

HVAC GENERAL NOTES

- THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT IN STRICT ACCORDANCE WITH APPLICABLE CODES AND STANDARDS, AND PER MANUFACTURER'S DIRECTIONS.
- THE CONTRACTOR SHALL SECURE AND PAY FOR ALL NECESSARY PERMITS, LICENSE, INSPECTIONS, APPROVALS, AND FEES.
- THE CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL OTHER TRADES BEFORE INSTALLATION OF ANY MATERIALS OR EQUIPMENT.
- THESE DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL LOCATION AND ARRANGEMENT OF ALL MATERIALS AND EQUIPMENT. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS BUILDING CONSTRUCTION AND ALL OTHER WORK WILL PERMIT.
- DO NOT SCALE DRAWINGS FOR MEASUREMENTS.
- ALL DUCT DIMENSIONS SHOWN ARE INTERIOR DUCT DIMENSIONS.
- ALL PENETRATIONS THROUGH EXTERIOR WALLS & ROOF SHALL BE FLASHED & COUNTERFLASHED IN A WATERPROOF MANNER (COLOR TO MATCH EXTERIOR).
- SEAL ALL PENETRATIONS OF RATED WALLS WITH FIRE DAMPER AND SEALANT MATERIAL APPROVED BY LOCAL CODE.
- ALL SUSPENDED MATERIALS AND EQUIPMENT SHALL BE INDIVIDUALLY SUPPORTED FROM THE BUILDING STRUCTURE. DO NOT SUSPEND ITEMS FROM THE CEILING OR ITS SUPPORT SYSTEM.
- INSTALL ALL CONTROL DEVICES, INCLUDING THERMOSTATS AND SWITCHES, 4'-0" ABOVE FINISHED FLOOR. PROVIDE THE REQUIRED DEVICE(S) FOR ALL SYSTEMS WHETHER LOCATED ON THE PLANS OR NOT.
- LOCATE CEILING DIFFUSERS IN ACCORDANCE WITH ARCHITECTURAL REFLECTED CEILING PLANS (IF PROVIDED).
- PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCES AROUND MECHANICAL UNITS FOR MAINTENANCE AND FILTER REMOVAL.
- ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED W/ WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS, TO AVOID INTERFERENCE.
- ALL SUPPLY AND RETURN DUCT SHALL BE INSULATED. CONCEALED SHEET METAL DUCT MAY BE EXTERNALLY INSULATED WITH MINERAL FIBER BOARD OR BLANKET OR MAY BE INTERNALLY INSULATED WITH DUCT LINER (R-VALUE = 5). THE FIRST IS' FROM THE AIR HANDLER SHALL BE INTERNALLY LINED.
- CERTIFIED TEST AND BALANCE CONTRACTOR SHALL BALANCE SYSTEM TO AIR QUANTITIES INDICATED ON PLANS AND PROVIDE OWNER'S REPRESENTATIVE WITH COMPLETE BALANCE REPORT. IF BALANCING DAMPERS ARE NOT PROVIDED IN RETURN DUCTWORK, CONTRACTOR SHALL BALANCE SUPPLY SIDE TO AIR QUANTITIES INDICATED ON PLANS AND SHALL BALANCE OUTSIDE AIR AND RETURN AIR FLOWS AT THE AIR HANDLER TO AIR QUANTITIES INDICATED IN THE SCHEDULE. PROVIDE NEW AIR FILTERS FOR EACH UNIT.
