INVITATION TO BID

Office of the Taney County Commission
PO Box 1086
132 David Street
Forsyth, MO 65653

Bid Number __201007-109___

Bids will be opened at the Taney County Courthouse in the Commission Hearing Room in Forsyth, MO 65653 at 9:00 a.m. on the 2nd day of August 2010. Bids must be submitted on the form furnished by the County and in accordance with said specifications.

It is the intent and purpose of the County of Taney that this Invitation to Bid promotes competitive bidding.

INSTRUCTIONS FOR SUBMITTING BID IN RESPONSE TO INVITATION

ENERGIZE MISSOURI COMMUNITIES BID

Preparation of Bids:

1. All prices and notations must be in ink or typewritten. No erasure permitted. Mistakes may be crossed out and corrections typed adjacent and must be initialed and dated in ink by person signing bid. All bids must be signed with the firm name and by a responsible officer or employee. Obligations assumed by such signature must be fulfilled.
2. Bidders are expected to examine this form, attached drawings, specifications, if any, and all instructions. Failure to do so will be at the Bidder's risk.
3. It will be the duty of each officer to see that his/her proposal is delivered by the time designated in this invitation.
4. Proposals may be withdrawn on written requests received from the bidder prior to the time fixed for opening. Requests may be submitted by telefax, e-mail or telegram. Negligence on the part of the bidder in preparing his/her proposal confers no right to withdraw his/her proposal after it has been opened.
5. At the time fixed for opening of proposals, the content will be made public for the information of the bidder and others interested.

Bid Check List:

Bidders are cautioned to please check their bid very carefully, using the following Check List:

1. Any additional information, specifications, drawings, etc. should be attached.
2. Bid should be signed and dated.

Mailing Instructions:

Each bid must be enclosed in a sealed envelope, marked and addressed as follows:

Bid #201007-109
Taney County Commission
Attention: Linda Gifford
PO Box 1086
Forsyth, MO 65653

Bids will be accepted in the Taney County Commission Office until the closing date and time of July 30th, 2010 at 3:00pm. Bids may be hand delivered, mailed or sent by a courier service. Bids will be opened and read aloud on Monday, August 2nd, 2010 at 9:00a.m.at the Taney County Courthouse in the Commission Hearing Room in Forsyth, MO 65653.

Non-Exclusivity:

The Contract is non-exclusive and shall not in any way preclude the County from entering into similar agreements and/or arrangements with other vendors or from acquiring, equal or like goods and/or services from other entities or sources.

Additional Information:

Any additional information desired may be requested by mail to the address listed, or by telephone to 417-546-7281. Information requests may also be e-mailed to lindag@co.taney.mo.us. This e-mail address is for information requests only and shall not be used for submission of proposals or modifications to proposals. Such submissions will be rejected and deleted without notification to the sending party.

Response Clarification:

We reserve the right to request additional written or oral information from bidders in order to obtain clarification of their responses.

Refusal of Bid:

The Taney County Commission reserves the right to reject any or all bids either in whole or in part.

Thank you for your consideration of this Invitation to Bid,
THE TANEY COUNTY PURCHASING DEPARTMENT

Specifications

-All bid specifications are written based on the strict requirements of the grant, and preferences of the customer.

-Bidders are cautioned to read these specifications carefully

-All products must meet requirements of Buy American Act 1933 and/or American Reinvestment and Recovery Act 2009

-Bidders must supply certification that products meet the Buy American Act and/or ARRA.

-All bids shall be accompanied by appropriate manufacturer specifications (eg. cut sheets and material data sheets)

-Four foot T8 lamps and four foot instant start ballasts must be shown to meet the reduced wattage T8 requirements of the Consortium for Energy Efficiency.

-If a product does not meet the specifications the bid will not be accepted

-Review process- All bids will be reviewed and verified that the products meet the requirements.

-Material quantities are estimated

-Bidders must be able to provide partial shipments of material until job completion

Lamps

-Lamps must be tested in accordance with the appropriate IESNA and ANSI reference standards, and must meet OSHA/NRTL and UL safety guidelines.

Linear Fluorescent Lamps

-All 4 foot T8 lamps must meet reduced wattage T8 requirements in accordance with the Consortium for Energy Efficiency.

-All lamps shall have a 3 year manufacturer warranty

-Lamp system warranty must cover lamps that are on occupancy sensors.

