

AGREEMENT FOR TECHNICAL ASSISTANCE  
BETWEEN THE SECRETARY OF TRANSPORTATION  
AND THE  
Kansas State University

THIS AGREEMENT made this 18th day of December, 2002, by and between the Secretary of Transportation of the State of Kansas, hereinafter called "Secretary", and the Kansas State University, hereinafter referred to as "KSU", acting by and through Paul R. Lowe, representative.

WITNESSETH

WHEREAS, the Secretary has determined that research regarding "Evaluating Load-Distribution, Fatigue Performance and Horizontal Shear Transfer Mechanisms in Fiber-Reinforced Composite Honeycomb Bridge Decks," is needed and approved

WHEREAS, the proposed program is hereinafter called "Project," and

WHEREAS, KSU has expressed an interest in performing the research and has qualified personnel with demonstrated expertise available to conduct the Project, and

WHEREAS, the Secretary is willing, subject to the terms of the Agreement, to reimburse KSU for the assistance provided.

NOW THEREFORE in consideration of the mutual covenants herein contained, the parties hereto agree as follows:

Section 1. Scope of Services. The KSU shall furnish the necessary personnel, facilities and such other services as may be required to fulfill the tasks identified and described in the Proposal which is attached hereto and incorporated herein as Special Attachment No. 1.

Section 2. Contract Dates. The KSU may commence to work in conformity with the Proposal (Special Attachment No. 1) of the Agreement upon acceptance by Secretary of the Proposal and shall prosecute the work outlined herein to begin on or after September 15, 2002 and with completion not later than December 31, 2004, unless the time is extended by the Secretary, as evidenced in writing.

Section 3. Basis of Payment. The Secretary agrees to reimburse the KSU for the work completed and actual costs incurred in performance of the Agreement in accordance with the proposed budget, page 9 of the Proposal, in an amount not to exceed a total price of \$223,900.00. The Project costs referred to in the Agreement shall be comprised of the allowable direct costs incidental to the performance of the work described in the Proposal and indirect costs. Indirect costs shall not exceed 45.5% of the total allowable modified total direct costs to the extent that Federal-aid funds are used for payment. In the event final approval of Federal appropriation is not obtained, the Secretary will be responsible for only those noncancellable obligations incurred by KSU for work under this Agreement.

The Secretary agrees to make payments to the KSU upon presentation of proper billing to the Secretary. Certification of work performed will be documented by progress reports required under Section 11 of this Agreement to support costs claimed. Upon receipt of monthly expenditure reports, the Secretary will reimburse allowable costs as requested by the KSU. The KSU shall indicate on the last project billing that it is the final billing. The final request for payment shall not be disbursed until the Secretary determines that all obligations of the Agreement have been completed. Reimbursement of any cost pursuant to the Section shall not constitute a final determination by the Secretary of the allowability of such cost and shall not constitute a waiver of any violation of the terms of the Agreement committed by the KSU.

Written approval by KDOT will be required to extend a completion date and to increase the total budget amount. Revision of state budget line items will not require written approval by KDOT. The Principal Investigator will notify the KDOT Project Monitor of planned changes to the work described in the proposal.

The test of allowability of a cost to be applied in the Agreement is based on the reasonableness of the allocation of the cost under generally accepted cost, accounting principles and practices and in accordance with 48 code of Federal Regulations (CFR), Ch. 1, part 31 et.seq., and relevance to tasks identified and described in the Proposal. However, such costs are subject to limitation as per Agreement.

The final payment due under provisions of this Agreement shall be made within ninety (90) days after the Secretary's and the appropriate Federal agency's acceptance and approval of the Final Evaluation Report and KSU's compliance with OMB A-133, Audits of States, Local Governments, and Non-Profit Organizations.

Section 4. Covenant Against Contingent Fees. The KSU warrants and guarantees that provisions for covenants against contingent fees found in Special Attachment No. 2 are incorporated in this Agreement and made a part hereof. For breach or violation of this warranty, the Secretary shall have the right to annul this Agreement without liability, or in his discretion to deduct from the Agreement price or consideration, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift, or contingent fee.

Section 5. Rights in the Project.

- A. Rights in Data. The KSU grants to the Secretary, for any governmental purposes, the right to publish, translate, reproduce, deliver, use and dispose of, and to authorize others to do so, all data, including reports, drawings, blueprints, computer software which includes but is not limited to documentation and source code, and other technical information resulting from the performance of work under this Agreement. When the Secretary authorizes others to use, for governmental purposes, any patented or copyrighted items arising from the project, the Secretary will issue a standard restriction Agreement to each party receiving authorization for return to KSU.
- B. Rights in Intellectual Property. Consistent with KDOT and Kansas Board of Regents policy, the KSU will retain all rights to intellectual property including patents and copyrights arising from the project. The Secretary and the U.S. Government shall retain a royalty-free, nonexclusive, irrevocable license to use any patent or copyright arising from the project for any governmental purposes. If the KSU elects not to pursue the patenting or copyrighting of intellectual property, the KSU will provide written notification to the Secretary who shall be free to do so. The KSU agrees to include, within the specification of any United States patent or copyright application and any patent and copyright issuing, the following statement, "The invention (copyright) was made with funds provided by the Federal government and State

of Kansas through the Kansas Department of Transportation.”

- C. Confidentiality. Secretary and KSU agree that information exchanged and generated pursuant to this Agreement, will generally be non-confidential and suitable for publication. Nevertheless Secretary, and its duly authorized representatives may disclose to KSU, during the course of the project, confidential information including data and statistics not suitable for public dissemination. KSU agrees to maintain such information in confidence, and to prevent the disclosure thereof to others to the extent that such information is disclosed in writing and marked as confidential or proprietary; or if orally disclosed, noted at the time of disclosure as being confidential or proprietary, and reduced to writing within thirty (30) days after such oral disclosure, the writing being marked as confidential or proprietary. KSU agrees that neither the KSU nor any of its colleagues, employees or agents shall use any of the confidential information for any purpose whatsoever, other than to complete this agreement for KDOT. The KSU agrees that the KSU or any of its colleagues, employees or agents shall not keep any copies of the information provided by the Secretary or its duly authorized representatives that has been identified as confidential or proprietary, and provided pursuant to this agreement.
- D. Rights in Equipment. It is mutually agreed by the KSU and the Secretary that all apparatus and equipment purchased with funds provided by the Secretary shall be used by the KSU for the project and shall become property of the KSU upon completion of the project subject to the following provision:
- \* Those Uniform Administrative Requirements contained in 49 CFR Part 19 shall govern the purchase, use and disposition of equipment covered by this Agreement.

