APPENDIX B 2018 BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS

oposed Use	MERS ROAD, L	ILLINGTON, NC	PRTH CAROLIN		 Zid
	MERCANTILE	E (DOLLAR G	ENERAL RETA	IL STORE)	<i>D</i> IP
mer/Author	rized Agent:	D'CONNELL	 910-944-0 hone	88 F-mail	timo@rhetson.com
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de Enforce	ment Jurisdiction	$: \square City__ ___ $		ounty HARNE	ТТ
AD DESIGN	PROFESSIONAL:	Mark W. Harc	jett		
ESIGNER	FIRM Hood Herrina	NAME Archit Mark	Haraett 487	SE# TELEPHON 7 252-399-	E# E-MAIL 2700 mark@archhh.cor
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³ Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2)

⁴ The maximum area of open parking garages must comply with table 406.5.4. The maximum area of air traffic control towers must comply with table 412.3.1

frontage increast is based on the unsprikled area calue in table 506.2

Building Height in Feet (Ta	ble_504.3)			55	S	
Building Height in Stories (Table 504.4)		2		
	FIRE H	PROTEC	TION	REQ	UIREM	IENT
BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	REQ'D	RATING PROVIDE (W/ REDUCT	D 	DETAIL # AND SHEET #	D) AS
Structural frame, including colums, girders, trusses						
Bearing Walls						
Exterior	>30'					
East	>30'	0				
West	>30'	0				
South Interior	>30'	0				
Nonbearing walls and partitions						
Exterior	NA					
North						
West						
South						
Interior Floor construction						
Including supporting beams and joists	NA					
Roof construction						
Including supporting beams and joists	<u>кі к</u>					
Shafts-Exit	NA NA					
Shafts-Other	NA					
Corridor Separation	NA NA					
Party/Fire Wall Separation	NA					
Smoke Barrier Separation	NA					
Tenant Separation Incidental Use Separation	NA NA					
DFDC	L FNTACE			DENI		
FIDE SEDARATION DISTANCE				PENI		F APP
(feet) FROM PROPERTY LINE	S PROTEC	TION (TAB)	LE 705.8)	· · · ·	(%	6)
	LIFE SA	FETY	SYSTE	EM R	EQUIF	REME
Emergency Lighting	g:	🗌 No	🔀 Yes		-	
Exit Signs:		🗌 No	🔀 Yes			
Fine Alexand						
Fire Alarm:			Yes	•		
FIFE Alarm: Smoke Detection S Carbon Monoxide D	ystems: etection:	⊠ No □ No □ No	Yes Yes Yes	: : 🗌 Pa	rtial	
Fire Alarin: Smoke Detection S Carbon Monoxide D	ystems: etection:	No No No	☐ Yes ⊠ Yes ⊠ Yes	: Pa	ortial	
Fire Alarm: Smoke Detection S Carbon Monoxide D	ystems: etection: LIFE SA COVER	No No No FETY	Yes Yes Yes PLAN	REQ	urtial UIREN	<u>(ENT</u>
Life Safety Plan Sheet # _	ystems: letection: LIFE SA COVEN	No No No No No	Yes Yes Yes PLAN	• • P • • • •	urtial UIREN	(ENT
Life Safety Plan Sheet # _ Fire and/or smoke	ystems: letection: LIFE SA COVER rated wall roperty lin.	No No No No FETY locations e locations	Yes Yes Yes PLAN (Chapter s (if not	s □ Ps s REQ 7) on sit	urtial UIREN	(ENT
Life Safety Plan Sheet # _ Fire and/or smoke Assumed and real p Exterior wall openin	ystems: etection: LIFE SA COVER rated wall roperty lin g area with	No No No No FETY locations e locations n respect	☐ Yes	REQ 7) on sit	urtial UIREN te plan) assumed	ÆNT SEE 1 prop
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Fire Alarm: Smoke Detection S Carbon Monoxide D Life Safety Plan Sheet # _ Fire and/or smoke Assumed and real p Exterior wall openin Cocupancy types for Cocupancy loads for	ystems: etection: LIFE SA COVER rated wall roperty lin. g area with each area each area	No No No No No No FETY locations e locations e locations n respect as it rela	Yes Yes Yes PLAN (Chapter s (if not to distar ates to c	REQ 7) on sit	urtial UIREM te plan) assumed acy load	SEE I prop
Fire Alarm: Smoke Detection S Carbon Monoxide D Life Safety Plan Sheet # _ Fire and/or smoke Assumed and real p Exterior wall openin Occupancy types for Occupancy loads for Exit access travel d Common path of tr	ystems: etection: LIFE SA COVER rated wall roperty lin g area with each area istances (10 avel distance	No No No No No FETY locations e locations a respect as it rela	Yes Yes Yes PLAN (Chapter s (if not to distan ates to c	REQ 7) on sit ace to occupar	urtial UIREM te plan) assumed acy load	SEE prop calcu
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Life Safety Plan Sheet # Garbon Monoxide D Life Safety Plan Sheet # Fire and/or smoke Assumed and real p Exterior wall openin Cocupancy types for Occupancy loads for Cocupancy loads for Exit access travel d Common path of trac Dead end lengths (1 Clear exit widths for	ystems: etection: LIFE SA COVEN rated wall roperty lin. g area with each area istances (10 avel distance 020.4) < 2 r each door	No No No No No FETY locations e locations e locations a respect as it relations (Tables 20' r	Yes Yes PLAN (Chapter s (if not to distant ates to c	REQ 7) on sit nce to occupar	UIREN te plan) assumed ncy load 06.3.2(1)	SEE 1 prop calcu
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SPECIAL APPROVALS Special approval: (Local Jurisdiction, Department of Insurance, SBCCI, I

		STRUCTURAL DESIGN SEE STRUCTURAL PLAN	STORE # 23680
	CODE	Snow (I_R) \square	MAMERS ROAI
	REFERENCE	Live Loads: Roof <u>20</u> psf Mezzanine psf Floor <u>100</u> psf	
		Ground Snow Loads: -10 psf Wind Loads: Basic Wind Speed -115 mph (ASCE-7)	LILLINGION, P
DESIGN # DESIGN	# FOR DESIGN #	Exposure Category $_$ SEISMIC DESIGN CATEGORY \square A \square B \square C \square D Provide the following Seisming Design Postport: \square A \square B \square C \square D	SCHEDULE OI
RATED ASSEMBLY	ATION RATED JOINTS	Occupancy Category (Table 1604.5) \Box I \boxtimes II \boxtimes III \Box IV Spectral Response Acceleration $S = \frac{20.0}{27.3} = 5$	COVER
		Spectral Response Accelertion $S_{MS} = \frac{2}{3}g$ $S_{MI} = \frac{2}{3}g$ Site Classification (ASCE 7) \Box A \Box B \Box C \boxtimes D \Box E \Box F	
		Data Source: 📙 Field Test 🖄 Presumptive 📋 Historical Data Basic structural system (check one)	= CI SITE COVER SHE
		Bearing wall Dual w/Special Moment Steel Building Frame Dual w/Intermediate R/C or Special Steel	γ C3 SITE PLAN
		Analysis Procedure Simplified Equivalent Lateral Force Dynamic	^O ₁ C4 GRADING & DRA
		LATERAL DESIGN CONTROL:	\square C5 EROSION CONTR
		SOIL BEARING CAPACITIES: Field Test (provide copy of test report) psf	\triangleleft C6 UTILITY PLAN
		Presumptive Bearing capacity 3000 psf	= C/CONSTRUCTION = C8 CONSTRUCTION
			\oplus C9 CONSTRUCTION
		ENERGY REQUIREMENTS: The following data shall be considered minimum and any special attribute required to meet the energy	ហី C10 STORMWATER
		code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design re appual energy to the proposed design	E C11 LANDSCAPE PL
		Existing building envelope complies with code: \Box (If checked, the remained of this section in N/A)	A-1 FLOOR PLAN &
		Exempt Building: Provide code or statutory reference:	$\stackrel{\frown}{\leftarrow}$ A-2 ELEVATIONS &
		Method of Compliance: Energy Code \Box Prescriptive \boxtimes Performance	\square A-3 BUILDING SECT \square A-4 WALL SECTIONS
		ASHRAE 90.1	ш A-5 ROOF PLAN, PA
		THERMAL ENVELOPE (Prescriptive method only) Roof/Ceiling Assembly (each assembly)	$ $
ALCULATIONS		Description of assembly STANDING SEAM MTL/R5 THERMAL BLOCK, INSUL RII + R30 U-Value of total assembly029	
AREA ACTUAL S	HOWN ON PLANS (%)	R-Value of insulation Skylights in each assembly U-Value of skylight	
		total sq. ft. of skylights in each assembly <u>NA</u>	P-0 PLUMBING SCH
		Description of assembly METAL PANELS, RI9 INSUL., MTL STUDS, GYP BD	P-1 PLUMBING PLA
EMENTS		U-Value of total assembly 0.010 R-Value of insulation $R-19$ Openings (windows or doors with glazing)	P-2 PLUMBING PLA
		U-Value of assembly <u>1.030</u> Solar heat gain coefficient <u>.82</u>	M-0 MECHANICAL S
		projection factor 2 Door R-Values 1.72	M-1 MECHANICAL I
933 939 A		Walls below grade (each assembly) Description of assembly NA	E-1.1 ELECTRICAL I
ENTS		U-Value of total assembly	E-1.2 ELECTRICAL I
SEE SITE PI AN		Floors over uncoonditioned space (each assembly)	E-1.5 ELECTRICAL I
property lines (705.	3) < 30'	Description of assembly	E-3 ELECTRICAL SC
calculations (Table 1	004.1.2)	Floors slab on grade (each assembly)	EMS 1 EMS DI Λ N &
< 75'		Description of assembly <u>4" CONC, VAPOR BARRIER, COMPACTED EARTH</u> U-Value of total assembly <u>.73</u>	LIVIS-I LIVIS I LAIN &
		R-Value of insulation $R15$ Horizontal/vertical requirement $24" \forall ERT.$ slob basized NO	
mmodate based on e	xit width (1005.3)	MECHANICAL SUMMARY (GEE MECHANICAL GUEET)	
ling and/or roof stru	icture is provided	MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT:	
		Thermal Zone winter dry bulb	
delay (1010.1.9.7)		Interior design conditions winter dry bulb	
		summer dry bulb	
Classification 1-2 (4)	07.5)	Building heating load	
tilized regarding the	items above	Building cooling load	PANIC 75
ITS		Mechanical Spacing Conditioning System	- 3' DOO
TYPE B TO	DTAL	heating efficiency	
UNITS AC PROVIDED P	CCESSIBLE UNITS ROVIDED	cooling efficiency	
		size category of unit	
GEE GITE CUE		If oversized, state reason.	
SPACES PROVIDED	TOTAL #	Chiller size category	
SPACES VAN SPACE H 132" WITH 8' S AISLE ACCESS AIS	ACESSIBLE PROVIDED	List equipment efficiencies	
		ELECTRICAL SUMMARY (SEE ELECTRICAL SHEET)	
		ELECTRICAL SYSTEM AND EQUIPMENT:	
MENTS		Method of Compliance: ENERGY CODE: Prescriptive Performance	= 4 PERSONS 300 S.F./ PERSON 1177 SQ. FT. /
SHOWERS/ DRINK	ING FOUNTAINS	Lighting schedule	
TUBS REGULA	R ACCESSIBLE	number of lamps in fixture ballast type used in the fixture	
NA		number of ballasts in fixture	
		total interior wattage specified vs allowed	
CC, etc., describe be	low)	Additional Prescriptive Compliance	
		506.2.2 Reduced Lighting Power Density 506.2.3 Energy Recovery Ventilation Systems	
		506.2.4 Higher Efficiency Service Water heating 506.2.5 On-Site Supply of Renewable Energy	4
		506.2.6 Automatic Daylighting Control Systems	

AMERS ROAD LLINGTON, NORTH CAROLINA HEDULE OF DRAWINGS VER SITE COVER SHEET EXISTING CONDITIONS PLAN SITE PLAN GRADING & DRAINAGE PLAN EROSION CONTROL PLAN UTILITY PLAN CONSTRUCTION DETAILS CONSTRUCTION DETAILS CONSTRUCTION DETAILS STORMWATER MANAGEMENT DETAILS LANDSCAPE PLAN **FLOOR PLAN & SCHEDULES** ELEVATIONS & FIXTURE PLAN **BUILDING SECTIONS** WALL SECTIONS ROOF PLAN, PAINTING DIAGRAM & SCHEDULES FOUNDATION PLAN & DETAILS PLUMBING SCHEDULES & DETAILS PLUMBING PLAN & RISER PLUMBING PLAN & RISERS MECHANICAL SCHEDULES & DETAILS MECHANICAL PLAN ELECTRICAL POWER PLAN .2 ELECTRICAL REFRIGERATION PLAN 3 ELECTRICAL ROOF POWER PLAN ELECTRICAL LIGHTING PLAN ELECTRICAL SCHEDULES PLAN

S-1 EMS PLAN & SCHEDULE



DOLLAR GENERAL

SQUARE FOOTAGE LEGEND TOTAL SQUARE FOOTAGE 10,640 S.F. TOTAL LEASABLE FOOTAGE 10,640 S.F. OVERALL BUILDING DIMENSIONS 76'-0" X 140'-0" SALES FLOOR DIMENSIONS 74'-0" X 114'-7" SALES AREA 8,526 S.F. 1,359 S.F. RECEIVING AREA 186 S.F. BREAK RM. & OFFICE AREA REST ROOM, & HALL AREA 205 S.F. MISCELLANEOUS 364 S.F. NOTES: 1. BUILDING MUST COMPLY WITH ALL BUILDING (FEDERAL, STATE AND LOCAL), FIRE, ADA AND HEALTH DEPARTMENT CODES. 2. NO TAPERED COLUMNS ALLOWED. 3. MAINTAIN INTERIOR CLEAR SALES SPACE AS REQUIRED ON PLANS.

	$\frac{1}{22}$
DGP BUILD-TO-SUIT PACKAGE ON JOB SITE	A R C H I T E C T U R E MIMIGTON OFFICE PLLP PLLP These documents of service & as such are the property of the Architect. Reproduction without written permission is prohibited
SHALL REVIEM & MAINTAIN II X 17 DOLLAR GENERAL PROTOTYPE PLAN "F	DOLLAR GENERAL STORE # 23680 MAMERS ROAD LILLINGTON, NORTH CAROLINA
ONTRACTORS	DRAWN BY MMH DATE 04/04/22 REVISIONS 042722 - BEARING CAP.
NOTE: ALL C	oF



	ROOM FINISH SCHEDULE										
	ROOM	FLO	OR	BAS		AW	4LL	В	WALL	C	WALL
NO	NAME	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH
100	BREAK RM.	CONCRETE FLOOR SEALED	CONCRETE W SEALER	4" RUBBER / VINYL BASE	BLACK	GYPSUM BOARD TO 10'-0", WHITE METAL LINER PANELS ABOVE	SHERWIN WILLIAMS SWT005- WHITE, PRO-MAR LATEX SEMI-GLOSS	Gypsum Board To 10'-0" Aff	SHERWIN WILLIAMS SWT005- WHITE, PRO-MAR LATEX SEMI-GLOSS	GY PSUM BOAR D TO 10'-0" A.F.F.	Sherwin Williams Sm White, pro-Mar Late Semi-Gloss
101	OFFICE	CONCRETE FLOOR SEALED	CONCRETE W/ SEALER	4" RUBBER / VINYL BASE	BLACK	gy psum Boar d To 10'-0" Aff	Sherwin Williams Swt005- White, Pro-Mar Latex Semi-Gloss	Gypsum Board To 10'-0" Aff	Sherwin Williams Swt005- White, Pro-Mar Latex Semi-Gloss	GYP. BOARD & ENTRY TO ROOF DECK. REST TO 10'-0" A.F.F.	Sherwin Williams Sm White, Pro-Mar Late Semi-Gloss
102	SALES AREA	CONC. FLOOR POLISHED (STEPS 1-9)	CONCRETE W/ SEALER POLISHED	4" RUBBER / VINYL BASE	BLACK	GYPSUM BD. ON WHITE METAL LINER PANELS, SEE ELEV - SHT A-5	SHERWIN WILLIAMS PRO-MAR LATEX SATIN - SEE ELEVS SHEET A-5	Gypsum BD. To Roof Deck	SHERWIN WILLIAMS PRO-MAR LATEX SATIN - SEE ELEVS SHEET A-5	GYPSUM BD. ON WHITE METAL LINER PANELS, SEE ELEV - SHT A-5	SHERWIN WILLIAMS PR LATEX SATIN - SEE EL SHEET A-5
105	RECIEVING AREA	CONCRETE FLOOR SEALED	CONCRETE SEALER	NA	N/A	METAL LINER PANEL FROM FLOOR TO 8' AFF	WHITE	METAL LINER PANEL FROM FLOOR TO 8' AFF	TAPED, PAINTED AS REQ'D. BY CODE OR MTL. LINER PANEL TO DECK AS ALT.	METAL LINER PANEL FROM FLOOR TO S' AFF	WHITE
104	MENS	CONCRETE FLOOR SEALED	SHERWIN WILLIAMS ACRYLIC SILICONE SILK CHOCOLATE HC-117	4" RUBBER / VINYL BASE	BLACK	Gypsum Board to 8'-0" A.F.F.	8' HIGH FIBERGLASS- REINFORCED PANEL - WHITE	GYPSUM BOARD TO ROOF DECK	8' HIGH FIBERGLASS- REINFORCED PANEL - WHITE	Sypsum Board to 8'-0" A.F.F.	8' HIGH FIBERGLASS- REINFORCED PANEL -
105	MOMEN	CONCRETE FLOOR SEALED	SHERWIN WILLIAMS ACRYLIC SILICONE SILK CHOCOLATE HC-117	4" RUBBER / VINYL BASE	BLACK	GY PSUM BOAR D TO 8'-0" A.F.F.	8' HIGH FIBERGLASS- REINFORCED PANEL - WHITE	GYPSUM BOARD TO ROOF DECK	8' HIGH FIBERGLASS- REINFORCED PANEL - WHITE	6Y PSUM BOARD TO 8'-0" A.F.F.	8' HIGH FIBERGLASS- REINFORCED PANEL -
101	SERVICE CLOSET	CONCRETE FLOOR SEALED	SHERWIN WILLIAMS ACRYLIC SILICONE SILK CHOCOLATE HC-117	4" RUBBER / VINYL BASE	BLACK	Gypsum Board to 8'-0" A.F.F.	4' HIGH FIBERGLASS- REINFORCED PANEL - WHITE	Gypsum Board to Roof Deck	4' HIGH FIBERGLASS- REINFORCED PANEL - WHITE	SYPSUM BOARD TO 8'-0" A.F.F.	Sherwin Williams Sm White, Pro-Mar Late Semi-Gloss
108	HALL	CONC. FLOOR POLISHED (STEPS 1-9)	Concrete W/ Sealer Polished	4" RUBBER / VINYL BASE	BLACK	GYPSUM BOARD TO 8'-0" A.F.F.	Sherwin Williams Pro-Mar Latex Semi-Gloss - Sw6991 -Black Magic to 4' Aff SwT005-White Above 4'	GYPSUM BOARD	"PURE MHITE" . BULKHEAD	Gypsum Board to 8'-0" a.f.f.	SHERWIN WILLIAMS PR LATEX SEMI-SLOSS - -BLACK MAGIC TO 4' SHT005-WHITE ABOVE



















A R C H I T E C T U R E PULMINGTON OFFICE PLLP 90.511.889 Fashington, NC 23401 Pnone: 910.251.989 Fashington, NC 23401 Pnone: 910.251.989 Fashington, NC 23401 PLLP PLLP Reproduction without written permission is prohibited Reproduction without written permission is prohibited Fashington, NC 27893 Plone: 252.399.2700 Fashington, NC 27893 Plone: 252.399.2700
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OUNT VENDORS:			P.K. W. HAR CHILL
AL RAINBIRD DISTRIBUTOR	PHONE * www.rainbird.com	REQUIRED ITEMS	4872
BRANDT	877-438-3826 PBrandteeuclidchemical.com	CONCRETE POLISHING SYSTEMS	Mart Contraction
	scott.maxfield@retroplatesystem.com	CONCRETE POLISHING SYSTEMS	$\begin{array}{c} \mu_{III} & \mu_{ILSON, NC} \\ \mu_{III} & \mu_{ILSON, NC} \\ \mu_{IIII} & \mu_{IIII} \\ \mu_{IIIII} & \mu_{IIIII} \\ \mu_{IIIIII} & \mu_{IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII$
HARRELL	dollargeneral.besam.us@assaabloy.com 336-837-0673 pationalsales@cook.andboardman.com	INTERIOR DOORS & FRAMES & RESTROOM ACCESSORIES	
AL SHERWIN WILLIAMS STORE		PAINT, PRIMER, CONCRETE SEALER AND BLOCK FILLER	
	678-492-4026 koneill@mccuecorp.com	TRIM KIT, BUMPER GUARDS, CART STOP	CE
OTT MACDONALD	dollargeneral@lenoxind.com 800-683-5848	HVAC UNITS RTU CURB	OFFI et 1 51.9985 51.9955 51.9955 51.9955 51.9955 51.9955 51.9955 51.9955 51.9955 51.9955 51.9955 51.9955 51.9955 51.9955 51.9955 51.9955 51.9955 51.9955 51.9955 51.99555 51.99555 51.99555 51.99555 51.995555 51.9955555 51.995555555555
LAN THRAILKILL	gsmythl@roofcurb.com 888-639-2872 alan thraikill@curbs-plus.com	RTU CURB	4: TON th Stree C 2840 910.25 910.25 910.22 910.22 252.33 252.33 252.33
EG CONRAD	800-382-2872 gconrad@kcccurbs.com	RTU CURB) FROM th Four gton, N le: ON C NNC 27 le: le:
	800-244-6980 dollargeneral@needhamelectric.com 920-915-4010		SSUEL WILLM 805 Nor 805 Nor 7 acsimi 7 acsimi 213 Eas 213 Eas 213 Eas 213 Eas 213 Eas 213 Eas 213 Eas 213 Eas 213 Eas
TIONAL ACCOUNT SALES	dgorders@leds-llc.com	ELECTRICAL LIGHTING SUPPLIES	
RIS RUDNITSKI	828-624-1046 crudinski@asd-usa.com	LOW VOLTAGE & VOICE/DATA	teets H
ROME BANNISTER	615-743-3202 off, 615-924-2135 cell dollargeneral@graybar.com	CABLE TRAY	
/dollargeneralbid.ectsolutions.net	USER NAME: dollargeneralbid PASSWORD: dollargeneralbid	PANEL REQUIRES STORE #, CITY, STATE, ZIP CODE & QTY. OF HVAC UNITS OF THE INSTALL SITE WHEN ORDERING.	of the
N GOLDSMITH	740-862-2051	INTERIOR FIRE ALARM PANELS	roperty L
OUNTS FOR ENGINEE	RING & CONSTRUCTION MATER		T s the p
CONTACTS	PHONE #	REQUIRED ITEMS	
TT ADAMS	dollargeneral@atcassociates.com 205-836-6300	www.atcassociates.com www.buildingandearth.com	
RRY MARRONE	864-234-7368 dollargeneral@eas-pro.com	www.eas-pro.com	P L J
RESA HEBNER	T10-424-6200 #3030 teresa.hebner@pslusa.com	www.psiusa.com	I '
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			DOLLLAF STORE # 2368 MAMERS RO. LILLINGTON
J.		EXPOSED MTL. LINER PANEL SWT065 "ARGOS" - SALES FLOOR SW6910 "DAISY" YELLOW SW6991 "BLACK MAGIC" - OPEN CART CORRAL SWT005 "PURE WHITE"	drawn by MMH date 04/04/22 revisions sheet number A-5

OF

1) GENERAL

A. The building shall be designed such that there is maintained an absolute minimum of 68'-1" from face-of-column to face-of-column on the sales floor.

2) FOUNDATIONS

A. The concrete foundations shall be designed, detailed and constructed to provide for the safe, serviceable support of

the pre-manufactured metal building structure and all prescribed loads applied thereto. The foundations shall conform to the latest editions of all applicable standards of the American Concrete Institute (ACI), the Building Code(s) enforced by the Authority Having Jurisdiction and these requirements.

B. The soils supporting the foundation shall be prepared and compacted in accordance with a geotechnical testing based investigation and site specific recommendations provided by a Professional Engineer registered to practice in the State where the project is located.

C. The slab on grade shall not be utilized to resist horizontal thrust forces at the base of the pre-engineered building frames. Tie beams below and separate from the building slab may be utilized.

