



Solicitation Response

		Response Due Date June 29, 2016	Time 1:00 P.M.	Location 800 Lincoln Way, Ames, IA	
Proposal Number 15962	Description Blades – Snow and Ice Removal				
Contract Begin Date July 18, 2016	Contract Completion Date April 30, 2017	Bid Bond N/A	Performance Bond (Y/N) N	Liquidated Damages N/A	
Purchasing Agent assigned Jean Gustafson		E-mail Address jean.gustafson@dot.iowa.gov	Phone 515-239-1173	Fax 515-239-1538	
RESPONDER INFORMATION					
Company Name				Federal Tax ID	
Street Address		City	State	Zip Code	
Contact Name	E-mail Address		Phone	Fax	
Responder agrees to sell goods/services or both at the same prices, terms and conditions to any other Iowa state agency, Regent or Political Subdivision upon request. Please check Yes or No. <input type="checkbox"/> Yes <input type="checkbox"/> No			Responder is an Iowa Targeted Small Business <input type="checkbox"/> Yes <input type="checkbox"/> No		

GENERAL INFORMATION

This solicitation includes the Solicitation Response cover page, Schedule of Prices, Standard Terms and Conditions, Supplemental terms (if any), Specifications, Plans and Drawings, mailing label and all other information needed to prepare and submit a response to the solicitation. Information in the "Solicitation Response" above must be typed or completed in ink, signed, and returned in a flat style envelope along with any other information required in the solicitation prior to the response due date and time. Please use the furnished mailing label, or label the response as "Iowa Department of Transportation, proposal number and response due date on the outside of the return envelope. Responders may personally deliver, mail, or select a carrier that ensures timely delivery. **Faxed or e-mail responses will not be accepted.**

If required, each response must be accompanied by a bid bond in an accepted form, in the percent amount indicated above. Refer to the Standard Terms and Conditions for the accepted forms in which the bid bond requirement may be fulfilled. **Responses without a required bid bond will not be considered for award.** If the intended awarded responder fails to enter into a formal contract within fifteen (15) days after award is made for any reason on their part, the bid bond may be retained by the State.

The entire contents of this solicitation, Addendums, Schedule of Prices, Specifications, Plans and Drawings, Supplemental Terms and Conditions, Standard Terms and Conditions, shall become part of the contract.

We certify that we have not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit a response; that this response has been independently arrived at without collusion with any other responder, competitor, or potential competitor; and that this response has not been knowingly disclosed prior to the opening of responses to any other responder or competitor.

We certify that all materials, equipment goods and/or services proposed meet or exceed the specifications and will be supplied in accordance with the entire contents of this solicitation including delivery schedules. We promise to complete the contract within the contract period, or pay any liquidated damages, if stipulated, for each calendar day as set forth in the solicitation documents.

Signed _____ Date _____



Schedule Of Prices

Number	15962
Date Required	06/29/2016 1:00 PM

Title Blades - Snow and Ice Removal
 Delivery Location AMES, IA 50010
 Shipping Terms FOB Destination/Freight Prepaid

Vendor
 PA Name Jean Gustafson
 Phone 515-239-1173
 E-Mail jean.gustafson@dot.iowa.gov

Description

Product Availability Days: _____

Item	Qty	Unit	Description	Part #	Unit Price	Total Price
1 Snowplow Blades Standard						
1.1	100	EACH	BLADE DRAG FLAT 8'X 1/2" X 6" Stock #: 002-369000			
Comments:						
1.2	350	EACH	BLADE DRAG FLAT 11'X 1/2" X 6" Stock #: 002-370200			
Comments:						
1.3	100	EACH	BLADE DRAG FLAT 12'X 1/2" X 6" Stock #: 002-370300			
Comments:						
2 Grader Blades Hardened Flame or through hardened processes will be acceptable specify flame or through hardened: _____ Specifications-see Drawing B						
2.1	100	EACH	BLADE GRADER CURVED HARDENED 5'X 3/4" X 8" Stock #: 002-371000			
Comments:						
2.2	400	EACH	BLADE GRADER CURVED HARDENED 6'X 3/4" X 8" Stock #: 002-371750			
Comments:						
2.3	2,100	EACH	BLADE GRADER CURVED HARDENED 8'X 3/4" X 8" Stock #: 002-372750			
Comments:						
2.4	350	EACH	BLADE GRADER CURVED HARDENED 9'X 3/4" X 8" AASHTO 5/8" HOLE PUNCHING SET AT 3"-3"-6"-6"-6"-6" ETC. Stock #: 002-373000			
Comments:						
3 Grader Blades Serrated (Hardened) Specifications-see Drawing C						
3.1	30	EACH	BLADE GRADER CURVED SERRATED HARD 6FT 3/4" X 8" Stock #: 002-375060			
Comments:						
3.2	1	EACH	BLADE GRADER CURVED SERRATED HARD 8FT 3/4" X 8" Stock #: 002-375080			
Comments:						
3.3	1	EACH	BLADE UNDERBODY SERRATED GRADER BLADE 9' CURVED Stock #: 002-375090			
Comments:						

Item	Qty	Unit	Description	Part #	Unit Price	Total Price
4	Carbide-Insert Blades Groups 3A and 3B are Tied					
4.1	Carbide Insert Blades					
4.1.1	700	EACH	BLADE DRAG FLAT CARBIDE INSERT 3FT 3/4" X 6" Specifications-see Drawing "D" 5 Bundles per pallet packaging see pallet drawing "F" Stock #: 002-370600			
Comments:						
4.1.2	2,600	EACH	BLADE DRAG FLAT CARBIDE INSERT 4FT 3/4" X 6" Specifications-see Drawing "D" 4 Bundles per pallet packaging see pallet drawing "G" Stock #: 002-370650			
Comments:						
4.2	Carbide Insert Blades-Underbody					
4.2.1	700	EACH	BLADE DRAG FLAT CARBIDE INSERT 3FT 7/8" X 5" Specifications-see Drawing "E" 5 Bundles per pallet packaging see pallet drawing "F" Stock #: 002-374050			
Comments:						
4.2.2	700	EACH	BLADE DRAG FLAT CARBIDE INSERT 4FT 7/8" X 5" Specifications-see Drawing "E" 4 Bundles per pallet packaging see pallet drawing "G" Stock #: 002-374060			
Comments:						

I HEREBY CERTIFY THAT THIS PROPOSAL MEETS OR EXCEEDS THE MINIMUM REQUIREMENT INCLUDING SPECIFICATIONS AND ADDENDUMS.

