hot deck) Chilled Water Pump# Chilled Water Pump# CT PRESSURE TAPS Equipment# AHU # AHU # AHU # AHU #	Floo	or #	Tap Location
DU	AHU # (cold deck) AHU # (cold deck) AHU # (hot deck) AHU # (hot deck) AHU # (hot deck) Chilled Water Pump# Chilled Water Pump# CT PRESSURE TAPS Equipment# AHU # AHU # AHU # AHU # AHU #	Flo	or #	Tap Location

HVAC Controls II UT Health Project Commissioning Page 2 of 8

AHU# AHU#



Section 01 91 00

TEMPERATURE CONTROLS

AHU# (cold deck)				
Transmitters and Sa	nfeties Model #	Installed	Gauge	Set Point
Low Temp. safety				
Hi Temp. safety				
Low Pressure safety				
Hi pressure safety				
Bearing Hi temp. sa Bearing Low temp :				
AHU# (cold deck)				
Transmitters and Sa	afeties Model #	Installed	Gauge	Set Point
Low Temp. safety				
Hi Temp. safety			-	
Low Pressure safety				
Hi pressure safety				
Bearing Hi temp. sa				
Bearing Low temp	safety			
Chilled Water Valve	Model#	Valve Size:	Pipe Size:	
	Action:	N/O / N/C	1	_
	Pilot Positioner w/gauges			
20 4	Electric Actuator	Y N		
Miscellaneous:	Location	Installe	4	Dongo °E
Thermometers	Between filters and coils	Y	u N	Range °F
Thermometers	Between coils	Y	N	
	Fan Discharge	Y	N	
Duct Pressure Gauges				
C	Upstream of filters	Y	N	"WC
	Across filters	Y	N	"WC
	Between coils	Y	N	"WC
	Fan plenum	Y	N	"WC
	Fan Discharge	Y	N	"WC

HVAC Controls II
UT Health Project Commissioning

Page 3 of 8



Section 01 91 00

TEMPERATURE CONTROLS

AHU# (hot deck)					
Transmitters and Safetic	es Model #	Installed	G	lauge	Set Point
Low Temp. safety					
Hi Temp. safety		<u> </u>			_
Hi pressure safety		<u> </u>			
Bearing Hi temp. safety					
Bearing Low temp safe		<u> </u>			
AHU# (hot deck)					
Transmitters and Safetion	es Model #	Installed	G	auge	Set Point
Low Temp. safety					
Hi Temp. safety					
Hi pressure safety					
Bearing Hi temp. safety	,				
Bearing Low temp safe	ty				
Steam Valve	Model#	Valve	Size:	Pipe	Size:
Steam varve	Action:		/ N/C		======================================
	Pilot Positioner v		N		
	Electric Actuator	~ ~			
Miscellaneous:					
	Location		Instal	led	Range °F
Thermometers	Up stream of smoke	purge damper	Y	N	
	Fan Discharge		Y	N	
Duct Pressure Gauges					
C	Across coils		Y	N	"WC
	Across filters		Y	N	"WC
	Between coils		Y	N	"WC
	Fan plenum		Y	N	"WC



Section 01 91 00

TEMPERATURE CONTROLS

RAF # (return air fan)				
Transmitters and Safeti	ies Model#	Installed	Gauge	Set Point
Low Temp. safety				
Hi pressure safety		-	_	<u> </u>
Bearing Hi temp. safety Bearing Hi temp safety			_	
bearing in temp safety	<u></u>		<u> </u>	
RAF # (return air fan)				
Transmitters and Safeti	ies Model#	Installed	Gauge	Set Point
Low Temp. safety				
Hi pressure safety		-	_	
Bearing Hi temp. safety	y			<u> </u>
Bearing Hi temp safety				
Miscellaneous:			- 4	_
D	Location		Installed	Range
Duct pressure gauges	Up stream of fans		Y N	"WC "WC
	Downstream of fans		Y N	
BAROMETRIC	DAMPERS			
Location:			Ste Point:	"WC
			Ste Point:	"WC
			Ste Point:	"WC
			Ste Point:	"WC



Section 01 91 00

ANNUNCATOR PANEL & FAN SAFETIES VERIFICATION

Each safety shall be checked to verify shutdown prior to building climatization

AHU# (cold deck)		
	Light off	Fan Shut down
Bearing #1	Y N	Y N
Bearing #2	YN	Y N
Hi pressure	YN	Y N
Low pressure	Y N	Y N
Smoke	YN	Y N
Hi Temp	YN	Y N
Low Temp	Y N	Y N
AHU# (hot deck)		
	Light off	Fan Shut down
Bearing #1	Y N	Y N
Bearing #2	YN	Y N
Hi pressure	YN	Y N
Low pressure	YN	Y N
Smoke	YN	Y N
Hi Temp	YN	Y N
Low Temp	Y N	Y N
RAF# (return air fan)		
	Light off	Fan Shut down
Bearing #1	Y N	Y N
Bearing #2	YN	Y N
Hi pressure	YN	Y N
Low pressure	YN	Y N
Smoke	Y N	Y N
STRATER WIRING (Note: in the	off position the annunciat	tor panel is de-energized)
Verify "on/off" is wired per detail _		
AHU# (CD)Y		
AHU# (HD)Y		
RAF# Y	N	



Section 01 91 00

CONTROL DAMPERS

RA – return air HA – hot air CA – cold air MA – Mixed air

Function	Room #	SAV/EP#	Damper installed	Access door installed
Outside air			Y N	Y N
Relief air (room)			Y N	YN
Relief air (duct)			Y N	Y N
RA cold deck			Y N	YN
RA hot deck			YN	YN
OA hot deck			YN	YN
RA floor#			YN	<u>Y</u> N
RA floor#			YN	<u>Y</u> N
RA floor#			YN	<u>Y</u> N
RA floor #			YN	<u>Y</u> N
RA floor #			YN	YN
RA floor #			YN	YN
RA floor #			YN	YN
CA floor#			Y N	YN
CA floor#			Y N	YN
CA floor#			Y N	YN
CA floor#			Y N	YN
CA floor #			Y N	Y N
CA floor#			Y N	YN
CA floor #			Y N	YN
MA floor#			Y N	Y N
MA floor #			Y N	YN
MA floor #			Y N	YN
MA floor#			Y N	Y N
HA floor #			Y N	Y N
HA floor #			Y N	YN
HA floor #			Y N	YN
HA floor #			Y N	YN
HA floor #			Y N	YN
HA floor #			Y N	Y N



Project Commissioning	Section 01 91	00	
Comments:			
Test Failure / Retest Required:	The Test performed	has not met the specified	1
performance criteria and will require re			
Owner's Representative / Commission	ing Authority	Date	
-			
Approval: The test has been witnesse documents with any exceptions noted.	d as meeting the per	formance requirements of	f the contract
Owner's Representative / Commissioning	ng Authority	Date	



Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAL	TEST CHECKI	LIST
HVAC	C CONTR	ROLS (COLD DE	CK)
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this proassociated prefunctional chaperformance has been verifappropriate Contractor / Sulrequiring correction / complete	oject. The system ecklists are confied as complying bcontractor signa- etion on attached can be execute	being installed have been submained in is complete and ready for implete, approved and attaching with the contract documentatures below. Any outstanding list. Any outstanding items with the outstanding items with the contract documentatures below.	functional testing. All ted to this FT. Prior this as attested by the ted items are noted as will require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
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Section 01 91 00

Approved	Cont.	UTH
DELIVERABLES		
Record Submittal		
Performance data		
Service / maintenance contract		
Wiring diagrams		
Sequences and control strategies		
O&M manuals		

Verify the following devices and corresponding operation:

DEVICE	OPEN	CLOSED	MOD	Cont	UTH
OUTSIDE AIR BELOW 55°F					
Chilled water valve					
Relief damper					
Dormer damper					
Outside air damper					
RA damper to cold deck					
RA damper by floor					
1 st					
2 nd					
3 rd					
4 th					
5 th					
6 th					
7 th					
8 th					
9 th					
10 th					

RA temperature		Chiller ON	/	OFF	
Chilled Water Pumps	#1	#2	ON /	OFF	



OUTSIDE AIR ABOVE 55°F

DEVICE

Section 01 91 00

CLOSED MOD

Cont

UTH

OPEN

Chilled water valve					
Cillica water varve					
Relief damper					
Dormer damper					
Outside air damper					
RA damper to cold deck					
RA damper by floor					
1 st					
2 nd					
3 rd					
4 th					
5 th					
6 th					
7 th					
8 th					
9 th					
10 th					
RA temperature	_	Chiller (ON /	OFF	
Chilled Water Pumps #1	#2	Chiller (ON /		OFF	
		ON /		OFF	
Chilled Water Pumps #1	°F	ON / set point t performed has	OFF		erforman
Chilled Water Pumps #1 Chiller PE switch Test Failure/Retest Required	F: The Test	ON / set point t performed has val.	OFF		erforman
Chilled Water Pumps #1 Chiller PE switch Test Failure/Retest Required criteria and will require retesting be	er The Test fore appropriate ioning Autorised as me	ON / set point t performed has val.	OFF s not met the s	specified p	



Project Commissioning		Section 01 91 00				
Project Name		UTH Project #				
FUNCTIONAL TEST CHECKLIST						
HVA	C CONT	ROLS (HOT DE	CK)			
Location		Test #	<u> </u>			
Submittal / Approvals						
approved for use on this pro associated prefunctional che performance has been verifi	ject. The syste ecklists are co ed as complying	being installed have been sul m is complete and ready for mplete, approved and attach ng with the contract docume latures below. Any outstandi	functional testing. All ted to this FT. Prion the as attested by the			
requiring correction / comple	tion on attached can be executed	d list. Any outstanding items ved. None of the outstanding it	vill require completion			
Mechanical Contractor	Date	Controls Contractor	Date			
Electrical Contractor	Date	Plumbing Contractor	Date			

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
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- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Other Contractor



Appro	C	Cont.	UTH		
DELIVERABLES			l .	l .	
Record Submittal					
Performance data					
Service / maintenance contract					
Wiring diagrams					
Sequences and control strategies					
O&M manuals					
Verify the following devices and corr	esponding o	pperation:			
DEVICE	OPEN	CLOSED	MOD	Cont	UTH
OUTSIDE AIR BELOW 55°F					
Chilled water valve					
Relief damper					
Dormer damper					
Outside air damper					
RA damper to cold deck					
RA damper by floor					
1 st					
2 nd					
3 rd					
4 th					
5 th					
6 th					
7 th					
8 th					
9 th					
10 th					
RA temperature		Boiler ON	/	OFF	
Hot Water Pumps #1	#2	ON /	OFF		
Boiler PE switch	°F set	point			



DEVICE

Section 01 91 00

CLOSED MOD

UTH

Cont

OPEN

OUTSIDE AIR ABOVE 5	5°F					
Chilled water valve						
Relief damper						
Dormer damper						
Outside air damper						
RA damper to cold deck						
RA damper by floor						
1 st						
2 nd						
3 rd						
4 th						
5 th						
6 th						
7 th						
8 th						
9 th						
10 th						
RA temperature		Boiler	ON	/ (OFF	
Hot Water Pumps	#1 #2	ON	1	OFF		
Test Failure/Retest Recriteria and will require rete			has no	ot met the s	pecified p	erformance
Owner's Representative / Co	ommissioning Au	thority		Date		
Approval: The test has bee documents with any exception	n witnessed as mored.	eeting the pe	erform	ance requir	rements of	the contrac



Project Commissioning	Section 01 91 00
Project Name	UTH Project #
FUNCTIO	NAL TEST CHECKLIST
	TWODY FIDE DAMPEDS

HVAC I	OUCTW(ORK FIRE DAM Test #	
Submittal / Approvals			
approved for use on this pro- associated prefunctional che performance has been verificappropriate Contractor / Sub- requiring correction / complete	ject. The system characters are conted as complying contractor sign tion on attached can be execute	being installed have been sultimed in the complete and ready for implete, approved and attaching with the contract docume atures below. Any outstanding items with the outstanding items with the contract docume at the contract docume at the contract docume at the contract docume items with the contract document in the co	functional testing. All ted to this FT. Prionts as attested by the right items are noted as will require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

Date

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Date

Other Contractor



Approved	Cont.	UTH
Record Submittal		
O&M manuals		
Verify proper temperature rating for fused link		
Dampers located per contract documents		
Verify flanges are NOT sealed at wall/floor penetration (exception is when the manufacturer specifically requires sealing with a specific sealant)		
Verify NO firestopping, mineral wool, packing is installed in space between damper and wall cavity.		
Physically release the damper curtain to verify proper operation		
Damper must operate quickly and shut completely without assistance		
Verify properly labeled access doors installed		
Verify damper can be accessed through door		
Test Failure/Retest Required: The Test performed has not met t criteria and will require retesting before approval.	he specified	performand
Owner's Representative / Commissioning Authority Date te		
Approval: The test has been witnessed as meeting the performance redocuments with any exceptions noted.	quirements	of the contr
Owner's Representative / Commissioning Authority Date Date Description:	te	



Section 01 91 00

Use of the UT Health Commissioning and Closeout Manual

Commissioning is a process that starts at the conception of a project and continues through the entire life-cycle of the facility. During the construction phase, the commissioning process ensures that the design intent expressed in the contract documents is executed in the field. The contract requires the Contractor to develop a commissioning plan specific to the project. This manual provides the template documentation required to ensure a thorough demonstration of the commissioning process. By following the requirements defined in the commissioning specification (01 91 00), our client will receive a facility that has been demonstrated to perform predictably and as designed.

The construction commissioning process is really quite simple following this basic order:

- 1. Recognize commissioning requirements and develop a plan (Owner may provide a Cx Plan for Contractor's review, potential modification and use.
- 2. Provide the approved device/system
- 3. Ensure that the device/system is installed correctly
- 4. Ensure that the device/system is ready to operate
- 5. Verify that the device/system functions correctly
- 6. Demonstrate that operable systems are fully integrated within the completed facility.

By using the templates in this manual, the process will be well documented. The process is explained in the commissioning specification (01 91 00) and follows the same basic logical sequence as outlined above:

- 1. Commissioning Plan
 - a. Responsibility Matrix
 - b. Equipment Matrix
 - c. Commissioning Schedule
- 2. Approved submittal
- 3. PreFunctional Checklist
- 4. Equipment Start-up Plan



Section 01 91 00

- 5. Functional Testing
- 6. Integrated System Testing
- 7. Entire Facility Integration Testing

We have provided additional test/checklist documents and certifications to supplement this process. The manual includes forms from the National Fire Protection Association (NFPA) for use on life safety systems as well as forms required by the Texas State Fire Marshal for fire alarm and fire sprinkler systems.

Additionally, we have included pre-installation meeting agenda templates to facilitate these critical construction steps. Decades of construction experience has taught us that discussions in these meetings can save the project team both time and money.

We have provided required matrices for equipment, commissioning responsibility and closeout tracking. Each matrix will require modification to conform to the specifics of the project.

Training attendance sheets are included to document required training for Institution personnel. Spare parts and required record data forms are provided to support the documentation requirements.

To summarize:

- 1) Read specifications and develop a commissioning plan
 - a) Complete the responsibility matrix
 - b) Populate the equipment matrix
 - c) Develop a commissioning schedule
- 2) Provide approved device/system
 - a) Document via submittal
- 3) Review installation requirements and coordination
 - a) Conduct Preinstallation meeting using provided agendas as guide
- 4) Install device/system correctly
 - a) Document with PFC
- 5) Verify device/system is ready to operate
 - a) Document with PFC
 - b) Document with Startup Plan



- 6) Confirm correct device/system operation
 - a) Document using FT
- 7) Demonstrate integrated systems operate and perform as designed
 - a) Document with IST
- 8) Demonstrate the entire facility operates as designed with fully integrated systems
 - a) Document with EFIT



Section 01 91 00

Project Name UTH Project #	
----------------------------	--

FUNCTIONAL TEST CHECKLIST

Location		Test #	<u> </u>
Submittal / Approvals			
complete and ready for fundapproved and attached to the contract documents as attested. Any outstanding items are outstanding items will require	bmitted, reviewed tional testing. A prior per ted by the appropriated as require completion be	ed and approved for use on this All associated prefunctional charformance has been verified a appriate Contractor / Subcontracting correction / completion efore approval of this form car ble functional tests being perfo	necklists are complete, as complying with the extension attached list. Any a be executed. None of
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

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Approved	Cont.	UTH
Record Submittal		
O&M manuals		
INSTALLATION		
Fittings complete and properly supported		
Bulbs as specified		
Properly labeled		
Proper ballast installed		
Lens/globe as specified		
Occupancy switch operates properly		
Lights aligned per contract documents		
Nighttime verification of lighting complete		
Burn-in complete per contract documents		
Power switch operates properly		



Panel #	Circuit #	Load (amps)	Circuit #	Load (amps)
	1		28	
	2		29	
	3		30	
	4		31	
	5		32	
	6		33	
	7		34	
	8		35	
	9		36	
	10		37	
	11		38	
	12		39	
	13		40	
	14		41	
	15		42	
	16		43	
	17		44	
	18		45	
	19		46	
	20		47	
	21		48	
	22		49	
	23		50	
	24		51	
	25		52	
	26		53	
	27		54	

	pplication Rejected: The installation/appleria and will require reinspection before approximately application.	-	ified
Owner's Represe	entative / Commissioning Authority	Date	
Approval: This exceptions noted	filled-out checklist has been reviewed. Its con	mpletion is approved with th	e
Owner's Represen	ntative / Commissioning Authority	Date	
11/29/21	Interior Lighting Fixtures and Load UT Health Project Commissionin	9	

Project Commissioning		Section 01 91 00		
Project Name		UTH Project #		
PREF	FUNCTIO	ONAL CHECKL	LIST	
IRRI	GATIO	N INSTALLATI	ON	
Location		Test	#	
Submittal / Approvals				
Submittal. All components approved for use on this pro-		_		
testing. Prior performance has	been verified a	s complying with the contrac	et documents as attested	
by the appropriate Contractor submitted for approval / wit	tness, subject to	o an attached list of outsta	nding items yet to be	
completed. Any outstanding is executed. None of the outstanding is				
performed.		p.	eraneticini vera cenig	
List attached.				
Mechanical Contractor	Date	Controls Contractor	Date	

Prefunctional checklist items are to be approved by Owners' Representative prior to backfilling pipe and preparatory to functional testing.

General Contractor

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Tests performed with this PFT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Other Contractor



Approved	Cont.	UTH
INSTALLATION		
System layout complete		
Graded as required		
Proper schedule pipe installed		
Pipe pressure tests completed, approved and attached		
Pipe installed at proper depth		
Underground piping properly bedded and backfilled		
Sleeves installed using correct material		
Visual observation of each section complete		
Sprinkler head adjustment complete		
Backflow Certification complete and attached		
Valves and valve box installed		
Automatic controller set		
FCMS connection completed and verified		
ELECTRICAL		
Control wiring installed as specified		
Breaker sizes and type verified		
Moisture sensor installed		
Test Failure/Retest Required: The installation has not no criteria and will require reinspection before backfilling.	net the specified per	formance
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its conexceptions noted.	npletion is approved	l with any
Owner's Representative / Commissioning Authority	Date	



Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	_
FUNC	CTIONAI	L TEST CHECKI	LIST
	IRRIGA'	TION SYSTEM	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this proassociated prefunctional che performance has been verif	oject. The syste ecklists are co ied as complying	being installed have been sulten is complete and ready for implete, approved and attaching with the contract documentatures below. Any outstanding	functional testing. All ned to this FT. Prior nts as attested by the
requiring correction / comple	etion on attached can be execute	d list. Any outstanding items ved. None of the outstanding it	will require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

Date

General Contractor

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Other Contractor

Date



Approved	Cont.	UTH
DELIVERABLES		
Manufacturer's cut sheets		
Performance data		
Service / maintenance contract		
Sequences and control strategies		
Seq. of Operation Attached: Yes / No		
O&M manuals		
Irrigation System		
System PFT completed, approved and attached		
Backfill using proper materials completed		
Flushing and cleaning of piping completed		
No leaking apparent around fittings		
All sprinkler heads operational		
Heads demonstrate proper spray pattern		
Proper drainage demonstrated		
Controller operation verified		
Valve operation verified		
Valve labels affixed		
Comments:		



Test Failure/Retest Required: The Test performed learning and will require retesting before approval.	nas not met the specified per	rformance
Owner's Representative / Commissioning Authority	Date	
Approval: The test has been witnessed as meeting the perdocuments with any exceptions noted.	formance requirements of t	he contract
Owner's Representative / Commissioning Authority	Date	

Project Commissioning		Section 01 91 00						
Project Name		UTH Project #						
PREI	FUNCTIO	ONAL CHECKL	IST					
	JOINT	SEALANTS						
Location		Test #	<u> </u>					
Submittal / Approvals								
approved for use on this protesting. Prior performance has by the appropriate Contractor submitted for approval / with completed. Any outstanding	roject. The com s been verified a or / Subcontracto itness, subject t items will requ	peing installed have been subsponents are complete and reas complying with the contractor signatures below. This preson an attached list of outstandire completion before approve reclude safe and reliable presented.	eady for prefunctional t documents as attested functional checklist is ading items yet to be al of this form can be					
List attached.								
List attached. Mechanical Contractor	Date	Controls Contractor	Date					

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

General Contractor

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Other Contractor



Approved	Cont.	UTH
Manufacturer's product data		
Schedule, type & location		
Samples		
Installation instructions		
Color Selections		
INSTALLATION		
Preinstallation meeting conducted		
Substrate cured		
Cleaning of joint		
Primer application		
Joint shape and bond breaker placement		
Proper width/depth ratio		
Proper mixing		
Proper environmental conditions		
Joint tooling		
Free of air pockets, foreign matter, ridging, sagging		
Proper color		
Proper material for joint type		
Adhesion / Cohesion test performed		
Cleanup		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.	has not met t	he specifie
Owner's Representative / Commissioning Authority Description:	ate	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	n is approved	with the
Owner's Representative / Commissioning Authority Description:	ate	



Section 01 91 00

Project Name	UTH Project #
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PREFUNCTIONAL CHECKLIST

LABORATORY / MEDICAL GAS PIPING

Location Test #									
Submittal / Approvals									
approved for use on this protesting. Prior performance has by the appropriate Contractor submitted for approval / with completed. Any outstanding	oject. The constant of the con	being installed have been subsponded are complete and reas complying with the contract tor signatures below. This presto an attached list of outstandire completion before approved preclude safe and reliable presented.	eady for prefunctional to documents as attested functional checklist is adding items yet to be all of this form can be						
Mechanical Contractor	Date	Controls Contractor	Date						
Electrical Contractor	Date	Plumbing Contractor	Date						
Sprinkler Contractor	Date	General Contractor	Date						

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Piping purged with dry nitrogen during assembly		
Piping sealed and charged with nitrogen between jointing operations		
Pipe fittings complete and pipes properly supported		
Isolation valves installed		
Piping system properly flushed, cleaned and temporary piping removed (report attached)		
Piping pressure tested to per to contract documents (report attached)		
No leaks apparent around fittings		
Piping system sealed and filled with nitrogen		
Service Outlets consistent with contract documents		
Pipes properly labeled		
Valve labels permanently affixed		
Installation/application Rejected: The installation/application before approval.	as not met t	he specifie
Owner's Representative / Commissioning Authority Date te		
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	with the
Owner's Representative / Commissioning Authority Date e		



Section 01 91 00

Project Name	UTH Project #
--------------	---------------

PREFUNCTIONAL CHECKLIST

LAB WASTE PIPING										
	Test #									
roject. The constant specified is been verified in / Subcontract thess, subject items will required.	nponents are complete and reas complying with the contract tor signatures below. This presto an attached list of outstandire completion before approve	eady for prefunctional check ding items yet all of this form	nctional attested eklist is t to be can be							
Date	Controls Contractor	Date								
Date	Plumbing Contractor	Date								
Date	General Contractor	Date								
	of the work roject. The consistence verified or / Subcontract tness, subject items will requanding items parts. Date	Date Sof the work being installed have been subspiced. The components are complete and resistency being with the contractor of the contra	Test #							

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO)= by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Underground piping restraints coated per specifications		
Trench bedding material per contract documents		
Backfill placed in lifts and compacted per contract documents		
Pipe ID tape installed in trench per contract documents		
Connection to acid neutralization device		
Pipe fittings complete and pipes properly supported		
Pipes properly labeled		
Cleanouts installed and accessible		
Piping system properly flushed and cleaned (report attached)		
Cross-contamination dye test performed (report attached)		
Piping water tested per specifications (report attached)		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.		he specific
Owner's Representative / Commissioning Authority D	ate	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	on is approved	with the
Owner's Representative / Commissioning Authority D	ate	



Section 01 91 00

LABORATORY WASTE VIDEO INSPECTION REPORT

Date					Pr	rojectA							A Nearby Building is			
Camera E	ntrance M	nce Manhole #MH Depth							epi					MH Material		
MH Condition									St	tart	Tir	ne_				
Pipe Size_					Pi	pe '	Гур	e				_		F	Pipe	e Condition
Depth of F	Flow (incl	nes)	Direction of Pull isstr									stream			
Camera E	xit Manho	ole	#				M	ΙН	De	pth	ı		MH Material			H Material
MH Condition Start Time																
Measurements Begin at MH # Skid Sizeinch										d Sizeinch						
											<u> </u>					
Operator_										Cre	ew_					<u>, </u>
Company_																
Tape Counter	Feet	Tie-In (R-L-T)	Circle Break (1-4)	Long Break (1-4)	Multiple Break (1-4)	Missing Pipe (1-4)	Roots (1-4)	Grease (1-4)	Sediment (1-4)	Infiltration (1-4)	Offset Joint (1-4)	Separated Joint (1-4)	Pipe Wall Failure (1-4)	Sag Depth (inches)	Other (1-4)	Remarks



Section 01 91 00

SANITARY SEWER INSPECTION REPORT

Tape Counter	Feet											<u> </u>	$\overline{}$			Remarks
Counter	ļ	L)	4-1	4	Multiple Break (1-4)	Missing Pipe (1-4)	_		4)	(4-	4	Separated Joint (1-4)	Pipe Wall Failure (1-4)	Sag Depth (inches)		
		Tie-In (R-L-T)	Circle Break (1-4)	Long Break (1-4)	eak (oe (Roots (1-4)	Grease (1-4)	Sediment (1-4)	Infiltration (1-4)	Offset Joint (1-4)	int	lure	(inc	Other (1-4)	
		1 (R	Brea	3rea	Br	g Pij	ts (se (nent	atioı	Joir	d Jc	l Fai	pth (er (
		ie-Iı	cle]	ng I	iple	sing	Roc	Grea	edin	filtra	fset	rate	Wal	De	Oth	
		T	Cir	Log	Ault	Mis)	Š	In	Of	èepa	ipe	Sag		
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Section 01 91 00

REPORT LEGEND

NOTE: Use letters / numbers to indicate status of issue in columns.

