I GENERAL

A. General: The work covered consists of furnishing all labor and materials necessary to install, complete and ready for continuous operation, the fire protection systems, apparatus and equipment for the Starbuck's at Portland International Jetway.

B. Shop Drawings: Shop drawings of all specified equipment and apparatus shall be submitted to the Architect for approval.

C. Codes: All equipment and materials furnished under the Fire Protection Sub-Contract and labor and testing performed herein shall be in complete accordance with the Maine State Building Codes, Local Ordinances and Regulations of the City or Town, National Fire Protection Association and insurance regulations and requirements governing such work.

D. Permits: Any and all permits required for installation of any material shall be obtained as part of the work of the Specification including all fees or expenses incurred.

E. Instructions: During the assembly and installation of all Fire Protection systems, the Owner's operating personnel shall be instructed regarding its operation and maintenance. A two (2) week instruction period shall be provided after completion of project. Operation and maintenance manuals shall be required.

F. Guarantee: All materials and equipment furnished and installed shall be guaranteed in writing for one (1) year from the date of acceptance of the building by the Owner.

G. Record Drawings: The Fire Protection Subcontractor shall maintain at the job, at all times, a complete and separate set of blackline prints of the Fire Protection Drawinas of his trade on which he shall mark clearly, neatly, accurately and promptly as the work progresses. Two CADD disks, AutoCAD 2000 or compatible system as well as mylar reproducible "As-Builts" shall be furnished by the Fire Protection Subcontractor at the job completion. The Fire Protection Contractor's Design Engineer shall certify that the completed installation complies with all applicable codes and underwriters' requirements.

H. Inspection: All work shall be subject to the inspection of the Owner, the Architect and such other inspectors having jurisdiction. A properly executed certificate of inspection shall be provided.

1. Examination of Site: The Fire Protection Subcontractor, before submitting prices or beginning work, shall thoroughly examine the site and Contract Documents. No claim for extra compensation will be recognized if difficulties which an examination of site conditions and Contract Documents prior to executing Contract would have revealed.

J. Coordination: Coordinate all work installed under this specification with that of all other trades.

K. Protection of Property: Protect all new and existing work before, during and after

L. Tests: The Fire Protection Subcontractor shall perform all tests at the completion of the work and the results furnished to the Owner and Architect in writing.

M. Certificates of Approval: Upon completion of all work, the Fire Protection Subcontractor shall furnish, in duplicate, certificates of inspections from all inspectors and authorities having jurisdiction, notarized letters from the manufacturers stating that authorized factory engineers have inspected and tested the installation of their respective systems and found same to be in perfect operating condition.

N. Contract Drawings: The Contract Drawings are diagrammatic and indicate only the general arrangements of work. It is not the intent of these Drawings to show every pipe. rise, drop, elbow, etc. Any additional work not shown and required to install the fire protection systems shall be included as part of this Contract.

O. Removal Work: Particular care shall be taken to avoid creating hazards on the site or causing disruption of service in the building. All existing equipment to be removed shall be done in a neat and workmanlike manner. All existing equipment to be turned over to the Owner shall be presented to the Owner in good condition at a location designated by the Owner. All other equipment shall be removed from the premises. Remove all abandoned piping and equipment not built into building construction. Where ceiling or walls are removed, all abandoned piping shall be removed and ends of live services capped. Abandoned elements built into walls or located above existing inaccessible ceilings shall remain and ends capped and marked abandoned.

P. Continuity of Services: Services shall be maintained in all areas which will be occupied during the construction period. If an interruption of service becomes necessary. such shall be made only upon consent of the Owner at a time outside normal working hours as he shall designate. Refer to the overall scheduling of the work of the project. Schedule work to conform to this schedule and install work to not delay nor interfere with the progress of the project.

Q. Asbestos Removal: Should this Subcontractor or any of its Sub-Subcontractors encounter any aspestos and/or aspestos related products of materials (the "aspestos materials") during the performance of its work, this Subcontractor shall stop work immediately and so inform the General Contractor and the Owner of the presence of asbestos.

II SCOPE

A. The work of this Section consists of all labor, materials and equipment required to provide all Fire Protection work complete, in place, as shown on the Drawings, specified herein and as necessary for a proper installation.

B. The extent of the Fire Protection shall include, but not be limited to the following:

1. Alterations, additions and/or removal of existing automatic wet sprinkler or combination sprinkler and standpipe system within the renovated area in order to conform to new space requirements.

III RELATED WORK

A. The following equipment items and work shall not be the responsibility of this

1. Cutting and Patchina 2. Temporary Water, Heat, Fire Protection and Toilet Facilities

. Temporary Power and Lighting 4. Flashing and Caulking

5. Finish Painting

6. Heating, Ventilating and Air Conditioning

8. Electrical Power and Wiring

IV MATERIALS

A. Pipe and Fittings

1. Type E: Schedule 10 welded and seamless steel pipe in accordance with ASTM\_A135 joined with groove fittings and couplings approved for service with grooves rolled on the pipe by an approved groove rolling machine. Minimum wall thickness shall be Schedule 10 for sizes up to 5 inch pipe, 0.134 inch for 6 inch pipe and 0.188 inch pipe for 8 inch pipe and 10 inch pipe. Fittings and couplings shall be designed specifically for use in grooved piping systems and suitable for 175 psi minimum working pressure. Fittings, couplings and gaskets shall be of the same manufacturer.

2. Pipe and fittings shall be in accordance with the following:

B. Pipe Sleeves, Hangers, and Supports

1. All piping shall be properly supported from building structure in accordance with NFPA Codes and the manufacturer's recommendations. Provide Schedule 40 steel sleeves, extend 1" above floor, make watertight and seal with material that maintains fire rating. Provide core drilling where required and provide fire rated link seal penetration closures.

Type D & E

1. Gate valves shall be OS&Y type iron or bronze body, bronze seated, flanged or threaded ends and UL/FM approved, 175 psi working pressure.

2. Check valves shall be swing type iron or bronze body, bronze seated, flanged or threaded ends and UL/FM approved, 200 psi working pressure.

3. Globe valves shall be bronze body with threaded ends, 300 psi working pressure.

4. Alarm check valves shall be UL/FM approved vertical type for a wet system complete with all trim, excess pressure pump, water motor gong, pressure gauges and drain valves.

5. Double check valve assembly shall be approved by authorities having jurisdiction. Seek and secure all applications and permits. Provide test kit and certify installation.

D. Flow Switches

1. Flow switches shall be approved type, UL listed, double contacts with adjustable retard dial, cast aluminum saddle, flexible saddle, rubber gasket and dust proof cover.

E. Supervisory Switches

1. Supervisory switches for OS&Y valves shall be FM approved, UL listed, double contacts with aluminum case topped for 1/2 inch NPT conduit.

F. Pressure Switches

1. Pressure switches shall be FM approved, UL listed, double contacts with aluminum case, brass bellows factory preset and adjustable from 2 PSI to 20 PSI.

G. Sprinklers

1. Sprinklers, in general, shall be automatic closed type with temperature ratings to suit installed conditions. Sprinklers shall be located in the center of the ceiling tiles. When the ceiling tile is divided into sections by grooved depressions, the sprinkler shall be located in the center of one of the panels.

2. Sprinklers in areas to be finished with ceilings shall be chrome plated pendent type with chrome plated escutcheons. Sprinklers in unfinished spaces shall be natural bronze

3. Spare heads, cabinet and wrench shall be provided in accordance with NFPA 13.

H. Pipe Identification and Valve Tags

1. All fire protection piping shall be labeled at each valve, at each branch, at each passage through wall and at intervals of not more than 20 feet with semi-riaid Setmark pipe markers with arrows indicating the direction of flow. All valves shall be tagged with 1-1/2 inch diameter brass tags and numbered in sequence from point of entrance into the building. Valve charts shall be placed under glass, framed and presented to the

I. Access Panels

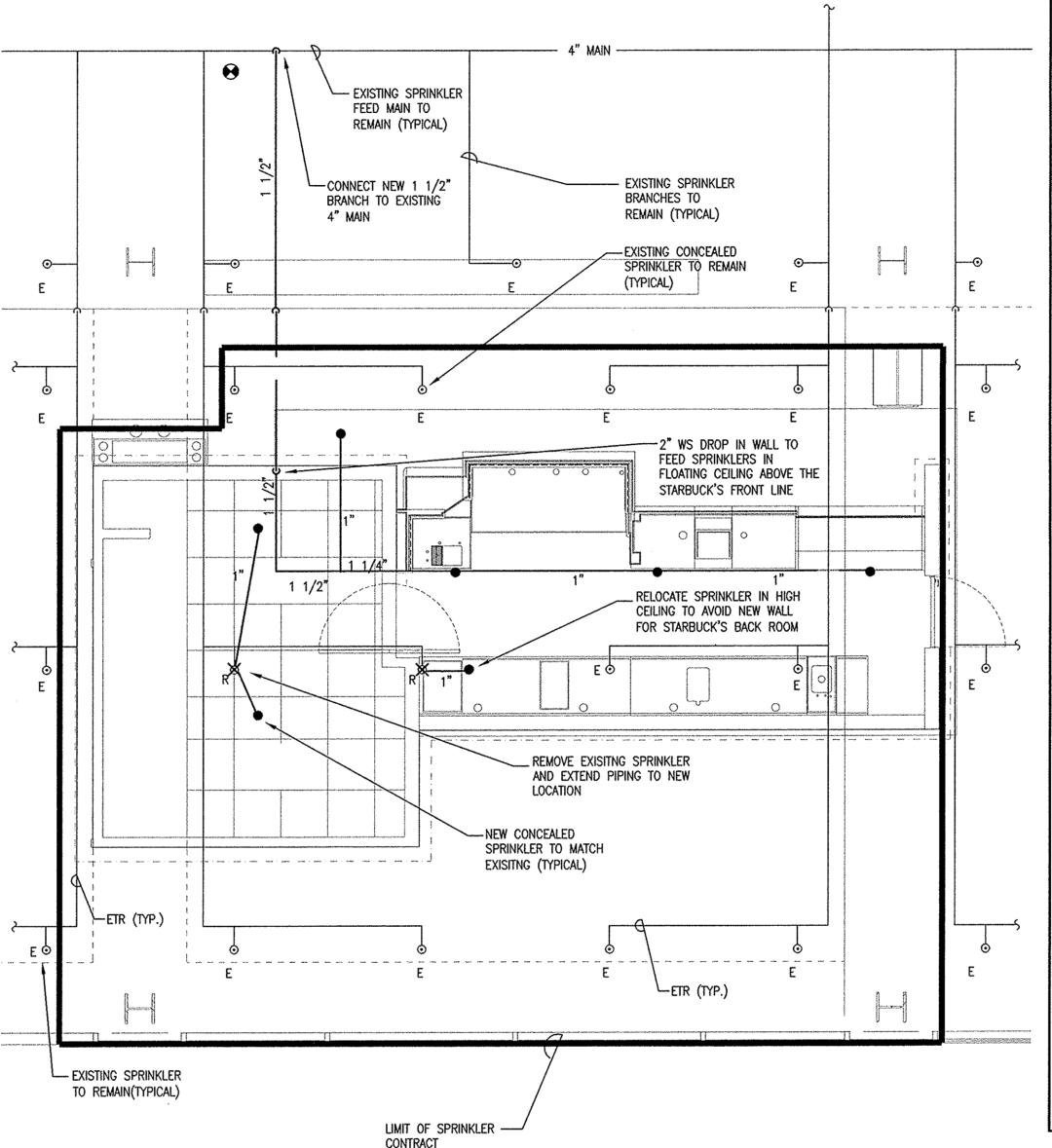
1. Furnish access panels for access to all concealed parts of the fire protection systems that require accessibility for the proper operation and maintenance of the system. Size shall be sufficient for the purpose, but no less than 12 inches by 18 inches. Access doors shall be prime coated of rust inhibitive paint, continuous hinge and manufactured by Inland Steel Products Company "Milcor".

J. Design Criteria

1. Sprinkler systems shall be hydraulically designed and calculated by the Fire Protection Contractor. The Fire Protection Contractor shall submit all required hydraulic calculations to prove the hydraulically most remote areas are being protected. Fabrication drawings and hydraulic calculations shall be submitted and stamped approved by the local fire department and insurance underwriters prior to submitting to the Architect for review. Fabrication drawings and hydraulic calculations shall bear the seal of registration of a qualified Registered Professional Fire Protection Engineer. Maintain a minimum of 10 psi cushion between required pressure and available pressure. Comply with all Underwriters' and code authorities requirements including maximum water flow velocity in the fire protection system.

2. Automatic sprinkler systems in areas of light hazard occupancy shall be designed with a minimum design density of .10 GPM per square foot over the hydraulically most remote 1500 square feet. Maximum protection area per sprinkler shall be 225 square feet for upright and pendent sprinklers, and 196 feet for sidewall sprinklers. Provide a 100 GPM hose allowance.

3. Automatic sprinkler systems in areas of ordinary hazard occupancy shall be designed with a minimum design density of .15 GPM per square foot over the hydraulically most remote 1500 square feet. Maximum protection area per sprinkler shall be 130 square feet. Provide a 250 GPM hose allowance.



NEW WORK PIPING (INDICATED AS HEAVY LINE) EXISTING TO REMAIN (INDICATED AS LIGHT LINE) XXX RE EXISTING PIPING TO BE REMOVED EXISTING EQUIPMENT TO BE REMOVED CONNECT TO EXISTING WET SPRINKLER PIPE PIPE TEE LOOKING UP PIPE TEE LOOKING UP PIPE ELBOW UP PIPE ELBOW DOWN OR DROP DN/DROP CONT CONTINUATION FLOW IN DIRECTION OF ARROW UPRIGHT WET SPRINKLER PENDENT WET SPRINKLER CONCEALED WET SPRINKLER SIDEWALL WET SPRINKLER PENDENT DRY SPRINKLER NAS NO AUTOMATIC SPRINKLERS ( - ) FP-1/ DIAGRAM NO. & DWG. NO. REFERENCE ELECTRIC BELL / WATER MOTOR GONG ABOVE FINISHED FLOOR ABOVE FINISHED GRADE LIMIT OF FIRE PROTECTION CONTRACT NOT IN FIRE PROTECTION CONTRACT GENERAL CONTRACTOR FIRE PROTECTION CONTRACTOR PLUMBING CONTRACTOR **ELECTRICAL CONTRACTOR** HVAC CONTRACTOR FURNISH & INSTALL CONTRACTOR FURNISHED / OWNER INSTALLED CF0I OWNER FURNISHED / CONTRACTOR INSTALLED FINISHED FLOOR ELEVATION WATER SERVICE ENTRANCE

FIRE PROTECTION LEGEND

# FIRE PROTECTION STARBUCK'S

# DRAWING NOTES:

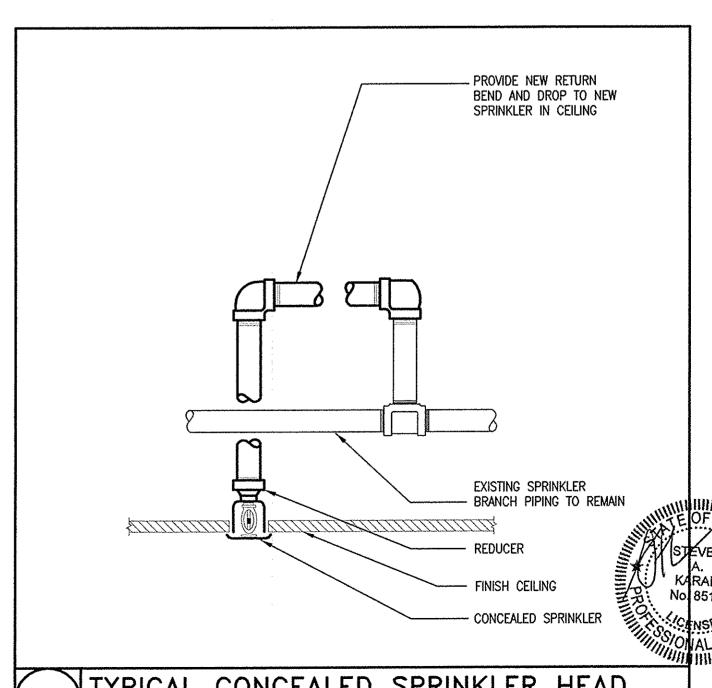
1. ALL NEW ARM OVERS SHALL BE 1" PIPING.