Signature: _____ Date: _____



Iowa Department of Transportation Standard Terms and Conditions

For

Submission of Quotations, Bids or Proposals

-FORMAL-

Formal is the procurement process required by Iowa law when the estimated, aggregate amount of the purchase equals or exceeds \$50,000.

The entire contents of this solicitation shall become a part of a contract or purchase order. In case of a discrepancy between the contents of the solicitation documents, the following items listed by descending order shall prevail:

- Addendums to the solicitation
- Solicitation
 - Schedule of Prices
 - Specifications
 - Plans and Drawings
- Supplemental Terms and Conditions
- Standard Terms and Conditions

(Example - if a statement in the specifications contradicts a statement in the Standard Terms and Conditions, the statement in the specifications shall apply)

Preparation of Solicitation or Bid Response: All responses must clearly address all aspects of the solicitation. Responses must be typed or completed in ink and submitted on the forms supplied by the Iowa DOT.

Responses must be signed and received prior to the opening date and time indicated on the Solicitation Response page or other specified areas throughout the solicitation document. The Responder's signed Response shall become the official Response to be considered for award.

No email, fax or web link bid Responses will be accepted. Responses must be signed, sealed and delivered in person or by a mail courier that ensures timely delivery.

A. Solicitation

1. **Opening:** The openings of responses are made public and conducted at the Iowa DOT, Ames complex unless otherwise specified. Responses received after the time of the opening will be returned unopened and considered non-compliant.
2. **Communications:** Questions concerning this solicitation should be directed to the purchasing agent listed on the Solicitation Response page. Inquiries can be written, phoned, or faxed. In all cases, written communication will take precedence over verbal communication.
3. **Bid Bond:** If required, the Solicitation Response page will indicate the fixed percent of the bid security based on the amount of the Bidder's bid. A Bid Bond can be supplied in one of the following ways: **(1)** Certified check or credit union certified share draft, cashier's check, or bank draft, drawn on a solvent bank or credit union. Certified checks and certified share drafts shall be drawn and endorsed in the amount indicated. Checks or drafts shall be made payable either to the Iowa Department of Transportation (Iowa DOT) or to the bidder. If payable to the bidder, the check or draft shall be endorsed without qualifications to the Iowa DOT by the bidder or an authorized agent. **(2)** An insurance or surety company may be retained to provide a bond in fulfillment of the Bid Bond requirement. A properly completed and signed copy of the Bid Bond (*Form 131084*) must accompany the bid. **The Iowa DOT's Bid Bond form must be used; no other forms or formats will be accepted.**

4. **Pricing and Discount:** Unit prices shown in the response shall be quoted as the price per unit (e.g., gal., case, each, etc.) as requested in the solicitation. If there is a discrepancy between the unit bid prices, extended price, or total amount of response, the unit prices shall prevail. Unless otherwise indicated, prices shall be firm for the duration of the contract or purchase order. Discounts for early payment are allowed, but not considered in award of the contract.
5. **Acceptance/Rejection:** The Iowa DOT reserves the right to accept or reject any or all responses and to waive irregularities or technicalities, provided such waiver does not substantially change the offer or provide a competitive advantage to any supplier(s) or provider. The Iowa DOT also reserves the right to accept that response which is deemed to be in the best interests of the state. Any unauthorized changes, additions, or conditional response including any ties to another response or any reservations about accepting an award or entering into a contract, may result in rejection of the response. Responses must remain available for award for thirty (30) days from opening date and time.
6. **Results & Disclosure:** Tabulation results will be posted on the Iowa DOT website at www.iowadot.gov/purchasing under the *Bid Award* link referencing the proposal number with an award recommendation indicated. At the conclusion of the selection process, the contents of all received responses will be placed in the public domain and be open to inspection by interested parties, according to state law. Trade secrets or proprietary information that are recognized as such and are protected by law may be withheld if clearly identified as such in the response.
7. **Quality of Goods:** All material shall be new and of first quality. Items which are used, demonstrators, refurbished, obsolete, seconds, or which have been discontinued are unacceptable without prior written approval by the Iowa DOT.
8. **Recycled Content:** The Iowa Code encourages purchase of products and materials with recycled content, including but not limited to paper products, oils, plastic products, compost materials, aggregate, solvents, and rubber products. Recycled items or alternatives must be noted in the Solicitation Response, if known.
9. **Shipping Terms:** Deliveries shall be F.O.B. Destination unless otherwise specified. All deliveries shall be accompanied by a packing slip indicating the Supplier, quantities shipped, and the purchase order number(s). All delivery charges shall be included in the response price and paid by the Supplier. No collect C.O.D. deliveries shall be accepted. When entering into a contract, the Supplier shall notify the freight company that all freight and delivery charges are to be prepaid by the Supplier. Goods delivered to the Iowa DOT Distribution Center at 800 Lincoln Way, Ames, IA shall be received between the hours of 7:00 a.m. and 3:00 p.m. on any day except Saturday, Sunday, or a holiday. For deliveries to other Iowa DOT locations, the Supplier may contact the destination location for available times to deliver as not all Iowa DOT locations have the same business hours. The Iowa DOT will not be liable for any freight claims or unpaid freight bills arising from contract or purchase order issues.

B. Award

The binding agreement (award) may be issued in the form a purchase order or contract or both depending on the requirements and complexity of the agreement.

1. **Method of Award:** Award shall be made to the responsible, responsive Responder whose Quotation, Bid or Proposal meets the requirements of the solicitation and is the most advantageous to the Iowa DOT. An Iowa company or individual will be given preference over an out-of-state company or individual when responses are equal in all aspects and are tied in price. By virtue of statutory authority preference will be given to products and provisions grown and coal produced within the State of Iowa.
2. **Award Protests:** Protests of award recommendations are to be addressed to the Director of Purchasing, and shall be made in accordance with paragraph 761--20.4(6)"e" of the Iowa Administrative Code.
3. **Contracts:** Successful Contractor(s) may be sent either a formal Contract, Notification of Award or Purchase Order as confirmation of acceptance and award. Any of these binding agreements shall be for the term stated in the solicitation or on a purchase order and may be renewed for additional period(s) under the same terms and conditions upon mutual agreement as defined. The successful Contractor may not assign a contract to another party without written authorization from the Iowa DOT Purchasing Section. The Iowa DOT may offer a contract extension to the Contractor when a scheduled target date cannot be met.