-4' T8 lamps shall be 28 watts and perform as follows:
- -Have a minimum mean lumen per watt of 90
- -Color rendering index of 85 or more
- -Minimum initial lamp lumens of 2725 or more

-Minimum mean lamp lumens of 2562 or more
-Lamps must have an average rated 3hr/start life of at least 24,000 hours and 12hr/start life of 30,000 hrs on an instant start ballast. 3 hr/start of 36,000 hours and 12hr/start of 42,000 on a rapid start ballast.
-Medium bi-pin base
-Color temperature as specified by the bid list

-2 foot T8 lamps must meet the following specifications:
-17 watt
-24 inch nominal length
-Medium bi-pin base
-4100 K color temperature
-Color rendering index of 86 or more
-Minimum initial lamp lumens of 1350 or more
-Minimum mean lamp lumens of 1280 or more
- Lamps must have an average rated life of 20,000 hours

U-Lamps
-4 foot T8 U-lamps shall meet the following specifications:
-32 watt
-Medium bi-pin base
-4100 K color temperature
-Color rendering index of 85 or more
-Minimum initial lamp lumens of 2850 or more
-Minimum mean lamp lumens of 2622 or more
-20,000 hour rated life
-6 inch spacing

Compact Fluorescent Lamps
-Self-ballasted lamps must meet Energy Star requirements and have Energy Star rating

-15 watt spiral type CFLs shall meet the following specifications:
-Lamp shape shall be T3 spiral
-950 or more initial lumens
-63 or more nominal initial lumens per watt
-4100 K color temperature
-CRI of 82 or more
-120 volt input voltage
-8000 hr rated life
-Medium screw base
-UL listed

-20 watt spiral type CFLs shall meet the following specifications:
-Lamp shape shall be T3
-1200 or more initial lumens
-60 or more nominal initial lumens per watt

-4100 K color temperature
-CRI of 82 or more
-120 volt input voltage
-8000 hr rated life
-Medium screw base
-UL listed

-15 watt reflector type CFLs shall meet the following specifications:
-Lamp shape shall be R30
-750 or more initial lumens
-50 or more nominal initial lumens per watt
-2700 K color temperature
-CRI of 82 or more
-120 volt input voltage
-10,000 hr rated life
-Medium screw base
-UL listed

Ballasts

-Ballasts must be tested in accordance with the appropriate IESNA and ANSI reference standards, and must meet OSHA/NRTL and UL safety guidelines.

-All ballasts must be ROHS compliant

-All ballasts must be UL 1958 compliant for Anti-Arching

-All ballasts must be parallel lamp operation

-Ballasts must have a 5 year manufacturer warranty

-Lamp system warranty must cover lamps that are on occupancy sensors

4 foot 4 Lamp electronic ballast

-Ballast shall meet the following specifications:
-Instant start high efficiency
-120-277 volt operation
-Capable of operating 4 or 3 F28T8 lamps
-When operating 4 F28T8 lamps at 120V:
-System ballast factor shall be .87 or greater
-Power factor shall be 99% or greater
-Ballast efficacy factor of .93 or greater
-Total Harmonic Distortion shall be 10% or less
-Anti-Striation Control
-UL 55C Ambient Rating – High Temperature Protection Circuit

4 foot 2 Lamp electronic ballast

-Ballast shall meet the following specifications:
- -Instant start high efficiency
- -120-277 volt operation
- -Capable of operating 2 or 1 F28T8 lamps
- -When operating 2 F28T8 lamps at 120V:
  - -System ballast factor shall be .87 or greater
  - -Power factor shall be 99% or greater
  - -Ballast efficacy factor of 1.78 or greater
  - -Total Harmonic Distortion shall be 4% or less
- -Anti-Striation Control
- -UL 55C Ambient Rating – High Temperature Protection Circuit

2 foot 2 lamp electronic ballast

-Ballast shall meet the following specifications:
- -Instant start high efficiency
- -120-277 volt operation
- -Capable of operating 2 or 1 F17T8 lamps
- -When operating 2 F17T8 lamps at 120V:
  - -System ballast factor shall be .92 or greater
  - -Power factor shall be 99% or greater
  - -Ballast efficacy factor of 2.88 or greater
  - -Total Harmonic Distortion shall be 7% or less
- -Anti-Striation Control
- -UL 55C Ambient Rating – High Temperature Protection Circuit