Tie-in (branch line Tie-in direction)

R -Right

L - Left

T - Top

Indicate approximate size of branch line in remarks column

Breaks

Circle Break

1=circle crack

2=open circle break

3=bad circle break, pipe is separate or offset

4=severe circle break, pipe is separate and offset

Long Break

1=long crack

2=open long break

3=bad, separate long break

4=severe, separate and offset long

break. Pipe is collapsible

Multiple Breaks

1=multiple cracks

2=open multiple breaks

3=bad multiple breaks, but stable

4=severe multiple breaks, pipe is

collapsible or collapsed

Missing Pipe

1=small hole in pipe, small piece of pipe is missing

2=medium piece (less that 1/4 of the

circumference of the pipe)

3=missing a large piece of pipe, with soil exposed

4=missing a whole section of pipe

Roots

1=light roots

2=medium roots

3=heavy roots (example: enough roots to block more than half of a 6" or 8" line)

4=severe root problem, camera cannot

pass

Grease

1=light grease

2=medium grease

3=heavy grease

4=severe grease problem, camera cannot pass

Sediment

1=light sediment, sand and rocks

2=medium sediment, sand and rocks

3=heavy sediment, sand and rocks

4=severe sediment problem, camera cannot pass

Infiltration

1=dripping infiltration

2=continuous infiltration

3=heavy, bad infiltration

4=severe, pouring infiltration

Offset Joint

1=joint slightly offset

2=joint is moderately offset

3=joint is severely offset, but camera can pass

4-=camera cannot pass offset joint

Separated Joint

1=joint is slightly separated

2=joint is moderately separated

3=joint is severely separated

4=camera cannot pass separated joint

Pipe Wall Failure

1=light corrosion or aggregate visible in pipe wall

2=medium corrosion or aggregate visible in pipe wall

3=heavy corrosion or aggregate visible in pipe wall

4=severely deteriorated pipe, wall is worn out with soil exposed

Other

1=obstruction in pipe

2=concrete in pipe

3=branch line protruding into pipe

4=gasket hanging into pipe

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTIO	ONAL CHECKL	IST
LI	GHTNIN	G PROTECTIO	N
Location		Test #	¥
Submittal / Approvals			
approved for use on this p testing. <u>Prior performance ha</u> <u>by the appropriate Contracte</u> <u>submitted for approval / w</u> <u>completed.</u> Any outstanding	roject. The comes been verified a cor / Subcontract ritness, subject to items will requ	peing installed have been surponents are complete and reas complying with the contractor signatures below. This present an attached list of outstatire completion before approve	eady for prefunctional t documents as attested efunctional checklist is nding items yet to be val of this form can be
executed. None of the outs performed List attached.	tanding items p	reclude safe and reliable pro	efunctional tests being
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

Date

General Contractor

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Sprinkler Contractor



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
Shop Drawings approved		
Master Label applied for (copy of letter)		
INSTALLATION		
Specified cable (copper / alum) installed		
Fittings complete and properly supported		
Connectors Torque to specified Tolerances		
Properly labeled		
Properly Grounded		
Exterior spikes properly installed, connected, and supported		
Each individual Cable and wire has passed a continuity test		
Roof top equipment bonded into system		
Path to ground verified		
Roof membrane penetrations sealed		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.	has not met t	he specifie
Owner's Representative / Commissioning Authority D	ate	
Approval: This filled-out checklist has been reviewed. Its completic exceptions noted	on is approved	with the
Owner's Representative / Commissioning Authority D	ate	



Section 01 91 00

Project Name	UTH Project #

PREFUNCTIONAL CHECKLIST

Location		Test #	<u> </u>
Submittal / Approvals			
testing. Prior performance has by the appropriate Contracte submitted for approval / w completed. Any outstanding	as been verified or / Subcontractions, subject items will requ	nponents are complete and reas complying with the contract tor signatures below. This preto an attached list of outstardire completion before approved preclude safe and reliable presented.	documents as attended functional checklished items yet to all of this form car
	tunding items [1	
performedList attached.	Date	Controls Contractor	Date
performed.			

- startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO)= by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Fittings complete and properly supported		
Manually operate all switches, circuit breakers, and other mechanical		
mechanisms prior to energizing equipment		
Connectors Torqued to specified Tolerances		
Phase to Phase and Phase-to-Ground resistance test with switches or		
circuit breakers in opened and closed position prior to energizing		
equipment		
Properly labeled per contract documents		
Verify equipment is tested and calibrated per manufacturers		
guidelines prior to energizing equipment		
Properly installed and documented with OEM installation checklist		
Verify voltage taps are set		
Proper Ground Rod or Device installed per contract documents		
All grounds interconnected to single system		
Transformer Turns Ratio (TTR) test complete (report attached)		
Installation/application Rejected: The installation/application is performance criteria and will require reinspection before approval.	as not met t	he specified
Owner's Representative / Commissioning Authority Date e		
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	with the
Owner's Representative / Commissioning Authority Date e		



Section 01 91 00

Project Name UTH Proj	ect #
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INTEGRATED SYSTEM TEST REPORT

LOSS OF POWER

Test #			
Checklists documenting this complying with the contract signatures below. Any out attached list. Any outstanding	s are attached. documents as a standing items ag items will rec	tration have been completed a Prior integrated performance ttested by the appropriate Con are noted as requiring correctuire completion before approximately preclude safe and reliable	has been verified as tractor / Subcontractor etion / completion on val of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Tests performed with this IST are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



PERFORMANCE Simulate loss of facility power and demonstrate the following actions are in compliance with the contract documents: NOTE: Verify contract requirements for testing under load (0%, 50% & 100%) At loss of power, ATS engages Verify time delay until start of generator seconds		
are in compliance with the contract documents: NOTE: Verify contract requirements for testing under load (0%, 50% & 100%) At loss of power, ATS engages Verify time delay until start of generator seconds		
NOTE: Verify contract requirements for testing under load (0%, 50% & 100%) At loss of power, ATS engages Verify time delay until start of generator seconds		
& 100%) At loss of power, ATS engages Verify time delay until start of generator seconds		1
At loss of power, ATS engages Verify time delay until start of generator seconds		
Verify time delay until start of generator seconds		
Verify time delay until E-power is at required voltage/frequency		
seconds		
Verify restart sequence for all high current draw equipment		
Verify all emergency lighting and power devices to facility are active		
(report attached)		
Verify FA panel switches from batteries to facility power		
Verify elevator emergency power operation		
Verify security system operates under emergency power		
Verify negative pressure areas within facility remain negative during		
ATS transfer and emergency power operation		
Verify tele/comm system operate under emergency power		
Verify any environmental rooms operate under emergency power		
Verify HVAC systems maintain IAQ under emergency power		
Verify transfer back to normal power		
Record time for transfer seconds		
Test Failure/Retest Required: The Test performed has not met the criteria and will require retesting before approval.	ne specifie	d performance
Owner's Representative / Commissioning Authority Date	2	
Approval: The test has been witnessed as meeting the performance recolocuments with any exceptions noted.	quirements	of the contract
Owner's Representative / Commissioning Authority Date		



Section 01 91 00

Project Name	UTH Project #
	•

PREFUNCTIONAL CHECKLIST

Location	<u> </u>		
Submittal / Approvals			
Submittal. All component approved for use on this p testing. Prior performance has by the appropriate Contract submitted for approval / w completed. Any outstanding executed. None of the outstanding	eady for prefunctional documents as attested functional checklist and all of this form can be		
performedList attached.		•	rancional tests com
performed List attached. Mechanical Contractor	Date	Controls Contractor	- Date
List attached.			

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Fittings complete and properly supported		
Connectors Torqued to specified Tolerances		
Properly labeled		
Properly installed		
Properly Grounded		
Surface temperature below 90oC		
Hinged Doors		
Legend filled out completely		

CKT#								Megger
From						Phase	to	Ground
	Phase A			Volts	Amps			Ohms
	Phase B			Volts	Amps			Ohms
Drawing#	Phase C			Volts	Amps			Ohms
	Neutral			Volts	Amps			Ohms
CKT#								Megger
From	Phase	to	Ground					
	Phase A			Volts	Amps			Ohms
	Phase B			Volts	Amps			Ohms
Drawing#	Phase C			Volts	Amps			Ohms
	Neutral			Volts	Amps			Ohms
CKT#								Megger
From	Phase	to	Ground					
	Phase A			Volts	Amps			Ohms
	Phase B			Volts	Amps			Ohms
Drawing#	Phase C			Volts	Amps			Ohms
	Neutral			Volts	Amps			Ohms
CKT#								Megger
From	Phase	to	Ground					
	Phase A			Volts	Amps			Ohms
	Phase B			Volts	Amps			Ohms
Drawing#	Phase C			Volts	Amps			Ohms
	Neutral			Volts	Amps			Ohms



CKT#								Megger
From	Phase	to	Ground					
	Phase A			Volts		Amps		Ohms
	Phase B			Volts		Amps		Ohms
Drawing#	Phase C			Volts		Amps		Ohms
	Neutral			Volts		Amps		Ohms

Installation/application Rejected: The installation/a performance criteria and will require reinspection before application.	**	
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its exceptions noted	s completion is approved with the	
Owner's Representative / Commissioning Authority	Date	

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTI	ONAL CHECKL	IST
	MAN	UAL VALVE	
Location		Test #	<u> </u>
Valve ID			
approved for use on this patesting. Prior performance has by the appropriate Contracted submitted for approval / w completed. Any outstanding	roject. The corns been verified or / Subcontractitness, subject items will requ	being installed have been sumponents are complete and reas complying with the contractor signatures below. This presto an attached list of outstandire completion before approximately preclude safe and reliable presented.	eady for prefunctional t documents as attested efunctional checklist is ading items yet to be al of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
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Manual Valve
UT Health Project Commissioning

Page 1 of 2



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
O&M manuals		
Valve Schedule for all valves complete and attached		
INSTALLATION		
Valve properly installed		
Valve properly aligned		
Valve is accessible		
Chain fall installed per specifications		
Lubrication points serviced		
Proper gasket installed		
Valve operation (open/close/shut-off) consistent with specifications		
and manufacturers data		
Free movement of handle throughout range		
Permanent Valve Tag installed per specifications		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.	has not met t	he specified
Owner's Representative / Commissioning Authority Da	te	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	with the
Owner's Representative / Commissioning Authority Da	te	



Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTI	ONAL CHECKL	IST
	M	ASONRY	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this protesting. Prior performance has by the appropriate Contractor submitted for approval / we completed. Any outstanding	roject. The cor as been verified or / Subcontrac itness, subject items will requ	being installed have been subspecified in the contract of the contract of signatures below. This precedes to an attached list of outstandire completion before approved preclude safe and reliable precedes.	eady for prefunctional t documents as attested functional checklist is ading items yet to be al of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	OFPC.
INSTALLATION		
Preinstallation meeting conducted prior to start of work		
Mockup installed		
Damp / waterproofing installation complete		
Flashing installation complete		
Cavity drainage material placement		
Cavity clean of mortar dropping and debris		
Shelf angle NOT welded continuous around building		
Lintels installed		
UL label CMU placement		
CMU reinforcement placement		
Proper masonry material installed		
Proper lines and levels, joint width		
Face brick blend consistency		
Masonry isolation, joint filler placement		
Wall tie anchorage and spacing		
Joint reinforcement placement		
Mortar strength verified (cube / prism report attached)		
Mortar color consistency		
Full head and bed mortar joints		
Control joint location and continuity		
Weep tube placement		
Any exposed rebar in cut precast stone treated before placement		
Any broken units replaced and chips repaired		
Installation/application Rejected: The installation/application hap performance criteria and will require reinspection before approval.	as not met	the specific
Owner's Representative / Commissioning Authority Date		
Approval: This filled-out checklist has been reviewed. Its completion xceptions noted	is approved	d with the
Owner's Representative / Commissioning Authority Date		

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTI	ONAL CHECKL	IST
METAL ENCLOS	SED SWITC	CHGEAR (MEDIUM	VOLTAGE)
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this p testing. Prior performance has by the appropriate Contracte submitted for approval / w completed. Any outstanding	roject. The consistence of Subcontract ritness, subject ritems will required	being installed have been surponents are complete and ras complying with the contractor signatures below. This proto an attached list of outstandire completion before approved preclude safe and reliable protocolors.	eady for prefunctional t documents as attested efunctional checklist is nding items yet to be ral of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Sprinkler Contractor	Date	General Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO)= by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Sprinkler Contractor



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
Shop Drawings approved		
INSTALLATION		
Verify that all switchgear is factory tested after fabrication and before		
shipment, including simulation of all control and relay functions,		
complete operation of breakers (report attached)		
Manufacturer representative has performed checkout of the equipment		
prior to energizing equipment (report attached)		
Phase to Phase and Phase-to-Ground resistance test with switches or		
circuit breakers in opened and closed position prior to energizing		
equipment		
All relays, meters and instrumentation has been checked to determine		
all connections are made		
Fittings complete and properly supported		
Manually operate all switches, circuit breakers, and other mechanical		
mechanisms prior to energizing equipment		
Equipment properly labeled		
Equipment mounted to housekeeping slabs		
Verify proper size conductors installed		
As a minimum, verify that the following procedures are		
performed at the site before the bus is energized:		
All electrically operated circuit breakers and other mechanisms are		
electrically exercised (not under load) to determine proper function		
Verify that all adjustable current and voltage trip mechanisms have		
been set to their proper values in accordance with the site coordination		
study		
All field wiring is clear of any live bus and physically secured to		
withstand the effects of fault currents		
All scrap wire, boxes, spare parts, and other debris is removed from		
the switchgear interior		
All bus connections and control wiring connections are verified to be		
tight and property torqued, if required		
Verify the ground fault protection system has been tested per		
manufacturer recommendations		
Verify that all breakers (electrical and manual) can be manually		
opened or closed without opening the door to the breaker		
compartment.		
Verify that all breakers visibly indicate open, closed, and tripped		
positions without opening the door to the breaker compartment		



Approved	Cont.	UTH
Verify that all over-current devices have the capability of being		
locked-out in compliance with OSHA Standard 1910-147.		
Verify that all medium and low-voltage tie connections (between		
buses) contain high-speed differential relays sensitive to both phase		
and ground faults.		
Properly Grounded		
Correct Circuit Breaker sizes and types installed per contract		
documents		
Short Circuit Device Calibrated		
Verify proper installation of stress cones		
Verify proper installation of stress cones		

Installation/application Rejected: The installation/application has not met the specified performance criteria and will require reinspection before approval.			
Owner's Representative / Commissioning Authority	Date		
Approval: This filled-out checklist has been reviewed. It exceptions noted	es completion is approved with	ı the	
Owner's Representative / Commissioning Authority	Date		



Section 01 91 00

Project Name	UTH Project #
· •	

PREFUNCTIONAL CHECKLIST

MOTORIZED WINDOW SHADES

Location		Test #		
Make		Model#		
Submittal / Approvals				
approved for use on this p testing. Prior performance has by the appropriate Contractor submitted for approval / w completed. Any outstanding	roject. The com as been verified a or / Subcontractor itness, subject to items will require	peing installed have been sub- ponents are complete and re- s complying with the contract or signatures below. This pre- to an attached list of outstan- tire completion before approva- reclude safe and reliable pre-	eady for prefunctional documents as attested functional checklist is ading items yet to be all of this form can be	
Mechanical Contractor	Date	Controls Contractor	Date	
Electrical Contractor	Date	Plumbing Contractor	Date	
Other Contractor	Date	General Contractor	Date	
Prefunctional checklist	t items are	to be completed as pa	urt of installation	

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



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Proiect	Commis	SIC	ากเทย

MOTOR/ELECT	RICAL:				
Motor Manufacture	er:	Serial #			
Motor Nameplate l	Data - Volt	FLA	HP		
RMP	SVC Factor	Class	Frame_		
Actual per phase	Volt	FLA			
Starter Size	Fuse Size	Heater	Size		
	Approved		(Cont.	UTH
Manufacturer prod	luct data sheet				
O&M Manual INSTALLATION	J				
	ccess for maintenance				
Motorized operation	<i>i</i> 1				
Shade full retraction					
Light blocking per	specifications				
Auto-reverse/press	sure sensor verified				
Bottom edge gaske	at				
Lubrication compl	eted				
Wall switch operat	tion				
	plication Rejected: ia and will require reins			ot met t	he specifie
Owner's Represent	tative / Commissioning	Authority	Date		
Approval: This fiexceptions noted	lled-out checklist has b	een reviewed. Its c	ompletion is a	pproved	with the
Owner's Representa	ative / Commissioning	Authority	Date		

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTI	ONAL CHECKL	IST
NATU	URAL GA	AS PIPING SYST	'EM
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this p testing. <u>Prior performance ha</u>	roject. The con as been verified	being installed have been sub nponents are complete and re as complying with the contract	eady for prefunctional documents as attested
submitted for approval / w completed. Any outstanding executed. None of the outs performed.	itness, subject items will requ	tor signatures below. This pre to an attached list of outstar aire completion before approve preclude safe and reliable pre	nding items yet to be al of this form can be
List attached.		_	
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

General Contractor

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Sprinkler Contractor



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
Welders certificates		
INSTALLATION		
Underground piping coated per specifications		
Underground piping properly bedded and backfilled		
Pipe fittings and pipes properly supported		
Pipe hangers type, size and coating per contract documents		
Drip leg pipes installed		
Pipes properly labeled		
Isolation valve installed		
Emergency shut-off valves installed		
Pressure regulators verified operational		
Piping hydrostatically tested per specifications (report attached)		
Interior pipe sleeving tested and vented		
Valves checklists complete		
Valve labels permanently affixed		
Chemical odorant added to system		
Installation/application Rejected: The installation/application h performance criteria and will require reinspection before approval.	as not met t	he specifie
Owner's Representative / Commissioning Authority Date	e	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	with the
Owner's Representative / Commissioning Authority Date	e	

DRY CHEMICAL EXTINGUISHING SYSTEMS ACCEPTANCE INSPECTION _____ Inspector _____ Date _ System_ **Y** = Satisfactory **N** = Unsatisfactory (explain) N/A = Not applicable Note: Pressures and weights are satisfactory if equal to or greater than minimums in Form 9B Acceptance? If N, Explanation Dry chemical cylinder pressure _____ psi (bar) Expellant gas cartridge: Pressure of nitrogen, psi (bar) Weight of carbon dioxide, lb (kg) Check dry chemical agent for lumping or caking in cartridge-operated-type systems. Check to ensure that hazard is as defined on approved plans. Check detectors and fusible links for damage or obstruction. Check expellant gas containers for proper installation. Check agent containers for proper installation. Check manual releases for proper installation. Check piping for proper installation and changes. Check hand-hose assemblies for proper installation. Check discharge nozzles for proper installation. Check local signal devices for proper installation. Check auxiliary equipment for proper installation. Check that fusible link is installed. Notes____ © 2000, 2005 National Fire Protection Association

DRY CHEMICAL EXTINGUISHING SYSTEMS ACCEPTANCE INSPECTION _____ Inspector _____ Date _ System_ **Y** = Satisfactory **N** = Unsatisfactory (explain) N/A = Not applicable Note: Pressures and weights are satisfactory if equal to or greater than minimums in Form 9B Acceptance? If N, Explanation Dry chemical cylinder pressure _____ psi (bar) Expellant gas cartridge: Pressure of nitrogen, psi (bar) Weight of carbon dioxide, lb (kg) Check dry chemical agent for lumping or caking in cartridge-operated-type systems. Check to ensure that hazard is as defined on approved plans. Check detectors and fusible links for damage or obstruction. Check expellant gas containers for proper installation. Check agent containers for proper installation. Check manual releases for proper installation. Check piping for proper installation and changes. Check hand-hose assemblies for proper installation. Check discharge nozzles for proper installation. Check local signal devices for proper installation. Check auxiliary equipment for proper installation. Check that fusible link is installed. Notes____ © 2000, 2005 National Fire Protection Association

DRY CHEMICAL EXTINGUISHING SYSTEMS ACCEPTANCE TESTS Date _____ Inspector ____ System __ Date of acceptance test _____ Manual release □ Satisfactory □ Unsatisfactory Fusible link Satisfactory Unsatisfactory Connection to fire alarm system? ☐ Yes ☐ No Results Satisfactory Unsatisfactory Connection to shut off power to cooking equipment? ☐ Yes ☐ No Results Satisfactory Unsatisfactory Fusible link replaced? ☐ Yes ☐ No Connection to shut down supply air to exhaust hood? Results Satisfactory Unsatisfactory Grease exhaust fan □ Continues to run □ Stops Connection to shut off electric power to receptacles under hood? Results Satisfactory Unsatisfactory Hydrostatic test performed on: Pressure cylinders ☐ Yes ☐ No Hoses and fittings ☐ Yes ☐ No Dry chemical chambers ☐ Yes ☐ No Check valves ☐ Yes ☐ No Auxiliary pressure containers □ Yes □ No Directional valves □ Yes □ No Valve assemblies Manifolds □ Yes □ No □ Yes □ No © 2000, 2005 National Fire Protection Association

DRY CHEMICAL EXTINGUISHING SYSTEMS ACCEPTANCE TESTS Date _____ Inspector ____ System __ Date of acceptance test _____ Manual release □ Satisfactory □ Unsatisfactory Fusible link Satisfactory Unsatisfactory Connection to fire alarm system? ☐ Yes ☐ No Results Satisfactory Unsatisfactory Connection to shut off power to cooking equipment? ☐ Yes ☐ No Results Satisfactory Unsatisfactory Fusible link replaced? ☐ Yes ☐ No Connection to shut down supply air to exhaust hood? Results Satisfactory Unsatisfactory Grease exhaust fan □ Continues to run □ Stops Connection to shut off electric power to receptacles under hood? Results Satisfactory Unsatisfactory Hydrostatic test performed on: Pressure cylinders ☐ Yes ☐ No Hoses and fittings ☐ Yes ☐ No Dry chemical chambers ☐ Yes ☐ No Check valves ☐ Yes ☐ No Auxiliary pressure containers □ Yes □ No Directional valves □ Yes □ No Valve assemblies Manifolds □ Yes □ No □ Yes □ No © 2000, 2005 National Fire Protection Association

EMERGENCY GENERATOR ACCEPTANCE INSPECTION Project Name _____ Inspector _ Date _ System_ Y = Satisfactory **N** = Unsatisfactory (explain) **N/A** = Not applicable Acceptance? If N, Explanation Check fuel tank fuel supply level. Inspect dry tank level. Inspect and operate dry tank float switch. Inspect and operate supply or transfer pump. Inspect and operate solenoid valve. Check for water in fuel system. Check flexible hose and connectors. Check oil level in the engine. Check lube oil heater for operation. Check level of cooling system for engine. Check cooling water to heat exchanger for adequacy. Check adequacy of fresh air through radiator. Check water pump. Check flexible hoses and connections. Check water-jacket heater. Check exhaust system for leakage. Check the drain condensate trap. Check electrolyte level in the batteries. Check electrical system. Inspect engine. Check housekeeping in generator room and fuel supply tanks. Inspect generator. © 2000, 2005 National Fire Protection Association

EMERGENCY STANDBY POWER SYSTEMS ACCEPTANCE TESTS Project Name ____ _____ Inspector _____ Date ___ System **Y** = Satisfactory **N** = Unsatisfactory (explain) Acceptance? If N, Explanation Test each battery-powered unit so that laps operate for 30 seconds. Test emergency generator batteries for specific gravity or state of charge. Operate emergency generator with no load. Test antifreeze protection level. Test operation of safeties and alarms. Test tank vents and overflow piping. Test louver motors and controls. Test exhaust system for excessive backpressure. Test ignition system—plugs, points, cap, rotor, secondary wire insulation. Test injector pump and injectors. Measure and record resistance readings of windings with insulation tester (Megger). Test each battery-powered unit for 90 minutes. Test emergency generator under full load or under bank-load full load. © 2000, 2005 National Fire Protection Association

FIRE ALARM SYSTEMS INSPECTION AND TESTING FORM Date ____ Time _____ **SERVICE ORGANIZATION** PROPERTY NAME (USER) Name Address _____ Representative _____ Owner contact License No. _____ Telephone _____ Telephone **MONITORING ENTITY APPROVING AGENCY** Contact Contact _____ Telephone _____ Telephone _____ Monitoring Account Ref. No. **TYPE TRANSMISSION** SERVICE □ McCulloh ■ Weekly ■ Multiplex ■ Monthly □ Digital □ Quarterly ☐ Reverse Priority □ Semiannually \square RF ☐ Annually □ Other (specify) □ Other (specify) Control unit manufacturer _____ Model No. _____ Circuit styles_____ Number of circuits_____ Software revised _____ Last date system had any service performed _____ Last date that any software or configuration was revised _____ **ALARM-INITIATING DEVICES AND CIRCUIT INFORMATION** Quantity Circuit Style Manual fire alarm boxes Ion detectors Photo detectors Duct detectors Heat detectors Waterflow switches Supervisory switches Other (specify) Alarm verification feature is disabled _____ enabled ___ © 2002 National Fire Protection Association (p. 1 of 4)

	Circuit Style	D-III-
		Bells
		Horns
		Chimes
		Strobes
		Speakers
		Other (specify)
	ation appliance circuits r integrity?	
		NG DEVICES AND CIRCUIT INFORMATION
Quantity	Circuit Style	
		Building temperature
		Site water temperature
		Site water level
		Fire pump power
		Fire pump running
		Fire pump auto position
		Fire pump or pump controller trouble
		Fire pump running
		Generator in auto position
		Generator or controller trouble
		Switch transfer
		Generator engine running
		Other
SIGNALING LINE CIRCU	IITS	
	naling line circuits connected to sy	
Quantity and style of sign Quantity	naling line circuits connected to sy	Style(s)
Quantity and style of sign Quantity	naling line circuits connected to sy LIES Nominal voltage	Style(s)
Quantity and style of sign Quantity	LIES Nominal voltage	Style(s) Amps
Quantity and style of sign Quantity	LIES Nominal voltageection: Typeeary supply panelboard)	Style(s) Amps Amps
Quantity and style of sign Quantity	LIES Nominal voltageection: Typeeary supply panelboard)eans locationeby):	Style(s) Amps Amps
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Quantity and style of sign Quantity SYSTEM POWER SUPPL (a) Primary (main): Overcurrent prote Location (of prima Disconnecting me. (b) Secondary (stands)	LIES Nominal voltage	Style(s) Amps
Quantity and style of sign Quantity	LIES Nominal voltage	Style(s) Amps Amps battery: Amp-hr. rating 60 Engine-driven generator dedicated to fire alarm system:
Quantity and style of sign Quantity	LIES Nominal voltage	Style(s) Amps Amps battery: Amp-hr. rating 60 Engine-driven generator dedicated to fire alarm system:
Quantity and style of sign Quantity	LIES Nominal voltage	Style(s) Amps Amps battery: Amp-hr. rating 60 Engine-driven generator dedicated to fire alarm system:
Quantity and style of sign Quantity SYSTEM POWER SUPPL (a) Primary (main): Overcurrent prote Location (of prima Disconnecting medical department of the protect of the	LIES Nominal voltage	Style(s) Amps Amps
Quantity and style of sign Quantity SYSTEM POWER SUPPL (a) Primary (main): Overcurrent protection (of primary Disconnecting means (b) Secondary (stands) Calculated capacity Location of fuel st TYPE BATTERY Dry cell Nickel-cadmium	LIES Nominal voltage	Style(s) Amps Amps
Quantity and style of sign Quantity	LIES Nominal voltage	Style(s) Amps Amps
Quantity and style of sign Quantity	LIES Nominal voltage	Style(s) Amps Amps attery: Amp-hr. rating 24 60 Engine-driven generator dedicated to fire alarm systems
Quantity and style of sign Quantity	LIES Nominal voltage	Amps Amps pattery: Amp-hr. rating 60 Engine-driven generator dedicated to fire alarm system:
Quantity and style of sign Quantity	LIES Nominal voltage	Amps Amps pattery: Amp-hr. rating 60 Engine-driven generator dedicated to fire alarm system: primary power supply, instead of using a secondary power supply:
Quantity and style of sign Quantity	LIES Nominal voltageection: Typeeary supply panelboard)eans locationby): Storage kety to operate system, in hours:	Amps Amps