4. **Consumer Price Index (CPI-U):** A CPI may be allowed as specified in the terms of the solicitation and at the discretion of the Iowa DOT based on currently posted CPI-U, US City Average, All Items – non seasonally adjusted unless otherwise specified. This applies each of any subsequent renewals, extensions, amendments issued under the contract for the duration of the contract.
5. **Payment Terms:** The Iowa DOT typically pays properly submitted invoices within thirty (30) days of receipt, providing goods and/or services have been successfully delivered, installed or inspected (if required), and accepted. Invoices presented for payment must be only for quantities received by the Iowa DOT and must reference the purchase order number or contract number to be submitted for processing.
6. **Default (Supplier):** Failure of the Supplier to adhere to specified delivery schedules or to promptly replace rejected materials shall render the Supplier liable for all costs in excess of the bid price when alternate procurement is necessary. This shall not be the exclusive remedy and the Iowa DOT reserves the right to pursue other remedies available to it by law or under the terms of the binding agreement.
7. **Default (Contractor):** Failure of a Contractor other than a Supplier to meet any specified project completion deadline shall render the Contractor liable for all costs incurred by the Iowa DOT that were: a) necessary to meet said deadline; or b) necessary to complete said project after said deadline. This shall not be the exclusive remedy and the Iowa DOT reserves the right to pursue other remedies available to it by law or under the terms of the agreement.

C. General

1. **Administrative Rules:** For additional details on the rules governing the actions of the Iowa DOT Purchasing Section, refer to 761 IAC, Chapter 20, Iowa Administrative Code, entitled “Procurement of Equipment, Materials, Supplies and Services”.
2. **Affirmative Action:** The Contractor (and also subcontractor, vendor, service provider or supplier) is prohibited from engaging in discriminatory employment practices forbidden by federal and state law, executive orders and rules of the Iowa Department of Management, pertaining to equal employment opportunity and affirmative action. Contractor may be required to have on file a copy of their affirmative action program, containing goal and time specifications. Contractors doing business with Iowa in excess of \$5,000 annually and employing 50 or more full time employees may be required to file with the Iowa Department of Management a copy of their affirmative action plan. Failure to fulfill these non-discrimination requirements may cause the contract to be canceled and the contractor declared ineligible for future state contracts or subject to other sanctions as provided by law or rule.
3. **Applicable Law:** The contract shall be governed under the laws of the State of Iowa. The contractor shall at all times comply with and observe all federal and state laws, local laws, ordinances, and regulations which are in effect during the period of a contract and which in any manner affect the work or its conduct. Any legal action relating to a contract shall only be commenced in the Story County, Iowa, District Court or the United States District Court for the Southern District of Iowa.
4. **Conflict of Interest:** No state or county official or employee, elective or appointive shall be directly or indirectly interested in any contract issued by the Iowa DOT, see Code of Iowa 314.2.
5. **Debarment and Vendor Suspension:** By submitting a response, the contractor is certifying that it and its principals and/or subcontractors are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by the State of Iowa or any Federal department or agency.
6. **Equal Opportunity:** Responders to the solicitation must be an “Equal Opportunity Employer” as defined in the Civil Rights Act of 1964 and in Iowa Executive Order Number Thirty-four.
7. **Indemnification-Goods:** To the extent the goods are not manufactured in accordance with Iowa DOT’s designs, Supplier shall defend, indemnify and hold harmless Iowa DOT, its assignees, and other users of the goods from and against any claim of infringement of any letters patent, trade names, trademarks, copyright or trade secrets by reason of sale or use of any articles purchased. Iowa DOT shall promptly notify Supplier of any such claim.
8. **Infringement:** Goods shall be delivered free of the rightful claim of any third party by way of infringement. Contractor shall indemnify and save harmless the State of Iowa and the Iowa DOT against all claims for infringement of, and/or royalties claimed under, patents or copyrights on materials and equipment furnished under this bid.

9. **Iowa Open Records Law:** All Solicitation Responses are subject to terms and provisions of Iowa Code Chapter 22 Examination of Public Records (Open Records), specifically 22.7- Confidential Records.
10. **Records Audit:** The contractor agrees that the Auditor of the State of Iowa or any authorized representative of the state, and where federal funds are involved, the Comptroller General of the U.S. Government, shall have access to and the right to examine, audit, excerpt, and transcribe any directly pertinent books, documents, papers, and records of the contractor relating to orders, invoices, or payments of a contract or purchase order.
11. **Targeted Small Businesses:** The Iowa DOT seeks to provide opportunities for women and/or minority small business enterprises. To apply for certification as an Iowa Targeted Small Business, contact the Iowa Department of Inspection and Appeals (515-281-5796). Contractors shall take documented steps to encourage participation from Targeted Small Businesses for the purpose of subcontracting and supplying of goods or services or both.
12. **Taxes:** Prices quoted shall not include state or federal taxes from which the state is exempt. Exemption certificates will be furnished upon request.
13. **Termination:**
 - **Termination Due to Lack of Funds or Change in Law**

The Iowa DOT shall have the right to terminate this Contract without penalty by giving thirty (30) days written notice to the vendor as a result of any of the following:

 - Adequate funds are not appropriated or granted to allow the Iowa DOT to operate as required and to fulfill its obligations under contract.
 - Funds are de-appropriated or not allocated or if funds needed by the Iowa DOT, at the Iowa DOT's sole discretion, are insufficient for any reason.
 - The Iowa DOT's authorization to operate is withdrawn or there is a material alteration in the programs administered by the Iowa DOT.
 - The Iowa DOT's duties are substantially modified.

Following a 30 day written notice, the Iowa DOT may terminate a binding agreement in whole or in part without the payment of any penalty or incurring any further obligation to the Responder. Following termination upon notice, the Responder shall be entitled to compensation upon submission of invoices and proper proof of claim for goods and services under contract up to and including the date of termination.

Iowa Department of Transportation
SUPPLEMENTAL TERMS & CONDITIONS
For
Blades - Snow & Ice Removal
Proposal No.: 15962
Letting Date: June 29, 2016

Proposal Guarantee

Proposal guarantee is not required on this proposal.

Samples

Prior to award the department will require a sample to evaluate quality and/or compliance with proposals requirements by the lowest excepted bidder for an approval prior to making an award. One sample of each item will be provided at no cost and will not be considered as part of the estimated annual quantity requested. Samples will need to be provided within five (5) days from request date.