4 foot 4 Lamp programmed start ballast

-Ballast shall meet the following specifications:
- -Programmed start
- -120-277 volt operation
- -Capable of operating 4 or 3 F28T8 lamps
- -When operating 4 F28T8 lamps at 120V:
  - -System ballast factor shall be .83 or greater
  - -Power factor shall be 99% or greater
  - -Total Harmonic Distortion shall be 10% or less
- -Anti-Striation Control
- -Thermally protected

Fixtures

Fluorescent High-Bays

-Fluorescent high-bay fixtures shall meet the following specifications:
- -Fixture shall be 4 foot in length and include 4-54 watt T5 high-output fluorescent lamps
- -Fixture shall have an electronic ballast for 120-277 volt operation
- - Housing shall be constructed of die-formed aluminum
- - Fixture shall have a highly specular anodized MIRO® 4 aluminum reflector.

- Finish shall be 92% minimum average reflective white polyester powder coat over multi-stage iron/phosphate prepared metal.
- Fixture depth shall be 4 inches or less
- Fixture shall be UL listed as fluorescent luminaire suitable for dry or damp locations.
- Fixture shall mount suspended
-Fixture shall include suspension hangar bracket

LED Wallpacks

-20 watt LED wallpacks shall meet the following specifications:

-Light engine shall consist of two multi-chip 10 watt high-output LEDs and a constant current class 2 driver.
-Driver shall be automatic voltage sensing for120-277 volt operation
-Input watts shall be 22 watts.
-Fixture efficacy shall be 46 lumens per watt
-Light color temperature shall be 5584 K or higher
-Color accuracy shall be 70 CRI or greater
-Fixture and/or lamps shall have a 50,000 hour rated life or greater
-Fixture shall have a die cast aluminum housing, lens frame, and mounting plate
-Fixture shall have an integral cast aluminum mounting pad and external fins for optimal heat sinking
-Finish shall be bronze, chip and fade resistant polyester powder coat
-Fixture must come with a junction box for surface mounting, and a cover plate for mounting to existing box
-Fixture must be UL listed, suitable for wet locations, suitable for mounting within 4 foot of the ground
-Fixtures must comply with IESNA LM-79 testing procedures and have received the Department of Energy “Light Facts” label.
-Fixture must be Dark Sky Approved
-Fixture and light engine components must have a 5 year warranty or better

-10 watt LED wallpacks shall meet the following specifications:

-Light engine shall consist of a multi-chip 10 watt high-output LED and a constant current class 2, 120-240V, 350mA driver.
-Input watts shall be 13 watts.
-Fixture efficacy shall be 41 lumens per watt
-Light color temperature shall be 5250 K or higher
-Color accuracy shall be 92 CRI or greater
-Fixture and/or lamps shall have a 50,000 hour rated life or greater
-Fixture shall have a die cast aluminum housing, lens frame, and mounting plate
-Fixture shall have a cast aluminum thermal management system optimal heat sinking
-Finish shall be bronze, chip and fade resistant polyester powder coat
-Fixture must come with necessary hardware to be mounted to an existing recessed junction box

-Fixture must be UL listed, suitable for wet locations, suitable for mounting within 4 foot of the ground
-Fixtures must comply with IESNA LM-79 testing procedures and have received the Department of Energy "Light Facts" label.
-Fixture must be Dark Sky Approved
-Fixture and light engine components must have a 5 year warranty or better

Exit Signs

-Exit signs shall be LED type and have an input wattage of 5 watts or less
-LED lamp life shall be 20 years or more
-Unit shall have red 6 inch letters
-Unit shall be provided as universal single face/double face unit
-Unit shall have all necessary components for wall, ceiling, or end mounting
-Unit shall have snap-in directional arrows or chevrons
-Unit shall contain a solid-state constant current battery charger and Ni-Cad type battery backup, to provide at least 2 hours of emergency operation
-Unit shall allow universal 120/277 VAC operation
-Unit shall have a white, flame-rated, thermoplastic housing
-Must be UL 924 listed

Occupancy Sensors and Timers

-Occupancy sensors shall meet the following specification:

- Sensor shall be capable of detecting presence in the control area by detecting Doppler shifts in transmitted ultrasound and passive infrared heat changes.
-Sensor shall utilize Dual Sensing Verification Principle for coordination between ultrasonic and PIR technologies to reduce likelihood of false operations.