D. The bearing materials shall be free of organic, expansive or corrosive material, and shall support the foundation in accordance with the following twenty five year criteria:

1. Maximum differential movement due to either settlement or heave shall not exceed 1/2" over a distance of 50 feet.

2. Maximum total movement due to either settlement or heave shall not exceed 1".

E. The foundations shall be of sufficient depth to bear below local frost depth where exposed, attain minimum design bearing pressure, achieve sufficient protection from settlement or heave, and where adjacent to existing construction, avoid application of lateral earth pressure to adjacent construction.

3) SLAB ON GRADE

A. The subgrade for the slab on grade shall be compacted and prepared in accordance with a geotechnical testing based investigation and site specific recommendations provided by a Professional Engineer registered to practice in the State where the project is located. The subgrade shall provide a minimum of 100 pounds per cubic inch (pci) modulus of sub-grade reaction and shall be proof-rolled to ensure that there are no pumping or soft zones greater than 1/2" (ACI 302, "Guide for Concrete Floor Slab Construction").

B. The slab on grade shall conform to the latest editions of all applicable standards of the American Concrete Institute (ACI), the Building Code(s) enforced by the Authority Having Jurisdiction and these requirements. The slab on grade shall be a minimum of 4" thick and reinforced with a minimum 6" x 6" x W1.4 x W1.4 welded wire fabric located in the center of the slab.

C. Except at doors at the perimeter of the facility, the slab on grade shall be isolated from the building columns and any perimeter grade beams or walls. The slab on grade shall receive a hard steel trowel finish. Saw-cut contraction joints a minimum of ¹/₄ the depth of the slab shall be provided in both principal directions across the entire floor slab, spaced no further than 13 feet on center and providing panels with an aspect ratio no greater that 1.5:1. Refer to Control Joint Spacing Plan on Sheet S3. The slab shall be protected from the effects of heat or wind as necessary to avoid any curling of the slab segments.

CONCRETE SALES FLOOR PRE-INSTALLATION CONFERENCE:

A. At least 30 days prior to the start of the concrete slab construction, the general contractor shall conduct a meeting to review the proposed concrete mix designs and to discuss the required methods and procedures to achieve the requirements of this specification. The general contractor shall send a pre-concrete conference agenda to all attendees 20 days prior to the scheduled date of the conference.

B. The general contractor shall require responsible representatives of every party concerned with the concrete work to attend the conference, including, but not limited to, the following: General contractor's superintendent

- 1. Laboratory responsible for concrete mixes, field quality control and floor tolerance testing
- 2. Ready-mix concrete producer
- 3. Concrete contractor 4. Chemical admixture manufacturer
- 5. Liquid densifier and sealer manufacturer
- 6. Liquid densifier and sealer applicator
- 7. Joint filling manufacturer
- 8. Joint filling applicator

C. Minutes of the meeting shall be recorded, typed and printed by the general contractor and distributed to all concerned parties, including the owner's representative, the architect and the structural engineer, within five days of the meeting.

D. The minutes shall include a statement by the concrete supplier stating that the proposed concrete mix design will produce the concrete quality required by these specifications.

E. The minutes shall include a statement by the concrete contractor that the proposed concrete mix design will provide appropriate workability and setting times, to ensure that the concrete contractor can achieve the requirements of this specification.

5) CONCRETE CONTRACTOR QUALIFICATION:

A. The concrete contractor shall include in their bid package to the general contractor, sufficient data, including a minimum of three similar and successful projects that clearly indicates the concrete contractor's ability to successfully perform the work and to achieve the interior sales floor slab tolerances required in this specification. The concrete contractor's team shall have participated in the majority of these projects, and that team shall remain the same through the duration of this project.

6) CONCRETE MATERIALS:

A. Portland Cement: ASTM C 150, Type 1. Use one brand of cement throughout the project.

B. Coarse and fine aggregates: ASTM C 33. Combined aggregate gradation for slabs on grade and other designated concrete shall be 8% - 18% for large top size aggregates $(1\frac{1}{2})$ or 8% - 22% for smaller top size aggregates (1" or ³/₄") retained on each sieve below the top size and above the no. 100 sieve. Slabs on grade shall have a maximum aggregate size of $1\frac{1}{2}$ " footings and piers 1" and beams $\frac{3}{4}$ ".

C. Water: complying with ASTM C 94.

D. Air-entraining admixtures: Shall conform to ASTM C-260. Admixture manufacturer shall provide written certification that the air-entraining admixture is compatible with other required admixtures. All exterior slabs shall be air-entrained (4% - 6%). Acceptable products: Euclid Chemical AEA-92 or Air 40; BASF Micro Air; W.R.

Grace Daravair 1000 or Darex- 1. 1. Note: Air-entraining admixture shall not be used on interior concrete.

E. Water-reducing admixture: Shall conform to ASTM C494, Type A and contain no more than 0.05% chloride ions. Acceptable products: Euclid Chemical Eucon series; BASF Pozzolith series; W.R. Grace WRDA or Daracem series.

F. Water-reducing, retarding admixture: Shall conform to ASTM C494, Type D, and contain no more than 0.05% chloride ions. Acceptable products: Euclid Chemical Retarder 75; BASF Pozzolith series; W.R. Grace Daratard 17.

G. High range water-reducing admixture (superplasticizer): Shall conform to ASTM C494, Type F or Type G and contain no more than 0.05% chloride ions. Acceptable products: Euclid Chemical Eucon 37; BASF Rheobuild 1000; W.R. Grace daracem-100.

H. Water-reducing, non-corrosive accelerating admixture: Shall conform to ASTM C494, Type C or E, and contain no more chloride ions than are present in municipal drinking water. The admixture manufacturer must have long-term, non-corrosive test data from an independent testing laboratory (of at least a year's duration) using an acceptable accelerated corrosion test method such as that using electrical potential measures. Acceptable products: Euclid Chemical Accelguard 80/90 or Accelguard NCA; BASF NC534 or Pozzutec 20; W.R. Grace Polarset.

I. Prohibited admixtures:

1. Calcium chloride or admixtures containing more than 0.05% chloride ions are not permitted. 2. Flyash is not permitted.

7) EVAPORATION RETARDER:

1. Acceptable products: a. "Eucobar" by Euclid Chemical - Phil Brandt 877-438-3826

8) CURING MATERIALS

- V.O.C. Content of 700 g/l. 1. Acceptable products:

B. Interior curing (building not enclosed/sales floor slab is placed first): The interior sales floor slab shall be cured using a reduced odor, dissipating liquid membrane forming curing compound that is formulated from hydrocarbon resins. The dissipating liquid membrane forming curing compound shall meet the requirements of ASTM C309 and V.O.C. contents in accordance to EPA 40 CFR, part 59, table 1, subpart D for concrete curing compounds with a maximum V.O.C. content of 350g/l. 1. Acceptable product:

C. Interior curing (building enclosed/sales floor slab is placed <u>last</u>): The interior sales floor slab shall be cured using a removable, low odor, fast drying liquid membrane forming curing compound. The removable liquid membrane forming curing compound shall meet the requirements of ASTM C309, AASHTO M 148, USDA compliancy and V.O.C. contents in accordance to EPA 40 CFR, part 59, Table 1, subpart D for concrete curing compounds with a maximum V.O.C. Content of 350g/l. 1. Acceptable product:

a. "Kurez RC" by Euclid Chemical - Phil Brandt 877-438-3826

9) LIQUID DENSIFIER / SEALER FOR INTERIOR SALES FLOOR: A. Liquid densifier / sealer shall be a sodium silicate / siliconate blend. Manufacturer of liquid densifier and sealer must be contacted prior to bidding for pricing and application requirements. 1. Acceptable liquid densifier and sealer manufacturer: a. "Euco Diamond Hard" by Euclid Chemical - Phil Brandt 877-438-3826

b. "RetroPlate 99" by RetroPlate Systems - Curtis Turnbull 888-942-3144

B. Approval: All general contractors bidding or negotiating a Dollar General project shall contact Euclid Chemical or RetroPlate to obtain a list of approved applicators located within the geographic region of the project. General contractors shall solicit and accept pricing only from those applicators as provided by Euclid Chemical or RetroPlate. The approved applicator selected for the initial application of liquid densifier / sealer shall be the same as for the joint filling and additional application of liquid densifier / sealer and polishing process. Within ten days after completion of work, the approved applicator shall furnish Euclid Chemical or RetroPlate a copy of the invoice, as well as square footage and coverage rate data confirming that the specified application rates were achieved.

C. Project service: at least <u>10</u> days prior to application of liquid densifier and sealer, the general contractor shall notify the Euclid Chemical or RetroPlate representative for jobsite service. The representative will be on the project site during the first application of liquid densifier / sealer and will follow the project through to completion.

10) SEMI-RIGID POLYUREA JOINT FILLER:

1. Acceptable semi-rigid polyurea joint filler manufacturer: a. "Euco QWIKJoint UVR" by Euclid Chemical - Phil Brandt 877-438-3826

B. Non-UV Resistant, semi-rigid polyurea joint filler shall be a two (2) component, 100% solids compound, with a minimum Shore "A" hardness of 75. Joint filler color shall match the adjacent concrete surface. Acceptable semi-rigid polyurea joint filler: a. "CreteFill Pro 75" by CureCrete - Curtis Turnbull 888-942-3144

C. Approval: All general contractors bidding or negotiating a Dollar General project shall contact the Euclid Chemical company or Retroplate to obtain a list of approved applicators located within the geographic region of the project. General contractors shall solicit and accept pricing only from those applicators as provided by Euclid Chemical or RetroPlate. The approved applicator selected for the initial application of liquid densifier / sealer shall be the same as for the joint filling and additional application of liquid densifier / sealer and polishing process.

11) CONCRETE MIXES:

B. Concrete mix design(s) shall be proportioned according to ACI 301, for normal-weight concrete determined by either laboratory trial mix or field test data as follows: 1. Compressive strength (28 days): 4000psi (27.6mpa), with a maximum water/cement ratio of .53, unless otherwise indicated on the drawings. Concrete materials included in the mix design shall be the same materials provided to the project, and shall be prepared by an independent testing laboratory approved by the owner. If sufficient backup data is not available, the laboratory mix design shall exceed the desired job strength of concrete by 1,200psi. Four copies of the mix design shall be submitted to the owner before concrete work begins.

2. Slump: Concrete containing mid or high range water reducer shall have a maximum slump of $5\frac{1}{2}$ " for the interior sales floor slab and 8" (200 mm) for other areas. All other concrete shall not exceed 4 inches (100 mm) unless otherwise indicated on the drawings.

3. Adjustment to concrete mixes: Mix design adjustments may be requested by General Contractor when characteristics of materials, job conditions, weather, test results or other circumstances warrant; at no additional cost to owner and as accepted by owner. Laboratory test data for revised mix design and strength results must be submitted to and accepted by owner before using in work. Both the concrete testing and inspection agency and the concrete contractor shall satisfy themselves that the concrete mix design will produce a concrete which will meet the specifications for this project. In addition, the General Contractor and Concrete Contractor shall verify that the workability, finishability and setting times are appropriate for slab installations. Placement shall be made directly from concrete trucks by chute. If pumping of the concrete is contemplated for any special locations, the proportions established above shall not be altered to suit the capabilities of the pumping equipment. For concrete containing macro-synthetic fibers, adjustments required to provide required placement conditions may warrant use of additional water reducer. No additional water is permitted into concrete mixture after addition of macro-synthetic fibers.

4 Interior concrete sales floor: Concrete shall be designed to meet 4000 psi compressive strength @ 28 days and exhibit <0.04% shrinkage @ 28 days. The mix shall contain approximately 12 cubic feet of #467 aggregate (1-1/2" top size), the specified water reducing admixture and achieve a w/cm ratio of 0.53 (max.). Concrete shall be non air-entrained and in no case shall the concrete be designed for less than 4000 psi (27.6mpa) @ 28 days. Proposed mix design shall be similar to the following

Prototype mix:	
Materials	Prote
Cement	517-
Fly ash/slag	Proh
Coarse aggregate	12 c
Fine aggregate	7 cu
Water content	250
Air content (Entrapped Air Only) 3.0% (max
Water Reducer (type a/f)	3oz10oz./
W/cm	0.53
Initial slump (water)	3"
Final Slump (with water reducer	r)5.5" (max)

Shrinkage

A. Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

A. Exterior curing: All exterior concrete slabs shall be cured using a liquid membrane-forming curing compound. The liquid membrane-forming curing compound shall meet the requirements of ASTM C1315 with a maximum

a. "Super Rez Seal" or "Super Aqua Cure" by Euclid Chemical - Phil Brandt 877-438- 3826

a. "Kurez DR VOX" by Euclid Chemical - Phil Brandt 877-438-3826

A. UV Resistant, semi-rigid polyurea joint filler shall be a two (2) component, 100% solids compound, with minimum Shore "A" hardness of 80. Joint filler color shall match the adjacent concrete surface.

A. Comply with ACI 301 requirements for concrete mixtures.

Prototype mix 517-564lbs. Prohibited

12 cubic feet +/- .50 (#467 stone) 7 cubic feet +/- (adjust as necessary) 250 - 300lbs.)% (max.) >z.-10oz./100wt +/- (mid range preferred)

0.53 (max.)

<0.04% @ 28 days

12) FLOOR SLAB FINISH AND TOLERANCES:

A. General: Unless otherwise noted by owner, concrete sales floor slab shall be cast in one continuous placement. Concrete shall be placed, screeded, re-straightened, and finished as necessary to meet the FF and FL tolerance requirements. Do not wet concrete surfaces during finishing operations.

B. Trowel finish (sales floor): Apply a hard trowel finish to surfaces as follows:

1. Laser screeds, vibratory screeds, highway straightedges and wood bull floats shall be used to initiate screeding and floating process to form a uniform and open-textured surface plane before excess moisture or bleed water appears on the surface. A back-up laser screed is required during concrete placement of the interior sales floor slab. Remove excess water before starting floating operations. Do not further disturb surfaces before starting finishing operations

2. Highway straightedge operations shall continue before, during and after troweling operation, until specified floor tolerances are achieved.

3. Trowel finish with gas operated troweling machine with adjustable blades on all finishing equipment. Use steel-reinforced blades on ride-on power trowels. Trowel the surface sufficiently to produce a smooth, tight, abrasion resistant surface. Care shall be taken not to overwork or burn the surface. Use 6" wide finish style steel-reinforced blades on final passes. Finishing blades shall be in new condition and completely clean of any deleterious materials. Interior machine trowel finish shall be achieved within a 3" tolerance of all walls, columns and partitions.

4. Protection: Care shall be taken to protect the interior sales floor. Entrances shall include clean floor mats to prevent mud stains and all equipment on the floor shall be diapered to prevent spills. Cutting oils, etc, are not allowed on the sales floor slab at any time during the construction process.

C. Comply with ACI 117, "Specifications For Tolerances For Concrete Construction and Materials." Interior sales floor slab shall meet the requirements of a type 5, single course, hard steel-troweled finish as described in ACI 302.

1. All perimeter areas and edges of the concrete floor shall exhibit the same finish as the sales floor, including but not limited to, hallways, offices, restrooms, etc.

2. The general contractor is responsible for contracting with the testing laboratory for all costs associated with floor tolerance testing. A copy of the final floor tolerance report shall be provided by the general contractor to the owner within 24 hours of receiving the report from the testing laboratory. The sales floor slab shall conform to the following flatness and levelness criteria:

- Overall Floor Flatness rating of at least 35 Flatness Levelness
- Overall Floor Levelness rating of at least 30 Tolerance Band for Entire Floor +/- 0.375 inch

D. Failure to achieve the above criteria shall be cause for replacement of the offending segments or grinding/polishing at no cost to the Owner or Tenant.

E. Trowel finish (other than sales floor): Apply a hard trowel finish to surfaces indicated and to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin film-finish coating system.

F. Heavy broom finish: As noted on drawings.

13) CONCRETE PROTECTION AND CURING:

A. General: Normalize concrete set time and protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 305 for hot-weather protection and ACI 306 for cold-weather protection during curing. During concrete placement operations, ventilate and exhaust all fumes from construction equipment and heaters to avoid potential early concrete carbonation. Apply the specified curing compound as quickly as possible for maximum protection. For concrete placement during hot, dry and windy conditions, concrete contractor shall use evaporation retarder as per manufacturer's instructions to maintain a moist condition and to minimize plastic drying shrinkage cracking at the surface of the freshly placed concrete.

1. Curing - Exterior Slabs:

All exterior concrete slabs shall be cured using the specified liquid membrane-forming curing compound. Per manufacturer's instructions, application shall be applied evenly and uniformly as soon as possible after final finishing. Surface shall be clean and damp, but not wet and can no longer be marred by walking workmen. All applications shall be made by an approved applicator of the manufacturer, and when surface and air temperature is above 50° f. Apply "Super Rez Seal" or "Super Aqua Cure" at an application rate of 400sf/gallon. Begin curing immediately after finishing concrete, but not before free water has disappeared from concrete surface.

2. Curing - Interior slabs:

The interior sales floor slab shall be cured using the specified dissipating or removable liquid membrane-forming curing compound. Per manufacturer's instructions, application shall be applied evenly and uniformly as soon as possible after final finishing. Surface shall be damp, but not wet and can no longer be marred by walking workmen. All applications shall be made by an approved applicator of the manufacturer, and when surface and air temperature is above 50° f. Apply "Kurez DR VOX" (slab first) or "Kurez RC" (slab last) at an application rate of 350sf/gallon. Begin curing immediately after finishing concrete, but not before free water has disappeared from concrete surface.

CONTRACTION JOINTS IN SLABS-ON-GRADE: 14)

A. Form weakened-plane contraction joints, sectioning concrete into areas as indicated on drawings. Contraction joints shall be sawn to a depth equal to at least one-fourth of the concrete thickness, as follows:

B. Sawed joints: All saw cutting shall be accomplished with a "Soff-Cut" saw and vacuum system equipped with a new blade and plate, as soon as the slab will support the weight of the saw and operator. Note: Concrete dust shall be removed completely and immediately. If chalk lines are used for sawcuts, all chalk remaining on the slab shall be removed completely and immediately after sawing.

INTERIOR SALES FLOOR SLAB PROTECTION: 15)

A. Take the following measures to protect the interior sales floor slab:

1. Wrap or "diaper" all motorized and hydraulic equipment to prevent fluid leaks

2. Provide non-marking tires on rubber tired vehicles or equip rubber tires with tire boots made of nylon fabric

3. Provide mats at all entrances to prevent mud stains

16) TIMING OF JOINT FILLER, LIQUID DENSIFER AND POLISHING PROCESS A. Do not commence installation of semi-rigid polyurea joint filler, liquid densifier and sealer or polishing processes until the building is completely enclosed, permanent power and lighting is operating and the building is thermostatically controlled. Installation of these materials shall commence approximately two weeks prior to "fixture date."

INSTALLATION OF SEMI-RIGID POLYUREA JOINT FILLER: 17)

A. All General Contractors bidding or negotiating a Dollar General project shall contact Euclid Chemical or RetroPlate to obtain a list of approved applicators located within the geographic region of the project. General contractors shall solicit and accept pricing only from those applicators as provided by Euclid Chemical or RetroPlate. The approved applicator selected for the initial application of liquid densifier / sealer shall be the same as for the joint filling and additional application of liquid densifier / sealer.

B. Joint filler installation: Comply with recommendations in ACI 302 for use of joint filler as applicable to materials, applications, and conditions indicated.

C. Surface cleaning of joints: Clean out joints immediately before installing joint filler. Remove foreign material from joint substrates that could interfere with adhesion of joint filler by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint filler. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Also remove all laitance and form-release agents from concrete surface. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues could interfere with adhesion of joint sealants. All surfaces to be filled shall be clean and dry.

D. For proper load transfer, joints must be filled full depth, but in no case should the joint filler be any less than 1" deep in the joint.

E. Mixing: Joint filler is a two part product requiring machine mixing and placing. Premix part b separately before using. Follow pump manufacturer's equipment instructions.

F. Placement: Joint filler shall be filled full depth. No backer rod is allowed. Joints should be overfilled and shaved even with the surrounding joint edge giving the floor joints a flat, smooth appearance. Shaving of excess joint filler can be approximately 30 minutes after placement, and up to 24 hours later, depending on jobsite conditions such as concrete and ambient temperatures.

G. Joint filler separation: The approved joint filling applicator shall include in their bid a cost per linear foot to make one return trip to refill joints if joint filler sidewall separation or splitting exceeds 1/16," or if surface profile is concave, chattered or if voids occur. This shall take place one week prior to grand opening.

18) INITIAL CLEANING FOR LIQUID DENSIFIER AND SEALER APPLICATION:

A. Interior sales floor slab: Thoroughly clean the interior sales floor slab prior to initial application of liquid densifier and sealer by completely removing the specified dissipating or removable curing compound from the floor surface. The following floor stripper or removal solution shall be applied to the floor to thoroughly strip, clean and remove all curing compound residue:

1. If Kurez DR VOX (slab first) was used to cure the slab, use "Euco Clean & Strip" by Euclid Chemical, applied at the proper water to floor stripper ratio and coverage rate that will completely remove the Kurez DR VOX. Contact: Phil Brandt (877) 438-3826

2. If Kurez RC (slab last) was used to cure the slab, use "Kurez OFF" by Euclid Chemical, applied at the proper water to floor cleaner ratio and coverage rate that will completely remove the Kurez RC. Contact: Phil Brandt (877) 438-3826

19) POLISHING PROCESS AND APPLICATION OF LIQUID DENSIFIER / SEALER: A. All Applicators must be certified by Euclid Chemical or Retro-Plate.

- B. The revised process can be used in both "Wet" and "Dry" applications.
- C. This process assumes a quality concrete finish (meets and/or exceeds the specified floor tolerances) by the floor finisher. Failure to achieve the above criteria shall be cause for replacement of the offending segments or grinding/polishing at no cost to the Owner or Tenant.
- D. Only the Sales Floor will receive the full 8 step process outlined below under item K.
- E. All other areas will only receive steps 1 through 3, no additional work is necessary. The yellow safety striping will remain.
- F. The Black painted border will not be required in areas behind fixtures, etc...it will only be installed at the main entry door, office doors, egress doors and doorways into the receiving area and transitions that can be seen by the customers.
- G. Steps 2 & 4 are combo steps using different grits of resin bond diamonds on each pass.
- H. This is a "Resin" only grind that does not tear away as much of the surface area. The Resin grind will remove a minimal top layer of the concrete surface and should greatly reduce the amount of Waste Product created when compared to the old Metal grind process.
- I. If a Cure-n-Seal product is required at the time of slab placement only Water Based Dissipating Sealers are allowed. NO Acrylic Cure-N-Seals are allowed.
- J. Prior to application, inspect interior sales floor slab to ensure that slab is clean and free of dust, grease, oils, or other contaminants that might prohibit the proper application and penetration of the liquid densifier and sealer.

K. Process Steps

- 1. Cut, clean out, prep and fill the concrete floor joints with the Euclid QWIKjoint UVR polyurea joint filler or "CreteFill Pro 75 by CureCrete.
- 2. Grind concrete floor with a combo set of 40/50 grit resin bond diamonds.
- 3. Depending on the final finish of the floor, this step may or may not be required. Grind concrete floor with a combo set of SASE metal bond gold series 80 and 150 grit segments or HTC EZ BB brown 4 series (60 grit diamonds) and HTC EZ BB Black 5 series (100 Grit Diamonds).
- 4. Thoroughly clean the concrete floor and apply Euclid Diamond Hard liquid densifier and sealer at 225 square feet per gallon or ("RetroPlate 99 liquid densifier at 200 square feet per gallon").
- 5. Polish concrete floor with a combo set of SASE Triton 100 grit black resin diamonds, SASE Triton 200 grit blue resin diamonds or HTC EZ MR black series (100 Grit Diamonds) and HTC EZ MR blue series (200 Grit Diamonds).
- 6. Polish concrete floor with SASE Triton 400 grit red resin diamonds or HTC EZ SR red series (400 grit diamonds).
- 7. Thoroughly clean concrete floor and then apply Euclid Diamond Hard liquid densifier and sealer at 700 square feet per gallon (spiff coat). Or ("RetroPlate 99 liquid densifier at 700 square feet per gallon as a spiff coat").
- 8. Burnish / Polish concrete floor with SASE Sure Shine white 800 grit diamond impregnated pads or HTC White Twister pads (800 grit diamond impregnated pads).
- 9. Burnish / Polish concrete floor with 1500 Grit Diamond Impregnated twister pads (H.T.C. Yellow TWISTERS or equivalent)
- L. All edges must be polished to match concrete floor with coinciding SASE 5" resin Polishing pads or HTC EZ Grind polishing 5" diamond tools.
- M. Polish results: Perform polishing process to attain an overall gloss reading of ≥35 specified overall gloss value (SOGV) as measured using a Horiba IG-320, and a specified minimum gloss reading of ≥30 minimum local gloss value (MGLV). A minimum of 75 readings shall be taken throughout the interior sales floor. The approved applicator shall take four gloss measurement readings at 90° from each other, and then averaged for one reading at each location. The overall measurement shall be reported to Dollar General within 24 hours of the polishing process. Gloss shall be considered as a quantitative value that expresses the degree of reflection when light hits the concrete floor surface. Gloss measurements will be taken independent of ambient lighting and will be taken within a sealed measurement window located beneath the test unit.

