



State of West Virginia
 Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER
DNR90148

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF
**FRANK WHITTAKER
 304-558-2316**

RFQ COPY
 TYPE NAME/ADDRESS HERE

VENDOR

SHIP TO

**DIVISION OF NATURAL RESOURCES
 TWIN FALLS RESORT
 ATTN: PARK SUPERINTENDENT
 POST OFFICE BOX 1023
 MULLENS, WV
 25882 294-6000**

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
06/08/2008				

BID OPENING DATE: **06/17/2008** BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
				ADDENDUM NO. 2		
				THIS ADDENDUM IS ISSUED TO PROVIDE THE ATTACHED CLARIFICATION FOR THE TWIN FALLS STATE PARK LODGE EXPANSION.		
				THIS ADDENDUM SHALL BE INCORPORATED IN THE CONSTRUCTION DOCUMENTS INCLUDING THE DRAWING AND SPECIFICATIONS FOR THE PROJECT REFERENCED ABOVE.		
				BID OPENING HAS BEEN CHANGED FROM 06/12/08 AT 1:30 PM TO 06/17/08 AT 1:30 PM		
0001	1	LS		968-42		
				GENERAL CONSTRUCTION		
***** THIS IS THE END OF RFQ DNR90148 ***** TOTAL:						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

**GENERAL TERMS & CONDITIONS
REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)**

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. All quotations are governed by the *West Virginia Code* and the *Legislative Rules* of the Purchasing Division.
4. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$125.00 registration fee.
5. All services performed or goods delivered under State Purchase Orders/Contracts are to be continued for the term of the Purchase Order/Contract, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods, this Purchase Order/Contract becomes void and of no effect after June 30.
6. Payment may only be made after the delivery and acceptance of goods or services.
7. Interest may be paid for late payment in accordance with the *West Virginia Code*.
8. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
9. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
10. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
11. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern all rights and duties under the Contract, including without limitation the validity of this Purchase Order/Contract.
12. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
13. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, this Contract may be deemed null and void, and terminated without further order.
14. **HIPAA Business Associate Addendum** - The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, and available online at the Purchasing Division's web site (<http://www.state.wv.us/admin/purchase/vrc/hipaa.htm>) is hereby made part of the agreement. Provided that, the Agency meets the definition of a Covered Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division.
2. **SPECIFICATIONS:** Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Complete all sections of the quotation form.
4. Unit prices shall prevail in cases of discrepancy.
5. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
6. **BID SUBMISSION:** All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications.

SIGNED BID TO:

Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

June 4, 2008

TO: All Bidders

REF: **Twin Falls State Park – Lodge Expansion**
West Virginia Division of Natural Resources
RFQ No: DNR 90148

SUBJ: **Addendum No. 2**

This Addendum shall be incorporated in the Construction Documents including the Drawings and Specifications for the Project referenced above. All work amended as listed herein shall be included in your Bid Proposal and the bidder shall acknowledge this clarification bulletin in accordance with the Request for Quotation.

The Construction Contract Documents shall be amended as follows:

FOR CLARIFICATION / INFORMATION

The steel supplier is to coordinate and provide any additional framing required for the curtain walls with the curtain wall supplier.

SPECIFICATIONS:

1. Division 15, Section 15495: **DELETE** entire Section. **ADD** Section 15495 Swimming Pool Equipment included in this bulletin. This is to add "Pool Water Treatment / Chemical Monitoring and Feed (Sodium Hypochlorite (Bleach) Chlorine Injection) System" to the specification.

DRAWINGS:

1. Drawing AQ-1.1: **DELETE** Note 6 under "Piping Notes" which begins with "6) CHEMICAL SUPPLY/RETURN PIPING IS TO BE....." **ADD** "6) PROVIDE CHEMICAL FEED SYSTEMS AS SPECIFIED IN SECTION 15495 OF THE PROJECT SPECIFICATIONS. CHEMICAL FEED SYSTEMS WILL BE INSTALLED, STARTED, TESTED, CALIBRATED, AND INITIAL POOL CHEMICAL BALANCE ACHIEVED BY CHEMICAL FEED SYSTEM FACTORY TRAINED PERSONNEL FOR CL₂, PH, CALCIUM HARDNESS, AND TOTAL ALKILINITY. PROVIDE THREADED TAPS FOR CHEMICAL FEED SYSTEM SAMPLING FLOW AND CHEMICAL INJECTIONS POINTS. COORDINATE FINAL LOCATION WITH THE ENGINEER."
2. Drawing AQ-1.1, AQ-1.2, AQ-1.3: **DELETE** drawing references in plan, detail, and isometric to the (4) tees, (2) 2" throttling valves, (4) 1"

isolations valves, and 1" CPVC piping shown as supplying the chemical feed systems of both the pool and the spa. **REPLACE** deleted tees and fittings with a straight run of 2" CPVC piping with no fittings.