- AS REQUIRED BY LOCAL CODES, MECHANICAL CONTRACTOR SHALL PROVIDE U.L. LISTED FIRE DAMPERS WHERE REQUIRED FOR FIRE PROTECTION REQUIREMENTS OF THE HVAC SYSTEM & THE UL ASSEMBLY.
- PROVIDE 1 YEAR WARRANTY ON ALL EQUIPMENT AND 5 YEAR WARRANTY ON ALL COMPRESSORS.
- ALL INTAKE OPENINGS SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ALL EXHAUST LOCATIONS.
- CONDENSATE DRAIN PIPING AND FITTINGS SHALL BE SCHEDULE 40 PVC. DRAINS FROM AIR HANDLING UNITS SHALL BE TRAPPED.
- A COMPLETE SYSTEM OF SEISMIC RESTRAINTS SHALL BE DESIGNED BY MASON INDUSTRIES & SEALED BY THEIR REGISTERED ENGINEER & INSTALLED BY THIS CONTRACTOR, AS REQ'D BY APPLICABLE CODES FOR THE LOCALE OF THIS PROJECT.
- ALL MAIN DUCTWORK SHALL BE GALVANIZED SHEET METAL OR 1" FIBERBOARD CONSTRUCTED IN ACCORDANCE WITH SMACNA STANDARDS. RUN OUTS FOR THE MAIN/BRANCH DUCTS MAY BE FLEX DUCT CONFORMING TO THE REQUIREMENTS OF UL 181 FOR CLASS 1 FLEXIBLE AIR DUCTS.
- THE MECHANICAL CONTRACTOR SHALL PROVIDE REFRIGERANT AND LOW VOLTAGE CONTROL LINES FROM THE CONDENSER(S) TO THE AIR HANDLING UNIT(S). COORDINATE ROUTING AND INSTALLATION WITH THE GENERAL CONTRACTOR. SIZE REFRIGERANT LINES PER MANUFACTURER'S REQUIREMENTS.
- ELECTRICAL CONTRACTOR TO PROVIDE ALL HIGH VOLTAGE ELECTRICAL WIRING, CONDUIT, DISCONNECT SWITCHES, FUSES, ECT. TO SPLIT SYSTEM UNIT(S). ALL FINAL ELECTRICAL CONNECTIONS ARE BY ELECTRICAL CONTRACTOR.
- REFRIGERANT PIPING, NOT SHOWN ON PLANS, SHALL BE SIZED & INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INSTALLATION INSTRUCTIONS AND LOCAL CODES.
- MECHANICAL CONTRACTOR SHALL VERIFY LOCATION OF ALL PENETRATIONS FOR RELIEF HOODS, OUTSIDE AIR HOODS, LOUVERS, AND WALL CAPS WITH ARCHITECT & OWNER PRIOR TO INSTALLATION.
- MECHANICAL CONTRACTOR SHALL PAINT ALL RELIEF HOODS, INTAKE HOODS, LOUVERS, AND VENT CAPS. CONFIRM COLOR WITH ARCHITECT & OWNER PRIOR TO INSTALLATION.
- SEE PLUMBING SHEETS FOR ALL GAS PIPING INFORMATION AND DETAILS.
- ALL SUPPLY, RETURN, AND OUTSIDE AIR DUCTWORK IN ATTIC TO BE INSULATED WITH A MINIMUM OF R-8 PER IBC/NCBC 2002 SECTION 803.2.8.
- PENETRATIONS OF RATED WALLS, PARTITIONS AND FLOORS OF NON-COMBUSTIBLE CONSTRUCTION SHALL BE FIRESTOPPED WITH NONCOMBUSTIBLE MATERIALS. PENETRATIONS OF NONRATED WALLS, PARTITIONS AND FLOOR OF COMBUSTIBLE CONSTRUCTION SHALL BE FIRESTOPPED WITH MATERIALS EQUIVALENT TO TWO INCHES OF WOOD. FIRESTOPPING SHALL COMPLY WITH ASTM E-814.

