

109 - MEASUREMENT AND PAYMENT

SECTION 109

MEASUREMENT AND PAYMENT

109.1 MEASUREMENT OF QUANTITIES

a. General.

- Measure all work using the United States Standard Measure or using the International System of Units (SI), whichever the Contract Documents specify;
- Use generally recognized methods of measurement and computations conforming to good engineering practices; and
- Measure structures according to neat lines shown on the plans or that the Engineer alters.

b. Temperature Corrections.

(1) Correct all measurements to 60°F, unless the Contract Documents show otherwise.

(2) For asphalt materials:

- Correct asphalt volume to 60°F using ASTM D1250 or using tables the Asphalt Institute publishes for emulsified asphalt temperature-volume corrections; and
- Measure tar according to ASTM D 633.

c. Measurement by Length.

- Measure items such as pipe culverts, guardrail, underdrains, and similar items by the linear foot parallel to the base or foundation; and
- Measure Stations horizontality by the 100 linear feet.

d. Measurement by Area or Volume.

- Make longitudinal measurements for area computations horizontally;
- Do not deduct for fixtures having an area less than 9 square feet; and
- Make transverse measurements for area computations using neat dimensions shown on the plans, unless the Contract Documents show otherwise.

e. Measurement by Weight.

(1) Equipment. Provide and maintain weighing devices according to **SECTION 152**.

(2) Weight.

- Measure ton as short ton consisting of 2,000 pounds avoirdupois;
- Measure aggregate weight in the saturated surface dry condition;
- For asphalt materials, accept certified scale weights as adjusted for loss from the car or waste;
- Adjust asphalt material weight for loss from foaming; and
- Accept asphalt material weight shipped directly from the refinery if measured with temperature compensating meters.

(3) Weighing Procedures.

- Weigh on accurate and approved scales (see **subsection 152.2**);
- Zero balance scales every day before beginning weighing operations. Make a minimum of 2 random zero balances during the day and record the results;
- Check scales and record results a minimum of 2 times per week. In checking scales, use a roller, motorgrader, or loaded truck and weigh on 2 different scales in the same vicinity;
- Make sure the scale operator obtains and records in bound field book a minimum of 2 tare weights each day. (Exception: This is not required if scale operator uses an electronic scale system with an automatic print-out to weigh materials);
- Use either KDOT Form No 251A or Contractor-furnished materials receipts (including print-outs) in quadruplicate including the following required information:
 - Type of material;
 - KDOT Project Number;

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- Date;
 - Truck Number;
 - Gross Weight;
 - Tare Weight;
 - Net Weight;
 - Deductions for Moisture (M), Soft friable material (SFM), Wash (W) graduation under 4.00, if applicable;
 - Pay Quantity;
 - % Total Moisture;
 - Location for initials of Scale Inspector; and
 - Location for initials of Road Inspector; and
- Complete and sign the KDOT Form No 251A or Contractor-furnished materials receipts.
 - Give original and first copy to the truck driver. Make sure truck driver gives both the original and copy to the designated Inspector. The Inspector will document receiving the tickets by initialing both receipts, retaining the original, and returning the copy to the truck driver;
 - Retain one copy for the Contractor; and
 - Leave the third copy with the scale documentation.

(4) Scale Operators. Do not change scale operators except in circumstances beyond the Contractor's control and after the Engineer approves the change.

f. Other Weight Conditions.

- The Engineer will use weight tickets to initially accept and pay for stored materials shipped by rail or truck. (Final payment will be based on actual weight measured on the project.); and
- The Engineer will not use truck or rail car weights for materials passed through mixing plants.

g. Materials Measured by Volume.

- Measure volume at point of acceptance;
- Use any size vehicle within the legal weight constraints if volume can be readily determined;
- Load vehicles to their water level capacity;
- At the point of delivery, the Engineer may require the load to be leveled in the vehicle before acceptance; and
- Before the Contractor begins delivering a volume pay item, the Engineer may convert the volume of materials to weight of materials. The Engineer and Contractor shall determine and agree to the weight to volume conversion factors.

h. Miscellaneous Materials Measurements.

- Wire Gage or Gage means the wire size number specified in AASHTO-M32;
- Measure timber by the thousand foot board measure (M.F.B.M.) incorporated into the structure based on nominal width and thickness and the extreme length of each piece; and
- Unless the Contract Documents specify otherwise, the Engineer will accept manufacturer's measurements for standard manufactured items such as fence, wire plates, rolled shapes, and pipe conduit that are identified by gage, unit weight, or section dimensions.

i. Computed Quantities.