Monitoring entity Suilding occupants Suilding management Uther (specify) SYSTEM TESTS AND INSPECTIONS FYPE SYSTEM TESTS AND INSPECTIONS FYPE Visual Functional Comments Interface equipment Interface eq				PRIOR TO AN	Y TESTING			
Building management Other (specify) AEJ notified of any impairments SYSTEM TESTS AND INSPECTIONS IVPE Visual Functional Comments Comments Primary power supply Fromble signals Disconnect switches Tround-fault monitoring SECONDARY POWER Fype Visual Functional Comments SECONDARY POWER Supply From Visual Functional Comments Sattery condition Load voltage Discharge test	NOTIFICATIONS	ARE MADE		Yes	No	Who		Time
Building management Other (specify) AEJ notified of any impairments SYSTEM TESTS AND INSPECTIONS IVPE Visual Functional Comments Comments Primary power supply Fromble signals Disconnect switches Tround-fault monitoring SECONDARY POWER Fype Visual Functional Comments SECONDARY POWER Supply From Visual Functional Comments Sattery condition Load voltage Discharge test	Monitoring entity	V						
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PYPE Visual Functional Comments Control unit interface equipment Camps/LEDS Cluses		ny impairments						
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Pursuary power supply Primary power supply Prouble signals Disconnect switches Disconn	nterface equipm	ent						
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SECONDARY POWER Type Visual Functional Comments Battery condition .oad voltage Discharge test Charger test								
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•	Visual	Functional	Comments
,	Visual	Device Operation	Simulated Operation
		-	-
		_	ū
Yes	No	Time	Comments
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_			-
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u	Ц		
Yes	No	Who	Time
			
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E WITH APPL	Time ICABLE NF Date	PA STANDARDS.	
E WITH APPL	Γime ICABLE NF Date	PA STANDARDS.	
	Yes Tyes Yes	Yes No	Yes No Time

FIRE ALARM SYSTEM RECORD OF COMPLETION

Address	
Representative of protected property (name/phone)	
Authority having jurisdiction	
Address/telephone number	
Titut ess verepriore number	
$Organization \ name/phone$	$Representative \ name/phone$
Installer	
Supplier	
Service organization	
Location of record (as-built) drawings	
Location of operation and maintenance manuals	
Location of test reports	
A contract for test and inspection in accordance with NFPA $standard(s)$	
Contract number(s) Effective date	Expiration date
System Software	
(a) Operating system (executive) software revision level(s)	
(b) Site-specific software revision date	
(c) Revision completed by	(Firm)
, ,	,
1. TYPE(S) OF SYSTEM OR SERVICE	
If alarm is transmitted to location(s) off premises, list where received	d
NFPA 72, Chapter 8 — Remote Station Telephone numbers of the organization receiving alarm: Alarm	
Supervisory	
Trouble	
If alarms are retransmitted to public fire service communications cenumbers of the organization receiving alarm	-
Indicate how alarm is retransmitted	
NFPA 72, Chapter 8 — Proprietary	
Telephone numbers of the organization receiving alarm:	
Alarm	
Supervisory	
Trouble	
If alarms are retransmitted to public fire service communications centre numbers of the organization receiving alarm	· · · · · · · · · · · · · · · · · · ·
Indicate how alarm is retransmitted	
NFPA 72, Chapter 8 — Central Station	
Prime contractor	
Central station location	
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McCulloh	Multiplex _	One-way radio
Digital alarm communicator _	Two-way radio	Others
Means of transmission of alarms to the pub	lic fire service communication	s center
(a)		
(b)		
System location		
NFPA 72, Chapter 9 — Auxillary		
Type of connection: Local energy		-
Location of telephone number for receipt of	signais	
RECORD OF SYSTEM INSTALLATION		
ill out after installation is complete and wiring is		ound faults, and improper branching
t prior to conducting operational acceptance test is system has been installed in accordance with		n below and was inspected by
	on	, includes the devices show
items 5 and 6, and has been in service since	· ·	
<i>NFPA 72</i> , Chapters 1 2 3 4 5 6 7	8 9 10 11 (circle all t	hat apply)
NFPA 70, National Electrical Code®, Article 7	760	
Manufacturer's instructions		
Other (specify)		
gned	Date	
ganization		
RECORD OF SYSTEM OPERATION		
ocumentation in accordance with NFPA 72, Inspe	ection Testing Form Figure 10	623 is attached
l operational features and functions of this syste		
d found to be operating properly in accordance w	vith the requirements of:	
<i>NFPA 72</i> , Chapters 1 2 3 4 5 6 7	8 9 10 11 (circle all th	hat apply)
NFPA 70, National Electrical Code, Article 76	30	
Manufacturer's instructions		
Other (specify)		
gned	Date	
ganization		
SIGNALING LINE CIRCUITS		
SIGNALING LINE SHOOMS	stad to greatern (see NEDA 79 T	able 6.6.1):
antity and class of signaling line circuits connec	ited to system (see IVFFA 1/2 17	

Quantity_		Style		Class			
MANUAL							
a) Manual	stations	Noncoded	Transmitters_	Code	ed	Addressable	
b) Combin	ation manu	al fire alarm and gua	ard's tour coded stati	ions			
AUTOMAT	ΓIC						
Coverage:	Complete			Partial			
	Selective _			Nonrequired	<u> </u>		
a) Smoke o	detectors	Ion	Photo	_ Addressable			
			Photo				
c) Heat de	tectors	FT	RR	FT/RR	RC	Addressable	
d) Sprinkle	er waterflov	v indicators: Transm	nitters No	oncoded	_ Coded	Addressable	e
e) The alaı	rm verificati	ion feature is disable	ed or enable	d, chan	ged from	seconds to	second
f) Other (li	ist)						
CLIDED	VIEUDA EI	ICNIAL INITIATING	DEVICES AND CIE	CUITS (use bl	anka ta indi	acta quantity of day	viooo)
. SUPER	WISORY SI	IGNAL-INITIATING	DEVICES AND CIP	ACUITS (use bit	anks to mai	cate quantity of de	vices)
GUARD'S	TOUR						
	adad station	NG.					
b)N	oncoded sta	tions					
b)N c)Co	oncoded sta ompulsory g	tions guard's tour system c	-			l intermediate station	ns
c) C	oncoded sta ompulsory g	tions guard's tour system c	omprised ofder 5(b), Manual, an			l intermediate station	ns
b)N c)Co Note: Comb	oncoded sta ompulsory g	tions guard's tour system c rices are recorded un	-			l intermediate statior	ns
b) N c) Co Note: Comb	oncoded sta ompulsory g oination dev ER SYSTE	tions guard's tour system c rices are recorded un	-			l intermediate statior	ns
b) Note: Combone SPRINKLI	oncoded sta ompulsory g pination dev ER SYSTEM ovided	tions guard's tour system c rices are recorded un	-			l intermediate statior	ns
b) N c) Co Note: Comb SPRINKLI Check if pr a) Va b) Br	oncoded sta ompulsory g oination dev ER SYSTEM ovided alve supervi uilding temj	tions guard's tour system or rices are recorded un M sory switches perature points	-			l intermediate statior	ns
b) N c) Co Note: Comb SPRINKL Check if pr a) Va b) Bi c) Si	oncoded sta ompulsory g oination dev ER SYSTEM ovided alve supervi- uilding temp te water ter	tions guard's tour system crices are recorded un M sory switches perature points mperature points	-			l intermediate station	ns
b) N c) Co Note: Comb SPRINKL Check if pr a) Va b) Bi c) Si	oncoded sta ompulsory g oination dev ER SYSTEM ovided alve supervi- uilding temp te water ter	tions guard's tour system or rices are recorded un M sory switches perature points	-			l intermediate station	ns
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b) N c) Co Note: Comb SPRINKLI Check if pr a) Va b) Bi c) Si d) Si Electric fire e) Fi f) Fi g) Pl	oncoded sta ompulsory g pination dev ER SYSTEM ovided alve supervi- uilding temp ite water ten ite water supervi- e pump ire pump po ire pump rui	tions guard's tour system or rices are recorded un M sory switches perature points mperature points pply level points wer nning al	-			l intermediate station	ns
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b) N c) Co Note: Comb SPRINKLI Check if pr a) Va b) Bi c) Si d) Si Electric fire e) Fi f) Fi g) Pl Engine-driv h) Se i) En	oncoded statements on the compulsory good of the control of the co	tions guard's tour system orices are recorded un M sory switches perature points mperature points pply level points wer nning al mp tto position atrol panel trouble	-			l intermediate station	ns
b) N c) Co Note: Comk SPRINKLI Check if pr a) Vs b) Bi c) Si d) Si Electric fire e) Fi f) Fi g) Pl Engine-dri h) Se i) Enj	oncoded statements on control of the	tions guard's tour system orices are recorded un M sory switches perature points mperature points pply level points wer nning al ap to position atrol panel trouble nning	-			l intermediate station	ns
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b) N c) Co Note: Comb SPRINKLI Check if pr a) Ve b) Bi c) Si d) Si Electric fire e) Fi g) Pl Engine-driv h) Se i) Ei j) Fi ENGINE-I a) Se b) Co c) Ti	oncoded state ompulsory goination development of the SYSTEM ovided alve supervisuiding temple the water term of the water superpose of the pump poor of the pump runder of the pump rund	tions guard's tour system of rices are recorded un M sory switches perature points perature	-			l intermediate station	ns
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ALARM NOTIFICATION APPLIANCES AND CIRCUITS ### 72, Chapter 6 — Emergency Voice/Alarm Service Unantity of voice/alarm channels	NumberType	Loc	eation	
PPA 72, Chapter 6 — Emergency Voice/Alarm Service wantity of voice/Alarm channels Single Multiple wantity of voice/Alarm channels Quantity of speaker sinstalled Quantity of speaker sones wantity of telephones or telephone jacks included in system wantity and the class of notification appliance circuits connected to system (see NFPA 72, Table 6.7): wantity Style Class Cl	. ALARM NOTIFICATIO	N APPLIANCES AND CII	RCUITS	
mantity of voice/slarm channels				
quantity of speakers installed Quantity of speaker zones quantity of telephones or telephone jacks included in system quantity and the class of notification appliance circuits connected to system (see NFPA 72, Table 6.7): quantity Style Class Class Class		= -		Multiple
uantity of telephones or telephone jacks included in system uantity and the class of notification appliance circuits connected to system (see NFPA 72, Table 6.7): uantity	-		_	
ypes and quantities of notification appliances installed) Bells				
ypes and quantities of notification appliances installed Dealls	uantity and the class of n	otification appliance circuit	ts connected to system (see NF	PA 72, Table 6.7):
Bells	uantity	Style	Class	
With Visible With	ypes and quantities of not	ification appliances installe	ed	
Horns	i) Bells	With Visible		
Other:) Speakers	With Visible		
Other: With Visible				
SYSTEM POWER SUPPLIES Fire Alarm Control Panel Nominal voltage Current rating Current rating Current protection Type Current rating Current) Chimes	With Visible		
SYSTEM POWER SUPPLIES Differ Alarm Control Panel Nominal voltage Current rating Overcurrent protection Type Current rating Location Discondary (standby) Storage battery Amp-hour rating Calculated capacity to drive system, in hours Engine-driven generator dedicated to fire alarm system Location of fuel storage Diemergency system used as backup to primary power supply Emergency system described in NFPA 70, Article 700				
Fire Alarm Control Panel Nominal voltage	Visible appliances without	out audible		
Overcurrent protection Type	SYSTEM POWER SUF	PPLIES		
Location Location) Fire Alarm Control Pan	el Nominal voltage	9	Current rating
Secondary (standby) Storage battery Amp-hour rating Calculated capacity to drive system, in hours Engine-driven generator dedicated to fire alarm system Location of fuel storage Demergency system used as backup to primary power supply Emergency system described in NFPA 70, Article 700 D. COMMENTS requency of routine tests and inspections, if other than in accordance with the referenced NFPA standard(s) restem deviations from the referenced NFPA standard(s) rigned) for installation contractor/supplier (little) (date) rigned) for alarm service company (little) (date) pon completion of the system(s) satisfactory test(s) witnessed (if required by the authority having jurisdiction)	Overcurrent protection			
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Location of fuel storage				
Location of fuel storage	Engine-driven generator	r dedicated to fire alarm sy	rstem	
D. COMMENTS requency of routine tests and inspections, if other than in accordance with the referenced NFPA standard(s) system deviations from the referenced NFPA standard(s) signed) for installation contractor/supplier (title) (date) signed) for alarm service company (title) (date) signed) for central station (title) (date) spon completion of the system(s) satisfactory test(s) witnessed (if required by the authority having jurisdiction)	Location of fuel storage			
D. COMMENTS requency of routine tests and inspections, if other than in accordance with the referenced NFPA standard(s) system deviations from the referenced NFPA standard(s) signed) for installation contractor/supplier (title) (date) signed) for alarm service company (title) (date) signed) for central station (title) (date) pon completion of the system(s) satisfactory test(s) witnessed (if required by the authority having jurisdiction)			= = =	
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signed) for installation contractor/supplier (title) (date) signed) for alarm service company (title) (date) signed) for central station (title) (date) signed) for central station (title) (date)	requency of routine tests a	and inspections, if other the	an in accordance with the reiei	renced NFPA standard(s)
signed) for alarm service company (title) (date) signed) for central station (title) (date) pon completion of the system(s) satisfactory test(s) witnessed (if required by the authority having jurisdiction)	ystem deviations from the	referenced NFPA standard	d(s)	
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signed) for alarm service company (title) (date) signed) for central station (title) (date) pon completion of the system(s) satisfactory test(s) witnessed (if required by the authority having jurisdiction)				
pon completion of the system(s) satisfactory test(s) witnessed (if required by the authority having jurisdiction)	signed) for installation contractor	r/supplier	(title)	(date)
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pon completion of the system(s) satisfactory test(s) witnessed (if required by the authority having jurisdiction)	nghed) for alarm service compa	ny	(titie)	(uaie)
	igned) for central station		(title)	(date)
igned) representative of the authority having jurisdiction (title) (date)	pon completion of the s	ystem(s) satisfactory test	(s) witnessed (if required by	the authority having jurisdiction)
	signed) representative of the aut	thority having jurisdiction	(title)	(date)
2002 National Fire Protection Association (p. 4				

FIRE DOORS ACCEPTANCE INSPECTION Project Name _____ _____ Inspector _____ System _ 1. Check door for physical damage and to see that vision panel (if provided) is secure. 2. Check that closer works. 3. Check that latch works. 4. Check that hinges are secure. 5. Check that coordinator (if provided) works. 6. Check tin-clad or Kalamein doors for dry rot. 7. Check cables and/or chains on sliding doors to ensure that they are in good condition and operate properly. 8. Check cables, chains, rollers, fusible links, and other moving parts for paint or other contaminants that may alter operation. Replace fusible links that have been painted. 9. Lubricate hinges on swinging doors and rollers on sliding doors. 10. Check that labeled fire doors have not been modified improperly. 11. Clear surrounding area of obstructions that may interfere with door operation. 12. Check that sliding doors close freely and completely. **Y** = Satisfactory **N** = Unsatisfactory (explain on reverse) N/A = Not applicable

Fire Door Number or Location	1	2	3	4	5	6	7	8	9	10	11	12

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FIRE PUMPS FLOW AND PRESSURE RECORD Project Name __ Date_ ${\bf Inspector}\,_$ System_ $N^{1.85}$ 130 120 110 100 90 Pressure (psi) 80 70 60 40 30 20 10 123 4 5 6 7 10 11 12 13 20 Flow (gpm) $Notes_{-}$ © 2000, 2005 National Fire Protection Association

HIGH-RISE STAIR TOWER SMOKE-CONTROL ACCEPTANCE TEST

Number of floors accessible by stair tower	Building name and address				
Stair tower identification	Date				
Stair tower identification	STAIR TOWER AND SYSTEM DESCRIPTION. EQUIPMEN	T AND DE	SIGN FE	ATURES	
Number of floors accessible by stair tower					
Fan type					
Fan type					
Fan equipment circuit breaker and/or disconnect location Emergency power transfer switch location Number of system injection points Number of system dampers Type Location Number of system static sensors Location STAIR PRESSURIZATION SYSTEM OPERATION, METHOD OF ACTIVATION Standpipe and/or sprinkler system main water flow Standpipe riser (wet) system water flow Standpipe riser (wet) system derection device Yes No FST N/A Sprinkler (dry pipe) system water flow Yes No FST N/A Sprinkler (preaction) system detection device Yes No FST N/A Sprinkler (preaction) system water flow Yes No FST N/A Sprinkler (preaction) detector Yes No FST N/A Smoke (area detection) detector Yes No FST N/A Smoke (Stair tower) detector Yes No FST N/A Smoke (HVAC supply air) detector Yes No FST N/A Smoke (HVAC return air) detector Yes No FST N/A Smoke (HVAC return air) detector Yes No FST N/A Smoke (HVAC return air) detector Yes No FST N/A Kitchen hood suppression system Yes No FST N/A Kitchen hood suppression system Yes No FST N/A Manual pull boxes Yes No FST N/A Manual pull boxes Yes No FST N/A System fan control equipment circuitry (impairment) Yes No FST N/A System fan control equipment circuitry (impairment) Yes No FST N/A System fan control equipment circuitry (impairment) Yes No FST N/A					
Emergency power transfer switch location Number of system injection points					
Emergency power transfer switch location	• •				
Number of system injection points					
Number of system dampers					
Number of system static sensors					
STAIR PRESSURIZATION SYSTEM OPERATION, METHOD OF ACTIVATION					
STAIR PRESSURIZATION SYSTEM OPERATION, METHOD OF ACTIVATION Standpipe and/or sprinkler system main water flow					
Standpipe and/or sprinkler system main water flow Standpipe riser (wet) system water flow Sprinkler (wet) system water flow Sprinkler (wet) system floor and/or areas/zones water flow Sprinkler (dry pipe) system water flow Sprinkler (preaction) system detection device Sprinkler (preaction) system water flow Sprinkler (preaction) detector Sprinkler (preaction) system water flow Sprinkler (preaction) system sys					
Standpipe riser (wet) system water flow Sprinkler (wet) system floor and/or areas/zones water flow Sprinkler (wet) system floor and/or areas/zones water flow Sprinkler (dry pipe) system water flow Sprinkler (preaction) system detection device Sprinkler (preaction) system water flow Spr	STAIR PRESSURIZATION SYSTEM OPERATION, METHO	D OF ACT	IVATION		
Sprinkler (wet) system floor and/or areas/zones water flow Sprinkler (dry pipe) system water flow Sprinkler (preaction) system detection device Sprinkler (preaction) system detection device Sprinkler (preaction) system water flow Sprinkler (dry pipe) system detection device. Sprinkler (dry pipe) sprinkler (dr					
Sprinkler (dry pipe) system water flow Sprinkler (preaction) system detection device Yes No FST N/A Sprinkler (preaction) system water flow Yes No FST N/A Sprinkler (preaction) system water flow Yes No FST N/A Smoke (area detection) detector Yes No FST N/A Smoke (stair tower) detector Yes No FST N/A Smoke (HVAC supply air) detector Yes No FST N/A Smoke (HVAC return air) detector Yes No FST N/A Smoke (stair pressurization supply air fan) detector Yes No FST N/A Kitchen hood suppression system Yes No FST N/A Kitchen hood suppression system Yes No FST N/A Manual pull boxes Yes No FST N/A Manual control quipment circuitry (impairment) System fan control equipment circuitry (impairment) Yes No FST N/A System fan control equipment circuitry (impairment) Yes No FST N/A					"
Sprinkler (preaction) system detection device Sprinkler (preaction) system water flow Smoke (area detection) detector Smoke (stair tower) detector Smoke (Stair tower) detector Smoke (HVAC supply air) detector Smoke (HVAC return air) detector Smoke (Stair pressurization supply air fan) detector Yes No FST N/A Smoke (HVAC return air) detector Yes No FST N/A Smoke (Stair pressurization supply air fan) detector Yes No FST N/A Kitchen hood suppression system Yes No FST N/A Kitchen hood suppression system Yes No FST N/A Manual pull boxes Yes No FST N/A Manual control Yes No FST N/A System fan control equipment circuitry (impairment) System fan control equipment circuitry (impairment) *FST = Time it takes to start fan on actuation of initiation device.					
Sprinkler (preaction) system water flow Smoke (area detection) detector Smoke (stair tower) detector Smoke (HVAC supply air) detector Smoke (HVAC return air) detector Smoke (stair pressurization supply air fan) detector Heat detector Wes No FST N/A Smoke (HVAC return air) detector Smoke (stair pressurization supply air fan) detector Wes No FST N/A Kitchen hood suppression system Wes No FST N/A Manual pull boxes Wes No FST N/A Manual control Wes No FST N/A System fan control equipment circuitry (impairment) System fan control equipment circuitry (impairment) Wes No FST N/A Wes No FST N/A Wes No FST N/A Wes No FST N/A					
Smoke (stair tower) detector Smoke (HVAC supply air) detector Smoke (HVAC return air) detector Smoke (HVAC return air) detector Smoke (stair pressurization supply air fan) detector Smoke (stair pressurization supply air fan) detector Yes No FST N/A Heat detector Yes No FST N/A Kitchen hood suppression system Yes No FST N/A Fire suppression system Yes No FST N/A Manual pull boxes Yes No FST N/A Manual control Yes No FST N/A Yes No FST N/A Yes No FST N/A Manual control Yes No FST N/A					
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Smoke (HVAC return air) detector Smoke (stair pressurization supply air fan) detector Heat detector Wes No FST N/A Witchen hood suppression system Witchen hood suppression system Wes No FST N/A Wanual pull boxes Manual control Wes No FST N/A Was No FST N/A Wanual control Wes No FST N/A Wanual control Wes No FST N/A Was No FST N/A Was No FST N/A Was No FST N/A Wes No FST N/A Was No FST N/A Was No FST N/A Wes No FST N/A	Smoke (stair tower) detector	☐ Yes	□ No	\Box FST	□ N/A
Smoke (stair pressurization supply air fan) detector Heat detector Yes No FST N/A Kitchen hood suppression system Yes No FST N/A Fire suppression system Yes No FST N/A Manual pull boxes Yes No FST N/A Manual control Yes No FST N/A System fan control equipment circuitry (impairment) Yes No FST N/A System fan control equipment circuitry (impairment) Yes No FST N/A	11 0	☐ Yes	□ No	\Box FST	□ N/A
Heat detector Yes No FST N/A Kitchen hood suppression system Yes No FST N/A Fire suppression system Yes No FST N/A Manual pull boxes Manual control Yes No FST N/A Yes No FST N/A Yes No FST N/A Wanual control Yes No FST N/A Yes No FST N/A Yes No FST N/A System fan control equipment circuitry (impairment) Yes No FST N/A System fan control equipment circuitry (impairment) *FST = Time it takes to start fan on actuation of initiation device.					
Kitchen hood suppression system Yes No FST N/A Yes No FST N/A Yes No FST N/A Manual pull boxes Yes No FST N/A Manual control Yes No FST N/A System fan control equipment circuitry (impairment) Yes No FST N/A System fan control equipment circuitry (impairment) Yes No FST N/A Supervision					
Fire suppression system Yes No FST N/A Manual pull boxes Manual control Yes No FST N/A Yes No FST N/A Yes No FST N/A System fan control equipment circuitry (impairment) Yes No FST N/A Yes No FST N/A Yes No FST N/A System fan control equipment circuitry (impairment) *FST = Time it takes to start fan on actuation of initiation device.	Heat detector	☐ Yes	□ No	☐ FST	□ N/A
Manual pull boxes Manual control Yes No FST N/A Yes No FST N/A System fan control equipment circuitry (impairment) Supervision *FST = Time it takes to start fan on actuation of initiation device.					
Manual control Yes No FST N/A System fan control equipment circuitry (impairment) *FST = Time it takes to start fan on actuation of initiation device.	Fire suppression system	☐ Yes	□ No	□ FST	⊔ N/A
System fan control equipment circuitry (impairment) *FST = Time it takes to start fan on actuation of initiation device.					
supervision *FST = Time it takes to start fan on actuation of initiation device.	Manual control	☐ Yes	□ No	□ FST	□ N/A
		☐ Yes	□ No	□ FST	□ N/A
Comments	*FST = Time it takes to start fan on actuation of initiation device.				
	Comments				

(p. 1 of 2)

STAIR PRESSURIZATION, DOOR HARDWARE, AND DOOR OPERATION PERFORMANCE RESULTS

Stair Door	Door Latch Release Force	Door Set in Motion Force	Door Swing to Full Open Force	Pressure Difference with All Doors Closed	Pressure Difference with One Door Open	Pressure Difference with Two Doors Open	Pressure Difference with Three Doors Open
ommen	nts						
				al pressure evalu			
st cond	ucted by						
	J	-	-				

HYDRANT FLOW TEST REPORT Location ___ Date Test made by ___ Time Representative of _____ Purpose of test Consumption rate during test _____ If pumps affected test, indicate pumps operating _____ $\mathbf{A_2}$ $\mathbf{A_4}$ \mathbf{A}_1 $\mathbf{A_3}$ Flow hydrants: _____ Size nozzle Pitot reading Total gpm Discharge coefficient Static B _____ psi Residual B _____ Projected results: @20 psi residual _____ gpm or @ _____ psi residual ____ gpm Remarks Location map: Show line sizes and distance to next cross-connected line. Show valves and hydrant branch size. Indicate north. Show flowing hydrants and label as A1, A2, A3, A4. Show location of static and residual and label as B. Indicate B: Hydrant _____ Sprinkler ____ Other (identify) ____ © 2002 National Fire Protection Association

HYDRANT FLOW TEST REPORT Location ___ Date Test made by ___ Time Representative of _____ Purpose of test Consumption rate during test _____ If pumps affected test, indicate pumps operating _____ $\mathbf{A_2}$ $\mathbf{A_4}$ \mathbf{A}_1 $\mathbf{A_3}$ Flow hydrants: _____ Size nozzle Pitot reading Total gpm Discharge coefficient Static B _____ psi Residual B _____ Projected results: @20 psi residual _____ gpm or @ _____ psi residual ____ gpm Remarks Location map: Show line sizes and distance to next cross-connected line. Show valves and hydrant branch size. Indicate north. Show flowing hydrants and label as A1, A2, A3, A4. Show location of static and residual and label as B. Indicate B: Hydrant _____ Sprinkler ____ Other (identify) ____ © 2002 National Fire Protection Association

Project Name		
Date Inspector		
System		
Y = Satisfactory N = Unsatisfacto	ry (explain) N/A = Not	applicable
	Record Information	Notes
Ensure that system is in normal mode.		
Measure and record: Wind speed		
Wind direction		
Outside temperature		
Test system normal power.		
Test system emergency power.		
Confirm that for each input there is a designated output.		
Demonstrate complete smoke-control system sequence: Normal mode		
Automatic smoke control from first alarm		
Manual override of normal and automatic modes		
Return to normal		
Confirm that fire alarm inputs produce correct outputs.		
Establish consistent method for recording pressure differences.		
Confirm that introduction of untempered air will not damage equipment.		
Confirm that weather conditions (freezing temperatures) will not damage equipment.		
Notes		

CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR ABOVEGROUND PIPING

Standpipe System NFPA 14

PROCEDURE

Upon completion of work, inspection and tests shall be made by the contractor's representative and witnessed by an owner's representative. All defects shall be corrected and system left in service before contractor's personnel finally leave the job.

