

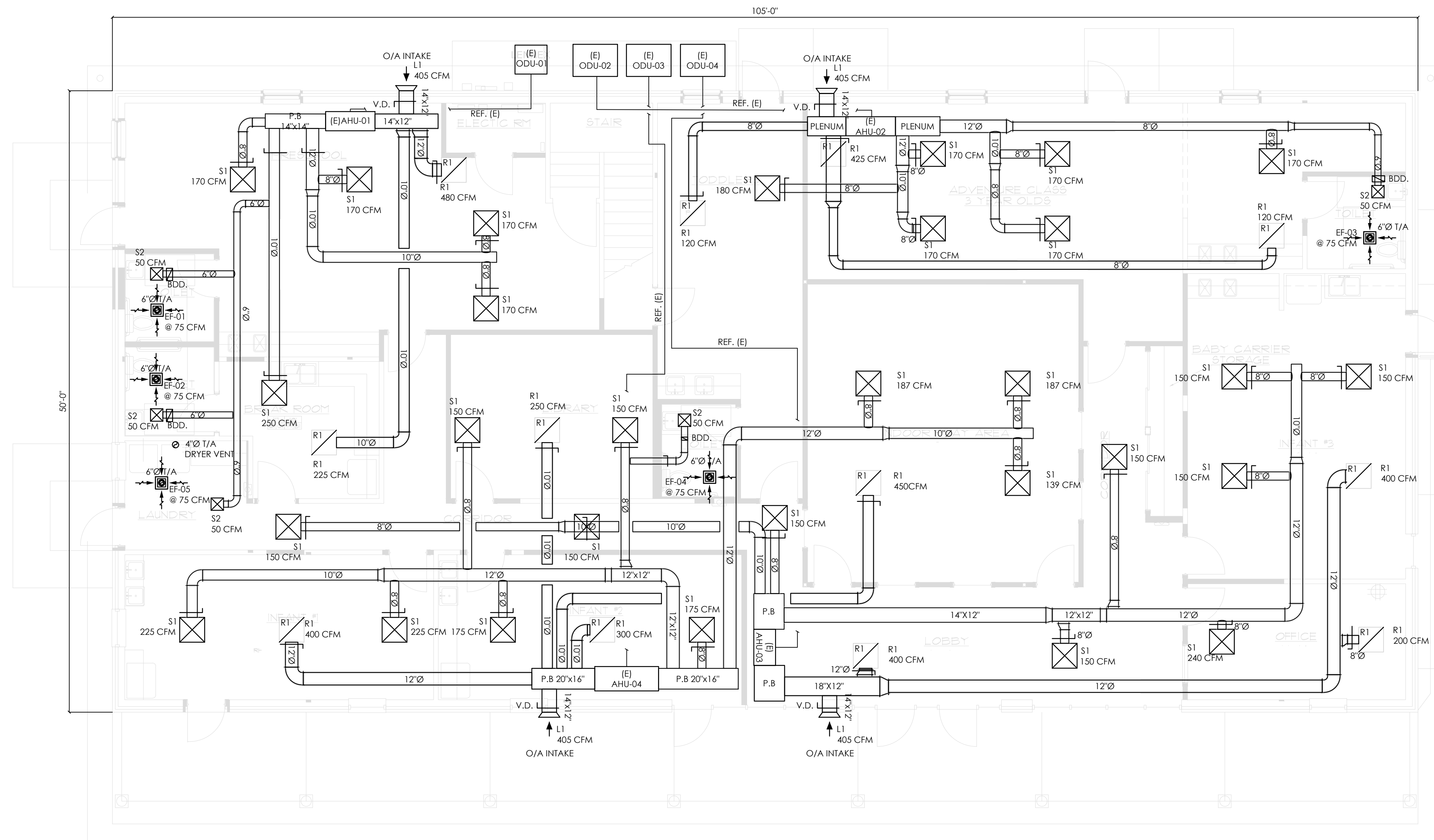
**GDI ENGINEERING**



**DearOnes Daycare**

Education

**Cleburne, Texas**



ALL DUCTS ARE NEW AND TO BE RIGID DUCTS.  
 ALL AIR OUTLETS ARE NEW.  
 ALL EXTRACTION FANS ARE NEW.  
 ALL REFRIGERANT PIPING ARE EXISTING TO REMAIN.

**GENERAL NOTES:**

- MECHANICAL CONTRACTOR TO COORDINATE ROUTING AND LOCATION OF MECHANICAL COMPONENTS AND EQUIPMENT WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS PRIOR TO PERFORMING WORK.
- CONTRACTOR TO CUT AND PATCH AS REQUIRED TO PERFORM THE WORK.
- ACCESS DOORS ARE REQUIRED FOR ANY COMPONENT REQUIRING ACCESS ABOVE HARD LID CEILINGS. COORDINATE SIZE, LOCATION AND FINISH WITH ARCHITECT PRIOR TO PERFORMING WORK.
- REFER TO THE DIAGRAMS THAT APPLY TO THIS SHEET WHICH PROVIDE GENERAL GUIDANCE FOR INSTALLATION THOUGH NOT ALL COMPONENTS AND ACCESSORIES MAY BE SHOWN.
- PRIOR TO INSTALLATION, CONFIRM SPECIFIC LOCATION FOR ALL THERMOSTATS / SENSORS WITH ARCHITECT. MOUNT AT 48" A.F.F. OR IN ACCORDANCE WITH ADA REQUIREMENTS. PROVIDE LOCKING COVERS.
- COORDINATE AND CONFIRM BORDER, FRAME, FINISH, AND LOCATION WITH ARCHITECT PRIOR TO ORDERING.
- ANY PENETRATIONS THROUGH WALL STUDS, FLOOR JOISTS, OR ROOF TO BE IN ACCORDANCE WITH THE LATEST ADOPTED BUILDING CODE.
- DUCT DIMENSIONS SHOWN ARE CLEAR INSIDE DIMENSIONS.
- CONTRACTOR TO CONFIRM ADEQUATE RETURN AIR PATH BACK TO MAIN AIR HANDLING UNIT.

**SPECIAL NOTES:**  
 THIS IS A RENOVATION PROJECT:  
 1- HVAC UNITS ARE TO BE REUSED & RE-DUCTED AS REQUIRED.  
 REUSE WHAT YOU CAN

**SCHEDULE No. 1  
 EXISTING HEAT PUMP INDOOR UNIT**

TAG	(E) AHU-01	(E) AHU-02	(E) AHU-03	(E) AHU-04
MANUFACTURER	LENNOX	RHEEM	RHEEM	TRANE
INDOOR MODEL	CBA25UH-030-230-01	RBHB-21J15MHEA	RBHB-24J20MLEA	TWE048P13FB0
POWER SUPPLY	208-230/1/60	208-240/1/60	208-240/1/60	200-230/1/60
MCA (A)	15	7.0	8.0	4.2
COOLING / HEATING CAPACITY (BTU/H)	30,000	36,000	48,000	48,000
ELECTRIC HEATER (kW)	-	14.4	19.2	-
AIR FLOW RATE (CFM)	1080	1080	1440	1600