Section 6. Work Responsibility. The parties hereto mutually agree that the services to be performed under the terms of this Agreement are to be performed by the Principal Investigator and others named in the Proposal under the guidance and supervision of KSU and that their time and effort as defined in the proposal, Special Attachment No. 1 cannot be assigned, sublet, or transferred to any other party without the written consent of the Secretary. KSU accepts full responsibility for the project and its conduct. The KSU will bill Secretary for reimbursement as specified in the Agreement as awarded.

Section 7. Inspection and Approval of Work. The KSU shall permit the Secretary or his duly authorized representative to inspect and audit all work, material, computer programs and other data and records either during the performance of project or for three years from the date of the final payment to the KSU under the agreement. All work will be performed according to the requirements as outlined in the Proposal, Special Attachment No. 1. Final Inspection of the Project will be conducted by the Secretary or his duly authorized representative.

Section 8. Publication Provisions. Publication by any party to this Agreement shall give credit to all other parties. However, if the Secretary does not wish to subscribe to the findings or conclusions of an interim report, the following statement shall be added: “The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the Kansas Department of Transportation or the Federal Highway Administration.” In the event of failure to reach a consensus between the Secretary and the KSU relative to the publication of a final report, or any other reports during the period of the Agreement, the Secretary reserves the right to publish independently in which event the nonconcurrence of the KSU shall be set forth in said publication, if requested by the KSU.

Section 9. Audit and Retention of Records. Arrangements shall be made by the KSU for the required financial and compliance audit to ensure that the audit will be made within the prescribed audit reporting cycle, and a copy of the OMB A-133 audit will be provided to the Secretary.

The KSU shall be required to maintain accounting records and other evidence pertaining to the costs incurred and to make the records available to their office at all reasonable times during the Agreement period and for three (3) years from the date of the final payment to the KSU under this Agreement. Such accounting records and other evidence pertaining to the costs incurred will be made available for inspection by the Secretary or his duly authorized representatives and copies thereof shall be furnished if requested.

Section 10. Termination of Agreement. Either party has the right to terminate this AGREEMENT by giving thirty (30) days written notice in the event a determination is made that the Project should be abandoned or indefinitely postponed; PROVIDED, however, that in any case, the KSU shall be paid the amount due for the services rendered and for any noncancelable obligations incurred prior to the date of termination on the basis of the provisions of this AGREEMENT and provided that the Secretary shall receive full reports of all work performed to the date of termination of this AGREEMENT.

Section 11. Reports. The KSU shall advise the Secretary regarding the progress of the Project as such times and in such a manner as the Secretary may require, including, but not limited to, the following:

- 1) a monthly expenditure report, and
- 2) a quarterly progress report.

Section 12. Cooperation and Disputes. The Secretary and the KSU agree to make a reasonable effort to promptly resolve any disputes or questions concerning the project. The Secretary and the KSU ensure that personnel will cooperate fully in carrying out the intent and provisions of this Agreement. The Secretary shall, in all cases not disposed of by agreement among or between the parties to the Agreement, resolve any disputes which may arise in connection with the work being performed under this Agreement.

Section 13. Compliance with Laws. The KSU agrees to comply with all federal, state, and local laws, ordinances and regulations in the implementation of the administrative service provided for in the Agreement, including but not limited to 49 CFR part 19, Title VI, Title VII, and Title IX of the Civil Rights Act of 1964, Executive Order 11246 as amended by Executive Order 11375 entitled "Equal Employment Opportunity;" Executive Order 12549 regarding debarment, eligibility, indictments, convictions, or civil judgments; and 31 U.S.C. Section 1352; Section 319 P.L. 101.21 prohibiting use of Federal funds for lobbying activities which are incorporated herein as Special Attachments Nos. 3, 4, and 5, respectively.

Section 14. Responsibility to Employees. The KSU accepts full responsibility for payment of unemployment insurance, workmen's compensation, and social security as well as all income tax deductions and any other taxes or payroll deductions required by the law for its employees engaged in the work authorized by the Agreement.

Section 15. Employment of Secretary's Employees. The KSU will not, without written permission from the Secretary, engage the services of any person or persons in the employment of the Secretary for any work required by the terms of the Agreement.

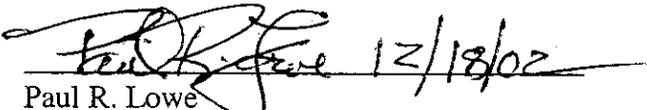
Section 16. Contractual Provisions Attachment. The provisions found in Contractual Provisions Attachment Form DA-146a, Special Attachment No. 6, which is attached hereto, are hereby incorporated in this Agreement and made a part hereof.

Section 17. Indemnification Agreement. The KSU agrees to indemnify and hold harmless the Secretary and the Secretary's duly authorized representatives from any and all costs, liabilities, expenses, suits, judgments, damages to person or property or claims of any nature whatsoever arising out of the negligent acts of the KSU, the KSU employees or subcontractors, in the performance of this Agreement. The KSU shall not be required to indemnify and hold the Secretary harmless for negligent acts of the Secretary or his or her duly authorized representatives or employees. Nothing in this indemnification clause is meant to affect Section 4, Disclaimer of Liability of DA-146a, Special Attachment No. 6.

Section 18. Prohibited Interest. No member, officer, or employee of the KSU during his/her tenure or one year thereafter shall have any interest, direct or indirect, in this Agreement or the proceeds thereof other than that allowed by the Board of Regents policy.