2. SPRINKLERS BEYOND THE LIMIT OF WORK ARE EXISTING TO REMAIN PROVIDED UNDER BASE BUILDING CONTRACT.

3. INSTALL ALL SPRINKLER WITH-IN CENTER OF TILE.

4. MATCH BASE BUILDING FOR TEMPERATURE RATING AND MANUFACTURER, FINISH SHALL BE WHITE UNLESS NOTED OTHERWISE.

5. PROVIDE NEW SPRINKLERS IN FLOATING CEILING FED FROM SYTEM



TYPICAL CONCEALED SPRINKLER HEAD RETURN BEND DROP WITH UPRIGHT HEAD

7/20/11 PERMIT



Item



Coffe Portland Int'l Jetport PWM 1001 Westbrook Street Portland ME 04102 S Starbuck

KEY PLAN

HMS Host 6905 Rockledge Drive Bethesda, MD 20817 T: (240) 694-4746 C: (240) 274-6417

**Building Engineering** Resources, Inc. 66 Main Street North Easton, MA 02356 T: (508) 230-0260 F: (508) 230-0265 E: ber@ber-engineering.com

Starbucks Coffee Company 2401 Utah Avenue South #800 Seattle WA 98134 T: (206) 318-1575 Contact: Tara Byrne E: tara.byrne@starbucks.com

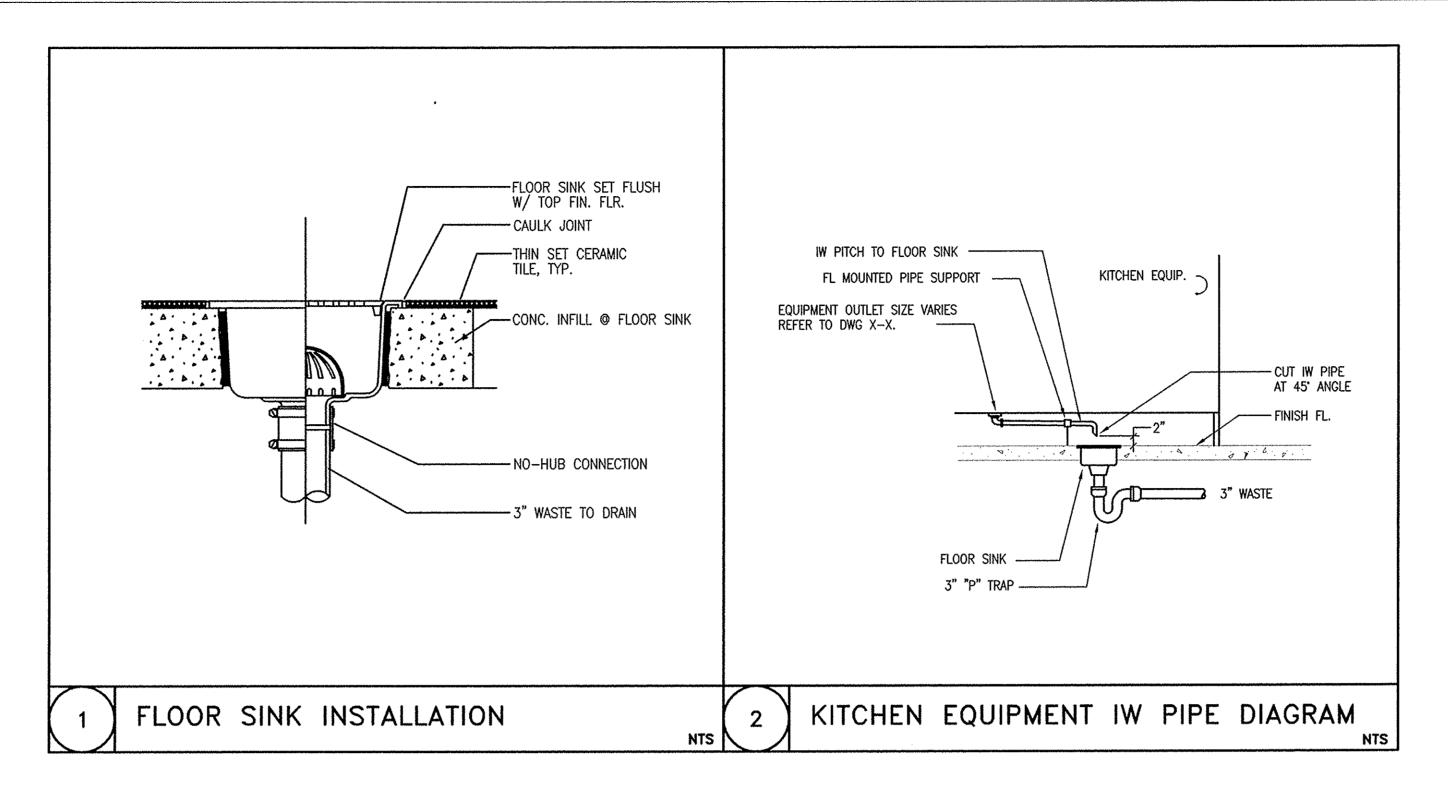
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> > Job No.: 11400 Scale: As noted Issued: 7/20/11

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**SPRINKLER** PLAN & DETAILS STARBUCK'S

Host PWM Starbucks



Count e 1 5 pment 1	P385; P374; P376; P384 P804 E574; E575;	Description  Faucet — Water Tower — 12in  Drain Grate Half Square — 12in	Comments	Responsibility SB GC
5 pment 1	P376; P384  P804  E574; E575;			
5 pment 1	P376; P384  P804  E574; E575;			
pment 1	P804 E574; E575;			
pment 1	E574; E575;	Drain Grate Half Square — 12in		
pment 1	E574; E575;	Drain Grate Half Square — 12in		
pment 1	E574; E575;	Drain Grate Half Square — 12in		
pment 1	E574; E575;	Drain Grate Hall Square - 1211	<u></u>	
1	E574; E575;			160
*	[23/4; 23/3;	Monta Hot Tan	·	SB
vtures	E578	instu not rup	1	30
1	P380	Faucet — Double Laboratory with		SB
,		Bent Riser Spout	į į	
2	P377			SB
1				SB
1				SB
1	P367		}	SB
4	D752: D797			SB
	[F332; F367	radcet - bipperwen		
1	P080	Sink - Rinse Drop In - 27v20ir		SB
1				SB
<del></del>				SB
•	P065	Mounted with Splash SST		
1	P061	Sink - 3 Comp SST - 72in		SB
tems				
1		Filter — Head Single		SB
1		Filter — Carbon Filter Cartridge		SB
1				SB
4				SB SB
	2 1 1 1 1 1 1 tems 1 1	1 P380 2 P377 1 P355; P365 1 P354; P364 1 P367 1 P352; P387 1 P080 1 P393 1 P021; P032; P065 1 P061 tems 1 1 1	1 P380 Faucet — Double Laboratory with Bent Riser Spout 2 P377 Faucet — Double Laboratory with Swing Spout 1 P355; P365 Wall Mounted Pre Rinse Sprayer 1 P354; P364 Faucet — Single Handle 1 P367 Faucet — Single Laboratory with Swing Spout 1 P352; P387 Faucet — Dipperwell 1 P080 Sink — Rinse Drop In — 27x20in 1 P393 Sink—Work Drop In SST—12x20in 1 P021; P032; Sink — Hand Sink ADA Wall Mounted with Splash SST 1 P061 Sink — 3 Comp SST — 72in 1 Filter — Head Single 1 Filter — Carbon Filter Cartridge with Scale Reduction 1 Filter — Head Quad 4 Filter — Carbon Filter Cartridge	1 P380 Faucet — Double Laboratory with Bent Riser Spout 2 P377 Faucet — Double Laboratory with Swing Spout 1 P355; P365 Wall Mounted Pre Rinse Sprayer 1 P354; P364 Faucet — Single Handle 1 P367 Faucet — Single Laboratory with Swing Spout 1 P352; P387 Faucet — Dipperwell 1 P369 Sink — Rinse Drop In — 27x20in 1 P393 Sink—Work Drop In SST—12x20in 1 P021; P032; Sink — Hand Sink ADA Wall Mounted with Splash SST 1 P061 Sink — 3 Comp SST — 72in 1 Filter — Head Single 1 Filter — Carbon Filter Cartridge With Scale Reduction 1 Filter — Head Quad 4 Filter — Carbon Filter Cartridge

Design ID	Count	Old Tag(s)	SPECIALTY EQUIPMENT SCHEDULE  Description	Comments	Responsibility
Jesign ID	Count	ivia rag(s)	Description	Comments	Responsibility
Food Service	— App	liances & Eq	uipment		
10344	1	P012	lce — Bin Drop In 95lb		SB
10495		E152; E155; E183; E184; E185; E191; E194			SB
10738	1	E360	lce - Bin 250lb		SB
10917	4	E806; E610	Brewer Server		SB

				····	SERVI	CES			DEMONO.
ITEM	QTY.	DESCRIPTION	I.W.	W	٧	CW	HW	FW	REMARKS
10581	1	HAND SINK	-	1 1/2"	-	1/2"	1/2"	-	SUPPLIED BY OWNER, PROVIDE FINAL CONNECTIONS
10215	2	RINSE SINK FAUCET	-	-		1/2"	1/2"	-	SUPPLIED BY OWNER, PROVIDE FINAL CONNECTIONS
10153	1	TOWER 14" WATER DISPENSER	1"	-		-	_	1/2"	SUPPLIED BY OWNER, PROVIDE FINAL CONNECTIONS
10152	1	FAUCET PREP. SINK		-	_	1/2"	1/2"	-	SUPPLIED BY OWNER, PROVIDE FINAL CONNECTIONS
10495	1	BREWER - TWIN COLUMBIA	_		_	_		3/8"	SUPPLIED BY OWNER, PROVIDE FINAL CONNECTIONS
10738	1	ICE MACHINE	1"	-	-		-	1/2"	SUPPLIED BY OWNER, PROVIDE FINAL CONNECTIONS
11003	1	FAUCET DIPPERWELL	1"		_	1/2"	1/2"	-	SUPPLIED BY OWNER, PROVIDE FINAL CONNECTIONS
10874	1	Insta hot dispenser	-		_		-	1/2"	SUPPLIED BY OWNER, PROVIDE FINAL CONNECTIONS
10943	1	COLD DRINK STATION	1"	~	-	1/2"	1/2"	-	SUPPLIED BY OWNER, PROVIDE FINAL CONNECTIONS

\*REFER TO STARBUCKS DRAWINGS FOR KITCHEN EQUIPMENT AND MODEL NUMBERS. COORDINATE WITH G.C. FOR NEW MILLWORK AND SINK LOCATIONS PRIOR TO INSTALLATION.

	DRAIN SCHEDULE											
1.D.	MANUFACTURER	MODEL	LOCATION	OUTLET	STR	REMARKS						
FS-1	ZURN	Z1930	AT KITCHEN EQUIPMENT	NOTED	_	INDIECT WASTE DRAINS FOR KITCHEN EQUIPMENT						
	-	-		-								
<del>-</del>					-							
NOTES: RUN DRAINS ALONG FLOOR AND PROVIDE 90 ABOVE FLOOR SINK TO MINIMIZE SPLASHING DUE TO SMALL DRAIN SIZE.												

