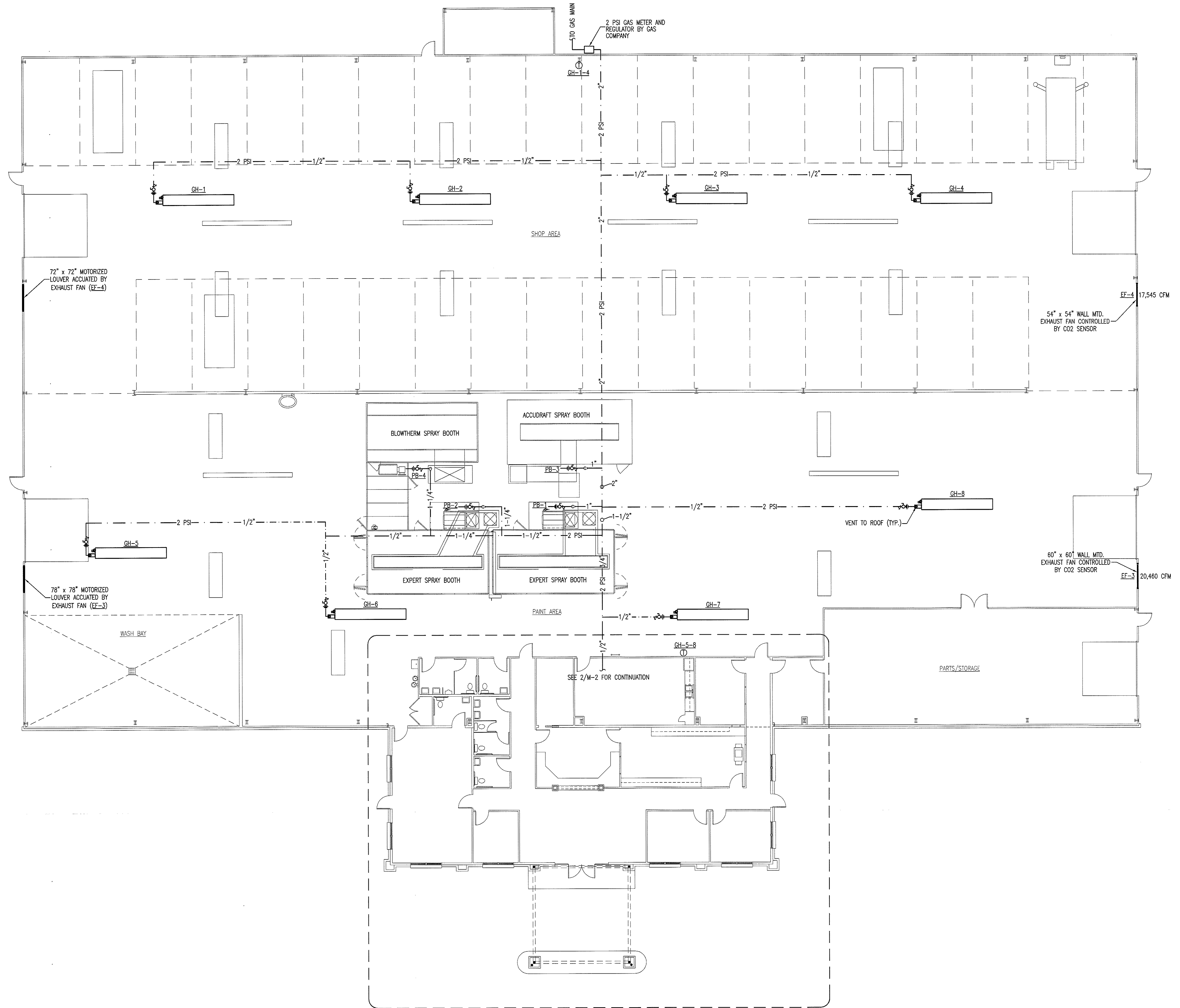


MECHANICAL NOTES:

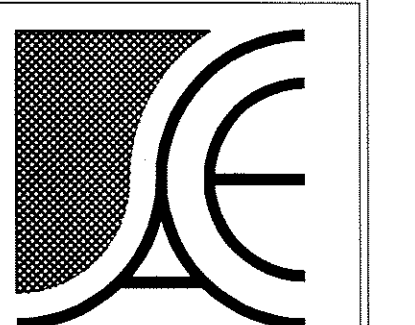
- ALL HVAC EQUIPMENT AND DUCTWORK TO BE INSTALLED IN ACCORDANCE WITH STATE AND LOCAL CODES.
- THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL DUCTWORK, PIPING, AND ELECTRICAL REQUIREMENTS WITH ALL OTHER TRADES PRIOR TO BEGINNING INSTALLATION TO AVOID CONFLICTS AND INTERFERENCE WITH OTHER TRADES.
- ALL EQUIPMENT TO BE INSTALLED AS SUGGESTED BY MANUFACTURER.
- INSULATE SUPPLY AND RETURN DUCTWORK LOCATED IN UNCONDITIONED SPACES BY WRAPPING WITH INSULATION WITH A MINIMUM INSTALLED R-VALUE OF 5.0. DIMENSIONS SHOWN ARE INSIDE CLEAR AREA DIMENSIONS.
- EQUIP GAS FURNACES WITH RETURN AIR FILTER RACKS.
- MECHANICAL SYSTEM TO BE BALANCED AND TESTED AFTER INSTALLATION TO ASSURE PROPER OPERATION.
- COORDINATE EXACT LOCATION OF THERMOSTATS WITH OWNER.
- BATHROOM EXHAUST FANS ARE TO BE FURNISHED, INSTALLED AND DUCTED TO OUTDOORS BY THE MECHANICAL CONTRACTOR. EXHAUST FAN TO BE WIRED BY THE ELECTRICAL CONTRACTOR.
- SMOKE DETECTORS ARE TO BE PROVIDED IN RETURN AIR DUCT OF EACH UNIT AHEAD OF MAKE-UP AIR CONNECTIONS TO SHUT DOWN THE UNIT IN CASE OF FIRE.
- DUCT SMOKE DETECTORS ARE TO BE CONNECTED TO FIRE ALARM.
- EXHAUST FAN DISCHARGE TO BE AT LEAST TEN FEET AWAY FROM HVAC FRESH AIR IN-TAKE.
- GAS PIPING BASED ON 2 PSI GAS PRESSURE. VERIFY ALL GAS LINES SIZES WITH GAS COMPANY.
- ALL GAS PIPING TO BE BLACK STEEL PIPING WITH PROTECTIVE PAINT.
- GAS FURNACES & TUBE HEATERS ARE TO BE PROVIDED WITH COMBUSTION AIR IN ACCORDANCE WITH MECHANICAL CODE.
- EQUIP GAS FURNACES & TUBE HEATERS WITH TYPE "B" FLUE PIPE THROUGH ROOF WITH RAIN CAP.
- GAS REGULATORS FOR HVAC EQUIPMENT TO BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR.
- FINAL UTILITY CONNECTIONS (GAS, ELECTRIC, ETC.) TO EQUIPMENT SHALL BE MADE BY THE CONTRACTOR INSTALLING THE EQUIPMENT REQUIRING THE UTILITIES.
- DUCT DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW THE INTENT OF THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY ADDITIONAL TRANSITIONS, OFFSETS, OR TURNS, IN THE DUCTWORK AND/OR PIPING, NOT SHOWN BUT REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.
- ALL DUCTWORK SHALL BE INSTALLED TIGHT AGAINST THE STRUCTURE UNLESS OTHERWISE NOTED OR SHOWN.
- AIR DISTRIBUTION LOCATIONS SHOWN ON MECHANICAL PLANS ARE APPROXIMATE. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR ACTUAL LOCATIONS.
- REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS OF WALLS AND PARTITIONS AND FOR PARTITION THICKNESS AND CONSTRUCTION MATERIALS.
- ELECTRICAL POWER REQUIREMENTS ARE BASED ON MANUFACTURER'S PUBLISHED DATA. IF ACTUAL UNIT IS A DIFFERENT MANUFACTURER OR THE ACTUAL PURCHASED UNIT(S) OTHERWISE HAVE DIFFERENT ELECTRICAL LOAD (MCA) OR CIRCUIT BREAKER (MCB) REQUIREMENTS THAN WHAT IS PUBLISHED ON THE DRAWING SCHEDULE, THE MECHANICAL CONTRACTOR MUST SUBMIT THE CORRECT DATA IN WRITING TO THE GENERAL CONTRACTOR AND ELECTRICAL CONTRACTOR (IF KNOWN). IT IS THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE GC AND ELECTRICAL CONTRACTOR ARE NOTIFIED OF CHANGES IN THE MECHANICAL EQUIPMENT, WHICH WILL CHANGE THE ELECTRICAL WIRING, BREAKER SIZES OR QUANTITY OF CIRCUITS.