AIR HANDLER NUMBERS RE-ORGANIZED

SPLIT SYSTEM HEAT PUMP UNIT SCHEDULE

AIR HANDLING UNIT DATA													HEAT PUMP					NOTES				
UNIT TAG	AREA SERVED	MANUF. MODEL	FAN DATA				COOLING		HEAT		AUX.		ELECTRICAL DATA			GENERAL DATA			ELECTRICAL DATA			
			FAN CFM	ESP (IN WG)	MOTOR (HP)	OA (CFM)	TOTAL (TMBH)	SENS. (TMBH)	TOTAL (TMBH)	HEAT (KW/240)	VOLTAGE (V/PH)	MCA (A)	MOCP (A)	UNIT TAG	MANUF. MODEL	TONNAGE	EFF. (SEER)	HSFP	VOLTAGE (V/PH)	MCA (A)	MOCP (A)	
AH-1	UNITS	CARRIER FV4CNF002	1000	0.50"	1/2	NOTE 13	28.8	21.6	17.2	5.0	240/1Ø	28.4	30	HP-1	CARRIER 25HCE430	2.5	14.0	8.2	240/1Ø	16.9	30	1-16
AH-2	UNITS	CARRIER FV4CNF003	1200	0.50"	1/2	NOTE 13	33.4	25.0	20.4	8.0	240/1Ø	48.5	50	HP-2	CARRIER 25HCE437	3.0	15.0	8.2	240/1Ø	19.5	30	1-16
AH-3	UNITS	CARRIER FV4CNF005	1400	0.50"	1/2	NOTE 13	40.0	30.0	25.2	8.0	240/1Ø	48.5	50	HP-3	CARRIER 25HCE442	3.5	14.5	8.2	240/1Ø	24.0	40	1-16

- NOTES:
- COOLING CAPACITIES ARE RATED IN ACCORDANCE WITH ARI STANDARD 210/240 AT 95°F AMBIENT OUTDOOR AIR TEMP., 80°F DRY BULB, 67°F WET BULB ENTERING AIR TEMP., AND AIR QUANTITY LISTED BY MFG. UNITS ABOVE 5 TONS ARE RATED IN ACCORDANCE WITH ARI STANDARD 340.
 - REFRIG. PIPING TO BE SIZED PER TOTAL INSTALL. EQUIV. LENGTH. LONG-LINE APP. TO BE PROVIDED WHENEVER MFG. RECOMM. LENGTHS ARE EXCEEDED, INCL. LIQ. LINE SOLENOID VALVES, ACCUMULATOR, ETC. MAX T.E.L. IS PER MFG.
 - PROVIDE SINGLE POINT ELECTRICAL CONNECTION FOR AIR HANDLING UNIT.
 - PROVIDE 3 SETS OF NEW FILTERS FOR EACH UNIT. PROVIDE ONE AT INSTALLATION, ONE PRIOR TO AIR BALANCE AND ONE AT TURNOVER TO OWNER.
 - SYSTEMS SHALL HAVE A MINIMUM 14.0 SEER RATING.
 - PROVIDE MANUFACTURER'S 7 DAY PROGRAMMABLE THERMIDISAT W/ MANUAL OVERRIDE.
 - PROVIDE BI-FLOW TVX FOR HEAT PUMP OPERATION.
 - HEAT PUMPS TO BE COASTAL MODELS.

- AHU TO USE UPFLOW APPLICATION WITH FABRICATED FILTER RACK BELOW UNIT.
- RETURN AIR THROUGH DOOR LOUVER.
- SUPPORT AHU ON REINFORCED SHEET METAL R.A. PLENUM.
- DRAIN CONDENSATE TO HUB DRAIN
- OUTSIDE AIR PROVIDED BY NATURAL VENTILATION AND INFILTRATION.
- OUTDOOR THERMOSTAT TO LOCK-OUT ELECTRIC HEAT WHEN TEMPERATURE IS 45°F OR HIGHER. PROVIDE UNIT WITH EMERGENCY HEAT OVERRIDE OPTION.
- CYCLE PROTECTOR AND TIME DELAY RELAY (IF AVAILABLE).
- CATALOG NUMBERS AND MANUFACTURERS ARE TO INDICATE TYPE AND QUALITY OF UNIT DESIRED. SUBMIT CUTSHEETS OF THESE AND ALTERNATE MANUFACTURERS FOR ARCHITECT AND OWNER APPROVAL PRIOR TO PURCHASE OF ANY UNITS. INFORMATION ON ALTERNATE UNITS PROPOSED BY THE CONTRACTOR SHALL INCLUDE THE ADD/DEDUCT ASSOCIATED WITH ACCEPTANCE OF THAT UNIT (OR THE ALTERNATE PACKAGE AS A WHOLE).