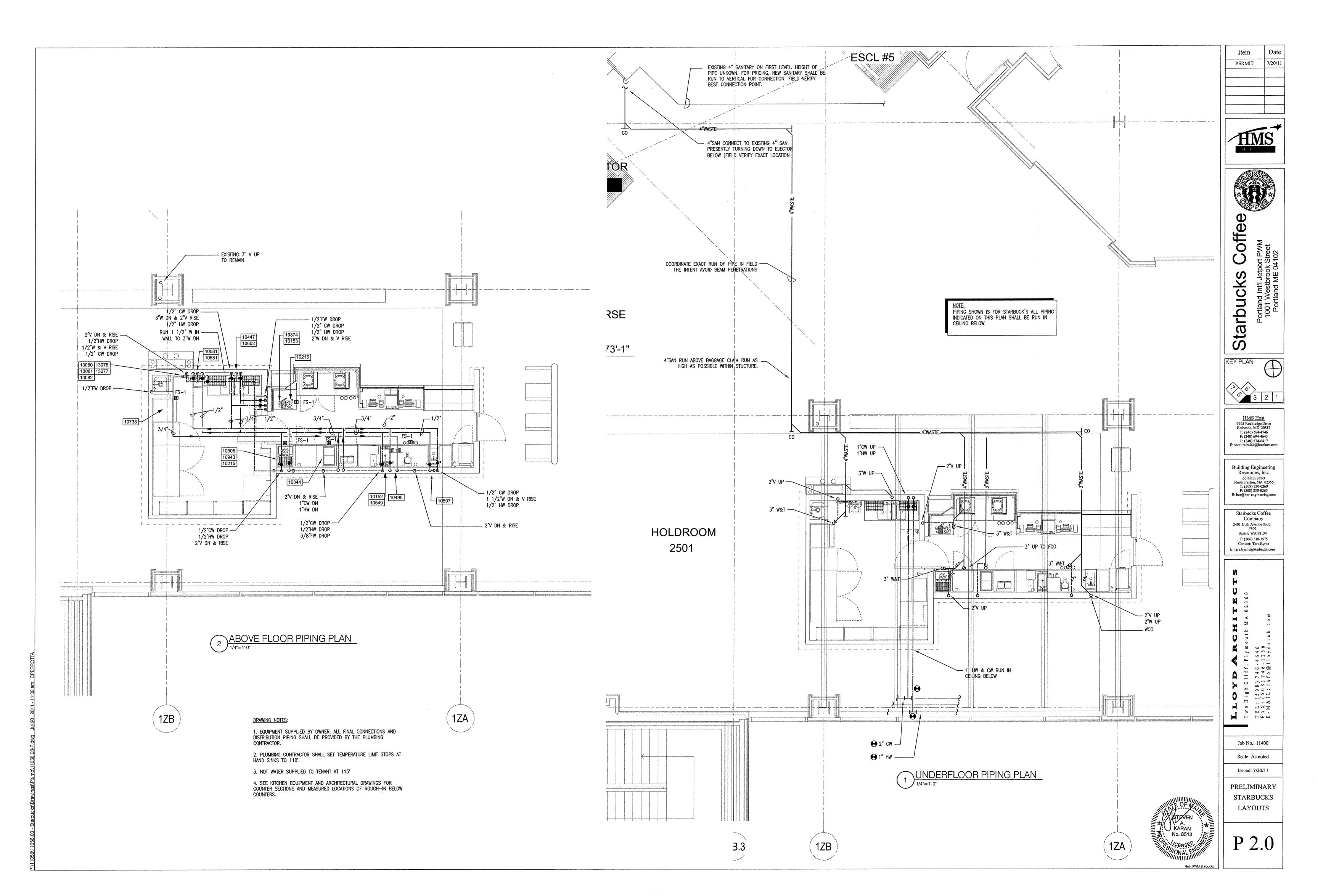
PLUMBING	LEGEND		
	ETR	LIGHT LINE INDICATES EXISTING PIPING TO RE	AAIN.
- <del></del>	RE	REMOVE EXISTING PIPING	
•	CTE	CONNECT TO EXISTING	
— <del>X</del> —X—	C&C	CUT & CAP	
	CW	COLD WATER	
FW	FW	FILTERD WATER	
	HW	HOT WATER	
	S or W	SOIL OR WASTE	
KW	KW	KITCHEN WASTE	
	٧	VENT	
	KV	KITCHEN VENT	
KV			
	COND	STORM/CONDUCTOR	
·····	CONT	CONTINUATION	
	UP	PIPE RISE OR UP	
	DN	PIPE DROP OR DOWN	
	TEE	PIPE TEE	
	SOV	SHUT-OFF VALVE	
-19 <sub>1</sub>	PRV	PRESSURE REDUCING VALVE	
Z	CA	CHECK VALVE	
~~~	W & T	WASTE & TRAP	
———∞ ——— <i>≻</i> ——	CO	CLEANOUT PLUG	
		FLUSH FLOOR CLEANOUT	
	FCO	:	
	DCO	DANDY CLEANOUT	
		CAPPED PIPE	
.01		ARROW INDICATES DIRECTION OF FLOW	
		ARROW INDICATES DIRECTION OF SLOPE	
		UNION	
	TP	TRAP PRIMER	
	НВ	HOSE BIBB	
P-1		DIAGRAM NO. & DWG. NO. REFERENCE	
0	FD "A"	FLOOR DRAIN & TYPE	
WM	WM	WATER METER	
	T	THERMOMETER	
Q	PG	PRESSURE GAUGE WITH PETCOCK	
74	T&P	TEMPERATURE AND PRESSURE RELIEF VALVE	
<b>수</b>		VACUUM RELIEF VALVE	
	WH-1	WATER HEATER & NUMBER	
	VTR	VENT THRU ROOF	
	INV	INVERT	
	TYP	TYPICAL	
	NTS	NOT TO SCALE	
	AFF	ABOVE FINISHED FLOOR	
	LPC	LIMIT OF PLUMBING CONTRACT	
	GC	GENERAL CONTRACTOR	
	FPC	FIRE PROTECTION CONTRACTOR	
	PC	PLUMBING CONTRACTOR	
	EC	ELECTRICAL CONTRACTOR	
	HVAC	HVAC CONTRACTOR	
	MR	MOP RECEPTOR	
	SK	SINK	
	F & I	FURNISH & INSTALL	
	S=.01	SLOPE = 1/8" PER FOOT	TE OF MALL
	NO	NORMALLY OPEN	STEVEN
	NC	NORMALLY CLOSED	KARAN No. 8513
		FINISHED FLOOR ELEVATION	せん:

PERMIT Starbucks Coffee KEY PLAN HMS Host
6905 Rockledge Drive
Bethesda, MD 20817
T: (240) 694-4746
F: (240) 694-4643
C: (240) 274-6417
E: scott.reimink@hmshost.com Building Engineering Resources, Inc. 66 Main Street
North Easton, MA 02356
T: (508) 230-0260
F: (508) 230-0265
E: ber@ber-engineering.com Starbucks Coffee Company 2401 Utah Avenue South #800 Scattle WA 98134 T: (206) 318-1575 Contact: Tara Byrne E: tara.byrnc@starbucks.com LLOXD AR Two High Cliff, Plym TEL: (508) 746-4646 FAX: (508) 746-1236 E-MAIL: info@110yd Job No.: 11400 Scale: As noted Issued: 7/20/11

**PLUMBING** 

LEGEND, NOTES

AND DETAILS



# PLUMBING SPECIFICATIONS

A. General: The work covered consists of furnishing all labor and materials necessary to install, complete and ready for continuous operation, the plumbing systems, apparatus and equipment for the Starbuck's Consession Space at the Portland International Jetway.

B. Shop Drawings: Shop Drawings for all specified fixtures, equipment and apparatus shall be submitted to the Architect for approval.

C. Codes: All equipment and materials furnished under the Plumbing Sub-Contract and labor and testing performed herein shall be in complete accordance with the Maine State Building, Fuel Gas, Plumbing Codes, Local Ordinances and Regulations of the City of Portland, National Fire Protection Association and insurance regulations and requirements governing such work.

D. Permits: Any and all permits required for installation of any material shall be obtained as part of the work of this Specification including all fees or expenses incurred.

E. Instructions: During the assembly and installation of all plumbing systems, the Owner's operating personnel shall be instructed regarding its operation and maintenance. A two (2) hour instruction period shall be provided after completion of project. Operation and maintenance manuals shall be required.

F. Guarantee: All materials and equipment furnished and installed under this Specification shall be guaranteed in writing for one (1) year from the date of acceptance of the building by the Owner.

G. Record Drawings: The Plumbing Subcontractor shall maintain at the job, at all times. a complete and separate set of blackline prints of the Plumbing Drawings of his trade on which he shall mark clearly, neatly, accurately, and promptly as the work progresses. Two CADD disks, AutoCADD 2004 or compatible system as well as reproducible As-Builts shall be furnished by the Plumbing Subcontractor at the job completion.

H. Inspection: All work shall be subject to the inspection of the Owner, the Architect and such other inspectors having jurisdiction. A properly executed certificate of inspection shall be provided.

I. Examination of Site: The Plumbing Subcontractor, before submitting prices or beginning work, shall thoroughly examine the site and Contract Documents. No claim for extra compensation will be recognized if difficulties which an examination of site conditions and Contract Documents prior to executing Contract would have revealed.

J. Coordination: Coordinate all work installed under this Specification with that of all

K. Protection of Property: Protect all new and existing work before, during and after

L. Disinfection: All domestic water systems shall be disinfected in accordance with the local Public Health and Plumbing Code requirements. M. Tests: The Plumbing Subcontractor shall perform all tests at the completion of the

work, and the results furnished to the Owner and Architect in writing. N. Certificates of Approval: Upon completion of all work, the Plumbing Subcontractor shall furnish, in duplicate, certificates of inspections from all inspectors and authorities

having jurisdiction, notarized letters from the manufacturers stating that authorized factory engineers have inspected and tested the installation of their respective systems and found same to be in perfect operating condition. O. Contract Drawings: The Contract Drawings are diagrammatic and indicate only the general arrangements of work. It is not the intent of these Drawings to show every pipe. rise, drop, elbow, etc. Any additional work not shown and required to install the plumbina

systems shall be included as part of this Contract. P. Removal Work: Particular care shall be taken to avoid creating hazards on the site or causing disruption of service in the building. All existing equipment to be removed shall be done in a neat and workmanlike manner. All existing equipment to be turned over to the Owner shall be presented to the Owner in good condition at a location designated by the Owner. All other equipment shall be removed from the premises Remove all abandoned piping and equipment not built into building construction. Where ceiling or walls are removed, all abandoned piping shall be removed and ends of live services capped. Abandoned elements built into walls or located above existing

Q. Continuity of Services: Services shall be maintained in all areas which will be occupied during the construction period. When an interruption of service becomes necessary, such shall be made only upon consent of the Owner at a time outside normal working hours as he shall designate. Refer to the overall scheduling of the work of the project. Schedule work to conform to this schedule and install work to not delay nor interfere with the progress of the project.

inaccessible ceilings shall remain and ends capped and marked abandoned.

R. Seismic Restraints: Installation of Plumbing equipment, accessories and components shall be in accordance with the Seismic Requirements identified in the Maine State Building

A. The work of this Section consists of all labor, materials and equipment required to provide all Plumbing work complete, in place, as shown on the Drawings, specified herein and as necessary for a proper installation.

B. The extent of the Plumbing work shall include, but not be limited to the following:

1. Alterations, additions and/or removal of existing plumbing systems and fixtures within the renovated area in order to conform to new space requirements. 2. Installation of toilet room accessories.

3. Core Drilling. 4. Insulation of all existing cold water, hot water, hot water recirculation and conductors systems piping, valves and fittings made bare as a result of asbestos abatement. When connecting to existing insulated systems provide new insulation for three feet on either side of the new connection. 5. Furnishing of Access Panels.

#### III RELATED WORK

A. The following equipment items and work shall be the responsibility of others:

Cutting and Patching 2. Flashing and Caulking

Finish Painting 4. Heating, Ventilating and Air Conditioning

5. Fire Protection

Electrical Power and Wiring Furnishing of Toilet Room Accessories

. Installation of Access Panels 9. Food Service Equipment

IV MATERIALS

### A. Pipe and Fittinas

1. Type A: (Potable and Non-potable Water)

Type K hard drawn copper tubing with wrought copper sweat fittings joined with approved 95/5 lead free tin antimony solder.

2. Type B: (Potable and Non-potable Water)

Type L hard drawn copper tubing with wrought copper sweat fittings joined with approved 95/5 lead free tin antimony solder.

Type C: (Sanitary, Waste and Vent, Storm)

No hub cast iron soil pipe and fittings joined with approved stainless steel mechanical couplings with neoprene gaskets.

4. Type D: (Waste and Vent smaller than 2°)

Type DWV hard drawn seamless copper tubing with wrought copper drainage fittings joined with 95/5 lead free tin antimony solder.