1 MECHANICAL PLAN
M-1 SCALE: 3/32" = 1'-0"

SEE 1/M-2 FOR ENLARGED OFFICE ELECTRICAL PLAN

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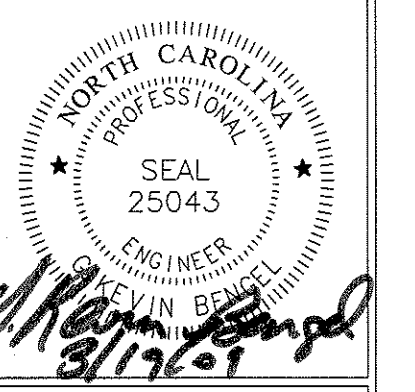
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**NEW BUILDING FACILITY:
DARRELL ALLEN
BODY SHOP**

Burlington, North Carolina

DRAWING NAME:
**OVERALL
MECHANICAL PLAN**



DRAWN	MIW
CHECKED	MIW
DATE	3/18/09
SCALE	AS NOTED
JOB NO.	9008
SHEET	

M-1

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT METHOD OF COMPLIANCE

PRESCRIPTIVE ENERGY COST BUDGET

THERMAL ZONE 8

EXTERIOR DESIGN CONDITIONS
WINTER DRY BULB 15 °F
SUMMER DRY BULB 90 °F

INTERIOR DESIGN CONDITIONS
WINTER DRY BULB 68 °F
SUMMER DRY BULB 78 °F
RELATIVE HUMIDITY 50 %

BUILDING HEATING LOAD 393,695 BTU/HR
BUILDING COOLING LOAD 11.26 TONS

MECHANICAL SPACING CONDITIONING SYSTEM
UNITARY GAS FURNACE- A/C & GAS UNIT HEATERS

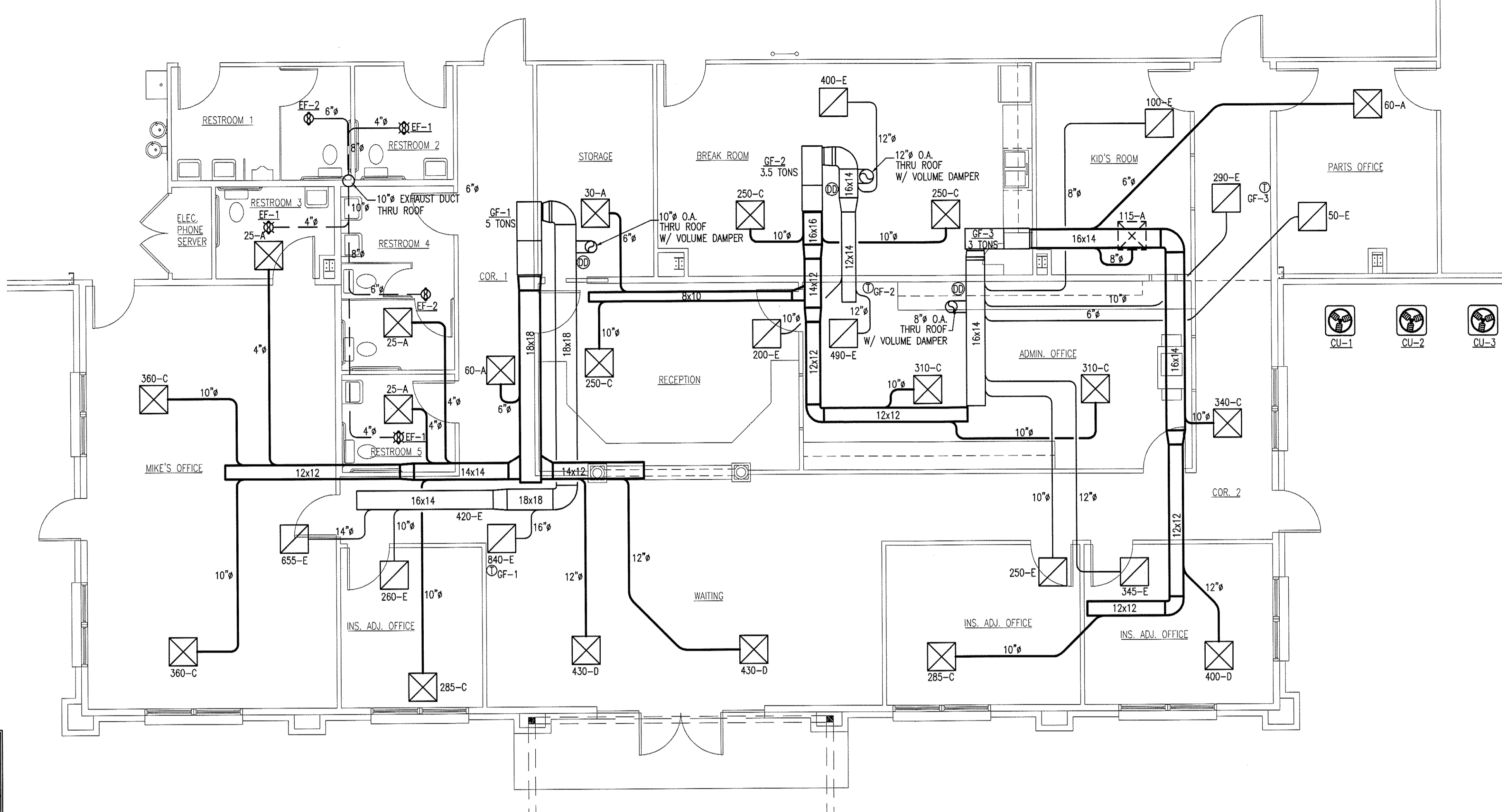
HEATING EFFICIENCY
COOLING EFFICIENCY
HEATING OUTPUT OF UNIT 884,000 BTU/HR
COOLING OUTPUT OF UNIT 11.5 TONS