The final point of acceptance for testing and continued monitoring will be the Ames Distribution Center or designated site. Random sample testing of merchandise received will be at the discretion of Purchasing.

Mill Certification

Mill Certification ***must*** accompany all orders or merchandise ***will not*** be accepted.

Additional Information

If any additional information is required to properly evaluate the bid, the bidder shall furnish the requested information within three (3) working days after notification from Purchasing.

Ties and Reservations

No ties and reservations by the bidders are permitted on this proposal.

Contract Award

Award will be made for any one group or combination of groups. All items within a group must be bid to be considered for a group award.

Contract Period

The successful bidder will be awarded a contract until 4/30/17. A one-time purchase of listed quantities will be sent upon award of contract. Additional purchases of blades will be allowed until end of contract.

Contract Quantities

Estimated quantity is based on previous purchases. It is understood that the Iowa DOT considers this only a best estimate of requirements and makes no firm quantity commitment.

Purchase Orders

A purchase order will be issued at the beginning of the contract period for 2 delivery dates of the contracted items.

Delivery Location

Material shall be delivered to the Iowa Department of Transportation, Distribution Center, Receiving Department, 800 Lincoln Way, Ames, Iowa 50010.

Delivery Requirements

Delivery shall be according to the following schedule:

Delivery of original order for 50% of every contracted item not delivered by September 14, 2016, and orders not completed by October 09, 2016, may constitute automatic removal from the bidders list for the next bid.

Vendor may ship a size/type mix of items in bundle and/or pallet packaging that appears to be the most economical freight operations. However, the Iowa DOT reserves the right to specify requested quantities by size/type

Invoicing & Packing List

Each Packing list and invoice must reflect only the merchandise relating to one purchase order. Multiple orders may be shipped together but each order requires individual invoicing and packing list stating purchase order number.

Price Adjustment

Prices shall be held firm for the contract period.

Political Subdivisions

The successful bidder for this proposal may provide units ordered by other political subdivisions of the State of Iowa with delivery times and additional transportation costs as applicable. Each political subdivision ordering units on this proposal will issue their respective purchase orders. Invoicing will be as requested by ordering subdivision.

**Iowa Department of Transportation
Specifications
For
Blades – Snow & Ice Removal
Proposal No.: 15962
Letting Date: June 29, 2016**

General Requirements

1. Cutting edges shall be of four types: snowplow blades, grader blades, serrated blades, and carbide-insert sections. Any variation in these requirements shall be noted under the various descriptions.
2. Blade thickness tolerances shall be -0.020 " and $+0.040$ "
3. Blade length tolerances shall be $+0.000$ " and -0.125 "
4. Hole spacing dimensional tolerances shall be ± 0.0625 " non-accumulative as shown in the illustrated attached **Drawing "A"**.
5. $11/16$ " Countersunk square holes shall meet the requirements of SAE standard J740 for $5/8$ ", No. 3 Head-Plow bolts. **Drawing "A"**
6. Camber tolerances: Maximum camber shall not exceed $1/8$ " for all lengths 0.0 ft through 6.0 ft, $3/16$ " for all lengths over 6.0 ft through 10.0 ft and $1/4$ " for all lengths over 10.0 ft.
7. Blade ends shall be square and cleanly cut.
8. Blades shall be free from injurious defects.
9. Blade faces shall be clean and free from pits, loose mil scale and rust.
10. Coating: Each blade shall be given one coat of rust resistant paint.
11. Mill test reports (original) shall accompany each blade shipment and shall include all chemical and physical test analysis of each heat number and shall be certified and signed by the producing mill.
12. Each blade shall be uniform in thickness and in width.
13. All grader and serrated blades must be packaged in bundles with the concave faces down so moisture will not be accumulated and be retained in the curvature.
14. Sampling and Testing: A minimum of three (3) samples shall be secured and tested at random by the Iowa Department of Transportation.

Snowplow Blades (Standard)

Blades shall be flat and may be chamfered on the backside of the upper edge and shall be neither polished nor sharpened. Blades shall be $1/2$ " thick by 6" wide.

1. Chemical Composition:

Chemical composition of the metal of the blades shall have the following elements

<u>Element</u>	<u>Percent</u>	
	<u>Minimum</u>	<u>Maximum</u>
Carbon	0.80	1.00
Manganese	0.50	0.90
Sulfur		0.05
Phosphorous		0.05
Silicon		0.30

2. Hardness

- A. The average Brinell hardness readings for any heat number of any blade shall not be less than 275 or more than 350.

- B. The average of three (3) Brinell hardness readings for any individual blade shall not be less than 260 or more than 370.
- C. No spot on any blade shall have a Brinell hardness less than 250 or more than 385.

Grader Blades (Hardened)

Grader blades shall be concave toward the front and chamfered on both edges on the back. Grader Blades shall be **flame** or **through hardened**.

1. Dimensions:

- A. Grader blades shall be 3/4" thick and 8" wide.
- B. Chamfer width shall not be less than 5/8" and no more than 1-3/16".
- C. Thickness of the chamfered edge shall not be less than 3/32" or more than 0.450".
(See Drawing "B")

2. Chemical Composition:

Blades shall be fabricated from quality hot rolled steel bars meeting the requirements of AISI/SAE 1074 for flame hardened and 15B30 for through hardened or approved equal.

3. Hardness:

- A. Hardness shall be uniform. Blades shall be flame hardened on front and back faces or through hardened.
- B. Flame hardened blades shall be hardened to Rockwell C 62±5 for a width of 3- 1/2 " and a minimum depth of 1/8".
- C. Through hardened blades shall have a minimum hardness of Rockwell C43 or Brinell 400.

4. Markings:

Each blade shall have an identifying mark indicating a flame hardened or through-hardened blade.

Grader Blades Serrated (Hardened)

Grader blades shall be concave toward the front and shall be double bevel curved. Blades shall be **through hardened**.

1. Dimensions

- A. Grader blades shall be 3/4" thick and 8" wide.
- B. Blade serration shall be as follows:

Tooth length	4 3/8" ± 1/8" (0.1250")
Tooth width	1 7/16" ± 1/16" (0.0625")
Tooth spacing	2 3/8" ± 1/16" (0.0625")
Space between teeth	15/16" ± 1/16" (0.0625")
(See Drawing C)	

2. Chemical Composition

- A. Blades shall be fabricated from quality hot rolled steel bars meeting the requirements of AISI/SAE 15B30 or approved equal.
- B. Hardness: Blades shall have a minimum hardness of Rockwell C43 or Brinell 400.
- C. Markings: Each blade shall have an identifying mark indicating a through hardened blade.