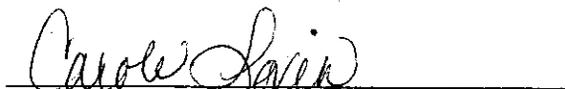
**IN WITNESS WHEREOF:** the parties hereto have caused this Agreement to be signed by their duly authorized officers on the day and year first above written.

KSU

  
Paul R. Lowe  
Assist. Vice Provost for Research

Secretary

  
E. Dean Carlson, P.E.  
Secretary of Transportation  
By: Warren L. Sick  
Assistant Secretary and  
State Transportation Engineer

  
ATTEST

  
ATTEST

- Special Attachment No. 1, Proposal
- Special Attachment No. 2, Certification - Covenant Against Fees
- Special Attachment No. 3, Civil Rights Act
- Special Attachment No. 4, Certification -Debarment
- Special Attachment No. 5, Certification - Federal Aid Contracts
- Special Attachment No. 6, Form DA-146a



**Evaluating Load-Distribution, Fatigue Performance, and Horizontal  
Shear Transfer Mechanisms in Fiber-Reinforced Composite  
Honeycomb Bridge Decks**

A Proposal Submitted to  
Kansas Department of Transportation

Period of Performance: 09/15/2002 – 12/31/2004

Project Monitor: David Meggers

Funds Requested: \$223,900

Submitted by Kansas State University  
2 Fairchild Hall  
Manhattan, Kansas 66506

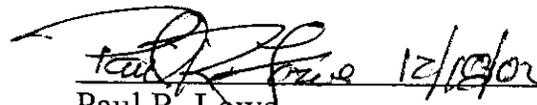
Principal Investigator  
Dr. Robert J. Peterman

Department of Civil Engineering  
Kansas State University  
2118 Fiedler Hall  
Manhattan, Kansas 66506

Dr. Peterman:    Phone:    785/532-7612  
                          Fax:        785-532-7717  
                          Email:     bob@ksu.edu

APPROVALS

  
Robert J. Peterman

  
Paul R. Lowe,  
Assist. Vice Provost for  
Research

# **Evaluating Load-Distribution, Fatigue Performance, and Horizontal Shear Transfer Mechanisms in Fiber-Reinforced Composite Honeycomb Bridge Decks**

## **Scope**

This proposal sets forth the tasks to be performed by Kansas State University (KSU) in order to assist in the design, performance investigation, and development of a composite bridge deck system for bridge applications. KSU will provide Kansas Structural Composites, Inc. (KSCCI) with all necessary information to produce appropriate test specimens for this project. KSU will also provide BG Consultants, Inc., with necessary information to conduct the design of this system. In addition, KSU will provide Dr. Steve Cai (at Louisiana State University) with the data from the experimental portion of this study in order to assist in his calibration of an analytical model for these bridge decks. The main portion of the proposed work is aimed at determining information vital for the design of FRP honeycomb bridge decks produced by the current manufacturing process. Other work, however, is focused on evaluating the effect of manufacturing process changes on structural performance.

## **Objectives**

This project has the following objectives:

1. Determine the effective panel width to be used in design (i.e. the width of the deck that will participate in carrying a wheel load.
2. Determine the fatigue performance of FRP Honeycomb Bridge Decks.
3. Investigate the horizontal shear transfer mechanism and recommend a maximum design horizontal shear for panels constructed under the current manufacturing process.
4. Determine the importance of creep deformations on the behavior of these structures.

## **Test Plan**

The test plan for this is explained below.

### **A. Determination of Load Distribution (Effective width)**

The effective width, i.e., the width of the deck that will participate in carrying a truck wheel load, is required for all deck designs. The effective width of FRP honeycomb bridge decks will be determined through both experimental testing at Kansas State University and by analysis (to be performed by Dr. Steve Cai as part of a separate proposal. For the experimental determination of effective width, a deck specimen consisting of two to three panels will be evaluated. The deck specimen will have an overall thickness of approximately 6 inches, representing a thickness close to that

used for the proposed detour bridge. The panels will be connected in place using the standard method.

The effective width will be determined by applying a load to the bridge deck at different locations (near the edge, at center of the panel, and near the panel-to-panel joints). The load will be applied to the bridge deck through an 8" x 20" neoprene bearing pad representing the wheel load area for an AASHTO HS-20 design wheel load as stipulated in the AASHTO Standard Specifications Section 3.30 (see Figure 1). Strain gages and deflection gages (LVDT's) will be used to determine the distribution of stress across the panel due to the point load, and therefore the maximum portion of the applied load carried by a uniform panel width.

The effective panel width is expected to be a function of the panel depth, span length and other parameters. At this test plan, it is impractical to measure the effective width of panels with many different depths. Therefore, only a single panel depth (such as the one used in detour bridge) will be tested and the information will be used to validate a numerical model that will be developed by Dr. Steve Cai at Louisiana State University. The numerical model will be used to conduct parametric studies, and then to predict effective width for different parameters.