3. Drawing H-4.1: **DELETE** Air Diffuser Schedule. **ADD** Air Diffuser Schedule included in this Bulletin.
4. Drawing H-4.1: **DELETE** Air Register Schedule. **ADD** Air Register Schedule included in this Bulletin.

REQUESTS FOR INFORMATION:

Be it known that the following written requests for information were received through the end of business May 14, 2008. Each written request for information is followed by the appropriate answer.

1. **Q:** The Architectural sheets show 4" SIPS. The specifications call for R25 (6-1/2" SIPS. The structural sheets show 8-1/4" SIPS. Please clarify the SIP panels..

A: *Structural sheets are correct.*

2. **Q:** Should the glulam timbers be sized for loads only or also for aesthetics?

A: *Maintain the height dimension as shown and the thickness may vary depending on the structural requirements.*

3. **Q:** Do the windows require wood blocking?

A: *Notes on Jamb details call for blocking as required.*

4. **Q:** Do the windows have an interior window sill?

A: *Gypsum board returns where required to provide finished edges.*

END OF ADDENDUM

Enclosures:

- A Specification Section 15495 "Swimming Pool Equipment"
- B Air Diffuser Schedule
- C Air Register Schedule

SECTION 15495

SWIMMING POOL EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pipe and Pipe Fittings, Valves, Strainers.
- B. Pumps.
- C. Pool Heaters
- D. Pool Water Treatment / Chemical Monitoring and Feed (Sodium Hypochlorite (Bleach) Chlorine Injection) System

1.02 RELATED SECTIONS

- A. Section 15065 - Motors for Mechanical Equipment.
- B. Section 16155 - Equipment Wiring: Electrical characteristics and wiring connections.

1.03 REFERENCES

- A. ASME (BPV VIII, 1) - Boiler and Pressure Vessel Code, Section VIII, Division 1 - Rules for Construction of Pressure Vessels; The American Society of Mechanical Engineers; 2004.
- B. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel; 2005.
- C. ASTM D 1785 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120; 2005.
- D. ASTM D 2467 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80; 2006.
- E. ASTM D 2855 - Standard Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings; 1996 (Reapproved 2002).
- F. NSF 50 - Circulation System Components and Related Materials for Swimming Pools, Spas/Hot Tubs; NSF International; 2005.
- G. UL 1081 - Swimming Pool Pumps, Filters, and Chlorinators; Underwriters Laboratories Inc.; 1997.

1.04 SUBMITTALS

- A. See Section 01300 - Administrative Requirements for submittal procedures.
- B. Product Data:
 - 1. Provide submittals on all pool equipment, piping, fittings, and accessories
 - 2. Include data on pipe materials, pipe fittings, valves and accessories.
 - 3. Include component sizes, rough-in requirements, service sizes, and finishes.
 - 4. Include product description, model, dimensions, component sizes, rough-in requirements, service sizes, and finishes.
 - 5. Provide electrical characteristics and connection requirements.
- C. Shop Drawings: Indicate detailed assembly of components of each system or sub-system.
- D. Manufacturer's Instructions: Indicate installation details, components assembly, and start-up procedures.
- E. Project Record Documents: Record actual locations of controlling devices and underfloor piping (dimensioned to reference walls).

- F. Operation Data: Include installation instructions, lubrication instructions, and assembly views.
- G. Maintenance Data: Include maintenance and inspection data, replacement part numbers and availability, and service depot location and telephone number.
- H. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with NSF 50.
- B. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of experience.
- C. Installer Qualifications: Company specializing in performing the type of work specified in this section with minimum 5 years of experience.

1.06 REGULATORY REQUIREMENTS

- A. Conform to applicable code for installation of swimming pool systems.
- B. Perform work in accordance with local health department and state health department regulations.
- C. Provide certificate of compliance (Permit) from authority having jurisdiction indicating approval of installation. Authority Having Jurisdiction (AHJ) is WV State Health Dept, Charleston WV.
- D. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.07 DELIVERY, STORAGE, AND PROTECTION

- A. Accept equipment on site in shipping containers with labeling in place. Inspect for damage.
- B. Protect equipment from damage and elements by maintaining shipping packaging in place until installation. Maintain temporary inlet and outlet caps in place until installation.