. Type F: (Vents)

Schedule 40 galvanized steel pipe with galvanized cast iron drainage fittings joined with threaded connections.

6. Pipe and fittings shall be in accordance with the followina:

a. Cold Water Type A or B

b. Hot Water Supply and Recirculation Type A or B c. Sanitary Waste and Vent Type C or F

d. Waste and Vent Smaller than 2° Type D c. Indirect Waste Piping smaller than 11/4" Type

f. Indirect Waste Piping 11/4° and larger Type

All domestic cold and hot water supply and recirculation pipe, fittings and valves shall be insulated with heavy density rigid fiberglass with a vapor barrier and all purpose jacket with self-sealing lap joint. Valves and fittings shall be insulated with Zeston Hi-Lo insulation and covered with 25/50 rated PVC covers secured with vapor retarder mastic.

2. All horizontal roof drainage pipe, roof drain bodies and the bend into vertical position shall be insulated in the manner described for cold and hot water.

Brocar Products Series 500 Insulation Kit for P trap assembly and hot water and cold water angle valve assembly. Kit shall be white flexible vinyl insulation secured with nylon fasteners supplied, foam inserts, antimicrobial.

4. Insulation thickness shall be as follows:

Hot Water Supply and Recirculation up to 4" = 1"

C. Pipe Sleeves, Hangers and Supports

1. All piping shall be properly supported from the building structure in accordance with Local Codes and manufacturer's recommendations. Hangers for insulated piping shall be oversized and furnished with a sheetmetal insulation shield to allow the insulation to pass through uncut. Provide Schedule 40 pipe sleeves, extend 1 inch above floor, make watertight and pack with material that shall maintain fire rating. Provide core drilling where required and provide fire rated link seal penetration closures.

1. All shut off valves on cold water, hot water, and hot water recirculation piping from % inch up to and including 2 inch shall be Apollo Series 77-200, solder end, bronze body ball valve, chrome-plated bronze ball, 600 psi WOG, full port ball valve.

2. All shut off valves on cold water, hot water and hot water recirculation piping ½ inch. shall be Apollo Series 70-200, solder end, bronze body ball valve, chrome-plated bronze

3. All check valves on cold water, hot water and hot water recirculation piping three inches and less in size shall be Nibco Figure No. S-413-W, solder end. bronze body swing check, bronze disc, 200 psi WOG.

4. All drain valves shall be 1/2 inch Apollo Model 78-103 with Watts No. 8A hose connection vacuum breaker, cap with chain of length as required.

1. Backflow preventers 2 inches and smaller shall be reduced pressure principle, a bronze. Watts Series U-009-QTS for cold water and hot water including bronze strainer. valves, air gap fittings test cocks and spare parts kit. Run vent to nearest floor drain or similar open receptor. Pressure gauges shall be installed on the supply and discharge side of each backflow preventer assembly. Each pressure gauge assembly shall include TRERICE 600-C gauge, 0-160 psi dial range, 735-2 valve and 872-1 snubber. Furnish to the Owner one Watts TK-9 Model A Test Kit. This Contractor shall act as the Owner's agent in seeking approval from the Department of Environmental Protection or their designee. This Contractor shall submit all Plans, Specifications, and Applications required for approval and shall pay all fees. Approvals shall be secured prior to the purchase and installation of backflow preventers. Test and certify backflow preventer.

#### E. Floor Drains

1. Floor drains shall be cast iron body with weepholes and flashing collar. Grates shall be polished chrome-plated brass in finished areas and coated cast iron in unfinished

#### F. G. Wall Hydrants

1. Wall hydrants shall be all bronze, non-freeze type, polished brass face, loose key operated with integral vacuum breaker backflow preventer 2. Hydrants shall be set 18 inches above outside grade and not more than 100 feet

## I. Plumbing Fixtures

1. In general, all plumbing fixtures shall have chrome-plated faucets, stops and traps. All supply stop valves shall be brass body and stem and have threaded or sweat solder inlet. Provide wall escutcheons. Fixtures and trim shall be of the same manufacturer similar to Kohler, Elier or American Standard.

2. All lavatory or "handwashing sink" controls, where applicable, shall be adjusted by installing Plumber prior to the final inspection. Controls shall be set to deliver water at a maximum temperature of 110 degrees F, were faucet temperatures can not be set at faucet, provide powers point of-use mixing valve.

#### J. Pipe Identification and Valve Tags

1. All plumbing systems shall be labeled at each valve, at each branch, at each pipe passage through wall and at intervals of not more than 20 feet with color coded semi-rigid Setmark pipe markers with arrows indicating the direction of flow. All valves shall be tagged with 1-1/2 inch diameter brass tags and numbered in sequence from point of origin. Valve charts shall be placed under glass, framed and presented to the

### K. Cleanouts

1. Cleanouts shall be iron body with heavy brass plug and raised nut, same size as pipe for piping up to four inches and not less than four inches in size for piping larger than four inches and closed gas tight. Floor cleanouts in carpeted areas shall have carpet cleanout markers. Floor cleanouts shall not be located beneath partitions, casework. non-portable equipment or similar installation conditions. End cleanouts on no hub cast iron shall be Josam Series 58900-20. End cleanouts on copper waste shall be Nibco 816. Flush floor cleanout shall be Josam Series 56000-2-22-41 in concrete floors. The last flush floor cleanout before exiting the building shall be Josam Series 56010-2-22-41. Exposed dandy cleanouts on no hub cast iron shall be Josam Series 58910-20. Wall cleanouts and concealed dandy cleanouts on no hub cast iron shall be Josam Series 58910-19 with Series 58890 cleanout plug with center screw length as required. End cleanouts on polypropylene piping shall be Fuseal fitting cleanout adapter with threaded plug.

# L. Water Hammer Arrestors (Shock Absorbers)

1. Maintenance—free water hammer arrestors shall be furnished and installed in accessible locations at all locations in the water systems where quick acting valves are installed as well as wherever hammer may occur. 2. Water hammer arrestors shall be similar to the following Jay R. Smith model numbers.

Sizing and placement shall be in accordance with PDI Standard PDI-WH-201 and the manufacturer's recommendations.

Fixture Unit Ratings Model Jay R. Smith 5005 Jay R. Smith 5010 12-32 Jay R. Smith 5020 SA-C 33-60

# M. Access Panels

Furnish access panels for access to all concealed parts of the plumbing systems that require accessibility for the proper operation and maintenance of the system. Size shall be sufficient for the purpose, but no less than 12 inches by 18 inches. Access doors shall be prime coated of rust inhibitive paint, continuous hinge and manufactured by Inland Steel Products Company Milcor.

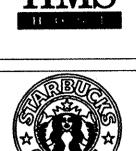


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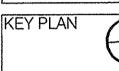
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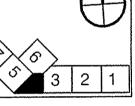
Date

7/20/11



Coffe ortland Int'l Jetport PWM 1001 Westbrook Street Portland ME 04102 Starbucks





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Job No.: 11400

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Scale: As noted

Issued: 7/20/11 **PLUMBING** 

**SPECIFICATIONS** 

P 3.0

No. 8513

KARAN

	CONDENSING UNIT SCHEDULE													
	GENERAL PERFORMANCE ELECTRICAL PHYSICAL REMARKS													
TAG	LOCATION	MATCHED AIR HANDLER	NOMINAL TONS	TOTAL COOLING BTUH	MCA	MOP	VOLTAGE	PHASE	APPROX WEIGHT (LBS)	MANUFACTURER MODEL	TYPE	INSTALL		
CU-1	ROOF	AH-1	2.0	24,200	20	20	208	1	30	SANYO CL2472	1	12		

1 R410A, COOLING ONLY, PROVIDE SPLIT SYSTEM REFRIGERANT PIPING BETWEEN AIR HANDLER AND MATCHED CONDENSING UNIT, SIZED AND CONFIGURED PER THE MANUFACTURER'S RECOMMENDATIONS. ROUTE PIPING CONCEALED TO THE GREATEST EXTENT POSSIBLE. SEAL PIPING PENETRATIONS WATERTIGHT. LOW AMBIENT CAPABILITY ② MOUNT UNIT ON (2) ROOF RAILS. RAILS SHALL BE MOUNTED DIRECTLY TO THE ROOF STRUCTURE, THEN ROOFED AND FLASHED WATER TIGHT. DOWN TO O'F

FAN SCHEDULE

PERFORMANCE

RPM

851

SONES

2.0

VIBRATION ISOLATION KIT

CORROSION RESISTANT GRILLE

3 PLUG-TYPE DISCONNECT SWITCH

WATTS

173

4 UNIT MOUNTED SPEED CONTROLLER FOR AIR BALANCING

5 MOTION DETECTOR, GRILLE MOUNTED & WIRED

ESP (IN WG)

0.10

CFM

150

GENERAL

TAG

LOCATION

F-1 BACK ROOM

1 CEILING EXHAUST FAN

**ELECTRICAL** 

PHASE

VOLTAGE

115

PHYSICAL

MANUFACTURER

MODEL

GREENHECK

SP-B200

**APPROX** 

WEIGHT

HZ

REMARKS

FEATURES

12345 12

INSTALL

TYPE

1