GENERAL NOTES

I. BUILDING MUST COMPLY WITH ALL BUILDING (FEDERAL, STATE, AND LOCAL), FIRE, ADA, AND HEALTH DEPARTMENT

- 2. WALLS: FINISHED GYPSUM BOARD WITH ALL JOINTS TAPED, MUDDED, SANDED, AND PAINTED.
- 3. PROVIDE DOUBLE STUDS AND BLOCKING TO SUPPORT EQUIPMENT AND/OR MISCELLANEOUS ITEMS WHERE INSTALLED. I.E.-TYPICAL CASEWORK, TOILET PAPER HOLDERS, GRAB BARS, ETC.
- 4. CAULK AND SEAL EXTERIOR JOINT BETWEEN METAL PANELS AND CONCRETE SLAB, AND ALL UNLIKE MATERIALS. 5. TRIM - DOORS, DOOR FRAMES, WINDOW FRAMES, COLUMNS: PAINTED TO MATCH ADJACENT WALLS.
- 6. ALL PENETRATIONS THROUGH ROOF MUST COMPLY WITH ROOF WARRANTY REQUIREMENTS.

7. DOORS: ALL EXTERIOR DOORS HAVE WEATHER STRIPPING AND A SNUG SEAL AROUND DOOR. ALL EXTERIOR DOORS WILL HAVE CYLINDER REPLACED BY DOLLAR GENERAL AREA MANAGER WITH INSTAKEY SYSTEM.

8. THE SALES FLOOR SHALL CONTAIN NO INTERIOR COLUMNS. 12" MAXIMUM THICKNESS ON ALL EXTERIOR COLUMNS. THE USE OF INTERIOR COLUMNS, LARGER EXTERIOR COLUMNS, OR TAPERED COLUMNS REQUIRE WRITTEN APPROVAL FROM DOLLAR GENERAL CONSTRUCTION DEPARTMENT.

9. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATE ALL TRADES.

IO. CONTRACTOR SHALL VERIFY ALL EQUIPMENT LOCATIONS AND DIMENSIONS OF EQUIPMENT. ANY EQUIPMENT FURNISHED BY THE OWNER OR TENANT SHALL BE RECEIVED, STORED, AND INSTALLED BY THE CONTRACTOR. CONTRACTOR SHALL COORDINATE WITH OWNER FOR INSTALLATION.

II. IF DIMENSIONS ARE IN QUESTION - THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM THE DOLLAR GENERAL CONSTRUCTION DEPARTMENT BEFORE CONTINUING WITH CONSTRUCTION. 12. MAINTAIN CLEAN WORK SITE ON A DAILY BASIS.

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ISSUED FROM: ISSUED FROM: IS	Wilmington, NC 28401 Phone: 910.251.899	A R C H I T E C T U R E Facsurule: 910.251.9989 PLLP PLLP 213 East Nash Street 213 East Nash Street	These documents are instruments of service & as such are the property of the Architects. Wilson, NC 27893 Phone: 252.399.2700 Reproduction without written permission is prohibited Facsimile: 252.399.2701
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GENERAL PLUMBING NOTES:

Administrative

- 1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS: PC – PLUMBING CONTRACTOR, EC – ELECTRICAL CONTRACTOR, MC - MECHANICAL CONTRACTOR, GC - GENERAL CONTRACTOR,
- FASC FIRE ALARM SYSTEM CONTRACTOR. 2. "PROVIDE" MEANS TO FURNISH AND INSTALL. THE PLUMBING CONTRACTOR SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS
- AND THE GENERAL CONTRACTOR. 3. THE PC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATIONAL
- SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS. 4. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED AT AN APPROVED LOCATION. PC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE PC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
- 5. ALL MATERIALS USED SHALL BE NEW AND FREE OF DEFECTS. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED AT NO EXPENSE TO THE OWNER. ALL MATERIALS AND EQUIPMENT SHALL BEAR APPROVAL FROM UL OR AN APPROVED THIRD PARTY AGENCY. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, IT IS TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
- 6. THE PLUMBING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE 2018 NORTH CAROLINA PLUMBING CODE AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
- 7. THE PC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
- 8. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
- 9. THESE PLANS ARE DIAGRAMMATIC. THE PC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, FIXTURES, PIPING, ETC, TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS. OFFSETS. AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE PC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER. THE PC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. TO AVOID POTENTIAL CONFLICTS, COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION. ALL UNDERGROUND UTILITIES SHALL BE LOCATED PRIOR TO ANY DIGGING.
- 10. TRENCHING, COMPACTION, AND BACKFILL SHALL BE BY PC AND SHALL BE IN ACCORDANCE WITH SECTION 306 OF THE NC PLUMBING CODE. UNDERGROUND LINES SHALL BE LOCATED SUCH THAT THEY DO NOT ENDANGER FOOTINGS OR FOUNDATION WALLS.
- 11. THE PC SHALL PROVIDE FIRESTOPPING AT ALL PENETRATIONS OF RATED FLOOR/CEILING ASSEMBLIES AND RATED WALL ASSEMBLIES TO PRESERVE OR RESTORE THE FIRE RESISTANCE RATING. SEAL ALL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THE PROJECT.
- 12. SYSTEM TESTING SHALL BE PERFORMED BY PLUMBING CONTRACTOR IN ACCORDANCE WITH NORTH CAROLINA PLUMBING CODE, SECTIONS 312.2, 312.3, AND 312.5.
- 13. PC SHALL DISINFECT THE ENTIRE DOMESTIC WATER PIPING SYSTEM IN ACCORDANCE WITH THE AMERICAN WATER WORKS ASSOCIATION'S SPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS. 14. AT THE COMPLETION OF WORK AND PRIOR TO ACCEPTANCE BY
- OWNER, THE PC SHALL CLEAN ALL EXPOSED FIXTURES, MATERIALS, AND EQUIPMENT UNDER THIS CONTRACT. 15. PC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE
- ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.

MATERIALS:

- 1. ALL OVERHEAD DOMESTIC WATER PIPING SHALL BE TYPE L COPPER WITH 95/5 LEAD FREE SOLDER, AND ALL BELOW GRADE WATER PIPING SHALL BE TYPE K COPPER WITH NO JOINTS. ALL PIPING SHALL HAVE MANUFACTURER'S NAME AND THE APPLICABLE STANDARD TO WHICH IT WAS MANUFACTURED CLEARLY MARKED ON EACH LENGTH. PIPING SHALL COMPLY WITH ASTM B-88. USE BRAZED JOINTS ON ALL COPPER PIPING 1-1/2 INCH AND LARGER. ALL PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, USED IN THE WATER DISTRIBUTION SYSTEM SHALL HAVE A MAXIMUM LEAD CONTENT OF .25-PERCENT AND SHALL CONFORM TO NSF 61. HOT WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 100 PSI AT 180°F. COLD WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 160 PSI AT 73.4°F. DO NOT INSTALL PEX OR CPVC PIPING IN RETURN AIR PLENUMS
- 2. BALL VALVES SHALL HAVE BRASS BODY, FULL PORT, CHROME PLATED BALL, WITH TEFLON SEATS, 150 PSI WSP, AND COMPLY WITH MSS SP-110. GATE VALVES SHALL HAVE BRONZE BODY, CLASS 150, AND COMPLY WITH MSS SP-80, TYPE 2 STANDARD. VALVE BODY SHALL BE ASTM B 62. BRONZE WITH INTEGRAL SEAT AND UNION RING BONNET. ENDS SHALL BE THREADED OR SOLDER WITH COPPER-SILICON BRONZE STEM AND SOLID-WEDGE BRONZE DISC. INSTALL VALVES IN LOCATIONS THAT PERMIT EASY ACCESS WITHOUT DAMAGE TO BUILDING OR FINISHED MATERIALS; PROVIDE ACCESS DOORS IF REQUIRED. VALVES SHALL BE BY NIBCO, WATTS, OR STOCKHAM.
- 3. COLD WATER LINES SHALL BE INSULATED WITH 1/2 INCH THICK FIBROUS GLASS INSULATION WITH A FLAME DENSITY RATING LESS THAN 25 AND A SMOKE DENSITY RATING LESS THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. HOT WATER LINES UP TO 2 INCHES DIAMETER SHALL HAVE 1 INCH THICK INSULATION CONFORMING TO THE SAME STANDARD. PIPING LARGER THAN 2 INCHES SHALL RECEIVE 1-1/2 inch thick insulation. Closed cell rubber insulation MEETING THE SMOKE AND FLAME RATINGS ABOVE MAY BE SUBSTITUTED FOR FIBROUS GLASS TYPE IF SO DESIRED. INSULATION INSTALLED ON PIPING OPERATING BELOW AMBIENT TEMPERATURES MUST HAVE A CONTINUOUS VAPOR RETARDER. ALL JOINTS, SEAMS AND FITTINGS MUST BE SEALED. ON SYSTEMS OPERATING ABOVE AMBIENT, THE BUTT JOINTS SHOULD NOT BE SEALED. ON COLD SURFACES WHERE A VAPOR SEAL MUST BE MAINTAINED, INSULATION SHALL BE APPLIED WITH A CONTINUOUS, UNBROKEN MOISTURE AND VAPOR RETARDER. ALL HANGERS, SUPPORTS, ANCHORS, OR OTHER PROJECTIONS SECURED TO COLD SURFACES SHALL BE INSULATED AND VAPOR SEALED TO PREVENT CONDENSATION. ALL PIPE INSULATION SHALL BE CONTINUOUS THROUGH WALLS, CEILING OR FLOOR OPENINGS, OR SLEEVES EXCEPT WHERE FIRESTOP OR FIRESAFING MATERIALS ARE REQUIRED. INSULATION SHALL HAVE A FACTORY APPLIED ALL-SERVICE JACKET WITH SELF-SEALING LAP. WHITE-KRAFT PAPER BONDED TO ALUMINUM FOIL AND REINFORCED WITH GLASS FIBERS; CONFORMING TO ASTM C 1136 TYPE 1; VAPOR RETARDER; WITH A SELF-SEALING ADHESIVE. VERIFY THAT PIPING HAS BEEN TESTED, SURFACES ARE CLEAN AND DRY, AND ALL FOREIGN MATERIALS ARE REMOVED BEFORE

APPLYING INSULATION MATERIALS. INSULATION SHALL BE BY KNAUF, ARMACELL, JOHNS-MANVILLE, OR OWENS-CORNING.

- 4. ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578 91. ALL INSULATION SHALL BE LOW-EMITTING WITH NOT GREATER THAN 0.05 PPM FORMALDEHYDE EMISSIONS. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES
- ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED 5. FAUCETS AND FIXTURE FITTINGS SHALL CONFORM TO ASME A112.18.1. FAUCETS AND FIXTURE FITTINGS THAT SUPPLY DRINKING WATER FOR HUMAN CONSUMPTION SHALL CONFORM TO THE REQUIREMENTS OF NSF 61, SECTION 9, FIXTURE FITTINGS, FAUCETS, AND DIVERTERS SHALL BE INSTALLED AND ADJUSTED SO THAT THE FLOW OF HOT WATER FROM THE FITTINGS CORRESPONDS TO THE LEFT HAND SIDE OF THE FIXTURE FITTING.
- 6. BACKFLOW PREVENTION SHALL BE IN ACCORDANCE WITH SECTION 608.13 OF THE NC PLUMBING CODE AND THE LOCAL AUTHORITY HAVING JURISDICTION. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTERS SHALL CONFORM TO ASSE 1013 OR AWWA C511. THE RELIEF OPENING SHALL DISCHARGE BY AIR GAP. AIR GAPS SHALL COMPLY WITH ASME A112.1.1 AND AIR GAP FITTINGS WITH ASME A112.1.3. DOUBLE CHECK VALVE ASSEMBLIES SHALL CONFORM TO ASSE 1015 OR AWWA C510. ACCESS TO BACKFLOW PREVENTERS SHALL BE PROVIDED AS SPECIFIED BY THE INSTALLATION INSTRUCTIONS OF THE APPROVED MANUFACTURER.
- 7. FOR BELOW GRADE SANITARY WASTE PIPING, PC SHALL USE SERVICE WEIGHT CAST IRON PIPE WITH COMPRESSION JOINTS (ASTM A 74). USE MINIMUM 2 INCH SIZE UNDERGROUND. SOLID WALL SCHEDULE 40 PVC (ASTM D 2665) WITH SCHEDULE 40 SOCKET TYPE PIPE FITTINGS (ASTM D 3311) MAY ALSO BE USED. DO NOT USE PVC PIPE FOR APPLICATIONS WHERE THE WASTE WATER TEMPERATURE EQUALS OR EXCEEDS 140°F OR IF THE BUILDING HEIGHT EXCEEDS 75 FEET.
- 8. FOR ABOVE GRADE SANITARY WASTE AND VENT PIPING, USE SERVICE WEIGHT CAST IRON NO-HUB TYPE WITH COUPLINGS (CISPI 301). SOLID WALL SCHEDULE 40 PVC (ASTM D 2665) WITH SCHEDULE 40 SOCKET TYPE FITTINGS (ASTM D 3311) MAY BE USED IF PERMITTED BY LOCAL CODE, EXCEPT IN BUILDINGS EXCEEDING 75 FEET IN HEIGHT. DO NOT INSTALL PVC IN RETURN AIR PLENUMS. ALL VENT AND BRANCH VENT PIPES SHALL BE SO GRADED AND CONNECTED AS TO DRAIN BACK TO THE DRAINAGE PIPE BY GRAVITY. BRANCH VENTS EXCEEDING 40 FEET IN DEVELOPED LENGTH SHALL BE INCREASED BY ONE NOMINAL SIZE FOR THE ENTIRE DEVELOPED LENGTH OF THE PIPE.
- 9. PC SHALL PROVIDE ALL WATER HEATERS (WATTAGE/INPUT AND CAPACITY AS NOTED IN SCHEDULE). ALL WATER HEATERS SHALL BE THIRD PARTY CERTIFIED; PROVIDE PANS FOR WATER HEATERS IN ACCORDANCE WITH 504.7 OF THE NC PLUMBING CODE. ELECTRICAL CONNECTIONS SHALL BE BY ELECTRICAL CONTRACTOR, PC SHALL COORDINATE WITH EC ON ELECTRICAL CHARACTERISTICS OF THE EQUIPMENT PROVIDED.
- 10. ALL PUMPS SHALL BE RATED FOR TRANSPORT OF POTABLE WATER. PUMPS IN AN INDIVIDUAL WATER SUPPLY SYSTEM SHALL BE CONSTRUCTED AND INSTALLED SO AS TO PREVENT CONTAMINATION FROM ENTERING THE WATER SUPPLY SYSTEM.

- 1. EXTEND DOMESTIC WATER PIPE FROM FIVE (5) FEET OUTSIDE THE BUILDING INTO THE BUILDING AS INDICATED ON THE PLANS AND INSTALL DOMESTIC WATER DISTRIBUTION PIPING TO ALL FIXTURES AND EQUIPMENT REQUIRING THE SAME. WATER SERVICE PIPE AND THE BUILDING SEWER SHALL BE SEPARATED BY 5 FEET OF UNDISTURBED OR COMPACTED EARTH IN ACCORDANCE WITH 603.2. PROVIDE ALL FITTINGS, VALVES, AND OTHER ACCESSORIES AS NECESSARY FOR A COMPLETE INSTALLATION. ALL DOMESTIC WATER PIPING SHALL BE CONCEALED IN FINISHED AREAS. ANY OPEN ENDS SHALL BE PROTECTED UNTIL FINAL CONNECTIONS ARE MADE.
- 2. ABOVE GRADE DOMESTIC WATER PIPING SHALL BE SLOPED AT A MINIMUM OF 1/32 INCH PER FOOT AND ARRANGED TO DRAIN AT LOW POINTS. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT. ROUTE PIPING IN AN ORDERLY MANNER-PARALLEL OR PERPENDICULAR TO WALLS WHEN POSSIBLE-AND MAINTAIN GRADIENT. EACH SUPPLY BRANCH LINE SERVING MORE THAN ONE FIXTURE SHALL HAVE A SHUTOFF VALVE INSTALLED TO ISOLATE ALL FIXTURES AND PIECES OF EQUIPMENT SUPPLIED BY THE BRANCH LINE. THE SHUTOFF VALVE SHALL BE LABELED AND LOCATED AS CLOSE TO THE CONNECTION TO THE SUPPLY MAIN AND RISER AS POSSIBLE. PROVIDE A FULL-OPEN VALVE ON THE BASE OF EVERY WATER RISER PIPE AND ON THE TOP OF EVERY WATER DOWN-FEED PIPE. PROVIDE VALVE HANDLE EXTENSIONS AS NECESSARY FOR INSULATION.
- 3. IT SHALL BE THE RESPONSIBILITY OF THE PC TO SUSPEND AND SUPPORT ALL PIPING SYSTEMS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALLY ACCEPTED PIPE HANGERS AND SUSPENSION EQUIPMENT. ALL FIXTURES, DEVICES, AND EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE FIXTURE OR EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT AND PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING. USE STEEL HANGERS FOR STEEL AND PLASTIC PIPE AND COPPER OR COPPER-PLATED HANGERS FOR COPPER PIPE. PROVIDE PROTECTION FOR COPPER PIPING IN CONTACT WITH DISSIMILAR METALS. WHERE COPPER PIPING IS SUPPORTED ON HANGERS WITH OTHER PIPING, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH OTHER METALS. IN GENERAL, HANGERS SHALL BE CLEVIS TYPE, STANDARD WEIGHT, FOR PIPING, HANGER SPACING SHALL BE IN ACCORDANCE WITH TABLE 308.5 OF THE NC PLUMBING CODE. HANGERS AND ACCESSORIES SHALL BE GRINNEL, MASON, OR B-LINE 4. SLEEVE ALL PIPES PASSING THROUGH PARTITIONS, WALLS, AND FLOORS. SLEEVES IN FLOORS AND INTERIOR WALLS OF POURED IN PLACE CONCRETE, BRICK, TILE, OR MASONRY SHALL BE SCHEDULE 40 STEEL PIPE, MACHINE CUT. SLEEVES IN GYPSUM BOARD WALLS SHALL BE 22 GAUGE, ROLLED GALVANIZED SHEET METAL. TACK WELD ON THE LONGITUDINAL SEAM. PROVIDE SLEEVES WHERE PIPES PASS THROUGH FLOORS AND WALLS ABOVE AND BELOW CEILINGS. PROVIDE SPLIT PIPE SLEEVES IN NEW WALLS BUILT UP AROUND EXISTING PIPES. TACK WELD SPLIT SLEEVES TOGETHER. SLEEVES IN WALLS SHALL BE INSTALLED FLUSH WITH THE WALL. SLEEVES IN FLOORS SHALL EXTEND 3/4 INCH ABOVE THE FLOOR-EXCEPT THEY SHALL BE FLUSH FOR 2 HOUR RATED FLOORS-AND SHALL BE FLUSH WITH THE STRUCTURE BELOW. EACH SLEEVE SHALL HAVE AN INSIDE DIAMETER 1 INCH LARGER THAN THE OUTSIDE DIAMETER OF THE COVERING OF EACH COVERED PIPE TO ALLOW CONTINUOUS INSULATION-BUT NOT LESS THAN TWO PIPE SIZES LARGER THAN EACH UNCOVERED. ANNULAR SPACES BETWEEN SLEEVES AND PIPES SHALL BE FILLED OR CAULKED IN AN APPROVED MANNER.
- 5. THE TOP OF WATER PIPES INSTALLED BELOW GRADE OUTSIDE THE BUILDING SHALL BE BELOW THE FROST LINE OR A MINIMUM OF 12 INCHES BELOW FINISHED GRADE WHICHEVER IS GREATER. WATER PIPING INSTALLED IN A WALL EXPOSED TO THE EXTERIOR SHALL BE

LOCATED ON THE HEATED SIDE OF THE WALL INSULATION. WATER PIPING INSTALLED IN AN UNCONDITIONED UTILITY ROOM OR UNCONDITIONED ATTIC SHALL BE INSULATED TO A MINIMUM OF R6.5 DETERMINED IN ACCORDANCE WITH ASTM C 177.