(1) Use the following methods to compute volumes of excavation:

- average end area method;
- photogrammetric measurements and computer calculations with the Engineer's approval; or
- other methods the Bureau of Construction and Maintenance accepts to compute volumes of excavation.

(2) Use standard engineering calculations to compute areas and volumes from measured dimensions.

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109.2 SCOPE OF PAYMENT

a. Pay Items. The Secretary will pay unit prices or lump sum prices (contract prices) for the various contract pay items as designated in the Contract Documents.

b. Original Contract Work. Accept payment of the contract prices in the "Schedule of Prices" as full compensation for performing all work necessary to construct or reconstruct the project and for accepting all risk, loss, damage, and expense for which the Contractor is responsible under the contract.

c. Subsidiary and Incidental Work. The Secretary will not consider subsidiary and incidental items for separate payment. Include costs for subsidiary and incidental work in the contract unit prices or lump sum prices.

d. Price/Pay Adjustment Factors, Damages, and Bonuses. Accept adjustments to contract prices and accept contract deducts, damages, bonuses, incentives, or any combination of these items the Contract Documents specify.

e. Contract Changes. Accept payment for Contract Changes under **SECTION 104**.

109.3 FORCE ACCOUNT PAYMENT

If the parties are unable to agree upon the amount of compensation for extra work, the Secretary may require the Contractor to perform specific work on a force account basis. Compute force account costs as follows:

a. Labor.

(1) Wages.

(a) The wage rate agreed upon in writing before beginning the force account work for the number of hours all workers and foremen are actually engaged in such work.

(b) Costs paid for, health and welfare benefits, pension fund benefits, or other such benefits but only if the law, collective bargaining agreement, written employment contract, or Contractor's written company policy requires payment for such costs.

(c) Contractor's overhead and profit: The sum of 20% plus the percentage for bond, insurance, and taxes calculated under **subsection 109.3b**, multiplied by the sum of **subsections 109.3a.(1)(a)** and **(b)**.

(2) Subsistence and Travel Allowances.

(a) The actual daily cost per worker paid for subsistence and travel allowances (allowances) agreed upon in writing before beginning the force account work for the days all workers and foremen are actually engaged in such work. If a worker performs the force account work for more than 60% of the worker's day, KDOT will pay 100% the worker's daily allowance. If a worker performs the force account work for 60% or less of the worker's day, KDOT will pay 50% of the worker's daily allowance.

(b) Subsistence and travel allowances costs are only paid if the law, collective bargaining agreement, written employment contract, or Contractor's written company policy requires payment for such costs.

(c) Contractor's overhead and profit: 15% of the sum of the allowances in **subsections 109.3a.(2)(a)** and **(b)**.

b. Bond, Insurance, and Taxes. The rate (shown as a percentage) the Secretary establishes and adjusts periodically for bond costs, unemployment insurance contributions, social security taxes, and insurance premiums (property damage, comprehensive liability, automobile liability, and worker's compensation) that the force account work causes.

c. Materials.

(1) The actual costs of materials the Engineer approves and the Contractor uses or consumes in the force account work.

(2) The delivery costs of such materials, excluding equipment rentals.

(3) Contractor's overhead and profit: 15% of the sum of the above items in **subsections 109.3c.(1)** and **(2)**.

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d. Equipment.

(1) The rental rates and ownership rates agreed upon in writing before beginning the force account work, for the number of hours the authorized equipment operates. No rates shall be higher than the monthly rate set forth in the Rental Rate Blue Book for Construction Equipment (Blue Book). The Blue Book rate is calculated by dividing the monthly rate for the equipment by 176 and adjusting that rate by Blue Book age and regional adjustment factors before adding in the Blue Book estimated hourly operating cost. The hourly operating cost includes costs for repairs, fuel, and lubricants used or consumed in the force account work.

(2) Transportation costs to and from the site of the work if:

- the equipment is obtained from the nearest approved source;
- the return charges do not exceed the delivery charges;
- haul rates do not exceed the established rates of licensed haulers; and
- the equipment is not already available on the project.

(3) Standby rates (hourly rental rate minus the hourly operating cost) times 0.5 for equipment not operating during normal working hours if:

- the equipment is used in the force account work; and
- the Engineer orders the Contractor to keep the equipment on the project.