A certificate shall be filled out and signed by both representatives. Copies shall be prepared for approving authorities, owners, and contractor. It is understood the owner's representative's signature in no way prejudices any claim against contractor for faulty material, poor workmanship, or failure to comply with approving authority's requirements or local ordinances.

Property name	Date	
Property address	;	
	Accepted by approving authorities (names)	
	Address	
Plans	Installation conforms to accepted plans?	
	Equipment used is approved or listed? If no, explain deviations. Yes No	
	Automatic-dry Yes	
	Automatic-wet Yes Semitautomatic-dry Yes	
Type of	Manual-dry Yes	
System	Manual-wet Yes	
	Combination standpipe/sprinkler Yes Other (if yes, explain) Yes	
Water Supply	Fire pump date Manufacturer Model	
Data Used for		
Design and As Shown on Plans		
Water Supply Source Capacity, Gallons	Public waterworks system Storage tank Gravity tank Open reservoir Other (explain)	
If Public Waterworks System:	Static, psi Flow in, gpm	
Have Copies	System components instructions Care and maintenance of system NFPA 25	
of the Following Been Left on the Premises?	Copy of accepted plans Hydraulic data/calculations	
	Main waterflow shutoff location	
A	Number of standpipe risers	
Supplies Building(s)		
	Do all standpipe risers have base of riser shutoff valves? Yes No	
Building(s) Valve	Do all standpipe risers have base of riser shutoff valves? Yes No Locked open Sealed and tagged Tamperproof switch Other	

Туре	Size	Make		Model	
ne to trip through remote h			Water pressure	Air pressure	
ne water reached remote h			Trip point air pressure		
rm operated properly?	Yes N	No If no, explain.			
		Min	Sec		
draulic activation	Yes □ Yes				
eumatic activation	Yes				
ake and model of activation	_				
are and model of activation	Tuevice				
ch activation device tested	1? Yes N	No. If no explain			
			ain.		
ach activation device tested	ted properly?		ain.		
	ted properly?	∕es ☐ No If no, expl	ain. FING DEVICE		
	ted properly?	Yes No If no, expl	ain. FING DEVICE		
ch activation device opera	ted properly?	Yes No If no, expl	ain. FING DEVICE Flow	ving (psi)	
ch activation device opera	ted properly?	Yes No If no, expl	ain. FING DEVICE Flow	ving (psi)	
ch activation device opera	ted properly?	Yes No If no, expl	ain. FING DEVICE Flow	ving (psi)	
ch activation device opera	ted properly?	Yes No If no, expl	ain. FING DEVICE Flow	ving (psi)	
ch activation device opera	ted properly?	Yes No If no, expl	ain. FING DEVICE Flow	ving (psi)	
ch activation device opera	ted properly?	Yes No If no, expl	ain. FING DEVICE Flow	ving (psi)	
ch activation device opera	ted properly?	Yes No If no, expl	ain. FING DEVICE Flow	ving (psi)	
ch activation device opera	ted properly?	Yes No If no, expl	ain. FING DEVICE Flow	ving (psi)	
ch activation device opera	ted properly?	Yes No If no, expl	ain. FING DEVICE Flow	ving (psi)	
ch activation device opera	ted properly?	Yes No If no, expl	ain. FING DEVICE Flow	ving (psi)	
ich activation device opera	ted properly?	Yes No If no, expl	ain. FING DEVICE Flow	ving (psi)	
ich activation device opera	ted properly?	Yes No If no, expl	ain. FING DEVICE Flow	ving (psi)	
ch activation device opera	ted properly?	Yes No If no, expl	ain. FING DEVICE Flow	ving (psi)	
Location & Floor	Model	PRESSURE-REGULAT Nonflowing (psi Inlet C	ain. FING DEVICE) Flow Dutlet Inlet	ving (psi) Outlet	
ch activation device opera	Model	PRESSURE-REGULAT Nonflowing (psi Inlet C	ain. FING DEVICE Flow	ving (psi) Outlet	

Test	pressure in excess of 150 prevent damage. All above	ests shall be made at not less than 200 psi psi (10.2 bar) for 2 hours. Differential dry pi eground piping leakage shall be stopped.	pe valve clappers shall be le	ft open during test to
Description		osi (2.7 bar) air pressure and measure drop mal water level and air pressure and measu urs.		psi (0.1 bar) in 24 hours. shall not exceed
	All piping hydrostatically to Dry piping pneumatically to Equipment operates proper	ested? Yes No	If no, state reason.	
Tools	sodium silicate, or derivati	dpipe contractor that additives and corrosive ves of sodium silicate, brine, or other corrossystems or stopping leaks?	-	
Tests		ge located near water nection psi (bar)	Residual pressure with va connection open wide	lve in test psi (bar
	Verified by copy of the U for	ead-in connections to system risers flushed orm no. 85b? Gerground standpipe piping? Yes	before connection made to s No Other Ex No	
Blank Testing	Number used	Locations		Number removed
	Welded piping	Yes No		1
		If yes		
Welding	of at least AWS D10.9, Le			Yes No
.	requirements of at least A	ding was performed by welders qualified in WS D10.9, Level AR-3?	compliance with the	ies ivo
	procedure to ensure that a	g was carried out in compliance with a docu all discs are retrieved, that openings in pipin removed, and that the internal diameters of	g are smooth, that slag and	Yes No
Cutouts (Discs)	Do you certify that you have	ve a control feature to ensure that all cutout	s (discs) are retrieved?	Yes No
Hydraulic Data Nameplate	Nameplate provided?	Yes No If no, explain.		
Remarks	Date left in service with all	control valves open:		
Name of	Name of contractor			
Sprinkler/ Standpipe Contractor		pplicable)		
System	Property owner	Titl	e	Date
Operating Test Witnessed by			e	Date
- Trimesocu by	Approving authorities	Titl	e	Date
Additional Explanation				

WET CHEMICAL EXTINGUISHING SYSTEMS ACCEPTANCE INSPECTION Project Name ____ _____ Inspector _____ Date ___ System_ **N** = Unsatisfactory (explain) **Y** = Satisfactory N/A = Not applicable Note: Pressures and weights are satisfactory if equal to or greater than minimums in Form 9E Acceptance? If N, Explanation Wet chemical cylinder pressure, psi (bar) (if stored-pressure type) Expellant gas cartridge (if expellant gas type): Pressure of nitrogen, psi (bar) Weight of carbon dioxide, lb (kg) Components are undamaged: Detectors or fusible links Expellant gas cylinder(s) Wet chemical containers Releasing devices Piping Nozzles Alarms Auxiliary equipment Damaged components replaced or hydrostatically tested System piping tested for obstructions System piping not obstructed Fusible link installed Notes © 2000, 2005 National Fire Protection Association

WET CHEMICAL EXTINGUISHING SYSTEMS ACCEPTANCE INSPECTION Project Name ____ _____ Inspector _____ Date ___ System_ **N** = Unsatisfactory (explain) **Y** = Satisfactory N/A = Not applicable Note: Pressures and weights are satisfactory if equal to or greater than minimums in Form 9E Acceptance? If N, Explanation Wet chemical cylinder pressure, psi (bar) (if stored-pressure type) Expellant gas cartridge (if expellant gas type): Pressure of nitrogen, psi (bar) Weight of carbon dioxide, lb (kg) Components are undamaged: Detectors or fusible links Expellant gas cylinder(s) Wet chemical containers Releasing devices Piping Nozzles Alarms Auxiliary equipment Damaged components replaced or hydrostatically tested System piping tested for obstructions System piping not obstructed Fusible link installed Notes © 2000, 2005 National Fire Protection Association

WET CHEMICAL EXTINGUISHING SYSTEMS ACCEPTANCE TESTS _____Inspector____ System Date of acceptance test ___ Manual release □ Satisfactory □ Unsatisfactory Fusible link Satisfactory Unsatisfactory Connection to fire alarm system? □ Yes □ No Results Satisfactory Unsatisfactory Connection to shut off power to cooking equipment? ☐ Yes ☐ No Results Satisfactory Unsatisfactory Connection to shut down supply air to exhaust hood? Results Satisfactory Unsatisfactory Grease exhaust fan □ Continues to run □ Stops Connection to shut off electric power to receptacles under hood? Results Satisfactory Unsatisfactory Hydrostatic test performed; system left in service ☐ Yes ☐ No Notes © 2000, 2005 National Fire Protection Association

WET CHEMICAL EXTINGUISHING SYSTEMS ACCEPTANCE TESTS _____Inspector____ System Date of acceptance test ___ Manual release □ Satisfactory □ Unsatisfactory Fusible link Satisfactory Unsatisfactory Connection to fire alarm system? □ Yes □ No Results Satisfactory Unsatisfactory Connection to shut off power to cooking equipment? ☐ Yes ☐ No Results Satisfactory Unsatisfactory Connection to shut down supply air to exhaust hood? Results Satisfactory Unsatisfactory Grease exhaust fan □ Continues to run □ Stops Connection to shut off electric power to receptacles under hood? Results Satisfactory Unsatisfactory Hydrostatic test performed; system left in service ☐ Yes ☐ No Notes © 2000, 2005 National Fire Protection Association

WATER-BASED FIRE PROTECTION SYSTEMS FINAL CHECKLIST

Project Name	
Contract Number	
Date and time of Acceptance Tests	_
AHJ notified of testing time	_(Print name.)
Owner's rep notified of testing time	_(Print name.)
Others notified of testing times	$_(Print\ name(s).)$
Complete and sign:	
Contractor's Material and Test Certificate for Aboveground Piping ☐ Yes ☐ No ☐ N/A	
Contractor's Material and Test Certificate for Underground Piping $\ \square$ Yes $\ \square$ No $\ \square$ N/A	
☐ Design information matches design on plans and as-built drawings.	
☐ Adequate heat is supplied in all riser rooms to maintain 40°.	
☐ Deviations from standard acceptance testing and/or problems were corrected during acceptance test	ing (list):
☐ Interface between system activation and building automatic systems is successful. List systems:	
Interface between system activation and building automatic systems is successful. List systems.	
☐ Numbered test blanks, if used, were removed and each is accounted for.	
□ NFPA 25 was reviewed with owner's rep. and copy given to:	
☐ Training class was scheduled.	
Date Time Location	
☐ First-year inspection, testing, and maintenance timeline was given to:	
SPRINKLER SYSTEM PUNCH LIST	
☐ Hydraulic design information is posted at riser.	
☐ Riser information indicates area of building protected by each riser.	
☐ Multiple risers are numbered and numbering is consistent with inspection forms.	
☐ Signs are located on all control valves, auxiliary drains, and inspector's test connections.	
☐ All low-point drains are clearly indicated and accessible.	·
☐ Information at riser includes number and location of all sectional valves and auxiliary/low-point dra	ins.
☐ Spare heads are located in cabinet at riser; sprinkler wrench is included.	
☐ Sprinkler guards are where needed.	
□ Pipe identification is provided where required.	
□ Escutcheons are provided where needed and are secured properly.	
☐ All wall and/or floor penetrations by pipe are properly packed.	
☐ A set of as-built drawings was given to owner's rep.	
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Project Commission	ning Section 01 91 00
Project Name	UTH Project #
	PREFUNCTIONAL CHECKLIST
	OVEN DRYER

Test #_ Location____

Submittal / Approvals

Submittal. All components of the work being installed have been submitted, reviewed and approved for use on this project. The components are complete and ready for prefunctional testing. Prior performance has been verified as complying with the contract documents as attested by the appropriate Contractor / Subcontractor signatures below. This prefunctional checklist is submitted for approval / witness, subject to an attached list of outstanding items yet to be completed. Any outstanding items will require completion before approval of this form can be executed. None of the outstanding items preclude safe and reliable prefunctional tests being performed.

List attached.			
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO)= by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Oven Dryer UT Health Project Commissioning Page 1 of 2



Project Commissioni	ng	Section 01 91 0	00		
MOTOR/ELECTRI	ICAL:				
Motor Manufacturer:		Serial #			
Motor Nameplate Da	ta - Volt	FLA	HP		
RMP	SVC Factor	Class	Frame_		
Actual per phase	Volt	FLA		_	
Starter Size	Fuse Size	Heater	Size	-	
	Approved			Cont.	UTH
Manufacturer produc	t data sheet				
INSTALLATION					
Label permanently at					
Temperature, pressur	re, gages and sensors				
Equipment power rec					
Power disconnects in	*				
All electric connection					
Proper grounding ins		s and unit			
Safeties in place and					
Control system interl		functional			
All control devices as					
Door latch / seal veri	fied				
Tray slide function v					
Installation/appli performance criteria				not met tl	he specified
Owner's Representat	ive / Commissioning	Authority	Date		
Approval: This fille exceptions noted	d-out checklist has b	een reviewed. Its o	completion is a	pproved	with the
Owner's Representativ	ve / Commissioning A	Authority	Date		

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	_
PRE	FUNCTI	ONAL CHECKL	IST
	PIPE I	NSULATION	
Location		Test #	¥
Submittal / Approvals			
approved for use on this p esting. Prior performance has by the appropriate Contracts submitted for approval / w completed. Any outstanding	or or ject. The consistency or subcontract ritness, subject items will required	being installed have been sunponents are complete and ras complying with the contractor signatures below. This proto an attached list of outstative completion before approximately after the complete and reliable profits and reliable profits are complete and reliable profits and reliable profits and reliable profits are complete and reliable profits and reliable profits are complete and reliable profits and reliable profits are complete and reliable profits	eady for prefunctiona t documents as attested efunctional checklist inding items yet to be val of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	 Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

General Contractor

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Other Contractor



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Pipe coated per specifications		
Proper density material installed		
Proper thickness insulation installed		
Insulation properly installed, mechanical fasteners, clean dry pipe, etc		
Insulation vapor barrier properly installed		
Hard insets at supports installed per specifications		
Shields at support points		
Fittings, valves, etc. properly insulated		
Insulation protective jacket per specifications		
Insulation vapor stops per specifications and manufacturers data		
Insulation primed and painted consistent per specifications		
Proper sealant / firestopping at penetrations		
Labeling installed per specifications		
Installation/application Rejected: The installation/application has performance criteria and will require reinspection before approval.		he specifie
Owner's Representative / Commissioning Authority Date e		
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	with the
Owner's Representative / Commissioning Authority Date e		



Section 01 91 00

Project Name	UTH Project #
	<u> </u>

PIPE PRESSURE TEST REPORT

Dina Tast Na		
Pipe Test No Identification of System Tested:		
•	System Tested	
Actual Location of Portion(s) of S		
Spec. Section:		wing Number:
Specified Performance Criteria:		
Description of Test Procedure:		
CONTRACTOR CERTIFICAT		Ε:
Actual Performance Confirmed	l by Test:	
Prime / General Contracto		
I hereby certify that the above de tested as indicated above and four	scribed system, or identified	•
Signature of Contractor	Printed Name	
Signature of Subcontractor	Printed Name	 Date
Test Witnessed by UT Hea	lth:	
Results of Test Acceptable?	YES NO Retest	Required? YES NO
Owners Representative	Printed Name	Date

Other Contractor

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTI	ONAL CHECKL	IST
	P	LASTER	
Location		Test #	<u> </u>
Submittal / Approvals			
Submittal. All component		being installed have been sul	-
Submittal. All component approved for use on this presting. Prior performance ha	roject. The constant	nponents are complete and reas complying with the contract	eady for prefunctionated documents as attested
Submittal. All component approved for use on this presting. Prior performance has by the appropriate Contractor submitted for approval / w	roject. The consistence of the confidence of the contraction of the contraction of the confidence of t	nponents are complete and reas complying with the contract tor signatures below. This preto an attached list of outstar	eady for prefunctional documents as attested functional checklist adding items yet to be
Submittal. All component approved for use on this presenting. Prior performance has by the appropriate Contracted submitted for approval / we completed. Any outstanding	roject. The constant seen verified or / Subcontractitness, subject items will requ	nponents are complete and reas complying with the contract tor signatures below. This preto an attached list of outstarties completion before approve	eady for prefunctional documents as attested functional checklist and all of this form can be
Submittal. All component approved for use on this presting. Prior performance has by the appropriate Contractor submitted for approval / we completed. Any outstanding executed. None of the outsperformed.	roject. The constant seen verified or / Subcontractitness, subject items will requ	nponents are complete and reas complying with the contract tor signatures below. This preto an attached list of outstar	eady for prefunctional documents as attested functional checklist and all of this form can be
Submittal. All component approved for use on this patesting. Prior performance has by the appropriate Contractor submitted for approval / we completed. Any outstanding executed. None of the outs	roject. The constant seen verified or / Subcontractitness, subject items will requ	nponents are complete and reas complying with the contract tor signatures below. This preto an attached list of outstarties completion before approve	eady for prefunctional documents as attested functional checklist and all of this form can be
approved for use on this patesting. Prior performance has by the appropriate Contractor submitted for approval / we completed. Any outstanding executed. None of the outsperformed.	roject. The constant seen verified or / Subcontractitness, subject items will requ	nponents are complete and reas complying with the contract tor signatures below. This preto an attached list of outstarties completion before approve	eady for prefunctional documents as attested functional checklist and all of this form can be

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

General Contractor

Date

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Manufacturer's product data, performance criteria Finish & color samples Mockup installed INSTALLATION Above soffit / in-wall work complete Blocking installed Proper metal framing and lath placement Installation of control joints Flashing installation Isolation from control/expansion joints Edge trim placement and alignment		
INSTALLATION Above soffit / in-wall work complete Blocking installed Proper metal framing and lath placement Installation of control joints Flashing installation Isolation from control/expansion joints		
INSTALLATION Above soffit / in-wall work complete Blocking installed Proper metal framing and lath placement Installation of control joints Flashing installation Isolation from control/expansion joints		
Above soffit / in-wall work complete Blocking installed Proper metal framing and lath placement Installation of control joints Flashing installation Isolation from control/expansion joints		
Above soffit / in-wall work complete Blocking installed Proper metal framing and lath placement Installation of control joints Flashing installation Isolation from control/expansion joints		
Blocking installed Proper metal framing and lath placement Installation of control joints Flashing installation Isolation from control/expansion joints		
Proper metal framing and lath placement Installation of control joints Flashing installation Isolation from control/expansion joints		
Installation of control joints Flashing installation Isolation from control/expansion joints		
Flashing installation Isolation from control/expansion joints		
Isolation from control/expansion joints		
*		
Edge trim placement and alignment		
Proper placement of, plaster rings, access panels, etc.		
Uniform plaster mix		
Protection of adjacent work		
Keying of scratch coat		
Proper thickness of brown coat within tolerances		
Uniform finish coat coloration, uniform texture		
Verify finish plaster within true plane tolerances		
FINAL		
Cleaning		
Removal of finish coat overspray		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approva		he specifi
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its compexceptions noted	letion is approved	with the
Owner's Representative / Commissioning Authority	Date	



Project Commissioning	Section 01 91 00
Project Name	UTH Project #
FUNCT	IONAL TEST CHECKLIST
PLUMBIN(G FIXTURE – Dom. Hot Water Temperature
Location	Test #
Submittal / Approvals	
Submittal. All components of	the work being installed have been submitted, reviewed and

approved for use on this project. The system is complete and ready for functional testing. All associated prefunctional checklists are complete, approved and attached to this FT. Prior performance has been verified as complying with the contract documents as attested by the appropriate Contractor / Subcontractor signatures below. Any outstanding items are noted as requiring correction / completion on attached list. Any outstanding items will require completion before approval of this form can be executed. None of the outstanding items preclude safe and reliable functional tests being performed.

List attached.			
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Section 01 91 00

Hot Water system operational verification procedures:

- 1. Adjust hot water heater temperature to 115° F.
- 2. Adjust and set balance valves on each floor for each zone.
- 3. Upon completion, shut off all fixtures (no flow), and allow system to stabilize for 24 hours.
- 4. After 24 hours, beginning with the lowest floor, and the fixtures furthest from that zones balancing valve; turn on hot water and record the amount of time the water reaches operating temperature.
- 5. Complete report for that fixture and continue to the next fixture and repeat step 4.

Pressure reading at circulation	403340040 404	PSL
Pressure reading at circulation	Duffid 18:	F 31

Fixture Location	Time to reach Temp (sec.)	Highest Temp	Pass	Cont.	UTH



Fixture Location	Time to reach Temp (sec.)	Highest Temp	Pass	Cont.	UTH
t Failure/Retest laria and will require r			has not met	the specifie	d perform
ner's Representative	/ Commissioning A	uthority	$\overline{\mathrm{D}}$	ate	
roval: The test has nents with any excep		neeting the po	erformance	requirements	s of the co
	Commissioning Au			ate	



Project Commiss	coning Section 01 91 00	
Project Name	UTH Project #	
	FUNCTIONAL TEST CHECKLIST	
	PLUMRING FIXTURE TEST	I

PLUMBING FIXTURE TEST						
Location		Test #				
Submittal / Approvals						
Submittal. All components approved for use on this project associated prefunctional check performance has been verifical appropriate Contractor / Subcerequiring correction / complete before approval of this form or reliable functional tests being public attached.	ect. The systen klists are cond as complyin ontractor signation on attached an be executed	n is complete and ready for an inplete, approved and attaching with the contract documentures below. Any outstanding list. Any outstanding items were	functional testing. All ed to this FT. Prior this as attested by the ag items are noted as will require completion			
Mechanical Contractor	Date	Controls Contractor	Date			
Electrical Contractor	Date	Plumbing Contractor	Date			

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO)= by others).
- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Other Contractor



Section 01 91 00

Hot Water system operational verification procedures:

- 1. Adjust hot water heater temperature to 115° F.
- 2. Adjust and set balance valves on each floor for each zone.
- 3. Upon completion, shut off all fixtures (no flow), and allow system to stabilize for 24 hours.
- 4. After 24 hours, beginning with the lowest floor, and the fixtures furthest from that zones balancing valve; turn on hot water and record the amount of time the water reaches operating temperature.

5. Complete report for that fixture	e and continue to the next fixture and repeat step 4
Pressure reading at circulation pump is:	:PSI.

Fixture operational verification procedure:

Sinks

- 1.Place stopper over/in drain basket.
- 2. Fill sink 2-3 inches with water using hot and cold valves.
- 3. Verify no leaks at valves / supply lines
- 4. Removed stopper and verify no leaks at drain lines

Restroom Fixtures

- 1. Operate valves at fixtures to ensure water hammer arrestor operational.
- 2. Ensure automatic flush valve operation

Emergency / Standard Shower

- 1. Operate valves and ensure proper flow
- 2. Verify no leaks

Fixture Location	Time to reach Temp (sec.)	Water Flow	No Leaks	Cont.	UTH



Fixture Location	Time to reach Temp (sec.)	Water Flow	No Leaks	Cont.	UTH
				+	
			_		_



Section 01 91 00

Fixture Location	Time to reach Temp (sec.)	Water Flow	No Leaks	Cont.	UTH
	re/Retest Require		med has not met t	he specified p	performa
ireria ana w	in require recessing o	erore approvan			
wner's Rep	resentative / Commis	sioning Authority	Dat	e	
	The test has been with the any exceptions not		ne performance re	quirements o	f the cont
ym an'a Dame	esentative / Commiss	ionina Authority	Dat		

Plumbing Fixtures
UT Health Project Commissioning

Page 4 of 4



Section 01 91 00

Project Name	UTH Project #
	<u> </u>

PREFUNCTIONAL CHECKLIST

Location	<u> </u>			
Submittal / Approvals				
testing. Prior performance has by the appropriate Contract submitted for approval / w	as been verified or / Subcontract vitness, subject	nponents are complete and reas complying with the contract or signatures below. This presto an attached list of outstar	documents as functional che	attested cklist is
		nire completion before approve preclude safe and reliable pre		can be
executed. None of the outs performed.				can be
executed. None of the outs performed List attached.	standing items p	preclude safe and reliable pre	functional test	can be

verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO)= by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



	Approved	Con	t. UTH
Manufacturer's cut sheets			
Performance data			
Welders certificates			
INSTALLATION			
Underground piping restra	ints coated per specifications		
Underground thrust block	s properly placed		
Trench bedding material p	per contract documents		
Backfill placed in lifts and	l compacted per contract documents	S	
	rench per contract documents		
Pipe fittings complete and	pipes properly supported		
	d coating per contract documents		
Pipe roller supports install			
Pipes properly labeled			
Pipes properly insulated			
Strainers in place and clea	n		
Isolation valves installed			
Cleanouts installed			
Flushing and cleaning plan	n submitted and approved		
	ished and cleaned (report attached)		
	er selected low point drains opened	and	
witnessed by Owner to be	clean. (list points checked)		
Piping hydrostatically test	ed per specifications (report attache	ed)	
Water treatment report sul	omitted according to contract docum	nents	
Heat tracing wire installed			
Valves checklists complet	e		
Valve labels permanently			
Pipe painted / coated per s	pecifications		
	on Rejected: The installation/approvill require reinspection before approximately		net the specific
Owner's Representative /	Commissioning Authority	Date	
Approval: This filled-out	checklist has been reviewed. Its co	ompletion is appro	oved with the
Owner's Representative / C	Commissioning Authority	Date	
11/29/21	Plumbing Piping		Page 2 of 2

Section 01 91 00

Project Name	UTH Project #
--------------	---------------

PREFUNCTIONAL CHECKLIST

PROJECTION SCREEN

Location		Test #			
Make		Model#			
Submittal / Approvals					
approved for use on this patesting. Prior performance has by the appropriate Contract submitted for approval / we completed. Any outstanding	roject. The con as been verified a or / Subcontract ritness, subject items will requ	being installed have been sub- inponents are complete and re- as complying with the contract for signatures below. This pre- to an attached list of outstandire completion before approve preclude safe and reliable pre-	eady for prefunctional documents as attested functional checklist is ading items yet to be all of this form can be		
Mechanical Contractor	Date	Controls Contractor	Date		
Electrical Contractor	Date	Plumbing Contractor	Date		
Other Contractor	Date	General Contractor	Date		
Du Landianal alaakiin	4 34	to be completed as no			

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Project Commission	0		-			
	MOTOR/ELECTRICAL: Motor Manufacturer: Serial #					
Motor Nameplate Da	ata - Volt	FLA	HP	HP		
RMP	SVC Factor	Class	Frame_			
Actual per phase	Volt	FLA		-		
Starter Size Fuse Size Heater Size				-		
	Approved			Cont.	UTH	
INSTALLATION						
Manufacturer's cut s	sheets					
Performance data						
INSTALLATION						
	orted per contract doc	uments				
Limit switches set a						
Operation (smooth)	*					
Operation (smooth)						
Motor/drive accessil						
Lubrication completed Motor access verified						
Installation/appl	lication Rejected: and will require reins			not met t	he specified	
Owner's Representa	tive / Commissioning	g Authority	Date			
Approval: This fill exceptions noted	ed-out checklist has b	oeen reviewed. Its c	completion is a	pproved	with the	
Owner's Representati	ive / Commissioning	Authority	Date			

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAL	L TEST CHECKI	LIST
		PUMP	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this pr associated prefunctional ch performance has been verif appropriate Contractor / Su requiring correction / comple	roject. The systemecklists are confied as complying becontractor sign etion on attached an can be executed.	being installed have been sulem is complete and ready for omplete, approved and attaching with the contract documenatures below. Any outstandid list. Any outstanding items wed. None of the outstanding it	functional testing. A need to this FT. Price nts as attested by the ng items are noted a will require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Record Submittal		
O&M Manuals		
Sequence of Operations verified		
OPERATION		
VFD operation verified (report attached)		
The HOA switch properly activates and deactivates the unit		
Pump rotation verified correct		
No unusual noise or vibration		
No leaking apparent around fittings		
Measure line to line voltage phase imbalance for each pump:		
(%Imbalance = 100 x (avg lowest) / avg.)		
Record imbalance of each pump (report attached)		
Record full load running amps for each pumprated FL amps x		
srvc factor = (Max amps)		
Specified sequences of operation and operating schedules have been		
implemented with all variations documented		
Specified point-to-point checks have been completed and		
documentation record submitted for this system		
Pump speed. Check the amperage of the circulating pumps.		
Amperage should be less than the rated amps. Rated =		
SP-1[]		
SP-2[
Change the schedule so the pumps should be OFF.		
Pumps turn OFF.		
Schedule the pumps to be ON.		
Return schedule to normal.		
Pumps start.		
Schedule returned to normal		



Section 01 91 00

Sensor	and	Actuator	Calibr	ation

All field-installed pressure sensors and gages on this piece of equipment shall be calibrated using the methods and tolerances given in the Calibration and Leak-by Test Procedures document.