LIST EQUIPMENT EFFICIENCIES
EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEM)
MOTOR HORSEPOWER HP
NUMBER OF PHASES
MINIMUM EFFICIENCY %
MOTOR TYPE
OF POLES

DESIGNER STATEMENT:
TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT REQUIREMENTS OF NORTH CAROLINA STATE BUILDING CODES.

SYMBOLS & ABBREVIATIONS LEGEND

SYMBOL	DESCRIPTION
⊖	THERMOSTAT (PROGRAMMABLE)
⊠	CEILING SUPPLY DIFFUSER
⊞	CEILING RETURN GRILLE
⊞	SUPPLY DUCT SECTION
⊞	RETURN DUCT SECTION
CFM	CUBIC FEET PER MINUTE
---	NATURAL GAS
	UNION
∅	DIAMETER OR POWER PHASE
O.A.	OUTSIDE AIR
R.A.	RETURN AIR
S.A.	SUPPLY AIR
A.F.F.	ABOVE FINISHED FLOOR
⊞	EXHAUST FAN/LIGHT COMBO
⊞	DUCT MOUNTED SMOKE DETECTOR



OFFICE MECHANICAL PLAN
SCALE: 3/16" = 1'-0"

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL	TYPE	CFM	SP	MOTOR	POWER	SONES	WATTS	CONTROL
EF-1	GREENHECK	SP-A90-L	FAN/LIGHT	75	.125" W.G.	FHP	115/1φ	1.4	104	SWITCH
EF-2	GREENHECK	SP-A190	FAN	150	.125" W.G.	FHP	115/1φ	1.8	150	SWITCH
EF-3*	GREENHECK	SBE-2H60-15	SIDEWALL	20,460	.125" W.G.	1-1/2 HP	277/1φ	23.0	2,399	CO2 SENSOR
EF-4*	GREENHECK	SBE-1H54-7	SIDEWALL	17,545	.125" W.G.	3/4 HP	277/1φ	13.4	1,656	CO2 SENSOR

* - EXTERIOR MOTORIZED LOUVERED VENTS FOR EXHAUST FAN INTAKE AIR ARE SIZED BASED ON LOUVERED VENTS HAVING 55% FREE AREA.