**SCHEDULE No. 2  
 EXISTING HEAT PUMP OUTDOOR UNIT**

TAG	(E) ODU-01	(E) ODU-02	(E) ODU-03	(E) ODU-04
SERVING	OUTDOOR	OUTDOOR	OUTDOOR	OUTDOOR
MANUFACTURER	LENNOX	RHEEM	RHEEM	TRANE
INDOOR MODEL	ML14XP-030-230A01	RPMB-036JAZ	RPMB-048JAZ	M4HP4048B1000AA
POWER SUPPLY	230/1/60	208-230/1/60	208-230/1/60	208-230/1/60
MCA (A)	17.0	24.0	25.0	24.6
MOP (A)	25.0	40.0	40.0	40
NOMINAL CAPACITY (BTU/H) COOLING/ HEATING	30,000	36,000	48,000	48,000

**SCHEDULE No. 3  
 AIR OUTLETS**

TAG	DESCRIPTION	MANUFACTURER	MODEL	MOUNTING
S1	SUPPLY DIFFUSER	TITUS	24in. x 24in.	Duct Mounted
S2	SUPPLY DIFFUSER	TITUS	12in. x 12in.	Duct Mounted
R1	RETURN DIFFUSER	TITUS	24in. x 24in.	Duct Mounted

- NOTES:**
- COORDINATE FINISH, COLOR, BORDER AND EXACT LOCATION WITH OWNER PRIOR TO ORDERING.
  - PROVIDE OPPOSED BLADE DAMPER ACCESSIBLE THROUGH DIFFUSER FACE FOR GYP BD. CEILING INSTALLATIONS.
  - PROVIDE DUCT TRANSITIONS AS REQUIRED.
  - RETURNS R1 ARE PROVIDED WITH PROPER FILTERS.

**SCHEDULE No. 5  
 OUTDOOR AIR LOUVER**

TAG	QTY	MODEL	WIDTH x HEIGHT (in)	AIRFLOW	FLOW AREA	FREE AREA	FREE AREA VELOCITY	PD
L1	4	ELF211D	24x24	405 cfm	1.2 ft <sup>2</sup>	30%	339 fpm	0.01 w.g

- NOTES:**
- COORDINATE WITH THE ARCHITECT THE FINISH, COLOR, BORDER AND EXACT LOCATION PRIOR TO ORDERING.
  - FURNISH LOUVER WITH ACTUATED DAMPER AND BACK-DRAFT DAMPERS FOR BALANCING OUTDOOR AIR.

**SCHEDULE No. 4  
 NEW FAN SCHEDULES**

TAG	EF-01,02,03,04,05
LOCATION	BATHROOMS & LAUNDRY
SELECTED FLOW (CFM)	75
ESP (IN. H2O)	0.25"
ELECTRICAL (V / PH / HZ)	120 / 1 / 60
POWER / Amps	25 W
MOTOR SPEED (RPS)	MULTI SPEED
FAN TYPE	CEILING FANS
MANUFACTURER	PANASONIC
MODEL	WHISPER FV-0511VKS2

- NOTES:**
- PROVIDE UL LISTING.
  - PROVIDE ENERGY STAR COMPLIANCE.
  - INTERLOCK WITH WALL SWITCH.
  - PROVIDE MOTOR WITH THERMAL OVERLOADS.



**Air System Sizing Summary for ODU-01**  
 Project Name: NEW  
 Prepared by: TLO  
 11/19/2022  
 10:03AM

**Air System Information**  
 Air System Name: ODU-01  
 Equipment Class: SPLIT AHU  
 Air System Type: SZCAV  
 Number of zones: 1  
 Floor Area: 881.0 ft²  
 Location: Dallas, Texas

**Sizing Calculation Information**  
 Calculation Months: Jan to Dec  
 Sizing Data: Calculated  
 Zone CFM Sizing: Sum of space airflow rates  
 Space CFM Sizing: Individual peak space loads

**Central Cooling Coil Sizing Data**  
 Total coil load: 2.5 Tons  
 OA DB / WB: 99.4 / 73.8 °F  
 Entering DB / WB: 85.1 / 63.3 °F  
 Leaving DB / WB: 66.0 / 53.0 °F  
 Max block CFM: 841 CFM  
 Col ACP: 56.1 °F  
 Sum of peak zone CFM: 841 CFM  
 Bypass Factor: 0.100  
 Sensible heat ratio: 0.844  
 Resulting RH: 55.0 %  
 CFM/Ton: 37.7  
 Design supply temp: 55.0 °F  
 Zone T-stat Check: 1 of 1 OK  
 RT/Ton: 36.0  
 BTU/hr (ft²): 34.3  
 Water flow @ 10.0 °F rise: N/A

**Central Heating Coil Sizing Data**  
 Max coil load: 32.2 MBH  
 Col CFM at Des Htg: 841 CFM  
 Max coil CFM: 841 CFM  
 Water flow @ 20.0 °F drop: N/A  
 Load occurs at: Des Htg  
 BTU/hr (ft²): 36.0  
 Ent. DB / Lvg DB: 46.1 / 78.4 °F

**Supply Fan Sizing Data**  
 Actual max CFM: 841 CFM  
 Standard CFM: 841 CFM  
 Actual max CFM/FHP: 1.07 CFM/FHP  
 Fan motor BHP: 0.00 BHP  
 Fan motor kW: 0.00 kW  
 Fan static: 0.00 in wg

**Outdoor Ventilation Air Data**  
 Design airflow CFM: 421 CFM  
 CFM/person: 26.28 CFM/person  
 CFM/FHP: 0.46 CFM/FHP

Hourly Analysis Program 5.10 Page 1 of 16

**Zone Sizing Summary for ODU-01**  
 Project Name: NEW  
 Prepared by: TLO  
 11/19/2022  
 10:03AM

**Air System Information**  
 Air System Name: ODU-01  
 Equipment Class: SPLIT AHU  
 Air System Type: SZCAV  
 Number of zones: 1  
 Floor Area: 881.0 ft²  
 Location: Dallas, Texas

**Sizing Calculation Information**  
 Calculation Months: Jan to Dec  
 Sizing Data: Calculated  
 Zone CFM Sizing: Sum of space airflow rates  
 Space CFM Sizing: Individual peak space loads

**Zone Terminal Sizing Data**

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/FHP	Reheat Coil Load (MBH)	Reheat Coil Water Spm @ 20.0 °F	Zone Htg Unit Load (MBH)	Zone Htg Unit Water Spm @ 20.0 °F	Mixing Box Fan Airflow (CFM)
Zone 1	841	841	1.07	0.0	0.0	0.0	0.0	0

**Zone Peak Sensible Loads**

Zone Name	Zone Cooling Sensible Load (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (ft²)
Zone 1	18.0	Jul 1800	9.0	881.0

**Space Loads and Airflows**

Zone Name / Space Name	Mult.	Cooling Sensible Load (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft²)	Space CFM/FHP
Zone 1	1	18.0	Jul 1800	695	9.0	599.0	1.07
PRESCHOOL	1	10.9	Jul 1800	605	5.9	599.0	0.81
TOILET 1	1	0.8	Jul 2000	50	0.7	51.0	0.95
TOILET 2	1	0.7	Jul 2000	50	0.9	52.0	0.95
TOILET 3	1	0.4	Jul 1800	50	0.1	51.0	0.95
BREAK ROOM	1	3.3	Jul 1800	185	1.4	128.0	1.45

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**Air System Sizing Summary for ODU-02**  
 Project Name: NEW  
 Prepared by: TLO  
 11/19/2022  
 10:03AM