All test instruments shall have certified calibration during past 12 months: Y/N Sensors installed *in* the unit at the factory with calibration certification provided need not be field calibrated.

Sensor or Actuator & Location	Location OK	1 st Gage or BAS Value	Instr. Meas'd Value	Final Gage or BAS Value	Pass Y/N?

Gage reading = reading of the permanent gage on the equipment. BAS = building automation system. Instr. = testing instrument. Visual = actual observation. The Contractor's own sensor check-out sheets may be used in lieu of the above, if the same recording fields are included and the referenced procedures are followed.

Test Failure/Retest Required: The Test performed h criteria and will require retesting before approval.	nas not met the specified performance	
Owner's Representative / Commissioning Authority	Date	_
Approval: The test has been witnessed as meeting the perdocuments with any exceptions noted.	formance requirements of the contrac	t
Owner's Representative / Commissioning Authority	Date	_



DDE	CHINICTI	NCTIONAL CHECKLIST			
PKE	FUNCTI	ONAL CHECKL	151		
		PUMP			
Location		Test #			
Make		Model#			
Submittal / Approvals					
Submittal. All component		being installed have been sul nponents are complete and re			
Submittal. All component approved for use on this p testing. Prior performance haby the appropriate Contracte submitted for approval / w completed. Any outstanding	roject. The con as been verified or / Subcontract itness, subject items will requ		eady for prefunctional to documents as attested functional checklist inding items yet to be all of this form can be		
Submittal. All component approved for use on this p testing. Prior performance has by the appropriate Contracte submitted for approval / w completed. Any outstanding executed. None of the outs performed.	roject. The con as been verified or / Subcontract itness, subject items will requ	nponents are complete and reas complying with the contractor signatures below. This presto an attached list of outstandire completion before approve	eady for prefunctional to documents as attested functional checklist inding items yet to be all of this form can be		
Submittal. All component approved for use on this p testing. Prior performance has by the appropriate Contracte submitted for approval / w completed. Any outstanding executed. None of the outs performed. List attached.	roject. The consistency verified or / Subcontract itness, subject items will required tanding items p	nponents are complete and reas complying with the contract tor signatures below. This preto an attached list of outstandire completion before approved preclude safe and reliable predoctions.	eady for prefunctional to documents as attested functional checklist inding items yet to be all of this form can be functional tests being		

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO)= by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Project Commissioni	ing	Section 01 91 (00		-
MOTOR/ELECTR Motor Manufacturer:		Serial #			
Motor Manufacturer.		Sellal #			
Motor Nameplate Da	ıta - Volt	FLA	HP		
RMP	SVC Factor	Class	Frame_		
Actual per phase	Volt	FLA		<u>-</u>	
Starter Size	Fuse Size	Heater	Size	-	
	Approved		-	Cont.	UTH
Manufacturer produc	et data sheet				
INSTALLATION					
Label permanently a					
Pumps in place and p					
Vibration isolation d					
Pressure and flow ga					
Pipe fittings complete		supported			
Valves properly tagg Y-strainer baskets cl					
Suction strainers in p					
Block valves in place					
Drain lines to floor					
Check Valves install					
Bearings lubricated					
Pump alignment veri	•	/			
Impeller rotation: C					
VFD/Starter/Transfe		s installed			
High/Temp safety in					
All control devices, j	pneumatic tubing and	d wiring complete			
Installation/appliperformance criteria	•	_	_	not met t	he specifi
Owner's Representat	tive / Commissioning	g Authority	Date		
Approval: This fille exceptions noted	ed-out checklist has l	been reviewed. Its o	completion is a	pproved	with the
Owner's Representati	ve / Commissioning	Authority	Date		
11/29/21	UT Health I	Pump Project Commission	ning	Page	e 2 of 2



Section 01 91 00

Project Name	UTH Project #
--------------	---------------

PREFUNCTIONAL CHECKLIST

Location		Test #			
Submittal / Approvals					
approved for use on this presting. Prior performance has by the appropriate Contractes submitted for approval / w	roject. The com as been verified a or / Subcontract ritness, subject	being installed have been subspondents are complete and reas complying with the contractor signatures below. This presto an attached list of outstandire completion before approve	eady for prefund documents as a functional check ding items yet	ctional t <u>tested</u> tlist is to be	
executed. None of the outsperformed.	-	preclude safe and reliable pre			
	-				
executed. None of the outsperformed. List attached.	tanding items p	preclude safe and reliable pre	efunctional tests		

verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO)= by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Project Commissioning	Section 01 91 00
Manf.	Model #
Serial #	CFM

Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
Installation and startup manual and plan		
INSTALLATION		
Permanent labels affixed		
Casing condition good: no dents, leaks, door gaskets installed		
Liner as specified		
Work Surface as specified		
Cup Sink as specified		
Baffle Adjustment as specified		
Water fixture connected and operable		
Gas fixture connected and operable		
Vacuum fixture connected and operable		
Air fixture connected and operable		
Plumbing waste line connected		
Fire and balance dampers installed (if required)		
Backdraft dampers installed, per drawings, and operate freely		
Flow monitor installed		
Exhaust collar as specified		
Interior access panels w/ gaskets as specified		
Sash Stop as specified (manual and automatic reset)		
Sash Design as specified, including safety glass, horiz/vert w/ counter		
balance, (verify sash operation)		
ELECTRICAL		
Electrical connections complete		
Disconnect switch installed		
Fan overload heaters in place		
Hood Outlets as specified		
Interior Hood lighting as specified		
Alarm as specified and verified (report attached)		
Fan rotation correct		
Electrical interlocks verified		
Any fan status indicators functioning		
No unusual vibration or and noise		
Fuse Size		
Heater Size		
Starter Size		



Installation/application Rejected: The installation/a performance criteria and will require reinspection before application.	1.	cified
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its exceptions noted	completion is approved with the	he
Owner's Representative / Commissioning Authority	Date	



Section 01 91 00

Project Name	UTH Project #
--------------	---------------

PREFUNCTIONAL CHECKLIST

RECOVERED WATER PIPING

Location		Test #	!	
Submittal / Approvals				
approved for use on this presting. Prior performance how the appropriate Contract submitted for approval / we completed. Any outstanding	oroject. The con as been verified for / Subcontract vitness, subject g items will requ	being installed have been sulponents are complete and reas complying with the contractor signatures below. This presto an attached list of outstandire completion before approved reclude safe and reliable presented.	eady for prefunct documents as atte functional checkled inding items yet to all of this form ca	ested st is be be be
List attached. Mechanical Contractor	Date	Controls Contractor	Date	
List attached.	Date Date	Controls Contractor Plumbing Contractor	Date Date	

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Underground thrust blocks properly placed		
Trench bedding material per contract documents		
Backfill placed in lifts and compacted per contract documents		
Pipe ID tape installed in trench per contract documents		
Pipe fittings complete and pipes properly supported		
Pipe hangers type, size and coating per contract documents		
Pipes properly labeled		
Pipes properly insulated		
Strainers in place and clean		
Isolation valves installed		
Cleanouts installed		
Flushing and cleaning plan submitted and approved		
Piping system properly flushed and cleaned (report attached)		
Piping hydrostatically tested per specifications (report attached)		
Heat tracing wire installed		
Valves checklists complete		
Valve labels permanently affixed		
Pipe painted / coated per specifications		
Installation/application Rejected: The installation/application before approval.	nas not met t	he specifi
Owner's Representative / Commissioning Authority Date te		
Approval: This filled-out checklist has been reviewed. Its completion	is approved	with the
xceptions noted		



Project Commissioning	Section 01 91 00	
Project Name	UTH Project #	
FUNC	TIONAL TEST CHECKLIST	

DECOVERED WATER DIDING SYSTEM

Location		Test #	<u> </u>	
Submittal / Approvals				
approved for use on this prassociated prefunctional claperformance has been veri appropriate Contractor / Surequiring correction / complete	roject. The systemecklists are confied as complying abcontractor sign etion on attached a can be executed.	being installed have been sub m is complete and ready for mplete, approved and attach ng with the contract docume latures below. Any outstanding d list. Any outstanding items ved. None of the outstanding ite	functional testing ed to this FT. nts as attested by the nt of th	g. All Prior y the ed as letion
Mechanical Contractor	Date	Controls Contractor	Date	-
Electrical Contractor	Date	Plumbing Contractor	Date	_
Other Contractor	Date	General Contractor	Date	_

Functional checklist items are to be completed and approved before placing equipment into operation.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO)= by others).
- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved

Project Commissioning

Section 01 91 00

Record Submittal			
Any and all punchlist items corrected			
Piping system properly flushed and cleaned (report attache	d) Y / N		
Cross-contamination dye test performed (report attached)	Y / N		
Pipe video inspected per specifications (report attached) Y	/ N		
Water purity verified (report attached) Y / N			
Owner's Representative / Commissioning Authority	Date		
owner b representative / commissioning / fathority			
Approval: The test has been witnessed as meeting the perdocuments with any exceptions noted.	formance req	uirements	of the contract

UTH

Cont.

Project Commissioning	Section 01 91 00
Project Name	UTH Project #
PREF	UNCTIONAL CHECKLIST
R	EFRIGERANT PIPING
Location	Test #
Submittal / Approvals	
approved for use on this proj	of the work being installed have been submitted, reviewed and ect. The components are complete and ready for prefunctional peen verified as complying with the contract documents as attested

approved for use on this project. The components are complete and ready for prefunctional testing. Prior performance has been verified as complying with the contract documents as attested by the appropriate Contractor / Subcontractor signatures below. This prefunctional checklist is submitted for approval / witness, subject to an attached list of outstanding items yet to be completed. Any outstanding items will require completion before approval of this form can be executed. None of the outstanding items preclude safe and reliable prefunctional tests being performed.

List attached

List attached.			
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
Flushing and cleaning plan, including staging of multiple floors		
INSTALLATION		
Pipe fittings complete and pipes properly supported		
Pipe Size consistent with contract documents		
Pipes properly labeled		
Wall/Floor penetrations sealed in accordance with contract documents		
Pipes properly insulated		
Suction risers and traps installed per manufacturers recommendations		
Flushing and cleaning plan submitted and approved		
Piping system properly flushed and cleaned and temporary piping removed (report attached)		
Piping joints brazed with "Stay-Silv" or approved equal (95-5 prohibited)		
Piping pressure tested per specifications (report attached)		
Suction Line Filters installed		
No leaking apparent around fittings		
Isolation Valves installed		
Valve labels permanently affixed		
Installation/application Rejected: The installation/application has performance criteria and will require reinspection before approval.	as not met t	he specific
Owner's Representative / Commissioning Authority Date)	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	with the
Owner's Representative / Commissioning Authority Date)	

Section 01 91 00

Project Name	UTH Project #

PRE	FUNCTIO	ONAL CHECKL	IST
	ROLI	L UP DOOR	
Location		Test #	<u> </u>
Make		Model#	
approved for use on this presting. Prior performance has by the appropriate Contract submitted for approval / we completed. Any outstanding	oroject. The commas been verified a cor / Subcontract vitness, subject to gitems will required.	being installed have been subsponents are complete and reas complying with the contract or signatures below. This presto an attached list of outstartire completion before approved reclude safe and reliable presented.	eady for prefunctional t documents as attested efunctional checklist is ading items yet to be all of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date
Prefunctional checklist verification, preparatory		to be completed as po testing.	art of installation
• This checklist does not startup procedures or rep	-	of the manufacturer's recom	mended checkout and
T	1 11 1 . 1 . 1	1.4 41.6 01/	1 11 D

- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Roll Up Door
UT Health Project Commissioning

Page 1 of 2



Project Commissic	oning	Section 01 91 00		
MOTOR/ELECTRION Motor Manufacture	CAL: er:	Serial #		
Motor Nameplate	Data - Volt	FLA	HP	
RMP	SVC Factor	Class	Frame	
Actual per phase	Volt	FLA		
Starter Size	Fuse Size	Heater S	ize	
	Approved		Cont.	UTH
INSTALLATION	V			
Manufacturer's cu	t sheets			
Performance data				
INSTALLATION	N			
Manual operation	(option) included			
Manual operation				
Auto-reverse/press	sure sensor verified			
Bottom edge gaske				
Unit secured / supp	ported per contract doc	cuments		
Limit switches set	and adjusted			
Operation (smooth	ı)-up			
Operation (smooth	n) down			
Motor/drive access	sible			
Lubrication compl	eted			
Fused fire link pro	per temperature rating			
Motor access verif	ĭed			
	plication Rejected: ia and will require rein			t the specif
Owner's Represent	tative / Commissioning	g Authority	Date	
Approval: This fi	lled-out checklist has	been reviewed. Its co	mpletion is approve	ed with the
Aceptions noted				



Section 01 91 00

SANITARY SEWER INSPECTION REPORT

DatePro				rojectA N				A Nearby Building is									
Camera E	ntrance N	/Ian	ho	le #]	MΕ	I D	epi	th_					MH Material_	
MH Cond	ition											S	tart '	Tir	ne_		
Pipe Size_			-		Pi	pe '	Гур	e						F	Pipe	e Condition	
Depth of I	Flow (inc	hes)							Diı	rec	tion	of	Pul	l is	S1	tream
Camera E	xit Manh	ole	#				N	ΙH	De	pth	l				<u>M</u>	H Material	
MH Cond	ition											S	tart '	Tir	ne_		
Measurem	nents Beg	gin a	at N	ИΗ	#							_		S	Skio	d Sizeir	nch
Tape Cour	nter # Be	gin												F	End	<u>:</u>	
Operator_										Cre	ew_						
Company_																	
General R	emarks_																
	T			ı			ı	1					ı	ı			
Tape Counter	Feet	[]	(4-	4	(1-4)	(4-1			4)	-4)	-4)	(1-4)	(1-4)	hes)		Remarks	
		Fie-In (R-L-T)	reak (1	eak (1	Itiple Break (1-4)	ssing Pipe (1-4)	Roots (1-4)	e (1-4)	ent (1-	ion (1-	oint (1	Joint	Wall Failure (1-4)	h (incl	Other (1-4)		
		rie-In	rcle B	ong Break (1-4)		issing	Root	Greas	Sediment (1-4)	ıfiltrat	ffset J	parated Joint (1-4)	43	g Depth (inches)	Othe		
			Ci	ĭ	Mu	M			9 1	Iı	0	Sep	Pipe	Sa			

Section 01 91 00

SANITARY SEWER INSPECTION REPORT

Tape	Feet															Remarks
Tape Counter			(4	4)	Multiple Break (1-4)	4			(+	4)	Separated Joint (1-4)	Pipe Wall Failure (1-4)	(sa		
		L-T	τ (1.	(1-	ık (e (1	4-	-4	4	(1-7	(1-	nt (ıre (nch	4	
		Tie-In (R-L-T)	Circle Break (1-4)	Long Break (1-4)	3re	Missing Pipe (1-4)	Roots (1-4)	Grease (1-4)	Sediment (1-4)	Infiltration (1-4)	Offset Joint (1-4)	Joi	Failı	Sag Depth (inches)	Other (1-4)	
		-In	e B	B1	le I	ng	oot	eas	ime	trat	et J	ıted	[all])ept	the	
		Tie	ircl	guo	ltip	issi	R	Ģ	Sed	nfil	ffs	oara	e W	Ωgη	0	
			C	Τ	Mι	Σ				I	С	Sel	Pip	Sa		



Section 01 91 00

REPORT LEGEND

NOTE: Use letters / numbers to indicate status of issue in columns.

Tie-in (branch line Tie-in direction)

R -Right

L - Left

T - Top

Indicate approximate size of branch line in remarks column

Breaks

Circle Break

1=circle crack

2=open circle break

3=bad circle break, pipe is separate or offset

4=severe circle break, pipe is separate and offset

Long Break

1=long crack

2=open long break

3=bad, separate long break

4=severe, separate and offset long

break. Pipe is collapsible

Multiple Breaks

1=multiple cracks

2=open multiple breaks

3=bad multiple breaks, but stable

4=severe multiple breaks, pipe is

collapsible or collapsed

Missing Pipe

1=small hole in pipe, small piece of pipe is missing

2=medium piece (less that 1/4 of the

circumference of the pipe)

3=missing a large piece of pipe, with soil

exposed

4=missing a whole section of pipe

Roots

1=light roots

2=medium roots

3=heavy roots (example: enough roots to block more than half of a 6" or 8" line)

4=severe root problem, camera cannot

pass

Grease

1=light grease

2=medium grease

3=heavy grease

4=severe grease problem, camera cannot pass

Sediment

1=light sediment, sand and rocks

2=medium sediment, sand and rocks

3=heavy sediment, sand and rocks

4=severe sediment problem, camera

cannot pass

Infiltration

1=dripping infiltration

2=continuous infiltration

3=heavy, bad infiltration

4=severe, pouring infiltration

Offset Joint

1=joint slightly offset

2=joint is moderately offset

3=joint is severely offset, but camera can

4-=camera cannot pass offset joint

Separated Joint

1=joint is slightly separated

2=joint is moderately separated

3=joint is severely separated

4=camera cannot pass separated joint

Pipe Wall Failure

1=light corrosion or aggregate visible in pipe wall

2=medium corrosion or aggregate visible in pipe wall

3=heavy corrosion or aggregate visible in pipe wall

4=severely deteriorated pipe, wall is worn out with soil exposed

Other

1=obstruction in pipe

2=concrete in pipe

3=branch line protruding into pipe

4=gasket hanging into pipe



Section 01 91 00

Project Name	UTH Project #
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PREFUNCTIONAL CHECKLIST

SANITARY WASTE PIPING

Location		Test #		
Submittal / Approvals				
approved for use on this pro- testing. Prior performance has by the appropriate Contractor submitted for approval / wit completed. Any outstanding is	bject. The conbeen verified Subcontract ness, subject tems will requ	being installed have been subspended in the property of the contract to the contract t	ady for prefu documents as functional che iding items year al of this form	attested ecklist is et to be n can be
Mechanical Contractor	Date	Controls Contractor	Date	
Electrical Contractor	Date	Plumbing Contractor	Date	
Other Contractor	Date	General Contractor	Date	

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Underground piping restraints coated per specifications		
Trench bedding material per contract documents		
Backfill placed in lifts and compacted per contract documents		
Manhole connections verified as correct		
Drain line profile verified		
Pipe ID tape installed in trench per contract documents		
Pipe fittings complete and pipes properly supported		
Pipe hangers type, size and coating per contract documents		
Pipes properly labeled		
Cleanouts installed and accessible		
Flushing and cleaning plan submitted and approved		
Piping pressure tested per specifications (report attached)		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval. Owner's Representative / Commissioning Authority	n has not met t	he specific
o where a representative recommissioning reactiontry		
Approval: This filled-out checklist has been reviewed. Its complete exceptions noted	ion is approved	with the
Owner's Representative / Commissioning Authority	Date	



Project Commissioning	Section 01 91 00
Project Name	UTH Project #
FUNCT	IONAL TEST CHECKLIST
SANITA	RY WASTE PIPING SYSTEM
Location	Test #

Submittal / Approvals

Submittal. All components of the work being installed have been submitted, reviewed and approved for use on this project. The system is complete and ready for functional testing. All associated prefunctional checklists are complete, approved and attached to this FT. Prior performance has been verified as complying with the contract documents as attested by the appropriate Contractor / Subcontractor signatures below. Any outstanding items are noted as requiring correction / completion on attached list. Any outstanding items will require completion before approval of this form can be executed. None of the outstanding items preclude safe and reliable functional tests being performed.

List attached.			
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Cont.	UTH
	Cont.

Test Failure/Retest Required: The Test performed be criteria and will require retesting before approval.	nas not met the specified po	erformance
Owner's Representative / Commissioning Authority	Date	
Approval: The test has been witnessed as meeting the perdocuments with any exceptions noted.	formance requirements of	the contract
Owner's Representative / Commissioning Authority	Date	



Section 01 91 00

Project Name	UTH Project #

INTEGRATED SYSTEM TEST REPORT

SMOKE EVACUATION SYSTEM

Test #			
All system associated with this Checklists documenting this are complying with the contract documenting with the contract documentation of the contract documents below. Any outstanding it executed. None of the outstand performed. List attached.	re attached. Pri cuments as attes ading items are tems will requir	or integrated performance sted by the appropriate Control noted as requiring correct e completion before approva	has been verified as ractor / Subcontractor ion / completion on al of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Tests performed with this IST are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Section 01 91 00

Approved	Cont.	UTH
All smoke dampers installed		
Air/Signal provided to all damper motors		
Duct access doors installed at each damper		
An SAV (with pressure gauge) installed in control cabinet for each of the following		
One for each set of cold deck dampers per floor		
One for each set of hot deck and mixed air dampers per floor		
Two for each set of return air dampers per floor at chase		
One for each return air beyond chase		
One for all T-Stats per floor		
Outside air		
One for return air & smoke purge OA to hot deck		
Relief air		
All SAV's wired to Fire Alarm System		
All duct detectors installed and wired to AHU and Fan equipment		
annunciator panels and fire alarm		
Hot deck "Smoke purge/Freeze override" wired to F/A relay per detail		
Verify areas requiring negative pressure differential are maintained		
during smoke evac operation.		
Verify all exit doors from all rooms comply with opening force		
requirements during smoke evac operation		

Typical system operation (Verify with project specifications)

Upon activation of the fire sp the affected floor (<i>Alarm Flo</i>		•	stem will identify
1) Enable AHU_run. In addition, the cold			_(return air) fans to
2) Open" the return air smok	e dampers on the <i>Alar</i>	m Floor.	
3) "Close" the hot & cold sup	oply air smoke damper	rs on the Alarm Floor.	
4) "Close" the return air and <i>Floor</i> .	cold supply air smoke	dampers on the <i>Floor</i>	Above the Alarm
5) "Close" the return air and <i>Floor</i> .	cold supply air smoke	dampers on the Floor	Below the Alarm



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Section 01 91 00

- 6) "Open" the hot supply air smoke dampers and enable the T-stat SAV's on the *Floor Above* the *Alarm Floor*.
- 7) "Open" the hot supply air smoke dampers and enable the T-stat SAV's on the *Floor Below* the *Alarm Floor*.
- 8) "Open" the smoke purge outside air damper to allow fresh air to the hot deck AHU____
- 9) "Close" all other outside air and return air dampers. (These are usually in the air handler mechanical room). NOTE: This will cause relief damper to "open" for smoke ventilation of **Alarm Floor.**

Verify correct operation of the smoke evacuation system by performing the following demonstration on each floor of the facility. Contractor shall provide staff to visually verify each device activation and record same on this form.