- 6. HOT WATER PROVIDED TO PUBLIC HAND-WASHING FACILITIES/LAVATORIES SHALL BE TEMPERED WATER DELIVERED THROUGH AN APPROVED WATER-TEMPERATURE LIMITING DEVICE THAT
- CONFORMS TO ASSE 1070 OR CSA B125.3. 7. INSULATE ALL EXPOSED WASTE AND SUPPLY PIPING UNDER LAVATORIES, SINKS, AND ELECTRIC WATER COOLERS WITH THE
- HANDI-LAV GUARD INSULATION KIT BY TRUEBRO OR EQUAL. 8. POTABLE WATER OUTLETS SHALL BE PROTECTED FROM BACKFLOW IN ACCORDANCE WITH 608.15. PRESSURE TYPE VACUUM BREAKERS SHALL CONFORM TO ASSE 1020 AND SPILPROOF VACUUM BREAKERS SHALL COMPLY WITH ASSE 1056. HOSE-CONNECTION VACUUM BREAKERS SHALL CONFORM TO ASSE 1011, ASSE 1019, ASSE 1035, OR ASSE 1052. CONNECTIONS TO BEVERAGE DISPENSERS, COFFEE MACHINES, AND NON-CARBONATED BEVERAGE DISPENSERS SHALL BE PROTECTED
- BY A BACKFLOW PREVENTER IN ACCORDANCE WITH ASSE 1022. 9. THE PC SHALL INSTALL WATER HAMMER ARRESTORS ON BRANCH LINES WITH QUICK CLOSING VALVES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. WATER HAMMER ARRESTORS SHALL CONFORM TO ASSE
- 10. THE PC SHALL PROVIDE CHECK VALVES AT ALL FIXTURES WITH THREADED OUTLETS AS REQUIRED BY CODE. TRAP PRIMERS SHALL BE PROVIDED AS SHOWN ON THE PLANS OR AS REQUIRED. 11. ADJUST STOPS AND VALVES FOR INTENDED FLOW RATE TO FIXTURES
- WITHOUT SPLASHING, NOISE, OR OVERFLOW. 12. BEFORE COMMENCING WORK, CHECK INVERT ELEVATIONS REQUIRED FOR SEWER CONNECTIONS, CONFIRM INVERTS, AND VERIFY THESE CAN BE PROPERLY CONNECTED TO WITH SLOPE FOR DRAINAGE AND COVER TO AVOID FREEZING. ONCE INVERTS AND FALL HAVE BEEN
- ESTABLISHED. EXTEND SANITARY SEWER PIPING TO 5 FEET OUTSIDE THE BUILDING AND INSTALL ALL DRAINS, STACKS, VENTS, FLOOR DRAINS, AND CLEANOUTS NECESSARY FOR A COMPLETE INSTALLATION. 13. ALL SANITARY SEWER PIPING IS BELOW GRADE OR WITHIN WALLS
- UNLESS OTHERWISE NOTED. ALL SANITARY VENT PIPING IS ABOVE THE CEILING OR WITHIN WALLS UNLESS OTHERWISE NOTED. SOIL AND WASTE PIPING SHALL BE INSTALLED TO PROVIDE PROTECTION AGAINST FREEZING PER 305.6.1. WASTE AND SOIL LINES LEAVING THE BUILDING MUST HAVE A MINIMUM COVER OF 3 INCHES. 14. SOIL AND WASTE LINES 2-1/2 INCHES AND SMALLER SHALL BE
- SLOPED AT 1/4 INCH PER FOOT MINIMUM. SOIL AND WASTE LINES 3 INCHES TO 6 INCHES IN DIAMETER SHALL BE SLOPED AT 1/8 INCH PFR FOOT MINIMUM.
- 15. FOR WATER CLOSET WASTE CONNECTIONS, A 4 INCH BY 3 INCH CLOSET BEND SHALL BE ACCEPTABLE. WHERE A 3 INCH BEND IS UTILIZED ON WATER CLOSETS, A 4 INCH BY 3 INCH FLANGE SHALL BE INSTALLED TO RECEIVE THE FIXTURE HORN.
- 16. FOR PLASTIC PIPE SIZES GREATER THAN 6 INCHES, AND OTHER PIPE SIZES GREATER THAN 4 INCHES, RESTRAINTS SHALL BE PROVIDED FOR DRAIN PIPES AT ALL CHANGES IN DIRECTION AND AT ALL CHANGES IN DIAMETER GREATER THAN TWO PIPE SIZES. BRACES, BLOCKS, RODDING, BACKFILL AND OTHER SUITABLE METHODS AS SPECIFIED BY THE
- COUPLING MANUFACTURER SHALL BE UTILIZED. 17. BASES OF STACKS SHALL BE SUPPORTED BY THE BUILDING STRUCTURE, VIRGIN OR COMPACTED EARTH, OR OTHER SUITABLE
- MATERIAL TO SUPPORT THE WEIGHT OF THE PIPING. 18. HORIZONTAL DRAIN PIPES SHALL HAVE CLEANOUTS IN ACCORDANCE WITH 708.10. EXTEND CLEANOUTS TO FINISHED FLOOR OR WALL SURFACE. LUBRICATE THREADED CLEANOUT PLUGS WITH A MIXTURE OF GRAPHITE AND LINSEED OIL. ENSURE CLEARANCE AT ALL CLEANOUTS FOR RODDING OF DRAINAGE SYSTEM. INSTALL FLOOR CLEANOUTS AT AN ELEVATION TO ACCOMMODATE FINISHED FLOOR. EVERY CLEANOUT SHALL BE INSTALLED TO ALLOW CLEANING IN THE DIRECTION OF FLOW OF THE DRAINAGE PIPE OR AT RIGHT ANGLES THERETO. CLEANOUTS on 6 inch and smaller pipes shall be provided with a CLEARANCE OF NOT LESS THAN 18 INCHES FOR RODDING. 19. DRAINAGE PIPING FOR FUTURE FIXTURES SHALL TERMINATE WITH AN
- APPROVED CAP OR PLUG. 20. AIR ADMITTANCE VALVES SHALL BE INSTALLED AFTER THE DWV TESTING REQUIRED BY SECTIONS 312.2 AND 312.3. PROVIDE ACCESS TO ALL AIR ADMITTANCE VALVES PER CODE. INSTALLATION OF ALL AIR ADMITTANCE VALVES SHALL CONFORM TO SECTION 917 OF THE NC PLUMBING CODE. AIR ADMITTANCE VALVES SHALL CONFORM TO ASSE
- 1050 OR 1051. 21. INDIRECT WASTE PIPING THAT EXCEEDS 2 FEET IN DEVELOPED LENGTH MEASURED HORIZONTALLY, OR 4 FEET IN TOTAL DEVELOPED LENGTH, SHALL BE TRAPPED. THE AIR GAP BETWEEN THE INDIRECT WASTE PIPE AND THE FLOOD LEVEL RIM OF THE WASTE RECEPTOR SHALL BE A MINIMUM OF TWICE THE EFFECTIVE OPENING OF THE INDIRECT WASTE
- 22. THE PC SHALL PROVIDE UNIONS FOR DISASSEMBLY AND SERVICE OF ALL FIXTURES AND OTHER RELEVANT PLUMBING EQUIPMENT. UNIONS SHALL BE GROUND-JOINT WITH BRASS SEAT. PROVIDE INSULATING UNIONS AT EACH JUNCTION OF DISSIMILAR MATERIALS.
- 23. THE PC SHALL ACCURATELY ROUGH-IN ALL FIXTURES ACCORDING TO MANUFACTURER'S INSTALLATION DIMENSIONS AND INSTRUCTIONS. OFFSET ADAPTERS AND FLEXIBLE CONNECTORS ARE NOT ACCEPTABLE. FLUSH HANDLES SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREAS FOR ADA COMPLIANCE. INSTALL EACH FIXTURE WITH TRAP EASILY REMOVABLE FOR SERVICING AND CLEANING. SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH SEALANT. SOLIDLY ATTACH WATER CLOSETS TO FLOOR WITH LAG SCREWS. SEAL ALL SELF-RIMMING LAVATORIES AND SINKS (VITREOUS CHINA AND STAINLESS STEEL) WITH A COMMERCIAL GRADE PLUMBER'S PUTTY OR ACRYLIC LATEX CAULK APPLIED TO THE UNDERSIDE OF THE FIXTURE RIM IN A GENEROUS
- AMOUNT SO THAT WHEN FIXTURE IS SET, SEALANT SHALL OOZE OUT. 24. ALL VENT THRU THE ROOF (VTR) PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PC SHALL PROVIDE FLASHING MATERIAL REQUIRED FOR VTRS. JOINTS AT THE ROOF AND AROUND VENT PIPES, SHALL BE MADE WATER TIGHT BY THE USE OF LEAD, COPPER, GALVANIZED STEEL, ALUMINUM, OR OTHER APPROVED FLASHINGS OR FLASHING MATERIAL. MAINTAIN MINIMUM 10 FEET FROM ALL OUTSIDE AIR INTAKES.

NOT TAP WATER AHEAD OF RPZ

SYMBOL FIXTURE MANUFACTURER FITTING TANK TYPE WATER CLOSET AMERICAN STANDARD CHAMPION | FLOOR MOUNTED ADA VITREOUS CHINA ELONGATED FLUSH TANK, 1.28 GPF CLOSED COUPLED TVO PIECE SIPHON 4 "RIGHT HEIGHT" JET WATER CLOSET, FLUSH TANK WITH 12" ROUGH IN. PROVIDE AMERICAN STANDARD #211AA. 104 OR EQUAL. #211AA. 104 DR EQUAL PROVIDE STOP VALVE, FLEXIBLE SUPPLY LINE AND OPEN FRONT SEAT, NO LID. ADA REQUIREMENT MOUNT SO SEAT IS 17"-19" AFF. ORDER WITH FLUSH LEVER ON OPEN SIDE OF TOILET. WALL MOUNT LAVATORY AMERICAN STANDARD 20'X18' WALL HUNG ADA LAVATORY WITH FRONT OVERFLOW. CONCEALED HANGERS AND 4' CENTERS. AMERICAN | 0355. 0120 DR EQUAL STANDARD LUCERNE #0355.012 DR EQUAL. FAUCET SHALL CHROME PLATED CAST BRASS BODY WITH 4' SPOUT, 4' BRASS WRIST BLADE, 0.5 GPM SPRAY AND GRID STRAINER DRAIN. USE AMERICAN STANDARD MONTERREY %" #5502.175 WITH WATTS MODEL USG-B-M1 TEMPERING VALVE OR EQUAL. ADA REQUIREMENT, MOUNT RIM 34" AFF – INSULATE EXPOSED DRAIN AND WATER PIPES WITH TRUEBRO LAV GUARD KIT #102 E-Z. PROVIDE SUPPLY LINES, STOP VALVES & P-TRAP. ELKAY #EZTLDDLC OR EQUAL ELKAY 'WATERSENTRY' TWO-STATION, WALL MOUNTED ELECTRIC DRINKING FOUNTAIN, ADA, FRONT ONLY EASY DRINKING FOUNTAIN Touch control, high unit on right. Provide supply, stop valve & trap. Provide cane apron as REQUIRED. CANE FINISH 6' ZURN FLOOR DRAIN WITH 'TYPE B' ROUND STRAINER AND 1/2' TRAP PRIMER CONNECTION ZURN Z415-6B-P FLOOR DRAIN PROVIDE PRESSURE DROP ACTIVATED BRASS TRAP SEAL PRIMER, WITH REMOVABLE FILTER SCREEN, MIFAB I P4A TRAP PRIMER M2-500, MIGAP, MI-DU-500 #M2-500, ND SUBSTITUTIONS. PROVIDE AIR GAP FITTING. MIFAB #MIGAP, ND SUBSTITUTIONS. PROVIDE 1/2" DISTRIBUTION UNIT, WHERE TRAP PRIMER SERVERS MULTIPLE FLOOR DRAINS, MIFAB, #M1-DU-500, NO SUBSTITUTIONS. ZURN WALL CLEANDUT WITH ACCESS COVER. WCD WALL CLEANDUT ZURN Z-1441 EPEXY CEATED CAST IREN FLEER CLEANEUT WITH REUND ADJUSTABLE GASKETED NICKEL BRENZE TEP, REMEVABLE Clean Dut ZURN LEVEL-TROL GAS TIGHT GASKETED BRASS CLEANDUT PLUG, AND NO HUB INLET. 2-WAY YARD CLEAN DUT TYLER PIPE #003519 DR TRAFFIC RATED i foiiai | WATER HAMMER ARRESTOR | ZURN Z1700 SHOCKTROL 100 | INSTALL ON BRANCH LINES PER MFG'S INSTRUCTIONS I FREEZEPROOF WALL ZURN #Z-1320 ECOLOTROL FREEZE PROOF WALL HYDRANT, ENCASED WALL HYDRANT, WITH BRONZE BODY, ANTI-SIPHON VACUUM BREAKER, HOSE CONNECTION. BOX AND LOCKING COVER. MOUNT AT 24' ABOVE FINISHED GRADE. FLUSH MOUNT AND TAMPER HYDRAN I WALL HYDRANT RESISTANT. CONTRACTOR TO SUBMIT SPEC. FOR OWNER APPROVAL FOR ALL STORES. ELECTRIC WATER HEATER AD SMITH DEL-10 DR EQUAL 10 Gallon, 1,65kw, 120V, provide drain pan under shelf-mounted water heater, terminate drain line IN MOP SINK. PROVIDE FULL T&P RELIEF LINE, TERMINATE 2' ABOVE RIM LEVEL OF MOP SINK. INSTALL PER 3⁄4" MANUFACTURER'S INSTRUCTIONS. EXPANSION TANK AMTROL ST-5 INSTALL ON COLD WATER LINE BETWEEN WATER HEATER AND RPZ FIAT MSB2424 USE 830 AA, 889 CC, 1453 BB, AND 832 AA SERVICE FAUCET, PROVIDE WITH WALL GUARD AND MOP HANGER 2" IMOP SINK P-TRAP

VARIATIONS SUITABLE FOR FLOOR COVERING (CARPET FLOORS). CLEAN THE TOP OF EXPOSED FCO AFTER INSTALLATION.

O–

D–

(A)-

PLUMBING KEYED NOTES

1 WATER HEATER MOUNTED ABOVE MOP SINK. ROUTE DRAIN PAN DRAIN AND T&P RELIEF VALVE DRAIN FROM WATER HEATER DOWN WALL TO MOP SINK BASIN AND SPILL INTO. $\langle 2 \rangle$ ROUTE RTU CONDENSATE LINE TO SPILL INDIRECTLY TO MOP SINK. PITCH PIPE WITH ROOF SLOPE (TYP.).

(**C**)-

(**B**)-

A

D

<u>Plumbing keyed notes</u>

 $\langle 1 \rangle$ 1"CW UP IN WALL WITH VALVE AND LOCKABLE ACCESS PANEL. $\langle 2 \rangle$ PLUMBING CONTRACTOR TO RUN WATER LINE IN SALES AREA AS HIGH AS POSSIBLE OVERHEAD.

 $\langle 3 \rangle$ Contractor to coordinate water meter sizes with local water company and civil.

GENERAL MECHANICAL NOTES:

ADMINISTRATIVE: 1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:

- PC PLUMBING CONTRACTOR, EC ELECTRICAL CONTRACTOR, MC - MECHANICAL CONTRACTOR, GC - GENERAL CONTRACTOR, FASC – FIRE ALARM SYSTEM CONTRACTOR.
- "PROVIDE" MEANS TO FURNISH AND INSTALL. MC SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND GENERAL CONTRACTOR AS SHOWN ON THE PLANS OR
- NECESSARY FOR A COMPLETE INSTALLATION. 3. THE MC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATING SYSTEM AS
- DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
- 4. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE CONTRACTOR AT AN APPROVED LOCATION. THE MC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE MC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE
- 5. THE MC SHALL INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE 2018 NORTH CAROLINA MECHANICAL AND BUILDING CODES AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MC SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
- 6. THE MC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT. 7. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR
- DIMENSIONS. 8. THE MC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH
- EXISTING CONDITIONS. THE MC SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE MC SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION. 9. All mechanical materials shall be new and free of defect and listed
- AND LABELED BY UL OR AN APPROVED THIRD PARTY AGENCY. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED BY THE MC WITHOUT ADDITIONAL COST TO THE OWNER. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, THE CITED EXAMPLE IS INTENDED TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. SUCH EXAMPLES ARE USED TO CONVEY A GENERAL STYLE, TYPE, CHARACTER, AND QUALITY OF THE PRODUCT DESIRED; PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
- 10. THESE PLANS ARE DIAGRAMMATIC. THE MC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, DUCTS, REGISTERS, GRILLES, ETC, TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE MC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER.
- 11. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL POWER CONNECTIONS TO THE MECHANICAL EQUIPMENT. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONTROL WIRING.
- 12. IT IS THE MC'S RESPONSIBILITY TO VERIFY THAT ITEMS FURNISHED FOR THIS CONTRACT WILL FIT IN THE SPACE AVAILABLE. THE MC SHALL MAKE FIELD MEASUREMENTS AS NECESSARY TO DETERMINE SPACE REQUIREMENTS. IF THE MC MUST ALTER EQUIPMENT DUE TO SPACE CONSIDERATIONS, THE MC SHALL PROVIDE SIZES AND SHAPES THAT FIT THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS.
- 13. MC SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR REGARDING THE
- ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT BEING PROVIDED. 14. MAINTAIN CLEARANCES FOR ALL EQUIPMENT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR SERVICEABILITY. ALL ROOFTOP EQUIPMENT MUST BE A
- MINIMUM OF 10 FEET FROM ROOF EDGE. 15. MC SHALL FURNISH A BOUND SET OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT TO THE OWNER UPON COMPLETION OF THE PROJECT. MC SHALL PROVIDE ALL DOCUMENTATION TO THE OWNER AS NECESSARY TO SUBMIT FOR FACTORY WARRANTIES.
- 16. CONTRACTOR SHALL PROTECT ALL HVAC EQUIPMENT FROM CONSTRUCTION AND SHEET ROCK DUST DURING CONSTRUCTION. ALL FILTERS SHALL BE REPLACED WITH NEW AT THE COMPLETION OF THE PROJECT.
- 17. ALL EQUIPMENT INSTALLED ON ROOF MUST BE WITHIN THE ROOF SCREEN. 18. IF A ROOF PENETRATION IS REQUIRED AND THE ROOF IS UNDER WARRANTY, USE THE AUTHORIZED ROOFER. PROVIDE DOCUMENTATION.
- 19. ALL PIPING, WIRING, CONDUIT, INSULATION, EQUIPMENT, SUPPORTS, ETC. SHALL BE SUITABLE FOR INSTALLATION IN A RETURN PLENUM AS NECESSARY. COORDINATE WITH OTHER TRADES ON LOCATIONS OF ALL PLENUMS.
- 20. MC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.

<u>MATERIALS:</u>

- THE MC SHALL PROVIDE ALL DX UNITARY HEATING AND COOLING EQUIPMENT AS SCHEDULED ON THE DRAWINGS. AIR-COOLED ROOFTOP AIR CONDITIONER UNITS, SHALL BE BY CARRIER, NO SUBSTITUTIONS. THE MC SHALL PROVIDE FACTORY AND FIELD INSTALLED ACCESSORIES AS SCHEDULED OR AS NECESSARY FOR A COMPLETE AND OPERATIONAL HVAC SYSTEM.
- THE MC SHALL PROVIDE ALL EXHAUST AND SUPPLY FANS AS SCHEDULED. FANS
- SHALL BE BY GREENHECK, LOREN COOK, TWIN CITY, OR PENNBARRY. DUCTWORK IS SHOWN WITH FREE AREA DIMENSIONS. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT
- STANDARD, 2 INCH S.P. 4. EXTERNAL DUCT INSULATION AND FACTORY-INSULATED FLEXIBLE DUCT SHALL BE LEGIBLY PRINTED OR IDENTIFIED AT INTERVALS NOT GREATER THAN 36 INCHES WITH THE NAME OF THE MANUFACTURER, THE THERMAL RESISTANCE R-VALUE AT THE SPECIFIED INSTALLED THICKNESS AND THE FLAME SPREAD AND SMOKE-DEVELOPED INDEXES OF THE COMPOSITE MATERIALS. ALL DUCT INSULATION PRODUCT R-VALUES SHALL BE BASED ON INSULATION ONLY. EXCLUDING AIR FILMS, VAPOR RETARDERS OR OTHER DUCT COMPONENTS, AND SHALL BE BASED ON TESTED C-VALUES AT 75°F MEAN TEMPERATURE AT THE INSTALLED THICKNESS, IN ACCORDANCE WITH RECOGNIZED INDUSTRY PROCEDURES. THE INSTALLED THICKNESS OF DUCT INSULATION USED TO DETERMINE ITS R-VALUES
- SHALL BE DETERMINED AS FOLLOWS: 4.1. FOR DUCT BOARD, DUCT LINER AND FACTORY-MADE RIGID DUCTS NOT NORMALLY SUBJECTED TO COMPRESSION, THE NOMINAL INSULATION
- THICKNESS SHALL BE USED. 4.2. FOR DUCT WRAP, THE INSTALLED THICKNESS SHALL BE ASSUMED TO BE
- 75 PERCENT (25-PERCENT COMPRESSION) OF NOMINAL THICKNESS. 4.3. FOR FACTORY-MADE FLEXIBLE AIR DUCTS, THE INSTALLED THICKNESS shall be determined by dividing the difference between the actual
- outside diameter and nominal inside diameter by two. 5. DUCT LINER MAY BE SUBSTITUTED FOR EXTERIOR DUCT WRAP. DUCT LINER

INSULATION MATERIALS SHALL MEET THE REQUIREMENTS OF ASTM C 1071, AND ASTM G 21. EXTERIOR DUCT R-VALUE SHALL BE R-8 AND INTERIOR R-VALUE SHALL BE R-6 IN ACCORDANCE WITH THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE. NOMINAL DUCT SIZES SHALL BE ADJUSTED AS NECESSARY SO THAT FREE AREA DIMENSIONS ARE PRESERVED AS SHOWN ON THE PLANS. FABRICATION AND INSTALLATION SHALL CONFORM TO THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS AND TO THE REQUIREMENTS OF THE LATEST EDITION OF THE NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION FIBROUS GLASS DUCT LINER STANDARDS AND/OR SMACNA HVAC DUCT CONSTRUCTION STANDARDS. DUCT LINER SHALL HAVE A BLACK PIGMENTED MAT ON THE AIRSTREAM SIDE TO RESIST DAMAGE DURING INSTALLATION AND SERVICE. EDGES SHALL BE FACTORY COATED WITH BLACK PIGMENTED COATING TO COMPLY WITH SMACNA DCS REQUIREMENTS. ALL PORTIONS OF DUCT DESIGNATED TO RECEIVE DUCT LINER SHALL BE COMPLETELY COVERED WITH DUCT LINER. TRANSVERSE JOINTS SHALL BE NEATLY BUTTED AND THERE SHALL BE NO INTERRUPTIONS OR GAPS. THE BLACK PIGMENTED OR MAT FACED SURFACES SHALL FACE THE AIRSTREAM. DUCT LINER SHALL BE ADHERED TO THE SHEET METAL WITH 90 PERCENT COVERAGE OF ADHESIVE COMPLYING WITH REQUIREMENTS OF ASTM C 916. ALL EXPOSED LEADING EDGES AND TRANSVERSE JOINTS SHALL BE FACTORY COATED OR COATED WITH ADHESIVE DURING FABRICATION. DUCT LINER SHALL BE ADDITIONALLY SECURED WITH MECHANICAL FASTENERS, EITHER WELD-SECURED OR IMPACT DRIVEN, WHICH SHALL COMPRESS THE DUCT LINER SUFFICIENTLY TO HOLD IT FIRMLY IN PLACE. ADHESIVE BONDED PINS ARE NOT PERMITTED DUE TO LONG-TERM ADHESIVE AGING CHARACTERISTICS. LININGS SHALL BE INTERRUPTED AT THE AREA OF OPERATION OF A FIRE DAMPER AND AT A MINIMUM OF 6 INCHES UPSTREAM AND 6 INCHES DOWNSTREAM OF ELECTRIC RESISTANCE AND FUEL-BURNING HEATERS IN A DUCT SYSTEM. METAL NOSINGS OR SLEEVES SHALL BE INSTALLED OVER EXPOSED DUCT LINER THAT FACE OPPOSITE THE DIRECTION OF AIRFLOW. UPON COMPLETION OF INSTALLATION OF

- DUCT LINER AND BEFORE OPERATION IS TO COMMENCE, VISUALLY INSPECT SYSTEM AND VERIFY THAT THE DUCT LINER IS PROPERLY INSTALLED. OPEN ALL SYSTEM DAMPERS AND TURN ON FANS TO BLOW ALL SCRAPS AND OTHER LOOSE PIECES OF MATERIAL OUT OF THE DUCT SYSTEM. ALLOW FOR A MEANS OF REMOVAL OF SUCH MATERIAL. ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE
- RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578. ALL INSULATION SHALL HAVE FORMALDEHYDE EMISSIONS NOT GREATER THAN 0.05 PPM. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
- MASTIC USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A-95 OR UL 181B-98. MAINTAIN AMBIENT TEMPERATURES AND CONDITIONS REQUIRED BY MANUFACTURER OF ADHESIVES, MASTICS, AND INSULATION CEMENTS. DO NOT INSTALL DUCT SEALANT WHEN TEMPERATURES ARE LESS THAT THOSE RECOMMENDED BY THE SEALANT MANUFACTURER.
- 8. ALL ADHESIVES AND SEALANTS SHALL HAVE VOC CONTENT BELOW 20 GRAMS PER LITER AND WHICH MEET THE REQUIREMENTS OF THE MANUFACTURER OF THE PRODUCTS BEING ADHERED OR INVOLVED. ADHESIVES AND SEALANTS SHALL CONTAIN NO HEAVY METALS OR FORMALDEHYDE.
- 9. FACTORY-MADE AIR DUCTS AND CONNECTORS SHALL COMPLY WITH UL 181-96. 10. FLEXIBLE DUCT SHALL BE UL LISTED CLASS 0 OR CLASS 1, INSULATED, AND COMPLY WITH UL 181. FLEXIBLE DUCT SHALL BE FACTORY FORMED, COMPOSED OF SPIRAL WOUND CORROSION RESISTANT WIRE BONDED TO AN INNER FABRIC LINER. DUCT SHALL BE FACTORY INSULATED WITH A FOIL VAPOR BARRIER JACKET. CONNECT TO RIGID DUCT WITH SPIN-IN FITTING AND DAMPER. FLEXIBLE DUCTS AND AIR CONNECTORS SHALL NOT PASS THROUGH ANY FIRE RESISTANCE RATED ASSEMBLY.
- 11. THE MC SHALL PROVIDE ALL DIFFUSERS GRILLES, LOUVERS, AND OTHER AIR DISTRIBUTION OUTLETS AND INLETS. LOUVERS, GRILLES, AND DIFFUSERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. FOR LAY-IN CEILINGS. INSTALL SUPPORT FROM THE STRUCTURE FOR EACH DIFFUSER OR DAMPER. AIR DISTRIBUTION OUTLETS AND INLETS SHALL BE BY HART & COOLEY, PRICE, METAL-AIRE, NAILOR, OR CARNES. 12. AIR FILTERS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 605 OF THE
- 2018 NC MECHANICAL CODE. 13. THE MC SHALL PROVIDE ALL REFRIGERATION PIPING. ALL PIPE AND FITTINGS
- SHALL BE TYPE ACR HARD COPPER TUBING WITH SWEAT FITTINGS. REFRIGERATION LINES SHALL BE RUN NEATLY. WHERE A GROUP OF LINES ARE RUN, TRAPEZE HANGERS MAY BE USED. DO NOT USE CHAIN OR WIRE HANGERS, WRAP TUBING WITH RUBBER TAPE AT EACH CLAMP OR HANGER. FOR COVERED PIPES, HANGERS SHALL FIT AROUND THE OUTSIDE OF THE COVERING WITH 12 GAUGE GALVANIZED STEEL SHIELDS OF A LENGTH EQUAL TO THE OUTSIDE DIAMETER OF THE INSULATION AND COVERING 3/4 OF THE CIRCUMFERENCE OF THE INSULATION. SAGS SHALL NOT BE PERMISSIBLE. HORIZONTAL LINES SHALL PITCH DOWN NOT LESS THAN 1 INCH IN 40 FEET. INSULATE WITH 1 INCH CLOSED CELL ARMAFLEX TYPE INSULATION WITH A FLAME DENSITY RATING LESS THAN 25 AND A SMOKE DENSITY RATING LESS THAN 50. ALL JOINTS AND SPLICES IN INSULATION SHALL BE TAPED AND AIR TIGHT. SOLDER REFRIGERATION LINES USING 15 PERCENT SILVER SOLDER AND EVACUATE LINES TO 300 MICRONS. PROVIDE MOISTURE INDICATING SIGHT GLASS AND FILTER DRYER IN LIQUID LINE. PROVIDE OIL TRAPS AND DOUBLE RISERS IN REFRIGERANT SUCTION AND HOT GAS LINES WHERE REQUIRED TO PREVENT OIL SLUGGING AT THE COMPRESSOR AND INSURE PROPER LUBRICATION. MC SHALL BE RESPONSIBLE FOR SEALING LINE SET PENETRATIONS of any rated assemblies in accordance with a system listed in the ul DIRECTORY FOR THE SPECIFIC ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR A LIST OF ALL UL FIRE RATED ASSEMBLIES.
- <u>Methods:</u> INSULATE DUCTWORK WITH FIBERGLASS DUCT WRAP; INSTALLED R-VALUE SHALL BE A MINIMUM R-6. COVERINGS AND LININGS, INCLUDING ADHESIVES WHEN USED, SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL NEW DUCTWORK SHALL RECEIVE INSULATION ON THE OUTSIDE. INSTALL DUCT WRAP INSULATION WITH FACING OUTSIDE SO THAT TAPE FLAP OVERLAPS INSULATION AND FACING OF ADJACENT PIECE OF DUCT WRAP. INSULATION SHALL BE TIGHTLY BUTTED. FOR RECTANGULAR DUCTS, INSTALL SO INSULATION IS NOT EXCESSIVELY COMPRESSED AT DUCT CORNERS. STAPLE SEAMS APPROXIMATELY 6 INCHES ON CENTER WITH OUTWARD CLINCHING STAPLES. SEAL SEAMS WITH PRESSURE SENSITIVE TAPE MATCHING THE FACING. FOR RECTANGULAR DUCTS 24 INCHES IN WIDTH OR GREATER, SECURE DUCT WRAP TO THE BOTTOM OF THE DUCT WITH MECHANICAL FASTENERS SPACED 18 INCHES ON CENTER TO PREVENT SAGGING OF INSULATION. ADJACENT SECTIONS OF DUCT WRAP SHALL BE TIGHTLY BUTTED WITH THE 2 INCH TAPE FLAP OVERLAPPING. ALL TEARS, PUNCTURES, ETC. OF THE DUCT WRAP INSULATION SHALL BE SEALED WITH TAPE OR MASTIC TO PROVIDE A VAPOR TIGHT SYSTEM. INSULATION SHALL BE BY KNAUF INSULATION, OWENS CORNING CORP, OR CERTAINTEED CORPORATION.
- 2. VERIFY THAT DUCTS HAVE BEEN TESTED BEFORE APPLYING INSULATION MATERIALS

VERIFY THAT DUCT SURFACES ARE CLEAN, DR' PRIOR TO INSULATING. DUCT COVERINGS SHALL FLOOR REQUIRED TO HAVE A FIRE-RESISTANCI BLOCKED.