**Air System Information**  
 Air System Name: ODU-02  
 Equipment Class: SPLIT AHU  
 Air System Type: SZCAV  
 Number of zones: 1  
 Floor Area: 885.0 ft²  
 Location: Dallas, Texas

**Sizing Calculation Information**  
 Calculation Months: Jan to Dec  
 Sizing Data: Calculated  
 Zone CFM Sizing: Sum of space airflow rates  
 Space CFM Sizing: Individual peak space loads

**Central Cooling Coil Sizing Data**  
 Total coil load: 2.5 Tons  
 OA DB / WB: 99.4 / 73.8 °F  
 Entering DB / WB: 85.1 / 63.3 °F  
 Leaving DB / WB: 66.0 / 53.0 °F  
 Max block CFM: 896 CFM  
 Col ACP: 56.0 °F  
 Sum of peak zone CFM: 896 CFM  
 Bypass Factor: 0.100  
 Sensible heat ratio: 0.817  
 Resulting RH: 55.0 %  
 CFM/Ton: 38.7  
 Design supply temp: 55.0 °F  
 Zone T-stat Check: 1 of 1 OK  
 RT/Ton: 35.6  
 BTU/hr (ft²): 33.6  
 Water flow @ 10.0 °F rise: N/A

**Central Heating Coil Sizing Data**  
 Max coil load: 29.8 MBH  
 Col CFM at Des Htg: 896 CFM  
 Max coil CFM: 896 CFM  
 Water flow @ 20.0 °F drop: N/A  
 Load occurs at: Des Htg  
 BTU/hr (ft²): 33.7  
 Ent. DB / Lvg DB: 47.9 / 79.4 °F

**Supply Fan Sizing Data**  
 Actual max CFM: 896 CFM  
 Standard CFM: 896 CFM  
 Actual max CFM/FHP: 1.01 CFM/FHP  
 Fan motor BHP: 0.00 BHP  
 Fan motor kW: 0.00 kW  
 Fan static: 0.00 in wg

**Outdoor Ventilation Air Data**  
 Design airflow CFM: 368 CFM  
 CFM/person: 19.33 CFM/person  
 CFM/FHP: 0.42 CFM/FHP

Hourly Analysis Program 5.10 Page 1 of 14

**Zone Sizing Summary for ODU-02**  
 Project Name: NEW  
 Prepared by: TLO  
 11/19/2022  
 10:03AM

**Air System Information**  
 Air System Name: ODU-02  
 Equipment Class: SPLIT AHU  
 Air System Type: SZCAV  
 Number of zones: 1  
 Floor Area: 885.0 ft²  
 Location: Dallas, Texas

**Sizing Calculation Information**  
 Calculation Months: Jan to Dec  
 Sizing Data: Calculated  
 Zone CFM Sizing: Sum of space airflow rates  
 Space CFM Sizing: Individual peak space loads

**Zone Terminal Sizing Data**

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/FHP	Reheat Coil Load (MBH)	Reheat Coil Water Spm @ 20.0 °F	Zone Htg Unit Load (MBH)	Zone Htg Unit Water Spm @ 20.0 °F	Mixing Box Fan Airflow (CFM)
Zone 1	896	896	1.01	0.0	0.0	0.0	0.0	0

**Zone Peak Sensible Loads**

Zone Name	Zone Cooling Sensible Load (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (ft²)
Zone 1	15.9	Jul 1800	9.8	885.0

**Space Loads and Airflows**

Zone Name / Space Name	Mult.	Cooling Sensible Load (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft²)	Space CFM/FHP
Zone 1	1	15.9	Jul 1800	701	7.3	642.0	1.00
ADVENTURE CLASS	1	12.8	Jul 1800	701	1.5	184.0	0.79
TOILET 1	1	2.6	Jul 1800	145	0.8	59.0	0.85
TOILET 4	1	0.8	Aug 1900	50	0.8	59.0	0.85

Hourly Analysis Program 5.10 Page 2 of 14

**Air System Sizing Summary for ODU-03**  
 Project Name: NEW  
 Prepared by: TLO  
 11/19/2022  
 10:02AM

**Air System Information**  
 Air System Name: ODU-03  
 Equipment Class: SPLIT AHU  
 Air System Type: SZCAV  
 Number of zones: 1  
 Floor Area: 1454.0 ft²  
 Location: Dallas, Texas

**Sizing Calculation Information**  
 Calculation Months: Jan to Dec  
 Sizing Data: Calculated  
 Zone CFM Sizing: Sum of space airflow rates  
 Space CFM Sizing: Individual peak space loads

**Central Cooling Coil Sizing Data**  
 Total coil load: 2.7 Tons  
 OA DB / WB: 99.4 / 73.8 °F  
 Entering DB / WB: 85.1 / 63.3 °F  
 Leaving DB / WB: 66.0 / 53.0 °F  
 Max block CFM: 1272 CFM  
 Col ACP: 56.0 °F  
 Sum of peak zone CFM: 1272 CFM  
 Bypass Factor: 0.100  
 Sensible heat ratio: 0.872  
 Resulting RH: 58.0 %  
 CFM/Ton: 47.8  
 Design supply temp: 55.0 °F  
 Zone T-stat Check: 1 of 1 OK  
 RT/Ton: 34.9  
 BTU/hr (ft²): 32.8  
 Water flow @ 10.0 °F rise: N/A

**Central Heating Coil Sizing Data**  
 Max coil load: 39.9 MBH  
 Col CFM at Des Htg: 1272 CFM  
 Max coil CFM: 1272 CFM  
 Water flow @ 20.0 °F drop: N/A  
 Load occurs at: Des Htg  
 BTU/hr (ft²): 19.5  
 Ent. DB / Lvg DB: 59.0 / 85.5 °F

**Supply Fan Sizing Data**  
 Actual max CFM: 1272 CFM  
 Standard CFM: 1245 CFM  
 Actual max CFM/FHP: 0.87 CFM/FHP  
 Fan motor BHP: 0.00 BHP  
 Fan motor kW: 0.00 kW  
 Fan static: 0.00 in wg

**Outdoor Ventilation Air Data**  
 Design airflow CFM: 283 CFM  
 CFM/person: 21.12 CFM/person  
 CFM/FHP: 0.17 CFM/FHP

Hourly Analysis Program 5.10 Page 1 of 15

**Zone Sizing Summary for ODU-03**  
 Project Name: NEW  
 Prepared by: TLO  
 11/19/2022  
 10:02AM

**Air System Information**  
 Air System Name: ODU-03  
 Equipment Class: SPLIT AHU  
 Air System Type: SZCAV  
 Number of zones: 1  
 Floor Area: 1454.0 ft²  
 Location: Dallas, Texas

**Sizing Calculation Information**  
 Calculation Months: Jan to Dec  
 Sizing Data: Calculated  
 Zone CFM Sizing: Sum of space airflow rates  
 Space CFM Sizing: Individual peak space loads

**Zone Terminal Sizing Data**

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/FHP	Reheat Coil Load (MBH)	Reheat Coil Water Spm @ 20.0 °F	Zone Htg Unit Load (MBH)	Zone Htg Unit Water Spm @ 20.0 °F	Mixing Box Fan Airflow (CFM)
Zone 1	1272	1272	0.87	0.0	0.0	0.0	0.0	0

**Zone Peak Sensible Loads**

Zone Name	Zone Cooling Sensible Load (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (ft²)
Zone 1	22.8	Jul 1800	14.8	1454.0