FAN SHALL BE CONTROLLED BY UNIT MOUNTED MOTION DETECTOR
 ADJUST SPEED CONTROLLER TO CFM SPECIFIED

			DUC	TLESS S	PLIT AIR	CONDITIO	ONING SY	STEM AIF	R HANDLE	ER SCHE	DULE				
	GENERAL			PERI	FORMANCE				ELECT	RICAL		PHYSICAL		REMARKS	
TAG	LOCATION	MATCHED COND. UNIT	NOMINAL TONS	TOTAL COOLING BTUH	CFM	AN SPEED	MINIMUM OUTSIDE AIR CFM	MCA	МОР	VOLTAGE	PHASE	MANUFACTURER MODEL	TYPE	TYPE FEATURES INSTAL	
AH-1	ABOVE CLG	CU-1	2.0	24,200	600	3	0	20	20	208	1	SANYO KS2472	1	123	1

	GENERAL			PERI	FORMANCE				ELECT	TRICAL		PHYSICAL	PHYSICAL REMARKS			
TAG	LOCATION	MATCHED NOMINAL TOTAL FAN OUTSIDE MCA MOP VOLTAGE		PHASE	MANUFACTURER	TYPE	FEATURES	INSTALL								
IAG	LOCATION	UNIT	TONS	BTUH	CFM	SPEED	AIR CFM	MOA	MOT	VOLIAGE	FIASE	MODEL	1115	I LATORES	monte	
AH-1	ABOVE CLG	CU-1	2.0	24,200	600	3	0	20	20	208	1	SANYO KS2472	1	123	1	
1 R410A, COOLING ONLY, LOW AMBIENT CAPABILITY  1 WALL MOUNTED, HARD WIRED THERMOSTAT PIPING, CONDENSATE PIPING, CONDENSATE PUMP, CONTROL WIRING AND CONDUIT, POWER WIRING AND CONDUIT, RELAYS, AND OTHER DEVICES SHALL BE CONCEALED. LOCATE CONDENSATE PUMP AND OTHER DEVICES REQUIRING ACCESS IN																

	DIFFUSEF	R AND GRILLE SCI	HEDULE						
GENERAL PHYSICAL REMARKS									
TAG	SIZE (IN)	MANUFACTURER MODEL	TYPE	FEATURES					
(A18)	18x6	TITUS 350RL	1	1					

(1) TRANSFER GRILLE, 35' FIXED BLADES ON 3/4" CENTERS, BLADES PARALLEL TO LONG DIMENSION, STEEL, WHITE

1 SURFACE MOUNT

ACCESSIBLE LOCATIONS; COORDINATE LOCATIONS WITH THE ARCHITECT AND PROVIDE ACCESS PANELS WHERE REQUIRED.

SYMBOL	DESCRIPTION							
0-	PIPING ELBOW TURNED UP							
<del></del>	PIPING ELBOW TURNED DOWN							
	DIFFUSER & GRILLE TAG							
##-#	EQUIPMENT TAG							
T	THERMOSTAT							
АН	AIR HANDLING UNIT							
CD	CONDENSATE DRAIN							
CU	CONDENSING UNIT							
DN	DOWN							
EXH	EXHAUST							
F	FAN							
AG LEGEND								

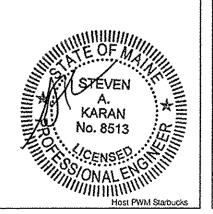
EXTEND 88 OPEN ENDED EXH INTO CEILING RETURN AIR PLENUM AS REQUIRED  3/4" CD DN IN WALL, RUN UNDERNEATH KITCHEN EQUIPMENT & TERMINATE WITH AIR GAP AT FLOOR DRAIN  REFRIGERANT IPPIN QUIP TO CUI—1 ON ROOF, SIZE PER MANUFACTURER'S GUIDELINES  AH—1  NOTE: COORDINATE EXACT LOCATION OF CUI—1 IN FIELD	EXISTING BASE BUILDING VAY SYSTEM TO REMAIN  ON ROOF)  18.6 TRANSFER	
F 1ZB.3	1ZB	1ZA

1 MECHANICAL FLOOR PLAN

1/4"=1'-0"

DOWN TO 0°F, WALL MOUNTED

3 WASHABLE ANTI-MOLD AIR FILTER



7/20/11

Coffee,

Item

PERMIT

Starbucks

KEY PLAN

HMS Host 6905 Rockledge Drive Bethesda, MD 20817 T: (240) 694-4746 F: (240) 694-4643 C: (240) 274-6417 E: scott.reimink@hmshost.com

Building Engineering Resources, Inc. 66 Main Street North Easton, MA 02356 T: (508) 230-0260 F: (508) 230-0265 E: ber@ber-engineering.com

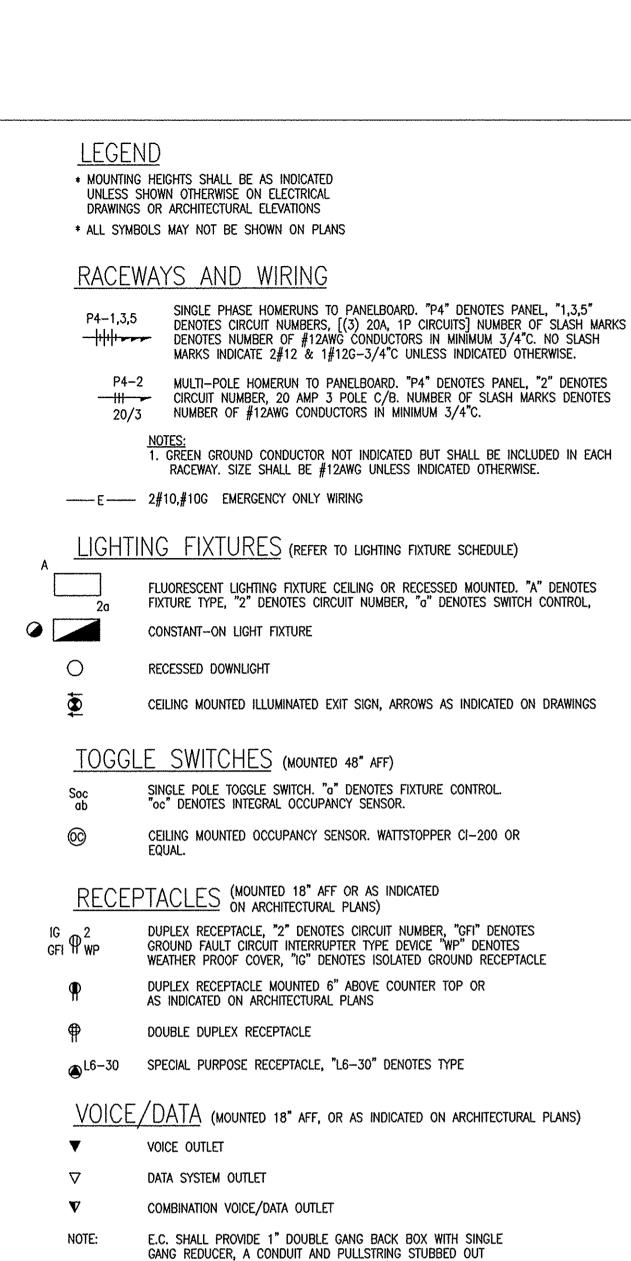
Starbucks Coffee 2401 Utah Avenue South #800 Seattle WA 98134 T: (206) 318-1575 Contact: Tara Byrne E: tara.byrne@starbucks.com

LLOYD AR Two High Cliff, Plymo TEL: (508) 746-4646 FAX: (508) 746-1236 E-MAIL: info@lloyda

Scale: As noted Issued: 7/20/11

Job No.: 11400

MECHANICAL PLAN



# POWER DISTRIBUTION EQUIPMENT

ABOVE ACCESSIBLE CEILING AT ALL VOICE/DATA LOCATIONS.

PANELBOARD, SURFACE MOUNTED

JUNCTION BOX, SIZED PER NEC

NON-FUSED DISCONNECT SWITCH: "30/3" DENOTES 30 AMP/3 POLE SWITCH 30/3

DRY-TYPE DISTRIBUTION TRANSFORMER

# **MISCELLANEOUS**

JUNCTION BOX WITH FLEXIBLE CONNECTION TO EQUIPMENT

# MECHANICAL EQUIPMENT TAG ABBREVIATIONS

----- DENOTES EQUIPMENT TYPE - DENOTES UNIT NUMBER

AIR HANDLER CONDENSING UNIT

# **ABBREVIATIONS**

**AMPERES** 

ABOVE FINISHED FLOOR AMPERE INTERRUPTING CAPACITY

CONDUIT CIRCUIT BREAKER

WIRED ON EMERGENCY CIRCUIT ELECTRICAL CONTRACTOR

**EMERGENCY** 

EXISTING TO REMAIN

GROUND

GENERAL CONTRACTOR GROUND FAULT INTERRUPTER

ONE THOUSAND CIRCULAR MILS

KILOVOLT-AMPERES

KILOWATTS

MAIN CIRCUIT BREAKER

MAIN LUGS ONLY

NORMALLY CLOSED NATIONAL ELECTRICAL CODE

NIGHT LIGHT

NORMALLY OPEN

NOT TO SCALE

PHASE

POLE

							P/	ANE	LB	ΙOΑ	RE	) 5	SCI	HEI	DU	LE				
PANEL DESIGNATION	VOLTS	PHASE	WIRES	MLO: M MCB: M BUS SIZE	MAINS IAIN LUG MAIN CKI OVERCU DEV FRAME AMPS	S ONLY I. BKR. JRRENT ICE TRIP AMPS	BKR. POLES	15	В	REA	KE	R A	MP	S	70	* TOTAL POLES	MOUNTING S: SURFACE F: FLUSH	GROUND BUS	ADDITIONAL BRANCH C.B.'S	REMARKS
TLA11	120/208	3	4	400	400	300	1 2 3		30 2		1		3			42	S	✓	_	PROVIDE WITH ISOLATED GROUND BUS.

\* INCLUDES SPACES

LIGHTING FIXTURE SCHEDULE							
TYPE	DESCRIPTION	MANUFACTURER & CATALOG NUMBER	LAMPS NUMBER   TYPE   VOLTS   WATTS			REMARKS	
A	3-LIGHT L.E.D. ACCENT FIXTURE	AMERLUX C3R326LEDE120FLFLFLWT2700	3	L.E.D.	120	78	COORDINATE HOUSING FINISH WITH ARCHITECT
В	2-LIGHT L.E.D. ACCENT FIXTURE	AMERLUX C3R226LEDE120FLFLWT2700	2	L.E.D.	120	52	COORDINATE HOUSING FINISH WITH ARCHITECT
С	6" L.E.D. RECESSED DOWNLIGHT	JUNO IC22LEDG2-27K	1	L.E.D.	120	14	
D	2'X4' RECESSED FLUORESCENT LENSED FIXTURE	LITHONIA 2GT8332A12MVOLT1/3GEB10IS	2	Т8	120	65	
F	DECORATIVE PENDANT	ARTERIORS HOME 42415	1	INC	120	60	
⊗	L.E.D. EXIT SIGN	LITHONIA LQM-S-W-R-120/277-ELN	-	L.E.O.	120/277		
EBI C	CEILING MOUNTED EMERGENCY LIGHT	LITHONIA ELR2	2	PAR36	120/277	_	

# BRANCH CIRCUIT WIRING NOTES:

1. WIRING IS SHOWN ON DRAWINGS ONLY FOR SPECIFIC ROUTES OR SPECIAL CONDITIONS.

2. WIRING AND CONDUIT SHALL BE REQUIRED BETWEEN ALL OUTLETS

INDICATED WITH CIRCUIT NUMBERS AND PANEL DESIGNATIONS. 3. ALL SWITCH CONTROLS SHALL BE PROVIDED WITH WIRING AND CONDUIT

4. ALTHOUGH ALL BRANCH CIRCUIT WIRING AND CONDUIT IS NOT SHOWN, IT IS THE INTENT OF THESE DOCUMENTS THAT A COMPLETE BRANCH CIRCUIT WIRING SYSTEM BE INSTALLED.

5. A GREEN GROUNDING CONDUCTOR SHALL BE RUN WITH ALL CIRCUITS. VERIFY CONDUIT SIZE TO ENSURE IT CAN ACCOMMODATE ALL PHASE, NEUTRAL AND GROUND CONDUCTORS.

6. ALL 15A AND 20A, 125V RECEPTACLES IN NON-DWELLING TYPE KITCHENS MUST BE GFCI PROTECTED PER NEC ARTICLE 210.8(B)(2).

7. TIMECLOCK SHALL BE EQUAL TO INTERMATIC CATALOG #ET1705C.

8. ALL BRANCH CIRCUITS FOR FRONT LINE EQUIPMENT SHALL BE ROUTED THROUGH NEW MILLWORK REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

9. THE E.C. SHALL REFER TO SHEET A5.02 FOR EXACT LOCATION OF ALL RECEPTACLES AND TEL/DATA OUTLETS AT FRONT AND BACK BAR.

10. EXISTING 2" CONDUIT BELOW SLAB FROM DRY STORAGE ROOM ON LEVEL 2 TO STARBUCK'S POS CABINET. TERMINATE AT CEILING WITHIN STARBUCKS WORKROOM ON LEVEL 2 WITH COUPLING. REFER TO ARCHITECTURAL DRAWING A-1.1 AND TENANT'S POS VENDOR FOR EXACT REQUIREMENTS.

# LIGHTING FIXTURE NOTES:

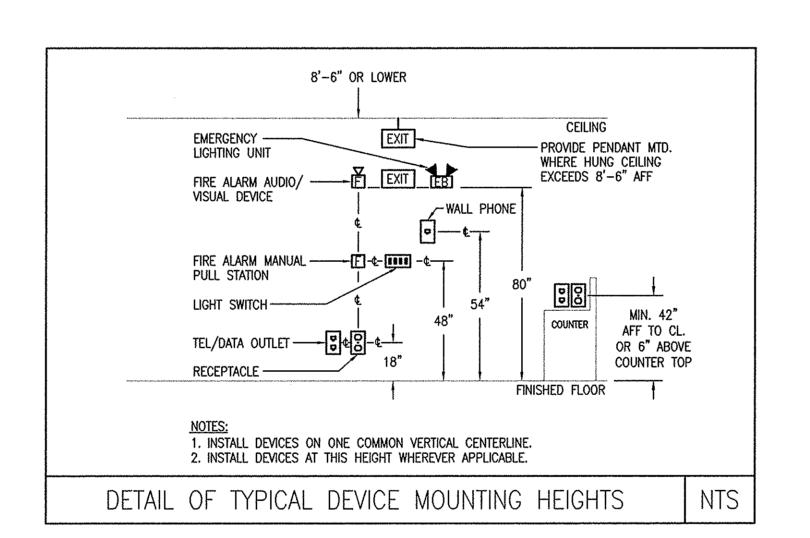
1. PROVIDE ACCESSORIES AND MOUNTING HARDWARE FOR ALL FIXTURES.

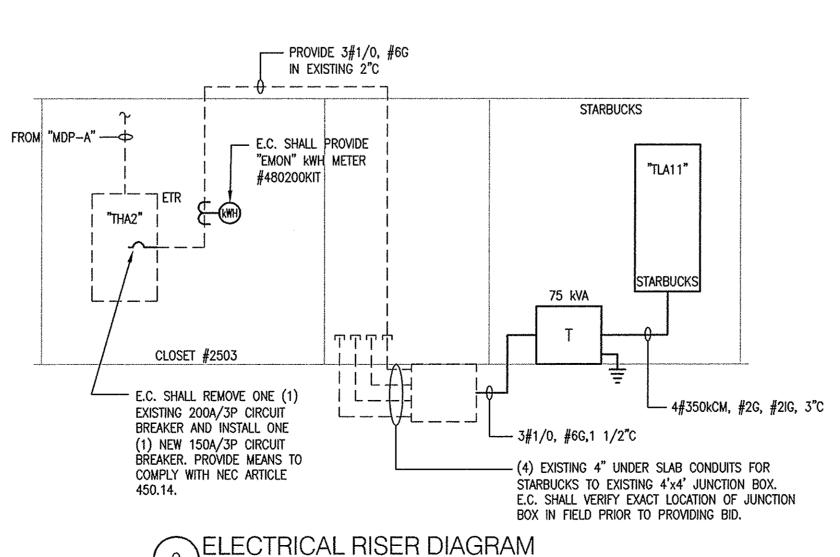
2. COLORS SHALL BE AS SELECTED BY ARCHITECT.

3. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.

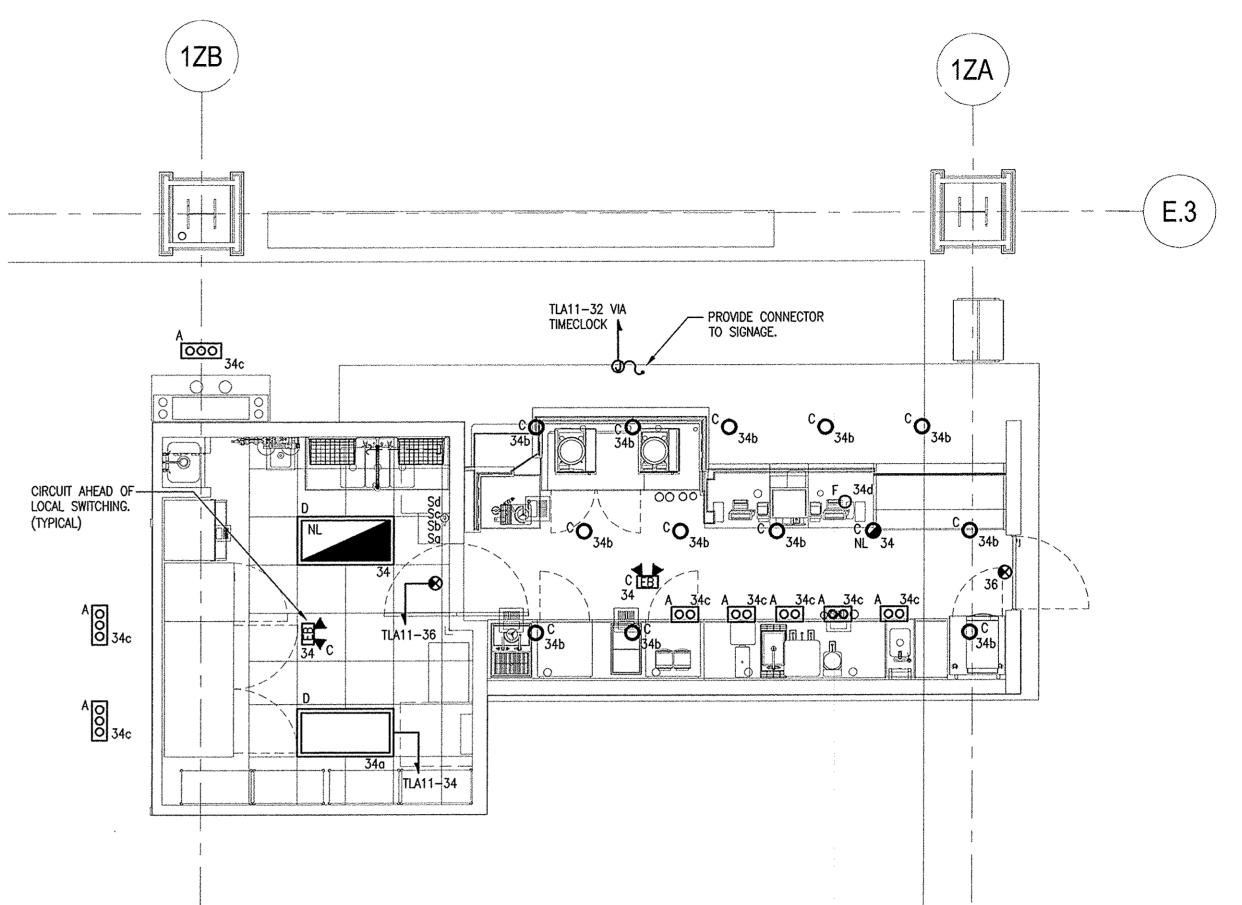
4. ALL COMPACT FLUORESCENT BALLASTS SHALL BE ELECTRONIC TYPE.

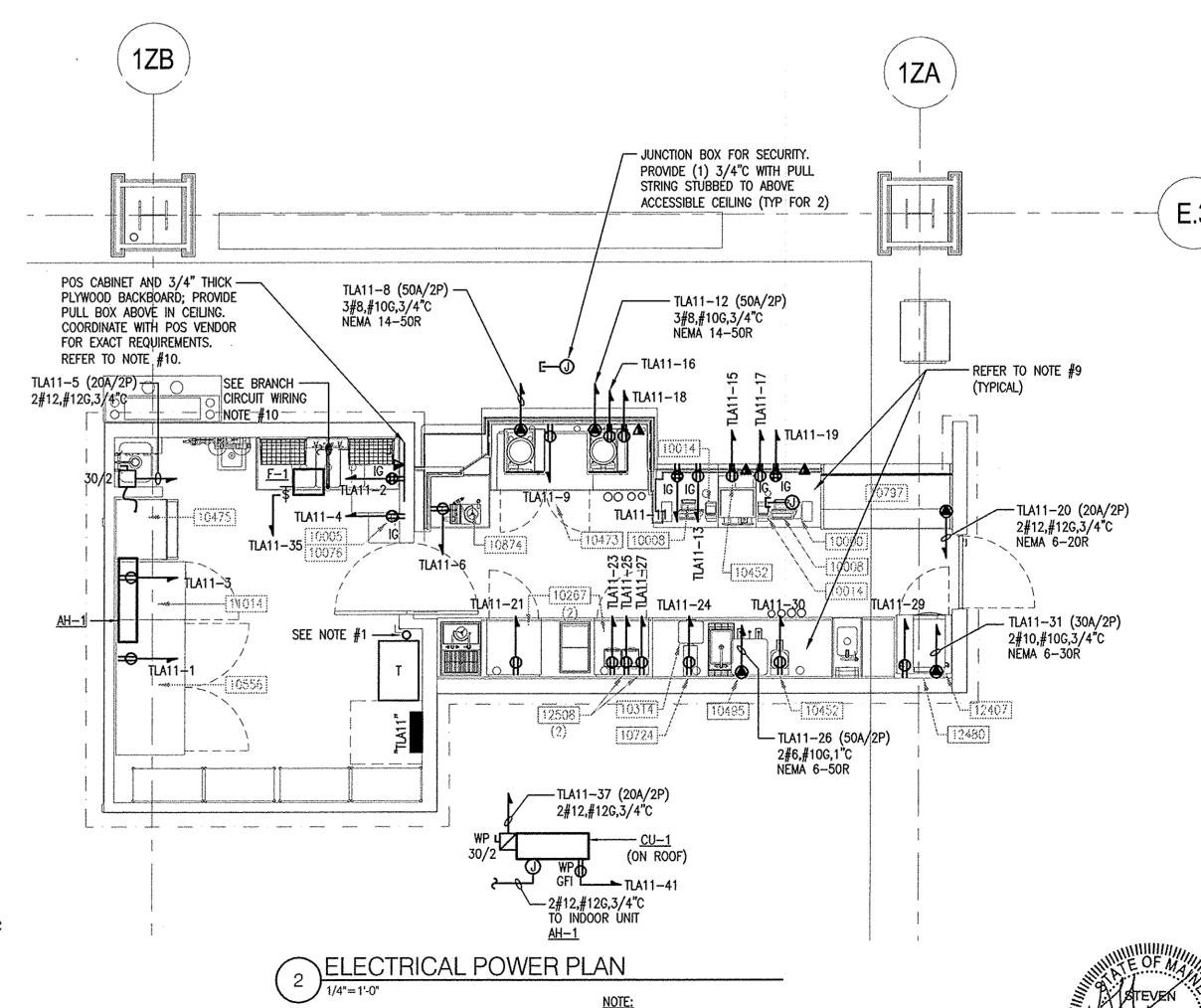
5. ALL FLUORESCENT LAMPS SHALL BE 3500°K.





NOT TO SCALE





1. APPROXIMATE LOCATION OF EXISTING FLOOR

SAFING AS REQUIRED.

CORE FOR PRIMARY FEED TO TRANSFORMER.

RISER DIAGRAM. E.C. SHALL PROVIDE ALL FIRE

E.C. TO PROVIDE CONDUIT AND WIRE PER

ELECTRICAL LIGHTING PLAN

Date Item 7/20/11 PERMIT

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KEY PLAN

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> Job No.: 11400 Scale: As noted

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Issued: 7/20/11 ELECTRICAL

**PLANS** 

KARAN

No. 8513

\* MOUNTING HEIGHTS SHALL BE AS INDICATED UNLESS SHOWN OTHERWISE ON ELECTRICAL DRAWINGS OR ARCHITECTURAL ELEVATIONS

\* ALL SYMBOLS MAY NOT BE SHOWN ON PLANS

FIRE ALARM SYSTEM

MANUAL PULL STATION MOUNTED 48" AFF

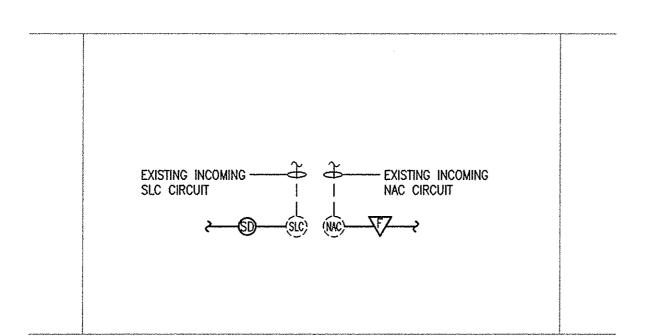
SPEAKER STROBE MOUNTED 80" AFF.

VISUAL ONLY UNIT MOUNTED 80" AFF.

PHOTOELECTRIC SMOKE DETECTOR

REMOTE TEST STATION FOR DUCT SMOKE DETECTOR WITH NAMEPLATE LABELED ACCORDINGLY

REMOTE ALARM INDICATOR

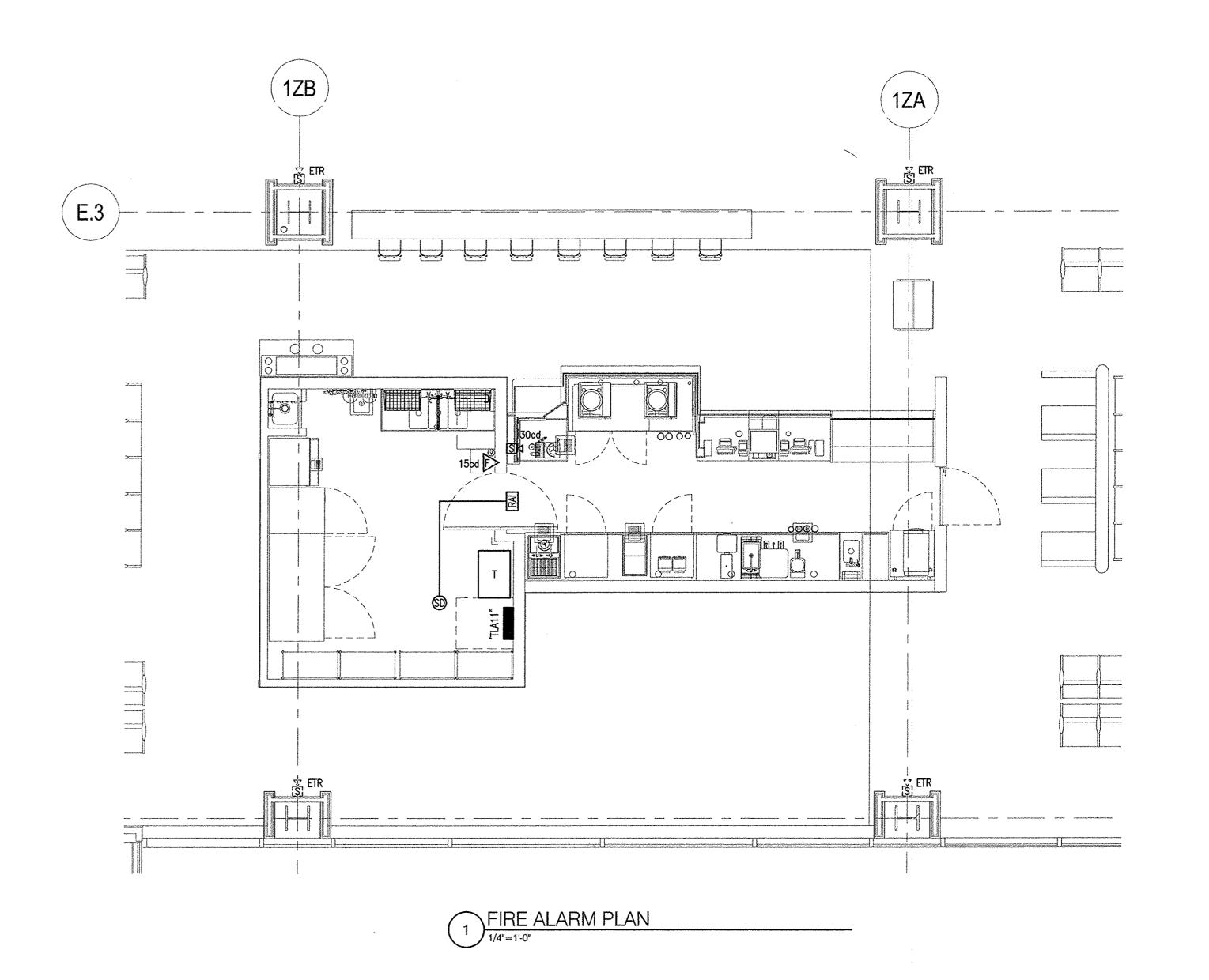


PIRE ALARM RISER DIAGRAM
NOT TO SCALE

FIRE ALARM NOTES:

1. ALL FIRE ALARM WORK ASSOCIATED WITH THE STARBUCKS TENANT SPACE SHALL CONFORM TO THE CITY OF PORTLAND "STANDARD FOR SIGNALING SYSTEMS FOR THE PROTECTION OF LIFE AND PROPERTY 2011 EDITION" REQUIREMENTS.

COORDINATE EXACT LOCATION OF EXISTING NAC AND SLC CIRCUITS PRIOR TO PROVIDING BID.

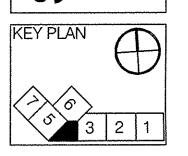


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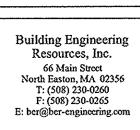




Coffee Starbucks







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LLOYD ARC Two High Cliff, Plymout TEL: (508) 746-4646 FAX: (508) 746-1236 E-MAIL: info@lloydarc

Job No.: 11400

Scale: As noted Issued: 7/20/11

> FIRE ALARM PLANS

#### GENERAL REQUIREMENTS

- A. THESE SPECIFICATIONS AND DRAWINGS ARE INTENDED TO SERVE JOINTLY AS A BASIS UPON WHICH THE CONTRACTOR SHALL SUBMIT A PRICE FOR MATERIAL AND LABOR PROVISIONS.