OUTSIDE AIR CALCULATIONS (GF-1)

OCCUPANCY CLASSIFICATION (PER TABLE 403.3)	NET (GROSS) SQUARE FOOTAGE	OCCUPANCY LOAD PERSONS PER 1,000 S.F.	CALCULATED # OF PEOPLE	OUTSIDE AIR REQUIRED PER PERSON (CFM)	OUTSIDE AIR REQUIRED PER S.F. (CFM)	OUTSIDE AIR REQUIRED (CFM)	OUTSIDE AIR PROVIDED (CFM)
WAITING	335	30	10	15	--	150	150
INSURANCE OFFICE 1	88	7	1	20	--	20	20
CORRIDOR 1	(225)	--	--	--	0.05	11	15
MIKE'S OFFICE	404	7	3	20	--	60	60
TOTAL OUTSIDE AIR						241	245

OUTSIDE AIR CALCULATIONS (GF-2)

OCCUPANCY CLASSIFICATION (PER TABLE 403.3)	NET (GROSS) SQUARE FOOTAGE	OCCUPANCY LOAD PERSONS PER 1,000 S.F.	CALCULATED # OF PEOPLE	OUTSIDE AIR REQUIRED PER PERSON (CFM)	OUTSIDE AIR REQUIRED PER S.F. (CFM)	OUTSIDE AIR REQUIRED (CFM)	OUTSIDE AIR PROVIDED (CFM)
RECEPTION	187	60	3	15	--	45	45
ADMINISTRATION OFFICE	279	7	2	20	--	40	40
BREAK ROOM	303	50	15	15	--	225	225
TOTAL OUTSIDE AIR						310	310

OUTSIDE AIR CALCULATIONS (GF-3)

OCCUPANCY CLASSIFICATION (PER TABLE 403.3)	NET (GROSS) SQUARE FOOTAGE	OCCUPANCY LOAD PERSONS PER 1,000 S.F.	CALCULATED # OF PEOPLE	OUTSIDE AIR REQUIRED PER PERSON (CFM)	OUTSIDE AIR REQUIRED PER S.F. (CFM)	OUTSIDE AIR REQUIRED (CFM)	OUTSIDE AIR PROVIDED (CFM)
INSURANCE OFFICE 2	119	7	1	20	--	20	20
INSURANCE OFFICE 3	116	7	1	20	--	20	20
CORRIDOR 2	(292)	--	--	--	0.05	15	15
KID'S ROOM	124	50	6	15	--	90	90
PARTS OFFICE	130	7	1	20	--	20	20
TOTAL OUTSIDE AIR						165	165

INFRARED HEATER SCHEDULE

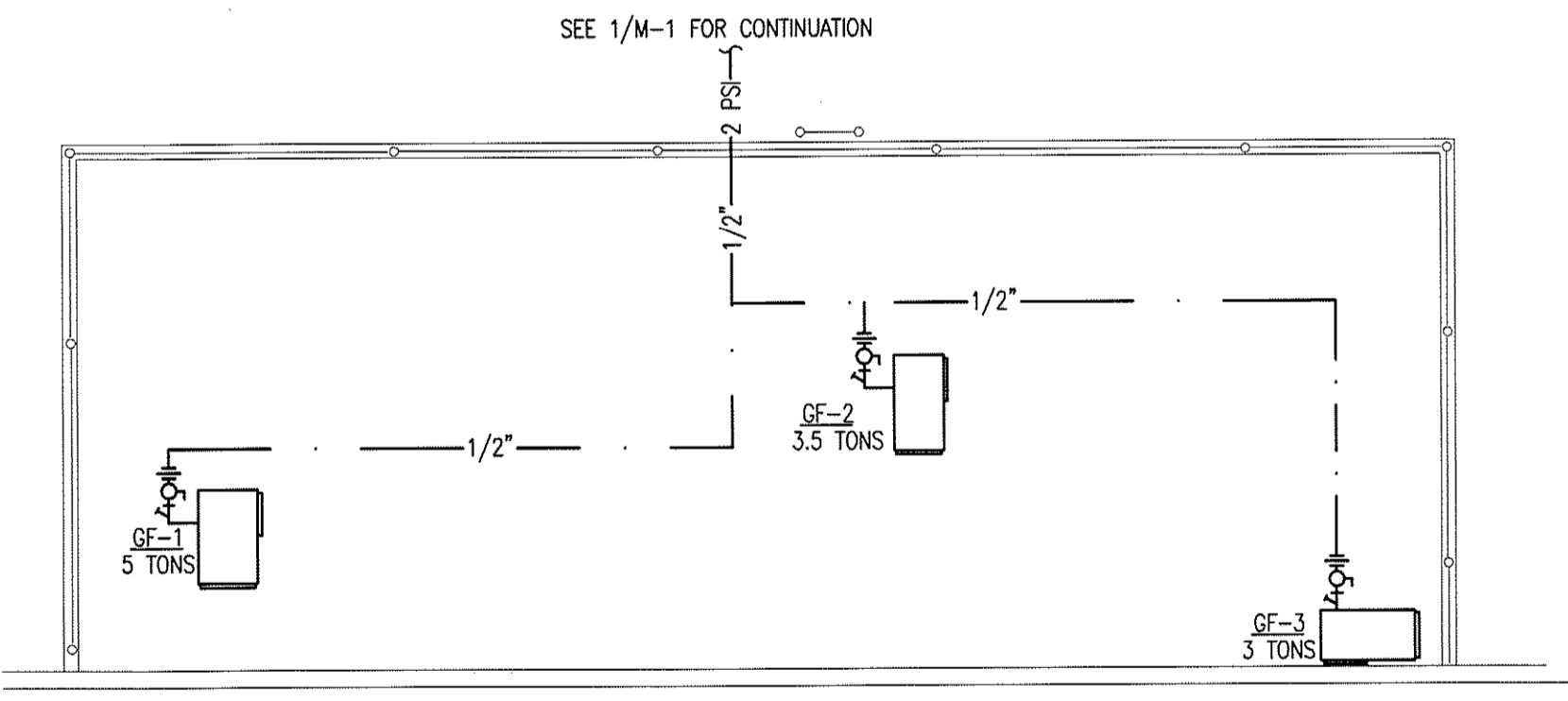
MARK	MANUFACTURER	MODEL	TUBE LENGTH	INPUT (BTUH)	OUTPUT (BTUH)	MIN. EFF.	POWER	WATTS	CONTROL
GH-1-8	SPACE-RAY	LTU100-30	30'	100,000	85,000	85% AFUE	120V/1φ	312	THERMOSTAT