SMOKE DAMPERS/SAV/FACP OPERATIONAL CHECK:
Jpon Fire Alarm activation visually verify the following:
AHU(cold deck) "shuts down": Y N N/A relay energized Y N (NC)
AHU(hot deck) "speeds up": Y N N/A relay (no change) Y N (NC)
RA (return air) "speeds up" Y N N/A relay (no change) Y N (NC)
Hot Deck "smoke purge/freeze override"
S/A relay energized: Y N (NO)
Outside air damper "closes": Y N
Return air damper to AHU (cold deck) "closes": Y N
Return air damper to AHU (hot deck) "closes" AND O Outside air damper (smoke purge air to hot deck) "opens" Y N
S/A relay energized: Y N (NC)
Relief damper "opens": Y N
Stairwell pressurization fan #"starts": Y N Damper "opens": Y N
VA relay energized: Y N (NO)
Stairwell pressurization fan # "starts": Y N Damper "opens": Y N
N/A relay energized: Y N (NO)
Exhaust Fan # "stops": Y N (Interlocked with SPF-1)
Smoke Evacuation System Page 3 of 5 UT Health <i>Project Commissioning</i>



Section 01 91 00

ALARM FLOOR

Simulate a fire alarm activation	on this floo	or #			
All RA dampers are "OPEN" on	this floor	Y	N		
SAV-1 de-energized Y F/A relay energized Y			,		
SAV-2 [no change] Y F/A relay [no change] Y	N N (N	•			_)
All SA cold dampers are "CLOS	SED" on th	is floor_	Y	N	
SAV de-energized_ Y F/A relay energized_ Y	N N (No	(EP #: C)			_)
All SA hot & MA dampers are "	CLOSED'	on this	floor_ Y	N	
SAV energized Y F/A relay energized Y	N N (N	(EP #: C)			
FLOOR # ABOVE =					
All RA dampers are "CLOSED"	on this flo	oor Y	N		
SAV-1 de-energized Y F/A relay energized Y					
SAV-2 de-energized Y F/A relay energized Y					
All SA cold dampers are "CLOS	SED" on th	is floor	Y	N	
SAV de-energized Y F/A relay energized Y		•			_)
All SA hot & MA dampers are "	OPEN" on	this floo	or Y	N	
SAV [no change] Y F/A relay [no change] Y					
T-Stat SAV de-energized F/A relay energized Y	d Y N (No		(EP #:		



Project Commissioning		Section	01 91 00		
<u>FLOOR # BELOW</u> =			<u>-</u>		
All RA dampers are "CLOSEI	O" on this floo	or	Y	N	
SAV-1 de-energized F/A relay energized					
SAV-2 de-energized F/A relay energized					
All SA cold dampers are "CLC	OSED" on thi	s floor	Y	N	
SAV de-energized F/A relay energized	Y N Y N (NC	(EP #:			
All SA hot dampers are "OPE"	N" on this flo	or	Y	N	
SAV [no change F/A relay [no change]	Y N Y N (NC	C)			
T-Stat SAV de-energiz F/A relay energized	ed Y Y N (NC		(EP #:)
Test Failure/Retest Requestion and will require retesting		-	rmed has no	ot met the	e specified performance
Owner's Representative / Com	missioning A	uthority	-	Date	
Approval: The test has been valocuments with any exceptions		meeting	the perform	ance requ	uirements of the contrac
Owner's Representative / Com	missioning Au	uthority		Date	



Project Commissioning	Section 01 91 00
Project Name	OFPC Project #
	SPARE KEY SCHEDULE

DESCRIPT	<u>ION</u>	QUANTITY	DATE RECEIVED
Irrigation Co	ntroller		
Access Door			
110000	Wall:		
Waste Paper			
Paper Towel	-		
	kin Dispenser:		
Millwork:	Doors:		
1,1111,1,0111,	Drawers:		
	Master:		
building. Ind		ber and east, west, nort	key is required for the millwork in the th or south location within the room or
Operable par	titions:		
Knox Box:	mons.		
Elevator:	Fireman:		
Lievator.	Cab Panel:		
	Access Door:		
VFD's:	Access Door.		
Electrical Pa	nels:		
Electrical Sw			
Electrical Sw	Doors:		
Electrical Sw			
	Control Panel:		
	ower Supply		
THE Alaim I	Panels:		
Security Pan			
	nication Panels:		
BAS Panels:	neation rancis.		
Miscellaneou	1C•		
Miscellaneou	15.		
			
			
			
11/29/21			Page 1 of 2



Project Commissioning	Section	ı 01 91 00
Miscellaneous_	QUANTITY	DATE RECEIVED
all of the above listed keys has ransmitted to the Owner.	ave been verified as correct	in quality and quantity. All keys



	ICMIGIT I	3436311
Project Con	nmissioning	Section 01 91 00
Project Nan	ameUTH Project #	
	FUNCTION	ONAL TEST CHECKLIST
	STAIRWE	LL PRESSURIZATION FAN
Location		Test #

Submittal / Approvals

Submittal. All components of the work being installed have been submitted, reviewed and approved for use on this project. The system is complete and ready for functional testing. All associated prefunctional checklists are complete, approved and attached to this FT. Prior performance has been verified as complying with the contract documents as attested by the appropriate Contractor / Subcontractor signatures below. Any outstanding items are noted as requiring correction / completion on attached list. Any outstanding items will require completion before approval of this form can be executed. None of the outstanding items preclude safe and reliable functional tests being performed.

List attached.				
Mechanical Contractor	Date	Controls Contractor	Date	
Electrical Contractor	Date	Plumbing Contractor	Date	_
Other Contractor	Date	General Contractor	Date	

Functional checklist items are to be completed and approved before placing equipment into operation.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
DELIVERABLES		
Record Submittal		
Performance data		
Service / maintenance contract		
Sequences and control strategies		
O&M manuals		
PERFORMANCE		
The HOA switch properly activates and deactivates the unit		
Fan rotation verified as correct		
Vibration within tolerances (report attached) Y / N		
Verify noise dB within tolerances		
Verified door pull/push force is within tolerances		
TAB firm verified pressure delta (report attached) Y/N		
Record full load running amps for fan.		
rated FL amps x $\frac{1}{1}$ srvc factor = $\frac{1}{1}$ (Max amps)		
Specified sequences of operation and operating schedules have been		
implemented and verified (report attached		
Specified point-to-point checks have been completed		
(report attached) Y/N		
VFD operation verified (report attached) Y/N		
Test Failure/Retest Required: The Test performed has not met to criteria and will require retesting before approval.	he specified	d performand
Owner's Representative / Commissioning Authority Da	te	
Approval: The test has been witnessed as meeting the performance redocuments with any exceptions noted.	equirements	of the contra



Section 01 91 00

Project Name UTH Project #	
----------------------------	--

PREFUNCTIONAL CHECKLIST

STAIRWELL PRESSURIZATION FAN

Location		Test #							
Make		Model#							
Submittal / Approvals									
approved for use on this patesting. Prior performance has by the appropriate Contract	project. The con as been verified a tor / Subcontract	being installed have been subspaced in ponents are complete and reas complying with the contract tor signatures below. This presto an attached list of outstar	eady for prefunct documents as atte functional checkl	onal ested st is					
completed. Any outstanding executed. None of the outsperformed.	g items will requ	nire completion before approvoreclude safe and reliable pre	al of this form ca	n be					
completed. Any outstanding executed. None of the outsperformed List attached.	g items will requ	aire completion before approv	al of this form ca	n be					
completed. Any outstanding	g items will requestanding items p	nire completion before approvoreclude safe and reliable pre	al of this form ca	n be					

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



MOTOR/ELECTR	ICAL:		
Motor Manufacturer:		Serial #	
Motor Nameplate Da	.ta - Volt	FLA	HP
RMP	SVC Factor	Class	Frame
Actual per phase	Volt	FLA	
Starter Size	Fuse Size	Heater Size	e

Approved	Cont.	UTH
INSTALLATION		
Manufacturer's cut sheets		
Performance data		
Installation and startup manual and plan		
Shop drawings		
INSTALLATION		
Permanent labels affixed		
Casing condition good: no dents, leaks, door gaskets installed		
Vibration isolators installed – shipping blocks removed		
Equipment guards installed		
Pulleys aligned		
PolyChain or Vee Belt: Belt		
Belt tension correct		
Sheave size/number		
Plenums clear of debri		
Fan wheel to shaft bolts torque properly		
Fans rotate freely		
Alignment check: Fan sheave to motor sheave: degrees		
$(0^{\circ} \pm 0^{\circ})$		
Bearings lubricated		
SSTL lube lines installed		
Ductwork connected with flex connections		
Backdraft dampers installed, per drawings, and operate freely		
Duct system complete (report attached)		
Electrical connections complete		
Disconnect switch installed		
Overload heaters in place		
Control connections complete		
VFD connected and operational (report attached)		



Installation/application Rejected: The installation/performance criteria and will require reinspection before a	1.1	cified
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its exceptions noted	s completion is approved with t	the
Owner's Representative / Commissioning Authority	Date	



Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	_
FUNC	TIONAI	L TEST CHECKI	LIST
	STEAM	AUTOCLAVE	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this pro- associated prefunctional che	ject. The syste cklists are co	being installed have been sub m is complete and ready for mplete, approved and attach ng with the contract document	functional testing. All ed to this FT. Prior
appropriate Contractor / Sub- requiring correction / complet before approval of this form reliable functional tests being	contractor signation on attached can be executed	natures below. Any outstanding list. Any outstanding items ved. None of the outstanding items	ng items are noted as vill require completion
List attached.			
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
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Other Contractor

Date



Approved	Cont.	UTH
DELIVERABLES	•	1
Record Submittal		
Performance data		
Service / maintenance contract		
Sequences and control strategies		
O&M manuals		
PERFORMANCE		
Air gap at floor drain		
Verify noise dB within tolerances		
No leaking apparent around fittings		
Internal operating temperature within tolerances		
Door seal correct		
Door and shelving - proper operation		
Specified sequences of operation and operating schedules have been		
implemented and verified (report attached)		
Specified point-to-point checks have been completed		
(report attached) Y/N		
Equipment instrumentation functions properly		
Purity of system verified (report attached) Y/N		
Test Failure/Retest Required: The Test performed has not met the criteria and will require retesting before approval.	e specifie	d performano
		d performano
criteria and will require retesting before approval.	2	



Project Commissioning	Section 01 91 00	
Project Name	UTH Project #	
PREFU	NCTIONAL CHECKLIST	
STEAM	/ CONDENSATE PIPING	

Submittal / Approvals									
approved for use on this present testing. Prior performance has by the appropriate Contractor submitted for approval / we completed. Any outstanding	roject. The constant specified or / Subcontractions, subject items will required.	being installed have been subspecified installed have been subspecified in the contract of the contract of signatures below. This presents of an attached list of outstandire completion before approved preclude safe and reliable presents.	eady for prefunctional to documents as attested functional checklist is adding items yet to be all of this form can be						
Mechanical Contractor	Date	Controls Contractor	Date						
Electrical Contractor	Date	Plumbing Contractor	Date						
Sprinkler Contractor	Date	General Contractor	Date						

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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	Cont.	UTH	
Manufacturer's cut sheets			
Performance data			
INSTALLATION			
Underground piping restra	aints coated per specifications		
Underground thrust block	s properly placed		
Trench bedding material p	per contract documents		
Backfill placed in lifts and	d compacted per contract documents		
Pipe ID tape installed in tr	rench per contract documents		
Pipe fittings complete and			
Pipe hangers type, size an	d coating per contract documents		
Pipe roller supports install			
Pipes properly labeled			
Pipes properly insulated			
Strainers in place and clea	ın		
Traps installed per contract			
Isolation valves installed			
Schedule 80 pipe installed	I for high pressure steam		
PRV station installed per			
Flushing and cleaning plan	n submitted and approved		
	ushed and cleaned (report attached)		
10% of strainers and Own	er selected low point drains opened ar	nd	
	clean. (list points checked)		
	ted per specifications (report attached))	
	bmitted according to contract docume		
Heat tracing wire installed			
Valves checklists complet			
Valve labels permanently			
	on Rejected: The installation/applicate vill require reinspection before approximately		et the specifi
Owner's Representative /	Commissioning Authority	Date	
Approval: This filled-out exceptions noted	t checklist has been reviewed. Its com	pletion is approv	red with the
Owner's Representative / C	Commissioning Authority	Date	
11/29/21	Steam / Condensate Piping		Page 2 of 2



Section 01 91 00

STORM SEWER INSPECTION REPORT

Date		Project				A Nearby Building is											
Camera E	ntrance N	/Ian	ho	le #]	MΕ	I D	epi	th_					MH Material	
MH Cond	ition											S	tart '	Tir	ne_		
Pipe Size_			-		Pi	pe '	Гур	e						F	Pipe	e Condition	
Depth of I	Flow (inc	hes)		Directi				tion of Pull isstream				eam				
Camera E	xit Manh	ole	#				N	ΙH	De	pth	l				<u>M</u>	H Material	
MH Cond	ition											S	tart '	Tir	ne_		
Measurem	nents Beg	gin a	at N	ИΗ	#							_		S	Skio	d Sizeinc	h
Tape Cour	nter # Be	gin												F	End	<u>:</u>	
Operator_										Cre	ew_						
Company_																	
General R	emarks_																
	T			ı			ı	1					ı	ı			
Tape Counter	Feet	[]	(4-	4	(1-4)	(4-1			4)	-4)	-4)	(1-4)	(1-4)	hes)		Remarks	
		Fie-In (R-L-T)	reak (1	eak (1	Itiple Break (1-4)	ssing Pipe (1-4)	Roots (1-4)	e (1-4)	ent (1-	ion (1-	oint (1	Joint	Wall Failure (1-4)	h (incl	Other (1-4)		
		rie-In	rcle B	ong Break (1-4)		issing	Root	Greas	Sediment (1-4)	ıfiltrat	ffset J	parated Joint (1-4)	43	g Depth (inches)	Othe		
			Ci	ĭ	Mu	M			9 1	Iı	0	Sep	Pipe	Sa			

Section 01 91 00

STORM SEWER INSPECTION REPORT

Tie-In (R-L-T) Circle Break (1-4) Long Break (1-4)	Multiple Break (1-4) Missing Pipe (1-4)				_		4	4,	~		Remarks
	ak ($\overline{}$	+	4	'	Ŀ	ĕ		
기슭곡		4	Grease (1-4)	Sediment (1-4)	Infiltration (1-4)	Offset Joint (1-4)	Separated Joint (1-4)	Pipe Wall Failure (1-4)	Sag Depth (inches)	4	
S S S S S S S S S S	Sre Pip	Roots (1-4)	e (1	ent (ion	oint	Joi	Failı	h (i	Other (1-4)	
	ng]	oots	eas	ime	trat	et J	ıted	all])ept	the	
Tie lirel	ıltıp İssi	R	Ğı	Sed	nfil	ffs	oara	e W	Ωg	0	
	ME				I	О	Sel	Pip	Sa		

Section 01 91 00

REPORT LEGEND

NOTE: Use letters / numbers to indicate status of issue in columns.

Tie-in (branch line Tie-in direction)

R -Right

L - Left

T - Top

Indicate approximate size of branch line in remarks column

Breaks

Circle Break

1=circle crack

2=open circle break

3=bad circle break, pipe is separate or offset

4=severe circle break, pipe is separate and offset

Long Break

1=long crack

2=open long break

3=bad, separate long break

4=severe, separate and offset long

break. Pipe is collapsible

Multiple Breaks

1=multiple cracks

2=open multiple breaks

3=bad multiple breaks, but stable

4=severe multiple breaks, pipe is

collapsible or collapsed

Missing Pipe

1=small hole in pipe, small piece of pipe is missing

2=medium piece (less that 1/4 of the

circumference of the pipe)

3=missing a large piece of pipe, with soil exposed

4=missing a whole section of pipe

Roots

1=light roots

2=medium roots

3=heavy roots (example: enough roots to block more than half of a 6" or 8" line)

4=severe root problem, camera cannot

pass

Grease

1=light grease

2=medium grease

3=heavy grease

4=severe grease problem, camera cannot pass

Sediment

1=light sediment, sand and rocks

2=medium sediment, sand and rocks

3=heavy sediment, sand and rocks

4=severe sediment problem, camera cannot pass

Infiltration

1=dripping infiltration

2=continuous infiltration

3=heavy, bad infiltration

4=severe, pouring infiltration

Offset Joint

1=joint slightly offset

2=joint is moderately offset

3=joint is severely offset, but camera can pass

4-=camera cannot pass offset joint

Separated Joint

1=joint is slightly separated

2=joint is moderately separated

3=joint is severely separated

4=camera cannot pass separated joint

Pipe Wall Failure

1=light corrosion or aggregate visible in pipe wall

2=medium corrosion or aggregate visible in pipe wall

3=heavy corrosion or aggregate visible in pipe wall

4=severely deteriorated pipe, wall is worn out with soil exposed

Other

1=obstruction in pipe

2=concrete in pipe

3=branch line protruding into pipe

4=gasket hanging into pipe



Section 01 91 00

Project Name	UTH Project #
. 0	•

PREFUNCTIONAL CHECKLIST

Location		Test #		
Submittal / Approvals				
testing. <u>Prior performance h</u> by the appropriate Contract submitted for approval / w	as been verified a sor / Subcontract vitness, subject	as complying with the contractor signatures below. This preto an attached list of outstar	t documents as at functional check nding items yet	ested list is
executed. None of the outs performed.		aire completion before approver preclude safe and reliable pre		
executed. None of the outs performed List attached.				
•	standing items p	preclude safe and reliable pre	efunctional tests	

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
Welders certifications		
INSTALLATION		
Underground piping restraints coated per specifications		
Trench bedding material per contract documents		
Backfill placed in lifts and compacted per contract documents		
Pipe ID tape installed in trench per contract documents		
Drain line profile verified		
Manhole connections verified as correct		
Pipe fittings complete and pipes properly supported		
Pipe hangers type, size and coating per contract documents		
All welded pipe 50 ft. below roof drains		
Pipes properly labeled		
Cleanouts installed and accessible		
Pipe insulated per specifications		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.		he specified
Owner's Representative / Commissioning Authority Date of the Description of the Descript	ate	
Approval: This filled-out checklist has been reviewed. Its completio exceptions noted	n is approved	with the
Owner's Representative / Commissioning Authority Date of the Commissioning Authority	ate	



Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAL	L TEST CHECKI	LIST
STOR	M WAT	ER PIPING SYST	ГЕМ
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this preassociated prefunctional ch	oject. The syste ecklists are co	being installed have been sub om is complete and ready for mplete, approved and attach	functional testing. All led to this FT. Prior
appropriate Contractor / Sul requiring correction / complete	bcontractor sign etion on attached can be executed	ng with the contract document natures below. Any outstanding d list. Any outstanding items we ed. None of the outstanding ite	ng items are noted as vill require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

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- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Date



Cont.	UTH

Test Failure/Retest Required: The Test performed he criteria and will require retesting before approval.	as not met the specified performance	Э
Owner's Representative / Commissioning Authority	Date	
Approval: The test has been witnessed as meeting the per documents with any exceptions noted.	formance requirements of the contra	ct
Owner's Representative / Commissioning Authority	Date	



FUNCTIONAL TEST CHECKLIST SUBMERSIBLE PUMP Location Test #	Project Commissioning		Section 01 91 00	
Submittal / Approvals Submittal . All components of the work being installed have been submitted, reviewed a approved for use on this project. The system is complete and ready for functional testing. associated prefunctional checklists are complete, approved and attached to this FT. Properformance has been verified as complying with the contract documents as attested by appropriate Contractor / Subcontractor signatures below. Any outstanding items are noted requiring correction / completion on attached list. Any outstanding items will require complet before approval of this form can be executed. None of the outstanding items preclude safe a reliable functional tests being performed. List attached. Mechanical Contractor Date Controls Contractor Date	Project Name		UTH Project #	
Pump ID:	FUNC'	TIONAI	TEST CHECKI	LIST
Submittal / Approvals Submittal. All components of the work being installed have been submitted, reviewed a approved for use on this project. The system is complete and ready for functional testing. associated prefunctional checklists are complete, approved and attached to this FT. Properformance has been verified as complying with the contract documents as attested by appropriate Contractor / Subcontractor signatures below. Any outstanding items are noted requiring correction / completion on attached list. Any outstanding items will require complet before approval of this form can be executed. None of the outstanding items preclude safe a reliable functional tests being performed. List attached. Mechanical Contractor Date Controls Contractor Date		SUBME	RSIBLE PUMP	
Submittal / Approvals Submittal. All components of the work being installed have been submitted, reviewed a approved for use on this project. The system is complete and ready for functional testing, associated prefunctional checklists are complete, approved and attached to this FT. Properformance has been verified as complying with the contract documents as attested by appropriate Contractor / Subcontractor signatures below. Any outstanding items are noted requiring correction / completion on attached list. Any outstanding items will require complete before approval of this form can be executed. None of the outstanding items preclude safe a reliable functional tests being performed. List attached. Mechanical Contractor Date Controls Contractor Date	Location		Test #	
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	appropriate Contractor / Sub- requiring correction / complet before approval of this form reliable functional tests being	contractor sign ion on attached can be execute	atures below. Any outstandir list. Any outstanding items w	ng items are noted as vill require completion
Electrical Contractor Date Plumbing Contractor Date	Mechanical Contractor	Date	Controls Contractor	Date
	Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date



Section 01 91 00

Approved	Cont.	UTH
Record Submittal		
O&M Manuals		
Sequence of Operations verified		
OPERATION		
VFD operation verified (report attached) Y/N		
The HOA switch properly activates and deactivates the unit		
Pump rotation verified correct		
No unusual noise or vibration		
No leaking apparent around fittings		
Measure line to line voltage phase imbalance for each pump: (%Imbalance = 100 x (avg lowest) / avg.)		
Record imbalance of each pump (report attached) Y/N		
Record full load running amps for each pump. rated FL amps x srvc factor = (Max amps)		
Specified sequences of operation and operating schedules have been implemented with all variations documented		
Specified point-to-point checks have been completed and documentation record submitted for this system		
Pump speed. Check the amperage of the circulating pumps.		
Amperage should be less than the rated amps. Rated =		
SP-1[] SP-2[]		
Change the schedule so the pumps should be OFF.		
Pumps turn OFF.		
Schedule the pumps to be ON.		
Return schedule to normal.		
Pumps start.		
Schedule returned to normal		

Sensor and Actuator Calibration

All field-installed pressure sensors and gages on this piece of equipment shall be calibrated using the methods and tolerances given in the Calibration and Leak-by Test Procedures document.

All test instruments shall have certified calibration during past 12 months: Y/N____. Sensors installed *in* the unit at the factory with calibration certification provided need not be field calibrated.



Section 01 91 00

Sensor or Actuator & Location	Location OK	1 st Gage or BAS Value	Instr. Meas'd Value	Final Gage or BAS Value	Pass Y/N?

Gage reading = reading of the permanent gage on the equipment.

BAS = building automation system.

Instr. = testing instrument.

Visual = actual observation.

The Contractor's sensor check-out sheets may be used in lieu of the above, if the same recording fields are included and the referenced procedures are followed.

Test Failure/Retest Required: The Test performed ha criteria and will require retesting before approval.	s not met the specified performance
Owner's Representative / Commissioning Authority	Date
Approval: The test has been witnessed as meeting the performance documents with any exceptions noted.	ormance requirements of the contract
Owner's Representative / Commissioning Authority	Date

Section 01 91 00

Project Name	UTH Project #	-
	PREFUNCTIONAL CHECKLIST	

SUBMERSIBLE SUMP PUMP

Location		Test # Model#			
Make					
Submittal / Approvals					
approved for use on this patesting. Prior performance has by the appropriate Contract	project. The con as been verified tor / Subcontract vitness, subject	being installed have been subspaced in the property of the contract to as complying with the contract to a signature below. This presents an attached list of outstarting completion before approximately in the completion before approximately in the completion before approximately in the completion before approximately in the completion before approximately in the completion before approximately in the contract of the contract o	eady for prefunction documents as attending items yet to	onal sted st is be	
	•	preclude safe and reliable pre			
executed. None of the outperformed List attached.	•				
executed. None of the outperformed.	standing items r	preclude safe and reliable pre	functional tests be		

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Project Commissioning		ion 01 91 00			-
MOTOR/ELECTRICAL:					
Motor Manufacturer:		Serial #			
Motor Nameplate Data - Volt		_A			
RMP SVC Fac	ctor	Class	Frame	<u> </u>	
Actual per phase Volt		FLA		<u> </u>	
Starter Size Fuse					
A	approved			Cont.	UTH
INSTALLATION					
Manufacturer's cut sheets					
Performance data					
INSTALLATION					
Pump assembly securely attache	ed / supported				
Magnesium Anode installed					
Pickup strainer installed					
Flushing piping system comple	te (report attached	1)			
Gate & Check Valves installed	(discharge side)				
Bearings lubricated					
Impeller rotation: C / CC	W (viewed fre	om drive side	e)		
Power conductors sealed per co					
Alarm light & bell operate corre					
Alarm "silence" & "test" switch		ctlv			
"Lead" - "lag" operation confirmation					
Low level switch "shuts off" op					
High level switch "starts" lead 1					
Hi-Hi level switch "starts" lag	<u> </u>				
Installation/application R performance criteria and will re	•			not met t	he specifi
Owner's Representative / Comm	nissioning Author	rity	Date		
Approval: This filled-out chec xceptions noted	klist has been rev	iewed. Its co	ompletion is	approved	with the
Owner's Representative / Comm	nissioning Authori	ty	Date		
11/29/21	Submersible S	ump Pump		Page	e 2 of 2

UT Health Project Commissioning

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAL	TEST CHECKI	LIST
	SUI	MP PUMP	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this prassociated prefunctional ch	oject. The systemecklists are con	being installed have been sub m is complete and ready for mplete, approved and attach ag with the contract document	functional testing. All ed to this FT. Prior
appropriate Contractor / Surrequiring correction / complete	bcontractor sign etion on attached a can be execute	latures below. Any outstanding items ved. None of the outstanding items items.	ng items are noted as vill require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

Date

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- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date



	Approved		Cont.	UTH
DELIVERABLES				
Record Submittal				
Performance data				
Service / maintenance contr	act			
Sequences and control strat	egies			
O&M manuals				
PERFORMANCE				
The HOA switch properly a	activates and deactivates the un	nit		
Pump rotation verified corr	ect			
Vibration within tolerances	(report attached) Y/N			
Verify noise dB within tole	rances			
No leaking apparent around				
	e phase imbalance for each pur	mp:		
(%Imbalance = 100 x (avg.	- lowest) / avg.)			
Imbalance :				
Record full load running an srvc factor =	nps for each pumprate (Max amps)	ed FL amps x		
Specified sequences of open	ration and operating schedules	have been		
implemented and verified (report attached) Y/N			
Specified point-to-point che	ecks have been completed			
(report attached) Y/N				
VFD operation verified (rep	oort attached) Y/N			
High level alarm operates				
Float switch operates				
Discharge location verified				
Test Failure/Retest Recriteria and will require rete	equired: The Test performed esting before approval.	has not met th	ne specifie	d performance
Owner's Representative / C	ommissioning Authority	Date	e	
Approval: The test has been documents with any exception	en witnessed as meeting the peons noted.	erformance rec	quirements	s of the contrac
Owner's Representative / Co	mmissioning Authority	Date	e	
11/29/21	Sump Pump		Pag	ge 2 of 2

Project Commissioning	Section 01 91 00
Project Name	UTH Project #
PREFU	NCTIONAL CHECKLIST
	SUMP PUMP
Location	Test #
Make	Model#
Submittal / Approvals	
approved for use on this project. testing. Prior performance has been by the appropriate Contractor / Susubmitted for approval / witness.	the work being installed have been submitted, reviewed and a The components are complete and ready for prefunctional a verified as complying with the contract documents as attested abcontractor signatures below. This prefunctional checklist is a subject to an attached list of outstanding items yet to be swill require completion before approval of this form can be

List attached.			
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

executed. None of the outstanding items preclude safe and reliable prefunctional tests being

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Sump P	ump
UT Health Project	Commissioning

performed.