SPLIT SYSTEM HEAT PUMP UNIT SCHEDULE

AIR HANDLING UNIT DATA													HEAT PUMP					NOTES			
UNIT TAG	AREA SERVED	MANUF. MODEL	FAN DATA				COOLING		HEAT		AUX.		ELECTRICAL DATA			GENERAL DATA			ELECTRICAL DATA		
			FAN CFM	ESP (IN WG)	MOTOR (HP)	OA (CFM)	TOTAL (TMBH)	SENS. (TMBH)	TOTAL (TMBH)	HEAT (KW)	VOLTAGE (V/PH)	MCA (A)	MOCP (A)	UNIT TAG	MANUF. MODEL	TONNAGE	EFF. (SEER)	VOLTAGE (V/PH)	MCA (A)	MOCP (A)	
AH-4	ELEV. LOBBIES	MITSUBISHI SLZ-KADPWA	350	N/A	0.93 (A)	36	10.9	9.1	6.2	-	208/1Ø	1.0	15	HP-4	MITSUBISHI MZG-4B36NA	.9	15	208/1Ø	23	25	1-9

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 - REFRIG. PIPING TO BE SIZED PER TOTAL INSTALL. EQUIV. LENGTH. LONG-LINE APP. TO BE PROVIDED WHENEVER MFG. RECOMM. LENGTHS ARE EXCEEDED, INCL. LIQ. LINE SOLENOID VALVES, ACCUMULATOR, ETC. MAX T.E.L. IS PER MFG.
 - PROVIDE SINGLE POINT ELECTRICAL CONNECTION FOR AIR HANDLING UNIT.
 - PROVIDE NEW FILTER IN EACH UNIT AT TURNOVER TO OWNER.
 - PROVIDE ON/AUTO FAN SWITCH AND HEAT-OFF-COOL THERMOSTAT WITH SUBBASE FOR EACH UNIT.

- PROVIDE HEAT PUMP KIT WITH AIR HANDLER (IF REQUIRED).
- RUN CONDENSATE TO EXTERIOR, AWAY FROM FOOT TRAFFIC.
- SINGLE HEAT PUMP SERVING ALL INDOOR UNITS.
- CATALOG NUMBERS AND MANUFACTURERS ARE TO INDICATE TYPE AND QUALITY OF UNIT DESIRED. SUBMIT CUTSHEETS OF THESE AND ALTERNATE MANUFACTURERS FOR ARCHITECT AND OWNER APPROVAL PRIOR TO PURCHASE OF ANY UNITS. INFORMATION ON ALTERNATE UNITS PROPOSED BY THE CONTRACTOR SHALL INCLUDE THE ADD/DEDUCT ASSOCIATED WITH ACCEPTANCE OF THAT UNIT (OR THE ALTERNATE PACKAGE AS A WHOLE).

FAN SCHEDULE

UNIT NO.	SERVICE	AREA SERVED	CFM	S.P.	RPM	TYPE & ARRANGEMENT	MIN. MOTOR HP & VOLTAGE	MANUFACTURER & MODEL NO.	DRIVE	CONTROL SCHEME	REMARKS
EF-1	EXHAUST	BATHROOMS	80	0.10	MFG	CEILING	0.5A 120/1Ø	BROAN MODEL RDH-80RDF	DIRECT	A	1-5
EF-2	EXHAUST	BATHROOMS	100	0.10	-	FAN/LIGHT	-	-	-	A	1-6
EF-3	EXHAUST	ELEV. EQUIP.	80	0.10	MFG	CEILING	0.5A 120/1Ø	BROAN MODEL RDH-80RDF	DIRECT	B	1-5
EF-4	EXHAUST	CRAWLSPACE	75	0.10	1050	CEILING	1/6 HP 115/1Ø	GREENHECK MODEL SQ-60-E	DIRECT	C	1-4

- NOTES:
- SCREEN
 - BACKDRAFT DAMPER
 - COLOR BY ARCHITECT
 - INTEGRAL DISCONNECT SWITCH
 - PROVIDE RADIATION DAMPER
 - FAN PROVIDED & INSTALLED BY E.C. EXHAUST DUCT CONNECTION AND INSTALLATION BY M.C.
- CONTROL OPTIONS:
- CONTROL W/ SWITCH
 - CONTROL W/ TSTAT SET TO TURN FAN ON WHEN TEMP. IS ABOVE 80°F.
 - CONTROL W/ HUMIDISTAT FOR FAN POWERS ON WHEN > 60% RELATIVE HUMIDITY.