- B. IT IS NOT INTENDED THAT THE PLANS OR SPECIFICATION SHOW OR STATE EVERY DETAILED REQUIREMENT OF THE WORK, BUT RATHER THAT THEY FURNISH ADEQUATE INFORMATION FOR AN EXPERIENCED CONTRACTOR TO PROVIDE A COMPLETELY ACCEPTABLE INSTALLATION. THE GENERAL CONDITIONS FORM A PART OF THESE SPECIFICATIONS WHETHER ATTACHED HERETO OR NOT, SHALL BE CAREFULLY EXAMINED BEFORE SUBMITTING A PROPOSAL, WHERE GENERAL CONDITIONS CLAUSES ARE REPEATED IN THIS SECTION, IT SHALL BE UNDERSTOOD AS CALLING SPECIAL ATTENTION TO THEM, OR AS A FURTHER QUALIFICATION, AND SHALL NOT BE ASSUMED AS OMITTING ANY OTHER CLAUSES. NO GENERAL CONDITIONS REFERRING TO THE WORK INCLUDED HEREIN SHALL BE CONSIDERED AS WAIVED UNLESS SPECIFICALLY STATED HEREIN.
- C. BEFORE SUBMITTING PROPOSAL, EXAMINE ALL PLANS RELATING TO THIS WORK, VERIFY ALL GOVERNING CONDITIONS AT THE SITE, BECOME FULLY INFORMED AS TO THE EXTENT AND CHARACTER OF THE WORK REQUIRED AND ITS RELATION TO THE WORK OF OTHER TRADES. SUBMISSION OF A COST PROPOSAL (BID) WILL BE JUDGED AS EVIDENCE THAT THE SITE EXAMINATION HAS BEEN MADE. NO CONSIDERATION WILL BE GRANTED FOR ANY ALLEGED MISUNDERSTANDING OF THE MATERIALS TO BE FURNISHED FOR WORK TO BE DONE. IT BEING UNDERSTOOD THAT THE SUBMISSION OF A PROPOSAL IS AN AGREEMENT TO ALL CONDITIONS REFERRED TO HEREIN OR INDICATED ON THE PLANS.
- D. PROPOSAL MUST INCLUDE EVERYTHING REQUIRED TO PROVIDE A COMPLETE INSTALLATION AS CONTEMPLATED IN A SPECIFICATIONS AND PLANS, WHETHER SPECIFICALLY SHOWN OR SPECIFIED OR NOT. INCLUDED ARE LABOR, MATERIALS, EQUIPMENT, LIGHTS, TOOLS, SCAFFOLDING, ETC. NECESSARY TO COMPLETE INSTALLATION OF EVERYTHING DESCRIBED, SHOWN OR REASONABLY IMPLIED.
- E. ANY DISCREPANCIES BETWEEN THESE SPECIFICATIONS AND THE ACCOMPANYING PLANS, OR THESE SPECIFICATIONS AND PLANS AND THE SPECIFICATIONS OF OTHER TRADES, SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE SUBMISSION OF THE BID. FAILURE TO COMPLY WITH THE ABOVE SHALL ALLOW THE ARCHITECT TO MAKE A FINAL AND BINDING DECISION AT A LATER DATE AND NO ALLOWANCE WILL BE GIVEN IF THE MORE EXPENSIVE OF THE ITEM IN QUESTION IS SELECTED.
- F. THE WORK CALLED FOR IN THESE PLANS AND SPECIFICATIONS SHALL BE COORDINATED WITH THE STRUCTURE, WORK OF ALL RELATED TRADES, AND SHALL BE SO ARRANGED THAT THERE WILL BE NO DELAY IN THE PROPER INSTALLATION AND COMPLETION OF ANY PART OF EACH RESPECTIVE WORK, WHEREIN IT MAY BE INTERRELATED WITH THIS CONTRACT ALL WORK CAN PROCEED IN ITS NATURAL SEQUENCE WITHOUT UNNECESSARY DELAY. THE CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL COST AND DELAYS IN THE WORK RESULTING FROM SUBSTITUTION UNDER THIS DIVISION: INCLUDING, BUT NOT LIMITED TO, ANY CHANGES, INDECISION, INSTALLATION OR THE WORK OF OTHER
- G. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC (EXCEPT WHERE DIMENSIONED) AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEM AND WORK. FOLLOW ARCHITECTURAL, STRUCTURAL, AND MANUFACTURER'S SHOP DRAWINGS FOR GREATER ACCURACY. CONSULT ENGINEER IN CASE OF DOUBT OR CONFLICT, UNLESS, NOTED, FIXED DIMENSIONS ARE BASED ON THE PRODUCT OF ONE MANUFACTURER, VERIFY DIMENSIONS WITH THE SHOP DRAWINGS OF THE MATERIAL ACTUALLY APPROVED OR PURCHASED.
- H. EXACT LOCATION OF ALL EQUIPMENT, PANELS, PULL BOXES, FEEDERS FIXTURES. ETC.. SHALL BE APPROVED BY THE ARCHITECT, AND UWNER PRIOR TO THE INSTALLATION OF THE SAME.
- CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS. SUPPORTS. FITTINGS, AND ACCESSORIES TO FULFILL APPLICABLE CODES, REGULATIONS, AND THE BEST PRACTICES OF THE TRADE FOR INSTALLATION OF ALL ELECTRICAL WORK.
- J. EXPOSED CONDUITS CAN BE INSTALLED BUT IN NO CASE SHALL BE INSTALLED LESS THAN NINE FEFT AROVE THE FINISHED FLOOR OR AS NOTED CONDUITS INSTALLED IN THE AREA WHERE HING CELLING OR OTHER FURRED SPACES ARE INDICATED SHALL BE INSTALLED CONCEALED SHOULD ANY WORK REQUIRE SUBSEQUENT MODIFICATION OR RELOCATION TO AVOID INTERFERENCE OR CONFLICTS WITH OTHER WORK, SUCH CHANGES SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER.
- K. ANY NECESSARY ELECTRICAL SERVICE INTERRUPTIONS SHALL BE AT A TIME CONVENIENT TO THE BUILDING OWNER.
- L. ALL PENETRATIONS THROUGH SLABS AND FIRE RATED PARTITIONS SHALL BE FIRE STOPPED USING APPROVED METHOD TO MAINTAIN THE FIRE RESISTANCE RATING.
- M. THE E.C. SHALL CALL FOR A FINAL PUNCH-LIST WHEN ALL ELECTRICAL WORK IS COMPLETE. IN THE EVENT REPRESENTATIVES OF THIS OFFICE ARRIVE AT THE SITE AND DEEM WORK IS NOT SUFFICIENTLY COMPLETE, NO REVIEW/PUNCH-LIST WILL OCCUR. THE E.C. WILL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH RESCHEDULING THE PUNCH-LIST.
- A. WITHOUT INTENDING TO LIMIT AND/OR RESTRICT THE SCOPE OF WORK REQUIRED AND SOLELY FOR THE CONVENIENCE OF THE CONTRACTOR, THE WORK OF THIS DIVISION SHALL, IN GENERAL COMPRISE THE FOLLOWING:
- 1. INSTALLATION OF NEW ELECTRICAL PANEL AND TRANSFORMER.
- 2. FURNISHING AND INSTALLING NEW LIGHTING FIXTURES AND LAMPS.
- 3. FURNISHING AND INSTALLING NEW FEEDERS, CONDUITS, BRANCH CIRCUIT WIRING, ETC.
- 4. FURNISHING AND INSTALLING NEW RACEWAYS, OUTLET BOXES, WIRING AND CONNECTIONS FOR LIGHTING FIXTURES, SWITCHES, AND
- 5. PROVIDE CONNECTIONS TO ALL ELECTRICAL EQUIPMENT FURNISHED BY OTHER TRADES OR BY THE OWNER.
- 6. POWER WIRING FOR ALL MOTORS, INCLUDING INSTALLING ALL REQUIRED DISCONNECT SWITCHES AND MOUNTING OF STARTERS.
- 7. FURNISHING AND INSTALLING ALL TELEPHONE/DATA SYSTEM CONDUITS, SLEEVES AND BOXES.
- TEMPORARY LIGHT AND POWER.
- GROUNDING.
- 10. CUTTING, CHANNELING, AND PATCHING.
- 11. FIRE ALARM SYSTEM MODIFICATIONS.
- WORK NOT INCLUDED
- A. FURNISHING MOTORS, MOTOR STARTER AND CONTROL DEVICES CONNECTED TO EQUIPMENT FURNISHED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS. HOWEVER, ELECTRICAL CONTRACTOR WILL ERECT AND WIRE SAME. FURNISH AUXILIARY MOTOR DISCONNECTS AS REQUIRED BY DRAWINGS OR CODE.
- B. FINISH PAINTING.
- C. VOICE/DATA WIRING AND DEVICES.

## CODES, PERMITS, AND INSPECTIONS

- A. ELECTRICAL WORK SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE STATE ELECTRICAL CODE, LOCAL ORDINANCES, AND OTHER AUTHORITIES EXERCISING JURISDICTION OVER ALL ELECTRICAL CONSTRUCTION WORK AND THE PROJECT.
  - B. NOTHING CONTAINED IN THESE SPECIFICATIONS OR PLANS SHALL BE SO CONSTRUED AS TO CONFLICT WITH ANY LOCAL, MUNICIPAL AND NATIONAL BOARD OF THE FIRE UNDERWRITERS REGULATIONS GOVERNING THE INSTALLATION OF WORK SPECIFIED HEREIN, ALL SUCH LAWS. ORDINANCES. AND REGULATIONS. WHERE THEY APPLY TO THIS WORK, ARE HEREBY INCORPORATED INTO AND MADE A PART OF THE SPECIFICATIONS. ALL SUCH REQUIREMENTS SHALL BE SATISFIED AT NO ADDITIONAL EXPENSE TO THE OWNER.
  - C. ALL REQUIRED PERMITS AND INSPECTION CERTIFICATES SHALL BE OBTAINED, PAID FOR, AND MADE AVAILABLE AT THE COMPLETION

## **GUARANTEES AND CERTIFICATIONS**

- A. ALL WORK SHALL BE GUARANTEED TO BE FREE FROM DEFECTS DEFECTIVE MATERIALS OR WORKMANSHIP, AS WELL AS DAMAGE TO THE WORK OF ANY/ALL TRADES RESULTING FROM THE SAME, SHALL BE REPLACED OR REPAIRED AS DIRECTED FOR DURATION OF ONE YEAR, FROM THE DATE OF ACCEPTANCE.
- B. THE DATE OF ACCEPTANCE SHALL BE THE DATE OF THE FINAL PAYMENT FOR THE WORK OR THE DATE OF A FORMAL NOTICE OF ACCEPTANCE, WHATEVER IS EARLIER.
- C. NON-DURABLE ITEMS, SUCH AS ELECTRIC LAMPS, SHALL BE REPLACED UP TO THE DATE OF ACCEPTANCE, SUCH THAT THEY

## SHOP DRAWINGS AND EQUIPMENT SUBMISSIONS

PRIOR TO PURCHASING ANY EQUIPMENT OR MATERIAL, A LIST OF THEIR MANUFACTURERS SHALL BE SUBMITTED FOR APPROVAL.

SHALL HAVE HAD NO MORE THAN 100 HOURS USE PRIOR TO

- PRIOR TO ASSEMBLING OR INSTALLING THE WORK, CATALOG INFORMATION AND FACTORY ASSEMBLY DRAWINGS, AS REQUIRED FOR A COMPLETE EXPLANATION AND DESCRIPTION OF ALL FIXTURES, DEVICES, DEVICES AND ITEMS OF EQUIPMENT, SHALL BE
- C. FIELD INSTALLATION DRAWINGS AS REQUIRED TO EXPLAIN FULLY ALL PROCEDURES INVOLVED IN ERECTING, MOUNTING AND CONNECTING ALL ITEMS OF EQUIPMENT.
- D. NO EQUIPMENT SHALL BE FABRICATED, DELIVERED, ERECTED, OR RECONNECTED THAN FROM DRAWINGS APPROVED BY THE ENGINEER, SHOP DRAWING IN THE NUMBER DIRECTED SHALL BE SUBMITTED FOR THE FOLLOWING:
- LIGHTING FIXTURES.

SUBMITTED FOR APPROVAL.

6. SAFETY SWITCHES AND MOTOR 2. WIRING DEVICES AND PLATES. 7. FIRE ALARM SYSTEM INCLUDING

BATTERY CALCULATIONS AND

- CONDUIT, BOXES, AND FITTINGS. 4. WIRE AND CABLE
- WIRING DIAGRAMS. PANEL BOARDS AND CIRCUIT 8. TRANSFORMER. E. IT SHALL BE UNDERSTOOD THAT APPROVAL OF DRAWINGS WILL
- NOT BIND THE ENGINEER OR THE OWNER TO THE FINAL ACCEPTANCE OF SUCH EQUIPMENT AS THE COMPLETED INSTALLATION AND TEST OF EQUIPMENT AS A WHOLE MUST BE PROVIDED AND GUARANTEED HEREIN AS SPECIFIED.

# SAMPLES

- A. UPON REQUEST BY ARCHITECT OR OWNER, SUBMIT FOR APPROVAL ONE SAMPLE OF EACH OF THE FOLLOWING:
- EACH TYPE OF LIGHTING FIXTURE. EACH TYPE OF WIRING DEVICE.
- EACH TYPE OF WIRING DEVICE PLATE.

# AS-BUILT DRAWINGS

A. THE CONTRACTOR SHALL, WITHIN 15 DAYS OF THE COMPLETION OF THE PROJECT AND PRIOR TO REQUESTING FINAL PAYMENT, SUBMIT AS-BUILT DRAWINGS OF THE ACTUAL INSTALLATION OF THE ELECTRICAL WORK, THREE (3) PAPER SETS OF DRAWINGS, SAME SCALE AS THE DESIGN SET UNLESS OTHERWISE INDICATED IN THE SPECIFICATIONS, AND THREE (3) CD DISKS WITH AutoCAD 2007 OR LATER VERSIONS OF THE AS-BUILTS ARE REQUIRED FOR SUBMISSION TO THE ARCHITECT ENGINEER.