Project Commission	ing	Section 01 91 0	00		-
MOTOR/ELECTR	RICAL:				
Motor Manufacturer	··	Serial #			
Motor Nameplate D	ata - Volt	FLA	HP		
RMP	SVC Factor	Class	Frame_		
Actual per phase	Volt	FLA			
Starter Size	Fuse Size	Heater	Size	-	
	Approved			Cont.	UTH
Manufacturer produ	ct data sheet				
INSTALLATION					
Label permanently a					
Pumps in place and	properly grouted				
Vibration isolation	devices installed and	functional			
Pressure and flow g	ages and sensors insta	alled			
Pipe fittings comple	ete and pipes properly	supported			
Valves properly tag	ged				
Y-strainer baskets c					
Suction strainers in	place				
Block valves in place					
	led (discharge side):				
Bearings lubricated					
	ecked (report attached	/			
	/ CCW (viewed fro				
	er switch/Disconnects	s installed			
High/Temp safety in					
	stalled for componen				
All control devices,	pneumatic tubing and	d wiring complete			
	lication Rejected: and will require rein			ot met t	he specifi
Owner's Representa	tive / Commissioning	g Authority	Date		
Approval: This fill exceptions noted	ed-out checklist has l	been reviewed. Its o	completion is a	pproved	with the
Owner's Representat	ive / Commissioning	Authority	Date		
11/29/21		Sump Pump Project Commission	ning	Page	e 2 of 2



Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	TIONAI	TEST CHECK	LIST
	Equipmo	ent Designation	
Location		Test #	#
Submittal / Approvals			
approved for use on this pro- associated prefunctional cha- performance has been verifi- appropriate Contractor / Sub- requiring correction / comple	pject. The system ecklists are conted as complying econtractor signation on attached can be executed	being installed have been sum is complete and ready for implete, approved and attaching with the contract documentatures below. Any outstanding items with the outstanding items with the contract documentatures below.	functional testing. All hed to this FT. <u>Prior</u> ents as attested by the ing items are noted as will require completion
Mechanical Contractor	Date	Controls Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

Plumbing Contractor

General Contractor

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
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Date

Date

Date

Date

Electrical Contractor



Commissi	

Exceptions Noted:		
Test Failure/Retest Required: The Test performed criteria and will require retesting before approval.	has not met the specified	performance
criteria and will require retesting before approval.		performance
<u> </u>	has not met the specified part of the Date	performance
criteria and will require retesting before approval.	Date	



Project Commissioning	Tioust	Section 01 91 00	
Project Name		UTH Project #	
FUNC	CTIONAI	TEST CHECKI	LIST
	Equipmo	ent Designation	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this proassociated prefunctional chaperformance has been verifappropriate Contractor / Su	oject. The syste ecklists are co ied as complying bcontractor sign	being installed have been sum is complete and ready for implete, approved and attaching with the contract documentatures below. Any outstanding	functional testing. All ned to this FT. Prior at as attested by the ng items are noted as
	can be execute	d list. Any outstanding items ved. None of the outstanding it	
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

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- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Date



Approved		UTH
Record Submittal		
O&M Manuals		
Sequence of Operations verified		

Operational Checks					
Check if acceptable, provide comment if unacceptable	NA	Comments			



Location

Project Commissioning

Sensor or Actuator Tag

Section 01 91 00

Instrument

Final Gage or

Pass

Sensor	and	Actuator (Cali	bration
OCHOOL	alla	ACLUATOR .	Juli	DIGUOII

All field-installed sensors and gages, and all actuators (dampers and valves) on this piece of equipment shall be calibrated using the methods and tolerances given in the Calibration and Leak-by Test Procedures document. All test instruments shall have had a certified calibration within the last 12 months: Y/N_____. Sensors installed *in* the unit at the factory with calibration certification provided need not be field calibrated.

1st Gage or

& Location	OK	BAS Value	Measured Value	BAS Value	Y/N
omments:					
			erformed has not me	et the specified po	erformance
criteria and will re	equire retestin	g before approval	l.		
Owner's Represen	ntative / Com	missioning Autho	 rity I	Date	
-		_	•		
			ng the performance	requirements of	the contract
documents with an	y exceptions	noted.			
Owner's Represen	tative / Comn	nissioning Author	ity Ī	Date	
11/29/21		Equipment De	esignation	Page	e 3 of 3
· - · / · - ·	U	T Health Project		- 48	-



Location____

Project Commissioning	Section 01 91 00
Project Name	UTH Project #
PREFUNC	CTIONAL CHECKLIST
Equi	pment Designation

Make		Model#	Model#		
Submittal / Approvals					
approved for use on this pretesting. Prior performance has by the appropriate Contractor submitted for approval / with completed. Any outstanding	oject. The constant of the con	being installed have been subsponents are complete and reas complying with the contract or signatures below. This presto an attached list of outstartire completion before approve items preclude safe and reliable.	eady for prefunctional documents as attested functional checklist is adding items yet to be all of this form can be		
Mechanical Contractor	Date	Controls Contractor	Date		
Electrical Contractor	Date	Plumbing Contractor	Date		
Other Contractor	Date	General Contractor	Date		

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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Equipment Designation UT Health *Project Commissioning*

Page 1 of 2

Test #



Owner's Representative / Commissioning Authority

Project Commissioning	Section 01 91 (00
Troject Commissioning	Section 01 71 0	
Exceptions Noted:		
T / 11 / ' / 1. /	D • 4 1 m · · · · · · · /	
	Rejected: The installation/aprequire reinspection before appreciation	oplication has not met the specified
periormanee errorm and win	require remispeemen series upp	
Owner's Representative / Con	mmissioning Authority	Date
owner s representative, con	minosioning rudifority	Buile
Approval: This filled-out chexceptions noted	ecklist has been reviewed. Its	completion is approved with the

Date

\mathbf{D}	$\overline{\alpha}$	•	•
Proiect	Commis	SIC	ากเทย

Section 01 91 00

Project Name	UTH Project #

PREFUNCTIONAL CHECKLIST

Equipment Designation

Location		Test # Model#			
Make					
Submittal / Approvals					
approved for use on this patesting. Prior performance has by the appropriate Contract submitted for approval / v	oroject. The con as been verified a tor / Subcontract vitness, subject	being installed have been sulting installed have been sulting properties and reast complying with the contract tor signatures below. This presto an attached list of outstarts.	eady for prefunctions t documents as attester functional checklist		
executed. None of the outstand operation.	-	nire completion before approv t items preclude safe and relia			
executed. None of the outstand operation. List attached.	-				
	tanding checklist	t items preclude safe and relia	able equipment testin		

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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Section 01 91 00

[NOTE: Insert/replace sections below with applicable submittal and checklist information]

MOTOR/ELECTRIC	CAL:				
Motor Manufacturer:		Serial #			
Motor Nameplate Data	a - Volt	FLA	HP		
RMP	SVC Factor	Class	Frame		
Actual per phase	Volt	FLA			
Starter Size	Heater S	size			
	Approved	1		Cont.	UTH
Manufacturer's cut shee	ts				
Performance data					
Installation and startup r	nanual and plan				
Approved Submittals					
Warranty Certificate					
DELIVERY CONDIT	ION - STAGING				
General appearance goo		age			
Equipment protected/sea					
Equipment protected/sec	ilea from elements	101 Stuging			
INSTALLATION					
Permanent labels/tags at					
Physical condition good		leaks etc			
Maintenance access acce	•				
Thermal insulation prop			tion		
Instrumentation installed					
gages, flow meters, etc.)	1	•	_		
Clean up of equipment of		ract documents			
Equipment components	labeled per specific	eations			
BAS/EMS control point	s labeled per specif	fications			



Approved	Cont.	UTH
ELECTRICAL AND CONTROLS		
Pilot lights are functioning		
Power disconnects in place and labeled		
All electric connections tight		
Proper grounding installed for equipment and components		
Safeties in place and operable		
All control devices, pneumatic tubing and wiring complete		
Exceptions Noted:		
1.		
2.		
3.		
Installation/application Rejected: The installation/application has performance criteria and will require reinspection before approval.	not met the	specified
Owner's Representative / Commissioning Authority Date		
Approval: This filled-out checklist has been reviewed. Its completion is exceptions noted	approved wi	th the
Owner's Representative / Commissioning Authority Date		

O I I lealui I			
Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PREF	UNCTIO	ONAL CHECKLE	IST
	TILE	ROOFING	
Location		Test #	<u> </u>
Submittal / Approvals			
Submittal. All components capproved for use on this proj		_	-
testing. Prior performance has b			
by the appropriate Contractor submitted for approval / witn			
completed. Any outstanding ite			
executed. None of the outstan	ding items pr	reclude safe and reliable pre	functional tests being
performed. List attached.			
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

Date

General Contractor

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- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date



	Approved	Cont.	UTH
INSTALLATION			
	conducted prior to start of work		
Mockup installed			
Roofing materials stored	d properly		
Substrate work complet	<u> </u>		
Roof penetrations comp			
Clean substrate			
Grid layout for proper e	dge alignment		
Flashing placement			
Tiles wired at valley fla	shing		
Underlayment placemer			
Underlayment fasteners			
Guidelines established			
Treated wood blocking	placement		
Uniform blending of tile			
	locks, finials, ridge caps, etc. per pla	ans)	
Fastener type, number a			
Uniform mortar colorati	on		
Proper tile lap			
Cementing of ridge hip	and end tiles		
Final			
Cleaning			
Replacement of damage	ed units		
Open joints sealed			
	tion Rejected: The installation/appl will require reinspection before apple		the specif
Owner's Representative	/ Commissioning Authority	Date	
Approval: This filled-exceptions noted	out checklist has been reviewed. Its	completion is approve	d with the
Owner's Representative	/ Commissioning Authority	Date	
11/20/21	T'1 D C	D	2 62



Project Commissioning	Section 01 91 00	

Project Name UTH Project #									
Proj	TRAINING PROPOSAL								
		S	ystem/Equipm	ent Designation	ı			Specificatio	n Reference(s)
The Contractor is required to provide training on equipment and systems provided and/or installed. The Contract shall provide a training plan, for review and approval, prior to conducting training. Separate Learning Objectives will be required for each training format (e.g. Lecture, Demonstration, Participatory, etc.). The training plan shall include the following documents: Trainer/Instructor Qualifications or Resume' Training Agenda System/Equipment Specific Learning Objectives Copies of Materials and Visual Aides used in Training Duration of training session & number of sessions provided (provide on checklist below) Proposed date(s), time(s), location(s) for training session(s) Complete the Training Proposal Checklist below. Attach the training plan documents itemized above to the completed Training Proposal form. Each Training Request shall be routed through the Commissioning Coordinate to UT Health for scheduling and approval. The Cx Coordinator shall update the C&C Manual with approved Training Proposals, training plans and the Training Attendance/Verification form (attached). Training Proposal Checklist						ning Objectives aining plan shall ove to the oning Coordinator			
		Т	rainer/Instruc	tor		✓	Tra	ining Plan Do	cuments
Nan	ne						Trainer Qu	ualifications/Resu	ıme'
	oloyer						Training A	genda	
Title							Learning (Objectives (may l	be in agenda)
Pho							Training M	laterials/Vis. Aid	es/Handouts
Ema	all								
#	-	Trainir	ng Format	# of Sessions	Dura	tion		Location	 1
1			<u> </u>						
2									
	posed T	rainir	ng Session Dat	es/Times			<u> </u>		
#	Primary	Date	Primary Time	Approved			Alt. Date	Alt. Time	Approved
1 1								1	1

Training Proposal

UT Health Project Commissioning

Page 1 of 4



System/Equipment Designation Specification Reserved	
Instructor/Trainer	
Each Attendee to print Full Name, Title, and provide Signature	ferences
Each Attendee to print Full Name, Title, and provide Signature	Time
# Print Name Title Signatu 1	
1 2 3 4 5 5 6 7 7 8 8 9 9 10 11 12 13 14 15 16 17 18 19 19	
2 3 3 4 5 6 7 8 9 9 10 11 12 13 13 14 15 16 17 18 19 9	ire
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	
6 7 8 9 10 11 12 13 14 15 16 17 18 19	
7 8 9 10 11 12 13 14 15 16 17 18 19	
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13 14 15 16 17 18 19	
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18 19	
19	
20	
The Trainees listed above (continued on page 3 if necessary) have been provided training on equipment and received the information and training as indicated on the approved Training Agenda.	t listed above,
Comments:	



Proiect Commissionina	Section 01 91 00	

UTH/CxA Printed Name:	Signature:	Date:
Project Name_	UTH Project #	¥

Training Attendance Roster (Cont'd)

#	Print Name	Title	Signature
21			
21 22			
23			
23 24			
25 26 27			
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11/29/21

Training Proposal UT Health Project Commissioning

Page 3 of 4

Proiect Commissionina	Section 01 91 00

50		
50		

TEXAS DEPARTMENT OF INSURANCE STATE FIRE MARSHAL'S OFFICE, P. O. BOX 149221, AUSTIN, TEXAS 78714-9221

FIRE ALARM INSTALLATION CERTIFICATE

Property name	Automatic Fire Detection and Alarm Service:				
Address	Coverage: Complete Partial If partial, indicate locations				
(street) (city)					
Name of installing/certifying firm					
Certificate of registration (C of R) number	Types of detectors and number of each (for line type, indicate number of circuits)				
A service contract for inspection and testing of the alarm system, dated					
and in force for years, with:	1. Local annunciator: Yes No 2. Local alarm: Yes No				
ACR-	Number of coded fire signals 4. Coded trouble signals				
(registered alarm firm) (C of R number)					
	Sprinkler System Waterflow Alarm & Supervisory Service:				
Authority having jurisdiction	Number of coded waterflow signaling attachments				
Address	Number of waterflow switches activating transmitters.				
Systems installed in accordance with NFPA Standards (list numbers and editions)	Number of coded valve supervisory signaling attachments				
	Number of valve switches activating transmitters.				
Installation includes the following devices	3. Other supervisory service provided:				
	Pressure: Water Air Temperature: Water Room				
which have been in service since (date)	Water level Fire pump: Running Power				
Building(s) - Name or No.	4. Other fire service provided				
Manual Fire Alarm Service:	Frequency of routine tests and inspections, if other than in accordance with the referenced				
Number of coded stations Non-coded stations	NFPA Standards				
Activating					
Number of combination manual fire alarm, combination devices, and guard tour coded	I hereby certify that this fire alarm system has been tested and complies with requirements				
stations Local annunciator: Yes No	of Article 5.43-2 of the Texas Insurance Code, as amended, and the Fire Alarm Rules and				
Guard's Tour Supervisory Service:	with adopted NFPA Standards.				
Number of coded stations Non-coded stations	Signature of licensee				
Activating transmitters. Compulsory guard-tour system	Fire alarm license number Date signed				
comprised of transmitter stations and intermediate stations.	Printed or typed name of person signing				
FML-009	DISTRIBUTION: Original posted at control panel on site. Copy 1 to certifying company. Copy 2 to authority having jurisdiction. Copy 3 to State Fire Marshal.				

SF035 Rev. 03/98

Texas State Fire Marshal's Office

P. O. Box 149221, MC: 112-FM Austin, Texas 78714-9221 Contractor's Material and Test Certificate for A boveground Piping **PROCEDURE** Upon completion of work, inspection and tests shall be made by the contractor's representative and witnessed by an owner's representative. All defects shall be corrected and system left in service before contractor's personnel finally leave the job. A certificate shall be filled out and signed by both representatives. Copies shall be prepared for approving authorities, owners, contractor, and the State Fire Marshal. It is understood the owner's representative's signature in no way prejudices any claim against contractor for faulty material, poor workmanship, or failure to comply with approving authorities requirements or local ordinances Property Name Date Property Address City State Zip Accepted by approving authorities(names) Address **PLANS** Installation conforms to accepted plans Yes Nο Equipment used is approved? Yes No If no, explain deviations Has person in charge of fire equipment been instructed as to location of Yes control valves and care and maintenance of this new equipment? Nο If no. explain INSTRUCTIONS Have copies of the following been left on the premises? 1. System Components Instructions Yes No Care and Maintenance Instructions No Yes 3. NFPA 25 Yes LOCATION Supplies buildings OF SYSTEM Make Model Year of Manufacture Orifice Size Quantity Temperature Rating SPRINKLERS Type of pipe PIPE AND **FITTINGS** Type of fittings ALARM ALARM DEVICES Maximum time to operate through test connection **VALVE** Model Minutes Seconds Type **OR FLOW** INDICATOR DRY VALVE Q.O.D. Model Serial No. Serial No. Make Make Model Water Pressure **DRY PIPE** Time to trip through Air Pressure Trip Point Air Time water reached Alarm operated **OPERATING** test connection1,2 Pressure test outlet1,2 **TEST** Minutes Seconds psi psi psi Minutes Seconds Yes No

Model

Is there an accessible facility in each circuit

Without Q.O.D.
With Q.O.D.
If no, explain
Operation

Piping supervised

Make

for testing?

Pneumatic

Yes

Does valve operate from the manual trip, remote, or both control stations?

□ No

Yes

Does each circuit operate

supervision loss alarm?

Nο

Electric

Detection media supervised

Yes

Does each circuit operate valve

release?

No

Seconds

Hydraulic

Minutes

Yes

Yes

□ No

☐ No

Maximum time to operate release?

DELUGE &

PREACTION VALVES

¹ Measured from time inspector's test connection is opened.

²NFPA 13 only requires the 60-second limitation in specific sections

PRESSURE	Location &Floor	Make & Model	Setting	STATIC PR	ESSUR	RE	RESIDUAL PRE	ESSURE (flowing)		FLOW RATE
REDUCING				Inlet (psi)	Inlet (psi) Outlet		Inlet (psi)	Outlet (psi)		Flow (GPM)
VALVE TEST										
TEST DESCRIPTION	of 150 psi (10.2 bal leakage shall be sto PNEUMATIC: Est	ablish 40 psi (2.7 bars)	rential Dry-Pipe Va) air pressure and n	alve clappers shall be	left ope	en during te	est to prevent dan -1/2 psi (0.1 bars)	nage. All	abovegrou	und piping
	at normal water lev	el and air pressure and	d measure air press	sure drop, which shal	I not ex	ceed 1-1/2	psi (0.1 bars) in 2	24 hours.		
	Dry Pipe pneumation	•	□ Y	res □	hrs No No sodium	If no, state		ium silica	te, brine, o	or other
TESTS	DRAIN Readin TEST water s	s were not used for tes g of gage located near upply test connection: s and lead in connection		psi (bar)	Re in t	test connec	No sure with valve ction open wide.		psi (bar)
	Verified by copy of Certificate for Unde Flushed by installed If powder driven fas	the Contractor's Mater	ial & Test kler piping. ncrete, has represe	☐ Yes	no, exp		No	Other, e	explain	
	, ,		teu? 🗖 res	u No						
BLANK TESTING GASKETS	Number used	Locations							Number i	removed
	Welded piping	□Yes	□ No							
	Do vou certify as th	e sprinkler contractor t	that welding proced	If yes Iures comply with the	require	ements of				
WELDING	at least AWS		٠.		•		note.	Yes		□ No
	of at least AW	/S B2.1?		·		·		Yes		□ No
		the welding was carried all discs are retrieved								
	residue are re	moved, and that the in	ternal diameters of	piping are not penet	rated?		<u> </u>	Yes		□ No
CUTOUTS (DISCS)	Do you certify that y	you have a control feat	ure to ensure that a	all cutouts (disks) are	retrieve	ed?		Yes		□ No
HYDRAULIC DATA NAMEPLATE	Nameplate provide Yes	d? □ No		If no, explain						
	DATE left in service	e with all control valves	s open:							
REMARKS										
	Name of sprinkler of	contractor					C of R No.	SCF	₹-	
	Contractor's Addres	ss			City			State	Zip	
Signature				Tests witness	ad by					
_	For property owner	(signed)		rests withess	eu by	Tit	le		Date	e
	For sprinkler contra	actor (signed)				Tit	le		Date	9
Additional explanati	on and notes									
DME		he information h Texas Insuranc								
RME	Responsible Manag	ging Employee (signat	ure)							
CERTIFICATION	Responsible Manag	ging Employee (print o	r type name)							
	RME License Num	ber			Da	ate				

DISTRIBUTION: Original COPY 1 posted at site. COPY 2 for the installing firm.

COPY 3 for approving authority.
COPY 4 for the Texas State Fire Marshal's Office.

Texas State Fire Marshal's Office

P. O. Box 149221, MC: 112-FM Austin, Texas 78714-9221

Contractor's Material and Test Certificate for Underground Piping

PROCEDURE Upon completion of work, inspection and tests shall be made by the contractor's representative and witnessed by an owner's representative. All defects shall be corrected and system left in service before contractor's personnel finally leave the job. A certificate shall be filled out and signed by both representatives. Copies shall be prepared for approving authorities, owners, contractor, and the State Fire Marshal. It is understood the owner's representative's signature in no way prejudices any claim against contractor for faulty material, poor workmanship, or failure to comply with approving authority's requirements or local ordinances. Property Name Property Address City Zip Accepted by approving authorities (names) Address **PLANS** Installation conforms to accepted plans Yes Nο Equipment used is approved Yes Nο If no, state deviations Has person in charge of fire equipment been instructed as to location of control valves and care and maintenance of this new equipment? Yes No If no. explain INSTRUCTIONS Have copies of appropriate instructions and care and maintenace charts been left on premises? Yes Nο If no, explain Supplies buildings LOCATION UNDERGROUND Pipe types and class Type joints **PIPES AND** JOINTS Pipe conforms to Standard Yes No Standard Fittings conform to Yes Nο If no, explain Joints needed anchorage clamped, strapped or blocked in No Yes accordance with standard If no, explain FLUSHING: Flow the required rate until water is clear as indicated by no collection of foreign material in burlap bags at outlets such as hydrants and blow-offs. Flush at flows not less than 390 GPM (1476 L/min) for 4-inch pipe, 880 GPM (3331 L/min) for 6-inch pipe, 1560 GPM (5905 L/min) for 8-inch pipe, 2440 GPM (9235 L/min) for 10-inch pipe, and 3520 GPM (13323 L/min) for 12-inch pipe. When supply cannot produce stipulated flow rates, obtain maximum available. HYDROSTATIC: Hydrostatic tests shall be made at not less than 200 psi (13.8 bars) for two hours or 50 psi (3.4 bars) above static pressure In excess of **TEST** 150 psi (10.3 bars) for two hours. **DESCRIPTION** LEAKAGE: New pipe laid with rubber gasketed joints shall, if the workmanship is satisfactory, have little or no leakage at the joints. The amount of leakage at the joints shall not exceed 2 quarts per hour (1.89 L/hr) per 100 joints irrespective of pipe diameter. The leakage shall be distributed over all joints. If such leakage occurs at a few joints, the installation shall be considered unsatisfactory and necessary repairs made. The amount of allowable leakage specified above can be increased by 1 fl oz per inch valve diameter per hour (30 mL/25 mm/hr) for each metal seated valve isolating the test section. If dry barrel hydrants are tested with the main valve open so the hydrants are under pressure, an additional 5 oz per minute (150 mL/min) leakage is permitted for hydrant. New underground piping flushed according to______ standard by (company) ☐ Yes No If no. explain How flushing flow was obtained Through what type of opening

Fire pump

Fire pump

☐ Hydrant butt

Yes

☐ Y connection to flange spigot

Through what type of opening

Tank or reservoir

Tank or reservoir

_____ standard by (company)

Open pipe

☐ Open pipe

FLUSHING

TESTS

Public water

Public water

If no, explain

Lead-ins flushed according to _

How flushing flow was obtained

HYDROSTATIC	All new underground piping hy	drostatically te	sted at					Joints	covered		
TEST		psi	for		hours			Yes			No
	Total amount of leakage meas	-									
LEAKAGE	Total amount of leakage meas				haura						
TEST		gallons			hours						
1231	Allowable leakage										
		gallons		-	hours						
HYDRANTS	Number installed		Type and	l make			All oper	rate satisfacto	rilv		
			,,					Yes	,		No
CONTROL	Water control valves left wide of If no, state reason	open					l Yes	□ No			
VALVES	Hose threads of fire departmenthe fire department answering		and hydrar	nts interchangeable	with those of		l Yes	□ No			
	-										
REMARKS	Date left in service										
REWARKS											
	Name of installing contractor						(D N	SCR-			
						C 0	TR NO.	JUIN-			
	Contractor's Address				City			State	Zip		
Signature	Contractor 3 Address				City			Otate	ΖΙΡ		
Signature	Tests witnessed by										
	For property owner (signed)			100.0		itle			Date		
	For Installing contractor (signe	d)			Т	itle			Date		
	. or motaming contractor (eight	-/			·				2413		
Additional explanat	ion and notes										
	l coutific that the inform		alm la 4mi			! .				1 !	
	I certify that the inform accordance with Artic Marshal's Office.										Fire
RME	Responsible Managing Employ	vee (signature)									
CERTIFICATION	Responsible Managing Employ	• •									
	PME Liconso Number				Data						

	accordance with Article 5.43-3, Texas Insurance Code and the Marshal's Office.	he rules and standards adopted by the State Fire				
RME	Responsible Managing Employee (signature)					
CERTIFICATION	Responsible Managing Employee (print or type name)					
	RME License Number	Date				

DISTRIBUTION: Original COPY 1 posted at site. COPY 2 for the installing firm.

COPY 3 for approving authority.
COPY 4 for the Texas State Fire Marshal's Office.



UTILITY SHUTDOWN REQUEST FORM

Project # & Name:	
Utility System(s) to Be Shutdown:	
Requested Time/Date for Shutdown:	Thru:
It is requested that the noted building system(s) be of services for the Project as enumerated below. Frequired as a minimum for medical and/or research occur during other than regular working hours. I coordinated and scheduled to achieve completion with	We note that three (3) weeks advance notice is the facilities, and that all such shutdowns are to hereby certify that the required work has been
Subcontractor performing work	General Contractor
Spec. Section Ref: Detail/Drawing Number:	
Description of work to be done:	
Emergency Phone contacts after-hours: General Con- Subcontractor perfor	rming work :
Approved / Disapproved	Date
Signature:	Title:
Check with control room before starting work and when fi	
Coordination Meeting Required prior to shutdo	own?
Date/Time Proposed for mtg	
Date Response to Contractor/CM/DB	Construction Inspector's Signature

Section 01 91 00

Project Name	UTH Project #
--------------	---------------

PREFUNCTIONAL CHECKLIST

VACUUM PIPING						
Location		Test #	<u> </u>			
Submittal / Approvals						
submittal. All components of the work being installed have been submitted, reviewed and pproved for use on this project. The components are complete and ready for prefunctional esting. Prior performance has been verified as complying with the contract documents as attested by the appropriate Contractor / Subcontractor signatures below. This prefunctional checklist is submitted for approval / witness, subject to an attached list of outstanding items yet to be ompleted. Any outstanding items will require completion before approval of this form can be executed. None of the outstanding items preclude safe and reliable prefunctional tests being performed. List attached.						
Mechanical Contractor	Date	Controls Contractor	Date			
Electrical Contractor	Date	Plumbing Contractor	Date			
Sprinkler Contractor	Date	General Contractor	Date			
	. •.					