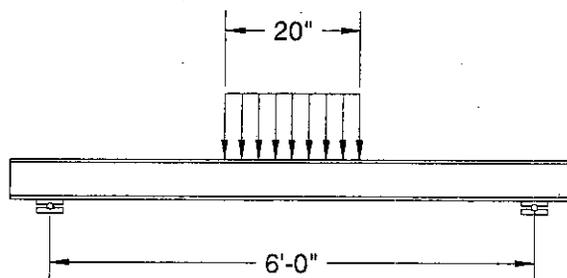
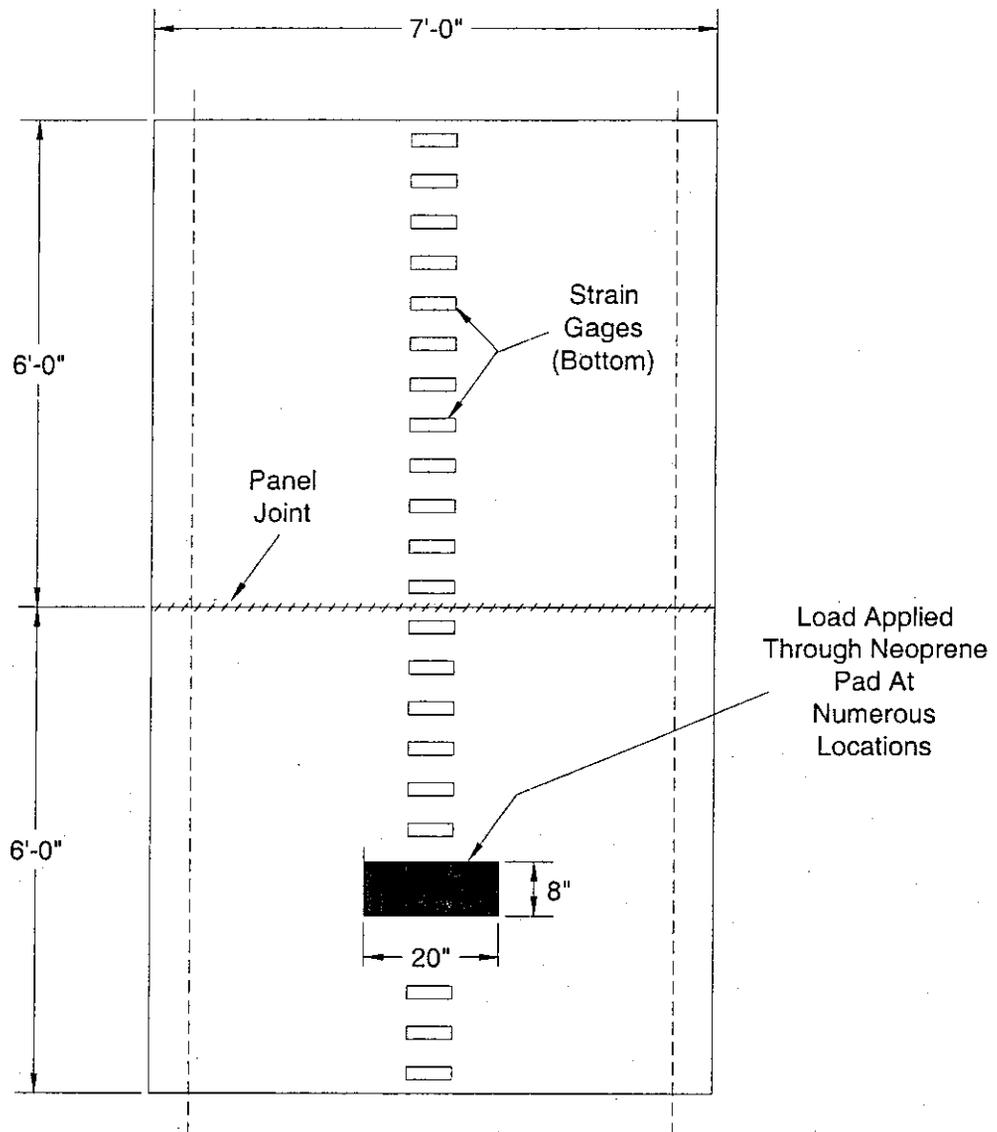


Figure 1 Test Setup for determination of Load-Distribution Factor.

## B. Determination of Fatigue Performance

Fatigue performance of the deck system will be investigated. This investigation will serve to determine the effect of repeated loads on the possible stiffness deterioration of the system, and the ability to detect critical damage prior to failure by fatigue. The fatigue tests will be conducted on both one- and a two-panel assemblies. First, single panel specimens with typical face and core dimensions (such as the ones used in detour bridge) will be tested. A total of three single-panel fatigue tests are planned. The upper load limit in these tests will correspond to live-load deflections of  $L/D = 800$ ,  $400$ , and  $200$ , respectively. These tests will provide needed information about the long-term performance of the panel structures and give guidance for future research in this area. An example of this type of test setup is shown in Figure 2. The proposed test setup will simultaneously test both positive and negative moment regions as shown. Load will be applied to the panels using a 8" x 20" bearing pad, in order to simulate the tire contact area as stipulated in AASHTO Standard Specifications Section 3.30.

Next, a two-panel assembly will be tested in fatigue to determine the long-term performance of the entire system. This test will assess the potential for long-term maintenance issues (deterioration of the panel joints, wear surface, etc.), and will be conducted with an upper load limit corresponding to a calculated deflection (of the panels w/o the wear surface) equal to  $L/D = 800$ . The loading arrangement for this fatigue test is shown in Figure 3.