DIFFUSER SCHEDULE

SYMBOL	CFM	NECK SIZE	MODULE SIZE	FRAME TYPE	PATTERN	DAMPER	MATERIAL	SERVICE	FINISH	MANUFACTURER & MODEL NO.	NOTES
(A)	AS NOTED	AS NOTED	AS NOTED	SURFACE	2-WAY	YES	STEEL	SUPPLY	NOTE 2	HART & COOLEY 682	1 3
(B)	AS NOTED	AS NOTED	AS NOTED	SURFACE	-	NO	STEEL	TRANSFER	NOTE 2	HART & COOLEY 672	1
(C)	AS NOTED	AS NOTED	AS NOTED	SURFACE	-	NO	STEEL	FILTERED RETURN	NOTE 2	HART & COOLEY 659	1

- NOTES:
- DIFFUSER DESIGNATIONS ON PLANS AS FOLLOWS:
DIFFUSER OR NECK SIZE. $\frac{8 \times 4}{75}$ (A) DIFFUSER TYPE AS NOTED ABOVE
 - FINISH TO MATCH / BE ABLE MATCH CEILING OR WALL OR DOOR
 - PROVIDE WITH U.L. LISTED RADIATION DAMPER.

UNIT HEATER SCHEDULE

TAG	LOCATION	CAPACITY BTUH	W	V	H	MANUFACTURER & MODEL NO.	NOTES	
UH-1	STAIRWELLS/SPRINKLER RT1	2,560	750	120	1	60	MARKEL MODEL E332TTD-RP	1-5

- NOTES:
- PROVIDED AND INSTALLED BY E.C.
 - INTERNAL THERMOSTAT
 - UNIT DISCONNECT
 - MOUNT HEATER @ 12" A.F.F.
 - U.L. LISTED

GRAVITY VENTILATOR SCHEDULE

UNIT DESIG.	AREA SERVED	FUNCTION	MANUFACTURER & MODEL #	CFM	MOUNTING	PRESSURE DROP	NOTES
GV-1	ELEVATOR	RELIEF	GREENHECK GRSR-24	-	ROOF	0.06"	1-3

- NOTES:
- PROVIDE FACTORY MANUFACTURED ROOF CURB.
 - COLOR TO MATCH ROOF.
 - MINIMUM FREE AREA TO BE 3.0 SQFT

ENERGY REQUIREMENTS:

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

METHOD OF COMPLIANCE
 PRESCRIPTIVE ENERGY COST BUDGET

THERMAL ZONE **7A**

EXTERIOR DESIGN CONDITIONS
 WINTER DRY BULB **17**
 SUMMER DRY BULB **91**

INTERIOR DESIGN CONDITIONS
 WINTER DRY BULB **72**
 SUMMER DRY BULB **74**
 RELATIVE HUMIDITY **50**

BUILDING HEATING LOAD (MBH) **349 MBH**

BUILDING COOLING LOAD (MBH) **552 MBH**

MECHANICAL SPACING CONDITIONING SYSTEM UNITARY

DESCRIPTION OF UNIT
 HEATING EFFICIENCY **SEE SCHEDULES**
 COOLING EFFICIENCY **SEE SCHEDULES**
 HEAT OUTPUT OF UNIT **SEE SCHEDULES**
 COOLING OUTPUT OF UNIT **SEE SCHEDULES**

BOILER
 TOTAL BOILER OUTPUT **NA**

CHILLER
 TOTAL CHILLER OUTPUT **NA**

LIST EQUIPMENT EFFICIENCIES **SEE SCHEDULES**

EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS)
 MOTOR HORSEPOWER **SEE SCHEDULES**
 NUMBER OF PHASES **SEE SCHEDULES**
 MINIMUM EFFICIENCY **SEE SCHEDULES**
 MOTOR TYPE **SEE SCHEDULES**
 NUMBER OF POLES **SEE SCHEDULES**