(4) Contractor's overhead and profit: 15% of the sum of the above items in **subsections 109.3d.(1), (2) and (3)**.

e. Limitation on Compensation. The Secretary will not pay general superintendents, the use of small tools, or other costs for which no specific allowance is provided in this **subsection 109.3**.

f. Required Verification and Documentation.

(1) Daily, the Contractor's representative and the Engineer shall compare and agree upon the records of labor, equipment, and materials used for the force account work.

(2) To receive payment, provide itemized statements of the costs of such force account work detailed as follows:

- name, classification, date, daily hours, total hours, wage rate, and extensions thereof for each worker and foreman;
- quantities of materials, prices, and extensions thereof and transportation costs for materials. Attach invoices for all materials used or consumed. If the Contractor takes the materials from its own inventory, provide an affidavit certifying that:
 - the material was taken from inventory;
 - the quantity claimed was actually used; and
 - the price and transportation costs claimed represent the Contractor's actual costs; and
- designations, dates, daily hours, total hours, rental rates, and extensions thereof for each unit of equipment and transportation costs for equipment.

(3) If the Engineer can not verify the itemized statement from KDOT's project records, KDOT may conduct a complete audit of the Contractor's force account records.

g. Payment of Force Account Work or Negotiated Work Performed by Subcontractors, Leased Trucking, or other Specialized Trades.

(1) The term "work" in this **subsection 109.3g** means either force account work or work performed on a negotiated price basis, whichever applies.

(2) When all or a portion of the "work" is sublet to a highway industry subcontractor or the Contractor hires leased trucking, the Contractor shall receive overhead in the amount shown in **TABLE 109-1**. The "Dollar Amount of Work" shall be the total amount determined for the subcontractor or leased trucking using the requirements shown in **subsections 109.3a** through **109.3f** or the subcontractor's or leased trucking's negotiated price.

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TABLE 109-1: ADD ON FOR CONTRACTOR'S OVERHEAD FOR FORCE ACCOUNT WORK OR NEGOTIATED WORK USING HIGHWAY SUBCONTRACTORS AND LEASED TRUCKING	
Dollar Amount of Work	Add on for Overhead
\$0 to \$50,000	5%
\$50,000 to \$100,000	\$2500 plus 3% for any amount over \$50,000
Over \$100,000	\$4000 plus 1.5% for any amount over \$100,000

(3) When all or a portion of the "work" is sublet to a subcontractor in a specialized trade or business, the Contractor shall receive overhead in the amount shown in **TABLE 109-2**. The "Dollar Amount of Work" shall be the total amount determined for the Specialized Trade Subcontractor using the requirements shown in **subsections 109.3a. through 109.3f.**, a negotiated price for a Specialized Trade Subcontractor, or actual invoices from a Specialized Trade Subcontractor for the "work".

TABLE 109-2: ADD ON FOR CONTRACTOR'S OVERHEAD FOR FORCE ACCOUNT WORK, NEGOTIATED WORK, OR SUBCONTRACTOR INVOICE USING SPECIALIZED TRADE SUBCONTRACTORS	
Dollar Amount of Work	Add on for Overhead
\$0 to \$2,000	15%
\$2,000 to \$5,000	\$300 plus 10% for any amount over \$2,000
Over \$5,000	\$600 plus 5% for any amount over \$5,000

109.4 STORED MATERIALS PAYMENTS

a. Request payment for properly stored nonperishable materials when the value of the stored material is a minimum of \$2,500.00 for each individual item of material, unless otherwise approved by the Engineer.

- When requesting payment for stored materials, verify the quantity of materials stored and the value of the material. Identify the contract line item numbers (bid items) representing the stored materials and the quantities of stored materials assigned to each designated contract line item number. Provide required certification for all stored materials according to the Contract Documents;
- As the materials are incorporated into the work, the Engineer will measure actual quantities and adjust the stored materials payment by the actual quantities incorporated. Upon receiving each payment voucher (progress payment), verify the accuracy of the stored materials paid for to date and advise the Engineer of any discrepancy; and
- After receiving payment for the stored materials, pay subcontractors and suppliers according to **subsection 109.6**.

b. The Engineer will pay stored materials for nonperishable material the Contractor manufactures using its own forces. Before payment, the Contractor and Engineer shall agree upon the delivery amount and storage location. The Engineer may pay for materials stored properly at a fabricator's or manufacturer's facility if the material is specifically identified for a KDOT project.

c. The value of stored materials shall not exceed 90% of the contract price for the item of work in which these materials will be incorporated.

d. Assume liability for stored materials lost by deterioration, waste, theft, or other natural or man-made actions.