**Space Loads and Airflows**

Zone Name / Space Name	Mult.	Cooling Sensible Load (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft²)	Space CFM/FHP
Zone 1	1	22.8	Aug 1800	409	3.5	431.0	0.95
INFANT 3	1	7.3	Jul 1800	170	3.0	164.0	1.04
LOBBY	1	7.4	Jul 1800	411	4.8	621.0	0.86
OFFICE	1	3.1	Jul 1800	170	3.0	164.0	1.04
LAUNDRY	1	5.1	Jul 1800	282	3.5	238.0	1.19

Hourly Analysis Program 5.10 Page 2 of 15

**Air System Sizing Summary for ODU-04**  
 Project Name: NEW  
 Prepared by: TLO  
 11/19/2022  
 10:02AM

**Air System Information**  
 Air System Name: ODU-04  
 Equipment Class: SPLIT AHU  
 Air System Type: SZCAV  
 Number of zones: 1  
 Floor Area: 1427.0 ft²  
 Location: Dallas, Texas

**Sizing Calculation Information**  
 Calculation Months: Jan to Dec  
 Sizing Data: Calculated  
 Zone CFM Sizing: Sum of space airflow rates  
 Space CFM Sizing: Individual peak space loads

**Central Cooling Coil Sizing Data**  
 Total coil load: 3.7 Tons  
 OA DB / WB: 99.4 / 73.8 °F  
 Entering DB / WB: 85.1 / 63.3 °F  
 Leaving DB / WB: 66.0 / 53.0 °F  
 Max block CFM: 1285 CFM  
 Col ACP: 56.0 °F  
 Sum of peak zone CFM: 1285 CFM  
 Bypass Factor: 0.100  
 Sensible heat ratio: 0.816  
 Resulting RH: 58.0 %  
 CFM/Ton: 38.9  
 Design supply temp: 55.0 °F  
 Zone T-stat Check: 1 of 1 OK  
 RT/Ton: 34.4  
 BTU/hr (ft²): 31.4  
 Water flow @ 10.0 °F rise: N/A

**Central Heating Coil Sizing Data**  
 Max coil load: 41.4 MBH  
 Col CFM at Des Htg: 1285 CFM  
 Max coil CFM: 1285 CFM  
 Water flow @ 20.0 °F drop: N/A  
 Load occurs at: Des Htg  
 BTU/hr (ft²): 29.6  
 Ent. DB / Lvg DB: 46.1 / 78.6 °F

**Supply Fan Sizing Data**  
 Actual max CFM: 1285 CFM  
 Standard CFM: 1258 CFM  
 Actual max CFM/FHP: 0.90 CFM/FHP  
 Fan motor BHP: 0.00 BHP  
 Fan motor kW: 0.00 kW  
 Fan static: 0.00 in wg

**Outdoor Ventilation Air Data**  
 Design airflow CFM: 877 CFM  
 CFM/person: 18.62 CFM/person  
 CFM/FHP: 0.40 CFM/FHP

Hourly Analysis Program 5.10 Page 1 of 15

**Zone Sizing Summary for ODU-04**  
 Project Name: NEW  
 Prepared by: TLO  
 11/19/2022  
 10:02AM

**Air System Information**  
 Air System Name: ODU-04  
 Equipment Class: SPLIT AHU  
 Air System Type: SZCAV  
 Number of zones: 1  
 Floor Area: 1427.0 ft²  
 Location: Dallas, Texas

**Sizing Calculation Information**  
 Calculation Months: Jan to Dec  
 Sizing Data: Calculated  
 Zone CFM Sizing: Sum of space airflow rates  
 Space CFM Sizing: Individual peak space loads

**Zone Terminal Sizing Data**

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/FHP	Reheat Coil Load (MBH)	Reheat Coil Water Spm @ 20.0 °F	Zone Htg Unit Load (MBH)	Zone Htg Unit Water Spm @ 20.0 °F	Mixing Box Fan Airflow (CFM)
Zone 1	1285	1285	0.90	0.0	0.0	0.0	0.0	0

**Zone Peak Sensible Loads**

Zone Name	Zone Cooling Sensible Load (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (ft²)
Zone 1	23.1	Jul 1800	9.7	1427.0

**Space Loads and Airflows**

Zone Name / Space Name	Mult.	Cooling Sensible Load (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft²)	Space CFM/FHP
Zone 1	1	23.1	Aug 1800	300	4.3	260.0	1.21
INFANT 1	1	6.3	Jul 1800	200	3.1	295.0	0.81
INFANT 2	1	4.3	Jul 1800	240	3.1	295.0	0.81
TOILETS	1	4.8	Jul 1800	268	0.7	318.0	0.81
INDOOR PLAY AREA	1	7.9	Jul 1800	437	1.1	524.0	0.83