Carbide Insert Blade Sections

This article of the specification covers the requirements for tungsten-carbide insert snow-plow cutting edge of 3.0 ft and 4.0 ft sections.

1. Blades:

- A. Blades shall be fabricated from quality hot rolled steel meeting the requirement of ASTM A36
- B. Blades shall be fabricated from 6" x 3/4" (0.750") flat as shown on **Drawing "D"** or 5" x 7/8" (0.875") flat as shown on **Drawing "E"**.

2. Tungsten-Carbide Inserts:

- A. Inserts shall be cemented pure virgin tungsten carbide consisting of 11.0% to 12.5% cobalt content grade. Reclaimed carbide shall not be acceptable.
- B. Hardness: Insert hardness shall have a Rockwell "A" minimum of 87.5 and a maximum of 89.0.
- C. Density: Insert density shall have a minimum of 14.1 and a maximum of 14.6 grams per cubic centimeter.
- D. Rupture strength: The transverse rupture strength of the carbide insert shall not be less than 350,000 psi.
- E. Dimensions:

- a. Inserts shall be trapezoidal (Drawing "D" & "E") and shall have the following dimension requirements:

Height (Greatest)-----	0.635" ± 0.010"
Width-----	0.365" ± 0.005"
Length-----	1" nominal
Bottom Angle-----	25° ± 2° with a nose radius of 1/16" (.0625) minimum

3. Brazing Inserts:

The brazing material shall be of high strength alloy type. The braze shear strength shall be a minimum of 30,000 psi, to withstand the impact loading these blades are subjected to in normal snow removal operations. The tungsten carbide inserts shall be positioned in the milled groove as close as possible to each other for the entire length of each cutting-edge section. The inserts shall be brazed on all sides, consistent with sound brazing practice with no evidence of voids.

Inserts removed for inspection shall show complete wetting of the contact surface between the filler material and the carbide. Cracked carbides shall be cause for rejection of a shipment. **(See Drawings "D" & "E" for Carbide-Insert Cutting Edge Sections).**

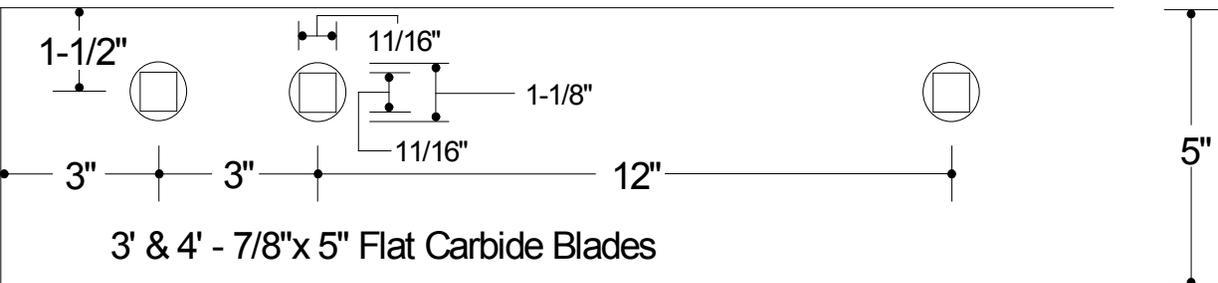
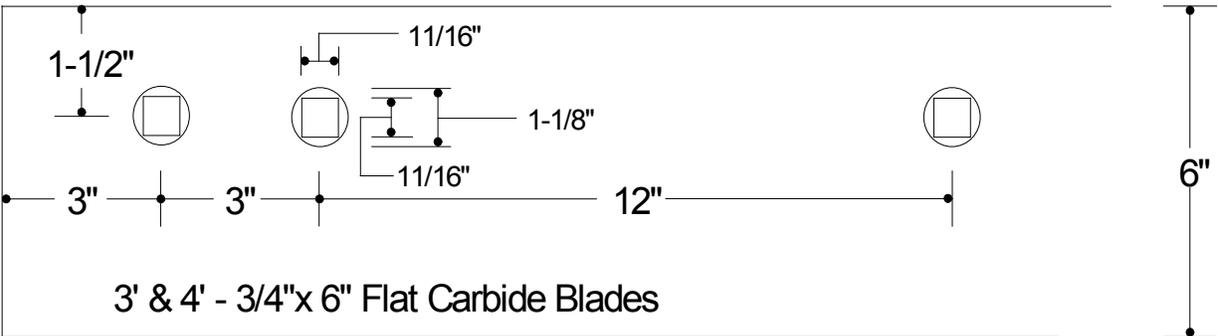
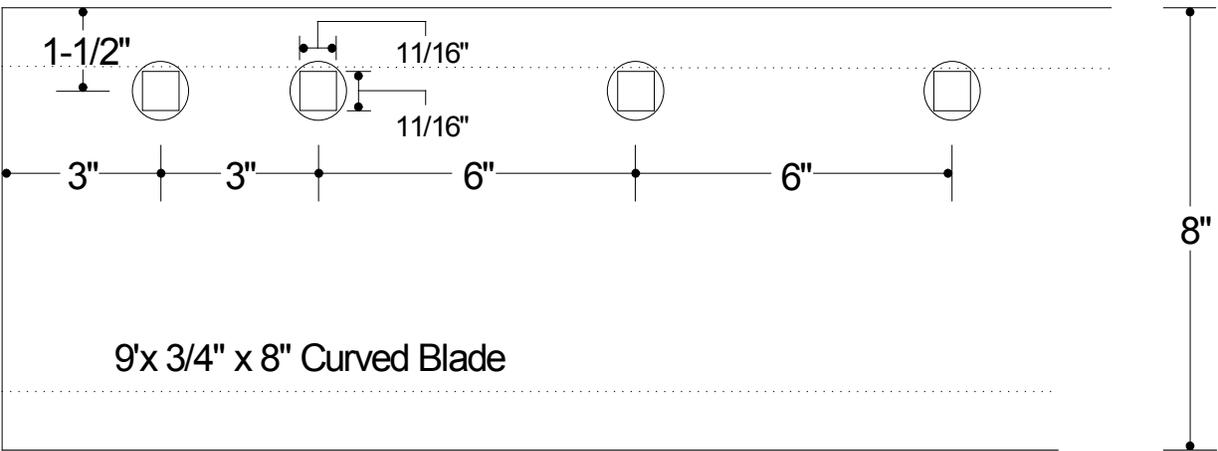
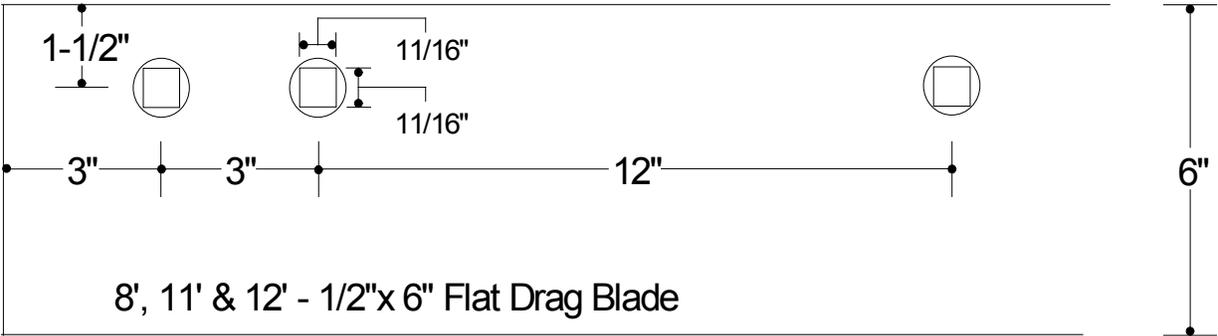
4. Specific Requirements :