- WHERE DUCTS ARE CONNECTED TO EXTERIOR IS SMALLER THAN LOUVER FRAME, PROVIDE BI AREA AROUND DUCT. USE SAME MATERIAL AS SIDE; SEAL TO LOUVER FRAME AND DUCT. PROVIDE DUCT ACCESS DOORS FOR INSPECTIO
- AFTER FILTERS, COILS, FANS, AUTOMATIC DAMF COMBINATION FIRE AND SMOKE DAMPERS. CONSTRUCT T'S. BENDS. AND ELBOWS WITH R TIMES THE WIDTH OF THE DUCT ON CENTERLI
- WHERE RECTANGULAR ELBOWS MUST BE USED INCREASE DUCT SIZES GRADUALLY, NOT EXCEE MAXIMUM OF 30 DEGREES DIVERGENCE UPSTR DEGREES CONVERGENCE DOWNSTREAM. IT SHALL BE THE RESPONSIBILITY OF THE MC EQUIPMENT, DUCTWORK, DIFFUSERS, AND OTHE RECOGNIZED ENGINEERING PRACTICES AND USI ACCEPTED HANGERS AND SUSPENSION EQUIPM BE SECURELY MOUNTED TO THE BUILDING STR CEILING OR WALL SURFACES FOR SUPPORT. T SUPPORT THE WEIGHT OF THE EQUIPMENT PLU
- ATTACHMENT ITSELF. SUPPORT FROM THE TOP GIRDERS, AND BEAMS. THE BOTTOM CHORD IS OR PIPING SUPPORT. HANGERS SHALL NOT BE DECKING DUCTS SHALL BE SUPPORTED IN ACCORDANCE 8. EXCEEDING 10 FEET. DUCTS 36 INCHES OR L
- HANGERS SUSPENDED WITH THREADED ROD. S GIRDERS, OR BEAMS. CHECK LOCATIONS OF AIR OUTLETS AND INLET ADJUSTMENTS IN POSITION TO CONFORM WITH SYMMETRY, AND LIGHTING ARRANGEMENT. COOL CONTRACTOR IF APPLICABLE.
- PROVIDE BALANCING DAMPERS AT POINTS ON 10. TAKEN FROM LARGER DUCTS AS REQUIRED FO 2 DUCT WIDTHS FROM DUCT TAKE-OFF. PROV TAKE-OFFS TO DIFFUSERS. AND REGISTERS. ARE SPECIFIED AS PART OF THE DIFFUSER OF HANDLING AND DISTRIBUTION SYSTEMS TO PRO
- EXHAUST AIR QUANTITIES AT SITE ALTITUDE. 11. MC SHALL INSTALL FIRE DAMPERS AT EACH PI INDICATED ON THE DRAWINGS OR AS REQUIRED JURISDICTION. FIRE DAMPERS SHALL BE UL LA WITH INTEGRAL FACTORY SLEEVE AND BLADES INSTALLATION OF ALL FIRE DAMPERS SHALL B MANUFACTURER'S INSTALLATION INSTRUCTIONS MECHANICAL CODE. PROVIDE ACCESS PANELS NECESSARY. MC SHALL PROVIDE RADIATION DA FOR ALL PENETRATIONS OF RATED CEILING AS
- SHALL BE UL LABELED (UL 555C) AND INSTAL MANUFACTURER'S SPECIFIC INSTALLATION INSTR COMBINATION FIRE/SMOKE DAMPERS, AND CEIL BY RUSKIN, NAILOR, OR LLOYD INDUSTRIES. MC SHALL INSTALL A SMOKE DETECTOR-UL L 268A) IN EACH UNIT'S RETURN UPSTREAM OF CONNECTIONS, OR DECONTAMINATION EQUIPMEN BE INSTALLED IN ACCORDANCE WITH NFPA 72. SUPERVISION SHALL COMPLY WITH 606.4.1 OF IF THE BUILDING IS (TO BE) EQUIPPED WITH / ALARM SYSTEM CONTRACTOR SHALL FURNISH AND WIRE ALL DUCT SMOKE DETECTORS. IF THE BUILDING IS NOT PROVIDED WITH A FIRE ALARM SYSTEM. THE MC SHALL FURNISH AND WIRE THE DUCT SMOKE DETECTORS AND A/V DEVICE. IT SHALL BE THE RESPONSIBILITY OF THE MC TO INSTALL ALL SMOKE DUCT
- DETECTORS PER NFPA AND MFG'S INSTALLATION INSTRUCTIONS REGARDLESS OF WHO FURNISHES THE DEVICES. MC SHALL INSTALL PROGRAMMABLE THERMOSTATS AS SHOWN ON THE PLANS. -13. THERMOSTAT SHALL BE MOUNTED AT 48 INCHES AFF. THERMOSTATS SHALL MEET THE REQUIREMENTS OF SECTION C403.2.4 OF THE 2018 NORTH CAROLINA
- ENERGY CONSERVATION CODE. 14. FRESH AIR INTAKES SHALL BE INSTALLED ON ALL UNITS AS SHOWN ON DRAWINGS. MAINTAIN 10 FEET OF DISTANCE BETWEEN FRESH AIR INTAKES AND ALL EXHAUST TERMINATIONS AND PLUMBING VENT THRU ROOFS.
- 15. UNITS PROVIDED WITH ECONOMIZERS SHALL ALSO BE PROVIDED WITH POWERED EXHAUST AND COMPARATIVE ENTHALPY CONTROLS. 16. MC SHALL INSTALL ALL EXHAUST FANS AND VENT TO THE BUILDING'S EXTERIOR.
- EC SHALL SWITCH FANS WITH LIGHTS OR ON SEPARATE SWITCH AS SHOWN. P-TRAPS MUST BE INSTALLED ON ALL UNITS. MC SHALL INSTALL AUXILIARY DRAIN PANS UNDER OVERHEAD AIR HANDLERS AND AN AUTOMATIC CUT-OFF FLOAT SWITCH FOR EACH. P-TRAPS AND CONDENSATE LINES SHALL BE 1 INCH. P-TRAPS AND CONDENSATE LINES MAY BE PVC WHERE NOT LOCATED IN
- PLENUMS; OTHERWISE, THEY SHALL BE TYPE M COPPER. 18. INSTALL BACKDRAFT DAMPERS ON FRESH AIR AND EXHAUST DUCTS WHERE THEY PENETRATE THE THERMAL ENVELOPE PER NORTH CAROLINA ENERGY CONSERVATION CODE C402.5.5

	MECHANICAL SYSTEM, SERVICE SYSTEMS, AND EQUIPMENT						
Y AND FREE OF FOREIGN MATERIAL	METHOD OF COMPLIANCE	PRESCRIPTIVE			NOMINA		AIR
e rating or required to be fire	I HERMAL ZUNE	ZUNE 4A	MARK	MFG / MODEL #		Y SU	PPLY
WALL LOUVERS AND DUCT OUTLET	EXTERIOR DESIGN CONDITIONS	2F 2∮F			TONS	(FM
LANK-OUT PANELS SEALING LOUVER	CODLING DESIGN DRY BULB	25. 2°F 94. 3. 7°F	RTU-1&2	CARRIER 50TC-D12A2A5-A	DAGO 10. O	4	000
DUCT, PAINTED BLACK ON EXTERIOR	COOLING DESIGN WET BULB	74. 7° F	RTU-3	CARRIER # 50FC-A06A2A3-	DAOAO 5. O	2	000
DN AND CLEANING BEFORE AND PERS, AT FIRE DAMPERS, ADII OF NOT LESS THAN 1–1/2 NE. WHERE NOT POSSIBLE AND D, PROVIDE TURNING VANES. EDING 15 DEGREES DIVERGENCE; YEAM OF EQUIPMENT AND 45 TO SUSPEND AND SUPPORT ALL ER MATERIALS FOLLOWING ING STANDARD, COMMERCIALLY MENT. ALL HVAC EQUIPMENT SHALL RUCTURE AND SHALL NOT RELY ON HE SUPPORT ATTACHMENT SHALL US THE WEIGHT OF THE SUPPORT CHORD OF THE ROOF JOISTS, D NOT TO BE USED FOR EQUIPMENT E ATTACHED TO CORRUGATED STEEL E WITH SMACNA AT INTERVALS NOT ARGER SHALL HAVE TRAPEZE TYPE SUPPORT DUCTS FROM BAR JOISTS, TS AND MAKE NECESSARY ARCHITECTURAL FEATURES, RDINATE WITH SPRINKLER SUPPLY WHERE BRANCHES ARE DR AIR BALANCING. INSTALL MINIMUM IDE BALANCING DAMPERS ON DUCT REGARDLESS OF WHETHER DAMPERS R REGISTER ASSEMBLY. ADJUST AIR DVIDE DESIGN SUPPLY, RETURN, AND ENETRATION OF A RATED WALL AS D BY THE AUTHORITY HAVING ABELED (UL 555), CURTAIN TYPE, LOCATED OUTSIDE THE AIR STREAM. E IN ACCORDANCE WITH THE AND SECTION 607 OF THE 2018 NC FOR TESTING AND SERVICE AS MIPERS AND THERMAL BLANKETS ISEMBLIES. RADIATION DAMPERS ILED IN ACCORDANCE WITH THE RUCTIONS. FIRE DAMPERS, LING RADIATION DAMPERS SHALL BE ISTED FOR DUCT INSTALLATION (UL	INTERIOR DESIGN CONDITIONS HEATING DESIGN DRY BULB COOLING RELATIVE HUMIDITY HEATING LOAD. SENSIBLE COOLING LOAD. LATENT COOLING LOAD. LATENT COOLING LOAD. MECHANICAL SPACING CONDITIONING SYSTEM. UNITARY DESCRIPTION OF UNIT(S) BOILER TOTAL BOILER OUTPUT CHILLER TOTAL CHILLER CAPACITY EQUIPMENT EFFICIENCIES. EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS). DESIGNER STATEMENT: TO THE BEST OF MY KNOWLEDGE, THE MECHANICAL DESIGN FOR TH AND EQUIPMENT REQUIREMENTS OF THE 2018 NORTH CAROLINA STA CAROLINA ENERGY CONSERVATION CODE.	70° F 75° F 50% 165, 330 BTU/H 138, 235 BTU/H 68, 030 BTU/H AIR COOLED DX 2-10 TON AC WITH 30 KW ELEC. HEAT EACH 1-5 TON AC WITH 10 KW ELEC. HEAT N/A N/A N/A SEE SCHEDULES SEE SCHEDULES SEE SCHEDULES SEE SCHEDULES ATS BUILDING COMPLIES WITH MECHANICAL ATE BUILDING CODE AND 2018 NORTH SIGNIER'S STATEMENT 2	1. PR 2. TH 3. VA 4. PR 5. EN 6. TW 7. AN 8. MA 9. PR 10. PR 11. 4 (TS) T (▲) (▲) (▲) (▲) (▲) (▲) (▲) (▲)	DVIDE WITH ROOF CURB. RU THE BASE CONNECTIONS RIABLE FREQUENCY DRIVE. DVIDE WITH SINGLE INPUT ELEC THALPY ACCESSORY CONTROL KIT D (2) ADDITIONAL SETS OF FIL Y EQUIPMENT SUBSTITUTIONS MU INTAIN MANUFACTURER'S RECOMM DVIDE DUCT DETECTOR IN RETUR DVIDE HAIL GUARDS WAY DIFFUSER HERMOSTAT LOCATION MOUNT AT 48 UDIO VISUAL ANNUNCIATOR WITH RE GREENHECK SP-A125 VIDE WITH PITCHED ROOF CAP D VIDE WITH SQUARE TO ROUND DU GUAL BY LOREN COOK OR PENNB	TRONIC ENTHALPY TO CONVERT SING TERS (POST CONS IST EQUAL OR EXCI IENDED CLEARANCES IN DUCT. PROVIDE 3" A.F.F. SET FOR DUCT DETE EXHAUST FAN S TYPE ESP (CEILING O. R HODDED WALL CA CT ADAPTER AS NE ARRY	ECONOMIZE LE ENTHAL RUCTION/F ED EFFICI RELAY FE CTOR, WALL CHEDULE in WG) 25 P AS APPL CESSARY	:RS VITI .PY ECU ?RE TES IENCIES JR KILL . MOUNT. CFM 105 ICABLE.
ANY FILTERS, OUTSIDE AIR							
NT. DUCT SMOKE DETECTORS SHALL . DUCT SMOKE DETECTOR ⁻ THE 2018 NC MECHANICAL CODE. A FIRE ALARM SYSTEM, THE FIRE							

		Venti	lation Calculation (For L	Init RTU-1.2)				
Room N	lame(s)	Zone Type	Area (sq.ft.)	Rp	Ra	Default Occupancy	Pz	Ez
		Retail Sales	8812	7.5	0.12	15	132.18	0.8
		N/A	0	0	0	0	0.00	0.8
		N/A		0	0	0	0.00	0.8
		N/A		0	0	0	0.00	0.8
		N/A		0	0	0	0.00	0.8
			Maximum Zp:	0.320123				
K-12 School?	No		Ev:	0.8				
			Actual System Population:	60				
Uncorrected Intake	1507	cfm						
Outdoor Air Intake	1884	cfm						
Percent of Unit Air	24%							

	Ventilation Calculation (For Unit RTU-3)							
Room Name(s)		Zone Type	Area (sq.ft.)	Rp	Ra	Default Occupancy	Pz	Ez
		Shipping/Receiving	1299	0	0.12	0	0.00	0.8
		N/A		0	0	0	0.00	0.8
		N/A		0	0	0	0.00	0.8
		N/A		0	0	0	0.00	0.8
		N/A		0	0	0	0.00	0.8
			Maximum Zp:	0.097425				
K-12 School?	No		Ev:	1				
			Actual System	2				
			Population:	Z				
Uncorrected Intake	156	cfm						
Outdoor Air Intake	156	cfm						
Percent of Unit Air	8%							

	RODFTOP PACKAGE AC WITH ELECTRIC STRIP SCHEDULE															
IR I	FLOW	Compressors		COOLING CAPACITY					FILTER		ELECTRICAL		AL	WEIGHT		
	MIN. DA		aux ele	ec heat	EAT WB/DB	TOTAL	SENSIBLE	LATENT			ГГР		МСУ	мпср		Remarks
	CFM	ND	k₩	STAGES	•F	MBH	MBH	MBH	INCHES	MERV		V/FN	MUA	MUCP	LBS	
	945 EACH	2	30	2	67/80	124. 10	96. 2	27. 9000	2 '	8	11. 2	208/3	124	125	1294	1-11
	155	2	13. 1	1	67/80	59. 31	44. 73	14. 5800	2 '	8	14. 0	208/3	53	60	531	1-11

TH BARDMETRIC RELIEF DAMPERS INDMIZER TO DUAL ENTHALPY FOR ECONOMIZERS. T AND BALANCE, AND DNE SET TO DWNER FOR FUTURE USE

LISTED (RATINGS PER ARI)

LING POWER TO UNIT'S FAN FC TO PROVIDE, MC TO INSTALL.

VOLT/PH	FLA	SONES	NOTES
120/1	1	1. 8	1-3

MECHANICAL SCHEDULES

	SYMBOL LEGEND
	EXHAUST FAN
\square	SUPPLY AIR DIFFUSE
TS	TEMPERATURE SENS
≁ √	RETURN/EXHAUST AIF
◀	SUPPLY AIRFLOW
	VOLUME DAMPER
—CD——	CONDENSATE PIPE

HVAC PROJECT NOTES

ALL MECHANICAL WORK SHALL BE DONE IN ACCORDANCE WITH ALL STATE AND LOCAL LAWS AND ORDINANCES AND IN A MANNER SATISFACTORY TO THE AUTHORITY HAVING JURISDICTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS, INSPECTIONS AND PAY ALL APPLICABLE FEES.

DUCTWORK AND HVAC SYSTEMS ARE NOT DIMENSIONED. DO NOT SCALE FROM DRAWING(S.) MECHANICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND ENSURE THERE IS AVAILABLE SPACE FOR DUCTWORK BEFORE FABRICATION.

3. UNLESS OTHERWISE NOTED ON DRAWINGS, ANY REQUIRED DUCTWORK SHALL BE INSTALLED TIGHT TO STRUCTURE.

DESIGN ENGINEER TO INDICATE FIRE DAMPERS IN ALL RATED CONSTRUCTION ASSEMBLIES. COORDINATE PLACEMENT OF ALL FIRE DAMPERS WITH RATED ASSEMBLIES ON ARCHITECTURAL DRAWINGS.

5. COORDINATE ALL DIFFUSER, GRILLE & REGISTER LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLAN.

6. NECK SIZE OF LAY-IN DIFFUSERS SHALL BE EQUAL IN DIAMETER TO DUCT RUNOUT.

THE MECHANICAL CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, SERVICES AND INCIDENTALS TO THE WORK INVOLVED FOR A COMPLETE AND OPERATING FACILITY.

ALL EQUIPMENT SHALL BE PROVIDED COMPLETE WITH ELECTRICAL STARTER, PROTECTIVE DEVICES AND INTERLOCKS, ETC. REQUIRED FOR COMPLETE OPERABLE SYSTEM.

ALL HVAC EQUIPMENT LOCATIONS SHALL BE COORDINATED TO ENSURE CLEAR ACCESS TO ALL AREAS. EQUIPMENT SHALL BE ORIENTED IN SUCH A MANNER AS TO ALLOW FOR FULL SERVICE/MAINTENANCE.

10. COLOR AND FINISH FOR ALL EXTERIOR LOUVER/WALL CAP SHALL BE COORDINATED WITH THE ARCHITECT/OWNER.

11. THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR TEST, ADJUST AND BALANCE OF THE AIR DISTRIBUTION SYSTEM.

12. ALL SUPPLY AND RETURN DUCT SHALL BE CONNECTED TO THE HVAC UNIT WITH FLEXIBLE UL LISTED CANVAS.

13. DUCTWORK DIMENSIONS SHOWN ON MECHANICAL PLANS ARE NET CLEAR INSIDE DIMENSIONS.

14. OUTDOOR AIR INTAKE OPENINGS SHALL BE LOCATED IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE, SECTION 401.4.

MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ASSEMBLING ANY EQUIPMENT SHIPPED IN SECTIONS, IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

UNITS GREATER THAN 2,000 CFM REQUIRE A DUCT MOUNTED SMOKE DETECTOR IN THE RETURN DUCT. UNITS BELOW 2,000 CFM ARE TO BE EQUIPPED WITH A FIRESTAT. LOCAL ORDINANCES MAY HAVE MORE STRINGENT REQUIREMENTS. COORDINATE WITH ELECTRICAL CONTRACTOR.

17. SEE ARCHITECTURAL PLANS FOR TYPE OF CONSTRUCTION, OCCUPANCY, AND THE INTENDED USE OF EACH SPACE.

18. SEE ARCHITECTURAL PLANS FOR 'R' VALUES OF CONSTRUCTION COMPONENTS (SUCH AS WALLS, FLOORS, CEILING & PERIMETER INSULATION.)

19. INSULATING MATERIALS SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX NOT EXCEEDING 450 IN ACCORDANCE WITH ASTM E 84.

20. ALL HVAC EQUIPMENT SHALL BE INSTALLED IN SUCH A WAY AS TO REDUCE VIBRATION TRANSMISSION TO STRUCTURAL MEMBERS.

8899. 8899. 399. 399. csimile: /ILSON O 3 East Nash S ilson, NC 278 Photo $r \square$ \sim M [T] Ś eerii Kilian Engine \mathbf{O} Mich 4/18/2022 K ENER, AR G 23680 MAMERS ROAD LILLINGTON, NC DOLL/ STORE # JOB NUMBER 22223 DRAWN BY REW DATE 04/18/2022 REVISIONS SHEET NUMBER M1

INSTALL HORIZONTAL AIR SCOOP HAVING A CONTINUOUSLY CURVED CROSS SECTION AND BALANCING DAMPER AT DUCT CONNECTION TO DIVERT SUPPLY AIR INTO THE CONNECTED DUCTWORK. LENGTH OF SCOOP SHALL BE LIMITED TO THE WIDTH OF THE SUPPLY AIR ANNULAR SPACE.