Hourly Analysis Program 5.10 Page 2 of 15

**PROJECT: VARAND DAYCARE**

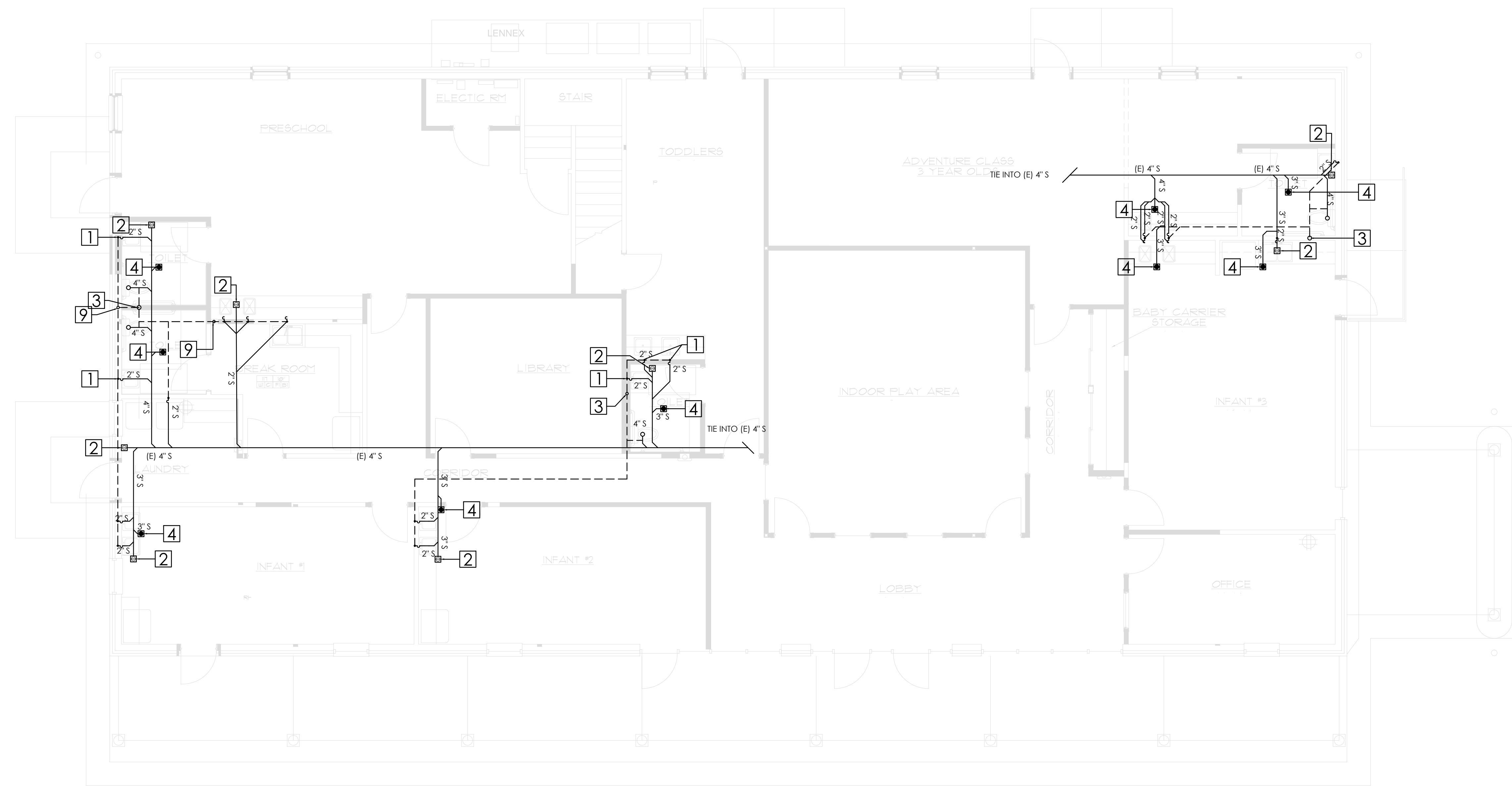
**TEXAS CODE MCR201B**

**TABLE 603.11.1. MINIMUM VENTILATION RATES**

S.N.	Space Name	AREA (FT²)	CFM/FT²	OCC./1000 FT²	# FEEL.	CFM/FEEL.	TOTAL CFM
1	ADVENTURE CLASS	642	0.18	25	17	10	284
2	BREAK ROOM	128	0.06	5	1	5	13
3	INDOOR PLAY AREA	324	0.18	20	14	10	234
4	INFANT 1	290	0.18	25	8	10	132
5	INFANT 2	290	0.18	5	2	10	73
6	INFANT 3	431	0.18	25	11	10	168
7	LIBRARY	184	0.12	10	2	5	32
8	LAUNDRY	238	0.06	0	0	0	14
9	LOBBY	621	0.06	0	0	0	37
10	OFFICE	164	0.06	5	1	5	15
11	PRESCHOOL	999	0.18	25	15	10	268
12	TODDLERS	318	0.18	25	8	10	137
13	TOILET 1	51	0.00	0	0	0	50
14	TOILET 2	52	0.00	0	0	0	50
15	TOILET 3	51	0.00	0	0	0	50
16	TOILET 4	49	0.00	0	0	0	50
<b>16</b>	<b>TOTAL =</b>	<b>4,644</b>	<b>-</b>	<b>-</b>	<b>79</b>	<b>-</b>	<b>1,619</b>

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SHEET  
OF



**GENERAL NOTES:**

1. PRIOR TO PERFORMING WORK, CONTRACTOR TO COORDINATE EXACT PIPE SIZES, INVERT ELEVATIONS, PRESSURES FOR LOCATIONS OF ANY SEWER, WATER PIPING AND WATER METER WITH CIVIL UTILITIES DRAWINGS, AND ANY OTHER ENGINEER AS APPLICABLE.
2. PRIOR TO PERFORMING WORK, CONTRACTOR TO COORDINATE PIPE ROUTING WITH ALL OTHER TRADES AND EXISTING FIELD CONDITIONS.
3. REFER TO MECHANICAL PLANS FOR PLUMBING SPECIFICATION OF MATERIAL, INSULATION AND INSTALLATION REQUIREMENTS.
4. CONTRACTOR IS RESPONSIBLE FOR ROUGH-IN COORDINATION AND LOCATIONS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS AND FIXTURES.
5. CONTRACTOR IS RESPONSIBLE FOR ANY REQUIRED CUTTING AND PATCHING.
6. ALL NOTCHING, BORING, AND CUTTING OF HOLES IN WALL STUDS AND FLOOR JOISTS SHALL BE PERFORMED BASED ON THE LATEST ADOPTED AND APPROVED EDITION OF THE BUILDING CODE.
7. ALL PLUMBING FIXTURES SHALL BE OF WATER CONSERVATION TYPE AS REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.
8. ALL WATER PIPING SHALL BE INSTALLED ON INTERIOR SIDE OF THE BUILDING WALL INSULATION.
9. CONTRACTOR SHALL PROVIDE VALVES LOCATED ABOVE LAY-IN CEILING OR 24"x24" CEILING ACCESS PANEL COORDINATE FINAL LOCATION AND SIZE WITH ARCHITECT. PROVIDE BALANCING VALVES FOR HOT WATER RETURN SYSTEM AS REQUIRED.
10. ALL SANITARY DRAINAGE PIPING 3" AND SMALLER SHALL BE SLOPED AT 1/4" PER FOOT. PIPING 4" AND LARGER SHALL BE SLOPED AT 1/8" PER FOOT.
11. ALL CONDENSATE DRAIN PIPING SHALL BE SLOPED AT 1/8" PER FOOT AND PROVIDE ACCESSIBLE CLEANOUTS AT ALL CHANGES OF DIRECTION.
12. VENTS THAT TERMINATE AT THE ROOF SHALL BE A MINIMUM OF 10' FROM ANY FRESH AIR INTAKE.
13. REFER TO THE PLUMBING DIAGRAMS FOR GUIDANCE OF INSTALLATION INTENT. CONTRACTOR IS TO PROVIDE ALL COMPONENTS NECESSARY TO MEET THE DESIGN INTENT, WHETHER SHOWN IN DIAGRAM OR NOT.

**SANITARY SHEET NOTES:**


- 1 — WASTE DROP AND 2" VENT RISE.
- 2 — 4" FLOOR CLEAN-OUT.
- 3 — 3" VENT STACK TO ABOVE.
- 4 — 3" FLOOR DRAIN.
- 5 — 4" SOIL DROP FROM ABOVE.
- 6 — WASTE DROP
- 7 — SOIL DROP AND 4" VENT RISE.
- 8 — INDIRECT WASTE
- 9 — VENT UP IN-WALL

**FROM 2018 TEXAS IPC - TABLE 709.1:  
DRAINAGE FIXTURE UNIT VALUES (DFU)**


FIXTURE	D.F.U	QTY.	TOTAL D.F.U
SERVICE OR MOP SINK	2.0	13	26.0
KITCHEN SINK	2.0	1	2.0
WATER CLOSET	4.0	4	16.0
LAVATORY	1.0	4	4.0
WASHING MACHINE	3.0	1	3.0
<b>TOTAL BUILDING DFU =</b>			<b>51.0</b>