The difference between the highest and lowest tip point shall not exceed 1/32" on any blade section. The finished blade sections shall be free of warping, and longitudinal deviation shall not exceed 1/8" in a 4-foot blade section or 3/32" in a 3-foot blade section. Inserts shall be free of cracks. The finished blade sections shall be given one coat of rust-resistant paint, exclusive of the edge with carbide inserts, which shall be masked prior to painting.

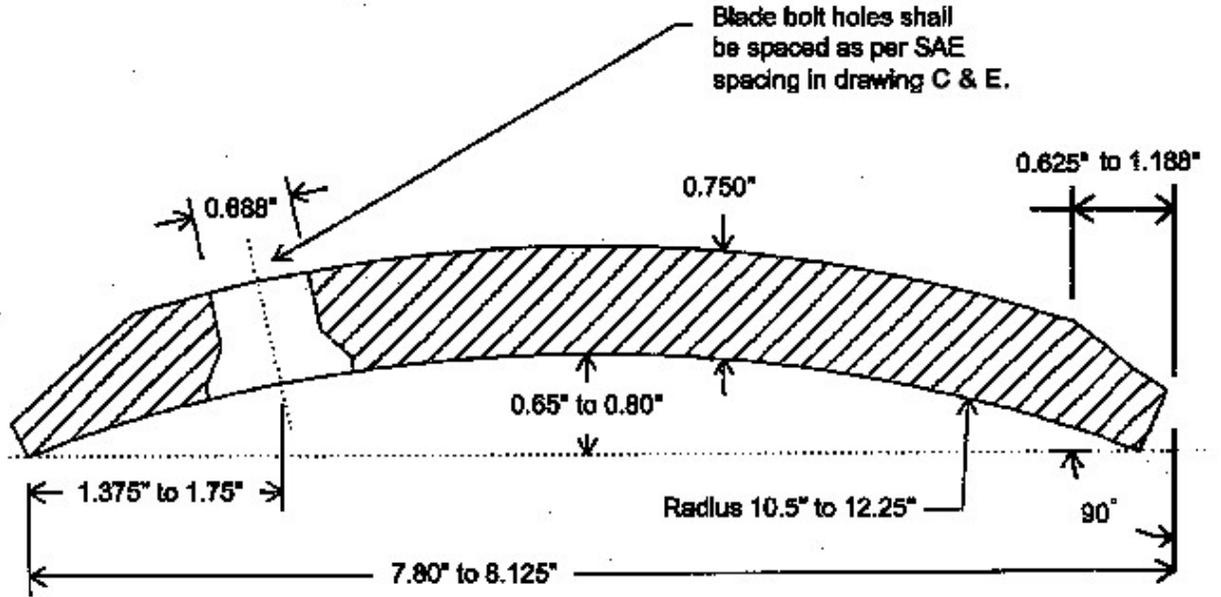
Packaging

- A. The cutting edges shall be banded in bundles of ten with metal strapping. Bolts in the blade holes will not be acceptable.
- B. The carbide-insert sections shall be securely banded to nonrefundable pallets, each with a gross weight not exceeding 2,400 pounds. The carbide blade 3' & 4' pallets must meet the requirements of the attached drawings **(See Pallet Drawings F & G)**.
- C. Pallets must be 2-way entry only. 4-way entry is not acceptable.