- A. BEFORE AN APPLICATION FOR THE FINAL ACCEPTANCE OF THE WORK WILL BE CONSIDERED, ALL TESTS DEEMED NECESSARY BY THE ARCHITECT TO SHOW PROPER EXECUTION OF THE WORK SHALL HAVE BEEN PERFORMED AND COMPLETED IN THE PRESENCE OF AN ARCHITECT'S REPRESENTATIVE. SCHEDULE OF ALL TESTING PROCEDURES SHALL BE ARRANGED TO SUIT THE CONVENIENCE OF THE ARCHITECT.
- B. ANY DEFECTS OR DEFICIENCIES DISCOVERED IN ANY OF THE ELECTRICAL WORK SHALL BE CORRECTED.

# <u>IDENTIFICATION</u>

- ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL TYPEWRITTEN DIRECTORIES BEHIND TRANSPARENT PLASTIC COVERS IN METAL FRAMES. IN ALL NEW AND EXISTING PANELS INDICATING TYPE AND LOCATION OF LOAD BEING SERVED BY INDIVIDUAL CIRCUIT BREAKERS.
- B. ALL PARTS OF EQUIPMENT, SUCH AS PANELS, JUNCTION BOXES, SAFETY SWITCHES, MOTOR STARTER, CIRCUIT BREAKERS, CONDUCTORS AND SIMILAR ITEMS SHALL BE IDENTIFIED BY NAME, AT SUPPLY END, "LOAD SUPPLIED", AND AT LOAD END "LOAD SUPPLIED FROM".

# PART 2 - PRODUCTS

# EQUIPMENT AND MATERIALS

- A ALL EQUIPMENT AND MATERIALS FOR PERMANENT INSTALLATION SHALL BE THE PRODUCTS OF RECOGNIZED MANUFACTURERS AND SHALL BE NEW.
- B. NEW EQUIPMENT AND MATERIALS SHALL:
- WHERE NORMALLY SUBJECTED TO UNDERWRITER'S LABORATORY INC. LISTING OR LABELING SERVICES, BE SO LISTED OR LABELED.
- BE WITHOUT BLEMISH OR DEFECT.
- 3. NOT TO BE USED FOR TEMPORARY LIGHT AND POWER PURPOSES WITHOUT ARCHITECT'S AUTHORIZATION.
- 4. BE IN ACCORDANCE WITH THE LATEST APPLICABLE N.E.M.A. STANDARD.
- BE APPROVED BY BUILDING MANAGER OR OWNER. C. FOR ITEMS WHICH ARE TO BE INSTALLED BUT NOT PURCHASED AS PART OF THE ELECTRICAL WORK, THE ELECTRICAL WORK SHALL
- THE COORDINATION OF THEIR DELIVERY.
- THEIR FIELD MAKE-UP AND INTERNAL WIRING AS MAY BE NECESSARY FOR THEIR OPERATION.

- ELECTRICAL RACEWAY AND SUPPORTING SYSTEMS SHALL BE FURNISHED AND INSTALLED COMPLETE, WITH ALL MATERIALS, FITTINGS, CONNECTIONS AND ACCESSORIES NECESSARY TO PROVIDE IN EACH INSTANCE A COMPLETE OPERATING INSTALLATION, AS DESCRIBED HEREIN, AS INDICATED ON THE DRAWINGS, AND/OR AS APPROVED BY THE BUILDING MANAGER OR OWNER.
- THE DRAWINGS ARE DIAGRAMMATIC AND GENERALLY INDICATIVE OF THE WORK TO BE INSTALLED, BUT DO NOT SHOW ALL BENDS, FITTINGS, AND BOXES WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE JOB CONDITIONS INCLUDING STRUCTURAL AND FINISH CONDITIONS AFFECTING ALL HIS WORK AND ARRANGE THE SAME ACCORDINGLY, FURNISHING SUCH FITTINGS, BOXES AND SIMILAR ITEMS AS MAY BE REQUIRED TO MEET SUCH CONDITIONS.

## WIRING MATERIALS

- WIRE AND CABLE SHALL BE COPPER, RATED FOR 600 VOLTS, TYPE THHN FOR BRANCH CIRCUITS AND XHHW FOR FEEDERS.
- B. WIRE #10 AWG AND SMALLER SHALL BE SOLID, WIRE #8 AWG AND LARGER SHALL BE STRANDED.
- WIRING SHALL BE CONSISTENTLY COLOR CODED THROUGHOUT. FOR 120/208 VOLT SYSTEMS, UTILIZE RED, BLUE, BLACK FOR LINE (PHASE) CONDUCTORS AND WHITE FOR NEUTRAL CONDUCTOR, SWITCH LEG SHALL BE SEPARATELY IDENTIFIED. GROUND CONDUCTOR SHALL BE GREEN. FOR 277/480V SYSTEMS, UTILIZE BROWN, ORANGE, YELLOW FOR LINE (PHASE) CONDUCTORS, AND GREY FOR NEUTRAL CONDUCTOR. GROUND CONDUCTOR SHALL BE GREEN WITH YELLOW TRACER.
- D. MINIMUM SIZE: 1. LIGHTING AND POWER: #12 AWG, UNLESS OTHERWISE
- CONTROL: #14 AWG.

INDICATED.

- 3. 120 VOLT CIRCUITS OVER 100 FEET IN LENGTH AND 277 VOLT CIRCUITS OVER 200 FEET IN LENGTH FROM THE POINT OF SUPPLY TO THE FIRST OUTLET SHALL BE #10
- SPLICES IN BRANCH CIRCUIT WORK SHALL BE MADE BY MEANS OF TYPE 'R' "SCOTCHLOCK" ELECTRICAL TYPE.
- F. ELECTRICAL INSULATION TAPE SHALL BE VINYL PLASTIC TYPE WITH

PRESSURE ADHESIVE "SCOTCH" ELECTRICAL TYPE.

- BRANCH CIRCUITRY NUMBERS INDICATED ON THE DRAWINGS ON MULTI-CIRCUIT HOMERUNS ARE FOR IDENTIFICATION OF DEVICES OR EQUIPMENT THEY ARE CONNECTED TO AND DO NOT NECESSARILY REFER TO PANELBOARD CIRCUIT NUMBERS. ASSIGNMENT OF BRANCH CIRCUIT NUMBERS SHALL BE PART OF THIS WORK AND INDICATED ON PANEL DIRECTORIES. BRANCH CIRCUITS SHALL BE CONNECTED TO CIRCUITS ON PANELBOARDS SO AS TO SECURE A REASONABLE BALANCE ON THE THREE PHASES. WHERE MORE THAN ONE CIRCUIT WITH A COMMON NEUTRAL IS INSTALLED IN THE SAME CONDUIT, EACH PHASE WIRE
- H. ALL CONDUCTORS SHALL BE COLOR CODED THROUGHOUT AND NUMBERED AND TAGGED AT EACH JUNCTION BOX. PULL BOX. PANEL, AND DEVICE WITH SUITABLE FIREPROOF TAGS OR ADHESIVE IDENTIFICATION BANDS.

SHALL BE CONNECTED TO A DIFFERENT LEG OF THE SYSTEM.

# CONDUITS AND RACEWAYS

- A. LIQUID TIGHT FLEXIBLE, GALVANIZED STEEL CONDUIT WITH CONTINUOUS COPPER BONDING CONDUCTOR, SHALL BE USED FOR CONNECTIONS TO MOTORS AND AT OTHER LOCATIONS WHERE VIBRATION MOVEMENT IS ENCOUNTERED.
- B. UNLESS OTHERWISE INDICATED OR SPECIFIED ALL WIRING SHALL BE INSTALLED CONCEALED IN CEILINGS, WALLS, SLABS, PIPE CHASES AND FURRED SPACES WHENEVER POSSIBLE.
- C. CONDUIT AND FITTINGS SHALL CONFORM TO LATEST ACCEPTABLE
- STATE CODE AND ALL OTHER CODES HAVING JURISDICTION. D. CONDUIT SHALL BE 3/4" TRADE SIZE MINIMUM. UNLESS
- OTHERWISE INDICATED OR SPECIFIED. ALL CONDUITS WHICH ARE TO REMAIN EMPTY FOR FUTURE INTRODUCTION OF CONDUCTORS SHALL BE PROVIDED WITH A PULL

LINE WITH IDENTIFICATION BAND AT BOTH ENDS.

- F. STEEL JACKETED METAL CLAD CABLE CAN BE USED FOR LIGHTING AND APPLIANCE BRANCH CIRCUITRY IN VOIDS OF CEILING AND PARTITIONS PROVIDED THAT THIS TYPE OF WIRING IS ACCEPTABLE TO THE LOCAL BUILDING OFFICIAL OR HIS REPRESENTATIVE.
- G. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL CONFORM TO UL 6. FITTINGS SHALL BE THREADED.
- H. INTERMEDIATE METALLIC CONDUIT (IMC) SHALL CONFORM TO UL

1242. FITTINGS SHALL BE THREADED.

- ELECTRICAL METALLIC TUBING (EMT) SHALL CONFORM TO UL 797. FITTINGS SHALL BE GLAND AND RING COMPRESSION TYPE.
- J. FLEXIBLE METALLIC CONDUIT SHALL CONFORM TO UL1. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL CONFORM TO UL 360.
- K. ARMORED CABLE SHALL BE 90°C RATED CODE TYPE ACTHH WITH A SEPARATE GREEN INSULATED GROUND CONDUCTOR IN ACCORDANCE WITH UL 4. JACKET SHALL BE GALVANIZED STEEL
- L. ALL CONDUIT FITTINGS AND CONNECTORS SHALL BE STEEL WITH INSULATED THROATS. DIE-FORMED ZINC FITTINGS ARE NOT ACCEPTABLE. BUSHINGS SHALL BE PROVIDED AT ALL CONDUIT TERMINATIONS. BUSHINGS LARGER THAN 1" SHALL BE GROUNDING TYPE. PVC BUSHINGS MAY BE UTILIZED ONLY FOR 3/4" BRANCH CIRCUIT CONDUITS TERMINATING AT PANELBOARDS. JUNCTION BOXES
- JUNCTION BOX AND PULL BOXES SHALL BE PROVIDED WHERE INDICATED OR SPECIFIED AND WHERE NECESSARY TO FACILITATE THE INSTALLATION OF EQUIPMENT OR WIRING.
- B. ALL BOXES SHALL BE SIZED IN ACCORDANCE WITH NATIONAL ELECTRIC CODE.

# OUTLET BOXES

- A OUTLET, PULL AND JUNCTION BOXES SHALL BE FABRICATED FROM STEEL AND CONFORM TO UL 50, UL 514, AND NEMA OS1. BOXES FOR INTERIOR LOCATIONS SHALL BE CODE GAUGE, GALVANIZED SHEET STEEL.
- B. BOXES SHALL CONTAIN SUITABLE KNOCKOUTS. BARRIERS SHALL BE FURNISHED AS REQUIRED BY CODE.
- C. BOXES SHALL BE SIZED AS REQUIRED BY CODE FOR NUMBER AND GAUGE OF CONDUCTORS THEREIN, EXCEPT WHERE NOTED TO BE LARGER. THE MINIMUM BOX SIZE SHALL BE 4" SQUARE BE 1 1/2" DEEP. COVERS GREATER THAN 50LBS. SHALL BE DIVIDED INTO MULTIPLE SECTIONS.
- WHERE REQUIRED AND APPROVED BY THE ENGINEER, EXTRA DEEP OR EXTRA SHALLOW OUTLET BOXES SHALL BE USED TO FACILITATE THE INSTALLATION OF THE CONDUIT SYSTEM.

#### FASTENINGS, SUPPORTS, AND HANGERS

- A. ALL PARTS OF THE ELECTRICAL INSTALLATION SHALL BE ADEQUATELY SUPPORTED FROM THE BUILDING CONSTRUCTION USING APPROVED CLAMP SCREWS WITH THE INSERTS OF EXPANSION ANCHORS, EXPANSION BOLTS AND TOGGLE BOLTS. "IN NO CASE SHALL THE HUNG CEILING MEMBERS OR WIRES BE USED TO SUPPORT CONDUIT".
- B. ALL FASTENING, SUPPORTS, CLAMPS, ANCHORS, AND SIMILAR ITEMS SHALL BE OF TYPE SUITABLE FOR THE PURPOSE.

# WIRING DEVICES

- A. ALL DEVICES SHALL BE SPECIFICATION GRADE, U.L. APPROVED.
- B. SINGLE POLE SWITCH, 20 AMP, 120/277 VOLTS. HUBBELL CAT#
- C. RECEPTACLE, 20 AMP, 2 POLE, 3 WIRE DUPLEX, 125 VOLT, GROUND TYPE. HUBBELL CAT# 5362 OR APPROVED EQUAL.

D. COLOR AND TYPE OF ALL DEVICE PLATES SHALL BE APPROVED BY

E. THE E.C. SHALL PROGRAM ALL OCCUPANCY SENSORS TO THE SATISFACTION OF THE TENANT. AS A MINIMUM, THE E.C. SHALL PROVIDE (4) HOURS OF TRAINING TO THE TENANT. ALL OCCUPANCY SENSORS SHALL BE FULLY PROGRAMMED AT TIME OF

ARCHITECT PRIOR TO PURCHASE/INSTALLATION.

# Final Punch-List.

- 2.08 GROUNDING A. ALL ENCLOSURES AND NON CURRENT CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, RACEWAY SYSTEMS AND EQUIPMENT GROUND BUSES SHALL BE EFFECTIVELY GROUNDED TO THE BUILDING GROUNDING SYSTEMS THROUGH THE SYSTEM GROUND CONDUCTORS. METALLIC CONDUITS AND OTHER RACEWAYS AND ENCLOSURES FOR CONDUCTORS SHALL BE METALLIC ALLOY JOINED TOGETHER INTO A CONTINUOUS ELECTRICAL CONDUCTOR, AS TO
- B. GROUND CONTINUITY SHALL BE MAINTAINED THROUGHOUT.

PROVIDE EFFECTIVE ELECTRICAL CONTINUITY.

CODE AND SHALL BE U.L. APPROVED.

ELECTRICAL DRAWINGS.

PURCHASE.

- A. ALL LIGHTING FIXTURES SHALL COMPLY WITH THE STATE ELECTRIC
- B. ALL LIGHTING FIXTURES SHALL BE APPROVED PRIOR TO
- C. ALL LIGHTING FIXTURES SHALL BE FURNISHED AND INSTALLED COMPLETE WITH NECESSARY COMPONENTS, ACCESSORIES, AND LAMPS OF CORRECT TYPE AND RATING AS INDICATED ON