**Design calculation sheet**

Project no:	Date:	2022.11.20	Sheet no.:	1	of	1	Computed by:	B.M	
Subject:	Daycare						Checked by:	MJ	
Hot Water Calculation							Approved by:		
Application Type							School		
Water Temperature									
	Tin	=	50	°F	=	10	°C		
	Tout	=	140	°F	=	60	°C		
	ΔT	=	90	°F	=	50	°C		
<b>Fixture</b>							<b>GPH</b> <b>QTY.</b>		
Basin, Public lavatory							15	x 1 = 15	
Service Sink							20	x 5 = 100	
<b>Showers</b>							<b>GPH</b> <b>Shower Factor</b> <b>GPH</b> <b>QTY.</b>		
Showers							225	x 1 = 225	x 0 = 0
<b>Other</b>							<b>GPH</b> <b>QTY.</b>		
Maximum Possible Demand							=	115	gph
Demand Factor (Custom)							=	0.3	
Maximum Probable Demand							=	34.5	gph
Maximum Probable Demand							=	0.58	gpm
Maximum Probable Demand							=	0.04	L/s
Heater Recovery Capacity							=	0.58	gpm
Storage Factor (Custom)							=	0.6	
Storage Tank Capacity							=	20.7	gal
							=	78.3	liters
Actual Selection							=	79	Liters
Heater or Coil							=	500	x gpm x ΔT / Efficiency
Capacity							=	500	x 0.58 x 90 / 0.9 = 29,000
							=	29,000	btu/hr

**Design calculation sheet**

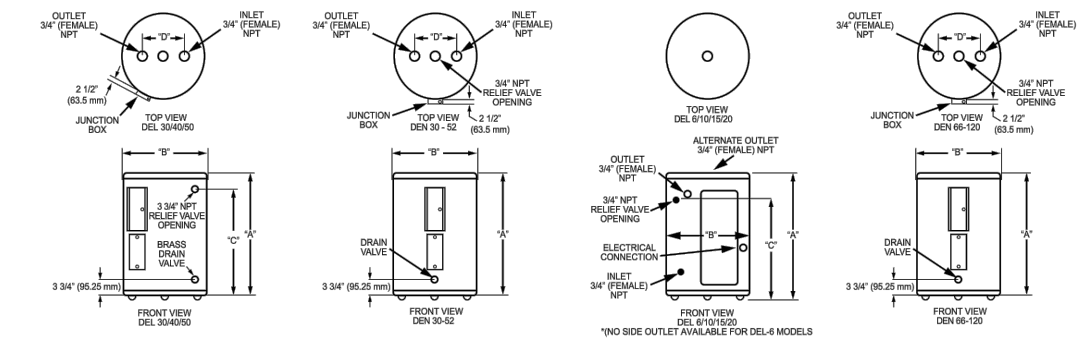
Project no:	Date:	2022.11.20	Sheet no.:	1	of	1	Computed by:	B.M	
Subject:	Daycare						Checked by:	MJ	
Hot Water Calculation							Approved by:		
Application Type							School		
Water Temperature									
	Tin	=	50	°F	=	10	°C		
	Tout	=	140	°F	=	60	°C		
	ΔT	=	90	°F	=	50	°C		
<b>Fixture</b>							<b>GPH</b> <b>QTY.</b>		
Basin, Public lavatory							15	x 3 = 45	
Service Sink							20	x 8 = 160	
Laundry, Stationary Tub							0	x 1 = 0	
<b>Showers</b>							<b>GPH</b> <b>Shower Factor</b> <b>GPH</b> <b>QTY.</b>		
Showers							225	x 1 = 225	x 0 = 0
<b>Other</b>							<b>GPH</b> <b>QTY.</b>		
Maximum Possible Demand							=	205	gph
Demand Factor (Custom)							=	0.3	
Maximum Probable Demand							=	61.5	gph
Maximum Probable Demand							=	1.03	gpm
Maximum Probable Demand							=	0.06	L/s
Heater Recovery Capacity							=	1.03	gpm
Storage Factor (Custom)							=	0.6	
Storage Tank Capacity							=	36.9	gal
							=	139.5	liters
Actual Selection							=	140	Liters
Heater or Coil							=	500	x gpm x ΔT / Efficiency
Capacity							=	500	x 1.03 x 90 / 0.9 = \$1,500
							=	\$1,500	btu/hr

**SCHEDULE No. 1**

**ELECTRICAL WATER HEATER SCHEDULE**

TAG	(E)EWH-01	(N)EWH-02
LOCATION	ATTIC	ATTIC
MANUFACTURER	AOSMITH	AOSMITH
MODEL	DEL30	DEL40
TYPE	ELECTRIC	ELECTRIC
GPM (@ 72°F RISE)	3.4	3.4
APPROX. WEIGHT (lbs)	85	85
WIDTH x DEPTH (in.)	17.3" x 14.8"	17.3" x 14.8"
HEIGHT (in)	28.7"	28.7"
WATER CONNECTION SIZE	3/4"	3/4"
GAS INLET CONNECTION	3/4"	3/4"
RE-CIRCULATING PUMP	INTEGRATED	INTEGRATED

**AC Smith. Commercial Electric Water Heaters**



**ROUGH-IN DIMENSIONS**

Models	UEF	No. of Elements	Nominal Capacity	Rated Storage Volume	A	B	C	D	Shipping Weight	
					Inches	mm	Inches	mm	Lbs.	
DEL-6	N/A	1	6	6	15-1/2	394	14-1/4	362	11	229
DEL-15	N/A	1	15	15	26	660	18	457	20-1/2	521
DEL-20	N/A	1	20	19	23-1/4	595	21-3/4	553	15-3/8	391
DEL-30	0.92	2	30	28	33-1/2	857	26	660	27	630
DEL-40**	0.92	2	40	35	32	813	23	584	24	610
DEL-50	0.92	2	50	48	36	914	26-1/2	673	25	635
DEL-60	0.92	2	60	57	40-3/4	1034	29-1/2	751	28	688
DEL-80	0.92	2	80	76	50	1270	35	889	35-1/2	907
DEL-92	0.92	2	92	85	52	1327	37	940	37	907
DEL-110	N/A	2	110	100	62-1/2	1588	39-3/8	1000	40	907
DEL-120	N/A	2	120	100	62-1/2	1588	39-3/8	1000	40	907

**U.S. Gallons/HR and Liters/HR at Temperature Rise Indicated**

Element Wattage (Output/Element)	Input kW	1°	36°	40°	54°	60°	72°	80°	90°	100°	108°	120°	126°
		°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
6100/1500	12.2	GPH	138	124	92	82	69	62	51	48	46	41	39
		LPH	527	469	348	310	261	235	208	194	174	153	146

**AC Smith. Commercial Electric Water Heaters**

**ELEMENT AVAILABILITY CHART (LIGHT-DUTY COMMERCIAL ELECTRIC)**

Models & Elements	Voltage	Wiring	1.5	2	2.5	3	4	5	6
6 Gallon Models Single Element	120V	-	1.5	2	2.5	3			
	208V	-	1.5	2	2.5	3			
	240V	-	1.5	2	2.5	3			
10 Gallon through 20 Gallon Models Single Element	120V	-	1.5	2	2.5	3	3.5	4	4.5
	208V	-	1.5	2	2.5	3	3.5	4	4.5
	240V	-	1.5	2	2.5	3	3.5	4	4.5

**Model**

Model	120V	208V	240V	277V	480V
DEL-30	N/A	4500	4500	4500	4500
DEL-40	N/A	4500	4500	4500	4500
DEL-50	N/A	4500	4500	4500	4500
DEL-60	N/A	4500	4500	4500	4500
DEL-80	N/A	4500	4500	4500	4500
DEL-92	N/A	4500	4500	4500	4500
DEL-110	N/A	4500	4500	4500	4500
DEL-120	N/A	4500	4500	4500	4500