-For best results, sensor shall feature a trigger mode where the end-user can choose which technology will activate the sensor from off mode (initial), the type of detection that will reset the time delay (maintain), and the type of detection that will cause the sensor to be turned back on immediately after lights turned off due to lack of motion (re-trigger). Selection of technologies for initial, maintain, and re-trigger shall be done with DIP switches.

-Sensor shall have its trigger mode factory preset to allow for quick installation in most applications. In this default setting, both technologies must occur in order to initially activate lighting systems. Detection by either technology shall maintain lighting on, and detection by either technology shall turn lights back on after lights were turned off for five seconds or less in automatic mode and 30 seconds or less in manual mode.
-Ultrasonic sensing shall be volumetric in coverage with a frequency of 40 KHz. It shall utilize Advanced Signal Processing which automatically adjusts the detection threshold dynamically to compensate for constantly changing levels of activity and air flow throughout controlled space.

-The PIR technology shall utilize a temperature compensated, dual element sensor and a multi-element Fresnel lens. The lens shall be Poly IR4 material to offer

superior performance in the infrared wavelengths and filter short wavelength IR, such as those emitted by the sun and other visible light sources.

-The sensor shall have no minimum load requirement and shall be capable of switching from 0 to 800 Watt incandescent; 0 to 800 Watt fluorescent or 1/6 hp @ 120 VAC, 50/60Hz; and 0 to 1200 Watt fluorescent @ 230/277 VAC, 50/60Hz.

-Sensor shall feature a walk-through mode, where lights turn off three minutes after the area is initially occupied if no motion is detected after the first 30 seconds, set by DIP switch.

-Sensor shall cover up to 1,000 sq. ft. for walking motion, with a field view of 180 degree.

-Sensor shall have automatic-on or manual-on operation adjustable with DIP switch.

-Sensor shall have a time delay that is adjusted automatically or shall have a fixed time delay of five to 30 minutes, set by DIP switches.

-In automatic mode, sensor shall be capable to automatically return to automatic-on after lights are turned off manually.

-Sensor shall have the option for an audible warning that shall beep to warn the end-user before lights turn off automatically.

-Sensor shall be able to control incandescent, magnetic low voltage, electronic low voltage, and fluorescent loads.

-Switching mechanism shall be a relay(s). Sensor shall have ground wire and grounded strap for safety.

-The sensor shall be a completely self contained control system that replaces a standard toggle switch.

-To ensure quality and reliability, sensor shall be manufactured by an ISO 9002 certified manufacturing facility

-Sensor shall have standard 5-year warranty and shall be UL listed.

-Timers shall meet the following specifications:

-The digital time switch shall be programmable to turn lights off after a preset time.

-Time switch shall be a completely self-contained control system that replaces the standard toggle switch. It shall have a ground wire and ground strap for safety. Switching mechanism shall be a latching air gap relay.

-Time switch shall be compatible with all electronic ballasts, motor loads, compact fluorescent and inductive loads. Triac and other harmonic generating devices shall not be allowed.

-Time switch shall operate at universal voltages of 100-300 VAC; 50/60 Hz.

-Time switch shall have no minimum load requirement and shall be capable of controlling 0 to 800 watt incandescent, fluorescent @ 100/120 VAC, 50/60 Hz; 0 to 1200 watts fluorescent @ 230/277 VAC, 50/60 Hz; 1/6 hp @ 125 VAC.

-Time scroll feature shall allow manual overriding of the preset time-out period. Selecting time scroll UP shall allow time-out period to scroll up throughout the timer

possibilities to the maximum. Time scroll DN (down) shall allow time-out period to scroll down to minimum.

-Time switch shall have the option for a one second light flash warning at five minutes before the timer runs out and twice when the countdown reaches one minute
-Time switch shall have the option for a beep warning that shall sound every five seconds once the time switch countdown reaches one minute.

-Time switch shall have an electroluminescent backlit Liquid Crystal Display that shows the timer's countdown.

-Time switch shall fit behind a decorator style faceplate. The calibration switch for setting time-out, time scroll, one-second light flash, and beep warning shall be concealed to prevent tampering of adjustments and hardware.