AIR DISTRIBUTION SCHEDULE

MARK	MANUFACTURER	NECK SIZE	PANEL SIZE	CFM RANGE	USE	TYPE	MODEL	MATERIAL	FILTER SIZE
A	E.H. PRICE	6"	24x24	0-150	SUPPLY	STAMPED LOUVER FACE	SCD	STEEL	--
B	E.H. PRICE	8"	24x24	151-250	SUPPLY	STAMPED LOUVER FACE	SCD	STEEL	--
C	E.H. PRICE	10"	24x24	251-375	SUPPLY	STAMPED LOUVER FACE	SCD	STEEL	--
D	E.H. PRICE	12"	24x24	376-550	SUPPLY	STAMPED LOUVER FACE	SCD	STEEL	--
E	E.H. PRICE	22x22	24x24	0-1600	RETURN	NON-FILTERED RETURN GRILLE	PDDR	STEEL	--

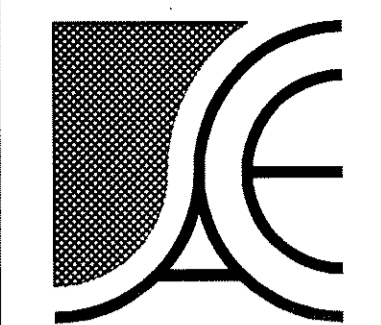
SPLIT SYSTEM A/C WITH GAS FURNACE

MARK	TONS	MANUFACTURER	INDOOR UNIT				OUTDOOR UNIT				FAN DATA				COOLING CAPACITY			HEATING CAPACITY				
			FURNACE MODEL NO.	COIL MODEL NO.	POWER	MCA	MCB	MODEL NO.	POWER	MCA	MCB	AIR FLOW (CFM)	R.A. FLOW (CFM)	O.A. FLOW (CFM)	E.S.P. (IN. W.G.)	MOTOR SIZE (H.P.)	SENSIBLE (BTUH)	TOTAL (BTUH)	MIN. EFF.	INPUT (BTUH)	OUTPUT (BTUH)	MIN. EFF.
GF-1/CU-1	5	CARRIER	58STA09010020	CNRHP6024	115/1φ	13.6	20	24ABA360A003	208/1φ	34.2	50	2000	1755	245	0.37	3/4	44,220	59,260	13 SEER	84,000	68,000	80%
GF-2/CU-2	3.5	CARRIER	58STA09010014	CNRHP4224	115/1φ	8.2	15	24ABA342A003	208/1φ	23.5	40	1400	1090	310	0.41	1/2	30,840	40,500	13 SEER	84,000	68,000	80%
GF-3/CU-3	3	CARRIER	58STA09010012	CNRHP3624	115/1φ	6.8	15	24ABA336A003	208/1φ	19	30	1200	1035	165	0.41	1/2	25,280	33,800	13 SEER	84,000	68,000	80%