1.08 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year manufacturer warranty for water heaters.

PART 2 PRODUCTS

2.01 PIPE AND FITTINGS

- A. PVC Pipe: ASTM D 1785, Schedule 40.
 - 1. Fittings: ASTM D 2467, Schedule 80, PVC.
 - 2. Joints: ASTM D 2855, solvent weld.
- B. Unions for Pipe Sizes 2 inch and Under: PVC for plastic piping; bronze unions for copper pipe, soldered joints.
- C. Flanges for Pipe Sizes over 2 inch: PVC for plastic piping; bronze for copper piping.
- D. Valves: PVC plastic body and ball, double lever handle, double union with socket ends, EPDM seals, teflon seats.
- E. Butterfly Valves: PVC body, bronze disc, resilient replaceable seat for service to 180 degrees F (82 degrees C) wafer style, 10 position lever handle. Provide keyed stainless steel nuts in lieu of handle for subgrade valves in pit. Provide one key to extend to 36" AFF for each pool.

2.02 POOL PUMPS

- A. Manufacturers:

1. Pentair, Inc: www.pentair.com.
 2. Substitutions: See Section 01600 - Product Requirements.
- B. Type: UL 1081, horizontal shaft, single stage, direct connected, with motor, oil lubricated, with casing, integral hair and lint strainer, renewable wear ring, impeller, mechanical seal.
- C. Casing: Glass reinforced plastic resin, self-primary, double volute rated for 125 psi working pressure, with pipe flanges.
- D. Impeller: Fiberglass filled plastic resin, closed with casing wear rings.
- E. Shaft: Alloy steel with integral thrust collar and stainless steel sleeve.
- F. Seal: Carbon rotating against a stationary ceramic seat.
- G. Strainer: Hair and lint basket built into casing with 12:1 ratio of free area to pipe inlet area, EPDM gasketed removable lexan cover.
- H. Pump Motors: 3phase/ 208 volt as scheduled.
- I. Performance:
1. As scheduled

2.03 POOL FITTINGS AND EQUIPMENT

- A. Manufacturers:
1. Hayward Pool Products, Inc: www.haywardpool.com.
 2. Pentair, Inc: www.pentair.com.
 3. Sta-Rite Industries: www.starite.com.
 4. Substitutions: See Section 01600 - Product Requirements.
- B. Main Drain:
1. Grate Style: Anti entrapment grating/ cover meeting current standards.
 2. ABS, white color with stainless steel securing screws, size as indicated unless larger need to meet standards, then size as required.
- C. Frames and Grates:
1. Shape: Square.
 2. Material and Size: ABS, size per ANSI/NPSI standards.
- D. Wall, Floor Inlets, Equalizer Lines:
1. White ABS, nominal 1-1/2" diameter, with fish eye.
- E. Ball Inlets:
- F. Skimmers:
1. NSF approved, ABS molded body, with 10 inch diameter cover, 8 inch wide hinged weir with automatic level adjustment of 4.5 inches, thermoplastic strainer with 160 cu in capacity, 55 gpm flow rating, type as called for on drawings.

2.04 COMMERCIAL FILTERS

- A. Manufacturers:
1. Baker Hydro
 2. Substitutions: See Section 01600 - Product Requirements.
- B. Assembly: UL 1081, pressure sand-and-gravel type consisting of filter tank(s), face piping with butterfly valves, and gage panel.
- C. Filter Tank: Fabricate from reinforced fiberglass/epoxy resins suitable for working pressure of 75 psi, and hydrostatic test pressure of 125 psi. Provide round manhole in top of tank. Equip with 3/4 inch automatic air vent and tubing for connection to manual air vent on gage panel. Paint externally with primer and epoxy coat. Must bear NSF label.

- D. Influent Distribution System: Schedule 80 PVC pipe consisting of head and laterals with orifices directed upwards, designed for maximum 8 fps velocity of water in laterals at rated filter capacity. All bulkhead connections to be schedule 80.
- E. Under drain System: Schedule 80 PVC pipe, consisting of header and laterals with orifices pointed downwards, designed for maximum 10 fps velocity of water in laterals at rated filter capacity. Space laterals and orifices to ensure uniform water flow through filter bed during filter and backwash operations. Provide dual bottom lateral system to increase fluidization of sand bed during backwash.
- F. Provide Multiport flow selector valve for connection to the filter body with a working pressure of 50 psi.
- G. Filter Support Media: Clean, hard rounded gravel with minimum average specific gravity of 2.5, free from shale, mica, clay, sandstone, loam, and other impurities. Size and install in accordance with filter mfr's requirements.
- H. Filter Sand: Hard, durable grains of rounded or sub-angular silica sand, free from clay, loam, dirt and organic matter, maximum 1 percent by weight flat or micaceous particles, effective size of 0.17 inch and uniformity coefficient of 1.35. Place upon filter support media in level bed minimum 20 inches deep.
- I. Performance:
 - 1. As scheduled.