-Time-out period shall be adjustable in increments of 5 minutes from 5 minutes to 1 hour, and in increments of 15 minutes from 1 hour to 12 hours.

-Time switch shall be capable of operating as an ON/OFF switch.

-For safety, the time switch shall have a 100% OFF override switch with no leakage current to the load.

-For safety, in the event there is an open circuit in the AC line such as a ballast or lamp failure, the time switch shall automatically switch to OFF mode.

-To ensure quality and reliability, time switch shall be manufactured by an ISO 9002 certified manufacturing facility

-Time switch shall have 5-year warranty and shall be UL and CUL listed.

Accessories

Retrofit Kits

-Retrofit kits shall convert existing 8 foot 2 lamp T12 fixtures to 8 foot 4 lamp T8 fixtures
-Housing shall be constructed of 20 Ga. die formed C.R.S.
-Finish shall be white powder coat with 92% minimum average reflectance
-Kit shall include programmed start (rapid start) ballast for 120 volt operation
-Retrofit Kit must be UL listed

Branson Rec- Plex LED Luminaires Specifications – Please View Attached drawing/layout

A. QUALITY ASSURANCE

Manufacturer. Light fixtures shall be obtained from a producer regularly engaged in the manufacture of light fixture types and capacities required, whose products have been in satisfactory use in similar service for not less than 3 years and with proven maximum .05% failure rate for total installation.

Standards. LED luminaires shall comply with applicable portions of NEMA standards pertaining to materials, construction, optical assemblies and fixture housings. All components shall be listed and labeled by UL. Luminaires shall be made in the USA of US and imported components and meet the Buy American Act; Section 1605 of the American Recovery Reinvestment Act (ARRA) as applicable.

B. LED Luminaire

1. **Luminaire.** Luminaire side shall be rugged cast aluminum with integral weather tight LED driver compartments and high performance aluminum heatsinks. The luminaires shall be a slim, low profile design to minimize wind load. Maximum wind load rating (EPA) shall be .60 for single luminaire, 1.20 for twin assembly at 180 degrees, 1.55 for triple assembly and 2.08 for quad assembly. Luminaire mounting housing shall be mountable to a Spaulding Lighting Proformer-XL pole, catalog number SSP30-5.0-7. The use of fans or other mechanical devices to dissipate heat will not be allowed. Luminaire shall be a single, self contained device, not requiring on-site assembly for installation. Maximum weight shall not exceed 34lbs. Luminaire shall be designed in such a manner as to prevent the buildup of water or debris on the top of the housing. Each luminaire shall have manufacturer's name, trademark, model number, serial number, and date of manufacturer permanently marked inside each unit. Identification shall also include operating voltage, rated voltage and watts/volt-ampere. Units provided with integral 9kv surge suppression protection as standard. Luminaires shall be lead-free, mercury-free and meet Restriction of Hazardous Substances (RoHS) regulations. Luminaire housing assembly shall carry a standard 10 year limited finish warranty supporting protection from ultraviolet light, abrasion, finish adhesion, corrosion and color fade. Complete luminaire shall pass 5,000 hour salt fog testing by an independent A2LA accredited lab specializing in metals evaluations. The salt fog testing must be performed in compliance with the ASTM B 117 standard, with no negative consequences.

   Manufacturer: BETA
   Model: Edge LED

2. **Finish.** Finish shall consist of an epoxy primer with a powder coat topcoat similar to the Spaulding Performer-XL pole finished in Bronze or Dark Bronze. Finish warranty shall be 10 years.

3. **Driver:**
   a. Voltage range (120-277) +/- 10% (Fluctuations of voltage shall not have any visible effect on the luminous output).
   b. Frequency 50/60 Hz.
   c. 277 volts.
   d. 350ma current driver. 525ma OR 700ma with optional 1-10v dimming also acceptable
   e. Power Factor greater than 0.90 or greater in accordance with ANSI specification C82.77-2002.
   f. Temperature: rated for -40º through +165 º F.
   g. Overheat protection, self-limited short circuit protection and overload protected.
   h. Primary shall be fused.
   i. Life rating not less than 50,000 hours.
   j. Total Harmonic Distortion (current and voltage) induced into the system shall not exceed 20 percent.
   k. Shall meet ANSI C132.2 requirements as they relate to surge suppression.
   l. Shall meet mechanical and vibration from high winds and other sources as defined by ANSI C136.31.
4. **LEDs.** LED CCT shall be 6000° Kelvin with a minimum CRI rating of 70. LED shall have a BUG rating meeting the requirements defined in Addendum A to IESNA TM-15-07. The individual LEDs shall be connected such that a loss or failure of one LED will not result in the loss of the entire luminaire. The LED and associated circuitry shall prevent perceptible flicker to the unaided eye over the voltage range specified. Each luminaire shall contain the number of diodes indicated in the drawing.