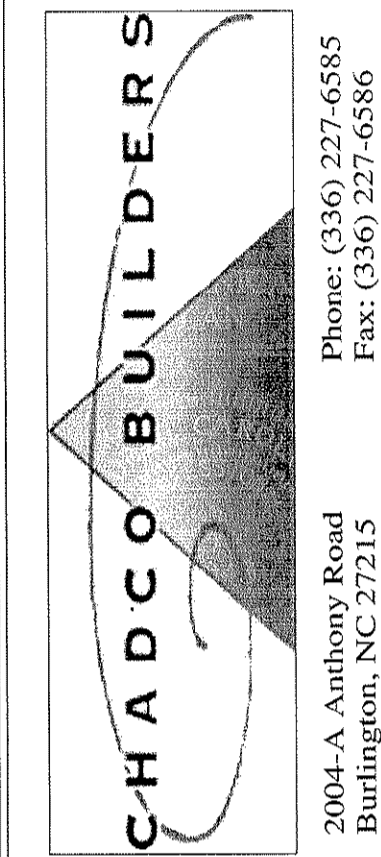
MEZZANINE MECHANICAL PLAN
SCALE: 3/16" = 1'-0"

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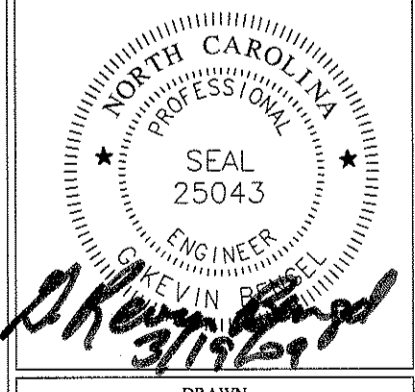
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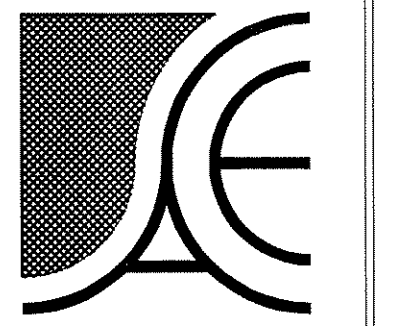
NEW BUILDING FACILITY:
DARRELL ALLEN BODY SHOP
Burlington, North Carolina

DRAWING NAME
MECHANICAL PLAN



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DATE 3/18/09
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M-2



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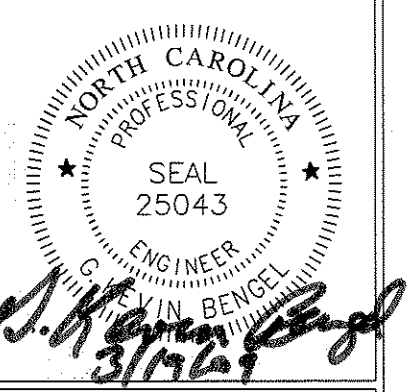
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**NEW BUILDING FACILITY:
DARRELL ALLEN
BODY SHOP**

Burlington, North Carolina

DRAWING NAME
**MECHANICAL
DETAILS**



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MJW

CHECKED
MKK

DATE
3/18/09

SCALE
AS NOTED

JOB NO.
9008

SHEET

M-3

GAS EQUIPMENT SCHEDULE		
MARK	DESCRIPTION	BTU/hr. INPUT
GF-1	GAS FURNACE	84,000
GF-2	GAS FURNACE	84,000
GF-3	GAS FURNACE	84,000
PB-1	PAINT BOOTH	1,200,000
PB-2	PAINT BOOTH	1,200,000
PB-3	PAINT BOOTH	1,200,000
PB-4	PAINT BOOTH	1,200,000
GH-1	GAS TUBE HEATER	100,000
GH-2	GAS TUBE HEATER	100,000
GH-3	GAS TUBE HEATER	100,000
GH-4	GAS TUBE HEATER	100,000
GH-5	GAS TUBE HEATER	100,000
GH-6	GAS TUBE HEATER	100,000
GH-7	GAS TUBE HEATER	100,000
GH-8	GAS TUBE HEATER	100,000
TOTAL		5,852,000 @250' T.D.L.