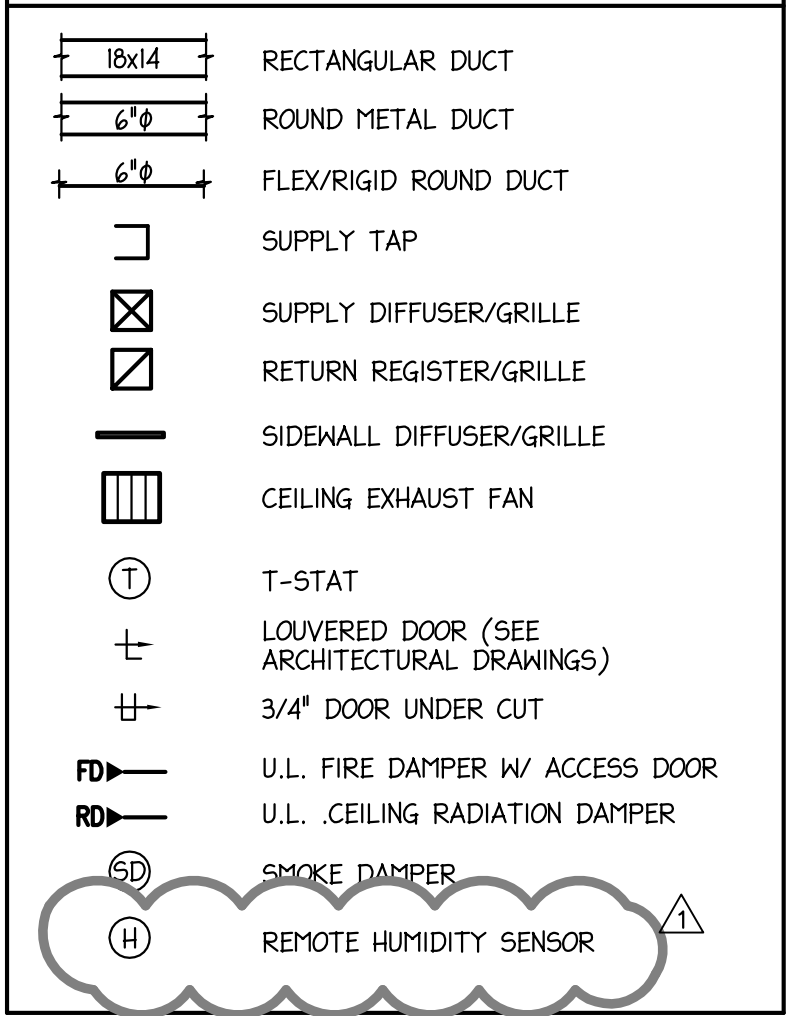
DESIGNER'S STATEMENT:
 TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT REQUIREMENTS OF THE N.C.S. ENERGY CODE.

SIGNED: Scott A. Brown

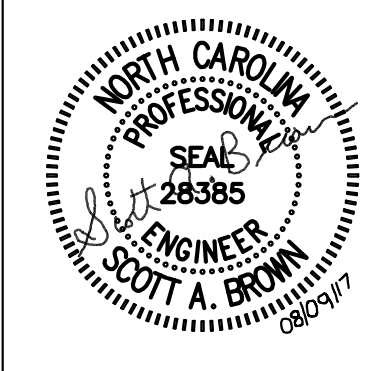
NAME: SCOTT A. BROWN, PE

TITLE: MECHANICAL ENGINEER

MECHANICAL LEGEND



Concordia Building Company
Nantucket Condominiums
 700 Waterford Lake Drive Cary, NC



DATE	PROJECT:	WOP-05115	06.16.2017
REVISIONS:	1	CITY COMMENTS	08.07.17
DRAWN BY:	PWI		
CHECKED BY:	SAB		
CONTENT:	MECHANICAL LEGEND, NOTES AND SCHEDULES		

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