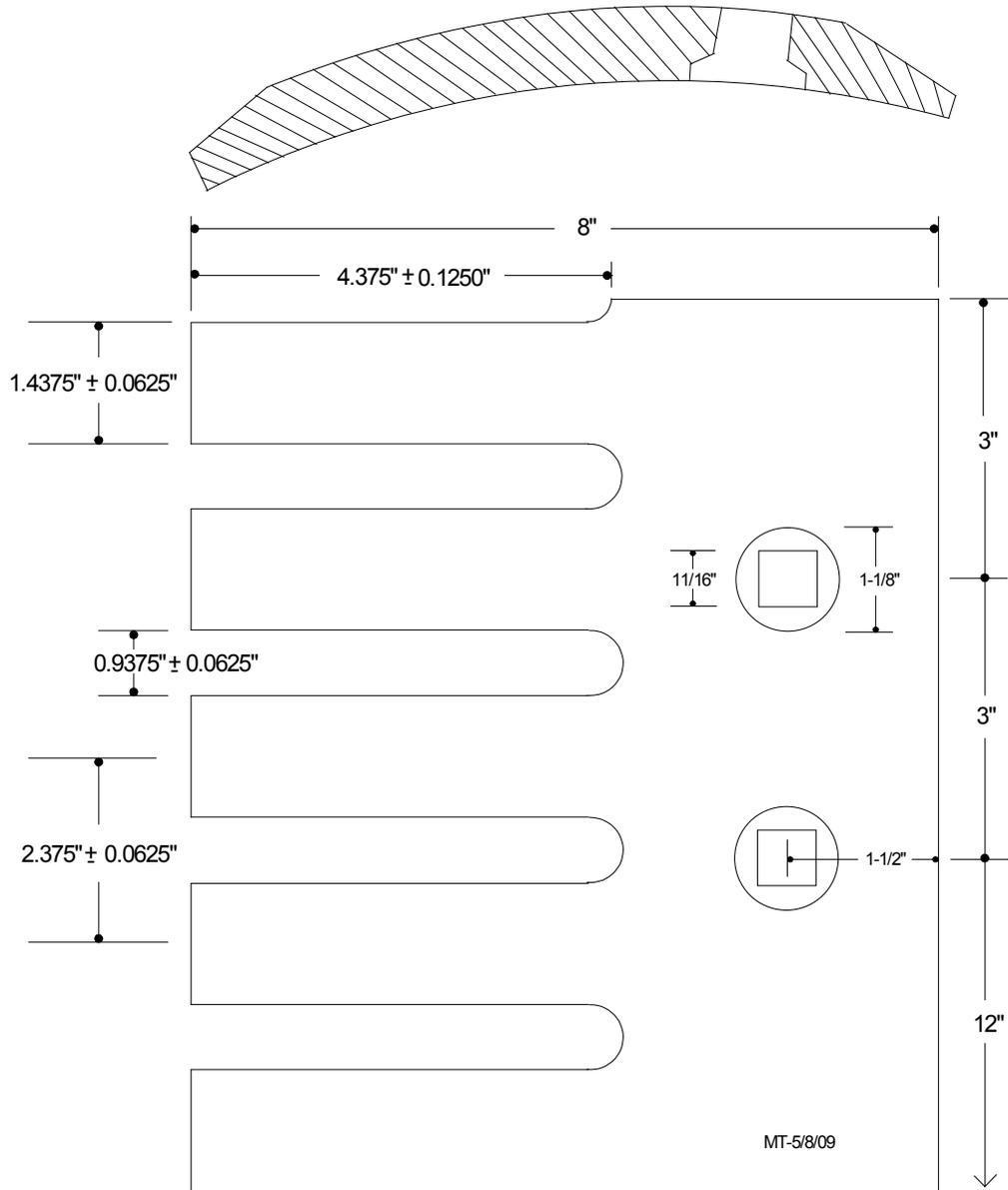
Drawing "A" – Hole Spacing



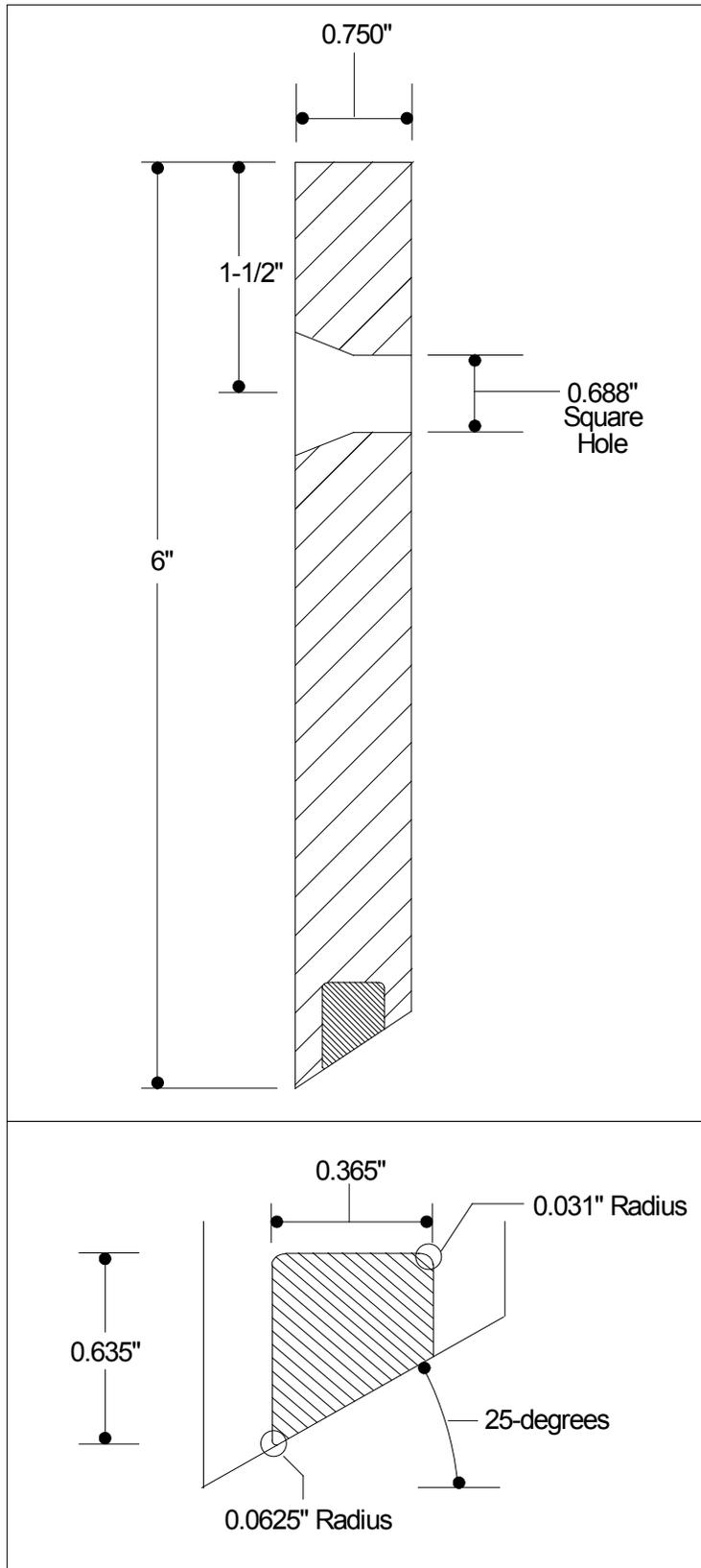
Drawing "B" – Grader Blades (Hardened)