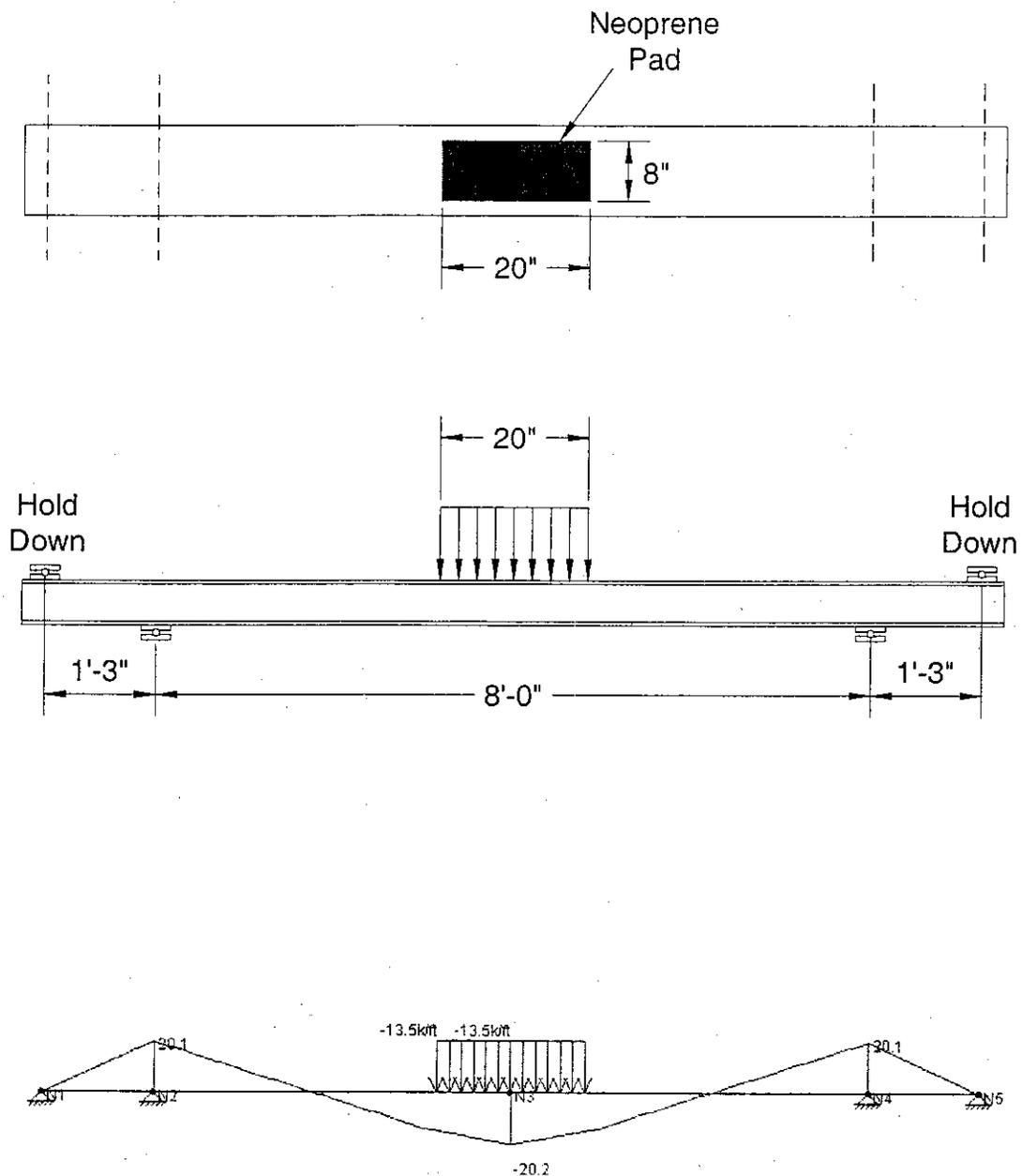
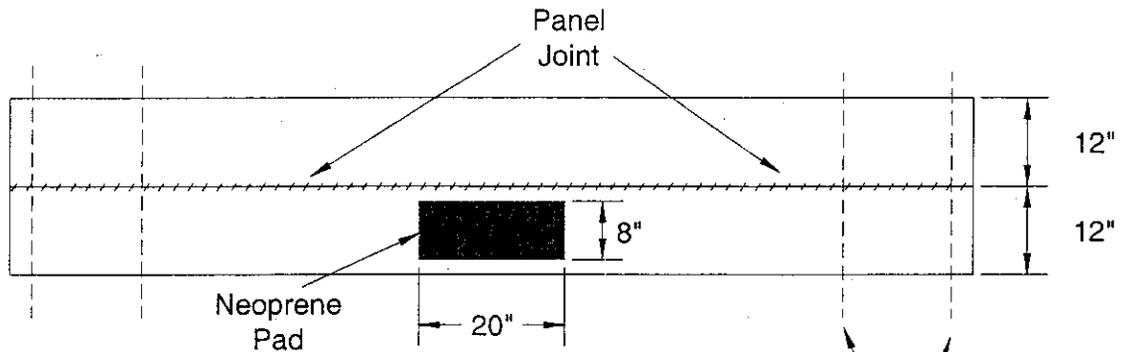
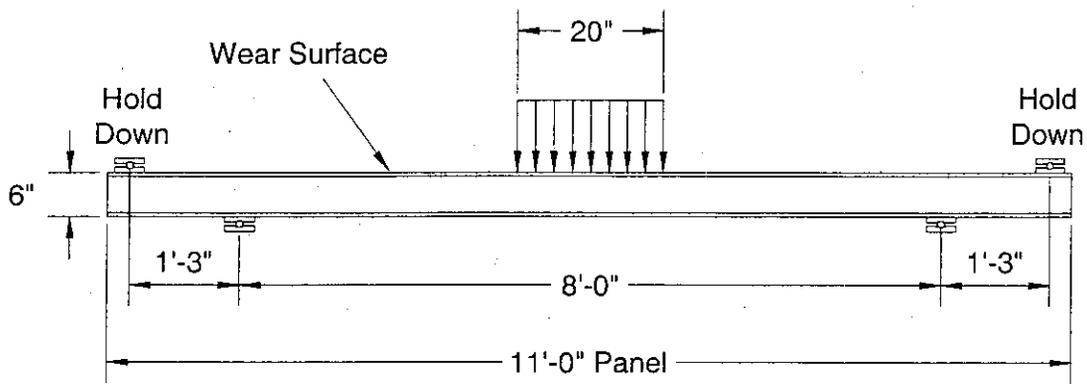


Figure 2. Test setup for single fatigue specimens (actual specimen size and panel dimensions may vary). Top view (upper diagram), elevation (middle diagram), moment diagram from Risa 2D analysis (lower diagram). Using 12"-wide x 6" high specimens, a deflection of .48" ( $L/D = 200$ ) will be produced with an applied load of approximately 22.5 kips of applied load). Note, Risa 2D sign convention for positive bending moment is opposite that for conventional structural analysis.



**Plan View**

Use Actual Panel-To-Beam Connections Here



**Elevation**

**Figure 3. Fatigue Test with two panels.** (actual specimen size and panel dimensions may vary).

### **C. Horizontal Shear Transfer**

The work that was begun at KSU (during the previous IBRC project) to evaluate the horizontal shear strength and transfer mechanisms will be continued in this study. This will include testing additional double shear specimens as provided by Kansas Structural Composites, as well as retrofitting one of the previously tested fatigue specimens to include mechanical ties across the panel interface. In addition, the PI will work with Kansas Structural Composites to evaluate the new internal load buttons and their benefit on shear transfer.

### **D. Effect of Sustained Loading (creep)**

The effect of sustained loading on the deflection, if any, will be evaluated in this study. This will be done by placing a sustained-load on a representative panel specimen using concrete blocks. The specimens used in this phase will be extracted from either the load-distribution specimens or the fatigue specimens. If the effect is significant, then creep coefficient, similar to concrete materials will be developed. Creep deformation will be measured for a period of 3 months. If the effect is significant, then the monitoring period will be extended.