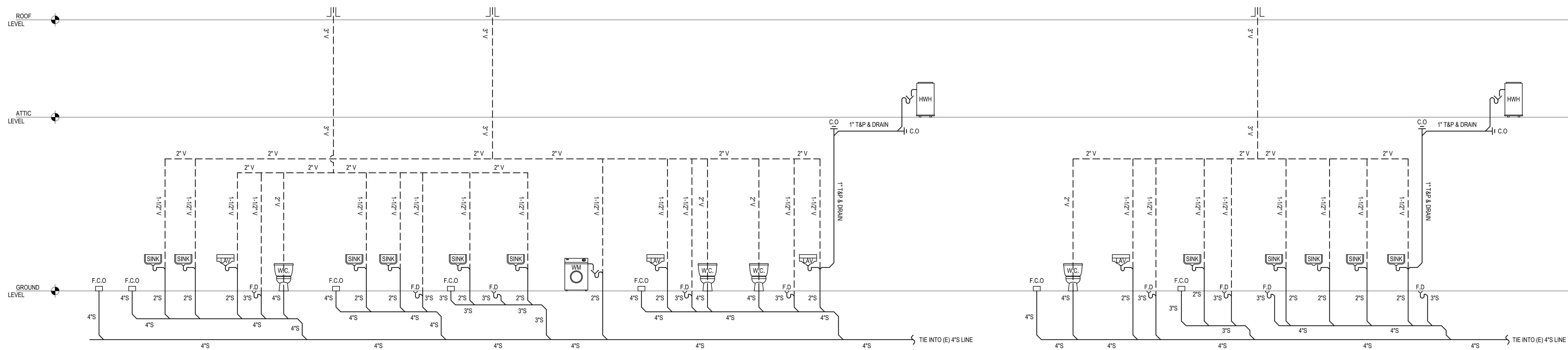
**AC Smith. Commercial Electric Water Heaters**

**RECOVERY CAPACITIES**

Element Wattage (Output/Element)	Input kW	U.S. Gallons/HR and Liters/HR at Temperature Rise Indicated											
		1°	36°	40°	54°	60°	72°	80°	90°	100°	108°	120°	126°
		°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
6100/1500	12.2	GPH	138	124	92	82	69	62	51	48	46	41	39
		LPH	527	469	348	310	261	235	208	194	174	153	146

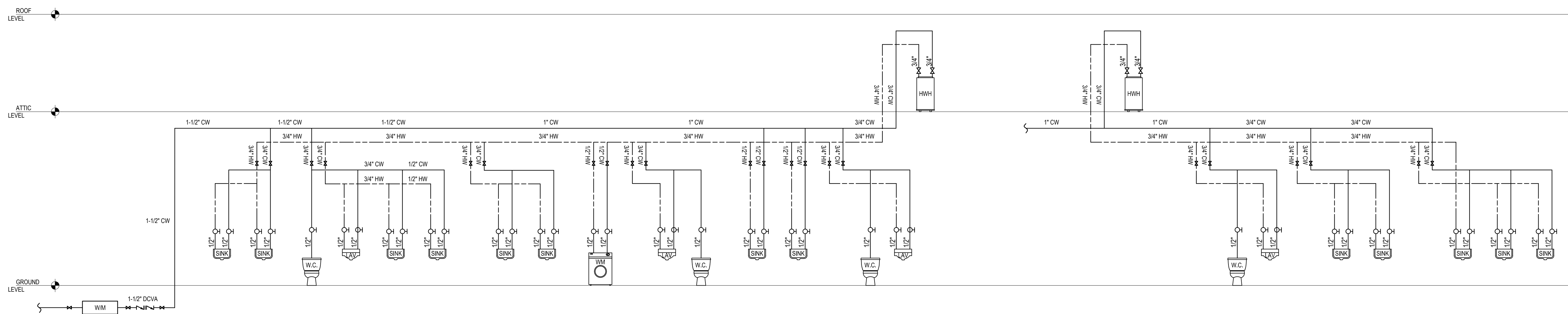
**SPECIFICATION**

The water heaters shall be "Data-Power" Model(s) No. \_\_\_\_\_ as manufactured by A. O. Smith or an approved equal. Heater(s) shall be rated at \_\_\_\_\_ kW, \_\_\_\_\_ phase, 60 cycle AC, and listed by Underwriters' Laboratories. Models shall meet the standby loss requirements of the U.S. Department of Energy and current edition of ASHRAE 90.1. Tank(s) shall be \_\_\_\_\_ gallon capacity. Heater(s) shall have 150 psi working pressure and be equipped with extended high density anode rod. All internal surfaces of the heater(s) exposed to water shall be glass-lined with an alkaline borosilicate composition that has been fused-to-steel by Brigg at a temperature range of 1600°F to 1650°F. Electric heating elements shall be medium wall density with zinc plated copper sheath. Each element shall be controlled by an individually mounted thermostat and high temperature cutoff switch. The outer jacket shall be of baked enamel finish and shall enclose the tank with foam insulation. Electrical junction box with heavy duty terminal block shall be provided (except on 120V & 277V 100 junction box on DEL-6 thru 20). The drain valve shall be located in the front for ease of servicing. Heater tank shall have a three year limited warranty as outlined in the written warranty. Fully illustrated instruction manual to be included.