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
INSTALLATION		
Pipe fittings complete and pipes properly supported		
Pipes properly labeled		
Strainers in place and clean		
Isolation valves installed		
Flushing and cleaning plan submitted and approved		
Piping system properly flushed and cleaned (report attached)		
10% of strainers and Owner selected low point drains opened and		
witnessed by Owner to be clean. (list points checked)		
Piping pressure tested per specifications (report attached)		
Valves checklists complete		
Valve labels permanently affixed		
Pipe painted / coated per specifications		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.	has not met t	he specifie
Owner's Representative / Commissioning Authority Date of the Commissioning Authority	ate	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	n is approved	with the
Owner's Representative / Commissioning Authority Date of the Commission of the Comm	ate	



Project Commissioning	S	Section 01 91 00	
Project Name		UTH Project #	
FUNC	TIONAL	TEST CHECK	LIST
	VACU	UM PUMP	
Location		Test	#
Pump ID:			
Submittal / Approvals			
Submittal. All components approved for use on this pro associated prefunctional che performance has been verifiappropriate Contractor / Substitution of the contractor of th	ject. The system ecklists are com ed as complying	is complete and ready for plete, approved and attack with the contract docume	functional testing. All hed to this FT. Prior ents as attested by the
requiring correction / comple before approval of this form reliable functional tests being List attached.	tion on attached can be executed	list. Any outstanding items	will require completion
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Date



Approved	Cont.	UTH
DELIVERABLES	1	
Record Submittal		
Performance data		
Service / maintenance contract		
Sequences and control strategies		
O&M manuals		
PERFORMANCE		
Pump rotation verified correct		
Vibration within tolerances (report attached) Y/N		
Verify noise dB within tolerances		
No leaking apparent around fittings		
Bleed off vacuum – pump start at set point		
Low pressure alarm functions		
Specified sequences of operation and operating schedules have been		
implemented and verified (report attached) Y / N		
Specified point-to-point checks have been completed		
(report attached) Y / N		
VFD operation verified (report attached) Y / N		
Purity of system verified (report attached) Y / N		
Test Failure/Retest Required: The Test performed has not met criteria and will require retesting before approval.	the specifie	d performance
Owner's Representative / Commissioning Authority Da	te	
Approval: The test has been witnessed as meeting the performance redocuments with any exceptions noted.	equirements	of the contrac
Owner's Representative / Commissioning Authority Da	te	

Project Commissioning	Section 01 91 00
Project Name	UTH Project #
PREFU	NCTIONAL CHECKLIST
	VACUUM PUMP
Location	Test #
Make	Model#
Submittal / Approvals	
approved for use on this project testing. Prior performance has bee by the appropriate Contractor / S submitted for approval / witness completed. Any outstanding item	the work being installed have been submitted, reviewed and an an accomponents are complete and ready for prefunctional enverified as complying with the contract documents as attested subcontractor signatures below. This prefunctional checklist is a subject to an attached list of outstanding items yet to be seen will require completion before approval of this form can be not items preclude safe and reliable prefunctional tests being

Mechanical Contractor	Date	Controls Contractor	Date	
Electrical Contractor	Date	Plumbing Contractor	Date	
Other Contractor	Date	General Contractor	Date	

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Vacuum Pumps
UT Health Project Commissioning

Page 1 of 2



MOTOR/ELECTR	PICAL:			
Motor Manufacturer		Serial #		
Motor Nameplate Da	ata - Volt	FLA	HP	
RMP	SVC Factor	Class	Frame	
Actual per phase	Volt	FLA		
Starter Size	Fuse Size	Heater	Size	
Compressor MFR:		Model:		
Serial #:				
Receiver capacity:Static water pressure Actual vacuum readi	e:PSI	Pressure switch	or set pressure:	
	Approve	d	Cont.	UTH
Manufacturer produ	ct data sheet			
O&M Manual				
INSTALLATION				
Piping complete				
Drain piping comple	ete			
Regulator adjusted				
Pressure switch adju				
Vibration isolation i	nstalled			
Lead/Lag operation	verified			
Controls complete				
		l: The installation/ap nspection before app		t the specifi
Owner's Representa	tive / Commissionir	ng Authority	Date	
	ed-out checklist has	s been reviewed. Its c	completion is approve	ed with the
exceptions noted				
Owner's Representati	ive / Commissioning	g Authority	Date	
11/29/21		Vacuum Pumps Project Commission		Page 2 of 2

O I I Icalul I			
Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
FUNC	ΓΙΟΝΑΙ	TEST CHECK	LIST
	V.	AV BOX	
Location		Test	#
Submittal / Approvals			
Submittal. All components approved for use on this projection.			
associated prefunctional chec			
performance has been verifie			
<pre>appropriate Contractor / Subcrequiring correction / completi</pre>			
before approval of this form of	can be execute	•	
reliable functional tests being p	performed.		
List attached.			
List attached.			
List attached. Mechanical Contractor	Date	Controls Contractor	Date

Functional checklist items are to be completed and approved before placing equipment into operation.

General Contractor

Date

- This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- Items that do not apply shall be noted with the reasons on this form (N/A = not applicable, BO = by others).
- Tests performed with this FT are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

Date

Other Contractor



Approved	Cont.	UTH
DELIVERABLES		l
Record Submittal		
Performance data		
Service / maintenance contract		
Sequences and control strategies		
O&M manuals		
PERFORMANCE		
HVAC controls point-to-point verified (report attached) Y/N		
Control Panel/Enclosure access verified		
All actuators / valves operate smoothly throughout range		
All doors and latches operate and seal properly		
TAB/Mechanical firm verified performance (report attached) Y/N		
Filter access and removal verified		
Leak test for unit verified (report attached) Y/N		
Seq. of Operation testing procedures complete and attached Y/N		
Test Failure/Retest Required: The Test performed has not met criteria and will require retesting before approval.	the specified	l performan
criteria and will require retesting before approval.		l performan
		l performan
criteria and will require retesting before approval.	ate	



Section 01 91 00

Project Name	UTH Project #
·	<u> </u>

PREF	UNCTI	ONAL CHECKLI	ST				
Variable Air Volume Terminal Box							
Location		Test #_					
Make		Model#					
approved for use on this projectesting. Prior performance has been by the appropriate Contractor submitted for approval / with completed. Any outstanding its	ject. The con been verified: / Subcontract less, subject ems will requ	being installed have been submonents are complete and reast complying with the contract of cor signatures below. This prefit to an attached list of outstandaire completion before approval oreclude safe and reliable prefit	ady for prefunctional documents as attested unctional checklist is ling items yet to be I of this form can be				
Mechanical Contractor	Date	Controls Contractor	Date				
Electrical Contractor	Date	Plumbing Contractor	Date				
Other Contractor	Date	General Contractor	Date				
 This checklist does not take startup procedures or report 	o functional ke the place	to be completed as paral testing. of the manufacturer's recommendation on this form (N/A)	nended checkout and				

- = by others).
- Items on this checklist are to be verified by the Contractor as meeting the performance criteria of the contract documents before contacting Owner to witness.

11/29/21 Variable Air Volume PFT Checklist UT Health Project Commissioning

Page 1 of 6



Section 01 91 00

Variable Air Volume PreFunctional Checklist

Submittal / Approvals Submittal. The above equipment and systems integral to them are complete and ready for functional testing. The checklist items are complete and have been checked off only by parties having direct knowledge of the event, as marked below, respective to each responsible contractor. This construction checklist is submitted for approval, subject to an attached list of outstanding items yet to be completed. A Statement of Correction will be submitted upon completion of any outstanding areas. None of the outstanding items preclude safe and reliable equipment testing and operation. List attached. Mechanical Contractor Controls Contractor Date Date **Sheet Metal Contractor** Date **TAB Contractor** Date General Contractor Date **VAV Information** Make **Model Number** Serial Number **Function** Service Area **GPM MBH Comments: Associated Checklists AHU Heating Hot Water Piping BAS**

Ductwork

Comments:

Other

Other



Requested documentation submitted	Rec	'd	Comments
Manufacturer's cut sheets			
Performance data (pump curves, coil data, etc.)			
Installation and startup manual and plan			
O&M manuals			
Factory test results			
Sequences and control strategies			
Warranty Certificate]	
•			
Comments:	I		
Installation Check	cks	- NA	O a manufactura de la constanta
Check if Acceptable; Provide comment if unacceptable		NA	Comment
General General appearance good, no apparent damage	ТП	ПП	
Installation is per manufacturers instructions	$+\Box$	H	
Permanent labels affixed	+	H	
Casing condition good: no dents, leaks, door gaskets installed	吊	H	
Record drawings updated to reflect the actual installation	╁╫	H	
Access doors close tightly - no leaks	$+\overline{\Box}$	一	
Connection between duct and unit tight and in good condition	$+\overline{\Box}$	一	
Vibration isolation equipment installed & released from shipping locks			
Maintenance access acceptable for unit and components			
Sound attenuation installed			
Thermal insulation properly installed and according to specification			
Instrumentation installed according to specification (thermometers, pressure gages, flow meters, etc.)			
Clean up of equipment completed per contract documents			
Verify that inlet conditions are OK: Smooth, round, straight duct for at least 3 duct diameters when possible and 2 diameters minimum for velocity pressure sensor and 3 to 5 diameters for single point electronic sensors, else airflow straighteners			
Verify that outlet conditions are OK, per manufacturer's recommendations			
Valves, Piping and	Coils		
Pipe fittings complete and pipes properly supported	14		
Pipes properly labeled	부		
Pipes properly insulated	부		
Strainers in place and clean; blowdown installed	<u> </u>		
Piping system properly flushed	\sqcup		



Installation Checks					
Check if Acceptable; Provide comment if unacceptable		NA	Comment		
No leaking apparent around fittings					
All coils are clean and fins are in good condition					
All condensate drain pans clean and slope to drain, per spec					
Valves properly labeled					
Valves installed in proper direction					
OSAT, MAT, SAT, RAT, chilled water supply sensors properly located and secure (related OSAT sensor shielded)					
Sensors calibrated					
P/T plugs and isolation valves installed per drawings					
Dampers					
Smoke and fire dampers installed properly per contract docs (proper location, access doors, appropriate ratings verified)					
All dampers open fully (Hot Duct, Cold Duct)					
All dampers close tightly (Hot Duct, Cold Duct)					
All damper actuators installed (Hot Duct, Cold Duct)					
Ducts					
Sound attenuators installed					
Duct joint sealant properly installed					
No apparent severe duct restrictions					
Turning vanes in square elbows as per drawings					
Branch duct control dampers operable					
Ducts cleaned as per specifications					
Balancing dampers installed as per drawings and TAB's site visit					
Electrical and Control	rols				
All electric connections tight					
Proper grounding installed for components and unit					
Safeties in place and operable					
Control system interlocks hooked up and functional					
All control devices and wiring complete					
Sensors and Gage	es				
Temperature, pressure and flow gages and sensors installed					
Piping gages, BAS and associated panel temperature and pressure readouts match					
TAB					



Section 01 91 00

Sensor	and	Actuator	Calibr	ation

All field-installed sensors and gages, and all actuators (dampers and valves) on this piece of equipment shall be calibrated in accordance with Calibration and Leak-by Test Procedures (Functional Test Checklist). All test instruments shall have had a certified calibration within the last 12 months. Sensors installed *in* the unit at the factory with calibration certification provided need not be field calibrated.

Sensor or Actuator Tag	Location	Ist Gage or	Instrument	Final Gage or	P
Proof of Calibration Certification	Attached:	(Yes/No)			
Proof of Test Instrument Calibrati	on Attached:	(Yes/No)			
provided need not be field calibra		ins. Sensors instance	in the unit at the factor	ry with cambration certific	cation

Senso	or or Actuator Tag & Location	Location OK	1 st Gage or BAS Value	Instrument Measured Value	<i>Final</i> Gage or BAS Value	Pass Y/N

Comments:	



Project Commissioning	Section 01 91 00	
Exceptions Noted:		
nstallation/application Rej		
erformance criteria and will requ	ire reinspection before appr	ovai.
owner's Representative / Commis	sioning Authority	Date
pproval: This filled-out checkliceptions noted	st has been reviewed. Its co	ompletion is approved with the
wner's Representative / Commiss	sioning Authority	Date

Project Commissioning	Section 01 91 00
Project Name	UTH Project #
PREFUN	NCTIONAL CHECKLIST
VA	V TERMINAL UNIT
Location	Test #

Model# ____

Submittal / Approvals

Make

Submittal. All components of the work being installed have been submitted, reviewed and approved for use on this project. The components are complete and ready for prefunctional testing. Prior performance has been verified as complying with the contract documents as attested by the appropriate Contractor / Subcontractor signatures below. This prefunctional checklist is submitted for approval / witness, subject to an attached list of outstanding items yet to be completed. Any outstanding items will require completion before approval of this form can be executed. None of the outstanding items preclude safe and reliable prefunctional tests being performed.

List attached.			
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

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MOTOR/ELECTR	ICAL:		
Motor Manufacturer	:	Serial #	
Motor Nameplate Da	ata - Volt	FLA	HP
RMP	SVC Factor	Class	Frame
Actual per phase	Volt	FLA	
Starter Size	Fuse Size	Heater S	ize

Approved	Cont.	UTH
INSTALLATION		
Manufacturer's cut sheets		
Performance data		
Installation and startup manual and plan		
Shop drawings		
INSTALLATION		
TAB testing of sample boxes complete (report attached)		
Permanent labels affixed		
Casing condition good: no dents, leaks, door gaskets installed		
Access doors close tightly - no leaks		
Boot between duct and unit tight and in good condition		
Vibration isolation equipment installed & released from shipping		
locks		
Maintenance access acceptable for unit and components		
Sound attenuation installed		
Thermal insulation properly installed and according to specification		
Instrumentation installed according to specification (thermometers,		
pressure gages, flow meters, etc.)		
Clean up of equipment completed per contract documents		
Filters installed and replacement type and efficiency permanently		
affixed to housing		
Valves, Piping and Coils installed and flushed(report attached))		
Pipe fittings complete and pipes properly supported		
Pipes properly labeled		
Pipes properly insulated		
Strainers in place and clean		
No leaking apparent around fittings		
All coils are clean and fins are combed		
All condensate drain pans clean and slope to drain, per specs.		



Approved	Cont.	UTH
Valves properly labeled		
Valves installed in proper direction		
Sensors calibrated (See calibration section above)		
P/T plugs and isolation valve installed per drawings		
Pilot lights are functioning		
Power disconnects in place and labeled		
All electric connections tight		
Proper grounding installed for components and unit		
Safeties in place and operable		
Sensors calibrated (report attached)		
Control system interlocks hooked up and functional		
Smoke detectors in place		
All control devices, pneumatic tubing and wiring complete		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.	n has not met t	he specified
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its complete exceptions noted	ion is approved	with the
Owner's Representative / Commissioning Authority	Date	

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Project Name	UTH Project #	

project Name		ONAL CHECKL	
		equency Drive	151
Location		Test #	<u> </u>
Make		Model#	
approved for use on this p testing. <u>Prior performance ha</u> <u>by the appropriate Contractor</u> submitted for approval / w completed. Any outstanding	roject. The consistency verified a sor / Subcontract itness, subject items will required.	being installed have been subsponders are complete and reas complying with the contractor signatures below. This presto an attached list of outstandire completion before approvements preclude safe and reliable of	eady for prefunctional t documents as attested functional checklist is ading items yet to be al of this form can be
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date
Other Contractor	Date	General Contractor	Date
 verification, preparatory This checklist does not startup procedures or report Items that do not apply she by others). 	take the place ort. nall be noted with the to be verified by	of the manufacturer's recomnish the reasons on this form (N/A	mended checkout and A = not applicable, BO



VFD Information										
Make				Model Number						
Serial Number					Service Area					
Volts/Phase Motor HP Motor Amps					Function Marine Marine		mrc			
Motor HP Comments:	IVIO	otor Af	nps		Drive Ma	ax Al	mps	<u> </u>		
Comments:										
Associated Checklists										
Cooling Tower				Handling l	Jnit				Exhaust Fan	
Pump			BAS	}					Other	
Comments:										
Request	ed docume	ntatio	n sub	mitted		Red	c'd		Comments	
Manufacturer's cut sh										
Performance data (pu	ımp curves,	, coil d	ata, e	tc.)]			
Installation and startu										
O&M manuals]			
Factory test results										
Sequences and contr	ol strategies	S						L		
Warranty Certificate										
			·							
Comments:	Comments:									
				Installa	tion Chec	cks				
Check if Acce	ptable; Prov	vide co	mmer				NA		Comment	
				G	eneral					
Installation per manufa										
Permanent label affixed and UL stamp approved								\downarrow		
Drive location not subje										
Drive location not subje				res				\downarrow		
Appropriate Volts vs. Hz curve is being used								\downarrow		
Drive size matches mo	tor size									
Drive independently mo										
Cooling air flow path cl		bstructe	ed							
VFD interlocked to con	trol system									



Section 01 91 00

Installation Che	cks		
Check if Acceptable; Provide comment if unacceptable		NA	Comment
Unit is programmed with full written programming record on site			
Accel time set to and Decel time set to			
Coordinated with BAS for all interface ranges and signal isolation			
Restart on Power Failure parameter set to auto			
Drive min and max speed set to Hz min and 60 Hz max			
Security settings set per owner direction and Password documented for owner			
Drive response to loss of signal set to			
Output pulse resolution set to MHz. (This is coordinated with the application to minimize audible noise and coordinated with driven bearing allowances.)			
Input of motor FLA represents 100% to 105% of motor FLA rating			
Upper frequency limit set at 100%, unless explained otherwise			
Electrical and Con	trols		
Power disconnect is located within site of the unit it controls and labeled			
All electric connections tight			
Grounding installed for components and unit			
Safeties installed and operational			
Overload breakers installed and correct size			
All control devices and wiring complete			
Control system interlocks connected and functional			
Installation per manufacturer's instructions			
Rotates in the correct direction (for VFD, check Inverter and BYPASS modes)			
Checked the input voltage with drive disconnected			
Operational Chec	cks		
Check if Acceptable; Provide comment if unacceptable		NA	Comment
Operation checked in HAND, OFF, and AUTO. As applicable operation also checked in BYPASS. Where applicable, ensure safeties are active in all modes			
Specified sequences of operation and operating schedules have been provided with all variations documented			
Specified point-to-point checks have been completed and documentation record submitted for this system			
Start-up complete			

Sensor and Actuator Calibration



Section 01 91 00

All field-installed sensors and gages, and all actuators (dampers and valves) on this piece of equipment shall be calibrated in accordance with Specification Section 01810. All test instruments shall have had a certified calibration within the last 12 months: Y/N_____. Sensors installed *in* the unit at the factory with calibration certification provided need not be field calibrated.

	7				
xceptions Noted:					
ensor or Actuator Tag & Location	Location OK	1 st Gage or BAS Value	Instrument Measured Value	Final Gage or BAS Value	Pass Y / N
nstallation/applicerformance criteria a				has not met the s	pecified
wner's Representati	ve / Commiss	sioning Authorit	y Da	ate	
pproval: This filled ceptions noted	l-out checklis	st has been revie	ewed. Its completio	n is approved wit	h the
vner's Representativ	a / Commission	ionino Avethonite	, <u>D</u>	ata.	
vner s kepresentativ	e / Commissi	ioning Authority	D	ate	
1 100 101		****		<u>.</u> .	0.4

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTI	ONAL CHECKL	IST
V	IBRATI	ON ISOLATION	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this paper the string. Prior performance has by the appropriate Contract submitted for approval / we completed. Any outstanding	roject. The con as been verified a or / Subcontract ritness, subject items will requ	being installed have been subsponents are complete and reas complying with the contractor signatures below. This presto an attached list of outstandire completion before approved reclude safe and reliable presented.	eady for prefunctional t documents as attested efunctional checklist is ading items yet to be all of this form can be
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Electrical Contractor	 Date	Plumbing Contractor	 Date

Prefunctional checklist items are to be completed as part of installation verification, preparatory to functional testing.

Date

General Contractor

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Date

Other Contractor



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
Manufacturer's cut sheets		
INSTALLATION		
Isolators properly installed - Shipping Bolts removed		
Embedded Anchors and Inserts in proper location		
Electrical Flex-connector length and size consistent with contract		
documents		
Duct Flex-connector		
Piping Flex-connector		
Isolator Base consistent with contract documents		
Housekeeping Pad Correct size and Location		
Proper hanger rod size		
Isolator deflection consistent with specifications and manufacturers		
data		
Installation/application Rejected: The installation/application has performance criteria and will require reinspection before approval.		he specifie
Owner's Representative / Commissioning Authority Date e		
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	with the
Owner's Representative / Commissioning Authority Date	e	



Visitors General Waiver and Release University of Texas System (Owner)

Project Name:	
Project Number:	Location:
General Contractor:	
UT Health ODR	
Project Safety Coor	dinator:
Manager we welcor employees and visit	iversity of Texas System (Owner) and the General Contractor / Construction ne you to the project. Construction projects can be dangerous and hazardous to ors, alike. Upon entering the site you must exercise extra care to adhere to instructions from knowledgeable construction professionals.
Initials	I acknowledge that I will observe and follow all safety procedures, including any warning signs or safety instructions posted on or about the premises. In addition, I acknowledge that proper safety vests, hard hats and safety glasses have been provided to me for my visit. I am wearing closed toed shoes that the Project Safety Coordinator has acknowledged will be appropriate for my visit.
Initials	I hereby waive, release and hold harmless, as well as forever discharge, the University of Texas System, the General Contractor / Construction Manager and all subcontractors, their agents and employees from all claims which I, or my heirs, executors or administrators shall or may have, because of bodily injury, or death to me or damage to my property resulting from any act or omission of the Released Parties. I AM NOT AGREEING, HOWEVER, TO RELEASE THE RELEASED PARTIES FROM GROSS NEGLIGENCE.
Initials:	I HEREBY agree to indemnify, defend and hold harmless the Released Parties for any bodily injury, or death or damage to other persons or property caused by my acts or omissions while visiting the project.
Initials:	I, the undersigned, acknowledge that I: (1) have requested permission from the Owner and General Contractor / Construction Manager to visit the Project Site; 2) have executed this Waiver and Release as a condition of and in consideration for being permitted by Owner and General Contractor / Construction Manager to visit the project Site; 3) and, agree to exercise extreme care while on the Project Site and to comply with all safety rules and requirements of the Owner and General Contractor.
Date:	Visitor Signature:
Number in Visiting P	arty: Group Affiliation:
Project Safety Coordi	nator Signature:
11/29/21	Page 1 of 1

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTIO	ONAL CHECKL	IST
WA	TER DE	TECTION ALAF	RM
Location		Test :	#
Submittal / Approvals			
approved for use on this p testing. <u>Prior performance ha</u> <u>by the appropriate Contracte</u> submitted for approval / w completed. Any outstanding	roject. The comes been verified a cor / Subcontract ritness, subject a ritems will required	peing installed have been surponents are complete and reas complying with the contractor signatures below. This proto an attached list of outstatire completion before approvated and reliable protocolored.	eady for prefunctional to documents as attested efunctional checklist is nding items yet to be val of this form can be
List attached.			
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Electrical Contractor	Date	Plumbing Contractor	 Date

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General Contractor

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Date

Other Contractor



Approved	Cont.	UTH
Manufacturer's cut sheets		
Performance data		
O&M manuals		
Point Schedule for all zones complete and attached		
INSTALLATION		
Detector properly installed		
Detector properly aligned		
Detector operation by zone consistent with specifications and		
manufacturers data		
Water test properly activates alarm		
Water removal deactivates alarm when reset		
BAS Graphics indicate location of alarm		
Manual/Auto reset (indicate one)		
Water Detector labeled according to specifications		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.	has not met t	he specified
Owner's Representative / Commissioning Authority Date Date	te	
Approval: This filled-out checklist has been reviewed. Its completion exceptions noted	is approved	with the
Owner's Representative / Commissioning Authority Da	te	

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTIO	ONAL CHECKL	IST
	WATE	RPROOFING	
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this p testing. <u>Prior performance has</u>	roject. The con as been verified a	being installed have been subspondents are complete and reas complying with the contractor signatures below. This pre-	eady for prefunctional t documents as attested
submitted for approval / w completed. Any outstanding	ritness, subject items will requ	to an attached list of outstar aire completion before approved preclude safe and reliable pre-	nding items yet to be val of this form can be
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Flectrical Contractor	Date	Plumbing Contractor	- Date

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Date

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Date

Other Contractor



Approved	Cont.	UTH
INSTALLATION		
Preinstallation meeting conducted prior to start of work		
Proper storage and protection of materials		
Substrate condition acceptable		
Primer installed at proper rate		
Pretreated detail conditions (corners, joints, cracks, penetrations)		
Proper detail treatment at drains and penetrations		
Waterproofing material maintained at proper temperature		
Proper membrane placement, full contact without bubbles		
Verify interstitial moisture is not present		
Proper seam and end laps		
Term bar installed with appropriate fastener spacing		
Terminations sealed properly		
Properly placed drainage matting		
Properly installed protection board		
Backfill installed w/o damage to waterproofing		
Water test performed and approved (test report attached)		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.	on has not met t	he specifie
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its complet exceptions noted	ion is approved	with the
Owner's Representative / Commissioning Authority	Date	

Project Commissioning		Section 01 91 00	
Project Name		UTH Project #	
PRE	FUNCTI	ONAL CHECKL	IST
W	INDOW	INSTALLATION	N
Location		Test #	<u> </u>
Submittal / Approvals			
approved for use on this p	roject. The con	being installed have been sul	eady for prefunctional
by the appropriate Contractor	or / Subcontract	as complying with the contractor signatures below. This pre-	efunctional checklist is
* *		to an attached list of outstandire completion before approv	•
executed. None of the outs	-	preclude safe and reliable pre-	
performed. List attached.			
Mechanical Contractor	Date	Controls Contractor	Date
Electrical Contractor	Date	Plumbing Contractor	Date

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Date

Other Contractor



Approved	Cont.	UTH
Manufacturer's product data, performance criteria		
Shop drawings		
INSTALLATION		
Head, jamb and sill details installed per contract documents		
Proper anchorage		
Assembly alignment		
Perimeter joint width uniformity		
Proper flashing and seals		
Clear drainage paths, adequate weeps		
Thermal barrier continuity		
Unblemished finish		
Proper sealant joint bond breaker/backer rod installed		
Proper sealant application		
Sash operates smoothly		
Sash lock operates properly		
Installation/application Rejected: The installation/application performance criteria and will require reinspection before approval.		he specified
Owner's Representative / Commissioning Authority	Date	
Approval: This filled-out checklist has been reviewed. Its complet exceptions noted	ion is approved	with the
Owner's Representative / Commissioning Authority	Date	