- D. FIXTURES SHALL BE CAREFULLY SUPPORTED AND ALIGNED WITH NECESSARY HANGERS, SUPPORTING MEMBERS, AND FRAMES FOR PROPER INSTALLATION, ALL AS REQUIRED AND AS APPROVED.
- E. ALL FIXTURES SHALL BE PROPERLY WIRED AND CONNECTED TO BRANCH CIRCUITS, TESTED AND LEFT READY FOR OPERATION.
- F. FOR TYPE, MAKE, AND QUANTITIES OF LIGHTING FIXTURES REQUIRED, SEE ELECTRICAL DRAWINGS AND SPECIFICATIONS. G. FIXTURES AND/OR FIXTURE OUTLET BOXES SHALL BE PROVIDED

WITH HANGERS TO ADEQUATELY SUPPORT THE COMPLETE WEIGHT

OF THE FIXTURE. PROVIDE SUPPLEMENTAL SUPPORTS PER ALL

- LOCAL AND STATE CODES. H. ALL FLUORESCENT LIGHTING FIXTURES SHALL HAVE ENERGY SAVING LAMPS AND SOLID STATE ELECTRONIC ENERGY SAVING CLASS "P"
- I. EXIT LIGHTS SHALL BE WIRED ON A SEPARATE CIRCUIT. PROVIDE CIRCUIT BREAKER WITH LOCKING TYPE HANDLE.
- A. PROVIDE EMPTY CONDUIT WITH PULL LINE 3/4" MINIMUM AT EACH TEL/DATA OUTLET LOCATION. EXTEND IT UP TO 12" ABOVE HUNG CEILING AND TERMINATE WITH PLASTIC BUSHING.

TELEPHONE SYSTEM

B. PROVIDE 3/4" THICK, 4'-0" WIDE AND 8'-0" HIGH FIRE RETARDANT PLYWOOD BACKBOARD AS INDICATED ON PLANS. COORDINATE SIZE WITH OWNER'S TELEPHONE SYSTEM VENDOR.

C. ALL TELEPHONE/DATA WIRING, JACKS, COVERPLATES, PUNCH DOWN

#### BLOCKS, ETC., ARE FURNISHED AND INSTALLED BY OWNER'S PRIVATE VENDOR.

- PANEL BOARDS A. PANEL BOARDS SHALL CONSIST OF FACTORY COMPLETED DEADFRONT ASSEMBLIES OF BACK PANS, MAIN BUSSES, OVER CURRENT AND SWITCHING UNITS. SHEET METAL CABINETS AND TRIMS. THEY SHALL BE SO DESIGNED THAT SWITCHING AND OVER CURRENT DEVICES CAN BE REPLACED WITHOUT DISTURBING ADJACENT UNITS AND WITHOUT REMOVING THE MAIN BUS CONNECTORS, SO THAT CIRCUITS MAY BE CHANGED WITHOUT
- B. BUS BARS FOR THEIR MAINS SHALL BE OF COPPER HAVING CURRENT CAPACITIES AS INDICATED AND SIZED FOR SUCH CAPACITIES IN ACCORDANCE WITH UNDERWRITER LABORATORY STANDARDS, UNLESS OTHERWISE NOTED, FULL SIZE NEUTRAL BARS SHALL BE INCLUDED. BUS BAR TAPS FOR PANELS WITH SINGLE POLE BRANCHES SHALL BE ARRANGED FOR SEQUENCE PHASING OF THE BRANCH CIRCUIT DEVICES. BUSSING SHALL BE BRACED THROUGHOUT TO CONFORM TO INDUSTRY STANDARD PRACTICE GOVERNING SHORT CIRCUIT STRESSES IN PANELBOARDS. PHASE BUSSING SHALL BE FULL HEIGHT WITHOUT REDUCTION.
- C. A GROUND BUS SHALL BE PROVIDED FOR EACH PANEL. EACH GROUND BUS SHALL BE OF THE SAME MATERIAL AS THE PHASE and Neutral Buses.
- D. PANEL BOARDS SHALL COMPLY WITH THE FOLLOWING INDUSTRY STANDARDS:
- UL STANDARDS a. PANEL BOARDS - UL67

MACHINING, DRILLING, OR TAPPING.

- b. CABINET & BOXES UL50
- 2. NEMA STANDARD PB1 CIRCUIT BREAKERS FOR PANEL OR INDIVIDUAL MOUNTING SHALL BE MOLDED CASE TYPE, QUICK-MAKE, QUICK-BREAK, OR MANUAL OR AUTOMATIC OPERATION.
- AMPERE RATING AND NUMBER OF POLES SHALL BE AS INDICATED ON THE DRAWINGS.

G. BREAKERS SHALL BE TYPE AS MANUFACTURED BY SQUARE D OR

APPROVED EQUAL. MINIMUM CIRCUIT BREAKER INTERRUPTING CAPACITY SHALL BE 10,000 SYM RMS AMPERES.

- 2.13 <u>INDIVIDUALLY MOUNTED DRY TYPE THREE PHASE TRANSFORMERS</u>
- A. PROVIDE INDIVIDUALLY MOUNTED DRY TYPE THREE PHASE TRANSFORMERS IN ACCORDANCE WITH THE FOLLOWING:
- 1. THEY SHALL BE OF THE INDOOR VENTILATED TYPE.
- 2. THEY SHALL BE FOR 60 HERTZ OPERATION.
- 3. THEY SHALL HAVE A DELTA CONNECTED HIGH SIDE RATED FOR 480 VOLTS AND A WYE CONNECTED LOW SIDE RATED FOR 120/208 VOLTS, 3 PHASE, 4 WIRE, GROUNDED NEUTRAL.
- 4. THEY SHALL HAVE FULL CAPACITY TAPS ABOVE AND BELOW NORMAL AS

TRANSFORMER RATING (2) 5% FCBN 15 kVA AND LESS 30 kva and above 2) 2 1/2% FCAN AND

(4) 2 1/2% FCBN

- 5. TUP TO AND INCLUDING 15 KVA THEY SHALL BE SUITABLE FOR WALL MOUNTING, LARGER THAN 15 KVA SHALL BE SUITABLE FOR PLATFORM
- 6. THEY SHALL HAVE SHEET METAL CASINGS WHICH ARE COATED INSIDE AND OUT WITH A RUST INHIBITING PRIMER AND FINISHED WITH A FACTORY
- 7. FLOOR OR WALL SUPPORTED TRANSFORMERS SHALL BE RESILIENTLY ISOLATED FROM THE BUILDING STRUCTURE BY MEANS OF NEOPRENE IN SHEAR ISOLATORS PROVIDING A MINIMUM STATIC DEFLECTION OF 3/8
- 8. THEY SHALL BE DESIGNED SO THAT THE FULL LOAD TEMPERATURE RISE DOES NOT EXCEED 150°C RISE, OVER A 40°C AMBIENT FOR 15 KVA AND ABOVE SIZES. THE INSULATION SHALL CONFORM TO NEMA ST20 STANDARDS FOR A 220°C UL COMPONENT RECOGNIZED INSULATION
- 9. THE CENTER TAP OR NEUTRAL OF THE LOAD SIDE TRANSFORMER WINDINGS SHALL BE BONDED TO A LUG AND BOLT INSIDE THE TRANSFORMER CASING. THE BOLT SHALL EXTEND OUTSIDE TO SERVE AS A SYSTEM GROUNDING STUD. THE BOND TO THE BOLT SHALL HAVE AN AMPERE CAPACITY OF NO LESS THAN 20% OF THE CAPACITY OF A LOAD
- SIDE PHASE WINDING. 10. TRANSFORMER WINDINGS SHALL BE COPPER.

# 2.14 FIRE ALARM EXISTING EQUIPMENT

- A. THE EXISTING FACILITY IS EQUIPPED WITH A FIRE ALARM SYSTEM WHICH IS TO BE EXPANDED IN THE WORK AREA. ALL NEW EQUIPMENT SHALL BE OF THE SAME MANUFACTURER AS OF THE EXISTING SYSTEM, INCLUDING PULL STATIONS, SMOKE DETECTORS, DUCT SMOKE DETECTORS, AND AUDIBLE/VISUAL SIGNALS, ETC. ALL NEW HORN/STROBES SHALL BE
- SYNCHRONIZED WITH EXISTING APPLIANCES. B. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO REVIEW THE SCOPE OF WORK AND PROPOSED EQUIPMENT WITH THE SUPERINTENDENT OF FIRE ALARMS FOR THE CITY PRIOR TO PURCHASE AND INSTALLATION. THE E.C. SHALL ALSO NOTIFY THE LOCAL FIRE DEPARTMENT AND THE OWNER AT LEAST 48 HOURS IN ADVANCE OF ANY MODIFICATIONS, POSSIBLE DISRUPTION TO, OR ASSOCIATED WORK ON THE EXISTING FIRE
- ALARM SYSTEM. C. THE EXISTING FIRE ALARM SYSTEM SHALL BE REPROGRAMMED AS REQUIRED TO INDICATE THE RENOVATED AREAS, REVIEW ZONING WITH THE OWNER'S REPRESENTATIVE AND LOCAL FIRE MARSHALL. THE E.C. SHALL BE

D. THE E.C. SHALL BE RESPONSIBLE FOR ALL POWER SUPPLIES REQUIRED DUE

E. THE E.C. SHALL FURNISH BATTERY CALCULATIONS WHICH INCORPORATE ALL

EXISTING EQUIPMENT IN ADDITION TO ALL NEW APPLIANCES/DEVICES.

TO THE NEW DEVICES/APPLIANCES PROVIDED UNDER THIS CONTRACT.

RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THIS WORK.

F. PROVIDE ALL FIRE ALARM WIRING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. G. ALL FIRE ALARM WIRING SHALL BE INSTALLED IN CONDUIT. ALL CONDUIT SHALL HAVE A RED STRIPE PAINTED EVERY 10'-0". ALL JUNCTION BOXES

AND COVERS SHALL BE PAINTED RED. FIRE ALARM RATED "MC" CABLE MAY

MANUFACTURED BY BIO FIRE SHIELD, INC., OR DOW CORNING CORP. AS

- BE USED WHERE RUN CONCEALED IF ACCEPTABLE TO THE LOCAL FIRE
- 2.15 <u>FIRESTOPPING. SMOKEPROOFING AND WATERPROOFING</u> A. PROVIDE FIRESTOP OR SMOKESTOP BETWEEN SLEEVES AND CONDUIT
- DOW CORNING SILICONE RTV FOAM.
- MINERAL FIBER BOARD, MATTING AND PUTTY. B. PROVIDE WATERPROOFING OF ALL MATERIALS WHICH PENETRATE A FLOOR, EXTERIOR WALL SLAB OR ROOF. ALL SLEEVES SHALL EXTEND A MINIMUM OF

DOW CORNING 96-081 RTV SILICONE ADHESIVE SEALANT.

# PART 3 - EXECUTION

3 INCHES ABOVE FLOOR OR ROOF.

- 3.01 <u>DEMOLITION AND REMOVAL WORK</u> A. REMOVE ALL ELECTRICAL EQUIPMENT, WIRING AND OTHER ELECTRICAL WORK AS REQUIRED. DISCONNECT LOAD AND LINE END OF CONDUCTORS FEEDING DEVICES WHICH ARE TO BE REMOVED OR ABANDONED, REMOVE CONDUCTORS NO LONGER IN USE. CUT BACK TO FLOOR, WALL, OR CEILING AND PLUG BOTH ENDS OF CONCEALED CONDUITS MADE OBSOLETE BY THIS ALTERATION. REMOVE EXPOSED OR ABANDONED CIRCUITS AND OUTLETS. REMOVE MATERIAL
- AND EQUIPMENT AND DISPOSE OF AS DIRECTED. B. WHEREVER IT IS REQUIRED TO DISCONNECT OR REMOVE ANY PART OF AN EXISTING CIRCUIT, IMMEDIATELY RECONNECT THAT CIRCUIT OR REESTABLISH

SERVICE IN THE REMAINING PORTION OF THE CIRCUIT.

C. THE WORK SHALL ALSO INCLUDE THE REMOVAL OF MATERIALS AS DIRECTED. PRIOR TO REMOVING EQUIPMENT AND MATERIAL FROM PROJECT SITE. THE BUILDING MANAGER OR OWNER WILL INSPECT AND ADVISE WHICH ITEMS WILL BE STORED.

AND/OR EXTERIOR WALLS. AND ARE NOT TO BE REUSED. REMOVE

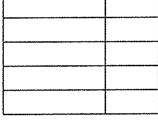
D. WHERE EXISTING RECEPTACLES AND/OR SWITCHES ARE LOCATED IN COLUMNS

RECEPTACLE AND CAP OUTLET BOX. RECEPTACLES SHOWN ON PARTITIONS TO

- BE REMOVED SHALL HAVE ALL WIRING AND CONDUIT REMOVED AS WELL. E. WHERE PRESENT WORK IS DAMAGED IN THE EXECUTION OF THIS CONTRACT, OR WHERE OPENINGS ARE LEFT DUE TO THE REMOVAL OF CONDUITS, EQUIPMENT, OR APPARATUS, THE SAME SHALL BE REPAIRED OR CLOSED UP TO CORRESPOND IN MATERIAL, QUALITY, SHAPE, AND FINISH WITH THAT OR
- SHOULD ANY DAMAGE DUE TO THE EXECUTION OF THIS CONTRACT OCCUR TO THE FURNITURE, FIXTURES, OR ANY OTHER EQUIPMENT OR APPARATUS, SUCH DAMAGES SHALL BE PROPERLY REPAIRED WITH THE SUPPLY OF NEW ARTICLES AND MADE GOOD WITHOUT EXTRA CHARGE.

SIMILAR AND ADJOINING WORK, UNLESS OTHERWISE CALLED FOR.

G. WHERE REMOVAL OF EXISTING ELECTRICAL EQUIPMENT WILL RESULT IN OUTAGES IN AREA NOT TO BE DEMOLISHED, THIS CONTRACTOR SHALL COORDINATE IN ADVANCE AND OBTAIN THE APPROVAL OF THE BUILDING MANAGER OR OWNER.



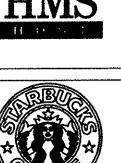
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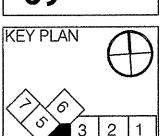
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Job No.: 11400

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Scale: As noted Issued: 7/20/11

ELECTRICAL **SPECIFICATIONS** 

STEVEN

KARAN

No. 8513

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