LEGEND	ELECTRICAL SPECIE
DESCRIPTION	
BUZZER - TORK MDL #TA725 W/ TRANSFORMER MDL#TA592	A. ALL WIRING SHALL SHALL BE CONTAIN PROPER SIZE.
COMMERCIAL GRADE PUSH BUTTON 125V NEMA 5-20R DUPLEX.	B. ALL WIRING SHALL CONFORM TO LOCA FEDERAL CODES.
PANEL/CIRCUIT IN PANEL 125/250V NEMA L14-20-R 4 PRONG	C. SERVICE IS TO BE A MINIMUM 400 AMP (PREFERRED), 600 AMP, 1 PHASE OR L/ BY CODE OR ELECTRICAL LOAD.
125V NEMA 5-20R QUAD	D. REQUIRED CUSTOM BUILT POWER POL
DISCONNECT	PHONE: (800) 251-2200 OR (615) 350-780 BEND INDUSTRIAL ROAD NASHVILLE
BLACK MAGIC POWER POLE	E. EXTERIOR EXPOSED PHONE LINES TO
PHONE JACK	RIGID CONDUIT. PROVIDE EMERSON 3/ CABLE U-GUARD #755, OR EQUAL
RJ-11, RJ-45 DATA JACK, PHONE COMBO	F. ELECTRICAL PANEL TO BE LABELED CO
PANEL/CIRCUIT IN PANEL	G LOW VOLTAGE VENDOR TO PROVIDE A
PROVIDE OCCUPANCY LIGHT SENSOR- LEVITON ODS10-IDW	24 GA., 4 TWISTED-PAIR, CATEGORY-FI CABLE WITH MODULAR COMBO RJ-11/F
20 AMP TOGGLE SWITCH	MANAGER'S OFFICE. CABLE TO BE RUN
NIGHT LIGHT CIRCUIT	INSTALLATION TO DATA HUB. A RJ-45 M SHOULD BE CRIMPED ON THIS END. DO STORE OPENING TEAM WILL MAKE FIN
ELECTRICAL LEGEND-NO SCALE 2	 H. PROVIDE 1 1/2" EMT CONDUIT TO ACT A TO ALLOW PHONE COMPANY TO TERM CONTRACTOR TO PROVIDE AND INSTA RJ-11 PHONE JACK FOR COMPLETED W PRIOR TO PHONE COMPANY FINAL HOW
	I. ALL 120 VOLT OUTDOOR GFCI RECEPT "WET LOCATION - IN USE" COVERS.
PHONE LINE #1 LABEL AS "PHONE" RJ-11 JACK: 1 - REGISTER	J. ALL CONDUCTORS TO BE COPPER, #12 OR AS REQUIRED BY LOAD AND OVER PROTECTION.
EXTRA WIRES TO BE WRAPPED AND TAPED AROUND CABLE	K. SEE EMS SHEETS EMS1 FOR ENERGY SYMBOLS AND INFORMATION.
ALL WIRES ARE CAT 5, 4-PAIR USE SEPARATE RJ-11 JACKS FOR EACH	L. ELECTRICIAN TO PROVIDE 1 1/2" COND STRINGS FOR SATELLITE LOCATION.
CONNECTION	M. ALL POWER AND DATA TO BE ROUTED SLAB NOT ALLOWED.
RJ-11 JACK	 ELECTRICAL KEYED 1. TEST/RESET STATION FOR STAND ALO DETECTOR. ONE FOR EACH DEVICE, SI SHEET E1.3. SIMPLEX #4098-9842 IS SP AND LED INDICATOR LIGHT. MECHANICAL THERMOSTAT MOUNTED AFF. SURFACE MOUNT BOX AND CONE AT STRUCTURE.

E1.2

SHEET NUMBER

	LEGEND SYMB DESCRIPTION Image: Buzzer - Tork MDL #TA725 W/ TRANSFORMER MDL#TA725 W/ TRANSFORMER MDL#TA592 Image: Commercial Grade Push Button Image: Buzzer - Tork MDL#TA592 Image: Commercial Grade Push Button Image: Buzzer - Tork MDL#TA592 Image: Commercial Grade Push Button Image: Buzzer - Tork MDL#TA592 Image: Commercial Grade Push Button Image: Buzzer - Tork MDL#TA592 Image: Commercial Grade Push Button Image: Buzzer - Tork MDL#TA592 Image: Buzze	 ELECTRICAL KEYED NOTES 1. LOCATIONS SHOWN FOR MECHANICAL UNITS ARE ONLY APPROXIMATE, CONTRACTOR MUST CONSULT MECHANICAL OR STRUCTURAL DRAWINGS TO DETERMINE ACTUAL UNIT LOCATIONS. PROVIDE 1/2°C. PENETRATION THRU ROOF WITHIN FOOTPRINT OF UNIT FOR USE WITH CONTROL WIRING TO UNIT BY OTHERS. PROVIDE PROPER WATERSEAL. (TYPICAL) 2. FACTORY MOUNTED POWERED CONVENIENCE OUTLET. FIELD VERIFY THAT OUTLET IS POWERED, WIRE ALL WITH THIS NOTE TO CIRCUIT R-34 IF THEY ARE NOT POWERED. 3. PHOTOELECTRIC DUCT DETECTOR WITH HOUSING. TIE TO LED READOUT. STAND ALONE DEVICE, 120V. SIMPLEX #4098-0687 IS SPECIFIED WITH 4098-0842 CONTROL STATION. PROVIDE ONE DEVICE PER UNIT. MOUNT DEVICE IN SUPPLY AIR DUCTWORK. DEVICE SHALL BE PROVIDED AND WIRED TO THE CONTROL STATION BY THE ELECTRICAL CONTRACTOR. HIRE THE MECHANICAL CONTRACTOR FOR INSTALLATION IN DUCTWORK & CONNECTION TO SHUTDOWN CONTROLS. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL REQUIRED RELAYS AND 120V POWER, DO NOT POWER DUCT DETECTORS FROM HVAC UNIT LOW VOLATGE. PLACE ANY REQUIRED LABELING ON CEILING TILE DIRECTLY BELOW UNIT. RUN CONDUIT & WIRE UNDERGROUND FROM UNIT TO INSIDE OF SPACE. 4. MOUNT DISCONNECT SWITCH AT UNIT AS DESCRIBED IN GENERAL NOTE 1 ON THIS SHEET. 	HOOD • HERRING ISSUED FROM: A R C H I T E C T U R E 910.251.9989 PLLP WILSON OFFICE PLD PLD PLD
			PO Box 3301, Henderson, NC 27536 www.kilianengineering.com (P) 252.438.8778 CORPORATE LICENSE C-2277
(4) (5) (6) ROOF POWER PLAN - SCALE: 1/8"=1' 1	ELECTRICAL LEGEND-NO SCALE 2	ELECTRICAL KEY NOTES -NO SCALE 3	SEAL 17304
	HVAC UNIT WIF	RING TABLE	4/18/2022
	UNIT WIRE COND DISC FUSE ENCL PH RTU-1 #1 2" 200A-3P 125A NEMA 3R 34 RTU-2 #1 2" 200A-3P 125A NEMA 3R 34 RTU-3 #8 1 1/4" 60A-3P 60A NEMA 3R 34 EF-1 #12 3/4" MOTOR RATED SWITCH NEMA 1 14 EF-2 #12 3/4" MOTOR RATED SWITCH NEMA 1 14	H VOLT GND BRKR LOAD CFM TONS \$	
	TABLE NOTES: 1. THE ELECTRICAL CONTRACTOR SHALL FIELD COORDINATE WITH THE M MECHANICAL DEVICES REQUIRING AN ELECTRICAL CONNECTION PRIOR OBTAINED INFORMATION AND THE INFORMATION SHOWN ON THE ELEC PRIOR TO DOING ANY WORK. 2. PROVIDE NEUTRALS ON AS REQUIRED BASIS, FIELD VERIFY. 3. ALL DISCONNECTS TO BE HEAVY DUTY. FUSES TO BE RK-5 TYPE, SUBM	MECHANICAL CONTRACTOR CONCERNING THE ELECTRICAL INFO OF ALL OR TO DOING ANY WORK. ANY DISCREPANCIES BETWEEN THE FIELD CTRICAL PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER MIT SHOP DRAWINGS. BUSSMAN FRN-R-(AMP) IS SPECIFIED.	ENERAL
			DOLLAR GI STORE # 23680 MAMERS ROAD LILLINGTON, NC
			22223 DRAWN BY REW DATE 04/18/2022 REVISIONS
			sheet number E 1.3

	SYMB SYMB 	LEG DE BUZZER - TOF TRANSFORM COMMERCIAL 125V NEMA 5- PANEL/CIRCL 125V NEMA 5- DISCONNECT BLACK MAGIO PHONE JACK RJ-11, RJ-45 I COMBO PANEL/CIRCL PROVIDE OCO SENSOR- LEV 20 AMP TOGO NIGHT LIGHT	END SCRIPTION RK MDL #TA725 ER MDL#TA592 - GRADE PUSH -20R DUPLEX. JIT IN PANEL -20R QUAD - - - - - - - - - - - - - - - - - - -	J 5 W/ 2 1 BUTTON PRONG 2 5 10NE 11 DW		1. 2. 3. 4.	ELECTI LOCATIONS SI APPROXIMATE MECHANICAL ACTUAL UNIT THRU ROOF W CONTROL WIF WATERSEAL. FACTORY MOU FIELD VERIFY THIS NOTE TO PHOTOELECT LED READOU #4098-9687 IS STATION. PRO IN SUPPLY AII AND WIRED T ELECTRICAL O CONTRACTOF AND 120V POV FROM HVAC L LABELING ON CONDUIT & W OF SPACE. MOUNT DISCO GENERAL NO	RICAL P HOWN FOR MI 5, CONTRACT OR STRUCTUL LOCATIONS. F /ITHIN FOOTP ING TO UNIT (TYPICAL) JNTED POWE THAT OUTLET CIRCUIT R-34 RIC DUCT DET T. STAND ALC SPECIFIED W VIDE ONE DE R DUCTWORK O THE CONTF CONTRACTOR FOR INSTALL TO SHUTDOW SHALL PROV VER, <u>DO NOT</u> INIT LOW VOL CEILING TILE IRE UNDERGF	CHANICAL OR MUST CA RAL DRAWII PROVIDE 1/2 PROVIDE 1/2 PROVID 1/2 PROVIDE 1/2 PROVIDE 1/2	D NOT	ES ONLY FERMINE RATION WITH PROPER JILET. LL WITH VERED. G. TIE TO PLEX L T DEVICE OVIDED AL & RICAL LAYS TORS UIRED T. RUN NSIDE BED IN		Kilian Engineering, A R C H I T E C T U R E MILAINGTON OFFICE VILMINGTON OFFICE 805 North Fourth Street Vilmington, NC 28401 Phone: 910.251.9899 Pacsimile: 910.251.9899 Pacsimile: 910.251.9899 Pacsimile: 910.251.9899 Pacsimile: 910.251.9899 Pacsimile: 910.251.9899	Inc. 213 East Nash Street Wilson, NC 27893 Wilson, NC 27893 Jarson, NC 27536 www.kilianengineering.com 252.399.2700 Rassimile: 252.399.2701
		ELECTRI	CAL LEGEN	D-NO SCALE	2 WIRII	NG TA	ABLE GND	EL	LOAD	L KEY NO	TES -NO S	SCALE 3	A/18/2022 A/18/2022	
UNIIWIRERTU-1#1RTU-2#1RTU-3#8EF-1#12EF-2#12TABLE NOTES:1.1.THE ELE MECHAN OBTAINE PRIOR T2.PROVIDE3.ALL DISC	COND 2" 2" 1 1/4" 3/4" CTRICAL CO NICAL DEVICE D INFORMA O DOING AN E NEUTRALS CONNECTS T	DISC 200A-3P 200A-3P 60A-3P MOTOR RA MOTOR SE S REQUIRING TION AND THE Y WORK. ON AS REQUIR O BE HEAVY D	FUSE 125A 125A 60A TED SWITCH TED SWITCH TALL FIELD CO AN ELECTRIC/ INFORMATION RED BASIS, FIE OUTY. FUSES T	ENCL NEMA 3R NEMA 3R NEMA 3R NEMA 1 NEMA 1 NEMA 1 ORDINATE WITH AL CONNECTION SHOWN ON TH ELD VERIFY. O BE RK-5 TYPE	PH 30 30 30 10 10 10 10 10 10 10 10 10 1	VOLT 208 208 208 120 120 CHANICAL CO 0 DOING AN ICAL PLANS SHOP DRAV	GND #6 #10 #12 #12 CONTRACTOR ONY WORK. ANY S SHALL BE BR VINGS. BUSSN	BRKR 125A-3P 125A-3P 60A-3P W/ LIGHTS 20A-1P CONCERNING OUGHT TO THE IAN FRN-R-(AI	LOAD 44,610 19050 50 50 THE ELECT CIES BETWE HE ATTENTION MP) IS SPEC	CFM 4,000 2,000 75 75 RICAL INFO EN THE FIE ON OF THE 20FIED.	I ONS 10.0 5.0 OF ALL ENGINEER		The sheet nume Sheet nume Sheet nume Sheet nume Sheet nume Sheet nume	Difference of the second secon

TYPICAL LED FIXTURE MOUNTING DETAIL - NO SCALE | 2

	LIGHT FIXTURE SCHEDULE												
SAMBUI	MADK			LAMP	S			INPUT		ΟΤΥ	DEMADINS	MEG	MODEL
	MHINN		TYPE	WATTAGE	QTY.	CCT		WATTAGE		WTT.	KLMHKK3	ri u	MUDEL
	A	4' LED STRIP INCLUDES (2) - 8 FT CABLES	LED	33	1	5000K	120	33	SUSPENDED	70		LEDS	ST5000
	A1	4' BBU COMPATIBLE LED FIXTURE	LED	33	1	5000K	120	33	SUSPENDED	7	1	ETI	54573161
	В	2' LED STRIP SURFACE MOUNT	LED	20	1	5000K	120	20	SURFACE	6		LEDS	ST2000
$\Delta \otimes \Delta$	D	EMERGENCY LIGHT/EXIT COMBD 2 HEADS	LED	20	1	-	120	20	SUSPENDED	4	1	LEDS	EM2505
Ę	E	LED EMERGENCY LIGHT 2 HEADS	LED	20	1	-	120	20	SUSPENDED	7	1	LEDS	EL2500
Ę	F	EMERGENCY EGRESS LIGHT 2 HEADS	LED	20	1	-	120	20	SUSPENDED	3	1,2	LEDS	EL2502
	G	WALL PACK	LED	46	1	5000K	120	46	WALL	4	2-4	LEDS	WP4250
	HB	LED AREA LIGHT MOUNTED ON WALL	LED	150	1	5000K	120	150	WALL	4	2-4	LEDS	AL1210

PLATE

FIXTURES LABELED FOR EMERGENCY USE SHALL HAVE BATTERY FOR 90 MINUTE ILLUMINATION OF TWO (2) LAMPS

WET LOCATION LISTED PHOTOCELL CONTROLLED

4. FULL CUT OFF

	ELECTRICAL DES	IGNER'S STATEMENT									
<u>ELE</u> PRESCRIF	<u>CTRICAL SYSTEM AND EQU</u> TIVE _X_ PERFORMAN	<u>iipment method of Com</u> Ce Energy Cost	PLIANCE BUDGET								
LIGHTING SCHEDULE	ì										
LAMP TYPE REQUIRE	LAMP TYPE REQUIRED IN FIXTURE: SEE LIGHTING LEGEND										
NUMBER OF LAMPS P	SEE LIGHTING LEGEND										
BALLAST TYPE USEI	IN FIXTURE:		SEE LIGHTING LEGEND								
NUMBER OF BALLAST	S IN FIXTURE:		SEE LIGHTING LEGEND								
TOTAL WATTAGE PER FIXTURE: SEE LIGHTING I											
TOTAL INTERIOR WATTAGE SPECIFIED VS WATTS SPECIFIED WATTS ALLOWED											
ALLOWED:		2680	11814								
ALL EXTERIOR LUM	IINAIRES > 100W MUST H	AVE A MINIMUM EFFICAC	Y OF 60 LUMENS/WATT								
DCCUPANCY	AREA (FT)	ALLOWANCE (W/FT ²)	MAX WATTAGE ALLOWED								
RETAIL	10740	1. 10	11814								
TOTAL	10740		11814								
Equipment Schedul Motor Horsepower: Number of Phases: Minimum Efficienc Motor Type: N/A Number of Poles:	ES WITH MOTORS (NOT U: N/A BUILDING IS 208Y/120' Y: N/A N/A	SED FOR MECHANICAL SY V, 3Ø, 4w	STEMS)								
DESIGNER STATEMEN BUILDING COMPLIES	DESIGNER STATEMENT: TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE STATE ENERGY CODE, 2018 EDITION.										
For the additional Energy conservati	. PRESCRIPTIVE REQUIREMEN ON CODE, WE ARE CHOOSIN	it required by C406 of Ig C406.3 — reduced lig	2018 NORTH CAROLINA CHTING POWER DENSITY.								
	2680 W SPECIFIED <= 106	24 W (11814 W ALLOWED) X 90%)								

GENERAL ELECTRICAL NOTES:

- ADMINISTRATIVE: 1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS: PC – PLUMBING CONTRACTOR, EC – ELECTRICAL CONTRACTOR, MC - MECHANICAL CONTRACTOR, GC - GENERAL CONTRACTOR, FASC - FIRE ALARM SYSTEM CONTRACTOR.
- "PROVIDE" MEANS TO FURNISH AND INSTALL. THE ELECTRICAL CONTRACTOR Shall also install materials and equipment furnished by others AND THE GENERAL CONTRACTOR AS REQUIRED.
- EC SHALL PROVIDE LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY AND REASONABLY INCIDENTAL TO INSURE A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. MINOR ITEMS, ACCESSORIES, AND DEVICES REASONABLY INFERABLE AS NECESSARY FOR THE COMPLETION AND PROPER OPERATION OF ANY ELECTRICAL SYSTEM SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- WORKMANSHIP SHALL BE IN ACCORDANCE WITH NECA 1 "STANDARD PRACTICE FOR GOOD WORKMANSHIP IN ELECTRICAL CONTRACTING."
- ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE ELECTRICAL CONTRACTOR AT AN APPROVED LOCATION. THE ELECTRICAL CONTRACTOR SHALL PROTECT ALL MATERIALS AND Equipment from breakage, theft, and the elements. All materials AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE ELECTRICAL CONTRACTOR UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
- THE ELECTRICAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT
- DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
- 8. TRADE NAMES AND MANUFACTURERS ARE SPECIFIED TO ESTABLISH A QUALITY STANDARD. SUBSTITUTIONS SHALL BE PERMITTED IF APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ALL LISTED MODEL NUMBERS SHALL BE VERIFIED WITH THE MANUFACTURER FOR PROPER APPLICATION OF FOUIPMENT
- 9. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE ELECTRICAL CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
- 10. GROUNDING AND BONDING SHALL BE PER NEC ARTICLE 250. THE RACEWAY SYSTEM SHALL NOT BE RELIED UPON FOR GROUNDING CONTINUITY. A GREEN EQUIPMENT GROUNDING CONDUCTOR, SIZED PER NEC TABLE 250-122, SHALL BE RUN IN ALL POWER RACEWAYS. FOR NON-ISOLATED GROUND CIRCUITS PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. FOR ISOLATED GROUND CIRCUITS, PROVIDE ONE NEUTRAL AND ONE ISOLATED GROUND WIRE FOR EACH CIRCUIT; IN ADDITION, PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. MAIN BONDING JUMPERS AND SYSTEM BONDING JUMPERS SHALL BE INSTALLED IN ACCORDANCE WITH 250.28 OF THE NEC. FOR BUILDINGS OR STRUCTURES SUPPLIED BY FEEDERS OR BRANCH CIRCUITS, GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH 250.32. SEPARATELY DERIVED AC SYSTEMS SHALL BE GROUNDED IN ACCORDANCE WITH 250.30. RESISTANCE TO GROUND SHALL NOT EXCEED 25 OHMS; ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED PER 250.56 AS NECESSARY.
- 11. THE ELECTRICAL CONTRACTOR SHALL ALSO COORDINATE WITH THE GENERAL CONTRACTOR REGARDING THE BONDING OF THE FOOTING REBAR, SO THAT IT WILL BE IN PLACE AND READY AT TIME OF FOOTING INSPECTION.
- 12. ALL MATERIALS AND EQUIPMENT SHALL COMPLY WITH THE UNDERWRITERS' LABORATORIES, INC. STANDARDS OR HAVE UL APPROVAL, OR BEAR UL RE-EXAMINATION LISTING WHERE SUCH APPROVAL HAS BEEN ESTABLISHED FOR THE TYPE OF DEVICE IN QUESTION.
- 13. CONDUCTORS, FUSES, CIRCUIT BREAKERS, AND DISCONNECT SWITCHES SHOWN ON THESE PLANS HAVE BEEN SIZED FOR THE SPECIFIED EQUIPMENT. BEFORE ORDERING ELECTRICAL EQUIPMENT, THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER CONTRACTORS ON THE SITE AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES SHOULD CONDUCTOR,
- CIRCUIT BREAKER, OR FUSE SIZES REQUIRE CHANGE. 14. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE THE FOLLOWING MATERIALS ARE RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT: LIGHT FIXTURES. INCLUDING PROPER DISPOSAL OF BALLASTS. FLUORESCENT LIGHT BULBS. AND TRANSFORMERS, WIRING AND ELECTRICAL EQUIPMENT, AND INSULATION. WASTE MATERIALS CONTAINING LEAD. ASBESTOS. PCBs (FLUORESCENT LAMP BALLASTS), OR OTHER HARMFUL SUBSTANCES SHALL BE HANDLED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL AND STATE LAWS AND REQUIREMENTS CONCERNING HAZARDOUS WASTE.
- 15. ALL WORK SHALL CONFORM TO 2020 NATIONAL ELECTRIC CODE, 2018 STATE BUILDING CODE, AND ALL APPLICABLE LOCAL CODES.

- 1. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY DISCONNECTS. SWITCHES. RECEPTACLES. TERMINALS. ETC. UNDER THE ELECTRICAL BID AND SHALL INCLUDE ALL NECESSARY CIRCUITS AND CONNECTIONS TO THE EQUIPMENT PROVIDED BY ALL SUPPLIERS, UNLESS NOTED OTHERWISE BY OTHER DISCIPLINES.
- ELECTRICAL CONTRACTOR SHALL PROVIDE ALL SERVICE ENTRANCE EQUIPMENT, SUB PANELS, AND OTHER ELECTRICAL DISTRIBUTION EQUIPMENT AS NECESSARY FOR A COMPLETE INSTALLATION. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH UTILITY REGARDING SERVICE AND METERING DETAILS. PRIOR TO ORDERING EQUIPMENT, THE ELECTRICAL CONTRACTOR SHALL OBTAIN THE AVAILABLE FAULT CURRENT OR TRANSFORMER SIZE AND IMPEDANCE FROM THE UTILITY AND CONTACT THE ENGINEER IF THE VALUE EXCEEDS THE EQUIPMENT SPECIFIED. PANEL BOARDS AND SWITCH BOARDS SHALL BE SQUARE D, CUTLER-HAMMER, SIEMENS, OR GE. BUSES SHALL BE COPPER UNLESS OTHERWISE APPROVED BY THE ENGINEER. RECESSED PANEL BOARDS SHALL BE INSTALLED FLUSH WITH THE WALL FINISH. METER BASES SHALL COMPLY WITH THE UTILITY'S SPECIFICATIONS AND SHALL BE MOUNTED AT A HEIGHT APPROVED BY THE UTILITY. ALL EQUIPMENT IDENTIFIED FOR SERVICE ENTRANCE USE SHALL BE SO LABELED AND UL
- LISTED FOR SUCH USE. ELECTRICAL CONTRACTOR SHALL INSTALL ALL ELECTRICAL EQUIPMENT WITH CLEARANCES PER NEC 110.26. ELECTRICIAN SHALL PERMANENTLY LABEL EQUIPMENT PER NEC 110.24. ENCLOSED SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE BY SQUARE D, EATON, OR GE. ENCLOSED SWITCHES SHALL HAVE A HANDLE LOCKABLE IN
- THE OFF POSITION AND SHALL HAVE A HANDLE INTERLOCKED TO PREVENT OPENING THE FRONT COVER WHILE IN THE ON POSITION. ENCLOSED SWITCHES OF THE FUSIBLE TYPE SHALL BE FUSED IN ACCORDANCE WITH NAMEPLATE DATA WITH DUAL ELEMENT TYPE FUSES BY BUSSMAN, LITTELFUSE, OR MERSEN. OCCUPANCY SENSORS SHALL BE BY WATTSTOPPER, LUTRON, LEVITON,
- SENSOR SWITCH, HUBBELL, OR APPROVED EQUAL. CIRCUIT BREAKERS SHALL BE MOLDED-CASE, THERMAL MAGNETIC TYPE WITH QUICK-MAKE, QUICK-BREAK MECHANISM, COMMON TRIP ON MULTI-POLE BREAKERS, AND UL LISTED FOR BOTH COPPER AND ALUMINUM CONDUCTORS. CIRCUIT BREAKERS IN PANELS SHALL BE SERIES RATED WITH

ANSI A117.1 FIG. 308.3.2. OBSTRUCTED HIGH REACH SIDE.