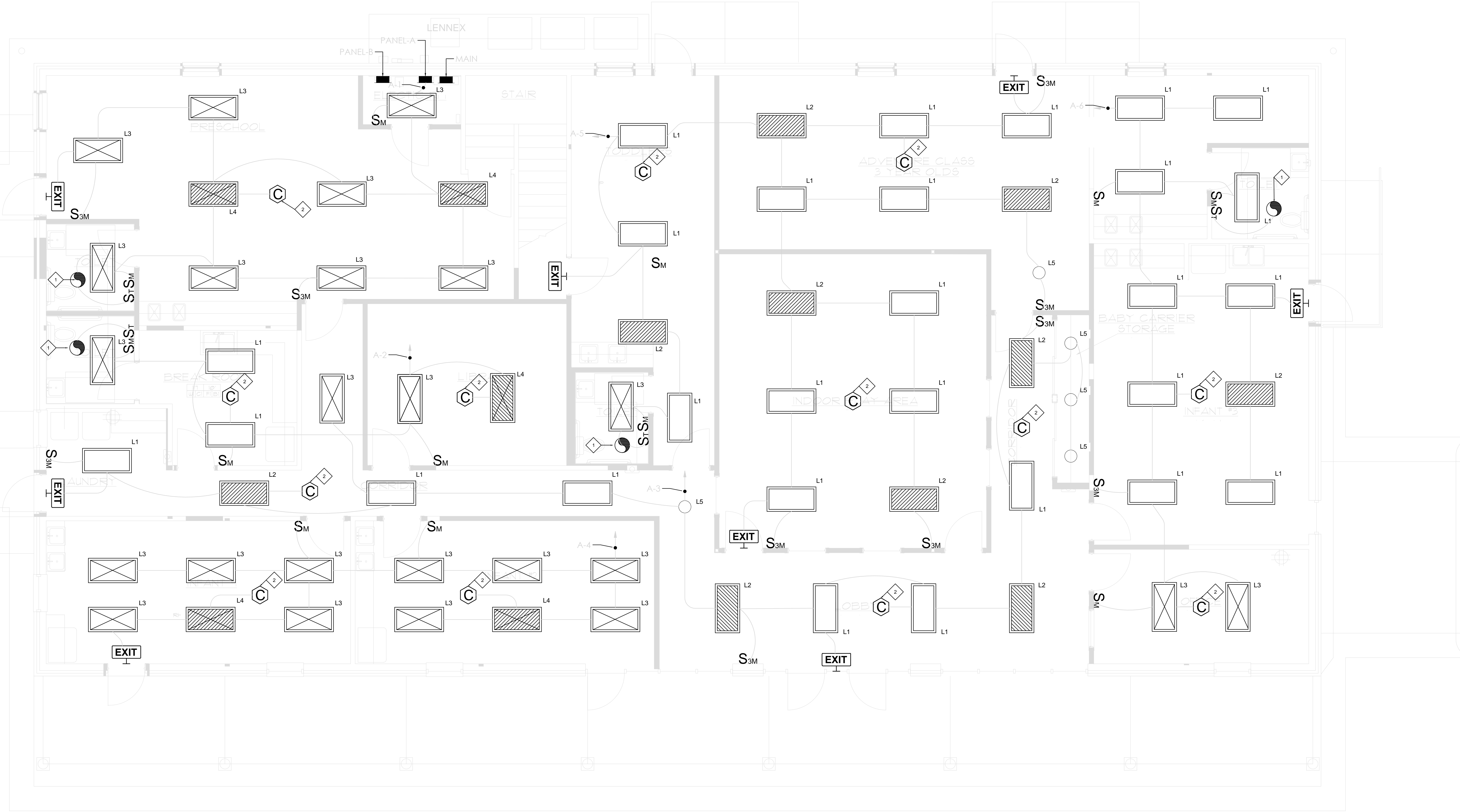
**SANITARY & DRAINAGE RISER DIAGRAM - PART 1 OF 1**

SCALE: N.T.S.



**WATER SUPPLY RISER DIAGRAM - PART 1 OF 1**

SCALE: N.T.S.



**SHEET NOTES:**

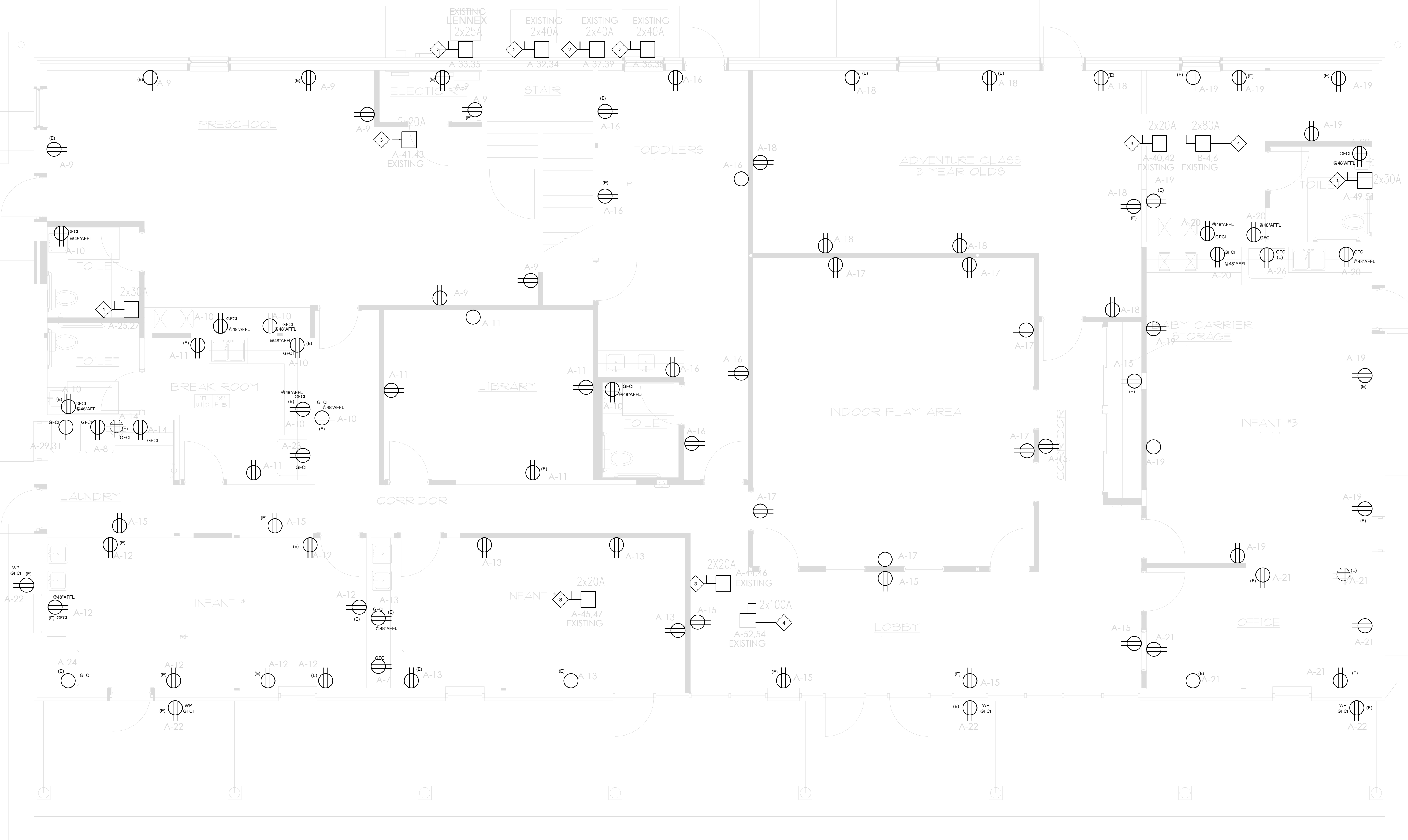
- 1- PROVIDE HEAVY DUTY JUNCTION BOX, FLUSH IN CEILING (OR WALL) FOR EXHAUST FANS THAT TURNS ON WHEN THE TIMER SWITCH OF THIS FAN IS TURNED ON
- 2- FURNISH AND INSTALL SMOKE OR COMBINATION SMOKE AND CARBON MONOXIDE DETECTOR AS REQUIRED. INTERLOCK WITH OTHER DETECTORS

**SPECIAL NOTES:**

THIS IS A RENOVATION PROJECT:

- 1- ALL OF THE LIGHT FIXTURES ON THE INTERIOR ARE TO BE REPLACED.
- 2- THE ELECTRICAL OUTLETS ARE A MIXTURE OF NEW AND EXISTING. THE (E) NOTED RECEPTACLES ARE TO REMAIN
- 3- THE EXISTING PANEL NEEDS TO BE REUSED.





- SHEET NOTES:**
- 1 — PROVIDE NEMA 3R DISCONNECT SWITCH FOR ELECTRIC WATER HEATER
  - 2 — PROVIDE NEMA 3R DISCONNECT SWITCH FOR HVAC OUTDOOR UNIT
  - 3 — PROVIDE NEMA 3R DISCONNECT SWITCH FOR AHU
  - 4 — PROVIDE NEMA 3R DISCONNECT SWITCH FOR AHU HEATING ELEMENT

**SPECIAL NOTES:**  
 THIS IS A RENOVATION PROJECT:  
 1- ALL OF THE LIGHT FIXTURES ON THE INTERIOR ARE TO BE REPLACED.  
 2- THE ELECTRICAL QUANTITIES ARE A MIXTURE OF NEW AND EXISTING.