109.5 PROGRESS PAYMENTS

a. Work Accomplished. The Engineer will make an approximate estimate of the work accomplished (considering price and pay adjustment factors) and pay for this work (progress payment) at intervals not to exceed one calendar month. Request progress payments at more frequent intervals, if desired. The Engineer may withhold

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from progress payments liquidated damages, reimbursement for remedial work under **subsection 105.5f**, excess costs for breach of contract, final cleanup work expenses, and other deducts the Contract Documents specify.

b. Contract Proceeds. Obtain the Engineer's and Surety's written consent to assign contract proceeds to creditors.

c. Payment for Contract Bond. If requested and upon receiving an invoice, KDOT will make payment for the premium amount of the Contract Bond. The payment will be made with the following conditions:

- The premium shall be greater than \$1,500;
- The invoice shall list the premium for each project when the invoice includes multiple projects;
- Payment will be shown as "Contract Bond" on intermediate payments; and
- When the Contractor has earned 50% of the "Original Contract Amount", the Engineer will remove the payment for "Contract Bond" from future progress payments.

Note: The Percent of Original Contract Amount = the amount earned by the Contractor* divided by the total dollar value of the original contract (all bid items).

*Do not include monies earned for "Contract Bond", "Mobilization", "Traffic Control (Lump Sum)", "Contractor Construction Staking" and "Stored Materials".

109.6 PAYMENTS TO SUBCONTRACTORS & SUPPLIERS

a. Definitions. For purposes of **subsections 109.6** and **109.7**, use the following definitions:

- "subcontract" means a contract for supplies, materials, services, or a combination thereof between a Contractor and a subcontractor; and
- "subcontractor" means an entity that provides the Contractor supplies, materials, services, or a combination thereof to complete the contract.

b. Progress Payments.

(1) Within 10 calendar days after receiving payment from the Secretary for approved, subcontract work, pay subcontractors for their work.

(2) Within 15 calendar days after receiving payment from the Secretary, submit to the Engineer a "Certificate for Subcontract Work and Payment", KDOT Form No. 1010, containing the following representations:

"I certify that the Contractor received payment from the Secretary on (date) and, within 10 calendar days after this date, paid the subcontractors named below for the work those subcontractors completed on or before the payment voucher's "Paid To Date"." [Signed by Contractor's representative].

Note: More than 1 subcontractor may be shown on KDOT Form No. 1010.

c. Retainage.

(1) Bonded Subcontractors. Withhold no retainage from bonded subcontractors.

(2) Unbonded Subcontractors. Withhold from unbonded subcontractors the percentage of retainage, if any, the Contractor feels is necessary to protect itself. Withhold this retainage until the unbonded subcontractor has completed all its subcontract work and has provided an affidavit that the subcontractor has paid all indebtedness for supplies, materials, and labor used in performing its subcontract work. The unbonded subcontract work is considered completed when KDOT pays the Contractor 100% of the items subcontracted. After the unbonded subcontractor has provided this affidavit, pay all retainage owed within the next 5 business days.

(3) No subcontract provision shall permit the Contractor to delay subcontractors' retainage payments until the project's final acceptance or final payment.

d. Good Cause Exception. If the Contractor has "good cause" to withhold a subcontractor's progress payment (bonded or unbonded subcontractors) or retainage (unbonded subcontractors), identify the cause for withheld payment, the payment amount, and the anticipated payment date, writing this information on the "Certificate for Subcontract Work and Payment", KDOT Form No. 1010. If the Engineer determines the Contractor has "good cause" for a withheld payment, the Engineer will not impose sanctions on the Contractor. A Contractor's lack of funds to pay is not "good cause" for withheld payment.