THE MAIN BREAKER, FULLY RATED FOR THE SYSTEM, OR SERIES RATED WITH THE BREAKER FEEDING THE PANEL FROM THE FACTORY. 6. ALL WIRE, CONNECTORS, TERMINALS, AND LUGS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. WHERE CONDUCTORS ARE RUN IN PARALLEL, LUGS SHALL BE LISTED FOR PARALLEL CONDUCTORS. PUSH WIRE CONNECTORS ARE NOT ALLOWED FOR BUILDING WIRE. PUSH CONNECTORS ARE ONLY ALLOWED, WHEN APPROVED, AS PART OF MANUFACTURED LISTED 8. PRODUCTS. ALL WIRE SHALL BE INSTALLED IN CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE.

- THE INSULATION TYPE FOR INTERIOR WIRING SHALL BE DUAL RATED THHN/THWN OR XHHW; ALL WIRING INSTALLED BELOW GRADE OR IN MOIST OR WET LOCATIONS SHALL HAVE TYPE THWN OR XHHW INSULATION. INSULATION VOLTAGE RATING SHALL BE 600 VOLTS AND A MINIMUM TEMPERATURE RATING OF 75°C. CONDUCTORS SHALL BE SOLID OR STRANDED COPPER FOR #10 AWG AND #12 AWG, AND STRANDED COPPER FOR #8 AWG AND LARGER SIZES. ALL WIRING AND CABLE SHALL BE UL LISTED. ALL TERMINATIONS AND DEVICES SHALL BE RATED FOR USE WITH 75°C CONDUCTORS. FINAL CONNECTIONS TO ALL MOTORS AND EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT SHALL BE MADE WITH STRANDED COPPER CONDUCTORS. CONDUCTORS SHALL BE BY CERRO WIRE, INC, INDUSTRIAL WIRE & CABLE, INC, ENCORE WIRE CORPORATION, OR SOUTHWIRE COMPANY.
- JOINTS IN SOLID CONDUCTORS SHALL BE SPLICED USING IDEAL "WIRE NUTS", 3M "SCOTCH LOCK", OR T&B "PIGGY" CONNECTORS IN JUNCTION BOXES, OUTLET BOXES, AND LIGHTING FIXTURES. JOINTS IN STRANDED CONDUCTORS SHALL BE SPLICED BY APPROVED MECHANICAL CONNECTORS AND GUM RUBBER TAPE OR FRICTION TAPE. SOLDERLESS MECHANICAL CONNECTORS FOR SPLICES AND TAPS, PROVIDED WITH UL APPROVED INSULATING COVERS, MAY BE USED INSTEAD OF MECHANICAL CONNECTORS PLUS TAPE. IN ALL CASES, CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND NO SPLICING SHALL BE MADE EXCEPT WITHIN OUTLET OR JUNCTION BOXES. TROUGHS. OR GUTTERS. WHERE CONCENTRIC ECCENTRIC, OR OVERSIZED KNOCKOUTS ARE ENCOUNTERED, A GROUNDING TYPE INSULATED BUSHING SHALL BE PROVIDED.
- ALL LUMINAIRES SHALL BE LISTED. LUMINAIRES IN WET OR DAMP LOCATIONS SHALL BE MARKED AS SUITABLE FOR THE RESPECTIVE USE. EMERGENCY LIGHTING SHALL BE INSTALLED AS SHOWN. FINAL LOCATIONS of all exit and emergency lights shall be verified with the BUILDING INSPECTOR PRIOR TO INSTALLATION. ALL FLUORESCENT FIXTURES SHALL HAVE ELECTRONIC BALLASTS MEETING ANSI C82.11 FOR ELECTRONIC BALLAST PERFORMANCE. ALL BALLASTS SHALL BE UL LISTED AND MEET FEDERAL AND STATE EFFICIENCY REQUIREMENTS.
- 10. ALL CONDUIT, FITTINGS, COUPLINGS, AND SUPPORTS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. CONDUIT FITTINGS AND COUPLINGS SHALL BE BY APPLETON, RACO, OR O-Z/GEDNEY. COUPLINGS SHALL BE THREADED, SET-SCREW, OR COMPRESSION TYPE. INDENTER OR CRIMP TYPE ARE NOT PERMITTED. CONDUIT FITTINGS AT ALL ELECTRICAL BOXES INCLUDING PULL, JUNCTION, AND OUTLET BOXES, SHALL HAVE INSULATED THROATS TO PREVENT INSULATION SCORING. DIE CAST FITTINGS ARE NOT PFRMITTFI
- EMT SHALL BE MANUFACTURED IN ACCORDANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE-AMERICAN NATIONAL STANDARD FOR STEEL ELECTRICAL METALLIC TUBING (EMT), ANSI C80.3 AND UL 797. RIGID METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI-AMERICAN NATIONAL STANDARD FOR ELECTRICAL RIGID STEEL CONDUIT (ERSC), ANSI C80.1 AND UL 6. INTERMEDIATE METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI-AMERICAN NATIONAL STANDARD FOR INTERMEDIATE METAL CONDUIT ANSI C80.6 AND UL 1242.
- METAL CONDUIT SHALL BE BY ALLIED TUBING & CONDUIT, BECK MANUFACTURING, INC, OR WHEATLAND TUBE COMPANY. FLEXIBLE METAL CONDUIT, LIQUID-TIGHT FLEXIBLE METAL CONDUIT, AND NONMETALLIC CONDUIT SHALL BE BY AFC CABLE SYSTEMS, INC, ELECTRI-FLEX COMPANY, OR INTERNATIONAL METAL HOSE.

- EC SHALL REVIEW THE MECHANICAL PLANS TO ESTABLISH POINTS OF CONNECTION AND THE EXTENT OF THE ELECTRICAL WORK TO BE PROVIDED 12. ALL CONDUIT, BOXES, AND ELECTRICAL EQUIPMENT SHALL BE FIRMLY AND IN THE CONTRACT.
- ALL CIRCUIT BREAKERS FEEDING HVAC EQUIPMENT SHALL BE HACR BREAKERS. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE MINIMUM #12 AWG IN 3/4 in CONDUIT. EACH MULTI-WIRE BRANCH CIRCUIT SHALL BE PROVIDED WITH A MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE SOURCE PER NEC 210.4(B). GROUP ALL CONDUCTORS OF EACH MULTI-WIRE BRANCH CIRCUIT PER 210.4(D) WITH WIRE TIES OR SIMILAR MEANS. DO NOT EXCEED THREE HOMERUNS PER CONDUIT. DO NOT INSTALL ISOLATED GROUND AND NON-ISOLATED GROUND CIRCUITS IN THE SAME CONDUIT. INSTALL CONDUCTORS OF
- DIFFERENT VOLTAGES IN SEPARATE CONDUITS. - 13 COLOR CODE CONDUCTORS PER NEC. FEEDERS SHALL BE IDENTIFIED IN ACCORDANCE WITH NEC 215.12. USE BLACK, RED, AND BLUE FOR PHASES A, B, AND C RESPECTIVELY ON 208Y/120 VOLT THREE-PHASE Y SYSTEMS AND WHITE FOR THE NEUTRAL. ISOLATED GROUND WIRES SHALL BE GREEN WITH YELLOW BANDS OR STRIPES. THIS IDENTIFICATION SHALL BE MADE AT EACH POINT WHERE A CONNECTION IS MADE. COLORS SHALL BE FACTORY APPLIED FOR CONDUCTORS #6 AWG AND SMALLER. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE GREEN IN COLOR AND MINIMUM #12 AWG. THE EC SHALL PROVIDE PLENUM RATED CABLE FOR ANY ELECTRICAL, TELEPHONE. COMMUNICATION, OR OTHER CABLE THAT ENTERS CEILING Return plenums.
- ALL LIGHT FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE SUSPENDED CEILING. COORDINATE LIGHTING LAYOUT WITH CEILING GRID, MECHANICAL EQUIPMENT, DUCTWORK AND SPRINKLER HEADS AS NECESSARY. SEE REFLECTED CEILING PLAN FOR DETAILS. FLUORESCENT FIXTURES UTILIZING DOUBLE-ENDED LAMPS MUST HAVE A DISCONNECTING MEANS COMPLYING WITH NEC 410.130(G).
- MOUNT LIGHT SWITCHES AT 48 in AFF. MULTIPLE SWITCHES AT SAME LOCATION SHALL BE UNDER ONE WALL PLATE. VERIFY WALL PLATE COLOR AND MATERIAL WITH THE ARCHITECT/OWNER. INSTALL SWITCHES WITH off POSITION DOWN. ALL SWITCHES SHALL BE HEAVY DUTY, IVORY PLASTIC WITH TOGGLE HANDLE, RATED 120-277V AC, AND COMPLYING WITH NEMA WD 6 AND WD 1. SWITCHES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. PROVIDE BOX DEVICE PARTITION/DIVIDERS FOR MULTI-GANG BOXES FOR COMPLIANCE WITH NEC 404.8(B)
- ELECTRICAL CONTRACTOR SHALL PROVIDE FIRE-STOPPING AT ALL ELECTRICAL PENETRATIONS OF RATED FLOORS AND WALLS TO PRESERVE OR RESTORE THE FIRE-RESISTANCE RATING. SEAL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING 19. ELECTRICAL CONTRACTOR SHALL PROVIDE NAMEPLATES FOR IDENTIFICATION OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THIS PROJECT. ELECTRICAL CONTRACTOR SHALL PROVIDE GFCI RECEPTACLES IN KITCHENS,
- RESTROOMS, OUTDOORS, AND IN SHOP AREAS AS REQUIRED BY NEC. REFRIGERATORS AND WATER COOLERS MUST HAVE A DEDICATED GFCI BREAKER. EACH OUTDOOR HVAC UNIT MUST HAVE A GFCI RECEPTACLE

WITHIN 25 FEET FOR SERVICING. GFCI RECEPTACLES SHALL CONFORM TO UL 943 CLASS A AND UL 498 STANDARDS. SHOW WINDOW RECEPTACLES SHALL BE PROVIDED IN ACCORDANCE WITH 210.62 OF THE NEC. RECEPTACLES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. ALL RECEPTACLES SHALL BE 125V RATED, HEAVY DUTY, AND COMPLY WITH NEMA WD 6 AND WD 1. LOCATIONS AND HEIGHTS OF ALL WALL-MOUNTED DEVICES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION. CONCEAL ALL CONDUIT EXCEPT IN MECHANICAL ROOMS OR UNFINISHED AREAS AS NOTED. USE EMT CONDUIT FOR ALL BRANCH CIRCUITS AND FEEDERS INSIDE THE BUILDING. TYPE MC CABLE AND TYPE AC CABLE MAY BE INSTALLED WITHIN WALLS IF ALL NEUTRAL WIRES, ISOLATED GROUND WIRES, AND EQUIPMENT GROUND WIRES AS LISTED ABOVE ARE CONTAINED IN THE CABLE. FLEXIBLE CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SHALL BE MADE USING WEATHERPROOF FLEXIBLE CONDUIT. FOR LAY-IN LIGHT FIXTURES, USE MAXIMUM OF SIX (6) FEET OF FLEXIBLE MC CABLE (OR THE FLEXIBLE CONDUIT PROVIDED BY THE FIXTURE MANUFACTURER). SCHEDULE 40 PVC CONDUIT MAY BE USED FOR THE SECONDARY UNDERGROUND SERVICE. UNDERGROUND TELEPHONE SERVICE AND BRANCH AND FEEDER CIRCUITS UNDER SLAB OR EXTERIOR TO THE BUILDING. EXPOSED EXTERIOR CONDUIT SHALL BE SCHEDULE 80 PVC. ALL UNDERGROUND RACEWAYS SHALL BE IDENTIFIED WITH UNDERGROUND LINE MARKING TAPE 6-8 in BELOW GRADE DIRECTLY ABOVE THE RACEWAY. PROVIDE PULL WIRE IN EMPTY CONDUITS. UPSIZE CONDUIT FROM MINIMUM SIZE AS NECESSARY FOR LONGER PULLS. UNDERGROUND RACEWAYS THAT STUB INTO THE BOTTOM OF SWITCHBOARDS, OUTDOOR TRANSFORMERS, GENERATORS, ETC., SHALL RISE AT LEAST 2 in ABOVE THE FINISHED SLAB TO PREVENT WATER FROM DRAINING INTO THE RACEWAYS, RACEWAYS THAT PENETRATE EXTERIOR WALLS OR INTERIOR PARTITIONS SEPARATING SPACES THAT WILL BE AT SIGNIFICANTLY DIFFERENT TEMPERATURES SHALL BE SEALED IN ACCORDANCE WITH 300.5(G), 300.7(A), AND 300.50(E) OF THE NEC. ROUTE CONDUIT IN AND UNDER SLAB FROM POINT-TO-POINT. ROUTE EXPOSED CONDUIT AND CONDUIT INSTALLED ABOVE ACCESSIBLE CEILINGS PARALLEL AND PERPENDICULAR TO WALLS. COMPLETELY AND THOROUGHLY SWAB ALL RACEWAYS BEFORE INSTALLING WIRE. PULL ALL CONDUCTORS INTO EACH RACEWAY AT ONE TIME. USE A SUITABLE WIRE PULLING LUBRICANT FOR BUILDING WIRE #4 AWG AND LARGER. 10. CABLES, RACEWAYS, OR BOXES, INSTALLED IN EXPOSED OR CONCEALED LOCATIONS UNDER METAL-CORRUGATED SHEET ROOF DECKING, SHALL BE

MEASURED FROM THE LOWEST SURFACE OF THE ROOF DECKING TO THE TOP OF THE CABLE, RACEWAY, OR BOX, A CABLE, RACEWAY, OR BOX SHALL NOT BE INSTALLED IN CONCEALED LOCATIONS IN METAL-CORRUGATED, SHEET DECKING-TYPE ROOF. SEE NEC 300.4(E). 11. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL OUTLET, JUNCTION, PULL BOXES, FITTINGS, AND SUPPORTS. ALL OUTLET AND JUNCTION BOXES SHALL BE GALVANIZED STEEL TYPE BY APPLETON, STEEL CITY, OR RACO. EXTERIOR BOXES SHALL BE TYPE FS. VAPORTITE BOXES SHALL BE TYPE GS. WHERE SURFACE MOUNTED BOXES ARE USED, THOSE BOXES AND THEIR FACEPLATES SHALL HAVE ROUNDED CORNERS. BOXES INSTALLED IN FLOORS SHALL BE RATED FOR THE APPLICATION. MOUNT JUNCTION AND OUTLET BOXES FLUSH WITH FINISH SURFACES UNLESS OTHERWISE NOTED. WHERE MOUNTING HEIGHTS ARE GIVEN, THEY SHALL BE MEASURED FROM THE FINISHED FLOOR TO THE CENTER OF THE BOX. ALL BOXES SHALL BE SIZED PER NEC ARTICLE 314. ALL OUTLET AND JUNCTION BOXES SHALL HAVE A COVER PLATE, PROVIDED BY THE ELECTRICAL CONTRACTOR. OUTLET BOXES IN RATED WALLS SHALL BE INSTALLED IN ACCORDANCE WITH NORTH CAROLINA BUILDING CODE 712.3.2 (MAXIMUM BOX SIZE IS 16 SQUARE in AND MAXIMUM OF SIX (6) BOXES PER 100 SQUARE FEET). INSTALL OUTLET BOXES IN RATED WALLS SUCH THAT OPENINGS OCCUR IN ONE SIDE ONLY WITHIN ANY GIVEN STUD SPACE. ALL CLEARANCES BETWEEN THE OUTLET BOX AND THE GYPSUM BOARD SHALL BE FILLED WITH JOINT COMPOUND OR OTHER APPROVED FIRE STOP MATERIAL. FLUSH MOUNTED JUNCTION BOXES IN ADJACENT ROOMS SHALL NOT BE MOUNTED BACK-TO-BACK.

INSTALLED AND SUPPORTED SO THERE IS NOT LESS THAN 1-1/2 in

SURFACE MOUNTED FIXTURES SHALL BE FED THROUGH FLUSH MOUNTED 4X4 OCTAGONAL OR SQUARE BOXES. SECURELY FASTENED TO OR SUPPORTED FROM THE BUILDING STRUCTURAL MEMBERS OR EMBEDDED IN CONCRETE OR MASONRY. ELECTRICAL SUPPORTS SHALL NOT BE ATTACHED TO DUCTWORK, PIPING, OR THEIR SUPPORTS. HANGERS SHALL BE CATALOG ITEMS COMPATIBLE WITH AND SUITABLE FOR THE INTENDED USE. FOR METAL ROOF DECK INSTALLATIONS, 1 in EMT CONDUIT MAXIMUM AND 4 in JUNCTION BOXES MAXIMUM MAY BE SUPPORTED BY DECKING. THE SUSPENDED CEILING SYSTEM SHALL NOT BE USED FOR THE SUPPORT OF ELECTRICAL RACEWAY SYSTEMS OR SUPPORT OF COMMUNICATIONS OR DATA SYSTEMS WIRING, CONTRACTOR SHALL

- COMPLY WITH 1613 OF THE NORTH CAROLINA GENERAL CONSTRUCTION BUILDING CODE. WHERE CONDUCTORS ARE RUN IN PARALLEL. THE EC SHALL COMPLY WITH NEC 310.4.
- PROVIDE AN UNDERGROUND PVC CONDUIT SYSTEM FOR TELEPHONE SERVICE WITH PULL WIRES. ELECTRICAL CONTRACTOR SHALL COORDINATE with telephone utility regarding additional facilities required for
- THE SERVICE INSTALLATION. INSTALL ONE (1) 3/4 in FIRE RETARDANT TREATED PLYWOOD BACKBOARD WHERE INDICATED ON THE DRAWINGS FOR THE USE BY THE TELEPHONE SYSTEM. PROVIDE A 120 VOLT RECEPTACLE ADJACENT TO THE TELEPHONE BOARD. GROUND ALL TELEPHONE AND COMMUNICATIONS CIRCUITS PER NEC
- 16. ALL TELEPHONE AND COMMUNICATIONS OUTLETS AND RACEWAYS ARE ROUGH-INS ONLY. EACH TELEPHONE AND COMMUNICATIONS OUTLET SHALL BE A 4 in SQUARE BY 2-1/8 in DEEP BOX WITH 3/4 in KNOCK-OUTS AND A 3/4 in CONDUIT STUBBED FROM THE OUTLET BOX TO ABOVE THE CEILING. PROVIDE A NON-METALLIC INSULATING BUSHING ON ALL CONDUITS STUBBED ABOVE THE CEILING. PROVIDE A BLANK COVER PLATE ON ALL OUTLET BOXES
- ELECTRICAL CONTRACTOR SHALL INSTALL DISCONNECT SWITCHES IN SIGHT OF ALL HARDWIRED EQUIPMENT AND APPLIANCES OR PROVIDE BREAKERS CAPABLE OF BEING LOCKED IN THE OPEN POSITION PER NEC 422.31. FOR MOTOR DRIVEN APPLIANCES, PROVIDE A DISCONNECTING MEANS PER NEC 422.31 AND 430 PART IX. WHERE AN INDIVIDUAL DISCONNECT SWITCH, CIRCUIT BREAKER, STARTER, ETC, IS SHOWN ON THE PLANS ADJACENT TO ITS LOAD AND NOT LOCATED ON A WALL, PROVIDE NECESSARY MATERIALS AND LABOR TO SUPPORT THE DEVICE.
- ELECTRICAL CONTRACTOR SHALL FIELD IDENTIFY ALL SWITCH BOARD, PANEL BOARDS, CONTROL PANELS, METER SOCKETS, ETC., TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRICAL ARC FLASH HAZARDS PER 110.16 OF NFC.
- OF ALL EQUIPMENT, SWITCHES, PANELS, ETC. THE NAMEPLATES SHALL BE LAMINATED PHENOLIC PLASTIC, BLACK FRONT, AND BACK WITH WHITE CORE, WHITE ENGRAVED LETTERS (1/4 in MINIMUM) ETCHED INTO THE WHITE CORE. ELECTRICAL CONTRACTOR SHALL PROVIDE A TYPE WRITTEN DIRECTORY CARD THAT ACCURATELY IDENTIFIES CIRCUITS INSIDE EACH PANEL. HANDWRITTEN LABELS ARE NOT ACCEPTABLE.

GENERAL ELECTRICAL NOTES - NO SCALE

→ 24" max.

ALL SWITCHES AND CONTROLS MUST COMPLY FOR ALL COUNTERTOPS

				Panel a				
скт	מעם ו	RKP	LOAD	рц	LOAD	RKP	ו מעם ו	CKT
CINT	עחם		kVA		kVA	DIKIK	ערעב	
1			14. 87	Α	0, 10	20/1	AUTOMATIC DOOR	2
3	RTU-1	125/3	14. 87	B	0, 36	20/1	TELEPHONE BOARD/BUZZER	4
5			14. 87	C	0, 18	20/1	EMERGENCY MANAGEMENT	6
7			14. 87	Α	0. 18	20/1	outdoor hvac recept.	8
9	RTU-2	125/3	14. 87	B	0. 00	20/1	SPARE	10
11			14. 87	С	0. 00	20/1	SPARE	12
13			6. 35	A	0. 10	20/1	exhaust fan	14
15	RTU-3	60/3	6. 35	B	0. 10	20/1	exhaust fan	16
17			6. 35	С	0. 50	20/1	INTERFACE EQUIP.	18
19	IRRIGATION CONTROL PANEL RECEPT.	20/1	0. 18	Α	0. 50	20/1	VSAT. DATA. HUB EQUIPMENT	20
21	HOT BOX CIRCUIT*	20/1	0. 50	B	0. 96	20/1	CCTV EQUIP.	22
23	SHOW WINDOW	20/1	0. 36	С	0. 92	20/1	CLICK AND COLLECT FREEZER/COOLER	24
25	WATER HEATER	20/1	1. 65	Α	0. 00	20/1	SPARE	26
27	SPARE	20/1	0. 00	B	0. 00	20/1	SPARE	28
29	DRINKING FOUNTAIN	20/1	0. 50	С	0. 00	20/1	SPARE	30
31	DUTDOOR ICE MERCHANDISER	20/1	1. 20	Α	0. 00	20/1	SPARE	32
33	HIGH KIDSK	20/1	1. 20	B	0. 00	20/1	SPARE	34
35	SODA COOLERS	20/1	0, 96	С	0. 00	20/1	SPARE	36
37)	DRINK COOLERS	20/1	1. 60	Α	0. 00	20/1	SPARE	38
39	soda coolers	20/1	1. 60	B	0, 00	20/1	SPARE	40
41	SPARE	20/1	0. 00	С	0. 00	20/1	SPARE	42
			kVA	PH	AMPS			
			41. 6	A	347			
			40. 8	B	340			
			39. 5	С	329			
		VOLTAG	e/phase		208Y/1	20V, 3P, 4	4W	
		BUS	RATING		400A			_
	MAIN CIRCUIT	BREAKER	RATING		400A			