2.06 HEATING BOILER

- A. Manufacturers:
 - 1. Coates Boiler Company
 - 2. Substitutions: See Section 01600 - Product Requirements.
- B. Heater rated at KW listed with Incoloy elements, stainless steel tank, close differential thermostat, manual reset high limit, flow switch, element and flow switch "on" lights, element sequencing, UL listed, temperature/pressure relief valve.
- C. Performance:
 - 1. As specified

2.07 AIR BLOWER

- A. Manufacturers:
 - 1. Waterway-Santanna
 - 2. Substitutions: See Section 01600 - Product Requirements.
- B. Polypropylene casing, foam noise insulation, internal and external check valves, internal motor protection. Performance requirements as scheduled.

2.08 POOL ACCESSORIES

- A. Manufacturers:
 - 1. As Indicate on Project Drawings
 - 2. Substitutions: See Section 01600 - Product Requirements.
- B. Pool accessories such as flowmeters, gauges, aquastats, etc as required.

2.09 POOL WATER TREATMENT/ CHEMICAL MONITORING AND FEED (CHLORINE INJECTION)

- A. Manufacturers:
 - 1. Controller: STRANCO – Local Rep: Terry Smith, 614-268-7560
Siemens Water Technology System 3i
 - Pumps: Stenner - Local Rep: Terry Smith, 614-268-7560
Stenner 45M2

Chemical Test Kits: Taylor Technologies

2. Substitutions: Substituted equipment must be of equal form and function, including sensing, analysis, measurement and control methodology, and meet or exceed all of the performance and expansion capabilities of the specified equipment (in the judgment of the Engineer based on submitted information) to be an acceptable substitution for substitution procedures, see Section 01600 - Product Requirements.
- B. Pump Performance Requirement: injection rate 0.1 – 10 gallons per day.
- C. Provide one (1) complete system with controller and associated assemblies and two chemical feed pumps; for both the pool and the spa for a total of two complete systems.
- D. Controller: Continuously monitor pH and chlorine levels and control chemical feed pumps. Maintain PH and High Resolution Oxidation Reduction Potential measured in millivolts at Owner Programmable levels and displaying estimated free chlorine residual. Mount controller in surface mounted gasketed enclosure of fiberglass or high density polymeric construction. System shall include owner selectable future options including temperature sensor, communication (modem), and data logging module. Controller shall incorporate true time based proportional feed control.
- E. Sensors: Provide a separately piped flow/sample cell and rotameter with sample port. Chlorine (HRR) and PH electrodes are to have a coaxial cable for attachment to controller by BNC connector; hardwired sensors are not permitted.
- F. Flow Rotatometer: Shuts down controller on no flow through sampling line using a rotating paddle wheel generating a flow signal to the controller.
- G. Chemical Test Kit: Kit shall include Wet Slide Comparator for pH, FAS-DPD titrating test for chlorine, Calcium Hardness and Total Alkalinity.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install Work in accordance with State of WV, ANSI/NPSI, and current NSF standards as mandated by the state of West Virginia State Health Department.
- B. Install equipment in accordance with manufacturer's instructions.
- C. Install piping to conserve building space, not interfere with use of space and other work. Route piping in orderly manner, and maintain gradient. Group piping whenever practical at common elevations.
- D. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. Provide access to valves and fittings. Install piping so as to assure complete draining of pool and piping for service.
- E. Pipe relief valve outlet and backwash to backwash drain.
- F. Install unions downstream of non –flanged valves and at equipment or apparatus connections.
- G. Pumps:
 1. Provide air cock and drain connection on horizontal pump casings.
 2. Provide line sized valves as indicate and strainer on suction and line sized soft seated check valve and valve on discharge.
 3. Decrease from line size, with long radius reducing elbows or reducers. Support piping adjacent to pump such that no weight is carried on pump casings. Provide supports under elbows on pump suction and discharge line sizes 4 inches and over.