### **Deliverables**

At the conclusion of the project, a complete report of all the findings will be submitted, including recommended design value(s) for effective panel width, findings pertaining to the fatigue performance of the system, proposed design limits for horizontal shear stresses, and recommendations about the inclusion of creep effects in deflection calculations. In addition, all software developed as part of this project will be made available in electronic format.

Proposed Budget  
 For the Period 9/15/02 to 12/31/04

	<u>KDOT/DOT</u>
A. Salaries, Wages & Fringe Benefits	
1. Robert J. Peterman	
1.0 time, 2 mos. summer	\$14,000
0.1 time, 9 mos. cal. yr.	6,400
2. Research Engineer	35,000
3. Graduate Student	
0.5 time, 18 mos. cal. yr.	27,500
4. Undergraduate Student	
10 hrs./wk, 32 wks. @ \$10/hr.	3,200
40 hrs./wk, 14 wks. @ \$10/hr. (summer)	5,600
5. Fringe Benefits	
30.3% of A1, A2, 5.17% of A3, 1.17% of A4	<u>18,311</u>
Subtotal Salaries, Wages & Fringe Benefits	110,011
 B. Equipment	
-Including the purchase of MTS Systems Corp. Model 505.30 hydraulic power unit & accessories	40,000
 C. Travel - Domestic	3,000
 D. Materials, supplies, gages, thermocouples	8,981
 E. Other Direct Costs	
1. Telecommunication, duplication	2,200
2. Tuition	<u>3,200</u>
Subtotal Other Direct Costs	5,400
 Total Direct Costs	167,392
 F. Facilities and Administrative Costs	
45.5% of MTDC	<u>56,508</u>
<b>TOTAL PROJECT COSTS</b>	<b><u>\$223,900</u></b>

rjp2

CERTIFICATE OF THE KANSAS STATE UNIVERSITY

I hereby certify that I am the Assistant Vice Provost for Research and duly authorized representative of The Kansas State University and that neither I nor the above agency I here represent has:

(a) employed or retained for the payment of a commission, percentage, brokerage, contingent fee, or other consideration, any person (other than a bona fide employee working solely for me or the Kansas State University) to solicit or secure this Agreement,

(b) agreed, as an express or implied condition for obtaining this Agreement, to employ or retain the services of any firm or person in connection with carrying out the Agreement, or

(c) paid, or agreed to pay, to any firm, organization of persons (other than a bona fide employee working solely for me or the Kansas State University) any fee, contribution, donation, or consideration of any kind, for, or in connection with, procuring or carrying out the Agreement;

except as here expressly stated (if any):

I acknowledge that this certificate is to be furnished to the Secretary of Transportation of the State of Kansas in connection with this Agreement and is subject to applicable State and Federal laws, both criminal and civil.

12/18/02  
(DATE)

  
\_\_\_\_\_  
PAUL R. LOWE  
Assistant Vice Provost for Research  
of the Kansas State University

CERTIFICATION OF THE SECRETARY OF TRANSPORTATION

I hereby certify that I am the Secretary of Transportation of the State of Kansas and that The Kansas State University or their representative has not been required, directly or indirectly as an express or implied condition in connection with obtaining or carrying out this Agreement to:

- (a) employ or retain, or agree to employ or retain, any firm or person, or,
- (b) pay, or agree to pay, to any firm, person, or organization, any fee, contribution, donation, or consideration of any kind;

except as here expressly stated (if any):

I acknowledge that this certificate is to be furnished to the above referenced firm in connection with this Agreement, and is subject to applicable State and Federal laws, both criminal and civil.

12/27/02

(DATE)

Warren L. Sick

E. DEAN CARLSON, P.E.  
Secretary of Transportation

By: Warren L. Sick  
Assistant Secretary and  
State Transportation Engineer

**KANSAS DEPARTMENT OF TRANSPORTATION**

Special Attachment  
To Contracts or Agreements Entered Into  
By the Secretary of Transportation of the State of Kansas

NOTE: Whenever this Special Attachment conflicts with provisions of the Document to which it is attached, this Special Attachment shall govern.

THE CIVIL RIGHTS ACT OF 1964, and any amendments thereto,  
REHABILITATION ACT OF 1973, and any amendments thereto,  
AMERICANS WITH DISABILITIES ACT OF 1990, and any amendments thereto,  
AGE DISCRIMINATION ACT OF 1975, and any amendments thereto,  
EXECUTIVE ORDER 12898, FEDERAL ACTIONS TO ADDRESS ENVIRONMENTAL JUSTICE IN  
MINORITY POPULATIONS AND LOW INCOME POPULATIONS (1994), and any amendments thereto,  
49 C.F.R. Part 26.1 (DBE Program), and any amendments thereto

**NOTIFICATION**

The Secretary of Transportation for the State of Kansas, in accordance with the provisions of Title VI and Title VII of the Civil Rights Act of 1964 (78 Stat. 252), §504 of the Rehabilitation Act of 1973 (87 Stat. 3555) and the Americans with Disabilities Act of 1990 (42 USC 12101), the Age Discrimination Act of 1975 (42 USC 6101), the Regulations of the U.S. Department of Transportation (49 C.F.R., Part 21, 23, and 27), issued pursuant to such ACT, Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations (1994), and the DBE Program (49 C.F.R., Part 26.1), hereby notifies all contracting parties that, the contracting parties will affirmatively insure that this contract will be implemented without discrimination on the grounds of race, religion, color, gender, age, disability, national origin, or minority populations and low income populations as more specifically set out in the following seven "Nondiscrimination Clauses".

**CLARIFICATION**

Where the term "consultant" appears in the following seven "Nondiscrimination Clauses", the term "consultant" is understood to include all parties to contracts or agreements with the Secretary of Transportation of the State of Kansas.