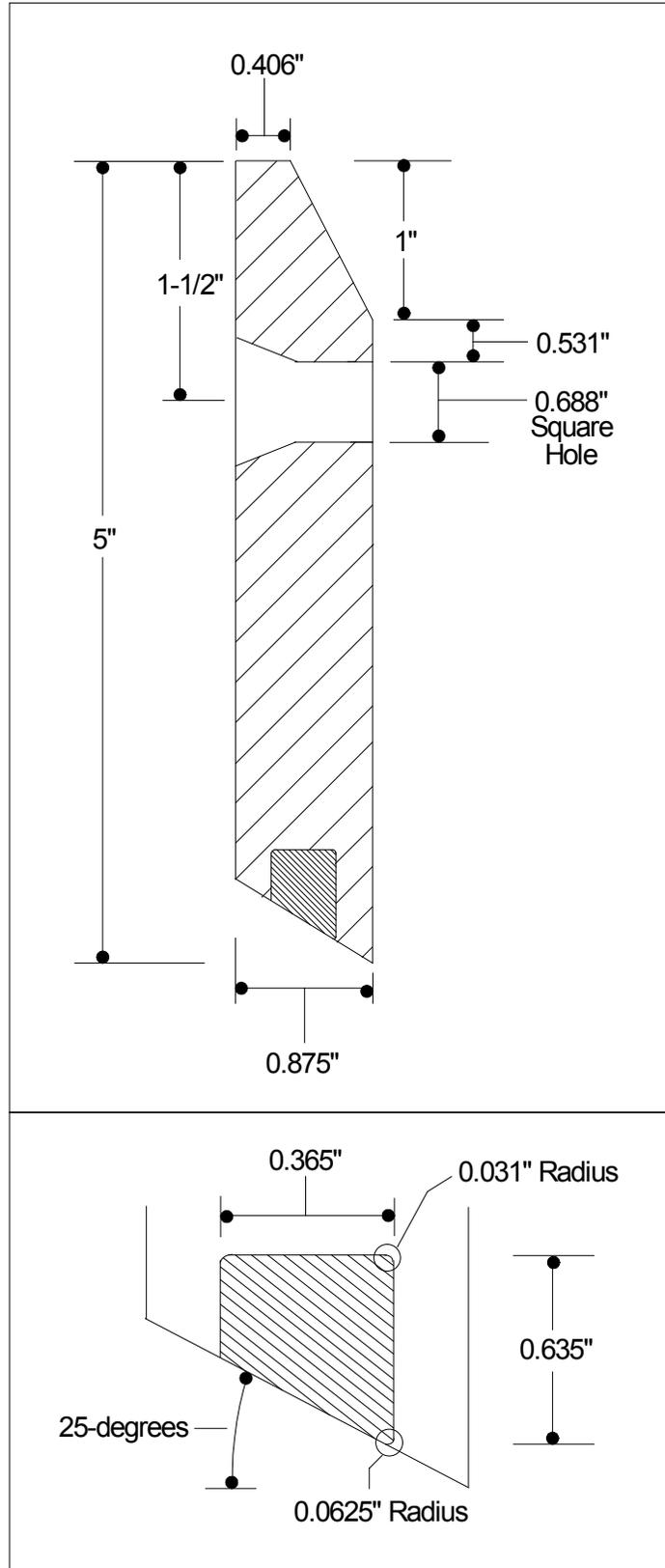
DRAWING C GRADER SERRATED BLADES (HARDENED)



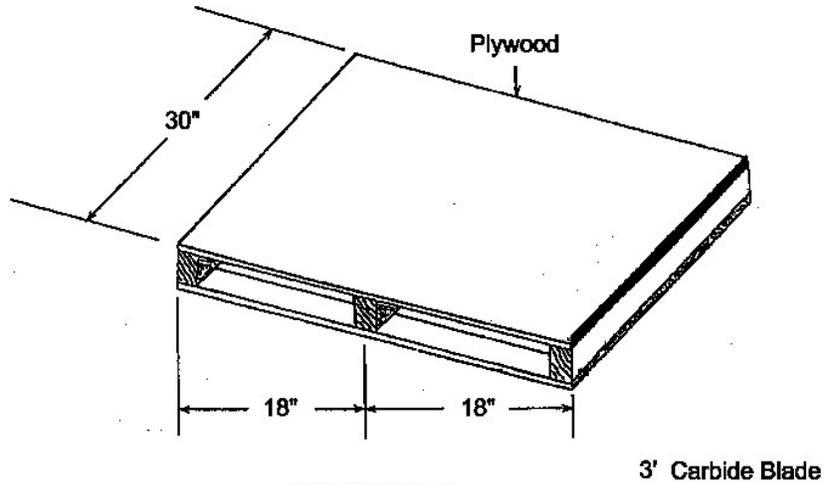
Drawing D



Drawing E

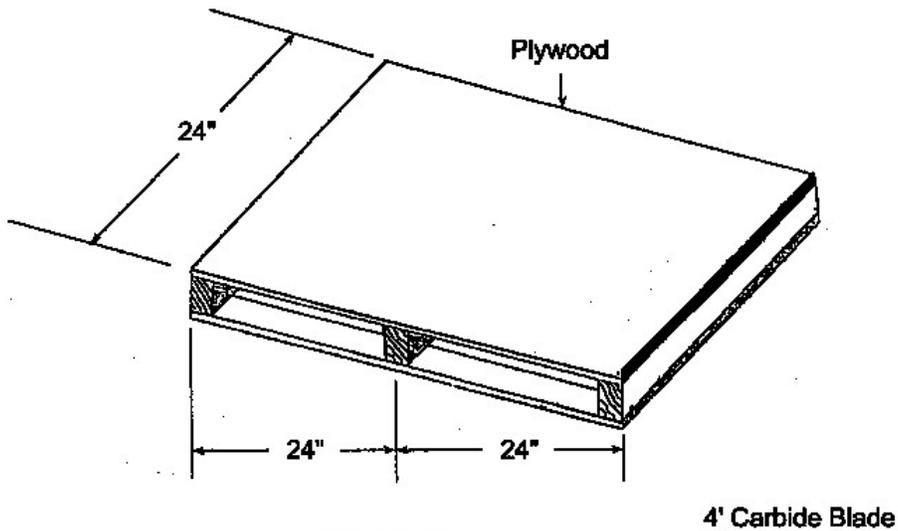


Drawing "F" – Pallet Drawing



**TYPE 1
SOLID-TOP PALLET**

Drawing "G" – Pallet Drawing



**TYPE 1
SOLID-TOP PALLET**

Bidder _____

SEALED BID

LETTING DATE: June 29, 2016

PROPOSAL NO: 15962

PROPOSAL DESCRIPTION: Blades - Snow and Ice Removal

Iowa Department of Transportation
PURCHASING - SEALED BID PROPOSAL
800 Lincoln Way
Ames, IA 50010