- H. Filter Tanks:
 - 1. Provide support for tanks independent of building structural framing members.
 - 2. Clean and flush tank prior to delivery to site. Seal until pipe connections are made.
- I. Pool Water Heaters:
 - 1. Install water heaters in accordance with manufacturers, ANSI/ NPSI 2003, and NEC requirements.
 - 2. Coordinate with plumbing piping and mechanical piping work to achieve operating system.
- J. Pool Water Treatment System:
 - 1. Install water treatment system in accordance with manufacturer's directions.
 - 2. Perform all taps for chemical feed and sample points as part of the installation of the system. All chemical suction and supply tubing is to be Kynar tubing with nylon compression nuts and ferrules. All sample tubing is to be clear polyethylene tubing.
 - 3. Coordinate chlorine and acid injection point with Engineer prior to installation. Provide manual shut off valves and flow checks at each injection point and at the inlet and outlet of the rotameter/ sample cell.
 - 4. Installation, testing, and startup of the chemical feed system is to be by factory trained personnel with at least 10 years documented experience in the installation, testing, startup, and training of chemical feed systems.
 - 5. Perform the initial water balance and remain onsite until chlorine and PH levels have been maintained for four hours with no system adjustment or calibration. Coordinate purchase of startup and first month of operations chemicals with Owner. Owner will purchase chemicals directly from a chemical supplier prior to startup.
 - 6. Perform system training for up to 6 of the Owner's personnel over a period of two days and provide detailed supporting documentation on the operation and maintenance of the chemical feed system. The system trainer is to be available by telephone to answer questions during the first three months of system operation.
 - 7. Provide completed warranty documentation in the Owner's name. Warranty is for 90 days parts and labor and one year for parts; both from system startup. Warranty does not include storm, flooding, power interruption, or lightning damage.

END OF SECTION

AIR DIFFUSER SCHEDULE

TAG	TYPE	MAX AIRFLOW (CFM)	NECK SIZE (in)	NECK SIZE (in x in)	ADAPTOR SIZE (in)	NOMINAL FACE SIZE (in x in)	MAX S.P. (in Wg)	VOLUME DAMPER	BASED ON		REMARKS
									MANUF.	MODEL	
SCD-6x	SQUARE CONE	300	6	-	-	24 x 24	0.07	YES	E.H. PRICE	SCD	1
SCD-8x	SQUARE CONE	280	8	-	-	24 x 24	0.07	YES	E.H. PRICE	SCD	1
SCD-10x	SQUARE CONE	450	10	-	-	24 x 24	0.12	YES	E.H. PRICE	SCD	1
LSD-483	LINEAR SLOT	270	---	48 x 6	---	50 x 7	0.06	NO	E.H. PRICE	SDS 100	SEE NOTE 4
LSD-484	LINEAR SLOT	190	---	48 x 8	---	50 x 9	0.04	NO	E.H. PRICE	SDS 100	SEE NOTE 4
LSD-603	LINEAR SLOT	270	---	60 x 6	---	62 x 7	0.06	NO	E.H. PRICE	SDS 100	SEE NOTE 4

NOTES:

1. X = AIR PATTERN. X = 1, 1 WAY. X = 2, 2 WAY. X = 3, 3 WAY. X = 4, 4 WAY. SEE PLANS FOR AIR PATTERN FOR EACH DIFFUSER.
2. PROVIDE EQUALIZING GRID MOUNTED IN NECK OF DIFFUSER.
3. PROVIDE A SQUARE-TO-ROUND NECK ADAPTOR AS SCHEDULED.
4. DIFFUSER SHALL HAVE THREE (3), 1" WIDE SLOTS.

AIR REGISTER SCHEDULE

TAG	TYPE	MAX AIRFLOW (CFM)	NECK SIZE (in dia.)	NECK SIZE (in x in)	NOMINAL FACE SIZE (in x in)	VOLUME DAMPER	MAX S.P. (in WG)	BASED ON		REMARKS
								MANUF.	MODEL	
DDR-1210	DOUBLE DEFLECTION	300	---	12 x 10	14 x 12	YES	0.10	E.H. PRICE	610DAL	SEE NOTE 1
DDR-1212	DOUBLE DEFLECTION	440	---	12 x 12	14 x 14	YES	0.10	E.H. PRICE	610DAL	SEE NOTE 1
DDR-168	DOUBLE DEFLECTION	225	---	16 x 8	18 x 10	YES	0.10	E.H. PRICE	610DAL	SEE NOTE 1
DDR-1610	DOUBLE DEFLECTION	525	---	16 x 10	18 x 12	YES	0.10	E.H. PRICE	610DAL	SEE NOTE 1

NOTES:

1. 22.5 DEGREE DEFLECTION. FRONT BLADES PARALLEL TO LONG DIMENSION.
2. 22 DEGREE DOWNWARD DEFLECTION.