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109.7 SANCTIONS FOR FAILURE TO PAY PROMPTLY

a. If a Contractor fails to comply with the payment requirements of **subsection 109.6** without good cause, pay an interest penalty to the affected subcontractor. Compute the interest penalty at the rate of 1.5% per month on the amount of money owed the subcontractor. The interest assessment will begin on the day after payment is due under **subsection 109.6** and will continue until the Contractor has paid the amount of money owed the subcontractor.

b. If a Contractor fails to comply with the certification requirements of **subsection 109.6**, the Secretary may impose liquidated damages of \$50.00 per calendar day per subcontractor for each day certification is late.

c. If a Contractor submits a certification stating payment has been made but knowing payment has not been made as **subsection 109.6** requires (false certification), the Secretary may impose liquidated damages of \$50.00 per calendar day per subcontractor for each day the certification remains false.

d. If a Contractor fails to comply with the payment requirements without good cause, submits a false certification, or repeatedly fails to comply with the certification requirements of **subsection 109.6b.**, the Secretary may adjust a Contractor's qualification rating, declare the Contractor is not a responsible Contractor, suspend a Contractor from bidding, or debar a Contractor from bidding.

e. For each violation of **subsection 109.6**, a Contractor may receive one or more of the sanctions provided.

109.8 PROVISION FOR LOWER-TIER SUBCONTRACTORS

a. Definitions.

- Lower-tier subcontract means a contract for supplies, materials, service, or a combination thereof between a subcontractor and a party other than the Contractor; and
- Lower-tier subcontractor means an entity that provides a subcontractor supplies, materials, services, or a combination thereof to complete a subcontract.

b. **Progress Payments.** Include in all subcontracts a provision that requires the subcontractor to pay all lower-tier subcontractors within 10 calendar days after the subcontractor receives payment from the Contractor. Include a good cause exception clause to such prompt payment similar to the one contained in **subsection 109.6d**.

c. **Retainage.** Include in all subcontracts a provision similar to **subsection 109.6c.** that prohibits the subcontractor from withholding retainage from bonded lower-tier subcontractors and requires the subcontractor to release retainage to all unbonded lower-tier subcontractors.

d. **Administration.** The Contractor is responsible for administering this provision. KDOT will not monitor prompt payments to lower-tier subcontractors. KDOT may investigate payment complaints lower-tier subcontractors make to KDOT.

109.9 FINAL PAYMENT AND CORRECTIONS AFTER FINAL PAYMENT

a. **Final Payment.** Final payment will reflect the contract amount adjusted by approved contract adjustments (Change Orders) minus all previous payments and deductions. The Secretary will issue final payment after the following events occur:

- the Engineer issues Notice of Acceptance of Contract under **subsection 105.16b.**;
- the Engineer prepares a final estimate of the value of all work;
- the Contractor signs the final estimate;
- the Contractor submits an Affidavit of Contractor, swearing that the Contractor has paid all debt the contract requires;
- the Surety executes a Release of Final Estimate; and
- the Bureau of Construction and Maintenance reviews the final paperwork, including the signed final estimate.

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b. Release of Secretary. By accepting the final payment, the Contractor releases the Secretary from all claims arising out of the work except for claims caused by correction of errors in quantities, measurements, or certifications (payment corrections) discovered after final payment. The Secretary is not released from liability for payment corrections until 3 years from the date of final payment. Nothing in **subsection 109.9** permits the Contractor to file claims under **SECTION 104** for additional time, additional money, or both after final payment rather than at Notice of Acceptance as provided in **subsection 105.16b**.

c. Release of Contractor and Surety. By issuing final payment, the Secretary releases the Contractor and Surety from further costs necessary to construct the project except for costs incurred due to latent defects; costs incurred because of the Contractor's breach of warranty, breach of guaranty, fraud, or misrepresentation; and costs resulting from correction of errors in quantities, measurements, or certifications (payment corrections) discovered within 3 years from the date of final payment. See **subsection 108.12** for the Contractor's and Surety's release of liability from further construction obligations after Notice of Acceptance of Contract.

d. Field Audit Corrections. The Contractor and Surety understand that the KDOT Bureau of Fiscal Services audits the project after final payment rather than before final payment. Despite final payment, the Secretary will correct quantity, measurement, or certification errors discovered during a final audit. If the correction is favorable to the Contractor, the Secretary will pay the Contractor the amount owed. If the correction shows KDOT overpaid the Contractor, pay the Secretary the amount owed. If the Contractor fails to pay the amount owed, the Surety shall pay the amount owed. Neither party nor the Surety has obligations under this **subsection 109.9** after 3 years from the date of final payment. The Surety shall have no claim or defense that KDOT's alleged negligence in computing quantities, computing measurements, or reviewing quantities, measurements, or certifications during construction and before final payment prejudiced the Surety's rights or voided the Surety's obligations under this **subsection 109.9**.

109.10 RESPONSIBILITY FOR PAYMENT

The Secretary will pay for work with warrants as state law allows.