C. Performance

Photometric Performance. The luminaire photometric performance shall produce results equal to or better than those listed in the applicable Photometric Performance Table as shown on the drawings. Luminaire published photometric testing shall be performed to IESNA LM-79-08 standards including the requirement for photometric testing to be performed by a Department of Energy recommended LED independent test lab.

Submittal. Submittal information shall include computer calculations based on the given conditions which demonstrate achievement of all required performance requirements. The computer calculations shall be done according to I.E.S. recommendations and the submitted calculations shall include point-by-point illuminance as well as listings of all indicated averages and ratios as applicable. The program used to perform the calculations

shall be identified on the submittal. Calculations shall be on a 10ft. x 10ft. grid at ground level.

Energy Performance. Submittal data shall include total kw usage for proposed luminaires. Total wattage for replacement parking lot luminaires shall not exceed 6.15kw.

LED Life Rating. Submittal data shall include predicted LED lifetime based on IESNA LM-80 criteria. Projected L70 value shall be measured at 25 degrees C. and not be less than 100,000 hours.

In addition to computer printouts and PDF files of the photometric performance, the submittal information shall include the following.

(1) Descriptive literature of primary components used

(2) Luminaire classification per ANSI designation

(3) Candlepower curves shall be provided in the I.E.S. format.

(4) IES files shall be provided using absolute photometry.

(5) Documentation that demonstrates that the LED manufacturer's maximum junction temperature for the designed life shall not be exceeded.

RESPONSE FORM:

Company Name:

_____

Address:

_____

City/Zip:

_____

Phone Number:

_____

Fax Number:

_____

Federal Tax ID:

_____

The undersigned offers to furnish and deliver the articles or services as specified at the prices and terms stated and in strict accordance with the specifications, instructions and general conditions of bidding which have been read and understood, and all of which are made part of this order.

Authorized Representative (Sign by Hand)

_____

Type or Print Signed Name:

_____

Today's Date:

_____

Pricing Page

	Item	Quantity	Unit Price	Total Cost
1.	F28T8 Lamps	4,292	$	$

Each entity may choose their color temperature, please indicate below if there is a price difference and give the total unit price.

Item – Color Temperature	Unit Price
F28T8 Lamps - 3000	**$**
F28T8 Lamps - 3500	**$**
F28T8 Lamps - 4100	**$**
F28T8 Lamps - 5000	**$**

	Item	Quantity	Unit Price	Total Cost
2.	F17T8 Lamps	48	$	$
3.	F32T8 U-Lamps	9	$	$
4.	15 watt spiral CFLs	**68**	$	$
5.	20 watt spiral CFLs	26	$	$
6.	15R30 CFLs	163	$	$

	Item	Quantity	Unit Price	Total Cost
7.	4’ 4-Lamp ballast(instant start)	914	$	$
8.	4’ 2-Lamp ballast(instant start)	127	$	$
9.	2’ 2-Lamp ballast(instant start)	24	$	$
10.	4’ 4-Lamp ballast(rapid start)	26	$	$

	Item	Quantity	Unit Price	Total Cost
11.	Fluorescent High-Bays	12	$	$
12.	10 watt LED wallpacks	23	$	$
13.	20 watt LED wallpacks	29	$	$
14.	Retrofit Kits	88	$	$
15.	Occupancy sensors	26	$	$
16.	Timers	25	$	$
17.	Exit signs	50	$	$

Branson Rec-Plex Luminaire Schedule – Please view attached drawing/layout

Quantity	Item	Unit Price	Total Cost
8	T4 80 LED Fixture	$	$
8	T3 80 LED Fixture	$	$
28	T5 80 LED Fixture	$	$
8	T5 120 LED Fixture	$	$
12	T5 80 LED Fixture	$	$