**Nondiscrimination Clauses**

During the performance of this contract, the consultant, or the consultant's assignees and successors in interest (hereinafter referred to as the "Consultant"), agrees as follows:

- (1) Compliance with Regulations: The consultant will comply with the Regulations of the U. S. Department of Transportation relative to nondiscrimination in federally-assisted programs of the U.S. Department of Transportation (Title 49, Code of Federal Regulations, Parts 21, 23 and 27,

hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

- (2) **Nondiscrimination:** The consultant, with regard to the work performed by the consultant after award and prior to the completion of the contract work, will not discriminate on the grounds of race, religion, color, gender, age, disability, national origin or minority populations and low income populations in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The consultant will not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.
- (3) **Solicitations for Subcontractors, Including Procurements of Material and Equipment:** In all solicitations, either competitive bidding or negotiation made by the consultant for work to be performed under a subcontract including procurements of materials and equipment, each potential subcontractor or supplier shall be notified by the consultant of the consultant's obligation under this contract and the Regulations relative to nondiscrimination on the grounds of race, religion, color, gender, age, disability, national origin or minority populations and low income populations.
- (4) **Information and Reports:** The consultant will provide all information and reports required by the Regulations, or orders and instructions issued pursuant thereto, and the Secretary of the Transportation of the State of Kansas will be permitted access to the consultant's books, records, accounts, other sources of information, and facilities as may be determined by the Secretary of Transportation of the State of Kansas to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a consultant is in the exclusive possession of another who fails or refuses to furnish this information, the consultant shall so certify to the Secretary of Transportation of the State of Kansas and shall set forth what efforts it has made to obtain the information.
- (5) **Employment:** The consultant will not discriminate against any employee or applicant for employment because of race, religion, color, gender, age, disability, or national origin.
- (6) **Sanctions for Noncompliance:** In the event of the consultant's noncompliance with the nondiscrimination provisions of this contract, the Secretary of Transportation of the State of Kansas shall impose such contract sanctions as the Secretary of Transportation of the State of Kansas may determine to be appropriate, including, but not limited to,
  - (a) withholding of payments to the consultant under the contract until the contractor complies, and/or
  - (b) cancellation, termination or suspension of the contract, in whole or in part.
- (7) **Disadvantaged Business Obligation**

- (a) Disadvantaged Businesses as defined in the Regulations, shall have a level playing field to compete fairly for contracts financed in whole or in part with Federal funds under this contract.
  - (b) All necessary and reasonable steps shall be taken in accordance with the Regulations to ensure that Disadvantaged Businesses have equal opportunity to compete for and perform contracts. No person(s) shall be discriminated against on the basis of race, color, gender, or national origin in the award and performance of federally-assisted contracts.
  - (c) The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of Federally-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as the recipient deems appropriate.
- (8) Executive Order 12898
- (a) To the extent permitted by existing law, and whenever practical and appropriate, all necessary and reasonable steps shall be taken in accordance with Executive Order 12898 to collect, maintain, and analyze information on the race, color, national origin and income level of persons affected by programs, policies and activities of the Secretary of Transportation of the state of Kansas and use such information in complying with this Order.
- (9) Incorporation of Provisions: The consultant will include the provisions of paragraphs (1) through (8) in every subcontract, including procurements of materials and equipment, unless exempt by the Regulations, order, or instructions issued pursuant thereto. The consultant will take such action with respect to any subcontract or procurement as the Secretary of Transportation of the State of Kansas may direct as a means of enforcing such provisions including sanctions for noncompliance: PROVIDED, however, that, in the event a consultant becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the consultant may request the State to enter into such litigation to protect the interests of the State.

CERTIFICATION BY PROSPECTIVE PARTICIPANTS  
AS TO CURRENT HISTORY REGARDING DEBARMENT, ELIGIBILITY,  
INDICTMENTS, CONVICTIONS, OR CIVIL JUDGMENTS

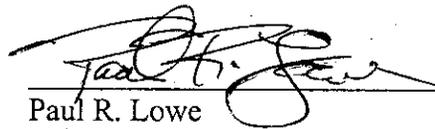
PAUL R. LOWE, Assistant Vice Provost for Research, Kansas State University, being duly sworn (or under penalty of perjury under the laws of the United States), certifies that, except as noted below, the Kansas State University or any person associated therewith in the capacity of director, officer, principal investigator, project director, manager, auditor, or any position involving the administration of federal funds:

- a) is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency;
- b) has not been suspended, debarred, voluntarily excluded or determined ineligible by any federal agency within the past 3 years;
- c) does not have a proposed debarment pending; and,
- d) has not been indicted, convicted or has a civil judgment rendered against (it) by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

Exceptions: \_\_\_\_\_  
\_\_\_\_\_

Providing false information may result in criminal prosecution or administrative sanctions.

12/18/02  
Date

  
\_\_\_\_\_  
Paul R. Lowe  
Assist. Vice Provost for Research  
Kansas State University

This project or contract is being funded in part by federal funds, and therefore the following certification applies:

CERTIFICATION FOR FEDERAL AID CONTRACTS

The following provision shall apply to all applicants for or recipients of federal funding on federal contracts, grants, loans, or cooperative agreements in excess of \$100,000, pursuant to 31 U.S.C. Section 1352: Sect. 319 of P.L. 101.121.

Each applicant for or recipient of any amount of federal funding shall signify in writing below the amount of federal funding applied for or received by this contract, loan, grant, or cooperative agreement, if known.

The prospective participant certifies, by signing below and submitting this bid, proposal, grant, loan, cooperative agreement, or contract, to the best of his or her knowledge and belief, that:

- 1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any federal agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- 2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this Federal contract, grant, load, or cooperative agreement, the undersigned shall complete Standard Form LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions. (A copy of Standard Form LLL is attached.)

A disclosure form must also be submitted at the end of each calendar year quarter in which there occurs any event which requires disclosure or that materially affects the accuracy of the information contained in any previously filed disclosure form. The original of the disclosure form shall be submitted to: \_\_\_\_\_, the KDOT Project Manager for this project or contract.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Signature of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The prospective participant also agrees by signing below that he or she shall require that the language of this certification be included in all lower tier subcontracts which exceed \$100,000, and that such subrecipients shall certify and disclose accordingly. The originals of all disclosure forms submitted to the prime contractor by lower tiers shall be sent to the KDOT Project Manager named above.