AIC RATING

ENCLOSURE

MOUNTING

SERVICE ENTRANCE RATED

55K

YES

NEMA 1

SURFACE

Image: here is a state in the state is a state state is a state is a state is a state is a state					panel r	1			
N LIND Jox KVA I II KVA J II KVA J III KVA J IIII KVA J IIII KVA J IIII KVA J IIII KVA J IIIII KVA J IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	דעי	ן שעט	DVD	LOAD	рц	LOAD	DVD	ן עעם ד	CKT
1 A-1-A REACH IN DAIRY CASE 1.5/2 1.30 A 3.90 40/2 A-2-A REACH IN FROZEN CASE (2) 5) A-1-B REACH IN DAIRY CASE 15/2 1.30 C 3.20 40/2 A-2-B REACH IN FROZEN CASE (6) 9) A-1-C REACH IN DAIRY CASE 15/2 1.30 B 3.20 40/2 A-2-B REACH IN FROZEN CASE (6) 9) A-1-C REACH IN DAIRY CASE 15/2 1.30 B 3.20 40/2 A-2-C REACH IN FROZEN CASE (10) 10) A-1-D REACH IN DAIRY CASE 15/2 1.30 A 2.60 2/2 A-3 REACH IN FROZEN CASE (10) 10) A 1.50 C 0.92 20/2 A-3 REACH IN FROZEN CASE (10) 10) PRODUCE COLLER 20/1 1.50 A 0.92 2/2 A-3 REACH IN FROZEN CASE (10) 11 T 1.50 A 0.92 2/2 REACH IN FROZEN CASE		LUAD	DNK	kVA		kVA		LUAU	
3 H-TH RENCH IN MART CASE 13/2 1.30 B 3.90 40/2 H-CH RENCH IN FRUZEN CASE (4) 5 A-1-B REACH IN BAIRY CASE 15/2 1.30 A 3.20 40/2 A-2-B REACH IN FRUZEN CASE (5) 9 A-1-C REACH IN DAIRY CASE 15/2 1.30 A 3.20 40/2 A-2-C REACH IN FRUZEN CASE (6) 10 A-1-D REACH IN DAIRY CASE 15/2 1.30 A 2.60 25/2 A-3 REACH IN FRUZEN CASE (10) 10 72' CODLER 20/1 1.15 A 0.92 20/2 72' FREEZER (10) 9 PRUDUCE CUDLER 20/1 1.15 A 0.92 20/2 72' FREEZER (20) 10 CODLER 20/1 1.00 A 0.00 20/1 SPARE 26 130 C 1.66 20/2 PRUDUCE CUDLER (20) (20) (20) (20) (20) (20) (20) (20) (20) (20) (20)	1		15/2	1. 30	A	3. 90	40/2		\bigcirc
5 A-1-B REACH IN DAIRY CASE 1.5/2 1.30 C 3.20 40/2 A-2-B REACH IN FRUZEN CASE 6 9 A-1-C REACH IN DAIRY CASE 15/2 1.30 A 3.20 40/2 A-2-B REACH IN FRUZEN CASE (10) 10 A-1-C REACH IN DAIRY CASE 15/2 1.30 A 2.60 25/2 A-3 REACH IN FRUZEN CASE (10) 10 72' COULER 20/1 1.15 C 0.92 20/2 A-3 REACH IN FRUZEN CASE (10) 10 72' COULER 20/1 1.15 C 0.92 20/2 72' FREEZER (10) 10 15/2 1.30 B 1.66 20/2 PRODUCE COULER (20) (20) 10 COULER 20/1 0.00 A 0.00 20/1 SPARE 20/1 0.00 20/1 SPARE 20/2 PRODUCE COULER (20) (20) (20) (20) (20) (20) (20)	3	A-I-A KLACH IN DAIKT CASE	13/2	1. 30	B	3, 90	40/2	A-2-A KEACH IN FRUZEN CASE	4
D H 1 B KERCH IN DATEY CASE 10/L 1.30 A 3.20 H0/L H 1 B KERCH IN TATEKORSL (0) 9 A-1-C REACH IN DATRY CASE 15/2 1.30 B 3.20 40/2 A-2-C REACH IN FROZEN CASE (0) 13) A-1-D REACH IN DATRY CASE 15/2 1.30 C 3.20 40/2 A-2-C REACH IN FROZEN CASE (1) 5) A-1-D REACH IN DATRY CASE 15/2 1.30 A 2.60 25/2 A-3 REACH IN FROZEN CASE (1) 5) PRODUCE CODLER 20/1 1.15 A 0.92 20/2 72" FREEZER (2) (2) 10 PRODUCE CODLER 20/1 1.15 A 0.92 20/2 72" FREEZER (2) (2) (2) 72" FREEZER (2) (2) (2)	5		15/2	1. 30	C	3. 20	40/2		6
9 A-1-C REACH IN DAIRY CASE 15/2 1.30 B 3.20 40/2 A-2-C REACH IN FRUZEN CASE 100 13 A-1-D REACH IN DAIRY CASE 15/2 1.30 A 2.60 25/2 A-3 REACH IN FRUZEN CASE 10 15 A-1-D REACH IN DAIRY CASE 15/2 1.30 A 2.60 25/2 A-3 REACH IN FRUZEN CASE 10 16 72' COULER 20/1 1.15 C 0.92 20/2 72' FREEZER 10 17 72' COULER 20/1 1.15 A 0.92 20/2 72' FREEZER 10 17 1.30 B 1.66 20/2 PRODUCE COULER 20 <td>\mathcal{D}</td> <td></td> <td>13/2</td> <td>1. 30</td> <td>A</td> <td>3. 20</td> <td>40/L</td> <td>H E B KLACIT IN TRUZEN CASE</td> <td>8</td>	\mathcal{D}		13/2	1. 30	A	3. 20	40/L	H E B KLACIT IN TRUZEN CASE	8
I) H T C KACH IN MIN CAL ISC I.30 C 3.20 OC H C C KACH IN HALL OKSC I(2) I) A-1-D REACH IN DAIRY CASE ISC I.30 A 2.60 25/2 A-3 REACH IN FRUZEN CASE I(3) I) 72* CODLER 20/1 I.15 C 0.92 20/2 72* FREEZER (18) III 0 B 1.66 20/2 PRODUCE CODLER (2) (18) III 0 0 A 0.92 20/2 72* FREEZER (20) III III A 0.92 20/2 PRODUCE CODLER (2) (2) III IIII IIIIIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	গ	Δ-1-Γ ΡΕΔΓΗ ΙΝ ΠΔΙΡΥ ΓΔΩΕ	15/2	1. 30	B	3. 20	40/2	Δ-2-Γ ΡΕΔΓΗ ΙΝ ΕΡΠ7ΕΝ ΓΔΩΕ	10
3) A-1-D REACH IN DATRY CASE 15/2 1.30 A 2.60 25/2 A-3 REACH IN FRUZEN CASE (1) 5) 72" CODLER 20/1 1.15 C 0.92 20/2 72" FREEZER (1)	11)		15/2	1. 30	C	3. 20			12
Image: Signal and State in the State in	13	Δ-1-Π RFACH IN ΠΔΙRY CASE	15/2	1. 30	A	2. 60	25/2	Δ-3 RFACH IN FRΠ7FN ΓΔSF	14
T T C 0.92 20/2 T </td <td>15</td> <td></td> <td>15/2</td> <td>1. 30</td> <td>B</td> <td>2. 60</td> <td></td> <td></td> <td>16</td>	15		15/2	1. 30	B	2. 60			16
Image: style in the second state in the second style in the sec	$\boxed{1}$	72" COOLER	20/1	1. 15	C	0. 92	20/2	72" FRFF7FR	18
2D CDDLER 15/2 1.30 B 1.66 20/2 PRDDUCE CDDLER 22/2 22/2 PRDDUCE CDDLER 22/2 22/2 22/2 22/2 22/2 PRDDUCE CDDLER 22/2	19	PRODUCE COOLER	20/1	1. 15	A	0, 92			@
33 Contact 1.30 C 1.66 Contact Reference	21)	CNNI FR	15/2	1. 30	B	1. 66	20/2	PRIMUCE CITI FR	2
25 SPARE 20/1 0.00 A 0.00 20/1 SPARE 26 27 SPARE 20/1 0.00 B 0.00 20/1 SPARE 28 29 SPARE 20/1 0.00 C 0.00 20/1 SPARE 30 31 SPARE 20/1 0.00 A 0.00 20/1 SPARE 32 33 SPARE 20/1 0.00 A 0.00 20/1 SERVICE RECEPT. ON ROOF 34 35 SPARE 20/1 0.00 C 0.00 20/1 SERVICE RECEPT. ON ROOF 36 37 SPARE 20/1 0.00 A 0.00 20/1 SPARE 38 39 SPARE 20/1 0.00 C 0.00 20/1 SPARE 40 41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 42 ************************************	23		10/2	1. 30	C	1. 66			@
27 SPARE 20/1 0.00 B 0.00 20/1 SPARE 28 29 SPARE 20/1 0.00 C 0.00 20/1 SPARE 30 31 SPARE 20/1 0.00 A 0.00 20/1 SPARE 32 33 SPARE 20/1 0.00 A 0.00 20/1 SPARE 32 34 SPARE 20/1 0.00 A 0.00 20/1 SPARE 32 35 SPARE 20/1 0.00 A 0.00 20/1 SPARE 36 36 SPARE 20/1 0.00 A 0.00 20/1 SPARE 38 39 SPARE 20/1 0.00 C 0.00 20/1 SPARE 40 41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 42 57 A 131 <	25	SPARE	20/1	0. 00	A	0, 00	20/1	SPARE	26
29 SPARE 20/1 0.00 C 0.00 20/1 SPARE 30 31 SPARE 20/1 0.00 A 0.00 20/1 SPARE 32 33 SPARE 20/1 0.00 B 0.36 20/1 SERVICE RECEPT. IN RIDF 34 35 SPARE 20/1 0.00 C 0.00 20/1 SPARE 36 37 SPARE 20/1 0.00 A 0.00 20/1 SPARE 38 39 SPARE 20/1 0.00 B 0.00 20/1 SPARE 40 41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 42 41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 42 41 SPARE 20/1 0.00 C 131 5 7 A 131	27	SPARE	20/1	0. 00	B	0, 00	20/1	SPARE	28
31 SPARE 20/1 0.00 A 0.00 20/1 SPARE 32 33 SPARE 20/1 0.00 B 0.36 20/1 SERVICE RECEPT. ON ROOF 34 35 SPARE 20/1 0.00 C 0.00 20/1 SERVICE RECEPT. ON ROOF 34 36 SPARE 20/1 0.00 A 0.00 20/1 SPARE 36 37 SPARE 20/1 0.00 A 0.00 20/1 SPARE 38 39 SPARE 20/1 0.00 C 0.00 20/1 SPARE 40 41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 42	29	SPARE	20/1	0.00	C	0, 00	20/1	SPARE	30
33 SPARE 20/1 0.00 B 0.36 20/1 SERVICE RECEPT. DN RDDF 34 35 SPARE 20/1 0.00 C 0.00 20/1 SERVICE RECEPT. DN RDDF 36 37 SPARE 20/1 0.00 A 0.00 20/1 SPARE 38 39 SPARE 20/1 0.00 B 0.00 20/1 SPARE 40 41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 40 41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 42	31	SPARE	20/1	0.00	A	0, 00	20/1	SPARE	32
35 SPARE 20/1 0.00 C 0.00 20/1 SPARE 36 37 SPARE 20/1 0.00 A 0.00 20/1 SPARE 38 39 SPARE 20/1 0.00 B 0.00 20/1 SPARE 40 41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 40 41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 42	33	SPARE	20/1	0.00	B	0, 36	20/1	SERVICE RECEPT. ON ROOF	34
37 SPARE 20/1 0.00 A 0.00 20/1 SPARE 38 39 SPARE 20/1 0.00 B 0.00 20/1 SPARE 40 41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 40 41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 42 41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 42 41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 42 42 KVA PH AMPS </td <td>35</td> <td>SPARE</td> <td>20/1</td> <td>0.00</td> <td>C</td> <td>0, 00</td> <td>20/1</td> <td>SPARE</td> <td>36</td>	35	SPARE	20/1	0.00	C	0, 00	20/1	SPARE	36
39 SPARE 20/1 0.00 B 0.00 20/1 SPARE 40 41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 42 41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 42 41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 42 42 KVA PH AMPS 42 40 SPARE 15.7 A 131	37	SPARE	20/1	0.00	A	0, 00	20/1	SPARE	38
41 SPARE 20/1 0.00 C 0.00 20/1 SPARE 42 42 KVA PH AMPS AMPS </td <td>39</td> <td>SPARE</td> <td>20/1</td> <td>0, 00</td> <td>B</td> <td>0, 00</td> <td>20/1</td> <td>SPARE</td> <td>40</td>	39	SPARE	20/1	0, 00	B	0, 00	20/1	SPARE	40
kVAPHAMPS15.7A13116.9B14114.0C11714.0C117VULTAGE/PHASEVULTAGE/PHASE208Y/120V, 3P, 4WBUS RATING200AMAIN CIRCUIT BREAKER RATING200AAIC RATING22KYES14NEMA 1SURFACEMUUNTINGSURFACE	41	SPARE	20/1	0.00	C	0, 00	20/1	SPARE	42
15.7 A 131 16.9 B 141 14.0 C 117 VULTAGE/PHASE VULTAGE/PHASE 208Y/120V, 3P, 4W 200A 200A 200A 200A 200A 200A 200A 200A 200A 200A SERVICE ENTRANCE RATING YES NEUNTING NEMA 1 SURFACE SURFACE				kVA	PH	AMPS			
16.9 B 141 14.0 C 117 VULTAGE/PHASE 208Y/120V, 3P, 4W 200A 20C 200A 20C 200A 20A 20B 200A 20C 200A 20D 200A 200B 200B 200A </td <td></td> <td></td> <td></td> <td>15. 7</td> <td>A</td> <td>131</td> <td></td> <td></td> <td></td>				15. 7	A	131			
14.0 C 117 VULTAGE/PHASE VULTAGE/PHASE 208Y/120V, 3P, 4W BUS RATING 200A MAIN CIRCUIT BREAKER RATING 200A AIC RATING 22K SERVICE ENTRANCE RATED YES ENCLOSURE NEMA 1 MEUNTING SURFACE				16. 9	B	141			
VULTAGE/PHASE208Y/120V, 3P, 4WBUS RATING200AMAIN CIRCUIT BREAKER RATING200AAIC RATING22KSERVICE ENTRANCE RATEDYESENCLOSURENEMA 1MOUNTINGSURFACE				14. 0	C	117			
VOLTAGE/PHASE208Y/120V, 3P, 4WBUS RATING200AMAIN CIRCUIT BREAKER RATING200AAIC RATING22KSERVICE ENTRANCE RATEDYESENCLOSURENEMA 1MOUNTINGSURFACE						1			
BUS RATING 200A MAIN CIRCUIT BREAKER RATING 200A AIC RATING 22K SERVICE ENTRANCE RATED YES ENCLOSURE NEMA 1 MOUNTING SURFACE			VOLTAGE	E/PHASE		208Y/1	20V, 3P, 4	łW	
MAIN CIRCUIT BREAKER RATING 200A AIC RATING 22K SERVICE ENTRANCE RATED YES ENCLOSURE NEMA 1 MOUNTING SURFACE			BUS	RATING		200A			
AIC RATING 22K SERVICE ENTRANCE RATED YES ENCLOSURE NEMA 1 MOUNTING SURFACE		MAIN CIRCUIT	BREAKER	RATING		200A			
SERVICE ENTRANCE RATED YES ENCLOSURE NEMA 1 MOUNTING SURFACE			AIC	RATING		22K			
ENCLOSURE NEMA 1 MOUNTING SURFACE		SERVICE	entrance	E RATED		YES			
MDUNTING SURFACE			ENC	CLOSURE		NEMA 1			
			M	JUNTING		SURFAC	E		

* VERIFY BREAKER SIZE PRIOR TO INSTALLATION NOTE: CIRCLED CIRCUITS REPRESENT BREAKER LOCKS

NOTE: CIRCLED CIRCUITS REPRESENT BREAKER LOCKS

				FMINEL D								
сит		סענ	LOAD	DU	LOAD	סענ		CKT				
	LUAU	DKK	kVA	гп	kVA	DVK	LUAU					
	NIGHT LIGHTS	20/1	0. 18	Α	0. 00	20/1	A-2-A REACH IN FROZEN CASE	(2)				
3	RECEIVING LIGHTS	20/1	0. 14	B	0. 50	20/1	SECURITY RECEPT.	4				
5	70% SALES LIGHTS ROWS 2&3	20/1	0. 63	С	0. 54	20/1	DFFICE RECEPT.	6				
7	70% SALES LIGHTS ROWS 5&6	20/1	0. 27	Α	0. 54	20/1	BREAK ROOM RECEPT.	8				
9	70% SALES LIGHTS ROWS 1&4	20/1	0. 54	B	0. 00	20/1	SPARE	10				
11	70% SALES LIGHTS ROWS 8&9	20/1	0. 45	С	0. 00	20/1	SPARE	12				
13	BREAK ROOM/OFFICE/RR LIGHTS	20/1	0. 15	A	1. 08	20/1	BULKHEAD RECEPT.	(14)				
15	30% SALES LIGHTS ROWS 7&10	20/1	0. 45	B	0. 05	20/1	EMERGENCY EXIT LIGHTS	(16)				
17	70% SALES LIGHTS ROWS 12&15	20/1	0. 59	С	0. 00	20/1	SPARE	18				
19	SPARE	20/1	0. 00	Α	0. 00	20/1	SPARE	20				
21	SPARE	20/1	0. 00	B	0. 00	20/1	SPARE	22				
23	BUILDING SIGN	20/1	0. 90	С	0. 00	20/1	SPARE	24				
25	PYLON SIGN	20/1	0. 90	A	0. 00	20/1	SPARE	26				
27	SITE LIGHTING	20/1	0. 30	B	0. 00	20/1	SPARE	28				
29	SITE LIGHTING	20/1	1. 40	С	1. 20	20/1	POWER TERMINAL BROWN	30				
31	SPARE	20/1	0. 00	A	1. 20	20/1	POWER TERMINAL BROWN	32				
33	LEFT SIDE EXT. WALL LIGHTS	20/1	0. 14	B	1. 20	20/1	POWER TERMINAL GREEN	(34)				
35	FRONT EXT. WALL/CANOPY LIGHTS	20/1	0. 58	С	1. 20	20/1	POWER TERMINAL GREEN	36				
37	SPARE	20/1	0. 00	A	1. 20	20/1	POWER TERMINAL GREEN	38				
39	SPARE	20/1	0. 00	B	1. 20	20/1	POWER TERMINAL GREEN	40				
41	EXTERIOR DUSK/DAWN	20/1	0. 05	С	1. 20	20/1	POWER TERMINAL BROWN	42				
43	SPARE	20/1	0. 00	A	0. 00	20/1	SPARE	44				
45	SPARE	20/1	0. 00	B	0. 00	20/1	SPARE	46				
47	SPARE	20/1	0. 00	С	0. 00	20/1	SPARE	48				
49	SPARE	20/1	0. 00	Α	0. 00	20/1	SPARE	50				
51	SPARE	20/1	0. 00	B	0. 18	20/1	DISPLAY LIGHT	52				
53	SPARE	20/1	0. 00	С	0. 85	20/1	GATURADE	(54)				
			kVA	PH	AMPS							
			5, 5	Α	46							
			4. 7	В	39							
			9.6	С	80							
		VOLTAGE	e/phase		208Y/17	20V, 3P, 4	W					
		BUS	RATING		200A							
	MAIN CIRCUIT	BREAKER	RATING	ι.	200A							
		AIC	RATING		22K							
	SERVICE	ENTRANCE	RATED	ι.	YES							
		ENC	CLOSURE	ι.	NEMA 1							
		M	JUNTING		SURFACE							

NOTE: CIRCLED CIRCUITS REPRESENT BREAKER LOCKS

	EQUIPMENT CONNECTION SCHEDULE (SEE SHEET E1. 2 FOR COOLERS/FREEZERS)										
SYMBOL	DESCRIPTION	FURN. BY	kVA	VOLT/PH	MCA	MICP	DISC	A₩G	EGC	COND	NOTES
RTU 1-2	10 Ton Roof top Units	M. C.	44. 98	208/3	124. 0	125	200	#1	# 6	2″	1, 2, 3
RTU-3	3 TON ROOF TOP UNITS	M. C.	17. 63	208/3	49. 0	50	60	#8	#10	1″	1, 2, 3
P-11	WATER HEATERS	P. C.	1. 65	115/1	13	20	30	#12	#12	3/4 ″	1, 2, 3

TABLE NOTES: 1. THE ELECTRICAL CONTRACTOR SHALL FIELD COORDINATE WITH THE MECHANICAL CONTRACTOR CONCERNING THE ELECTRICAL INFO OF ALL MECHANICAL DEVICES REQUIRING AN ELECTRICAL CONNECTION PRIOR TO DOING ANY WORK. ANY DISCREPANCIES BETWEEN THE FIELD OBTAINED INFORMATION AND THE INFORMATION SHOWN ON THE ELECTRICAL PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO DOING ANY WORK.

2. PROVIDE NEUTRALS ON AS REQUIRED BASIS, FIELD VERIFY.

3. ALL DISCONNECTS TO BE HEAVY DUTY. FUSES TO BE RK-5 TYPE, SUBMIT SHOP DRAWINGS. BUSSMAN FRN-R-(AMP) IS SPECIFIED.

NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W								
EQUIPMENT	DEMAND	kVA				NEC		
	Factor	A	В	C	сону кун	REFERENCE	NUTES/CALCULATIONS	
LIGHTING	125%	11. 01	11. 01	11. 01	33. 03	220. 12	8812SF X 3VA/SF X 1.25	
LIGHTING	125%	0, 14	0.14	0. 14	0. 42	220. 12	1300SF X. 25VA/SF X 1. 25	
RECEPTACLES < 10 kVA	100%	0. 78	0. 78	0. 78	2. 34	220. 44		
RECEPTACLES > 10 kVA	50%	0. 00	0. 00	0. 00	0. 00	220. 44		
HVAC	100%	36. 09	36. 09	36. 09	108. 27		BASED ON MCA	
WATER HEATER	125%	1. 65	0. 00	0. 00	1. 65	422. 13	STORAGE TANK <120 GAL @ 125%	
SHOW WINDOW	100%	1. 40	1. 40	1. 40	4. 20	220. 43(A) 220. 14(G)	21 FT X 200 VA/SF	
SIGN	100%	0. 00	0. 90	0. 90	1. 80	220. 14(F)		
REFRIGERATION	100%	17. 30	18. 50	15. 60	51. 40			
Demand kva per phase		68. 37	68. 82	65. 92				
Demand Amps	PER PHASE	570	573	549				

THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.

MAIN BONDING JUMPER BARE COPPER NEUTRAL BUS CONDUCTION -— (1)#6 TO PHONE BOARD PER NEC 800-40(D) [>]GROUND BUS MINIMUM OF 20'-0" OF 1/2" REBAR IN BUILDING WALL FOOTING, (NEC 250-50C) BARE COPPER GROUNDING ELECTRODE CONDUCTOR (NEC 250-66) BONDING JUMPER TO PANELBOARD ENCLOSURE SIZE F SUPPLY SIDE SIDE STEEL (NEC 250-52(A)(2) COLD WATER SERVICE ENTRANCE (PROVIDE SIMILAR (TYP.) JUMPER CONNECTION TO FIRE PROTECTION WATER SERVICE ENTRANCE), (NEC 250-50A) NOTE: ALL GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH ARTICLE 250-50 OF THE NATIONAL ELECTRICAL CODE.

GENERAL NOTES

- . REFER TO E1 FOR GENERAL CONTRACTOR RESPONSIBILITIES. E.C. MAY USE CABLE TRAY FOR LOW VOLTAGE CABLES, SEE 2/E2.
- RUN CONDUIT FROM SENSORS TO BOTTOM OF STRUCTURE.
- REFRIGERATION UNITS TO BE CONNECTED TO EMS PANEL BY DOLLAR GENERAL REFRIGERATION CONTRACTOR.

SENSOR PLAN KEYED NOTES

- ALWAYS INSTALL THESE SENSORS AT 8'-0" AFF IF ADDITIONAL HVAC UNITS ARE USED, ADD ADDITIONAL TEMPERATURE SENSORS "TS".
- PHONE LINE #1 TWO RJ-11 PORTS. ONE (1) LOCATED IN OFFICE W/RJ-45 DATA JACK COMBO AND ONE (1) AT REGISTER. 24 GA. CAT 5, 4-PAIR TWISTED WIRE ONLY. USE BLUE AND BLUE & WHITE WIRES. HOOK TO LINE #1 TERMINAL IN RJ-11 JACK EACH PHONE JACK TO HAVE DEDICATED, SEPARATE HOME RUN TO DMARC. LABEL AS "PHONE" AT THE DESTINATION AND AT DMARC. PHONE COMPANY PROVIDES FINAL HOOK UP TO DMARC ONLY.PHONE LINE #2 - RJ-11 PHONE JACK SUPPLIED AND WIRED BY CONTRACTOR.
- EMS REFRIGERATION PANEL CX E2 400. PANEL BY OTHERS. CONNECTION FROM THIS PANEL TO HVAC AND LIGHTING PANEL BY OTHERS. ELECTRICAL CONTRACTOR TO RUN AN EMPTY 1-1/2"C. WITH PULL ROPE BETWEEN THE TWO PANELS.

EMERSON SITE MOUNTED NEXT TO

SYMB	DESCRIPTION				
ОТ	OUTDOOR AIR TEMP MOUNTED 8'-0" A.F.F.	E (
ST	SUPPLY TEMP (501-1121) IN SUPPLY DUCT	E (
TS	TEMP SPACE SENSOR (809-6590) 8'-0" A.F.F.	E (
0	RJ-11/RJ-45 DATA JACK PHONE COMBO	(
\$ m	MOTION SENSOR SWITCH	L			