  
 \_\_\_\_\_  
 Signature     Paul R. Lowe  
                   Assist. Vice Provost for Research  
                   Kansas State University

12/18/02  
 \_\_\_\_\_  
 Date

\_\_\_\_\_  
 Title

Kansas State University  
 \_\_\_\_\_  
 Agency

\$223,900.00  
 \_\_\_\_\_  
 Amount of Federal Funds (if known)

\_\_\_\_\_  
 Project or Contract No.

## CONTRACTUAL PROVISIONS ATTACHMENT

**Important:** This form contains mandatory contract provisions and must be attached to or incorporated in all copies of any contractual agreement. If it is attached to the vendor/contractor's standard contract form, then that form must be altered to contain the following provision:

"The Provisions found in Contractual Provisions Attachment (Form DA-146a, Rev. 1-01), which is attached hereto, are hereby incorporated in this contract and made a part thereof."

The parties agree that the following provisions are hereby incorporated into the contract to which it is attached and made a part thereof, said contract being the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

1. **Terms Herein Controlling Provisions:** It is expressly agreed that the terms of each and every provision in this attachment shall prevail and control over the terms of any other conflicting provision in any other document relating to and a part of the contract in which this attachment is incorporated.
2. **Agreement With Kansas Law:** All contractual agreements shall be subject to, governed by, and construed according to the laws of the State of Kansas.
3. **Termination Due To Lack Of Funding Appropriation:** If, in the judgment of the Director of Accounts and Reports, Department of Administration, sufficient funds are not appropriated to continue the function performed in this agreement and for the payment of the charges hereunder, State may terminate this agreement at the end of its current fiscal year. State agrees to give written notice of termination to contractor at least 30 days prior to the end of its current fiscal year, and shall give such notice for a greater period prior to the end of such fiscal year as may be provided in this contract, except that such notice shall not be required prior to 90 days before the end of such fiscal year. Contractor shall have the right, at the end of such fiscal year, to take possession of any equipment provided State under the contract. State will pay to the contractor all regular contractual payments incurred through the end of such fiscal year, plus contractual charges incidental to the return of any such equipment. Upon termination of the agreement by State, title to any such equipment shall revert to contractor at the end of State's current fiscal year. The termination of the contract pursuant to this paragraph shall not cause any penalty to be charged to the agency or the contractor.
4. **Disclaimer Of Liability:** Neither the State of Kansas nor any agency thereof shall hold harmless or indemnify any contractor beyond that liability incurred under the Kansas Tort Claims Act (K.S.A. 75-6101 et seq.).
5. **Anti-Discrimination Clause:** The contractor agrees: (a) to comply with the Kansas Act Against Discrimination (K.S.A. 44-1001 et seq.) and the Kansas Age Discrimination in Employment Act (K.S.A. 44-1111 et seq.) and the applicable provisions of the Americans With Disabilities Act (42 U.S.C. 12101 et seq.) (ADA) and to not discriminate against any person because of race, religion, color, sex, disability, national origin or ancestry, or age in the admission or access to, or treatment or employment in, its programs or activities; (b) to include in all solicitations or advertisements for employees, the phrase "equal opportunity employer"; (c) to comply with the reporting requirements set out at K.S.A. 44-1031 and K.S.A. 44-1116; (d) to include those provisions in every subcontract or purchase order so that they are binding upon such subcontractor or vendor; (e) that a failure to comply with the reporting requirements of (c) above or if the contractor is found guilty of any violation of such acts by the Kansas Human Rights Commission, such violation shall constitute a breach of contract and the contract may be cancelled, terminated or suspended, in whole or in part, by the contracting state agency or the Kansas Department of Administration; (f) if it is determined that the contractor has violated applicable provisions of ADA, such violation shall constitute a breach of contract and the contract may be cancelled, terminated or suspended, in whole or in part, by the contracting state agency or the Kansas Department of Administration.  
  
Parties to this contract understand that the provisions of this paragraph number 5 (with the exception of those provisions relating to the ADA) are not applicable to a contractor who employs fewer than four employees during the term of such contract or whose contracts with the contracting state agency cumulatively total \$5,000 or less during the fiscal year of such agency.
6. **Acceptance Of Contract:** This contract shall not be considered accepted, approved or otherwise effective until the statutorily required approvals and certifications have been given.
7. **Arbitration, Damages, Warranties:** Notwithstanding any language to the contrary, no interpretation shall be allowed to find the State or any agency thereof has agreed to binding arbitration, or the payment of damages or penalties upon the occurrence of a contingency. Further, the State of Kansas shall not agree to pay attorney fees and late payment charges beyond those available under the Kansas Prompt Payment Act (K.S.A. 75-6403), and no provision will be given effect which attempts to exclude, modify, disclaim or otherwise attempt to limit implied warranties of merchantability and fitness for a particular purpose.
8. **Representative's Authority To Contract:** By signing this contract, the representative of the contractor thereby represents that such person is duly authorized by the contractor to execute this contract on behalf of the contractor and that the contractor agrees to be bound by the provisions thereof.
9. **Responsibility For Taxes:** The State of Kansas shall not be responsible for, nor indemnify a contractor for, any federal, state or local taxes which may be imposed or levied upon the subject matter of this contract.
10. **Insurance:** The State of Kansas shall not be required to purchase, any insurance against loss or damage to any personal property to which this contract relates, nor shall this contract require the State to establish a "self-insurance" fund to protect against any such loss or damage. Subject to the provisions of the Kansas Tort Claims Act (K.S.A. 75-6101 et seq.), the vendor or lessor shall bear the risk of any loss or damage to any personal property in which vendor or lessor holds title.
11. **Information:** No provision of this contract shall be construed as limiting the Legislative Division of Post Audit from having access to information pursuant to K.S.A. 46-1101 et seq.
12. **The Eleventh Amendment:** "The Eleventh Amendment is an inherent and incumbent protection with the State of Kansas and need not be reserved, but prudence requires the State to reiterate that nothing related to this contract shall be deemed a waiver of the Eleventh Amendment."